

Owner's Manual & Safety Instructions

Save This Manual Keep this manual for the safety warnings and precautions, assembly, operating, inspection, maintenance and cleaning procedures. Write the product's serial number in the back of the manual near the assembly diagram (or month and year of purchase if product has no number). Keep this manual and the receipt in a safe and dry place for future reference.

17e

VULCAN™

180A MIG GUN



Visit our website at: <http://www.harborfreight.com>
Email our technical support at: productsupport@harborfreight.com

63792

When unpacking, make sure that the product is intact and undamaged. If any parts are missing or broken, please call 1-888-866-5797 as soon as possible.

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No portion of this manual or any artwork contained herein may be reproduced in any shape or form without the express written consent of Harbor Freight Tools. Diagrams within this manual may not be drawn proportionally. Due to continuing improvements, actual product may differ slightly from the product described herein.
Tools required for assembly and service may not be included.

⚠ WARNING

**Read this material before using this product.
Failure to do so can result in serious injury.
SAVE THIS MANUAL.**

WARNING SYMBOLS AND DEFINITIONS

	This is the Safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all Safety messages that follow this symbol to avoid possible injury or death.
	Indicates a hazardous situation which, if not avoided, will result in death or serious injury.
	Indicates a hazardous situation which, if not avoided, could result in death or serious injury.
	Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
	Addresses practices not related to personal injury.

IMPORTANT SAFETY INFORMATION

WARNING

Read all Safety warnings and instructions.

Failure to follow the warnings and instructions may result in electric shock, fire and/or serious injury.

Save all warnings and instructions for future reference.

General Safety

PROTECT yourself and others. Read and understand this information.

- Before use, read and understand manufacturer's instructions, Material Safety Data Sheets (MSDS's), employer's Safety practices, ANSI Z49.1, and welder instructions.**
- Keep out of reach of children.**
Keep children and bystanders away while operating.
- Place the welder on a stable location before use.**
If it falls while plugged in, severe injury, electric shock, or fire may result.
- Do not overreach.**
Keep proper footing and balance at all times.
- Stay alert, watch what you are doing and use common sense when operating a welder.**
Do not use a welder while you are tired or under the influence of drugs, alcohol or medication.
A moment of inattention while operating welders may result in serious personal injury.
- Avoid unintentional starting.** Make sure you are prepared to begin work before turning on the Welder.
- Never leave the Welder unattended while energized.** Turn power off if you have to leave.
- The warnings, precautions, and instructions discussed in this instruction manual cannot cover all possible conditions and situations that may occur.** It must be understood by the operator that common sense and caution are factors which cannot be built into this product, but must be supplied by the operator.
- WARNING: This product, when used for welding, plasma cutting, soldering, or similar applications, produces chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. (California Health & Safety Code § 25249.5, *et seq.*)
- WARNING: The cord of this product contains lead and/or di (2-ethylhexyl) phthalate (DEHP), chemicals known to the State of California to cause cancer, and birth defects or other reproductive harm. Wash hands after handling. (California Health & Safety Code § 25249.5, *et seq.*)

11. **Exposure to welding or cutting exhaust fumes can increase the risk of developing certain cancers, such as cancer of the larynx and lung cancer.** Also, some diseases that may be linked to exposure to welding or plasma cutting exhaust fumes are:
 - Early onset of Parkinson's Disease
 - Heart disease
 - Ulcers
 - Damage to the reproductive organs
 - Inflammation of the small intestine or stomach
 - Kidney damage
 - Respiratory diseases such as emphysema, bronchitis, or pneumonia

Use natural or forced air ventilation and wear a respirator approved by NIOSH to protect against the fumes produced to reduce the risk of developing the above illnesses.
12. **Do not use near degreasing or painting operations.**
13. **Keep head out of fumes.**
Do not breathe exhaust fumes.
14. **Use enough ventilation, exhaust at arc, or both, to keep fumes and gases from breathing zone and general area.** If engineering controls are not feasible, use an approved respirator.
15. **Work in a confined area only if it is well-ventilated, or while wearing an air-supplied respirator.**
16. **Have a recognized specialist in Industrial Hygiene or Environmental Services check the operation and air quality and make recommendations for the specific welding situation.**
Follow OSHA guidelines for Permissible Exposure Limits (PEL's) and the American Conference of Governmental Industrial Hygienists recommendations for Threshold Limit Values (TLV's) for fumes and gases.
17. **Wear ANSI-approved welding eye protection featuring at least a number 10 shade lens rating.**
18. **Wear leather leggings, fire resistant shoes or boots during use.** Do not wear pants with cuffs, shirts with open pockets, or any clothing that can catch and hold molten metal or sparks.
19. **Keep clothing free of grease, oil, solvents, or any flammable substances.**
Wear dry, insulating gloves and protective clothing.
20. **Wear an approved head covering to protect the head and neck.** Use aprons, cape, sleeves, shoulder covers, and bibs designed and approved for welding and cutting procedures.
21. **Wear an approved welding jacket or long sleeves to protect forearms from radiation burns.**
22. **When welding/cutting overhead or in confined spaces, wear flame resistant ear plugs or ear muffs to keep sparks out of ears.**
23. **Turn off, disconnect power, and discharge electrode to ground before setting down torch/electrode holder and before installing MIG gun to welder.**
24. **Turn off, disconnect power, and discharge electrode to ground before setting down torch/electrode holder and before service.**
25. **Do not touch energized electrical parts.**
Wear dry, insulating gloves. Do not touch electrode holder, electrode, welding torch, or welding wire with bare hand. Do not wear wet or damaged gloves.
26. **Do not use near water or damp objects.**
27. **People with pacemakers should consult their physician(s) before use.** Electromagnetic fields in close proximity to heart pacemaker could cause pacemaker interference or pacemaker failure.
28. **Do not expose welders to rain or wet conditions.**
Water entering a welder will increase the risk of electric shock.
29. **Do not use outdoors.**
30. **Insulate yourself from the workpiece and ground.**
Use nonflammable, dry insulating material if possible, or use dry rubber mats, dry wood or plywood, or other dry insulating material large enough to cover your full area of contact with the work or ground.
31. **Clear away or protect flammable objects.**
Remove or make safe all combustible materials for a radius of 35 feet (10 meters) around the work area. Use a fire resistant material to cover or block all open doorways, windows, cracks, and other openings.
32. **Keep ABC-type fire extinguisher near work area and know how to use it.**
33. **Maintain a safe working environment.**
Keep the work area well lit.
Make sure there is adequate surrounding workspace.
Keep the work area free of obstructions, grease, oil, trash, and other debris.
34. **Do not operate welders in atmospheres containing dangerously reactive or flammable liquids, gases, vapors, or dust.**
Provide adequate ventilation in work areas to prevent accumulation of such substances.
Welders create sparks which may ignite flammable substances or make reactive fumes toxic.

35. **If working on a metal wall, ceiling, etc., prevent ignition of combustibles on the other side by moving the combustibles to a safe location.** If relocation of combustibles is not possible, designate someone to serve as a fire watch, equipped with a fire extinguisher, during the cutting process and for at least one half hour after the cutting is completed.
36. **Do not weld or cut on materials having a combustible coating or combustible internal structure, as in walls or ceilings, without an approved method for eliminating the hazard.**
37. **Do not dispose of hot slag in containers holding combustible materials.**
38. **After welding, make a thorough examination for evidence of fire.** Be aware that easily visible smoke or flame may not be present for some time after the fire has started.
39. **Do not apply heat to a container that has held an unknown substance or a combustible material whose contents, when heated, can produce flammable or explosive vapors.** Clean and purge containers before applying heat. Vent closed containers, including castings, before preheating, welding, or cutting.
40. **Unplug before maintenance.** Unplug the Welder from its electrical outlet before any inspection, maintenance, or cleaning procedures.

Gas Shielded Welding - Cylinder Safety

Cylinders can explode when damaged.

1. **Do not weld on a pressurized or closed cylinder.**
2. **Do not allow an electrode holder, electrode, welding torch, or welding wire to touch the cylinder.**
3. **Keep cylinders away from any electrical circuits, including welding circuits.**
4. **Keep protective cap in place over the valve except when the cylinder is in use.**
5. **Use only correct gas shielding equipment designed specifically for the type of welding you will do.** Maintain this equipment properly.
6. **Protect gas cylinders from heat, being struck, physical damage, slag, flames, sparks, and arcs.**
7. **Use proper procedures to move cylinders.**



SAVE THESE INSTRUCTIONS.

Specifications

Cable Length	10'
Duty Cycle	180A @ 60% (with CO ₂ gas) 150A @ 60% (with mixed gas)
Cooling	Air cooled
Processes	GMAW, GMAW pulsed, FCAW
Welding Wire Capacity	Solid Core: 0.025"/0.030"/0.035" Flux Cored: 0.030"/0.035"/0.045"

MIG/Flux-Cored Wire Setup



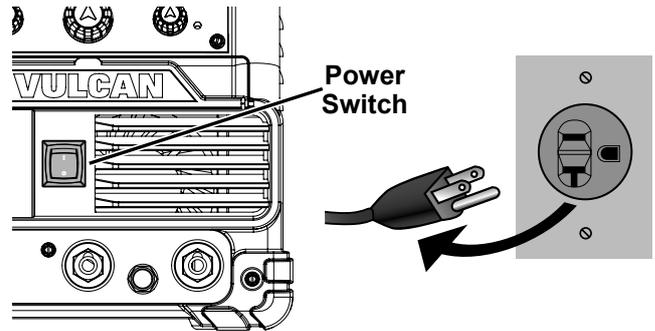
Read the **ENTIRE IMPORTANT SAFETY INFORMATION** section at the beginning of this manual including all text under subheadings therein before set up or use of this product.

WARNING

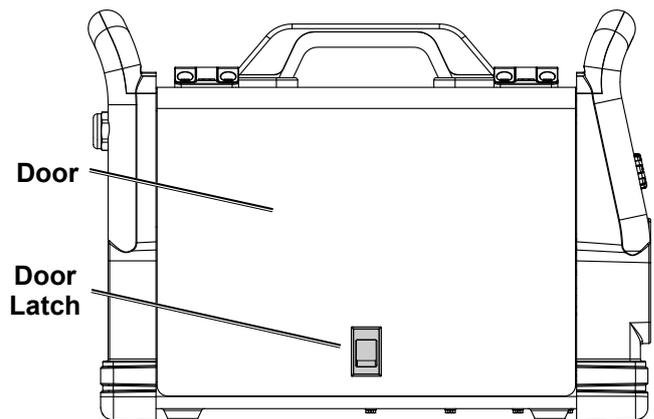
TO PREVENT SERIOUS INJURY FROM ACCIDENTAL OPERATION:
Turn the Power Switch off and unplug the Welder before setup.

Wire Spool Installation/Wire Setup

1. Turn the Power Switch OFF and unplug the Welder before proceeding.



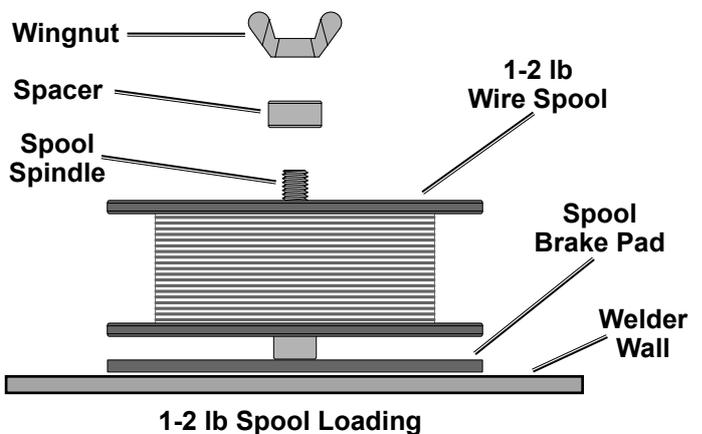
2. Pull up on the Door Latch, then open the Door.



3. **1-2 Pound Wire Spool Installation:**

Remove the Wingnut and Spacer. If replacing a Spool, remove the old Spool and all remaining wire from the liners.

4. Place the new Wire Spool over the Spool Spindle and against the Spool Brake Pad as illustrated. **To prevent wire feed problems, set the Spool so that it will unwind clockwise.**



5. Replace the Spacer over the Spool Spindle and secure Spool in place with the Wingnut.

Notice: If Wire Spool can spin freely, Wingnut is too loose. This will cause the welding wire to unravel and unspool which can cause tangling and feeding problems.

6. **10-12 Pound Wire Spool Installation:**

Remove the Wingnut and Spacer. If replacing a Spool, remove the old Spool and all remaining wire from the liners.

7. Place the Spool Adapter over the Spool Spindle and against the Spool Brake Pad as illustrated.

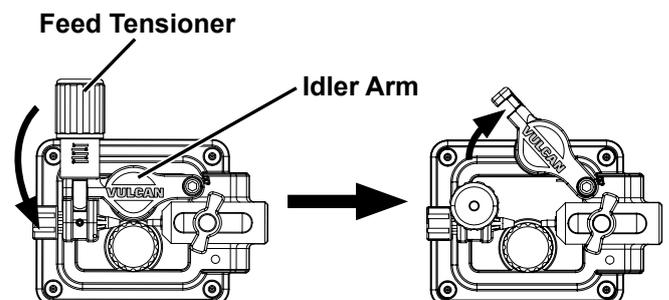
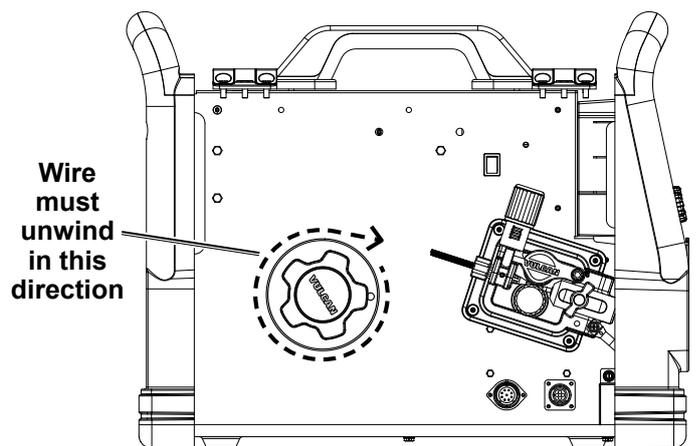
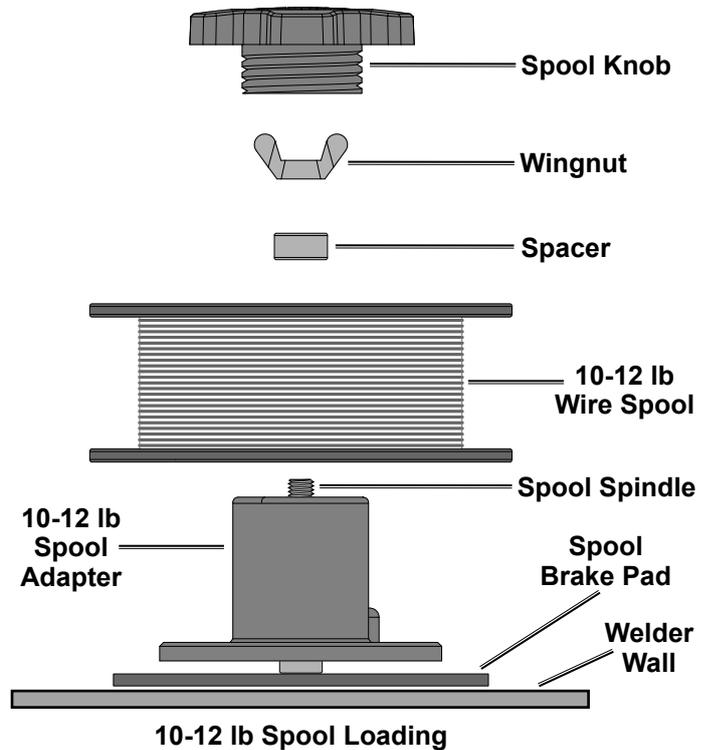
8. Place the new Wire Spool over the Adapter and line up pin on Adapter with hole in Spool. **To prevent wire feed problems, set the Spool so that it will unwind clockwise.**

9. Replace the Spacer over the Spool Spindle and secure Spool in place with the Wingnut.

Notice: If Wire Spool can spin freely, Wingnut is too loose. This will cause the welding wire to unravel and unspool which can cause tangling and feeding problems.

10. Screw the Spool Knob into the Spool Adapter.

11. Turn the Feed Tensioner knob counterclockwise to loosen it enough to pull it down to remove tension. The spring-loaded Idler Arm will move up as shown.



12. **Feed Roller Instructions:**

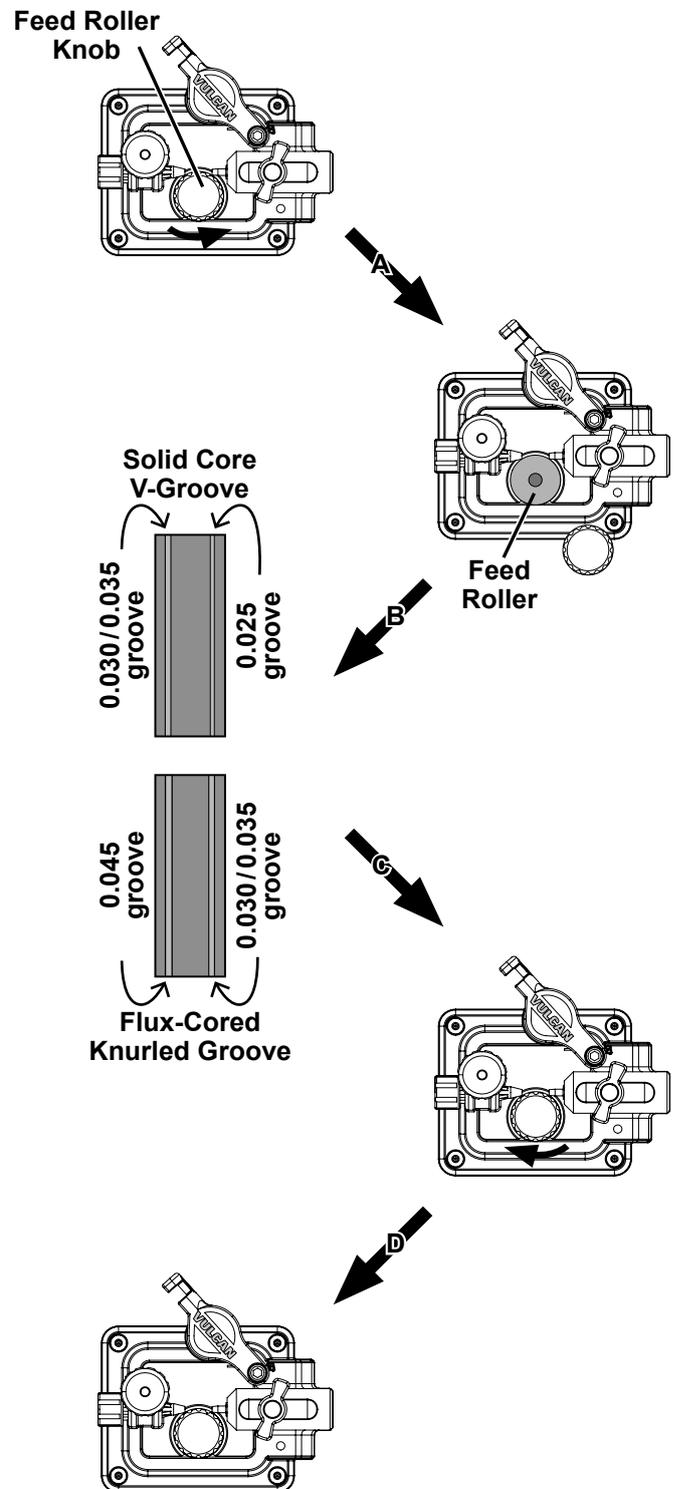
Check that the Feed Roller is correct for the type of wire being used (solid core or flux-cored) and that it is turned to properly match the wire size marked on the Wire Spool:

a. Unscrew the Feed Roller Knob counterclockwise.

b. Remove the Feed Roller Knob to expose the Feed Roller.

c. Flip or replace the Feed Roller as needed and confirm that it is the correct Roller for the type of wire being used and that **the number showing is the same as the wire diameter on the Spool.**

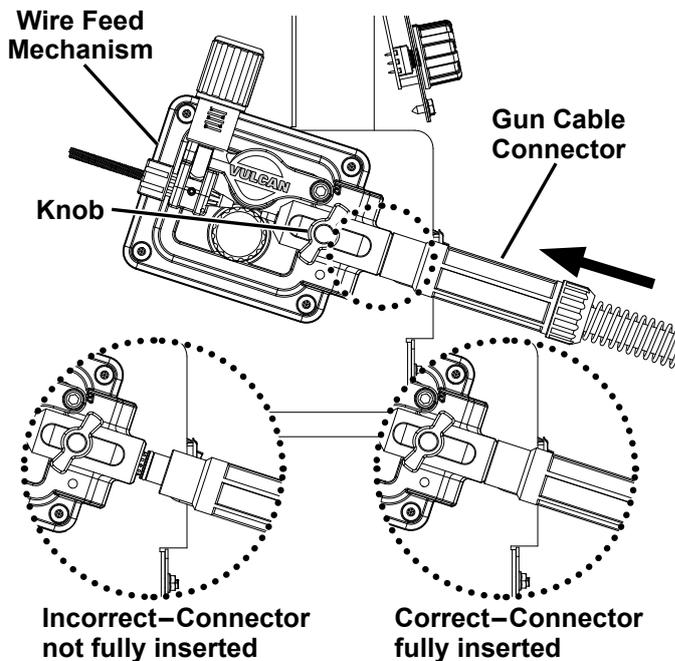
d. Screw the Feed Roller Knob back into place to secure the Feed Roller.



13. Loosen the Knob on the Wire Feed mechanism, then insert the Gun Cable Connector through the hole on the Welder front and into the socket on the Wire Feed.

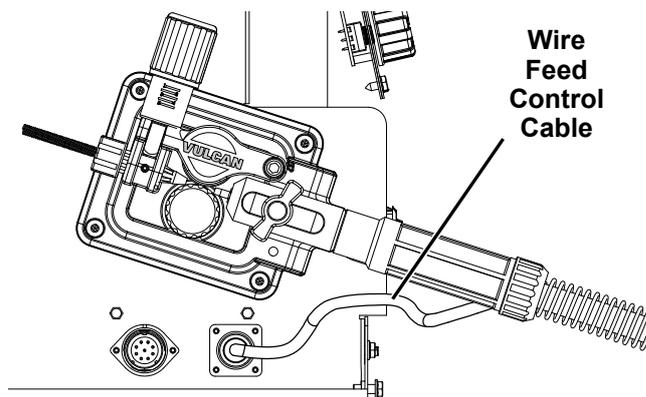
14. Ensure that the Gun Cable Connector is fully inserted into the socket on the Wire Feed mechanism as shown, then tighten the Knob securely. If Connector is not fully inserted, the gas connection will leak, preventing shielding gas from reaching the welding arc.

NOTICE: To prevent damage, do not overtighten the Knob.

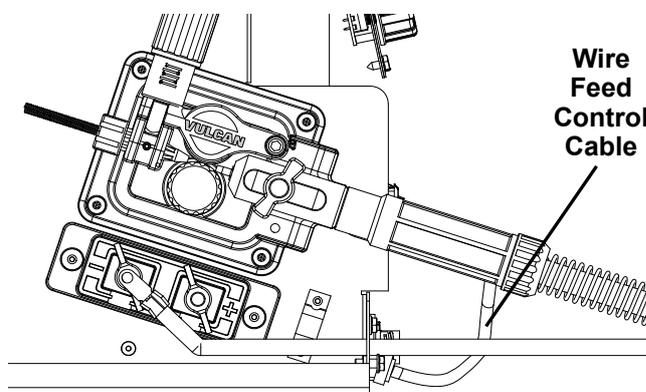


15. Wire Feed Control Cable Installation:

a. **OMNIPRO 220:** Insert the Wire Feed Control Cable through the hole on the Welder front and connect it to the Wire Feed Control Socket inside the machine, then tighten the lock ring on the Cable plug. Note that the plug on the Cable fits into the Socket in one specific orientation only.



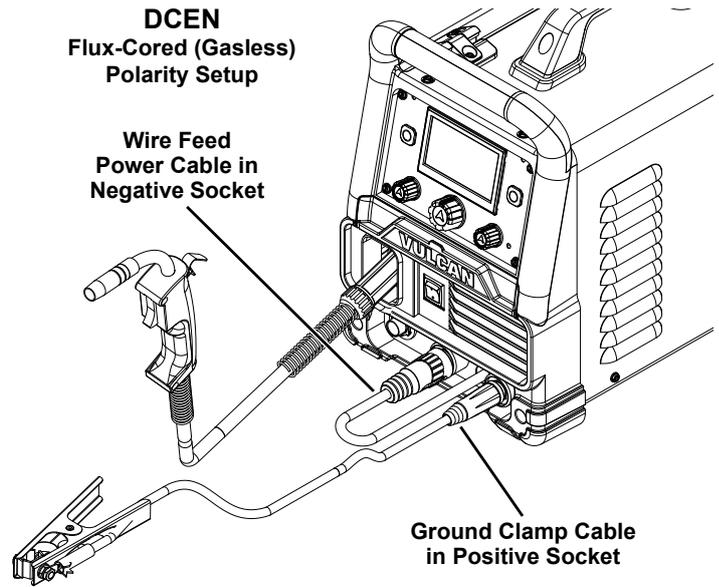
b. **MIGMAX 140 and 215:** Connect the Wire Feed Control Cable to the Wire Feed Control Socket located on the front of the machine and tighten the lock ring on the Cable plug. Note that the plug on the Cable fits into the Socket in one specific orientation only.



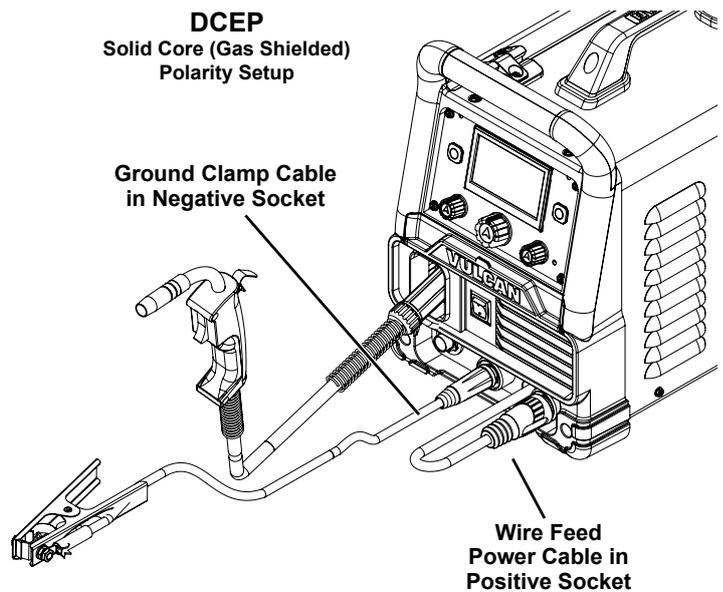
16. Polarity Setup:

a. OMNIPRO 220:

- **DCEN Direct Current Electrode Negative Wire Setup for Flux-Cored (gasless) welding:** Plug Ground Clamp Cable into Positive (+) Socket. Plug Wire Feed Power Cable into Negative (-) Socket. Twist cables clockwise all the way to lock in place.

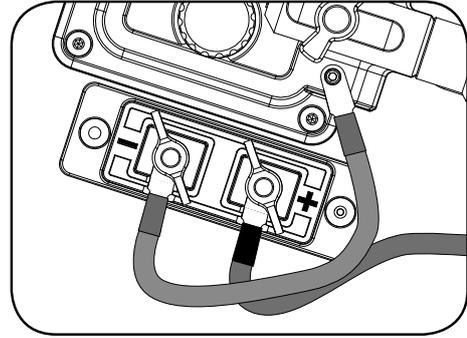


- **DCEP Direct Current Electrode Positive Wire Setup for Solid Core (gas shielded) welding:** Plug Ground Clamp Cable into Negative (-) Socket. Plug Wire Feed Power Cable into Positive (+) Socket. Twist cables clockwise all the way to lock in place.



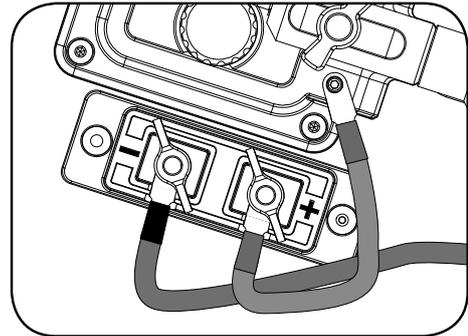
b. **MIGMAX 140 and 215:**

- **DCEN Direct Current Electrode Negative Wire Setup for Flux-Cored (gasless) welding:** Remove the two Wingnuts securing the cables. Connect the Black Ground Cable to the positive (+) Terminal using the Wingnut. Connect the Red Cable to the negative (-) Terminal using the other Wingnut. Make sure the Cable connectors sit flush in the grooves.



DCEN
Flux-Cored (Gasless) Polarity Setup

- **DCEP Direct Current Electrode Positive Wire Setup for Solid Core (gas shielded) welding:** Remove the two Wingnuts securing the cables. Connect the Black Ground Cable to the negative (-) Terminal using the Wingnut. Connect the Red Cable to the positive (+) Terminal using the other Wingnut. Make sure the Cable connectors sit flush in the grooves.



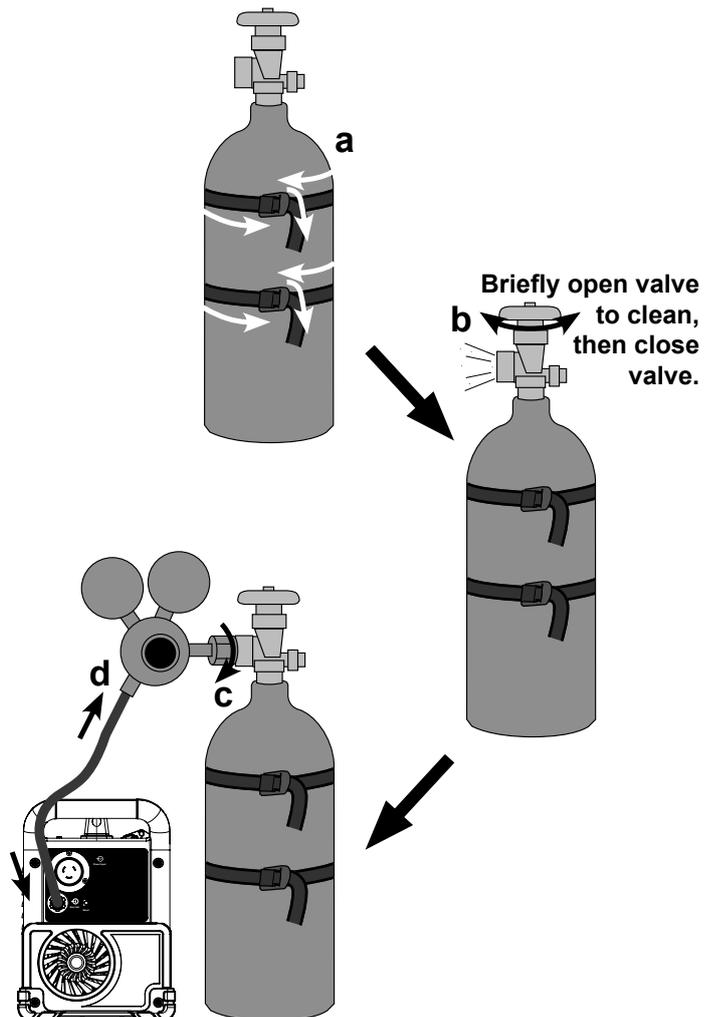
DCEP
Solid Core (Gas Shielded) Polarity Setup

17. Determine which type of shielding gas would be appropriate for the welding you will do. Refer to the Settings Chart on the inside of the Welder door.

- With assistance, set the cylinder (not included) onto a cabinet or cart near the Welder and secure the cylinder in place with two straps (not included) to prevent tipping.
- Remove the cylinder's cap. Stand to the side of the valve opening, then open the valve briefly to blow dust and dirt from the valve opening. Close the cylinder valve.
- Locate the Regulator (included) and close its valve until it is loose, then thread Regulator onto cylinder and wrench tighten connection.

Note: When using C100 shielding gas, connect the enclosed CGA 580/320 adapter to the inlet connection of the Regulator and wrench tighten. Thread the adapter onto the gas cylinder and wrench tighten.

- Attach the Gas Hose (included) to the Regulator's outlet and the Welder's gas inlet. Wrench-tighten both connections.



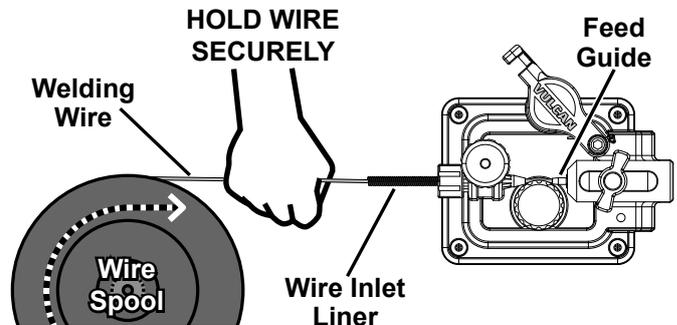
IMPORTANT

Securely hold onto the end of the welding wire and keep tension on it during the following steps.

If this is not done, the welding wire will unravel and unspool which can cause tangling and feeding problems.

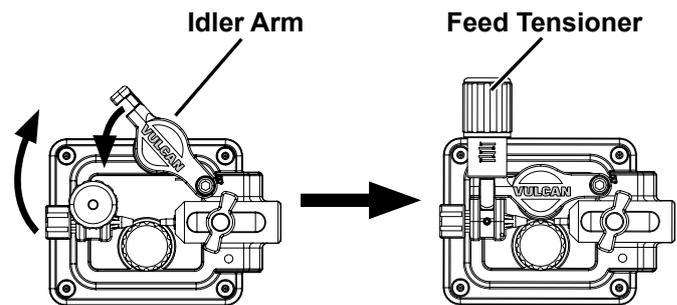
18. Cut off all bent and crimped wire. The cut end must have no burrs or sharp edges; cut again if needed.

19. Keep tension on the wire and guide at least 12 inches of wire into the Wire Inlet Liner and Feed Guide.

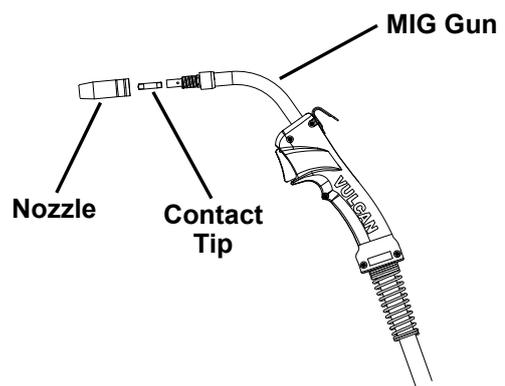


20. Make sure the welding wire is resting in the groove of the Feed Roller, then push the wire Idler Arm down, and swing the Feed Tensioner up to latch it across the tip of the arm. After the wire is held by the Tensioner, you may release it.

Note: The tension should be 3–5 for solid wire and 2–3 for flux-cored wire. Too much force on flux-cored wire will crush it and may cause feeding issues.



21. Pull the Nozzle to remove it.
22. Unscrew the Contact Tip counterclockwise and remove.
23. Lay the MIG Gun Cable out in a straight line so that the welding wire moves through it easily. Leave the cover open, so that the feed mechanism can be observed.



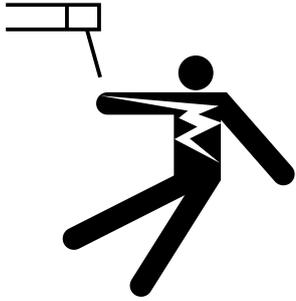
IMPORTANT

Stainless steel wire is less flexible than other welding wire. Therefore, it is more difficult to feed through the liner and gun. It is especially important to keep the gun cable straight while feeding stainless steel wire.

⚠ DANGER

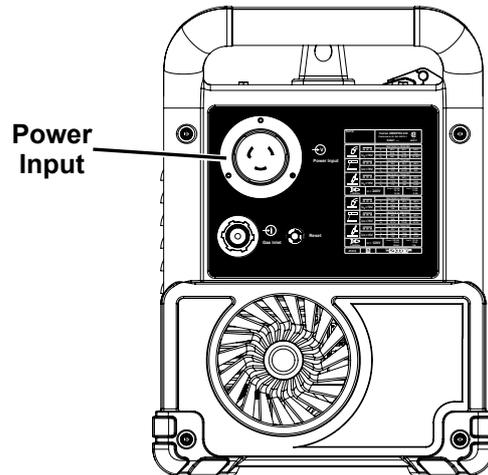
PARTS MAY BE AT WELDING VOLTAGE TO PREVENT ELECTRIC SHOCK AND DEATH:

1. Keep hands away from Wire Feed mechanism.
2. Close door before plugging in, unless using Cold Wire Feed to feed wire through to gun.
3. Do not touch Trigger while feeding wire through to gun.

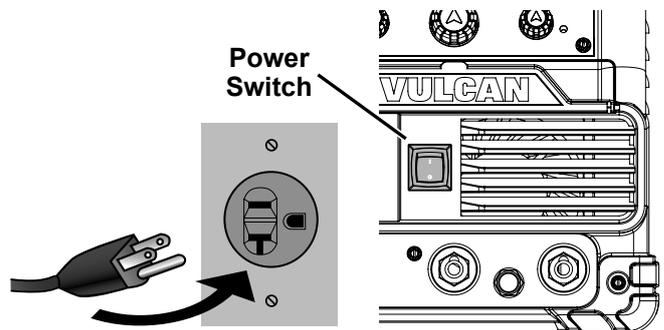


24. Plug either 120VAC or 240VAC Power Cord into Power Input Socket.

Note: Plug will only fit one way.



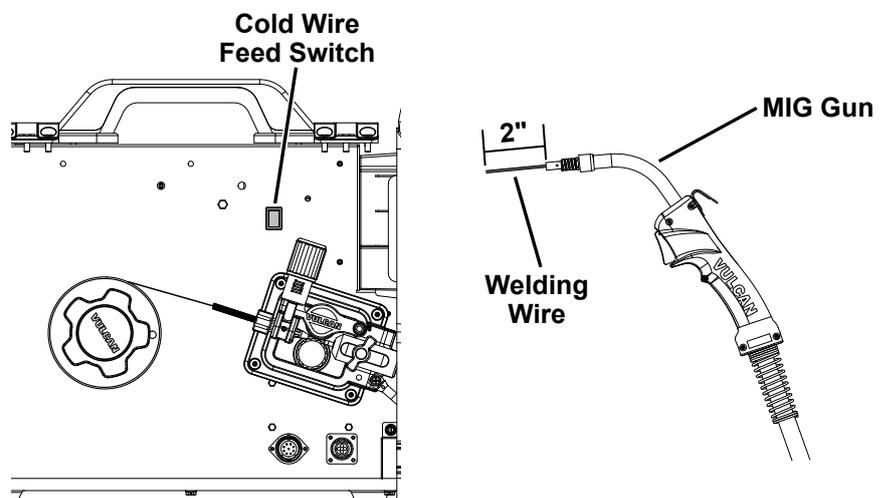
25. Do not touch the Gun's Trigger. Plug the Power Cord into a properly grounded, GFCI protected 120VAC (20 amp rated) or 240VAC receptacle that matches the plug and turn the Power Switch ON. The circuit must be equipped with delayed action-type circuit breaker or fuses.



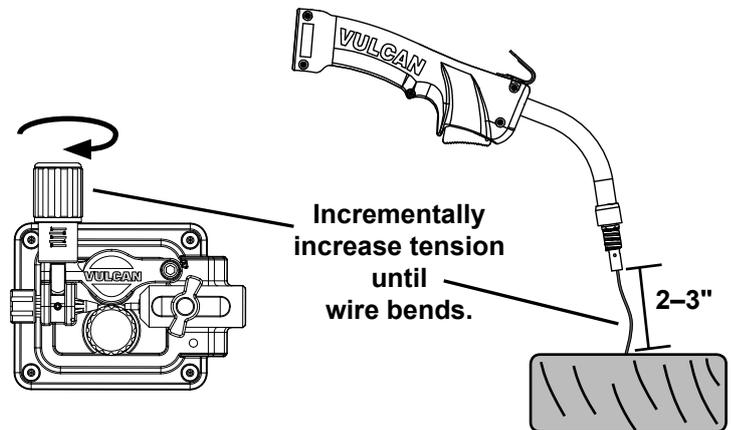
26. Point the Gun away from all objects. Press and hold the Cold Wire Feed Switch until the wire feeds through two inches.

The wire liner may come out with the welding wire. This is normal, just push the wire liner back into the Gun.

If the wire does not feed properly and the Spool is stationary, turn OFF and unplug the Welder and slightly tighten the Feed Tensioner clockwise before retrying.

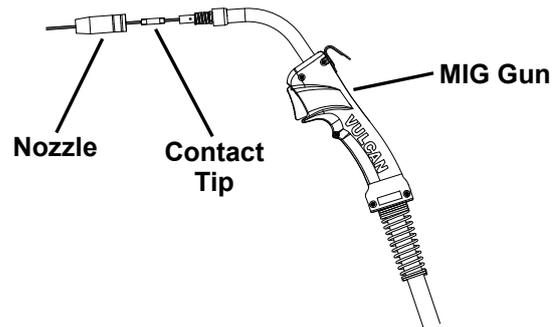


27. To check the wire's drive tension, feed the wire against a piece of wood from 2 to 3 inches away. If the wire stops instead of bending, unplug the Welder, slightly tighten the Feed Tensioner clockwise, and try again. If the wire bends from the feed pressure, then the tension is set properly. Before proceeding, turn OFF the Power Switch and unplug the Power Cord from its electrical outlet.



28. Turn OFF the Power Switch and unplug the Power Cord from its electrical outlet.

29. Select a Contact Tip that is compatible with the welding wire used. Slide the Contact Tip over the wire and thread it clockwise into the MIG Gun. Tighten the Contact Tip.



30. Replace the Nozzle and cut the wire off at 1/2" from tip (1/2" stickout).

31. Close the Welder Door. Make sure Door is securely latched.

32. **Refer to welder manual for instruction on basic wire welding techniques and safety practices.**

!WARNING



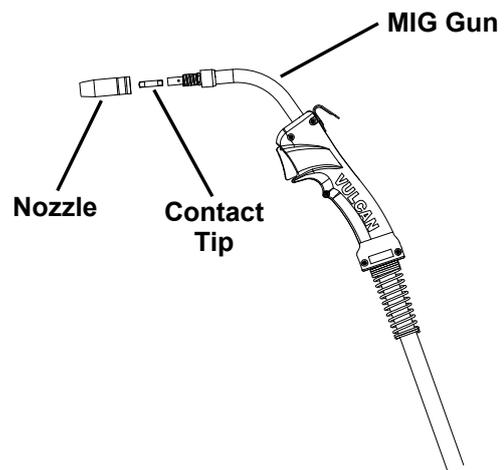
TO PREVENT SERIOUS INJURY, FIRE AND BURNS:

Unplug the Welder, rest the tool on a heat-proof, electrically non-conductive surface, and allow all parts of the Welder to cool thoroughly before service.

- BEFORE EACH USE**, inspect the general condition of the MIG Gun. Check for:
 - loose hardware
 - misalignment or binding of moving parts
 - damaged cord/electrical wiring
 - frayed or damaged cables
 - cracked or broken parts
 - any other condition that may affect its safe operation.
- AFTER EVERY USE**, store in a clean and dry location.
- For optimal MIG/Flux-Cored wire weld quality, clean and inspect the MIG Gun Contact Tip and Nozzle after each use, as explained below.**

MIG Gun Nozzle and Contact Tip Inspection and Cleaning

- Make sure that the entire MIG Gun is completely cool and that the Power Cord is unplugged from the electrical outlet before proceeding.**
- Pull the Nozzle to remove it.
- Scrub the interior of the Nozzle clean with a wire brush.
- Examine the end of the Nozzle. The end should be flat and even. If the end is uneven, chipped, melted, cracked, or otherwise damaged, the Nozzle will adversely effect the weld and should be replaced.
- Unscrew the Contact Tip counterclockwise and slide it off the welding wire to remove.
- Scrub the outside of the Tip clean with a wire brush. Clean out the inside of the tip with a tip cleaner (sold separately). Check that the Tip is the proper type for the wire size used.
- Examine the shape of the hole at the end of the Contact Tip. It should be an even circle; it should not be oblong or have any bulges in it.
- If any problems are noted, replace the Contact Tip. Select a new Tip of the correct size for the welding wire used.
- Reinstall the Tip and securely reinstall the Nozzle as well.



Limited 90 Day Warranty

Harbor Freight Tools Co. makes every effort to assure that its products meet high quality and durability standards, and warrants to the original purchaser that this product is free from defects in materials and workmanship for the period of 90 days from the date of purchase. This warranty does not apply to damage due directly or indirectly, to misuse, abuse, negligence or accidents, repairs or alterations outside our facilities, criminal activity, improper installation, normal wear and tear, or to lack of maintenance. We shall in no event be liable for death, injuries to persons or property, or for incidental, contingent, special or consequential damages arising from the use of our product. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation of exclusion may not apply to you. THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS.

To take advantage of this warranty, the product or part must be returned to us with transportation charges prepaid. Proof of purchase date and an explanation of the complaint must accompany the merchandise. If our inspection verifies the defect, we will either repair or replace the product at our election or we may elect to refund the purchase price if we cannot readily and quickly provide you with a replacement. We will return repaired products at our expense, but if we determine there is no defect, or that the defect resulted from causes not within the scope of our warranty, then you must bear the cost of returning the product.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

Record Product's Serial Number Here: _____

Note: If product has no serial number, record month and year of purchase instead.

Note: Other than consumables, replacement parts are not available for this item.



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