



OM-230693T

2026-04

Processes



MIG (GMAW) Welding



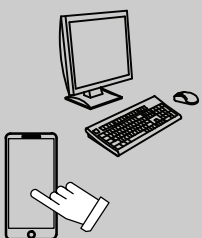
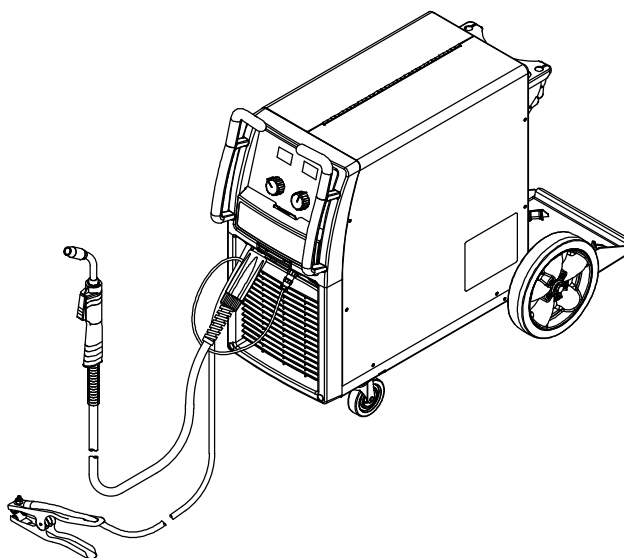
Flux Cored (FCAW) Welding

Description



Arc Welding Power Source And Wire Feeder

Millermatic® 252



For product information,
Owner's Manual translations,
and more, visit

www.MillerWelds.com

OWNER'S MANUAL

From Miller to You

Thank you and congratulations on choosing Miller. Now you can get the job done and get it done right. We know you don't have time to do it any other way.

That's why when Niels Miller first started building arc welders in 1929, he made sure his products offered long-lasting value and superior quality. Like you, his customers couldn't afford anything less. Miller products had to be more than the best they could be. They had to be the best you could buy.

Today, the people that build and sell Miller products continue the tradition. They're just as committed to providing equipment and service that meets the high standards of quality and value established in 1929.

This Owner's Manual is designed to help you get the most out of your Miller products. Please take time to read the Safety Precautions. They will help you protect yourself against potential hazards on the worksite. We've made installation and operation quick and easy. With Miller, you can count on years of reliable service with proper maintenance. And if for some reason the unit needs repair, there's a Troubleshooting section that will help you figure out what the problem is, and our extensive service network is there to help fix the problem. Warranty and maintenance information for your particular model are also provided.

Miller Electric manufactures a full line of welders and welding-related equipment. For information on other quality Miller products, contact your local Miller distributor to receive the latest full line catalog or individual specification sheets. **To locate your nearest distributor or service agency call**

1-800-4-A-Miller, or visit us at www.MillerWelds.com on the web.



Working as hard as you do – every power source from Miller is backed by the most hassle-free warranty in the business.



Miller is the first welding equipment manufacturer in the U.S.A. to be registered to the ISO 9001 Quality System Standard.



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SECTION 1 – SAFETY PRECAUTIONS – READ BEFORE USING

 Protect yourself and others from injury—read, follow, and save these important safety precautions and operating instructions.

1-1. Symbol Usage

 **DANGER!** – Indicates a hazardous situation which, if not avoided, will result in death or serious injury. The possible hazards are shown in the adjoining symbols or explained in the text.

 Indicates a hazardous situation which, if not avoided, could result in death or serious injury. The possible hazards are shown in the adjoining symbols or explained in the text.

NOTICE – Indicates statements not related to personal injury.

 Indicates special instructions.



This group of symbols means Warning! Watch Out! **ELECTRIC SHOCK, MOVING PARTS, and HOT PARTS** hazards. Consult symbols and related instructions below for necessary actions to avoid these hazards.

1-2. Arc Welding Hazards

 The symbols shown below are used throughout this manual to call attention to and identify possible hazards. When you see the symbol, watch out, and follow the related instructions to avoid the hazard. The safety information given below is only a summary of the more complete safety information found in the Principal Safety Standards. Read and follow all Safety Standards.

 Only qualified persons should install, operate, maintain, and repair this equipment. A qualified person is defined as one who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training and experience, has successfully demonstrated the ability to solve or resolve problems relating to the subject matter, the work, or the project and has received safety training to recognize and avoid the hazards involved.

 During operation, keep everybody, especially children, away.



ELECTRIC SHOCK can kill.

Touching live electrical parts can cause fatal shocks or severe burns. The electrode and work circuit is electrically live whenever the output is on.

The input power circuit and machine internal circuits are also live when power is on. In semiautomatic or automatic wire welding, the wire, wire reel, drive roll housing, and all metal parts touching the welding wire are electrically live. Incorrectly installed or improperly grounded equipment is a hazard.

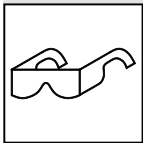
- Do not touch live electrical parts.
- Wear dry, hole-free insulating gloves and body protection.
- Insulate yourself from work and ground using dry insulating mats or covers big enough to prevent any physical contact with the work or ground.
- Do not use AC weld output in damp, wet, or confined spaces, or if there is a danger of falling.
- Do not store or use equipment in standing water.
- Use AC output **ONLY** if required for the welding process.
- If AC output is required, use remote output control if present on unit.
- Additional safety precautions are required when any of the following electrically hazardous conditions are present: in damp locations or while wearing wet clothing; on metal structures such as floors, gratings, or scaffolds; when in cramped positions such as sitting, kneeling, or lying; or when there is a high risk of unavoidable or accidental contact with the workpiece or ground. For these conditions, use the following equipment in order presented: 1) a semiautomatic DC constant voltage (wire) welding power source, 2) a DC manual (stick) welding power source, or 3) an AC welding power source with reduced open-circuit voltage. In most situations, use of a DC, constant voltage wire welding power source is recommended. And, do not work alone!
- Disconnect input power or stop engine before installing or servicing this equipment. Lockout/tagout input power according to OSHA 29 CFR 1910.147 (see Safety Standards).
- Properly install, ground, and operate this equipment according to its Owner's Manual and national, state, and local codes.
- Always verify the supply ground—check and be sure that input power cord ground wire is properly connected to ground terminal in disconnect box or that cord plug is connected to a properly grounded receptacle outlet.
- When making input connections, attach proper grounding conductor first—double-check connections.
- Keep cords dry, free of oil and grease, and protected from hot metal and sparks.
- Frequently inspect input power cord and ground conductor for damage or bare wiring—replace immediately if damaged—bare wiring can kill.
- Turn off all equipment when not in use.
- Do not use worn, damaged, undersized, or repaired cables.
- Do not drape cables over your body.
- If earth grounding of the workpiece is required, ground it directly with a separate cable.
- Do not touch electrode if you are in contact with the work, ground, or another electrode from a different machine.
- Use only well-maintained equipment. Repair or replace damaged parts at once. Maintain unit according to manual.
- Do not touch electrode holders connected to two welding machines at the same time because double open-circuit voltage can be present.
- Wear a safety harness if working above floor level.
- Keep all panels and covers securely in place.
- Clamp work cable with good metal-to-metal contact to workpiece or worktable as near the weld as practical.
- Insulate work clamp when not connected to workpiece to prevent contact with any metal object.
- Do not connect more than one electrode or work cable to any single weld output terminal. Disconnect cable for process not in use.
- Use GFCI protection when operating auxiliary equipment in damp or wet locations.



HOT PARTS can burn.

- Do not touch hot parts bare handed.
- Allow cooling period before working on equipment.
- To handle hot parts, use proper tools and/or wear heavy, insulated welding gloves and clothing to

prevent burns.



FLYING METAL OR DIRT can injure eyes.

Welding, chipping, wire brushing, and grinding cause sparks and flying metal. As welds cool, they can throw off slag.

- Wear approved safety glasses with side shields even under your welding helmet.



FUMES AND GASES can be hazardous.

Welding produces fumes and gases. Breathing these fumes and gases can be hazardous to your health.

- Keep your head out of the fumes. Do not breathe the fumes.
- Ventilate the work area and/or use local forced ventilation at the arc to remove welding fumes and gases. The recommended way to determine adequate ventilation is to sample for the composition and quantity of fumes and gases to which personnel are exposed.
- If ventilation is poor, wear an approved air-supplied respirator.
- Read and understand the Safety Data Sheets (SDSs) and the manufacturer's instructions for adhesives, coatings, cleaners, consumables, coolants, degreasers, fluxes, and metals.
- Work in a confined space only if it is well ventilated, or while wearing an air-supplied respirator. Always have a trained watchperson nearby. Welding fumes and gases can displace air and lower the oxygen level causing injury or death. Be sure the breathing air is safe.
- Do not weld in locations near degreasing, cleaning, or spraying operations. The heat and rays of the arc can react with vapors to form highly toxic and irritating gases.
- Do not weld on coated metals, such as galvanized, lead, or cadmium plated steel, unless the coating is removed from the weld area, the area is well ventilated, and the operator is wearing an air-supplied respirator. The coatings and any metals containing these elements can give off toxic fumes if welded.



BUILDUP OF GAS can injure or kill.

- Shut off compressed gas supply when not in use.
- Always ventilate confined spaces or use approved air-supplied respirator.



ARC RAYS can burn eyes and skin.

Arc rays from the welding process produce intense visible and invisible (ultraviolet and infrared) rays that can burn eyes and skin. Sparks fly off from the weld.

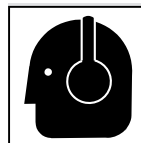
- Wear an approved welding helmet fitted with a proper shade of filter lenses to protect your face and eyes from arc rays and sparks when welding or watching (see ANSI Z49.1 and Z87.1 listed in Safety Standards).
- Wear approved safety glasses with side shields under your helmet.
- Use protective screens or barriers to protect others from flash, glare, and sparks; warn others not to watch the arc.
- Wear body protection made from leather or flame-resistant clothing (FRC). Body protection includes oil-free clothing such as leather gloves, heavy shirt, cuffless trousers, high shoes, and a cap.



WELDING can cause fire or explosion.

Welding on closed containers, such as tanks, drums, or pipes, can cause them to blow up. Sparks can fly off from the welding arc. The flying sparks, hot workpiece, and hot equipment can cause fires and burns. Accidental contact of electrode to metal objects can cause sparks, explosion, overheating, or fire. Check and be sure the area is safe before doing any welding.

- Remove all flammables within 35 ft (10.7 m) of the welding arc. If this is not possible, tightly cover them with approved covers.
- Do not weld where flying sparks can strike flammable material.
- Protect yourself and others from flying sparks and hot metal.
- Be alert that welding sparks and hot materials from welding can easily go through small cracks and openings to adjacent areas.
- Watch for fire, and keep a fire extinguisher nearby.
- Be aware that welding on a ceiling, floor, bulkhead, or partition can cause fire on the hidden side.
- Do not cut or weld on tire rims or wheels. Tires can explode if heated. Repaired rims and wheels can fail. See OSHA 29 CFR 1910.177 listed in Safety Standards.
- Do not weld on containers that have held combustibles, or on closed containers such as tanks, drums, or pipes unless they are properly prepared according to AWS F4.1 (see Safety Standards).
- Do not weld where the atmosphere can contain flammable dust, gas, or liquid vapors (such as gasoline).
- Connect work cable to the work as close to the welding area as practical to prevent welding current from traveling long, possibly unknown paths.
- Do not use welding power source to thaw frozen pipes.
- Remove stick electrode from holder or cut off welding wire at contact tip when not in use.
- Wear body protection made from leather or flame-resistant clothing (FRC). Body protection includes oil-free clothing such as leather gloves, heavy shirt, cuffless trousers, high shoes, and a cap.
- Remove any combustibles, such as a butane lighter or matches, from your person before doing any welding.
- After completion of work, inspect area to ensure it is free of sparks, glowing embers, and flames.
- Use only correct fuses or circuit breakers. Do not oversize or bypass them.
- Follow requirements in OSHA 1910.252 (a) (2) (iv) and NFPA 51B for hot work and have a fire watcher and extinguisher nearby.
- Read and understand the Safety Data Sheets (SDSs) and the manufacturer's instructions for adhesives, coatings, cleaners, consumables, coolants, degreasers, fluxes, and metals.



NOISE can damage hearing.

Noise from some processes or equipment can damage hearing.

- Check for noise level limits exceeding those specified by OSHA.
- Wear appropriate ear protection if noise level is high.
- Warn others nearby about noise hazard.



ELECTRIC AND MAGNETIC FIELDS (EMF) can affect Implanted Medical Devices.

- Wearers of pacemakers and other implanted medical devices should keep away.
- Implanted medical device wearers should consult their doctor and the device manufacturer before going near arc welding, spot welding, arc gouging, plasma arc cutting, or induction heating operations.



CYLINDERS can explode if damaged.

Compressed gas cylinders contain gas under high pressure. If damaged, a cylinder can explode. Since gas cylinders are normally part of the welding process, be sure to treat them carefully.

- Protect compressed gas cylinders from excessive heat, mechanical shocks, physical damage, slag, open flames, sparks, and arcs.
- Install cylinders in an upright position by securing to a stationary support or cylinder rack to prevent falling or tipping.
- Keep cylinders away from any welding or other electrical circuits.
- Never drape a welding torch over a gas cylinder.
- Never allow a welding electrode to touch any cylinder.

- Never weld on a pressurized cylinder—explosion will result.
- Use only correct compressed gas cylinders, regulators, hoses, and fittings designed for the specific application; maintain them and associated parts in good condition.
- Turn face away from valve outlet when opening cylinder valve. Do not stand in front of or behind the regulator when opening the valve.
- Keep protective cap in place over valve except when cylinder is in use or connected for use.
- Use the proper equipment, correct procedures, and sufficient number of persons to lift, move, and transport cylinders.
- Read and follow instructions on compressed gas cylinders, associated equipment, and Compressed Gas Association (CGA) publication P-1 listed in Safety Standards.

1-3. Additional Hazards For Installation, Operation, And Maintenance



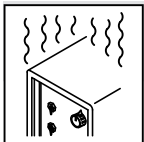
FIRE OR EXPLOSION hazard.

- Do not install or place unit on, over, or near combustible surfaces.
- Do not install unit near flammables.
- Do not overload building wiring—be sure power supply system is properly sized, rated, and protected to handle this unit.



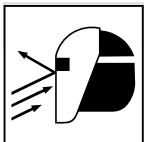
FALLING EQUIPMENT can injure.

- Use lifting eye to lift unit only, NOT running gear, gas cylinders, or any other accessories.
- Use correct procedures and equipment of adequate capacity to lift and support unit.
- If using lift forks to move unit, be sure forks are long enough to extend beyond opposite side of unit.
- Keep equipment (cables and cords) away from moving vehicles when working from an aerial location.
- Follow the guidelines in the Applications Manual for the Revised NIOSH Lifting Equation (Publication No. 94-110) when manually lifting heavy parts or equipment.



OVERUSE can cause OVERHEATING.

- Allow cooling period; follow rated duty cycle.
- Reduce output or reduce duty cycle before starting to weld again.
- Do not block or filter airflow to unit.



FLYING SPARKS can injure.

- Wear a face shield to protect eyes and face.
- Shape tungsten electrode only on grinder with proper guards in a safe location while wearing proper face, hand, and body protection.
- Sparks can cause fires—keep flammables away.



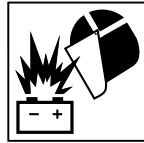
MOVING PARTS can injure.

- Keep away from moving parts.
- Keep away from pinch points such as drive rolls.



WELDING WIRE can injure.

- Do not press gun trigger until instructed to do so.
- Do not point gun toward any part of the body, other people, or any metal when threading welding wire.



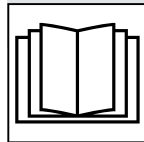
BATTERY EXPLOSION can injure.

- Do not use welding power source to charge batteries or jump start vehicles unless it has a battery charging feature designed for this purpose.



MOVING PARTS can injure.

- Keep away from moving parts such as fans.
- Keep all doors, panels, covers, and guards closed and securely in place.
- Have only qualified persons remove doors, panels, guards for maintenance and troubleshooting as necessary.
- Reinstall doors, panels, covers, or guards when maintenance is finished and before reconnecting input power.



READ INSTRUCTIONS.

- Read and follow all labels and the Owner's Manual carefully before installing, operating, or servicing unit. Read the safety information at the beginning of the manual and in each section.
- Use only genuine replacement parts from the manufacturer.
- Perform installation, maintenance, and service according to the Owner's Manuals, industry standards, and national, state, and local codes.



HF RADIATION can cause interference.

- High-frequency (HF) can interfere with radio navigation, safety services, computers, and communications equipment.
- Have only qualified persons familiar with electronic equipment perform this installation.
- The user is responsible for having a qualified electrician promptly correct any interference problem resulting from the installation.
- If notified by the FCC about interference, stop using the equipment at once.
- Have the installation regularly checked and maintained.
- Keep high-frequency source doors and panels tightly shut, keep spark gaps at correct setting, and use grounding and shielding to minimize the possibility of interference.



ARC WELDING can cause interference.

- Electromagnetic energy can interfere with sensitive electronic equipment such as microprocessors, computers, and computer-driven equipment such

as robots.

- Be sure all equipment in the welding area is electromagnetically compatible.
- To reduce possible interference, keep weld cables as short as possible, close together, and down low, such as on the floor.
- Locate welding operation 100 meters from any sensitive electronic equipment.

- Be sure this welding equipment is installed and grounded according to this manual.
- If interference still occurs, the user must take extra measures such as moving the welding equipment, using shielded cables, using line filters, or shielding the work area.

1-4. California Proposition 65 Warnings



WARNING – This product can expose you to chemicals including lead, which are known to the state of California to cause cancer and birth defects or other reproductive harm.

For more information, go to www.P65Warnings.ca.gov.

1-5. Principal Safety Standards

Safety in Welding, Cutting, and Allied Processes, American Welding Society standard ANSI Standard Z49.1. Website: www.aws.org.

Safe Practice For Occupational And Educational Eye And Face Protection, ANSI Standard Z87.1, from American National Standards Institute. Website: safetyequipment.org.

Safe Practices for the Preparation of Containers and Piping for Welding and Cutting, American Welding Society Standard AWS F4.1. Website: www.aws.org.

National Electrical Code, NFPA Standard 70 from National Fire Protection Association. Website: www.nfpa.org.

Safe Handling of Compressed Gases in Cylinders, CGA Pamphlet P-1 from Compressed Gas Association. Website: www.cganet.com.

Safety in Welding, Cutting, and Allied Processes, CSA Standard W117.2 from Canadian Standards Association. Website: www.csagroup.org.

Standard for Fire Prevention During Welding, Cutting, and Other Hot Work, NFPA Standard 51B from National Fire Protection Association. Website: www.nfpa.org.

OSHA, Occupational Safety and Health Standards for General Industry, Title 29, Code of Federal Regulations (CFR), Part 1910.177 Subpart N, Part 1910 Subpart Q, and Part 1926, Subpart J. Website: www.osha.gov.

OSHA *Important Note Regarding the ACGIH TLV, Policy Statement on the Uses of TLVs and BEIs*. Website: www.osha.gov.

Applications Manual for the Revised NIOSH Lifting Equation from the National Institute for Occupational Safety and Health (NIOSH). Website: www.cdc.gov/NIOSH.

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1-6. EMF Information

Electric current flowing through any conductor causes localized electric and magnetic fields (EMF). The current from arc welding (and allied processes including spot welding, arc gouging, plasma arc cutting, and induction heating operations) creates EMF around the welding circuit. EMF can interfere with some medical implants, e.g. pacemakers. Protective measures for persons wearing medical implants have to be taken. For example, restrict access for passersby or conduct individual risk assessment for operators. All operators should use the following procedures in order to minimize exposure to EMF fields:

1. Keep cables close together by twisting or taping them, or using a cable cover.
2. Do not place your body between cables. Arrange cables to one side and away from the operator.

3. Do not coil or drape cables around your body.
4. Keep head and trunk as far away from the equipment in the output circuit as possible.
5. Connect work clamp to workpiece as close to the arc as possible.
6. Do not work next to, sit or lean on, or carry the power source or other equipment while operating.

About Implanted Medical Devices:

Implanted Medical Device wearers should consult their doctor and the device manufacturer before performing or going near arc welding, spot welding, arc gouging, plasma arc cutting, or induction heating operations. If cleared by your doctor, follow the procedures above.

SECTION 2 – CONSIGNES DE SÉCURITÉ - LIRE AVANT UTILISATION

 Pour écarter les risques de blessure pour vous-même et pour autrui — lire, appliquer et ranger en lieu sûr ces consignes relatives aux précautions de sécurité et au mode opératoire.

2-1. Symboles utilisés

 **DANGER!** – Indique une situation dangereuse qui si on l'évite pas peut donner la mort ou des blessures graves. Les dangers possibles sont montrés par les symboles joints ou sont expliqués dans le texte.

 Indique une situation dangereuse qui si on l'évite pas peut donner la mort ou des blessures graves. Les dangers possibles sont montrés par les symboles joints ou sont expliqués dans le texte.

AVIS – Indique des déclarations pas en relation avec des blessures personnelles.

 Indique des instructions spécifiques.



Ce groupe de symboles veut dire Avertissement! Attention! DANGER DE CHOC ELECTRIQUE, PIECES EN MOUVEMENT, et PIECES CHAUDES. Reportez-vous aux symboles et aux directives ci-dessous afin de connaître les mesures à prendre pour éviter tout danger.

2-2. Dangers relatifs au soudage à l'arc

 Les symboles représentés ci-dessous sont utilisés dans ce manuel pour attirer l'attention et identifier les dangers possibles. En présence de ce symbole, prendre garde et suivre les instructions afférentes pour éviter tout risque. Les consignes de sécurité présentées ci-après ne font que résumer l'information contenue dans les Normes de sécurité principales. Lire et suivre toutes les Normes de sécurité.

 L'installation, l'utilisation, l'entretien et les réparations ne doivent être confiés qu'à des personnes qualifiées. Une personne qualifiée est définie comme celle qui, par la possession d'un diplôme reconnu, d'un certificat ou d'un statut professionnel, ou qui, par une connaissance, une formation et une expérience approfondies, a démontré avec succès sa capacité à résoudre les problèmes liés à la tâche, le travail ou le projet et a reçu une formation en sécurité afin de reconnaître et d'éviter les risques inhérents.

 Au cours de l'utilisation, tenir toute personne à l'écart et plus particulièrement les enfants.



UNE DÉCHARGE ÉLECTRIQUE peut entraîner la mort.

Le contact d'organes électriques sous tension peut provoquer des accidents mortels ou des brûlures graves. Le circuit de l'électrode et de la pièce est sous tension lorsque le courant est délivré à la sortie. Le circuit d'alimentation et les circuits internes de la machine sont également sous tension lorsque l'alimentation est sur Marche. Dans le mode de soudage avec du fil, le fil, le dérouleur, le bloc de commande du rouleau et toutes les parties métalliques en contact avec le fil sont sous tension électrique. Un équipement installé ou mis à la terre de manière incorrecte ou impropre constitue un danger.

- Ne pas toucher aux pièces électriques sous tension.
- Porter des gants isolants et des vêtements de protection secs et sans trous.
- S'isoler de la pièce à couper et du sol en utilisant des housses ou des tapis assez grands afin d'éviter tout contact physique avec la pièce à couper ou le sol.
- Ne pas utiliser de sortie de soudage CA dans des zones humides ou confinées ou s'il y a un risque de chute.
- Ne stockez pas et n'utilisez pas l'équipement dans de l'eau stagnante.
- Se servir d'une source électrique à courant électrique UNIQUEMENT si le procédé de soudage le demande.
- Si l'utilisation d'une source électrique à courant électrique s'avère nécessaire, se servir de la fonction de télécommande si l'appareil en est équipé.

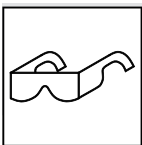
- D'autres consignes de sécurité sont nécessaires dans les conditions suivantes : risques électriques dans un environnement humide ou si l'on porte des vêtements mouillés ; sur des structures métalliques telles que sols, grilles ou échafaudages ; en position coincée comme assise, à genoux ou couchée ; ou s'il y a un risque élevé de contact inévitable ou accidentel avec la pièce à souder ou le sol. Dans ces conditions, utiliser les équipements suivants, dans l'ordre indiqué : 1) un source d'alimentation de soudage DC à tension constante (à fil), 2) un source d'alimentation de soudage DC manuel (électrode) ou 3) un source d'alimentation de soudage AC à tension à vide réduite. Dans la plupart des situations, l'utilisation d'un source d'alimentation de soudage DC à fil à tension constante est recommandée. En outre, ne pas travailler seul!
- Couper l'alimentation ou arrêter le moteur avant de procéder à l'installation, à la réparation ou à l'entretien de l'appareil. Déverrouiller l'alimentation selon la norme OSHA 29 CFR 1910.147 (voir normes de sécurité).
- Brancher correctement la mise à la terre et utiliser cet appareil conformément à son manuel d'utilisateur et aux codes nationaux, provinciaux et municipaux.
- Toujours vérifier la mise à la terre — vérifier et assurez-vous que le conducteur de mise à la terre du cordon d'alimentation est bien raccordé à la borne de mise à la terre dans le boîtier de déconnexion ou que la fiche du cordon est raccordée à une prise correctement mise à la terre.
- En effectuant les raccordements d'entrée, fixer d'abord le conducteur de mise à la terre approprié et contre-vérifier les connexions.
- Les câbles doivent être exempts d'humidité, d'huile et de graisse; protégez-les contre les étincelles et les pièces métalliques chaudes.
- Vérifier fréquemment le cordon d'alimentation et le conducteur de mise à la terre afin de s'assurer qu'il n'est pas altéré ou dénudé -, le remplacer immédiatement s'il l'est -. Un fil dénudé peut entraîner la mort.
- L'équipement doit être hors tension lorsqu'il n'est pas utilisé.
- Ne pas utiliser des câbles usés, endommagés, de grosseur insuffisante ou mal épissés.
- Ne pas enrouler les câbles autour du corps.
- Si la pièce soudée doit être mise à la terre, le faire directement avec un câble distinct.
- Ne pas toucher l'électrode quand on est en contact avec la pièce, la terre ou une électrode provenant d'une autre machine.
- N'utiliser qu'un matériel en bon état. Réparer ou remplacer sur-le-champ les pièces endommagées. Entretenir l'appareil conformément à ce manuel.

- Ne pas toucher des porte électrodes connectés à deux machines en même temps à cause de la présence d'une tension à vide doublée.
- Porter un harnais de sécurité si l'on doit travailler au-dessus du sol.
- S'assurer que tous les panneaux et couvercles sont correctement en place.
- Fixer le câble de retour de façon à obtenir un bon contact métal à métal avec la pièce à souder ou la table de travail, le plus près possible de la soudure.
- Isoler la pince de masse quand pas mis à la pièce pour éviter le contact avec tout objet métallique.
- Ne pas raccorder plus d'une électrode ou plus d'un câble de masse à une même borne de sortie de soudage. Débrancher le câble pour le procédé non utilisé.
- Utiliser une protection différentielle lors de l'utilisation d'un équipement auxiliaire dans des endroits humides ou mouillés.



LES PIÈCES CHAUDES peuvent provoquer des brûlures.

- Ne pas toucher des parties chaudes à mains nues.
- Prévoir une période de refroidissement avant de travailler à l'équipement.
- Ne pas toucher aux pièces chaudes, utiliser les outils recommandés et porter des gants de soudage et des vêtements épais pour éviter les brûlures.



DES PIÈCES DE METAL ou DES SALETES peuvent provoquer des blessures dans les yeux.

Le soudage, l'écaillage, le passage de la pièce à la brosse en fil de fer, et le meulage génèrent des étincelles et des particules métalliques volantes. Pendant la période de refroidissement des soudures, elles risquent de projeter du laitier.

- Porter des protections approuvées pour les oreilles si le niveau sonore est trop élevé.



LES FUMÉES ET LES GAZ peuvent être dangereux.

Le soudage génère des fumées et des gaz. Leur inhalation peut être dangereux pour votre santé.

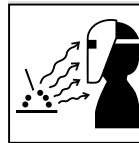
- Eloigner votre tête des fumées. Ne pas respirer les fumées.
- Ventiler la zone et/ou utiliser une ventilation forcée au niveau de l'arc pour l'évacuation des fumées et des gaz de soudage. Pour déterminer la bonne ventilation, il est recommandé de procéder à un prélèvement pour la composition et la quantité de fumées et de gaz auxquelles est exposé le personnel.
- Si la ventilation est médiocre, porter un respirateur anti-vapeurs approuvé.
- Lire et comprendre les fiches de données de sécurité et les instructions du fabricant concernant les adhésifs, les revêtements, les nettoyants, les consommables, les produits de refroidissement, les dégraissants, les flux et les métaux.
- Travailler dans un espace fermé seulement s'il est bien ventilé ou en portant un respirateur à alimentation d'air. Demander toujours à un surveillant dûment formé de se tenir à proximité. Des fumées et des gaz de soudage peuvent déplacer l'air et abaisser le niveau d'oxygène provoquant des blessures ou des accidents mortels. S'assurer que l'air de respiration ne présente aucun danger.
- Ne pas souder dans des endroits situés à proximité d'opérations de dégraissage, de nettoyage ou de pulvérisation. La chaleur et les rayons de l'arc peuvent réagir en présence de vapeurs et former des gaz hautement toxiques et irritants.
- Ne pas souder des métaux munis d'un revêtement, tels que l'acier galvanisé, plaqué en plomb ou au cadmium à moins que le revêtement n'ait été enlevé dans la zone de soudure, que l'endroit soit

bien ventilé, et de l'opérateur est portant un respirateur à alimentation d'air. Les revêtements et tous les métaux renfermant ces éléments peuvent dégager des fumées toxiques en cas de soudage.



LES ACCUMULATIONS DE GAZ risquent de provoquer des blessures ou même la mort.

- Fermer l'alimentation du gaz comprimé en cas de non utilisation.
- Veiller toujours à bien aérer les espaces confinés ou se servir d'un respirateur d'adduction d'air homologué.



LES RAYONS DE L'ARC peuvent provoquer des brûlures dans les yeux et sur la peau.

Le rayonnement de l'arc du procédé de soudage génère des rayons visibles et invisibles intenses (ultraviolets et infrarouges) susceptibles de provoquer des brûlures dans les yeux et sur la peau. Des étincelles sont projetées pendant le soudage.

- Portez un casque de soudage approuvé muni de verres filtrants appropriés pour protéger visage et yeux contre les rayons et les étincelles d'arc pendant le soudage ou la surveillance (voir ANSI Z49.1 et Z87.1 énuméré dans les Normes de Sécurité).
- Porter des lunettes de sécurité avec écrans latéraux même sous votre casque.
- Avoir recours à des écrans protecteurs ou à des rideaux pour protéger les autres contre les rayonnements les éblouissements et les étincelles ; prévenir toute personne sur les lieux de ne pas regarder l'arc.
- Porter une protection corporelle en cuir ou des vêtements ignifuges (FRC). La protection du corps comporte des vêtements sans huile, comme des gants de cuir, une chemise solide, des pantalons sans revers, des chaussures hautes et une casquette.

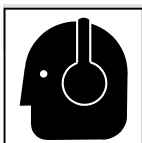


LE SOUDAGE peut provoquer un incendie ou une explosion.

Le soudage effectué sur des conteneurs fermés tels que des réservoirs, tambours ou des conduites peut provoquer leur éclatement. Des étincelles peuvent être projetées de l'arc de soudure. La projection d'étincelles, des pièces chaudes et des équipements chauds peut provoquer des incendies et des brûlures. Le contact accidentel de l'électrode avec des objets métalliques peut provoquer des étincelles, une explosion, un surchauffement ou un incendie. Avant de commencer le soudage, vérifier et s'assurer que l'endroit ne présente pas de danger.

- Déplacer toutes les substances inflammables à une distance de 10,7 m de l'arc de soudage. En cas d'impossibilité les recouvrir soigneusement avec des protections homologuées.
- Ne pas souder dans un endroit où des étincelles peuvent tomber sur des substances inflammables.
- Se protéger et d'autres personnes de la projection d'étincelles et de métal chaud.
- Des étincelles et des matériaux chauds du soudage peuvent facilement passer dans d'autres zones en traversant de petites fissures et des ouvertures.
- Surveiller tout déclenchement d'incendie et tenir un extincteur à proximité.
- Le soudage effectué sur un plafond, plancher, paroi ou séparation peut déclencher un incendie de l'autre côté.
- Ne pas couper ou souder des jantes ou des roues. Les pneus peuvent exploser s'ils sont chauffés. Les jantes et les roues réparées peuvent défailir. Voir OSHA 29 CFR 1910.177 énuméré dans les normes de sécurité.

- Ne pas effectuer le soudage sur des conteneurs fermés tels que des réservoirs, tambours, ou conduites, à moins qu'ils n'aient été préparés correctement conformément à AWS F4.1 (voir les Normes de Sécurité).
- Ne pas souder là où l'air ambiant pourrait contenir des poussières, gaz ou émanations inflammables (vapeur d'essence, par exemple).
- Brancher le câble de masse sur la pièce la plus près possible de la zone de soudage pour éviter le transport du courant sur une longue distance par des chemins inconnus éventuels.
- Ne pas utiliser le poste de soudage pour dégelier des conduites gelées.
- En cas de non utilisation, enlever la baguette d'électrode du porte-électrode ou couper le fil à la pointe de contact.
- Porter une protection corporelle en cuir ou des vêtements ignifuges (FRC). La protection du corps comporte des vêtements sans huile, comme des gants de cuir, une chemise solide, des pantalons sans revers, des chaussures hautes et une casquette.
- Avant de souder, retirer toute substance combustible de vos poches telles qu'un allumeur au butane ou des allumettes.
- Une fois le travail achevé, assurez-vous qu'il ne reste aucune trace d'étincelles incandescentes ni de flammes.
- Utiliser exclusivement des fusibles ou coupe-circuits appropriés. Ne pas augmenter leur puissance; ne pas les ponter.
- Suivre les recommandations dans OSHA 1910.252 (a) (2) (iv) et NFPA 51B pour les travaux à chaud et assurez-vous qu'un observateur d'incendie et un extincteur à proximité.
- Lire et comprendre les fiches de données de sécurité et les instructions du fabricant concernant les adhésifs, les revêtements, les nettoyants, les consommables, les produits de refroidissement, les dégraisseurs, les flux et les métaux.



Le BRUIT peut endommager l'ouïe.

Le bruit des processus et des équipements peut affecter l'ouïe.

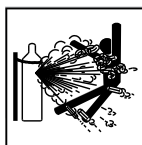
- Vérifier si les niveaux de bruit excèdent les limites spécifiées par l'OSHA.
- Porter des protections appropriée pour les oreilles si le niveau sonore est trop élevé.
- Prévenez toute personne sur les lieux du danger relié au bruit.



Les CHAMPS ÉLECTROMAGNÉTIQUES (CEM) peuvent affecter les implants médicaux.

- Les porteurs de stimulateurs cardiaques et autres implants médicaux doivent rester à distance.

- Les porteurs d'implants médicaux doivent consulter leur médecin et le fabricant du dispositif avant de s'approcher de la zone où se déroule le soudage à l'arc, du soudage par points, gouge à l'arc, de la découpe plasma ou une opération de chauffage par induction.



Si des BOUTEILLES sont endommagées, elles pourront exploser.

Des bouteilles de gaz comprimé protecteur contiennent du gaz sous haute pression. Si une bouteille est endommagée, elle peut exploser. Du fait que les bouteilles de gaz font normalement partie du procédé de soudage, les manipuler avec précaution.

- Protéger les bouteilles de gaz comprimé d'une chaleur excessive, des chocs mécaniques, des dommages physiques, du laitier, des flammes ouvertes, des étincelles et des arcs.
- Placer les bouteilles debout en les fixant dans un support stationnaire ou dans un porte-bouteilles pour les empêcher de tomber ou de se renverser.
- Tenir les bouteilles éloignées des circuits de soudage ou autres circuits électriques.
- Ne jamais placer une torche de soudage sur une bouteille à gaz.
- Une électrode de soudage ne doit jamais entrer en contact avec une bouteille.
- Ne jamais souder une bouteille pressurisée - risque d'explosion.
- Utiliser seulement des bouteilles de gaz comprimé, régulateurs, tuyaux et raccords convenables pour cette application spécifique; les maintenir ainsi que les éléments associés en bon état.
- Tourner le dos à la sortie de vanne lors de l'ouverture de la vanne de la bouteille. Ne pas se tenir devant ou derrière le régulateur lors de l'ouverture de la vanne.
- Maintenir le chapeau de protection sur la soupape, sauf en cas d'utilisation ou de branchement de la bouteille.
- Utilisez les équipements corrects, les bonnes procédures et suffisamment de personnes pour soulever, déplacer et transporter les bouteilles.
- Lire et suivre les instructions sur les bouteilles de gaz comprimé, l'équipement connexe et le dépliant P-1 de la CGA (Compressed Gas Association) mentionné dans les principales normes de sécurité.

2-3. Symboles de dangers supplémentaires en relation avec l'installation, le fonctionnement et la maintenance



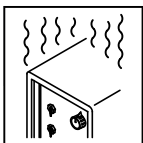
Risque D'INCENDIE OU D'EXPLOSION.

- Ne pas installer ou placer l'appareil sur, au-dessus ou à proximité de surfaces inflammables.
- Ne pas installer l'appareil à proximité de produits inflammables.
- Ne pas surcharger l'installation électrique – s'assurer que l'alimentation est correctement dimensionnée et protégée avant de mettre l'appareil en service.



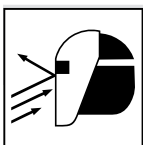
LA CHUTE DE L'ÉQUIPEMENT peut provoquer des blessures.

- Utiliser l'anneau de levage uniquement pour soulever l'appareil, NON PAS les organes de roulement, les bouteilles de gaz ou tout autre accessoire.
- Utilisez les procédures correctes et des équipements d'une capacité appropriée pour soulever et supporter l'appareil.
- En utilisant des fourches de levage pour déplacer l'unité, s'assurer que les fourches sont suffisamment longues pour dépasser du côté opposé de l'appareil.
- Tenir l'équipement (câbles et cordons) à distance des véhicules mobiles lors de toute opération en hauteur.
- Suivre les consignes du Manuel des applications pour l'équation de levage NIOSH révisée (Publication N° 94–110) lors du levage manuel de pièces ou équipements lourds.



L'EMPLOI EXCESSIF peut SURCHAUFFER L'ÉQUIPEMENT.

- Laisser l'équipement refroidir ; respecter le facteur de marche nominal.
- Réduire le courant de sortie ou le cycle opératoire avant de recommencer le soudage.
- Ne pas obstruer les passages d'air du poste.



LES ÉTINCELLES PROJÉTÉES peuvent provoquer des blessures.

- Porter un écran facial pour protéger le visage et les yeux.
- Former l'électrode au tungstène uniquement à la meuleuse dotée de protecteurs cette manoeuvre est à exécuter dans un endroit sûr lorsque l'on porte l'équipement homologué de protection du visage, des mains et du corps.
- Les étincelles risquent de causer un incendie - éloigner toute substance inflammable.



Les PIÈCES MOBILES peuvent causer des blessures.

- Ne pas s'approcher des organes mobiles.
- Ne pas s'approcher des points de coincement tels que des rouleaux de commande.



LES FILS DE SOUDAGE peuvent provoquer des blessures.

- Ne pas appuyer sur la gachette avant d'en avoir reçu l'instruction.
- Ne pas diriger le pistolet vers soi, d'autres personnes ou toute pièce mécanique en engageant le fil de soudage.



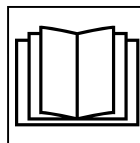
L'EXPLOSION DE LA BATTERIE peut provoquer des blessures.

- Ne pas utiliser source d'alimentation de soudage pour charger des batteries ou faire démarrer des véhicules à l'aide de câbles de démarrage, sauf si l'appareil dispose d'une fonctionnalité de charge de batterie destinée à cet usage.



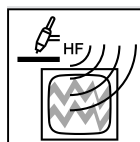
Les PIÈCES MOBILES peuvent causer des blessures.

- Rester à l'écart des organes mobiles comme le ventilateur.
- Maintenir fermés et verrouillés les portes, panneaux, recouvrements et dispositifs de protection.
- Lorsque cela est nécessaire pour des travaux d'entretien et de dépannage, faire retirer les portes, panneaux, recouvrements ou dispositifs de protection uniquement par du personnel qualifié.
- Remettre les portes, panneaux, recouvrements ou dispositifs de protection quand l'entretien est terminé et avant de rebrancher l'alimentation électrique.



LIRE LES INSTRUCTIONS.

- Lire et appliquer les instructions sur les étiquettes et le Mode d'emploi avant l'installation, l'utilisation ou l'entretien de l'appareil. Lire les informations de sécurité au début du manuel et dans chaque section.
- N'utiliser que des pièces de remplacement provenant du fabricant.
- Effectuer l'installation, l'entretien et toute intervention selon les manuels d'utilisateurs, les normes nationales, provinciales et de l'industrie, ainsi que les codes municipaux.



LE RAYONNEMENT HAUTE FRÉQUENCE (HF) risque de provoquer des interférences.

- Le rayonnement haute fréquence (HF) peut provoquer des interférences avec les équipements de radio-navigation et de communication, les services de sécurité et les ordinateurs.
- Demander seulement à des personnes qualifiées familiarisées avec des équipements électroniques de faire fonctionner l'installation.
- L'utilisateur est tenu de faire corriger rapidement par un électricien qualifié les interférences résultant de l'installation.
- Si le FCC signale des interférences, arrêter immédiatement l'appareil.
- Effectuer régulièrement le contrôle et l'entretien de l'installation.
- Maintenir soigneusement fermés les portes et les panneaux des sources de haute fréquence, maintenir les éclateurs à une distance correcte et utiliser une terre et un blindage pour réduire les interférences éventuelles.



LE SOUDAGE À L'ARC risque de provoquer des interférences.

- L'énergie électromagnétique peut gêner le fonctionnement d'appareils électroniques sensibles tels que les microprocesseurs, les ordinateurs et les équipements informatisés comme les robots.
- Veiller à ce que tout l'équipement de la zone de soudage soit compatible électromagnétiquement.
- Pour réduire la possibilité d'interférence, maintenir les câbles de soudage aussi courts que possible, les grouper, et les poser aussi bas que possible (ex. par terre).
- Veiller à souder à une distance de 100 mètres de tout équipement électronique sensible.
- Veiller à ce que ce l'équipement soit posé et mis à la terre conformément à ce mode d'emploi.
- En cas d'interférences après avoir pris les mesures précédentes, il incombe à l'utilisateur de prendre des mesures supplémentaires telles que le déplacement du poste, l'utilisation de câbles blindés, l'utilisation de filtres de ligne ou la pose de protecteurs dans la zone de travail.

2-4. Proposition californienne 65 Avertissements



AVERTISSEMENT – Ce produit peut vous exposer à des produits chimiques tels que le plomb, reconnus par l'État de Californie comme cancérigènes et sources de malformations ou d'autres troubles de la reproduction.

Pour plus d'informations, consulter www.P65Warnings.ca.gov.

2-5. Principales normes de sécurité

Safety in Welding, Cutting, and Allied Processes, American Welding Society standard ANSI Standard Z49.1. Website: www.aws.org.

Safe Practice For Occupational And Educational Eye And Face Protection, ANSI Standard Z87.1, from American National Standards Institute. Website: safetyequipment.org.

Safe Practices for the Preparation of Containers and Piping for Welding and Cutting, American Welding Society Standard AWS F4.1. Website: www.aws.org.

National Electrical Code, NFPA Standard 70 from National Fire Protection Association. Website: www.nfpa.org.

Safe Handling of Compressed Gases in Cylinders, CGA Pamphlet P-1 from Compressed Gas Association. Website: www.cganet.com.

Safety in Welding, Cutting, and Allied Processes, CSA Standard W117.2 from Canadian Standards Association. Website: www.csa-group.org.

Standard for Fire Prevention During Welding, Cutting, and Other Hot Work, NFPA Standard 51B from National Fire Protection Association. Website: www.nfpa.org.

OSHA, Occupational Safety and Health Standards for General Industry, Title 29, Code of Federal Regulations (CFR), Part 1910.177 Subpart N, Part 1910 Subpart Q, and Part 1926, Subpart J. Website: www.osha.gov.

OSHA *Important Note Regarding the ACGIH TLV, Policy Statement on the Uses of TLVs and BEIs*. Website: www.osha.gov.

Applications Manual for the Revised NIOSH Lifting Equation from the National Institute for Occupational Safety and Health (NIOSH). Website: www.cdc.gov/NIOSH.

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2-6. Informations relatives aux CEM

Le courant électrique qui traverse tout conducteur génère des champs électromagnétiques (CEM) à certains endroits. Le courant issu d'un soudage à l'arc (et de procédés connexes, y compris le soudage par points, gouge à l'arc, le découpage plasma et les opérations de chauffage par induction) crée un CEM autour du circuit de soudage. CEM produits peuvent causer interférence à certains implants médicaux, p. ex. les stimulateurs cardiaques. Des mesures de protection pour les porteurs d'implants médicaux doivent être prises. Par exemple, des restrictions d'accès pour les passants ou une évaluation individuelle des risques pour les opérateurs. Tous les opérateurs doivent appliquer les procédures suivantes pour minimiser l'exposition aux CEM provenant du circuit de soudage:

1. Rassembler les câbles en les torsadant ou en les attachant avec du ruban adhésif ou avec une housse.
2. Ne pas se tenir au milieu des câbles. Disposer les câbles d'un côté et à distance de l'opérateur.

3. Ne pas courber et ne pas entourer les câbles autour de votre corps.
4. Maintenir la tête et le torse aussi loin que possible du matériel du circuit de sortie.
5. Connecter la pince sur la pièce aussi près que possible à l'arc.
6. Ne travaillez pas à côté, ne vous asseyez pas ou ne vous appuyez pas sur, et ne transportez pas le générateur ou d'autres équipements pendant l'opération.

En ce qui concerne les implants médicaux :

Les porteurs d'implants doivent d'abord consulter leur médecin avant de s'approcher des opérations de soudage à l'arc, de soudage par points, de gouge à l'arc, du coupage plasma ou de chauffage par induction. Si votre médecin l'a autorisé, suivez les procédures ci-dessus.

SECTION 3 – SPECIFICATIONS

3-1. Serial Number And Rating Label Location

The serial number and rating information for this product is located on the back of unit. Use rating label to determine input power requirements and/or rated output. For future reference, write serial number in space provided on back cover of this manual.

3-2. Welding Power Source Specifications (240/480/575 Volt Model)

Rated Welding Output	Amperage Range	Maximum Open- Circuit Voltage DC	Amperes Input At Rated Load Output, 60 Hz, Single Phase				
			240 VAC	480 VAC	575 VAC	KVA	KW
280 A, 28.0 volts DC, 30% Duty Cycle	30-280 A	38	54.5	28.2	23.7	13.6	11.2
200 A, 24.0 volts DC, 60% Duty Cycle	30-280 A	38	49.0	25.2	21	12.2	7.4
130 A, 20.5 volts DC, 100% Duty Cycle	30-280 A	38	40.0	21.0	17.8	10.2	4.3

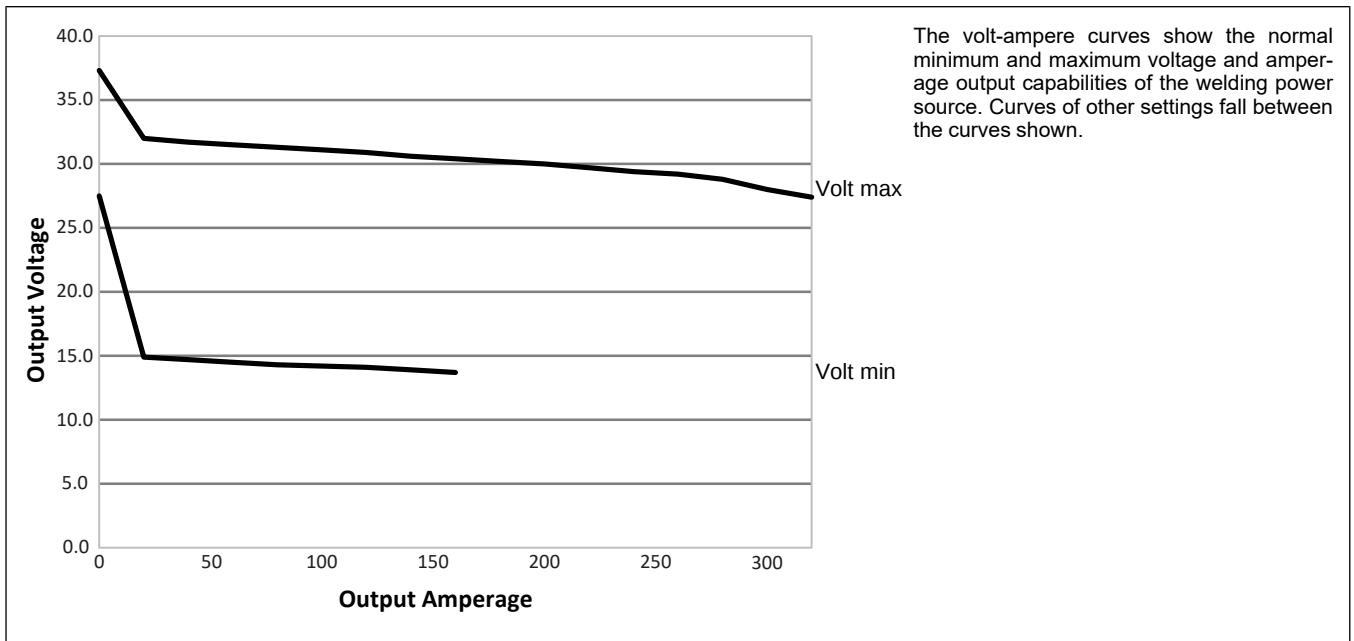
Wire Type and Diameter			Wire Feed Speed	Dimensions	Net Weight Without Gun
Solid Steel	Stainless Steel	Flux Cored	50-700 IPM (1.3-17.8 m/min)	H: 30 in. (762 mm) W: 19 in. (483 mm) D: 40 in. (1016 mm)	205 lb (93 kg)
.023 – .045 in. (0.6 – 1.2 mm)	.023 – .045 in. (0.6 – 1.2 mm)	.030 – .045 in. (0.8 – 1.2 mm)			

3-3. Welding Power Source Specifications (208/240 Volt Model)

Rated Welding Output	Amperage Range	Maximum Open- Circuit Voltage DC	Amperes Input At Rated Load Output, 60 Hz, Single Phase			
			208 VAC	240 VAC	KVA	KW
250 A, 26.5 volts DC, 40% Duty Cycle	30-300 A	38	64.2	56.4	12.6	9.4
200 A, 24.0 volts DC, 60% Duty Cycle	30-300 A	38	57.0	50.8	11.4	7.1

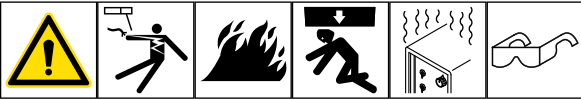
Wire Type and Diameter			Wire Feed Speed	Dimensions	Net Weight Without Gun
Solid Steel	Stainless Steel	Flux Cored	50-700 IPM (1.3-17.8 m/min)	H: 30 in. (762 mm) W: 19 in. (483 mm) D: 40 in. (1016 mm)	205 lb (93 kg)
.023 – .045 in. (0.6 – 1.2 mm)	.023 – .045 in. (0.6 – 1.2 mm)	.030 – .045 in. (0.8 – 1.2 mm)			

3-4. Volt-Ampere Curves

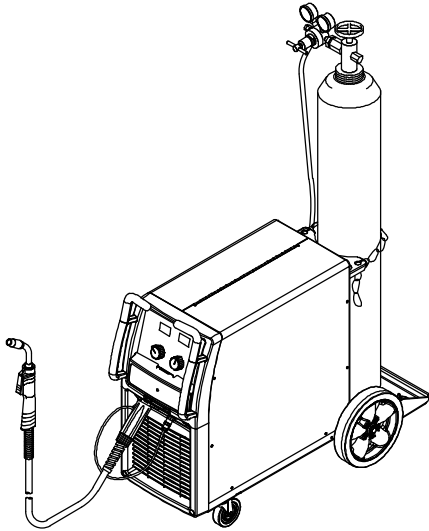


SECTION 4 – INSTALLATION

4-1. Selecting A Location



Movement



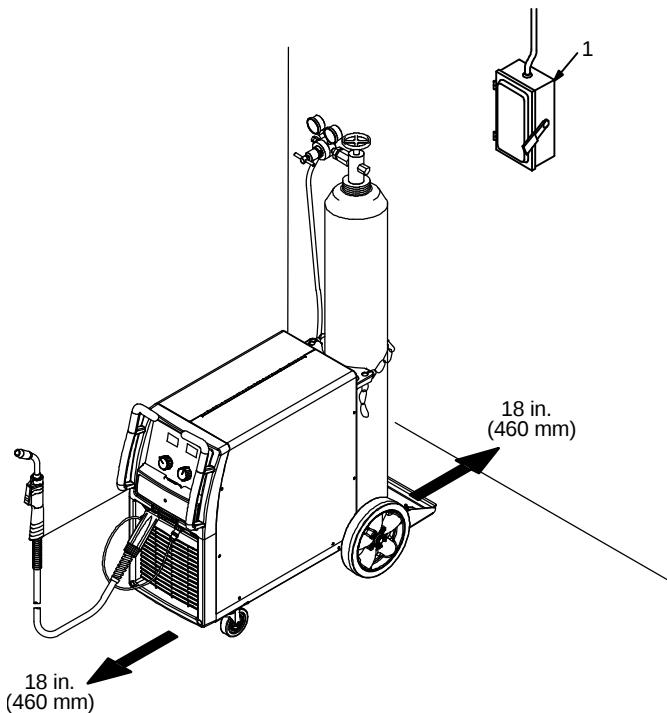
 Do not move or operate unit where it could tip.

 Special installation may be required where gasoline or volatile liquids are present - see NEC Article 511 or CEC Section 20.

1 Line Disconnect Device

Locate unit near correct input power supply.

Location And Airflow



4-2. Weld Output Terminals And Selecting Cable Sizes

⚠ Do not use worn, damaged, undersized, or repaired cables.

NOTICE – The Total Cable Length in Weld Circuit (see table below) is the combined length of both weld cables. For example, if the power source is 100 ft (30 m) from the workpiece, the total cable length in the weld circuit is 200 ft (2 cables x 100 ft). Use the 200 ft (60 m) column to determine cable size.

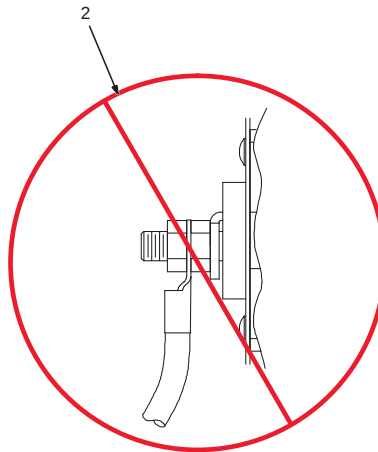
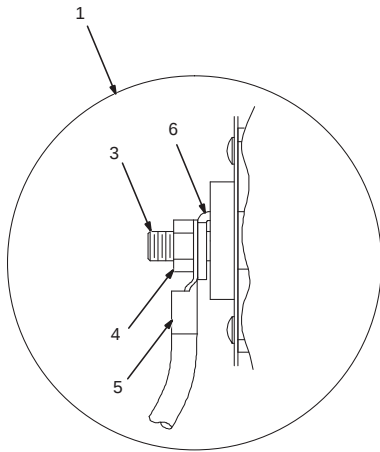
	Weld Cable Size** and Total Cable (Copper) Length in Weld Circuit Not Exceeding***							
	100 ft (30 m) or Less		150 ft (45 m)	200 ft (60 m)	250 ft (70 m)	300 ft (90 m)	350 ft (105 m)	400 ft (120 m)
Welding Amperes	10 - 60% Duty Cycle AWG (mm ²)	60 - 100% Duty Cycle AWG (mm ²)	10 - 100% Duty Cycle AWG (mm ²)					
100	4 (20)	4 (20)	4 (20)	3 (30)	2 (35)	1 (50)	1/0 (60)	1/0 (60)
150	3 (30)	3 (30)	2 (35)	1 (50)	1/0 (60)	2/0 (70)	3/0 (95)	3/0 (95)
200	3 (30)	2 (35)	1 (50)	1/0 (60)	2/0 (70)	3/0 (95)	4/0 (120)	4/0 (120)
250	2 (35)	1 (50)	1/0 (60)	2/0 (70)	3/0 (95)	4/0 (120)	2x2/0 (2x70)	2x2/0 (2x70)
300	1 (50)	1/0 (60)	2/0 (70)	3/0 (95)	4/0 (120)	2x2/0 (2x70)	2x3/0 (2x95)	2x3/0 (2x95)
350	1/0 (60)	2/0 (70)	3/0 (95)	4/0 (120)	2x2/0 (2x70)	2x3/0 (2x95)	2x3/0 (2x95)	2x4/0 (2x120)

* This chart is a general guideline and may not suit all applications. If cable overheats, use next size larger cable.

**Weld cable size (AWG) is based on either a drop of 4 volts or less or at least 300 circular mils per ampere.
() = mm² for metric use.

***For distances longer than those shown in this guide, see AWS Fact Sheet No. 39, Welding Cables, available from the American Welding Society at <http://www.aws.org>.

4-3. Connecting Weld Output Cables



- ⚠ Turn off power before connecting to weld output terminals.**
- ⚠ Failure to properly connect weld cables may cause excessive heat and start a fire, or damage your machine.**

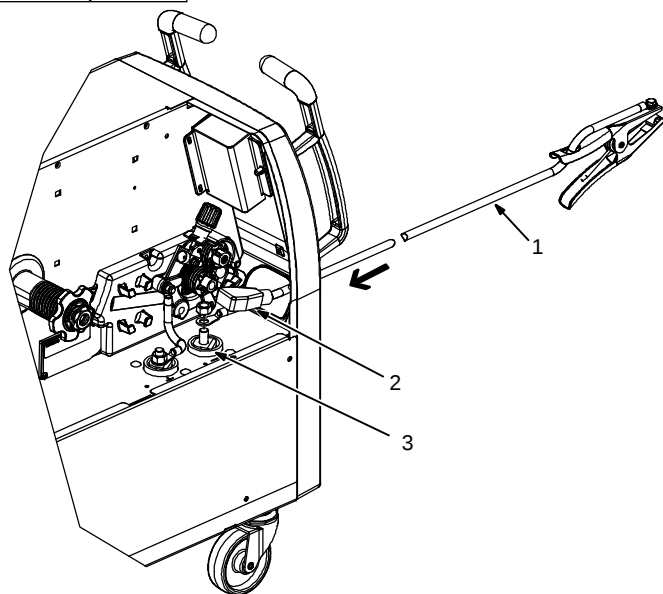
✋ Do not place anything between weld cable terminal and copper bar. Make sure that the surfaces of the weld cable terminal and copper bar are clean.

- 1 Correct Weld Cable Connection
- 2 Incorrect Weld Cable Connection
- 3 Weld Output Terminal
- 4 Supplied Weld Output Terminal Nut
- 5 Weld Cable Terminal
- 6 Copper Bar

3/4 in. (19 mm)

Remove supplied nut from weld output terminal. Slide weld cable terminal onto weld output terminal and secure with nut so that weld cable terminal is tight against copper bar.

4-4. Installing Work Cable And Clamp



1 Work Cable

2 Boot

Route cable through front panel opening.
Slide boot onto work cable.

3 Negative (-) Output Terminal

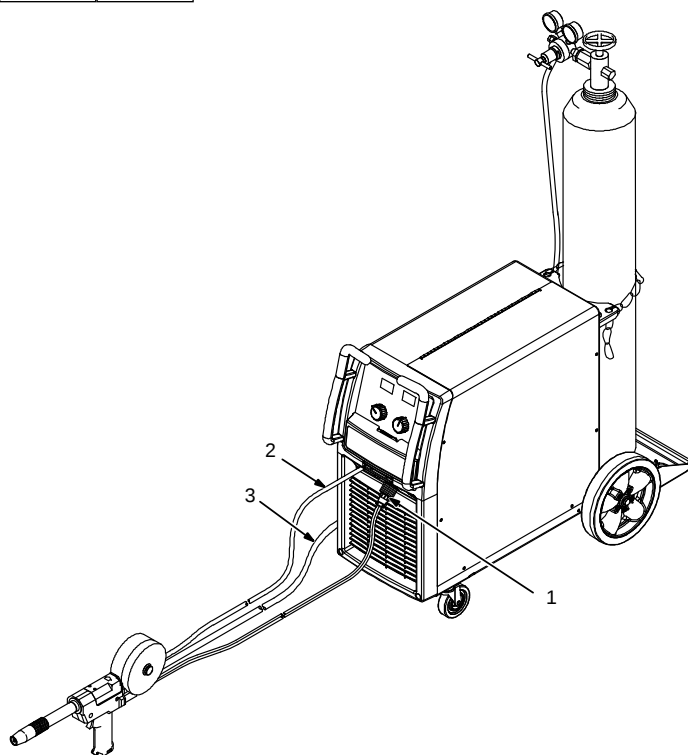
Route work cable through hole in clamp handle.
Secure cable with hardware as shown.

Close door.

804909-B

 3/4 in.

4-5. Connecting Spoolmatic® 15A Or 30A Gun



1 Gun Trigger Plug

Insert plug into receptacle, and tighten threaded collar.

2 Weld Cable

3 Shielding Gas Hose

Route weld cable through opening in front panel.

Route gas hose along side panel.

4 Positive Weld Output Terminal

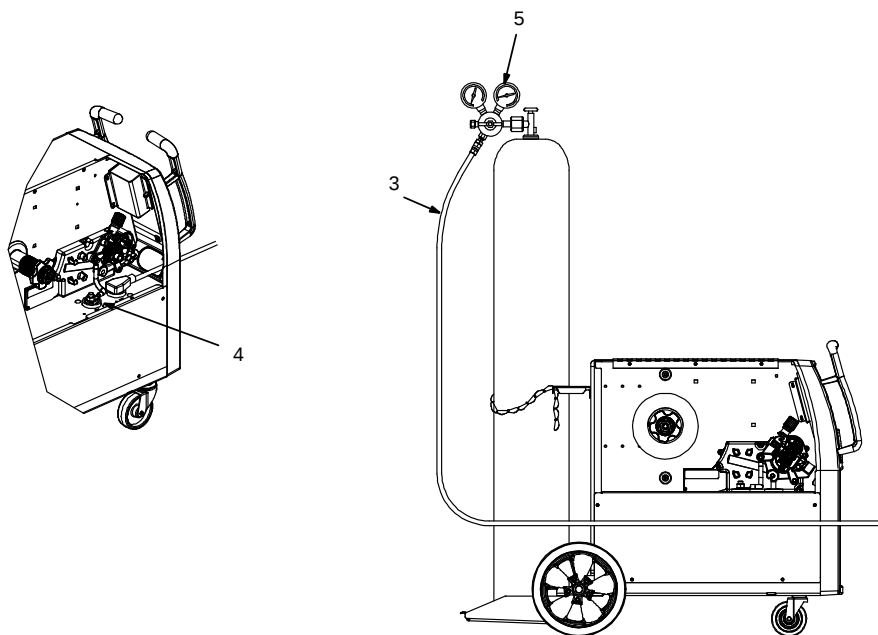
Connect weld cable to weld output terminal.

5 Regulator/Flowmeter

Route shielding gas hose up to regulator/flowmeter. Connect gas hose to fitting on regulator/flowmeter.

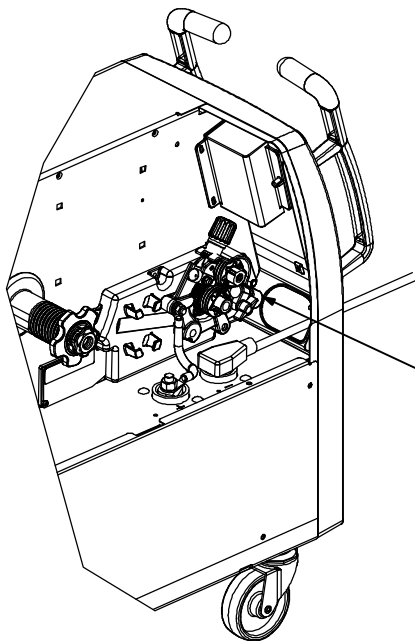
Two welding guns may be connected to the welding power source at the same time, but only one welding gun may be in use at any one time. If the triggers of both welding guns are pulled at the same time, the weld output and wire-feed motor are disabled.

 3/4, 5/8 in.



804910-B

4-6. Connecting XR Aluma-Pro, XR Aluma-Pro Lite, XR Edge, XR-A Gun, Or XR-A Python



✎ XR Edge guns prior to serial no. LE079101 require an adapter cord (part no. 195498).

- 1 Gun End
- 2 Gun Liner
- 3 Wire Outlet Guide

✎ Be sure to trim liner to proper extension.

Trim excess liner from end of gun so no more than 3/32 in. (2.4 mm) of liner extends past wire outlet guide.

- 4 Gun Securing Knob

Loosen securing knob. Insert gun end through opening until it bottoms against drive assembly (make sure gun end does not touch drive rolls). Tighten knob.

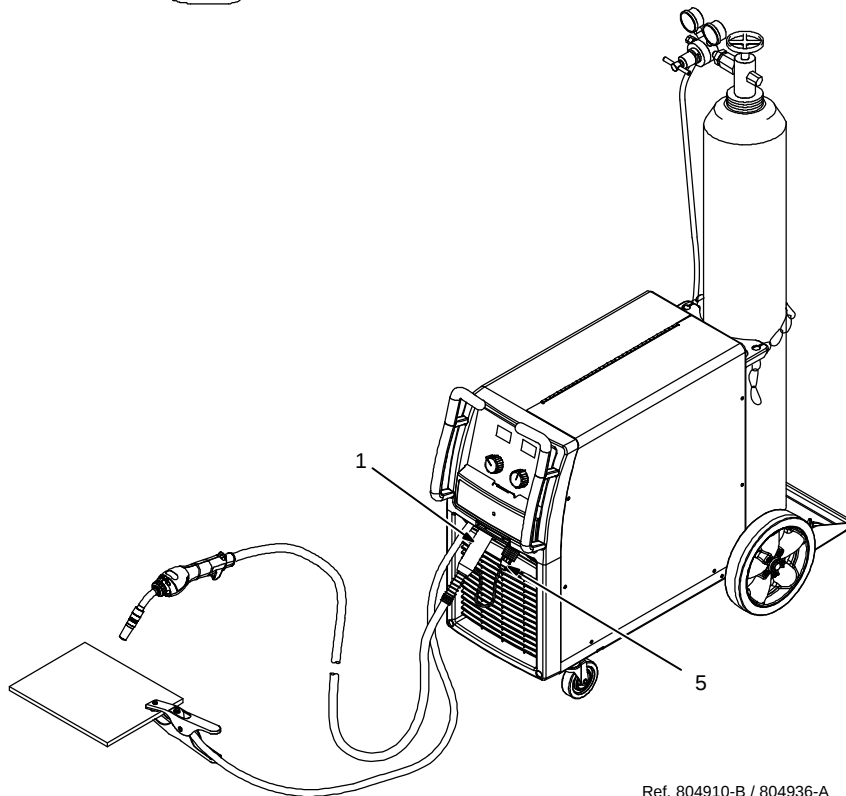
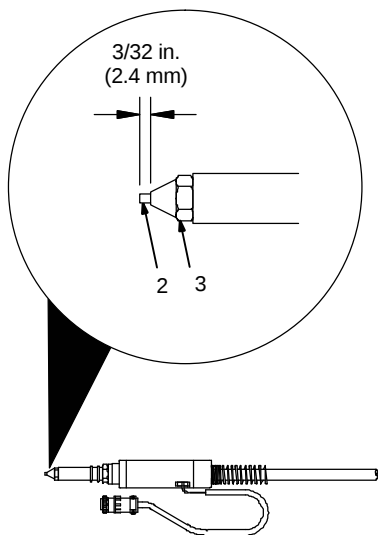
Be sure to change drive rolls to the proper size and type.

- 5 Gun Trigger Plug

Insert plug into receptacle, and tighten threaded collar.

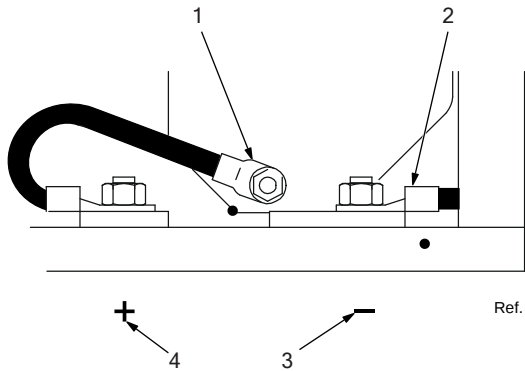
✎ If Aluma-Pro push/pull gun has a listed SUP value, set the power source to match the SUP value (see Section [5-5](#)).

🔧 3/4, 5/8 in.



Ref. 804910-B / 804936-A

4-7. Setting Gun Polarity For Wire Type



Polarity Changeover Label Information

Always read and follow manufacturer's recommended polarity.

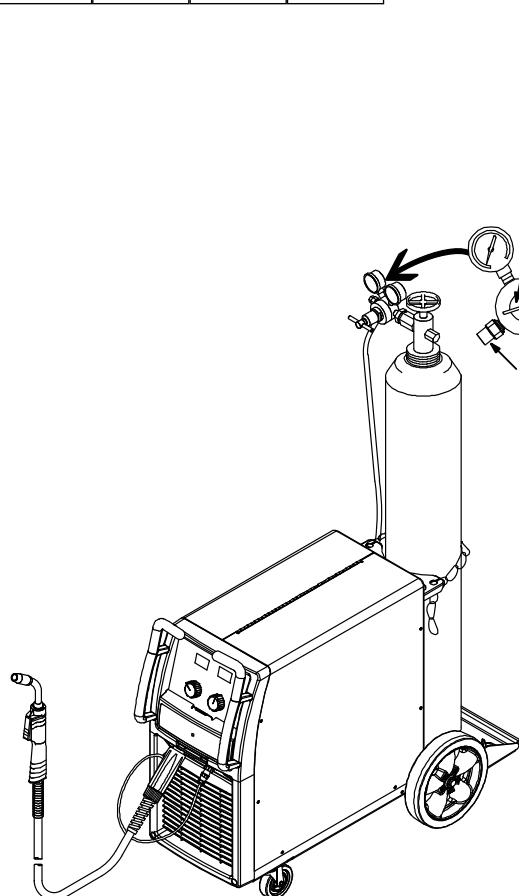
- 1 Wire Drive Assembly Lead
- 2 Work Clamp Lead
- 3 Negative Terminal
- 4 Positive Terminal

Shown as shipped - Electrode Positive (DCEP): For solid steel, stainless steel, aluminum, or flux core with gas wires (GMAW).

Electrode Negative (DCEN): Reverse lead connections at terminals from that shown above for gasless flux core wires (FCAW). Drive assembly becomes negative.

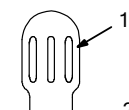
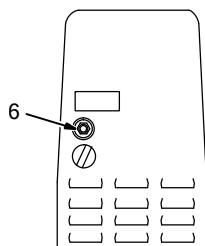
3/4, 11/16 in.

4-8. Installing Gas Supply



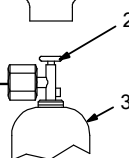
Ref. 804654-A / Ref. 804912-A

Rear Panel



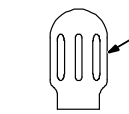
Obtain gas cylinder and chain to running gear, wall, or other stationary support so cylinder cannot fall and break off valve.

- 1 Cap
- 2 Cylinder Valve



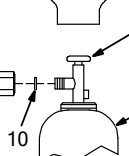
Remove cap, stand to side of valve, and open valve slightly. Gas flow blows dust and dirt from valve.

Close valve.



- 3 Argon Gas Or Mixed Gas Cylinder
- 4 Regulator/Flowmeter

2 Install so face is vertical.



- 5 Regulator/Flowmeter Gas Hose Connection
- 6 Welding Power Source Gas Hose Connection

Connect customer supplied gas hose between regulator/flowmeter gas hose connection, and fitting on rear of welding power source.

7 Flow Adjust

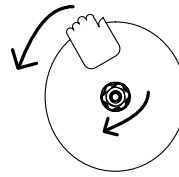
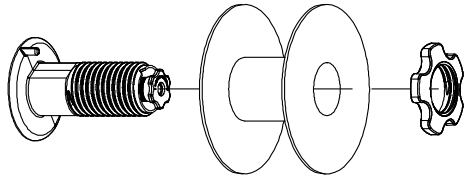
Typical flow rate is 20 cfh (cubic feet per hour). Check wire manufacturer's recommended flow rate.

- 8 CO₂ Gas Cylinder
- 9 CO₂ Adapter (Customer Supplied)
- 10 O-Ring (Customer Supplied)

Install adapter with O-ring between regulator/flowmeter and CO₂ cylinder.

1-1/8, 5/8 in.

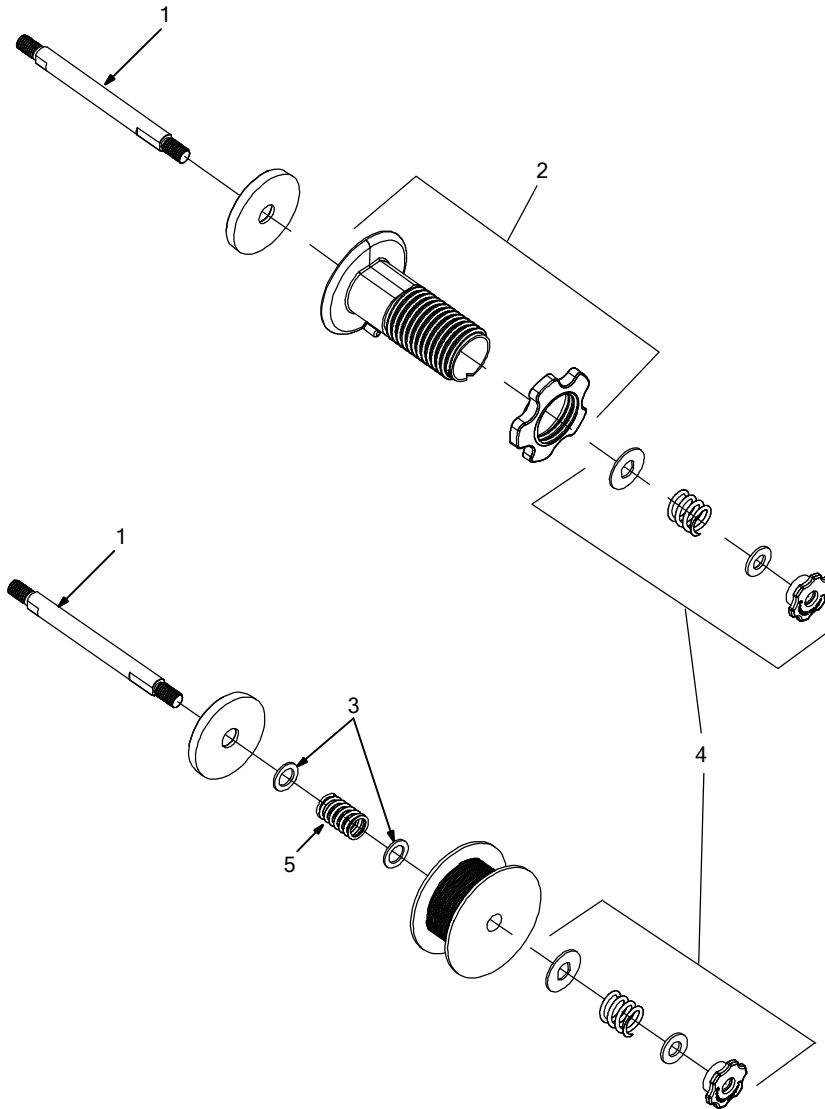
4-9. Installing Wire Spool And Adjusting Hub Tension



Hand tighten knob clockwise. When a slight force is needed to turn spool, tension is set.

To install either a 1 lb or 2 lb wire spool, follow the procedure as shown in the illustration.

Installing 1 Or 2 lb Wire Spool



- 1 Spindle
- 2 Remove these components from spindle.
- 3 Order two additional 5/8 washers Part No. 605941
- 4 Install these components onto spindle.
- 5 Order additional spring Part No. 186437

282945A

4-10. Positioning Jumper Links (208/240 Volt Model)

Check input voltage available at site.

- Jumper Links Access Door

Open door.

- Jumper Link Label

Check label – only one is on unit.

- Input Voltage Jumper Links

Move jumper links to match input voltage.

Close and secure access door.

3/8 in.

4-11. Electrical Service Guide (208/240 Volt Model)

⚠ Failure to follow these electrical service guide recommendations could create an electric shock or fire hazard. These recommendations are for an individual branch circuit sized for the rated output and duty cycle of one welding power source. In individual branch circuit installations, the National Electrical Code (NEC) allows the receptacle or conductor rating to be less than the rating of the circuit protection device. All components of the circuit must be physically compatible. See NEC articles 210.21, 630.11, and 630.12.

	60 Hz 1-Phase	
Rated Supply Voltage (V)	208	240
Rated Maximum Supply Current I_{1max} (A)	68.1	60.0
Rated Effective Supply Current I_{1eff} (A)	48.8	45.0
Maximum Recommended Standard Fuse Rating In Amperes ¹		
Time Delay Fuses ²	80	70
Normal Operating Fuses ³	100	90
Maximum Recommended Supply Conductor Length In Feet (Meters) ⁴	79 (24)	105 (32)
Raceway Installation		
Minimum Supply Conductor Size In AWG (mm ²) ⁵	8 (10)	8 (10)
Minimum Grounding Conductor Size In AWG (mm ²) ⁵	8 (10)	8 (10)
Flexible Cord Installation		
Minimum Supply Conductor Size In AWG (mm ²) ⁶	6 (16)	6 (16)

Reference: 2026 National Electrical Code (NEC) (including article 630)

1 If a circuit breaker is used in place of a fuse, choose a circuit breaker with time-current curves comparable to the recommended fuse.

2 "Time-Delay" fuses are UL class "RK5". See UL 248.

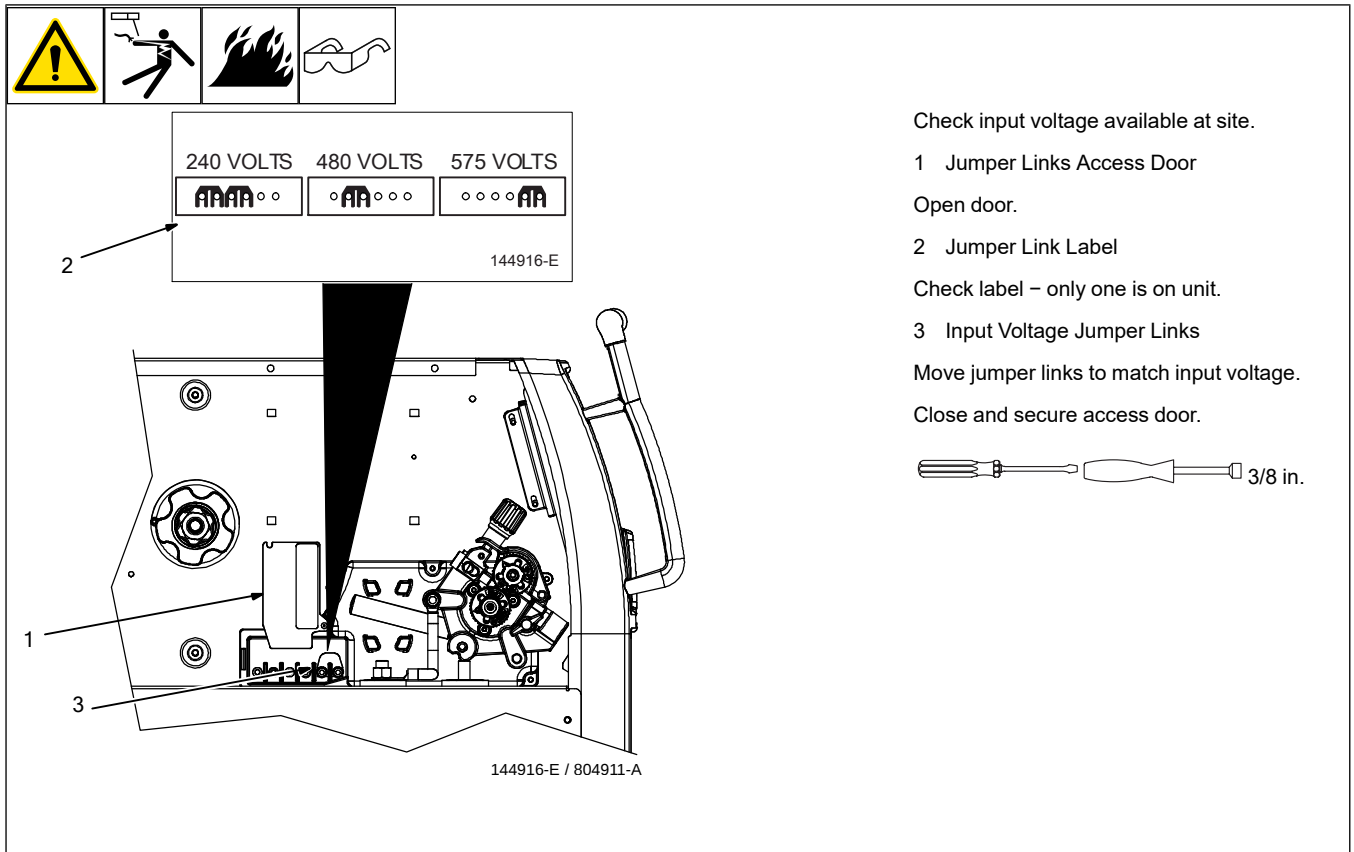
3 "Normal Operating" (general purpose - no intentional delay) fuses are UL class "K5" (up to and including 60 amps), and UL class "H" (65 amps and above). See UL 248.

4 Maximum total length of copper supply conductors in entire installation (raceway and/or flexible cord).

5 Raceway conductor size is determined per NEC Table 310.16 for insulated copper conductors having a temperature rating of 75°C (167°F) with not more than three single current-carrying conductors in the raceway, corrected for an ambient temperature of 40°C per Table 310.15(B)(1) (1).

6 Flexible cord conductor size is determined per NEC Table 400.5(A)(1) for SOOW cable, corrected for an ambient temperature of 40°C per Table 310.15(B)(1)(1). Flexible cord used for connection to the power supply system shall comply with the requirements of UL 62.

4-12. Positioning Jumper Links (240/480/575 Volt Model)



4-13. Electrical Service Guide (240/480/575 Volt Model)

⚠ Failure to follow these electrical service guide recommendations could create an electric shock or fire hazard. These recommendations are for an individual branch circuit sized for the rated output and duty cycle of one welding power source. In individual branch circuit installations, the National Electrical Code (NEC) allows the receptacle or conductor rating to be less than the rating of the circuit protection device. All components of the circuit must be physically compatible. See NEC articles 210.21, 630.11, and 630.12.

	60 Hz 1-Phase		
Rated Supply Voltage (V)	240	480	575
Rated Maximum Supply Current I_{1max} (A)	54.5	28.2	23.7
Rated Effective Supply Current I_{1eff} (A)	40.0	21.0	17.8
Maximum Recommended Standard Fuse Rating In Amperes ¹			
Time Delay Fuses ²	60	35	25
Normal Operating Fuses ³	80	40	35
Maximum Recommended Supply Conductor Length In Feet (Meters) ⁴	94 (29)	251 (76)	218 (66)
Raceway Installation			
Minimum Supply Conductor Size In AWG (mm ²) ⁵	8 (10)	10 (6)	12 (4)
Minimum Grounding Conductor Size In AWG (mm ²) ⁵	8 (10)	10 (6)	12 (4)
Flexible Cord Installation			
Minimum Supply Conductor Size In AWG (mm ²) ⁶	8 (10)	12 (4)	14 (2.5)

Reference: 2026 National Electrical Code (NEC) (including article 630)

1 If a circuit breaker is used in place of a fuse, choose a circuit breaker with time-current curves comparable to the recommended fuse.

2 "Time-Delay" fuses are UL class "RK5". See UL 248.

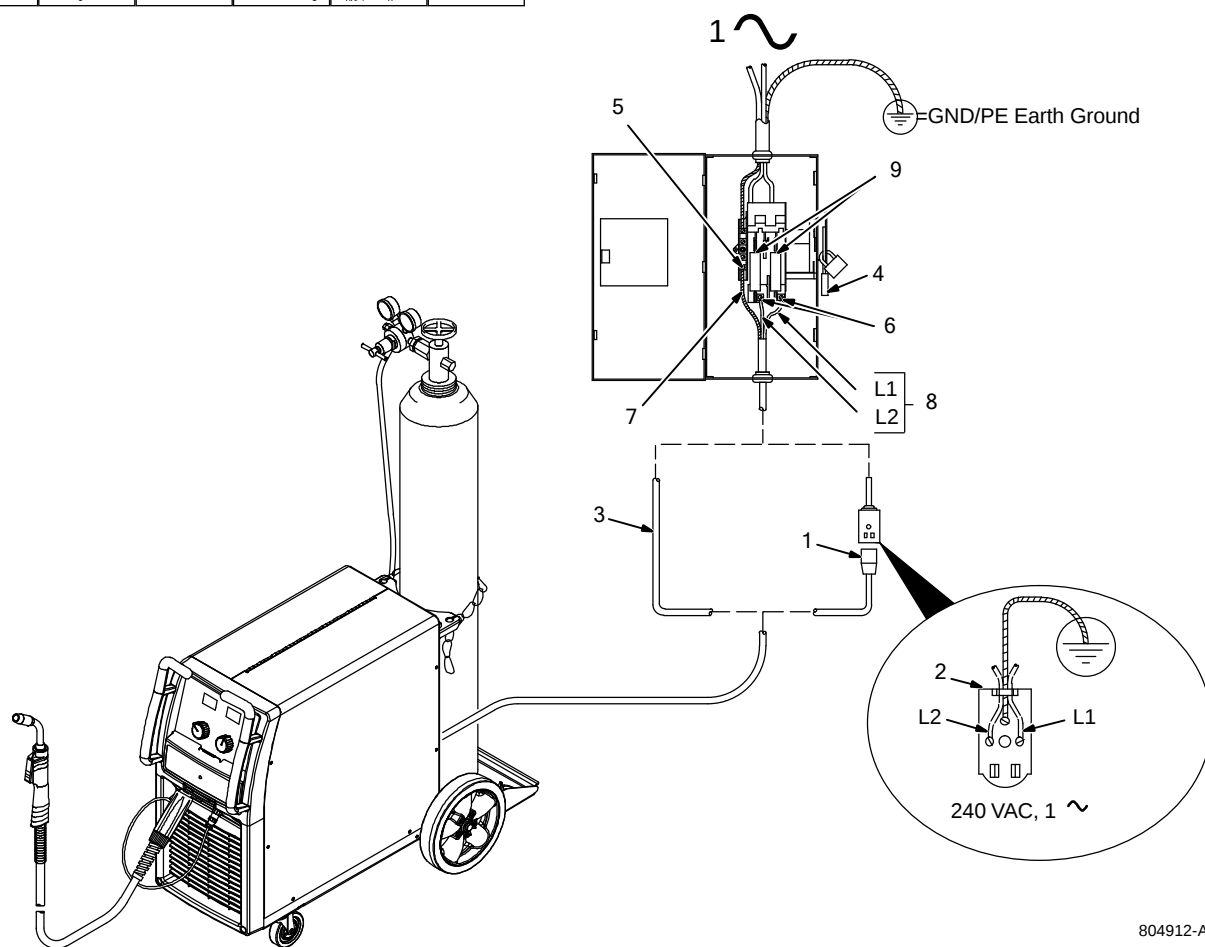
3 "Normal Operating" (general purpose - no intentional delay) fuses are UL class "K5" (up to and including 60 amps), and UL class "H" (65 amps and above). See UL 248.

4 Maximum total length of copper supply conductors in entire installation (raceway and/or flexible cord).

5 Raceway conductor size is determined per NEC Table 310.16 for insulated copper conductors having a temperature rating of 75°C (167°F) with not more than three single current-carrying conductors in the raceway, corrected for an ambient temperature of 40°C per Table 310.15(B)(1).

6 Flexible cord conductor size is determined per NEC Table 400.5(A)(1) for SOOW cable, corrected for an ambient temperature of 40°C per Table 310.15(B)(1)(1). Flexible cord used for connection to the power supply system shall comply with the requirements of UL 62.

4-14. Connecting Input Power



804912-A

⚠ Installation must meet all National and Local Codes—have only qualified persons make this installation.

⚠ Disconnect and lockout/tagout input power before connecting input conductors from unit. Follow established procedures regarding the installation and removal of lockout/tagout devices.

⚠ Always connect green or green/yellow conductor to supply grounding terminal first, and never to a line terminal.

See rating label on unit and check input voltage available at site.

1 Plug (NEMA Type 6-50P)

2 Receptacle [NEMA Type 6-50R (Customer Supplied)]

3 Input Power Cord

Connect directly to line disconnect device if hard wiring is required.

4 Disconnect Device (switch shown in the OFF position)

5 Disconnect Device Grounding Terminal

6 Disconnect Device Line Terminals

7 Green Or Green/Yellow Grounding Conductor

8 Black And White Input Conductor (L1 And L2)

Connect green or green/yellow grounding conductor to disconnect device grounding terminal first.

Connect input conductors L1 and L2 to disconnect device line terminals.

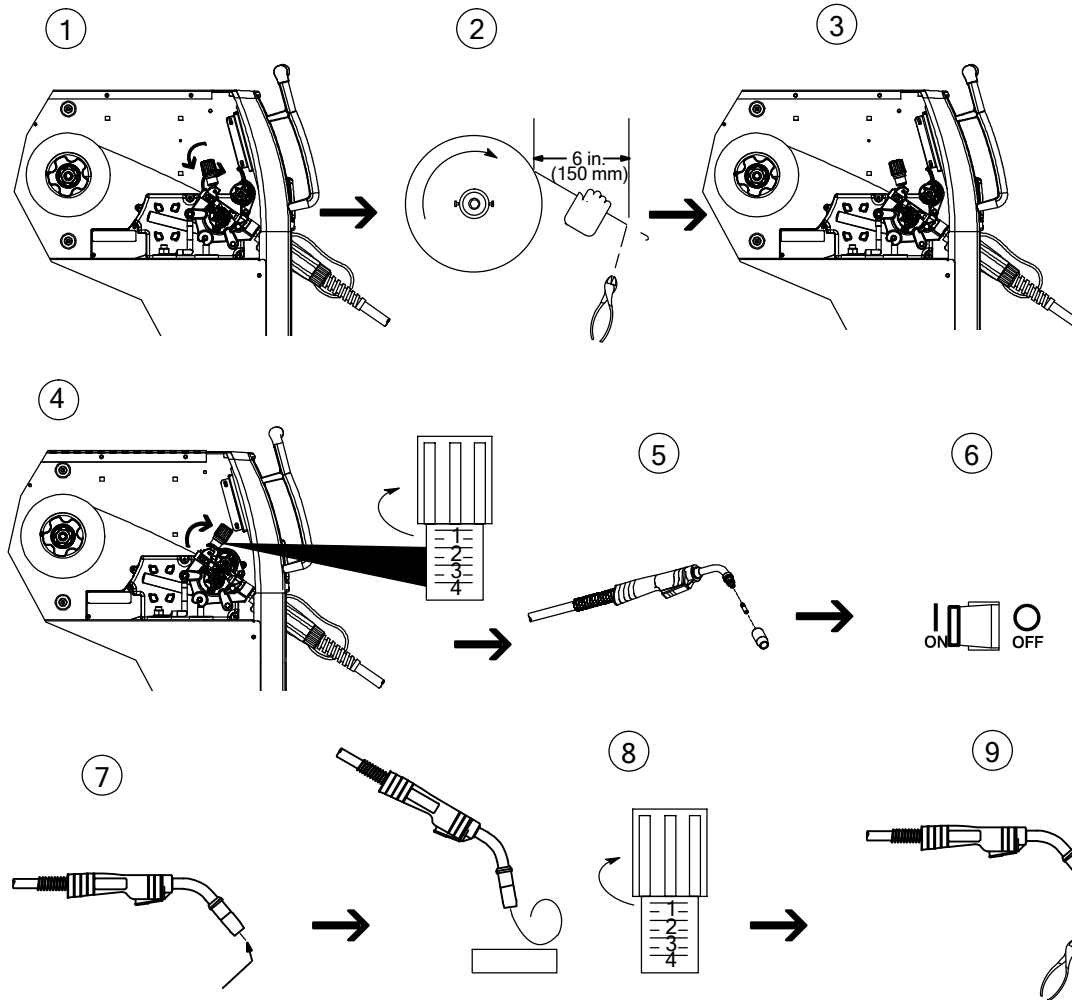
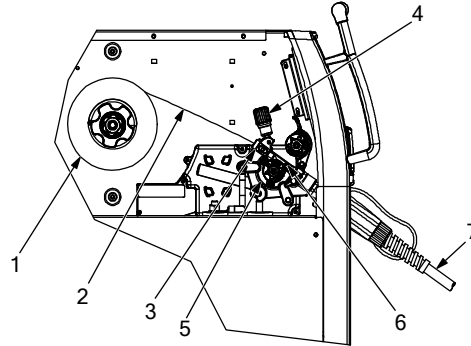
9 Over-Current Protection

Select type and size of over-current protection using Electrical Service Guide (fused disconnect switch shown).

Connect plug to receptacle if hard wiring method is not used.

Close and secure door on disconnect device. Follow established lockout/tagout procedures to put unit in service.

4-15. Threading Welding Wire



Ref. 804913-B



- 1 Wire Spool
- 2 Welding Wire
- 3 Inlet Wire Guide
- 4 Pressure Adjustment Knob
- 5 Drive Roll
- 6 Outlet Wire Guide
- 7 Gun Conduit Cable

Lay gun cable out straight

Step 1. Open pressure assembly.

Step 2. Pull and hold wire; cut off end.

Hold wire tightly to keep it from unraveling.

Step 3. Push wire thru guides into gun; continue to hold wire.

Step 4. Close and tighten pressure assembly, and let go of wire.

Use pressure indicator scale to set a desired drive roll pressure.

Step 5. Remove gun nozzle and contact tip.

Step 6. Turn power on.

Step 7. Press gun trigger until wire comes out of gun. Reinstall contact tip and nozzle.

Step 8. Feed wire onto a non-conductive surface (e.g. wood) to check drive roll pressure. Tighten knob enough to prevent slipping.

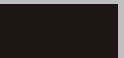
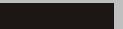
Step 9. Cut off wire. Close and latch door.

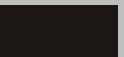
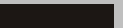
4-16. Weld Parameters

Selecting Wire, Gas and Control Settings

Material	Suggested Wire Types	Suggested Shielding Gases And Flow Rate	Wire Sizes (Diameters)	
STEEL	Solid(or hard) ER70s-6	75% Ar/25% CO ₂ 25 cfh (Ar/CO ₂ produces less spatter-better overall appearance)	0.023” (0.6mm)	
			0.030” (0.8mm)	
			0.035” (0.9mm)	
			0.045” (1.1mm)	
	Solid(or hard) ER70s-6	100% CO ₂ 25 cfh	0.030” (0.8mm)	
			0.035” (0.9mm)	
	Flux core E71T-1	100% CO ₂ 25 cfh 75% Ar/25% CO ₂ 25 cfh	0.035” (0.9mm)	
			0.045” (1.1mm)	
226 650-E				

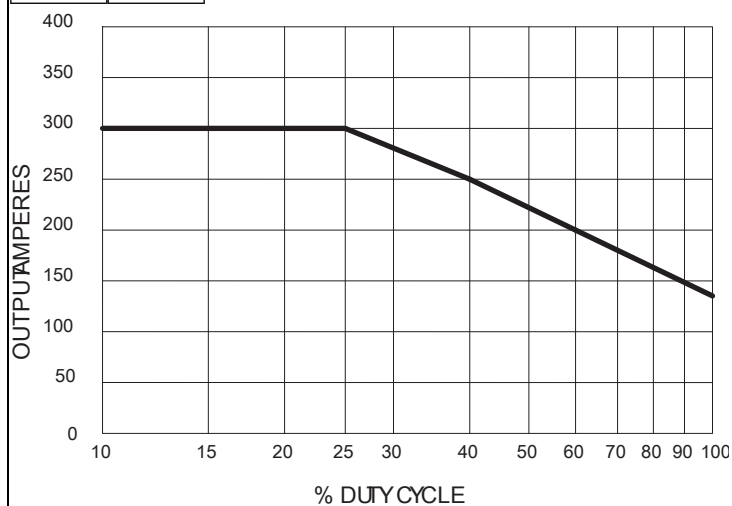
Material	Suggested Wire Types	Suggested Shielding Gases And Flow Rate	Wire Sizes (Diameters)	
STAINLESS STEEL	Stainless Steel ER 308, ER 308L ER 308LSi	Tri-Mix, 35 cfh (90% He/7.5% Ar/2.5% CO ₂)	0.023" (0.6mm)	
			0.030" (0.8mm)	
			0.035" (0.9mm)	
			0.045" (1.1mm)	
Aluminum with Optional Spoolmatic® spoolgun.	Aluminum 4043 ER	100% Ar, 25 cfh	0.030" (0.8mm)	
			0.035" (0.9mm)	
			0.047" (1.2mm)	
	Aluminum 5356	100% Ar, 25 cfh	0.035" (0.9mm)	
			0.047" (1.2mm)	

	 1/2" (12.7 mm)	 3/8" (9.5 mm)	 1/4" (6.4 mm)	 3/16" (4.8 mm)	 1/8" (3.2 mm)	 14 ga. (2.0 mm)	 18 ga. (1.2 mm)	 22 ga. (0.8 mm)
	—	—	—	20.0/480	18.3/350	18.0/240	17.0/190	15.8/125
	—	24.3/500	21.0/400	19.0/290	18.0/250	17.3/200	16.3/115	15.9/95
	29.5/515	26.0/475	21.0/375	18.4/265	17.4/230	16.5/190	15.8/120	15.0/88
	29.5/315	28.0/300	20.0/225	17.5/195	17.2/190	16.5/165	15.5/95	—
	—	23.8/325	22.4/290	20.8/245	20.1/190	19.4/145	18.6/100	18.2/85
	—	23.6/325	22.2/290	20.6/245	19.9/190	19.2/145	18.5/100	18.0/88
	—	26.0/500	24.0/380	23.0/325	21.5/270	20.0/235	—	—
	24.3/380	23.8/350	23.5/300	23.0/275	21.5/210	21.0/200	—	—

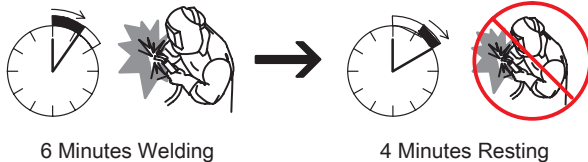
	 1/2" (12.7 mm)	 3/8" (9.5 mm)	 1/4" (6.4 mm)	 3/16" (4.8 mm)	 1/8" (3.2 mm)	 14 ga. (2.0 mm)	 18 ga. (1.2 mm)	 22 ga. (0.8 mm)
	—	—	—	—	21.2/500	20.1/350	19.0/210	—
	—	—	23.9/450	20.7/375	19.2/275	18.2/190	17.7/120	—
	—	24.5/500	21.5/425	20.0/350	19.3/250	18.9/163	—	—
	—	24.0/325	22.0/300	20.0/250	19.0/200	—	—	—
	—	—	24.5/620	22.5/540	20.8/480	19.7/460	—	—
	—	26.5/630	24.5/530	23.0/460	20.0/380	18.5/350	—	—
	—	25.0/455	23.5/390	21.7/320	19.5/270	—	—	—
	25.5/800	24.5/800	23.0/735	21.5/630	19.0/590	—	—	—
	25.5/565	24.5/505	22.5/465	21.0/375	19.5/350	—	—	—

226650-E

4-17. Duty Cycle And Overheating



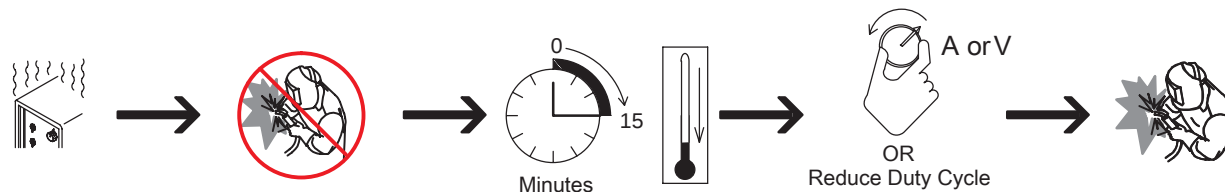
60% Duty Cycle At 200 Amperes



40% Duty Cycle At 250 Amperes



Overheating



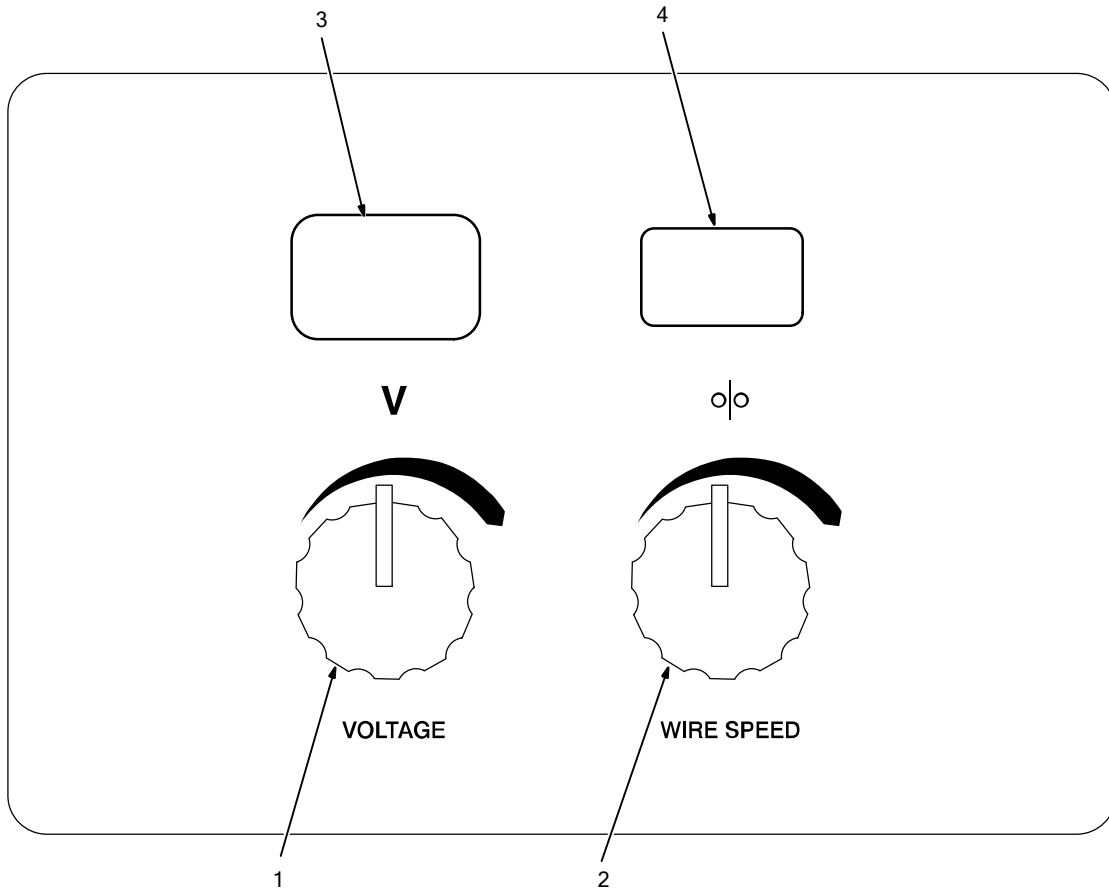
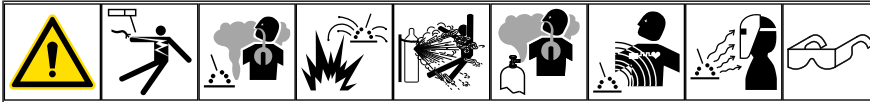
Duty Cycle is percentage of 10 minutes that unit can weld at rated load without overheating.

If unit overheats, Thermistor (RT1) opens, output stops, and cooling fan runs. Wait fifteen minutes for unit to cool. Reduce amperage or voltage, or duty cycle before welding.

NOTICE – Exceeding duty cycle can damage unit and void warranty.

SECTION 5 – OPERATION

5-1. Controls



226647-B

1 Voltage Control

Turn control clockwise to increase voltage.

2 Wire Speed Control

Turn control clockwise to increase wire feed speed.

3 Voltmeter

4 Wire Feed Speed Meter

This unit has three automatic timers included in its operation to help save contact tips, gas, and wire:

Tip Saver – Weld output shuts off if tip is shortened to work surface.

Safety shut-off – Weld output will shut off if no arc is detected within 3 seconds after gun trigger is depressed.

Jog mode – When loading a new roll of wire or if the gun trigger is accidentally pressed, gas will shut off after 1 minute and wire will shut off after 2 minutes, saving wire and gas.

JOG Mode

If the trigger on either gun is held for more than 3 seconds without striking an arc, the unit will automatically shut off weld power (and shielding gas output on MIG gun only), but will feed wire continuously at the preset wire feed speed (which may be faster or slower than Run-in Speed) until trigger is released.

Run-in Wire Feed Speed Settings

Run-in settings for the MIG and Spool Guns are independently set and stored in unit memory. The settings are in percent of the welding wire feed speed preset. Both settings are adjustable from 25 to 150 percent.

MIG Gun Run-in is factory set at 100% which is recommended for most wire sizes and types.

Spool Gun Run-in is factory set at 50% which is recommended for .030 & .035 wire. A Run-in setting of 25% is recommended for .047 wire.

To **check Run-in** settings, start with the power switch OFF. Press and hold the MIG or Spool Gun Trigger while turning the

power switch ON. The unit will power up with both the displays reading 888, then the voltage display will read run and the wire feed display will read the preset Run-in percentage from memory for the gun selected. To return to the weld mode without making a change, simply release trigger and pull the trigger again momentarily (one second).

To **change Run-in** settings, start with the power switch OFF. Press and hold the MIG or Spool Gun Trigger while turning the power switch ON. The unit will power up with both the displays reading 888, then the voltage display will read run and the wire feed display will read the preset Run-in percentage from memory for the gun selected. To change the Run-in value, release the trigger and turn the wire feed control knob (or the wire feed adjustment knob located on the bottom handle of the spool gun) to the desired setting for the selected gun. To return to weld mode after the Run-in speed change, pull the trigger momentarily (one second).

5-2. Voltmeter And Wire Feed Speed Meter Operation





V



ipm

1 Voltmeter

2 Wire Feed Speed Meter

Power Up Status

Both meters display 888 at unit power up. After 0.5 seconds, preset values appear on both meters. The settings for the last active gun used will be the default at initial power up of the unit. If the power is reset to quickly, characters other than 888 may appear. To reset, turn power off for at least 3 seconds, then turn power back on.

Welding Status

When either a MIG gun or spool gun trigger is pressed and a welding arc is established, the voltmeter displays actual weld voltage. When the gun trigger is released and welding arc extinguished, the voltmeter displays the last actual voltage for 5 seconds and then returns to preset voltage. If welding resumes before unit displays preset voltage, actual welding voltage will appear on the voltmeter.

The wire feed speed meter always displays preset wire feed speed (IPM).

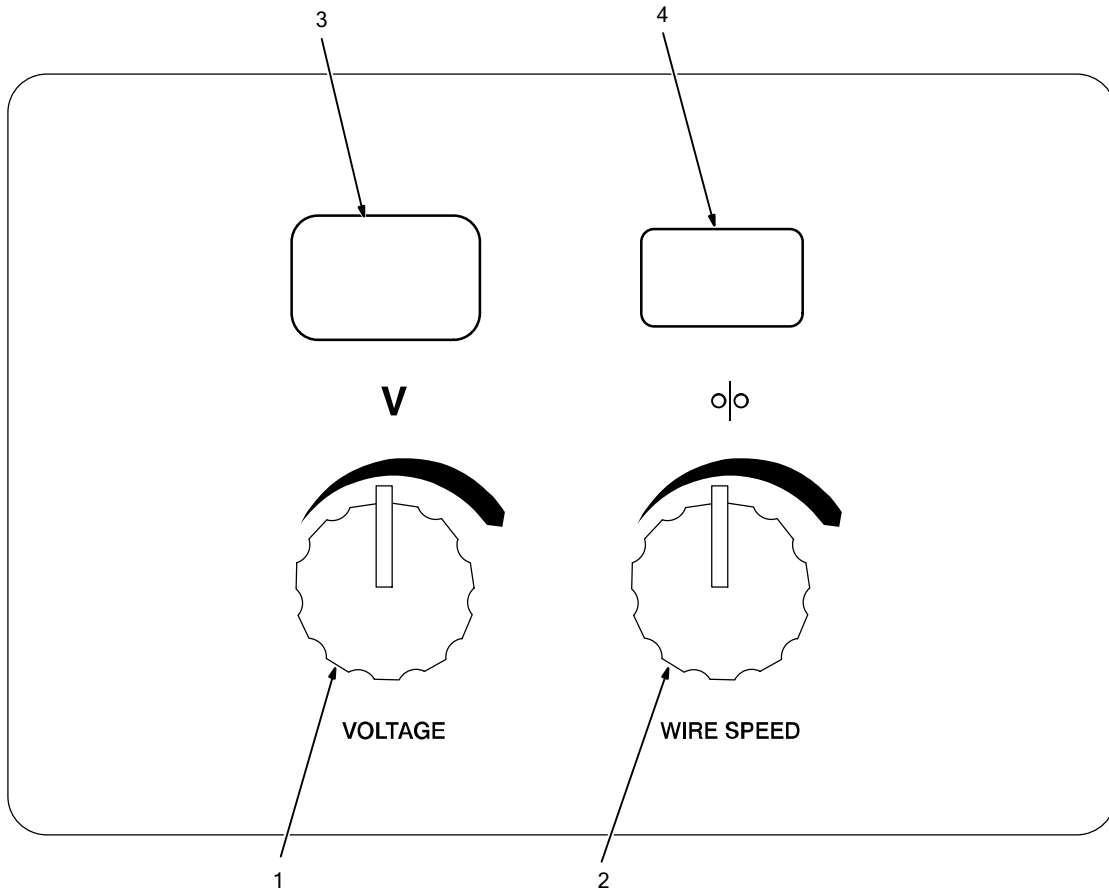
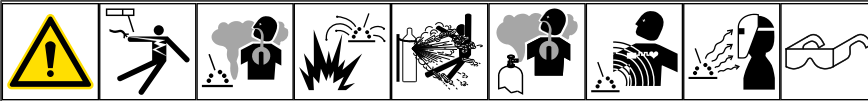
Gun Selection

The wire feed speed meter will display preset wire feed speed (IPM) for the appropriate gun selection either MIG, Spool or Push/Pull gun. To preset desired wire feed speed, connect desired gun, press gun trigger for one second, and release trigger. The meter preset will be retained by the meter board until a different gun is connected and preset is performed or the unit is turned off and back on. The settings for the last active gun used will be the default at initial power up of the unit.

5-3. Jog Mode

If the trigger on either gun is held for more than 3 seconds without striking an arc, the unit will automatically shut off weld power (and shielding gas output on MIG or push/pull gun), but will feed wire continuously at the preset wire feed speed (which may be faster or slower than Run-in Speed) until trigger is released. Jog wire feed speed is the same as weld wire feed speed, so any time jog speed is changed, be sure to change back to weld wire feed speed before welding. Jog wire feed speed for the spool gun and push/pull gun is limited to 300 ipm (7.6 m/min).

5-4. Timers



226647-B

- 1 Voltage Control
- 2 Wire Speed Control
- 3 Voltmeter
- 4 Wire Feed Speed Meter

To enter the **TIMERS** menu press and hold the gun trigger while turning on the power switch until the left meter displays (run), then release trigger.

Once in the **TIMERS** menu, rotate the left knob clockwise (CW) to find the particular item, and rotate the right knob to change the setting.

The following items can be adjusted by rotating the left knob clockwise (CW):

Run-in speed (run) – The speed of the wire prior to the welding arc being struck. The range is from 25 to 150% of wire feed speed (WFS).

Preflow (PrE) – The amount of time that the shielding gas will flow after the trigger is depressed and before the welding arc will be allowed to be active. The range is from 0.0 to 5.0 seconds.

Postflow (POS) – The amount of time that the shielding gas will flow after the arc has been shut off. The range is from 0.0 to 10.0 seconds.

Burnback (Bur) – The amount of time that the welding wire remains electrically

energized after the wire feeding has stopped. The range is from 0.01 to 0.25 seconds.

Spot Timer (SPO) – The amount of time that the arc will be active before it shuts off automatically. The range is from 0 to 120 seconds. Spot timer is reset upon release of welding gun trigger.

“Stitch” Timer (dLY) – Used in conjunction with the Spot timer and while the trigger is continuously depressed. Controls the amount of time that the arc will be inactive after the Spot timer times out. The range is from 0 to 120 seconds.

To save settings and exit the **TIMERS** menu, depress the gun trigger.

5-5. Set Up Push Motor Torque (SUP) Or Reset (rES)

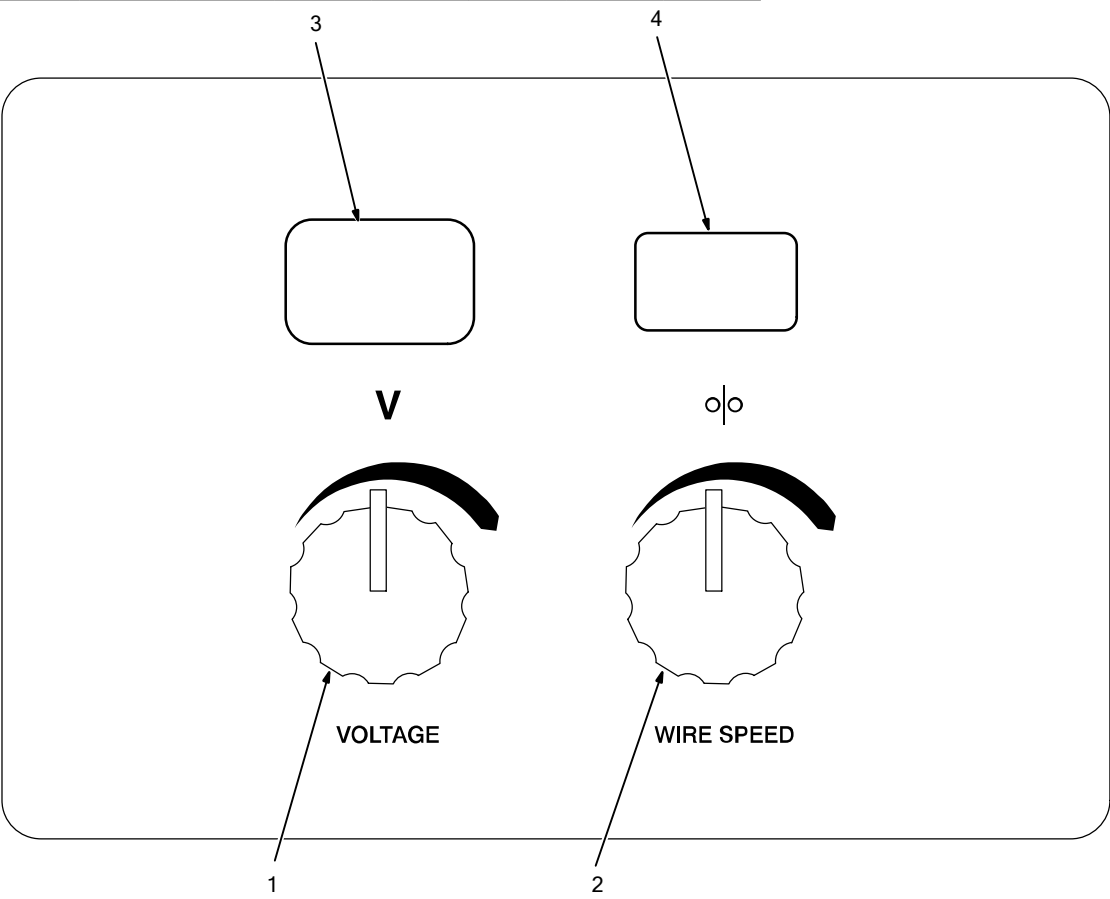












1 Voltage Control

2 Wire Speed Control

3 Voltmeter

4 Wire Feed Speed Meter

The following items can be adjusted by rotating the left knob counterclockwise (CCW):

Set up Push Motor Torque (SUP) – This feature is only active when a push/pull gun is connected to the welding power source. The (SUP) setting will adjust the over-torque limit of the push motor inside the welding power source. The range is 0-250 and the default value is 130. Increasing this setting will increase the over-torque limit and speed up the remote wire feed speed motor.

Reset (rES) – Rotate the right knob to select ON. Press and release gun trigger to reset system to factory default values.

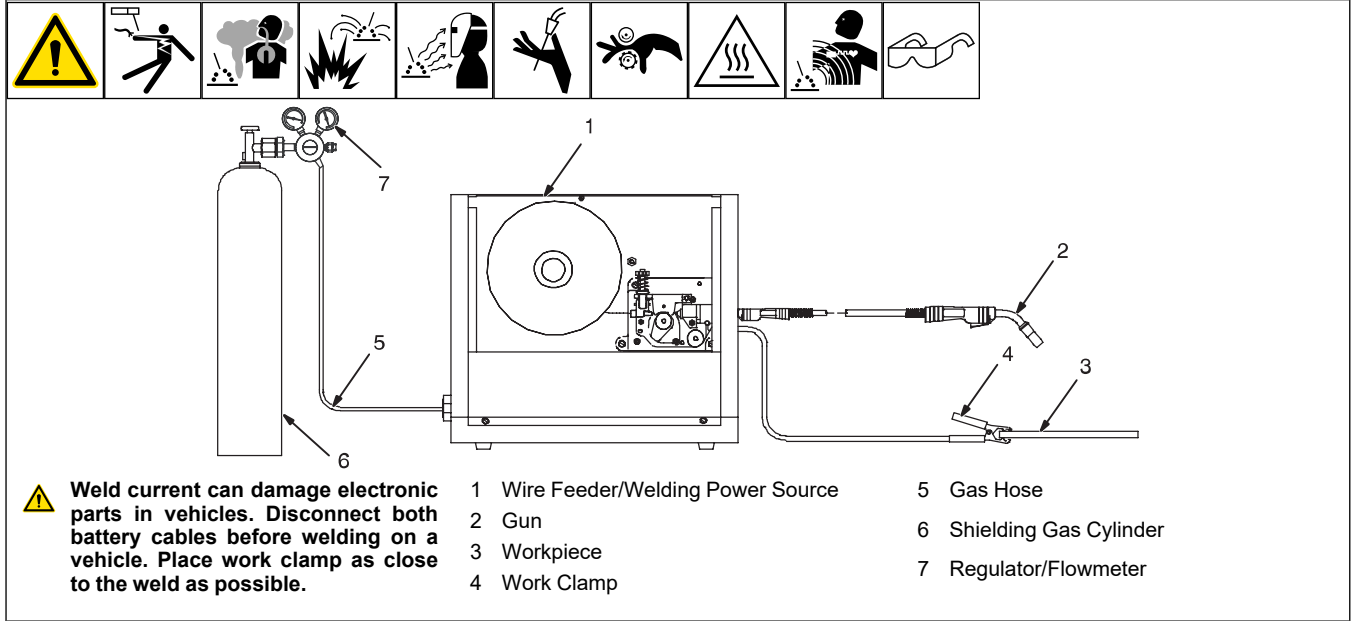
If Aluma-Pro push/pull gun has a listed SUP value, set the power source to match the SUP value.

To save settings and exit the (SUP) menu, depress the gun trigger.

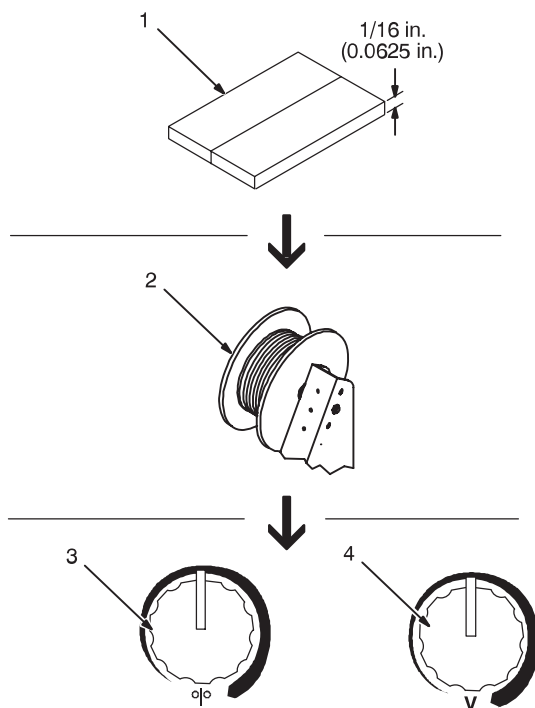
226647-B

5-6. GMAW Welding (MIG) Guidelines

A. Typical GMAW (MIG) Process Connections



B. Typical GMAW (MIG) Process Control Settings



☞ These settings are guidelines only. Material and wire type, joint design, fitup, position, shielding gas, etc. affect settings. Test welds to be sure they comply to specifications.

1 Material Thickness

Material thickness determines weld parameters.

Convert material thickness to amperage (A):

$$0.001 \text{ in. (0.025 mm)} = 1 \text{ ampere}$$

$$0.125 \text{ in. (3.17 mm)} \div 0.001 = 125 \text{ A}$$

2 Select Wire Size

See table below.

3 Select Wire Feed Speed (Amperage)

Wire feed speed (amperage) controls weld penetration. See table below.

4 Select Voltage

Voltage controls height and width of weld bead.

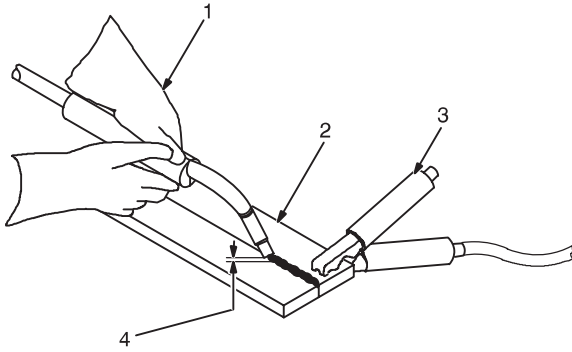
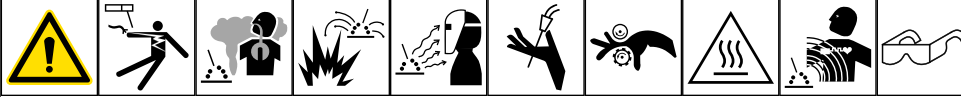
Low Voltage: wire stubs into work

High Voltage: arc is unstable (spatter)

Set voltage midway between high and low voltage and adjust as needed for the weld.

Wire Size	Amperage Range	Recommended Wire Feed Speed	Wire Feed Speed *
0.023 in. (0.58 mm)	30-90 A	3.5 ipm (89 mmpm) per amp	3.5 x 125 A = 437 ipm (11.11 mpm)
0.030 in. (0.76 mm)	40-145 A	2 ipm (51 mmpm) per amp	2 x 125 A = 250 ipm (6.35 mpm)
0.035 in. (0.89 mm)	50-180 A	1.6 ipm (41 mmpm) per amp	1.6 x 125 A = 200 ipm (5.08 mpm)
0.045 in. (1.14 mm)	75-250 A	1 ipm (25 mmpm) per amp	1 x 125 A = 125 ipm (3.17 mpm)
*125 A based on 1/8 in. (3.17 mm) material thickness.		ipm = inches per minute; mmpm = millimeters per minute; mpm = meters per minute	

C. Holding And Positioning Welding Gun



Wire is energized when gun trigger is pressed. Before lowering helmet and pressing trigger, be sure wire is no more than 1/2 in. (13 mm) past end of contact tip, and tip of wire is positioned correctly on seam.

- 1 Hold Gun and Control Gun Trigger

Use both hands to stabilize the gun.

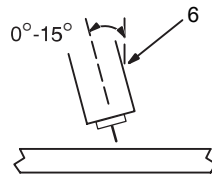
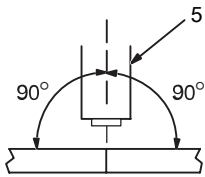
- 2 Workpiece
- 3 Work Clamp
- 4 Contact Tip To Work Distance (Stickout)

Short Circuit: 1/4 to 1/2 in. (6 to 13 mm)

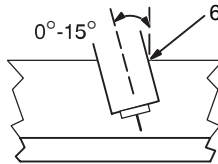
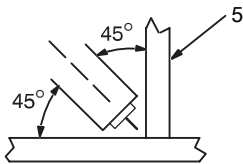
Spray Transfer: 1/2 to 3/4 in. (13 to 14 mm)

- 5 End View Of Work Angle
- 6 Side View Of Travel Angle

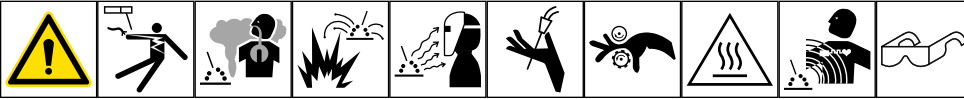
Groove Welds



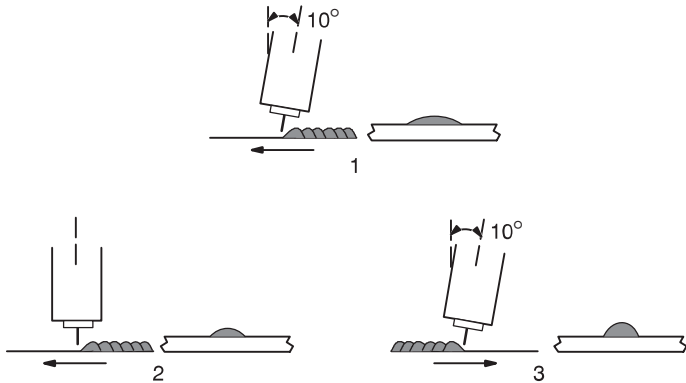
Fillet Welds



D. Conditions That Affect Weld Bead Shape



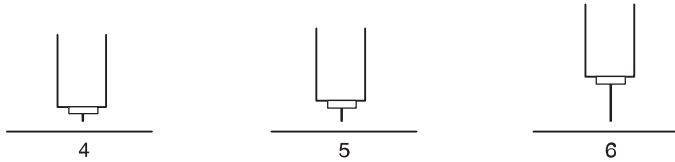
Gun Angles and Weld Bead Profiles



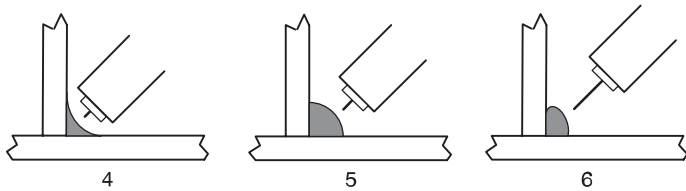
Weld bead shape depends on gun angle, direction of travel, contact to work distance (stickout), travel speed, thickness of base metal, wire feed speed (weld current), and voltage.

- 1 Push
- 2 Perpendicular
- 3 Drag
- 4 Short
- 5 Normal
- 6 Long
- 7 Slow
- 8 Normal
- 9 Fast

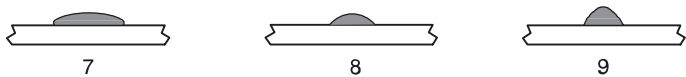
Contact Tip To Work Distance (Stickout)



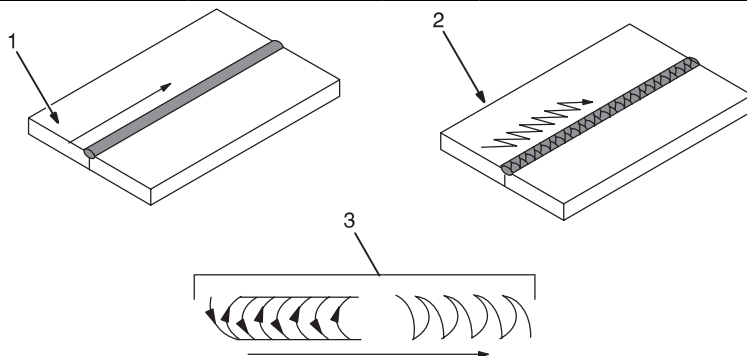
Fillet Weld Contact Tip To Work Distance (Stickout)



Travel Speed



E. Gun Movement During Welding

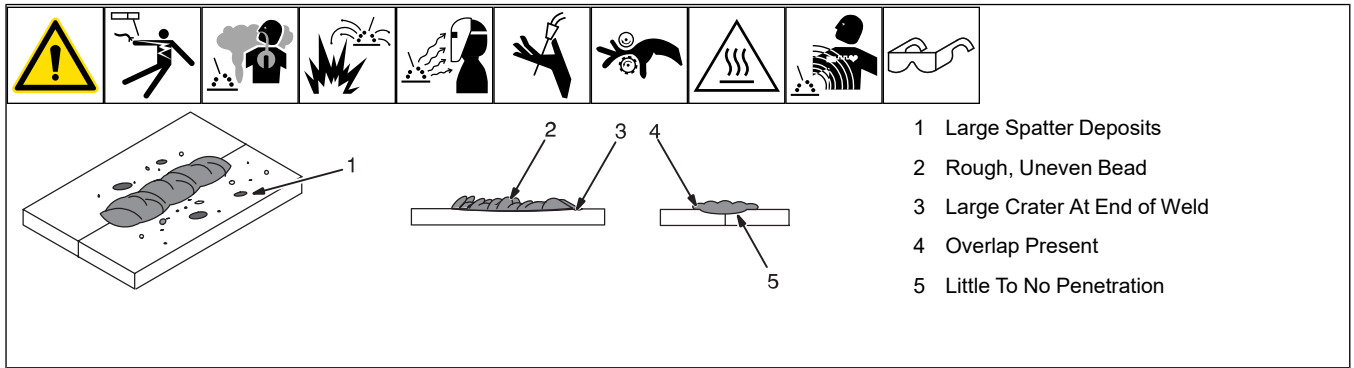


Normally, a single stringer bead is satisfactory for most narrow groove weld joints; however, for wide groove weld joints or bridging across gaps, a weave bead or multiple stringer beads works better.

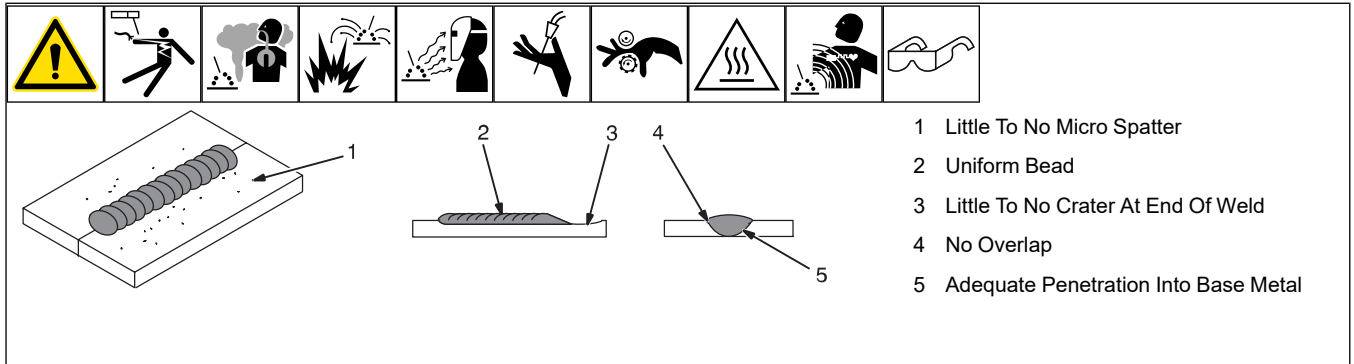
- 1 Stringer Bead - Steady Forward Movement Along Weld Joint
- 2 Weave Bead - Side To Side Movement Along Weld Joint
- 3 Weave Patterns

Use weave patterns to cover a wide area in one pass of the electrode.

F. Poor Weld Bead Characteristics

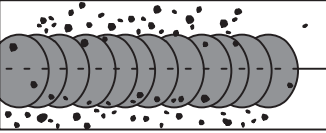


G. Good Weld Bead Characteristics

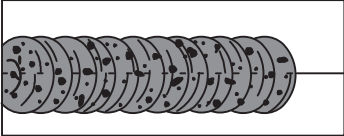


H. Troubleshooting

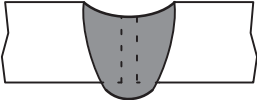
A. Excessive Spatter

	Excessive Spatter - scattering of molten metal particles that cool to solid form near weld bead.
Possible Causes	Corrective Actions
Wire feed speed too high.	Select lower wire feed speed.
Voltage too high.	Select lower voltage range.
Electrode extension (stickout) too long.	Use shorter electrode extension (stickout).
Workpiece dirty.	Remove all grease, oil, moisture, rust, paint, undercoating, and dirt from work surface before welding.
Insufficient shielding gas at welding arc.	Increase flow of shielding gas at regulator/flowmeter and/or prevent drafts near welding arc.
Dirty welding wire.	Use clean, dry welding wire.
	Eliminate pickup of oil or lubricant on welding wire from feeder or liner.

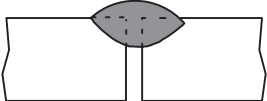
B. Porosity

	Porosity - small cavities or holes resulting from gas pockets in weld metal.
Possible Causes	Corrective Actions
Insufficient shielding gas at welding arc.	Increase flow of shielding gas at regulator/flowmeter and/or prevent drafts near welding arc.
	Remove spatter from gun nozzle.
	Check gas hoses for leaks.
	Ensure proper contact tip to work distance.
	Hold gun near bead at end of weld until molten metal solidifies.
Wrong gas.	Use welding grade shielding gas; change to different gas.
Dirty wire.	Use clean, dry wire.
	Eliminate pick up of oil or lubricant on wire from feeder or liner.
Workpiece dirty.	Remove all grease, oil, moisture, rust, paint, coatings, and dirt from work surface before welding.
	Use a more highly deoxidizing wire (contact supplier).
Excessive contact tip to work distance	Ensure proper contact tip to work distance

C. Excessive Penetration

	Excessive Penetration - weld metal melting through base metal.
Possible Causes	Corrective Actions
Excessive heat input.	Select lower voltage and reduce wire feed speed.
	Increase travel speed.

D. Incomplete Joint Penetration

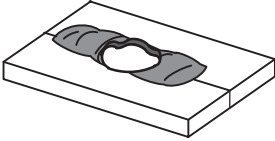
	Incomplete Joint Penetration - weld metal does not extend through the joint thickness.
Possible Causes	Corrective Actions
Improper joint preparation.	Joint preparation and design must provide access to bottom of groove while maintaining proper contact tip to work distance.
Improper weld technique.	Maintain proper work and travel angles.
	Keep arc on leading edge of weld puddle.
	Maintain proper contact tip to work distance.
Insufficient heat input.	Select higher wire feed speed and/or select higher voltage range.
	Reduce travel speed.

E. Incomplete Fusion

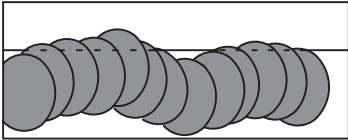
	Incomplete Fusion - failure of weld metal to fuse completely with base metal or a preceding weld bead.
Possible Causes	Corrective Actions
Workpiece dirty.	Remove all grease, oil, moisture, rust, paint, undercoating, and dirt from work surface before welding.
Insufficient heat input.	Select higher voltage and/or adjust wire feed speed.
Improper welding technique.	Place bead in proper location(s) in joint during welding.

	Pause on groove side walls when using weaving technique.
	Keep wire on leading edge of weld puddle.
	Maintain proper work and travel angles.

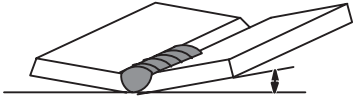
F. Burn-Through

	Burn-Through - a hole caused by excessive penetration.
Possible Causes	Corrective Actions
Excessive heat input.	Select lower voltage and reduce wire feed speed.
	Increase and/or maintain steady travel speed.

G. Waviness Of Bead

	Waviness Of Bead - weld metal that is not parallel and does not cover joint formed by base metal.
Possible Causes	Corrective Actions
Excessive contact tip to work distance.	Ensure proper contact tip to work distance.
Unsteady hand.	Support hand on solid surface or use two hands.

H. Distortion

	Distortion - contraction of weld metal during welding that forces base metal to move. Illustration: Base metal moves in the direction of the weld bead.
Possible Causes	Corrective Actions
Excessive heat input.	Use restraint (clamp) to hold base metal in position.
	Make tack welds along joint before starting welding operation.
	Select lower voltage range and/or reduce wire feed speed.
	Increase travel speed.
	Weld in small segments and allow cooling between welds.

I. Common MIG Shielding Gases

This is a general chart for common gases and where they are used. Many different combinations (mixtures) of shielding gases have been developed over the years. The most commonly used shielding gases are listed in the following table.

Gas	Application								
	Spray Arc Steel	Short Cir-cuiting Steel	GMAW-P Steel	Spray Arc Stainless Steel	Short Cir-cuiting Stainless Steel	GMAW-P Stainless Steel	Spray Arc Aluminum	Short Cir-cuiting Aluminum	GMAW-P Aluminum
Argon							All Positions	All Positions	All Positions
Argon + 2% O ₂	Flat & Horizontal Fillet		All Positions	Flat & Horizontal Fillet					
Argon + 2% CO ₂				Flat & Horizontal Fillet	All Positions	All Positions			
Argon + 5% CO ₂	Flat & Horizontal Fillet		All Positions						
Argon + 10% CO ₂	Flat & Horizontal Fillet	All Positions	All Positions						
Argon + 25% CO ₂		All Positions							
CO ₂		All Positions							
Helium							All Positions*		
Argon + Helium							All Positions*		
90% HE + 7-1/2% AR + 2-1/2% CO ₂					All Positions				
65% AR + 33% HE + 2% CO ₂						All Positions			

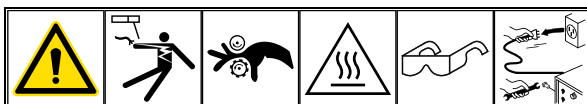
* Heavy Thicknesses

J. Troubleshooting Guide For Semiautomatic Welding Equipment

Problem	Probable Cause	Remedy
Wire feed motor operates, but wire does not feed.	Too little pressure on drive rolls.	Increase pressure setting on drive rolls.
	Incorrect drive rolls.	Check size stamped on drive rolls, replace to match wire size and type if necessary.
	Spool hub tension too high.	Decrease brake pressure on wire spool.
	Restriction in the gun and/or assembly.	Check and replace cable, gun, and contact tip if damaged. Check size of contact tip and cable liner, replace if necessary.
Wire curling up in front of the wire feed rolls (bird nesting).	Too much pressure on drive rolls.	Decrease spool hub tension.
	Incorrect liner or gun contact tip size.	Check size of contact tip and check liner length and diameter, replace if necessary.
	Gun end not inserted into drive housing properly.	Loosen gun securing bolt in drive housing and push gun end into housing just enough so it does not touch drive rolls.
	Dirty or damaged (kinked) liner.	Replace liner.
Wire feeds, but no gas flows (GMAW).	Gas cylinder empty.	Replace empty gas cylinder.
	Gas nozzle plugged.	Clean or replace gas nozzle.
	Gas cylinder valve not open or flowmeter not adjusted.	Open gas valve at cylinder and adjust flow rate.
	Restriction in gas line.	Check gas hose between flowmeter and wire feeder, and gas hose in gun and cable assembly.
	Loose or broken wires to gas solenoid.	Have Factory Authorized Service Agent repair wiring.
	Gas solenoid valve not operating.	Have Factory Authorized Service Agent replace gas solenoid valve.
	Incorrect primary voltage connected to welding power source.	Check primary voltage and relink welding power source for correct voltage.
Welding arc not stable.	Wire slipping in drive rolls.	Adjust pressure setting on drive rolls. Replace worn drive rolls if necessary.
	Wrong size gun liner.	Match liner to wire size and type.
	Incorrect voltage setting for selected wire feed speed on welding power source.	Readjust welding parameters.
	Loose connections at the gun weld cable or work cable.	Check and tighten all connections.
	Gun in poor shape or loose connection inside gun.	Repair or replace gun as necessary.
	Wrong size contact tip or worn out contact tip.	Match contact tip to wire size and type. Replace contact tip as necessary.

SECTION 6 – MAINTENANCE AND TROUBLESHOOTING

6-1. Routine Maintenance



⚠ Disconnect power before maintaining.

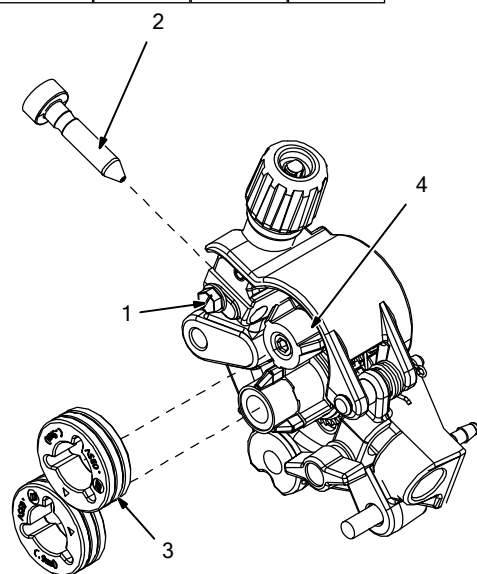
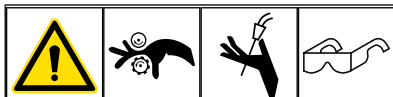
🔧 Service equipment more often if used in severe conditions.

Maintenance Schedule		Every 3 Months	Every 6 Months	Reference Section
Labels	Check and replace labels if damaged.	•		
Weld Terminals	Clean weld terminals.	•		
Cords and Cables	Visually check condition of cords and cables. Replace damaged cords and cables.	•		
Vacuum or blow out inside unit.	Visually check condition of gas hoses. Replace damaged hoses.		•	
Drive Motor Shaft	Visually check condition of gas hoses. Apply light coat of oil or grease to drive motor shaft.		•	
Drive Rolls	Clean		•	

6-2. Unit Overload

Thermistor RT1 in SCR1 protects the unit from damage due to overheating. If HL.P 002 is displayed on the meters, wait for unit to cool allowing fan motor to run before trying to weld. If unit is cool and no weld output continues, contact Factory Authorized Service Agent.

6-3. Changing Drive Roll and Wire Inlet Guide



- 1 Securing Screw
- 2 Inlet Wire Guide

Loosen screw. Slide tip as close to drive rolls as possible without touching. Tighten screw.

- 3 Drive Roll

The drive roll consists of two different sized grooves. The stamped markings on the end surface of the drive roll refers to the groove on the opposite side of the drive roll. The groove closest to the motor shaft is the proper groove to thread (see Section [4-15](#)).

- 4 Drive Roll Securing Nut

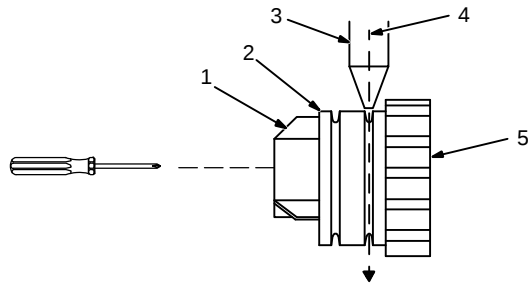
Turn nut one click to secure drive roll.
 7/16 in.

907728

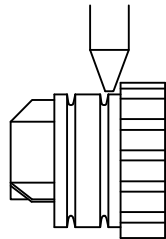
6-4. Aligning Drive Rolls and Wire Guide



Correct



Incorrect



Ref. 800412-A



Turn Off power.

View is from top of drive rolls looking down with pressure assembly open.

- 1 Drive Roll Securing Nut
- 2 Drive Roll
- 3 Wire Guide
- 4 Welding Wire
- 5 Drive Gear

Insert screwdriver, and turn screw in or out until drive roll groove lines up with wire guide.

Close pressure roll assembly.



6-5. Troubleshooting Table

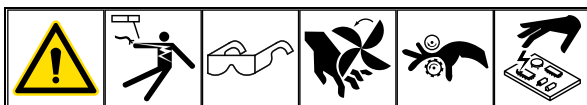


Table 6–1. Troubleshooting Table

Trouble	Remedy
No weld output; wire does not feed.	Be sure line disconnect switch is On (see Section 4-14).
	Replace building line fuse or reset circuit breaker if open (see Section 4-14).
	Secure gun trigger connections (see welding gun Owner's Manual).
	HL.P 001 appears on meters. Turn power switch off and back on, if HLP 001 appears on meters again, have Factory Authorized Service Agent check unit.
	HL.P 002 appears on meters. Thermistor RT1 is detecting an overheating condition. Wait for unit to cool allowing the fan to run. After unit is cool, if HL.P 002 message remains, have Factory Authorized Service Agent check for an open Thermistor RT1 (see Section 6-2).
	HL.P 004 appears on meters. Reset message by releasing the trigger or removing stuck wire causing short circuit (see Section 5-2). If message remains, have Factory Authorized Service Agent check for shorted trigger leads.
	Have Factory Authorized Service Agent check Power switch.
No Weld Output; wire feeds.	Have Factory Authorized Service Agent check all board connections and main control board.
	Connect work clamp to get good metal to metal contact.
	Replace contact tip (see welding gun Owner's Manual).
Low weld output.	HL.P 003 appears on meters, have Factory Authorized Service Agent check main control board and main rectifier.
	Connect unit to proper input voltage or check for low line voltage (see Section 4-14).
	Check input voltage jumper links and correct position. (see Section 4-10 or 4-12).
Fan motor does not run.	Have Factory Authorized Service Agent check main control board.
	Have Factory Authorized Service Agent check fan-on-demand circuit.
Low, high, or erratic wire speed.	Readjust front panel settings (see Section 5-1).
	Change to correct size drive rolls (see Section 6-3).
	Readjust drive roll pressure (see Section 4-15).
	Replace inlet guide, contact tip, and/or liner if necessary (see welding gun Owner's Manual).
	Check position of input jumper links. (see Section 4-10 or 4-12).
	Have Factory Authorized Service Agent check main control board.
No wire feed.	Turn Wire Speed control to higher setting (see Section 5-1).
	Clear obstruction in gun contact tip or liner (see welding gun Owner's Manual).
	Readjust drive roll pressure (see Section 4-15).
	Change to correct size drive rolls (see Section 6-3).
	Rethread welding wire (see Section 4-15).
	HL.P 002 appears on meters. Thermistor T is detecting an overheating condition. Wait for unit to cool allowing the fan to run. After unit is cool, If HL.P 002 message remains, contact Factory Authorized Service Agent (see Section 6-2).
	HL.P 004 appears on meters. Reset message by releasing the trigger or removing stuck wire causing short circuit (see Section 5-2). If message remains, have Factory Authorized Service Agent check for shorted trigger leads.
	HL.P 005 appears on meters. Wire feed malfunction. Check wire feed delivery system.
	Check gun trigger and leads. Repair or replace gun if necessary.
	Have Factory Authorized Service Agent check main control board.

Table 6–2. Help Codes

 All directions are in reference to the front of the unit. All circuitry referred to is located inside the unit.

Volt-meter Display	Wire Feed Speed Meter Display	Remedy
HLP	1	Turn off primary input power and check input voltage per primary voltage rating of welder, and correct if necessary. If HELP 1 persists, this Indicates a communication error between control board PC1 and user interface board PC2. Contact a Service Distributor or Factory Service Department.
HLP	2	Indicates overheating of unit. Unit will shutdown until internal temperature drops within operational range.
HLP	3	Indicates no open circuit voltage detected when gun trigger is pulled and no arc detected after 3 seconds. Turn off primary input power and contact a Service Distributor or Factory Service Department.
HLP	4	Indicates gun trigger was pulled and held for 2 minutes without a welding arc established or there is a direct short between contact tip or wire and the workpiece. Release gun trigger and clear fault condition.
HLP	5	Indicates a malfunction in wire feed system and/or drive motor overcurrent condition. Check for proper spool brake adjustment or obstructions in wire feed system. Clean or replace liner, wire guides, or contact tip.
HLP	6	Indicates a malfunction in wire feed system and/or external drive motor overcurrent condition (spool gun or push-pull gun). Check for proper spool brake adjustment or obstructions in wire feed system. Clean or replace liner, wire guides, or contact tip.
HLP	7	Indicates spool gun trigger was pulled and held for 2 minutes without a welding arc established.
HLP	8	Indicates XR Edge gun trigger was pulled and held for 2 minutes without a welding arc established.
HLP	9	Indicates XR-A gun trigger was pulled and held for 2 minutes without a welding arc established.
HLP	10	Indicates Python gun trigger was pulled and held for 2 minutes without a welding arc established.
HLP	11	Indicates a communication error between control board PC1 and user interface board PC2. Contact Factory Service Department.
HLP	12	Indicates Aluma-Pro gun trigger was pulled and held for 2 minutes without a welding arc established.

SECTION 7 – PARTS LIST

A. Drive Roll And Wire Guide Kits

Base selection of drive rolls upon the following recommended usages:

- 6 V-Grooved rolls for hard wire.
- 7 U-Grooved rolls for soft and soft shelled cored wires.
- 8 U-Cogged rolls for extremely soft shelled wires (usually hard surfacing types).
- 9 V-Knurled rolls for hard shelled cored wires.
- 10 Drive roll types may be mixed to suit particular requirements (example: V-Knurled roll in combination with U-Grooved).

Wire Diameter			Kit No.	Drive Roll		Inlet Wire Guide
Fraction	Decimal	Metric		Part No.	Type	
.023/.025 in.	.023/.025 in.	0.6 mm	087131	079130	V-Grooved	056192
.030/.035 in.	.030/.035 in.	0.8/0.9 mm	204579	203526	V-Grooved	056192
.030 in.	.030 in.	0.8 mm	079594	053695	V-Grooved	056192
.035 in.	.035 in.	0.9 mm	079595	053700	V-Grooved	056192
.045 in.	.045 in.	1.2 mm	079596	053697	V-Grooved	056192

Ref. S-0026-B/7-91

B. MDX Welding Gun Consumables

See OM-282976 (shipped with this product) for information on replacement consumables for the MDX welding gun.

SECTION 8 – ELECTRICAL DIAGRAM

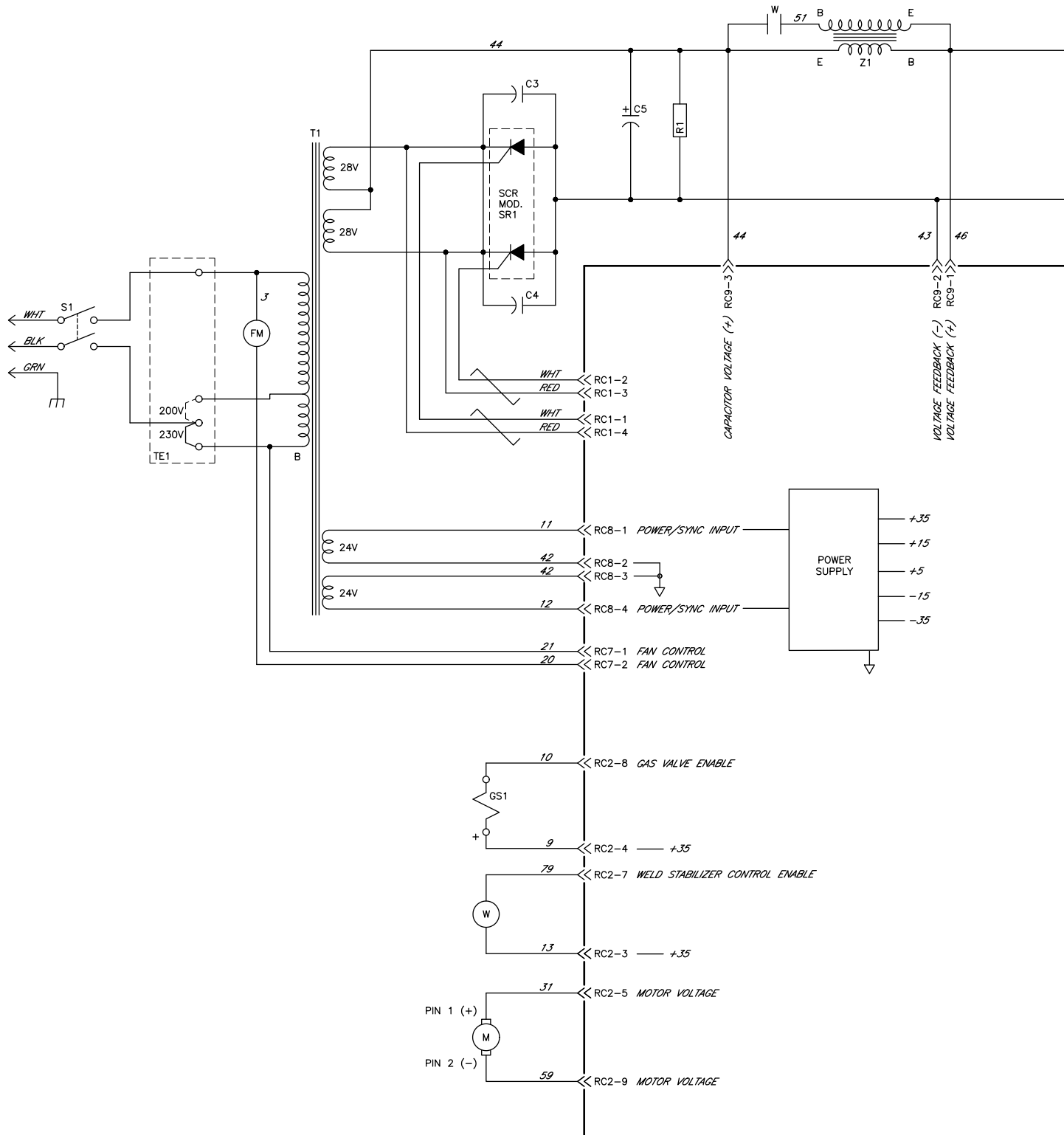
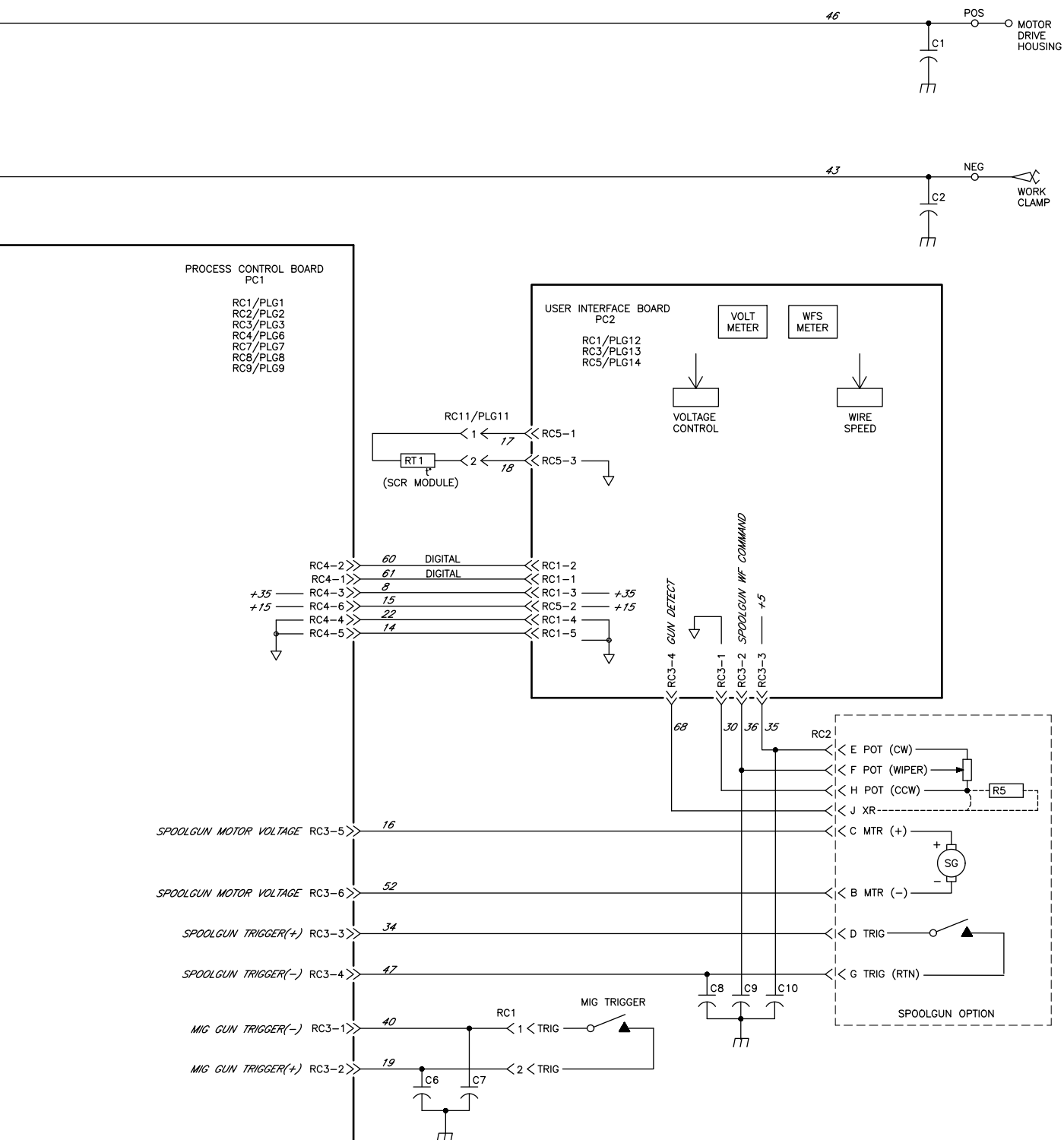


Figure 8-1. Circuit Diagram For 208/240 Volt Model



284603-B



Input
Voltage 60 Hz
single
phase

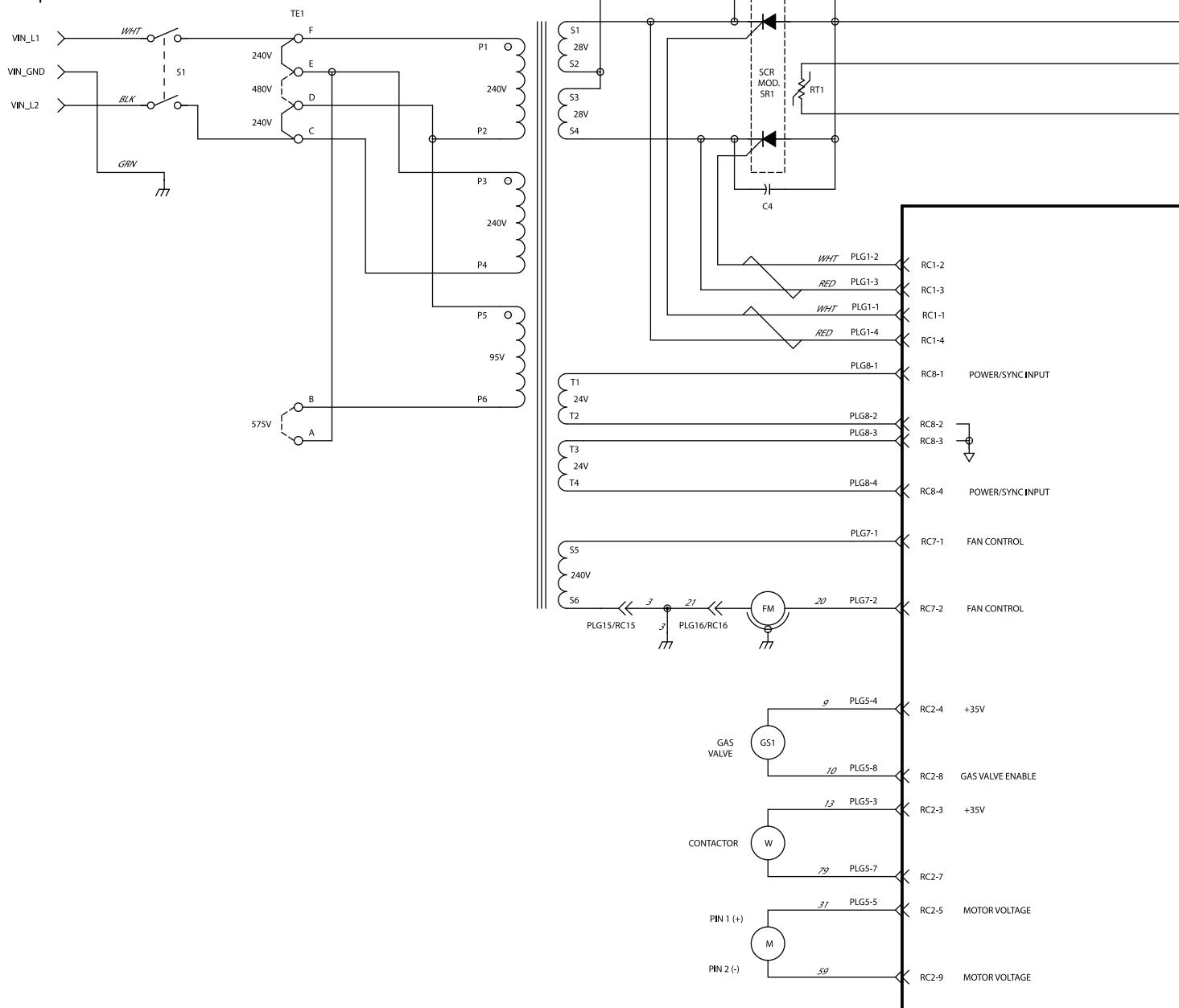
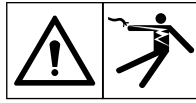
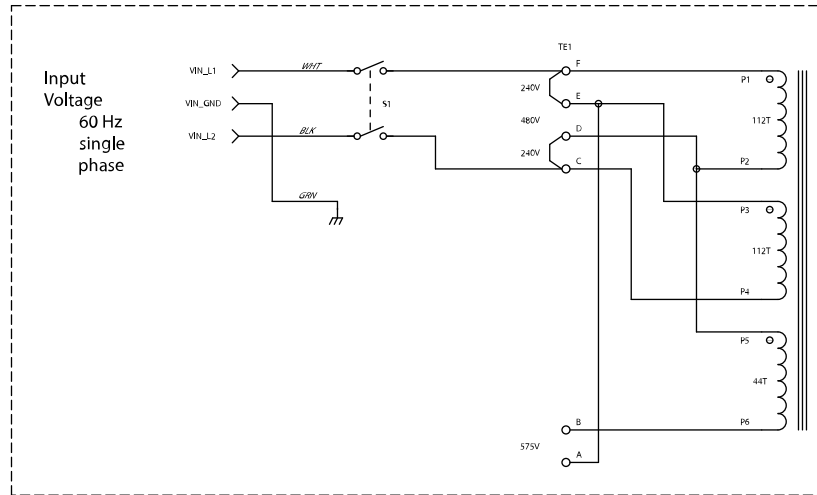


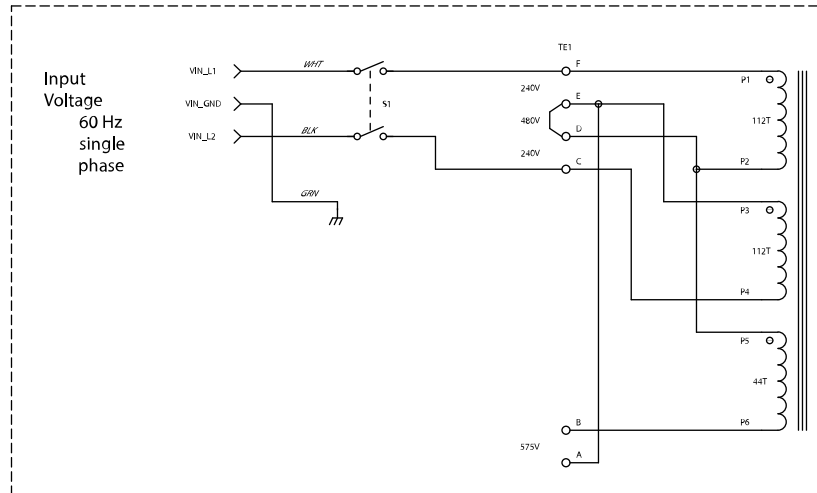
Figure 8-2. Circuit Diagram For 240/480/575 Volt Model, Page 1 of 2



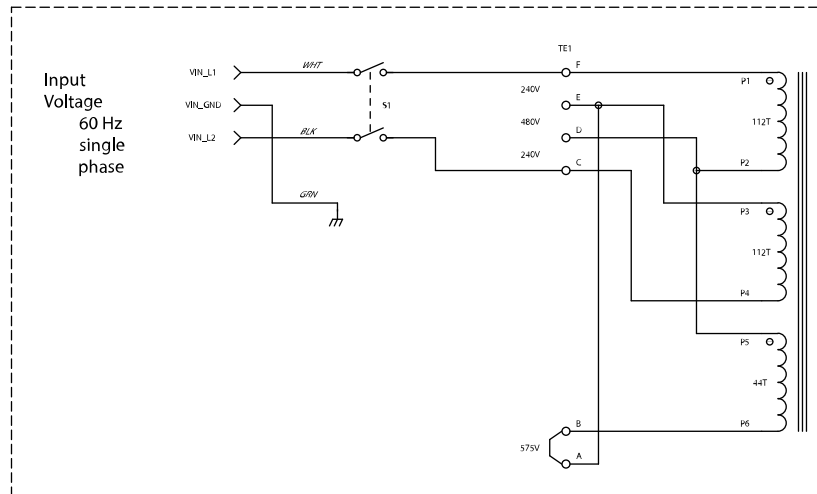
**240 VAC INPUT LINK
ARRANGEMENT
240V primaries in parallel**



**480 VAC INPUT LINK
ARRANGEMENT
240V primaries in series**



**575 VAC INPUT LINK ARRANGEMENT
575V winding linking 240V windings, all in series**



400342-C2

Figure 8-3. Circuit Diagram For 240/480/575 Volt Model, Page 2 of 2

SECTION 9 – DEFINITIONS

9-1. Symbols And Definitions

	Wire Feed		Do Not Stitch While Welding		Single Phase
V	Volts		Off	%	Percent
	Gas Metal Arc Welding (GMAW) Gun		Gas Output	IP	Ingress Protection
	Voltage Input	U₁	Rated Supply Voltage		Gas METal Arc Welding (GMAW)
	Output	I₂	Rated Welding Current	Hz	Hertz
	Increase	U₂	Conventional Load Voltage	A	Amperage
	Wire Feed Spool Gun	I_{1max}	Rated Maximum Supply Current	—	Negative
	Press To Reset	I_{1eff}	Maximum Effective Supply Current	+	Positive
X	Duty Cycle		Direct Current (DC)		Increase/Decrease
I	On		Transformer		Protective Earth (Ground) GND/PE
	Gas Input		Single Phase Transformer Rectifier		
U₀	Rated No-Load Voltage (Average)		Line Connection		

SECTION 10 – REGULATORY AND COMPLIANCE INFORMATION

10-1. Software Licensing Agreement

The End User License Agreement and any third-party notices and terms and conditions pertaining to third-party software can be found at <https://www.millerwelds.com/eula> and are incorporated by reference herein.

10-2. Information About Default Weld Parameters And Settings

NOTICE – Each welding application is unique. Although certain Miller Electric products are designed to determine and default to certain typical welding parameters and settings based upon specific and relatively limited application variables input by the end user, such default settings are for reference purposes only; and final weld results can be affected by other variables and application-specific circumstances. The appropriateness of all parameters and settings should be evaluated and modified by the end user as necessary based upon application-specific requirements. The end user is solely responsible for selection and coordination of appropriate equipment, adoption or adjustment of default weld parameters and settings, and ultimate quality and durability of all resultant welds. Miller Electric expressly disclaims any and all implied warranties including any implied warranty of fitness for a particular purpose.

10-3. Environmental Specifications

A. IP Rating

IP Rating
IP21
This equipment is designed for indoor use and is not intended to be used or stored outside.

B. Temperature Specifications

Operating Temperature Range*	Storage/Transportation Temperature Range
-4 to 104°F (-20 to 40°C)	-22 to 122°F (-30 to 50°C)

*Output is derated at temperatures above 104°F (40°C).

[illegible]

Notes



Effective January 1, 2026 (Equipment with a serial number preface of NG or newer)

This limited warranty supersedes all previous Miller warranties and is exclusive with no other guarantees or warranties expressed or implied.

LIMITED WARRANTY - Subject to the terms and conditions below, Miller Electric Mfg. LLC, Appleton, Wisconsin, warrants to authorized distributors that new Miller equipment sold after the effective date of this limited warranty is free of defects in material and workmanship at the time it is shipped by Miller. **THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS.**

Within the warranty periods listed below, Miller will repair or replace any warranted parts or components that fail due to such defects in material or workmanship. Notifications submitted as online warranty claims must provide detailed descriptions of the fault and troubleshooting steps taken to diagnose failed parts. Warranty claims that lack the required information as defined in the Miller Service Operation Guide (SOG) may be denied by Miller.

Miller shall honor warranty claims on warranted equipment listed below in the event of a defect within the warranty coverage time periods listed below. Warranty time periods start on the delivery date of the equipment to the end-user purchaser.

1 5 Years Parts — 3 Years Labor

- Original Main Power Rectifiers Only to Include SCRs, Diodes, and Discrete Rectifier Modules in non-inverter products

2 4 Years Parts (No Labor)

- Auto-Darkening ClearLight 2.0 and 4x Helmet Lenses

3 3 Years — Parts and Labor Unless Specified

- Auto-Darkening Helmet Lenses (No Labor)
- Copilot Collaborative Welding Systems
- Engine and Hydraulic Driven Welder/Generators (Including EnPak) (**NOTE: Engines are Warranted Separately by the Engine Manufacturer.**)
- Handheld Laser Power Sources
- Insight Welding Intelligence Products (Except External Sensors)
- Inverter Power Sources
- Plasma Arc Cutting Power Sources
- Process Controllers
- Semi-Automatic and Automatic Wire Feeders
- Transformer/Rectifier Power Sources

4 2 Years — Parts and Labor

- Auto-Darkening Weld Masks (No Labor)
- Fume Extractors - Filtair 215, Capture 5, Purifier, and Industrial Collector Series

5 1 Year — Parts and Labor Unless Specified

- ArcCapture Camera
- ArcReach Heater
- AugmentedArc, LiveArc, and MobileArc Welding Systems
- Automatic Motion Devices
- Bernard BTB Air-Cooled MIG Guns (No Labor)
- CoolBelt, PAPR Blower, and PAPR Face Shield (No Labor)
- Desiccant Air Dryer System

- Field Options (**NOTE: Field options are covered for the remaining warranty period of the product they are installed in, or for a minimum of one year — whichever is greater.**)

- RFCS Foot Controls (Except RFCS-RJ45)
- Fume Extractors - Filtair 130, MWX and SWX Series, Standard, Telescopic, and ZoneFlow Extraction Arms and Motor Control Box
- Handheld Laser Torches (No Labor)
- Induction Heating Power Sources, Coolers (**NOTE: Digital Recorders are Warranted Separately by the Manufacturer.**)
- Insight Sensors
- Laser Welding Helmets (No Labor)
- Load Banks
- MDX Series MIG Guns (No Labor)
- Motor-Driven Guns
- Positioners and Controllers
- Racks (For Housing Multiple Power Sources)
- Running Gear/Trailers
- Spoolmate Spoolguns (No Labor)
- Subarc Wire Drive Assemblies
- Supplied Air Respirator (SAR) Boxes and Panels
- TIG Torches (No Labor)
- Tregaskiss Guns (No Labor)
- Venture 150 Battery (Warranted for 1 year or 1000 charge cycles, whichever comes first)
- Water Cooling Systems
- Wireless Remote Foot/Hand Controls and Receivers
- Work Stations/Weld Tables/Weld Booths (No Labor)
- XT Plasma Cutting Torches (No Labor)

6 6 Months — Parts

- 12 Volt Automotive-Style Batteries
- PAPR Batteries

7 90 Days — Parts

- Accessories (Kits)
- ArcReach Heater Quick Wrap and Air Cooled Cables
- Canvas Covers
- Induction Heating Coils and Blankets, Cables, Rolling Inductor, and Non-Electronic Controls
- M-Guns
- Subarc (SAW) Torches and External Cladding Heads
- Remote Controls and RFCS-RJ45
- Replacement Parts (No labor)

Miller's True Blue® Limited Warranty shall not apply to:

1. **Consumable components; such as contact tips, cutting nozzles, contactors, brushes, relays, work station table tops and welding curtains, or parts that fail due to normal wear. (Exception: brushes and relays are covered on all engine-driven products.)**
2. Items furnished by Miller, but manufactured by others, such as engines or trade accessories. These items are covered by the manufacturer's warranty, if any.
3. Equipment that has been modified by any party other than Miller, or equipment that has been improperly installed, improperly operated or

misused based upon industry standards, or equipment which has not had reasonable and necessary maintenance, or equipment which has been used for operation outside of the specifications for the equipment.

4. Defects caused by accident, unauthorized repair, or improper testing.

MILLER PRODUCTS ARE INTENDED FOR COMMERCIAL AND INDUSTRIAL USERS TRAINED AND EXPERIENCED IN THE USE AND MAINTENANCE OF WELDING EQUIPMENT.

The exclusive remedies for warranty claims are, at Miller's option, either: (1) repair; or (2) replacement; or, if approved in writing by Miller, (3) the pre-approved cost of repair or replacement at an authorized Miller service station; or (4) payment of or credit for the purchase price (less reasonable depreciation based upon use). Products may not be returned without Miller's written approval. Return shipment shall be at customer's risk and expense.

The above remedies are F.O.B. Appleton, WI, or Miller's authorized service facility. Transportation and freight are the customer's responsibility. TO THE EXTENT PERMITTED BY LAW, THE REMEDIES HEREIN ARE THE SOLE AND EXCLUSIVE REMEDIES REGARDLESS OF THE LEGAL THEORY. IN NO EVENT SHALL MILLER BE LIABLE FOR DIRECT, INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES (INCLUDING LOSS OF PROFIT) REGARDLESS OF THE LEGAL THEORY. ANY WARRANTY NOT PROVIDED HEREIN AND ANY IMPLIED WARRANTY, GUARANTY, OR REPRESENTATION, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE, ARE EXCLUDED AND DISCLAIMED BY MILLER.

Some US states do not allow limiting the duration of an implied warranty or the exclusion of certain damages, so the above limitations may not apply to you. This warranty provides specific legal rights, and other rights may be available depending on your state. In Canada, some provinces provide additional warranties or remedies, and to the extent the law prohibits their waiver, the limitations set out above may not apply. This Limited Warranty provides specific legal rights, and other rights may be available, but may vary by province.

Warranty Questions?

Call 1-800-4-A-MILLER for your local Miller distributor.

Your distributor also gives you...

Service

You always get the fast, reliable response you need. Most replacement parts can be in your hands in 24 hours.

Support

Need fast answers to the tough welding questions? The expertise of the distributor and Miller is there to help you, every step of the way.

Owner's Record

Please complete and retain with your personal records.

Model Name	Serial/Style Number
Purchase Date	(Date which equipment was delivered to original customer.)
Distributor	
Address	
City	
State	Zip

For Service

Contact a *DISTRIBUTOR* or *SERVICE AGENCY* near you.

Always provide Model Name and Serial/Style Number.

Contact your Distributor for:	Welding Supplies and Consumables Options and Accessories Personal Protective Equipment (PPE) Service and Repair Replacement Parts Training (Schools, Videos, Books) Welding Process Handbooks To locate a Distributor or Service Agency visit www.millerwelds.com or call 1-800-4-A-Miller
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Contact the Delivering Carrier to:	File a claim for loss or damage during shipment. For assistance in filing or settling claims, contact your distributor and/or equipment manufacturer's Transportation Department.
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For International Locations Visit
www.MillerWelds.com

