



OM-262657T

2025-04

## Processes



MIG (GMAW) Welding

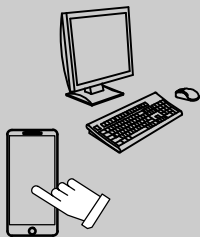
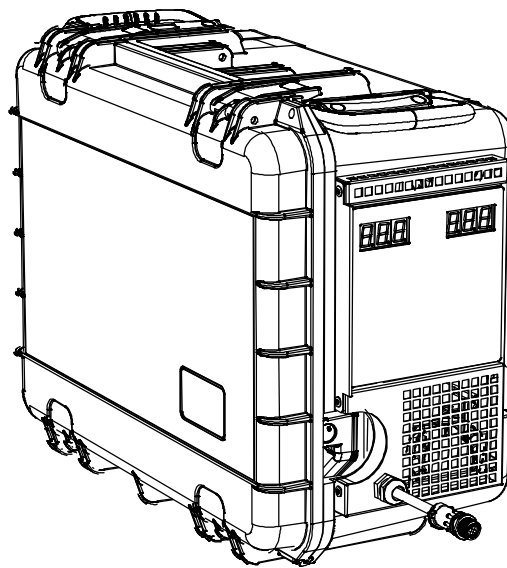
Flux Cored (FCAW) Welding

## Description



Wire Feeder

# ArcReach<sup>®</sup> Smart Feeder



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

[www.MillerWelds.com](http://www.MillerWelds.com)

## OWNER'S MANUAL

File: MIG (GMAW)



# 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.



ISO 9001  
Quality

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

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](http://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.



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# SECTION 1 – SAFETY PRECAUTIONS - READ BEFORE USING

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 **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.

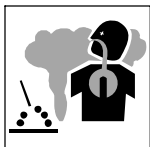
- Do not touch live electrical parts.
- Wear dry, hole-free insulating gloves and body protection.
- Insulate yourself from work and ground using dry insulating mats or covers big enough to prevent any physical contact with the work or ground.
- Do not store or use equipment in standing water.
- Do not use AC weld output in damp, wet, or confined spaces, or if there is a danger of falling.
- 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) welder, 2) a DC manual (stick) welder, or 3) an AC welder with reduced open-circuit voltage. In most situations, use of a DC, constant voltage wire welder 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.
- Do not touch electrode holders connected to two welding machines at the same time since double open-circuit voltage will be present.
- Use only well-maintained equipment. Repair or replace damaged parts at once. Maintain unit according to manual.
- 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.



### **FUMES AND GASES can be hazardous.**

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

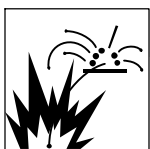
- Keep your head out of the fumes. Do not breathe the fumes.
- Ventilate the work area and/or use local forced ventilation at the arc to remove welding fumes and gases. The recommended way to determine adequate ventilation is to sample for the composition and quantity of fumes and gases to which personnel 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 watch-person 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 while wearing an air-supplied respirator. The coatings and any metals containing these elements can give off toxic fumes if welded.



### **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.

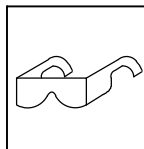


### **WELDING can cause fire or explosion.**

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 and causing electric shock, sparks, and fire hazards.
- Do not use welder 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.



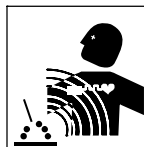
### **FLYING METAL or DIRT can injure eyes.**

- 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.



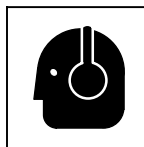
### **BUILDUP OF GAS can injure or kill.**

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



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

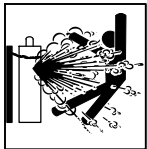
- Wearers of Pacemakers and other Implanted Medical Devices should keep away.
- Implanted Medical Device wearers should consult their doctor and the device manufacturer before going near arc welding, spot welding, gouging, plasma arc cutting, or induction heating operations.



### **NOISE can damage hearing.**

Noise from some processes or equipment can damage hearing.

- Wear approved ear protection if noise level is high.



### **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**



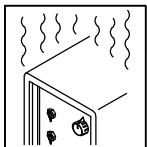
### **FIRE OR EXPLOSION hazard.**

- 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.



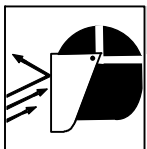
### **FALLING EQUIPMENT can injure.**

- 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.



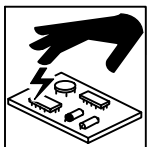
### **OVERUSE can cause OVERHEATING**

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



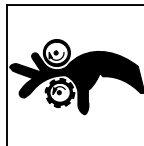
### **FLYING SPARKS can injure.**

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



### **STATIC (ESD) can damage PC boards.**

- Put on grounded wrist strap BEFORE handling boards or parts.
- Use proper static-proof bags and boxes to store, move, or ship PC boards.



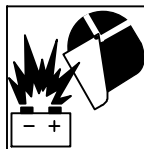
### **MOVING PARTS can injure.**

- 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.



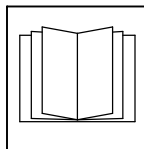
### **BATTERY EXPLOSION can injure.**

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



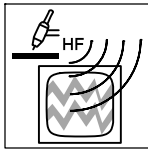
### **MOVING PARTS can injure.**

- 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, covers, or guards for maintenance and troubleshooting as necessary.
- Reinstall doors, panels, covers, or guards when maintenance is finished and before reconnecting input power.



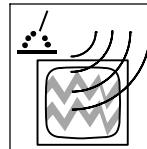
### **READ INSTRUCTIONS.**

- 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.



#### H.F. RADIATION can cause interference.

- High-frequency (H.F.) 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 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 machine is installed and grounded according to this manual.
- If interference still occurs, the user must take extra measures such as moving the welding machine, 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](http://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](http://www.aws.org).

*Safe Practice For Occupational And Educational Eye And Face Protection*, ANSI Standard Z87.1 from American National Standards Institute. Website: [www.safetysupply.com](http://www.safetysupply.com).

*Safe Practices for the Preparation of Containers and Piping for Welding and Cutting*, American Welding Society Standard AWS F4.1. Website: [www.aws.org](http://www.aws.org).

*National Electrical Code*, NFPA Standard 70 from National Fire Protection Association. Website: [www.nfpa.org](http://www.nfpa.org).

*Safe Handling of Compressed Gases in Cylinders*, CGA Pamphlet P-1 from Compressed Gas Association. Website: [www.cganet.com](http://www.cganet.com).

*Safety in Welding, Cutting, and Allied Processes*, CSA Standard W117.2 from Canadian Standards Association. Website: [www.csagroup.org](http://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](http://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](http://www.osha.gov).

*OSHA Important Note Regarding the ACGIH TLV, Policy Statement on the Uses of TLVs and BEIs*. Website: [www.osha.gov](http://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](http://www.cdc.gov/NIOSH).

## 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, gouging, plasma arc cutting, and induction heating operations) creates an EMF field around the welding circuit. EMF fields 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 passers-by or conduct individual risk assessment for welders. All welders should use the following procedures in order to minimize exposure to EMF fields from the welding circuit:

1. Keep cables close together by twisting or taping them, or using a cable cover.
2. Do not place your body between welding 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 welding circuit as possible.
5. Connect work clamp to workpiece as close to the weld as possible.
6. Do not work next to, sit or lean on the welding power source.
7. Do not weld whilst carrying the welding power source or wire feeder.

#### 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, gouging, plasma arc cutting, or induction heating operations. If cleared by your doctor, then following the above procedures is recommended.

# SECTION 2 – CONSIGNES DE SÉCURITÉ – LIRE AVANT UTILISATION

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**⚠** 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 l'un de ces symboles, prendre garde et suivre les instructions afférentes pour éviter tout risque. Les consignes de sécurité présentées ci-après ne font que résumer les informations contenues dans les principales normes de sécurité. Lire et observer 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.



Pendant le fonctionnement, maintenir à distance toutes les personnes, notamment les enfants de l'appareil.



### 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.
- 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 poste à souder DC à tension constante (à fil), 2) un poste à souder DC manuel (électrode) ou 3) un poste à

souder AC à tension à vide réduite. Dans la plupart des situations, l'utilisation d'un poste à souder 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.
- Ne pas toucher des porte électrodes connectés à deux machines en même temps à cause de la présence d'une tension à vide doublée.
- N'utiliser qu'un matériel en bon état. Réparer ou remplacer sur-le-champ les pièces endommagées. Entretenir l'appareil conformément à ce manuel.
- 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-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 à mains nues les parties chaudes.
- 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.



### **LES FUMÉES ET LES GAZ peuvent être dangereux.**

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

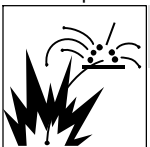
- Eloigner votre tête des fumées. Ne pas respirer les fumées.
- À l'intérieur, ventiler la zone et/ou utiliser une ventilation forcée au niveau de l'arc pour l'évacuation des fumées et des gaz de soudage. Pour déterminer la bonne ventilation, il est recommandé de procéder à un prélèvement pour la composition 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 nettoyeurs, les consommables, les produits de refroidissement, les dégraisseurs, 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 en 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 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.

- Porter un casque de soudage approuvé muni de verres filtrants approprié pour protéger visage et yeux pour protéger votre visage et vos yeux pendant le soudage ou pour regarder (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 par ex. des gants de cuir, une chemise solide, des pantalons sans revers, des chaussures hautes et une casquette.

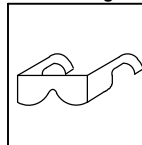


### **LE SOUDAGE peut provoquer un incendie ou une explosion.**

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 homologués.
- 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 défaillir. 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 en provoquant des risques d'électrocution, d'étincelles et d'incendie.
- Ne pas utiliser le poste de soudage pour dégeler 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 par ex. 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 avoir de la surveillance 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 nettoyeurs, les consommables, les produits de refroidissement, les dégraisseurs, les flux et les métaux.



### **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 lunettes de sécurité avec écrans latéraux ou un écran facial.



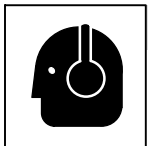
### **LES ACCUMULATIONS DE GAZ risquent de provoquer des blessures ou même la mort.**

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

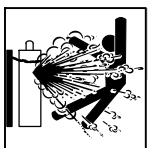
- Les porteurs de stimulateurs cardiaques et autres implants médicaux doivent rester à distance.
- Les porteurs d'implants médicaux doivent consulter leur médecin et le fabricant du dispositif avant de s'approcher de la zone où se déroule du soudage à l'arc, du soudage par points, du gougeage, de la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



### LE BRUIT peut endommager l'ouïe.

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

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



### LES BOUTEILLES peuvent exploser si elles sont endommagées.

Les bouteilles de gaz comprimé 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.
- Le couvercle du détendeur doit toujours être en place, sauf lorsque la bouteille est utilisée ou qu'elle est reliée pour usage ultérieur.
- 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



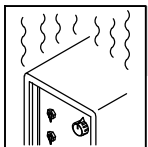
### Risque D'INCENDIE OU D'EXPLOSION.

- Ne pas 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.



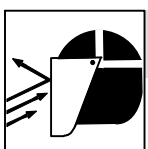
### LA CHUTE DE L'ÉQUIPEMENT peut provoquer des blessures.

- Utiliser l'anneau de levage uniquement pour soulever l'appareil, NON PAS les chariots, 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 manuelle de pièces ou équipements lourds.



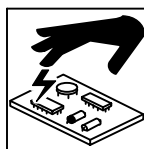
### L'EMPLOI EXCESSIF peut SURCHAUFFER L'ÉQUIPEMENT.

- Prévoir une période de refroidissement; respecter le cycle opératoire nominal.
- Réduire le courant ou le facteur de marche avant de poursuivre le soudage.
- Ne pas obstruer les passages d'air du poste.



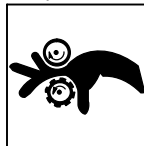
### LES ÉTINCELLES PROJÉTÉES peuvent provoquer des blessures.

- Porter un écran facial pour protéger le visage et les yeux.
- Affûter l'électrode au tungstène uniquement à la meuleuse dotée de protecteurs. Cette manœuvre 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 CHARGES ÉLECTROSTATIQUES peuvent endommager les circuits imprimés.

- Établir la connexion avec la barrette de terre avant de manipuler des cartes ou des pièces.
- Utiliser des pochettes et des boîtes antistatiques pour stocker, déplacer ou expédier des cartes de circuits imprimés.



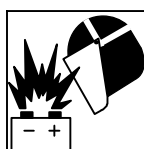
### Les PIÈCES MOBILES peuvent causer des blessures.

- 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 gâchette 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.

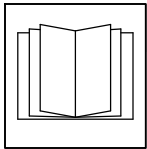
- Ne pas utiliser l'appareil de soudage pour charger des batteries ou faire démarrer des véhicules à l'aide de câbles de démarrage, sauf si l'appareil dispose d'une fonctionnalité de charge de batterie destinée à cet usage.



### Les PIÈCES MOBILES peuvent causer des blessures.

- S'abstenir de toucher des organes mobiles tels que des ventilateurs.
- Maintenir fermés et verrouillés les portes, panneaux, recouvrements et dispositifs de protection.

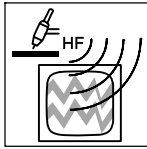
- Lorsque cela est nécessaire pour des travaux d'entretien et de dépannage, faire retirer les portes, panneaux, recouvrements ou dispositifs de protection uniquement par du personnel qualifié.
- Remettre les portes, panneaux, recouvrements ou dispositifs de protection quand l'entretien est terminé et 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.

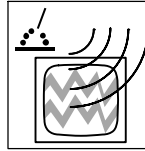
- N'utiliser que les pièces de rechange recommandées par le constructeur.
- Effectuer l'installation, l'entretien et toute intervention selon les manuels d'utilisateurs, les normes nationales, provinciales et de l'industrie, ainsi que les codes municipaux.



### LE RAYONNEMENT HAUTE FRÉQUENCE (H.F.) risque de provoquer des interférences.

- Le rayonnement haute fréquence (H.F.) 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 risque de provoquer des interférences pour l'équipement électronique sensible tel que les ordinateurs et l'équipement commandé par ordinateur tel que 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 poste de soudage 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](http://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](http://www.aws.org).

*Safe Practice For Occupational And Educational Eye And Face Protection*, ANSI Standard Z87.1 from American National Standards Institute. Website: [www.ansi.org](http://www.ansi.org).

*Safe Practices for the Preparation of Containers and Piping for Welding and Cutting*, American Welding Society Standard AWS F4.1 Website: [www.global.ihs.com](http://www.global.ihs.com).

*National Electrical Code*, NFPA Standard 70 from National Fire Protection Association. Website: [www.nfpa.org](http://www.nfpa.org).

*Safe Handling of Compressed Gases in Cylinders*, CGA Pamphlet P-1 from Compressed Gas Association. Website: [www.cganet.com](http://www.cganet.com).

*Safety in Welding, Cutting, and Allied Processes*, CSA Standard W117.2 from Canadian Standards Association.

Website: [www.csagroup.org](http://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](http://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](http://www.osha.gov).

*OSHA Important Note Regarding the ACGIH TLV, Policy Statement on the Uses of TLVs and BEIs*. Website: [www.osha.gov](http://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](http://www.cdc.gov/NIOSH).

## 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, le gougeage, le découpage plasma et les opérations de chauffage par induction) crée un champ électromagnétique (CEM) autour du circuit de soudage. Les champs électromagnétiques 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: Limiter par exemple tout accès aux passants ou procéder à une évaluation des risques individuels pour les soudeurs. Tous les soudeurs 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 de soudage. 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 soudage.
5. Connecter la pince sur la pièce aussi près que possible de la soudure.
6. Ne pas travailler à proximité d'une source de soudage, ni s'asseoir ou se pencher dessus.
7. Ne pas souder tout en portant la source de soudage ou le dévidoir.

### 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 gougeage, du coupage plasma ou de chauffage par induction. Si le médecin approuve, il est recommandé de suivre les procédures précédentes.

## SECTION 3 – SPECIFICATIONS

### 3-1. Specifications

| Type of Input Power                                   | Welding Power Source Type                                                                                                                                   | Wire Feed Speed Range                                               | Wire Diameter Range               | Rated Welding Output                                                                           | Max. Wire Spool Capacity           | Overall Dimensions                                                                                 | Weight           |
|-------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|-----------------------------------|------------------------------------------------------------------------------------------------|------------------------------------|----------------------------------------------------------------------------------------------------|------------------|
| Open-Circuit/<br>Arc Voltage,<br>14 – 100<br>Volts DC | XMT®350<br>Field–<br>Pro™ NPR<br><br>XMT® 350<br>Field–<br>Pro™ PR<br><br>Big Blue® Pro<br>Series<br>(ArcReach<br>Models Only)<br><br>XMT® 400<br>ArcReach™ | 50 – 500 ipm<br>(1.27 – 12.7<br>mpm)<br>Depending On<br>Arc Voltage | .035 – .045 in.<br>(0.9 – 1.1 mm) | MIG–<br>275 A at 27 VDC,<br>60% Duty Cycle<br><br>Pulse–<br>275 A at 20 VDC,<br>35% Duty Cycle | 33 lb (15.0 kg)<br>12 in. (304 mm) | Length: 21 1/2. in.<br>(546 mm)<br><br>Width: 18 in.<br>(457 mm)<br><br>Height: 13 in. (330<br>mm) | 50 lb<br>(23 kg) |

 **Welding with Smart Feeder requires the welding power source to be connected to 3-phase power.**

### 3-2. Gun Recommendation Table

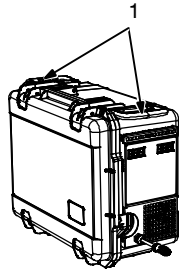
| Process    | Gun                       |
|------------|---------------------------|
| RMD        | PipeWorx 300-15 or 250-15 |
| Pulsed-MIG | PipeWorx 300-15           |

## SECTION 4 – INSTALLATION

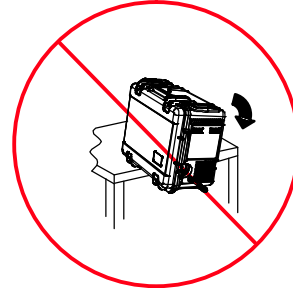
### 4-1. Selecting a Location



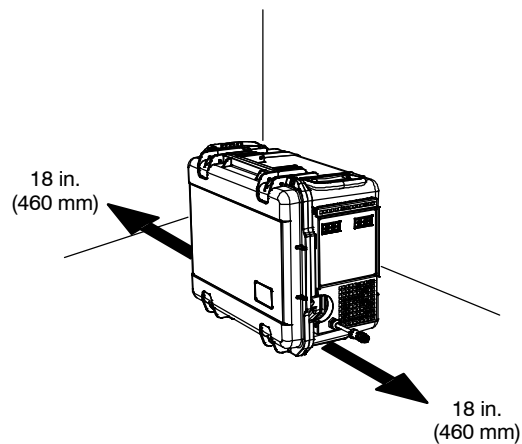
#### Movement



**⚠** Do not move or operate unit where it could tip.



#### Location And Airflow



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

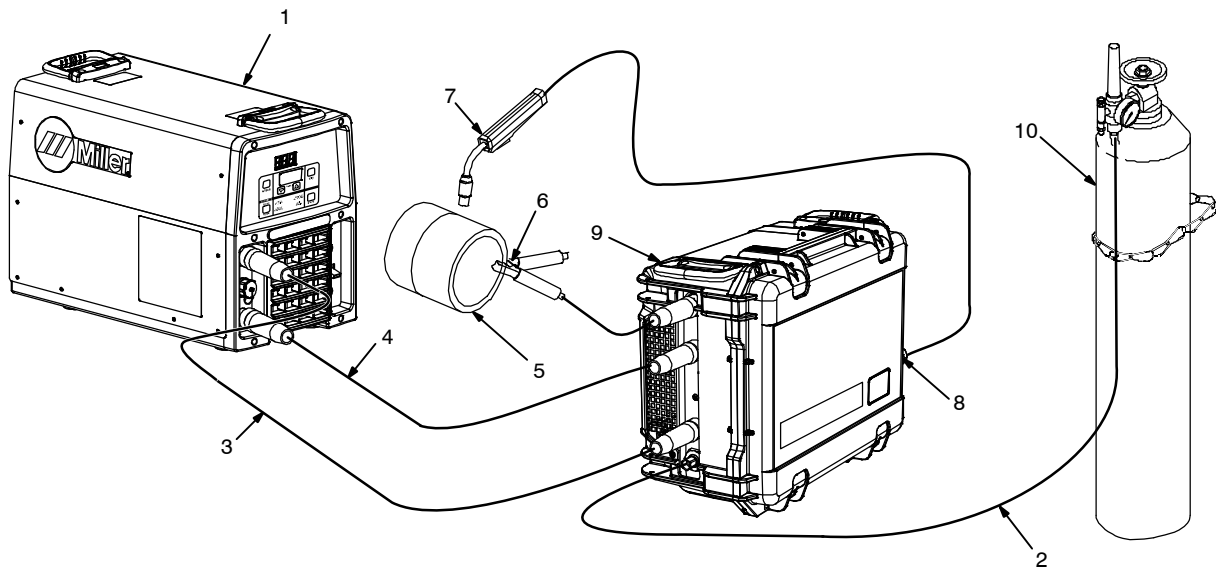
1 Lifting Handles

Use handles to lift and carry unit.

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## Notes

## 4-2. Equipment Connection Diagram



**⚠ Turn Off wire feeder and welding power source.**

- 1 Welding Power Source
- 2 Gas Hose
- 3 Weld Cable To Feeder
- 4 Work Cable To Feeder

- 5 Workpiece
  - 6 Work Clamp
  - 7 Gun
  - 8 Gun Trigger Receptacle
  - 9 Wire Feeder
- Connect work clamp to workpiece.

- 10 Gas Cylinder

Use of shielding gas is dependant on wire type.

**⚠ Shielding gas pressure not to exceed 100 psi (689 kPa).**

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## 4-3. ArcReach Applications

**⚠ The ArcReach Smart Feeder must be used with an ArcReach Compatible welding power source connected to three phase input power.**

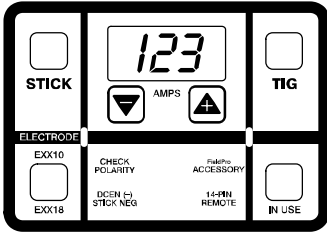
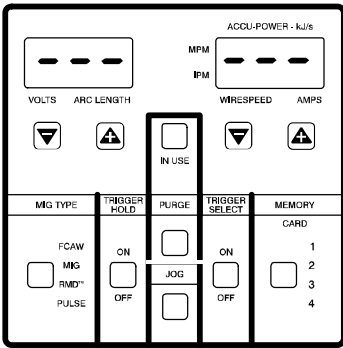
## 4-4. Associating Wire Feeder To An ArcReach Compatible Welding Power Source

- 1 Connect feeder to an ArcReach compatible welding power source.
- 2 Do not strike an arc.
- 3 Feeder will display dashed lines until connected.
- 4 The voltmeter will show preset voltage and wire speed while idle or weld amperage and voltage at the wire feeder while welding.
- 5 Use voltage control on feeder to adjust weld voltage.

**⚠ See Section 4-5 for detailed equipment setup.**

# 4-5. Equipment Setup

FEEDER FRONT PANEL

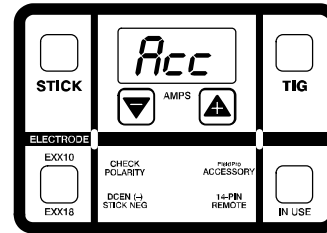
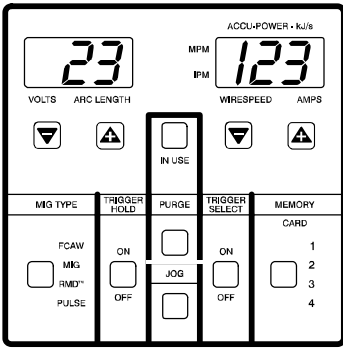


POWER SOURCE

**Associating the ArcReach Smart Feeder to an ArcReach compatible welding power source:**

- 1 Connect the feeder to the welding power source as shown in Section 4-8.
- 2 Turn on the welding power source and wire feeder. The welding power source will display the last amperage set point and the wire feeder will display three dashes until connected. Allow 60 seconds for system to connect.

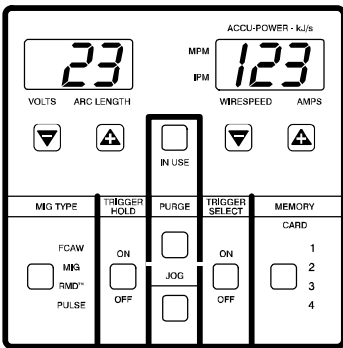
FEEDER FRONT PANEL



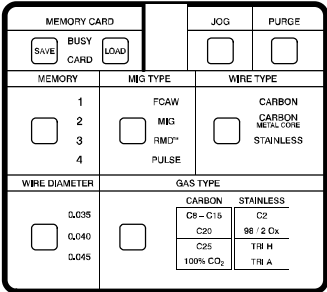
POWER SOURCE

- 3 Once feeder is communicating with power source, the power source will display "Acc" and the wire feeder will display preset voltage and wire feed speed.

FEEDER FRONT PANEL



SD CARD SLOT

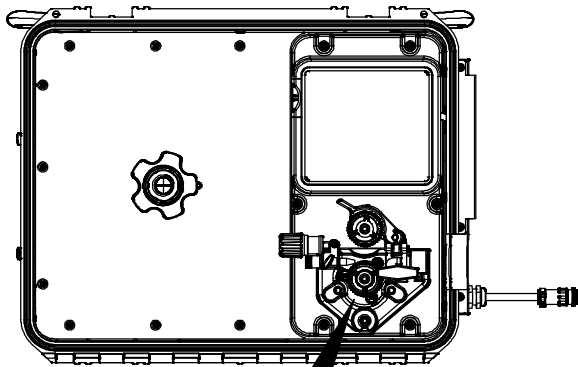


FEEDER SETUP PANEL

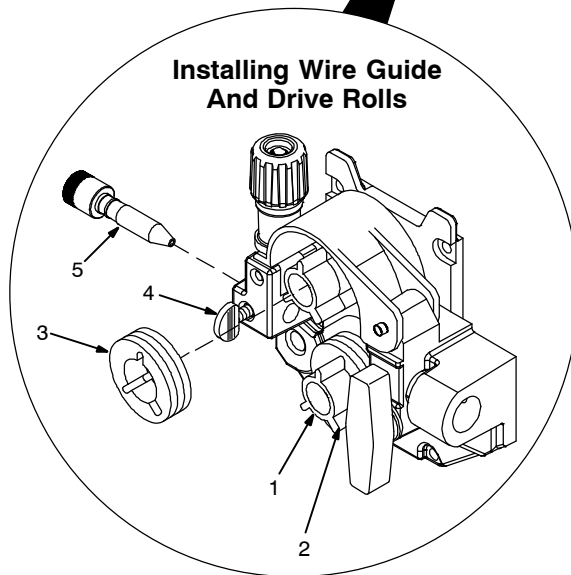
- 4 The preset welding voltage and wire feed speed can now be adjusted with the voltage control on the wire feeder while welding. While welding, the wire feeder displays weld voltage at the feeder. The power source displays amperage from feeder while welding and will maintain amperage display for 10 seconds after welding.

Set welding program for your specific application

## 4-6. Installing And Aligning Wire Guide And Drive Rolls



### Installing Wire Guide And Drive Rolls



### Installing Wire Guide And Drive Rolls

- 1 Drive Roll Securing Nut
- 2 Drive Roll Carrier

Turn nut one click until lobes of nut line up with lobes of drive roll carrier.

- 3 Drive Roll

Slide drive roll onto drive roll carrier. Turn nut one click.

Repeat procedure for top drive roll.

- 4 Inlet Wire Guide Screw
- 5 Inlet Wire Guide

Loosen securing screw. Install inlet guide so inlet guide screw is centered in groove in guide, or so tip is as close to drive rolls as possible without touching. Tighten screw.

### Aligning Wire Guide And Drive Rolls

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

- 6 Drive Roll Securing Nut
- 7 Drive Roll
- 8 Inlet Wire Guide
- 9 Welding Wire
- 10 Drive Gear

Turn screw in or out until drive roll groove lines up with wire guide.

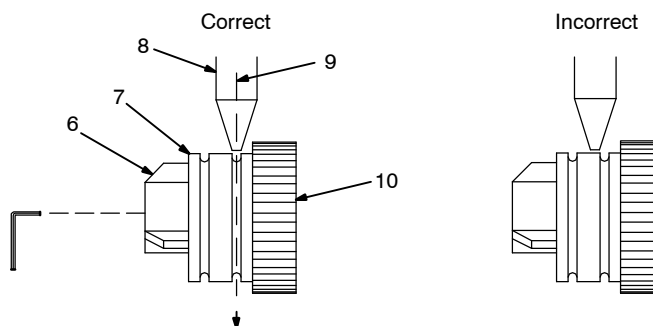
Close pressure roll assembly.

Only bottom drive roll alignment is adjustable. Turn adjustment screw in or out until groove in drive roll lines up with wire guide as shown.

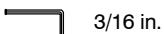
### Cleaning Drive Rolls

Remove drive rolls and clean grooves using a wire brush.

### Aligning Wire Guide And Drive Rolls



Tools Needed:



3/16 in.

TP3

## 4-7. Connecting Welding Gun



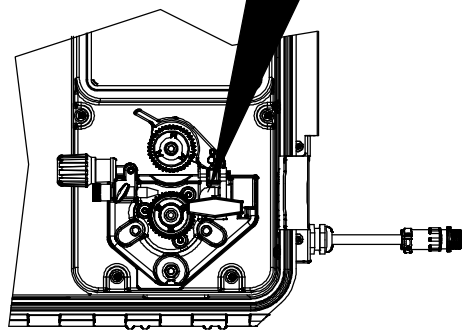
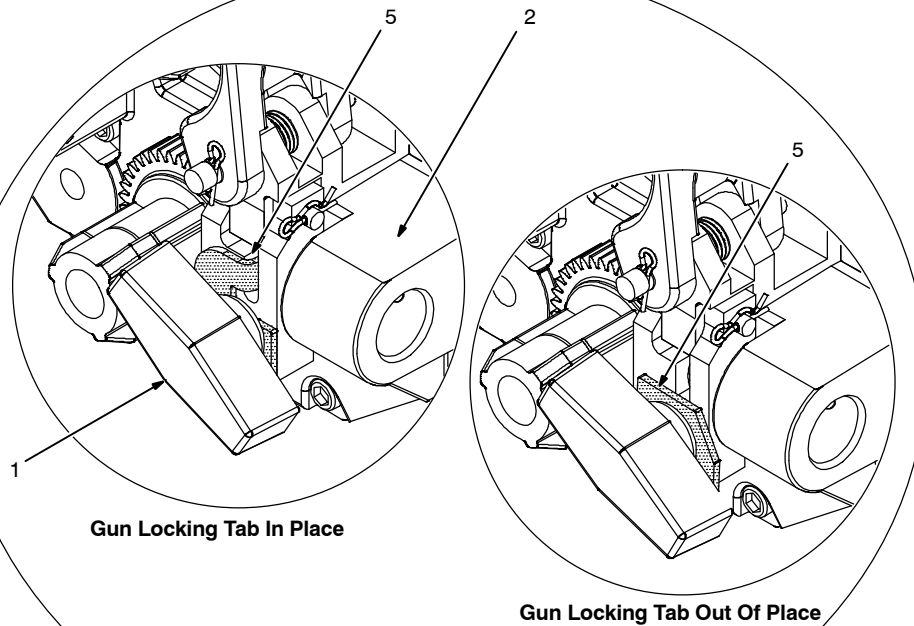
**⚠ Turn Off wire feeder and welding power source.**

- 1 Gun Securing Knob
- 2 Gun Block
- 3 Gun Power Pin
- 4 Power Pin Groove
- 5 Gun Locking Tab

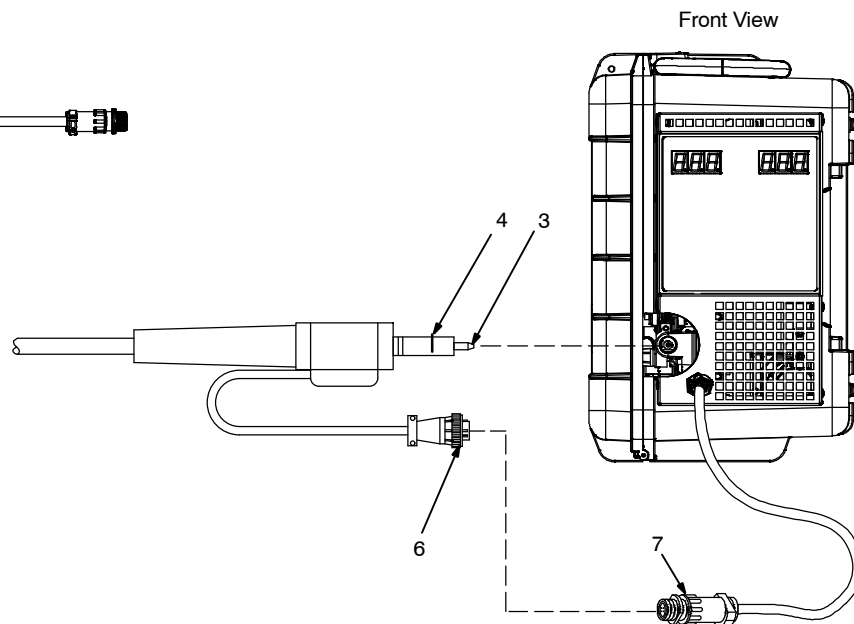
Loosen knob, insert gun end into block. Position power pin as close as possible to drive rolls without touching. Align the gun power pin groove with the gun locking tab. Tighten knob.

- 6 Gun Trigger Plug
- 7 Gun Trigger Receptacle

Connect gun trigger plug to gun trigger receptacle.

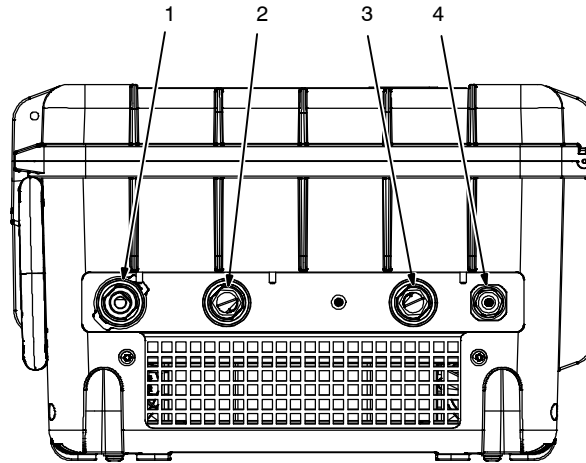


Internal Side View



Front View

## 4-8. Wire Feeder Rear Panel Connections



WORK 

WORK 

FROM  
POWER  
SOURCE

 ELECTRODE

 GAS 

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**⚠ Turn Off power source and disconnect both work cables and electrode cable from feeder.**

### 1 Work Clamp Female Connector

Push work cable male connector into female connector on feeder and turn 1/4 turn clockwise.

### 2 Work Cable From Power Source Male Connector

Push work cable female connector over male connector on feeder and turn 1/4 turn clockwise.

### 3 Electrode Cable From Power Source Male Connector

Push electrode cable female connector over male connector on feeder and turn 1/4 turn clockwise.

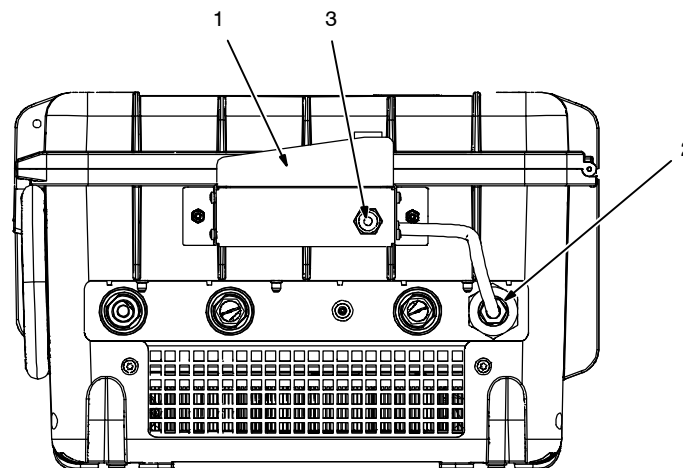
### 4 Shielding Gas Fitting

Connect fitting on end of shielding gas hose to fitting on feeder.

*ⓘ This feeder has an optional shielding gas filter that requires special attention when cleaning. See Section 6-2 for proper cleaning instructions.*

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## 4-9. Optional Gas Flow Meter



### 1 Optional Gas Flow Meter

The optional gas flow meter is shown installed.

### 2 Gas Inlet On Smart Feeder

Attach flow meter gas hose to gas inlet on Smart Feeder using 11/16 in. Wrench.

### 3 Gas Inlet On Flow Meter

Attach shielding gas supply hose to gas inlet on flow meter.

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#### 4-10. Selecting Cable Sizes\*



**Turn off power before connecting to weld output terminals.**

**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.

**NOTICE** – The Smart Feeder draws less than 200 amps from the power source. Use the weld cable sizes listed in the table below. The work cable from the Smart Feeder should be as short as possible to ensure the best possible Pulsed-MIG and RMD performance.

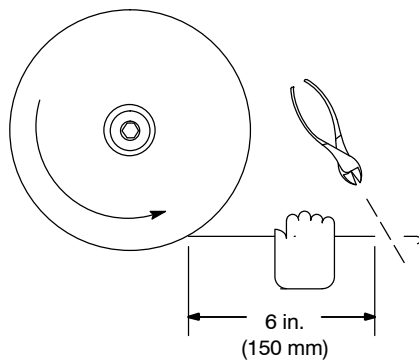
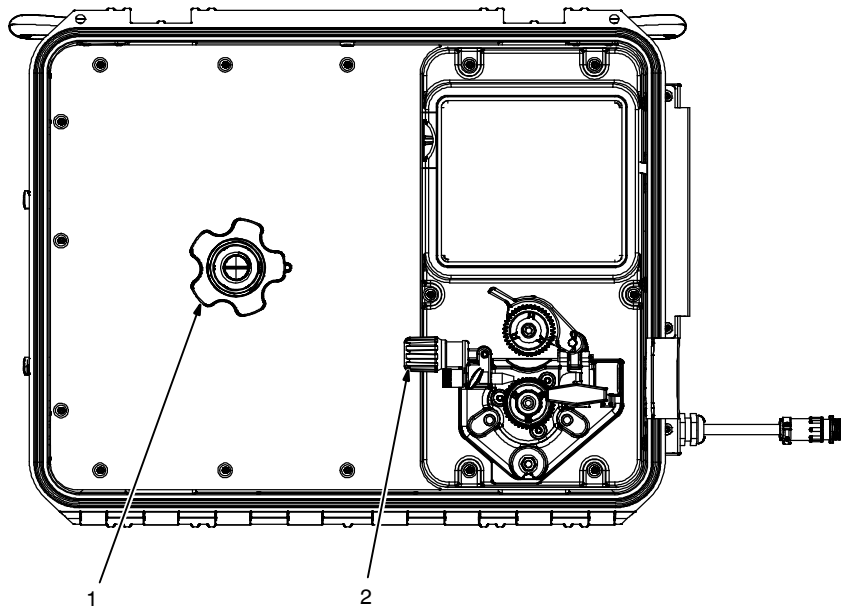
| Welding<br>Amperes                                                                                                                                                                                      | Weld Cable Size** and Total Cable (Copper) Length in Weld Circuit<br>Not Exceeding*** |                                         |                                   |                  |                  |                  |                   |                   |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|-----------------------------------------|-----------------------------------|------------------|------------------|------------------|-------------------|-------------------|
|                                                                                                                                                                                                         | 100 ft (30 m) or Less                                                                 |                                         | 150 ft<br>(45 m)                  | 200 ft<br>(60 m) | 250 ft<br>(70 m) | 300 ft<br>(90 m) | 350 ft<br>(105 m) | 400 ft<br>(120 m) |
|                                                                                                                                                                                                         | 10 – 60%<br>Duty<br>Cycle<br>AWG (mm²)                                                | 60 – 100%<br>Duty<br>Cycle<br>AWG (mm²) | 10 – 100% Duty Cycle<br>AWG (mm²) |                  |                  |                  |                   |                   |
|                                                                                                                                                                                                         | 200                                                                                   | 2/0 (70)                                | 2/0 (70)                          | 2/0 (70)         | 2/0 (70)         | 2/0 (70)         | 2/0 (70)          | 3/0 (95)          |
| * 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 4 volts or less drop or a current density of at least 300 circular mils per ampere.<br>( ) = 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 <a href="http://www.aws.org">http://www.aws.org</a> . |                                                                                       |                                         |                                   |                  |                  |                  |                   |                   |
| Ref. S-0007-M 2017-08                                                                                                                                                                                   |                                                                                       |                                         |                                   |                  |                  |                  |                   |                   |

# Notes

## 4-11. Installing And Threading Welding Wire



☞ Hold wire tightly to keep it from unraveling.

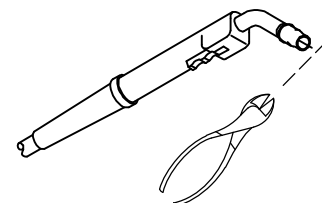
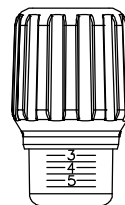
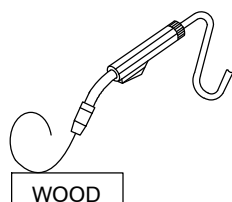


Pull and hold wire; cut off end.

**Tension Settings**

| Wire Size | Setting |
|-----------|---------|
| .035 in.  | 1-2     |
| .040 in.  | 3-4     |
| .045 in.  |         |

Set drive roll pressure according to Tension Setting chart.



### Installing Wire And Adjusting Hub Tension

#### 1 Retaining Nut

Remove retaining ring and install spool so hub pin fits spool hole. Re-install retaining nut.

Adjust retaining nut so only a slight force is needed to turn spool.

☞ Do not over tighten tension knob. It is not necessary to use any tools to tighten the knob.

### Threading Welding Wire

#### 2 Pressure Assembly Adjustment Knob

Lay gun cable out straight.

Open pressure assembly, hold wire tightly, and cut off end. Push wire through guides into gun.

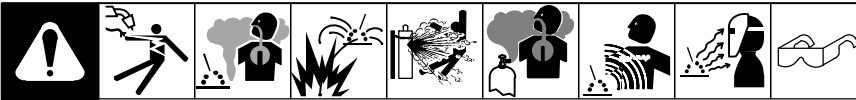
Close and tighten pressure assembly. Press jog switch until wire comes out gun.

To set the proper drive roll tension, release the tension on the drive rolls. Position gun at about a 45 degree angle, with nozzle about two inches from a wooden surface. Increase the tension while feeding the wire against the wooden surface to one half turn past the point where the wire stops slipping. If the wire slips at maximum hand tight tension there may be other problems. Check the gun liner, spool tension, contact tips, drive roll wear, drive roll alignment and inlet guide as all these can cause feeding problems.

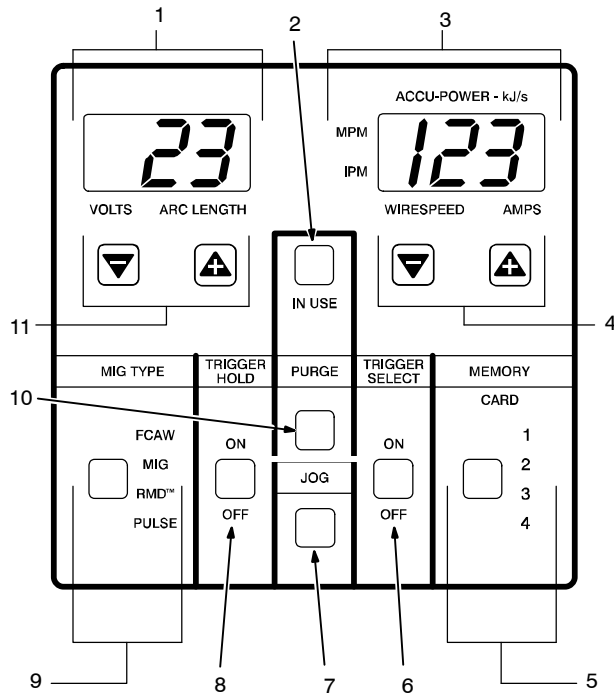
Cut off wire and close door.

# SECTION 5 – OPERATION

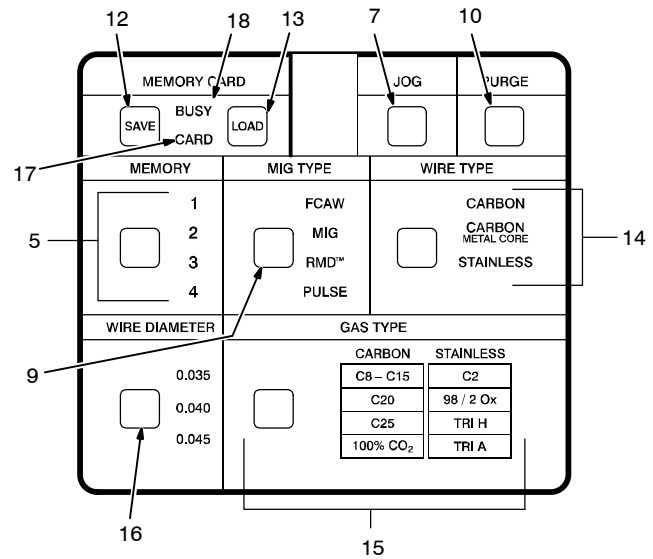
## 5-1. Controls



**Feeder Front Panel**



**Feeder Setup Panel**



255 928-A / 255 934-A

- |                                                      |                                                   |                                              |
|------------------------------------------------------|---------------------------------------------------|----------------------------------------------|
| 1 Arc Length/Volts Display And Indicators            | 7 Jog Button                                      | 14 Wire Type Select Button And Indicator     |
| 2 In Use Button And Indicator                        | 8 Trigger Hold On/Off Button                      | 15 Gas Type Select Button And Indicator      |
| 3 Amps/Wire Feed Speed Display And Indicators        | 9 MIG Type Select Button And Indicator            | 16 Wire Diameter Select Button And Indicator |
| 4 Amps/Wire Feed Speed Decrease And Increase Buttons | 10 Purge Button                                   | 17 Memory Card Indicator                     |
| 5 Memory Select Button And Location Indicator        | 11 Arc Length/Volts Decrease And Increase Buttons | 18 Memory Card Busy Indicator                |
| 6 Trigger Select On/Off Button                       | 12 Memory Card Button                             |                                              |
|                                                      | 13 Memory Card Load Button                        |                                              |

## 5-1. Controls (Continued)

### 1 Arc Length/Volts Display And Indicators

This display shows the voltage setting for MIG and FCAW processes (10.0 to 44.0 volts), and it shows the arc length for RMD and Pulsed-MIG processes (-3.0 to +3.0 in 0.1 increments with 0.0 as nominal). The actual arc voltage is displayed while welding and continues to appear for 10 seconds after the welding arc is extinguished. Dashes appear on the display when other welding processes are selected. The indicators illuminate to show if the value on the display is Arc Length or Volts.

When Synergic Mig is enabled, the display shows a pre-set voltage (10.0 to 44.0 volts). The actual arc voltage is displayed while welding. When increasing or decreasing the voltage, the display shows offset voltage (-5.0 to +5.0 in 0.1 increments with 0.0 as nominal). Once adjusting is stopped, the Preset arc voltage is displayed at the new value. After the arc is extinguished the arc voltage continues to appear for 10 seconds and then pre-set voltage is displayed.

### 2 IN USE Button And Indicator

Press and release this button on the power source or wire feeder to illuminate the IN USE text. Press and release again to turn IN USE text off. This lets others know that the machine is being used. Light automatically turns on when arc is struck. Toggle light using the IN USE button during use. Light will automatically turn off after four hours of inactivity. Press and hold this button to allow adjustment of Arc Control (arc width for RMD and pulsed-MIG, and inductance for FCAW and MIG). The "IN USE" indicator will automatically illuminate when welding.

### 3 Amps/Accu-Power (kJ/s) / Wire Feed Speed Display And Indicators

Actual amperage is displayed while welding and measured amperage just prior to the end of a welding operation will appear on the display for 10 seconds after the welding operation. The display shows wire feed speed setting when not welding.

With Accu-Power enabled, the instantaneous power is displayed on the wire feed speed display in kilojoules per second (kJ/s) to the nearest tenth, updated once per second while welding. After the weld, the final instantaneous power value is held for two seconds and the display reverts to the wire feed setting. If the wire feed is adjusted during the weld operation, the display will show wire speed setting while it is being adjusted and revert back to instantaneous power when not being adjusted.

### 4 Amps/Accu-Power (kJ/s) / Wire Feed Speed, Increase And Decrease Buttons

Use the buttons to decrease or increase the value shown on the display.

Press and hold the Increase and Decrease buttons together to turn ON or OFF the Accu-Power function. The Accu-Power Text above the wire feed meter will illuminate when Accu-Power is ON.

### 5 Memory Select Button And Location Indicator

These memory locations are for storing weld process settings for easy access. Press and release the button to recall stored unit configuration settings. Only one memory location can be active during unit operation. The number illuminates to indicate the active memory location. Unit configuration settings are automatically saved to the active memory location one second after any change is made to any of the front panel controls. This feature allows the unit to remember an operator's preferred settings. These settings can be recalled at any time by selecting the appropriate memory location.

### 6 Trigger Select On/Off Button

Press and release TRIGGER SELECT button to enable/disable the trigger select feature for memory locations 1-4. The indicator above or below the button, either On or Off respectively, illuminates to indicate the trigger select status. This feature must have at least two memory locations enabled to perform its function, but as many as four memory locations can be enabled for TRIGGER SELECT. The desired MIG process type(s) and parameter settings should first be loaded to each memory location prior to welding. These parameter settings (voltage/arc length and wire feed speed) are made at the wire feeder front panel. Once parameters are set, quickly press and release gun trigger, in less than 0.2 seconds while not welding, to select the next enabled memory location. If the gun trigger is pressed and held for 0.2 seconds or longer, the memory location will not advance and parameter settings will remain at the current settings.

### 7 Jog Button

Pressing the Jog switch allows the operator to jog wire without energizing the contactor or gas valve. Hold Jog button and Press purge for auto-jog function.

### 8 Trigger Hold On/Off Button

Press this button to turn the trigger hold feature On or Off. The text ON will illuminate to indicate when trigger hold is active. When trigger hold is active, the gun trigger must be pressed and held after the arc is established for a minimum of one half second, but not more than six seconds. Releasing the gun trigger activates the trigger hold function. To stop welding, press and release the gun trigger.

### 9 MIG Type Select Button And Indicator

Press this button to select the desired MIG process. Possible selections include FCAW, MIG, RMD, or pulsed-MIG. The process type text will illuminate to show the selected process.

### 10 Purge Button

Pressing the Purge switch allows the operator to purge gas lines before welding and to preset gas flow rate at the flowmeter. Hold Purge button and press Jog for timed purge.

### 11 Arc Length/Volts Decrease And Increase Buttons

Use the buttons to decrease or increase the value shown on the display.

Press and hold the Increase and Decrease buttons together to turn ON or OFF the Synergic Mig function.

### 5-1. Controls (Continued)

12 Memory Card Save Button

Press this button to save machine configuration to memory slot. The memory card busy LED illuminates during the following conditions: storage/retrieval of operator settings, usage of custom MIG type weld process, and firmware upgrades. The memory CARD text will illuminate when custom MIG or TIG type weld process data is currently being used from the memory card.

### 13 Memory Card Load Button

Press this button to load a previously saved configuration file from the memory card in the card slot. This operation allows restoring previously saved operator settings on the card to memory locations 1-4. The busy LED will illuminate to indicate the load operation is in progress.

## 14 Wire Type Select Button And Indicator

Press this button to select the desired wire type (CARBON, CARBON METAL CORE or STAINLESS steel). The text illuminates to indicate the active wire type selected. This selection is required for all MIG process types except FCAW.

## 15 Gas Type Select Button And Indicator

Press this button to select the desired shielding gas. This button will cycle through and illuminate only the available gas selections in one particular column of the gas table based on the selected MIG process and WIRE TYPE and WIRE DIAMETER. The text illuminates when any MIG process is selected except FCAW.

## 16 Wire Diameter Select Button And Indicator

Press this button to select the electrode diameter used for the selected MIG process. Possible selections include 0.035 in. (0.9 mm), 0.040 in. (1.0 mm) and 0.045 in. (1.2 mm). The wire diameter text will illuminate to show the selected wire diameter.

17 Memory Card Indicator

The memory card text will illuminate when custom MIG process data is being used.

18 Memory Card Busy Indicator

The memory card busy LED will illuminate during the following conditions: storage/retrieval of operator settings, usage of custom MIG type welding process data, and firmware upgrades.

## Notes

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

## 5-2. Basic Parameters For Smart Feeder

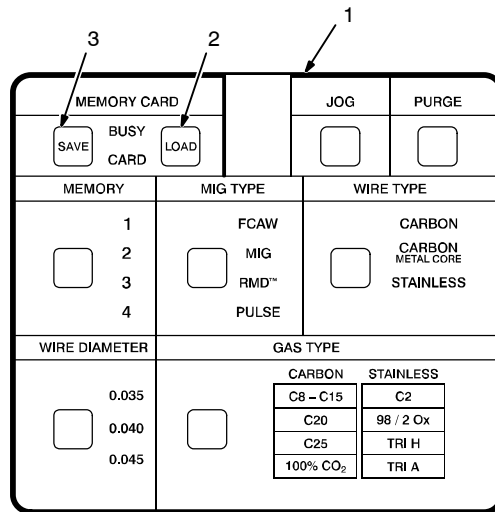
| Steel                                  |                       |                                                   |                                |                        |
|----------------------------------------|-----------------------|---------------------------------------------------|--------------------------------|------------------------|
| Process                                | Wire Size<br>in. (mm) | Wire Feed Speed<br>IPM (mpm)                      | Arc Length                     | Shielding Gas          |
| RMD Steel                              | .035 (0.9)            | 100-350 w/200 Nominal<br>(2.5-8.9 w/5.1 Nominal)  | +3.0 to -3.0<br>w/zero Nominal | C8 – C15               |
|                                        | .035 (0.9)            | 100-350 w/200 Nominal<br>(2.5-8.9 w/5.1 Nominal)  | +3.0 to -3.0<br>w/zero Nominal | C20                    |
|                                        | .035 (0.9)            | 100-350 w/200 Nominal<br>(2.5-8.9 w/5.1 Nominal)  | +3.0 to -3.0<br>w/zero Nominal | C25                    |
|                                        | .035 (0.9)            | 150-250 w/200 Nominal<br>(3.8-6.4 w/5.1 Nominal)  | +3.0 to -3.0<br>w/zero Nominal | 100% CO <sub>2</sub>   |
|                                        | .040 (1.0)            | 100-250 w/175 Nominal<br>(2.5-6.4 w/4.4 Nominal)  | +3.0 to -3.0<br>w/zero Nominal | C8 – C15               |
|                                        | .040 (1.0)            | 100-250 w/175 Nominal<br>(2.5-6.4 w/4.4 Nominal)  | +3.0 to -3.0<br>w/zero Nominal | C20                    |
|                                        | .040 (1.0)            | 100-250 w/175 Nominal<br>(2.5-6.4 w/4.4 Nominal)  | +3.0 to -3.0<br>w/zero Nominal | C25                    |
|                                        | .040 (1.0)            | 150-250 w/200 Nominal<br>(3.8-6.4 w/5.1 Nominal)  | +3.0 to -3.0<br>w/zero Nominal | 100% CO <sub>2</sub>   |
|                                        | .045 (1.2)            | 75-225 w/50 Nominal<br>(3.8-6.4 w/4.4 Nominal)    | +3.0 to -3.0<br>w/zero Nominal | C20 and C25<br>50%/50% |
|                                        | .045 (1.2)            | 75-250 w/150 Nominal<br>(1.9-6.4 w/3.8 Nominal)   | +3.0 to -3.0<br>w/zero Nominal | C8 – C15               |
|                                        | .045 (1.2)            | 75-250 w/150 Nominal<br>(1.9-6.4 w/3.8 Nominal)   | +3.0 to -3.0<br>w/zero Nominal | C20                    |
|                                        | .045 (1.2)            | 75-250 w/150 Nominal<br>(1.9-6.4 w/3.8 Nominal)   | +3.0 to -3.0<br>w/zero Nominal | C25                    |
|                                        | .045 (1.2)            | 100-200 w/150 Nominal<br>(2.5-5.1 w/3.8 Nominal)  | +3.0 to -3.0<br>w/zero Nominal | 100% CO <sub>2</sub>   |
|                                        |                       |                                                   |                                |                        |
| Steel                                  |                       |                                                   |                                |                        |
| Process                                | Wire Size<br>in. (mm) | Wire Feed Speed<br>IPM (mpm)                      | Arc Length                     | Shielding Gas          |
| Pulse-MIG Steel<br>Welding In Position | .035 (0.9)            | 100-500 w/200 Nominal<br>(2.5-19.8 w/5.1 Nominal) | +3.0 to -3.0<br>w/zero Nominal | C8 – C15               |
|                                        | .040 (1.0)            | 100-500 w/175 Nominal<br>(2.5-19.8 w/4.4 Nominal) | +3.0 to -3.0<br>w/zero Nominal | C8 – C15               |
|                                        | .040 (1.0)            | 100-500 w/175 Nominal<br>(2.5-19.8 w/4.4 Nominal) | +3.0 to -3.0<br>w/zero Nominal | C20                    |
|                                        | .045 (1.2)            | 75-500 w/150 Nominal<br>(1.9-12.7 w/3.8 Nominal)  | +3.0 to -3.0<br>w/zero Nominal | C8 – C15               |

| Metal Core                                           |                       |                                                   |                                |               |
|------------------------------------------------------|-----------------------|---------------------------------------------------|--------------------------------|---------------|
| Process                                              | Wire Size<br>in. (mm) | Wire Feed Speed<br>IPM (mpm)                      | Arc Length                     | Shielding Gas |
| Pulse-Metal Core                                     | .045 (1.2)            | 75-500 w/150 Nominal<br>(1.9-12.7 w/3.8 Nominal)  | +3.0 to -3.0<br>w/zero Nominal | C8 – C15      |
|                                                      | .045 (1.2)            | 75-500 w/150 Nominal<br>(1.9-12.7 w/3.8 Nominal)  | +3.0 to -3.0<br>w/zero Nominal | C20           |
| Stainless Steel                                      |                       |                                                   |                                |               |
| Pulsed-MIG<br>Stainless Steel<br>Welding In Position | .035 (0.9)            | 100-500 w/200 Nominal<br>(2.5-19.8 w/5.1 Nominal) | +3.0 to -3.0<br>w/zero Nominal | C2            |
|                                                      | .035 (0.9)            | 100-780 w/200 Nominal<br>(2.5-19.8 w/5.1 Nominal) | +3.0 to -3.0<br>w/zero Nominal | 98/2 Ox       |
|                                                      | .035 (0.9)            | 100-500 w/200 Nominal<br>(2.5-19.8 w/5.1 Nominal) | +3.0 to -3.0<br>w/zero Nominal | Tri-A         |
|                                                      | .040 (1.0)            | 100-500 w/175 Nominal<br>(2.5-19.8 w/4.4 Nominal) | +3.0 to -3.0<br>w/zero Nominal | C2            |
|                                                      | .040 (1.0)            | 100-500 w/175 Nominal<br>(2.5-19.8 w/4.4 Nominal) | +3.0 to -3.0<br>w/zero Nominal | 98/2 Ox       |
|                                                      | .045 (1.2)            | 75-500 w/150 Nominal<br>(1.9-19.8 w/3.8 Nominal)  | +3.0 to -3.0<br>w/zero Nominal | C2            |
|                                                      | .045 (1.2)            | 75-500 w/150 Nominal<br>(1.9-19.8 w/3.8 Nominal)  | +3.0 to -3.0<br>w/zero Nominal | 98/2 Ox       |
|                                                      | .045 (1.2)            | 75-500 w/150 Nominal<br>(1.9-19.8 w/3.8 Nominal)  | +3.0 to -3.0<br>w/zero Nominal | Tri-A         |
| Stainless Steel                                      |                       |                                                   |                                |               |
| Process                                              | Wire Size<br>in. (mm) | Wire Feed Speed<br>IPM (mpm)                      | Arc Length                     | Shielding Gas |
| RMD<br>Stainless Steel<br>Welding In Position        | .035 (0.9)            | 100-350 w/200 Nominal<br>(2.5-8.9 w/5.1 Nominal)  | +3.0 to -3.0<br>w/zero Nominal | C2            |
|                                                      | .035 (0.9)            | 100-350 w/200 Nominal<br>(2.5-8.9 w/5.1 Nominal)  | +3.0 to -3.0<br>w/zero Nominal | 98/2 Ox       |
|                                                      | .035 (0.9)            | 150-500 w/150 Nominal<br>(1.9-19.8 w/3.8 Nominal) | +3.0 to -3.0<br>w/zero Nominal | Tri-A         |
|                                                      | .040 (1.0)            | 100-300 w/175 Nominal<br>(2.5-7.6 w/4.4 Nominal)  | +3.0 to -3.0<br>w/zero Nominal | C2            |
|                                                      | .040 (1.0)            | 100-300 w/175 Nominal<br>(2.5-7.6 w/4.4 Nominal)  | +3.0 to -3.0<br>w/zero Nominal | 98/2 Ox       |

| Stainless Steel                                        |                       |                                                  |                                |                      |
|--------------------------------------------------------|-----------------------|--------------------------------------------------|--------------------------------|----------------------|
| Process                                                | Wire Size<br>in. (mm) | Wire Feed Speed<br>IPM (mpm)                     | Arc Length                     | Shielding Gas        |
| <b>RMD<br/>Stainless Steel<br/>Welding In Position</b> | .045 (1.2)            | 75-350 w/150 Nominal<br>(1.9-8.9 w/3.8 Nominal)  | +3.0 to -3.0<br>w/zero Nominal | C2                   |
|                                                        | .045 (1.2)            | 75-250 w/150 Nominal<br>(1.9-6.4 w/3.8 Nominal)  | +3.0 to -3.0<br>w/zero Nominal | 98/2 Ox              |
|                                                        | .045 (1.2)            | 75-500 w/150 Nominal<br>(1.9-19.8 w/3.8 Nominal) | +3.0 to -3.0<br>w/zero Nominal | Tri-A                |
| Metal Core                                             |                       |                                                  |                                |                      |
| Process                                                | Wire Size<br>in. (mm) | Wire Feed Speed<br>IPM (mpm)                     | Arc Length                     | Shielding Gas        |
| <b>RMD-Metal Core</b>                                  | .040 (1.0)            | 100-250 w/150 Nominal<br>(2.5-6.4 w/3.8 Nominal) | +3.0 to -3.0<br>w/zero Nominal | C20                  |
|                                                        | .045 (1.2)            | 75-250 w/150 Nominal<br>(1.9-6.4 w/3.8 Nominal)  | +3.0 to -3.0<br>w/zero Nominal | C20                  |
|                                                        | .045 (1.2)            | 75-250 w/150 Nominal<br>(1.9-6.4 w/3.8 Nominal)  | +3.0 to -3.0<br>w/zero Nominal | C25                  |
|                                                        | .045 (1.2)            | 75-250 w/150 Nominal<br>(1.9-6.4 w/3.8 Nominal)  | +3.0 to -3.0<br>w/zero Nominal | C8 - C15             |
| Steel                                                  |                       |                                                  |                                |                      |
| Process                                                | Wire Size<br>in. (mm) | Wire Feed Speed<br>IPM (mpm)                     | Arc Length                     | Shielding Gas        |
| <b>Mig Steel<br/>Welding in Position</b>               | .035 (0.9)            | 100-350 w/200 Nominal<br>(2.5-8.9 w/5.1 Nominal) | +3.0 to -3.0<br>w/zero Nominal | C8 - C15             |
|                                                        | .035 (0.9)            | 100-350 w/200 Nominal<br>(2.5-8.9 w/5.1 Nominal) | +3.0 to -3.0<br>w/zero Nominal | C20                  |
|                                                        | .035 (0.9)            | 100-350 w/200 Nominal<br>(2.5-8.9 w/5.1 Nominal) | +3.0 to -3.0<br>w/zero Nominal | C25                  |
|                                                        | .035 (0.9)            | 150-250 w/200 Nominal<br>(3.8-6.4 w/5.1 Nominal) | +3.0 to -3.0<br>w/zero Nominal | 100% CO <sub>2</sub> |
|                                                        | .040 (1.0)            | 100-250 w/175 Nominal<br>(2.5-6.4 w/4.4 Nominal) | +3.0 to -3.0<br>w/zero Nominal | C8 - C15             |
|                                                        | .040 (1.0)            | 100-250 w/175 Nominal<br>(2.5-6.4 w/4.4 Nominal) | +3.0 to -3.0<br>w/zero Nominal | C20                  |
|                                                        | .045 (1.2)            | 75-250 w/150 Nominal<br>(1.9-6.4 w/3.8 Nominal)  | +3.0 to -3.0<br>w/zero Nominal | C8 - C15             |
|                                                        | .045 (1.2)            | 75-250 w/150 Nominal<br>(1.9-6.4 w/3.8 Nominal)  | +3.0 to -3.0<br>w/zero Nominal | C20                  |

| Steel                                                                                                                                                                                                                                                                                    |                       |                                                          |                                |               |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|----------------------------------------------------------|--------------------------------|---------------|
| Process                                                                                                                                                                                                                                                                                  | Wire Size<br>in. (mm) | Wire Feed Speed<br>IPM (mpm)                             | Arc Length                     | Shielding Gas |
| Mig Steel<br>Welding in Position                                                                                                                                                                                                                                                         | .045 (1.2)            | 75-250 w/150 Nominal<br>(1.9-6.4 w/3.8 Nominal)          | +3.0 to -3.0<br>w/zero Nominal | C25           |
|                                                                                                                                                                                                                                                                                          | .045 (1.2)            | 100-200 w/150 Nominal<br>(2.5-5.1 w/3.8 Nominal)         | +3.0 to -3.0<br>w/zero Nominal | 100% CO2      |
| Stainless Steel                                                                                                                                                                                                                                                                          |                       |                                                          |                                |               |
| MIG<br>Stainless Steel<br>Welding In Position                                                                                                                                                                                                                                            | .035 (0.9)            | 100-350 w/200 Nominal<br>(2.5-8.9 w/5.1 Nominal)         | +3.0 to -3.0<br>w/zero Nominal | C2            |
|                                                                                                                                                                                                                                                                                          | .035 (0.9)            | 100-350 w/200 Nominal<br>(2.5-8.9 w/5.1 Nominal)         | +3.0 to -3.0<br>w/zero Nominal | 98/2 Ox       |
|                                                                                                                                                                                                                                                                                          | .035 (0.9)            | 100-500 w/150 Nominal<br>(1.9-19.8 w/3.8 Nominal)        | +3.0 to -3.0<br>w/zero Nominal | Tri-A         |
|                                                                                                                                                                                                                                                                                          | .040 (1.0)            | 100-300 w/175 Nominal<br>(2.5-7.6 w/4.4 Nominal)         | +3.0 to -3.0<br>w/zero Nominal | C2            |
|                                                                                                                                                                                                                                                                                          | .040 (1.0)            | 100-300 w/175 Nominal<br>(2.5-7.6 w/4.4 Nominal)         | +3.0 to -3.0<br>w/zero Nominal | 98/2 Ox       |
|                                                                                                                                                                                                                                                                                          | .045 (1.2)            | 75-350 w/150 Nominal<br>(1.9-8.9 w/3.8 Nominal)          | +3.0 to -3.0<br>w/zero Nominal | C2            |
|                                                                                                                                                                                                                                                                                          | .045 (1.2)            | 75-250 w/150 Nominal<br>(1.9-8.4 w/3.8 Nominal)          | +3.0 to -3.0<br>w/zero Nominal | 98/2 Ox       |
|                                                                                                                                                                                                                                                                                          | .045 (1.2)            | 75-500 w/150 Nominal<br>(1.9-19.8 w/3.8 Nominal)         | +3.0 to -3.0<br>w/zero Nominal | Tri-A         |
| Flux Core                                                                                                                                                                                                                                                                                |                       |                                                          |                                |               |
| Process                                                                                                                                                                                                                                                                                  | Wire Size<br>in. (mm) | Rolling Pipe/In Position<br>Wire Feed Speed<br>IPM (mpm) | Voltage                        | Shielding Gas |
| Flux Core/GMAW                                                                                                                                                                                                                                                                           | Not<br>Dependent      | 50-500 w/250 Nominal<br>(1.3-19.8 w/6.4 Nominal)*        | 24.5-32 w/25.0 Nominal         | Not Dependent |
|                                                                                                                                                                                                                                                                                          | Not<br>Dependent      | 50-500 w/250 Nominal<br>(1.3-19.8 w/6.4 Nominal)*        | 24.5-32 w/25.0 Nominal         | C8 - C15      |
| <b>Note: Arc Length – Length of arc from end of wire to weld puddle. Wire feed speed and voltage are synergic for the RMD and Pulse-MIG processes. This means when adjusting wire feed speed, the voltage is automatically adjusted so it is not necessary to adjust the Arc Length.</b> |                       |                                                          |                                |               |
| *See wire manufacturer for recommended wire feed speed and gas mixture.                                                                                                                                                                                                                  |                       |                                                          |                                |               |

### 5-3. Restoring Factory Defaults



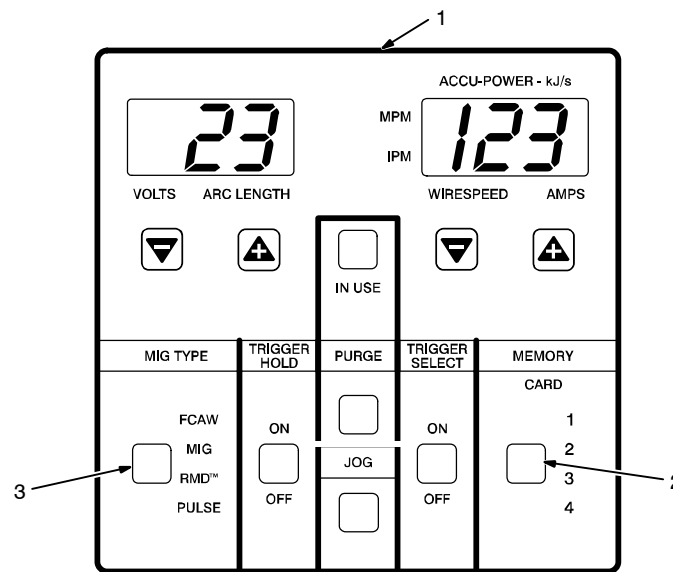
- 1 Smart Feeder Setup Panel
- 2 Load Button
- 3 Save Button

To return feeder to factory default settings, press the load and save buttons simultaneously for more than three seconds.

The display will show rSt and then go to dashes when the reset is complete.

255 934-A

### 5-4. Viewing Software Revisions



- 1 Smart Feeder Setup Panel
- 2 MEMORY Button
- 3 MIG TYPE Button

#### System Software Revision

Pressing the MIG TYPE and MEMORY buttons simultaneously will display the software revision.

#### Circuit Board Software Revisions

Pressing and releasing the MEMORY button while holding the MIG TYPE button in will cycle through software revisions on the display.

255 928-A

## 5-5. Prewflow And Postflow Adjustment

 Postflow will not function without an arc initiation.

Prewflow and Postflow times can be configured for the Wire Feeder outputs. These times are global settings (i.e. all memory slots share the same three preflow and postflow settings; it is not possible to set different postflow times between memory slots).

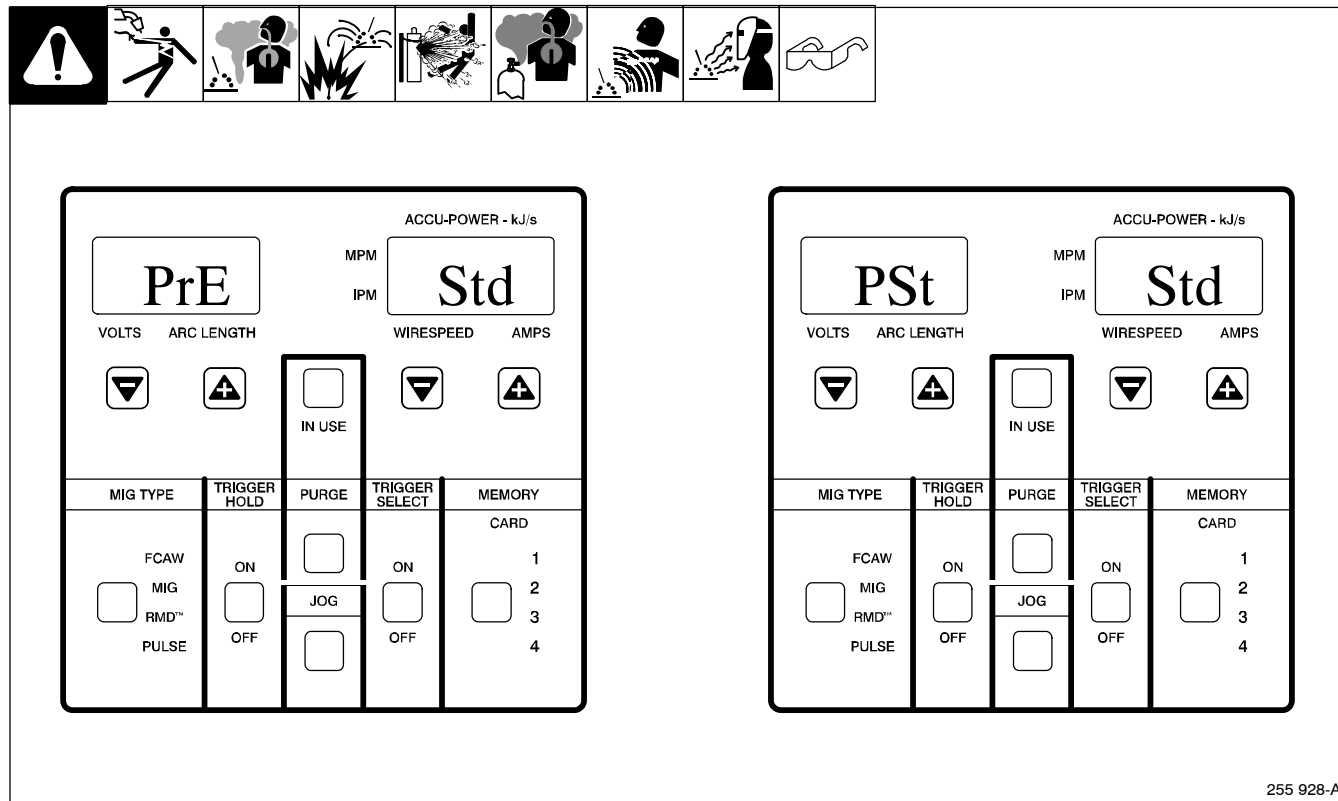
The unit is shipped in the standard configuration ("Std" appears on the display). In the standard configuration preflow and postflow times are automatically calculated as follows:

### Prewflow

For wire processes, the preflow times are fixed at 0.25 seconds which is the default setting in the weld programs.

### Postflow

For wire processes, the postflow time is a function of wire feed speed where the minimum time is 8 seconds from 0 to 9.9 mpm (390 ipm) and increases linearly for 8 seconds at 9.9 mpm (390 ipm) to 16 seconds at 19.8 mpm (780 ipm).



To adjust preflow and postflow times, proceed as follows:

1. Press and hold the Purge button, gas solenoid will open.
2. Press the Voltage or Wire Feed increase or decrease button, gas solenoid will close.  
Unit will display PrE on the Voltage display and preflow setting on the Wire Feed Speed display (Std appears if this is the first time).
3. Release the Purge button.
4. Adjust preflow time to desired value by pressing Wire Feed Speed increase or decrease button.  
Available selections include Std and numeric values from 0.9 to 10.0 seconds.  
If Trigger Select is enabled, there is a minimum preflow time of 0.25 seconds even if programmed for 0.0 seconds.
5. Press the Voltage increase or decrease button to change from preflow to postflow.  
Unit will display PSt on the Voltage display.
6. Adjust postflow time to desired value by pressing Wire Feed Speed increase or decrease button.  
Available selections include Std and numeric values from 0 to 60 seconds.
7. Press any button to return to the normal display.

# SECTION 6 – MAINTENANCE & TROUBLESHOOTING

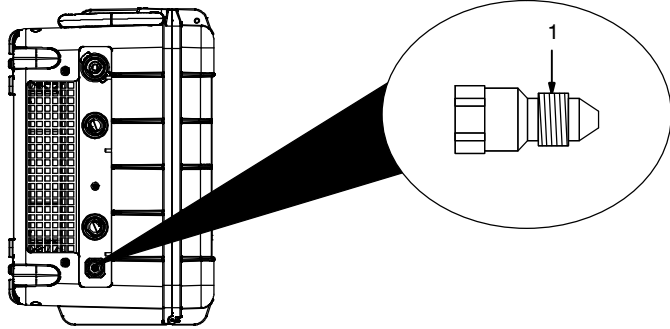
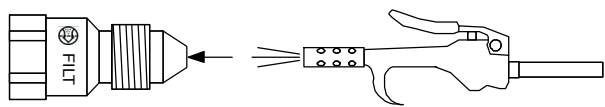
## 6-1. Routine Maintenance

|   |                                      |  | <b>⚠ Disconnect power before maintaining.</b> |                | <i>☞ Maintain more often during severe conditions.</i> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|--|-----------------------------------------------|----------------|--------------------------------------------------------|
| Maintenance Schedule                                                                                                                                                |                                      |  | Every 3 Months                                | Every 6 Months |                                                        |
| Labels                                                                                                                                                              | Replace Damaged or Unreadable Labels |  | ●                                             |                |                                                        |
| Gas Hose                                                                                                                                                            | Replace Damaged Gas Hoses            |  | ●                                             |                |                                                        |
| Cables and Cords                                                                                                                                                    | Replace Cracked Cables and Cords     |  | ●                                             |                |                                                        |
| Drive Rolls                                                                                                                                                         | Clean Drive Rolls                    |  |                                               | ●              |                                                        |
| Wind Tunnel                                                                                                                                                         | Blow Out or Vacuum Inside            |  |                                               | ●              |                                                        |

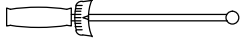
## 6-2. Cleaning Debris From Shielding Gas Filter Fitting



Rear View

Tools Needed:

 3/4 in.

**⚠ Disconnect power before maintaining.**

1 Shielding Gas Filter Fitting

Remove fitting from gas valve on back panel of feeder.

Blow compressed air through the threaded male end of fitting to dislodge debris from internal mesh screen.

*☞ Replace fitting if blowing compressed air through fitting does not clear obstructions.*

Reinstall fitting into gas valve.

Tighten fitting to 125 in. lbs (22.6 N·m).

Ref. TP2 / 805 128-A

## 6-3. Troubleshooting

|     |  |                                                                                                                                                                                                                                                                                                                                          |  |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| Trouble                                                                                                                                                                                                                                                                                                                                 |  | Remedy                                                                                                                                                                                                                                                                                                                                   |  |  |
| Wire does not feed; open-circuit voltage available.                                                                                                                                                                                                                                                                                     |  | Unit overheated. Allow unit to cool.                                                                                                                                                                                                                                                                                                     |  |  |
|                                                                                                                                                                                                                                                                                                                                         |  | Check gun trigger plug connection.                                                                                                                                                                                                                                                                                                       |  |  |
|                                                                                                                                                                                                                                                                                                                                         |  | Check gun trigger. See gun Owner's Manual.                                                                                                                                                                                                                                                                                               |  |  |
|                                                                                                                                                                                                                                                                                                                                         |  | Contact nearest Factory Authorized Service Agent.                                                                                                                                                                                                                                                                                        |  |  |
| Wire feeds erratically.                                                                                                                                                                                                                                                                                                                 |  | Readjust drive roll pressure.                                                                                                                                                                                                                                                                                                            |  |  |
|                                                                                                                                                                                                                                                                                                                                         |  | Clean or replace dirty or worn drive roll (see Section 4-6).                                                                                                                                                                                                                                                                             |  |  |
|                                                                                                                                                                                                                                                                                                                                         |  | Remove weld spatter around nozzle opening.                                                                                                                                                                                                                                                                                               |  |  |
|                                                                                                                                                                                                                                                                                                                                         |  | Replace contact tip or liner. See gun Owner's Manual.                                                                                                                                                                                                                                                                                    |  |  |
|                                                                                                                                                                                                                                                                                                                                         |  | Change to correct size and type drive roll (see Section 4-6).                                                                                                                                                                                                                                                                            |  |  |
|                                                                                                                                                                                                                                                                                                                                         |  | Incorrect size or worn wire guides (see Section 4-6).                                                                                                                                                                                                                                                                                    |  |  |
|                                                                                                                                                                                                                                                                                                                                         |  | Check wire drive motor brushes.                                                                                                                                                                                                                                                                                                          |  |  |
|                                                                                                                                                                                                                                                                                                                                         |  | Hub tension set too high (see Section 4-11).                                                                                                                                                                                                                                                                                             |  |  |
| Motor runs slowly.                                                                                                                                                                                                                                                                                                                      |  | Contact nearest Factory Authorized Service Agent.                                                                                                                                                                                                                                                                                        |  |  |
|                                                                                                                                                                                                                                                                                                                                         |  | Check and replace contact tip or liner if necessary.                                                                                                                                                                                                                                                                                     |  |  |
|                                                                                                                                                                                                                                                                                                                                         |  | Hub tension set too high (see Section 4-11).                                                                                                                                                                                                                                                                                             |  |  |
| Wire feeds when Jog switch is pressed but not when gun trigger is pressed.                                                                                                                                                                                                                                                              |  | Contact nearest Factory Authorized Service Agent.                                                                                                                                                                                                                                                                                        |  |  |
|                                                                                                                                                                                                                                                                                                                                         |  | Check gun trigger connection at wire feeder. Check gun trigger leads and trigger switch. See gun Owner's Manual.                                                                                                                                                                                                                         |  |  |
| Gas does not flow or does not stop flowing; wire feeds.                                                                                                                                                                                                                                                                                 |  | Contact nearest Factory Authorized Service Agent.                                                                                                                                                                                                                                                                                        |  |  |
|                                                                                                                                                                                                                                                                                                                                         |  | Clear blockage in gas hose or replace hose.                                                                                                                                                                                                                                                                                              |  |  |
|                                                                                                                                                                                                                                                                                                                                         |  | Clear blockage in welding gun.                                                                                                                                                                                                                                                                                                           |  |  |
|                                                                                                                                                                                                                                                                                                                                         |  | Clear blockage in filter (see Section 6-2).                                                                                                                                                                                                                                                                                              |  |  |
|                                                                                                                                                                                                                                                                                                                                         |  | Check gas valve.                                                                                                                                                                                                                                                                                                                         |  |  |
| Wire remains energized after trigger is released.                                                                                                                                                                                                                                                                                       |  | Contact nearest Factory Authorized Service Agent.                                                                                                                                                                                                                                                                                        |  |  |
|                                                                                                                                                                                                                                                                                                                                         |  | Contact nearest Factory Authorized Service Agent.                                                                                                                                                                                                                                                                                        |  |  |
| Gun trigger is pressed, gas does not flow, wire is not energized, wire feeds.                                                                                                                                                                                                                                                           |  | If a welding arc is not established in 3 seconds after the gun trigger is activated, the unit will feed wire without energizing the contactor or gas valve. The unit will feed approximately 35 feet (10.7 meters) of wire, then stop feeding. This is to prevent complete despooling of the wire, as in the case of a damaged gun.      |  |  |
| Display on display board does not light.                                                                                                                                                                                                                                                                                                |  | Contact nearest Factory Authorized Service Agent.                                                                                                                                                                                                                                                                                        |  |  |
| Segments on the display board are missing.                                                                                                                                                                                                                                                                                              |  | Replace display board.                                                                                                                                                                                                                                                                                                                   |  |  |
| Weld voltage on display board is not accurate.                                                                                                                                                                                                                                                                                          |  | Contact nearest Factory Authorized Service Agent.                                                                                                                                                                                                                                                                                        |  |  |
|                                                                                                                                                                                                                                                                                                                                         |  | Weld voltage on the display board will show weld voltage at the feeder. Due to voltage drops in the weld cables, weld voltage at the feeder will not match weld voltage at the welding power source. Due to averaging of weld voltage, if weld time is less than 8 seconds the displayed weld voltage at the feeder may not be accurate. |  |  |
| While not welding – Voltage display alternates between three dashes on both displays.                                                                                                                                                                                                                                                   |  | Contact nearest Factory Authorized Service Agent.                                                                                                                                                                                                                                                                                        |  |  |
|                                                                                                                                                                                                                                                                                                                                         |  | Contact nearest Factory Authorized Service Agent.                                                                                                                                                                                                                                                                                        |  |  |
| While not welding – Voltage display alternates between CC and open circuit voltage.                                                                                                                                                                                                                                                     |  | Contact nearest Factory Authorized Service Agent.                                                                                                                                                                                                                                                                                        |  |  |
|                                                                                                                                                                                                                                                                                                                                         |  | Contact nearest Factory Authorized Service Agent.                                                                                                                                                                                                                                                                                        |  |  |
| Weld amperage on display board is not accurate.                                                                                                                                                                                                                                                                                         |  | Weld amperage displayed on the feeder will not match exactly with the weld amperage displayed on the welding power source.                                                                                                                                                                                                               |  |  |
|                                                                                                                                                                                                                                                                                                                                         |  | Contact nearest Factory Authorized Service Agent.                                                                                                                                                                                                                                                                                        |  |  |
| Software and weld time information on display board is not accurate.                                                                                                                                                                                                                                                                    |  | Contact nearest Factory Authorized Service Agent.                                                                                                                                                                                                                                                                                        |  |  |

## 6-4. Diagnostic Help Codes



H1

Example Display

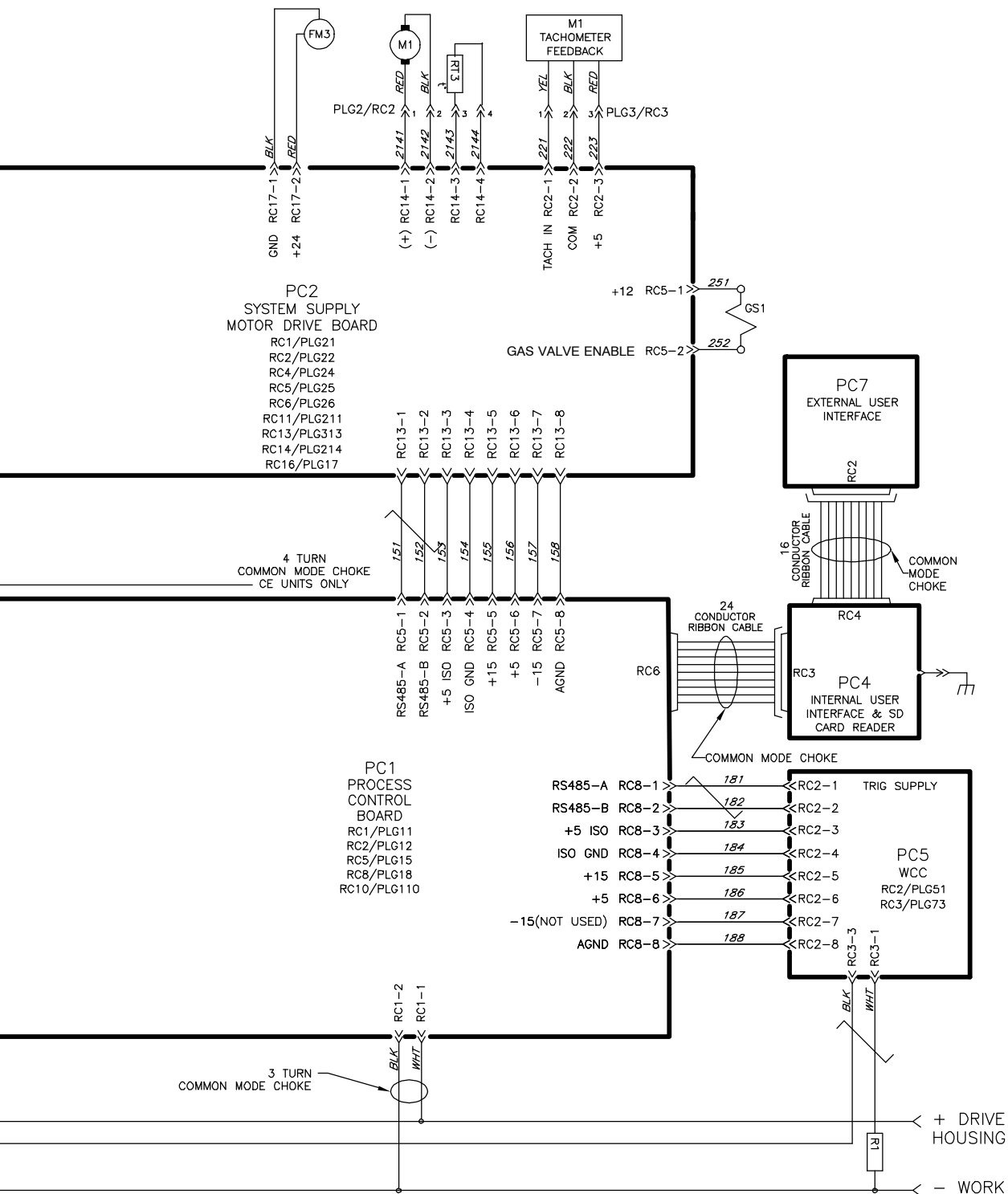
| Display Code | Fault                                      | Description                                                                                                                                                                                                                                                                                                                                                                           |
|--------------|--------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PoL Err      | Polarity Error                             | Indicates wrong polarity. Turn Welding Power Source off. Make sure that work and welding cables are connected properly. (See Sections 4-2 and 4-8 for connection instructions.)                                                                                                                                                                                                       |
| H1           | Input Current Sensor Malfunction           | Indicates current sensor is malfunctioning. If this code appears, contact nearest Factory Authorized Service Agent.                                                                                                                                                                                                                                                                   |
| H2           | Thermistor Open Or Shorted                 | Indicates thermal protection circuitry is malfunctioning. If this code appears, contact nearest Factory Authorized Service Agent.                                                                                                                                                                                                                                                     |
| H3           | Secondary 1 Over-Temperature               | Indicates feeder has overheated. Unit has shut down to allow fans to lower temperature. Operation will continue after unit is within normal temperature range.                                                                                                                                                                                                                        |
| H4           | Secondary 2 Over-Temperature               | Indicates feeder has overheated. Unit has shut down to allow fans to lower temperature. Operation will continue after unit is within normal temperature range.                                                                                                                                                                                                                        |
| H5           | Secondary 3 Over-Temperature               | Indicates feeder has overheated. Unit has shut down to allow fans to lower temperature. Operation will continue after unit is within normal temperature range.                                                                                                                                                                                                                        |
| H5 / Cbl Err | Secondary 3 Over-Temperature & Cable Error | Indicates feeder has overheated. Unit has shut down to allow fans to lower temperature. Operation will continue after unit is within normal temperature range.<br><br>Cable arrangement between welding power source and Smart Feeder is preventing proper operation and contributing to overheating. Uncoil the work and welding cables. Lay the cables straight and close together. |
| H8           | Output Over-Voltage                        | Indicates secondary power circuit malfunction. If this code appears, contact nearest Factory Authorized Service Agent.                                                                                                                                                                                                                                                                |
| H12          | Bus Voltage Low                            | Indicates Bus capacitor malfunction. If this code appears, contact nearest Factory Authorized Service Agent.                                                                                                                                                                                                                                                                          |
| H13          | Voltage Sense                              | Indicates Voltage sense malfunction. If this code appears, contact nearest Factory Authorized Service Agent.                                                                                                                                                                                                                                                                          |
| H14          | Bus Voltage High                           | Indicates Bus over voltage malfunction. If this code appears, contact nearest Factory Authorized Service Agent.                                                                                                                                                                                                                                                                       |
| H15          | Bus Voltage Low While Welding              | Indicates Bus under voltage malfunction. If this code appears, contact nearest Factory Authorized Service Agent.                                                                                                                                                                                                                                                                      |
| H23          | No Active Fault                            | N/A                                                                                                                                                                                                                                                                                                                                                                                   |
| H24          | Undefined Fault                            | N/A                                                                                                                                                                                                                                                                                                                                                                                   |
| H25          | Duty Cycle Limit Exceeded                  | Indicates duty cycle limit has been exceeded. Output stops and the cooling fan will run. Wait about 15 min for unit to cool. Reduce Amperage, Voltage, Wire feed speed, or duty cycle before restarting.                                                                                                                                                                              |
| H40          | Tach Error On Motor                        | Indicates tach error on motor. Check feeder drive housing and wire spool for obstructions. If this code continues to appear on the display, contact nearest Factory Authorized Service Agent.                                                                                                                                                                                         |
| H42          | Motor Error On Motor                       | Indicates a motor error. Check feeder drive housing and wire spool for obstructions. If this code continues to appear on the display, contact nearest Factory Authorized Service Agent.                                                                                                                                                                                               |

| Display Code | Fault                                  | Description                                                                                                                                                                                                                                                                                              |
|--------------|----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| H44          | Low Motor Bus Voltage                  | Indicates input primary line voltage is too low. Increase primary line voltage to at least 90% of specified nominal voltage. If this code to appear on display, contact nearest Factory Authorized Service Agent.                                                                                        |
| H45          | Button Is Stuck On Feeder              | Release button. If this code continues to appear on the display, contact nearest Factory Authorized Service Agent.                                                                                                                                                                                       |
| H46          | Trigger Stuck Fault                    | Indicates trigger stuck fault. Fault will clear when trigger is released.                                                                                                                                                                                                                                |
| H48          | Trigger Fault                          | Indicates trigger was held too long in trigger jog (the lesser of 60 seconds or 30 ft (9.1 m) of wire.                                                                                                                                                                                                   |
| H51          | Motor Supply Over Temperature          | Indicates motor supply have overheated. Unit has shut down to allow fans to lower temperature. Operation will continue after unit is within normal temperature range.                                                                                                                                    |
| H52          | Motor Over Temperature                 | Indicates motor has overheated. Unit has shut down to allow fans to lower temperature. Operation will continue after unit is within normal temperature range.                                                                                                                                            |
| H53          | Motor Supply Temperature Sensor Fault  | Indicates motor supply sensor malfunction. If this code appears, contact nearest Factory Authorized Service Agent.                                                                                                                                                                                       |
| H54          | Motor Temperature Sensor Fault         | Indicates motor sensor malfunction. If this code appears, contact nearest Factory Authorized Service Agent.                                                                                                                                                                                              |
| H60          | Bad Memory Card                        | Indicates unable to read memory. Faulty memory card or wrong format.                                                                                                                                                                                                                                     |
| H61          | File Read Error                        | Indicates faulty file on memory card.                                                                                                                                                                                                                                                                    |
| H62          | File Write Error                       | Indicates full or faulty memory card.                                                                                                                                                                                                                                                                    |
| H63          | File Write Error                       | Indicates an invalid file on memory card. The system was able to read the file; however, the contents of the file were invalid. Remove card or press any button to clear error.                                                                                                                          |
| H64          | Card Locked                            | Indicates a save was attempted to a locked card. This refers to the physical switch on the memory card. Unlock the memory and try again. Try a different memory card. Remove card and press any button. Remove card or press any button to clear error. If this code continues to appear on the display. |
| H65          | Read-Only File                         | Indicates a save was attempted to a file that has been marked read-only. Check with the appropriate person to see if the attributes are read only for a reason (the attributes can be altered using a PC). Use a different card. Remove card or press any button to clear error.                         |
| H66          | No Memory Card Detected                | Indicates no memory card detected when a memory card operation was attempted. Insert a card or press any button to clear error. Try a different memory card. If this code continues to appear on display, contact nearest Factory Authorized Service Agent.                                              |
| H67          | Unsupported Memory Card Format (FAT12) | Indicates card format issue. Verify correct memory card is being used. If this code continues to appear on display, contact nearest Factory Authorized Service Agent.                                                                                                                                    |
| H70          | Missing/Incomplete Weld Library        | Indicates missing/incomplete weld library in power source. Weld library must be loaded from memory card.                                                                                                                                                                                                 |
| H80          | Output Current When Output Is Disabled | Indicates current malfunctions in secondary circuit. If this code appears, contact nearest Factory Authorized Service Agent.                                                                                                                                                                             |
| H81          | Output Current On Channel 1 Too Low    | Indicates current malfunctions in secondary circuit. If this code appears, contact nearest Factory Authorized Service Agent.                                                                                                                                                                             |
| H82          | Output Current On Channel 2 Too Low    | Indicates current malfunctions in secondary circuit. If this code appears, contact nearest Factory Authorized Service Agent.                                                                                                                                                                             |

| Display Code | Fault                                    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|--------------|------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| H83          | Output Current On Channel 3 Too Low      | Indicates current malfunctions in secondary circuit. If this code appears, contact nearest Factory Authorized Service Agent.                                                                                                                                                                                                                                                                                                                                    |
| H84          | Output Current On Channel 4 Too Low      | Indicates current malfunctions in secondary circuit. If this code appears, contact nearest Factory Authorized Service Agent.                                                                                                                                                                                                                                                                                                                                    |
| H85          | Output Current On Channel 1 Too High     | Indicates current malfunctions in secondary circuit. If this code appears, contact nearest Factory Authorized Service Agent.                                                                                                                                                                                                                                                                                                                                    |
| H86          | Output Current On Channel 2 Too High     | Indicates current malfunctions in secondary circuit. If this code appears, contact nearest Factory Authorized Service Agent.                                                                                                                                                                                                                                                                                                                                    |
| H87          | Output Current On Channel 3 Too High     | Indicates current malfunctions in secondary circuit. If this code appears, contact nearest Factory Authorized Service Agent.                                                                                                                                                                                                                                                                                                                                    |
| H88          | Output Current On Channel 4 Too High     | Indicates current malfunctions in secondary circuit. If this code appears, contact nearest Factory Authorized Service Agent.                                                                                                                                                                                                                                                                                                                                    |
| H89          | Voltage Detected When Output Is Disabled | Indicates Voltage sense malfunction. If this code appears, contact nearest Factory Authorized Service Agent.                                                                                                                                                                                                                                                                                                                                                    |
| H95          | Motor Communication                      | Indicates serial communication malfunction in PC2. If this code appears during an update, retry the update by holding the Load button. System should resume normal operations after the completion of the update.<br><br>If this code appears during normal operation, contact nearest Factory Authorized Service Agent.                                                                                                                                        |
| H96          | ArcReach Communication                   | Indicates serial communication malfunction in PC5. If this code appears, contact nearest Factory Authorized Service Agent.                                                                                                                                                                                                                                                                                                                                      |
| H97          | PC1 Communication                        | Indicates serial communication malfunction in PC1. If this code appears, contact nearest Factory Authorized Service Agent.                                                                                                                                                                                                                                                                                                                                      |
| H98          | Lost Communication                       | Indicates serial communication was initially made and is now malfunctioning. Check wire feeder/power source control cable connection and tighten if necessary. May appear normally during firmware updates. If this code continues to appear on the display, contact nearest Factory Authorized Service Agent.                                                                                                                                                  |
| H99          | No Communication                         | Indicates serial communication is malfunctioning. If error appears on power source and wire feeder, unit might be linked for 460 VAC and 208-230 input power is being applied. Check primary power and link unit accordingly. Check wire feeder/power source control cable connection and tighten if necessary. May appear normally during firmware updates. If this code continues to appear on the display, contact nearest Factory Authorized Service Agent. |

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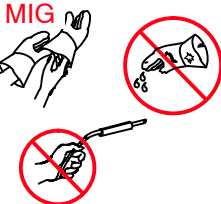
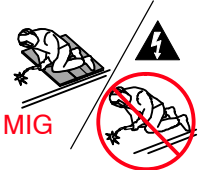
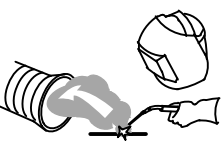


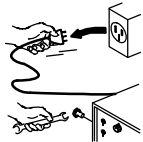
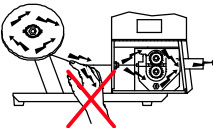
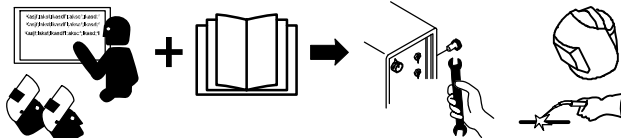
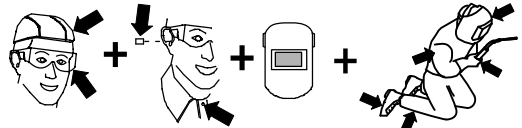
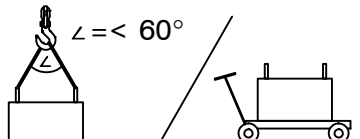


# SECTION 8 – DEFINITIONS

## 8-1. Additional Safety Symbols And Definitions

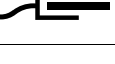
 Some symbols are found only on CE products.

|                                                                                     |                                                                                                                                                                      |
|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    | <p>Warning! Watch Out! There are possible hazards as shown by the symbols.</p> <p style="text-align: right;">Safe1 2012-05</p>                                       |
|    | <p>Wear dry insulating gloves. Do not touch electrode (wire) with bare hand. Do not wear wet or damaged gloves.</p> <p style="text-align: right;">Safe57 2017-04</p> |
|    | <p>Protect yourself from electric shock by insulating yourself from work and ground.</p> <p style="text-align: right;">Safe58 2017-04</p>                            |
|   | <p>Keep your head out of the fumes.</p> <p style="text-align: right;">Safe59 2017-04</p>                                                                             |
|  | <p>Use forced ventilation or local exhaust to remove the fumes.</p> <p style="text-align: right;">Safe60 2012-06</p>                                                 |
|  | <p>Use ventilating fan to remove fumes.</p> <p style="text-align: right;">Safe61 2012-06</p>                                                                         |
|  | <p>Keep flammables away from welding. Do not weld near flammables.</p> <p style="text-align: right;">Safe62 2012-06</p>                                              |
|  | <p>Welding sparks can cause fires. Have a fire extinguisher nearby, and have a watchperson ready to use it.</p> <p style="text-align: right;">Safe63 2012-06</p>     |
|  | <p>Do not weld on drums or any closed containers.</p> <p style="text-align: right;">Safe64 2017-04</p>                                                               |

|                                                                                     |                                                                                                                                                                                                                  |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    | <p>Disconnect input plug or power before working on machine.</p> <p style="text-align: right;">Safe30 2012-05</p>                                                                                                |
|    | <p>Do not remove or paint over (cover) the label.</p> <p style="text-align: right;">Safe20 2017-04</p>                                                                                                           |
|    | <p>Drive rolls can injure fingers.</p> <p style="text-align: right;">Safe32 2012-05</p>                                                                                                                          |
|    | <p>Welding wire and drive parts are at welding voltage during operation – keep hands and metal objects away.</p> <p style="text-align: right;">Safe33 2017-04</p>                                                |
|    | <p>Do not use one handle to lift or support unit.</p> <p style="text-align: right;">Safe31 2017-04</p>                                                                                                           |
|   | <p>Become trained and read the instructions before working on the machine or welding.</p> <p style="text-align: right;">Safe65 2012-06</p>                                                                       |
|  | <p>Wear hat and safety glasses. Use ear protection and button shirt collar. Use welding helmet with correct shade of filter. Wear complete body protection.</p> <p style="text-align: right;">Safe66 2012-06</p> |
|  | <p>Always lift and support unit using both handles. Keep angle of lifting device less than 60 degrees.</p> <p>Use a proper cart to move unit.</p> <p style="text-align: right;">Safe44 2012-05</p>               |

## 8-2. Miscellaneous Symbols And Definitions

 Some symbols are found only on CE products.

|                                                                                                        |                                                                                                                     |                                                                                                    |                                                                                                           |
|--------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|
|  Input Current        |  Input Voltage                     |  Amperes          |  Volts                 |
|  Read Instructions    |  Wire Feed                         |  Percent          |  Degree Of Protection  |
|  Input                |  Cold Jog (Inch) Towards Workpiece |  Purge By Gas     |  Increase              |
|  Constant Current     |  Supplementary Protectors          |  Constant Voltage |  Rated Welding Current |
|  Trigger Hold Off     |  Trigger Hold On                   |  Filter           |  Gas In                |
|  Power Connection     |  On                                |  Off              |  Work Connection       |
|  Electrode Connection |  Input                             |                                                                                                    |                                                                                                           |

## SECTION 9 – REGULATORY AND COMPLIANCE

### 9-1. Serial Number And Rating Label Location

The serial number and rating information for this product is located inside the cover. 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.

### 9-2. 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.

### 9-3. 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.

### 9-4. Environmental Specifications

| IP Rating                                                                                                                                               |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| IP23                                                                                                                                                    |  |
| This equipment is designed for outdoor use. It may be stored, but is not intended to be used for welding outside during precipitation unless sheltered. |  |

IP23 2014-06

## Notes

# TRUE BLUE<sup>®</sup>

## WARRANTY

Effective January 1, 2025

(Equipment with a serial number preface of NF or newer)

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

### 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?  
Contact your distributor.  
The expertise of the  
distributor and Miller is  
there to help you, every  
step of the way.

**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 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
  - \* 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)
  - \* HF Units
  - \* XT Plasma Cutting 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)
  - \* Water Cooling Systems
  - \* Wireless Remote Foot/Hand Controls and Receivers
  - \* Work Stations/Weld Tables/Weld Booths (No Labor)
6. 6 Months — Parts
    - \* 12 Volt Automotive-Style 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
    - \* MIG Guns, Subarc (SAW) Torches, and External Cladding Heads
    - \* Remote Controls and RFCS-RJ45
    - \* Replacement Parts (No labor)

Miller's True Blue<sup>®</sup> 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.

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# 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

Register your product at [www.millerwelds.com/support/product-registration](http://www.millerwelds.com/support/product-registration)

## 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](http://www.millerwelds.com) or call 1-800-4-A-Miller

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.

### Miller Electric Mfg. LLC

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Appleton, WI 54914 USA

### International Headquarters-USA

USA Phone: 920-735-4505 Auto-Attended  
USA & Canada FAX: 920-735-4134  
International FAX: 920-735-4125

For International Locations Visit

[www.MillerWelds.com](http://www.MillerWelds.com)

