



OM-220 390U

2014-05

Processes



MIG (GMAW) Welding

Pulsed MIG (GMAW-P)



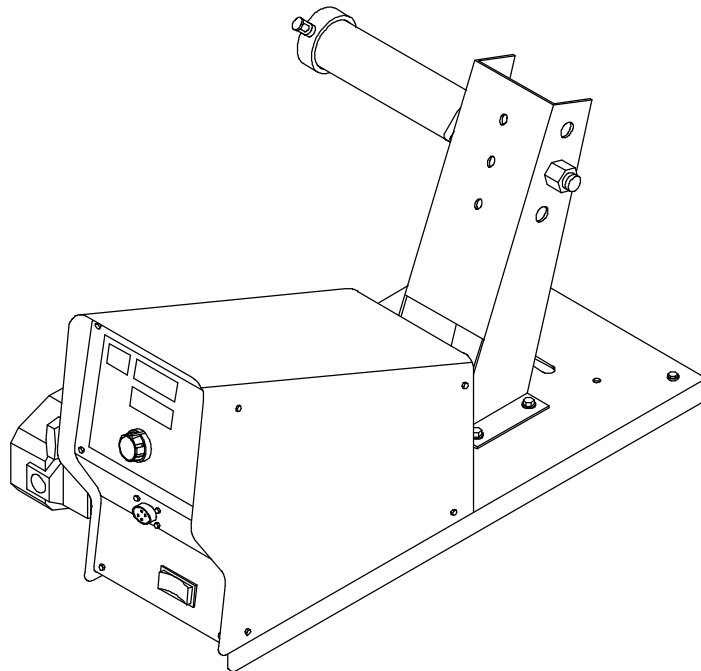
Flux Cored (FCAW) Welding

Description



Wire Feeder

Axcess[®] Wire Feeder CE



Visit our website at
www.MillerWelds.com/ams

OWNER'S MANUAL

File: Advanced Manufacturing Systems



From Miller to You

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

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

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

This Owner's Manual is designed to help you get the most out of your Miller products. Please take time to read the Safety precautions. They will help you protect yourself against potential hazards on the worksite.

We've made installation and operation quick and easy. With Miller you can count on years of reliable service with proper maintenance. And if for some reason the unit needs repair, there's a Troubleshooting section that will help you figure out what the problem is. The parts list will then help you to decide the exact part you may need to fix the problem. Warranty and service information for your particular model are also provided.



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

Miller Electric manufactures a full line of welders and welding related equipment. For information on other quality Miller products, contact your local Miller distributor to receive the latest full line catalog or individual specification sheets. **To locate your nearest distributor or service agency call 1-800-4-A-Miller, or visit us at www.MillerWelds.com on the web.**



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



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DECLARATION OF CONFORMITY

for European Community (CE marked) products.

MILLER Electric Mfg. Co., 1635 Spencer Street, Appleton, WI 54914 U.S.A. declares that the product(s) identified in this declaration conform to the essential requirements and provisions of the stated Council Directive(s) and Standard(s).

Product/Apparatus Identification:

Product	Stock Number
AXCESS FEEDER W/CE	195182011

Council Directives:

- 2006/95/EC Low Voltage
- 2004/108/EC Electromagnetic Compatibility
- 2011/65/EU Restriction of the use of certain hazardous substances in electrical and electronic equipment

Standards:

- IEC 60974-1:2005 Arc welding equipment – Part 1: Welding power sources
- IEC 60974-5:2007 Arc welding equipment – Part 5: Wire feeders
- IEC 60974-10:2007 Arc Welding Equipment – Part 10: Electromagnetic compatibility (EMC) requirements
- EN 50445:2008 Product family standard to demonstrate compliance of equipment for resistance welding, arc welding and allied processes with the basic restrictions related to human exposure to electromagnetic fields (0 Hz – 300Hz)

Signatory:

October 8, 2012

David A. Werba

MANAGER, PRODUCT DESIGN COMPLIANCE

Date of Declaration

SECTION 1 – SAFETY PRECAUTIONS - READ BEFORE USING

som 2013-09

 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.

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 Safety Standards listed in Section 1-5. Read and follow all Safety Standards.



Only qualified persons should install, operate, maintain, and repair this unit.



During operation, keep everybody, especially children, away.



ELECTRIC SHOCK can kill.

Touching live electrical parts can cause fatal shocks or severe burns. The electrode and work circuit is electrically live whenever the output is on. The input power circuit and machine internal circuits are also live when power is on. In semiautomatic or automatic wire welding, the wire, wire reel, drive roll housing, and all metal parts touching the welding wire are electrically live. Incorrectly installed or improperly grounded equipment is a hazard.

- Do not touch live electrical parts.

- Wear dry, hole-free insulating gloves and body protection.
- Insulate yourself from work and ground using dry insulating mats or covers big enough to prevent any physical contact with the work or ground.
- Do not use AC output in damp areas, if movement is confined, 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

 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 the hazards.

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.

SIGNIFICANT DC VOLTAGE exists in inverter welding power sources AFTER removal of input power.

- Turn Off inverter, disconnect input power, and discharge input capacitors according to instructions in Maintenance Section before touching any parts.



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.
- If inside, ventilate the 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 durable, flame-resistant material (leather, heavy cotton, wool). Body protection includes oil-free clothing such as leather gloves, heavy shirt, cuffless trousers, high shoes, and a cap.

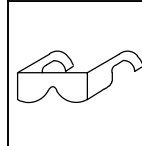


WELDING can cause fire or explosion.

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 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 and AWS A6.0 (see Safety Standards).
- Do not weld where the atmosphere may 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 durable, flame-resistant material (leather, heavy cotton, wool). 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.



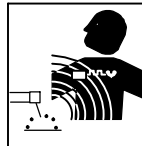
FLYING METAL or DIRT can injure eyes.

- 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.



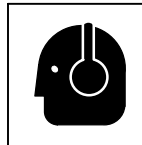
BUILDUP OF GAS can injure or kill.

- 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.

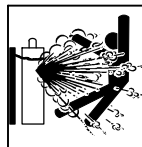
- Wearers of Pacemakers and other Implanted Medical Devices should keep away.
- Implanted Medical Device wearers should consult their doctor and the device manufacturer before going near arc welding, spot welding, gouging, plasma arc cutting, or induction heating operations.



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 right equipment, correct procedures, and sufficient number of persons to lift and move 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 Symbols For Installation, Operation, And Maintenance



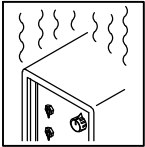
FIRE OR EXPLOSION hazard.

- 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.



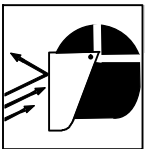
FALLING EQUIPMENT can injure.

- Use lifting eye to lift unit only, NOT running gear, gas cylinders, or any other accessories.
- Use 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.



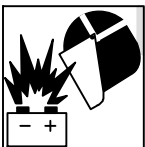
MOVING PARTS can injure.

- 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.



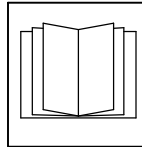
BATTERY EXPLOSION can injure.

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



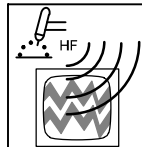
MOVING PARTS can injure.

- 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.



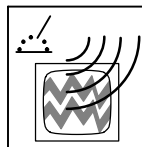
READ INSTRUCTIONS.

- 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 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

 **Welding or cutting equipment produces fumes or gases which contain chemicals known to the State of California to cause birth defects and, in some cases, cancer. (California Health & Safety Code Section 25249.5 et seq.)**

 **This product contains chemicals, including lead, known to the state of California to cause cancer, birth defects, or other reproductive harm. Wash hands after use.**

1-5. Principal Safety Standards

Safety in Welding, Cutting, and Allied Processes, ANSI Standard Z49.1, is available as a free download from the American Welding Society at <http://www.aws.org> or purchased from Global Engineering Documents (phone: 1-877-413-5184, website: www.global.ihs.com).

Safe Practices for the Preparation of Containers and Piping for Welding and Cutting, American Welding Society Standard AWS F4.1, from Global Engineering Documents (phone: 1-877-413-5184, website: www.global.ihs.com).

Safe Practices for Welding and Cutting Containers that have Held Combustibles, American Welding Society Standard AWS A6.0, from Global Engineering Documents (phone: 1-877-413-5184, website: www.global.ihs.com).

National Electrical Code, NFPA Standard 70, from National Fire Protection Association, Quincy, MA 02269 (phone: 1-800-344-3555, website: www.nfpa.org and www.sparky.org).

Safe Handling of Compressed Gases in Cylinders, CGA Pamphlet P-1, from Compressed Gas Association, 14501 George Carter Way, Suite 103, Chantilly, VA 20151 (phone: 703-788-2700, website: www.cganet.com).

Safety in Welding, Cutting, and Allied Processes, CSA Standard W117.2, from Canadian Standards Association, Standards Sales, 5060

Spectrum Way, Suite 100, Ontario, Canada L4W 5NS (phone: 800-463-6727, website: www.csa-international.org).

Safe Practice For Occupational And Educational Eye And Face Protection, ANSI Standard Z87.1, from American National Standards Institute, 25 West 43rd Street, New York, NY 10036 (phone: 212-642-4900, website: www.ansi.org).

Standard for Fire Prevention During Welding, Cutting, and Other Hot Work, NFPA Standard 51B, from National Fire Protection Association, Quincy, MA 02269 (phone: 1-800-344-3555, website: www.nfpa.org).

OSHA, Occupational Safety and Health Standards for General Industry, Title 29, Code of Federal Regulations (CFR), Part 1910, Subpart Q, and Part 1926, Subpart J, from U.S. Government Printing Office, Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250-7954 (phone: 1-866-512-1800) (there are 10 OSHA Regional Offices—phone for Region 5, Chicago, is 312-353-2220, website: www.osha.gov).

Applications Manual for the Revised NIOSH Lifting Equation, The National Institute for Occupational Safety and Health (NIOSH), 1600 Clifton Rd, Atlanta, GA 30333 (phone: 1-800-232-4636, website: 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 may 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.

NOTE – 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 ÉLECTRIQUE, PIÈCES EN MOUVEMENT, et PIÈCES CHAUDES. Consulter les symboles et les instructions ci-dessous y afférant pour les actions nécessaires afin d'éviter le 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 instructions en matière de sécurité indiquées ci-dessous ne constituent qu'un sommaire des instructions de sécurité plus complètes fournies dans les normes de sécurité énumérées dans la Section 2-5. Lire et observer toutes les normes de sécurité.



Seul un personnel qualifié est autorisé à installer, faire fonctionner, entretenir et réparer cet appareil.



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 se servir de source électrique à courant électrique dans les zones humides, dans les endroits confinés ou là où on risque de tomber.
- 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).
- Installez, mettez à la terre et utilisez correctement cet équipement conformément à son Manuel d'Utilisation et aux réglementations nationales, gouvernementales et locales.
- Toujours vérifier la terre du cordon d'alimentation. Vérifier et s'assurer que le fil de terre du cordon d'alimentation est bien raccordé à la borne de terre du sectionneur 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.

Il reste une TENSION DC NON NÉGLIGEABLE dans les sources de soudage onduleur UNE FOIS l'alimentation coupée.

- Arrêter les convertisseurs, débrancher le courant électrique et décharger les condensateurs d'alimentation selon les instructions indiquées dans la partie Entretien avant de toucher les pièces.



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 dangereuse 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 auxquels 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 intense (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 appropriés 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.

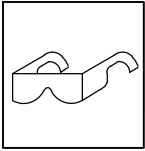
- Avoir recours à des écrans protecteurs ou à des rideaux pour protéger les autres contre les rayonnements les éblouissements et les étincelles ; prévenir toute personne sur les lieux de ne pas regarder l'arc.
- Porter un équipement de protection pour le corps fait d'un matériau résistant et ignifuge (cuir, coton robuste, laine). 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 là 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 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 et AWS A6.0 (voir les Normes de Sécurité).
- Ne soudez pas si l'air ambiant est chargé de particules, gaz, ou vapeurs 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 un équipement de protection pour le corps fait d'un matériau résistant et ignifuge (cuir, coton robuste, laine). 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.
- 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.



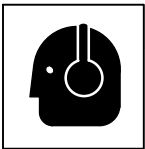
LES ACCUMULATIONS DE GAZ risquent de provoquer des blessures ou même la mort.

- 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.

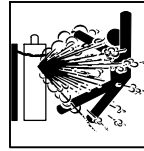
- Les porteurs de stimulateurs cardiaques et autres implants médicaux doivent rester à distance.
- Les porteurs d'implants médicaux doivent consulter leur médecin et le fabricant du dispositif avant de s'approcher de la zone où se déroule du soudage à l'arc, du soudage par points, du gougeage, de la 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 sont normalement parties 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.
- Utiliser les équipements corrects, les bonnes procédures et suffisamment de personnes pour soulever et déplacer 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. Dangers supplémentaires en relation avec l'installation, le fonctionnement et la maintenance



Risque D'INCENDIE OU D'EXPLOSION.

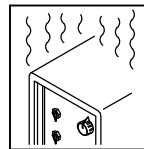
- Ne pas placer l'appareil sur, au-dessus ou à proximité de surfaces inflammables.
- Ne pas installer l'appareil à proximité de produits inflammables.
- Ne pas surcharger l'installation électrique – s'assurer que l'alimentation est correctement dimensionnée et protégée avant de mettre l'appareil en service.



LA CHUTE DE L'ÉQUIPEMENT peut provoquer des blessures.

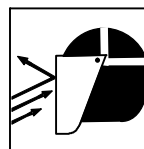
- Utiliser l'anneau de levage uniquement pour soulever l'appareil, NON PAS les chariots, les bouteilles de gaz ou tout autre accessoire.
- Utiliser un équipement de levage de capacité suffisante pour lever l'appareil.
- En utilisant des fourches de levage pour déplacer l'unité, s'assurer que les fourches sont suffisamment longues pour dépasser du côté opposé de l'appareil.
- Tenir l'équipement (câbles et cordons) à distance des véhicules mobiles lors de toute opération en hauteur.

- Suivre les consignes du Manuel des applications pour l'équation de levage NIOSH révisée (Publication N°94-110) lors du levage manuel de pièces ou équipements lourds.



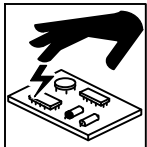
L'EMPLOI EXCESSIF peut SURCHAUFFER L'ÉQUIPEMENT.

- 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.



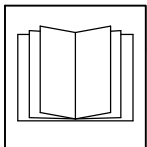
L'EXPLOSION DE LA BATTERIE peut provoquer des blessures.

- 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.



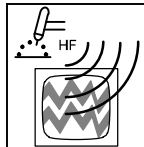
Les PIÈCES MOBILES peuvent causer des blessures.

- 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.



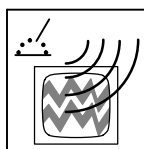
LIRE LES INSTRUCTIONS.

- 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'entretien en respectant les manuels d'utilisation, les normes industrielles et les codes nationaux, d'état et locaux.



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

⚠ Les équipements de soudage et de coupage produisent des fumées et des gaz qui contiennent des produits chimiques dont l'État de Californie reconnaît qu'ils provoquent des malformations congénitales et, dans certains cas, des cancers. (Code de santé et de sécurité de Californie, chapitre 25249.5 et suivants)

⚠ Ce produit contient des produits chimiques, notamment du plomb, dont l'État de Californie reconnaît qu'ils provoquent des cancers, des malformations congénitales ou d'autres problèmes de procréation. *Se laver les mains après utilisation.*

2-5. Principales normes de sécurité

Safety in Welding, Cutting, and Allied Processes, ANSI Standard Z49.1, is available as a free download from the American Welding Society at <http://www.aws.org> or purchased from Global Engineering Documents (phone: 1-877-413-5184, website: www.global.ihs.com).

Safe Practices for the Preparation of Containers and Piping for Welding and Cutting, American Welding Society Standard AWS F4.1, from Global Engineering Documents (phone: 1-877-413-5184, website: www.global.ihs.com).

Safe Practices for Welding and Cutting Containers that have Held Combustibles, American Welding Society Standard AWS A6.0, from Global Engineering Documents (phone: 1-877-413-5184, website: www.global.ihs.com).

National Electrical Code, NFPA Standard 70, from National Fire Protection Association, Quincy, MA 02269 (phone: 1-800-344-3555, website: www.nfpa.org and www.sparky.org).

Safe Handling of Compressed Gases in Cylinders, CGA Pamphlet P-1, from Compressed Gas Association, 14501 George Carter Way, Suite 103, Chantilly, VA 20151 (phone: 703-788-2700, website: www.cganet.com).

Safety in Welding, Cutting, and Allied Processes, CSA Standard W117.2, from Canadian Standards Association, Standards Sales, 5060

Spectrum Way, Suite 100, Ontario, Canada L4W 5NS (phone: 800-463-6727, website: www.csa-international.org).

Safe Practice For Occupational And Educational Eye And Face Protection, ANSI Standard Z87.1, from American National Standards Institute, 25 West 43rd Street, New York, NY 10036 (phone: 212-642-4900, website: www.ansi.org).

Standard for Fire Prevention During Welding, Cutting, and Other Hot Work, NFPA Standard 51B, from National Fire Protection Association, Quincy, MA 02269 (phone: 1-800-344-3555, website: www.nfpa.org).

OSHA, Occupational Safety and Health Standards for General Industry, Title 29, Code of Federal Regulations (CFR), Part 1910, Subpart Q, and Part 1926, Subpart J, from U.S. Government Printing Office, Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250-7954 (phone: 1-866-512-1800) (there are 10 OSHA Regional Offices—phone for Region 5, Chicago, is 312-353-2220, website: www.osha.gov).

Applications Manual for the Revised NIOSH Lifting Equation, The National Institute for Occupational Safety and Health (NIOSH), 1600 Clifton Rd, Atlanta, GA 30333 (phone: 1-800-232-4636, website: 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 CEM peuvent créer des interférences avec certains implants médicaux comme des 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.



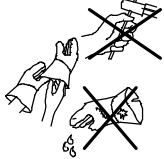
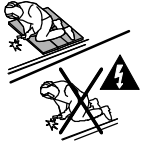
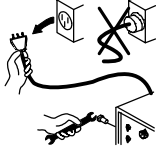
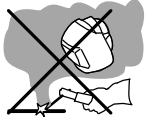
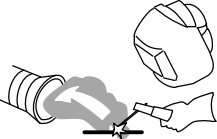
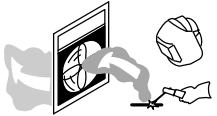
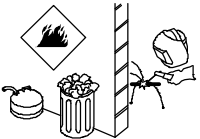

En ce qui concerne les implants médicaux :



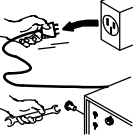

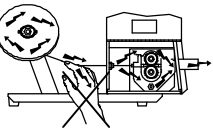
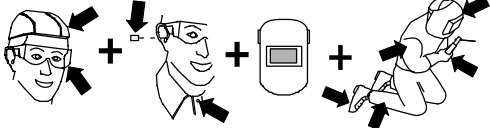
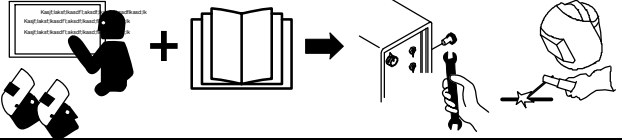
Les porteurs d'implants doivent d'abord consulter leur médecin avant de s'approcher des opérations de soudage à l'arc, de soudage par points, de gougeage, du coupage plasma ou de chauffage par induction. Si le médecin approuve, il est recommandé de suivre les procédures précédentes.

SECTION 3 – DEFINITIONS

3-1. 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>Do not discard product (where applicable) with general waste. Reuse or recycle Waste Electrical and Electronic Equipment (WEEE) by disposing at a designated collection facility. Contact your local recycling office or your local distributor for further information.</p> <p style="text-align: right;">Safe37 2012-05</p>
	<p>Wear dry insulating gloves. Do not touch electrode with bare hand. Do not wear wet or damaged gloves.</p> <p style="text-align: right;">Safe2 2012-05</p>
	<p>Protect yourself from electric shock by insulating yourself from work and ground.</p> <p style="text-align: right;">Safe3 2012-05</p>
	<p>Disconnect input plug or power before working on machine.</p> <p style="text-align: right;">Safe5 2012-05</p>
	<p>Keep your head out of the fumes.</p> <p style="text-align: right;">Safe6 2012-05</p>
	<p>Use forced ventilation or local exhaust to remove the fumes.</p> <p style="text-align: right;">Safe8 2012-05</p>
	<p>Use ventilating fan to remove fumes.</p> <p style="text-align: right;">Safe10 2012-05</p>
	<p>Keep flammables away from welding. Do not weld near flammables.</p> <p style="text-align: right;">Safe12 2012-05</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;">Safe14 2012-05</p>

	<p>Do not weld on drums or any closed containers.</p> <p style="text-align: right;">Safe16 2012-05</p>
	<p>Do not remove or paint over (cover) the label.</p> <p style="text-align: right;">Safe20 2012-05</p>
	<p>Disconnect input plug or power before working on machine.</p> <p style="text-align: right;">Safe30 2012-05</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 2012-05</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;">Safe38 2012-05</p>
	<p>Become trained and read the instructions before working on the machine or welding.</p> <p style="text-align: right;">Safe40 2012-05</p>

SECTION 4 – SPECIFICATIONS

4-1. Serial Number And Rating Label Location

The serial number and rating information for this product is located on the back. 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.

4-2. Unit Specifications

Type of Input Power	Welding Power Source Type	Wire Feed Speed	Wire Diameter Range	Welding Circuit Rating	Overall Dimensions	Weight
40 Volts DC 10 Amperes	Axcess Series	Standard: 1.0 To 35.6 mpm (40 To 1400 ipm)	0.8 To 3.2mm (.030 To 1/8 in.) Max Spool Capacity: 457mm (18 in.) Max Spool Weight: 27 kg (60 lb)	100 Volts, 300 Amperes, 100% Duty Cycle	Length: 686mm (27 in.) Width: 318mm (12-1/2 in.) Height: 368mm (14-1/2 in.)	20.9 kg (46 lb)

4-3. Environmental Specifications

A. IP Rating

IP Rating
IP2X
This equipment is designed for indoor use and is not intended to be used or stored outside.

B. Information On Electromagnetic Fields (EMF)

⚠ This equipment shall not be used by the general public as the EMF limits for the general public might be exceeded during welding.

This equipment is built in accordance with EN 60974-1 and is intended to be used only in an occupational environment (where the general public access is prohibited or regulated in such a way as to be similar to occupational use) by an expert or an instructed person.

Wire feeders and ancillary equipment (such as torches, liquid cooling systems and arc striking and stabilizing devices) as part of the welding circuit may not be a major contributor to the EMF. See the Owner's Manuals for all components of the welding circuit for additional EMF exposure information.

- The EMF assessment on this equipment was conducted at 0.5 meter.
- At a distance of 1 meter the EMF exposure values were less than 20% of the permissible values.

ce-emf 1 2010-10

C. Information On Electromagnetic Compatibility (EMC)

⚠ This Class A equipment is not intended for use in residential locations where the electrical power is provided by the public low-voltage supply system. There can be potential difficulties in ensuring electromagnetic compatibility in those locations, due to conducted as well as radiated disturbances.

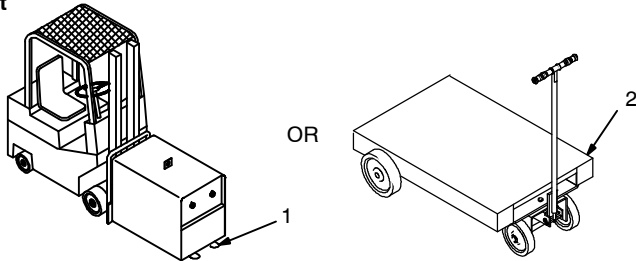
ce-emc 3 2011-09

SECTION 5 – INSTALLATION

5-1. Selecting A Location



Movement



Tipping

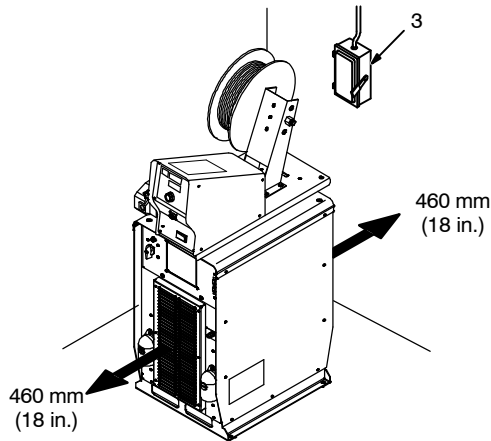
Do not move or operate unit where it could tip.



Location

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

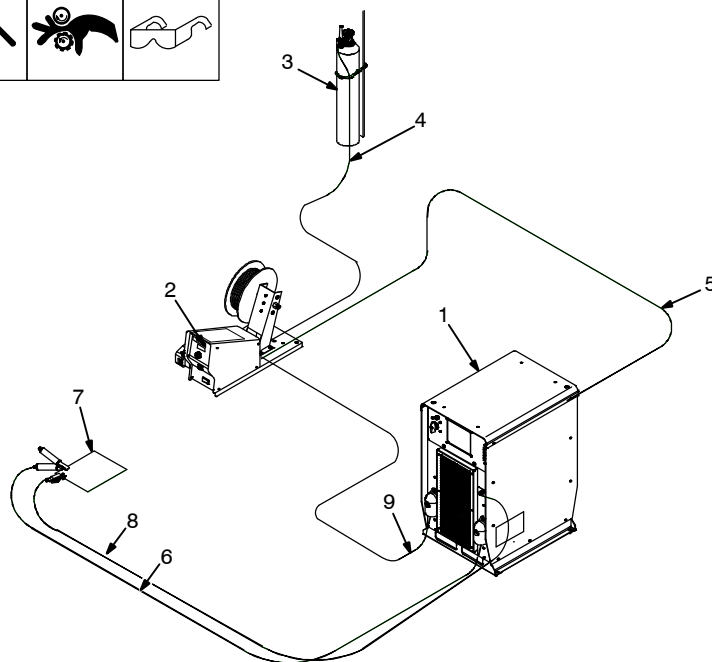
Do not stack units. Beware of tipping.



- 1 Lifting Forks
Use lifting forks to move unit.
Extend forks beyond opposite side of unit.
- 2 Hand Cart
Use cart or similar device to move unit.
- 3 Line Disconnect Device
Locate unit near correct input power supply.

loc_2 3/96 - Ref. 803 502-B

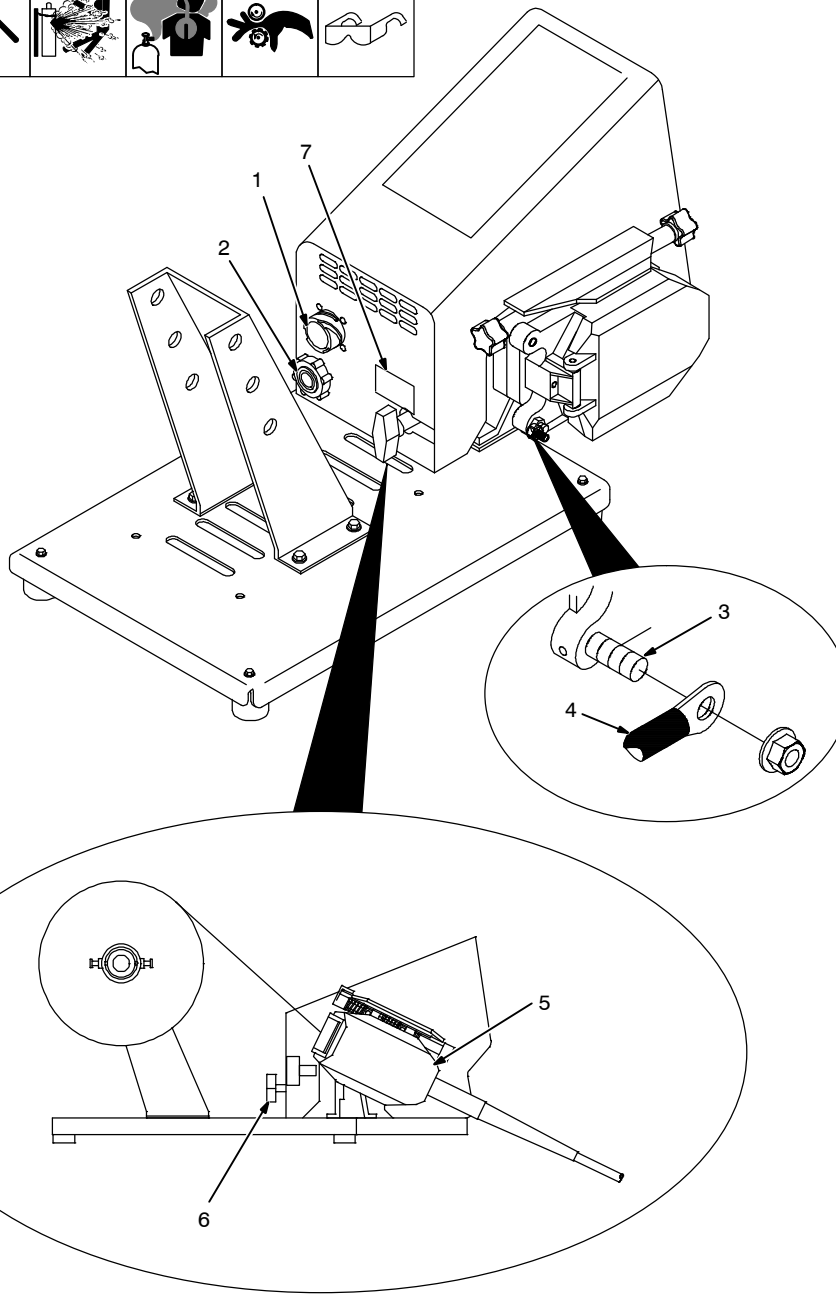
5-2. Connection Diagram



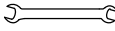

- 1 Welding Power Source
 - 2 Wire Feeder
 - 3 Gas Cylinder
 - 4 Gas Hose
 - 5 Network Feeder Cable
 - 6 Negative (-) Weld Cable
 - 7 Workpiece
 - 8 Voltage Sensing Lead
 - 9 Positive (+) Weld Cable
- Recommended for Accu-pulse and RMD (optional).
- Positive (+) voltage sensing lead is contained in the motor cable.**

Ref. 801 915 / Ref. 803 501-B

5-3. Rear Panel Connections And Rotating Drive Assembly


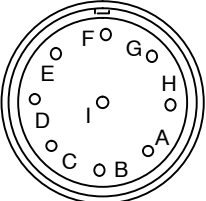


- 1 9-Pin Network Receptacle
 - 2 Shielding Gas Valve Fitting
Requires fitting with 5/8-18 right-hand threads. Connect customer-supplied gas hose.
 - 3 Weld Cable Terminal
 - 4 Weld Cable
 - 5 Drive Assembly
 - 6 Drive Assembly Rotation Knob
 - 7 Rating Label Location
- To rotate the drive assembly, loosen drive assembly rotation knob, rotate drive assembly, and tighten knob.

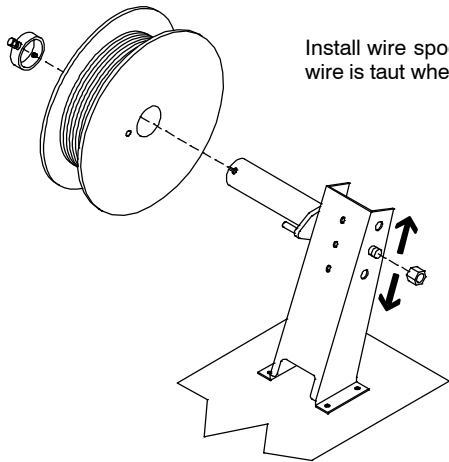
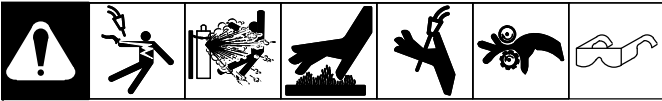
Tools Needed:
 9/16, 5/8 in.
 3/16 in.

802 825-A / 803 503-B / Ref. 246 041-B

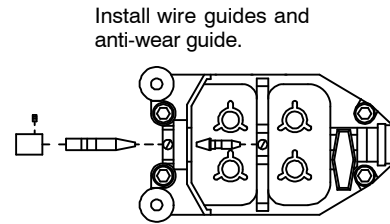
5-4. 9-Pin Network Receptacle Information

 REMOTE 9	Pin	Pin Information
	A	Capacitor C1 to ground
	B	Shield
	C	Volt sense
	D	Can low
	E	Can high
	F	+24 volts DC common
	G	+ 24 volts dc
	H	Motor voltage +40 volts DC common
	I	Motor voltage +40 volts DC

5-5. Installing And Threading Welding Wire



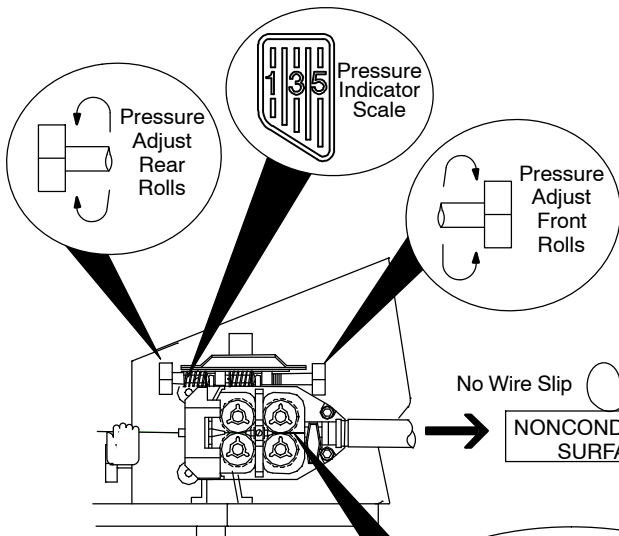
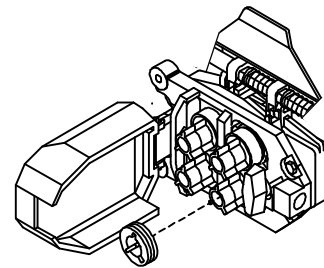
Install wire spool. Adjust tension nut so wire is taut when wire feed stops.



Install wire guides and anti-wear guide.



Install drive rolls.

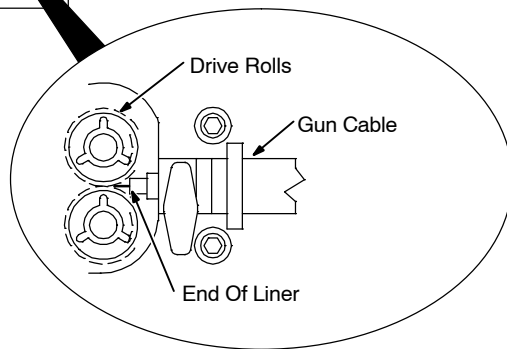


No Wire Slip

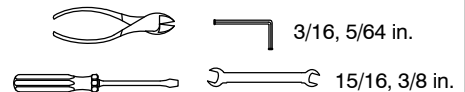
Wire Slips

NONCONDUCTIVE SURFACE

NONCONDUCTIVE SURFACE



Tools Needed:



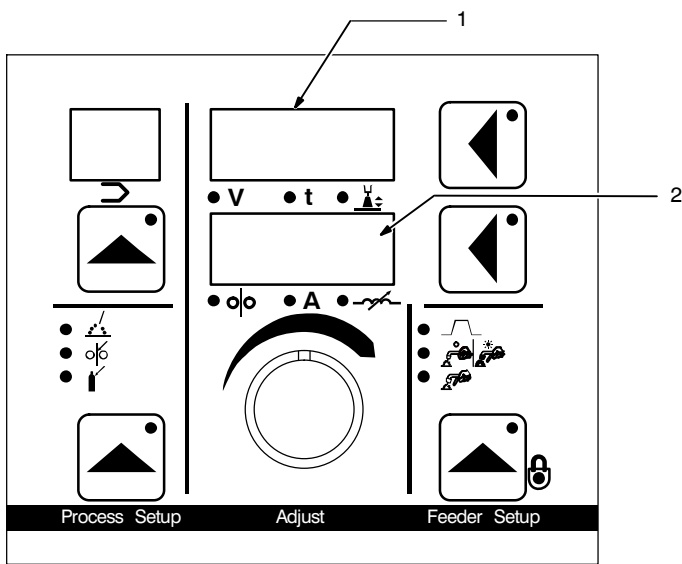
☞ Be sure that outlet cable has proper size liner for the welding wire size. **When installing gun, position liner extending from outlet wire guide as close as possible to drive rolls without touching.**

☞ For soft wire or small diameter stainless steel wire, reduce drive roll pressure on the rear roll to half that of the front rolls.

☞ To adjust drive roll pressure, hold nozzle about 2 in. (51 mm) from nonconductive surface and press gun trigger to feed wire against surface. Tighten knob so wire does not slip. Do not overtighten. If contact tip is completely blocked, wire should slip at the feeder (see pressure adjustment above). Cut wire off. Close cover.

Install gun. Lay gun cable out straight. Cut off end of wire. Push wire through guides up to drive rolls; continue to hold wire. Press Jog button to feed wire out gun.

5-6. Feeder Display At Power Up

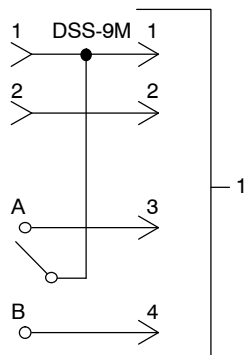


- 1 Upper Display
- 2 Lower Display

Power Source	Upper Display	Lower Display	Voltage Range	
	Net	Wait		
	DTEC	OFF		
Axcs	Axcs	300/450/675	10	44

219 711-A

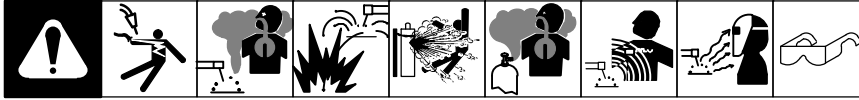
5-7. Dual Schedule Switch Option



- 1 Maint 2P (Maintained-Contact 2-Pole Switch)
- DSS-9M Part No. 041 793

SECTION 6 – OPERATION

6-1. Operational Terms



The following is a list of terms and their definitions as they apply to the interface unit in the wire feeder:

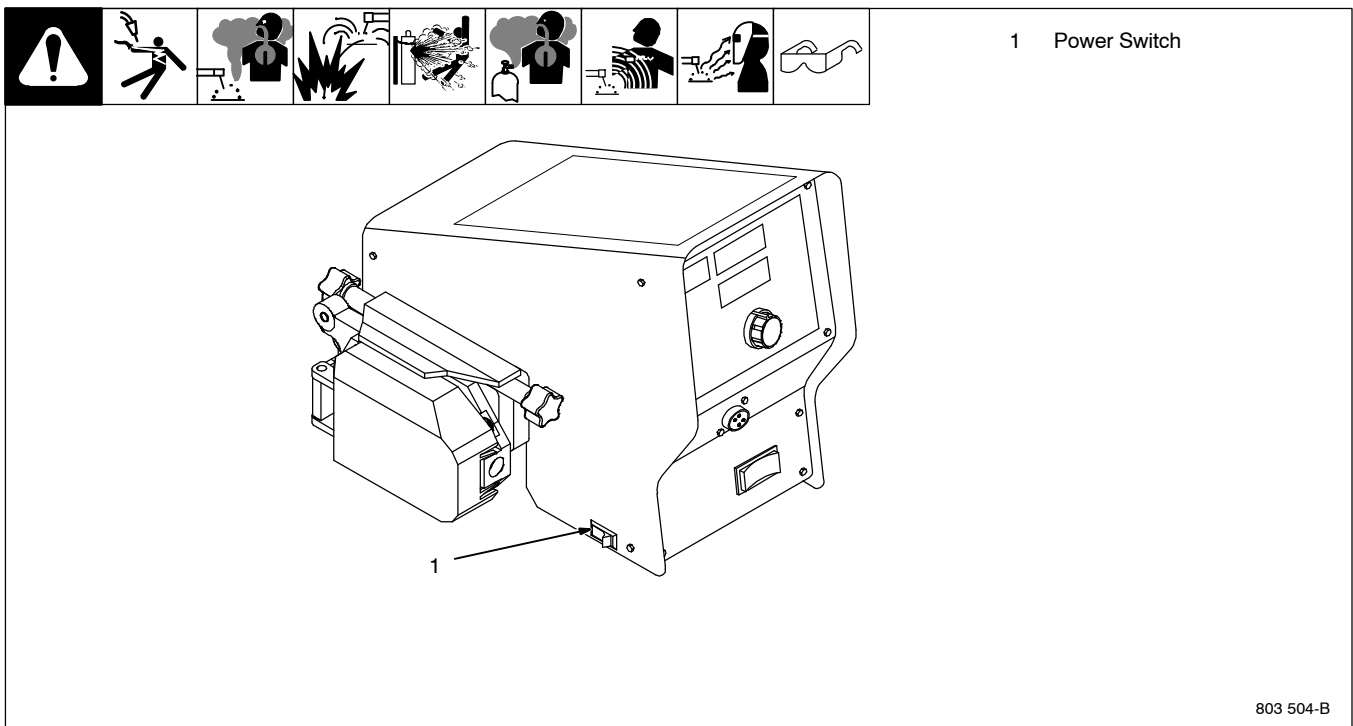
General Terms:

AccuCurve	CV Pulse process using a pulse waveform with modified curves at particular locations within the waveform. Has a distinguished change in arc characteristics. Front panel display is ACCU – CURV.
Accu-pulse	Pulse process utilizing constant current ramps with constant voltage control of peaks and backgrounds. Adaptive response is controlled by peak and minimum current levels. Benefits are shorter arc lengths, better puddle control, more tolerant of tip-to-work variation, less audible noise, no arc wandering, allows weld to fill in at toes increasing travel speed and deposition, and more tolerant to poor fit up and gaps.
Accuspeed (Optional)	CV Pulse process designed for high travel speeds. Typically used in Robotic applications. Arc is designed to be tight and fast. Front panel display is ACCU – SPED.
Adjust	Control knob used to change or set parameters and functions.
Amps	Indicates average amperage while welding and 3 seconds hold value at end of weld.
Arc Adjust	Term used to represent arc length adjustments in pulse programs. Increasing Arc Adjust increases the actual arc length. Likewise, decreasing arc adjust shortens arc length. Arc Adjust is replaced by volts in MIG programs.
Arc Control	Allows setting of inductance in MIG mode. In pulse and Accu-pulse mode, this adjustment changes the arc cone by adjusting the preprogrammed factory pulse data. In RMD (optional), this control will affect the in much the same way as inductance.
Arc Length	Distance from end of wire electrode to workpiece.
Auto Thread	Method of jogging wire without holding jog or trigger switch. Pressing Jog and Retract simultaneously will automatically feed wire. Default setting is 192 at a feed rate of 700 ipm (these values can be changed using a PDA with File Management/WaveWriter software). Pressing jog, purge, or trigger switch will terminate the auto-threading feature.
Crater	Allows setting of voltage/arc adjust, wire feed rate, and time value for arc ends.
DS (Dual Schedule)	Dual Schedule allows selecting a pair of programs that can be used together.
Feeder Set Up	Allow selection of Sequence and trigger functions.
Gas Type	Selection of shielding gas being used in application.
Inductance	In short circuit GMAW welding, an increase in inductance will decrease the number of short circuit transfers per second (provided no other changes are made) and increase the arc-on time. The increased arc-on time makes the welding puddle more fluid.
MIG	CV weld process with individual settings of voltage and wire speed.
Postflow	Setting a time value for gas flow after arc end.
Preflow	Setting a time value for gas flow prior to arc start.
Process	A selection made for MIG, Pulse, Accu-pulse, and RMD (optional).
Process Set Up	Selection procedure for entering program.
Program	Eight active slots for selection of various processes, wire type, and parameters.
Program Load	Enters selected program information into program slot.
Pulse	Conventional pulse program using peak, background, pulse width, frequency, and peak voltage as factory taught data. Adaptive method is controlled by frequency adjustment.
RMD (optional)	RMD refers to Regulated Metal Deposition. A precisely controlled short-circuit transfer. Benefits of RMD are well suited to thin materials, improves gap filling and spatter reduction. Provides less heat input into workpiece, minimizes distortion and allows use of larger diameter wire on thin gauge materials.
Sequence	Selecting Sequence will allow setting of preflow, start, crater, and postflow times and parameters.
Start	Provides voltage/arc adjust, wire feed rate, and time value for modified arc starts (which is only adjustable with the optional PDA with File Management/WaveWriter software).
TDS (Trigger Dual Schedule)	TDS allows the operator to select between a pair of weld programs by using the gun trigger. In TDS mode, momentarily pressing the gun trigger allows the operator to cycle between a pair of preselected weld programs.
TH (Trigger Hold)	Trigger Hold allows the operator to feed wire without continuously pressing the gun trigger. In trigger hold mode, momentarily press gun trigger, and wire will feed until gun trigger is momentarily pressed again.

General Terms:

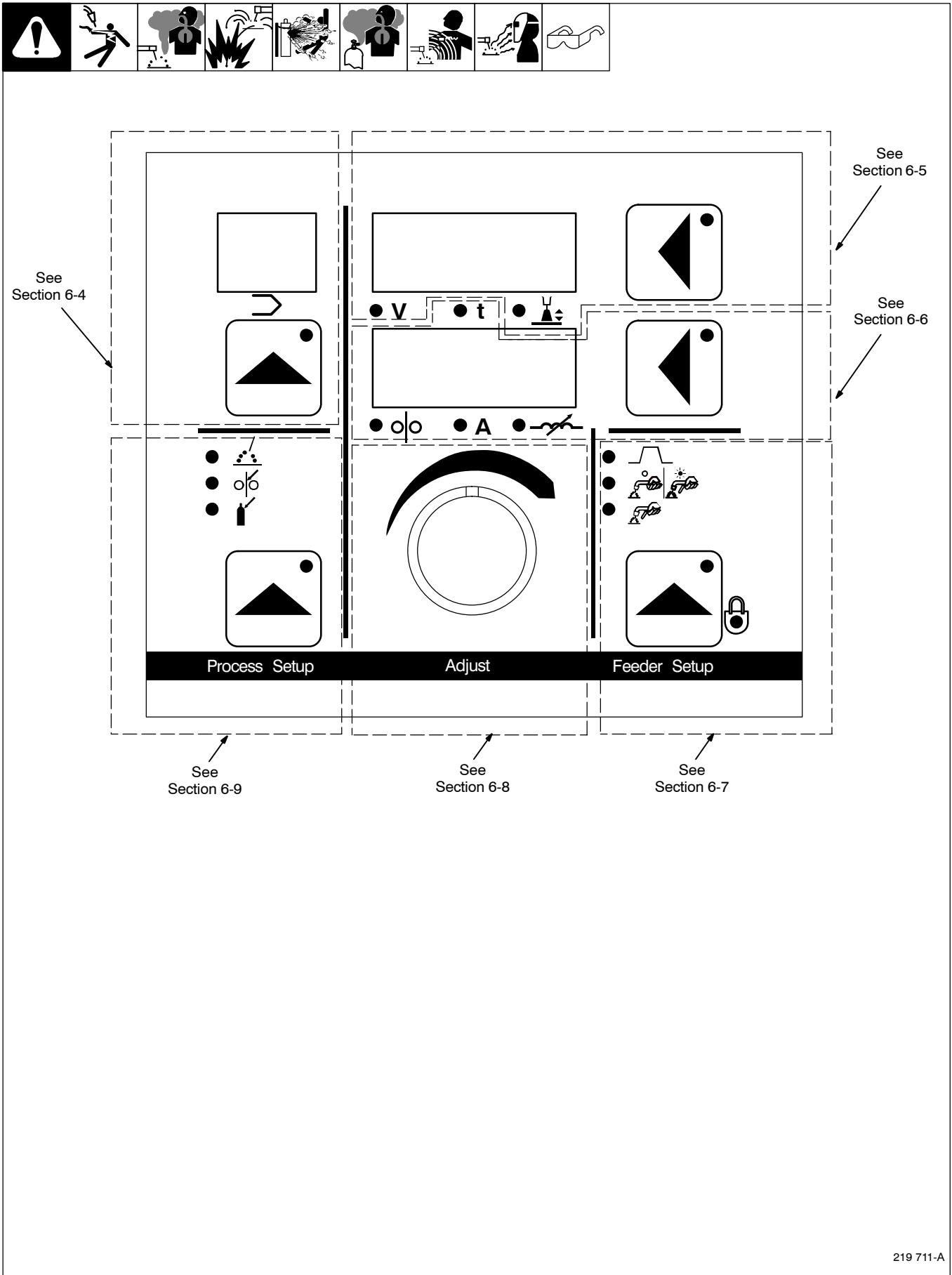
Time	Indicates time values being set for timed functions (e.g. Preflow, Postflow which are only available in the Arc On and Analog input or the Arc On and No Analog input modes).
TPS (Trigger Program Schedule)	TPS allows the operator to select weld programs by using the gun trigger. In TPS mode, momentarily pressing the gun trigger allows the operator to cycle through preselected weld programs up to a total of 8 programs.
Trigger Control	Selecting Trigger Control allows activating trigger functions such as DS, TH, 4T, TDS, and TPS.
Volts	Preset voltage in MIG mode at idle, actual voltage while welding, and 3 seconds hold value at end of weld.
Wire Type	Selection of wire type by alloys and classification.
WFS	Term used to represent wire feed speed. In MIG mode, wire feed setting is independent of voltage setting. In pulse, Accu-pulse, and RMD (optional) adjusting wire feed speed also increases power level on wire electrode (one knob control).
4T	4T allows the operator to select between weld parameters and crater parameters using the gun trigger. Crater time must be set for at least 0.2 seconds to make this function operational. If gun trigger is released during welding, unit goes into trigger hold, then pressing and holding trigger again causes unit to stay in crater until trigger is released and crater parameter times out.

6-2. Power Switch

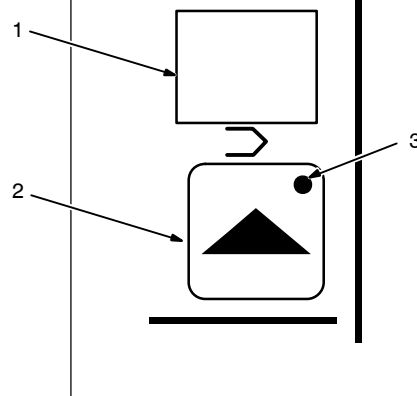
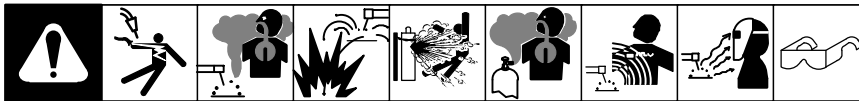


803 504-B

6-3. Front Panel Sections



6-4. Program Push Button



1 Program Display

The number of the active program is displayed.

2 Program Push Button

3 Program Push Button LED

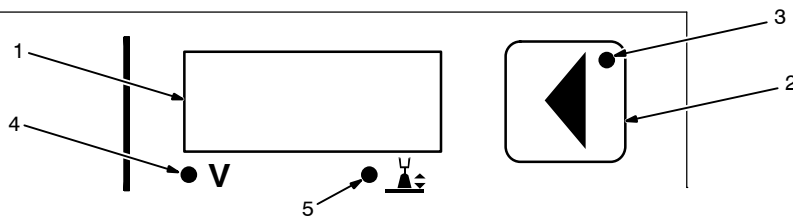
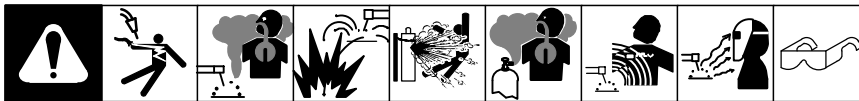
The LED lights to indicate that programs can be changed using the Adjust knob.

Momentarily press button to illuminate LED. To change the program number, rotate Adjust knob to select one of eight programs.

Pressing and holding the push button will display current wire size, wire type and process.

To reset feeder to factory settings, turn power source off for 10 seconds. Press and hold button in on power up, wait until top display shows RST and bottom display shows NO before releasing button. Feeder Set Up button LED will begin flashing. Turn Adjust knob to change bottom display to show YES, then press Feeder Set Up button to confirm selection. The top display will show CYCL and the lower display will show PWR. Turn welding power source power off for 10 seconds, then turn power back on again.

6-5. Upper Display



1 Upper Display

The upper display at idle (not welding) shows preset volts with process selection MIG or Arc Adjust for all other processes. When welding, the display shows actual voltage. The display will show actual voltage for approximately 3 seconds after welding stops before returning to preset value.

2 Upper Display Push Button

Press the button to illuminate the LED and allow changing information in the display.

3 Upper Display Push Button LED

The upper display push button LED

illuminates to indicate that information displayed can be changed by the Adjust knob.

4 Volts LED

Indicates a voltage value is being displayed, preset voltage in MIG when not welding and actual voltage while welding.

5 Arc Adjust LED

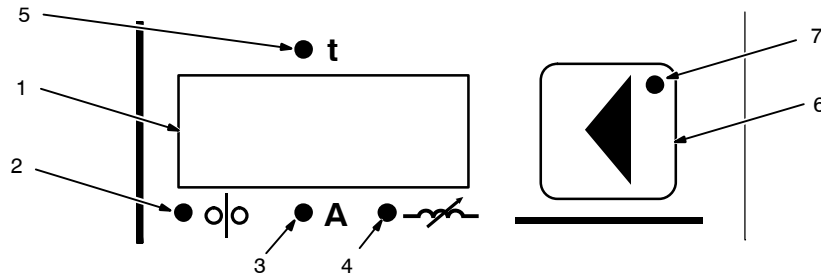
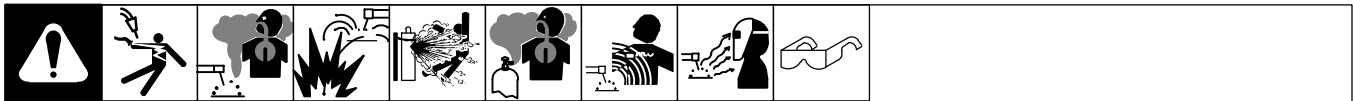
Indicates that displayed value is an arc length value when the process is Pulse, Accu-pulse, or RMD (optional).

☞ At any time while welding, the display allows adjustment of the weld voltage or arc adjust preset values by turning the

Adjust knob. The preset values will be displayed while the knob is being rotated and return to displaying actual values when adjustment is completed.

To activate Carbon Arc Cutting (CAC), press and hold the upper display push button in on power up. CAC will appear on the upper display and NO will appear on the lower display. Rotate adjust knob to YES on the lower display, and press the flashing Feeder Set up push button. CYCL will appear on the upper display and PWR will appear on the lower display. Turn welding power source off and back on again to enable the Carbon Arc Cutting process selection.

6-6. Lower Display



1 Lower Display

The lower display shows WFS (wire feed speed), AMPS (amperage), ARC CTL (arc control), or Time. The feeder displays only preset wire speed at idle (not welding). While welding, the average amperage is displayed. The lower display shows welding sequence time when the Time LED is illuminated.

2 WFS (Wire Feed Speed) LED

LED illuminates to indicate the preset wire feed value is being displayed and can be adjusted using the Adjust knob.

3 Amps LED

LED illuminates to indicate the average amperage is being displayed while welding and for 3 seconds after welding is terminated. The amperage must be above a minimum value of 25 amps for this function to operate.

4 Arc Ctl (Arc Control) LED

LED illuminates to indicate that inductance (MIG) or ARC [Pulse, Accu-pulse, or RMD (optional)] is being displayed and can be adjusted using the Adjust knob.

5 Time LED

LED illuminates to indicate that a time value is being displayed for a sequence function and can be adjusted using the Adjust knob.

6 Lower Display Push Button


7 Lower Display Push Button LED

Pressing the button illuminates the LED and selects either WFS or Arc Ctl value for changing using the Adjust knob.

To select Arc Ctl, press and hold lower display button for 2 seconds. The top display will show either INDU for a MIG program or ARC for Pulse, Accu-pulse, or RMD (optional). To exit Arc Ctl or INDU, either press the upper display push button or press and hold the lower display push button for 2 seconds.

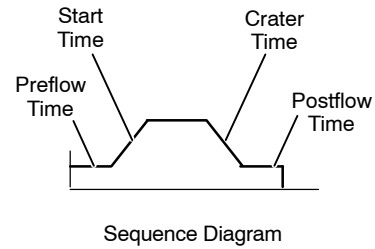
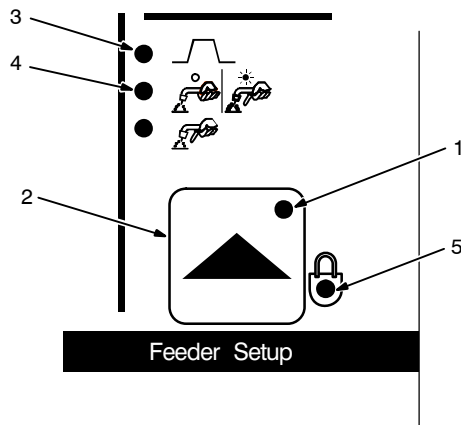
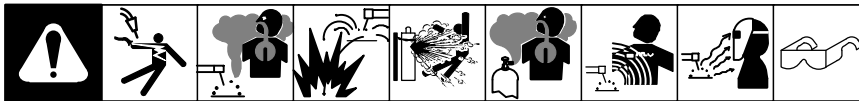
During a welding program operation, it is possible to change WFS (wire feed speed) by using the Adjust knob regardless of the active program sequence that appears on the display.

When the Arc Ctl LED is illuminated, it is possible to change values while welding by using the Adjust knob. To return to actual values on the display, exit the Arc Ctl display.

 *The lower display push button has additional functions when entering the sequence and trigger control functions (see Section 6-7).*

Notes

6-7. Feeder Set Up Push Button



- 1 Feeder Set Up Push Button LED
- 2 Feeder Set Up Push Button
 - Press button to choose Sequence. Feeder Set Up push-button LED will illuminate.
- 3 Sequence LED
 - When the Feeder Set Up button is pressed once, the Sequence LED will illuminate and the upper display will show sequence options. Use the Adjust knob to select PRE (preflow), STRT (start), CRTR (crater), or POST (postflow).
 - Press the lower display push button and the Lower Display push-button LED will illuminate as well as the lower display. The Time LED will automatically begin flashing indicating that a time value can be entered by turning the Adjust knob. By entering a time value the sequence state will become active. To turn off a sequence state, change the time value to OFF. To step back for selecting another sequence option, press the Upper Display push button.
 - The Sequence option STRT and CRTR will have additional parameter settings. By

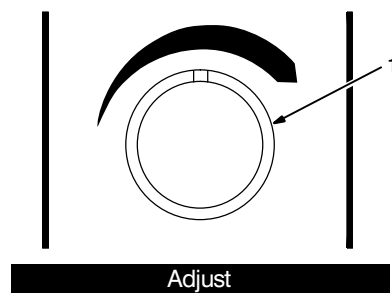
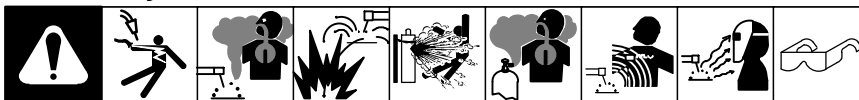
pushing the Lower Display push button a second time, while STRT or CRTR appear in the upper display, allows entering voltage (MIG) or Arc Adjust [Pulse, Accu-pulse, or RMD (optional)]. Use the Adjust knob to change the values indicated by the flashing LED for either Volts or Arc Adjust. Pressing the Lower Display push button a third time will activate the WFS setting for either STRT or CRTR and the WFS LED will begin flashing. Use the Adjust knob to change the WFS value.

- Pressing the Feeder Set Up button two more times will exit the Sequence menu and return the system to standby mode.
- 4 Trigger Control LED
 - Press the Feeder Set Up button twice and the Trigger Control LED will illuminate, and the upper display will show the different trigger control selections. Use the Adjust knob to cycle through the trigger control methods as follows: DS, TH, TDS, TPS, and 4T (see Section 6-1 for definitions). The lower display will show the current state of each trigger control method as being on or

off. Not all trigger control methods are compatible with each other, therefore, turning on certain trigger selections will cause other trigger selections to turn off.

- Press the lower display push button to illuminate the push-button LED and enable the use of the Adjust knob to allow turning selected trigger control methods on or off. If trigger hold is set to on, the Trigger Hold LED will illuminate.
- Trigger Hold is automatically set to On with the 4T trigger selection. This is part of the 4T function.*
- Press the Feeder Set Up button a third time to cycle back to standby mode.
- 5 Lock LED
 - The lock LED is illuminated when one or more programs have been locked using an optional PDA with File Management/WaveWriter software. This indicates that some programs have been disabled. A disabled program will not show up for selection. Refer to the File Management/WaveWriter Owner's Manual for additional information.

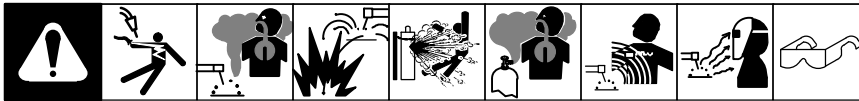
6-8. Adjust Knob



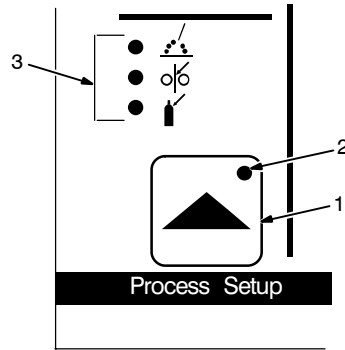
- 1 Adjust Knob

The Adjust knob is used to change functions and parameters. Refer to the front panel sections for information regarding use of this control.

6-9. Process Set Up Push Button



- 1 Process Set Up Push Button
- 2 Process Set Up LED
- 3 Program Selection LEDs



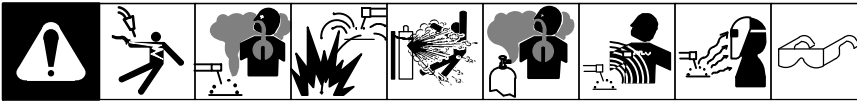
- Press the Process Set Up push button the first time will illuminate the button LED and the Process LED. The upper and lower displays will be used for Accu-pulse and only the lower display for MIG, Pulse and RMD (optional) to show the current process installed in this program. To change process, turn the adjust knob.
- Pressing the Process Set Up push button a second time will illuminate the Wire Type LED and the lower display will show wire types available for selected processes (see Table 6-1 for wire abbreviation). To make a selection, turn the Adjust knob.
- Pressing the Process Set Up push button a third time will keep Wire Type LED lit and the upper display will show wire alloy type (see Table 6-1 for alloy types). The upper display push-button LED will be flashing indicating that turning the Adjust knob will change the alloy type for the selected process and wire type.
- Pressing the Process Set Up push button a fourth time will keep Wire Type LED lit and the upper display will show wire size. The upper display push button will be flashing indicating that turning the Adjust knob will select wire sizes available for that particular process and wire type.
- Pressing the Process Set Up push button a fifth time will illuminate the Gas Type LED and the lower display will show GAS and the upper display will show gas selection (see Table 6-1 for gas abbreviations). To make a gas type selection, turn the Adjust knob.
- If any of the Process, wire type, alloy type, wire size, or gas type was changed, then pressing the Process Set Up push button a sixth time will show PROG in the upper display and LOAD in the lower display. The new program would be loaded for that particular program in slot 1 thru 8. If no changes were made to any setup items, no program will be loaded, and unit will return to standby mode.
- If a custom program is loaded using an optional PDA with File Management software, the Program Display will have a "C" in front of the program number. This indicates that the program is not a factory default program and has been modified. By selecting or changing any process variable and performing a program load will restore the program back to the factory default program.
- Pressing and holding the Process Set Up push button in on power up allows viewing the software revisions of each circuit board in the system. The top display shows the board (PCM, UIM, WFCM, and AIM (automated units only) and the lower display shows the last 3 digits of the circuit board part number plus a letter designator. Press the flashing Feeder Set Up push button to exit the screen displays and continue the power up process.

Table 6-1. Welding Wire And Gas Abbreviations*

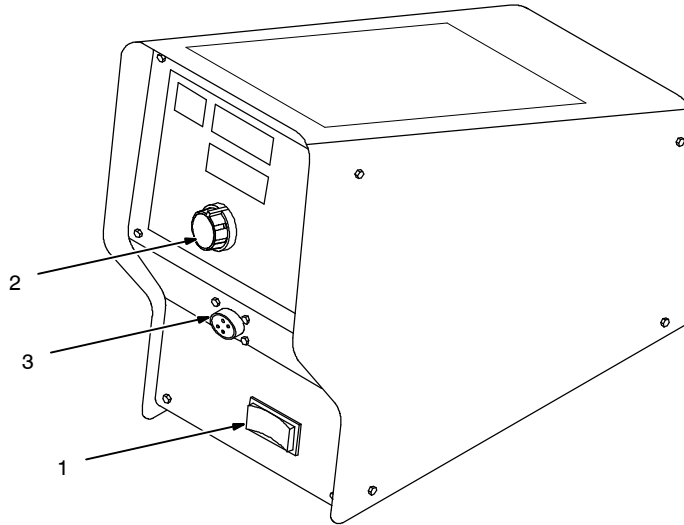
Wire Description	Wire Abbreviation	Alloy Type	Gas Type	Gas Abbreviation
Steel	STL	E70, E100, E120	100% CO ₂ , 90% Argon/10% CO ₂ , 85% Argon/15% CO ₂ , 75% Argon/25% CO ₂ , 95% Argon/5% CO ₂ , 95% Argon /5% O ₂ , 98% Argon/2% O ₂	CO2 C10 C15 C25 C5 OX5 OX2
Stainless Steel	SS	308, 309, 312, 316	98% Argon, 2% O ₂ (81Ar/18HE/1CO ₂ Accu-pulse) 90HE/7-1/2Ar/2-1/2CO ₂ MIG/RMD/Accu-pulse)	OX2 Tri Gas Tri Gas
Cored Tubular Wire	MCOR	71, 76, 86R, 409, 439	90% Argon/10% CO ₂ 98% Argon/2% O ₂	C10 OX2
Aluminum	ALUM	4XXX, 5XXX	100% Argon	ARGN

* Not all wire types may be available with your unit.

6-10. Jog/Purge



- 1 Jog/Purge Push Button
- 2 Adjust Knob
- 3 Gun Trigger Receptacle



803 505-A

The Jog/Purge switch provides the following functions:

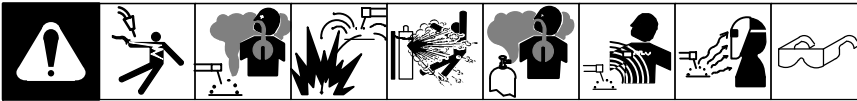
- Pressing left side of the Jog/Purge switch allows the operator to feed wire without energizing the weld power or gas valve circuit. The wire will feed at a 50 ipm rate for 3 seconds, then the rate ramps up to 700 ipm until the Jog switch is released.
- The unit also provides the ability to jog the wire feeder by means of the gun trigger. When the gun trigger is pressed without starting an arc, the wire will feed at run-in speed for the first 3 seconds. During this time OCV (open circuit voltage) will be present as indicated on feeder upper

display. After 3 seconds the weld output turns off and the wire will feed at 50 ipm for the next 3 seconds and then ramps up to 700 ipm until trigger is released or 30 seconds elapses. If the gun trigger is still activated after 30 seconds, the jog operation is terminated to prevent complete unspooling of the wire and an "ERR STRT" message is displayed on the upper and lower displays. Releasing and pressing the trigger again will clear the error.

ⓘ *If Start Error is enabled using an optional PDA with File Management software, an "ERR STRT" will occur after the first 3 seconds of run in and jogging from the trigger is not possible.*

- Pressing right side of the Jog/Purge switch allows the operator to purge gas lines before welding and to preset gas pressure at the regulator.
- This unit is equipped with Auto Thread capability. By rocking the switch from purge to jog within 0.5 seconds will automatically feed wire for a factory default setting of 192 in (4877 mm) of wire before stopping. The default feed rate is 700 ipm. These settings can be changed using an optional PDA with File Management software. Pressing the Jog/Purge switch or gun trigger during Auto Threading will terminate the automatic feed operation.

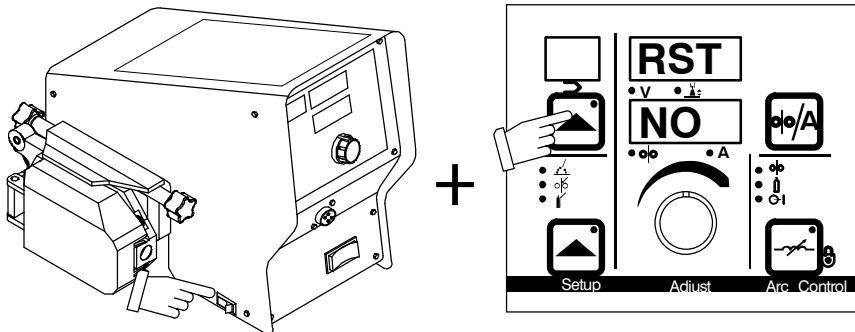
6-11. Reset Mode



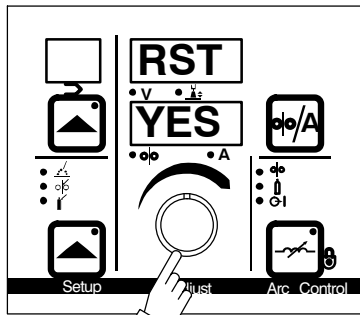
☞ *Reset mode is not active when Program Lock is enabled.*

The reset mode allows the operator to reload factory program settings for all eight active programs in the unit.

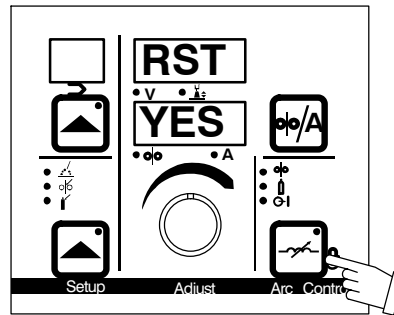
☞ *System configuration data will be lost during the Reset operation.*



Enter reset mode by turning power On and pressing the Program Push Button until the RST NO message is displayed. RST NO message will not display until after the power-up sequence is completed (approximately 20 seconds).



Rotate Adjust knob to change NO to YES.

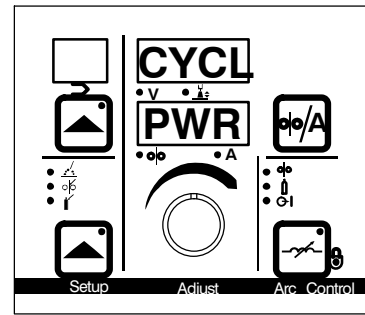


Press the Arc Control button to confirm the reset.

The reset message is displayed for 2 seconds while factory program settings are being reloaded.

During the reset mode the following factory default programs are loaded into the unit:

Program 1	Pulse 0.9 Mild Steel 90% Argon, 10% CO ₂
Program 2	MIG 0.9 Mild Steel 75% Argon, 25% CO ₂
Program 3	Accu-pulse 0.9 Mild Steel 90% Argon, 10% O ₂
Program 4	Pulse 1.1 Mild Steel 90% Argon, 10% CO ₂
Program 5	MIG 1.1 Mild Steel 75% Argon, 25% CO ₂
Program 6	Accu-pulse 1.1 Mild Steel 90% Argon, 10% O ₂
Program 7	Pulse 1.3 Mild Steel 90% Argon, 10% CO ₂
Program 8	MIG 1.3 Mild Steel 75% Argon, 25% CO ₂



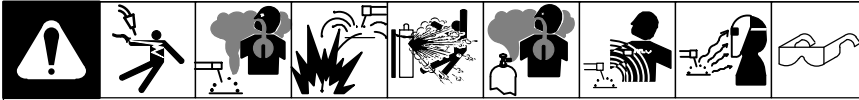
Cycl Pwr message appears on the display when programs complete loading.

Turn power off, wait 10 seconds, and turn power back on again to complete the reset operation.

☞ *After Reset is complete, be sure to load appropriate programs that contain the correct wire size, process, and shielding gas for the welding operation*

SECTION 7 – SETTING SEQUENCE PARAMETERS

7-1. Sequence Parameters In A Program



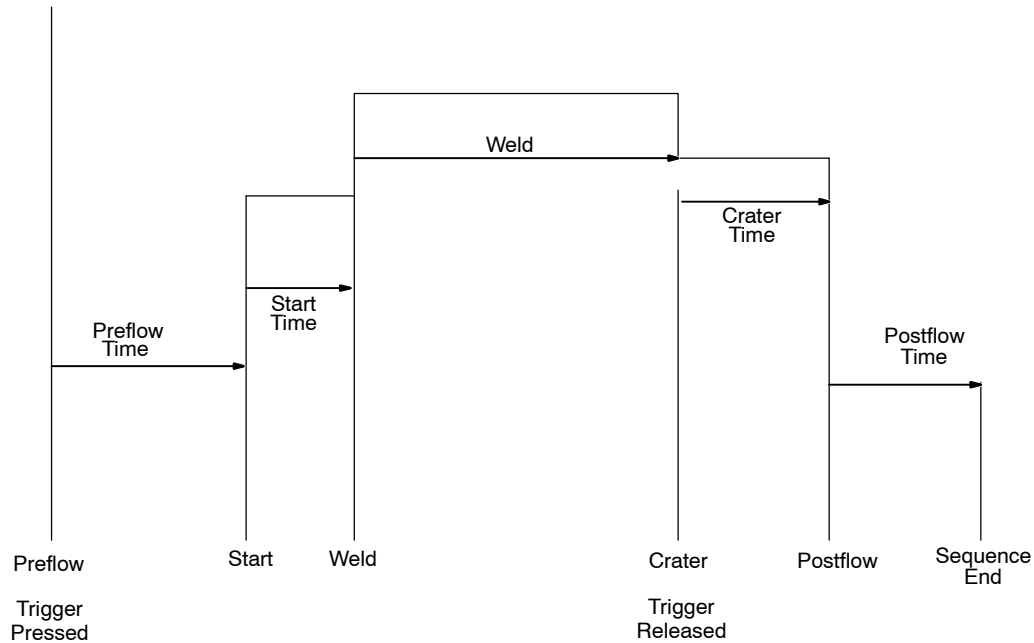
☞ For more information on Sequence mode, see Feeder Set Up Push Button in Section 6-7.

Weld Time can only be set by using an optional PDA with File Management/WaveWriter software.

If time is set to zero in any timed sequence, the sequence is skipped.

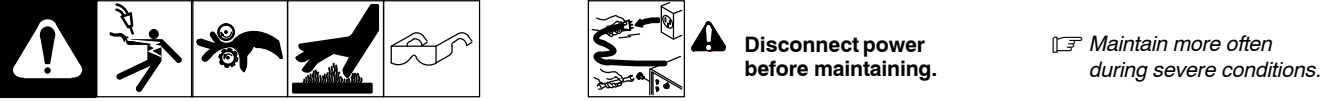
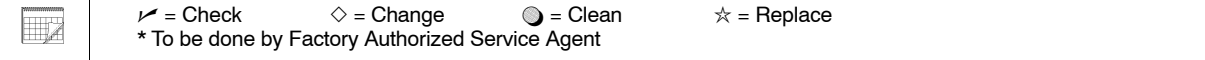



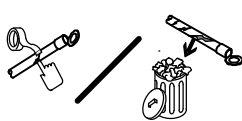
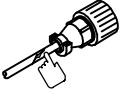
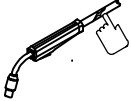

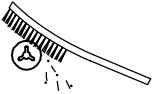

☞ Maximum IPM may actually be lower depending on the process and wire type selection.

Sequence	Parameters		
	Volts/Arc Adjust	mpm (IPM)	Seconds
1. Preflow			Off-5.0
2. Postflow			Off-5.0
3. Start	10.0-44.0/ 0-99	1.0-35.5 (40-1400)	Off-5.0
4. Crater	10.0-44.0/ 0-99	1.0-35.5 (40-1400)	Off-5.0



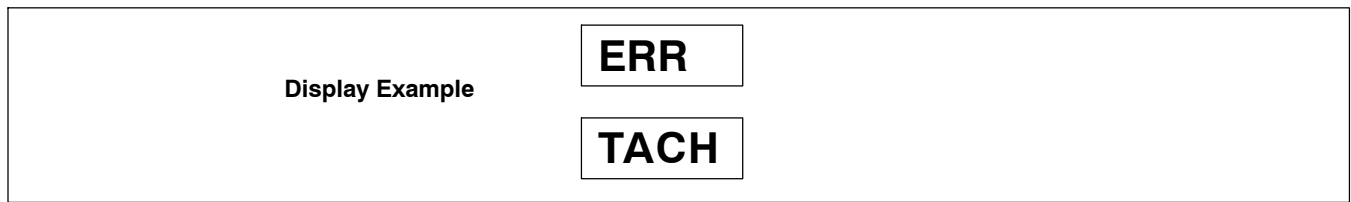
SECTION 8 – MAINTENANCE AND TROUBLESHOOTING


8-1. Routine Maintenance

					
					
Frequency	Task 1	Task 2	Task 3	Task 4	Reference
Every 3 Months	 ☆ Unreadable Labels	 ● Weld Terminals	 ☆ Damaged Gas Hose	 ✓☆ Weld Cables	
	 ✓☆ Cords	 ✓☆ Gun Cables	 ✓☆ Cracked Parts		
Every 6 Months	 ● Drive Rolls	 ● Inside Unit			

Notes

8-2. Error Code Troubleshooting Tables



 The following error codes may appear on the upper and lower displays of the User Interface Module to indicate specific errors. Explanations of the error codes are provided in the sections referenced.

Error Type	User Interface Module Upper Display	User Interface Module Lower Display	Reference
Emergency Stop	E	STOP	Section 8-2. A
Arc Error	ERR	ARC	Section 8-2. B
No Coolant Flow	ERR	COOL	Section 8-2. C
Ground Current Detect Error	ERR	GND	Section 8-2. D
Line Error	ERR	LINE	Section 8-2. E
Motor Over Current	ERR	MOTR	Section 8-2. F
Arc Start Error	ERR	STRT	Section 8-2. G
No Tach Error	ERR	TACH	Section 8-2. H
Thermal Over Temperature	ERR	TEMP	Section 8-2. I
Unknown Error	ERR	UNKN	Section 8-2. J
Motor Communications Error	MOTR	COMM	Section 8-2. K
Over Average Current	OVER	AVE	Section 8-2. L
Over Current	OVER	CRNT	Section 8-2. M
Release Trigger	REL	TRIG	Section 8-2. N
Trigger Stuck	TRIG	STUK	Section 8-2. O
Wire Feed Speed	ERR	WFS	Section 8-2. P
Flow Error	ERR	FLOW	Section 8-2. Q
Stop Error	ERR	STOP	Section 8-2. R
Stuck Error	ERR	STUK	Section 8-2. S
Weld Wait	WELD	WAIT	Section 8-2. T
Please Wait	PLS	WAIT	Section 8-2. U
Low Wire Feed Speed	LOW	WFS	Section 8-2. V
Robot Memory	ROBT	MEM	Section 8-2. W
Unit Communication	UNIT	COMM	Section 8-2. X
RMD Done	RMD	DONE	Section 8-2. Y
Gas Flow Error	ERR	GAS	Section 8-2. Z
Robot Communication Error	ROBT	COMM	Section 8-2. AA
Network Wait	NET	WAIT	Section 8-2. AB
Cycle Power	CYCL	PWR	Section 8-2. AC
PCM Bus Communication	---	---	Section 8-2. AD
RIO Bus Communication	---	---	Section 8-2. AE
Wire Feed Bus Communication	---	---	Section 8-2. AF
UIM Bus Communication	---	---	Section 8-2. AG

A. Emergency Stop Error

E	Indicates an emergency stop error.
STOP	Receptacle RC5-1 connects to receptacle RC1-4 and receptacle RC5-2 connects to receptacle RC4-2 on E-Stop board PC12. A closure between RC4-1 and RC4-2 allows +24 volts DC to be supplied to the four relays on E-Stop board PC12. In an E-Stop situation (relays open), all four relays on the E-Stop board de-energize and cut power to the control boards. When relay CR1 on E-Stop board PC12 is de-energized, it drops out the 18 volts AC from transformer T1 that powers the inverter control board(s). When relay CR2 on E-Stop board PC12 is de-energized, it breaks the contactor signal being sent to the inverter engine board(s) from the process control module PC4 (J2-9 to RC2-3) and causes a loss of signal to the AIM board (RC2-1 and RC2-2) and to micro input (RC5-3 and RC5-4), signaling an E-Stop is active. When relay CR3 on E-Stop board PC12 is de-energized, it breaks the secondary side output of the motor board before it goes to the filter board. Relay CR4 on E-Stop board PC12 is a soft start relay in parallel with the contacts of relay CR1.

B. Arc Error

ERR	Indicates voltage has exceeded the programmable limit of a valid arc for the programmed amount of time (default time is 500 ms). Check contact tip, weld conditions, and shielding gas. Arc error can be enabled or disabled using an optional PDA with File Management/WaveWriter software.
ARC	

C. No Coolant Flow Error

ERR	Indicates no coolant flow in water flow switch option. The error may be reset by reestablishing coolant flow to the gun, and then pressing the Jog/Purge button.
COOL	

D. Ground Current Detect Error

ERR	Indicates that weld current is flowing through the primary ground. This is a latching error and welding power source power must be cycled off and back on again.
GND	

E. Line Error

ERR	Indicates that primary power has dropped below the operating point of the welding power source. Signal is sent from inverter engine module(s) (RC6, Pin 9 on inverter control board PC1) to process control module PC4 (J2, Pin 1). Check for a brown-out condition. The primary boost capacitors have dropped below an acceptable minimum voltage threshold. This circuit monitors the 940 volts primary DC bus voltage across the electrolytic capacitors C1 and C2. Low line is displayed when this voltage drops below 858 volts DC. This could happen when attempting to draw near rated output power with an input voltage below 190 volts AC, three phase. This causes the boost section to go into current limit trying to supply the output power. Once current limit is reached, the boost section can no longer hold the bus capacitors at 940 volts DC. The inverter control will also go into an output current limit mode in an attempt to supply output power.
LINE	

F. Motor Over Current Error

ERR	Indicates that the motor has been drawing too much current for too long a time period. To remedy this fault, reduce the wire feed speed or the wire feeder torque load/duty cycle. Press Jog/Purge button to clear error.
MOTR	

G. Arc Start Error

ERR	Indicates the contactor either is or was active, but the system failed to start an arc. Conditions for a valid arc start are at least 50% of arc start current, voltage less than 60 volts, and voltage greater than min. valid arc voltage (default is 22.5 volts). This situation is usually attributed to a contact tip or feeder issue. The arc start error parameter can be disabled using an optional PDA with File Management/Wave Writer software.
STRT	

H. No Tach Error

ERR	<p>Indicates loss of tachometer feedback. Determine cause of error as follows:</p> <ul style="list-style-type: none"> • Press JOG button on the front panel. • Does the motor run wide open immediately? • YES → Replace Motor Board PC6. • Does the motor ramp up in speed? • YES → Bad motor tach. Contact nearest Factory Authorized Service Agent. • Does the motor respond at all? • YES → Contact nearest Factory Authorized Service Agent. • Check motor cable. Is it damaged? • YES → Replace motor cable. • NO → Contact factory service personnel.
TACH	

I. Thermal Over Temperature Error

ERR	<p>Indicates one or more of the inverter engines overheated. Sent from inverter engine module(s) (RC6, Pin 12, on inverter control board PC1) to process control module PC4 (J2, Pin 7). Check fan on inverter engine(s) and weld currents.</p> <p>This signal is the sum of two conditions: shutdown that comes from the temperature monitoring circuit on the inverter control board, and Pwr-Up-Cnt that generated by the boost section of the inverter control board. When either of these signals is active, RC6-12 is pulled low (this is the not ready line out of the inverter control board).</p> <p>Shutdown is active when there is an over-temperature condition on the primary or secondary heatsink or on the boost inductor. To determine which of the two locations is at fault, check LED 1 and LED 2 on inverter control board PC1.</p> <ul style="list-style-type: none"> • If LED 1 is lit, this indicates an over-temperature condition on the primary heat sink. • If LED 2 is lit, this indicates an over-temperature condition on the secondary heat sink or on the boost inductor. <p>Pwr-Up-Cnt (power up control) monitors primary voltage start-up conditions when the power source is first turned on. This signal is opto-isolated from the boost section of the inverter control board. The following conditions must be met for the power source to power up:</p> <ul style="list-style-type: none"> • Auxiliary power board PC3 must be powered up and operating to supply prepower of +15 volts DC to the boost section of inverter control board PC1. • The peak voltage of the input line power must be greater than 150 volts peak. • The DC bus voltage must be greater than 85% of the rectified line voltage. This bus voltage also turns on the pre-charge relay. • The DC bus voltage must be boosted to greater than 858 volts DC. <p>If any of these conditions are not met, then receptacle RC6-12 is pulled low and weld output is locked out.</p>
TEMP	

J. Unknown Error

ERR	Indicates error bit from process control module PC4 is set, but error value sent does not match anything defined with the UIM board PC7.
UNKN	

K. Motor Communications Error

MOTR	<p>The motor board has lost communication with the PCM board PC4. Check cabling and cable routing for boom system motor cable and secondary cables. Separate cable as much as possible.</p> <p>Check if WFM board PC6 code is installed and if microprocessor is running. Check LED3 and LED4 on WFM board PC6.</p> <p>Depending on the wire feed speed, check for 0-40 volts DC on J17-3 to J17-1. If there is no voltage present there, check for 40 volts DC at J16-1 to J16-2. If voltage is present there and neither LED is lit (Red or Green), try to download WFM code to welding power source. If neither LED turns on after downloading code and cycling power, replace WFM board PC6.</p> <p>If LED3 and LED4 are flashing Red or Green or they are solid Red, this indicates the WFM board is still not communicating with the PCM board PC4. Be sure that the UIM board PC7 is on-line (two green LEDs lit).</p> <ul style="list-style-type: none"> • Check all Devicenet grey harness connections between process control module PC4, UIM board PC7, and WFM board PC6. • Check process control module PC4 for +24 volts DC at 6-pin connector J6-2 (+) and J6-5 (-). <p>If +24 volts is not present at the connector, proceed as follows:</p> <ul style="list-style-type: none"> • Disconnect connector J10 and J11 from WFM board PC6. Check for +24 volts DC at J10-2 (+) and J10-5 (-), and J11-2 (+) and J11-5 (-). One of the two connectors must measure +24 volts DC to ensure that the Devicenet lines are being sent from process control module PC4 to WFM board PC6. If +24 volts DC is present at either connector, replace WFM board PC6. • If +24 volts DC is not present at either J10 or J11 connector, check process control module PC4 at connectors J6, J7, and J8. Remove plugs from connectors and check for +24 volts DC at pin2 (+) and pin 5 (-). If +24 volts DC is not present at any of the connectors, replace process control module PC4. <p>If LED3 and LED4 are both green this indicates that the WFM board went off-line and then recovered which is usually due to noise interference.</p> <ul style="list-style-type: none"> • Check wire drive motor isolation. Isolated portion of motor housing should not touch robot arm, welding power source chassis, lifting eye bolts, or weld secondary common. Measure impedance between chassis and both weld secondary commons. Measure the impedance across motor isolation barrier on motor housing. All measurements should read high impedance. • Check all Devicenet grey harness connections between process control module PC4, UIM board PC7, and WFM board PC6.
COMM	

L. Over Average Current Error

OVER	<p>Output current is exceeding the thermal capabilities of the welding power source for approximately 25 seconds. Default value is as follows:</p> <p style="padding-left: 40px;">Access 450 limit is 610 A average</p> <p>This is a duty cycle error and requires 5 minutes with power on and NO welding to clear the error.</p> <p>This error indicates that an excessive amount of current was drawn over a short period of time. Over-average current is drawn for a period of approximately 25 seconds and can also be expressed as exceeding the power source duty cycle.</p> <p>The current limit is as follows:</p> <p style="padding-left: 40px;">Access 450 is 610 amperes</p> <p>This alarm cannot be reset. To clear the condition, the power source must be turned on and allowed to idle for approximately 5 minutes. This cooling period is determined by an internal timer, and turn off power will not reset the timer since it is saved with the Configuration data. After the 5 minute cooling period, press the Jog or Purge button, or cycle power to clear the alarm.</p> <p>If this alarm was received by mistake, and the power source did not exceed the duty cycle, check the following:</p> <p>Check current feedback signal either while welding or connecting to a load bank. Measure between test point TP8 and grounding strap on process control module PC4. Test point TP8 is located on left-hand side of board, about 1 in. (25 mm) to the right of connector J11. TP8 is scaled: 1 volt measured equals 100 amperes actual. This measurement should read 0 volts when not welding. If the measurement reads approximately 13 volts DC, disconnect LEM device from engine (one at a time) to determine if either device is bad. If the voltage reading still does not change, unplug the lower inverter control board; if the reading remains the same, replace the upper inverter control board. Voltage readings should be present while welding. If voltage readings are not correct for current feedback scaling, check individual inverter engines.</p>
AVE	

M. Over Current Error

OVER	<p>Indicates one or more of the inverter engines has latched with an over-current. Signal is sent from engine module(s) (RC6, Pin 11, on inverter control board PC1) to process control module PC4 (J2, Pin 6).</p> <p>The over-current circuit monitors the inverter high frequency transformer primary current. Normal welding will never trip this circuit, only a fault will cause an over-current condition. LED4 will be lit on the inverter control board, and power must be cycled to clear this error.</p> <ul style="list-style-type: none">The most likely fault to trip this circuit is an open 940 volts DC bus bleeder resistor, either R1 or R8 on the interconnect board. An open resistor will cause the bus, which is split between two series capacitors, to become unbalanced. The capacitor with the open resistor will go to approximately 340 volts DC. The other capacitor will go to approximately 600 volts DC. Normally, both capacitors are at approximately 470 volts DC. The unit will weld like this most of the time. A 16 uF balancing capacitor in series with the transformer can keep the transformer from saturating under these adverse conditions. Occasionally, the inverter transformer will saturate, and when this happens, it draws a huge amount of current and trips the over-current circuit. This condition locks off the inverter control board and eventually the bus capacitors will fail. A change to a different resistor eliminated this situation and the problem is no longer an issue.A shorted output diode will cause an over-current error and no weld output will be available.
CRNT	

N. Release Trigger Error

REL	<p>Indicates a timed weld has expired, but the trigger is still active. Press Jog/Purge button to clear error.</p> <p>This error occurs after a timed weld expires and the trigger is not released. A PDA with File Management/WaveWriter software can be used to set up timed welds. This is strictly an informational-type error.</p>
TRIG	

O. Trigger Stuck Error

TRIG	<p>Indicates the welding power source was turned on and the trigger signal attempted to weld. Turn welding power source off and back on again to clear the error.</p> <p>This error indicates a trigger source was activated while the power source was being powered up. If the trigger source is removed, the error can be cleared.</p> <ul style="list-style-type: none">Use a PDA with ServicePak software and view the Comm Diagnostics screen to see the source of the contactor or trigger command.If LED2 is lit on ROI board PC10, a contactor signal is being sent from the robot.
STUK	

P. Wire Feed Speed Error

ERR	<p>Indicates actual wire feed speed does not match wire feed speed command. Press Jog/Purge button to clear error.</p>
WFS	

Q. Flow Error

ERR	<p>Indicates no gas flow to the gun. The error may be reset by reestablishing gas flow to the gun, and then pressing the Jog/Purge button.</p>
FLOW	

R. Stop Error

ERR	<p>Indicates obstructions in the wire feed system or a faulty wire drive system. Check wire feed and wire drive systems. Press Jog/Purge button to clear error.</p>
STOP	

S. Stuck Error

ERR	Indicates the welding wire is stuck to the workpiece at the end of a weld. May be caused by poor weld conditions. The error may be cleared by cutting wire from workpiece, and pressing the Jog/Purge button.
STUK	

T. Weld Wait Error

WELD	Indicates unit was not ready for a weld sequence. Press Jog/Purge button to clear error.
WAIT	

U. Please Wait Error

PLS	Indicates user interface board lost data communications. Press Jog/Purge button to clear error. If condition persists, contact nearest Factory Authorized Service gent.
WAIT	

V. Low Wire Feed Speed Error

LOW	Indicates actual wire feed speed is lower than wire feed speed command. Check for obstructions in the wire feed system or a faulty wire drive system. Press Jog/Purge button to clear error.
WFS	

W. Robot Memory Error

ROBT	Indicates robot lost memory data. Press Jog/Purge button to clear error.
MEM	

X. Unit Communication Error

UNIT	Indicates the data bus on the PCM board is not functioning properly. Press Jog/Purge button to clear error.
COMM	

Y. RMD Done Message

RMD	Indicates the RMD demo is completed. Pressing Jog/Purge button will change the screen to CYCL PWR on the display. Turn unit power off and back on again.
DONE	

Z. Gas Flow Error

ERR	Indicates no gas flow to the gun. The error may be reset by re-establishing gas flow to the gun, and then pressing the Jog/Purge button.
GAS	

AA. Robot Communication Error

ROBT	The robot I/O module has lost communication with the welding power source. Contact factory service department for assistance.
COMM	

AB. Network Wait

NET	Indicates that the UIM board PC7 is no longer communicating with the PCM board PC4 by DeviceNet.
WAIT	

AC. Cycle Power

CYCL	Request to cycle power from the welding power source. Turn unit power off and back on again.
PWR	

AD. PCM Bus Communication

— —	— — Indicates no error message on the displays. PCM board PC4 DeviceNet has gone offline. Turn welding power source off and back on again to clear the communication error.
— —	


AE. RIO Bus Communication

— —	— — Indicates no error message on the displays. RIO DeviceNet is losing packets of data. Turn welding power source off and back on again to clear the communication error.
— —	

AF. Wire Feed Bus Communication

— —	— — Indicates no error message on the displays. WFM board PC6 DeviceNet is losing packets of data. Turn welding power source off and back on again to clear the communication error.
— —	

SECTION 9 – ELECTRICAL DIAGRAM

	WARNING
	<ul style="list-style-type: none"> Do not touch live electrical parts. Disconnect input power or stop engine before servicing. Do not operate with covers removed.
ELECTRIC SHOCK HAZARD	<ul style="list-style-type: none"> Have only qualified persons install, use, or service this unit.

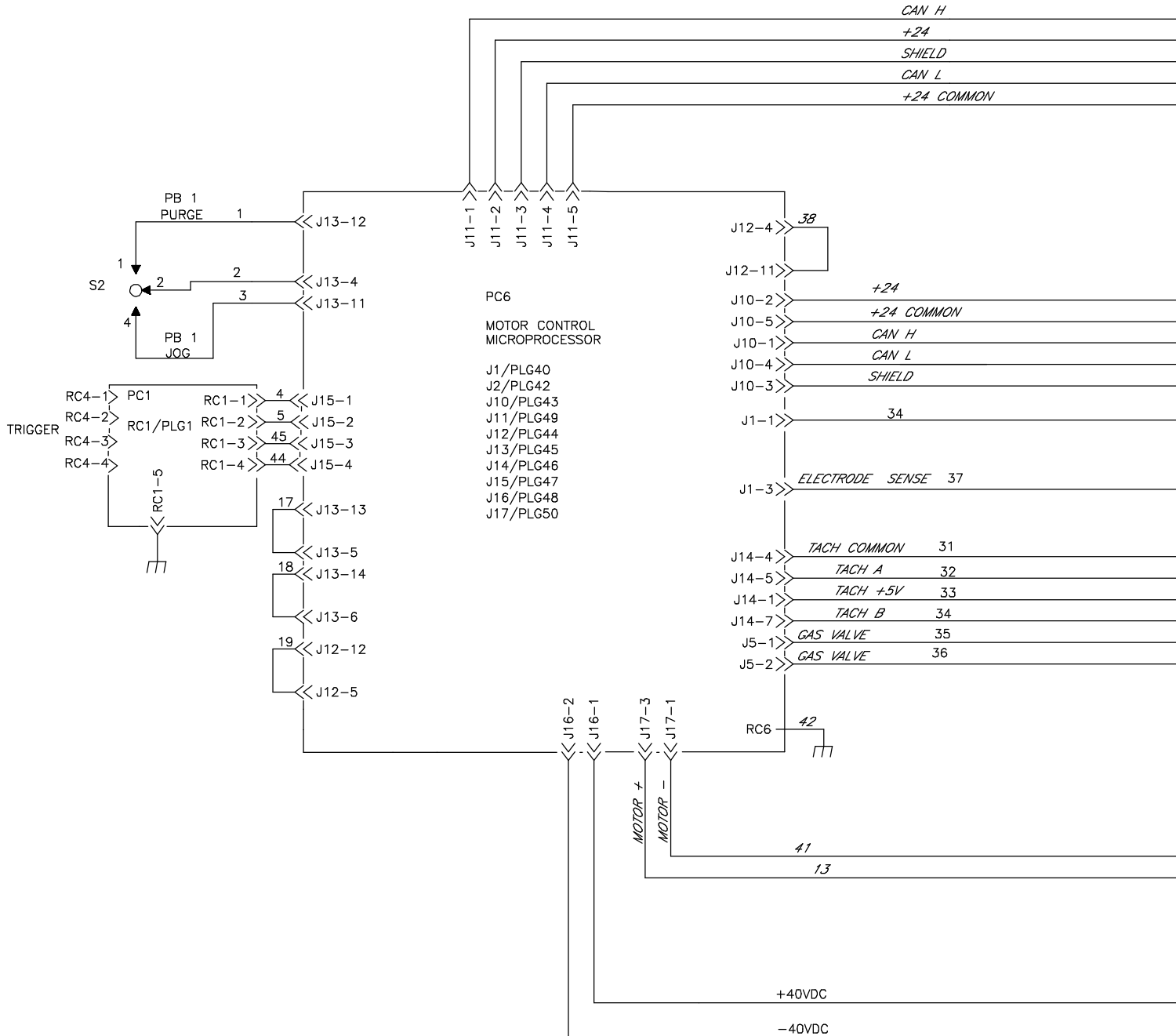
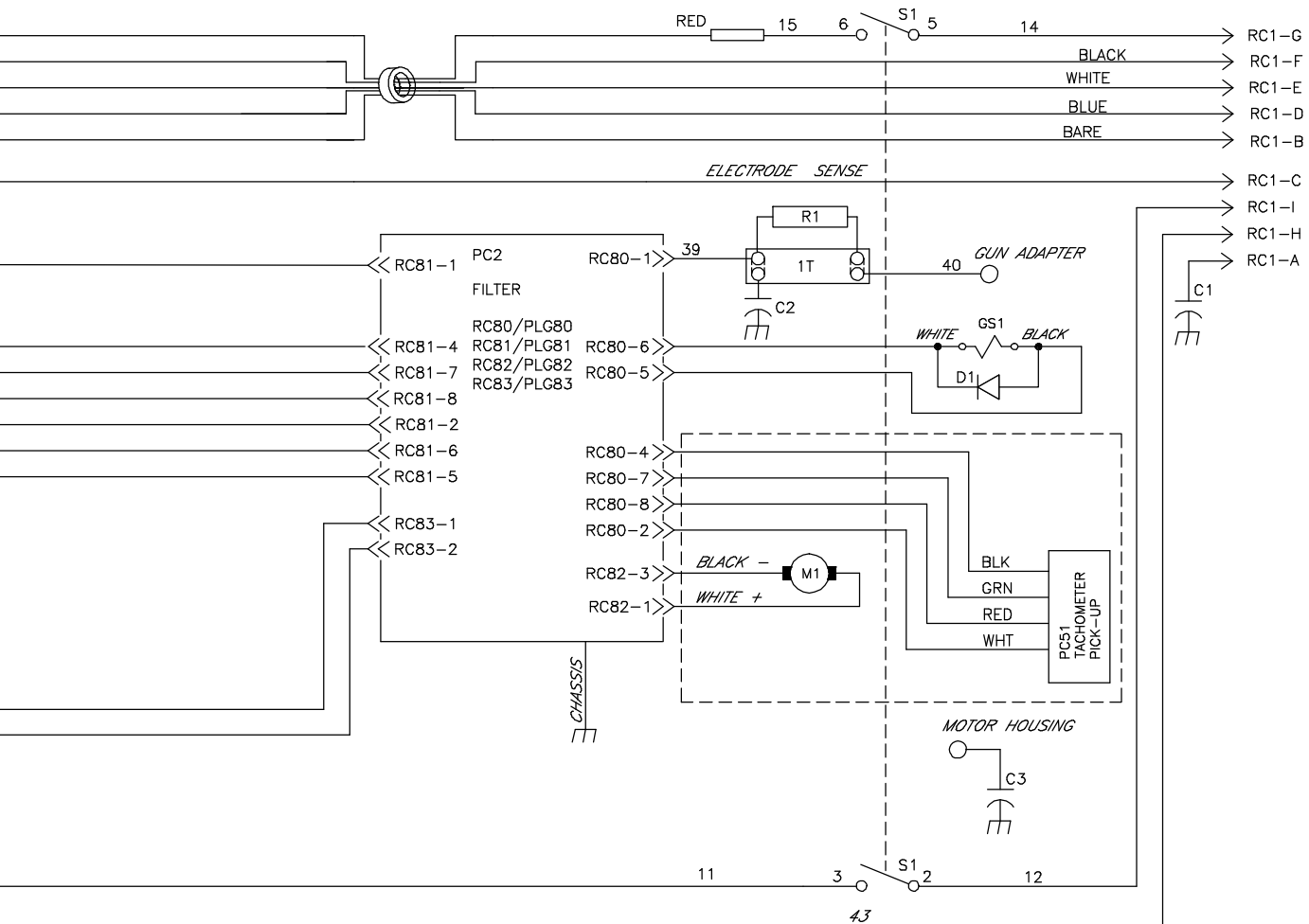
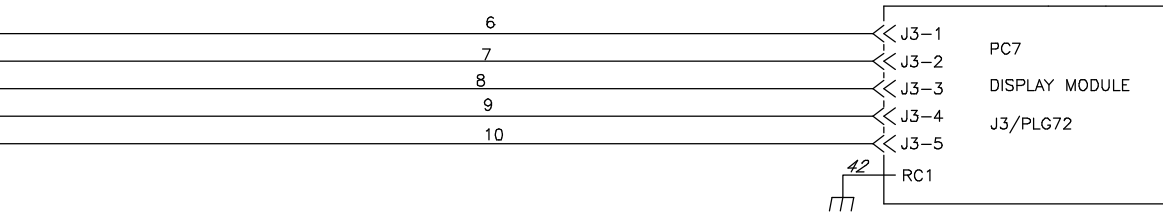


Figure 9-1. Circuit Diagram



SECTION 10 – PARTS LIST

☞ Hardware is common and not available unless listed.

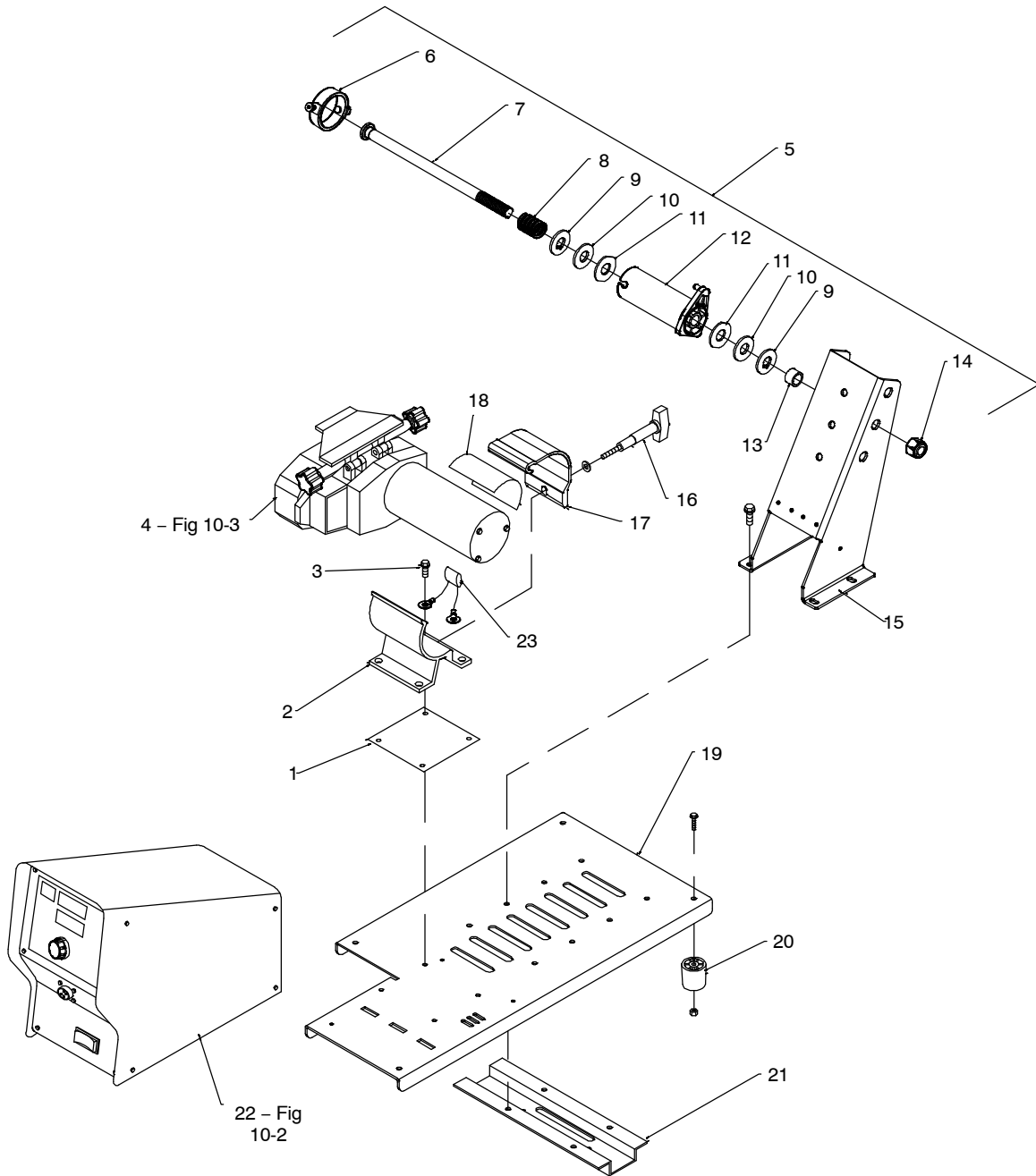


Figure 10-1. Main Assembly

803 506-C

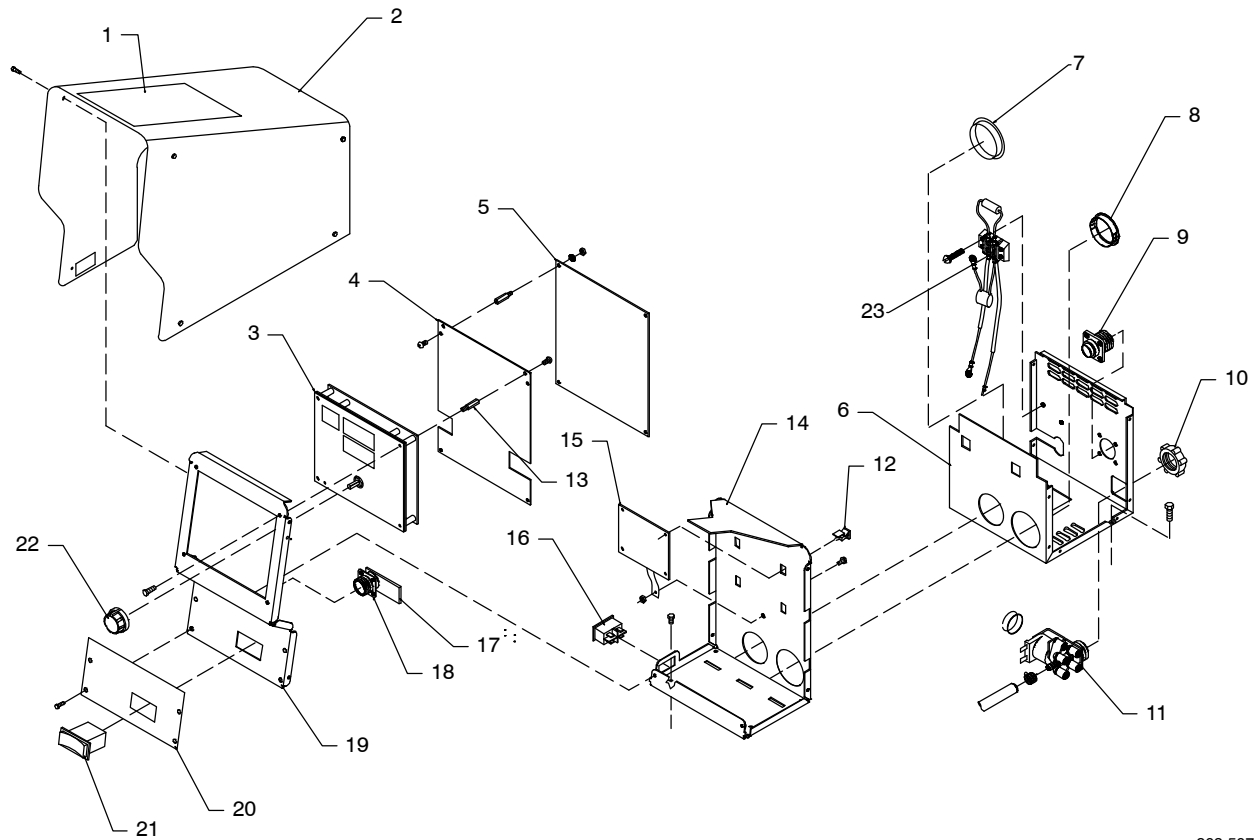
Item No.	Part No.	Description	Quantity
Figure 10-1. Main Assembly			
... 1	159 647	.. Insulator, Motor Clamp	1
... 2	159 646	.. Clamp, Motor Base	1
... 3	159 360	.. Insulator, Screw Machine	4
... 4	Fig 10-3	.. Drive Assembly, Wire	1
... 5	141 753	.. Hub & Spindle Assembly, (Consisting Of)	1
... 6	058 427	... Ring, Retaining Spool	1
... 7	180 571	... Shaft, Support Spool	1
... 8	010 233	... Spring, Cprsn .970 OD x .120 Wire x 1.250pld	1
... 9	057 971	... Washer, Flat Stl Keyed 1.500 Dia x .125thk	2
... 10	010 191	... Washer, Fbr .656 ID x 1.500 OD x .125thk	2
... 11	058 628	... Washer, Brake Stl	2
... 12	058 428	... Hub, Spool	1
... 13	248 974	... Tubing, Stl .875 OD x 12 Ga Wall x .562	1
... 14	135 205	... Nut, Stl Sflkg Hex Reg .625-11 w/Nylon Insert	1
... 15	200 556	.. Support, Spool	1
... 16	201 781	.. Knob, w/Extension Clamp	1
... 17	156 243	.. Clamp, Motor Top	1
... 18	145 639	.. Strip, Buna N Compressed Sheet .062 x 4.000 x 4.000	1
... 19	200 552	.. Base	1
... 20	134 306	.. Foot, Rubber 1.250 Dia x 1.375 High No 10 Screw	4
... 21	200 557	.. Stiffener, Base	1
... 22	Fig 10-2	.. Control Box	1
... 23	216 695	.. Capacitor, w/Terminals (.027uf)	1

*Recommended Spare Parts.

+When ordering a component originally displaying a precautionary label, the label should also be ordered.

To maintain the factory original performance of your equipment, use only Manufacturer's Suggested Replacement Parts. Model and serial number required when ordering parts from your local distributor.

☞ Hardware is common and not available unless listed.



803 507-F

Figure 10-2. Control Box

Item No.	Dia. Mkgs.	Part No.	Description	Quantity
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Figure 10-2. Control Box (Fig 10-1 Item 21)

...	1	238 487	.. Label, Warning General Precautionary (CE/Domestic)	1
...	2	+212 781	.. Wrapper, Feeder	1
...	3	*233 582	.. Panel, PC Card Switch/Overlay	1
...	4	212 808	.. Baffle, PC Mounting	1
...	5	PC6	*239601 .. Circuit Card Assy, Wire Feed Module w/Program	1
...	6	236 991	.. Enclosure, Motor	1
...	7	010 494	.. Bushing, Snap-In Nyl 1.375 ID x 1.750 Mtg Hole	1
...	8	236 047	.. Bushing, Snap-In Nyl 1.750 ID x 2.000 Mtg Hole	1
...	9	RC1	211 018 .. Connector, Circ 97/Met 9 Pin Size 20 Rcpt	1
.....	PLG43,46,49,			
.....	72	115 093	.... Housing Plug+Skts, (Service Kit)	1
...	10	220 805	.. Nut, 750-14 NPS 1.48hex .41h Nyl	1
...	11	228 035	.. Valve, 34VDC 1way .750-14thd 2mm Orf 100psi	1
...	12	134 201	.. Stand-Off Support, PC Card	4
...	13	097 132	.. Stand-Off Support, PC Card	4
...	14	236 979	.. Enclosure, Control	1
...	15	PC2	242362 .. Circuit Card Assy, Motor Filter	1
...	16	S1	213 632 .. Switch, Rocker DPDT 10A 250VAC/20A 30VAC On-None-On	1
...	17	PC1	242360 .. Circuit Card Assy, Trigger Filter	1

*Recommended Spare Parts.

+When ordering a component originally displaying a precautionary label, the label should also be ordered.

To maintain the factory original performance of your equipment, use only Manufacturer's Suggested Replacement Parts. Model and serial number required when ordering parts from your local distributor.

Item No.	Dia. Mkgs.	Part No.	Description	Quantity
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Figure 10-2. Control Box (Fig 10-1 Item 21) (Continued)

... 18	RC4	048 282	.. Rcpt w/Skts, (Service Kit)	1
... 19		211 085	.. Panel, Front	1
... 20		211 073	.. Nameplate, Lower	1
		210 998	.. Switch Assy, Jog/Purge (Including)	1
... 21	S2	200 295	... Switch, Rocker SPDT 15A 12V (On)-Off-(On)	1
		131 056	... Housing Plug+Skts, (Service Kit)	1
		131 052	... Housing Plug+Skts, (Service Kit)	1
... 22		179 851	.. Knob, Pointer 1.670 Dia x .250 ID Push On W/Spring	1
... 23		216 866	.. Filter Assy, Sense Lead (Including)	1
		216 696	... Capacitor, w/Terminals (.027uf)	1
		038 855	... Block, Term 20 Amp 2 Pole Screw Term	1
		224 383	... Resistor, w/Terminals (2k 5 watt)	1
		216 872	... Cable, Volt Sense 7 in.	1
		213 004	... Cable, Volt Sense	1
	PLG47	115 094	.. Housing Plug+Skts, (Service Kit)	1
	PLG48	202 592	.. Housing Plug+Skts, (Service Kit)	1
	PLG4	136 810	.. Housing Plug+Skts, (Service Kit)	1
	PLG81	115 092	.. Housing Plug+Skts, (Service Kit)	1
	PLG10	130 203	.. Housing Plug+Skts, (Service Kit)	1
	PLG50	136 810	.. Housing Plug+Skts, (Service Kit)	1
	PLG44	131 058	.. Housing Plug+Skts, (Service Kit)	1
	PLG45	188 352	.. Housing Rcpt+Skts, (Service Kit)	1
	PLG42	131 054	.. Housing Rcpt+Skts, (Service Kit)	1
	PLG40	201 665	.. Housing Rcpt Plug+Skts, (Service Kit)	1
		098 691	.. Stand-Off, No 6-32 x .500 Lg .250 Hex Stl M&F	2

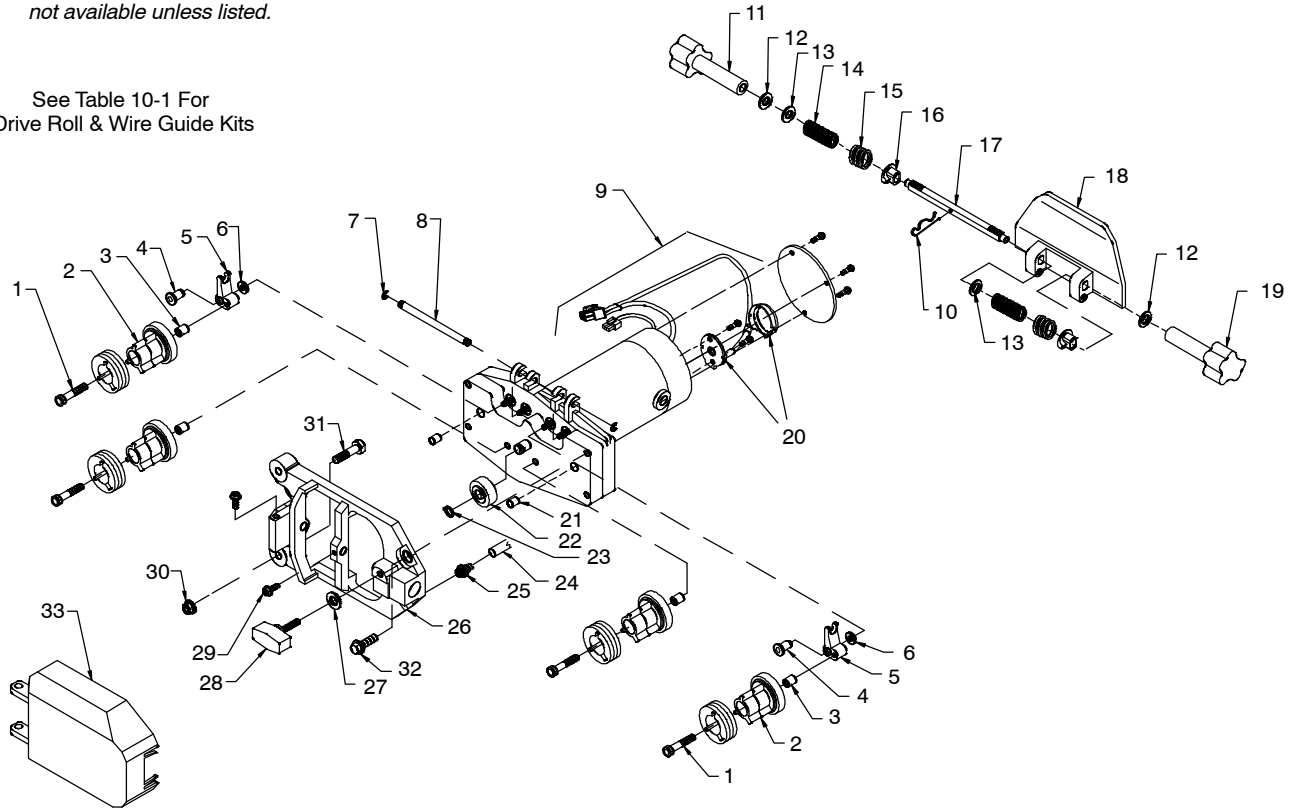
*Recommended Spare Parts.

+When ordering a component originally displaying a precautionary label, the label should also be ordered.

To maintain the factory original performance of your equipment, use only Manufacturer's Suggested Replacement Parts. Model and serial number required when ordering parts from your local distributor.

☞ Hardware is common and not available unless listed.

See Table 10-1 For Drive Roll & Wire Guide Kits



802 950-D

Figure 10-3. Drive Assembly, Wire

Item No.	Dia. Mkgs.	Part No.	Description	Quantity
----------	------------	----------	-------------	----------

Figure 10-3. Drive Assembly, Wire (Fig 10-1 Item 4)

...	1	010 668	.. Screw, Cap Stl Sch .250-20 x 1.500	4
...	2	172 075	.. Carrier, Drive Roll w/Components	4
...	3	149 962	.. Spacer, Carrier Drive Roll	4
...	4	149 486	.. Pin, Rotation Arm Rocker	2
...	5	132 750	.. Arm, Pressure	2
...	6	150 520	.. Spacer, Flat Stl .257 ID x .619 OD x .105	2
...	7	133 493	.. Ring, Retaining Ext .250 Shaft X .025thk	2
...	8	133 350	.. Pin, Hinge	1
...	9	M1 *213 005	.. Motor, Gear	1
...		203 631	.. Pressure Arm (Consisting Of)	1
...	10	182 415	.... Pin, Cotter Hair	1
...	11	203 640	.... Knob, w/Extension Short Pressure Arm	1
...	12	203 641	.... Washer, Flat Stl SAE No. 8	2
...	13	182 156	.... Spring, Cprsn	2
...	14	182 155	.... Spring	2
...	15	132 746	.... Bushing, Spring	2
...	16	203 633	.... Shaft, Spring	1
...	17	203 632	.... Carrier, Shaft	1
...	18	133 739	.... Washer, Flat Buna .375 ID x .625 OD x .062thk	2
...	19	203 637	.... Knob, W/Extension Long Pressure Arm	1
...	20		†Encoder Assy, Quad 500 CPR 5 VDC Shaftless w/Plug (including)	1
...		261 292	.... Encoder, Differential E8p 500cpr 1/4" Bore	1
...		261 293	.... Cbl Assy, Shielded 4 Wire 18" Access Encoder w/Plug	1

*Recommended Spare Parts.

†Have nearest Factory Authorized Service Agent replace encoder.

To maintain the factory original performance of your equipment, use only Manufacturer's Suggested Replacement Parts. Model and serial number required when ordering parts from your local distributor.






Item No.	Dia. Mkgs.	Part No.	Description	Quantity
Figure 10-3. Drive Assembly, Wire (Fig 10-1 Item 4) (continued)				
... 21		167 387	.. Spacer, Locating	2
... 22		168 825	.. Drive, Pinion	1
... 23		133 308	.. Ring, Retaining Ext .375 Shaft x .025thk	1
... 24		134 834	.. Hose, SAE .187 ID x .410 OD (Order By ft)	2ft
...		184 685	.. Adapter Assy, Gun/Feeder LH (Including)	1
... 25		149 959	.... Fitting, Brs Barbed M 3/16tbg x .312-24	1
... 26		179 265	.... Adapter, Gun/Feeder	1
... 27		604 538	.... Washer, Flat Stl SAE .312	1
... 28		151 437	.... Knob, Plstc T 1.125 Lg x .312-18 x 1.500	1
... 29		185 624	.... Screw, 010-32 x O.50 Hexwhd .40d Stl Pld Slfmg Trilob	2
... 30		167 788	.... Nut, 375-16 .56 hex .34h Stl Pld Sem Cone Wshr .88d	1
... 31		601 966	.... Screw, Cap Stl Hexhd .375-16 x 1.250	1
... 32		108 940	.. Screw, Cap Stl Hexhd .250-20 x .750	4
... 33		179 263	.. Cover, Drive Roll (Consisting Of)	1
.....		178 937	.... Label, Warning Electric Shock	1

*Recommended Spare Parts.

†Have nearest Factory Authorized Service Agent replace encoder.

To maintain the factory original performance of your equipment, use only Manufacturer's Suggested Replacement Parts. Model and serial number required when ordering parts from your local distributor.

Table 10-1. Drive Roll And Wire Guide Kits

	"V" GROOVE FOR HARD WIRE	"U" GROOVE FOR SOFT-SHELLED CORED WIRES	"V" KNURLED FOR HARD-SHELLED CORED WIRES	"U" COGGED FOR EXTREMELY SOFT WIRE OR SOFT-SHELLED CORED WIRES	"U" GROOVE FOR ALUMINUM WIRES CONTAINS NYLON WIRE GUIDES
					
WIRE SIZE					
.023/.025 in. (0.6 mm)	151024				
.030 in. (0.8 mm)	151025				
.035 in. (0.9 mm)	151026		151052		243233
.040 in. (1.0 mm)	161190				
.045 in. (1.1/1.2 mm)	151027	151037*	151053	151070	243234*
.052 in. (1.3/1.4 mm)	151028	151038	151054	151071	
1/16 in. (1.6 mm)	151029	151039	151055	151072	243235
.068/.072 in. (1.8 mm)			151056		
5/64 in. (2.0 mm)		151040	151057	151073	
3/32 in. (2.4 mm)		151041	151058	151074	
7/64 in. (2.8 mm)		151042	151059	151075	
1/8 in. (3.2 mm)		151043**	151060**	151076**	
*Accommodates .045 and .047 (3/64 in) wire					
**Requires a low-speed wire feeder					
Wire Guides					
	Nylon Wire Guides for Feeding Aluminum Wire				
Wire Sizes	Inlet Guide	Intermediate Guide	Wire Size	Inlet Guide	Intermediate Guide
.023 to .040 in. (0.6 to 1.0mm)	221030	149518	.035 in. (0.9mm)	221912	242417
.045 to .052 in. (1.1 to 1.4mm)	221030	149519	.047 in. (1.2mm)	221912	205936
1/16 to 5/64 in. (1.6 to 2mm)	221030	149520	1/16 in. (1.6mm)	221912	205937
3/32 to 7/64 in. (2.4 to 2.8mm)	229919	149521			
1/8 in. (3.2mm)	229919	149522			

TRUE BLUE[®]

WARRANTY

Effective January 1, 2014

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

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hands in 24 hours.

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step of the way.

LIMITED WARRANTY – Subject to the terms and conditions below, Miller Electric Mfg. Co., Appleton, Wisconsin, warrants to its original retail purchaser 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. Miller must be notified in writing within thirty (30) days of such defect or failure, at which time Miller will provide instructions on the warranty claim procedures to be followed.

Miller shall honor warranty claims on warranted equipment listed below in the event of such a failure within the warranty time periods. All warranty time periods start on the delivery date of the equipment to the original end-user purchaser, and not to exceed twelve months after the equipment is shipped to a North American distributor or eighteen months after the equipment is shipped to an International distributor.

1. 5 Years Parts — 3 Years Labor
 - * Original Main Power Rectifiers Only to Include SCRs, Diodes, and Discrete Rectifier Modules
2. 3 Years — Parts and Labor
 - * Auto-Darkening Helmet Lenses (Except Classic Series) (No Labor)
 - * Engine Driven Welding Generators
(NOTE: Engines are Warranted Separately by the Engine Manufacturer.)
 - * Inverter Power Sources (Unless Otherwise Stated)
 - * Plasma Arc Cutting Power Sources
 - * Process Controllers
 - * Semi-Automatic and Automatic Wire Feeders
 - * Transformer/Rectifier Power Sources
3. 2 Years — Parts and Labor
 - * Auto-Darkening Helmet Lenses – Classic Series Only (No Labor)
 - * Fume Extractors – Capture 5, Filtair 400 and Industrial Collector Series
4. 1 Year — Parts and Labor Unless Specified
 - * Automatic Motion Devices
 - * CoolBelt and CoolBand Blower Unit (No Labor)
 - * External Monitoring Equipment and Sensors
 - * 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
 - * HF Units
 - * ICE/XT Plasma Cutting Torches (No Labor)
 - * Induction Heating Power Sources, Coolers
(NOTE: Digital Recorders are Warranted Separately by the Manufacturer.)
 - * LiveArc Welding Performance Management System
 - * Load Banks
 - * Motor Driven Guns (except Spoolmate Spoolguns)
 - * PAPR Blower Unit (No Labor)
 - * Positioners and Controllers
 - * Racks
 - * Running Gear/Trailers
 - * Spot Welders
 - * Subarc Wire Drive Assemblies
 - * Water Coolant Systems
 - * TIG Torches (No Labor)
 - * Wireless Remote Foot/Hand Controls and Receivers
 - * Work Stations/Weld Tables (No Labor)

5. 6 Months — Parts
 - * Batteries
 - * Bernard Guns (No Labor)
 - * Tregaskiss Guns (No Labor)
6. 90 Days — Parts
 - * Accessory (Kits)
 - * Canvas Covers
 - * Induction Heating Coils and Blankets, Cables, and Non-Electronic Controls
 - * M-Guns
 - * MIG Guns and Subarc (SAW) Guns
 - * Remote Controls and RFCS-RJ45
 - * Replacement Parts (No labor)
 - * Roughneck Guns
 - * Spoolmate Spoolguns

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

1. **Consumable components; such as contact tips, cutting nozzles, contactors, brushes, relays, work station table tops and welding curtains, or parts that fail due to normal wear. (Exception: brushes and relays are covered on all engine-driven products.)**
2. Items furnished by Miller, but manufactured by others, such as engines or trade accessories. These items are covered by the manufacturer's warranty, if any.
3. Equipment that has been modified by any party other than Miller, or equipment that has been improperly installed, improperly operated or misused based upon industry standards, or equipment which has not had reasonable and necessary maintenance, or equipment which has been used for operation outside of the specifications for the equipment.

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

In the event of a warranty claim covered by this warranty, the exclusive remedies shall be, at Miller's option: (1) repair; or (2) replacement; or, where authorized in writing by Miller in appropriate cases, (3) the reasonable 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 actual use) upon return of the goods at customer's risk and expense. Miller's option of repair or replacement will be F.O.B., Factory at Appleton, Wisconsin, or F.O.B. at a Miller authorized service facility as determined by Miller. Therefore no compensation or reimbursement for transportation costs of any kind will be allowed.

TO THE EXTENT PERMITTED BY LAW, THE REMEDIES PROVIDED HEREIN ARE THE SOLE AND EXCLUSIVE REMEDIES. IN NO EVENT SHALL MILLER BE LIABLE FOR DIRECT, INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES (INCLUDING LOSS OF PROFIT), WHETHER BASED ON CONTRACT, TORT OR ANY OTHER LEGAL THEORY.

ANY EXPRESS WARRANTY NOT PROVIDED HEREIN AND ANY IMPLIED WARRANTY, GUARANTY OR REPRESENTATION AS TO PERFORMANCE, AND ANY REMEDY FOR BREACH OF CONTRACT TORT OR ANY OTHER LEGAL THEORY WHICH, BUT FOR THIS PROVISION, MIGHT ARISE BY IMPLICATION, OPERATION OF LAW, CUSTOM OF TRADE OR COURSE OF DEALING, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE, WITH RESPECT TO ANY AND ALL EQUIPMENT FURNISHED BY MILLER IS EXCLUDED AND DISCLAIMED BY MILLER.

Some states in the U.S.A. do not allow limitations of how long an implied warranty lasts, or the exclusion of incidental, indirect, special or consequential damages, so the above limitation or exclusion may not apply to you. This warranty provides specific legal rights, and other rights may be available, but may vary from state to state.

In Canada, legislation in some provinces provides for certain additional warranties or remedies other than as stated herein, and to the extent that they may not be waived, the limitations and exclusions set out above may not apply. This Limited Warranty provides specific legal rights, and other rights may be available, but may vary from province to province.

miller_warr 2014-04-14





Owner's Record

Please complete and retain with your personal records.

Model Name

Serial/Style Number

Purchase Date

(Date which equipment was delivered to original customer.)

Distributor

Address

City

State

Zip



For Service

Contact a DISTRIBUTOR or SERVICE AGENCY near you.

Always provide Model Name and Serial/Style Number.

Contact your Distributor for:

Welding Supplies and Consumables

Options and Accessories

Personal Safety Equipment

Service and Repair

Replacement Parts

Training (Schools, Videos, Books)

Technical Manuals (Servicing Information and Parts)

Circuit Diagrams

Welding Process Handbooks

To locate a Distributor or Service Agency visit 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. Co.

An Illinois Tool Works Company
1635 West Spencer Street
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

