OM-244 814A 2010–01

## Processes

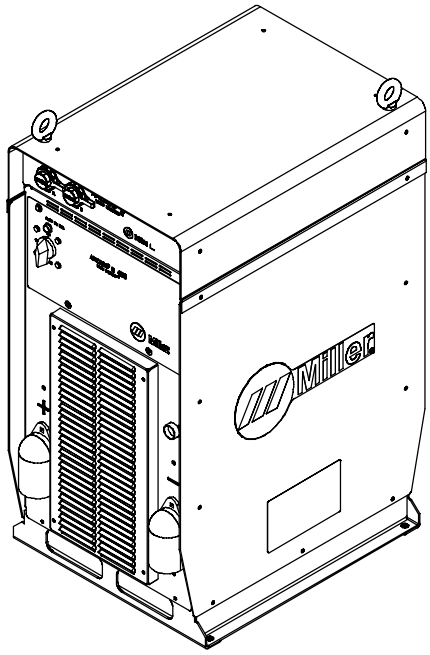
MIG (GMAW) Welding
Pulsed MIG (GMAW-P)
Flux Cored (FCAW) Welding
Automatic Welding

## Description

3 Phase DC CV

Automatic Welding Interface And
Arc Welding Power Source

# Axcess® E 450



# OWNER'S MANUAL

**File: Advanced Manufacturing Systems**

Visit our website at
**www.MillerWelds.com/ams**

# From Miller to You

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

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

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

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

ISO 9001 REGISTERED QUALITY SYSTEM

Miller is the first welding equipment manufacturer in the U.S.A. to be registered to the ISO 9001:2000 Quality System Standard.

We've made installation and operation quick and easy. With Miller you can count on years of reliable service with proper maintenance. And if for some reason the unit needs repair, there's a Troubleshooting section that will help you figure out what the problem is. 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 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.**

TRUE BLUE® WARRANTY

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

Miller®

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# SECTION 1 – SAFETY PRECAUTIONS - READ BEFORE USING



**Protect yourself and others from injury — read and follow these precautions.**

## 1-1. Symbol Usage

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

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

***NOTICE*** *– Indicates statements not related to personal injury.*

☞ *Indicates special instructions.*

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

## 1-2. Arc Welding Hazards

**The symbols shown below are used throughout this manual to call attention to and identify possible hazards. When you see the symbol, watch out, and follow the related instructions to avoid the hazard. The safety information given below is only a summary of the more complete safety information found in the 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 and ground this equipment according to its Owner's Manual and national, state, and local codes.
- Always verify the supply ground – check and be sure that input power cord ground wire is properly connected to ground terminal in disconnect box or that cord plug is connected to a properly grounded receptacle outlet.
- When making input connections, attach proper grounding conductor first – double-check connections.
- Keep cords dry, free of oil and grease, and protected from hot metal and sparks.
- Frequently inspect input power cord for damage or bare wiring – replace cord immediately if damaged – bare wiring can kill.
- Turn off all equipment when not in use.
- Do not use worn, damaged, undersized, or poorly spliced 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.

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

- 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.
- If ventilation is poor, wear an approved air-supplied respirator.
- Read and understand the Material Safety Data Sheets (MSDSs) and the manufacturer's instructions for metals, consumables, coatings, cleaners, and degreasers.
- 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.

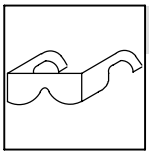
Arc rays from the welding process produce intense visible and invisible (ultraviolet and infrared) rays that can burn eyes and skin. Sparks fly off from the weld.

- 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 protective clothing made from durable, flame-resistant material (leather, heavy cotton, or wool) and foot protection.

## 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 closed containers such as tanks, drums, or pipes, unless they are properly prepared according to AWS F4.1 (see Safety Standards).
- Do not weld where the atmosphere 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 oil-free protective garments 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 by-pass them.
- Follow requirements in OSHA 1910.252 (a) (2) (iv) and NFPA 51B for hot work and have a fire watcher and extinguisher nearby.



## 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 shielding gas supply when not in use.
- Always ventilate confined spaces or use approved air-supplied respirator.

## ELECTRIC AND MAGNETIC FIELDS can affect ImplantedMedical 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.

Shielding 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 shielding 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.
- 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.

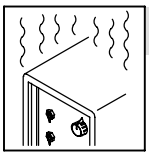
## 1-3. Additional Symbols For Installation, Operation, And Maintenance

### 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.

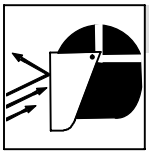
### FALLING EQUIPMENT can injure.

- 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.



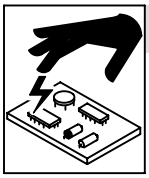
### OVERUSE can cause OVERHEATING

- 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.

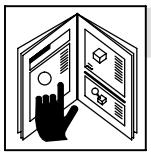
- Keep away from moving parts.
- Keep away from pinch points such as drive rolls.

### 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.

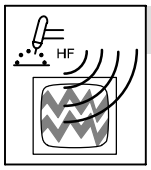
### MOVING PARTS can injure.

- 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.)**

**Battery posts, terminals and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. Wash hands after handling.**

**For Gasoline Engines:**

**Engine exhaust contains chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm.**

**For Diesel Engines:**

**Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.**

## 1-5. Principal Safety Standards

*Safety in Welding, Cutting, and Allied Processes,* ANSI Standard Z49.1, 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).

*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, 4221 Walney Road, 5th Floor, 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).

U.S. Consumer Product Safety Commission (CPSC), 4330 East West Highway, Bethesda, MD 20814 (phone: 301-504-7923, website: www.cpsc.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). Welding current creates an EMF field around the welding circuit and welding equipment. EMF fields may interfere with some medical implants, e.g. pacemakers. Protective measures for persons wearing medical implants have to be taken. For example, access restrictions for passers–by or 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



**Se protéger et protéger les autres contre le risque de blessure — lire et respecter ces consignes.**

## 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 ELECTRIQUE, PIECES EN MOUVEMENT, et PIECES 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).
- Installer le poste correctement et le mettre à la terre convenablement selon les consignes du manuel de l'opérateur et les normes nationales, provinciales 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 afin de s'assurer qu'il n'est pas altéré ou à nu, le remplacer immédiatement s'il l'est. Un fil à nu 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.

**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 dangereux pour votre santé.

- Eloigner votre tête des fumées. Ne pas respirer les fumées.
- À l'intérieur, ventiler la zone et/ou utiliser une ventilation forcée au niveau de l'arc pour l'évacuation des fumées et des gaz de soudage.
- Si la ventilation est médiocre, porter un respirateur anti-vapeurs approuvé.
- Lire et comprendre les spécifications de sécurité des matériaux (MSDS) et les instructions du fabricant concernant les métaux, les consommables, les revêtements, les nettoyants et les dégraisseurs.
- 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.

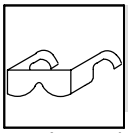
Le rayonnement de l'arc du procédé de soudag génère des rayons visibles et invisibles intense (ultraviolets et infrarouges) susceptibles de provoquer des brûlure dans les yeux et sur la peau. Des étincelles sont projetées pendant l soudage.

- Porter un casque de soudage approuvé muni de verres filtrants approprié pour protéger visage et yeux pour protéger votre visage et vos yeux pendant le soudage ou pour regarder (voir ANSI Z49.1 et Z87.1 énuméré dans les normes de sécurité).
- Porter des lunettes de sécurité avec écrans latéraux même sous votre casque.
- Avoir recours à des écrans protecteurs ou à des rideaux pour protéger les autres contre les rayonnements les éblouissements et les étincelles ; prévenir toute personne sur les lieux de ne pas regarder l'arc.
- Porter des vêtements confectionnés avec des matières résistantes et ignifuges (cuir, coton lourd ou laine) et des bottes de protection.

## 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 (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 le 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 des vêtements de protection dépourvus d'huile tels que des gants en cuir, une chemise en matériau lourd, des pantalons sans revers, des chaussures hautes et un couvre chef.
- 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.



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

- Le soudage, l'écaillement, 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 protecteur 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.

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

- Protéger les bouteilles de gaz comprimé d'une chaleur excessive, des chocs mécaniques, des dommages physiques, du laitier, des flammes ouvertes, des étincelles et des arcs.
- Placer les bouteilles debout en les fixant dans un support stationnaire ou dans un porte-bouteilles pour les empêcher de tomber ou de se renverser.
- Tenir les bouteilles éloignées des circuits de soudage ou autres circuits électriques.
- Ne jamais placer une torche de soudage sur une bouteille à gaz.
- Une électrode de soudage ne doit jamais entrer en contact avec une bouteille.
- Ne jamais souder une bouteille pressurisée – risque d'explosion.
- Utiliser seulement des bouteilles de gaz protecteur, régulateurs, tuyaux et raccords convenables pour cette application spécifique ; les maintenir ainsi que les éléments associés en bon état.
- Détourner votre visage du détendeur-régulateur lorsque vous ouvrez la soupape de la bouteille.
- 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.

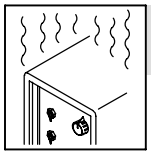
## 2-3. Dangers supplémentaires en relation avec l'installation, le fonctionnement et la maintenance

### 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.

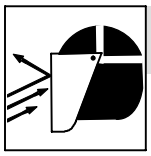
### LA CHUTE DE L'ÉQUIPEMENT peut provoquer des blessures.

- 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 Nº94–110) lors du levage manuelle de pièces ou équipements lourds.



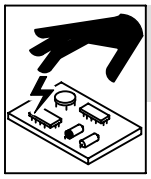
### L'EMPLOI EXCESSIF peut SURCHAUFFER L'ÉQUIPEMENT.

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



### LES ÉTINCELLES PROJETÉES 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 imprimes.

### Les PIÈCES MOBILES peuvent causer des blessures.

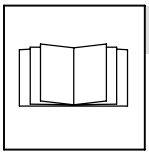
- Ne pas s'approcher des organes mobiles.
- Ne pas s'approcher des points de coincement tels que des rouleaux de commande.

### 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.

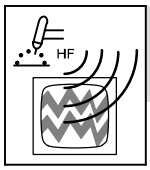
### Les PIÈCES MOBILES peuvent causer des blessures.

- 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.



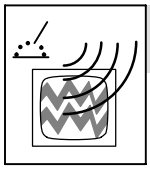
### LIRE LES INSTRUCTIONS.

- 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)**

⚠ **Les batteries, les bornes et autres accessoires contiennent du plomb et des composés à base de plomb, produits chimiques dont l'État de Californie reconnaît qu'ils provoquent des cancers et des malformations congénitales ou autres problèmes de procréation. Se laver les mains après manipulation.**

**Pour les moteurs à essence :**

⚠ **Les gaz d'échappement des moteurs contiennent des produits chimiques dont l'État de Californie reconnaît qu'ils provoquent des cancers et des malformations congénitales ou autres problèmes de procréation.**

**Pour les moteurs diesel :**

⚠ **Les gaz d'échappement des moteurs diesel et certains de leurs composants sont reconnus par l'État de Californie comme provoquant des cancers et des malformations congénitales ou autres problèmes de procréation.**

## 2-5. Principales normes de sécurité

*Safety in Welding, Cutting, and Allied Processes,* ANSI Standard Z49.1, de Global Engineering Documents (téléphone : 1-877-413-5184, site Internet : www.global.ihs.com).

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

*National Electrical Code*, NFPA Standard 70, de National Fire Protection Association, Quincy, MA 02269 (téléphone : 800-344-3555, site Internet : www.nfpa.org et www.sparky.org).

*Safe Handling of Compressed Gases in Cylinders*, CGA Pamphlet P-1, de Compressed Gas Association, 4221 Walney Road, 5th Floor, Chantilly, VA 20151 (téléphone : 703-788-2700, site Internet : www.cganet.com).

*Safety in Welding, Cutting, and Allied Processes,* CSA Standard W117.2, de Canadian Standards Association, Standards Sales, 5060 Spectrum Way, Suite 100, Ontario, Canada L4W 5NS (téléphone : 800-463-6727, site internet : www.csa-international.org).

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

*Standard for Fire Prevention During Welding, Cutting, and Other Hot Work*, NFPA Standard 51B, de National Fire Protection Association, P.O. Box 9101, Quincy, MA 02269-9101 (téléphone : 617-770-3000, site Internet : 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, de U.S. Government Printing Office, Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250-7954 (téléphone : 1-866-512-1800) (il y a 10 bureaux régionaux–le téléphone de la région 5, Chicago, est 312-353-2220, site Internet : www.osha.gov).

U.S. Consumer Product Safety Commission (CPSC), 4330 East West Highway, Bethesda, MD 20814 (téléphone : 301-504-7923, site internet : www.cpsc.gov).

*Applications Manual for the Revised NIOSH Lifting Equation*, The National Institute for Occupational Safety and Health (NIOSH), 1600 Clifton Rd, Atlanta, GA 30333 (télé[hone : 1-800-232-4636, site internet: 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 de soudage crée un CEM autour du circuit et du matériel 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: par exemple, des restrictions d'accès pour les passants ou une évaluation individuelle des risques 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 – INSTALLATION

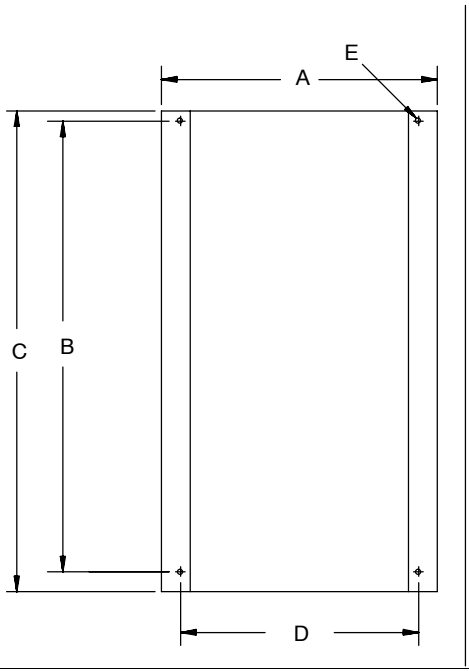
☞ *Appearance of actual unit may vary from unit shown in manual.*

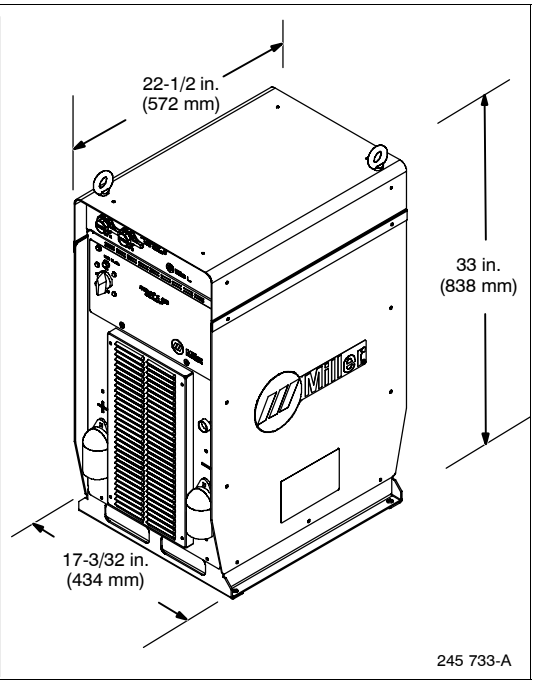
## 3-1. Specifications

| Input Power | Rated Welding Output | Voltage Range | Wire Feed Speed Range** | Wire Diameter Range | Max Open Circuit Voltage DC | Amperes Input At Rated Load Output 60 Hz, Three-Phase | | | | | | Input kVA | Input KW |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 208 V | 230 V | 380 V | 400V | 460 V | 575 V | | |
| Three Phase | 450 A @ 36.5 V DC, 100% Duty Cycle | 10-44 | Standard: 50-1400 ipm (1.3-35.6 mpm) | .035-.062 in. (0.8-1.6 mm) | 80 | 54.0 (0-1A*) | 49.0 (0-1A*) | 29.0 (0-1A*) | 28.0 (0-1A*) | 24.0 (0-1A*) | 19.0 (0-1A*) | 19.9 (0.8*) | 19.2 (0.17*) |
| *While idling; Input amperage fluctuates while idling and is always less than one Ampere. Use one Ampere for power efficiency calculations. | | | | | | | | | | | | | |
| **Wire feed speed ranges are for GMAW welding. While pulse welding, wire feed speed ranges may be more limited. | | | | | | | | | | | | | |

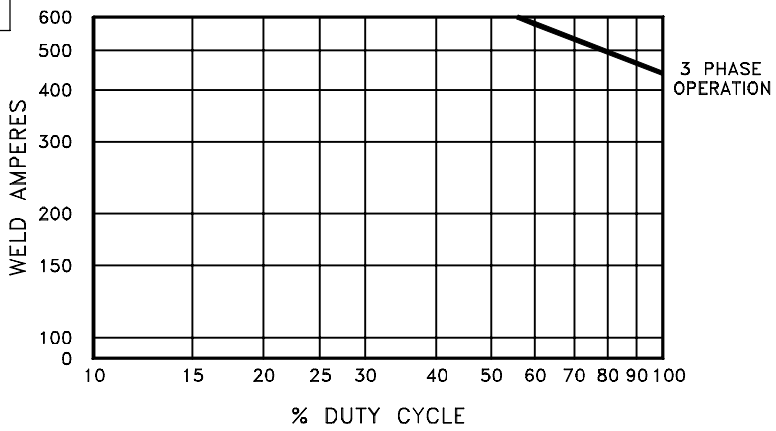
## 3-2. Dimensions And Weight

| Hole Layout Dimensions | |
|---|---|
| A | 17-3/32 in. (434 mm) |
| B | 17-3/8 in. (441 mm) |
| C | 19-3/32 in. (485 mm) |
| D | 16-3/32 in. (409 mm) |
| E | 1/2 in. (13 mm) |
| **Weight** | |
| 168 lb (76 kg) Net<br>185 lb (84 kg) Ship | |



## 3-3. Duty Cycle And Overheating

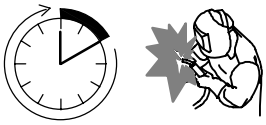



Duty Cycle is percentage of 10 minutes that unit can weld at rated load without overheating.

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

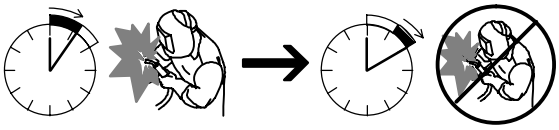
***NOTICE*** *– Exceeding duty cycle can damage unit and void warranty.*

**100% Duty Cycle At 450 Amperes**



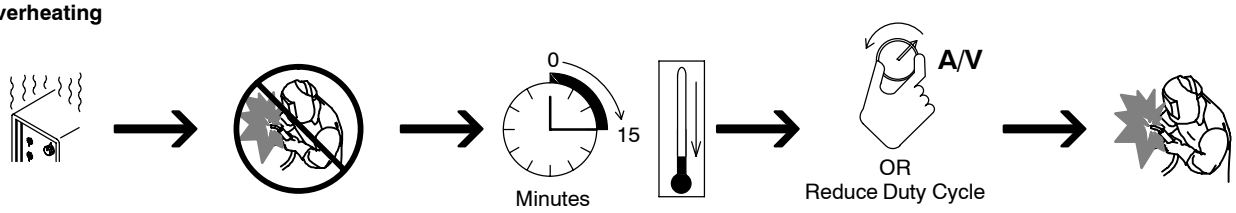
Continuous Welding

**60% Duty Cycle At 580 Amperes**



6 Minutes Welding — 4 Minutes Resting

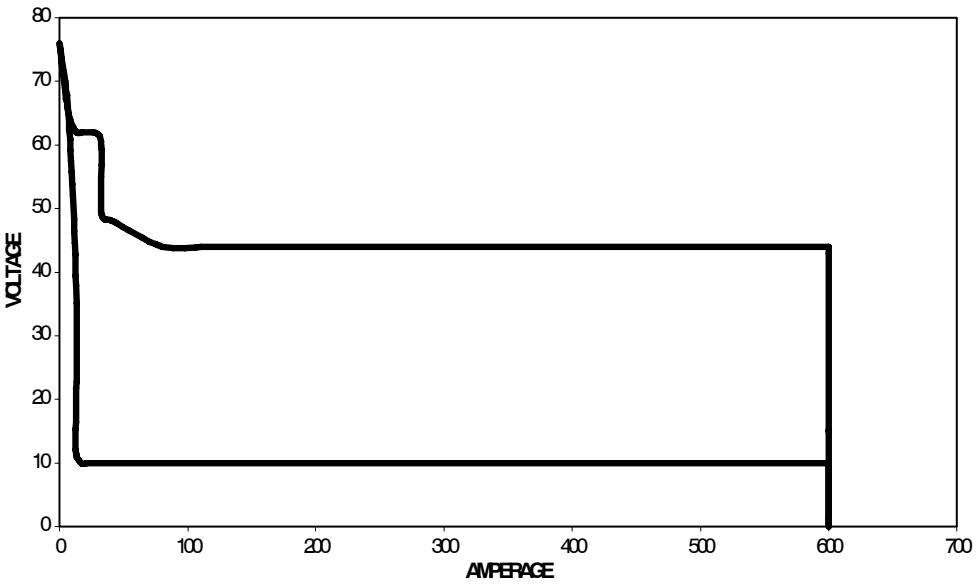
**Overheating**




duty1 4/95 – 220 485-A

## 3-4. Volt-Ampere Curves

**CV MODE**




Volt-ampere curves show minimum and maximum voltage and amperage output capabilities of unit. Curves of other settings fall between curves shown.

☞ *This volt-ampere curve represents the dynamic output of the unit with a static load.*

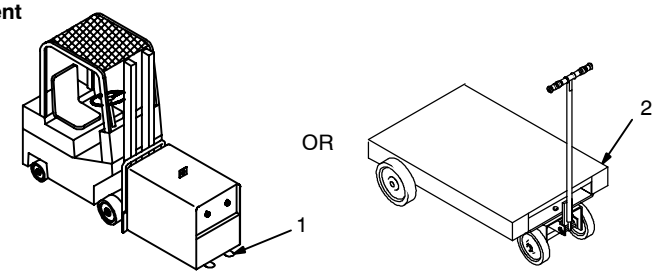
va_curve1 4/95 – 220 486-A

## 3-5. Serial Number And Rating Label Location

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

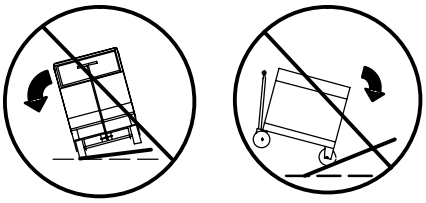
## 3-6. Selecting A Location

**Movement**



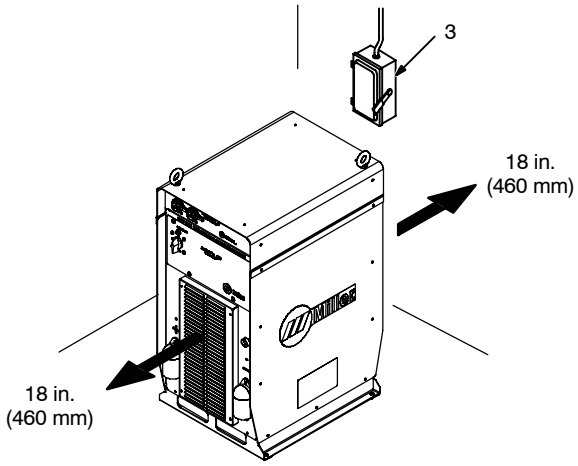

**Tipping**

**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

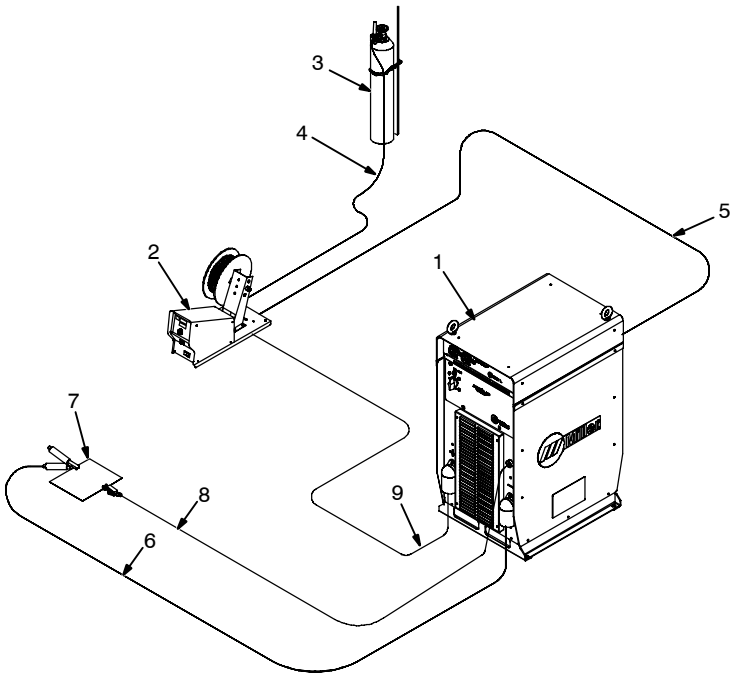
Use cart or similar device to move unit.

3 Line Disconnect Device

Locate unit near correct input power supply.

loc_2 3/96 - 245 733-A

## 3-7. 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

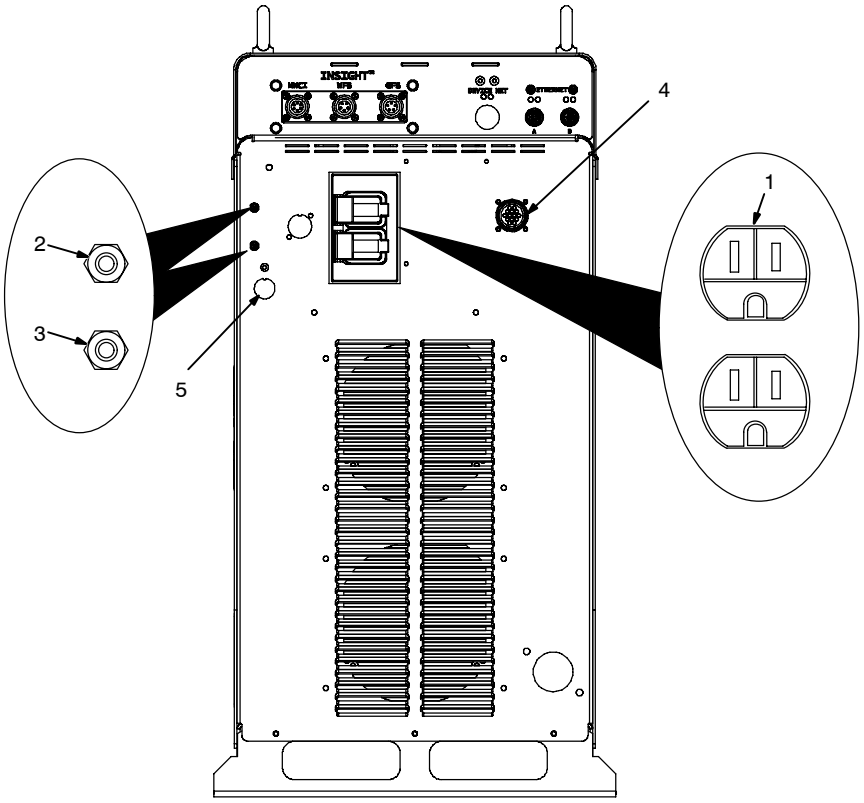
Recommended for Accu-pulse.

☞ *Positive (+) voltage sensing lead is contained in the motor cable.*

9 Positive (+) Weld Cable

245 739-A

## 3-8. Lower Rear Panel Receptacles And Supplementary Protectors




1 115 V 10 A AC Receptacle RC2

Receptacle supplies 60 Hz single-phase power. Maximum output from RC2 is limited by supplementary protector CB1 to 10 amps.

2 Supplementary Protector CB1

3 Supplementary Protector CB2

CB1 protects 115 volt receptacle RC2 from overload. If CB1 opens, RC2 does not work.

CB2 protects the wirefeed motor from overload. If CB2 opens, the wirefeeder does not work.

☞ *Press button to reset breaker. If breaker continue to open, contact a Factory Authorized Service Agent.*

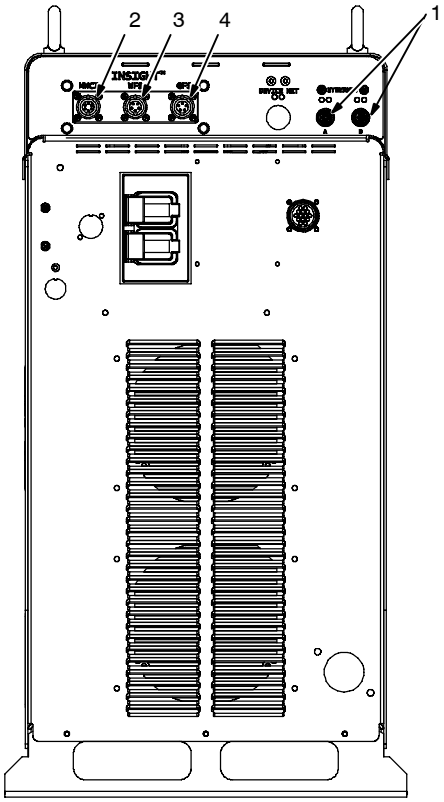
4 Network Wire Feeder Receptacle RC1

Use receptacle to connect network feeder cable to power source (see Section 3-7).

5 Optional E-Stop Receptacle RC4

Ref. 245 741-A

## 3-9. Upper Rear Panel Receptacles




1 Ethernet Receptacles (LAN1 or LAN2 depending on IP address)

The Local Area Network (LAN) IP address identifies the network server and corresponds to ethernet receptacle A or B on the power source.

Ethernet receptacles provide connections for either a network cable or a laptop PC or both.

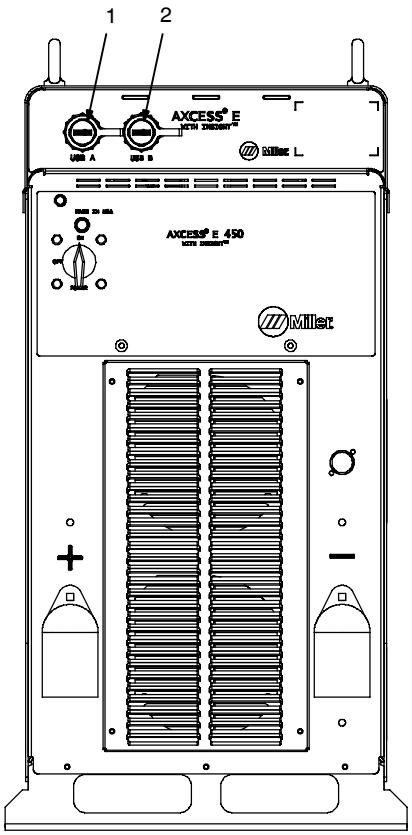
2 Optional MWCI Receptacle

3 Optional WFS (Wire Feed Sensor) Receptacle

4 Optional GFS (Gas Flow Sensor) Receptacle

Ref. 245 741-A

## 3-10. Upper Front Panel Receptacles




1 USB Host Receptacle A

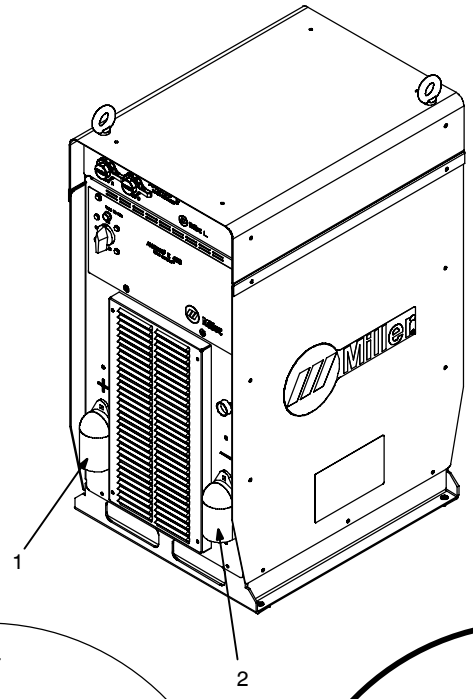
2 USB Device Receptacle B

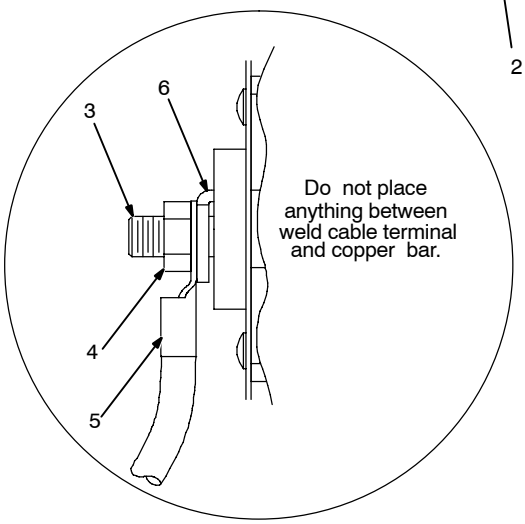
USB receptacles provide connections for various USB host devices.

245 746-A

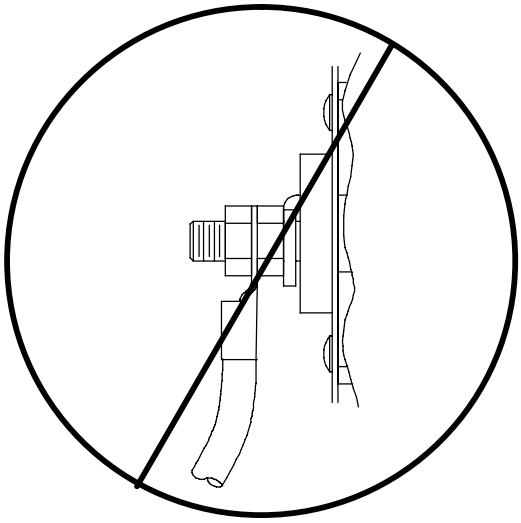
## 3-11. Connecting To Weld Terminals

☞ *If using an electrode negative (straight polarity) process, the volt sense lead must be connected to the work.*




Correct Installation



Incorrect Installation

Tools Needed:

3/4 in. (19 mm)

245 733-A / 803 778-A

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

⚠ **Failure to properly connect weld cables may cause excessive heat and start a fire, or damage your machine.**

Determine total cable length in weld circuit (both positive and negative cables combined) and maximum welding amperes. See Section 4-1 to select proper cable size.

1 Positive (+) Weld Output Terminal

2 Negative (–) Weld Output Terminal

Connect positive weld cable to Positive (+) weld terminal and negative (–) cable to Negative weld terminal.

3 Weld Output Terminal

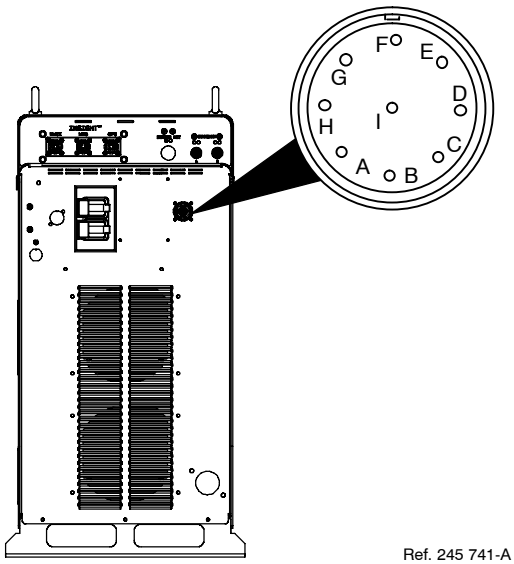
4 Supplied Weld Output Terminal Nut

5 Weld Cable Terminal

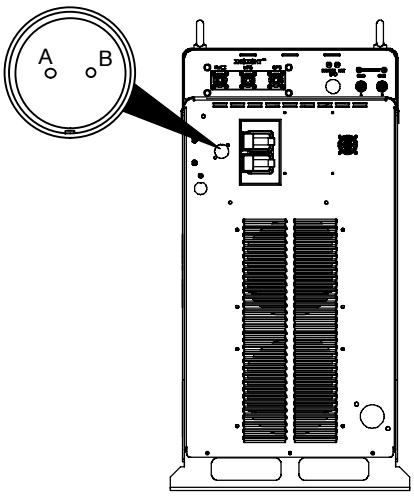
6 Copper Bar

Remove supplied nut from weld output terminal. Slide weld cable terminal onto weld output terminal and secure with nut so that weld cable terminal is tight against copper bar. **Do not place anything between weld cable terminal and copper bar. Make sure that the surfaces of the weld cable terminal and copper bar are clean.**

## 3-12. Network Wire Feeder Receptacle Functions

| REMOTE 9 | Pin* | Pin Information |
|---|---|---|
|  Ref. 245 741-A | A | Not used. |
| | 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 |
| *The remaining pins are not used. | | |

## 3-13. Optional E-Stop Receptacle Functions

| | Socket | Socket Information |
|---|---|---|
|  Ref. 245 741-A | A | A short to socket B allows unit to weld. |
| | B | A short to socket A allows unit to weld. |

## 3-14. Electrical Service Guide

**Failure to follow these electrical service guide recommendations could create an electric shock or fire hazard. These recommendations are for a dedicated branch circuit sized for the rated output and duty cycle of the welding power source.**

***NOTICE*** *– INCORRECT INPUT POWER can damage this welding power source. This welding power source requires a CONTINUOUS supply of input power at rated frequency (±10%) and voltage (±10%). Phase to ground voltage shall not exceed +10% of rated input voltage. Do not use a generator with automatic idle device (that idles engine when no load is sensed) to supply input power to this welding power source.*

☞ *Actual input voltage should not exceed ± 10% of indicated required input voltage. If actual input voltage is outside of this range, output may not be available.*

| | **50/60 Hz Three Phase** | | | | | |
|---|---|---|---|---|---|---|
| **Input Voltage (V)** | 200/208 | 230 | 380 | 400 | 460 | 575 |
| **Input Amperes (A) At Rated Output** | 54 | 49 | 29 | 28 | 24 | 19 |
| **Max Recommended Standard Fuse Rating In Amperes** [1] | | | | | | |
| **Time-Delay Fuses** [2] | 70 | 60 | 35 | 35 | 30 | 25 |
| **Normal Operating Fuses** [3] | 90 | 70 | 45 | 45 | 35 | 30 |
| **Min Input Conductor Size In AWG** [4] | 6 | 8 | 8 | 10 | 10 | 12 |
| **Max Recommended Input Conductor Length In Feet (Meters)** | 123 (38) | 104 (32) | 283 (86) | 205 (63) | 272 (83) | 256 (78) |
| **Min Grounding Conductor Size In AWG** [4] | 8 | 8 | 10 | 10 | 10 | 12 |

Reference: 2008 National Electrical Code (NEC) (including article 630)

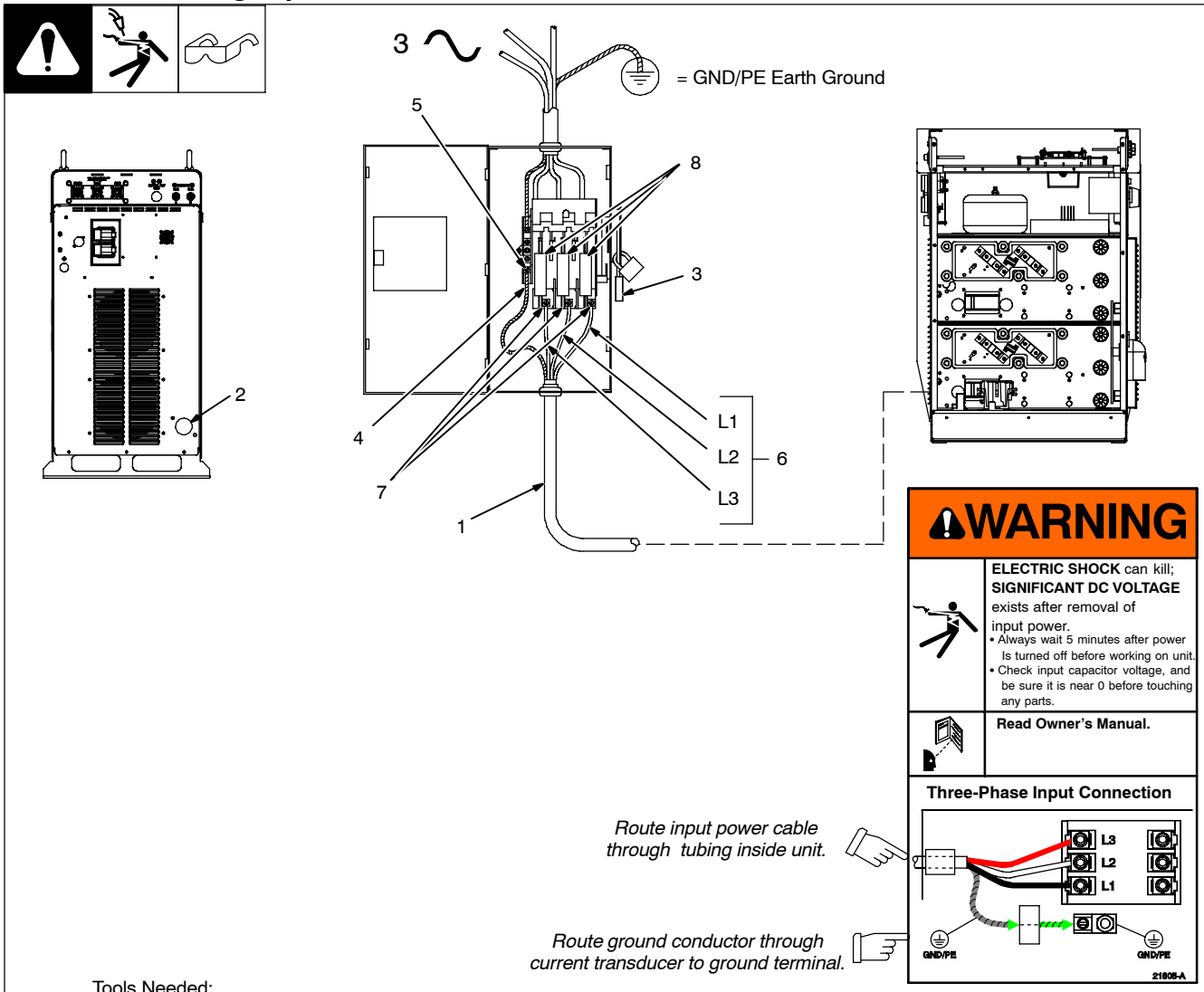
1 If a circuit breaker is used in place of a fuse, choose a circuit breaker with time-current curves comparable to the recommended fuse.

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

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

4 Conductor data in this section specifies conductor size (excluding flexible cord or cable) between the panelboard and the equipment per NEC Table 310.16. If a flexible cord or cable is used, minimum conductor size may increase. See NEC Table 400.5(A) for flexible cord and cable requirements.

## 3-15. Connecting Input Power




Tools Needed:

5/16 in.

245 742-A / 218 005-A

**Turn Off welding power source, and check voltage on input capacitors according to Section 19-1 before proceeding.**

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

**Disconnect and lockout/tagout input power before connecting input conductors from unit.**

**Make input power connections to the welding power source first.**

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

1 Input Power Conductors (Customer Supplied Cord)

Select size and length of conductors using Section 3-14. Conductors must comply with national, state, and local electrical codes. If applicable, use lugs of proper amperage capacity and correct hole size.

**Welding Power Source Input Power Connections**

2 Strain Relief

Install strain relief of proper size for unit and input conductors. Route conductors (cord) through strain relief and tighten screws.

- Use large strain relief for input conductor size 8 and larger.
- Use small strain relief with reducing washers for input conductor size 10.

Connect input conductors as shown in illustration.

Route green or green/yellow grounding conductor through current transducer and connect to welding power source grounding terminal first. Then connect input conductors L1, L2, and L3 to welding power source line terminals.

Reinstall side panel onto welding power source.

**Disconnect Device Input Power Connections**

3 Disconnect Device (switch shown in the OFF position)

4 Green Or Green/Yellow Grounding Conductor

5 Disconnect Device Grounding Terminal

6 Input Conductors (L1, L2 And L3)

7 Disconnect Device Line Terminals

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

Connect input conductors L1, L2, and L3 to disconnect device line terminals.

8 Over-Current Protection

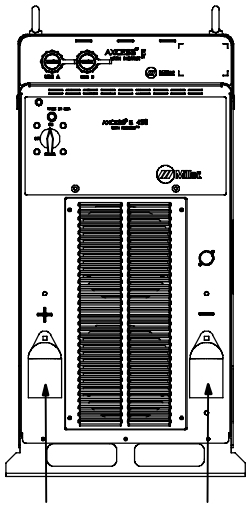
Select type and size of over @@@@
current protection using Section 3-14 (fused disconnect switch shown).

Close and secure door on disconnect device. Remove lockout/tagout device, and place switch in the On position.

# SECTION 4 – RECOMMENDED SETUP PROCEDURES

## 4-1. Selecting Weld Cable Sizes*

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

|  **Weld Output Terminals** ⚠ **Turn off power before connecting to weld output terminals.** ⚠ **Do not use worn, damaged, undersized, or poorly spliced cables.** | **Welding Amperes**** | **Weld Cable Size*** and Total Cable (Copper) Length in Weld Circuit Not Exceeding**** | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | **100 ft (30 m) or Less** | | **150 ft (45 m)** | **200 ft (60 m)** | **250 ft (70 m)** | **300 ft (90 m)** | **350 ft (105 m)** | **400 ft (120 m)** |
| | | **10 – 60% Duty Cycle** | **60 – 100% Duty Cycle** | **10 – 100% Duty Cycle** | | | | | |
|  Positive + Negative – 245 746-A | 100 | 4 (20) | 4 (20) | 4 (20) | 3 (30) | 2 (35) | 1 (50) | 1/0 (60) | 1/0 (60) |
| | 150 | 3 (30) | 3 (30) | 2 (35) | 1 (50) | 1/0 (60) | 2/0 (70) | 3/0 (95) | 3/0 (95) |
| | 200 | 3 (30) | 2 (35) | 1 (50) | 1/0 (60) | 2/0 (70) | 3/0 (95) | 4/0 (120) | 4/0 (120) |
| | 250 | 2 (35) | 1 (50) | 1/0 (60) | 2/0 (70) | 3/0 (95) | 4/0 (120) | 2 ea. 2/0 (2x70) | 2 ea. 2/0 (2x70) |
| | 300 | 1 (50) | 1/0 (60) | 2/0 (70) | 3/0 (95) | 4/0 (120) | 2 ea. 2/0 (2x70) | 2 ea. 3/0 (2x95) | 2 ea. 3/0 (2x95) |
| | 350 | 1/0 (60) | 2/0 (70) | 3/0 (95) | 4/0 (120) | 2 ea. 2/0 (2x70) | 2 ea. 3/0 (2x95) | 2 ea. 3/0 (2x95) | 2 ea. 4/0 (2x120) |
| | 400 | 1/0 (60) | 2/0 (70) | 3/0 (95) | 4/0 (120) | 2 ea. 2/0 (2x70) | 2 ea. 3/0 (2x95) | 2 ea. 4/0 (2x120) | 2 ea. 4/0 (2x120) |
| | 500 | 2/0 (70) | 3/0 (95) | 4/0 (120) | 2 ea. 2/0 (2x70) | 2 ea. 3/0 (2x95) | 2 ea. 4/0 (2x120) | 3 ea. 3/0 (3x95) | 3 ea. 3/0 (3x95) |
| | 600 | 3/0 (95) | 4/0 (120) | 2 ea. 2/0 (2x70) | 2 ea. 3/0 (2x95) | 2 ea. 4/0 (2x120) | 3 ea. 3/0 (3x95) | 3 ea. 4/0 (3x120) | 3 ea. 4/0 (3x120) |
| | 700 | 4/0 (120) | 2 ea. 2/0 (2x70) | 2 ea. 3/0 (2x95) | 2 ea. 4/0 (2x120) | 3 ea. 3/0 (3x95) | 3 ea. 4/0 (3x120) | 3 ea. 4/0 (3x120) | 4 ea. 4/0 (4x120) |
| | 800 | 4/0 (120) | 2 ea. 2/0 (2x70) | 2 ea. 3/0 (2x95) | 2 ea. 4/0 (2x120) | 3 ea. 4/0 (3x120) | 3 ea. 4/0 (3x120) | 4 ea. 4/0 (4x120) | 4 ea. 4/0 (4x120) |

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

**Cable should be sized for Peak Amperage (Apk) for pulse welding applications.

***Weld cable size (AWG) is based on either a 4 volts or less drop or a current density of at least 300 circular mils per ampere.
( ) = $mm^2$ for metric use

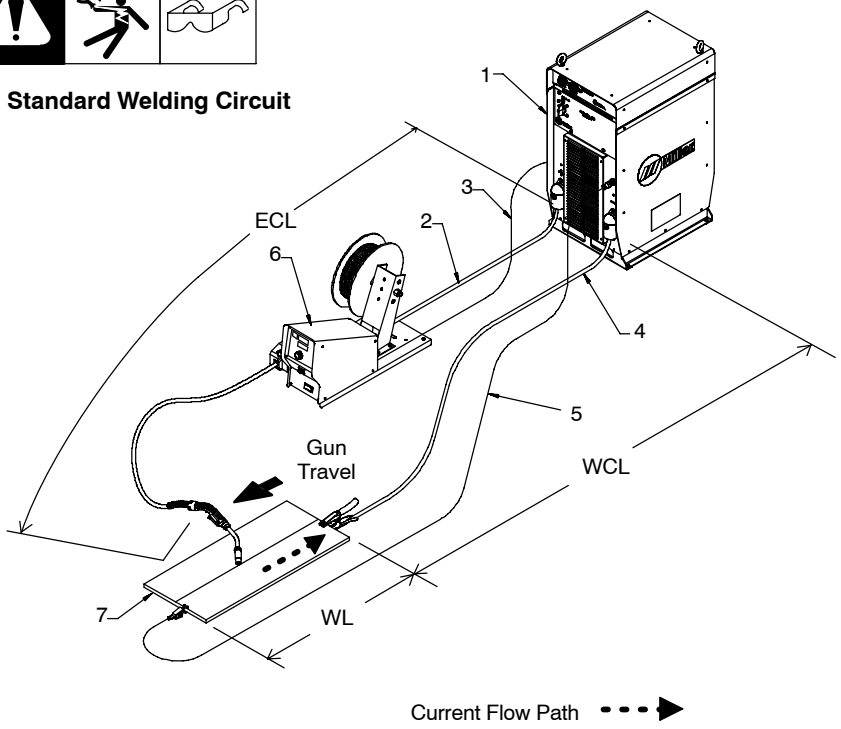
****For distances longer than those shown in this guide, call a factory applications representative at 920-735-4505. S-0007-E

☞ *In pulse welding applications using inverter power sources, peak currents can result in extreme voltage drops producing poor welding characteristics with undersized cables. A recommendation for weld cable size is a minimum of 2/0 for 300 ampere welding power sources and 4/0 for 450 ampere welding power sources when total cable length is less than 100 ft (30m).*

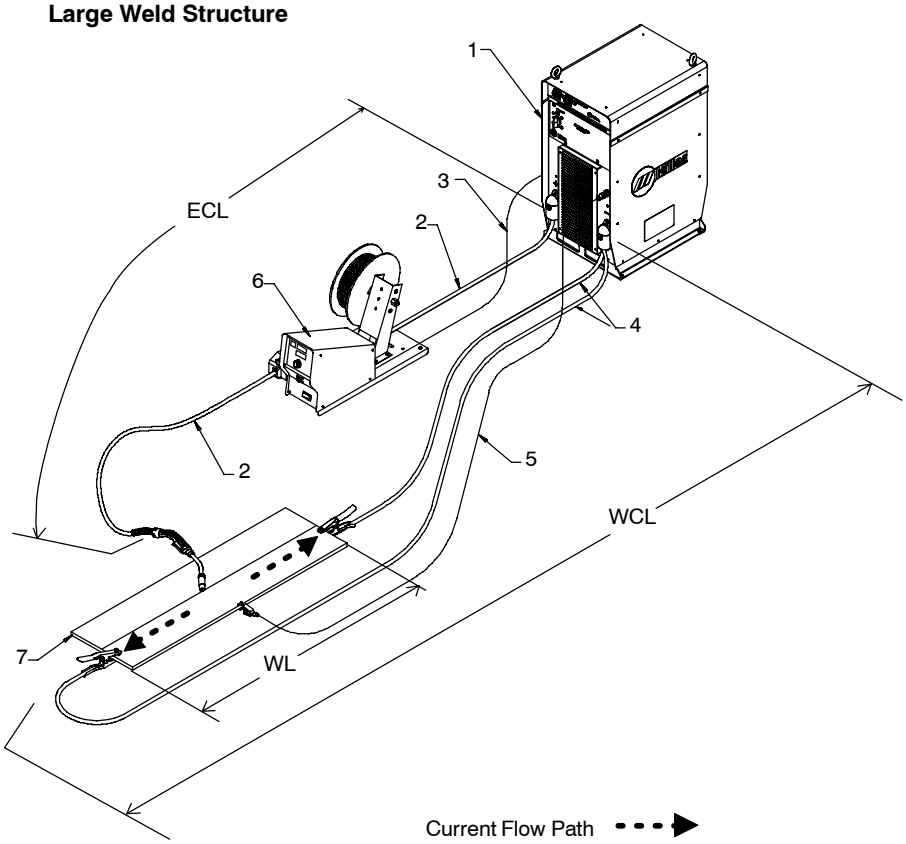
## 4-2. Welding Circuit

☞ *Minimizing the welding circuit loop can prevent extreme voltage drops that produce poor welding characteristics.*

**Standard Welding Circuit**




**Large Weld Structure**




1 Welding Power Source
2 Electrode Cable
3 Feeder Cable
4 Work Cable
5 Voltage Sensing Lead
6 Wire Feeder
7 Workpiece

In pulse welding applications using inverter power sources, cable resistance can result in less than satisfactory performance. In most cases, a welding circuit length of 50 ft (15 m) or less will provide satisfactory performance with a standard welding circuit connection.

The length of a welding circuit is determined as follows:

Welding Circuit = Electrode Cable Length (ECL) + Work Cable Length (WCL) + Workpiece Length (WL)

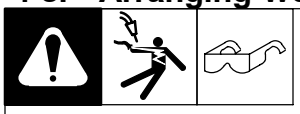
See Section 4-1 for weld cable size.

Variations in welding processes and welding circuit resistance can affect apparent voltage at the welding arc. Voltage sensing can improve welding performance by providing accurate feedback to the welding power source.

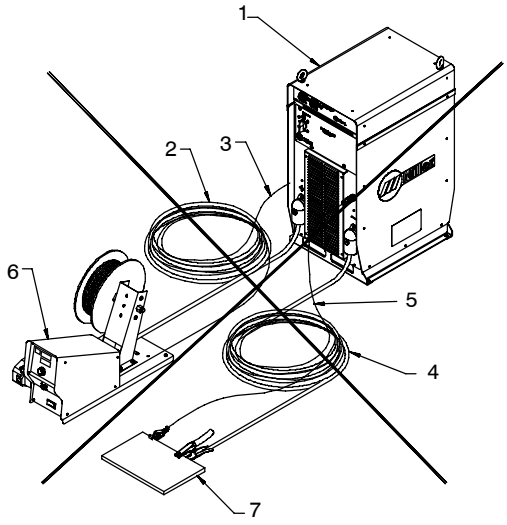
It is important to connect the voltage sensing lead as near to the weld as possible, but not in the return current path.

Ref. 245 743-A

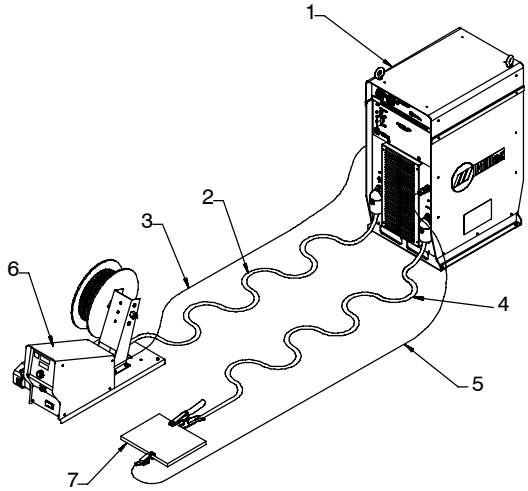
## 4-3. Arranging Welding Cables To Reduce Welding Circuit Inductance



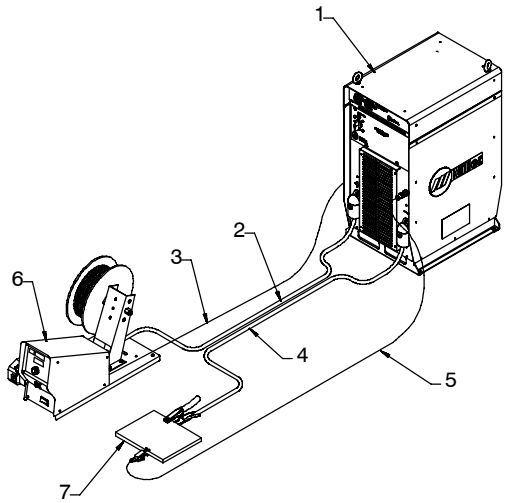
### Bad




### Better




### Best




1 Welding Power Source
2 Electrode Cable
3 Feeder Cable
4 Work Cable
5 Voltage Sensing Lead
6 Wire Feeder
7 Workpiece

The method used to arrange cables has a significant affect on welding properties. As an example, Accupulse welding process can produce high welding circuit inductance depending on cable length and arrangement. This can result in limited current rise during droplet transfer into the welding puddle.

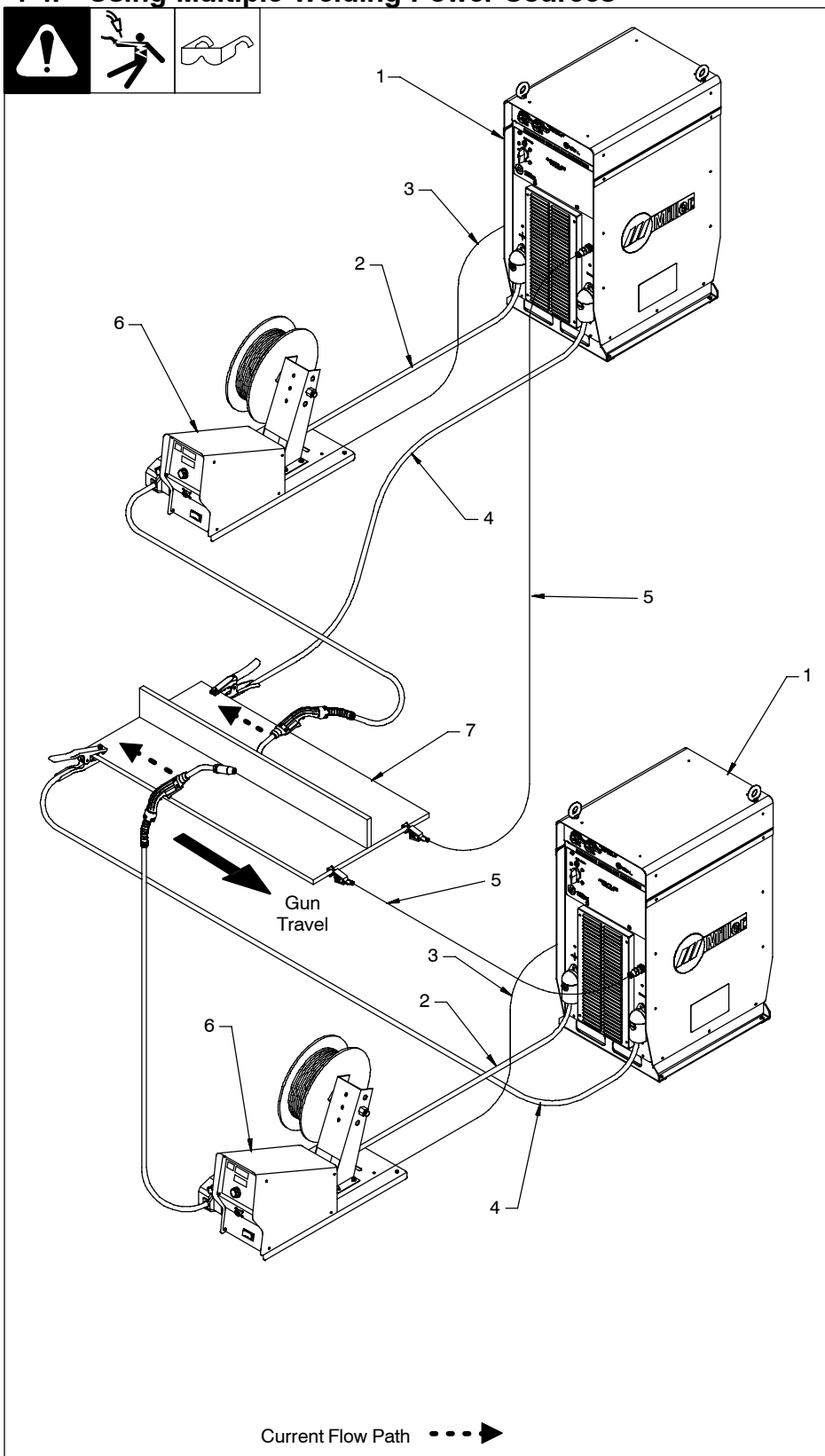
The electrode sense lead is contained in the feeder control cable and automatically becomes enabled for all semi-automatic processes. The work sense lead connects to the Axcess welding power source 4-pin connector located above the negative output terminal. This work sense lead automatically compensates for work cable voltage drop when connected to the welding power source.

**Do not coil excess cables.** Use cables that are the appropriate length for the application. Whenever using long weld cables [longer than 50 ft (15 m)] try to arrange positive and negative weld cables together to reduce the magnetic field surrounding the cables. Avoid coupling the feeder and work sense leads with the weld cables.

Ref. 245 744-A

☞ *Welding on a single workpiece using multiple welding power sources can cause arc blow and arc impedance to develop or intensify.*

## 4-4. Using Multiple Welding Power Sources




1 Welding Power Source
2 Electrode Cable
3 Feeder Cable
4 Work Cable
5 Voltage Sensing Lead
6 Wire Feeder
7 Workpiece

Each welding power source should have a separate work cable connection to the workpiece. Do not stack or join work cables together at the workpiece. This is very important for pulse welding applications.

It is important to connect the voltage sensing lead as near to the weld as possible, but not in the return current path.

Connect voltage sensing lead at the end of the weld joint.

The direction of the welding path should be away from the work cable connections.

Connect work clamp at the beginning of the weld joint.

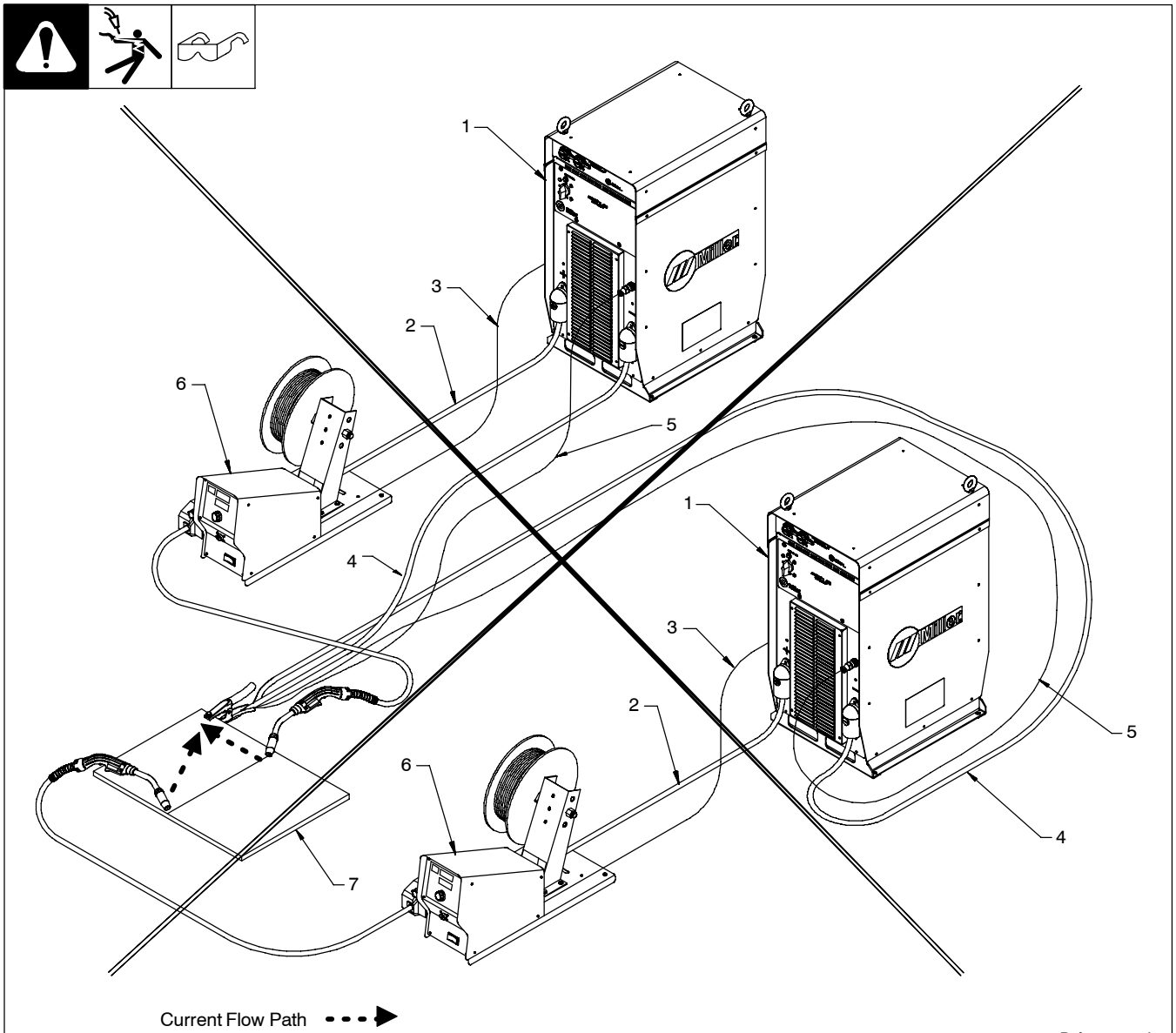
Each welding gun should have its own source of shielding gas. Use a separate shielding gas regulator and shielding gas connection for each welding gun.

Arc blow is the deflection of a welding arc from its normal path due to magnetic forces. It will adversely affect the appearance of a weld, cause excessive spatter, and impair the quality of a weld. Arc blow occurs primarily during the welding of steel or ferromagnetic metals. Weld current will take the path of least resistance, but not always the most direct path through the workpiece to the work lead connection. The most intense magnet force will be around the arc due to a difference in resistance for the magnetic path in the base metal. The work clamp connection is important and should be placed at the starting point of a weld. It is recommended to have as short of an arc as possible so that there is less of an arc for the magnetic forces to control. Conditions affecting the magnetic force acting on the arc vary so widely that the reference here is only about cabling connections and arc preferences.

Ref. 245 747-A

## 4-5. Voltage Sensing Lead And Work Cable Connections For Multiple Welding Arcs

### A. Bad Setup

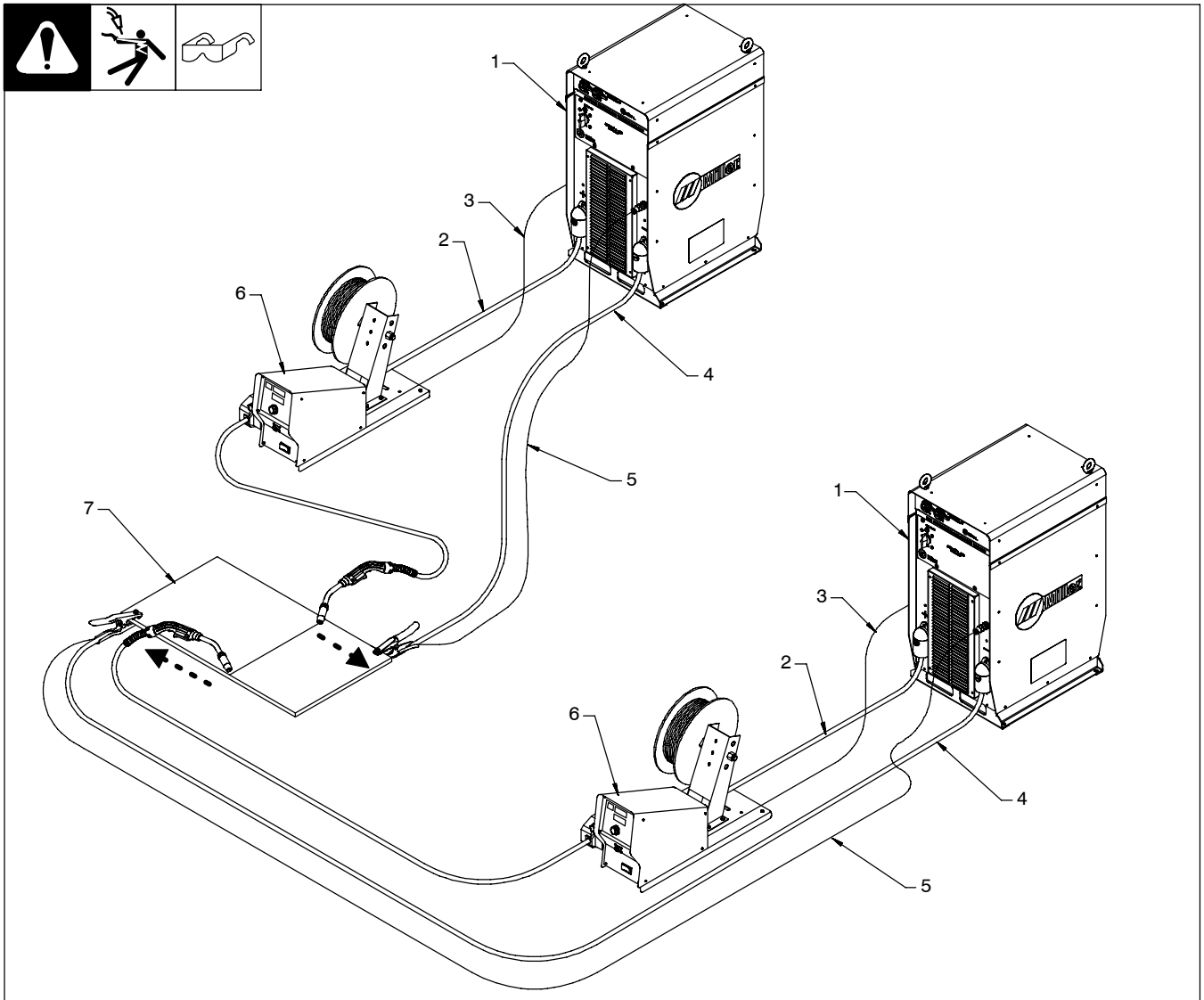



Ref. 245 748-A

1 Welding Power Source
2 Electrode Cable
3 Feeder Cable
4 Work Cable
5 Voltage Sensing Lead
6 Wire Feeder
7 Workpiece

This arrangement is a bad setup due to sensing leads being directly in the current flow path of the welding arc. Interaction between welding circuits will affect voltage drop in the workpiece. The voltage drop across the workpiece will not be measured correctly for the voltage feedback signal. Voltage feedback to the welding power sources will not be correct at either sense lead and result in poor arc starts and arc quality.

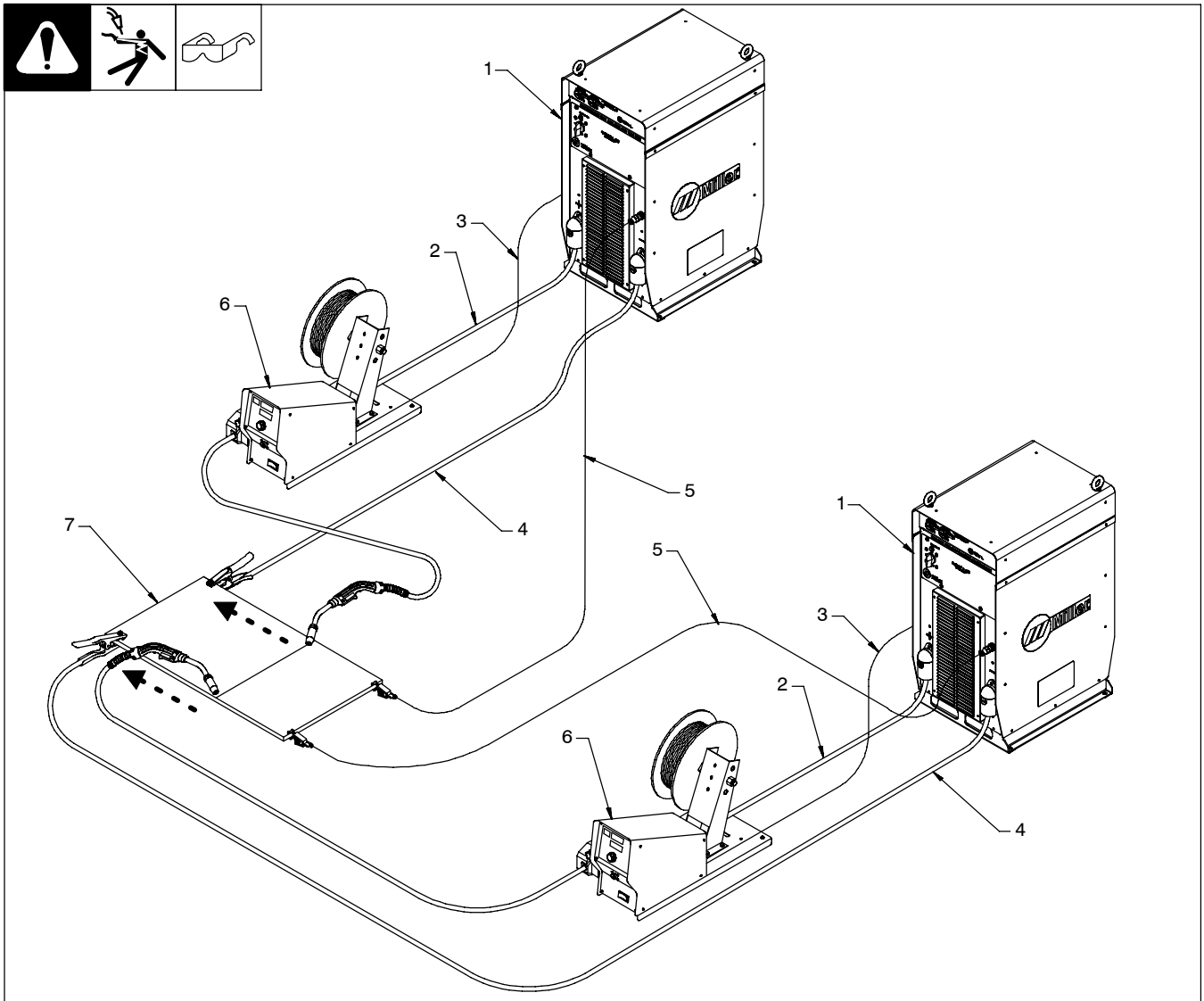
## B. Better Setup




1 Welding Power Source
2 Electrode Cable
3 Feeder Cable
4 Work Cable
5 Voltage Sensing Lead
6 Wire Feeder
7 Workpiece

This arrangement is a better setup for supporting separate voltage feedback to the welding power sources. The most accurate voltage sensing may not be achieved due to voltage drops in the workpiece. This may require compensation in the welding parameters.

## C. Best Setup



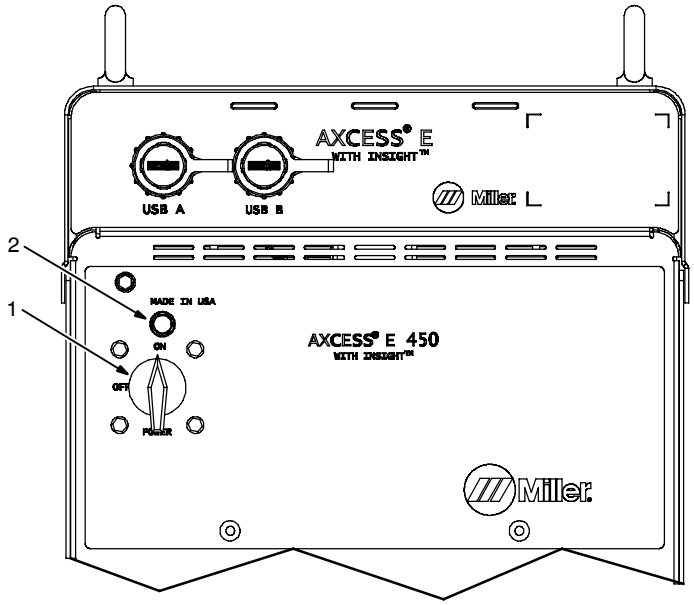

Ref. 245 751-A

1 Welding Power Source
2 Electrode Cable
3 Feeder Cable
4 Work Cable
5 Voltage Sensing Lead
6 Wire Feeder
7 Workpiece

This arrangement is the best setup for proper voltage sensing at the workpiece. Voltage feedback to the welding power sources will more accurate and result in reliable arc starts and better arc quality.

# SECTION 5 – OPERATION

## 5-1. Front Panel Switches




1 Power Switch

Turns unit On or Off.

2 Pilot Light

Light indicates status of welding power source, on when unit is on and off when unit is off.

Ref. 245 746-A

## 5-2. Options

### A. E-Stop Option

The E-Stop option comes with a 2-pin amphenol receptacle, matching plug, and 30 ft (9 m) of high density molded cord to allow connecting the welding power source into an E-Stop circuit. An integrator will need to supply a closure for the non E-Stop condition.

When the E-Stop input connection changes it state from closed to open, the welding power source goes into an E-Stop mode where all welding outputs shutdown immediately. Once the input connection returns to a closed state, the unit will start a reset routine and be ready for opeation when it completes the reset operation.

### B. DeviceNet Option

The DeviceNet option provides hardware and software that allows the welding power source to be connected into a DeviceNet network.

Contact factory for option details.

# SECTION 6 – DEFINITIONS

## 6-1. Operational Terms

The following is a list of terms and their definitions as they apply to this interface unit:

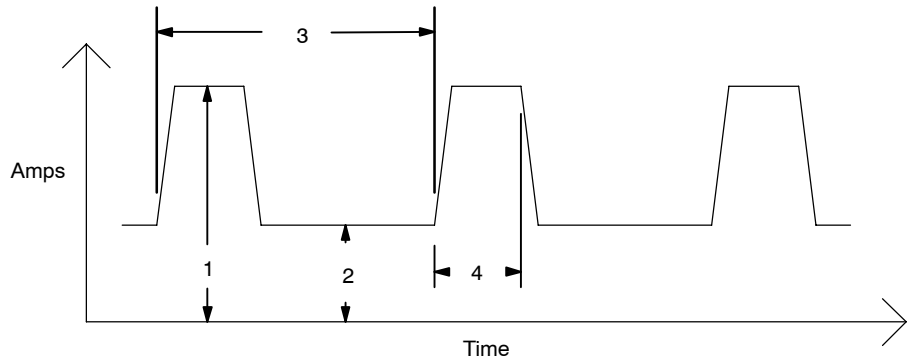
**General Terms:**

| | |
|---|---|
| **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. |
| **Trigger Control** | Selecting Trigger Control allows activating trigger functions such as DS, TH, 4T, TDS, and TPS. |
| **DS (Dual Schedule)** | Dual Schedule allows selecting a pair of programs that can be used together. |
| **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. |
| **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. |
| **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 release and close the gun trigger while welding to cycle between a pair of preselected weld programs. |
| **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. |
| **Program** | Eight active slots for selection of various processes, wire type, and parameters. |
| **Process** | A selection made for MIG, Pulse, and Accu-pulse. |
| **MIG** | CV weld process with individual settings of voltage and wire speed. |
| **Pulse** | Conventional pulse program using peak, background, pulse width, frequency, and peak voltage as factory taught data. Adaptive method is controlled by frequency adjustment. |
| **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. |
| **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.** |
| **Wire Type** | Selection of wire type by alloys and classification. |
| **Gas Type** | Selection of shielding gas being used in application. |
| **Process Set Up** | Selection procedure for entering program. |
| **Program Load** | Enters selected program information into program slot. |
| **Volts** | Preset voltage in MIG mode at idle, actual voltage while welding, and 3 seconds hold value at end of weld. |
| **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). |
| **Arc Length** | Distance from end of wire electrode to workpiece. |
| **WFS** | Term used to represent wire feed speed. In MIG mode, wire feed setting is independent of voltage setting. In pulse and Accu-pulse adjusting wire feed speed also increases power level on wire electrode (one knob control). |
| **Amps** | Indicates average amperage while welding and 3 seconds hold value at end of weld. |
| **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. |
| **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. |
| **Adjust** | Control knob used to change or set parameters and functions. |
| **Sequence** | Selecting Sequence will allow setting of preflow, start, crater, and postflow times and parameters. |
| **Preflow** | Setting a time value for gas flow prior to arc start. |
| **Start** | Provides voltage/arc adjust, wire feed rate, and time value for modified arc starts (which is only adjustable with the HTML pages. |
| **Crater** | Allows setting of voltage/arc adjust, wire feed rate, and time value for arc ends. |
| **Postflow** | Setting a time value for gas flow after arc end. |

**General Terms:**

| | |
|---|---|
| **Feeder Set Up** | Allow selection of Sequence and trigger functions. |
| **Auto Thread** | Method of jogging wire without holding jog or trigger switch. 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. Default setting is 192 at a feed rate of 700 ipm (these values can be changed using the HTML pages). Pressing jog, purge, or trigger switch will terminate the auto-threading feature. |

## 6-2. Pulse Welding Terms




1 Apk = Peak Amperage

Increasing Apk increases penetration.

Vpk = Peak Voltage

Arc voltage during peak current phase of the pulse waveform. This determines arc length during adaptive pulse welding.

2 Abk = Background Amperage

Maintains arc between pulses.

3 PPS = Pulses Per Second

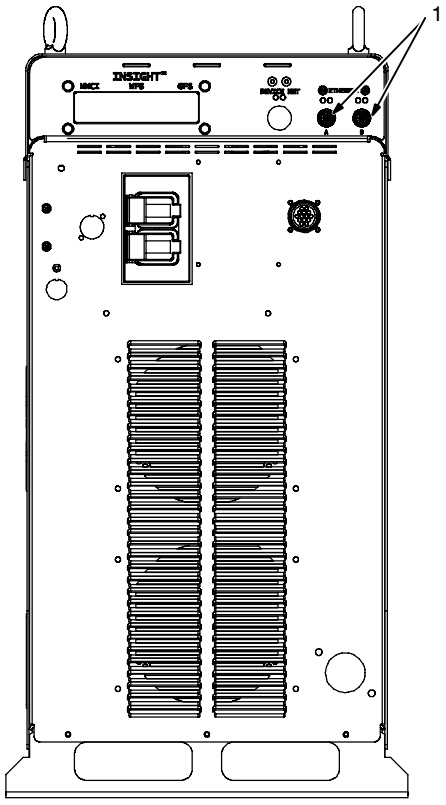
Increasing PPS increases travel speed.

4 PWms = Pulse Width In Milliseconds

Increasing PWms increases bead width.

# SECTION 7 – HTML SET UP

## 7-1. Ethernet Connection To Welding Power Source




1 Ethernet Receptacles (LAN1 or LAN2 depending on IP address)

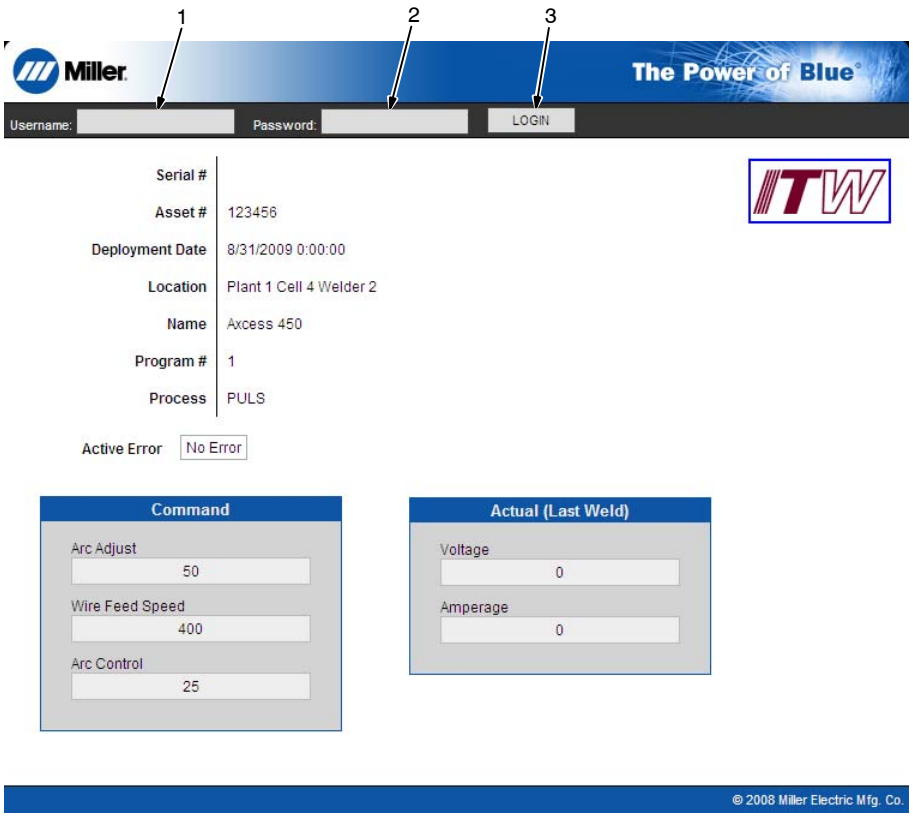
The Local Area Network (LAN) IP address identifies the network server and corresponds to ethernet receptacle A or B on the power source.

Ethernet receptacles provide connections for either a network cable or a laptop PC or both.

Ref. 245 741-A

☞ *HTML pages are subject to change and the following screens may not exactly represent what appears on the website.*

## 7-2. HTML Login Page




1 Username

2 Password

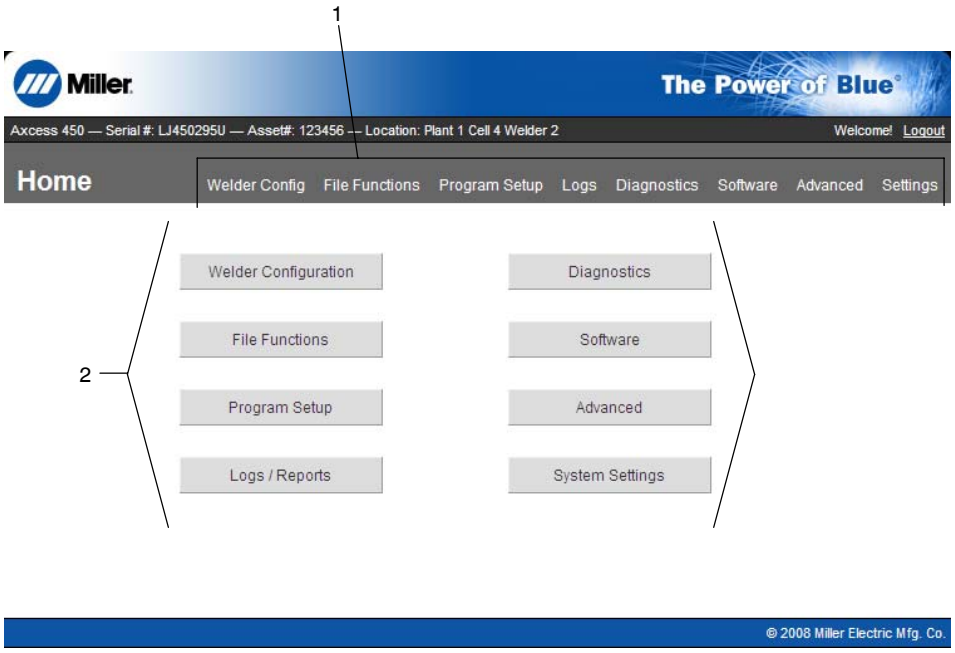
Enter your username and password in the appropriate spaces.

3 LOGIN Button

Click on the “LOGIN” button to access the HTML pages.

☞ *To ease managing more than one power source, assign a name and bookmark each login page.*

## 7-3. Home Page




1 Menu Bar

2 Application Buttons

Access to applications can be done one of two ways. Either by clicking on the item tab in the menu bar or by clicking the application button.

Available applications are as follows:

Welder Configuration

File Functions

Program Setup

Logs/Reports

Diagnostics

Software

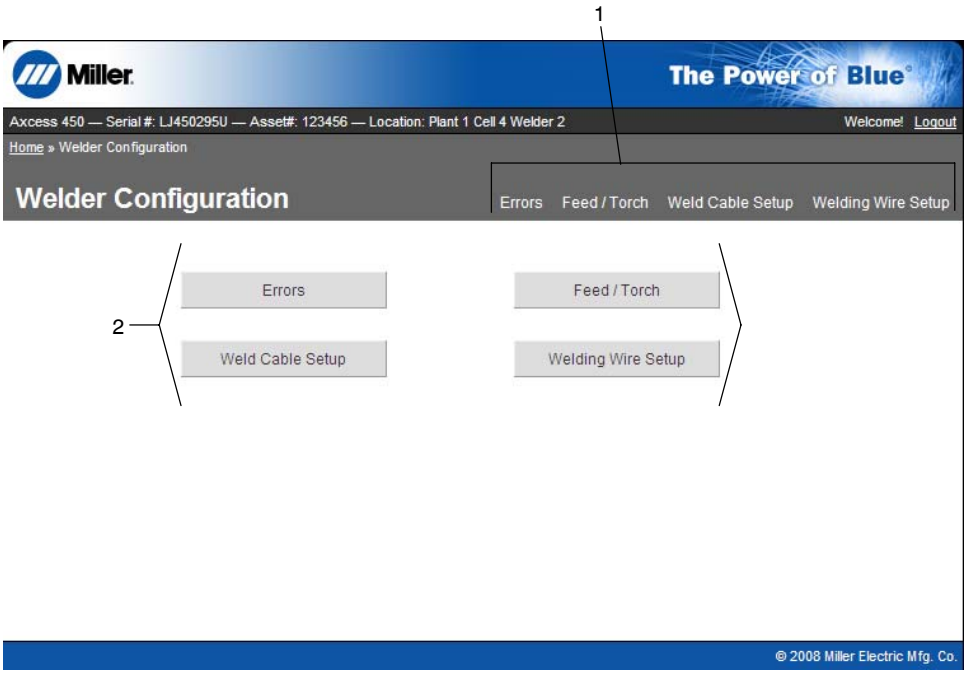
Advanced

System Settings

See the appropriate section for additional information about each application.

# SECTION 8 – WELDER CONFIGURATION

## 8-1. Welder Configuration Home Page




1 Menu Bar

2 Application Buttons

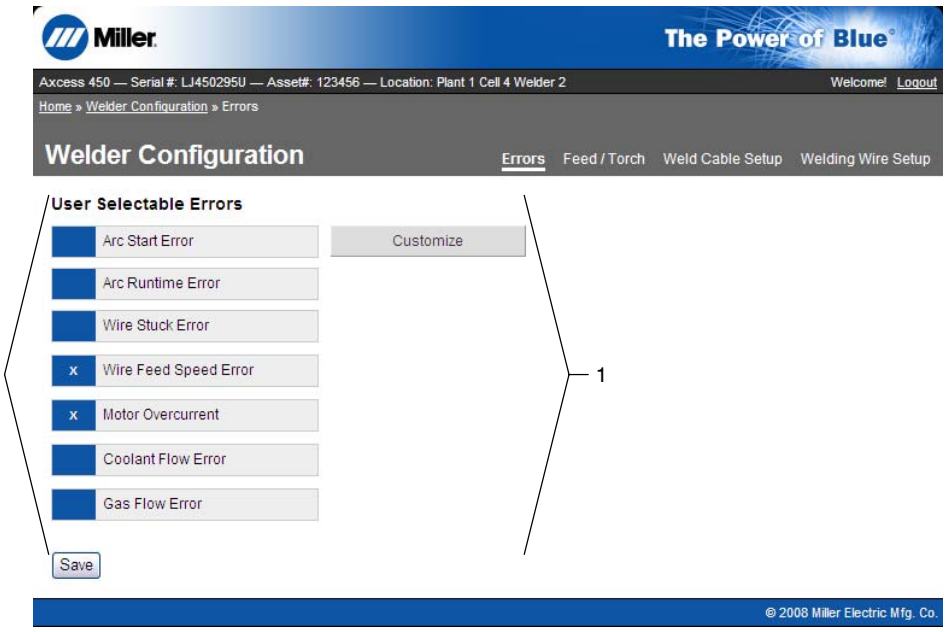
Access to applications can be done one of two ways, either by clicking on the item tab in the menu bar or by clicking the application button.

Available applications are as follows:

- Errors
- Feed / Torch
- Weld Cable Setup
- Welding Wire Setup

See the appropriate section for additional information about each application.

## 8-2. Errors Page



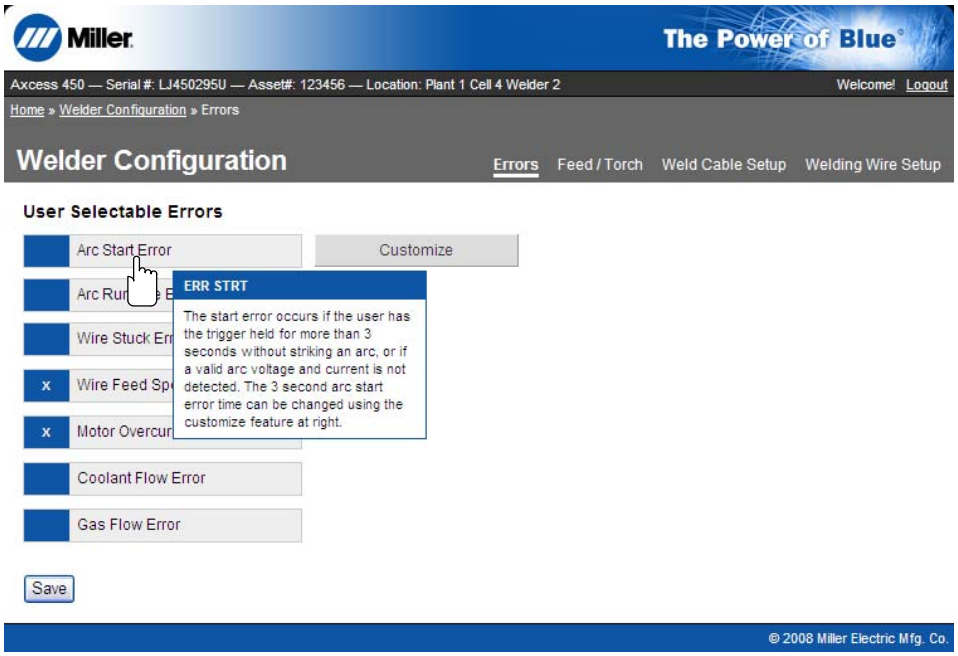

1 User Selectable Errors

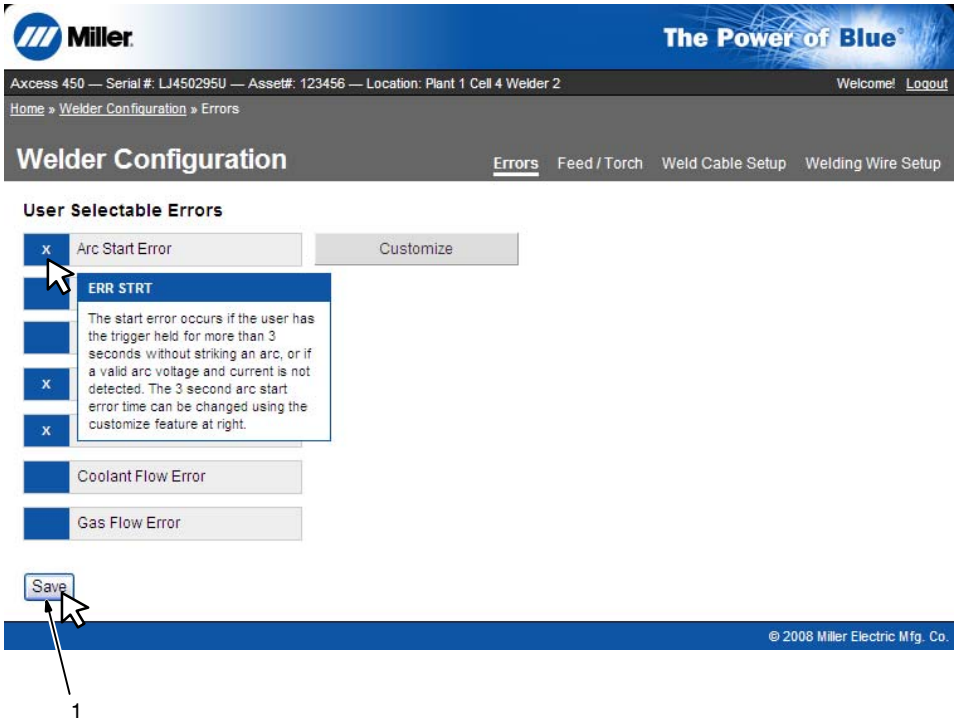
Available applications are as follows:

- Arc Start Error
- Arc Runtime Error
- Wire Stuck Error
- Wire Feed Speed Error
- Motor Overcurrent
- Coolant Flow Error
- Gas Flow Error

See Section 8-3 for additional information and setting procedure.

## 8-3. Errors Information And Settings




Placing the cursor on top of an item causes an information box to appear.

Each item has an information box that gives a description of the application.

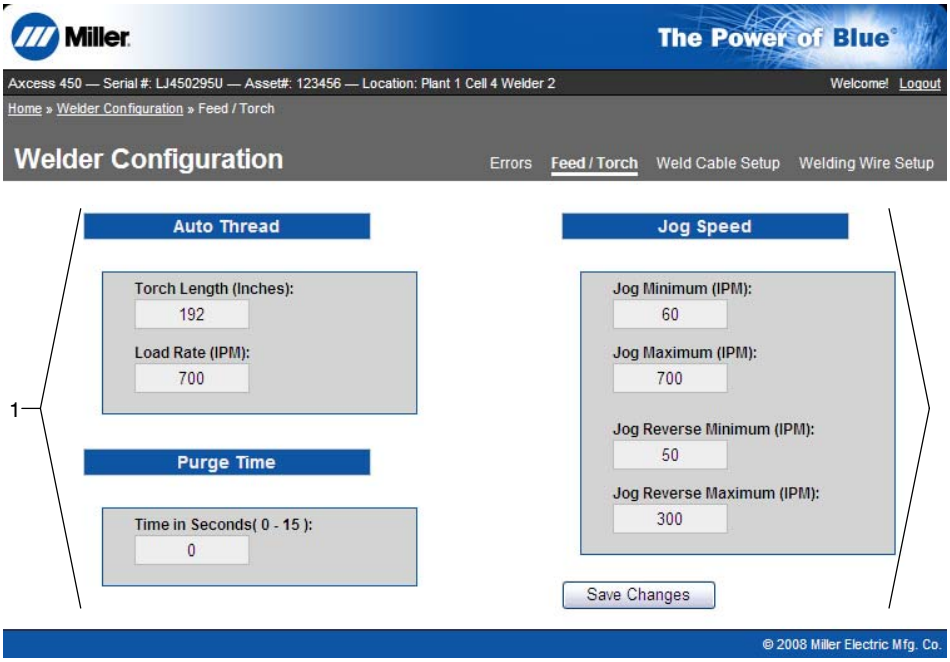
Placing the cursor on top of the box next to the item and clicking allows selecting or unselecting the application. That is signified by placing an X in the box or removing an X from the box.

The customize box next to Arc Start Error allows changing the timer setting from the default of 3 seconds.

1 Save Button

Placing the cursor on the Save button and clicking will save the settings.

## 8-4. Feeder / Torch Page



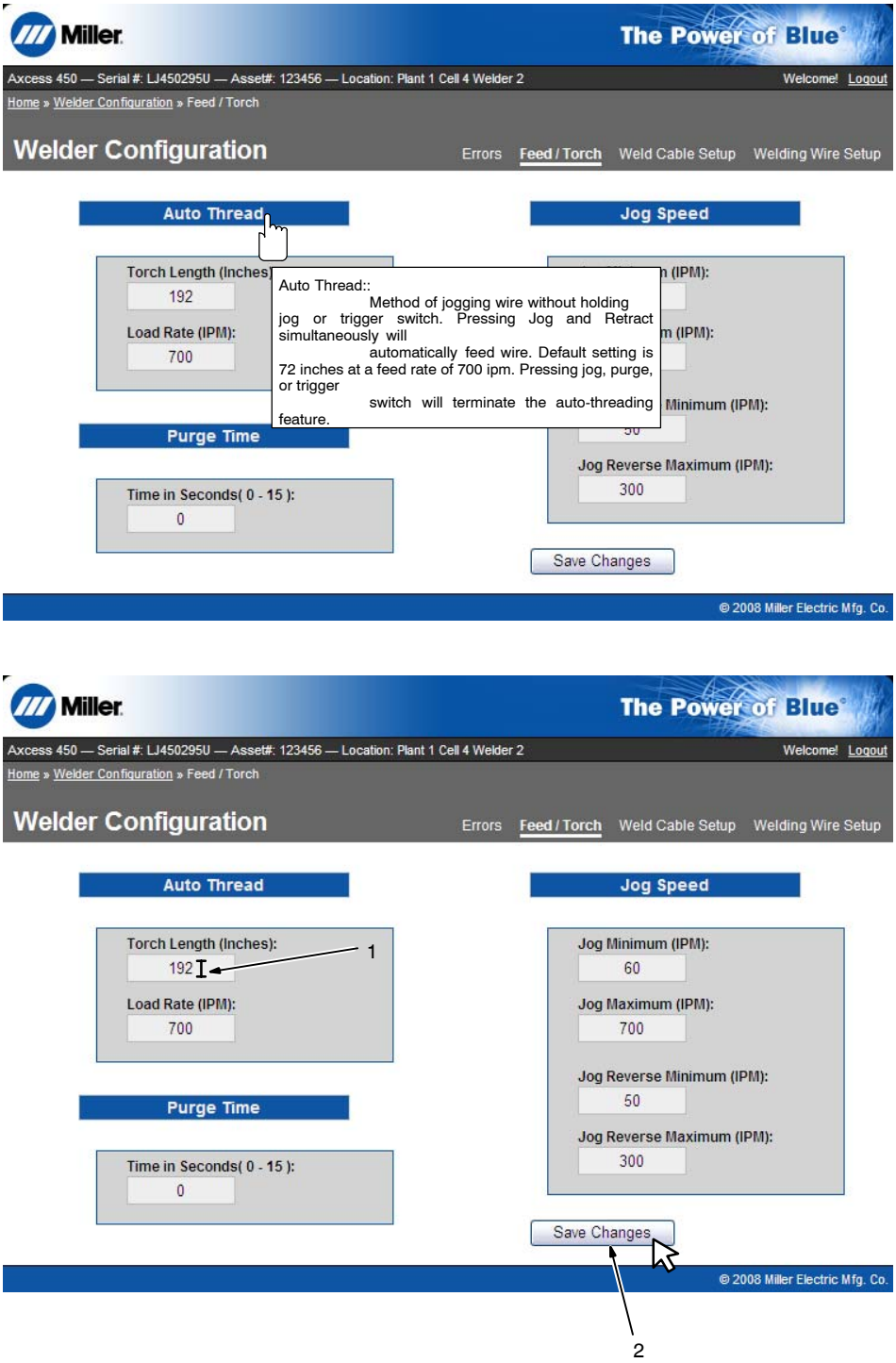

1 Feeder / Torch Items

Available items are as follows:

- Auto Thread
  - Torch Length (inches)
  - Load Rate (IPM)
- Purge Time
  - Time in Seconds (0 – 15):
- Jog Speed
  - Jog Minimum (IPM):
  - Jog Maximum(IPM):
  - Jog Reverse Minimum (IPM):
  - Jog Reverse Maximum (IPM):

See Section 8-5 for additional information and setting procedure.

## 8-5. Feeder / Torch Information And Settings




Placing the cursor on top of an item causes an information box to appear.

Each item has an information box that gives a description of the application.

1 I-bar

Place the I-bar in one of the parameter value boxes and click to allow changing the value.

Ranges for parameters are as follows:

Torch Length (inches)

1 to 999

Load Rate (IPM)

60 to 999

Jog Minimum (IPM):

60 to 999

Jog Maximum(IPM):

60 to 999

Jog Reverse Minimum (IPM):

50 to 999

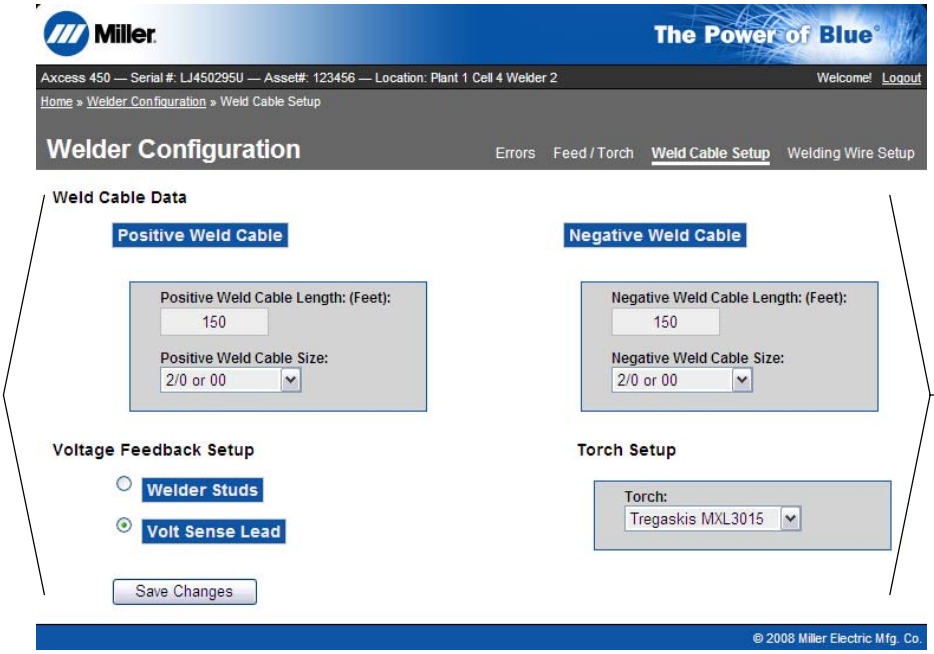
Jog Reverse Maximum (IPM):

50 to 999

2 Save Changes Button

Placing the cursor on the Save Changes button and clicking will save the settings.

## 8-6. Weld Cable Setup Page




1 Weld Cable Setup Items

Available items are as follows:

Weld Cable Data

- Positive Weld Cable

  Positive Weld Cable Length (feet);

  Positive Weld Cable Size:

- Negative Weld Cable

  Negative Weld Cable Length (feet):

  Negative Weld Cable Size:

Voltage Feedback Setup

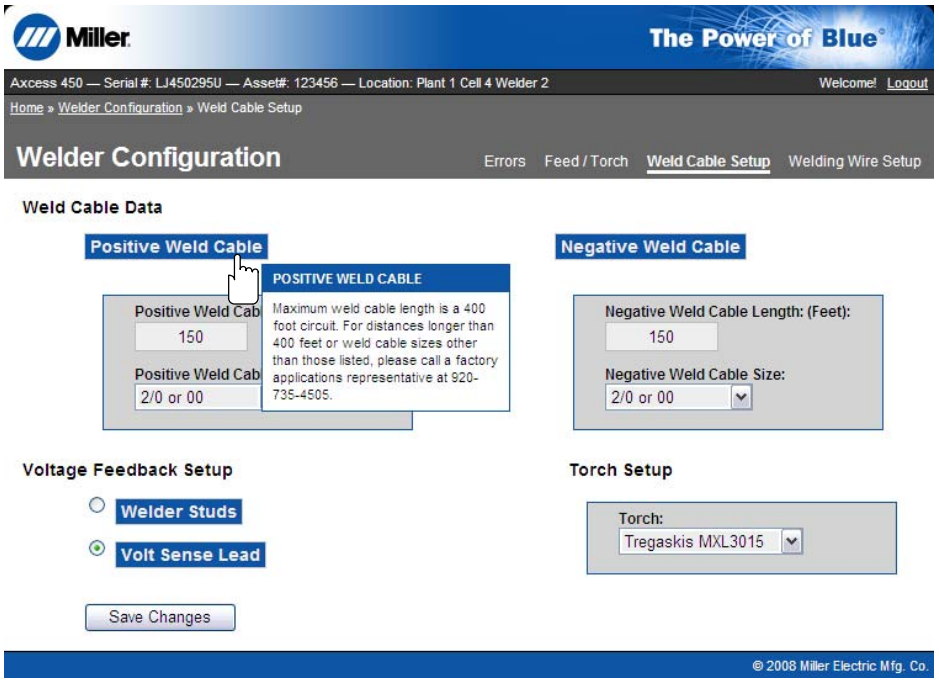
- Welder Studs
- Volt Sense Lead

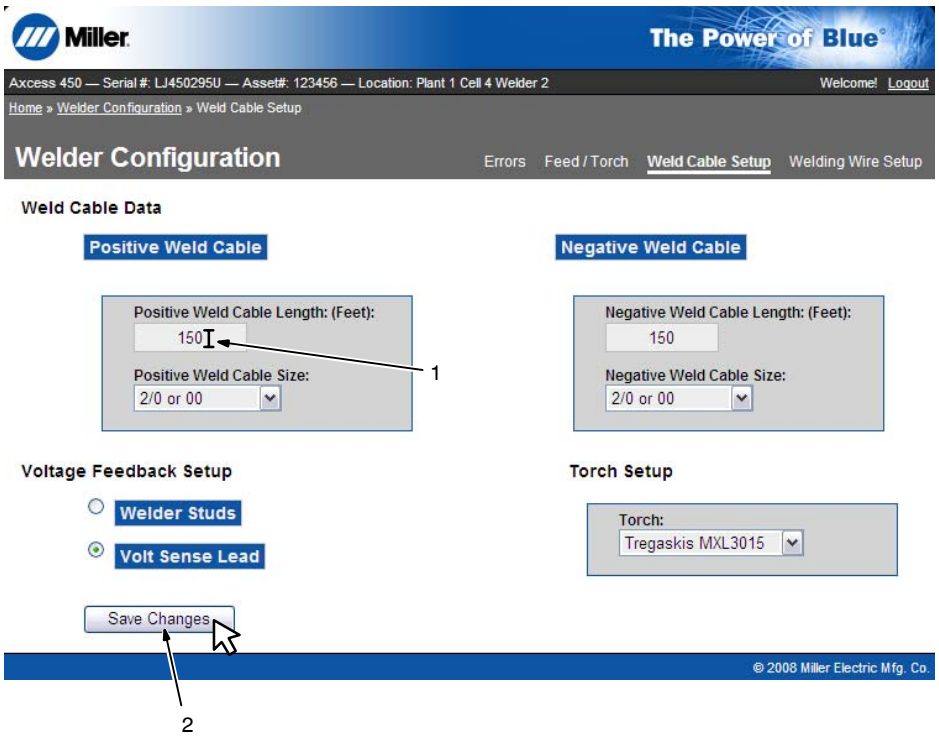
Torch Setup

- Torch:

See Section 8-7 for additional information and setting procedure.

## 8-7. Weld Cable Setup Information And Settings




Placing the cursor on top of an item causes an information box to appear.

Each item has an information box that gives a description of the application.

Placing the cursor on top of the box next to the item and clicking allows selecting or unselecting the application. That is signified by placing an X in the box or removing an X from the box.

1 I-bar

Place the I-bar in one of the parameter value boxes and click to allow changing the value.

Items with a down arrow after the value have an expandable menu for selecting a value.

The selection circles under Voltage Feedback Setup allows placing a dot in either Welder Studs or Volt Sense Lead.

Ranges for weld cable length are as follows:

Positive Weld Cable Length (feet):

0 to 999

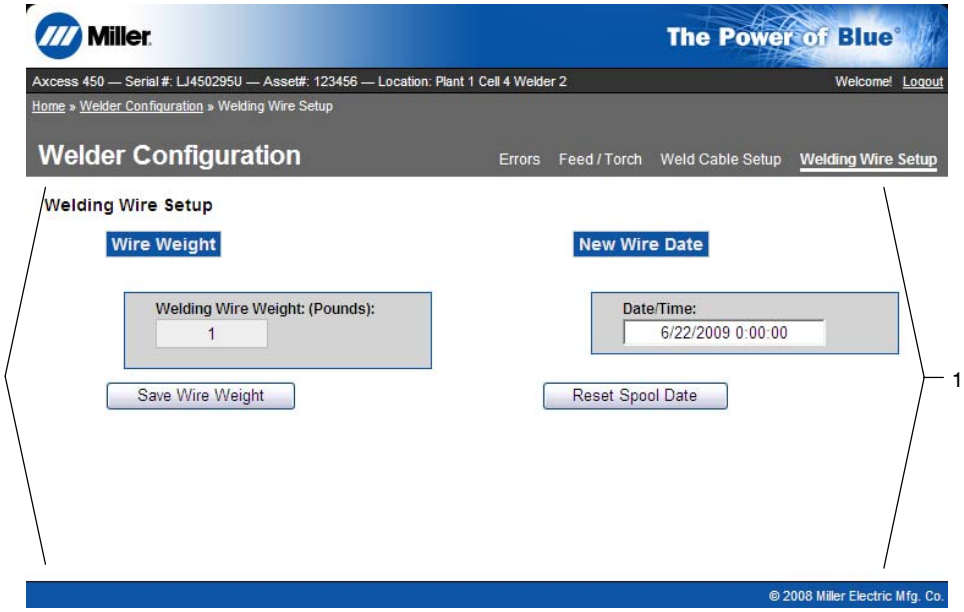
Negative Weld Cable Length (feet):

0 to 999

2 Save Changes Button

Placing the cursor on the Save Changes button and clicking will save the settings.

## 8-8. Welding Wire Setup Page




1 Welding Wire Setup Items

Available items are as follows:

Welding Wire Setup

- Wire Weight

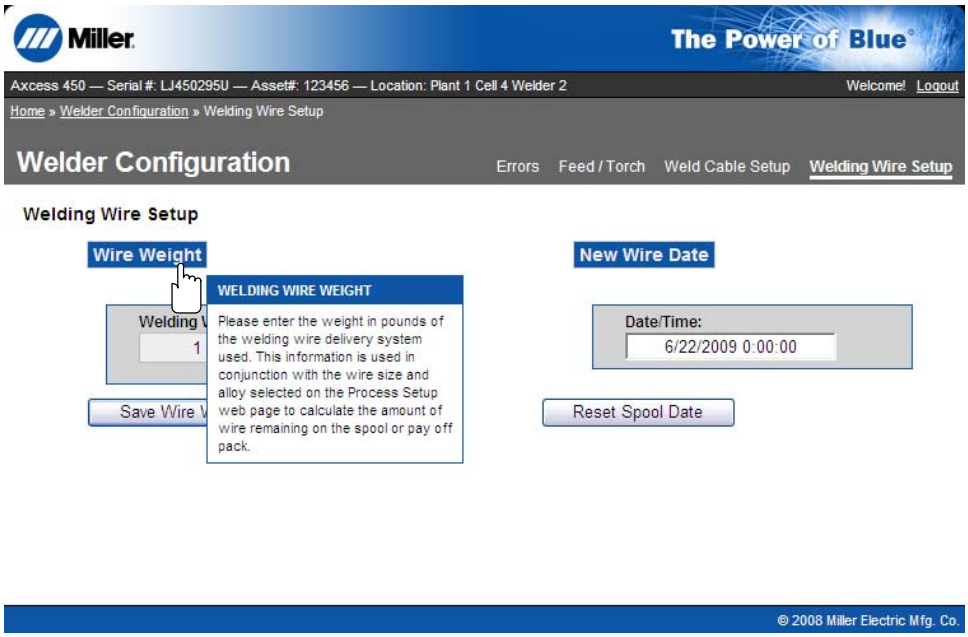
  Welding Wire Weight: (Pounds):

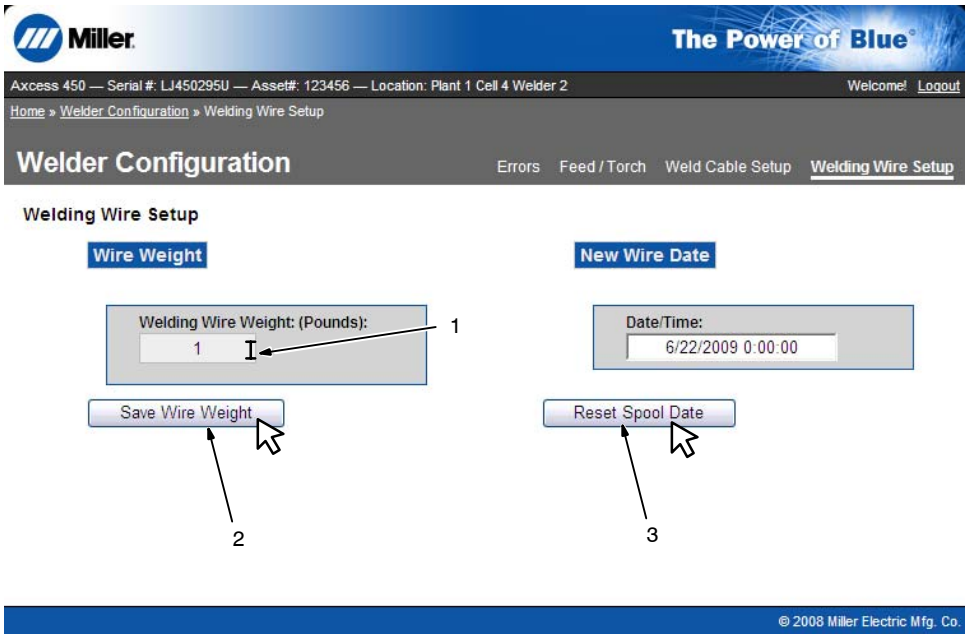
- New Wire Date

  Date/Time

See Section 8-9 for additional information and setting procedure.

## 8-9. Welding Wire Setup Information And Settings




Placing the cursor on top of an item causes an information box to appear.

Each item has an information box that gives a description of the application.

1 I-bar

Place the I-bar in the Welding Wire Weight parameter value box and click to allow changing the value.

Range for welding wire weight is as follows:

Welding Wire Weight : (Pounds):

0 to 999

2 Save Wire Weight Button

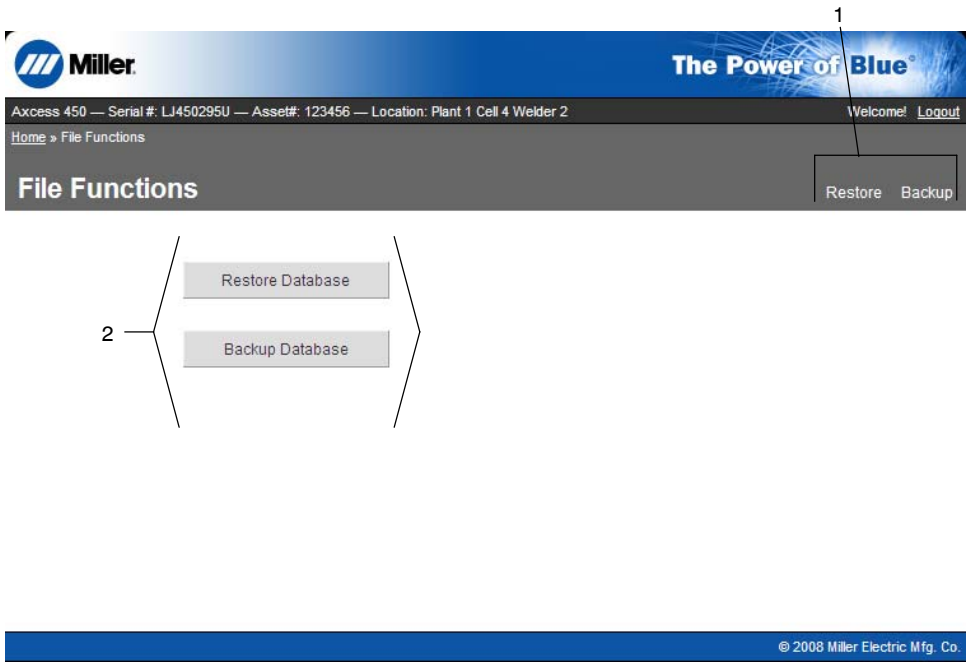
Placing the cursor on the Save Wire Weight button and clicking will save the setting.

3 Reset Spool Date

Placing the cursor on the Reset Spool Date button and clicking will change to the current date and time to indicate when a new wire spool or pay off pack was connected to the system.

# SECTION 9 – FILE FUNCTIONS

## 9-1. File Functions Home Page




1 Menu Bar

2 Application Buttons

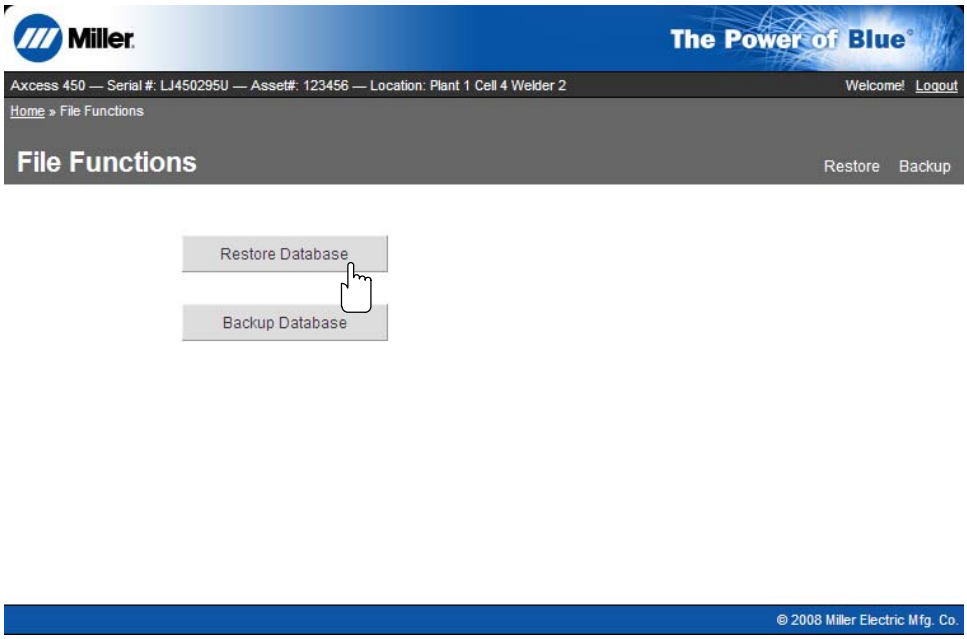
Access to applications can be done one of two ways, either by clicking on the item tab in the menu bar or by clicking the application button.

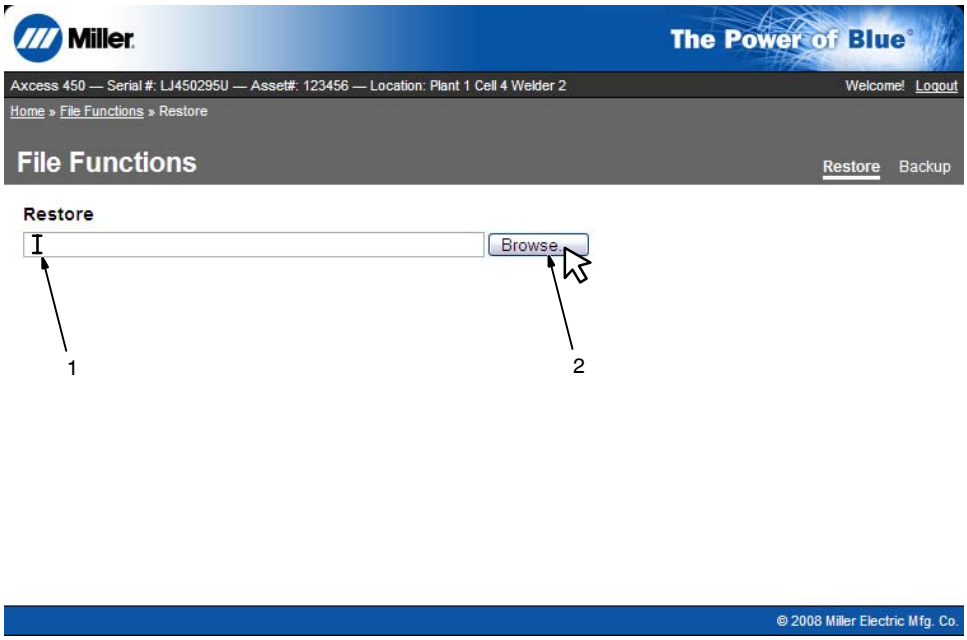
Available applications are as follows:

- Restore Database
- Backup Database

See the appropriate section for additional information about each application.

## 9-2. Restore Database Information




Placing the cursor on top of Restore Database and click on the selection.

1 I-bar

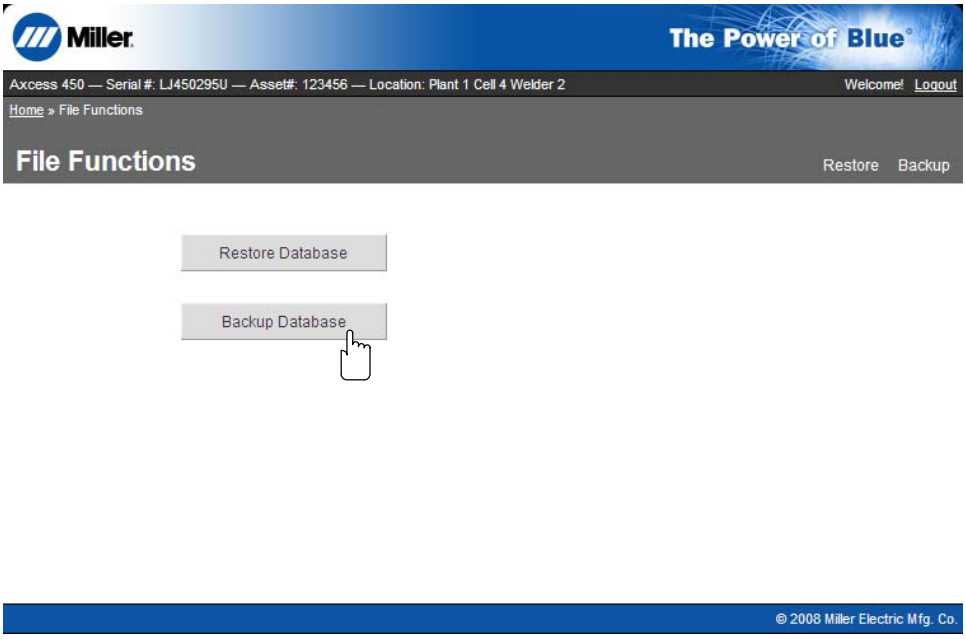
Place the I-bar in the location box and click to allow entering a location from the keyboard.

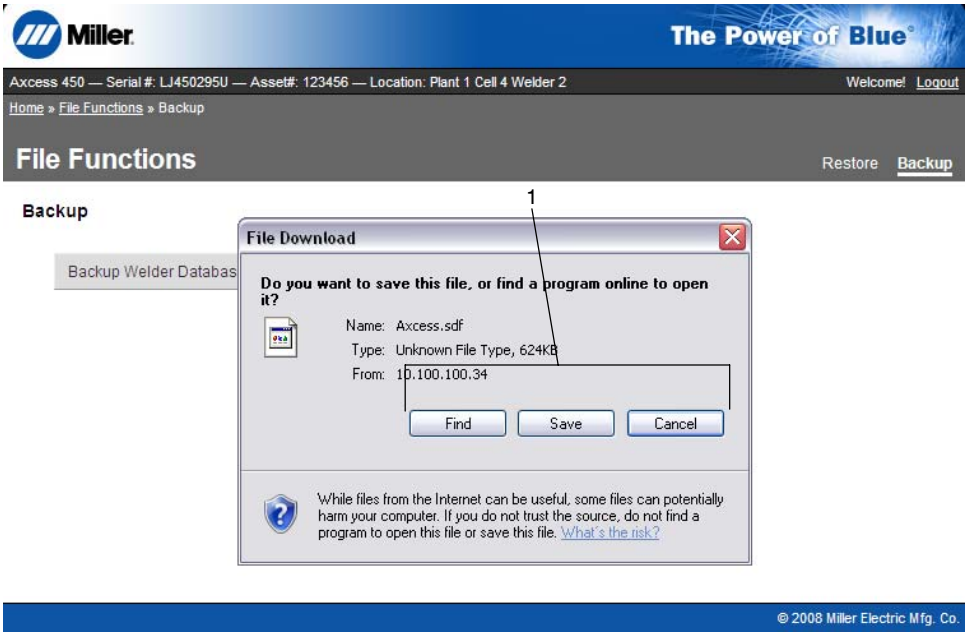
Or

2 Browse Button

Place the cursor on the Browse button and click to select a location from the drives and files listed for the operating system.

## 9-3. Backup Database Information




Placing the cursor on top of Backup Database and click on the selection.

A popup box will appear that allows the following selections:

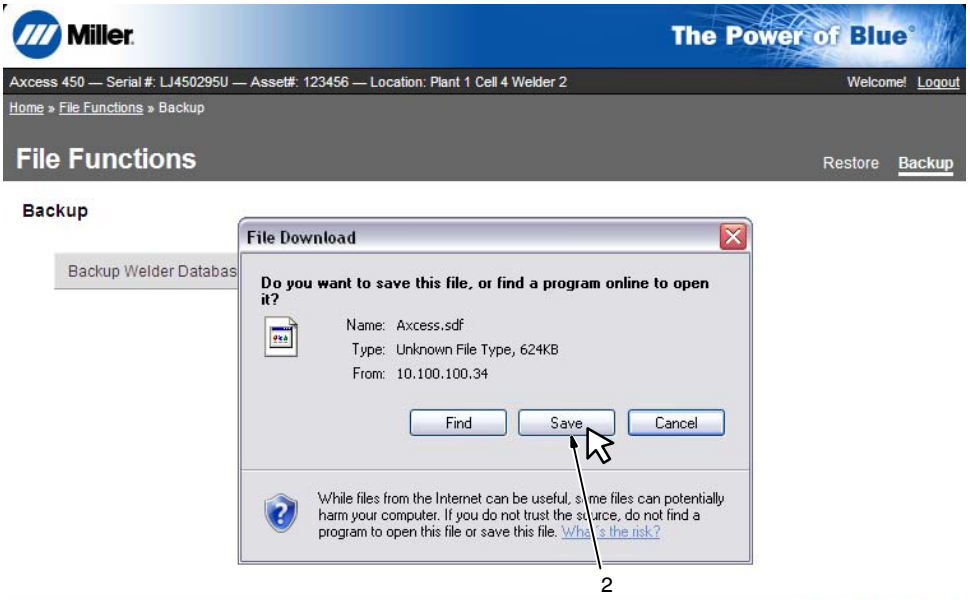
1 Menu Buttons

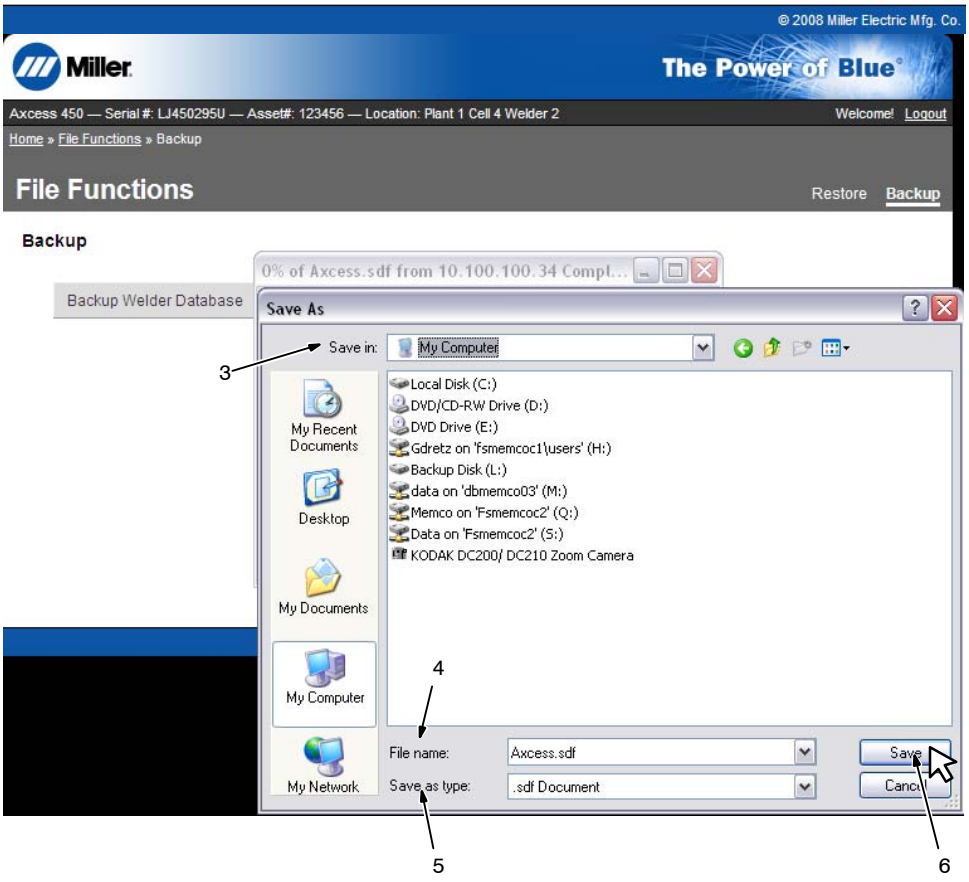
Save – Save the database file.

Find – Look for a program online to open the database file.

Cancel – Exit the popup box.

## 9-3. Backup Database Information (Continued)




2 Save Button

Place the cursor on the Save button and click to select a location from the drives and files listed for the operating system.

The selections in the popup box are as follows:

3 Save in: – Select a location in the operating system.

4 File name: – Choose a file name.

5 Save as type: – Select a file type.

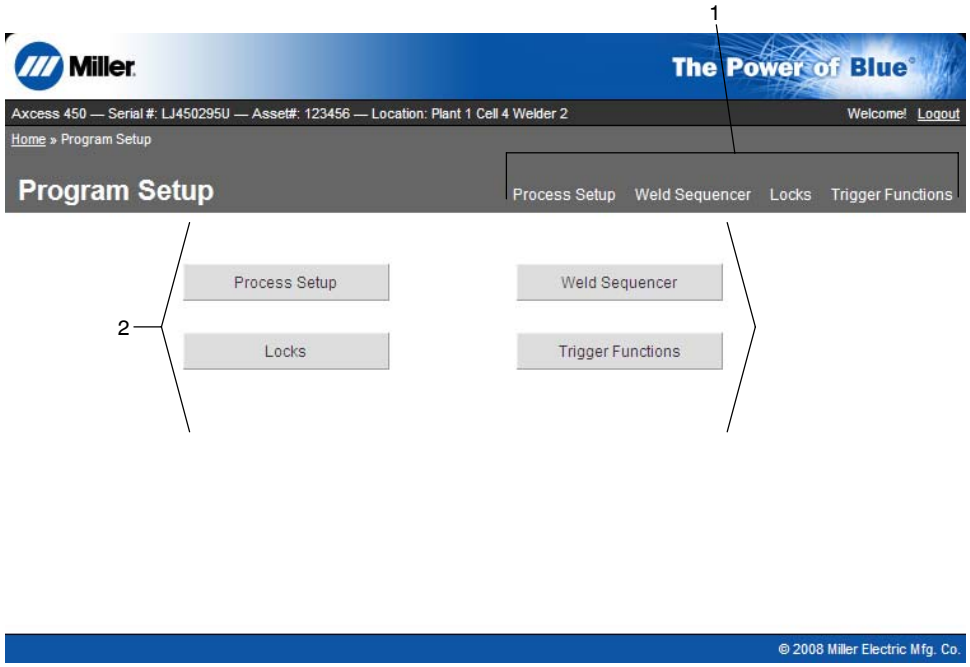
Enter the appropriate information for the database file.

6 Save Button For File Information

Place the cursor on the Save button for the file information and click to save the database file.

# SECTION 10 – PROGRAM SETUP

## 10-1. Program Setup Home Page




1 Menu Bar

2 Application Buttons

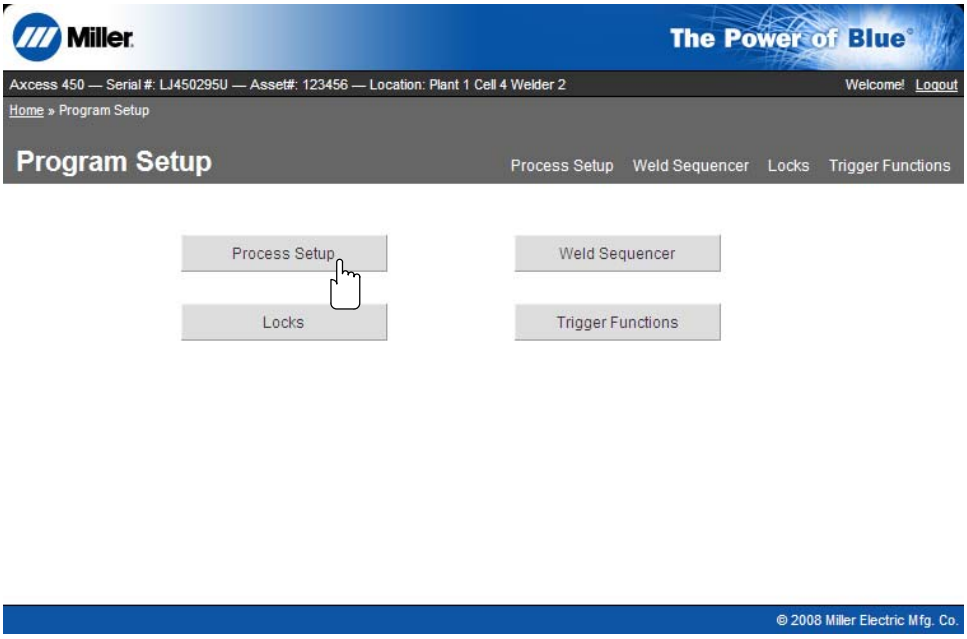
Access to applications can be done one of two ways, either by clicking on the item tab in the menu bar or by clicking the application button.

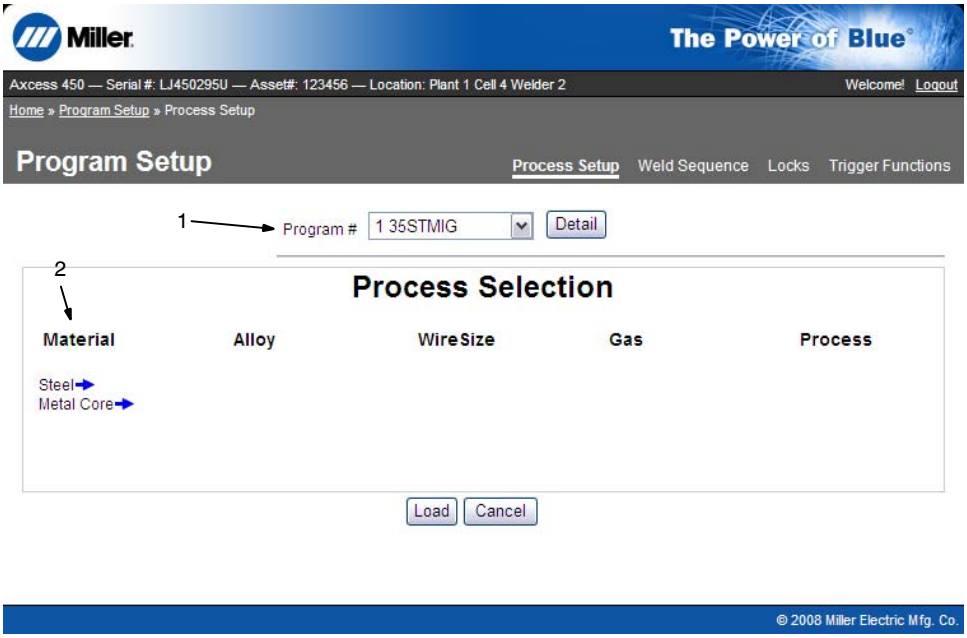
Available applications are as follows:

- Progess Setup
- Weld Sequencer
- Locks
- Trigger Functions

See the appropriate section for additional information about each application.

## 10-2. Process Setup




Placing the cursor on top of Process Setup button and click on the selection.

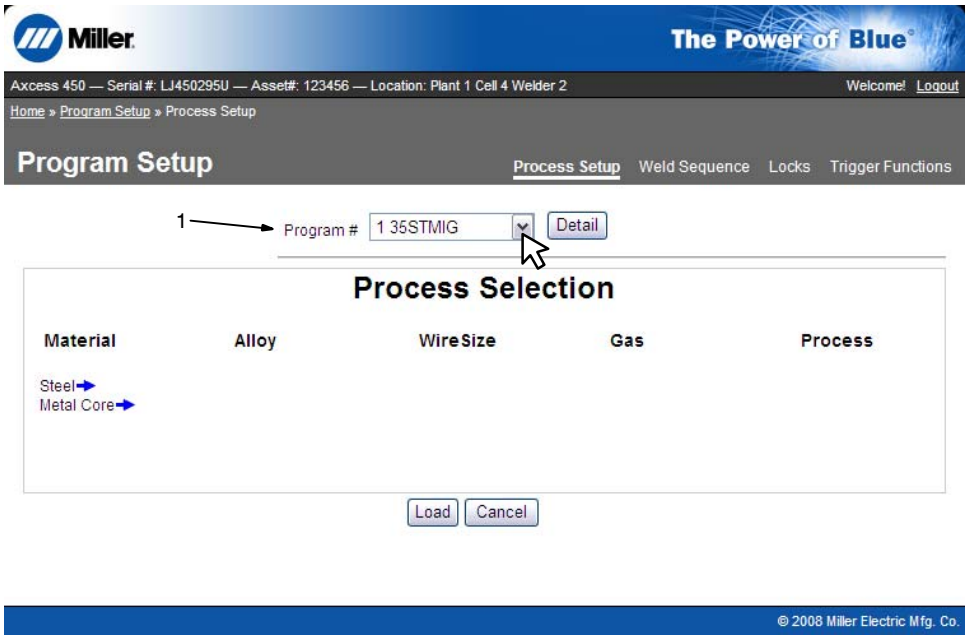
Settings available are as follows:

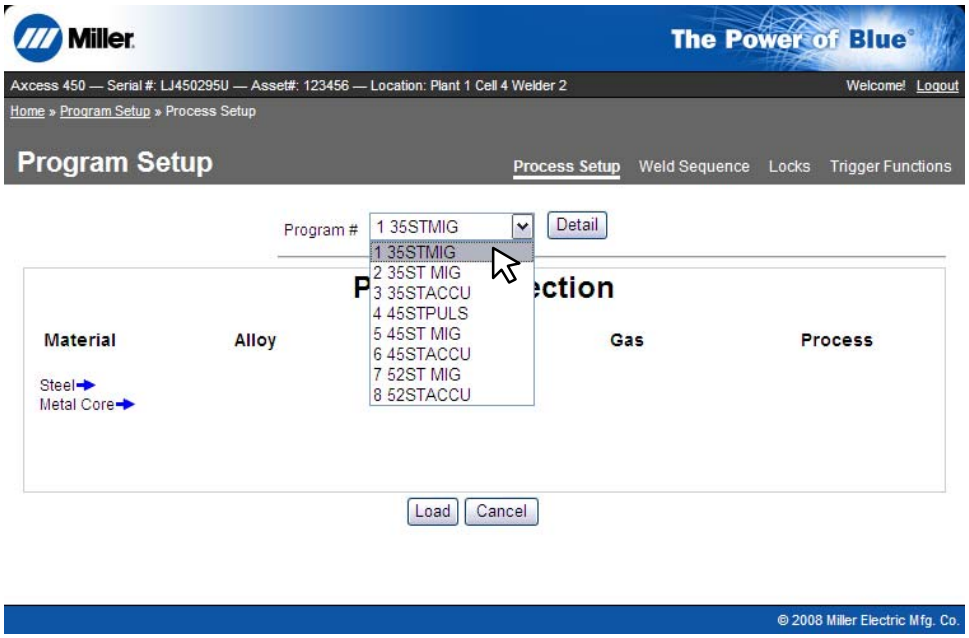
1 Program #

2 Material

See the appropriate section for additional information about each setting.

## 10-3. Program #

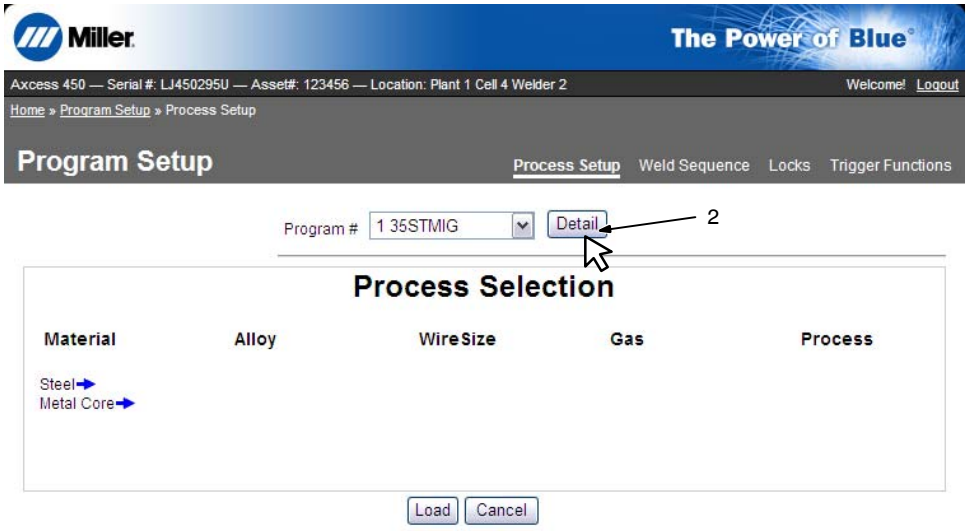


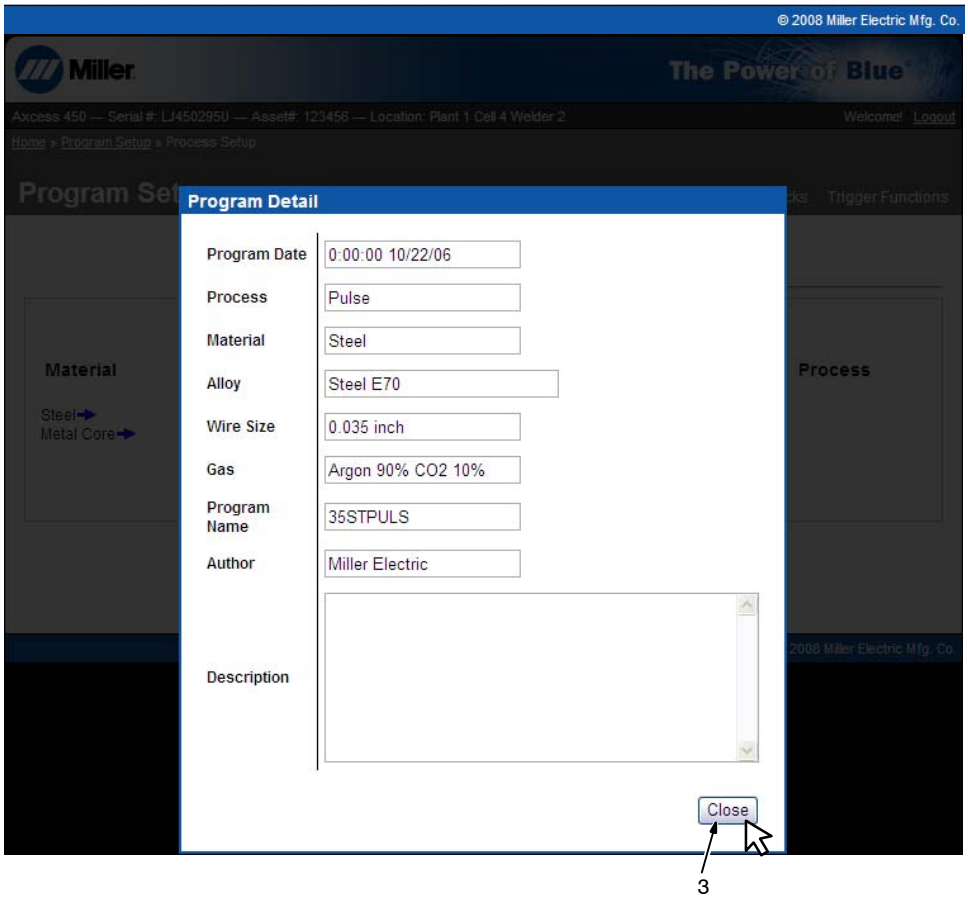




1 Program #

Place the cursor on the down arrow and click to view a drop down menu of factory default programs. Place the cursor on one of the programs and click to select that program.

## 10-3. Program # (Continued)



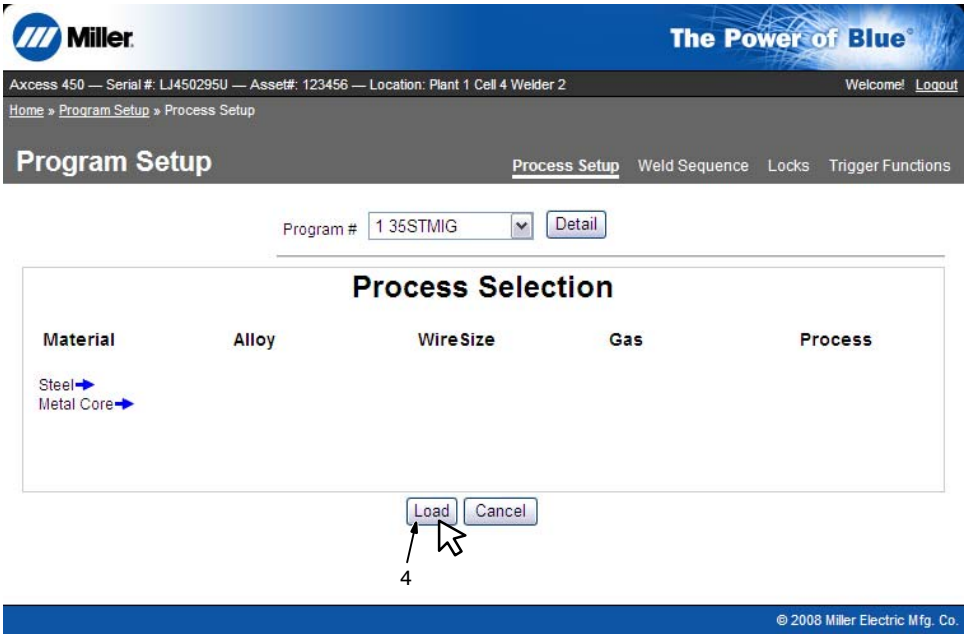

2 Detail Button

Place the cursor on the Detail button and click to view the program detail settings.

3 Close Button

Place the cursor on the Close button and click to close the detail page.

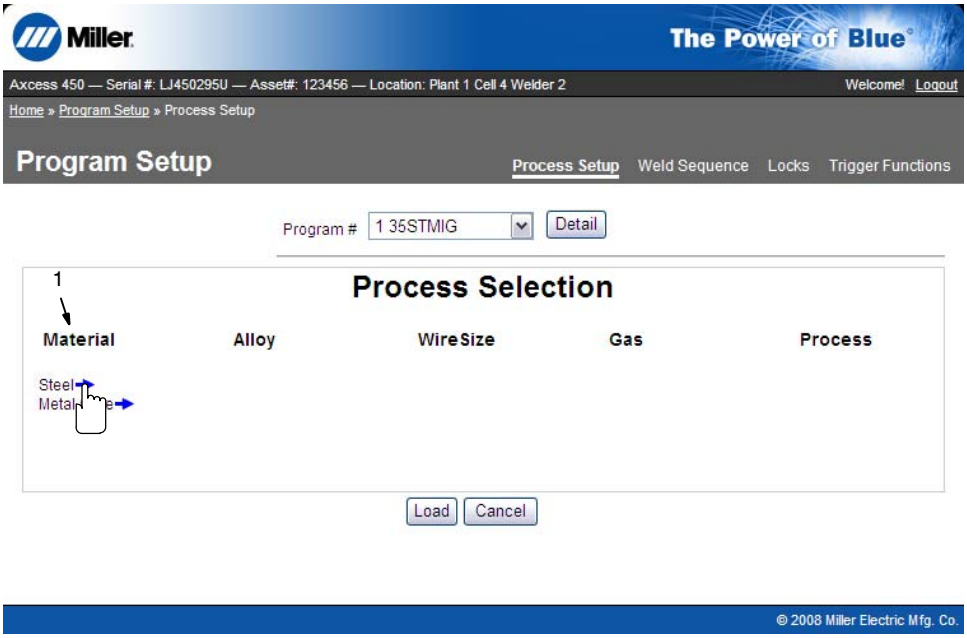
## 10-3. Program # (Continued)

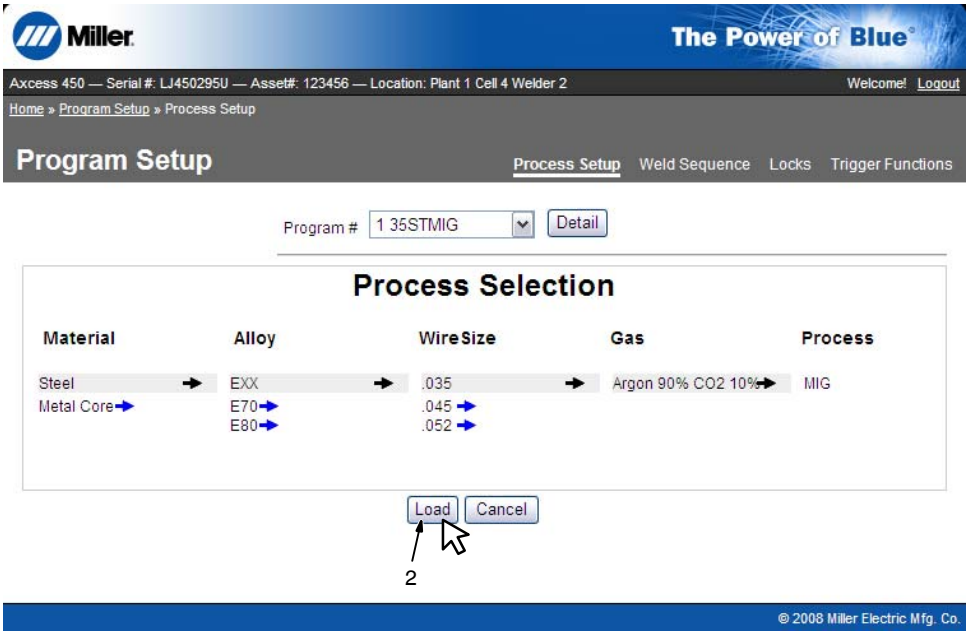



4 Load Button

Place the cursor on the Load button and click to load the program selection.

## 10-4. Material




1 Material

Material is the wire type. Available wire types are as follows:

- Steel
- Metal Core

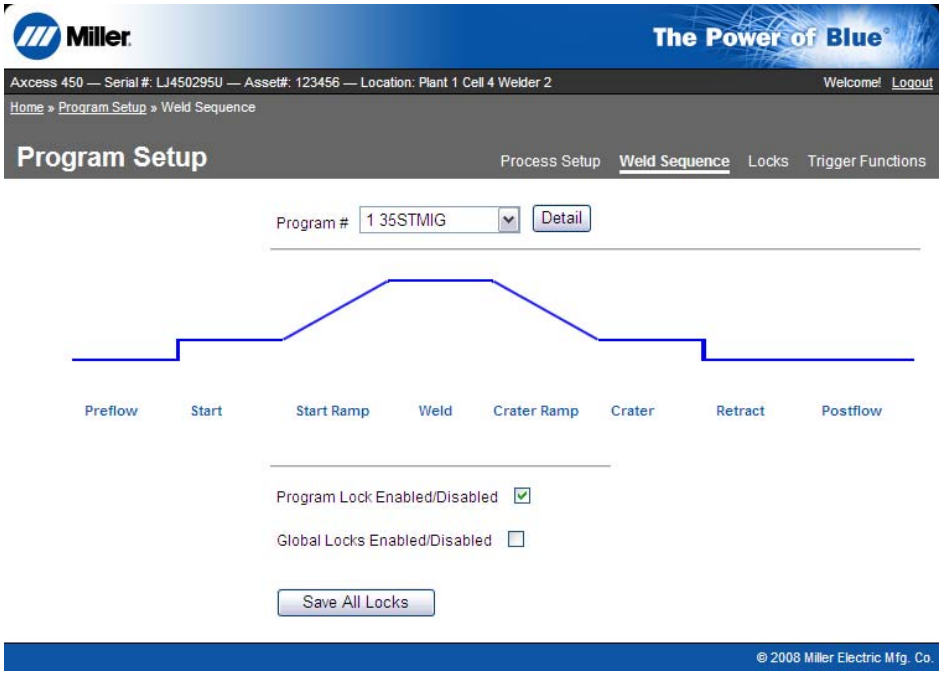
Place the cursor on the arrow after the desired wire type of material and click to advance to alloy. Continue to click the arrow for the remaining selections of Wire Size and Gas. The selections will end at Process.

2 Load Button

Place the cursor on the Load button and click to load the program selection.

Placing the cursor on the Cancel button and clicking will reset the Material selection.

## 10-5. Weld Sequencer




1 Weld Program

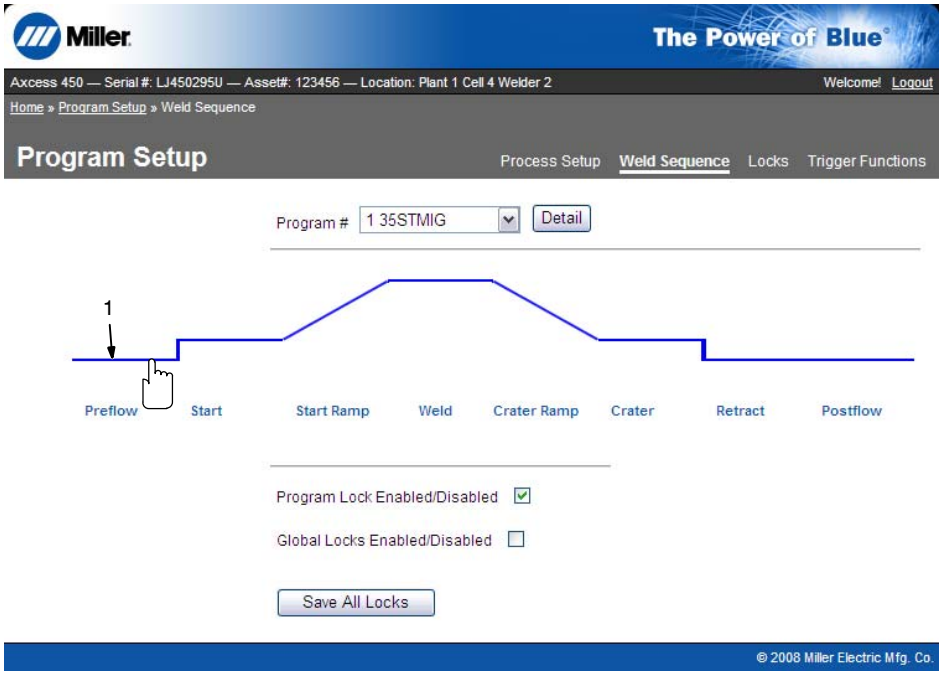
A weld program usually has several sequences as follows:

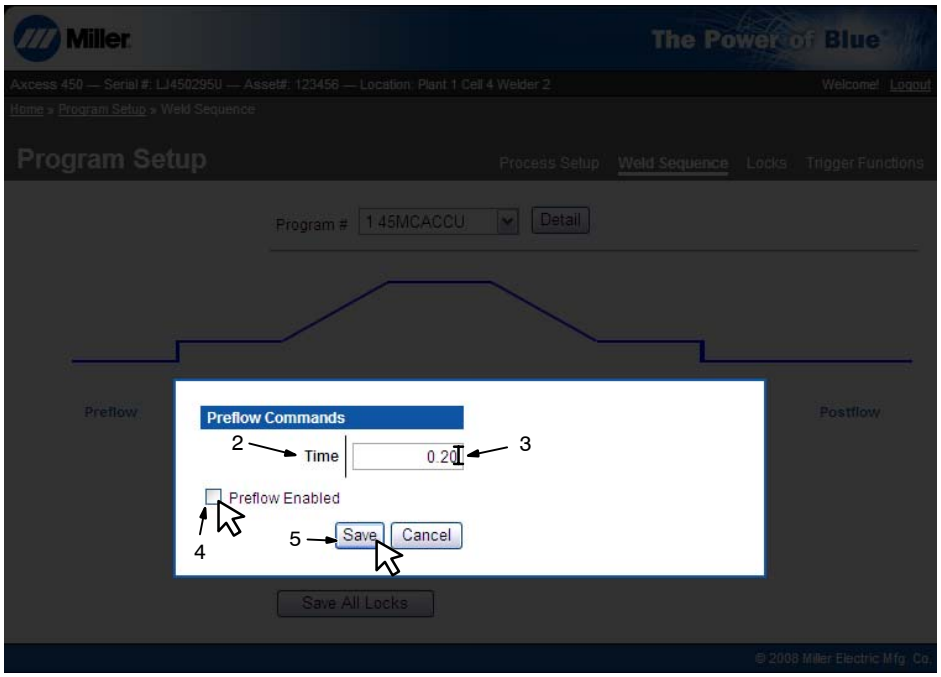
- Preflow
- Start
- Start Ramp
- Weld
- Crater Ramp
- Crater
- Retract
- Postflow

Placing the cursor on anyone of the sequences and clicking will bring up the parameters for that sequence.

See the appropriate section for additional information about parameters in each of the weld sequences.

## A. Preflow




1 Preflow Weld Sequence

Placing the cursor on the Preflow portion of the graphic line and click to bring up the parameters for that sequence.

☞ *If the Program Lock Enabled/Disabled box and the Global Locks Enabled/Disabled box has a check mark, the time parameter cannot be changed. To allow changing program parameters, place the cursor on the Program box and click to remove the check mark. Place the cursor on the Save All Locks and click to save the setting. To lock the program again, place a check mark in the Program box and click the Save All Locks button.*

2 Time Parameter

3 I-bar

Place the I-bar in the time parameter box and click to allow entering a value from the keyboard.

4 Preflow Enabled

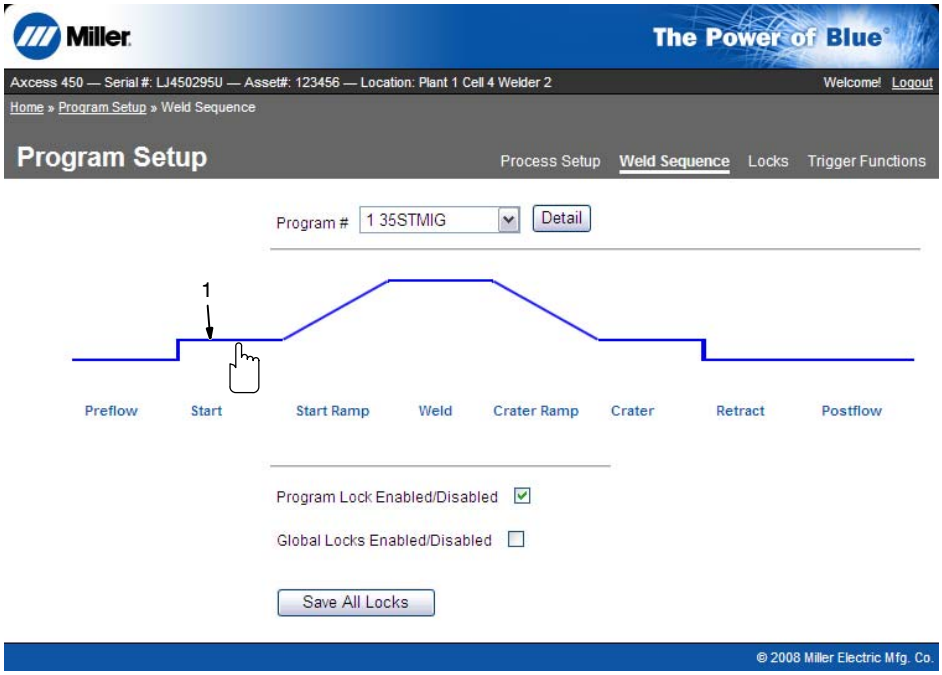
Place the cursor on the Preflow Enabled box and click to put a check in the box. This allows preflow to be operational in the weld sequence.

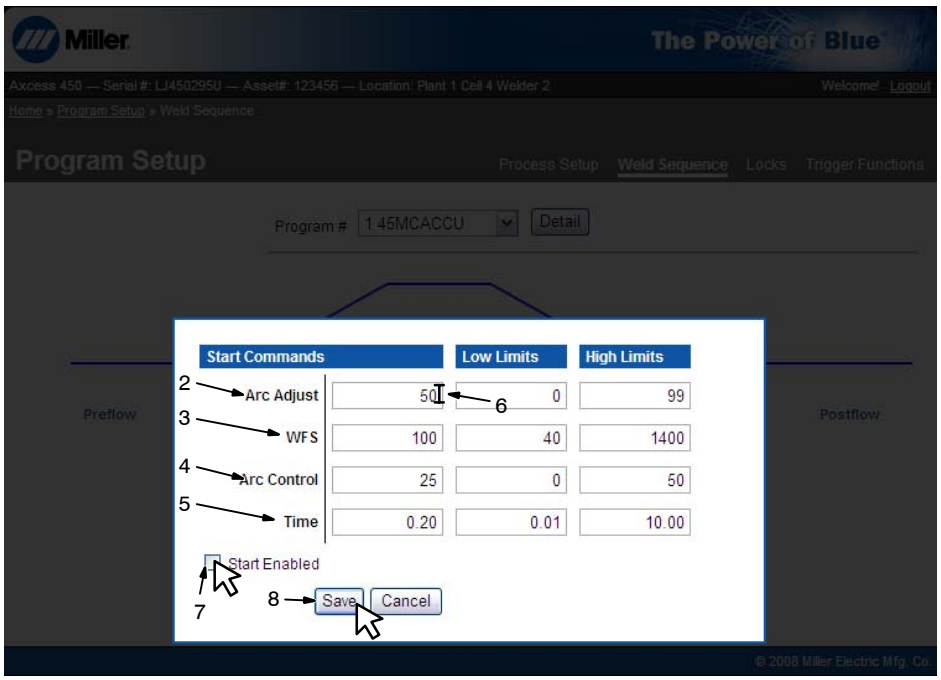
5 Save Button

Place the cursor on the Save button and click to save the preflow parameter settings.

Placing the cursor on the Cancel button and clicking will reset the preflow parameters and close the preflow commands page.

## B. Start




1 Start Weld Sequence

Placing the cursor on the Start portion of the graphic line and click to bring up the parameters for that sequence.

☞ *If the Program Lock Enabled/Disabled box and the Global Locks Enabled/Disabled box has a check mark, the time parameter cannot be changed. To allow changing program parameters, place the cursor on the Program box and click to remove the check mark. Place the cursor on the Save All Locks and click to save the setting. To lock the program again, place a check mark in the Program box and click the Save All Locks button.*

2 Arc Adjust

3 WFS

4 Arc Control

5 Time

6 I-bar

Place the I-bar in the Arc Adjust parameter box and click to allow entering a value from the keyboard. Low and High Limits can be assigned to each parameter to keep parameters within set limits.

7 Start Enabled

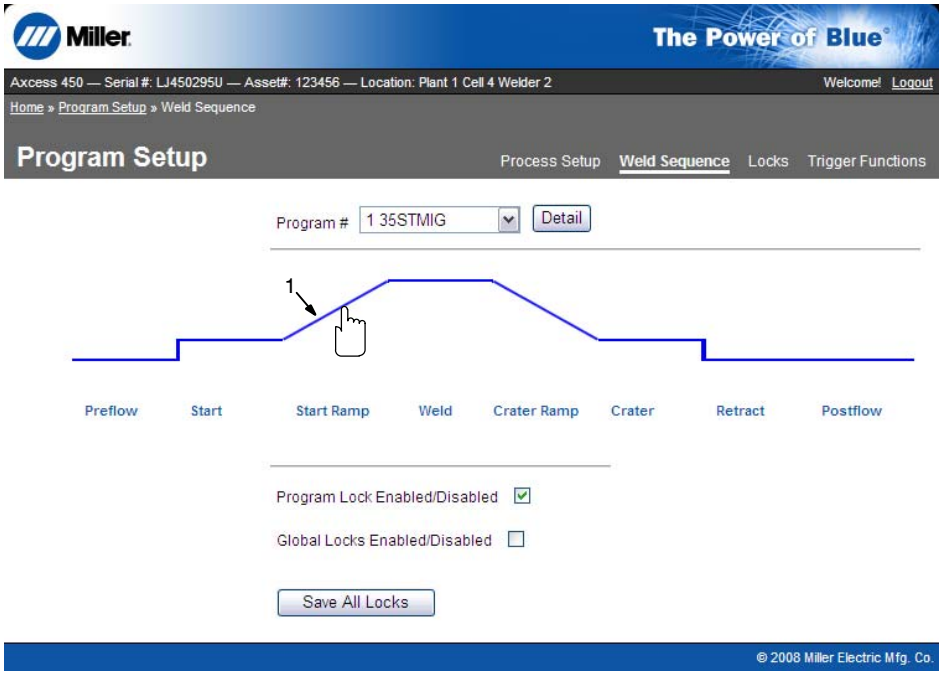
Place the cursor on the Start Enabled box and click to put a check in the box. This allows start to be operational in the weld sequence.

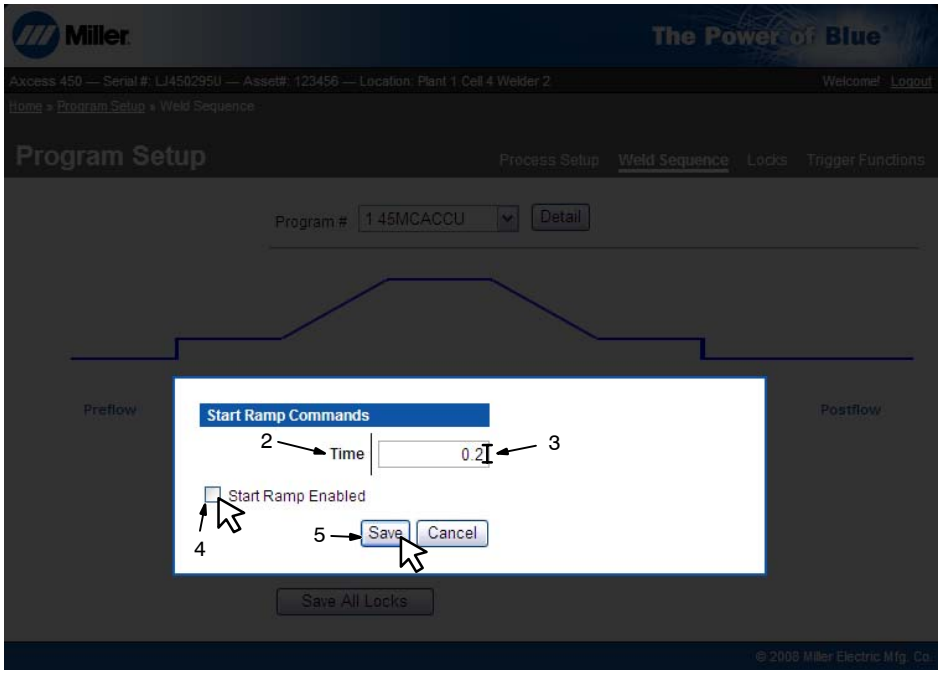
8 Save Button

Place the cursor on the Save button and click to save the start parameter settings.

Placing the cursor on the Cancel button and clicking will reset the start parameters and close the start commands page.

## C. Start Ramp




1 Start Ramp Weld Sequence

Placing the cursor on the Start Ramp portion of the graphic line and click to bring up the parameters for that sequence.

☞ *If the Program Lock Enabled/Disabled box and the Global Locks Enabled/Disabled box has a check mark, the time parameter cannot be changed. To allow changing program parameters, place the cursor on the Program box and click to remove the check mark. Place the cursor on the Save All Locks and click to save the setting. To lock the program again, place a check mark in the Program box and click the Save All Locks button.*

2 Time Parameter

3 I-bar

Place the I-bar in the time parameter box and click to allow entering a value from the keyboard.

4 Start Ramp Enabled

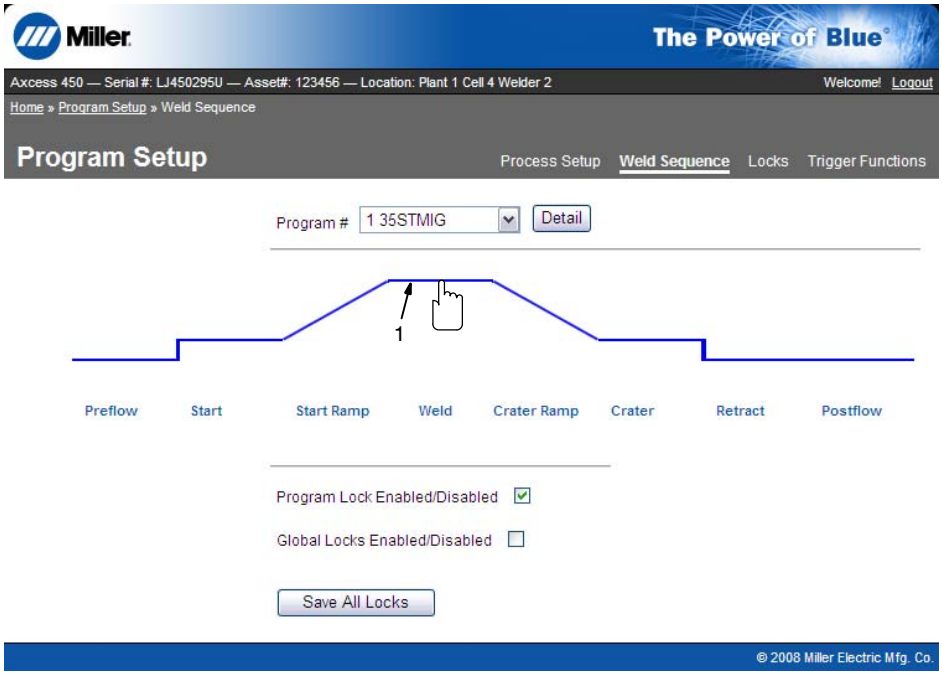
Place the cursor on the Start Ramp Enabled box and click to put a check in the box. This allows start ramp to be operational in the weld sequence.

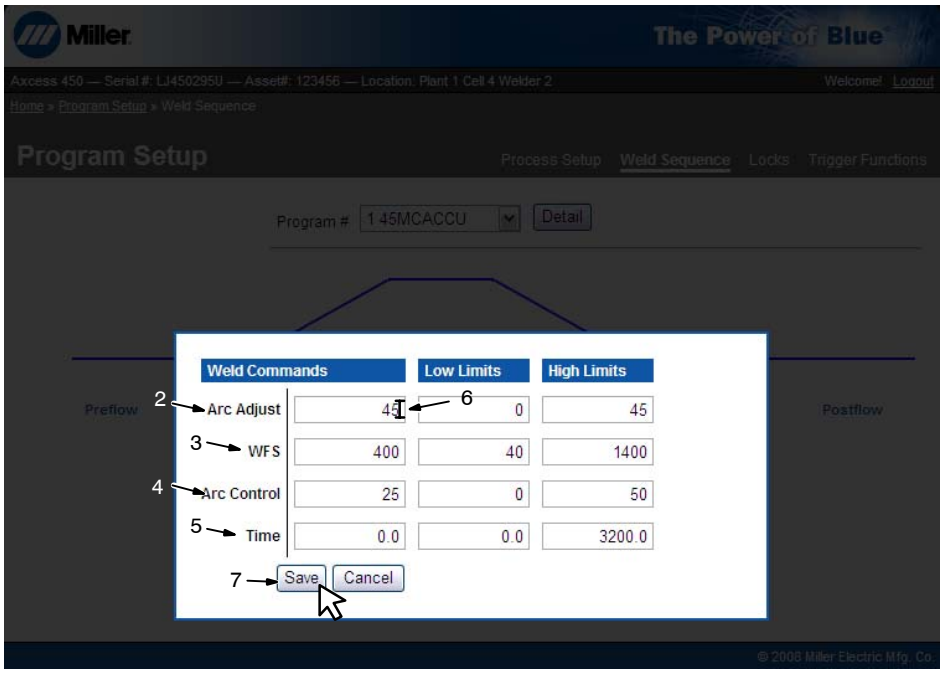
5 Save Button

Place the cursor on the Save button and click to save the start ramp parameter settings.

Placing the cursor on the Cancel button and clicking will reset the start ramp parameters and close the start ramp commands page.

## D. Weld




1 Weld Sequence

Placing the cursor on the Weld portion of the graphic line and click to bring up the parameters for that sequence.

☞ *If the Program Lock Enabled/Disabled box and the Global Locks Enabled/Disabled box has a check mark, the time parameter cannot be changed. To allow changing program parameters, place the cursor on the Program box and click to remove the check mark. Place the cursor on the Save All Locks and click to save the setting. To lock the program again, place a check mark in the Program box and click the Save All Locks button.*

2 Arc Adjust

3 WFS

4 Arc Control

5 Time

6 I-bar

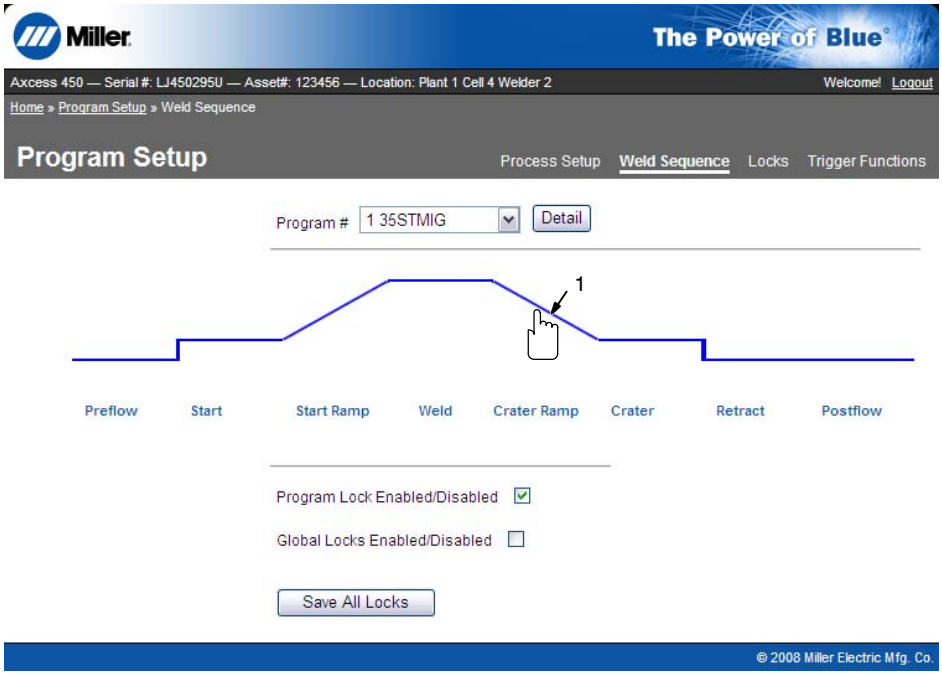
Place the I-bar in the Arc Adjust parameter box and click to allow entering a value from the keyboard. Low and High Limits can be assigned to each parameter to keep parameters within set limits.

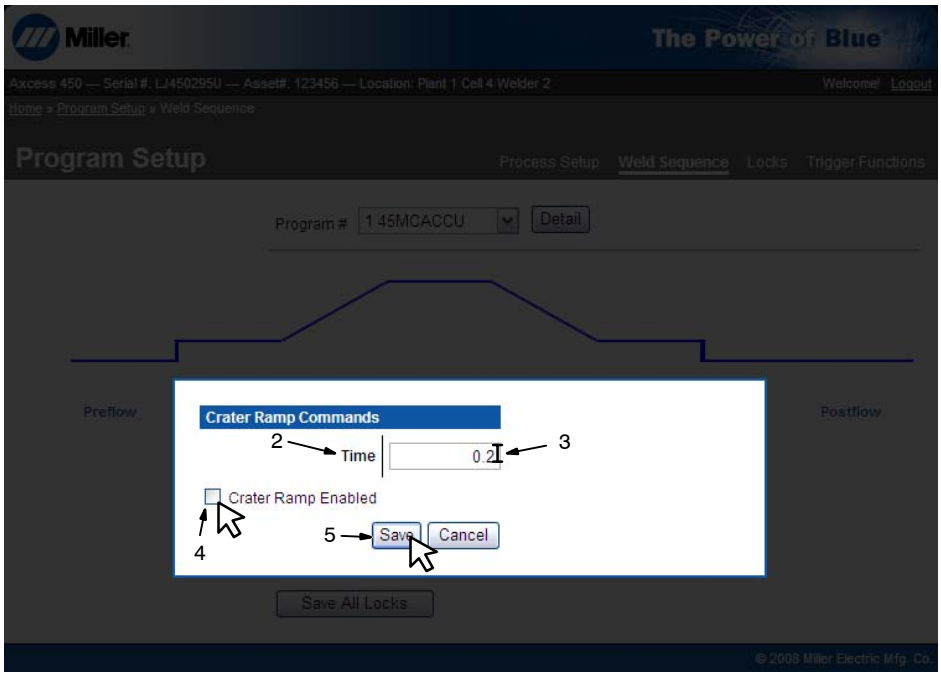
7 Save Button

Place the cursor on the Save button and click to save the weld parameter settings.

Placing the cursor on the Cancel button and clicking will reset the weld parameters and close the weld commands page.

## E. Crater Ramp




1 Crater Ramp Sequence

Placing the cursor on the Crater Ramp portion of the graphic line and click to bring up the parameters for that sequence.

☞ *If the Program Lock Enabled/Disabled box and the Global Locks Enabled/Disabled box has a check mark, the time parameter cannot be changed. To allow changing program parameters, place the cursor on the Program box and click to remove the check mark. Place the cursor on the Save All Locks and click to save the setting. To lock the program again, place a check mark in the Program box and click the Save All Locks button.*

2 Time Parameter

3 I-bar

Place the I-bar in the time parameter box and click to allow entering a value from the keyboard.

4 Crater Ramp Enabled

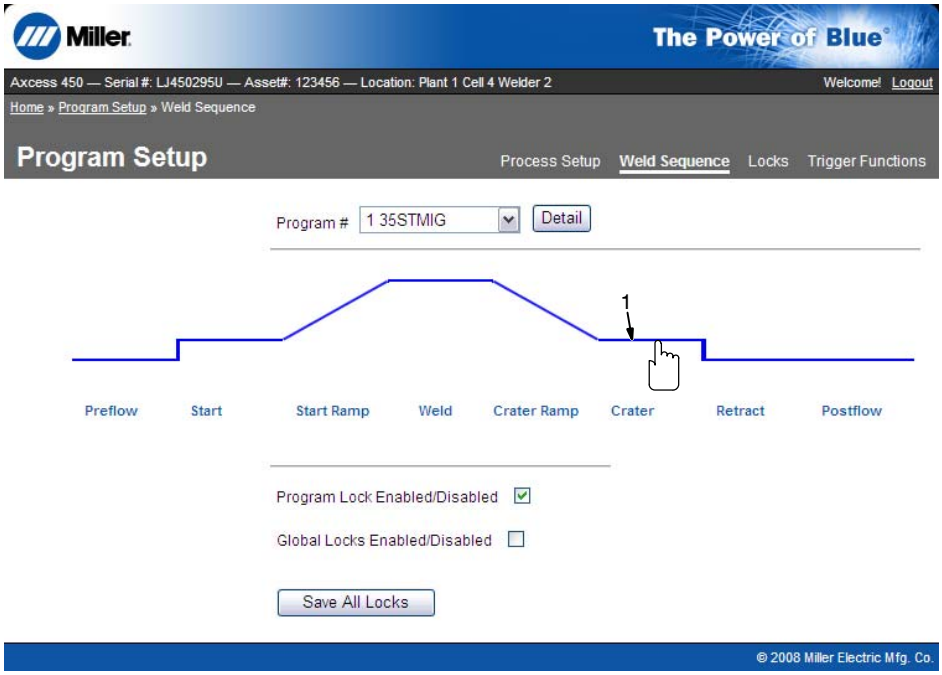
Place the cursor on the Crater Ramp Enabled box and click to put a check in the box. This allows crater ramp to be operational in the weld sequence.

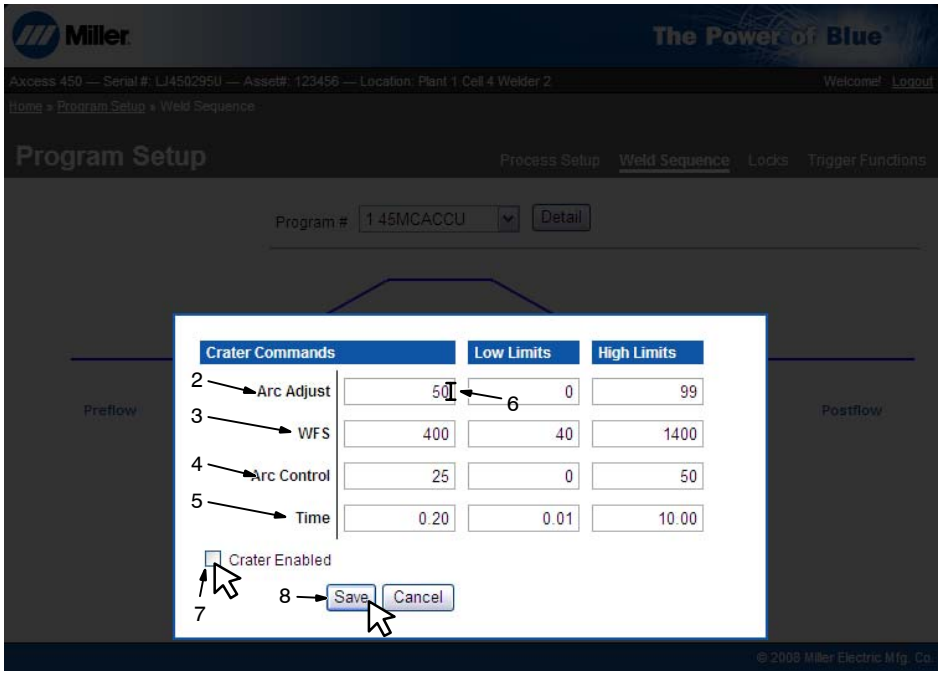
5 Save Button

Place the cursor on the Save button and click to save the crater ramp parameter settings.

Placing the cursor on the Cancel button and clicking will reset the crater ramp parameters and close the crater ramp commands page.

## F. Crater




1 Crater Sequence

Placing the cursor on the Crater portion of the graphic line and click to bring up the parameters for that sequence.

☞ *If the Program Lock Enabled/Disabled box and the Global Locks Enabled/Disabled box has a check mark, the time parameter cannot be changed. To allow changing program parameters, place the cursor on the Program box and click to remove the check mark. Place the cursor on the Save All Locks and click to save the setting. To lock the program again, place a check mark in the Program box and click the Save All Locks button.*

2 Arc Adjust

3 WFS

4 Arc Control

5 Time

6 I-bar

Place the I-bar in the Arc Adjust parameter box and click to allow entering a value from the keyboard. Low and High Limits can be assigned to each parameter to keep parameters within set limits.

7 Crater Enabled

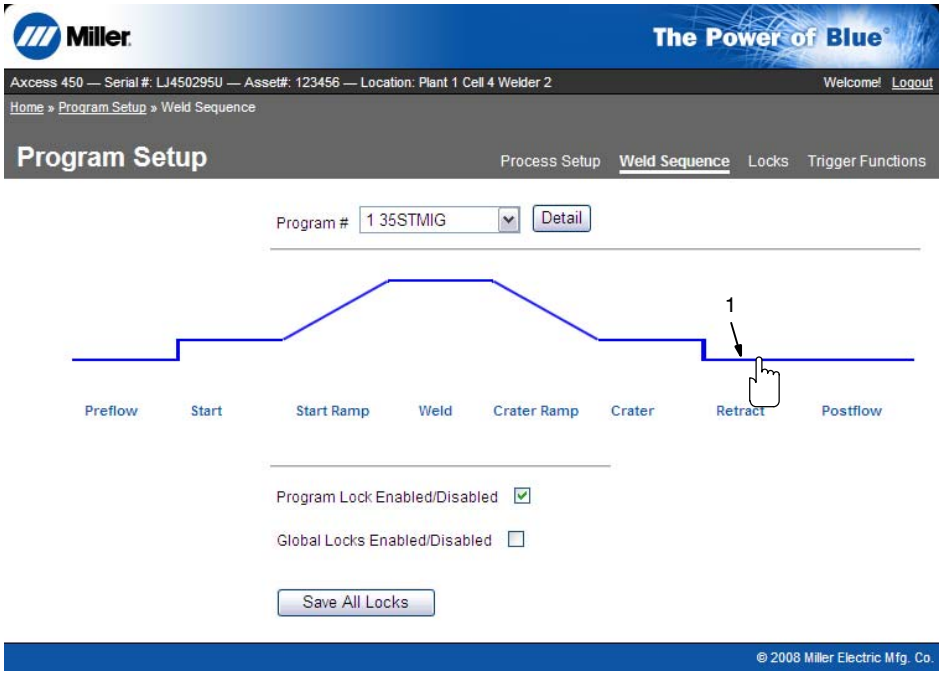
Place the cursor on the Crater Enabled box and click to put a check in the box. This allows crater to be operational in the weld sequence.

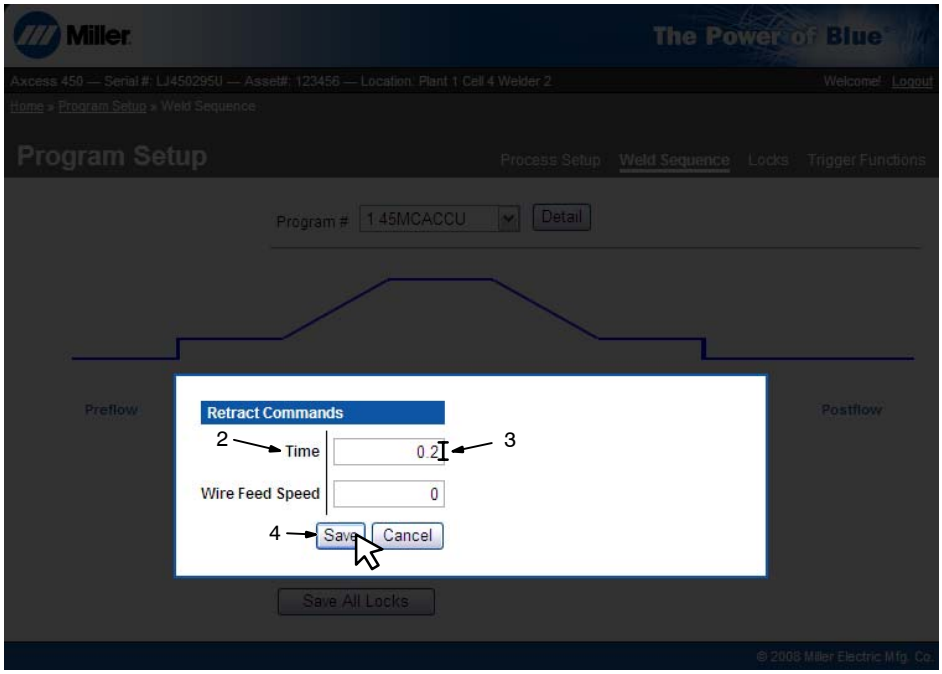
8 Save Button

Place the cursor on the Save button and click to save the crater parameter settings.

Placing the cursor on the Cancel button and clicking will reset the crater parameters and close the crater commands page.

## G. Retract




1 Retract Sequence

Placing the cursor on the Retract portion of the graphic line and click to bring up the parameters for that sequence.

☞ *If the Program Lock Enabled/Disabled box and the Global Locks Enabled/Disabled box has a check mark, the time parameter cannot be changed. To allow changing program parameters, place the cursor on the Program box and click to remove the check mark. Place the cursor on the Save All Locks and click to save the setting. To lock the program again, place a check mark in the Program box and click the Save All Locks button.*

2 Time Parameter

3 I-bar

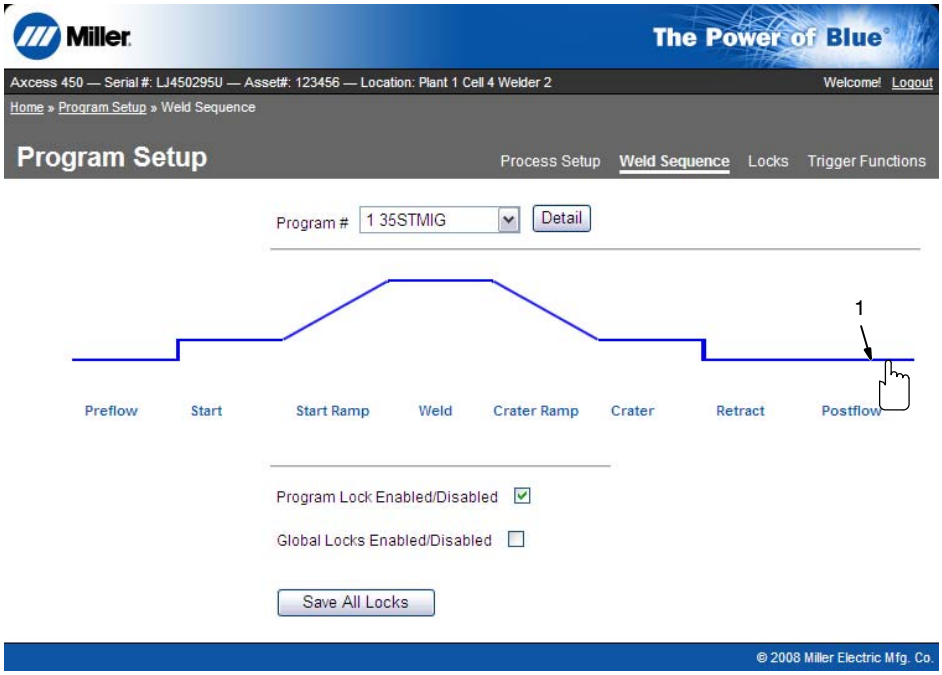
Place the I-bar in the time parameter box and click to allow entering a value from the keyboard.

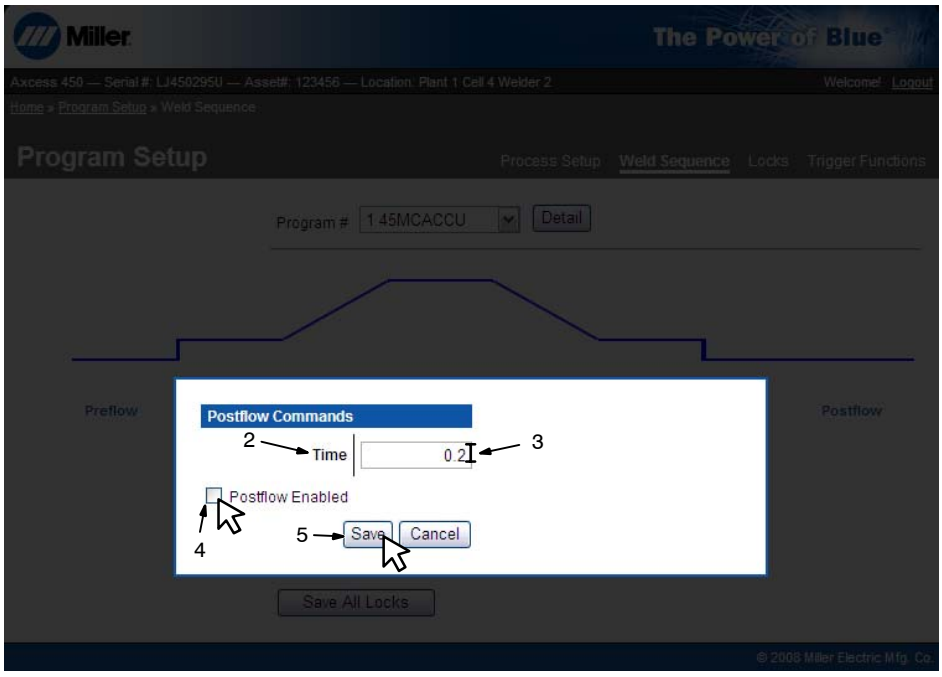
4 Save Button

Place the cursor on the Save button and click to save the retract parameter settings.

Placing the cursor on the Cancel button and clicking will reset the retract parameters and close the retract commands page.

## H. Postflow




1 Postflow Sequence

Placing the cursor on the Postflow Ramp portion of the graphic line and click to bring up the parameters for that sequence.

☞ *If the Program Lock Enabled/Disabled box and the Global Locks Enabled/Disabled box has a check mark, the time parameter cannot be changed. To allow changing program parameters, place the cursor on the Program box and click to remove the check mark. Place the cursor on the Save All Locks and click to save the setting. To lock the program again, place a check mark in the Program box and click the Save All Locks button.*

2 Time Parameter

3 I-bar

Place the I-bar in the time parameter box and click to allow entering a value from the keyboard.

4 Crater Ramp Enabled

Place the cursor on the Postflow Enabled box and click to put a check in the box. This allows post-flow to be operational in the weld sequence.

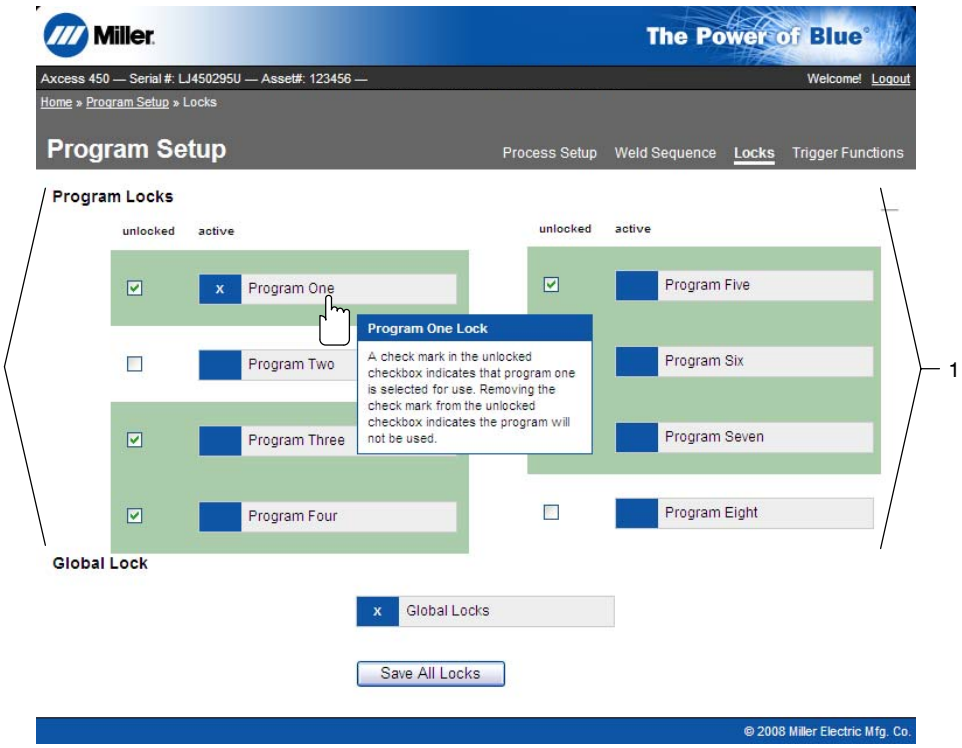
5 Save Button

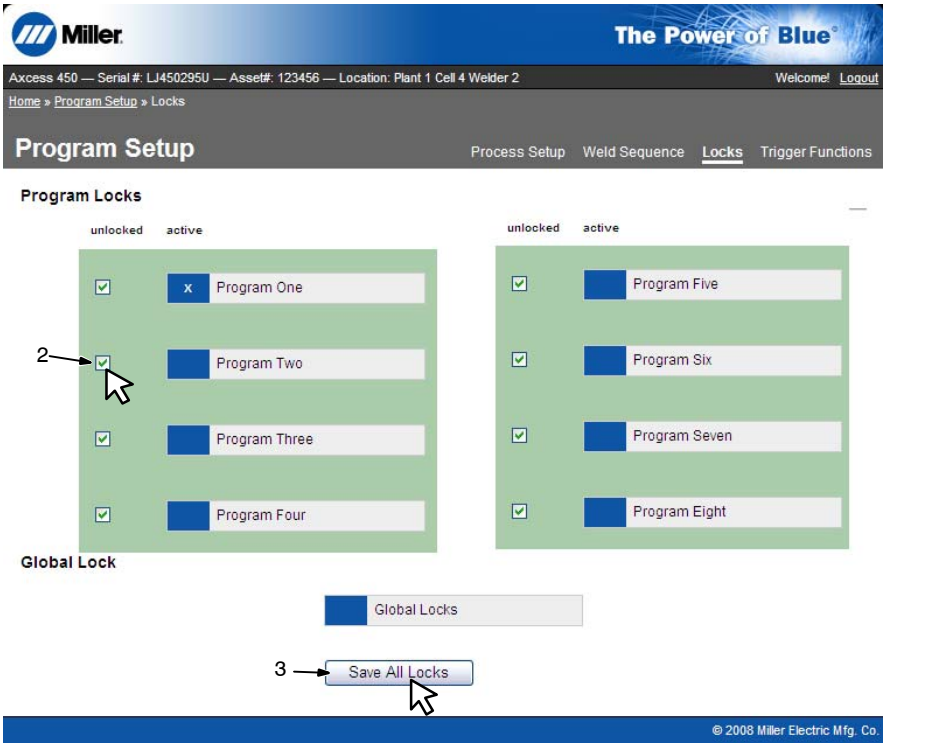
Place the cursor on the Save button and click to save the postflow parameter settings.

Placing the cursor on the Cancel button and clicking will reset the postflow parameters and close the postflow commands page.

# 10-6. Locks

## A. Program Locks




1 Program Locks

Placing the cursor on top of a program number causes an information box to appear.

☞ *The default setting for all programs is unlocked.*

A check mark in the unlocked checkbox indicates that the program is selected for use. Removing the check mark from the unlocked checkbox indicates the program will not be used.

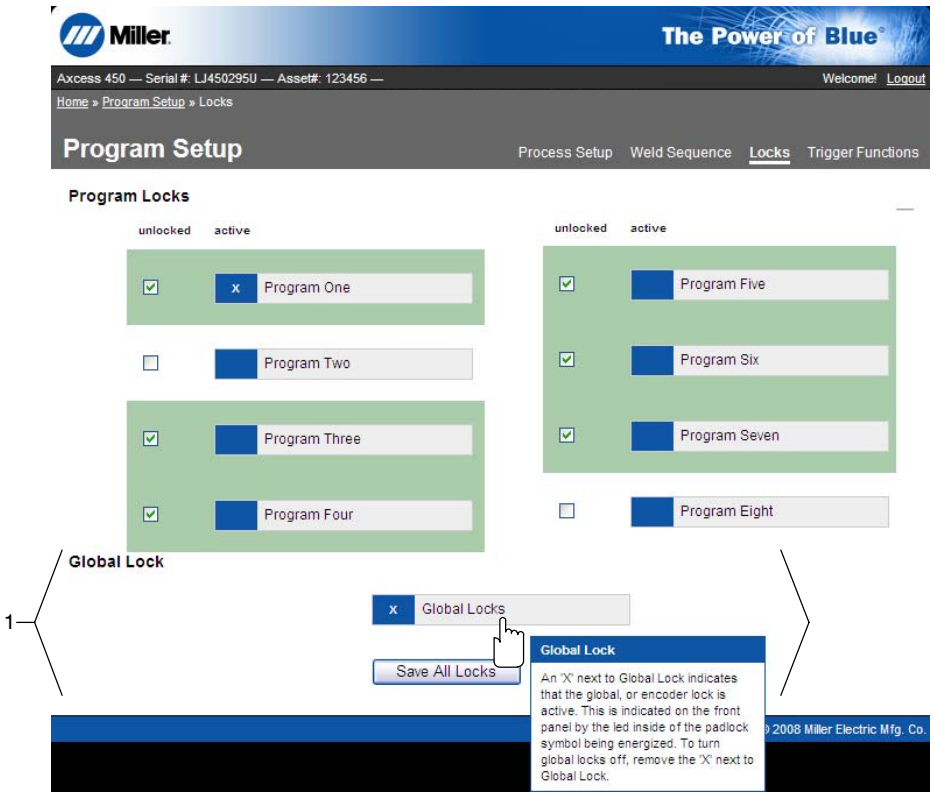
2 Program Two Unlocked Checkbox

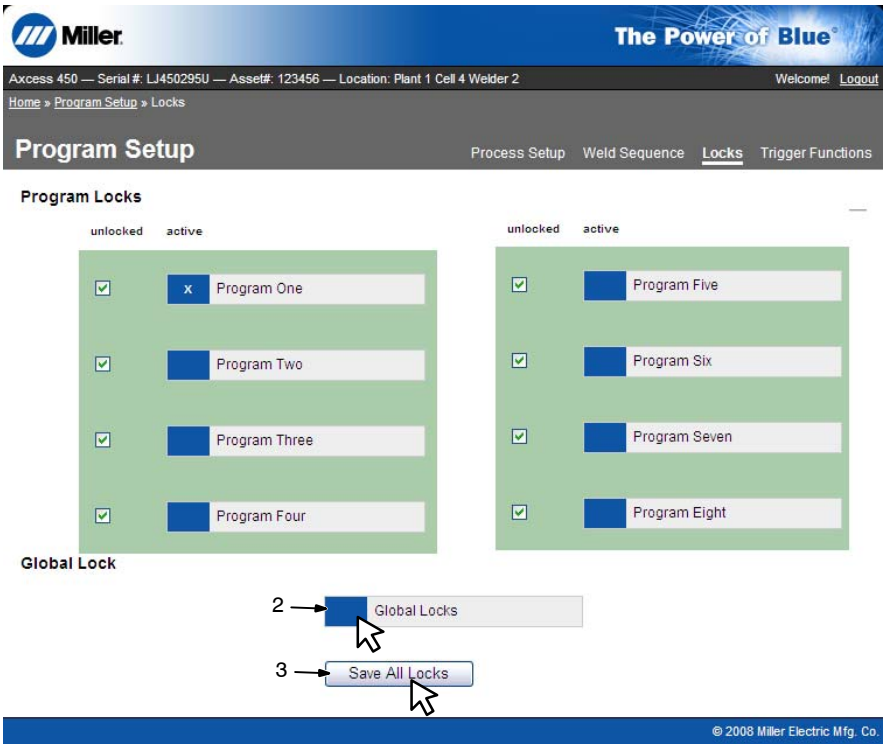
To lock or unlock Program Two, place the cursor on the checkbox next to the program and click to either add or remove the check mark.

3 Save All Locks Button

Placing the cursor on the Save All Locks button and clicking will save the settings.

## B. Global Locks




1 Global Locks

Placing the cursor on top of Global Locks causes an information box to appear.

☞ *The default setting for Global Locks is off.*

An X next to Global Locks indicates that the global, or encoder lock is active. This is indicated on the front panel by the LED inside of the padlock symbol being energized. To turn global locks off, remove the X next to Global Locks.

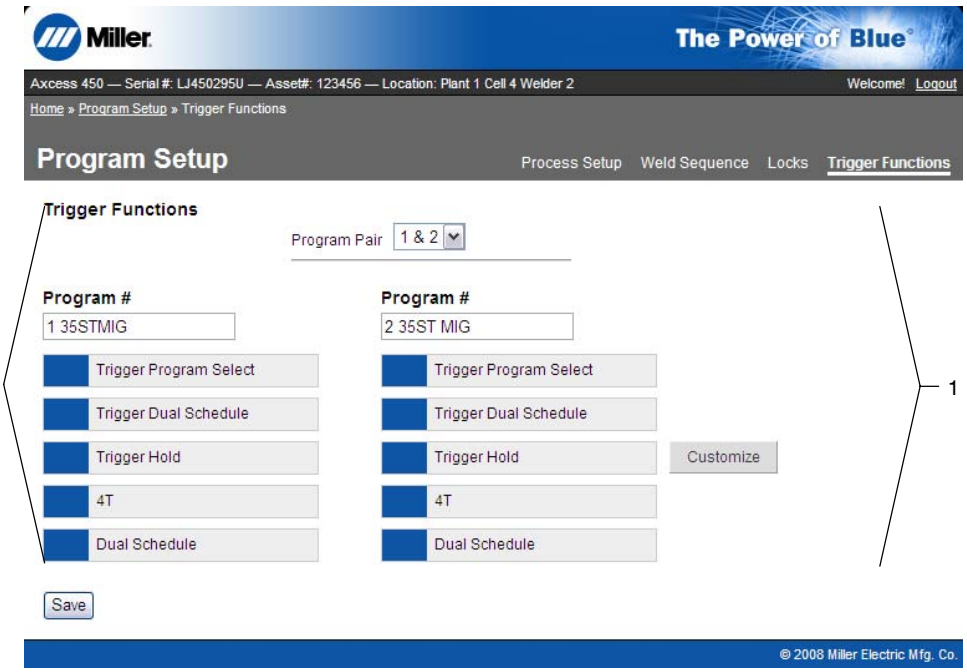
2 Global Locks Selection Box

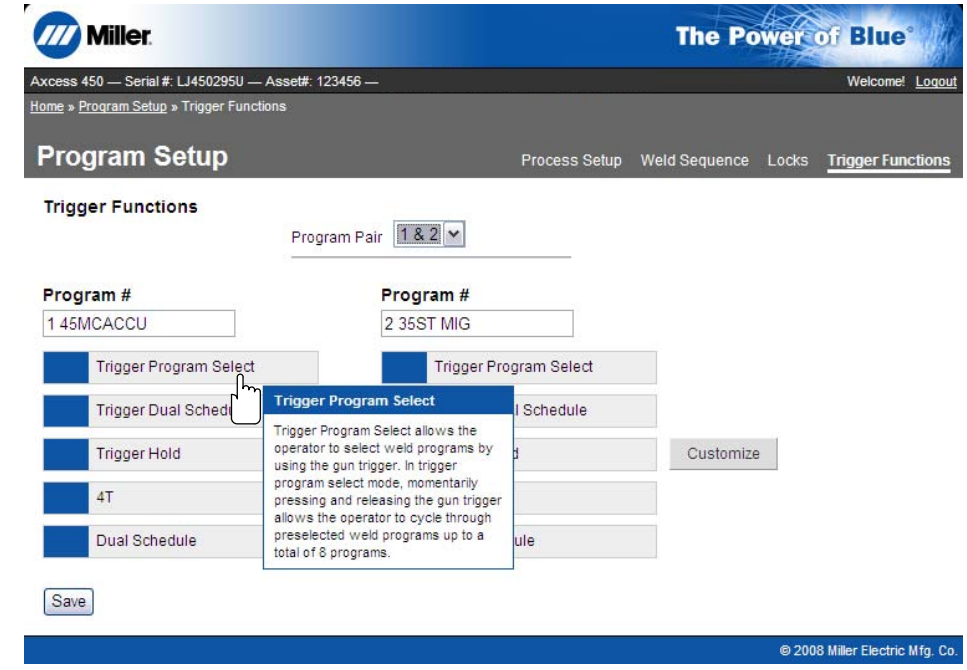
Placing the cursor on top of the box next to Global Locks and clicking allows selecting or unselecting the Global Locks. That is signified by placing an X in the box or removing an X from the box.

3 Save All Locks Button

Placing the cursor on the Save All Locks button and clicking will save the settings.

## 10-7. Trigger Functions



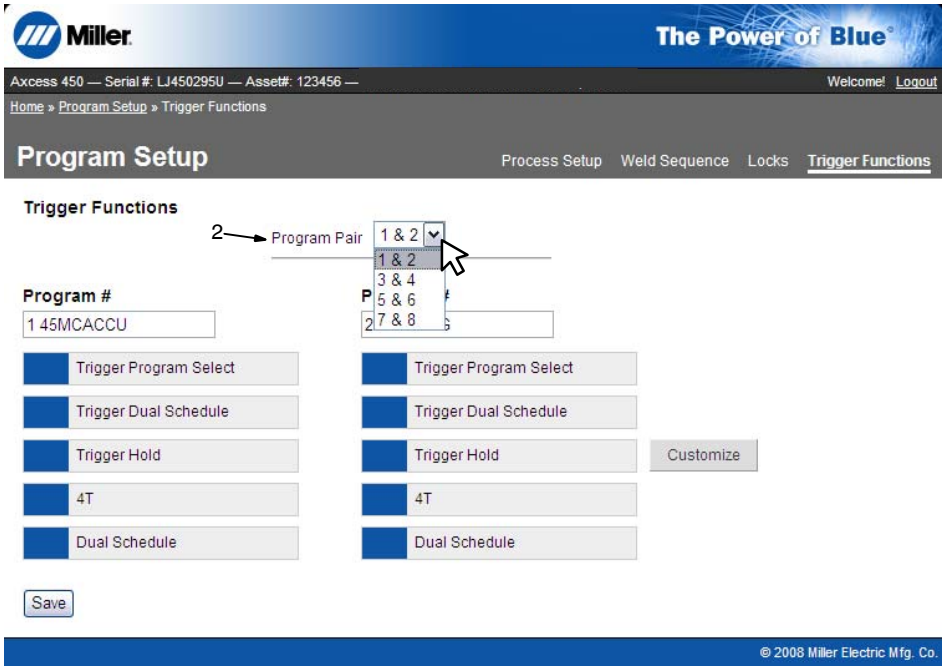



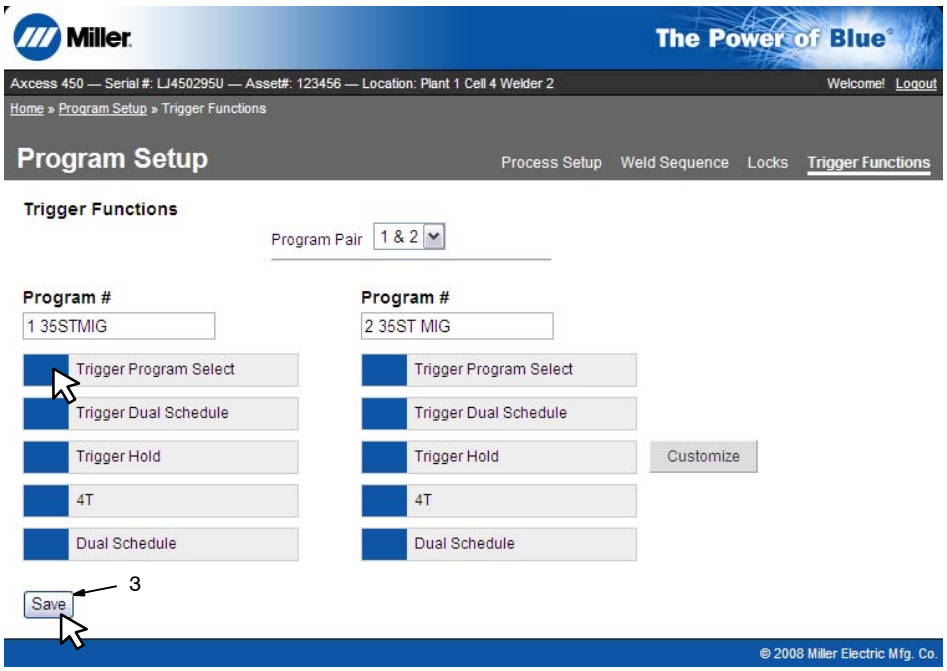

1 Trigger Functions

Placing the cursor on top of an item causes an information box to appear.

Each item has an information box that gives a description of the application.

## 10-7. Trigger Functions (Continued)




2 Program Pair

Place the cursor on the down arrow and click to view a drop down menu of program pairs for the Trigger Dual Schedule and Dual Schedule applications. Place the cursor on one of the program pairs and click to select that pair.

Placing the cursor on top of the box next to the item and clicking allows selecting or unselecting the application. That is signified by placing an X in the box or removing an X from the box.

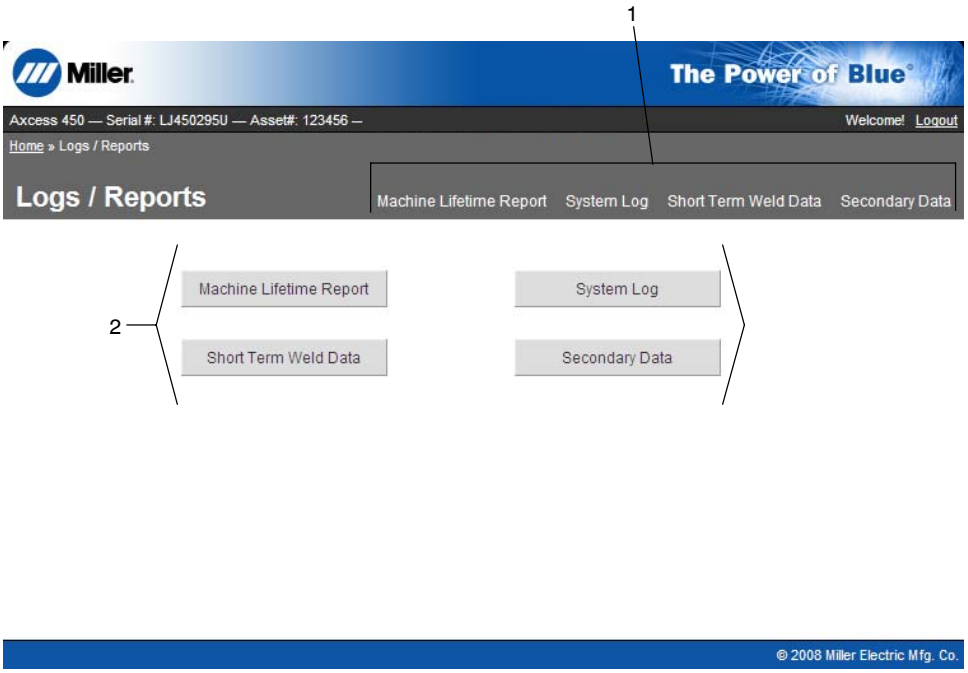
The customize box next to Trigger Hold allows changing the timer setting from the default of 1.5 seconds.

3 Save Button

Placing the cursor on the Save button and clicking will save the settings.

# SECTION 11 – LOGS/REPORTS

## 11-1. Logs/Reports Home Page




1 Menu Bar

2 Application Buttons

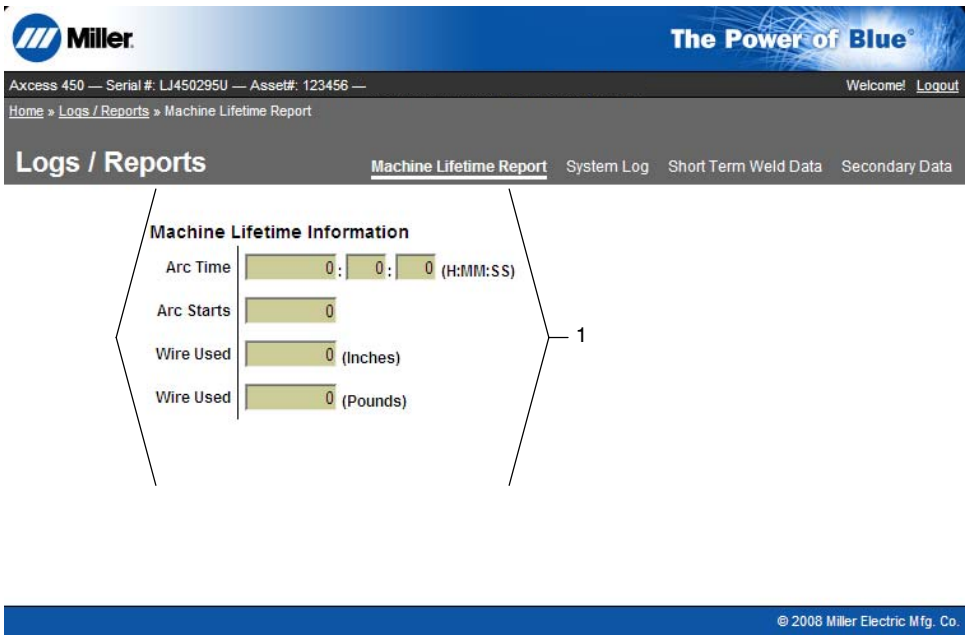
Access to applications can be done one of two ways, either by clicking on the item tab in the menu bar or by clicking the application button.

Available applications are as follows:

- Machine lifetime Report
- System Log
- Short Term Weld Data
- Secondary Data

See the appropriate section for additional information about each application.

## 11-2. Machine Lifetime Report Page

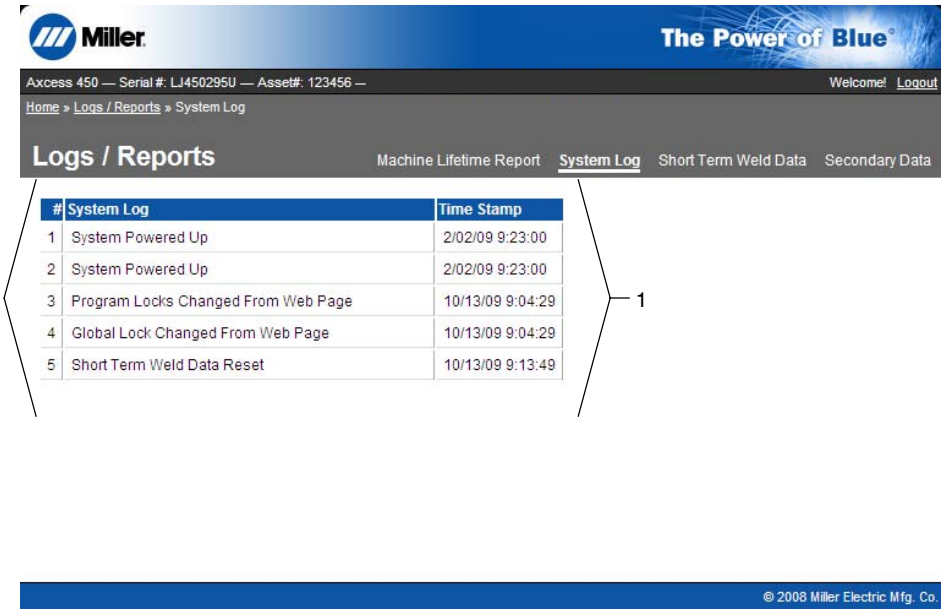



1 Machine Lifetime Information

Available information is as follows:

- Arc Time (H:MM:SS)
- Arc Starts
- Wire Used (Inches)
- Wire Used (Pounds)

## 11-3. System Log Page



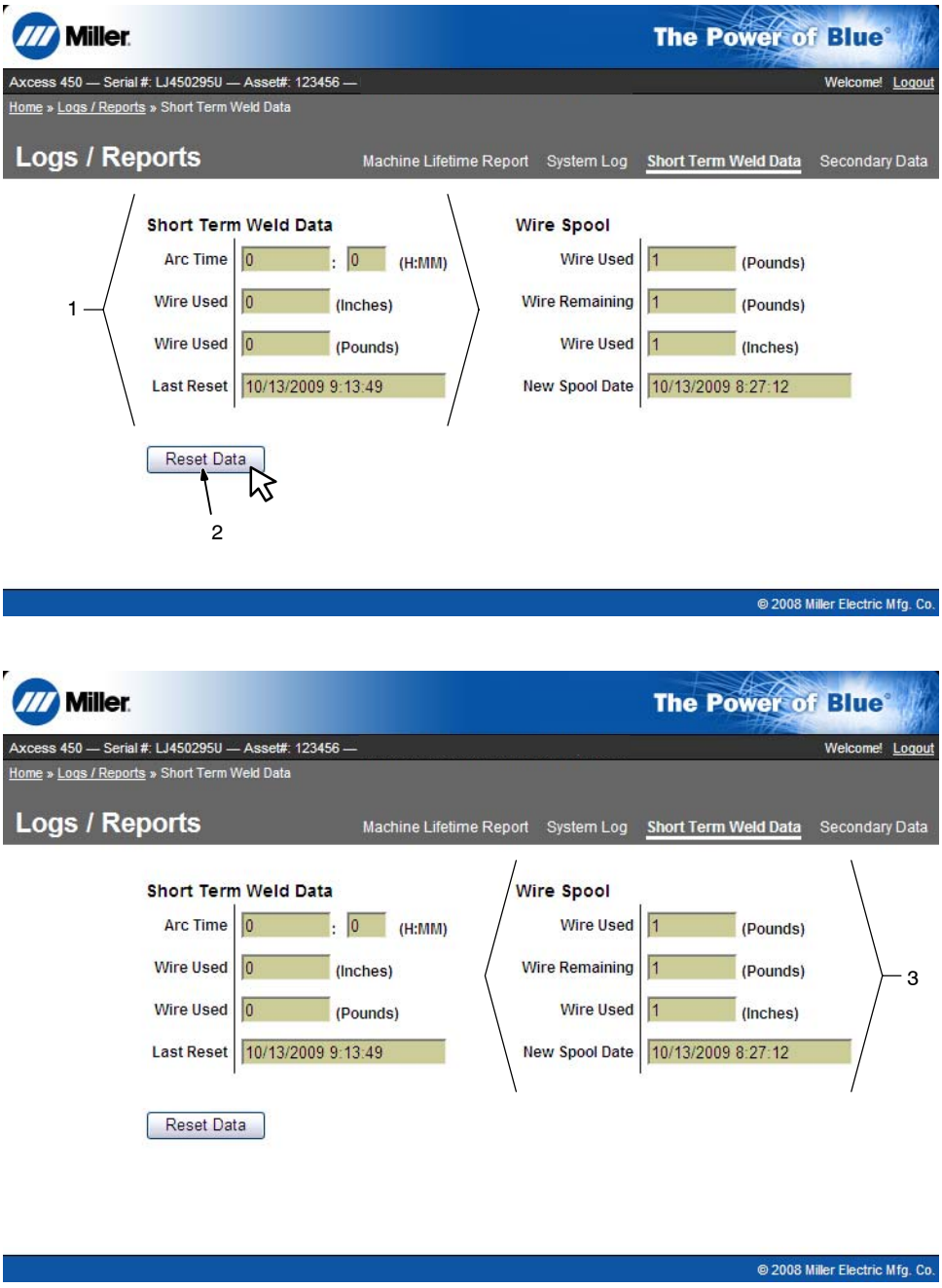

1 System Log Information

Available information is as follows:

- System Powered Up
- System Powered Up
- Program Locks Changed From Web Page
- Global Lock Changed From Web Page
- Short Term Weld Data Reset

Each item has a date/time stamp reference assigned to it.

## 11-4. Short Term Weld Data Page




1 Short Term Weld Data Information

Available information is as follows:

- Arc Time (H:MM)
- Wire Used (Inches)
- Wire Used (Pounds)
- Last Reset

Last Reset has a date/time stamp reference assigned to it.

2 Reset Data Button

Placing the cursor on the Reset Data button and clicking will change values to 0 (zero) and set the time stamp to the current date and time.

3 Wire Spool Information

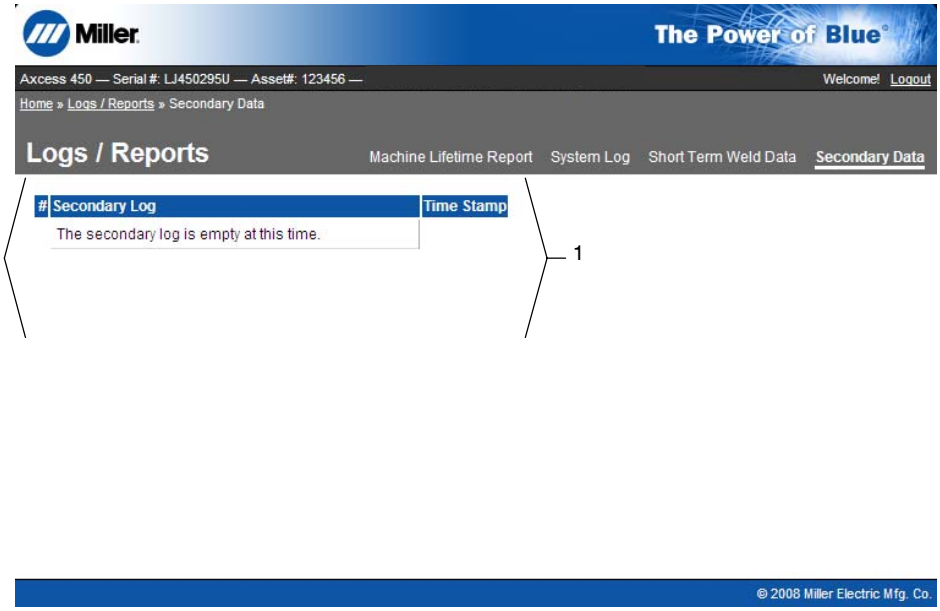
Available information is as follows:

- Wire Used (Pounds)
- Wire Remaining (Pounds)
- Wire Used (Inches)
- New Spool Date

New Spool Date has a date/time stamp reference assigned to it.

☞ *To reset wire spool data, see Section 8-9.*

## 11-5. Secondary Log Page



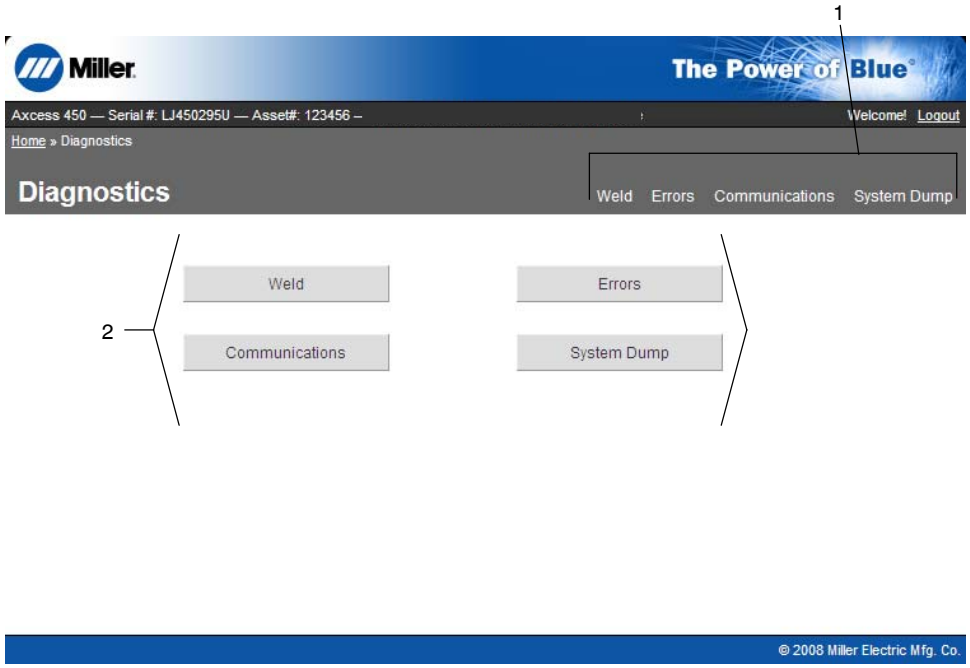

1 Secondary Log Information

The Secondary Log contains user defined information.

Information has a date/time stamp reference assigned to it.

# SECTION 12 – DIAGNOSTICS

## 12-1. Diagnostics Home Page




1 Menu Bar

2 Application Buttons

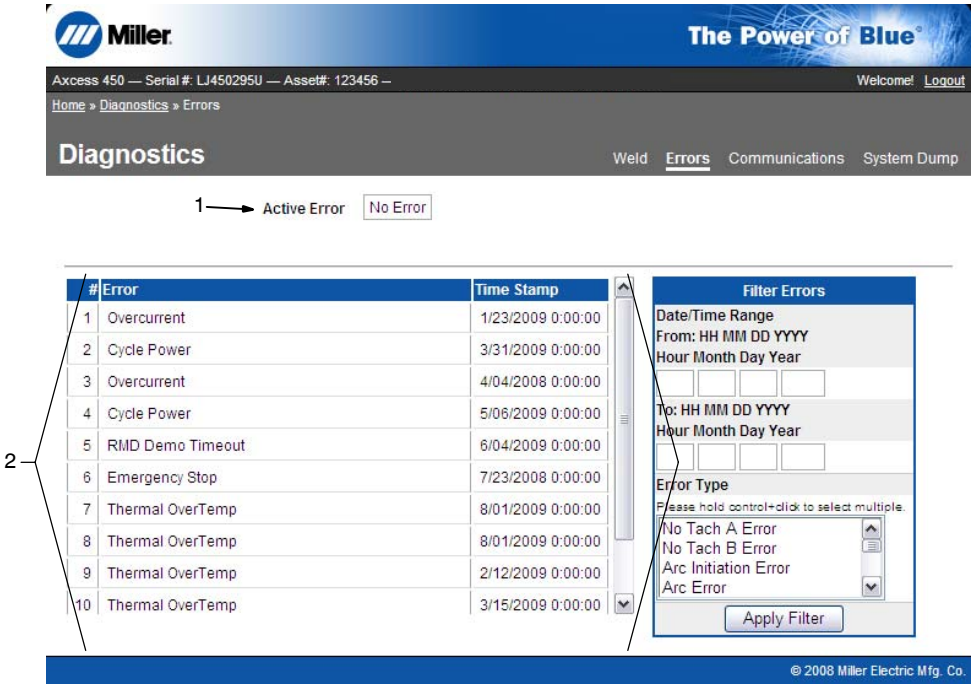
Access to applications can be done one of two ways, either by clicking on the item tab in the menu bar or by clicking the application button.

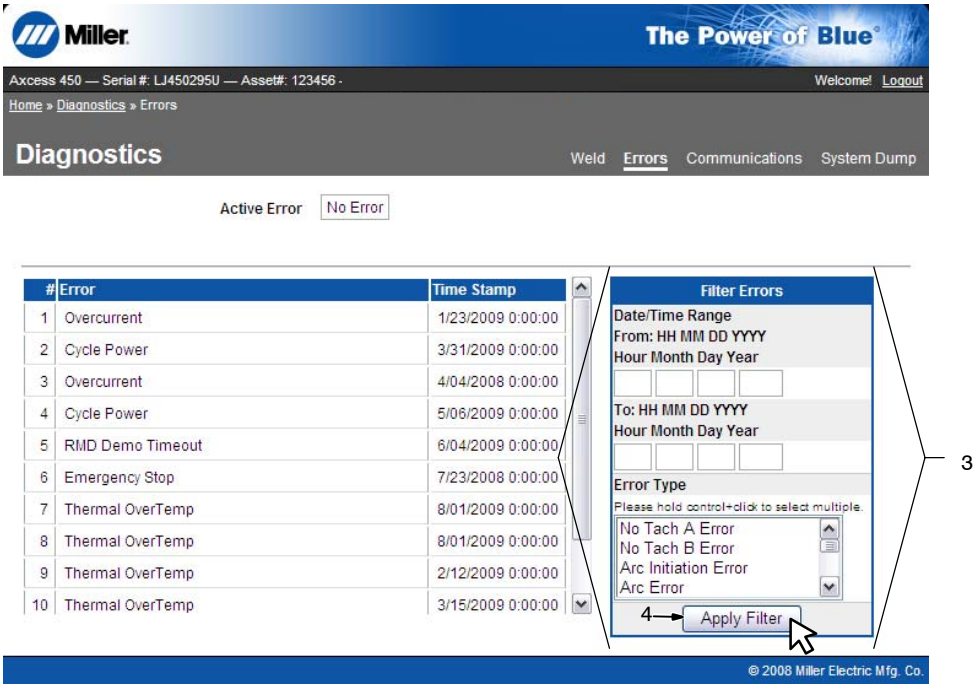
Available applications are as follows:

- Weld
- Errors
- Communications
- System Dump

See the appropriate section for additional information about each application.

## 12-2. Errors




1 Active Error Box

The Active Error box indicates if any error is currently active in the system.

2 Error Log

The Error log shows each error that occurred in the system with a date/time stamp reference.

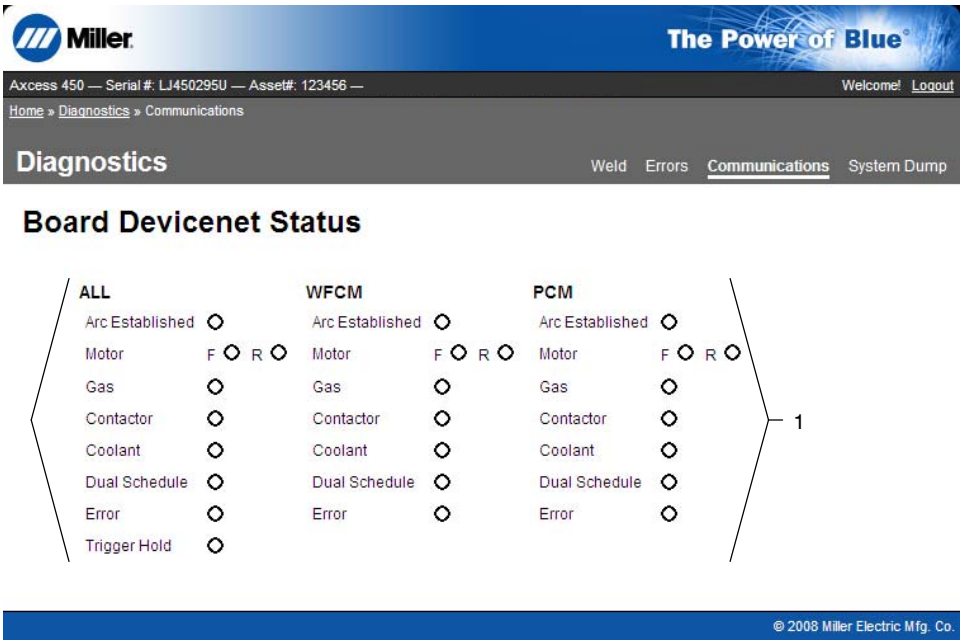
3 Filter Errors

The Filter Errors box allows setting a date/time range and selecting a specific type of error to monitor over the set period of time.

4 Apply Filter Button

Place the cursor on the Apply Filter button and click to set the filter data.

## 12-3. Communications

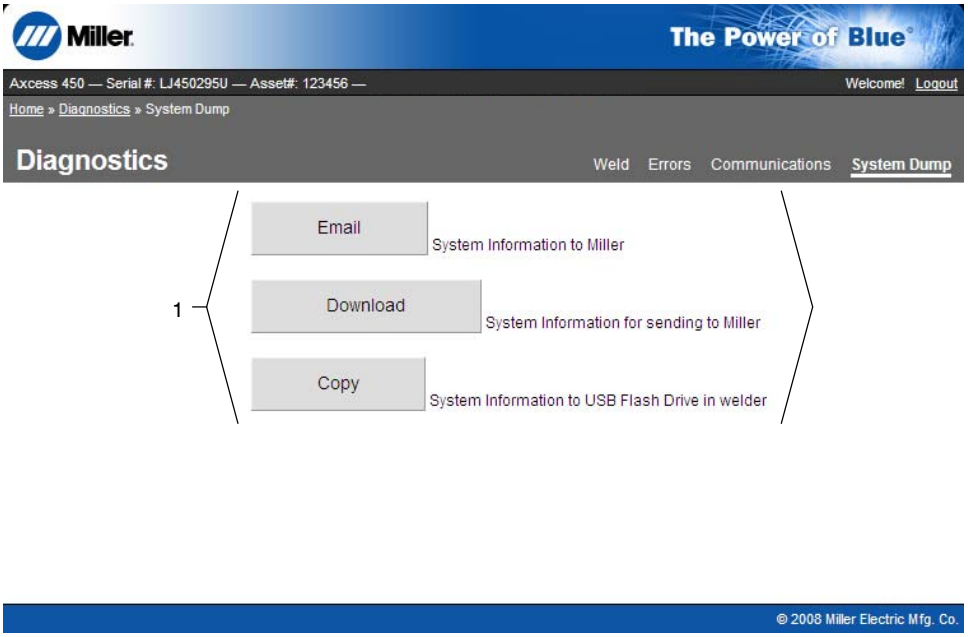



This page provides diagnostic information for the Board Devicenet Status of the listed items.

1 Diagnostic LEDs

Each item has a diagnostic LED to indicate the status of that item. When a dot appears in the LED, this indicates the item is active or functioning.

## 12-4. System Dump




1 Gathering System Information

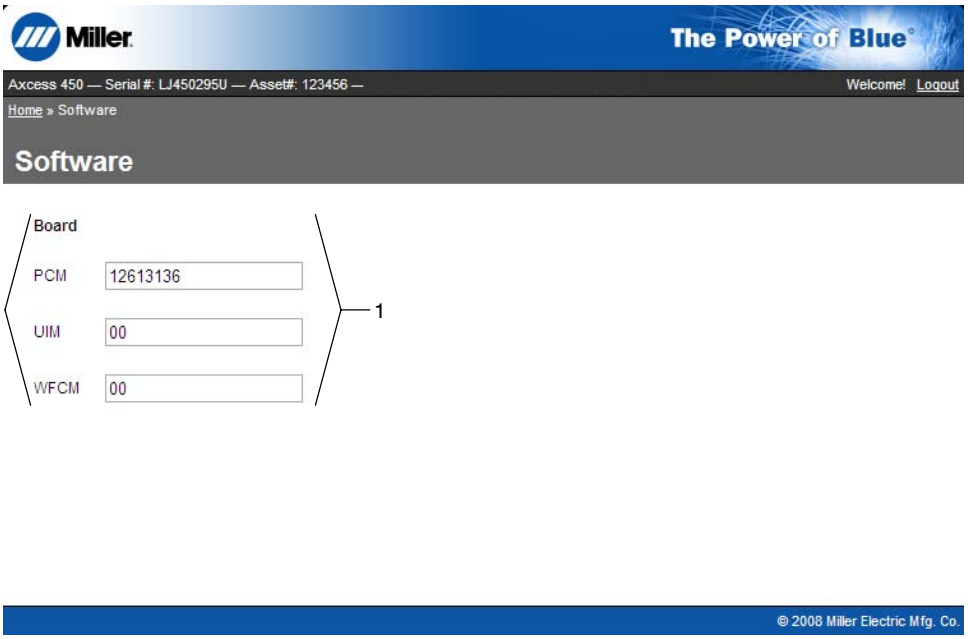
This page provides different methods of gathering system information for diagnostic purposes as follows:

- Email
- Download
- Copy

Each method supplies information for analyzing the status of a system.

# SECTION 13 – SOFTWARE

## 13-1. Software Home Page

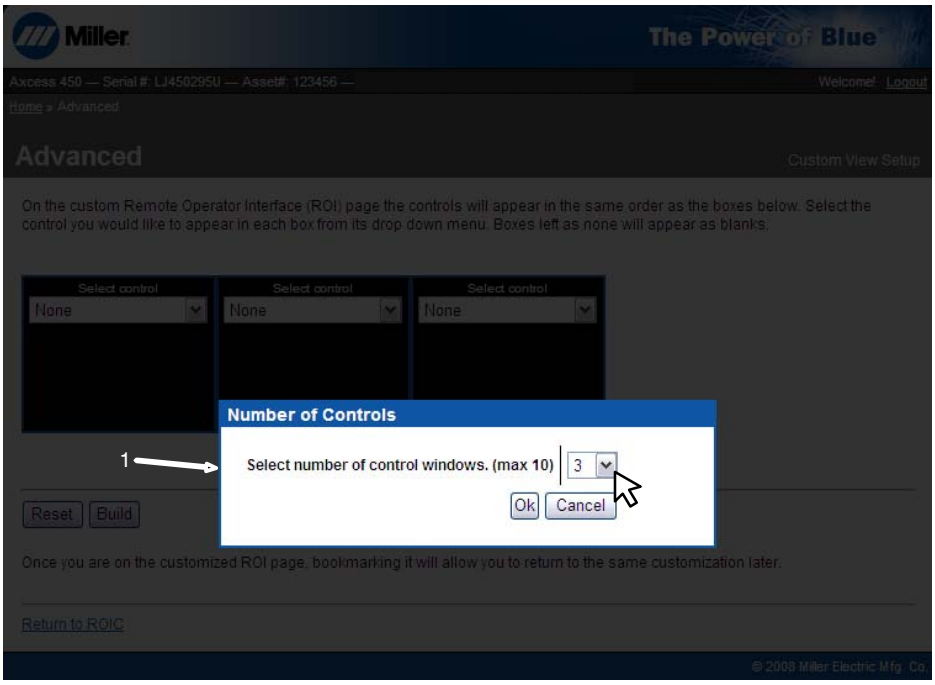


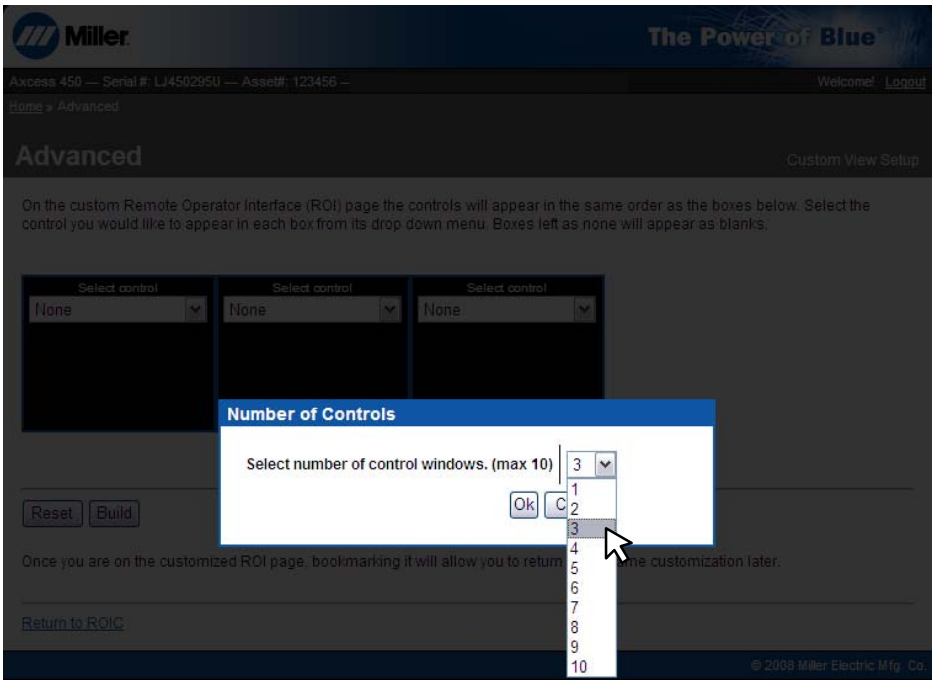

1 Circuit Board Software Version Part Number

The Software home page provides the current software version part number installed on the following: Process Control Module (PCM), User Interface Module (UIM), Wire Feed Control Module (WFCM), and Automation Interface Module (AIM), if applicable.

# SECTION 14 – ADVANCED

## 14-1. Advanced Initial Page



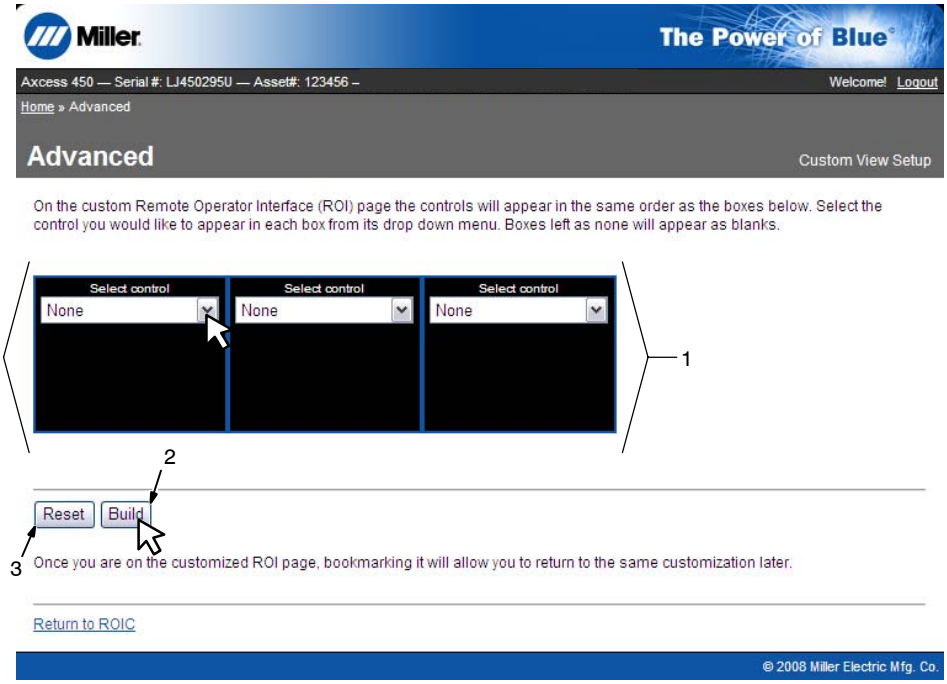



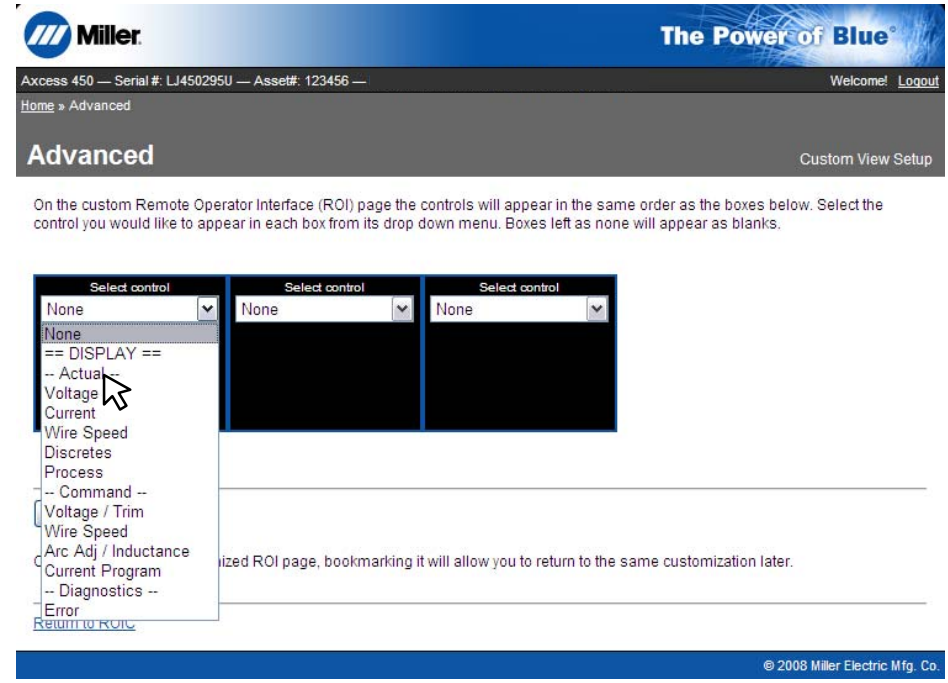

1 Number of Controls Box

The Number of Controls box allows setting the number of control windows for a Remote Operater Interface (ROI) application.

Place the cursor on the down arrow and click to view a drop down menu for the number of control windows. Place the cursor on one of the numbers and click to select that number of control windows.

## 14-2. Advanced Home Page




1 Control Windows

The control windows allow selecting the controls that appear in each window.

Place the cursor on the down arrow and click to view a drop down menu for the items that can be placed in a window. Place the cursor on one of the items and click to select that item for the control window.

2 Build Button

Once selections are made for the items in the control windows, place the cursor on the Build button and click to save these settings.

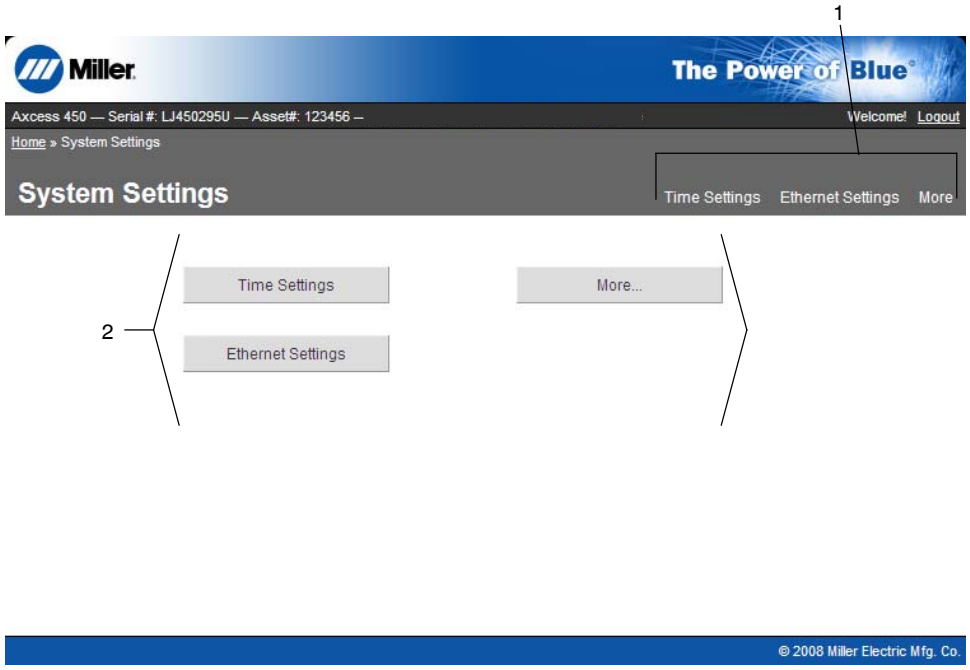
3 Reset Button

Placing the cursor on the Reset button and clicking will reset all the control windows.

☞ *Bookmarking the Advanced page will make it easier to return to the same customization later.*

# SECTION 15 – SYSTEM SETTINGS

## 15-1. System Settings Home Page




1 Menu Bar

2 Application Buttons

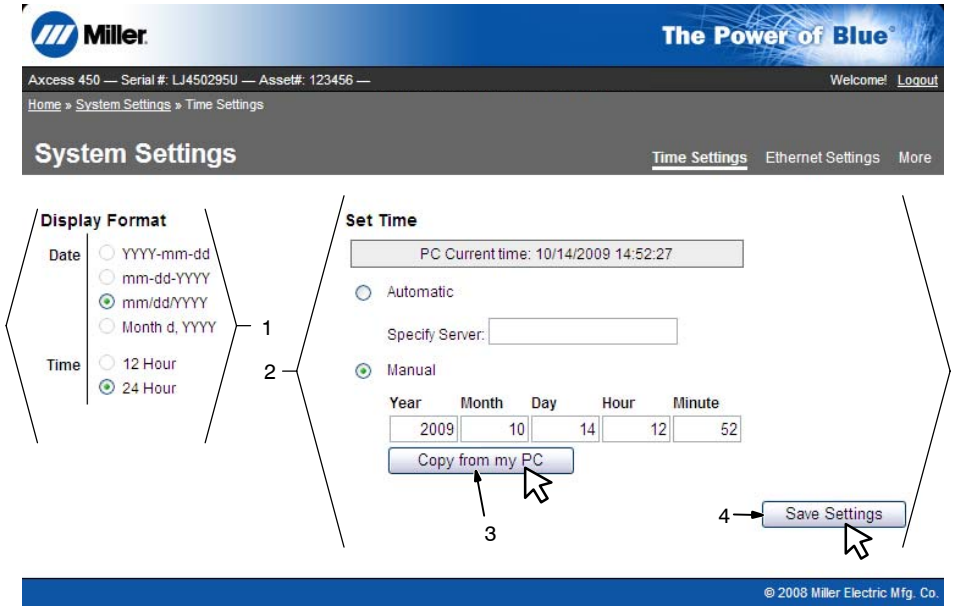
Access to applications can be done one of two ways, either by clicking on the item tab in the menu bar or by clicking the application button.

Available applications are as follows:

- Time Settings
- Ethernet Settings
- More

See the appropriate section for additional information about each application.

## 15-2. Time Settings




1 Display Format

The Display Format allows setting date and time to a desired format.

2 Set Time

The Set Time portion of the page allows selection a method for the date/time setting as follows:

- Automatic

This selection receives it data from a specified server.

- Manual

This selection allows entering the data manually or from a PC.

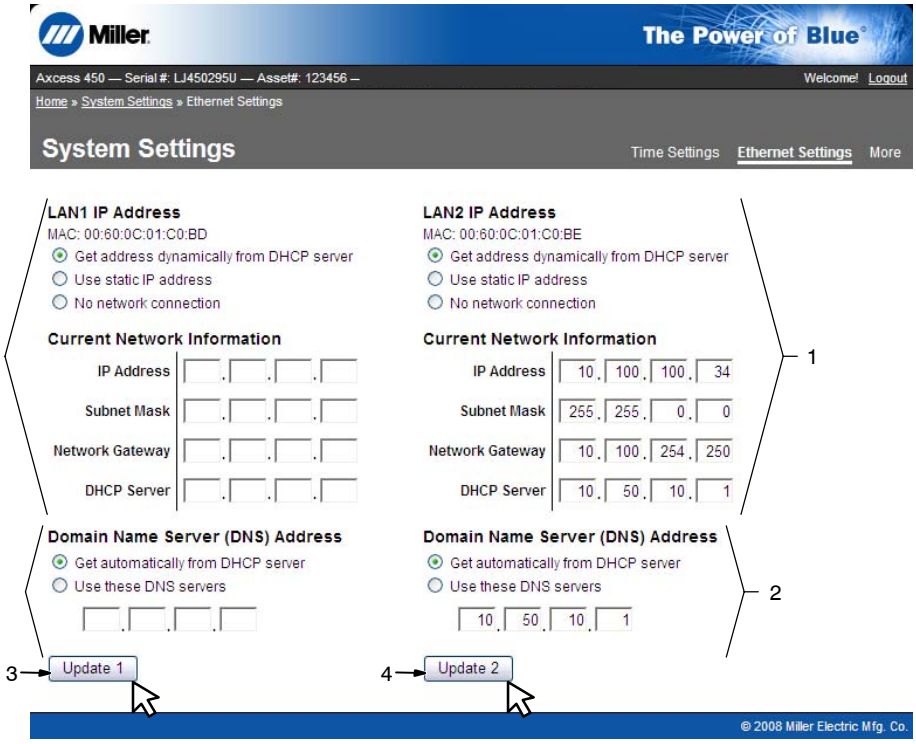
3 Copy from my PC

Placing the cursor on the Copy from my PC button and clicking will enter the date/time from a PC.

4 Save Settings Button

Placing the cursor on the Save Settings button and clicking will save the time setting selections.

## 15-3. Ethernet Settings




1 LAN1 Or LAN2 IP Address

The Local Area Network (LAN) IP address identifies the network server and corresponds to ethernet receptacle A or B on the power source.

The choices for LAN1 and LAN2 are as follows:

- Get address dynamically from DHCP server
- Use static IP address
- No network connection

2 Domain Name Server (DNS) Address

The Domain Name Server (DNS) address identifies the network server and corresponds to ethernet receptacle A or B on the power source.

The choices for DNS addresses are as follows:

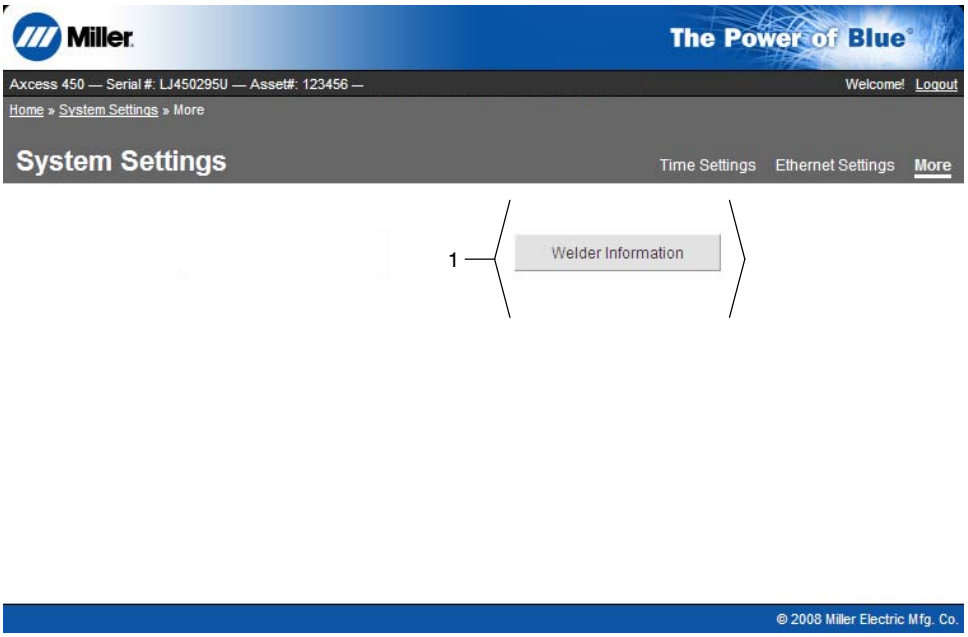
- Get automatically from DHCP server
- Use these DNS servers (manually enter IP address)

3 Update 1 Button

4 Update 2 Button

Placing the cursor on either the Update 1 or Update 2 button and clicking will save the settings for the corresponding network data.

## 15-4. More Home Page




1 Application Button

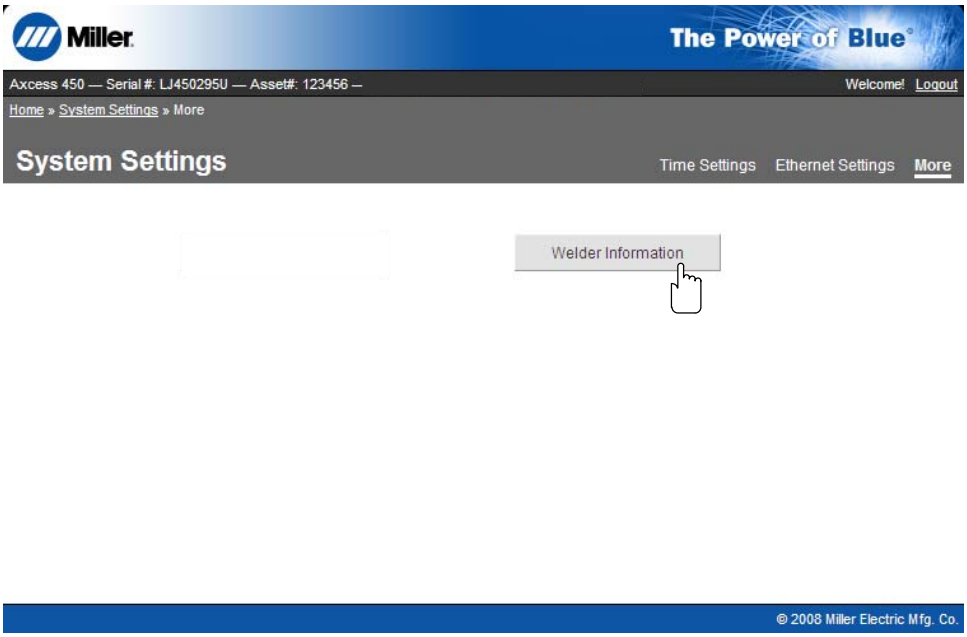
Access to the application can be done by clicking the application button.

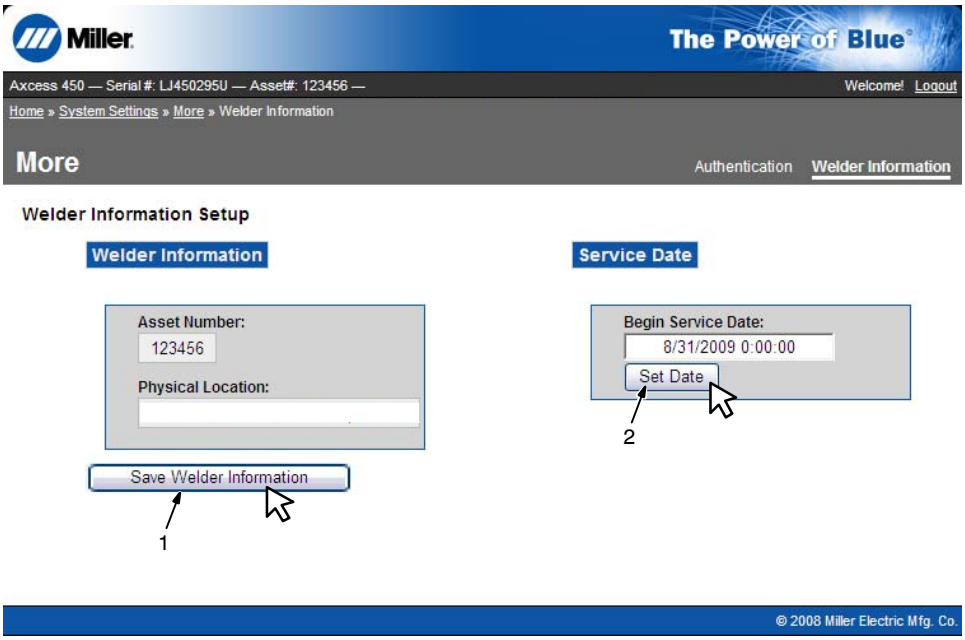
The available application is as follows:

- Welder Information

See the next section for additional information about this application.

## 15-5. Welder Information




Place the cursor on top of the Welder Information box and click on the selection.

Settings available are as follows:

- Welder Information
- Service Date

Enter an Asset Number and Physical Location for the power source.

1 Save Welder Information Button

Place the cursor on the Save Welder Information button and click to save the welder information.

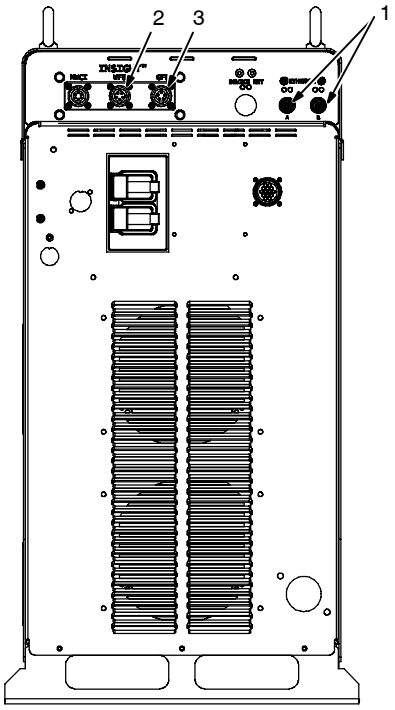
2 Set Date Button

To enter a Service Date, place the curson on top of the Set Date button and click to enter a date/time stamp reference in the box.

# SECTION 16 – CONNECTIONS FOR INSIGHT i100

☞ *Contact the factory for additional information about optional Insight features and functions.*

## 16-1. Weld Counter Sensor Connections (Optional)




1 Ethernet Receptacles (LAN1 or LAN2 depending on IP address)

The Local Area Network (LAN) IP address identifies the network server and corresponds to ethernet receptacle A or B on the power source.

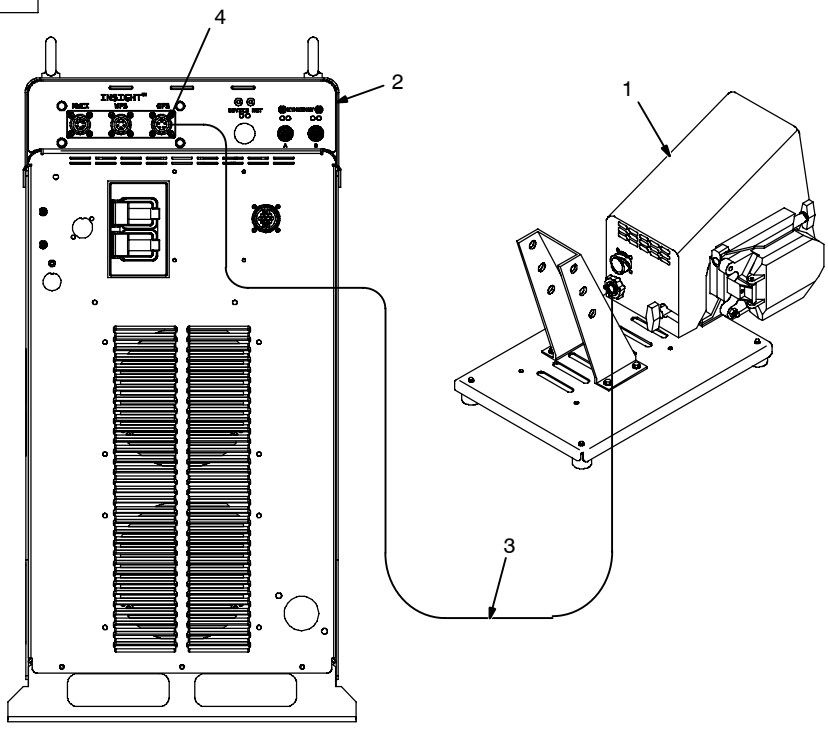
Ethernet receptacles provide connections for either a network cable or a laptop PC or both.

2 Optional WFS (Wire Feed Sensor) Receptacle

3 Optional GFS (Gas Flow Sensor) Receptacle

Ref. 245 741-A

## 16-2. Gas Flow Sensor Connection (Optional)




1 Axcess E Wire Feeder

2 Axcess E Power Source

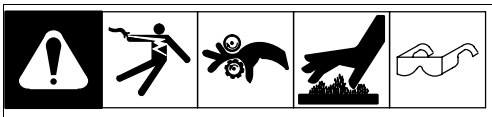
3 Gas Flow Sensor Lead

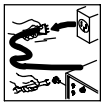
4 Gas Flow Sensor Receptacle

Ref. 245 741-A / 802 825-A

# SECTION 17 – MAINTENANCE

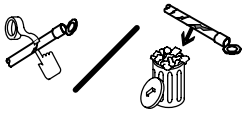
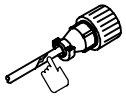
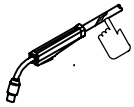
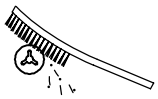
## 17-1. Routine Maintenance



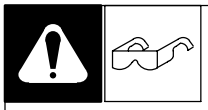


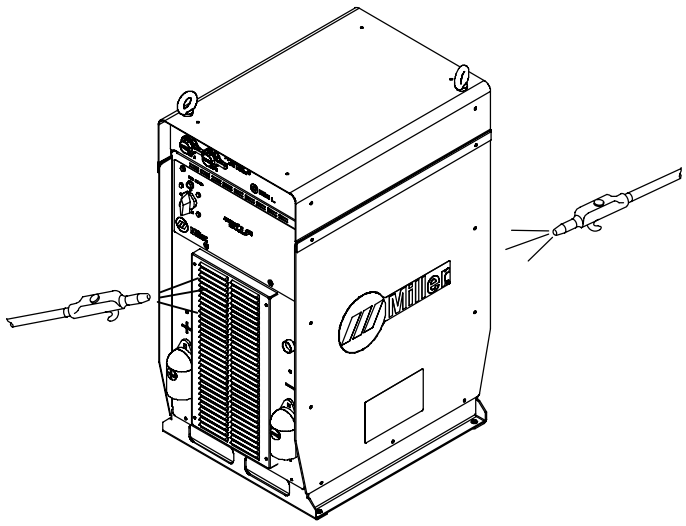
**Disconnect power before maintaining.**

☞ *Maintain more often during severe conditions.*

| | ✓ = Check ◇ = Change ◯ = Clean ☆ = Replace<br>* To be done by Factory Authorized Service Agent | | | | Reference |
|---|---|---|---|---|---|
| Every **3** Months |  <br>☆ Unreadable Labels |  <br>◯ Weld Terminals |  <br>☆ Damaged Gas Hose |  <br>✓☆ Weld Cables | |
| |  <br>✓☆ Cords |  <br>✓☆ Gun Cables | | | |
| Every **6** Months |  <br>◯ Drive Rolls |  <br>◯ Inside Unit | | | |

## 17-2. Blowing Out Inside Of Unit






**Do not remove case when blowing out inside of unit.**

To blow out unit, direct airflow through front and back louvers as shown.

245 733-A

# SECTION 18 – SAFETY PRECAUTIONS FOR SERVICING

**Protect yourself and others from injury — read and follow these precautions.**

## 18-1. Symbol Usage

OM-244 814A - 2009–09, safety_stm 2009–08

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

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

***NOTICE*** *– Indicates statements not related to personal injury.*

☞ *Indicates special instructions.*

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

## 18-2. Servicing 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.**

**Only qualified persons should test, maintain, and repair this unit.**

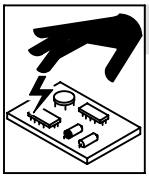
**During servicing, keep everybody, especially children, away.**

### ELECTRIC SHOCK can kill.

- Do not touch live electrical parts.
- Turn Off welding power source and wire feeder and disconnect and lockout input power using line disconnect switch, circuit breakers, or by removing plug from receptacle, or stop engine before servicing unless the procedure specifically requires an energized unit.
- Insulate yourself from ground by standing or working on dry insulating mats big enough to prevent contact with the ground.
- Do not leave live unit unattended.
- If this procedure requires an energized unit, have only personnel familiar with and following standard safety practices do the job.
- When testing a live unit, use the one-hand method. Do not put both hands inside unit. Keep one hand free.
- Disconnect input power conductors from deenergized supply line BEFORE moving a welding power source.

### 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 Troubleshooting Section before touching any parts.

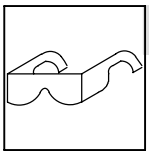


### STATIC (ESD) can damage PC boards.

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

### FIRE OR EXPLOSION hazard.

- Do not place unit on, over, or near combustible surfaces.
- Do not service unit near flammables.

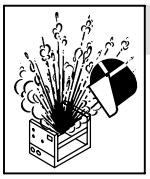


### FLYING METAL or DIRT can injure eyes.

- Wear safety glasses with side shields or face shield during servicing.
- Be careful not to short metal tools, parts, or wires together during testing and servicing.

### 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.



### EXPLODING PARTS can injure.

- Failed parts can explode or cause other parts to explode when power is applied to inverters.
- Always wear a face shield and long sleeves when servicing inverters.

### SHOCK HAZARD from testing.

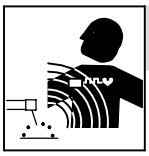
- Turn Off welding power source and wire feeder or stop engine before making or changing meter lead connections.
- Use at least one meter lead that has a self-retaining spring clip such as an alligator clip.
- Read instructions for test equipment.

### 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.
- Follow the guidelines in the Applications Manual for the Revised NIOSH Lifting Equation (Publication No. 94–110) when manually lifting heavy parts or equipment.

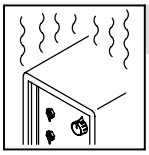
### MOVING PARTS can injure.

- Keep away from moving parts such as fans.
- Keep away from pinch points such as drive rolls.
- Have only qualified persons remove doors, panels, covers, or guards for maintenance and troubleshooting as necessary.
- Keep hands, hair, loose clothing, and tools away from moving parts.
- Reinstall doors, panels, covers, or guards when maintenance is finished and before reconnecting input power.



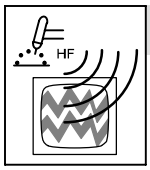
### ELECTRIC AND MAGNETIC FIELDS (EMF) can affect Implanted Medical Devices.

- Wearers of Pacemakers and other Implanted Medical Devices should keep away from servicing areas until consulting their doctor and the device manufacturer.



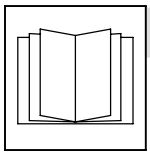
### OVERUSE can cause OVERHEATING.

- 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.




### 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 install, test, and service H.F. producing units.
- 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.



### READ INSTRUCTIONS.

- Use Testing Booklet (Part No. 150 853) when servicing this unit.
- Consult the Owner's Manual for welding safety precautions.
- Use only genuine replacement parts from the manufacturer.
- Read and follow all labels and the Technical Manual carefully before installing, operating, or servicing unit. Read the safety information at the beginning of the manual and in each section.

## 18-3. 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.)**

**Battery posts, terminals and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. Wash hands after handling.**

**For Gasoline Engines:**

**Engine exhaust contains chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm.**

**For Diesel Engines:**

**Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.**

## 18-4. EMF Information

Electric current flowing through any conductor causes localized electric and magnetic fields (EMF). Welding current creates an EMF field around the welding circuit and welding equipment. EMF fields may interfere with some medical implants, e.g. pacemakers. Protective measures for persons wearing medical implants have to be taken. For example, access restrictions for passers–by or 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.

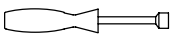
**About Implanted Medical Devices:**

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.

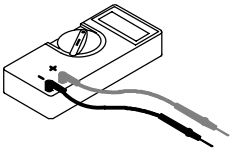
## 19-1. Removing Cover and Measuring Input Capacitor Voltage

**900 Volts DC can be present on the capacitor bus and significant DC voltage can remain on capacitors after unit is Off. Always check the voltage on both inverter assemblies as shown to be sure the input capacitors have discharged before working on unit.**

Tools Needed:



5/16 in.



Turn Off welding power source, and disconnect input power.

Remove cover

1 Interconnect Board PC2

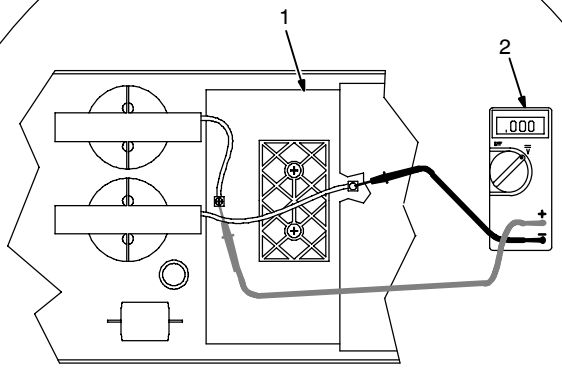
2 Voltmeter

Measure the DC voltage across the + bus terminal and – bus terminal on PC2 as shown until voltage drops to near 0 (zero) volts. Measure input capacitor voltage on both inverter assemblies before proceeding.

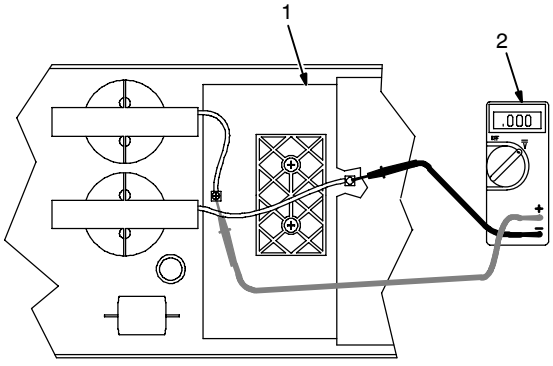
3 Typical Bleeder Resistor

An example of a typical bleeder resistor is shown on this page.

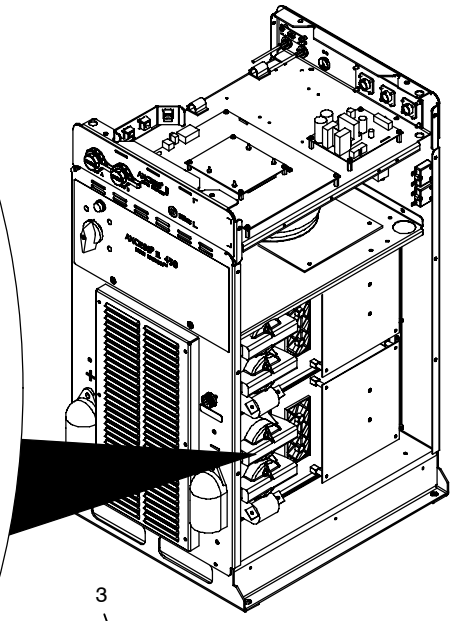
Proceed with job inside unit. Reinstall cover when finished.




+ lead to left bus terminal, – lead to right bus terminal

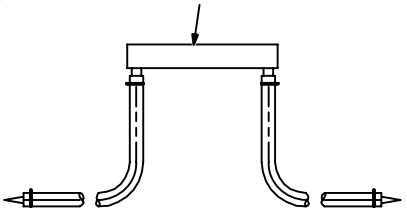



+ lead to left bus terminal, – lead to right bus terminal




Typical Bleeder Resistor

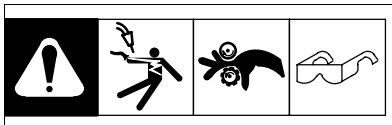
25 to 1000 ohm, 5 watt resistor



#16 AWG 1000 volts DC insulation rating, approx 3 in (76 mm) leads

802 985 / Ref. 245 768-A

## 19-2. Troubleshooting



| Trouble | Remedy |
|---|---|
| No weld output; completely inoperative | Place line disconnect in On position (see Section 3-15). |
| | Check and replace line fuse(s), if necessary, or reset circuit breaker (see Section 3-15). |
| | Check for proper input power connections (see Section 3-15). |
| No weld output; meter display on with no error displayed. | Check to see if the contactor indicator light is lit when contactor line is asserted on. |
| Erratic or improper weld output with no errors displayed. | Use proper size and type of weld cable (see Section 4-1). |
| | Clean and tighten all weld connections. |
| No 115 volts AC at the duplex receptacle. | Reset supplementary protector CB1 (see Section 3-8). |
| Wire does not feed. | Check supplementary protector CB2 and reset if necessary (see Section 3-8). |
| | Check motor control cable connections. |
| Wire feeds erratically. | Readjust hub tension. |
| | Readjust drive roll pressure. |
| | Clean or replace dirty or worn drive rolls. |
| | Remove weld spatter around the nozzle opening. |
| | Replace contact tip or liner. See gun Owner's Manual. |
| | Check motor control cable connections. |
| Wire feeds as soon as power is supplied. | Check gun trigger. See gun Owner's Manual. |
| Wire stubbing on low end using a constant current power source. | Increase output setting of the power source. |
| | Check voltage sense lead connection, clean and tighten if necessary. |
| Gas does not flow or does not stop flowing; wire feeds. | Check gas valve and flow meter. |
| Wire burns back to gun contact tip when using electrode negative (straight polarity) process. | Check to be sure that volt sense lead is connected to the work. |

# Notes

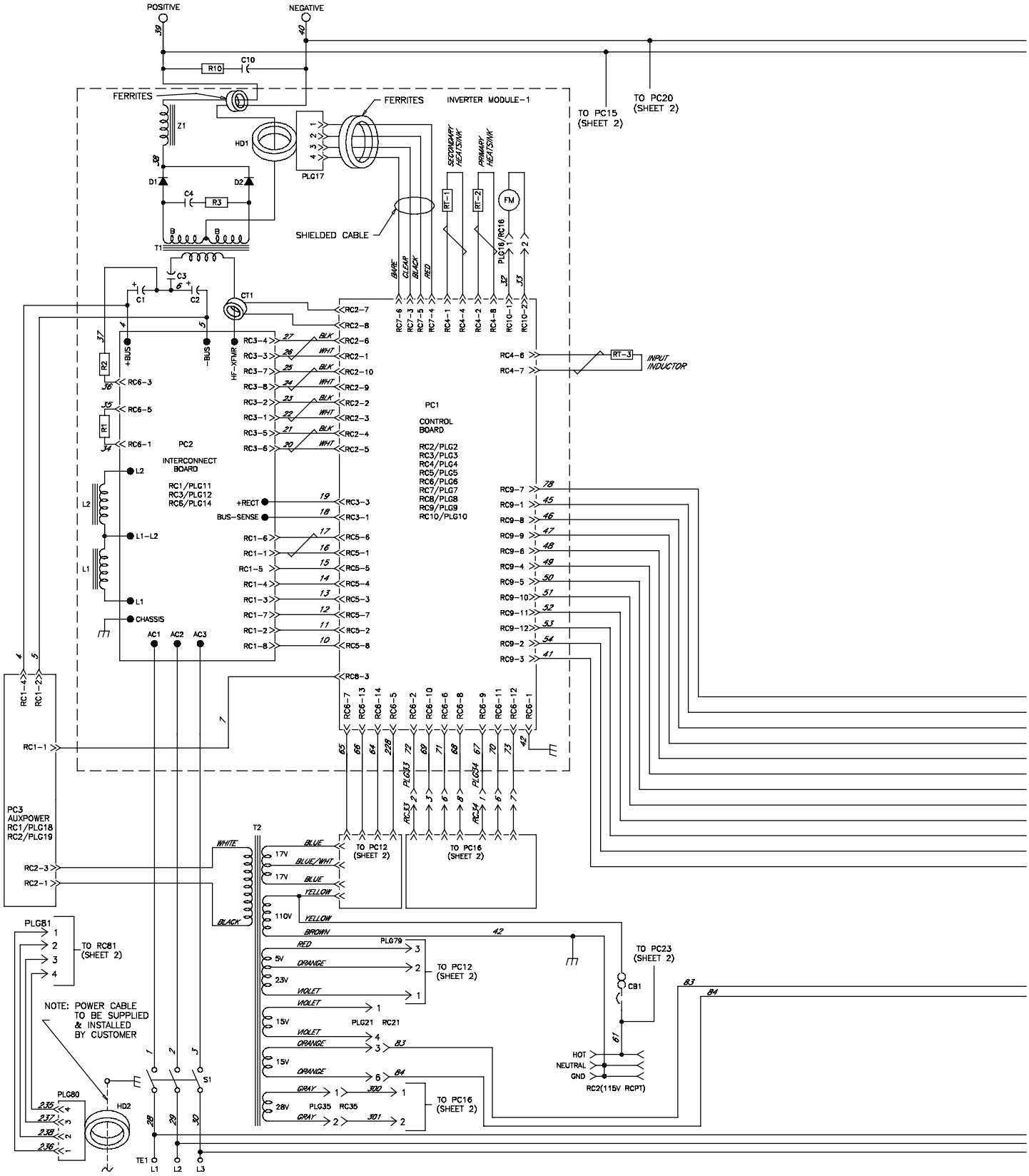
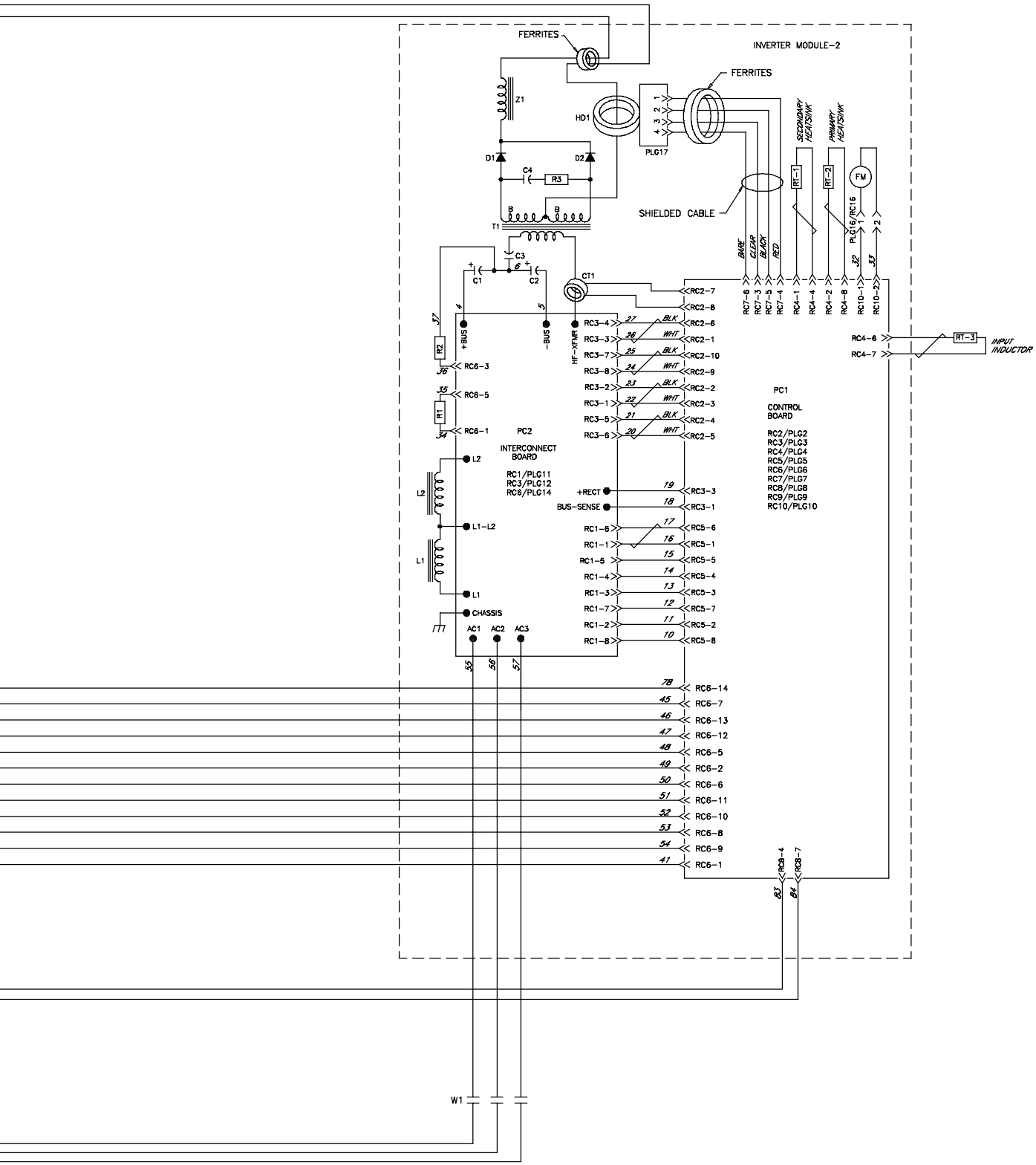



**Figure 20-1. Circuit Diagram For Welding Power Source (1 Of 2)**

| ⚠ WARNING | • Do not touch live electrical parts.<br>• Disconnect input power or stop engine before servicing.<br>• Do not operate with covers removed.<br>• Have only qualified persons install, use, or service this unit. |
|---|---|
| ELECTRIC SHOCK HAZARD | |




245 131-B (Part 1 Of 2)

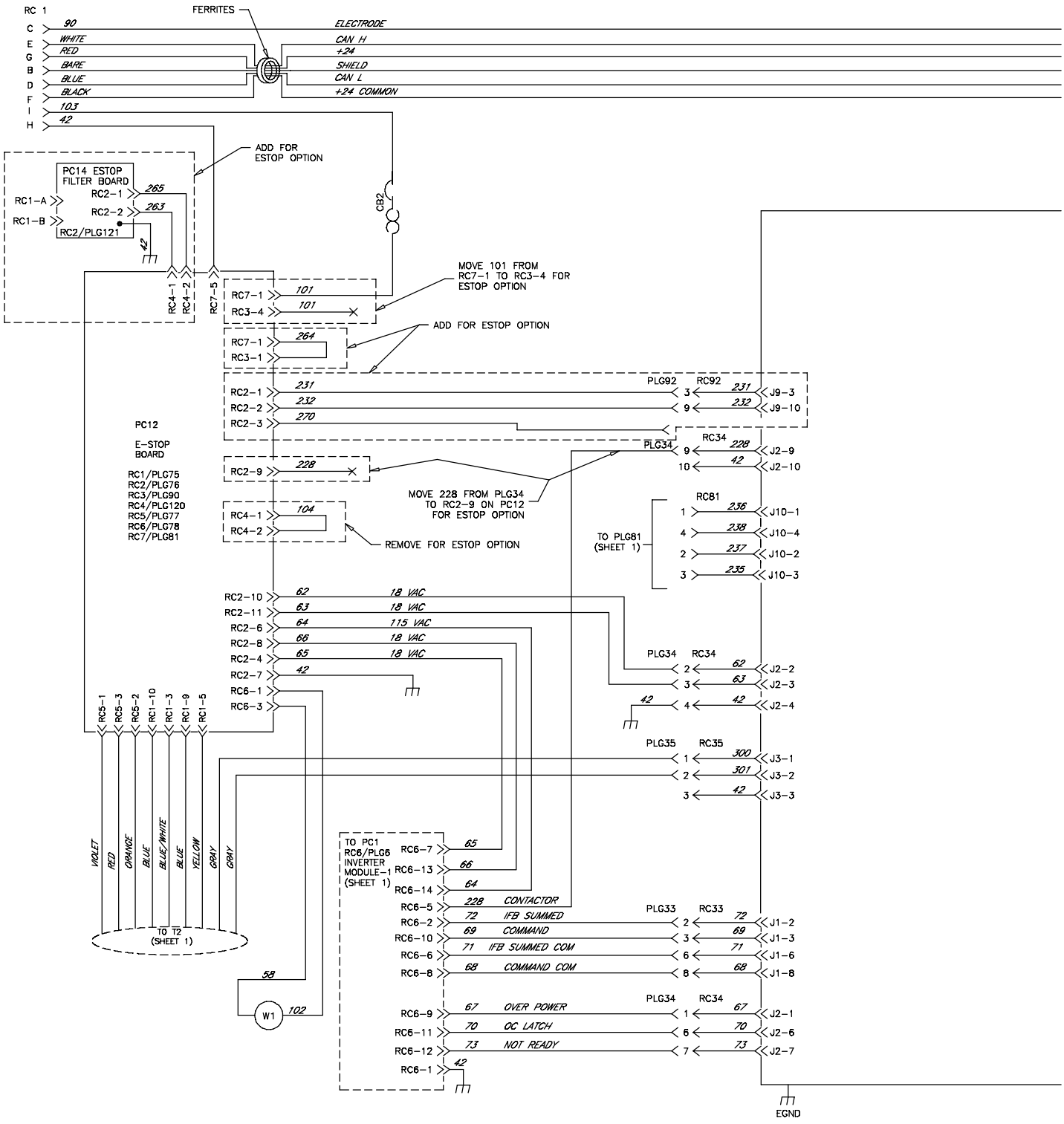
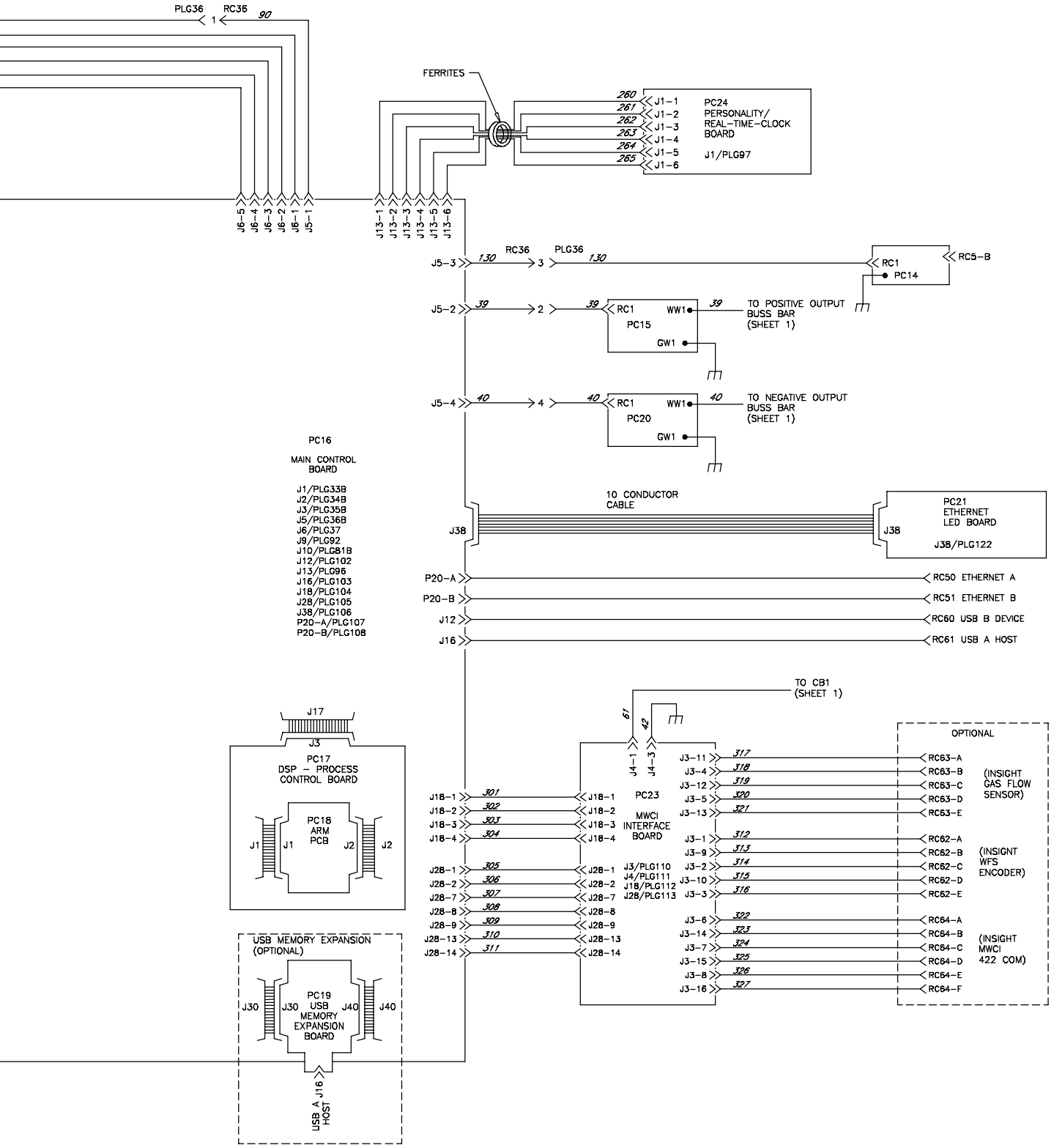



**Figure 20-2. Circuit Diagram For Welding Power Source (2 Of 2)**

**⚠ WARNING**

**ELECTRIC SHOCK HAZARD**

- Do not touch live electrical parts.
- Disconnect input power or stop engine before servicing.
- Do not operate with covers removed.
- Have only qualified persons install, use, or service this unit.




245 131-B (Part 2 Of 2)

☞ *Hardware is common and not available unless listed.*

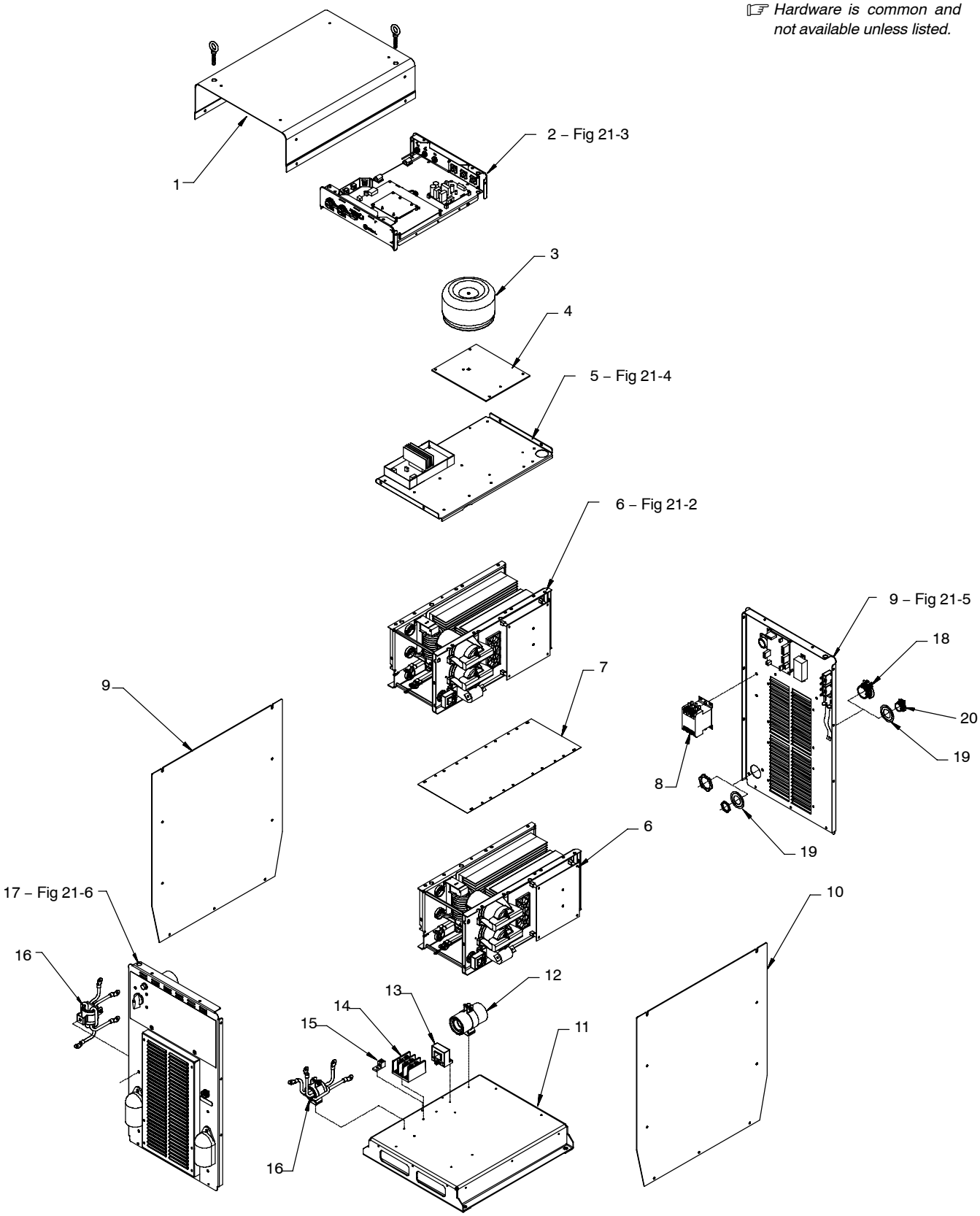



**Figure 21-1. Main Assembly**

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

**Figure 21-1. Main Assembly**

| | | | | |
|---|---|---|---|---|
| 1 | | 242008 | Cover, Top | 1 |
| 2 | | Fig 21-4 | Assembly, E−module W/Ethernet & USB | 1 |
| 3 | T2 | 212543 | Xfmr, Control Toroidal 665 VAC Pri 1900 VA 60 Hz | 1 |
| 4 | | 210481 | Plate, Mtg Toroid Xfmr | 1 |
| 5 | | Fig 21-4 | Top Tray Assembly | 1 |
| 6 | IM1, IM2 | 222959 | MODULE, inverter assy (300A) (Fig 21-2) | 2 |
| 7 | | 198961 | Panel, Module Divider | 1 |
| 8 | W1 | 180270 | Contactor, DEF PRP 40A 3P 24VAC Coil W/Boxlug | 1 |
| 9 | | Fig 21-5 | Rear Panel Assembly | 1 |
| 10 | | 227793 | Panel, Side W/Insulator | 2 |
| 11 | | 210482 | Base | 1 |
| 12 | | 213386 | Assembly, Filter (Primary) | 1 |
| 13 | HD2 | 182918 | Transducer, Current 400A Module Supply V +/− 15V | 1 |
| 14 | | 198951 | Block, Terminal 3 Pole | 1 |
| 15 | | 148025 | Lug, Univ W/SCR 600V 2/0−6 Wire .266 Stud | 1 |
| 16 | | 213372 | Filter Assy, Secondary | 2 |
| 17 | | Fig 21-6 | Front Panel Assembly | 1 |
| | | 227855 | Kit, Connectors W/Washer For Power Cables (Includes) | 1 |
| 18 | | 010467 | Connector, Clamp Cable 1.250 | 1 |
| 19 | | 225840 | Washer, Reducer 1.25 in − 0.75 in | 2 |
| 20 | | 010916 | Connector, Clamp Cable 0.750 | 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.**

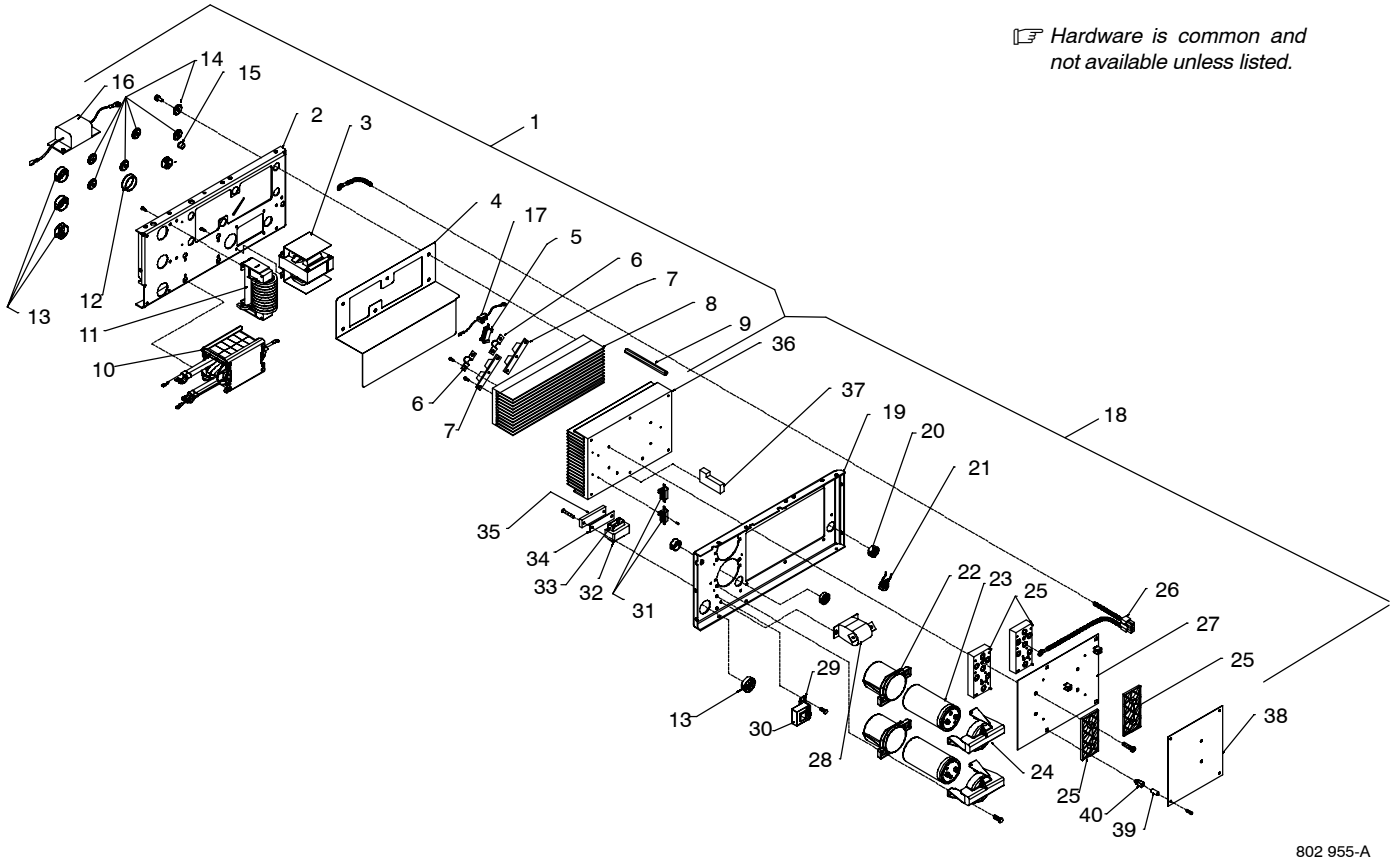



**Figure 21-2. Windtunnel Assembly LH And RH**

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

**Figure 21-2. Windtunnel Assembly LH And RH (Fig 21-1 Item 6)**

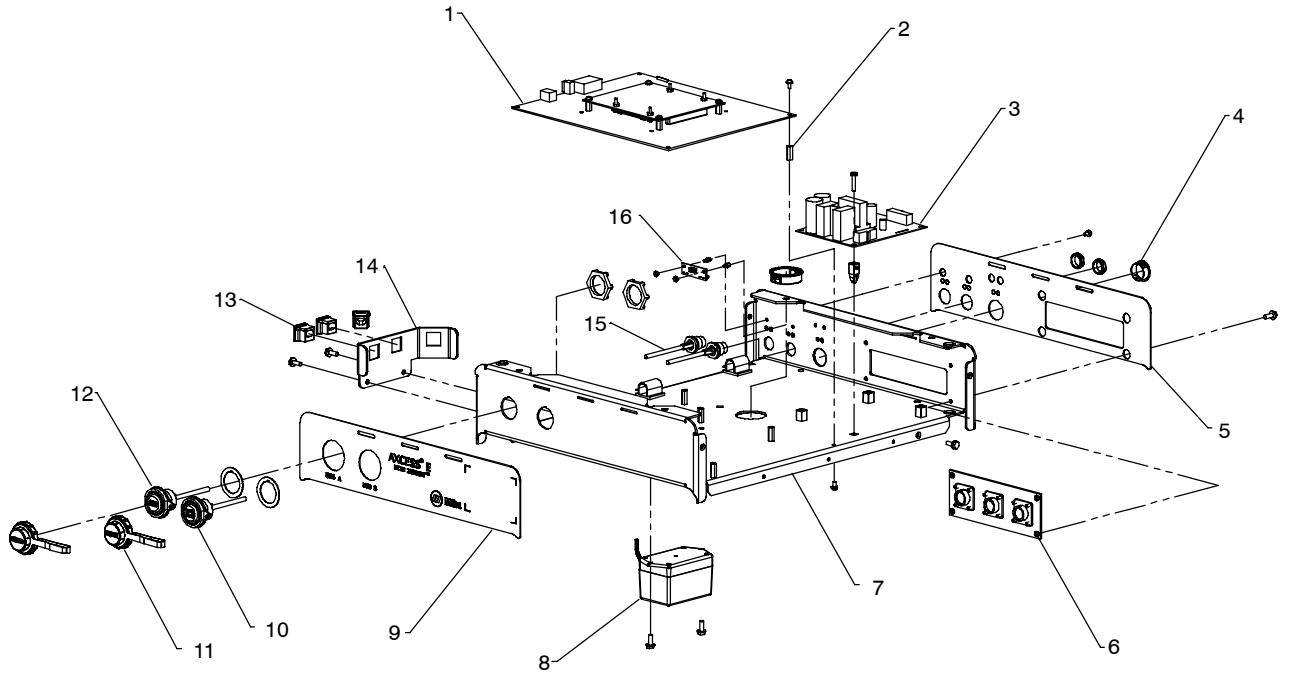
| | | | | |
|---|---|---|---|---|
| 1 | | 214597 | Windtunnel, LH w/Components (including). | 1 |
| 2 | | 196351 | Windtunnel, LH | 1 |
| 3 | L1 | 213940 | Inductor, Input | 1 |
| 4 | | 214519 | Insulator, Heat Sink Rectifier | 1 |
| 5 | R3, C4 | 233052 | Resistor/Capacitor | 1 |
| 6 | | 199840 | Bus Bar, Diode | 2 |
| 7 | D1, D2 | 201531 | Kit, Diode Power Module | 2 |
| 8 | | 196347 | Heat Sink, Rectifier | 1 |
| 9 | | 196349 | Spacer, Windtunnel | 3 |
| 10 | T1 | 203408 | Xfmr, HF Litz/Litz | 1 |
| 11 | Z1 | 220496 | Output Inductor Assy | 1 |
| 12 | | 170647 | Bushing, Snap−in Nyl 1.312 Id X 1.500 Mtg Hole | 2 |
| 13 | | 179276 | Bushing, Snap−in Nyl 1.000 Id X 1.375 Mtg Hole Cent | 4 |
| 14 | | 196355 | Insulator, Screw | 6 |
| 15 | | 010546 | Bushing, Snap−in Nyl .375 Id X .500 Mtg Hole | 1 |
| 16 | C10 | 244406 | Capacitor,W/Terminals (16 uf) | 1 |
| 17 | R10 | 244536 | Resistor Assy, w/Leads | 1 |
| 18 | | 222958 | Windtunnel, RH w/Components (including) | 1 |
| 19 | | 196332 | Windtunnel, RH | 1 |
| 20 | | 030170 | Bushing, Snap−in Nyl .750 Id X 1.000 Mtg Hole Cent | 2 |
| 21 | | 196259 | Plugs, w/Leads & Current Xfmr (including) | 1 |
| | | 115092 | Housing, Plug & Skts | 1 |
| | | 115091 | Housing, Plug & Skts | 1 |
| | CT1 | 196231 | Xfmr, Current Sensing 200/1 | 1 |
| 22 | | 201695 | Clamp, Capacitor (Bottom) | 2 |
| 23 | C1, C2 | 226081 | Capacitor,Elctlt 2400 Uf 500 VDC Can 2.50 Dia | 2 |
| 24 | | 210507 | Clamp, Capacitor (Top) Machined | 2 |
| 25 | | 217625 | Kit, Input/Pre−regulator And Inverter Module | 1 |
| 26 | RT1,RT2,RT3 | 214015 | Thermistor, NTC 30K Ohm @ 25 Deg C 7&18in Lead | 3 |
| 27 | PC2 | 222661 | Circuit Card Assy, Power Interconnect | 1 |
| 28 | C3 | 196143 | Capacitor, Polyp Met Film 16. Uf 400 VAC 10% | 1 |
| 29 | | 196378 | Bracket, Mtg Current Xfmr | 1 |
| 30 | HD1 | 182918 | Transducer, Current 400A Module Supply V +/− 15v | 1 |
| | | 196384 | Cable, Transducer 20in | 1 |
| 31 | R1, R2 | 196343 | Resistors, W/Leads & Plug | 1 |
| | | 196840 | Insulator, Resistors/Interface Board | 1 |
| 32 | | 109056 | Core, Ferrite E 2.164 Lg X 1.094 High X .826 Wide | 1 |
| 33 | L2 | 196345 | Coil, Inductor (Pre−regulator) | 1 |
| 34 | | 196514 | Gasket, Inductor Mounting | 2 |
| 35 | | 196512 | Bracket, Inductor Mounting | 2 |
| 36 | | 196330 | Heat Sink, Power Module | 1 |
| 37 | | 196588 | Baffle, Foam Rubber (Lower) | 1 |
| | | 196365 | Plugs, w/Leads (Fan) | 1 |
| | | 199136 | Plugs, w/Leads (PC2 To PC1) | 1 |
| 38 | PC1 | 235305 | Circuit Card Assy, Control (Inverter 300A) | 1 |
| 39 | | 204846 | Insulator, Screw | 4 |
| 40 | | 083147 | Grommet, Scr No 8/10 Panel Hole .312 Sq .500 High | 4 |

*****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.*




245 871-A

**Figure 21-3. E-module w/Ethernet And USB Assembly**

| Item No. | Dia. Mkgs. | Part No. | Description | Quantity |
|---|---|---|---|---|
| | | | **Figure 21-3. E-module w/Ethernet And USB Assembly (Fig 21-1 Item 2)** | |
| 1 | | 244923 | Assy, Axcess E Circuit Card Board Stack | 1 |
| 2 | | 115440 | Stand−off, No 6−32 X .687 Lg .250 Hex Al Fem | 4 |
| 3 | | ♦244985 | Circuit Card Assy, Axcess E MWCI Interface | 1 |
| 4 | | 000527 | Blank, Snap−in Nyl .875 Mtg Hole Black | 1 |
| 5 | | 242645 | Nameplate, Axcess E Top Rear | 1 |
| 6 | | ♦242007 | Panel, Amp W/Components | 1 |
| 7 | | 241996 | Chassis, Axcess E | 1 |
| 8 | | 245350 | Assembly, Personality Board | 1 |
| 9 | | 240728 | Nameplate, Axcess E Top Front | 1 |
| 10 | | 244236 | Cable, USB Type B, Sealed Panel Mount | 1 |
| 11 | | 244237 | Dust Cap | 2 |
| 12 | | 244239 | Cable, USB Type A, Sealed Panel Mount | 1 |
| 13 | | 203423 | Bushing,Strain Relief .300/.360 ID X .689 Sq Mtg | 3 |
| 14 | | 246545 | Bracket,Axcess E Strain Relief | 1 |
| 15 | | 244257 | Cable Assy, RJ45 Male/M12 Female .4m | 2 |
| 16 | | 244980 | Circuit Card Assy, Ethernet LED | 1 |

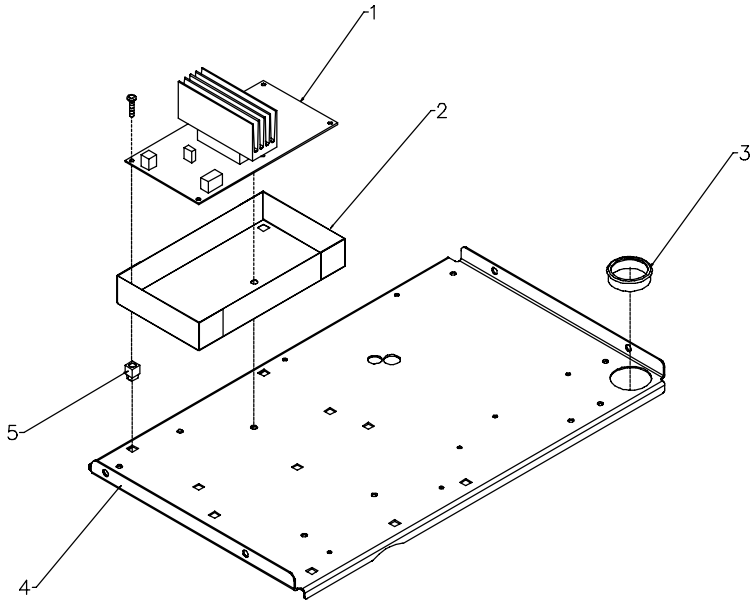
*Recommended Spare Parts.

♦OPTIONAL

+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.*




245 798-A

**Figure 21-4. Top Tray Assembly**

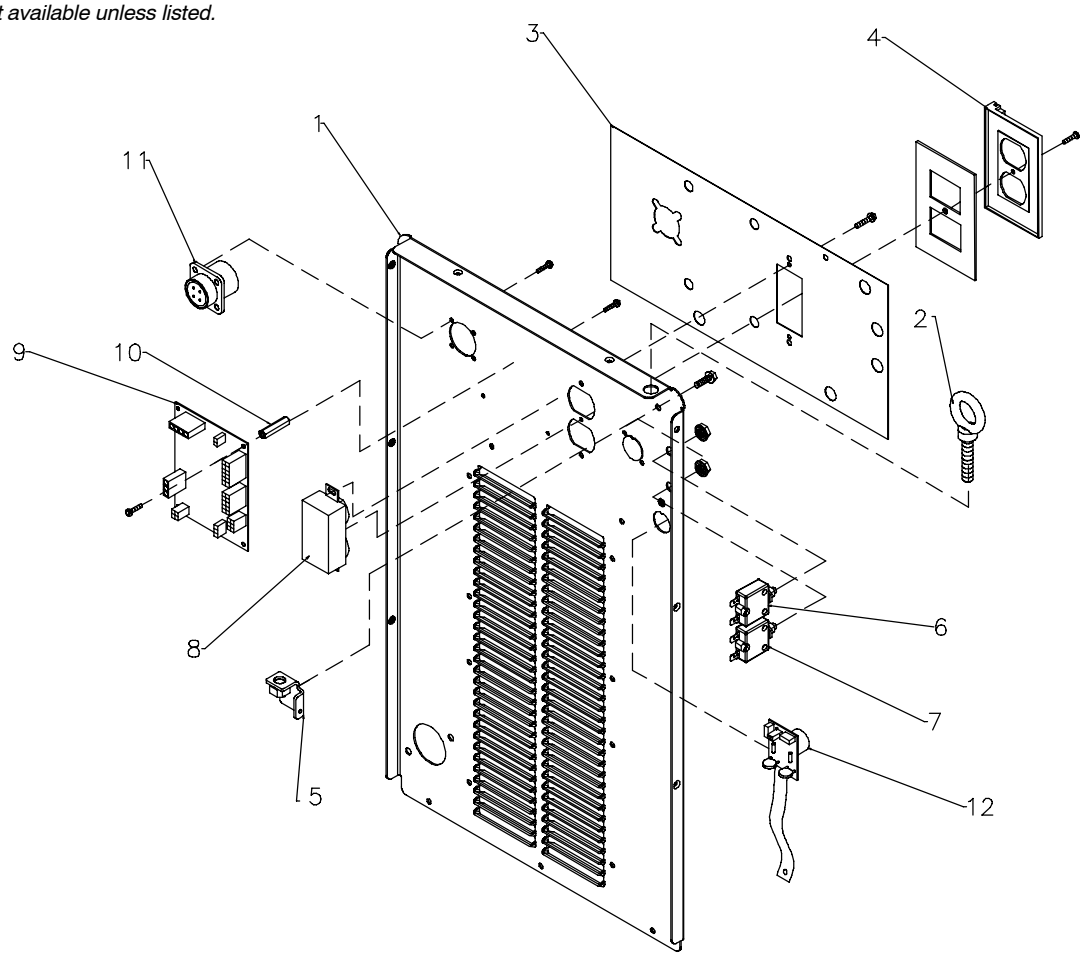
| Item No. | Dia. Mkgs. | Part No. | Description | Quantity |
|---|---|---|---|---|
| **Figure 21-4. Top Tray Assembly (Fig 21-1 Item 5)** | | | | |
| 1 | PC3 | 231928 | Circuit Card Assy, Aux Power | 1 |
| 2 | | 223439 | Insulator, circuit card (Aux Power) | 1 |
| 3 | | 170647 | Bushing, Snap−in Nyl 1.312 Id X 1.500 Mtg Hole | 1 |
| 4 | | 210491 | Panel, Mtg Components Top | 1 |
| 5 | | 083147 | Grommet, SCR No 8/10 Panel Hole .312 Sq .500 High | 4 |

*****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.*




245 810-A

**Figure 21-5. Rear Panel Assembly**

| Item No. | Dia. Mkgs. | Part No. | Description | Quantity |
|---|---|---|---|---|
| | | | **Figure 21-5. Rear Panel Assembly (Fig 21-1 Item 9)** | |
| 1 | | 210474 | Panel, Rear | 1 |
| 2 | | 245352 | Lift Eye, 4” | 1 |
| 3 | | 210503 | Nameplate, Rear | 1 |
| 4 | | 217297 | Cover, Receptacle Weatherproof Duplex Rcpt | 1 |
| 5 | | 210483 | Bracket, lift eye | 1 |
| 6 | CB1 | 083432 | Supplementary Protector, Man Reset 1P 10A 250VAC Frict | 1 |
| 7 | CB2 | 093995 | Supplementary Protector, Man Reset 1P 15A 250VAC Frict | 1 |
| 8 | RC2 | 196814 | Receptacle, w/Leads (115V Duplex) | 1 |
| 9 | PC12 | 209676 | Circuit Card Assy, E-Stop | 1 |
| 10 | | 115440 | Stand-off, no 6-32 x .687 lg .250 hex al fem | 4 |
| 11 | | 212764 | Plug Assy, Rear | 1 |
| 12 | | ♦300007 | E–Stop Connector | 1 |

*Recommended Spare Parts.

♦OPTIONAL

+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.*

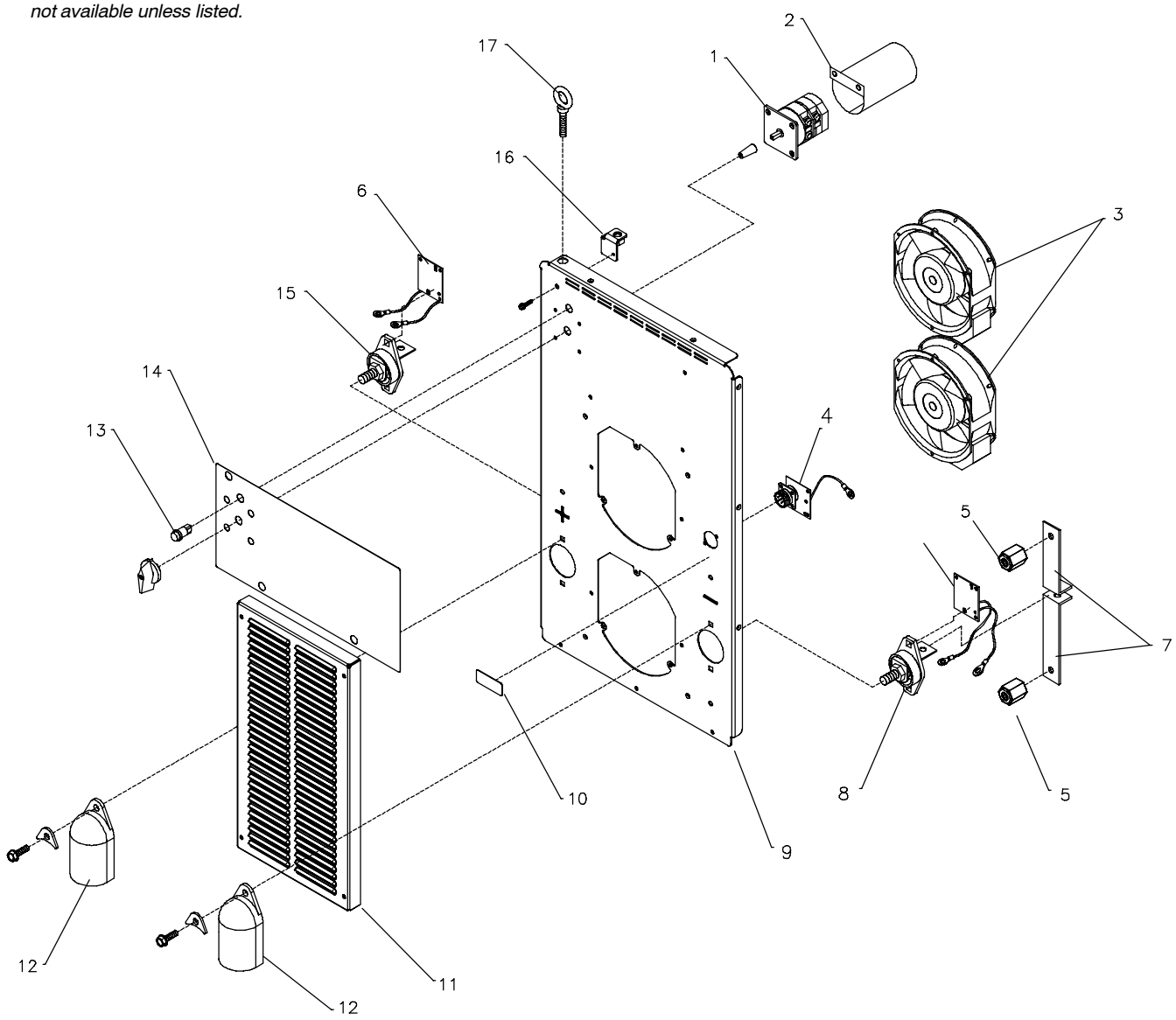



**Figure 21-6. Front Panel Assembly**

| Item No. | Dia. Mkgs. | Part No. | Description | Quantity |
|---|---|---|---|---|
| | | | **Figure 21-6. Front Panel Assembly (Fig 21-1 Item 17)** | |
| 1 | S1 | 207456 | Switch, Rotary 2 Posn 1P 40A 600VAC PNLMTG 90Deg | 1 |
| 2 | | 207895 | Insulator,Switch Power | 1 |
| 3 | FM | 196313 | Fan, Muffin 115V 50/60 Hz 3000 Rpm 6.378 Mtg Holes | 2 |
| 4 | | 244989 | Circuit Card Assy, Vsense Filter | 1 |
| 5 | | 025248 | Stand−off, Insul .250−20 X 1.250 Lg X .437 Thd | 2 |
| 6 | PC15, PC20 | 244993 | Circuit Card Assy, Stud Filter | 2 |
| 7 | | 207897 | Bus Bar, Output | 2 |
| 8 | | 210866 | Terminal, Pwr Output Black | 1 |
| 9 | | 247005 | Panel, Front | 1 |
| 10 | | 219843 | Label, Volt Sense | 1 |

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

**Figure 21-6. Front Panel Assembly (Continued)**

| | | | | |
|---|---|---|---|---|
| . . . 11 | | 207896 | . . . Box, Louver | 1 |
| . . . 12 | | 186621 | . . . Boot, Generic | 2 |
| . . . 13 | PL1 | 163562 | . . . Light, ind white lens | 1 |
| . . . 14 | | 245604 | . . . Nameplate, Front | 1 |
| . . . 15 | | 210865 | . . . Terminal, Pwr Output Red | 1 |
| . . . 16 | | 210483 | . . . Bracket, lift eye | 1 |
| . . . 17 | | 245352 | . . . Lift Eye, 4” | 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.**

# Notes

*Warranty Questions?*

Call
1-800-4-A-MILLER
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Your distributor also gives you ...

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

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

Miller

# TRUE BLUE® WARRANTY

## Effective January 1, 2010
## (Equipment with a serial number preface of MA or newer)

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

LIMITED WARRANTY – Subject to the terms and conditions below, Miller Electric Mfg. 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 one year 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
   * 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
   * Smith 30 Series Flowgauge and Flowmeter Regulators (No Labor)
   * Transformer/Rectifier Power Sources
   * Water Coolant Systems (Integrated)
3. 2 Years — Parts
   * Auto-Darkening Helmet Lenses (No Labor)
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.)
   * Flowgauge and Flowmeter Regulators (No Labor)
   * RFCS Foot Controls (Except RFCS-RJ45)
   * Fume Extractors
   * HF Units
   * ICE Plasma Cutting Torches (No Labor)
   * Induction Heating Power Sources, Coolers, and Electronic Controls/Recorders
   * Load Banks
   * Motor Driven Guns (w/exception of Spoolmate Spoolguns)
   * PAPR Blower Unit (No Labor)
   * Positioners and Controllers
   * Racks
   * Running Gear/Trailers
   * Spot Welders
   * Subarc Wire Drive Assemblies
   * Water Coolant Systems (Non-Integrated)
   * Weldcraft-Branded TIG Torches (No Labor)
   * 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.

# 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<br>Options and Accessories<br>Personal Safety Equipment<br>Service and Repair<br>Replacement Parts<br>Training (Schools, Videos, Books)<br>Technical Manuals (Servicing Information and Parts)<br>Circuit Diagrams<br>Welding Process Handbooks<br>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.<br>For assistance in filing or settling claims, contact your distributor and/or equipment manufacturer's Transportation Department. |

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www.MillerWelds.com

ORIGINAL INSTRUCTIONS – PRINTED IN USA

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