



OM-1500-13

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2006-05

**Processes**



MIG (GMAW) Welding

Flux Cored (FCAW) Welding  
(Gas and Self-Shielding)

Submerged (SAW) Welding

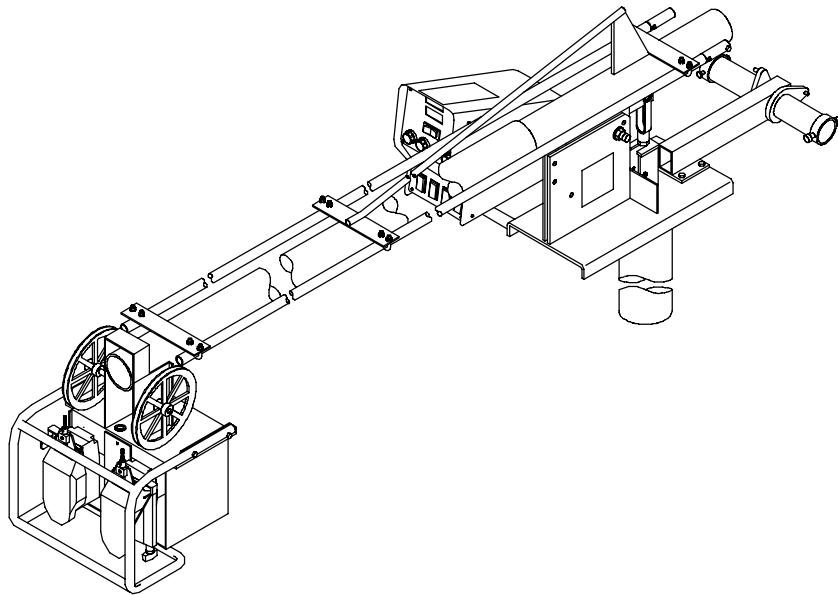
**Description**



Wire Feeder

(Use with CV Power Sources)

# DS-74S/D Swingarc™



DS-74S12, DS-74S16, DS-74D12, and DS-74D16

## OWNER'S MANUAL



Visit our website at

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

File: MIG (GMAW)



# From Miller to You

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

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

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

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

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



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

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



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



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# SECTION 1 – SAFETY PRECAUTIONS - READ BEFORE USING

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

## 1-1. Symbol Usage



Means Warning! Watch Out! There are possible hazards with this procedure! The possible hazards are shown in the adjoining symbols.

▲ **Marks a special safety message.**

☞ Means "Note"; not safety related.



This group of symbols means Warning! Watch Out! possible 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

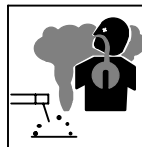
live when power is on. In semiautomatic or automatic wire welding, the wire, wire reel, drive roll housing, and all metal parts touching the welding wire are electrically live. Incorrectly installed or improperly grounded equipment is a hazard.

- 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.
- 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-type welding power sources after removal of input power.

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



### 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.

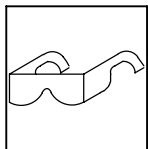
- Wear an approved welding helmet fitted with a proper shade of filter lenses to protect your face and eyes when welding or watching (see ANSI Z49.1 and Z87.1 listed in Safety Standards).
- Wear approved safety glasses with side shields under your helmet.
- Use protective screens or barriers to protect 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).
- 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.
- 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 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.



### HOT PARTS can cause severe burns.

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



### MAGNETIC FIELDS can affect pacemakers.

- Pacemaker wearers keep away.
- Wearers should consult their doctor before going near arc welding, gouging, or spot welding 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 UNIT can cause injury.

- 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.



#### 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.



#### 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 cause injury.

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



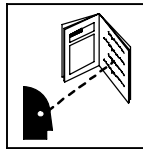
#### WELDING WIRE can cause injury.

- 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.



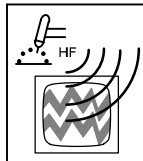
#### MOVING PARTS can cause injury.

- 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 as necessary.
- Reinstall doors, panels, covers, or guards when maintenance is finished and before re-connecting input power.



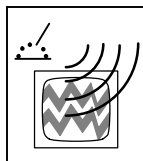
#### READ INSTRUCTIONS.

- Read Owner's Manual before using or servicing unit.
- Use only genuine Miller/Hobart replacement parts.



#### 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).

*Recommended Safe Practices for the Preparation for Welding and Cutting of Containers and Piping*, 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, P.O. Box 9101, 1 Battery March Park, Quincy, MA 02269-9101 (phone: 617-770-3000, website: www.nfpa.org).

*Safe Handling of Compressed Gases in Cylinders*, CGA Pamphlet P-1, from Compressed Gas Association, 1735 Jefferson Davis Highway, Suite 1004, Arlington, VA 22202-4102 (phone: 703-412-0900, website: www.cganet.com).

*Code for Safety in Welding and Cutting*, CSA Standard W117.2, from Canadian Standards Association, Standards Sales, 178 Rexdale

Boulevard, Rexdale, Ontario, Canada M9W 1R3 (phone: 800-463-6727 or in Toronto 416-747-4044, website: www.csa-international.org).

*Practice For Occupational And Educational Eye And Face Protection*, ANSI Standard Z87.1, from American National Standards Institute, 11 West 42nd Street, New York, NY 10036-8002 (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, P.O. Box 9101, 1 Battery March Park, Quincy, MA 02269-9101 (phone: 617-770-3000, 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 (there are 10 Regional Offices—phone for Region 5, Chicago, is 312-353-2220, website: www.osha.gov).

## 1-6. EMF Information

Considerations About Welding And The Effects Of Low Frequency Electric And Magnetic Fields

Welding current, as it flows through welding cables, will cause electromagnetic fields. There has been and still is some concern about such fields. However, after examining more than 500 studies spanning 17 years of research, a special blue ribbon committee of the National Research Council concluded that: "The body of evidence, in the committee's judgment, has not demonstrated that exposure to power-frequency electric and magnetic fields is a human-health hazard." However, studies are still going forth and evidence continues to be examined. Until the final conclusions of the research are reached, you may wish to minimize your exposure to electromagnetic fields when welding or cutting.

To reduce magnetic fields in the workplace, use the following procedures:

1. Keep cables close together by twisting or taping them.
2. Arrange cables to one side and away from the operator.
3. Do not coil or drape cables around your body.
4. Keep welding power source and cables as far away from operator as practical.
5. Connect work clamp to workpiece as close to the weld as possible.

### **About Pacemakers:**

Pacemaker wearers consult your doctor before welding or going near welding operations. If cleared by your doctor, then following the above procedures is recommended.



# SECTION 2 – CONSIGNES DE SÉCURITÉ – LIRE AVANT UTILISATION

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▲ **Avertissement : se protéger et protéger les autres contre le risque de blessure — lire et respecter ces consignes.**

## 2-1. Symboles utilisés



Symbole graphique d'avertissement ! Attention ! Cette procédure comporte des risques possibles ! Les dangers éventuels sont représentés par les symboles graphiques joints.



Ce groupe de symboles signifie Avertissement ! Attention ! Risques d'ÉLECTROCUTION, ORGANES MOBILES et PARTIES CHAUDES. Consulter les symboles et les instructions afférentes ci-dessous concernant les mesures à prendre pour supprimer les dangers.

▲ **Indique un message de sécurité particulier**

☞ Signifie NOTE ; n'est pas relatif à la sécurité.

## 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.**

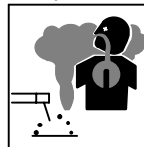
Le contact d'organes électriques sous tension peut provoquer des accidents mortels ou des brûlures graves. Le circuit de l'électrode et de la pièce est sous tension lorsque le courant est délivré à la sortie. Le circuit d'alimentation et les circuits internes de la machine sont également sous tension 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.

- 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 épiés.
- 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. Entretien 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 quand on a coupé l'alimentation.**

- 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 FUMÉES ET LES GAZ peuvent être dangereux.**

Le soudage génère des fumées et des gaz. Leur inhalation peut être dangereuse pour la santé.

- Ne pas mettre sa tête au-dessus des vapeurs. Ne pas respirer ces vapeurs.
- 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 nettoyeurs 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 D'ARC peuvent entraîner des brûlures aux yeux et à la peau.

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

Des étincelles sont projetées pendant le soudage.

- Porter un casque de soudage approuvé muni de verres filtrants appropriés pour protéger visage et yeux pendant le soudage (voir ANSI Z49.1 et Z87.1 énumérés 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 peuvent provoquer des incendies et des brûlures. Le contact accidentel de l'électrode avec des objets métalliques peut provoquer des étincelles, une explosion, une surchauffe ou un incendie. Avant de commencer le soudage, vérifier et s'assurer que l'endroit ne présente pas de danger.

- Déplacer toutes les substances inflammables à une distance de 10,7 m de l'arc de soudage. En cas d'impossibilité, les recouvrir soigneusement avec des protections homologuées.
- Ne pas souder dans un endroit où des étincelles peuvent tomber sur des substances inflammables.
- Se protéger, ainsi que toute autre personne travaillant sur les lieux, contre les étincelles et le 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.
- Afin d'éliminer tout risque de feu, être vigilant et garder toujours un extincteur à la portée de main.
- 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).
- Brancher le câble de masse sur la pièce la plus près possible de la zone de soudage pour éviter le transport du courant sur une longue distance par des chemins inconnus éventuels en provoquant des risques d'électrocution, d'étincelles et d'incendie.
- Ne pas utiliser le poste de soudage pour dégelier des conduites gelées.
- En cas de non-utilisation, enlever la baguette d'électrode du porte-électrode ou couper le fil à la pointe de contact.
- Porter des vêtements de protection exempts d'huile tels que des gants en cuir, une veste résistante, des pantalons sans revers, des bottes et un casque.
- Avant de souder, retirer toute substance combustible de ses poches telles qu'un allumeur au butane ou des allumettes.
- Suivre les consignes de OSHA 1910.252 (a) (2) (iv) et de NFPA 51B pour travaux de soudage et prévoir un détecteur d'incendie et un extincteur à proximité.



### DES PARTICULES VOLANTES peuvent blesser les yeux.

- Le soudage, l'écaillage, le passage de la pièce à la brosse en fil de fer, et le meulage génèrent des étincelles et des particules métalliques volantes. Pendant la période de refroidissement des soudures, elles risquent de projeter du laitier.
- Porter des lunettes de sécurité avec écrans latéraux ou un écran facial.



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

- Fermer l'alimentation du gaz 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.



### DES PIÈCES CHAUDES peuvent provoquer des brûlures graves.

- Ne pas toucher des parties chaudes à mains nues.
- Prévoir une période de refroidissement avant d'utiliser le pistolet ou la torche.
- 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 CHAMPS MAGNÉTIQUES peuvent affecter les stimulateurs cardiaques.

- Porteurs de stimulateur cardiaque, rester à distance.
- Les porteurs d'un stimulateur cardiaque doivent d'abord consulter leur médecin avant de s'approcher des opérations de soudage à l'arc, de gougeage ou de soudage par points.



### 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



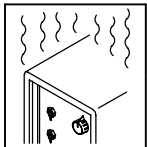
### Risque D'INCENDIE OU D'EXPLOSION.

- 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.



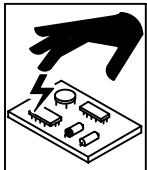
### LA CHUTE DE L'APPAREIL peut blesser.

- 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.



### 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 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 PC.



### DES ORGANES MOBILES peuvent provoquer des blessures.

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



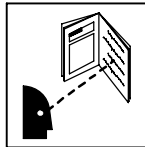
### LES FILS DE SOUDAGE peuvent provoquer des blessures.

- 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.



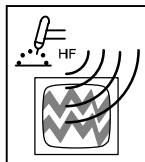
### DES ORGANES MOBILES peuvent provoquer des blessures.

- S'abstenir de toucher des organes mobiles tels que des ventilateurs.
- Maintenir fermés et verrouillés les portes, panneaux, recouvrements et dispositifs de protection.
- Seules des personnes qualifiées sont autorisées à enlever les portes, panneaux, recouvrements ou dispositifs de protection pour l'entretien.
- Remettre les portes, panneaux, recouvrements ou dispositifs de protection quand l'entretien est terminé et avant de rebrancher l'alimentation électrique.



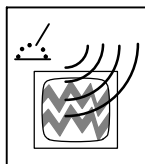
### LIRE LES INSTRUCTIONS.

- Lire le manuel d'utilisation avant d'utiliser ou d'intervenir sur l'appareil.
- Utiliser uniquement des pièces de rechange Miller/Hobart.



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

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



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

- L'énergie électromagnétique peut gêner le fonctionnement d'appareils électroniques comme des ordinateurs et des 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](http://www.global.ihs.com)).

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

*National Electrical Code*, NFPA Standard 70, de National Fire Protection Association, P.O. Box 9101, 1 Battery March Park, Quincy, MA 02269-9101 (téléphone : 617-770-3000, site Internet : [www.nfpa.org](http://www.nfpa.org)).

*Safe Handling of Compressed Gases in Cylinders*, CGA Pamphlet P-1, de Compressed Gas Association, 1735 Jefferson Davis Highway, Suite 1004, Arlington, VA 22202-4102 (téléphone : 703-412-0900, site Internet : [www.cganet.com](http://www.cganet.com)).

*Code for Safety in Welding and Cutting*, CSA Standard W117.2, de Canadian Standards Association, Standards Sales, 178 Rexdale

Boulevard, Rexdale, Ontario, Canada M9W 1R3 (téléphone : 800-463-6727 ou à Toronto 416-747-4044, site Internet : [www.csa-international.org](http://www.csa-international.org)).

*Practice For Occupational And Educational Eye And Face Protection*, ANSI Standard Z87.1, de American National Standards Institute, 11 West 42nd Street, New York, NY 10036-8002 (téléphone : 212-642-4900, site Internet : [www.ansi.org](http://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, 1 Battery March Park, Quincy, MA 02269-9101 (téléphone : 617-770-3000, site Internet : [www.nfpa.org](http://www.nfpa.org)).

OSHA, Occupational Safety and Health Standards for General Industry, Title 29, Code of Federal Regulations (CFR), Part 1910, Subpart Q, and Part 1926, Subpart J, de U.S. Government Printing Office, Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250 (il y a 10 bureaux régionaux—le téléphone de la région 5, Chicago, est 312-353-2220, site Internet : [www.osha.gov](http://www.osha.gov)).

## 2-6. Information EMF

Considérations sur le soudage et les effets de basse fréquence et des champs magnétiques et électriques.

Le courant de soudage, pendant son passage dans les câbles de soudage, causera des champs électromagnétiques. Il y a eu et il y a encore un certain souci à propos de tels champs. Cependant, après avoir examiné plus de 500 études qui ont été faites pendant une période de recherche de 17 ans, un comité spécial ruban bleu du National Research Council a conclu : « L'accumulation de preuves, suivant le jugement du comité, n'a pas démontré que l'exposition aux champs magnétiques et champs électriques à haute fréquence représente un risque à la santé humaine ». Toutefois, des études sont toujours en cours et les preuves continuent à être examinées. En attendant que les conclusions finales de la recherche soient établies, il vous serait souhaitable de réduire votre exposition aux champs électromagnétiques pendant le soudage ou le coupage.

Pour réduire les champs magnétiques sur le poste de travail, appliquer les procédures suivantes :

1. Maintenir les câbles ensemble en les tordant ou en les enveloppant.
2. Disposer les câbles d'un côté et à distance de l'opérateur.
3. Ne pas courber pas et ne pas entourer pas les câbles autour de votre corps.
4. Garder le poste de soudage et les câbles le plus loin possible de vous.
5. Connecter la pince sur la pièce aussi près que possible de la soudeuse.

### En ce qui concerne les stimulateurs cardiaques

Les porteurs de stimulateur cardiaque doivent consulter leur médecin avant de souder ou d'approcher des opérations de soudage. Si le médecin approuve, il est recommandé de suivre les procédures précédentes.

# SECTION 3 – INTRODUCTION


## 3-1. Specifications

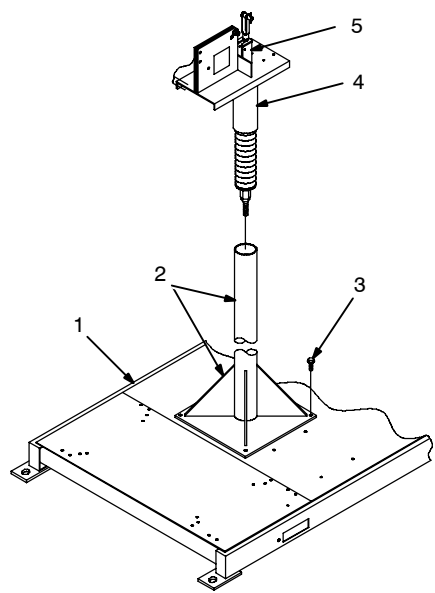
| Type of Input Power                                      | Welding Power Source Type  | Wire Feed Speed Range   | Wire Diameter Range   | Welding Circuit Rating                        | Weight  |
|--|--|---|---|---|---|
| 24 Volts AC<br>Single-Phase<br>10 Amperes<br>50/60 Hertz | Constant Voltage (CV)<br>DC With 14-Pin And<br>Contactor Control | Standard: 50 To 780 ipm<br>(1.3 To 19.8 mpm)<br><br>Optional High Speed: 92<br>To 1435 ipm (2.3 To 36.5<br>mpm) | .023 To 1/8 in (0.6<br>To 3.2 mm)<br><br>Max Spool Weight:<br>60 lb (27 kg) | 100 Volts,<br>750 Amperes, 100%<br>Duty Cycle | 12 ft (3.7 m):<br>207 lb (94 kg)<br><br>16 ft (4.9 m):<br>280 lb (127 kg) |

|                                       | 12 ft (3.7 m) Boom                 | 16 ft (4.9 m) Boom                 |
|---------------------------------------|------------------------------------|------------------------------------|
| Maximum Height With 4 ft (1.2 m) Post | 17 ft (5.2 m)                      | 21 ft (6.4 m)                      |
| Vertical Lift Of Boom                 | Horizontal to 60° Above Horizontal | Horizontal to 60° Above Horizontal |

# SECTION 4 – INSTALLATION

## 4-1. Installing Swivel Into Pipe Post





**▲ Do not remove Safety Collar until instructed to.**

- 1 Swingpak Base or CBC Cart
- 2 Pipe Post With Base
- 3 Steel Bolt


Secure as shown using as a minimum 1/2 in diameter SAE grade 5 steel bolts.

- 4 Swivel Assembly

Insert into pipe post. Lubricate swivel.

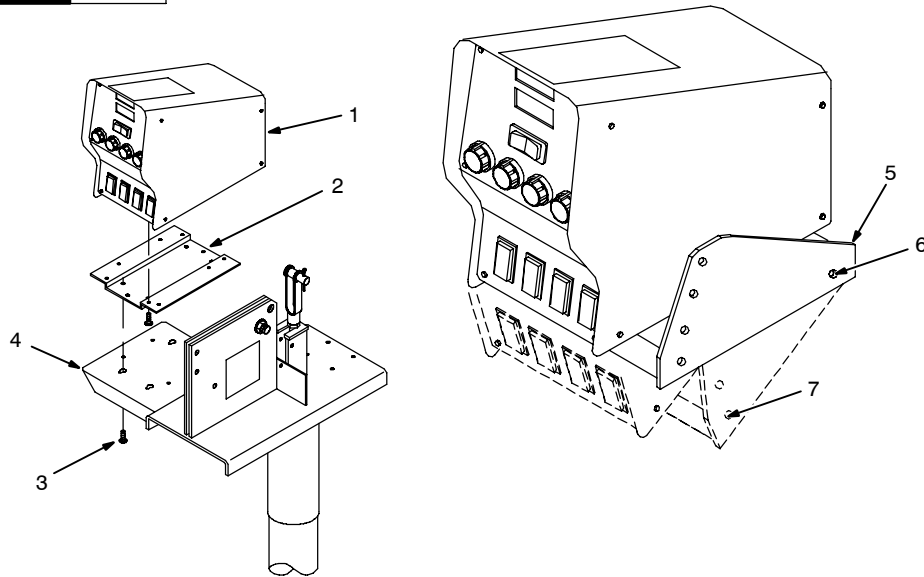
- 5 Safety Collar

Tools Needed:

 3/4 in

152 268-B

## 4-2. Installing Control Box And Adjusting Tilt



- 1 Weld Control
- 2 Bracket
- 3 Screw

Bracket and screws are installed onto bottom of control at factory.

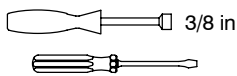
- 4 Swivel

Loosen screws. Place control on swivel and slide forward. Tighten screws.

- 5 Tilt Bracket
- 6 Rear Pivot Screw
- 7 Front Screw

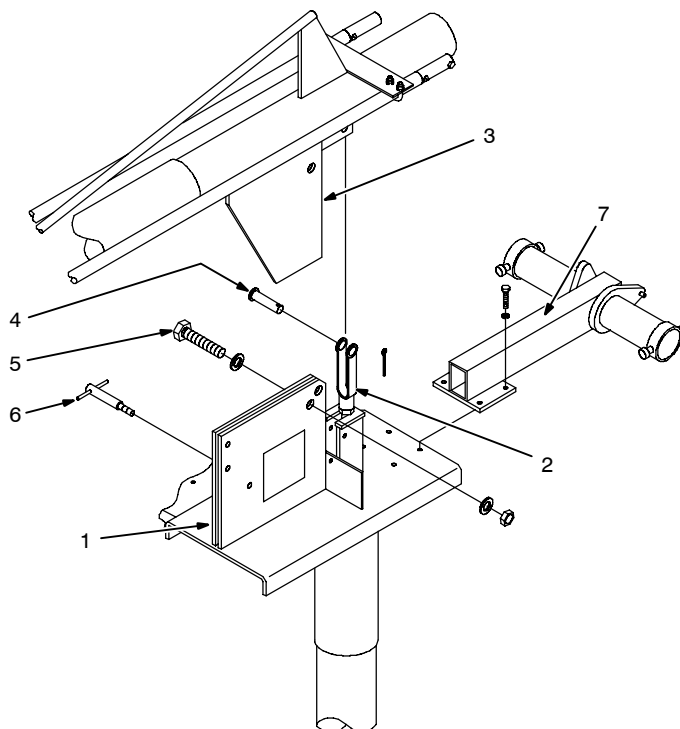
Loosen rear pivot screw. Remove front screw. Pivot control downward to desired viewing angle. Replace and tighten front screw. Tighten pivot screw.

Tools Needed:



803 182

## 4-3. Installing Boom And Reel Support



- 1 Swivel Plates
- 2 Yoke

Remove hardware from swivel plates and yoke.

- 3 Boom

Set boom into swivel as shown.

- 4 Yoke Pin

Install pin through yoke. Install cotter pin and spread ends.

- 5 Bolt

Install bolt, washers, and nut. Tighten hardware, and back bolt off one half turn.

- 6 Locking Knob

Install locking knob but do not tighten.

- 7 Reel Support

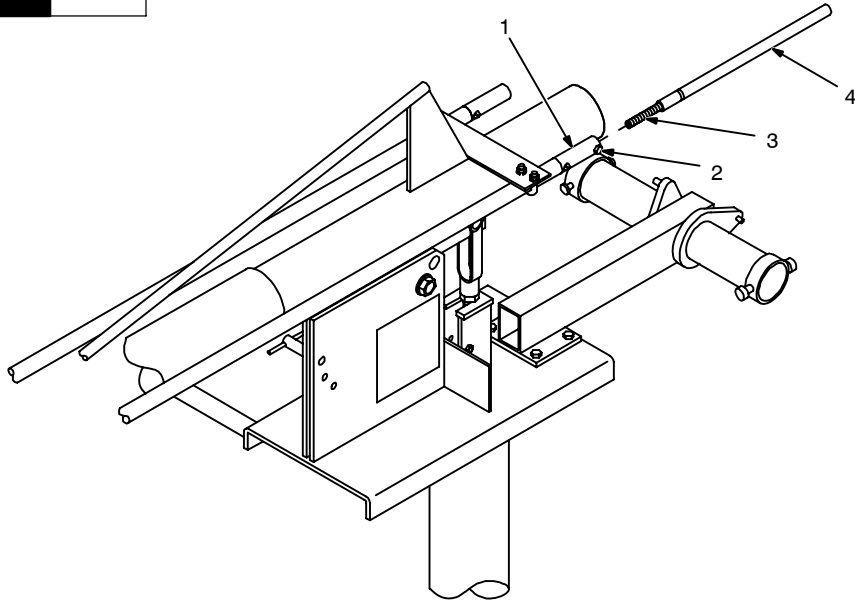
Install reel support.

Tools Needed:



ST-153 170-A

## 4-4. Installing Wire Guide Extension

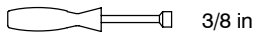


- 1 Wire Guide Fitting
- 2 Bolt
- 3 Monocoil Liner
- 4 Wire Guide Extension

Tighten bolt to secure liner in wire guide fitting. Do not overtighten bolt and crush liner.

Repeat procedure for opposite side.

Tools Needed:



3/8 in

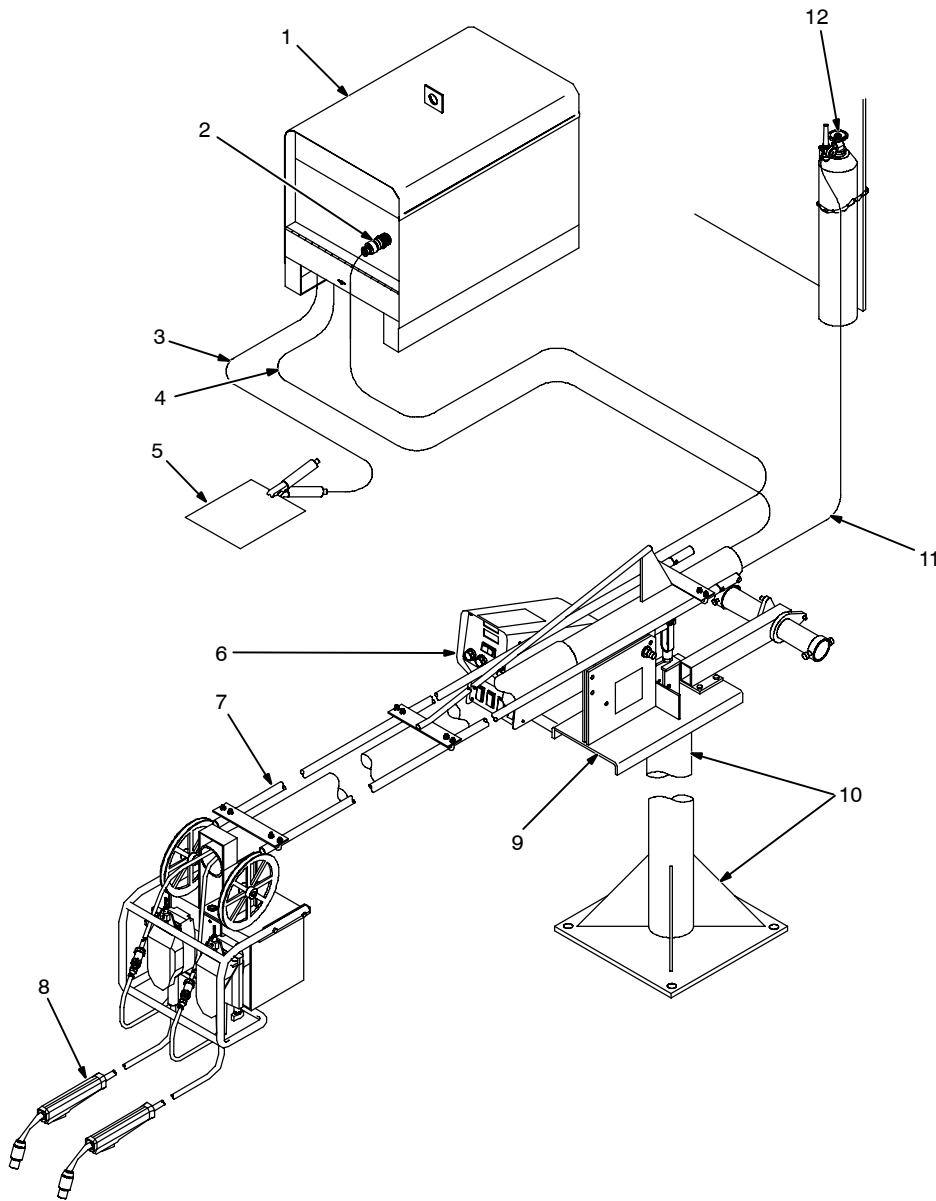
ST-152 383

## 4-5. Equipment Connection Diagram



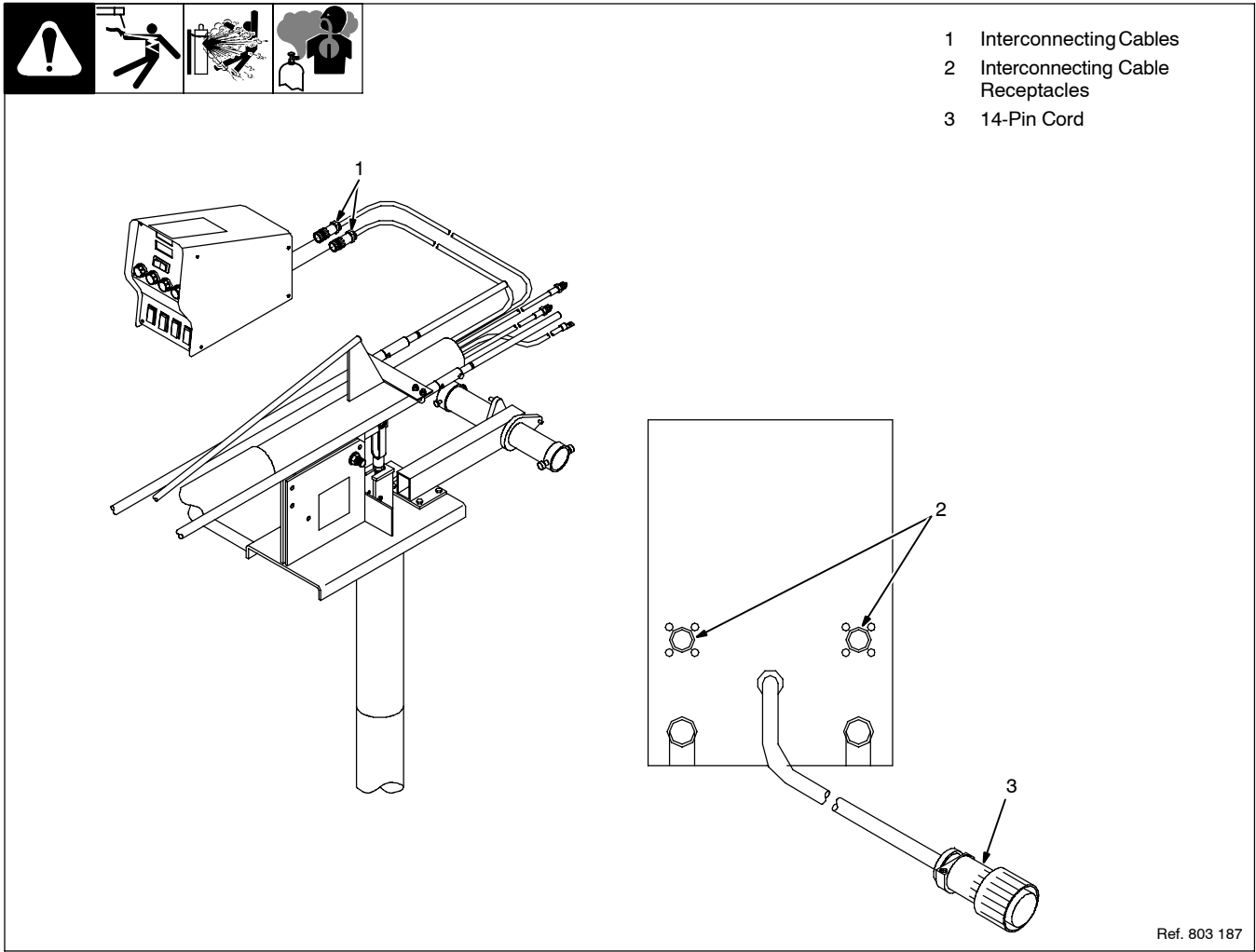
- 1 Welding Power Source
- 2 Remote 14 Connection
- 3 Negative (-) Weld Output Cable
- 4 Positive (+) Weld Output Cable
- 5 Workpiece
- 6 Weld Control
- 7 Boom
- 8 Gun
- 9 Swivel
- 10 Pipe Post And Base
- 11 Gas Hose
- 12 Gas Supply and Regulator (Customer Supplied)

Shielding gas pressure not to exceed 100 PSI (689 kPa).


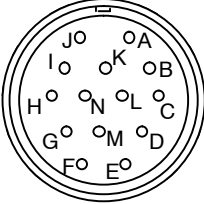




## 4-6. Control Box Connections

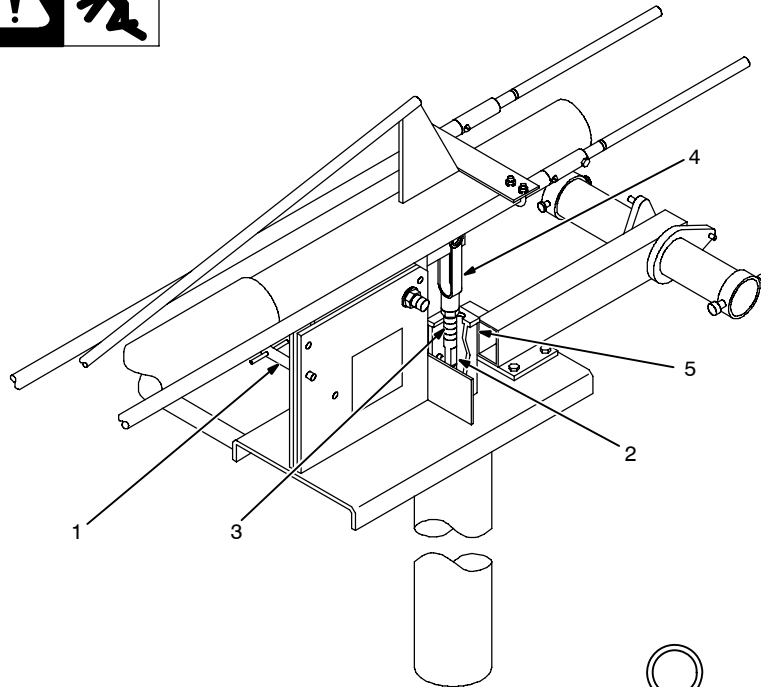


## 4-7. 14-Pin Plug Information

|  <b>REMOTE 14</b> | Pin* | Pin Information  |
|--|------|--|
|                   | A    | 24 volts ac with respect to socket G.  |
|  | B    | Contact closure to A completes 24 volts ac contactor control circuit.                      |
|  | G    | Circuit common for 24 volts ac circuit.  |
|  | C    | +10 volts dc input from power source to wire feeder with respect to socket D.              |
|  | D    | Remote control circuit common.   |
|  | E    | 0 to +10 volts dc output signal from wire feeder to power source with respect to socket D. |
|  | H    | Voltage feedback; 0 to +10 volts dc, 1 volt per 10 arc volts.                              |
|  | F    | Current feedback; 0 to +10 volts dc, 1 volt per 100 amperes.                               |

\*The remaining pins are not used.

## 4-8. Removing Safety Collar And Adjusting Boom



### 1 Locking Knob

Tighten knob to prevent boom movement. Loosen knob to allow boom movement. Change knob position to limit upward movement.

Pull boom down slightly and remove safety collar. Boom should balance in any position from horizontal to 60 degrees above horizontal. If necessary, adjust boom as follows:

### 2 Threaded Rod

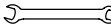
### 3 Jam Nut

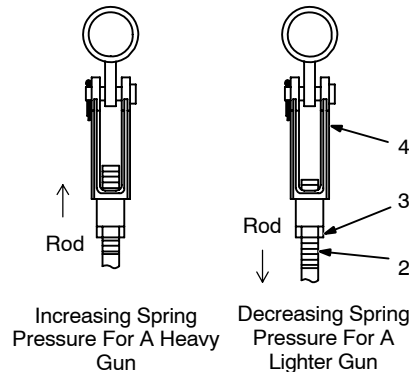
Loosen jam nut and turn threaded rod until boom balances. Tighten jam nut. Be sure several full threads are through yoke to prevent boom falling.

### 4 Yoke

### 5 Safety Collar

Retain safety collar for use in disassembling or moving boom.

Tools Needed:  
 1-1/8 in



ST-142 599-C

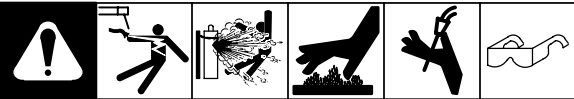
## 4-9. Gun Recommendation Table

| Process                     | Gun  |
|-----------------------------|--|
| GMAW – Hard or Cored Wires  | Roughneck C-Series Guns: 300, 400, 500, And 600 Amp. |
| FCAW – Self-Shielding Wires | FC-1260 Or FC-1150                                   |

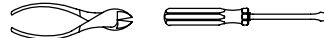
## 4-10. Wire Type, Size, And Feed Speed Capability Table

| Motor Speed         | Wire Type | Wire Size                       | Feed Speed Capability            |
|---------------------|-----------|---------------------------------|----------------------------------|
| Standard            | All       | .023 To 5/64 in (0.6 To 2 mm)   | 50 To 780 ipm (1.3 To 19.8 mpm)  |
| Standard            | All       | 3/32 To 7/64 in (2.4 To 2.8 mm) | 50 To 700 ipm (1.3 To 17.8 mpm)  |
| Standard            | All       | 1/8 in (3.2 mm)                 | 50 To 300 ipm (1.3 To 7.6 mpm)   |
| Optional High Speed | All       | .023 To 5/64 in (0.6 To 2 mm)   | 92 To 1435 ipm (2.3 To 36.4 mpm) |

## 4-11. Installing And Threading Welding Wire

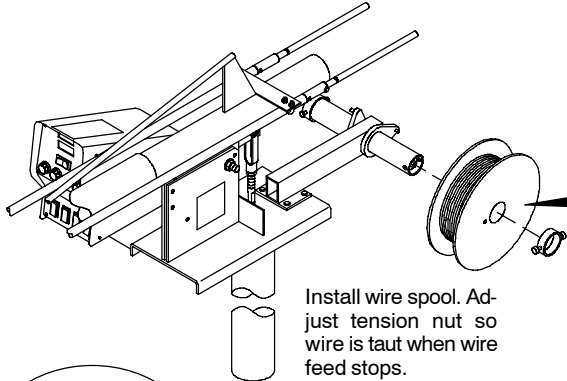


Tools Needed:

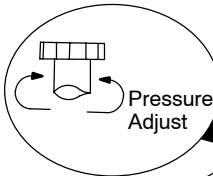
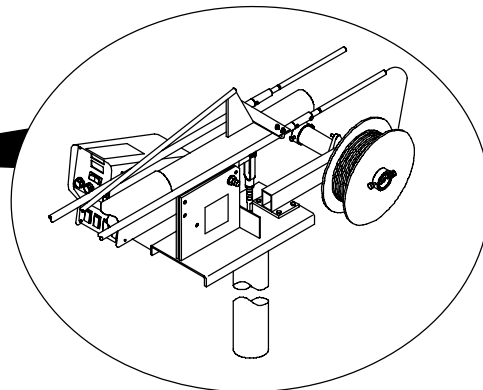


3/16, 5/64 in

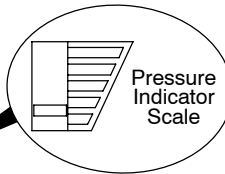
3/8, 15/16 in



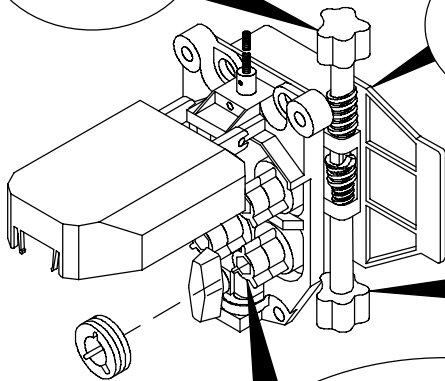
Install wire spool. Adjust tension nut so wire is taut when wire feed stops.



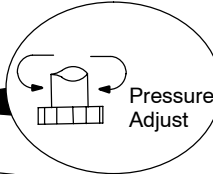
Pressure Adjust



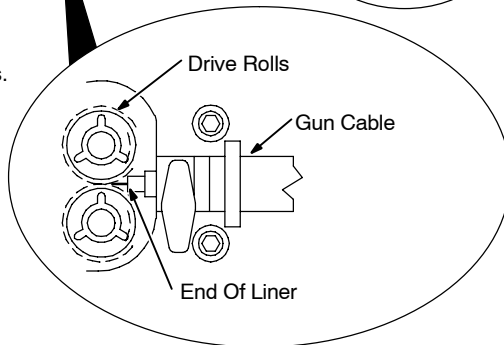
Pressure Indicator Scale



Install drive rolls.



Pressure Adjust

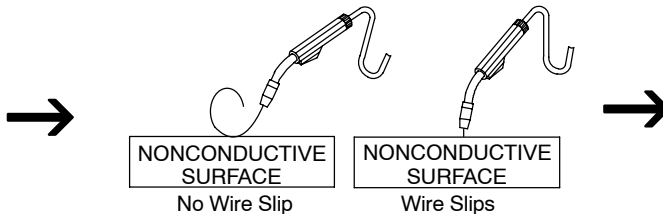
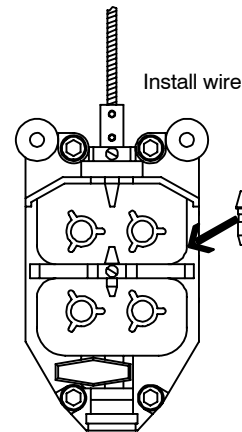


Drive Rolls

Gun Cable

End Of Liner

Install wire guide.



NONCONDUCTIVE SURFACE

No Wire Slip

NONCONDUCTIVE SURFACE

Wire Slips

☞ Be sure that outlet cable has proper size liner for the welding wire size.

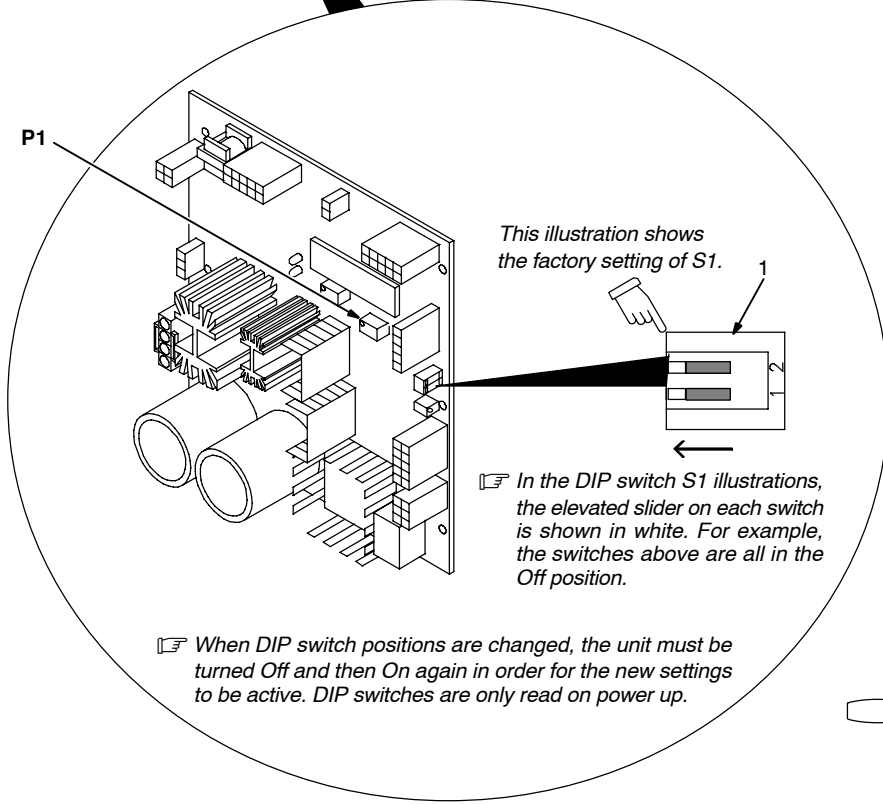
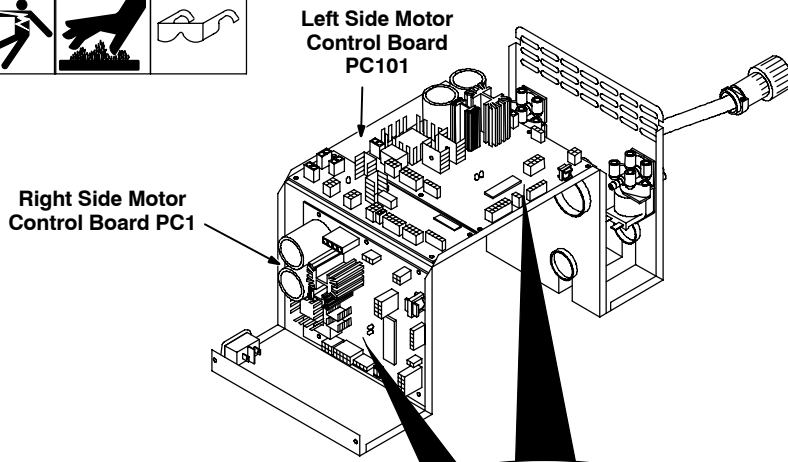
**When installing gun, position liner extending from outlet wire guide as close as possible to drive rolls without touching.**

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

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

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

## 4-12. Setting Internal DIP Switches



Remove wrapper.  
 1 DIP Switch S1 On Motor Board PC1

### • Setting Current Detect Override (S1-1)

Current detect override is used to disable run-in when a welding power source is used that doesn't provide current feedback through the 14-pin receptacle.

*ⓘ Pins F & H are not present in 14 pin receptacle on machines that don't provide current feedback.*

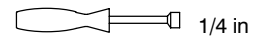
Install wrapper when finished.

*This illustration shows the factory setting of S1.*

*ⓘ In the DIP switch S1 illustrations, the elevated slider on each switch is shown in white. For example, the switches above are all in the Off position.*

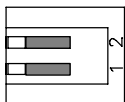
*ⓘ When DIP switch positions are changed, the unit must be turned Off and then On again in order for the new settings to be active. DIP switches are only read on power up.*

Tools Needed:



### Position Settings And Results For DIP Switch S1 On PC1 And PC101

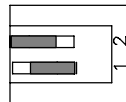
#### Automatic Run-In (ON) (Factory Default)



**S1-1 And S1-2**

On = Run-In speed is approximately 1/2 weld wire feed speed.

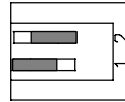
#### Automatic Run-In (OFF)



**S1-1 And S1-2**

Off = Run-In speed is set using potentiometer P1 located on Motor Board PC1.

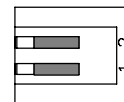
#### Current Detect Override (ON)



**S1-1 And S1-2**

On = Current detect override. For welding power sources that don't provide current feedback through the 14-pin receptacle. Run-in is inactive.

#### Current Detect Override (OFF) (Factory Default)



**S1-1 And S1-2**

Off = Current must be detected from power sources that provide current feedback through the 14-pin receptacle to go from run-in to welding condition. Run-in is active.

## 4-13. Optional Equipment DIP Switch Settings



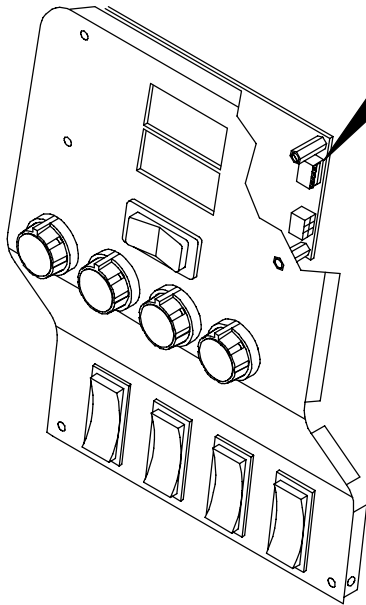
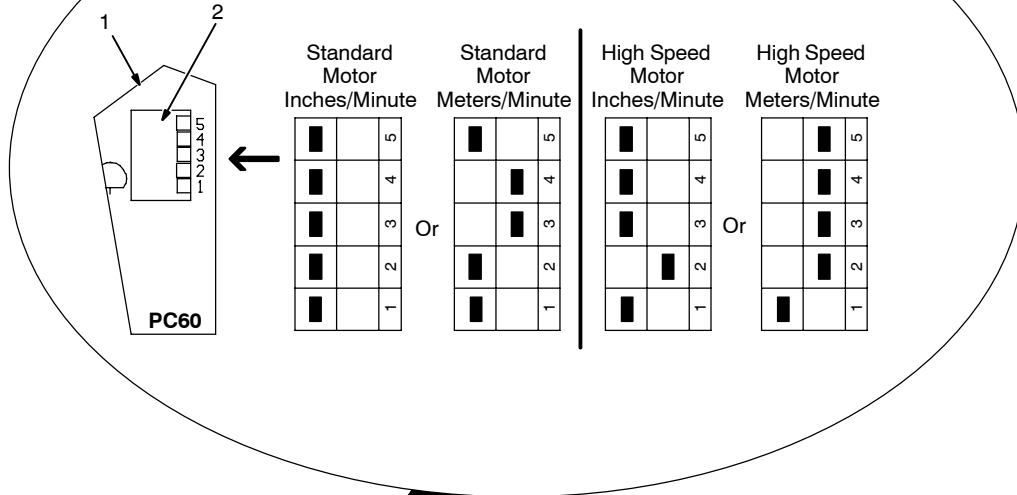
Remove wrapper.

1 Digital Meter Board PC60

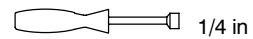
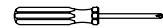
2 Meter Board Switch S2

Install wrapper when finished.

### Digital Meter Functions



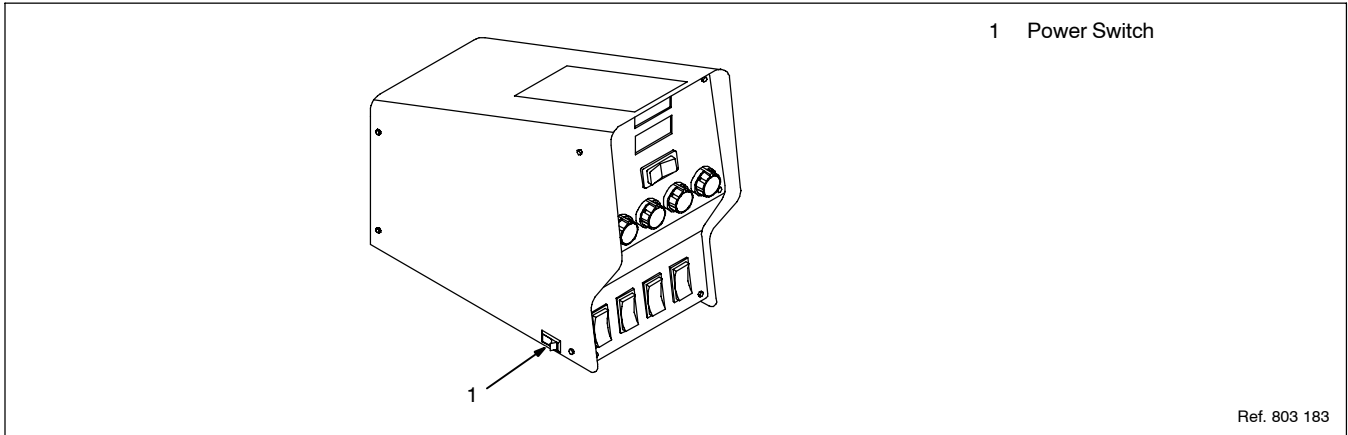
Tools Needed:



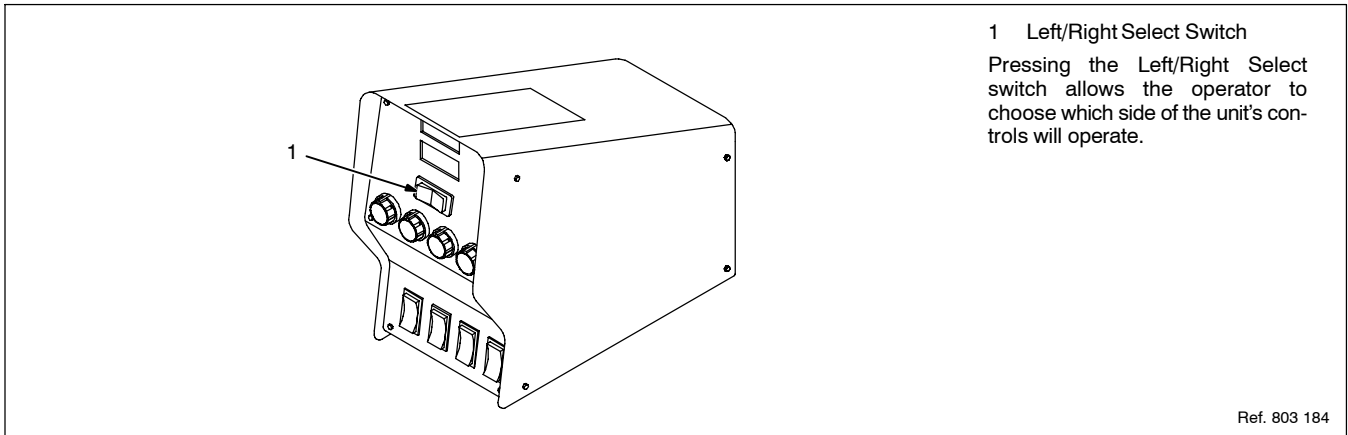
803 188

# SECTION 5 – OPERATION

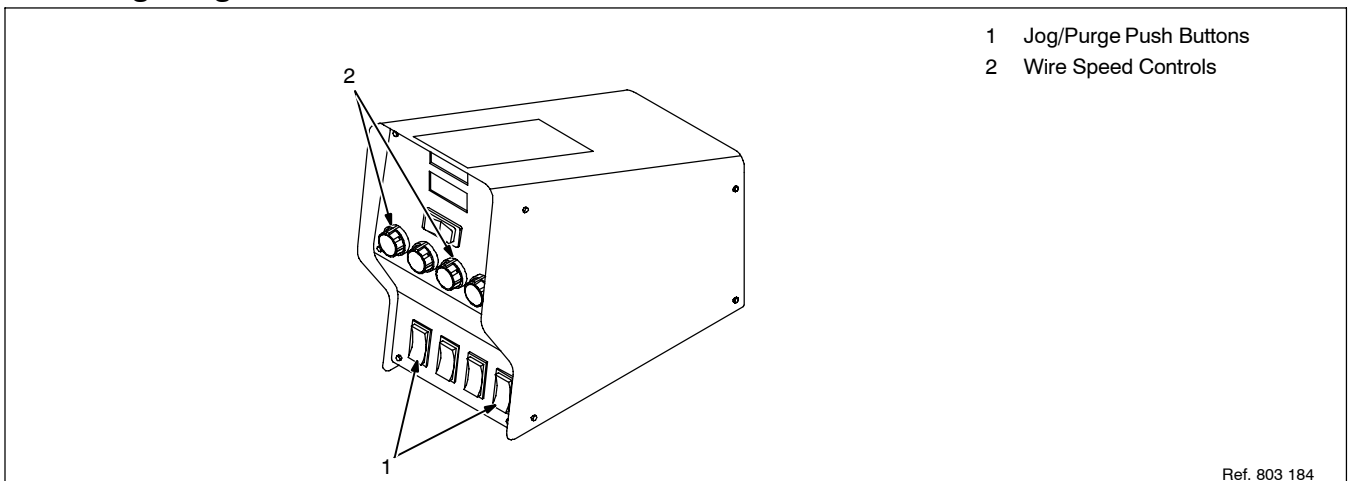
## 5-1. Power Switch



## 5-2. Left/Right Select Switch



## 5-3. Jog/Purge



Pressing the Jog/Purge switch allows the operator to jog wire without energizing the weld power or gas valve circuit.

- The unit provides the ability to jog the wire feeder by means of the gun trigger or the Jog/Purge switch. If the welding arc does not initiate in 3 seconds after the gun trigger is activated, the unit will perform a jog operation for a maximum of two minutes. If the gun

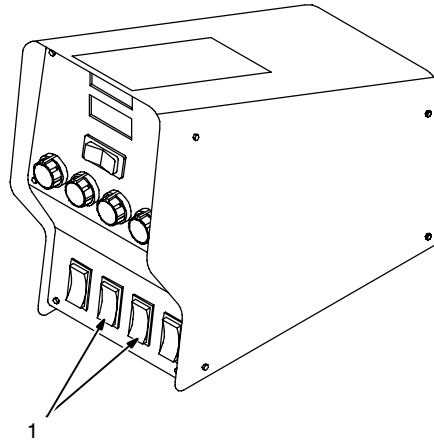
trigger is still activated after two minutes, the jog operation is terminated to prevent complete despooling of the wire, in the case of a damaged gun.

- The unit displays the "ERR TRIG" message to inform the operator that the trigger is activated.
- Jog speed can be adjusted by the Adjust control when the unit is jogging wire. The

unit displays jog speed when the unit is being jogged.

- Jogging can also be accomplished by pressing the Jog/Purge button.
- Pressing the Jog/Purge button also allows the operator to purge gas lines before welding and to preset gas pressure at the regulator.

## 5-4. Trigger Hold Switch



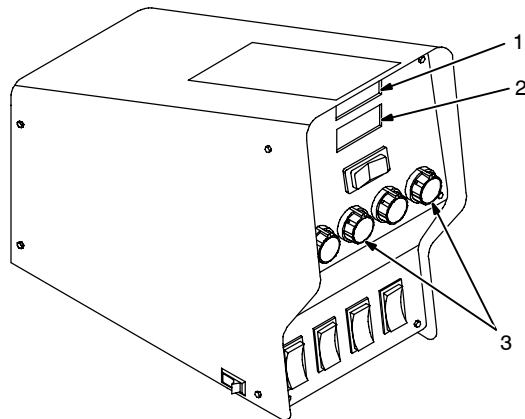
### 1 Trigger Hold Switches

Trigger hold allows the operator to weld without holding the gun trigger.

- To use the trigger hold function, place the trigger hold switch in the On position.
- The operator must hold the trigger for a minimum of 2 seconds, but not longer than 6 seconds before releasing it. Welding will continue when the trigger is released.
- To stop welding, press the trigger again.

Ref. 803 184

## 5-5. Voltage Control And Digital Meters



### 1 Voltmeter

Displays actual or preset voltage from welding power source through the 14-pin control cable.


### 2 Wire Speed Meter

Displays preset and actual wire feed speed while welding.

Factory set to display inches per minute. If display of meters per minute is desired, see Section 4-13.

### 3 Voltage Controls

Use controls to adjust voltage output of welding power source.

 You can adjust the preset voltage display on the wire feeder to match your power source's display by adjusting P2 on motor control board PC101 (left side), and/or P2 on motor control board PC1 (right side).

Ref. 803 183

# SECTION 6 – MAINTENANCE & TROUBLESHOOTING

## 6-1. Routine Maintenance

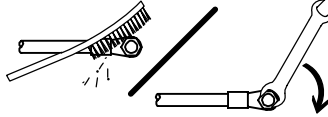
|  |  |  |  |  |   |
|--|--|--|--|--|---|
|  |  |  |  |  | ▲ <b>Disconnect power before maintaining.</b> |
|--|--|--|--|--|---|

### **3 Months**

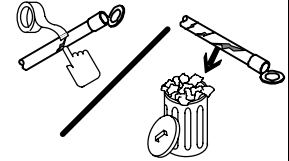
Replace unreadable labels.



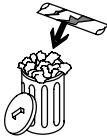
Clean and tighten weld terminals.



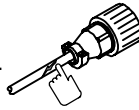
Repair or replace cracked weld cable.



Replace cracked parts.



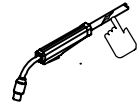
Check 14-pin cord.



Check gas hose and fittings.

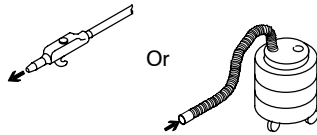


Check gun cable.



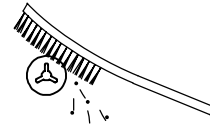
### **6 Months**

Blow out or vacuum inside. During heavy service, clean monthly.



Or

Clean drive rolls.



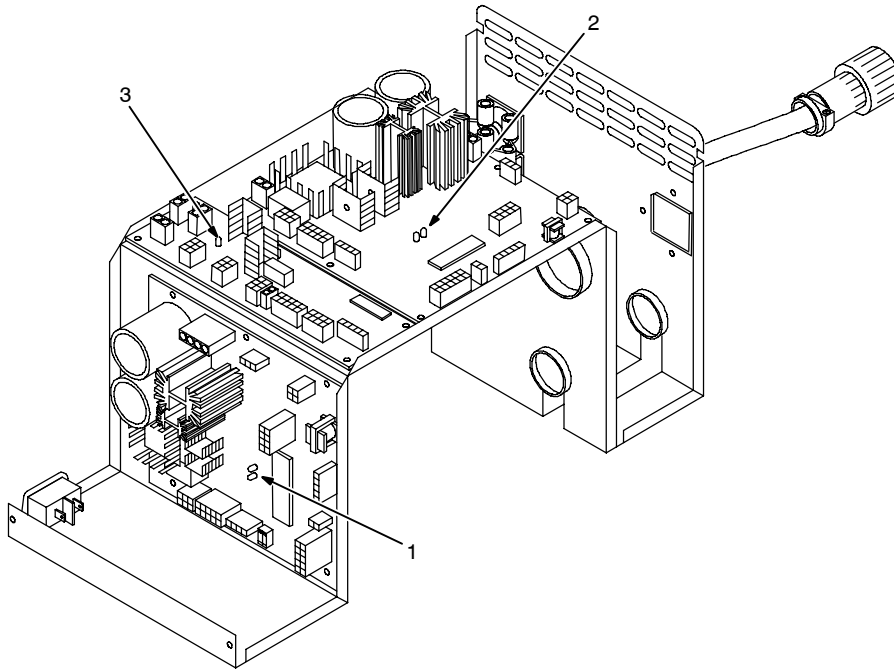
## Notes



## 6-2. Diagnostics



- 1 LED3 On Right Side Motor Control Board PC1
- 2 LED3 On Left Side Motor Control Board PC101
- 3 LED3 On Dual Board PC70



803 063-A

|  | Display On Optional Meter | LED3 Sequence | Indicated Error     |
|--|---------------------------|---------------|---------------------|
| <b>Left Side Motor Control Board PC101</b>   | HELP 11                   | 1 Blink       | Communication Error |
|  | HELP 12                   | 2 Blinks      | Trigger Error       |
|  | HELP 13                   | 3 Blinks      | Tach Error          |
|  | HELP 14                   | *4 Blinks     | Motor Error         |
| <b>Right Side Motor Control Board PC1</b>  | HELP 21                   | 1 Blink       | Communication Error |
|  | HELP 22                   | 2 Blinks      | Trigger Error       |
|  | HELP 23                   | 3 Blinks      | Tach Error          |
|  | HELP 24                   | *4 Blinks     | Motor Error         |
| <b>Dual Board PC70</b>   | HELP 31                   | *4 Blinks     | Communication Error |
| *Since blink On time and blink Off time are equal in a four-blink cycle, the four-blink sequence appears as constant blinking. |                           |               |                     |

### • Error Indications

Error conditions are indicated by LED3 on PC1, PC101, PC70 or on display if meter option is present. To view LED3, turn Off unit, remove wrapper, and turn unit On. LED3 is most easily observed from the left side of the unit.

The LED blinks in a 2.5 second cycle. The number of blinks in this period indicates the type of error.

The priority of the errors is related to the number of blinks indicating the error. The more blinks, the more severe the error (motor error is top priority). A higher priority error overrides

a lower one (if a motor error and a communication error existed, the light would blink four times for the motor error).

- **The communication error** occurs 2.5 seconds after a loss of communication between the motor and the optional meter board or Dual board. The user may continue to weld with this error. The error may be cleared by turning power Off, waiting a minimum of two seconds, and turning power On.
- **The trigger error** occurs if the user has the trigger held for more than two minutes without striking an arc (providing current over-

ride is not enabled), or if the user holds the trigger past the postflow phase in a timed weld. This error also occurs if the trigger is held when the feeder is powered up. The error may be cleared by releasing the trigger.

- **The tach error** occurs 2 seconds after the loss of tachometer feedback. The user may continue to weld with this error. The motor speed is regulated through the monitoring of voltage and current.
- **The motor error** indicates that the motor has been drawing too much current for too long.

## 6-3. Troubleshooting

|   |   |   |   |   |   |
|---|---|---|---|---|---|
|  |  |  |  |  | <p><b>▲ Disconnect power before troubleshooting</b></p> |
|---|---|---|---|---|---|

| Trouble  | Remedy   |
|--|--|
| Wire feeds, shielding gas flows, but electrode wire is not energized.  | Check cable connections. Check cables for continuity, and repair or replace cables if necessary (see Section 4-5).                 |
| Wire feeder is on, display does not light up, motor does not run, gas valve and welding power source contactor do not pull in. | Check and reset circuit breaker at welding power source.   |
| Electrode wire feeding stops or feeds erratically during welding.  | Check gun trigger connection. See gun Owner's Manual.  |
|  | Check gun trigger. See gun Owner's Manual.   |
|  | Readjust hub tension and drive roll pressure (see Section 4-11).   |
|  | Change to correct size drive roll (see Table 8-1).   |
|  | Clean or replace dirty or worn drive roll.   |
|  | Incorrect size or worn wire guides.  |
|  | Replace contact tip or liner. See gun Owner's Manual.  |
|  | Remove weld spatter or foreign matter from around nozzle opening.  |
|  | Have Factory Authorized Service Agency check drive motor or motor control board PC1.   |
| Wire birdnests between feeder and gun.   | Gun liner has to large of diameter opening, is clogged, or the end of the gun is not close enough to the front set of drive rolls. |
| Motor runs slowly.   | Check for correct input voltage.   |
| Wire feeder power is on, displays light up, but unit is inoperative.   | Check welding gun trigger leads for continuity, and repair leads or replace gun.   |



# SECTION 7 - ELECTRICAL DIAGRAM

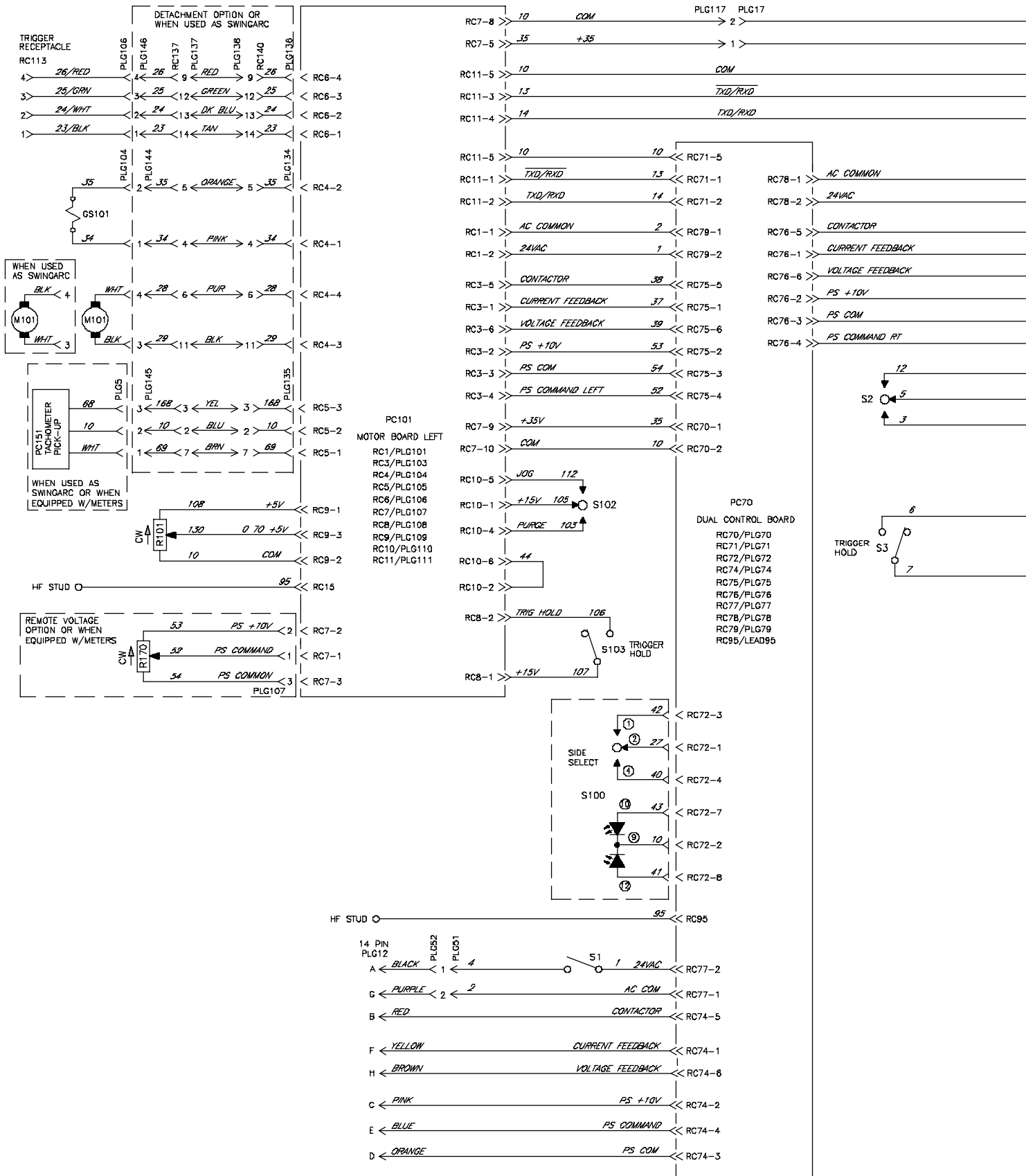
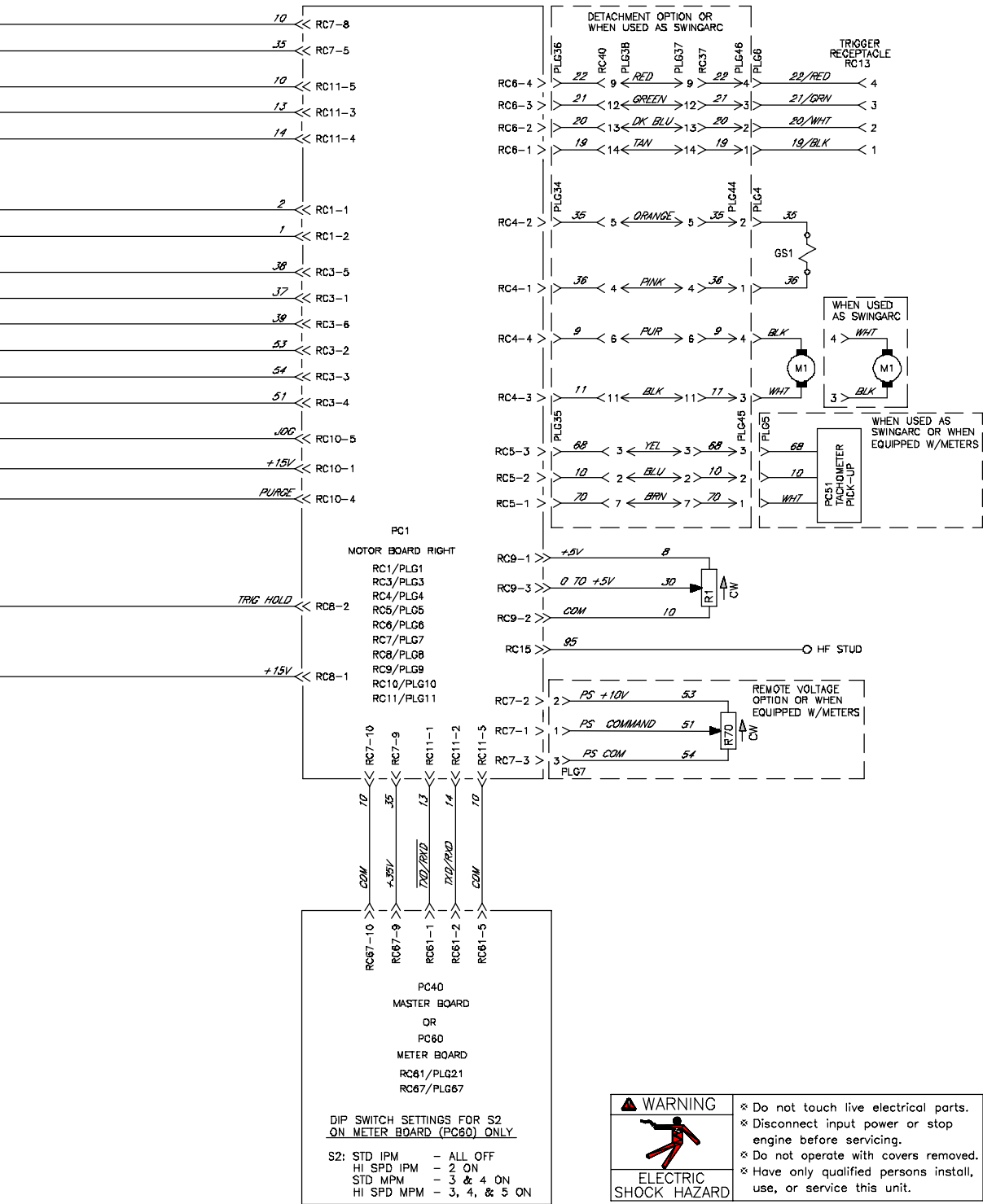


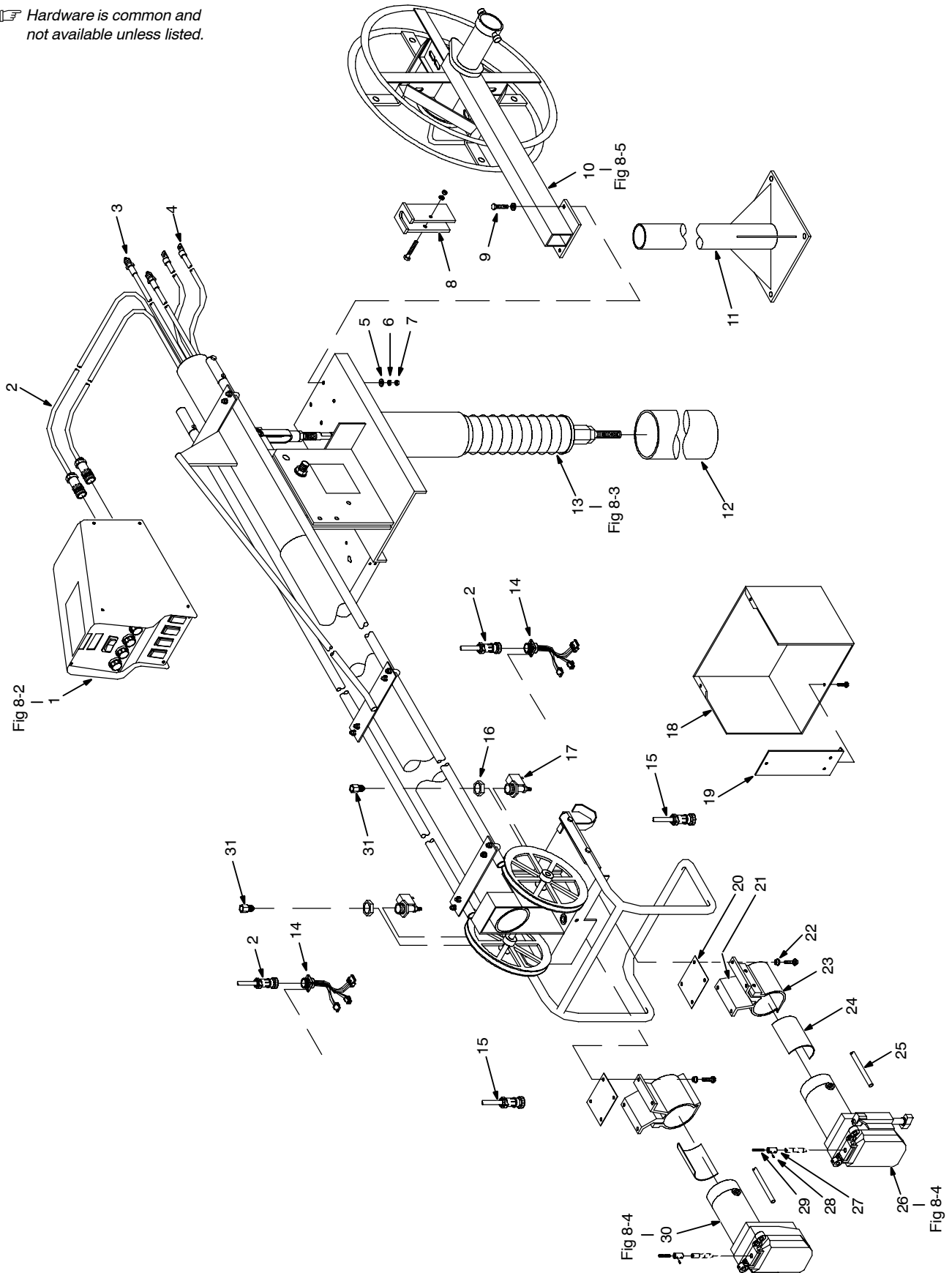
Figure 7-1. Circuit Diagram



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

# SECTION 8 – PARTS LIST

☞ Hardware is common and not available unless listed.



**Figure 8-1. Main Assembly**

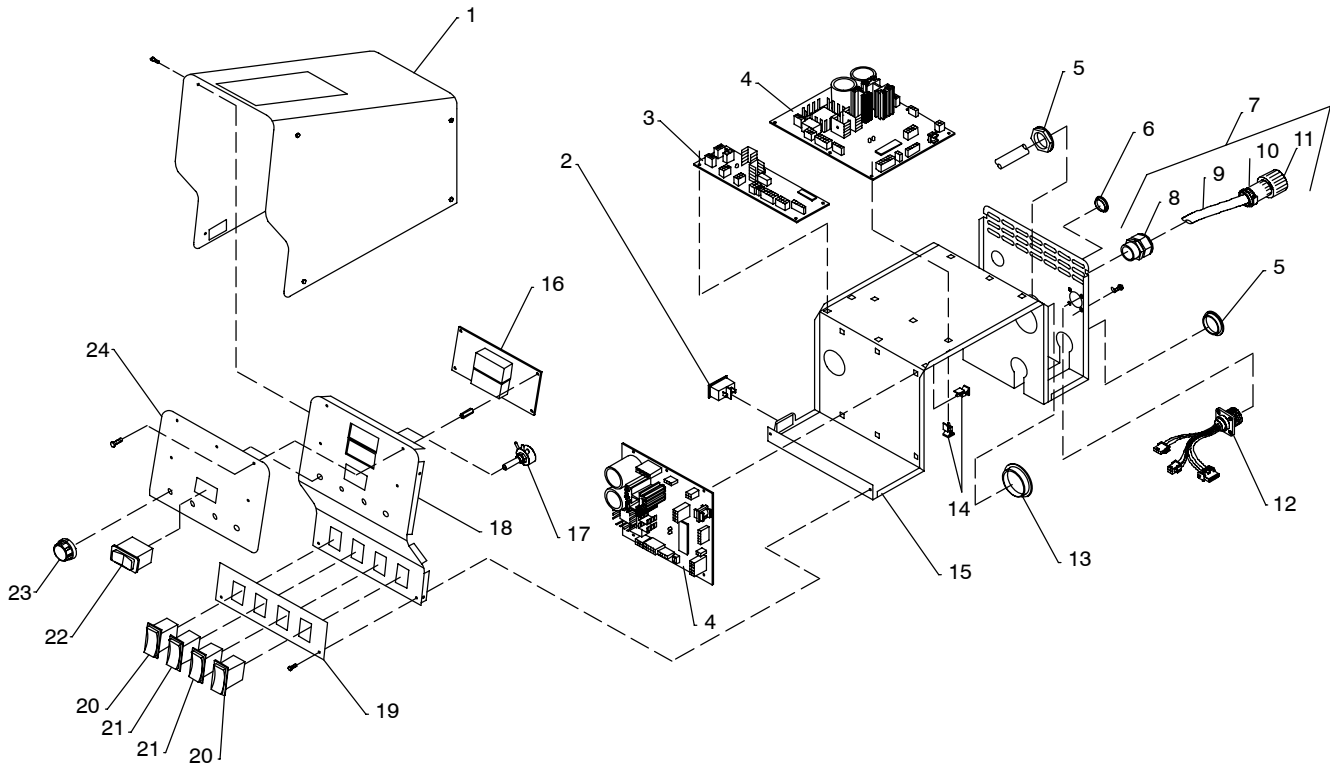
803 189-C

| Item No.                         | Dia. Mkgs.       | Part No. | Description   | Quantity |          |
|----------------------------------|------------------|----------|---|----------|----------|
|                                  |                  |          |   | Model 12 | Model 16 |
| <b>Figure 8-1. Main Assembly</b> |                  |          |   |          |          |
| 1                                |                  | See Note | Control Box, (Fig 8-2)                                      | 1        | 1        |
| 2                                |                  | 201 319  | Cable, Interconnecting (consisting of)                      | 2        | 0        |
| 2                                |                  | 201 320  | Cable, Interconnecting (consisting of)                      | 0        | 2        |
|                                  | PLG37,38,137,138 | 047 636  | Connector & Pins  | 2        | 2        |
|                                  |                  | 079 739  | Connector, Circ Clamp Str Rlf Sz 17-20 Amp 206322-2         | 2        | 2        |
|                                  |                  | 163 520  | Cable, Port No. 18/14 8/C (order by ft)                     | 17Ft     | 21Ft     |
| 3                                |                  | 139 600  | Hose, Gas   | 2        | 0        |
| 3                                |                  | 139 599  | Hose, Gas   | 0        | 2        |
| 4                                |                  | 600 324  | Cable, Weld Cop Strd No. 4/0 (order by ft)                  | 26Ft     | 30Ft     |
| 5                                |                  | 602 243  | Washer, Flat Stl Std .375                                   | 8        | 8        |
| 6                                |                  | 602 213  | Washer, Lock Stl Split .375                                 | 4        | 4        |
| 7                                |                  | 601 872  | Nut, Stl Hex Full .375-16                                   | 4        | 4        |
| 8                                |                  | 080 947  | Bracket, Spring Retaining                                   | 1        | 0        |
| 8                                |                  | 151 626  | Bracket, Spring Retaining                                   | 0        | 1        |
| 9                                |                  | 132 053  | Screw, Cap Stl Hexhd .375-16 X 1.500 Lg                     | 4        | 4        |
| 10                               |                  | Fig 8-7  | Support, Hub & Reel   | 1        | 1        |
| 11                               |                  | ◆149 838 | Pipe Post, 4ft W/Base Or                                    | 1        | 0        |
| 11                               |                  | ◆149 839 | Pipe Post, 6ft W/Base                                       | 1        | 0        |
| 11                               |                  | ◆078 264 | Pipe Post, 4ft W/Base Or                                    | 0        | 1        |
| 11                               |                  | ◆079 216 | Pipe Post, 6ft W/Base                                       | 0        | 1        |
| 12                               |                  | ◆075 078 | Pipe Post, 4ft W/O Base Or                                  | 1        | 1        |
| 12                               |                  | ◆079 217 | Pipe Post, 6ft W/O Base                                     | 1        | 1        |
| 13                               |                  | Fig 8-5  | Boom Assembly   | 1        | 1        |
| 14                               | RC37,137         | 047 637  | Connector & Sockets (consisting of)                         | 2        | 2        |
|                                  | PLG45,145        | 131 203  | Housing Plug + Pins, (service kit)                          | 2        | 2        |
|                                  | PLG44,144        | 167 640  | Housing Plug Pins + Skts (service kit)                      | 2        | 2        |
|                                  | PLG46,146        | 115 090  | Housing Plug + Pins, (service kit)                          | 2        | 2        |
| 15                               |                  | 203 314  | Cable, Trigger 20 In Boom/Detach (consisting of)            | 2        | 2        |
|                                  |                  | 115 094  | Housing Plug+Skts,(service kit)                             | 2        | 2        |
|                                  |                  | 080 328  | Rcpt W/Skts,Free Hanging                                    | 2        | 2        |
|                                  |                  | 079 531  | Conn,Circ Cpc Clamp Str Rlf Size 11 .453od                  | 2        | 2        |
|                                  |                  | 604 571  | Cable,Port No 18 4/C Type sjo nprn jkt re                   |          | 2Ft      |
| 16                               |                  | 605 227  | Nut, Nyl Hex Jam .750npst                                   | 2        | 2        |
| 17                               | GS1,101          | 228 035  | Valve, 34VDC 1Way .750-14 Thd 2mm Orf 100PSI                | 2        | 2        |
|                                  | PLG4,104         | 136 810  | Housing Plug + Skts (service kit)                           | 2        | 2        |
| 18                               |                  | 139 813  | Cover, Protector Motor                                      | 1        | 1        |
| 19                               |                  | 139 816  | Panel, Encl Cover   | 1        | 1        |
| 20                               |                  | 159 647  | Insulator, Motor Clamp                                      | 2        | 2        |
| 21                               |                  | 159 646  | Clamp, Motor Base   | 2        | 2        |
| 22                               |                  | 159 360  | Insulator, Screw Machine                                    | 8        | 8        |
| 23                               |                  | 156 243  | Clamp, Motor Top  | 2        | 2        |
| 24                               |                  | 145 639  | Strip, Buna N Compressed Sheet .062 X 4.000sq               | 2        | 2        |
| 25                               |                  | 134 834  | Hose, Sae .187 Id X .410 Od (order by ft)                   | 3Ft      | 3Ft      |
| 26                               |                  | 208 944  | Drive Assy,Wire Rh Vertical 4 Roll W/Clamp&tach (Fig 8-4)   | 1        | 1        |
| 26                               |                  | ◆208 945 | Drive Assy,Wire Rh Vert 4 Roll Hi-speed W/Cl&tach (Fig 8-4) | 1        | 1        |
| 27                               |                  | 157 295  | Guide, Monocoil   | 2        | 2        |
| 28                               |                  | 604 612  | Screw, Set Stl Sch 8-32 X .125 Cup Point                    | 4        | 4        |
| 29                               |                  | 082 050  | Liner, Monocoil Inlet Wire                                  | 2        | 2        |
| 30                               |                  | 201 776  | Drive Assy,Wire L Vertical 4 Roll W/Clamp&tach (Fig 8-4)    | 1        | 1        |
| 30                               |                  | ◆201 777 | Drive Assy,Wire L Vert 4 Roll Hi-speed W/Cl&tach (Fig 8-4)  | 1        | 1        |
|                                  |                  | 149 322  | Clamp, Hose .405-.485clp                                    | 4        | 4        |
| 31                               |                  | 211 989  | Fitting, W/Screen   | 2        | 2        |

Note: When ordering Control Box contact factory service department for proper number.

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

Hardware is common and not available unless listed.



803 190

Figure 8-2. Control Box

| Item No. | Dia. Mkgs. | Part No. | Description | Quantity |       |
|----------|------------|----------|-------------|----------|-------|
|          |            |          |             | Model    |       |
|          |            |          |             | D-74S    | D-74D |

Figure 8-2. Control Box (Figure 8-1 Item 1)

|     |    |                   |  |      |    |
|-----|----|-------------------|--|------|----|
| ... | 1  | 204 722           | .. Wrapper, feeder                                       | 1    | 1  |
| ... |    | 134 464           | .. Label,Warning General Precautionary Static&Wire Feed  | 1    | 1  |
| ... | 2  | S1 111 997        | .. Switch, Rocker Spst 10A 250vac On-Off Visi Red Rock   | 1    | 1  |
| ... | 3  | PC70 220 903      | .. Circuit Card Assy, Dual W/Program                     | 1    | 1  |
| ... | 4  | PC1,101 217 898   | .. Circuit Card Assy, Motor Control W/Program            | 2    | 2  |
| ... | 5  | 030 170           | .. Bushing,Snap-in Nyl .750 Id X 1.000 Mtg Hole          | 1    | 1  |
| ... | 6  | 047 838           | .. Blank,Snap-in Nyl 1.000 Mtg Hole Black                | 2    | 2  |
| ... | 6  | 000 527           | .. Blank, Snap-in Nyl .875 Mtg Hole Black                | 1    | 1  |
| ... | 7  | 201 228           | .. Cable, Power 16.5ft 8/c 2-14ga 6-18ga (consisting of) | 1    | 1  |
| ... | 8  | 139 041           | .. Strain Relief   | 1    | 1  |
| ... | 9  | 163 519           | .. Cable, Port   | 16.5 | Ft |
| ... | 10 | 079 739           | .. Conn, circ cpc clamp str rlf                          | 1    | 1  |
| ... | 11 | PLG12 141 162     | .. Housing Plug+Pins, (service kit)                      | 1    | 1  |
| ... |    | PLG52 174 823     | .. Housing Plug Pins+Skts, (service kit)                 | 1    | 1  |
| ... |    | PLG74 115 093     | .. Housing Plug+Skts, (service kit)                      | 1    | 1  |
| ... | 12 | RC40,140 047 637  | .. Housing Rcpt+Skts,(service kit)                       | 2    | 2  |
| ... |    | PLG34,134 136 810 | .. Housing Plug+Skts, (service kit)                      | 2    | 2  |
| ... |    | PLG35,135 131 204 | .. Housing Plug+Skts, (service kit)                      | 2    | 2  |
| ... |    | PLG36,136 115 094 | .. Housing Plug+Skts, (service kit)                      | 2    | 2  |
| ... | 13 | 010 494           | .. Bushing, Snap-in Nyl 1.375 Id X 1.750 Mtg Hole        | 2    | 2  |
| ... | 14 | 134 201           | .. Stand-off Support, Pc Card .312/.375w/Post&lock .43   | 17   | 17 |
| ... | 15 | 204 721           | .. Enclosure, Control                                    | 1    | 1  |
| ... | 16 | PC60 224 805      | .. Circuit Card Assy, Meter W/Program                    | 0    | 1  |
| ... | 16 | PC40 220 797      | .. Circuit Card Assy, Master W/Program D-74              | 1    | 0  |



| Item No. | Dia. Mkgs. | Part No. | Description | Quantity |       |
|----------|------------|----------|-------------|----------|-------|
|          |            |          |             | Model    |       |
|          |            |          |             | D-74S    | D-74D |

**Figure 8-2. Control Box (Continued)**

|            |               |             |   |   |   |
|------------|---------------|-------------|---|---|---|
| ... 17 ... | R1,101        | ... 073 562 | .. Pot,Cp Std Slot 1t 2. W 10k Linear                 | 2 | 0 |
| ... 17     | R1,101,70,170 | .. 224 597  | .. Pot, Cermet Std Flat 3.75T 2 W 10K Linear          | 0 | 4 |
| ... 18     |               | ... 204 723 | .. Panel, Front                                       | 1 | 1 |
| ... 19     |               | ... 204 724 | .. Nameplate, Miller Lower                            | 1 | 1 |
| ... 20     | S2,102        | ... 200 295 | .. Switch, rocker spdt 15A 12V (on)-off-(on)          | 2 | 2 |
| ... 21     | S3, S103      | ... 201 642 | .. Switch, rocker spdt 15A 12V (on)-none-(on)         | 2 | 2 |
| ... 22     | S100          | ... 201 641 | .. Switch, rocker spdt 15A 12V (on)-off-(on) W/leds   | 1 | 1 |
| ... 23     |               | ... 193 919 | .. Knob, pointer 1.250 dia x .250 id w/two set screws | 2 | 4 |
| ... 24     |               | ... 206 513 | .. Nameplate, Miller D-74S Upper                      | 1 | 0 |
| ... 24     |               | ... 206 511 | .. Nameplate, Miller D-74D Upper                      | 0 | 1 |


+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.**

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

**Harness Connectors/Receptacles**

|       |                   |             |   |   |
|-------|-------------------|-------------|---|---|
| ..... | PLG6,106          | ... 115 094 | ... Housing Plug+Skts, (service kit)      | 1 |
| ..... | PLG4,104          | ... 136 810 | ... Housing Plug+Skts, (service kit)      | 1 |
| ..... | PLG72             | ... 115 092 | ... Housing Plug+Skts, (service kit)      | 1 |
| ..... | PLG9,109          | ... 201 665 | ... Housing Plug+Skts, (service kit)      | 1 |
| ..... | PLG11, 21,71,111  | .. 131 055  | ... Housing Rcpt+Skts, (service kit)      | 1 |
| ..... | PLG7,67,107       | ... 115 091 | ... Housing Plug+Skts, (service kit)      | 1 |
| ..... | PLG17,70          | ... 158 719 | ... Housing Plug+Skts, (service kit)      | 1 |
| ..... | PLG117            | ... 165 404 | ... Housing Rcpt+Skts, (service kit)      | 1 |
| ..... | PLG1,77,78,79,101 | .. 202 592  | ... Housing Plug+Skts, (service kit)      | 1 |
| ..... | PLG3,75,76,103    | .. 115 093  | ... Housing Plug+Skts, (service kit)      | 1 |
| ..... | PLG51             | ... 174 824 | ... Housing Plug Pins+Skts, (service kit) | 1 |
| ..... | PLG8,108          | ... 131 054 | ... Housing Rcpt+Skts, (service kit)      | 1 |
| ..... | PLG10,110         | ... 130 203 | ... Housing Plug+Skts, (service kit)      | 1 |

 Hardware is common and not available unless listed.

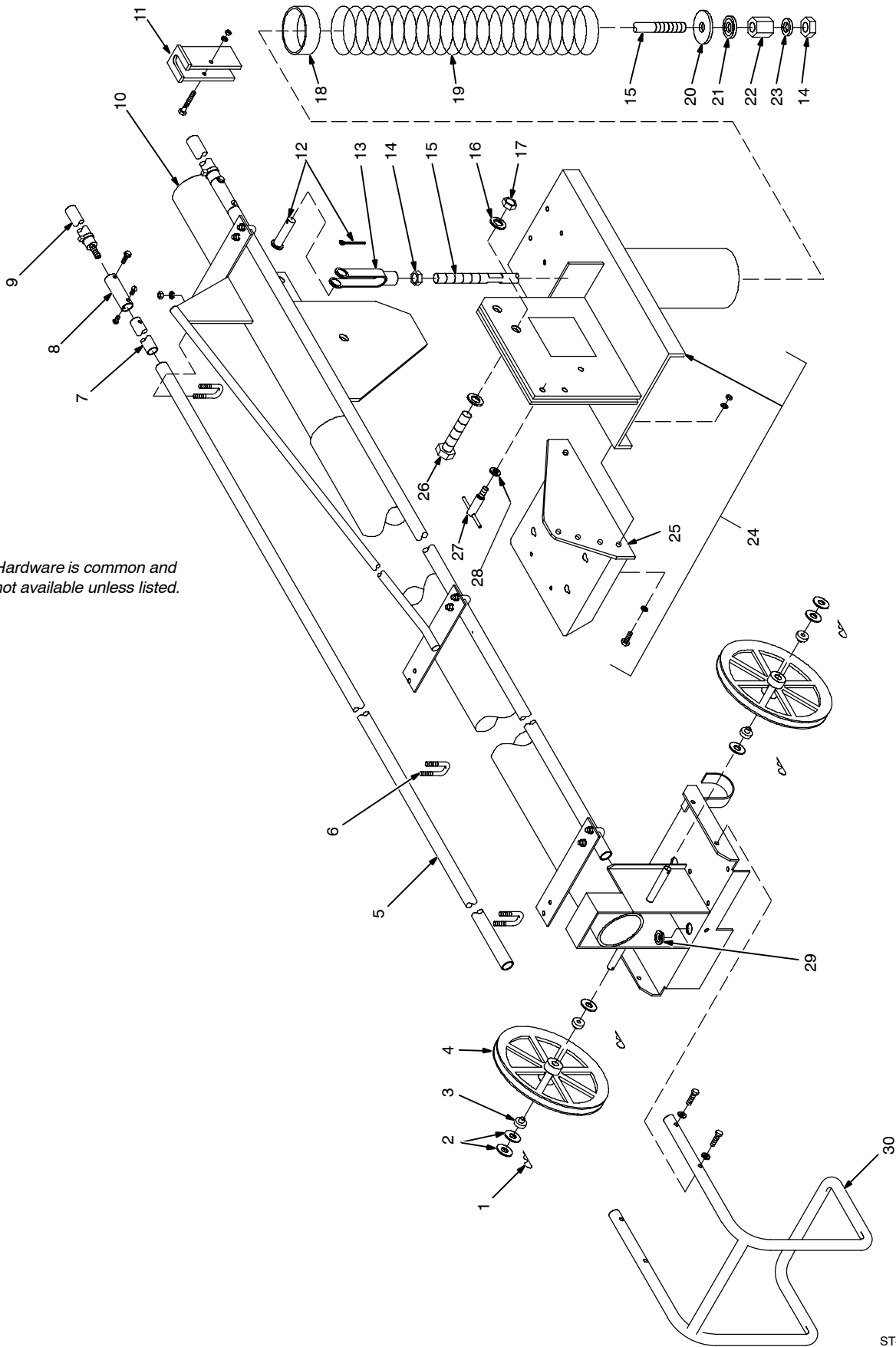


Figure 8-3. Boom Assembly

ST-142 306-H

| Item No. | Part No. | Description | Quantity |    |
|----------|----------|-------------|----------|----|
|          |          |             | 12       | 16 |

**Figure 8-3. Boom Assembly (Fig 8-1 Item 14)**

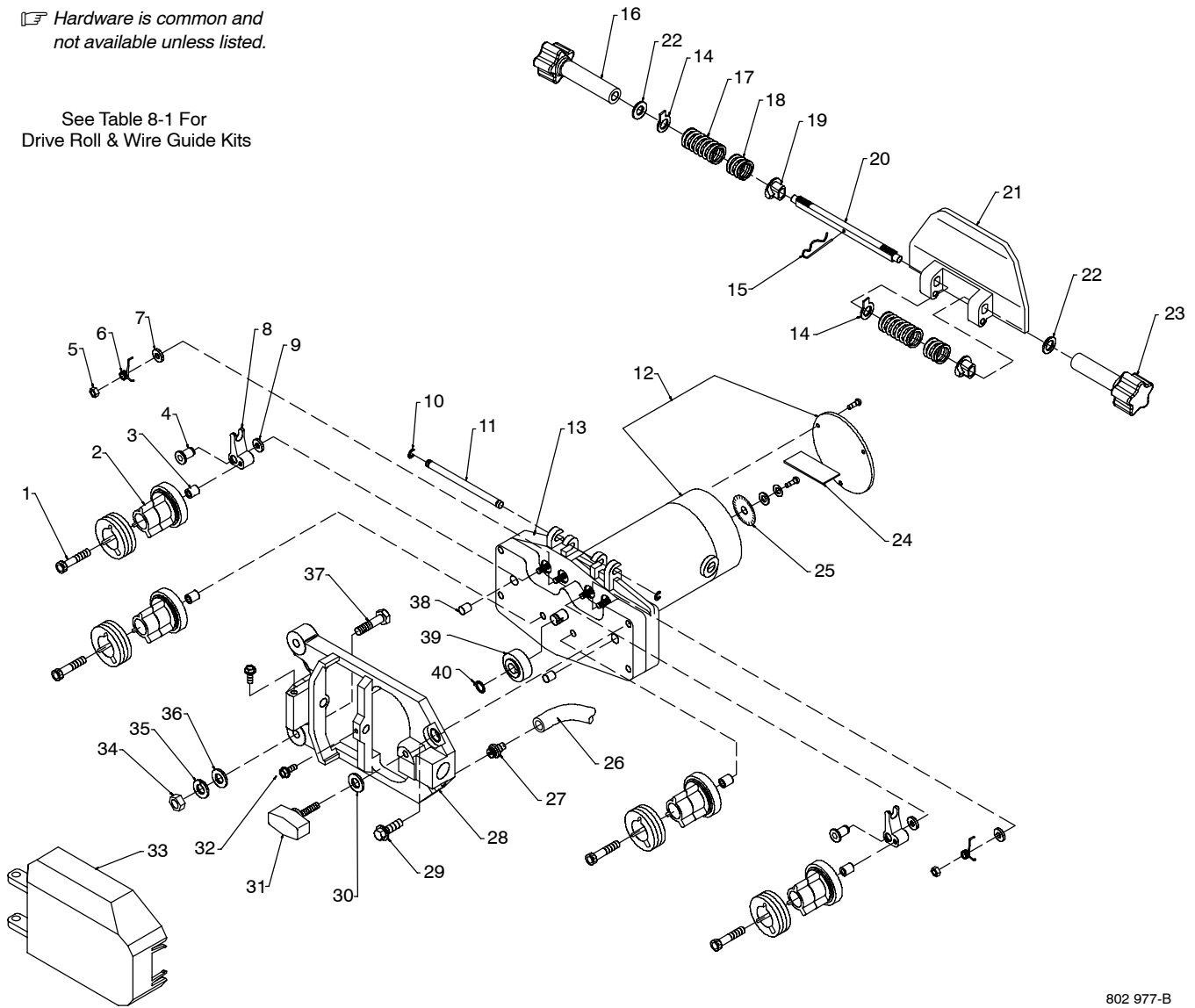
|    |          |   |   |    |
|----|----------|---|---|----|
| 1  | 010 313  | Pin, Cotter Hair .072 X 1.437                   | 4 | 4  |
| 2  | 010 910  | Washer, Flat Stl Sae .375                       | 6 | 6  |
| 3  | 079 622  | Washer, Shld .381 Id X .750 Od                  | 2 | 2  |
| 4  | 079 621  | Pulley, V Sgl Grv 7.750dia X 8.000p X .625 Bore | 2 | 2  |
| 5  | 079 667  | Pipe, Plstc .500 X 133.750                      | 2 | 0  |
| 5  | 080 812  | Pipe, Plstc .500 X 181.750                      | 0 | 2  |
| 6  | 079 632  | Bolt, U Stl .250-20 X .875 Wide X 1.375 Deep    | 8 | 10 |
| 7  | 079 665  | Guide, Wire                                     | 2 | 0  |
| 7  | 080 811  | Guide, Wire                                     | 0 | 2  |
| 8  | 079 664  | Guide, Wire Inlet                               | 2 | 2  |
| 9  | 139 633  | Liner, Monocoil 3/32-1/8 Wire X 15.687          | 2 | 2  |
| 10 | 159 999  | Boom, Dual                                      | 1 | 0  |
| 10 | 160 513  | Boom, Dual                                      | 0 | 1  |
| 11 | 080 947  | Bracket, Spring Retaining                       | 1 | 0  |
| 11 | 151 626  | Bracket, Spring Retaining                       | 0 | 1  |
| 12 | 073 742  | Pin, Clevis .750 Od X 2.156 Lg                  | 1 | 1  |
| 13 | 073 741  | Clevis, .812 Yoke 6.062 Lg .750-16thd           | 1 | 1  |
| 14 | 079 029  | Nut, Stl Hex Full Fnsh .750-16                  | 2 | 2  |
| 15 | 075 462  | Shaft, Boom Counterbalance                      | 1 | 1  |
| 16 | 602 250  | Washer, Flat Stl Sae .750                       | 2 | 2  |
| 17 | 079 020  | Nut, Stl Hex Elastic Stop .750-16               | 1 | 1  |
| 18 | 155 335  | Pipe, Blk 3.000 X .875                          | 0 | 1  |
| 19 | 149 858  | Spring, Cprsn 3.750 Od X .625 Wire X 36.000     | 1 | 0  |
| 19 | 151 625  | Spring, Cprsn 3.750 Od X .640 Wire X 36.000     | 0 | 1  |
| 20 | 150 258  | Retainer, Spring                                | 1 | 1  |
| 21 | 024 605  | Bearing, Ball Thr Sgl Row .750 X 1.625 X .625   | 1 | 1  |
| 22 | 075 101  | Nut, Stl Hex Special .750-16 X 1.250            | 1 | 1  |
| 23 | 079 030  | Washer, Lock Stl Ext Tooth .750                 | 1 | 1  |
| 24 | +174 754 | Base, Swivel Boom (consisting of)               | 1 | 1  |
|    | 080 157  | Fitting, Grease 1/8npt                          | 1 | 1  |
| 25 | 174 688  | Bracket, Mtg Control Tilt                       | 1 | 1  |
|    | 142 804  | Label, Swingarc Caution Heavy Spring            | 1 | 1  |
|    | 134 327  | Label, Warning General Precautionary            | 1 | 1  |
| 26 | 073 666  | Bolt, Mach Stl Hexhd .750-16 X 2.750            | 1 | 1  |
| 27 | 047 224  | Knob, T-bar .500-13thd                          | 1 | 1  |
| 28 | 602 246  | Washer, Flat Stl Std .500                       | 1 | 1  |
| 29 | 010 493  | Bushing, Snap-in Nyl .625 Id X .875mtg Hole     | 1 | 1  |
| 30 | 139 818  | Guard, Motor Protector                          | 1 | 1  |

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

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

☐ Hardware is common and not available unless listed.

See Table 8-1 For Drive Roll & Wire Guide Kits



802 977-B

Figure 8-4. Drive Assembly, Wire

| Item No. | Dia. Mkgs. | Part No. | Description | Quantity |                 |
|----------|------------|----------|-------------|----------|-----------------|
|          |            |          |             | Model    | DS-74S   DS-74D |

Figure 8-4. Drive Assembly, Wire (Figure 8-1 Item 26)

|     |    |                |  |   |   |
|-----|----|----------------|--|---|---|
| ... | 1  | 010 668        | .. Screw, Cap Stl Sch .250-20 X 1.500        | 4 | 4 |
| ... | 2  | 172 075        | .. Carrier, Drive Roll W/Components 24 Pitch | 4 | 4 |
| ... | 3  | 149 962        | .. Spacer, Carrier Drive Roll                | 4 | 4 |
| ... | 4  | 149 486        | .. Pin, Rotation Arm Rocker                  | 2 | 2 |
| ... | 5  | 163 282        | .. Nut, .250-28 Stl                          | 2 | 2 |
| ... | 6  | 165 798        | .. Spring, Pressure Arm Retaining            | 2 | 2 |
| ... | 7  | 165 799        | .. Washer, Flat .257 Id Stl                  | 2 | 2 |
| ... | 8  | 132 750        | .. Arm, Pressure                             | 2 | 2 |
| ... | 9  | 150 520        | .. Spacer, Rotation Pin                      | 2 | 2 |
| ... | 10 | 133 493        | .. Ring, Retaining Ext .250 Shaft X .025thk  | 2 | 2 |
| ... | 11 | 133 350        | .. Pin, Hinge                                | 1 | 1 |
| ... | 12 | M1,101 201 230 | .. Motor, Gear 1/8hp 24vdc Standard Speed    | 1 | 1 |
| ... | 12 | M1,101 201 231 | .. Motor, Gear 1/8hp 24vdc High Speed        | 0 | 1 |
| ... |    | 153 491        | ... Kit, Brush Replacement (consisting of)   | 1 | 1 |
| ... |    | 153 492        | ... Cap, Brush                               | 2 | 2 |
| ... |    | *153 493       | ... Brush, Carbon                            | 2 | 2 |

| Item No. | Dia. Mkgs. | Part No. | Description | Quantity |       |
|----------|------------|----------|-------------|----------|-------|
|          |            |          |             | Model    |       |
|          |            |          |             | DS-12    | DS-16 |

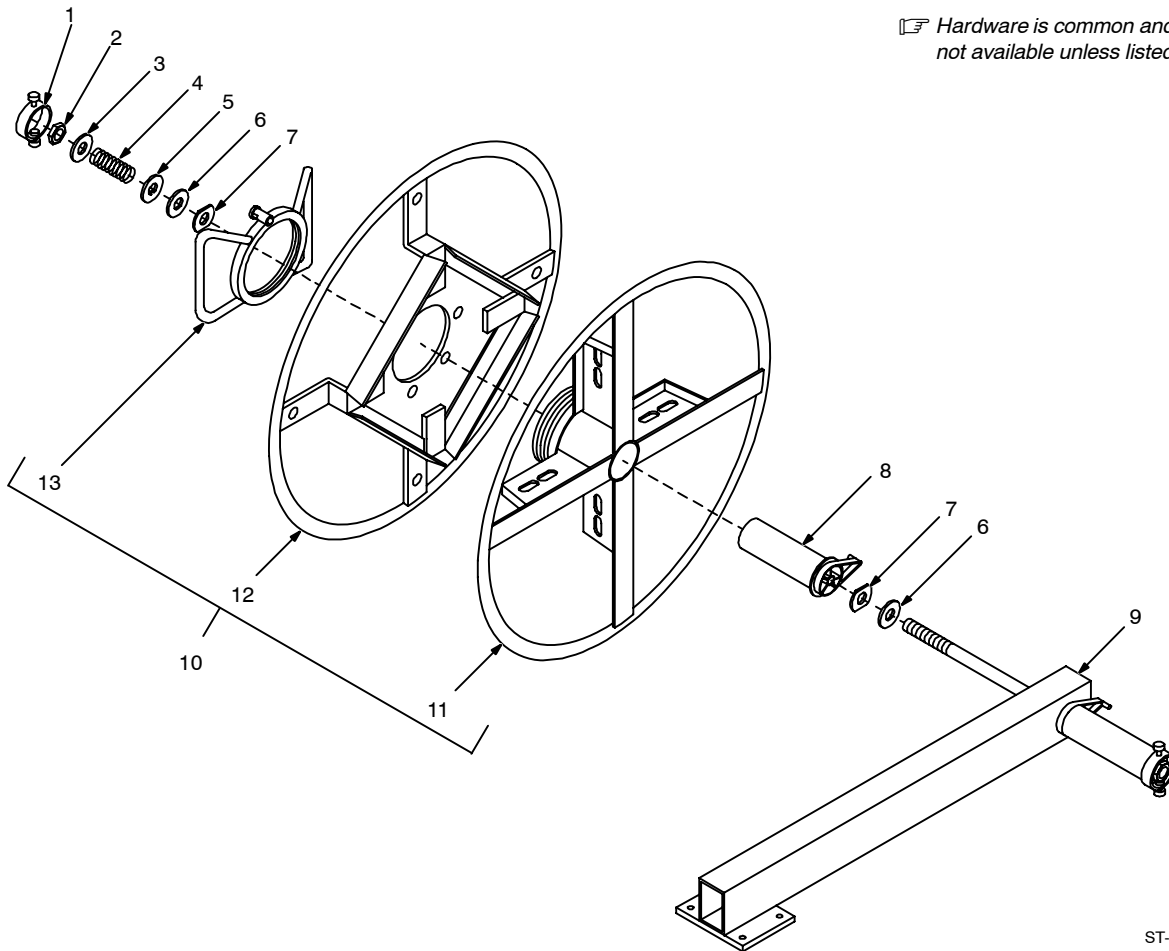
**Figure 8-4. Drive Assembly, Wire (continued)**

|        |             |         |  |   |    |
|--------|-------------|---------|--|---|----|
| .....  |             | 184 136 | ... Kit, Brush Holder                                  | 1 | 1  |
| ... 13 |             | 155 098 | .. Kit, Cover Motor Gearbox (consisting of)            | 1 | 1  |
| .....  |             | 153 550 | ..... Cover, Motor Gearbox (consisting of)             | 1 | 1  |
| .....  |             | 155 099 | ..... Gasket, Cover                                    | 1 | 1  |
| .....  |             | 155 100 | ..... Screw, Cover                                     | 5 | 5  |
| .....  |             | 154 031 | ..... Spacer, Locating                                 | 2 | 2  |
| .....  |             | 133 493 | ... Ring, Rtnng Ext .250 Shaft Grv X .025Thk           | 1 | 1  |
| .....  |             | 203 642 | .. Pressure Arm, R & Vert L 4 Roll (consisting of)     | 1 | 1  |
| .....  |             | 203 631 | .. Pressure Arm, S/L & Vert S/R 4 Roll (consisting of) | 1 | 1  |
| ... 14 |             | 203 641 | ... Washer, Flat Indicator Spring Tension              | 2 | 2  |
| ... 15 |             | 182 415 | ... Pin, Cotter Hair                                   | 1 | 1  |
| ... 16 |             | 203 640 | ... Knob, W/Extension Short Pressure Arm               | 1 | 1  |
| ... 17 |             | 182 156 | ... Spring, Cprsn                                      | 2 | 2  |
| ... 18 |             | 182 155 | ... Spring   | 2 | 2  |
| ... 19 |             | 132 746 | ... Bushing, Spring                                    | 2 | 2  |
| ... 20 |             | 203 633 | ... Shaft, Spring                                      | 1 | 1  |
| ... 21 |             | 203 632 | ... Carrier, Shaft                                     | 1 | 1  |
| ... 22 |             | 133 739 | ... Washer, Flat Buna .375 Id X .625 Od X .062Thk      | 2 | 2  |
| ... 23 |             | 203 637 | ... Knob, W/Extension Long Pressure Arm                | 1 | 1  |
| ... 24 | .. PC51,151 | 201 225 | .. Circuit Card, Digital Tach (consisting of)          | 1 | 1  |
| .....  | PLG5        | 131 204 | ... Connector & Sockets                                | 1 | 1  |
| .....  |             | 604 311 | ... Grommet, Rbr .250 Id X .375Mtg Hole                | 1 | 1  |
| ... 25 |             | 132 611 | .. Optical Encoder Disc                                | 1 | 1  |
| .....  |             | 603 115 | .. Weather Stripping, Adh .125 X .375                  | 1 | 1  |
| ... 26 |             | 134 834 | .. Hose, Sae .187 Id X .410 Od (order by ft)           | 2 | Ft |
| ... 27 |             | 149 959 | .. Fitting, Brs Barbed M 3/16Tbg X .312-24             | 1 | 1  |
| ... 28 |             | 179 265 | .. Adapter, Gun/Feeder Lh                              | 1 | 1  |
| ... 28 |             | 179 264 | .. Adapter, Gun/Feeder Rh                              | 1 | 1  |
| ... 29 |             | 108 940 | .. Screw, Cap Stl Hexwhd .250-20 X .750                | 4 | 4  |
| ... 30 |             | 604 538 | .. Washer, Flat Stl Sae .312                           | 1 | 1  |
| ... 31 |             | 151 437 | .. Knob, Plstc T 1.125 Lg X .312-18 X 1.500 Bar        | 1 | 1  |
| ... 32 |             | 151 290 | .. Screw, Hexwhd-Slt Stl Slffmg 10-32 X .500           | 2 | 2  |
| ... 33 |             | 179 277 | .. Cover, Drive Roll (consisting of)                   | 1 | 1  |
| .....  |             | 196 956 | ... Label, Warning Electric Shock And Pinch            | 1 | 1  |
| ... 34 |             | 601 872 | .. Nut, Stl Hex Full .375-16                           | 1 | 1  |
| ... 35 |             | 602 213 | .. Washer, Lock Stl Split .375                         | 1 | 1  |
| ... 36 |             | 602 243 | .. Washer, Flat Stl .375                               | 1 | 1  |
| ... 37 |             | 601 966 | .. Screw, Cap Stl Hexhd .375-16 X 1.250                | 1 | 1  |
| ... 38 |             | 167 387 | .. Spacer, Locating                                    | 2 | 2  |
| ... 39 |             | 168 825 | .. Drive, Pinion 40t 24p .376 Bore                     | 1 | 1  |
| ... 40 |             | 133 308 | .. Ring, Retaining Ext .375 Shaft X .025Thk            | 1 | 1  |

\*Recommended Spare Parts.

**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.



ST-081 760-C

**Figure 8-5. Support, Hub & Reel**

| Item No.   | Part No. | Description  | Quantity |
|--|----------|--|----------|
| <b>Figure 8-5. Support, Hub &amp; Reel (Fig 8-1 Item 11)</b> |          |  |          |
| ...  | 1        | 058 427 .. RING, retaining spool                             | 2        |
| ...  | 2        | 136 684 .. NUT, stl slflkg hex reg .625-11 w/nyl insert      | 2        |
| ...  | 3        | 605 941 .. WASHER, flat stl .640 ID x 1.000 OD x 14ga thk    | 2        |
| ...  | 4        | 010 233 .. SPRING, cprsn .970 OD x .120 wire x 1.250         | 2        |
| ...  | 5        | 057 971 .. WASHER, flat stl keyed 1.500dia x .125thk         | 2        |
| ...  | 6        | 010 191 .. WASHER, fbr .656 ID x 1.500 OD x .125thk          | 4        |
| ...  | 7        | 058 628 .. WASHER, brake stl                                 | 4        |
| ...  | 8        | 058 428 .. HUB, spool  | 2        |
| ...  | 9        | 080 393 .. SUPPORT, reel                                     | 1        |
| ...  | 10       | ◆ 108 008 .. REEL, wire 60 lb (consisting of)                | 2        |
| ...  | 11       | 124 900 .. SUPPORT, reel spool                               | 1        |
| ...  | 12       | +168 104 .. RETAINER, spool support (consisting of)          | 1        |
| ...  |          | 166 594 .. LABEL, caution falling wire reel can cause damage | 1        |
| ...  | 13       | 168 103 .. NUT, spanner retaining                            | 1        |

◆ 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.**

**Table 8-1. Drive Roll and Wire Guide Kits**

| Wire Size              |            | Inlet Guide | Intermediate Guide | V-GROOVE   |            | U-GROOVE   |            | VK-GROOVE  |            | UC-GROOVE  |            |
|------------------------|------------|-------------|--------------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Fraction               | Metric     |             |                    | 4 Roll Kit | Drive Roll | 4 Roll Kit | Drive Roll | 4 Roll Kit | Drive Roll | 4 Roll Kit | Drive Roll |
| .023-.025 in.          | 0.6 mm     | 150 993     | 149 518            | 151 024    | 087 130    |            |            |            |            |            |            |
| .030 in.               | 0.8 mm     | 150 993     | 149 518            | 151 025    | 053 695    |            |            |            |            |            |            |
| .035 in.               | 0.9 mm     | 150 993     | 149 518            | 151 026    | 053 700    | 151 036    | 072 000    | 151 052    | 132 958    |            |            |
| .040 in.               | 1.0 mm     | 150 993     | 149 518            | 161 189    | 053 696    |            |            |            |            |            |            |
| .045 in.               | 1.1/1.2 mm | 150 994     | 149 519            | 151 027    | 053 697    | 151 037    | 053 701    | 151 053    | 132 957    | 151 070    | 083 489    |
| .052 in.               | 1.3/1.4 mm | 150 994     | 149 519            | 151 028    | 053 698    | 151 038    | 053 702    | 151 054    | 132 956    | 151 071    | 083 490    |
| 1/16 in.<br>(.062 in.) | 1.6 mm     | 150 995     | 149 520            | 151 029    | 053 699    | 151 039    | 053 706    | 151 055    | 132 955    | 151 072    | 053 708    |
| .068-.072 in.          | 1.8 mm     | 150 995     | 149 520            |            |            |            |            | 151 056    | 132 959    |            |            |
| 5/64 in.<br>(.079 in.) | 2.0 mm     | 150 995     | 149 520            |            |            | 151 040    | 053 704    | 151 057    | 132 960    | 151 073    | 053 710    |
| 3/32 in.<br>(.094 in.) | 2.4 mm     | 150 996     | 149 521            |            |            | 151 041    | 053 703    | 151 058    | 132 961    | 151 074    | 053 709    |
| 7/64 in.<br>(.110 in.) | 2.8 mm     | 150 996     | 149 521            |            |            | 151 042    | 053 705    | 151 059    | 132 962    | 151 075    | 053 711    |
| 1/8 in.<br>(.125 in.)  | 3.2 mm     | 150 997     | 149 522            |            |            | 151 043    | 053 707    | 151 060    | 132 963    | 151 076    | 053 712    |

Each Kit Contains An Inlet Guide, Intermediate Guide, And 045 233 Antiwear Guide With 604 612 Setscrew 8-32 x .125, Along With 4 Drive Rolls.  
2 Kits Required For Dual Models.

S-0549-D









# TRUE BLUE<sup>®</sup>

## WARRANTY

Effective January 1, 2006

(Equipment with a serial number preface of "LG" or newer)

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

### Warranty Questions?

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

Your distributor also gives  
you ...

### Service

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

### Support

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

LIMITED WARRANTY – Subject to the terms and conditions below, Miller Electric Mfg. 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 date that the equipment was delivered to the original retail purchaser, or one year after the equipment is sent to a North American distributor or eighteen months after the equipment is sent to an International distributor.

- 5 Years Parts — 3 Years Labor
  - \* Original main power rectifiers
- 3 Years — Parts and Labor
  - \* Transformer/Rectifier Power Sources
  - \* Plasma Arc Cutting Power Sources
  - \* Process Controllers
  - \* Semi-Automatic and Automatic Wire Feeders
  - \* Inverter Power Sources (Unless Otherwise Stated)
  - \* Water Coolant Systems (Integrated)
  - \* Intellitig
  - \* Engine Driven Welding Generators  
**(NOTE: Engines are warranted separately by the engine manufacturer.)**
- 1 Year — Parts and Labor Unless Specified
  - \* Motor Driven Guns (w/exception of Spoolmate Spoolguns)
  - \* Positioners and Controllers
  - \* Automatic Motion Devices
  - \* RFCS Foot Controls
  - \* Induction Heating Power Sources, Coolers, and Electronic Controls/Recorders
  - \* Water Coolant Systems (Non-Integrated)
  - \* Flowgauge and Flowmeter Regulators (No Labor)
  - \* HF Units
  - \* Grids
  - \* Spot Welders
  - \* Load Banks
  - \* Arc Stud Power Sources & Arc Stud Guns
  - \* Racks
  - \* Running Gear/Trailers
  - \* Plasma Cutting Torches (except APT & SAF Models)
  - \* Field Options  
(NOTE: Field options are covered under True Blue<sup>®</sup> for the remaining warranty period of the product they are installed in, or for a minimum of one year — whichever is greater.)
  - \* Bernard-Branded Mig Guns (No Labor)
  - \* Weldcraft-Branded TIG Torches (No Labor)
  - \* Subarc Wire Drive Assemblies
- 6 Months — Batteries
- 90 Days — Parts
  - \* MIG Guns/TIG Torches and Subarc (SAW) Guns

- \* Induction Heating Coils and Blankets, Cables, and Non-Electronic Controls
- \* APT & SAF Model Plasma Cutting Torches
- \* Remote Controls
- \* Accessory (Kits)
- \* Replacement Parts (No labor)
- \* Spoolmate Spoolguns
- \* Canvas Covers

Miller's True Blue<sup>®</sup> Limited Warranty shall not apply to:

- Consumable components; such as contact tips, cutting nozzles, contactors, brushes, slip rings, relays or parts that fail due to normal wear. (Exception: brushes, slip rings, and relays are covered on Bobcat, Trailblazer, and Legend models.)**
- 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.
- 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

Options and Accessories

Personal Safety Equipment

Service and Repair

Replacement Parts

Training (Schools, Videos, Books)

Technical Manuals (Servicing Information and Parts)

Circuit Diagrams

Welding Process Handbooks

To locate a Distributor or Service Agency visit [www.millerwelds.com](http://www.millerwelds.com) or call 1-800-4-A-Miller

Contact the Delivering Carrier to:

File a claim for loss or damage during shipment.

For assistance in filing or settling claims, contact your distributor and/or equipment manufacturer's Transportation Department.

### Miller Electric Mfg. Co.

An Illinois Tool Works Company  
1635 West Spencer Street  
Appleton, WI 54914 USA

### International Headquarters—USA

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

### European Headquarters – United Kingdom

Phone: 44 (0) 1204-593493  
FAX: 44 (0) 1204-598066

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

