OM-1594 181 715Z
May 2005

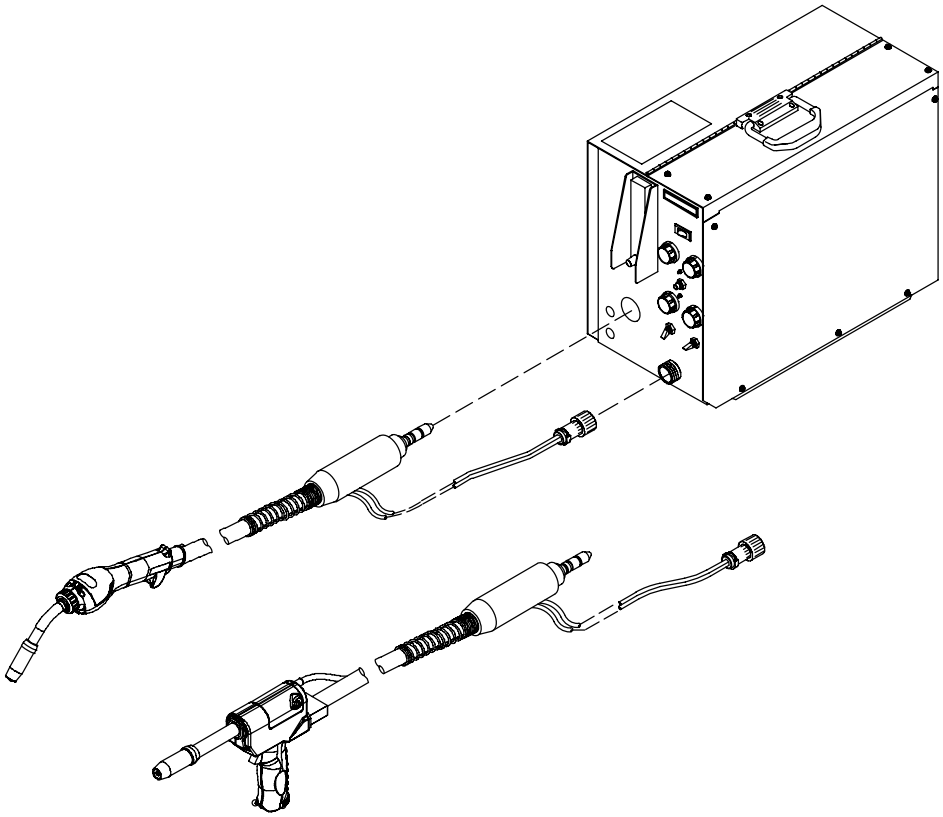
Processes

MIG (GMAW) Welding

Description

Wire Feeder And Feeder Gun

XR™ Control
XR™ Air- And Water-Cooled Guns



OWNER'S MANUAL

Visit our website at
www.MillerWelds.com

From Miller to You

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

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

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

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

ISO 9001:2000 REGISTERED QUALITY SYSTEM

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

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

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

TRUE BLUE® WARRANTY

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

Miller®

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Declaration of Conformity for European Community (CE) Products

Note ☞ *This information is provided for units with CE certification (see rating label on unit).*

Manufacturer's Name: Miller Electric Mfg. Co.

Manufacturer's Address: 1635 W. Spencer Street
Appleton, WI 54914 USA

Declares that the product: **XR-Control**

conforms to the following Directives and Standards:

Directives

Low Voltage Directive: 73/23/EEC

Electromagnetic Compatibility (EMC) Directive: 89/336/EEC

Machinery Directives: 89/392/EEC, 91/368/EEC, 93/C 133/04, 93/68/EEC

Standards

Arc Welding Equipment Part I: Welding Power Sources: IEC 60974-1
(September 1998 – Second Edition)

Arc Welding Equipment: Wirefeed Systems: IEC 974-5
(September 1997 – Draft Revision)

Degrees of Protection Provided By Enclosures (IP Code): IEC 529:1989
(November 1989 - First Edition)

Insulation Coordination For Equipment With Low-Voltage Systems:
Part I: Principles, Requirements and Tests: IEC 664-1: 1992
(October 1992 – First Edition)

Electromagnetic Compatibility, (EMC): EN 50199
(August 1995)

Torches And Guns For Arc Welding, EN 50078

European Contact: Mr. Danilo Fedolfi, Managing Director
ITW WELDING PRODUCTS ITALY S.r.l.
Via Privata Iseo 6/E
20098 San Giuliano
Milanese, Italy

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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 watchperson nearby. Welding fumes and gases can displace air and lower the oxygen level causing injury or death. Be sure the breathing air is safe.
- Do not weld in locations near degreasing, cleaning, or spraying operations. The heat and rays of the arc can react with vapors to form highly toxic and irritating gases.
- Do not weld on coated metals, such as galvanized, lead, or cadmium plated steel, unless the coating is removed from the weld area, the area is well ventilated, and 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.

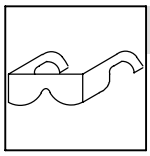
Arc rays from the welding process produce intense visible and invisible (ultraviolet and infrared) rays that can burn eyes and skin. Sparks fly off from the weld.

- 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.

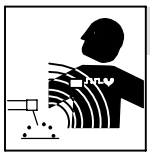
- Welding, chipping, wire brushing, and grinding cause sparks and flying metal. As welds cool, they can throw off slag.
- Wear approved safety glasses with side shields even under your welding helmet.

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.

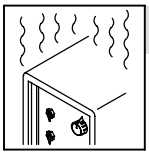
1-3. Additional Symbols For Installation, Operation, And Maintenance

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.

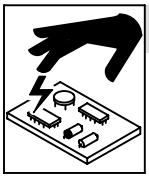
FALLING UNIT can cause injury.

- 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.

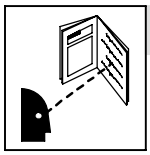
- Keep away from moving parts.
- Keep away from pinch points such as drive rolls.

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.

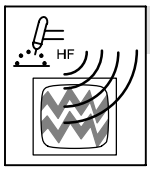
MOVING PARTS can cause injury.

- 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

▲ **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.

▲ **Indique un message de sécurité particulier**

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

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.

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 épissés.
- Ne pas enrouler les câbles autour du corps.
- Si la pièce soudée doit être mise à la terre, le faire directement avec un câble distinct.
- Ne pas toucher l'électrode quand on est en contact avec la pièce, la terre ou une électrode provenant d'une autre machine.
- Ne pas toucher des porte électrodes connectés à deux machines en même temps à cause de la présence d'une tension à vide doublée.
- N'utiliser qu'un matériel en bon état. Réparer ou remplacer sur-le-champ les pièces endommagées. Entretenir l'appareil conformément à ce manuel.
- Porter un harnais de sécurité si l'on doit travailler au-dessus du sol.
- S'assurer que tous les panneaux et couvercles sont correctement en place.
- Fixer le câble de retour de façon à obtenir un bon contact métal-métal avec la pièce à souder ou la table de travail, le plus près possible de la soudure.
- Isoler la pince de masse quand pas mis à la pièce pour éviter le contact avec tout objet métallique.
- Ne pas raccorder plus d'une électrode ou plus d'un câble de masse à une même borne de sortie de soudage.

Il reste une TENSION DC NON NÉGLIGEABLE dans les sources de soudage onduleur 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 nettoyants et les dégraisseurs.
- Travailler dans un espace fermé seulement s'il est bien ventilé ou en portant un respirateur à alimentation d'air. Demander toujours à un surveillant dûment formé de se tenir à proximité. Des fumées et des gaz de soudage peuvent déplacer l'air et abaisser le niveau d'oxygène provoquant des blessures ou des accidents mortels. S'assurer que l'air de respiration ne présente aucun danger.
- Ne pas souder dans des endroits situés à proximité d'opérations de dégraissage, de nettoyage ou de pulvérisation. La chaleur et les rayons de l'arc peuvent réagir en présence de vapeurs et former des gaz hautement toxiques et irritants.
- Ne pas souder des métaux munis d'un revêtement, tels que l'acier galvanisé, plaqué en plomb ou au cadmium à moins que le revêtement n'ait été enlevé dans la zone de soudure, que l'endroit soit bien ventilé et en portant un respirateur à alimentation d'air. Les revêtements et tous les métaux renfermant ces éléments peuvent dégager des fumées toxiques en cas de soudage.

LES RAYONS D'ARC peuvent entraîner des brûlures aux yeux et à la peau.

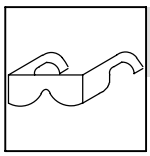
Le rayonnement de l'arc du procédé de soudage génère des rayons visibles et invisibles intenses (ultraviolets et infrarouges) susceptibles de provoquer des brûlures dans les yeux et sur la peau. Des étincelles sont projetées pendant le soudage.

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

LE SOUDAGE peut provoquer un incendie ou une explosion.

Le soudage effectué sur des conteneurs fermés tels que des réservoirs, tambours ou des conduites peut provoquer leur éclatement. Des étincelles peuvent être projetées de l'arc de soudure. La projection d'étincelles, des pièces chaudes et des équipements chauds 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 le plus près possible de la zone de soudage pour éviter le transport du courant sur une longue distance par des chemins inconnus éventuels en provoquant des risques d'électrocution, d'étincelles et d'incendie.
- Ne pas utiliser le poste de soudage pour dégeler des conduites gelées.
- En cas de non-utilisation, enlever la baguette d'électrode du porte-électrode ou couper le fil à la pointe de contact.
- Porter des vêtements de protection 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.

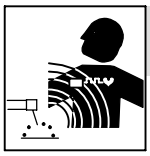
- Le soudage, l'écaillement, le passage de la pièce à la brosse en fil de fer, et le meulage génèrent des étincelles et des particules métalliques volantes. Pendant la période de refroidissement des soudures, elles risquent de projeter du laitier.
- Porter des lunettes de sécurité avec écrans latéraux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

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

- Fermer l'alimentation du gaz protecteur en cas de non-utilisation.
- Veiller toujours à bien aérer les espaces confinés ou se servir d'un respiratoire 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.

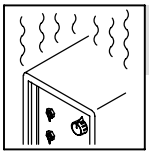
2-3. Dangers supplémentaires en relation avec l'installation, le fonctionnement et la maintenance

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.

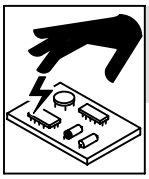
LA CHUTE DE L'APPAREIL peut blesser.

- 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.

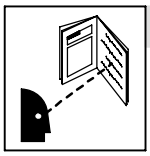
- Ne pas s'approcher des organes mobiles.
- Ne pas s'approcher des points de coincement tels que des rouleaux de commande.

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.

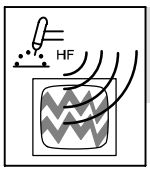
DES ORGANES MOBILES peuvent provoquer des blessures.

- 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).

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).

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).

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).

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).

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).

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).

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).

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 soudure.

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 – DEFINITIONS

3-1. Warning Label Definitions

A. Warning! Watch Out! There are possible hazards as shown by the symbols.

B. Drive rolls can injure fingers.

C. Welding wire and drive parts are at welding voltage during operation – keep hands and metal objects clear.

1 Electric shock can kill.

1.1 Wear dry insulating gloves. Do not touch electrode with bare hand. Do not wear wet or damaged gloves.

1.2 Protect yourself from electric shock by insulating yourself from work and ground.

1.3 Disconnect input plug or power before working on machine.

2 Breathing welding fumes can be hazardous to your health.

2.1 Keep your head out of the fumes.

2.2 Use forced ventilation or local exhaust to remove the fumes.

2.3 Use ventilating fan to remove fumes.

3 Welding sparks can cause explosion or fire.

3.1 Keep flammables away from welding. Don't weld near flammables.

3.2 Welding sparks can cause fires. Have a fire extinguisher nearby and have a watch person ready to use it.

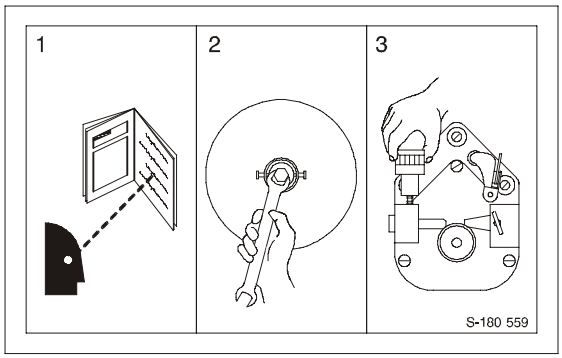
3.3 Do not weld on drums or any closed containers.

4 Arc rays can burn eyes and injure skin.

4.1 Wear hat and safety glasses. Use ear protection and button shirt collar. Use welding helmet with correct shade of filter. Wear complete body protection.

5 Become trained and read the instructions before working on the machine or welding.

6 Do not remove or paint over (cover) the label.

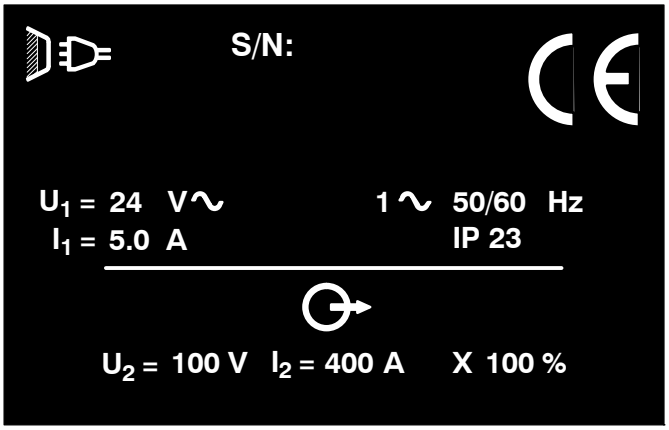


1 Read the Owner's Manual.

2 Do not overtighten wire spool brake pressure. Tighten only until wire does not overspool from wire supply spool.

3 Do not overtighten drive roll pressure. Tighten only until drive roll will not slip (motor will not stall) on a stationary wire.

3-2. Rating Label For CE Products



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3-3. Symbols And Definitions

Note ☞ *Some symbols are found only on CE products.*

A	Amperes	V	Volts	~	Alternating Current	X	Duty Cycle
IP	Degree Of Protection	Hz	Hertz		Circuit Breaker		Wire Feed
	Jog		Output		Trigger		Gun
	Press To Set		Increase		Trigger Hold On		Trigger Hold Off
	Purge	••••t	Spot Weld Time	%	Percent		Run-In
t	Burnback Time	U_1	Primary Voltage	U_2	Load Voltage		Read Instructions
I_1	Primary Current	I_2	Rated Current		Line Connection		Water (Coolant) In-put
	Water (Coolant) Output		Fuse		Continuous Spot Welding		

SECTION 4 – INTRODUCTION

4-1. Specifications

Type of Input Power	Welding Power Source Type	Wire Feed Speed Range	Wire Diameter Range	Welding Circuit Rating	Overall Dimensions	Weight
24 Volts AC Single-Phase 5 Amperes 50/60 Hertz	Constant Voltage (CV) DC For GMAW Or Constant Voltage(CV) / Constant Current (CC) DC For GMAW-P All Need 14-Pin And Contactor Control	70 To 875 ipm (1.8 To 22.2 mpm)	.030 To .062 in (0.8 To 1.6 mm) Max Spool Capacity: 12 in (305 mm)	All Models: 100% Duty Cycle, 100 Volts; Water-Cooled Models: 400 Amperes, Air-Cooled Models: 200 Amperes	Length: 21-1/4 in (540 mm) Width: 9-1/2 in (241 mm) Height: 16 in (406 mm)	38 lb (17.2 kg)

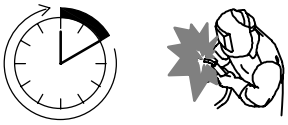
4-2. Duty Cycle And Overheating

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

▲ **Exceeding duty cycle can damage unit and void warranty.**

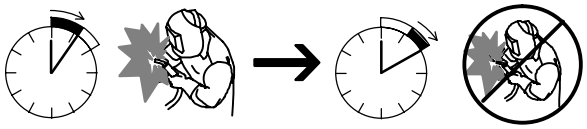
Air-Cooled Models

100% Duty Cycle At 200 Amperes Using Argon



Continuous Welding

60% Duty Cycle At 250 Amperes Using Argon

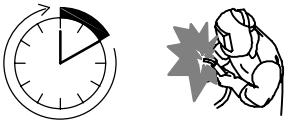


6 Minutes Welding

4 Minutes Resting

Water-Cooled Models

100% Duty Cycle At 400 Amperes Using Argon



Continuous Welding

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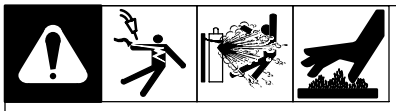
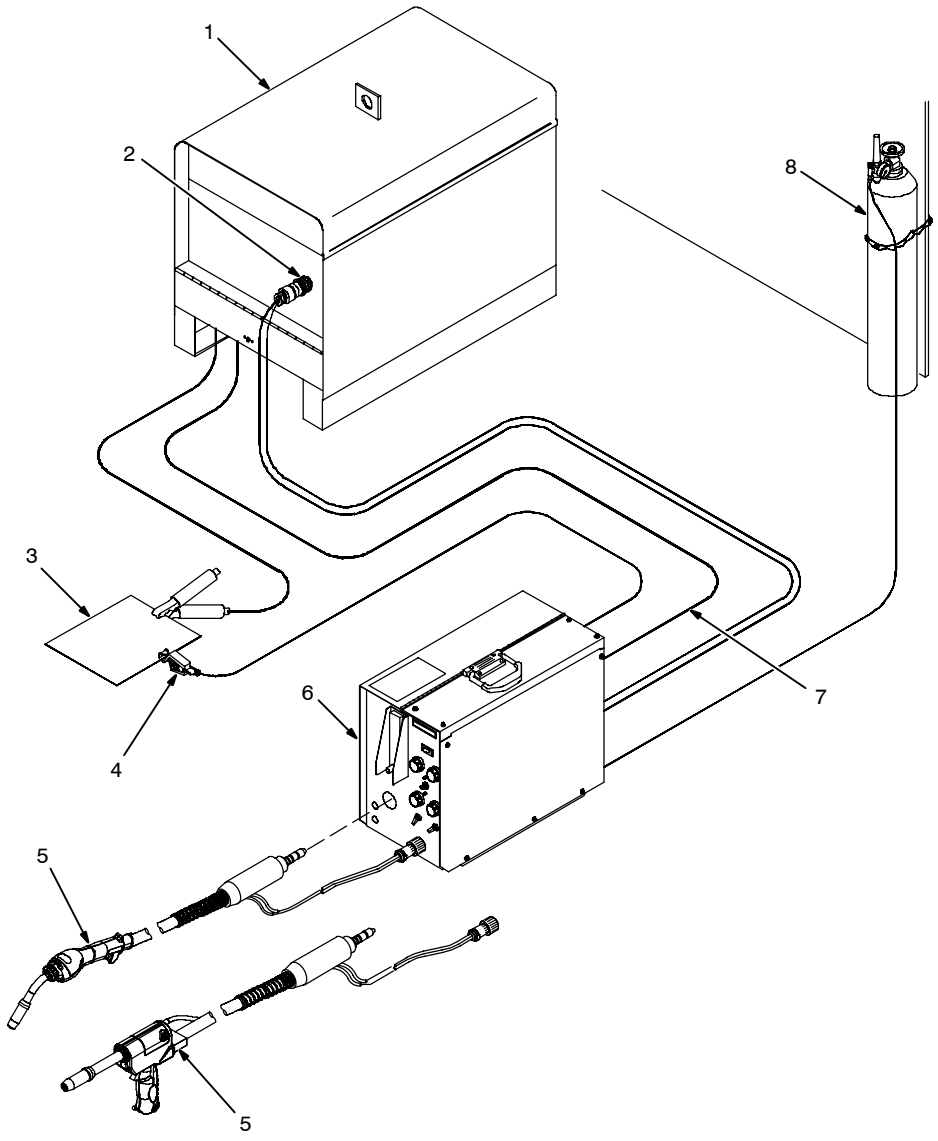
SECTION 5 – INSTALLATION

NOTE ☞	*Be sure that contact tip, liner, and drive rolls are correct for wire size and type. See Parts List to change parts as needed.*

NOTE ☞	*Many procedures apply to both guns covered in this manual. Where procedures differ, separate instructions are given.*

5-1. Connections With A Constant Current (CC), Constant Voltage (CV) Or Constant Current/Constant Voltage (CC/CV) Welding Power Source Having A 14-Socket Receptacle





1 CC, CV Or CC/CV Welding Power Source

2 24 VAC/Contactor Control 14-Pin Plug

3 Workpiece

4 Voltage Sensing Lead (Optional)

Connect lead to workpiece for CC welding only.

5 Gun

6 Wire Feeder

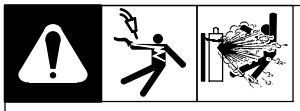
7 24 VAC/Contactor Control Cord

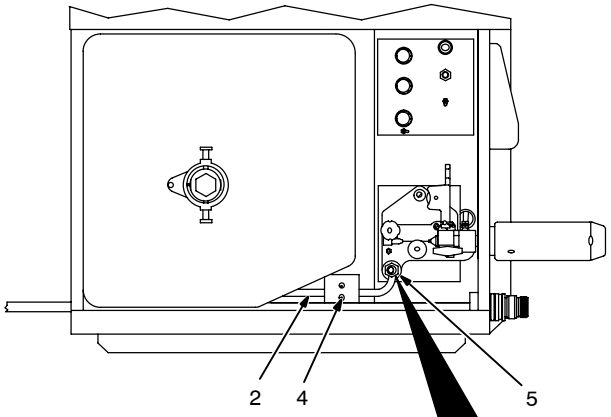
▲ **Do not use gas pressure above 50 psi (345 kPa).**

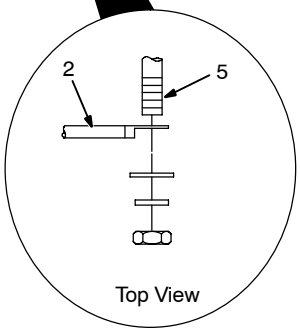
8 Gas Cylinder

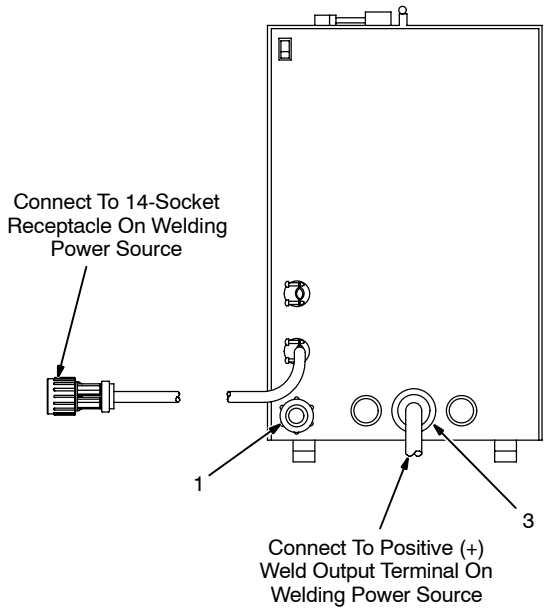
801 559-D / Ref. 151 666-G

5-2. Air-Cooled Feeder Connections









1 Gas Fitting

Route one end of 10 ft (3 m) gas hose to rear of unit, and connect hose to gas solenoid fitting. Connect remaining end of hose to regulator/flowmeter.

2 Weld Cable To Welding Power Source

Select and prepare weld cable according to welding power source manual.

3 Weld Cable Grommet

4 Current Sensing (Reed) Relay

5 Weld Cable Terminal In Feeder

Route one end of weld cable through grommet, through reed relay, and connect to weld cable terminal in feeder. Connect remaining end of cable to positive (+) weld output terminal on welding power source.

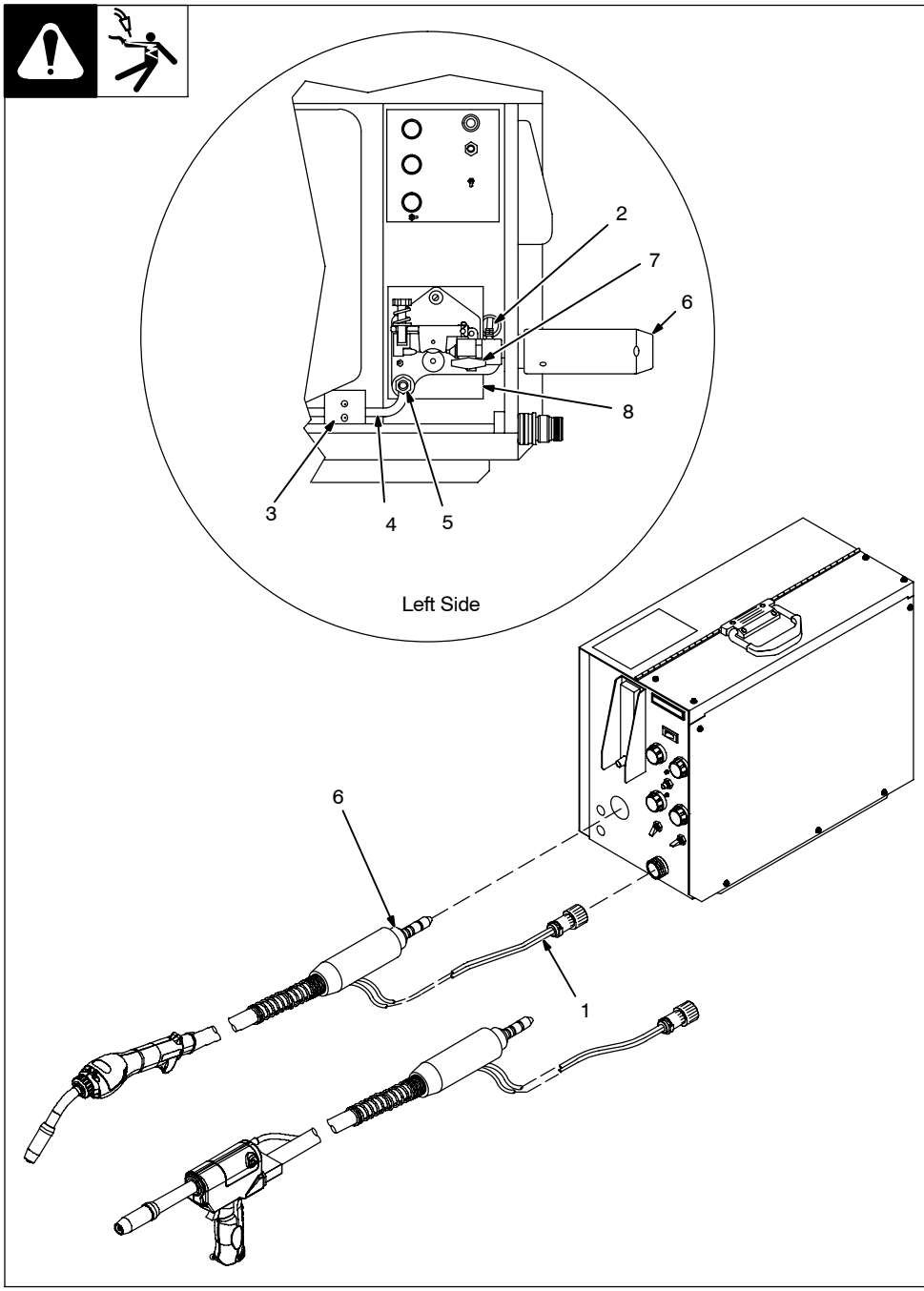
Close and latch door.

Tools Needed:

9/16 in

Ref. 801 578-A

5-3. Air-Cooled Gun Connections



1 Gun Control Cable

Insert plug into Gun Control receptacle, and tighten threaded collar.

2 Gas Hose

3 Reed Relay

4 Weld Cable

5 Weld Cable Terminal In Feeder

Route weld cable from welding power source through reed relay to weld cable terminal in feeder and connect to weld cable terminal.

6 Gun Connector

7 Gun Securing Knob

8 Gun Connector Block

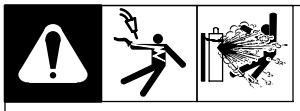
Loosen gun securing knob, and insert gun connector through Wire opening until it bottoms against block. Tighten knob. Close and latch door.

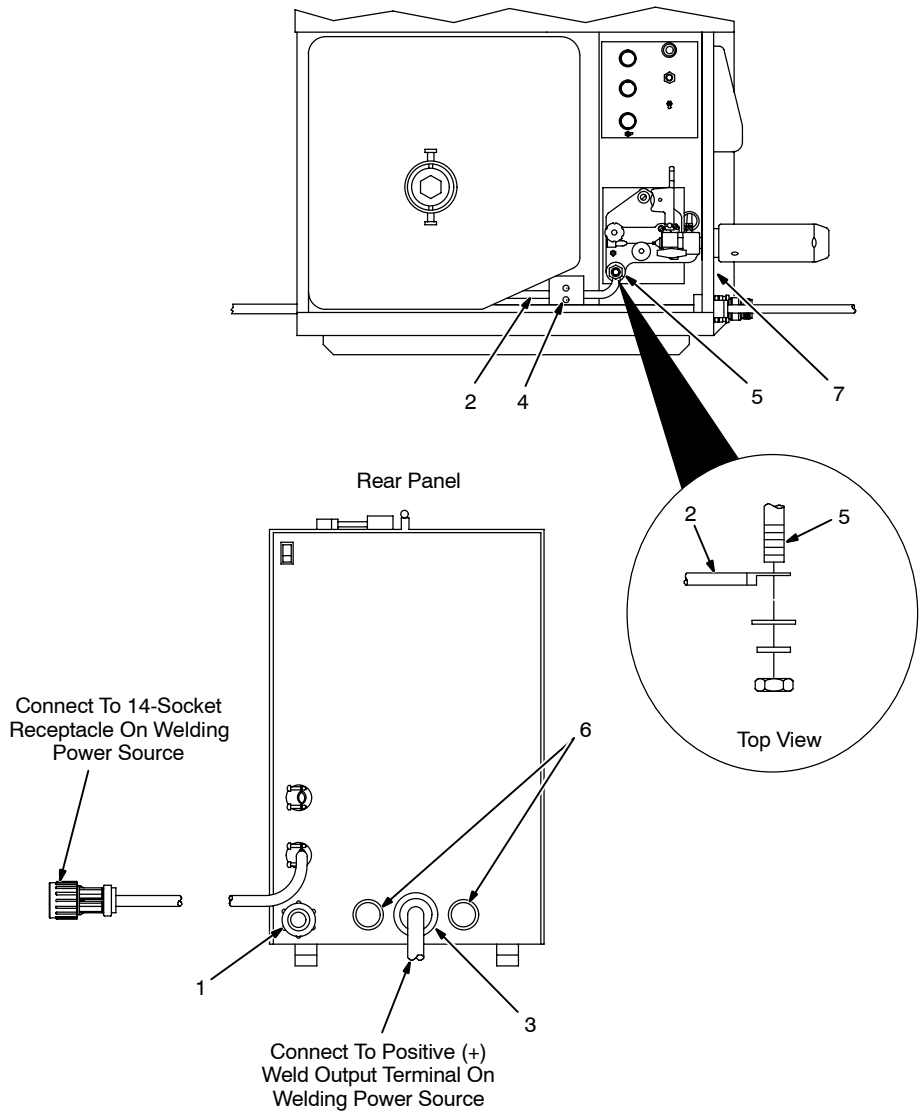
Tools Needed:

9/16, 3/4 in

Ref. 801 577-A / 801 564-E / Ref. 151 666-G

5-4. Water-Cooled Feeder Connections





Obtain coolant supply.

1 Gas Fitting

Route one end of 10 ft (3 m) gas hose to rear of unit, and connect hose to gas solenoid fitting. Connect remaining end of hose to regulator/flowmeter

2 Weld Cable To Welding Power Source

Select and prepare weld cable according to welding power source manual.

3 Weld Cable Grommet

4 Current Sensing (Reed) Relay

5 Weld Cable Terminal In Feeder

Route one end of weld cable through grommet, through reed relay, and connect to weld cable terminal in feeder. Connect remaining end of cable to positive (+) weld output terminal on welding power source.

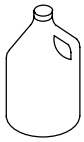
6 Coolant Hose Grommet

7 Location Of Coolant Fittings On Front Panel

Route one end of a coolant hose through grommet, and connect to rear of Coolant Out fitting in feeder. Connect remaining end to supply fitting on coolant supply.

Route one end of remaining coolant hose through grommet, and connect to rear of Coolant In fitting in feeder. Connect remaining end of hose to return fitting on coolant supply.

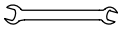
Close and latch door.

Application	GTAW Or Where HF* Is Used	GMAW Or Where Coolant Contacts Aluminum Parts Or Where HF* Not Used
 Coolant	MILLER Low Conductivity Coolant No. 043 810**	MILLER Aluminum Protecting Coolant No. 043 809**; Distilled Or Deionized Water OK Above 32° F (0° C)

*HF: High Frequency Current

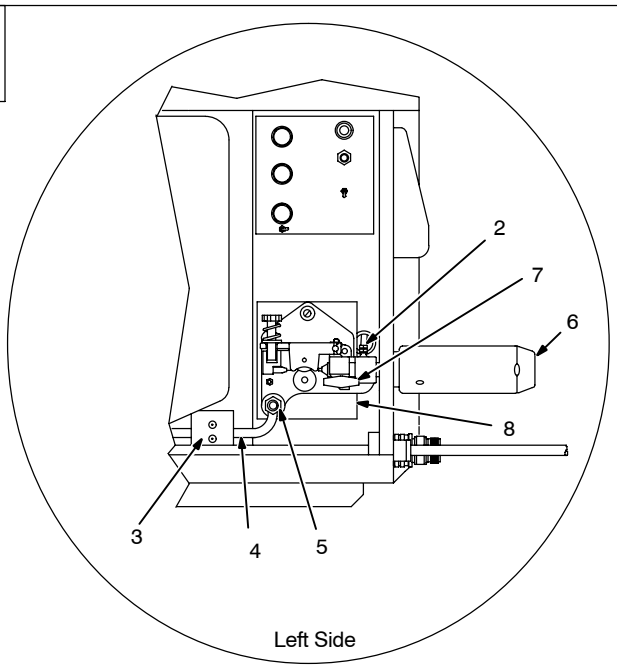
**MILLER coolants protect to -37° F (-38°C) and resist algae growth.

Tools Needed:

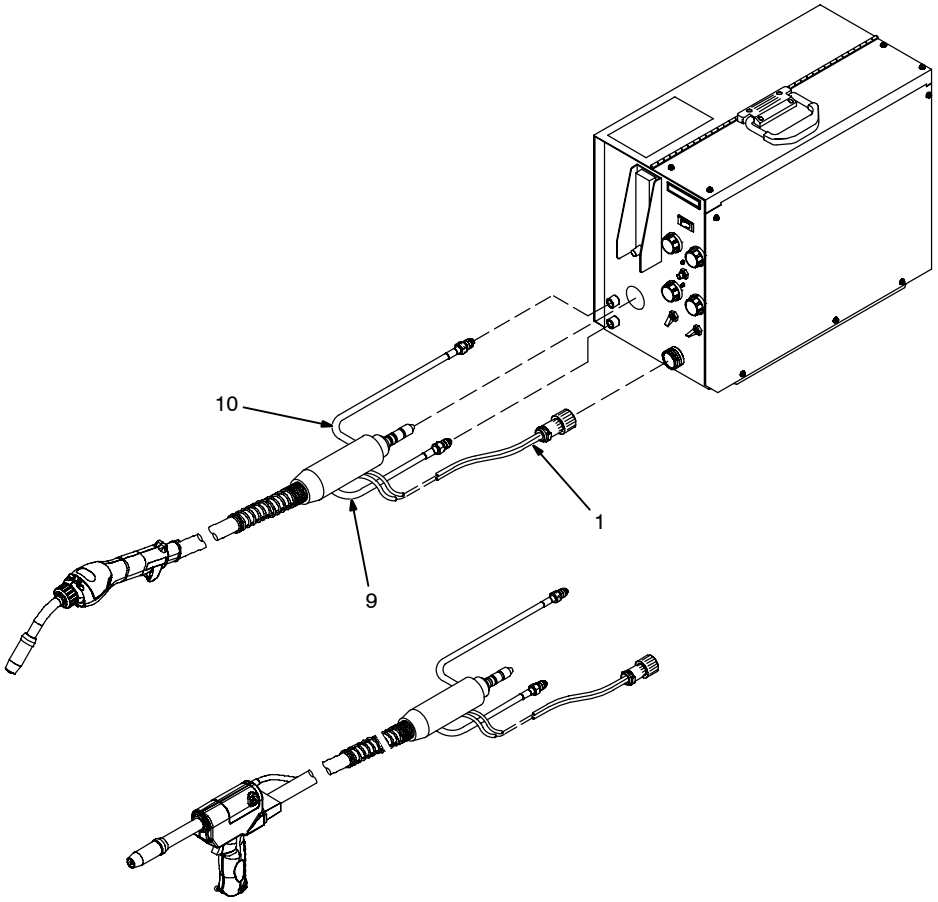
 9/16 in

Ref. 152 431-A / Ref. 801 578-A

5-5. Water-Cooled Gun Connections



Left Side



1 Gun Control Cable

Insert plug into Gun Control receptacle, and tighten threaded collar.

2 Gas Hose

3 Reed Relay

4 Weld Cable

5 Weld Cable Terminal In Feeder

Route weld cable from welding power source through reed relay to weld cable terminal in feeder and connect to weld cable terminal.

6 Gun Connector

7 Gun Securing Knob

8 Gun Connector Block

Loosen gun securing knob, and insert gun connector through Wire opening until it bottoms against block. Tighten knob. Close and latch door.

9 Water In Hose

Connect to Water In fitting on feeder (left-hand threads).

10 Water Out Hose

Connect to Water Out fitting on feeder (left-hand threads)

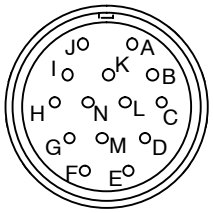
Close and latch door.

Tools Needed:

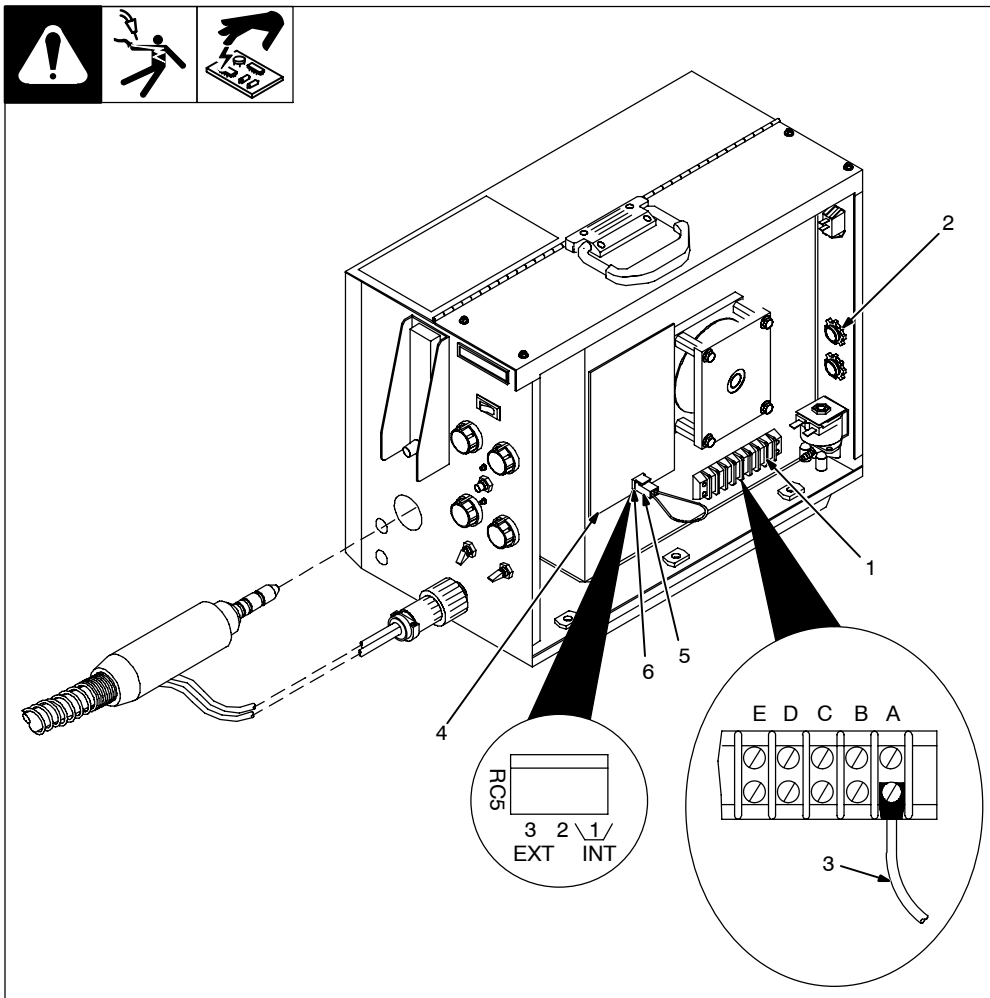
9/16 in

Ref. 801 577-A / 801 563-D / Ref. 151 666-G

5-6. 14-Pin Plug Information

REMOTE 14	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 output to remote control with respect to socket D.
	D	Remote control circuit common.
	E	0 to +10 volts dc input command signal from remote control 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.		

5-7. (Optional) Voltage Sensing Lead Connections And CC/CV Jumper Plug Settings



Installing voltage sensing lead

1 Terminal Strip 2T

2 Strain Relief

Loosen screws of strain relief.

3 Voltage Sensing Lead

Route ring terminal end of lead through strain relief, and connect ring terminal to terminal A of terminal strip 2T. Tighten screws on strain relief.

4 Motor Speed Control Board PC1

5 Jumper Plug

6 Receptacle RC5

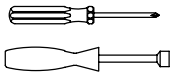
Unit is factory set for constant voltage (CV) welding. To set unit for constant current (CC) welding. Volt sensing lead kit must be installed in feeder. Volt sensing lead kit 209867

For constant voltage (CV) welding, place jumper plug in INT. position. Voltage sensing lead clamp does not need to be connected to workpiece.

For constant current (CC) welding, place plug in EXT. position. Connect clamp end of voltage sensing lead to workpiece.

Reinstall right side panel.

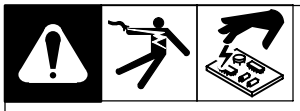
Tools Needed:



1/4 in

801 557-B

5-8. Meter Circuit Board Settings

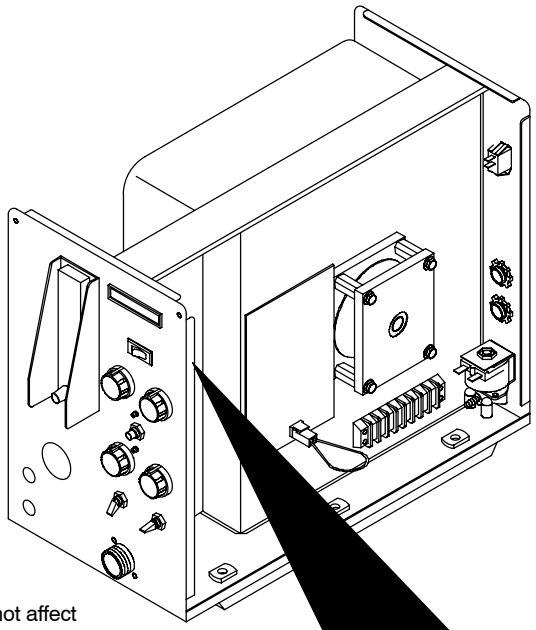


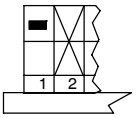
1 Meter Board PC2

2 DIP Switch S2

Set DIP switch S2 for type of welding power source, and desired wire feed speed display.

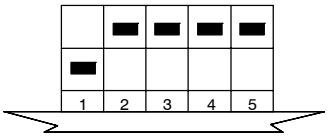
Reinstall hinged door and side panel.



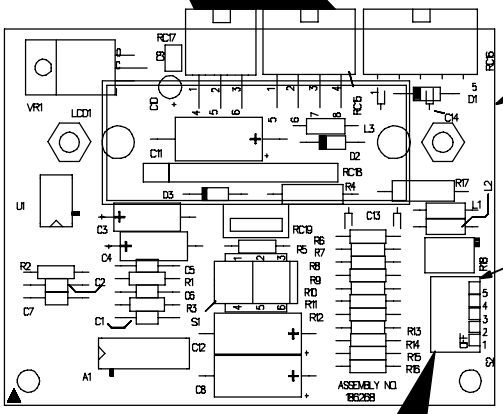


X Means switch position does not affect specified function.

▮ Means switch must be in this position.



Switch settings from the factory.



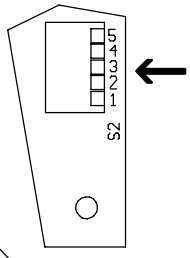
☞ *For sense lead, connect PLG51 to PLG50.*

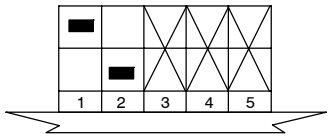
Before feeder can be used with a power source that does not support pins F and H, a voltage sensing lead must be installed in feeder. Volt sensing lead kit 209867. See section 5-7 for information regarding installation of voltage sensing lead.

For voltage feedback, connect PLG51 to PLG52.

Voltage Sensing Function

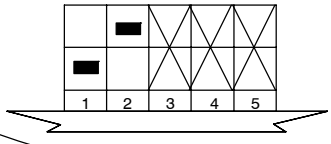
Arc Voltage Sensing Using Voltage Sensing Lead For Welding Power Source That Does Not Support Pins F And H





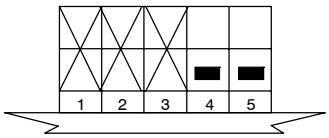
Or

Arc Voltage Sensing Using Feedback From Welding Power Source That Does Support Pins F And H



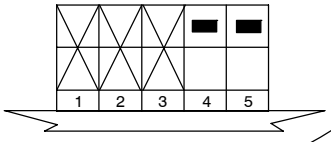
Digital Meter Display

Meters/Minute

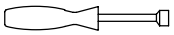


Or

Inches/Minute



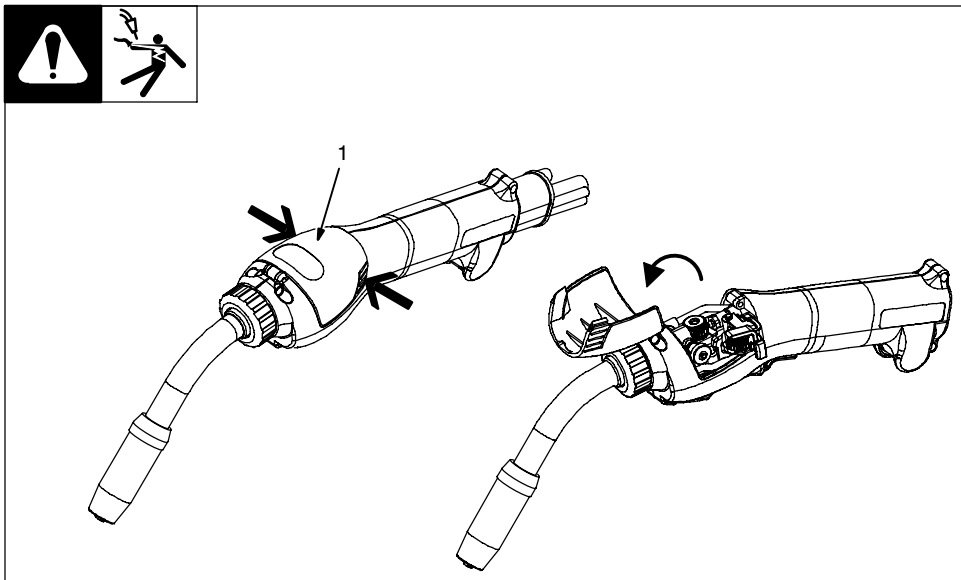
Tools Needed:



1/4 in

Ref. 802 359 / Ref. 186 266

5-9. Opening Top Cover Of XR-Edge Gun



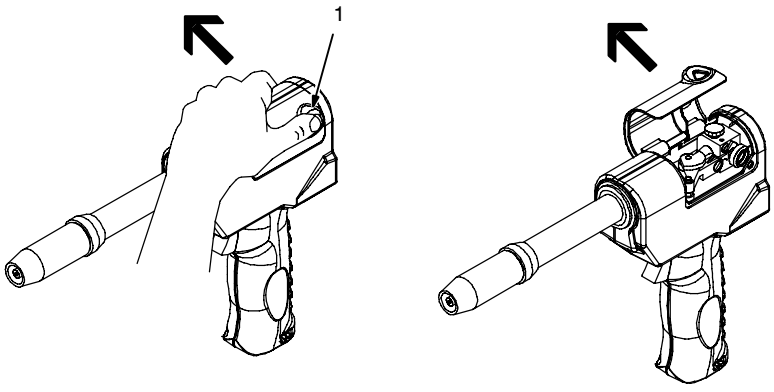
1 Top Cover

Squeeze sides of cover to release clips and lift up as shown.

To close cover, pivot cover closed on gun, and push cover down until clips lock tight.

Ref. 801 556-C

5-10. Removing Top Cover Of Pistol Grip Gun



1 Top Cover Triangular Boss

Push up on triangular boss to open door. Door hinges on handle.

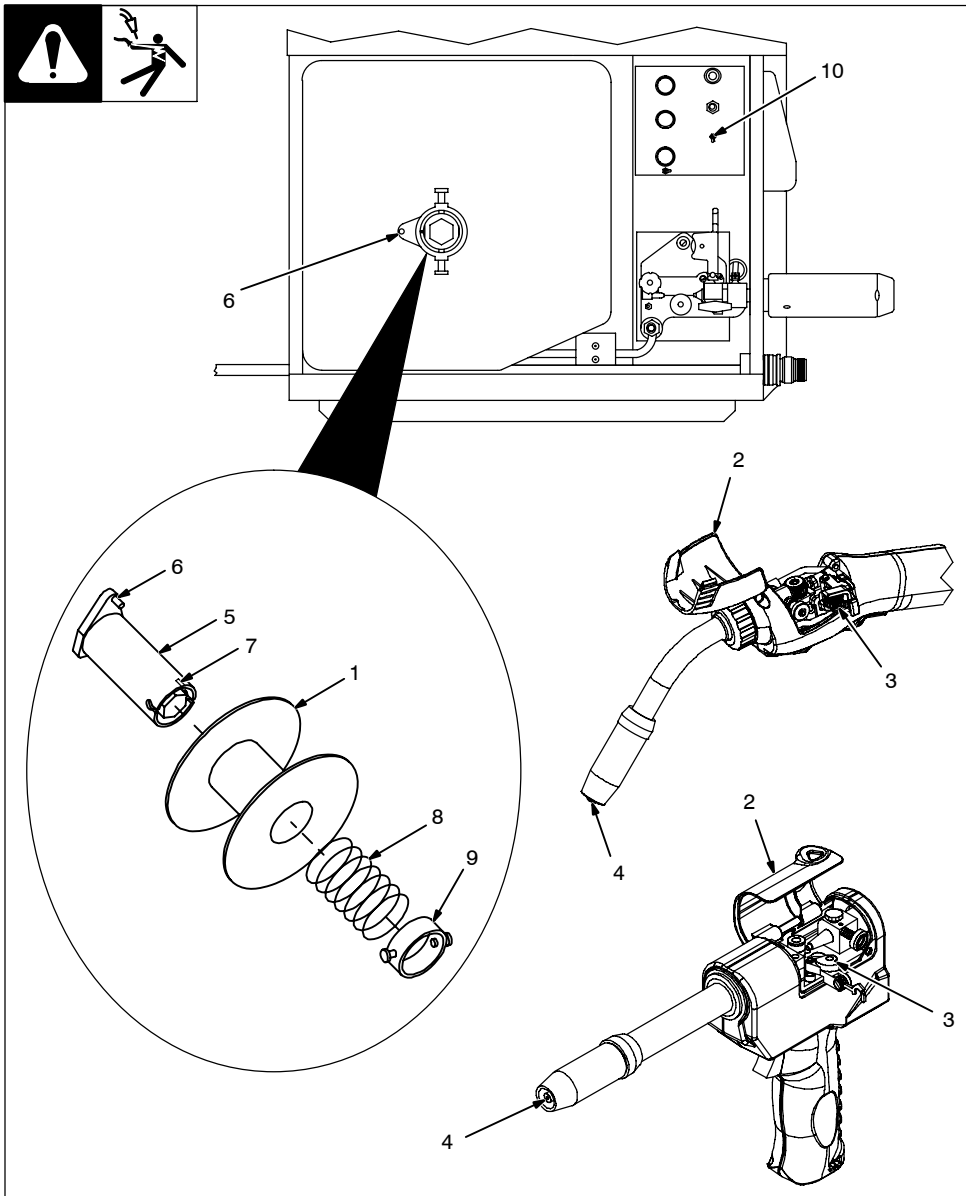
To open door fully, push up on door until it clicks into position.

☞ *If door is pushed too far it will separate from handle. If this happens the door can be reinstalled.*

Push door back into original position to close.

802 528-C

5-11. Installing Wire Spool



1 Wire Spool
2 Top Cover
3 Pressure Roll Assembly
4 Gun Contact Tip

If wire spool is being replaced, open top cover, open pressure roll assembly in gun, and cut welding wire off at contact tip.

Retract wire onto spool.

5 Hub
6 Hub Pin
7 Notch
8 Compression Spring (Optional For 8 Inch Spool)
9 Retaining Ring

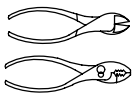
Slide spool onto hub so wire feeds off bottom. Turn spool until hub pin fits hole in back of spool (notch on hub aligns with hub pin for guidance). Reinstall retaining ring.

10 Motor Torque Switch

Place motor torque switch in appropriate position for wire type and size (see Section 6-2).

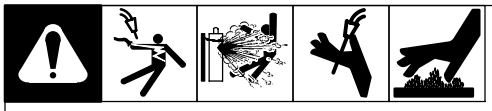
Thread welding wire (see Section 5-12).

Tools Needed:

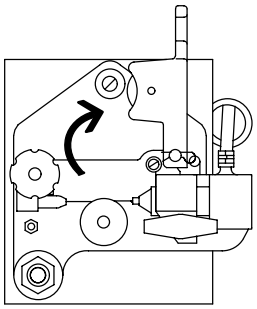


Ref. 801 578-A / Ref. 072 573-B / Ref. 801 556-C / Ref. 151 599-F

5-12. Threading Welding Wire Through Feeder

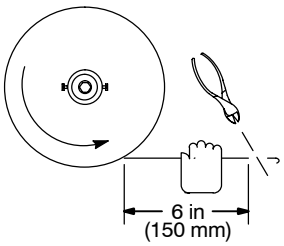


Tools Needed:

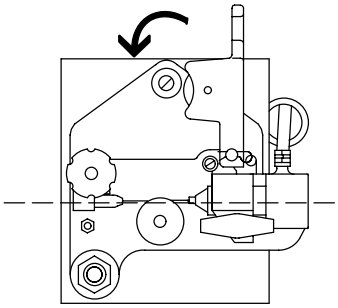


Open tension arm.

Hold wire tightly to keep it from unraveling.



Pull and hold wire; cut off end.

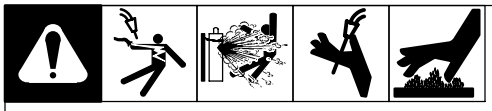


Thread wire thru inlet guide, along drive roll groove, and into wire conduit. Close tension arm. **Adjust tension as follows:** grasp spool with one hand, press Jog switch, and turn thumb nut clockwise until motor stalls when Jog switch is pressed. Back thumb nut off slightly.

Proceed to Section 5-13.

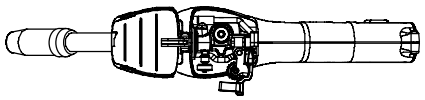
Ref. 802 193-A

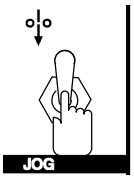
5-13. Threading Welding Wire Through Gun



Refer to Section 5-12 for instructions on feeding wire through feeder.

For XR-Edge Gun:

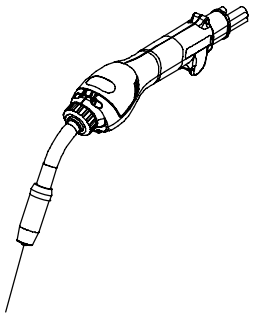




Welding wire is electrically live when gun trigger is used to jog wire.

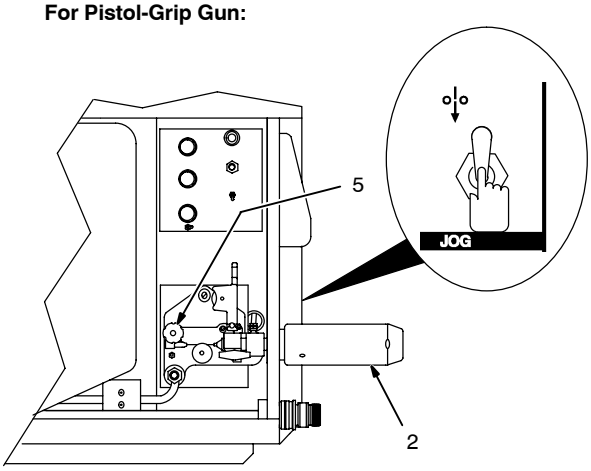
☞ *Turn OFF coolant supply before removing head tube on water-cooled gun.*

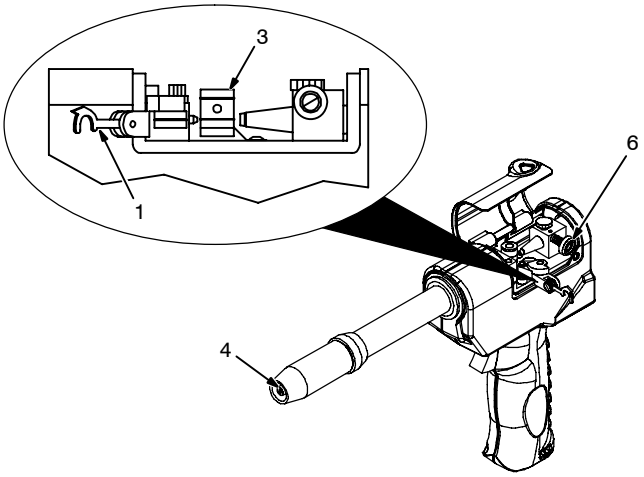
Lay gun cable out straight. Open top cover, and open pressure roll assembly. Remove head tube from gun. Press Jog switch until about 2 in (51 mm) of wire is sticking out front of gun. Insert wire into head tube liner and secure head tube to gun.



Close top cover on gun. Press Jog switch until about 6 in (152 mm) of wire is sticking out end of contact tip. See final pressure adjustment at bottom of page.

For Pistol-Grip Gun:





☞ *Turn OFF coolant supply before removing head tube on water-cooled gun.*

1 Pressure Roll Assembly

Lift arm and open pressure roll assembly.

2 Cable Assembly

Lay cable assembly out straight.

Push Jog switch up to feed wire through cable assembly.

3 Drive Roll

For wire sizes .035 in (0.9 mm) and smaller use small groove, and .047 in (1.2 mm) and 1/16 in (1.6 mm) use large groove.

4 Contact Tip

Manually thread wire along drive roll groove and out contact tip 2 in (51 mm). Close pressure roll assembly.

5 Tension Thumbnut

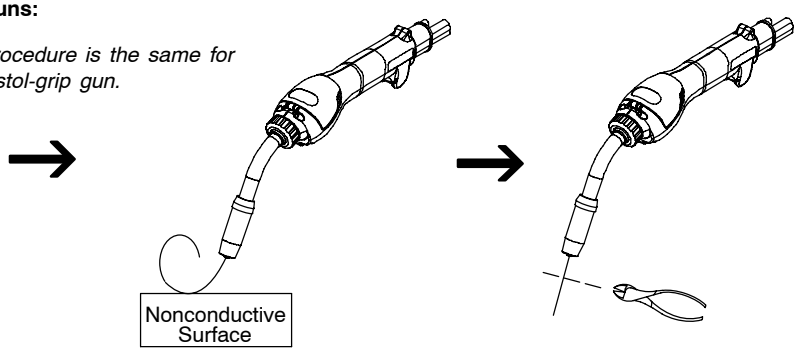
6 Pressure Adjustment Knob

7 Final Pressure Adjustment

See procedure at bottom of page. Reinstall gun cover.

For Both Guns:

☞ *Procedure is the same for pistol-grip gun.*



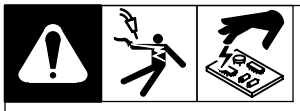
Tools Needed:

Feed wire to check drive roll pressure. If necessary, slightly tighten thumb nut inside gun.

Cut off wire. Close and latch wire feeder door.

Ref. 802 193-A / 801 556-B / 151 599-F

5-14. Adjusting Wire Feed Starting Speed



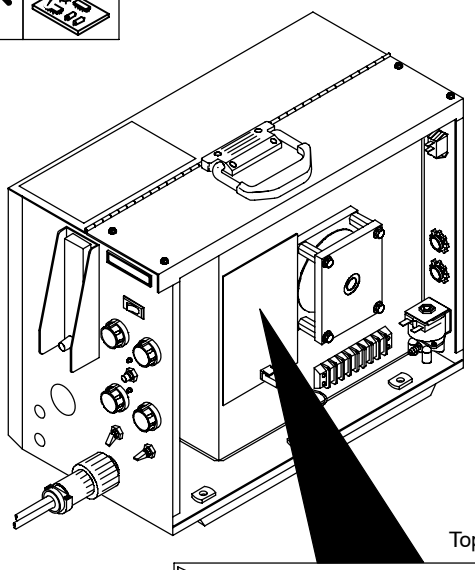
To adjust wire feed starting speed, proceed as follows:

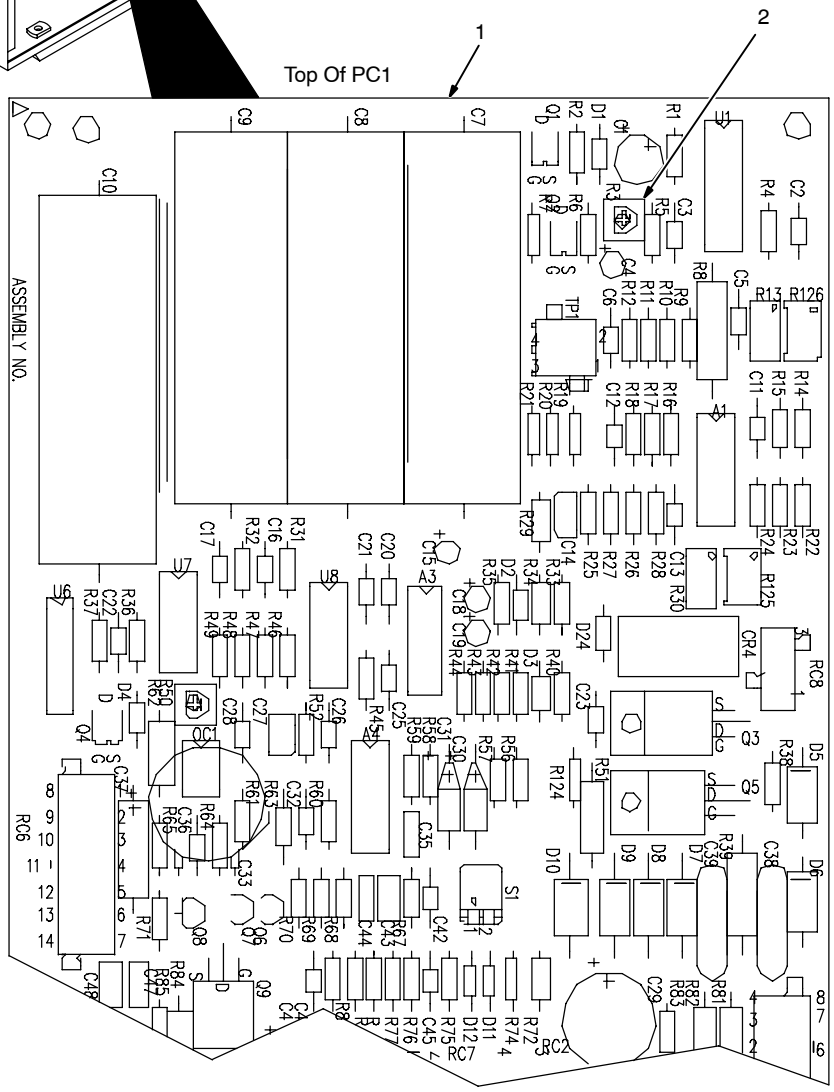
1 Motor Speed Control Board PC1

2 Motor Start Control Potentiometer R3

Remove protective white rubber cap before making adjustment. Adjust potentiometer using a small nonconductive screwdriver. Turn potentiometer clockwise to increase time it takes the motor to ramp up to speed.

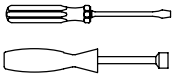
Reinstall side panel.





Tools Needed:

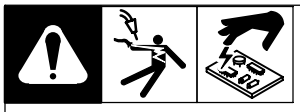
Nonconductive

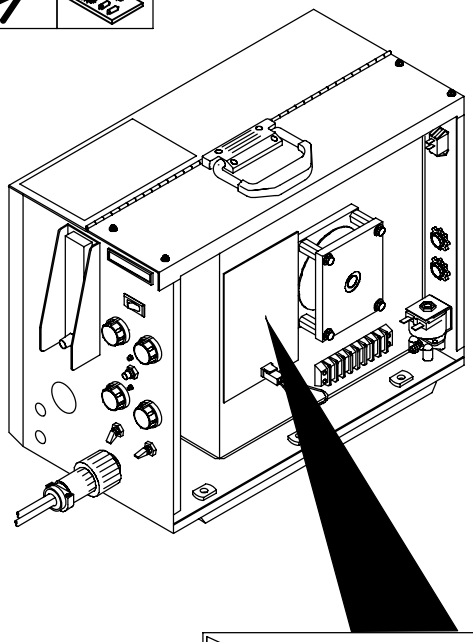


1/4 in

Ref. 801 557-B / 197 716

5-15. Setting Switches For Preflow And Postflow





☞ *Unit arrives from the factory with preflow Off and postflow turned On.*

To set switches for preflow and postflow, proceed as follows:

1 Motor Speed Control Board PC1

2 DIP Switch S1

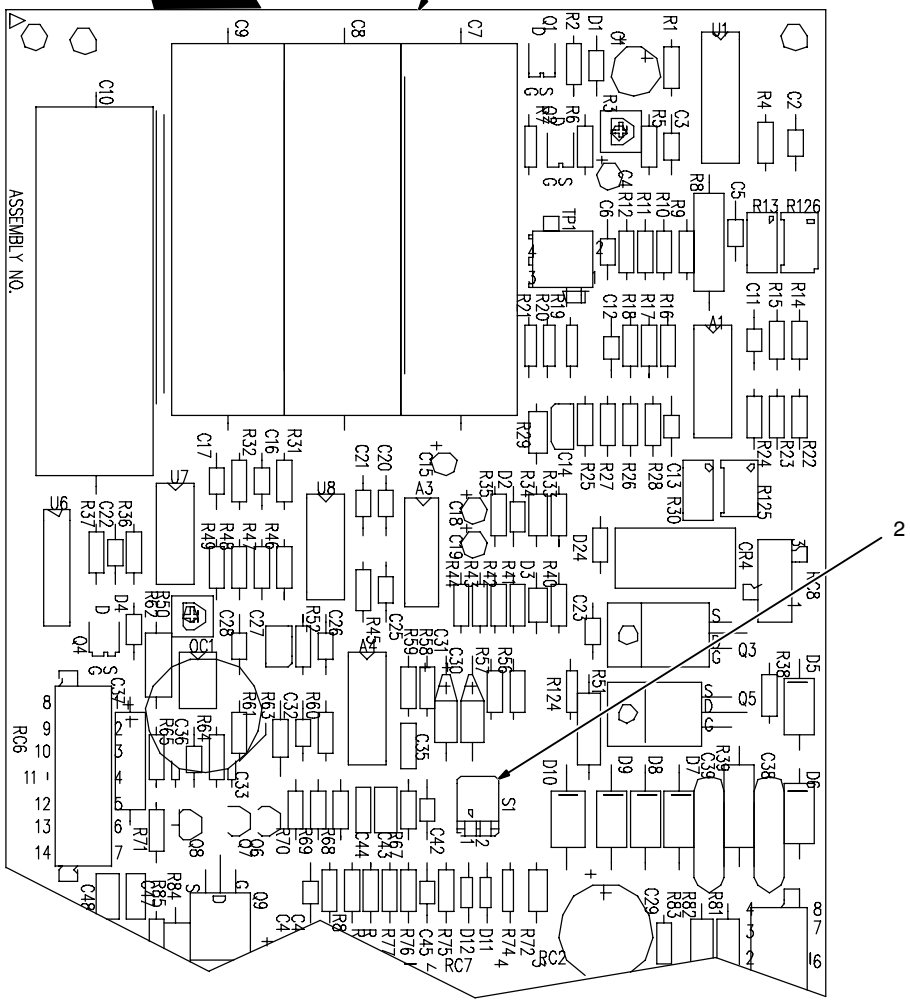
☞ *Preflow and postflow have preset time values and cannot be changed.*

To provide a 3.5 second preflow time, use a small nonconductive screwdriver to set switch S1-1 in the up position. To turn preflow time off, set S1-1 in the down position.

To provide a 0.5 second postflow time, use a small nonconductive screwdriver to set switch S1-2 in the up position. To turn postflow time off, set S1-2 in the down position.

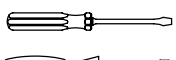
Reinstall side panel.

Top Of PC1



Tools Needed:

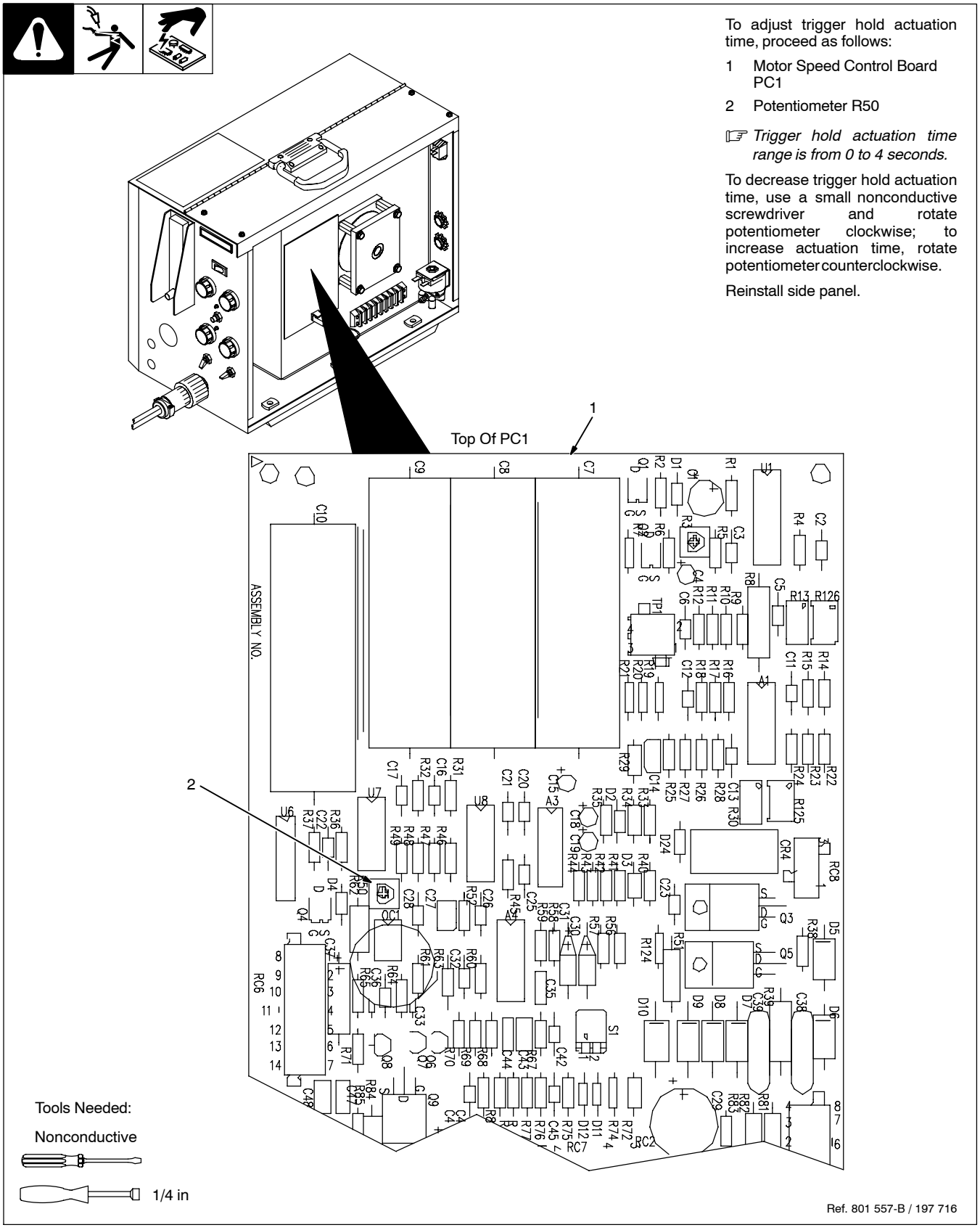
Nonconductive



1/4 in

Ref. 801 557-B / 197 716

5-16. Adjusting Trigger Hold Actuation Time



To adjust trigger hold actuation time, proceed as follows:

1 Motor Speed Control Board PC1

2 Potentiometer R50

☞ *Trigger hold actuation time range is from 0 to 4 seconds.*

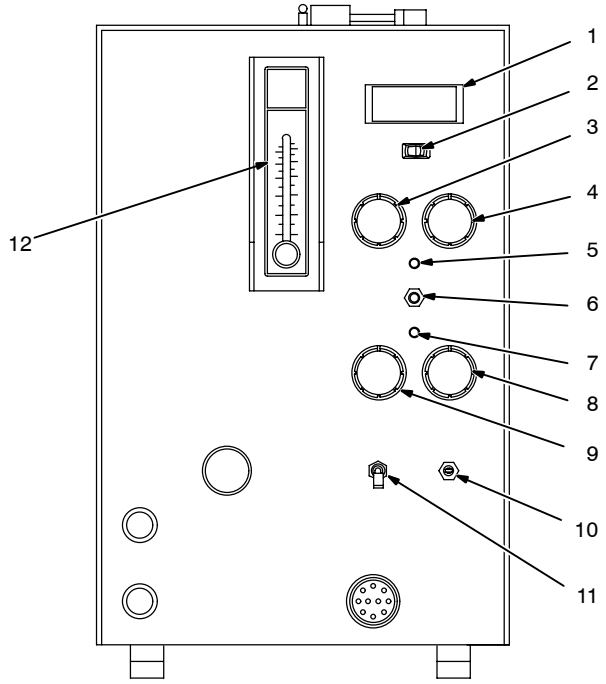
To decrease trigger hold actuation time, use a small nonconductive screwdriver and rotate potentiometer clockwise; to increase actuation time, rotate potentiometer counterclockwise.

Reinstall side panel.

Ref. 801 557-B / 197 716

SECTION 6 – OPERATION

6-1. Controls



801 554

1 Voltage/Wire Speed Meter

2 Voltage/Wire Speed Switch

When switch is in Voltage position, and operator is welding, meter displays arc voltage. Cable resistance and poor connections may cause displayed voltage to vary slightly from actual voltage at welding arc.

When switch is in Wire Speed position and operator is welding, meter displays preset wire speed in inches per minute. This wire speed is the combined settings of the Weld Speed Control on unit and Wire Speed Control on gun.

During run-in portion of weld cycle, meter displays run-in speed as selected on Run-In Speed control on feeder.

When welding Direct Current Electrode Negative (DCEN), meter does not display accurate output voltages; however, meter displays accurate wire speed values.

3 Remote Voltage Control (Optional)

Use control to adjust arc voltage at the wire feeder.

The scale around the control is marked in percent.

4 Wire Speed Control

Use control to set wire feed speed after arc initiation.

☞ *The gun wire feed speed control adjusts wire speed from minimum to maximum setting on Wire Speed Control.*

The scale around the control is percent of full range, not wire speed.

5 Schedule A Indicator LED

LED illuminates when Schedule A is active.

6 Press To Set Push Button

Use push button to set wire speed for Schedule B.

7 Schedule B Indicator LED

LED illuminates when Schedule B is active.

8 Wire Speed B Control (Optional)

Use control to set wire feed speed for a schedule B welding operation.

☞ *A dual schedule switch must be installed in unit to set wire speed B. There is no run-in speed setting for wire speed B.*

The scale around the control is percent of full range, not wire speed.

9 Remote Voltage B Control (Optional)

Use control to adjust arc voltage at the wire feeder for a schedule B welding operation.

The scale around the control is marked in percent.

10 Jog/Purge Switch

Push up to momentarily feed welding wire at speed set on Wire Speed control without energizing welding circuit or shielding gas valve.

Push down to momentarily energize gas valve to purge air from gun or adjust gas regulator.

11 Trigger Hold Switch

Push up to weld without holding gun trigger throughout the weld cycle.

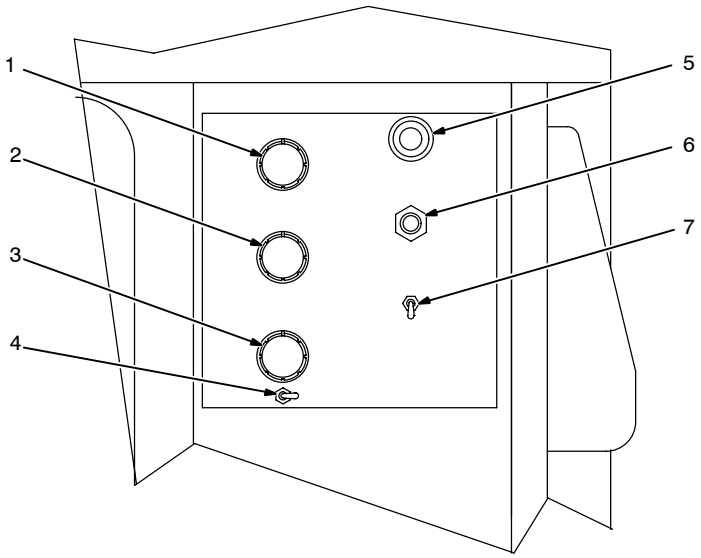
To start weld, press gun trigger, and trigger hold will actuate after 3 seconds of weld time. To end weld, press and release gun trigger.

12 Flowmeter (Optional)

Use flowmeter to control shielding gas flow at the feeder. The scale on the flowmeter is in cubic feet per hour (CFH). Read gas flow at the widest part of the float in the meter. Rotate valve to change gas flow as necessary.

A regulator is still required on shielding gas supply with this option.

6-2. Internal Controls



Open left side door.

1 Run-In Speed Control

Use this control to set run-in wire feed speed before arc initiation.

After arc initiation, weld wire feed speed is controlled by the wire speed setting on the welding gun (see Section 6-3).

The scale around the run-in speed control is a percent of weld wire feed speed.

Maximum run-in wirefeed speed is approximately one half of weld wirefeed speed.

Minimum run-in wirefeed speed is approximately 40 inches per minute (1 mpm).

☞ *The gun wire feed speed control adjusts wire speed from minimum to maximum setting on Wire Speed Control.*

2 Burnback Time Control (Optional)

Use control to adjust time (up to 0.25 seconds) that the welding wire is electrically energized after the wire stops feeding.

If welding wire sticks in the weld puddle, increase burnback time. If wire burns back into the gun contact tip, decrease burnback time.

The scale around the control is marked in fractions of a second.

3 Spot Time Control (Optional)

Use control to set spot weld time. Welding wire feeds at speed selected on the gun Wire Speed Control. Spot time starts at arc initiation.

Rotating switch fully counterclockwise until it clicks selects an untimed continuous weld, all other positions will provide various timed spot welds.

The scale around the control is marked in seconds.

4 Time Range Switch

Use switch to select spot weld time range.

5 Fuse F1

See Section 7-11.

6 Circuit Breaker CB1

See Section 7-11.

7 Motor Torque Switch

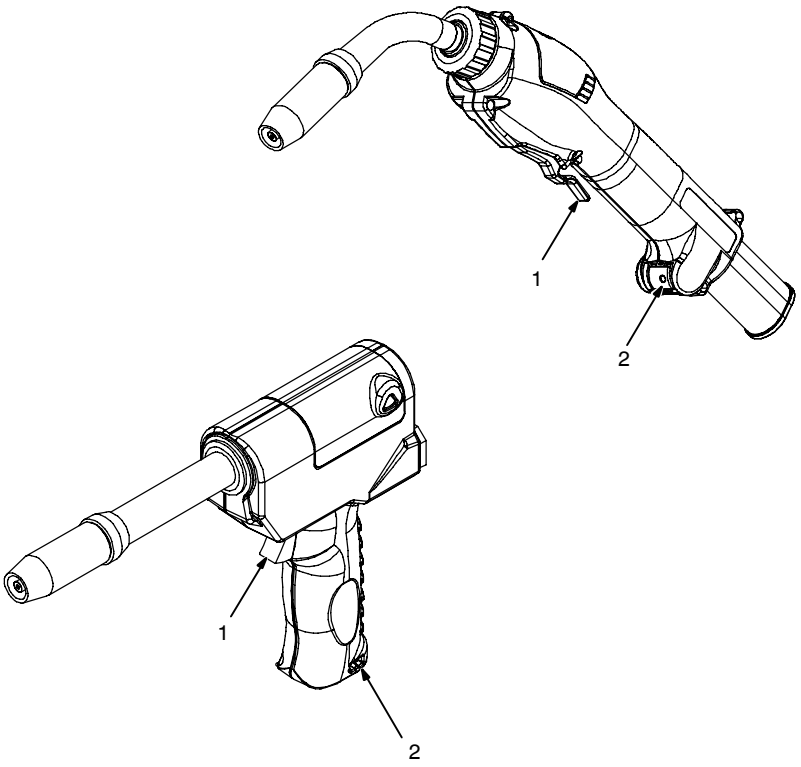
Use switch to select the force used to push wire. The up position is for high force, or torque. The down position is for low force, or torque.

Use Low position for .030 wire size and High position for all other wire sizes.

Close and latch door.

Ref. 801 578

6-3. Gun Controls



1 Trigger

Press trigger to energize welding power source contactor (if applicable), start shielding gas flow, and begin wire feed.

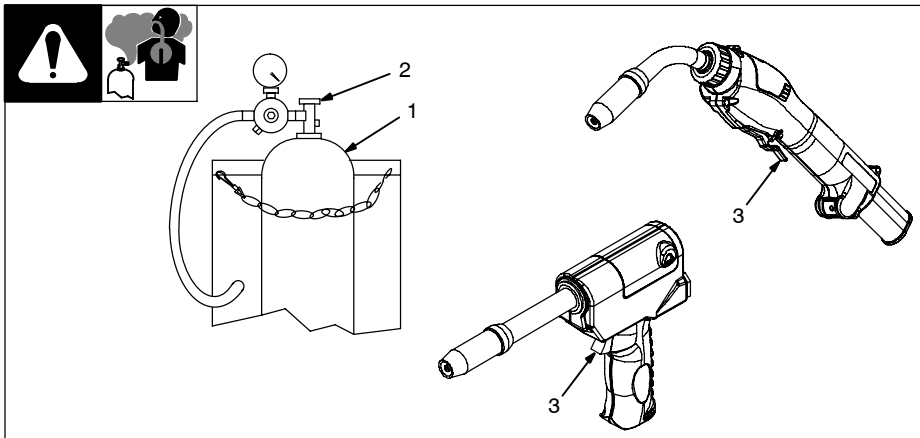
Switches inside the wire feeder can be set to provide timed shielding gas preflow and postflow when trigger is pressed and released (see Section 5-15). When this feature is turned Off, no preflow or postflow is provided for the welding operation.

2 Wire Speed Control

Use control to fine adjust wire feed speed set on wire feeder Weld Speed control. The numbers around the control are for reference only.

Ref. 151 666-F

6-4. Shielding Gas



1 Shielding Gas Cylinder

2 Valve

3 Gun Trigger

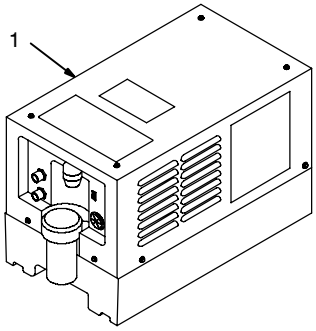
Open valve on cylinder just before welding.

Gun trigger turns weld output and gas flow on and off (see Section 6-3).

Close valve on cylinder when finished welding.

sb5.1 6/92 – S-0621-C / Ref. 151 666-F

6-5. Coolant Supply For Water-Cooled Models Only



1 Coolant Supply

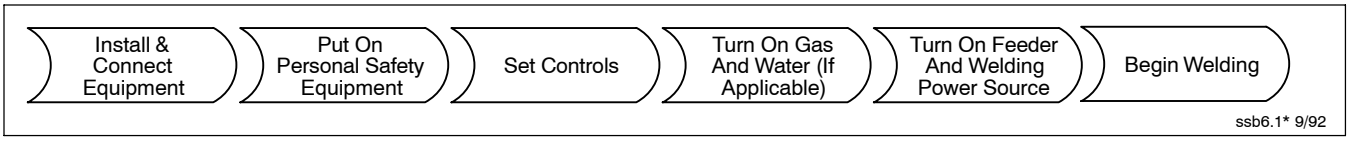
See Section 5-4 for coolant guidelines.

Turn On coolant supply before welding.

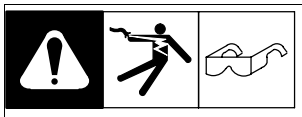
Turn Off coolant supply when finished welding.

Ref. 150 755-A

6-6. Sequence Of Gas Metal Arc Welding (GMAW) – Continuous Or Spot



SECTION 7 – MAINTENANCE & TROUBLESHOOTING

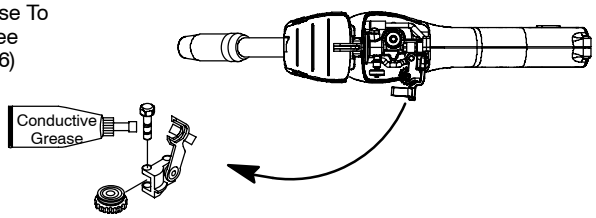


▲ **Disconnect power before maintaining.**

☞ *Maintain more often during severe conditions.*

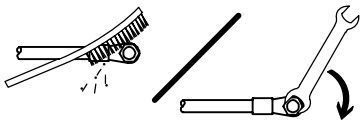
4 To 6 Weeks

Apply Conductive Grease To Drive Roll Screw (See Sections 7-2 And 7-6)



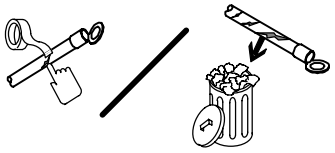
3 Months

Replace Damaged Or Unreadable Labels



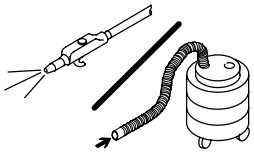
Clean And Tighten Weld Terminals

Replace Damaged Gas Hose

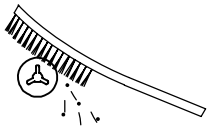


Repair Or Replace Cracked Cables And Cords

6 Months

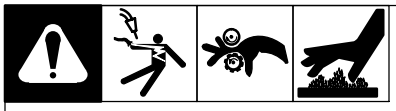


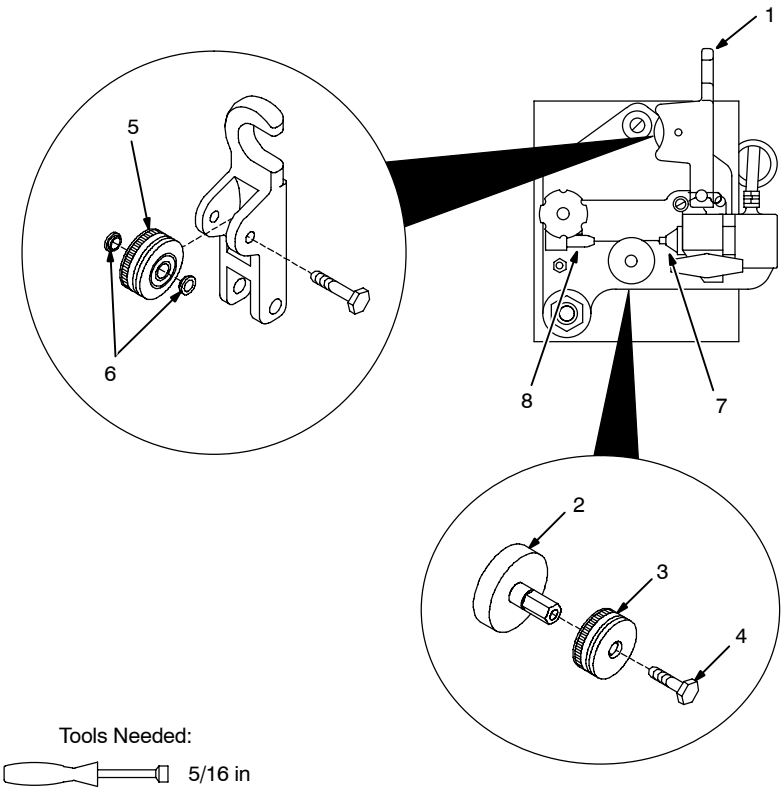
Blow Out Or Vacuum Inside



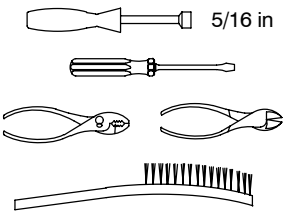
Clean Drive Rolls

7-1. Feeder Drive Assembly Maintenance





Tools Needed:



Retract wire onto spool.

1 Pressure Roll Assembly

2 Drive Motor Shaft

3 Drive Roll

4 Screw

Use wire brush to clean drive roll.

5 Drive Roll Idler

6 Shoulder Washers

Use wire brush to clean idler.

7 Outlet Guide

8 Wire Inlet Guide

Pull guide toward rear of feeder to remove. Install new guide.

Thread welding wire and adjust drive roll pressure, if necessary (see Section 5-12).

Drive roll and idler are available for the following wire size ranges:

.030-.035 wire size

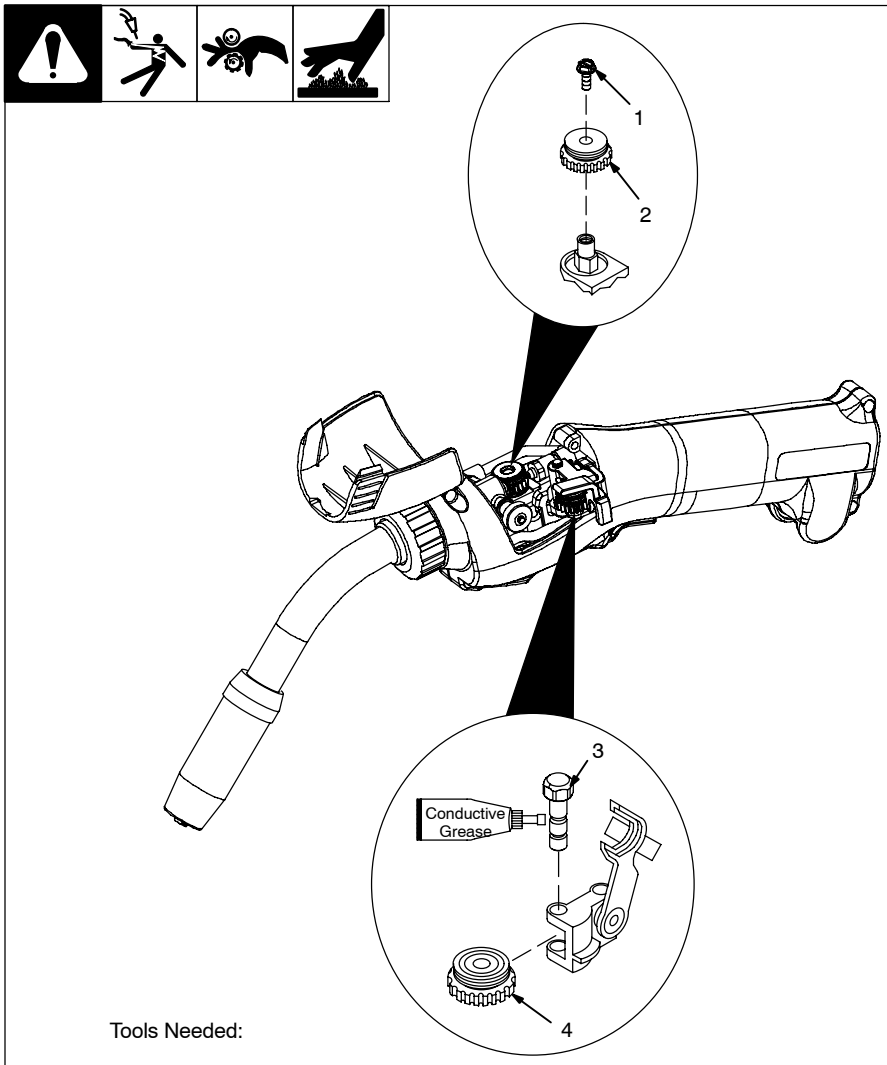
.047 wire size

.062 wire size

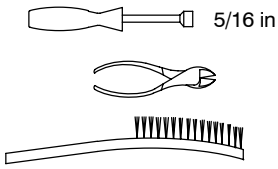
When changing wire size, change control box drive roll and idler, gun pressure roll and drive roll (see Section 7-2 for XR-Edge guns; see Sections 7-6 and 7-7 for pistol-grip guns), and gun liner (see Section 7-3 for XR-Edge guns; see Section 7-8 for pistol-grip guns).

802 193-A

7-2. Gun Drive Assembly Maintenance For An XR-Edge Gun



Tools Needed:



Retract wire onto spool.

1 Screw

2 Drive Roll

Use wire brush to clean drive roll. Install drive roll with hex opening down toward shaft hex, and secure with screw.

☞ *Apply conductive grease to drive roll post every 4 to 6 weeks.*

3 Post

4 Pressure Roll w/Bearing

Use wire brush to clean pressure roll. Install pressure roll so that gear teeth mesh with drive roll gear teeth, and secure with screw.

If changing drive roll in feeder, see Section 7-1.

Thread welding wire through gun. Close and secure pressure roll assembly. Adjust drive roll pressure, if necessary (see Section 5-12).

Drive roll and pressure roll are available for the following wire sizes:

.030 wire size

.035 wire size

.047 wire size

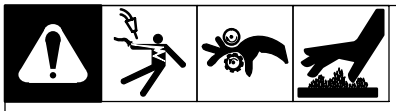
.062 wire size

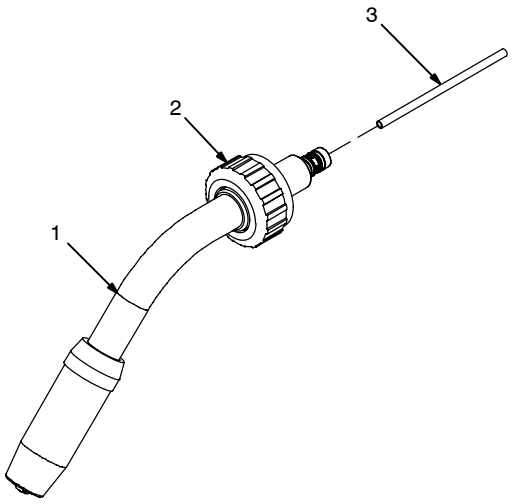
When changing wire size, change control box drive roll and idler (see Section 7-1), gun pressure roll and drive roll, and gun liner (see Section 7-3 and 7-8).

Close top cover.

Ref. 801 556-C

7-3. Replacing Head Tube Liner In XR-Edge Guns





☞ *Turn OFF coolant supply before removing head tube on water-cooled gun.*

The standard head tube liner will accommodate wire diameters from .030-1/16 wire size.

When changing wire size, change control box drive roll and idler (see Section 7-1), gun pressure roll and drive roll (see Sections 7-2 and 7-6).

1 Head Tube

2 Head Tube Nut

Loosen head tube nut and remove head tube from gun.

3 Liner

Pull liner out of head tube.

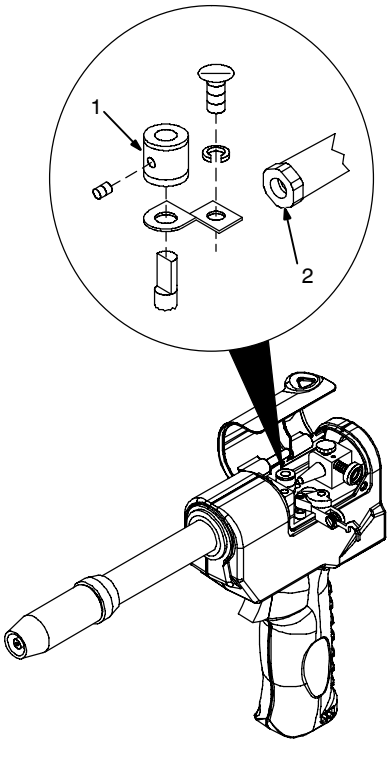
Insert new liner into head tube and reinstall head tube onto gun.

☞ *A twisting motion may be needed to feed liner thru head tube.*

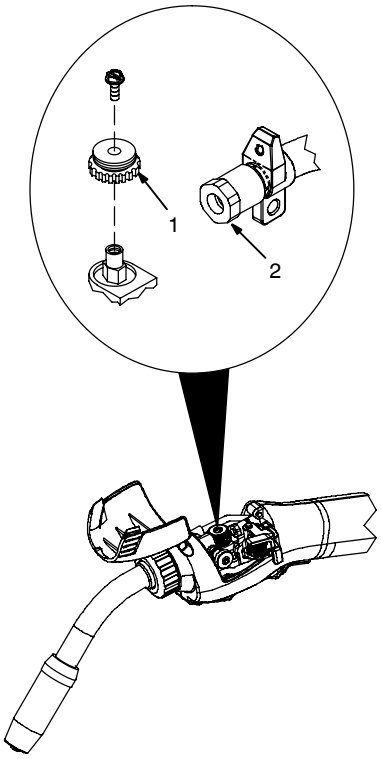
☞ *Be sure head tube nut is securely tightened before operating gun. If head tube nut is not adequately tightened, unwanted arcing may occur between head tube and gun housing.*

Ref. 801 556-C

7-4. Replacing The Liner



Pistol Grip Gun



XR-Edge Gun

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

1 Drive Roll

2 Collet Nut

Lay gun cable out straight. Remove drive roll on gun and collet nut on liner tube assembly.

3 Gun Connector

Remove inlet guide from gun connector, and remove old liner.

4 New Liner

Insert split end of new liner into gun connector and continue feeding liner through cable assembly until liner is through liner tube assembly and all of split portion is visible.

☞ *If gun is a 15 ft (4.5 m) model, push the split end of liner through until the opposite end is sticking out of the gun connector 1 to 2 inches (2.5 to 5 cm). After trimming, the section with the split on it can be saved to use as another replacement liner.*

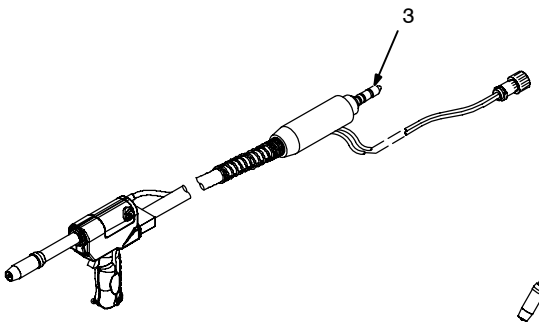
Cut off split portion of liner. Replace collet nut with new nut from this kit. Reinstall inlet guide at gun connector and tighten onto liner.

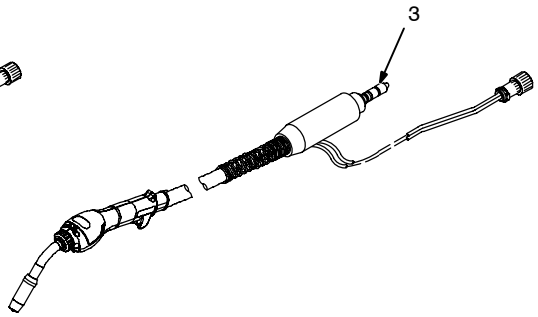
The liner end will not stick out of the collet nut supplied with this kit.

At the gun connection end, cut liner as close as possible to control (push motor) drive rolls.

Refer to Owner's Manual for instructions on rethreading wire.

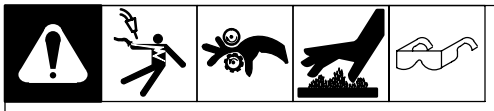
☞ *On pistol grip models it may be easier to replace the collet nut with the liner conduit removed from the gun housing block.*

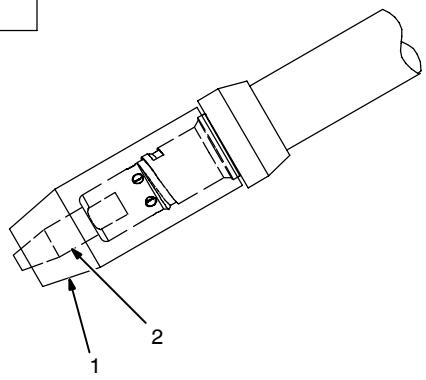




Ref. 151 599-F / Ref. 801 556-C / 801 564–E / Ref. 151 666-G / Ref. 200 371

7-5. Changing Gun Contact Tip





Remove nozzle

1 Nozzle

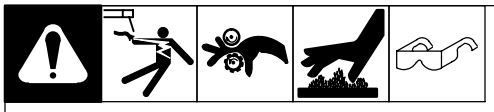
2 FasTip

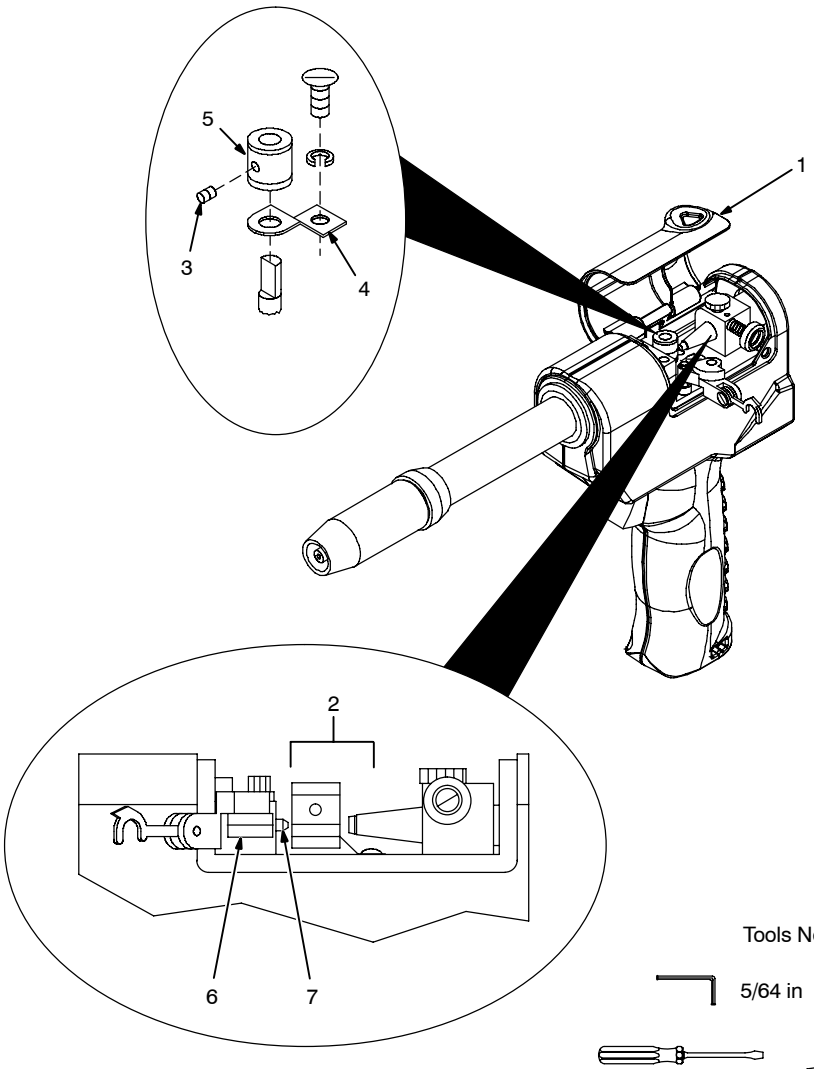
Unscrew FasTip.

Install new FasTip.

Ref. 150 437-A

7-6. Replacing Or Cleaning Gun Drive Roll In Pistol-Grip Guns





Turn Off wire feeder and welding power source.

1 Top Cover

2 Pressure Roll Assembly

Cut off wire where it enters pressure roll assembly area.

3 Setscrew

4 Current Pick-Up Tab

This tab helps prevent burnback caused by welding arcs inside the contact tip. This tab may be removed to provide an insulated drive roll. (If tab is removed, a smaller diameter contact tip is recommended. See options in Parts List.) Lightly grease top of tab before reinstalling.

5 Drive Roll

Use wire brush to clean drive roll. Install drive roll with desired groove down, and turn drive roll so one setscrew faces flat side of shaft.

6 Bearing

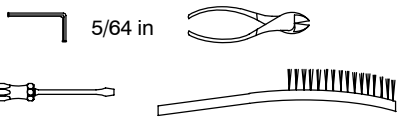
7 Liner

Line up drive roll groove with bearing groove and liner opening. Tighten setscrews.

If changing drive roll in feeder, see Section 7-1.

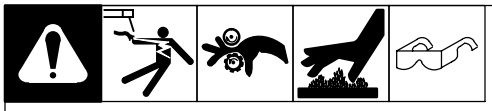
Thread welding wire through gun, and adjust drive roll pressure, if necessary (see Section 5-13). Close and secure pressure roll assembly. Reinstall top cover.

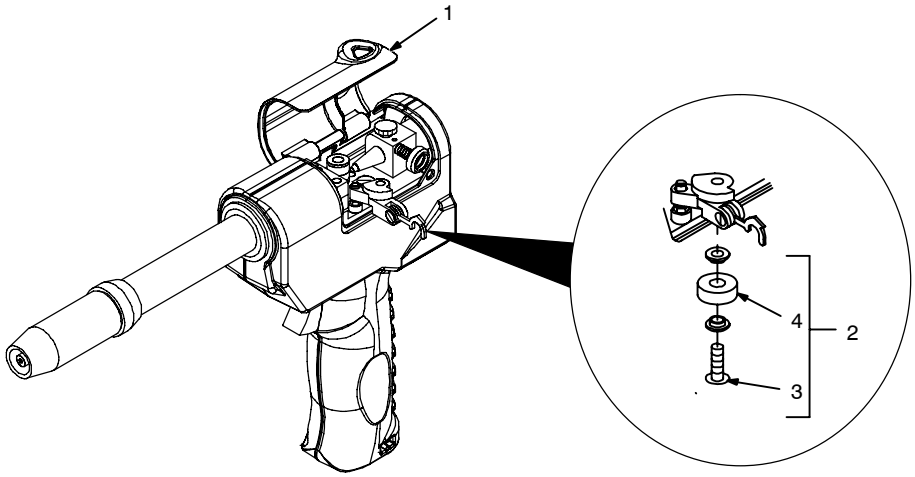
Tools Needed:



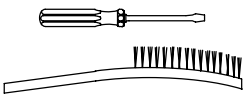
Ref. 151 599-F

7-7. Replacing Or Cleaning Gun Drive Roll Bearing In Pistol-Grip Guns





Tools Needed:



Turn Off wire feeder and welding power source.

1 Top Cover

2 Pressure Roll Assembly

3 Screw

4 Pressure Roll

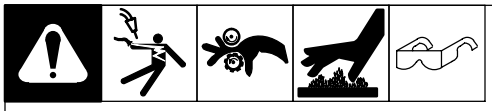
Remove as shown.

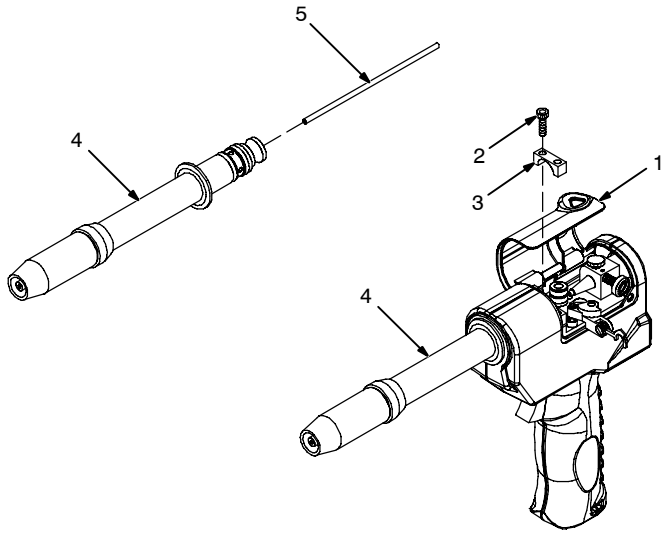
Use a wire brush to clean bearing. Reinstall with washers, and tighten screw.

Close pressure roll assembly. Reinstall top cover.

Ref. 151 599–F

7-8. Replacing Head Tube Liner In Pistol-Grip Guns





Tool Needed:

5/32 in

☞ *Turn OFF coolant supply before removing head tube on water-cooled gun.*

The standard head tube liner will accommodate wire diameters from .030-1/16 wire size.

When changing wire size, change control box drive roll and idler (see Section 7-1), gun drive roll (see Sections 7-2 and 7-6).

1 Cover

2 Screw

3 Clamp

Loosen clamp screws and remove clamp.

4 Head Tube

Remove head tube from gun.

5 Liner

Pull liner out of head tube.

Insert new liner into head tube and reinstall head tube onto gun.

☞ *A twisting motion may be needed to feed liner thru head tube.*

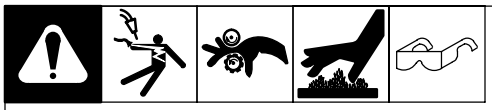
Ref. 803 917-A

7-9. Removing Diffuser In Air And Water-Cooled Pistol-Grip Guns

⚠ WARNING

WATER IN GUN PARTS can cause ELECTRIC SHOCK and can lower weld quality.

- Turn Off welding power source and water supply before working on gun. Stop engine on welding generators.
- Always point gun downward when removing water-cooled barrel to keep water out of gun parts.
- Wipe gun dry before putting it back together.



Turn Off welding power source.

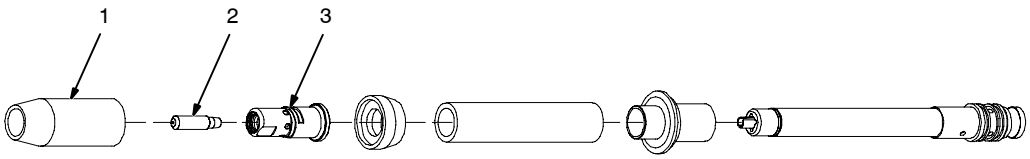
1 Nozzle

2 FasTip

To remove, see Section 7-5.

3 Diffuser

Remove diffuser and replace.

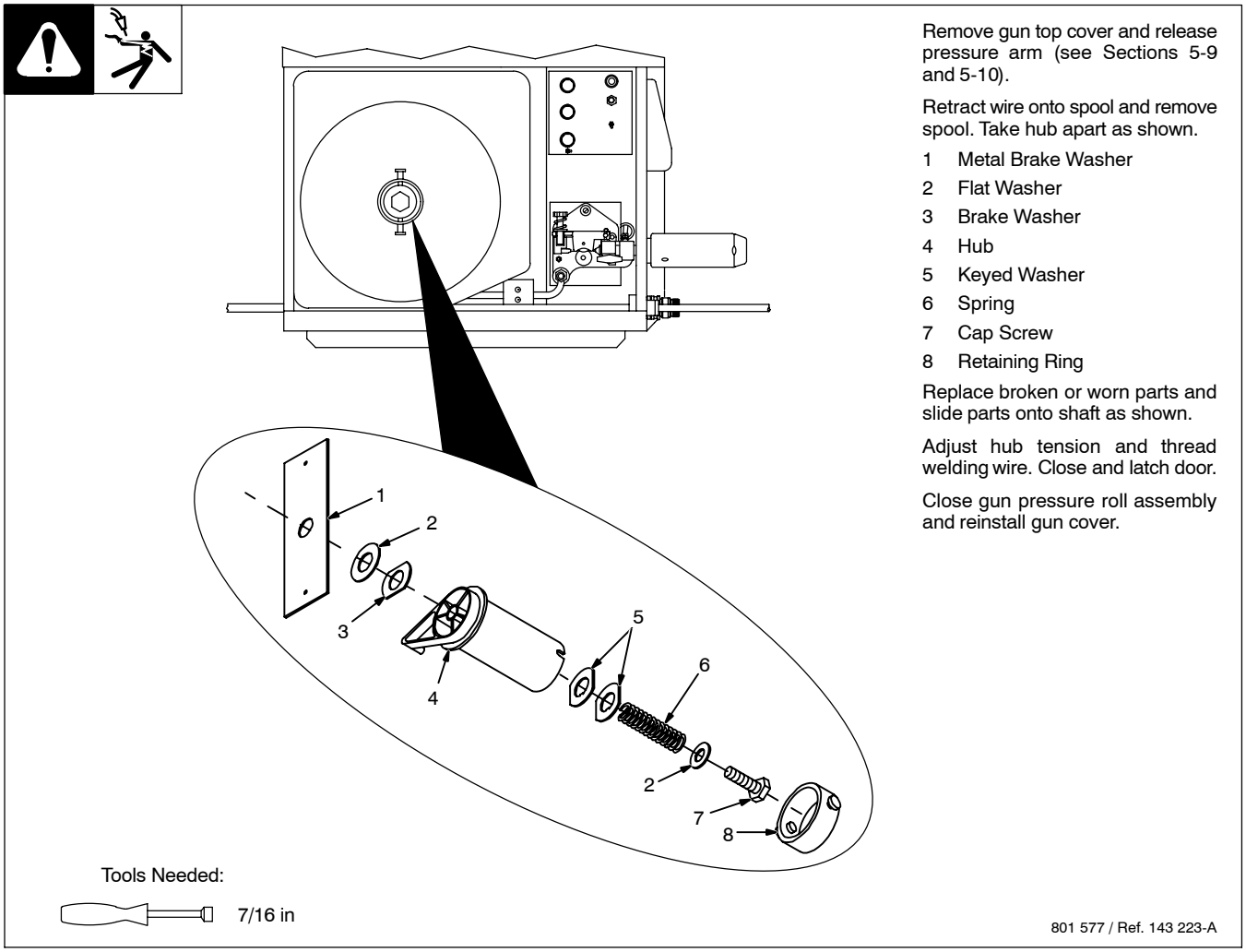


Air Cooled Head Tube Assembly

Tools Needed:

Ref. 803 348-F

7-10. Replacing Hub Assembly



Remove gun top cover and release pressure arm (see Sections 5-9 and 5-10).

Retract wire onto spool and remove spool. Take hub apart as shown.

1 Metal Brake Washer
2 Flat Washer
3 Brake Washer
4 Hub
5 Keyed Washer
6 Spring
7 Cap Screw
8 Retaining Ring

Replace broken or worn parts and slide parts onto shaft as shown.

Adjust hub tension and thread welding wire. Close and latch door.

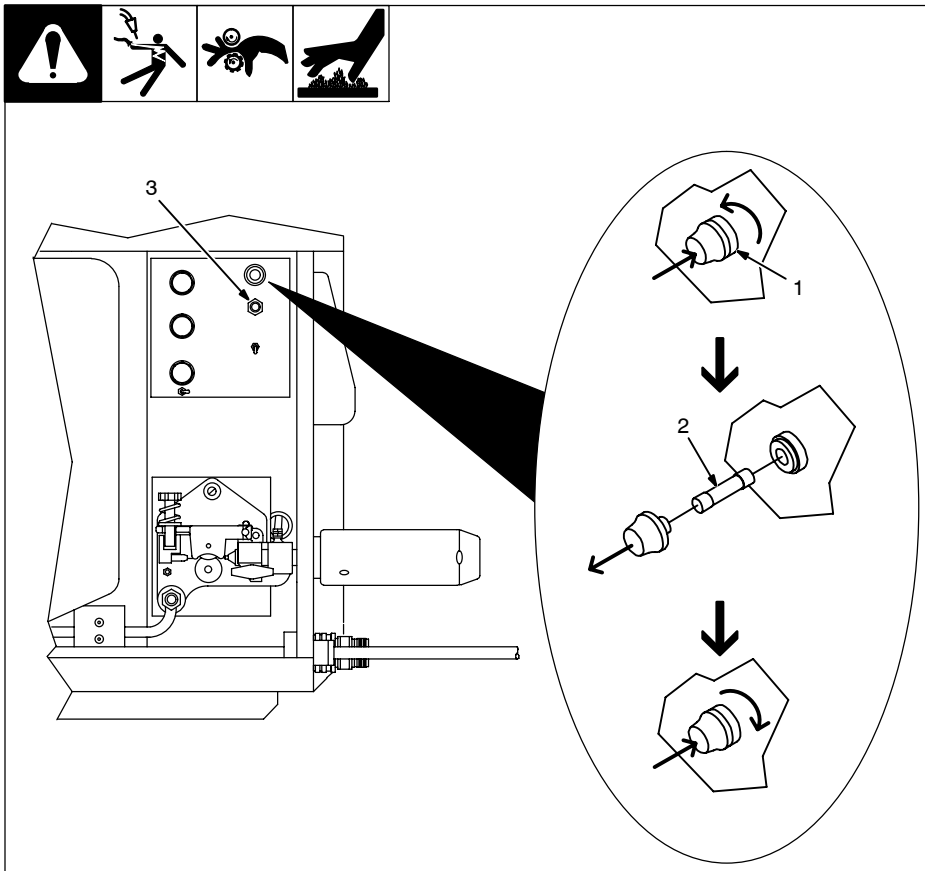
Close gun pressure roll assembly and reinstall gun cover.

Tools Needed:

7/16 in

801 577 / Ref. 143 223-A

7-11. Overload Protection



▲ **Turn Off wire feeder and welding power source. Stop engine on welding generator.**

If fuse opens, unit shuts down. To replace fuse, proceed as follows:

1 Fuse Holder Cover

2 Fuse F1 (See Parts List)

3 Circuit Breaker CB1

If CB1 opens, the gun drive motor, gas valve, and contactor will not operate when trigger is pulled. The gun drive motor operates in the Jog mode with CB1 open.

Check for blocked gun liner.

Check for jammed wire, binding drive gear or misaligned drive rolls in feeder. Correct problem.

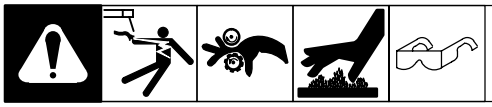
Allow cooling period and manually reset breaker. Close and latch door.

Ref. 801 577 / Ref. 800 185-A

7-12. Water Flow Switch (Optional For Water-Cooled Models)

The water flow switch protects the gun from overheating. If coolant flow rate drops below 1 qt/min, the water flow switch opens and stops the welding wire from feeding. See Section 7-13 for remedies to this trouble.

7-13. Troubleshooting



▲ **Disconnect power before troubleshooting.**

Trouble	Remedy
Pressing gun trigger does not energize feeder. Welding wire is not energized. Shielding gas does not flow.	Secure plug from gun control cable into Gun Control receptacle on feeder (see Section 5-3 or 5-5 as applicable).
	Have nearest Factory Authorized Service Agent check optional water flow switch, if applicable.
Wire feeds, shielding gas flows, but welding wire is not energized.	See Troubleshooting section in welding power source manual.
Wire feeds erratically.	Check position of Motor Torque switch (see Section 6-2).
	Adjust drive roll pressure if necessary (see Section 5-12).
	Clean or replace drive rolls as necessary (see Sections 7-2 and 7-6).
Arc varies and welding wire is kinked when feeding out gun.	Place Motor Torque switch in low torque position if welding with .030 (0.8 mm) aluminum welding wire (see Section 6-2).
No weld output; gun/feeder does not work.	Check gun trigger plug connection on wire feeder front panel (see Sections 5-3 and 5-5).
	Place Power switch on welding power source in the On position.
Erratic weld output.	Tighten and clean all connections.
	Check drive roll pressure in wire feeder and gun (see Section 5-12).
	Check and replace liner if necessary (see Section 7-3 and 7-8).
Wire does not feed; burnback in contact tip.	Check drive roll pressure in wire feeder and gun (see Section 5-12).
	Check and replace liner if necessary (see Section 7-3 and 7-8).
	Reinstall voltage sensing lead (see Section 5-1).
Wire feeds erratically.	Check drive roll pressure in wire feeder and gun (see Section 5-12).
	Clean or replace drive rolls as necessary (see Sections 7-2 and 7-6).
	Check and replace liner if necessary (see Section 7-3 and 7-8).
Gun overheating (water-cooled models).	Be sure coolant flow rate is at least 1 qt/min.
	Corrosion buildup in gun decreasing coolant flow rate. Backflush coolant system, clean coolant system filter, and clean fittings.
Voltmeter does not display voltage	If welding power source does not support pins F and H, a volt sense lead kit must be installed in feeder (see Section 5-7 and 5-8). Volt sensing lead kit 209867.

Notes

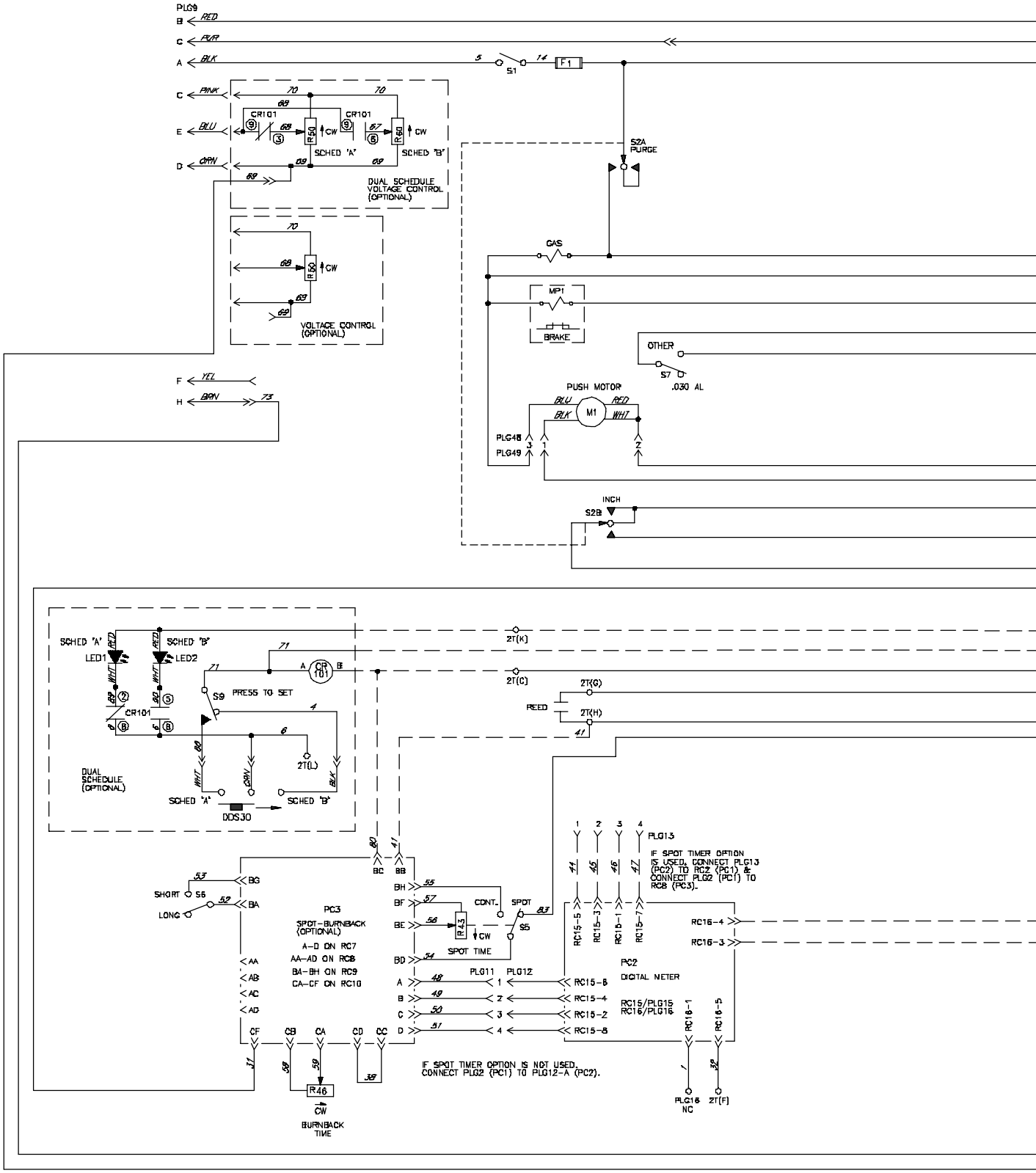
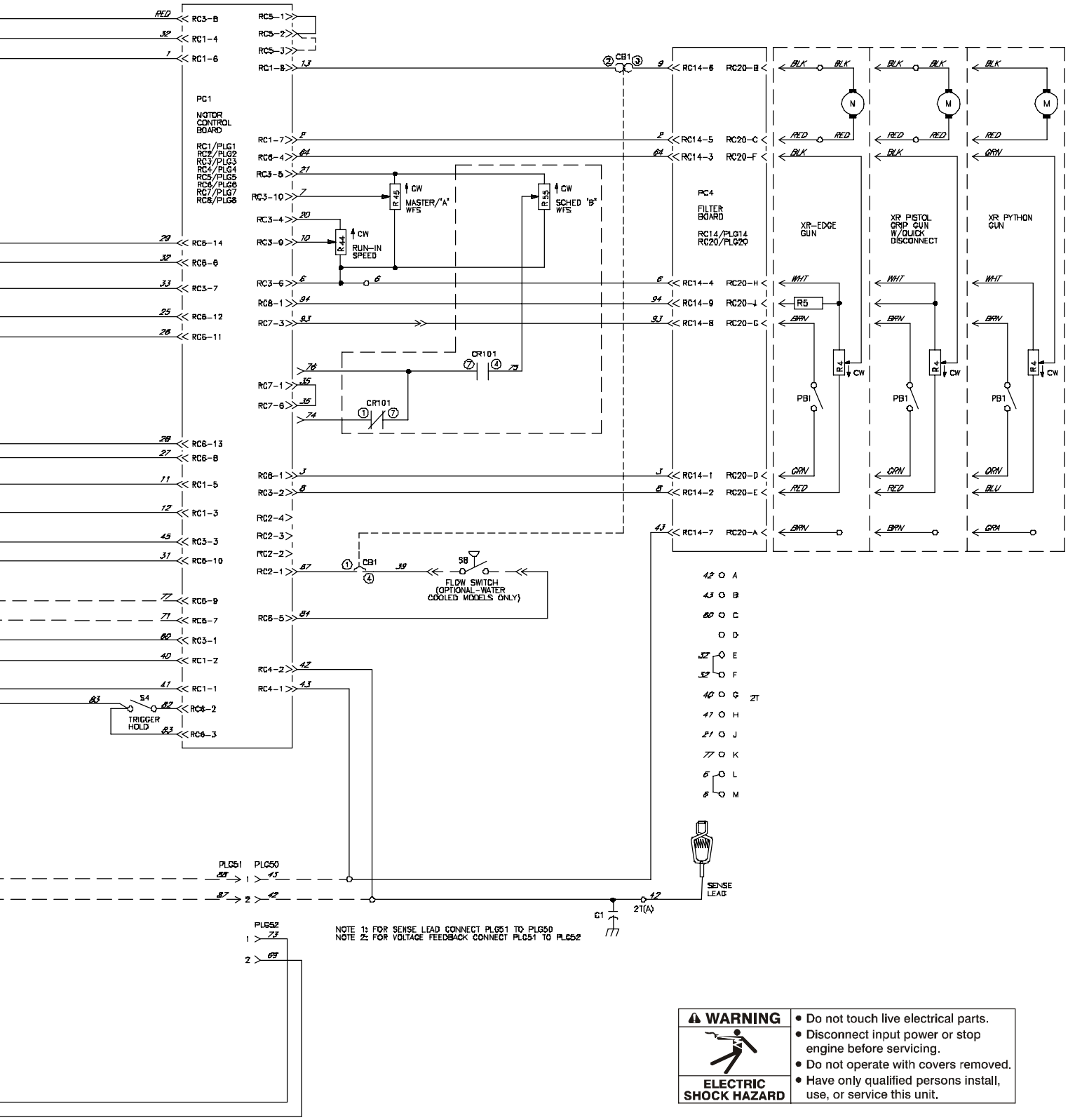


Figure 8-1. Circuit Diagram For Wire Feeder



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

218 814-B

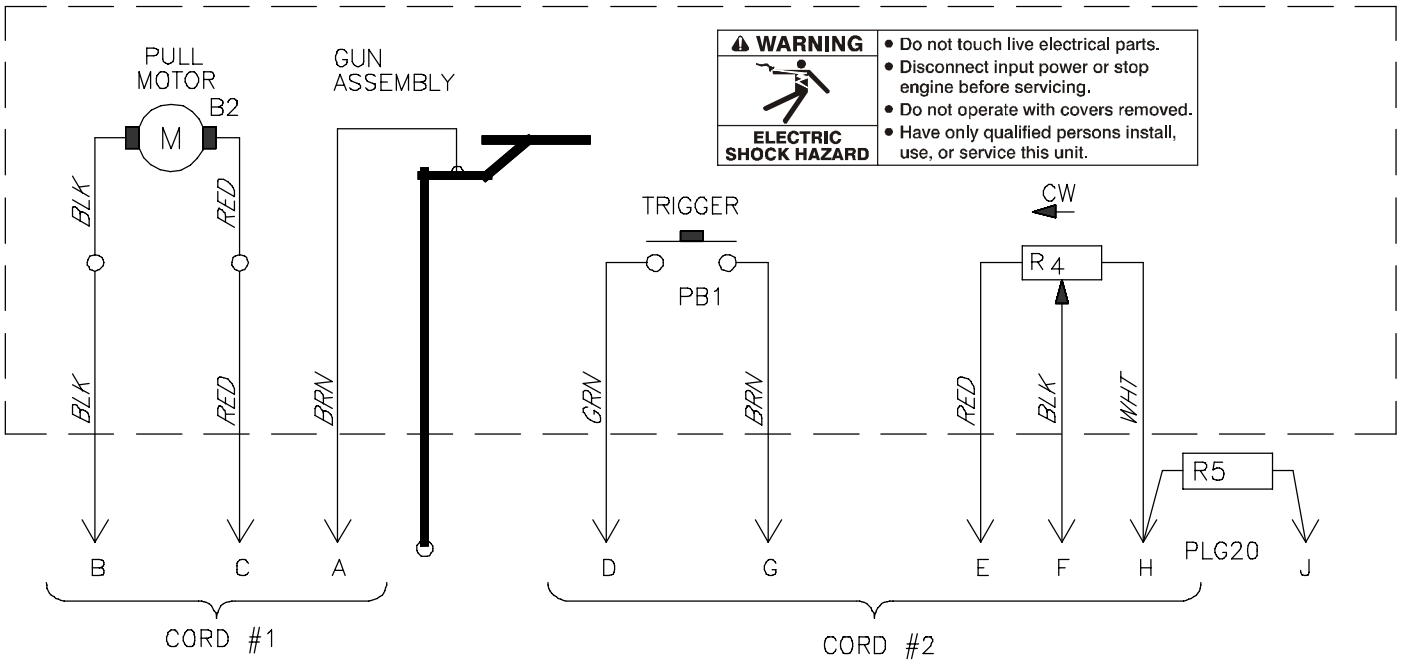


Figure 8-2. Circuit Diagram For XR Edge Gun

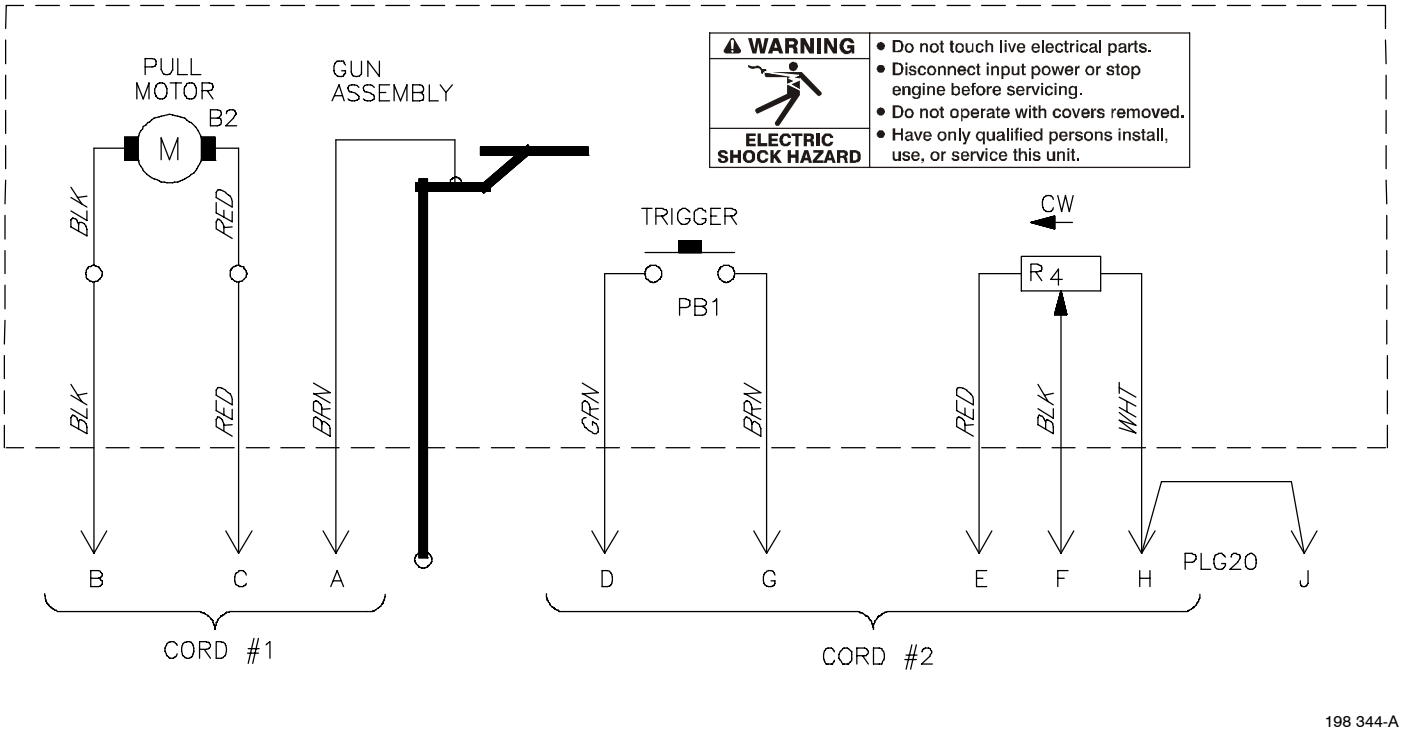


Figure 8-3. Circuit Diagram For XR Pistol Grip Gun

Notes

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

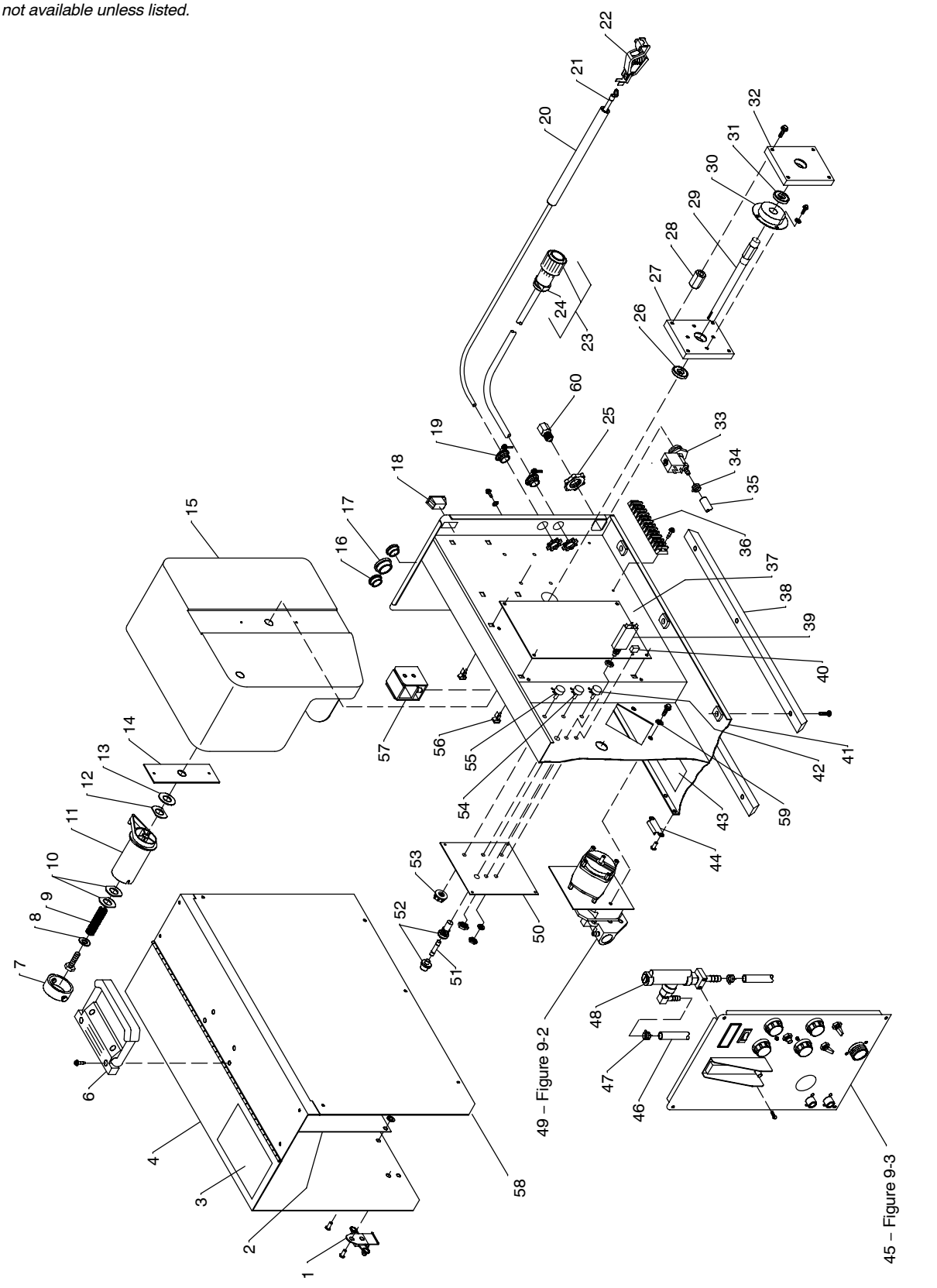


Figure 9-1. Main Assembly

Item No.	Diagram marking	Part No.	Description	Quantity

Figure 9-1. Main Assembly

1		089 572	Catch, Link-lock	2
2		112 167	Insulator, Door	1
3		134 327	Label, Warning General Precautionary (Non-ce Units)	1
3		178 936	Label, Warning General Precautionary (Ce Units)	1
4		+169 085	Wrapper	1
5			Deleted	
6		208 015	Handle, Rubberized Carrying	1
7		058 427	Ring, Retaining Spool	1
8		602 233	Washer, Flat Stl .250 Id X .875 Od X .062thk	1
9		057 543	Spring, Cprsn .845 Od X .091 Wire X 1.500	1
10		113 168	Washer, Locking	2
11		058 428	Hub, Spool	1
12		089 561	Washer, Anti-turn Stl	1
13		058 424	Washer, Fbr Brake	1
14		151 697	Strip, Brake Surface Anti-turn	1
15		112 198	Shroud, Spool Wire 12 In	1
16		057 357	Bushing, Snap-in Nyl .937 Id X 1.125mtg Hole	2
17		010 494	Bushing, Snap-in Nyl 1.375 Id X 1.750mtg Hole	1
18	S1	111 997	Switch, Rocker Spst 10A 250VAC	1
19		115 104	Connector, Clamp Cable .500	2
20	♦♦♦♦	176 089	Tubing, Plstc PVC Black	1ft (0.3 m)
21	♦♦♦♦	600 399	Wire, Strd 14Ga(Order By Ft)	35ft (10.7 m)
22	♦♦♦♦	601 222	Clamp, Univ 50A	1
23	PLG5	141 162	Housing Plug & Pins	1
24		079 739	Clamp, Cable Strain Relief	1
		182 475	Cable, Port No 18 6/C 10 Ft 8 In	1
25		220 805	Nut, 750-14 nps 1.48hex .41h nyl	1
26		073 302	Bearing, Ball Rdl Sgl Row .669 X 1.378 X .39	1
27		113 161	Block, Bearing Front	1
28		113 165	Stand-Off, .250-20 X 1.000 Lg	4
29		120 396	Shaft, Spool	1
30	MP1	163 304	Brake, W/Terminals	1
31		073 302	Bearing, Ball Rdl Sgl Row .669 X 1.378 X .39	1
32		113 900	Block, Bearing Rear	1
33	GS1	216 126	Valve, Gas W/Fittings 24VAC	1
34		089 120	Clamp, Hose .375-.450clp Dia Slfttng	1
35		176 357	Hose, Sae .187 Id X .410 Od X 21.000	1
36	2T	038 783	Block, Term 20A 12P	1
		601 219	Link, Jumper	2
		111 008	Label, Term Mkg	1
37	PC1	210 370	Circuit Card, Motor Speed Control	1
38		105 567	Skid, Base	2
39	CB1	220 595	Circuit Breaker, Main Reset	1
40	S7	011 770	Switch, Tgl Spdt 6A 125V	1
41		+187 704	Cabinet, Control	1
42	♦	194 282	Potentiometer, C Sltd Sft 1t 1w 1m	1
43		090 439	Label, Warning Electric Shock Can Kill	1
44		089 573	Plate, Keeper Link-lock	2
45		Fig 9-3	Panel, Front W/Components	1
46	♦♦♦	134 834	Hose, Sae .187 Id X .410 Od (Order By Ft)	2ft (0.6 m)
47	♦♦♦	089 120	Clamp, Hose .375-.450Clp Dia Slfttng	4
48	S8 ♦♦♦	194 195	Switch, Flow W/Fittings	1
49		Fig 9-2	Motor & Wire Drive	1
50		187 789	Plate, Control Side (Non-CE Units)	1
50		197 645	Plate, Control Side (CE Units)	1
51	F1	*073 426	Fuse, Mintr Gl Slo-blo 5A	1
52		046 432	Holder, Fuse Mintr .250 X 1.250 Panel Mtg	1
53		193 919	Knob, Pointer	2

Item No.	Diagram marking	Part No.	Description	Quantity

Figure 9-1. Main Assembly (Continued)

. . 54		♦028 770 . .	Potentiometer, Cp Std Slot 1t 2w 1m	1
. . 55		073 562 . .	Potentiometer, Cp Std Slot 1t 2w 10k	1
. . 56		134 201 . .	Stand-Off Support, PC Card .312/.375	4
. . 57	REED	140 786 . .	Switch, Reed	1
. . 58		169 089 . .	Door, Side Rh	1
. . 59		605 970 . .	Washer, Shldr.252 Id 0.310 Odx.064t .500 Odx.250h Nyl	2
. . 60		211 989 . .	Fitting, W/Screen	1

+When ordering a component originally displaying a precautionary label, the label should also be ordered.
♦Part of 114 144 Spot Weld Control Option
♦♦Part of 144 931 Voltage Control Option
♦♦♦Part of 130 838 Water Flow Shutdown Switch Option
♦♦♦♦Part of 209 867 Voltage Sensing Lead Kit
*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.

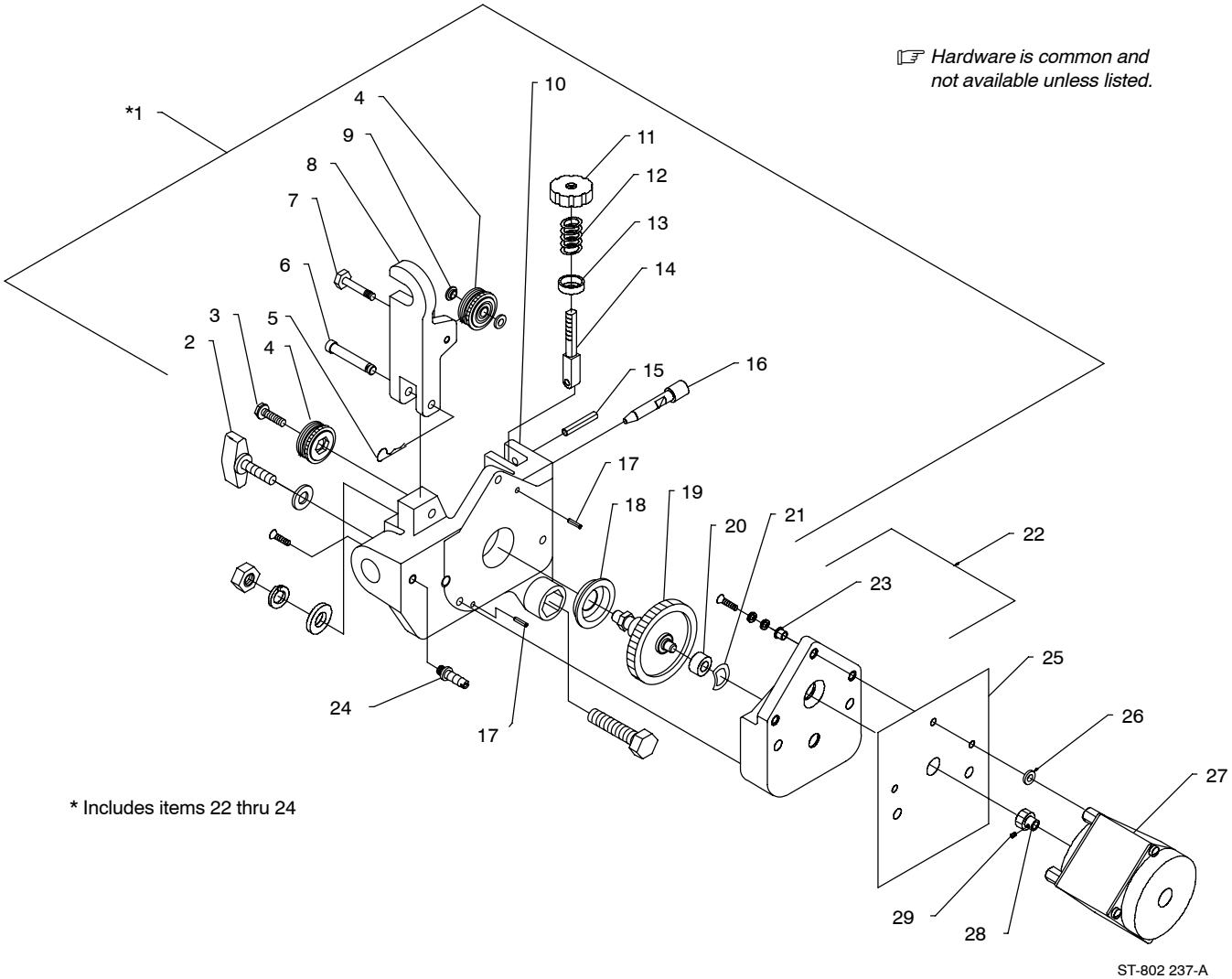


Figure 9-2. Motor & Wire Drive

Item No.	Diagram marking	Part No.	Description	Quantity

Figure 9-2. Motor & Wire Drive (Figure 9-1 Item 49)

1		193 186	Drive Assembly, Wire (Includes)	1
2		124 778	Knob, T 2.000 Bar W/.312 - 18 Nut	1
3		111 630	Screw, 010-32 X .25 Hexwhd-pln Stl Pld	1
4		♦194 118	Kit, Drive Roll .030–.035 (Part Of Wire Guide Kits 195 208 & 195 209)	1
4		♦194 119	Kit, Drive Roll .047–.062 (Part Of Wire Guide Kit 195 205)	1
4		♦195 591	Kit, Drive Roll .062 (Part Of Wire Guide Kit 195 204)	1
5		151 828	Pin, Cotter Hair .042 X .750	1
6		090 416	Pin, Hinge	1
7		191 826	Screw, Mtg Idler Roll	1
8		189 714	Pressure Arm	1
9		♦188 098	Washer, Shlder .192 Id X .375 Od	2
10		189 716	Housing, Wire Drive	1
11		092 237	Knob, Adjust Tension 1.000	1
12		189 911	Spring, Cprsn .720 Od X .063 Wire X 1.500	1
13		085 244	Washer, Cupped .328 Id X .812 Od X 16 Ga X .125 Lip	1
14		085 242	Fastener, Pinned	1
15		010 224	Pin, Spring Cs .187 X 1.000	1
16		058 549	Guide, Wire Inlet 1/16	1
17		602 306	Pin, Spring Cs .125 X .500	2
18		189 823	Insulator, Front Bearing	1
19		189 920	Gear Assy, Shaft/Bearing	1
20		189 605	Bearing Assy, Upper Drive Shaft	1
21		079 625	Washer, Wave .500 Id X .750 Od	1
22		196 613	Case, Gear Wire Drive (Includes)	1
23		196 604	Washer, Shldr .187 Id .343 Od X .045t .234 Od X .138t Nyl	3
24		144 172	Fitting, Hose Brs Barbed M 3/16 Tbg X .250-20	1
25		113 162	Insulator, Motor	1
26		605 798	Washer, Shldr .168 Id 0.375 Od X .047t .246 Od X .030t Nyl	3
27	B1	163 326	Motor, Torque 24VAC 50/60hz	1
28		113 169	Gear, Driver	1
29		604 612	Screw, Set Stl Sch 8-32 X .125 Cup Point	1

♦Part of 194 118, 194 119, or 195 591 Drive Roll Kits

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

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

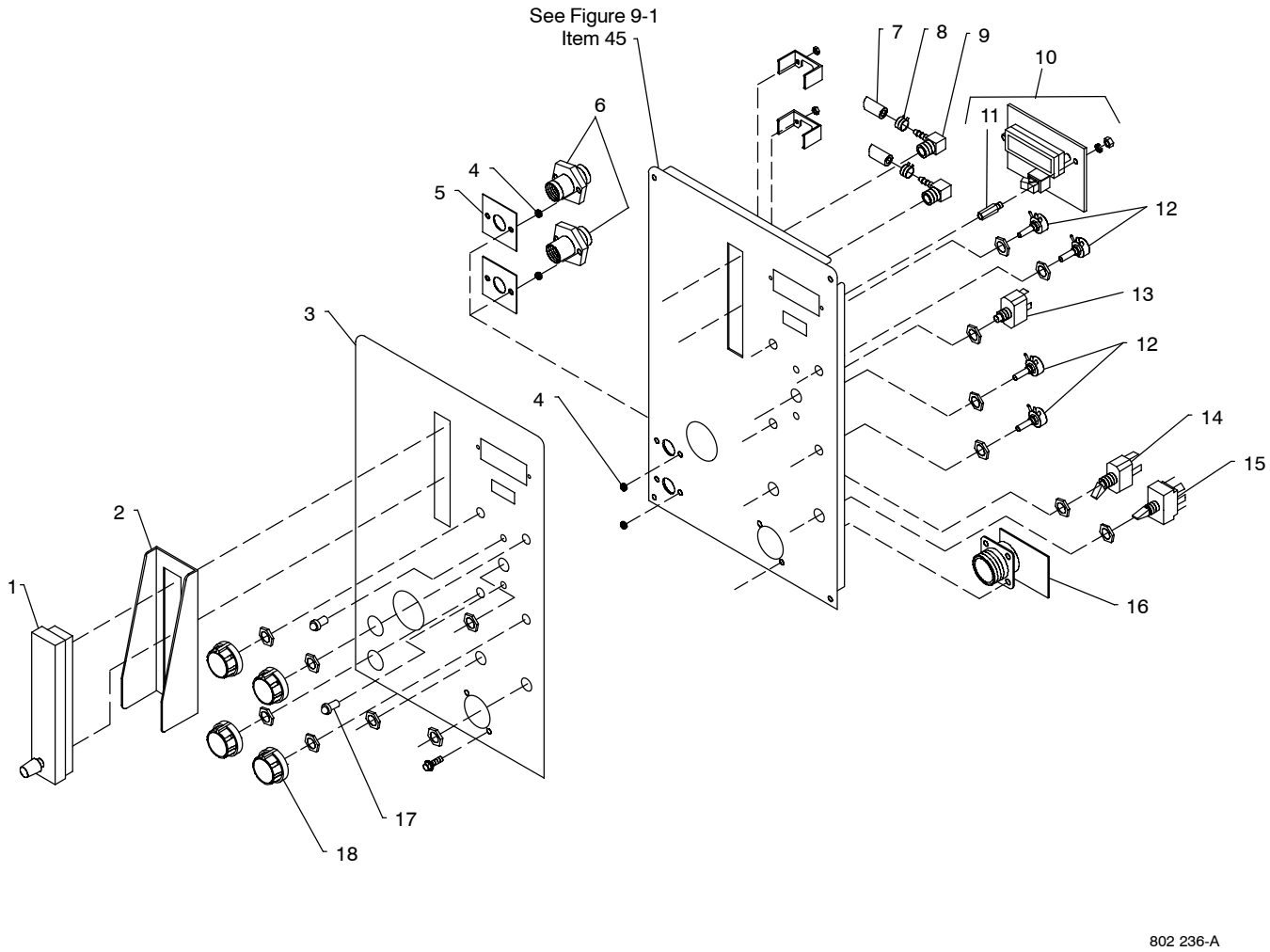


Figure 9-3. Panel, Front w/Components (Water-Cooled Model Illustrated)

Item No.	Diagram marking	Part No.	Description	Quantity
			Figure 9-3. Panel, Front w/Components (Figure 9-1 Item 45)	
1		♦111 569	Meter, Flow 6-60	1
2		♦111 633	Guard, Flow Meter	1
3			Nameplate, (Order By Model And Serial Number)	1
4		605 798	Washer, Shldr. Nyl	8
5		173 259	Insulator, Water Flow Switch	2
6		139 678	Fitting, Water (Supplied With Water-cooled Gun)	2
7		♦176 357	Hose, Sae .187 Id X .410 Od (Order By Ft)	4ft (1.2 m)
8		♦089 120	Clamp, Hose .375-.450Clp Dia	2
9		♦112 090	Fitting, Pipe Brs Elb 1/8npt X 3/16 Hose	2
		♦056 851	Fitting, Hose Brs Barbed Nipple 3/16tbg	2
		♦010 606	Fitting, Hose Brs Nut .625-18	2
		♦056 108	Fitting, Hose Brs Ferrule .425 Id X .718 Lg	2
		♦045 852	Clip, Component .687dia Mtg Adh Back	1
10	PC2	186 268	Circuit Card, Meter (Includes)	1
11		115 443	Stand-Off, No. 6-32 X .750 Lg	2
		133 644	Frame, Snap-in Switch Rocker Panel Mtg	1
12		073 562	Potentiometer, Cp Std Slot 1t 2w	4
13		011 232	Switch, Pb Spdt	1
14	S4	134 847	Switch, Tgl SPDT 15A 125VAC	1
15	S2	211 476	Switch, Tgl SPTT 6A 125VAC	1
16	PC4, RC20	197 719	Circuit Card, Filter	1
	PLG14	115 092	Housing Plug & Sockets	1
17		194 152	Led, Green	2
18		193 919	Knob, Pointer	5

♦Part of 114 101 Gas Flow Meter Option.

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

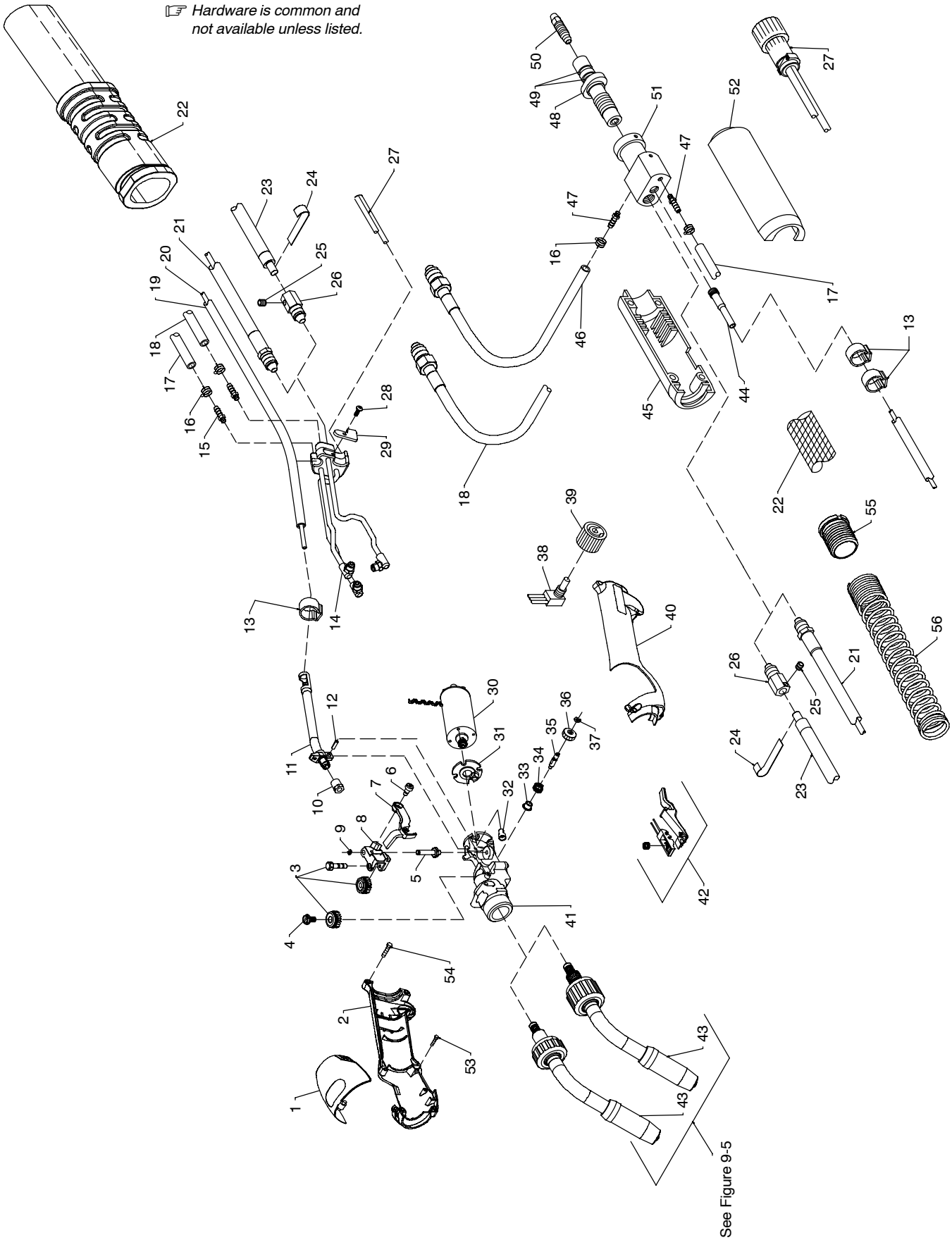


Figure 9-4. Exploded View Of XR-Edge Gun

Item No.	Part No.	Description	Quantity

Figure 9-4. Exploded View Of XR-Edge Gun

1	187 000	. . Cover,Handle	1
2	187 002	. . Handle, Right	1
3	194 114	. . Kit, Drive Roll .030 (Part Of Wire Guide Kit 195 208)	1
3	194 115	. . Kit, Drive Roll .035 (Part Of Wire Guide Kit 195 209)	1
3	194 116	. . Kit, Drive Roll .047 (Part Of Wire Guide Kit 195 205)	1
3	194 117	. . Kit, Drive Roll .062 (Part Of Wire Guide Kit 195 204)	1
3	♦191 135	. . Shaft, Hot Drive Roll	1
4	♦111 630	. . Screw, 010-32 X .25 Hexwhd Slt	1
5	185 098	. . Pin, Pressure	1
6	191 098	. . Screw, Shld Stl Sch 008-32 X .188 X .188 Shld	1
7	191 097	. . Arm, Tension	1
8	191 096	. . Arm, Pressure	1
9	000 364	. . Ring, Rtng Ext .188 Shaft X .025 Thk E Style	1
10	216 001	. . Nut, Liner Collet Retaining	1
11	191 090	. . Guide Assy, Liner	1
12	602 306	. . Pin, Spring Cs .125 X .500	1
13	203 557	. . Clamp, 1−ear Type Nom Dim .391 X .236 Wide Special	3
14	191 104	. . Power Block Assy	1
15	135 580	. . Fitting, Gas (Air)	1
15	135 580	. . Fitting, Gas (Water)	2
16	149 332	. . Clamp, Hose .405 − .485 Clp Dia (Air)	2
16	149 332	. . Clamp, Hose .405 − .485 Clp Dia (Water)	4
17	191 058	. . Hose, Gas In 15ft	1
17	191 059	. . Hose, Gas In 30ft	1
17	191 060	. . Hose, Gas In 50ft	1
18	191 072	. . Hose, Water In 15ft	1
18	191 073	. . Hose, Water In 30ft	1
18	191 074	. . Hose, Water In 50ft	1
19	203 599	. . Conduit, Monocoil Double Wound 15ft	1
19	203 671	. . Conduit, Monocoil Double Wound 30ft	1
19	203 673	. . Conduit, Monocoil Double Wound 50 Ft	1
20	191 065	. . Liner, Replacement 15 Ft Or 30 Ft Xr Guns	1
20	191 066	. . Liner, Replacement (50ft)	1
21	191 052	. . Cable, Power/Water Out 15ft	1
21	191 053	. . Cable, Power/Water Out 30ft	1
21	191 054	. . Cable, Power/Water Out 50ft	1
22	203 579	. . Jacket, Cable Combination 15ft W/Molded Strain Relief	1
22	203 672	. . Jacket, Cable Combination 30ft W/Molded Strain Relief	1
22	203 674	. . Jacket, Cable Combination 50ft W/Molded Strain Relief	1
23	191 049	. . Cable, Power 15ft (Air)	1
23	191 050	. . Cable, Power 30ft (Air)	1
23	191 051	. . Cable, Power 50ft (Air)	1
24	152 577	. . Strip, Copper .010 X 2.000 X .750 (Air)	1
25	141 694	. . Screw, Set 312-18 X .37 Conept Sch Stl Pln	1
26	137 495	. . Fitting, Connection Power Weld	1
27	191 055	. . Cable, Control 15ft	1
PLG20	217 292	. . Housing Plug+Pins, (Service Kit)	1
27	191 056	. . Cable, Control 30ft	1
PLG20	217 292	. . Housing Plug+Pins, (Service Kit)	1
27	191 057	. . Cable, Control 50ft	1
PLG20	217 292	. . Housing Plug+Pins, (Service Kit)	1
28	191 121	. . Screw, 006-32 X .37 Btn Hd-Soc	1
29	191 119	. . Strain Relief, Cable	1
30	191 082	. . Motor Assy	1
31	189 078	. . Insulator, Motor	1
32	190 906	. . Insulator, Motor Screw	4
33	191 131	. . Spacer, Tension	1
34	191 141	. . Spring, Cprsn .360 Od X .032 Wire X .875 Free	1
35	190 907	. . Shaft, Spring Tension	1

Item No.	Part No.	Description	Quantity

Figure 9-4. Exploded View Of XR-Edge Gun (Continued)

. . . 36	135 773	. . Knob, Adjust Tension Thumb	1
. . . 37	191 087	. . Ring, Rtng Ext .094 Shaft X .015 Thk E Style	1
. . . 38	191 235	. . Potentiometer, Cp Flat 1t .5w 10k Ohm	1
. . . 39	218 818	. . Knob, Speed Control Blue	1
. . . 40	187 001	. . Handle, Left	1
. . . 41	196 045	. . Housing, Drive W/Gears	1
. . . 42	218 816	. . Trigger Assy, Blue	1
. . . 43	220 109	. . Head Tube Assy, Water (See Figure 9-5)	1
. . . 43	220 101	. . Head Tube Assy, Air (See Figure 9-5)	1
. . . 44	203 539	. . Fitting, Liner	1
. . . 45	189 812	. . Housing, Power Pin Rh	1
. . . 46	196 177	. . Hose, Water Out 10in	1
. . . 47	202 513	. . Fitting, Hose Brs Barbed M 3/16 Tbg X .250-20 (Air)	1
. . . 47	202 513	. . Fitting, Hose Brs Barbed M 3/16 Tbg X .250-20 (Water)	2
. . . 48	193 896	. . Pin, Power Assembly	1
. . . 49	079 974	. . O-ring, .500 Id X .103 Cs Rbr	2
. . . 50	202 216	. . Guide, Wire Outlet .030-1/16	1
. . . 51	187 029	. . Connector, Power/Gas	1
. . . 52	189 811	. . Housing, Power Pin Lh	1
. . . 53	156 579	. . Screw, 004−40 X .37 Soc Hd−hex Stl Pld	1
. . . 54	143 480	. . Screw, 006−32 X .62 Soc Hd−hex Gr 8 Pld	5
. . . 55	203 560	. . Strain Relief, Spring Retainer	1
. . . 56	203 562	. . Spring, Strain Relief	1
. . . . .	♦605 107	. . Grease Minicap	1

♦Part of 194 114, 194 115, 194 116, or 194 117 Drive Roll Kits

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

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

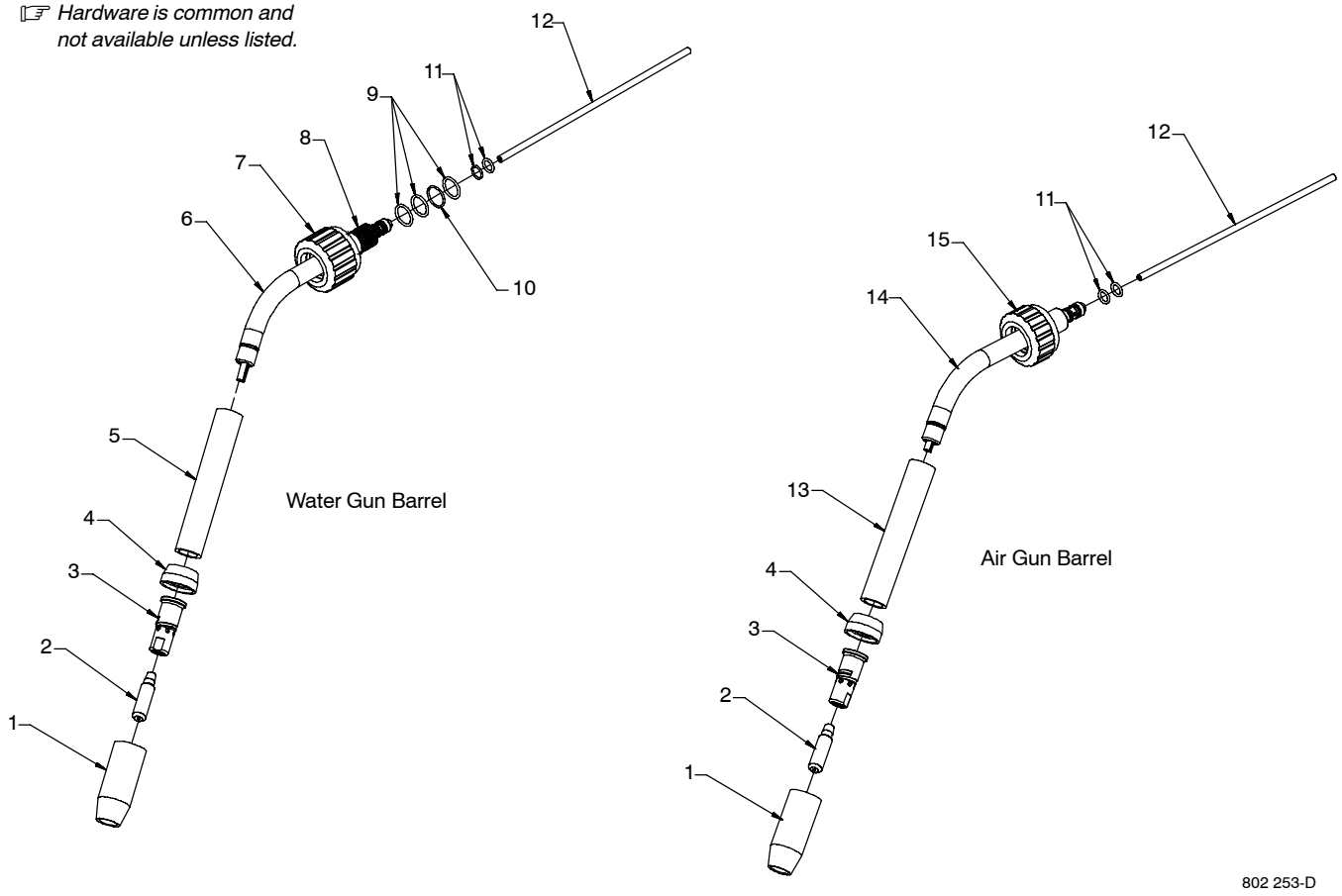


Figure 9-5. Barrel Assembly Of XR-Edge Gun

Item No.	Part No.	Description	Quantity

Figure 9-5. Barrel Assembly Of XR-Edge Gun (Figure 9-4 Item 43)

1	199 613	Nozzle, Brass 5/8 In Orifice Tapered	1
2		Tip, Fastip (See Section 10)	1
3	206 195	Diffuser, .281/.312 Od Fastip 1/8 Tip Recess	1
4	198 856	Insulator, Nozzle	1
5	220 117	Jacket, Outer Insulating Water Edge	1
6	220 110	Head Tube Assy, Water Insulated Taper Edge (Brazed)	1
7	210 766	Nut, Head Tube Rotation	1
8	210 767	Insulator, Head Tube Tapered	1
9	194 261	O-Ring, .551 Id X .070 Cs 70 Duro Buna-n	3
10	210 771	O-Ring, 14.99mm Id X 1.27mm Cs 70 Duro Buna-n	1
11	191 191	O-Ring, .312 Id X .070 Cs 70 Duro Buna-n	2
12	212 523	Liner, Phos Bronze .030–1/16 Wire X 7.813	1
13	220 103	Jacket, Outer Insulating Air Edge	1
14	220 102	Head Tube, Air Edge (Brazed)	1
15	185 111	Nut, Molded Head Tube Rotation	1

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

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

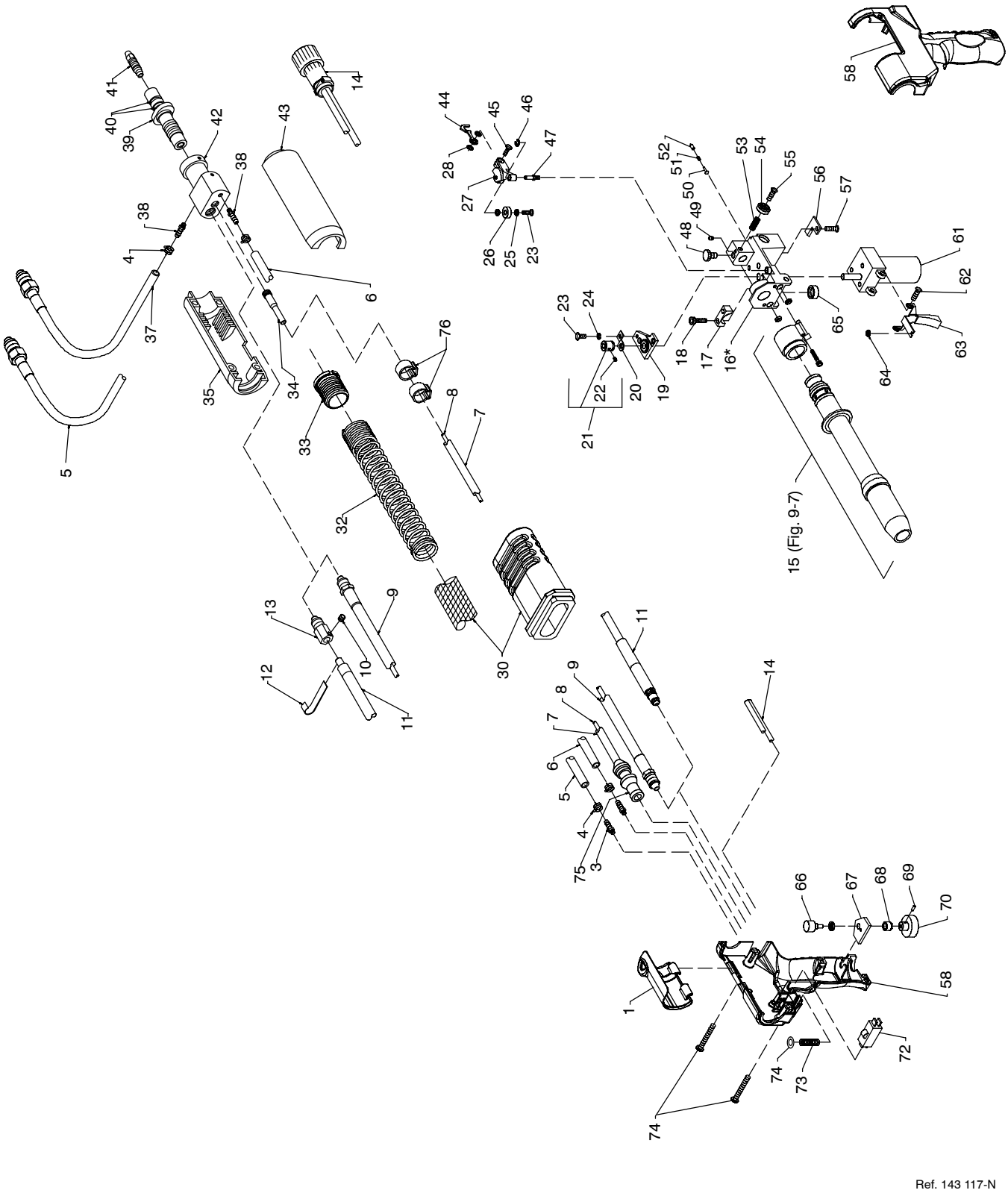


Figure 9-6. Exploded View Of Pistol-Grip Gun

Item No.	Diagram marking	Part No.	Description	Quantity

Figure 9-6. Exploded View Of Pistol-Grip Gun

1		214 745	Cover	1
2		Deleted		
3		135 580	Fitting, Gas (Air)	1
3		135 580	Fitting, Gas (Water)	2
4		149 332	Clamp, Hose .405 – .485 Clp Dia (Air)	2
4		149 332	Clamp, Hose .405 – .485 Clp Dia (Water)	4
5		191 072	Hose, Water In 15ft	1
5		191 073	Hose, Water In 30ft	1
6		191 058	Hose, Gas In 15ft	1
6		191 059	Hose, Gas In 30ft	1
7		203 691	Conduit W/Fitting, Molded 15 Ft	1
7		203 692	Conduit W/Fitting, Molded 30 Ft	1
8		219 202	Liner, XR/Cable	1
9		191 052	Cable, Power/Water Out 15ft	1
9		191 053	Cable, Power/Water Out 30ft	1
10		141 694	Screw, Set 312-18 X .37 Conept Sch Stl Pln	1
11		203 758	Cable, Power 15ft (Air)	1
11		203 759	Cable, Power 30ft (Air)	1
12		152 577	Strip, Copper .010 X 2.000 X .750 (Air)	1
13		137 495	Fitting, Connection Power Weld	1
14		198 330	Cable, Control 15ft	1
	PLG20	217 292	Housing Plug+Pins, (Service Kit)	1
14		196 466	Cable, Control 30ft	1
	PLG20	217 292	Housing Plug+Pins, (Service Kit)	1
15	Fig 9-7	219 793	Barrel Assembly	1
16		163 704	Housing, Wire Drive (15A & 30A Models) (Includes Items 3, 48, 50, 51, 52, 60 & 65)	1
16		163 692	Housing, Wire Drive (15w & 30w Models) (Includes Items 3, 48, 50, 51, 52, 60 & 65)	1
		151 661	Screw, Set 10-32 X .125 Cup Sch (30w Models Only)	2
17		133 365	Clamp, Head Tube	1
18		000 417	Screw, Cap Stl Sch 10-24 X 1.000	2
19		162 041	Bearing Block Assembly	1
		604 638	Screw, Cap Stl Sch 6-32 X .375	3
		143 480	Screw, 6-32 X .625 Soc Hd-hex Stl	1
20		162 042	Contact, Current Pick-up	1
21		136 135	Roll, Drive Vk Groove .023-1/16 Wire (Includes)	1
		604 612	.... Screw, Set Stl Sch 8-32 X .125 Cup Point	2
21		♦183 357	Kit, Drive Vk Groove .030 Wire (Part Of Wire Guide Kit 195 213)	1
21		♦183 357	Kit, Drive Vk Groove .035 Wire (Part Of Wire Guide Kit 195 212)	1
21		♦183 357	Kit, Drive Vk Groove .040 Wire (Part Of Wire Guide Kit 195 211)	1
21		♦183 358	Kit, Drive Vk Groove .047 Wire (Part Of Wire Guide Kit 195 210)	1
21		♦183 358	Kit, Drive Vk Groove .062 Wire (Part Of Wire Guide Kit 195 209)	1
23		114 045	Screw, 6-32 X .500 Hexwhd Slt Stl Slffmg	3
24		602 198	Washer, Lock .141 Id Stl Split	4
25		134 624	Bearing, Flg Nyl .140 Id X .187 Od X .375Flg X .031Thk	2
26		134 623	Bearing, Idler Roll	1
27		132 852	Arm, Pressure	1
28		605 798	Washer, Shldr Nyl .375 Od X .168 Id X .080	2
29		Deleted		
30		203 689	Jacket, Cable Combination 15ft Molded Strain Relief	1
30		203 690	Jacket, Cable Combination 30ft Molded Strain Relief	1
31		Deleted		
32		203 562	Spring, Strain Relief	1
33		203 560	Strain Relief, Spring Retainer	1
34		203 539	Fitting, Liner Double Wound Adapter	1
35		189 812	Housing, Power Pin Rh	1
36		Deleted		

Item No.	Diagram marking	Part No.	Description	Quantity

Figure 9-6. Exploded View Of Pistol-Grip Gun (Continued)

37		166 412	Hose, Water 14in	1
38		202 513	Fitting, Hose Brs Barbed M 3/16 Tbg X .250-20 (Air)	1
38		202 513	Fitting, Hose Brs Barbed M 3/16 Tbg X .250-20 (Water)	2
39		193 896	Pin, Power Assembly	1
40		079 974	O-ring, .500 Id X .103 Cs Rbr	2
41		202 216	Guide, Wire Outlet .030-1/16	1
42		187 029	Connector, Power/Gas	1
43		189 811	Housing, Power Pin Lh	1
44		133 083	Spring, Tension Adj Drive Roll	1
45		144 860	Screw, Mach Stl Flh 8-32 X .437	1
46		058 968	Ring, Retainer E	2
47		135 474	Pin, Hinge	1
48		155 565	Screw, Thumb	1
		134 799	O-ring, .176 Id X .070 Cs (Used W/Thumbscrew)	1
49		135 126	Screw, Set Stl Sch 6-32 X .125 Cup Point	1
50		170 353	Plunger, Pin	1
51		170 351	Spring, Cprsn .150 Od X .01 Wire X .375 Lg	1
52		170 352	Plunger, Gas Flow	1
53		112 896	Spring, Cprsn .240 Od X .020 Wire X .437	2
54		135 773	Knob, Thumb Tension Adjusting 8-32	1
55		143 360	Screw, Mach Stl Rdh 8-32 X .500	1
56		136 679	Clamp, Strain Relief	1
57		132 269	Screw, Mach Stl Rdhph 8-32 X .375	1
58		214 743	Case, Gun Lh/Rh (Molded Halves)	1
59		173 527	Screw, 8–32 X 1.50 Soc Hd-hex Gr 8	2
60		173 528	Screw, 8-32 X .875 Soc Hd-hex Gr 8	1
61	B2	161 813	Motor, Gear Pm 24VDC 420RPM 10.2:1 Ratio	1
62		191 121	Screw, Mach Stl Trh 6-32 X .250	2
63		164 592	Trigger	1
64		184 101	Washer, Shldr.140 Id 0.250 Od X .047 T .340 Od X .078 T Nyl	1
65		058 262	Cap, Valve	1
66	R4	200 096	Potentiometer, C Sltd Sft 1/T .5w 10k Ohm	1
67		144 861	Washer, Anti-turn	1
68		135 127	Lock, Shaft Pot .250-32 X .125dia Shaft	1
69		602 169	Screw, Set Stl Sch 8-32 X .187	2
70		134 856	Knob, Speed Control 1-10 .140 Shaft X 1.125 Od	1
71		Deleted		
72	PB1	000 369	Switch, Lim 10A 125/250VAC Dpst Plgr	1
73		183 884	Spring, Cprsn .240 Od X .026 Wire X 1.000	1
74		217 934	Screw, K40x 20 Pan Hd-Trx Stl Pld Pt Thread Forming	4
75		185 106	Nut, Liner Collet	1
		♦605 107	Grease Minicap	1
76		203 557	Clamp, 1–Ear Type	2

♦Optional

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

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

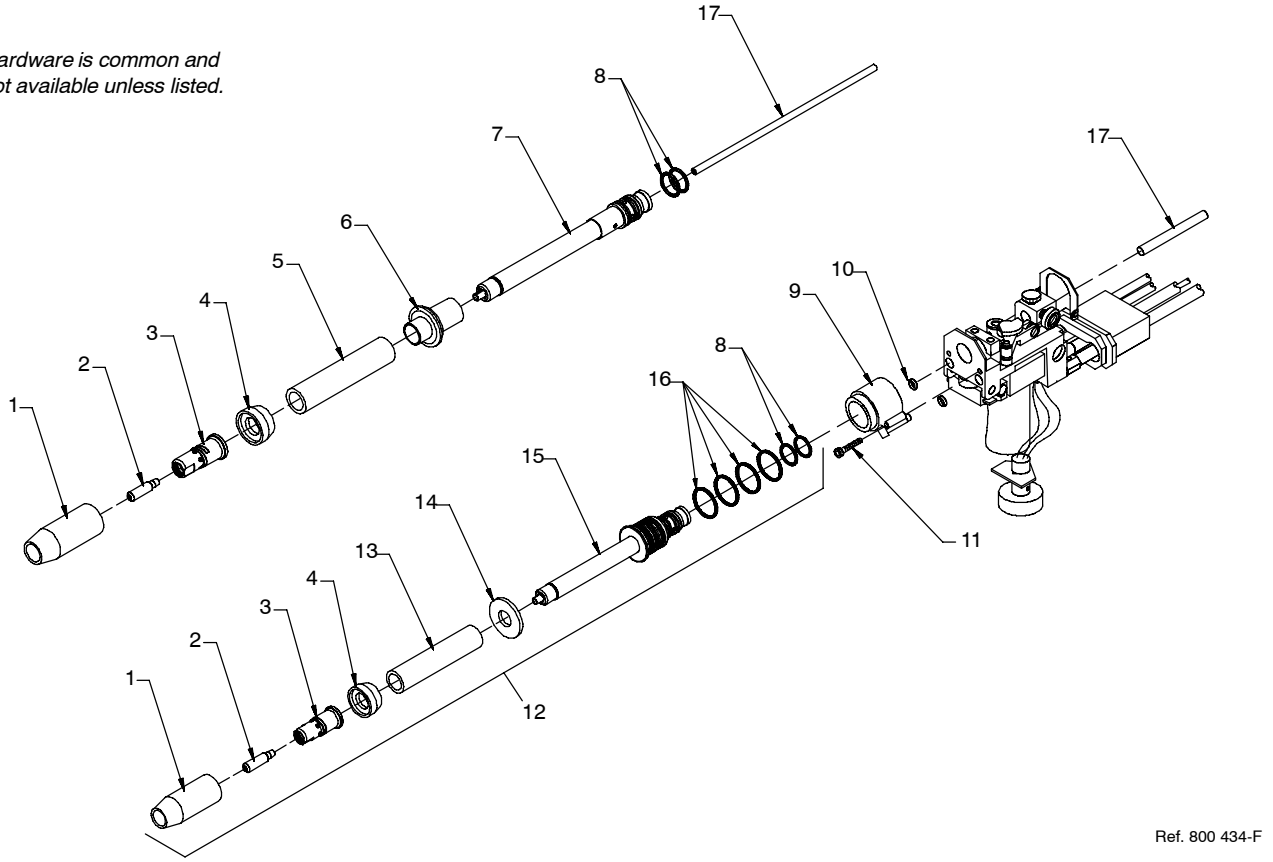
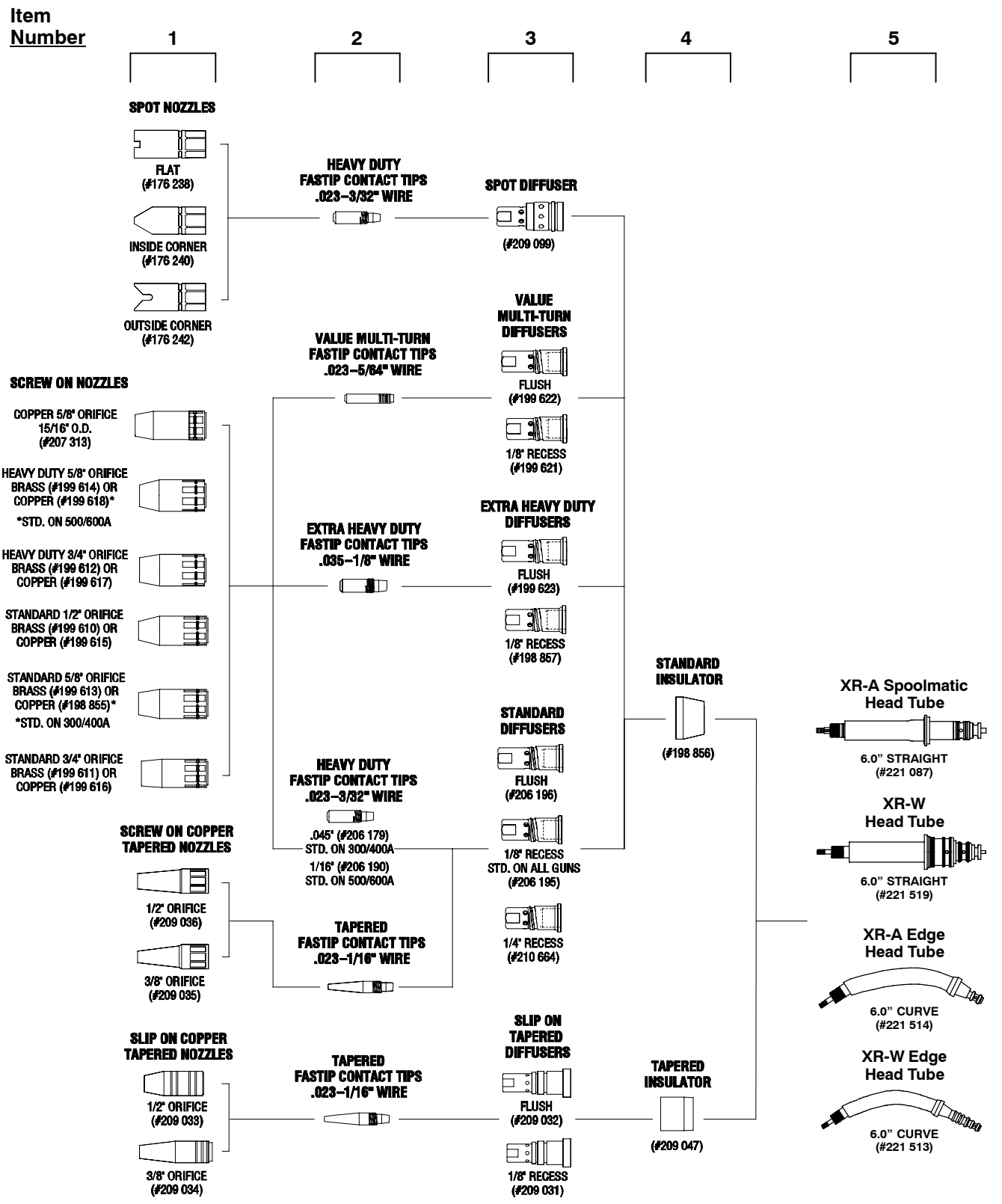


Figure 9-7. Barrel Assembly Of Pistol-Grip Gun

Item No.	Part No.	Description	Quantity
		Figure 9-7. Barrel Assembly Of Pistol-Grip Gun (Figure 9-6 Item 15)	
1	199 613	Nozzle, Brass 5/8 In Orifice Tapered	1
2		Tip, Fastip (See Section 10)	1
3	206 195	Diffuser, .281/.312 Od Fastip 1/8 Tip Recess	1
4	198 856	Insulator, Nozzle	1
5	219 794	Jacket, Outer Insulating	1
6	219 795	Insulator, Barrel Pistol	1
7	219 796	Head Tube, Air Pistol (Brazed)	1
8	134 800	O-ring, .614 Id X .070cs	2
9	203 675	Manifold, Water (15w & 30w Models) (Includes)	1
10	175 946	.... O-ring, .614 Id X .070cs	2
11	135 128	Screw, Cap Stl Sch 6-32 X 1.000 (15, 30w Models)	2
12	220 208	Barrel Assembly, Water Cooled (15, 30w Models) (Includes)	1
13	220 209	.... Jacket, Outer Insulating	1
14	220 216	.... Washer, Flat .594idx1.375odx.125t Black Vulc Fbr	1
15	220 210	.... Head Tube, Water Pistol (Brazed)	1
16	180 966	.... O-ring, .926 Id X .070 Cs 70 Duro Quadring	4
17	212 156	Liner, Phos Bronze .030-1/16 Wire X 7.313	1

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.

SECTION 10 – PARTS LIST INCLUDING CONSUMABLES



Ref. 803 909-A / 803 932 / 803 933 / 803 934

Figure 10-1. Consumables Flowchart

Item No.	Part No.	Description	Quantity
		10-1. Consumables Flowchart	
		Table 10-1. Nozzles	
1	♦176238	NOZZLE, spot flat (requires diffuser 209099, used with any heavy duty FasTip™ contact tip)	1
1	♦176240	NOZZLE, spot inside corner (requires diffuser 209099, used with any heavy duty FasTip™ contact tip)	1
1	♦176242	NOZZLE, spot outside corner (requires diffuser 209099, used with any heavy duty FasTip™ contact tip)	1
1	♦199 610	NOZZLE, screw on brass 1/2 in orifice	1
1	♦199 611	NOZZLE, screw on brass 3/4 in orifice straight	1
1	♦199 612	NOZZLE, screw on brass 3/4 in orifice straight heavy duty	1
1	♦199 613	NOZZLE, screw on brass 5/8 in orifice	1
1	♦199 614	NOZZLE, screw on brass 5/8 in orifice heavy duty	1
1	♦199 615	NOZZLE, screw on copper 1/2 in orifice	1
1	♦199 616	NOZZLE, screw on copper 3/4 in orifice	1
1	♦199 617	NOZZLE, screw on copper 3/4 in orifice heavy duty	1
1	198 855	NOZZLE, screw on copper 5/8 in orifice	1
1	199 618	NOZZLE, screw on copper 5/8 in orifice heavy duty	1
1	♦207 313	NOZZLE, screw on copper 5/8 in orifice 15/16 OD	1
1	♦209 033	NOZZLE, slip on copper 1/2 in orifice tapered (requires diffuser 209031 or 209032 and insulator 209047, used with any tapered FasTip™ contact tip)	1
1	♦209 034	NOZZLE, slip on copper 3/8 in orifice tapered (requires diffuser 209031 or 209032 and insulator 209047, used with any tapered FasTip™ contact tip)	1
1	♦209 035	NOZZLE, screw on copper 3/8 in orifice tapered (requires diffuser 206195, 206196 or 210664, used with any tapered FasTip™ contact tip)	1
1	♦209 036	NOZZLE, screw on copper 1/2 in orifice tapered (requires diffuser 206195, 206196 or 210664, used with any tapered FasTip™ contact tip)	1
		Table 10-2. Heavy Duty FasTip™ Contact Tips*	
2	♦206 184	.023 in (0.6 mm)	1
2	♦206 185	.030 in (0.8 mm)	1
2	♦206 186	.035 in (0.9 mm)	1
2	♦206 187	.040 in (1.0 mm)	1
2	206 188	.045 in (1.2 mm)	1
2	♦206 189	.052 in (1.3 mm) or 3/64 in (1.2 mm) aluminum wire	1
2	206 190	1/16 in (1.6 mm)	1
2	♦206 191	.068 in (1.7 mm) or 1/16 in (1.6 mm) aluminum wire	1
2	♦206 192	5/64 in (2.0 mm)	1
2	♦206 193	3/32 in (2.4 mm)	1
		Table 10-3. Extra Heavy Duty FasTip™ Contact Tips*	
2	♦199 605	.035 in (0.9 mm)	1
2	♦199 606	.040 in (1.0 mm)	1
2	♦198 851	.045 in (1.2 mm)	1
2	♦198 852	.052 in (1.3 mm) or 3/64 in (1.2 mm) aluminum wire	1
2	♦198 853	1/16 in (1.6 mm)	1
2	♦198 854	.068 in (1.7 mm) or 1/16 in (1.6 mm) aluminum wire	1
2	♦199 607	5/64 in (2.0 mm)	1
2	♦199 608	3/32 in (2.4 mm)	1
2	♦199 609	7/64–1/8 in (2.8 mm)	1

Item No.	Part No.	Description	Quantity

10-1. Consumables Flowchart (Continued)

Table 10-4. Tapered FasTip™ Contact Tips*

2	♦209024	.023 in (0.6 mm)	1
2	♦209025	.030 in (0.8 mm)	1
2	♦209026	.035 in (0.9 mm)	1
2	♦209027	.045 in (1.2 mm)	1
2	♦209028	3/64 in (1.2 mm)	1
2	♦209029	.052 in (1.3 mm)	1
2	♦209030	1/16 in (1.6 mm)	1

Table 10-5. Value Multi–Turn Contact Tips*

2	♦087 300	.023 in (0.6 mm)	1
2	♦071 825	.030 in (0.9 mm)	1
2	♦054 202	.035 in (0.9 mm)	1
2	♦054 201	.045 in (1.2 mm)	1
2	♦199 593	.3/64 in (1.2 mm) aluminum wire	1
2	♦044 006	.052 in (1.3 mm)	1
2	♦047 566	1/16 in (1.6 mm)	1
2	♦202 933	1/16 in (1.6 mm) aluminum wire	1
2	♦199 594	.068 in (1.7 mm)	1
2	♦047 565	5/64 in (2.0 mm)	1

Table 10-6. Gas Diffusers

3	♦198 857	1/8 in tip recess – for extra heavy duty FasTip contact tips	1
3	♦199 623	Flush tip – for extra heavy duty FasTip contact tips	1
3	♦199 621	1/8 in tip recess – for value multi–turn contact tips	1
3	♦199 622	Flush tip – for value multi–turn contact tips	1
3	206 195	1/8 in tip recess – for heavy duty FasTip contact tips (standard on all guns)	1
3	♦210 664	1/4 in tip recess – for heavy duty FasTip contact tips	1
3	♦206 196	Flush tip – for heavy duty FasTip contact tips	1
3	♦209 031	Slip on recessed diffuser (requires nozzle 209033 or 209034 and insulator 209047, used with any tapered FasTip contact tip)	1
3	♦209 032	Slip on flush diffuser (requires nozzle 209033 or 209034 and insulator 209047, used with any tapered FasTip contact tip)	1
3	♦209 099	Spot diffuser (requires spot nozzle 176238 or176240 or 176242)	1

Table 10-7. Insulators

4	198 856	INSULATOR, Rubber	1
4	209 047	INSULATOR, Teflon (required when using diffuser 209031 or 209032 with nozzle 209033 or 209034)	1

Table 10-8. Head Tube

5	221 087	BARREL ASSY, air cooled pistol	1
5	221 519	BARREL ASSY, water cooled pistol	1
5	221 514	HEAD TUBE ASSY, air cooled edge	1
5	221 513	HEAD TUBE ASSY, water insulated taper edge bent	1

♦OPTIONAL

***All contact tips are packaged in bags of 25.

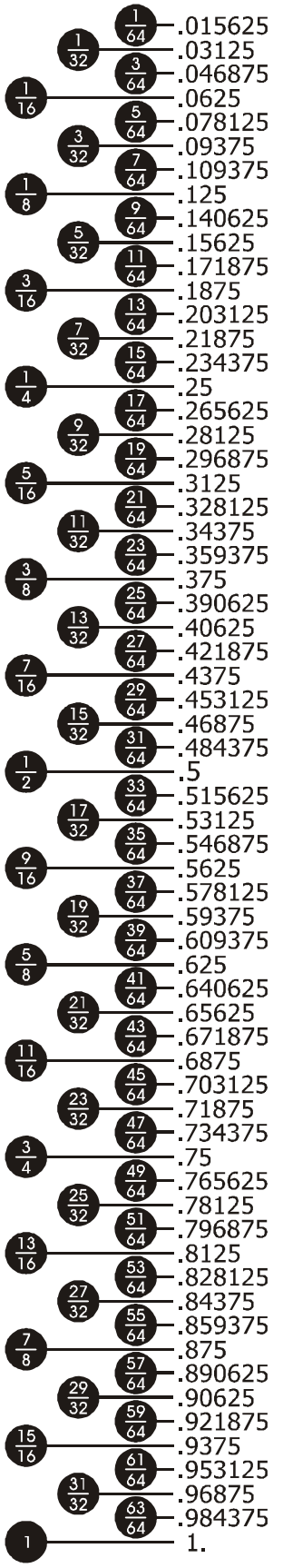
BE SURE TO PROVIDE MODEL WHEN ORDERING REPLACEMENT PARTS.

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

Notes

Notes

DECIMAL EQUIVALENTS



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

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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.

1. 5 Years Parts — 3 Years Labor
   * Original main power rectifiers
   * Inverters (input and output rectifiers only)
2. 3 Years — Parts and Labor
   * Transformer/Rectifier Power Sources
   * Plasma Arc Cutting Power Sources
   * Semi-Automatic and Automatic Wire Feeders
   * Inverter Power Sources (Unless Otherwise Stated)
   * Water Coolant Systems (Integrated)
   * Intellitig
   * Maxstar 150
   * Engine Driven Welding Generators **(NOTE: Engines are warranted separately by the engine manufacturer.)**
3. 1 Year — Parts and Labor Unless Specified
   * DS-2 Wire Feeder
   * Motor Driven Guns (w/exception of Spoolmate Spoolguns)
   * Process Controllers
   * Positioners and Controllers
   * Automatic Motion Devices
   * RFCS Foot Controls
   * Induction Heating Power Sources and Coolers
   * Water Coolant Systems (Non-Integrated)
   * Flowgauge and Flowmeter Regulators (No Labor)
   * HF Units
   * Grids
   * Maxstar 85, 140
   * 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® for the remaining warranty period of the product they are installed in, or for a minimum of one year — whichever is greater.)
4. 6 Months — Batteries
5. 90 Days — Parts
   * MIG Guns/TIG Torches
   * Induction Heating Coils and Blankets
   * APT & SAF Model Plasma Cutting Torches
   * Remote Controls
   * Accessory Kits
   * Replacement Parts (No labor)
   * Spoolmate Spoolguns
   * Canvas Covers

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

1. **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.)**
2. Items furnished by Miller, but manufactured by others, such as engines or trade accessories. These items are covered by the manufacturer's warranty, if any.
3. Equipment that has been modified by any party other than Miller, or equipment that has been improperly installed, improperly operated or misused based upon industry standards, or equipment which has not had reasonable and necessary maintenance, or equipment which has been used for operation outside of the specifications for the equipment.

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

In the event of a warranty claim covered by this warranty, the exclusive remedies shall be, at Miller's option: (1) repair; or (2) replacement; or, where authorized in writing by Miller in appropriate cases, (3) the reasonable cost of repair or replacement at an authorized Miller service station; or (4) payment of or credit for the purchase price (less reasonable depreciation based upon actual use) upon return of the goods at customer's risk and expense. Miller's option of repair or replacement will be F.O.B., Factory at Appleton, Wisconsin, or F.O.B. at a Miller authorized service facility as determined by Miller. Therefore no compensation or reimbursement for transportation costs of any kind will be allowed.

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

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

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

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

Owner's Record

Please complete and retain with your personal records.

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

For Service

Contact a DISTRIBUTOR or SERVICE AGENCY near you.

Always provide Model Name and Serial/Style Number.

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

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