



OM-234016J

2023-01

Processes



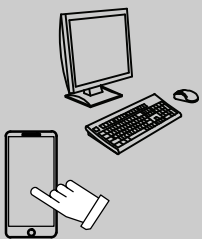
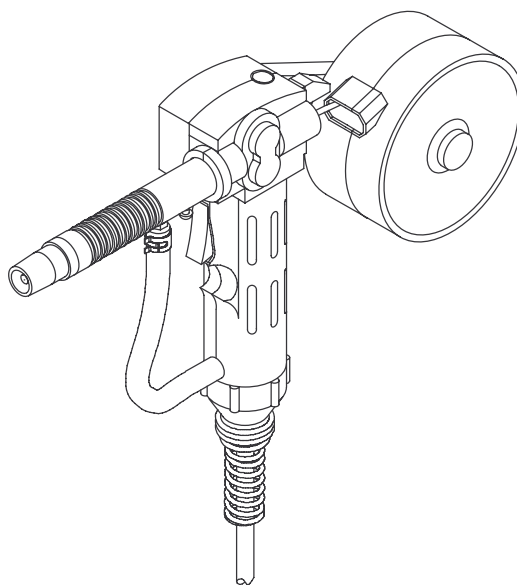
MIG (GMAW) Welding

Description



Wire Feeder Spool Gun

Spoolmate[™] 100 Series



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

www.MillerWelds.com

OWNER'S MANUAL

From Miller to You

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

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

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

This Owner's Manual is designed to help you get the most out of your Miller products. Please take time to read the Safety Precautions. They will help you protect yourself against potential hazards on the worksite. We've made installation and operation quick and easy. With Miller, you can count on years of reliable service with proper maintenance. And if for some reason the unit needs repair, there's a Troubleshooting section that will help you figure out what the problem is, and our extensive service network is there to help fix the problem. Warranty and maintenance information for your particular model are also provided.

Miller Electric manufactures a full line of welders and welding-related equipment. For information on other quality Miller products, contact your local Miller distributor to receive the latest full line catalog or individual specification sheets. **To locate your nearest distributor or service agency call**

1-800-4-A-Miller, or visit us at www.MillerWelds.com on the web.



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



**ISO 9001
Quality**

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



TABLE OF CONTENTS

SECTION 1 – SAFETY PRECAUTIONS – READ BEFORE USING	1
1-1 Symbol Usage	1
1-2 Arc Welding Hazards	1
1-3 Additional Hazards For Installation, Operation, And Maintenance	3
1-4 California Proposition 65 Warnings	4
1-5 Principal Safety Standards	4
1-6 EMF Information	4
SECTION 2 – CONSIGNES DE SÉCURITÉ - LIRE AVANT UTILISATION	5
2-1 Symboles utilisés	5
2-2 Dangers relatifs au soudage à l'arc	5
2-3 Symboles de dangers supplémentaires en relation avec l'installation, le fonctionnement et la maintenance	7
2-4 Proposition californienne 65 Avertissements	8
2-5 Principales normes de sécurité	8
2-6 Informations relatives aux CEM	9
SECTION 3 – SPECIFICATIONS	10
3-1 Specifications	10
3-2 Software Licensing Agreement	10
3-3 Information About Default Weld Parameters And Settings	10
SECTION 4 – INSTALLATION	11
4-1 Removing MIG Gun From Welding Power Source	11
4-2 Connecting Spool Gun To Milleromatic 140/180 Models	12
4-3 Connecting Spool Gun To Milleromatic 211 Auto-Set (907422, 907422001, 907422011)	14
4-4 Connecting Spool Gun To Milleromatic Passport Plus (907401)	15
4-5 Connecting Spool Gun To Renegade 180	16
4-6 Connecting Spool Gun To Milleromatic 141/ Milleromatic 190	17
4-7 Connecting Spool Gun To Milleromatic 211 (907614)	18
4-8 Connecting Spool Gun To Multimatic 215	19
4-9 Installing Wire Spool And Threading Welding Wire	20
SECTION 5 – OPERATION	21
5-1 Controls For Milleromatic 140/180 Models	21
5-2 Controls For Milleromatic 211 Auto-Set Models (907422, 907422001, 907422011)	22
5-3 Controls For Milleromatic Passport Plus Model	23
5-4 Controls For Renegade 180 Model	24
5-5 Controls For Milleromatic 141 Model (907612)	25
5-6 Controls For Milleromatic 190 Model (907613)	27
5-7 Controls For Milleromatic 211 Model (907614)	29
5-8 Controls For Multimatic 215 Model (907693)	31
SECTION 6 – MAINTENANCE AND TROUBLESHOOTING	32
6-1 Routine Maintenance	32
6-2 Changing Drive Rolls	33
6-3 Changing Liner	34
6-4 Troubleshooting	34
SECTION 7 – GMAW (MIG) ALUMINUM WELDING HINTS	35
SECTION 8 – ELECTRICAL DIAGRAMS	37
SECTION 9 – PARTS LIST	40

SECTION 1 – SAFETY PRECAUTIONS – READ BEFORE USING

 Protect yourself and others from injury—read, follow, and save these important safety precautions and operating instructions.

1-1. Symbol Usage

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

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

NOTICE – Indicates statements not related to personal injury.

 Indicates special instructions.



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

1-2. Arc Welding Hazards

 The symbols shown below are used throughout this manual to call attention to and identify possible hazards. When you see the symbol, watch out, and follow the related instructions to avoid the hazard. The safety information given below is only a summary of the more complete safety information found in the Principal Safety Standards. Read and follow all Safety Standards.

 Only qualified persons should install, operate, maintain, and repair this equipment. A qualified person is defined as one who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training and experience, has successfully demonstrated the ability to solve or resolve problems relating to the subject matter, the work, or the project and has received safety training to recognize and avoid the hazards involved.

 During operation, keep everybody, especially children, away.



ELECTRIC SHOCK can kill.

Touching live electrical parts can cause fatal shocks or severe burns. The electrode and work circuit is electrically live whenever the output is on.

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

- Do not touch live electrical parts.
- Wear dry, hole-free insulating gloves and body protection.
- Insulate yourself from work and ground using dry insulating mats or covers big enough to prevent any physical contact with the work or ground.
- Do not use AC weld output in damp, wet, or confined spaces, or if there is a danger of falling.
- Use AC output ONLY if required for the welding process.
- If AC output is required, use remote output control if present on unit.
- Additional safety precautions are required when any of the following electrically hazardous conditions are present: in damp locations or while wearing wet clothing; on metal structures such as floors, gratings, or scaffolds; when in cramped positions such as sitting, kneeling, or lying; or when there is a high risk of unavoidable or accidental contact with the workpiece or ground. For these conditions, use the following equipment in order presented: 1) a semiautomatic DC constant voltage (wire) welder, 2) a DC manual

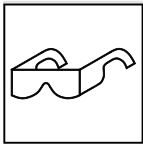
(stick) welder, or 3) an AC welder with reduced open-circuit voltage. In most situations, use of a DC, constant voltage wire welder is recommended. And, do not work alone!

- Disconnect input power or stop engine before installing or servicing this equipment. Lockout/tagout input power according to OSHA 29 CFR 1910.147 (see Safety Standards).
- Properly install, ground, and operate this equipment according to its Owner's Manual and national, state, and local codes.
- Always verify the supply ground—check and be sure that input power cord ground wire is properly connected to ground terminal in disconnect box or that cord plug is connected to a properly grounded receptacle outlet.
- When making input connections, attach proper grounding conductor first—double-check connections.
- Keep cords dry, free of oil and grease, and protected from hot metal and sparks.
- Frequently inspect input power cord and ground conductor for damage or bare wiring—replace immediately if damaged—bare wiring can kill.
- Turn off all equipment when not in use.
- Do not use worn, damaged, undersized, or repaired cables.
- Do not drape cables over your body.
- If earth grounding of the workpiece is required, ground it directly with a separate cable.
- Do not touch electrode if you are in contact with the work, ground, or another electrode from a different machine.
- Use only well-maintained equipment. Repair or replace damaged parts at once. Maintain unit according to manual.
- Do not touch electrode holders connected to two welding machines at the same time since double open-circuit voltage will be present.
- Wear a safety harness if working above floor level.
- Keep all panels and covers securely in place.
- Clamp work cable with good metal-to-metal contact to workpiece or worktable as near the weld as practical.
- Insulate work clamp when not connected to workpiece to prevent contact with any metal object.
- Do not connect more than one electrode or work cable to any single weld output terminal. Disconnect cable for process not in use.
- Use GFCI protection when operating auxiliary equipment in damp or wet locations.



HOT PARTS can burn.

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



FLYING METAL OR DIRT can injure eyes.

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



FUMES AND GASES can be hazardous.

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

- Keep your head out of the fumes. Do not breathe the fumes.
- Ventilate the work area and/or use local forced ventilation at the arc to remove welding fumes and gases. The recommended way to determine adequate ventilation is to sample for the composition and quantity of fumes and gases to which personnel are exposed.
- If ventilation is poor, wear an approved air-supplied respirator.
- Read and understand the Safety Data Sheets (SDSs) and the manufacturer's instructions for adhesives, coatings, cleaners, consumables, coolants, degreasers, fluxes, and metals.
- Work in a confined space only if it is well ventilated, or while wearing an air-supplied respirator. Always have a trained 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.



BUILDUP OF GAS can injure or kill.

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



ARC RAYS can burn eyes and skin.

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

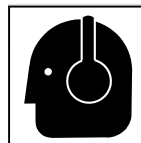
- Wear an approved welding helmet fitted with a proper shade of filter lenses to protect your face and eyes from arc rays and sparks when welding or watching (see ANSI Z49.1 and Z87.1 listed in Safety Standards).
- Wear approved safety glasses with side shields under your helmet.
- Use protective screens or barriers to protect others from flash, glare, and sparks; warn others not to watch the arc.
- Wear body protection made from leather or flame-resistant clothing (FRC). Body protection includes oil-free clothing such as leather gloves, heavy shirt, cuffless trousers, high shoes, and a cap.



WELDING can cause fire or explosion.

Welding on closed containers, such as tanks, drums, or pipes, can cause them to blow up. Sparks can fly off from the welding arc. The flying sparks, hot workpiece, and hot equipment can cause fires and burns. Accidental contact of electrode to metal objects can cause sparks, explosion, overheating, or fire. Check and be sure the area is safe before doing any welding.

- Remove all flammables within 35 ft (10.7 m) of the welding arc. If this is not possible, tightly cover them with approved covers.
- Do not weld where flying sparks can strike flammable material.
- Protect yourself and others from flying sparks and hot metal.
- Be alert that welding sparks and hot materials from welding can easily go through small cracks and openings to adjacent areas.
- Watch for fire, and keep a fire extinguisher nearby.
- Be aware that welding on a ceiling, floor, bulkhead, or partition can cause fire on the hidden side.
- Do not cut or weld on tire rims or wheels. Tires can explode if heated. Repaired rims and wheels can fail. See OSHA 29 CFR 1910.177 listed in Safety Standards.
- Do not weld on containers that have held combustibles, or on closed containers such as tanks, drums, or pipes unless they are properly prepared according to AWS F4.1 (see Safety Standards).
- Do not weld where the atmosphere can contain flammable dust, gas, or liquid vapors (such as gasoline).
- Connect work cable to the work as close to the welding area as practical to prevent welding current from traveling long, possibly unknown paths and causing electric shock, sparks, and fire hazards.
- Do not use welder to thaw frozen pipes.
- Remove stick electrode from holder or cut off welding wire at contact tip when not in use.
- Wear body protection made from leather or flame-resistant clothing (FRC). Body protection includes oil-free clothing such as leather gloves, heavy shirt, cuffless trousers, high shoes, and a cap.
- Remove any combustibles, such as a butane lighter or matches, from your person before doing any welding.
- After completion of work, inspect area to ensure it is free of sparks, glowing embers, and flames.
- Use only correct fuses or circuit breakers. Do not oversize or bypass them.
- Follow requirements in OSHA 1910.252 (a) (2) (iv) and NFPA 51B for hot work and have a fire watcher and extinguisher nearby.
- Read and understand the Safety Data Sheets (SDSs) and the manufacturer's instructions for adhesives, coatings, cleaners, consumables, coolants, degreasers, fluxes, and metals.



NOISE can damage hearing.

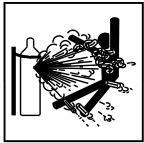
Noise from some processes or equipment can damage hearing.

- Wear approved ear protection if noise level is high.



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

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



CYLINDERS can explode if damaged.

Compressed gas cylinders contain gas under high pressure. If damaged, a cylinder can explode. Since gas cylinders are normally part of the welding process, be sure to treat them carefully.

- Protect compressed gas cylinders from excessive heat, mechanical shocks, physical damage, slag, open flames, sparks, and arcs.
- Install cylinders in an upright position by securing to a stationary support or cylinder rack to prevent falling or tipping.
- Keep cylinders away from any welding or other electrical circuits.
- Never drape a welding torch over a gas cylinder.
- Never allow a welding electrode to touch any cylinder.

- Never weld on a pressurized cylinder—explosion will result.
- Use only correct compressed gas cylinders, regulators, hoses, and fittings designed for the specific application; maintain them and associated parts in good condition.
- Turn face away from valve outlet when opening cylinder valve. Do not stand in front of or behind the regulator when opening the valve.
- Keep protective cap in place over valve except when cylinder is in use or connected for use.
- Use the proper equipment, correct procedures, and sufficient number of persons to lift, move, and transport cylinders.
- Read and follow instructions on compressed gas cylinders, associated equipment, and Compressed Gas Association (CGA) publication P-1 listed in Safety Standards.

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



FIRE OR EXPLOSION hazard.

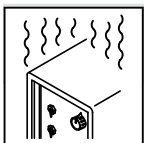
- Do not install or place unit on, over, or near combustible surfaces.
- Do not install unit near flammables.
- Do not overload building wiring—be sure power supply system is properly sized, rated, and protected to handle this unit.



FALLING EQUIPMENT can injure.

- Use lifting eye to lift unit only, NOT running gear, gas cylinders, or any other accessories.
- Use correct procedures and equipment of adequate capacity to lift and support unit.

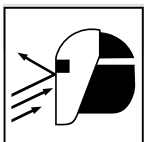
- If using lift forks to move unit, be sure forks are long enough to extend beyond opposite side of unit.
- Keep equipment (cables and cords) away from moving vehicles when working from an aerial location.
- Follow the guidelines in the Applications Manual for the Revised NIOSH Lifting Equation (Publication No. 94-110) when manually lifting heavy parts or equipment.



OVERUSE can cause OVERHEATING.

- Allow cooling period; follow rated duty cycle.
- Reduce current or reduce duty cycle before starting to weld again.

- Do not block or filter airflow to unit.



FLYING SPARKS can injure.

- Wear a face shield to protect eyes and face.
- Shape tungsten electrode only on grinder with proper guards in a safe location wearing proper face, hand, and body protection.

- Sparks can cause fires—keep flammables away.



STATIC (ESD) can damage PC boards.

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



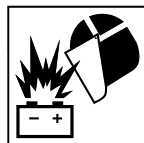
MOVING PARTS can injure.

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



WELDING WIRE can injure.

- Do not press gun trigger until instructed to do so.
- Do not point gun toward any part of the body, other people, or any metal when threading welding wire.



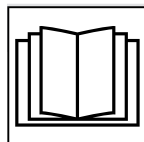
BATTERY EXPLOSION can injure.

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



MOVING PARTS can injure.

- Keep away from moving parts such as fans.
- Keep all doors, panels, covers, and guards closed and securely in place.
- Have only qualified persons remove doors, panels, covers, or guards for maintenance and troubleshooting as necessary.
- Reinstall doors, panels, covers, or guards when maintenance is finished and before reconnecting input power.



READ INSTRUCTIONS.

- Read and follow all labels and the Owner's Manual carefully before installing, operating, or servicing unit. Read the safety information at the beginning of the manual and in each section.

- Use only genuine replacement parts from the manufacturer.
- Perform installation, maintenance, and service according to the Owner's Manuals, industry standards, and national, state, and local codes.



H.F. RADIATION can cause interference.

- High-frequency (H.F.) can interfere with radio navigation, safety services, computers, and communications equipment.

- Have only qualified persons familiar with electronic equipment perform this installation.
- The user is responsible for having a qualified electrician promptly correct any interference problem resulting from the installation.
- If notified by the FCC about interference, stop using the equipment at once.
- Have the installation regularly checked and maintained.
- Keep high-frequency source doors and panels tightly shut, keep spark gaps at correct setting, and use grounding and shielding to minimize the possibility of interference.



ARC WELDING can cause interference.

- Electromagnetic energy can interfere with sensitive electronic equipment such as microprocessors, computers, and computer-driven equipment such as robots.
- Be sure all equipment in the welding area is electromagnetically compatible.

- To reduce possible interference, keep weld cables as short as possible, close together, and down low, such as on the floor.
- Locate welding operation 100 meters from any sensitive electronic equipment.
- Be sure this welding machine is installed and grounded according to this manual.
- If interference still occurs, the user must take extra measures such as moving the welding machine, using shielded cables, using line filters, or shielding the work area.

1-4. California Proposition 65 Warnings

WARNING – This product can expose you to chemicals including lead, which are known to the state of California to cause cancer and birth defects or other reproductive harm.

For more information, go to www.P65Warnings.ca.gov.

1-5. Principal Safety Standards

Safety in Welding, Cutting, and Allied Processes, American Welding Society standard ANSI Standard Z49.1. Website: <http://www.aws.org>.

Safe Practice For Occupational And Educational Eye And Face Protection, ANSI Standard Z87.1, from American National Standards Institute. Website: www.ansi.org.

Safe Practices for the Preparation of Containers and Piping for Welding and Cutting, American Welding Society Standard AWS F4.1. Website: <http://www.aws.org>.

National Electrical Code, NFPA Standard 70 from National Fire Protection Association. Website: www.nfpa.org.

Safe Handling of Compressed Gases in Cylinders, CGA Pamphlet P-1 from Compressed Gas Association. Website: www.cganet.com.

Safety in Welding, Cutting, and Allied Processes, CSA Standard W117.2 from Canadian Standards Association. Website: www.csagroup.org.

Standard for Fire Prevention During Welding, Cutting, and Other Hot Work, NFPA Standard 51B from National Fire Protection Association. Website: www.nfpa.org.

OSHA, Occupational Safety and Health Standards for General Industry, Title 29, Code of Federal Regulations (CFR), Part 1910.177 Subpart N, Part 1910 Subpart Q, and Part 1926, Subpart J. Website: www.osha.gov.

OSHA Important Note Regarding the ACGIH TLV, Policy Statement on the Uses of TLVs and BEIs. Website: www.osha.gov.

Applications Manual for the Revised NIOSH Lifting Equation from the National Institute for Occupational Safety and Health (NIOSH). Website: www.cdc.gov/NIOSH.

SOM 2022-01

1-6. EMF Information

Electric current flowing through any conductor causes localized electric and magnetic fields (EMF). The current from arc welding (and allied processes including spot welding, gouging, plasma arc cutting, and induction heating operations) creates an EMF field around the welding circuit. EMF fields can interfere with some medical implants, e.g. pacemakers. Protective measures for persons wearing medical implants have to be taken. For example, restrict access for passers-by or conduct individual risk assessment for welders. All welders should use the following procedures in order to minimize exposure to EMF fields from the welding circuit:

1. Keep cables close together by twisting or taping them, or using a cable cover.
2. Do not place your body between welding cables. Arrange cables to one side and away from the operator.
3. Do not coil or drape cables around your body.

4. Keep head and trunk as far away from the equipment in the welding circuit as possible.
5. Connect work clamp to workpiece as close to the weld as possible.
6. Do not work next to, sit or lean on the welding power source.
7. Do not weld whilst carrying the welding power source or wire feeder.

About Implanted Medical Devices:

Implanted Medical Device wearers should consult their doctor and the device manufacturer before performing or going near arc welding, spot welding, gouging, plasma arc cutting, or induction heating operations. If cleared by your doctor, then following the above procedures is recommended.

SECTION 2 – CONSIGNES DE SÉCURITÉ - LIRE AVANT UTILISATION

 Pour écarter les risques de blessure pour vous-même et pour autrui — lire, appliquer et ranger en lieu sûr ces consignes relatives aux précautions de sécurité et au mode opératoire.

2-1. Symboles utilisés

 **DANGER!** – Indique une situation dangereuse qui si on l'évite pas peut donner la mort ou des blessures graves. Les dangers possibles sont montrés par les symboles joints ou sont expliqués dans le texte.

 Indique une situation dangereuse qui si on l'évite pas peut donner la mort ou des blessures graves. Les dangers possibles sont montrés par les symboles joints ou sont expliqués dans le texte.

AVIS – Indique des déclarations pas en relation avec des blessures personnelles.

 Indique des instructions spécifiques.



Ce groupe de symboles veut dire Avertissement! Attention! DANGER DE CHOC ELECTRIQUE, PIECES EN MOUVEMENT, et PIECES CHAUDES. Reportez-vous aux symboles et aux directives ci-dessous afin de connaître les mesures à prendre pour éviter tout danger.

2-2. Dangers relatifs au soudage à l'arc

 Les symboles représentés ci-dessous sont utilisés dans ce manuel pour attirer l'attention et identifier les dangers possibles. En présence de ce symbole, prendre garde et suivre les instructions afférentes pour éviter tout risque. Les consignes de sécurité présentées ci-après ne font que résumer l'information contenue dans les Normes de sécurité principales. Lire et suivre toutes les Normes de sécurité.

 L'installation, l'utilisation, l'entretien et les réparations ne doivent être confiés qu'à des personnes qualifiées. Une personne qualifiée est définie comme celle qui, par la possession d'un diplôme reconnu, d'un certificat ou d'un statut professionnel, ou qui, par une connaissance, une formation et une expérience approfondies, a démontré avec succès sa capacité à résoudre les problèmes liés à la tâche, le travail ou le projet et a reçu une formation en sécurité afin de reconnaître et d'éviter les risques inhérents.

 Au cours de l'utilisation, tenir toute personne à l'écart et plus particulièrement les enfants.



UNE DÉCHARGE ÉLECTRIQUE peut entraîner la mort.

Le contact d'organes électriques sous tension peut provoquer des accidents mortels ou des brûlures graves. Le circuit de l'électrode et de la pièce est

sous tension lorsque le courant est délivré à la sortie. Le circuit d'alimentation et les circuits internes de la machine sont également sous tension lorsque l'alimentation est sur Marche. Dans le mode de soudage avec du fil, le fil, le dérouleur, le bloc de commande du rouleau et toutes les parties métalliques en contact avec le fil sont sous tension électrique. Un équipement installé ou mis à la terre de manière incorrecte ou impropre constitue un danger.

- Ne pas toucher aux pièces électriques sous tension.
- Porter des gants isolants et des vêtements de protection secs et sans trous.
- S'isoler de la pièce à couper et du sol en utilisant des housses ou des tapis assez grands afin d'éviter tout contact physique avec la pièce à couper ou le sol.
- Ne pas utiliser de sortie de soudage CA dans des zones humides ou confinées ou s'il y a un risque de chute.
- Se servir d'une source électrique à courant électrique UNIQUEMENT si le procédé de soudage le demande.
- Si l'utilisation d'une source électrique à courant électrique s'avère nécessaire, se servir de la fonction de télécommande si l'appareil en est équipé.
- D'autres consignes de sécurité sont nécessaires dans les conditions suivantes : risques électriques dans un environnement humide ou si l'on porte des vêtements mouillés ; sur des structures

métalliques telles que sols, grilles ou échafaudages ; en position coincée comme assise, à genoux ou couchée ; ou s'il y a un risque élevé de contact inévitable ou accidentel avec la pièce à souder ou le sol. Dans ces conditions, utiliser les équipements suivants, dans l'ordre indiqué : 1) un poste à souder DC à tension constante (à fil), 2) un poste à souder DC manuel (électrode) ou 3) un poste à souder AC à tension à vide réduite. Dans la plupart des situations, l'utilisation d'un poste à souder DC à fil à tension constante est recommandée. En outre, ne pas travailler seul !

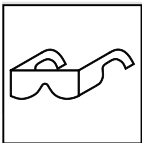
- Couper l'alimentation ou arrêter le moteur avant de procéder à l'installation, à la réparation ou à l'entretien de l'appareil. Déverrouiller l'alimentation selon la norme OSHA 29 CFR 1910.147 (voir normes de sécurité).
- Brancher correctement la mise à la terre et utiliser cet appareil conformément à son manuel d'utilisateur et aux codes nationaux, provinciaux et municipaux.
- Toujours vérifier la mise à la terre — vérifier et assurez-vous que le conducteur de mise à la terre du cordon d'alimentation est bien raccordé à la borne de mise à la terre dans le boîtier de déconnexion ou que la fiche du cordon est raccordée à une prise correctement mise à la terre.
- En effectuant les raccordements d'entrée, fixer d'abord le conducteur de mise à la terre approprié et contre-vérifier les connexions.
- Les câbles doivent être exempts d'humidité, d'huile et de graisse ; protégez-les contre les étincelles et les pièces métalliques chaudes.
- Vérifier fréquemment le cordon d'alimentation et le conducteur de mise à la terre afin de s'assurer qu'il n'est pas altéré ou dénudé -, le remplacer immédiatement s'il l'est -. Un fil dénudé peut entraîner la mort.
- L'équipement doit être hors tension lorsqu'il n'est pas utilisé.
- Ne pas utiliser des câbles usés, endommagés, de grosseur insuffisante ou mal épissés.
- Ne pas enrouler les câbles autour du corps.
- Si la pièce soudée doit être mise à la terre, le faire directement avec un câble distinct.
- Ne pas toucher l'électrode quand on est en contact avec la pièce, la terre ou une électrode provenant d'une autre machine.
- Ne pas toucher des porte électrodes connectés à deux machines en même temps à cause de la présence d'une tension à vide doublée.
- N'utiliser qu'un matériel en bon état. Réparer ou remplacer sur-le-champ les pièces endommagées. Entretenir l'appareil conformément à ce manuel.
- Porter un harnais de sécurité si l'on doit travailler au-dessus du sol.

- S'assurer que tous les panneaux et couvercles sont correctement en place.
- Fixer le câble de retour de façon à obtenir un bon contact métal-métal avec la pièce à souder ou la table de travail, le plus près possible de la soudure.
- Isoler la pince de masse quand pas mis à la pièce pour éviter le contact avec tout objet métallique.
- Ne pas raccorder plus d'une électrode ou plus d'un câble de masse à une même borne de sortie de soudage. Débrancher le câble pour le procédé non utilisé.
- Utiliser une protection différentielle lors de l'utilisation d'un équipement auxiliaire dans des endroits humides ou mouillés.



LES PIÈCES CHAUDES peuvent provoquer des brûlures.

- Ne pas toucher des parties chaudes à mains nues.
- Prévoir une période de refroidissement avant de travailler à l'équipement.
- Ne pas toucher aux pièces chaudes, utiliser les outils recommandés et porter des gants de soudage et des vêtements épais pour éviter les brûlures.



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

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



LES FUMÉES ET LES GAZ peuvent être dangereux.

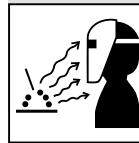
Le soudage génère des fumées et des gaz. Leur inhalation peut être dangereux pour votre santé.

- Eloigner votre tête des fumées. Ne pas respirer les fumées.
- À l'intérieur, ventiler la zone et/ou utiliser une ventilation forcée au niveau de l'arc pour l'évacuation des fumées et des gaz de soudage. Pour déterminer la bonne ventilation, il est recommandé de procéder à un prélèvement pour la composition et la quantité de fumées et de gaz auxquelles est exposé le personnel.
- Si la ventilation est médiocre, porter un respirateur anti-vapeurs approuvé.
- Lire et comprendre les fiches de données de sécurité et les instructions du fabricant concernant les adhésifs, les revêtements, les nettoyants, les consommables, les produits de refroidissement, les dégraissants, les flux et les métaux.
- Travailler dans un espace fermé seulement s'il est bien ventilé ou en portant un respirateur à alimentation d'air. Demander toujours à un surveillant dûment formé de se tenir à proximité. Des fumées et des gaz de soudage peuvent déplacer l'air et abaisser le niveau d'oxygène provoquant des blessures ou des accidents mortels. S'assurer que l'air de respiration ne présente aucun danger.
- Ne pas souder dans des endroits situés à proximité d'opérations de dégraissage, de nettoyage ou de pulvérisation. La chaleur et les rayons de l'arc peuvent réagir en présence de vapeurs et former des gaz hautement toxiques et irritants.
- Ne pas souder des métaux munis d'un revêtement, tels que l'acier galvanisé, plaqué en plomb ou au cadmium à moins que le revêtement n'ait été enlevé dans la zone de soudure, que l'endroit soit bien ventilé, et en portant un respirateur à alimentation d'air. Les revêtements et tous les métaux renfermant ces éléments peuvent dégager des fumées toxiques en cas de soudage.



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

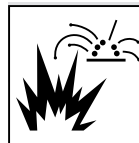
- Fermer l'alimentation du gaz comprimé en cas de non utilisation.
- Veiller toujours à bien aérer les espaces confinés ou se servir d'un respirateur d'adduction d'air homologué.



LES RAYONS DE L'ARC peuvent provoquer des brûlures dans les yeux et sur la peau.

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

- Porter un casque de soudage approuvé muni de verres filtrants approprié pour protéger visage et yeux 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 une protection corporelle en cuir ou des vêtements ignifuges (FRC). La protection du corps comporte des vêtements sans huile, comme des gants de cuir, une chemise solide, des pantalons sans revers, des chaussures hautes et une casquette.

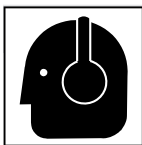


LE SOUDAGE peut provoquer un incendie ou une explosion.

Le soudage effectué sur des conteneurs fermés tels que des réservoirs, tambours ou des conduites peut provoquer leur éclatement. Des étincelles peuvent être projetées de l'arc de soudure. La projection d'étincelles, des pièces chaudes et des équipements chauds peut provoquer des incendies et des brûlures. Le contact accidentel de l'électrode avec des objets métalliques peut provoquer des étincelles, une explosion, un surchauffement ou un incendie. Avant de commencer le soudage, vérifier et s'assurer que l'endroit ne présente pas de danger.

- Déplacer toutes les substances inflammables à une distance de 10,7 m de l'arc de soudage. En cas d'impossibilité les recouvrir soigneusement avec des protections homologuées.
- Ne pas souder dans un endroit où des étincelles peuvent tomber sur des substances inflammables.
- Se protéger et d'autres personnes de la projection d'étincelles et de métal chaud.
- Des étincelles et des matériaux chauds du soudage peuvent facilement passer dans d'autres zones en traversant de petites fissures et des ouvertures.
- Surveiller tout déclenchement d'incendie et tenir un extincteur à proximité.
- Le soudage effectué sur un plafond, plancher, paroi ou séparation peut déclencher un incendie de l'autre côté.
- Ne pas couper ou souder des jantes ou des roues. Les pneus peuvent exploser s'ils sont chauffés. Les jantes et les roues réparées peuvent défailir. Voir OSHA 29 CFR 1910.177 énuméré dans les normes de sécurité.
- Ne pas effectuer le soudage sur des conteneurs fermés tels que des réservoirs, tambours, ou conduites, à moins qu'ils n'aient été préparés correctement conformément à AWS F4.1 (voir les Normes de Sécurité).
- Ne pas souder là où l'air ambiant pourrait contenir des poussières, gaz ou émanations inflammables (vapeur d'essence, par exemple).

- Brancher le câble de masse sur la pièce 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 dégelier des conduites gelées.
- En cas de non utilisation, enlever la baguette d'électrode du porte-électrode ou couper le fil à la pointe de contact.
- Porter une protection corporelle en cuir ou des vêtements ignifuges (FRC). La protection du corps comporte des vêtements sans huile, comme des gants de cuir, une chemise solide, des pantalons sans revers, des chaussures hautes et une casquette.
- Avant de souder, retirer toute substance combustible de vos poches telles qu'un allumeur au butane ou des allumettes.
- Une fois le travail achevé, assurez-vous qu'il ne reste aucune trace d'étincelles incandescentes ni de flammes.
- Utiliser exclusivement des fusibles ou coupe-circuits appropriés. Ne pas augmenter leur puissance; ne pas les ponter.
- Suivre les recommandations dans OSHA 1910.252 (a) (2) (iv) et NFPA 51B pour les travaux à chaud et avoir de la surveillance et un extincteur à proximité.
- Lire et comprendre les fiches de données de sécurité et les instructions du fabricant concernant les adhésifs, les revêtements, les nettoyeurs, les consommables, les produits de refroidissement, les dégraisseurs, les flux et les métaux.



Le BRUIT peut endommager l'ouïe.

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

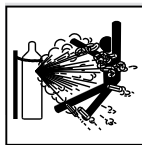
- Porter des protections approuvées pour les oreilles si le niveau sonore est trop élevé.



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

- Les porteurs de stimulateurs cardiaques et autres implants médicaux doivent rester à distance.

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



Si des BOUTEILLES sont endommagées, elles pourront exploser.

Des bouteilles de gaz comprimé 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 comprimé, régulateurs, tuyaux et raccords convenables pour cette application spécifique; les maintenir ainsi que les éléments associés en bon état.
- Tourner le dos à la sortie de vanne lors de l'ouverture de la vanne de la bouteille. Ne pas se tenir devant ou derrière le régulateur lors de l'ouverture de la vanne.
- Maintenir le chapeau de protection sur la soupape, sauf en cas d'utilisation ou de branchement de la bouteille.
- Utilisez les équipements corrects, les bonnes procédures et suffisamment de personnes pour soulever, déplacer et transporter les bouteilles.
- Lire et suivre les instructions sur les bouteilles de gaz comprimé, l'équipement connexe et le dépliant P-1 de la CGA (Compressed Gas Association) mentionné dans les principales normes de sécurité.

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



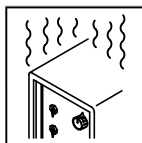
Risque D'INCENDIE OU D'EXPLOSION.

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



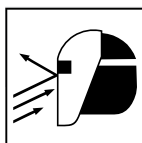
LA CHUTE DE L'ÉQUIPEMENT peut provoquer des blessures.

- Utiliser l'anneau de levage uniquement pour soulever l'appareil, NON PAS les organes de roulement, les bouteilles de gaz ou tout autre accessoire.
- Utilisez les procédures correctes et des équipements d'une capacité appropriée pour soulever et supporter l'appareil.
- En utilisant des fourches de levage pour déplacer l'unité, s'assurer que les fourches sont suffisamment longues pour dépasser du côté opposé de l'appareil.



L'EMPLOI EXCESSIF peut SURCHAUFFER L'ÉQUIPEMENT.

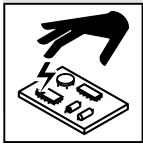
- Laisser l'équipement refroidir ; respecter le facteur de marche nominal.
- Réduire le courant ou le cycle opératoire avant de recommencer le soudage.
- Ne pas obstruer les passages d'air du poste.



LES ÉTINCELLES PROJÉTÉES peuvent provoquer des blessures.

- Porter un écran facial pour protéger le visage et les yeux.

- Affûter l'électrode au tungstène uniquement à la meuleuse dotée de protecteurs. Cette manœuvre est à exécuter dans un endroit sûr lorsque l'on porte l'équipement homologué de protection du visage, des mains et du corps.
- Les étincelles risquent de causer un incendie - éloigner toute substance inflammable.



LES CHARGES ÉLECTROSTATIQUES peuvent endommager les circuits imprimés.

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



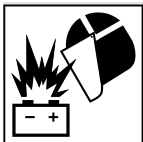
Les PIÈCES MOBILES peuvent causer des blessures.

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



LES FILS DE SOUDAGE peuvent provoquer des blessures.

- Ne pas appuyer sur la gachette avant d'en avoir reçu l'instruction.
- Ne pas diriger le pistolet vers soi, d'autres personnes ou toute pièce mécanique en engageant le fil de soudage.



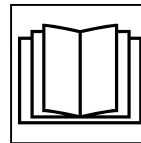
L'EXPLOSION DE LA BATTERIE peut provoquer des blessures.

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



Les PIÈCES MOBILES peuvent causer des blessures.

- S'abstenir de toucher des organes mobiles tels que des ventilateurs.
- Maintenir fermés et verrouillés les portes, panneaux, recouvrements et dispositifs de protection.
- Lorsque cela est nécessaire pour des travaux d'entretien et de dépannage, faire retirer les portes, panneaux, recouvrements ou dispositifs de protection uniquement par du personnel qualifié.
- Remettre les portes, panneaux, recouvrements ou dispositifs de protection quand l'entretien est terminé et avant de rebrancher l'alimentation électrique.

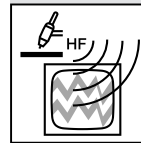


LIRE LES INSTRUCTIONS.

- Lire et appliquer les instructions sur les étiquettes et le Mode d'emploi avant l'installation, l'utilisation ou l'entretien de l'appareil. Lire les informations de sécurité au début du manuel et dans chaque

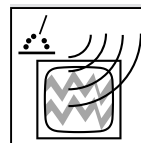
section.

- N'utiliser que des pièces de remplacement provenant du fabricant.
- Effectuer l'installation, l'entretien et toute intervention selon les manuels d'utilisateurs, les normes nationales, provinciales et de l'industrie, ainsi que les codes municipaux.



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

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



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

- L'énergie électromagnétique risque de provoquer des interférences pour l'équipement électronique sensible tel que les ordinateurs et l'équipement commandé par ordinateur tel que les robots.
- Veiller à ce que tout l'équipement de la zone de soudage soit compatible électromagnétiquement.
- Pour réduire la possibilité d'interférence, maintenir les câbles de soudage aussi courts que possible, les grouper, et les poser aussi bas que possible (ex. par terre).
- Veiller à souder à une distance de 100 mètres de tout équipement électronique sensible.
- Veiller à ce que ce poste de soudage soit posé et mis à la terre conformément à ce mode d'emploi.
- En cas d'interférences après avoir pris les mesures précédentes, il incombe à l'utilisateur de prendre des mesures supplémentaires telles que le déplacement du poste, l'utilisation de câbles blindés, l'utilisation de filtres de ligne ou la pose de protecteurs dans la zone de travail.

2-4. Proposition californienne 65 Avertissements

⚠ AVERTISSEMENT – Ce produit peut vous exposer à des produits chimiques tels que le plomb, reconnus par l'État de Californie comme cancérigènes et sources de malformations ou d'autres troubles de la reproduction.

Pour plus d'informations, consulter www.P65Warnings.ca.gov.

2-5. Principales normes de sécurité

Safety in Welding, Cutting, and Allied Processes, American Welding Society standard ANSI Standard Z49.1. Website: <http://www.aws.org>.

Safe Practice For Occupational And Educational Eye And Face Protection, ANSI Standard Z87.1, from American National Standards Institute. Website: www.ansi.org.

Safe Practices for the Preparation of Containers and Piping for Welding and Cutting, American Welding Society Standard AWS F4.1. Website: <http://www.aws.org>.

National Electrical Code, NFPA Standard 70 from National Fire Protection Association. Website: www.nfpa.org.

Safe Handling of Compressed Gases in Cylinders, CGA Pamphlet P-1 from Compressed Gas Association. Website: www.cganet.com.

Safety in Welding, Cutting, and Allied Processes, CSA Standard W117.2 from Canadian Standards Association. Website: www.csa-group.org.

Standard for Fire Prevention During Welding, Cutting, and Other Hot Work, NFPA Standard 51B from National Fire Protection Association. Website: www.nfpa.org.

OSHA, Occupational Safety and Health Standards for General Industry, Title 29, Code of Federal Regulations (CFR), Part 1910.177

Subpart N, Part 1910 Subpart Q, and Part 1926, Subpart J. Website: www.osha.gov.

OSHA Important Note Regarding the ACGIH TLV, Policy Statement on the Uses of TLVs and BEIs. Website: www.osha.gov.

Applications Manual for the Revised NIOSH Lifting Equation from the National Institute for Occupational Safety and Health (NIOSH). Website: www.cdc.gov/NIOSH.

SOM_fre 2022-01

2-6. Informations relatives aux CEM

Le courant électrique qui traverse tout conducteur génère des champs électromagnétiques (CEM) à certains endroits. Le courant issu d'un soudage à l'arc (et de procédés connexes, y compris le soudage par points, le gougeage, le découpage plasma et les opérations de chauffage par induction) crée un champ électromagnétique (CEM) autour du circuit de soudage. Les champs électromagnétiques produits peuvent causer interférence à certains implants médicaux, p. ex. les stimulateurs cardiaques. Des mesures de protection pour les porteurs d'implants médicaux doivent être prises: par exemple, des restrictions d'accès pour les passants ou une évaluation individuelle des risques pour les soudeurs. Tous les soudeurs doivent appliquer les procédures suivantes pour minimiser l'exposition aux CEM provenant du circuit de soudage:

1. Rassembler les câbles en les torsadant ou en les attachant avec du ruban adhésif ou avec une housse.
2. Ne pas se tenir au milieu des câbles de soudage. Disposer les câbles d'un côté et à distance de l'opérateur.

3. Ne pas courber et ne pas entourer les câbles autour de votre corps.
4. Maintenir la tête et le torse aussi loin que possible du matériel du circuit de soudage.
5. Connecter la pince sur la pièce aussi près que possible de la soudure.
6. Ne pas travailler à proximité d'une source de soudage, ni s'asseoir ou se pencher dessus.
7. Ne pas souder tout en portant la source de soudage ou le dévidoir.

En ce qui concerne les implants médicaux :

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

SECTION 3 – SPECIFICATIONS

3-1. Specifications

Wire Diameter Range	Approximate Wire Feed Range	Cooling Method	Maximum Spool Size	Weld Circuit Rating	Overall Dimensions	Weight
.030 Thru .035 in. (0.8 Thru 0.9 mm) 4043 Series Aluminum .023 Thru .035 in. (0.6 Thru 0.9 mm) Steel and Stainless Steel	5 - 625 ipm (1.7 - 15.9 mpm) Dependent on power source used	Air Cooled	4 in. (102 mm) Diameter	22.5 Volts, 135 Amperes, 30% Duty Cycle Using Argon Shielding Gas	Length: 13 in. (330 mm) Width: 3.0 in. (76 mm) Height: 11.5 in. (291 mm)	6.0 lb (2.70 kg) Gun With Cable 9.0 lb (4.1kg) with case

3-2. Software Licensing Agreement

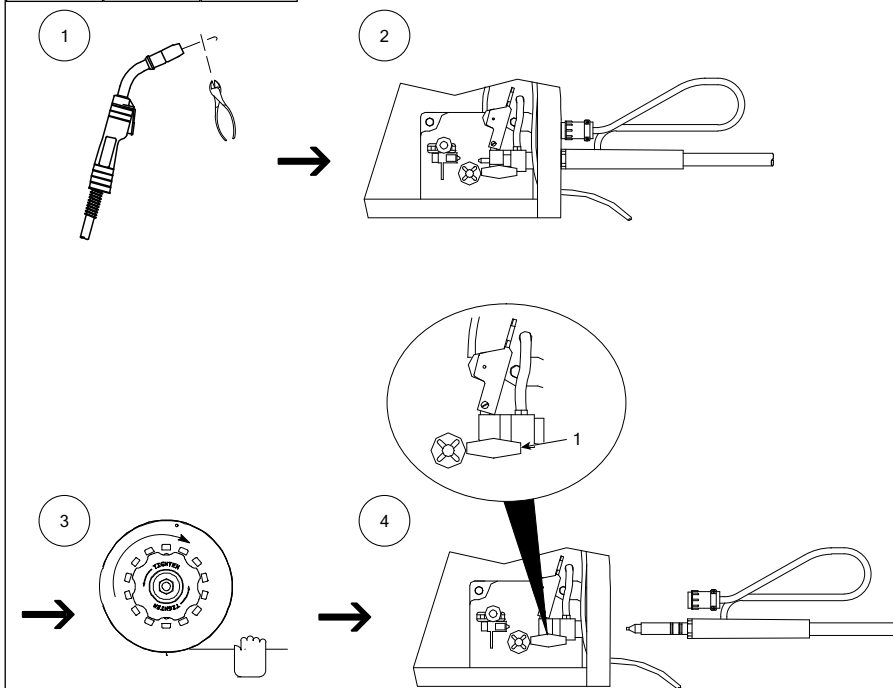
The End User License Agreement and any third-party notices and terms and conditions pertaining to third-party software can be found at <https://www.millerwelds.com/eula> and are incorporated by reference herein.

3-3. Information About Default Weld Parameters And Settings

NOTICE – Each welding application is unique. Although certain Miller Electric products are designed to determine and default to certain typical welding parameters and settings based upon specific and relatively limited application variables input by the end user, such default settings are for reference purposes only; and final weld results can be affected by other variables and application-specific circumstances. The appropriateness of all parameters and settings should be evaluated and modified by the end user as necessary based upon application-specific requirements. The end user is solely responsible for selection and coordination of appropriate equipment, adoption or adjustment of default weld parameters and settings, and ultimate quality and durability of all resultant welds. Miller Electric expressly disclaims any and all implied warranties including any implied warranty of fitness for a particular purpose.

SECTION 4 – INSTALLATION

4-1. Removing MIG Gun From Welding Power Source



Step 1. Cut off end of wire.

Step 2. Open pressure assembly.

Step 3. Rewind wire onto spool. Fasten end of wire to spool.

Hold wire tightly to keep it from unraveling.

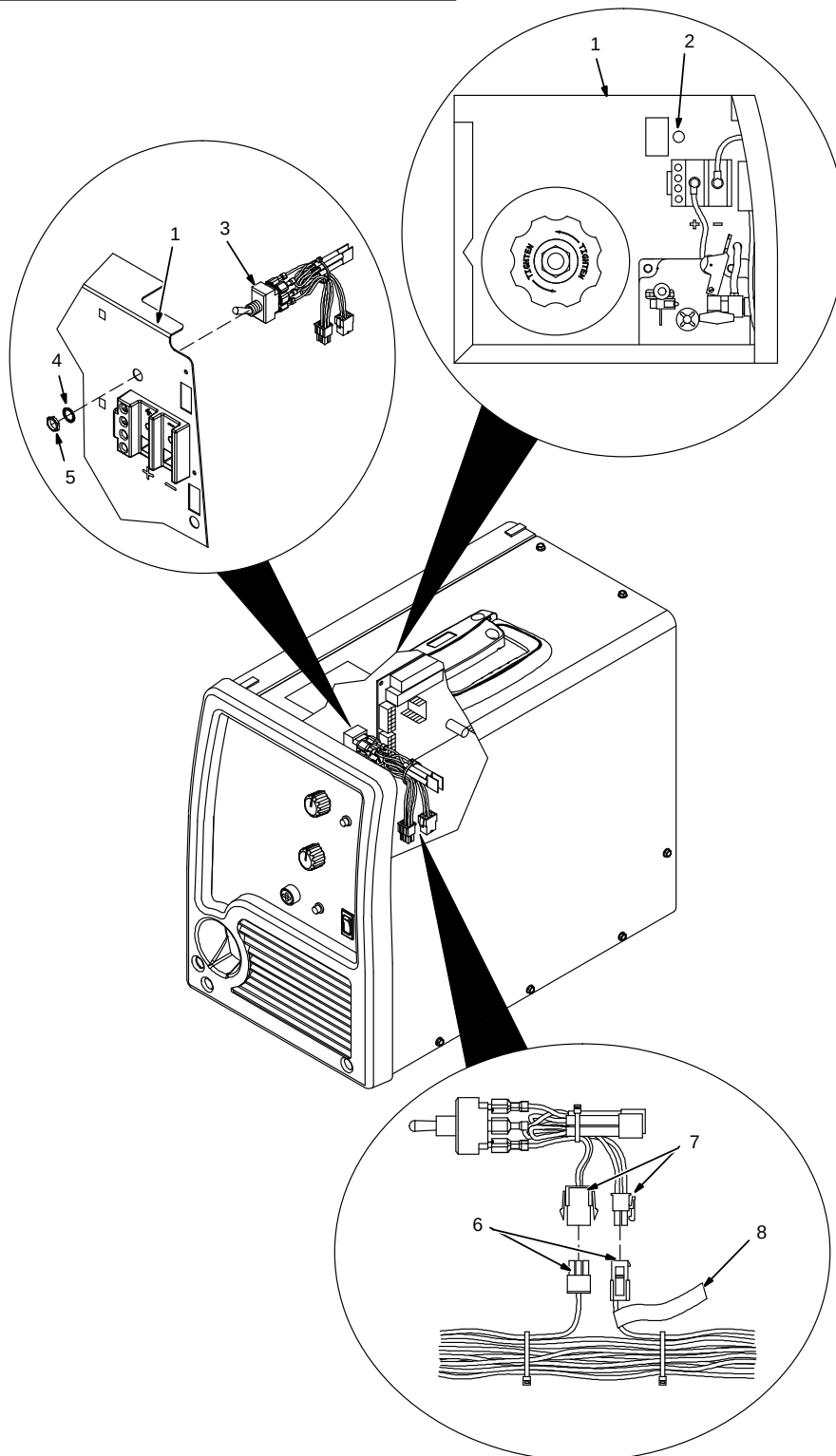
1 Knob

Step 4. Loosen knob, disconnect gun trigger plug, and pull gun from unit.

Ref. 802 982-A

4-2. Connecting Spool Gun To Millermatic 140/180 Models

A. Installing Optional Spool Gun Switch In Millermatic 140/180 Models



For Renegade 180 And Passport Plus Models: Discard switch assembly; unit is pre-wired for spool gun option. Go to Section 4-5 or 4-4.

Turn Off unit, and disconnect input power.

For units effective with Serial No. LH210051N, use retrofit part no. 300409 for installing spool gun switch.

Remove wrapper from welding power source.

1 Welding Power Source Center Baffle

2 Snap-in Blank

Remove and discard snap-in blank from hole in center baffle.

3 Switch Assembly

4 Star Washer

5 Jam Nut

Remove top jam nut and star washer from switch (switch is equipped with two nuts, a jam nut and a backing nut).

Insert switch assembly into center baffle so that keyway in switch shaft is facing up.

Secure switch to center baffle with star washer and jam nut. Tighten jam nut enough to keep switch from rotating.

6 Wiring Harness Connectors

7 Switch Connectors

8 Label

Locate and separate connectors in wiring harness near label.

Connect switch connectors to matching connectors in wiring harness.

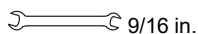
Install wrapper on unit.

Operation:

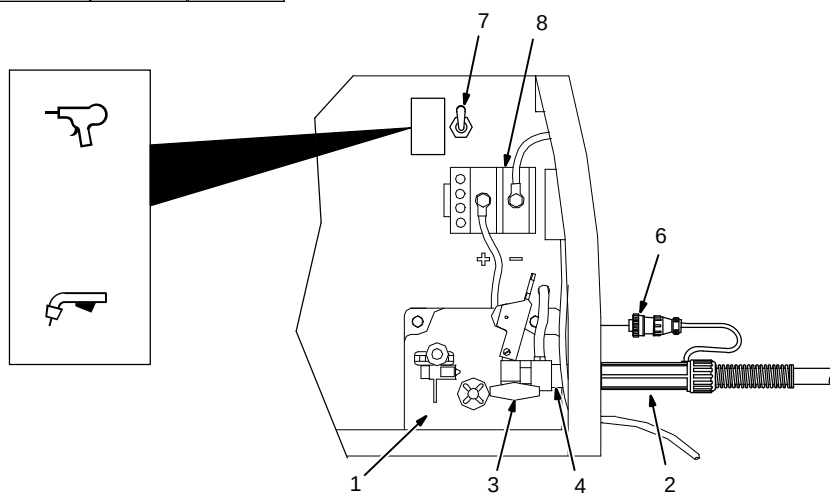
Place switch in the position with the spool gun symbol on the label for spool gun operation. Place switch in the position with the MIG gun symbol on the label for wire feeder/MIG (GMAW) gun operation.

When the switch is in the spool gun position, spool gun wire feed speed and voltage are controlled by welding power source controls.

Ref. 804 984-A / 804 982-A

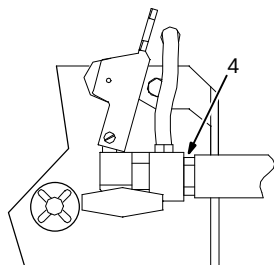


B. Connecting Spool Gun To Millermatic 140/180

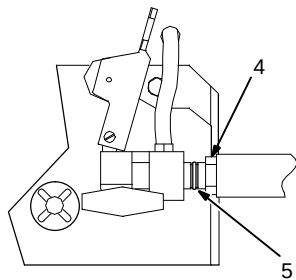


804 984-A / Ref. 801 987

Correct: Gun Fully Seated



Incorrect: Gun Not Seated



- 1 Drive Assembly
- 2 Spool Gun
- 3 Gun Securing Knob
- 4 Gun End
- 5 Exposed O-rings

Loosen thumbscrew. Insert end through opening until it bottoms against drive assembly. Tighten gun securing knob.

Spool gun must be inserted completely to prevent leakage of shielding gas.

Exposed O-rings will cause shielding gas leakage.

Be sure that the gun end is tight against drive assembly.

- 6 Gun Trigger Plug

Insert plug into receptacle, and tighten threaded collar.

- 7 Spool Gun/MIG Gun Switch

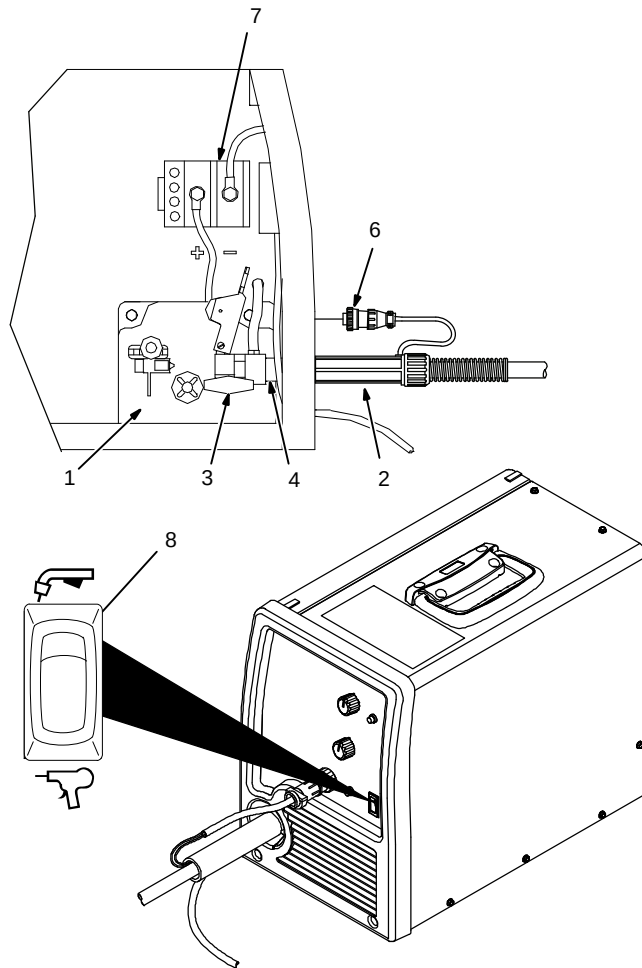
Place switch in Spool Gun position.

- 8 Polarity Changeover Terminal Block

To make proper polarity connection, see welding power source Owner's Manual.

Close door.

4-3. Connecting Spool Gun To Millermatic 211 Auto-Set (907422, 907422001, 907422011)



Ref. 804 984-A / Ref. 805 390-A / Ref. 801 987

- 1 Drive Assembly
- 2 Spool Gun
- 3 Gun Securing Knob
- 4 Gun End
- 5 Exposed O-Rings

Loosen thumbscrew. Insert end through opening until it bottoms against drive assembly. Tighten gun securing knob.

Spool gun must be inserted completely to prevent leakage of shielding gas.

 Exposed O-rings will cause shielding gas leakage.

 Be sure that the gun end is tight against drive assembly.

- 6 Gun Trigger Plug

Insert plug into receptacle, and tighten threaded collar.

- 7 Polarity Changeover Terminal Block

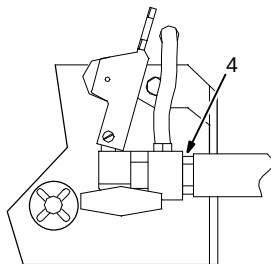
To make proper polarity connection, see welding power source Owner's Manual.

- 8 MIG Gun/Spool Gun Switch

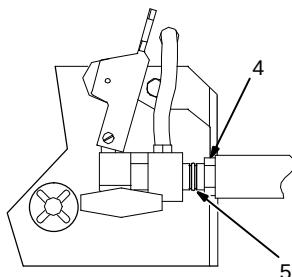
Place switch in Spool Gun position.

Close door.

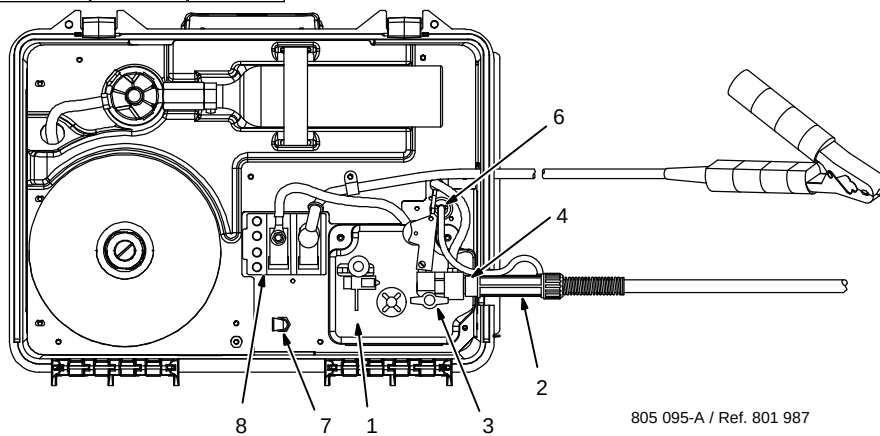
Correct: Gun Fully Seated



Incorrect: Gun Not Seated



4-4. Connecting Spool Gun To Millermatic Passport Plus (907401)



805 095-A / Ref. 801 987

- 1 Drive Assembly
- 2 Spool Gun
- 3 Gun Securing Knob
- 4 Gun End
- 5 Exposed O-rings

Loosen thumbscrew. Insert end through opening until it bottoms against drive assembly. Tighten gun securing knob.

Spool gun must be inserted completely to prevent leakage of shielding gas.

Be sure that gun end is tight against drive assembly.

Exposed O-rings will cause shielding gas leakage.

- 6 Gun Trigger Plug

Insert plug into receptacle, and tighten threaded collar.

- 7 Internal/External Transfer Switch

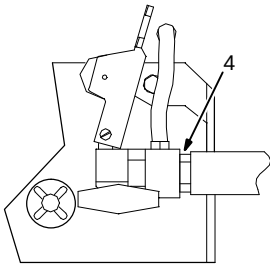
Place switch in the External Gas Supply position.

- 8 Polarity Changeover Terminal Block

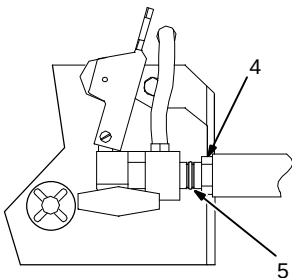
To make proper polarity connection, see welding power source Owner's Manual.

Close door.

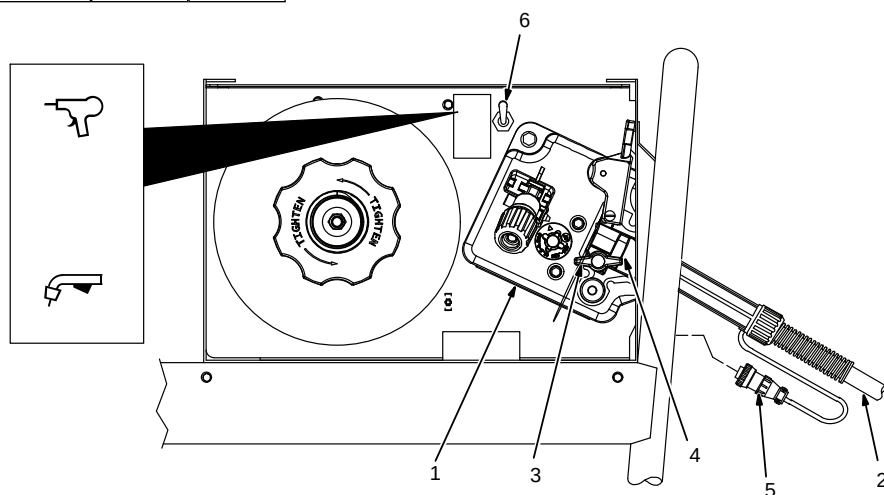
Correct: Gun Fully Seated



Incorrect: Gun Not Seated



4-5. Connecting Spool Gun To Renegade 180



- 1 Drive Assembly
- 2 Spool Gun
- 3 Gun Securing Knob
- 4 Gun End

Loosen gun securing knob. Insert end through opening until it bottoms against drive assembly. Tighten gun securing knob.

Be sure that gun end is tight against drive assembly. Exposed O-rings will cause shielding gas leakage.

Spool gun must be inserted completely to prevent leakage of shielding gas.

- 5 Gun Trigger Plug
- 2 Insert plug into receptacle, and tighten threaded collar.

- 6 Spool Gun/MIG Gun Switch
- Place switch in Spool Gun position.

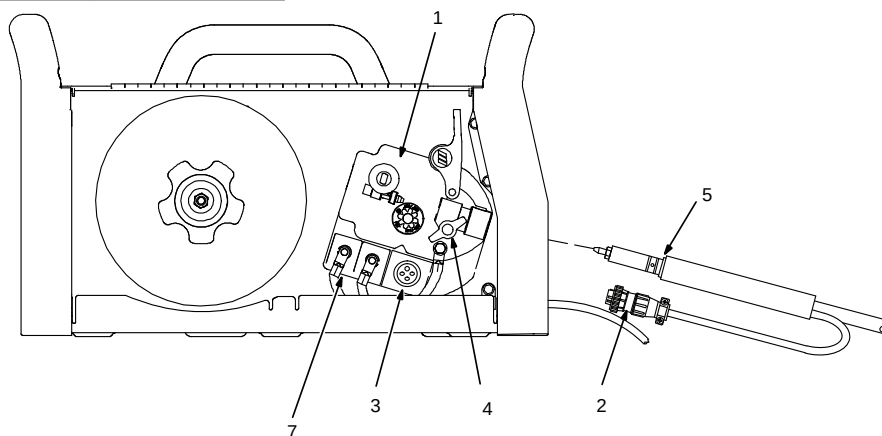
- 7 Polarity Changeover Terminal Block

To make proper polarity connection, see welding power source Owner's Manual. Typically, DCEP is used for solid and aluminum wire.

Close door.

804 755-B

4-6. Connecting Spool Gun To Millermatic 141/ Millermatic 190



Ref. 267 805-A / 267 807-A

- 1 Drive Assembly
- 2 Gun Trigger Plug
- 3 Gun Trigger Receptacle

Route gun trigger plug through front panel.

Insert plug into receptacle, and tighten threaded collar.

☞ *Be sure that gun end is tight against drive assembly. Incorrect installation will have adverse effects on gas flow.*

☞ *Exposed O-rings will cause shielding gas leakage.*

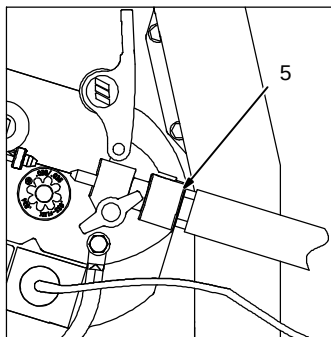
- 4 Gun Securing Knob
- 5 Gun End
- 6 Exposed O-rings
- 7 Polarity Changeover Terminal Block

To make proper polarity connection, see welding power source Owner's Manual.

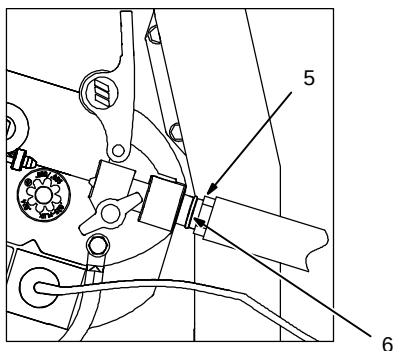
Loosen knob. Insert end of gun through opening in front panel until it bottoms against drive assembly. Tighten knob.

Close door.

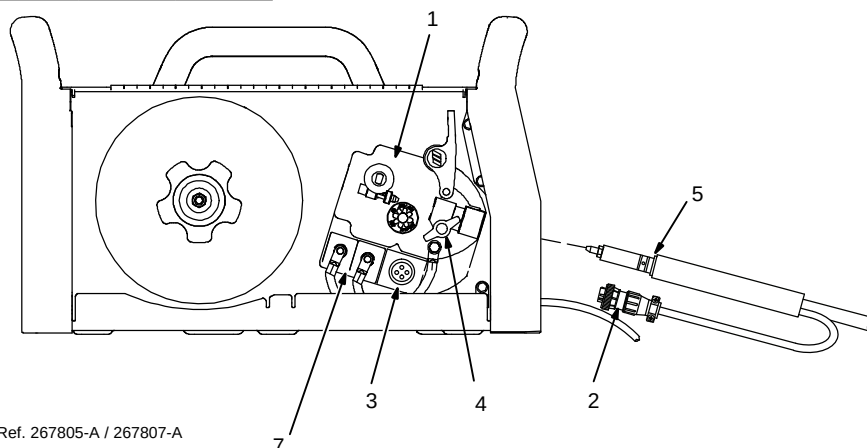
Correct: Gun Fully Seated



Incorrect: Gun Not Seated

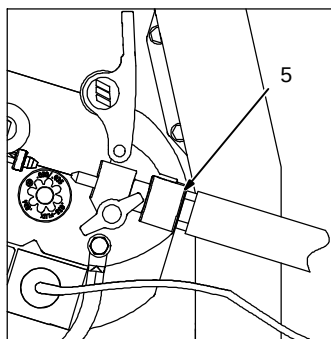


4-7. Connecting Spool Gun To Millermatic 211 (907614)

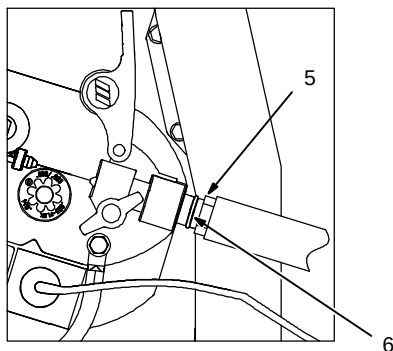


Ref. 267805-A / 267807-A

Correct: Gun Fully Seated



Incorrect: Gun Not Seated



- 1 Drive Assembly
- 2 Gun Trigger Plug
- 3 Gun Trigger Receptacle

Route gun trigger plug through front panel.

Insert plug into receptacle, and tighten threaded collar.

☞ *Be sure that gun end is tight against drive assembly. Incorrect installation will have adverse effects on gas flow.*

☞ *Exposed O-rings will cause shielding gas leakage.*

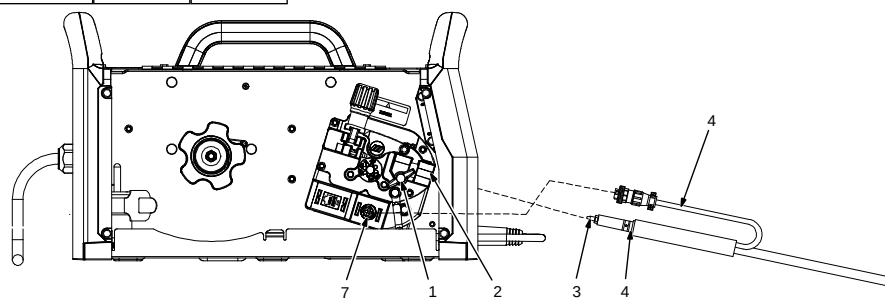
- 4 Gun Securing Knob
- 5 Gun End
- 6 Exposed O-rings
- 7 Polarity Changeover Terminal Block

To make proper polarity connection, see welding power source Owner's Manual.

Loosen knob. **Insert end of gun through opening in front panel until it bottoms against drive assembly.** Tighten knob.

Close door.

4-8. Connecting Spool Gun To Multimatic 215

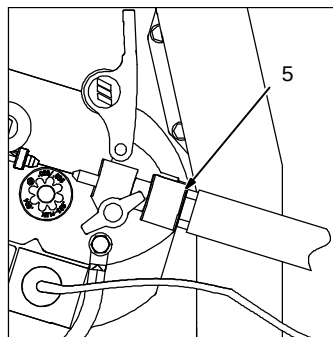


Ref. 267807A / 275167A

- 1 Gun Securing Knob
- 2 Gun Block
- 3 Gun Outlet Wire Guide
- 4 Trigger Control Cable
- 5 Gun End
- 6 Exposed O-rings

Loosen knob. Insert end of gun through opening in front panel until gun end bottoms against gun block. Tighten knob.

Correct: Gun Fully Seated



Be sure that gun end is tight against drive assembly.

Exposed O-rings will cause shielding gas leakage.

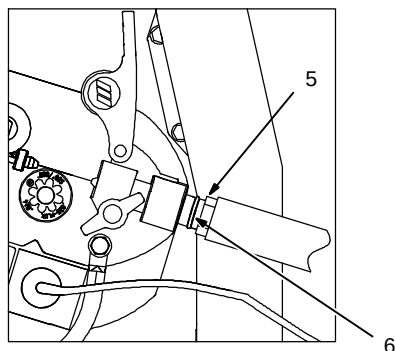
- 7 Four Pin Trigger Control Cable Receptacle

Route trigger control cable through MIG gun hole.

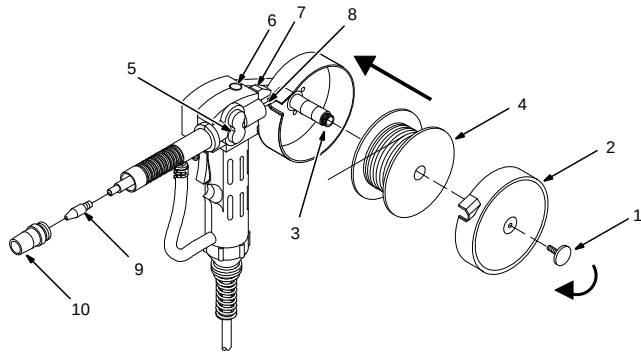
Connect plug on end of cable to four pin receptacle inside unit.

To make proper polarity connection, see welding power source Owner's Manual.

Incorrect: Gun Not Seated



4-9. Installing Wire Spool And Threading Welding Wire



1 Thumb Screw

2 Spool Cover

Remove thumb screw and spool cover.

3 Hub Tension Nut

4 Wire Spool

Install spool so wire feeds from top. Turn hub tension nut just so a slight drag is felt on the wire spool.

5 Push Roll/Lower Drive Roll

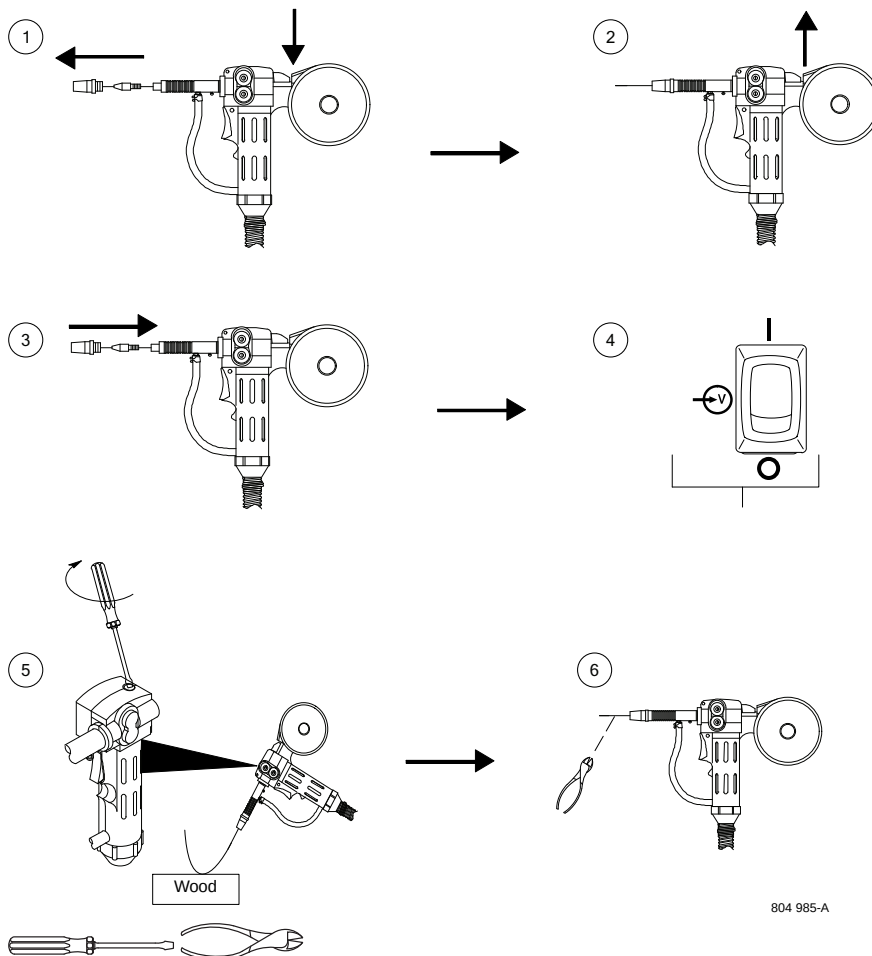
6 Drive Roll Pressure Adjustment Opening

7 Drive Roll Release Lever (Red)

8 Wire Inlet Guide

9 Contact Tip

10 Nozzle



Step 1. Remove nozzle and contact tip. Push and hold red lever. Thread wire through inlet guide, past push roll/drive roll, and out end of gun 2 inches (50 mm).

Step 2. Release red lever.

Step 3. Install contact tip and nozzle. Reinstall spool cover and thumb screw.

Step 4. Turn On welding power source power.

Step 5. Press gun trigger to feed wire to check drive roll pressure. Turn screw enough to prevent slipping.

Drive roll pressure is preset for .030/.035 aluminum wire. Rotating screw clockwise decreases drive roll pressure and counterclockwise increases pressure.

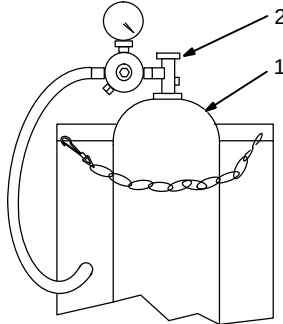
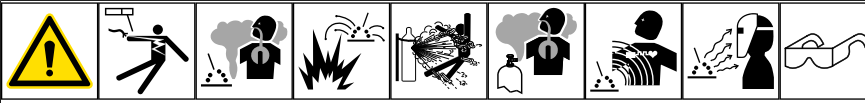
Step 6. Cut off wire.

804 985-A

SECTION 5 – OPERATION

5-1. Controls For Millermatic 140/180 Models

A. Spool Gun Operation On Millermatic 140/180 Models



☞ *Spool Gun/MIG Gun switch on Millermatic 140/180 must be in Spool Gun position for spool gun to operate.*

1 Shielding Gas Cylinder

For shielding gas connections, see welding power source Owner's Manual.

2 Valve

Open valve on cylinder just before welding.

Close valve on cylinder when finished welding.

3 Spool Gun/MIG Gun Switch

Switch must be set in Spool Gun position for spool gun to operate.

4 Trigger

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

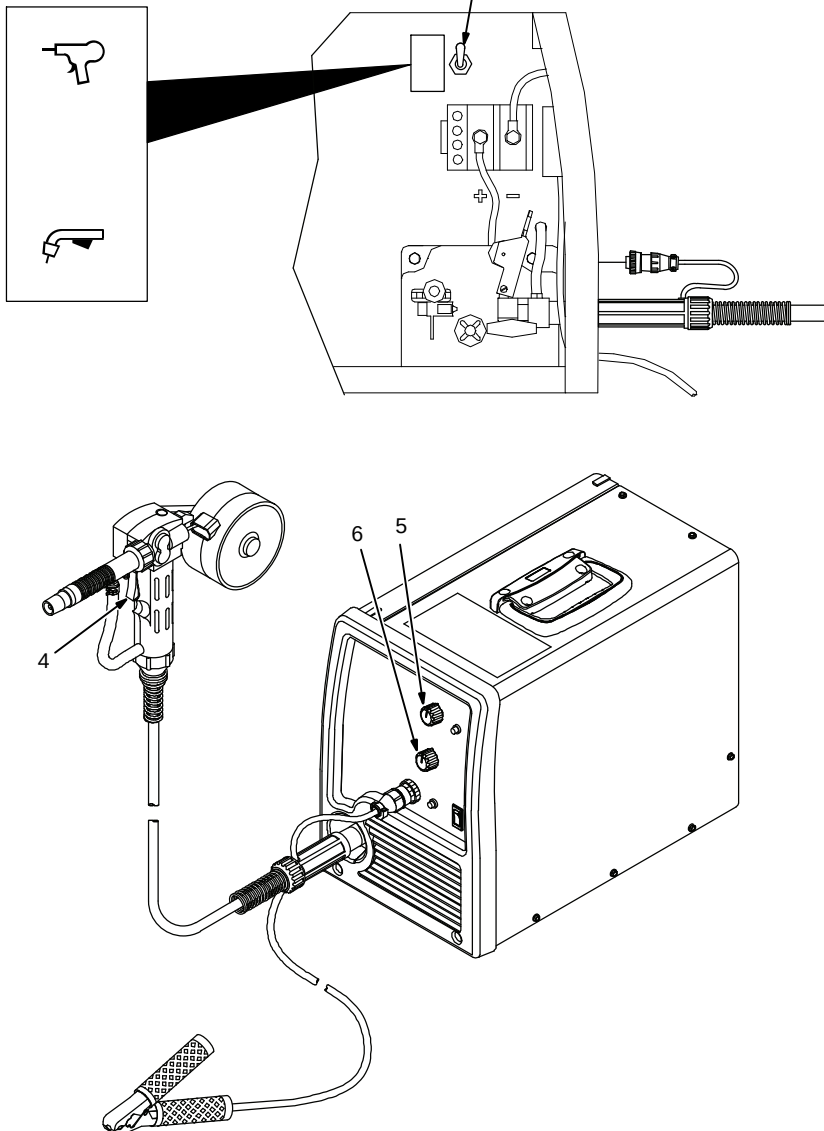
5 Wire Feed Speed Control

Wire feed speed is controlled by welding power source Wire Speed control (see welding power source Owner's Manual or door chart for appropriate setting).

6 Voltage Control

Arc voltage is controlled by welding power source Voltage control (see welding power source Owner's Manual or door chart for appropriate setting).

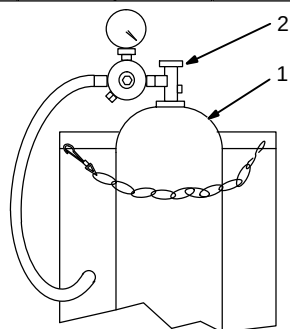
☞ *To purge shielding gas line, set gun selection switch (item 3) to the MIG Gun position. Press spool gun trigger to energize gas valve. Shielding gas will flow, but spool gun will not feed wire. Hold trigger in for several seconds to purge gas line. Return gun selection switch to the Spool Gun position before welding.*



Ref. 802 982-A / 804 986-A

5-2. Controls For Millermatic 211 Auto-Set™ Models (907422, 907422001, 907422011)

A. Spool Gun Operation On Millermatic 211 Auto-Set Models (Only Manual Setup can be used on this model)



☞ *Spool Gun/MIG Gun switch on Miller-matic 211 Auto-Set must be in Spool Gun position for spool gun to operate.*

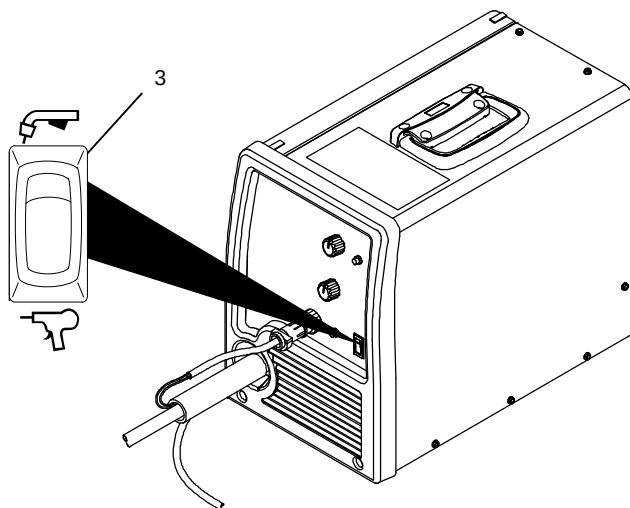
1 Shielding Gas Cylinder

For shielding gas connections, see welding power source Owner's Manual.

2 Valve

Open valve on cylinder just before welding.

Close valve on cylinder when finished welding.



3 Spool Gun/MIG Gun Switch

Switch must be set in Spool Gun position for spool gun to operate.

4 Trigger

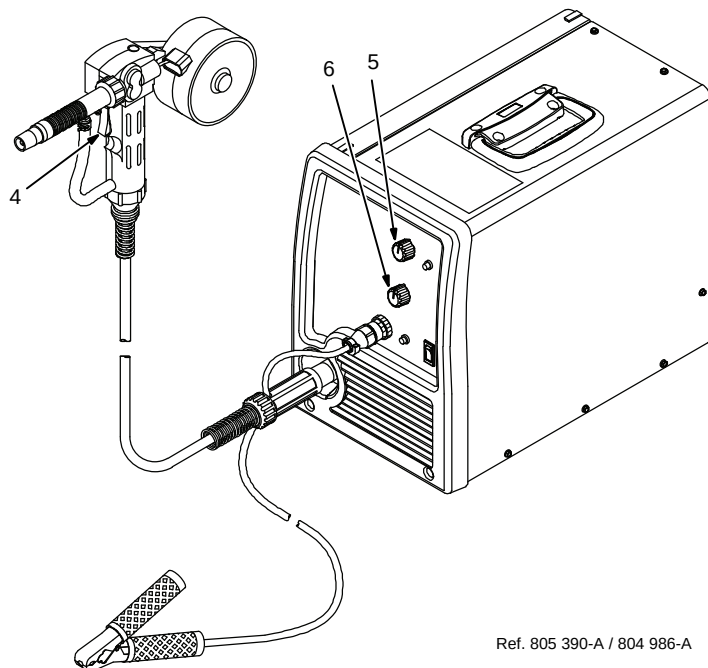
Press trigger to energize welding power source contactor, start shielding gas flow, and begin wire feed.

5 Wire Feed Speed Control

Wire feed speed is controlled by welding power source Wire Speed control (see welding power source Owner's Manual or door chart for appropriate setting).

6 Voltage Control

Arc voltage is controlled by welding power source Voltage control (see welding power source Owner's Manual or door chart for appropriate setting).

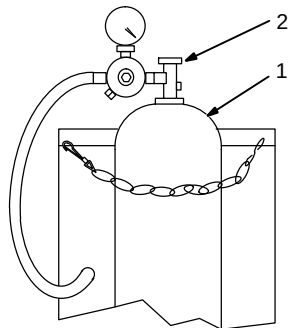
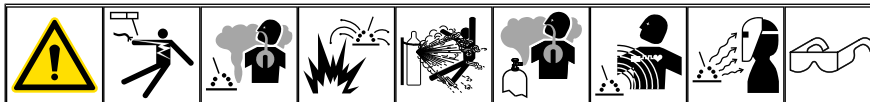


☞ *To purge shielding gas line, set gun selection switch (item 3) to the MIG Gun position. Press spool gun trigger to energize gas valve. Shielding gas will flow, but spool gun will not feed wire. Hold trigger in for several seconds to purge gas line. Return gun selection switch to the Spool Gun position before welding.*

Ref. 805 390-A / 804 986-A

5-3. Controls For Millermatic Passport Plus Model

A. Spool Gun Operation On Millermatic Passport Plus Model



1 Shielding Gas Cylinder

For shielding gas connections, see welding power source Owner's Manual.

2 Valve

Open valve on cylinder just before welding.

Close valve on cylinder when finished welding.

3 Process Switch

4 Aluminum (Spool Gun) Indicator Light

Press process switch until Aluminum (Spool Gun) indicator light turns on.

5 Trigger

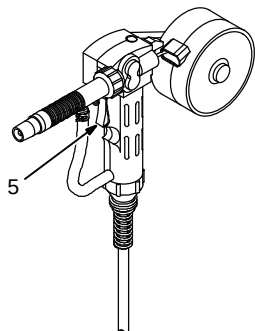
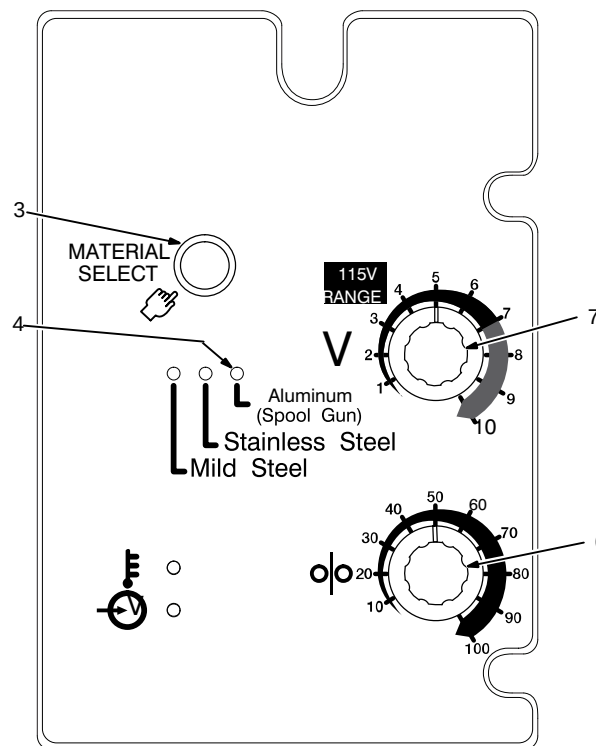
Press trigger to energize welding power source contactor, start shielding gas flow, and begin wire feed.

6 Wire Feed Speed Control

Wire feed speed is controlled by welding power source Wire Speed control (see welding power source Owner's Manual or door chart for appropriate setting).

7 Voltage Control

Arc voltage is controlled by welding power source Voltage control (see welding power source Owner's Manual or door chart for appropriate setting).

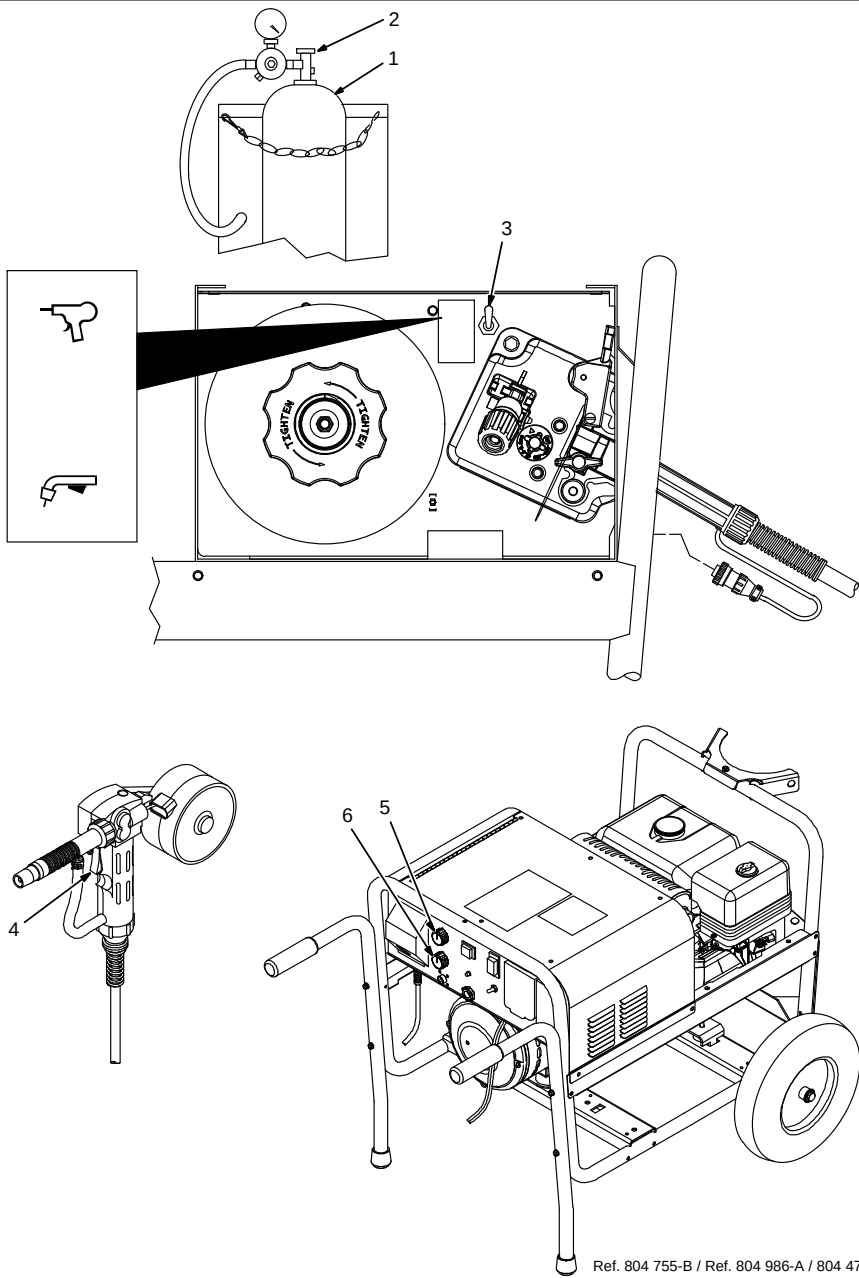


Ref. 235 125-B / Ref. 804 986-A

5-4. Controls For Renegade 180 Model

A. Spool Gun Operation On Renegade 180 Model





 *Spool Gun/MIG Gun switch on Renegade 180 must be in Spool Gun position for spool gun to operate.*

1 Shielding Gas Cylinder

For shielding gas connections, see welding power source Owner's Manual.

2 Valve

Open valve on cylinder just before welding.

Close valve on cylinder when finished welding.

3 Spool Gun/MIG Gun Switch

Place switch in Spool Gun position.

4 Trigger

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

5 Wire Feed Speed Control

Wire feed speed is controlled by welding power source Wire Speed control (see welding power source Owner's Manual for appropriate setting).

6 Voltage Control

Arc voltage is controlled by welding power source Voltage control (see welding power source Owner's Manual for appropriate setting).

 *To purge shielding gas line, set gun selection switch (item 3) to the MIG Gun position. Press spool gun trigger to energize gas valve. Shielding gas will flow, but spool gun will not feed wire. Hold trigger in for several seconds to purge gas line. Return gun selection switch to the Spool Gun position before welding.*

Ref. 804 755-B / Ref. 804 986-A / 804 476-C

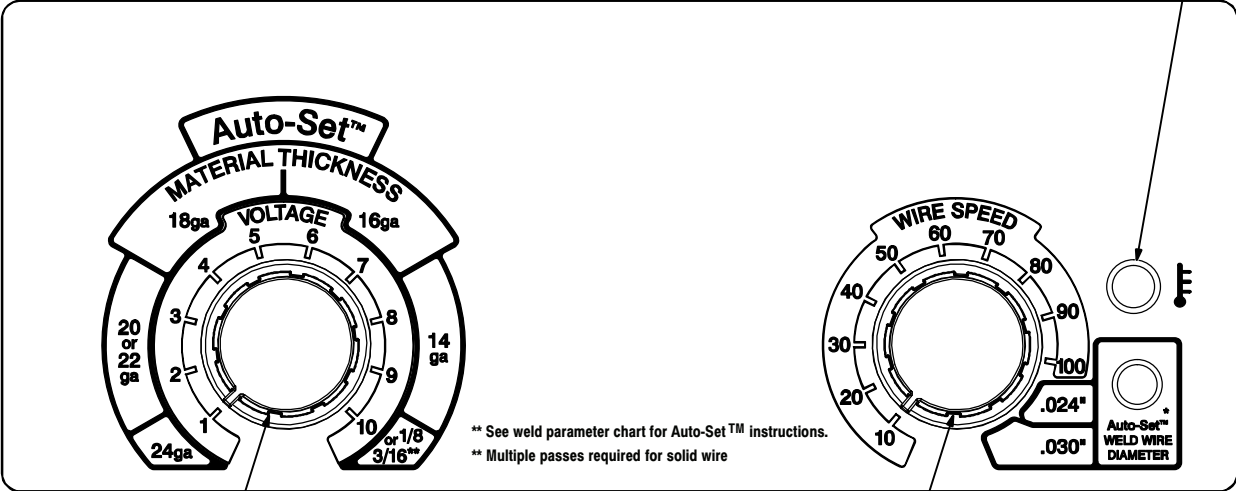
B. Weld Parameters For Renegade 180 Model

Select Wire Type, Polarity, and Shielding Gas	Wire Size	Material Thickness							
		20 ga	18 ga	16 ga	14 ga	1/8 in.	3/16 in.	1/4 in.	5/16 in.
Aluminum 4043 (DCEP) 100% Argon Shielding Gas	Shop Settings (Wall or Premise Power, 230V 1 Phase)								
	0.030		2.0/70	2.0/70	4.0/70	5.0/70	8.0/95	10/100	
	0.035			2.5/65	4.0/60	5.0/65	8.0/90	10/90	
	Field Setting (Generator Power)								
	0.030		4.0/70	4.0/70	6.0/70	10/75			
	0.035			4.5/60	6.0/60	10/65			

5-5. Controls For Millermatic 141 Model (907612)

A. Spool Gun Operation On Millermatic 141 Model (Only Manual Setup can be used on this model)





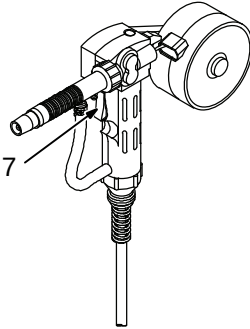
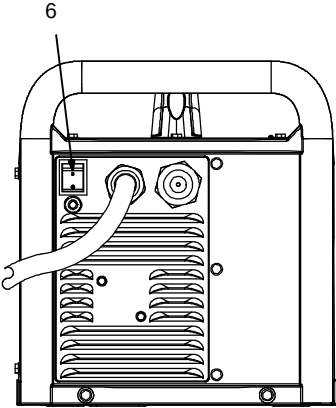
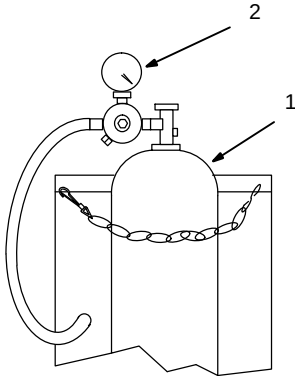
Auto-Set™ MATERIAL THICKNESS

VOLTAGE

WIRE SPEED

Auto-Set™ WELD WIRE DIAMETER

See weld parameter chart for Auto-Set™ instructions.
** Multiple passes required for solid wire



1 Shielding Gas Cylinder

For shielding gas connections, see welding power source Owner's Manual.

2 Valve

Open valve on cylinder just before welding.

Close valve on cylinder when finished welding.

3 Voltage/Material Thickness Control

Turn control clockwise inside white scale (1-10) to increase voltage (see weld parameter

chart in welding power source or Section NO TAG).

4 Wire Speed/Wire Diameter Control

Turn control clockwise inside white scale (10-100) to increase wire feed speed. (see weld parameter chart in welding power source or Section NO TAG).

5 Over Temperature Light

If unit overheats, light turns on and output stops. Allow unit to cool before resuming operation. This light will also communicate

additional unit errors (see Power Source Owner's Manual).

6 Power Switch

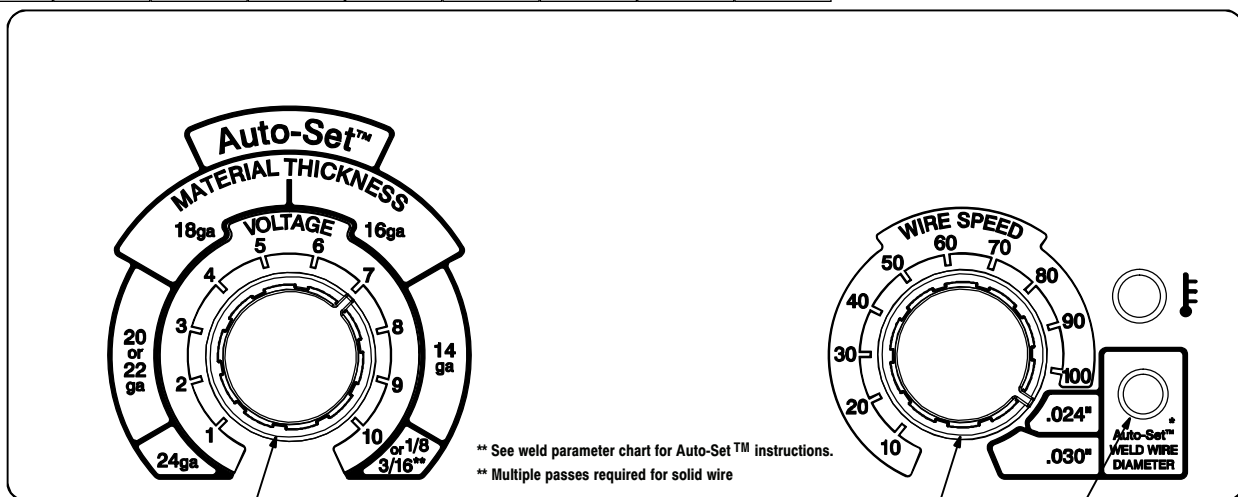
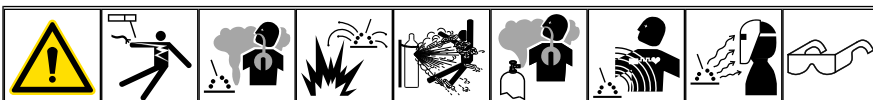
Use switch to turn unit On or Off.

7 Trigger

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

274600-A / 267833-A

B. Millermatic 141 Auto-Set Feature



3

The Auto-Set feature is not intended to be used with the Spoolmate 100 on this model.

1 Wire Speed/Wire Diameter Control

To turn Auto-Set on, turn the Wire Speed/Wire Diameter control knob to the desired wire diameter setting.

2 Auto-Set Light

The Auto-Set light illuminates indicating Auto-Set is on.

3 Voltage/Material Thickness Control

1

2

274600-A

Adjust the Voltage/Material Thickness control knob to the desired steel material thickness to weld.

There is no adjustment within the material thickness band.

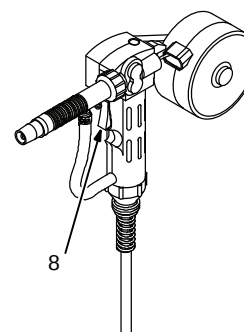
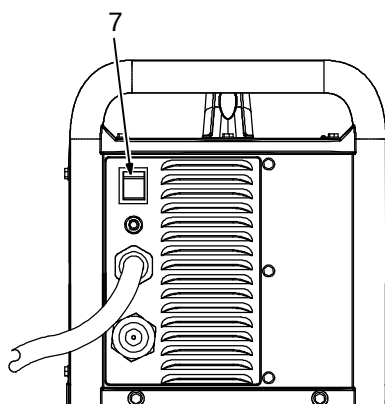
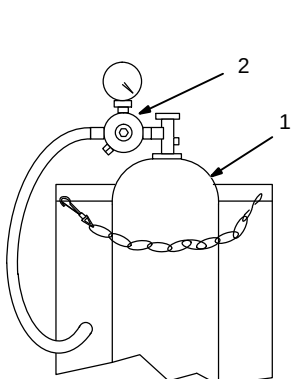
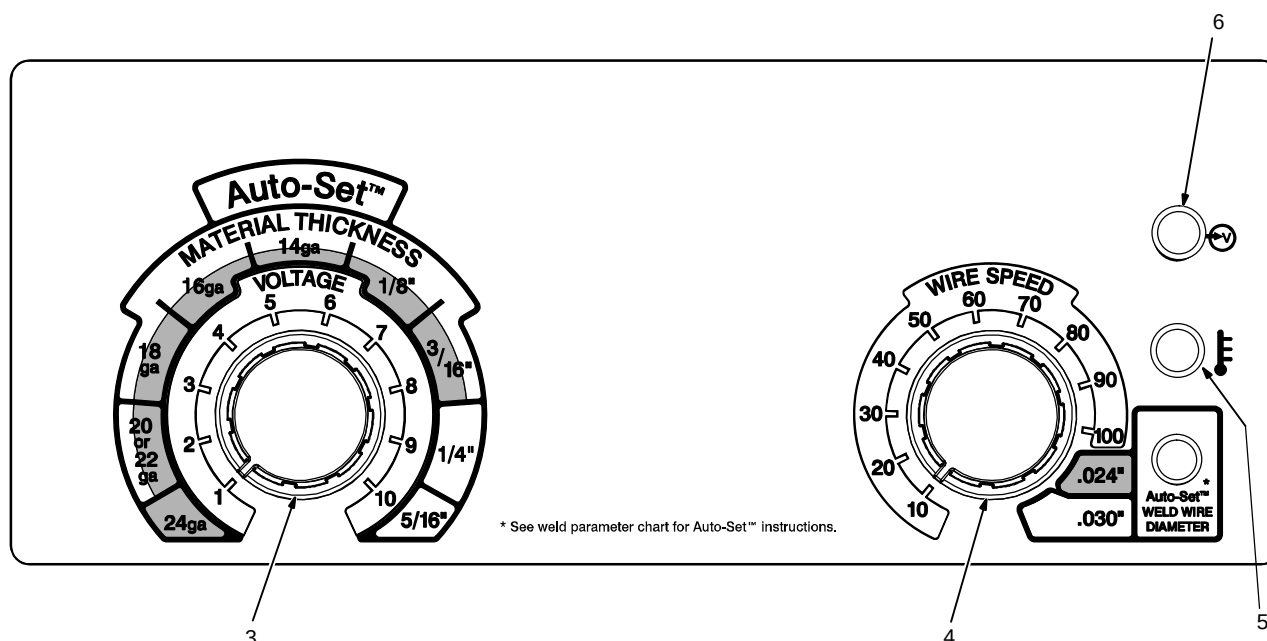
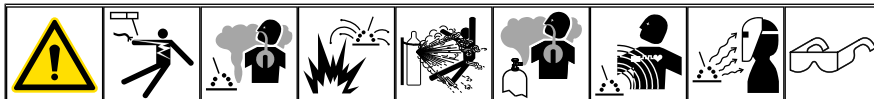
C. Jog Mode

If gun trigger is held for longer than 3 seconds without initiating a weld arc, unit will enter Jog mode and disable weld output.

- Jog mode is used to quickly feed wire through the wire drive assembly and MIG gun.
- While in Jog mode, wire feed speed is adjustable using the Wire Speed/Wire Diameter control knob.
- To exit Jog mode, release gun trigger.

5-6. Controls For Millermatic 190 Model (907613)

A. Spool Gun Operation On Millermatic 190 Model (Only Manual Setup can be used on this model)



274602-A / 270208-B

1 Shielding Gas Cylinder

For shielding gas connections, see power source Owner's Manual.

2 Valve

Open valve on cylinder just before welding.

Close valve on cylinder when finished welding.

3 Voltage/Material Thickness Control

Turn control clockwise inside white scale (1-10) to increase voltage (see weld parameter

chart in welding power source or Section NO TAG).

4 Wire Speed/Wire Diameter Control

Turn control clockwise inside white scale (10-100) to increase wire feed speed. (see weld parameter chart in welding power source or Section NO TAG).

5 Over Temperature Light

If unit overheats, light turns on and output stops. Allow unit to cool before resuming operation. This light will also communicate

additional unit errors (see Power Source Owner's Manual).

6 Power Light

Power light illuminates when the unit is turned on and powered up.

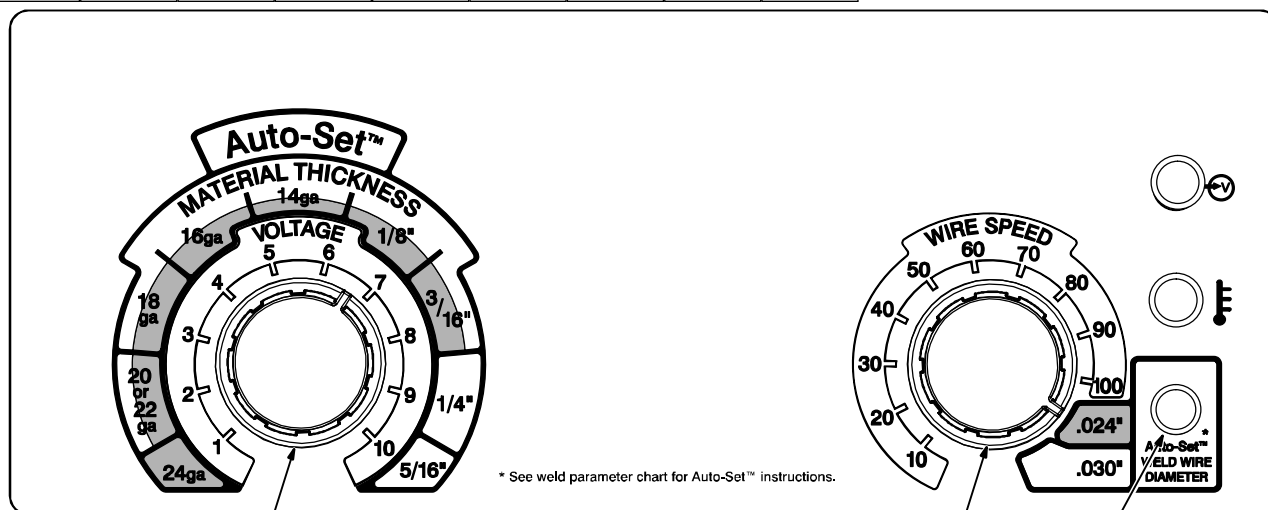
7 Power Switch

Use switch to turn unit On or Off.

8 Trigger

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

B. Millermatic 190 Auto-Set Feature



274602-A

The Auto-Set feature is not intended to be used with the Spoolmate 100 on this model.

1 Wire Speed/Wire Diameter Control

To turn Auto-Set on, turn the Wire Speed/Wire Diameter control knob to the desired wire diameter setting.

2 Auto-Set Light

The Auto-Set light illuminates indicating Auto-Set is on.

3 Voltage/Material Thickness Control

Adjust the Voltage/Material Thickness control knob to the desired steel material thickness to weld.

There is no adjustment within the material thickness band.

C. Jog Mode

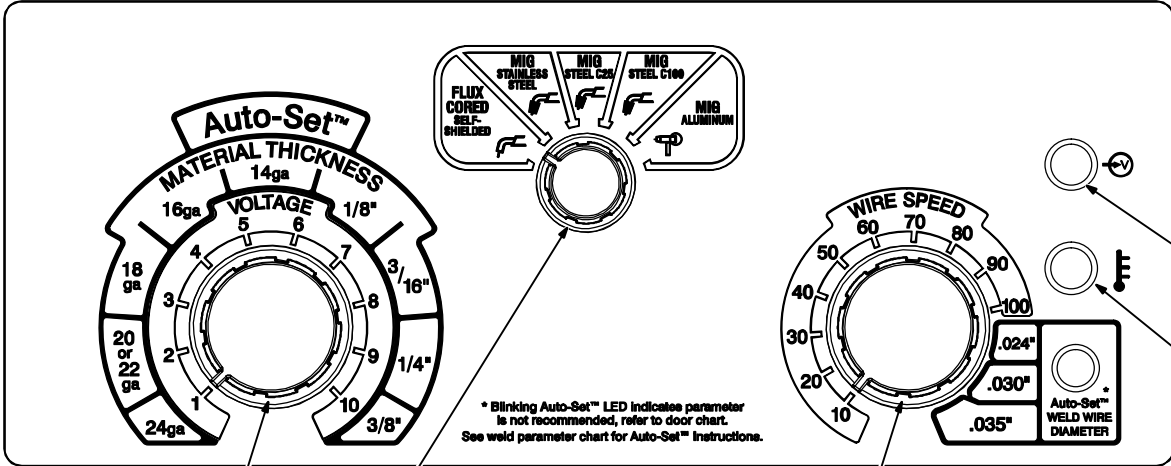
If gun trigger is held for longer than 3 seconds without initiating a weld arc, unit will enter Jog mode and disable weld output.

- Jog mode is used to quickly feed wire through the wire drive assembly and MIG gun.
- While in Jog mode, wire feed speed is adjustable using the Wire Speed/Wire Diameter control knob.
- To exit Jog mode, release gun trigger.

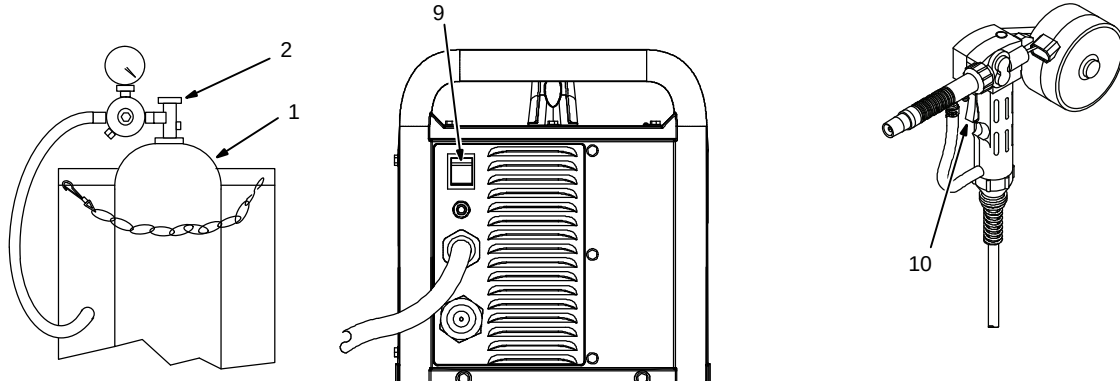
5-7. Controls For Millermatic 211 Model (907614)

A. Spool Gun Operation For Millermatic 211 (Manual Setup)





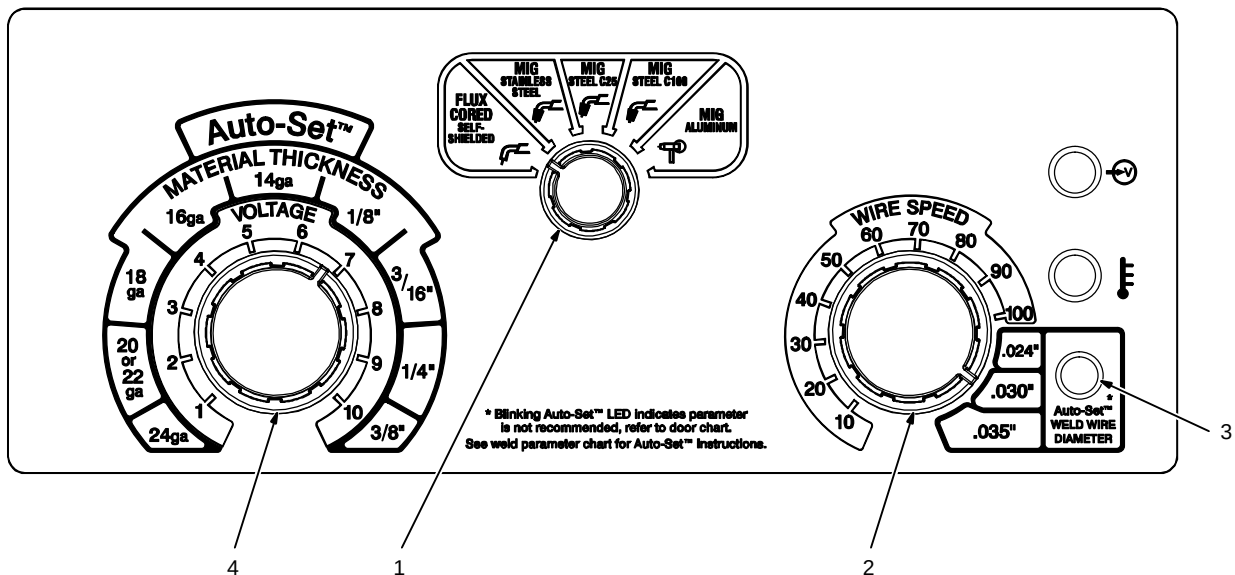
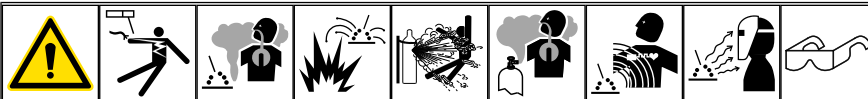
* Blinking Auto-Set™ LED indicates parameter is not recommended, refer to door chart. See weld parameter chart for Auto-Set™ Instructions.



274604-A / 270208-A

1 Shielding Gas Cylinder	Turn control to select desired weld process.	operation. This light will also communicate additional unit errors.
For shielding gas connections, see welding power source Owner's Manual.	5 Perform Motor Calibration	8 Power Light
2 Valve	See the Millermatic 211 Owner's Manual for Spoolmate Motor Calibration procedure.	Power light illuminates when the unit is turned on and powered up.
Open valve on cylinder just before welding.	6 Wire Speed/Wire Diameter Control	9 Power Switch
Close valve on cylinder when finished welding.	Turn control clockwise inside white scale (10-100) to increase wire feed speed. (see weld parameter chart in welding power source or Section NO TAG).	Use switch to turn unit On or Off.
3 Voltage/Material Thickness Control	7 Over Temperature Light	10 Trigger
Turn control clockwise inside white scale (1-10) to increase voltage (see weld parameter chart in welding power source or Section NO TAG).	If unit overheats, light turns on and output stops. Allow unit to cool before resuming	Press trigger to energize welding power source contactor, start shielding gas flow, and begin wire feed.
4 Process Select Control		

B. Millermatic 211 Auto-Set Feature (Using Auto-Set)



274604-A

1 Process Select Control

Turn control to select process, material, and type of shielding gas.

2 Wire Speed/Wire Diameter Control

To turn Auto-Set on, turn the Wire Speed/Wire Diameter control knob to the desired wire diameter setting.

3 Auto-Set LED

The Auto-Set light illuminates indicating Auto-Set is on.

A blinking Auto-Set LED indicates parameter is not recommended.

4 Voltage/Material Thickness Control

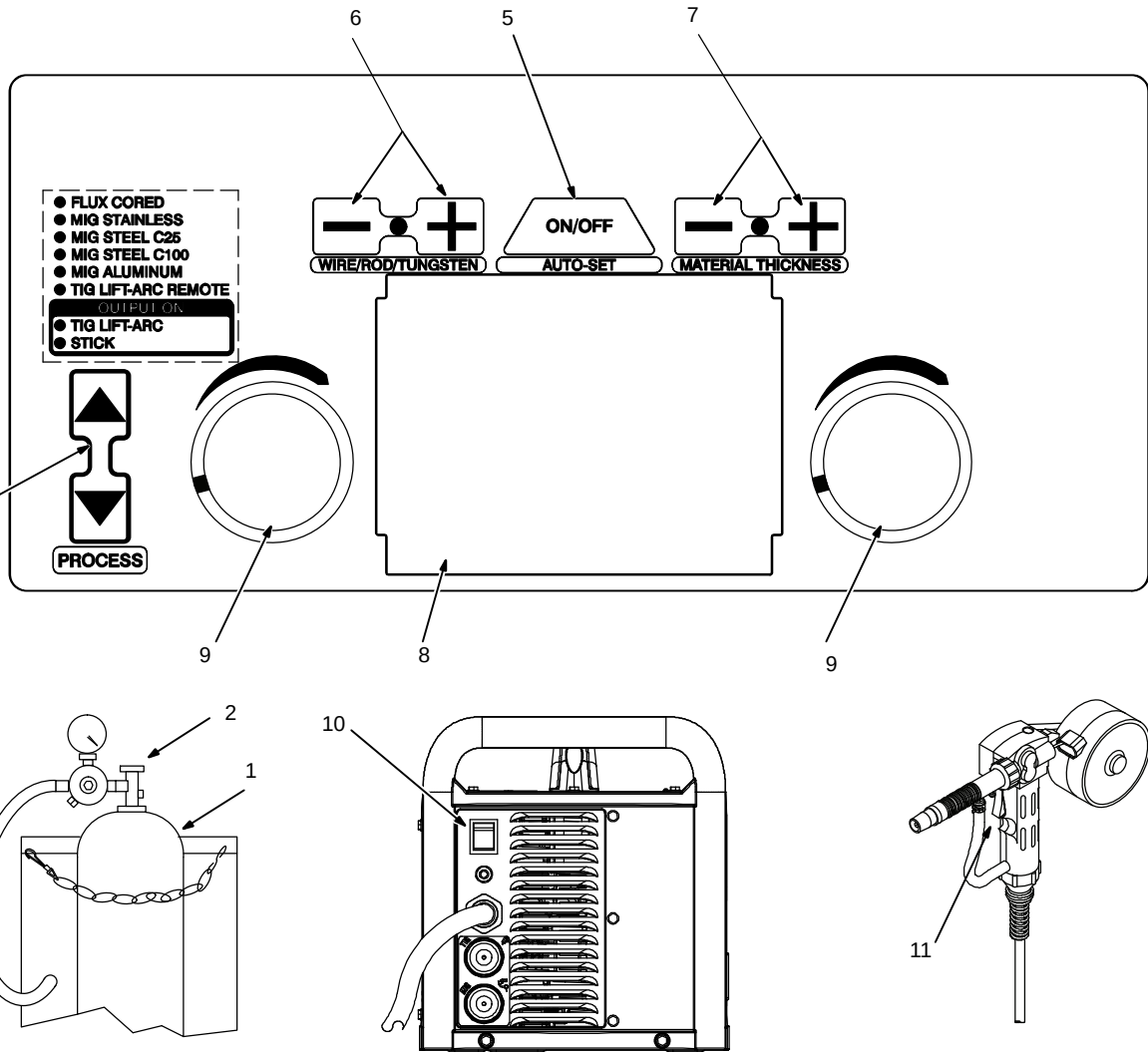
Adjust the Voltage/Material Thickness control knob to the desired steel material thickness to weld.

There is no adjustment within the material thickness band.

5-8. Controls For Multimatic 215 Model (907693)

A. Spool Gun Operation On Multimatic 215 Model





1 Shielding Gas Cylinder
For shielding gas connections, see welding power source Owner's Manual.

2 Valve
Open valve on cylinder just before welding
Close valve on cylinder when finished welding.

3 Process Select Button
Press up and down buttons to select MIG Aluminum.

4 Perform Motor Calibration

See the Multimatic 215 Owner's Manual for Spoolmate Motor Calibration procedure.

5 Auto-Set Button
Press button to turn Auto-Set On or Off.

6 Wire/Rod/Tungsten Buttons
Press the Plus (+) or Minus (-) button to select the size of wire, rod, or tungsten for the selected process.

When MIG Aluminum process is selected, Wire/Rod/Tungsten buttons are used to select type of spool gun being used.

7 Material Thickness Buttons
Press the Plus (+) or Minus (-) button to select material thickness for the selected process.

8 Display

9 Adjustment Knobs

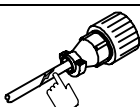
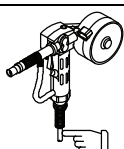
10 Power Switch
Use switch to turn unit On or Off.

11 Trigger
Press trigger to energize welding power source contactor, start shielding gas flow, and begin wire feed.

Ref. 271491A / 275178A

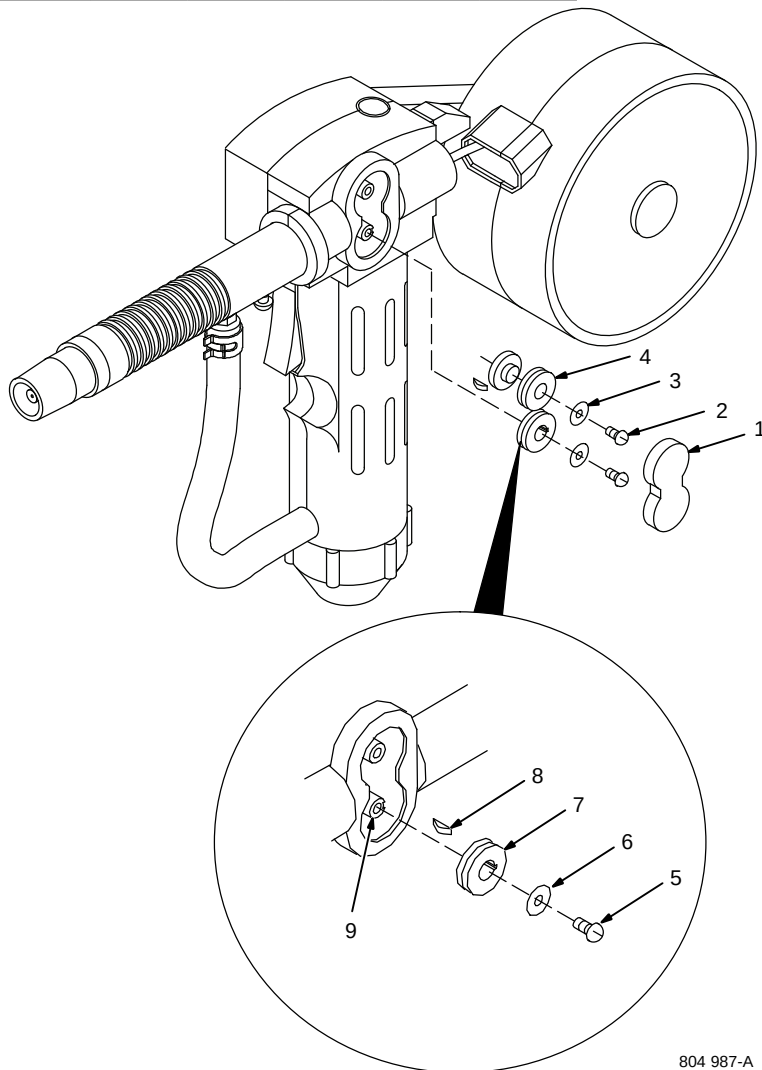
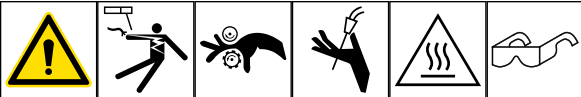
SECTION 6 – MAINTENANCE AND TROUBLESHOOTING

6-1. Routine Maintenance

				
 Disconnect power before maintaining.  <i>Maintain more often during severe conditions.</i>				
	✓ = Check	◇ = Change	○ = Clean	☆ = Replace
Every 3 Months	 ☆ Unreadable Labels	 ○ Weld Terminals	 ☆ Damaged Gas Hose	 ✓ ☆ Weld Cables
	 ✓ ☆ Cords	 ✓ ☆ Gun Cables		
Every 6 Months	 ○ Drive Rolls	 ○ Inside Unit		

*To be done by factory authorized service agent.

6-2. Changing Drive Rolls



804 987-A

 **Turn Off power at welding power source first.**

1 Drive Roll Cover

Remove cover.

Changing Push Roll:

To remove push roll:

2 Push Roll Screw

3 Washer

4 Push Roll

Remove screw and washer, and lift out drive roll.

To install drive roll:

Slide drive roll onto shaft and secure with washer and screw.

Changing Lower Drive Roll:

To remove drive roll:

5 Lower Drive Roll Screw

6 Washer

7 Lower Drive Roll

8 Drive Roll Key

9 Drive Roll Shaft

Remove screw and washer, and lift out drive roll. Note: drive roll key will come out with drive roll.

 *It may be necessary to remove drive roll side of gun case to change lower drive roll.*

To install drive roll:

Place drive roll key in slot in drive roll shaft.

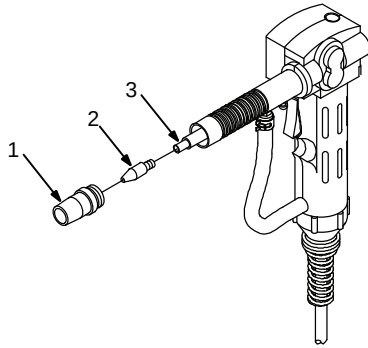
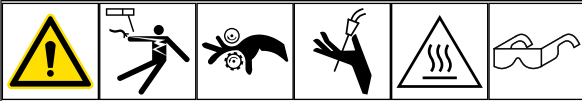
Line slot in drive roll up with drive roll key, and slide drive roll onto shaft.

Secure drive roll with washer and screw.

Reinstall gun case, if applicable.

Reinstall drive roll cover.

6-3. Changing Liner



⚠ Turn Off power at welding power source first.

- 1 Nozzle
- 2 Contact Tip
- 3 Liner

Remove and replace liner.

Reinstall parts as shown.

Ref. 804 985-A



6-4. Troubleshooting

Trouble	Remedy
No weld output; gun/feeder does not work.	Place Power switch on welding power source in the On position (see welding power source Owner's Manual). Check Spool Gun/MIG Gun switch for correct position.
Erratic weld output.	Tighten and clean all connections.
	Check for proper weld output polarity connections.
Pressing gun/feeder trigger does not energize welding power source; welding wire is not energized; shielding gas does not flow.	Secure plug from gun/feeder trigger cord into 4-socket receptacle on welding power source
	Place Spool Gun/MIG Gun switch in Spool Gun position.
Wire feeds, shielding gas flows, but welding wire is not energized.	Secure spool gun cable connector to wire drive assembly inside welding power source.
	See Troubleshooting section in welding power source Owner's Manual.
Wire feeds erratically.	Check and correct drive roll pressure (see Section 4-9).
	Clean or replace drive roll; clean or replace liner (see Sections 6-2 and 6-3).

SECTION 7 – GMAW (MIG) ALUMINUM WELDING HINTS

Here are several hints to help you be more successful with your new aluminum feed system.

MIG welding aluminum requires different techniques than MIG welding mild steel.

A. Before You Start Welding

- The removal of lubricants from the aluminum base material may be necessary. Consult with your local welding distributor for their recommendation on aluminum cleaners.
- Oxide removal should be done after degreasing. This should be done with a stainless steel wire brush. This can be done with a hand wire brush or with a cup wire brush. If a power wire brush is used, keep the RPM's and pressures low to reduce smearing the surface of the material, which could entrap oxides and impurities under the surface. Always use a wire brush that is used only on aluminum to keep from contaminating the base material.
- Contact your local welding distributor or aluminum filler metal representative for recommendations on wire alloys that fit your application. Know the alloy of your base aluminum and what conditions the finished part will be subjected to. The two most readily available aluminum filler wires are ER4043 and ER5356.

B. Welding Techniques

- Make sure the welding power source is set up to weld DCEP (DC Electrode Positive).
- For MIG welding aluminum you need to use a 10 to 15 degree push travel angle (tip and nozzle pointing in the direction of travel). See Figure Figure 7-1.

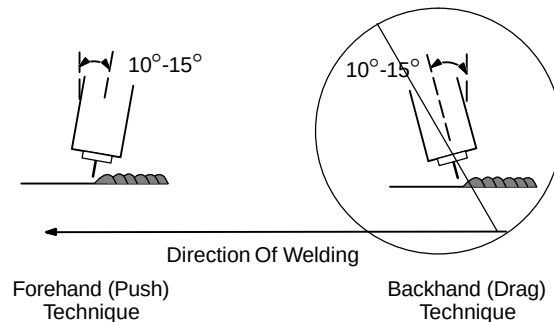


Figure 7-1. Side View Of Gun Tip Angle

- Pulling or using a drag angle will produce porous, dirty welds due to a lack of gas coverage.
- The reflective heat and weld puddle that is present when MIG welding aluminum is very hot. Holding the tip closer than 3/4 in. could lead to the wire burning back to the contact tip and other feeding problems.
- The most common shielding gas for MIG welding aluminum is 100% argon. Flow rates of 20 to 30 CFH [cubic feet per hour (0.57 to 0.85 m³/hr)] are acceptable. C25 or argon CO₂ shielding gases are not acceptable.
- Maintain a 3/4 in. (19 mm) tip-to-work distance, and have the contact tip recessed approximately 1/8 in. inside the nozzle if possible. See Figure Figure 7-2.

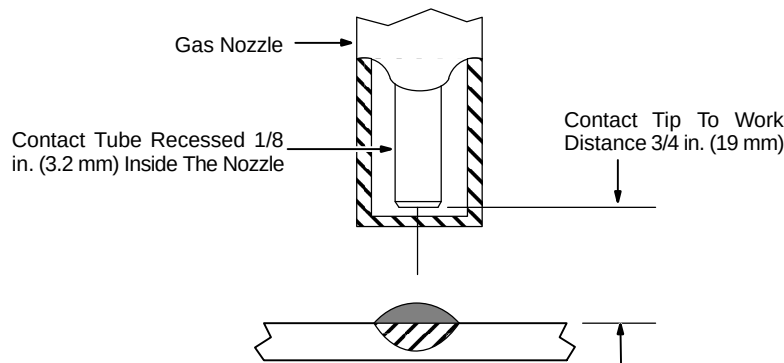


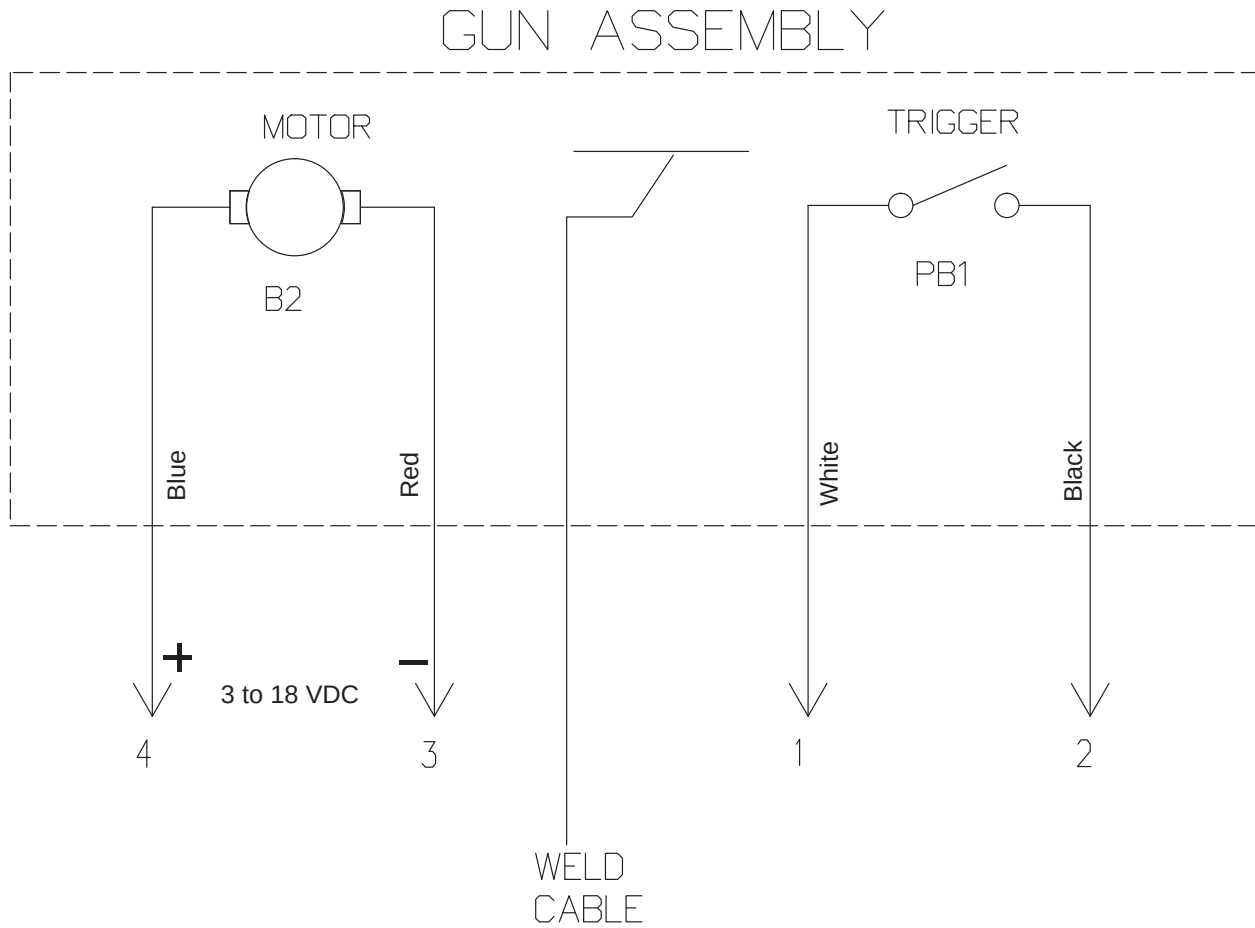
Figure 7-2. Contact Tube Position And Tip-To-Work Distance

- Avoid large weave beads on aluminum. If larger fillet welds are needed, multiple pass stringer beads will provide better appearance and have less chance of cold lapping, melt through, and other weld defects.
- It will be necessary to increase torch travel speed as the base material becomes heated during the welding process.
- The skill level of the operator, joint types, fit up, and positions, as well as the welding power supply will all have a great influence on the weldability of the aluminum and your success.

C. Common Problems/Troubleshooting

- Melt through caused by over heating the base material.
 - Increase travel speed. Use sequencing to make shorter welds.
 - Sequence welds.
 - Use thicker material, change joint design or welding process to AC TIG.
 - Eliminate or reduce gaps.
- Dirty welds.
 - Use push angle instead of drag technique.
 - Increase voltage to get into spray transfer, if unit output is capable of this process.
 - Use proper base metal cleaning techniques (stainless steel brush).
 - Check for proper shielding gas and wire alloy type.
- Wire burns back to contact tip during or at the end of the weld.
 - Maintain a 3/4 in. (19 mm) tip-to-work distance.
 - Check to make sure the contact tip size, drive rolls and gun liner match the wire diameter that you are using. (Sometimes an oversized tip can be used. The ID should only be one size larger than the wire diameter.)
- Wire "bird nests" (piles up) in front of inlet guide on gun.
 - Check and adjust drive roll tension.
 - Check to make sure drive rolls match wire diameter.
 - Replace contact tip if fouled or plugged. (Sometimes an oversized tip can be used. The ID should only be one size larger than the wire diameter.)

SECTION 8 – ELECTRICAL DIAGRAMS



186 451

Figure 8-1. Circuit Diagram For Spoolmate

	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	

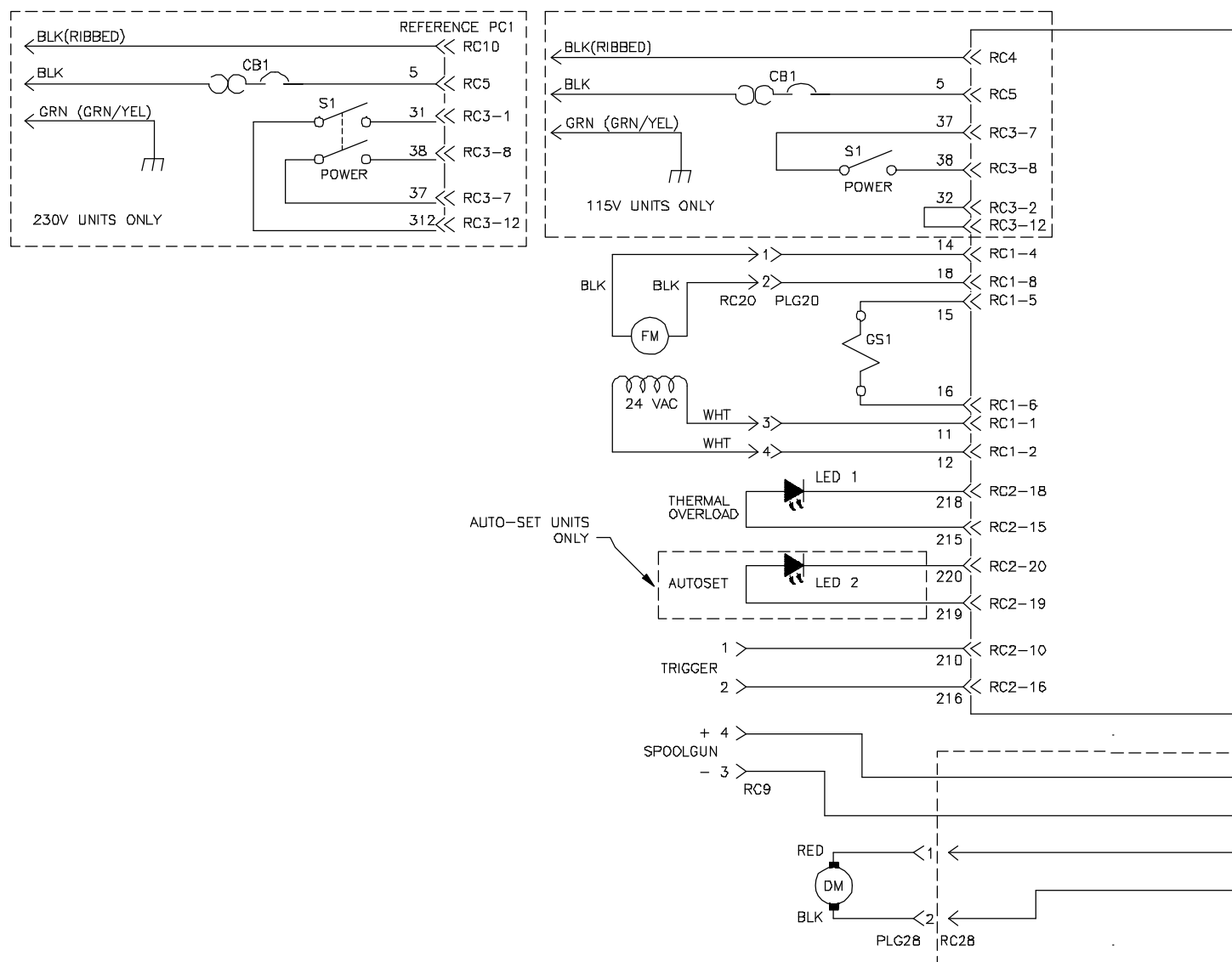
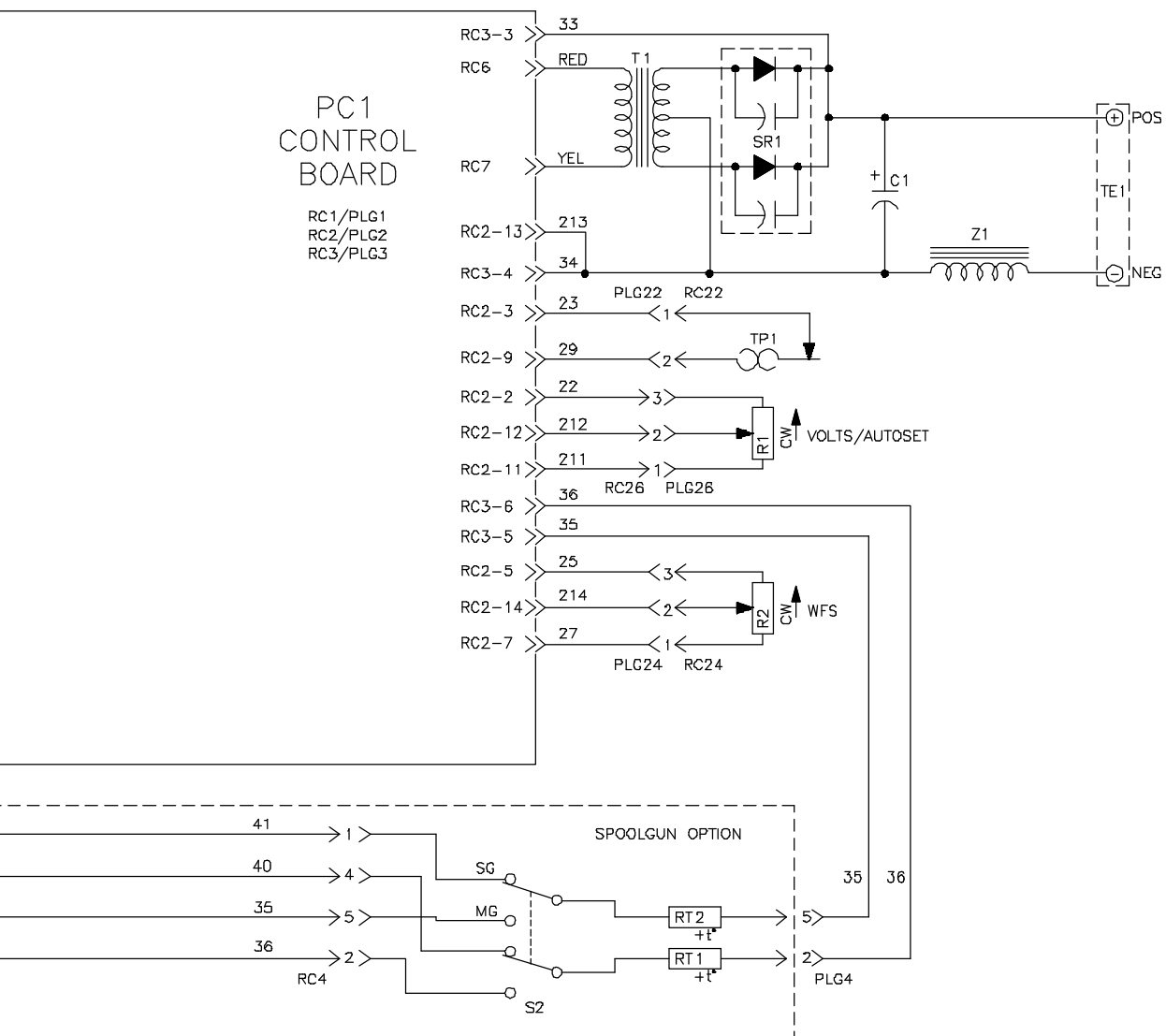
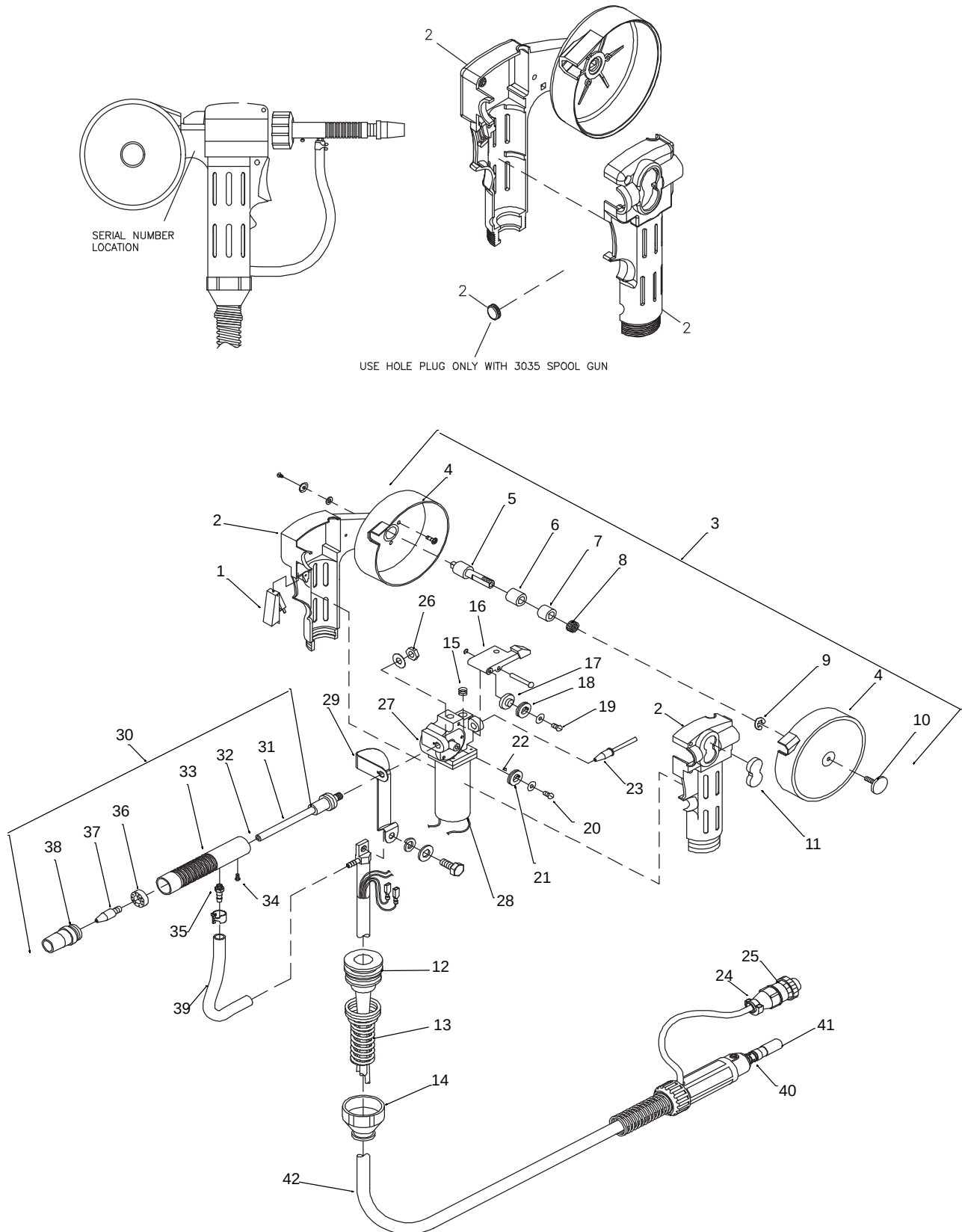


Figure 8-2. Circuit Diagram For Millermatic 140/180



SECTION 9 – PARTS LIST



804 988-A

Figure 9-1. Complete Assembly

Figure 9-1. Complete Assembly

Item No.	Dia. Mkgs.	Part No.	Description	Quantity
1	PB1	186416	Trigger Switch	1
2		186418	Plastic Handle (Prior To Serial No UJ120001)	1
		209177	Hardware Kit, Spoolmate Case	1
2		288570	Kit, Handle W/Screws Spoolgun (Eff. With Serial No (UJ120001)	1
3		196966	Spool Cover Assy (Including)	1
4		194622	—Spool Defence Shell	1
5		194623	—Spool Shaft	1
6		132529	—Pad, Brake	1
7		194625	—Location Bushing	1
8		194626	—Adjusting Nut	1
9			—Ring, Rtnng C-Clip .140 Shaft X .015 Thick	1
10		194627	—Locking Screw	1
11		187239	Cover, Drive Roll	1
12		231107	Strain Relief, Cable	1
13		231108	Spring, Cable	1
14		226615	Nut, Handle Plastic	1
15		193999	Spring, Cprsn .310 Od X .040 Wire X 1.380	1
16		186415	Press Arm W/Shaft, C-Clip Washer	1
17		187238	Bearing	1
18		186414	Push Roll .030/.035 (0.8/0.9 Mm)	1
18		◆199732	Push Roll Uk .023	1
19		209079	Screw M4 X 0.7 X 16	1
20		209080	Screw M4 X 0.7 X 6	1
21		186413	Drive Roll .030/.035 (0.8/0.9 Mm)	1
21		◆199731	Drive Roll Uk .023	1
22		186488	Key, Drive Roll 2 Mm X 7 Mm	1
23		186410	Inlet Guide	1
24		048834	Clamp, Circ	1
25		079878	Connector W/Sockets	1
26		194631	Nut, Brass	1
27		234233	Gearbox Assembly	1
28	B2	234234	Motor	1
29		196398	Buss Bar, Interconnecting (Prior To Serial No UJ120001)	1
29		288571	Kit, Buss Bar Spoolgun (Eff. With Serial No UJ120001)	1
30		186404	Gun Tube Assembly (Including)	1
31		234348	—Head Tube Assy	1
32		206363	—Liner Kit	1
33		194633	—Barrel	1
34		209080	—Screw, M4 X 0.7 X 6 Mm	1
35		186408	—Gas Nipple	1
36		186409	—Gas Diffuser	1
37		186419	—Contact Tip .030	1
37		◆186406	—Contact Tip .035	1
37		◆199730	—Contact Tip .023	1
38		186405	—Nozzle	1
39		111400	Hose, Sae .187 Id X .410 Od X 8.000	1

Figure 9-1. Complete Assembly

Item No.	Dia. Mkgs.	Part No.	Description	Quantity
40		079974	O-Ring, .500 Id X .103 Cs Rbr	2
41		234236	Connector, Plug	1
42		234237	Cable Assembly, 12 Ft W/Connector Plug	1

◆Optional

Hardware is common and not available unless listed.

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.



Effective January 1, 2023 (Equipment with a serial number preface of ND or newer)

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

LIMITED WARRANTY - Subject to the terms and conditions below, Miller Electric Mfg. LLC, Appleton, Wisconsin, warrants to authorized distributors that new Miller equipment sold after the effective date of this limited warranty is free of defects in material and workmanship at the time it is shipped by Miller. **THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS.**

Within the warranty periods listed below, Miller will repair or replace any warranted parts or components that fail due to such defects in material or workmanship. 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. Notifications submitted as online warranty claims must provide detailed descriptions of the fault and troubleshooting steps taken to diagnose failed parts. Warranty claims that lack the required information as defined in the Miller Service Operation Guide (SOG) may be denied by Miller.

Miller shall honor warranty claims on warranted equipment listed below in the event of a defect within the warranty coverage time periods listed below. Warranty time periods start on the delivery date of the equipment to the end-user purchaser, or 12 months after the equipment is shipped to a US or Canada distributor, or 18 months after the equipment is shipped to an international distributor, whichever occurs first.

1 5 Years Parts — 3 Years Labor

- Original Main Power Rectifiers Only to Include SCRs, Diodes, and Discrete Rectifier Modules in non-inverter products

2 4 Years Parts (No Labor)

- Auto-Darkening ClearLight 2.0 Helmet Lenses

3 3 Years — Parts and Labor Unless Specified

- Auto-Darkening Helmet Lenses (No Labor)
- Engine Driven Welder/Generators (Including EnPak) **(NOTE: Engines are Warranted Separately by the Engine Manufacturer.)**
- Insight Welding Intelligence Products (Except External Sensors)
- Inverter Power Sources
- Plasma Arc Cutting Power Sources
- Process Controllers
- Semi-Automatic and Automatic Wire Feeders
- Transformer/Rectifier Power Sources

4 2 Years — Parts and Labor

- Auto-Darkening Weld Masks (No Labor)
- Fume Extractors - Filtair 215, Capture 5, and Industrial Collector Series

5 1 Year — Parts and Labor Unless Specified

- ArcReach Heater
- AugmentedArc, LiveArc, and MobileArc Welding Systems
- Automatic Motion Devices
- Bernard BTB Air-Cooled MIG Guns (No Labor)

- CoolBelt, PAPR Blower, and PAPR Face Shield (No Labor)
- Desiccant Air Dryer System
- Field Options **(NOTE: Field options are covered for the remaining warranty period of the product they are installed in, or for a minimum of one year — whichever is greater.)**
- RFCS Foot Controls (Except RFCS-RJ45)
- Fume Extractors - Filtair 130, MWX and SWX Series, ZoneFlow Extraction Arms and Motor Control Box
- HF Units
- ICE/XT Plasma Cutting Torches (No Labor)
- Induction Heating Power Sources, Coolers **(NOTE: Digital Recorders are Warranted Separately by the Manufacturer.)**
- Insight Sensors
- Load Banks
- Motor-Driven Guns (except Spoolmate Spoolguns)
- Positioners and Controllers
- Racks (For Housing Multiple Power Sources)
- Running Gear/Trailers
- Subarc Wire Drive Assemblies
- Supplied Air Respirator (SAR) Boxes and Panels
- TIG Torches (No Labor)
- Tregaskiss Guns (No Labor)
- Water Cooling Systems
- Wireless Remote Foot/Hand Controls and Receivers
- Work Stations/Weld Tables (No Labor)

6 6 Months — Parts

- 12 Volt Automotive-Style Batteries

7 90 Days — Parts

- Accessories (Kits)
- ArcReach Heater Quick Wrap and Air Cooled Cables
- Canvas Covers
- Induction Heating Coils and Blankets, Cables, and Non-Electronic Controls
- MDX Series MIG Guns
- M-Guns
- MIG Guns, Subarc (SAW) Torches, and External Cladding Heads
- Remote Controls and RFCS-RJ45
- Replacement Parts (No labor)
- Spoolmate Spoolguns

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

1. **Consumable components; such as contact tips, cutting nozzles, contactors, brushes, relays, work station table tops and welding curtains, or parts that fail due to normal wear. (Exception: brushes and relays are covered on all engine-driven products.)**
2. Items furnished by Miller, but manufactured by others, such as engines or trade accessories. These items are covered by the manufacturer's warranty, if any.
3. Equipment that has been modified by any party other than Miller, or equipment that has been

improperly installed, improperly operated or misused based upon industry standards, or equipment which has not had reasonable and necessary maintenance, or equipment which has been used for operation outside of the specifications for the equipment.

4. Defects caused by accident, unauthorized repair, or improper testing.

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

The exclusive remedies for warranty claims are, at Miller's option, either: (1) repair; or (2) replacement; or, if approved in writing by Miller, (3) the pre-approved cost of repair or replacement at an authorized Miller service station; or (4) payment of or credit for the purchase price (less reasonable depreciation based upon use). Products may not be returned without Miller's written approval. Return shipment shall be at customer's risk and expense.

The above remedies are F.O.B. Appleton, WI, or Miller's authorized service facility. Transportation and freight are the customer's responsibility. TO THE EXTENT PERMITTED BY LAW, THE REMEDIES HEREIN ARE THE SOLE AND EXCLUSIVE REMEDIES REGARDLESS OF THE LEGAL THEORY. IN NO EVENT SHALL MILLER BE LIABLE FOR DIRECT, INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES (INCLUDING LOSS OF PROFIT) REGARDLESS OF THE LEGAL THEORY. ANY WARRANTY NOT PROVIDED HEREIN AND ANY IMPLIED WARRANTY, GUARANTEE OR REPRESENTATION, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE, ARE EXCLUDED AND DISCLAIMED BY MILLER.

Some US states do not allow limiting the duration of an implied warranty or the exclusion of certain damages, so the above limitations may not apply to you. This warranty provides specific legal rights, and other rights may be available depending on your state. In Canada, some provinces provide additional warranties or remedies, and to the extent the law prohibits their waiver, the limitations set out above may not apply. This Limited Warranty provides specific legal rights, and other rights may be available, but may vary by province.

Warranty Questions?

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

Your distributor also gives you...

Service

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

Support

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

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 Protective Equipment (PPE) Service and Repair Replacement Parts Training (Schools, Videos, Books) Welding Process Handbooks To locate a Distributor or Service Agency visit www.millerwelds.com or call 1-800-4-A-Miller
-------------------------------	--

Contact the Delivering Carrier to:	File a claim for loss or damage during shipment. For assistance in filing or settling claims, contact your distributor and/or equipment manufacturer's Transportation Department.
------------------------------------	--

Miller Electric Mfg. LLC

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

International Headquarters—USA

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

For International Locations Visit
www.MillerWelds.com

