



OM-248663J

2017-09

Processes



MIG (GMAW) Welding

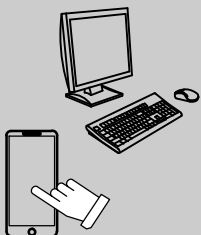
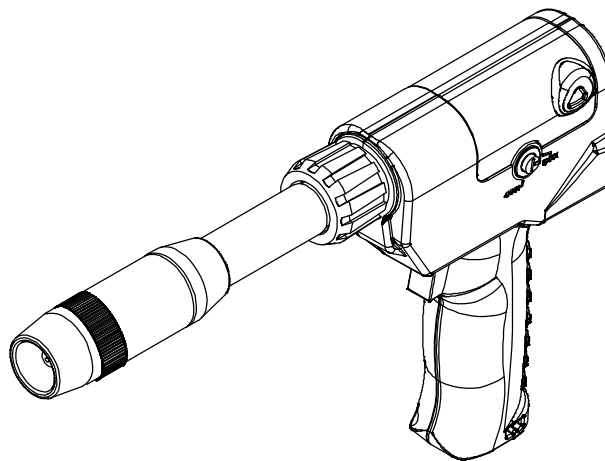
Description



Semi-Automatic, Air/Water-Cooled, MIG (GMAW) Welding Gun

XR - Pistol - Plus

(Air And Water-Cooled Guns)



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

www.MillerWelds.com

OWNER'S MANUAL

File: MIG (GMAW)



From Miller to You

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

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

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

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



ISO 9001
Quality

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

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



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



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



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SECTION 1 –SAFETY PRECAUTIONS FOR GMAW WELDING GUNS – READ BEFORE USING

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 **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 the hazards.

1-2. Arc Welding Hazards



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



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



During operation, keep everybody, especially children, away.



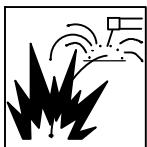
ELECTRIC SHOCK can kill.

- Always wear dry insulating gloves.
- Insulate yourself from work and ground.
- Do not touch live electrode or electrical parts.
- Replace worn, damaged, or cracked guns or cables.
- Turn off welding power source before changing contact tip or gun parts.
- Keep all covers and handle securely in place.



FUMES AND GASES can be hazardous.

- Keep your head out of the fumes.
- Ventilate area, or use breathing device. The recommended way to determine adequate ventilation is to sample for the composition and quantity of fumes and gases to which personnel are exposed.
- Read and understand the Safety Data Sheets (SDSs) and the manufacturer's instructions for adhesives, coatings, cleaners, consumables, coolants, degreasers, fluxes, and metals.



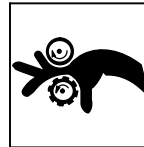
WELDING can cause fire or explosion.

- Do not weld near flammable material.
- Do not weld on containers that have held combustibles, or on closed containers such as tanks, drums, or pipes unless they are properly prepared according to AWS F4.1 and AWS A6.0 (see Safety Standards).
- Watch for fire; keep 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.



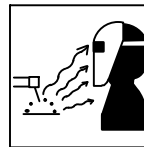
BUILDUP OF GAS can injure or kill.

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



MOVING PARTS can injure.

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



ARC RAYS can burn eyes and skin.

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

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



HOT PARTS can burn.

- Allow gun to cool before touching.
- Do not touch hot metal.
- Protect hot metal from contact by others.



NOISE can damage hearing.

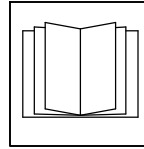
Noise from some processes or equipment can damage hearing.

- Check for noise level limits exceeding those specified by OSHA.
- Use approved ear plugs or ear muffs if noise level is high.
- Warn others nearby about noise hazard.



WELDING WIRE can injure.

- Keep hands and body away from gun tip when trigger is pressed.



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.

1-3. Proposition 65 Warnings

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

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

1-4. Principal Safety Standards

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

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

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

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

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

Safety in Welding, Cutting, and Allied Processes, CSA Standard W117.2, from Canadian Standards Association, Standards Sales, 5060 Spectrum Way, Suite 100, Mississauga, Ontario, Canada L4W 5N5 (phone: 800-463-6727, website: www.csagroup.org).

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

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

1-5. 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 – MESURES DE SÉCURITÉ VISANT LES PISTOLETS DE SOUDAGE GMAW – À LIRE AVANT UTILISATION

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

2-1. Signification des symboles



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. Consulter les symboles et les instructions ci-dessous y afférant pour les actions nécessaires afin d'éviter le danger.

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



Les symboles présentés ci-après sont utilisés tout au long du présent manuel pour attirer votre attention et identifier les risques de danger. Lorsque vous voyez un symbole, soyez vigilant et suivez les directives mentionnées afin d'éviter tout danger. Les consignes de sécurité présentées ci-après ne font que résumer l'information contenue dans les normes de sécurité énumérées dans le manuel d'utilisation du poste de soudage. Veuillez lire et respecter toutes ces normes de sécurité.



L'installation, l'utilisation, l'entretien et les réparations ne doivent être confiés qu'à des personnes qualifiées.



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



UN CHOC ÉLECTRIQUE peut tuer.

- Porter toujours des gants secs et isolants.
- S'isoler de la pièce et de la terre.
- Ne jamais toucher une électrode ou des pièces électriques sous tension.

- Remplacer les pistolets ou câbles de soudage qui sont endommagés, usés ou craquelés.
- Mettre la soudeuse hors tension avant de remplacer un bec contact ou des pièces de pistolet.
- S'assurer que tous les couvercles et poignées sont fermement assujettis.



LES VAPEURS ET LES FUMÉES peuvent être nocives.

- Éloigner sa tête des endroits renfermant des vapeurs.

- Aérer la zone de travail ou porter un appareil respiratoire. Pour déterminer la bonne ventilation, il est recommandé de procéder à un prélèvement pour la composition et la quantité de fumées et de gaz auxquels est exposé le personnel.
- 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 SOUDAGE peut causer un incendie ou une explosion.

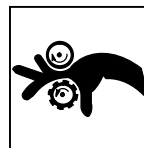
- Ne pas souder à proximité de matériaux inflammables.

- Ne pas effectuer le soudage sur des conteneurs fermés tels que des réservoirs, tambours, ou conduites, à moins qu'ils n'aient été préparés correctement conformément à AWS F4.1 et AWS A6.0 (voir les Normes de Sécurité).
- Prendre garde aux incendies et toujours avoir 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.



L'ACCUMULATION DE VAPEURS peut causer des lésions ou la mort.

- Quand on n'utilise pas le gaz comprimé de protection, fermer le robinet de la bouteille.
- Assurer toujours la ventilation des zones fermées ou utiliser un appareil respiratoire avec alimentation en air.



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.



LE RAYONNEMENT DE L'ARC peut brûler les yeux et la peau.

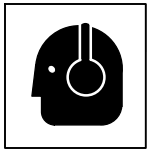
Le rayonnement de l'arc du procédé de soudage génère des rayons visibles et invisibles intenses (ultraviolets et infrarouges) susceptibles de provoquer des brûlures dans les yeux et sur la peau. Des étincelles sont projetées pendant le soudage.

- 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 un équipement de protection pour le corps fait d'un matériau résistant et ignifuge (cuir, coton robuste, laine). La protection du corps comporte des vêtements sans huile comme par ex. des gants de cuir, une chemise solide, des pantalons sans revers, des chaussures hautes et une casquette.



LES PIÈCES CHAUDES peuvent provoquer des brûlures.

- Laisser refroidir le pistolet avant de le toucher.
- Ne pas toucher d'objets métalliques chauds.
- Abriter les objets métalliques contre tout contact par les personnes à proximité.



Le BRUIT peut endommager l'ouïe.

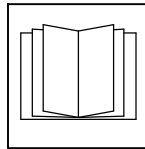
Le bruit des processus et des équipements peut affecter l'ouïe.

- Vérifier si les niveaux de bruit excèdent les limites spécifiées par l'OSHA.
- Utiliser des bouches-oreilles ou des serre-tête antibruit approuvés si le niveau de bruit est élevé.
- Avertir les personnes à proximité au sujet du danger inhérent au bruit.



LES FILS DE SOUDAGE peuvent provoquer des blessures.

- Éloigner les mains et le corps de la buse du pistolet après avoir appuyé sur la gâchette.



LIRE LES INSTRUCTIONS.

- Lire et appliquer les instructions sur les étiquettes et le Mode d'emploi avant l'installation, l'utilisation ou l'entretien de l'appareil. Lire les informations de sécurité au début du manuel et dans chaque section.
- N'utiliser que les pièces de rechange recommandées par le constructeur.
- Effectuer l'installation, l'entretien et toute intervention selon les manuels d'utilisateurs, les normes nationales, provinciales et de l'industrie, ainsi que les codes municipaux.

2-3. Proposition californienne 65 Avertissements



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



Ce produit contient des éléments chimiques, dont le plomb, reconnu par l'État de Californie pour leur caractère cancérigène ainsi que provoquant des malformations congénitales ou autres problèmes de procréation. Se laver les mains après toute manipulation.

2-4. Principales normes de sécurité

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

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2-5. Informations relatives aux CEM

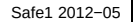
Le courant électrique qui traverse tout conducteur génère des champs électromagnétiques (CEM) à certains endroits. Le courant de soudage crée un CEM autour du circuit et du matériel de soudage. Le courant issu d'un soudage à l'arc (et de procédés connexes, y compris le soudage par points, le gougeage, 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: Limiter par exemple tout accès aux passants ou procéder à une évaluation des risques individuels pour les soudeurs. Tous les soudeurs doivent appliquer les procédures suivantes pour minimiser l'exposition aux CEM provenant du circuit de soudage:

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

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

En ce qui concerne les implants médicaux :

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



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U₂	Conventional Load Voltage
IP	Degree Of Protection
%	Percent

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

SECTION 4 – SPECIFICATIONS

4-1. Gun Specifications

Model	Welding Output Range	Electrode Wire Diameter Capacity	Wire Feed Speed Range	Net Weight (Torch Only)
XR- Pistol - Plus Gun (Air Cooled)	200 A at 100% Duty Cycle with 15, 25 or 35 ft (4.6 or 7.6 m) gun	.030 To 1/16 in. (0.8 To 1.6 mm) aluminum wire	50 To 780 ipm (1.3 To 19.8 mpm)	2.5 lb (1.1 kg) (less cables)
XR- Pistol - Plus Gun (Water Cooled)	400 A at 100% Duty Cycle with 15, 25 or 35 ft (4.6 or 7.6 m) gun	.030 To 1/16 in. (0.8 To 1.6 mm) aluminum wire	50 To 780 ipm (1.3 To 19.8 mpm)	2.9 lb (1.3 kg) (less cables)

☞ When using 1/16 in. (1.6 mm) wire, kit 230708 must be installed.

☞ Instructions are for MPa Plus feeders with 14-pin gun connections.

4-2. Environmental Specifications

A. Temperature Specifications

Operating Temperature Range	Storage Temperature Range
14 to 104 °F (–10 to 40°C)	–4 to 131 °F (–20 to 55°C)

Temp_2016-07

4-3. Duty Cycle And Overheating




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

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

Air-Cooled Models

100% Duty Cycle At 200 Peak Amperage Using 100% Argon Gas w/15, 25 Or 35 Foot Guns




Continuous Welding

Water-Cooled Models

100% Duty Cycle At 400 Peak Amperage Using 100% Argon Gas w/15, 25 Or 35 Foot Guns



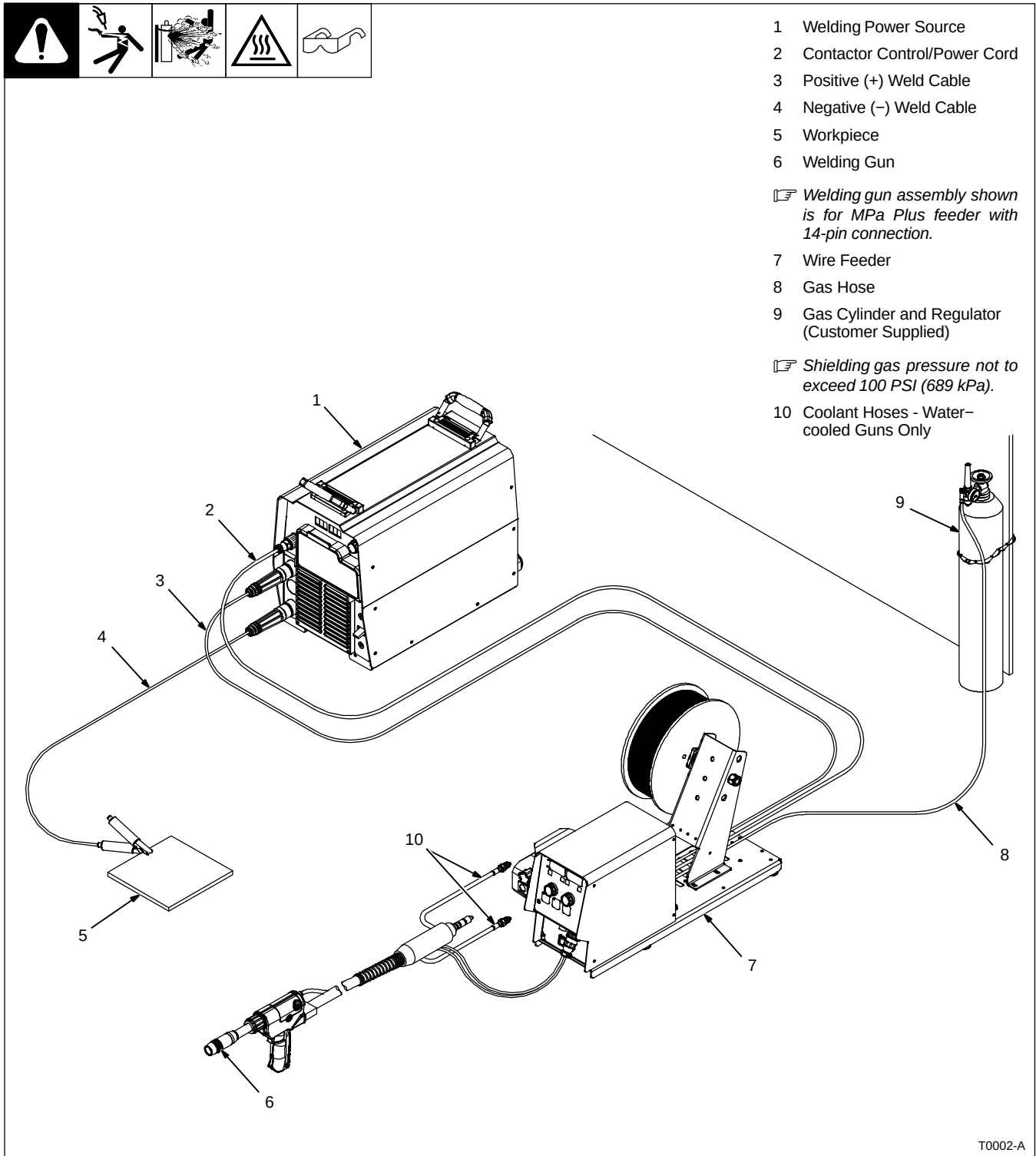

Continuous Welding

sduty1 5/95

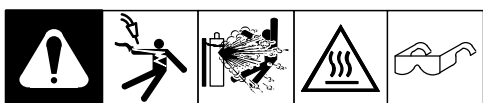
SECTION 5 – INSTALLATION

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

5-1. Equipment Connection Diagram - Single Feeder



5-2. Equipment Connection Diagram - Dual Feeder



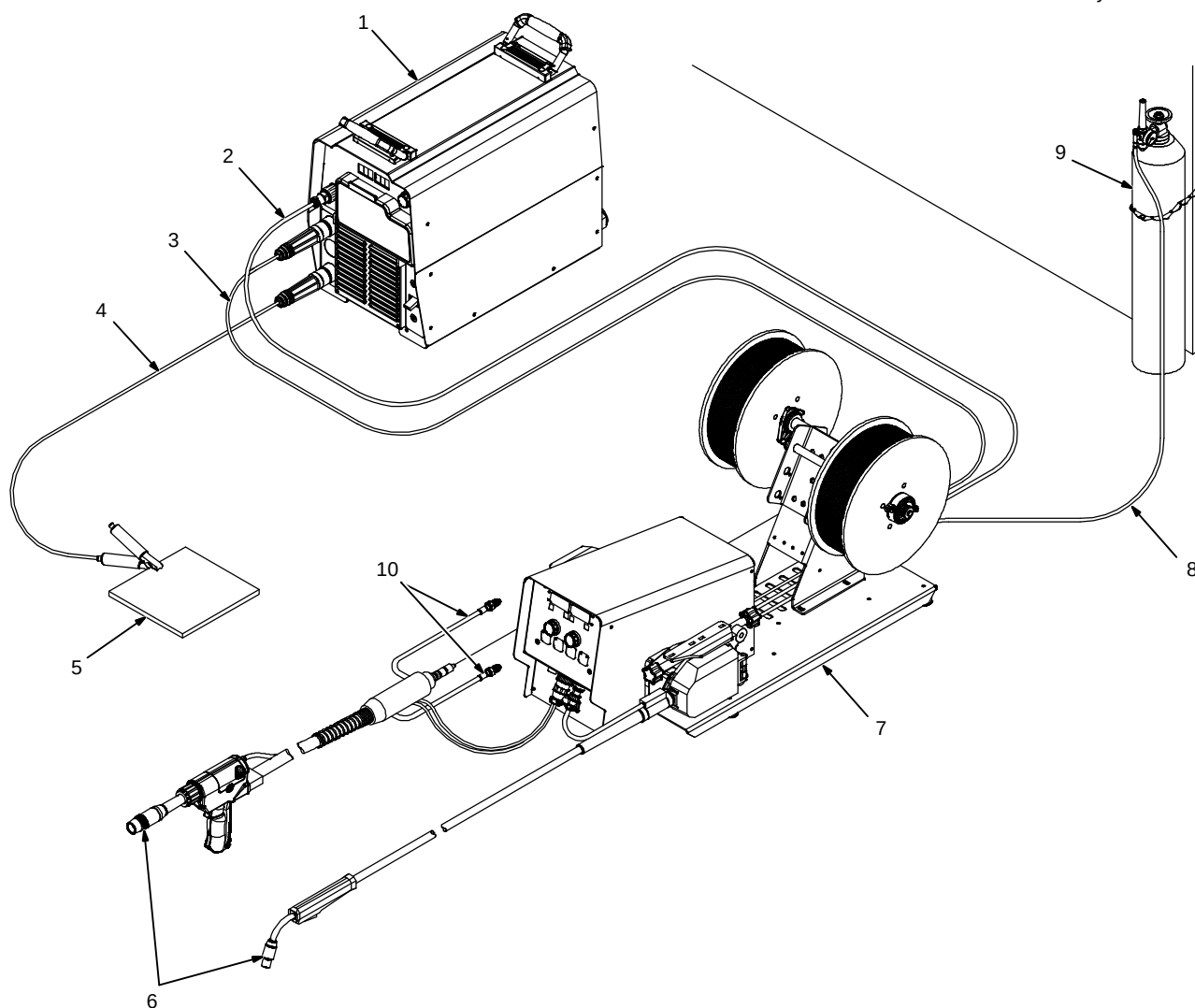
- 1 Welding Power Source
- 2 Contactor Control/Power Cord
- 3 Positive (+) Weld Cable
- 4 Negative (-) Weld Cable
- 5 Workpiece
- 6 Welding Gun

 *Welding gun assembly shown is for MPa Plus feeder with 14-pin connection.*

- 7 Wire Feeder
- 8 Gas Hose
- 9 Gas Cylinder and Regulator (Customer Supplied)

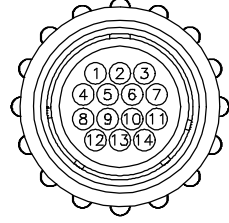
 *Shielding gas pressure not to exceed 100 PSI (689 kPa).*

- 10 Coolant Hoses - Water-cooled Guns Only



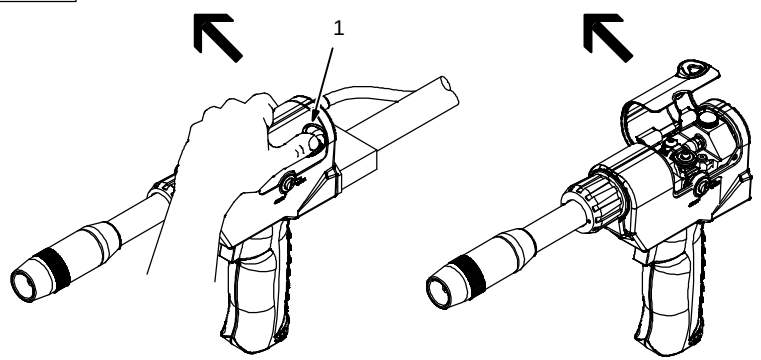
T0003-A

5-3. 14-Pin Plug Information For Connecting Wire Feeder To Power Source

	REMOTE 14	Pin*	Pin Information
		1	Motor Common
		2	Motor 0 to +24 volts DC with respect to pin 1
		3	+5 volts DC tachometer power
		4	Tachometer ref
		5	Tachometer signal
		6	Trigger
		7	Trigger
		8	Wire speed ref. +5 volts DC
		9	Wire speed com
		10	Wire speed 0 to +5 volts DC with respect to pin 9
		11	Gun sensing resistor with respect to pin 9
		12	Not used.
		13	Not used.
		14	Not used.
*The remaining pins are not used.			

5-4. Opening Top Cover Of XR - Pistol - Plus Gun



1 Top Cover Triangular Boss

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

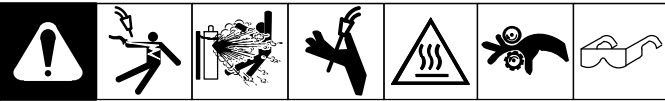
To open door fully, push up on door until it clicks into position.

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

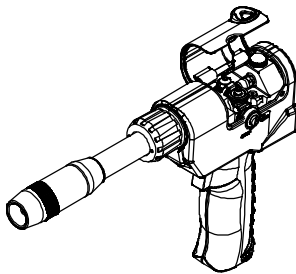
Push door back into original position to close.

T0004-A

5-5. Threading Welding Wire Through Gun

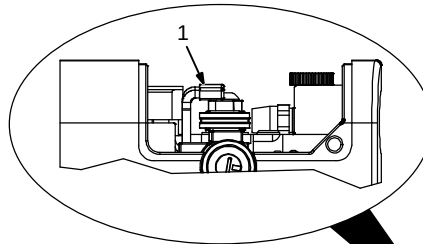


Refer to wire feeder manual for instructions on feeding wire through feeder.



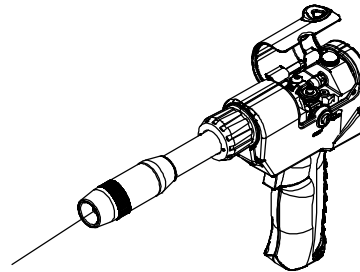
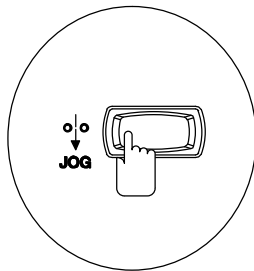
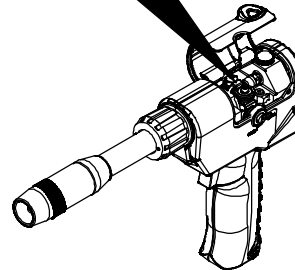
⚠ Welding wire is electrically live when gun trigger is used to jog wire.

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

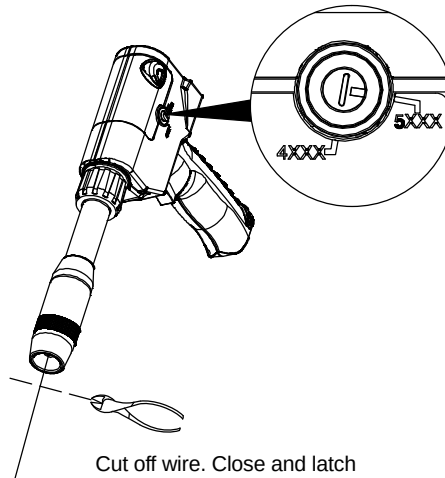


1 Pressure Arm Lever

ℹ To release drive roll pressure, pull back on pressure arm lever. While pulled back, shift to left onto shoulder to lock into place.



Lay gun cable out straight. Press Jog switch until about 6 in. (152 mm) of wire is sticking out end of contact tip.



ℹ Verify pressure adjustment on handle matches the wire type. See Section 6-2.

Tools Needed:

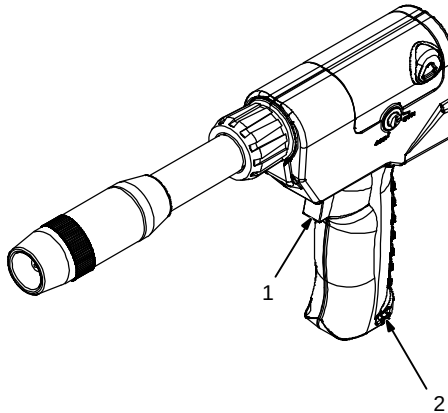


Cut off wire. Close and latch wire feeder door.

Ref. T0001-A / T0005-A

SECTION 6 – OPERATION

6-1. Gun Controls



1 Trigger

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

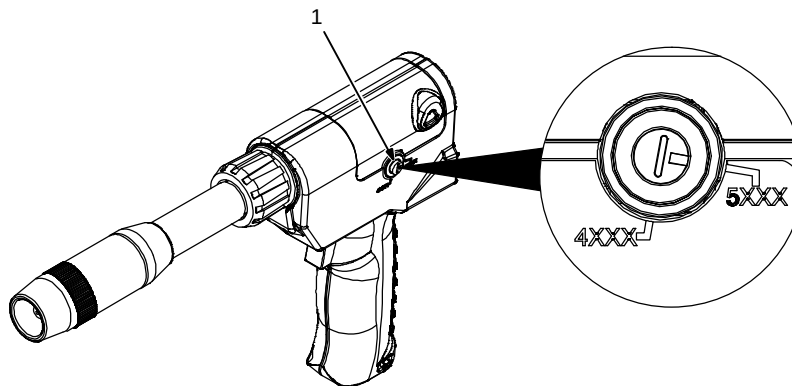
Controls at the wire feeder can be set to provide timed shielding gas preflow and postflow when trigger is pressed and released. When this feature is turned Off, no preflow or postflow is provided for the welding operation.

2 Wire Speed Control

Use control to adjust wire feed speed at the feeder. The numbers around the control are for reference only.

Ref. T0001-A

6-2. Gun Pressure Roll Tension Setting



Tools Needed:



 *Aluminum series specific - Pressure roll tension setting ensures smooth wire feeding action.*

 *Gun Pressure Roll Tension is factory set to 4XXX.*

1 Pressure Roll Adjustment Screw

Wire tension should be set to 4XXX for 4000 series aluminum wire.

Rotate Pressure Roll Adjustment Screw fully counterclockwise until indicator line on adjustment knob lines up with indicator line on handle in the 4XXX position.

Wire tension should be set to 5XXX for 5000 series aluminum and stainless wire.

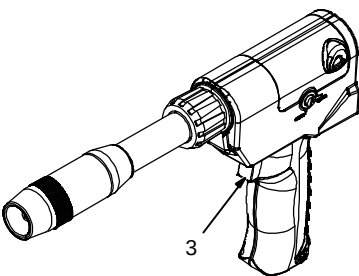
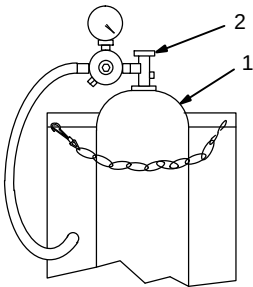
Rotate Pressure Roll Adjustment Screw fully clockwise until indicator line on adjustment knob lines up with indicator line on handle in the 5XXX position.

 *Small diameter (.035) 5000 series wire may run better on the 4XXX setting.*

Ref. T0001-A / T0007

6-3. Shielding Gas





1 Shielding Gas Cylinder

2 Valve

3 Gun Trigger

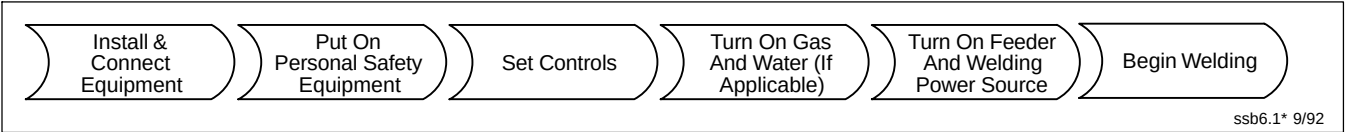
Open valve on cylinder just before welding.

Gun trigger turns weld output and gas flow on and off (see Section 6-1).

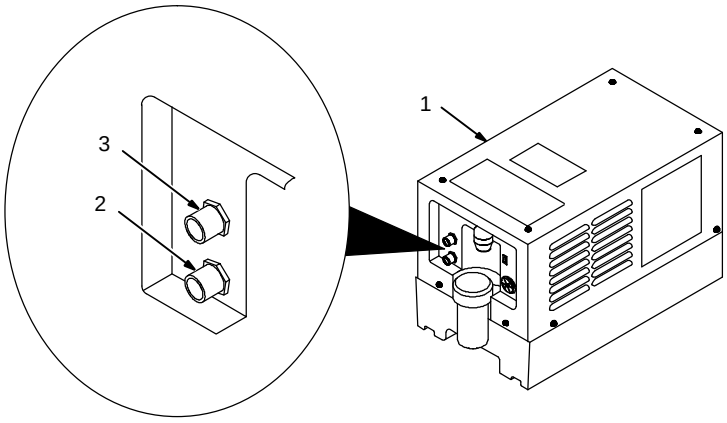
Close valve on cylinder when finished welding.

sb5.1 6/92 – S-0621-C / Ref. T0001-A

6-4. Sequence Of Gas Metal Arc Welding (GMAW) – Continuous Or Spot



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



1 Coolant Supply

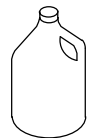
2 Coolant "In"

3 Coolant "Out"

See table below for coolant guidelines.

Turn On coolant supply before welding.

Turn Off coolant supply when finished welding.

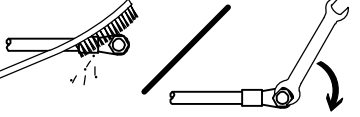
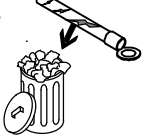
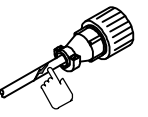
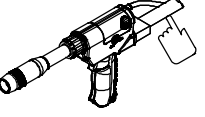
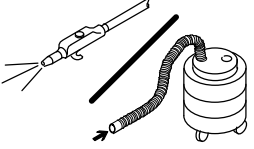
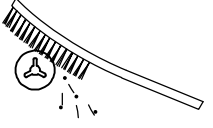
Application	GMAW Or Where Coolant Contacts Aluminum Parts Or Where HF* Not Used
 Coolant	MILLER Aluminum Protecting Coolant No. 043 809**; Distilled Or Deionized Water OK Above 32° F (0° C)

*HF: High Frequency Current

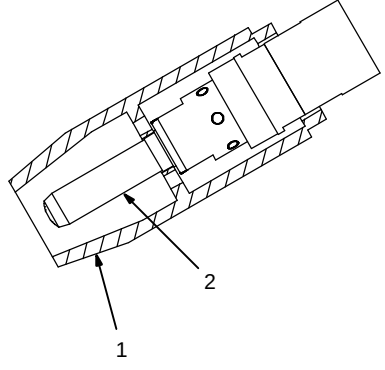
**MILLER coolants protect to -37° F (-38°C) and resist algae growth.

Ref. 150 755-A

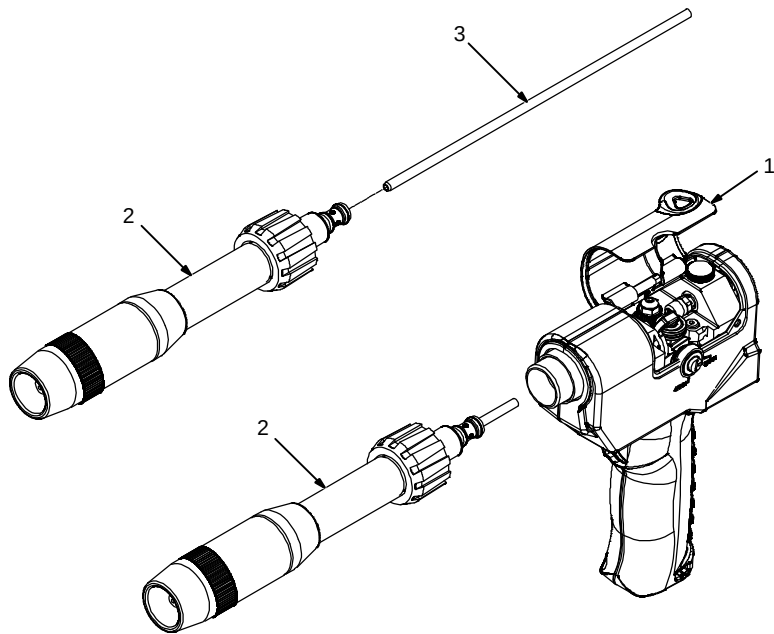
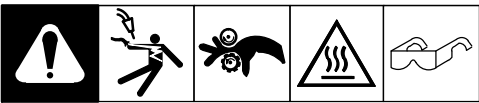
SECTION 7 – MAINTENANCE & TROUBLESHOOTING

					 Disconnect power before maintaining.	 <i>Maintain more often during severe conditions.</i>
 3 Months						
		Replace Damaged Or Unreadable Labels		Replace Damage Gas Hose		Clean And Tighten Weld Terminals
						Repair Or Replace Cracked Cables And Cords
 6 Months						
	Blow Out Or Vacuum Inside		Clean Drive Rolls			

7-1. Changing Gun Contact Tip

					1 Nozzle Unscrew nozzle. 2 Centerfire Contact Tip Remove contact tip. Install new contact tip.
					NOTICE – Make sure correct size contact tip is being used. Incorrect size may cause arcing inside tip, poor feedability and poor arc starting characteristics(see Section 9).  Centerfire contact tips designed for aluminum wire have AL (Example T-047AL) as a designator at the end of the part number. Reinstall nozzle.
					Ref. 246 347-A

7-2. Replacing Head Tube Liner



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

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

When changing wire size, change gun drive roll.

- 1 Cover
- 2 Head Tube
- 3 Liner

Remove head tube from gun.

Pull liner out of head tube.

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

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

Ref. T0009-A

Notes

7-3. Replacing The Liner



⚠ Turn Off wire feeder and welding power source.

- 1 Thumb Screw
- 2 Cone Guide
- 3 Collet Guide
- 4 Brass Guide Cap

Unscrew thumb screw.

Remove the following items:

- Liner conduit assembly from handle.
- Cone guide (rear of torch) and collet guide.
- Brass guide cap from conduit assembly.
- Old liner – pull from front of torch/conduit.

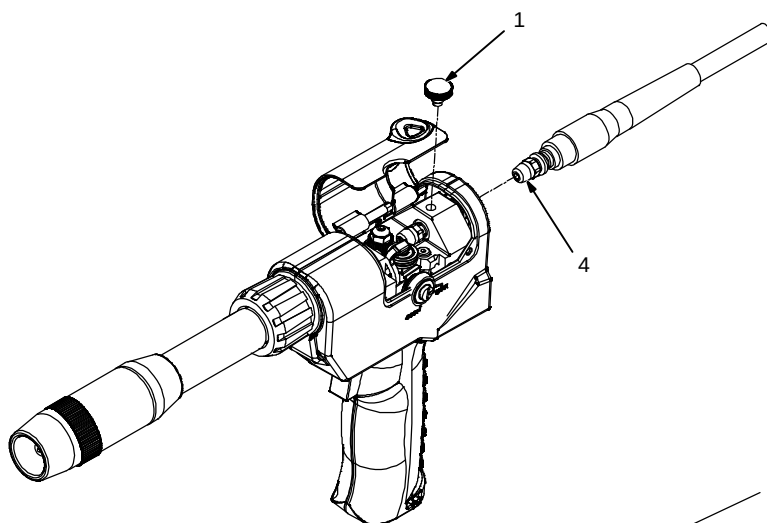
Insert new liner in same direction as one removed (knurled ring towards front).

Tighten guide cap onto conduit.

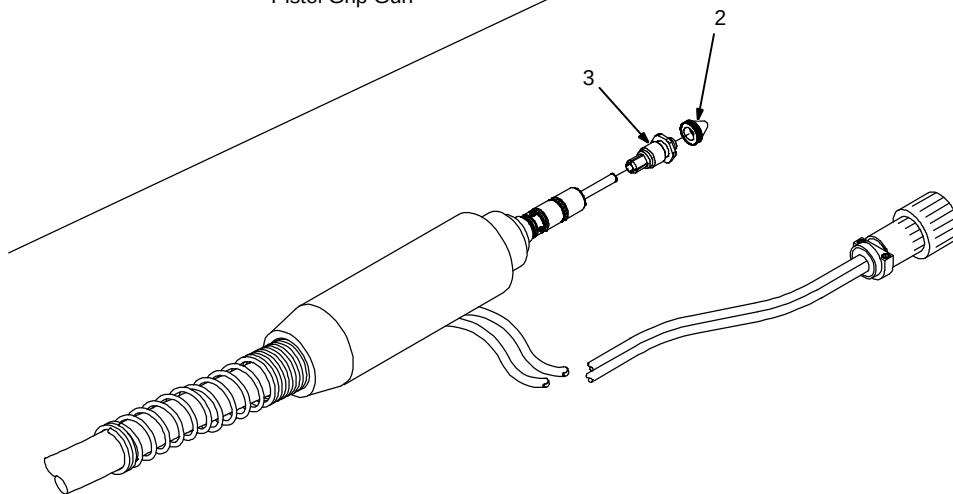
Cut liner flush with front surface of collet.

Torque collet guide to 50 in lbs.

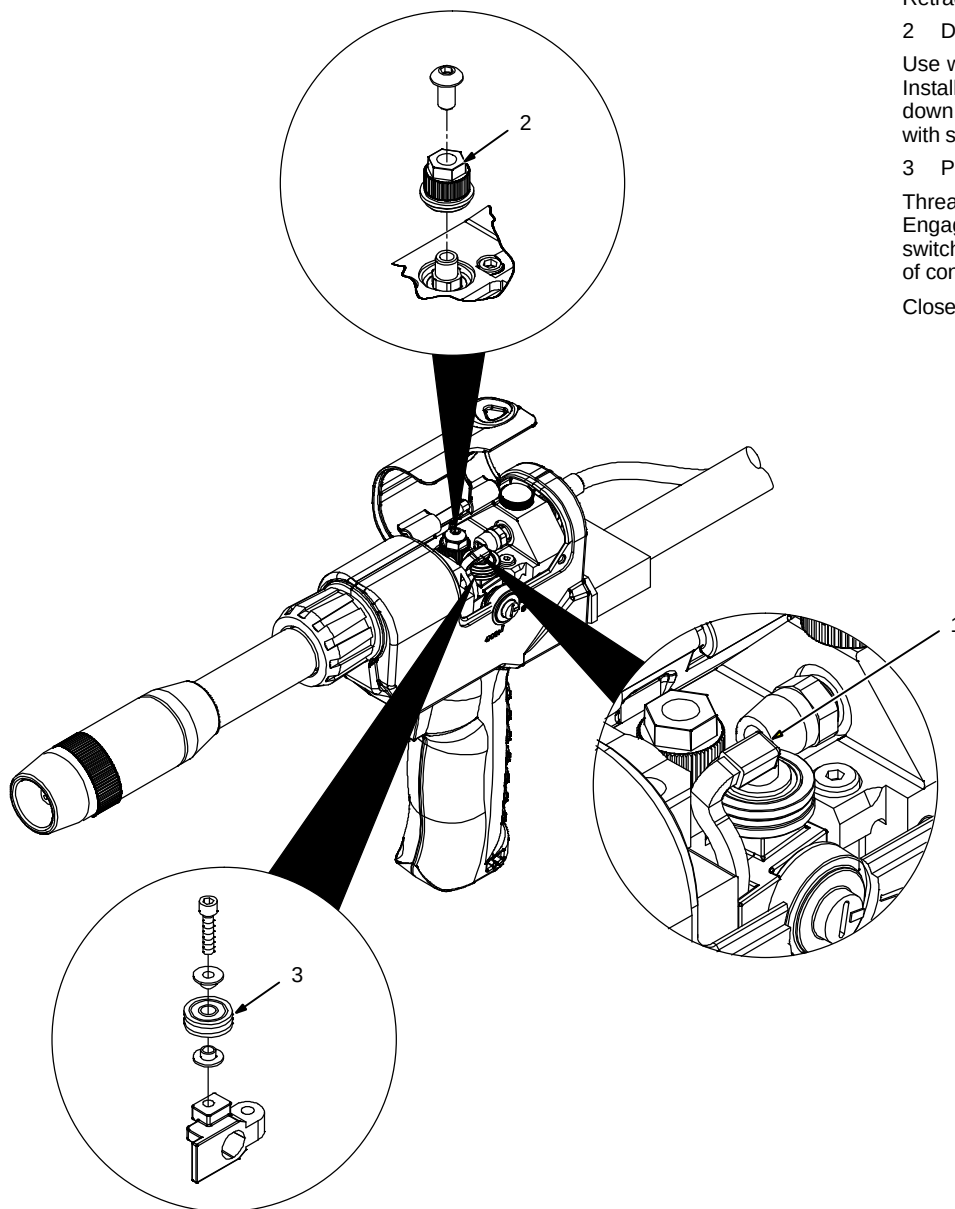
Reinstall guide cone, conduit and thumb screw.



Pistol Grip Gun



7-4. Gun Drive Assembly Maintenance



1 Lever Arm

Remove pressure on wire by pulling lever arm forward. Pull to left to lock into place.

Retract wire onto spool.

2 Drive Roll

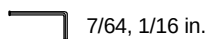
Use wire brush to clean drive roll. Install drive roll with hex opening down toward shaft hex, and secure with screw.

3 Pressure Roll

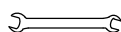
Thread welding wire through gun. Engage feeder drive rolls. Press jog switch until wire is sticking out end of contact tip.

Close top cover.

Tools Needed:



7/64, 1/16 in.



3/8 in.

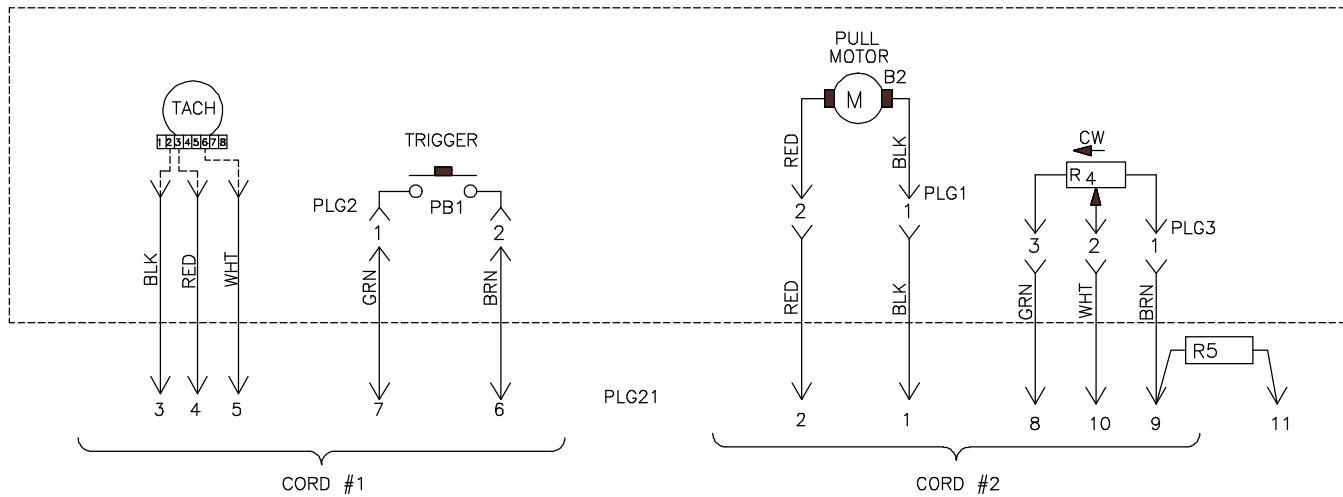
Ref. T0008-A

7-5. Troubleshooting Table

					 Disconnect power before troubleshooting.
---	---	---	---	---	---

Trouble	Remedy
No wire feed at gun, feeder not operating. Check motor or brake solenoid.	Reset circuit breaker at power source. See power source owner's manual.
	Replace trigger-switch and test operation.
	Check trigger-switch wires for continuity.
No wire feed at gun, feeder operating properly.	Reset circuit breaker in feeder/control box and check for short in motor leads. See feeder/control owner's manual.
	Check potentiometer with meter and replace if necessary.
	Check motor and potentiometer wires for continuity.
	See feeder/control owner's manual.
Wire feeds, but welding wire is not energized.	Clean and tighten all power connections.
	See feeder/control owner's manual.
	Check operation of welding power source.
Wire feeds erratically.	Check conduit for wear and obstruction and replace if necessary.
	Check contact tip for correct size and replace if necessary.
	Check pressure roll tension setting (see Section 6-2).
	Check for proper head tube liner (see Table 9-7).
Wire feeds one speed only.	Check potentiometer with meter and replace if necessary.
	Check continuity of welding gun wire feed speed potentiometer and replace if necessary.
	See feeder/control owner's manual.
Pressing gun trigger does not energize feeder. Welding wire is not energized. Shielding gas does not flow.	Secure plug from gun control cable into gun control receptacle on feeder.
	Have nearest Factory Authorized Service Agent check optional water flow switch, if applicable.
Wire feeds, shielding gas flows, but welding wire is not energized.	See Troubleshooting section in welding power source manual.

SECTION 8 – ELECTRICAL DIAGRAMS



Ref. 256010-C

	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 8-1. Circuit Diagram For XR - Pistol - Plus Gun

[illegible]

SECTION 9 – PARTS LIST

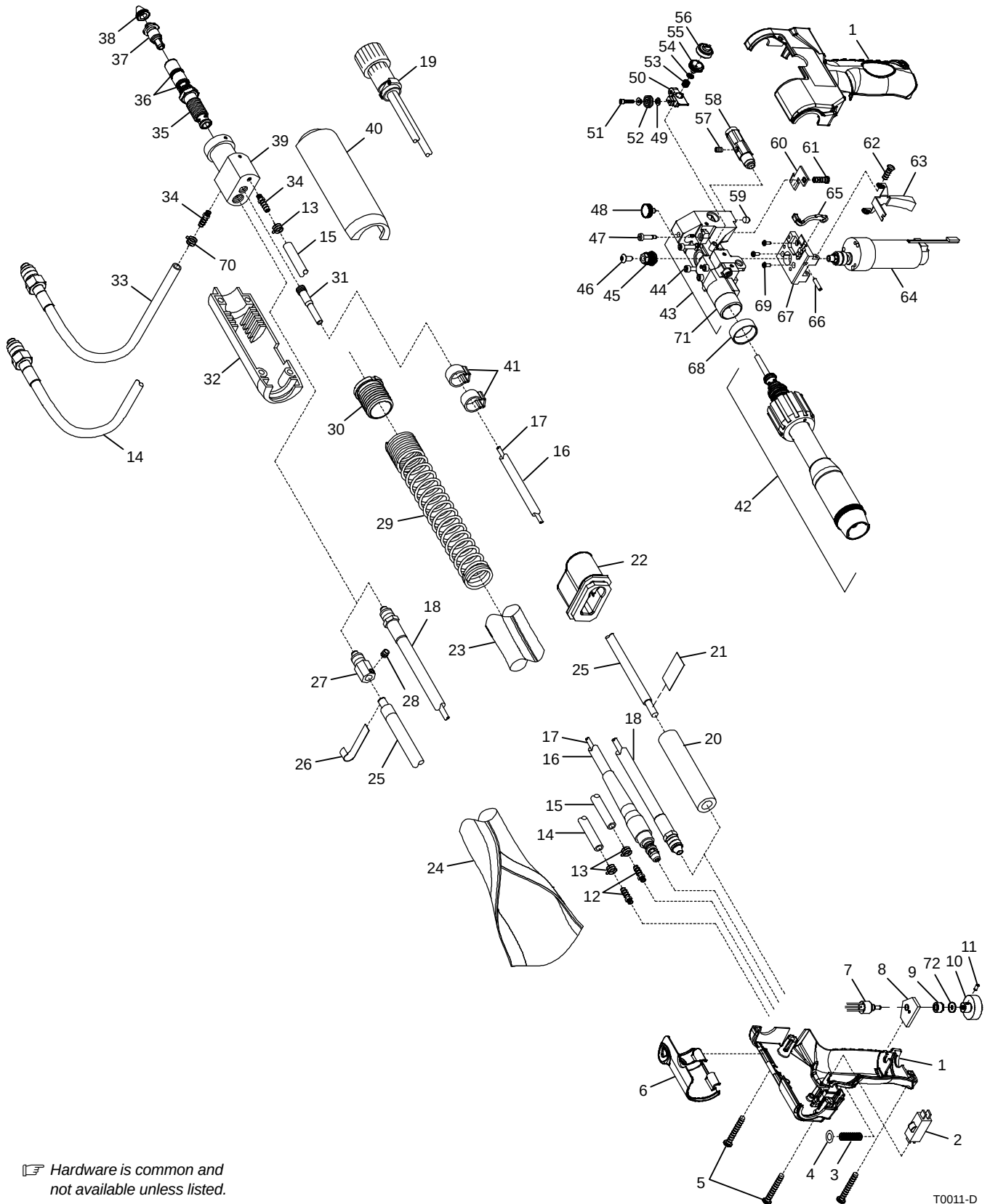


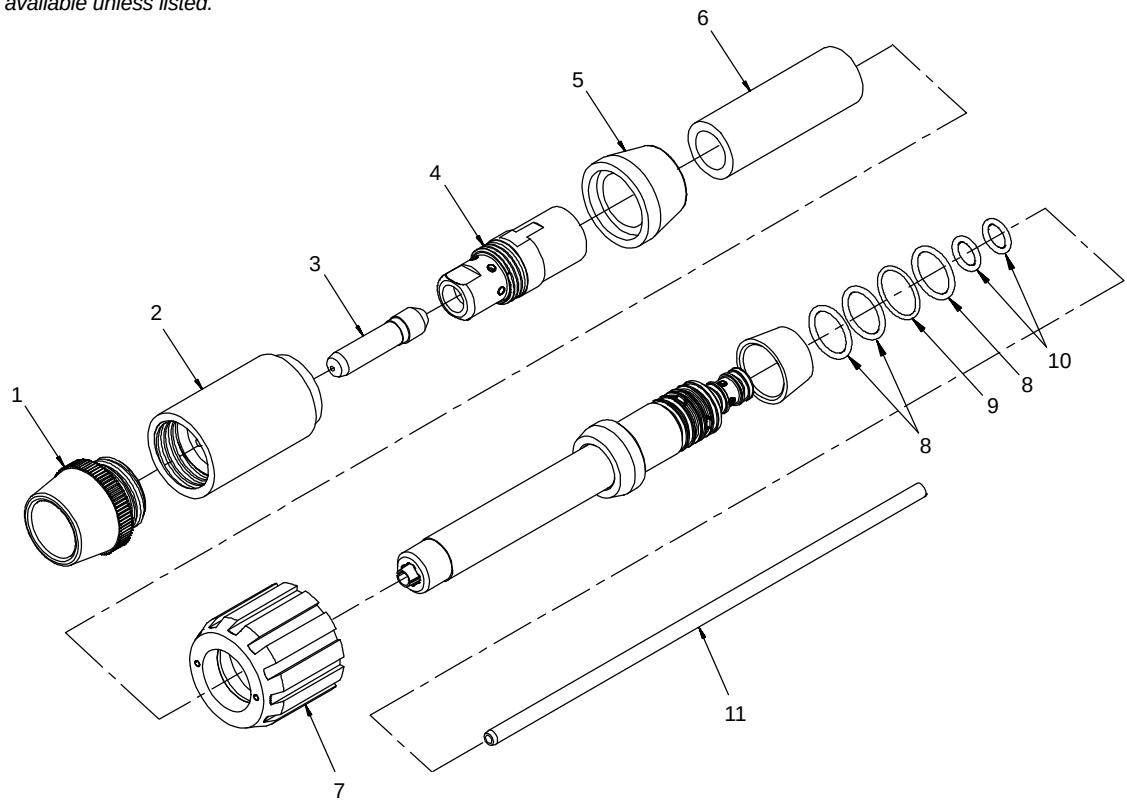
Figure 9-1. Exploded View Of XR - Pistol - Plus Gun

Item No.	Part No.	Description	Quantity
Figure 9-1. Exploded View Of XR - Pistol - Plus Gun			
1	257353	Kit, Handle XR Pistol Pro/Plus	1
2	000369	Limit Switch 10A	1
3	183884	Spring, Cprsn .300 Od X .026 Wire X 1.250	1
4	184101	Washer, Shldr.140ld 0.250Odx.047T .340Odx.078T Nyl	1
5	217934	Screw, K40x 20 Pan Hd-Trx Stl Pld Pt Thread Forming	3
6	248333	Pistol Plus Cover	1
7	200096	Potentiometer, C Sltd Sft 1/T .5W 10K Ohm	1
8	175731	Washer, Anti-turn	1
9	135127	Lock, Shaft Pot .250-32 X .125Dia Shaft	1
10	134856	Knob, Speed Control 1-10 .140 Shaft X 1.125 Od	1
11	602169	Screw, Set Stl Sch 8-32 X .187	2
12	135580	Fitting, Gas	1 A/C, 2 W/C
13	149332	Clamp, Hose .405 - .485 Clp Dia	2 A/C, 3 W/C
14	191072	Hose, Water In 15Ft	1
14	248361	Hose, Water In 25Ft	1
14	248376	Hose, Water In 35Ft	1
15	191058	Hose, Gas In 15Ft	1
15	248356	Hose, Gas In 25Ft	1
15	248371	Hose, Gas In 35Ft	1
16	M1114	Conduit/Liner Assembly, 15 Ft	1
16	248357	Conduit/Liner Assembly, 25 Ft	1
16	248372	Conduit/Liner Assembly, 35 Ft	1
17	M1115	Liner,.175-.180 Od X .120 Id Hi Lube 15' Gun W/Rng	1
17	248359	Liner,.175-.180 Od X .120 Id Hi Lube 25' Gun W/Rng	1
17	248375	Liner,.175-.180 Od X .120 Id Hi Lube 35' Gun W/Rng	1
18	191052	Cable, Power/Water Out 15Ft	1
18	228696	Cable, Power/Water Out 25Ft	1
18	232055	Cable, Power/Water Out 35Ft	1
19	M1619	Cable, Control 15Ft - Pistol Plus	1
19	M1620	Cable, Control 25Ft - Pistol Plus	1
19	M1621	Cable, Control 35Ft - Pistol Plus	1
20	235751	Tubing, Silicone Rbr .500 Id X Spool Black	1
21	235225	Strip, Cop .010 X 1.500 X .750	1
22	M1570	Strain Relief, Cable (Air)	1
22	238875	Strain Relief, Molded (Water)	1
23	227449	Jacket, Cable 2 Ft 4 In (Power Pin)	1
24	236764	Cable Cover, Leather W/Velcro 15Ft	1
24	248355	Cable Cover, Leather W/Velcro 25Ft	1
24	248377	Cable Cover, Leather W/Velcro 35Ft	1
25	235831	Cable, Power 15Ft (Air) - Pistol Plus	1
25	248381	Cable, Power 25Ft (Air) - Pistol Plus	1
25	248386	Cable, Power 35Ft (Air) - Pistol Plus	1
26	152577	Strip, Copper .010 X 2.000 X .750	1
27	137495	Fitting, Connection Power Weld	1
28	141694	Screw, Set 312-18 X .37 Conept Sch Stl Pln	1
29	246119	Spring, Strain Relief	1
30	203560	Strain Relief, Spring Retainer	1
31	203539	Fitting, Liner Double Wound Adapter	1
32	189812	Housing, Power Pin Rh	1
33	196177	Hose, Water Out 10 in.	1
34	202513	Fitting, Hose Brs Barbed M 3/16 Tbg X .250-20	1 A/C, 2 W/C
35	193896	Pin, Power Assembly	1
36	079974	O-ring, .500 Id X .103 Cs Rbr	2
37	229852	Guide, Collet Outlet .030-1/16	1
38	M1102	Guide, Cone Outlet	1
39	187029	Connector, Power/Gas	1
40	189811	Housing, Power Pin Lh	1
41	203557	Clamp, 1-Ear Type Nom Dim .391 X .236 Wide Special	2

Item No.	Diagram marking	Part No.	Description	Quantity
Figure 9-1. Exploded View Of XR - Pistol - Plus Gun (Continued)				
.. 42		258474	.. Kit, Head Tube Assy (Air) AP/PP 180Deg 4In. Lg Cntrfr	1
.. 42		258475	.. Kit, Head Tube Assy (Water) AP/PP 180Deg 4In. Lg Cntrfr	1
.. 43		248329	.. W/C Pistol Block Assy	1
.. 43		248388	.. A/C Pistol Block Assy	1
.. 44		M1154	.. Screw, 008-32 X .625 Soc Hd-Hex Stl Pld Lkg Patch	2
.. 45		227434	.. Drive Roll Knurled	1
.. 46		226588	.. Screw, 010-32 X .37 Btn Hd-Soc Sst Lkg Patch	1
.. 47		248466	.. Screw, 18-8 Hex Socket Shld 6-32 Thread	1
.. 48		155565	.. Screw, Thumb	1
		134799	.. O-ring, .176 Id X .070 Cs (Used W/Thumbscrew)	1
.. 49		134624	.. Washer Shldr .141 Id 0.187 Od X .094T .375 Od X .031T Nyl	2
.. 50		227435	.. Arm, Pressure (Machined)	1
.. 51		231443	.. Screw, 006-32 X .44 Soc Hd-Hex Grd 8 Pld Lkg Patch	1
.. 52		227439	.. Drive Roll Assy, Idler .645 Od	1
.. 53		227421	.. Spring, Crspn .360 Od X .059 Wire X .440 Free	1
.. 54		229850	.. Washer, Pressure Arm Precision	1
.. 55		M1376	.. Knob, Tension Pistol Pro/Plus 8-32 Thd	1
.. 56		229851	.. Nut, Pressure Arm Plastic	1
.. 57		005464	.. Screw, Set 250-20x .37 Ovl Pt Sch Stl Pln Nylok	1
.. 58		235753	.. Ftg, Connection Power Weld	1
.. 59		234971	.. Screw, Set 250-20x .31 Conept Sch Stl W/Nyl Patch (Air)	1
.. 59		078753	.. Screw, Set 250-20x .31 Cup Pt Sch Stl Pln	1
.. 60		136679	.. Clamp, Strain Relief	1
.. 61		129351	.. Screw, 008-32 X .50 Hexwhd .34D W/Spl Gndrng Stl Pld	1
.. 62		191121	.. Screw, 006-32 X .37 Btn Hd-Soc Stl Pld	2
.. 63		164592	.. Trigger	1
.. 64		M1614	.. Motor Assembly - Pistol Plus Guns	1
.. 65		M1358	.. Lever, Arm Assy Pistol Plus/Pro	1
.. 66		M1124	.. Set Screw 6-32 X .625	1
.. 67		248328	.. Motor Top Plate	1
.. 68		M1106	.. Pistol Plus Manifold Insulator	1
.. 69		227429	.. Screw, 004-40 X .25 Rnd Hd-Phl Stl Pld Lkkg Patch	3
.. 70		089120	.. Clamp, Hose .375 - .450 Clp Dia Slftng Green	1
.. 71		M1415	.. Kit, Manifold Block-Air Pistol Pro/Plus	1
.. 71		M1452	.. Kit, Manifold Block-Water Pistol Pro/Plus	1
.. 72		M1460	.. O-Ring, .143 Id X .349 Od X .103 Cs, Buna-N	1

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

☞ Hardware is common and not available unless listed.



T0012

Figure 9-2. (Water) Head Tube Assembly Of XR - Pistol - Plus Gun

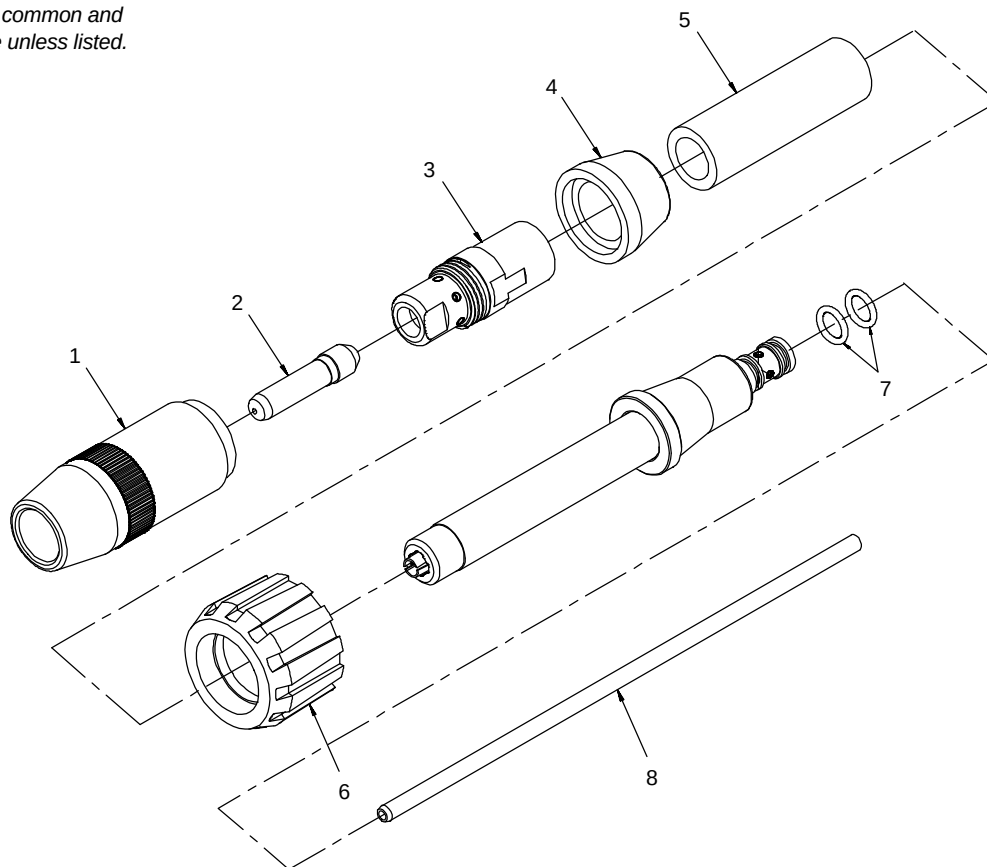
Item No.	Part No.	Description	Quantity
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**Figure 9-2. (Water) Head Tube Assembly Of XR - Pistol - Plus Gun
(Figure 9-1 Item 42)**

.....	258475	.. Kit, Head Tube Assy (Water) AP/PP 180Deg 4In. Lg Cntrfr	1
... 1	3414	.. Nozzle Cone, Cf Hd, 3/4 in. Id 1/4 in. Rec	1
... 2	N-HDC	.. Hd Centerfire Nozzle Body	1
... 3	T-047AL	.. Contact Tip, Centerfire .047 Aluminum	1
... 4	D-1AP	.. Diffuser, Centerfire-D-1AP	1
... 5	232284	.. Insulator, Nozzle Collared Diffuser (For 180°/Straight Only)	1
... 6	M1369	.. Insulator, Head Tubes Aluma/Pistol Pro W/C 4 in.	1
... 7	229889	.. Nut, Head Tube Rotation Water	1
.....	230970	.. Kit, Replacement O-Rings Head Tube Water (Includes)	1
... 8	194261	 O-Ring, .551 Id X .070 Cs 70 Duro Buna-n	3
... 9	210771	 O-Ring, 14.99mm Id X 1.27mm Cs 70 Duro Buna-n	1
... 10	191191	 O-Ring, .312 Id X .070 Cs 70 Duro Buna-n	2
... 11	M1442	.. Liner, Teflon .047-.062 Wire Soft Pro/Plus	1

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

Hardware is common and not available unless listed.



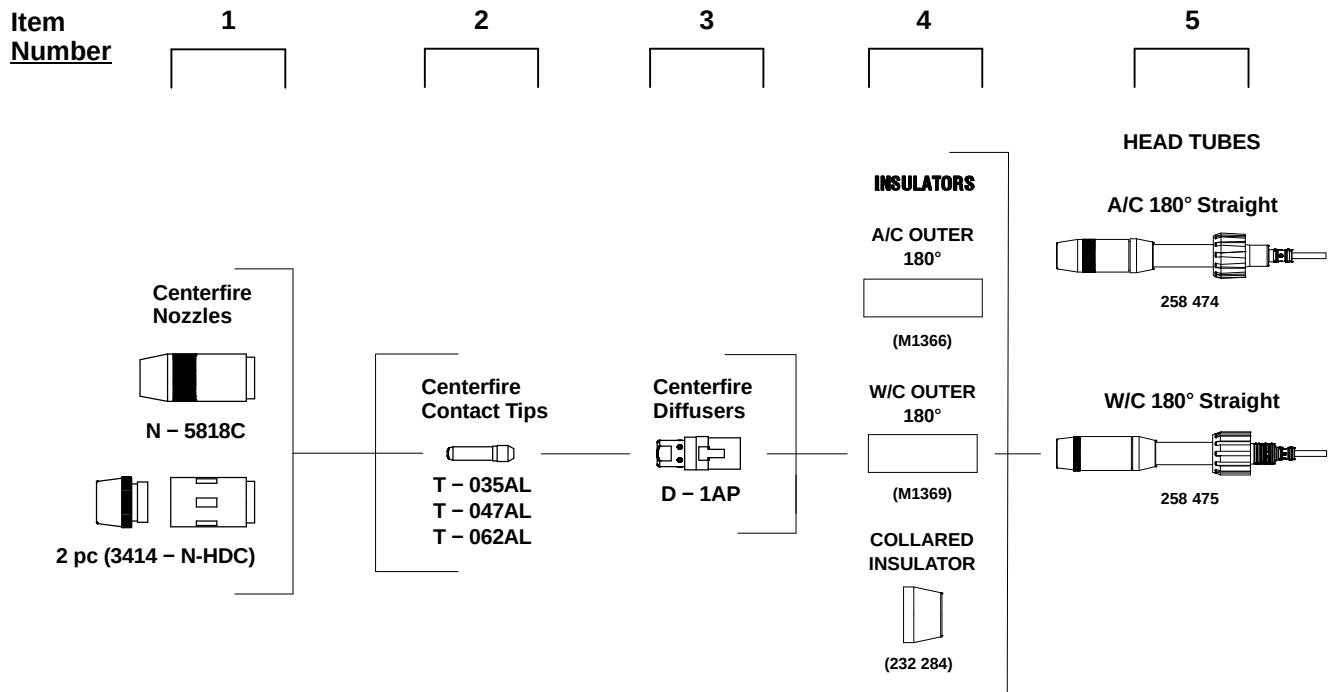
T0013

Figure 9-3. (Air) Head Tube Assembly Of XR - Pistol - Plus Gun

Item No.	Part No.	Description	Quantity
Figure 9-3. (Air) Head Tube Assembly Of XR - Pistol - Plus Gun (Figure 9-1 Item 42)			
258474	..	Kit, Head Tube Assy (Air) AP/PP 180Deg 4In. Lg Cntrfr	1
1	N-5818C	Nozzle, C-Fire Large Copper 5/8in. Recess 1/8in.	1
2	T-047AL	Contact Tip, Centerfire .047 Aluminum	1
3	D-1AP	Diffuser, Centerfire-D-1AP	1
4	232284	Insulator, Nozzle Collared Diffuser (For 180°/Straight Only)	1
5	M1366	Insulator, Head Tubes Aluma/Pistol Pro A/C 4 in.	1
6	227168	Nut, Head Tube Rotation	1
230969	..	Kit, Replacement O-Rings Head Tube Air (Includes)	1
7	191191	O-Ring, .312 Id X .070 Cs 70 Duro Buna-n	2
8	M1442	Liner, Teflon .047-.062 Wire Soft Pro/Plus	1

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

SECTION 10 – PARTS LIST INCLUDING CONSUMABLES



Ref. 803 909-A / T0014 / T0015

Figure 10-1. Consumables Flowchart

Item No.	Part No.	Description	Quantity
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10-1. Consumables Flowchart

Table 10-1. Centerfire Nozzles

... 1	N-5818C	Nozzle, C-Fire Large Copper 5/8 in. Recess 1/8 in. (Std. For A/C)	1
... 1	N-3414C	Nozzle, C-Fire Large Copper 3/4 in. Recess 1/4 in. (Std. For W/C)	1
... 1	N-HDC	HD Centerfire Nozzle Body (Std. For W/C)	1
... 1	3414	Nozzle Cone, Cf Hd, 3/4 in. Id 1/4 in. Rec	1

Table 10-2. Centerfire Contact Tips*

... 2	T-035AL	Centerfire Contact Tip .035 (0.9mm) Aluminum Wire	1
... 2	T-047AL	Centerfire Contact Tip 3/64 in. (1.2mm) Aluminum Wire	1
... 2	♦T-062AL	Centerfire Contact Tip 1/16 in. (1.6 mm) Aluminum Wire	1

Table 10-3. Centerfire Diffusers

... 3	D-1AP	Diffuser, Centerfire D-1AP	1
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Table 10-4. Insulators

... 4	M1366	Insulator, Head Tubes Aluma/Pistol Pro A/C 4 In.	1
... 4	M1369	Insulator, Head Tubes Aluma/Pistol Pro W/C 4 In.	1
... 4	232284	Insulator, Nozzle Collared Diffuser	1

Table 10-5. Head Tube Assemblies

... 5	258474	.. Kit, Head Tube Assy (A) AP/PP 180Deg 4In. Lg Cntrfr	1
... 5	258475	.. Kit, Head Tube Assy (W) AP/PP 180Deg 4In. Lg Cntrfr	1

Table 10-6. FasTip Head Tube Liners (Not Shown)

.....	M1441	.. Liner, Teflon .035-.045 Wire Soft Pro/Plus	1
.....	M1442	.. Liner, Teflon .047-.062 Wire Soft Pro/Plus	1

Table 10-7. Wire Kit (Not Shown)

.....	♦ 230708	.. Kit, Idler Roll 1/16 (.062)	1
.....	♦ 198377	.. Hardwire Liner Kit, 30W For Steel&Stainless	1

♦ OPTIONAL

*All contact tips are packaged in bags of 25.

BE SURE TO PROVIDE MODEL WHEN ORDERING REPLACEMENT PARTS.

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

TRUE BLUE[®]

WARRANTY

Effective January 1, 2017
(Equipment with a serial number preface of MH or newer)

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

Warranty Questions?

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

Your distributor also gives
you ...

Service

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

Support

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

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

Within the warranty periods listed below, Miller will repair or replace any warranted parts or components that fail due to such defects in material or workmanship. Miller must be notified in writing within thirty (30) days of such defect or failure, at which time Miller will provide instructions on the warranty claim procedures to be followed. If notification is submitted as an online warranty claim, the claim must include a detailed description of the fault and the troubleshooting steps taken to identify failed components and the cause of their failure.

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

1. 5 Years Parts — 3 Years Labor
 - * Original Main Power Rectifiers Only to Include SCRs, Diodes, and Discrete Rectifier Modules
2. 3 Years — Parts and Labor
 - * Auto-Darkening Helmet Lenses (Except Classic Series) (No Labor)
 - * Engine Driven Welder/Generators
(NOTE: Engines are Warranted Separately by the Engine Manufacturer.)
 - * Inverter Power Sources (Unless Otherwise Stated)
 - * Plasma Arc Cutting Power Sources
 - * Process Controllers
 - * Semi-Automatic and Automatic Wire Feeders
 - * Transformer/Rectifier Power Sources
3. 2 Years — Parts and Labor
 - * Auto-Darkening Helmet Lenses – Classic Series Only (No Labor)
 - * Fume Extractors – Capture 5, Filtair 400 and Industrial Collector Series
4. 1 Year — Parts and Labor Unless Specified
 - * AugmentedArc and LiveArc Welding Systems
 - * Automatic Motion Devices
 - * Bernard BTB Air-Cooled MIG Guns (No Labor)
 - * CoolBelt and CoolBand Blower Unit (No Labor)
 - * Desiccant Air Dryer System
 - * External Monitoring Equipment and Sensors
 - * Field Options
(NOTE: Field options are covered for the remaining warranty period of the product they are installed in, or for a minimum of one year — whichever is greater.)
 - * RFCS Foot Controls (Except RFCS-RJ45)
 - * Fume Extractors – Filtair 130, MWX and SWX Series
 - * HF Units
 - * ICE/XT Plasma Cutting Torches (No Labor)
 - * Induction Heating Power Sources, Coolers
(NOTE: Digital Recorders are Warranted Separately by the Manufacturer.)
 - * Load Banks
 - * Motor-Driven Guns (except Spoolmate Spoolguns)
 - * PAPR Blower Unit (No Labor)
 - * Positioners and Controllers
 - * Racks
 - * Running Gear/Trailers
 - * Spot Welders
 - * Subarc Wire Drive Assemblies
 - * TIG Torches (No Labor)
 - * Tregaskiss Guns (No Labor)
 - * Water Cooling Systems
 - * Wireless Remote Foot/Hand Controls and Receivers
 - * Work Stations/Weld Tables (No Labor)

5. 6 Months — Parts
 - * Batteries
6. 90 Days — Parts
 - * Accessory (Kits)
 - * Canvas Covers
 - * Induction Heating Coils and Blankets, Cables, and Non-Electronic Controls
 - * 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.

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

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

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

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

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

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





Owner's Record

Please complete and retain with your personal records.

Model Name

Serial/Style Number

Purchase Date

(Date which equipment was delivered to original customer.)

Distributor

Address

City

State

Zip



For Service

Contact a *DISTRIBUTOR* or *SERVICE AGENCY* near you.

Always provide Model Name and Serial/Style Number.

Contact your Distributor for:

Welding Supplies and Consumables

Options and Accessories

Personal Safety Equipment

Service and Repair

Replacement Parts

Training (Schools, Videos, Books)

Technical Manuals (Servicing Information and Parts)

Circuit Diagrams

Welding Process Handbooks

To locate a Distributor or Service Agency visit www.millerwelds.com or call 1-800-4-A-Miller

Contact the Delivering Carrier to:

File a claim for loss or damage during shipment.

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

Miller Electric Mfg. Co.

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

International Headquarters—USA

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

For International Locations Visit
www.MillerWelds.com

