



OM-287348A

2020-04

**Processes**



MIG (GMAW) Welding

Flux Cored (FCAW) Welding

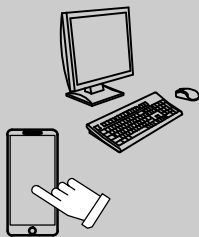
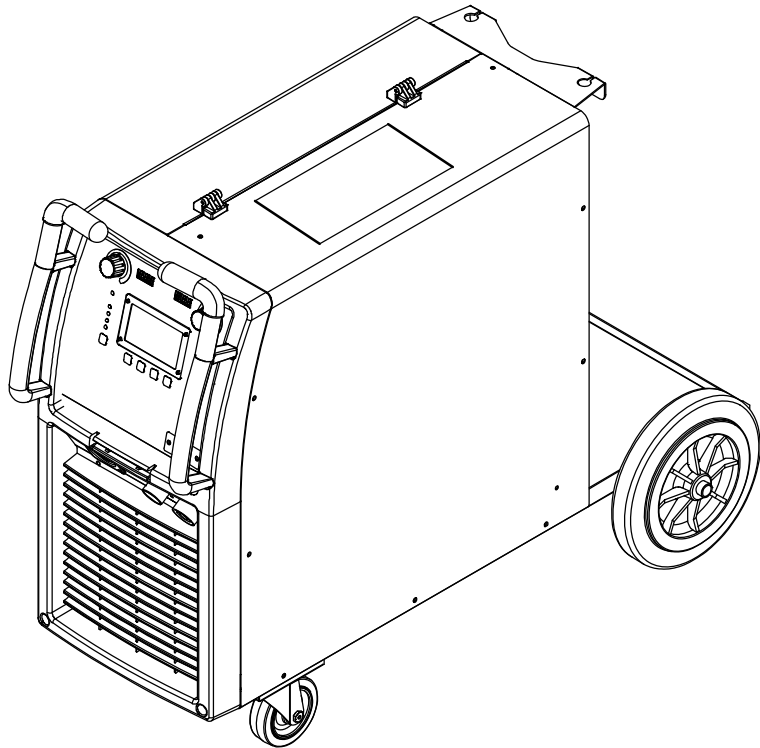
**Description**



Arc Welding Power Source

Wire Feeder

# MigMatic<sup>®</sup> 260i/300iP/320i CE



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

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

## OWNER'S MANUAL

File: MIG (GMAW)



# From Miller to You

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

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

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

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



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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# DECLARATION OF CONFORMITY

for European Community (CE marked) products.

**ITW Welding Products B.V. Edisonstraat 10, 3261 LD Oud-Beijerland, Netherlands, declares that the product(s) identified in this declaration conform to the essential requirements and provisions of the stated Council Directive(s) and Standard(s).**

Product/Apparatus Identification:

Product	Stock Number
MIGMATIC 260i	059015051
MIGMATIC 300iP	059015052
MIGMATIC 320i	059015053

Council Directives:

- 2014/35/EU Low Voltage
- 2014/30/EU Electromagnetic Compatibility
- 2011/65/EU Restriction of the use of certain hazardous substances in electrical and electronic equipment

Standards:

- IEC 60974-1:2012 Arc Welding Equipment – Part 1: Welding Power Sources
- IEC 60974-5:2013 Arc Welding Equipment - Part 5: Wire Feeders
- IEC 60974-10:2014+A1:2015 Arc Welding Equipment – Part 10: Electromagnetic Compatibility Requirements

EU Signatory:

**Pieter Keultjes**

November 4<sup>th</sup>, 2019

Date of Declaration

*Equipment Technical Manager - EMEAR*

956172369

# EMF DATA SHEET FOR ARC WELDING POWER SOURCE



## Product/Apparatus Identification

Product	Stock Number
MigMatic 260i	059015051
MigMatic 300iP	059015052
MigMatic 320i	059015053

## Compliance Information Summary

Applicable regulation Directive 2014/35/EU

Reference limits Directive 2013/35/EU, Recommendation 1999/519/EC

Applicable standards IEC 62822-1:2016, IEC 62822-2:2016

Intended use  for occupational use  for use by laymen

Non-thermal effects need to be considered for workplace assessment  YES  NO

Thermal effects need to be considered for workplace assessment  YES  NO

Data is based on maximum power source capability (valid unless firmware/hardware is changed)

Data is based on worst case setting/program (only valid until setting options/welding programs are changed)

Data is based on multiple settings/programs (only valid until setting options/welding programs are changed)

Occupational exposure is below the Exposure Limit Values (ELVs) for health effects at the standardized configurations  YES  NO  
(if NO, specific required minimum distances apply)

Occupational exposure is below the Exposure Limit Values (ELVs) for sensory effects at the standardized configurations  n.a  YES  NO  
(if applicable and NO, specific measures are needed)

Occupational exposure is below the Action Levels (ALs) at the standardized configurations  n.a  YES  NO  
(if applicable and NO, specific signage is needed)

## EMF Data for Non-thermal Effects

Exposure Indices (EIs) and distances to welding circuit (for each operation mode, as applicable)

	Head		Trunk	Limb (hand)	Limb (thigh)
	Sensory Effects	Health Effects			
Standardized distance	10 cm	10 cm	10 cm	3 cm	3 cm
ELV EI @ standardized distance	0.09	0.06	0.09	0.05	0.11
Required minimum distance	1 cm	1 cm	1 cm	1 cm	1 cm

Distance where all occupational ELV Exposure Indices fall below 0.20 (20%) 2 cm

Distance where all general public ELV Exposure Indices fall below 1.00 (100%) 71 cm

Tested by: Joe Krueger Date tested: 2019-11-04

# SECTION 1 – SAFETY PRECAUTIONS - READ BEFORE USING

som 2020-02

 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 listed in Section 1-5. 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.
- Do not touch electrode holders connected to two welding machines at the same time since double open-circuit voltage will be present.
- Use only well-maintained equipment. Repair or replace damaged parts at once. Maintain unit according to manual.
- Wear a safety harness if working above floor level.
- Keep all panels and covers securely in place.
- Clamp work cable with good metal-to-metal contact to workpiece or worktable as near the weld as practical.
- Insulate work clamp when not connected to workpiece to prevent contact with any metal object.
- Do not connect more than one electrode or work cable to any single weld output terminal. Disconnect cable for process not in use.
- Use GFCI protection when operating auxiliary equipment in damp or wet locations.

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

- Turn off unit, disconnect input power, and discharge input capacitors according to instructions in Manual before touching any parts.



### HOT PARTS can burn.

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



### FUMES AND GASES can be hazardous.

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

- Keep your head out of the fumes. Do not breathe the fumes.
- 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.



### 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.

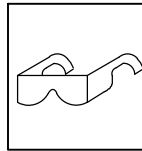


### WELDING can cause fire or explosion.

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 and AWS A6.0 (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 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.
- 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.



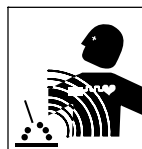
### FLYING METAL or DIRT can injure eyes.

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



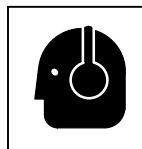
### BUILDUP OF GAS can injure or kill.

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



### 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.



### NOISE can damage hearing.

Noise from some processes or equipment can damage hearing.

- Wear approved ear protection if noise level is high.





### CYLINDERS can explode if damaged.

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



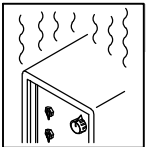
### FIRE OR EXPLOSION hazard.

- 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.



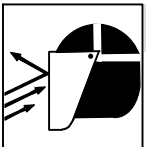
### FALLING EQUIPMENT can injure.

- 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.



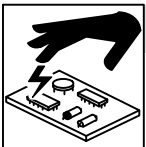
### OVERUSE can cause OVERHEATING

- 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.



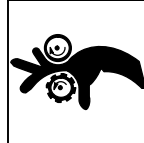
### FLYING SPARKS can injure.

- 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.



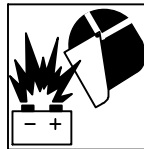
### MOVING PARTS can injure.

- 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.



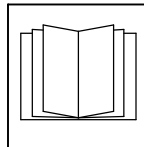
### BATTERY EXPLOSION can injure.

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



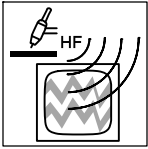
### MOVING PARTS can injure.

- 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.

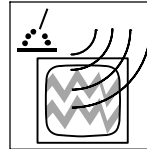
- Read and follow all labels and the Owner's Manual carefully before installing, operating, or servicing unit. Read the safety information at the beginning of the manual and in each section.
- Use only genuine replacement parts from the manufacturer.
- Perform installation, maintenance, and service according 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 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](http://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: [www.aws.org](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](http://www.ansi.org).

*Safe Practices for the Preparation of Containers and Piping for Welding and Cutting*, American Welding Society Standard AWS F4.1 from Global Engineering Documents. Website: [www.global.ihs.com](http://www.global.ihs.com).

*Safe Practices for Welding and Cutting Containers that have Held Combustibles*, American Welding Society Standard AWS A6.0 from Global Engineering Documents. Website: [www.global.ihs.com](http://www.global.ihs.com).

*National Electrical Code*, NFPA Standard 70 from National Fire Protection Association. Website: [www.nfpa.org](http://www.nfpa.org) and [www.sparky.org](http://www.sparky.org).

*Safe Handling of Compressed Gases in Cylinders*, CGA Pamphlet P-1 from Compressed Gas Association. Website: [www.cganet.com](http://www.cganet.com).

*Safety in Welding, Cutting, and Allied Processes*, CSA Standard W117.2 from Canadian Standards Association. Website: [www.csagroup.org](http://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](http://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](http://www.osha.gov).

OSHA *Important Note Regarding the ACGIH TLV, Policy Statement on the Uses of TLVs and BEIs*. Website: [www.osha.gov](http://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](http://www.cdc.gov/NIOSH).

## 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.



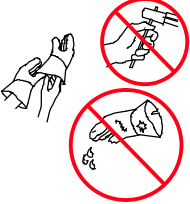
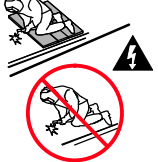
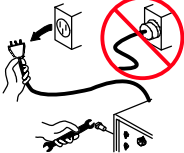

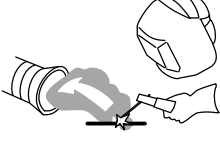

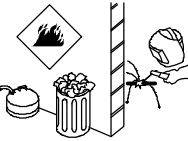

### About Implanted Medical Devices:



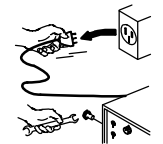

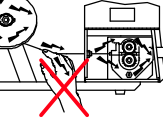
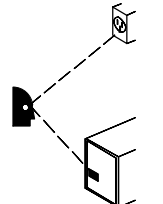
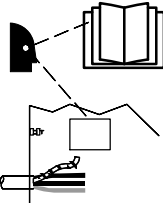
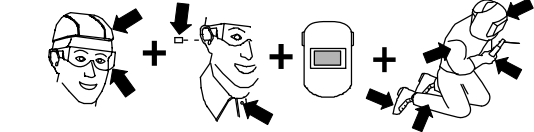
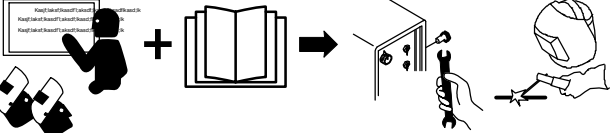
Implanted Medical Device wearers should consult their doctor and the device manufacturer before performing or going near arc welding, spot welding, gouging, plasma arc cutting, or induction heating operations. If cleared by your doctor, then following the above procedures is recommended.

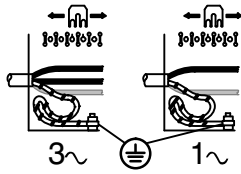
# SECTION 2 – DEFINITIONS

## 2-1. Additional Safety Symbols And Definitions

 Some symbols are found only on CE products.

	<p>Warning! Watch Out! There are possible hazards as shown by the symbols.</p> <p style="text-align: right;">Safe1 2012-05</p>
	<p>Do not discard product (where applicable) with general waste. Reuse or recycle Waste Electrical and Electronic Equipment (WEEE) by disposing at a designated collection facility. Contact your local recycling office or your local distributor for further information.</p> <p style="text-align: right;">Safe37 2017-04</p>
	<p>Wear dry insulating gloves. Do not touch electrode with bare hand. Do not wear wet or damaged gloves.</p> <p style="text-align: right;">Safe2 2017-04</p>
	<p>Protect yourself from electric shock by insulating yourself from work and ground.</p> <p style="text-align: right;">Safe3 2017-04</p>
	<p>Disconnect input plug or power before working on machine.</p> <p style="text-align: right;">Safe5 2017-04</p>
	<p>Keep your head out of the fumes.</p> <p style="text-align: right;">Safe6 2017-04</p>
	<p>Use forced ventilation or local exhaust to remove the fumes.</p> <p style="text-align: right;">Safe8 2012-05</p>
	<p>Use ventilating fan to remove fumes.</p> <p style="text-align: right;">Safe10 2012-05</p>
	<p>Keep flammables away from welding. Do not weld near flammables.</p> <p style="text-align: right;">Safe12 2012-05</p>
	<p>Welding sparks can cause fires. Have a fire extinguisher nearby, and have a watchperson ready to use it.</p> <p style="text-align: right;">Safe14 2012-05</p>

	<p>Do not weld on drums or any closed containers.</p> <p style="text-align: right;">Safe16 2017-04</p>
	<p>Do not remove or paint over (cover) the label.</p> <p style="text-align: right;">Safe20 2017-04</p>
	<p>Disconnect input plug or power before working on machine.</p> <p style="text-align: right;">Safe30 2012-05</p>
	<p>Drive rolls can injure fingers.</p> <p style="text-align: right;">Safe32 2012-05</p>
	<p>Welding wire and drive parts are at welding voltage during operation – keep hands and metal objects away.</p> <p style="text-align: right;">Safe33 2017-04</p>
	<p>Consult rating label for input power requirements. See rating label on unit and check input voltage available at site.</p> <p style="text-align: right;">Safe34 2012-05</p>
	<p>Become trained and read the instructions and labels before working on machine.</p> <p style="text-align: right;">Safe35 2012-05</p>
	<p>Wear hat and safety glasses. Use ear protection and button shirt collar. Use welding helmet with correct shade of filter. Wear complete body protection.</p> <p style="text-align: right;">Safe38 2012-05</p>
	<p>Become trained and read the instructions before working on the machine or welding.</p> <p style="text-align: right;">Safe40 2012-05</p>



Move jumper links as shown on inside label to match input voltage at job site. Include extra length in grounding conductor and connect grounding conductor first. Connect line input conductors as shown on inside label. Double-check all connections, jumper link positions, and input voltage before applying power.

Safe49 2012-05



< 10°

Falling unit can cause injury. Do not move or operate unit where it could tip.

Safe53 2017-04

## 2-2. Miscellaneous Symbols And Definitions

<b>A</b>	Amperage
<b>V</b>	Volts
	Alternating Current (AC)
	Direct Current (DC)
	Remote
<b>I</b>	On
<b>O</b>	Off
	Protective Earth (Ground)
	Line Connection
<b>3</b>	Three Phase
	Material Thickness
	Gas Metal Arc Welding (GMAW)
<b>U<sub>1</sub></b>	Primary Voltage
<b>I<sub>1max</sub></b>	Rated Maximum Supply Current
	Directional Arrow
	Welding (General)
<b>S</b>	Suitable for Welding in an Environment with Increased Risk of Electric Shock
	Three Levels Trigger Mode (Eur)

<b>I<sub>1eff</sub></b>	Maximum Effective Supply Current
<b>U<sub>2</sub></b>	Conventional Load Voltage
<b>I<sub>2</sub></b>	Rated Welding Current
<b>X</b>	Duty Cycle
<b>%</b>	Percent
<b>U<sub>0</sub></b>	Rated No Load Voltage (OCV)
<b>IP</b>	Degree Of Protection
	Slope Down Time
	Inverter
	Two-Step Trigger Operation
	Four-Step Trigger Operation
	Gas Input
	Gas Output
	Home
	Purge by Gas
<b>-</b>	Negative
	Cooling
	Arc Length

	Settings
	Fuse
	Gas Type
	Voltage Input
	Wire Feed
<b>Hz</b>	Hertz
	Input
	Read Operator's Manual
	Wire Type
$\varnothing$ MM (IN)	Diameter
	Intermittent (Stitch) Welding
	Wire Burnback Control
	Wire Run-In Speed Control
	Initial Current
	Final Current
	Variable Inductance
	Prewflow Time Postflow Time
	Temperature Indication

# SECTION 3 – SPECIFICATIONS

## 3-1. Serial Number And Rating Label Location

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

## 3-2. 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.

## 3-4. Specifications

⚠ Do not use information in unit specifications table to determine electrical service requirements. See Sections 4-6 and 4-7 for information on connecting input power.

⚠ This equipment will deliver rated output at an ambient air temperature up to 104 °F ( 40 °C).

Model	Rated Output			Max. Open Circuit Voltage	Amperage Range DC	Dimension in (mm)	Weight lb (kg)
	100%	60%	35% (300iP@40%)				
260i 400 VAC 50/60 Hz	180 A 23.0 V	210 A 24.5 V	260 A 27.0 V	70.0 V	15-260 A	18.5 x 33 x 42 (1070 x 470 x 830)	125 (57) Net 143 (65) Net
300i P 400 VAC 50/60 Hz	200 A 24.0 V	250 A 26.5 V	300 A 29.0 V	70.0 V	15-300 A	18.5 x 33 x 42 (1070 x 470 x 830)	125 (57) Net 143 (65) Net
320i 400 VAC 50/60 Hz	200 A 24.0 V	250 A 26.5 V	320 A 30.0 V	70.0 V	15-320 A	18.5 x 33 x 42 (1070 x 470 x 830)	125 (57) Net 143 (65) Net

Wire feed speed range: 1.4 mpm to 20 mpm.

## 3-5. Environmental Specifications

### A. IP Rating

IP Rating
IP23S
This equipment is designed for outdoor use. It may be stored, but is not intended to be used outside during precipitation unless sheltered.
IP23S 2014-06

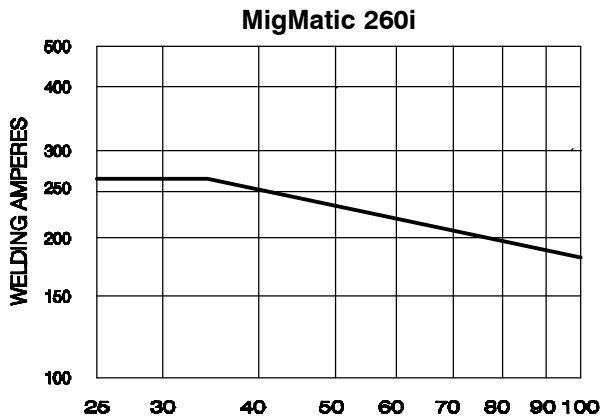
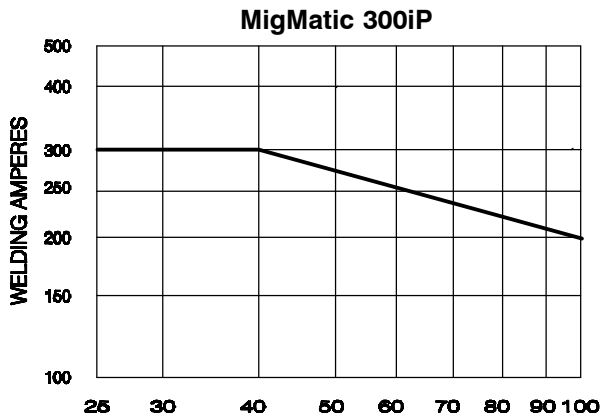
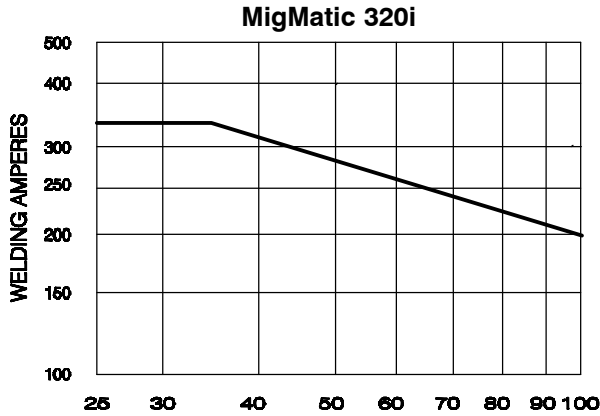
### B. Temperature Specifications

Operating Temperature Range*	Storage/Transportation Temperature Range
-10 to 40°C (14 to 104°F)	-20 to 55°C (-4 to 131°F)
*Output is derated at temperatures above 40°C (104°F).	Temp_2016-07

### C. Information On Electromagnetic Compatibility (EMC)

<p><b>⚠ This Class A equipment is not intended for use in residential locations where the electrical power is provided by the public low voltage supply system. There can be potential difficulties in ensuring electromagnetic compatibility in those locations, due to conducted as well as radiated disturbances.</b></p> <p>This equipment does not comply with IEC 61000-3-12. If it is connected to a public low voltage system, it is the responsibility of the installer or user of the equipment to ensure, by consultation with the distribution network operator if necessary, that the equipment can be connected. IEC/TS 61000-3-4 can be used to guide parties concerned by the installation of arc welding equipment with an input current greater than 16 A in a low voltage network.</p> <p style="text-align: right;">ce-emc 2 2014-07</p>
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### 3-6. Duty Cycle And Overheating



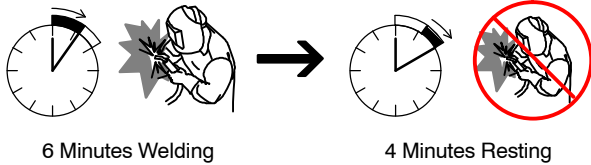
Duty Cycle is percentage of 10 minutes that unit can weld at rated load without overheating.

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

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

60% Duty Cycle At 250 Amperes

For the 320 i and 300ip only.

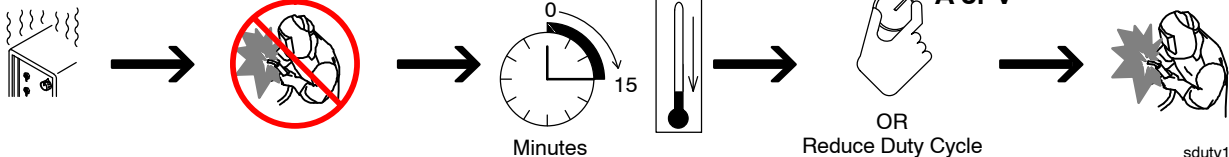


100% Duty Cycle At 200 Amperes

For the 320 i and 300ip only.



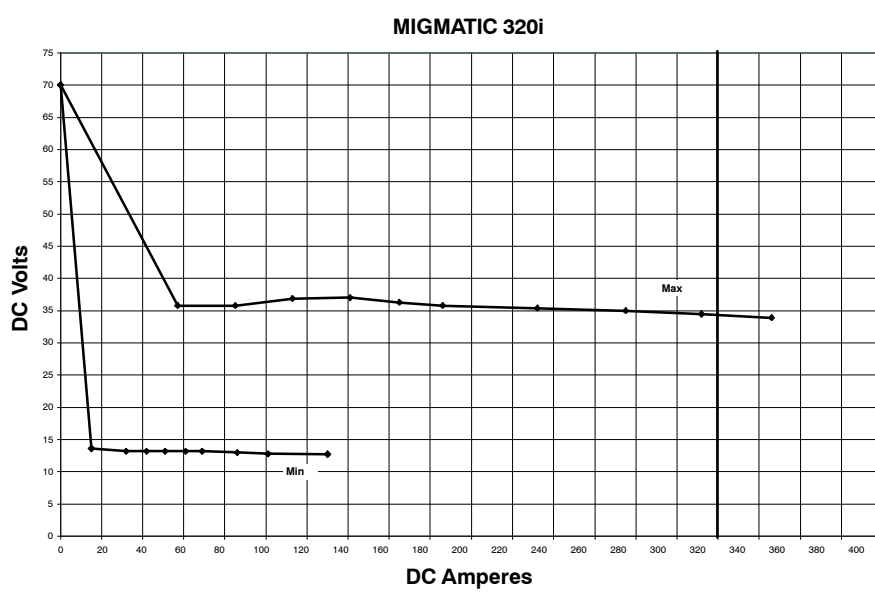
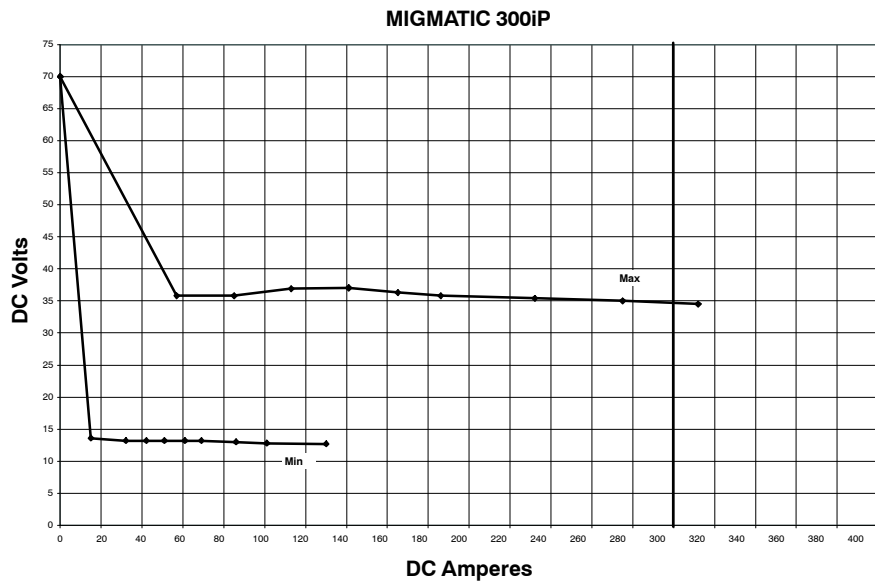
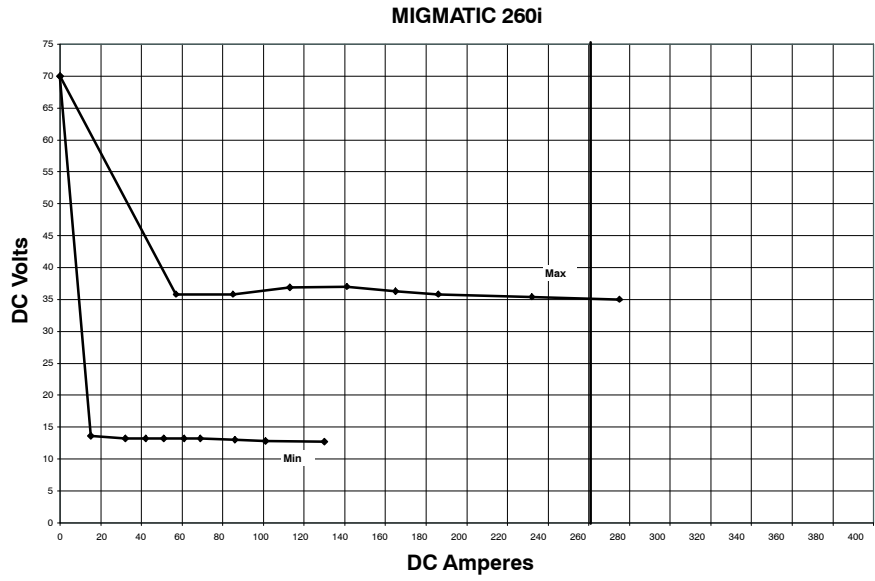
**Overheating**





### 3-7. Volt-Ampere Curves

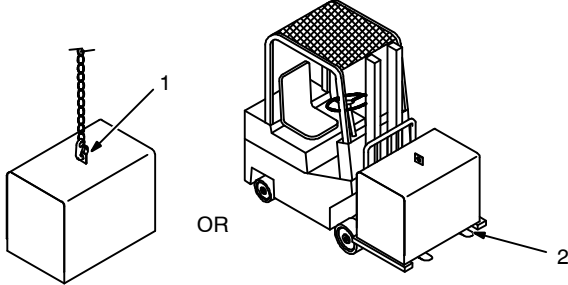
The volt-ampere curves show the normal minimum and maximum voltage and amperage output capabilities of the welding power source. Curves of other settings fall between the curves shown.



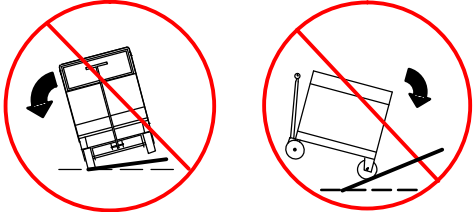
# SECTION 4 – INSTALLATION

## 4-1. Selecting A Location

**Movement**

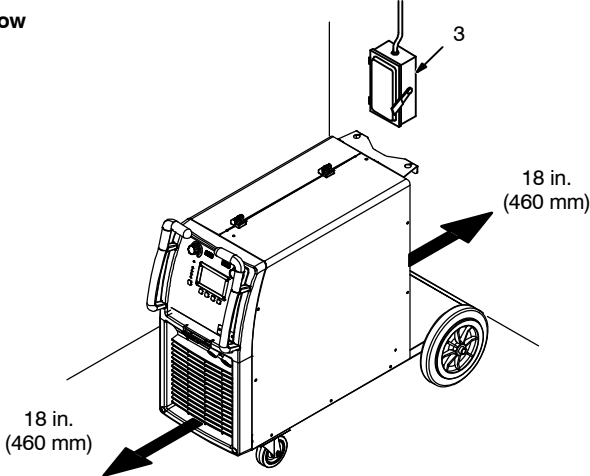


**Do not move or operate unit where it could tip.**



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**Location And Airflow**



**Special installation may be required where gasoline or volatile liquids are present – see NEC Article 511 or CEC Section 20.**

- 1 Lifting Eye
- 2 Lifting Forks

Use lifting eye or lifting forks to move unit.


If using lifting forks, extend forks beyond opposite side of unit.

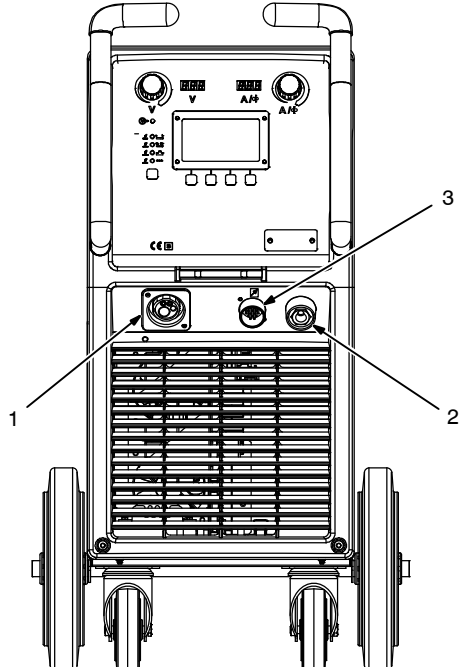
- 3 Line Disconnect Device

Locate unit near correct input power supply.

loc\_large 2018-08 / Ref. 956172373\_1-A

## 4-2. Weld Output Terminals





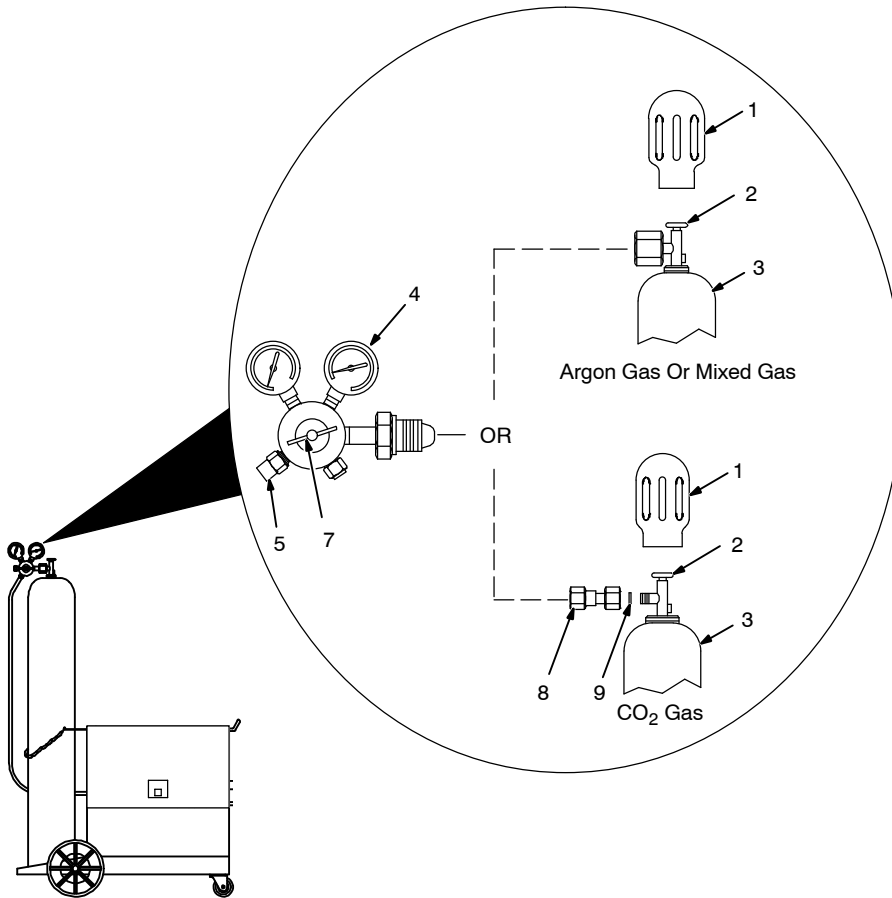
**Turn off power before connecting to weld output terminals.**

**Do not use worn, damaged, undersized, or repaired cables.**

- 1 Gun/Feeder Adapter (+ve Weld Output)
- 2 Work Weld Output Terminal (-ve Weld Output)
- 3 Remote 14 Receptacle see Section 4-5

Ref. 956172373\_2\_A

## 4-3. Installing Gas Supply



Obtain gas cylinder and chain to running gear, wall, or other stationary support so cylinder cannot fall and break off valve.

- 1 Cap
- 2 Cylinder Valve

Remove cap, stand to side of valve, and open valve slightly. Gas flow blows dust and dirt from valve. Close valve.

- 3 Cylinder
- 4 Regulator/Flowmeter

Install so face is vertical.

- 5 Regulator/Flowmeter Gas Hose Connection

- 6 Welding Power Source Gas Hose Connection

Connect supplied gas between regulator/flowmeter gas hose connection, and fitting on rear of welding power source.

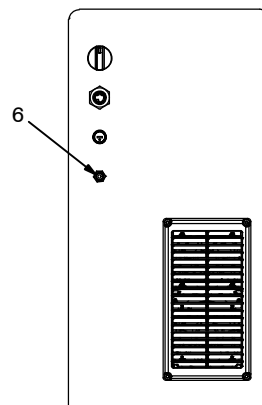
- 7 Flow Adjust

Typical flow rate is between 15-20 liters per minute. Check wire manufacturer's recommended flow rate.

- 8 CO<sub>2</sub> Adapter (Customer Supplied)

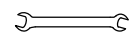
- 9 O-Ring (Customer Supplied)

Install adapter with O-ring between regulator/flow meter and CO<sub>2</sub> cylinder.



Rear Panel

Tools Needed:



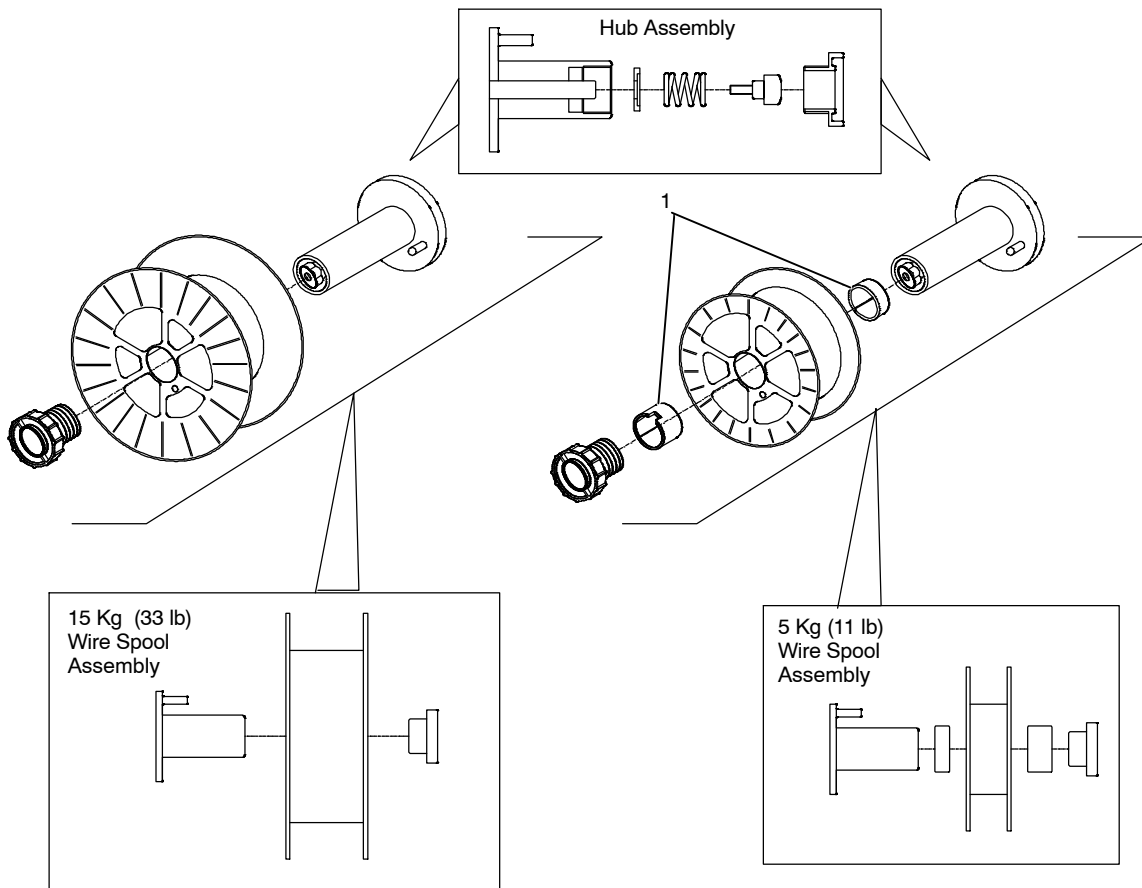
19/32 in (15 mm)

## 4-4. Installing Wire Spool And Adjusting Hub Tension



1 Spacers

Use only for 5 kg (11 lb) spool.

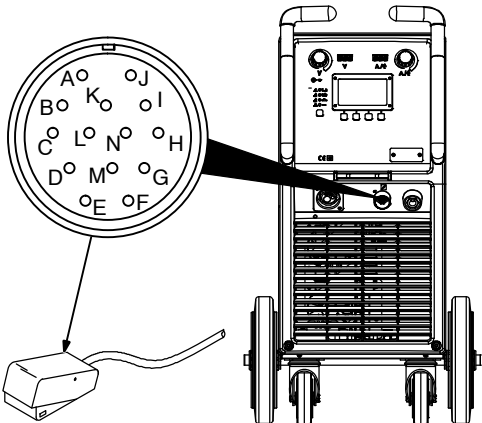


Tools Needed:



Ref. D2

### 4-5. Remote 14-Pin Receptacle Information

	REMOTE 14	Socket	Socket Information
	OUTPUT CONTACTOR	A	Sw3
B		Sw4	
INPUT/OUTPUT REMOTE CONTROL POT 1	D	+5V Pot	
	E	Comm Pot1-2	
	F	Down1/R Pot1	
INPUT/OUTPUT REMOTE CONTROL POT 2	G	Up2	
	D	+5V Pot	
	E	Comm Pot1-2	
	K	Down2/R Pot2	
	G	Up2	
	I	Common sense	
UP/DOWN TORCH	L	Sense 2 (R220K Pot 2)	
	C	Up1	
	E	Comm Pot1-2	
	F	Down1/R Pot1	
	I	Common sense	
CHASSIS	J	Sense 1 (jumper up/down)	
	H	Ground	
PUSH/PULL	M	+ Motor push pull	
	N	- Motor push pull	

956172373\_6\_A

\*The remaining sockets are not used. See Figure 7-4.

## Notes

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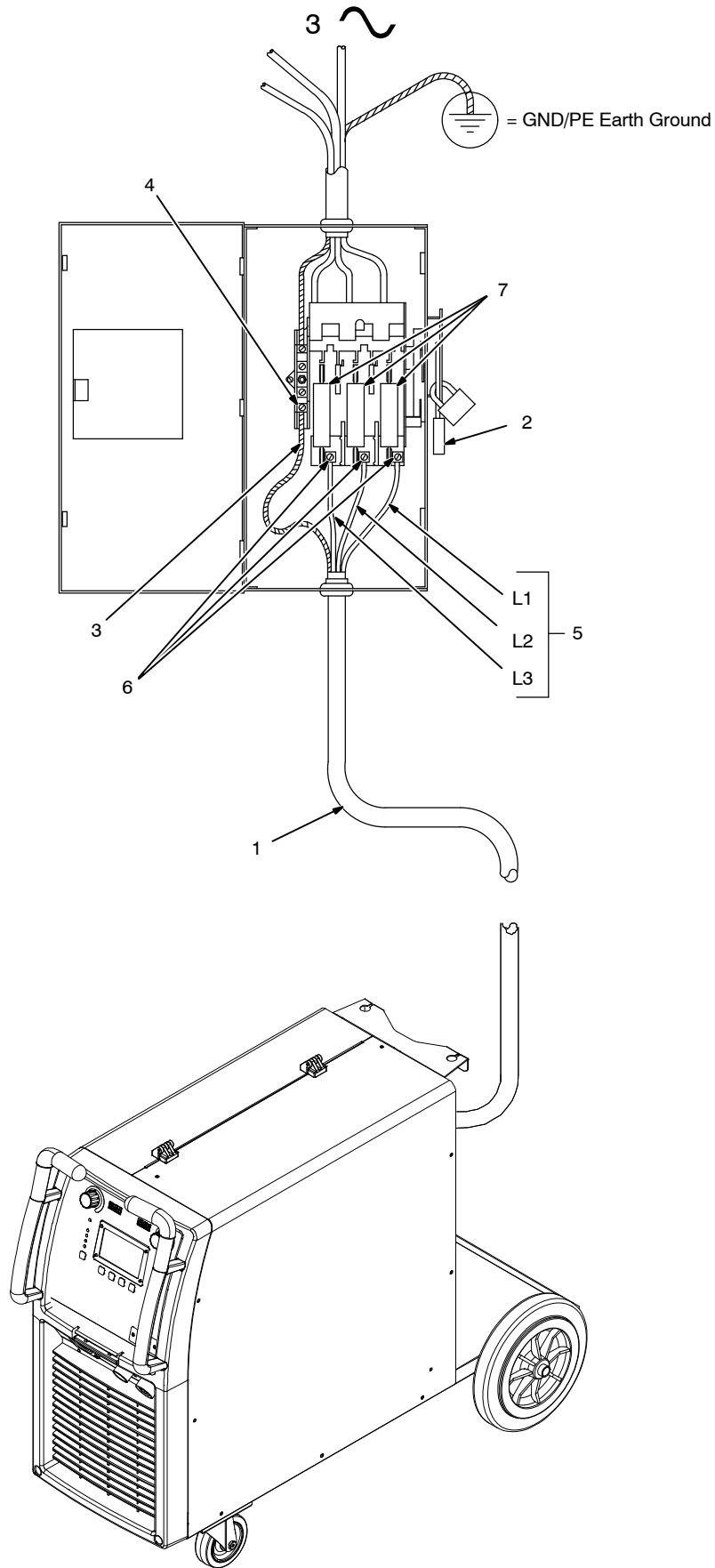
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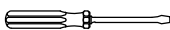
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## 4-7. Connecting 3-Phase Input Power



Tools Needed:



## 4-7. Connecting 3-Phase Input Power (Continued)



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

**⚠ Disconnect and lockout/tagout input power before connecting input conductors from unit. Follow established procedures regarding the installation and removal of lockout/tagout devices.**

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

See rating label on unit and check input voltage available at site.

### For Three-Phase Operation

- 1 Input Power Cord.
- 2 Disconnect Device (switch shown in the OFF position)
- 3 Green Or Green/Yellow Grounding Conductor
- 4 Disconnect Device Grounding Terminal
- 5 Input Conductors (L1, L2 And L3)
- 6 Disconnect Device Line Terminals

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

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

### 7 Over-Current Protection

Select type and size of over-current protection using Sections 4-6 (fused disconnect switch shown).

Close and secure door on disconnect device. Follow established lockout/tagout procedures to put unit in service.

input2 2012-05

## Notes

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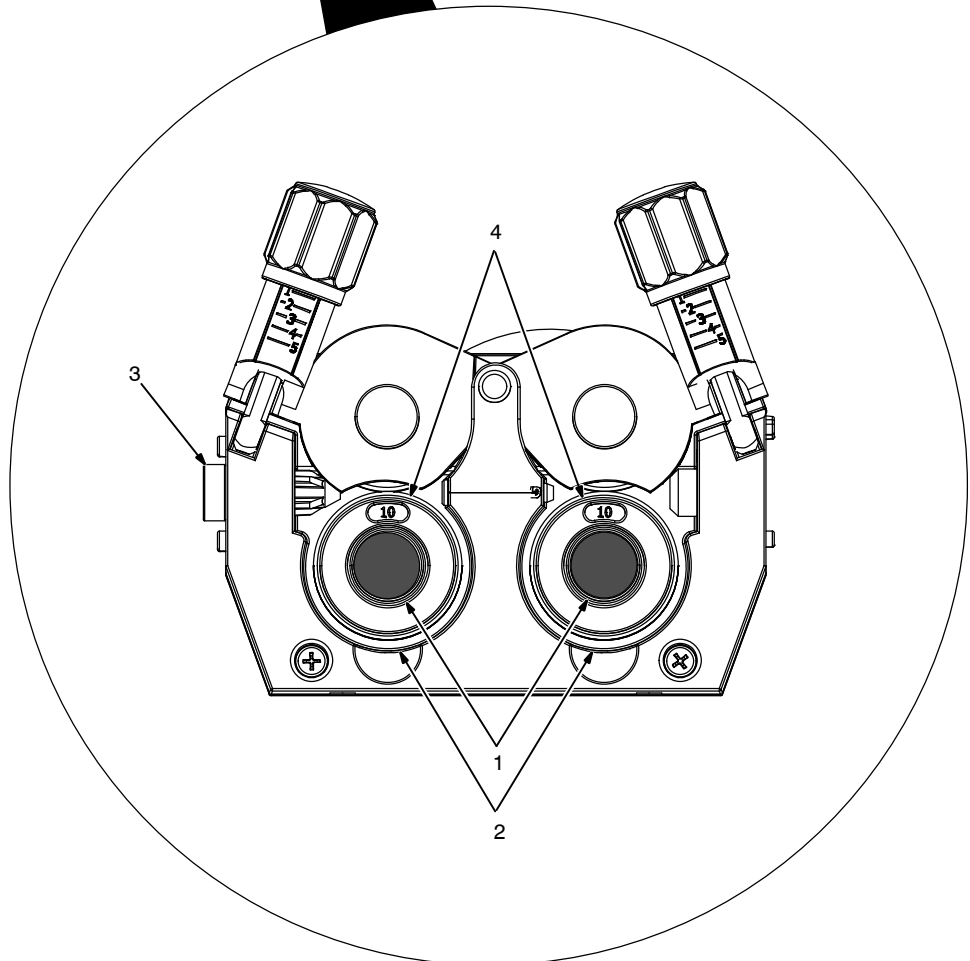
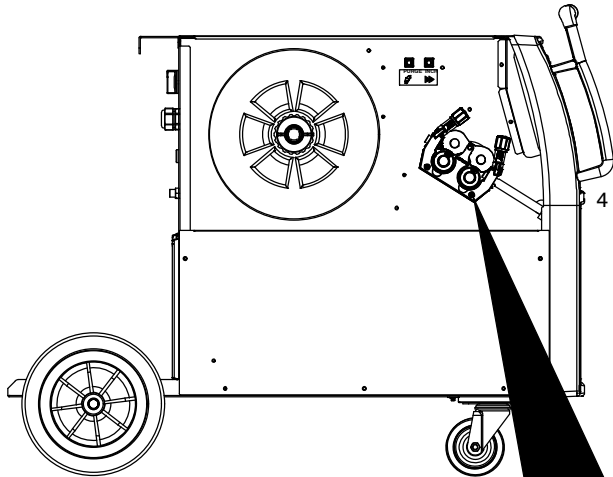
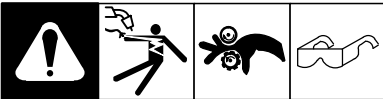
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## 4-8. Changing Drive Rolls And Wire Inlet Guide



- 1 Drive Roll Securing Screw
- 2 Drive

Loosen screw. Slide tip as close to drive rolls as possible without touching. Tighten screw.


The drive roll consists of two different sized grooves. The stamped markings on the end surface of the drive roll refers to the groove on the opposite side of the drive roll. The groove closest to the motor shaft is the proper groove to thread.

- 3 Inlet Wire Guide

Slide tip as close to drive rolls as possible without touching.

- 4 Pressure Roll

Allows wire to be pressed on the drive roll. Pressure is adjusted by adjustment knob.

 *Pressure rolls can be replaced with drive rolls to make 4 drive roll system.*

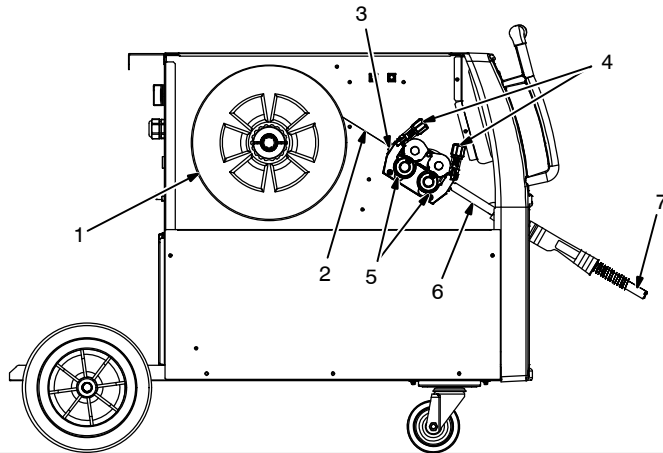
 1/4 in.



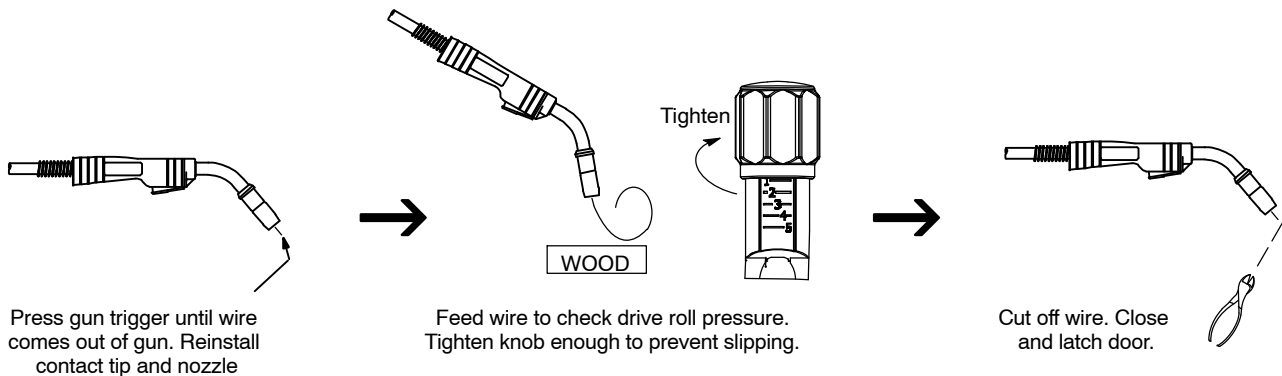
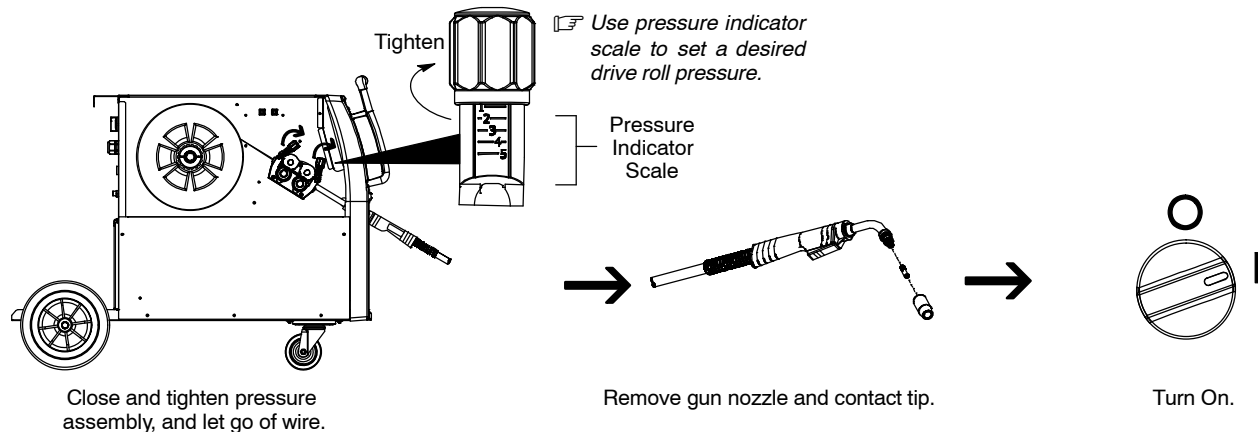
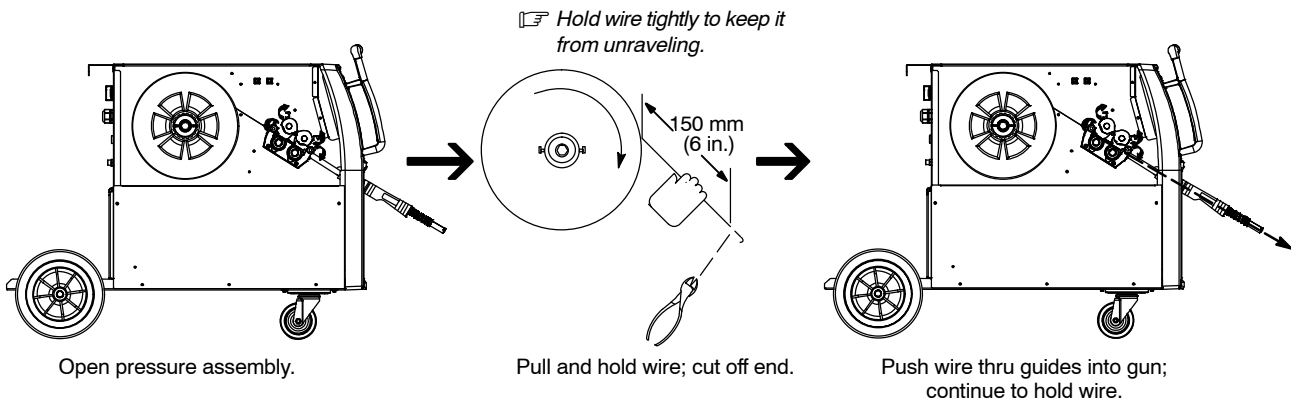
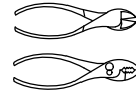
# 4-10. Threading Welding Wire And Adjusting Pressure Roll Tension



- 1 Wire Spool
  - 2 Welding Wire
  - 3 Inlet Wire Guide
  - 4 Pressure Adjustment Knob
  - 5 Drive Roll
  - 6 Outlet Wire Guide
  - 7 Gun Conduit Cable
- Lay gun cable out straight.



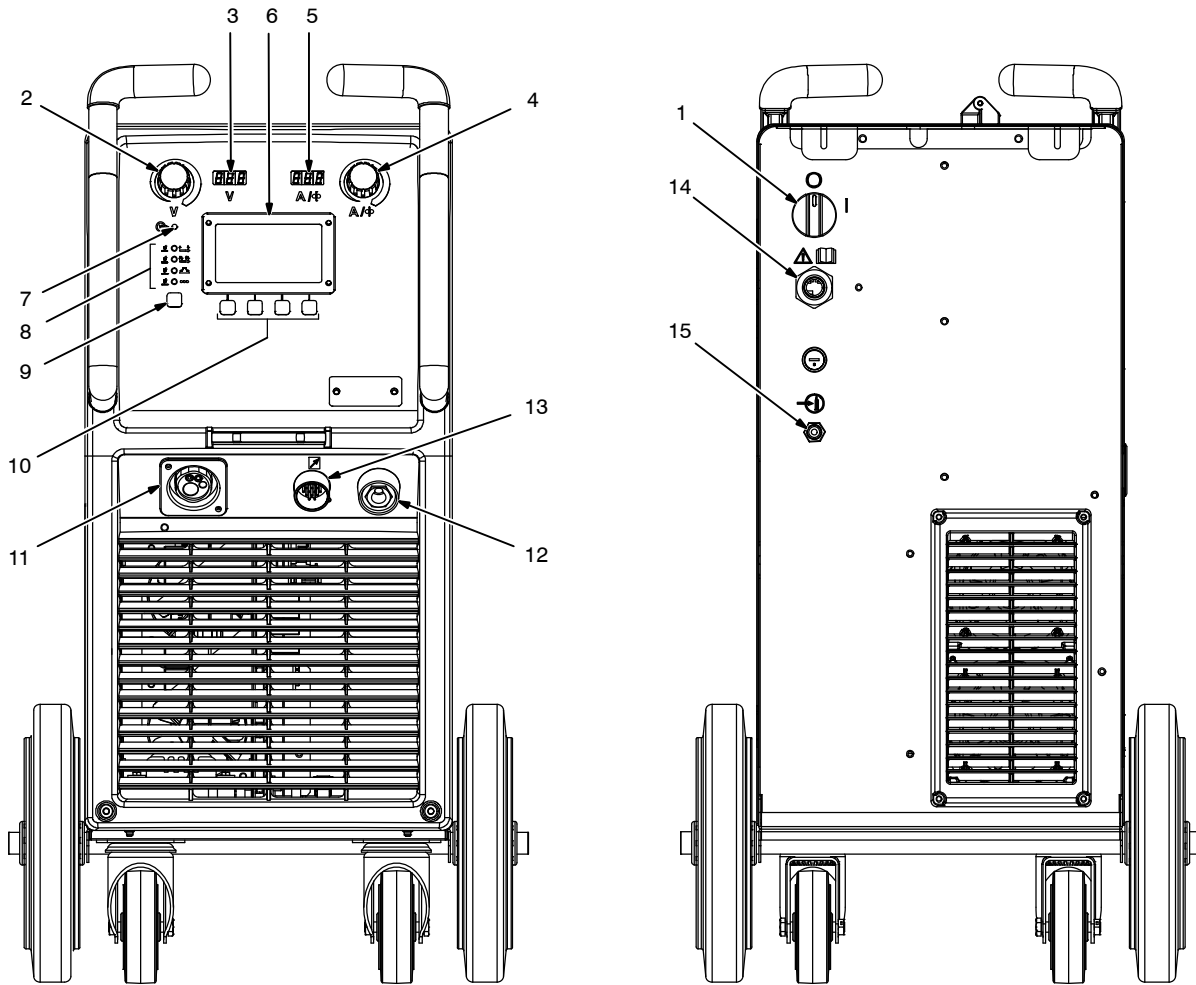
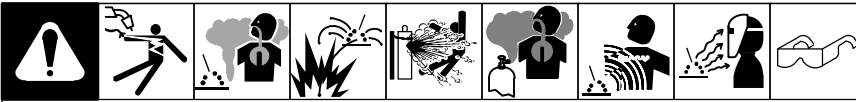
Tools Needed:



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# SECTION 5 – OPERATION

## 5-1. Front And Rear Panel Controls

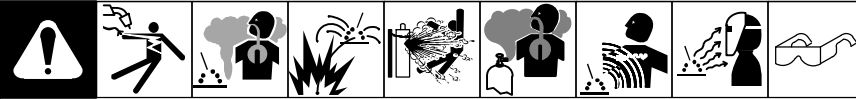


- 1 Power Switch S1  
Use switch to turn power on and off.
- 2 Voltage Control Knob  
Use knob to adjust voltage value.
- 3 Voltage Display  
Meter displays voltage value.
- 4 Ampere/WFS Control Knob  
Use knob to adjust amperage, wire feed speed and sequencer parameter values.
- 5 Amperage/Wire Feed Display  
Meter displays ampere/wire feed speed value.

- 6 LCD Home Screen
- 7 Output ON Indicator LED  
LED illuminates to show that open circuit voltage is present at the weld output terminals.
- 8 Trigger Mode Indicator LED  
LED illuminates to show selected trigger mode.
- 9 Trigger Mode Soft Key  
Allows to select desired trigger mode.
- 10 Process/Sequence Parameter/Program Settings Soft Keys

- Allows to select desired unit settings.
- 11 MIG Torch Connection  
Connection for Euro style MIG gun.
- 12 Work Lead Connection
- 13 14-Pin Panel Receptacle  
See Section 4-5.
- 14 Input Power Cord  
See Section 4-7.
- 15 Welding Power Source 1/4 BSP Gas Hose Connection  
See Section 4-3.

## 5-2. Side Panel Controls

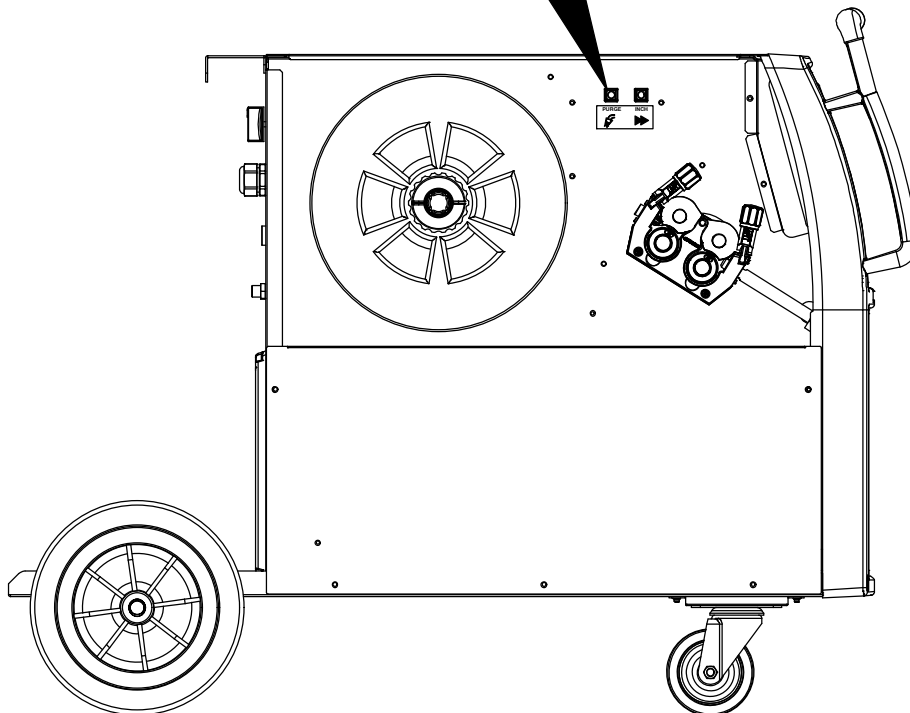
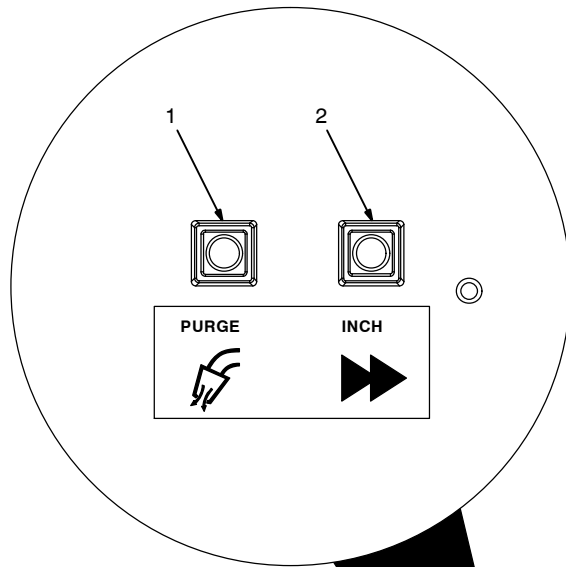


### 1 Gas Purge Switch

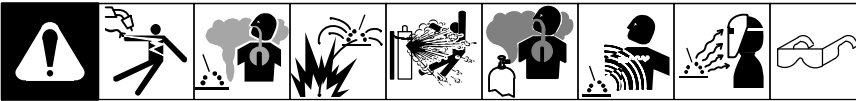
Press gas purge switch to energize gas valve to purge air from gun or adjust gas regulator.

### 2 Wire Inch Control Switch

Use inch position to momentarily feed welding wire at speed set on wire speed control without energizing welding circuit or shielding gas valve.



## 5-3. Display User Interface



- 1 LCD Home Screen
- 2 Process/Home Soft Key

Press key to enter the welding process menu screen. For more information, see Section 5-7.

- 3 Sequence Parameter Soft Key

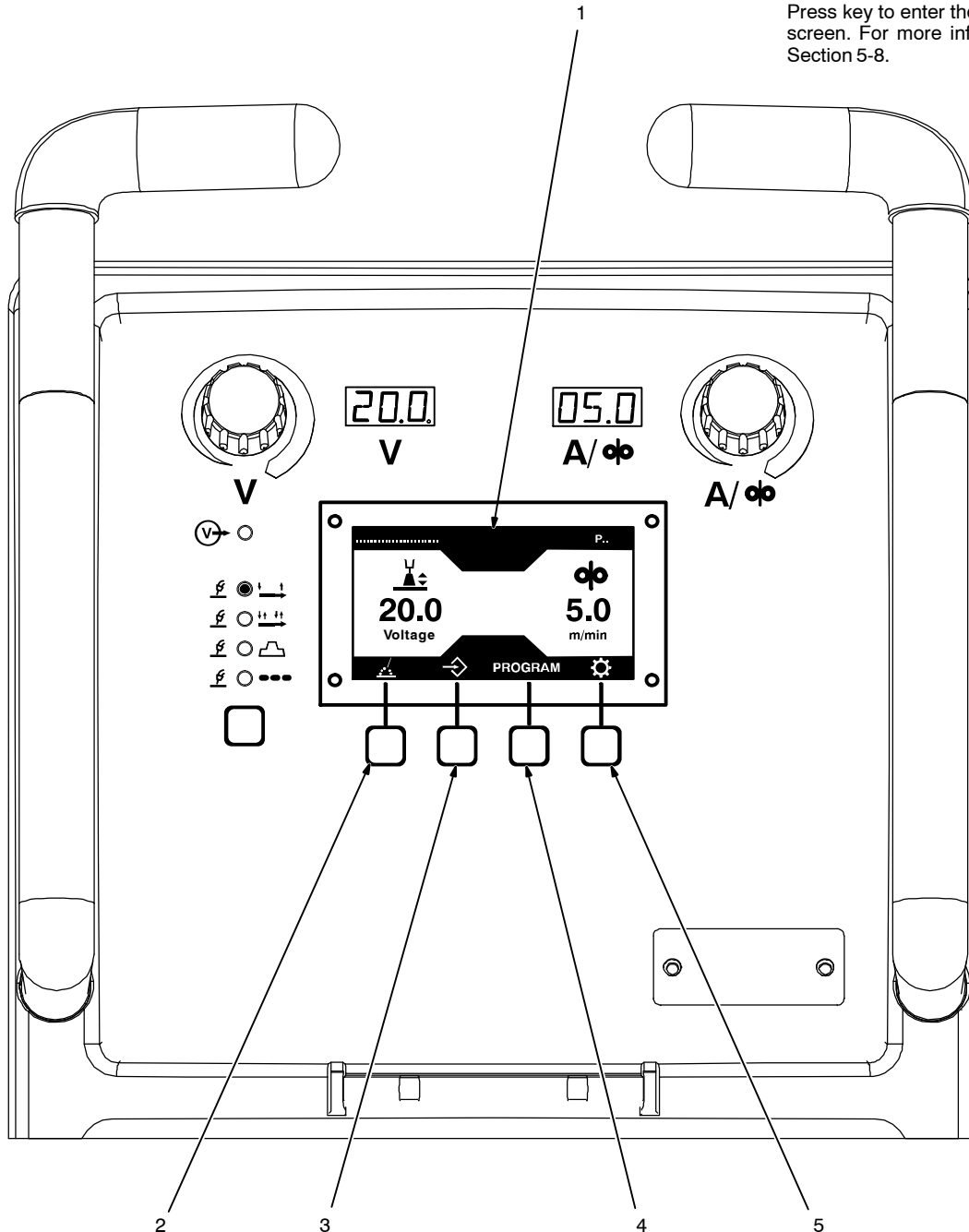
Press key to enter the welding parameter setup screen. For more information, see Section 5-6 and 5-7.

- 4 Program Selection Soft Key

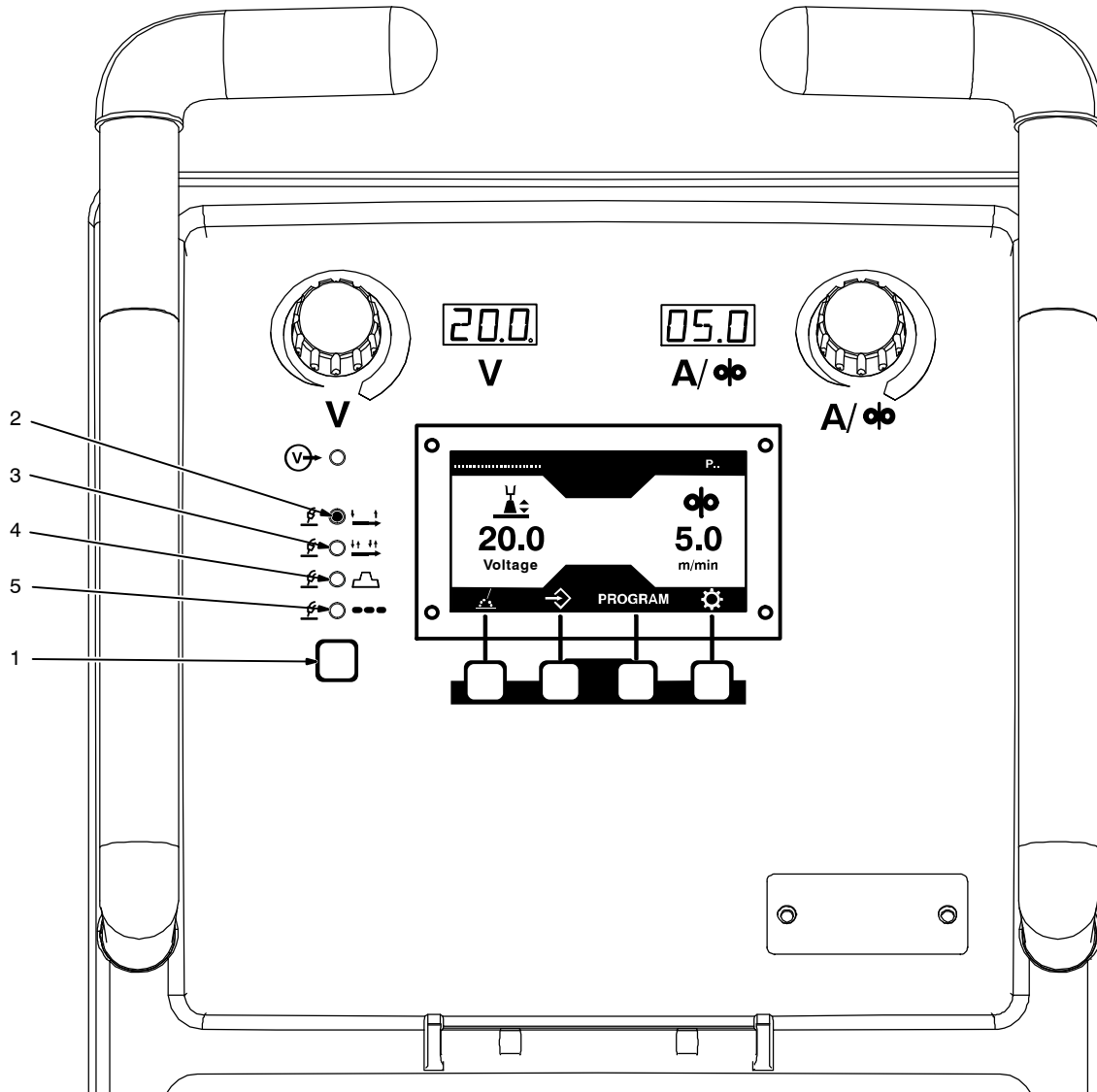
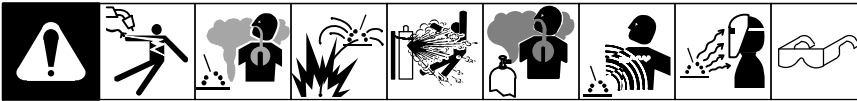
Press key to enter the welding program setup screen. For more information see Section 5-10.

- 5 Settings Soft Key

Press key to enter the unit settings screen. For more information see Section 5-8.



## 5-4. Trigger Mode Selection



☞ See section 5-5 for more trigger operations.

- 1 Trigger Mode Soft Key
- 2 2T Trigger Function LED

If lit, indicates that 2 times trigger function is selected. When trigger is pressed, pre-gas and wire feed start at pre-set Run-in control. By touching workpiece welding starts at initial current level which is held for time until pre-set welding current is reached. Releasing trigger extinguishes welding arc. Post gas is activated for a few seconds.

- 3 4T Trigger Function LED

If lit, indicates that 4 times trigger function is

selected. When trigger is pressed, pre-gas flow starts. When trigger is released, wire feed starts with pre-set wire Run-In control. By touching workpiece welding current increases to the pre-set welding current. When trigger is pressed and held, welding current decreases to the set final current. Releasing trigger extinguishes welding arc. Post gas is activated for a few seconds.

- 4 4TS 3-Levels Trigger Function LED

☞ Not available in manual MIG..

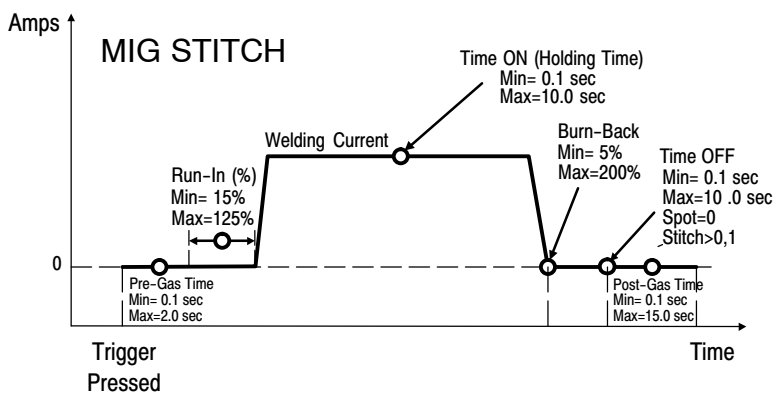
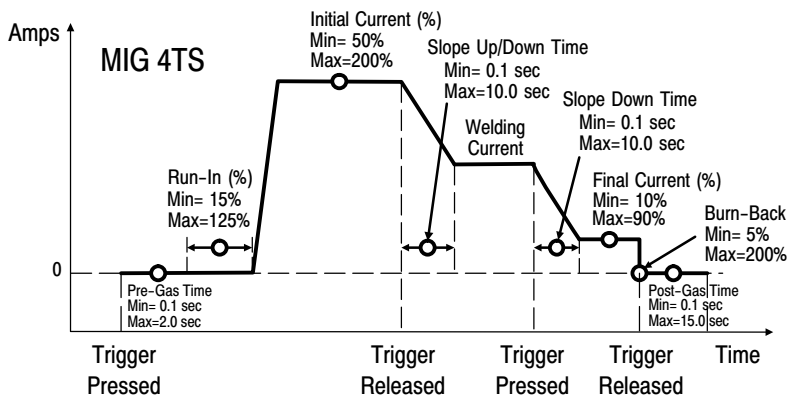
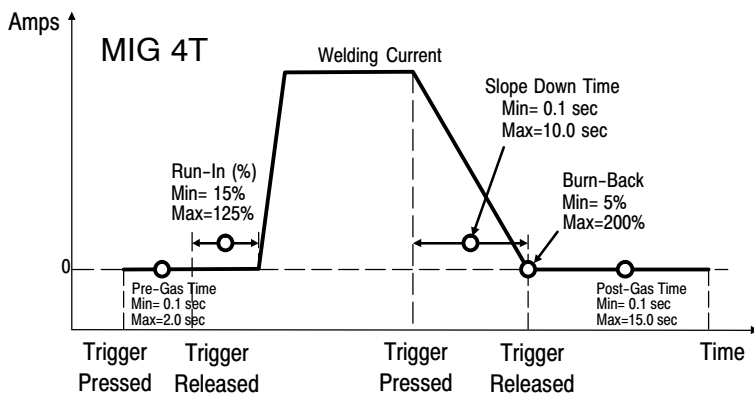
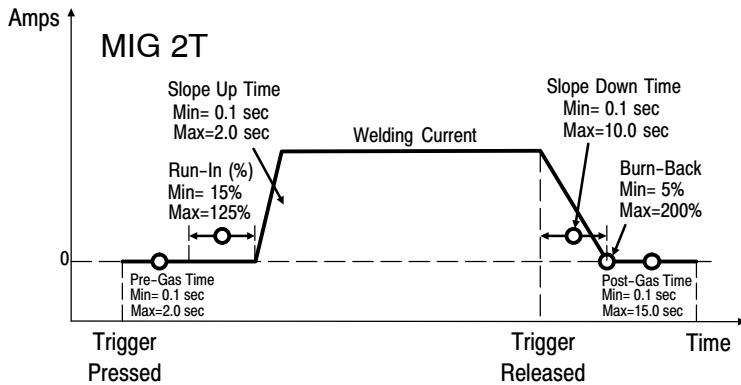
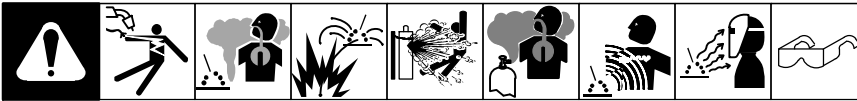
If lit, indicates that 4TS 3-levels trigger function is selected. When trigger is pressed, pre-gas and wire feed Run-In start. By touching workpiece, welding starts with initial cur-

rent level. When trigger is released, welding current decreases to the pre-set welding current. When trigger is pressed a second time, weld current decreases to the final current level. Releasing trigger extinguishes welding arc. Post gas is activated for a few seconds.

- 5 Stitch Trigger Hold Function LED

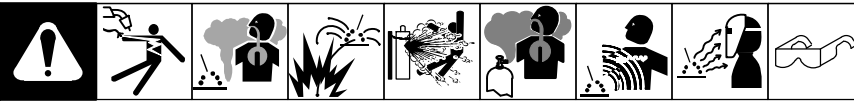
If lit, indicates that Stitch trigger function is selected. When trigger is pressed, pre-gas and wire feed Run-In start. By touching workpiece welding starts with pre-set welding current. After holding time (time ON) extinguishes welding arc. By setting time OFF to 0, spot welding is activated; by setting time OFF >= 0.1 the stitch sequence restarts.

## 5-5. Trigger Operations

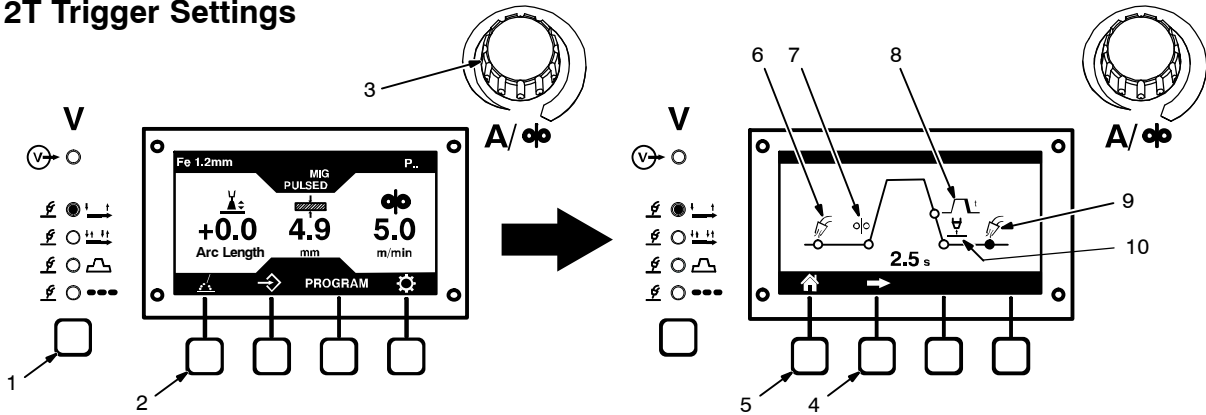




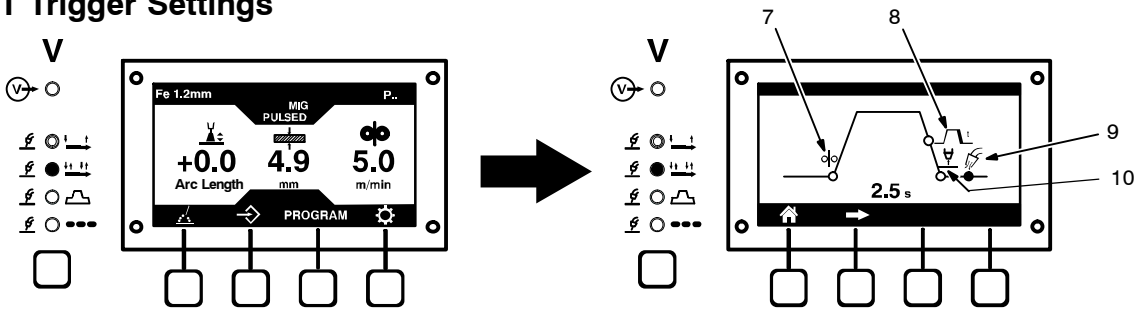
## 5-6. Trigger Parameter Settings



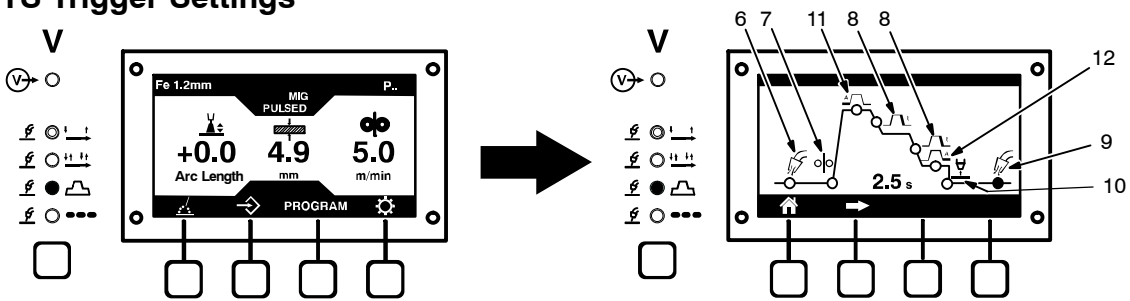
### 2T Trigger Settings



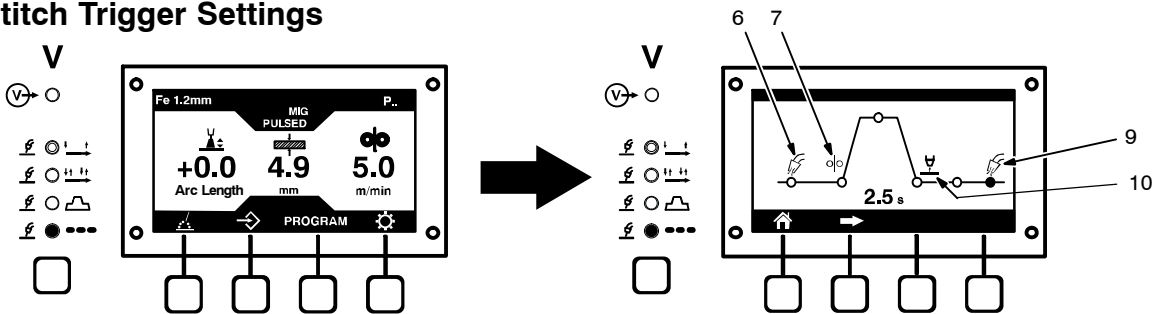
### 4T Trigger Settings



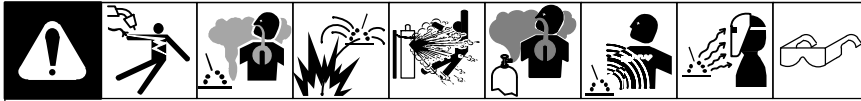
### 4TS Trigger Settings



### Stitch Trigger Settings



## 5-6. Trigger Parameter Settings (Continued)



1 Trigger Mode Soft Key

2 Parameter Settings Soft Key

Press key to enter the trigger parameter settings.

3 Ampere/WFS Control Knob

Use knob to adjust parameter value.

4 Sequence Parameter Scroll Soft Key

Press key to scroll through sequence parameter.

5 Home Screen Soft Key

Press key to return to home screen.

While in Pulsed MIG mode, press parameter settings soft key to enter the trigger parameter settings.

Use knob to adjust parameter value. Use sequence parameter soft key to scroll through sequencer. The following parameters will be displayed.

6 Gas Pre-flow LED

Use control to set length of time gas flows before arc initiation. (Min= 0.1s, max= 2.0s).

7 Wire Run-In LED

Use control to set the percentage of selected wire speed before arc starting. (Min= 15%, max= 125%).

8 Slope Down Time

Use control to select amount of time that it takes to slope up/down from weld amperage

to final amperage. To disable, set to 0. (Min= 0.1s, max= 10s).

9 Gas Post-flow LED

Use control to set length of time gas flows after welding stops to protect weld puddle. (Min= 0.1s, max= 15s).

10 Wire Burn-back Time LED

Use control to select time that welding wire stays energized after trigger is released. (Min= 5%, max= 200%).

11 Initial Current LED

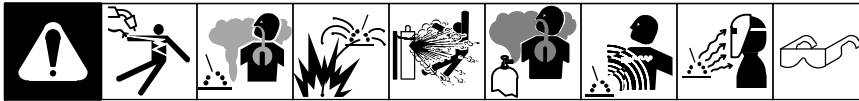
Use control to set the percentage of the welding current to set at initial level. (Min= 10% max= 100%).

12 Final Current LED

## Notes



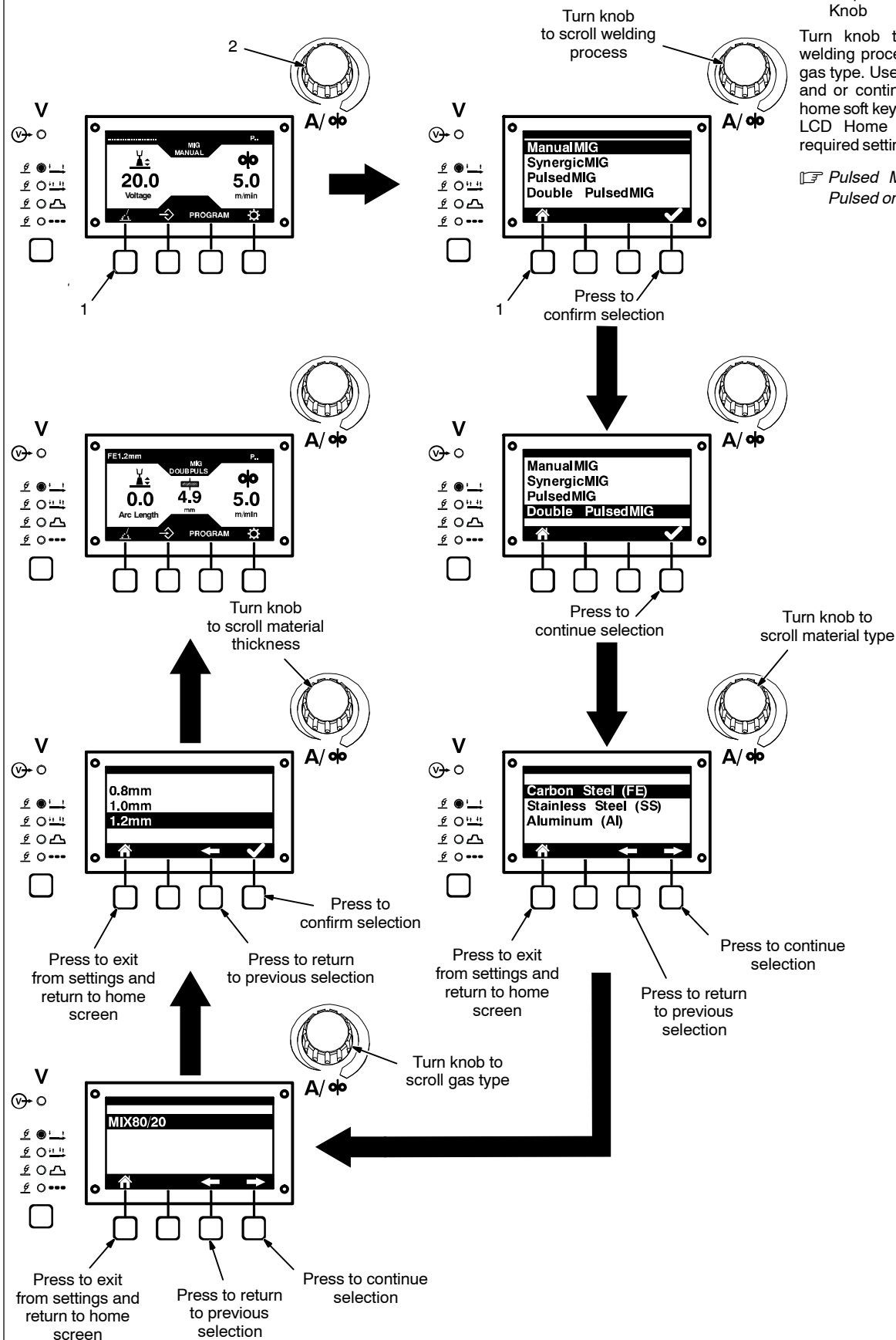
## 5-8. Welding Process, Material And Gas Type Selection



- 1 Process Soft Key  
Press key to enter the welding process menu screen.
- 2 Ampere/WFS Control Knob  
Turn knob to scroll through welding process, material and gas type. Use soft key to select and or continue settings. Use home soft key to exit from menu. LCD Home Screen displays required settings.


Turn knob to scroll through welding process, material and gas type. Use soft key to select and or continue settings. Use home soft key to exit from menu. LCD Home Screen displays required settings.

Pulsed MIG and Double Pulsed only for 300iP.



## 5-9. Unit Settings

### A. Wire Feed Speed Unit



Turn knob to scroll settings

1 Settings Soft Key  
Press key to enter the unit settings screen.

2 Ampere/WFS Control Knob

Turn knob to scroll through unit settings menu.

Press Settings soft key to enter settings menu screen. Select Unit from menu screen. To change wire feed speed unit, proceed as follow; press CHANGE soft key to change value from meter per minute (m/min) to inch per minute (in/min). Use home soft key to exit from menu. LCD Home Screen displays required settings.

Press to return to home screen

Press to change settings

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## Notes

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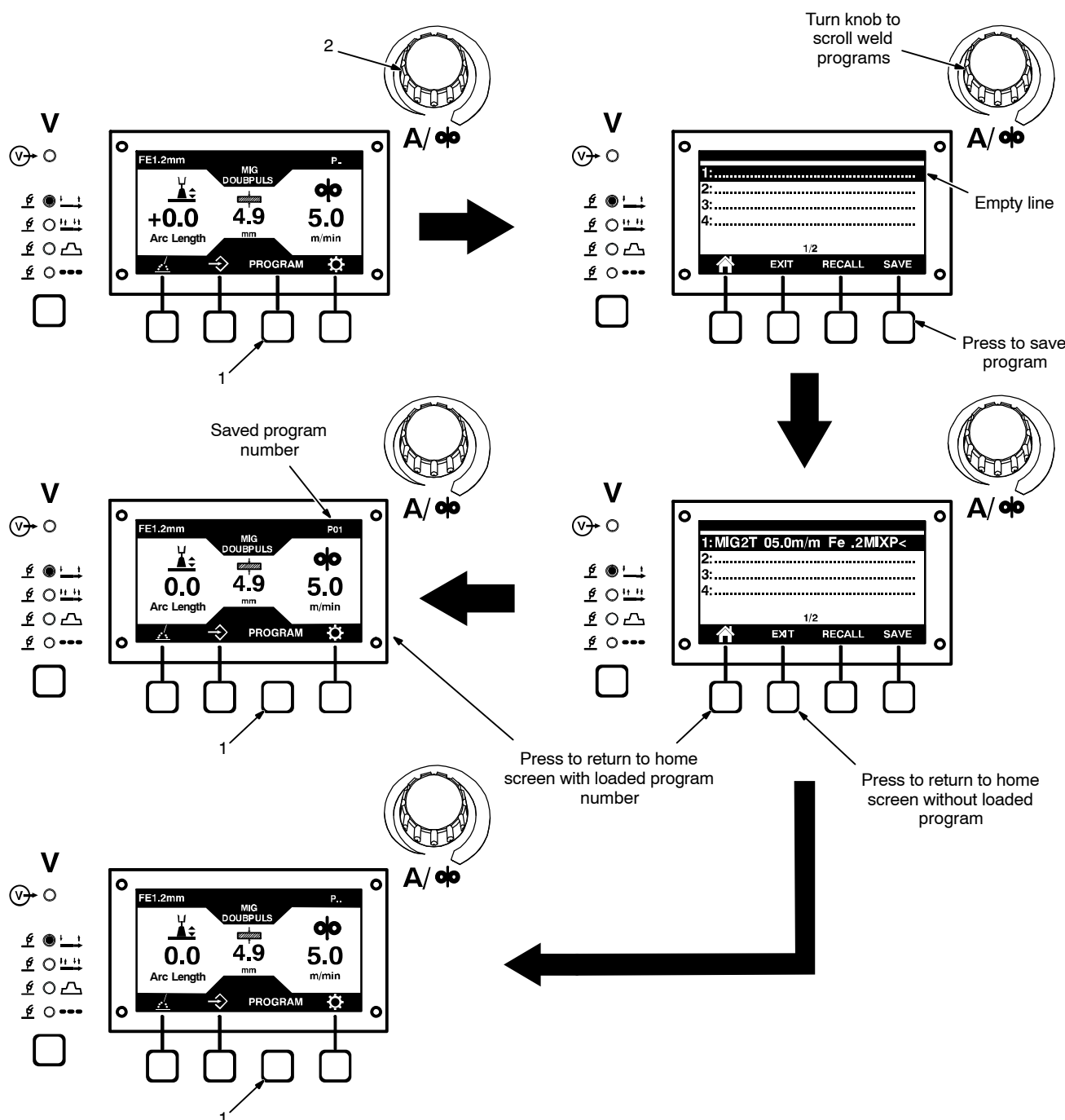


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## 5-10. Loading And Saving Welding Programs

The diagram illustrates the process of saving and loading welding programs through a series of five screen captures on a control panel. Each screen shows a different state of the interface, with arrows indicating the sequence of operations.

- Screen 1 (Top Left):** Home screen showing parameters: FE1.2mm, MIG DOUBPULS, P., Arc Length: +0.0 mm, 4.9 mm, 5.0 m/min. A 'PROGRAM' soft key is highlighted with a '1'.
- Screen 2 (Top Right):** Program selection menu with four empty lines (1, 2, 3, 4) and 'EXIT', 'RECALL', 'SAVE' soft keys. A knob is shown being turned to scroll through programs.
- Screen 3 (Middle Left):** Home screen with 'Po1' displayed, indicating a program is loaded. The 'PROGRAM' soft key is highlighted with a '1'.
- Screen 4 (Middle Right):** Program selection menu with line 1 containing '1: MIG2T 05.0m/m Fe .2MIXP<' and 'EXIT', 'RECALL', 'SAVE' soft keys. A knob is shown being turned.
- Screen 5 (Bottom):** Home screen with parameters: FE1.2mm, MIG DOUBPULS, P., Arc Length: 0.0 mm, 4.9 mm, 5.0 m/min. The 'PROGRAM' soft key is highlighted with a '1'.

Annotations and instructions:

- Turn knob to scroll weld programs
- Empty line
- Press to save program
- Press to return to home screen with loaded program number
- Press to return to home screen without loaded program

**Ensure that pre-flow is set >0.5 sec.**

- Program Soft Key**  
Press key to enter the unit settings screen.
- Ampere/WFS Control Knob**  
Turn knob to scroll through welding programs menu.

To save desired welding program proceed as follow: press PROGRAM soft key to enter welding programs menu screen. Use knob to scroll through welding programs and select an empty line. Press SAVE soft key to save welding program. Press HOME soft key to return home page screen with loaded program. Press exit to return to home screen without loading program. Follow the same procedure for loading welding program by using RECALL soft key.


- First 4 programs can be recalled by fast pressing the torch trigger.
- All welding programs can be modified and overwritten at any time.

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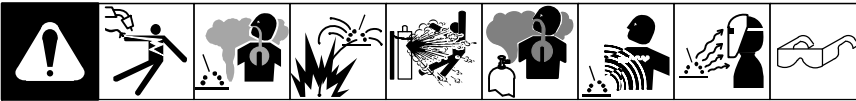


## 5-11. Wire Material, Wire Diameter, And Gas Selection Table

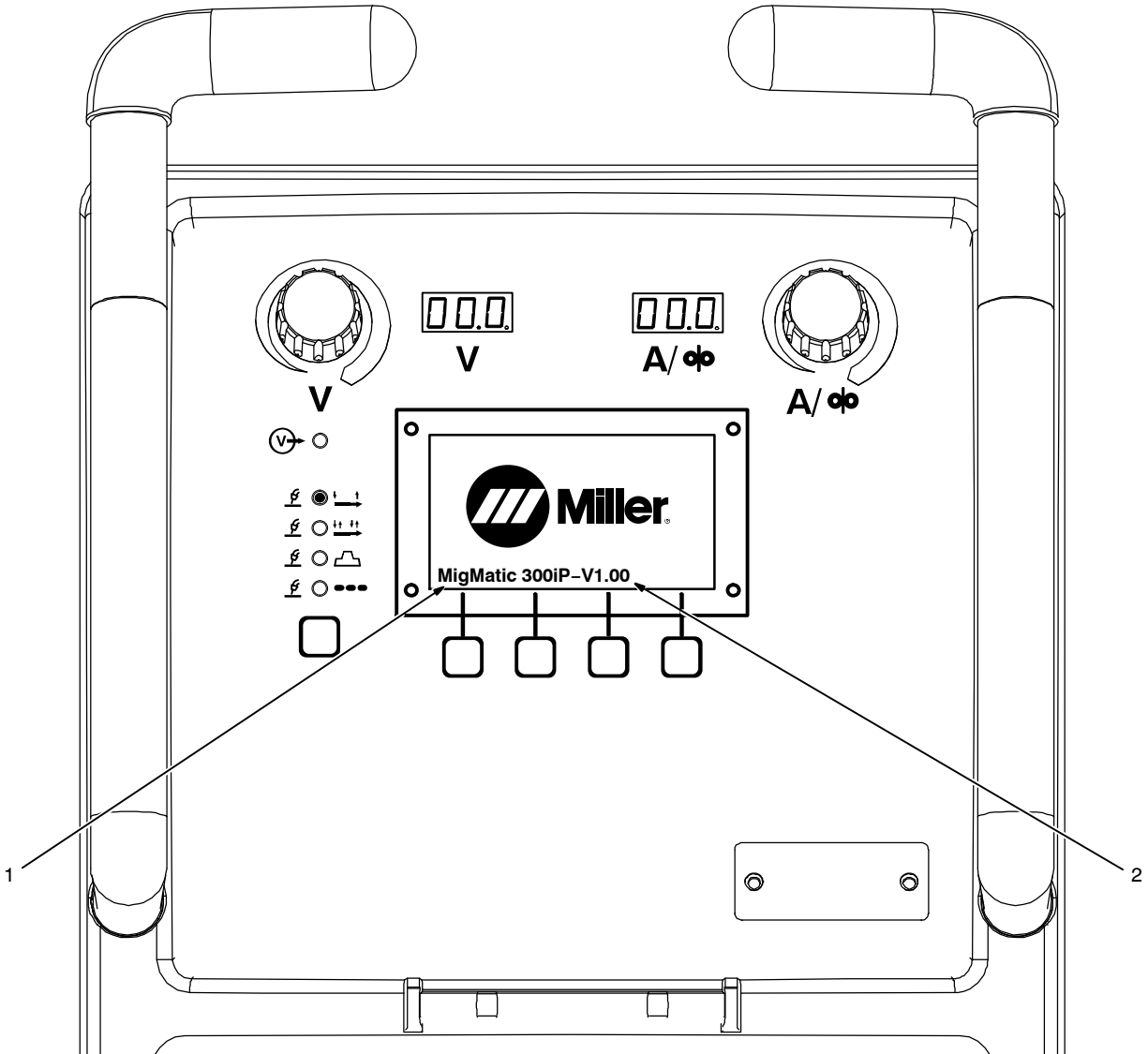
MIG Process	Material	Gas Type	Wire Diameter (mm)
Manual MIG	-	-	-
Synergic MIG	Carbon Steel	Mix 80/20	0.8
			1.0
		CO <sub>2</sub>	1.2
			0.8
	Stainless Steel	Mix 98/2	1.0
			1.2
		Ar	1.0
			1.2
	AlSi	Ar	1.0
			1.2
Pulsed MIG*	Carbon Steel	Mix 80/20	0.8
			1.0
			1.2
	Stainless Steel	Mix 98/2	0.8
			1.0
			1.2
	AlMg	Ar	1.0
			1.2
			1.6
	AlSi	Ar	0.8
			1.0
			1.2
Double Pulsed MIG*	Carbon Steel	Mix 80/20	1.6
			0.8
			1.0
	Stainless Steel	Mix 98/2	1.2
			0.8
			1.0
	AlMg	Ar	1.2
			1.6
			1.0
AlSi	Ar	1.2	
		1.0	
		1.6	

 \*Only for 300iP.

## 5-12. Model Name And Software Version



- 1 Model Name
- 2 Software Version



# SECTION 6 – MAINTENANCE & TROUBLESHOOTING

## 6-1. Routine Maintenance

		<b>⚠ Disconnect power before maintaining.</b>		<i>Maintain more often during severe conditions.</i>	
		✓ = Check      ◇ = Change      ● = Clean * To be done by Factory Authorized Service Agent		Δ = Repair      ☆ = Replace	
Every 3 Months	✓ ☆ Labels			 ● Weld Terminals	
Every 3 Months	✓ Δ ☆ Cables And Cords				
Every 6 Months	●: During heavy service, clean monthly.			Remove drive roll and carrier. Apply light coat of oil or grease to drive motor shaft.	

## 6-2. Welding Gun And Wire Drive Assembly

		1 Welding Gun Check gun liner for blockage or kinks.	
		2 Wire Drive Assembly Check for jammed wire, binding drive gear or misaligned drive rolls. Allow cooling period and reset breaker. Close door.	

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### 6-3. Error Code Troubleshooting Description And Table

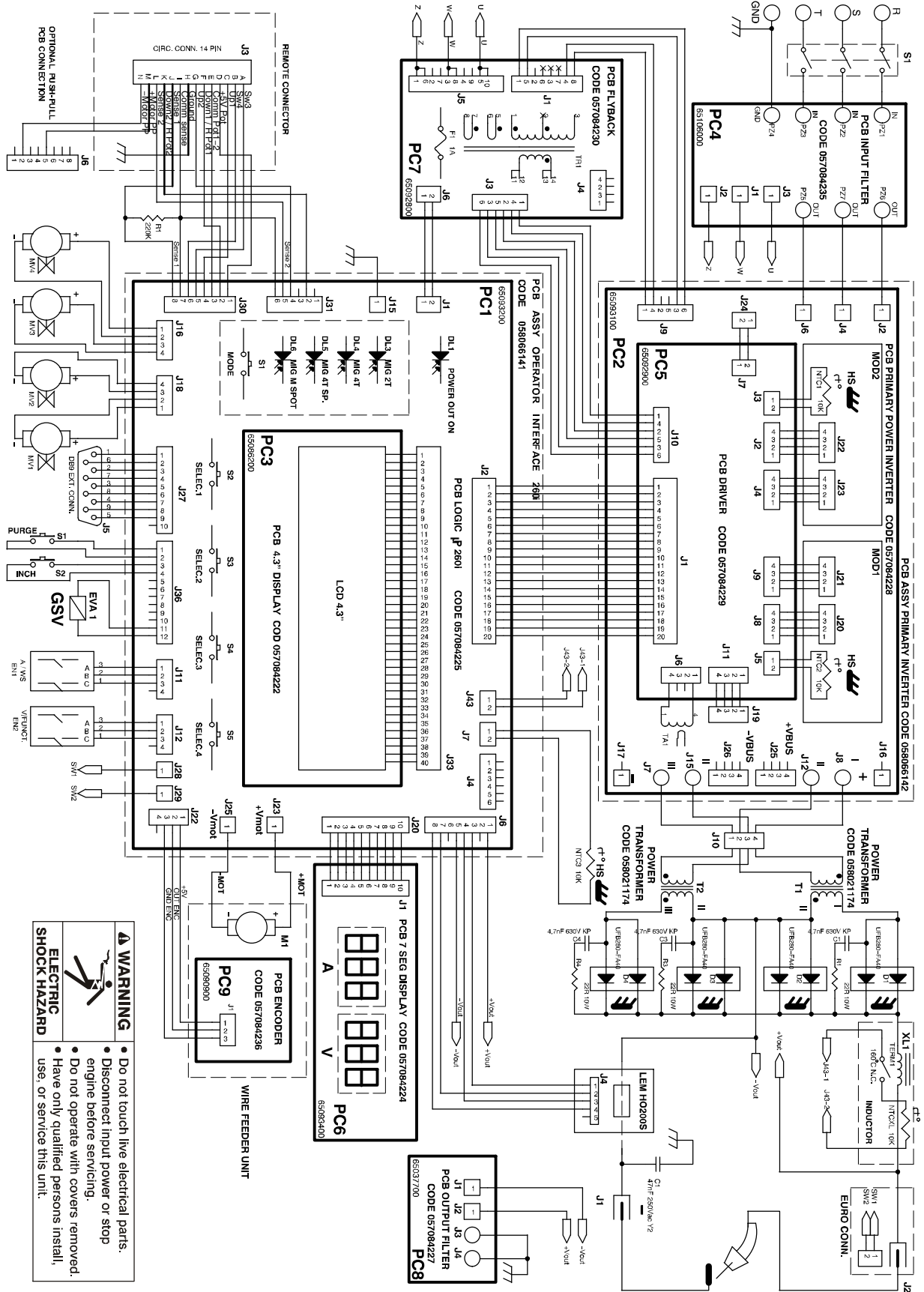
Display Code	Fault	Description
004	Overtemperature - IGBT1 Primary Power Circuit	
	Overtemperature - IGBT2 Primary Power Circuit	
005	Overtemperature - Secondary Rectifier	
	Overtemperature - Output Inductance	
006	Overtemperature - Logic PCB (motor driver)	
101/103	Temperature Sensor Failed - IGBT1 Primary Power Circuit	
	Temperature Sensor Failed - IGBT2 Primary Power Circuit	
102/104	Temperature Sensor Failed - Secondary Rectifier	
	Temperature Sensor Failed - Output Inductance	
105	Temperature Sensor Failed - Logic PCB (motor drive)	
045	Trigger Protection	Torch trigger pressed: torch wiring issue.
131	Input Line Phase Alarm	Unit displays missing input line phase.
042	Motor Current Protection	A protection is activated when a high current is absorbed by the motor.
040	Motor Encoder Alarm	

### 6-4. Troubleshooting



Trouble	Remedy
No weld output; wire does not feed.	Be sure line disconnect switch is On (see Section 4-7).
	Replace building line fuse or reset circuit breaker if open (see Section 4-7).
	Secure gun trigger connections.
	Check continuity of power switch S1 and replace if necessary.
	Have Factory Authorized Service Agent check main transformer T1 for signs of winding failure. Check continuity across windings and check for proper connections. Check secondary voltages. Replace T1 if necessary.
	Have Factory Authorized Service Agent check continuity of thermostats TP4 and TP5. Replace TP4 and TP5 if necessary.
	Have Factory Authorized Service Agent check main control board PC1 and connections, and replace if necessary.
No weld output; display boards front panel PC1 and PC3 on.	Unit overheated, see Section 6-3.
	Have Factory Authorized Service Agent check connections of J1 receptacle for damage if remote control was connected.
	Check remote control and replace if necessary
	Have Factory Authorized Service Agent check front panel board PC1, and replace if necessary.
Maximum weld output, no current control.	Check output LEM sensor HD1 connections and replace if necessary.
	Have Factory Authorized Service Agent check front panel board PC1, and replace if necessary.
Fans do not work.	Check fans connections and supply voltage. Replace if necessary.
	Have Factory Authorized Service Agent check front panel board PC1, and replace if necessary.
Low weld output with no control.	Check output LEM sensor HD1 connections and replace if necessary.
	Have Factory Authorized Service Agent check front panel board PC1, and replace if necessary.
No wire feed.	Clear obstruction in gun contact tip or liner (see gun Owner's Manual).

# SECTION 7 - ELECTRICAL DIAGRAMS

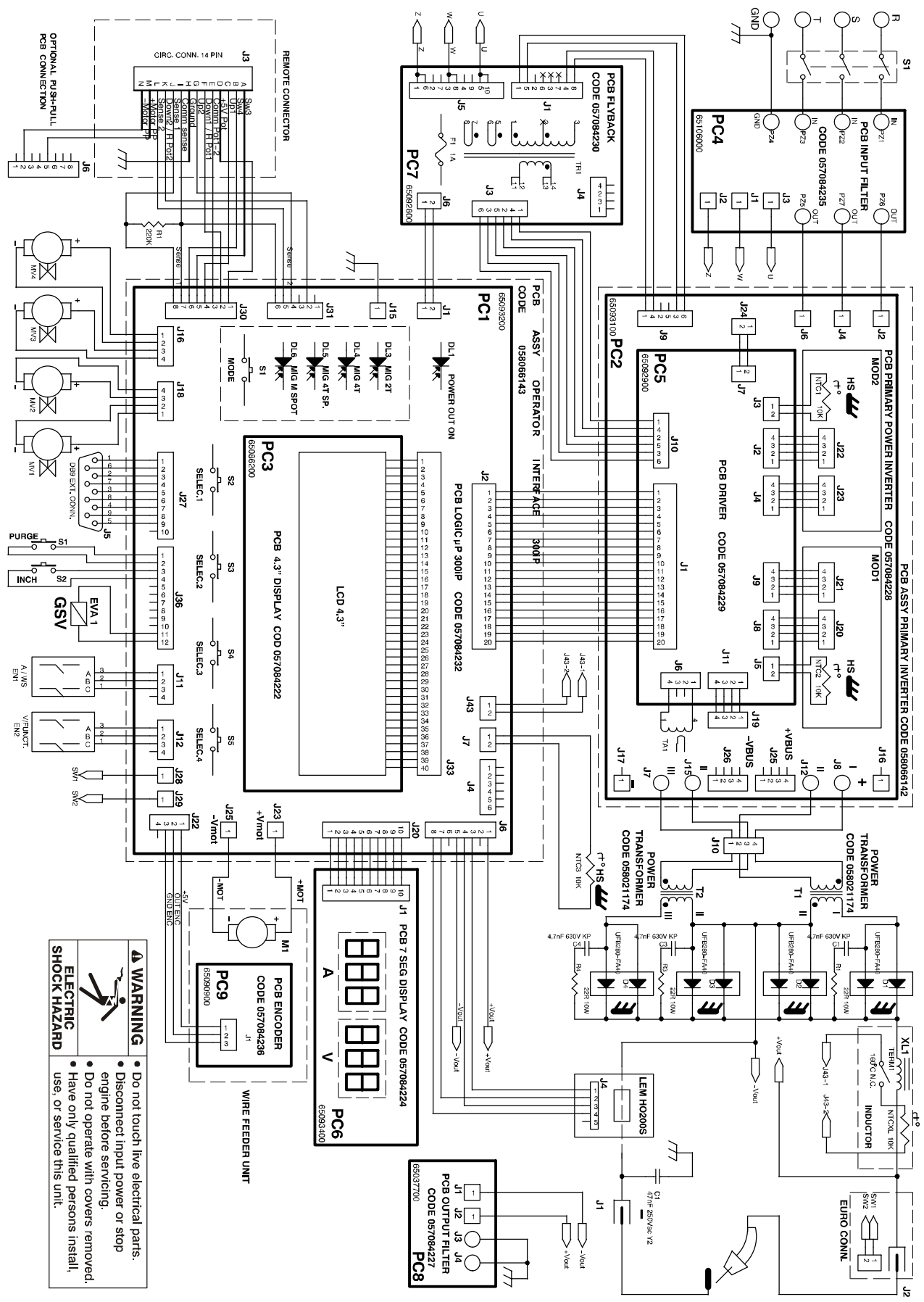


**⚠ WARNING**

**ELECTRIC SHOCK HAZARD**

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

Figure 7-1. Circuit Diagram for Migmatic 260i

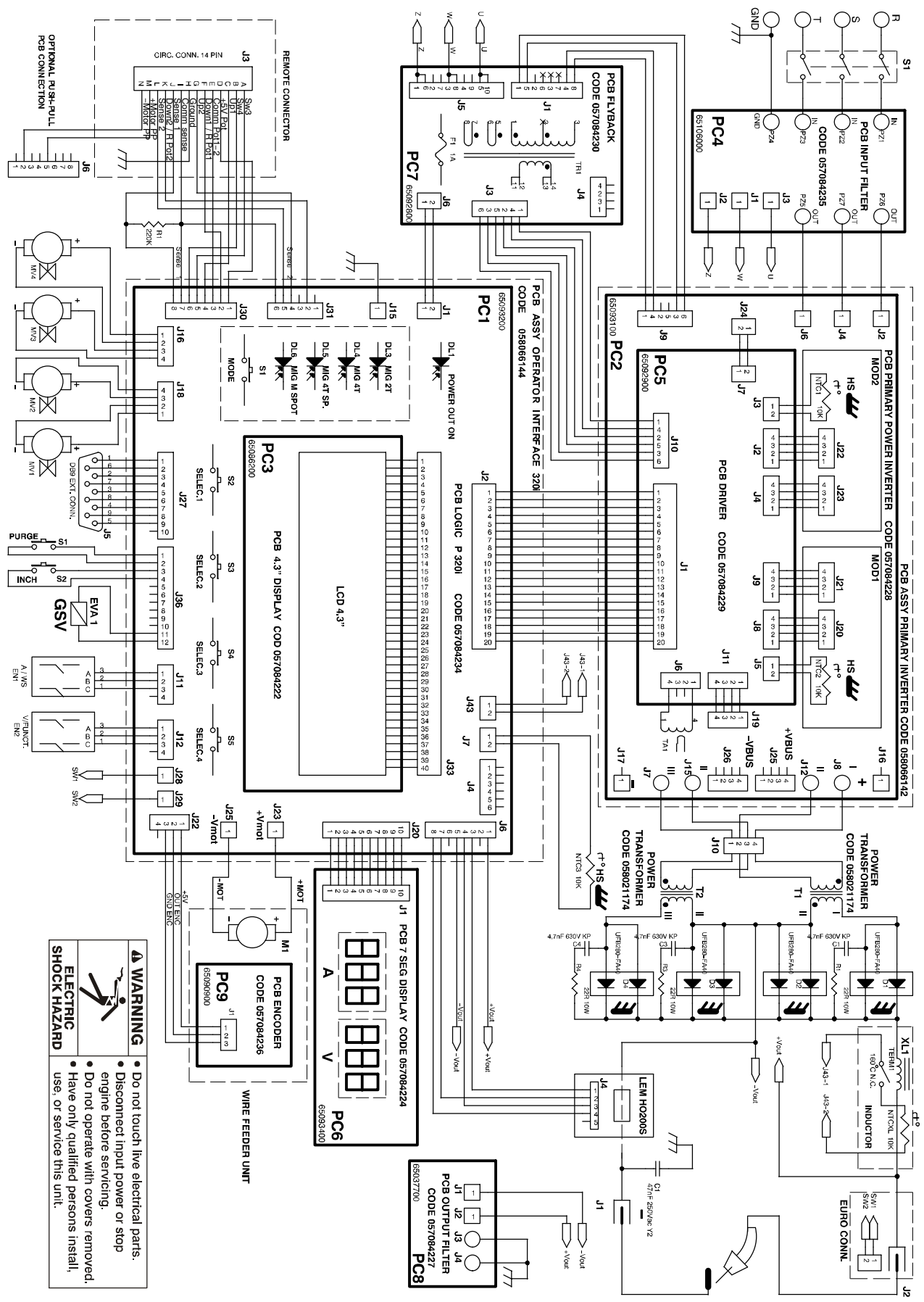


**WARNING**

**ELECTRIC SHOCK HAZARD**

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

Figure 7-2. Circuit Diagram for Migmatic 300iP

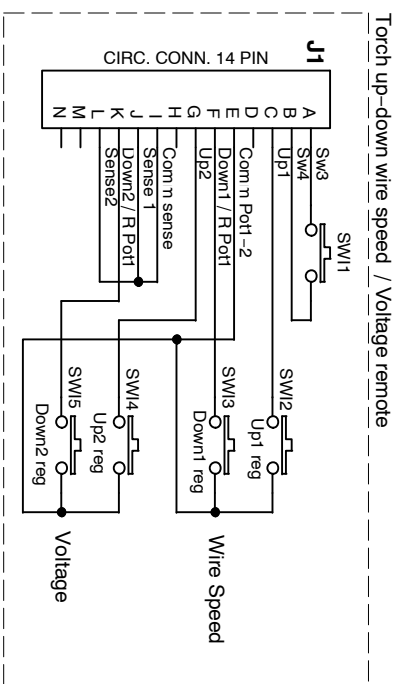
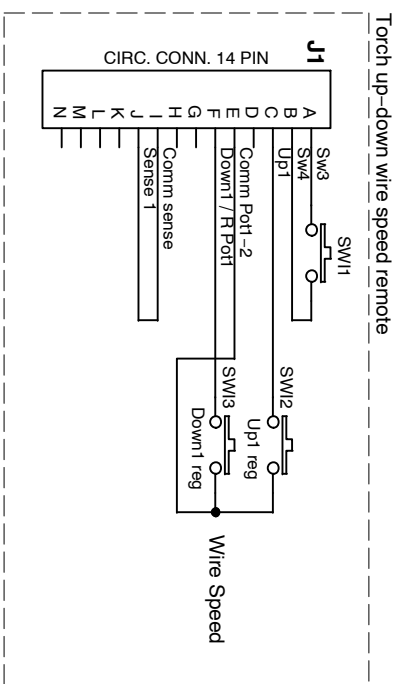
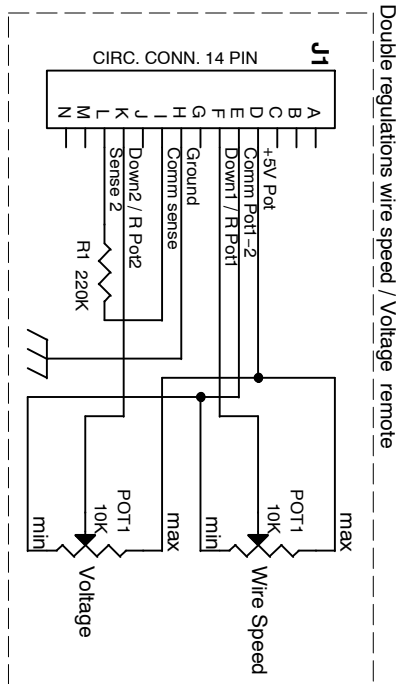
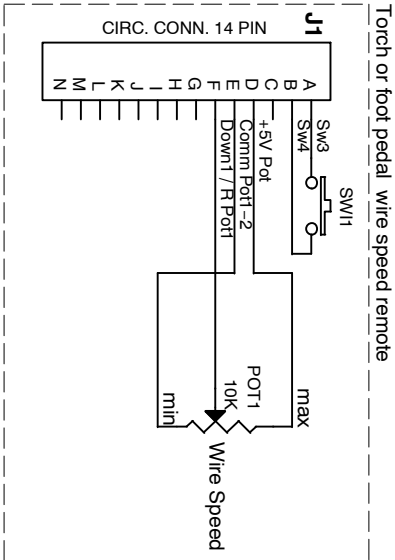
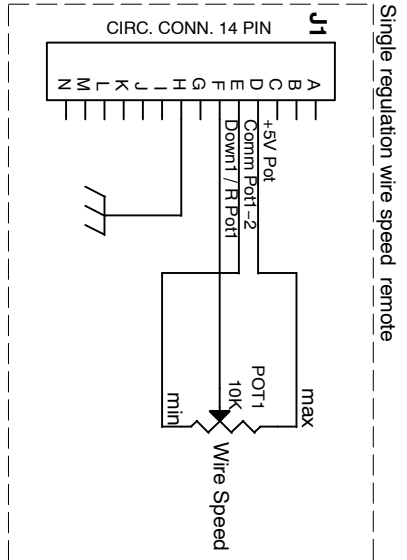


**WARNING**

**ELECTRIC SHOCK HAZARD**

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

Figure 7-3. Circuit Diagram for Migmatic 320i



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

Figure 7-4. Circuit Diagram for Remote Connections



# SECTION 8 – PARTS LIST

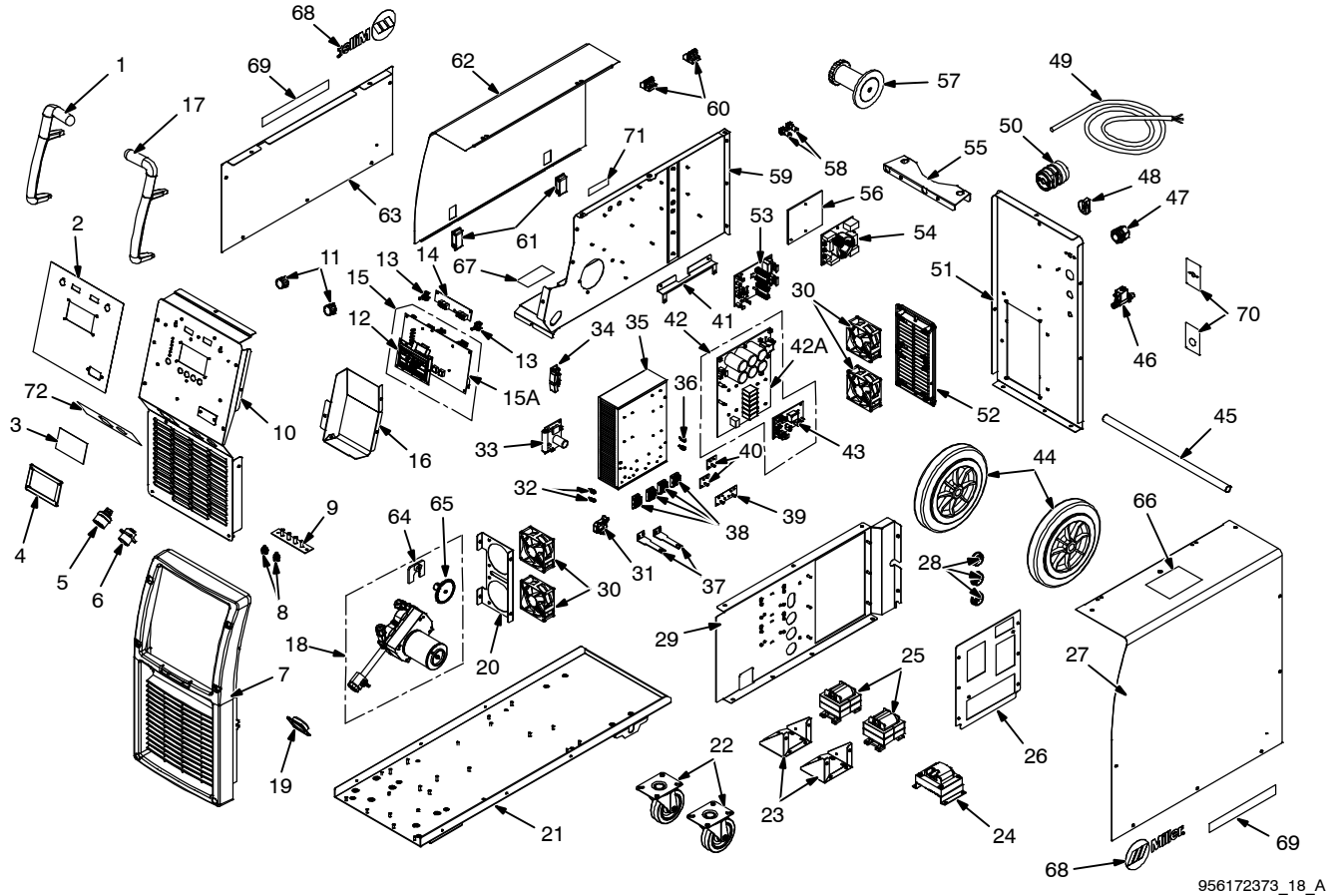


Figure 8-1. Wrapper Assembly, MigMatic 260i

Item No.	Dia. Mkgs.	Part No.	Description	Quantity
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Figure 8-1. Wrapper Assembly, MigMatic 260i

1		231554	Handle, Left	1
2		356029270	Nameplate, Front	1
3		156118105	Display, Protection	1
4		156118106	Display, Frame	1
5		056076257	Rcpt Assy, Tw Lk Insul Fem (Dinse Type)	1
6		056076318	Receptacle, 14-Pin Including Wiring Harness	1
7		229616	Frame, Front Plastic	1
8		756033064	Insulator	2
9		056070066	Connection, Intermediate	1
10		156118107	Panel, Front	1
11		193919	Knob, Pointer	2
12	PC3	057084222	Circuit Board, 4,3" Display	1
13		057084223	Encoder	2
14	PC6	057084224	Circuit Board, 7 Seg. Display	1
15		058066141	Kit, PCB Assy, Operator Interface 260i	1
15A	PC1	057084225	PCB, Logic $\mu$ P 260i	1
16		656039020	Pcb, Cover	1
17		231553	Handle, Right	1
18		656039020	Drive Assy, Wire (See Fig. 8-4)	1
19		656005035	Insulator, Torch Connector	1

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

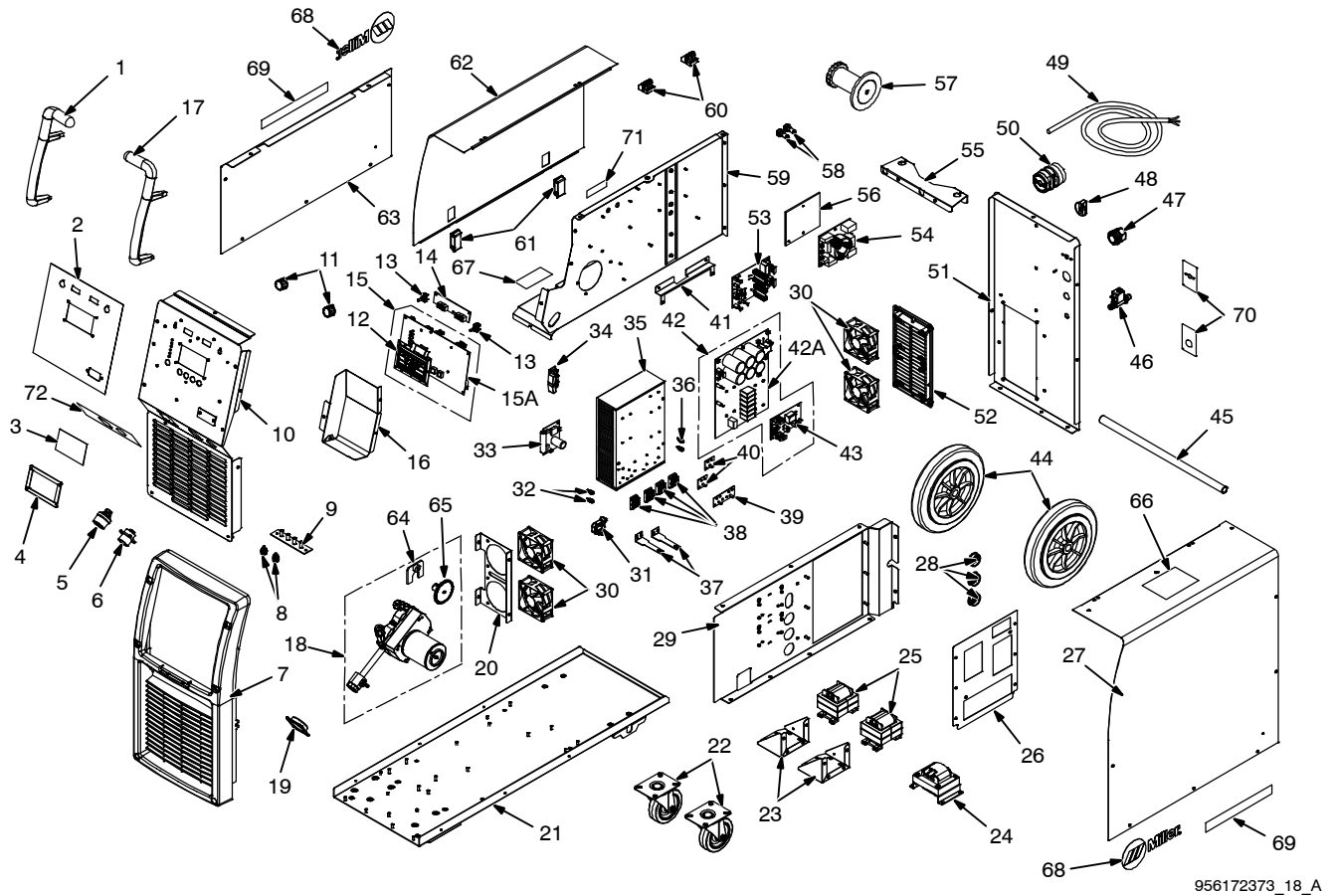
**To maintain the factory original performance of your equipment, use only Manufacturer's Suggested Replacement Parts. Model and serial number required when ordering parts from your local distributor.**

Item No.	Dia. Mkgs.	Part No.	Description	Quantity
20		156005222	Support, Motor Fan	1
21		156006103	Base	1
22		056054097	Castors, Front	2
23		156005223	Support, Power Transformer	2
24		057098027	Output, Inductance	1
25	T1	058021174	Transformer, Power	2
26		156005224	Support, PCB Assy	1
27		156121050	Wrapper, Fixed	1
28		156076098	Bushing	3
29		116117086	Support, Intermediate	1
30	FM1,2,3,4	056126088	Fan, Motor w/Leads And Plug	4
31	HD1	056167014	Probe, Lem	1
32		156005224	Insulator	5
33		◆156121050	Circuit Board, Push Pull	1
34	PC8	156076098	Circuit Board, Output Filter	1
35		056082109	Heatsink	1
36		656005036	Insulator	2
37		056076319	Connection, Copper	2
38		056068076	Diode, Secondary	4
39		056076320	Connection, Copper	1
40		056076321	Connection, Copper	2
41		156005225	Support, PBC	1
42		058066142	Kit, PCB Assy, Primary Power Inverter	1
42A	PC2	057084228	Circuit Board, Primary Power Inverter	1
43	PC5	057084229	Circuit Board, Driver	1
44		056054098	Wheels, Rear	2
45		156012177	Axle	1
46	GSV	056061074	Valve, Gas Fitting	1
47		656089039	Strain Relief	1
48		056020081	Knob, Power Switch	1
49		057014221	Cable, Power	1
50	S1	056067293	Power Switch	1
51		156118108	Panel, Rear	1
52		116170003	Grid, Rear Fan Support	1
53	PC7	057084230	Circuit Board, Flayback	1
54	PC4	057084231	Circuit Board, Input Filter	1
55		156005226	Support, Gas Bottle	1
56		656005037	Insulator, Filter	1
57		656102010	Spool Reel	1
58		056093026	Button, Push	2
59		116117087	Plate, Baffle	1
60		156034009	Hinge	2
61		656043055	Latch	2
62		156122101	Wrapper, Opening Side Panel	1
63		156122102	Panel, Left	1
64	PC9	057084236	Circuit Board, Encoder	1
65		056054099	Wheel, For Encoder	1
66		207233	Label, Warning General Precautionary	1
67		178937	Label, Warning Electric Shock And Pinch Points	1
68		119503	Label, Logo Miller 240mm	2
69		6615640000	Label, Side Name/Model 260i	2
70		6611591000	Label, Gas Input/Power Switch	1
71		6615660000	Label, Purge - Jog	1
72		6615950000	Label, Front Symbols	1

◆ OPTIONAL

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

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



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**Figure 8-2. Wrapper Assembly, MigMatic 300iP**

Item No.	Dia. Mkgs.	Part No.	Description	Quantity
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**Figure 8-2. Wrapper Assembly, MigMatic 300iP**

...	1	231554	Handle, Left	1
...	2	356029270	Nameplate, Front	1
...	3	156118105	Display, Protection	1
...	4	156118106	Display, Frame	1
...	5	056076257	Rcpt Assy, Tw Lk Insul Fem (Dinse Type)	1
...	6	056076322	Receptacle, 14-Pin Including Wiring Harness	1
...	7	229616	Frame, Front Plastic	1
...	8	756033064	Insulator	2
...	9	056070066	Connection, Intermediate	1
...	10	156118107	Panel, Front	1
...	11	193919	Knob, Pointer	2
...	12	PC3 057084222	Circuit Board, 4,3" Display	1
...	13	057084223	Encoder	2
...	14	PC6 057084224	Circuit Board, 7 Seg. Display	1
...	15	058066143	Kit, PCB Assy, Operator Interface 300iP	1
...	15A	PC1 057084232	PCB, Logic $\mu$ P 300iP	1
...	16	656039020	Pcb Cover	1
...	17	231553	Handle, Right	1
...	18	656039020	Drive Assy, Wire (See Fig. 8-4)	1
...	19	656005035	Insulator, Torch Connector	1

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

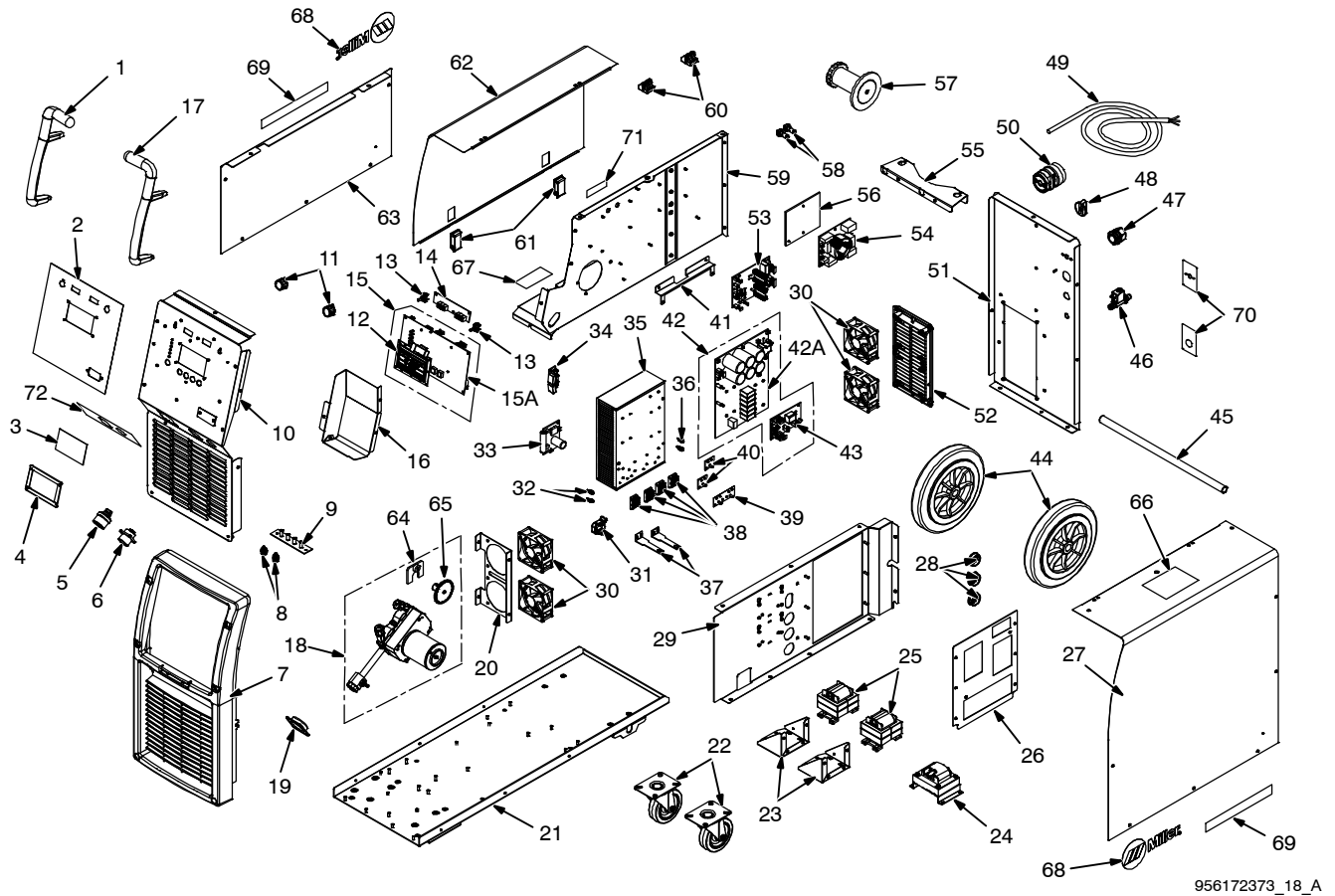
**To maintain the factory original performance of your equipment, use only Manufacturer's Suggested Replacement Parts. Model and serial number required when ordering parts from your local distributor.**

Item No.	Dia. Mkgs.	Part No.	Description	Quantity
<b>Figure 8-2. Wrapper Assembly, MigMatic 300iP</b>				
20		156005222	Support, Motor Fan	1
21		156006103	Base	1
22		056054097	Castors, Front	2
23		156005223	Support, Power Transformer	2
24		057098027	Output, Inductance	1
25	T1	058021174	Transformer, Power	2
26		156005224	Support, PCB Assy	1
27		156121050	Wrapper, Fixed	1
28		156076098	Bushing	3
29		116117086	Support, Intermediate	1
30	FM1,2,3,4	056126088	Fan, Motor w/Leads And Plug	4
31	HD1	056167014	Probe, Lem	1
32		156005224	Insulator	5
33		◆156121050	Circuit Board, Push Pull	1
34	PC8	156076098	Circuit Board, Output Filter	1
35		056082109	Heatsink	1
36		656005036	Insulator	2
37		056076319	Connection, Copper	2
38		056068076	Diode, Secondary	4
39		056076320	Connection, Copper	1
40		056076321	Connection, Copper	2
41		156005225	Support, PBC	1
42		058066142	Kit, PCB Assy, Primary Power Inverter	1
42A	PC2	057084228	Circuit Board, Primary Power Inverter	1
43	PC5	057084229	Circuit Board, Driver	1
44		056054098	Wheels, Rear	2
45		156012177	Axle	1
46	GSV	056061074	Valve, Gas Fitting	1
47		656089039	Strain Relief	1
48		056020081	Knob, Power Switch	1
49		057014221	Cable, Power	1
50	S1	056067293	Power Switch	1
51		156118108	Panel, Rear	1
52		116170003	Grid, Rear Fan Support	1
53	PC7	057084230	Circuit Board, Flayback	1
54	PC4	057084233	Circuit Board, Input Filter	1
55		156005226	Support, Gas Bottle	1
56		656005037	Insulator, Filter	1
57		656102010	Spool Reel	1
58		056093026	Button, Push	2
59		116117087	Plate, Baffle	1
60		156034009	Hinge	2
61		656043055	Latch	2
62		156122101	Wrapper, Opening Side Panel	1
63		156122102	Panel, Left	1
64	PC9	057084236	Circuit Board, Encoder	1
65		056054099	Wheel, For Encoder	1
66		207233	Label, General Precautionary	1
67		178937	Label, Warning Electric Shock And Pinch Points	1
68		119503	Label, Logo Miller 240mm	2
69		6615650000	Label, Side Name/Model 300iP	2
70		6611591000	Label, Gas Input/Power Switch	1
71		6615660000	Label, Purge - Jog	1
72		6615950000	Label, Front Symbols	1

◆ OPTIONAL

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

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



**Figure 8-3. Wrapper Assembly, MigMatic 320i**

Item No.	Dia. Mkgs.	Part No.	Description	Quantity
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**Figure 8-3. Wrapper Assembly, MigMatic 320i**

...	1	231554	Handle, Left	1
...	2	356029270	Nameplate, Front	1
...	3	156118105	Display, Protection	1
...	4	156118106	Display, Frame	1
...	5	056076257	Rcpt Assy, Tw Lk Insul	1
...	6	056076322	Receptacle, 14-Pin Including Wiring Harness	1
...	7	229616	Frame, Front Plastic	1
...	8	756033064	Insulator	2
...	9	056070066	Connection, Intermediate	1
...	10	156118107	Panel, Front	1
...	11	193919	Knob, Pointer	2
...	12	PC3 057084222	Circuit Board, 4,3" Display	1
...	13	057084223	Encoder	2
...	14	PC6 057084224	Circuit Board, 7 Seg. Display	1
...	15	058066144	Kit, PCB Assy, Operator Interface 320i	1
...	15A	PC1 057084234	PCB, Logic $\mu$ P 320i	1
...	16	656039020	Pcb Cover	1
...	17	231553	Handle, Right	1
...	18	656039020	Drive Assy, Wire (See Fig. 8-4)	1
...	19	656005035	Insulator, Torch Connector	1

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

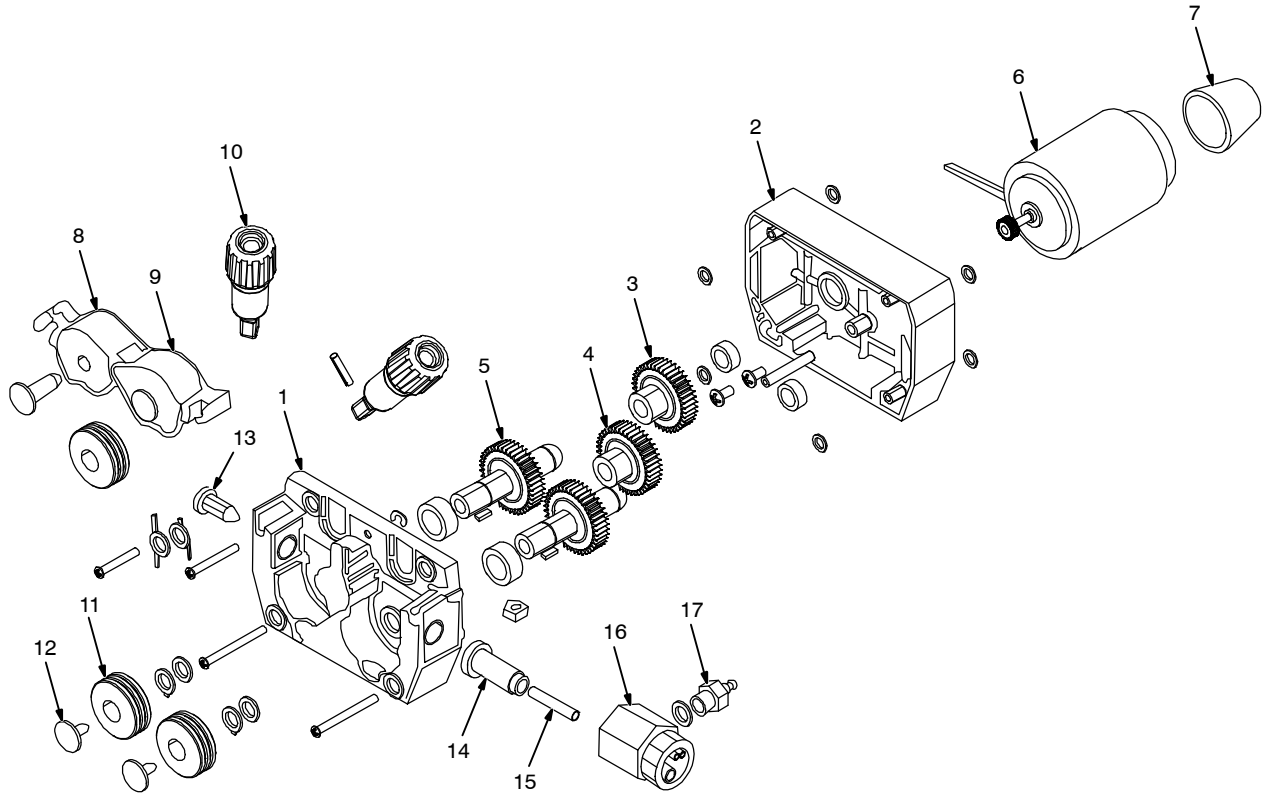
**To maintain the factory original performance of your equipment, use only Manufacturer's Suggested Replacement Parts. Model and serial number required when ordering parts from your local distributor.**

Item No.	Dia. Mkgs.	Part No.	Description	Quantity
20		156005222	Support, Motor Fan	1
21		156006103	Base	1
22		056054097	Castors, Front	2
23		156005223	Support, Power Transformer	2
24		057098027	Output, Inductance	1
25	T1	058021174	Transformer, Power	2
26		156005224	Support, PCB Assy	1
27		156121050	Wrapper, Fixed	1
28		156076098	Bushing	3
29		116117086	Support, Intermediate	1
30	FM1,2,3,4	056126088	Fan, Motor w/Leads And Plug	4
31	HD1	056167014	Probe, Lem	1
32		156005224	Insulator	5
33		◆156121050	Circuit Board, Push Pull	1
34	PC8	156076098	Circuit Board, Output Filter	1
35		056082109	Heatsink	1
36		656005036	Insulator	2
37		056076319	Connection, Copper	2
38		056068076	Diode, Secondary	4
39		056076320	Connection, Copper	1
40		056076321	Connection, Copper	2
41		156005225	Support, PBC	1
42		058066142	Kit, PCB Assy, Primary Power Inverter	1
42A	PC2	057084228	Circuit Board, Primary Power Inverter	1
43	PC5	057084229	Circuit Board, Driver	1
44		056054098	Wheels, Rear	2
45		156012177	Axle	1
46	GSV	056061074	Valve, Gas Fitting	1
47		656089039	Strain Relief	1
48		056020081	Knob, Power Switch	1
49		057014221	Cable, Power	1
50	S1	056067293	Power Switch	1
51		156118108	Panel, Rear	1
52		116170003	Grid, Rear Fan Support	1
53	PC7	057084230	Circuit Board, Flayback	1
54	PC4	057084233	Circuit Board, Input Filter	1
55		156005226	Support, Gas Bottle	1
56		656005037	Insulator, Filter	1
57		656102010	Spool Reel	1
58		056093026	Button, Push	2
59		116117087	Plate, Baffle	1
60		156034009	Hinge	2
61		656043055	Latch	2
62		156122101	Wrapper, Opening Side Panel	1
63		156122102	Panel, Left	1
64	PC9	057084236	Circuit Board, Encoder	1
65		056054099	Wheel, For Encoder	1
66		207233	Label, General Precautionary	1
67		178937	Label, Warning Electric Shock And Pinch Points	1
68		119503	Label, Logo Miller 240mm	2
69		6615660000	Label, Side Name/Model 320i	2
70		6611591000	Label, Gas Input/Power Switch	1
71		6615660000	Label, Purge - Jog	1
72		6615950000	Label, Front Symbols	1

◆ OPTIONAL

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

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



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**Figure 8-4. Drive Assembly, Wire (2/4 Roll)**

Item No.	Dia. Mkgs.	Part No.	Description	Quantity
<b>Figure 8-4. Drive Assembly, Wire (2/4 Roll)</b>				
1		656039021	Front Housing, 4-R Wire Drive SF54037	1
2		656039022	Rear Housing, 4-R Wire Drive Sf54037	1
3		156003045	Gear, Motor	1
4		156003046	Gear, Intermediary	1
5		156003047	Gear, w/Main Axle	2
6		056126089	Motor, EP Dia. 77mm 24 V/75W 5500Rpm	1
7		057084237	Encoder Cover, Dia. 48mm Nylon	1
8		356115004	Pressure Arm, Dia 37mm Left	1
9		356115005	Pressure Arm, Dia 37mm Right	1
10		056018004	Pressure Adjustment Unit, 2mm Spring	2
11		156053125	Roll, 1.0-1.2mm Dia. 37mm Hard Wire	2
12		156019842	Screw, Retaining	1
13		156090035	Guide, Wire Inlet Dia. 2.3 L34.1	1
14		556019050	Screw, Connection Brass	1
15		156090036	Tube, Wire Guide 5 x 2 x 48mm	1
16		057052060	Adapter, Torch	1
17		156019843	Screw, Current/Gas Connection	1

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

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









# TRUE BLUE<sup>®</sup>

## WARRANTY

Effective January 1, 2020

(Equipment with a serial number preface of NA 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 your ITW Welding  
Regional Office.

LIMITED WARRANTY – Subject to the terms and conditions below, Miller Electric Mfg. LLC, Appleton, Wisconsin and ITW Welding (hereafter referred to as Miller) warrant 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 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
2. 3 Years — Parts and Labor Unless Specified
  - \* Auto-Darkening Helmet Lenses (No Labor) (See Classic Series Exception Below)
  - \* Engine Driven Welder/Generators  
**(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
3. 2 Years — Parts and Labor
  - \* Auto-Darkening Helmet Lenses – Classic Series Only (No Labor)
  - \* Auto-Darkening Weld Masks (No Labor)
  - \* Fume Extractors – Capture 5, Filtair 400 and Industrial Collector Series
4. 1 Year — Parts and Labor Unless Specified
  - \* ArcReach Heater
  - \* AugmentedArc and LiveArc Welding Systems
  - \* Automatic Motion Devices
  - \* Bernard BTB Air-Cooled MIG Guns (No Labor)
  - \* CoolBelt (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.)**
  - \* Load Banks
  - \* Motor-Driven Guns (except Spoolmate Spoolguns)
  - \* PAPR Blower Unit (No Labor)

- \* 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)
5. 6 Months — Parts
    - \* Batteries
  6. 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<sup>®</sup> 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, GUARANTY, OR REPRESENTATION, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE, ARE EXCLUDED AND DISCLAIMED BY MILLER.

This Limited Warranty provides specific legal rights, and other rights may be available, but may vary by country.



# 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

---

Country

Zip/Postal Code

---

## For Service

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

**Always provide Model Name and Serial/Style Number.**

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Contact your Distributor for:

Welding Supplies and Consumables

Options and Accessories

Service and Repair

Replacement Parts

Owner's Manuals

---

Contact the Delivering Carrier to:

File a claim for loss or damage during shipment.

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

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