OM-287348B 2021-02

Processes

MIG (GMAW) Welding

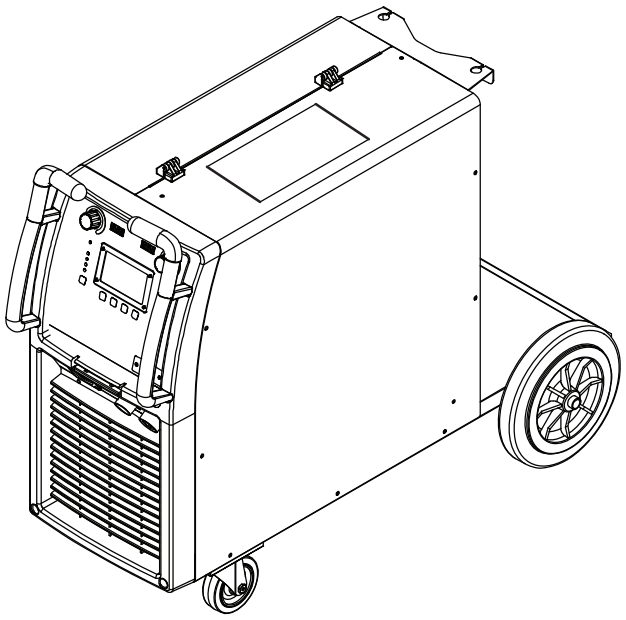
Flux Cored (FCAW) Welding

Description

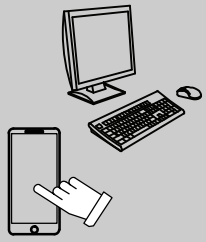
Arc Welding Power Source with Wire Feeder

MigMatic® CE

260i/300iP/320i



OWNER'S MANUAL



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

www.MillerWelds.com

From Miller to You

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

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

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

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

TRUE BLUE® WARRANTY

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

Miller®

TABLE OF CONTENTS

DECLARATION OF CONFORMITY

for European Community (CE marked) products.

ITW Welding Products BV, Edisonstraat 10, 3261LD Oud Beijerland, The 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 and Commission Regulations:

- 2014/35/EU Low voltage
- 2014/30/EU Electromagnetic compatibility
- 2015/865/EU Restriction of the use of certain hazardous substances in electrical and electronic equipment
- 2009/125/EC Ecodesign requirements for energy-related products
- 2019/1784/EU Ecodesign requirements for welding 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 Arc welding equipment – Part 10: Electromagnetic compatibility requirements

Signatory:

October 15, 2020

Pieter Keultjes
TECHNICAL PRODUCT MANAGER EQUIPMENT ITW WELDING BV

Date of Declaration

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

287437-A

SECTION 1 – SAFETY PRECAUTIONS – READ BEFORE USING

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

1-1. Symbol Usage

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

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

NOTICE – *Indicates statements not related to personal injury.*

☞ *Indicates special instructions.*

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

1-2. Arc Welding Hazards

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

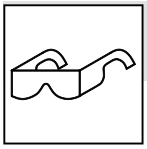
- Do not touch live electrical parts.
- Wear dry, hole-free insulating gloves and body protection.
- Insulate yourself from work and ground using dry insulating mats or covers big enough to prevent any physical contact with the work or ground.
- Do not use AC weld output in damp, wet, or confined spaces, 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.
- Use only well-maintained equipment. Repair or replace damaged parts at once. Maintain unit according to manual.
- Do not touch electrode holders connected to two welding machines at the same time since double open-circuit voltage will be present.
- Wear a safety harness if working above floor level.
- Keep all panels and covers securely in place.
- Clamp work cable with good metal-to-metal contact to workpiece or worktable as near the weld as practical.
- Insulate work clamp when not connected to workpiece to prevent contact with any metal object.
- Do not connect more than one electrode or work cable to any single weld output terminal. Disconnect cable for process not in use.
- Use GFCI protection when operating auxiliary equipment in damp or wet locations.

SIGNIFICANT DC VOLTAGE exists in inverter 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.



FLYING METAL OR DIRT can injure eyes.

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

FUMES AND GASES can be hazardous.

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

- Keep your head out of the fumes. Do not breathe the fumes.
- Ventilate the work area and/or use local forced ventilation at the arc to remove welding fumes and gases. The recommended way to determine adequate ventilation is to sample for the composition and quantity of fumes and gases to which personnel are exposed.
- If ventilation is poor, wear an approved air-supplied respirator.
- Read and understand the Safety Data Sheets (SDSs) and the manufacturer's instructions for adhesives, coatings, cleaners, consumables, coolants, degreasers, fluxes, and metals.
- Work in a confined space only if it is well ventilated, or while wearing an air-supplied respirator. Always have a trained watchperson nearby. Welding fumes and gases can displace air and lower the oxygen level causing injury or death. Be sure the breathing air is safe.
- Do not weld in locations near degreasing, cleaning, or spraying operations. The heat and rays of the arc can react with vapors to form highly toxic and irritating gases.
- Do not weld on coated metals, such as galvanized, lead, or cadmium plated steel, unless the coating is removed from the weld area, the area is well ventilated, and while wearing an air-supplied respirator. The coatings and any metals containing these elements can give off toxic fumes if welded.

BUILDUP OF GAS can injure or kill.

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

ARC RAYS can burn eyes and skin.

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

- Wear an approved welding helmet fitted with a proper shade of filter lenses to protect your face and eyes from arc rays and sparks when welding or watching (see ANSI Z49.1 and Z87.1 listed in Safety Standards).
- Wear approved safety glasses with side shields under your helmet.
- Use protective screens or barriers to protect others from flash, glare, and sparks; warn others not to watch the arc.
- Wear body protection made from 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.

NOISE can damage hearing.

Noise from some processes or equipment can damage hearing.

- Wear approved ear protection if noise level is high.

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

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

CYLINDERS can explode if damaged.

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

- Protect compressed gas cylinders from excessive heat, mechanical shocks, physical damage, slag, open flames, sparks, and arcs.
- Install cylinders in an upright position by securing to a stationary support or cylinder rack to prevent falling or tipping.
- Keep cylinders away from any welding or other electrical circuits.
- Never drape a welding torch over a gas cylinder.
- Never allow a welding electrode to touch any cylinder.
- Never weld on a pressurized cylinder — explosion will result.
- Use only correct compressed gas cylinders, regulators, hoses, and fittings designed for the specific application; maintain them and associated parts in good condition.
- Turn face away from valve outlet when opening cylinder valve. Do not stand in front of or behind the regulator when opening the valve.
- Keep protective cap in place over valve except when cylinder is in use or connected for use.
- Use the proper equipment, correct procedures, and sufficient number of persons to lift, move, and transport cylinders.
- Read and follow instructions on compressed gas cylinders, associated equipment, and Compressed Gas Association (CGA) publication P-1 listed in Safety Standards.

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

FIRE OR EXPLOSION hazard.

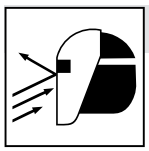
- Do not install or place unit on, over, or near combustible surfaces.
- Do not install unit near flammables.
- Do not overload building wiring - be sure power supply system is properly sized, rated, and protected to handle this unit.

FALLING EQUIPMENT can injure.

- Use lifting eye to lift unit and properly installed accessories only, NOT gas cylinders. Do not exceed maximum lift eye weight rating (see Specifications).
- Use correct procedures and equipment of adequate capacity to lift and support unit.
- If using lift forks to move unit, be sure forks are long enough to extend beyond opposite side of unit.
- Keep equipment (cables and cords) away from moving vehicles when working from an aerial location.
- Follow the guidelines in the Applications Manual for the Revised NIOSH Lifting Equation (Publication No. 94-110) when manually lifting heavy parts or equipment.

OVERUSE can cause OVERHEATING.

- Allow cooling period; follow rated duty cycle.
- Reduce current or reduce duty cycle before starting to weld again.
- Do not block or filter airflow to unit.



FLYING SPARKS can injure.

- Wear a face shield to protect eyes and face.
- Shape tungsten electrode only on grinder with proper guards in a safe location wearing proper face, hand, and body protection.
- Sparks can cause fires — keep flammables away.

STATIC (ESD) can damage PC boards.

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

MOVING PARTS can injure.

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

WELDING WIRE can injure.

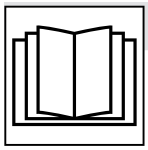
- Do not press gun trigger until instructed to do so.
- Do not point gun toward any part of the body, other people, or any metal when threading welding wire.

BATTERY EXPLOSION can injure.

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

MOVING PARTS can injure.

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



READ INSTRUCTIONS.

- Read and follow all labels and the Owner's Manual carefully before installing, operating, or servicing unit. Read the safety information at the beginning of the manual and in each section.
- Use only genuine replacement parts from the manufacturer.
- Perform installation, maintenance, and service according to the Owner's Manuals, industry standards, and national, state, and local codes.

H.F. RADIATION can cause interference.

- High-frequency (H.F.) can interfere with radio navigation, safety services, computers, and communications equipment.
- Have only qualified persons familiar with electronic equipment perform this installation.
- The user is responsible for having a qualified electrician promptly correct any interference problem resulting from the installation.
- If notified by the FCC about interference, stop using the equipment at once.

- Have the installation regularly checked and maintained.
- Keep high-frequency source doors and panels tightly shut, keep spark gaps at correct setting, and use grounding and shielding to minimize the possibility of interference.

ARC WELDING can cause interference.

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

1-4. California Proposition 65 Warnings

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

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

1-5. Principal Safety Standards

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

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

Safe Practices for the Preparation of Containers and Piping for Welding and Cutting, American Welding Society Standard AWS F4.1 from Global Engineering Documents. Website: 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.

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

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

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

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

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

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

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

SOM 2020–02

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.

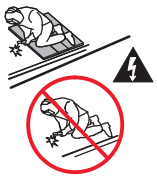
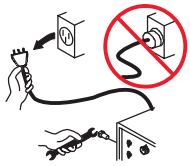
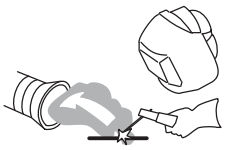
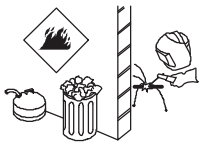
About Implanted Medical Devices:

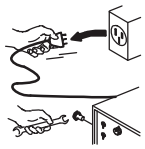
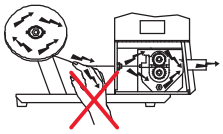
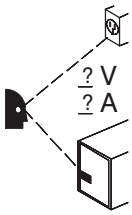
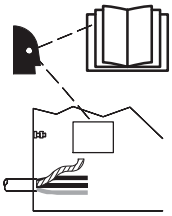
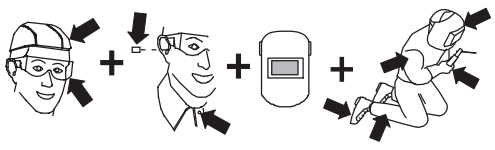
Implanted Medical Device wearers should consult their doctor and the device manufacturer before performing or going near arc welding, spot welding, gouging, plasma arc cutting, or induction heating operations. If cleared by your doctor, then following the above procedures is recommended.

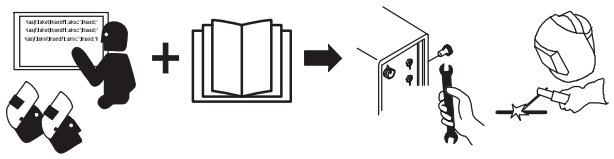
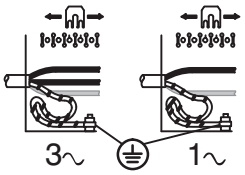
SECTION 2 – DEFINITIONS

2-1. Additional Safety Symbol Definitions

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

	Warning! Watch Out! There are possible hazards as shown by the symbols.
	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.
	Wear dry insulating gloves. Do not touch electrode with bare hand. Do not wear wet or damaged gloves.
	Protect yourself from electric shock by insulating yourself from work and ground.
	Disconnect input plug or power before working on machine.
	Keep your head out of the fumes.
	Use forced ventilation or local exhaust to remove the fumes.
	Use ventilating fan to remove fumes.
	Keep flammables away from welding. Do not weld near flammables.

	Welding sparks can cause fires. Have a fire extinguisher nearby, and have a watchperson ready to use it.
	Do not weld on drums or any closed containers.
	Do not remove or paint over (cover) the label.
	Disconnect input plug or power before working on machine.
	Drive rolls can injure fingers.
	Welding wire and drive parts are at welding voltage during operation - keep hands and metal objects away.
	Consult rating label for input power requirements.
	Become trained and read the instructions and labels before working on machine.
	Wear hat and safety glasses. Use ear protection and button shirt collar. Use welding helmet with correct shade of filter. Wear complete body protection.

	Become trained and read the instructions before working on the machine or welding.
	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.
	Falling unit can cause injury. Do not move or operate unit where it could tip.

2-2. Miscellaneous Symbols And Definitions

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

A	Amperage
V	Voltage
~	Alternating Current (AC)
⎓	Direct Current (DC)
	Remote
I	On
O	Off
⏚	Protective Earth (Ground)
	Line Connection
3~	Three Phase
	Material Thickness

	Gas Metal Arc Welding (GMAW)
U_1	Primary Voltage
I_{1max}	Rated Maximum Supply Current
→	Directional Arrow
	Process (Welding)
S	Suitable for Welding in an Environment with Increased Risk of Electric Shock
	Three Levels Trigger Mode (Eur)
I_{1eff}	Maximum Effective Supply Current
U_2	Conventional Load Voltage
I_2	Rated Welding Current
X	Duty Cycle

%	Percent
U_0	Rated No Load Voltage (OCV)
IP	Degree of Protection
t	Final Slope
f_1/f_2	Inverter
	Two-Step Trigger Operation
	Four-Step Trigger Operation
	Gas Input
	Gas Output
	Home
	Purge by Gas

	Negative
	Cooling
	Arc Length
	Settings
	Fuse
	Gas Type
	Input Voltage

	Wire Feed
	Hertz
	Input
	Read Operator's Manual
	Wire Type
	Diameter
	Intermittent (Stitch) Welding

	Wire Burnback Control
	Wire-In Speed Control
	Initial Current
	Final Current
	Variable Inductance
	Preflow 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 of the machine. Use the rating labels 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. 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 104F (40C).*

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 24.5.0 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.							

3-3. 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 for welding outside during precipitation unless sheltered.

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 104°F (40°C).

C. Information On Electromagnetic Compatibility (EMC)

⚠ **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.**

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.

D. EU Ecodesign Information

Model	Input	Minimum Power Source Efficiency	Maximum Idle State Power Consumption
MigMatic 260i/300iP/320i	400V Three Phase	85.0%	25.0 W

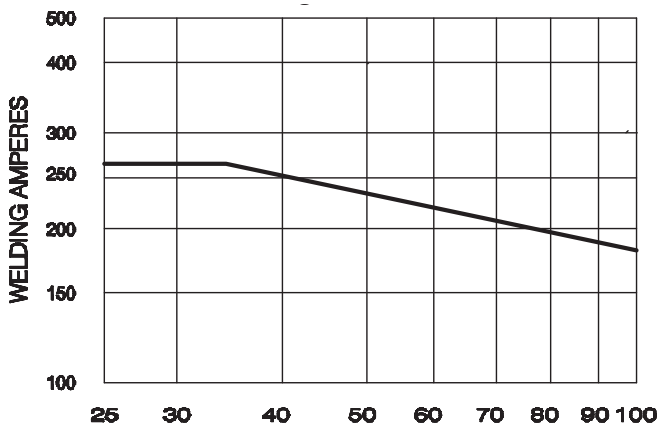
	Do not discard product (where applicable) with general waste. Reuse or recycle Waste Electrical and Electronic Equipment (WEEE) by disposing at a designated collection facility. Contact your local recycling office or your local distributor for further information.

Critical raw materials possibly present in indicative amounts higher than 1 gram at component level	
Component	**Critical Raw Material**
Printed circuit boards	Baryte, Bismuth, Cobalt, Gallium, Germanium, Hafnium, Indium, Heavy Rare Earth, Light Rare Earth, Niobium, Platinum Group Metals, Scandium, Silicon Metal, Tantalum, Vanadium
Plastic components	Antimony, Baryte
Electrical and electronic components	Antimony, Beryllium, Magnesium
Metal components	Beryllium, Cobalt, Magnesium, Tungsten, Vanadium
Cables and cable assemblies	Borate, Antimony, Baryte, Beryllium, Magnesium
Display panels	Gallium, Indium, Heavy Rare Earth, Light Rare Earth,Niobium, Platinum Group Metals, Scandium
Batteries	Fluorspar, Heavy Rare Earth, Light Rare Earth, Magnesium

3-4. Duty Cycle And Overheating

A. MigMatic 260i

MigMatic 260i

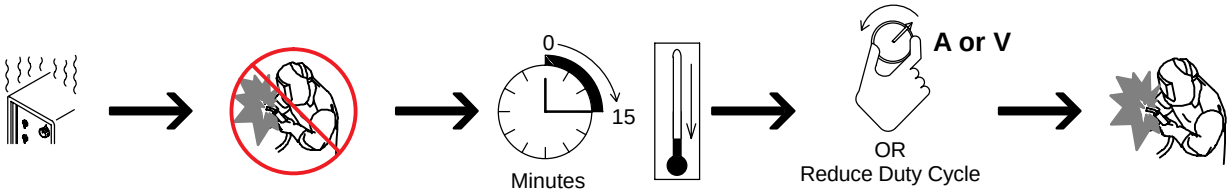


Duty Cycle is percentage of 10 minutes that unit can weld at rated load without overheating.

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.

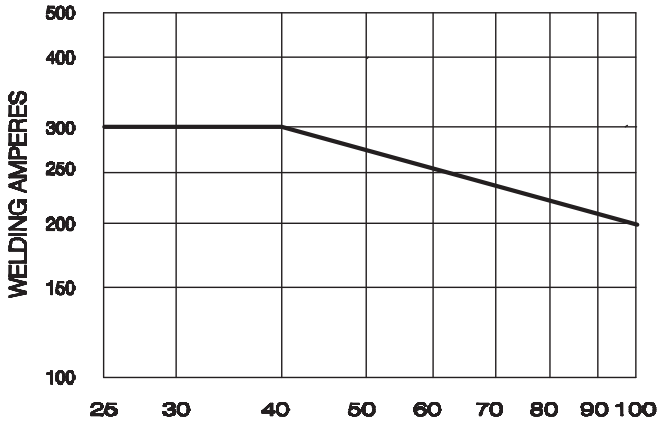
NOTICE – *Exceeding duty cycle can damage unit and void warranty.*

Overheating



B. MigMatic 300iP

MigMatic 300iP

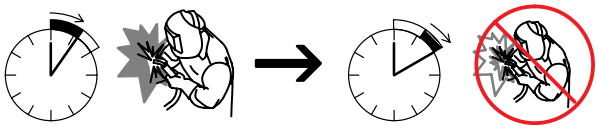


Duty Cycle is percentage of 10 minutes that unit can weld at rated load without overheating.

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.*

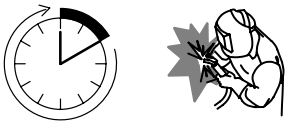
60% Duty Cycle At 350 Amperes



6 Minutes Welding

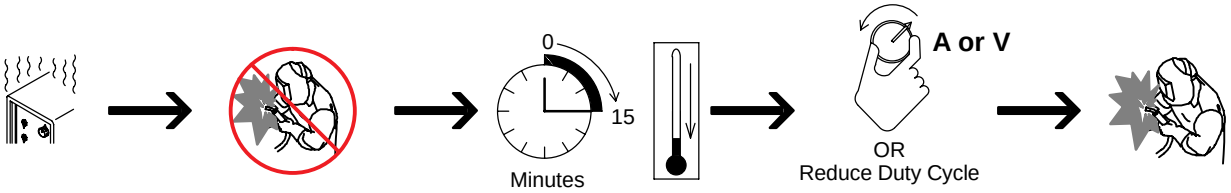
4 Minutes Resting

100% Duty Cycle At 200 Amperes



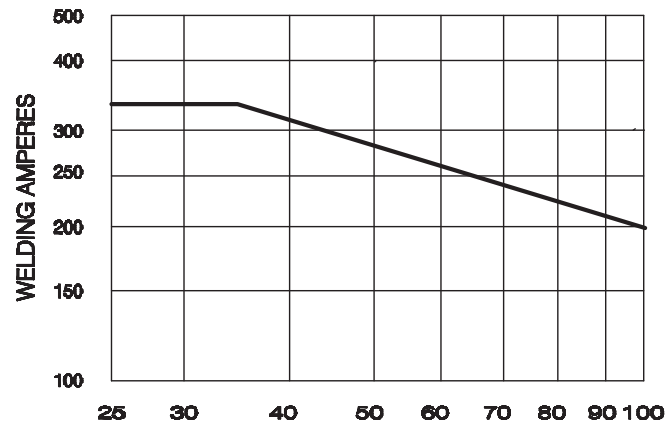
Continuous Welding

Overheating



C. MigMatic 320i

MigMatic 320i

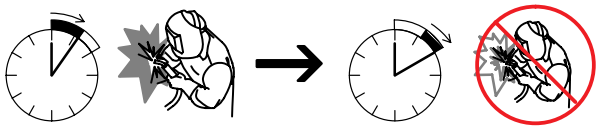


Duty Cycle is percentage of 10 minutes that unit can weld at rated load without overheating.

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.*

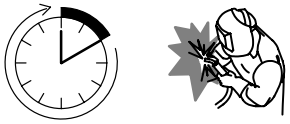
60% Duty Cycle At 350 Amperes



6 Minutes Welding

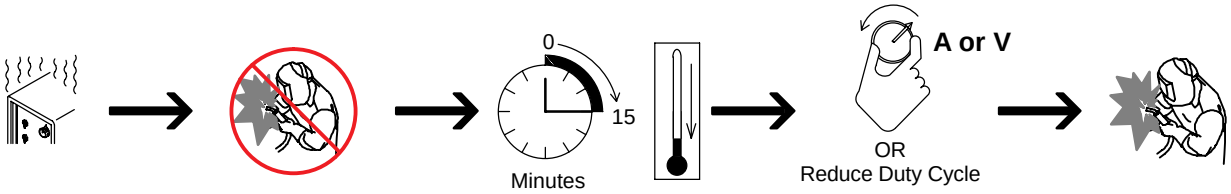
4 Minutes Resting

100% Duty Cycle At 200 Amperes



Continuous Welding

Overheating

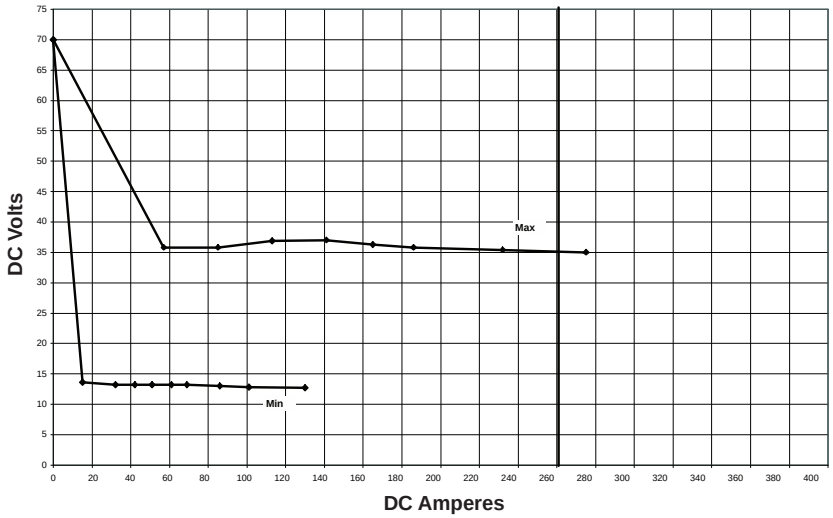


Minutes

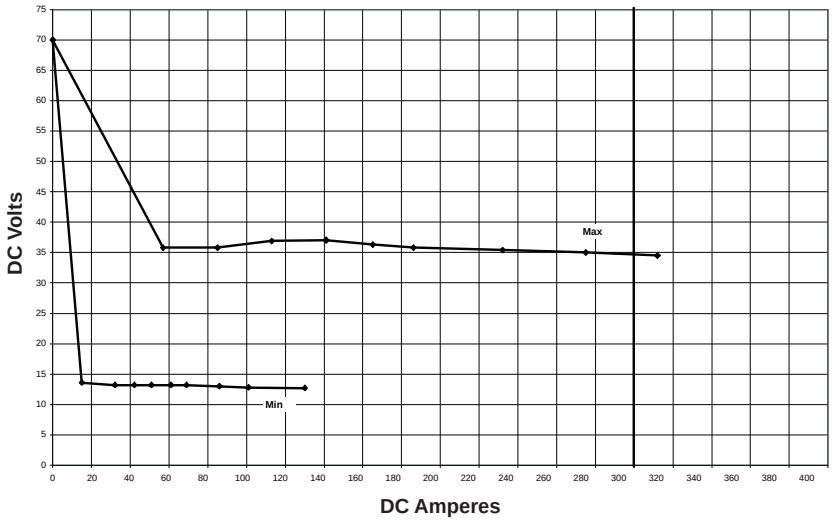
OR
Reduce Duty Cycle

3-5. Volt-Ampere Curves

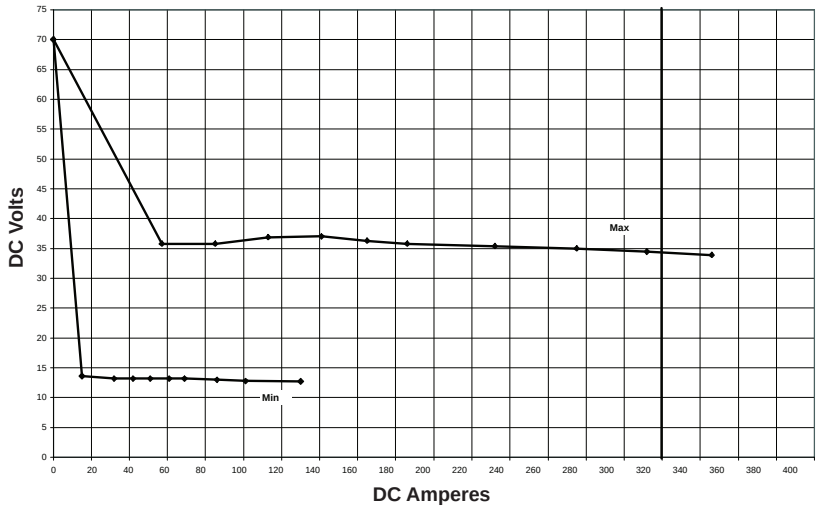
MigMatic 260i



MigMatic 300iP



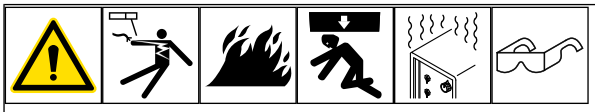
MigMatic 320i



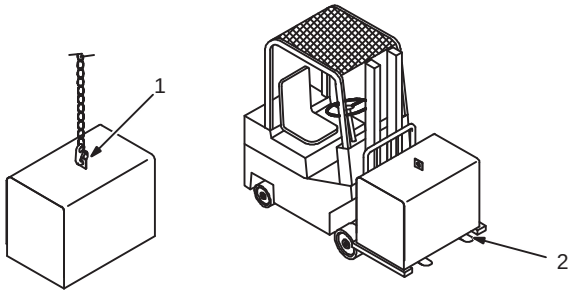
The volt-ampere curves show the normal minimum and maximum voltage and amperage output capabilities of the welding power source. Curves of other settings fall between the curves shown.

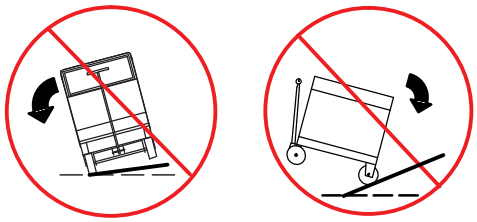
SECTION 4 – INSTALLATION

4-1. Selecting A Location



Movement





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

⚠ **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

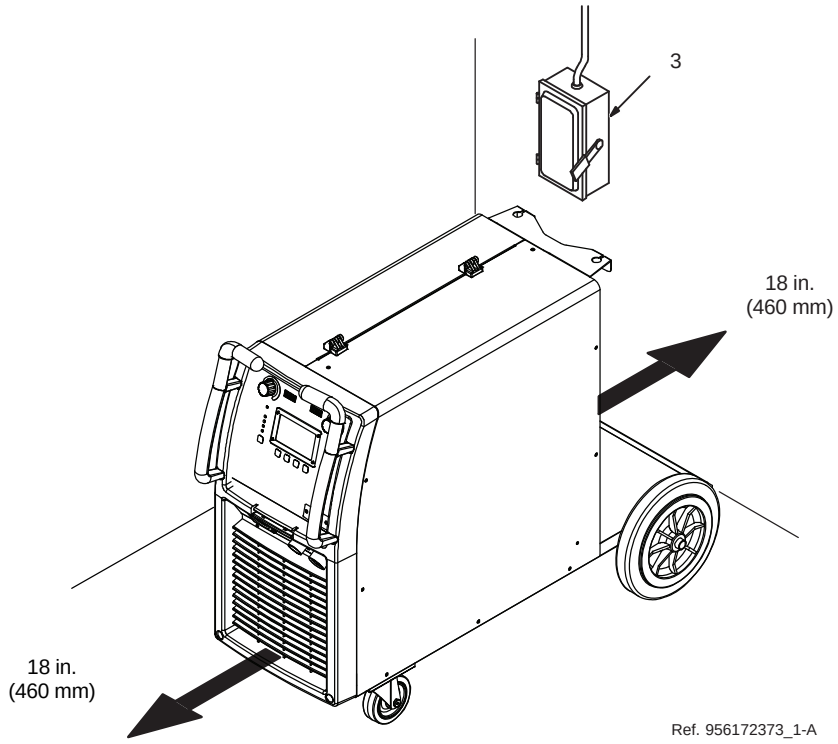
Use lifting eye or lifting forks to move unit.

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

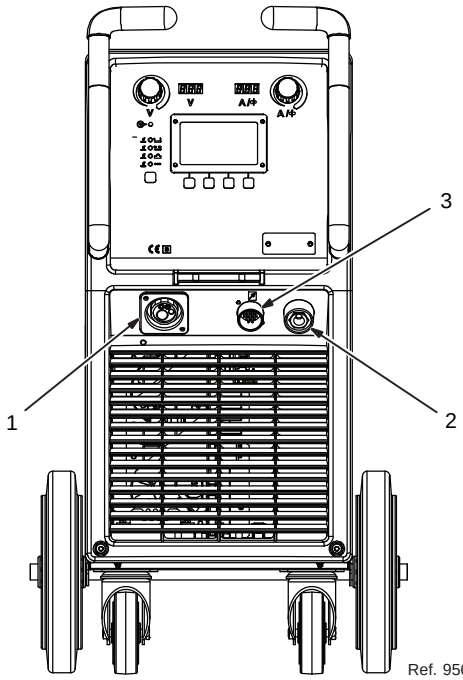
3 Line Disconnect Device

Locate unit near correct input power supply.

Location And Airflow



4-2. Weld Output Terminals



Ref. 956172373_2_A

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

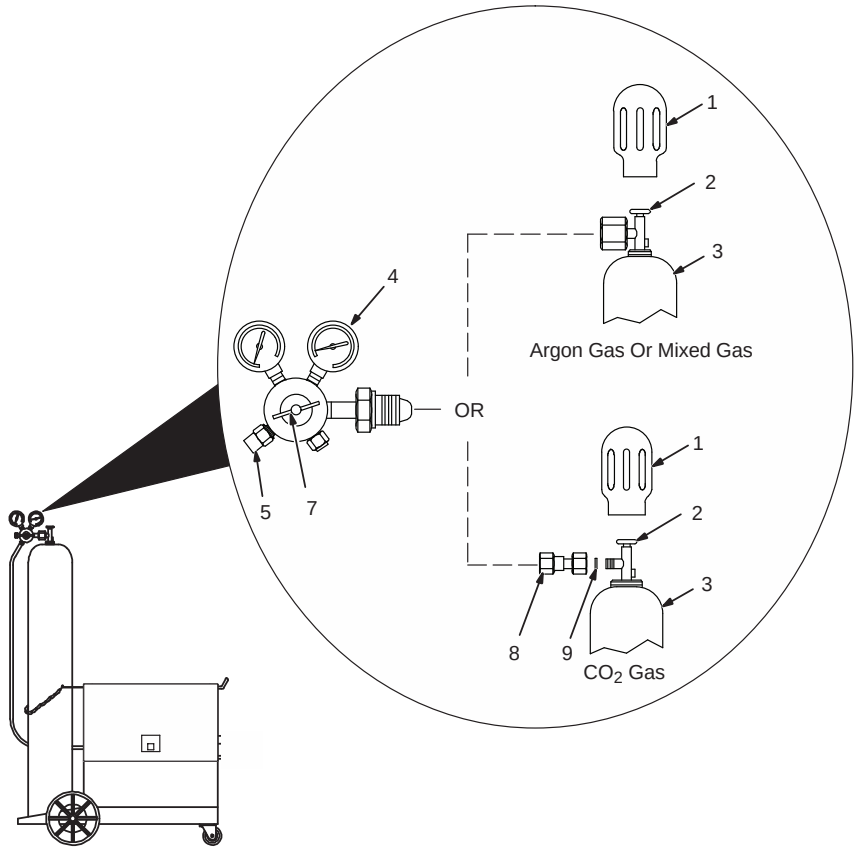
⚠ **Do not use worn, damaged, undersized, or repaired cables.**

1 Gun/Feeder Adapter (+ Weld Output)

2 Work Weld Output Terminal (– Weld Output)

3 Remote 14 Receptacle see Section 4-5

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

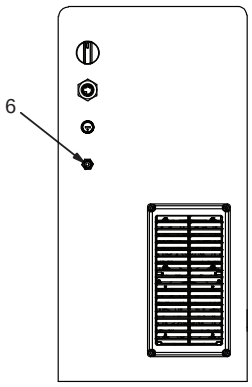
7 Flow Adjust

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

8 CO_2 Adapter (Customer Supplied)

9 O-Ring (Customer Supplied)

Install adapter with O-ring between regulator/flow meter and CO_2 cylinder.

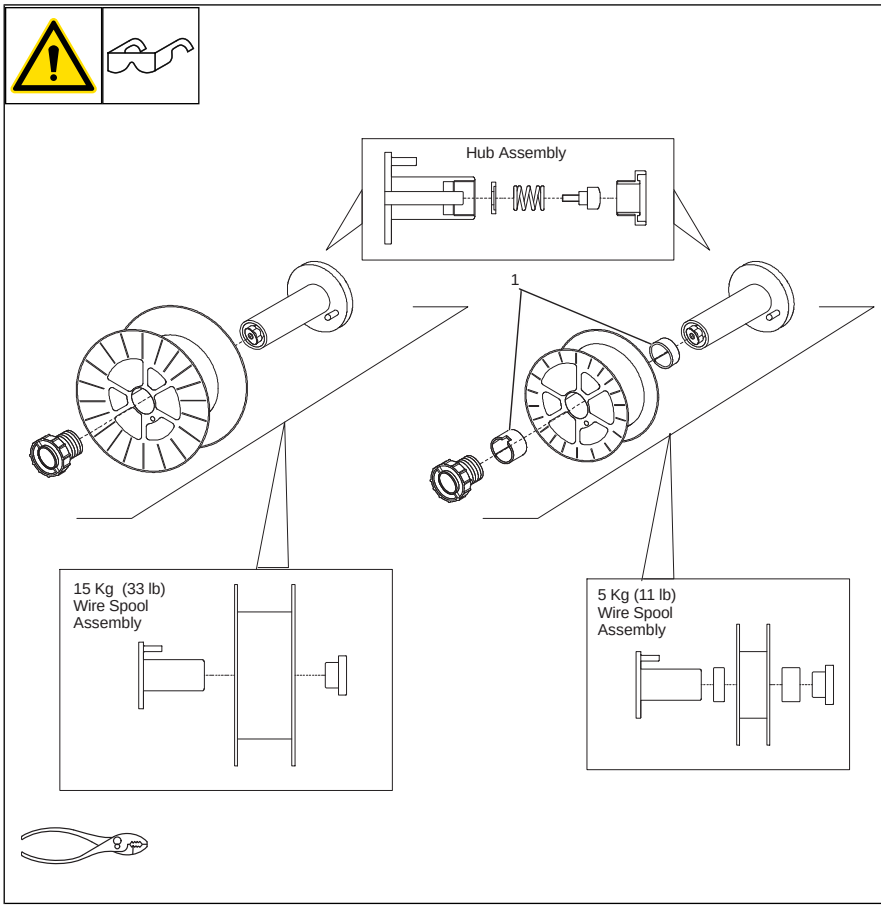


Rear Panel

Ref. 148265-B / Ref. 149827-B / Ref. 158697-A Ref. 9561172373_6-A

19/32 in. (15 mm)

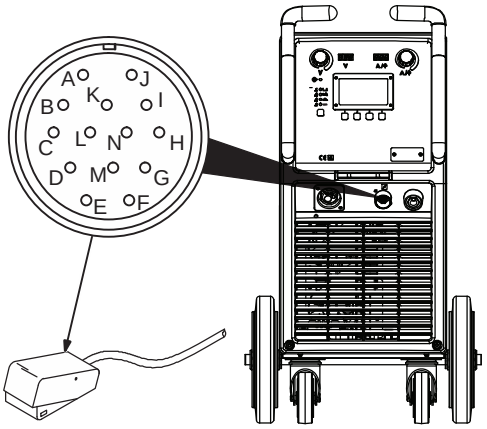
4-4. Installing Wire Spool And Adjusting Hub Tension



1 Spacers

Use only for 5 kg (11 lb) spool.

4-5. Remote 14–Pin Receptacle Information



956172373_6_A

Remote 14	Socket	Socket Information
Output Contactor	A	Sw3
	B	Sw4
Input/Output Remote Control Pot 2	D	+5V Pot
	E	Comm Pot1–2
	F	Down 1/R Pot1
	G	Up2
Input/Output Remote Control Pot 2	D	+5V Pot
	E	Comm Pot1–2
	K	Down2/R Pot2
	G	Up2
	I	Common sense
	L	Sense 2 (R220K Pot 2)
Up/Down Torch	C	Up1
	E	Comm Pot1–2
	F	Down1/R Pot1
	I	Common sense
	J	Sense 1 (jumper up/down)
Chassis	H	Ground
Push/Pull	M	+ Motor push pull
	N	– Motor push pull

The remaining sockets are not used. See Electrical Diagrams.

4-6. Electrical Service Guide

Failure to follow these electrical service guide recommendations could create an electric shock or fire hazard. These recommendations are for an individual branch circuit sized for the rated output and duty cycle of one welding power source. In individual branch circuit installations, the National Electrical Code (NEC) allows the receptacle or conductor rating to be less than the rating of the circuit protection device. All components of the circuit must be physically compatible. See NEC articles 210.21, 630.11, and 630.12.

CE-marked equipment shall only be used on a supply network that is a three-phase, four-wire system with an earthed neutral.

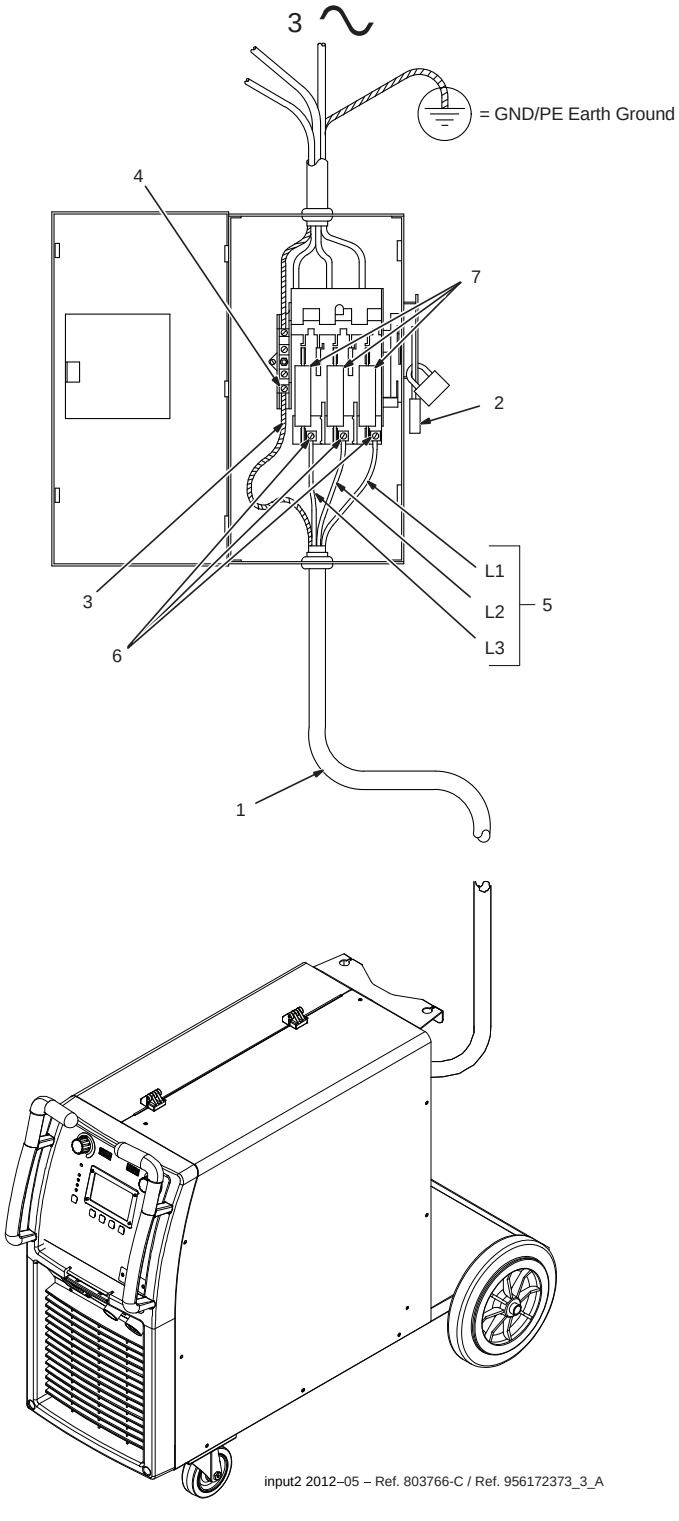
Actual input voltage should not fall below 340 volts AC or rise above 460 volts AC. If actual input voltage is outside this range, unit may not operate according to specifications.

	260i	300iP	320i
Rated Supply Voltage (V)	400	400	400
Rated Maximum Supply Current I_{1max} (A)	15.4	19.0	21.5
Rated Effective Supply Current I_{1eff} (A)	9.7	12.0	12.7
Maximum Recommended Standard Fuse Rating In Amperes [1]			
Time Delay Fuses [2]	20	20	25
Normal Operating Fuses [3]	20	25	30
Maximum Recommended Supply Conductor Length In Feet (Meters) [4]	179 (55)	142 (43)	127 (39)
Raceway Installation			
Minimum Supply Conductor Size In AWG (mm^2) [5]	14 (2.5)	14 (2.5)	14 (2.5)
Minimum Grounding Conductor Size In AWG (mm^2) [5]	14 (2.5)	14 (2.5)	14 (2.5)

Reference: 2020 National Electrical Code (NEC) (including article 630)

1 If a circuit breaker is used in place of a fuse, choose a circuit breaker with time-current curves comparable to the recommended fuse.
2 "Time-Delay" fuses are UL class "RK5" . See UL 248.
3 "Normal Operating" (general purpose - no intentional delay) fuses are UL class "K5" (up to and including 60 amps), and UL class "H" (65 amps and above).
4 Maximum total length of copper input conductors in entire installation, raceway and/or flexible cord.
5 Raceway conductor data in this section specifies conductor size (excluding flexible cord or cable) between the panelboard and the equipment per NEC Table 310.15(B)(16) and is based on allowable ampacities of insulated copper conductors having a temperature rating of 75°C (167°F) with not more than three single current-carrying conductors in a raceway.

4-7. Connecting 3-Phase Input Power



input2 2012–05 – Ref. 803766-C / Ref. 956172373_3_A

⚠ **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.

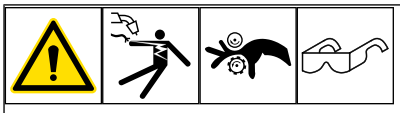
Connect input conductors L1, L2, and L3 to disconnect device line terminals.

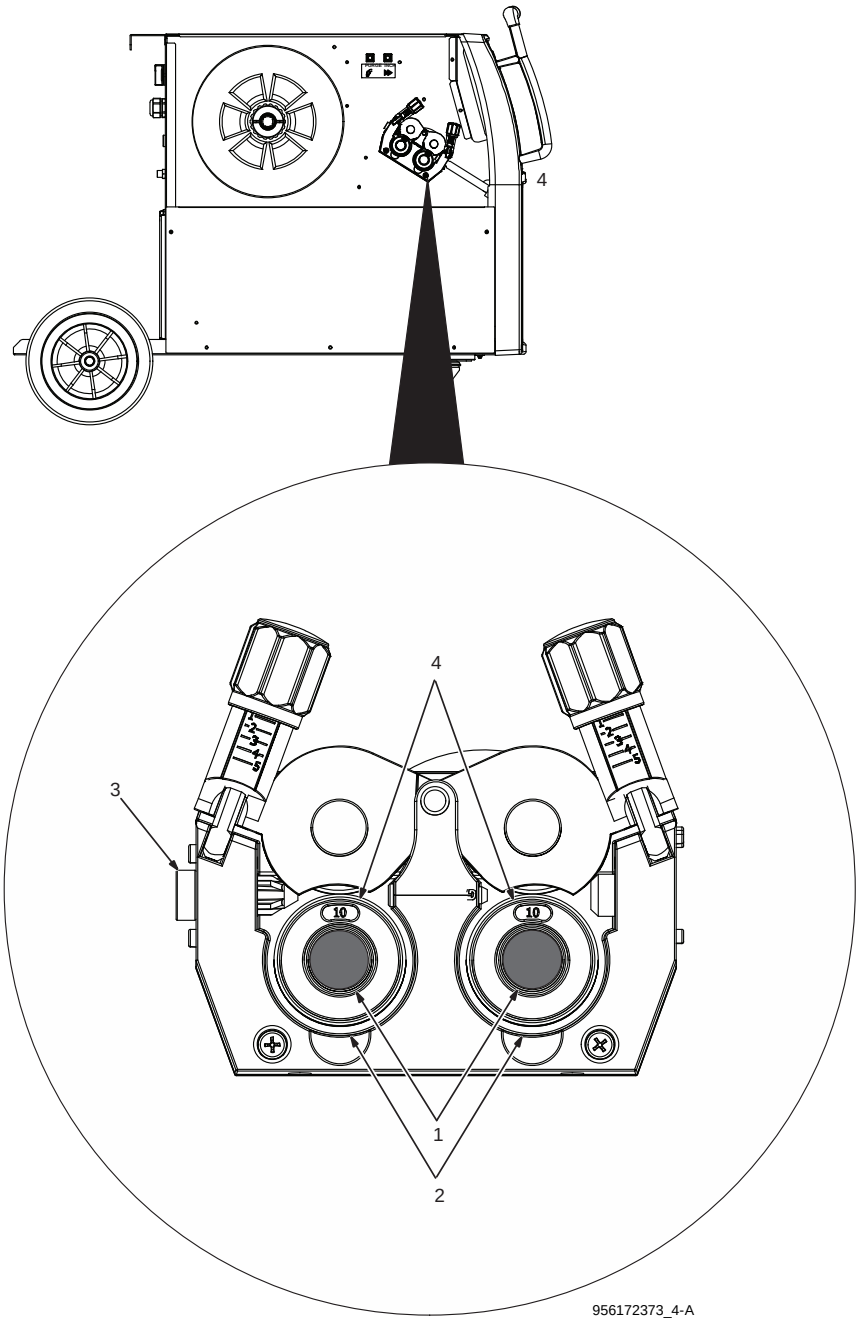
7 Over-Current Protection

Select type and size of over-current protection using Electrical Service Guide (fused disconnect switch shown).

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

4-8. Changing Drive Rolls And Wire Inlet Guide





1/4 in.

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.

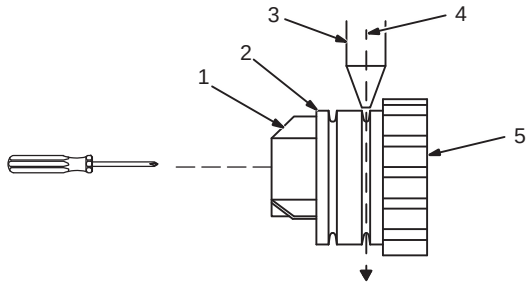
4 Pressure Roll

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

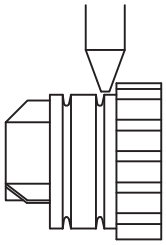
☞ *Pressure rolls can be replaced with drive rolls to make 4 drive roll system.*

4-9. Aligning Drive Rolls And Wire Guide

Correct



Incorrect



Ref. 800412-A

⚠ **Turn off and disconnect input power.**

View is from top of drive rolls looking down with pressure assembly open.

1 Drive Roll Securing Nut

2 Drive Roll

3 Wire Guide

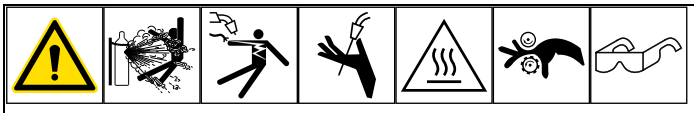
4 Welding Wire

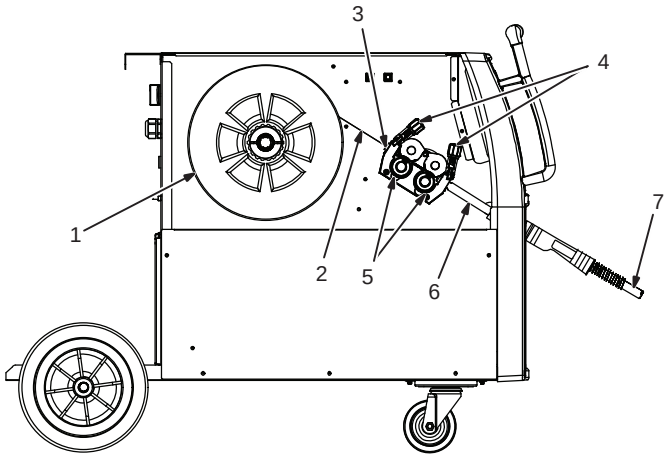
5 Drive Gear

Insert screwdriver, and turn screw in or out until drive roll groove lines up with wire guide.

Close pressure roll assembly.

4-10. Threading Welding Wire And Adjusting Pressure Role Tension

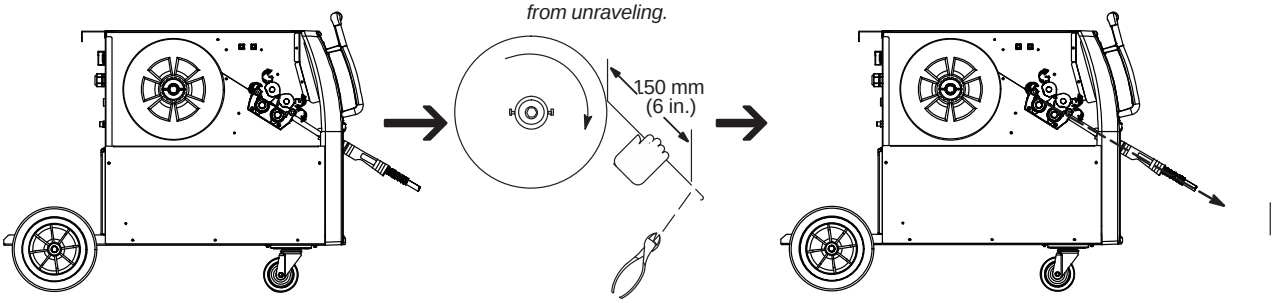




1 Wire Spool
2 Welding Wire
3 Inlet Pressure Guide
4 Pressure Adjustment Knob
5 Drive Roll
6 Outlet Wire Guide
7 Gun Conduit Cable

Lay gun cable out straight.

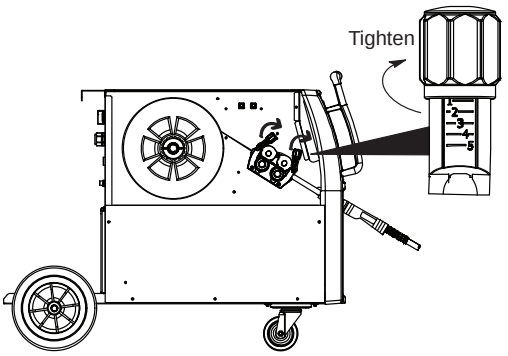
☞ *Hold wire tightly to keep it from unraveling.*



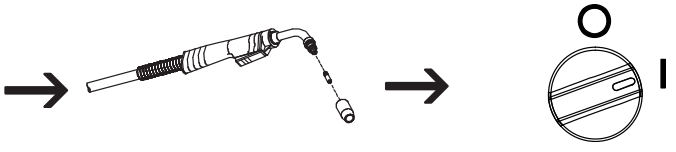
Open pressure assembly.

Pull and hold wire; cut off end.

Push wire thru guides into gun; continue to hold wire.



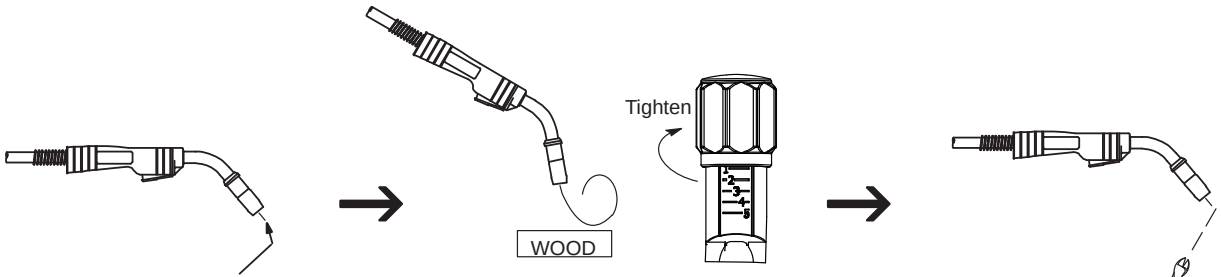
☞ *Use pressure indicator scale to set a desired drive roll pressure.*



Close and tighten pressure assembly, and let go of wire.

Remove gun nozzle and contact tip.

Turn On.



Press gun trigger until wire comes out of gun. Reinstall contact tip and nozzle

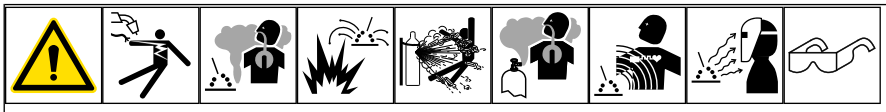
Feed wire to check drive roll pressure. Tighten knob enough to prevent slipping.

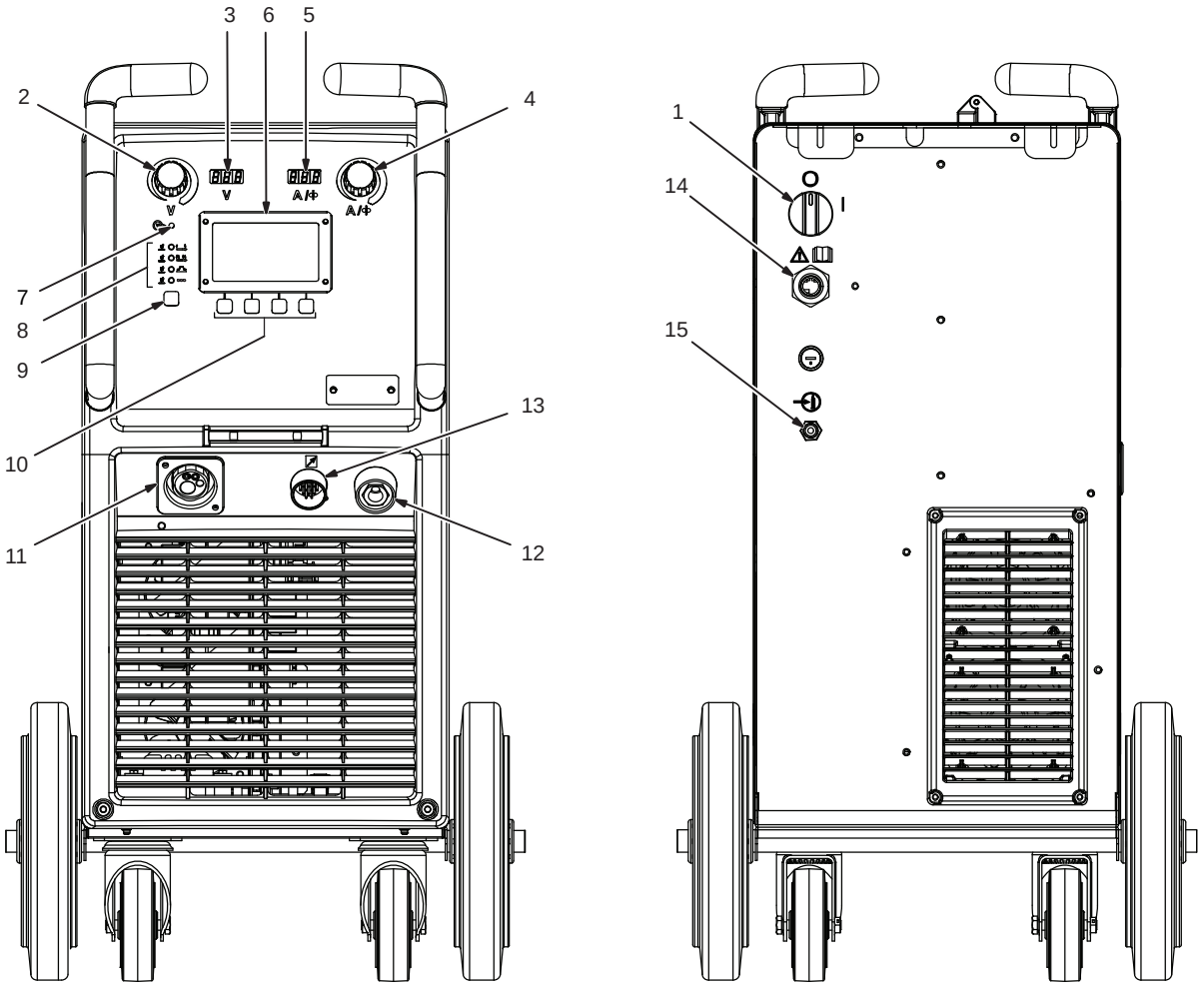
Cut off wire. Close and latch door.

956172373_5-A

SECTION 5 – OPERATION

5-1. Front And Rear Panel Controls





9561172373_6-A

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.

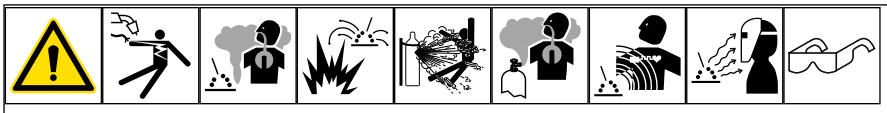
14 Input Power Cord

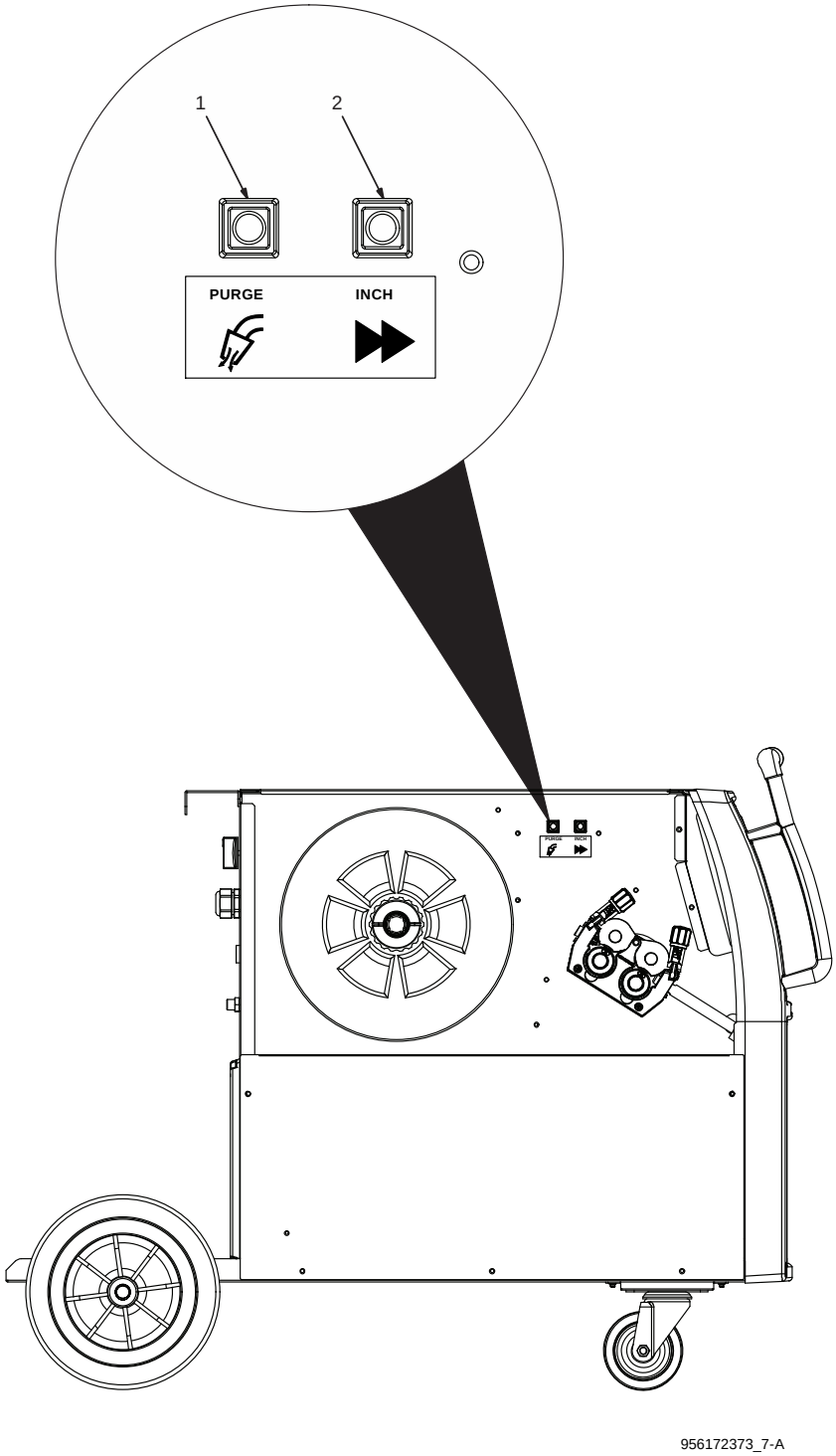
See Section 4-7.

15 Welding Power Source 1/4 BSP Gas Hose Connection

See Section 4-3.

5-2. Side Panel Controls





956172373_7-A

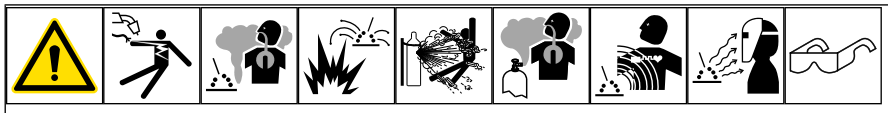
1 Gas Purge Switch

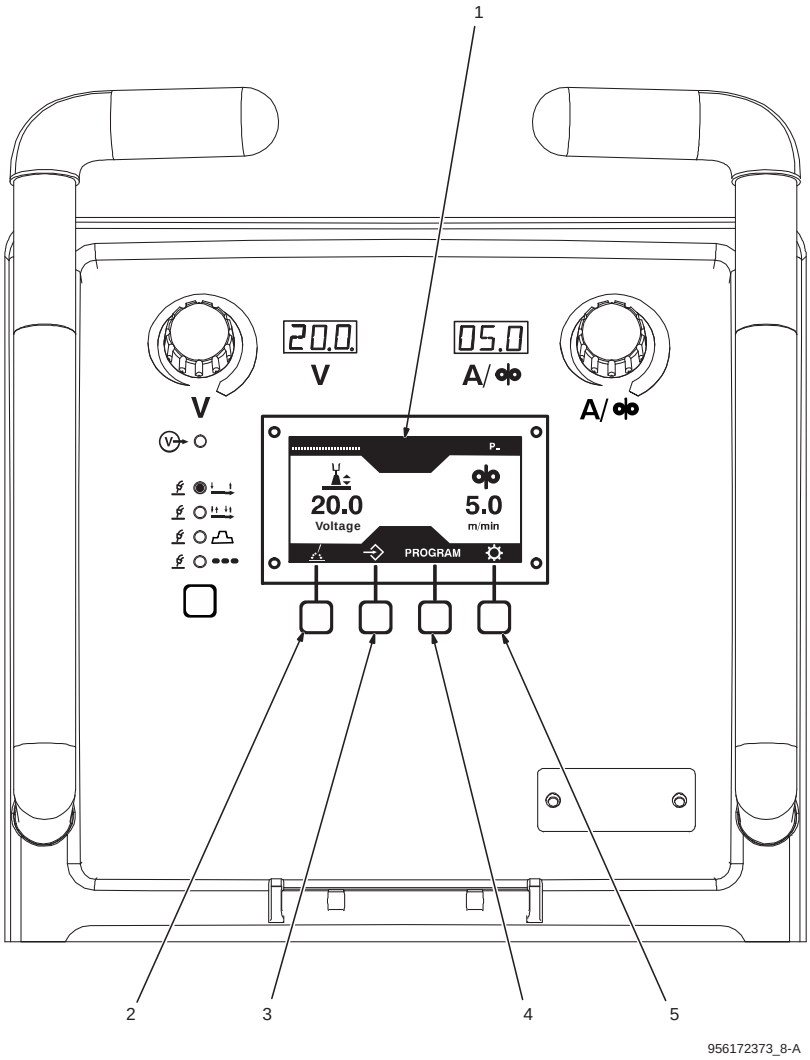
Press gas purge switch to energize gas valve to purge air from gun or adjust gas regulator.

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 5-6and 5-7.

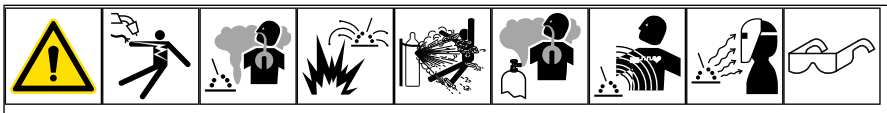
4 Program Selection Soft Key

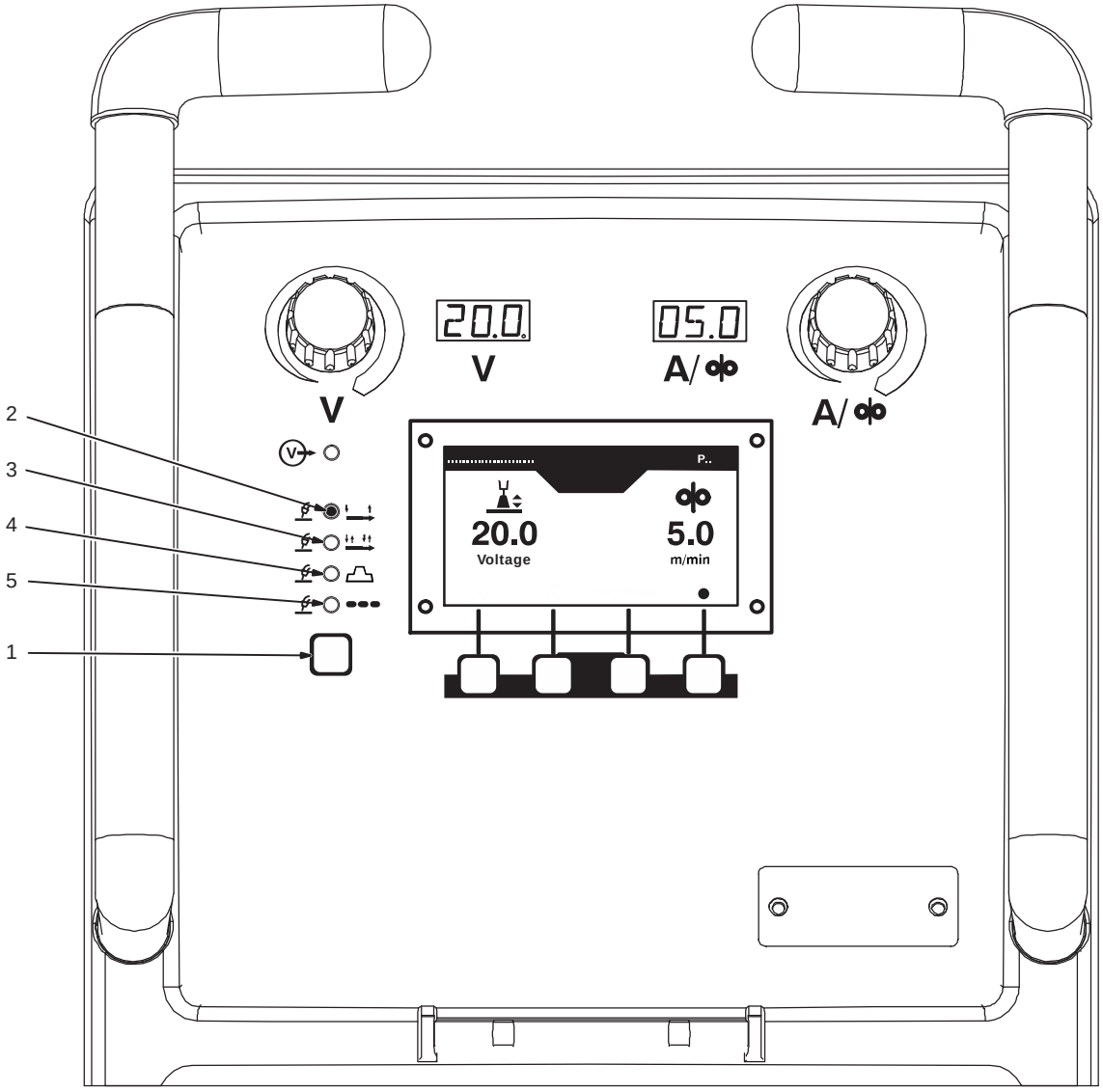
Press key to enter the welding program set-up screen. For more information see Section D..

5 Settings Soft Key

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

5-4. Trigger Mode Selection





956172373_9-A

☞ *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

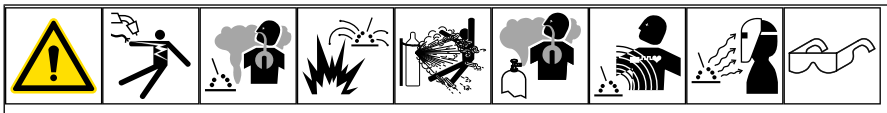
☞ *Not available in manual MIG.*

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 current 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.

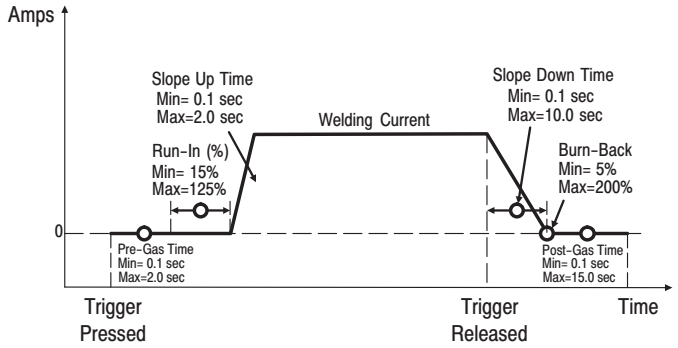
5 Stitch Trigger Hold Function LED

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.

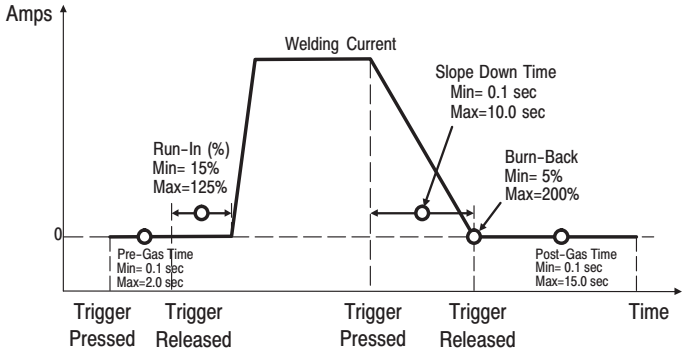
5-5. Trigger Operations



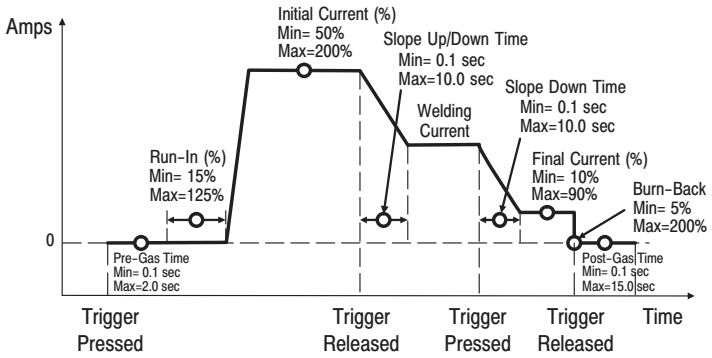
MIG 2T



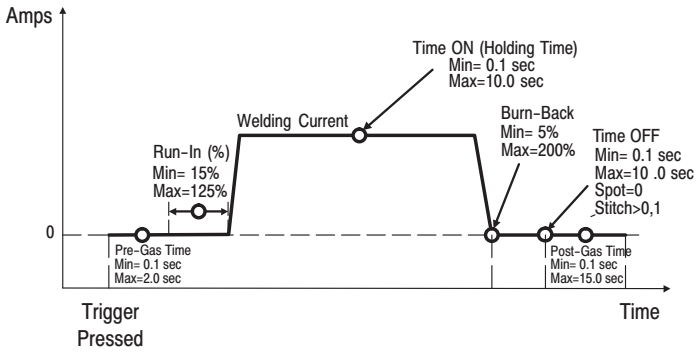
MIG 4T



MIG 4TS

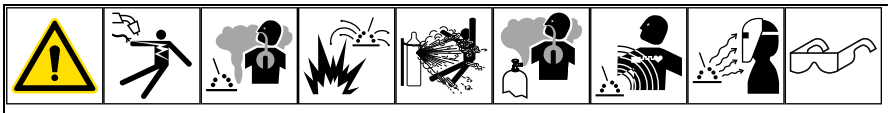


MIG STITCH

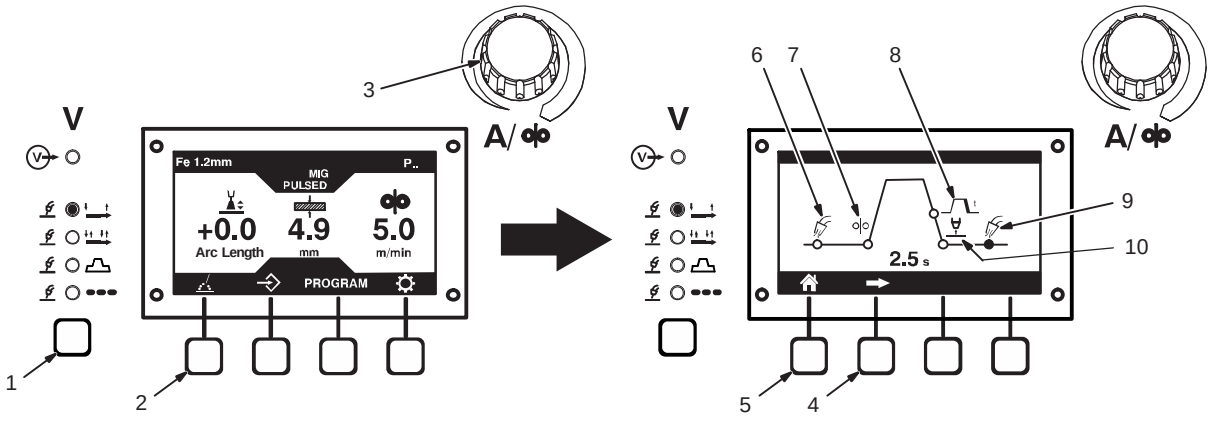


956172373_10-A

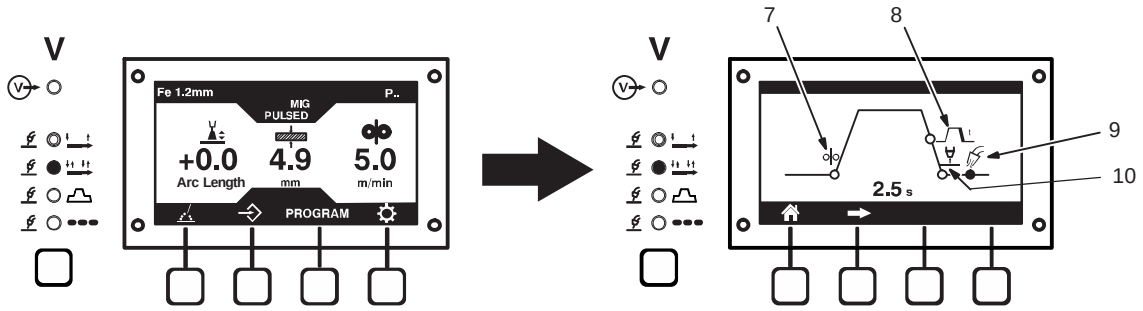
5-6. Trigger Parameter Settings



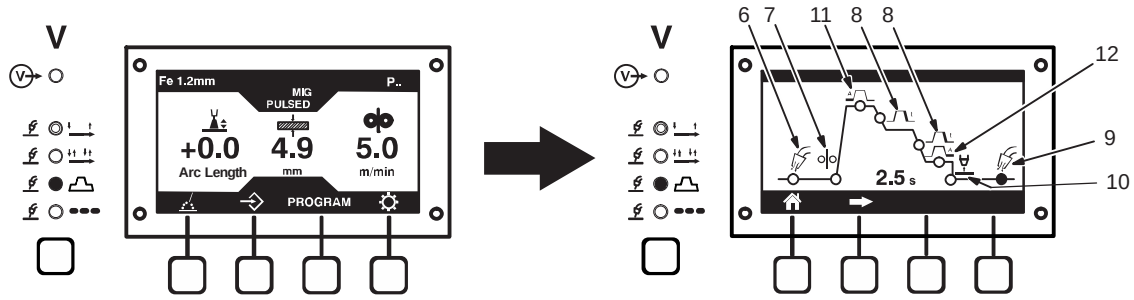
2T Trigger Settings



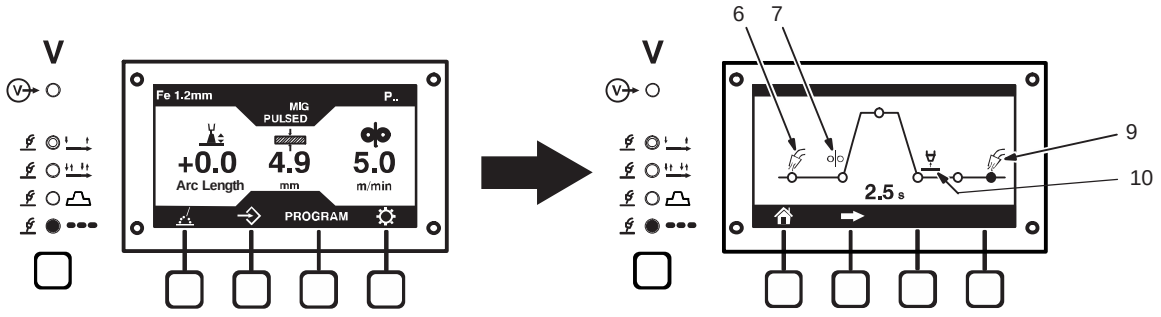
4T Trigger Settings



4TS Trigger Settings



Stitch Trigger Settings



956172373_11-A

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

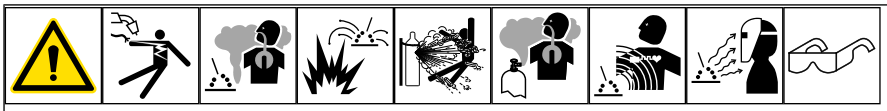
Use control to select time that welding wire stays energized after trigger is released. (Min= 5%, max= 200%).

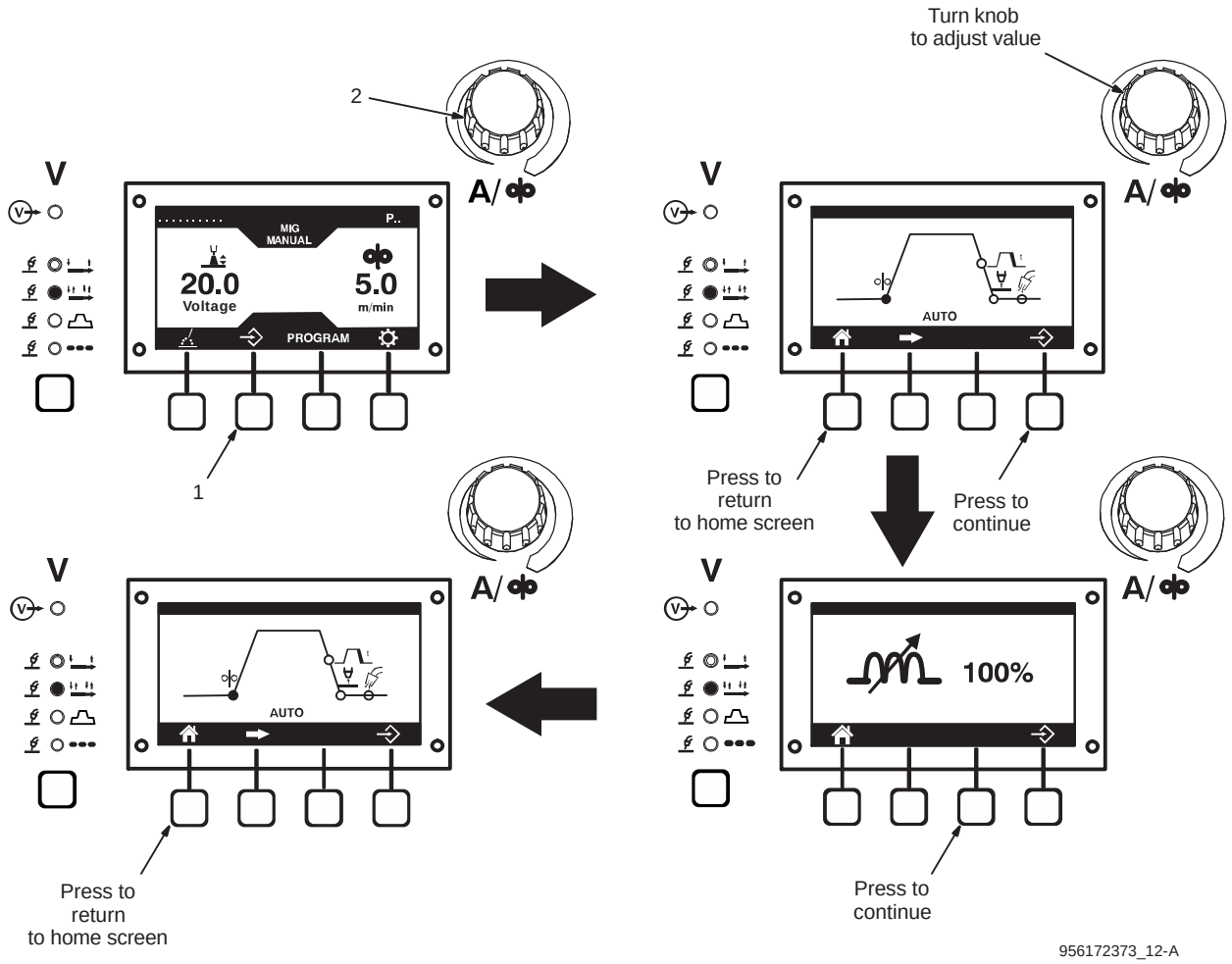
11 Initial Current LED

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

12 Final Current LED

5-7. Variable Inductance Settings





1 Parameter Settings Soft Key

2 Ampere/WFS Control Knob

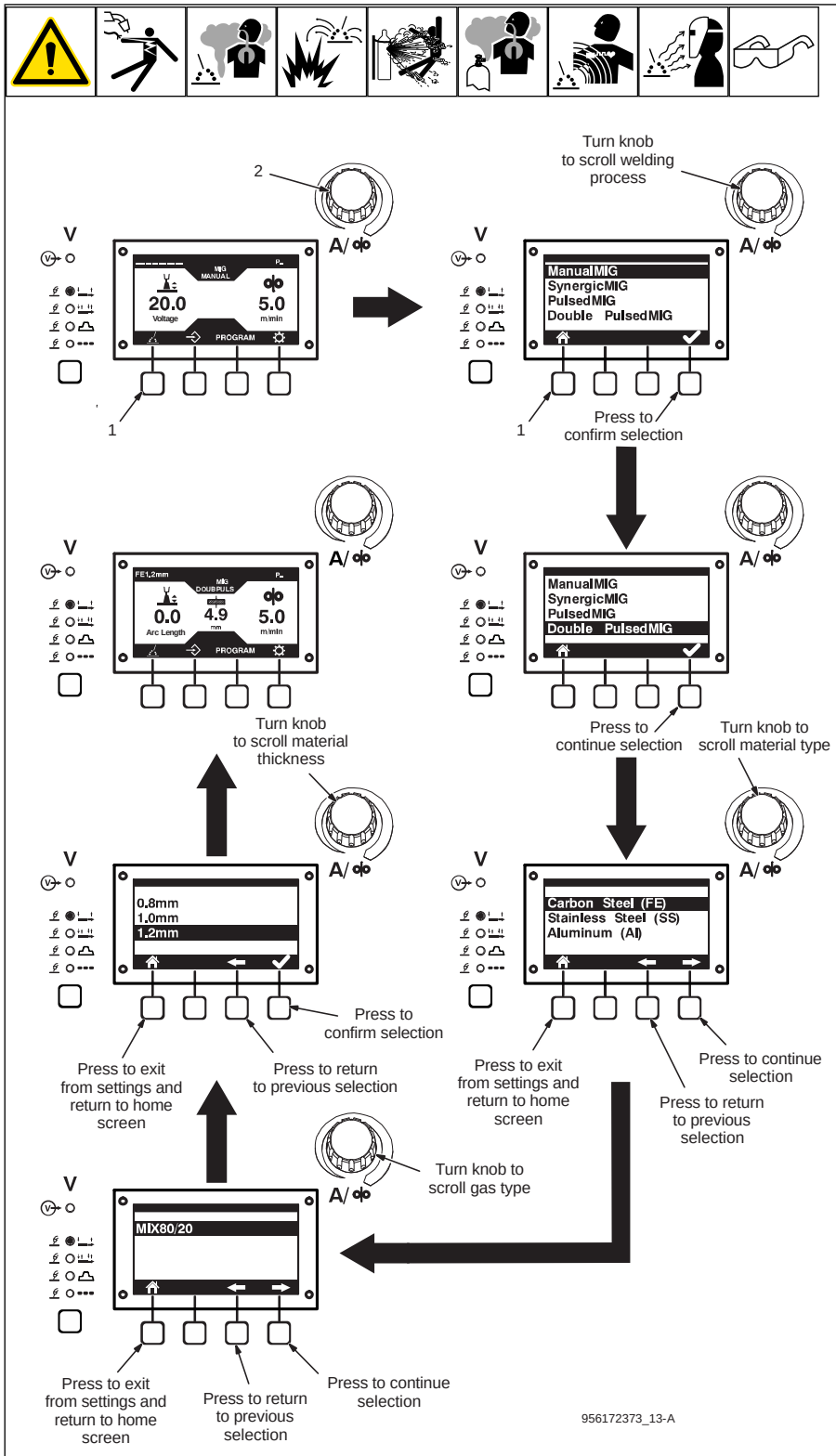
Use knob to adjust parameter value.

While in Manual MIG mode, press parameter settings soft key to enter parameter settings. Press parameter settings soft key again to enter inductance settings. Use knob to adjust value from min -50% to max 50% in synergic MIG, and from min 25% to max 200% in manual MIG.

☞ *Lower inductance is used for most short arc applications. Higher inductance is used for stainless steel and spray arc applications.*

Press parameter settings soft key to continue. Parameter settings will be displayed on the screen. Press home soft key to return to home screen.

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



1 Process Soft Key

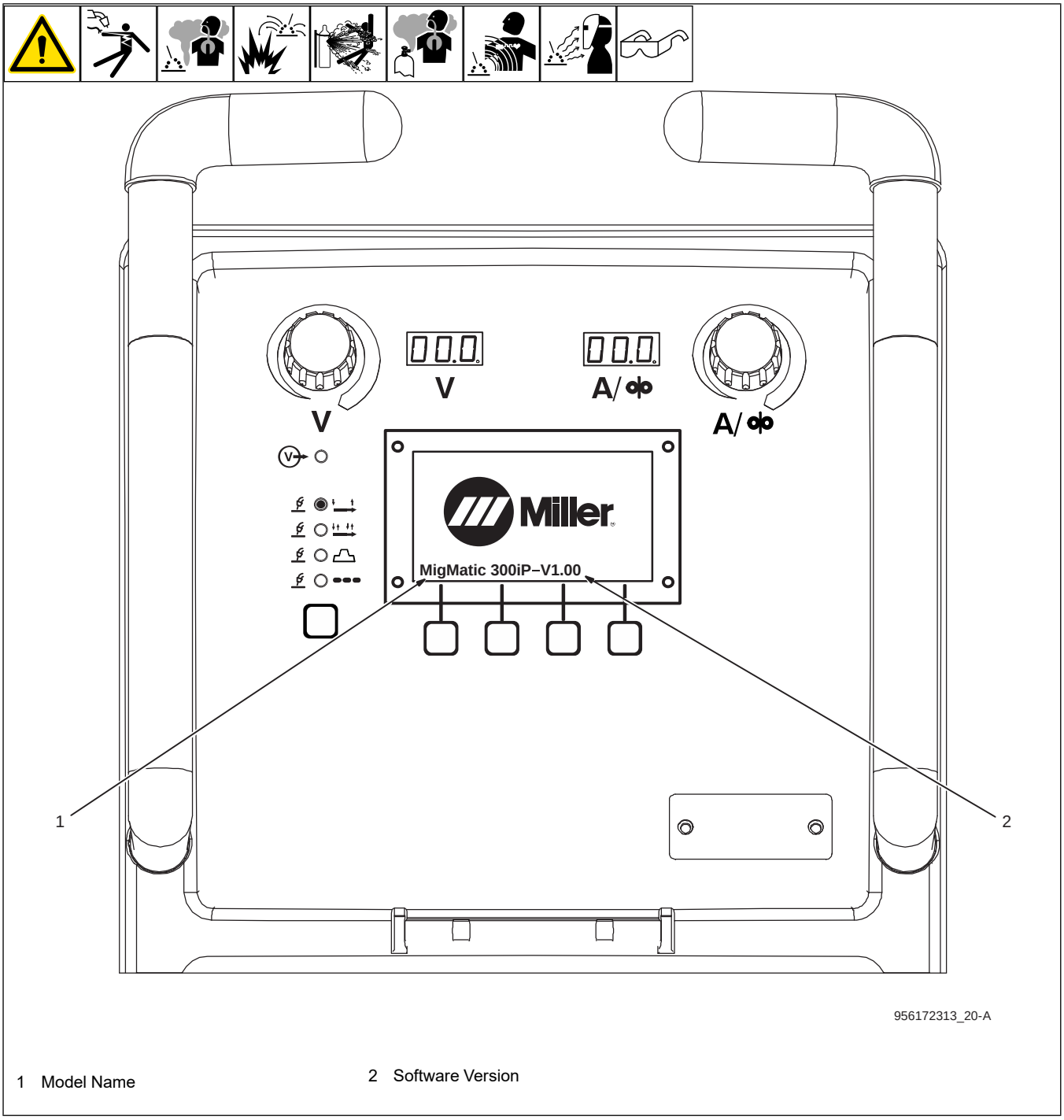
Press key to enter the welding process menu screen.

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.

☞ *Pulsed MIG and Double Pulsed only for 300iP.*

5-9. Model Name And Software Version

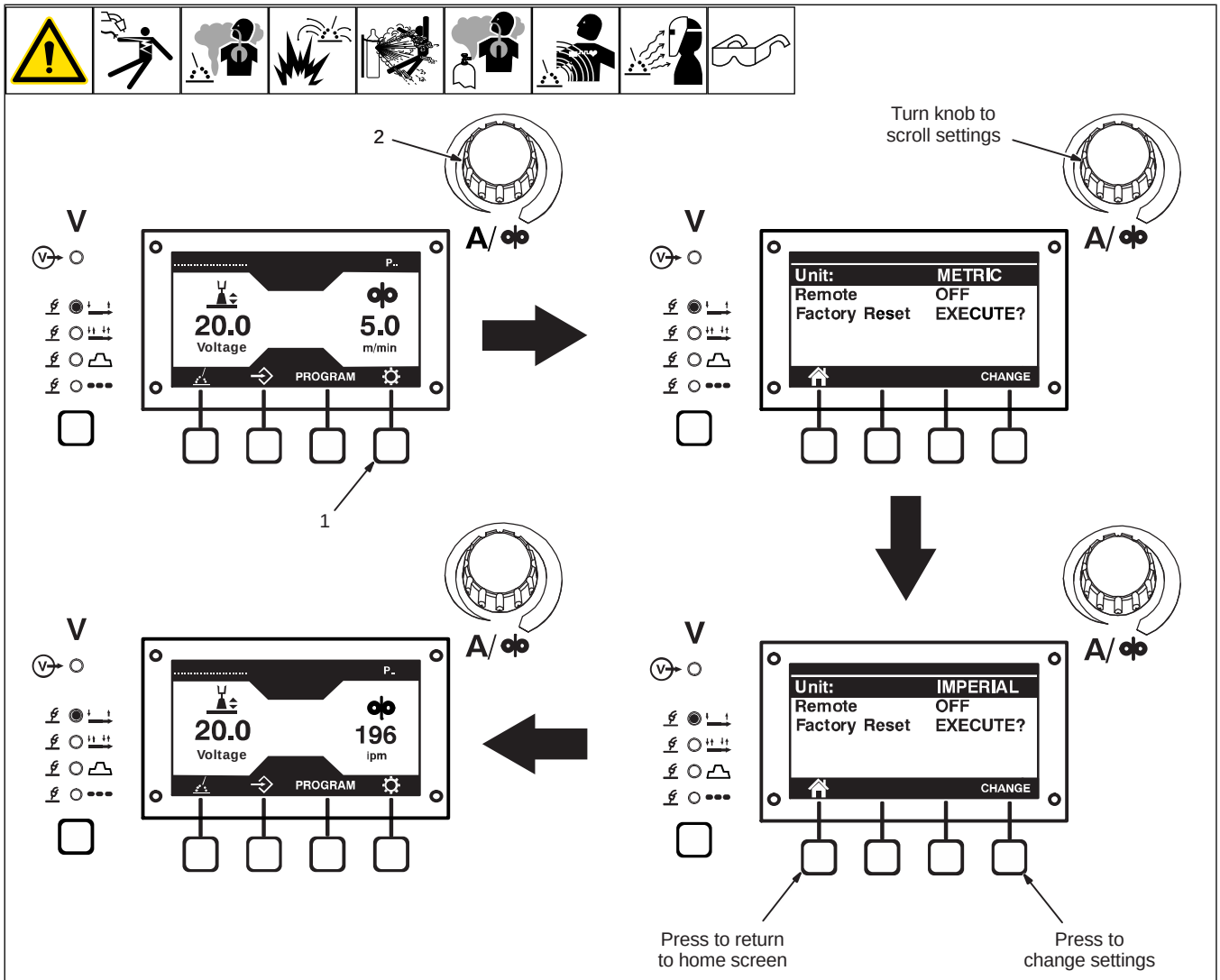


1 Model Name

2 Software Version

5-10. Unit Settings

A. Wire Feed Speed Unit



1 Settings Soft Key

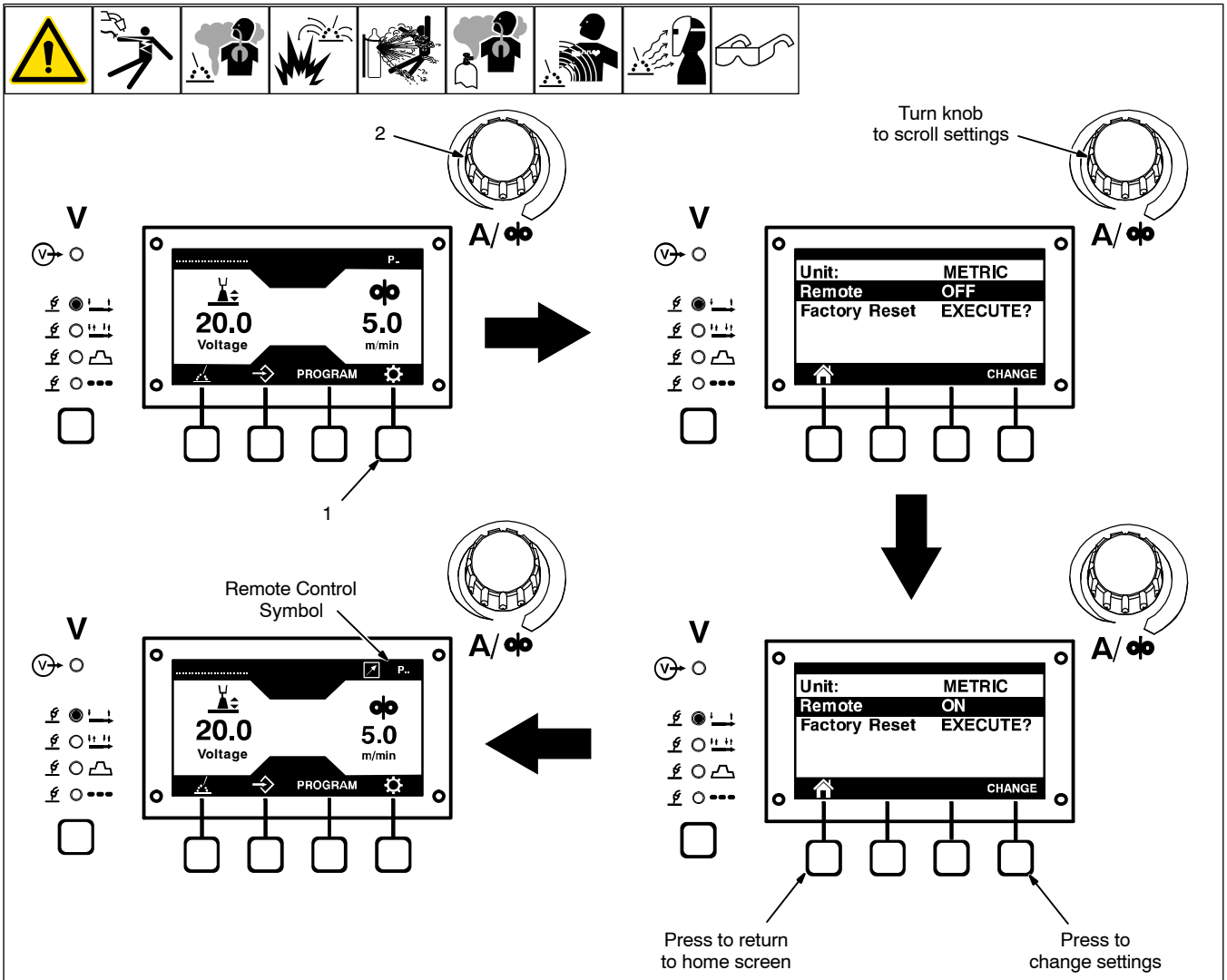
Press key to enter the unit settings screen.

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.

B. Remote Control Settings



1 Settings Soft Key

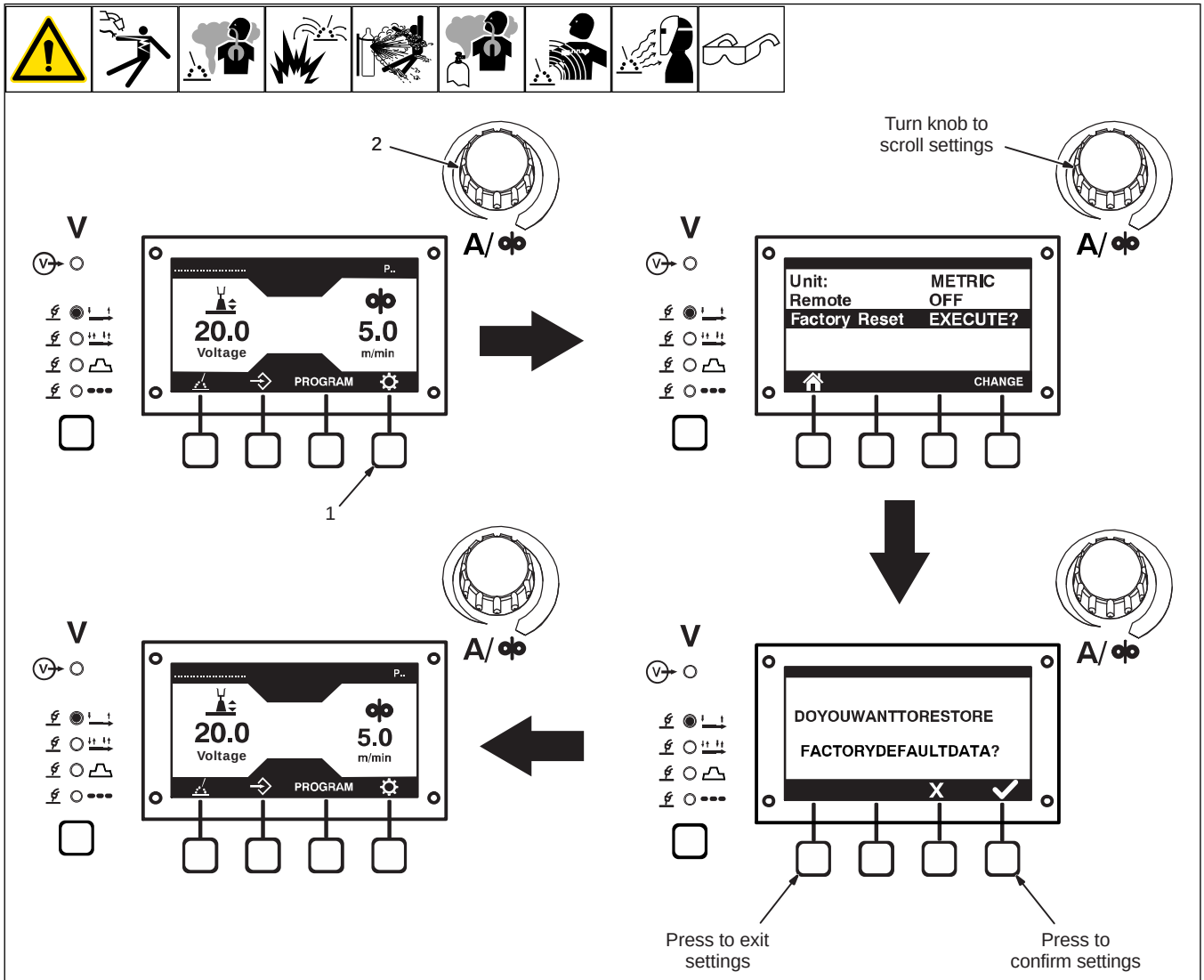
Press key to enter the unit settings screen.

2 Ampere/WFS Control Knob

Turn knob to scroll through unit settings menu.

Press Settings soft key to enter settings menu screen. Select Remote from menu screen. To enable (ON) or Remote Control proceed as follow: press CHANGE soft key to change from OFF (Remote Control disabled) to ON. Use home soft key to exit from menu. Remote Control symbol will be displayed on LCD Home Screen.

C. Factory Reset



1 Settings Soft Key

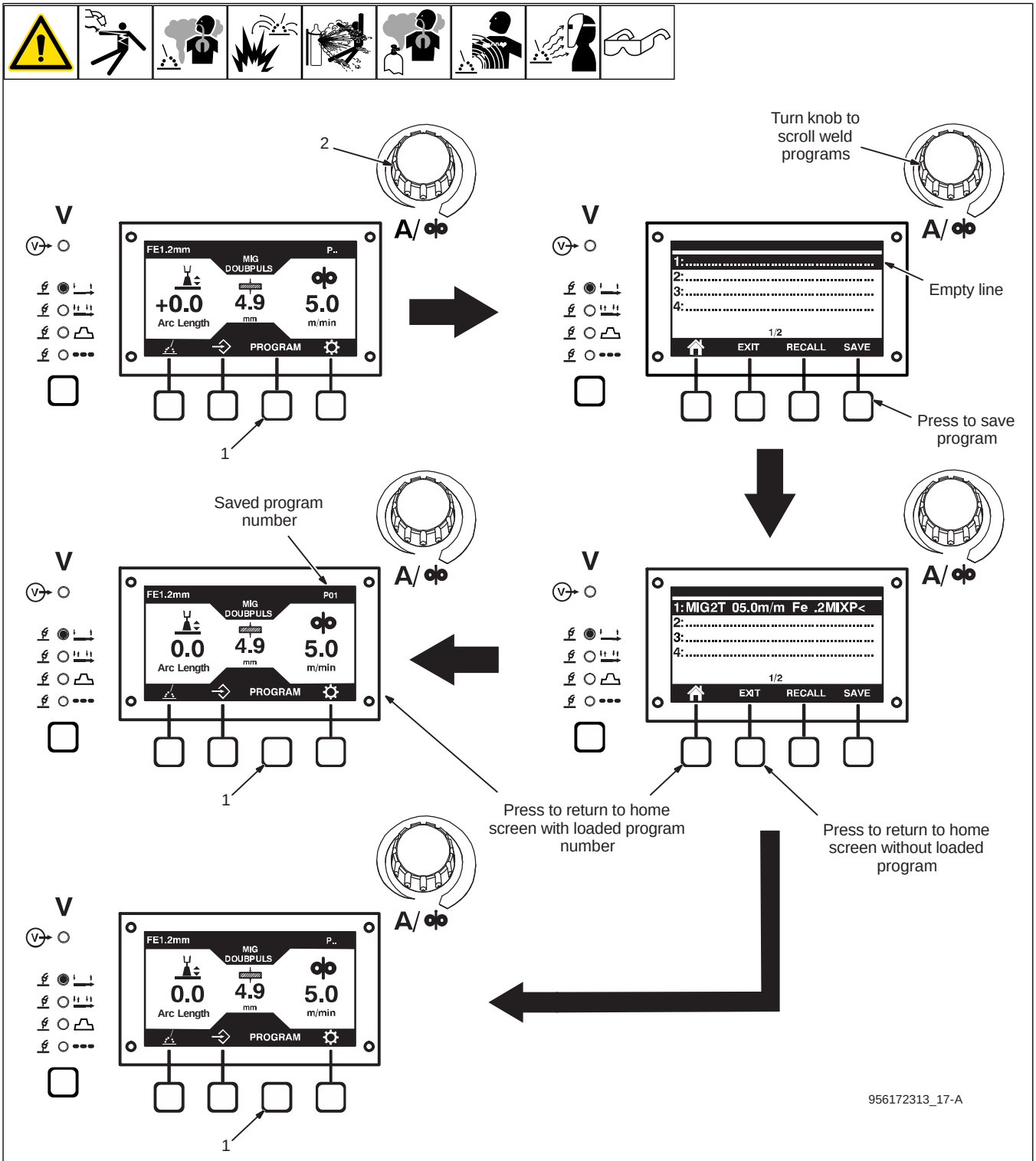
Press key to enter the unit settings screen.

2 Ampere/WFS Control Knob

Turn knob to scroll through unit settings menu.

Press Settings soft key to enter settings menu screen. Select Factory Reset from menu screen. Press CHANGE soft key until the confirmation message appears on the display. Press soft key to confirm selection.

D. Loading And Saving Welding Programs



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

1 Program Soft Key

Press key to enter the unit settings screen.

2 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.*

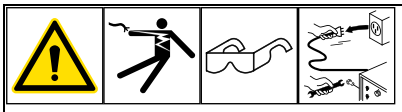
☞ *All welding programs can be modified and overwritten at any time.*

E. 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
			1.2
		CO2	0.8
			1.0
	Stainless Steel	Mix 98/2	0.8
			1.0
			1.2
	AlMg	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
			1.6
Double Pulsed MIG* *Only for 300iP	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	1.0
			1.2
			1.6

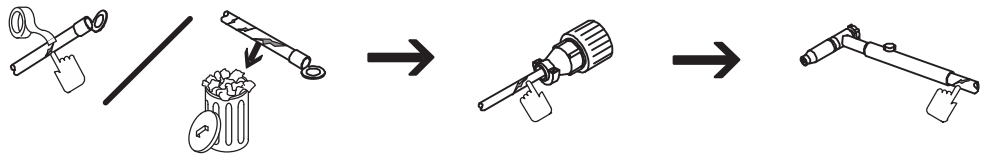
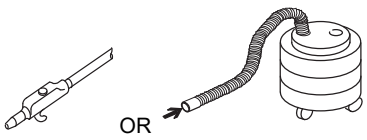
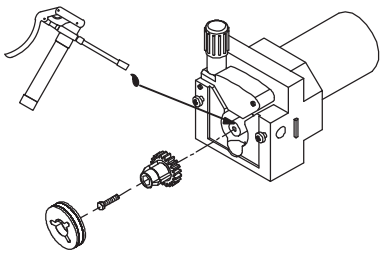
SECTION 6 – MAINTENANCE AND TROUBLESHOOTING

6-1. Routine Maintenance



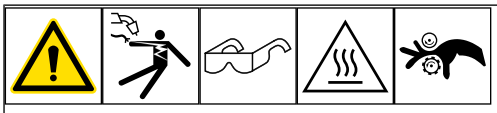
Disconnect power before maintaining.

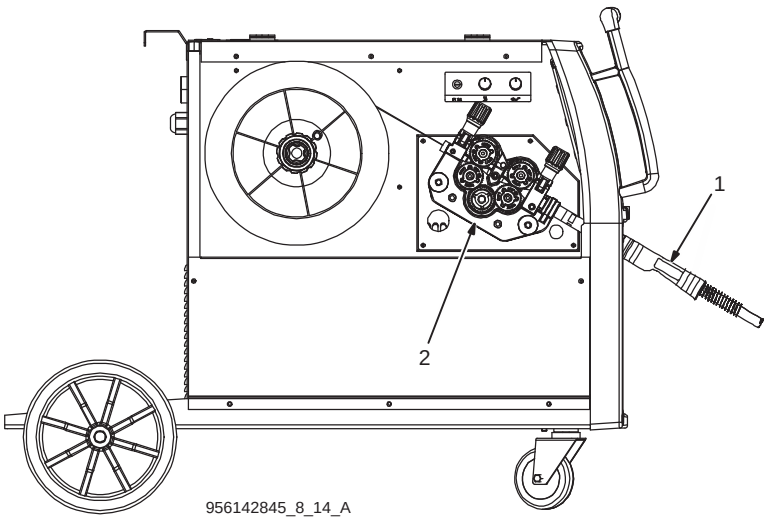
Maintain more often during severe conditions.

	✓ = Check	△ = Repair	❍ = Clean	☆ = Replace
Every 3 Months	 ✓☆ Labels		 ❍ Weld Terminals	
	 ✓ △ ☆ 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.	

*To be done by factory authorized service agent.

6-2. Welding Gun And Wire Drive Assembly





1 Welding Gun

Check gun liner for blockage or kinks.

2 Wire Drive Assembly

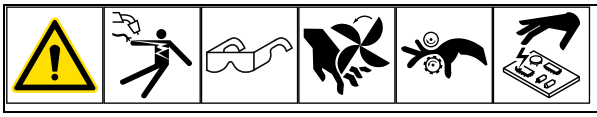
Check for jammed wire, binding drive gear or misaligned drive rolls.

Allow cooling period and reset breaker. Close door.

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

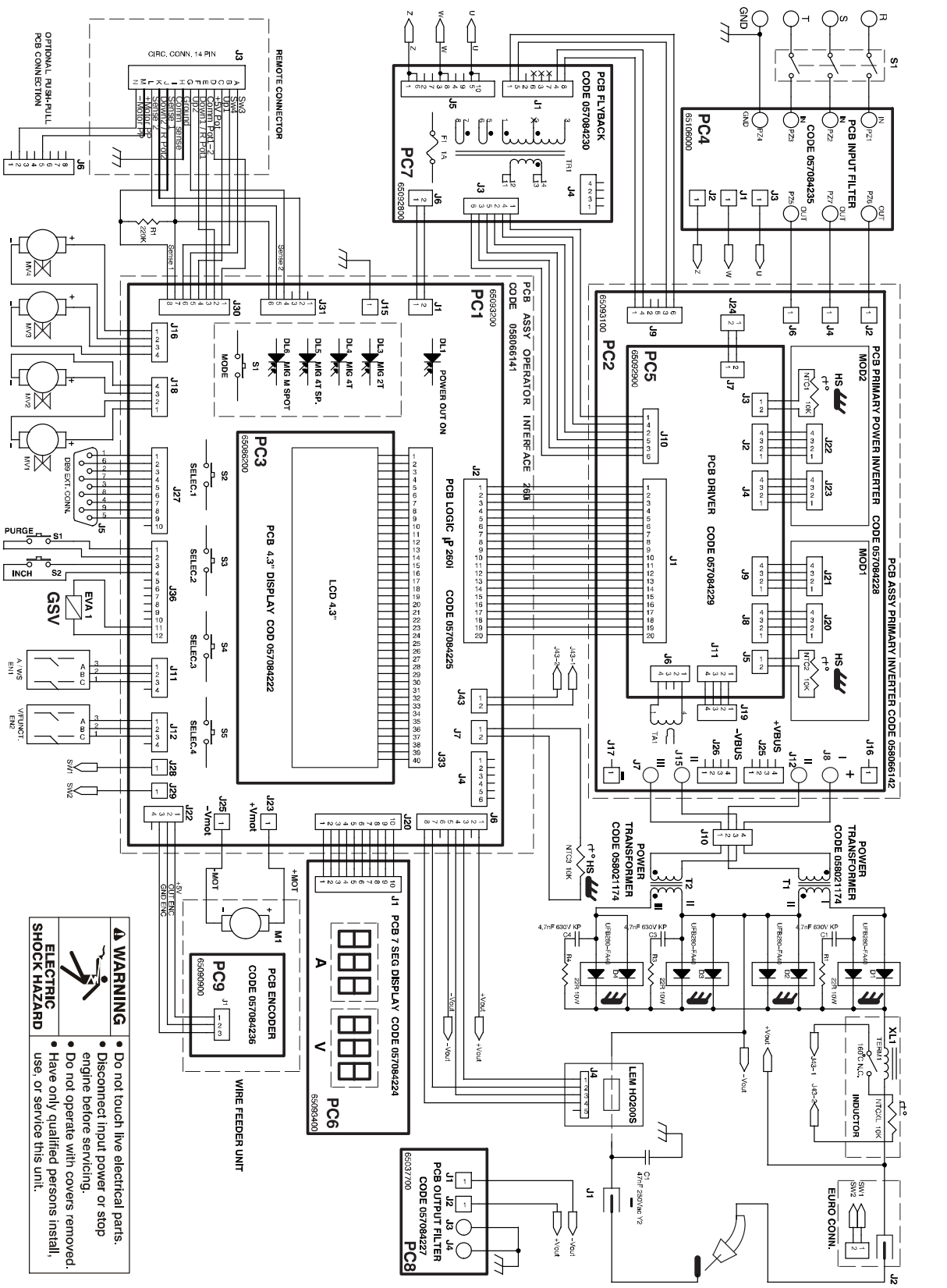
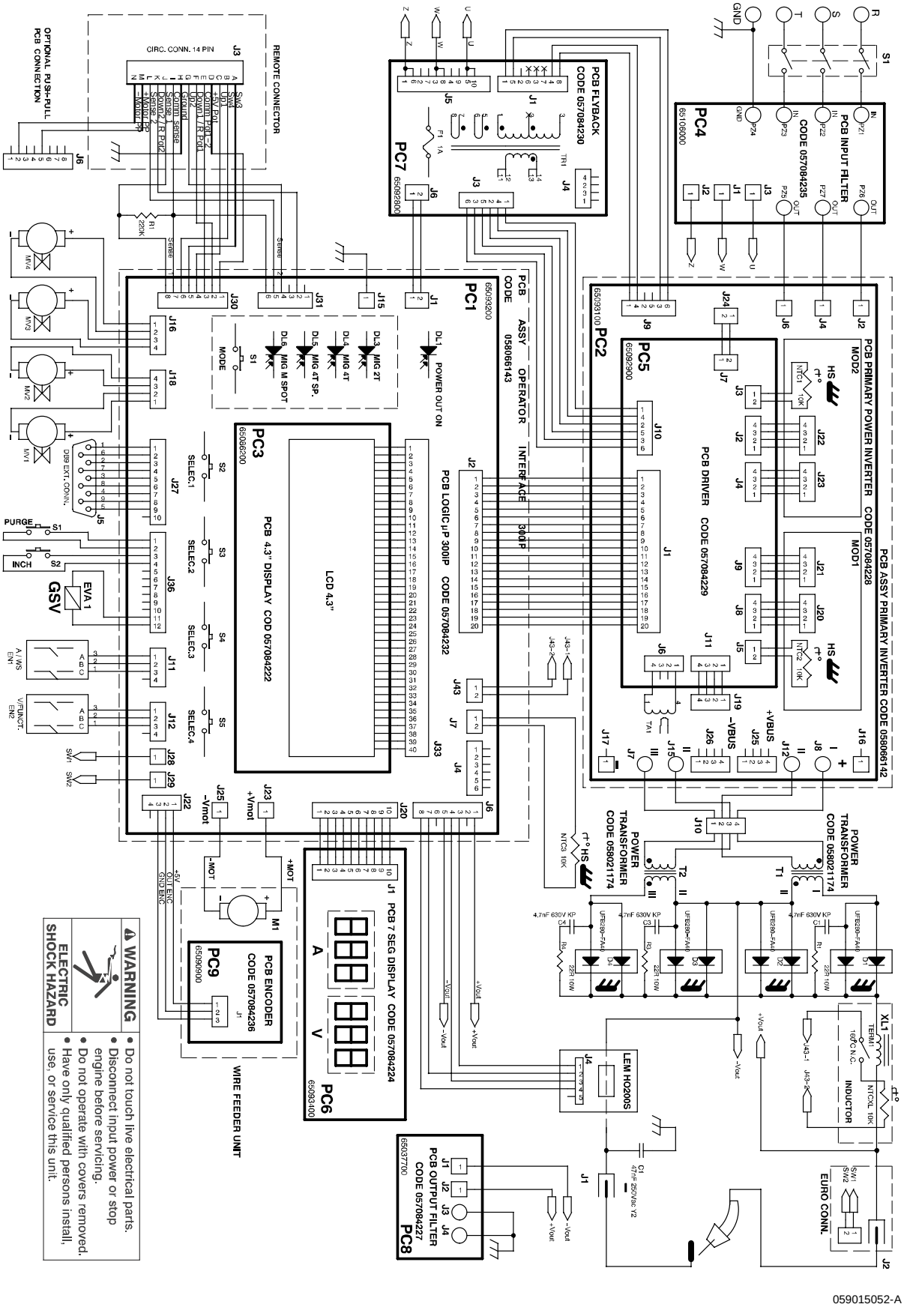
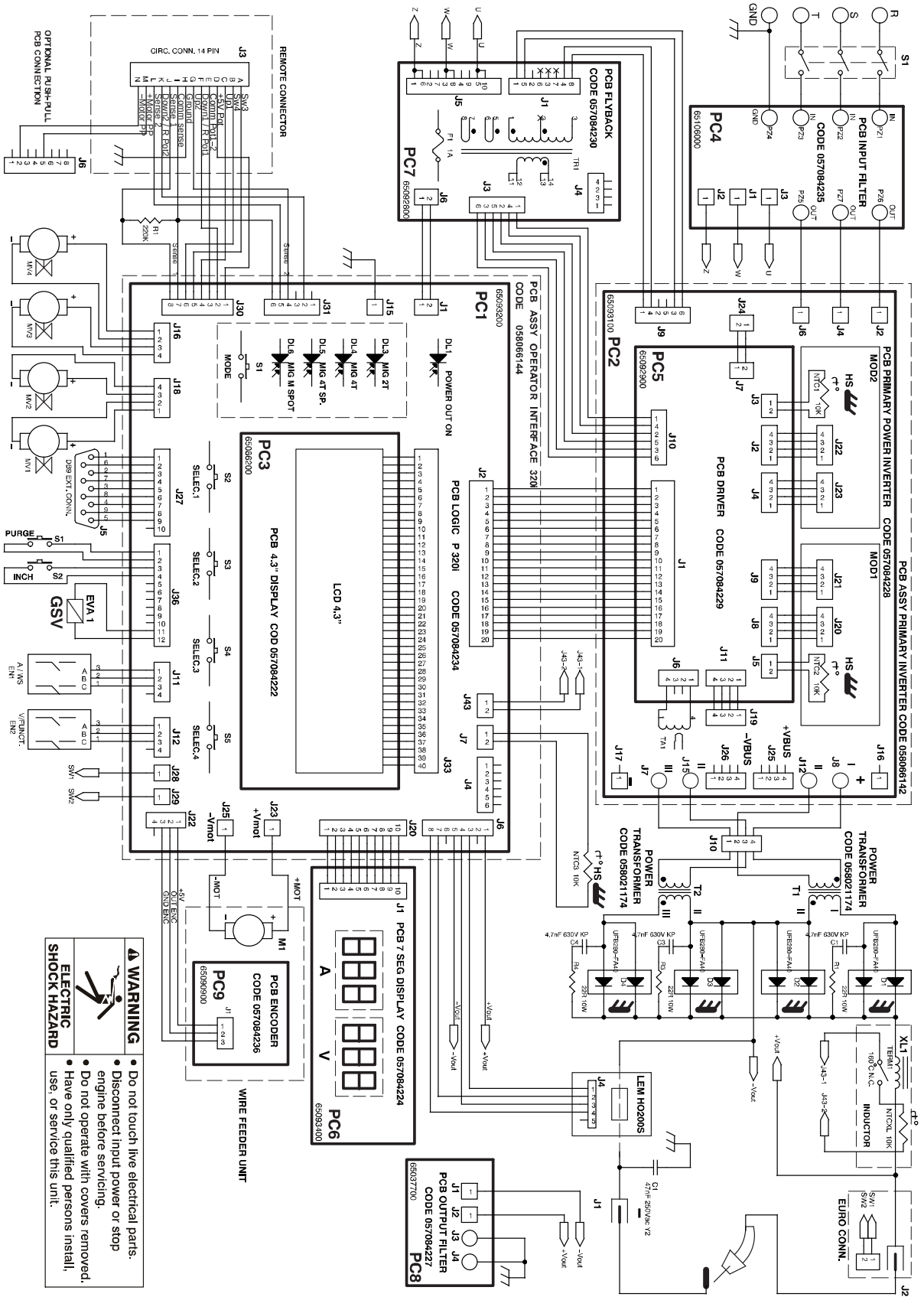


Figure 7-1. Circuit Diagram For MigMatic 260i



059015052-A

Figure 7-2. Circuit Diagram For MigMatic 300iP



059015053-A

Figure 7-3. Circuit Diagram For MigMatic 320i

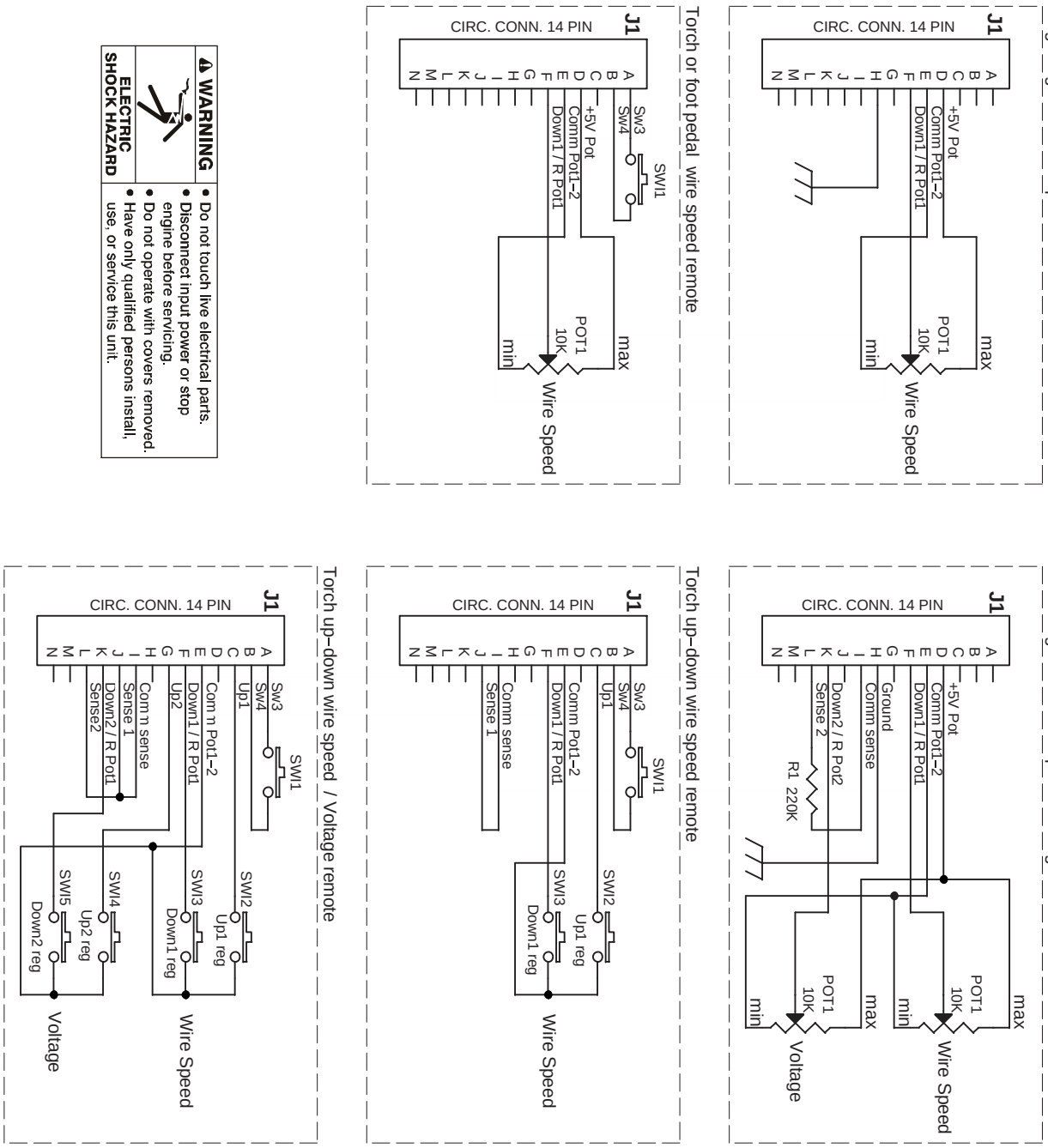


Figure 7-4. Other Circuit Diagrams

Notes

Warranty Questions?

Call your ITW Welding Regional Office.

TRUE BLUE® WARRANTY

Effective January 1, 2021
(Equipment with a serial number preface of NB or newer)

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

LIMITED WARRANTY – Subject to the terms and conditions below, Miller Electric Mfg. LLC, Appleton, Wisconsin 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
   * 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 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
   * 12 Volt Automotive-Style 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® 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.

Miller®

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.

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.

ITW Welding Products B.V.
Edisonstraat 10 3261 LD
Oud-Beijerland (NL)
Phone: +31 (0) 186 641 444
Fax: +31 (0) 186 640 880

ORIGINAL INSTRUCTIONS – PRINTED IN USA