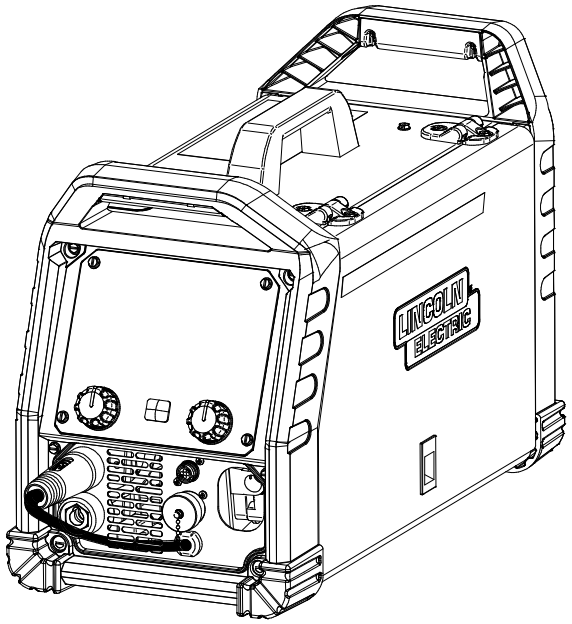
INSTRUCTION MANUAL

POWER MIG® 220 AC/DC



For use with Product/Code Numbers:

13895

GENUINE LINCOLN PARTS™

Register your machine:
www.lincolnelectric.com/register

Authorized Service and Distributor Locator:
www.lincolnelectric.com/locator

Save for future reference

Date Purchased

Code: (ex: 10859)

Serial: (ex: U1060512345)

IM10744 | Issue Date Jul - 2025
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THE LINCOLN ELECTRIC COMPANY
22801 St. Clair Avenue • Cleveland, OH • 44117-1199 • U.S.A.
www.lincolnelectric.com

Contents

INSTALLATION..... SECTION A
TECHNICAL SPECIFICATIONS..... A-1
REGULATORY REQUIREMENTS..... A-2
SAFETY PRECAUTIONS..... A-2
INPUT AND GROUND CONNECTIONS..... A-3
LOCATION AND MOUNTING..... A-4
HIGH FREQUENCY PROTECTION..... A-4
GUN AND CABLE INSTALLATION..... A-5
SHIELDING GAS..... A-5
OUTPUT POLARITY CONNECTIONS..... A-7

OPERATION..... SECTION B
SAFETY PRECAUTIONS..... B-1
PRODUCT DESCRIPTION..... B-2
DESIGN FEATURES..... B-2
GRAPHIC SYMBOLS USED IN THIS MANUAL OR BY THIS MACHINE B-3
RECOMMENDED PROCESSES..... B-3
CASE FRONT CONTROLS..... B-4
CASE BACK COMPONENTS..... B-5
INTERNAL CONTROLS..... B-6
PROCESS LIMITATIONS..... B-6
EQUIPMENT LIMITATIONS..... B-7
DRIVE ROLL REPLACEMENT..... B-7
POWER-UP SEQUENCE..... B-7
READY.SET.WELD™ B-8
WIRE FEED OVERLOAD PROTECTION..... B-10
WELD SETTINGS..... B-10

ACCESSORIES AND OPTIONS..... SECTION C
INCLUDED ACCESSORIES (K5379-1)..... C-1
COMMON EQUIPMENT PACKAGES..... C-1

MAINTENANCE..... SECTION D
SAFETY PRECAUTIONS..... D-1
GENERAL MAINTENANCE..... D-2
PERIODIC MAINTENANCE..... D-2

TROUBLESHOOTING..... SECTION E
HOW TO USE TROUBLESHOOTING GUIDE..... E-1
CAPACITOR DISCHARGE PROCEDURE..... E-1
TROUBLESHOOTING GUIDE..... E-2

DIAGRAMS & PRINTS..... SECTION F
WIRING DIAGRAM..... F-1
DIMENSIONS..... F-2

CUSTOMER ASSISTANCE POLICY

SAFETY INFORMATION

SAFETY DEPENDS ON YOU

Lincoln welding and cutting equipment is designed and built with safety in mind. However, your overall safety can be increased by proper installation ... and thoughtful operation on your part. DO NOT INSTALL, OPERATE OR REPAIR THIS EQUIPMENT WITHOUT READING THIS MANUAL AND THE SAFETY PRECAUTIONS CONTAINED THROUGHOUT. And, most importantly, think before you act and be careful.

⚠ DANGER

This statement indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

⚠ WARNING

This statement indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

⚠ CAUTION

This statement indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury.

Notice: This statement indicates the possibility of damage to equipment if the potential risk is not avoided.

PLEASE EXAMINE CARTON AND EQUIPMENT FOR DAMAGE IMMEDIATELY

When this equipment is shipped, title passes to the purchaser upon receipt by the carrier. Consequently, claims for material damaged in shipment must be made by the purchaser against the transportation company at the time the shipment is received.

KEEP YOUR HEAD OUT OF THE FUMES



- **DON'T** get too close to the weld. Use corrective lenses if necessary to stay a reasonable distance away from the weld.
- **USE ENOUGH VENTILATION** or exhaust at the weld, or both, to keep the fumes and gases from your breathing zone and the general area.
- **IN A LARGE ROOM OR OUTDOORS** , natural ventilation may be adequate if you keep your head out of the fumes.
- **USE NATURAL DRAFTS** or fans to keep the fumes away from your face.
- **READ** and obey the Safety Data Sheet (SDS) and the warning label that appears on all containers of welding materials.

If you develop unusual symptoms, see your supervisor. Perhaps the welding atmosphere and ventilation system should be checked.

WEAR CORRECT EYE, EAR AND BODY PROTECTION



- **PROTECT** your eyes and face with properly fitted and with proper grade of filter plate (See ANSI Z49.1).
- **PROTECT** your body from welding spatter and arc flash with protective clothing including woolen clothing, flame-proof apron and gloves, leather leggings, and high boots.
- **PROTECT** others from spatter, flash, and glare with protective screens or barriers.
- **PROTECT** your eyes and face with welding helmet
- **IN SOME AREAS**, protection from noise may be appropriate.
- **BE SURE** protective equipment is in good condition.



- **AT ALL TIMES**, wear safety glasses in work area.

- **DO NOT WELD OR CUT** containers or materials which previously had been in contact with hazardous substances unless they are properly cleaned. This is extremely dangerous.

- **DO NOT WELD OR CUT** painted or plated parts unless special precautions with ventilation have been taken. They can release highly toxic fumes or gases.
- **PROTECT** compressed gas cylinders from excessive heat, mechanical shocks, and arcs; fasten cylinders so they cannot fall.
- **BE SURE** cylinders are never grounded or part of an electrical circuit.
- **REMOVE** all potential fire hazards from welding area.



- **ALWAYS HAVE FIRE FIGHTING EQUIPMENT READY FOR IMMEDIATE USE AND KNOW HOW TO USE IT.**

CALIFORNIA PROPOSITION 65 WARNINGS

⚠ WARNING



Breathing diesel engine exhaust exposes you to chemicals known to the State of California to cause cancer and birth defects, or other reproductive harm.

Always start and operate the engine in a well-ventilated area.

If in an exposed area, vent the exhaust to the outside.

Do not modify or tamper with the exhaust system.

Do not idle the engine except as necessary.

⚠ WARNING



This product, when used for welding or cutting, produces fumes or gases which contain chemicals known to the State of California to cause birth defects and, in some cases, cancer. (California Health & Safety Code § 25249.5 et seq.)

For more information go to https://www.p65warnings.ca.gov

ARC WELDING CAN BE HAZARDOUS

PROTECT YOURSELF AND OTHERS FROM POSSIBLE SERIOUS INJURY OR DEATH. KEEP CHILDREN AWAY. PACEMAKER WEARERS SHOULD CONSULT WITH THEIR DOCTOR BEFORE OPERATING.

Read and understand the following safety highlights. For additional safety information, it is strongly recommended that you purchase a copy of "Safety in Welding & Cutting - ANSI Standard Z49.1" from the American Welding Society, P.O. Box 351040, Miami, Florida 33135 or CSA Standard W117.2. A Free copy of "Arc Welding Safety" booklet E205 is available from the Lincoln Electric Company, 22801 St. Clair Avenue, Cleveland, Ohio 44117-1199.

BE SURE THAT ALL INSTALLATION, OPERATION, MAINTENANCE AND REPAIR PROCEDURES ARE PERFORMED ONLY BY QUALIFIED INDIVIDUALS.

FOR ENGINE POWERED EQUIPMENT



- Turn the engine off before troubleshooting and maintenance work unless the maintenance work requires it to be running.



- Do not add the fuel near an open flame welding arc or when the engine is running. Stop the engine and allow it to cool before refueling to prevent spilled fuel from vaporizing on contact with hot engine parts and igniting. Do not spill fuel when filling tank. If fuel is spilled, wipe it up and do not start engine until fumes have been eliminated.



- Keep all equipment safety guards, covers and devices in position and in good repair. Keep hands, hair, clothing and tools away from V-belts, gears, fans and all other moving parts when starting, operating or repairing equipment.

- In some cases it may be necessary to remove safety guards to perform required maintenance. **REMOVE GUARDS ONLY** when necessary and replace them when the maintenance requiring their removal is complete. Always use the greatest care when working near moving parts.
- **DO NOT** put your hands near the engine fan. Do not attempt to override the governor or idler by pushing on the throttle control rods while the engine is running.
- To prevent accidentally starting gasoline engines while turning the engine or welding generator during maintenance work, disconnect the spark plug wires, distributor cap or magneto wire as appropriate.



- To avoid scalding, do not remove the radiator pressure cap when the engine is hot.



- Generator exhaust contains carbon monoxide. This is a poison you cannot see or smell.
- Using a generator indoors **CAN KILL YOU IN MINUTES**.
- **NEVER** use inside a home or garage, EVEN IF doors and windows are open.



- **ONLY** use **OUTSIDE** and far away from windows, doors and vents.
- Avoid other generator hazards. **READ MANUAL BEFORE USE**.

ELECTRIC AND MAGNETIC FIELDS MAY BE DANGEROUS



- Electric current flowing through any conductor causes localized Electric and Magnetic Fields (EMF). Welding current creates EMF fields around welding cables and welding machines.
- EMF fields may interfere with some pacemakers, and welders having a pacemaker should consult their physician before welding.
- Exposure to EMF fields in welding may have other health effects which are now not known.

All welders should use the following procedures in order to minimize exposure to EMF fields from the welding circuit:

- Route the electrode and work cables together - Secure them with tape when possible.
- Never coil the electrode lead around your body.
- Do not place your body between the electrode and work cables. If the electrode cable is on your right side, the work cable should also be on your right side.
- Connect the work cable to the workpiece as close as possible to the area being welded.
- Do not work next to welding power source.

ELECTRIC SHOCK CAN KILL



- The electrode and work (or ground) circuits are electrically “hot” when the welder is on. Do not touch these “hot” parts with your bare skin or wet clothing. Wear dry, hole-free gloves to insulate hands.
- Insulate yourself from work and ground using dry insulation. Make certain the insulation is large enough to cover your full area of physical contact with work and ground.

In addition to the normal safety precautions, if welding must be performed under electrically hazardous conditions (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, if there is a high risk of unavoidable or accidental contact with the workpiece or ground) use the following equipment:

- Semiautomatic DC Constant Voltage (Wire) Welder.
- DC Manual (Stick) Welder.
- AC Welder with Reduced Voltage Control.
- In semiautomatic or automatic wire welding, the electrode, electrode reel, welding head, nozzle or semiautomatic welding gun are also electrically “hot”.
- Always be sure the work cable makes a good electrical connection with the metal being welded. The connection should be as close as possible to the area being welded.
- Ground the work or metal to be welded to a good electrical (earth) ground.
- Maintain the electrode holder, work clamp, welding cable and welding machine in good, safe operating condition. Replace damaged insulation.
- Never dip the electrode in water for cooling.

- Never simultaneously touch electrically “hot” parts of electrode holders connected to two welders because voltage between the two can be the total of the open circuit voltage of both welders.
- When working above floor level, use a safety belt to protect yourself from a fall should you get a shock.
- **Also see** WELDING AND CUTTING SPARKS CAN CAUSE FIRE OR EXPLOSION **and** FOR ELECTRICALLY POWERED EQUIPMENT

ARC RAYS CAN BURN



- Use a shield with the proper filter and cover plates to protect your eyes from sparks and the rays of the arc when welding or observing open arc welding. Headshield and filter lens should conform to ANSI Z87.1 standards.
- Use suitable clothing made from durable flame-resistant material to protect your skin and that of your helpers from the arc rays.
- Protect other nearby personnel with suitable, non-flammable screening and/or warn them not to watch the arc nor expose themselves to the arc rays or to hot spatter or metal.

FUMES AND GASES CAN BE DANGEROUS



Welding may produce fumes and gases hazardous to health. Avoid breathing these fumes and gases. When welding, keep your head out of the fume. Use enough ventilation and/or exhaust at the arc to keep fumes and gases away from the breathing zone.

- **When welding hardfacing (see instructions on container or SDS) or on lead or cadmium plated steel and other metals or coatings which produce highly toxic fumes, keep exposure as low as possible and within applicable OSHA PEL and ACGIH TLV limits using local exhaust or mechanical ventilation unless exposure assessments indicate otherwise. In confined spaces or in some circumstances, outdoors, a respirator may also be required. Additional precautions are also required when welding on galvanized steel.**
- The operation of welding fume control equipment is affected by various factors including proper use and positioning of the equipment, maintenance of the equipment and the specific welding procedure and application involved. Worker exposure level should be checked upon installation and periodically thereafter to be certain it is within applicable OSHA PEL and ACGIH TLV limits.
- Do not weld in locations near chlorinated hydrocarbon vapors coming from degreasing, cleaning or spraying operations. The heat and rays of the arc can react with solvent vapors to form phosgene, a highly toxic gas, and other irritating products.
- Shielding gases used for welding can displace air and cause injury or death. Always use enough ventilation, especially in confined areas, to insure breathing air is safe.
- Read and understand the manufacturer’s instructions for this equipment and the consumables to be used, including the Safety Data Sheet (SDS) and follow your employer’s safety practices. SDS forms are available from your welding distributor or from the manufacturer.
- Also see FOR ENGINE POWERED EQUIPMENT

WELDING AND CUTTING SPARKS CAN CAUSE FIRE OR EXPLOSION



- Remove fire hazards from the welding area. If this is not possible, cover them to prevent the welding sparks from starting a fire. Remember that welding sparks and hot materials from welding can easily go through small cracks and openings to adjacent areas. Avoid welding near hydraulic lines. Have a fire extinguisher readily available.
- Where compressed gases are to be used at the job site, special precautions should be used to prevent hazardous situations. Refer to **“Safety in Welding and Cutting” (ANSI Standard Z49.1)** and the operating information for the equipment being used.

- When not welding, make certain no part of the electrode circuit is touching the work or ground. Accidental contact can cause overheating and create a fire hazard.
- Do not heat, cut or weld tanks, drums or containers until the proper steps have been taken to ensure that such procedures will not cause flammable or toxic vapors from substances inside. They can cause an explosion even though they have been “cleaned”. For information, purchase “Recommended Safe Practices for the Preparation for Welding and Cutting of Containers and Piping That Have Held Hazardous Substances”, **AWS F4.1** from the American Welding Society.
- Vent hollow castings or containers before heating, cutting or welding. They may explode.
- Sparks and spatter are thrown from the welding arc. Wear oil free protective garments such as leather gloves, heavy shirt, cuff-less trousers, high shoes and a cap over your hair. Wear ear plugs when welding out of position or in confined places. Always wear safety glasses with side shields when in a welding area.
- Connect the work cable to the work as close to the welding area as practical. Work cables connected to the building framework or other locations away from the welding area increase the possibility of the welding current passing through lifting chains, crane cables or other alternate circuits. This can create fire hazards or overheat lifting chains or cables until they fail.
- **Read and follow NFPA 51B** “Standard for Fire Prevention During Welding, Cutting and Other Hot Work”, available from NFPA, 1 Batterymarch Park, PO box 9101, Quincy, MA 022690-9101.
- **DO NOT** use a welding power source for pipe thawing.

CYLINDER MAY EXPLODE IF DAMAGED



- Use only compressed gas cylinders containing the correct shielding gas for the process used and properly operating regulators designed for the gas and pressure used. All hoses, fittings, etc. should be suitable for the application and maintained in good condition.
- Always keep cylinders in an upright position securely chained to an undercarriage or fixed support.

Cylinders should be located:

- Away from areas where they may be struck or subjected to physical damage.
- A safe distance from arc welding or cutting operations and any other source of heat, sparks, or flame.
- Never allow the electrode, electrode holder or any other electrically “hot” parts to touch a cylinder.
- Keep your head and face away from the cylinder valve outlet when opening the cylinder valve.
- Valve protection caps should always be in place and hand tight except when the cylinder is in use or connected for use.
- Read and follow the instructions on compressed gas cylinders, associated equipment, and CGA publication P-l, “Precautions for Safe Handling of Compressed Gases in Cylinders,” available from the Compressed Gas Association, 14501 George Carter Way Chantilly, VA 20151.

FOR ELECTRICALLY POWERED EQUIPMENT



- Turn off input power using the disconnect switch at the fuse box before working on the equipment.
- Install equipment in accordance with the U.S. National Electrical Code, all local codes and the manufacturer’s recommendations.
- Ground the equipment in accordance with the U.S. National Electrical Code and the manufacturer’s recommendations.

BATTERY HANDLING, STORAGE, AND DISPOSAL



Batteries can be flammable substances such as lithium or other organic solvents, which may result in overheating, rupture, or combustion. Failure to follow the battery manufactures instructions may result in fire, personal injury, and damage to property if used improperly.

- DO NOT short circuit, disassemble, deform, or heat batteries.
- DO NOT attempt to recharge batteries unless they are specifically marked as "rechargeable".
- DO NOT use or charge the battery if it appears to be leaking, deformed or damaged in any way.
- Store in a cool location. Keep batteries away from direct sunlight, high temperature, and high humidity.
- Immediately discontinue use of the battery if, while using, charging, or storing the battery, the battery emits an unusual smell, feels hot, changes color, changes shape, or appears abnormal in any other way.
- Keep batteries out of reach of children, should a child swallow a battery, consult a physician immediately.
- Recycle or dispose of batteries in accordance with local and federal laws.

FOR LASER EMITTING EQUIPMENT



- Hazardous Class 4 (IV) laser products emit invisible, infrared laser radiation which can permanently damage the eye's retina and/or cornea, burn skin, and pose a fire risk. End users shall assign a qualified Laser Safety Officer (LSO) who has the certifications required by applicable law/standards, have a documented Laser Safety Program and have a Laser Controlled Area (LCA) that confirms to ANSI Z136.1 & Z136.9.
- Do not operate laser before end user's LSO has completed a risk assessment and all the prescribed Risk Mitigations measures have been fully implemented. Ensure the laser is operated/ demonstrated safely by trained personnel and that the environment surrounding the laser welding cell or laser-controlled area is safe for people nearby when the laser is in operation.
- Never point the laser at yourself or others. Never look directly into a laser aperture, even if wearing full eye protection.
- All persons inside LCA must wear proper PPE to avoid eye or skin exposure to laser radiation. The end user's LSO shall select proper PPE including, but not limited to, heat-resistant gloves, flame-resistant clothing, laser safety eye wear and laser-safe helmets that conform to ANSI Z136.1 Optical Density requirements for the wavelength and output power of the laser in use. Standard safety glasses and welding helmets DO NOT provide adequate protection from laser beam hazards. Always inspect PPE for damage or improper fit before use.
- Only qualified persons shall install, operate or service this unit per ANSI Z136.1 standards and your LSO's instruction. Read and follow all labels and manuals before installing, operating, or servicing hand held any laser welding equipment.
- Do not operate outside of a LCA, or if the laser protective housing is modified or damaged, or if safety interlocks have been bypassed or otherwise defeated. Inspect all equipment and LCA for damage or tampering prior to use.
- Reflected beams from the laser can damage eyes and skin and can pose a fire risk. Prior to use, the LCA should be assessed by the LSO to understand the surfaces where hazardous reflected beams can exist. Never position yourself or flammable material in the anticipated laser beam path and take extra precautions when working on reflective materials like aluminum and stainless steel.
- Follow all standards, individual facility or building regulations, and national, state, and local codes.

ADDITIONAL SAFETY INFORMATION

Refer to http://www.lincolnelectric.com/safety for additional safety information

INSTALLATION

TECHNICAL SPECIFICATIONS

POWER MIG 220 AC/DC

INPUT VOLTAGE AND CURRENT			
Input Voltage	**Input Amperes Max**	**Input Amperes Effective**	**Idle Amps**
240 VAC	32.5 A	14.3 A	0.4 A
120 VAC	21.4 A	14.2 A	0.5 A

INPUT LINE VOLTAGE VARIATIONS

High Line Voltage / Low Line Voltage - The POWER MIG 220 AC/DC will operate between 100 and 250 VAC 60Hz.

RECOMMENDED INPUT WIRE AND FUSE SIZES[1]		
Voltage / Phase / Frequency	**Fuse (Super Lag) Or Breaker Size[2]**	**Type 75C Copper Wire In Conduit AWG (IEC) Sizes 40C (104°F) Ambient**
240/1/60	35	12
120/1/60	20	12

[1]Cord and Fuse Sizes based upon the U.S. National Electric Code and maximum current draw.

[2]Also called 'inverse time' or 'thermal/magnetic' circuit breakers; circuit breakers that have a delay in tripping action that decreases as the magnitude of current increases.

PHYSICAL DIMENSIONS				
Model	**Height**	**Width**	**Depth**	**Weight**
K5379-1	15.08 IN (383.0 MM)	10.88 IN (276.4 MM)	24.14 IN (613.2 MM)	51 LBS 23.0 KG

TEMPERATURE RANGES	
Operating Temperature	**Storage Temperature**
-4°F TO 104°F (-20C TO 40C)	-40°F TO 185°F (-40C TO 85C)

OUTPUT RATINGS				
Process	**Input Voltage**	**Duty Cycle**	**Current**	**Voltage**
GMAW FCAW	120 VAC	40%	95 A	18.8 V
		100%	75 A	17.8 V
	240 VAC	15%	230 A	25.5 V
		100%	120 A	20.0 V
GTAW	120 VAC	40%	125 A	15.0 V
		100%	90 A	13.6 V
	240 VAC	20%	210 A	18.4 V
		100%	130 A	15.2 V

OUTPUT RATINGS				
Process	**Input Voltage**	**Duty Cycle**	**Current**	**Voltage**
SMAW	120 VAC	40%	85 A	23.4 V
		100%	60 A	22.4 V
	240 VAC	15%	200 A	28.0 V
		100%	120 A	24.8 V

Note: The duty cycle is the "on" time (based on a 10 minute interval) the user can weld with the machine at a specific output without causing a thermal trip.

Example: 40% duty cycle means welding at the specified output for 4 constant minutes and needing 6 minutes of “off” time before welding again.

REGULATORY REQUIREMENTS

Model	Market	Conformity Mark
K5379-1	US AND CANADA	$_{C}$CSA$_{US}$
IP Rating	**Intended Use**	**Standard**
IP21S	For Internal Use Only	IEC 60974-1 IEC 60974-3 IEC 60974-5

SAFETY PRECAUTIONS

⚠ WARNING



ELECTRIC SHOCK can kill.

Do not touch electrically live parts or electrode with skin or wet clothing. Insulate yourself from work and ground.

Always wear dry insulating gloves.

⚠ WARNING



FUMES AND GASES can be dangerous.

Keep your head out of fumes.

Use ventilation or exhaust to remove fumes from breathing zone.

⚠ WARNING



WELDING SPARKS can cause fire or explosion.

Keep flammable material away.

Do not weld on closed containers.

⚠ WARNING



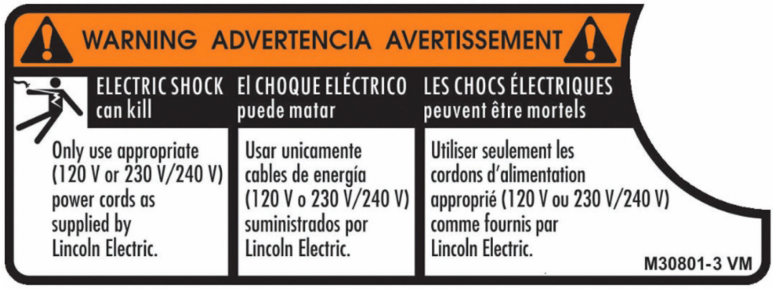
ARC RAYS can burn eyes and skin.

Wear eye, ear and body protection.

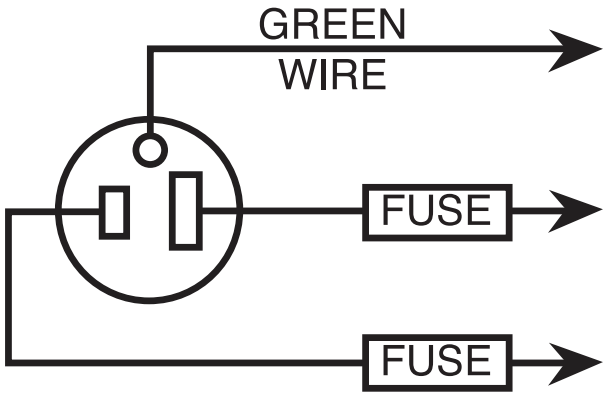
Observe all safety information throughout this manual.

INPUT AND GROUND CONNECTIONS

1. Before starting the installation, check with the local power company if there are any questions about whether your power supply is adequate for the voltage, amperes, phase, and frequency specified on the welder rating plate. Also be sure the planned installation will meet the U.S. National Electrical Code and local code requirements. This welder may be operated from a single phase line or from one phase of a two or three phase line.
2. The following warning decal is adhered to the input panel located on the back of the machine. The power cords supplied with the unit shall only be used with the POWER MIG 220 AC/DC unit.



3. The POWER MIG 220 AC/DC is shipped with a hardwired 240V cord and a 120V to 240V input adapter.
4. Using the instructions in Figure below, have a qualified electrician connect a receptacle (Customer Supplied) or cable to the input power lines and the system ground per the U.S. National Electrical Code and any applicable local codes. For cords over 100 foot, larger copper wires should be used. Fuse the two hot lines with super lag type fuses as shown in the following diagram. The center contact in the receptacle is for the grounding connection. A green wire in the input cable connects this contact to the frame of the welder. This ensures proper grounding of the welder frame when the welder plug is inserted into a grounded receptacle.



CONNECT TO A SYSTEM GROUNDING WIRE. SEE THE UNITED STATES NATIONAL ELECTRICAL CODE AND/OR LOCAL CODES FOR OTHER DETAILS AND MEANS FOR PROPER GROUNDING. CONNECT TO HOT WIRES OF A THREE-WIRE, SINGLE PHASE SYSTEM.

IMPORTANT NOTES

The POWER MIG 220 AC/DC should be connected to a dedicated breaker, especially when connected to 120VAC.

The POWER MIG 220 AC/DC is not recommended for use with extension cords. If an extension cord must be used, ensure it is constructed with a minimum of 10 gauge wire and is no longer than 25 feet.

The POWER MIG 220 AC/DC can be powered with an engine driven generator as long as the generator supplies a suitable input voltage for the machine and has a minimum peak output rating of 10 kW and continuous output rating at least of 8 kW.

LOCATION AND MOUNTING

The POWER MIG 220 AC/DC will operate in harsh environments. Even so, it is important that preventative measures are followed in order to assure long life, reliability, and safe operation.

⚠ CAUTION

The bottom of machine must always be placed on a firm, secure, level surface. There is a danger of the machine toppling over if this precaution is not taken.

- Do not place or operate the machines on a surface with an incline greater than 15˚ from horizontal.
- The POWER MIG 220 AC/DC must be located in an area with circulation of clean air such that air can flow in the back and out the front louvers.
- Dirt and dust that can be drawn into the POWER MIG 220 AC/DC should be kept to a minimum. Failure to observe these precautions can result in excessive operating temperatures and nuisance thermal trips.

HIGH FREQUENCY PROTECTION

During operation, distance the POWER MIG 220 AC/DC from radio controlled machinery. The normal operation of the POWER MIG 220 AC/DC may adversely affect the operation of RF controlled equipment, which may result in bodily injury or damage to the equipment.

GUN AND CABLE INSTALLATION

The Magnum PRO 175L gun and cable provided with the POWER MIG 220 AC/DC is factory installed with a liner for .025-.035” (0.6-0.9mm) wire and an .030" (0.8mm) contact tip. The user should ensure that the contact tip, liner, and drive rolls match the size of the wire being used.

⚠ WARNING



Turn the welder power switch “off” before installing gun and cable.

1. Lay the cable straight.
2. Unscrew the bolt which is threaded into the brass connecting block (inside wire feed compartment).
3. Insert the male end of gun into the female casting through opening in front panel. Ensure the connector is fully inserted, and then tighten the knurled screw.
4. Connect the gun trigger connector from the gun and cable to the mating receptacle located on the machine case front. Make sure that the keyways are aligned, insert and tighten the retaining ring.

SHIELDING GAS

(For Gas Metal Arc Welding Processes)

Customer must provide cylinder of appropriate type shielding gas for the process being used.

A gas flow regulator, for Argon blend gas, and an inlet gas hose are factory provided with the POWER MIG 220 AC/DC. When using 100% CO^2 an additional adapter will be required to connect the regulator to the gas bottle.

⚠ WARNING



CYLINDER may explode if damaged.

Gas under pressure is explosive. Always keep gas cylinders in an upright position and always keep chained to undercarriage or stationary support. See American National Standard Z-49.1. “Safety in Welding and Cutting” published by the American Welding Society.

Install shielding gas supply as follows:

1. Set the gas cylinder on a flat surface and secure the cylinder to a sturdy structure to prevent the cylinder from falling over.
2. Remove the cylinder cap. Inspect the cylinder valves and regulator for damaged threads, dirt, dust, oil or grease. Remove dust and dirt with a clean cloth.

⚠ WARNING

DO NOT ATTACH THE REGULATOR IF OIL, GREASE OR DAMAGE IS PRESENT!

Inform your gas supplier of this condition. Oil or grease in the presence of high pressure oxygen is explosive.

3. Stand to one side away from the outlet and open the cylinder valve for an instant. This will eradicate any dust or dirt which may have accumulated in the valve outlet.

⚠ WARNING

The user should distance his or her body from the valve outlet when “cracking” the valve.

4. Attach the flow regulator to the cylinder and tighten the union nut(s) securely with a wrench.

   Note: If connecting to 100% CO^2 cylinder, an additional regulator adapter must be installed between the regulator and cylinder valve. If adapter is equipped with a plastic washer, be sure it is seated for connection to the CO^2 cylinder.
5. Attach one end of the inlet gas hose to the outlet fitting of the flow regulator, the other end to the POWER MIG 220 AC/DC rear fitting and tighten the union nuts with a wrench.
6. Before opening the cylinder valve, turn the regulator adjusting knob counterclockwise until the adjusting spring pressure is released.
7. While standing to one side, open the cylinder valve slowly a fraction of a turn. When the cylinder pressure gauge pointer stops moving, open the valve fully.

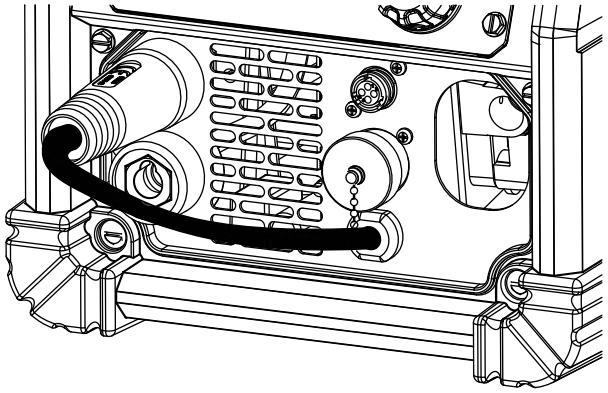
⚠ WARNING

Never stand directly in front of or behind the flow regulator when opening the cylinder valve. Always stand to one side.

8. The flow regulator is adjustable. Adjust the regulator to the flow rate recommended for the procedure and process being used.

OUTPUT POLARITY CONNECTIONS

The POWER MIG 220 AC/DC features a short lead protruding from the front of the machine, the lead can be used to configure the wire drive polarity. For SMAW and GTAW welding the short lead does not need to be connected and this lead will not be electrically hot. For FCAW and GMAW welding this lead can be connected to either the positive output stud or negative output stud. Connecting the lead to the positive stud will electrically connect the wire drive to positive polarity; the work clamp would then connect to the negative stud. Ensure connector is tightly locked into place by rotating clockwise.



OUTPUT POLARITY CONNECTION GUIDE		
Process	**-Stud**	**+Stud**
GMAW	Work Clamp	Wire Drive
FCAW-G	Work Clamp	Wire Drive
FCAW-S	Wire Drive	Work Clamp
GTAW	Torch	Work Clamp
SMAW	Work Clamp	Stinger
Spool Gun	Work Clamp	Wire Drive

OPERATION

SAFETY PRECAUTIONS

Read this entire section of operating instructions before operating the machine.

⚠ WARNING



ELECTRIC SHOCK can kill.

Do not touch electrically live parts or electrode with skin or wet clothing. Insulate yourself from work and ground.

Always wear dry insulating gloves.

⚠ WARNING



FUMES AND GASES can be dangerous.

Keep your head out of fumes.

Use ventilation or exhaust to remove fumes from breathing zone.

⚠ WARNING



WELDING SPARKS can cause fire or explosion.

Keep flammable material away.

Do not weld on containers that have held combustibles.

⚠ WARNING



ARC RAYS can burn.

Wear eye, ear, and body protection.

PRODUCT DESCRIPTION

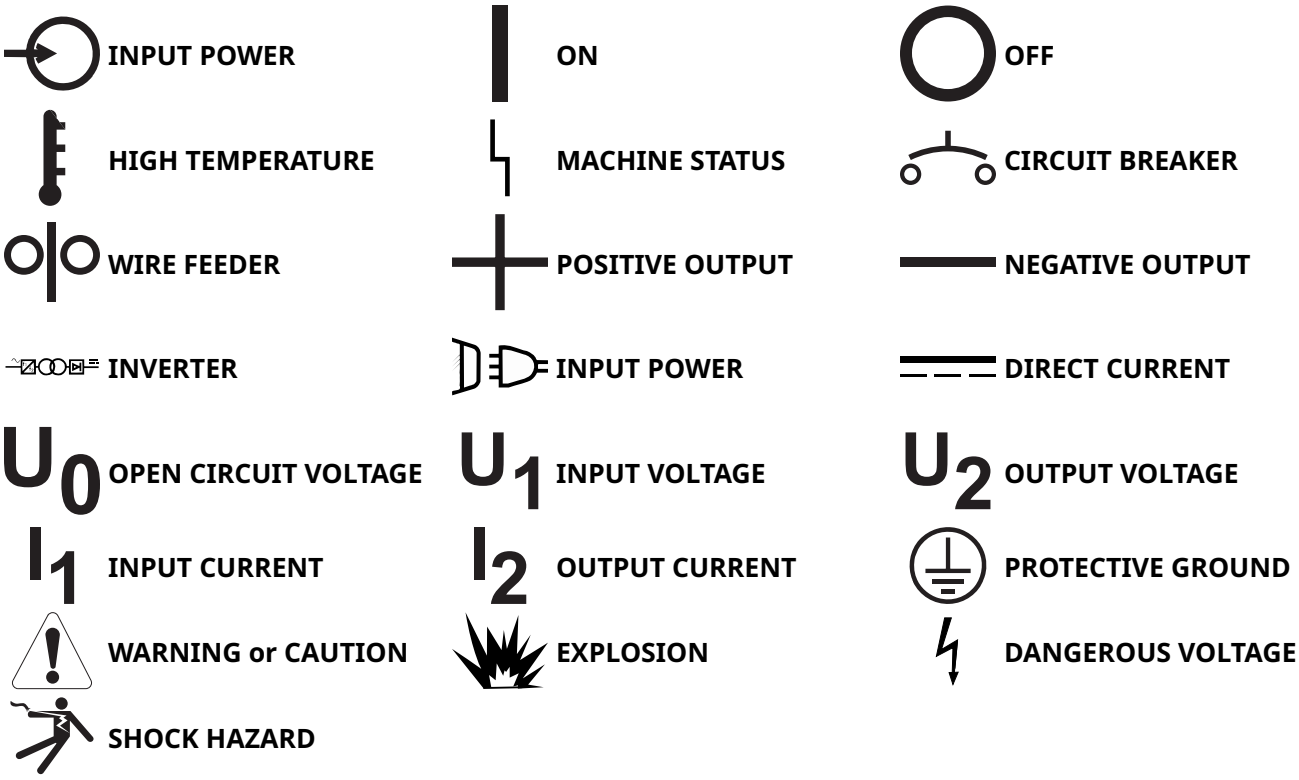
The POWER MIG 220 AC/DC is a multi-process CC/CV inverter rated for 230 amps, 25.5 volts at a 15% duty cycle. The Power MIG units are intended for fabrication, maintenance, and auto body shops. The unit features a portable and rugged case. The user interface features a 7 inch color display for selecting weld processes and adjusting parameters. The user will have the ability to adjust run-in, pre flow, post flow, crater time, and spot time. The machine also features a cast aluminum based wire drive system. The POWER MIG 220 AC/DC is designed for the North American market and operates on 120 or 240 volt single phase 60 Hz power.

- The POWER MIG 220 AC/DC is compatible with the Magnum® Pro 100SG and 150SG spool guns. The spool gun is enabled by selecting an Aluminum wire type for the GMAW process.
- The POWER MIG 220 AC/DC is TIG ready, with a TIG amptrol connector, gas pass through output receptacle, and dedicated TIG gas solenoid.
- The machine comes with a plethora of accessories: See INCLUDED ACCESSORIES (K5379-1) on page C-1 for more information.

DESIGN FEATURES

- **7-Inch Color Display** - with 800x480 resolution facilitates adjusting weld processes and parameters.
- **Efficient Inverter Power Topology** - reduces power consumption and reduces the mass of the unit when compared with traditional SCR based machines.
- **Multi-Process** - The unit is capable of welding GMAW, FCAW, SMAW, and AC and DC GTAW.
- **120 or 240V Capable** - Easily connect the unit to 120V or for higher loads connect to 240V. The unit includes a hardwired 240V cord and a 120V to 240V input adapter for easily switching between the two input voltages.
- **Portability** - The unit features three handles for carrying in multiple orientations: single hand or two hand carry.
- **Full line of Accessories** - Including a Magnum Pro 175L MIG gun with consumables and sample wire, a Caliber® 17 Series TIG torch with accessory kit and Amptrol, a stinger for SMAW welding, a work clamp, gas regulators, and gas hoses.
- **Compact, Durable Case** - IP21S enclosure rating ensures the POWER MIG 220 AC/DC will withstand the intended welding environments.
- **Integrated Cast-Aluminum Wire Drive** - For reliable feeding of MIG and FCAW wires.
- **3 Year Warranty** - On parts and labor.
- **Fan on Demand** - Fan speed controlled to provide greater cooling under high load conditions and a lower noise level when machine is idling.
- **6-pin TIG Amptrol Connector** - Included standard.

GRAPHIC SYMBOLS USED IN THIS MANUAL OR BY THIS MACHINE



RECOMMENDED PROCESSES

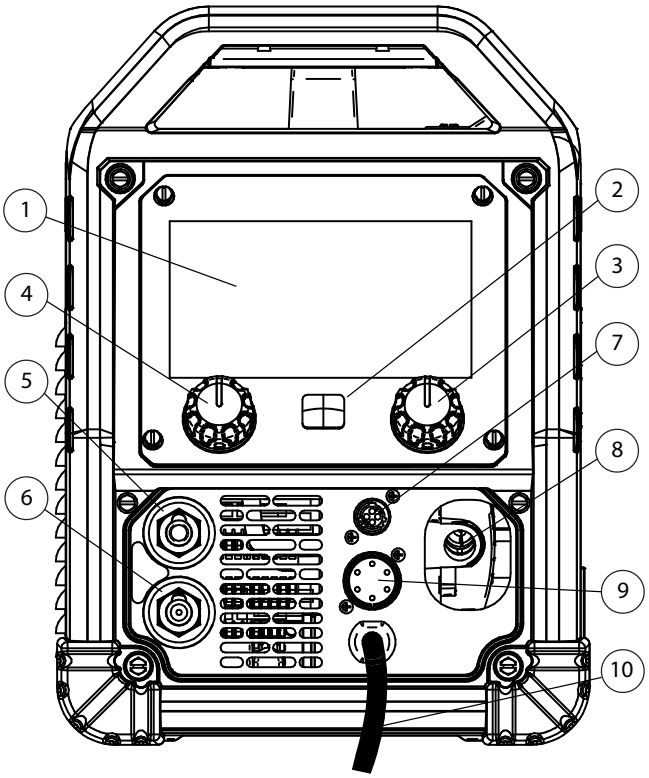
The POWER MIG 220 AC/DC is recommended for GMAW, FCAW, GTAW, and SMAW processes. The machine can support 4 inch and 8 inch spools of wire for GMAW and FCAW welding. The machine is intended for the following wire diameters and composition:

- .025” - .035” SuperArc® L-56® (mild steel)
- .025” - .035” Blue Max® (stainless steel)
- .030” - .035” SuperGlaze® (aluminum)
- .030" - .045" Innershield® NR®-211(flux-core self-shielded)
- .035" - .045" Outershield® 71M (flux-core gas-shielded)

The machine is also intended for GTAW welding with .040", 1/16", 3/32", and 1/8" tungsten and SMAW welding with 3/32”, 1/8”, and 5/32” electrodes.

WELDING PROCESSES			
Process	**Electrode Diameter Range**	**Output Range (Amperes)**	**Wire Feed Speed Range**
GMAW	.025-.035”	20-230 A	79-512 IPM
FCAW	.030-.045”	20-230 A	79-512 IPM
GTAW	.040, 1/16, 3/32, 1/8"	20-210 A	NA
SMAW	3/32, 1/8, 5/32"	30-200 A	NA

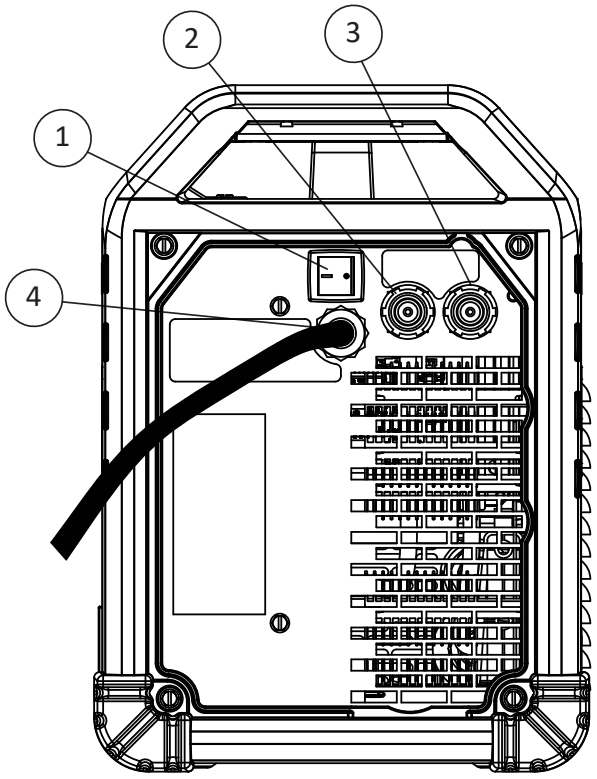
CASE FRONT CONTROLS



CASE FRONT CONTROLS DESCRIPTION

1. **Display** - Permits visualization of welding process and parameters.
2. **Home Button** - Returns the user to the home screen. At the Home Screen, it can be used to select a welding process or configure the machine settings.
3. **Voltage Knob** - On the Home Screen, scrolling the knob adjusts the voltage and clicking it opens Weld Mode Settings. On other screens, scrolling this knob cycles through options and clicking it acts as a select button.
4. **Wire Feed Speed / Amperage Knob** - On the Home Screen, scrolling the knob adjusts the amperage or wire feed speed and clicking it opens Memory Setup. On other screens, clicking the knob functions as a back button.
5. **Positive Output Receptacle** - Permits attaching a work lead, electrode stinger, or the wire drive polarity lead to DC positive polarity. Rotate connector clockwise to lock in place.
6. **Negative Output Receptacle** - Permits attaching a work lead, electrode stinger, TIG torch or the wire drive polarity lead to DC negative polarity. Rotate connector clockwise to lock in place.
7. **Four Pin Trigger Receptacle** - Permits triggering the machine for MIG/FCAW or aluminum MIG. Connect the 4-pin connector on the welding gun to the receptacle.
8. **Gun Connection** - Permits attachment of a MIG welding gun. Ensure the gun is fully seated into the brass receptacle.
9. **Six Pin Amptrol Receptacle** - Permits triggering the machine for TIG with a foot or hand amptrol.
10. **Wire Drive Polarity Lead** - Permits configuring the wire drive to positive or negative polarity by inserting into the positive or negative output receptacle. Ensure connector is tightly locked into place by rotating clockwise.

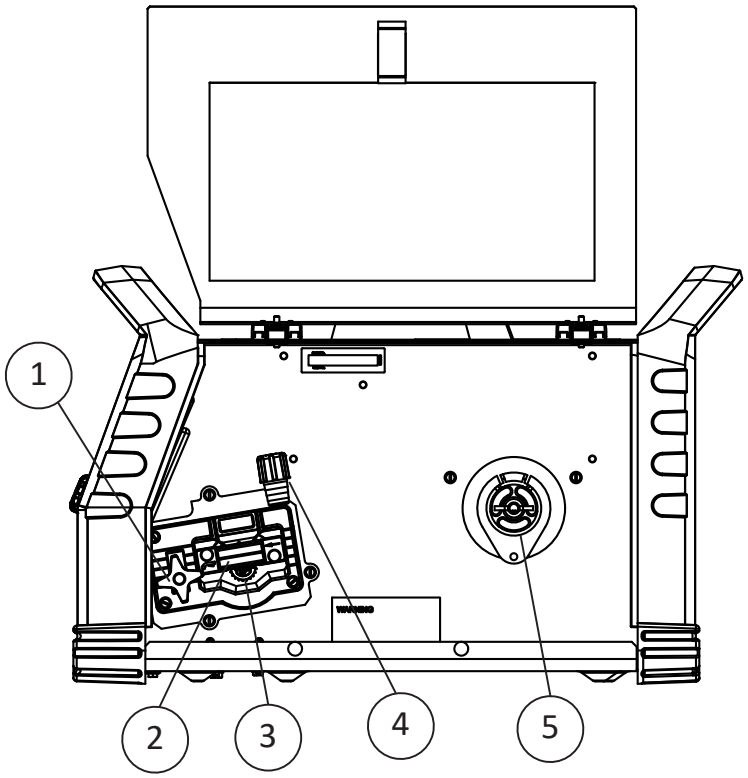
CASE BACK COMPONENTS



CASE BACK COMPONENTS DESCRIPTION

1. **Power Switch** - Permits turning the machine on or off.
2. **MIG Gas Solenoid Connector** - Connection for the gas hose of the MIG shielding gas.
3. **TIG Gas Solenoid Connector** - Connection for the gas hose of the TIG shielding gas.
4. **240V Input Cord** - Hardwired 240V input cord. 120V to 240V input adapter included for easy 120V compatibility.

INTERNAL CONTROLS



INTERNAL CONTROLS DESCRIPTION

1. **Gun Connector Block** - Permits securing a welding gun to the wire drive by ensuring the gun connector is fully seated and then tightening the large knob.
2. **Replaceable Wire Guide** - Select the correct inner wire guide for the desired wire diameter. The outer wire guide provided can be used for any wire diameter.
3. **3. Replaceable Drive Roll** - Select the correct drive roll for the wire diameter and composition being fed.
4. **Wire Drive Tension Pressure Adjustment** - Permits increasing or decreasing the pressure applied to the top drive roll.
5. **Wire Drive Spindle** - Supports a 4 inch or 8 inch spool of wire. The center wing nut can be adjusted to fine tune the tension on the wire.

PROCESS LIMITATIONS

MIG welding aluminum requires use of the Magnum Pro 100SG or 150SG Spool Gun.

EQUIPMENT LIMITATIONS

The POWER MIG 220 AC/DC is capable of MIG welding up to 230 amperes of current at 25.5 VDC. This output can be achieved at a 15% duty cycle based on a ten minute cycle time with the machine connected to 240 VAC input. The machine is capable of higher duty cycles at lower output currents or higher amperages at lower duty cycles. The machine can be connected to either 240 VAC @60Hz or 120 VAC @60Hz. The output of the machine is limited when the machine is connected to 120 VAC input. Details regarding the rating when the machine is connected to 120 VAC input can be found on the rating plate.

Locate the welder in a dry location with free circulation of clean air into the back. A location that minimizes the amount of smoke and dirt drawn into the rear louvers will reduces the probability of dirt accumulating and blocking air passages which can cause overheating.

While the machine is idling, the fans will alternate between low and high speed to provide adequate cooling for the internal components.

DRIVE ROLL REPLACEMENT

1. Turn off the power source.
2. Release the pressure on the idle roll by swinging the adjustable pressure arm down toward the back of the machine. Lift the cast idle roll assembly and allow it to sit in an upright position.
3. Remove the outside wire guide retaining plate by loosening the two large knurled screws.
4. Twist the drive roll retaining mechanism to the unlocked position and remove the drive roll.
5. Remove the inside wire guide plate.
6. Replace the drive roll and inside wire guide with a set marked for the new wire size.

   Note: Be sure that the gun liner and contact tip are also sized to match the selected wire size.
7. Manually feed the wire from the wire reel, over the drive roll groove and through the wire guide and then into the brass bushing of the gun and cable assembly.
8. Replace the outside wire guide retaining plate by tightening the two large knurled screws. Reposition the adjustable pressure arm to its original position to apply pressure. Adjust pressure as necessary.

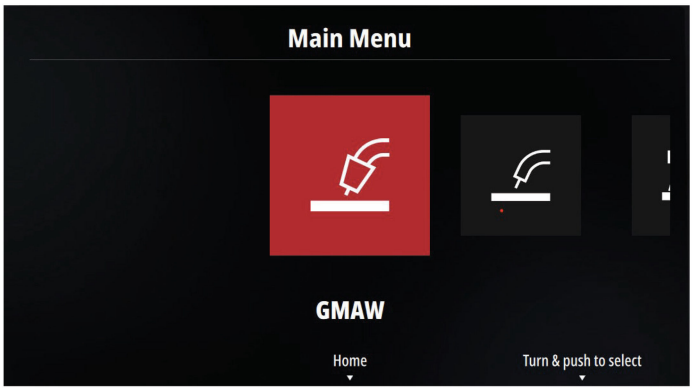
POWER-UP SEQUENCE

1. Ensure that the electrode polarity is correct for the process being used, then turn the power switch on.
2. Configure the machine for the desired process and application. Selecting the home button will prompt the user to select the desired welding process. Then the user can go through the guided setup to get ready-set-weld parameters for their setup, or they can manually set the parameters.
3. For MIG and FCAW process, pull the trigger to feed the wire electrode through the gun and cable and then cut the electrode within approximately 3/8” (10mm) from the end of the contact tip.

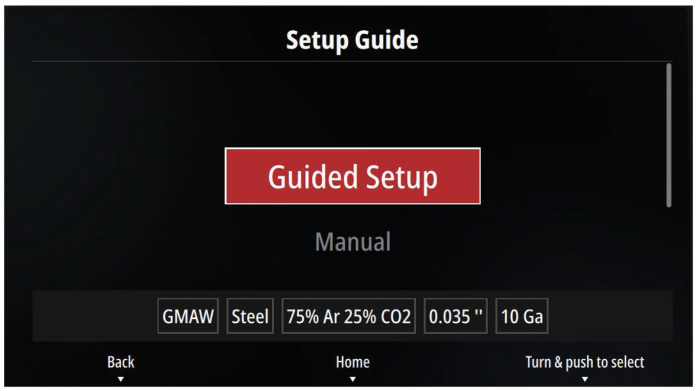
   a. When using an Innershield electrode, the gas nozzle may be removed and replaced with a gasless nozzle. This will provide increased visibility and eliminate the possibility of the gas nozzle overheating.
4. If shielding gas is to be used, turn on the gas supply and set the required flow rate (typically 25-35 CFH or 12-16 liters/minute).
5. Connect the work cable to the metal to be welded. The work clamp must make good electrical contact with the workpiece. The workpiece must also be grounded as stated in “Arc Welding Safety Precautions”.

READY.SET.WELD™

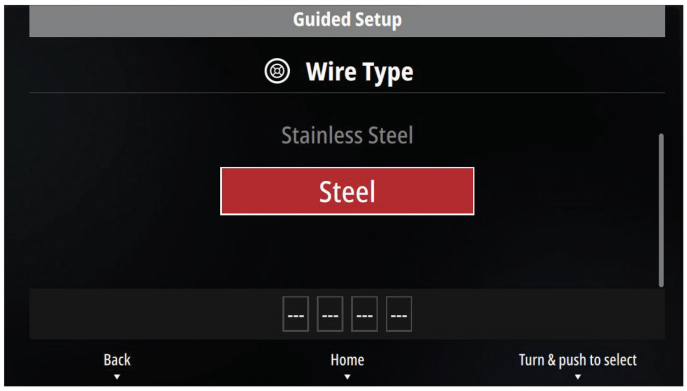
Select Process



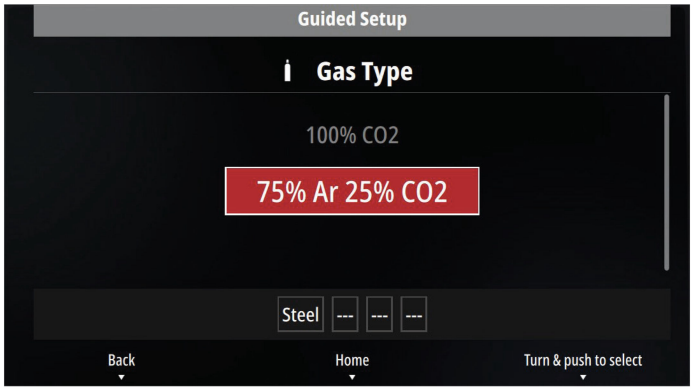
Select Guided Setup



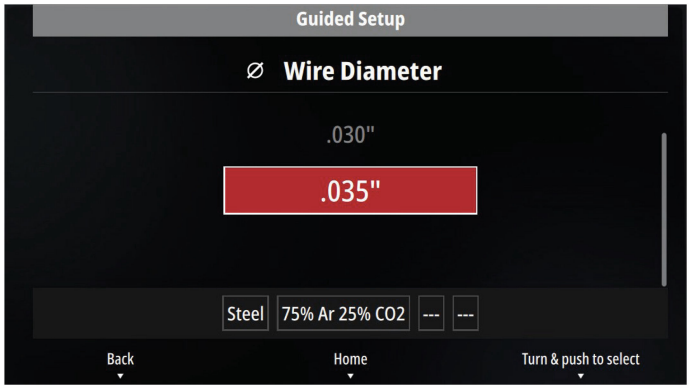
Select Wire Type



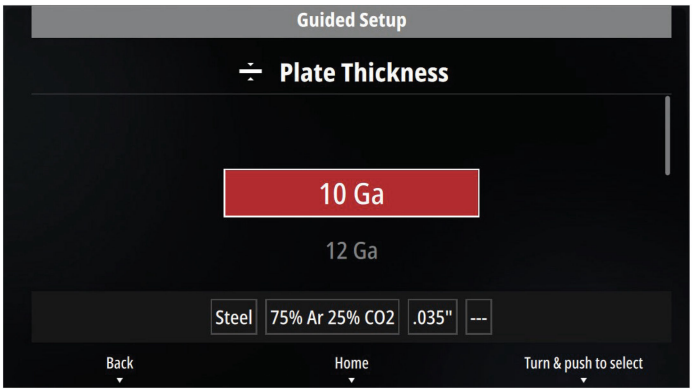
Select Gas Type



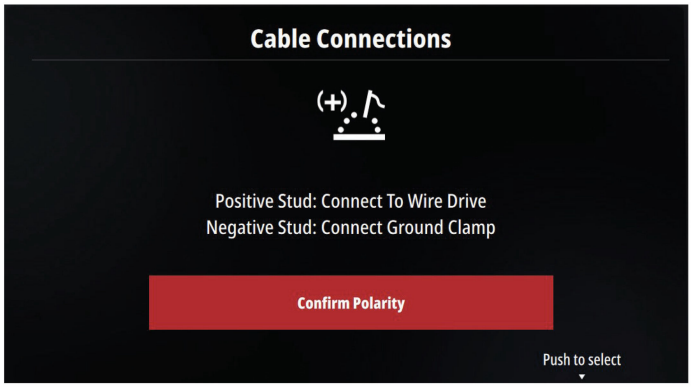
Select Wire Diameter



Select Plate Thickness

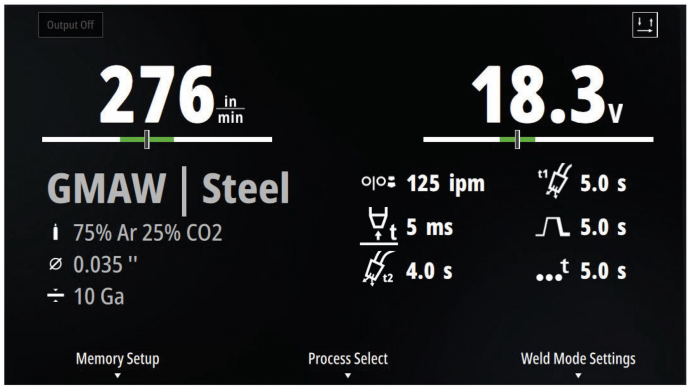


Confirm Cable Connections



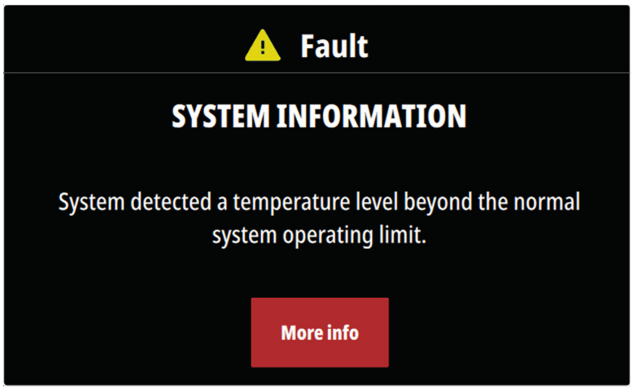
Adjust Wire Feed Speed and Voltage/Trim Accordingly

Note: The green section indicates the ideal range for the input welding parameters.



WIRE FEED OVERLOAD PROTECTION

The POWER MIG 220 AC/DC features overload protection of the wire drive motor. If the motor becomes overloaded, the protection circuitry turns off the wire feed unit. Check for the proper size tip, liner, and drive rolls, for any obstructions or bends in the gun cable, and any other factors that would impede the wire feeding. To resume welding, simply pull the trigger. There is no circuit breaker to reset.



If the duty cycle of the machine is exceeded, then the machine will thermally trip and the image shown will be displayed on the user interface. The machine must cool down before welding can be resumed.

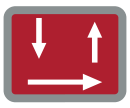
WELD SETTINGS

The POWER MIG 220 AC/DC allows the user to make adjustments to the advanced weld parameters via the Weld Settings screen.

Access the Weld Settings screen from the Home Screen by pressing the right selector knob. Scroll right to the “more settings” icon.

The options available are dependent on the weld process that has been selected. The following section lists the weld settings that may be available to adjust.

Any setting that has deviated from the default setting will be highlighted on the right side of the Home Screen.



TRIGGER INTERLOCK - Toggles between 2 step and 4 step trigger activation.



PINCH - Increasing pinch results in a crisper arc with deeper penetration while decreasing pitch provides a softer, wider arc.



RUN-IN - Adjusts initial wire feed speed for smooth arc starting.



BURNBACK - Allows a time to be selected for output to remain on after the trigger is released to prevent electrode from sticking to the workpiece.



PREFLOW - Allows a time to be selected for shielding gas to flow after the trigger is pulled, prior to establishing an arc.



STARTING CURRENT - Adjusts the amperage at the start of the weld to improve arc starting performance.



HOT START - Increasing hot start increases amperage at arc start initialization.



CRATER TIME - Adjusts time a reduced voltage and wire feed speed are applied after the trigger is released to fill craters.



SPOT TIMER - Adjusts arc time for tack and spot welds.



POSTFLOW - Allows a time to be selected for shielding gas to continue to flow after the trigger is released and output current is turned off.



ARC FORCE - Higher arc force results in a crisper arc with deeper penetration. Lower arc force results in a softer, wider arc.

TIG PULSE



FREQUENCY - Adjusts the pulse frequency from 1-100 Hz.



DUTY CYCLE - Adjusts the portion of each cycle that the current is pulsed at its current set point between 10% and 90%.



BACKGROUND - Adjusts the background current between 10% and 90% of the current set point. Lower background settings often require higher current set points.

AC TIG



AC FREQUENCY - Adjusts the frequency of the AC output from 50-200 Hz. Lower AC frequencies result in wider weld beads.



AC BALANCE - Adjusts the portion of each AC cycle that the output is negative between 60% and 90%. A lower AC balance improves cleaning action while a higher AC balance increases weld penetration.

ACCESSORIES AND OPTIONS

INCLUDED ACCESSORIES (K5379-1)

TYPE	PRODUCT NUMBER	DETAILS
GMAW / FCAW	K4529-1	MAGNUM PRO 175L MIG GUN 10 FT
	ED030631	2 LB SPOOL OF .030” SUPERARC L-56 WIRE
	KP3084-1	GASLESS NOZZLE
	KP2744-025T	.025” TAPERED CONTACT TIP
	KP2744-030T	.030” TAPERED CONTACT TIP
	KP2744-035T	.035” TAPERED CONTACT TIP
	KP2529-1	.025 - .030” SMOOTH DRIVE ROLL (INSTALLED)
	KP2529-2	.035” SMOOTH DRIVE ROLL
	KP2529-3	.030 - .045” KNURLED DRIVE ROLL
	KP2531-1	.025 - .035 WIRE GUIDE (INSTALLED)
	KP2531-2	.045” WIRE GUIDE
GTAW	K5339-17F-1	CALIBER® 17 SERIES 150 AMP TIG TORCH 12.5 FT
	KP4760-MD	CALIBER 17/18/26 TIG TORCH PARTS KIT
	K870	FOOT AMPTROL 25 FT
SMAW		STICK ELECTRODE HOLDER AND LEAD
GENERAL		WORK CABLE AND CLAMP ASSEMBLY
		240V TO 120V POWER CORD ADAPTER
		GAS REGULATORS AND HOSES

COMMON EQUIPMENT PACKAGES

OPTIONAL KITS		
Type	**Product Number**	**Details**
GENERAL	K520-1	UTILITY CART (150 CU FT. BOTTLE CAPACITY)
	K2377-2	SMALL-MEDIUM CANVAS COVER
	K3071-1	CANVAS ACCESSORY BAG
FCAW	K2528-1	INNERSHIELD® WELDING KIT
GTAW	K963-3	HAND AMPTROL 25 FT
SPOOL GUN	K3269-1	MAGNUM PRO 100SG SPOOL GUN
	K5471-1	MAGNUM PRO 150SG SPOOL GUN

ACCESSORIES		
Type	**Product Number**	**Details**
DRIVE ROLL	KP2529-1	SMOOTH (GMAW) .025 - .030
	KP2529-2	SMOOTH (GMAW) .035”
	KP2529-3	KNURLED (FCAW) .030 - .045”
NOZZLE	KP3075-1-38F	FLUSH NOZZLE (3/8”)
	KP3075-1-38S	STICKOUT NOZZLE (3/8”)
	KP3075-1-50F	FLUSH NOZZLE (1/2”)
	KP3075-1-50S	STICKOUT NOZZLE (1/2”)
	KP3084 -1	GASLESS NOZZLE
GAS DIFFUSER	KP3076 -1	GAS DIFFUSER
CONTACT TIP	KP2744-025T	.025" TAPERED CONTACT TIP
	KP2744-030T	.030" TAPERED CONTACT TIP
	KP2744-035T	.035" TAPERED CONTACT TIP
	KP2744-040T	.040" TAPERED CONTACT TIP
	KP2744-045T	.045" TAPERED CONTACT TIP
GUN LINER	KP35-40-15	.023 - .035” LINER
	KP45-40-15	.035 - .045” LINER
WIRE GUIDE	KP2531-1	.025 - .035" INNER WIRE GUIDE
	KP2531-2	.045" INNER WIRE GUIDE

MAINTENANCE

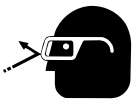
SAFETY PRECAUTIONS

⚠ WARNING



Before carrying out service, maintenance and/or repair jobs, fully disconnect power to the machine.

⚠ WARNING



Use Personal Protective Equipment (PPE), including safety glasses, dust mask and gloves to avoid injury. This also applies to persons who enter the work area.

⚠ WARNING



MOVING PARTS can injure.

Do not operate with doors open or guards off.

Stop engine before servicing.

Keep away from moving parts.

⚠ WARNING



Have qualified personnel do all maintenance and troubleshooting work.

GENERAL MAINTENANCE

In extremely dusty locations, dirt may clog the air passages causing the welder to run hot. Blow dirt out of the welder with low-pressure air at regular intervals to eliminate excessive dirt and dust build-up on internal parts.

The fan motor has a sealed bearing, which requires no service.

DRIVE ROLLS AND GUIDE PLATES

After every coil of wire, inspect the wire drive mechanism. Clean it as necessary by blowing with low pressure compressed air. Do not use solvents for cleaning the idle roll because it may wash the lubricant out of the bearing. All drive rolls are stamped with the wire sizes they will feed. If a wire size other than that stamped on the roll is used, the drive roll must be changed.

GUN TUBES AND NOZZLES

1. Replace worn contact tips as required.
2. Remove spatter from inside of gas nozzle and from tip after each 10 minutes of arc time or as required.

GUN CABLE CLEANING

To help prevent feeding problems, clean cable liner after using approximately 300 pounds (136 kg) of electrode. Remove the cable from the wire feeder and lay it out straight on the floor. Remove the contact tip from the gun. Using an air hose and only partial pressure, gently blow out the cable liner from the gas diffuser end.

⚠ CAUTION

Excessive pressure at the beginning of the cleaning procedure may cause the dirt to form a plug.

Flex the cable over its entire length and again blow out the cable. Repeat this procedure until no further dirt comes out. If this has been done and feed problems are experienced, replace the liner.

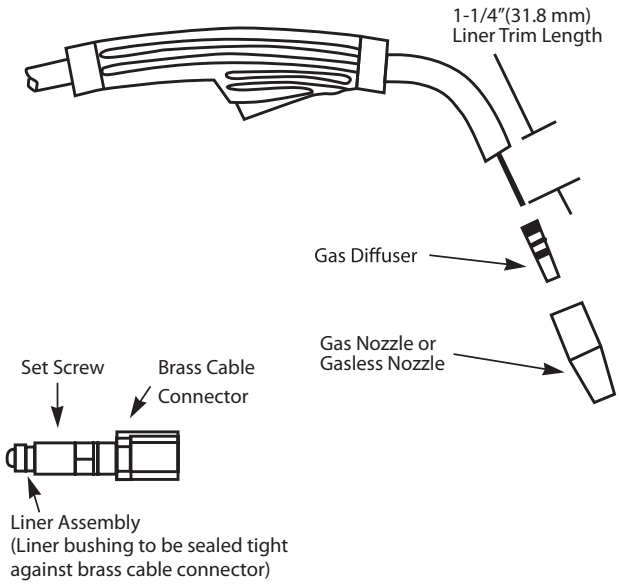
PERIODIC MAINTENANCE

LINER REMOVAL, INSTALLATION AND TRIMMING INSTRUCTIONS FOR MAGNUM PRO 175L

Note: The variation in cable lengths prevents interchanging of liners between guns. Once a liner has been cut for a particular gun, it should not be installed in another gun unless it can meet the liner cutoff length requirement.

1. Remove the gas nozzle from the gun by unscrewing counterclockwise.
2. Remove the contact tip from the gun by unscrewing counterclockwise.
3. Remove the gas diffuser from the gun tube by unscrewing counter clockwise.
4. Lay the gun and cable out straight on a flat surface. loosen the set screw located in the brass connector at the wire feeder end of the cable. Pull the liner out of the cable.
5. Insert a new untrimmed liner into the connector end of the cable. Be sure the liner bushing is stenciled appropriately for the wire size being used.
6. Fully seat the liner bushing into the connector. Tighten the set screw on the brass cable connector. At this time, the gas diffuser should not be installed onto the end of the gun tube.

7. With the gas nozzle and diffuser removed from the gun tube, be sure the cable is straight, and then trim the liner to the length shown in the Figure below. Remove any burrs from the end of the liner.
8. Screw the gas diffuser onto the end of the gun tube and securely tighten.
9. Replace the contact tip and nozzle.



TROUBLESHOOTING

HOW TO USE TROUBLESHOOTING GUIDE

⚠ WARNING



Service and Repair should only be performed by Lincoln Electric Factory Trained Personnel. Unauthorized repairs performed on this equipment may result in danger to the technician and machine operator and will invalidate your factory warranty. For your safety and to avoid Electrical Shock, please observe all safety notes and precautions detailed throughout this manual.

This Troubleshooting Guide is provided to help you locate and repair possible machine malfunctions. Simply follow the three-step procedure listed below.

1. **LOCATE PROBLEM (SYMPTOM)**

   Look under the column labeled "PROBLEM (SYMPTOMS)". This column describes possible symptoms that the machine may exhibit. Find the listing that best describes the symptom that the machine is exhibiting.

2. **POSSIBLE CAUSE**

   The second column labeled "POSSIBLE CAUSE" lists the obvious external possibilities that may contribute to the machine symptom.

3. **RECOMMENDED COURSE OF ACTION**

   This column provides a course of action for the Possible Cause, generally it states to contact your local Lincoln Authorized Field Service Facility.

⚠ CAUTION



If you do not understand or are unable to perform the Recommended Course of Action safely, contact your local Lincoln Authorized Field Service Facility.

Observe all additional safety guidelines detailed throughout this manual.

CAPACITOR DISCHARGE PROCEDURE

Do not operate with panels removed. Before servicing or installing kits, disconnect machine from power and wait a minimum of two minutes prior to removing sheet metal.

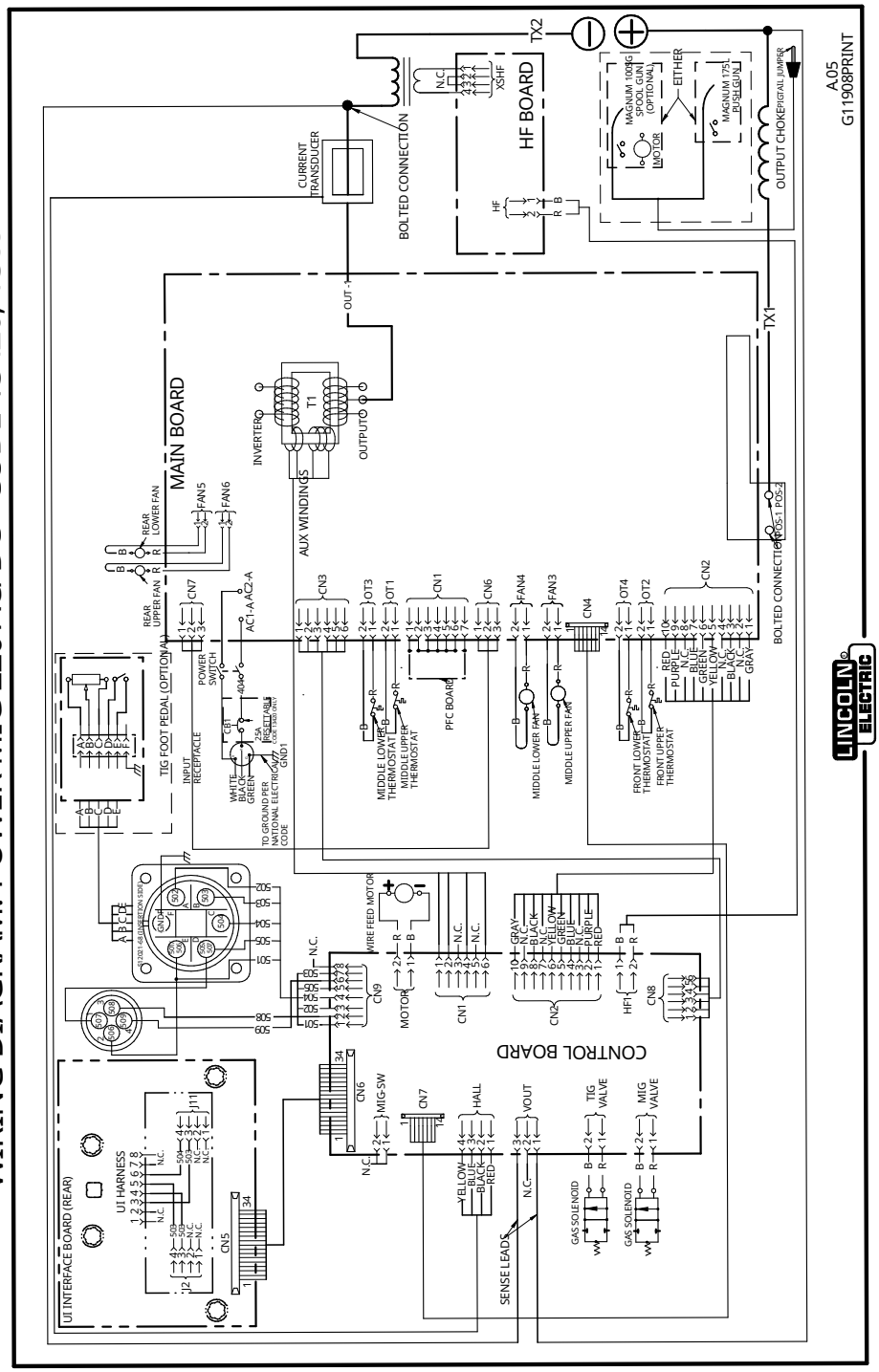
TROUBLESHOOTING GUIDE

PROBLEMS (SYMPTOMS)	POSSIBLE CAUSE	RECOMMENDED COURSE OF ACTION
Major physical or electrical damage is evident.	"Do not Plug in machine or turn it on." Contact your local Authorized Field Service Facility.	If all recommended possible areas of mis-adjustment have been checked and the problem persists, Contact your local Lincoln Authorized Field Service Facility.
No wire feed, weld output or gas flow when gun trigger is pulled. Fan does NOT operate.	**1.** Make sure correct voltage is applied to the machine. **2.** Make certain that power switch is in the ON position.	
No wire feed, weld output or gas flow when gun trigger is pulled. Fan operates normally.	**1.** The thermostat may be tripped due to overheating. Let machine cool. Weld at lower duty cycle. **2.** Check for obstructions in air flow Check Gun Trigger connections. See INSTALLATION on page A-1 . **3.** Gun trigger may be faulty.	
No wire feed when gun trigger is pulled. Fan runs, gas flows and machine has correct open circuit voltage (90V) - weld output.	**1.** If the wire drive motor is running make sure that the correct drive rolls are installed in the machine. **2.** Check for clogged cable liner or contact tip. **3.** Check for proper size cable liner and contact tip.	
Low or no gas flow when gun trigger is pulled. Wire feed, weld output and fan operate normally.	**1.** Check gas supply, flow regulator and gas hoses. **2.** Check gun connection to machine for obstruction or leaky machine.	
Arc is unstable - Poor starting.	**1.** Check for correct input voltage to machine. **2.** Check for proper electrode polarity for process. **3.** Check gun tip for wear or damage and proper size - Replace. **4.** Check for proper gas and flow rate for process. (For MIG only.) **5.** Check work cable for loose or faulty connections. **6.** Check gun for damage or breaks. **7.** Check for proper drive roll orientation and alignment. **8.** Check liner for proper size.	

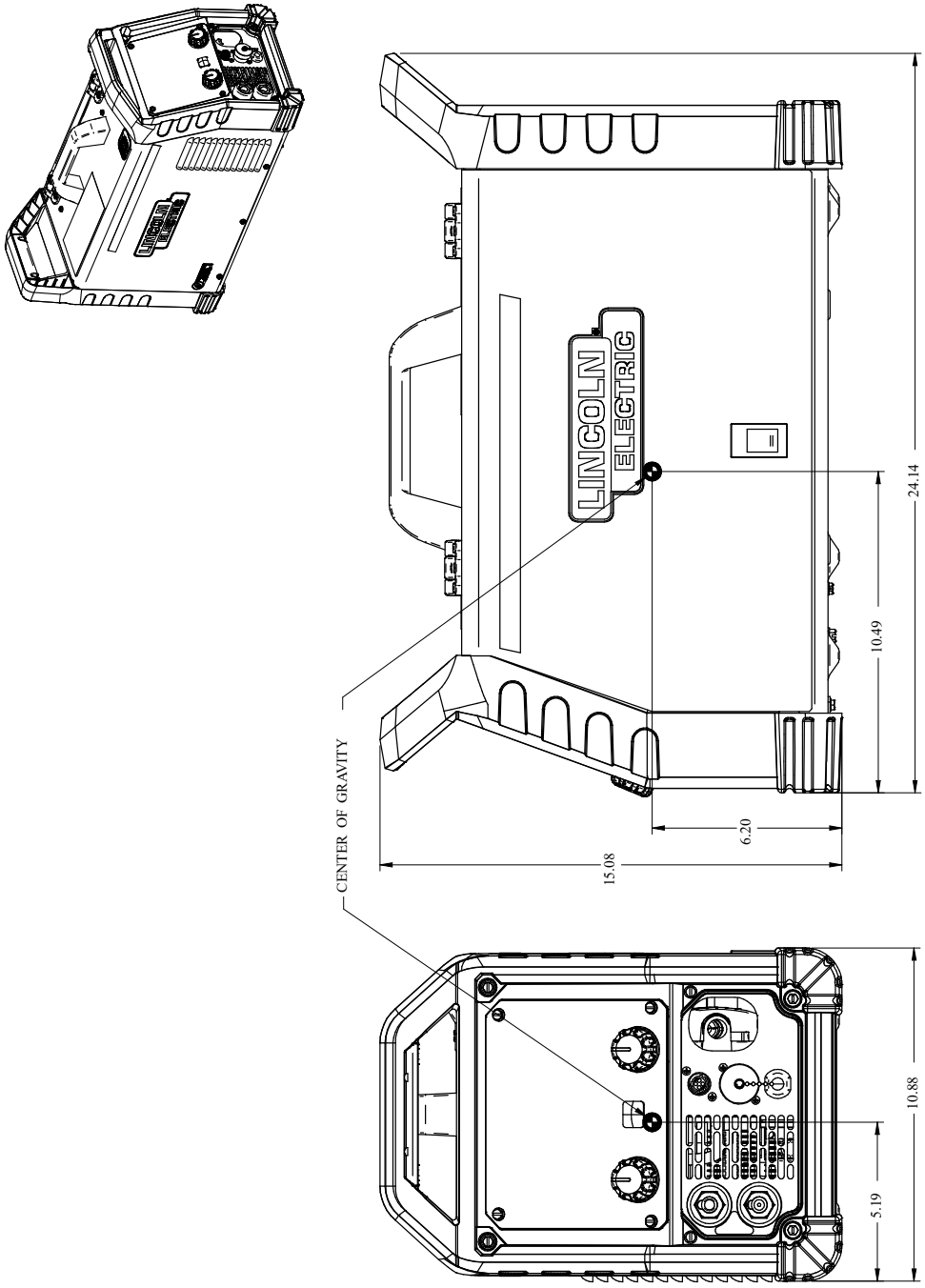
PROBLEMS (SYMPTOMS)	POSSIBLE CAUSE	RECOMMENDED COURSE OF ACTION
Error Codes	1. Error will be explained in a pop up message on welder UI.	**1.** Cycle power to machine. **2.** Contact your local Lincoln Authorized Field Service Facility. **3.** Follow corrective action from error message.

DIAGRAMS & PRINTS

WIRING DIAGRAM



DIMENSIONS


LINCOLN ELECTRIC
24.14
10.49
6.20
15.08
CENTER OF GRAVITY
10.88
5.19

CUSTOMER ASSISTANCE POLICY

CUSTOMER ASSISTANCE POLICY

The business of Lincoln Electric is manufacturing and selling high quality welding equipment, automated welding systems, consumables, and cutting equipment. Our challenge is to meet the needs of our customers, who are experts in their fields, and to exceed their expectations. On occasion, purchasers may ask Lincoln Electric for information or technical information about their use of our products. Our employees respond to inquiries to the best of their ability based on information and specifications provided to them by the customers and the knowledge they may have concerning the application. Our employees, however, are not in a position to verify the information provided or to evaluate the engineering requirements for the particular weldment, or to provide engineering advice in relation to a specific situation or application. Accordingly, Lincoln Electric does not warrant or guarantee or assume any liability with respect to such information or communications. Moreover, the provision of such information or technical information does not create, expand, or alter any warranty on our products. Any express or implied warranty that might arise from the information or technical information, including any implied warranty of merchantability or any warranty of fitness for any customers' particular purpose or any other equivalent or similar warranty is specifically disclaimed.

Lincoln Electric is a responsive manufacturer, but the definition of specifications, and the selection and use of specific products sold by Lincoln Electric is solely within the control of, and remains the sole responsibility of the customer. Many variables beyond the control of Lincoln Electric affect the results obtained in applying these types of fabrication methods and service requirements.

WELD FUME CONTROL EQUIPMENT

The operation of welding fume control equipment is affected by various factors including proper use and positioning of the equipment, maintenance of the equipment and the specific welding procedure and application involved. Worker exposure level should be checked upon installation and periodically thereafter to be certain it is within applicable OSHA PEL and ACGIH TLV limits.

PARTS LIST

Content/Details may be changed or updated without notice. For most current Instruction Manuals, go to PARTS.LINCOLNELECTRIC.COM.