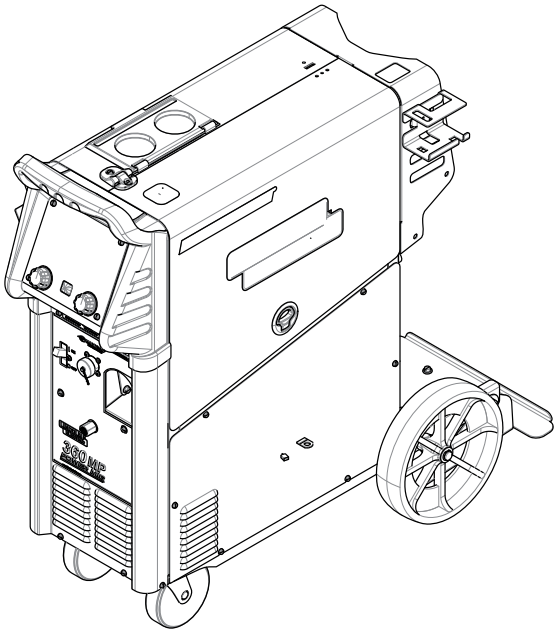
INSTRUCTION MANUAL

POWER MIG® 360MP



For use with Product/Code Numbers:

12910, 13325, 13450

GENUINE LINCOLN PARTS™

Register your machine:
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THE LINCOLN ELECTRIC COMPANY
22801 St. Clair Avenue • Cleveland, OH • 44117-1199 • U.S.A.
www.lincolnelectric.com

Contents

SAFETY

THANK YOU FOR SELECTING A QUALITY PRODUCT BY LINCOLN ELECTRIC

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.

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.

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 on page -viii **and** FOR ELECTRICALLY POWERED EQUIPMENT on page -ix

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

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  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 on page -vi

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 360MP

INPUT-SINGLE PHASE ONLY	
Input Voltage ± 10%	**Effective Input Amperes**
208/230/460/575 Volts 50/60 Hz	55/50/25/20

RATED OUTPUT									
Input Voltage/ Phase/ Frequency	**GMAW**			**GTAW-DC**			**SMAW**		
	40%	**60%**	**100%**	**40%**	**60%**	**100%**	**40%**	**60%**	**100%**
208/230/460/575/1/50/60 Hz	350 Amps 31.5 Volts	320 Amps 30 Volts	250 Amps 26.5 Volts	360 Amps 24.4 Volts	320 Amps 22.8 Volts	250 Amps 20 Volts	310 Amps 32.4 Volts	300 Amps 32 Volts	230 Amps 29.2 Volts

OUTPUT		
Welding Current Range (Continuous)	**Maximum Open Circuit Voltage**	**Welding Voltage Range**
5 A - 360 A	70 V	10 V - 45 V

RECOMMENDED INPUT WIRE AND FUSE - SINGLE PHASE			
Input Voltage/ Frequency (Hz)	**Maximum Input Ampere And Duty Cycle***	**Fuse Or Breaker Size**	**Type S, SO, ST, STO Or Extra Hard Usage Input Cord AWG (IEC) Sizes****
208/1/50/60	91 A, 40%	100 A	6 (16 mm^2)
230/1/50/60	83 A, 40%	90 A	6 (16 mm^2)
460/1/50/60	42 A, 40%	50 A	10 (6 mm^2)
575/1/50/60	32 A, 40%	35 A	12 (2.5 mm^2)

Note:

* With 115V receptacle loaded to 6 Amps.

**Customer to supply their own input cord according to this table to achieve rated outputs

See AUXILIARY POWER RECEPTACLES on page A-7 for additional information.

WIRE SPEED RANGE
Wire Speed 50 - 700 IPM (1.27 - 17.8 m/minute)

PHYSICAL DIMENSIONS			
Height	**Width**	**Depth**	**Weight**
37.5 in.	18 in.	37.5 in.	265 Lbs.

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

The input cord supplied with the machine is rated for 250 Volts / 50 Amps. Therefore, the maximum allowable output for use with the supplied input cord on 208V or 230V is determined by limiting the input current to be less than 50 Amps. These output values are shown here:

MAXIMUM ALLOWABLE OUTPUT FOR USE WITH SUPPLIED INPUT CORD						
Weld Mode:	**GMAW**		**GTAW-DC**		**SMAW**	
Auxiliary Output:	**0A**	**6A**	**0A**	**6A**	**0A**	**6A**
208/1/50/60	230A/25.5V /100%	220A/25V /100%	280A/21.2V /60%	250A/20V /100%	210A/28.4V /100%	200A/28V /100%
230/1/50/60	255A/26.7V /60%	245A/26.3V /100%	300A/22V /60%	250A/20V /100%	235A/29.4V /60%	225A/29V /100%

SAFETY PRECAUTIONS

Read entire installation section before starting installation.

⚠ 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.

Do not use AC welder if your clothing, gloves or work area is damp or if working on, under or inside work piece.

Use the following equipment:
- Semiautomatic DC constant voltage (wire) welder.
- DC manual (stick) welder.
- AC welder with reduced voltage control.

Do not operate with panels removed.

Disconnect input power before servicing.

⚠ WARNING

FUMES AND GASES can be dangerous.

Keep your head out of fumes.

Use ventilation or exhaust to remove fumes from breathing zone and general area.

⚠ 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.

UNCRATING THE POWER MIG 360MP

Cut banding and lift off cardboard carton. Cut banding holding the machine to the skid. Remove foam and corrugated packing material. Untape accessories from Gas Bottle Platform. Unscrew the two wood screws (at the Gas Bottle Platform) holding the machine to the skid.

LOCATION

Locate the welder in a dry location where there is free circulation of clean air into the louvers in the back and the louvers out the front. A location that minimizes the amount of smoke and dirt drawn into the rear louvers reduces the chance of dirt accumulation that can block air passages and cause overheating.

TILTING

Each machine must be placed on a secure, level surface, either directly or on a recommended cart. The machine may topple over if this precaution is not followed.

OUTPUT POLARITY CONNECTIONS

The welder, as shipped from the factory, is connected for electrode positive (+) polarity. This is the normal polarity for GMAW.

If negative (–) polarity is required, interchange the connection of the two cables located in the wire drive compartment near the front panel. The electrode cable, which is attached to the wire drive, is to be connected to the negative (–) labeled terminal and the work lead, which is attached to the work clamp, is to be connected to the positive (+) labeled terminal.

INPUT POWER, GROUNDING CONNECTION DIAGRAM

⚠ WARNING

ELECTRIC SHOCK can kill.

Do not touch electrically live parts such as output terminals or internal wiring.

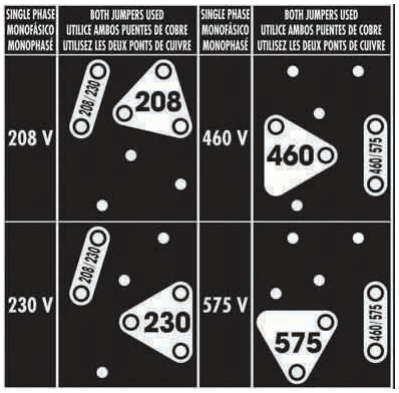
All input power must be electrically disconnected before proceeding.

The POWER MIG 360MP is not equipped with 460/575 volt 60 Hz plug, an input cable or a receptacle.

1. Before starting the installation, check with the local power company if there is any question 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 source or from two lines of a three phase source.
2. POWER MIG 360MP has multiple input voltages specified on the name plate. The unit is shipped connected for the 230 voltage. If the welder is to be operated on 208, 460 or 575 voltage, it must be reconnected according to the instructions in the connection diagram.

⚠ WARNING

Make certain that the input power is electrically disconnected before removing the screw on the reconnect panel access cover.



3. The POWER MIG 360MP is supplied with a 10 ft. 6 GA input cord and NEMA type 6-50 three prong plug connected to the welder. For use at full rated output or for use on 460V and 575V input, install an appropriate input cable and termination per local and national electrical code. Recommendations are given in the Technical Specifications section.

4. If the supplied input cord is used, then obtain a receptacle and mount it in a suitable location. Be sure it can be reached by the plug on the input cable attached to the welder. Mount with the ground terminal at the top to allow the power cable to hang down without bending.

Note: K4467-2 DOES NOT COME WITH AN INPUT CORD INSTALLED

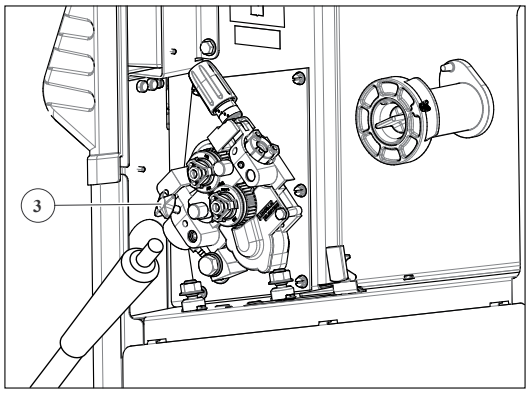
GUN AND CABLE INSTALLATION

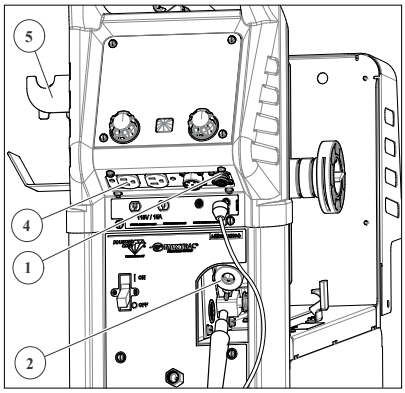
The Magnum PRO Curve 300 gun and cable provided with the POWER MIG 360MP is factory installed with a liner for .035-.045" (0.9-1.1 mm) electrode and an .035" (0.9 mm) contact tip. Install the .045” tip (also provided) if this wire size is being used.

⚠ WARNING

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

1. Lay the cable out straight.
2. Unscrew the Hand Screw on the drive unit front end (inside wire feed compartment - Item 3) until tip of screw no longer protrudes into Gun Adapter (Item 2) opening as seen from front of machine.
3. Insert the male end of gun cable into the Gun Adapter (Item 2) through the opening in front panel. Make sure connector is fully inserted and tighten Hand Screw.
4. Connect the Gun Trigger Connector from the gun and cable to the mating Receptacle inside the compartment located on the Front Panel (Item 1). Make sure that the keyways are aligned, insert and tighten retaining ring.
5. A Coil Claw™ (Item5) and tool holder are included with POWER MIG 360MP. To remove/reposition the tool holder, remove the screw and insert. Reposition into desired slot on the gas bottle upper bracket.





SHIELDING GAS

For necessary processes.

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

A gas flow regulator, for Argon blend gas, an inlet gas hose, and a regulator adapter are factory provided with the POWER MIG 360MP. When using 100% CO_2, the regulator 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 Z49.1, “Safety in Welding and Cutting” published by the American Welding Society.

Install shielding gas supply as follows:

1. Set gas cylinder on rear platform of POWER MIG 360MP. Hook chain in place to secure cylinder to rear of welder.
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.

   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 blows away any dust or dirt which may have accumulated in the valve outlet.

⚠ WARNING

Be sure to keep your face away from the valve outlet when “cracking” the valve.

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

   Note: If connecting to 100% CO_2 cylinder, the regulator adapter provided must be installed between the regulator and cylinder valve.
5. Attach one end of the inlet gas hose to the outlet fitting of the flow regulator, the other end to the POWER MIG 360MP rear fitting marked “Feeder” and tighten the union nuts securely with a wrench.
6. Before opening the cylinder valve, turn the regulator adjusting knob counterclockwise until the adjusting spring pressure is released.
7. 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 it to the flow rate recommended for the procedure and process being used before making the weld.

AUXILIARY POWER RECEPTACLES

This machine is equipped with 15 Amp 120V receptacle with 15 Amp Circuit Breaker. The receptacle is UL and CSA approved. Auxiliary output limited to the following:

Per rating plate: at weld output 100% duty cycle, auxiliary output should be limited to 6 amps.

Per rating plate: at weld output 60% and 40% duty cycle, auxiliary output should be limited to 0 amps (no load).

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 360MP is a complete, semiautomatic multiprocess DC arc welding machine offering CV and CC DC welding built to meet NEMA specifications. The standard machine is equipped to weld CC-Stick,

CC-GTAW, CV-FCAW, and synergic and non-synergic CV-GMAW. GMAW-P, Pulse-on-Pulse and Power Mode welding processes.

Other features include a 7” Digital User Interface with synergic controls and memory capability, a 2” (51 mm) O.D. wire reel spindle with adjustable brake, integral gas cylinder mounting undercarriage, an adjustable CO_2 or Argon blend flow regulator with cylinder pressure gauge and inlet hose, a 15 ft. (4.6 m) Magnum PRO Curve 300 gun and cable, a 10 ft. (3.1 m) power cable and NEMA R Type 6-50N three prong plug and a 10 ft. (3.1 m) work cable and clamp.

The POWER MIG 360MP features built in timer functions that provide variable burnback control, a spot function, a selectable 4-step trigger interlock, and an adjustable ‘Run-In’ for wire starting optimization. ARCFX™ technology comes standard and provides a way to graphically communicate instant feedback of how the end user settings affect the weld outcome when adjusting wire feed speed and voltage.

WELDING CAPABILITY

The POWER MIG 360MP is rated at 350 amps @ 31.5 volts, at a 40% duty cycle based on a ten minute cycle time for GMAW processes. It is capable of higher duty cycles at lower output currents and capable of up to 360 Amps at lower duty cycles.

LIMITATIONS

The POWER MIG 360MP WILL NOT operate satisfactorily if powered with a portable or in-plant generating system. The POWER MIG 360MP is not dual procedure compatible.

SETTING THE POWER MIG 360MP MACHINE TO WELD

Power up the machine using the power switch on the front of the machine (See CASE FRONT CONTROLS on page B-3).

Allow machine to go through its booting stage. This will take approximately 20 seconds.

The machine will take you to the Home Screen and display the settings that were last input by the user.

To select a new welding process, press the middle Select Process button.

By turning the right knob, select the desired welding process from the list. Press the right knob to make selection.

Welding Processes Screen Selections.


Manual Mig Mode


(GMAW)


Self-Shielded Flux Core (FCAW-S)

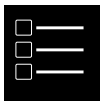

Gas-Shielded Flux Core (FCAW-G)


Spool Gun


Push-Pull Gun


TIG (GTAW)


Stick (SMAW)

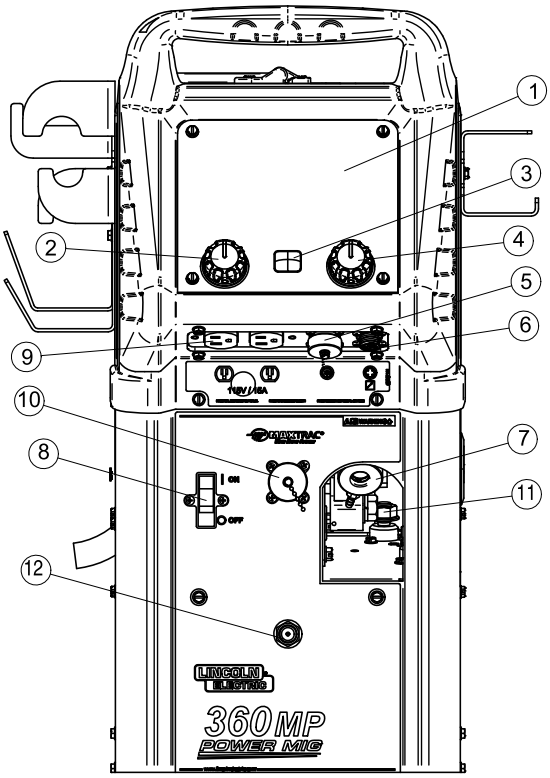


Legacy Mode List

Load

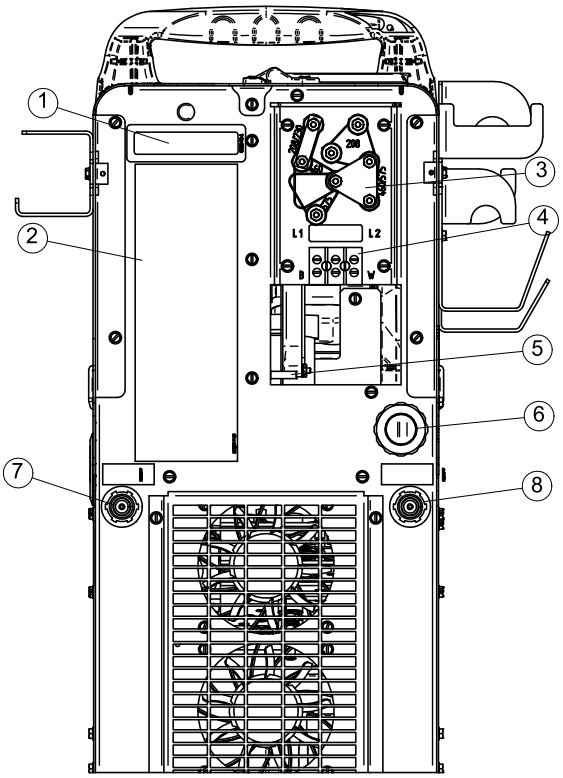
Configuration

CASE FRONT CONTROLS



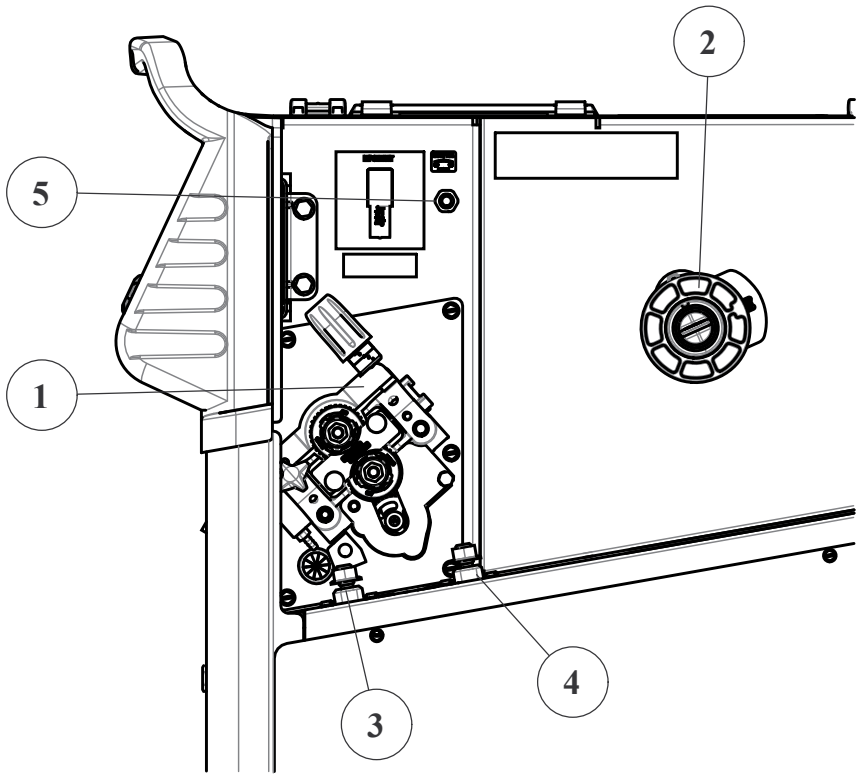
1. **Color LED Screen** - Permits visualization of welding process and parameters. The screen features a replaceable screen shield for protecting against dust & dirt.
2. **Back Button/Knob** - Rotate adjusts value, push to move back to previous selection.
3. **Home Button** - Returns the user to the Home Screen. At the Home Screen, the user can select a welding process or the display settings can be configured.
4. **Select Button/Knob** - Rotate adjusts value, push confirms the selected value or choice.
5. **Seven Pin Connector** - For attaching optional remote control equipment. Includes auto-sensing remote control circuit.
6. **Four Pin Trigger Receptacle** - Permits triggering the machine for MIG/FCAW or aluminum MIG. Connect the 4-pin connector present on the welding gun to the receptacle.
7. **Gun Connection** - Permits attachment of a MIG welding gun. Ensure the gun is fully seated into the brass receptacle.
8. **Power Switch** - Permits turning the machine on or off.
9. **115V receptacle**
10. **Six Pin Connector** - Permits connecting a remote or TIG pedal.
11. **Output Studs** - Used to connect work and electrode leads.
12. **TIG/Spool Gun Gas Connector** - Used to connect gas to TIG torch or a spool gun.

CASE BACK CONTROLS



1. **Decal** - Serial number.
2. **Decal** - Input supply connection diagram.
3. **Reconnect Panel Assembly**
4. **Input Cable Connecting Block**
5. **Grounding** - Input cable ground cable connector.
6. **Input power cord** - Not included in code K4467-2.
7. **Spool Gun/TIG Gas Solenoid Connector**
8. **MIG/Push-Pull Gas Solenoid Connector** - Connection gas hose.

INTERNAL CONTROLS

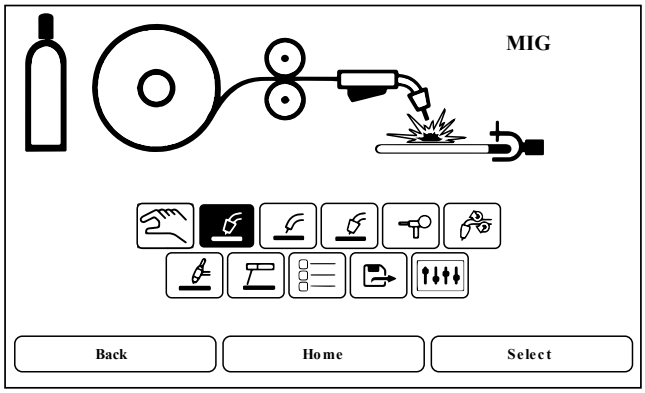


1. **Wire Drive Tension Pressure Adjustment** - Permits increasing or decreasing the pressure applied to the top drive roll.
2. **Wire Drive Spindle** - Supports a 4-inch or 8-inch spool of wire. The center wing-nut can be adjusted to increase tension on the wire.
3. **Negative Output Receptacle** - Permits attaching a work lead, electrode stinger, or the center wire drive polarity lead to DC negative polarity. Rotate connector clockwise to lock into place.
4. **Positive Output Receptacle** - Permits attaching a work lead, electrode stinger or the center wire drive polarity lead to DC positive polarity. Rotate clockwise to lock into place.
5. **Thermal Breaker** - The POWER MIG 360MP features a resettable 15 amp circuit breaker. If the current conducted through the breaker exceeds 15 amps for an extended period of time, the breaker will open and require manual reset.

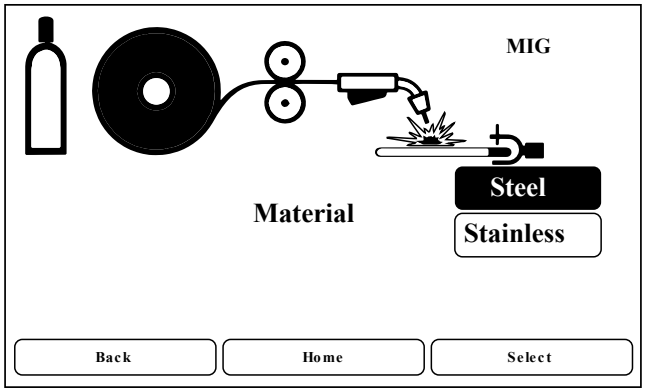
READY.SET.WELD™

The POWER MIG 360MP comes equipped with Ready.Set.Weld which allows the user to easily select the correct welding procedure per their application.

Select Your Process

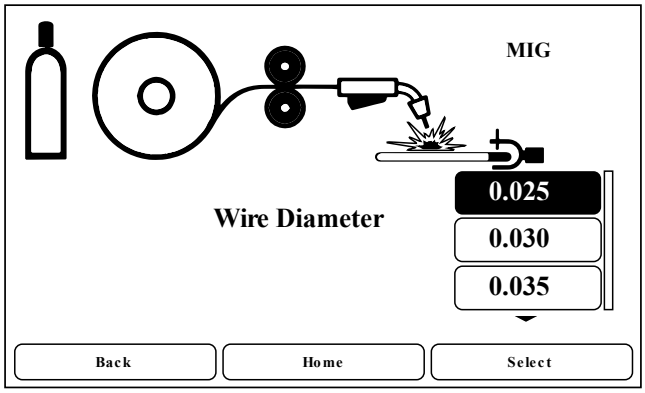


Select Your Material

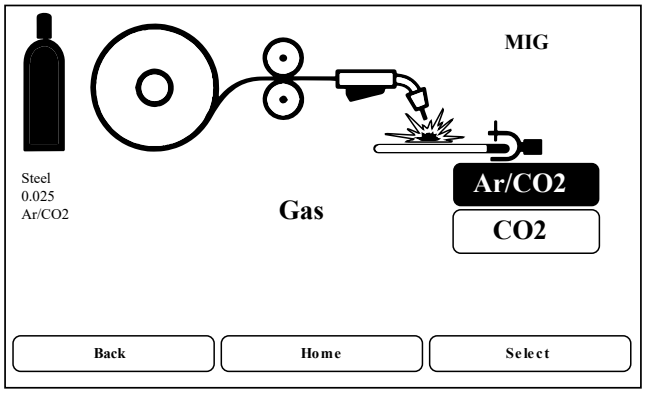


Select Wire Diameter

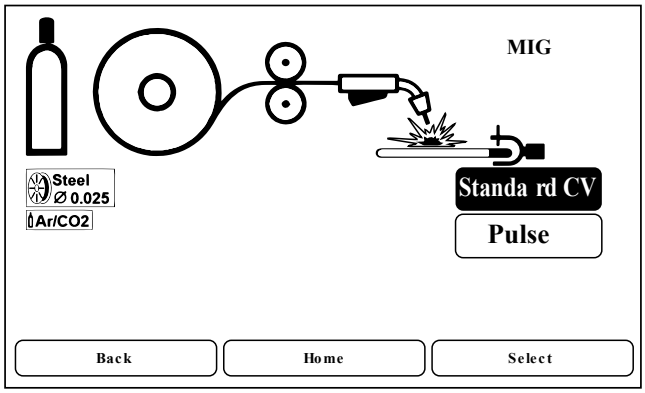
Ensure contact tip, liner, and drive rolls match wire size.



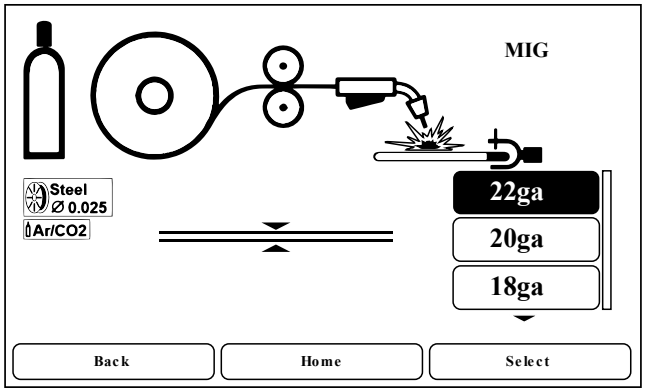
Select Gas (If Applicable)



Select Wave Form Type (If Applicable)

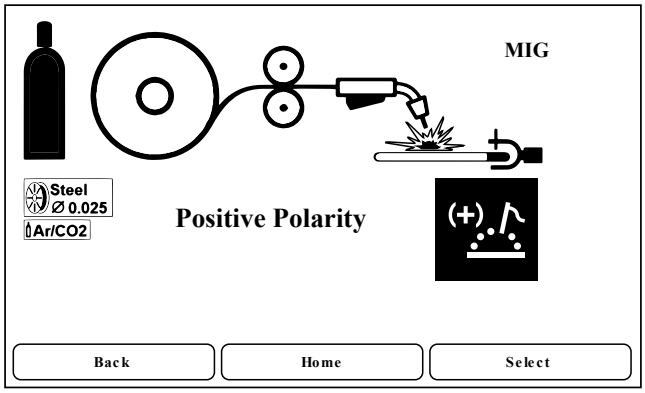


Select The Thickness Of The Material To Be Welded



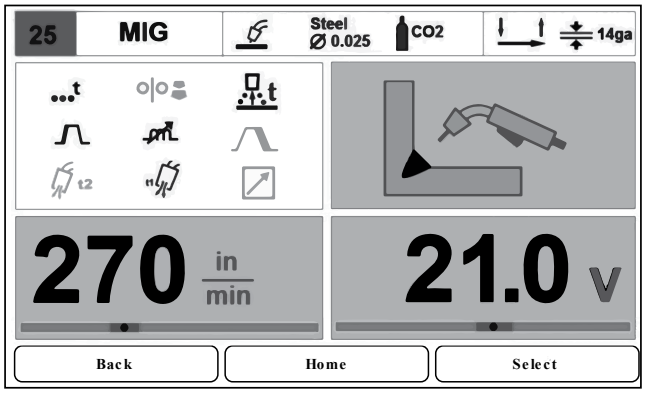
Confirm Polarity

Turn off machine before changing polarity.



Adjust Wire Feed Speed And Voltage/Trim Accordingly

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



WELD PROCESSES MENU

Manual MIG

See section on installing wire and setting up MIG gun.

Use this process to bypass Ready.Set.Weld options and manually input MIG welding wire feed speed and voltage.

MIG (GMAW) / Flux Core (FCAW) / Gas Shielded Flux Core (FCAW-G)

Follow Ready.Set.Weld prompts and insert parameters per your application.

Once on the home screen, use the left selector knob to adjust the wire feed speed.

For CV processes, use the right selector knob to adjust voltage.

For pulse processes, use the right selector knob to adjust trim.

Trim adjusts the arc length and ranges from 0.50 to 1.50 with a nominal value of 1.00. Trim values greater than 1.00 increase the arc length, while values less than 1.00 decrease the length.

Access Pulse and Pulse-on-Pulse via the Weld Settings menu. See SPECIAL WELDING PROCESS on page B-12 for further details.

Spool Gun/Push-Pull

These modes are used for use with an optional spool or push-pull gun.

These processes may require the calibration of your gun before use. You can choose to calibrate your gun in the Ready.Set.Weld options of this process.

When selecting a material, 4xxx indicates aluminum that is primarily alloyed with silicon. 5xxx indicates aluminum that is primarily alloyed with magnesium.

Once on the home screen, adjust the WFS via the remote pot on the gun.

For CV processes, use the right selector knob to adjust voltage.

For pulse processes, use the right selector knob to adjust trim.

Trim adjusts the arc length and ranges from 0.50 to 1.50 with a nominal value of 1.00. Trim values greater than 1.00 increase the arc length, while values less than 1.00 decrease the length.

TIG (GTAW)

Follow Ready.Set.Weld prompts and insert parameters per your application.

Use the right selector knob to adjust the weld current.

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

If no foot pedal is connected, you must turn on the weld output before welding. While on the Home Screen, turn on the weld output by turning the left selector knob clockwise. Turn off the welding output by turning the left selector knob counter clockwise.

If a foot pedal is connected, pressing the foot pedal turns on the welding output, and releasing the pedal turns off the output.

The welding output must be turned off before accessing the Weld Settings.

Access TIG Pulse via the Weld Settings menu. See SPECIAL WELDING PROCESS on page B-12 for further details.

Stick (SMAW)

Select between Soft or Crisp arc.

Soft: Has a less penetrating arc characteristic. For low hydrogen types of electrodes (E7018, E8018, E9018, etc) a softer arc is usually desirable.

Crisp: Has a higher energy arc characterized by more penetration. For cellulosic types of electrodes (E6010, E7010, E6011, etc) a higher energy arc is required to maintain arc stability. This is usually indicated when the electrode sticks to the work-piece or when the arc pops-out during manipulative technique.

You must turn on the weld output before welding. While on the Home Screen, turn on the weld output by turning the left selector knob clockwise. Turn off the welding output by turning the left selector knob counter clockwise.

The welding output must be turned off before accessing the Weld Settings.

WELD SETTINGS

The POWER MIG 360MP 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. The options available are dependent on the weld process that has been selected. The following section lists the weld settings that may available to adjust.

Any settings that have deviated from the default setting will be highlighted on the top left of the Home Screen.

ARC CONTROL - See ARC CONTROL on page B-10 .

CRATER - The crater is the end of the weld, which normally solidifies creating a concave surface. This can result in stresses that can cause cracks in the center of the crater. The purpose of the Crater control is to fill up the crater, so that its surface becomes flat.

HOT START - Adjusts current at start of weld to help prevent stubbing of the electrode.

PREFLOW - The Preflow setting allows a time to be selected for shielding gas to flow after the trigger is pulled and prior to wire feeding and establishing an arc.

BURNBACK - Setting the Burnback means setting the adjustable time delay between turning off the wire feeding and turning off the arc. Burnback helps to prevent wire sticking to the puddle.

FREQUENCY (PULSE TIG, PULSE-ON-PULSE, VERTICAL UP PULSE) - Adjusts the frequency of the pulse wave.

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

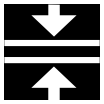
PULSE - Selecting this mode allows the user to toggle between standard CV TIG welding, and Pulse TIG. See Pulse TIG on page B-14 .

RUN-IN - The Run-In function offers the ability to set a wire feed speed, from trigger until an arc is established, that is independent of the Welding or Start wire feed speed. Setting a Run-In WFS lower than the welding WFS avoids stubbing problems when starting the arc.

SAVE - Allows you to save the parameters you have input to access later from the list of memories. See LOADING MEMORIES on page B-11 .

SPOT TIME - The Spot Timer adjusts arc on-time for spot or tack welds.

START - This machine provides the option of setting a Starting Procedure to start the weld, and from there, to ramp to the welding procedure over a specified amount of time. Typically starting on a higher starting procedure than the welding procedure is known as a “Hot Start”. Setting a starting procedure lower than the welding procedure is known as a “Cold Start”.



THICKNESS - Adjusts the material thickness parameter

TRIGGER - Toggles between single and double trigger mode. In single trigger mode, squeeze and release trigger to start and stop welding. In double trigger mode, squeeze and release trigger to start welding. Then squeeze and release trigger to stop welding.

The table below lists the weld process and which weld settings are available to change.

WELD SETTINGS								
	Arc Control	**Burnback**	**Crater**	**Hot Start**	**Preflow/ Postflow**	**Run In**	**Spot**	**Start**
CC-Stick	Yes	-----	-----	Yes	-----	-----	-----	Yes
CC-GTAW	Pulse	-----	-----	-----	Postflow Only	-----	-----	Yes
CV-FCAW	Yes	Yes	Yes	-----	-----	Yes	Yes	Yes
CV-GMAW	Yes	Yes	Yes	-----	Yes	Yes	Yes	Yes
CV-GMAW-P	Yes	Yes	Yes	-----	Yes	Yes	Yes	Yes
Power	Yes	Yes	Yes	-----	Yes	Yes	Yes	Yes

ARC CONTROL

The POWER MIG 360MP allows the user to make adjusts to the welding arc via the Weld Settings screen. Options available are dependent on the welding process you have selected. The table below lists the arc controls available per welding process.

Process	Arc Control Synonym	Setting	Application And Result
SMAW (STICK)	Arc Force	Lower (-1 to -10) for low hydrogen types of electrodes. Higher (+1 to +10) for cellulosic and other types.	Negative settings are soft and buttery for low hydrogen electrodes. Positive settings are harsh and digging for other types of electrodes.
Short circuiting metal transfer	Pinch Control	Setting -1 to -10 for softer higher energy arc. Setting +1 to +10 for a crisper lower energy arc.	Negative settings result in a more fluid puddle and larger droplet size. The positive settings reduce the droplet size and reduce energy to the arc.
Vertical Up, Pulse, Pulse-on-Pulse	Pulsed frequency control	Negative settings reduces frequency. Positive settings increase frequency.	Negative settings result in a wider bead with more distinct ripples. Positive settings narrow the resultant bead and the ripples are less distinct.
Pulse	Arc Control	Negative settings widen the arc cone. Positive settings focus the arc cone.	Negative settings result in a wider bead with more distinct ripples. Positive settings narrow the resultant arc and weld bead.

LEGACY WELD MODE

The POWER MIG 360MP has all the functionality of the Power MIG® 350, and more. If you are familiar with the weld modes of the Power MIG 350, you can access these weld modes via the Legacy Modes menu. You can scroll through the list of Legacy Weld Modes and access all the modes that were available on the Power MIG 350. Press the right selector knob to select a Legacy Mode. Turn the left and right selector knobs to make any adjustments to the WFS/Amperage and Voltage/Trim. See LIST OF LEGACY WELD MODES on page D-4 for the complete list of Legacy Weld Modes.

LOADING MEMORIES

The POWER MIG 360MP enables the user to save the Ready.Set.Weld and Weld Setting parameters they input in order to quickly access in the future.

To save your weld settings, access the Weld Settings from the Home Screen by pressing the right selector knob. Use the right selector knob to scroll to the Save icon. Select the save icon, and assign a spot in the list to save the settings to.

Note: Selecting a spot in the list that is already assigned to another weld process will overwrite the previous weld process.

To access the saved weld settings, from the home screen, press the middle button to select a weld process. Use the right selector knob to scroll to and select the Saved icon.

Scroll to the spot in the list you assigned your desired weld settings.

CONFIGURATIONS

REMOTE GUN POT - Disable or Enable Remote Gun Pot

MEASUREMENT SYSTEM - The units of measure can be chosen by the user. The units can be selected as metric or English. The default units are English.

FACTORY RESET - The user interface software settings can be reset to the original factory settings.

DEMO MODE - Selecting demo mode enables a series of automated transitions through the display screen that will provide the user a visual over view of the user interface and the machine's capabilities. Pressing any button while in Demo Mode will pause the demonstration for 30 seconds. In demo mode the output is disabled. To permit welding, the user must exit demo mode or power cycle the machine, or disable it via the Configurations Menu.

Voltage Calibration - Selecting voltage calibration mode allows a service technician the ability to calibrate the machine's output voltage. See MAINTENANCE on page D-1 for more details.

BRIGHTNESS - The brightness of the display can be adjusted within the settings option.

LANGUAGE - The language of the text present in the user interface software can be modified. The available language options are English, French and Spanish. The default language is English.

SYSTEM INFO - Information regarding the software revision of the user interface and the software revision of the inverter board is present in the information section.

Current Calibration - Selecting current calibration mode allows a service technician the ability to calibrate the machine's output current. See MAINTENANCE on page D-1 for more details.

SPECIAL WELDING PROCESS

PULSE WELDING

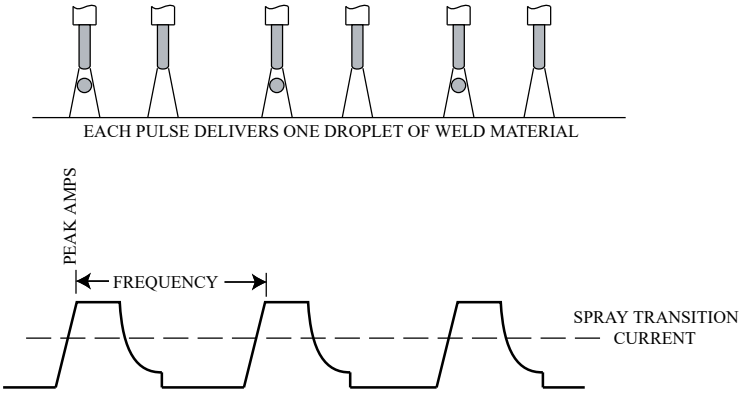
The pulsed-arc process is, by definition, a spray transfer process where in spray transfer occurs in pulses at regularly spaced intervals. In the time between pulses, the welding current is reduced and no metal transfer occurs.

Pulsed-arc transfer is obtained by operating a power source between low and high current levels. The high current level or "pulse" forces an electrode drop to the work piece. The low current level or "background" maintains the arc between pulses.

Pulsed MIG is an advanced form of welding that takes the best of all the other forms of transfer while minimizing or eliminating their disadvantages. Unlike short circuit, pulsed MIG does not create spatter or run the risk of cold lapping. The welding positions in pulsed MIG are not limited as they are with globular or spray and its wire use is definitely more efficient. Unlike the spray arc process, pulsing offers controlled

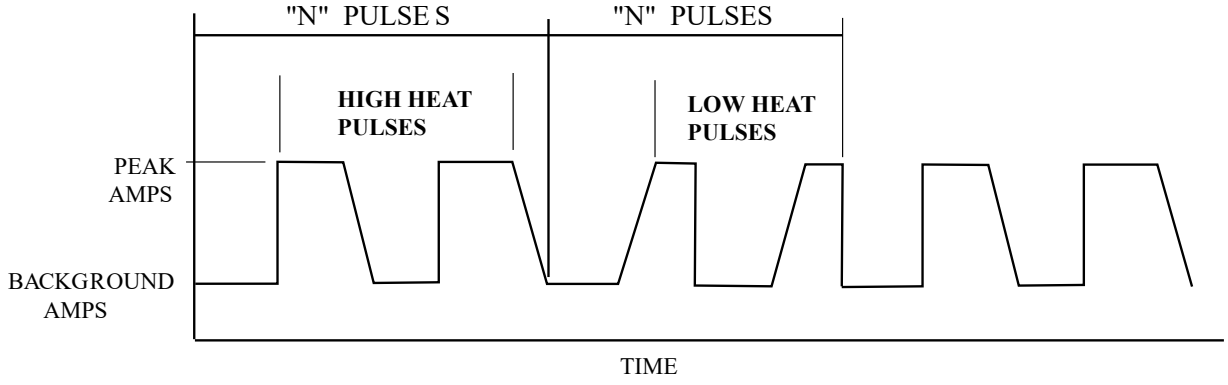
heat input that allows better welding on thin materials, lower wire feed speeds and leads to less distortion and improved overall quality and appearance. This is especially important with stainless, nickel and other alloys that are sensitive to heat input.

In Pulse MIG mode, arc control adjusts the background current and frequency of the wave. When arc control goes up, the frequency increases thus increasing the droplet transfer rate.

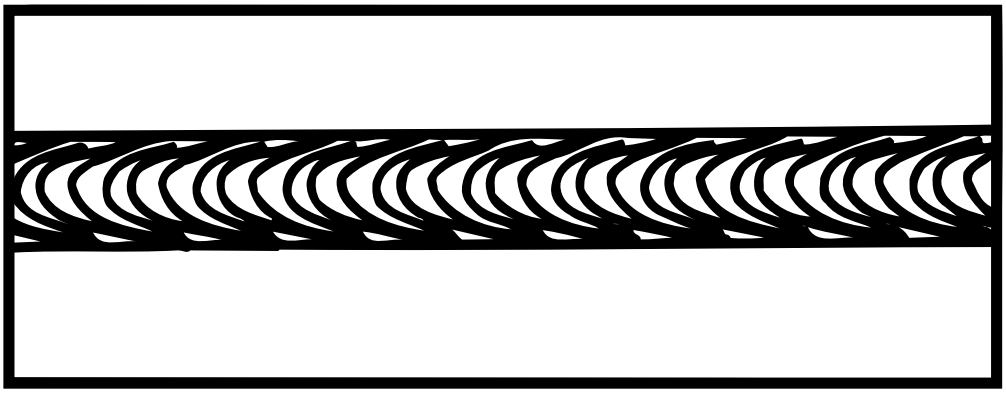


PULSE-ON-PULSE

Pulse on Pulse is a Lincoln process specifically designed for use in welding relatively thin (less than1/4" thick) aluminum. It gives weld beads with very consistent uniform ripple.



In Pulse on Pulse modes, two distinct pulse types are used, instead of the single pulse type normally used in GMAW-PA. number of high energy pulses are used to obtain spray transfer and transfer metal across the arc. Such pulses are shown in the Figure above. After a number "N" of such pulses, depending on the wire feed speed used, an identical number "N" of low energy pulses are performed. These low energy pulses, shown in the Figure above, do not transfer any filler metal across the arc and help to cool the arc and keep the heat input low.



The Peak Current, Background Current, and Frequency are identical for the high energy and low energy pulses. In addition to cooling the weld down, the major effect of the low energy pulses is that they form a weld ripple. Since they occur at very regular time intervals, the weld bead obtained is very uniform with a very consistent ripple pattern. In fact, the bead has its best appearance if no oscillation of the welding gun ("whipping") is used.

Pulse TIG

Use Pulse TIG welding to help minimize burn through on thin materials. It can help to increase travel speed and result in a smaller bead width. Lower heat input may lessen warpage of parts, especially stainless steel materials.

The Pulse TIG feature has a single knob control which sets the Pulse Frequency over the range of .5-19.5 Hz (0.5-19.5 pulses per second). Setting the frequency to "off" disables the Pulse TIG feature. The pulse setting automatically regulates the output current between the peak amperage, set by the max output current between the peak amperage, set by the max output control and the remote amptrol (if used), ad a background amperage setting that is equal to 60% of the peal amperage setting. The Peak pulse % on-time is fixed at 50%.

Power Mode®

The Power Mode process was developed by Lincoln to maintain a stable and smooth arc at low procedure settings which are needed to weld thin metal without pop-outs or burning-through. For Aluminum welding, it provides excellent control and the ability to maintain constant arc length. This results in improved welding performance in two primary types of applications.

- Short Arc MIG at low procedure settings.
- Aluminum MIG welding.

Power Mode is a method of high speed regulation of the output power whenever an arc is established. It provides a fast response to changes in the arc. The higher the Power Mode Setting, the longer the arc. If a welding procedure is not established, the best way to determine the Power Mode Setting is by experimentation until the desired output result is established.

In the Power Mode two variables need to be set:

- Wire Feed Speed
- Power Mode Trim

Setting up a Power Mode procedure is similar to setting a CV MIG procedure. Select a shielding gas appropriate for a short arc process.

- For steel, use 75/25 Ar/CO_2 shield gas.
- For Stainless, select a Helium/Argon/CO_2 blend.

- For Aluminum, use 100% Ar.

Start by setting the wire feed speed based upon material thickness and appropriate travel speed. Then adjust the Trim knob as follows.

- For steel, listen for the traditional “frying egg” sound of a good short-arc MIG procedure to know you have the process set correctly.
- For aluminum, simply adjust the Trim knob until the desired arc length is obtained.

Note: Trim display is simply a relative number and DOES NOT correspond to voltage.

DRIVE ROLLS

The drive rolls installed with the POWER MIG 360MP have two grooves one for .035” (0.9 mm) wire Solid Steel electrode and the other for .045” (1.1 mm) wire. Drive roll size is stenciled on each side of the drive roll. If feeding problems occur, check to make sure that the wire size and the drive roll size matches. See PROCEDURE FOR CHANGING DRIVE AND IDLE ROLL SETS on page B-15 in this section. This information also appears on the Procedure Decal on the door inside the wire compartment.

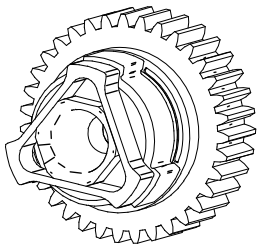
WIRE SIZE CONVERSION PARTS

The drive roll kits and Magnum PRO Curve 300 gun and cable parts are available to feed different sizes and types of electrodes.

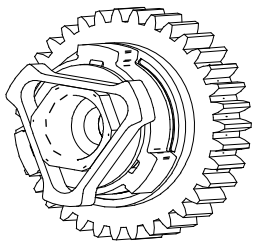
See ACCESSORIES AND OPTIONS on page C-1 .

PROCEDURE FOR CHANGING DRIVE AND IDLE ROLL SETS

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 as shown below and remove the drive roll.



UNLOCKED POSITION



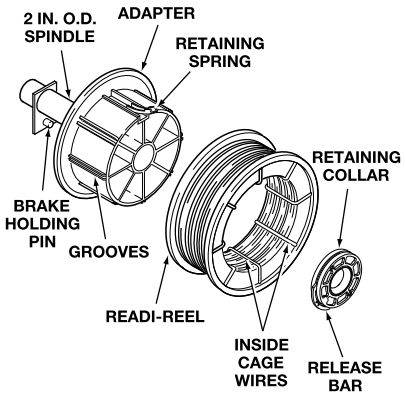
LOCKED POSITION

5. Remove the inside wire guide plate.
6. Replace the drive and idle rolls 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.

WIRE REEL LOADING - READI REELS, SPOOLS OR COILS

To Mount a 30 Lb. (14 kg) Readi-Reel Package (Using the Molded Plastic K363-P Readi-Reel Adapter:)



1. Open the Wire Drive Compartment Door.
2. Depress the Release Bar on the Retaining Collar and remove it from the spindle.
3. Place the Optional Adapter on the spindle.
4. Re-install the Retaining Collar. Make sure that the Release Bar "pops up" and that the collar retainers fully engage the retaining ring groove on the spindle.
5. Rotate the spindle and adapter so the retaining spring is at the 12 o'clock position.
6. Position the Readi-Reel so that it will rotate in a direction when feeding so as to be de-reeled from top of the coil.
7. Set one of the Readi-Reel inside cage wires on the slot in the retaining spring tab.
8. Lower the Readi-Reel to depress the retaining spring and align the other inside cage wires with the grooves in the molded adapter.
9. Slide cage all the way onto the adapter until the retaining spring "pops up" fully.

⚠ CAUTION

CHECK TO BE SURE THE RETAINING SPRING HAS FULLY RETURNED TO THE LOCKING POSITION AND HAS SECURELY LOCKED THE READI-REEL CAGE IN PLACE. RETAINING SPRING MUST REST ON THE CAGE, NOT THE WELDING ELECTRODE.

10. To remove Readi-Reel from Adapter, depress retaining spring tab with thumb while pulling the Readi-Reel cage from the molded adapter with both hands. Do not remove adapter from spindle.

To Mount 10 to 44 Lb. (4.5-20 kg) Spools (12"/300 mm Diameter) or 14 Lb. (6 Kg) Innershield Coils:

(For 13-14 lb. (6 Kg) Innershield coils, a K435 Coil Adapter must be used).

(For 10 lb. (4.5 Kg) 8 inch(203mm) diameter spools, a K468 spindle adapter must be used).

1. Open the Wire Drive Compartment Door.
2. Depress the Release Bar on the Retaining Collar and remove it from the spindle.
3. Place the spool on the spindle making certain the spindle brake pin enters one of the holes in the back side of the spool.

   Note: an arrow mark on the spindle lines up with the brake holding pin to assist in lining up a hole.

Be certain the wire comes off the reel in a direction so as to de-reel from the top of the coil.

4. Re-install the Retaining Collar. Make sure that the Release Bar "pops up" and that the collar retainers fully engage the retaining ring groove on the spindle.

TO START THE WELDER

Turn the "Power Switch" switch to "ON" With the desired voltage and wire speed selected, operate the gun trigger for welder output and to energize the wire feed motor.

FEEDING WIRE ELECTRODE

⚠ WARNING

When triggering, the electrode and drive mechanism are electrically "hot" relative to work and ground and remain "hot" several seconds after the gun trigger is released.

Note: Check that drive rolls, guide plates and gun parts are proper for the wire size and type being used. Refer to DRIVE ROLL KITS on page C-1 in the Accessories section.

1. Turn the Readi-Reel or spool until the free end of the electrode is accessible.
2. While securely holding the electrode, cut off the bent end and straighten the first six inches. (If the electrode is not properly straightened, it may not feed properly through the wire drive system).
3. 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. Leave the outer wire guide plate installed. Manually feed the wire through the incoming guide bushing and through the guide plates (over the drive roll groove). Push a sufficient wire length to assure that the wire has fed into the gun and cable assembly without restriction. Reposition the adjustable pressure arm to its original position to apply pressure to the wire.
4. Press gun trigger to feed the electrode wire through the gun.

IDLE ROLL PRESSURE SETTING

⚠ WARNING

ELECTRIC SHOCK can kill.

Turn the input power OFF at the welding power source before installation or changing drive rolls and/or guides.

Do not touch electrically live parts.

When inching with the gun trigger, electrode and drive mechanism are "hot" to work and ground and could remain energized several seconds after the gun trigger is released.

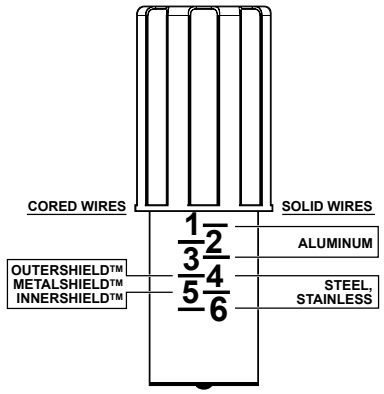
Only qualified personnel should perform maintenance work.

The pressure arm controls the amount of force the drive rolls exert on the wire. Proper adjustment of the pressure arm gives the best welding performance.

Set the pressure arm as follows:

Aluminum wires	between 1 and 3

Cored wires	between 4 and 5
Steel, Stainless wires	between 4 and 6



WIRE DRIVE CONFIGURATION

CHANGING THE GUN RECEIVER BUSHING

Tools required:

- 1/4" hex key wrench.

Note: Some gun bushings do not require the use of the thumb screw.

1. Turn power off at the welding power source.
2. Remove the welding wire from the wire drive.
3. Remove the thumb screw from the wire drive.
4. Remove the welding gun from the wire drive.
5. Loosen the socket head cap screw that holds the connector bar against the gun bushing.

   Important: Do not attempt to completely remove the socket head cap screw.
6. Remove the outer wire guide, and push the gun bushing out of the wire drive. Because of the precision fit, light tapping may be required to remove the gun bushing.
7. Disconnect the shielding gas hose from the gun bushing, if required.
8. Connect the shielding gas hose to the new gun bushing, if required.
9. Rotate the gun bushing until the thumb screw hole aligns with the thumb screw hole in the feed plate. Slide the gun receiver bushing into the wire drive and verify the thumb screw holes are aligned.
10. Tighten the socket head cap screw.
11. Insert the welding gun into the gun bushing and tighten the thumb screw.

MAKING A WELD

1. Check that the electrode polarity is correct for the process being used, then turn the power switch ON.
2. Set desired arc voltage and wire speed for the particular electrode wire, material type and thickness, and gas (for GMAW) being used.
3. Select the desired procedure as described in "Description of Controls" Section.
4. Press the trigger to feed the wire electrode through the gun and cable and then cut the electrode within approximately 3/8" (10 mm) of the end of the contact tip (3/4" (20 mm) Outershield).

   Note: If set for slow run-in when the trigger is pulled, the wire feeder feeds wire at low speed regardless of the set wire feed speed until the welding arc starts or 1 second has elapsed. This feature enhances starting and makes it easier to set the stickout. The 1 second limit permits high speed loading of the gun and cable. To change run-in mode, see "Run-In Mode" in Description of Controls Section.

5. If welding gas is to be used, turn on the gas supply and set the required flow rate (typically 25-35 CFH; 12-16 liters/min).
6. When using Innershield electrode, the gas nozzle may be removed from the insulation on the end of the gun and replaced with the gasless nozzle. This will give improved visibility and eliminate the possibility of the gas nozzle overheating.
7. Connect work cable to metal to be welded. Work clamp must make good electrical contact to the work. The work must also be grounded as stated in "Arc Welding Safety Precautions".

⚠ WARNING

When using an open arc process, it is necessary to use correct eye, head, and body protection.

8. Position electrode over joint. End of electrode may be lightly touching the work.
9. Lower welding helmet, close gun trigger, and begin welding. Hold the gun so the contact tip to work distance is about 3/8" (10 mm) (3/4" (20 mm) for Outershield).
10. To stop welding, release the gun trigger and then pull the gun away from the work after the arc goes out.
11. When no more welding is to be done, close valve on gas cylinder (if used), momentarily operate gun trigger to release gas pressure, and turn off POWER MIG 360MP.

AVOIDING WIRE FEEDING PROBLEMS

Wire feeding problems can be avoided by observing the following gun handling procedures:

- Do not kink or pull cable around sharp corners.
- Keep the gun cable as straight as possible when welding or loading electrode through cable.
- Do not allow dolly wheels or trucks to run over cables.
- Keep cable clean by following maintenance instructions.
- Use only clean, rust-free electrode. The Lincoln electrodes have proper surface lubrication.
- Replace contact tip when the arc starts to become unstable or the contact tip end is fused or deformed.
- Keep wire reel spindle brake tension to minimum required to prevent excess reel over-travel which may cause wire "loop-offs" from coil.
- Use proper drive rolls and wire drive idle roll pressure for wire size and type being used.

FAN CONTROL

The fan is designed to come on automatically when a weld arc is established. The fan will also stay on when the machine's welding and feeding are disabled during thermostatic over temperature protection. (See WELDING THERMAL OVERLOAD PROTECTION on page B-20)

INPUT LINE VOLTAGE PROTECTION

High Line Voltage - If the line voltage exceeds 110% of rated input voltage, the output will be reduced to the lower level to protect voltage rating of the capacitor bank.

Low Line Voltage - You may not be able to get maximum output from the machine if the line voltage is less than rated input. The unit will continue to weld, but the output may be less than what is set.

WIRE FEED OVERLOAD PROTECTION

The POWER MIG 360MP has solid state overload protection of the wire drive motor. If the motor becomes overloaded, the protection circuitry turns off the wire feed speed weld output and gas solenoid. Check for 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, as the protection is done with reliable solid state electronics.

WELDING THERMAL OVERLOAD PROTECTION

The POWER MIG 360MP has built-in protective thermostats that respond to excessive temperature. They open the wire feed and welder output circuits if the machine exceeds the maximum safe operating temperature because of a frequent overload, or high ambient temperature plus overload. The thermostats automatically reset when the temperature reaches a safe operating level and welding and feeding are allowed again, when gun is re-triggered.

ACCESSORIES AND OPTIONS

DRIVE ROLL KITS

See Table below for various drive roll kits that are available for the POWER MIG 360MP. The item in Bold is supplied standard with the POWER MIG 360MP.

Wire	Wire Size	Drive Roll Kit
Solid Steel	.023"-.030" (0.6-0.8 mm)	KP1696-030S
	.035" (0.9 mm)	KP1696-035S
	.045" (1.1 mm)	KP1696-045S
	.035"-.045" (0.9-1.1 mm)	KP1696-1
	.040" (1.0 mm)	KP1696-2
Cored	.035" (0.9 mm)	KP1697-035C
	.045" (1.1 mm)	KP1697-045C
Aluminum	3/64" (1.2 mm)	KP1695-3/64A
	.035" (0.9 mm)	KP1695-035A

K3675-1 Canvas Cover

K1738-1 Spool Gun Holder for POWER MIG - provides neat storage of spool gun cable, and gas hose for POWER MIG. Also provide hardware for routing gas inside POWER MIG when using a Prince XL gun.

Note: included in K1809-1 and K2310-1

K468 Spindle Adapter- for 8" (203.2 mm) O.D. pool.

K363P READI-REEL ADAPTER - The K363P Readi-Reel Adapter mounts to the 2" spindle. It is needed to mount the 22-30 lb. Readi-Reels.

K435 Spindle Adapter for 14 lbs. coils - the K435 spindle adapter allows 14 lbs. (6kg.) Innershield coils to be mounted on 2" (51 mm) O.D. spindle.

K3676-1 Dual Cylinder Mounting Kit - Used to hold two gas bottles.

K4493-1 36VDC Power Supply - Used to power machine off of 120V input in order to display demo mode. To power the machine via the external power supply connect the power supply the 4-pin connector located on the front of the machine then plug in the power supply.

ALTERNATIVE MAGNUM GMAW GUN AND CABLE ASSEMBLIES

The following Magnum PRO 250L gun and cable assembly is separately available for use with the POWER MIG 360MP. Each is rated 200 amps 60% duty cycle (or 250 amps 40% duty) and is equipped with the integrated connector, twist-lock trigger connector, fixed nozzle and insulator, and includes a liner, diffuser, and contact tips for the wire sizes specified:

Length	Part No.	English Wire Size[1]	Metric Wire Size
15' (4.6 m)	K3081-2	.035 – .045"	0.9 – 1.2 mm

[1]Optional liners for different wire diameters are sold separately.

20’ and 25’ Magnum PRO Curve 300 Guns -

K2951-3 Magnum PRO Curve 300, 20’*

K2951-4 Magnum PRO Curve 300, 25'*

*Requires K466-6 adapter and KP44-3545-25 liner.

**Not compatible with dual procedure guns.

MAGNUM GUN CONNECTION KIT (OPTIONAL K466-6)

Using the optional K466-6 Magnum connection kit for the POWER MIG 360MP permits use of standard Magnum 200, 300 or 400 gun and cable assemblies.

SPOOL GUN

⚠ WARNING

Remove all input power to the POWER MIG 360MP before proceeding.

The POWER MIG 360MP provides direct connection and use of the Spool Gun (with remote speed control).

It also provides gun trigger switch transfer between the machine's use with its feeder gun or the spool gun for same polarity welding with different wire and gas processes.

K2490-1 Magnum 250LX

K487-25 Magnum SG Spool Gun (requires K2445-1 Cable Adapter)

K2445-1 Magnum SG Spool gun Control Cable Adapter. Allows the K487-25 Magnum SG spool gun's 6-pin control cable plug to connect to the POWER MIG 360MP's 7-pin spool gun control cable receptacle.

DUAL PROCEDURE

The POWER MIG 360MP is not dual procedure compatible.

MAINTENANCE

SAFETY PRECAUTIONS

⚠ WARNING

ELECTRIC SHOCK can kill.

Have an electrician install and service this equipment.

Turn the input power OFF at the fuse box before working on equipment.

Do not touch electrically hot parts.

See additional warning information throughout this Operator's Manual.

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 motors have sealed ball bearings which require 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.

For instructions on replacing or changing drive roll, see PROCEDURE FOR CHANGING DRIVE AND IDLE ROLL SETS on page B-15 in the Operation section.

CONTACT TIP AND GAS NOZZLE INSTALLATION

1. Choose the correct size contact tip for the electrode being used (wire size is stenciled on the side of the contact tip) and screw it snugly into the gas diffuser.
2. Screw the appropriate fixed gas nozzle fully onto the diffuser. Either the standard .50" (12.7 mm) flush nozzle or other optional flush or recessed (spray arc) nozzle sizes may be used. (Refer to www.lincolnelectric.com)
3. If using optional adjustable slip-on nozzles. (Refer to www.lincolnelectric.com)
   - Be sure the nozzle insulator is fully screwed onto the gun tube and does not block the gas holes in the diffuser.
   - Slip the appropriate gas nozzle onto the nozzle insulator. Either a standard .50" (12.7 mm) or optional .62" (15.9 mm) I.D. slip-on gas nozzle may be used and should be selected based on the welding application.

- Adjust the gas nozzle as appropriate for the GMAW process to be used. Typically, the contact tip end short-circuiting transfer process and .12" (3.2 mm) recessed for spray transfer.

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

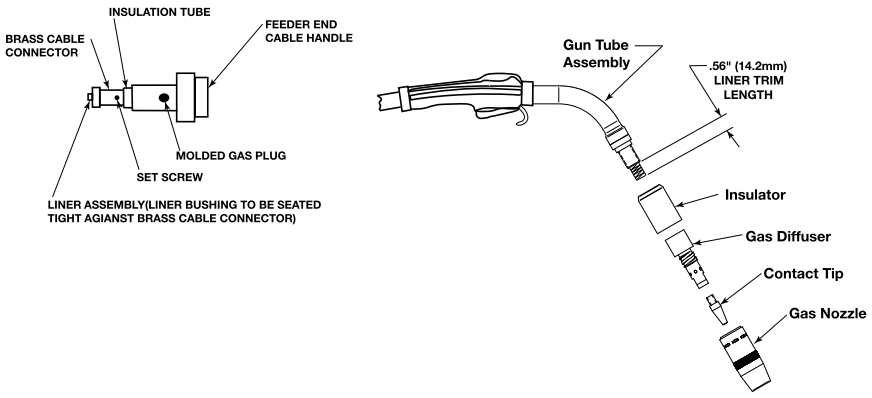
Excessive pressure at the beginning of the cleaning procedure may cause the dirt to form a plug.

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, try liner replacement, and refer to TROUBLESHOOTING on page E-1 for information on rough wire feeding.

LINER REMOVAL, INSTALLATION AND TRIMMING

Note: The variation in cable lengths prevents the interchange ability 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. Liners are shipped with the jacket of the liner extended the proper amount.

1. Remove the gas nozzle.
2. Remove the gas diffuser from the gun tube.
3. Lay gun and cable out straight on a flat surface. Loosen set screw of the connector on the back end of the gun.
4. Insert the untrimmed Liner into the back end of the gun.
5. Seat Liner bushing into back of gun. Secure Liner by tightening set screw. Do not install the gas diffuser at this time.
6. Lay the cable straight and trim Liner to 9/16”. Remove burrs.
7. Install insulator and secure the gas diffuser into the tube.



CURRENT CALIBRATION

1. Access the Current Calibration mode from the Configuration menu.
2. Connect work and output leads to a grid load. Set grid load to approximately 80-120 mΩ. (Grid load should produce 20-30 V when supplied with 250 A.)
3. Connect a certified calibrated current probe or current meter and shunt to the output circuit.
4. Select Adjust to calibrate the machine.
5. Adjust the right selector knob until the current probe or current meter reads 250 Amps.
6. Press the right selector knob to save the calibration settings.
7. To revert to the factory calibration settings, access the Current Calibration mode from the Configuration menu and select Factory.

VOLTAGE CALIBRATION

1. Access the Voltage Calibration mode from the Configuration menu.
2. Connect work and output leads to a grid load. Set grid load to approximately 80-120 mΩ. (Grid load should produce 20-30 V when supplied with 250 A.)
3. Connect a certified calibrated voltmeter to the output circuit.
4. Select Adjust to calibrate the machine.
5. Adjust the right selector knob until the voltage meter reads 20 Volts.
6. Press the right selector knob to save the calibration settings.
7. To revert to the factory calibration settings, access the Voltage Calibration mode from the Configuration menu and select Factory.

SPOOL / PUSH-PULL GUN CALIBRATION

Checking Calibration

A variety of factors affect the calibration of the Spool and Push-Pull Gun. Therefore it, is important to check the gun's calibration whenever the machine's input voltage is changed, or a new gun is connected to the machine. Follow the steps below to calibrate the gun:

1. Turn off all weld settings in the weld mode (pre/post flow, run-ins, tart/spot/crater time, and burn back).
2. Adjust wire feed speed to 360 (360 inches per minute = 60 inches in 10 sec).
3. Disengage the rear drive motor (By opening the tension lever).
4. Disconnect the gun from the gun receiver bushing and cut the wire at the front of the machine (Wire should run through the conduit only).
5. Make sure the gun and cable assembly are straight.

6. Using a stop watch, pull the trigger for 10 seconds.
7. Measure the wire from the tip of the torch to the end of the wire.
8. The wire should measure just under 60 inches.
9. Perform the gun calibration if the measurement is less than 57 or greater than 63.

Calibrating Spool Gun

1. To calibrate the spool gun, select Spool Gun from the Weld Process selection screen.
2. Select the appropriate gun from the list of spool gun options.
3. Select Manual calibration.
4. Adjust the offset to calibrate the spool gun. (Increase the offset if the wire measured in the Checking Calibration steps was too short. Decrease if it was too long.)
5. Press the right selector knob to select an offset.
6. Repeat the Checking Calibration steps above to confirm calibration. If wire measurement still deviates more than 3 inches, repeat calibration steps using different offset.

Calibrating Push-Pull Gun When Using Machine With: Magnum PRO AL, Magnum PRO Pistol And Magnum PRO Cougar

1. To calibrate the push-pull gun, select Push-Pull from the Weld Process selection screen.
2. Select the appropriate gun from the list of Push-Pull gun options.
3. Select either Auto Calibration or Manual calibration.

Auto Calibration: This procedure provides an automatic means to synchronize the speeds of the rear push motor and front pull motor. Before running the auto calibration procedure, make sure the machine and the gun cable are set up and ready for welding. Pull the gun trigger and hold it closed throughout the procedure. Wire will feed out of the gun while the calibration is being performed, however the welding output will NOT be energized. Wire will stop feeding when the calibration is complete. Auto calibration should be performed whenever the wire or gun is changed.

Manual Calibration: this procedure allows a direct adjustment on the pull motor speed by Offset value. The default is 90. A wire nesting or tangling issue can be resolved by increasing this value, and a wire slipping or shaving issue can be resolved by decreasing this value.

When using the machine with Custom push-pull guns, only manual calibration is available. This operation is described in the previous section.

LIST OF LEGACY WELD MODES

Mode	Process	Procedure	Wire Size	Wire Type	Gas Type	Arc Control
1	SMAW	Stick General Purpose				Arc Force
2	SMAW	Stick Crisp				Arc Force
3	GTAW	Touch Start TIG				
5	GMAW	CV MIG				Pinch
6	FCAW-S	CV Flux Core Self Shield				Pinch
7	FCAW-G	CV Flux Core Gas Shield				Pinch
8	GTAW	TIG Pulse (0.5 - 20 Hz)				Frequency
9	GTAW	TIG Pulse (20-300 Hz)				Frequency

Mode	Process	Procedure	Wire Size	Wire Type	Gas Type	Arc Control
10	GMAW	CV	.035in	Steel	CO_2	Pinch
11	GMAW	CV	.035in	Steel	Argon Blends	Pinch
14	GMAW	Pulse	.035in	Steel	Argon Blends	Arc Control
16	GMAW	Vertical Up Pulse	.035in	Steel	Argon Blends	Frequency Offset
19	GMAW	Pulse	.045in	Steel	Argon Blends	Arc Control
20	GMAW	CV	.045in	Steel	CO_2	Pinch
21	GMAW	CV	.045in	Steel	Argon Blends	Pinch
23	GMAW	Vertical Up Pulse	.045in	Steel	Argon Blends	Frequency Offset
28	GMAW	CV	.025in	Steel	CO_2	Pinch
29	GMAW	CV	.025in	Steel	Argon Blends	Pinch
30	GMAW	Pulse	.025in	Steel	Argon Blends	Arc Control
31	GMAW	CV	.035in	Stainless	Argon Blends	Pinch
32	GMAW	Pulse	.035in	Stainless	Argon Blends	Arc Control
33	GMAW	CV	.035in	Stainless	He Ar CO_2	Pinch
34	GMAW	Pulse	.035in	Stainless	He Ar CO_2	Arc Control
38	GMAW	Vertical Up Pulse	.035in	Stainless	Argon Blends	Frequency Offset
40	GMAW	Power Mode (Non Syn)		Gas Shield		Pinch
41	GMAW	CV	.045in	Stainless	Argon Blends	Pinch
42	GMAW	Pulse	.045in	Stainless	Argon Blends	Arc Control
43	GMAW	CV	.045in	Stainless	He Ar CO_2	Pinch
44	GMAW	Pulse	.045in	Stainless	He Ar CO_2	Arc Control
48	GMAW	Vertical Up Pulse	.045in	Stainless	Argon Blends	Frequency Offset
61	GMAW	CV	.030in	Stainless	Argon Blends	Pinch
62	GMAW	Pulse	.030in	Stainless	Argon Blends	Arc Control
63	GMAW	CV	.030in	Stainless	He Ar CO_2	Pinch
64	GMAW	Pulse	.030in	Stainless	He Ar CO_2	Arc Control
71	GMAW	CV	3/64in	Aluminum 4043	Argon	Pinch
72	GMAW	Pulse	3/64in	Aluminum 4043	Argon	Arc Control
75	GMAW	CV	3/64in	Aluminum 5356	Argon	Pinch
76	GMAW	Pulse	3/64in	Aluminum 5356	Argon	Arc Control
81	GMAW	CV	.045in	Metal Core	Argon Blends	Pinch
82	GMAW	Pulse	.045in	Metal Core	Argon Blends	Arc Control
83	GMAW	CV	.052in	Metal Core	Argon Blends	Pinch
84	GMAW	Pulse	.052in	Metal Core	Argon Blends	Arc Control
85	GMAW	CV	1/16in	Metal Core	Argon Blends	Pinch
86	GMAW	Pulse	1/16in	Metal Core	Argon Blends	Arc Control
93	GMAW	CV	.030in	Steel	CO_2	Pinch
94	GMAW	CV	.030in	Steel	Argon Blends	Pinch
95	GMAW	Pulse	.030in	Steel	Argon Blends	Arc Control

Mode	Process	Procedure	Wire Size	Wire Type	Gas Type	Arc Control
97	GMAW	Pulse On Pulse	.030in	Aluminum 4043	Argon	Modulation Freq
98	GMAW	Pulse On Pulse	.035in	Aluminum 4043	Argon	Modulation Freq
99	GMAW	Pulse On Pulse	3/64in	Aluminum 4043	Argon	Modulation Freq
101	GMAW	Pulse On Pulse	.035in	Aluminum 5356	Argon	Modulation Freq
102	GMAW	Pulse On Pulse	3/64in	Aluminum 5356	Argon	Modulation Freq
138	GMAW	CV	.040in	Steel	CO_2	Pinch
140	GMAW	Pulse	.040in	Steel	Argon Blends	Arc Control
146	GMAW	CV	.030in	Aluminum 4043	Argon	Pinch
147	GMAW	Pulse	.030in	Aluminum 4043	Argon	Arc Control
148	GMAW	CV	.035in	Aluminum 4043	Argon	Pinch
149	GMAW	Pulse	.035in	Aluminum 4043	Argon	Arc Control
151	GMAW	CV	.035in	Aluminum 5356	Argon	Pinch
152	GMAW	Pulse	.035in	Aluminum 5356	Argon	Arc Control
190	GMAW	Pulse	.030in	Si Bronze	Argon	Arc Control
191	GMAW	Pulse	.045in	Si Bronze	Argon	Arc Control
192	GMAW	Pulse	.035in	Si Bronze	Argon	Arc Control
196	GMAW	Pulse	.045in	Copper	75He/25Ar	Arc Control

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.

TROUBLESHOOTING GUIDE

Observe all Safety Guidelines detailed throughout this manual

PROBLEMS (SYMPTOMS)	POSSIBLE AREAS OF MISADJUSTMENTS(S)	RECOMMENDED COURSE OF ACTION
OUTPUT PROBLEMS		
Major physical or electrical damage is evident.	Do not plug in machine or turn it on. Contact your local Lincoln Authorized Field Service Facility.	If all recommended possible areas of misadjustments 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. Fans does NOT operate.	**1.** Make sure correct voltage is applied to the machine. **2.** Make certain that the power switch is in ON position. **3.** Make sure circuit breaker is reset.	
No wire feed, Weld output or gas flow when gun trigger is pulled. Fans operate 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 section. **3.** Gun trigger may be faulty.	
Arc is unstable - Poor starting.	**1.** Check for correct input voltage to machine. **2.** Check machine reconnect panel is configured properly for the applied voltage. **3.** Check gun tip for wear or damage and proper size - Replace. **4.** Check for proper gas and flow rate for process. **5.** Check work cable or loose for 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 AREAS OF MISADJUSTMENTS(S)	RECOMMENDED COURSE OF ACTION
OUTPUT PROBLEMS (CONT.)		
Output voltage and wire feed is present when gun trigger is not pulled (not activated).	**1.** Remove gun assembly from machine. If problem is solved, gun assembly is faulty. Repair or replace. **2.** If problem persists when gun assembly is removed from machine, then the problem is within the POWER MIG 360MP.	If all recommended possible areas of misadjustments have been checked and the problem persists, **Contact your local Lincoln Authorized Field Service Facility**.
Machine output is low. Welds are “cold”, weld bead is rounded or bumped up demonstrating poor wetting into plate.	**1.** Check input voltage. Make sure input voltage matches nameplate rating and reconnect panel configuration. **2.** Make sure settings for wire feed speed and voltage are correct for the process being used. **3.** Make sure output polarity is correct for process being used. **4.** Check welding cables and gun assembly for loose or faulty connections.	

PROBLEMS (SYMPTOMS)	POSSIBLE AREAS OF MISADJUSTMENTS(S)	RECOMMENDED COURSE OF ACTION
FEEDING PROBLEMS		
No wire feed when gun trigger is pulled. Fans run, gas flows and machine has correct open circuit voltage (38VMAX.) - 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. **4.** Check if the spool gun mode is selected on the screen. **5.** Check wire spindle for ease of rotation and adjust break tension knob if necessary.	If all recommended possible areas of misadjustments have been checked and the problem persists, **Contact your local Lincoln Authorized Field Service Facility**.
The wire feed stops while welding. When trigger is released and pulled again the wire feed starts.	**1.** Check the wire feed drive rolls and motor for smooth operation. **2.** Check for restrictions in the wire feed path. **3.** Make sure gun liner and tip are correct for wire size being used. **4.** Check spindle for ease of rotation. **5.** Make sure drive rolls and guide plates are clean and the correct size.	
No control of wire feed speed. Other machine functions are normal.	**1.** The wire feed speed control may be dirty. Rotate several times and check if problem is resolved.	

PROBLEMS (SYMPTOMS)	POSSIBLE AREAS OF MISADJUSTMENTS(S)	RECOMMENDED COURSE OF ACTION
GAS FLOW PROBLEMS		
Gas does not flow when gun trigger is pulled.	**1.** Make sure gas supply is connected properly and turned “ON”. **2.** If the gas solenoid does not actuate (click) when the gun trigger is pulled, there may be a restriction in the gas supply line. **3.** The gun cable assembly may be faulty. Check or replace. **4.** If gas solenoid does not operate when gun trigger is pulled, the problem is within the POWER MIG 360MP. **5.** Make sure the gun is pushed all the way into gun mount and is properly seated.	If all recommended possible areas of misadjustments have been checked and the problem persists, **Contact your local Lincoln Authorized Field Service Facility**.

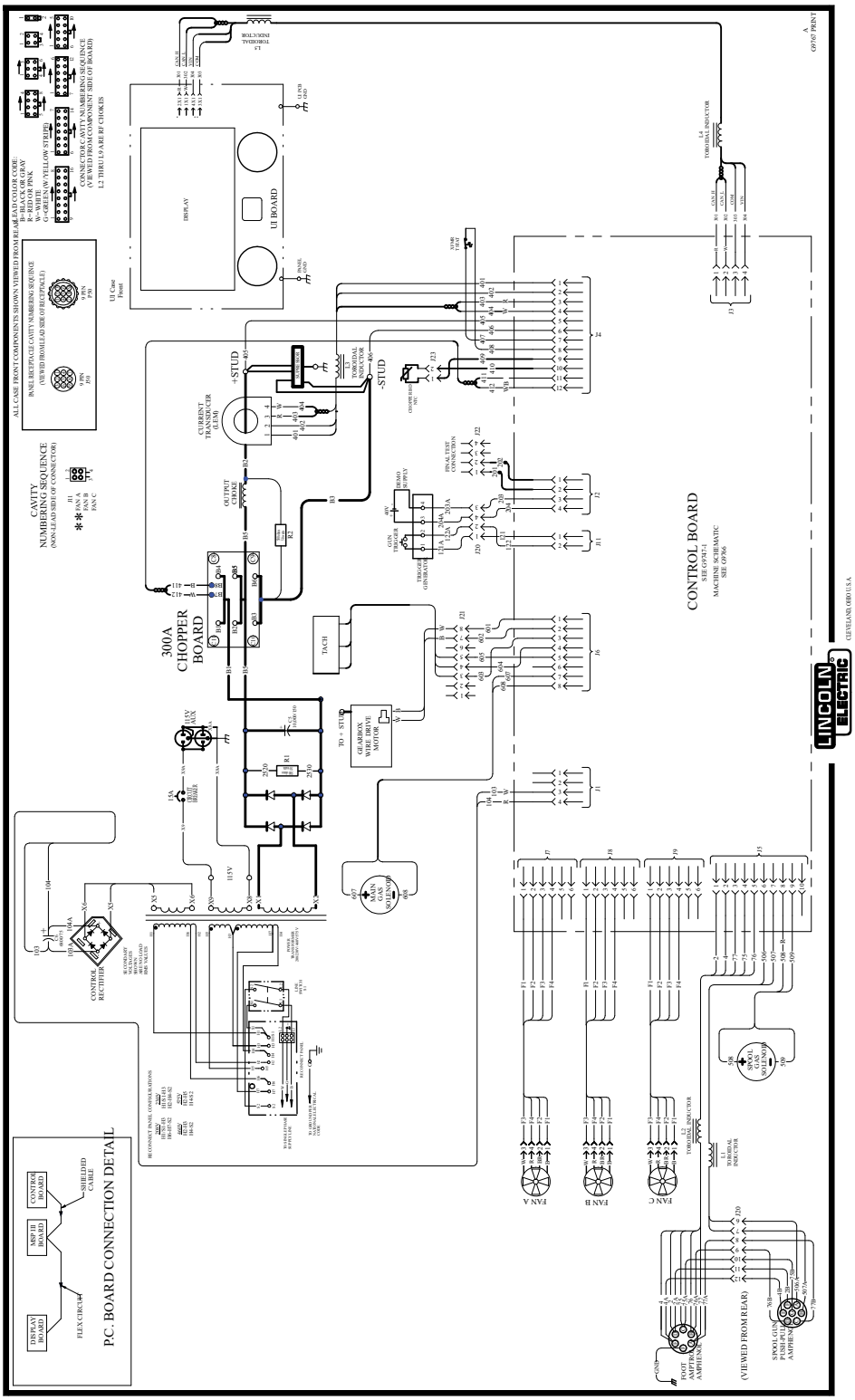
PROBLEMS (SYMPTOMS)	POSSIBLE AREAS OF MISADJUSTMENTS(S)	RECOMMENDED COURSE OF ACTION
SCREEN PROBLEMS		
Error code 213 is displayed on screen.	**1.** Communication between display P.C. board and power control board.	**1.** Cycle power to machine.
ERROR CODE 36, Thermal trip.	**1.** Machine is overloaded. **2.** Poor air flow.	**1.** Welding duty should not exceed machine rating. **2.** Not enough space behind the back of the machine.
ERROR CODE 81, Main motor overload.	**1.** Drive rolls don’t match wire size or wire type. **2.** Bad gun liner.	**1.** Check drive rolls. **2.** Try different gun.
ERROR 95, Gun motor overload.	**1.** Drive rolls don’t match wire size or wire type. **2.** Bad gun liner.	**1.** Check drive rolls. **2.** Try different gun.
ERROR CODE 213, Control board offline.	No communication between UI & Control PCB.	**1.** Check UI & Control board connection. **2.** Replace Control PCB.

PROBLEMS (SYMPTOMS)	POSSIBLE AREAS OF MISADJUSTMENTS(S)	RECOMMENDED COURSE OF ACTION
PUSH PULL WIRE FEEDING PROBLEMS		
While loading wire, the rear drive rolls stop while pushing wire through the torch.	**1.** Check torch cable for kinks. Torch cable should be laid out relatively straight. **2.** Check the wire at the spool. Make sure wire is not crossed and is de-reeling properly. **3.** Increase wire feed speed to 350-400 ipm.	If all recommended possible areas of misadjustments have been checked and the problem persists, **Contact your local Lincoln Authorized Field Service Facility**.
While loading wire, the wire bird nests before the wire gets all the way through the torch	**1.** Check torch cable for kinks. Torch cable should be laid out relatively straight **2.** Make sure liner conduit is inserted all the way into the rear wire drive so that it is up against the inner black plastic wire guide. **3.** Inner black plastic wire guide is worn out. Replace guide. **4.** Slow down wire feed speed while pushing wire up through the liner. Recommended setting = 350MP ipm. **5.** Clean or replace contact tip.	
While loading wire the wire bird nests if the wire misses the outlet guide while shooting the gap in the torch.	**1.** Straighten the first six inches of the wire before feeding it into the rear wire drive. **2.** Make sure the torch drive rolls are tightened slightly to help the wire jump the gap. **3.** Slow down wire feed speed while pushing wire through torch liner. Recommend setting = 350 ipm.	

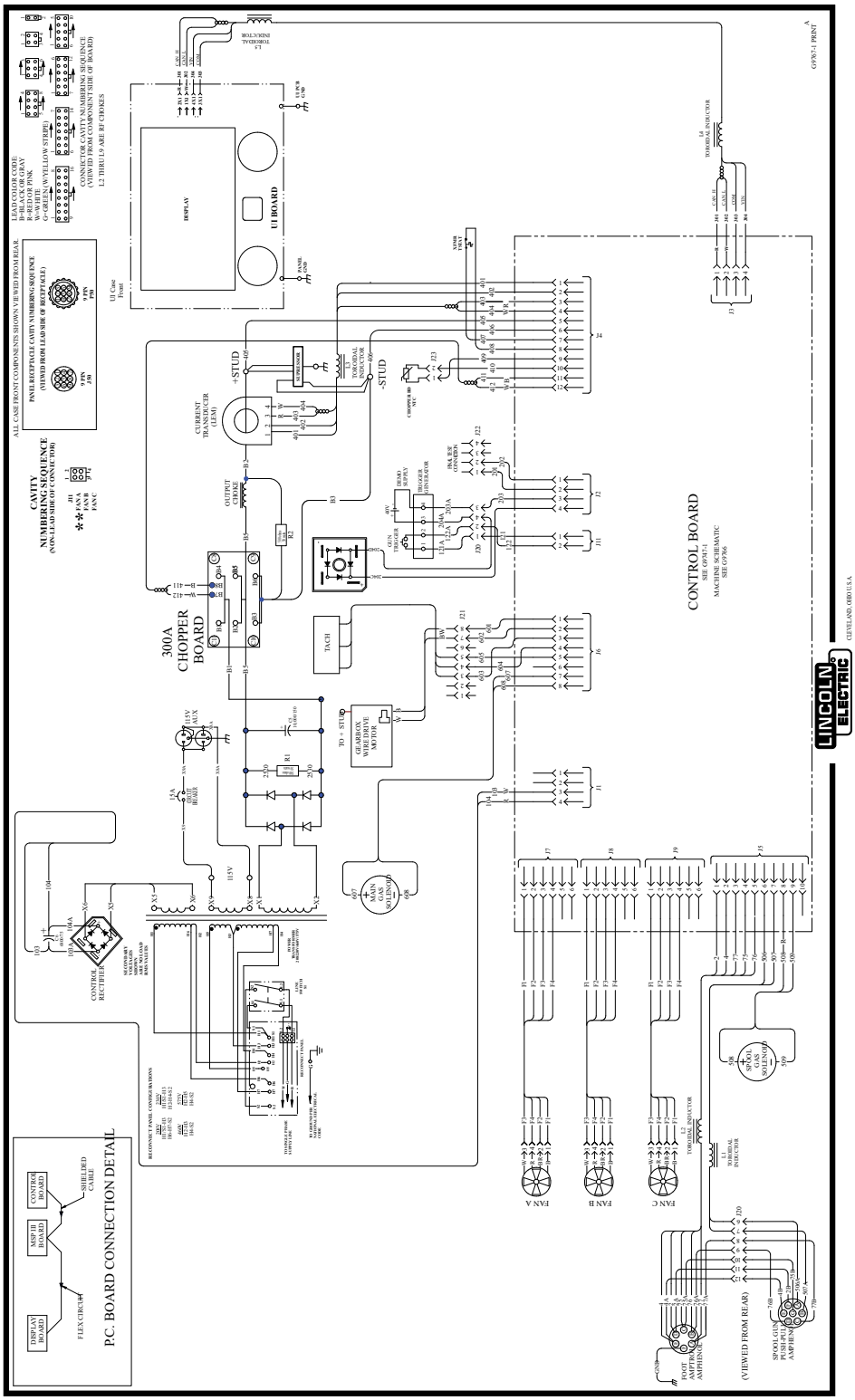
PROBLEMS (SYMPTOMS)	POSSIBLE AREAS OF MISADJUSTMENTS(S)	RECOMMENDED COURSE OF ACTION
PUSH PULL WIRE FEEDING PROBLEMS (CONT.)		
Arc length varies while welding (arc length is not constant).	**1.** POWER MIG 360MP drive rolls set too tight. The tension arm should be set at 1 to 1-1/2. **2.** Clean or replace contact tip.	If all recommended possible areas of misadjustments have been checked and the problem persists, **Contact your local Lincoln Authorized Field Service Facility**.
During Welding the wire continues to burn back to the tip.	**1.** Check to see that the spindle brake is not set too tight. There should be an aluminum spacer behind the spindle brake. Refer to the push-pull connection kit for this spacer. **2.** POWER MIG 360MP drive rolls set too tight. The tension arm should be set at 1 to 1-1/2. **3.** Push-Pull torch drive rolls set too tight. Refer to owners manual for proper setting. **4.** If pulse welding the trim value may be set too high. **5.** Clean or replace contact tip.	
Wire bird nests while welding.	**1.** Torch liner conduit not inserted all the way so that it is touching the inner black plastic wire guide. **2.** Inner black plastic wire guide is worn out. Replace guide. **3.** Push-Pull torch drive rolls set too tight. Refer to owners manual for proper setting.	

DIAGRAMS & PRINTS

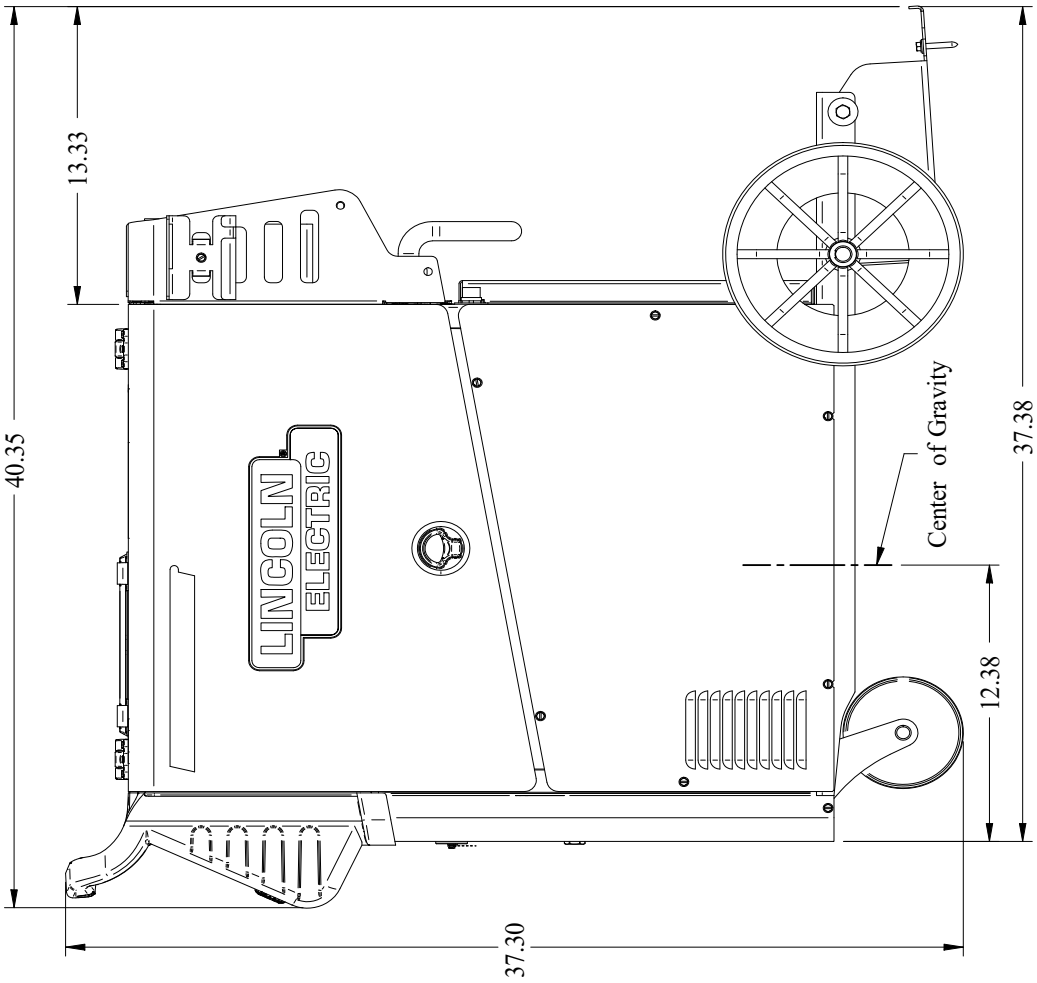
WIRING DIAGRAM CODE 12910



WIRING DIAGRAM CODE 13324, 13450



DIMENSIONS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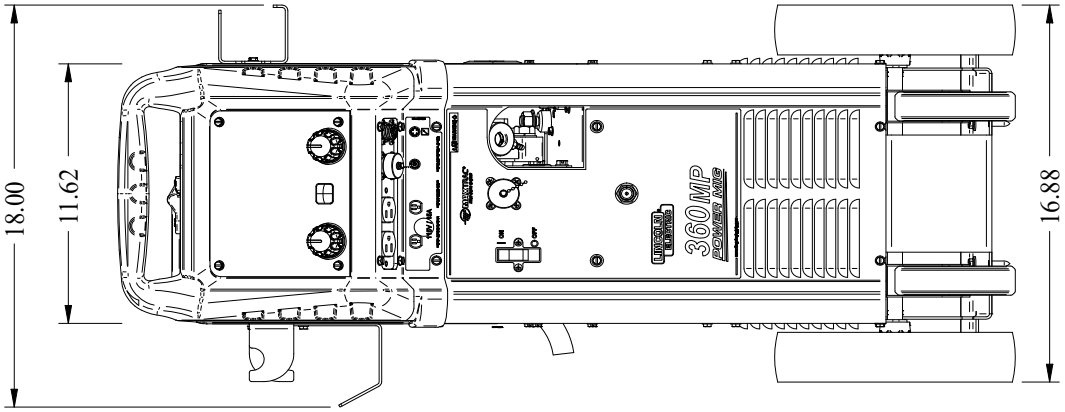
37.38
Center of Gravity
12.38
37.30
LINCOLN ELECTRIC


18.00
11.62
16.88
360MP
POWER MIG

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.