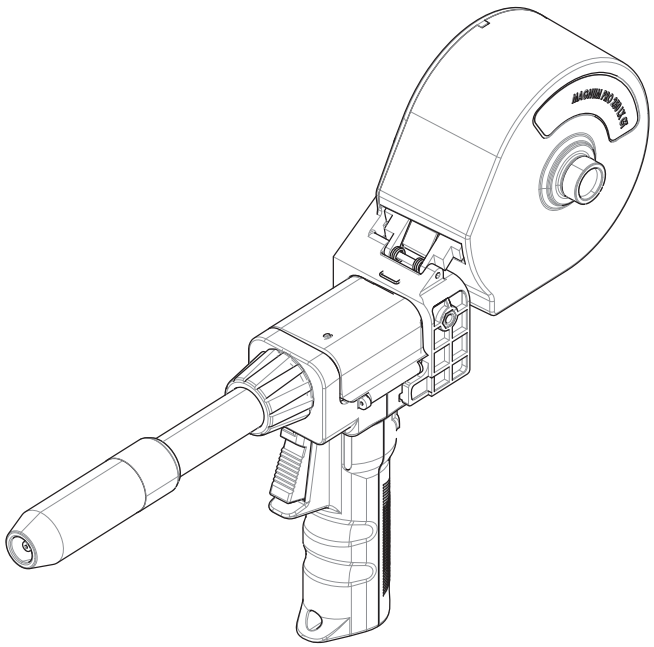
LINCOLN ELECTRIC

## Operator's Manual

# Magnum® PRO 250 LX & LX GT



K Number:

**K3569-2** Magnum PRO 250 LX GT

**K3570-2** Magnum PRO 250 LX

GENUINE LINCOLN PARTS™

**Register your machine:**
www.lincolnelectric.com/register

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

**Save for future reference**

Date Purchased

Code: (ex: 10859)

Serial: (ex: U1060512345)

**IM10484-A** | Issue Date Sep-23



**THE LINCOLN ELECTRIC COMPANY**
22801 St. Clair Avenue • Cleveland, OH • 44117-1199 • U.S.A.
Phone: +1.216.481.8100 • www.lincolnelectric.com

# 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 arc 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.

**⚠ WARNING**

This statement appears where the information must be followed exactly to avoid serious personal injury or loss of life.

**⚠ CAUTION**

This statement appears where the information must be followed to avoid minor personal injury or damage to this equipment.

## KEEP YOUR HEAD OUT OF THE FUMES.

**DON'T** get too close to the arc. Use corrective lenses if necessary to stay a reasonable distance away from the arc.

**READ** and obey the Safety Data Sheet (SDS) and the warning label that appears on all containers of welding materials.

**USE ENOUGH VENTILATION** or exhaust at the arc, 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 (See below).

**USE NATURAL DRAFTS** or fans to keep the fumes away from your face.

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

## WEAR CORRECT EYE, EAR & BODY PROTECTION

**PROTECT** your eyes and face with welding helmet 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 splatter, flash, and glare with protective screens or barriers.

**IN SOME AREAS**, protection from noise may be appropriate.

**BE SURE** protective equipment is in good condition.

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

## SPECIAL SITUATIONS

**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.

### Additional precautionary measures

**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.**

# SECTION A: WARNINGS

## 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.

**For more information go to www.P65 warnings.ca.gov/diesel**

**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.)***

**WARNING: Cancer and Reproductive Harm 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.

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

1.b. Operate engines in open, well-ventilated areas or vent the engine exhaust fumes outdoors.

1.c. 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.

1.d. 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.

1.e. 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.

1.f. 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.

1.g. 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.

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

1.i. Using a generator indoors CAN KILL YOU IN MINUTES.

1.j. Generator exhaust contains carbon monoxide. This is a poison you cannot see or smell.

1.k. NEVER use inside a home or garage, EVEN IF doors and windows are open.

1.l. Only use OUTSIDE and far away from windows, doors and vents.

1.m. Avoid other generator hazards. READ MANUAL BEFORE USE.

## ELECTRIC AND MAGNETIC FIELDS MAY BE DANGEROUS

2.a. Electric current flowing through any conductor causes localized Electric and Magnetic Fields (EMF). Welding current creates EMF fields around welding cables and welding machines

2.b. EMF fields may interfere with some pacemakers, and welders having a pacemaker should consult their physician before welding.

2.c. Exposure to EMF fields in welding may have other health effects which are now not known.

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

2.d.1. Route the electrode and work cables together - Secure them with tape when possible.

2.d.2. Never coil the electrode lead around your body.

2.d.3. 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.

2.d.4. Connect the work cable to the workpiece as close as possible to the area being welded.

2.d.5. Do not work next to welding power source.

## ELECTRIC SHOCK CAN KILL.

3.a. 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.

3.b. 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.

3.c. In semiautomatic or automatic wire welding, the electrode, electrode reel, welding head, nozzle or semiautomatic welding gun are also electrically “hot”.

3.d. 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.

3.e. Ground the work or metal to be welded to a good electrical (earth) ground.

3.f. Maintain the electrode holder, work clamp, welding cable and welding machine in good, safe operating condition. Replace damaged insulation.

3.g. Never dip the electrode in water for cooling.

3.h. 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.

3.i. When working above floor level, use a safety belt to protect yourself from a fall should you get a shock.

3.j. Also see Items 6.c. and 8.

## ARC RAYS CAN BURN.

4.a. 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. I standards.

4.b. Use suitable clothing made from durable flame-resistant material to protect your skin and that of your helpers from the arc rays.

4.c. 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.

5.a. 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.**

5. b. 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.

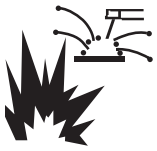
5.c. Do not weld in locations near chlorinated hydrocarbon vapors coming from degreasing, cleaning or spraying operations. The heat and rays of the arc can react with solvent vapors to form phosgene, a highly toxic gas, and other irritating products.

5.d. Shielding gases used for arc welding can displace air and cause injury or death. Always use enough ventilation, especially in confined areas, to insure breathing air is safe.

5.e. 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.

5.f. Also see item 1.b.

## WELDING AND CUTTING SPARKS CAN CAUSE FIRE OR EXPLOSION.



6.a. 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.

6.b. 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.

6.c. 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.

6.d. Do not heat, cut or weld tanks, drums or containers until the proper steps have been taken to insure 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 (see address above).

6.e. Vent hollow castings or containers before heating, cutting or welding. They may explode.

6.f. Sparks and spatter are thrown from the welding arc. Wear oil free protective garments such as leather gloves, heavy shirt, cuffless 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.

6.g. 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.

6.h. Also see item 1.c.

6.I. 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.

6.j. Do not use a welding power source for pipe thawing.

## CYLINDER MAY EXPLODE IF DAMAGED.

7.a. 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.

7.b. Always keep cylinders in an upright position securely chained to an undercarriage or fixed support.

7.c. 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.

7.d. Never allow the electrode, electrode holder or any other electrically "hot" parts to touch a cylinder.

7.e. Keep your head and face away from the cylinder valve outlet when opening the cylinder valve.

7.f. Valve protection caps should always be in place and hand tight except when the cylinder is in use or connected for use.

7.g. Read and follow the instructions on compressed gas cylinders, associated equipment, and CGA publication P-I, "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.

8.a. Turn off input power using the disconnect switch at the fuse box before working on the equipment.

8.b. Install equipment in accordance with the U.S. National Electrical Code, all local codes and the manufacturer's recommendations.

8.c. Ground the equipment in accordance with the U.S. National Electrical Code and the manufacturer's recommendations.

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

# INSTALLATION

## TECHNICAL SPECIFICATIONS -

K3569-2 Magnum PRO 250 LX GT
K3570-2 Magnum PRO 250 LX

## PRODUCT DESCRIPTION

The Magnum Pro 250 LX and Magnum Pro 250 LX GT spool guns are lightweight, handheld combined semiautomatic wire feeder and welding guns, designed primarily for aluminum welding using argon shielding gas. The feeding distance of the self-contained wire supply to the arc is only several inches, reducing the wire feeding problems normally associated with feeding soft aluminum electrode through a conventional gun and cable assembly. The cable included with the spool gun allows welding up to 25 feet (7.6 m) from the power source.

The spool gun is ideal for aluminum fabrication in industrial shops, automobile body shops, marinas and for the advanced hobbyist.

The Magnum PRO 250 LX GT was designed with an internal solenoid in it. With this gun you can have reliable gas flow while welding even when your machine doesn't have a solenoid in it. It has all the features of the Magnum PRO 250 LX and has been upgraded to withstand the harsh conditions of being used in rugged environments. **NOTE: Please turn off gas when not in use.**

## SPECIFICATIONS

| MAGNUM PRO 250 LX & LX GT | |
|---|---|
| **Wire Capacity** | Solid and Hard Wire .023”-.035"” (0.6mm-0.9mm) |
| | Aluminum and cored wire .030"-3/64” (0.8mm-1.2mm) |
| **Wire Speed** | 800 IPM MAX. |
| **Duty Cycle** | 300 amps @ 60% duty cycle using $CO_2$ |
| | 280 amps @ 60% duty cycle using Argon Gas |
| | 200 amps @ 100% duty cycle using Argon Gas |
| **Shipping Weight** | 17 Lbs. (7.7Kg.) |
| **Length** | 25 Ft. (7.6m) |
| **Coolant type:** | Air Cooled |
| **Product Specific Torch Data** | EN IEC 60974-7 |

## SUPPLIED WITH:

KP2745-364AT, 3/64" Contact Tip

KP2747-1A, Aluminum Diffuser (Installed)

KP2743-1-62RA, Aluminum Nozzle (Installed)

KP2773-1, Insulator, 550A

KP2518-2, Drive Roll (.030"-.035", 3/64")

KP3682-180, 180 Degree Barrel (Installed)

KP2879-5, 180 Degree Barrel Liner (Installed)

Instruction Manual

## RECOMMENDED PROCESSES AND EQUIPMENT

The spool gun can be used to weld aluminum and aluminum alloys using Gas Metal Arc Welding or GMAW (also known as MIG) process, which requires a supply of shielding gas. Argon is normally used due to its smooth, stable arc, good metal transfer, and low cost. Positive polarity gives good penetration and affords a base metal cathode cleaning effect.

## PRODUCT LIMITATIONS

24 VDC Input voltage

30 VDC Welding voltage using Argon shielding gas

## UNPACKING THE SPOOL GUN

### Safety Precautions

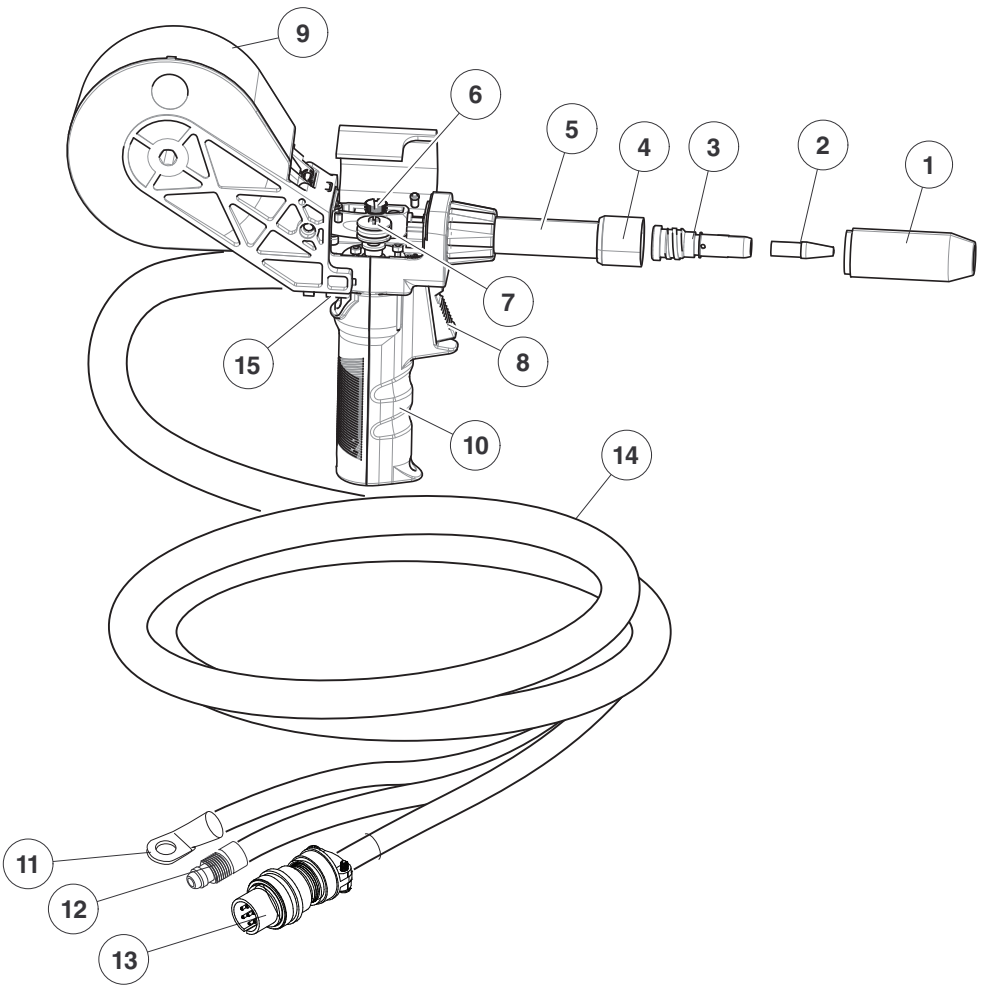
**⚠ WARNING**

- **Read "Safety Precautions" in the Operating Manual before proceeding. Only personnel that have read and understood the Operating Manual should install and operate this equipment.**
- **Power source must be turned "OFF" and power leads disconnected when installing this unit.**

Carefully unpack your Magnum PRO 250 LX Series Spool Gun and attach the Barrel Assembly, and make sure you have all of the parts listed.

| | |
|---|---|
| **KP2745-364AT** - Contact Tip 3/64" (1.2mm) | Included |
| **KP2747-1A** - Aluminum Gas Diffuser | Installed |
| **KP2743-1-62RA** - Aluminum Gas Nozzle, 1/8" Recess, .625" ID | Installed |
| **KP2518-2** - U-Groove Drive Roll (.030"-.035" and 3/64") | Installed for 3/64" |
| **KP3682-180** - 180 Degree Barrel | Installed |
| **KP2879-5** - 180 Degree Barrel Liner | Installed |
| **KP2773-1** - Insulator, 550A | Installed |

1. GAS NOZZLE
2. CONTACT TIP
3. GAS DIFFUSER
4. 550A INSULATOR
5. NECK
6. PRESSURE ROLLER
7. DRIVE ROLL
8. TRIGGER
9. ELECTRODE WIRE SPOOL COVER
10. FRONT HANDLE
11. POWER CABLE
12. GAS HOSE
13. 7 PIN CONTROL PLUG FOR TRIGGER, WIRE SPEED MOTOR
14. CABLE ASSEMBLY
15. WIRE SPEED CONTROL



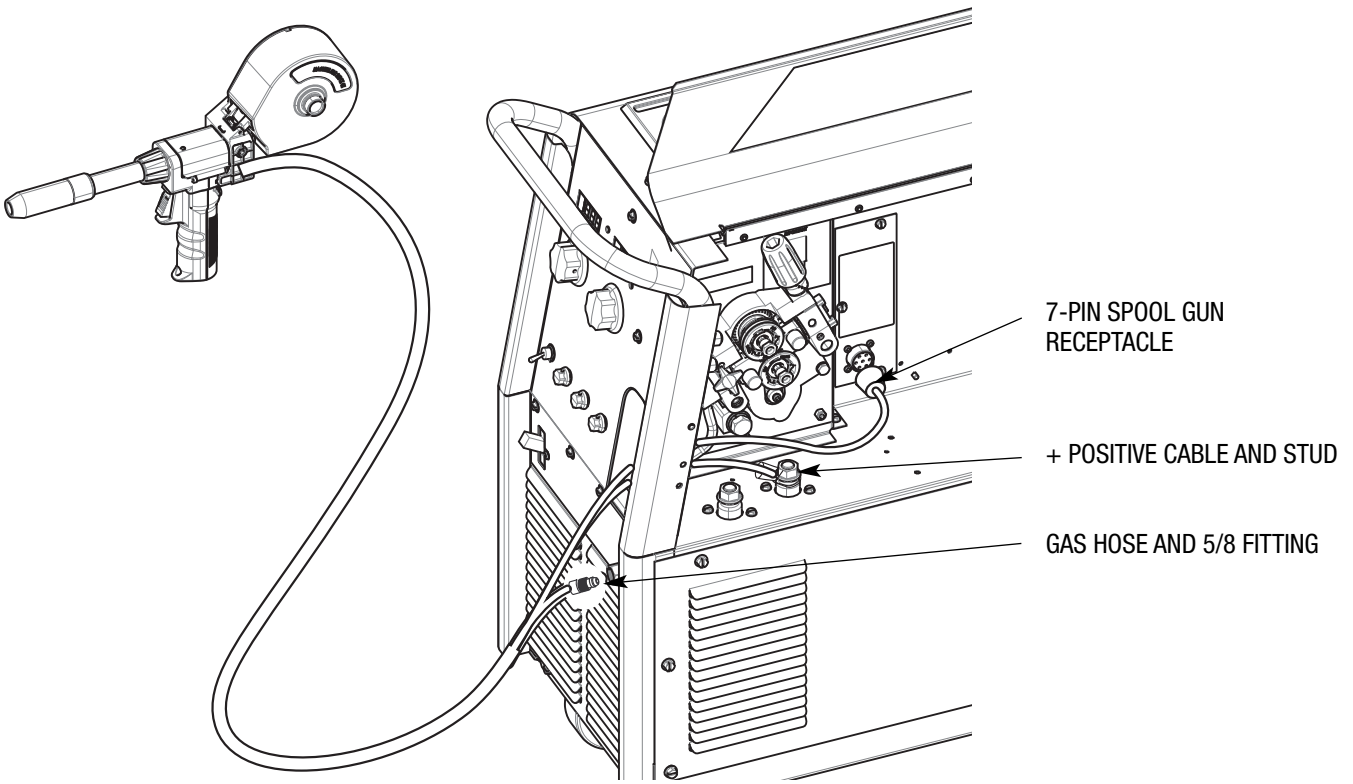
## SPOOL GUN FAMILIARIZATION

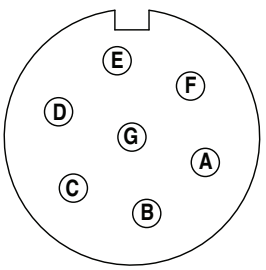
Become familiar with your spool gun before connecting to welder. For features described below, refer to the figure on the next page.

1. Handle, gun can be used in either right or left hand.
2. Trigger operates welding power, gas flow, and wire feed.
3. Remote wire speed control, located behind the handle, controls the speed of the drive motor.
4. Open body cover by flipping lid and observe the following:
   a. Wire drive release lever up position moves pressure roller away from drive roll to stop wire feed. Down position moves pressure roller to wire. Operate wire drive release lever and see pressure roller move.
   b. Drive roll with two wire grooves. Narrow groove feeds .030" (0.76mm) or .035" (0.9 mm) diameter wire. Wide groove feeds 3/64 inch (1.2 mm) diameter wire. The gun is shipped to weld 3/64" aluminum. The drive roll will be in the 3/64" operating position. Reverse roller for .030 or .035 inch (0.9 mm) diameter wire.
5. Gas nozzle directs gas flow around arc. Pull off gas nozzle to see contact tip and gas diffuser. Spool gun is shipped with 3/64" (1.2 mm) contact tip installed.
6. Electrode wire spool cover. Remove by unscrewing knob. Electrode wire goes into gun through rear plastic tube.
7. Cable assembly for power, control, and gas. Reassemble gun with spool of wire in spool holder. Hold gun and become familiar with gun's weight and balance.

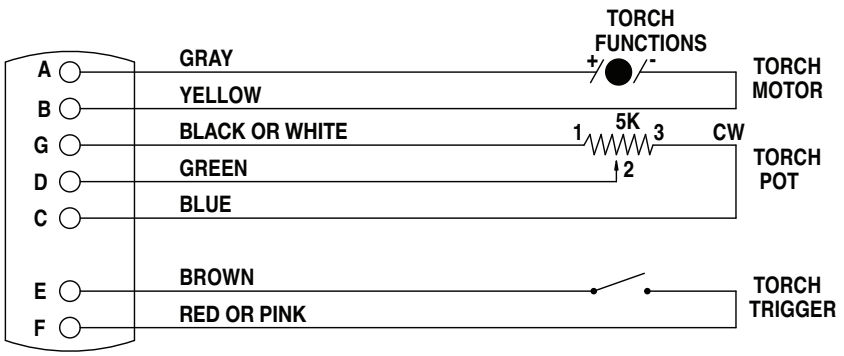
## CONNECTING TO POWER SOURCE:

1. Power source must be “off” and power cord disconnected.
2. Connect power cable to positive “+” stud. Connect work cable & clamp to “-” stud.
3. Connect 7-Pin control cable plug to power source receptacle.
4. Connect spool gun GAS hose to Gas solenoid fitting.
5. Reconnect power and turn on machine.




"W" CLOCKED CONNECTOR
(VIEWED FROM FRONT OF CONNECTOR)



# OPERATION

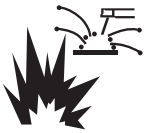
**Read and understand this entire section before operating the machine.**

## ⚠ WARNING

**ELECTRIC SHOCK can kill.**

- **Do not touch electrically live parts such as output terminals or internal wiring.**
- **Insulate yourself from the work and ground.**
- **Always wear dry insulating gloves.**

**WELDING SPARKS can cause fire or explosion.**



- **Keep flammable material away.**
- **Do not weld upon containers which have held combustibles.**

**ARC RAYS can burn.**

- **Wear eye, ear and body protection.**

**FUMES AND GASES can be dangerous.**

- **Keep your head out of fumes.**
- **Use ventilation or exhaust to remove fumes from breathing zone.**

## ⚠ WARNING

**When inching, (the electrode and drive mechanism are always electrically energized and remain energized several seconds after the gun trigger is released.**

### SETUP PROCEDURE

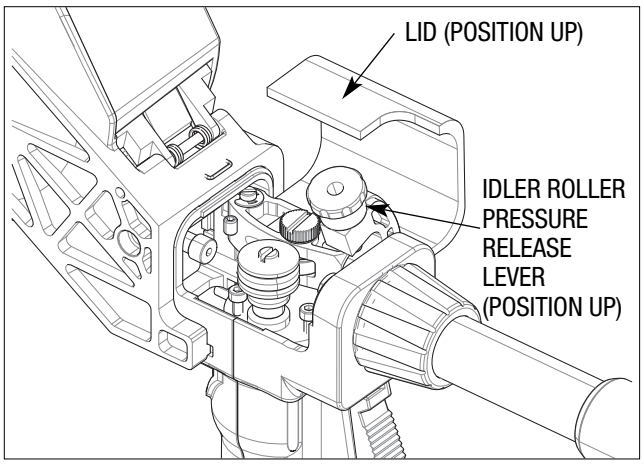
### Selecting Electrode Wire

Several alloy types of filler metals are available, and the best choice depends on the type of base metals and the desired characteristics of the weldment, such as ductility and strength, corrosion resistance, sustained service temperature, and anodic-treatment color matching. In addition, several wire sizes are available, and the choice here will depend upon several factors, including base metal thickness and the arc transfer process used.

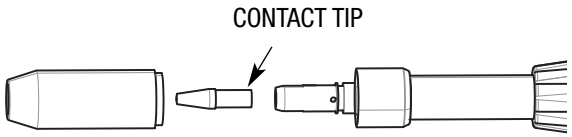
Consult your local dealer or appropriate AWS publication for help in selecting an appropriate alloy type and wire size. Also refer to, "Procedure Settings" later in this chapter, for wire sizes used with typical base metal thicknesses and procedure settings.

### Loading Electrode Wire:

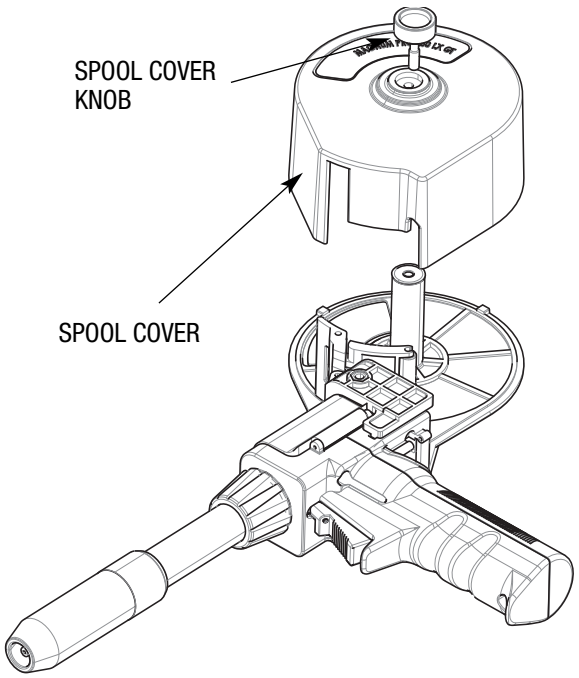
1. Unscrew gas nozzle and flip lid up on torch body then push idle roller [pressure release lever up.



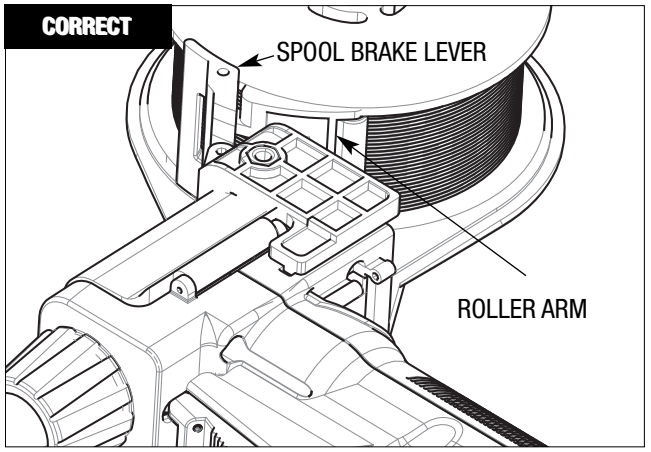

2. Unscrew and remove contact tip.

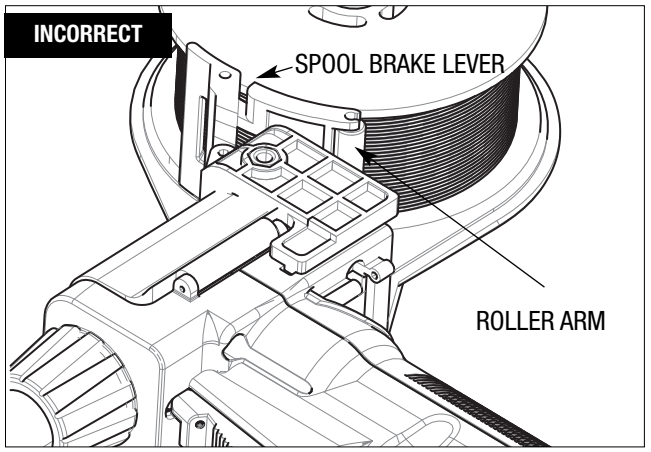



3. Unscrew spool cover knob and remove spool cover.

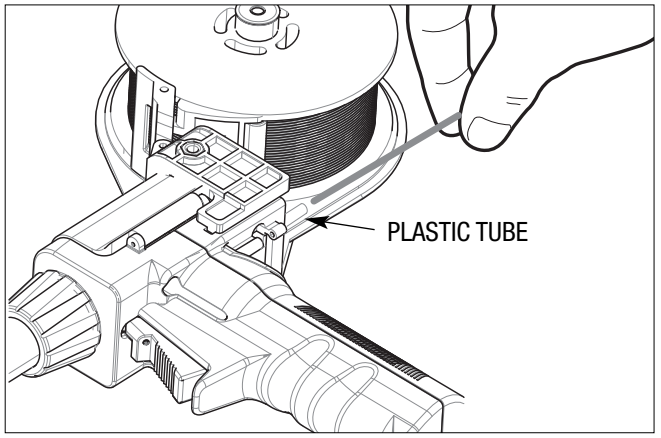


4. Select wire of size and type needed. Wire must be straight, with no kinks or bends. Check drive roller for the correct groove positioning for the size wire selected. See "Drive Roll Groove Selection", for details.
5. Put wire spool on shaft. After spool wire is in place, make sure the Spool Brake Lever is riding on outer flange of wire spool and, the Roller Arm is underneath of spool riding on wire.

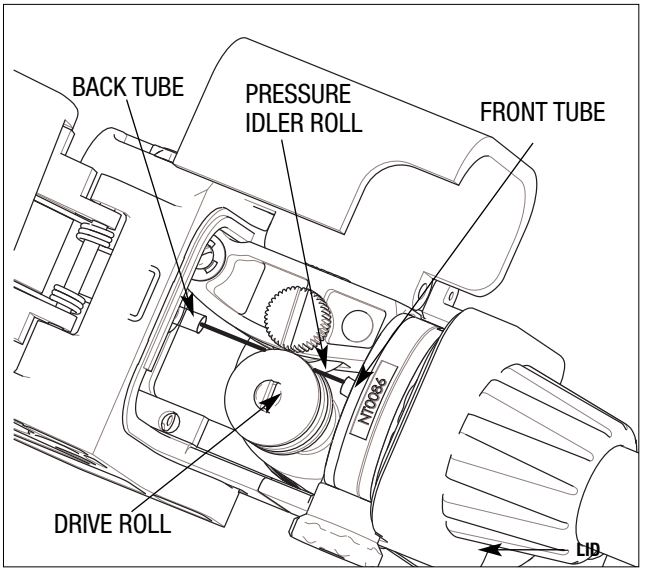


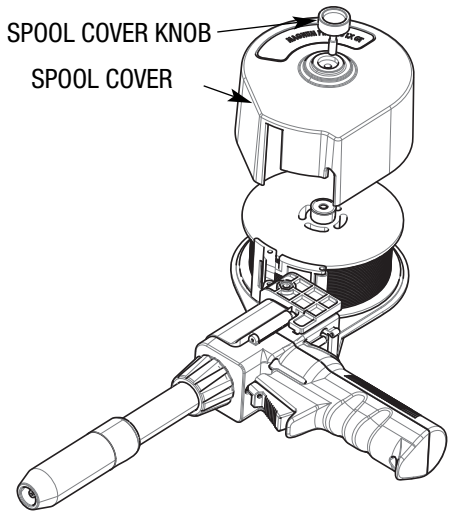

6. Unspool and straighten about 6 inches of wire, then route into plastic tube.



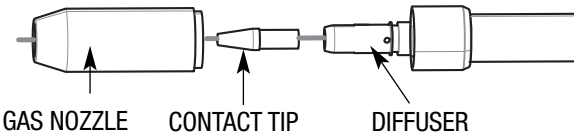

7. Push wire until end of wire exits back tube and enters front tube, passing between drive roll & pressure idler roll.




8. Push wire until wire end extends approximately 6" (150 mm) past end of gas diffuser. Re-engage idle roll pressure by pushing release lever down as shown above, then close lid.
9. Screw spool cover knob onto spool gun cover (making sure all keyways line up).




10. Obtain contact tip size to match wire selected. Slip contact tip over wire and screw into diffuser. Tighten securely.

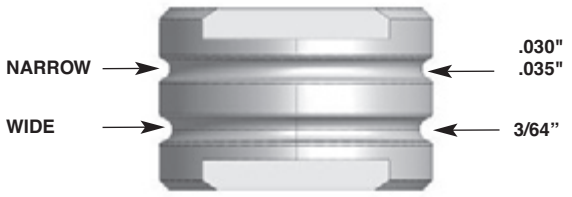



11. Cut off wire close to contact tip, then screw gas nozzle over the diffuser

## DRIVE ROLL GROOVE SELECTION

The drive roll has two grooves. A wider groove for feeding 3/64” (1.2mm) wire and a narrow groove for feeding .030"-.035” (0.8-0.9mm) wire to accommodate changes in the wire size used. Changing between the grooves simply requires reversing the drive roll.

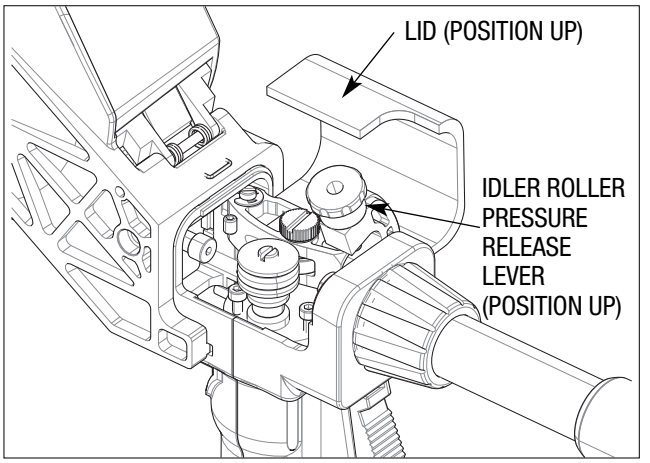
### A. Drive Roll Orientation



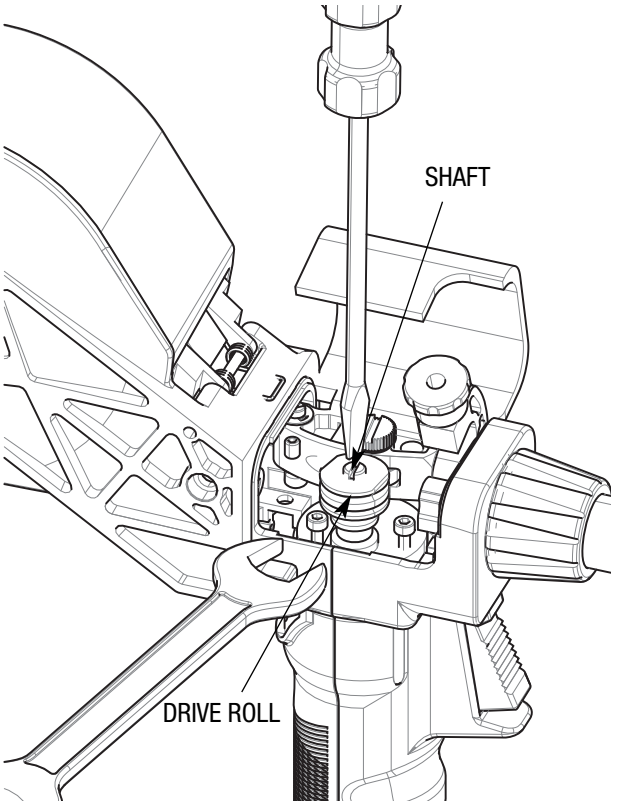

### B, Changing Drive Roll Orientation

**Note: The drive roll and motor shaft are left-hand thread.**

1. Flip lid open, then move release lever to the up position.




2. Take wrench (10mm) and loosen drive roll in a clock-wise direction while holding shaft with flat head screw driver. Flip drive roll and tighten in a counter-clockwise direction.



## MAKING A WELD

1. Check that the spool gun power, control, and gas connections are correct for the power source being used. Check that the gas supply is turned on. Check wire spool for an adequate supply of wire.
2. See "Procedure Settings" for wire feed speed and voltage settings. Set these controls depending on the welding wire and base metal thickness being used.
3. Connect work clamp to metal being welded. Work clamp must make good electrical contact to the workpiece. The workpiece must also be grounded as stated in "Arc Welding Safety Precautions".
4. Connect power to welder and turn "ON".
5. Prepare to purge gas line by first releasing wire drive. Push wire drive release lever to the UP position, to avoid feeding wire.

**⚠ WARNING**

**Gun body and contact tip become electrically energized when gun trigger is pressed and remain so for several seconds after trigger is released.**

6. Press and hold gun trigger for about 5 seconds to purge gas line. If adjustable regulator or metering valve is installed, adjust gas flow per, "Setting Gas Flow Rate".
7. Re-engage wire drive by pushing release lever to down position to feed wire.
8. Momentarily squeeze trigger and verify that wire feeds properly. Trim wire to approximately 1/4" (6 mm) from end of contact tip.

**⚠ WARNING**

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

9. Position gun over joint at 10° pushing angle. End of wire may be lightly touching the work.
10. Lower welding helmet, close gun trigger, and begin welding. Hold the gun so that the contact tip to work distance is about 1/2 inch (13 mm).
11. To stop welding, release the gun trigger and then pull the gun away from the work after the arc goes out.
12. When no more welding is to be done, close valve on gas cylinder, momentarily operate trigger to release gas pressure in line and turn off power source.
13. Note that clogged tips can often be salvaged by peeling away melted wire.

## MACHINE INSTRUCTIONS

See your machine's manual for how to calibrate and use your spool gun with your machine. If you don't have your machine's manual please go to Lincoln Electric's website and find the manual under the support section.

## PROCEDURE SETTINGS

The following procedure settings for 4043 aluminum wire and argon gas can be used as starting points for developing specific welding procedures:

| Wire Size | Metal Thickness | | Arc Volts | Wire Speed | Amps DC |
|---|---|---|---|---|---|
| in. (mm) | ga. | in. (mm) | | ipm (mpm) | (+) |
| .030 (0.8) | 22 | .030 (0.8) | 13-14(1) | 200 (5.1) | 40 |
| | 20 | .036 (1.0) | 13-14(1) | 240 (6.1) | 40 |
| | 18 | .048 (1.2) | 14-15(1) | 290 (7.4) | 50 |
| | 16 | .060 (1.6) | 15-16(1) | 340 (8.6) | 60 |
| | 14 | .075 (2.0) | 16-17(1) | 370 (9.4) | 70 |
| | 12 | .105 (2.5) | 16-18(1) | 430 (10.9) | 90 |
| | 10 | .135 (3.5) | 24-26 | 460 (11.7) | 110 |
| | 3/16 | (5.0) | 24-26 | 500 (12.7) | 150 |
| | 1/4 | (6.0) | 28-29 | 560 (14.2) | 180 |
| | 3/8 | (10.0) | 28-30 | 600 (15.2) | 200 |
| .035 (0.9) | 22 | .030 (0.8) | 13-14(1) | 150 (3.8) | 40 |
| | 20 | .036 (1.0) | 13-14(1) | 175 (4.4) | 40 |
| | 18 | .048 (1.2) | 13-14(1) | 215 (5.5) | 50 |
| | 16 | .060 (1.6) | 14-16(1) | 250 (6.4) | 60 |
| | 14 | .075 (2.0) | 14-16(1) | 270 (6.9) | 70 |
| | 12 | .105 (2.5) | 16-18(1) | 320 (8.1) | 90 |
| | 10 | .135 (3.5) | 24-26 | 410 (10.4) | 110 |
| | 3/16 | (5.0) | 24-26 | 450 (11.4) | 150 |
| | 1/4 | (6.0) | 26-28 | 530 (13.5) | 180 |
| | 3/8 | (10.0) | 26-29 | 560 (14.2) | 200 |
| | 1/2 | (12.0) | 26-30 | 600 (15.2) | 220 |
| 3/64 (1.2) | 10 | .135 (3.5) | 20-21(1) | 180 (4.6) | 110 |
| | 3/16 | (5.0) | 20-21(1) | 220 (5.6) | 150 |
| | 1/4 | (6.0) | 27-28 | 250 (6.4) | 180 |
| | 3/8 | (10.0) | 25-30 | 260 (6.6) | 200 |
| | 1/2 | (12.0) | 25-31 | 270 (6.9) | 220 |
| | 3/4 | (20.0) | 25-31 | 290 (7.4) | 250 |

(1)Short arc transfer.

## SETTING GAS FLOW RATE

Gas handling systems having adjustable flow valves should be set for the following argon flow rates, depending on base metal thickness and welding position.

### ARGON SHIELDING GAS FLOW RATES

| Material Thickness Inches and (mm) | Welding Position | Flow Rates In cf/hr (l/mln) |
|---|---|---|
| 1/16 (1.6 mm) | Flat | 30 (11.8) |
| 3/32 to 3/16 (2.4 to 4.8 mm) | Flat, Vertical, Horizontal, Overhead | 35 (14) |
| 1/4 to 3/8 (6.3 to 9.5 mm) | Flat, Vertical, Flat Vertical, Horizontal, Overhead | 35 (14)<br>35 (16.5)<br>40 (18.9) |
| 3/4 (19 mm) | Flat, Vertical, Horizontal, Overhead | 35 (16.5)<br>40 (18.9) |

# OPTIONAL KITS AND ACCESSORIES

**50 Foot Extension Cable** - A 50 foot cable extension that comes with a power cable, gas line, and control cable. Installation of a quick connect fitting will be required to use this. Instructions will be provided with the extension kit. **Order K3673-50**

**.025" / .035" Steel Drive Roll** - Features two grooves for feeding steel wire. The smaller groove feeds .025" wire. The larger groove feeds .035" wire. **Order KP2518-1**

**For smaller steel wire diameters and front end expendables:**

| | |
|---|---|
| 350 Thread-On Diffuser | **Order KP2746-1** |
| 350 Thread-On Nozzle | **Order KP2742-1-62R** |
| 350A Insulator | **Order KP2773-2** |
| 45/60 Degree Barrel Liner | **Order KP2879-1** |
| 180 Degree Barrel Liner | **Order KP2879-2** |

**Contact tips:**

| | |
|---|---|
| .025" Steel | **Order KP2744-025** |
| .030" Steel | **Order KP2744-030** |
| .035" Steel | **Order KP2744-035** |
| .030" Aluminum | **Order KP2744-030A** |
| .035" Aluminum | **Order KP2744-035AT** |
| 3/64" Aluminum (4XXX Series) | **Order KP2744-364AT** |
| 3/64" Aluminum (5XXX Series) | **Order KP2744-364AT5356** |

**.030" - .035" / 3/64" Aluminum Drive Roll -** Features two grooves for feeding aluminum wire. The smaller groove feeds .030" to .035" wire. The larger groove feeds 3/64" wire.

**Barrel Liners -** 550A Front expendable liners for feeding up to 3/64" wire.

| | |
|---|---|
| 180 Degree Barrel Liner | **Order KP2879-5** |
| 45/60 Degree Barrel Liner | **Order KP2879-4** |

**Gas Diffuser -** 550A Diffuser designed to accept thread on gas nozzles **Order KP2747-1A**

**Gas Nozzle** - .625" Thread on 550A Nozzle (Tip Recessed) **Order KP2743-1-62RA**

**Insulator**- For 550 Amp front end expendables. **Order KP2773-1**

**Contact Tips -** Both standard duty and heavy duty contact tips are available in a variety of sizes:

| | |
|---|---|
| .035" steel | **Order KP2745-035** |
| .030" Aluminum | **Order KP2745-030A** |
| .035" Aluminum | **Order KP2745-035AT** |
| 3/64" Aluminum | **Order KP2745-364AT** |
| 3/64" Aluminum (5XXX series) | **Order KP2745-364AT5356** |

# MAINTENANCE

## ⚠ 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.**
- **Do not operate with covers, panels or guards removed or open.**
- **Only qualified personnel should perform maintenance work.**

---

### ROUTINE MAINTENANCE

Periodically blow out or vacuum any metal wire shavings from Drive Roll area.

Inspect and replace any worn wire on inlet guide or barrel liner.

NOTE: Oil and spray cleaners can contaminate electrode wire and cause bad welds. They could also make wire drive rollers slip. Be careful when using any of these liquids on spool gun.

Carefully clean gun with a cleaner that is safe for plastic. Apply cleaner to rag and wipe gun. Do NOT spray cleaner on gun. Keep cable dean. Oil, grease gasoline, paint, and solvents degrade cable insulation.

**Routine maintenance for consumable spare parts will depend on Duty Cycle and particular application.**

Observe all Safety Guidelines detailed throughout this manual

# 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.

**Step 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.

**Step 2. POSSIBLE CAUSE.**

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

**Step 3. RECOMMENDED COURSE OF ACTION**

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

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

**⚠ WARNING**

**ELECTRIC SHOCK can kill.**

- **Turn off machine at the disconnect switch on the rear of the machine and remove main power supply connections before doing any troubleshooting.**

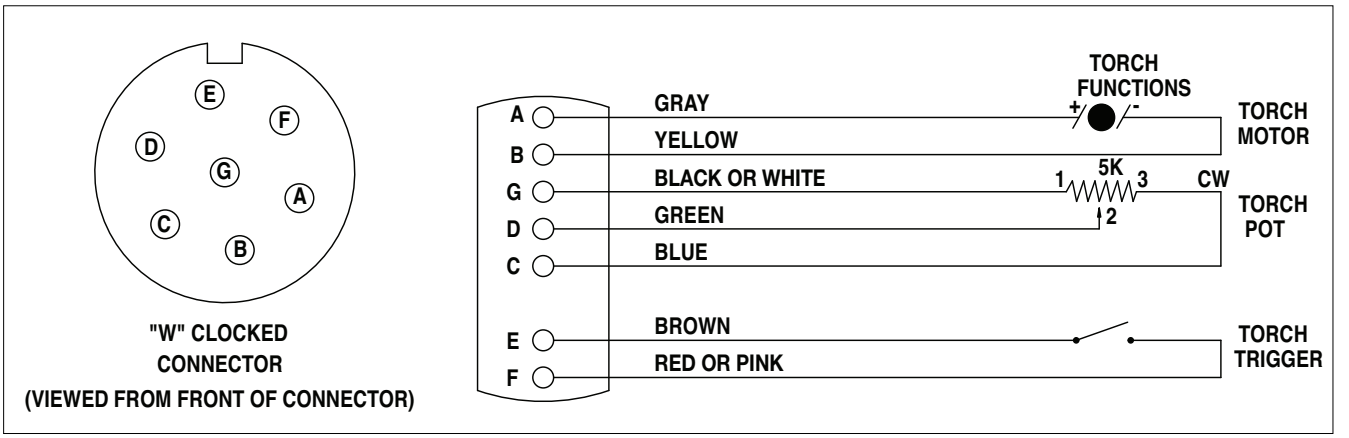
Observe all Safety Guidelines detailed throughout this manual

| PROBLEM (SYMPTOMS) | POSSIBLE AREAS OF MISADJUSTMENT(S) | RECOMMENDED COURSE OF ACTION |
|---|---|---|
| No arc, wire feed, or gas flow. | 1. Cable connections loose. | 1. Check all power connections. |
| | 2. Trigger switch loose or defective. | 2. Fix switch or replace. |
| | 3. Welder not turned on. | 3. Turn on welder power. |
| | 4. Welder not plugged in. | 4. Plug in. |
| | 5. Cable or adapter cable damaged. | 5. Inspect and replace |
| No arc, weak arc. | 1. Poor ground connection to work. | 1. Check ground connection. |
| | 2. Power cable connection loose. | 2. Check connections; if defective, replace cable or connectors. |
| | 3. Voltage set too low. | 3. Adjust to proper voltage |
| | 4. Tip too large for wire size. | 4. Change tip size. |
| | 5. Wire feed speed too slow. | 5. Increase wire feed speed. |
| No wire feed. | 1. Feeding small diameter wire with large groove on drive roller. | 1. Change position of wire drive roller. |
| | 2. Wire drive release open. | 2. Close wire drive release. |
| | 3. Wire welded to tip. | 3. Peel wire off tip or use new tip. |
| | 4. Wire spool empty. | 4. Insert new spool. |
| | 5. Tip too small for wire. | 5. Insert correct tip. |
| | 6. Kink or bend in wire. | 6. Pull wire through tip or start new wire end. |
| | 7. Spool cover binding. | 7. Rotate spool cover slot to proper position. |
| | 8. Control cable loose. | 8. Check all connections. |
| | 9. Drive roller worn. | 9. Replace. |
| | 10. Pressure roller stuck. | 10. Replace or lubricate. |
| | 11. Roller spring loose or broken. | 11. Replace. |
| Wire feed too fast or too slow. | 1. Wrong wire speed set for work. | 1. Adjust wire feed speed. |
| Low or no gas flow. Oxidation of work. | 1. Gas flow not set right. | 1. Set proper flow rate. |
| | 2. Cylinder out of gas. | 2. Get new cylinder of gas. |
| | 3. Cylinder valve closed. | 3. Open cylinder valve. |
| | 4. Leak in gas line. | 4. Inspect and replace. |
| | 5. Leak in gun. | 5. Check for missing gun tubes and/or missing gun body cover. |
| | 6.Gas diffuser clogged | 6. Blow out gas diffuser openings. |
| | 7. Clogged internal valve (only for K3569-2) | 7. Remove neck and check if gas is flowing from mechanical valve by pressing the trigger. If no gas flow is detected, adjust first the trigger set screw as shown in the manual page 13- replace mechanical valve if no gas is detected. |
| Oxidized work, arc unstable. | 1. Wrong welding polarity. | 1. Check polarity. |

If for any reason you do not understand the test procedures or are unable to perform the tests/repairs safely, contact your Lincoln Authorized Service Facility for technical troubleshooting assistance before you proceed.

**WWW.LINCOLNELECTRIC.COM/LOCATOR**

Observe all Safety Guidelines detailed throughout this manual




## MOTOR CHECK.

Remove the torch connector from the cabinet.

Using the torch Control Cable Connector, check the resistance across pins “A” and “B” (motor leads). The resistance across the motor should be between 5-10 ohms. If an open circuit or short exist, check the motor leads and motor independently.

## TESTING THE POTENTIOMETER.

Using the torch Control Cable Connector, check the resistance across pin “D” (wiper) and pin “C”. The resistance should vary from 5K - 0 ohms.

Check the resistance across pin “D” (wiper) and pin “G”. The resistance should vary from 5K - 0 ohms.

## TESTING THE TRIGGER SWITCH.

Using the torch Control Cable Connector, check for continuity across pins “E” and “F” when the trigger is pressed.

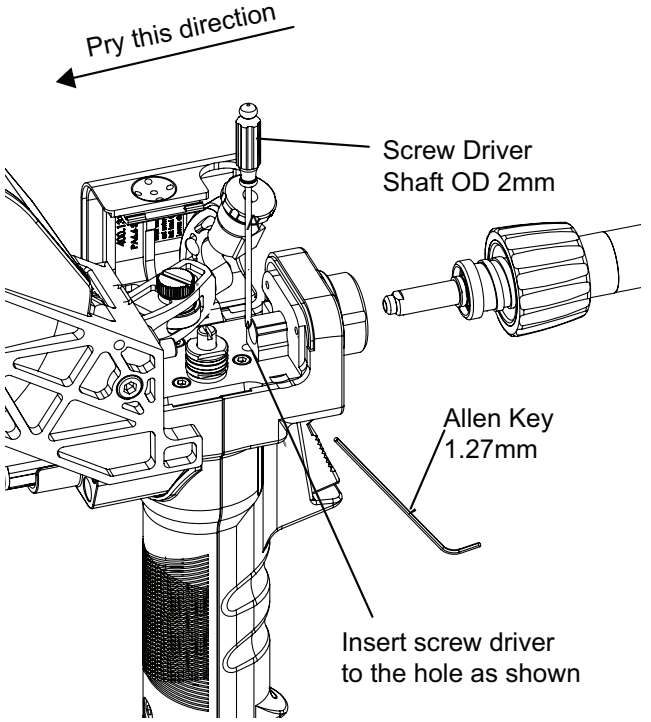
If for any reason you do not understand the test procedures or are unable to perform the tests/repairs safely, contact your Lincoln Authorized Service Facility for technical troubleshooting assistance before you proceed.

**WWW.LINCOLNELECTRIC.COM/LOCATOR**

## TRIGGER REPLACEMENT AND SET SCREW ADJUSTMENT

1. Remove the following items:
   a. Gun tube barrel
   b. Plastic screw covers and screws above the trigger (not shown). Use 2.5mm hex Allen Key
   c. The main screw in the middle of the handle. Use 3 mm hex Allen Key.
2. Once the above items are removed pull the front handle off.
3. Unscrew the top screw that keeps the trigger secured.Use a flat head screwdriver
4. Replace the trigger and secure with screw
5. Reinstall front handle to the gun
6. Attach the gas hose to a source of air or inert gas
7. Place metric 1.27mm Allen key into the set screw located at the trigger top
8. Pry the actuator inside the hole in the direction shown in the Fig. F.1, this will push the actuator and engage with the set screw.
9. Make sure no air is leaking during this process, while rotating the set screw CW (pry until you do not hear the air coming out of the neck)
10. Once the set screw has engaged with the actuator, remove the Allen key and press/test the trigger back and forth a few times and check for air flow in both positions (Active and non-active)
11. If hard friction is observed or felt, turn set screw a quarter rotation CCW until satisfied
12. Test weld before adding blue loctite into the set screw hole at the trigger top (red part)

**FIGURE F.1**



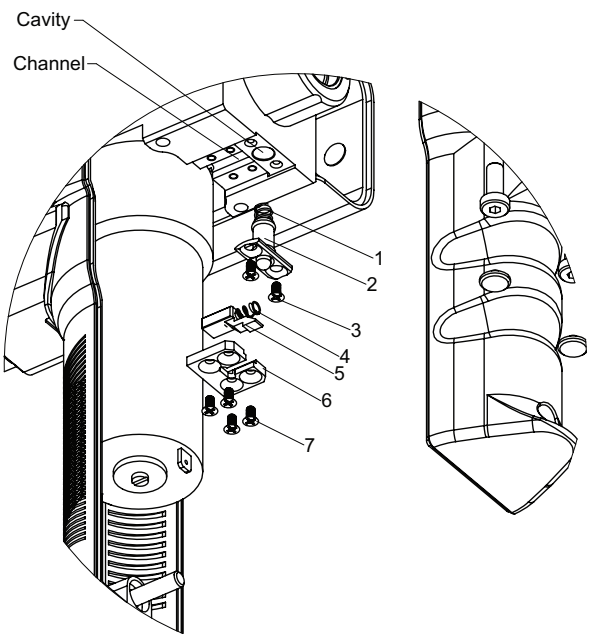

## MECHANICAL VALVE REPLACEMENT

1. Remove the following items:
   a. Gun tube barrel
   b. Plastic screw covers and screws above the trigger (not shown). Use 2.5mm hex Allen Key
   c. The main screw in the middle of the handle. Use 3 mm hex Allen Key
2. Once the above items are removed pull the front handle off.
3. Find the mechanical valve parts on the bottom of the Torch body
4. Begin removing the parts in this order:
   a. 4 Philips head screws on the mounting plate
   b. Mounting plate
   c. Actuator and spring actuator
   d. 2 Philips head screws holding the valve assembly
   e. The valve assembly and the valve spring
5. Replace parts with 9SS26374-107 kit
6. Reassemble the components into the gun by placing the valve spring back in first
7. Carefully add two drops of provided Super Lube grease to the valve assembly and reinstall

Note: For best performance please service o-rings every six months by putting Super Lube grease on o-rings using the above steps

8. Fasten down the valve assembly with the 2 screws
9. Reinstall the actuator and actuator spring after adding a small amount of grease to the actuator
10. Place and fasten down the mounting plate
11. Install the front handle
12. Check gas flow of the gun to make sure it was completed correctly

**FIGURE F.2**



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|  |  |  |  |
|---|---|---|---|
| **WARNING** | ● Do not touch electrically live parts or electrode with skin or wet clothing.<br>● Insulate yourself from work and ground. | ● Keep flammable materials away. | ● Wear eye, ear and body protection. |
| Spanish<br>**AVISO DE PRECAUCION** | ● No toque las partes o los electrodos bajo carga con la piel o ropa mojada.<br>● Aislese del trabajo y de la tierra. | ● Mantenga el material combustible fuera del área de trabajo. | ● Protéjase los ojos, los oídos y el cuerpo. |
| French<br>**ATTENTION** | ● Ne laissez ni la peau ni des vêtements mouillés entrer en contact avec des pièces sous tension.<br>● Isolez-vous du travail et de la terre. | ● Gardez à l'écart de tout matériel inflammable. | ● Protégez vos yeux, vos oreilles et votre corps. |
| German<br>**WARNUNG** | ● Berühren Sie keine stromführenden Teile oder Elektroden mit Ihrem Körper oder feuchter Kleidung!<br>● Isolieren Sie sich von den Elektroden und dem Erdboden! | ● Entfernen Sie brennbarres Material! | ● Tragen Sie Augen-, Ohren- und Körperschutz! |
| Portuguese<br>**ATENÇÃO** | ● Não toque partes elétricas e electrodos com a pele ou roupa molhada.<br>● Isole-se da peça e terra. | ● Mantenha inflamáveis bem guardados. | ● Use proteção para a vista, ouvido e corpo. |
| Japanese<br>**注意事項** | ● 通電中の電気部品、又は溶材にヒフやぬれた布で触れないこと。<br>● 施工物やアースから身体が絶縁されている様にして下さい。 | ● 燃えやすいものの側での溶接作業は絶対にしてはなりません。 | ● 目、耳及び身体に保護具をして下さい。 |
| Chinese<br>**警 告** | ● 皮肤或濕衣物切勿接觸帶電部件及銲條。<br>● 使你自己與地面和工件絕緣。 | ● 把一切易燃物品移離工作場所。 | ● 佩戴眼、耳及身體勞動保護用具。 |
| Korean<br>**위 험** | ● 전도체나 용접봉을 젖은 헝겁 또는 피부로 절대 접촉치 마십시요.<br>● 모재와 접지를 접촉치 마십시요. | ● 인화성 물질을 접근 시키지 마시요. | ● 눈, 귀와 몸에 보호장구를 착용하십시요. |
| Arabic<br>**تحذير** | ● لا تلمس الاجزاء التي يسري فيها التيار الكهربائي أو الالكترود بجلد الجسم أو بالملابس المبللة بالماء.<br>● ضع عازلا على جسمك خلال العمل. | ● ضع المواد القابلة للاشتعال في مكان بعيد. | ● ضع أدوات وملابس واقية على عينيك وأذنيك وجسمك. |

**READ AND UNDERSTAND THE MANUFACTURER'S INSTRUCTION FOR THIS EQUIPMENT AND THE CONSUMABLES TO BE USED AND FOLLOW YOUR EMPLOYER'S SAFETY PRACTICES.**

**SE RECOMIENDA LEER Y ENTENDER LAS INSTRUCCIONES DEL FABRICANTE PARA EL USO DE ESTE EQUIPO Y LOS CONSUMIBLES QUE VA A UTILIZAR, SIGA LAS MEDIDAS DE SEGURIDAD DE SU SUPERVISOR.**

**LISEZ ET COMPRENEZ LES INSTRUCTIONS DU FABRICANT EN CE QUI REGARDE CET EQUIPMENT ET LES PRODUITS A ETRE EMPLOYES ET SUIVEZ LES PROCEDURES DE SECURITE DE VOTRE EMPLOYEUR.**

**LESEN SIE UND BEFOLGEN SIE DIE BETRIEBSANLEITUNG DER ANLAGE UND DEN ELEKTRODENEINSATZ DES HERSTELLERS. DIE UNFALLVERHÜTUNGSVORSCHRIFTEN DES ARBEITGEBERS SIND EBENFALLS ZU BEACHTEN.**

| | | | |
|---|---|---|---|
| ● Keep your head out of fumes.<br>● Use ventilation or exhaust to remove fumes from breathing zone. | ● Turn power off before servicing. | ● Do not operate with panel open or guards off. | **WARNING** |
| ● Los humos fuera de la zona de respiración.<br>● Mantenga la cabeza fuera de los humos. Utilice ventilación o aspiración para gases. | ● Desconectar el cable de alimentación de poder de la máquina antes de iniciar cualquier servicio. | ● No operar con panel abierto o guardas quitadas. | Spanish<br>**AVISO DE PRECAUCION** |
| ● Gardez la tête à l'écart des fumées.<br>● Utilisez un ventilateur ou un aspirateur pour ôter les fumées des zones de travail. | ● Débranchez le courant avant l'entretien. | ● N'opérez pas avec les panneaux ouverts ou avec les dispositifs de protection enlevés. | French<br>**ATTENTION** |
| ● Vermeiden Sie das Einatmen von Schweibrauch!<br>● Sorgen Sie für gute Be- und Entlüftung des Arbeitsplatzes! | ● Strom vor Wartungsarbeiten abschalten! (Netzstrom völlig öffnen; Maschine anhalten!) | ● Anlage nie ohne Schutzgehäuse oder Innenschutzverkleidung in Betrieb setzen! | German<br>**WARNUNG** |
| ● Mantenha seu rosto da fumaça.<br>● Use ventilação e exhaustão para remover fumo da zona respiratória. | ● Não opere com as tampas removidas.<br>● Desligue a corrente antes de fazer serviço.<br>● Não toque as partes elétricas nuas. | ● Mantenha-se afastado das partes moventes.<br>● Não opere com os paineis abertos ou guardas removidas. | Portuguese<br>**ATENÇÃO** |
| ● ヒュームから頭を離すようにして下さい。<br>● 換気や排煙に十分留意して下さい。 | ● メンテナンス・サービスに取りかかる際には、まず電源スイッチを必ず切って下さい。 | ● パネルやカバーを取り外したままで機械操作をしないで下さい。 | Japanese<br>**注意事項** |
| ●頭部遠離煙霧。<br>●在呼吸區使用通風或排風器除煙。 | ●維修前切斷電源。 | ●儀表板打開或沒有安全罩時不準作業。 | Chinese<br>**警 告** |
| ● 얼굴로부터 용접가스를 멀리하십시요.<br>● 호흡지역으로부터 용접가스를 제거하기 위해 가스제거기나 통풍기를 사용하십시요. | ● 보수전에 전원을 차단하십시요. | ● 판넬이 열린 상태로 작동치 마십시요. | Korean<br>**위 험** |
| ● ابعد رأسك بعيداً عن الدخان.<br>● استعمل التهوية أو جهاز ضغط الدخان للخارج لكي تبعد الدخان عن المنطقة التي تتنفس فيها. | ● اقطع التيار الكهربائي قبل القيام بأية صيانة. | ● لا تشغل هذا الجهاز اذا كانت الاغطية الحديدية الواقية ليست عليه. | Arabic<br>**تحذير** |

**LEIA E COMPREENDA AS INSTRUÇÕES DO FABRICANTE PARA ESTE EQUIPAMENTO E AS PARTES DE USO, E SIGA AS PRÁTICAS DE SEGURANÇA DO EMPREGADOR.**

使う機械や溶材のメーカーの指示書をよく読み、まず理解して下さい。そして貴社の安全規定に従って下さい。

請詳細閱讀並理解製造廠提供的説明以及應該使用的銀焊材料，並請遵守貴方的有関勞動保護規定。

이 제품에 동봉된 작업지침서를 숙지하시고 귀사의 작업자 안전수칙을 준수하시기 바랍니다.

اقرأ بتمعن وافهم تعليمات المصنع المنتج لهذه المعدات والمواد قبل استعمالها واتبع تعليمات الوقاية لصاحب العمل.

## 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.

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## 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.

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