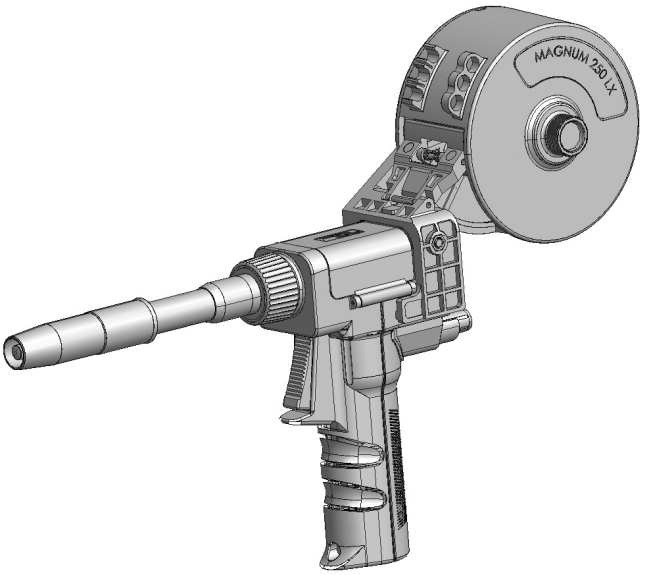
Operator's Manual

MAGNUM 250 LX SPOOL GUN



K Number:
K2490-1

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)

IM887 | Issue Date Apr- 14

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 Material Safety Data Sheet (MSDS) 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

Diesel Engines

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.

Gasoline Engines

The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm.

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 W117.2-1974. 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.

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 with electrodes which require special ventilation such as stainless or hard facing (see instructions on container or MSDS) 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. In confined spaces or in some circumstances, outdoors, a respirator may 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.

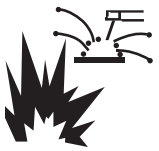
5.c. Do not weld in locations near chlorinated hydrocarbon vapors coming from degreasing, cleaning or spraying operations. The heat and rays of the arc can react with solvent vapors to form phosgene, a highly toxic gas, and other irritating products.

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 material safety data sheet (MSDS) and follow your employer's safety practices. MSDS 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 1235 Jefferson Davis Highway, Arlington, VA 22202.

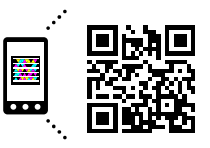
FOR ELECTRICALLY POWERED EQUIPMENT.

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.



Welding Safety Interactive Web Guide for mobile devices

Get the free mobile app at
http://gettag.mobi

TABLE OF CONTENTS

PRODUCT DESCRIPTION

The 250 LX spool gun is a lightweight, handheld combined semiautomatic wire feeder and welding gun, 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, eliminating 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 gun is intended for use with Power Mig 255C AND Power Mig 350MP Power Sources. For other applications, contact your local Lincoln Electric sales office or distributor.

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

SPECIFICATIONS

Model **Remote Wire Speed Control**	**Magnum 250 LX Spool Gun with**
Wire Capacity	.023-.045" (0.6mm-1.2mm) Solid and Hard Wire
	.030-3/64" (0.8mm-1.2mm) Aluminum and cored wire
Wire Speed	800 IPM MAX.
Duty Cycle	300 amps @ 60% CO2 280 amps @ 60% Argon Gas 200 amps @ 100% Argon Gas
Shipping Weight	25 Ft. (7.6m) - 17 Lbs. (7.7Kg.)

Supplied with:

KP14H-35, .035 Contact Tip (Installed)
KP14AH-364, 3/64A Contact Tip (In Tip Holder of Spool Cover)
KP52FN, Gas Diffuser (Installed)
KP23-50, Gas Nozzle (Installed)
KP2518-2, Drive Roll (.030-.035-3/64)
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.

Unpacking the Spool Gun

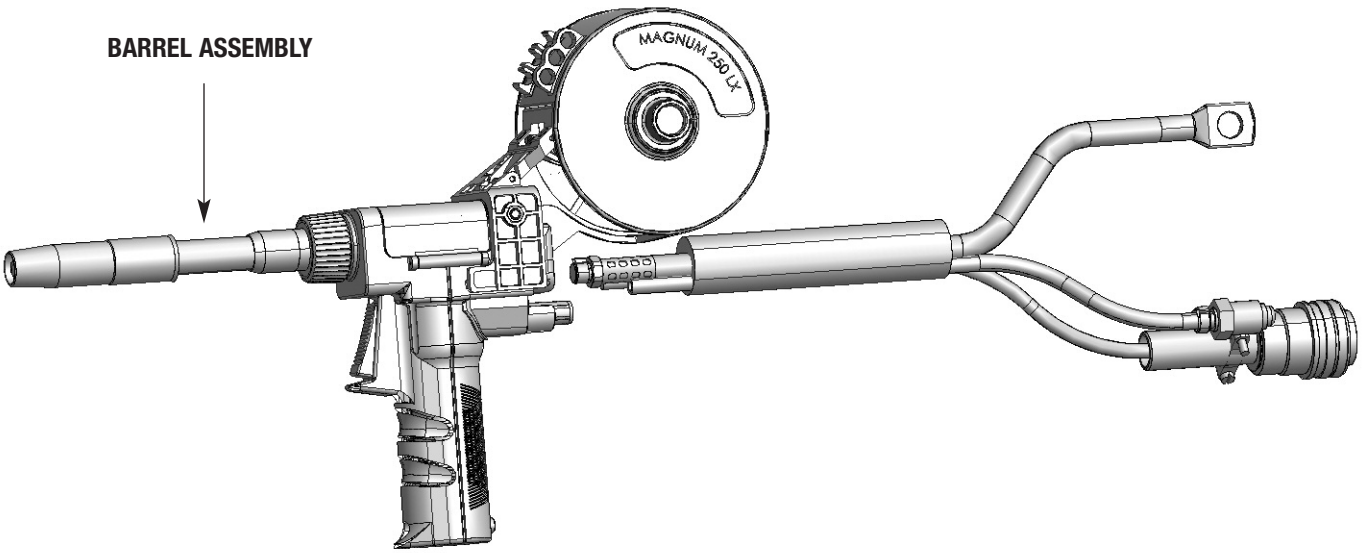
Safety Precautions

– 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.

Unpacking the Spool Gun

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



CABLE ASSEMBLY 25'

OPERATOR'S MANUAL

MAGNUM 250 LX - SPOOL GUN

KP14AH-364	Contact Tip 3/64th (1.2mm)	Included
KP14H-35	Contact Tip .035 (0.9mm)	Installed on Barrel Assembly
KP52FN	Gas Diffuser	Installed on Barrel Assembly
KP23-50	Gas Nozzle	Installed on Barrel Assembly
KP2518-2	Drive Roll (.030 to .035 / 3/64th)	Installed

Spool Gun Familiarization

Become familiar with your spool gun before connecting to welder. For features described below, refer to 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 or .035 (0.9 mm) diameter wire. Wide groove feeds 3/64 inch (1.2 mm) diameter wire. Gun is shipped with wide groove or 3/64 in operating position (toward handle). Reverse roller for .030 or .035 inch (0.9 mm) diameter wire.

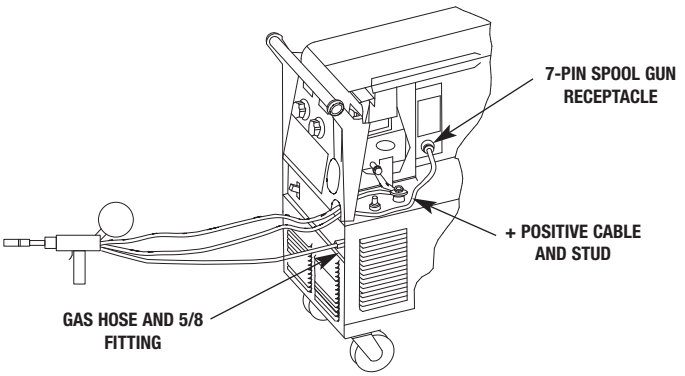
5. Gas nozzle directs gas flow around arc. Pull off gas nozzle to see contact tip and gas diffuser. Spool gun is shipped with 3/64th inch (1.2 mm) contact tip installed.

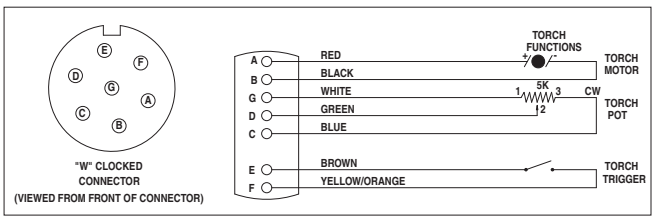
6. Electrode wire spool cover. Remove by unscrewing knob. Electrode wire goes into gun through rear plastic tube.

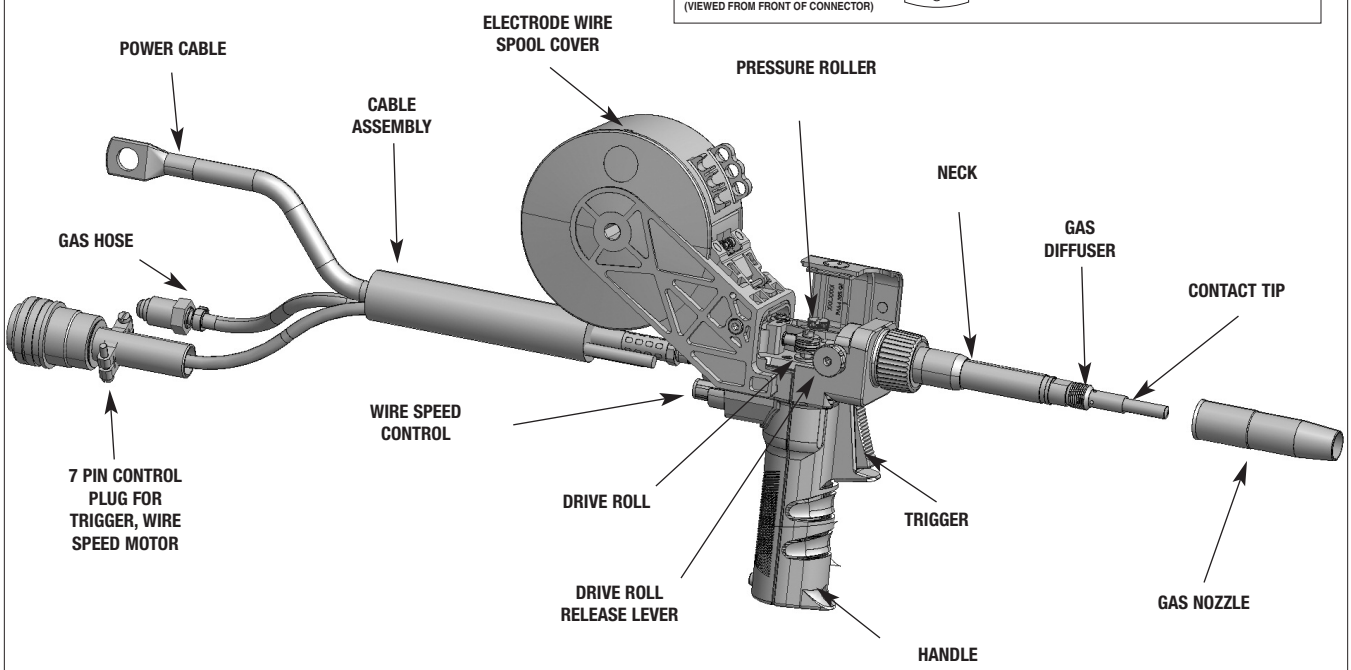
7. Cable assembly for power, control, and gas. Reassemble gun with spool of wire in spool holder. Hold gun and become familiar with gun's weight and balance.

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.**





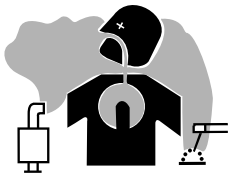


Safety Precautions

⚠ WARNING

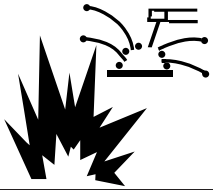
- **Do not touch electrically live parts or electrode with skin or wet clothing**
- **Insulate yourself from work and ground.**
- **Always wear dry insulating gloves.**

ELECTRIC SHOCK can kill.



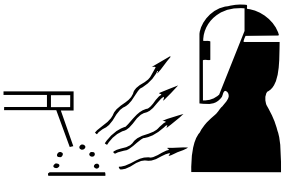
- **Keep your head out of fumes.**
- **Use ventilation or exhaust to remove fumes from breathing zone.**

FUMES AND GASES can be dangerous.



- **Keep flammable material away.**
- **Do not weld on containers that have held combustibles.**

WELDING SPARKS can cause fire or explosion.



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

ARC RAYS can burn.

WARNING: Electric shock can kill. Fumes and gases can be dangerous to your health. Arc rays can injure eyes and burn skin. See additional warning information under "Arc Welding Safely Precautions" on inside of front cover of operating manual. When inching, (the electrode and drive mechanism are always electrically energized and remain energized several seconds after the gun trigger is released.

Setup Procedure

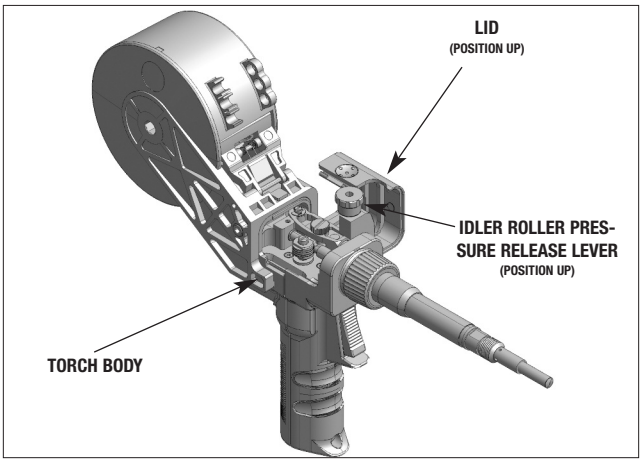
Selecting Electrode Wire

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 anodictreatment 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.

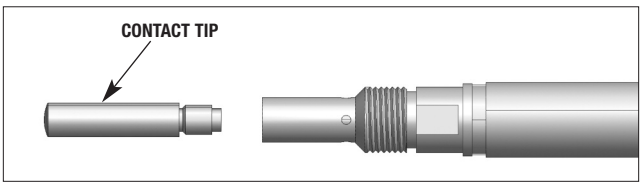
Consult your local dealer or appropriate AWS publication for help in selecting an appropriate alloy type and wire size. Also refer to, "Procedure Settings" later in this chapter, for wire sizes used with typical base metal thicknesses and procedure settings.

Loading Electrode Wire:

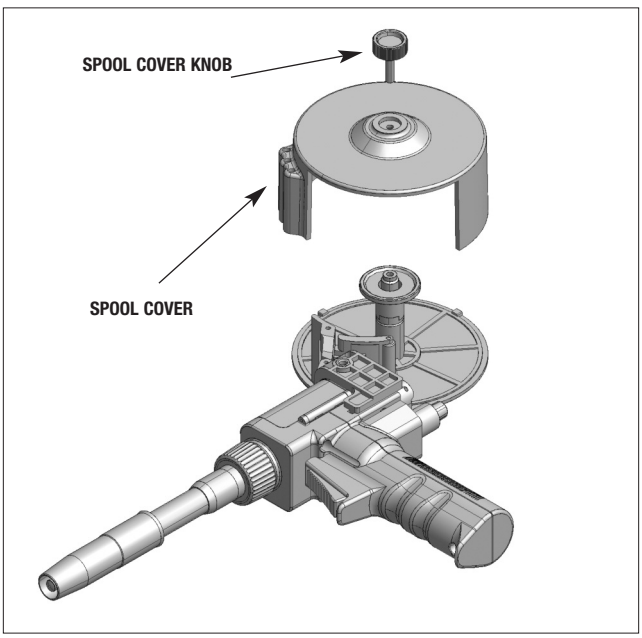
1. Unscrew gas nozzle and flip lid up on torch body then push idle roller [pressure release lever up.



2. Unscrew and remove contact tip.

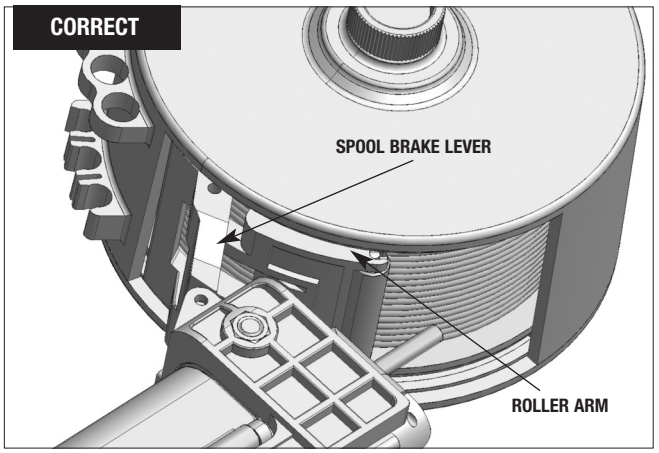


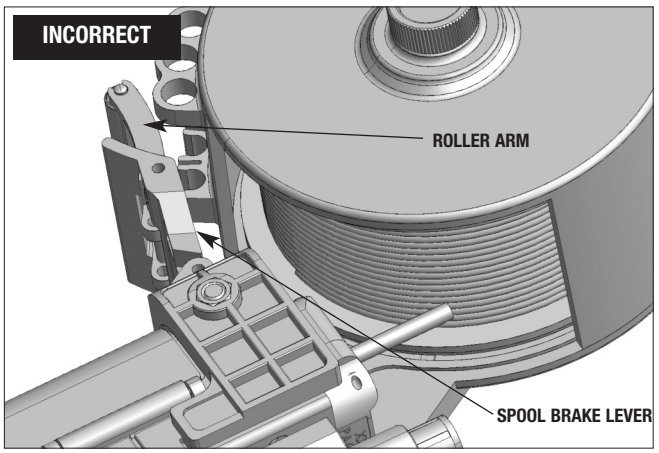
3. Unscrew spool cover knob and remove spool cover.



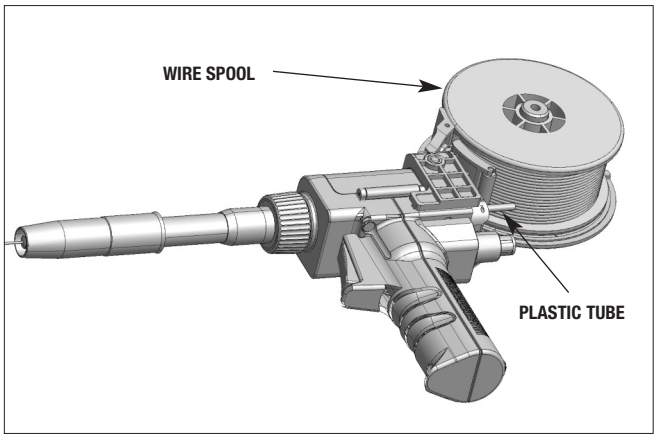
4. Select wire of size and type needed. Wire must be straight, with no kinks or bends. Check drive roller for the correct groove positioning for the size wire selected. See "Drive Roll Groove Selection", for details.

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.

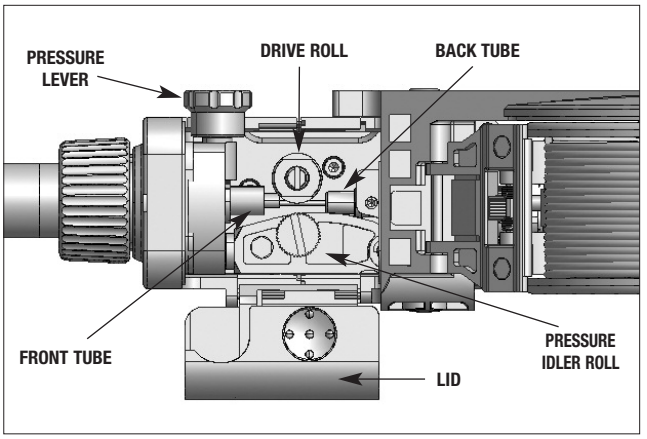




6. Unspool and straighten about 6 inches of wire, then route into plastic tube.

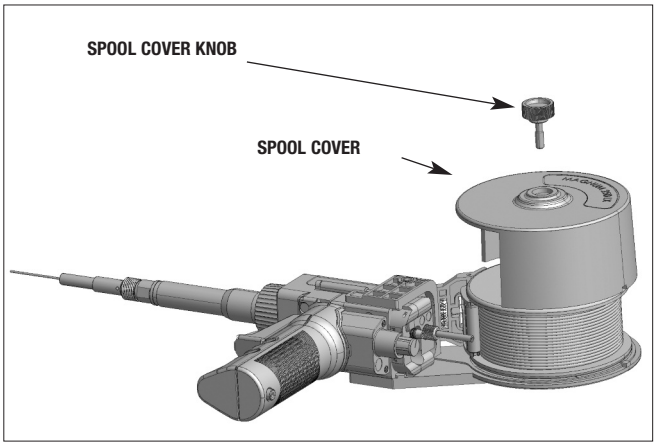


7. Push wire until end of wire exits back tube and enters front tube, passing between drive roll & pressure idler roll.

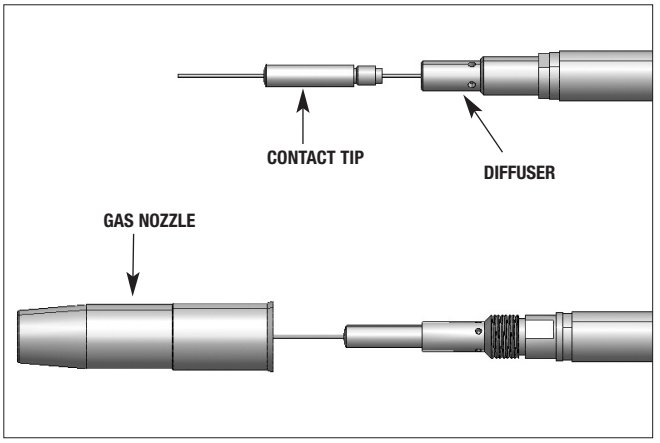


8. Push wire until wire end extends approximately 6" (150 mm) past end of gas diffuser. Re-engage idle roll pressure by pushing release lever down as shown above, then close lid.

9. Screw spool cover knob onto spool gun cover (making sure all keyways line up).

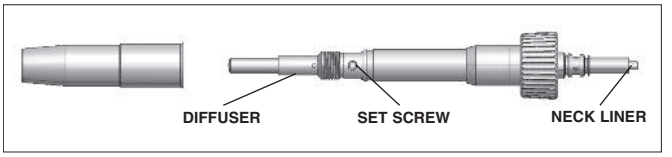


10. Obtain contact tip size to match wire selected. Slip contact tip over wire and screw into diffuser. Tighten securely.



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

⚠ CAUTION



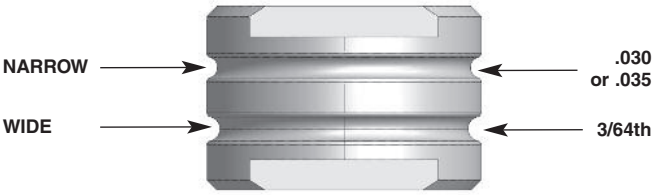
Liner Installation:

Over tightening the Liner Retaining Set Screw can cause damage to the Plastic Liner and cause wire feeding problems.

Drive Roll Groove Selection

The drive roll has two grooves. A wider groove for feeding 3/64" (.047) 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.

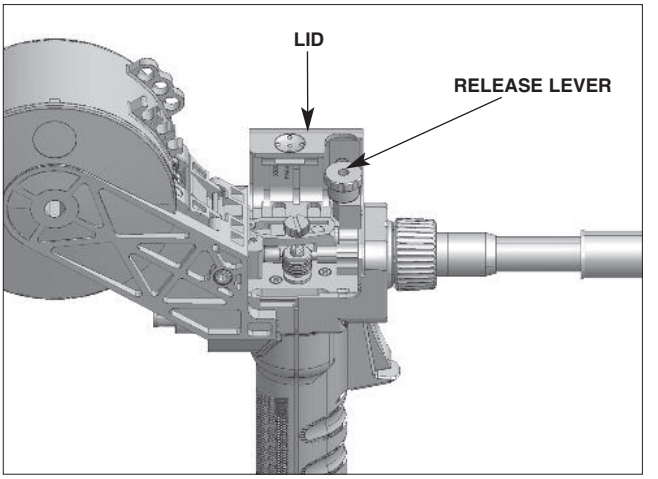
A. Drive Roll Orientation



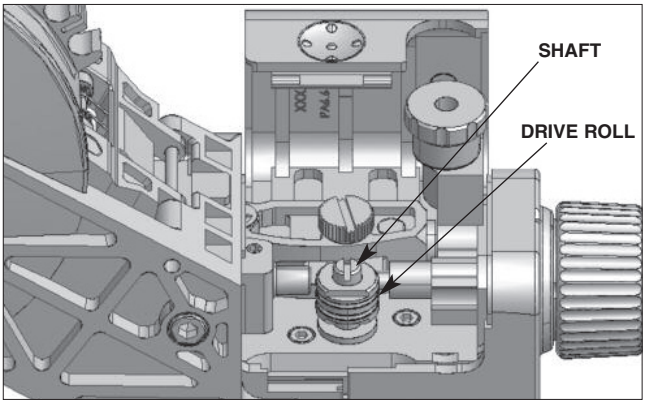
B. Changing Drive Roll Orientation

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-clock-wise 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", below 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.

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 in. (mm)	Metal Thickness ga.	Metal Thickness in. (mm)	Arc Volts	Wire Speed ipm (mpm)	Amps DC (+)
.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 In 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) 35 (16.5) 40 (18.9)
3/4 (19 mm)	Flat, Vertical Horizontal, Overhead	35 (16.5) 40 (18.9)

ACCESSORIES

The following accessories are available for the Magnum 250 LX spool gun.

25 Foot Control Cable Extension
25 foot control lead with 7 pin male connector on machine side and 7 pin female connector on gun side. Allows the length of the spool gun to be extended an additional 25 feet. (Note: Customer supplied power cable and gas hose extension are also required) **Order K2519-1**

.025 / .035 Steel Drive Roll
Features two grooves for feeding steel wire. The smaller groove feeds .025 to.030 wire. The larger groove feeds 3/64 wire. **Order KP2518-1**

.030 - .035 / 3/64th Aluminum Drive Roll
Features two grooves for feeding aluminum wire. The smaller groove feeds .030 to .035 wire. The larger groove feeds 3/64th wire. **Order KP2518-2**

Barrel Liner
Liner for feeding up to 3/64th wire. **Order KP2521-1**

Gas Diffuser
Diffuser designed to accept thread on gas nozzles **Order KP52FN**

Gas Nozzle

.38 Thread on Nozzle (Tip Recessed)	**Order KP23-37**
.50 Thread on Nozzle (Tip Recessed)	**Order KP23-50**
.62 Thread on Nozzle (Tip Recessed)	**Order KP23-62**
.75 Thread on Nozzle (Tip Recessed)	**Order KP23-75**

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

Standard Duty

.025 Steel	**Order KP14-23**
.030 Steel or Aluminum	**Order KP14-30**
3/64th Aluminum	**Order KP14A-364**

Heavy Duty

.035 Steel or Aluminum	**Order KP14H-35**
3/64th Aluminum	**Order KP14AH-364**

MAINTENANCE

Safety Precautions

WARNING

- **Do not operate with covers removed.**
- **Disconnect input power from welder before installing gun.**
- **Do not touch electrically hot part.**
- **Only qualified persons should install, use or service this machine.**

ELECTRIC SHOCK can kill.

When finished welding, be sure to turn power source off and close valve on gas cylinder.

WARNING

- **Working with flying or falling objects can cause serious eye injuries.**
- **Protective eyeware such as safety specticals with side shields or goggles must be worn at all times.**

can cause eye injury.

Routine Maintenance

Periodically blow out or vacum 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.

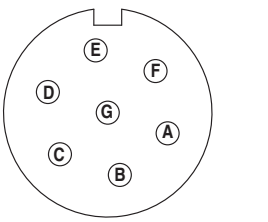
Troubleshooting Guide

PROBLEM	SYMPTOMS	REMEDY
No arc, wire feed, or gas flow.	1. Cable connections loose. 2. Trigger switch loose or defective. 3. Welder not turned on. 4. Welder not plugged in. 5. Cable or adapter cable damaged.	1. Check all power connections. 2. Fix switch or replace. 3. Turn on welder power. 4. Plug in. 5. Inspect and replace
No arc, weak arc.	1. Poor ground connection to work. 2. Power cable connection loose. 3. Voltage set too low. 4. Tip too large for wire size. 5. Wire feed speed too slow.	1. Check ground connection. 2. Check connections; if defective, replace cable or connectors. 3. Adjust to proper voltage 4. Change tip size. 5. Increase wire feed speed.
No wire feed.	1. Feeding small diameter wire with large groove on drive roller. 2. Wire drive release open. 3. Wire welded to tip. 4. Wire spool empty. 5. Tip too small for wire. 6. Kink or bend in wire. 7. Spool cover binding. 8. Control cable loose. 9. Drive roller worn. 10. Pressure roller stuck. 11. Roller spring loose or broken.	1. Change position of wire drive roller. 2. Close wire drive release. 3. Peel wire off tip or use new tip. 4. Insert new spool. 5. Insert correct tip. 6. Pull wire through tip or start new wire end. 7. Rotate spool cover slot to proper position. 8. Check all connections. 9. Replace. 10. Replace or lubricate. 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. 2. Cylinder out of gas. 3. Cylinder valve closed. 4. Leak in gas line. 5. Leak in gun. 6.Gas diffuser clogged	1. Set proper flow rate. 2. Get new cylinder of gas. 3. Open cylinder valve. 4. Inspect and replace. 5. Check for missing gun tubes and/or missing gun body cover. 6. Blow out gas diffuser openings.
Oxidized work, arc unstable.	1. Wrong welding polarity.	1. Check polarity.

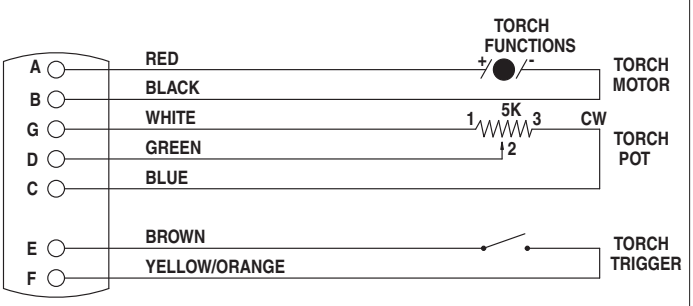
Troubleshooting Guide

TESTING THE TORCH

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.



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



P-202-Z

PARTS LIST FOR

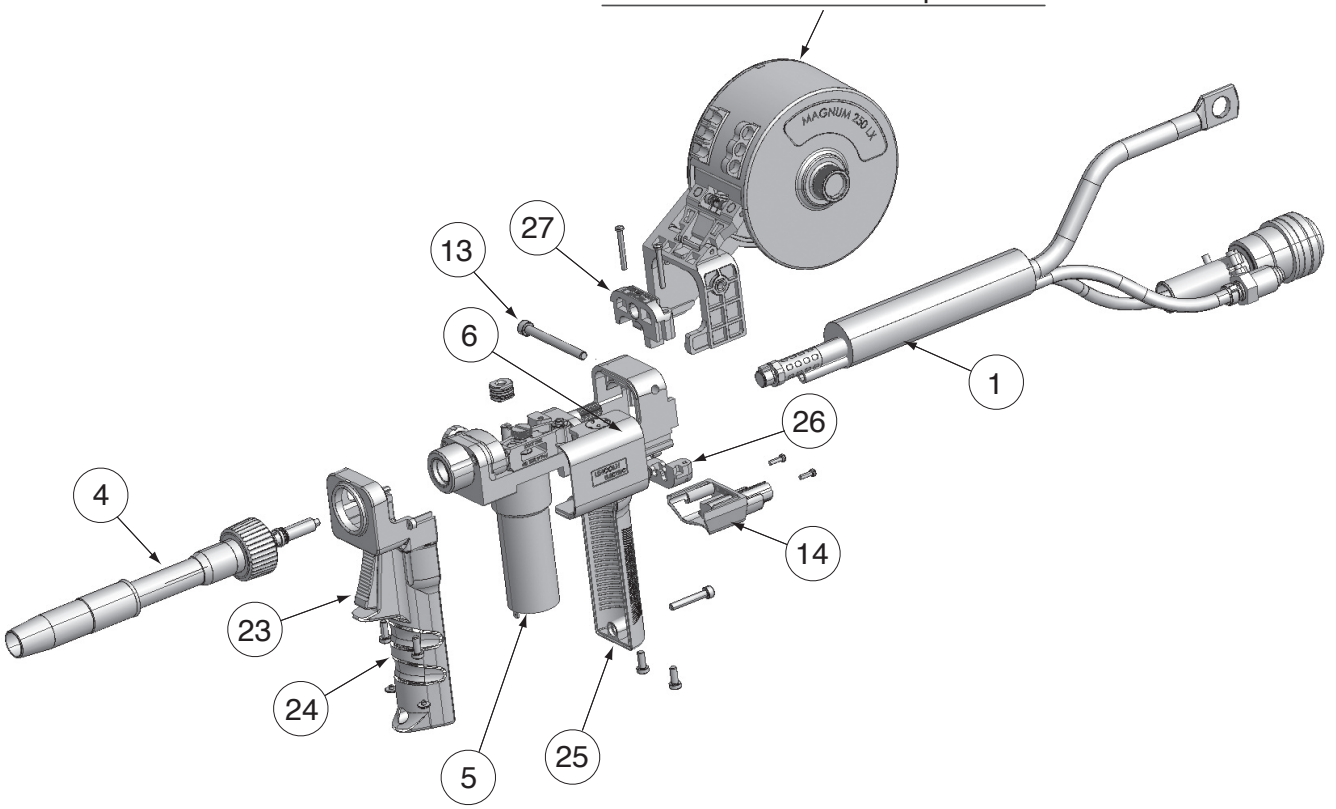
Magnum® 250 LX

P-202-Z.1

MAGNUM® 250 LX Parts

MAGNUM® 250 LX

See P-202-Z.2 for Components



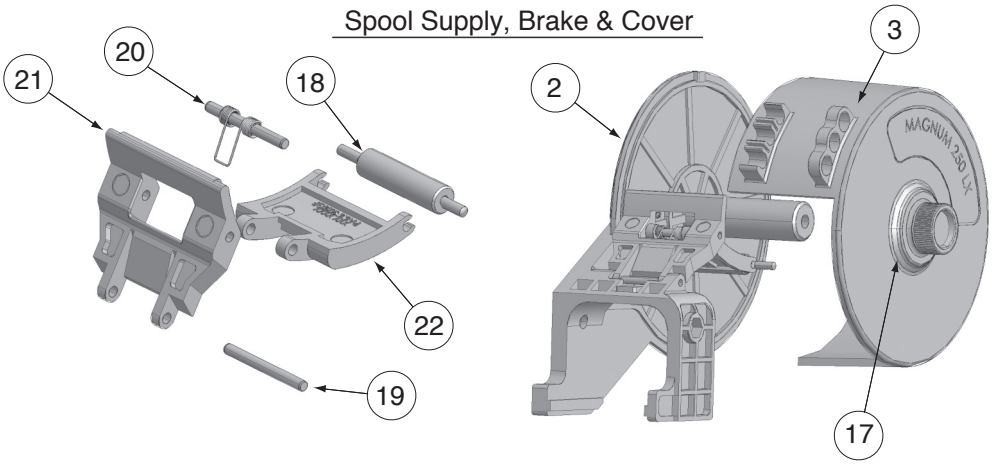
Item	Description	Part Number
1	Cable Assembly 25’	S26374-1
4	Barrel, Straight	S26374-4
5	Wire Feed Assembly	See P-202-Z.2
6	Wire Drive Cover, with Info. Decal	S26374-6
13	Hex Socket Head Screw (M6)	S26374-13
14	Wire Feed Speed Adjustment Pot Assembly	S26374-14
23	Trigger	S26374-23
24	Handle, Front (Includes Trigger)	S26374-24
25	Handle, Back	S26374-25
26	Cable Strain Relief, Bottom	S26374-26
27	Cable Strain Relief, Top	S26374-27

P-202-Z.2

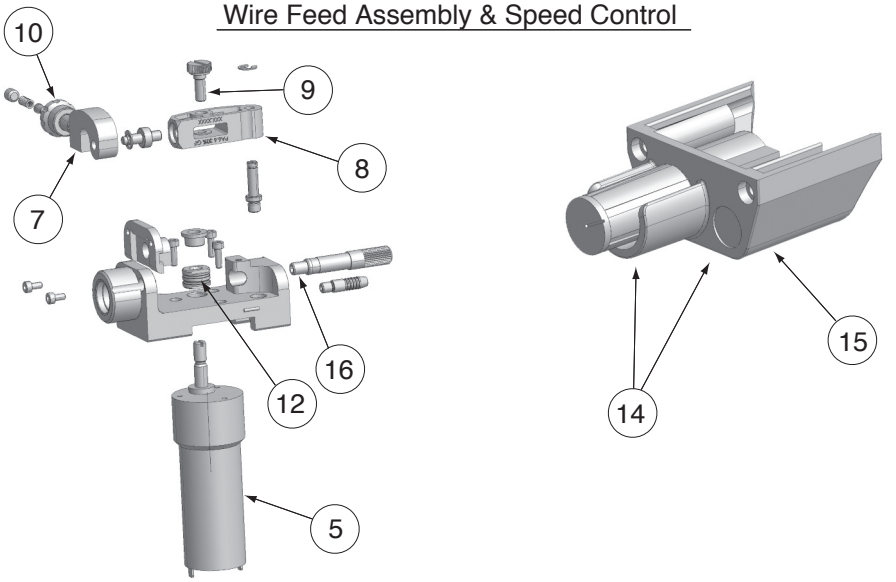
MAGNUM® 250 LX Parts

MAGNUM® 250 LX

Spool Supply, Brake & Cover



Wire Feed Assembly & Speed Control



Item	Description	Part Number
2	Spool Supply & Brake Asbly	S26374-2
3	Spool Cover	S26374-3
5	Motor Gearbox	S26374-5
7	Pressure Lever	S26374-7
8	Pivot Arm	S26374-8
9	Set Screw, Pressure Roll	S26374-9
10	Pressure Adjustment Knob Asbly	S26374-10
11	Ball Bearing	S26374-11
12	Set Screw	S26374-12
14	Wire Feed Speed Adjustment Pot Assembly	S26374-14
15	Housing Potentiometer	S26374-15

Item	Description	Part Number
16	Inlet Guide	S26374-16
17	Thumb Screw	S26374-17
18	Roller Pin	S26374-18
19	Pin	S26374-19
20	Spring	S26374-20
21	Spool Brake Lever	S26374-21
22	Roller Arm	S26374-22

CUSTOMER ASSISTANCE POLICY

The business of The Lincoln Electric Company is manufacturing and selling high quality welding equipment, consumables, and cutting equipment. Our challenge is to meet the needs of our customers and to exceed their expectations. On occasion, purchasers may ask Lincoln Electric for advice or information about their use of our products. We respond to our customers based on the best information in our possession at that time. Lincoln Electric is not in a position to warrant or guarantee such advice, and assumes no liability, with respect to such information or advice. We expressly disclaim any warranty of any kind, including any warranty of fitness for any customer's particular purpose, with respect to such information or advice. As a matter of practical consideration, we also cannot assume any responsibility for updating or correcting any such information or advice once it has been given, nor does the provision of information or advice create, expand or alter any warranty with respect to the sale of our products.

Lincoln Electric is a responsive manufacturer, but 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.

Subject to Change – This information is accurate to the best of our knowledge at the time of printing. Please refer to www.lincolnelectric.com for any updated information.

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