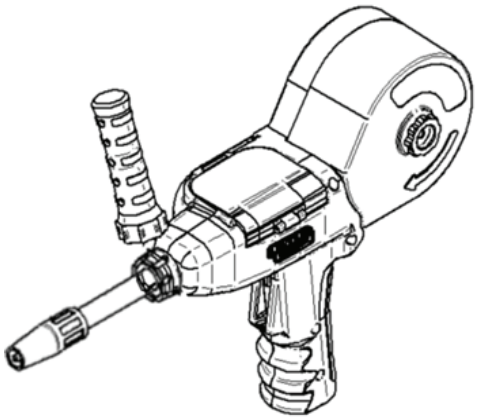
LINCOLN ELECTRIC

Operator's Manual

Magnum® PRO Premium 150 A Spool Gun



For use with machines having Code Numbers:

K5471-1

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)

IM10700-A | Issue Date Sep - 24

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.

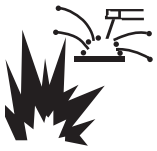
5.c. Do not weld in locations near chlorinated hydrocarbon vapors coming from degreasing, cleaning or spraying operations. The heat and rays of the arc can react with solvent vapors to form phosgene, a highly toxic gas, and other irritating products.

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.

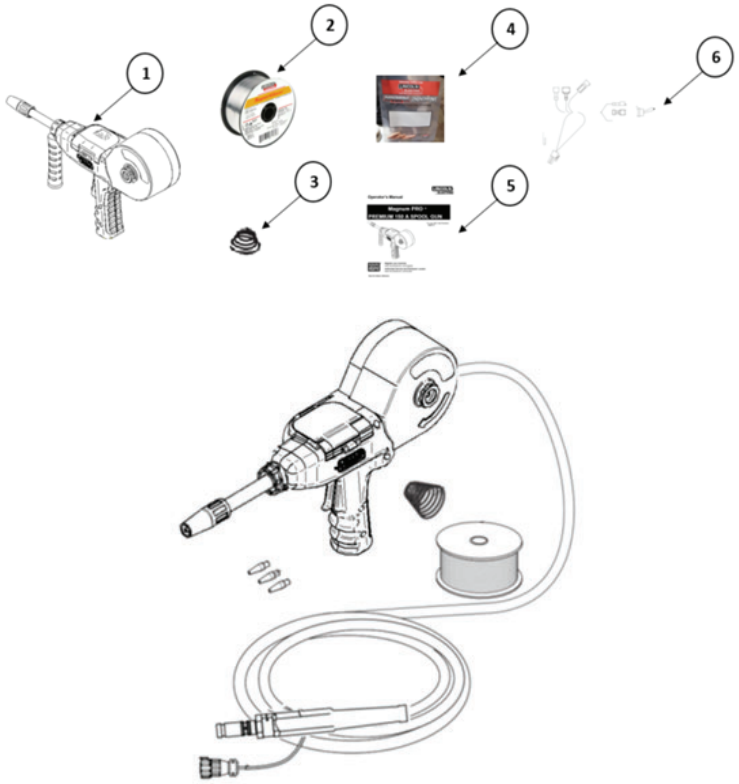
Refer to http://www.lincolnelectric.com/safety for additional safety information.

Content/details may be changed or updated without notice. For most current Instruction Manuals, go to parts.lincolnelectric.com.

TECHNICAL SPECIFICATIONS - MAGNUM® PRO PREMIUM 150 A SPOOL GUN (K5471-1)

GENERAL SPECIFICATIONS	
Make/Model	K5471-1 Magnum® PRO Premium 150A Spool Gun
Welding Process	Aluminum GMAW (MIG), DC electrode positive polarity with 100% argon welding shielding gas.
Wire Alloys	Aluminum only: alloys 4043 or 5356
Wire Sizes (Diameters)	Solid wire 0.030 or 0.035 inches (0.8 or 0.9 mm)
Spool Size	1 lb. weight, nominal 4 inch diameter spool
Rated Welding Current And Duty Cycle	150 amps at 100% for 10-minute basis
Overall Weight	3.5 lbs. with cable but without case or spool
Cable Length	15.0±0.2 feet
Overall Size (Bounding Box)	In inches: 15.75 long x 10.50 high x 4.25 thick max., without case or gun cable
Method Of Guidance	Semiautomatic (manually-guided)
Method Of Cooling	Air-cooled

FIGURE A.1



UNPACKING THE SPOOL GUN

The spool gun is factory-assembled and tested, and then packed in its own cushioned carrying case. It is shipped fully equipped to weld with 0.035-inch diameter aluminum wire. After opening the case, check that it contains the following items (**See Figure A.1**):

1. One fully assembled K5471-1 spool gun
2. One T11862-65 Conical Compression Spring for use with alloy 5356 wire (spool not included)
3. One spool of 0.035 aluminum alloy 4043 wire
4. Three S19726-3 contact tips
5. One instruction manual
6. One M21182 electrical harness with toggle switch

SAFETY PRECAUTIONS

Only qualified personnel should install, use, or service this equipment.

⚠ WARNING

Do not attempt to use this equipment until you have thoroughly read the engine manufacturer's manual supplied with your welding gun. It includes important safety precautions, detailed engine starting, operating and maintenance instructions, and parts lists.

ELECTRIC SHOCK can kill.

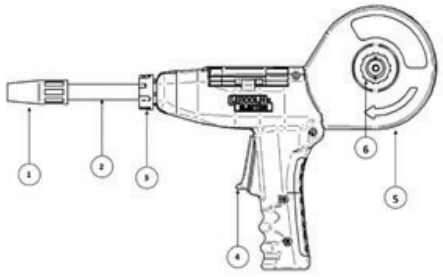
- **Turn the input power OFF at the welding power source before installation or changing drive rolls and/or guides.**
- **Do not touch electrically live parts.**
- **When inching with the gun trigger, electrode and drive mechanism are "hot" to work and ground and could remain energized several seconds after the gun trigger is released.**

LOCATING SPOOL GUN COMPONENTS AND FEATURES

See Figure A.2 for Items 1 thru 6

1. Gas Cone Assembly and Contact Tip.
2. Straightened Gun Tube Assembly.
3. 1/4-Turn Locking Collar.
4. Trigger Assembly.
5. Spool Cover: Provides easy, wide open access to spool and wire drive.
6. Locking Knob: Captive in spool cover.

FIGURE A.2

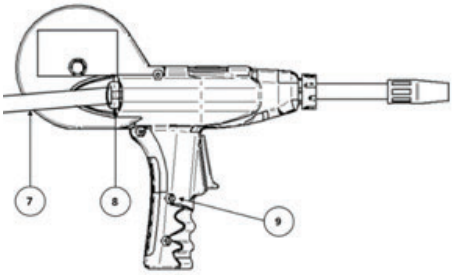


Left Side View

See Figure A.3 for Items 7 thru 9

7. Integrated Single-Piece Cable: The Magnum PRO® Premium 150A SG design provides neat and clean appearance; simplifies cable management and reduces entanglements.
8. Standard Durable Strain Relief Clamp.
9. Four Captive Hex Nuts.

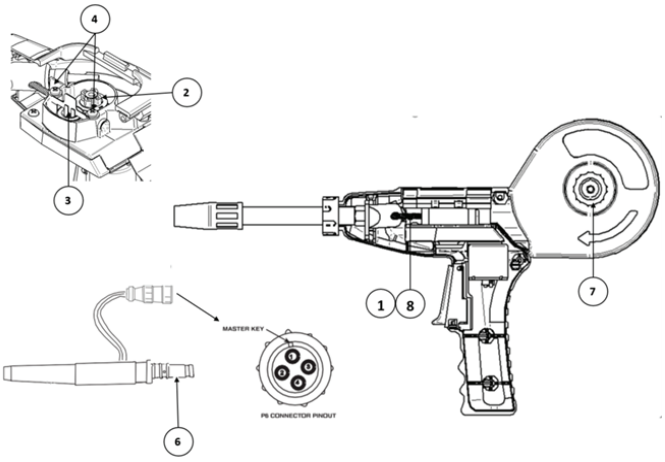
FIGURE A.3



Right Side View

ASSEMBLY OF ITEMS INSIDE THE MAGNUM PRO® PREMIUM 150A SPOOL GUN

FIGURE A.4



1. Liner Assembly feeds all specified wire.
2. Drive Roll: This Drive Roll feeds all specified wires.
3. Idle Roll Assembly: Non-adjustable tension setting for all specified wires.
4. Incoming Wire Guide: Highly wear resistant.
5. P6 Connector Control Leads: Motor Power and Trigger (See Maintenance Section for more details).
6. Welding Power and Shielding Gas Machine connection (Sealed with 2 o-rings).
7. Locking Knob: Independently retains the wire spool on the spindle.
8. Liner Assembly: Includes a gas seal with the cable connector and is the outgoing wire guide.
9. Only 4 sub-assemblies: gun tube; cable; wire drive; trigger.
10. Conical spring (not shown) serves as the spool brake (use only with aluminum alloy 5356).

⚠ CAUTION

WELDING MACHINES

Read and understand the welding machine's instruction manual and all hazard warnings on equipment and in the manual. Wear the proper personal protective equipment for welding, including but not limited to, safety glasses, hearing protection, welding helmet, welding gloves, and welding leathers.

SPOOL GUN

ELECTRIC SHOCK can kill.

- **The spool of wire may fall out of the gun if the locking knob is not installed.**
- **Metal parts may be at welding voltage (electrically "hot").**
- **Metal parts remain at welding voltage for several seconds after trigger is released. Read warning label on gun.**
- **This product shall not be used in precipitation, or in wet or damp locations.**

RECOMMENDED WELDING MACHINES			
MACHINE NAME	K NUMBER	CODE NUMBER	INSTALLATION OF M21182 HARNESS AND SELECTOR SWITCH
4 PIN MACHINES			
Power MIG 216	K2816-1	11588	NOT REQUIRED
Power MIG 211i MIG Welder	K6080-1	13214	NOT REQUIRED
Power MIG 215MPi Multi Process Welder	K4876-1	13088	NOT REQUIRED
Power MIG 210MP	K3963-1	12630	NOT REQUIRED
Power MIG 140C	K2471-1	11255	REQUIRED
Power MIG 180C	K2473-1	11257	REQUIRED
Power MIG 180 Dual	K3018-1	11659	NOT REQUIRED
SP-140T	K2688-1	11658	REQUIRED
		11501	REQUIRED
SP-180T	K2689-1	11649	REQUIRED
		11502	REQUIRED
8 PIN MACHINES			
Power MIG 140MP	K4498-1	12882	NOT REQUIRED
MIG-Pak 140	K2658-1	12104	NOT REQUIRED
LE31MP	K3461-1	12662	NOT REQUIRED

SPOOL GUN/WIRE DRIVE SELECTOR SWITCH INSTALLATION

NOTE: Installation of the M21182 harness and spool gun selector switch is not required for all machines. If a spool gun switch is preinstalled in the machine's wire drive compartment, then this section can be disregarded.

Install the M21182 electrical adapter harness that came with the spool gun per the following instructions.

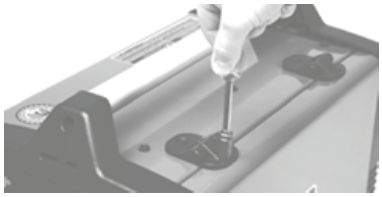
⚠ WARNING

ELECTRIC SHOCK can kill.

- **Disconnect input power from the machine.**

OPENING THE MACHINE

1. Remove two 5/16" hex hinge screws from door.

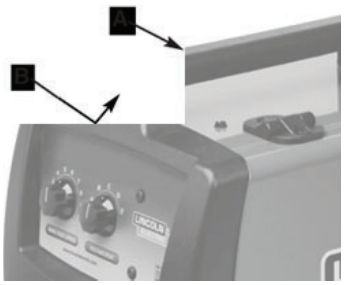


2. Remove ten 5/16" hex screws from cover.

3. Remove the two 3/4" long screws from cover.

4. Remove cover.

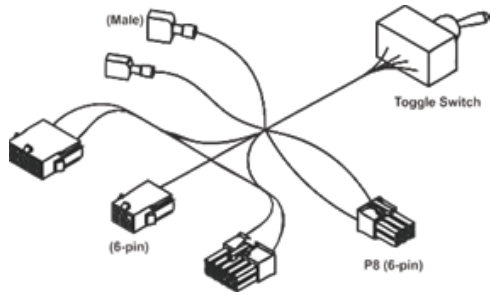
5. If machine has a plastic handle, remove screws.



ELECTRICAL CONNECTIONS

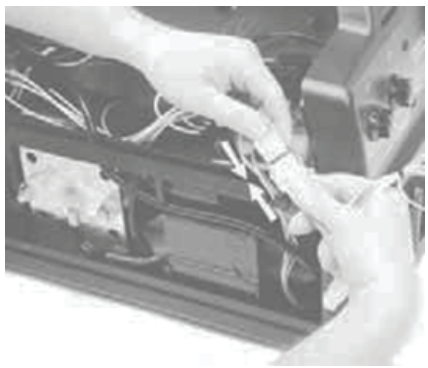
The Adapter Harness connections (6) used are shown in **Figure A.5** below, and each one is unique.

FIGURE A.5

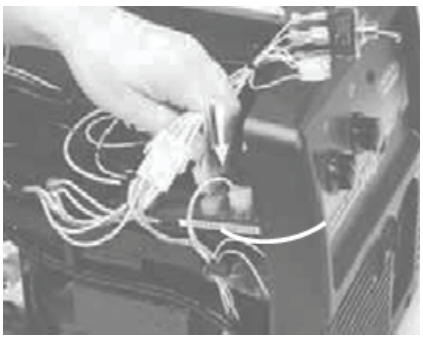


6. Disconnect P3 (10-pin) from board J3 (10-pin).

7. Connect P3 (10-pin) to harness J7 (10-pin).

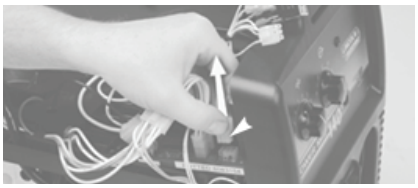


8. Connect harness P7 (10-pin) to board J3 (10-pin).

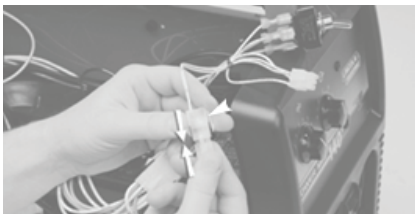


IF MACHINE DOES NOT HAVE OPTIONAL SPOT TIMER:

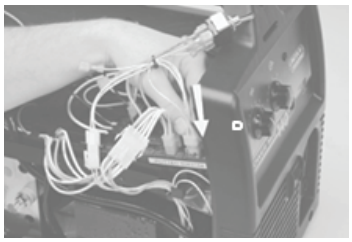
9a. Disconnect P5 (6-pin) from board J5 (6-pin).



9b. Connect P5 (6-pin) to harness J8 (6-pin).



9c. Connect harness P8 (6-pin) to board J5 (6-pin).

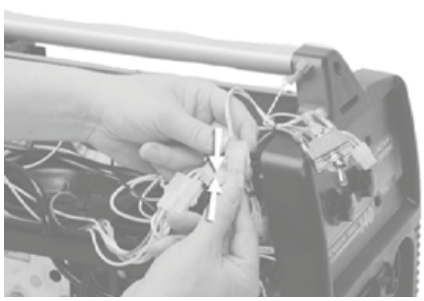


9d. Find assembled pair of machine terminals (leads 543A & 544A) and disconnect. Go to step 11.

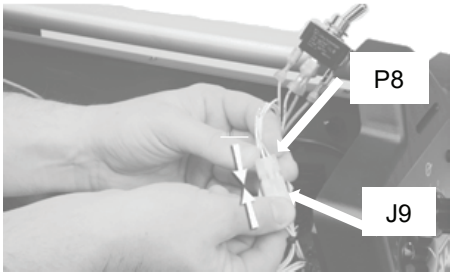
IF MACHINE DOES HAVE OPTIONAL SPOT TIMER:

10a. Disconnect P5 (6-pin) from spot timer harness J9 (6-pin).

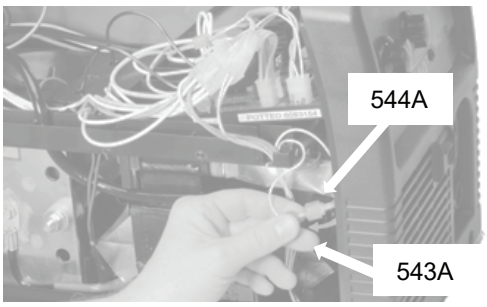
10b. Connect P5 (6-pin) to adapter harness J8 (6-pin).



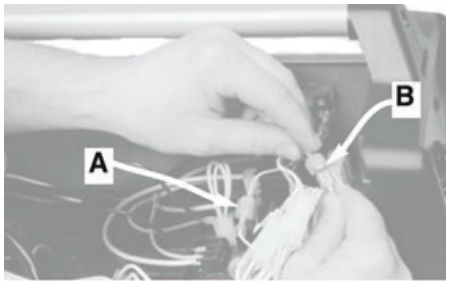
10c. Connect adapter harness P8 (6-pin) to spot timer harness J9 (6-pin).



10d. Find assembled pair of machine terminals (leads 543A & 544A) and disconnect.



11a. Connect machine male (lead 543A) to adapter harness female (lead 543A).



11b. Connect machine female (lead 544A) to adapter harness male (lead 544A).

12. Ensure that the locking tabs on all connectors are latched closed.

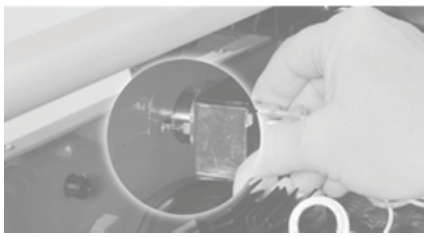
MOUNTING THE SWITCH

13. Remove the plug button from the panel hole.

14. Plug button is no longer needed. Discard.

15. Remove mounting nut from switch. Keep mounting nut for installation.

16. Install switch into panel hole. Ensure washer tab is fully seated into smaller hole.



17. Reinstall mounting nut onto switch. Wrench tighten.

RE-ASSEMBLE MACHINE AS FOLLOWS

20. Reinstall screw into plastic handle (if so equiped).
21. Reinstall cover.
22. Reinstall door.
23. Reconnect input power to the machine.

ROUTINE WELDING MACHINE PREPARATION

⚠ WARNING

ELECTRIC SHOCK can kill.

- **Disconnect input power to the machine.**

Machine Polarity Setting: Set to DC electrode positive polarity per the machine's Instruction Manual.

Gas Selection and Flow Rate: Connect 100% welding grade argon gas supply to the machine's gas solenoid valve. Set the supply regulator to deliver a gas flow rate of 20 to 50 SCFH through the spool gun.

Flip the machine's wire drive selector switch (behind the access door) to "Magnum PRO ® 150A SG". (See Figure A.5).

FIGURE A.5

PREPARING THE SPOOL

⚠ WARNING

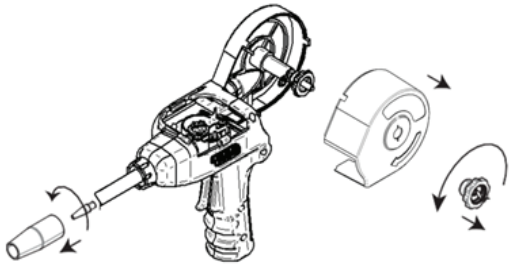
ELECTRIC SHOCK can kill.

- **Disconnect input power to the machine.**

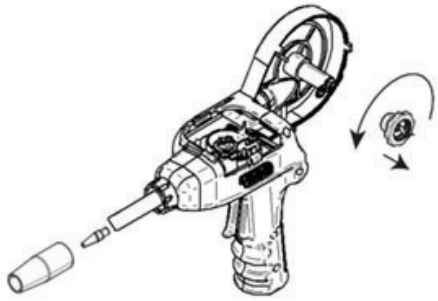
The Conical Spring is used as the spool brake only when feeding the stronger and harder aluminum alloy 5356. The Conical Spring must be removed from the spool gun whenever using the softer aluminum alloy 4043.

LOADING ALUMINUM WIRE

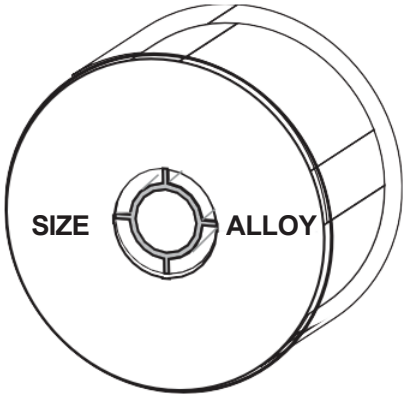
1. Remove gas cone and contact tip. Remove spool cover by unscrewing captive locking knob.



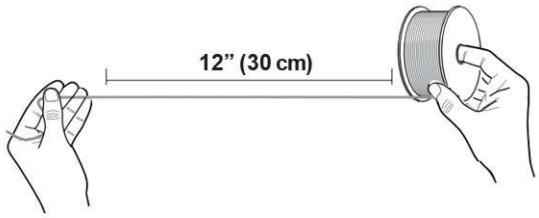
2. Remove locking knob from spindle bolt by unscrewing it.



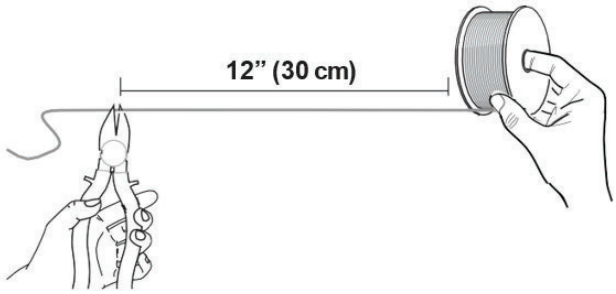
3. Select wire diameter (size) and alloy needed. 0.035 wire size alloy 4043 included with spool gun, removing packaging and data sheet from wire spool.



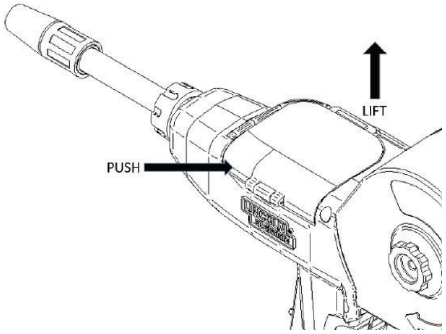
4. Extend approximately 12 inches of wire from spool. Straighten it out by back bending it. Use care to prevent the wire from dereeling.



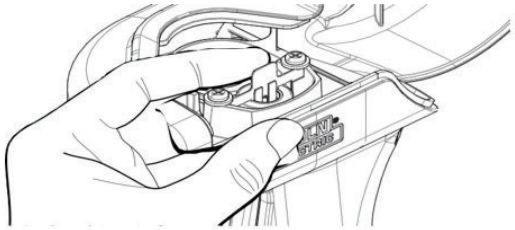
5. Cut off bent end of wire, leaving straight section



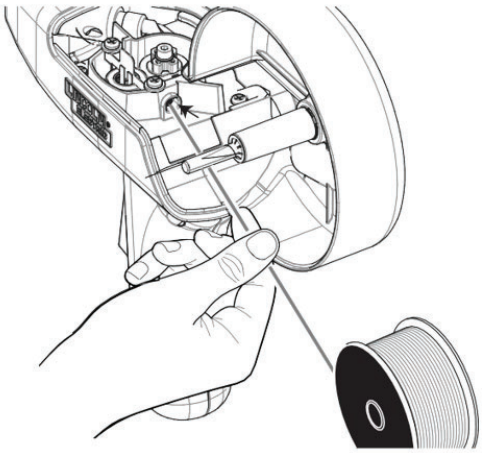
6. To open the motor cover, press the left corner of the cover in the hinge area, once pressed, lift the cover tab.



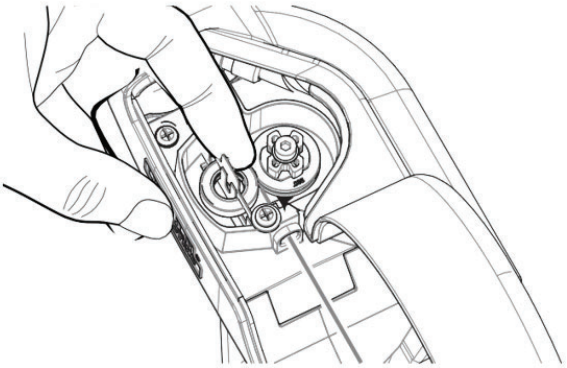
7. Gently pull open the idle roll assembly to expose the drive roll groove.



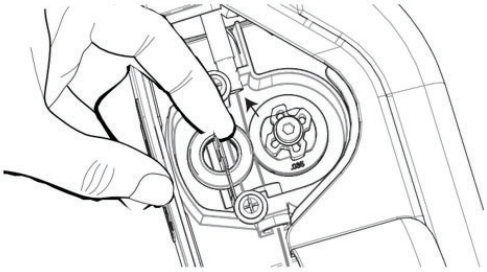
8. Guide straightened wire through inlet wire guide and toward drive roll groove.



9. While holding open the idle roll, slide end of wire through drive roll's groove and toward gun tube liner.

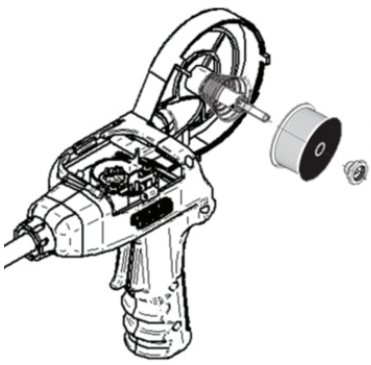


10. Slide the wire into the liner until it extends approximately 1 inch beyond the end of the gas diffuser. Release idle roll tab without snapping it.



11a. Alloy 4043: Roll up remaining wire back onto spool and place spool onto gun spindle. Install locking knob and finger- tighten. Go to step 11.

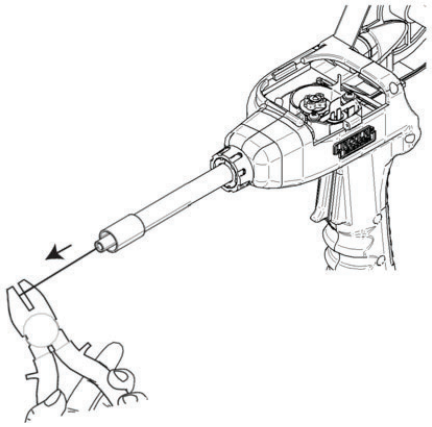
11b. Alloy 5356: Install Conical Spring, small end first, onto gun spindle (A). Roll up remaining wire back onto spool and place spool onto gun spindle. Install locking knob and finger- tighten.



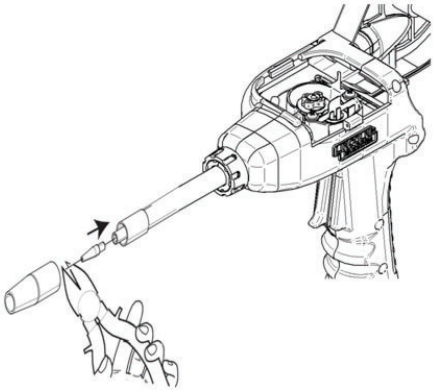
For Alloy 5356, install conical spring. Not needed

For Alloy 4043

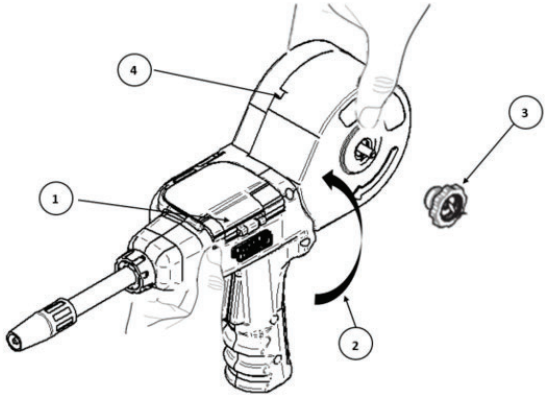
12. Grasp the free end of the wire at the gas diffuser and slowly pull approximately 12 to 24 inches of wire through the spool gun. There should only be 1 to 2 lbs. of resistance. If force is greater than 2 lbs. wire is binding in the gun (also see Troubleshooting guide).



13. Cut off excess wire 1 to 2 inches from gas diffuser. Install properly-sized contact tip slightly past hand-tight. Install gas cone and hand-tighten.



14. Reinstall spool cover. (1) Tuck cover's tab in place at arrow and hold with thumb. (2) Swing cover closed. (3) Finger-tighten locking knob. (4) Check for uniform fit all around cover.



CONNECTING THE GUN TO THE WELDING MACHINE

1. Disconnect input power to the machine
2. Make sure that the wire-drive thumb screw is loosened.
3. Fully insert gun cable connection into machine. Connect 8 pin trigger connector to case front.
4. Check that the cable connector's end is fully inserted and tighten the wire drive thumb screw.

OPERATION

Read and understand this entire section before operating the machine

⚠ WARNING

ELECTRIC SHOCK can kill.

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

FUMES AND GASES can be dangerous.

Although the removal of the particulate matter from welding smoke may reduce the ventilation requirement, concentrations of the clear exhausted fumes and gases may still be hazardous to health. Avoid breathing concentrations of these fumes and gases. Use adequate ventilation when welding. See ANSI Z49.1, "Safety in Welding and Cutting", published by the American Welding Society.

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.**

NOTE: After choosing the proper welding wire for your application, load the aluminum wire, connect the gun and cable to the welding machine. (See Installation Section).

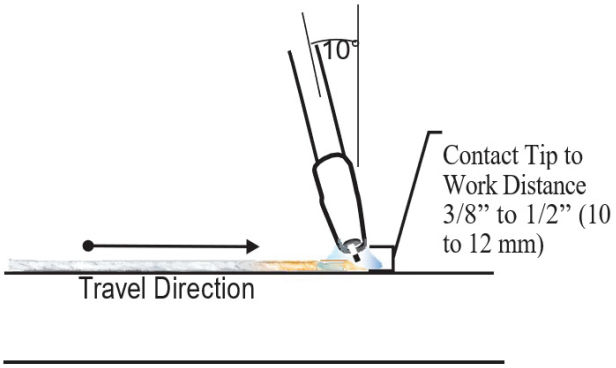
WELDING PROCEDURES

Read and understand Arc Welding Safety Precautions located throughout this manual and the Welding Machine's Instruction Manual. Also for helpful hints in welding see (LTW1) the Learn to Weld manual which is supplied with the welding machine.

Obtain and use the proper personal protective equipment for welding.

1. Connect the WORK (welding ground) cable(-) to piece(s) being welded. Make sure gas hose from cylinder's regulator is connected to welder's gas INLET. Open cylinder's gas valve.
2. Connect input power to the machine.
3. Turn the machine's power switch to "on". Set wire speed and voltage tap settings to tables which are provided in the beginning of this section.
4. Flip toggle selector switch inside of machine to "Magnum PRO Premium 150 a SG" position. Press and hold trigger for about 5 seconds to purge hose. Be sure the Gas flow rate is set to 20 to 50 SCFH thru the spool gun.
5. Cut off the aluminum wire so that it extends about 1/4 inches from the contact tip.
6. CTWD (Contact Tip to Work Distance): Position the gun so that the contact tip is nominally 3/8 inches from the joint and tilted with a push angle toward it. The aluminum wire should not contact the work piece. (See figure B.1).

FIGURE B.1



7. Protect the eyes and pull the trigger to begin welding.
8. Adjust the hand travel speed of the gun to achieve a proper weld. The emerging wire should stay within the molten puddle and not overrun it. This speed also should not be so slow that either the work piece excessively melts, or the weld bead becomes excessively large.
9. Release the trigger to stop welding.

PRODUCT DESCRIPTION

The Magnum® PRO Premium 150 A Spool Gun is a reliable, low-price aluminum welding accessory for novice and experienced welders

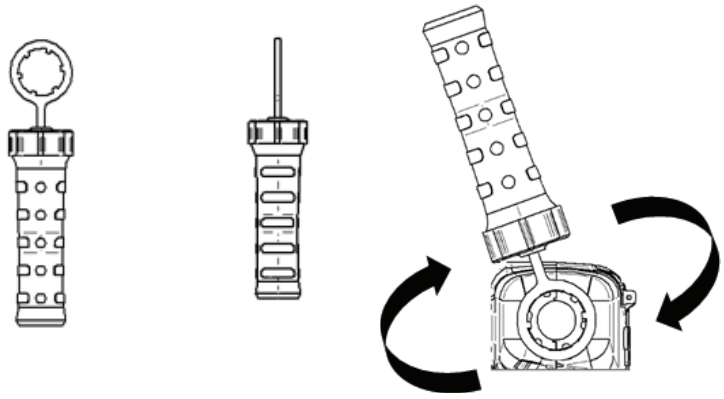
All combinations of specified aluminum alloys and wire diameters can be fed with the same drive roll and liner assembly.

Gun cable compactly integrates welding current and gas supplies with gun control functions.

SECOND FRONT HANDLE (SEE FIGURE B.2)

- Ergonomic removable accessory that provides the welder with greater stability.
- Improves grip with over molding material.
- It can be placed in six positions around 360° on the front of the handles to accommodate left and right-handed welders.

FIGURE B.2

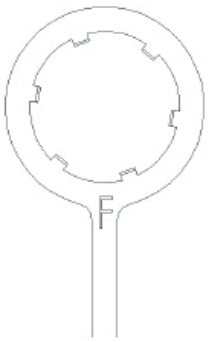


To install the second front handle:

- Remove the gas nozzle and the collar that joins both handles.
- Place the second handle at the desired angle. The face marked with an F must be facing outwards.
- Assemble the collar making sure to turn it until you feel the click, at which point it will be secured.
- Place the gas nozzle.

Now you are ready to weld.

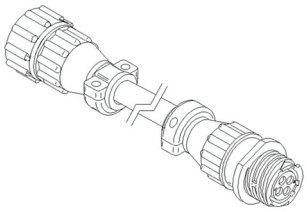
FIGURE B.3



SPOOL GUN ADAPTER (SEE FIGURE B.4)

- If the machine has an 8-pin connector for trigger and motor control, you must use the adapter included in the kit bag.
- Attach the 4-pin male end to the female end of the adapter, then position the 8-pin side on your machine.
- Make sure it is sufficiently fixed, tightening is done manually.
- When you finish using it, you can put it back in the case or leave it installed.

FIGURE B.4



ACCESSORIES

OPTIONAL KITS AND ACCESSORIES			
CONSUMABLE PARTS	CONTACT TIP, 0.030 WIRE	KP2744-030T	10 - PACK
	CONTACT TIP, 0.035 WIRE	KP2744-035T	10 - PACK
	GAS DIFFUSER	KP3076-1	1 - PIECE
	GAS CONE ASSEMBLY	KP3075-1-50-F	1 - PIECE
PERIODIC REPLACEMENT PARTS	GUN TUBE ASSEMBLY	KP3325-1	1 - PIECE
	DRIVE ROLL ASSEMBLY	KP2529-2	1 - PIECE
	LINER ASSEMBLY	KP2632-1	1 - PIECE

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 AND PERIODIC MAINTENANCE

Recommended tools:

- #2 Phillips Screw Driver
- Slotted Screw Driver
- 5/16 Inch Nut Driver
- Torque Wrench
- Adjustable Jaw Pliers
- 7/16 Inch Open End Wrench (Gas Diffuser)
- 9/16 Inch Open End Wrench (Gun Tube Nut)
- Welding Pliers (Optional)
- Wire Cutter
- Wire Stripper
- Needle Nose Pliers
- Terminal Crimping Tool
- Flashlight
- Hand Held Electric Meter*
- 3.0 mm Metric Allen Wrench (Drive Roll Screw)
- Tape Measure or 6 Inch Scale
- Tachometer

***NOTE**: Two meters are used for simultaneously measuring drive motor's voltage and current.

CLEANING AND INSPECTIONS

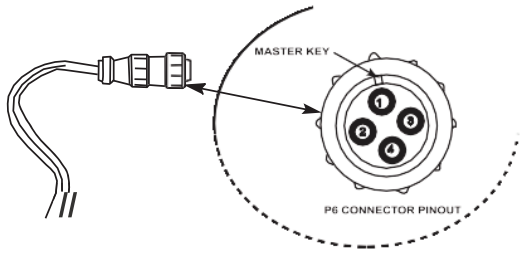
- Vacuum out any aluminum shavings that may have accumulated inside of the gun. (See Correcting Wire Shaving Issues in this section).
- Wipe off dust and debris.
- Check that the gun tube and its lock nut are properly tightened to the cable connector.
- Replace any warning or product identification decals that have become illegible.

CONNECTORS PIN-OUT

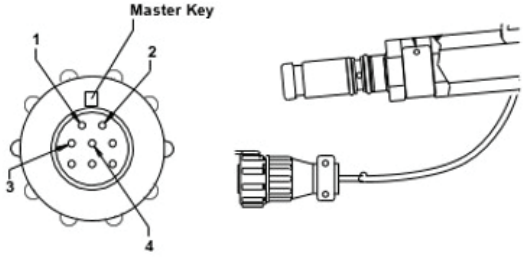
TABLE D.1

PIN NO.	FUNCTION	GUN CABLE LEAD COLOR
1	Trigger	White
2	Trigger	White
3	+Motor	Red
4	-Motor	Black

4 Pins Connector



8 Pins Connector



GAS DIFFUSER REPLACEMENT

The gas diffuser may need to be replaced if it has accumulated excessive spatter and cannot be cleaned.

1. Remove gas cone and contact tip.
2. Carefully grasp gun tube with pliers to prevent accidentally loosening gun tube. Gas diffuser has right-hand threads. Loosen gas diffuser with wrench (see Figure D.1).

FIGURE D.1

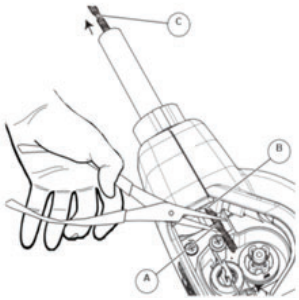
3. Install gas diffuser and thread into place in gun tube. Tighten diffuser to 41 to 47 in.-lbs. with Torque Wrench.

LINER ASSEMBLY REPLACEMENT OR CLEANING

Replacement liner assemblies are factory-made to the correct length. No cutting is required. The same liner fits all specified wire sizes and alloys.

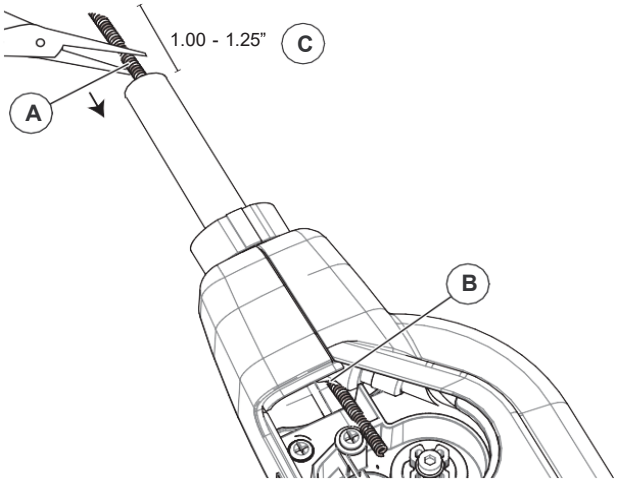
1. Remove gas cone, contact tip, and gas diffuser (see Gas Diffuser Replacement in this Section). Remove spool cover.
2. Liner removal: Grasp liner with Needle nose pliers at point A. Gently work liner toward cable connector until the liner is loose in it. Be careful not to scrape liner's gas-tight seal (point B) on connector. Withdraw liner out of gun tube (arrow C) (see Figure D.2).

FIGURE D.2



3. Clean out old liner by blowing out with shop air or obtain a new replacement liner.
4. Slide liner, seal-end first, into gun tube. Grasp liner with pliers
   a. Gently push liner into connector.
   b. Check that liner passes through slot in wire feeder.
   c. Stop pushing when liner is 1.00 to 1.25 inches from end of gun tube (see Figure D.3).

FIGURE D.3



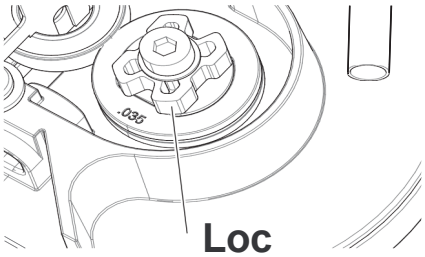
5. Perform Liner installation. See step 4 prior.
6. Reinstall gas diffuser (see Figure D.1) and thread into place. Allow the diffuser to push the liner into its final position. Tighten to 41 to 47 in.-lbs. with a torque wrench.
7. Reinstall contact tip and gas cone.

DRIVE ROLL REPLACEMENT

The same drive roll fits all specified wire sizes and alloys. Replace the drive roll if its feeding groove has become worn or cannot be cleaned of galled aluminum.

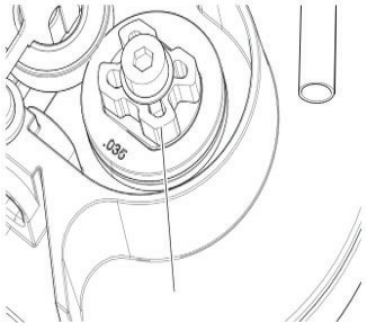
1. To remove drive roll, remove wire from the wire drive. Unlock drive roll by rotating twist-lock in either direction (See Figures D.4 and D.5).
2. Twist-lock is rotated to the locked position, securing drive roll in place.

FIGURE D.4



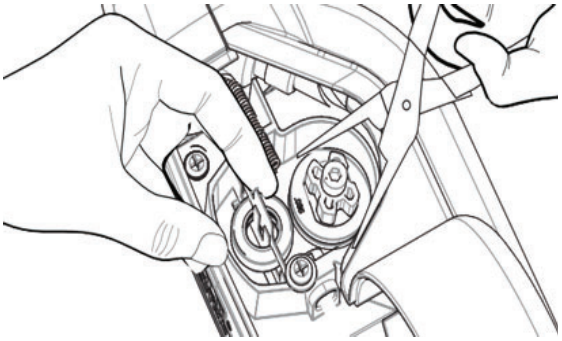
3. Twist-lock is rotated to the unlocked position, allowing drive roll removal.

FIGURE D.5



4. Drive roll may be removed with pliers, as shown in figure D.6. It may be helpful to relieve the idle roll tension during this step.

FIGURE D.6



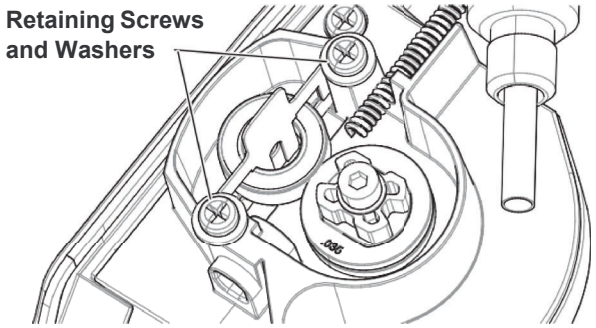
5. Clean the drive roll's groove or obtain a new replacement drive roll (if needed).
6. Install the drive roll by reversing the above steps 1 thru 7. Either side of the drive roll may be face-up.

IDLE ROLL ASSEMBLY REPLACEMENT

Replace if it is degraded from use; for example, it is becoming galled with aluminum deposits.

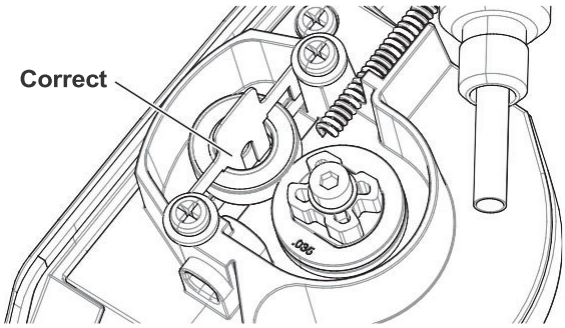
1. Remove drive roll. (See Maintenance Section).
2. Remove both idle roll assembly retaining screws and washers (see Figure D.7).

FIGURE D.7



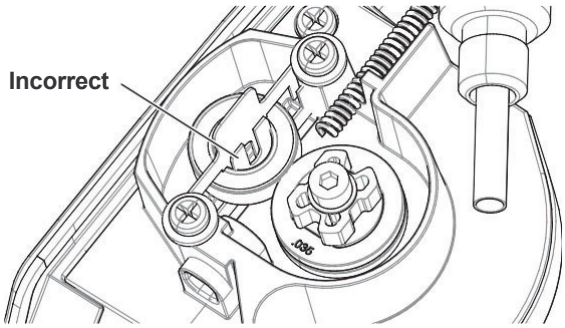
3. Using Needle nose pliers, slowly pull the idle roll assembly out of the wire drive by equally working both sides of the tabbed idle roll spring.
4. Insert the new idle roll assembly into the wire drive with the correct orientation (See figures D.8 and D.9).
   a. **Correct orientation**: Note that lower spring is not visible in bore of idle roll bearing at arrow.

FIGURE D.8



b. **Incorrect orientation**: Note that lower spring is visible in bore of idle roll bearing at arrow.

FIGURE D.9



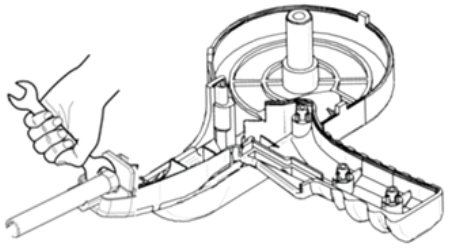
6. Using Needle nose pliers, push the new idle roll assembly into the wire drive until it is fully seated.
7. Reinstall the retaining screws and washers. Do not use the screws to draw the idle roll into place. Reinstall the drive roll and wire into the wire drive.

GUN TUBE ASSEMBLY REPLACEMENT

Replace if it is degraded from use; for example, its insulating tube is breaking down.

1. Remove liner assembly.
2. Remove left side of handle. Loosen gun tube nut with wrench. Nut has right-hand threads. Use adjustable pliers on gun tube mounting plate to prevent cable assembly from rotating in gun handle (see figure D.10).

FIGURE D.10



3. Obtain a new replacement gun tube (if needed). Remove locking nut from old gun tube and install onto new gun tube. Nut should be fully threaded finger-tight against the insulating tube.

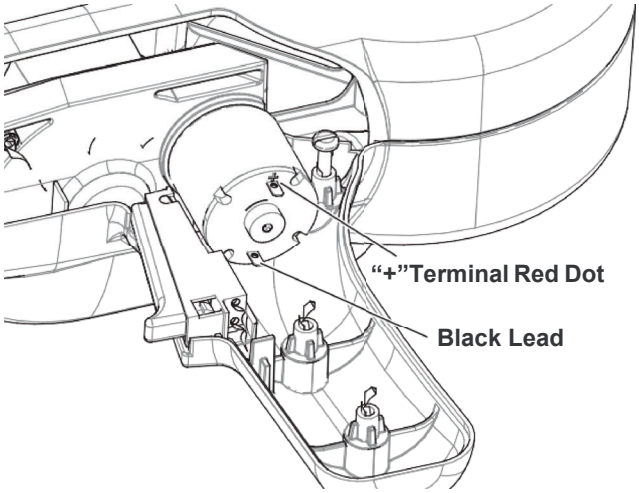
4. Slide gun tube's external threads through gun tube mounting plate and screw the gun tube by hand into the cable connector until the nut pulls the mounting plate snug against the connector.
5. Tighten the nut and mounting plate to the connector with Torque Wrench 10 to 12 ft.-lbs.
6. Reassemble gun. Be careful not to pinch any leads between gun handle halves.

WIRE DRIVE ASSEMBLY REMOVAL AND INSTALLATION

There are no serviceable or maintainable parts inside of the wire drive.

1. Remove liner assembly (see Maintenance Section figures D.2 and D.3).
2. Remove left side of handle.
3. Disconnect black and red leads from drive motor. Use care to prevent damage to motor's fast-on electrical tabs.
4. Slide wire drive out of right handle half.
5. When reinstalling wire drive, note the proper motor lead connection in the figure. Reconnect red motor lead to positive (+) terminal, marked with red dot at arrow. Reconnect black lead to other motor terminal (see Figure D.11).

FIGURE D.11



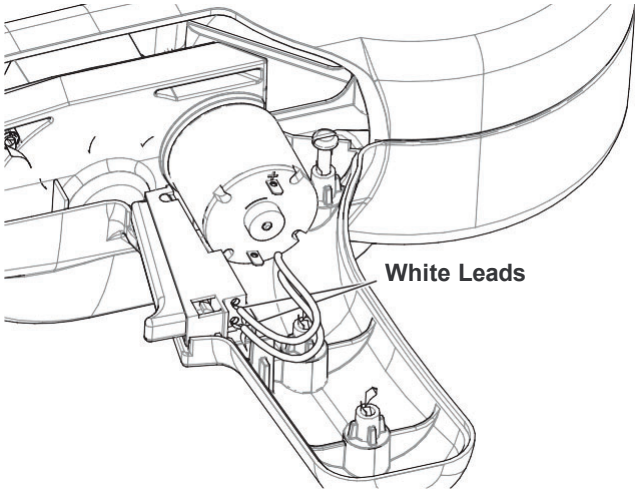
6. Reassemble gun. Be careful not to pinch any leads between gun handle halves.

TRIGGER ASSEMBLY REPLACEMENT

There are no serviceable or maintainable parts inside of the trigger.

1. Remove spool cover and left side of handle.
2. Slide trigger out of right handle half. Disconnect both white leads from trigger. Use care to prevent damage to electrical leads and the terminals (see Figure D.12).

FIGURE D.12



3. Connect both white leads to the new trigger. Either lead may be connected to either trigger pin (non-polarized connections).
4. Slide new trigger into place and reassemble the gun. Be careful not to pinch any leads between gun handle halves.

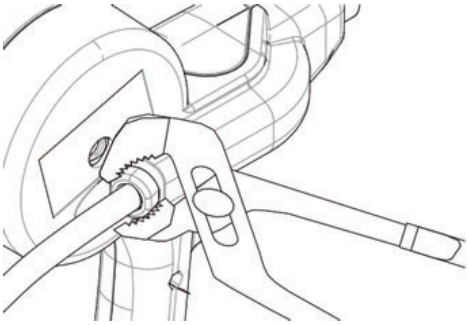
WELDING CABLE ASSEMBLY REPLACEMENT

Generally, there are no serviceable or maintainable parts, except for both o-rings on the machine's power and gas connector; these seals may be replaced. However, there are options:

- Damage to the four #22 AWG control leads at the gun cable's welding machine end (P6 plug) may be repairable without removing or replacing the entire gun cable. The leads can be spliced and soldered back together, and then reinsulated with heat-shrink tubing. See Table D.1 in Maintenance Section for a description of the connections.
- Otherwise, the damaged gun cable may be replaced.

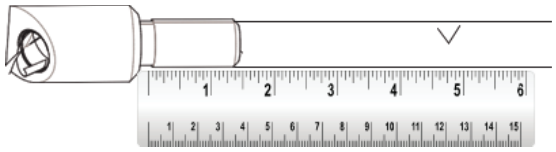
1. Remove liner assembly (see Maintenance Section).
2. Remove gun tube assembly (see Maintenance Section).
3. Remove wire drive assembly (see Maintenance Section).
4. Disconnect trigger. Use adjustable pliers to remove cable strain relief from right handle half (see figure D.13).

FIGURE D.13



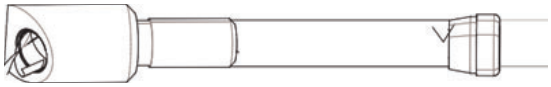
5. Pull damaged cable out of the right handle half. The cable connector will fit through the strain relief opening. Mark the new cable at a point 4.750 to 4.813 inches from the end of the cable connector (see Figure D.14).

FIGURE D.14



6. Place the strain relief onto the new cable at the mark as shown in Figure D.15.

FIGURE D.15



7. Install the new gun cable. Pass the cable connector through the opening in the right handle, seat the strain relief in place, and then check to insure the cable is not kinked between strain relief and connector. Reassemble gun by reversing steps 2 through 5.

CORRECTING WIRE SHAVING ISSUES

If the inlet of the liner assembly is shaving the aluminum wire (the wire is usually peeled off in curled chips) during feeding, the wire feed centerlines of the wire drive and the liner itself may be misaligned.

- This misalignment may occur whenever the gun tube, wire drive, or welding cable assemblies are replaced.
- A limited amount of adjustment is available at the gun tube mounting to possibly eliminate the shaving problem.

1. Visually check if wire is centered in the liner's inlet opening. Feed wire through the spool gun and note which side the shaving seems to occur.
2. Remove left side of handle. See Figure D.10 Gun Tube Replacement. Slightly loosen gun tube's nut as shown.
3. Slide the gun tube in the mounting plate's hole to realign the wire and then retighten the nut as shown. Reassemble the gun.
4. Repeat steps 2 thru 4 until shaving is eliminated. A light accumulation of fine dust is also permissible after feeding 1/4 of a spool during welding use.

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 your 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

- **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.**
- **Welding power source must be connected to system ground per the National Electrical Code or any applicable local codes.**
- **Only qualified personnel should perform maintenance work.**

Observe all additional Safety Guidelines detailed throughout this manual.

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

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Observe all Safety Guidelines detailed throughout this manual

PROBLEMS (SYMPTOMS)	POSSIBLE CAUSE	RECOMMENDED COURSE OF ACTION
No wire feed occurs when trigger is pulled.	1. Machine is switched off or unplugged.	1. Switch on or plug in machine.
	2. Out of wire	2. Install full spool of specified wire.
	3. Contact tip burnback.	3. Replace contact tip.
	4. Fully or partially blocked gun liner.	4. Remove and clean or replace gun liner (see Maintenance section). Check for proper wire alignment and wire's mechanical resistance.
	5. Bird nest	5. Cut out bird nest, reload wire, and check for proper wire alignment and wire's mechanical resistance.
	6. Machine's toggle selector switch is not set to spool gun mode.	6. Flip switch to proper operating position.
	7. Defective trigger (contacts open or dirty).	7. Replace trigger assembly.
	8. Defective trigger circuit in gun.	8. Disconnect gun from machine and check trigger circuit for continuity.
	9. Damaged spool gun motor.	9. Contact LASF for possible motor replacement.
	10. No motor voltage or current from machine.	10. See Troubleshooting section in welding machine's or wire feeder's instruction manual.
	11. Contact tip size too small for wire diameter used.	11. Replace contact tip with one that is the correct size.
Sluggish wire feed when trigger is pulled.	1. Drive roll is worn or galled with aluminum.	1. Clean drive roll of all aluminum or replace drive roll.
	2. Machine's wire feed speed setting is too low.	2. Increase wire feed speed.
	3. Wire is obstructed somewhere along the wire feed path in the gun.	3. Check for obstructions: Remove any wire shavings; remove kinked wire; remove and clean or replace gun liner.
	4. Low motor voltage.	4. See Troubleshooting section in welding machine's instruction manual.
Drive roll turns in reverse direction.	1. Motor leads are connected in reverse.	1. Connect properly (see Maintenance section).

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

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Observe all Safety Guidelines detailed throughout this manual

PROBLEMS (SYMPTOMS)	POSSIBLE CAUSE	RECOMMENDED COURSE OF ACTION
Intermittent wire feed when trigger is pulled.	1. Wire is mechanically binding along its feed path inside gun.	1. Check that wire is properly aligned inside gun.
	2. Drive roll has become loose on hub and output shaft.	2. Check that drive roll is securely fastened in place by SHCS (socket head cap screw); replace hub and twist-lock if worn.
	3. Drive roll has become galled with aluminum.	3. Remove and then clean or replace drive roll (see Maintenance section).
	4. Wire has become kinked along its feed path.	4. Manually pull wire slowly thru gun until unkinked wire emerges.
	5. Idle roll assembly is installed backwards.	5. Install properly (see Maintenance section).
	6. Liner assembly is shaving wire.	6. Check that wire is properly aligned at liner inlet; realign gun tube with wire drive (see Correcting Wire Shaving Issues Maintenance section).
Frequent occurrence of contact tip burnback.	1. Improper welding parameters or technique (example: ESO is too short).	1. See welding wire literature for proper settings.
	2. Wire may be feeding intermittently.	2. See symptoms on intermittent or sluggish wire feed.
Poor weld bead appearance (porosity or dull gray oxidized surface).	1. No gas flow.	1. See symptom "Low or no gas flow".
	2. Low gas flow.	2. See symptom "Low or no gas flow".
	3. Improper or contaminated shielding gas.	3. Check that the gas supply's labeling reads 100% argon. Temporarily use alternate, known gas supply and check for appearance improvement.
	4. Welding in a windy environment.	4. Erect a wind shield or move to a non-windy location before welding.
	5. Improper electrode polarity.	5. Reconnect machine's welding output to electrode positive polarity.
	6. Improper welding parameters or technique.	6. See Operation section for information.

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

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Observe all Safety Guidelines detailed throughout this manual

PROBLEMS (SYMPTOMS)	POSSIBLE CAUSE	RECOMMENDED COURSE OF ACTION
Low or no shielding gas flow.	1. Out of gas.	1. Check that an adequate gas supply is available.
	2. Gas supply is turned off or disconnected.	2. Check that all gas supply valves are open.
	3. Gas supply flow regulator is improperly set.	3. Check that gas flow is set between 20 to 50 SCFH.
	4. Machine's gas solenoid valve has malfunctioned.	4. See machine's instruction manual.
	5. Blockage in gun along gas path.	5. Gently blow out debris from core tube.
	6. Gun cable kinked or flattened.	6. Attempt to straighten out cable, or replace cable (see Maintenance section).
	7. Blockage due to excessive spatter accumulation on gas cone or gas diffuser.	7. Clean or replace gas cone or gas diffuser.
	8. Excessive gas leakage from supply.	8. Find and repair all leaks.
	9. Gas leakage in gun between liner assembly and cable connector.	9. Replace liner assembly (see Maintenance section).
	10. Gas leakage at gun-to-feeder connection.	10. Damaged o-rings: replace both seals. Gun connector not fully inserted into machine (see Installation section).
Wire feeder runs or begins feeding wire without pulling the gun trigger.	1. Defective trigger (contacts closed).	1. Replace trigger (see Maintenance section).
	2. Defective (closed) trigger circuit in the welding machine.	2. See machine's instruction manual.
	3. Trigger lead(s) inside gun cable are shorted together or commonly shorted to either welding or motor circuits.	3. Damaged control leads between machine's P6 connector and cable; repair if possible. Otherwise, replace gun cable (see Maintenance section for both).

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

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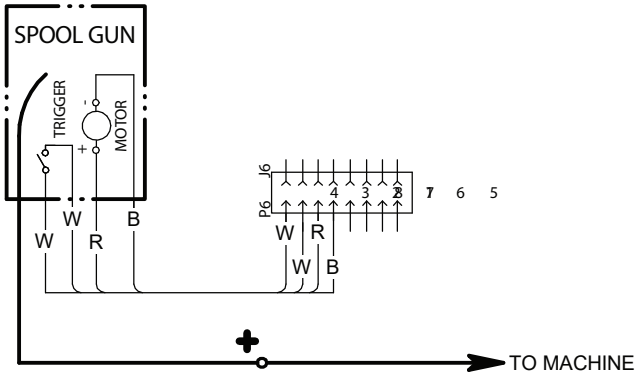
SPOOL GUN INTERFACE - WIRING DIAGRAM

WARNING

HIGH VOLTAGE can kill

- Do not operate with covers removed.
- Disconnect input power by unplugging power cord before servicing.
- Do not touch electrically live parts
- Only qualified persons should install, use or service this machine.



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		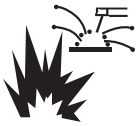	
WARNING	● Do not touch electrically live parts or electrode with skin or wet clothing. ● Insulate yourself from work and ground.	● Keep flammable materials away.	● Wear eye, ear and body protection.
Spanish **AVISO DE PRECAUCION**	● No toque las partes o los electrodos bajo carga con la piel o ropa mojada. ● 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 **ATTENTION**	● Ne laissez ni la peau ni des vêtements mouillés entrer en contact avec des pièces sous tension. ● 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 **WARNUNG**	● Berühren Sie keine stromführenden Teile oder Elektroden mit Ihrem Körper oder feuchter Kleidung! ● Isolieren Sie sich von den Elektroden und dem Erdboden!	● Entfernen Sie brennbarres Material!	● Tragen Sie Augen-, Ohren- und Körperschutz!
Portuguese **ATENÇÃO**	● Não toque partes elétricas e electrodos com a pele ou roupa molhada. ● Isole-se da peça e terra.	● Mantenha inflamáveis bem guardados.	● Use proteção para a vista, ouvido e corpo.
Japanese **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。 ● 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 **警 告**	● 皮肤或濕衣物切勿接觸帶電部件及銲條。 ● 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 **위 험**	● 전도체나 용접봉을 젖은 헝겁 또는 피부로 절대 접촉치 마십시요. ● 모재와 접지를 접촉치 마십시요.	● 인화성 물질을 접근 시키지 마시요.	● 눈, 귀와 몸에 보호장구를 착용하십시요.
Arabic **تحذير**	● لا تلمس الاجزاء التي يسري فيها التيار الكهربائي أو الالكترود بجلد الجسم أو بالملابس المبللة بالماء. ● 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. ● 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. ● 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 **AVISO DE PRECAUCION**
● Gardez la tête à l'écart des fumées. ● 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 **ATTENTION**
● Vermeiden Sie das Einatmen von Schweibrauch! ● 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 **WARNUNG**
● Mantenha seu rosto da fumaça. ● Use ventilação e exhaustão para remover fumo da zona respiratória.	● Não opere com as tampas removidas. ● Desligue a corrente antes de fazer serviço. ● Não toque as partes elétricas nuas.	● Mantenha-se afastado das partes moventes. ● Não opere com os paineis abertos ou guardas removidas.	Portuguese **ATENÇÃO**
● ヒュームから頭を離すようにして下さい。 ● 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 **注意事項**
●頭部遠離煙霧。 ●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 **警 告**
● 얼굴로부터 용접가스를 멀리하십시요. ● 호흡지역으로부터 용접가스를 제거하기 위해 가스제거기나 통풍기를 사용하십시요.	● 보수전에 전원을 차단하십시요.	● 판넬이 열린 상태로 작동치 마십시요.	Korean **위 험**
● ابعد رأسك بعيداً عن الدخان. ● 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 **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.

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

WELD FUME CONTROL EQUIPMENT

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

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