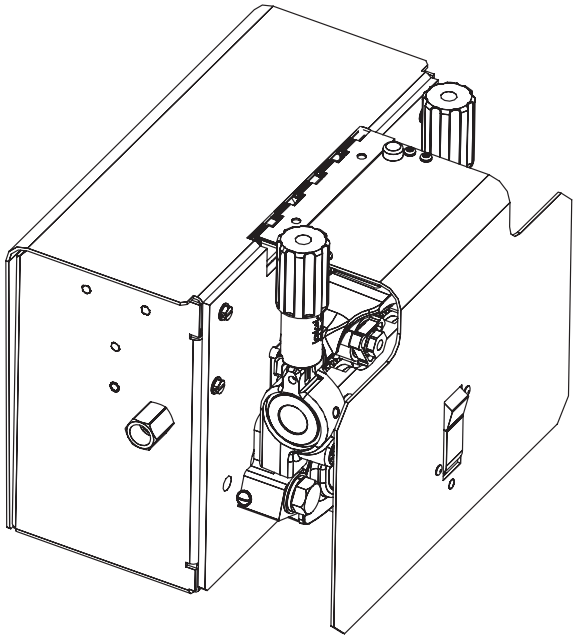
Operator's Manual

E-CELL® WIRE DRIVE



For use with machines having Code Numbers:

11240, 11721

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)

IM876-A | Issue Date 10-Mar

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

⚠ WARNING

⚠ CALIFORNIA PROPOSITION 65 WARNINGS ⚠

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

The Above For Diesel Engines

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

The Above For Gasoline Engines

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.

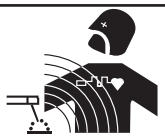
1.d. Keep all equipment safety guards, covers and devices in position and in good repair.Keep hands, hair, clothing and tools away from V-belts, gears, fans and all other moving parts when starting, operating or repairing equipment.

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.

Mar '95

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.**

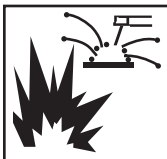
5. b. The operation of welding fume control equipment is affected by various factors including proper use and positioning of the equipment, maintenance of the equipment and the specific welding procedure and application involved. Worker exposure level should be checked upon installation and periodically 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.

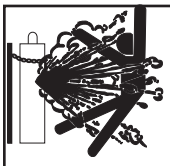
6.f. Sparks and spatter are thrown from the welding arc. Wear oil free protective garments such as leather gloves, heavy shirt, cuffless trousers, high shoes and a cap over your hair. Wear ear plugs when welding out of position or in confined places. Always wear safety glasses with side shields when 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-l, "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.

Jan '09

PRÉCAUTIONS DE SÛRETÉ

Pour votre propre protection lire et observer toutes les instructions et les précautions de sûreté specifiques qui parraissent dans ce manuel aussi bien que les précautions de sûreté générales suivantes:

Sûreté Pour Soudage A L'Arc

1. Protegez-vous contre la secousse électrique:

   a. Les circuits à l'électrode et à la piéce sont sous tension quand la machine à souder est en marche. Eviter toujours tout contact entre les parties sous tension et la peau nue ou les vétements mouillés. Porter des gants secs et sans trous pour isoler les mains.
   b. Faire trés attention de bien s'isoler de la masse quand on soude dans des endroits humides, ou sur un plancher metallique ou des grilles metalliques, principalement dans les positions assis ou couché pour lesquelles une grande partie du corps peut être en contact avec la masse.
   c. Maintenir le porte-électrode, la pince de masse, le câble de soudage et la machine à souder en bon et sûr état defonctionnement.
   d. Ne jamais plonger le porte-électrode dans l'eau pour le refroidir.
   e. Ne jamais toucher simultanément les parties sous tension des porte-électrodes connectés à deux machines à souder parce que la tension entre les deux pinces peut être le total de la tension à vide des deux machines.
   f. Si on utilise la machine à souder comme une source de courant pour soudage semi-automatique, ces precautions pour le porte-électrode s'applicuent aussi au pistolet de soudage.

2. Dans le cas de travail au dessus du niveau du sol, se protéger contre les chutes dans le cas ou on recoit un choc. Ne jamais enrouler le câble-électrode autour de n'importe quelle partie du corps.

3. Un coup d'arc peut être plus sévère qu'un coup de soliel, donc:

   a. Utiliser un bon masque avec un verre filtrant approprié ainsi qu'un verre blanc afin de se protéger les yeux du rayonnement de l'arc et des projections quand on soude ou quand on regarde l'arc.
   b. Porter des vêtements convenables afin de protéger la peau de soudeur et des aides contre le rayonnement de l'arc.
   c. Protéger l'autre personnel travaillant à proximité au soudage à l'aide d'écrans appropriés et non-inflammables.

4. Des gouttes de laitier en fusion sont émises de l'arc de soudage. Se protéger avec des vêtements de protection libres de l'huile, tels que les gants en cuir, chemise épaisse, pantalons sans revers, et chaussures montantes.

5. Toujours porter des lunettes de sécurité dans la zone de soudage. Utiliser des lunettes avec écrans lateraux dans les zones où l'on pique le laitier.

6. Eloigner les matériaux inflammables ou les recouvrir afin de prévenir tout risque d'incendie dû aux étincelles.

7. Quand on ne soude pas, poser la pince à une endroit isolé de la masse. Un court-circuit accidental peut provoquer un échauffement et un risque d'incendie.

8. S'assurer que la masse est connectée le plus prés possible de la zone de travail qu'il est pratique de le faire. Si on place la masse sur la charpente de la construction ou d'autres endroits éloignés de la zone de travail, on augmente le risque de voir passer le courant de soudage par les chaines de levage, câbles de grue, ou autres circuits. Cela peut provoquer des risques d'incendie ou d'echauffement des chaines et des câbles jusqu'à ce qu'ils se rompent.

9. Assurer une ventilation suffisante dans la zone de soudage. Ceci est particuliérement important pour le soudage de tôles galvanisées plombées, ou cadmiées ou tout autre métal qui produit des fumeés toxiques.

10. Ne pas souder en présence de vapeurs de chlore provenant d'opérations de dégraissage, nettoyage ou pistolage. La chaleur ou les rayons de l'arc peuvent réagir avec les vapeurs du solvant pour produire du phosgéne (gas fortement toxique) ou autres produits irritants.

11. Pour obtenir de plus amples renseignements sur la sûreté, voir le code "Code for safety in welding and cutting" CSA Standard W 117.2-1974.

PRÉCAUTIONS DE SÛRETÉ POUR LES MACHINES À SOUDER À TRANSFORMATEUR ET À REDRESSEUR

1. Relier à la terre le chassis du poste conformement au code de l'électricité et aux recommendations du fabricant. Le dispositif de montage ou la piece à souder doit être branché à une bonne mise à la terre.

2. Autant que possible, l'installation et l'entretien du poste seront effectués par un électricien qualifié.

3. Avant de faires des travaux à l'interieur de poste, la debrancher à l'interrupteur à la boite de fusibles.

4. Garder tous les couvercles et dispositifs de sûreté à leur place.

Thank You ——— for selecting a **QUALITY** product by Lincoln Electric. We want you to take pride in operating this Lincoln Electric Company product ••• as much pride as we have in bringing this product to you!

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.

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.

Please record your equipment identification information below for future reference. This information can be found on your machine nameplate.

Product _____

Model Number _____

Code Number or Date Code_____

Serial Number_____

Date Purchased_____

Where Purchased_____

Whenever you request replacement parts or information on this equipment, always supply the information you have recorded above. The code number is especially important when identifying the correct replacement parts.

On-Line Product Registration

- Register your machine with Lincoln Electric either via fax or over the Internet.
  - For faxing: Complete the form on the back of the warranty statement included in the literature packet accompanying this machine and fax the form per the instructions printed on it.
  - For On-Line Registration: Go to our **WEB SITE at www.lincolnelectric.com.** Choose "Quick Links" and then "Product Registration". Please complete the form and submit your registration.

Read this Operators Manual completely before attempting to use this equipment. Save this manual and keep it handy for quick reference. Pay particular attention to the safety instructions we have provided for your protection. The level of seriousness to be applied to each is explained below:

⚠ 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**.

TABLE OF CONTENTS

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TECHNICAL SPECIFICATIONS: eCELL™ Wire Drive System

CODE.	TYPE	WIRE FEED SPEED RANGE			
	Gearing	GMAW		FCAW	
		WFS Range	Wire Sizes	WFS Range	Wire Sizes
11240	Normal Speed	50 – 800 ipm (1.3-20.3 m/min.)	.023 – .045 (0.6 – 1.2mm)	50 – 800 ipm (1.3-20.3 m/min.)	.030 - .045 (0.8 - 1.2mm)

CONTROL BOX, WIRE DRIVE AND COMPLETE UNITS								
CODE	TYPE	INPUT POWER	PHYSICAL SIZE•				TEMPERATURE RATING	
		Input Voltage and Current	Dimensions			Weight	Operating	Storage
			Height	Width	Depth			
11240	eCELL™	40 VDC 4 Amps	9.5“ (241mm)	9.1“ (231mm)	11.3“ (287mm)	19 Lbs (8.6 Kg.)	14°F to 104°F -10°C to 40°C	-40°F to 185°F -40°C to 85°C

WELDING CAPACITY RATING	
Amp Rating	Duty Cycle
600 A	60%
500 A	100%

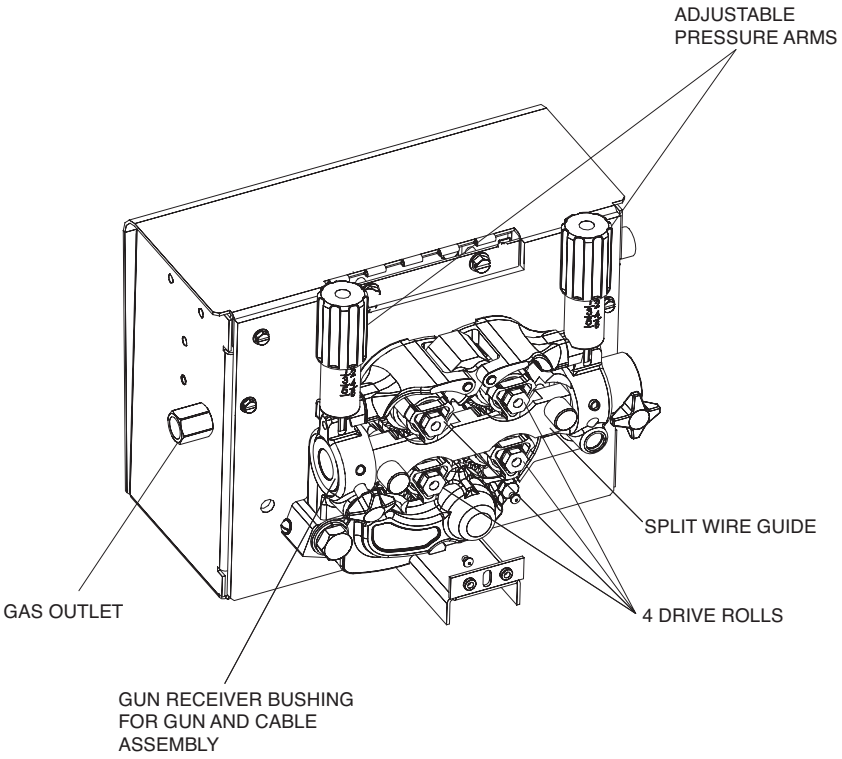
∅Dimensions do not include wire reel.

ITEMS INCLUDED WITH EACH PRODUCT						
CODE	Description	Wire Feeder	Wire Reel Stand	Drive Roll Kit	Gun Bushing	Control Cable
11240	eCELL™ Wire Drive System	eCELL™ Wire Drive	----------	----------	K1500-1	---------

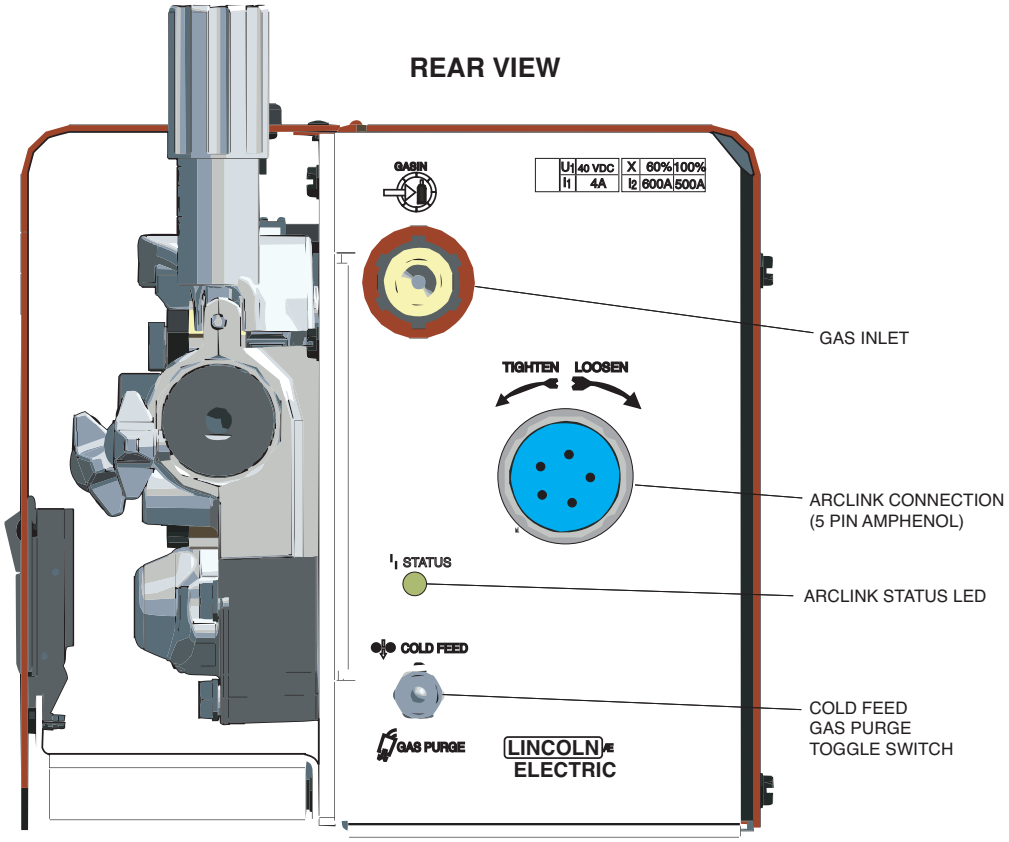
TEMPERATURE RANGES	
OPERATING TEMPERATURE RANGE	STORAGE TEMPERATURE RANGE
15°F to 104°F(-10°C to 40°C)	-40°F to 185°F(-40°C to 85°C)

eCELL™ WIRE DRIVE FEATURES AND COMPONENTS

DOOR REMOVED



REAR VIEW



SEE INSTALLATION AND OPERATION SECTIONS FOR DETAILED INFORMATION

SAFETY PRECAUTION

⚠ 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.**
- **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.**

MOUNTING AND UNIT DIMENSIONS

Mount the eCell™ Wire Drive System on the designated bracket of the eCell™ only. (See Figure A.1).

Side View (Door not shown for clarity). (See Figure A.2)

Rear View. (See Figure A.3)

FIGURE A.1

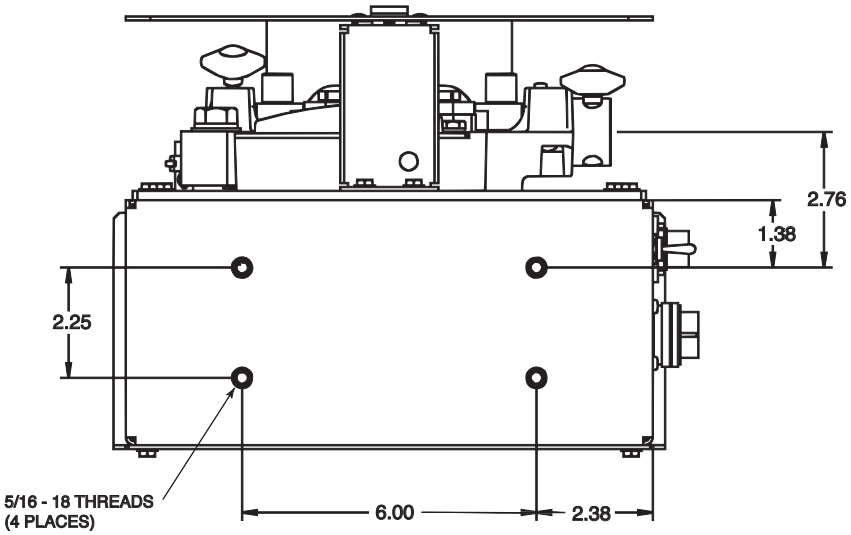


FIGURE A.2

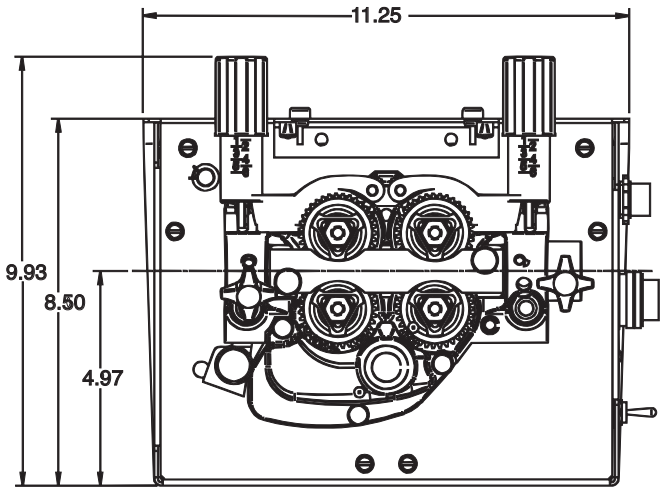
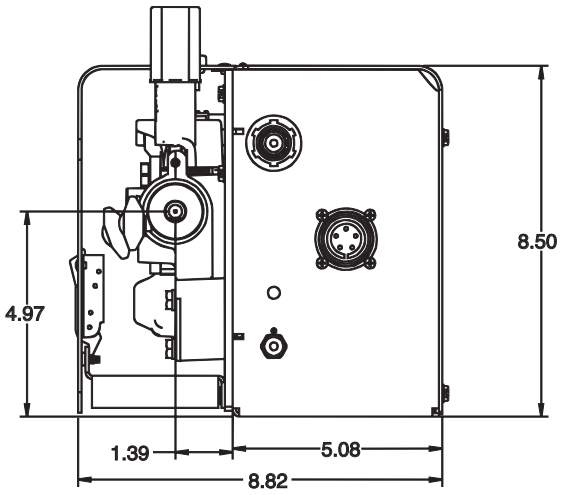


FIGURE A.3



SAFETY PRECAUTION

ELECTRIC SHOCK can kill.

- **Only qualified personnel should perform this installation.**
- **Turn off the input power to the power source at the disconnect switch or fuse box before working on this equipment. Turn off the input power to any other equipment connected to the welding system at the disconnect switch or fuse box before working on this equipment.**
- **Do not touch electrically hot parts.**

WELD CABLE SIZES

Table A.1 has the copper cable sizes recommended for different currents and duty cycles. Lengths stipulated are the distance from the welder to work and back to the welder again. Cable sizes are increased for greater lengths primarily for the purpose of minimizing voltage loss in the welding circuit.

TABLE A.1

RECOMMENDED CABLE SIZES (RUBBER COVERED COPPER - RATED 75°C [167°F])**						
		CABLE SIZES FOR COMBINED LENGTHS OF ELECTRODE AND WORK CABLES				
Amperes	Percent Duty Cycle	0 to 50 Ft. 0 to 15 m	50 to 100Ft. 15 to 31 m	100 to 150 Ft. 31 to 48 m	150 to 200 Ft. 48 to 61 m	200 to 250 Ft. 61 to 76 m
200	60	2	2	2	1	1/0
200	100	2	2	2	1	1/0
225	20	4 or 5	3	2	1	1/0
225	40 & 30	3	3	2	1	1/0
250	30	3	3	2	1	1/0
250	40	2	2	1	1	1/0
250	60	1	1	1	1	1/0
250	100	1	1	1	1	1/0
300	60	1	1	1	1/0	2/0
325	100	2/0	2/0	2/0	2/0	3/0
350	60	1/0	1/0	2/0	2/0	3/0
400	60	2/0	2/0	2/0	3/0	4/0
400	100	3/0	3/0	3/0	3/0	4/0
500	60	2/0	2/0	3/0	3/0	4/0

** Tabled values are for operation at ambient temperatures of 40°C (104°F) and below. Applications above 40°C (104°F) may require cables larger than recommended, or cables rated higher than 75°C (167°F).

COAXIAL WELD CABLES

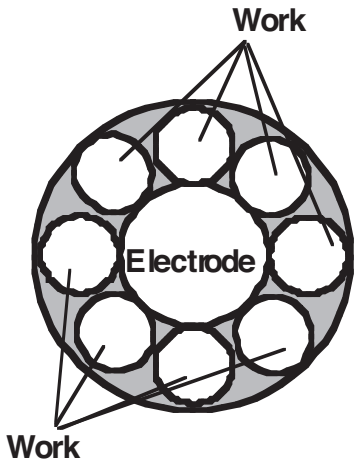
Coaxial welding cables are specially designed welding cables for pulse welding. Coaxial weld cables feature low inductance, allowing fast changes in the weld current. Regular cables have a higher inductance which may distort the pulse wave shape. Inductance becomes more severe as the weld cables become longer.

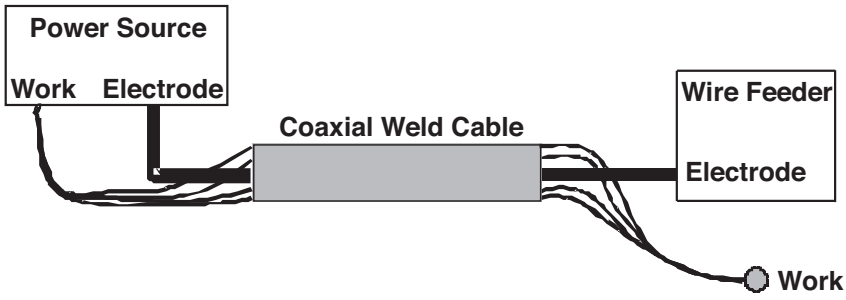
Coaxial weld cables are recommended for all pulse welding, especially when the total weld cable length (electrode cable + work cable) exceeds 50 feet (7.6m).

A coaxial weld cable is constructed by 8 small leads wrapped around one large lead. The large inner lead connects to the electrode stud on the power source and the electrode connection on the wire feeder. The small leads combine together to form the work lead, one end attached to the power source and the other end to the work piece. (See Coaxial weld Cable below.)

WORK CONNECTION

Connect a work lead of sufficient size between the proper output stud on the power source and the work. Be sure the connection to the work makes tight metal to metal electrical contact. Poor work lead connections can result in poor welding performance.





EXTERNAL SHUTDOWN SIGNAL

⚠ WARNING

ELECTRIC SHOCK can kill.
- **Turn the input power OFF at the disconnect switch before working on this equipment.**
- **Do not touch electrically hot parts.**
- **Only qualified personnel should install, use or service this equipment.**

The eCell™ Wire Drive includes one input for an external shut-off circuit. The circuit interrupts the trigger signal and stops the welding process in the event of a fault. The most common use is for a flow switch when using water cooled guns or torches.

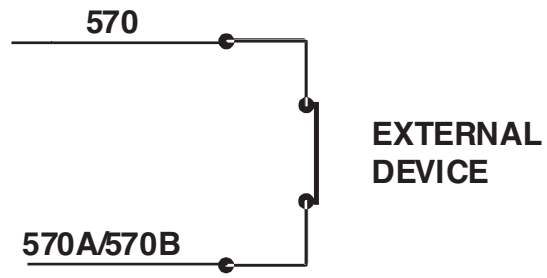
The external device must have "normally closed" contacts.

Do not use the external shut-off circuits for safety or emergency stops.

To connect to the shutoff circuit:

1. Turn off power to the wire feeder at the disconnect switch.
2. Remove the screws securing the wrap-around and door assembly.
3. Locate leads 570 and 570A/570B in the harness for external shut-off switch. (See Figure A.4)
4. Wire the external equipment to the leads. Route the wiring for the external equipment through the rear of the wire feeder.
5. Reassemble the wrap-around and door assembly.
6. Restore power.

FIGURE A.4

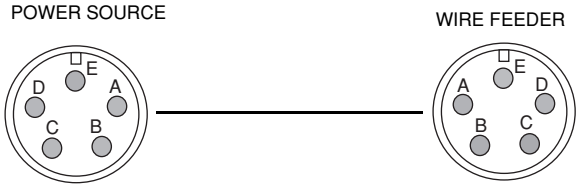


DIGITAL CONTROL CABLE, K1543-XX

ArcLink/LincNet control cables are special high quality cables for digital communication. The cables are copper 5 conductor cable in a SO-type rubber jacket. There is one 20 gauge twisted pair for network communications. This pair has an impedance of approximately 120 ohms and a propagation delay per foot of less than 2.1 nanoseconds. There are two 12 gauge conductors that are used to supply 40VDC to the network. The fifth wire is 18 gauge and is used as an electrode sense lead.

Use of non-standard cables may lead to system shutdowns, poor arc starting and wire feeding problems.

The control cables connect the power source to the wire feeder, and the wire feeder to other wire feeders.



PIN	FUNCTION
A	Digital I/O
B	Digital I/O
C	"67" voltage sense
D	40 VDC
E	Common

Use a maximum of 250 feet (76.2m) of control cable between components.

SETTING ELECTRODE POLARITY

⚠ WARNING

ELECTRIC SHOCK can kill.
- **Turn the input power OFF at the disconnect switch before working on this equipment.**
- **Do not touch electrically hot parts.**
- **Only qualified personnel should install, use or service this equipment.**

⚠ CAUTION

When changing the electrode polarity, the weld cables must be changed at the power source studs and the DIP switches inside the eCell™ Wire Drive System must be properly set. Operation with the DIP switch in the wrong position will cause erratic arc performance.

The eCell™ Wire Drive is factory set for Electrode Positive welding.

Most GMAW welding procedures use Electrode Positive welding. Some Innershield procedures may use Electrode Negative welding.

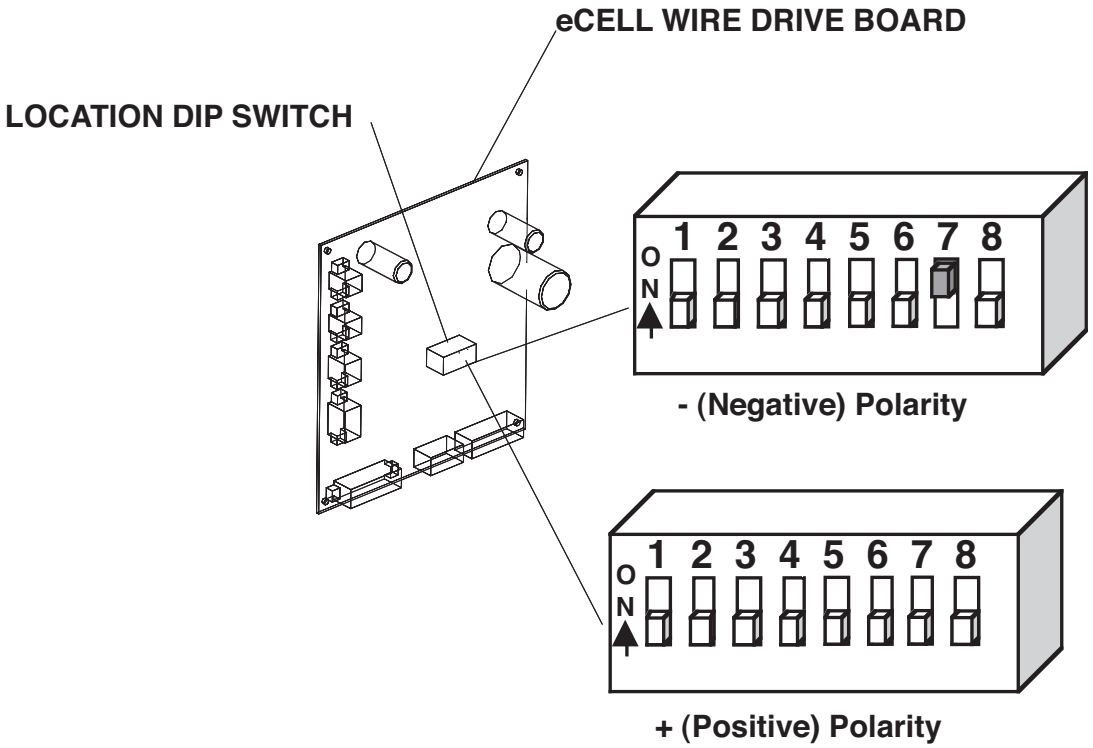
To change the DIP switch inside the eCell™ Wire Drive for electrode polarity: (See Figure A.5)

1. Turn off power at the welding power source.
2. Remove the sheet metal wrap-around on the wire drive.
3. Locate DIP switches on the Wire Drive Board.
4. Set DIP switch #7 to the desired polarity.

DIP Switch #7 Position	Polarity
ON	- (negative) polarity
OFF	+ (positive) polarity

5. Assemble the wrap-around to the wire drive.
6. Restore power.

FIGURE A.5



WIRE DRIVE CONFIGURATION

(See Figure A.6)

Changing the Gun Receiver Bushing

⚠ WARNING

ELECTRIC SHOCK can kill.

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

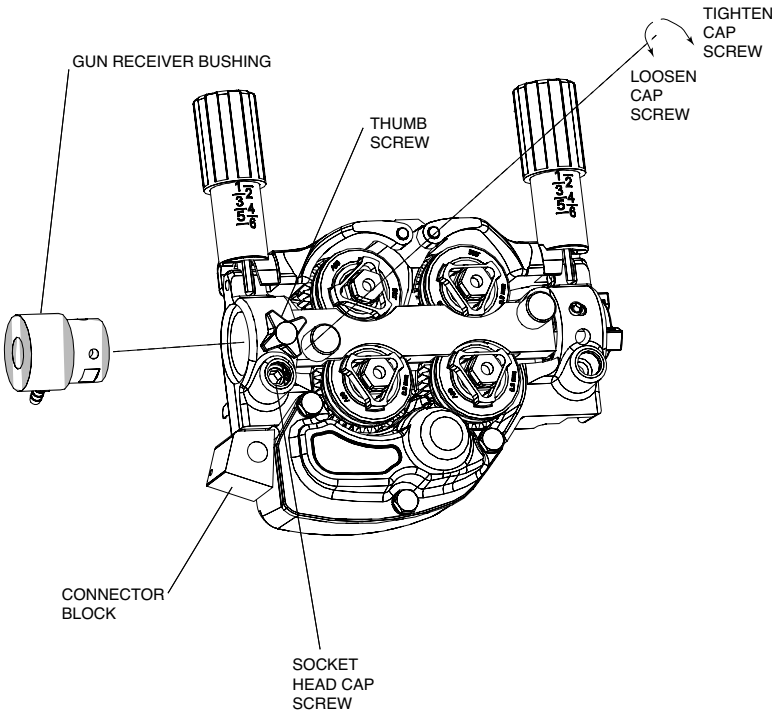
Tools required:

- 1/4" hex key wrench

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

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

FIGURE A.6



eCELL™ WIRE DRIVE SYSTEM

LINCOLN® ELECTRIC

ASSEMBLY OF DRIVE ROLLS AND WIRE GUIDES

⚠ WARNING

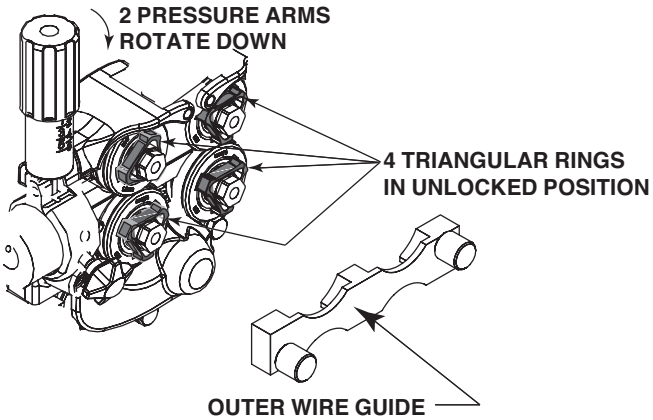
ELECTRIC SHOCK can kill.

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

To remove drive rolls and wire guides:
(See Figure A.7)

1. Turn power off at the welding power source.
2. Remove the outer wire guide.
3. Rotate 4 triangular rings to the unlocked position.
4. Open the pressure arms.
5. Remove the drive rolls and inner wire guide.

FIGURE A.7



To install drive rolls and wire guides:
(See Figure A.7 and A.7a)

1. Turn off power at the welding power source.
2. Open pressure arms.
3. Assemble the inner wire guide.
4. Slide the drive rolls onto the drive hubs. (See figure **A.8**)
5. Close the pressure arms.
6. Rotate 4 triangular rings to the locked position. (See figure **A.8a**)
7. Assemble the outer wire guide.
8. Adjust the pressure arms to the recommended setting.

FIGURE A.8

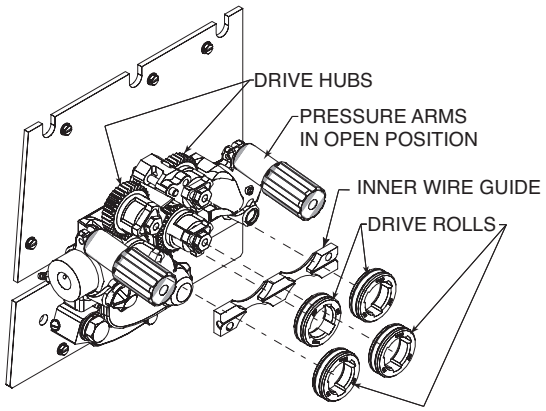
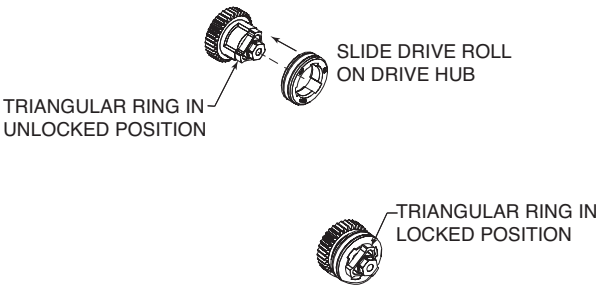


FIGURE A.8a



PRESSURE ARM ADJUSTMENT

⚠ WARNING

ELECTRIC SHOCK can kill.

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

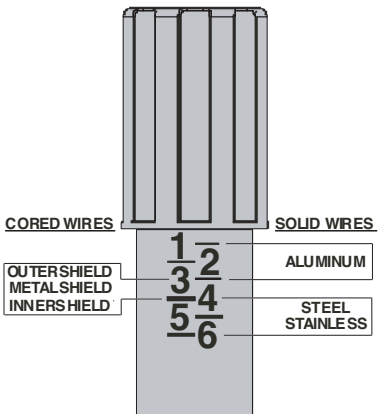
The pressure arm controls the amount of force the drive rolls exert on the wire. Proper adjustment of both pressure arms gives the best welding performance.

Set the pressure arm as follows (See Figure A.9):

Aluminum wires	between 1 and 3
Cored wires	between 3 and 4
Steel, Stainless wires	between 4 and 6

For best results, use the same setting on both pressure arms. This maximizes traction of the drive rolls while minimizing wire deformation.

FIGURE A.9



SHIELDING GAS CONNECTION

⚠ WARNING

CYLINDER may explode if damaged.

- **Keep cylinder upright and chained to support.**
- **Keep cylinder away from areas where it may be damaged.**
- **Never lift welder with cylinder attached.**
- **Never allow welding electrode to touch cylinder.**
- **Keep cylinder away from welding or other live electrical circuits.**

BUILD-UP OF SHIELDING GAS may harm health or kill.

- **Shut off shielding gas supply when not in use.**

SEE AMERICAN NATIONAL STANDARD Z-49.1, "SAFETY IN WELDING AND CUTTING" PUBLISHED BY THE AMERICAN WELDING SOCIETY.

Maximum inlet pressure is 100 psi. (6.9 bar.)

Install the shielding gas supply as follows:

1. Secure the cylinder to prevent it from falling.

2. Remove the cylinder cap. Inspect the cylinder valves and regulator for damaged threads, dirt, dust, oil or grease. Remove dust and dirt with a clean cloth. **DO NOT ATTACH THE REGULATOR IF OIL, GREASE OR DAMAGE IS PRESENT!** Inform your gas supplier of this condition. Oil or grease in the presence of high pressure oxygen is explosive.

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

4. Attach the flow regulator to the cylinder valve and tighten the union nut(s) securely with a wrench. Note: if connecting to 100% CO_2 cylinder, insert regulator adapter between regulator and cylinder valve. If adapter is equipped with a plastic washer, be sure it is seated for connection to the CO_2 cylinder.

5. Attach one end of the inlet hose to the outlet fitting of the flow regulator. Attach the other end to the welding system shielding gas inlet. Tighten the union nuts with a wrench.

6. Before opening the cylinder valve, turn the regulator adjusting knob counterclockwise until the adjusting spring pressure is released.

7. Standing to one side, open the cylinder valve slowly a fraction of a turn. When the cylinder pressure gage stops moving, open the valve fully.

8. The flow regulator is adjustable. Adjust it to the flow rate recommended for the procedure and process being used before making a weld.

WIRE REEL LOADING

⚠ WARNING

- **Keep hands, hair, clothing and tools away from rotating equipment.**
- **Do not wear gloves when threading wire or changing wire spool.**
- **Only qualified personnel should install, use or service this equipment.**

The eCell™ Wire Drive is designed for use with bulk packages of wire – reels, drums and boxes.

Connect the consumable package to the wire drive using K515-xx wire conduit. For best results, locate the wire near the wire drive and keep the conduit as straight as possible.

SAFETY PRECAUTIONS

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

⚠ WARNING

ELECTRIC SHOCK can kill.

- **Unless using cold feed feature, when feeding with the gun trigger, the electrode and drive mechanism are always electrically energized and could remain energized several seconds after welding ceases.**
- **Do not touch electrically live parts or electrodes with your skin or wet clothing.**
- **Insulate yourself from the work and ground.**
- **Always wear dry insulating gloves.**

ONLY QUALIFIED PERSONS SHOULD INSTALL, USE OR SERVICE THIS EQUIPMENT. READ AND FOLLOW THE MANUFACTURER'S INSTRUCTIONS, EMPLOYER'S SAFETY PRACTICES AND MATERIAL SAFETY DATA SHEETS (MSDS) FOR CONSUMABLES.

READ THIS WARNING, PROTECT YOURSELF & OTHERS.

FUMES AND GASES can be dangerous.

- **Keep your head out of fumes.**
- **Use ventilation or exhaust at the arc, or both,to keep fumes and gases from your breathing zone and general area.**

WELDING SPARKS can cause fire or explosion.

- **Do not weld near flammable material.**
- **Do not weld on containers which have held flammable material.**

ARC RAYS can burn.

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

Observe additional guidelines detailed in the beginning of this manual.

GRAPHIC SYMBOLS THAT APPEAR ON THIS MACHINE OR IN THIS MANUAL

COLD FEED

POSITIVE OUTPUT

NEGATIVE OUTPUT

PROTECTIVE GROUND

WARNING OR CAUTION

DANGEROUS VOLTAGE

SHOCK HAZARD

WELDING FUMES

EXPLOSION

GAS INPUT

WORK CONNECTION

PURGE BY GAS

COMMON WELDING ABBREVIATIONS

WFS
- Wire Feed Speed

CV
- Constant Voltage

GMAW (MIG)
- Gas Metal Arc Welding

FCAW (Innershield or Outershield)
- Flux Core Arc Welding

PRODUCT DESCRIPTION

General Physical Description
The eCell™ Wire Drive System is the wire feeder for the eCell™. It consists of a 4 roll wire drive with connections for the torch, electrode conduit and shielding gas. The small, lightweight feeder mounts at the rear of the eCell™.

General Functional Description
The eCell™ Wire Drive System is a robotic wire drive that operates only with the eCell™. All welding parameters (WFS, voltage, etc.) are set through the robotic controller. Integrated in the wire drive is a robotic wire drive module. The eCell™ Wire Drive module communicates with the robotic control and Power Wave power source via ArcLink.

The wire drive is capable of wire feed speeds of 50 – 800 ipm. Accurate speed control is obtained with a tachometer integrated in the motor. The wire drive is capable of feeding both forward and reverse.

The heart of the eCell™ Wire Drive is the MaxTrac™ 4 roll wire drive.

This new 4 roll drive MaxTrac™ technology delivers great feeding because:

- Patent pending drive rolls improve traction.
- The precision machined, rigid aluminum alloy frame results in maximum drive roll clamping pressure.
- Drive hubs with steel inner cores have 3 ball bearings inside each hub.
- The drive hubs are supported by large, heat treated and ground shafts for maximum rigidity and accurate drive roll alignment.
- Patent pending dual spring pressure arms have sensitivity for feeding soft wires without crushing them, and have plenty of compression force for feeding solid or stiff wires.

Easy to configure, easy to service parts give MaxTrac™ drives the edge in productivity.

- Patented split wire guides fully support the wire and virtually eliminate birdnesting.
- No tools required to change the drive rolls and wire guides.
- Changeable gun bushings easily accept guns from many manufacturers.
- Brass-to-brass connections between the electrode connection and the gun minimize voltage drop variations, resulting in consistent arc performance all day, every day.

Functions that can be operated without the robot controller are gas purge and cold feed.

RECOMMENDED PROCESSES

- GMAW AND GMAW-STT
- FCAW

PROCESS LIMITATIONS

- The eCell™ Wire Drive is not recommended for GTAW, CAG, SMAW, SAW
- The eCell™ Wire Drive is not compatible with push-pull equipment.

REQUIRED EQUIPMENT

All power sources must be part of the eCell™ system. These include:

- PowerWave 355M
- PowerWave 455M
- PowerWave 455M/STT
- PowerWave 455M Robotic
- PowerWave 455M/STT Robotic

EQUIPMENT LIMITATIONS

- Maximum GMAW gun length =25’ (7.6m)
- Maximum conduit length = 25' (7.6m)
- Maximum total control cable length = 100ft (31m)
- The eCell™ Wire Drive works only with ArcLink equipment.
- Other gun bushings are required for welding guns that do not have a "Lincoln" back-end.

FRONT AND REAR PANEL CONTROLS CONNECTIONS

CASE FRONT CONTROLS

FIGURE B.1

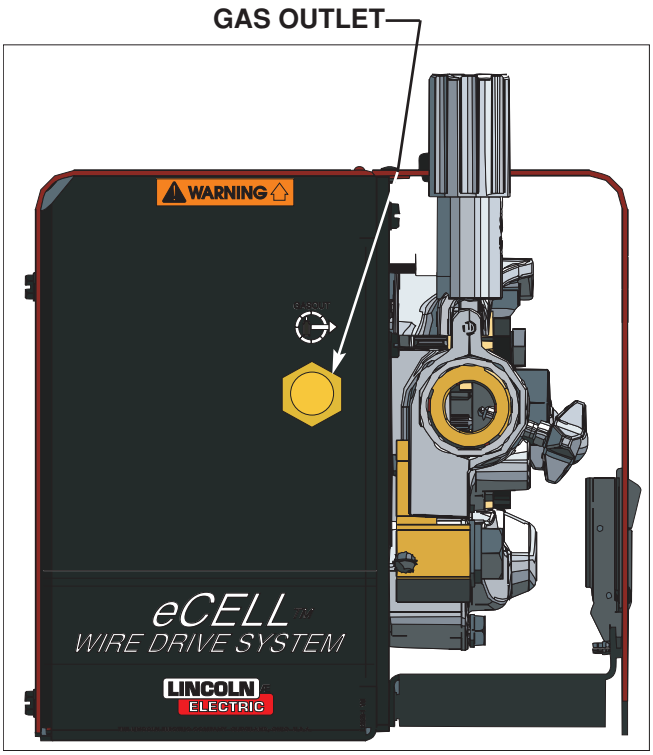
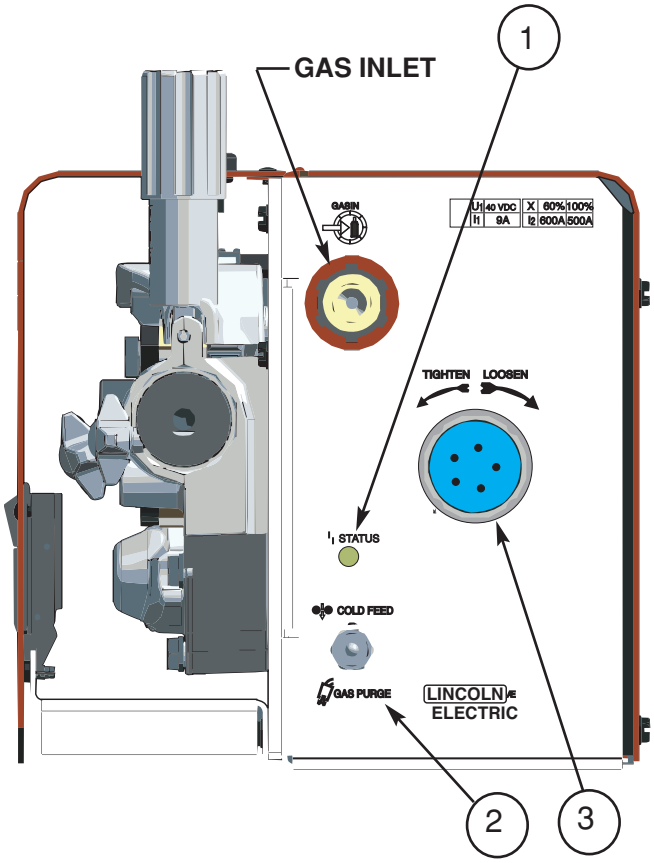


FIGURE B.2



ITEM	DESCRIPTION
1	Status LED
2	Cold Feed - Gas Purge Switch, press the switch up to feed wire with weld output off. Press the switch down for gas flow with weld output off.
3	5-pin amphenol for ArcLink connecting Digital Control Cable. See Installation Section for detail.

1. ARCLINK STATUS LED

The status LED indicates system status. Normal operation is a steady green light.

Note: During normal power-up, the LED may flash red and/or green as the equipment performs self tests.

LED condition	Definition
Steady green	System okay. The power source and wire feeder are communicating normally.
Blinking green	Occurs during a reset and indicates the power source is identifying each component in the system. This is normal for the first 10 seconds after power-up, or if the system configuration is changed during operation.
Alternating green and red	Non-recoverable system fault. If the power source or wire feeder status LED is flashing any combination of red and green, errors are present in the system. **Read the error code before the machine is turned off.** Instructions for reading the error code are detailed in the Service Manual. Individual code digits are flashed in red with a long pause between digits. If more than one code is present, the codes will be separated by a green light. To clear the error, turn the power source OFF, and then back ON to reset. See troubleshooting section.
Steady red	Non recoverable hardware fault. Generally indicates a problem with the cables connecting the wire feeder to the power source.
Blinking red	Not applicable.

2. COLD FEED/GAS PURGE SWITCH

Cold Feed and Gas Purge are combined into a single spring centered toggle switch.

To activate Cold Feeding, hold the switch in the UP position. The wire drive will feed electrode but neither the power source nor the gas solenoid will be energized. Adjust the speed of cold feeding by rotating the WFS knob. Cold feeding, or "cold inching" the electrode is useful for threading the electrode through the gun.

Hold with toggle switch in the DOWN position to activate Gas Purge and let the shielding gas flow. The gas solenoid valve will energize but neither the power source output nor the drive motor will be turned on. The Gas Purge switch is useful for setting the proper flow rate of shielding gas. Flow meters should always be adjusted while the shielding gas is flowing.

3. 5-PIN AMPHENOL FOR ARCLINK DIGITAL CONTROL CABLE

(See Installation Section for details)

OPTIONAL KITS AND ACCESSORIES

DRIVE ROLL KITS

Drive Roll Kits, Steel Wires

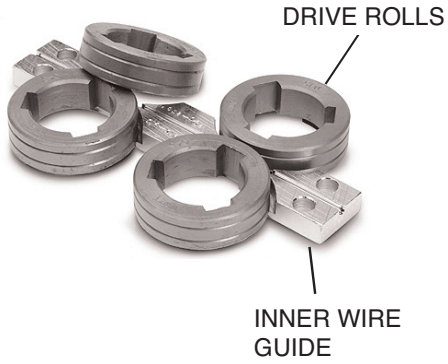
Includes: 4 Smooth V groove drive rolls and inner wire guide.	
KP1505-030S	.023-.030 (0.6-0.8mm)
KP1505-035S	.035 (0.9mm)
KP1505-040S	.040 (1.0mm)
KP1505-045S	.045 (1.2mm)

Drive Roll Kits, Cored Wires

Includes: 4 Knurled drive rolls and inner wire guide.	
KP1505-035C	.030-.035" (0.8-0.9mm)
KP1505-045C	.040-.045" (1.0-1.2mm)

Drive Roll Kits, Aluminum Wire

Includes: 4 polished U groove drive rolls, outer wire guide and inner wire guide.	
KP1507-035A	.035" (0.9 mm)
KP1507-040A	.040" (1.0mm)
KP1507-3/64A	3/64" (1.2mm)



OPTIONAL KITS:

K1543-xx	Control Cable.	Includes: 5 pin to 5 pin wire feeder to power source control cable.	
K1500-1	Gun Receiver Bushing (for guns with K466-1 Lincoln gun connectors; Innershield and Subarc guns.)	Includes: Gun receiver bushing, set screw and hex key wrench.	
K1500-2	Gun Receiver Bushing (for guns with K466-2, K466-10 Lincoln gun connectors; Magnum 200/300/400 guns and compatible with Tweco® #4.)	Includes: Gun receiver bushing with hose nipple, set screw and hex key wrench.	
K1500-3	Gun Receiver Bushing (for guns with K613-7 Lincoln gun connectors; Magnum 550 guns and compatible with Tweco® #5.)	Includes: Gun receiver bushing with hose nipple, set screw and hex key wrench.	
K1500-4	Gun Receiver Bushing (for gun with K466-3 Lincoln gun connectors; compatible with Miller® guns.)	Includes: Gun receiver bushing with hose nipple, set screw and hex key wrench.	
K1500-5	Gun Receiver Bushing (compatible with Oxo® guns.)	Includes: Gun receiver bushing with hose nipple, 4 guide tubes, set screw and hex key wrench.	
K466-2	Magnum 200/300/400 to K1500-2 Adapter.	Includes: Gun adapter, cotter pin, hex key wrench, wrench.	
K613-7	Magnum 550 to K1500-3 Adapter Lincoln Conduit.	Includes: Trigger adapter, gun adapter and hex key wrench.	
K1546-1	Incoming Bushing, for Lincoln Conduit .025- 1/16" (0.6 - 1.6mm) wire.	Includes: Incoming bushing and hex key wrench.	
K1546-2	Incoming Bushing, for Lincoln Conduit 1/16-1/8" (1.6 - 3.2 mm) wire.	Includes: Incoming bushing and hex key wrench.	
K659-1	Gas Guard Regulator	Includes: Gas Guard Regulator and adjustment key.	
3000290	Adjustable Gas Regulator	Includes: Gas Regulator for Mixed Gases and 10' (3.0m) Hose.	
K586-1	Deluxe Adjustable Gas Regulator	Includes: Deluxe Gas Regulator for Mixed Gases, Adapter for CO2 and 10' (3.0m) Hose.	

OPTIONAL KITS:

K1733-1	Wire Straightener.
ED0020219	Fiber Hat for Speed-Feed Drums.
K836-1	Dereeler Adapter.
K884-5	Accu-Trak Drum Payoff Kit – 20 inch diameter.
K884-6	Accu-Trak Drum Payoff Kit – 23 inch diameter.
K895-2	Rotary Wire Dispenser.
K2175-1	500 lb. Accu-Pak Box Payoff Kit.
K2175-2	1000 lb. Accu-Pak Box Payoff Kit.
K515-xx	Wire Conduit.

MAINTENANCE

Safety Precautions

⚠ WARNING

ELECTRIC SHOCK can kill.

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

ROUTINE MAINTENANCE

- Clean and tighten all weld terminals.
- Inspect all weld cables, control cables, gun cables and shielding gas hoses. Repair or replace as necessary.

PERIODIC MAINTENANCE

- Clean drive roll grooves.
- Blow out or vacuum the inside of the feeder.

CALIBRATION SPECIFICATION

⚠ WARNING

ELECTRIC SHOCK can kill.

- **Do not touch electrically live parts.**

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

To verify the wire feed speed,

- Assemble a .045 (1.2 mm) drive roll kit to the feeder.
- Remove the gun from the wire drive.
- Load .045 (1.2 mm) steel wire into the feeder. Trim the wire flush with the front surface of the gun bushing.
- Adjust the wire feed speed to 300 in/min with the robotic controller.
- Activate and hold the COLD FEED switch for 10 seconds.
- Cut the wire flush with the front surface of the gun bushing. The wire length should be 50 in/min ± 2.5 in/min.

⚠ 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.**
- **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.

HOW TO USE TROUBLESHOOTING GUIDE

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.

⚠ CAUTION

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

Observe all Safety Guidelines detailed throughout this manual

PROBLEMS (SYMPTOMS)	POSSIBLE CAUSE	RECOMMENDED COURSE OF ACTION
OUTPUT PROBLEMS		
The wire feeder does not feed wire and the drive rolls do not spin.	1. Verify the power source is turned on. 2. Verify the circuit breaker for the wire feeder on the power source has not tripped. 3. Verify power is being supplied to the wire feeder.	If all recommended possible areas of misadjustment have been checked and the problem persists, **Contact your local Lincoln Authorized Field Service Facility.**
The wire feeds erratically, or the Motor Thermal LED lights.	1. Verify the correct drive rolls and inner wire guide are installed in the wire drive. 2. Check for sharp bends in the gun liner. 3. Examine the contact tip for wear and proper size. Replace as necessary. 4. Check the gun liner. The welding electrode should slide easily through the gun. 5. Verify the proper gun liner is installed. 6. Adjust the pressure arm. 7. Verify the wire slides easily through the conduit.	
No shielding gas	1. Verify the gas supply is turned on and not empty. 2. Check the gas hose for cuts. Make sure it is not crushed. 3. Verify the shielding gas hose is connected to the gun bushing or welding gun.	
Variable or "hunting" arc. A motor overload error occurs	1. Check for proper size contact. Make sure the contact tip is not worn, free of spatter and not melted. 2. Clean and tighten all electrode and work connections. 3. Verify the proper polarity is being used for the weld procedure. 4. Make sure the proper electrode stick-out is being maintained. 5. Check the gas flow rate and mixture. 6. Verify the gun bushing is tightly mounted in the wire drive. 7. Verify the gun is tightly mounted to the gun bushing.	

⚠ CAUTION

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Observe all Safety Guidelines detailed throughout this manual

PROBLEMS (SYMPTOMS)	POSSIBLE CAUSE	RECOMMENDED COURSE OF ACTION
A motor overload error occurs.	1. Check for sharp bends in the gun liner. 2. Examine the contact tip for wear and proper size. Replace as necessary. 3. Check the gun liner. The welding electrode should slide easily through the gun. 4. Verify the proper gun liner is installed. 5. Reduce the pressure arm setting. 6. Verify the wire slides easily through the conduit.	If all recommended possible areas of misadjustment have been checked and the problem persists, **Contact your local Lincoln Authorized Field Service Facility.**
When the welding arc is activated, the drive rolls spin but no arc is present.	1. Check all electrode and work connections. 2. Verify the gun bushing is tightly secured in the wire drive. 3. Verify the gun is tightly mounted to the gun bushing.	

⚠ CAUTION

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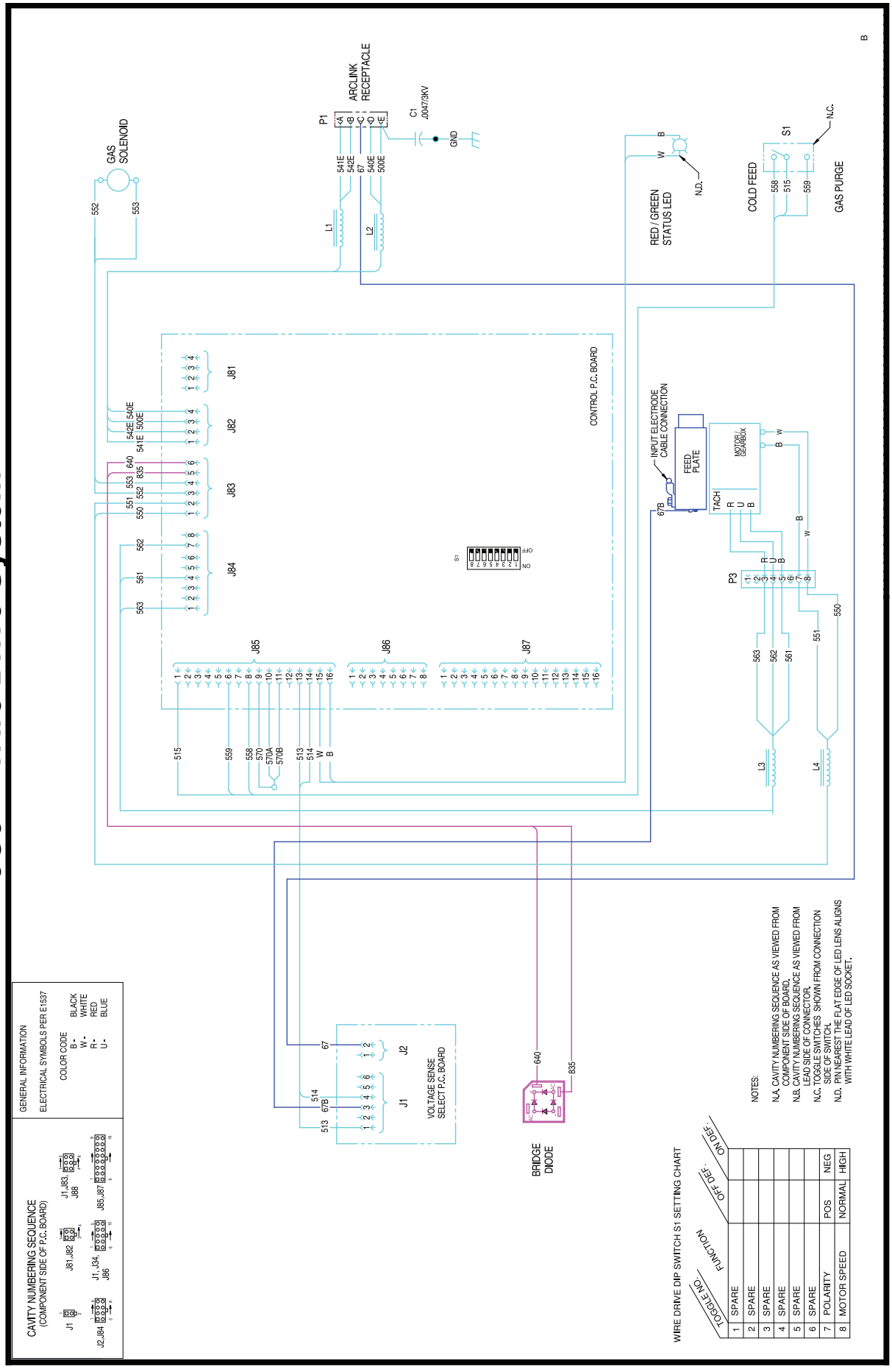
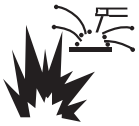
eCell™ Wire Drive System



NOTE: This diagram is for reference only. It may not be accurate for all machines covered by this manual. The specific diagram for a particular code is pasted inside the machine on one of the enclosure panels. If the diagram is illegible, write to the Service Department for a replacement. Give the equipment code number.

			
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捍材料，並請遵守貴方的有関勞動保護規定。

이 제폼에 동봉된 작업지침서를 숙지하시고 귀사의 작업자 안전수칙을 준수하시기 바랍니다.

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

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