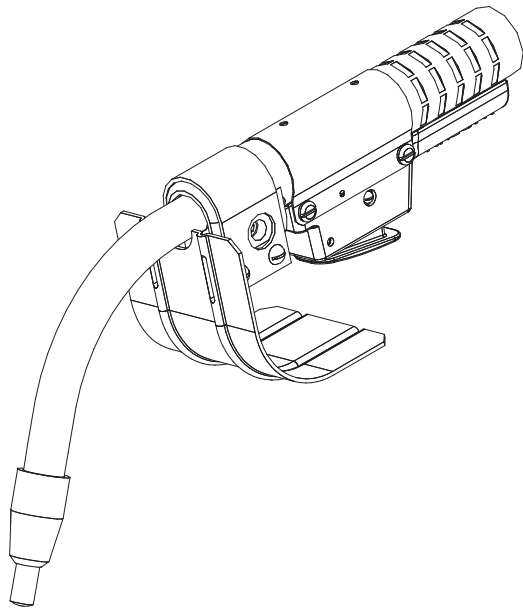


## Operator's Manual

# *Innershield<sup>®</sup> PRO Gun, Magnum<sup>®</sup> Classic*



For use with machines having Code Numbers:

**K115-1, K115-2, K115-3, K115-4,  
K115-8, K115-10, K116-2,  
K126-1, K126-2, K126-10,  
K126-11, K126-12, K126-13  
K126-14, K345-10**

**IEC 60974-7  
GB 15579.7: 22013**



**Register your machine:**

[www.lincolnelectric.com/register](http://www.lincolnelectric.com/register)

**Authorized Service and Distributor Locator:**

[www.lincolnelectric.com/locator](http://www.lincolnelectric.com/locator)

### Save for future reference

Date Purchased

Code: (ex: 10859)

Serial: (ex: U1060512345)

# 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.P65warnings.ca.gov/diesel](http://www.P65warnings.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](http://www.P65warnings.ca.gov)

**ARC WELDING CAN BE HAZARDOUS. PROTECT YOURSELF AND OTHERS FROM POSSIBLE SERIOUS INJURY OR DEATH. KEEP CHILDREN AWAY. PACEMAKER WEARERS SHOULD CONSULT WITH THEIR DOCTOR BEFORE OPERATING.**

Read and understand the following safety highlights. For additional safety information, it is strongly recommended that you purchase a copy of "Safety in Welding & Cutting - ANSI Standard Z49.1" from the American Welding Society, P.O. Box 351040, Miami, Florida 33135 or CSA Standard W117.2. A Free copy of "Arc Welding Safety" booklet E205 is available from the Lincoln Electric Company, 22801 St. Clair Avenue, Cleveland, Ohio 44117-1199.

**BE SURE THAT ALL INSTALLATION, OPERATION, MAINTENANCE AND REPAIR PROCEDURES ARE PERFORMED ONLY BY QUALIFIED INDIVIDUALS.**



### FOR ENGINE POWERED EQUIPMENT.

- Turn the engine off before troubleshooting and maintenance work unless the maintenance work requires it to be running.
- Operate engines in open, well-ventilated areas or vent the engine exhaust fumes outdoors.
- Do not add the fuel near an open flame welding arc or when the engine is running. Stop the engine and allow it to cool before refueling to prevent spilled fuel from vaporizing on contact



with hot engine parts and igniting. Do not spill fuel when filling tank. If fuel is spilled, wipe it up and do not start engine until fumes have been eliminated.

- Keep all equipment safety guards, covers and devices in position and in good repair. Keep hands, hair, clothing and tools away from V-belts, gears, fans and all other moving parts when starting, operating or repairing equipment.
- In some cases it may be necessary to remove safety guards to perform required maintenance. Remove guards only when necessary and replace them when the maintenance requiring their removal is complete. Always use the greatest care when working near moving parts.
- Do not put your hands near the engine fan. Do not attempt to override the governor or idler by pushing on the throttle control rods while the engine is running.
- To prevent accidentally starting gasoline engines while turning the engine or welding generator during maintenance work, disconnect the spark plug wires, distributor cap or magneto wire as appropriate.
- To avoid scalding, do not remove the radiator pressure cap when the engine is hot.
- Using a generator indoors CAN KILL YOU IN MINUTES.
- Generator exhaust contains carbon monoxide. This is a poison you cannot see or smell.
- NEVER use inside a home or garage, EVEN IF doors and windows are open.
- Only use OUTSIDE and far away from windows, doors and vents.
- Avoid other generator hazards. READ MANUAL BEFORE USE.



### ELECTRIC AND MAGNETIC FIELDS MAY BE DANGEROUS



- Electric current flowing through any conductor causes localized Electric and Magnetic Fields (EMF). Welding current creates EMF fields around welding cables and welding machines
- EMF fields may interfere with some pacemakers, and welders having a pacemaker should consult their physician before welding.
- Exposure to EMF fields in welding may have other health effects which are now not known.
- All welders should use the following procedures in order to minimize exposure to EMF fields from the welding circuit:
  - Route the electrode and work cables together - Secure them with tape when possible.
  - Never coil the electrode lead around your body.
  - Do not place your body between the electrode and work cables. If the electrode cable is on your right side, the work cable should also be on your right side.
  - Connect the work cable to the workpiece as close as possible to the area being welded.
  - Do not work next to welding power source.



## ELECTRIC SHOCK CAN KILL.



- 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 Z87.1 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-1, "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.**

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**PARTS LIST .....PARTS.LINCOLNELECTRIC.COM**

Content/details may be changed or updated without notice. For most current Instruction Manuals, go to [parts.lincolnelectric.com](http://parts.lincolnelectric.com).

TECHNICAL SPECIFICATIONS:

K126-[ ]

PRODUCT SPECIFICATIONS

Product Name	Product Number	Gooseneck Angle	Amperage Rating 60% Duty Cycle	Wire Diameter Range in. (mm)	Cable Length ft. (m)
K126 PRO	K126-10	62°	350	0.035 - 0.120 (0.9 - 3.0)	10 (3.0)
K126 PRO	K126-11	62°	350	0.035 - 0.120 (0.9 - 3.0)	15 (4.5)
K126 PRO	K126-12	62°	350	0.035 - 0.120 (0.9 - 3.0)	15 (4.5)
K126 PRO	K126-13	30°	350	0.035 - 0.120 (0.9 - 3.0)	15 (4.5)
K126 PRO	K126-14	90°	350	0.068 - 5/64 (1.7 - 2.0)	10 (3.0)

Process » Air-Cooled Trigger Switch Rating 1amp  
 Fluxed-Cored Self-Shielded

What's Included »

- » K126-10 & K126-11
  - 5/64 in. (2.0 mm) Contact Tip (KP2745-564)
  - Tip Holder (KP2908-1)
  - Insulator (KP4897-1)
  - 62° Non-Reverse Stainless Steel 6 in. (152 mm) Bend Gun Tube (KP2906-62)
  - Lincoln Electric Gun Connector (K613-6)
  - 3/32 in. (2.4 mm) Liner (KP45H-332-15)
- » K126-12
  - 5/64 in. (2.0 mm) Contact Tip (KP2745-564)
  - Tip Holder (KP2908-1)
  - Insulator (KP4897-1)
  - 62° Non-Reverse Stainless Steel 6 in. (152 mm) Bend Gun Tube (KP2906-62)
  - #4 size Gun Connector (K466-10)
  - 5/64 in. (2.0 mm) Liner (KP44-564-15)
- » K126-13
  - 5/64 in. (2.0 mm) Contact Tip (KP2745-564)
  - Tip Holder (KP2908-1)
  - Insulator (KP4897-1)
  - 30° Non-Reverse Classic Braided 12 in. (305 mm) Gun Tube (KP3267-1)
  - Gun Connector (K466-8)
  - 5/64 in. (2.0 mm) Liner (KP44-564-15)
- » K126-14
  - 5/64 in. (2.0 mm) Contact Tip (KP2745-564)
  - Insulator (KP4897-1)
  - 90° Non-Reverse Classic Braided 7 in. (177 mm) Gun Tube (KP2927-90R)
  - Gun Connector (K466-10)
  - 5/64 in. (2.0 mm) Liner (KP44-564-15)

TIP HOLDER AND INSULATOR

Description	Part Number
Tip Holder	KP2908-1
Insulator	KP4897-1

CONTACT TIPS 550 A

Wire Diameter in. (mm)	Standard Pkg. Qty. - 10	Standard Pkg. Qty. - 100	Extended Life Pkg. Qty. - 10	Extended Life Pkg. Qty. - 100
0.035 (0.9)	KP2745-035	KP2745-035-B100	KP2745-035 R	KP2745-035R-B100
0.040 (1.0)	KP2745-040	KP2745-040-B100	NA	NA
0.045 (1.2)	KP2745-045	KP2745-045-B100	KP2745-045 R	KP2745-045R-B100
0.052 (1.3)	KP2745-052	KP2745-052-B100	KP2745-052 R	KP2745-052R-B100
1/16 (1.6)	KP2745-116	KP2745-116-B100	KP2745-116 R	KP2745-116R-B100
0.068-0.072 (1.7-1.8)	KP2745-072	KP2745-072-B100	KP2745-072 R	KP2745-072R-B100
5/64 (2.0)	KP2745-564	KP2745-564-B100	KP2745-564 R	KP2745-564R-B100
3/32 (2.4) <sup>(1)</sup>	KP2745-332	KP2745-332-B100	KP2745-332 R	KP2745-332R-B100
7/64 (2.8) <sup>(1)</sup>	KP2745-764	KP2745-764-B100	KP2745-764 R	KP2745-764R-B100
1/8 (3.2) <sup>(1)</sup>	KP2745-18	KP2745-18-B100	NA	NA

(1) 550 only

GUN LINERS

K466 Series Gun Connector	K613 Series Gun Connector
Wire Diameter 1/16 - 5/64 in. (1.6 - 2.0 mm)	Wire Diameter 1/16 - 3/32 in. (1.6 - 2.4 mm)
KP44-564-15	KP45H-332-15

OPTIONAL GUN CONNECTOR KIT

Manufacturer	Wire Feeder Model	For Small Feeder Bushings	For Large Feeder Bushings
Lincoln Electric <sup>®</sup>	LN-7 Series, LN-8, LN-9, LN-25 [Up to 0.052 in. (1.4 mm) Wire]	K466-1 <sup>(2)</sup>	K613-1
	LN-8, LN-9 Series, LN-25 [1/16 in. (1.6 mm) and Larger Wire]	K466-8 <sup>(3)</sup>	K613-6 <sup>(4)</sup>
	LF-72, LF-74 Series, LN-25 PRO Power Feed <sup>®</sup> 10 and 25 Series	K466-10 <sup>(5)</sup>	K613-7
	POWER MIG <sup>®</sup> Series and Power Wave <sup>®</sup> C300	K466-6	NA
Tweco <sup>®</sup> Adapted	No. 2, No. 3, No. 4 Guns (K466), No. 5 (K613)	K466-2	K613-2
Miller <sup>®</sup>	Intellimatic, Sidekick, D-51A, Porto-Mig Millermatic <sup>®</sup> 130, 200, MM-35, S-42GL, S-52A, S-54A, Swing Arc-Dual, Swing Arc-Single S-32S, 52D, 54D, 54E, 60 Series	K466-3	K613-3

- (2) K466 series gun connectors are limited to 5/64 in. (2.0 mm) diameter wire
- (3) K446-8 standard on K126-13
- (4) K413-6 standard on K126-10, -11
- (5) K446-10 standard on K126-12

GUN TUBE (GOOSENECKS)

Part Number	Gun Tube Description
<b>Reverse Bend <sup>(6)</sup></b>	
<b>Stainless Steel Jacket</b>	
KP2906-62R	62° Reverse Bend, 6 in. (152 mm)
KP2906-30R	30° Reverse Bend, 6 in. (152 mm)
KP2906-30R-L	30° Reverse Bend, 12 in. (305 mm)
<b>Non-Reverse</b>	
<b>Stainless Steel Jacket</b>	
KP2906-62	62° Non-Reverse Bend, 6 in. (152 mm)
KP2906-30	30° Non-Reverse Bend, 6 in. (152 mm)
KP2906-30-L	30° Non-Reverse Bend, 12 in. (305 mm)
<b>Reverse Bend</b>	
<b>Classic Braided Varnish Jacket <sup>(7)</sup></b>	
KP2927-62R	62° Reverse Bend, 6 in. (152 mm)
KP2927-30R-L	30° Non-Reverse Bend, 12 in. (305 mm)
KP2482-1	30° Reverse Bend, 12 in. (305 mm)
<b>Non-Reverse Bend</b>	
<b>Classic Braided Varnish Jacket <sup>(7)</sup></b>	
KP3267-1	30° Non-Reverse Bend, 12 in. (305 mm)

- (6) Reverse Bend gun tubes require a 3/32 in. (2.4 mm) liner
- (7) Gun tubes require corresponding gun connector and liner  
Maximum diameter 5/64 in. (2.0 mm)

TECHNICAL SPECIFICATIONS:

K115-[ ], K116-[ ], K345-10

GUN MODELS



**K115**  
Rated 450 amps. Use 3/32-.120 in. (2.4-3.0 mm) diameter wires. Choose from 10 or 15 ft. (3 or 4.5 m) cable lengths. 82° or 45° gun tubes.



**K126 Classic**  
Rated 350 amps. Use .062-3/32 in. (1.6-2.4 mm) diameter wires. Choose from 10 or 15 ft. (3 or 4.5 m) cable lengths. 62° gun tube.



**K116**  
Rated 600 amps. Use 7/64-.120 in. (2.8-3.0 mm) diameter wire. 15 ft. (4.5 m) cable length. Adjustable grip angle. Straight gun tube.



**K126-14 PRO**  
Rated 350 amps. Use .068-5/64 in. (1.7-2.0 mm) 10 ft. cable length. Reduced wire feed speed thumb switch. 90° gun tube.



**K345**  
Rated 350 amps. Use .068-5/64 in. (1.7-2.0 mm) diameter wires. Cable is 10 ft. (3 m) in length. Reduced wire feed speed thumb switch. 90° gun tube.

PRODUCT SPECIFICATIONS

Product Number	GUN		WIRE DIAMETERS				Gun Tube Angle
	Rated Amps @ 60% Duty Cycle	Gun Cable Length ft. (m)	.068-5/64 in. (1.7-2.0 mm)	.062-3/32 in. (1.6-2.4 mm)	3/32 in. (1.6-2.4 mm)	7/64-.120 in. (1.6-2.4 mm)	
K115-1	450	10 (3.0)				■	82°
K115-2	450	15 (4.5)				■	82°
K115-3	450	10 (3.0)			■		82°
K115-4	450	15 (4.5)			■		82°
K115-8	450	15 (4.5)				■	45°
K115-10	450	15 (4.5)			■		45°
K116-2	600	15 (4.5)				■	Straight
K126-1 Classic	350	10 (3.0)		■			62°
K126-2 Classic	350	15 (4.5)		■			62°
K345-10	350	10 (3.0)	■				90°
K126-14	350	10 (3.0)	■				90°

Process >> Air-Cooled Trigger Switch Rating 1amp  
Fluxed-Cored Self-Shielded

EXPENDABLE PARTS

Description	K115-1, -2, -8	K115-3, -4, -10	K116-2	K126-1, -2 (3)	K345-10	K126-14
<b>Gun Tubes</b>						
30° Standard Length				KP1914-2	KP1914-2	
30° Long Length				KP1914-1	KP1914-1	
45°	KP1910-1	KP1910-2				
45° Hardfacing	KP1952-1					
62°				KP1909-1	KP1909-1	
82°	KP1907-1	KP1907-2				
Straight			KP1908-1, -2			
82° Hardfacing	KP1953-1					
90°				KP1920-1	KP1920-1	KP2927-90R
<b>Contact Tips Severe Duty</b>						
1/16 in.				KP2100-2B1		
.068-.072 in.				KP2100-1B1 (1)	KP2100-1B1 (1)	
5/64 in.				KP2100-4B1 (1)	KP2100-4B1 (1)	
3/32 in.		KP2103-4B1 (1)		KP2100-3B1 (1)		
7/64 in.	KP2103-6B1 (1)		KP2103-6B1 (1)			
.120 in.	KP2103-3B1 (1)		KP2103-3B1 (1)			
<b>Contact Tips Extended Life</b>						
1/16 in.				KP2935-116		
.072 in.				KP2935-072		
5/64 in.				KP2935-564		KP2765-564
3/32 in.				KP2935-332		
<b>Insulated Guides</b>						
1-1/2 in. Stickout	KP1971-1 (1)	KP1971-1 (1)	KP1971-1 (1)			
1-1/2 in. Stickout				KP1987-1	KP1987-1	
2 in. Stickout				KP1995-1	KP1995-1 (1)	
2-3/4 in. Stickout				KP2090-1		
2-3/4 in. Stickout	KP1965-1 (1)	KP1965-1 (1)	KP1965-1 (1)			
3-3/4 in. Stickout	KP1965-2	KP1965-2	KP1965-2			
3/4-1 in. Stickout				KP4896-1 (1)(2)	KP4896-1 (1)(2)	

(1) Included as standard with Gun and Cable Assembly. (2) Thread protector. (3) K126 PRO Innershield® Guns are detailed in Publication E12.11. For best welding results with Lincoln Electric equipment, always use Lincoln Electric consumables. Visit www.lincolnelectric.com for more details.



**GENERAL DESCRIPTION****WARNING**

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



The K126 Innershield Pro gun and cable assemblies have been designed specification for welding with mild steel FCAW-S (self-shielded flux cored) processes. The K126 Pro product is designed for extended life and improved wire feeding in heavy duty welding applications.

The K126 Innershield Pro products use a cable with a core made from flat wound spring steel. The copper conductors which transmit welding current are wrapped around the spring core. Four #20 insulated leads are wrapped along with the copper conductors for use in the gun trigger circuit. The cable jacketing is made from a cross linked polymer which provides exceptional heat resistance and fatigue life.

A round wound spring steel liner is then placed inside the spring core of the cable to contain the wire while it is being transported to the welding arc. This liner is replaceable so that it can be sized correctly for the welding wire being used, and it can be removed and replaced with a new liner as it wears out. Both of these features improve the feeding of the wire through the gun.

The K126 Innershield Pro has stainless steel jacketed goosenecks for extended life. The goosenecks are similar in structure to a MIG gun gooseneck. A copper tube is used for the conductor and a stainless steel tube is used for the outer jacketing, while a Teflon tube acts as an insulator between the copper and steel. The replaceable spring liner extends through the gooseneck, so that the wire is continuously supported throughout the gun.

The K126 Innershield Pro gun utilizes a replaceable connector assembly at the feeder end of the gun so that the gun can be easily used with any feeder. These connectors are the same K466/K613 kits used with the Magnum MIG gun product line.

**RECOMMENDED PROCESSES AND EQUIPMENT****RECOMMENDED PROCESSES**

- FCAW-SS

**PROCESS LIMITATIONS**

- This gun can only be used with self-shielded wires. The design will not support the use of shielding gas.

**EQUIPMENT LIMITATIONS**

- The K126 Pro will not operate with the LN23P feeder.
- The K126 Pro does not support the 83% reduced feed speed switch for pipe welding.

Read this entire installation section before you start installation.

**WARNING**

**SAFETY PRECAUTIONS**  
**ELECTRIC SHOCK can kill.**

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



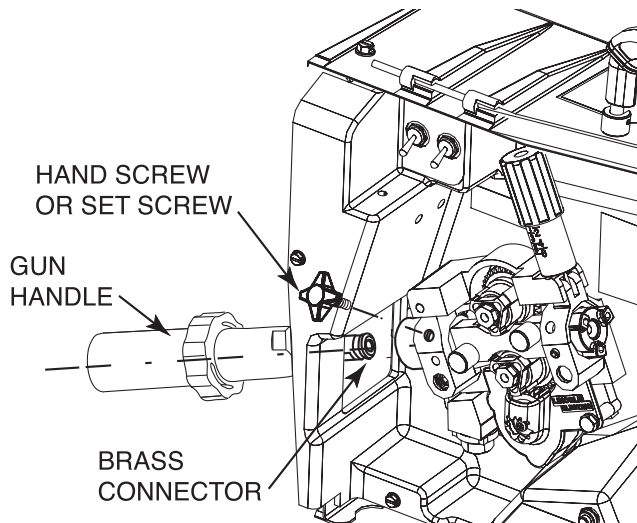
**CONNECTION TO FEEDER WITH READY TO WELD GUN**

Connecting a K126-10, K126-11 and K126-14 to a Lincoln Feeder (5/64" or smaller diameter wire).

The K126-10, K126-11 and K126-14 will connect to any wire feeder with a Lincoln style gun receiver bushing (i.e. LN-8, LN-9, LN-25 or any feeder with a K1500-1 bushing installed). (See Figure A.1).

1. Check that the drive roll(s) and feeder guide tubes are appropriate for the electrode size being used.
2. Fully push the brass connector end of the gun cable into the conductor block on the outgoing side of the feeder wire drive. Secure the cable using the hand screw or set screw in the conductor block.
3. Insert the round connector of the control cable into the mating connector on the front of the wire feeder.

**FIGURE A.1**



**Connection to Adapted Feeders, Lincoln DH-10, LN-10, STT-10, and Power Feed 10 wire feeders (5/64" or smaller diameter wire).**

The K126-12 gun and cable assembly will connect easily to any properly adapted feeder.

1. Check that the adapter and feeder outgoing guide, as well as the drive roll, are appropriate for the electrode size being used. On Lincoln feeders, check that the K1500-2 gun adapter is in place.
2. Fully push the brass connector end of the gun cable into the brass adapter on the outgoing side of the feeder wire drive. Secure the cable using the hand screw or set screw in the adapter.
3. Insert the round connector of the control cable into the mating connector on the front of the wire feeder.

**CONVERSION OF K126-10, K126-11, K126-12 OR K126-13 TO WELD WITH OTHER WIRE FEEDERS**

Prepare gun and determine correct connector kit

1. Determine which K466 or K613 kit is required for your system using (Tables A.1 and A.2) in the front part of the Installation Section.
2. Remove the insulator, tip holder and gun control cable.
3. Lay gun and cable out straight on a flat surface.
4. Loosen set screw located in the brass cable connector at the wire feeder end of the cable using the 5/64 (2.0 mm) Allen wrench. Pull liner out of cable.
5. Remove the brass cable connector from the feeder end of the gun using the wrench provided.
6. Install the new connector kit using the appropriate procedure which follows.

**K466-3/K613-3 Installation**  
**(For Miller feeders)**

1. Remove brass cable connector (see Figure A.2) from the kit and screw it on to the feeder end of the gun cable. Tighten the connection with the wrench provided.
2. Attach the round connector of the gun control cable provided to the trigger connector on the front of the Miller feeder.

**K466-4 Installation**  
**(For Hobart feeders; i.e. 27...)**

1. Remove brass cable connector (see Figure A.2) from the K466-4 kit and screw it on to the feeder end of the gun cable. Tighten the connector with the wrench provided.
2. Attach the phone plug connector of the gun control cable provided to the trigger connector on the front of the Hobart feeder.

**K466-5 Installation**

(For L-Tec feeders equipped with an L-Tec feeder connector assembly, MIG 35, MIG 31A, 225...)

1. Remove brass cable connector (see Figure A.2) from the K466-5 kit and screw it onto the feeder end of the gun cable. Tighten the connection with the wrench provided.
2. For L-Tec machines that require trigger lead connections to be made at a terminal strip located within the machine (L-Tec 225), a gun control cable with forked terminals is provided. Connect the terminated leads to the terminal strip. For a machine that requires a twist-lock gun control cable connection, continue to use the L-Tec gun control cable provided with the L-Tec wire feeder connector assembly. Connect the twist-lock plug to the proper receptacle on the machine.

**K466-6, K466-7, and K466-9 Installation  
(Wirematic, Hobart Series 2000 Feeders, SP100T Type and Power MIG)**

1. Remove brass cable connector (see Figure A.2) from the connector kit and screw it onto the feeder end of the gun cable. Tighten the connection with the wrench provided.
2. Attach the gun control cable provided to the trigger connector on the wire feeder.

**K613-2, K613-7 Installation**

(Tweco #5 compatible feeders)

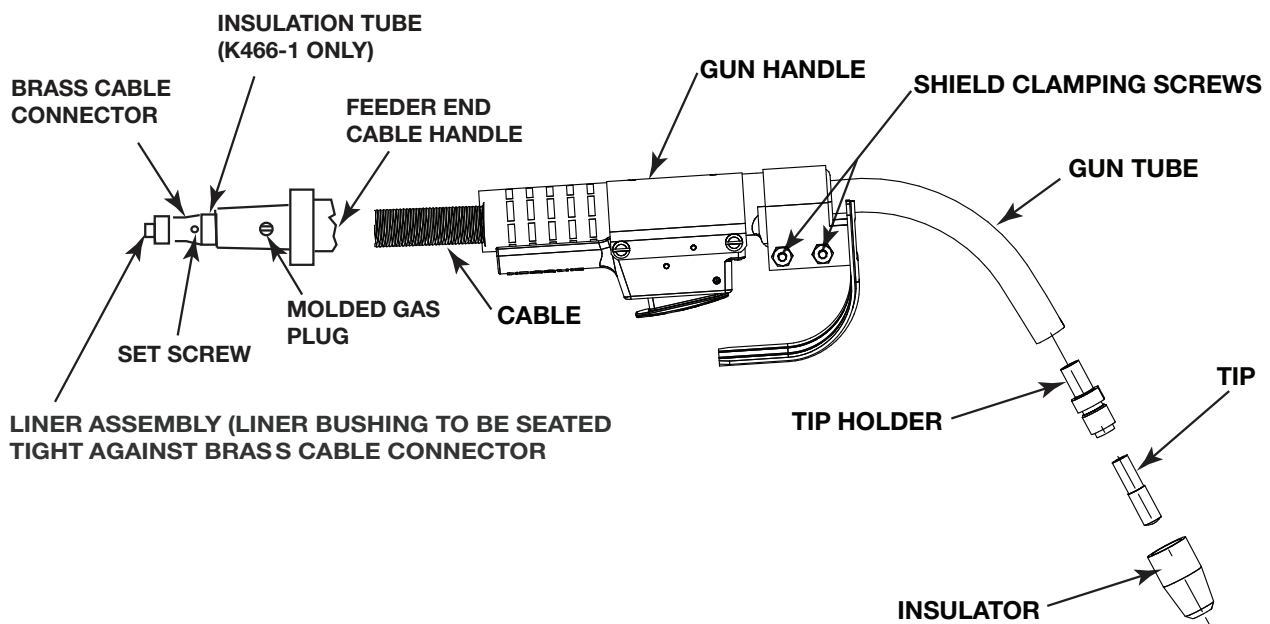
1. Remove brass cable connector from the kit and screw it onto the feeder end of the gun cable. Tighten the connection with the wrench provided.
2. For K613-7, attach the round connector of the gun control cable provided to the trigger connector on the front of the Lincoln feeder.

**K613-6 Installation**

(Lincoln Feeders, 3/32" diameter wire)

1. Remove brass cable connector and insulation tube from the kit. Slide the insulation tube onto the connector from the threaded end and screw it onto the feeder end of the gun cable. Tighten the connection with the wrench provided.
2. Attach the round connector of the gun control cable provided to the trigger connector on the front of the Lincoln Feeder.

FIGURE A.2



## INSTALL AND TRIM THE CABLE LINER

Installation of (KP44 and KP45 series liners)

1. Lay the gun and cable out straight on a flat surface.
2. Make sure that the set screw in the connector end is backed out so as not to damage liner or liner bushing. Remove and save the tip holder, contact tip and insulator from the end of the gun tube assembly.
3. Insert a new untrimmed liner into the connector end of the cable. Be sure the liner bushing is stenciled appropriately for the wire size being used.
4. Be sure to fully seat the liner bushing in the connector and:

For all connector kits except K466-3, K466-4 and K613-3, tighten the set screw in the cable connector.

### <OR>

For K466-3, K466-4 and K613-3, screw in the connector cap provided in the kit until it seats on the face of the bushing. Then insert the appropriate piece of liner material into the connector cap and tighten the set screw. Three pieces of liner material are included in these connector kits to help guide the electrode through the connector cap. The piece with the smallest inner diameter is designed for .045" (1.2 mm) maximum diameter electrode and the other liners fit the following wires (maximum size) in order of increasing inside diameter: 1/16" (1.6 mm), 5/64" (2.0 mm), 3/32" (2.4 mm) and 1/8" (3.2 mm).

NOTE: The maximum wire size for a K466-3 and K466-4 is 5/64". Therefore the 3/32" and 1/8" liners are not included with these kits.

5. Be sure the cable is straight and then trim the liner flush with the end of the gun tube.
6. Remove the gun tube and trim an additional 9/16" (12.7 mm) of material from the end of the liner (a 9/16" gage is included on the wrench supplied with the gun).
7. Replace the gun tube and tighten the clamping screw to secure it.
8. Reassemble the tip holder, insulator, and contact tip onto the end of the gun tube.

## CONNECT GUNS TO WIRE FEEDER

### Connection to Miller Feeders

Using the Gun and cable assemblies which were assembled with a K466-3 or K613-3 connection kit in the beginning of this Installation Section will connect easily to a variety of popular Miller wire feeders.

1. Check that the gun liner, connector cap liner, and drive rolls are appropriate for the electrode size being used.
2. Fully push the brass connector end of the gun and cable into the connector receptacle on the outgoing side of the feeder wire drive. Tighten the hand screw to clamp down on the connector.
3. Insert the control cable plug from the feeder trigger circuit into the mating socket on the gun cable feeder end handle.

### Connection to Hobart Feeders

Using the Gun and cable assemblies which were assembled with a K466-4 connection kit in the beginning of this Installation Section will connect easily to a variety of Hobart wire feeders.

1. Check that the gun liner, connector cap liner, and drive rolls are appropriate for the electrode size being used.
2. Fully push the brass connector end of the gun and cable into the connector receptacle on the outgoing side of the feeder wire drive. Tighten the hand screw to clamp down on the connector.
3. Insert the control cable plug from the feeder trigger circuit into the mating socket on the gun cable feeder end handle.

### Connection to L-Tec Adapted Feeders

Using the Gun and cable assemblies which were assembled with a K466-5 connection kit in the beginning of this Installation Section will connect easily to an L-Tec feeder equipped with an L-Tec feeder connector assembly.

1. Check that the adapter and feeder outgoing guide as well as the drive roll, are appropriate for the electrode size being used.
2. Fully push the brass connector end of the gun cable into the brass adapter on the outgoing side of the feeder wire drive. Secure the cable using the hand screw, set screw, or pin.
3. Insert the control cable plug from the feeder trigger circuit into the mating socket on the gun cable feeder end handle. For machines with a twist-lock trigger lead receptacle, if the L-Tec gun control cable does not easily connect with the socket, the gun control cable that came with the K466-5 kit can be used. To do this, cut off the gun control leads as close to the forked terminals as possible and skin back the leads 7/16" (11 mm). Remove the twist-lock plug from the L-Tec control cable and connect it to the K466-5 cable. Make sure the outer jacket of the connector is caught within the plug's strain relief.

**Connection to Lincoln Wirematic, Power MIG, Hobart Series 2000 Feeders, or SP100T Type Feeders.**

Gun cable assemblies which were assembled with a K466-6, K466-7 or K466-9 Connection Kit in the beginning of this Installation Section will connect easily to a feeder.

1. Check that the adapter and feeder outgoing guide, as well as the drive rolls, are appropriate for the electrode size being used.
2. Fully push the brass connector end of the gun cable into the outgoing side of the feeder wire drive. Secure the cable using the hand screw on the wire feeder.
3. Insert the control cable plug from the feeder trigger circuit into the mating socket on the gun cable feeder end handle.

**Connection to a Tweco #5 adapted feeder.**

1. Check that the drive roll(s) and feeder guide tubes are appropriate for the electrode size being used.
2. Fully push the brass connector end of the gun cable into the conductor block on the outgoing side of the feeder wire drive. Secure the cable using the hand screw or set screw in the conductor block.
3. Insert the round connector of the control cable into the mating connector on the front of the wire feeder.

**Connection to a Lincoln feeder for 3/32" diameter wire**

1. Check that the drive roll(s) and feeder guide tubes are appropriate for the electrode size being used.
2. Fully push the brass connector end of the gun cable into the conductor block on the outgoing side of the feeder wire drive. Secure the cable using the hand screw or set screw in the conductor block.
3. Insert the round connector of the control cable into the mating connector on the front of the wire feeder.

# OPERATION

## ELECTRODES AND EQUIPMENT

The K126 Innershield Pro gun has been designed for use with Lincoln Innershield brand self-shielded cored wire electrodes. Refer to the appropriate Lincoln Process and Procedure Guidelines for the electrode used for information on recommended electrical and visible stick outs.

## MAKING A WELD

### 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.

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



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



#### ARC RAYS can burn.

- Wear eye, ear and body protection.



#### Only qualified personnel should operate this equipment.

1. Check that the welding power source is on.
2. Position electrode over joint. End of the electrode should be slightly off the work.
3. Lower welding helmet, close gun trigger, and begin welding. Hold the gun so the contact tip to work distance gives the correct electrical stick out as required for the procedure being used.
4. To stop welding, release the gun trigger and then pull the gun away from the work after the arc goes out.

## AVOIDING WIRE FEEDING PROBLEMS

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

1. Do not kink or pull cable around sharp corners.
2. Keep the electrode cable as straight as possible when welding or loading electrode through cable.
3. Avoid wrapping excess cable around handle or front of wire feeder.
4. Do not allow dolly wheels or trucks to run over cables.
5. Keep cable clean by following maintenance instructions.
6. Use only clean, rust-free electrode. The Lincoln electrodes have proper surface lubrication.
7. Replace contact tip when the arc starts to become unstable or the contact tip end is fused or deformed.

# ACCESSORIES

## WIRE FEEDER CONNECTION KITS

Manufacturer	Wire Feeder Data Model	Kit No. for Gun	
		5/64" diameter or smaller wire	3/32" diameter wire
Lincoln Electric	LN-7, LN-8, & LN-9 series; LN-25 (0.052 max.); LN-742	K466-1	none
	LN-7, LN-8, & LN-9 series; LN-25 (1/16 and larger); LN-742	K466-8	K613-6
	LF-72, LN-74	K466-10	none
	Series 10 feeders; LN-15; PF-10M; PF-15M	K466-10	none
	Power MIG & Wirematic series feeders	K466-6	none
Tweco Adapted	No. 2, 3, and 4 guns	K466-2	none
	No. 5 guns	K613-2	K613-2
Miller	Intellimatic, Side Kick, D-51A, Porta-MIG, Millermatic 130, 300 & 35 S-42GL, S-52A & S-54A, Swing Arc –Dual & Single, S-22, S-32S, 52D, 54D, 54E, 60 & 70 series	K466-3	K613-3
Hobart	Dualmatic 27/70, H3S, H4S, H6S Mega-Conds 27, 44, 45, 70, 70S	K466-4	K613-4
	2000 series; 17 Hefty	K466-7	K613-5
ESAB	Digamig, EH1, 5 & 11, SEH-4 & 5, SWM11 & 11B, 12, 13, 23, 24, 25, 26, 35, VAM2	K466-5	none

# INNERSHIELD PRO MAINTENANCE

## REMOVAL, INSTALLATION AND TRIMMING INSTRUCTIONS FOR MAGNUM® LINERS

NOTE: The variation in cable lengths prevents the interchangeability of liners. Once a liner has been cut for a particular gun, it should not be installed in another gun, unless it can meet the liner cut off length requirement. Liners are shipped with the jacket of the liner extended the proper amount.

1. Remove the insulator and tip holder.
2. Lay the gun and cable straight on a flat surface.

### For all connectors except K466-3, K466-4 and K613-3:

Loosen set screw located in the brass cable connector at the wire feeder end of the cable using the same 5/64 (2.0 mm) Allen wrench. Pull liner out of cable.

<OR>

### For K466-3, K466-4 and K613-3 connectors:

Remove the connector cap with the wrench provided. Pull liner out of cable. If the liner is going to be replaced with a different size liner, loosen set screw on the connector cap and remove piece of liner material.

3. Insert a new untrimmed liner into the connector end of the cable. Be sure the liner bushing is stenciled appropriately for the wire size being used.
4. Be sure to fully seat the liner bushing in the connector and:

For all connector kits except K466-3, K466-4 and K613-3, tighten the set screw in the cable connector.

<OR>

For K466-3, K466-4 and K613-3, screw in the connector cap provided in the kit until it seats on the face of the bushing. Then insert the appropriate piece of liner material into the connector cap and tighten the set screw. Three pieces of liner material are included in these connector kits to help guide the electrode through the connector cap. The piece with the smallest inner diameter is designed for .045" (1.2 mm) maximum diameter electrode and the other liners fit the following wires (maximum size) in order of increasing inside diameter: 1/16" (1.6 mm), 5/64" (2.0 mm), 3/32" (2.4 mm) and 1/8" (3.2 mm).

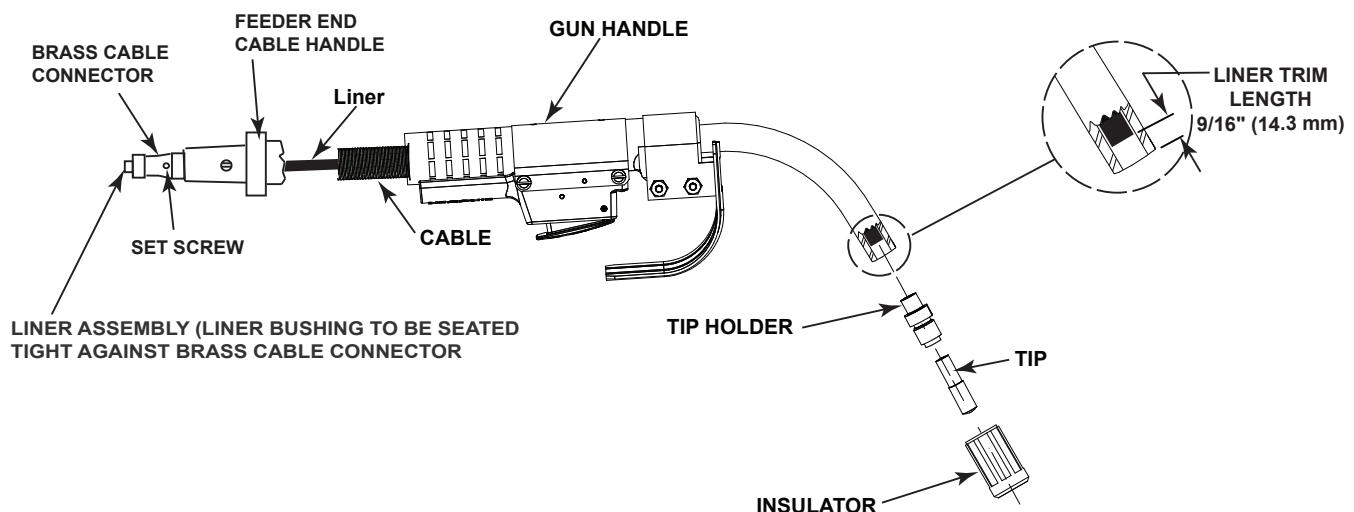
NOTE: The maximum wire size for a K466-3 and K466-4 is 5/64". Therefore the 3/32" and 1/8" liners are not included with these kits.

## ⚠ CAUTION

This screw should only be gently tightened. Overtightening will split or collapse the liner and cause poor wire feeding.

5. Be sure the cable is straight and then trim the liner flush with the end of the gun tube.
6. Remove the gun tube and trim an additional 9/16" (12.7 mm) of material from the end of the liner (a 9/16" gage is included on the wrench supplied with the gun).
7. Replace the gun tube and tighten the clamping screw to secure it.
8. Reassemble the tip holder, insulator, and contact tip onto the end of the gun tube.

Figure D.1





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### GUN TUBES AND NOZZLES

1. Replace worn contact tips as required.
2. Remove spatter from contact tip, tip holder, insulator and gun tube after each 10 minutes of arc time or as required.
3. To remove gun tube from gun, loosen socket-head clamping screw in handle with 3/16" (4.8 mm) Allen wrench.
4. Pull gun tube out from gun handle. To reinstall, insert the gun tube, push in as far as possible, and retighten clamping screw.

---

### CABLE CLEANING

Clean cable liner after using approximately 150 (68 kg) pounds of electrode. Remove the cable from the wire feeder and lay it out straight on the floor. Remove the contact tip from the gun. Using an air hose and only partial pressure, gently blow out the cable liner from the tip holder end.



### CAUTION

**Excessive pressure at the start may cause the dirt to form a plug.**

-----  
Flex the cable over its entire length and again blow out the cable. Repeat this procedure until no further dirt comes out.

**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.



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**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.

**WWW.LINCOLNELECTRIC.COM/LOCATOR**

Observe all Safety Guidelines detailed throughout this manual

<b>PROBLEMS (SYMPTOMS)</b>	<b>POSSIBLE CAUSE</b>	<b>RECOMMENDED COURSE OF ACTION</b>
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 .
	5. Bird nest	5. Cut out bird nest, reload wire, and check for proper wire alignment.
	6. Defective trigger (contacts open or dirty).	6. Replace trigger assembly.
	7. Defective trigger circuit in gun.	7. Disconnect gun from machine and check trigger circuit for continuity.
	8. No motor voltage or current from machine.	8. See Troubleshooting section in welding machine's or wire feeder's instruction manual.
	9. Contact tip size too small for wire diameter used.	9. Replace contact tip with one that is the correct size.
Sluggish wire feed when trigger is pulled.	1. Drive roll is worn or galled.	1. Clean drive roll 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.
	5. Gun cable is coiled/kinked.	5. Remove all sharp curves from gun cable while welding.
	6. Mechanical resistance to wire feeding is too large	6. If using a reverse bend gun tube, try welding with a non reverse bend product.



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.

**WWW.LINCOLNELECTRIC.COM/LOCATOR**

Observe all Safety Guidelines detailed throughout this manual

<b>PROBLEMS (SYMPTOMS)</b>	<b>POSSIBLE CAUSE</b>	<b>RECOMMENDED COURSE OF ACTION</b>
Intermittent wire feed when trigger is pulled.	1. Drive roll has become galled.	1. Remove and then clean or replace drive roll.
	2. Wire has become kinked along its feed path.	2. Manually pull wire slowly thru gun until unkinked wire emerges.
Frequent birdnesting or kinking of wire in the gun cable.	1. Wire shavings/lubricant is building up in the cable.	1. Clean cable or replace cable liner.
	2. Cable liner is too large for wire size.	2. Install the smallest possible liner which is specified for the wire being used (i.e. use a .052-1/16 liner instead of a 1/16-5/64 liner when welding with 1/16" diameter wire.
	3. Mechanical resistance to wire feeding is too large.	3. If using a reverse bend gun tube, try welding with a non reverse bend product.
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.	1. Improper electrode polarity.	1. Reconnect machine's welding output to proper electrode polarity.
	2. Improper welding parameters or technique.	2. See welding wire literature for proper settings.
Wire feeder runs or begins feeding wire without pulling the gun trigger.	1. Defective trigger (contacts closed or dirty).	1. Replace trigger assembly.
	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 accessory switch circuits.	3. Damaged control leads along cable; repair if possible. Otherwise, replace gun cable.



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.

**[WWW.LINCOLNELECTRIC.COM/LOCATOR](http://WWW.LINCOLNELECTRIC.COM/LOCATOR)**

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<b>WARNING</b>	<ul style="list-style-type: none"> <li>● Do not touch electrically live parts or electrode with skin or wet clothing.</li> <li>● Insulate yourself from work and ground.</li> </ul>	<ul style="list-style-type: none"> <li>● Keep flammable materials away.</li> </ul>	<ul style="list-style-type: none"> <li>● Wear eye, ear and body protection.</li> </ul>
Spanish <b>AVISO DE PRECAUCION</b>	<ul style="list-style-type: none"> <li>● No toque las partes o los electrodos bajo carga con la piel o ropa mojada.</li> <li>● Aislese del trabajo y de la tierra.</li> </ul>	<ul style="list-style-type: none"> <li>● Mantenga el material combustible fuera del área de trabajo.</li> </ul>	<ul style="list-style-type: none"> <li>● Protéjase los ojos, los oídos y el cuerpo.</li> </ul>
French <b>ATTENTION</b>	<ul style="list-style-type: none"> <li>● Ne laissez ni la peau ni des vêtements mouillés entrer en contact avec des pièces sous tension.</li> <li>● Isolez-vous du travail et de la terre.</li> </ul>	<ul style="list-style-type: none"> <li>● Gardez à l'écart de tout matériel inflammable.</li> </ul>	<ul style="list-style-type: none"> <li>● Protégez vos yeux, vos oreilles et votre corps.</li> </ul>
German <b>WARNUNG</b>	<ul style="list-style-type: none"> <li>● Berühren Sie keine stromführenden Teile oder Elektroden mit Ihrem Körper oder feuchter Kleidung!</li> <li>● Isolieren Sie sich von den Elektroden und dem Erdboden!</li> </ul>	<ul style="list-style-type: none"> <li>● Entfernen Sie brennbares Material!</li> </ul>	<ul style="list-style-type: none"> <li>● Tragen Sie Augen-, Ohren- und Körperschutz!</li> </ul>
Portuguese <b>ATENÇÃO</b>	<ul style="list-style-type: none"> <li>● Não toque partes elétricas e electrodos com a pele ou roupa molhada.</li> <li>● Isole-se da peça e terra.</li> </ul>	<ul style="list-style-type: none"> <li>● Mantenha inflamáveis bem guardados.</li> </ul>	<ul style="list-style-type: none"> <li>● Use proteção para a vista, ouvido e corpo.</li> </ul>
Japanese <b>注意事項</b>	<ul style="list-style-type: none"> <li>● 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。</li> <li>● 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。</li> </ul>	<ul style="list-style-type: none"> <li>● 燃えやすいものの側での溶接作業は絶対にはなりません。</li> </ul>	<ul style="list-style-type: none"> <li>● 目、耳及び身体に保護具をして下さい。</li> </ul>
Chinese <b>警告</b>	<ul style="list-style-type: none"> <li>● 皮肤或湿衣物切勿接触带电部件及焊条。</li> <li>● 使你自已与地面和工件绝缘。</li> </ul>	<ul style="list-style-type: none"> <li>● 把一切易燃物品移离工作场所。</li> </ul>	<ul style="list-style-type: none"> <li>● 佩戴眼、耳及身体劳动保护用具。</li> </ul>
Korean <b>위험</b>	<ul style="list-style-type: none"> <li>● 전도체나 용접봉을 젖은 헝겍 또는 피부로 절대 접촉치 마십시오.</li> <li>● 모재와 접지를 접촉치 마십시오.</li> </ul>	<ul style="list-style-type: none"> <li>● 인화성 물질을 접근시키지 마십시오.</li> </ul>	<ul style="list-style-type: none"> <li>● 눈, 귀와 몸에 보호장구를 착용하십시오.</li> </ul>
Arabic <b>تحذير</b>	<ul style="list-style-type: none"> <li>● لا تلمس الاجزاء التي يسري فيها التيار الكهربائي أو الألكترود بجسدك أو بالملابس المبللة بالماء.</li> <li>● ضع عازلا على جسمك خلال العمل.</li> </ul>	<ul style="list-style-type: none"> <li>● ضع المواد القابلة للاشتعال في مكان بعيد.</li> </ul>	<ul style="list-style-type: none"> <li>● ضع أدوات وملابس واقية على عينيك وأذنيك وجسمك.</li> </ul>

**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.**

			
<ul style="list-style-type: none"> <li>● Keep your head out of fumes.</li> <li>● Use ventilation or exhaust to remove fumes from breathing zone.</li> </ul>	<ul style="list-style-type: none"> <li>● Turn power off before servicing.</li> </ul>	<ul style="list-style-type: none"> <li>● Do not operate with panel open or guards off.</li> </ul>	<b>WARNING</b>
<ul style="list-style-type: none"> <li>● Los humos fuera de la zona de respiración.</li> <li>● Mantenga la cabeza fuera de los humos. Utilice ventilación o aspiración para gases.</li> </ul>	<ul style="list-style-type: none"> <li>● Desconectar el cable de alimentación de poder de la máquina antes de iniciar cualquier servicio.</li> </ul>	<ul style="list-style-type: none"> <li>● No operar con panel abierto o guardas quitadas.</li> </ul>	Spanish <b>AVISO DE PRECAUCION</b>
<ul style="list-style-type: none"> <li>● Gardez la tête à l'écart des fumées.</li> <li>● Utilisez un ventilateur ou un aspirateur pour ôter les fumées des zones de travail.</li> </ul>	<ul style="list-style-type: none"> <li>● Débranchez le courant avant l'entretien.</li> </ul>	<ul style="list-style-type: none"> <li>● N'opérez pas avec les panneaux ouverts ou avec les dispositifs de protection enlevés.</li> </ul>	French <b>ATTENTION</b>
<ul style="list-style-type: none"> <li>● Vermeiden Sie das Einatmen von Schweißrauch!</li> <li>● Sorgen Sie für gute Be- und Entlüftung des Arbeitsplatzes!</li> </ul>	<ul style="list-style-type: none"> <li>● Strom vor Wartungsarbeiten abschalten! (Netzstrom völlig öffnen; Maschine anhalten!)</li> </ul>	<ul style="list-style-type: none"> <li>● Anlage nie ohne Schutzgehäuse oder Innenschutzverkleidung in Betrieb setzen!</li> </ul>	German <b>WARNUNG</b>
<ul style="list-style-type: none"> <li>● Mantenha seu rosto da fumaça.</li> <li>● Use ventilação e exaustão para remover fumo da zona respiratória.</li> </ul>	<ul style="list-style-type: none"> <li>● Não opere com as tampas removidas.</li> <li>● Desligue a corrente antes de fazer serviço.</li> <li>● Não toque as partes elétricas nuas.</li> </ul>	<ul style="list-style-type: none"> <li>● Mantenha-se afastado das partes moventes.</li> <li>● Não opere com os painéis abertos ou guardas removidas.</li> </ul>	Portuguese <b>ATENÇÃO</b>
<ul style="list-style-type: none"> <li>● ヒュームから頭を離すようにして下さい。</li> <li>● 換気や排煙に十分留意して下さい。</li> </ul>	<ul style="list-style-type: none"> <li>● 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ください。</li> </ul>	<ul style="list-style-type: none"> <li>● 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。</li> </ul>	Japanese <b>注意事項</b>
<ul style="list-style-type: none"> <li>● 頭部遠離煙霧。</li> <li>● 在呼吸區使用通風或排風器除煙。</li> </ul>	<ul style="list-style-type: none"> <li>● 維修前切斷電源。</li> </ul>	<ul style="list-style-type: none"> <li>● 儀表板打開或沒有安全罩時不準作業。</li> </ul>	Chinese <b>警告</b>
<ul style="list-style-type: none"> <li>● 얼굴로부터 용접가스를 멀리하십시오.</li> <li>● 호흡지역으로부터 용접가스를 제거하기 위해 가스제거기나 통풍기를 사용하십시오.</li> </ul>	<ul style="list-style-type: none"> <li>● 보수전에 전원을 차단하십시오.</li> </ul>	<ul style="list-style-type: none"> <li>● 관널이 열린 상태로 작동치 마십시오.</li> </ul>	Korean <b>위험</b>
<ul style="list-style-type: none"> <li>● ابعد رأسك بعيداً عن الدخان.</li> <li>● استعمل التهوية أو جهاز ضغط الدخان للخارج لكي تبعد الدخان عن المنطقة التي تتنفس فيها.</li> </ul>	<ul style="list-style-type: none"> <li>● اقطع التيار الكهربائي قبل القيام بأية صيانة.</li> </ul>	<ul style="list-style-type: none"> <li>● لا تشغيل هذا الجهاز اذا كانت الاغطية الحديدية الواقية ليست عليه.</li> </ul>	Arabic <b>تحذير</b>

**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說明以及應該使用的銀焊材料，並請遵守貴方的有關勞動保護規定。

이 제품에 동봉된 작업지침서를 숙지하시고 귀사의 작업자 안전수칙을 준수하시기 바랍니다.

اقرأ بتعمن 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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