GMAW Push-Pull Gun

RETURN TO MAIN MENU

IM774
MK 091-0525
December 2006
Rev. E

OPERATOR'S MANUAL

CobraMAX™

Model numbers K2252-1 & K2252-2

Safety Depends on You
Lincoln arc welding 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.

OPERATOR'S MANUAL

CE

LINCOLN ELECTRIC

World's Leader in Welding and Cutting Products
Sales and Service through Subsidiaries and Distibutors Worldwide
Cleveland, Ohio 44117-1199 U.S.A. TEL: 216.481.8100 FAX: 216.486.1751 WEB SITE: www.lincolnelectric.com

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Declaration of Conformity for European Community (CE) Products

Note **This information is provided for units with CE certification (see rating label on unit).**

Manufacturer's Name: **MK Products, Inc.**

16882 Armstrong Ave.
Irvine, CA 92606

Declares that the product: **CobraMAX™**

conforms to the following Directives and Standards:

Directives

Low Voltage Directive: 73/23/EEC

Electromagnetic Compatibility (EMC) Directive: 89/336/EEC

Standards

Arc Welding Equipment Part I: Welding Power Sources: IEC 60974-1
(September 1998 - Second Edition)

Arc Welding Equipment: Wirefeed Systems: IEC 974-5
(September 1997 - Draft Revision)

Degrees of Protection Provided by Enclosures (IP Code): IEC 529:1989
(November 1989 - First Edition)

Insulation Coordination For Equipment With Low-Voltage Systems:
Part I: Principles, Requirements and Tests: IEC 664-1: 1992
(October 1992 - First Edition)

Electromagnetic Compatibility, (EMC): EN 50199
(August 1995)

Torches And Guns For Arc Welding, EN 50078

⚠ 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

LINCOLN ELECTRIC

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 below Threshold Limit Values (TLV) 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.

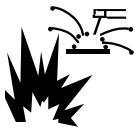
5.c. Do not weld in locations near chlorinated hydrocarbon vapors coming from degreasing, cleaning or spraying operations. The heat and rays of the arc can react with solvent vapors to form phosgene, a highly toxic gas, and other irritating products.

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.

AUG 06



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.

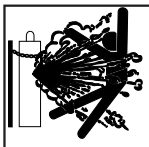
6.f. Sparks and spatter are thrown from the welding arc. Wear oil free protective garments such as leather gloves, heavy shirt, cuffless trousers, high shoes and a cap over your hair. Wear ear plugs when welding out of position or in confined places. Always wear safety glasses with side shields when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

Jan, 07

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.

Mar. '93

INSTRUCTIONS FOR ELECTRO-MAGNETIC COMPATIBILITY

Conformance

Products displaying the C-Tick mark are in conformity with Australian/New Zealand requirements for Electromagnetic Compatibility (EMC) according to standard (emission) AS/NZS 3652 "Electromagnetic Compatibility – Arc Welding Equipment".

Products displaying the CE mark are in conformity with European Community Council Directive 89/336/EEC requirements for EMC by implementing EN50199 "Electromagnetic Compatibility (EMC) – Product standard for arc welding equipment".

Products are:
- **For use with other Lincoln Electric/LiquidArc equipment.**
- **Designed for industrial and professional use.**

Introduction

All electrical equipment generates small amounts of electromagnetic emission. Electrical emission may be transmitted through power lines or radiated through space, similar to a radio transmitter. When emissions are received by other equipment, electrical interference may result. Electrical emissions may effect many kinds of electrical equipment: other nearby welding equipment, radio and TV transmitters and receivers, numerical controlled machines, telephone systems, computers, etc. Be aware that interference may result and extra precautions may be required when a welding power source is used in a domestic establishment.

Installation and Use

The purchaser/user is responsible for installing and using the welding equipment according to the manufacturer's instructions. If electromagnetic disturbances are detected then it shall be the responsibility of the purchaser/user of the welding equipment to resolve the situation with the technical assistance of the manufacturer. In some cases this remedial action may be as simple as earthing (grounding) the welding circuit (see note below). In other cases it could involve constructing an electromagnetic screen enclosing the power source and the work complete with associated input filters. In all cases electromagnetic disturbances must be reduced to the point where they are no longer troublesome.

Note: The welding circuit may or may not be earthed for safety reasons according to national codes. Changing the earthing arrangements should only be authorized by a person who is competent to assess whether the changes increase the risk of injury, eg. by allowing parallel welding current return paths which may damage the earth circuits of other equipment.

Assessment of Area

Before installing welding equipment the purchaser/user shall make an assessment of potential problems in the surrounding area.

The following shall be taken into account:

- Other supply cables, control cables, signalling and telephone cables above, below and adjacent to the welding equipment;
- Radio and television transmitters and receivers;
- Computer and other control equipment;
- Safety critical safety equipment, eg. guarding of industrial equipment;
- The health of people around, eg. the use of pacemakers and hearing aids;
- Equipment used for calibration or measurement;
- The immunity of other equipment in the environment. The purchaser/user shall ensure that other equipment being used in the environment is compatible. This may require additional protection measures;
- The time of the day that welding or other activities are to be carried out.

The size of the surrounding area to be considered will depend on the structure of the building and other activities that are taking place. The surrounding area may extend beyond the boundaries of the premises.

Methods of Reducing Emissions

Mains Supply

Welding equipment should be connected to the mains supply according to the manufacturer's recommendations.If interference occurs, it may be necessary to take additional precautions such as filtering the mains supply. Consideration should be given to shielding the supply cable of permanently installed welding equipment in metallic conduit or equivalent. Shielding should be electrically continuous throughout its length. The shielding should be connected to the welding power source so that good electrical contact is maintained between the conduit and the welding power source enclosure.

Maintenance of the Welding Equipment

The welding equipment should be routinely maintained according to the manufacturer's recommendations. All access and service doors and covers should be closed and properly fastened when the welding equipment is in operation. The welding equipment should not be modified in any way except for those changes and adjustment covered in the manufacturer's instructions. In particular, the spark gaps of arc initiation and stabilizing devices should be adjusted and maintained according to the manufacturer's recommendations.

Welding Cables

The welding cables should be kept as short as possible and should be positioned close together, running at or close to the floor level.

Equipotential Bonding

Bonding of all metallic components in the welding installation and adjacent to it should be considered. However, metallic components bonded to the work piece will increase the risk that the operator could receive a shock by touching these metallic components and the electrode at the same time. The operator should be insulated from all such bonded metallic components.

Earthing of the workpiece

Where the workpiece is not bonded to earth for electrical safety, nor connected to earth because of its size and position, eg. ship's hull or building steelwork, a connection bonding the workpiece to earth may reduce emissions in some, but not all instances. Care should be taken to prevent the earthing of work pieces increasing the risk of injury to users, or damage to other electrical equipment. Where necessary, the connection of the workpiece to earth should be made by direct connection to the workpiece, but in some countries where direct connection is not permitted, the bonding should be achieved by suitable capacitance, selected according to national regulations.

Screening and Shielding

Selective screening and shielding of other cables and equipment in the surrounding area may alleviate problems of interference. Screening of the entire welding installation may be considered for special applications.

Portions of the preceding text are extracted from:
- Australian/New Zealand standard AS/NZS 3652. Permission to reproduce has been granted by Standards Australia and Standards New Zealand. For further explanation, readers should be referred to the standard itself.
- British Standards Institution standard BS EN 50199:1995. Reproduced with permission of BSI under license number 2000SK0631. Complete standards can be obtained from BSI Customer Services, 389 Chiswick High Road, London W4 4AL. United Kingdom. (Tel +44 (0) 20 8996 9001).

JAN '01

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**.

Section A

CE

Installation

Technical Specifications

Wire Capacity

.030" - .045" (0.6mm - 1.2mm) solid and hard wire
.030" - 1/16" (0.8mm - 1.6mm) aluminum and cored wire

Wire Speed

800 IPM (20.3 mpm) Max at rated feeder input voltage (120VAC / 42VAC)

Duty Cycle

All ratings are using Argon gas

200 Amps/25 Volts	Air cooled - 60%
250 Amps/25 Volts	Water cooled - 60%

Support Equipment Required

- C.V. or C.C. power source of sufficient capacity for your needs.
- Regulated gas supply and hoses.
- Properly sized power leads from power source to wire feeder and ground.
- Water source and hose capable of providing a minimum of **1 quart (.95 liter) / min. at 45 psi** when using water cooled guns.

Coolant Recommendations

Use a name-brand additive, which does not contain reactive sulphur or chlorine and does not react with copper, brass or aluminum or create a custom mix using this formula:

Use 3 Gallons (11.4 Liters) Distilled water.
Use 1 Gallon (3.8 Liters) ethylene glycol.
Use 1 tsp (5 ml) liquid glycerin

The Coolant rate should be 1 quart (.95 liter) / minute at 35 p.s.i.

Gun Lead Connections

Power Cable - Air Cooled

A #2 AWG power cable is used on the CobraMAX™ air cooled gun. The gun end is threaded into the gun body with torque requirments of 100±5 IN-LB. The power cable fitting connects to the power block in the Cobramatic® wire feed cabinet.

Power Cable - Water Cooled

The CobraMAX™ water cooled gun utilizes a power/water cable with a #4 AWG cable inside a 5/8" (16MM) diameter hose. The gun end is threaded into the gun body with torque requirements of 100±5 IN-LB.

IMPORTANT

Water cooled guns MUST be WATER cooled.

Conduit

The CobraMAX™ gun comes standard with a poly-lined conduit, for feeding aluminum wire. The longer fitting with a shallow groove is used on the gun end. A set screw located on top of the gun handle secures the conduit in place.

Gas Hose
The gas hose is secured over the barbed gas fitting with a tie wrap. The cabinet end of the gas hose uses our standard gas fitting (1/8” - 27 nps).

Water Hose
If so equipped, one end of the water hose is secured over the barbed water fitting with a tie wrap and the other end is connected to the center fitting on the power block.

Electric Cable
A seven conductor control cable is used on the CobraMAX™ gun. The gun end of the control cable is secured to the gun with a boot clamp and soldered to the pot assembly, tirgger and water leads. Slack is left in the electric cable as it exits the back of the gun to prevent cable breakage. The cabinet end has a seven pin “W” clocked amphenol connector.

Section B Operation

General
The CobraMAX™ gun maintains a constant, steady, uniform wire feed speed, regardless of curved or looped wire conduit. The constant push exerted by the slave motor in the cabinet, combined with the pull of the gun motor, causes the wire to literally float friction-free through the wire conduit. The 24VDC gun motor is controlled by a three and three-quarter (3 3/4) turn potentiometer in the gun handle.

Controls and Settings

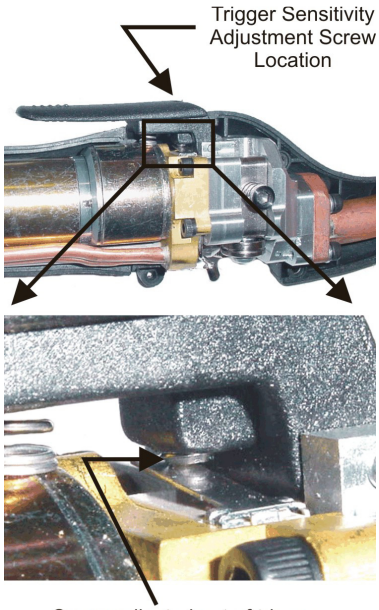
Potentiometer
The laterally-positioned potentiometer is located in the lower end of the handle, providing up to 800 ipm with 3 3/4 turns.

Micro Switch
The micro switch assembly consists of the micro switch and leads.

Trigger Sensitivity
The amount of trigger level travel can be shortened for a "quicker" or "more responsive" action.

A more sensitive trigger lever is produced by reducing the gap between the trigger lever and the micro switch lever. By turning-in the trigger sensitivity adjustment screw, it closed the gap between the trigger lever and the micro switch lever.

This will enable the operator to increase the sensitivity of the trigger lever.



Screw adjusted out of trigger, pre-setting the micro-switch lever for shorter trigger motion sensitivity.

Sensitivity Adjustment
With the wire feeder turned on (with or without welding wire loaded), turn the screw in until the micro-switch is activated. Once activated, the tortch and wire feeder motors will begin feeding wire. Retract the screw accordingly until the system is deactivated and adjusted to the operators' liking.

Drive Roll and Idler Rolls

General

The CobraMAX™ gun comes standard with a knurled drive roll and a grooved idler roll, which will handle both steel and aluminum wire with diameters from .030-1/16 inch. Optional insulated V-groove drive rolls are also available for aluminum wire if desired (see optional kits).

Drive roll tension is accomplished with a unique spring-loaded pressure screw. The CobraMAX™ comes from the factory with the pressure adjustment screw preset. **NO ADJUSTMENT IS REQUIRED FOR ALL SIZES AND TYPES OF WIRES**.

Drive Roll Installation/Removal

Note:
Neither of the handles needs to be removed to access the drive or idler rolls

1. Pull the cam lever away from the idler roll. This will relieve the pressure against the drive roll (as shown in Figure 1).
2. Align the drive roll removal tool (P/N 931-0100) over the flats of the drive roll (as shown in Figure 2). Hold the gun with one hand or on a table top, with the other hand give the removal tool a quick snap-turn in the **CLOCKWISE DIRECTION**.
3. Once the drive roll is loose, continue to spin drive roll in the clockwise direction to remove the drive roll from the gun.
4. Install a new drive roll on the left-hand threaded shaft. The drive roll will self-tighten when it is feeding wire.

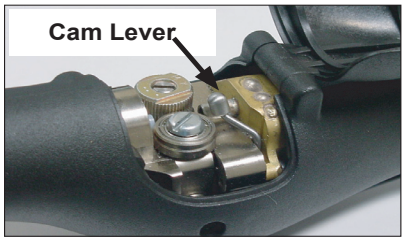


Figure 1

Figure 2

Idler Roll Installation and Removal

(Reference Figure 3)

1. Using a slot type screwdriver, loosen idler screw, taking care not to lose lock washer under idler roll.
2. Insert new idler roll and lock washer onto screw, insuring that idler groove is toward top and lock washer is beneath.

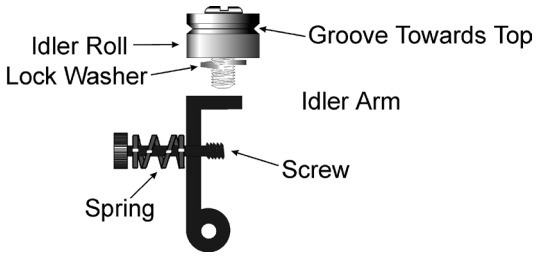


Figure 3

3. Tighten.

NOTE: Lock washer must be under idler roll or it will not turn freely.

Section C

Accessories

LE P/N MK P/N

Optional Kits

Insulated Drive Roll Kits are used to prevent preheating of the wire which may soften it and clog the liner. This picking up of current at the drive rolls rather than at the contact tip is usually not a problem unless using too large of a contact tip or excessively oxidized aluminum wire.

Insulated Groove Drive Roll Kit..... KP1594-030 005-0640
For **.030"** (0.8mm) dia. aluminum wire. Includes insulated groove drive roll and insulated idler roll assy.

Insulated Groove Drive Roll Kit..... KP1594-035 005-0716
For **.035"** (0.9mm) dia. aluminum wire. Includes insulated groove drive roll and insulated idler roll assy.

Insulated Groove Drive Roll Kit..... N/A 005-0642
For **.040"** (1.0mm) dia. aluminum wire. Includes insulated groove drive roll and insulated idler roll assy.

Insulated Groove Drive Roll Kit..... KP1594-3/64 005-0718
For **3/64"** (1.2mm) dia. aluminum wire. Includes insulated groove drive roll and insulated idler roll assy.

Insulated Groove Drive Roll Kit..... KP1594-1/16 005-0644
For **.062"** (1.6mm) dia. aluminum wire. Includes insulated groove drive roll and idler insulated roll assy.

Replacement Kits

Handle Kit..... 005-0700
Includes left and right handles, screws and drive roll door.

Trigger Kit..... 005-0694
Trigger adjustment kit includes a spring and sensitivity adjustment screw replacement for all Python®/CobraMAX™ guns.

Micro Switch Kit..... 005-0701
Replacement micro switch assembly for all Python®/CobraMAX™ guns.

Potentiometer Kit..... 005-0695
Replacement potentiometer assembly for all Python®/CobraMAX™ guns.

Barrel Insulator Kit 005-0696
Replacement barrel insulator and taper lock nut.

Conduits

Flat spiral steel conduit for steel & cored wire

615-0208 ..... 15 ft./4.5m
615-0216 ..... 25 ft./7.6m
615-0218 ..... 50 ft./15.2m

Snake Skins

Snake Skin protective covers are now standard on all guns. You may order spare replacement covers to protect the lead assy of the gun when the factory one becomes damaged or worn. It can easily be replaced in the field by means of Velcro©.

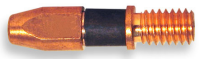
Snake Skin Cover 13ft (for 15ft leads) 931-0110
Snake Skin Cover 23ft (for 25ft leads) 931-0122
Snake Skin Cover 48ft (for 50ft leads) 931-0123

Contact Tips

Heavy Duty Contact Tip - 3/8" Diameter*					
Wire Size	Tip ID	Arc	Tip Length	MK Part No	LE Part No
.030” (0.8mm)	.040” (1.0mm)	Spray	1.57” (39.9mm)	621-0390-25	KP2217-1B1
		Short	1.82” (46.2mm)	621-0396-25	--
.035” (0.9mm)	.045” (1.1mm)	Spray	1.57” (39.9mm)	621-0391-25 621-0391-250† 621-0391-500††	KP2217-2B1
.035" (0.9mm)	.045" (1.1mm)	Short	1.82” (46.2mm)	621-0397-25	--
.045" (1.1mm)	.054" (1.37mm)	Short	1.82” (46.2mm)	621-0398-25	--
3/64” (1.2mm) (5356 Alloy)	.054” (1.37mm)	Spray	1.57” (39.9mm)	621-0392-25 621-0392-250† 621-0392-500††	KP2217-3B1
3/64” (1.2mm) (4043 Alloy)	.060” (1.5mm)	Spray	1.57” (39.9mm)	621-0393-25** 621-0393-250† 621-0393-500††	KP2217-4B1
1/16” (1.6mm)	.074” (1.9mm)	Spray	1.57” (39.9mm)	621-0394-25	KP2217-5B1
	.085” (2.16mm)	Spray		621-0395-25	

*Use of tip removal tool is recommended
**This size tip furnished with gun
†Also sold in quantities of 250
††Also sold in quantities of 500

Spring Loaded Tips



The use of the Spring Loaded Tips has shown to improve wire to tip contact significantly, especially while welding aluminum in DC Pulse Mode. Incorporating a wrap-around spring material, a ceramic "puck" pushes up against the wire forcing the wire to make 100% positive contact with the internal face of the contact tip.

The constant touching of the wire to the tip eliminates "electrical gaps" in the welding voltage sensing loop, which many welding power sources utilize for sensing arc voltage values.

Spring Loaded Contact Tip - 3/8" Diameter*					
Wire Size	Tip ID	Arc	Tip Length	MK Part No	LE Part No
.030” (0.8mm)	.040” (1.0mm)	Spray	1.57” (39.9mm)	621-0331	KP2662-1
.035” (0.9mm)	.045” (1.1mm)	Spray	1.57” (39.9mm)	621-0332	KP2662-2
3/64” (1.2mm)	.054” (1.37mm)	Spray	1.57” (39.9mm)	621-0333	KP2662-3
3/64” (1.2mm)	.060” (1.5mm)	Spray	1.57” (39.9mm)	621-0334	KP2662-4
1/16” (1.6mm)	.074” (1.9mm)	Spray	1.57” (39.9mm)	621-0335	KP2262-5

*Use of tip removal tool is recommended

Gas Cups

Gas Cups			
Cup Size	Cup I.D.	MK P/N	LE P/N
No. 6	3/8" (9.5mm)	621-0420	KP2249-1
No. 8*	1/2" (15.8mm)	621-0421	KP2250-1
No. 10	5/8" (15.8mm)	621-0422	KP2251-1

*standard - furnished with gun

Gun Barrel Liners		
MK P/N	LE P/N	Description
615-0341	--	Spiral Steel, .030 - .045" (0.8mm - 1.1mm)
621-0423	KP2247-1	CobraMAX™ Tip Extender
615-0248	--	Spiral Steel Liner for Tip Extender
615-0177	--	Bulk Teflon liner material for .030 - .035"
931-0137	KP2226-1	Teflon Liner Package, 5 pieces

Section D Maintenance

Periodic Maintenance

Your Cobramatic® System is designed to provide years of reliable service. Maintenance of the gun will normally consist of a general cleaning of the wire guide system, including barrel, drive rolls, and conduit at regular intervals

Remove spatter build-up from inside of nozzles with a hardwood stick. The only parts on the Cobramatic® system that are subject to normal wear are the conduit, contact tips, gas cups, front body liners, wire guides, drive and idler rolls. A supply of these parts should be maintained on hand.

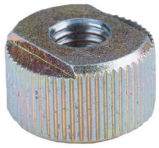
The number of units in operation and the importance of minimal “down time” will determine to what extent spare parts should be stocked on hand. See the “Recommended Spare Parts List” for the most commonly replaced parts.

If repairs do become necessary, qualified shop maintenance personnel can easily replace any part.

Maintenance Tools	
Tool	Part Number
Drive Roll Removal Tool	931-0100

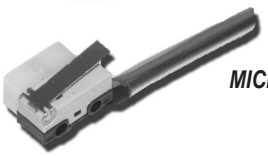
Recommended Spare Parts List		
Qty.	Part No.	Description
1	LE KP2072-30 MK 615-0601-15	Conduit - 15 ft
1	LE KP2072-28 MK 615-0601-25	Conduit - 25 ft
1	LE KP2072-29 MK 615-0601-50	Conduit - 50 ft
1	437-0253	Drive roll door
2	005-0694	Trigger assy kit
2	005-0695	Potentiometer assy kit
1	005-0700	Handle kit
2	005-0701	Micro switch assy kit
10	LE KP2219-1 MK 511-0101	Drive roll
5	LE KP2220-1 MK 005-0686	Idler roll kit

Drive Roll Removal Tool
931-0100



Knurled Drive Roll
LE P/N KP2219-1
MK P/N 511-0101

Idler Roll Kit
LE P/N KP2220-1
MK P/N 005-0686



MICRO SWITCH ASSY
005-0701

Section E Troubleshooting

Trouble	Cause	Remedy
No wire feed at gun, feeder not operating, i.e., no slave motor or brake solenoid.	115 VAC Control fuse in feeder/ Control box blown.	Replace fuse.
	Micro-switch defective/not being activated.	Replace switch. Check switch for operation.
	Broken electrical cable.	Check micro-switch wires for continuity.
No wire feed at gun, feeder operating properly	24 VAC Control fuse in feeder/ Control box blown.	Check motor leads for shorts; then replace fuse.
	Bad Potentiometer.	Check potentiometer with meter.
	Broken Electrical Cable	Check motor and potentiometer for continuity.
	Bad Speed control/PCB.	See specific cabinet/control box owners manual for speed control operation.
Wire feeds, but welding wire is not energized.	Loose or no cable connections.	Check all power connections.
	Contactor control cable loose or in wrong position	Check power supply owners manual for location and type of contactor signal required.
	Welding power source.	Check power source.
Wire feeds erratically.	Dirty or worn conduit.	Blow out or replace conduit.
	Wrong size contact tip.	See contact tip table.
	Idler roll stuck.	Check for lock washer under idler roll, or replace if damaged.
Wire feeds one speed only.	Bad potentiometer.	Check with meter.
	Broken electrical cable.	Check potentiometer wires for continuity or short.
	Bad speed control.	See specific cabinet/control owners manual for speed control operation.
Wire walks out of the drive rolls.	Idler roll upside-down.	Place groove in idler roll toward top.
	Rear wire guide missing.	Replace wire guide.

Troubleshooting Guide

Regardless of which gun or feeder used, all MK Products' push-pull guns operate on the same principle. The slave motor in the feeder runs at a fast, constant speed, but has very low torque. It is always trying to feed more wire than the gun motor wants, and when the motor gets all it wants, it slows the slave motor, preventing a bird's nest. Because of the low torque produced by the slave motor, a brake system is used to prevent wire overrun rather than tension. The drag adjustment in the feeder is used simply to keep the wire slightly taut, so it will not pull off the spool while feeding wire.

The high torque 24VDC gun motor is controlled by a solid state speed control located in the feeder, and a pot located in the gun. The gun motor, potentiometer, and micro switch are connected to the cabinet/control box via a control cable and amphenol connector. If this cable becomes damaged, a variety of symptoms can occur, depending on which wire(s) break. To test, check each wire for continuity and shorts.

Remember, the micro switch in the gun activates both the slave motor and gun motor circuits in the cabinet. Therefore, if the slave motor and brake solenoid operate, but the gun does not, look more toward the gun motor's 24V circuits, speed control, control cable, or the gun motor. If nothing operates, look more toward the slave motor's input, micro switch leads, or micro switch.

Testing The Gun

Reference the "W" clocked gun wiring diagram on the CobraMAX™ electrical diagram (in appendix) for information about pin-outs and locations.

Motor Check

Remove the gun connector from the cabinet.

Using the gun amphenol connector, check the resistance across pins **"A"** and **"B"** (motor leads). The resistance across the motor should be between **5 - 10 ohms** as the potentiometer is turned.

If an open circuit or short exist, check the motor leads and motor independently.

Testing the Potentiometer - "W" Clocked

Using the gun amphenol connector, check the resistance across pin **"D"** (wiper) and pin **"C"**. The resistance should vary from **0 - 5K ohms** as the potentiometer is turned.

Check the resistance across pin **"D"** (wiper) and pin **"G"**. The resistance should vary from **5K - 0 ohms** as the potentiometer is turned.

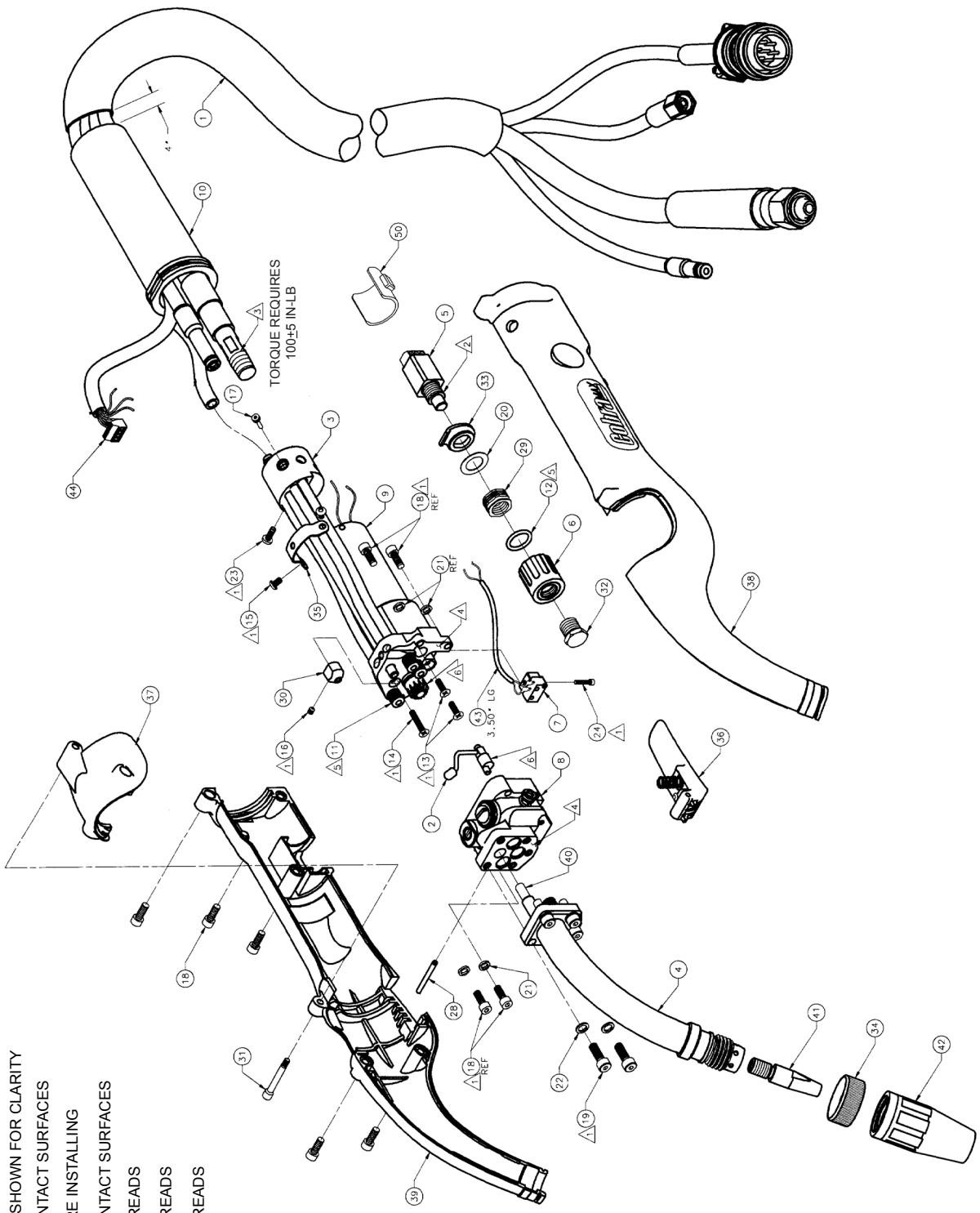
Testing the Micro Switch

Using the gun amphenol connector, check for continuity across pins **"E"** and **"F"** when the trigger is pressed.

Section F

Appendices
Diagrams / Parts List

CobraMAX™ Exploded View

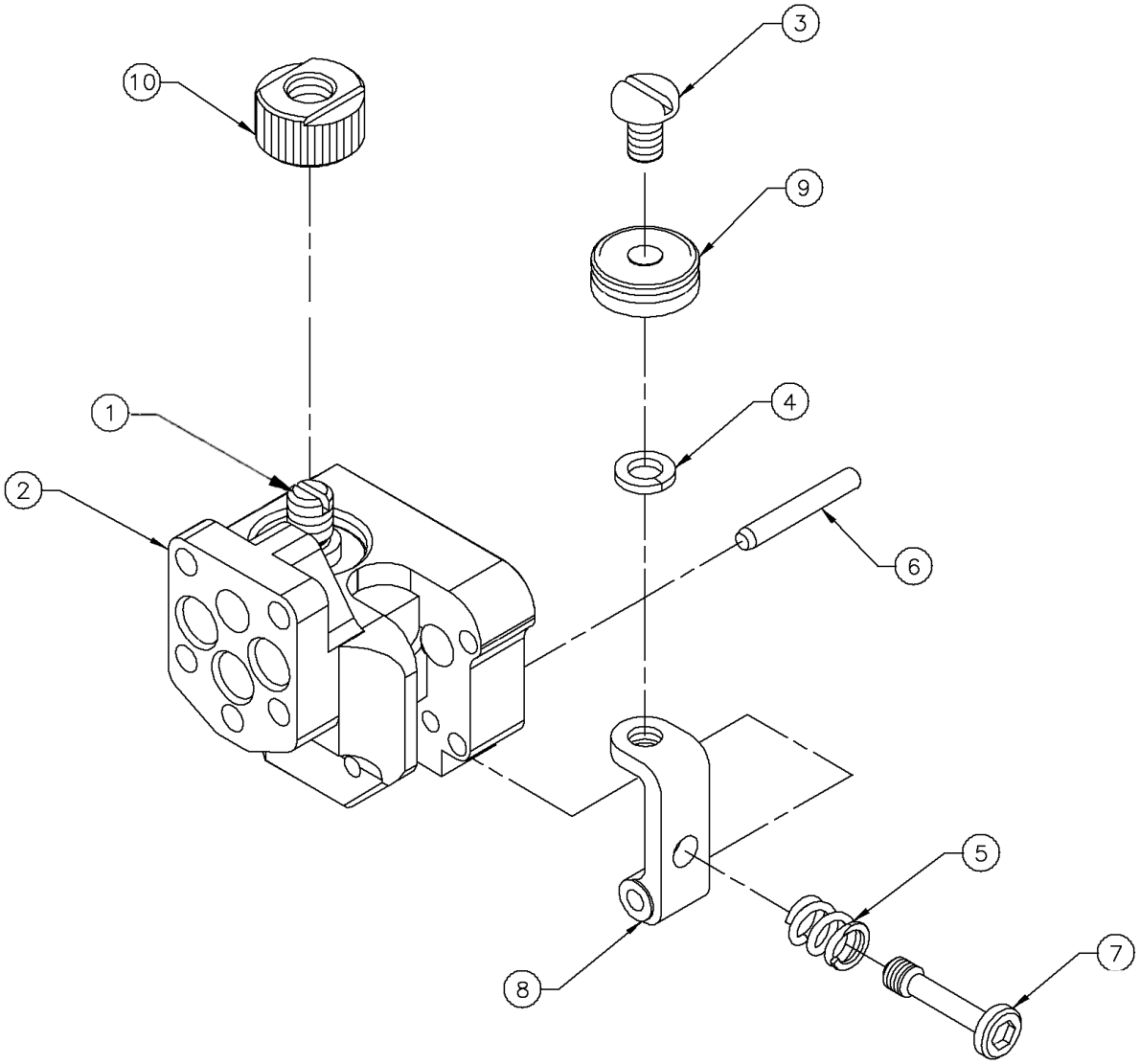


△7 ITEMS 25 AND 44 NOT SHOWN FOR CLARITY
△6 APPLY ITEM 49 TO CONTACT SURFACES
△5 APPLY ITEM 48 BEFORE INSTALLING
△4 APPLY ITEM 45 TO CONTACT SURFACES
△3 APPLY ITEM 45 TO THREADS
△2 APPLY ITEM 46 TO THREADS
△1 APPLY ITEM 47 TO THREADS

CobraMAX™ Parts List								
No.	Qty.	Part No.	Description		No.	Qty.	Part No.	Description
1	1	Ref. 227 Series	Ultra Flex Air Cooled Assembly		26	-	--	--
1	1	Ref. 228 Series	Ultra Flex Liquid Cooled Assembly		27	-	--	--
2	1	002-0629	Assy Cam Idler Arm		28	1	421-0018	Dowel Pin 3/32 x 7/8 SST
3	1	002-0631	Brazed Rear Body		29	1	431-1549	Nut Drag Pot
4	1	002-0635	Assy Brazed Barrel CobraMAX		30	1	003-2209	Wire Guide (includes item 16)
5	1	005-0695	Pot Assy Kit*		31	1	431-1622	Shoulder Screw 1/8 x 4-40
6	1	003-2125	Pot Knob Assy		32	1	431-1637	Hex Screw 3/8-20 x 3/8
7	1	005-0701	Micro Swx Assy Kit		33	1	431-3263	Locator Pot
8	1	003-2141	Assy CobraMAX Front Body		34	1	431-4054	Front Nut Cobra Gun
9	1	211-0077	Pitman Motor		35	1	435-1585	Strap Motor Python
10	1	003-2153	Gun Boot		36	1	003-0857	Trigger Assy
11	12	303-0096	O-Ring .145 ID x .07 W		37	1	437-0253	Door Molded Python
12	1	303-0540	O-Ring .426 ID x.07 W		38	1	005-0700	Handle Kit: includes line items 18, 31,34, and 37
13	2	319-0254	Screw FH Phil 82 4-40 x 3/8 SST		39			
14	1	319-0258	Screw FH Phil 82 4-40 x 5/8 SST		40	1	931-0137	5 Piece Telfon Liner Package
15	2	320-0084	Screw Button 4-40 x 3/16 ST		41	1	621-0393	Tip HD Spray .060
16	1	321-0424	Set Screw 4-40 x .12 SST		42	1	621-0421	Assy Gas Cup #8 CobraMAX
17	1	321-1104	Set Screw Mod		43	0.30ft	737-0048	Tube Insulation 9AWG Clear
18	9	328-0012	Scr Shc 6-32 x 3/8		44	1	186-0102	Terminal block 2.5 nn, 4 pos
19	5	328-0025	Scr Shc 8-32 x 1/2 St.		45	A/R	823-0029	Naolox Compound
20	1	331-0311	Washer Flat 0.39 ID x 0.63 OD		46	A/R	823-0043	Thread Locking Cmpd Med Str
21	4	333-0005	Wshr Spr Lk #6		47	A/R	823-0050	Thread Locking Cmpd Low Str
22	4	333-0006	Wshr Spr Lk #8		48	A/R	835-0006	Silicon Lubricant
23	1	336-0020	Scr Ph Phil 4-40 x 5/16 SST		49	A/R	835-0011	Compound Grease
24	2	338-0153	Scr Shc 1-72 x 3/8		50	1	437-0268	MAX Pot Cover
25	5	411-0045	Tie Wrap					

* Includes line items 12, 20, 29, and 33 assembled.

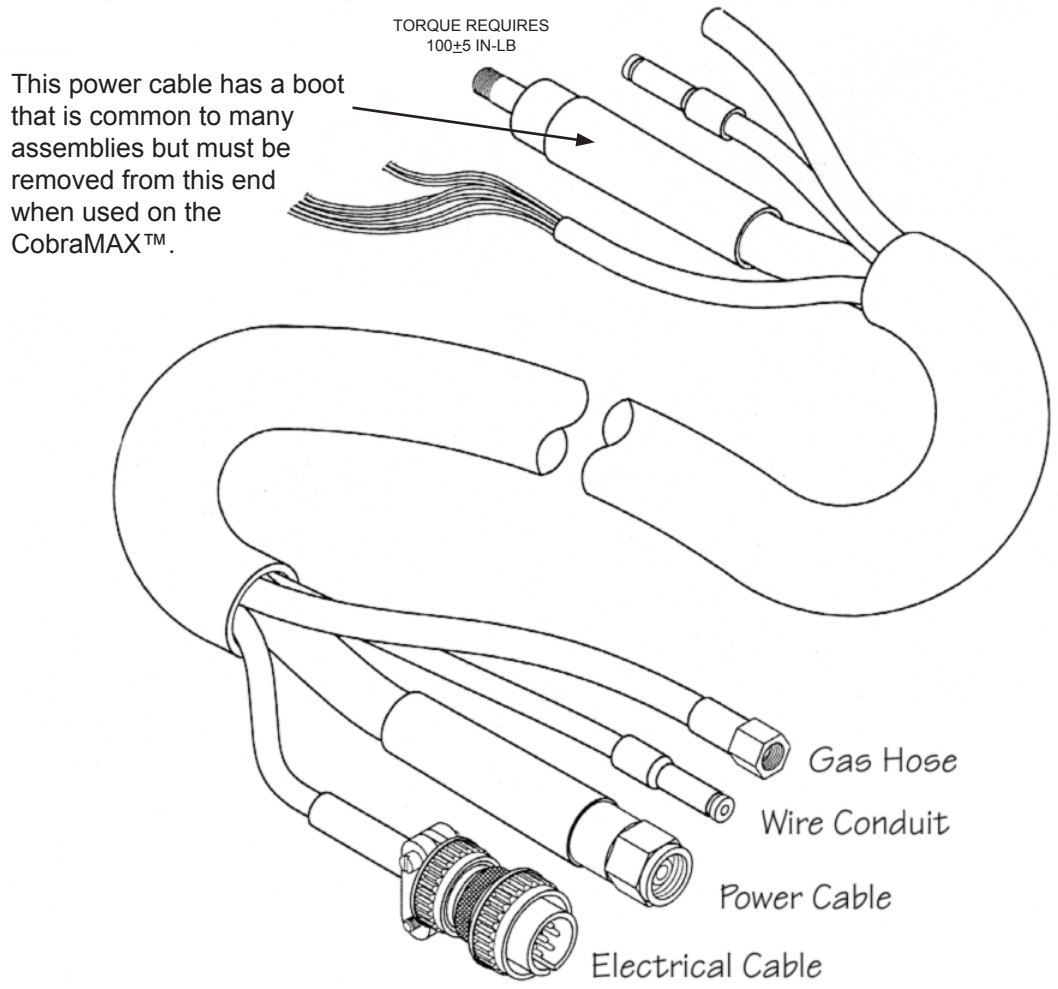
003-2141 Front Body Assembly



NOTE: Items #3, 4, and 9 can be ordered together in Kit LE P/N KP2220-1, MK P/N 005-0686.

Front Body Assembly 003-2141			
No.	**Qty.**	**Part No.**	**Description**
1	-	-	Not Available Separately
2	-	-	Not Available Separately
3	1	325-0206	SCR Ph 10-24-3/8
4	1	333-0082	Washer Lock 10
5	1	419-0092	Spring Comp 0.31 OD x 0.20 ID
6	1	421-0525	Pin Dowel 1/8 x 7/8 Sst
7	1	431-1663	Scr Adjust Idler
8	1	431-1598	Arm Idler
9	1	LE KP2220-1 MK 005-0686	Assy Idler Wire Feed
10	1	LE KP2219-1 MK 511-0101	Drive Roll

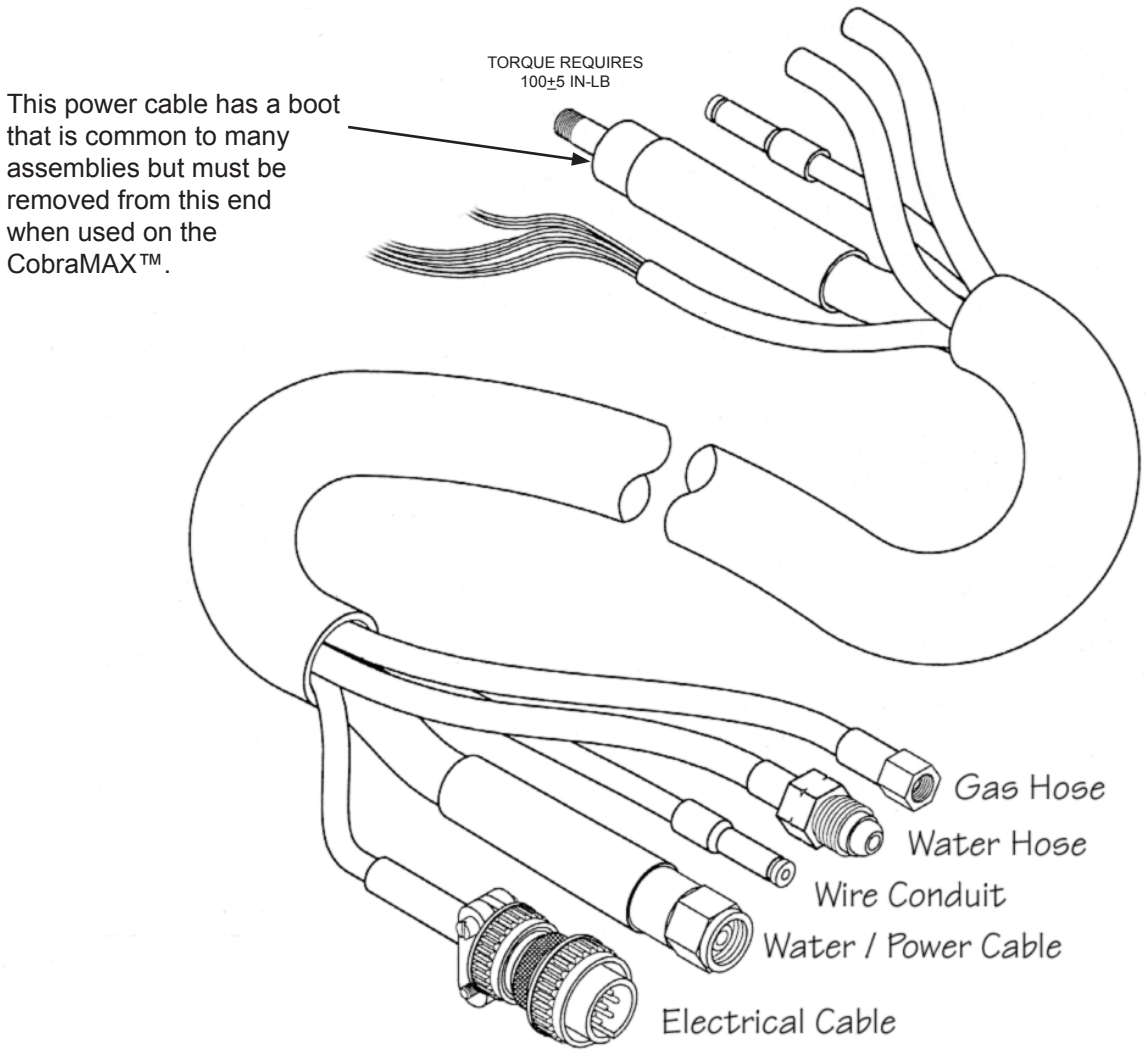
Ultra-Flex Air Cooled Lead Assembly*



***Leads shown for reference only**

227 Series Ultra-Flex Cable Assemblies					
Length	**Conduit**	**Power Cable**	**Electrical Cable**	**Gas Hose**	**Snake Skin®**
15"/4/5m	615-0601-15	001-2527	005-0690	001-0537	931-0110
25"/7.6m	615-0601-25	001-2528	005-0691	001-0538	931-0122
50'/15.2	615-0601-50	001-1042	005-0692	001-0665	931-0123

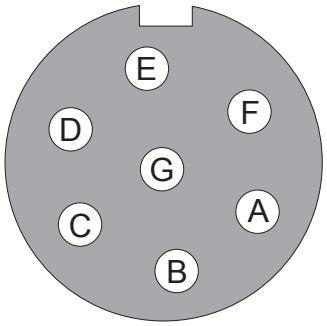
Water Cooled Lead Assembly*



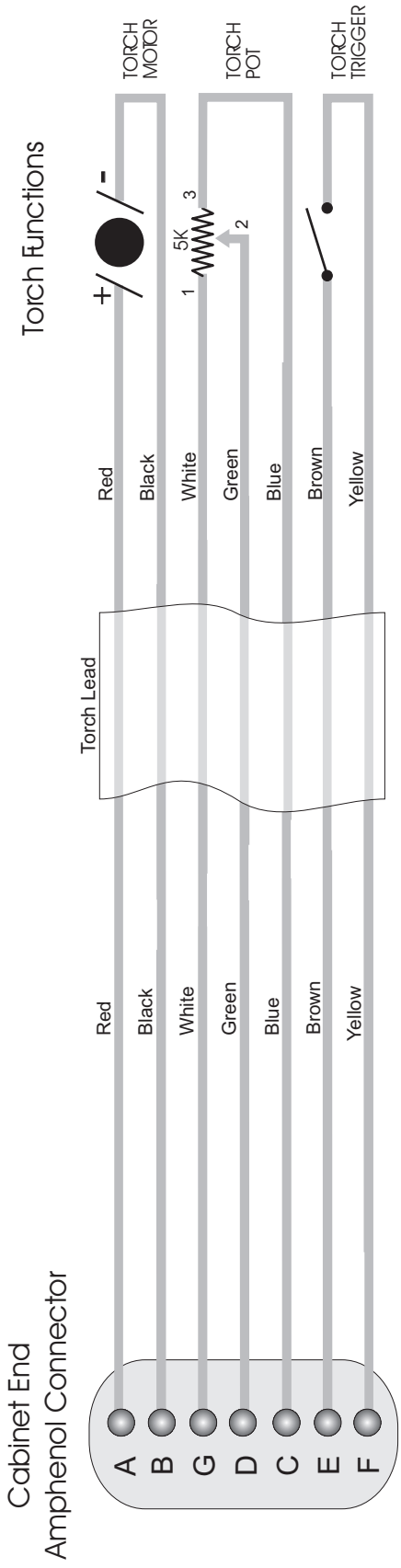
***Leads shown for reference only**

228 Series Ultra-Flex Cable Assemblies						
Length	Conduit	#4 Power/Water Cable	Electrical Cable	Gas Hose	Water Hose	Snake Skin®
15'/4.5m	615-0601-15	001-2521	005-0690	001-0537	001-0529	931-0110
25'/7.6m	615-0601-25	001-2524	005-0691	001-0538	001-0530	931-0122
50'/15.2m	615-0601-50	843-0338	005-0692	001-0665	001-0667	931-0123

CobraMAX™ Electrical



"W" Clocked
Amphenol Connector
Viewed from front of connector



			
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，並請遵守貴方的有閱勞動保護規定。

이 제품에 동봉된 작업지침서를 숙지하시고 귀사의 작업자 안전수칙을 준수하시기 바랍니다.

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

LIMITED WARRANTY

Effective October 1, 2006

This warranty supersedes all previous MK Products warranties and is exclusive, with no other guarantees or warranties expressed or implied.

LIMITED WARRANTY - MK Products Inc., Irvine, California warrants that all new and unused equipment furnished by MK Products is free from defects in workmanship and material as of the time and place of delivery by MK Products. No warranty is made by MK Products with respect to trade accessories or other items manufactured by others. Such trade accessories and other items are sold subject to the warranties of their respective manufacturers, if any.

MK Products' warranty does not apply to components having normal useful life of less than one (1) year, such as relay points, wire conduit, tungsten, and welding gun parts that come in contact with the welding wire, including gas cups, gas cup insulators, and contact tips where failure does not result from defect in workmanship or material.

MK Products shall, exclusively remedy the limited warranty or any duties with respect to the quality of goods, based upon the following options:
(1) repair
(2) replacement
(3) where authorized in writing by MK Products, the reasonable cost of repair or replacement at our Irvine, California plant.

As a matter of general policy only, MK Products may honor an original user's warranty claims on warranted equipment in the event of failure resulting from a defect within the following periods from the date of delivery of equipment to the original user:

1. **Power Supplies and Wire Feed Cabinets..... 3 years**
2. **Weldheads, Positioners, Prince XL and Prince XL Spool Guns, Python, CobraMAX, Cobra SX, Cobra MX .....1 year**
3. **Sidewinder® Spool Gun, Prince SG Spool Guns, Modules .....180 days**
4. **Repairs/Exchanges/Parts .....90 days**

Classification of any item into the foregoing categories shall be at the sole discretion of MK Products. Notification of any failure must be made in writing within 30 days of such failure.

A copy of the invoice showing the date of sale must accompany products returned for warranty repair or replacement.

All equipment returned to MK Products for service must be properly packaged to guard against damage from shipping. MK Products will not be responsible for any damages resulting from shipping.

Normal surface transportation charges (one way) for products returned for warranty repair or replacement will be borne by MK Products, except for products sold to foreign markets.

ANY EXPRESS WARRANTY NOT PROVIDED HEREIN AND ANY IMPLIED WARRANTY, GUARANTY, OR REPRESENTATION AS TO PERFORMANCE, AND ANY REMEDY FOR BREACH OF CONTRACT WHICH, BUT FOR THIS PROVISION, MIGHT ARISE BY IMPLICATION, OPERATION OF LAW, CUSTOM OF TRADE, OR COURSE OF DEALING, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR PARTICULAR PURPOSE, WITH RESPECT TO ANY AND ALL EQUIPMENT FURNISHED BY MK PRODUCTS, IS EXCLUDED AND DISCLAIMED BY MK PRODUCTS.

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USE OF OTHER THAN *GENUINE* MK PRODUCTS' CONSUMABLES, PARTS, AND ACCESSORIES MAY INVALIDATE YOUR PRODUCT WARRANTY.

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October 1, 2006