

GMAW

Push-Pull Gun

IM818

MK 091-0531

April 2003

Rev A

OPERATOR'S MANUAL

Prince[®] XL/Spool Gun

Model #350 (factory model)

For use with Cabinet K2259-1



This manual covers equipment which is no longer in production by The Lincoln Electric Co. Specifications and availability of optional features may have changed.



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

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World's Leader in Welding and Cutting Products

Sales and Service through Subsidiaries and Distributors Worldwide

Cleveland, Ohio 44117-1199 U.S.A. TEL: 216.481.8100 FAX: 216.486.1751 WEB SITE: www.lincolnelectric.com

SAFETY

⚠ 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.

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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 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. 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.c. 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.d. 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.e. Also see item 1.b.

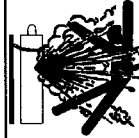
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WELDING SPARKS can cause fire or explosion.

- 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.



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 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.

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PRÉCAUTIONS DE SÛRETÉ

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

Sûreté Pour Soudage A L'Arc

1. Protégez-vous contre la secousse électrique:
 - a. Les circuits à l'électrode et à la pièce sont sous tension quand la machine à souder est en marche. Éviter toujours tout contact entre les parties sous tension et la peau nue ou les vêtements mouillés. Porter des gants secs et sans trous pour isoler les mains.
 - b. Faire très attention de bien s'isoler de la masse quand on soude dans des endroits humides, ou sur un plancher métallique ou des grilles métalliques, 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 de fonctionnement.
 - 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 précautions pour le porte-électrode s'appliquent 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 où 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 latéraux 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 un endroit isolé de la masse. Un court-circuit accidentel peut provoquer un échauffement et un risque d'incendie.
8. S'assurer que la masse est connectée le plus près 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 chaînes de levage, câbles de grue, ou autres circuits. Cela peut provoquer des risques d'incendie ou d'échauffement des chaînes et des câbles jusqu'à ce qu'ils se rompent.
9. Assurer une ventilation suffisante dans la zone de soudage. Ceci est particulièrement important pour le soudage de tôles galvanisées plombées, ou cadmiées ou tout autre métal qui produit des fumées toxiques.
10. Ne pas souder en présence de vapeurs de chlore provenant d'opérations de dégraissage, nettoyage ou pistologie. La chaleur ou les rayons de l'arc peuvent réagir avec les vapeurs du solvant pour produire du phosgène (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 châssis du poste conformément au code de l'électricité et aux recommandations du fabricant. Le dispositif de montage ou la pièce 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 faire des travaux à l'intérieur de poste, la débrancher à l'interrupteur à la boîte 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).

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Thank You

For selecting a quality product. We want you to take pride in operating this product...as much pride as we have in bringing the product to you!

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.

Model Name & Number _____

Code & Serial Number _____

Date of Purchase _____

Whenever you request replacements parts for, or information on this equipment always supply the information you have recorded above.

Read this Owner's 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.

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MK REPAIR STATIONS

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WARRANTY

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SECTION A

INSTALLATION

TECHNICAL SPECIFICATIONS

PRINCE® XL TORCH - 25'- P/N K2296-2

Wire Capacity

- .023"-.045" (0.6 - 1.2mm)
solid and hard wire
- .030" - 1/16" (0.8 - 1.6mm)
aluminum and cored wire

Wire Speed

- 750 ipm (19.0 mpm) max.

Duty Cycle - 100%

All ratings are at 25V using Argon Gas

- **200 Amps** *Air cooled standard, using Air/Water barrel*

Torch weight (less leads & standard barrels)

- 36.4 oz. (1.02 kilogram)



PRINCE® XL SPOOL GUN - 25' - P/N K2297-2

Wire Capacity

- .023" - .045" (0.6 - 1.2mm)
solid and hard wire
- .030" - 1/16" (0.8 - 1.6mm)
aluminum and cored wire

Wire Speed *

- 750 ipm (19.0 mpm) max.

Spool Size

- 4 inches (101.6mm)

Duty Cycle - 100%

All ratings are at 25V using Argon Gas

- **200 Amps** *Air cooled standard, using Air/Water barrel*

Torch weight (less wire & leads)

- 46.5 oz (1.3 kilogram)



** Maximum ipm varies depending on input voltage, wire size
and the control box used.*

SUPPORT EQUIPMENT REQUIRED

- CV or CC 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.

TORCH LEAD CONNECTIONS

POWER CABLE - AIR COOLED

A #2 AWG power cable is used on the Prince®XL air cooled torch. The torch end is threaded into the torch body. The power cable fitting connects to the Power Block.

(MK P/N 003-1674) when using a Cobramatic® wire feed cabinet. When the Prince®XL is purchased as a Spool Gun, the power cable comes standard with a lug connector and should be connected to positive lug of power supply.

CONDUIT

The Prince™XL Torch comes standard with a poly lined conduit, for running aluminum wire. The longer fitting with a shallow groove is used on the torch end. A set screw located on top of the torch handle secures the conduit in

place. A small spool liner (MK P/N 003-0198) is used on the spool gun and held in place by the same set screw.

GAS HOSE

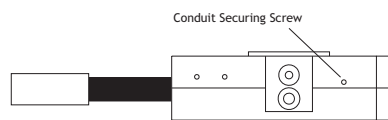
The gas hose is secured over the barbed gas fitting with a tie wrap. The cabinet end of the gas hose uses our standard gas fitting (1/8" - 27 nps), whereas the spool gun uses a 5/8" - 18 IAA RH male gas fitting.

ELECTRIC CABLE

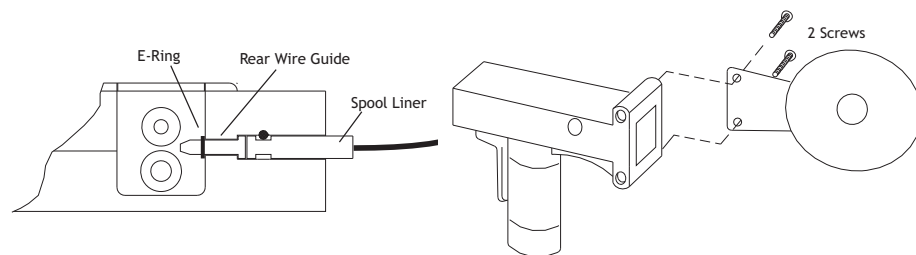
A seven conductor control cable is used on the Prince®XL Torch. The torch end of the control cable is secured to the torch with a boot clamp and plugged into the pot assembly and micro switch connectors. Slack is left in the electric cable as it exits the back of the torch to prevent cable breakage. The cabinet end has a seven pin "W" clocked amphenol connector. See page 22 for torch electrical connections.

INSTALLING SPOOL ASSEMBLY (P/N 003-2090)

Loosen the screw that secures the conduit through access hole located on top right rear handle with a 1/16" Allen wrench.



Remove conduit by pulling it out of the back of the gun.



Install spool liner, and secure with screw.

Remove both rear handle screws, and secure spool canister with longer screws provided.

SPOOL GUN SETUP

LOADING ELECTRODE WIRE

Unscrew, and remove spool cover.

Apply tension to drive rolls, so the wire will be picked up and fed through the contact tip.

Straighten out first six inches of wire and push through liner.

Jog trigger until wire is picked up by drive rolls and fed through contact tip.

Hold brake assembly back towards top of gun, load spool onto shaft with wire coming off the bottom of the spool. Release brake assembly to rest on wire surface.

Replace spool cover, making sure opening is over liner.

Note:

The brake paddle assembly is designed to automatically control spool drag and keep the wire from jumping off the spool.

SECTION B

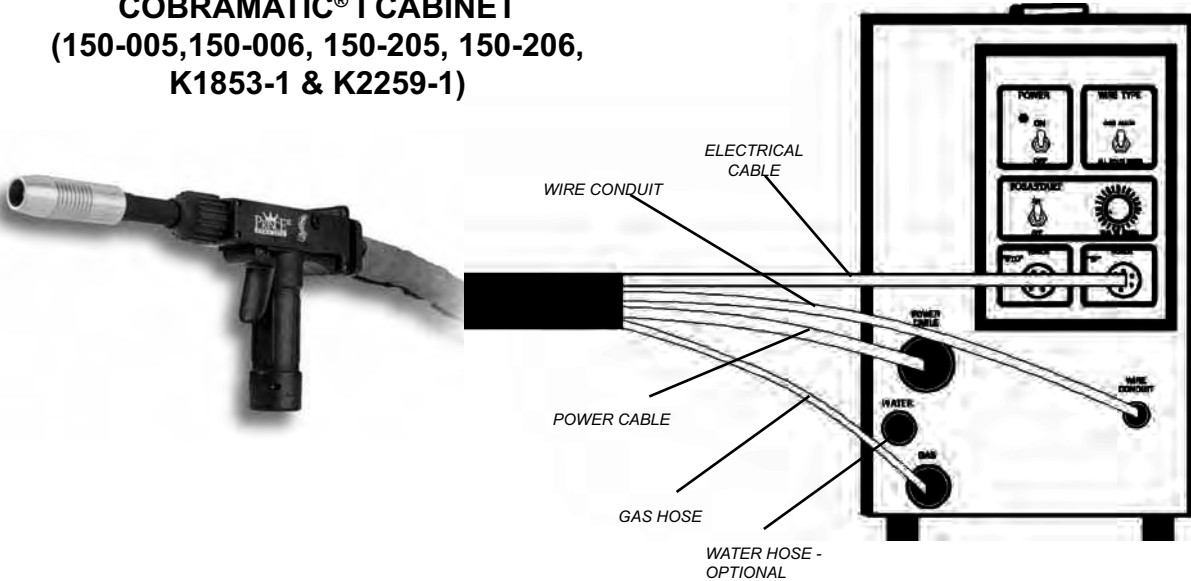
OPERATION

GENERAL

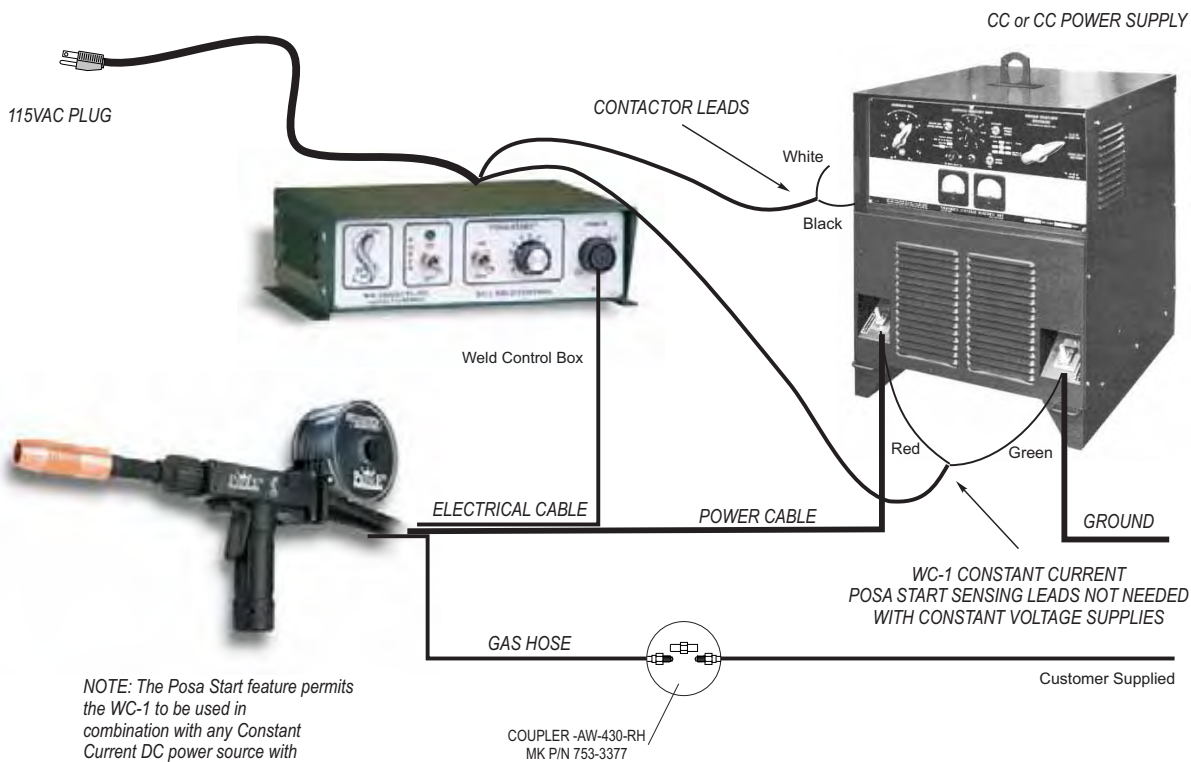
The Prince™XL torch maintains a constant, steady, uniform wire feed speed, regardless of curved or looped wire conduit. The constant push exerted by

INTERCONNECTIONS

**PRINCE® XL TORCH
TO
COBRAMATIC® I CABINET
(150-005, 150-006, 150-205, 150-206,
K1853-1 & K2259-1)**



**PRINCE® XL SPOOL GUN
TO
WC-1 WELD CONTROL BOX**



NOTE: The Posa Start feature permits the WC-1 to be used in combination with any Constant Current DC power source with an open circuit voltage in excess of 55 volts.

the slave motor in the cabinet, combined with the pull of the torch motor, causes the wire to literally float friction-free through the wire conduit. The 24VDC torch motor is controlled by a 3-3/4 turn potentiometer in the torch handle.

BARRELS

AIR/WATER COOLED

The Prince® XL air cooled systems come standard with a straight air/water cooled barrel assembly. An optional curved air/water cooled barrel assembly (LE P/N KP2298-2, MK P/N 003-2152) is also available. In cases where these barrels need to be extended or the tip threads have been damaged, a Tip Extender (LE P/N KP2244-1, MK P/N 621-0424) can be adapted. The same tips and threads can be used, however a longer Teflon liner (LE P/N KP2226-1; MK P/N 931-0137) is required.

BARREL REMOVAL AND INSTALLATION

To remove a barrel assembly, loosen the patented EZ Lock™ Taper lock nut assy MK P/N 003-2572 3/4 to 1 turn. This will push barrel away from the body far enough so that it may be pulled out of the body.

To replace a barrel assembly, take care not to damage the “O” rings when inserting into the body. Open the drive and idler roll door and seat the barrel assembly until the inlet guide is almost touching the drive and idler roll and the rear face of the barrel is flush with the aluminum body block. Tighten taper lock nut assembly firmly so that barrel cannot rotate.

BARREL ROTATION

To rotate a barrel assembly, loosen the patented EZ Lock™ Taper lock nut assembly no more than 1 turn. Rotate barrel to the position of your choice and retighten taper lock nut assembly firmly so that the barrel cannot rotate.

WARNING:

Do not attempt to weld without the barrel being tightly secured in the torch body, or damage to the barrel or body may result.

CONTROLS AND SETTINGS

POTENTIOMETER

The pot is located in the bottom of the pistol grip and provides 3-3/4 turns of rotation and up to 750 ipm.

The pot is mounted to one side of a PC board and is held in place by a support plate; both of which have slots that locate and secure the pot in the handles. The other side of the PC board houses the motor connectors and ribbon cable. Locking disks behind the pot knob provides a stop at the minimum and maximum pot settings.

TRIGGER, GAS VALVE AND MICRO SWITCH

The torch trigger is designed so that when it is partially depressed, gas flow starts via the valve located in the torch body, prior to ignition of the arc. When the trigger is partially released after welding (extinguishing the arc), gas flow continues until the trigger is fully released; built-in pre and post gas flow.

The micro switch is wired “Normally Open” and secured to the torch block with two (2) screws. An insulator between the torch block and micro switch prevents accidental shorting of the switch leads. The trigger pin reaches through the handle and activates the micro switch just before the trigger bottoms out on the handle.

DRIVE AND IDLER ROLLS

GENERAL

The Prince® XL torch comes standard with knurled drive rolls which will handle wire diameters from .023 - 1/16 inch. Optional grooved drive rolls are also available for feeding aluminum wire if desired (see Optional kits).

Drive roll tension is accomplished by means of a pressure adjusting allen screw located on the left hand side of the torch. Proper tension is achieved when wire does not slip if a small amount of pressure is added to the wire as it exits the tip.

----- *IMPORTANT* -----

NOTE: Over-tightening of the drive rolls will cause excessive knurling and/or deformation of the wire. When the complete system is setup properly, feeding wire out of the end of the torch and letting fall on the ground should form a large uniform circle. If it forms a spiral or spring then there is too much tension in the system, please refer to the Cabinet Owners Manual for adjustment to the tension setting.

***INCORRECT DRIVE ROLL TENSION IS THE NUMBER ONE
CAUSE OF POOR WIRE FEED PERFORMANCE***

DRIVE ROLL INSTALLATION AND REMOVAL

Note:

Neither of the handles needs to be removed to access the Drive or Idler Rolls.

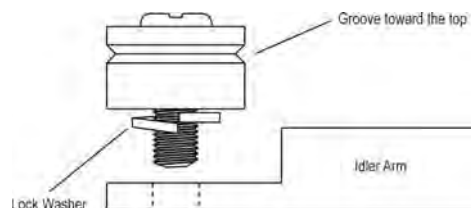
1. Using a 5/32" hex wrench, loosen the Idler Roll tension screw. This will relieve the pressure against the drive roll.
2. Align the Drive Roll Removal Tool (P/N 931-0100) over the flats of the drive roll. Hold the torch with one hand or on a table top, with the other hand give the Removal Tool a quick 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 torch.
4. Install a new drive roll on the left-hand threaded shaft. The drive roll will self-tighten when it is feeding wire.

IDLER ROLL INSTALLATION AND REMOVAL

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.



SECTION C

3. Tighten.

4. Using a 5/32" hex wrench, turn the Idler Roll tension screw into the gear-box housing and reference the Gearbox Assembly drawing to adjust the pressure against the drive roll.

NOTE:

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

ACCESSORIES

CONTACT TIPS - AIR/WATER BARREL



Contact Tips for Prince® XL Air/Water Cooled Barrels

Wire Size	Tip I.D.	Arc	Length	MK P/N	LE P/N
.030" (0.8mm)	.040" (1.0mm)	Spray	1-5/8" (41.3mm)	621-0390	KP2217-1B1
		Short	1-7/8" (47.6mm)	621-0396	--
.035" (0.9mm)	.044" (1.1mm)	Spray	1-5/8" (41.3mm)	621-0391	KP2217-2B1
		Short	1-7/8" (47.6mm)	621-0397	--
.045" (1.2mm)	.053" (1.3mm)	Spray	1-5/8" (41.3mm)	621-0392	--
		Short	1-7/8" (47.6mm)	621-0398	--
.052" (1.3mm)	.060" (1.5mm)	Spray	1-5/8" (41.3mm)	621-0393*	KP2217-4B1
		Short	1-7/8" (47.6mm)	621-0399	--
1/16" (1.6mm)	.075" (1.9mm)	Spray	1-5/8" (41.3mm)	621-0394	KP2217-5B1
		Short	1-7/8" (47.6mm)	621-0400	--
1/16" (1.6mm)	.085" (2.1mm)	Spray	1-5/8" (41.3mm)	621-0395	--

All tips stamped with tip I.D.
*Standard - furnished with torch

FINNED COPPER GAS CUPS AIR/WATER COOLED BARREL



Tip Extender

Finned Copper Gas Cups for Prince® XL Air/Water Cooled Torch

Size	I.D.	MK P/N	LE P/N
6	3/8" (9.5mm)	621-0248	KP2213-1
8	1/2" (12.7mm)	621-0249	KP2214-1
10	5/8" (15.8mm)	621-0250*	KP2215-1
10 H.D.	5/8" (15.8mm)	621-0251	KP2216-1
12 H.D.	3/4" (19.0mm)	621-0252	--
N/A	Tip Extender	621-0424	KP2244-1

*Standard - furnished with torch

TORCH BARREL LINERS

Prince® XL Torch Barrel Liners

Description	MK P/N	LE P/N
Teflon liner package, 5 pieces	931-0137	KP2226-1
Bulk teflon liner material for .030-.063" (.8-1.6mm)	615-0178	---
Bulk teflon liner material for .030-.035" (.8-.9mm)	615-0177	---

BARREL ASSEMBLIES

ALL BARRELS RATED AT 100% DUTY CYCLE



OPTIONAL 12" AND 18" WATER COOLED STRAIGHT AND CURVED BARREL ASSEMBLIES

- 12" Straight Air/Water Cooled Barrel Assembly 003-2156
- 12" Curved Air/Water Cooled Barrel Assembly 003-2158
- 18" Straight Air/Water Cooled Barrel Assembly 003-2157
- 18" Curved Air/Water Cooled Barrel Assembly 003-2159

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.

LE P/N MK P/N

Insulated Groove Drive Roll Kit..... KP1594-030 005-0640

For .030" (0.8mm) dia. aluminum wire. Includes insulated drive roll P/N 511-0150 and idler roll assy. P/N 003-2097.

Insulated Groove Drive Roll Kit..... KP1594-035 005-0641

For .035" (0.9mm) dia. aluminum wire. Includes insulated drive roll P/N 511-0151 and idler roll assy. P/N 003-2097.

Insulated Groove Drive Roll Kit..... 005-0642

For .040" (1.0mm) dia. aluminum wire. Includes insulated drive roll P/N 511-0152 and idler roll assy. P/N 003-2097.

Insulated Groove Drive Roll Kit..... KP1594-3/64 005-0643

For .045" (1.2mm) dia. aluminum wire. Includes insulated drive roll P/N 511-0153 and idler roll assy. P/N 003-2097.

Insulated Groove Drive Roll Kit..... KP1594-1/16 005-0644

For .062" (1.6mm) dia. aluminum wire. Includes insulated drive roll P/N 511-0154 and idler roll assy. P/N 003-2097.

OPTIONAL ACCESSORIES

Conduits

**Flat Spiral Steel Conduit
for steel & cored wire.**

**Standard Conduit
with additional protective cover.**

615-0208	15 ft./4.5m	001-0774	15 ft./4.5m
615-0216	25 ft./7.6m	001-0775	25 ft./7.6m
615-0218	50 ft./15.2m	001-1278	35 ft./10.5m
		001-0777	50 ft./15.2m

NOTE:

The protective cover is used to help protect the conduit from burns.

25' 7 Pin Amphenol Extension Cable (MK) 005-0660

Used to extend the spool gun. Two cables may be joined together for 50' extension. Power & gas cables not included.

Snake Skin® zipper cover

Leather Snake Skin® protective covers are now standard on all torches. Replacement covers may ordered to protect the lead assembly of the torch when the original factory cover becomes damaged or worn. The Velcro® closure makes it easy to replace in the field.

- 13' cover fits 15' lead (MK) 931-0110
- 23' cover fits 25' lead (MK) 931-0122
- 48' cover fits 50' lead (MK) 931-0123

Prince® XL Handle Kit.....(MK P/N) 005-0633
Includes left and right handle with door, trigger and pin, and all handle screws.

Heavy Duty Brake Spring for hardwires(MK P/N) 005-0682

PRINCE® SPOOL GUN CONTROLS

WC-1

P/N 001-3062

The WC-1 is desinged to hookup to any CV or CC power supply having its own contactor. CC Posa Start "run-in speed" is included as a standard feature. The control operates on 115VAC, 50-60hz power. For macines such as gas drives that do not have contactors, the MK200



WC-1

Contactor Box (P/N 001-3066) must be used.

MK200 CONTACTOR BOX

P/N 001-3066



MK200 Contactor Box

PA-L1 SPOOL GUN CONTROL - LINCOLN

P/N 005-0676

Connects directly to Lincoln Electric power supplies (42V system) with 14-Pin (X-clocked) amphenol connectors, such as:

- | | | |
|-----------|--------------------------|------------|
| CV 250 | CV 300 | CV 400 |
| CV 655 | DC 400 | DC 600 |
| DC 655 | V350-Pro (factory model) | Ranger 250 |
| Range 275 | Ranger 305G | |



Spool Gun Control - Lincoln

PA-M1 SPOOL GUN CONTROL - MILLER

P/N 005-0261

Connects directly to Miller power supplies (24V system) that are classified with 14-Pin amphenols as type 6 or 9 and to Thermal Arc units, such as:



Spool Gun Control - Miller

MILLER SUPPLIES

- Millermatic 200
- Shopmaster
- XMT's & Maxtron Trailblazer 250, 251
- Regency's
- Deltaweld's
- CP Series

THERMAL ARC

- Thermal Arc 300GMS CC/CV
- Fabricator 210, 250, 300 LF

Any Gas-drive that has a CV tap and contactor installed with a 14 pin amphenol.

PA-G1 SPOOL GUN CONTROL - GENERIC

P/N 005-0264

This Generic Torpedo is designed to hook-up to CV power supplies that supply an auxiliary 26 VAC @ 1.7 amps and uses a closing contact signal. The unit is supplied with bare wires that must be connected to the power supply. Some examples of power supplies that can be hooked-up are:

- Lincoln SP-250, 255 & Wirematic 250 & 255
- Beta-Mig 200 & Beta-Mig LF
- Airco Dip-Pak 200, 225 & 250



Spool Gun Control - Generic

ESAB (L-TEC) / MIGMASTER 250

P/N 005-0206

An amphenol adaptor cable and gas/power lug are all that is needed to connect to the Migmaster. Adaptor kit includes everything needed.



ESAB (L-Tec-Linde) MigMaster 250

MILLERMATIC 250 & VINTAGE / HOBARTS BETA MIG 2510

P/N 005-0205

This easy to install, plug in module fits the Millermatic 250, Miller Vintage machine, or Hobart Betamig 2510. It and a Prince Spool Gun are all that is needed to get your customer up and running.



MillerMatic 250, Vintage and BetaMig 2510

PANASONIC GUNSLINGER 260

P/N 005-0617

Easy to install adapter cable using Gunslinger speed control.



Panasonic Gunslinger 260

ESAB MIGMASTER 251

P/N 005-0624

A panel kit plugs directly into the front of the MigMaster 251 and includes everything that is needed to interface the spool gun.



ESAB MigMaster 251

MILLERMATIC 250X

P/N 005-0629

Easy to install adapter cable using MillerMatic 250X speed control.



MillerMatic 250X
Fabricator 250

FABRICATOR 250

P/N 005-0689

Easy to install adapter cable using MillerMatic 250X speed control.

SECTION D

MAINTENANCE

PERIODIC MAINTENANCE

Maintenance of the torch will normally consist of a general cleaning of the wire guide system, including tubes, drive rolls, and conduits at regular intervals.

Remove spatter build-up from inside of nozzles with a hardwood stick.

The only parts on the Prince® XL that are subject to normal wear are the conduit, contact tips, gas cups, barrel liners, drive and idler rolls. A supply of these parts should be maintained on hand.

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

Your Cobramatic System is designed to provide years of reliable service. Normal wear and component failure may require occasional service.

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.

Maintenance Tools	
Tool	MK P/N
Gas Valve Removal Tool	931-0584
Contact Tip Removal Tool	931-0002
Drive Roll Removal Tool	931-0100

Recommended Spare Parts List

Part Number	Description	Part Number	Description
615-0007	Conduit 15'	325-0206	Idler Roll Screw
615-0008	Conduit 25'	333-0082	Idler Roll Washer
005-0661	Potentiometer Kit	003-0585	Trigger Asy.
003-0568	Micro Switch	431-3117	Door
005-0633	Handle Kit	003-0198	Wire Guide-Spool Gun
(MK) 511-0101 (LE) KP2219-1	Drive Roll	003-2072	Brake Assy.-Spool Gun
(MK) 005-0686 (LE) KP2220-1	Idler Roll	003-2071	Cover Assy.-Spool Gun



Idler Roll
(MKP/N) 511-0001
(LE P/N) KP2220-1



Drive Roll
(MKP/N) 511-0101
(LE P/N) KP2219-1



Micro Switch
161-0002

SECTION E

TROUBLESHOOTING

Regardless of which torch or feeder used, all MK Products push-pull guns operate on the same principle. The 115 VAC or 42VAC 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 torch 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 24 VDC torch motor is controlled by a solid state speed control and a pot located in the torch. The torch motor, potentiometer, and micro switch are connected to the cabinet/control box via a control cable and amphenol. 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.

With the increased torque rating in the current Prince XL motor, P/N 211-0071, it now draws about twice as much current on start-up as the original Prince motors P/N's 211-0054 & 211-0056. Even though the duration of start-up is very short, about 15msec, it is too much for the standard 2A fuse to handle. For this reason, all 2A fuses in the motor circuitry (F1) should be changed to a 3AG 4A fast blow 250V fuse, P/N 151-0043. This new 4A fuse is sufficient for use on all model welding guns on the wire feeders, while still providing protection for the circuitry from any shorts in the motor or motor leads.

This fuse change includes all Cobramatic, Cobramatic II and CobraMig 250/260, WC-1, Torpedo's, and any other motor circuits powering Prince XL or Spool Guns using motor P/N 211-0071.

Remember the micro switch in the torch activates both the 115 VAC or 42 VAC and 24 VDC circuits in the cabinet. Therefore, if the slave motor and brake solenoid operate, but the torch does not, look more toward the 24 VDC circuits, speed control, control cable, or the torch motor. If nothing operates, look more toward the 115 VAC or 42 VAC input, micro switch leads, or micro switch.

The complete pot assembly is connected to the motor and set into the handles. If the pot is disassembled, the pot knob can be put on the shaft in any position and secured with the set screw. Turn the knob fully CCW, then fully CW, then fully CCW again. This will self-align the pot, i.e., fully CCW will be minimum wire feed speed, and fully CW will be maximum wire speed.

Troubleshooting Guide

Trouble	Cause	Remedy
No wire feed at torch, feeder no operating, i.e. no slave motor or brake solenoid.	115/42VAC control fuse in feeder.	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 torch, feeder operating properly.	4 amp fuse (F1) 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 wire 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.
	Contactors control cable loose or in wrong position.	Check power supply owner's manual for location and type of contactor signal required, i.e., closing or 115 VAC.
	Welding power source.	Check power source material.
Wire feeds erratically.	Dirty or worn conduit.	Blow out or replace conduit.
	Incorrect pressure on drive rolls.	Adjust pressure at both feeder and torch.
	Idler roll stuck.	Check for lock washer under idler roll, or replace if damaged.
	Wrong size contact tip.	See contact tip table.
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 owner's manual for speed control operation.
Wire walks out of drive rolls.	Idler roll upside-down.	Place groove in idler roll toward top.
	Rear wire guide missing.	Replace wire guide.
Poor gas/water flow.	Incorrect placement of barrel insulator.	Slide barrel insulator down and thread until it bottoms out, covering coolant ports and exposing gas ports.

TESTING THE TORCH

MOTOR CHECK

Remove the torch connector from the cabinet.

Using the torch Amphenol, check the resistance across pins "A" and "B" (motor leads). The resistance across the motor should be between 5-10 ohms.

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

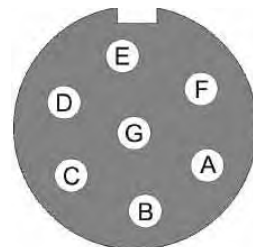
TESTING THE POTENTIOMETER

Using the torch Amphenol, check the resistance across pin "D" (wiper) and pin "C". The resistance should vary from 0 - 5K ohms.

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

TESTING THE MICRO SWITCH

Using the torch Amphenol, check for continuity across pins "E" and "F" when the trigger is pressed.



"W" Clocked
Amphenol Connector
Viewed from front of connector

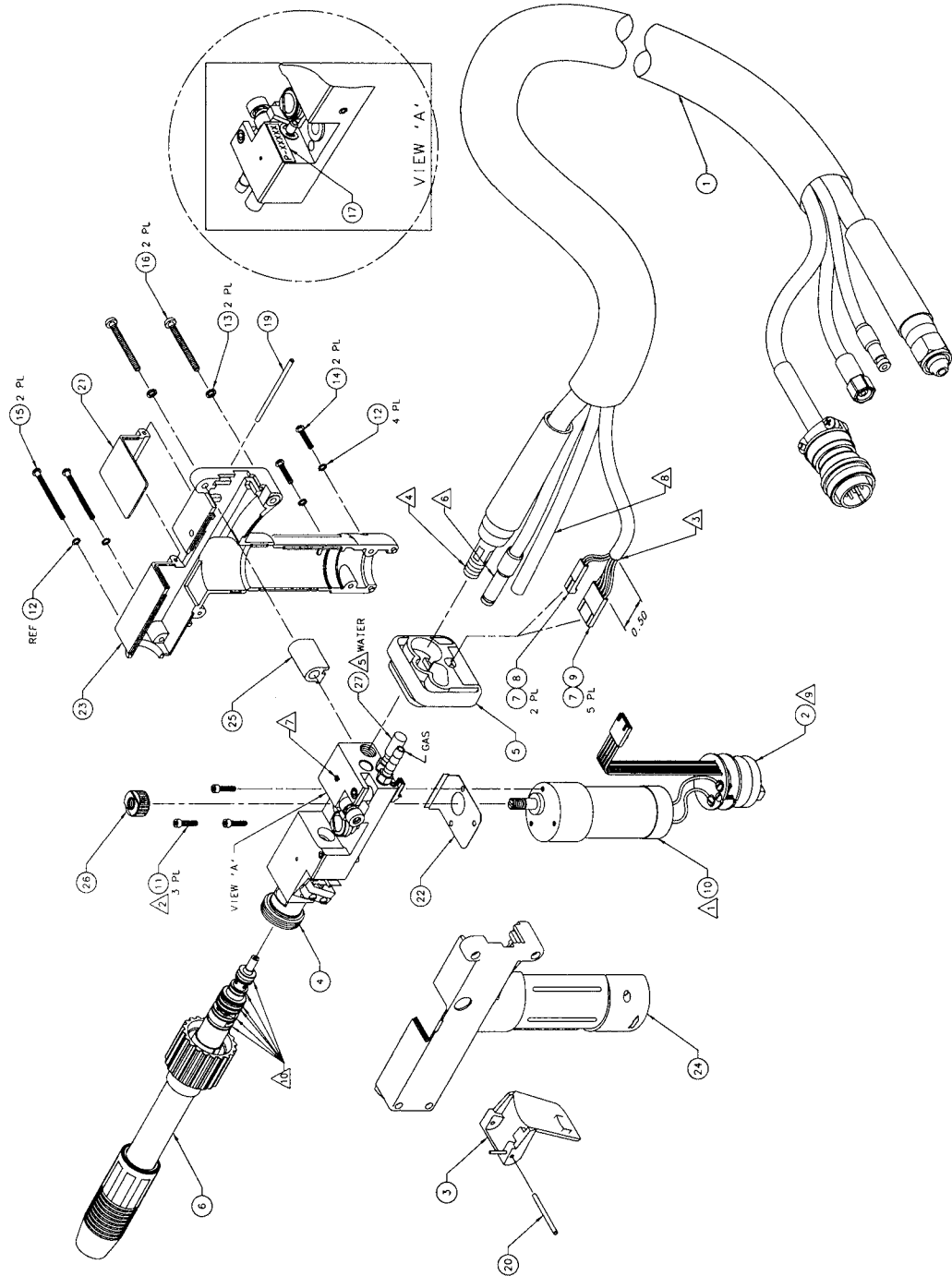
SECTION F

APPENDICES

DIAGRAMS/PARTS LISTS

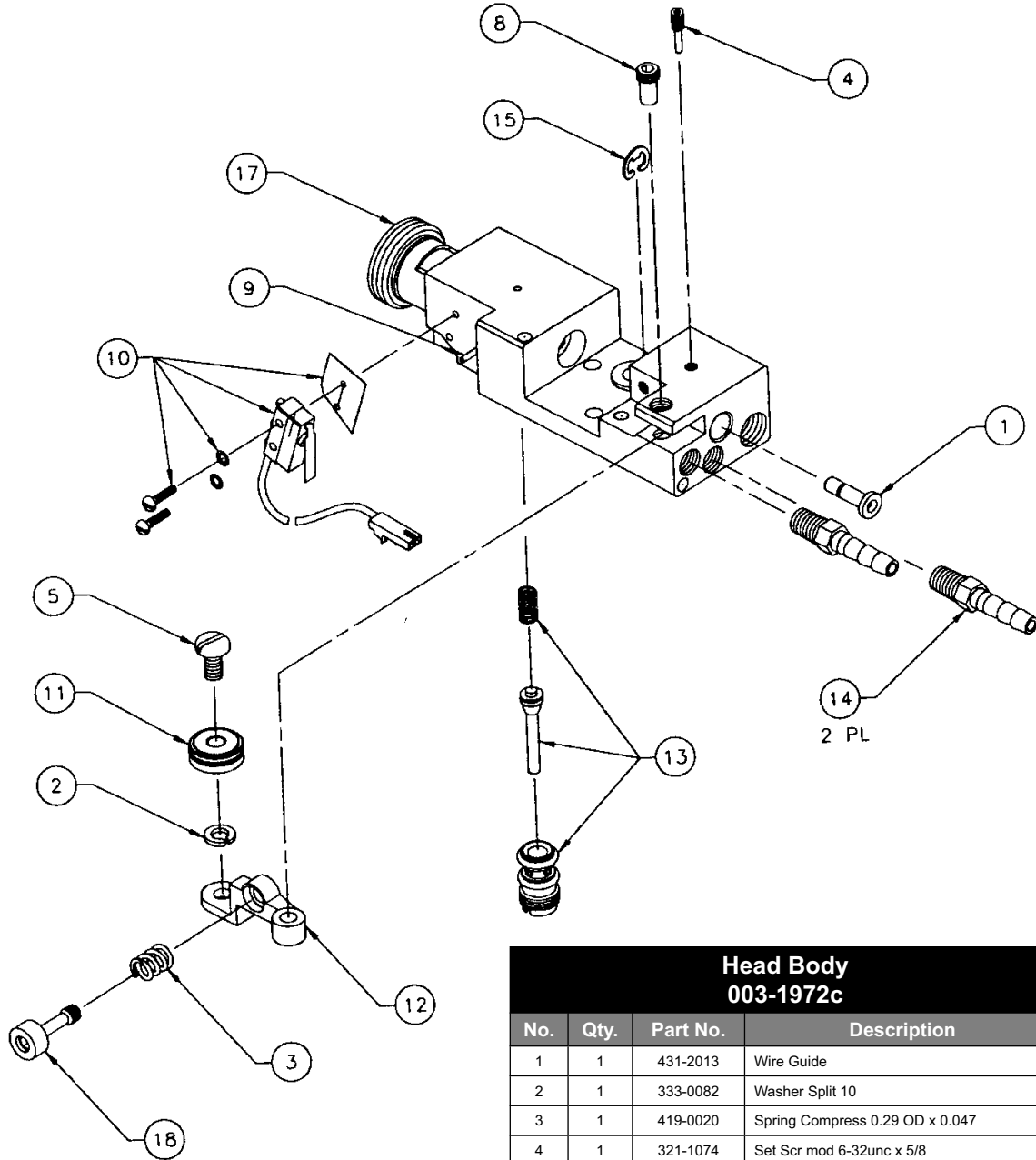
K2296-2 (LE) / 313-725 (MK) PRINCE® XL EXPLODED VIEW	18
003-1972 (MK) Head Body.....	19
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**PRINCE® XL EXPLODED VIEW
MK P/N 313-725
LE P/N K2296-2**



Prince® XL, Air Cooled dwg 001-1346c		
No.	Qty.	Part No. Description
1	1	001-1144 Lead 25ft Air Cool 7W
2	1	003-0567 Assy Potentiometer PXL
3	1	003-0585 Assy Trigger PXL
4	1	003-1972 Assy Body PXL
5	1	003-1974 Clamp Leads PXL
6	1	LE KP2298-1 MK 003-2151 Assy Barrel Str A/W PXL
7	7	153-0852 Pin
8	1	153-0856 Connector Molex 2 Pos
9	1	153-0857 Connector Molex 5 Pos
10	1	211-0071 Motor
11	3	328-0003 Screw Shc 4-40 x 0.50
12	4	333-0003 Wshr Spr Lk #4
13	2	333-0005 Wshr Spr Lk #6
14	2	336-0049 Screw Pnhd Ph 4-40 x 0.625 St
15	2	336-0056 Screw Pnhd Ph 4-40 x 1.50 St
16	2	336-0070 Screw Pnhd Ph 6-32 x 1.50
17	1	405-0706 Label Serial Number
18	1	411-0045 Tie Wrap
19	1	421-0408 Pin Dowel Ø0.093 x 2.00 LG
20	1	421-0409 Pin Dowel Ø0.093 x 1.25 LD
21	1	431-3117 Door PXL
22	1	435-3124 Spring Door PXL
23	1	436-0136 Handle Right SS PXL
24	1	436-0137 Handle Left SS PXL
25	1	437-0237 Spacer Handle PXL
26	1	511-0101 Driveroll Gold
27	1	751-0020 Cap Plug 0.218 ID x 0.50 LG
28	A/R	823-0029 Anti-Corrosion Compound
29	A/R	823-0050 Thread Locking Cmpd Low Str
30	A/R	835-0006 Lubricant Silicon

HEAD BODY, EXPLODED VIEW
MK P/N 003-1972c



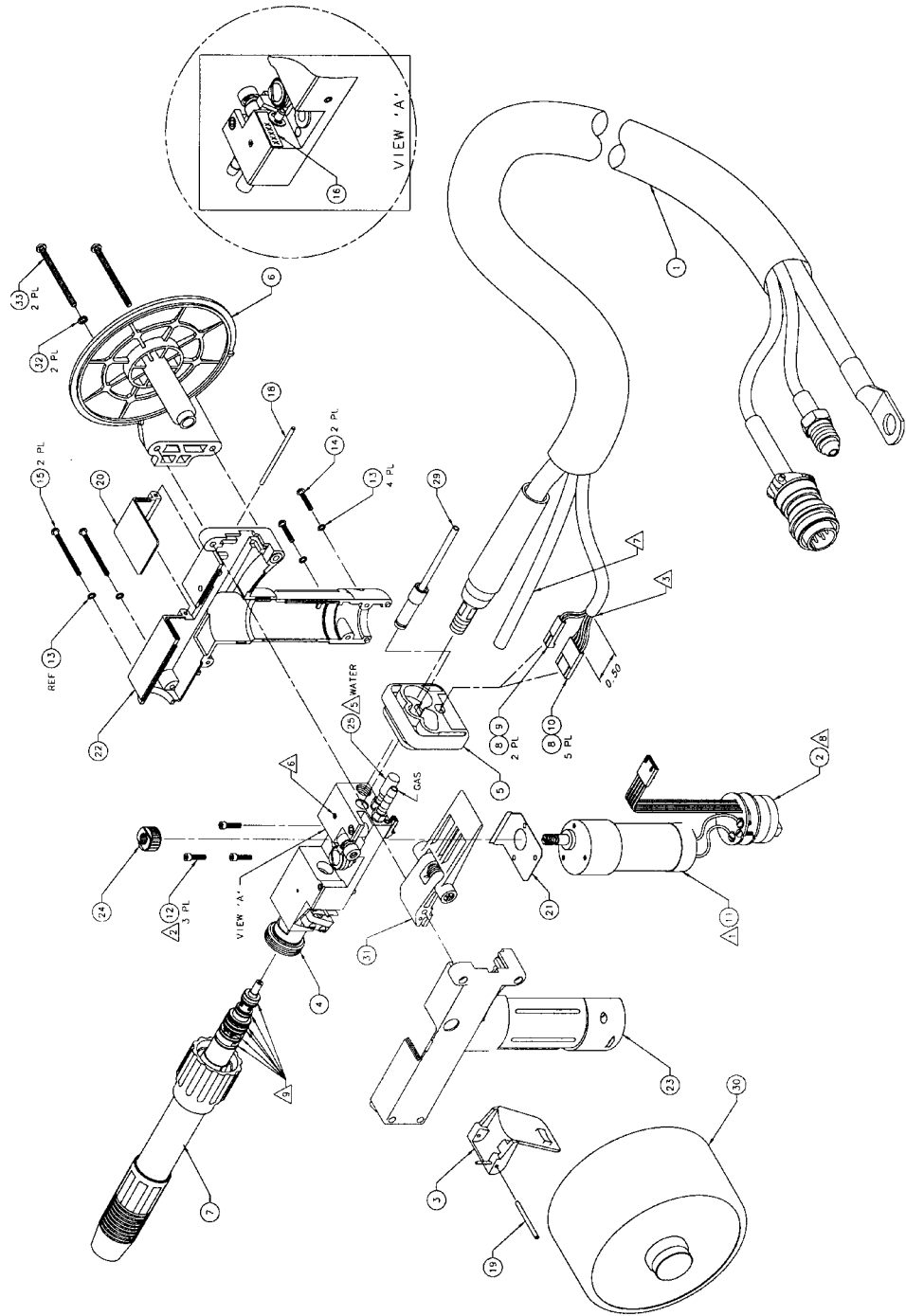
Note 1: Item numbers 2, 5, and 11 can be purchased as Kit (MK P/N) 005-0686 or (LE P/N) KP2220-1

Note 2: If Cobramatic Wire Feeder is equipped with a gas solenoid kit, a modified gas valve stem (p/n 431-1080) must be installed in torch to allow gas flow from cabinet value.

Head Body 003-1972c			
No.	Qty.	Part No.	Description
1	1	431-2013	Wire Guide
2	1	333-0082	Washer Split 10
3	1	419-0020	Spring Compress 0.29 OD x 0.047
4	1	321-1074	Set Scr mod 6-32unc x 5/8
5	1	325-0206	Screw Pan Head 10-24-3/8
8	1	431-1427	Pivot Pin
9	1	421-0129	Pin Spring 0.063 x 0.437
10	1	003-0568	Micro Switch Assy.
11	1	511-0001	Idler Wire Feed Assy.
12	1	431-1424	Idler Arm
13	1	001-0562	Gas Valve Cobra
14	1	431-3034	Fitting 3/16 hose to 1/16-27npt
15	1	313-0008	E-ring Shaft 0.188
17	1	002-0573	Main Body Assy.
18	1	002-0583	Adjust Screw Idler Arm
19	A/R	823-0044	Sealand, Pipe Thread

Item numbers 6, 7, and 16 are not used.

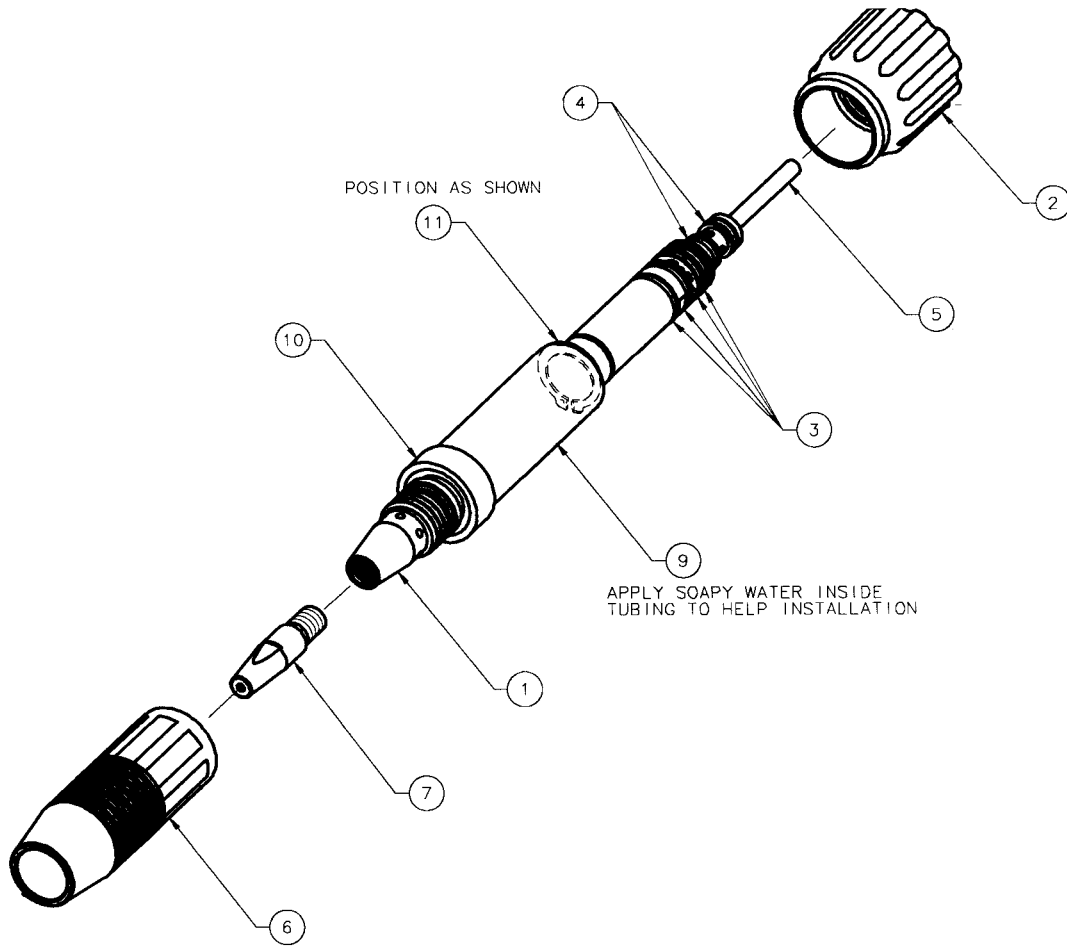
PRINCE® XL Spool Gun Exploded View
MK P/N 316-725
LE P/N K2297-2



Spool Gun
dwg. 001-1375c

No.	Qty.	Part No.	Description
1	1	001-1317	Lead 25ft Spool Gun 7W
1	1	001-1318	Lead 50ft Spool Gun 7W
2	1	003-0567	Assy potentiometer
3	1	003-0585	Assy Trigger
4	1	003-1972	Assy Body
5	1	003-1974	Clamp Leads
6	1	437-0235	Spindle
7	1	LE KP2298-1 MK 003-2151	Assy Barrel Str AW
8	7	153-0852	Pin
9	1	153-0856	Connector Molex 2 Pos
10	1	153-0857	Connector Molex 5 Pos
11	1	211-0071	Motor
12	3	328-0003	Screw Shc 4-40 x 0.50
13	4	333-0003	Wshtr Spr Lk #4
14	2	336-0049	Screw Phhd Ph 4-40 x 0.625 SL
15	2	336-0056	Screw Phhd Ph 4-40 x 1.50 St.
16	1	405-0706	Label Serial Number
17	1	411-0045	Tie Wrap
18	1	421-0408	Pin Dowel Ø0.093 x 2.00 LG
19	1	421-0409	Pin Dowel Ø0.093 x 1.25 LD
20	1	431-3117	Door
21	1	435-3124	Spring Door
22	1	436-0136	Handle Right SS
23	1	436-0137	Handle Left SS
24	1	511-0101	Driverroll Gold
25	1	751-0020	Cap Plug
26	AR	823-0029	Anti-Corrosion Compound
27	AR	823-0050	Thread Locking Cmpd Low Str
28	AR	835-0006	Lubricant Silicon
29	1	003-0198	Wire Guide
30	1	003-2089	Assy Cover
31	1	003-2072	Assy Brake
32	2	333-0005	Washer Lock #6
33	2	336-0073	Scr Pan Hd Phil 6-32 x 2.00 St

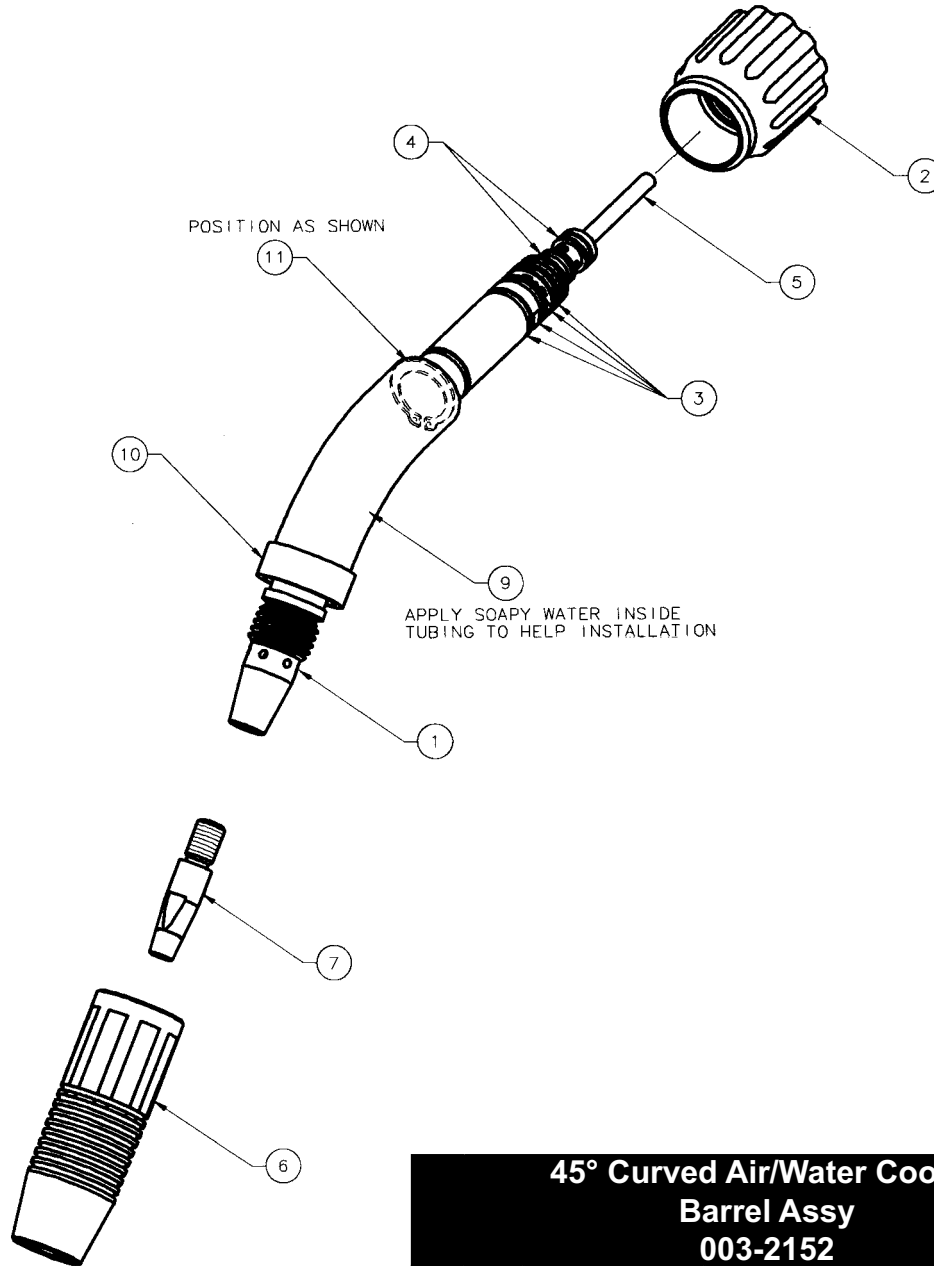
STRAIGHT, AIR/WATER COOLED BARREL ASSY. 7", EXPLODED VIEW
LE P/N KP2298-1, MK P/N 003-2151
200 AMP, 100% DUTY CYCLE



**Straight Air/Water Cooled
 Barrel Assy.
 003-2151**

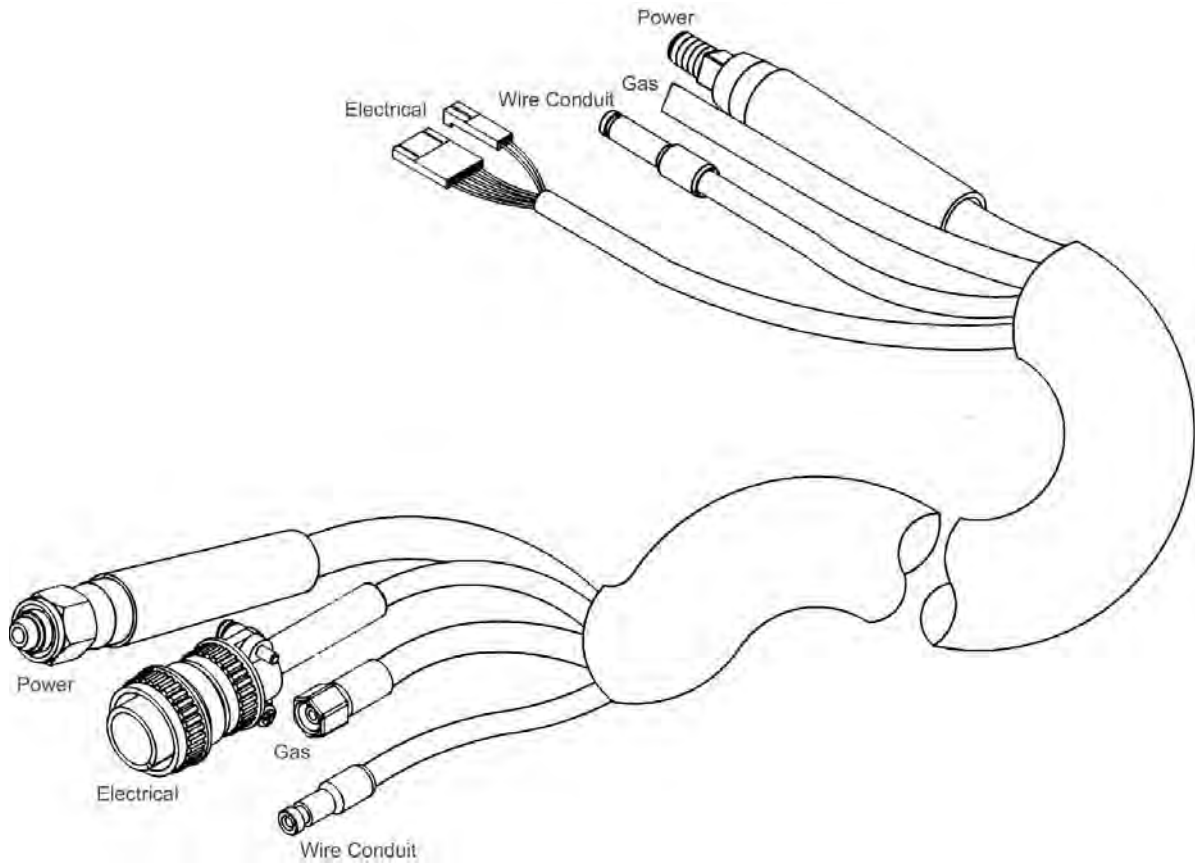
No.	Qty.	Part No.	Description
1	1	002-0642	Brazed Barrel Str AW
2	1	003-2213	Assy Taper Lock
3	4	303-0010	O-Ring 0.489 ID x 0.070 OD
4	2	303-0094	O-Ring 0.301 ID x 0.070 OD
5	1	LE KP2226-1 MK 931-0137	Teflon Liner Package, 5 Pieces
6	1	621-0250	Assy Cup Cpr Finned #10
7	1	621-0393	Tip HD Spray 0.060
8	-	-	-
9	1	005-0696	Insulator Replacement Kit
10	1	431-1774	Cup Insulator
11	1	313-0091	Retaining Ring 5/8 Shaft

45° CURVED, AIR/WATER COOLED BARREL ASSY. 7", EXPLODED VIEW
LE P/N KP2298-2, MK P/N 003-2152
200 AMP, 100% DUTY CYCLE



45° Curved Air/Water Cooled Barrel Assy 003-2152			
No.	Qty.	Part No.	Description
1	1	002-0670	Assy Bend Barrel 45° AW
2	1	003-2213	Assy Taper Lock
3	4	303-0010	O-Ring 0.489 ID x 0.070 Width
4	2	303-0094	O-Ring 0.301 ID x 0.070 Width
5	1	LE KP2226-1 MK 931-0137	Teflon Liner Package, 5 Pieces
6	1	621-0250	Assy Cup Cpr Finned #10
7	1	621-0393	Tip HD Spray 0.060
8	-	-	-
9	1	005-0696	Insulator Replacement Kit
10	1	431-1774	Cup Insulator
11	1	313-0091	Retaining Ring 5/8 Shaft

AIR COOLED LEAD ASSEMBLY

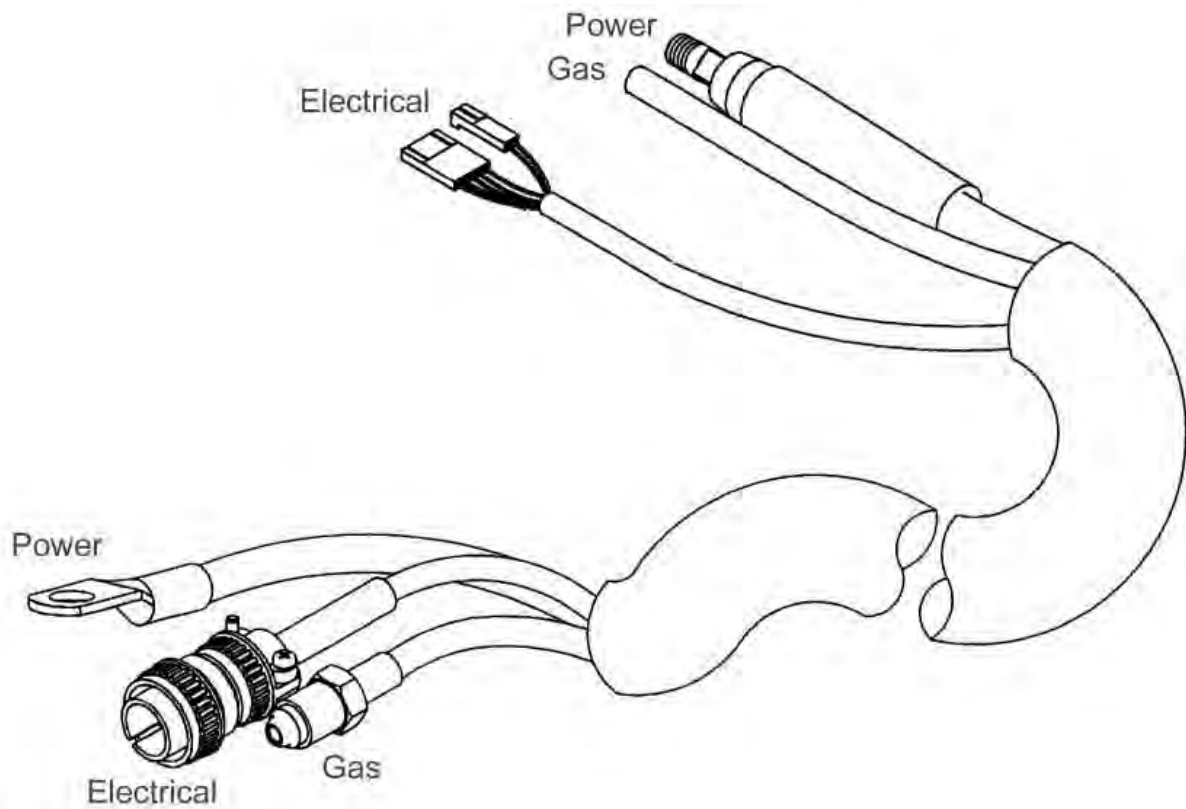


Prince[®] XL Air Cooled Cable Assemblies

Length	LE P/N Conduit (MK P/N)	#2 Pwr Cable*	Electrical Cable*	Gas Hose*	Snake Skin*
15'/4.5m	KP2072-30 (615-0007)	001-2527	005-0268	001-0537	931-0110
25'/7.6m	KP2072-28 (615-0008)	001-2528	005-0269	001-0538	931-0122
50'/15.2m	KP2072-29 (615-0068)	001-1042	005-0272	001-0665	931-0123

*MK part numbers

SPOOL GUN LEAD ASSEMBLY



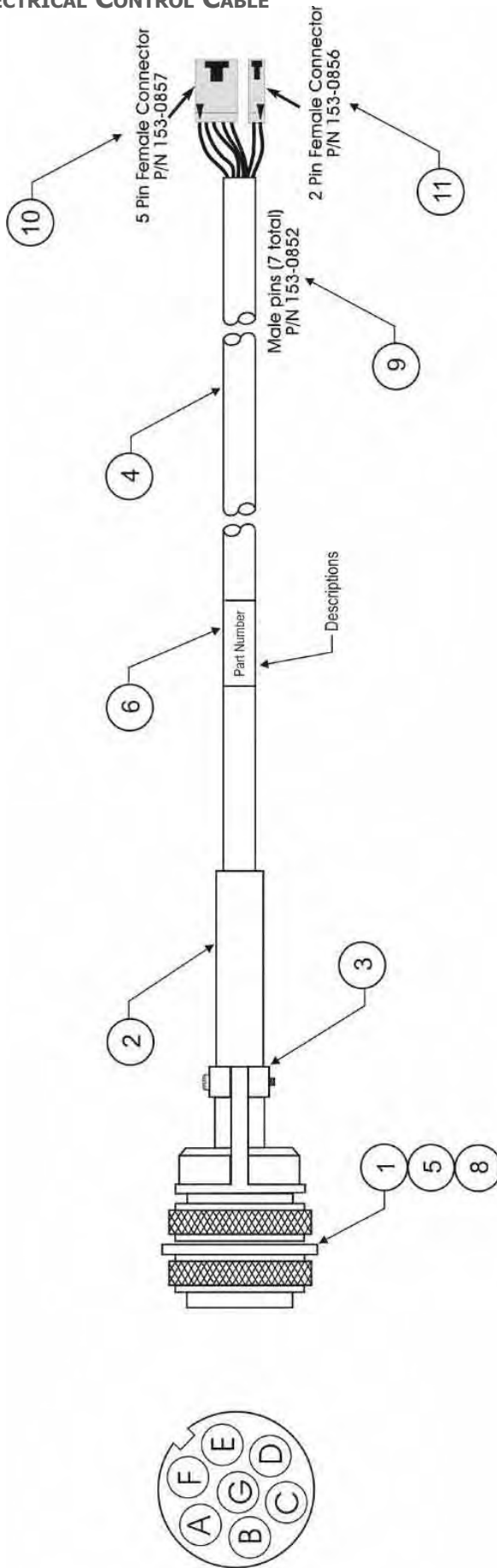
Spool Gun Lead Assemblies

Length	#2 Power Cable*	Electrical Cable*	Gas Hose*	Snake Skin*
25'/7.6m	843-0484	005-0269	552-0202	931-0122
50'/15.2m	843-0485	005-0272	552-0203	931-0123
75'/22.9m	843-0562	843-0561**	552-0206	931-0122 & 931-0123

*MK part numbers

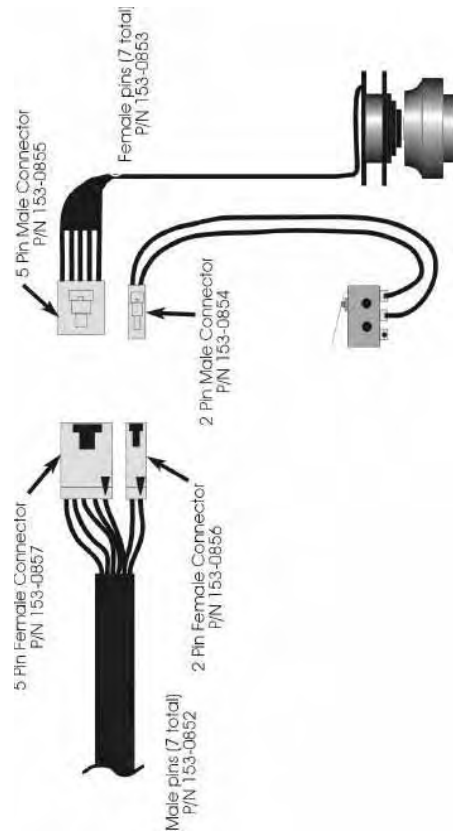
**Call technical support for details

ELECTRICAL CONTROL CABLE



Control Cable "W" Torches		
001-3784, 001-3785, 001-3787, 001-3788, 001-3789, 001-3790, 001-3800		
No.	Qty.	Description
1	1	Connector, 7 Pin, "W"
2	1	Boot
3	1	Clamp
4	table	Cable, & Cond, 22 Ga.
5	0.30ft	Tubing, Shrink, Ø1/8
6	1	Label, Self Laminiate
7	1	Clamp, Retaining
8	1	Washer, Flat, Neoprene
9	7	Male Pins
10	1	5 Pin Female Connector
11	1	2 Pin Female Connector

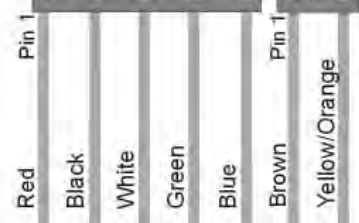
Length of cable required for item #4	
25'	25.5 ft.
50'	50.5 ft.
75'	75.5 ft.



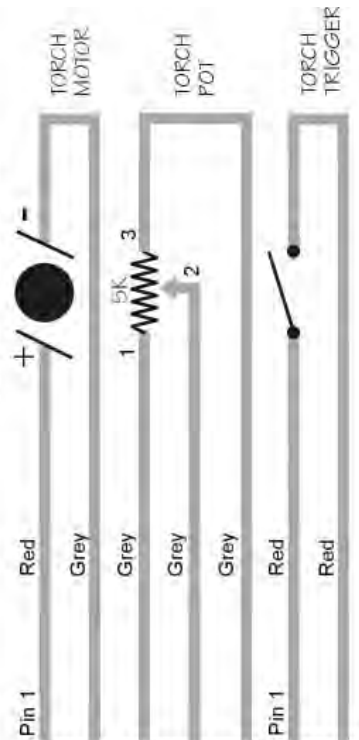
Cabinet End
Amphenol Connector



Torch Connectors
Inside Handles



Torch Functions



MK Warranty Repair Stations

for MK Products as of April 24, 2003

Please visit our website for up-to-date listing at www.mkproducts.com

ALABAMA

AIRGAS - SOUTH, INC.
Birmingham, AL
205/251-6835

DIXIE WELDING SUPPLY
Attalla, AL
256/538-6157

INDUSTRIAL WELDING SERVICES
Quinton, AL
205/674-3258

KIBRO, INC.
Theodore, AL
251/653-4672

WELDING ENGINEERING SUPPLY CO.
Prichard, AL
334/457-8681

WELDING MACHINE HOSPITAL
Montgomery, AL
334/832-9353

ALASKA

FAIRBANKS AERO SERVICES
Fairbanks, AK
907/479-6666

RNR, INC. dba
Rubey Engine & Electric
Anchorage, AK
907/336-5152

ARIZONA

PRAXAIR DISTRIBUTION, INC.
Phoenix, AZ
602/269-2151

ALLSTATE ELECTRIC MOTOR CO.
Phoenix, AZ
602/233-0500

VERN LEWIS WLDG. SUPPLY
Phoenix, AZ
602/252-0341

ARKANSAS

APPLIED SERVICES, INC.
Benton, AR
501/860-6464

ARKANSAS WELDING IND'L SUPPLY
Hot Springs, AR
501/321-9922

EL DORADO WELDING & IND'L SUPPLY
El Dorado, AR
870/863-4088

CALIFORNIA

ADVANCED WELDER REPAIR
Commerce, CA
323/263-7383

AIRGAS - WEST, INC.
Gardena, CA
310/523-9355

ALL PHASE WELDER REPAIR & CONSULTING
Sacramento, CA
916/331-0595

ARC PRODUCTS
San Diego, CA
619/628-1022

ARCO WELDER REPAIR
Santa Fe Springs, CA
562/921-5240

ARK WELDER REPAIR
Fresno, CA
559/292-4714

CAL-WELD SUPPLY
Fresno, CA
209/445-0131

DELTA-TECH
Sun Valley, CA
818/767-4234

EMCO EAST WELD'R REPAIR
Concord, CA
925/798-4411

FRESNO OXYGEN
Fresno, CA
559/233-6684

INDUSTRIAL ELECTRICAL CO
Modesto, CA
209/527-2800

INDUSTRIAL WELDER REPAIR
LaPuente, CA
626/961-7643

NESCO WELDING SUPPLY
Fontana, CA
909/427-9670

PRAXAIR DISTRIBUTION (ARC RENTS)
Signal Hill, CA
562/989-3212

MK Warranty Repair Stations

for MK Products as of April 24, 2003

Please visit our website for up-to-date listing at www.mkproducts.com

PRAXAIR DISTRIBUTION, INC.
Bakersfield, CA
661/321-9922

R. J. KATES
San Diego, CA
619/565-6960

RED-D-ARC, INC.
Carson, CA
310/233-3327

SIMS-ORANGE WELDING SUPPLY
Santa Ana, CA
714/549-9393

SOUTHWEST WELDER REPAIR
Fontana, CA
909/357-1661

SWEINHART ELECTRIC CO., INC.
Long Beach, CA
714/521-9100

CONNETICUT

ABCO WELDING & INDUSTRIAL SUPPLY CO.
Waterford, CT
800/962-0285

TECH AIR
Milford, CT
203/783-1834

COLORADO

AIRGAS - INTERMOUNTAIN, INC.
Colorado Springs, CO
719/473-1947

WELDERS & EQUIP. SVC. & TESTING
Littleton, CO
303/932-8755

WESTERN SLOPE WELDER REPAIR
Grand Junction, CO
970/243-9616

DELAWARE

KEEN COMPRESSED GAS
New Castle, DE
302/594-4555

FLORIDA

A & I SPECIALTIES
Lehigh Acres, FL
941/368-7435

AAA GENERATOR & PUMP
Ft. Myers, FL
941/332-1136

ACTION WELDING SUPPLY
Jacksonville, FL
904/786-2254
Miami, FL
305/592-5678

AMVEL CORPORATION
Miami, FL
305/592-5678

ELECTRICAL WELDERS SERVICE
Orlando, FL
407/999-5214

HAUN SYSTEMS REPAIR, INC.
Orlando, FL
407/681-6064

HOLOX
Ocala, FL
352/351-4417

J.K. CIRCUIT TECHNOLOGY
Boynton Beach, FL
561/733-7859

ROPER ELECTRIC MOTOR SERVICE
Panama City, FL
850/769-6643

SMITTY'S WELDER SERVICE
West Palm Beach, FL
561/845-1224

TRI-GAS
Miami, FL
305/592-3180

TRI-STATE SALES & LEASING
Lake City, FL
904/397-3340

TRI-TECH
Sarasota, FL
941/758-3825

V.A. ELECTRICAL MOTORS CENTER
Hialeah, FL
305/825-3327

WELD DIRECT CORPORATION
Jacksonville, FL
904/387-5664

GEORGIA

B&W INDUSTRIAL SERVICES
Augusta, GA
706/738-8722

MK Warranty Repair Stations

for MK Products as of April 24, 2003

Please visit our website for up-to-date listing at www.mkproducts.com

Mc CULLOUGH ELEC. MOTOR SVC.
Atlanta, GA
404/688-5251

HAWAII

DC ELECTRIC, INC.
Aiea, HI
808/483-8900

IDAHO

NORCO
Boise, ID
208/336-1643

ROSSITER ELECTRIC
Idaho Falls, ID
208/529-3665

ILLINOIS

CMS ELECTROMECHANICAL SERVICES, INC.
Galesburg, IL
309/342-4125 - 888/964-3526

FRED ARMS ELECTRIC MOTOR REPAIR
Stone Park, IL
708/343-6262

INDUSTRIAL WELDER REBUILDERS
Alsip, IL
708/371-5688

RELIABLE EQUIPMENT REPAIR
Hamel, IL
618/633-5000

ROCKFORD INDUSTRIAL WELDING SUPPLY
Rockford, IL
815/226-1900

INDIANA

AGA GAS, INC.
Hammond, IN
219/989-9030

AIRGAS-MID AMERICA, INC.
Evansville, IN
800/424-8905

B & H ELECTRIC
Seymour, IN
812/522-5607

COX EQUIPMENT COMPANY
Indianapolis, IN
317/241-8881

EVANSVILLE ARMATURE, INC.
Evansville, IN
812/428-9034

HARRISON ELECTRIC, INC.
Michigan City, IN
219/879-0444

MODERN SUPPLY CO., INC.
Evansville, IN
812/425-9353

PRAXAIR DISTRIBUTION, INC.
Speedway, IN
317/481-4550

SUTTON-GARTEN COMPANY
Indianapolis, IN
317/264-3236

IOWA

AIRGAS NORTH CENTRAL
Des Moines, IA
515/266-1111

CEDAR RAPIDS WELDING SUPPLY
Cedar Rapids, IA
319/365-1466

ELECTRICAL ENGRG. & EQUIPMENT
Des Moines, IA
515/266-8890

SUPERIOR WELDING SUPPLY
Waterloo, IA
319/236-9660

WRIGHT WELDING SUPPLY
Ft. Dodge, IA
515/576-0640

KANSAS

AEROFORM CORPORATION
Coffeyville, KS
620/251-1430

KANOX
Hutchinson, KS
316/665-5551

KENTUCKY

GENERAL WELDING PRODUCTS
Louisville, KY
502/635-5218

RED-D-ARC
Lexington, KY
800/245-3660

MK Warranty Repair Stations

for MK Products as of April 24, 2003

Please visit our website for up-to-date listing at www.mkproducts.com

WELDING EQUIPMENT

Louisville, KY
502/636-0545

LOUISIANA

GT SVCS OF MORGAN CITY
Morgan City, LA
985/385-4135

RED BALL OXYGEN CO.
Shreveport, LA
318/425-3211

WELDERS EQUIPMENT CO.
Broussard, LA
337/837-5701

WELDERS SUPPLY & EQUIP.
Port Allen, LA
225/346-4712

MARYLAND

CCM MECH/ELEC REPAIR SERVICE
Owings, MD
301/855-7508

MASSACHUSETTS

AIMTEK WELDING SUPPLY
Auburn, MA
508/832-5035

MICHIGAN

ANN ARBOR WELDING SUPPLY CO.
Ypsilanti, MI
734/572-0444

APEX WELDING GASES & SUPPLY
Muskegon Heights, MI
616/722-3185

AUTOMATIC WELD
Midland, MI
517/496-9245

GREAT LAKES EQUIPMENT
Clare, MI
517/386-4630

HAMILTON ELECTRIC CO.
Saginaw, MI
517/799-6291

PLYMOUTH WAYNE, INC.
Wixom, MI
248/735-7700

SAGINAW WELDING SUPPLY CO.
Saginaw, MI
517/793-9696

SIMPKINS ELECTRICAL SVC.

Michigan Center, MI
517/764-7766

SOUTHPARK WELDING

Marysville, MI
810/364-6521

WELDING METALS, INC.

Madison Heights, MI
248/585-0480

WESAR COMPANY

Three Rivers, MI
616/483-9125

WILSON WELDING & MEDICAL GASES

Warren, MI
586/751-7400

MINNESOTA

AIRGAS - NORTH CENTRAL
Albert Lea, MN
507/373-2411

CAPITOL CITY WELDING SUPPLY

St. Paul, MN
651/224-4843

CENTRAL McGOWAN

St. Cloud, MN
320/252-5292

MINNEAPOLIS OXYGEN CO.

Minneapolis, MN
612/588-8855

OXYGEN SERVICE CO.

St. Paul, MN
612/644-7273

MISSOURI

CEE-KAY SUPPLY, INC.

St. Louis, MO
324/644-3500

P.G. WALKER
Springfield, MO
417/862-1745

ROD'S SERVICE, INC.

St. Louis, MO
314/721-6000

MISSISSIPPI

NORDAN SMITH WELDING SUPPLY

Hattiesburg, MS
601/545-1800

MK Warranty Repair Stations

for MK Products as of April 24, 2003

Please visit our website for up-to-date listing at www.mkproducts.com

3D SUPPLIES, INC.
Jackson, MS
601/353-3330

MONTANA

VALLEY WELDERS SUPPLY
Billings, MT
406/256-3330

NEVADA

SIERRA WELDING SUPPLY CO.
Sparks, NV
775/359-0542

NEW HAMPSHIRE

WELDING SYSTEMS SVC.
Raymond, NH
603/895-4700

NEW JERSEY

INDUSTRIAL ELECTRIC SERVICE CO.
Hawthorne, NJ
973/423-1212

NEW YORK

DELO WELDING SUPPLY
Syracuse, NY
315/478-2188

DYNAMIC WELD'G & REPAIR
Bayshore, NY
631/643-1308

HAUN WELDING SUPPLY
Syracuse, NY
315/463-5241

JACKSON WELDING SUPPLY
Rochester, NY
585/235-2920

NORTH CAROLINA

ADAMS WELDER REPAIR & ELECTRICAL SERVICE,
INC.
Nashville, NC
252/459-1960

HOLOX LTD.
Colfax, NC
336/996-1974

M & L WELDER REPAIR
Asheville, NC
828/250-9353

MACHINE AND WELDING SUPPLY CO.
Dunn, NC
910/892-4016

MACHINE AND WELDING SUPPLY CO.
Greenville, NC
252/752-3089

MACHINE AND WELDING SUPPLY CO.
Raleigh, NC
919/772-9500

MACHINE AND WELDING SUPPLY CO.
Winston-Salem, NC
336/723-9651

NATIONAL WELDERS SUPPLY CO.
High Point, NC
910/882-1110

NATIONAL WELDERS SUPPLY CO.
Charlotte, NC
704/392-7317

OHIO

AGA GASES, INC.
Lima, OH
419/228-2828

ALBRIGHT WELDING SUPPLY
Wooster, OH
330/264-2021

ALL ABOUT SERVICE
Wickliffe, OH
440/516-0303

ARC EQUIPMENT COMPANY
Struthers, OH
333/750-9353

ARC SERVICES, INC.
Toledo, OH
419/478-6204

BELAIR PRODUCTS, INC.
Akron, OH
330/253-3116

BIG RIVER ELECTRIC
Gallipolis, OH
740/446-4360

CnD MACHINE, INC.
Canton, OH
330/478-8811

ELECTRIC WELDER REPAIR
Cuyahoga Heights, OH
216/271-5600

MAINTENANCE UNLTD. & TOOL REPAIR
Cincinnati, OH
513/554-1313

MK Warranty Repair Stations

for MK Products as of April 24, 2003

Please visit our website for up-to-date listing at www.mkproducts.com

O.E. MEYER CO.

Sandusky, OH
419/621-4201

OHIO AIR PRODUCTS

Canton, OH
330/821-2771

RICK'S WELDER REPAIR SERVICE

Eastlake, OH
440/269-1204

S.D. NOLD, INC.

Lisbon, OH
330/424-3134

VALLEY NATIONAL GASES

Cincinnati, OH
513/241-5840

VALLEY NATIONAL GASES

Hilliard, OH
614/771-1311

VALLEY NATIONAL GASES

Lima, OH
419/228-1008

VALLEY NATIONAL GASES

Toledo, OH
419/241-9114

VOLLMER ELECTRIC CO.

Columbus, OH
614/476-8800

WEILER WELDING CO., INC.

Dayton, OH
937/222-8312

WELDINGHOUSE, INC.

Cleveland, OH
216/524-1955

OKLAHOMA

AIRGAS MID-SOUTH

Tulsa, OK
918/582-0885

BILL'S WELDER REPAIR

Oklahoma City, OK
405/232-4799

MUNN SUPPLY

Enid, OK
580/234-4120

OKLAHOMA WELDERS SUPPLY

Madill, OK
580/795-5561

OREGON

ARC SYSTEMS SERVICES

Central Point, OR
541/665-2676

E C COMPANY

dba ELECTRICAL CONSTRUCTION CO.
Portland, OR
800/452-1511

INDUSTRIAL SOURCE

Eugene, OR
541/344-1438

WELDER SERVICE & REPAIR

Redmond, OR
541/548-8711

PENNSYLVANIA

ALLWELD EQUIPMENT REPAIR

Pittsburgh, PA
412/821-8460

BY DESIGN

Columbia, PA
717/681-9494

GEOVIC WELDING SUPPLY

Milton, PA
717/742-9377

J.A. CUNNINGHAM EQUIPMENT, INC.

Philadelphia, PA
215/426-6650

JOSEPH PINTO, JR. EQUIPMENT CO.

E. Lansdowne, PA
610/259-4100

POWER SOURCE REPAIR CO., INC.

Collingdale, PA
610/532-6460

VALLEY NATIONAL GASES

Pittsburgh, PA
412/281-1835

SOUTH CAROLINA

CAROLINA WELDER SERVICE

Lake City, SC
843/687-0413

TENNESSEE

INDUSTRIAL MACHINE REPAIRS

Rogersville, TN
423/272-8199

NATIONAL RENTAL & REPAIR

Knoxville, TN
423/584-6390

MK Warranty Repair Stations

for MK Products as of April 24, 2003

Please visit our website for up-to-date listing at www.mkproducts.com

NEXAIR

Memphis, TN
901/523-6821

QUALITY WELD'G EQUIPMENT

Nashville, TN
615/726-5282

TRAMCO

Bristol, TN
423/968-4499

TEXAS

AIRGAS - SOUTHWEST, INC.

Austin, TX
512/835-0202

AIRGAS - SOUTHWEST, INC.

Houston, TX
713/462-8027

DENISON OXYGEN

Denison, TX
903/465-3369

FT. WORTH WELDERS SUPPLY, INC.

Fort Worth, TX
817/332-8696

GPC SERVICES, INC.

San Angelo, TX
915/655-4545

LEKTROTECH, INC.

Greenville, TX
903/454-7146

RITE-WELD SUPPLY, INC

Fort Worth, TX
817/626-8237

TexAir WELDING SUPPLY

Longview, TX
903/238-9353

WELDING MACHINE & TORCH REPAIR

San Antonio, TX
210/680-8390

UTAH

ARC SERVICES, LLC

West Valley City, UT
801/975-1121

C.W. SILVER INDUSTRIAL SERVICE

Salt Lake City, UT
801/531-8888

VERMONT

W.J. WELDING EQUIPMENT REPAIR, INC.

N. Clarendon, VT
802/775-7422

VIRGINIA

AIR PRODUCTS & CHEMICALS, INC.

Bristol, VA
540/669-3161

ARC WELDERS, INC.

Ashland, VA
804/798-1818

ARCET EQUIPMENT CO.

Hampton, VA
757/728-9353

N.W. MARTIN CO.

Springfield, VA
703/644-0120

NORFOLK WELDERS SUPPLY

Norfolk, VA
804/622-6571

WASHINGTON

AIRGAS - NORPAC, INC.

Tacoma, WA
253/473-2282

AIRGAS - NORPAC, INC.

Vancouver, WA
360/574-5311

A-L WELDING PRODUCTS

Tukwila, WA
425/228-2218

AMERICAN EQUIPMENT SERVICES

Kent, WA
253/395-9947

HARRIS ELECTRIC, INC.

Seattle, WA
206/782-6668

OXARC, INC.

Spokane, WA
509/535-7794

PACIFIC WELDING SUPPLIES

Tacoma, WA
253/572-5302

PRECISION WELDER & ENGINE REPAIR

Seattle, WA
206/382-6227

MK Warranty Repair Stations

for MK Products as of April 24, 2003

Please visit our website for up-to-date listing at www.mkproducts.com

WEST VIRGINIA

CARDINAL SALES & SERVICE, INC.
Clarksburg, WV
304/622-7590

WILLARD C. STARCHER
Spencer, WV
304/927-2520

WISCONSIN

INTERSTATE WELDING SALES CORP.
Appleton, WI
920/734-7173

MOSINEE MACHINE & ELECTRIC
Mosinee, WI
715/693-0858

PRAXAIR DISTRIBUTION, INC.
Brookfield, WI
414/938-6365

VALLEY NATIONAL GASES
Milwaukee, WI
414/281-9540

WELDER REPAIR & SERVICE, INC.
Fredonia, WI
262/692-3068

CANADA

A&A WELDER SERVICES LTD.
Saskatoon, Saskatchewan
306/934-1601

ARC & GENERATOR REPAIR
Garson, Ontario
705/525-2141

B. HARRIS WELDING SVCS. LTD.
Dartmouth, Nova Scotia
902/468-6255

BARRY HAMEL EQUIPMENT LTD.
Coquitlam, B.C.
604/945-9313

D-TECH WELD SERVICES
Regina, Saskatchewan
306/586-9353

ELECTRO-MÉCANIK, INC.
Sainte-Foy, Quebec
418/683-1724

GPR INDUSTRIES 1994 LTD.
Grande Prairie, Alberta
780/532-5900

HYPERDYNAMICS TECHNOLOGIES LTD.
Pickering, Ontario
905/683-9938

INDUSTRIAL ELECTRONIC SERVICES
Calgary, Alberta
403/279-3432

LADEL LTD.
Quebec
819/376-6577

LeBLANC ELECTRO-TECH, INC.
Boucherville, Quebec
450/449-5244

M.R.T. REPAIR CENTER, INC.
Montreal, Quebec
514/648-0800

OZARK ELECTRICAL MARINE LTD.
St. Johns, Newfoundland
709/726-4554

PEEL ENGINES
Mississauga, Ontario
905/670-1535

PROMOTECH ÉLECTRIQUE, INC.
Fleurimont, Quebec
819/822-2111

WELDERS SUPPLY
Winnipeg, Manitoba
204/772-9476

WELDERTECH
Calgary, Alberta
403/279-3432

WELDTEC
B.C.
604/545-3886

CHINA

PHT Group Company
Beijing, China
86-10-6858 8395

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

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

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3 YEAR LIMITED WARRANTY

Effective February 1, 2003

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 torch 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; or
- (4) payment of or credit for the purchase price (less reasonable depreciation based upon actual use) upon return of the goods at customer's risk and expense. Upon receipt of notice of apparent defect or failure, MK Products shall instruct the claimant on the warranty claim procedures to be followed.

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. Torches, Weldheads & Water Recirculators 1 year**
- 2. All Other Equipment 3 years**
- 3. Repairs 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 (both ways) for products returned for warranty repair or replacement will be borne by MK Products, except for products sold to foreign markets.

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EXCEPT AS EXPRESSLY PROVIDED BY MK PRODUCTS IN WRITING, MK PRODUCTS ARE INTENDED FOR ULTIMATE PURCHASE BY COMMERCIAL/INDUSTRIAL USERS AND FOR OPERATION BY PERSONS TRAINED AND EXPERIENCED IN THE USE AND MAINTENANCE OF WELDING EQUIPMENT AND NOT FOR CONSUMERS OR CONSUMER USE. MK PRODUCTS WARRANTIES DO NOT EXTEND TO, AND NO RE-SELLER IS AUTHORIZED TO EXTEND MK PRODUCTS' WARRANTIES TO ANY CONSUMER.

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



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DATE: February 1, 2003



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