



Product Description	Python®
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MK Form Number	CM/OM
NWSA Form Number	550
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Voltage Rating	24 VDC
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This manual applies to the following torch model numbers	226-XXX 225-XXX

PYTHON® **Advanced Gooseneck**



SAFETY CONSIDERATIONS

ELECTRIC ARC WELDING EQUIPMENT

CAUTION : READ BEFORE ATTEMPTING INSTALLATION, OPERATION OR MAINTENANCE OF THIS EQUIPMENT

1-1 INTRODUCTION

This equipment is intended for ultimate application by commercial/industrial users and for operation by persons trained and experienced in the use and maintenance of welding equipment. Operation should not be undertaken without adequate training in the use of such equipment. Training is available from many public and private schools or similar facilities.

Safe practices in the installation, operation and maintenance of this equipment requires proper training in the art, a careful study of the information provided with the equipment, and the use of common sense. Rules for safe use are generally provided by suppliers of welding power sources, compressed gas suppliers, and electrode suppliers. Careful compliance with these rules will promote safe use of this equipment.

The following Safety Rules cover some of the more generally found situations. READ THEM CAREFULLY. In case of any doubt, obtain qualified help before proceeding.

1-2 GENERAL PRECAUTIONS

A. Burn Prevention

ELECTRIC ARC WELDING PRODUCES HIGH INTENSITY HEAT AND ULTRAVIOLET RADIANT ENERGY WHICH MAY CAUSE SERIOUS AND PERMANENT EYE DAMAGE AND WHICH MAY DAMAGE ANY EXPOSED SKIN AREAS.

Wear helmet with safety goggles or glasses with side shields underneath, appropriate filter lenses or plates (protected by clear cover glass). This is a must for welding or cutting (and chipping) to protect the eyes from radiant energy and flying metal. Replace cover glass when broken, pitted, or spattered.

Medical first aid and eye treatment. First aid facilities and a qualified first aid person should be available for each shift unless medical facilities are close by for immediate treatment of flash burns of the eyes and skin burns.

Wear protective clothing - leather (or asbestos) gauntlet gloves, hat, and high safety-toe shoes. Button shirt collar and pocket flaps, and wear cuffless trousers to avoid entry of sparks and slag.

Avoid oily or greasy clothing. A spark may ignite them.

Flammable hair preparations should not be used by persons intending to weld or cut.

Hot metal such as electrode stubs and work pieces should never be handled without gloves.

Ear plugs should be worn when working on overhead or in a confined space. A hard hat should be worn when others work overhead.

B. Toxic Fume Prevention

WARNING: The use of this product may result in exposure to chemicals known

to the State of California to cause cancer and birth defects or other reproductive harm.

Adequate ventilation. Severe discomfort, illness or death can result from fumes, vapors, heat, or oxygen enrichment or depletion that welding (or cutting) may produce. Prevent them with adequate ventilation. NEVER ventilate with oxygen.

Lead-, cadmium-, zinc-, mercury-, beryllium-bearing and similar materials, when welded or cut, may produce harmful concentrations of toxic fumes. Adequate local exhaust ventilation must be used, or each person in the area, as well as the operator, must wear an air-supplied respirator. For beryllium, both must be used.

Metals coated with or containing materials that emit toxic fumes should not be heated unless coating is removed from the work surface, the area is well ventilated, or the operator wears an air-supplied respirator.

Work in a confined space only while it is being ventilated and, if necessary, while wearing an air-supplied respirator.

Gas leaks in a confined space should be avoided. Leaked gas in large quantities can change oxygen concentration dangerously. Do not bring gas cylinders into a confined space.

Leaving confined space, shut OFF gas supply at source to prevent possible accumulation of gases in the space if downstream valves have been accidentally opened or left open. Check to be sure that the space is safe before reentering it.

Vapors from chlorinated solvents can be decomposed by the heat of the arc (or flame) to form PHOSGENE, a highly toxic gas, and other lung and eye irritating products. The ultraviolet (radiant) energy of the arc can also decompose trichloroethylene and perchloroethylene vapors to form phosgene. DO NOT WELD or cut where solvent vapors can be drawn into the welding or cutting atmosphere or where the radiant energy can penetrate to atmospheres containing even minute amounts of trichloroethylene or perchloroethylene.

C. Fire and Explosion Prevention

Causes of fire and explosion are: combustibles reached by the arc, flame, flying sparks, hot slag, or heated material, misuse of compressed gases and cylinders, and short circuits.

BE AWARE THAT flying sparks or falling slag can pass through cracks, along pipes, through windows or doors, and through wall or floor openings, out of sight of the goggled operator. Sparks can fly many feet.

To prevent fires and explosion:

Keep equipment clean and operable, free of oil, grease, and (in electrical parts) of metallic particles that can cause

short circuits.

If combustibles are in area, do NOT weld or cut. Move the work if practicable, to an area free of combustibles. Avoid paint spray rooms, dip tanks, storage areas, ventilators. If the work cannot be moved, move combustibles at least 35 feet away, out of reach of sparks and heat; or protect against ignition with suitable and snug-fitting, fire-resistant covers or shields.

Walls touching combustibles on opposite sides should not be welded on (or cut). Walls, ceilings, and floor near work should be protected by heat-resistant covers or shields.

Fire watcher must be standing by with suitable fire extinguishing equipment during and for some time after welding or cutting if:

1. Appreciable combustibles (including building construction) are within 35 feet.
2. Appreciable combustibles are further than 35 feet, but can be ignited by sparks.
3. Openings (concealed or visible) in floors or walls within 35 feet may expose combustibles to sparks.
4. Combustibles adjacent to walls, ceilings, roofs, or metal partitions can be ignited by radiant or conducted heat.

Hot work permit should be obtained before operation to ensure supervisor's approval that adequate precautions have been taken.

After work is done, check that area is free of sparks, glowing embers, and flames.

An empty container that held combustibles, or that can produce flammable or toxic vapors when heated, must never be welded on or cut, unless container has first been cleaned in accordance with industry standards.

This includes: a thorough steam or caustic cleaning (or a solvent of water washing, depending on the combustible's solubility), followed by purging and inerting with nitrogen or carbon dioxide, and using protective equipment.

Water-filling just below working level may substitute for inerting.

A container with unknown contents should be cleaned (see paragraph above). Do NOT depend on sense of smell or sight to determine if it is safe to weld or cut.

Hollow castings or containers must be vented before welding or cutting. They can explode.

Explosive atmospheres. NEVER weld or cut where the air may contain flammable dust, gas, or liquid vapors (such as gasoline).

D. Compressed Gas Equipment

The safe handling of compressed gas equipment is detailed in numerous industry publications. The following

general rules cover many of the most common situations.

1. Pressure Regulators

Regulator relief valve is designed to protect only the regulator from overpressure; it is not intended to protect any downstream equipment. Provide such protection with one or more relief devices.

Never connect a regulator to a cylinder containing gas other than that for which the regulator was designed.

Remove faulty regulator from service immediately for repair (first close cylinder valve). The following symptoms indicate a faulty regulator:

Leaks - if gas leaks externally.

Excessive Creep - if delivery pressure continues to rise with downstream valve closed.

Faulty Gauge - if gauge pointer does not move off stop pin when pressurized, nor returns to stop pin after pressure release.

Repair. Do NOT attempt repair. Send faulty regulators for repair to manufacturer's designated repair center, where special techniques and tools are used by trained personnel.

2. Cylinders

Cylinders must be handled carefully to prevent leaks and damage to their walls, valves, or safety devices:

Avoid electrical circuit contact with cylinders including third rails, electrical wires, or welding circuits. They can produce short circuit arcs that may lead to a serious accident. (See 1-3C)

ICC or DOT marking must be on each cylinder. It is an assurance of safety when the cylinder is properly handled.

Identifying gas content. Use only cylinders with name of gas marked on them; do not rely on color to identify gas content. Notify supplier if unmarked. NEVER DEFACE or alter name, number, or other markings on a cylinder. It is illegal and hazardous.

Empties: Keep valves closed, replace caps securely; mark MT; keep them separate from FULLS, and return promptly.

Prohibited use. Never use a cylinder or its contents for other than its intended use, NEVER as a support or roller.

Locate or secure cylinders so they cannot be knocked over.

Passageways and work areas. Keep cylinders clear of areas where they may be stuck.

Transporting cylinders. With a crane, use a secure support such as a platform or cradle. Do NOT lift cylinders off the ground by their valves or caps, or by chains, slings, or magnets.

Do NOT expose cylinders to excessive heat, sparks, slag, and flame, etc. that may cause rupture. Do not allow contents

to exceed 55 degrees C (130 degrees F.) Cool with water spray where such exposure exists.

Protect cylinders, particularly valves from bumps, falls, falling objects, and weather. Replace caps securely when moving cylinders.

Stuck valve. Do NOT use a hammer or wrench to open a cylinder valve that cannot be opened by hand. Notify your supplier.

Mixing gases. NEVER try to mix any gases in a cylinder.

NEVER refill any cylinder.

Cylinder fittings should never be modified or exchanged.

3. Hose

Prohibited use. Never use hose other than that designed for the specified gas. A general hose identification rule is: red for fuel gas, green for oxygen, and black for inert gases.

Use ferrules or clamps designed for the hose (not ordinary wire or other substitute) as a binding to connect hoses to fittings.

No copper tubing splices. Use only standard brass fittings to splice hose.

Avoid long runs to prevent kinks and abuse. Suspend hose off ground to keep it from being run over, stepped on, or otherwise damaged.

Coil excess hose to prevent kinks and tangles.

Protect hose from damage by sharp edges, and by sparks, slag, and open flame.

Examine hose regularly for leaks, wear, and loose connections. Immerse pressured hose in water; bubbles indicate leaks

Repair leaky or worn hose by cutting area out and splicing. Do NOT use tape.

4. Proper Connections

Clean cylinder valve outlet of impurities that may clog orifices and damage seats before connecting regulator. Except for hydrogen, crack valve momentarily, pointing outlet away from people and sources of ignition. Wipe with a clean, lintless cloth.

Match regulator to cylinder. Before connecting, check that the regulator label and cylinder marking agree, and that the regulator inlet and cylinder outlet match. NEVER Connect a regulator designed for a particular gas or gases to a cylinder containing any other gas.

Tighten connections. When assembling threaded connections, clean and smooth seats where necessary. Tighten. If connection leaks, disassemble, clean, and retighten, using properly fitting wrench.

Adapters. Use a CGA adapter (available from your supplier) between cylinder and regulator, if one is required. Use

two wrenches to tighten adapter marked RIGHT and LEFT HAND threads.

Regulator outlet (or hose) connections may be identified by right hand threads for oxygen and left hand threads (with grooved hex on nut or shank) for fuel gas.

5. Pressurizing Steps:

Drain regulator of residual gas through suitable vent before opening cylinder (or manifold valve) by turning adjusting screw in (clockwise). Draining prevents excessive compression heat at high pressure seat by allowing seat to open on pressurization. Leave adjusting screw engaged slightly on single-stage regulators.

Stand to side of regulator while opening cylinder valve.

Open cylinder valve slowly so that regulator pressure increases slowly. When gauge is pressurized (gauge reaches regulator maximum) leave cylinder valve in following position: for oxygen and inert gases, open fully to seal stem against possible leak; for fuel gas, open to less than one turn to permit quick emergency shut-off.

Use pressure charts (available from your supplier) for safe and efficient recommended pressure settings on regulators.

Check for leaks on first pressurization and regularly thereafter. Brush with soap solution. Bubbles indicate leaks. Clean off soapy water after test; dried soap is combustible.

E. User Responsibilities

Follow all Safety Rules.

Remove leaky or defective equipment from service immediately for repair. Read and follow user manual instructions.

F. Leaving Equipment Unattended

Close gas supply at source and drain gas.

G. Rope Staging-Support

Rope staging-support should not be used for welding or cutting operation; rope may burn.

1-3 ARC WELDING

Comply with precautions in 1-1, 1-2, and this section. Arc Welding, properly done, is a safe process, but a careless operator invites trouble. The equipment carries high currents at significant voltages. The arc is very bright and hot. Sparks fly, fumes rise, ultraviolet and infrared energy radiates, weldments are hot, and compressed gases may be used. The wise operator avoids unnecessary risks and protects himself and others from accidents.

A. Burn Protection

Comply with precautions in 1-2.

The welding arc is intense and visibly bright. Its radiation can damage eyes, penetrate lightweight clothing, reflect from light-colored surfaces, and burn the skin and eyes. Skin burns resemble

acute sunburn; those from gas-shielded arcs are more severe and painful. DON'T GET BURNED; COMPLY WITH PRECAUTIONS.

1. Protective Clothing

Wear long-sleeve clothing in addition to gloves, hat, and shoes. As necessary, use additional protective clothing such as leather jacket or sleeves, flameproof apron, and fire-resistant leggings. Avoid outer garments of untreated cotton.

Bare skin protection. Wear dark, substantial clothing. Button collar to protect chest and neck, and button pockets to prevent entry of sparks.

2. Eye and Head Protection

Protect eyes from exposure to arc. Eyes may be damaged by radiant energy when exposed to the electric arc, even when not looking in the direction of the arc. Never look at an electric arc without protection.

Welding helmet or shield containing a filter plate shade no. 12 or denser must be used when welding. Place over face before striking arc.

Protect filter plate with a clear cover plate.

Cracked or broken helmet or shield should NOT be worn; radiation can be passed through to cause burns.

Cracked, broken, or loose filter plates must be replaced IMMEDIATELY. Replace clear cover plate when broken, pitted, or spattered.

Flash goggles with side shields MUST be worn under the helmet to give some protection to the eyes should the helmet not be lowered over the face before an arc is struck. Looking at an arc momentarily with unprotected eyes (particularly a high intensity gas-shielded arc) can cause a retinal burn that may leave a permanent dark area in the field of vision.

3. Protection of Nearby Personnel

Enclose the welding area. For production welding, a separate room or enclosed bay is best. In open areas, surround the operation with low-reflective, noncombustible screens or panels. Allow for free air circulation, particularly at floor level.

Viewing the weld. Provide face shields for all persons who will be looking directly at the weld.

Others working in area. See that all persons are wearing flash goggles.

Before starting to weld, make sure that screen flaps or bay doors are closed.

B. Toxic Fume Prevention

Comply with precautions in 1-2B.

Generator engine exhaust must be vented to the outside air. Carbon monoxide can kill.

C. Fire and Explosion Prevention

Comply with precautions in 1-2C.

Equipment's rated capacity. Do not overload arc welding equipment. It may

overheat cables and cause a fire.

Loose cable connections may overheat or flash and cause a fire.

Never strike an arc on a cylinder or other pressure vessel. It creates a brittle area that can cause a violent rupture or lead to such a rupture later under rough handling.

D. Compressed Gas Equipment

Comply with precautions in 1-2D.

E. Shock Prevention

Exposed electrically hot conductors or other bare metal in the welding circuit, or in ungrounded, electrically-HOT equipment can fatally shock a person whose body becomes a conductor. DO NOT STAND, SIT, LIE, LEAN ON, OR TOUCH a wet surface when welding without suitable protection.

To protect against shock:

Keep body and clothing dry. Never work in damp area without adequate insulation against electrical shock. Stay on a dry duckboard, or rubber mat when dampness or sweat cannot be avoided. Sweat, sea water, or moisture between body and an electrically HOT part - or grounded metal - reduces the body surface electrical resistance, enabling dangerous and possibly lethal currents to flow through the body.

1. Grounding the Equipment

When installing, connect the frames of each unit such as welding power source, control, work table, and water circulator to the building ground. Conductors must be adequate to carry ground currents safely. Equipment made electrically HOT by stray currents may shock, possibly fatally. Do NOT GROUND to electrical conduit, or to a pipe carrying ANY gas or a flammable liquid such as oil or fuel.

Three-phase connection. Check phase requirement of equipment before installing. If only three-phase power is available, connect single-phase equipment to only two wires of the three-phase line. Do NOT connect the equipment ground lead to the third (live) wire, or the equipment will become electrically HOT - a dangerous condition that can shock, possibly fatally.

Before welding, check ground for continuity. Be sure conductors are touching bare metal of equipment frames at connections.

If a line cord with a ground lead is provided with the equipment for connection to a switch box, connect the ground lead to the grounded switch box. If a three-prong plug is added for connection to a grounded mating receptacle, the ground lead must be connected to the ground prong only. If the line cord comes with a three-prong plug, connect to a grounded mating receptacle. Never remove the ground prong from a plug, or use a plug with a broken ground prong.

2. Connectors

Fully insulated lock-type connectors

should be used to join welding cable lengths.

3. Cables

Frequently inspect cables for wear, cracks, and damage. IMMEDIATELY REPLACE those with excessively worn or damaged insulation to avoid possibly lethal shock from bared cable. Cables with damaged areas may be taped to give resistance equivalent to original cable.

Keep cable dry, free of oil and grease, and protected from hot metal and sparks.

4. Terminals and Other Exposed Parts

Terminals and other exposed parts of electrical units should have insulating covers secured before operation.

5. Electrode Wire

Electrode wire becomes electrically HOT when the power switch of gas metal-arc welding equipment is ON and welding gun trigger is pressed. Keep hands and body clear of wire and other HOT parts.

6. Safety Devices

Safety devices such as interlocks and circuit breakers should not be disconnected or shunted out.

Before installation, inspection, or service of equipment, shut OFF all power, and remove line fuses (or lock or red-tag switches) to prevent accidental turning ON of power. Disconnect all cables from welding power source, and pull all 115 volts line-cord plugs.

Do not open power circuit or change polarity while welding. If, in an emergency, it must be disconnected, guard against shock burns or flash from switch arcing.

Leaving equipment unattended. Always shut OFF, and disconnect all power to equipment.

Power disconnect switch must be available near the welding power source.

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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Section A



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 - 100%

All ratings are using Argon gas

200 Amps/25 Volts Air cooled standard

225 Amps/25 Volts Water cooled standard

300 Amps/25 Volts Water cooled using optional W/C barrel
(P/N 003-2104)

400 Amps/25 Volts Water cooled using optional W/C barrel & cup
(P/N 003-2104 & 621-0065)

Shipping Weight (approximate)

Air Cooled

15ft. (4.5m)..... 13.09 lbs. (5.94 Kg)

25ft. (7.6m)..... 19.29 lbs. (8.29 Kg)

50ft. (15.2m)..... 29.9 lbs. (13.19 Kg)

Water Cooled

15ft. (4.5m)..... 13.59 lbs. (6.16 Kg)

25ft. (7.6m)..... 19.69 lbs. (8.93 Kg)

50ft. (15.2m)..... 34.79 lbs.(15.78 Kg)

Torch weight (less leads)

Air/Water cooled - 2.5 lbs. (1.13 kilogram)

Water cooled - 2.6 lbs (1.18 kilogram) with optional W/C barrel

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 p.s.i.** when using water cooled torches.

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.

Section B

Torch Lead Connections

Power Cable - Air Cooled

A #2 AWG power cable is used on the Python® air cooled torch. The torch end is threaded into the torch body. The power cable fitting connects to the power block in the Cobramatic® wire feed cabinet.

Power Cable - Water Cooled

Python® water cooled torch utilizes a power/water cable with a #4 AWG cable inside a 5/8" (16MM) diameter hose. When water is used with this cable and the #10 water cooled gas cup (P/N 621-0065), the system is rated at 400 amps @ 100% duty cycle.

Conduit

The Python® torch comes standard with a poly-lined conduit, for feeding 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.

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 Python® torch. The torch end of the control cable is secured to the torch with a boot clamp and soldered 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.

Operation

General

The Python® torch 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 torch motor, causes the wire to literally float friction-free through the wire conduit. The 24VDC torch motor is controlled by a three and three-quarter (3 3/4) turn potentiometer in the torch 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

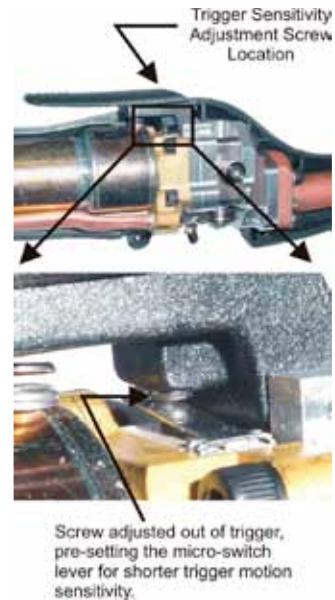
The amount of trigger level travel can be shortened for a quicker or more responsive action.

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.

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 torch 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 Python® torch 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 Python® 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).



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 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.**



Figure 2

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

(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.

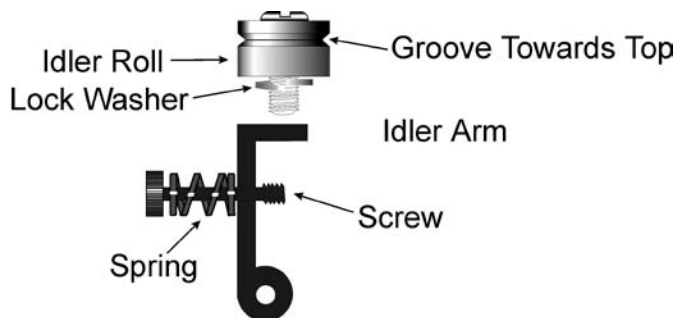


Figure 3

3. Tighten.

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

Section C

Accessories

A gas flow control mechanism (i.e. solenoid or valve) is required so the Python® can be used on Cobra wire feeders. The following kits are available depending on the wire feeder used. The factory set times (in seconds) for normal and latched trigger functions is 0.5 pre-purge and 1.0 post-purge.

Gas Purge/Trigger Latch Kit..... 005-0674

This kit is required when using the Python® on Cobramatic®, models 150-003 & 150-005 and the CobraMig® 260, Model 186-002.

Pre/Post/BurnBack/Spot Timer kit..... 005-0196

This kit is required when using the Python® on Cobramatic® II, model 150-004.

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..... 005-0640

For **.030"** (0.8mm) dia. aluminum wire. Includes insulated drive roll P/N 511-0102 and idler roll assy. P/N 003-1870.

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

For **.035"** (0.9mm) dia. aluminum wire. Includes insulated drive roll P/N 511-0103 and idler roll assy. P/N 003-1870.

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

For **.040"** (1.0mm) dia. aluminum wire. Includes insulated drive roll P/N 511-0104 and idler roll assy. P/N 003-1870.

Insulated Groove Drive Roll Kit.....005-0643

For .045" (1.2mm) dia. aluminum wire. Includes insulated drive roll P/N 511-0105 and idler roll assy. P/N 003-1870.

Insulated Groove Drive Roll Kit.....005-0644

For .062" (1.6mm) dia. aluminum wire. Includes insulated drive roll P/N 511-0106 and idler roll assy. P/N 003-1870.

Handle Kit.....005-0699

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™ torches.

Micro Switch Kit.....005-0701

Replacement micro switch assembly for all Python®/CobraMAX™ torches.

Potentiometer Kit.....005-0695

Replacement potentiometer assembly for all Python®/CobraMAX™ torches.

Barrel Upgrade Kit.....005-0696

Includes replacement barrel insulation.

Conduits

Flat spiral steel conduit
for steel & cored wire.

Standard conduit
with additional protective cover.

615-0208 15 ft./4.5m

615-0216 25 ft./7.6m

615-0218 50 ft./15.2m

001-0774 15 ft./4.5m

001-0775 25 ft./7.6m

001-0777 50 ft./15.2m

Snake Skins

Snake Skin protective covers are now standard on all torches. You may order spare replacement covers to protect the lead assy of the torch 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



To remove contact tip when using full water cooled gas cup (P/N 621-0065), contact tip removal tool (P/N 931-0002) must be used.

Heavy Duty Contact Tip - 3/8" Diameter				
Part No.	Wire Size	Tip ID	Arc	Tip Length
621-0390	.030" (0.8mm)	.040" (1.0mm)	Spray	1-5/8" (41.3mm)
621-0396	.030" (0.8mm)	.040" (1.0mm)	Short	1-7/8" (47.6mm)
621-0391	.035" (0.9mm)	.044" (1.1mm)	Spray	1-5/8" (41.3mm)
621-0397	.035" (0.9mm)	.044" (1.1mm)	Short	1-7/8" (47.6mm)
621-0392	.045" (1.2mm)	.053" (1.35mm)	Spray	1-5/8" (41.3mm)
621-0398	.045" (1.2mm)	.053" (1.35mm)	Short	1-7/8" (47.6mm)
621-0393*	.045" or .052"	.060" (1.5mm)	Spray	1-5/8" (41.3mm)
621-0399	.045" or .052"	.060" (1.5mm)	Short	1-7/8" (47.6mm)
621-0394	1/16" (1.6mm)	.075" (1.9mm)	Spray	1-5/8" (41.3mm)
621-0400	1/16" (1.6mm)	.075" (1.9mm)	Short	1-7/8" (47.6mm)
621-0395	1/16" (1.6mm)	.085" (2.16mm)	Spray	1-5/8" (41.3mm)

*standard - furnished with torch

Finned Copper Cups



Finned Copper Gas Cups		
Cup Size	Cup I.D.	Part No.
No. 6	3/8" (9.5mm)	621-0248
No. 8	1/2" (12.7mm)	621-0249
No. 10	5/8" (15.8mm)	621-0250*
Heavy Duty Finned Copper Gas Cups		
Cup Size	Cup I.D.	Part No.
10	5/8" (15.8mm)	621-0251
12	3/4" (19.0mm)	621-0252

*Standard - furnished with torch

Air Cooled Cups for Python® Water Cooled Torch		
Cup Size	Cup I.D.	Part No.
No. 6	3/8" (9.5mm)	621-0170
No. 8*	1/2" (12.7mm)	621-0159
No. 10	5/8" (15.8mm)	621-0160

*Standard - furnished with torch

To use air cooled gas cups, you must use a cup retaining nut (449-0193*) and a water cooled cup adapter (621-0101*).

Water Cooled Cups for Python® Water Cooled Torch		
Cup Size	Cup I.D.	Part No.
No. 10	5/8" (15.9mm)	621-0065

Torch Barrel Liners	
Part Number	Description
931-0137	Teflon liner package, 5 pieces
615-0338	Steel wire only, .030 - .1/16" (0.8 - 0.9mm)
621-0424	Python® tip extender (Air/Water cooled barrel only)
615-0250	Spiral steel liner for tip extender

Barrel Assemblies

All barrels are rated at 100% duty cycle

Barrels

Air/Water Cooled

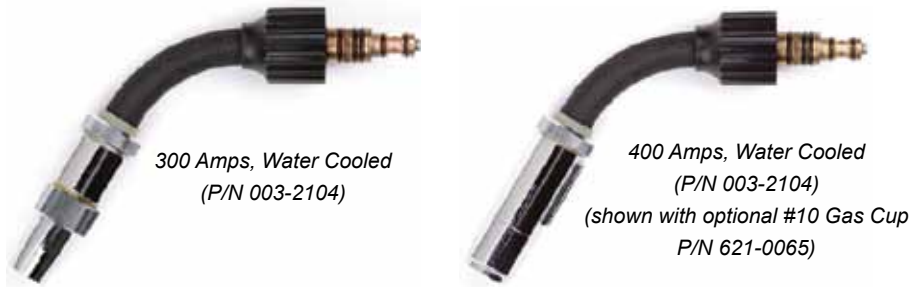
The Python® air cooled systems (225 Series) come standard with a 60° curved barrel. The barrel assembly locks to the Python® body using the patented EZ Lock™ system.



200 Amps, Air Cooled
(P/N 003-2147)

Water Cooled

The Python® water cooled systems (226 Series) come standard with a 60° curved water cooled barrel assembly.



Barrel Removal and Installation

Note: Turn off water circulator prior to loosening and removing barrels.

To remove the barrel assembly, loosen the patented EZ Lock™ taper lock nut until it is clear of the threads. Lift barrel out of the gun body.

To replace a barrel assembly, 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. Take care not to damage the “O” rings when inserting into the body. 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.

Section D

Maintenance

Periodic Maintenance

Your Cobramatic system is designed to provide years of reliable service.

Maintenance of the torch will normally consist of a general cleaning of the wire guide system, including barrels, drive rolls, and conduits 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
Contact Tip Removal Tool	931-0002
Drive Roll Removal Tool	931-0100

Recommended Spare Parts List

Qty.	Part No.	Description
1	615-0007	Conduit - 15 ft
1	615-0008	Conduit - 25 ft
1	615-0068	Conduit - 50 ft
2	005-0694	Trigger Assy Kit
2	005-0695	Potentiometer Assy Kit
1	005-0699	Handle Kit
2	005-0701	Micro-Switch Assy Kit
10	511-0101	Drive Roll
5	005-0686	Idler Roll Kit



DRIVE ROLL REMOVAL TOOL
931-0100



KNURLED DRIVE ROLL
511-0101



IDLER ROLL
511-0001



MICRO SWITCH ASSY
005-0701

Section E

Troubleshooting

Trouble	Cause	Remedy
No wire feed at torch, feeder not operating, i.e. no slave motor or brake solenoid.	Input power 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 torch, feeder operating properly.	Motor 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 wires for continuity.
	Bad speed control/PCB.	See specific cabinet/control box owner's 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 115VAC.
	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 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.

Troubleshooting Guide

Regardless of which torch 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 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 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 torch motor is controlled by a solid state speed control located in the feeder, 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 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 torch activates both the slave motor and torch motor circuits in the cabinet. Therefore, if the slave motor and brake solenoid operate, but the torch does not, look more toward the torch motor's 24 V circuits, speed control, control cable, or the torch motor. If nothing operates, look more toward the slave motor's input, micro switch leads, or micro switch.

Testing The Torch

Reference the "W" clocked torch wiring diagram on the Python® electrical diagram for information about pin-outs and locations.

Motor Check

Remove the torch connector from the cabinet.

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

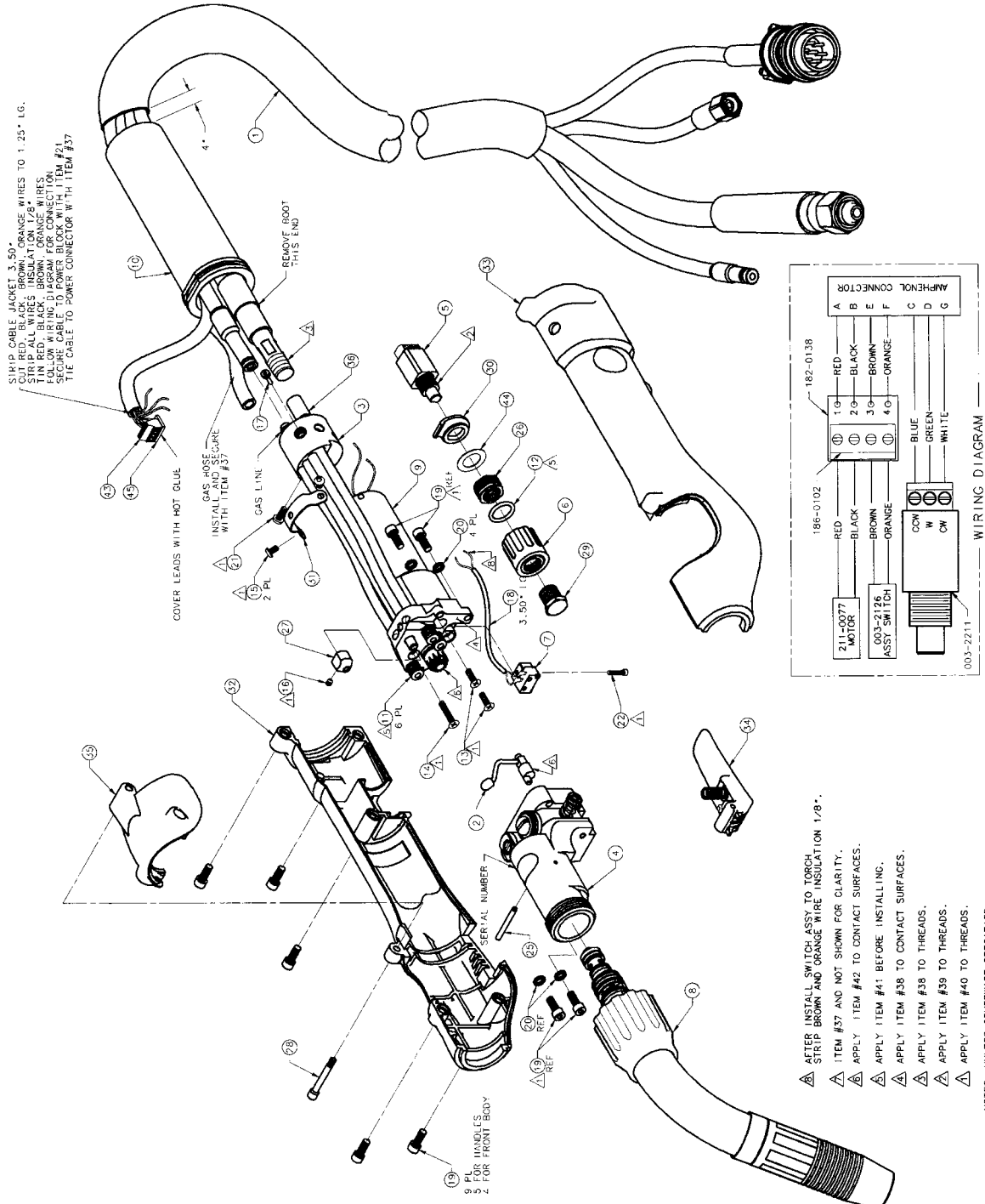
Section F

Appendices

Diagrams / Parts List

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Python Exploded View P/N 001-1320B



SLIP OVER JACKET 3.50"
 CUT RED, BLACK, BROWN, ORANGE WIRES TO 1.25" LG.
 STRIP ALL WIRES INSULATION 1/8"
 1 IN RED, BLACK, BROWN FOR INSULATION
 1 IN RED, BLACK, BROWN FOR INSULATION
 SECURE CABLE TO POWER BLOCK WITH ITEM #21
 TIE CABLE TO POWER CONNECTOR WITH ITEM #37

COVER LEADS WITH HOT GLUE

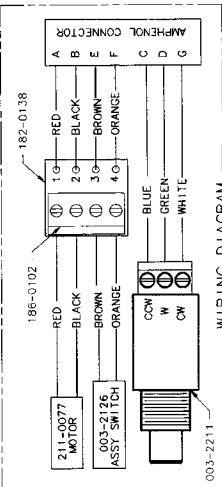
GAS HOSE MUST BE SECURED WITH ITEM #35

GAS LINE

REMOVE BOOT THIS END

9 PL FOR HANDLES
 2 FOR FRONT BODY

SERIAL NUMBER 7



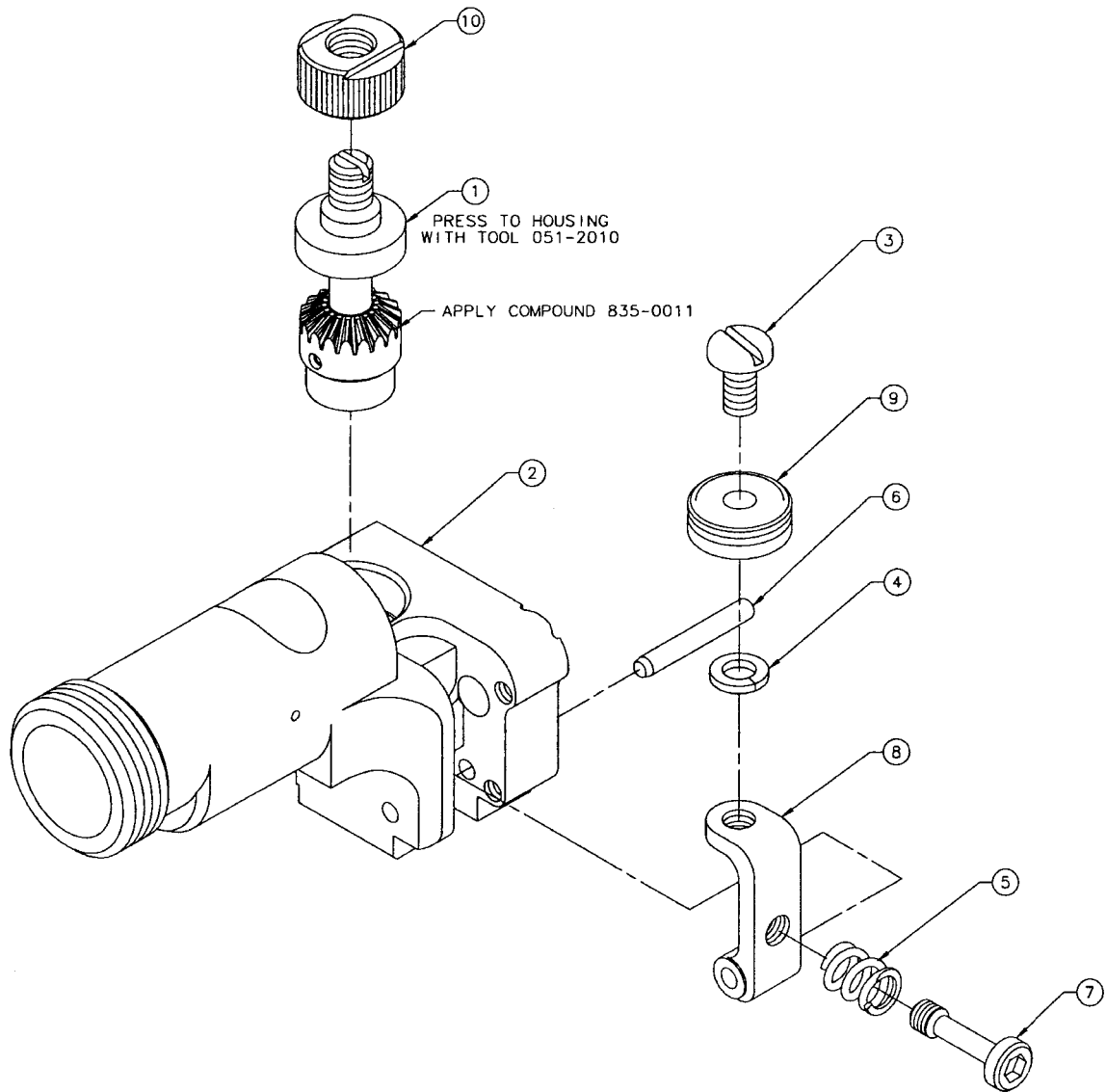
- ▲ AFTER INSTALL SWITCH ASSY TO TORCH STRIP BROWN AND ORANGE WIRE INSULATION 1/8".
 - ▲ ITEM #37 AND NOT SHOWN FOR CLARITY.
 - ▲ APPLY ITEM #42 TO CONTACT SURFACES.
 - ▲ APPLY ITEM #41 BEFORE INSTALLING.
 - ▲ APPLY ITEM #38 TO CONTACT SURFACES.
 - ▲ APPLY ITEM #38 TO THREADS.
 - ▲ APPLY ITEM #39 TO THREADS.
 - ▲ APPLY ITEM #40 TO THREADS.
- NOTES: UNLESS OTHERWISE SPECIFIED.

Python Parts List

No.	Qty	Part No.	Description	No.	Qty	Part No.	Description
1	1	Reference 225 Series	Ultra Flex Air Cooled Assembly	23	-	-	-
1	1	Reference 226 Series	Water Cooled Assembly	24	-	-	-
2	1	002-0629	Cam Idler Arm Assy	25	1	421-0018	Dowel Pin 3/32 X 7/8 SST
3	1	002-0631	Brazed Rear Body	26	1	431-1549	Pot Drag Nut
4	1	003-2108	Front Body Assy	27	1	431-1591	Wire Guide
5	1	005-0695	Pot Assy Kit*	28	1	431-1622	Shoulder Screw 1/8 X 4-40
6	1	003-2125	Pot Knob Assy	29	1	431-1637	Hex Screw 3/8-20 X 3/8
7	1	005-0701	Micro Swx Kit	30	1	431-3263	Pot Locator
8	1	003-2147	Assy Barrel 60°	31	1	435-1585	Motor Strap
9	1	211-0077	Motor Pittman	32	1	005-0699	Handle Kit; includes line items 19,28, and 35.
10	1	003-2153	Torch Boot Assembly	33			
11	6	303-0096	O-Ring 2-007 Buna N	34	1	005-0694	Trigger Kit
12	1	303-0540	O-Ring 2-013 Buna N	35	1	437-0253	Molded Door
13	2	319-0254	Screw FH Phil 82 4-40 X 3/8 SST	36	1	751-0020	Cap Plug 0.218 ID X 0.50 LG
14	1	319-0258	Screw FH Phil 82 4-40 X 5/8 SST	37	5	411-0045	Tie Wrap
15	2	320-0084	Screw Button 4-40 X 3/16 ST	38	A/R	823-0029	Naolox Compound
16	1	321-0424	Set Screw #4-40 X 1/8 SST	39	A/R	823-0043	Thread Locking Cmpd Med Str
17	1	321-1104	Set Screw Mod	40	A/R	823-0050	Thread Locking Cmpd Low Str
18	0.30 ft	737-0048	Tube Insulation 9 AWG,Clear	41	A/R	835-0006	Silicon Lubricant
19	9	328-0012	Screw SHC 6-32 x 3/8	42	A/R	835-0011	Compound Grease
20	4	333-0005	#6 Spring Lock Washer	43	1	186-0102	Terminal Block 2.5mm, 4 Pos
21	1	336-0020	Screw PH Phil 4-40 x 5/16 SST	44	1	331-0311	Washer Flat 0.39 ID x 0.63 OD
22	1	338-0153	Screw SHC 1/72 X 3/8	45	1	182-0138	PCB Connector

* Includes line items 12, 26, 30 and 44 assembled.

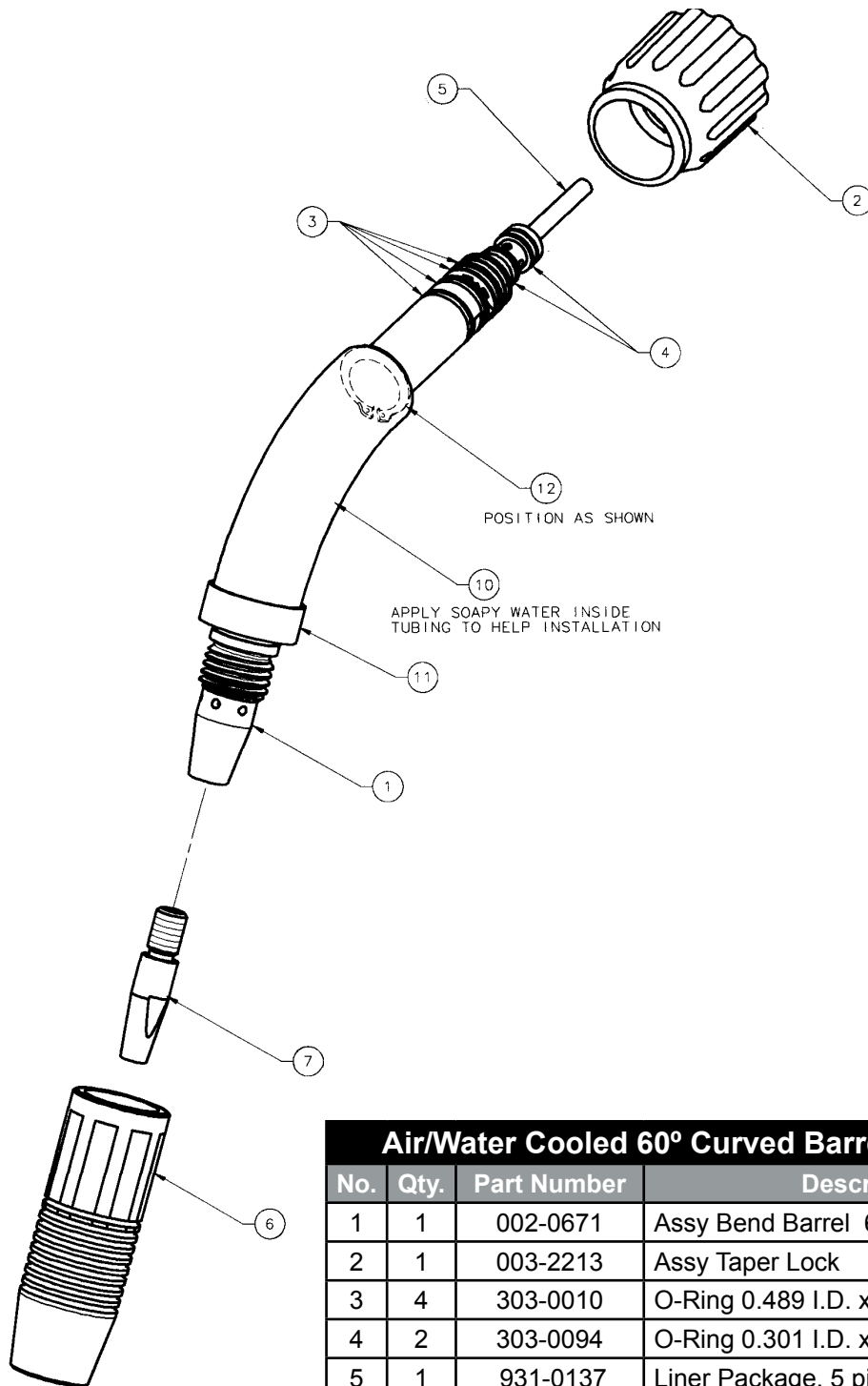
Python Front Body Assembly P/N 003-2108



Python Front Body Assembly

No.	Qty	Part No.	Description	No.	Qty	Part No.	Description
1	1	003-2083	Output Shaft Assembly	6	1	421-0525	1/8 x 7/8 SST Dowel Pin
2	1	003-2106	Body Assembly	7	1	431-1663	Idler Adjusting Screw
3	1	325-0206	10-24 x 3/8 PH Screw	8	1	431-1598	Idler Arm
4	1	333-0082	# 10 Lock Washer	9	1	511-0001	Idler Wire Feed Assembly
5	1	419-0092	0.29 x 0.047 x 0.32 Compression Spring	10	1	511-0101	Driverroll

Air/Water Cooled Barrel Assembly P/N 003-2147

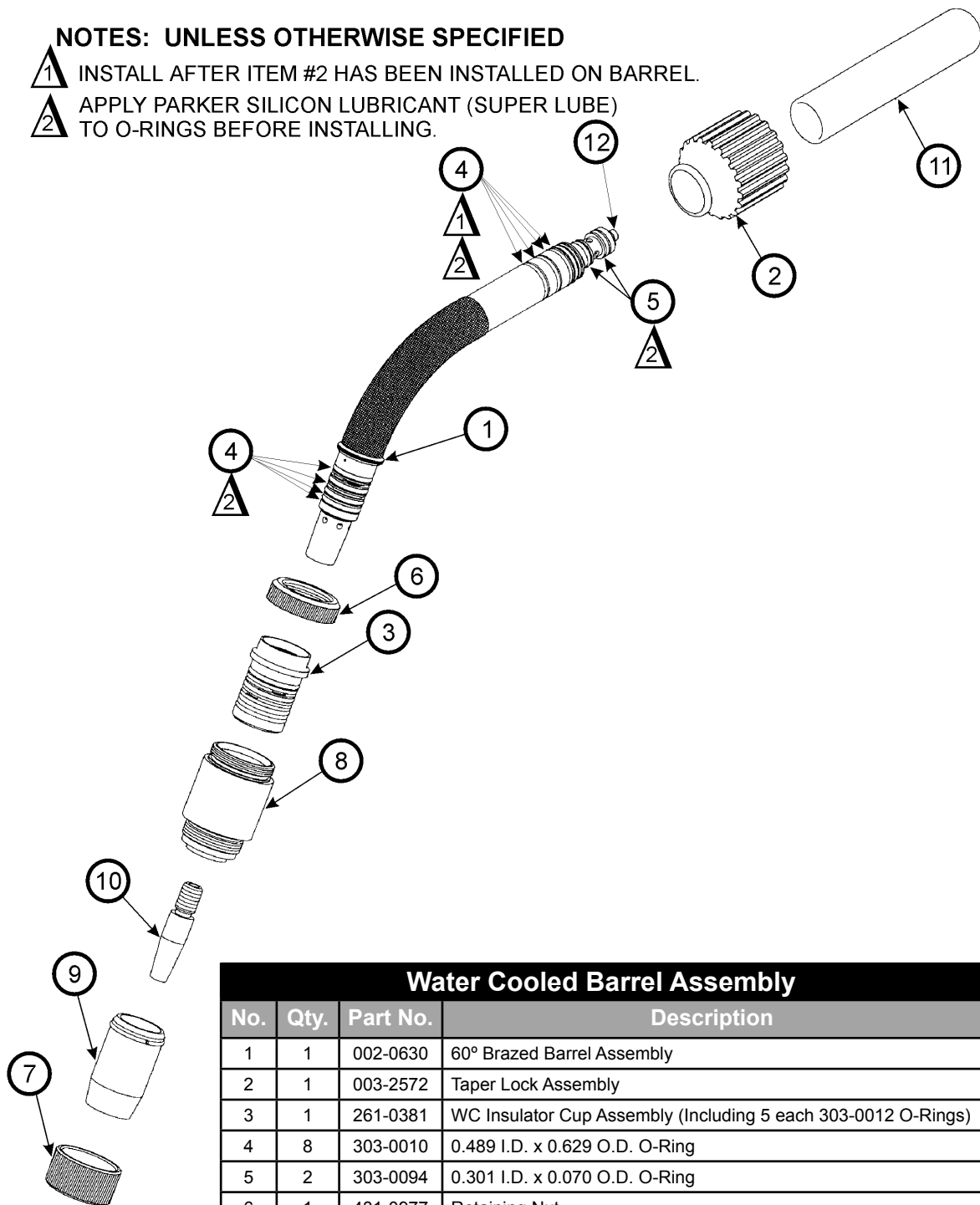


Air/Water Cooled 60° Curved Barrel Assembly			
No.	Qty.	Part Number	Description
1	1	002-0671	Assy Bend Barrel 60° AW
2	1	003-2213	Assy Taper Lock
3	4	303-0010	O-Ring 0.489 I.D. x .070 Width
4	2	303-0094	O-Ring 0.301 I.D. x .070 Width
5	1	931-0137	Liner Package, 5 pieces
6	1	621-0250	Assy Cup CPR Finned #10
7	1	621-0393	Tip HD Spray .060
8	-	-	-
9	-	-	-
10	1	005-0696	Insulator Replacement Kit
11	1	431-1774	Cup Insulator
12	1	313-0091	Retaining Ring 5/8 Shaft

Optional Water Cooled Barrel Assembly P/N 003-2104

NOTES: UNLESS OTHERWISE SPECIFIED

- 1** INSTALL AFTER ITEM #2 HAS BEEN INSTALLED ON BARREL.
- 2** APPLY PARKER SILICON LUBRICANT (SUPER LUBE) TO O-RINGS BEFORE INSTALLING.



Water Cooled Barrel Assembly			
No.	Qty.	Part No.	Description
1	1	002-0630	60° Brazed Barrel Assembly
2	1	003-2572	Taper Lock Assembly
3	1	261-0381	WC Insulator Cup Assembly (Including 5 each 303-0012 O-Rings)
4	8	303-0010	0.489 I.D. x 0.629 O.D. O-Ring
5	2	303-0094	0.301 I.D. x 0.070 O.D. O-Ring
6	1	431-0977	Retaining Nut
7	1	449-0193	Gas Cup Nut
8	1	621-0101	WC Cup Adapter Assembly
9	1	621-0159	#8 WC Cup Assembly
10	1	621-0393	.060 HD Spray Tip
11	1	751-0011	Round Vinyl Cap
12	1	931-0137	Teflon Liner Package, 5 pieces

CUP INSULATOR AND O-RING MAINTENANCE

CAUTION: Power-off the coolant pump before disassembling water-cooled barrels.

1. Unscrew Retaining Nut (#6) and slide back on barrel.
2. Using a firm pull and twist action, the Water-Cooled Gas Cup (P/N 621-0065) or Air-Cooled Gas Cup Assembly (# 7, 8 & 9) can be removed from the Cup Insulator.
3. Inspect the Cup Insulator (#3) and o-rings (included with Insulator) for wear and proper lubrication. It is considered good practice to replace all o-rings at the same time (P/N 303-0012).
4. To remove the Cup Insulator, it must be unscrewed and pulled from the barrel. Use a rag or towel (due to o-ring lubrication) and wrap it around the Cup Insulator.

Unscrew and pull when completed unthreaded from barrel. Be sure the Insulator is fully unscrewed from the threads. Pulling the Insulator over barrel threads will damage the threads on the Insulator.

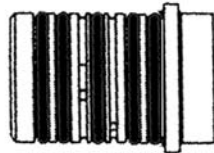
Inspect o-rings (#4) on barrel for wear and lubrication. It is considered good practice to replace all o-rings at the same time.

5. To install the Cup Insulator, it must be pushed all the way onto the barrel then screwed onto the threads. If necessary, place small amount of o-ring lubricant on the inside diameter of the Cup Insulator, this will help it slide onto the barrel.

Push the Insulator onto the barrel until it bottoms out, screw onto barrel threads.

The Insulator **MUST** be all the way onto the barrel to avoid assure proper coolant passage and from blocking the gas outlet orifices.

6. Push Water-Cooled Gas Cup or Chrome Nut, Cup Adapter and Gas Cup Assembly onto Cup Insulator. Slide Retaining Nut forward and tighten.

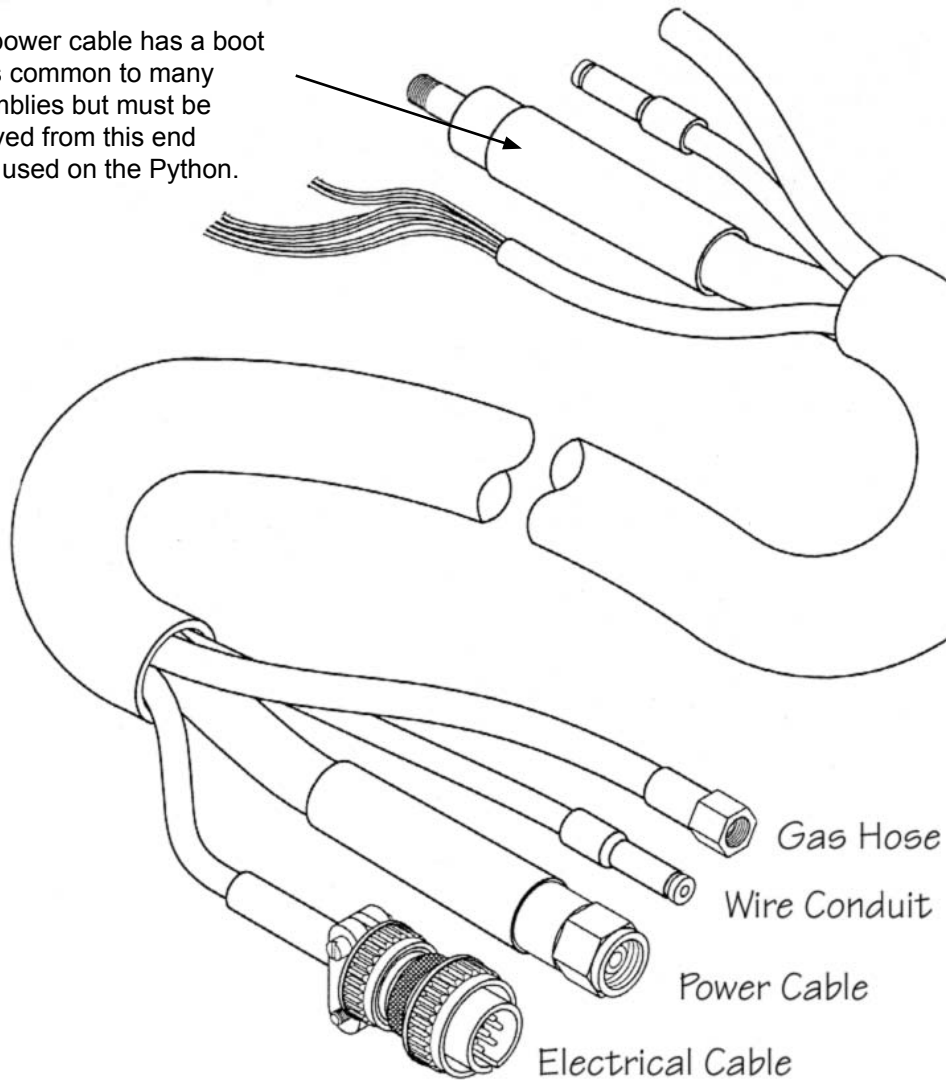


Correct Installation

Incorrect Installation

Ultra-Flex Air Cooled Lead Assy*

This power cable has a boot that is common to many assemblies but must be removed from this end when used on the Python.



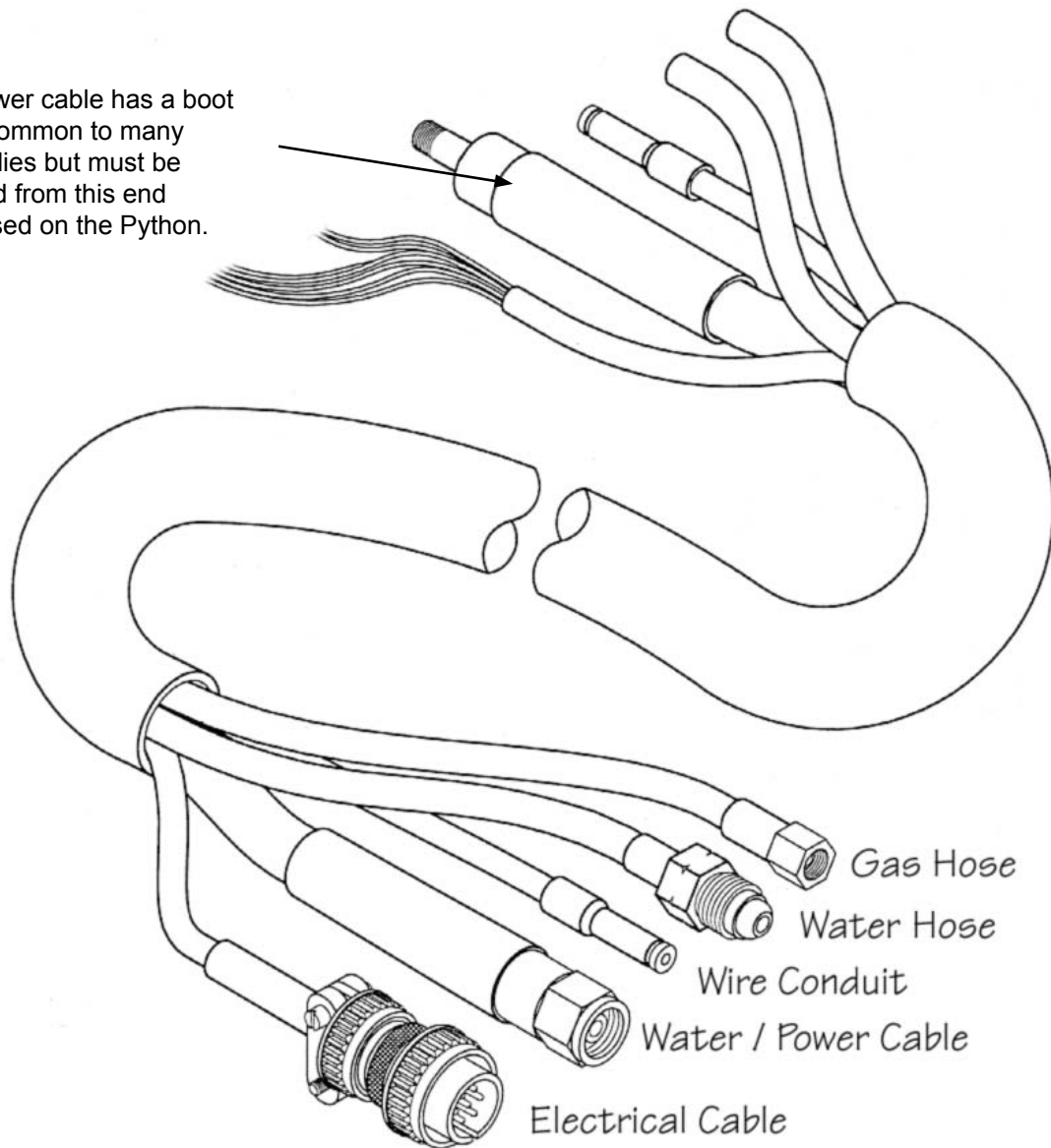
*Leads shown for reference only

225 Series Ultra-Flex Cable Assemblies

Length	Conduit	Power Cable	Electrical Cable	Gas Hose	Snake Skin
15'/ 4.5m	615-0007	001-2527	005-0690	001-0537	931-0110
25'/7.6m	615-0008	001-2528	005-0691	001-0538	931-0122
50'/15.2m	615-0068	001-1042	005-0692	001-0665	931-0123

Water Cooled Lead Assy*

This power cable has a boot that is common to many assemblies but must be removed from this end when used on the Python.

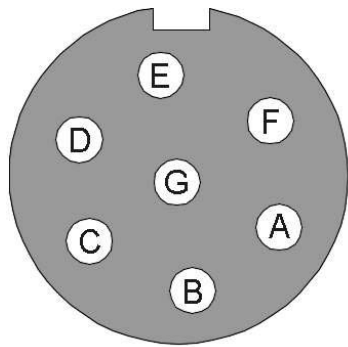


*Leads shown for reference only

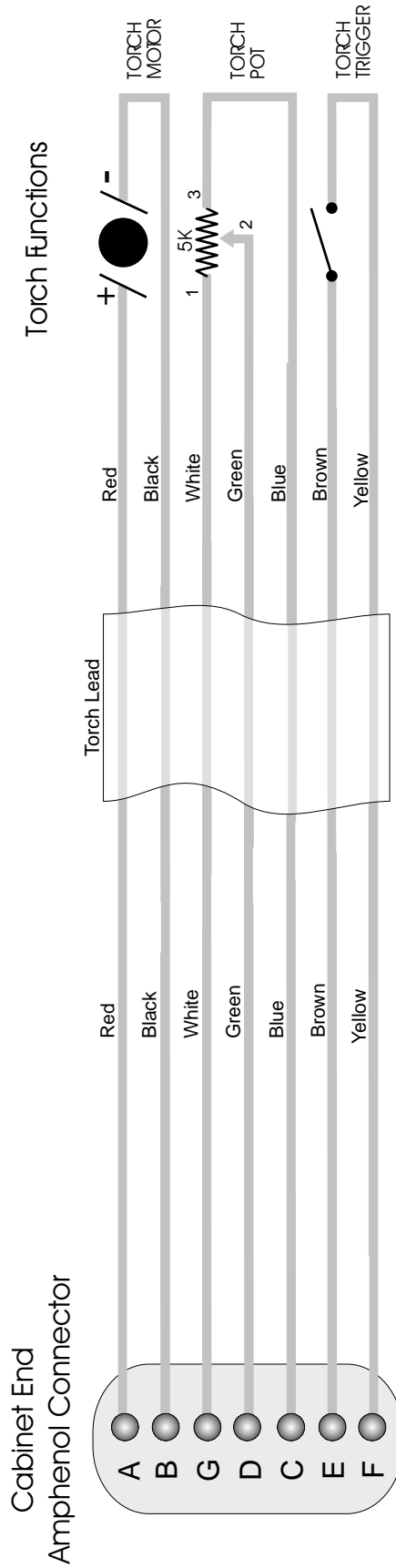
226 Series Water Cooled Cable Assemblies

Length	Conduit	#4 Power/ Water Cable	Electrical Cable	Gas Hose	Water Hose	Snake Skin
15'/4.5m	615-0007	001-2521	005-0690	001-0537	001-0529	931-0110
25'/7.6	615-0008	001-2524	005-0691	001-0538	001-0530	931-0122
50'/15.2m	615-0068	843-0338	005-0692	001-0665	001-0667	931-0123

Python Electrical



"W" Clocked
Amphenol Connector
Viewed from front of connector



MK WARRANTY REPAIR STATIONS

for MK Products as of 11/07/03
for most up-to-date list, please visit www.mkproducts.com

ALABAMA

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

DIXIE WELDING SUPPLY
Atalla, 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

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

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

VERN LEWIS WELDING 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

WELSCO
Little Rock, AR
501/372-2252

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 Welder Repair
Concord, CA
925/798-4411

FRESNO OXYGEN
Fresno, CA
559/233-6684

INDUSTRIAL ELECTRIC COMPANY
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 11/07/03
for most up-to-date list, please visit 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

VERNON ELECTRIC
Covina, CA
626-858-4750

WESTEC WELDING EQUIPMENT REPAIR
Sacramento, CA 95815
916-924-5370

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

CONNECTICUT

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

TECH AIR
Milford, CT
203/783-1834

DELAWARE

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

FLORIDA

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

AAA GENERATOR & PUMP, INC.
FT. Myers
941/332-1136

ACTION WELDING SUPPLY
Jacksonville, FL
904/786-2254

AMVEL CORPORATION
Miami, FL
305/592-5678

ELECTRICAL WELDERS SERVICE
Orlando, FL
407/999-5214

HAUN SYSTEMS REPAIR, INC.
Winter Park, 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

MK WARRANTY REPAIR STATIONS

for MK Products as of 11/07/03
for most up-to-date list, please visit www.mkproducts.com

GEORGIA

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

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 SVCS.
Galesburg, IL
309/342-4125 or 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 CO.
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

DUPONT DYNAMICS
Bellevue, KY
859-655-9353

GENERAL WELDING PRODUCTS
Louisville, KY
502/635-5218

MK WARRANTY REPAIR STATIONS

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

WELDING EQUIPMENT
Louisville, KY
502/636-0545

LOUISIANA

GT SERVICES 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 & EQUIPMENT RENTALS
Port Allen, LA
225/346-4712

MARYLAND

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

MASSACHUSETTS

AIMTEK
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 SERVICE, LLC
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

MISSISSIPPI

KOMP INDUSTRIAL & WELDING SUPPLY
Hattiesburg, MS
601/649-5889

NORDAN SMITH WELDING SUPPLY
Hattiesburg, MS
601/545-1800

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

MID-SOUTH WELDING SUPPLY
Meridian, MS 39301
601-483-9331

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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

MONTANA

VALLEY WELDERS SUPPLY, INC.
Billings, MT
406/256-3330

NEVADA

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

NEW HAMPSHIRE

WELDING SYSTEMS SERVICE
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 WELDING REPAIR, INC
Bayshore, NY
631/643-1308

HAUN WELDING SUPPLY
Syracuse, NY
315/463-5241

JACKSON WELDING SUPPLY CO, INC.
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 & 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

MK WARRANTY REPAIR STATIONS

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

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

MAINTENANCE UNLIMITED AND TOOL
REPAIR, INC.
Cincinnati, OH
513/554-1313

O.E. MEYER COMPANY
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

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SOUTH CAROLINA

CAROLINA WELDER SERVICE
Lake City, SC
843/687-0413

TENNESSEE

ARC-ONE WELDER REPAIR, INC.
East Ridge, TN 37412
423-894-9353

INDUSTRIAL MACHINE REPAIRS
Rogersville, TN
423/272-8199

NATIONAL RENTAL & REPAIR
Knoxville, TN
423/584-6390

NEXAIR
Memphis, TN
901/523-6821

QUALITY WELDING EQUIPMENT SVC.
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, LTD.
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
North 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 COMPANY
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

MK WARRANTY REPAIR STATIONS

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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

WEST VIRGINIA

CARDINAL SALES & SERVICE, INC.

Clarksburg, WV
304/622-7590

WILLARD C. STARCHER, INC.

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

BEAUCE TECHNOLOGIES, INC.

St. Prosper, Quebec G0M 1Y0
418-594-8852

D-TECH WELD SERVICES, INC.

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

LINCOLN ELECTRIC COMPANY OF CANADA (ASG)

Mississauga, Ontario
905-565-5600

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

MK WARRANTY REPAIR STATIONS

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WELDERTECH
Calgary, Alberta
403/279-3432

WELDTEC
B.C.
604/545-3886

CHINA
PHT Group Company
Beijing, China

			
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. Aislese 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. Isolerez-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 환경 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 يمر بها التيار الكهربائي أو الأقطاب بجهد الجسم أو بالملابس المبللة بالماء. ضع عازلاً 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 Innenschutzkleidung 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下さい。 	<ul style="list-style-type: none"> ● パネルやカバーを取り外したまま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 ضغط الدخان للخارج لكي تبعد الدخان عن المنطقة التي تتنفس فيها. 	<ul style="list-style-type: none"> ● القطع التيار الكهربائي قبل القيام بأية صيانة. 	<ul style="list-style-type: none"> ● لا تشغل هذا الجهاز إذا 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.

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.

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.

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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