



Product Description	Prince XL/Spool Gun
MK Manual Part Number	091-0384
MK Form Number	PXL G/SG
NWSA Form Number	550
Effective with Serial Number	98100011
Voltage Rating	24 VDC
Printing/Revision Date	July 2000 E
This manual applies to the following torch model numbers	212-XXX 213-XXX 216-XXX

Prince™ XL/Spool Gun



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.

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Introduction

This manual details the installation and operation of your Prince™XL Torch, and Prince™XL Spool Gun.

These torches have 7 pin “W” clocked amphenol connectors and are designed for use with Cobramatic cabinets model numbers 150-003, 150-004, 150-203 and 150-204. To use these torches on older style cabinets with plastic doors (MK3A, MK3A PS) , a 7 pin “W” clocked amphenol kit, P/N 005-0162, must be used.

A variety of Weld Control Boxes are available to adapt the Prince™XL spool gun to the power source you are using (see section 34 & 35 for details). A secondary Contactor Box (P/N 001-3066), is also available for those power supplies not having their own contactor. Consult the Weld Control Selector Guide (P/N 091-0458) for various welding equipment interfacing.

The Prince™XL and Prince™XL Spool Gun bodies are identical except for the lead assemblies and spool portion.

The Prince™XL utilizes our patented EZ Lock™ design which allows the operator to remove or rotate the barrel without the use of tools.

The Prince™XL air cooled version comes standard with a straight air cooled barrel assembly (P/N 003-1980) and uses the same contact tips and gas cups as the MK Cobra® Gooseneck torch. A rotating air cooled barrel assembly (P/N 003-1986) is available as a spare part.

The Prince™XL water cooled version comes standard with a straight water cooled barrel assembly (P/N 003-1973) and uses the same contact tips, cups and adapter as the King Cobra® torch. A rotating water cooled barrel assembly (P/N 003-1987) is available as a spare part.

The wire speed control knob is located on the bottom of the torch handle and provides 3-3/4 turns of rotation, with a maximum speed of 900 ipm.

An important feature of the Prince™XL spool gun assembly is that it can be converted from a spool gun into a Push-Pull system to be used with the Cobramatic® Cabinet. Simply remove the spool assembly and wire guide adapter and liner, and install a conduit of the appropriate length. The power lug on the power cable assembly can be attached to the upper hole on the power block assembly in the Cobramatic® Cabinet. Remove the hole plug and secure cable assembly using a hex head screw 3/8" - 16 x 3/4 (P/N 329-0055) and a flat washer 1/2" (P/N 331-0176).

The Prince™ XL Spool gun assembly has been redesigned to improve and simplify the spool drag tension settings. By eliminating the guesswork of setting the correct drag tension, the operator can now focus on the actual welding. The new “patented” brake assembly automatically self-adjusts to the ever-changing spool tension as the coiled wire is reduced in diameter off the spool. The new brake assembly maintains the wire “level on the spool” and prevents unspooling and potential wire entanglements.

This new brake assembly can be installed onto any existing Prince™ XL gun and can be used in place of the existing spool kit assemblies. No parts of the new kit can be used with the old kit or existing handles. The new spool kit (P/N 005-0632) includes new handles, trigger, trigger pin, all handle screws and spool assembly. See Optional Kits on page 7 for part numbers for these two new kits.

Section 1

SPECIFICATIONS

PRINCE™XL TORCH



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*

- 900 ipm (22.9 mpm) max.

Duty Cycle

- **150 Amps/25 Volts** *Air cooled standard*
- **200 Amps/25 Volts** *Air cooled using optional Kool Cup Adaptor H.D. (P/N 003-1487), #10 Gas Cup for Kool Cup Adapter (P/N 621-0386) and Cup Retaining Nut (P/N 449-0193)*
- **300 Amps/25 Volts** *Water cooled standard using W/C Cup Adaptor (P/N 621-0101), #8 A/C Gas Cup (P/N 621-0159) and Cup Retaining Nut (P/N 449-0193)*
- **400 Amps/25 Volts** *Water cooled using optional W/C Cup (P/N 621-0065)*

All above Duty Cycle ratings are with Argon Gas

Torch weight (less leads)

- Air cooled - 36.4 oz. (1.02 kilogram)
- Water cooled - 38.4 oz (1.08 kilogram)

PRINCE™XL SPOOL GUN



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*

- 900 ipm (22.9 mpm) max.

Spool Size

- 4 inches (101.6mm)

Duty Cycle

- **150 Amps/25 Volts** *Air cooled standard*
- **200 Amps/25 Volts** *Air cooled using optional Kool Cup Adaptor H.D. (P/N 003-1487), #10 Gas Cup for Kool Cup Adapter (P/N 621-0386) and Cup Retaining Nut (P/N 449-0193)*

All above Duty Cycle ratings are with Argon Gas

Torch weight (less wire & leads)

- Air cooled - 46.5 oz (1.3 kilogram)

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

Section 2

Use genuine MK parts

Contact Tips - Air Cooled Barrel Assembly



Contact Tips for Prince XL Air Cooled Torch				
Wire Size	Tip I.D. **	Arc	Length	Part No.
.023" (0.6mm)	.030" (0.8mm)	Spray	1-1/2" (38mm)	621-0057
	.030" (0.8mm)	Short	1-3/4" (44mm)	621-0328
.030" (0.8mm)	.036" (0.9mm)	Spray	1-1/2" (38mm)	621-0325
	.036" (0.9mm)	Short	1-3/4" (44mm)	621-0326
.030" (0.8mm) or .035" (0.9mm)	.040" (1.0mm)	Spray	1-1/2" (38mm)	621-0076
	.040" (1.0mm)	Short	1-3/4" (44mm)	621-0077
.035" (0.9mm)	.044" (1.1mm)	Spray	1-1/2" (38mm)	621-0001
	.044" (1.1mm)	Short	1-3/4" (44mm)	621-0002
.045" (1.2mm)	.053" (1.3mm)	Spray	1-1/2" (38mm)	621-0327
.045" (1.2mm) or .052" (1.3mm)	.060" (1.5mm)	Spray	1-1/2" (38mm)	621-0003*
	.060" (1.5mm)	Short	1-3/4" (44mm)	621-0286
1/16" (1.6mm)	.075" (1.9mm)	Spray	1-1/2" (38mm)	621-0075
1/16" (1.6mm)	.085" (2.1mm)	Spray	1-1/2" (38mm)	621-0153
	.085" (2.1mm)	Short	1-3/4" (44mm)	621-0154

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

contact.tbl

NOTE: As a rule of thumb, use the smaller I.D. tip for steel, stainless steel and the 5000 series aluminum. Softer alloys such as the 1000 and 4000 series aluminum require more clearance and, therefore, use a larger I.D. tip.

Section 3

Gas Cups - Air Cooled Barrel Assembly

Gas Cups for Prince XL Air Cooled Torch		
SIZE	I.D.	PART NO.
5	1/4" (6.4mm)	621-0079
6	3/8" (9.5mm)	001-0137
8	1/2" (12.7mm)	001-0138*
10	5/8" (15.8mm)	001-0139

*Standard - Furnished with torch

Section 4

Contact Tips - Water Cooled Barrel Assembly

Contact Tips for PrinceXL Water Cooled Torch				
Wire size	Tip I.D.	Arc	Tip Length	Part No.
.030"(0.8mm)	.040"(1.0mm)	Spray Short	1-5/8"(41.3mm)	621-0158
			1-7/8"(47.6mm)	621-0165
.035"(0.9mm)	.044"(1.0mm)	Spray Short	1-5/8"(41.3mm)	621-0157
			1-7/8"(47.6mm)	621-0166
.045"(1.2mm)	.053"(1.35mm)	Spray Short	1-5/8"(41.3mm)	621-0161
			1-7/8"(47.6mm)	621-0167
.052"(1.4mm)	.060"(1.5mm)	Spray Short	1-5/8"(41.3mm)	621-0162*
			1-7/8"(47.6mm)	621-0168
.063"(1.6mm)	.075"(1.9mm)	Spray Short	1-5/8"(41.3mm)	621-0163
			1-7/8"(47.6mm)	621-0169
.063"(1.6mm)	.085"(2.16mm)	Spray	1-5/8"(41.3mm)	621-0164
.093"(2.3 mm)	.113"(2.8 mm)	Spray	1-5/8"(41.3mm)	621-0215

* Standard - furnished with torch

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

Section 5

Spring Loaded Contact Tips - Water Cooled Barrel Assembly

Spring Loaded Contact Tips for Prince XL Water Cooled Torch		
P/N	Tip I.D.	Tip Length
621-0202	0.044"(1.1 mm)	1-5/8" / 41.3 mm lg
621-0203	0.053"(1.4 mm)	1-5/8" / 41.3 mm lg
621-0204	0.060"(1.5 mm)	1-5/8" / 41.3 mm lg
621-0205	0.075"(1.9 mm)	1-5/8" / 41.3 mm lg

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

Section 6

Gas Cups - Water Cooled Barrel Assembly

Water Cooled Cup for Prince XL Water Cooled Torch			
Cup Size	Cup I.D.	Cup Length	Part Number
No. 10	5/8" (15.9mm)	3" (76.2mm)	621-0065
Air Cooled Cups for Prince XL Water Cooled Torch			
Cup Size	Cup I.D.	Cup Length	Part Number
No. 6	3/8" (9.5mm)	1.43" (36.5mm)	621-0170
No.8	1/2" (12.7mm)	1.43" (36.5mm)	621-0159*
No. 10	5/8" (15.9mm)	1.43" (36.5mm)	621-0160

*Standard - supplied with torch

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

Section 7

Torch Barrel Liners

Prince XL Torch Barrel Liners					
Barrel P/N	Description	Cooled	Wire Type	Wire Size	Part No.
003-1980	Straight	Air	All Wires	.030" - .063"(.8-1.6mm)	615-0537*
003-1980	Straight	Air	Optional All Wires	.030" - .035"(.8-.9mm)	615-0544
003-1973	Straight	Water	All Wires	.030" - .063"(.8-1.6mm)	615-0323*
003-1973	Straight	Water	Optional All Wires	.030" - .035"(.8-.9mm)	615-0545
003-1986	Curved	Air	All Wires	.030" - .063"(.8-1.6mm)	615-0539*
003-1986	Curved	Air	Optional All Wires	.030" - .035"(.8-.9mm)	615-0546
003-1986	Curved	Air	Steel Wire Only	.030" - .063"(.8-1.6mm)	615-0547
003-1987	Curved	Water	All Wires	.030" - .063"(.8-1.6mm)	615-0539*
003-1987	Curved	Water	Optional All Wires	.030" - .035"(.8-.9mm)	615-0546
003-1987	Curved	Water	Steel Wire Only	.030" - .045"(.8-1.2mm)	615-0547

*Standard - furnished with torch

Bulk teflon liner material for .030 - .063" (.8-1.6mm) is P/N 615-0178

Bulk teflon liner material for .030 - .035" (.8-.9mm) is P/N 615-0177

NOTE: P/N 615-0547 is a spiral steel liner. All other liners are white teflon.

barl-trr-man.tbl

Sections 8

Barrel Assemblies

ALL BARRELS RATED AT 100% DUTY CYCLE

For barrel details see sections 25, 26, 27 and 28



150 Amps, Air Cooled



*200 Amps, Air Cooled,
with Kool Cup Adapter*



300 Amps, Water Cooled

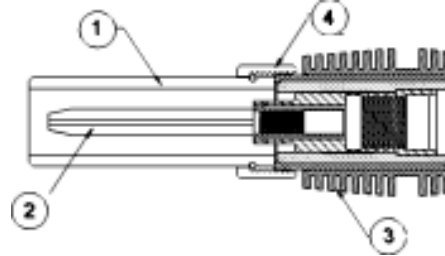


*400 Amps, Water Cooled,
with Water Cooled Cup*

Section 9

Kool Cup Adapter and Cups

Note : These parts are used on the air cooled straight or curved barrel assemblies to increase the capacity from 150 amps to 200 amps @ 100% duty cycle.



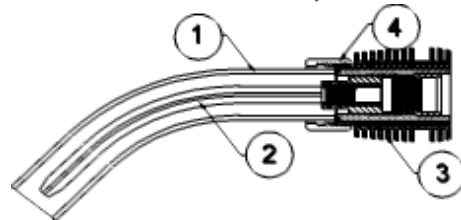
Kool Cup Adapter Heavy Duty		
Item No.	Part No.	Description
1	621-0388	#8 Gas Cup for Kool Cup Adapter
1	621-0386	#10 Gas Cup for Kool Cup Adapter
2	see page 9	Use standard Prince tips
3	003-1487	Kool Cup adapter H.D.
4	449-0193	Nut Cup Retainer

koolcup.tbl

Section 10

Gas Cup and Contact Tips - 48°

Note : Must be used with Kool Cup Adaptor H.D. and Cup Retaining nut with straight Air Cooled Barrel Assembly.



48 Degree PrinceXL Air Cooled Torch Cup and Tips			
Must be used with Kool Cup Adapter H.D. and Cup Retaining Nut			
Part No.	Item #	Description	Wire Size
003-1487	3	Kool Cup Adapter H.D.	N/A
449-0193	4	Cup Retaining Nut	N/A
621-0375	1	48 Degree Curved Gas Cup	N/A
621-0387	2	48 Degree Tip .040 ID	.023"
621-0381	2	48 Degree Tip .045 ID	.030"
621-0382	2	48 Degree Tip .052 ID	.035"
621-0383	2	48 Degree Tip .060 ID	.045"
621-0384	2	48 Degree Tip .075 ID	3/64" - 1/16"
621-0385	2	48 Degree Tip .085 ID	1/16"

Section 11

OPTIONAL KITS

Insulated Groove Drive Roll Kit 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 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 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 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.

NOTE: 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.

Prince™XL Handle Kit 005-0633
Includes left and right handle with door, trigger and pin, and all handle screws.

Spool Adaptor Kit 005-0632
Includes left and right handle with door, trigger and pin, and all handle screws.
Used to change a standard 212-xxx or 213-xxx series Prince™XL torch into a Spool Gun.

7 Pin "W" Clocked Adaptor Kit 005-0162
Used to update a 150-001, 002, 150-101, 102 and 150-201, 202 (plastic door models MK3A and MK3A PS) Cobramatic cabinets to allow the use of the Prince™XL and other "W" clocked torches.

Section 12

OPTIONAL (12" and 18") Water Cooled Straight and Curved Barrel Assemblies

12" Straight Water Cooled Barrel Assembly 003-2085

12" Curved Water Cooled Barrel Assembly 003-2086

18" Straight Water Cooled Barrel Assembly 003-2087

18" Curved Water Cooled Barrel Assembly 003-2088

Section 13

Optional Accessories

Standard Conduit with additional protective cover

15 ft./4.5m	001-0774
25 ft./7.6m	001-0775
35 ft./10.5m	001-1278
50 ft./15.0m	001-0777

Flat Spiral Steel Conduit for steel and cored wire

15 ft./4.5m	615-0208
25 ft./7.6m	615-0216
50 ft./15.0m	615-0218

*Kool Cup Adapter H.D. 003-1487

*Cup Retaining Nut 449-0193

*#10 Gas Cup for Kool Cup Adapter 621-0386

**All three items are needed to make Prince™XL air cooled torch 200 amps/25 volts 100% duty cycle.*

#8 Gas Cup for Kool Cup Adapter 621-0388

25' 7 Pin Amphenol Extension Cable 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

14' cover fits 15' lead	931-0110
24' cover fits 25' lead	931-0122
48' cover fits 50' lead	931-0123

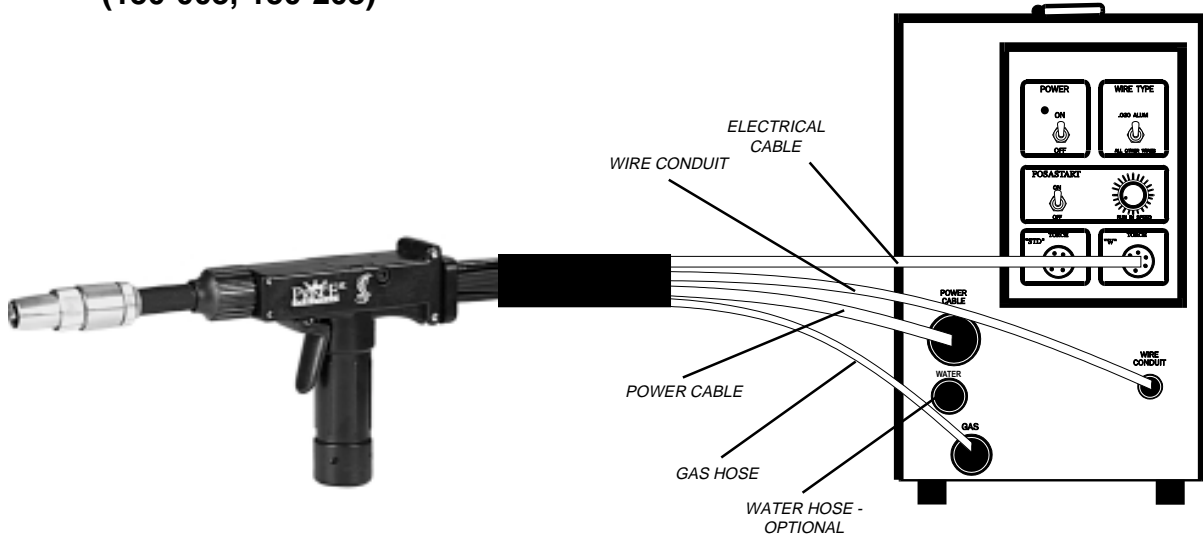
Section 14

Maintenance Tools

MAINTENANCE TOOLS	
TOOL	PART NUMBER
Gas Valve Removal Tool	931-0584
Contact Tip Removal Tool	931-0002

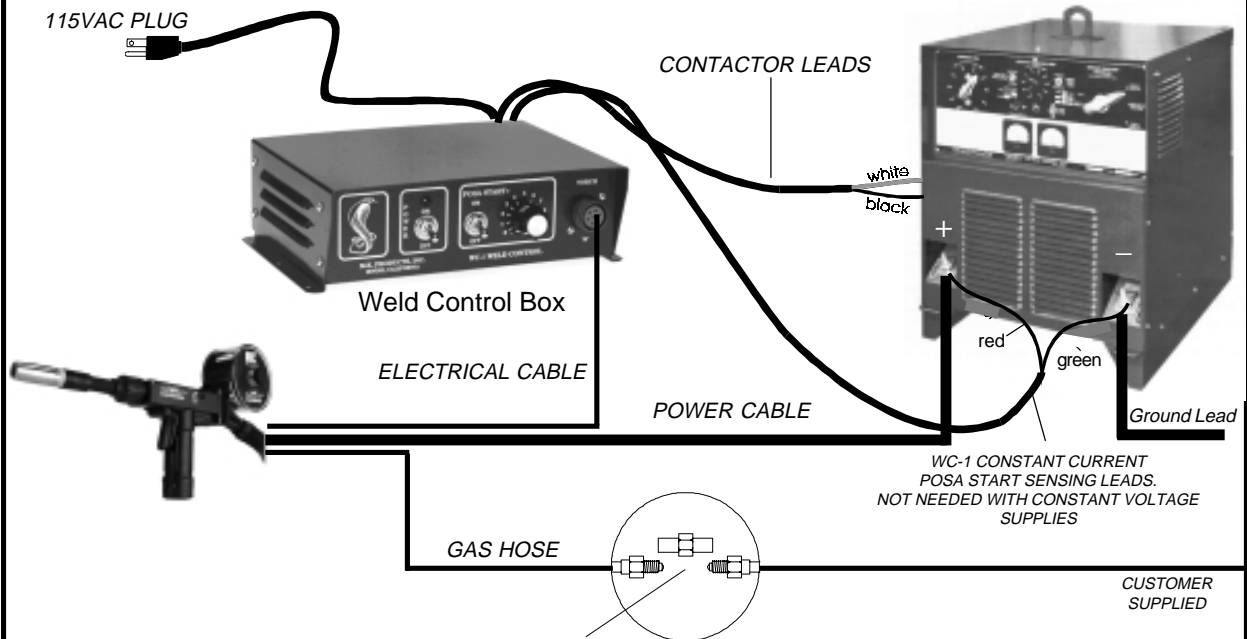
Section 15 Interconnections

**PRINCE™XL TORCH
TO
COBRAMATIC I CABINET
(150-003, 150-203)**



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

CONSTANT VOLTAGE
OR
CONSTANT CURRENT
POWER SUPPLY



WC-1 CONSTANT CURRENT
POSA START SENSING LEADS.
NOT NEEDED WITH CONSTANT VOLTAGE
SUPPLIES

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.

16.1 General

The Prince™XL torch was specifically designed to operate as both a push-pull gun and spool gun. The 24 volt DC torch motor is controlled by a 3-3/4 turn potentiometer recessed in the pistol grip. The torch trigger is so designed 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 gas cups and contact tips used on the Prince™XL air cooled barrel are the same as those used on the Cobra Gooseneck. The drive and idler rolls are also the same as on the Cobra Gooseneck. The gas cups and contact tips used on the Prince™XL water cooled barrel are the same as those used on the King Cobra torch. The modular design allows parts to be replaced in sub assemblies for minimum spare parts inventory and less down time.

16.2 Barrels

16.2.1 Air Cooled

The Prince™XL air cooled systems (213-xxx and 216-xxx) come standard with a straight barrel. An optional curved air cooled barrel assembly (P/N 003-1986) is also available as a spare part. The end of the air cooled barrels have an adapter (P/N 003-2593) that is easily replaced if the cup threads become damaged. The adapter is threaded onto the barrel. The barrel assembly locks to the Prince™XL body using the patented EZ Lock™ system.

16.2.2 Water Cooled

The Prince™XL water cooled systems (212-xxx) come standard with a straight water cooled barrel assembly. An optional curved water cooled barrel assembly (P/N 003-1987) is also available as a spare part.

16.2.3 Barrel Removal and installation

To remove a barrel assembly, loosen the patented EZ Lock™ Taper lock nut assembly P/N 003-2572 (see page 21, item 1) 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 (see diagram). Tighten taper lock nut assembly firmly so that barrel cannot rotate.

16.2.4 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.

16.3 Potentiometer

The pot is located in the bottom of the pistol grip and provides 3-3/4 turns of rotation and up to 900 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.

16.4 Micro Switch

The micro switch assembly (P/N 003-0568) consists of the micro switch, leads, and connector. The assembly is 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 leads are laid in the channel under the motor and held in place with electrical tape.

16.5 Lead Assemblies

16.5.1 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 (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.

16.5.2 Power Cable - Water Cooled

Prince™XL water cooled torch utilizes a power/water cable with a #4AWG cable inside a 5/8" (16MM) diameter hose. When water is used with this cable and the #10 water cooled gas cup is used (P/N 621-0065), the system is rated at 400 amps 100% duty cycle. If water is not used with this cable, the system is rated at 100 amps 50% duty cycle.

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

16.5.4 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.

16.5.5 Water Hose

The water hose (if so equipped) is secured over the barbed water fitting with a tie wrap.

16.5.6 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 17 for torch electrical connections.

16.6 DRIVE AND IDLER ROLLS

16.6.1 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 page 7).

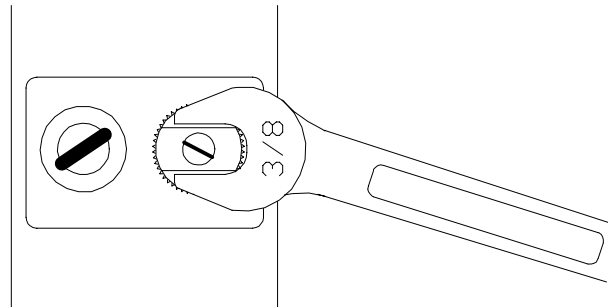
Drive roll tension is accomplished by means of a pressure adjusting allen screw located on the left hand side of the torch. Proper tension is achieved when wire does not slip if a small amount of pressure is added to the wire as it exits the tip.

NOTE: Over-tightening of the drive rolls will cause excessive knurling and/or deformation of the wire.

16.6.2 DRIVE ROLL INSTALLATION & REMOVAL

Rotate drive roll by jogging drive motor with trigger switch or with finger tips until slots line up with door.

Hold the drive roll with 3/8" open-end wrench.



Insert a slot type screwdriver into the slot on motor shaft, and turn screwdriver CCW (left hand thread).

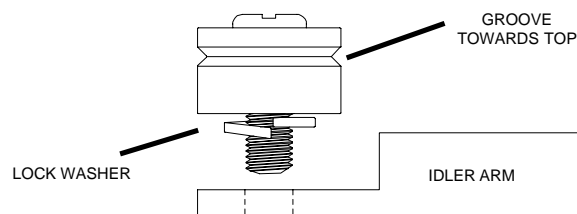
Install new drive roll on motor shaft using left hand thread. Drive roll will self-tighten when feeding wire.

16.6.3 IDLER ROLL INSTALLATION & REMOVAL

Using a slot type screwdriver, loosen idler screw, taking care not to lose lock washer under idler roll.

Insert new idler roll and lock washer onto screw, insuring that idler groove is toward top and lock washer is beneath.

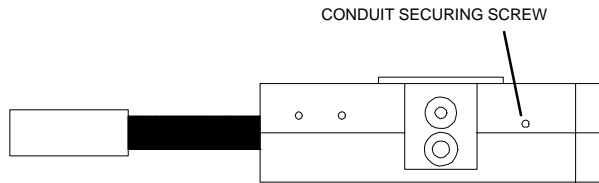
Tighten.



Section 17

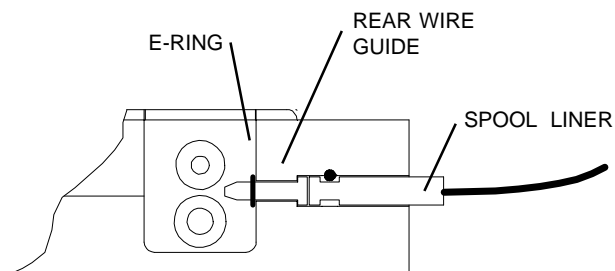
Installing Spool Assembly (Kit P/N 003-2021)

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

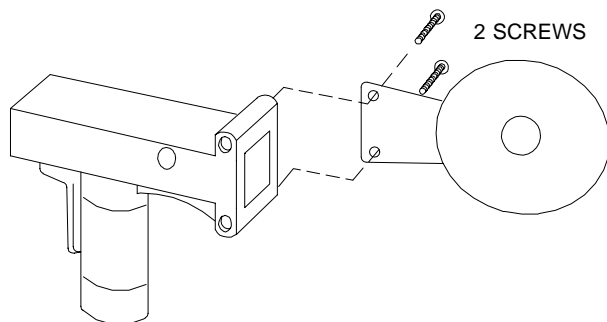


Remove conduit by pulling it out of the back of the gun.

Install spool liner, and secure with screw.



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



Section 18

Spool Gun Setup

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

18.2 Disassembly Prince™XL/Spool Gun

Remove trigger pin with punch and remove trigger.

Remove six(6) handle screws and spool adapter if installed.

Remove barrel from gun, loosen barrel taper lock assembly and slide towards cup. Leave barrel inserted in gun body.

Pull handles apart.

Section 19

MAINTENANCE

Maintenance of the torch will normally consist of a general cleaning of the wire guide system, including tubes, drive rolls, and conduit at regular intervals. The only parts on the gun that are subject to normal wear are the conduit, contact tips, gas cups, drive rolls and barrel liners. A supply of those parts should be maintained on hand.

Proper coolant is a very important part of keeping the water cooled Prince™XL in good working condition. Any coolant which does not contain reactive sulfur or chlorine, and which specifically does not react with copper, brass or aluminum, may be used. One such mixture has proven extremely successful when used in conjunction with a water re-circulator. It consists of the following 3:1 mixture:

Use 3 gallons deionized water (not distilled)

Use 1 gallon ethylene glycol

Use 1 teaspoon liquid glycerin per gallon of mixture

The coolant flow rate should be 1 quart/minute at 35 p.s.i.

Section 20

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 drag adjustment in the spindle is used simply to keep the wire slightly taut, so it will not unspool while feeding wire.

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. 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 not operating, i.e. no slave motor or brake solenoid.	4 amp fuse (F1) in feeder/control box blown. Micro-switch defective/not being activated. Broken electrical cable.	Replace (F1) fuse with 4A. Replace switch. Check switch for operation. Check micro-switch wires for continuity.
No wire feed at torch, feeder operating properly.	4 amp fuse (F1) in feeder/control box blown. Bad potentiometer. Broken electrical cable. Bad speed control/PCB.	Check motor leads for shorts; then replace fuse. Check potentiometer with meter. Check motor and potentiometer wires for continuity. See specific cabinet/control box owners manual for speed control operation.
Wire feeds, but welding wire is not energized.	Loose or no cable connections. Contactor control cable loose or in wrong position. Welding power source.	Check all power connections. Check power supply owners manual for location and type of contactor signal required, i.e., closing or 115 VAC. Check power source manual.
Wire feeds erratically.	Excessive spool drag pressure. Dirty or worn conduit. Incorrect pressure on drive rolls. Idler roll stuck. Wrong size contact tip.	Decrease spool drag pressure. Blow out or replace conduit. Adjust pressure at both feeder and torch. Check for lock washer under idler roll, or replace if damaged. See contact tip table.
Wire feeds one speed only.	Bad potentiometer. Broken electrical cable. Bad speed control.	Check with meter. Check potentiometer wires for continuity or short. See specific cabinet/control owners manual for speed control operation.
Wire walks out of drive rolls.	Idler roll upside-down. Rear wire guide missing.	Place groove in idler roll toward top. 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.

Section 21

Testing the Torch

21.1 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.

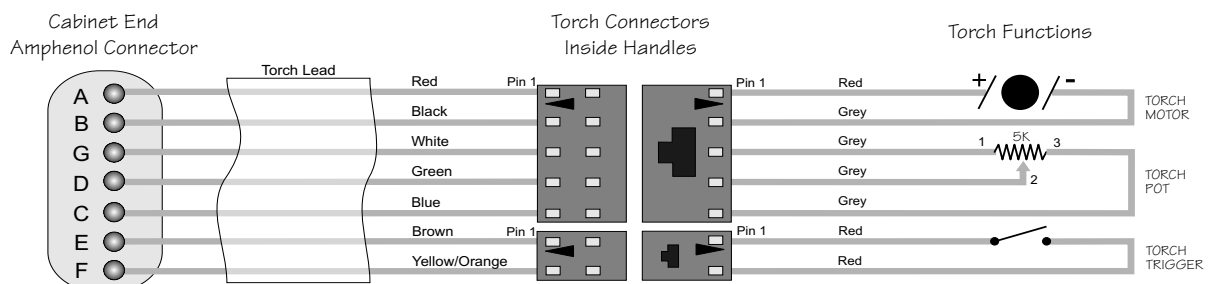
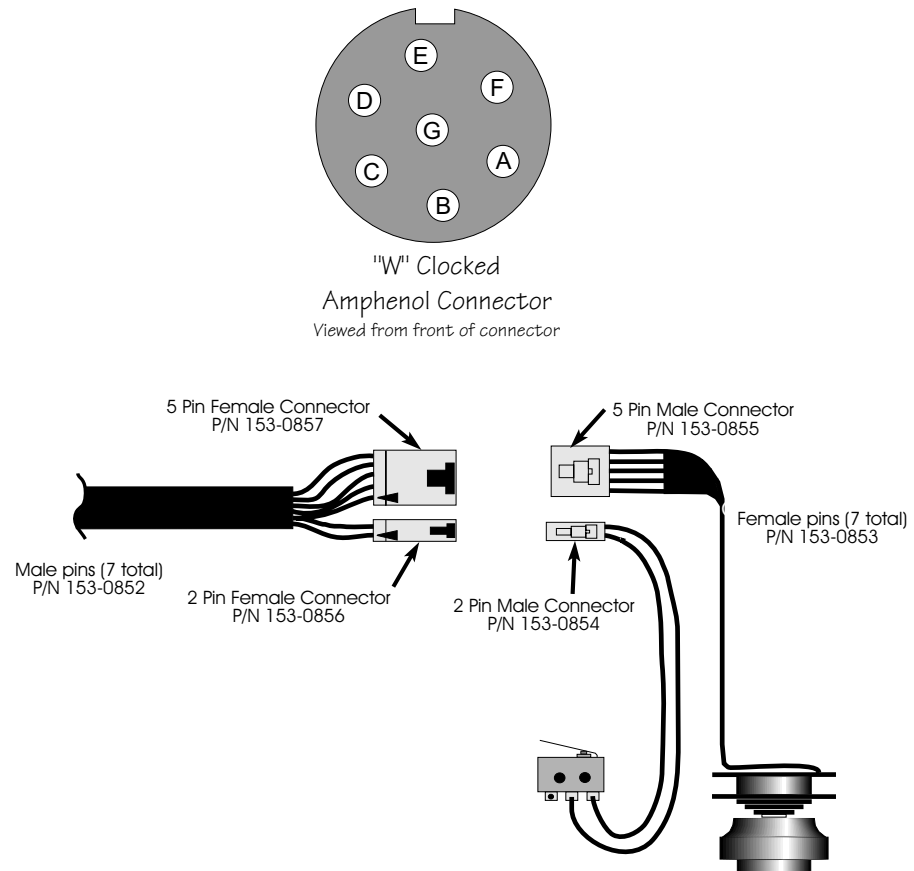
21.2 Testing the Potentiometer

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**.

21.3 Testing the Micro Switch

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



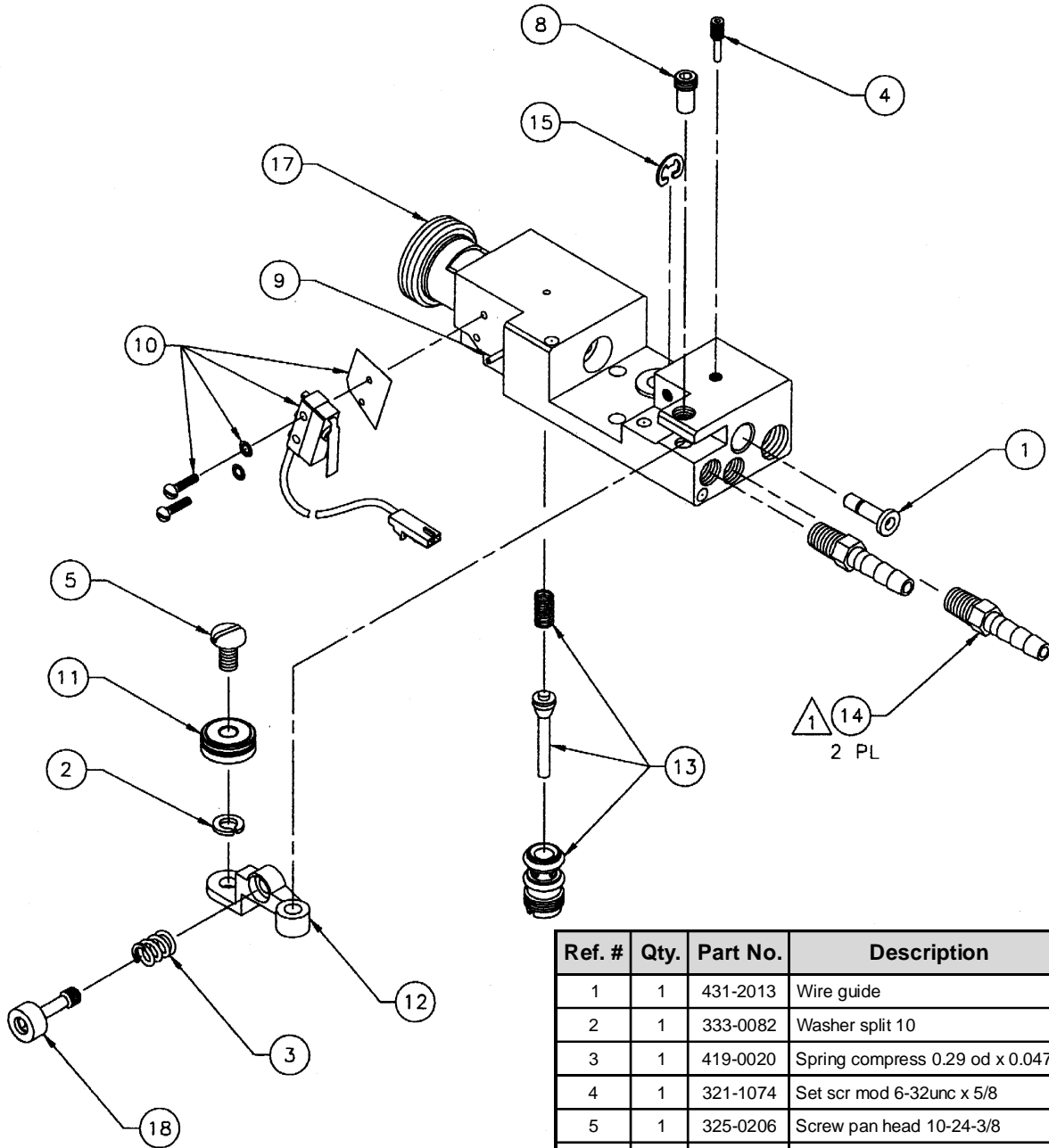
Recommended Spare Parts List

QTY	Part Number	Description
1	615-0007	Conduit 15'
1	615-0008	Conduit 25'
1	005-0661	Potentiometer Kit
1	003-0568	Micro Switch
1	005-0633	Handle Kit
1	511-0101	Drive Roll
1	511-0001	Idler Roll
1	325-0206	Idler Roll Screw
1	333-0082	Idler Roll Washer
1	003-0585	Trigger Assy.
1	431-3117	Door
1	003-0198	Wire Guide-Spool Gun
1	003-2072	Brake Assy.-Spool Gun
1	003-2071	Cover Assy.-Spool Gun

pxl-spares.tbl

Section 22

Head Body, Exploded View P/N 003-1972



Note: 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.

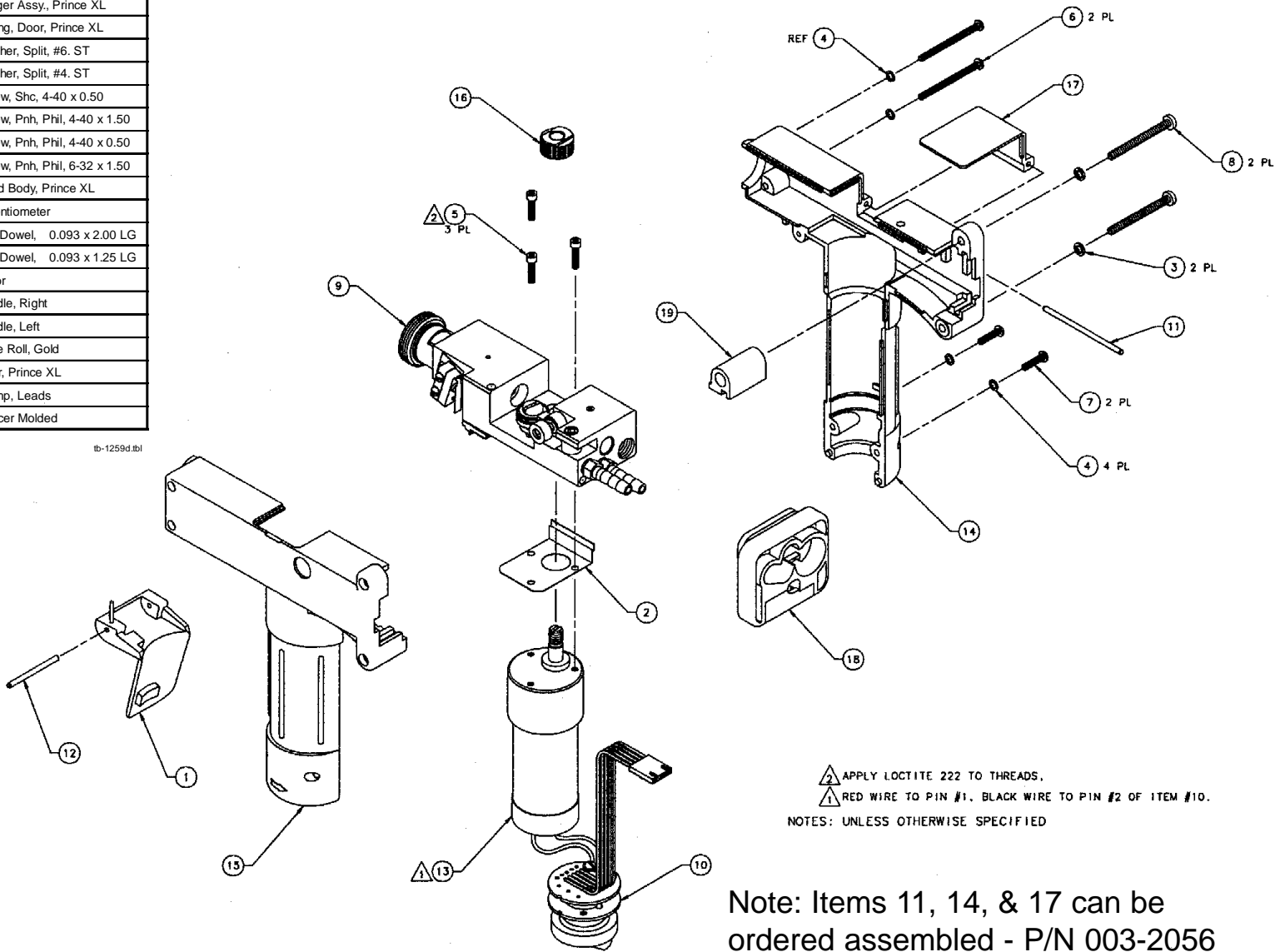
Ref. #	Qty.	Part No.	Description
1	1	431-2013	Wire guide
2	1	333-0082	Washer split 10
3	1	419-0020	Spring compress 0.29 od x 0.047
4	1	321-1074	Set scr mod 6-32unc x 5/8
5	1	325-0206	Screw pan head 10-24-3/8
6			
7			
8	1	431-1427	Pivot pin
9	1	421-0129	Pin spring 0.063 x 0.437
10	1	003-0568	Micro switch assy
11	1	511-0001	Idler wire feed assy
12	1	431-1424	Idler arm
13	1	001-0562	Gas valve cobra
14	2	431-3034	Fitting 3/16 hose to 1/16-27npt
15	1	313-0008	E-ring shaft 0.188
16			
17	1	002-0573	Main body assy
18	1	002-0583	Adjust screw idler arm



tb-1972b.tbl

Section 23
Prince XL, Torch Head Exploded View
P/N 003-1259

No.	Qty	Part No.	Description
1	1	003-0585	Trigger Assy., Prince XL
2	1	435-3124	Spring, Door, Prince XL
3	2	333-0005	Washer, Split, #6. ST
4	4	333-0003	Washer, Split, #4. ST
5	3	328-0003	Screw, Shc, 4-40 x 0.50
6	2	336-0056	Screw, Pnh, Phil, 4-40 x 1.50
7	2	336-0003	Screw, Pnh, Phil, 4-40 x 0.50
8	2	336-0070	Screw, Pnh, Phil, 6-32 x 1.50
9	1	003-1972	Head Body, Prince XL
10	1	003-0567	Potentiometer
11	1	421-0408	Pin, Dowel, 0.093 x 2.00 LG
12	1	421-0409	Pin, Dowel, 0.093 x 1.25 LG
13	1	211-0071	Motor
14	1	436-0136	Handle, Right
15	1	436-0137	Handle, Left
16	1	511-0101	Drive Roll, Gold
17	1	431-3117	Door, Prince XL
18	1	003-1974	Clamp, Leads
19	1	437-0237	Spacer Molded

tb-1259d.tbl



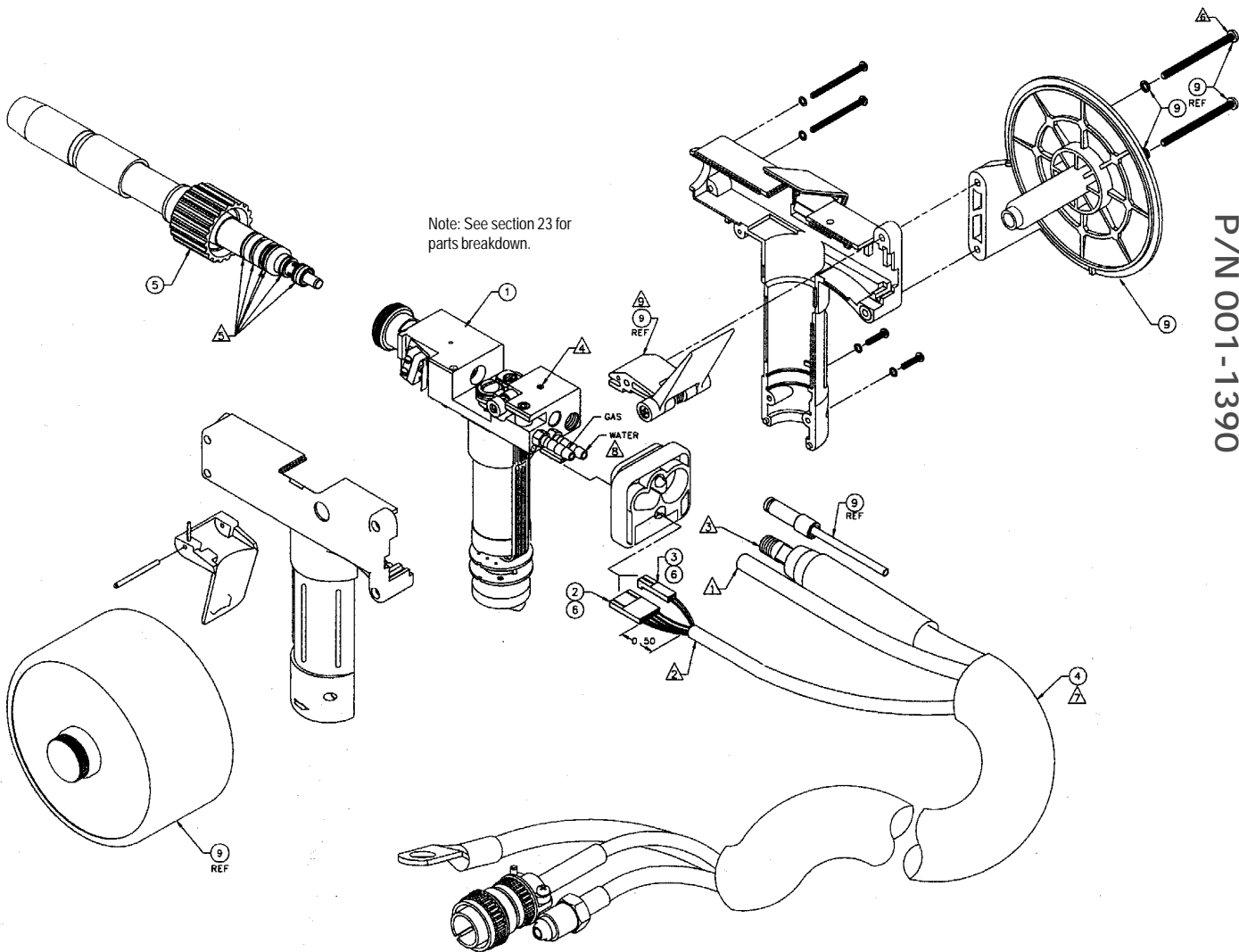
 APPLY LOCTITE 222 TO THREADS.
 RED WIRE TO PIN #1. BLACK WIRE TO PIN #2 OF ITEM #10.
 NOTES: UNLESS OTHERWISE SPECIFIED

Note: Items 11, 14, & 17 can be ordered assembled - P/N 003-2056

Section 24 Prince XL, Spool gun 25 Ft. P/N 001-1390

No.	Qty.	Part No.	Description
1	1	003-1259	Assy Head
2	1	153-0857	Conn Molex 5 Pos
3	1	153-0856	Conn Molex 2 Pos
4	1	001-1317	Lead 25 Ft. Spool
5	1	003-1980	Barrel Straight 7.00
6	7	153-0852	Pin
7	1	411-0045	Tie Wrap
8	.13 ft	739-0006	Tube H/S 1/4
9	1	003-2021	Assy. Spool MK

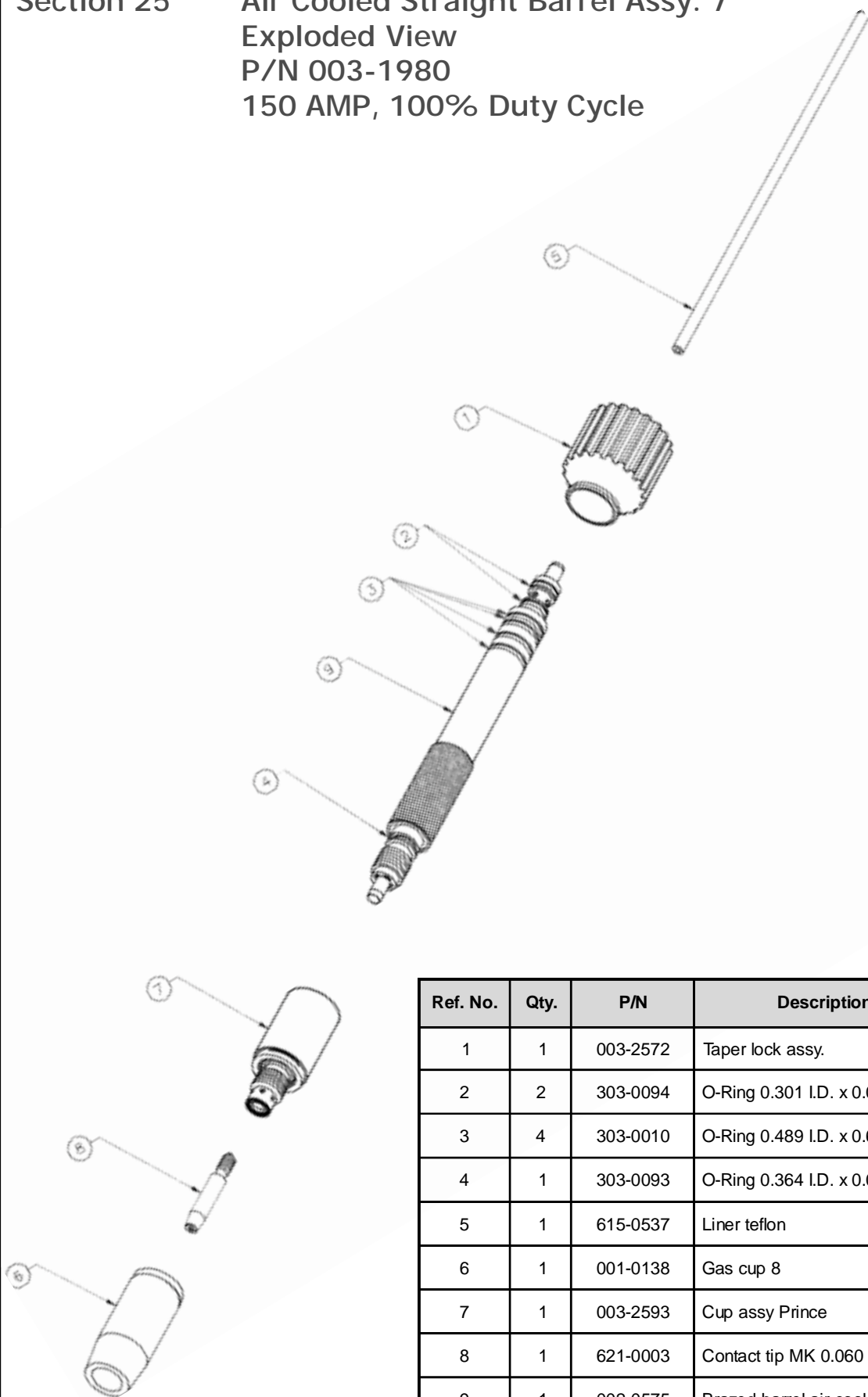
Tb-1390c.tbl



- ⚠️ REPLACE SPACER (437-0257) WITH ASSY BRAKE (003-2072)
 - ⚠️ SHIELD WATER RETURN FITTING WITH ITEM #8.
 - ⚠️ AFTER INSTALLING LEAD ASSEMBLY, PLACE SPIRAL WRAP, THEN SECURE SHAWESKIN COVER WITH TIE WRAPS.
 - ⚠️ INSTALL MOUNTING SCREW THROUGH MIDDLE HOLE.
 - ⚠️ APPLY PARKER SILICONE BASE "SUPER LUBE" TO O-RINGS.
 - ⚠️ ITEM USED TO LOCK CONDUIT IN PLACE.
 - ⚠️ APPLY NAUOH COMPOUND M#823-0029 TO THREADS.
 - ⚠️ STRIP CABLE JACKET 0.65 AND WIRES 0.12 THEN INSTALL WIRES TO ITEM #6.
- RED WIRE TO PIN #1
 BLACK WIRE TO PIN #2
 WHITE WIRE TO PIN #3
 GREEN WIRE TO PIN #4
 BLUE WIRE TO PIN #5
- BROWN WIRE TO PIN #1] TO ITEM #5
 YELLOW WIRE TO PIN #2]
- ⚠️ PLACE GAS LEAD, THEN SECURE WITH ITEM #7.
- NOTES: UNLESS OTHERWISE SPECIFIED

Section 25

Air Cooled Straight Barrel Assy. 7"
 Exploded View
 P/N 003-1980
 150 AMP, 100% Duty Cycle

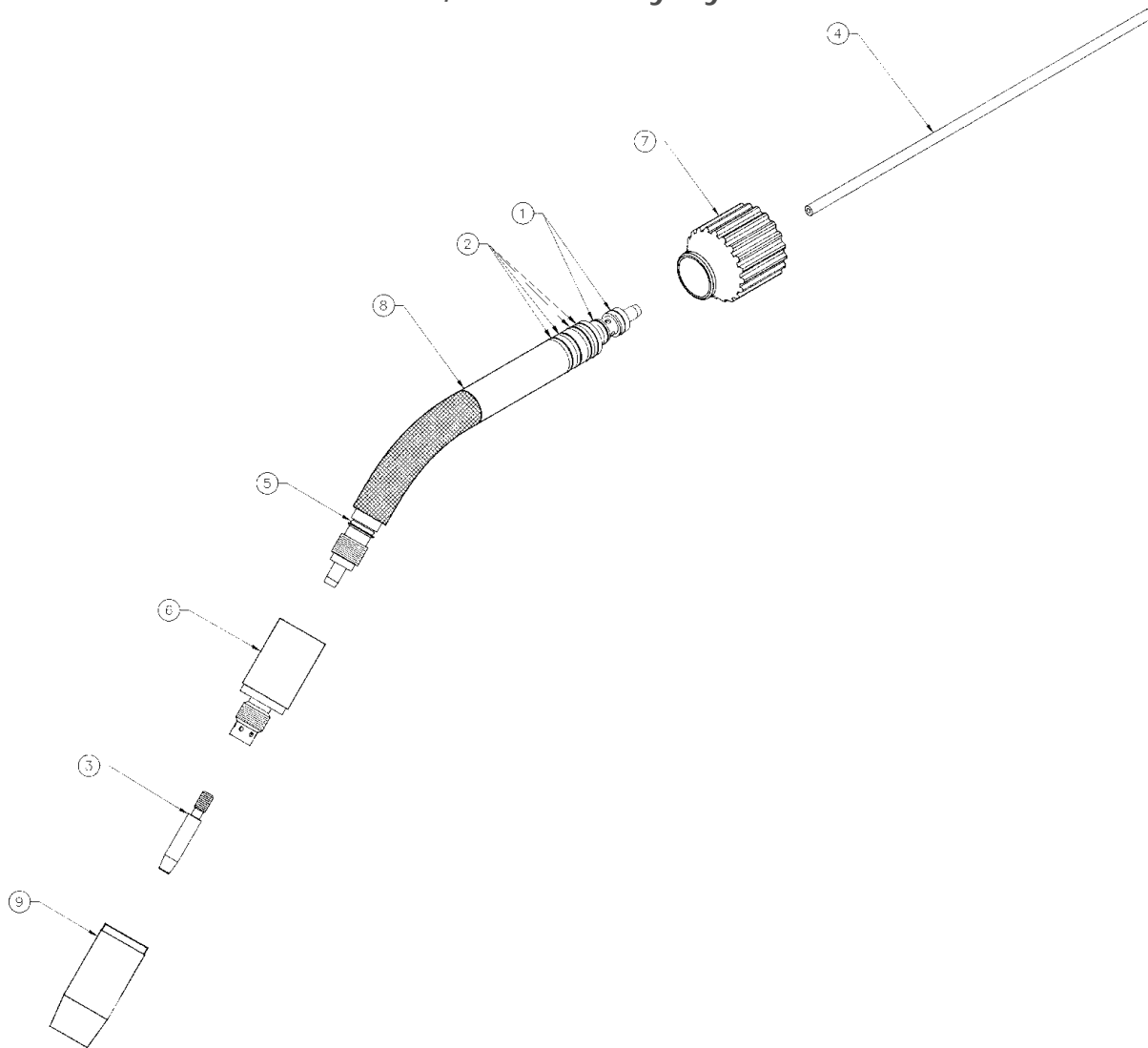


Ref. No.	Qty.	P/N	Description
1	1	003-2572	Taper lock assy.
2	2	303-0094	O-Ring 0.301 I.D. x 0.070
3	4	303-0010	O-Ring 0.489 I.D. x 0.629 O.D.
4	1	303-0093	O-Ring 0.364 I.D. x 0.07 w
5	1	615-0537	Liner teflon
6	1	001-0138	Gas cup 8
7	1	003-2593	Cup assy Prince
8	1	621-0003	Contact tip MK 0.060
9	1	002-0575	Brazed barrel air cooled

tb-1980b.tbl

Section 26

Air Cooled 45° Barrel Assy. 7" Exploded View
 P/N 003-1986
 150 AMP, 100% Duty Cycle



Ref. No.	Qty.	P/N	Description
1	2	303-0094	O-Ring 0.301 I.D. x 0.070
2	2	303-0010	O-Ring 0.489 I.D. x 0.629 O.D.
3	1	621-0003	Contact tip MK 0.060
4	1	615-0539	Liner teflon 0.175od
5	1	303-0093	O-Ring 0.364 I.D. x 0.07 w
6	1	003-2593	Cup air barrel Prince XL
7	1	003-2572	Taper lock assy Prince XL
8	1	002-0591	Barrel curved 45 a/c
9	1	001-0138	Gas cup 8

tb-1986b.tbl

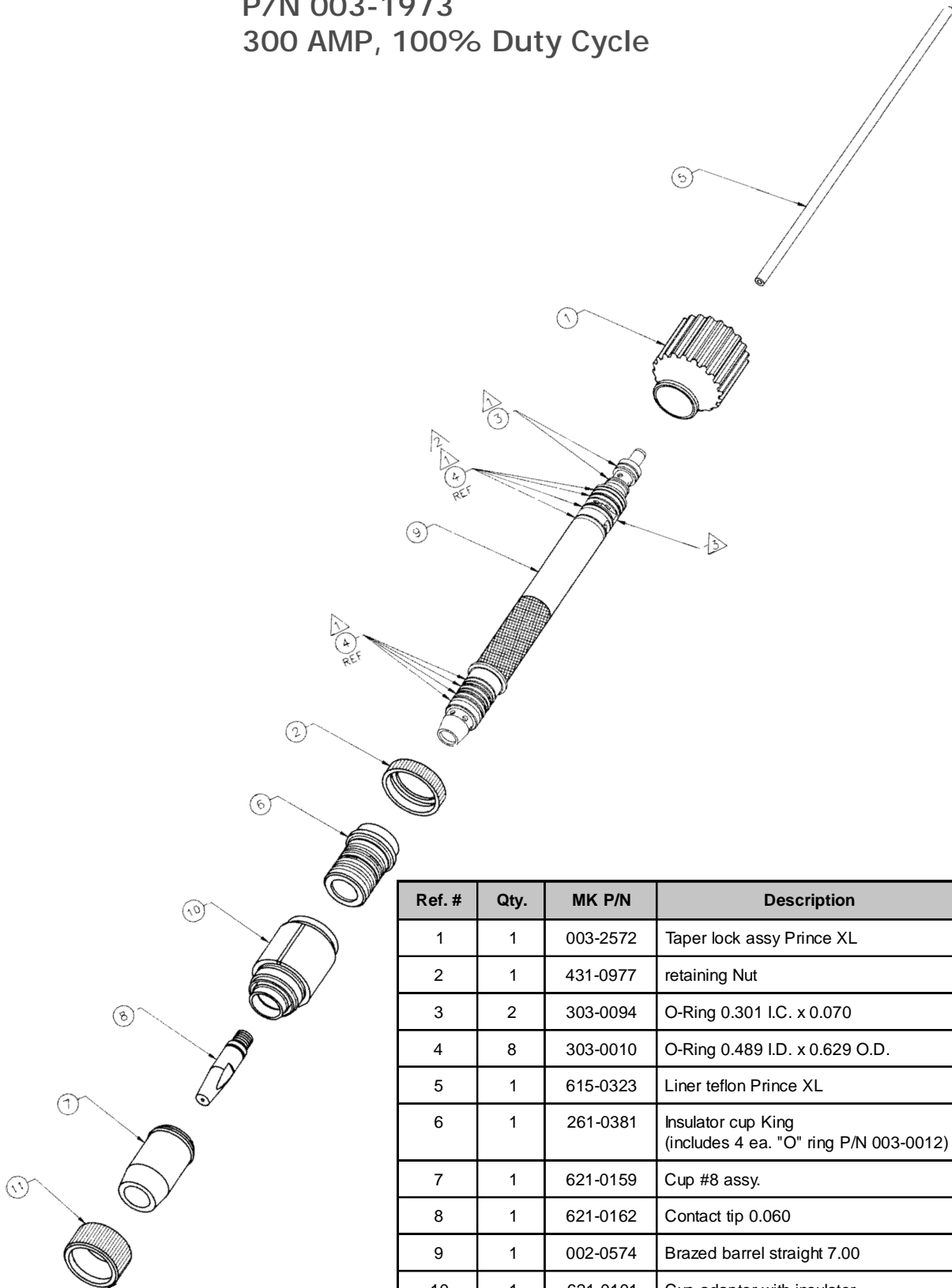
Section 27

Water Cooled Straight Barrel Assy. 7"

Exploded View

P/N 003-1973

300 AMP, 100% Duty Cycle



Ref. #	Qty.	MK P/N	Description
1	1	003-2572	Taper lock assy Prince XL
2	1	431-0977	retaining Nut
3	2	303-0094	O-Ring 0.301 I.C. x 0.070
4	8	303-0010	O-Ring 0.489 I.D. x 0.629 O.D.
5	1	615-0323	Liner teflon Prince XL
6	1	261-0381	Insulator cup King (includes 4 ea. "O" ring P/N 003-0012)
7	1	621-0159	Cup #8 assy.
8	1	621-0162	Contact tip 0.060
9	1	002-0574	Brazed barrel straight 7.00
10	1	621-0101	Cup adaptor with insulator
11	1	449-0193	Gas cup nut
12	1	751-0011	Round vinyl cap

tb-1973a.tbi

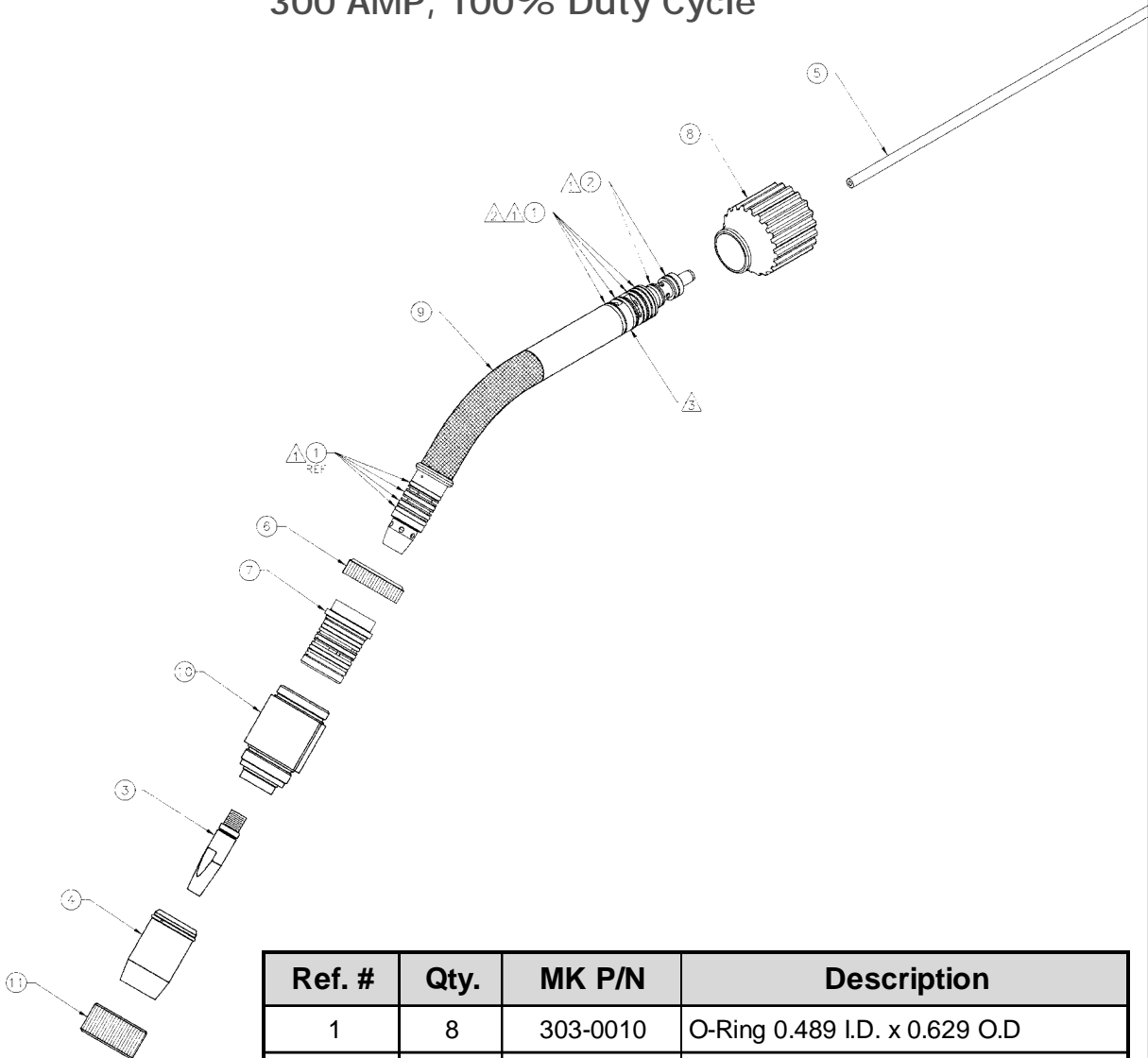
Section 28

Water Cooled 45° Barrel Assy. 7"

Exploded View

P/N 003-1987

300 AMP, 100% Duty Cycle

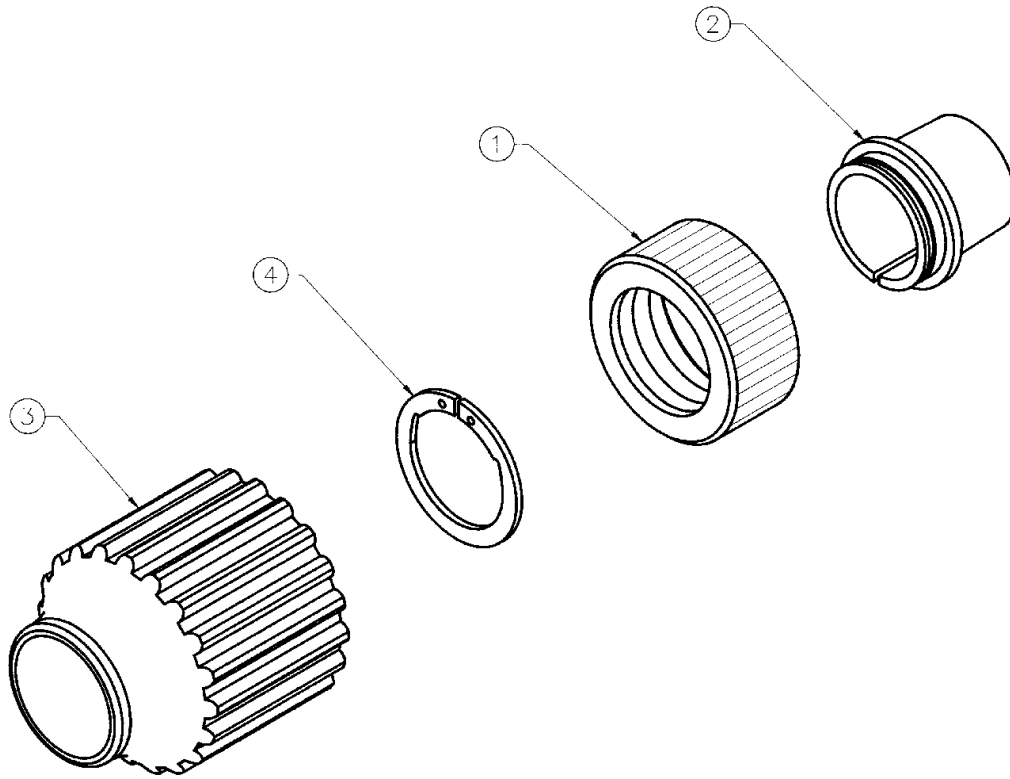


Ref. #	Qty.	MK P/N	Description
1	8	303-0010	O-Ring 0.489 I.D. x 0.629 O.D
2	2	303-0094	O-Ring 0.301 I.D. x 0.070
3	1	621-0162	Contact tip 0.060
4	1	621-0159	Cup #8 assy
5	1	615-0539	Liner teflon 0.175od x 8.06
6	1	431-0977	Retaining nut
7	1	261-0381	Insulator cup (includes 4 ea. "O" ring P/N003-0012)
8	1	003-2572	Taper lock assy.
9	1	002-0592	Barrel curve 45 w/c
10	1	621-0101	Cup adapter with insulator
11	1	449-0193	Gas cup nut
12	1	751-0011	Round vinyl cap

tb-1987a.tbl

Section 29

Taper Lock Nut Assembly, Exploded View
P/N 003-2572

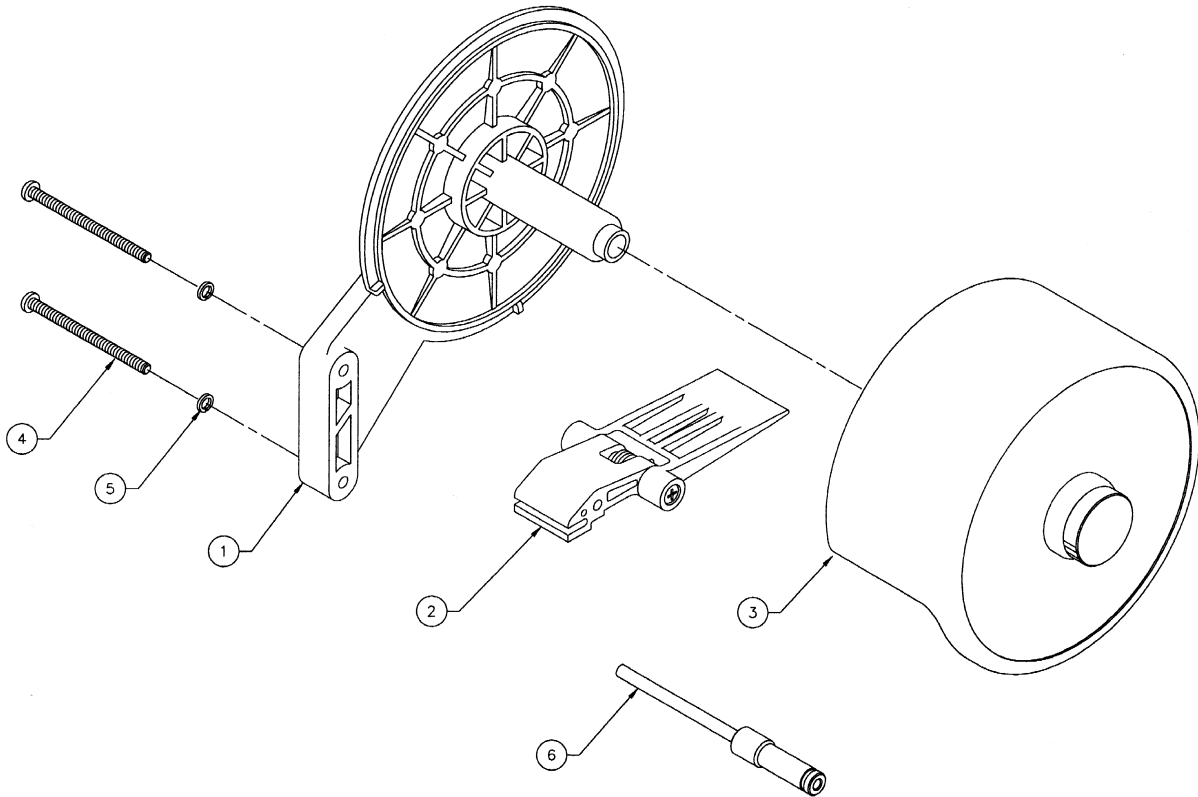


Ref. No.	Qty.	MK P/N	Description
1	1	431-1416	Taper lock nut
2	1	431-1423	Taper lock collar
3	1	437-0227	Taper lock insulator
4	1	313-0027	Snap ring 0.750 shaft

tb-2572.tbl

Section 30

1 lb. Spool Assembly, Exploded View
P/N 003-2021

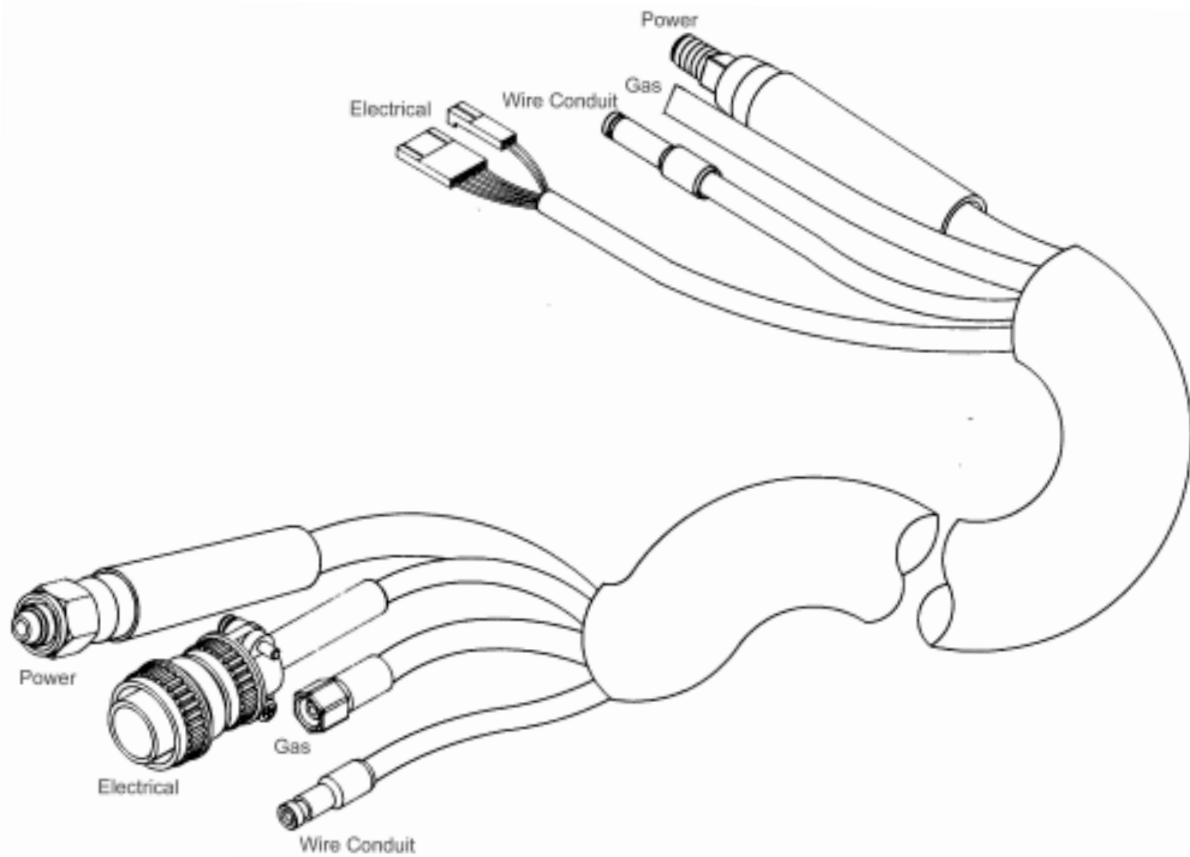


No.	Qty.	Part No.	Description
1	1	437-0235	Spindle
2	1	003-2072	Assembly Brake
3	1	003-2071	Assembly Cover
4	2	336-0073	SCR Pan HD Phil 6-32 x 2.00 ST
5	2	333-0005	Washer Split #6
6	1	003-0198	Wire Guide

Tb-2021b.tbl

Section 31

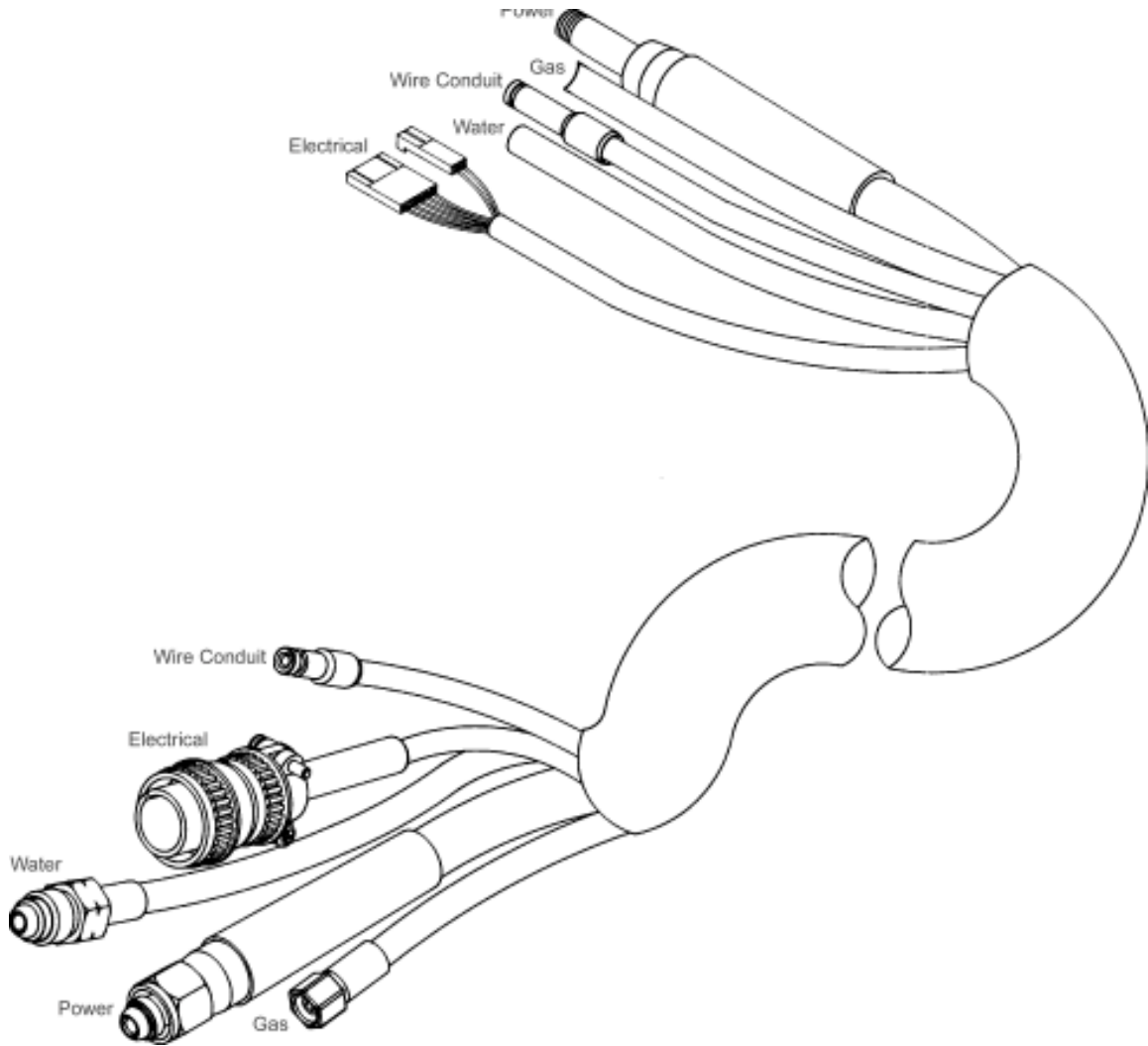
AIR COOLED LEAD ASSY.



Prince XL Air Cooled Cable Assemblies					
Length	Conduit	#2 Power Cable	Electrical Cable	Gas Hose	Snake Skin
15' / 4.5m	615-0007	001-2527	005-0268	001-0537	931-0110
25' / 7.6m	615-0008	001-2528	005-0269	001-0538	931-0122
50' / 15.2m	615-0068	001-1042	005-0272	001-0665	931-0123
Cable Fittings for Air Cooled Torches					
Power Cable	Torch End Fitting		Cabinet End Lug Assy		
Part No. -->	431-1128		003-1328		
Gas Hose			Nut & Insert		Ferrule
Part No. -->			753-0464		469-0161

Section 32

WATER COOLED LEAD ASSY.



Prince XL Water Cooled Cable Assemblies

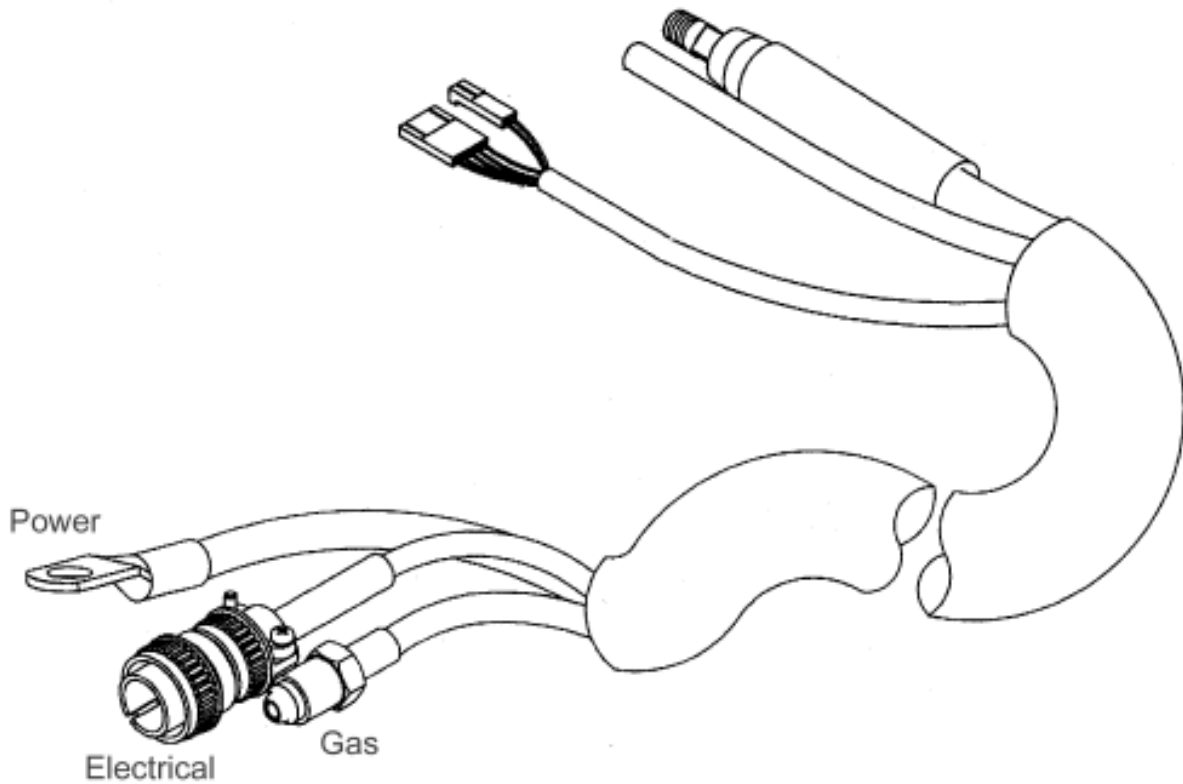
Length	Conduit	#4 Water/ Power Cable	Electrical Cable	Gas Hose	Water Hose	Snake Skin
15' / 4.5m	615-0007	001-2521	005-0268	001-0537	001-0529	931-0110
25' / 7.6m	615-0008	001-2524	005-0269	001-0538	001-0530	931-0122
50' / 15.2m	615-0068	843-0338	005-0272	001-0665	001-0667	931-0123

Cable Fittings for Water-Cooled Torches

Water / Power Cable	Torch End Fitting	Cabinet End Lug Assy	Ferrule #650 1ea
Part No. -->	003-0590	003-1327	469-0002
Gas Hose		Nut & Insert	Ferrule
Part No. -->		753-0464	469-0161
Water Hose	Nipple	Nut	Ferrule
Part No. -->	753-0656	753-3379	469-0161

Section 33

SPOOL GUN LEAD ASSY.



Spool Gun Lead Assemblies				
Length	#2 Pwr 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
Power Cable and Gas Hose Fittings				
Power Cable	Torch End Fitting	Lug End Fitting		
Part No.-->	431-1128	185-0410		
Gas Hose	Ferrule	Nut & Nipple		Ferrule
Part No. -->	449-0161	753-0159 / 753-0656		449-0161

Prince Spool Gun Controls

For All CV and CC Power Supplies

The WC-1(P/N 001-3062) is designed to hook-up 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 machines such as gas drives that do not have contactors, the Contactor Box P/N 001-3066 must be used in addition to the WC-1.

Although this control will work on any power supply we have developed other controls that are less expensive and easier to install.

For Miller Power Supplies with 14 pin Amphenols

Connects directly to Miller power supplies with 14 pin amphenols that are classified as type 6 or 9 and Thermal Dynamics units, such as:

<i>MILLER SUPPLIES</i>	
<i>Millermatic 200</i>	<i>Regency's</i>
<i>Shopmaster</i>	<i>Deltaweld's</i>
<i>CV/CC XMT's</i>	<i>CP Series</i>
<i>Trailblazer 250</i>	

THERMAL DYNAMICS
Thermal Arc 300GMS CC/CV

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

For L-Tec Migmaster 250 & ESAB Migmaster 251

An amphenol adaptor cable and gas/power lug are all that is needed to connect to the Migmaster 250. Adaptor kit includes everything needed.

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

Note: In order to achieve proper operation with the Prince™ and Prince™ XL Spool Guns, please install the 800 ipm spool gun motor P/N 211-0071, if not already in use.

For Power Supplies that Supply an Auxiliary 26 VAC

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

Consult factory for details.

For Millermatic 250 and Vintage

The easy to install, plug-in module and the spool gun are all that is needed to get up and running.

For Millermatic 250X

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

For Hobart BetaMig 251

The easy to install, plug-in module and the spool gun are all that is needed to complete the system.

For Panasonic Gunslinger

Easy to install adapter cable using Gunslinger speed control.

Section 35

Ordering Information

Weld Control P/N's		Spool Gun P/N's	
001-3062	WC-1		
001-3066	Contactora Box	216-725	25' Spool Gun
005-0261	Miller Torpedo	216-750	50' Spool Gun
005-0206	L-Tec Migmaster 250		
005-0264	Generic Torpedo		
005-0205	Millermatic 250 & Vintage		
005-0624	ESAB Migmaster 251		
005-0629	Millermatic 250X		
005-0617	Panasonic Gunslinger		



005-0264



005-0261



005-0206



005-0205



005-0624

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LIMITED WARRANTY

Effective April 1, 1998

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 defect 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 nozzles, nozzle insulators, and contact tips where failure does not result from defect in workmanship or material.

In the case of MK Products' breach of warranty or any other duty with respect to the quality of any goods, the exclusive remedies therefore shall be at MK Products' option: **(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 and Weldheads 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.

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FORM : LW-8
DATE : April 1, 1998



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MK Part Number 091-0384

Printed in the U.S.A.