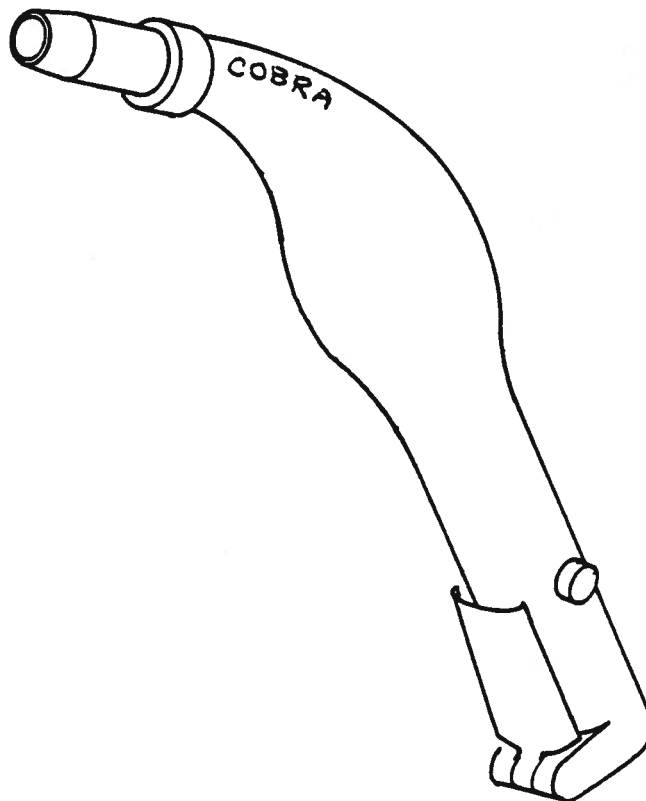


The **COBRA**<sup>®</sup>  
**TORCH**

**INSTRUCTION MANUAL**

Applies to Torch Model  
Prefix No's. 109 & 140



Effective with Serial No.  
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NWSA 550

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# 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 situation. 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 ULTRA-VIOLET 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

**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 re-entering 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 and slag 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:

- appreciable combustibles (including building construction) are within 35 feet.
- appreciable combustibles are further than 35 feet but can be ignited by sparks

- c. openings (concealed or visible) in floors or walls within 35 feet may expose combustibles to sparks
- d. 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 or water washing, depending on the combustible's solubility) followed by purging and inerting with nitrogen or carbon dioxide, and using protective equipment.

Waterfilling 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°C (130°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 can not 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 shutoff.

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 leak. 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, flame-proof 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 pass 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, non-combustible 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 can not 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 current 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 3-phase power is available, connect single-phase equipment to only two wires of the 3-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 switchbox, connect the ground lead to the grounded switchbox. 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 off 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

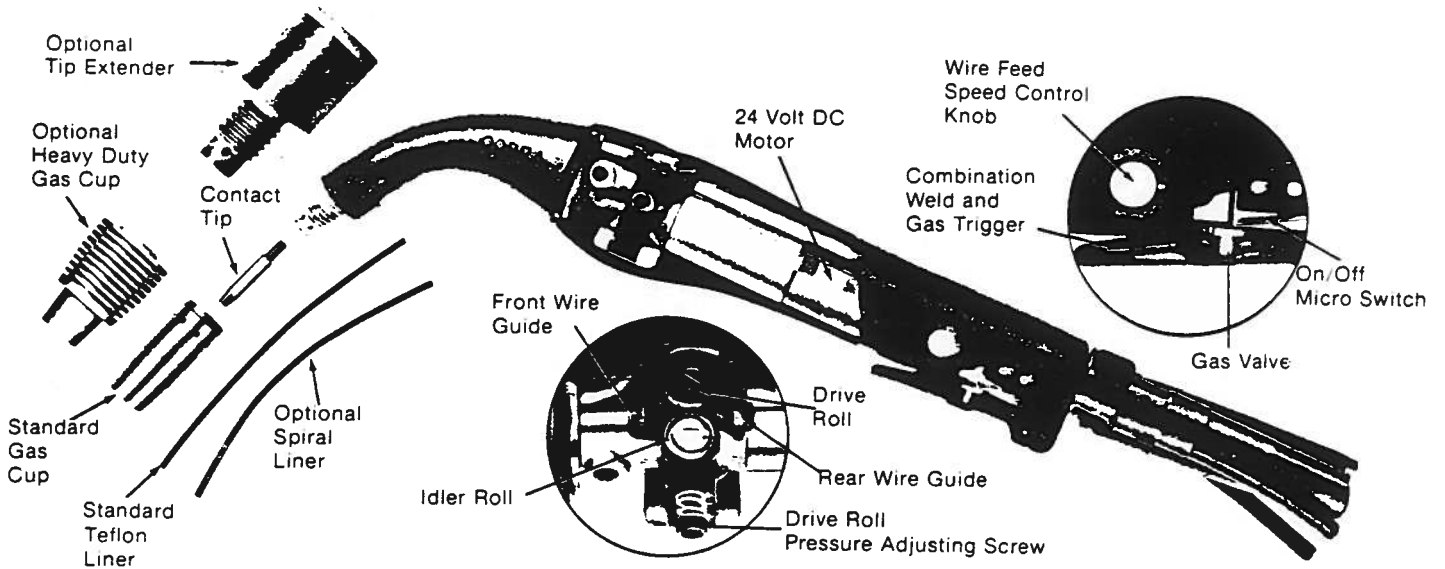
Electrode wire becomes electrically HOT when the power switch of gas metal-arc welding equipment is ON and welding gun trigger is pressed. Keep hands and body clear of wire and other HOT parts.

For your protection in the event of theft, loss or warranty service, please record the model and serial numbers of your Cobra Gooseneck Torch, along with date purchased and name of distributor.

MODEL NO. \_\_\_\_\_ SERIAL NO. \_\_\_\_\_

DATE PURCHASED \_\_\_\_\_ DISTRIBUTOR \_\_\_\_\_

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## 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.



## INTRODUCTION

This manual details the installation and operation of your Cobra Gooseneck Torch with the Cobramatic Cabinet or Champ/Brute Cobramatic open frame Wire Feeders.

Cobra Gooseneck Torches with Model No. Prefix 109 are used with Cobramatic Cabinets with Model No. Prefix 150 only.

Cobra Gooseneck Torches with Model No. 140 are used with 10 pin Amphenol Champ/Brute Cobramatic Model No. Prefix 151; or, by utilizing adapter 10 pin to 7 pin Amphenol adapter P/N 843-0190, can be used with Cobramatic Cabinet Model No. Prefix 150.

## SPECIFICATIONS

### Wire Capacities

.030 in.–.045 in. (.8 mm–1.2 mm)  
Solid and Hard Wire

.030 in.–1/16 in. (.8 mm–1.6 mm)  
Aluminum and Cored Wire

### Maximum Wire Capacities

500 I.P.M./12.7 m/min.

OR

850 I.P.M./21.6 m/min.

## Duty Cycle

### With Standard Gas Cup

Water Cooled

250 Amps @ 50%

Without Water

200 Amps @ 50%

### With Heavy-Duty Gas Cup

Water Cooled

300 Amps @ 50%

Without Water

200 Amps @ 50%

All are 25 Volts Max.

## Contact Tips

Wire Size	Tip I.D.	Arc Use	Length	Part Number
.030in./0.8mm	.036in./0.9mm	Spray	1-1/2in./38.0mm	621-0325
		Short	1-3/4in./44.5mm	621-0326
.030in./0.8mm	.040in./1.0mm	Spray	1-1/2in./38.0mm	621-0076
		Short	1-3/4in./44.5mm	621-0077
.035in./0.9mm	.044in./1.1mm	Spray	1-1/2in./38.0mm	621-0001
		Short	1-3/4in./44.5mm	621-0002
.045in./1.2mm	.053in./1.35mm	Spray	1-1/2in./38.0mm	621-0327
*.045in./1.2mm	.060in./1.5mm	Spray	1-1/2in./38.0mm	621-0003
		Short	1-3/4in./44.5mm	621-0286
.052in./1.3mm				
1/16in./1.6mm	.075in./1.9mm	Spray	1-1/2in./38.0mm	621-0075
1/16in./1.6mm	.085in./2.16mm	Spray	1-1/2in./38.0mm	621-0153
		Short	1-3/4in./44.5mm	621-0154

All Contact Tips Stamped with Tip I.D.

Standard Gas Cups			Heavy-Duty Gas Cups		
Size	I.D.	Part No.	Size	I.D.	Part No.
5	1/4in./6.3mm	621-0079			
6	3/8in./9.5mm	001-0137	8	1/2in./12.7mm	621-0366
*8	1/2in./12.7mm	001-0138	10	5/8in./15.8mm	621-0367
10	5/8in./15.8mm	001-0139			

\*Standard furnished with torch.

## Torch Liners

Part No.	Type	Wire Type	Part No.	Type	Wire Type
*615-0055	Teflon	Aluminum	**615-0058	Teflon	Aluminum
615-0284	Spiral	Steel/Cored	**615-0057	Spiral	Steel/Cored

\*\*Longer liners required when using tip extender P/N 621-0017.

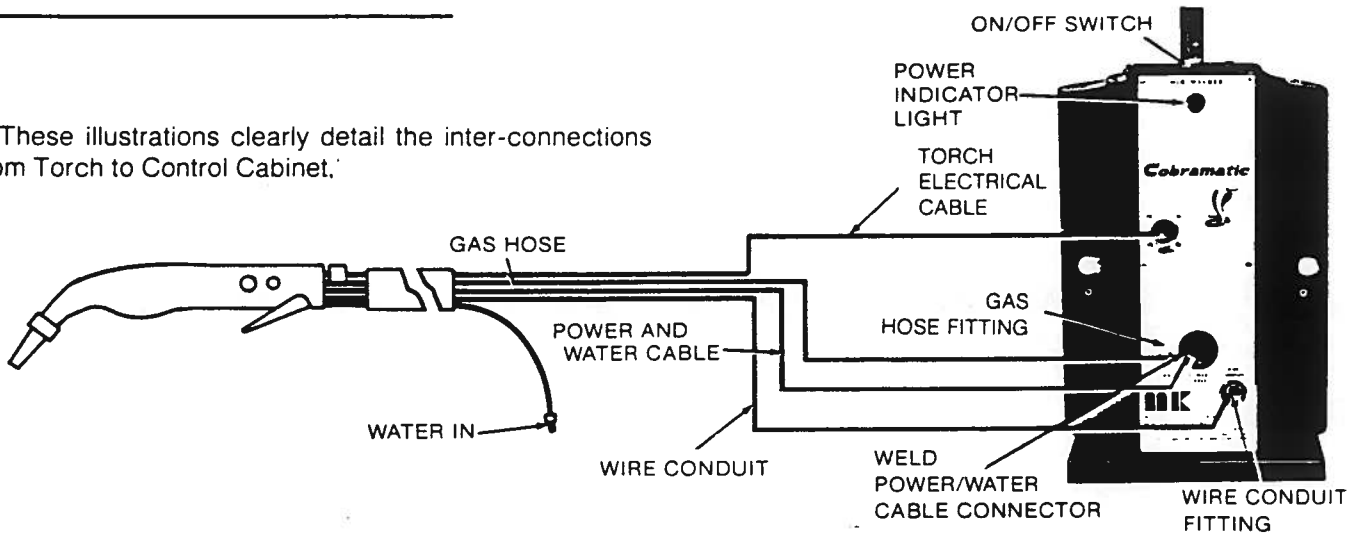
Tip extender is utilized if torch cup or tip threads have been damaged or to prevent damage.

# INTERCONNECTIONS

## Cobramatic Cabinet Model # 150-001, 002

### Torch Model Prefix # 109

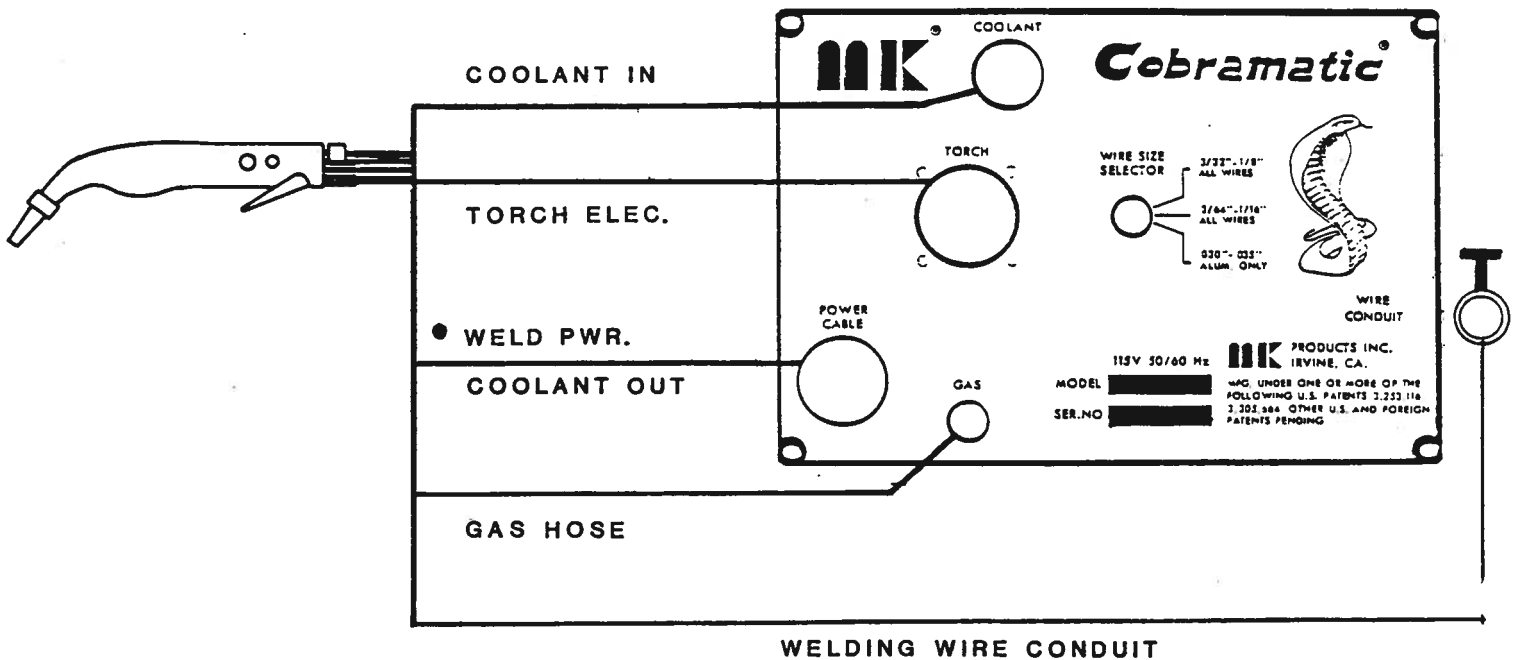
These illustrations clearly detail the inter-connections from Torch to Control Cabinet.



## Cobramatic "CHAMP" & "Brute" Model #'s 151-001, 002.

### Torch Model Prefix # 140

NOTE: Adapter p/n 843-0190 enables Torch Model Prefix # 140 to be used on Cobramatic Cabinet Model # 150-001 & 002.



● Accessed through door on left-hand side.



## OPERATION

The Cobra Gooseneck torch motor is controlled by a three turn potentiometer located on the left hand side above the trigger.

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 welding 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.

Drive roll tension is accomplished by means of the pressure screw located on left hand side just before the Gooseneck section of the torch. Adjust by using tip of bare thumb (no wrench) to tighten. Torch drive rolls will be under proper tension for threading wire when screw is barely thumb tight. When using steel wire, an Allen wrench may be needed for additional tension.

See Cobramatic Wire Feeder Owner's Manuals 091-0208 or 091-0172 for detailed wire threading procedures.

## 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.

Remove spatter buildup from inside of cups with a hard wooden stick.

### Maintenance Tools

Part Number	Description
835-0005	Safety Solvent for installing water power boot
835-0003	Gear Box lubricant 8 oz. jar
921-0022	Allen wrench Set
921-0029	Allen wrench — Universal ball type
931-0584	Gas valve removal tool
835-0006	Super lube 'O' ring lubricant
051-0366	Hose Ferrule Crimper
757-0012	Conduit Coupler Fitting
931-0005	Strap Wrench

### Coolant Recommendations

1. Use a name-brand additive, which does not contain reactive sulphur or chlorine and does not react with copper, brass or aluminum.
2. Check coolant periodically to remain within limits of the following:
  - A. Coolant Flow Rate — 1 quart/minute at 35 p.s.i.
  - B. Resistivity — 10K ohms/centimeter
  - C. Ph Range — 5.5–8.5
  - D. Particle Size — .005"

## TROUBLE SHOOTING

### Problem: Wire Burnback

Causes:	Solutions:
1. Wrong size contact tip . . . . .	See Specifications, page 1 for proper size.
2. Welding Wire Condition— Dirty, Oxidized . . . . .	Change Wire
3. Too low wire feed . . . . .	Increase
4. Too high welding voltage . . . . .	Decrease
5. Torch idler roll tension incorrect . . . . .	See Operation, Page 3
6. Lack of weld ground . . . . .	Check for continuity with work piece.

### Problem: Torch Motor Runs One Speed Only

1. Potentiometer failure . . . . .	Check with meter See Schematic, Page 9, 10
2. Short in torch electric cable . . . . .	Check with meter
3. Torch motor speed control faulty . . . . .	Check voltage of torch motor speed control (P/N 177-0500) with wire feed speed control potentiometer wide open and gun trigger depressed a reading of 24 to 27 VAC should register across terminals H and A and 24 VDC across terminals T and W.

### Problem: Torch Motor Erratic or Inoperative

1. Short circuit in torch Micro Switch . . . . .	Disengage feeder 115 VAC power & check pins with meter
2. Torch motor not receiving 24 VDC . . . . .	Check for voltage reading at 24 VDC torch motor . . . . . Check continuity on ALL wires from torch to wire feeder . . . . . Check potentiometer with meter

### Problem: Loss of Weld Current

1. Lack of weld ground . . . . .	Check for continuity with work piece
2. Break in water/power cable . . . . .	Check for continuity

## OPTIONAL ACCESSORIES

	Length	Part Number
Standard conduit with additional protective cover	15 ft/4.5m	001-0066
	25 ft/7.6m	001-0067
	30 ft/9.0m	001-0068
	50 ft/15.0m	001-0673
Flat spiral conduit with nut — for steel and cored wire	15 ft/4.5m	615-0031
	25 ft/7.6m	615-0032
	30 ft/9.0m	615-0034
	50 ft/15.0m	615-0073

	Part No.
Spiral steel torch liner, long — for use with tip extender P/N 621-0017. For steel and cored wire	615-0057
Spiral steel torch liner, short — for use with steel and cored wire	615-0284
Teflon torch liner, long — for use with tip extender P/N 621-0017. For aluminum wire	615-0058
Tip extender — permits use of front body in which threads have been damaged, or prevents damage	621-0017

## OPTIONAL KITS

<u>Cobra Goseneck Insulated Knurled Drive Roll Kit</u>	005-0118
For .030 through 1/16" dia. hard wire, alum., and cored wire. Includes an insulated drive roll P/N 511-0068 and idler roll P/N 511-0074.	
<u>Insulated Grooved Drive Roll Kit</u>	005-0334
For .035 dia. aluminum wire. Includes idler roll assy. P/N 511-0072 and drive roll assy. P/N 511-0069.	
<u>Insulated Grooved Drive Roll Kit</u>	005-0335
For .045 dia. aluminum wire. Includes idler roll assy. P/N 511-0072 and drive roll assy. P/N 511-0070.	
<u>Small Diameter Wire Kit</u>	005-0071
Allows the use of .020 through .035 dia. alum. and .020 and .025 dia. stainless steel wire in the Cobra Gooseneck. (Must be used with a Model No. 109-515 Cobra Gooseneck Torch.)	
<u>Handle Kit</u>	005-0059
Includes right and left-hand handles, trigger, and related hardware. See Pg. 7 for P/N (exploded view).	
<u>Remote Potentiometer Kit With Reference Digital Readout</u>	005-0003
Removes wire feed speed control from torch to Cobramatic and provides a reference digital readout counter.	
<u>Remote Potentiometer Kit</u>	005-0328
Removes wire speed control from torch to Cobramatic.	

**OPTIONAL COBRA TORCH  
THREE, SIX, AND TEN FOOT  
LEAD ASSEMBLY BREAKDOWN**

**THREE FOOT — P/N 001-1003**

<b>PART NO.</b>	<b>DESCRIPTION</b>
001-0967	CONDUIT
001-0970	POWER/WATER CABLE ASSEMBLY
001-0958	ELECTRIC CABLE
001-0961	GAS HOSE
001-0964	WATER HOSE
551-0269	CABLE COVER

**SIX FOOT — P/N 001-1004**

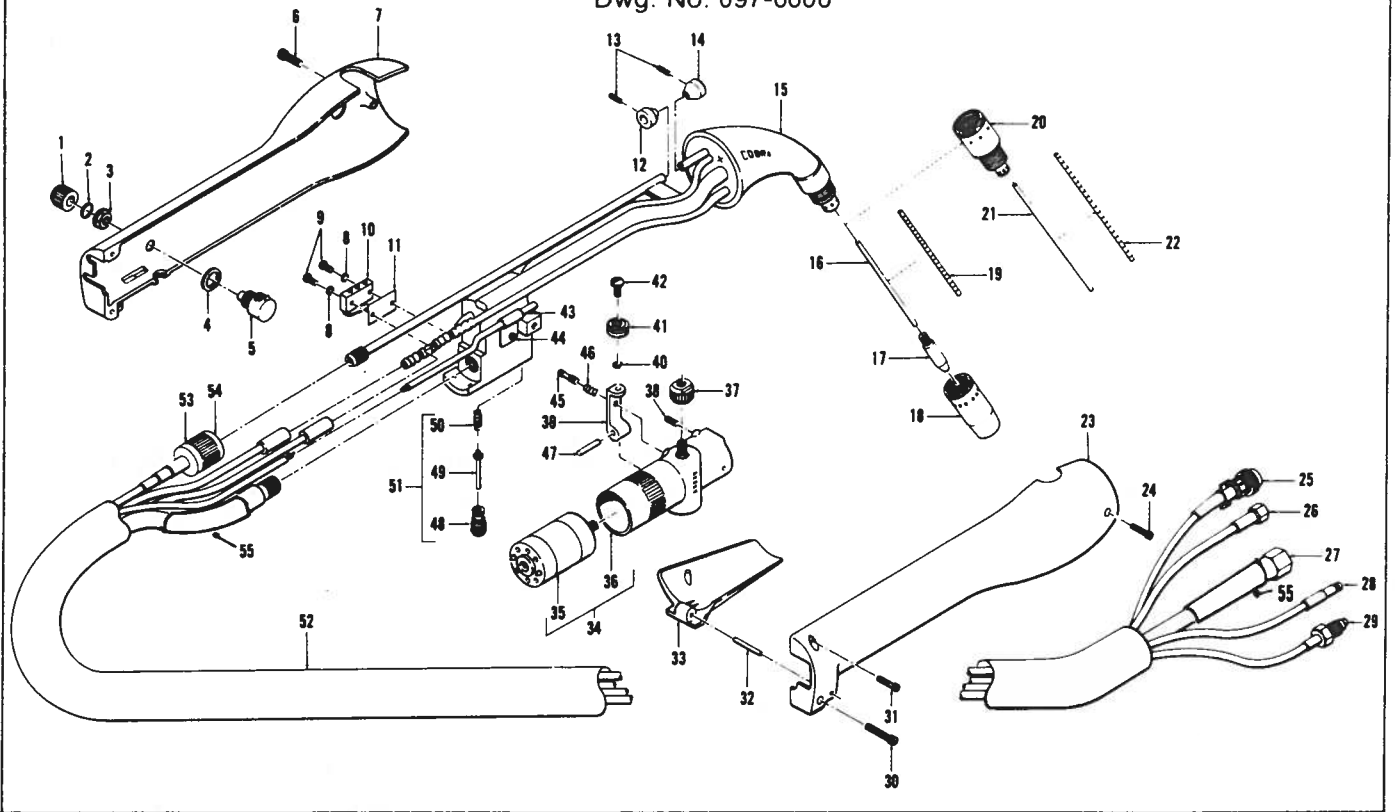
<b>PART NO.</b>	<b>DESCRIPTION</b>
001-0968	CONDUIT
001-0971	POWER/WATER CABLE ASSEMBLY
001-0959	ELECTRIC CABLE
001-0962	GAS HOSE
001-0965	WATER HOSE
551-0270	CABLE COVER

**TEN FOOT — P/N 001-1005**

<b>PART NO.</b>	<b>DESCRIPTION</b>
001-0070	CONDUIT
001-0972	POWER/WATER CABLE ASSEMBLY
001-0960	ELECTRIC CABLE
001-0963	GAS HOSE
001-0966	WATER HOSE
551-0271	CABLE COVER

# GOOSENECK TORCH

Dwg. No. 097-0006



## PARTS LIST GOOSENECK TORCH

ITEM	PART NO.	QTY.	DESCRIPTION	ITEM	PART NO.	QTY.	DESCRIPTION
1	401-0521	1	Knob	26	001-0537	1	15' Gas Hose Assy.
2	303-0540	1	"O"-Ring		001-0538	1	25' Gas Hose Assy. (Optional)
3	449-0542	1	Nut, Pot		001-0557	1	30' Gas Hose Assy. (Optional)
4	331-0034	1	Spacer		001-0665	1	50' Gas Hose Assy. (Optional)
5	117-0520	1	Potentiometer	27	001-0149	1	15' Power/Water Cable Assy.
6	328-0015	1	Screw 6-32 x 3/4 Soc. Hd. Cap.		001-0150	1	25' Power/Water Cable Assy (Optional)
7	437-0048	1	Handle, Left Side		001-0177	1	30' Power/Water Cable Assy. (Optional)
8	333-0039	2	Lock Washer #2 Int. Star		001-0666	1	50' Power/Water Cable Assy. (Optional)
9	325-0025	2	Screw 2-56 x 3/8 Pan Hd.	28	001-0007	1	15' Conduit
10	161-0002	1	Micro Switch		001-0008	1	25' Conduit (Optional)
11	261-0069	1	Insulator		001-0563	1	30' Conduit (Optional)
12	431-0115	1	Rear Wire Guide		001-0659	1	50' Conduit (Optional)
13	321-0001	2	Set Screw 4-40 x 1/8	29	001-0529	1	15' Water In Hose Assy.
14	431-0743	1	Front Wire Guide		001-0530	1	25' Water In Hose Assy. (Optional)
15	001-0029	1	Front Body Assembly (Including)		001-0565	1	30' Water In Hose Assy. (Optional)
	431-0743	1	Front Wire Guide		001-0667	1	50' Water In Hose Assy. (Optional)
	431-0115	1	Rear Wire Guide	30	328-0014	1	Screw 6-32 x 5/8 Soc. Hd. Cap.
	615-0055	1	Teflon Liner	31	328-0002	1	Screw 4-40 x 3/8 Soc. Hd. Cap.
	001-0562	1	Gas Valve Assembly	32	421-0018	1	Dowel Pin 3/32 DIA. x 7/8
16	615-0055	1	Teflon Liner	33	003-0302	1	Lever-Switch Actuator
17	See Specs	1	Contact Tip (Page 1)	34	001-0551	1	Motor & Gear Box Assembly 500"/Min.
18	See Specs	1	Gas Cup (Page 1)		001-0552	1	Motor & Gear Box Assembly 850"/Min.
19	615-0284	1	Spiral Liner (Optional)	35	001-0539	1	Motor 24 Volt
20	621-0017	1	Tip Extension (Optional)	36	001-0549	1	Gear Box Assembly, 500"/Min.
21	615-0058	1	Long Teflon Liner (Optional)		001-0550	1	Gear Box Assembly, 850"/Min.
22	615-0057	1	Long Spiral Liner (Optional)	37	511-0016	1	Drive Roll
23	437-0049	1	Handle, Right Side	38	321-0081	1	Set Screw, 1/4-20 x 1/4
24	328-0013	1	Screw 6-32 x 1/2 Soc. Hd. Cap.				
25	See page 8	1	For Elec. Cable Assy.				

(SEE PAGE 8 FOR ITEMS #39 THROUGH #55)

Gooseneck Gun Parts List Continued

ITEM	PART NO.	QTY.	DESCRIPTION	ITEM	PART NO.	QTY.	DESCRIPTION
39	413-0017	1	Idler Arm	* 49	001-0740	1	Valve Stem Assembly Including 303-0723 "O"-Ring
40	333-0082	1	Lock Washer #10 Med	50	419-0742	1	Spring
41	511-0001	1	Idler Roll	51	001-0562	1	Gas Valve Assembly
42	325-0206	1	Screw, 10-24 x 3/8 Pan Hd.	52	551-0272	1	Cable Cover 4.5m (15 ft.)
43	411-0159	1	Cable Clamp	52	551-0273	1	Cable Cover 7.6m (25 ft.)
44	328-0216	1	Screw 3-48 x 3/16 Soc. Hd. Cap	52	551-0292	1	Cable Cover 9.0m (30 ft.)
45	431-0015	1	Torch Adjusting Screw	52	551-0293	1	Cable Cover 15.0m (50 ft.)
46	419-0020	1	Spring, Roll Pressure	53	439-0090	1	Nut, Conduit
47	421-0024	1	Dowel Pin, 1/8 DIA x 1"	54	313-0089	2	Retaining Ring
48	001-0553	1	Gas Valve Seat Assy Including 303-0516 "O"-Ring (2)	55	301-0097	2	Wtr/Pwr Cable Boot

\* NOTE: IF FEEDER IS EQUIPPED WITH GAS SOLENOID MODIFIED GAS VALVE  
STEM P/N 431-1080 MUST BE INSTALLED.

COBRA GOOSENECK TORCH & LEAD ASSEMBLIES  
WITH ELECTRICAL CABLE ASSEMBLY PART NUMBERS

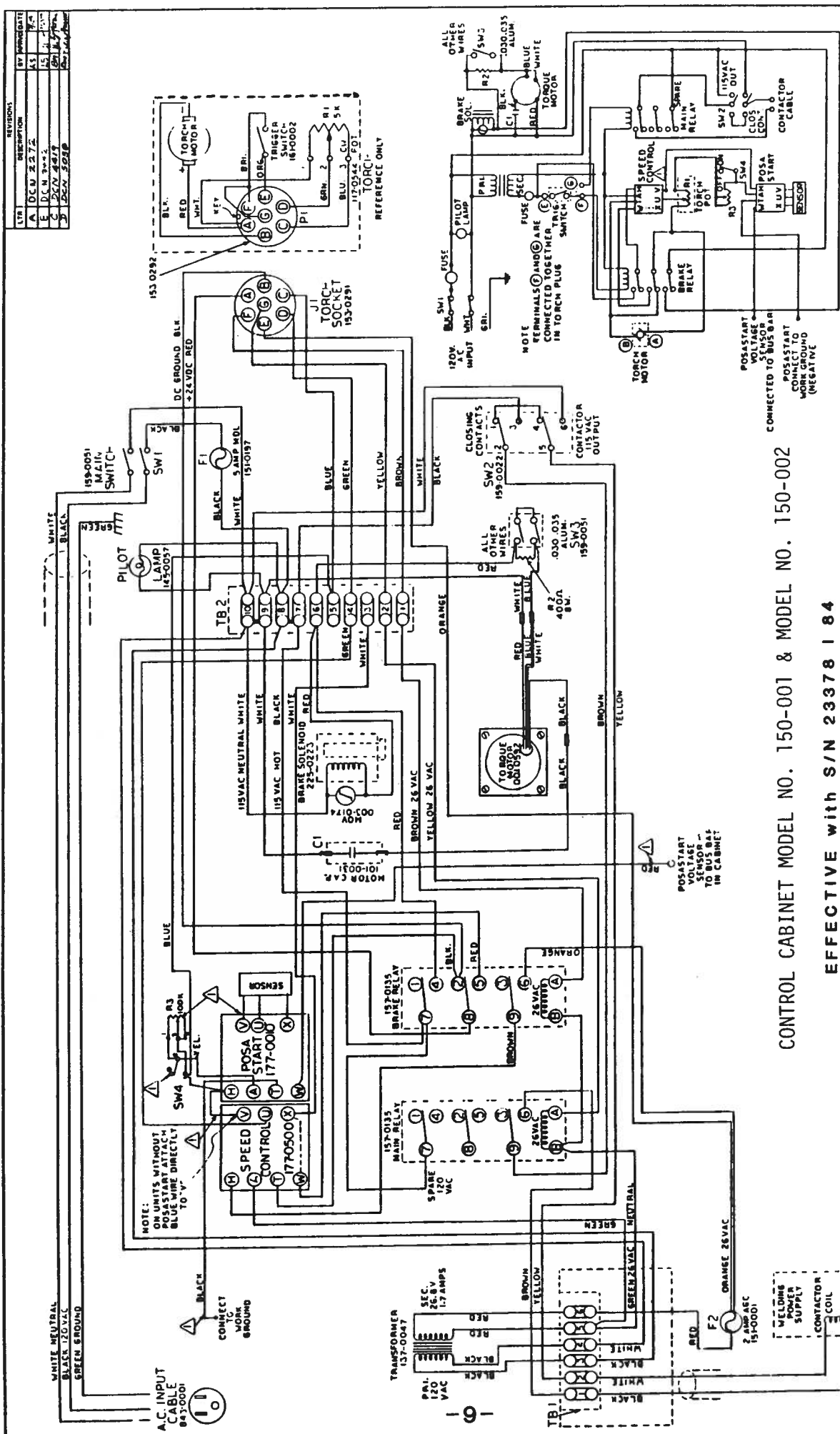
(10 PIN AMPHENOL ELECTRICAL CONNECTORS)

Torch Model No	Description	Electrical Cable Assembly Part Number
140-303	500 I.P.M./12.7 m/min - 3 ft	001-1852
140-503	850 I.P.M./21.6 m/min - 3 ft	001-1852
140-306	500 I.P.M./12.7 m/min - 6 ft	001-1853
140-506	850 I.P.M./21.6 m/min - 6 ft	001-1853
140-310	500 I.P.M./12.7 m/min - 10 ft	001-1854
140-510	850 I.P.M./21.6 m/min - 10 ft	001-1854
140-315	500 I.P.M./12.7 m/min - 15 ft	001-1813
140-515	850 I.P.M./21.6 m/min - 15 ft	001-1813
140-325	500 I.P.M./12.7 m/min - 25 ft	001-1814
140-525	850 I.P.M./21.6 m/min - 25 ft	001-1814
140-330	500 I.P.M./12.7 m/min - 30 ft	001-1815
140-530	850 I.P.M./21.6 m/min - 30 ft	001-1815
140-350	500 I.P.M./12.7 m/min - 50 ft	001-1816
140-550	850 I.P.M./21.6 m/min - 50 ft	001-1816

(7 PIN AMPHENOL ELECTRICAL CONNECTORS)

109-303	500 I.P.M./12.7 m/min - 3 ft	001-0958
109-503	850 I.P.M./21.6 m/min - 3 ft	001-0958
109-306	500 I.P.M./12.7 m/min - 6 ft	001-0959
109-506	850 I.P.M./21.6 m/min - 6 ft	001-0959
109-310	500 I.P.M./12.7 m/min - 10 ft	001-0960
109-510	850 I.P.M./21.6 m/min - 10 ft	001-0960
109-315	500 I.P.M./12.7 m/min - 15 ft	001-0610
109-515	850 I.P.M./21.6 m/min - 15 ft	001-0610
109-325	500 I.P.M./12.7 m/min - 25 ft	001-0611
109-525	850 I.P.M./21.6 m/min - 25 ft	001-0611
109-330	500 I.P.M./12.7 m/min - 30 ft	001-0612
109-530	850 I.P.M./21.6 m/min - 30 ft	001-0612
109-350	500 I.P.M./12.7 m/min - 50 ft	001-0664
109-550	850 I.P.M./21.6 m/min - 50 ft	001-0664

REV.	DESCRIPTION	BY	DATE
A	DC B 2372	AL	8/7/57
E	DC B 2372	AL	8/7/57
C	DC B 2372	AL	8/7/57
B	DC B 2372	AL	8/7/57



# CONTROL CABINET MODEL NO. 150-001 & MODEL NO. 150-002

EFFECTIVE WITH S/N 23378184

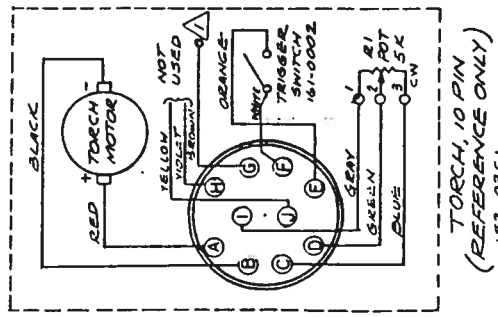
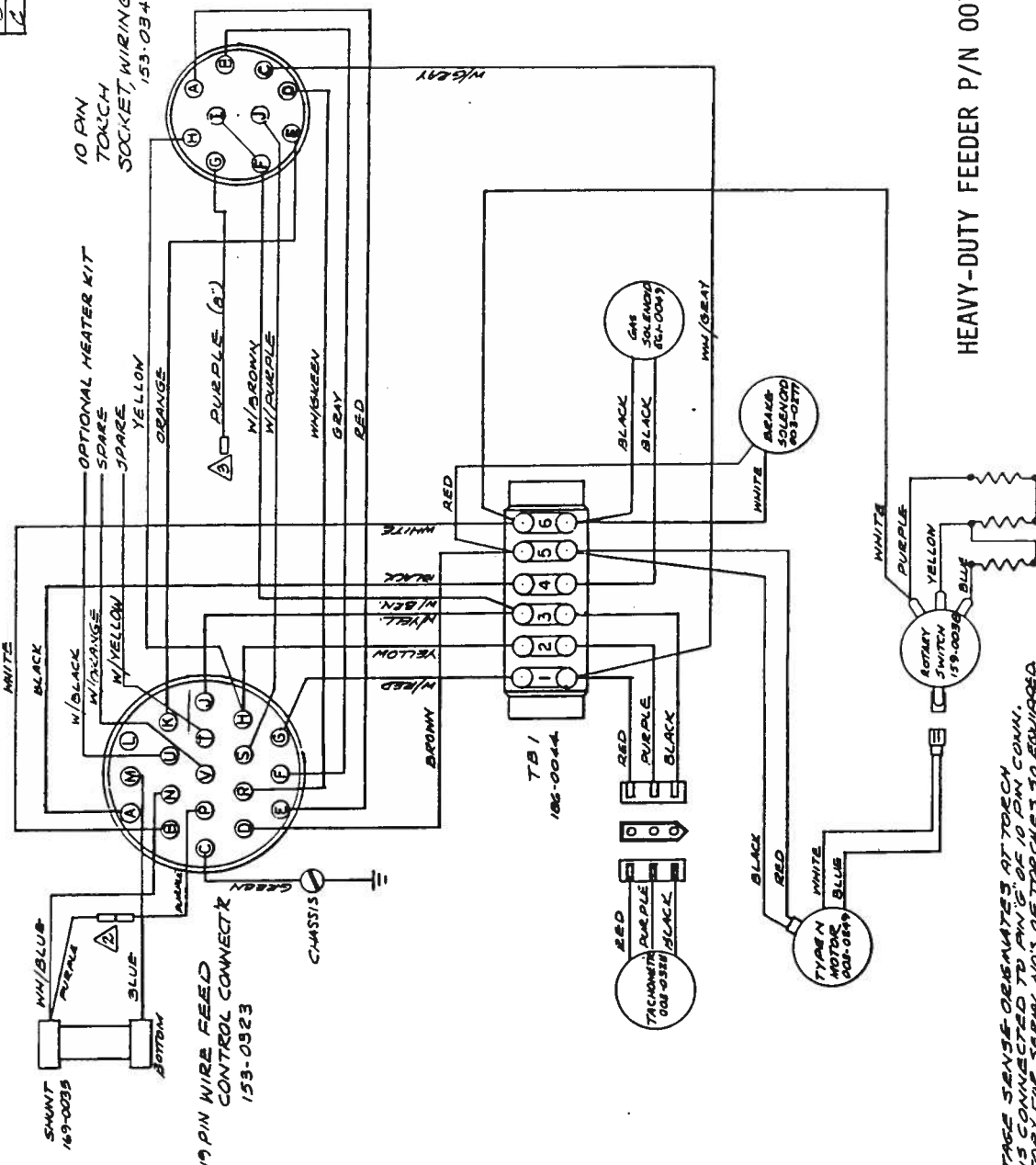
NOTE: POSASTART UNITS ONLY

**SCHEMATIC MK3A, MK3APS**  
**COBRAMATIC CABINET**

MARK PRODUCTS, INC.  
100004510010519  
100004510010517  
100004510010517

REVISIONS		BY	APPROV	DATE
LTR	DESCRIPTION			
-	REL/PROD DCN 4533	SM	JH	7/5
A	ADD WIRE COLOR			
D	DCN 4057			
E	DCN 4711			

10 PIN TORCH SOCKET, WIRING SIDE, 153-0349



TORCH, 10 PIN (REFERENCE ONLY) 193-0351

HEAVY-DUTY FEEDER P/N 001-1761

- ⚠ OPTIONAL VOLTAGE SENSE ORIGINATES AT TORCH WHEN PIN "D" IS CONNECTED TO PIN "G" OF 10 PIN CONN. CONSULT FACTORY FOR SERIAL NOS OF TORCHES TO BE WIRED
- ⚠ WHEN PURPLE WIRE FROM SHUNT IS CONNECTED AS SHOWN TO PIN "D" OF 19 PIN CONNECTOR, VOLTAGE SENSE ORIGINATES AT SHUNT.
- ⚠ BROWN WIRE PIN "G" ATTACHES TO KING TORCH BLOCK. SECURE WIRE UNDER ELEC. CABLE CLAMP.

NOTES

ITEM	MATERIAL or PART NO.	REQ.	SPECIFICATION & DESCRIPTION
001-0172	001-0172	1	UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN INCHES TOL - DEC. XX X 010 XXX X 008 ANGLES & X PERP SURFACES TO BE SQUARE WITHIN 003 TIR DIA'S ON COMMON & TO BE CONC. WITHIN 003 TIR HOLE SURFACES. CASES QUANTITY FILLETS 003 R MAX. - MACH SURF. FINISH V
			WIRING DIAGRAM LOWER CHASSIS PUSH/PULL WIRE FEED 10 PIN ADAPTER

MK MK PRODUCTS, INC. 071-9199 IRVINE CALIF





## LIMITED WARRANTY EFFECTIVE AUGUST 1978

This warranty supercedes all previous M.K. PRODUCTS warranties and is exclusive with no other guarantees or warranties expressed or implied.

**LIMITED WARRANTY** — M. K. Products, Inc., Irvine, California warrants to customer that all new and unused equipment furnished by M.K. Products is free from defect in workmanship and material as of the time and place of delivery by M.K. Products. No warranty is made by M.K. 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.

M.K. Products warranty does not apply to components having normal useful life of less than one (1) year, such as relay points, wire conduit 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 M.K. Products' breach of warranty or any other duty with respect to the quality of any goods, the exclusive remedies therefor shall be at M.K. Products' option, (1) repair or (2) replacement or (3) where authorized in writing by M.K. Products the reasonable cost of repair or replacement at our Irvine, Calif. 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, M.K. Products shall instruct the claimant on the warranty claim procedures to be followed.

As a matter of general policy only, M.K. Products may honor an original user's warranty claims on warranted equipment in the event of failure resulting from a defect within ninety (90) days from the date of delivery of Equipment to the original user.

A copy of the distributor's invoice to the end user, showing the date of sale, must accompany products returned for warranty repair or replacement.

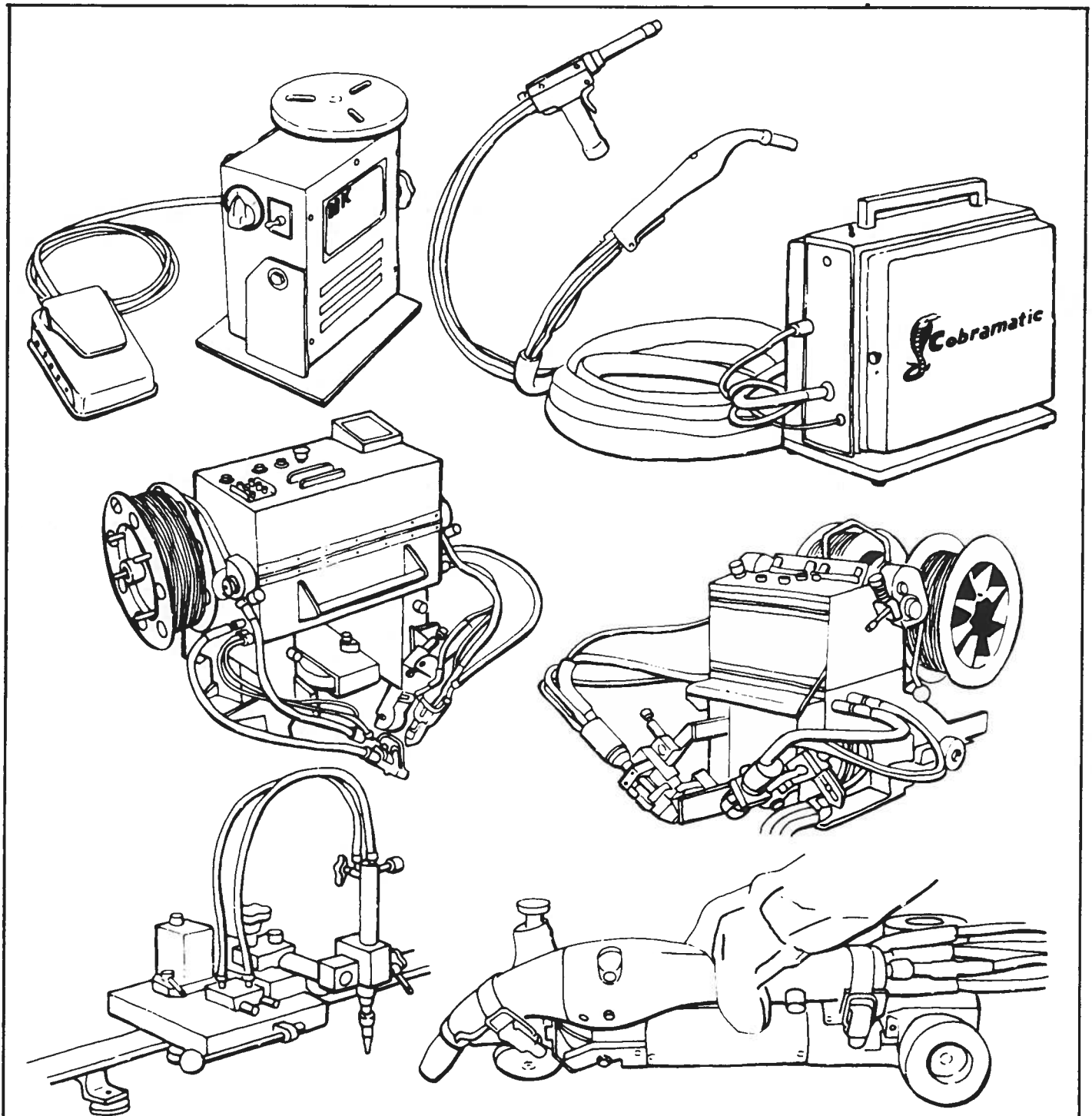
Normal surface transportation charges (both ways) for products returned for warranty repair or replacement will be borne by M.K. Products. Except for products sold for foreign markets.

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