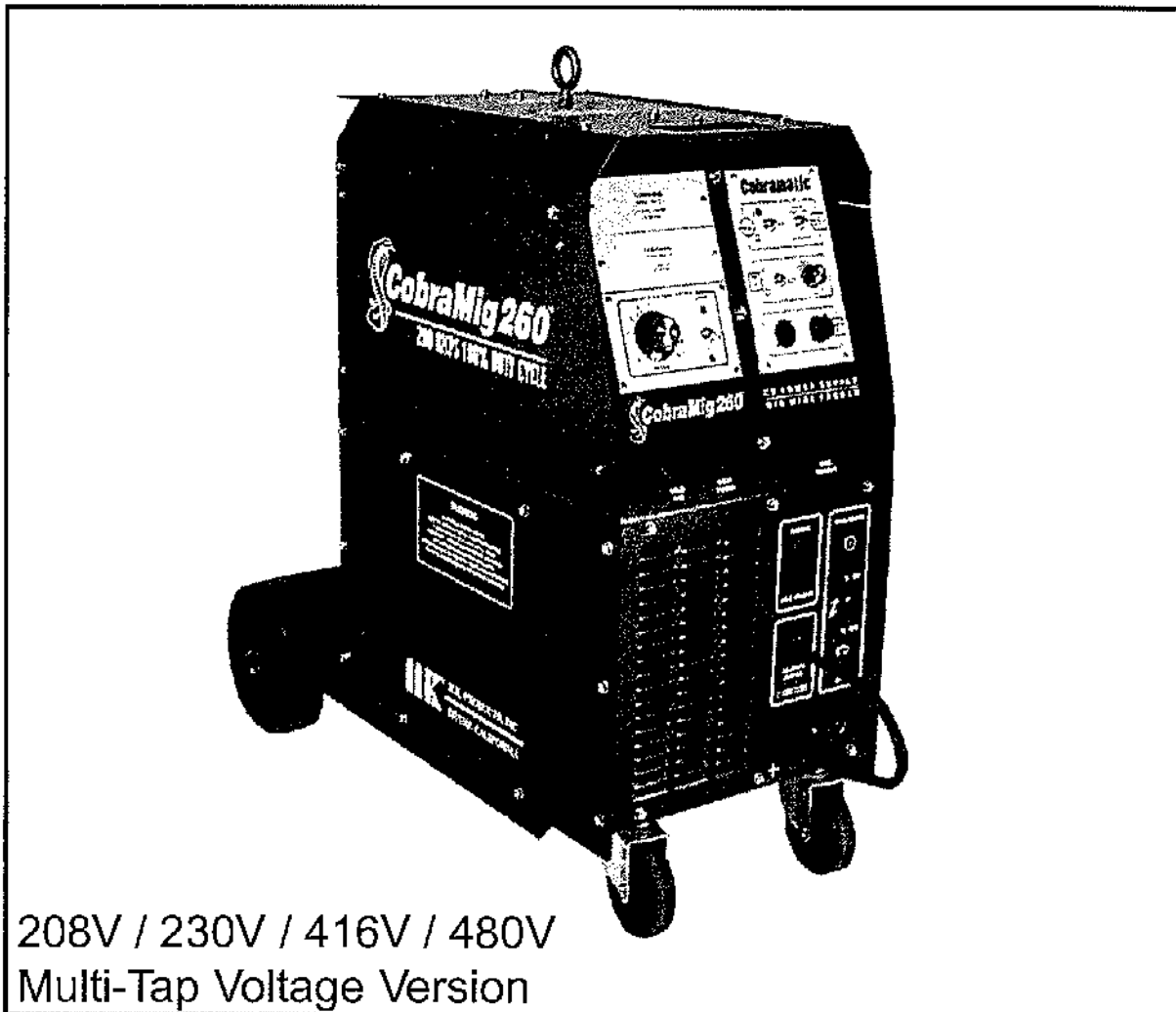




Product Description	CobraMig 260 MT/PS/WF
MK Manual Part Number	091-0334
MK Form Number	CM260MT/OM
NWSA Form Number	550
Effective with serial number	02-2100
Voltage Ratings	208V 230V 416V 480V
Printing Date	July 2001 G
This manual applies to the following CobraMig 260 model numbers	186-002

CobraMig 260 **Power Supply/Wire Feeder**



208V / 230V / 416V / 480V
Multi-Tap Voltage Version

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 it:

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 struck.

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 langles.

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 light-weight 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. DONT 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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MK Products, Inc.

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Introduction

Thank you for purchasing what we believe is the best built wire feeder/power supply on the market. This manual details the installation of your CobraMig 260. Properly installed, adjusted, and maintained for your welding conditions, it will prove to be a reliable welding system producing consistently uniform welds.

The CobraMig 260 unit consists of a single-phase constant voltage(CV) power supply with a built-in *Cobramatic* wire feeder and controls. This unit is compatible with any of MK Products 7-pin "W" clocked push-pull guns or Prince™ XL spool gun. ("S" clocked with connector kit)

In order to assure optimum performance of your CobraMig 260, familiarize yourself with the contents of this manual, and carefully follow all instructions.

This manual will not only guide you in installing your Cobramatic equipment, but will also be a handy reference for optional items, replacement parts, and consumables.

Section 1

SPECIFICATIONS

Wire Diameter Capacity030 - 1/16" ALL Types, .023 hard wires
Wire Capacity 12" Standard (*Insulated or Non-Insulated*)
Power Input, user
selectable by jumpers 208 VAC 60 Hz, 50 amperes, single phase
..... 230 VAC 60 Hz, 45 amperes, single phase
..... 416 VAC 60 Hz, 26 amperes, single phase
..... 480 VAC 60 Hz, 24 amperes, single phase
Rated Output @ 60%
duty cycle 260 amperes @ 26 Vdc - (8.7KW)
..... 2 ranges (12-22V) (22-32V) 40 Vdc max
..... OCV
Weight 230 lbs (dry), 260 lbs (shipping)
Size 15"w x 32"h x 34"d
For Use with Torch
Prefix Numbers 148, 210, 211, 212, 213

Section 2

SUPPORT EQUIPMENT REQUIRED

Regulated Gas Supply and 6' Gas Hose.

Water Source and Hose Capable of Providing a Minimum of 1 qt/min. at 45 p.s.i. when using water cooled torches.

Section 3

COOLANT RECOMMENDATIONS

Use a name-brand additive which does not contain reactive sulphur or chlorine and does not react with copper, brass, or aluminum.

Check coolant periodically to remain within limits of the following:

- A. Coolant Flow rate - 1 quart/minute at 45 p.s.i.
- B. Resistivity - 10K ohms/centimeter
- C. Ph Range - 5.5-8.5
- D. Particle Size - .005"

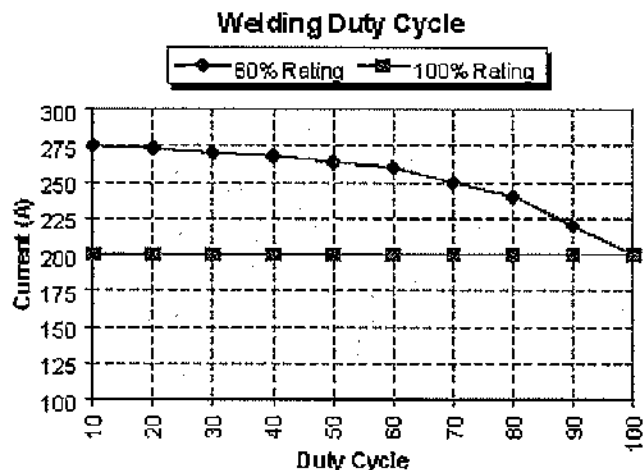
Section 4

OPTIONAL ACCESSORIES

Plastic Guides for Slave Motor

Inlet Guide753-0062

Outlet Guide with Knob.....003-0428



Section 5

OPTIONAL KITS

Remote Voltage Kit	005-0584
<i>Enables the power supply to be controlled from 25' pendant.</i>	
<i>Extend to 50' with 25' extension cable</i>	<i>843-0354</i>
LCD Meter Kit	005-0585
<i>Digital Volt and Amp meters with memory feature to hold and alternately display volts and amps for 1 minute after welding.</i>	
Timer Kit	005-0586
<i>Add on panel includes spot timer, and stitch weld option.</i>	
Remote wire feed Kit with digital readout knob	005-0615
<i>Relocates wire feed speed control from the torch to the CobraMig front panel.</i>	
Torch Hanger Kit	005-0169
<i>Allows you to hang torch on side of power supply.</i>	
<i>Easily hooks on and off.</i>	
Remote wire feed Kit	005-0167
<i>Relocates torch speed control to the CobraMig front panel.</i>	
"S" clocked Kit	005-3563
<i>Adds "S" clocked connector compatibility to front panel.</i>	

Section 6

EQUIPMENT INSTALLATION

6.1 Location

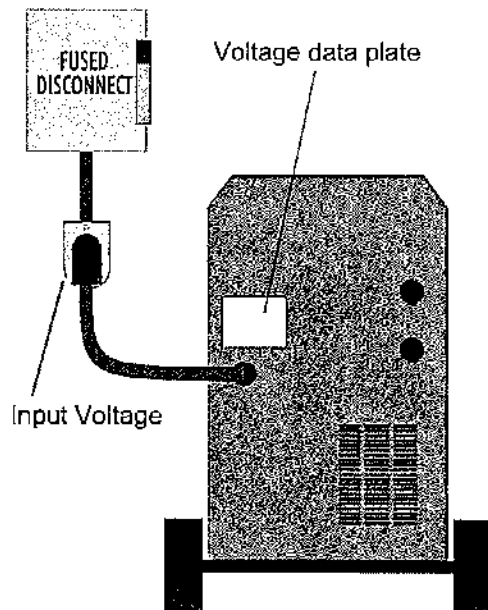
The unit should be placed in a location where it can be protected from damage. For the longest unit life and best efficiency, avoid locations exposed to dust, corrosive fumes, high ambient temperatures or high humidity. Moisture and dirt on components can cause corrosion and/or shorting of circuits.

Adequate air circulation is needed at all times in order to prevent overheating and possible damage to internal parts. Maintain at least 12 inches of free air space on all sides of unit.

An eye bolt and mounting hole is provided for lifting/unpacking purposes. Do not have the gas cylinder or any other equipment mounted to this unit when using the lifting eye bolt. Do not suspend this unit overhead.

6.2 Input Power

This welding power supply is designed to be operated from single-phase 208, 230, 416 or 480 VAC 60 Hz input power and is provided with Voltage Links for converting power requirements in the field.. Consult your local electrical utility if there are any questions about the type of electrical system at the installation site, or how proper connections to the welding machine have to be made.





WARNING

A fused line disconnect switch should be installed in the input circuit to the welding machine. This would ensure a complete removal of all electrical power when performing service.

Conductor and Fuse Guide				
Line Volts	Full Load Amps	Approx. Line Fuse Rating	Copper Line Wire Size*	Copper Grounding Conductor Min. Size
			Free Air	
208	50	60 AMP	No. 8	No. 8
230	45	60 AMP	No. 8	No. 8
416	26	40 AMP	No. 8	No. 8
480	24	40 AMP	No. 8	No. 8

Based on 60% duty cycle

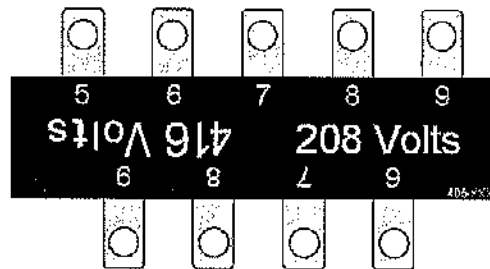
6.3 Input Power Connections

Before connecting input power cord verify input power requirements by checking data plate on rear of unit. Do not connect if your input power voltage is different from the voltage indicated on the input specification panel.

Turn off all power at the disconnect.

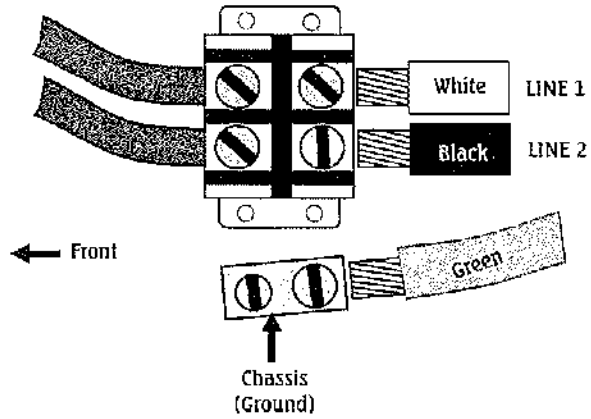
Remove the right lower panel, as viewed from front, and locate power block at rear of unit.

Determine input Voltage and MOVE both Voltage Links to match INPUT VOLTAGE on BOTH Terminal blocks "TB1" and "TB2", these need to be set the same or damage WILL occur to the unit.



Voltage Link

4. Route input cable through strain relief and connect to power block as shown in the diagram below.



5. Tighten strain relief and replace side panel with all hardware removed.

--- IMPORTANT ---

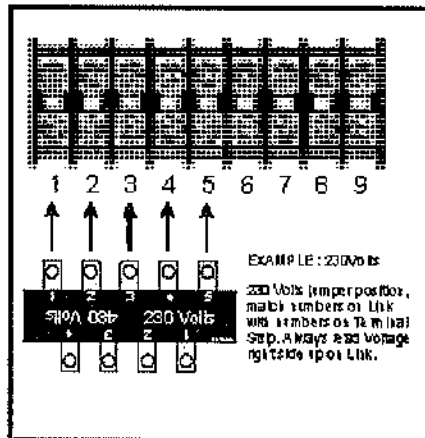
This unit has low and high power terminal blocks (TB1 & TB2) that must have the SAME jumper configuration. Put BOTH Voltage Links to same terminal block screws.

SEE SAMPLE HOOK UP DIAGRAM BELOW FOR EXAMPLE OF VOLTAGE LINK PLACEMENT.

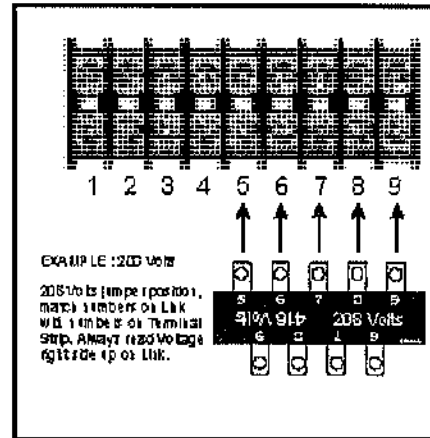
6.4 Shielding Gas Connection

Remove the screws from the left hinged door, as viewed from the front, and open door.

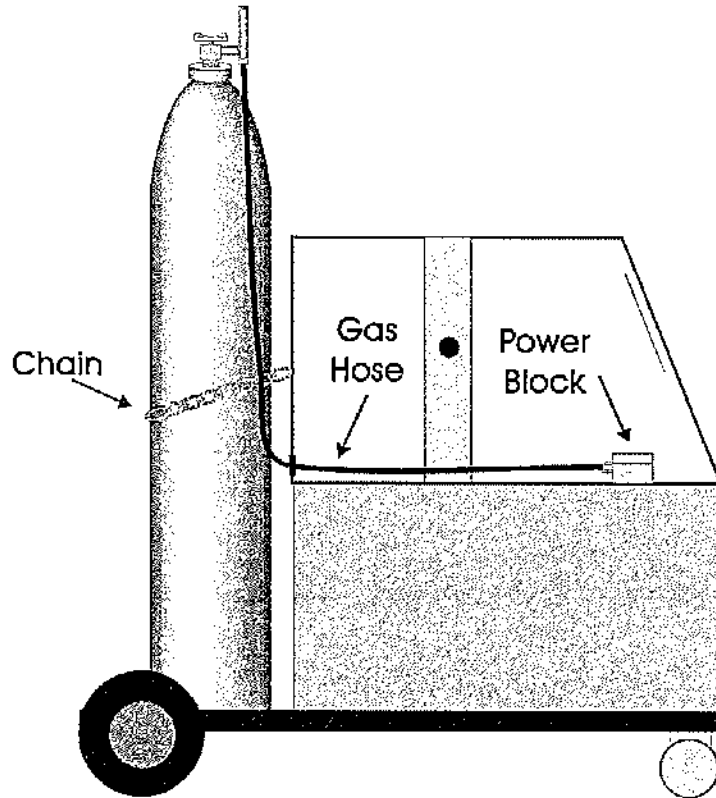
230 VOLT EXAMPLE



208 VOLT EXAMPLE



Route the gas hose from the regulator/flowmeter through the grommet on the back panel and into the 5/8-18 R.H. fitting on the power block.



DANGER

*Welding gases can cause serious injury or death.
Read manufacturer's instructions before installing, using,
or servicing the regulator, gas hose, or gas cylinder.*

Do not touch cylinder with electrode. Keep cylinder away from all electrical circuits. Keep gas cylinder secured so that it cannot move.

6.5 Water Connection (Water Cooled Torches Only)

Connect the water return line from the recirculator through the grommet on the rear panel and into the 5/8" - 18 L.H. thread on the power block. The water "IN" hose connects directly to the torch water "IN" fitting; it does not pass through the power supply.

6.6 Torch Connections

Unpack torch and remove all shipping plugs.

Open the left door, as you face front of unit, and locate power block.

Route torch gas hose through front panel grommet and secure to fitting on power block with 1/2" wrench.

Route torch power cable through front panel grommet and secure to fitting on power block with a 3/4" wrench.

Open right door and connect conduit to slave motor outlet guide.

Section 7

WIRE THREADING PROCEDURE

7.1 Wire Spool Installation

Release latches, and open right side door of cabinet.

Remove spool retainer from spindle hub.

Install wire spool onto spindle hub so that wire feeds from bottom of spool towards slave motor. Make sure that the hole in the spool aligns with pin on spindle hub. The white dot on the end of the spindle hub will aid in this alignment.

Replace the spool retainer.

7.2 Threading Procedure

Place wire size selector switch on front panel to the correct position for the wire being used.

NOTE:

*For 3/64" and 1/16" aluminum wire use the
"ALL OTHER WIRES" position.*

Loosen end of wire from spool and cut off any kinked or bent portions.

Unreel and straighten out first 6" to 8" of wire.

Release tension from slave motor drive rolls.

Route wire into inlet guide, along drive roll groove, and into wire conduit.

Prevent the wire spool from turning with the palm of the right hand, and at the same time grasp the slave motor pressure adjusting knob.

Pull the torch trigger and slowly tighten the slave motor pressure adjusting knob until the slave motor stalls; then add an additional 1/4 turn more.

CAUTION:

*EXCESSIVE DRIVE ROLL TENSION WILL REDUCE
RATHER THAN IMPROVE WIRE FEED PERFORMANCE.*

Tighten the torch pressure adjusting knob so the wire will be picked up and fed through the contact tip. 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.

7.3 Spindle Drag Adjustment

Loosen nut inside spindle until spring is not compressed.

When in the ".030-.035 Aluminum Only" position tighten nut until you feel spring start to compress then add 1 turn. A good "rule of thumb" is for the nut to be flush with the end of the threaded shaft.

When welding with 3/64" and 1/16" Aluminum wire, the torque switch MUST be in the "All Other Wires" position. The nut should be flush with the end of the threaded shaft.

When welding with all sizes of steel, stainless steel, inconel, and monel wires larger than .023" the torque switch MUST be in the "All Other Wires" position. Since most of these spools will weigh 30 lbs. or more, it will be necessary to tighten the nut on the shaft at least 1/2" from the end of the shaft.

When welding with .023" hard wire, the torque switch MUST be in the ".023"

hard wire" position. The nut should be approximately 1/4" from the end of the shaft.

Press the trigger and make sure the wire comes level off of the spool. If you can see the wire cast when feeding, add a little more drag. (1/4 turn)

7.4 Pre-Setting Slave Motor Tension

(NOTE: Read sections 7.1 & 7.2 before performing this operation.)

All Cobramatics have preset adjusting nuts which enables spools of the same wire diameter and type to be changed without further pressure adjustment after initial set-up.

To preset the slave motor tension, bottom out the pressure adjusting knob by turning it completely clockwise.

Prevent the wire spool from turning and using a 9/16" wrench adjust the preset nut until the slave motor stalls, then add an additional 1/4 turn.

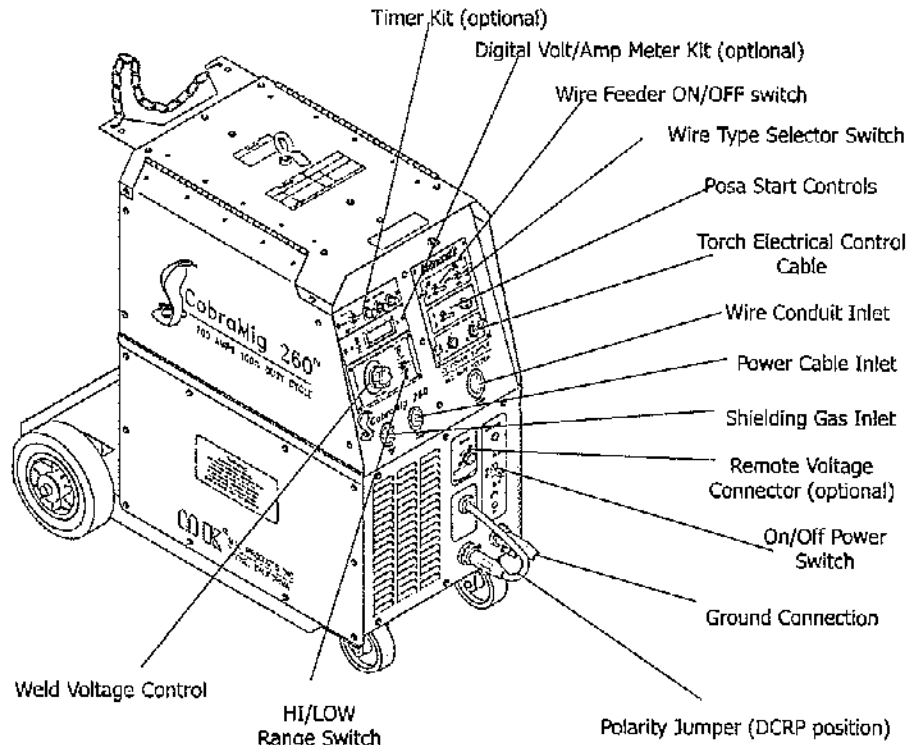
Correct pressure will now be achieved by simply bottoming out the pressure adjusting knob.

7.5 Wire Guard

The Cobramatic® Wire Guard (P/N 005-0618) is designed to keep the welding wire from jumping off the spool inside the wire feed cabinet. When the trigger is released and the brake engages, especially when using a new spool that is heavier towards the outside, the spool will tend to rotate more against the spindle drag adjustment.

However, since the wire is held by the slave motor it will not move and could subsequently jump off the back of the spool and become lodged in the brake mechanism, or jump off the front of the spool and electrically short-out to the cabinet chassis. The wire guard will keep the wire from doing either.

The wire guard is designed to run inside the spool on top of the wire, and when the brake is engaged the wire guard will hold the wire onto the spool. The wire guard is made of a heavy woven nylon material that is resistant to wear and will not contaminate the surface of the wire.



Section 8

Operation

8.1 General

The CobraMig 260 is a constant voltage (CV) DC welding power supply with a built-in Cobramatic I wire feeder which operates on the same basic principles as all other Cobramatics. The 115VAC slave motor in the feeder side 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 torch motor gets all it wants, it slows the slave motor to the speed that the torch is running. 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 to keep the wire slightly taut, so it will not unspool while feeding wire. The high torque 24VDC torch pull motor is controlled by a solid state speed control, located on the main board, and the potentiometer located on the torch.

The lower portion of the unit houses the power supply components. Power supply controls include a range switch and an infinitely variable voltage control.

8.2 Cobramig 260 Controls

8.2.1. ON/OFF SWITCH

Placing the switch in the "ON" position energizes the power supply and places the unit in the ready-to-weld status. The power indicator light should be on at this time.

8.2.2. CONDUIT INLET

The conduit inlet provides access to the slave motor outlet guide.

8.2.3. POWER CABLE INLET

The power cable inlet provides access to the power block fitting inside the unit.

8.2.4. SHIELDING GAS INLET

Provides access to the gas fitting inside the cabinet.

8.2.5. WELD VOLTAGE

The weld voltage knob adjusts the power supply output voltage. It is infinitely variable between the ranges. The scale surrounding the WELD voltage control is a relative scale only; it does not represent actual voltage.

8.2.6. RANGE SWITCH

The "LO" range provides from 12 to 22 volts and the "HI" range provides from 22 to 32 volts.

8.2.7. REMOTE VOLTAGE (See Optional Kits)

This option enables the weld voltage control to be adjusted from a remote hand pendant.

8.2.8. TIMER KIT (See Optional Kits)

This option provides Spot Welding or Stitch Welding operation from the Cobramig 260. In the Spot Mode, timing can be adjusted for a welding time of .5 to 4 seconds and a Burnback time of 0 to .25 seconds. In the Stitch Mode, the unit can be commanded to "Turn On" from .5 to 4 seconds and "Turn Off" from .25 to 1 second.

8.2.9. DIGITAL VOLT/AMP METER (See Optional Kits)

The LCD meter provides an alternating display of Volts and Amps during and after welding for up to 1 minute using a built-in memory.

8.2.10. POLARITY JUMPER

The polarity jumper allows for easy reversal of the electrode polarity. For Reverse polarity (DCRP) plug jumper into the **plus (+)** connector below jumper plug. For Straight polarity (DCSP) plug jumper into **minus(-)** connector below jumper plug. The ground lug plugs into whichever connector is not used for the polarity jumper.

8.2.11. COBRAMATIC CONTROLS

ON/OFF SWITCH

Placing the switch in the "ON" position energizes the feeder circuitry and the power indicator light.

WIRE SIZE SELECTOR SWITCH

The wire size selector switch changes the torque of the slave motor for the wire you are using. When in the ".030-.035" aluminum only position, the slave motor produces approximately 2 lbs. inches and approximately 3 lbs. inches when in the "all other wires" position.

(NOTE: Operating the cabinet with the switch in the wrong position will cause wire feed difficulties.)

POSA START CONTROLS

The Posa Start Control selects a Run-in Speed which is *slower* than the actual welding speed. After arc initiation, the *wire feed speed* control is transferred to the potentiometer in the torch handle. The scale surrounding the Run-in Speed Control is a relative scale only; it does not represent actual inches per minute, but a percentage of the speed dialed by the torch potentiometer.

TORCH AMPHENOL CONNECTORS

The Cobramatic I panel contains *as standard* a 7 pin "W" clocked amphenol connector and optionally a 7 pin "S" clocked connector may be added to accommodate both styles of 7 pin amphenol torches. See specifications for torch compatibility.

8.3 Sequence of Operation

Install and connect unit according to installation instructions.

Place the welding machine power ON/OFF switch to the "ON" position.

Install wire into feeder and set-up according to Wire Threading Procedure.

Open the gas cylinder valve to supply shielding gas to the gun.

Press gun trigger and adjust gas flow meter.

Connect the WORK (-)(DCRP) clamp to the workpiece.

Place the Weld Voltage control and Range switch at the desired position.

Set the gun wire speed potentiometer to the correct position.

WARNING: *Be sure to put on proper protective clothing and eye safeguards (welding coat, apron, gloves, and welding helmet, with proper lenses installed). See Safety Instructions and Warnings chapter included in this manual. Neglect of these precautions may result in personal injury.*

Place the gun near the workpiece and slightly crack the trigger and hold for 2 to 3 seconds before fully pressing the trigger. This provides a gas pre-flow which will improve arc starts.

For more information see the table "Welding Guide" in section 11.

Section 9

POSA START OPERATING PROCEDURE

9.1 General

The Posa Start Run-in Speed Control, located on the front panel, provides adjustment for slow wire run-in. Once the arc has been established, the wire feed speed is automatically changed from the slow run-in speed to the welding speed set on the torch potentiometer. This slow run in speed helps to reduce "burn-backs" and "push-back" during arc start.

9.2 CV Posa Start Operation

Attach Cobramatic to CV power source according to the installation instructions.

Turn the Cobramatic to the "ON" position and the Posa Start to the "OFF" position.

Adjust power source to desired voltage for your weld condition.

Depress gun trigger and adjust wire feed speed at gun to match voltage setting. If approximate wire feed is not known, it is better to start with excess wire feed rather than too little, in order to prevent a "burn-back".

Turn the Posa Start switch to the "ON" position. Press torch trigger and, using Run-in Speed Control, adjust wire feed rate to approximately 10% of the welding wire speed.

Strike an arc, and adjust wire feed rate at gun until correct condition is achieved.

Section 10

MAINTENANCE

10.1 Torch

Maintenance of the torch will normally consist of a general cleaning of

the wire guide system, including tubes, drive rolls, and conduits at regular intervals.

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

The only parts on the Cobramatic system that are subject to normal wear are the conduit, contact tips, gas cups, front body liners, wire guides, drive and idler rolls. A supply of these parts should be maintained on hand.

10.2 Power Supply

Periodically inspect all cables and hoses for damage or breaks in the insulation jacket, particularly at the plugs or ends. Repair or replace cables or hoses as necessary.

Remove grease and dirt from components and remove moisture from electrical parts and cables.

Be sure that all connections are clean and tight.



WARNING:
ELECTRIC SHOCK can kill.
Shut-off disconnect and unplug unit before cleaning unit.

Every six months blow out or vacuum dust and dirt from the internal components of the power supply. Remove the side panels and use a clean, dry air stream or vacuum suction for the cleaning operation. If repairs do become necessary, any part can easily be replaced by a qualified shop maintenance man.

Your CobraMig 260 is designed to provide years of reliable service. Normal wear and component failure may require occasional service. The number of units in operation and the importance of minimal "down time" will determine to what extent spare parts should be stocked on hand.

Section 11

PROCESS SETTINGS FOR THE COBRAMIG 260

The following table is provided as a guide to assist you in setting up for standard welding processes. Please be aware that there are many variables associated with welding and conditions can change from day to day due to any number of external influences.

MK Products' Customer Service Department is ready to assist you should you need help setting up your equipment in the field. Please be aware that we do not specialize in process parameter problems, but are willing to share our resources if it might help you achieve better quality welds.

MK Products reserves the right to change any settings associated with this welding guide, you may request the most up to date guide by calling our Customer Service department during normal working hours.

To use chart, locate material, thickness and wire diameter. Then read across for values to use, "REF" is the value dialed on the "Weld Voltage" knob on the front panel, this is only a reference value.

CobraMig 260 Welding Guide											
Material	IPM	Dia.	Alloy	Tip ID Type	Cup	Gas	Flow	Range	Xfer	Ref.	
Aluminum	.040	295	.030	4043	.040 Spray	#6	Ar	20	Low	Short	2.5
	.060	370	.030	4043	.040 Spray	#6	Ar	20	Low	Short	3.2
	.090	350	.030	4043	.040 Spray	#6	Ar	20	Low	Spray	6.0
	.060	370	.035	4043	.044 Spray	#6	Ar	20	Low	Short	4.2
	.090	360	.035	4043	.044 Spray	#6	Ar	20	Low	Spray	7.0
	.125	390	.035	4043	.044 Spray	#6	Ar	20	Low	Spray	9.0
	.090	480	.035	5356	.044 Spray	#8	Ar	20	Low	Spray	6.2
	.125	500	.035	5356	.044 Spray	#8	Ar	20	Low	Spray	9.2
	.125	220	.045	4043	.060 Spray	#8	Ar	25	Low	Spray	7.6
	.250	370	.045	4043	.060 Spray	#8	Ar	25	High	Spray	2.2
.375	475	.045	4043	.060 Spray	#8	Ar	25	High	Spray	4.8	
Steel	20 Ga.	190	.023	E-70S-6	.031 Short	#6	C25	20	Low	Short	3.4
	.060	270	.023	E-70S-6	.031 Short	#6	C25	20	Low	Short	4.6
	.060	180	.030	E-70S-3	.036 Short	#6	C25	20	Low	Short	4.8
	.090	230	.030	E-70S-3	.036 Short	#6	C25	20	Low	Short	5.5
	.060	140	.035	E-70S-6	.040 Short	#6	C25	20	Low	Short	5.2
	.125	150	.035	E-70S-6	.040 Short	#6	C25	20	Low	Short	5.6
	.250	210	.035	E-70S-6	.040 Short	#8	C25	25	Low	Short	7.2
Stainless	.060	120	.030	308LSI	.036 Short	#6	TriMix	30	Low	Short	4.2
	.125	230	.030	308LSI	.036 Short	#6	TriMix	30	Low	Short	6.2
	.060	100	.035	308LSI	.040 Short	#6	TriMix	30	Low	Short	4.2
	.125	180	.035	308LSI	.040 Short	#6	TriMix	30	Low	Short	7.0
	.250	240	.035	308LSI	.040 Short	#6	TriMix	30	Low	Short	7.8

Ar=Argon

C25=75%Ar 25%CO₂

TriMix=90%He 7 1/2%CO₂ 2 1/2%Ar

Section 12

COBRAMIG 260 DEMO SET-UP (.035 4043 ALUMINUM)

The demonstration listed below is designed to help you familiarize yourself with this equipment and also provide you with a known procedure so that you may perform a successful demo. Although these conditions may not be the exact ones needed for your customers specific application, it will provide him with an example of the proper use and operation of this equipment. By following this procedure exactly, a successful demo is assured. This type of demonstration is not the time to experiment. If for some reason the proper equipment is not available, reschedule the demo.

MATERIALS NEEDED:

- 1 ea CobraMig 260 system with torch of your choice
- 1 ea #6 Gas Cup (3/8")
- 10 ea Contact Tips .044 (621-0001 spray arc)
- 1 ea Spool of clean .035 4043 Wire
- 1 ea Cylinder of Argon gas w/Regulator-Flowmeter and Hose
- 1 ea Stainless Steel Wire Brush
- 20 ea Weld coupons (2 X 6 X 1/8") 6061T-6 Aluminum

PROCEDURE:

Machine Set-up

Hook-up the CobraMig 260 according to installation instructions in owners manual.

Install wire onto spindle and thread wire through torch according to wire threading procedure.

Make sure "Wire Type" switch is in the "030-035 ALUM" position.

Press gun trigger and set gas flow to 25cfh.

Set the "VOLTAGE" control on front panel to 8.4 and the "RANGE" switch to Lo.

Turn the "POSA START" to the off position.

Place the "POLARITY JUMPER" in the positive (+) connector and the ground clamp in the negative connector.

Press the gun trigger for six (6) seconds. Adjust the wire feed speed until 32 inches of wire is measured in 6 seconds; this equals 320 ipm.

Using the S/S brush, brush two weld coupons until the oxide is removed.

Position Material and Tack Weld

Position the coupons on the work table to form a 'T' fillet.

Place the gas cup near the work piece and tack weld one end. Remember to provide pre-purge before each weld by cracking the torch trigger and holding it for a few seconds before fully pressing the trigger. This will reduce built-up pressure and aid in arc starting.

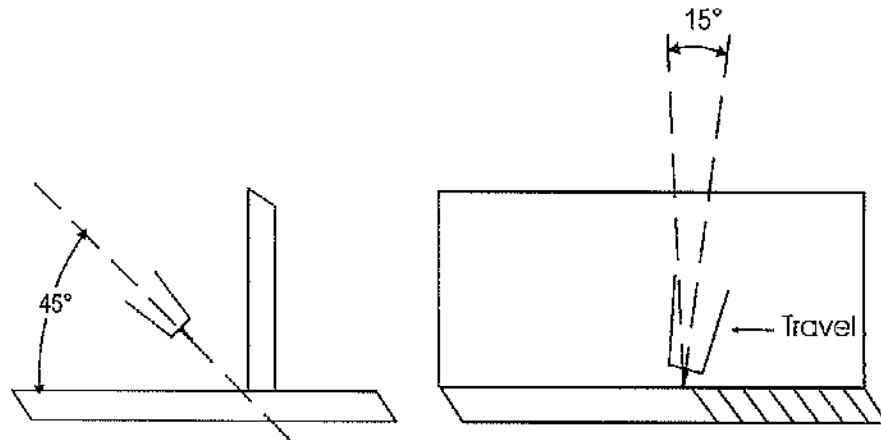
Tack weld the other end.

Deposit Weld

Securely clamp the workpiece to the table so that you have a clear view of the arc, weld puddle, and unwelded portion of the joint at all times.

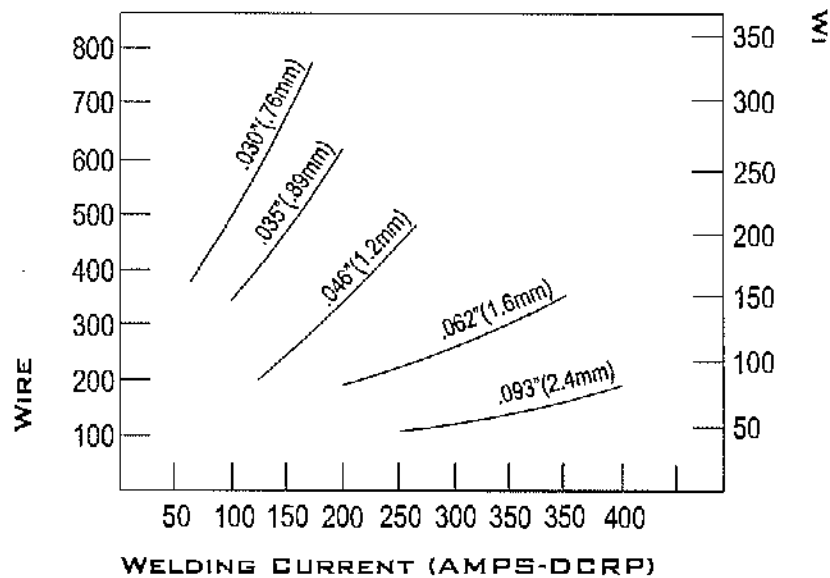
Welding is done from right to left for a right handed operator and from left to right for a left handed operator (known as Push or Forehand). The torch

should bisect the 90 degree angle made by the joint and a push angle of from 10 to 15 degrees in the direction of travel is used.



Strike an arc and move the torch progressively along the joint at a smooth steady rate. Most operators, unfamiliar with aluminum, tend to move too slow and consequently overheat the plate. A travel rate of 25 to 35 ipm should be used.

The arc should sound smooth and the weld bead should be bright and shiny. If spatter occurs and the arc sounds like a short arc condition, decrease the wire feed speed or, if the weld looks cold, increase the voltage until a smooth spray transfer is achieved.



Burnoff Characteristics 4043 wire

Source:
Mig Welding Handbook,
Linde

The above condition provides 20 volts and 112 amps. If exact volts and amps are required, purchase meter kit P/N 005-0585.

Section 13

COBRAMIG 260 DEMO SET-UP (.035 STAINLESS STEEL)

The demonstration listed below is designed to help you familiarize yourself with this equipment and also provide you with a known procedure so that you may perform a successful demo. Although these conditions may not be the exact ones needed for your customers specific application, it will provide him with an example of the proper use and operation of this equipment. By following this procedure exactly, a successful demo is assured. This type of demonstration is not the time to experiment. If for some reason the proper equipment is not available, reschedule the demo.

MATERIALS NEEDED:

- 1 ea CobraMig 260 system with torch of your choice
- 1 ea #6 Gas Cup (3/8")
- 10 ea Contact Tips .040 (621-0077 short arc)
- 1 ea Spool of clean .035 stainless wire (E308L-SI)
- 1 ea Cylinder of 90HE/7.5AR/2.5CO₂ gas w/Regulator-Flowmeter and Hose
- 20 ea Weld coupons (2 X 6 X 16 gauge) stainless steel

PROCEDURE:

Machine Set-up

Hook-up the CobraMig 260 according to installation instructions in owners manual.

Install wire onto spindle and thread wire through torch according to wire threading procedure.

Make sure "Wire Type" switch is in the "All Others" position.

Press gun trigger and set gas flow to 25cfh.

Set the "VOLTAGE" control on front panel to 5 and the "RANGE" switch to Lo.

Turn the "POSA START" to the off position.

Place the "POLARITY JUMPER" in the positive (+) connector and the ground clamp in the negative connector.

Press the gun trigger for six (6) seconds. Adjust the wire feed speed until 8 inches of wire is measured in 6 seconds; this equals 80 ipm.

Position Material and Tack Weld

Position the coupons on the work table to form a 'T' fillet.

Place the gas cup near the work piece and tack weld one end. Remember to provide pre-purge before each weld by cracking the torch trigger and holding it for a few seconds before fully pressing the trigger. This will reduce built-up pressure and aid in arc starting.

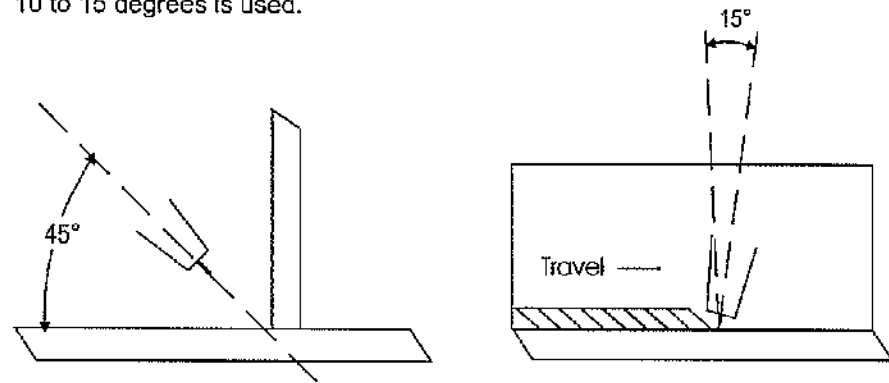
Tack weld the other end.

Deposit Weld

Securely clamp the workpiece to the table so that you have a clear view of the arc, weld puddle, and unwelded portion of the joint at all times.

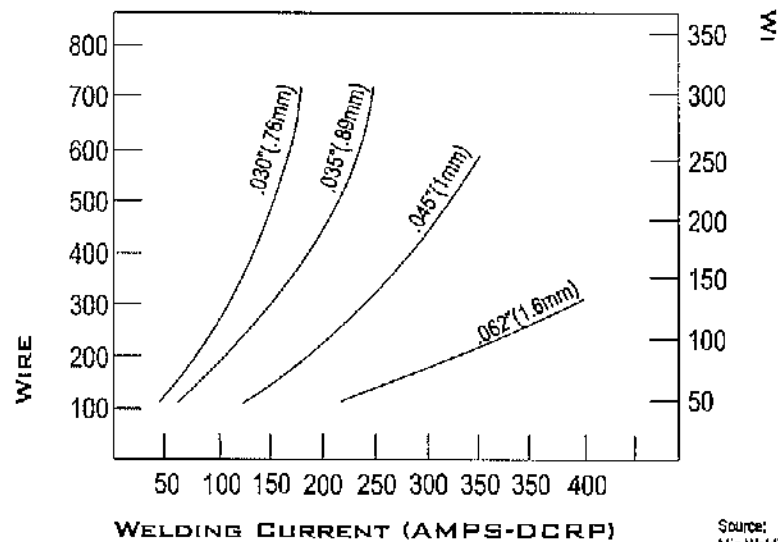
Welding is done from left to right for a right handed operator and from right

to left for a left handed operator (known as Drag or Backhand). The torch should bisect the 90 degree angle made by the joint and a drag angle of from 10 to 15 degrees is used.



Strike an arc and move the torch progressively along the joint at a smooth steady rate. A travel rate of 20 to 25 ipm should be used.

The arc should sound smooth and steady. If spatter occurs and the arc pops reduce the wire feed speed until the arc smooths out.



Source:
Mig Welding Handbook,
Linde

Burnoff Characteristics 300 Series Stainless

The above condition provides 20 volts and 40 amps. If exact volts and amps are required, purchase meter kit P/N 005-0585.

Section 14

COBRAMIG 260 DEMO SET-UP (.035 STEEL WIRE)

The demonstration listed below is designed to help you familiarize yourself with this equipment and also provide you with a known procedure so that you may perform a successful demo. Although these conditions may not be the exact ones needed for your customers specific application, it will provide him with an example of the proper use and operation of this equipment. By following this procedure exactly, a successful demo is assured. This type of demonstration is not the time to experiment. If for some reason the proper equipment is not available, reschedule the demo.

MATERIALS NEEDED:

- 1 ea CobraMig 260 system with torch of your choice
- 1 ea #6 Gas Cup (3/8")
- 10 ea Contact Tips .040 (621-0077 short arc)
- 1 ea Spool of clean .035 steel wire (E70-S6)
- 1 ea Cylinder of 75Argon/25CO2 gas w/Regulator-Flowmeter and Hose
- 20 ea Weld coupons (2 X 6 X 16 gauge) mild steel

PROCEDURE:

Machine Set-up

Hook-up the CobraMig 260 according to installation instructions in owners manual.

Install wire onto spindle and thread wire through torch according to wire threading procedure.

Make sure "Wire Type" switch is in the "All Others" position.

Press gun trigger and set gas flow to 25cfh.

Set the "VOLTAGE" control on front panel to 5.8 and the "RANGE" switch to Lo.

Turn the "POSA START" to the off position.

Place the "POLARITY JUMPER" in the positive (+) connector and the ground clamp in the negative connector.

Press the gun trigger for six (6) seconds. Adjust the wire feed speed until 13 inches of wire is measured in 6 seconds; this equals 130 ipm.

Position Material and Tack Weld

Position the coupons on the work table to form a 'T' fillet.

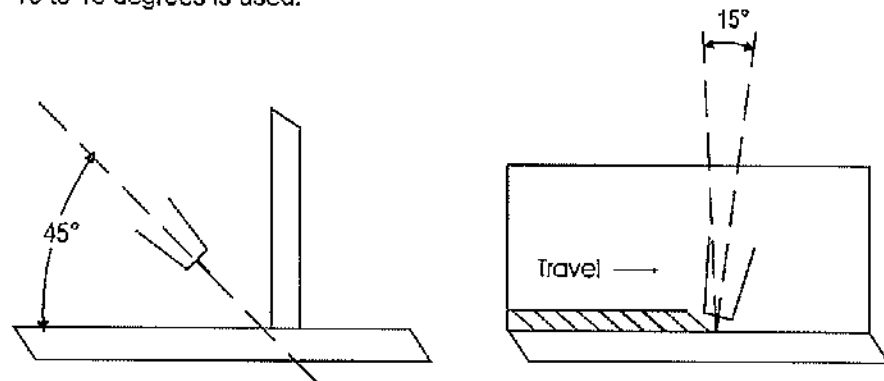
Place the gas cup near the work piece and tack weld one end. Remember to provide pre-purge before each weld by cracking the torch trigger and holding it for a few seconds before fully pressing the trigger. This will reduce built-up pressure and aid in arc starting.

Tack weld the other end.

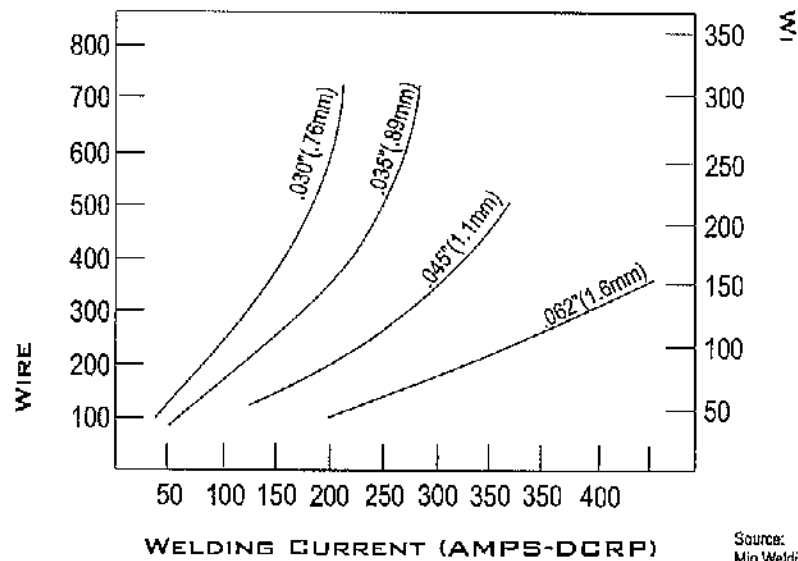
Deposit Weld

Securely clamp the workpiece to the table so that you have a clear view of the arc, weld puddle, and unwelded portion of the joint at all times.

Welding is done from left to right for a right handed operator and from right to left for a left handed operator (known as Drag or Backhand). The torch should bisect the 90 degree angle made by the joint and a drag angle of from 10 to 15 degrees is used.



3. Strike an arc and move the torch progressively along the joint at a smooth steady rate. A travel rate of 25 to 35 ipm should be used.
4. The arc should sound smooth and steady. If spatter occurs and the arc pops reduce the wire feed speed until the arc smooths out.



Source:
Mig Welding Handbook,
Linde

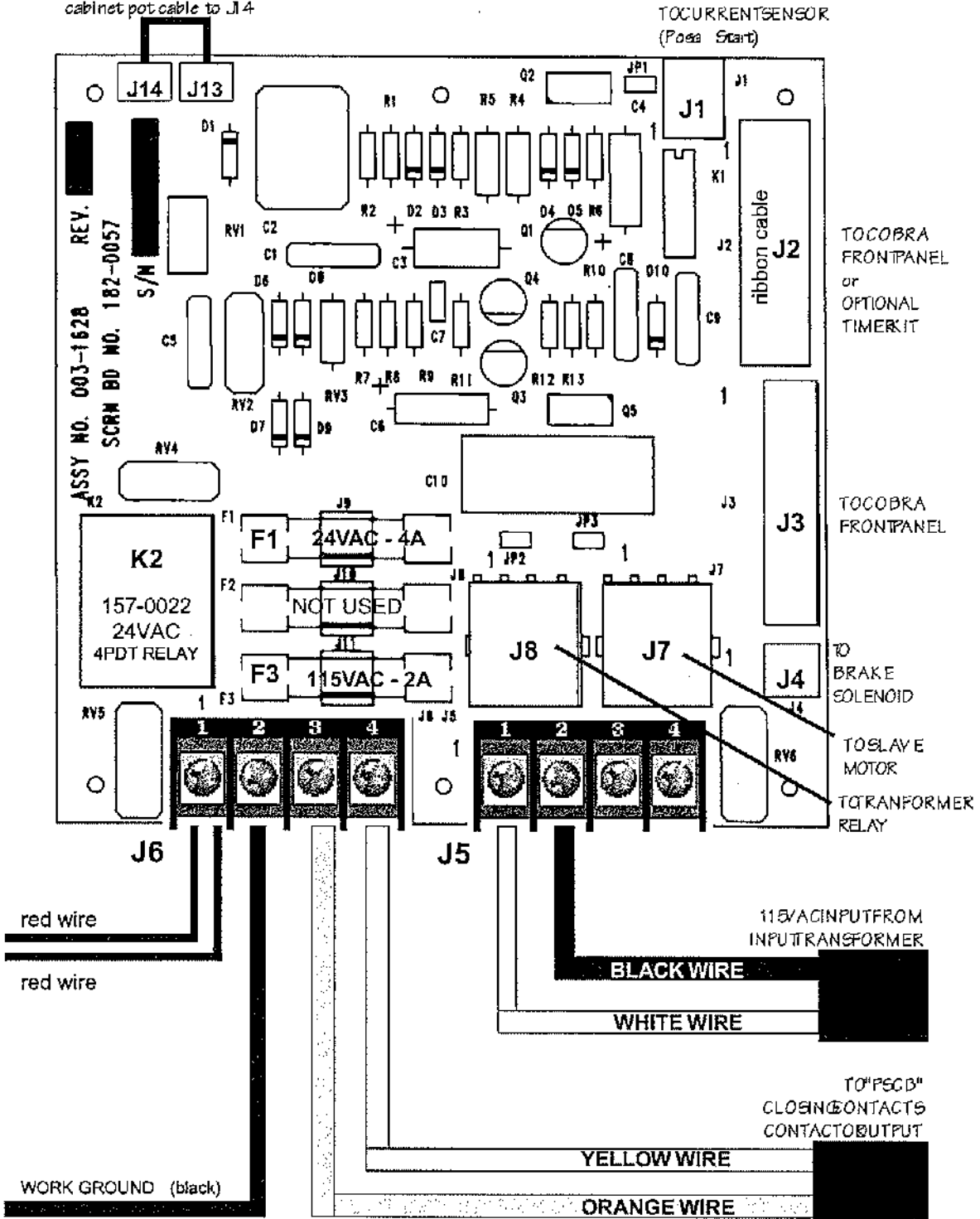
Burnoff Characteristics Mild Steel Wire

The above condition provides 16.5 volts and 89 amps. If exact volts and amps are required, purchase meter kit P/N 005-0585.

Section 15 STANDARD CONNECTIONS - MAIN PC BOARD

REMOTE POT JUMPER

For cabinet pot operation,
Remove jumper and connect
cabinet pot cable to J14



Section 16

**MECHANICAL DRAWINGS
AND
ASSEMBLY DRAWINGS**

QTY.	PART NO.	DESCRIPTION	UNIT
1	301-0087	WIRE GUARD	A
1	405-0868	SERIAL PLATE	A
1	071-0332	BLACK DIAGRAM	
1	003-1744	CHAIN ASST	
1	843-0528	CABLE, GROUND, 20FT	
1	405-0180	TAG, SWRLES. W/BLACK	
1	341-0018	WRT. HKT. 1/2-13	
1	445-0013	LIFTING EYE BARE	
4	335-0039	SCREW, PH. FL. 10-32 x 3/8"	
1	091-0334	OWNER MANUALS	
1	003-1833	TOP COVER	
38	337-0115	SCREW, SH. MET. 14-12 1/8	
2	431-0044	SCREWED PIN DOOR	
2	335-0188	SCREW, FL. HP. #8-32 x 3/8"	
1	003-1890	WIRE FEEDER ASST	
1	003-1587	WELD-TAP POWER SUPPLY	
1	003-1587	WELD-TAP POWER SUPPLY	

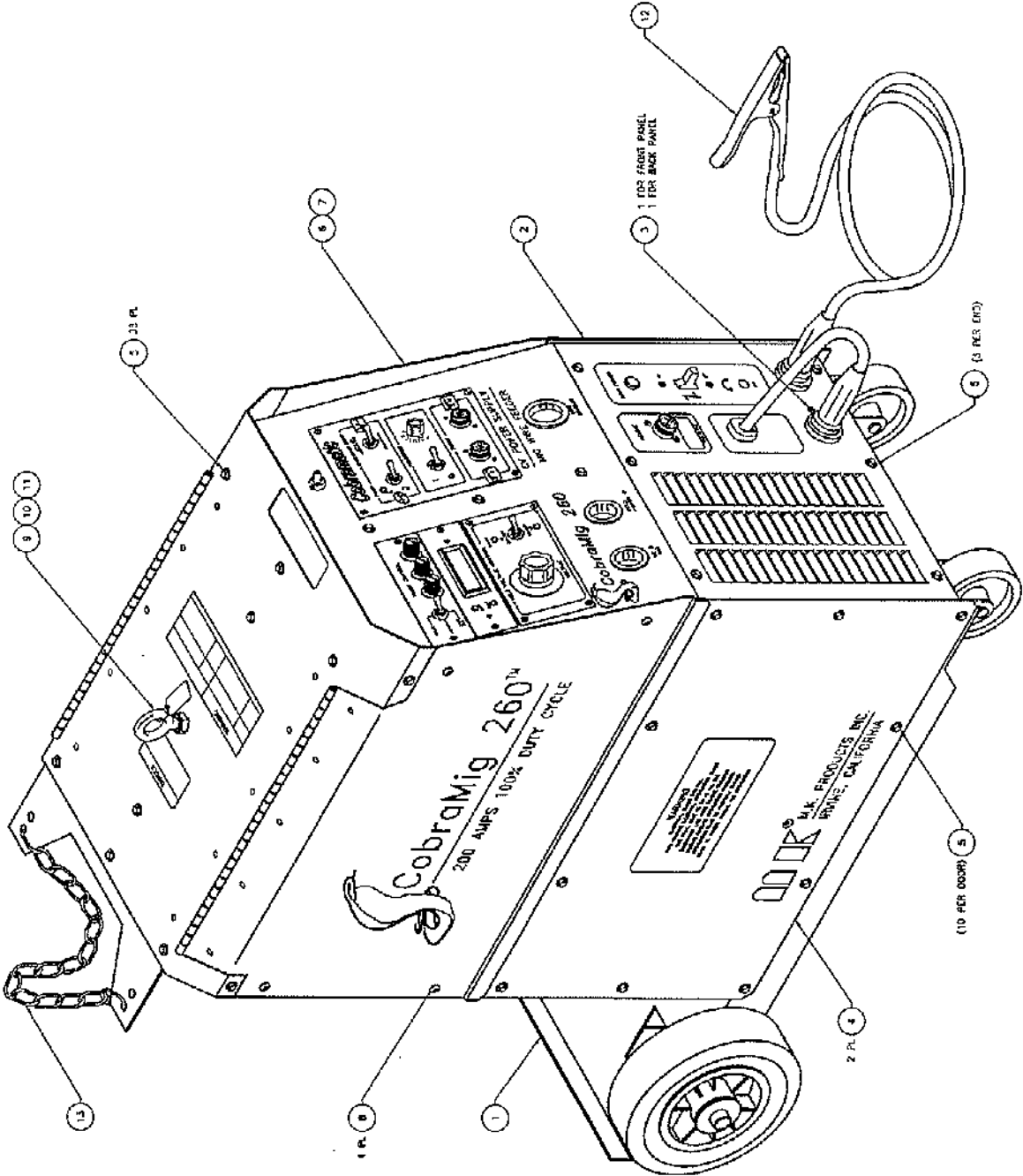
PARTS LIST

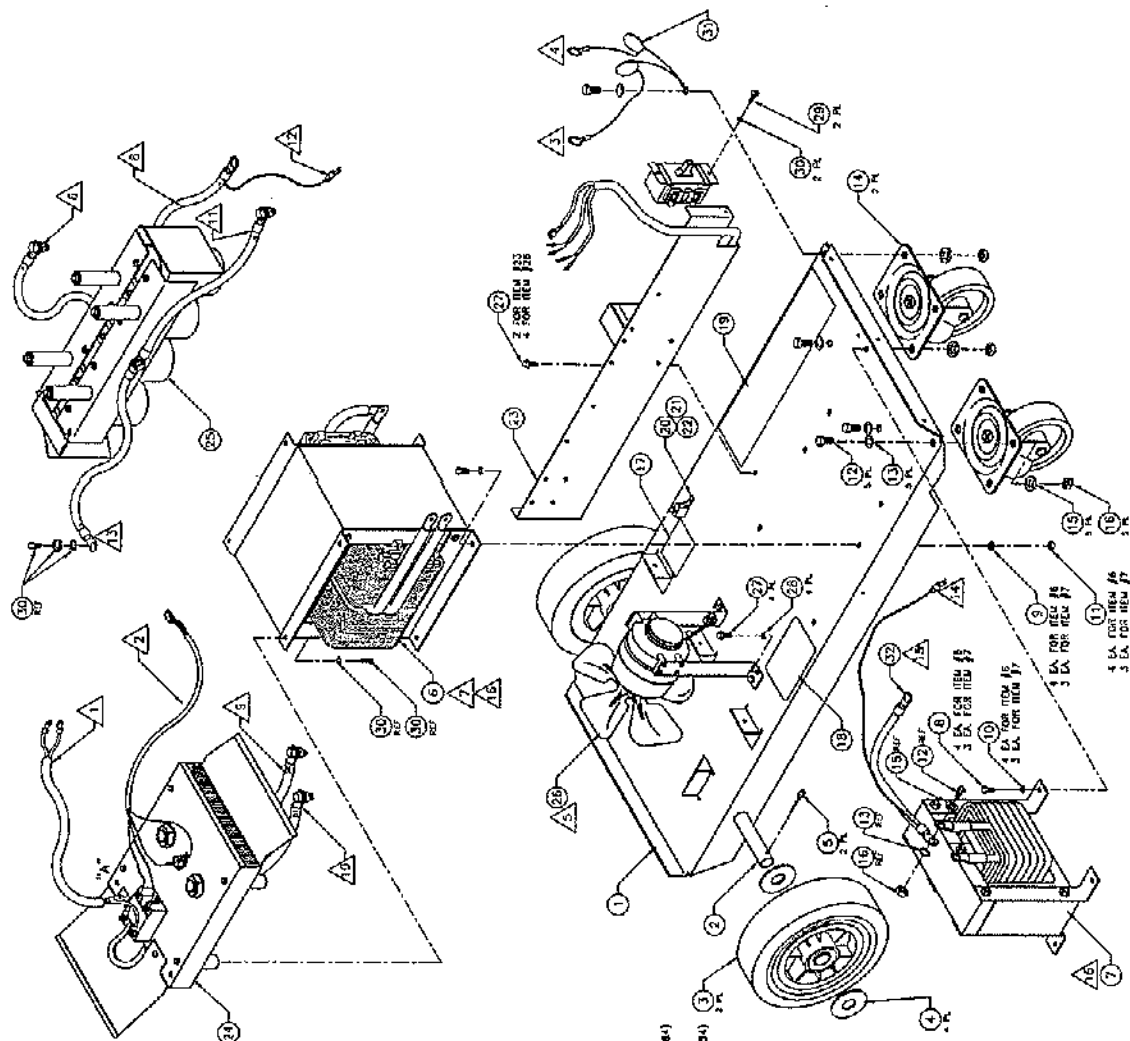
M.K. PRODUCTS, INC.
IRVINE, CALIFORNIA

208, 230, 416, 480VAC/60Hz
MULTI-TAP
COBRA MIG 260

DATE: 02/95
DRAWN BY: [Signature]
CHECKED BY: [Signature]
SCALE: 1/16"

SIZE: 11 1/2" x 17 1/2" x 11 1/2"
SHEET: 1 OF 1





- ▲ 10. REMOVE VOLT METER, CONT'G FROM BEFORE INSTALL PARTS.
- ▲ 11. TO 153-0415 PERMIE
- ▲ 12. TO 48-1 OF 003-1828
- ▲ 13. TO 7" 003-1883
- ▲ 14. TO 003-1838-6-2
- ▲ 15. TO 133-0007 LEAD #1
- ▲ 16. 01 TO LEAD #10 OF ITEM#6 (137-0084)
- ▲ 17. 02 TO LEAD #13 OF ITEM#6 (137-0084)
- ▲ 18. TO REGAINS OF 153-0415
- ▲ 19. LEAD #9 TO 192-9
- ▲ 20. LEAD #8 TO 192-8
- ▲ 21. LEAD #6 TO 192-4
- ▲ 22. LEAD #5 TO 192-5
- ▲ 23. LEAD #2 TO 192-2
- ▲ 24. LEAD #1 TO 192-1
- ▲ 25. TO #11 AND #12 OF 137-0084
- ▲ 26. TO 181-3
- ▲ 27. TO 181-1
- ▲ 28. SHORT TO REGAINS 153-0415
- ▲ 29. LONG TO REGAINS 153-0415
- ▲ 30. TO 003-1741-35
- ▲ 31. LEAD #SHORT TO 187-5
- ▲ 32. LEAD #LONG TO 159-3596 P# #2

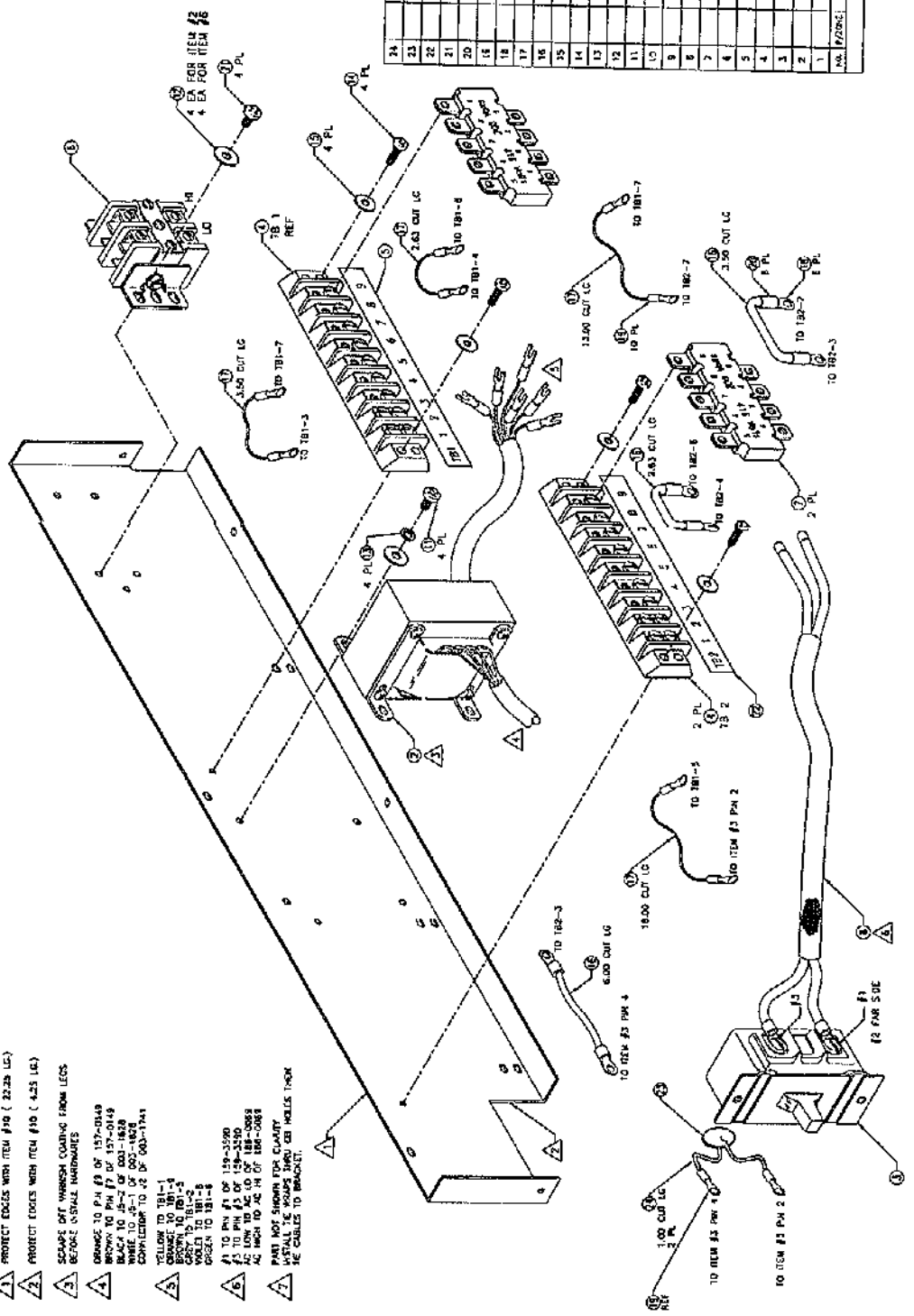
ASSEMBLY INSTRUCTIONS

NO.	QTY.	PART NO.	DESCRIPTION
32	1	F14-0065	CABLE CHROME TO RECEPTACLE
31	1	503-1878	ASSY CAP
30	2	133-0043	WASHER FLAT #8
29	2	138-0005	SCR PH PWR. 5-32X1/4 LG
28	4	133-0027	WASHER 2-STAR 1/4
27	8	377-0176	SCR SHEET METAL #14X1/4 LG
26	1	003-1736	ASSY FAN COOLING
25	1	003-1714	ASSY CAP BANK
24	1	003-1774	ASSY MOUNTING
23	1	003-1536	ASSY BRACKET
22	1	343-0012	WASHER FLAT 10-24
21	1	359-0019	SCR HEX 10-24X1/2 LG
20	1	185-0073	TERMINAL BROWND
19	1	405-0662	DECAL VOLTAGE
18	1	405-0621	DECAL WARMING
17	1	405-0601	DECAL PWR INPUT
16	2	341-0012	NUT HEX 5/16-18
15	3	333-0010	WASHER SPRING 5/16
14	2	519-0942	WASHER
13	2	331-2023	WASHER FLAT 5/16
12	2	338-0079	SCR HEX 5/16-18X1/4 LG
11	1	345-0031	AUT HEX LOCK 1/4-20
10	2	133-0000	WASHER FLAT 5/16X1/4 LG
9	2	338-0003	SCR HEX 1/4-20X3/4 LG
8	1	133-0007	ORING
7	1	137-0084	TRANSFORMER POWER
6	2	421-0410	PW #2/32 X 1.13 LG
5	4	333-0050	WASHER FLAT 13/16X1/25
4	2	515-3883	WHEEL WELD
3	1	431-3016	HALL BACK WHEEL
2	1	438-0030	BASE PAINT
1	1	438-0030	BASE PAINT
NO. P/270K	QTY.	PART NO.	DESCRIPTION

M.K. PRODUCTS, INC.
 IRVINE, CALIFORNIA
 TITLE: **ASSY PWR SUPPLY MULTI-TAP**
 CRY260
 SIZE: 600 PWT NO. 003-1587 C
 Dwg. No. 417
 DATE: 10/78
 DESIGNED BY: []
 CHECKED BY: []
 APPROVED BY: []
 SCALE: NONE SHEET 1 OF 1
 DO NOT SCALE DRAWING

ASSEMBLY INSTRUCTIONS

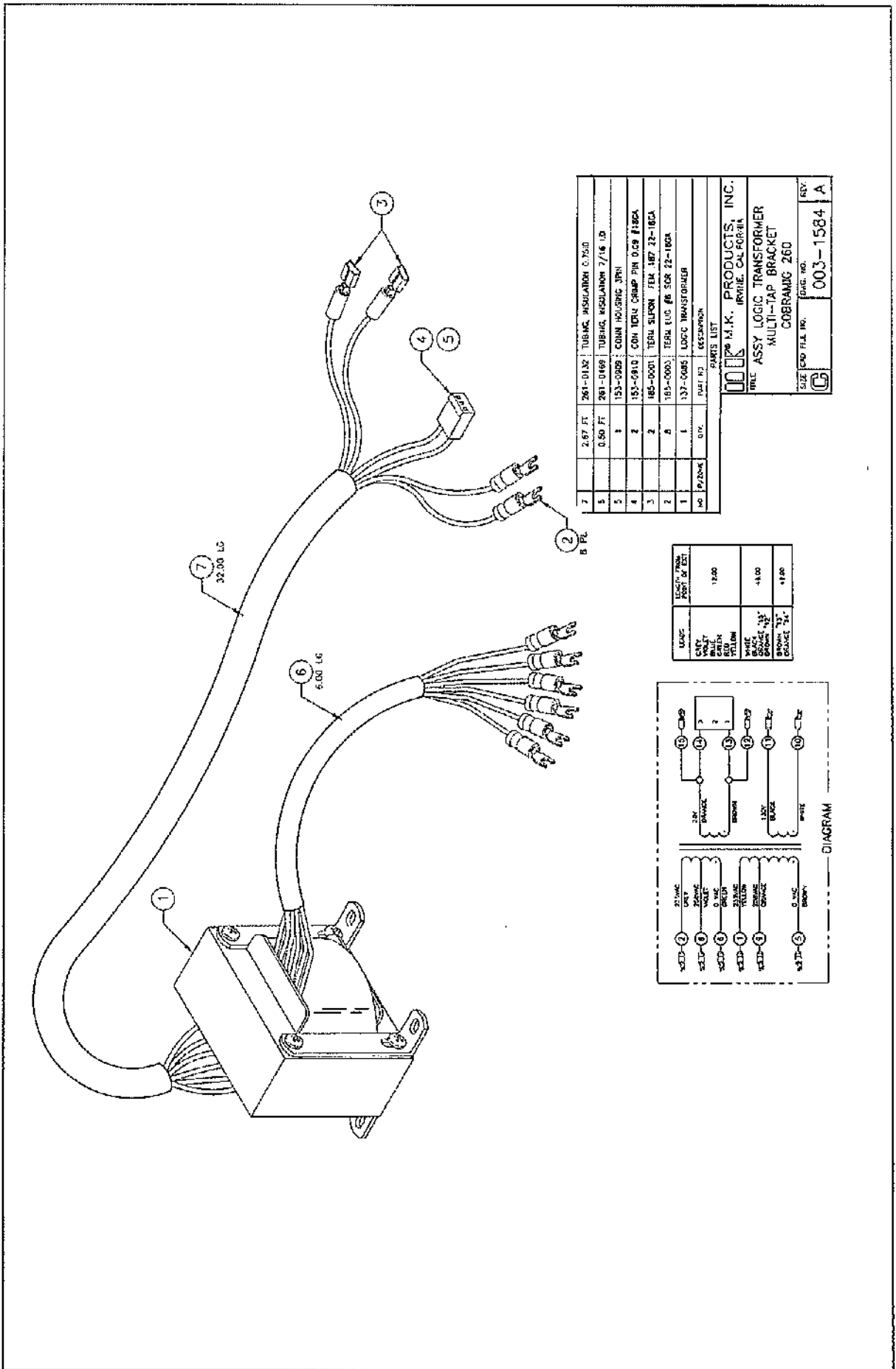
- 1. PROTECT EDGES WITH ITEM #10 (22.25 LG.)
- 2. PROTECT EDGES WITH ITEM #10 (4.25 LG.)
- 3. SCRAPE OFF VARNISH COATING FROM LEGS BEFORE INSTALL HARDWARES
- 4. GRIND TO 60 GRIT OF 182-0849
 BRONZE TO PH #3 OF 157-0149
 BLACK TO 25-2 OF 003-1828
 WHITE TO 25-1 OF 003-1828
 COMPLETE TO 22 OF 003-1741
- 5. YELLOW TO 181-1
 BRONZE TO 181-2
 COPPER TO 181-3
 GREEN TO 181-4
- 6. #1 TO PH #3 OF 156-2580
 #2 TO PH #3 OF 156-2580
 #3 LOW TO AC LO OF 188-0068
 #4 HIGH TO AC HI OF 188-0068
- 7. PARTS NOT SHOWN FOR CLARITY
 (SEE TABLE FOR PARTS AND HOLE LOCATIONS)
 SEE DIMENSIONS TO BRACKET.



NO.	QTY.	PART NO.	DESCRIPTION
24	0.17 FT	161-0018	TURBO TUBULAR WHITE 1/8"
23	1	124-0127	WASHER 3/16" ID 1/4" DIA
22	1	405-0859	LABEL T82
21	4	335-0197	SCR HP FL 10-32X3/8
20	0.50 FT	233-0007	TUBING ACET STEEL 3/16" ID 1/8"
19	10	184-0018	WASHER 1/8" DIA 1/4" DIA
18	6	183-0077	WASHER 1/8" DIA 1/4" DIA
17	3.43 FT	845-0085	WASHER 1/8" DIA 1/4" DIA
16	1.02 FT	845-0085	WASHER 1/8" DIA 1/4" DIA
15	4	331-0003	WASHER FLAT 1/8"
14	4	336-0154	SCR HP FL 8-32X3/4
13	4	333-0007	WASHER SPRING LOCK PH
12	8	333-0004	WASHER FLAT PH
11	4	335-0158	SCR HP FL 10-32X1/2
10	2.23 FT	301-0041	GROUNDING EDGE PROTECT
9	5	411-0103	RE WIND
8	1	1603-1774	CABLE POWER ASSY
7	2	437-0207	JUMPER CAPSULATED
6	1	186-0019	TERMINAL STRIP 2POS
5	1	105-0084	LABEL T81
4	2	184-0015	TERMINAL STRIP 9 POS
3	1	150-3550	SWITCH POWER
2	1	403-1584	ASSY XINER LOCK
1	1	415-1515	BRACKET MOUNT-IMP

M.K. PRODUCTS, INC.
 1000 ASSY MULTI-TAP BRACKET
 POWER SUPPLY
 CY 260

REV. 100
 003-1586
 E



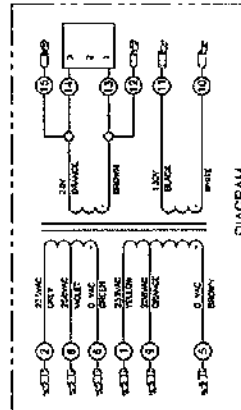
NO.	QTY.	DESCRIPTION
1	1	LOGIC TRANSFORMER
2	2	TERM. SLPON. FEM. .187 22-18CA
3	2	TERM. SLPON. FEM. .187 22-18CA
4	2	CON. TORX CRIMP PIN 0.09 #18CA
5	1	CONN. HOUSING 3PIN
6	1	CONN. HOUSING 3PIN
7	2.67 FT.	TUBING, INSULATION 0.75ID

M.K. PRODUCTS, INC.
IRVINE, CALIFORNIA

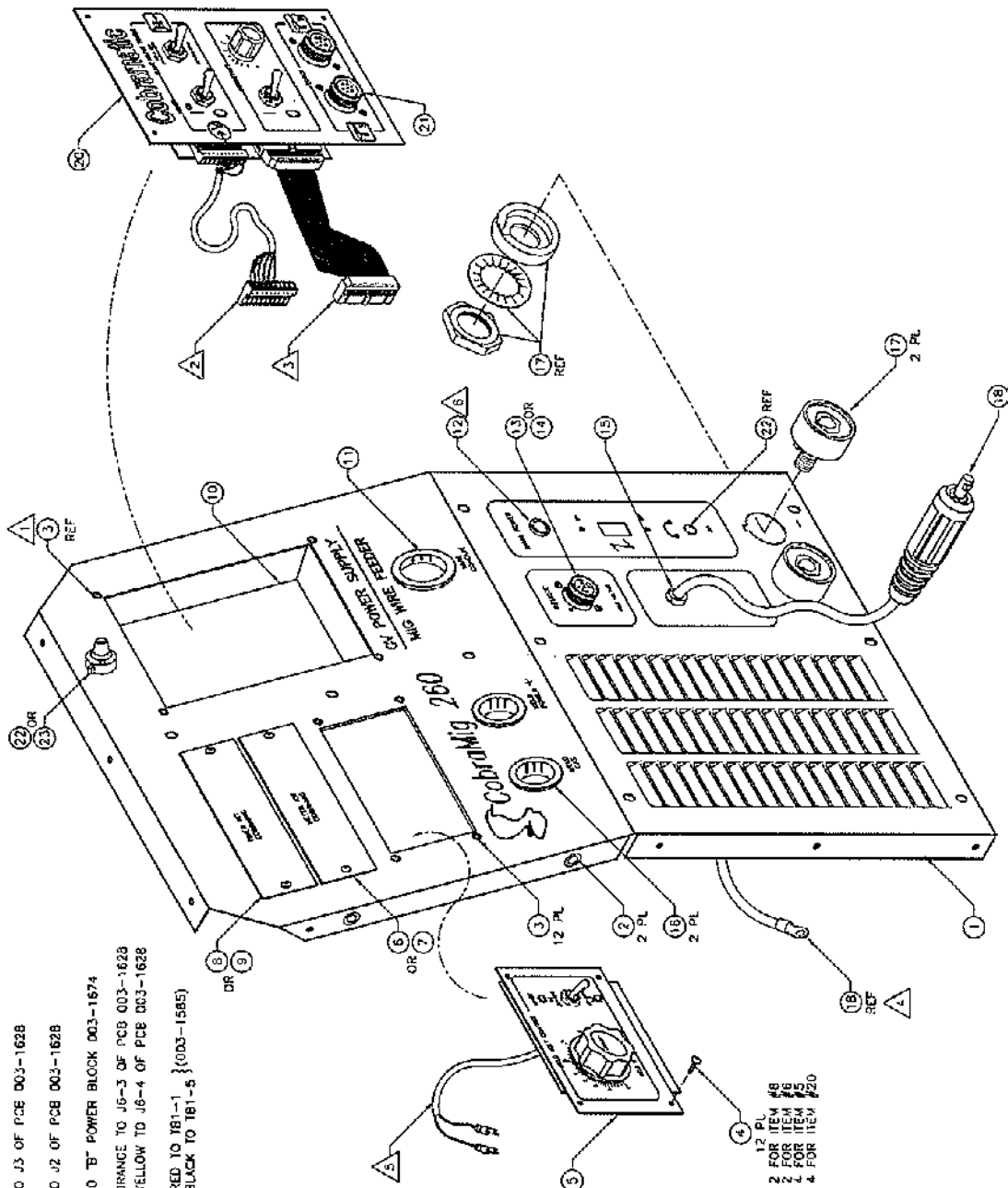
**WIRE ASSEMBLY LOGIC TRANSFORMER
MULTI-TAP BRACKET
COBRAMIG 260**

SIZE: 000 FILE NO. 003-1584 A
REV. A

LOGIC TRANSFORMER POINT OF EXT.	LOGIC TRANSFORMER POINT OF EXT.
12.00	12.00
11.00	11.00
10.00	10.00



- 1 ASSEMBLY ITEM #10 TO ITEM #1 WITH ITEM #3
- 2 TO J3 OF PCB 003-1628
- 3 TO J2 OF PCB 003-1628
- 4 TO 'B' POWER BLOCK 003-1574
- 5 ORANGE TO J6-3 OF PCB 003-1628
- 6 YELLOW TO J6-4 OF PCB 003-1628
- 7 RED TO 1B1-1 {003-1585}
- 8 BLACK TO 1B1-5



QTY	DESCRIPTION	REF
23	10-6	003-0186 PRE-INSULATED WIRE (OPT)
22	7-6	351-0008 PLUG, HOLE 1/8"
21	F-11	003-3163 5" CONNECTOR KIT (OPT)
20	1-11	003-1623 COBRA PANEL ASSY
18	A-9	844-0083 POLARITY CABLE
17	B-10	153-0754 CON. RCP. PNL. DUNSE. 403A
16	D-9	351-0152 BUSHING, SWAP. #150
15	E-8	351-0101 STRAP RETIE, DATE
14	E-5	003-0581 VOLTAGE REG. KIT (OPT)
13	E-4	351-0146 PLUG, HOLE 1/16"
12	F-3	003-1760 PLUG, JAMP ASSY
11	C-5	351-0100 BUSHING, SWAP. #163
10	H-5	435-1501 COVER, FRONT, COBRA PCB
9	H-4	003-0583 WIRE KIT (OPT)
8	H-1	435-0084 SCREENED COVER, INGR KIT
7	F-4	003-0585 WIRE KIT (OPT)
6	F-4	435-0083 SCREENED COVER, UTFR KIT
5	E-2	003-1703 CONTROL PANEL ASSY
4	C-3	335-0005 SCREW, PH. FL. #6-32 x 3/16"
3	C-5	351-0088 THERMO INSERT, #6-32
2	E-5	351-0089 THERMO INSERT, #10-32
1	A-5	435-0010 SCREENED FRONT PANEL
QTY	1	003-0000

M.K. PRODUCTS, INC.
IRVINE, CALIFORNIA

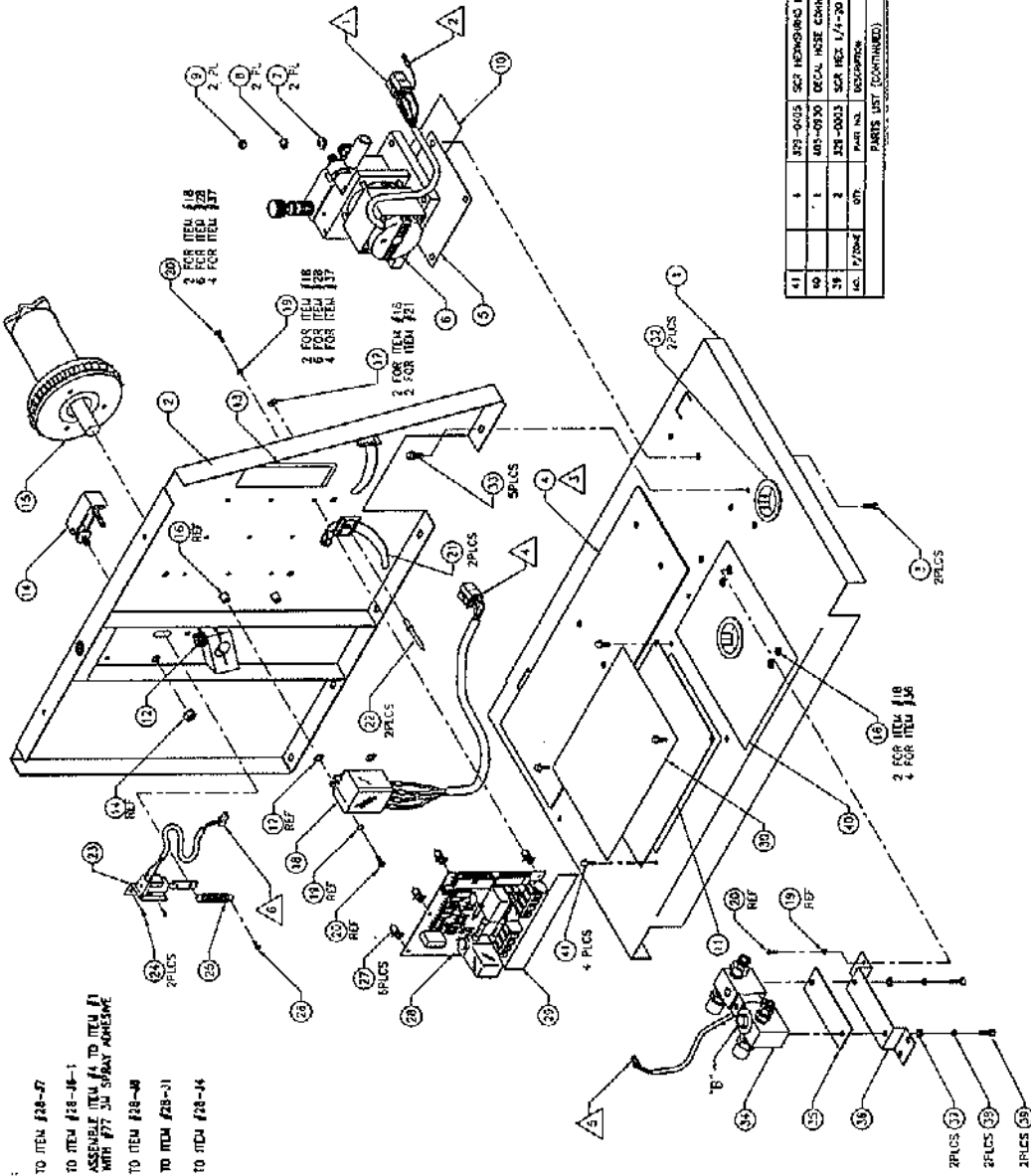
DATE: 10/94
REV: 05/84

ITEM: FRONT PANEL ASSY
COBRA
MIG 260

SIZE: 003-1858
REV: E

NO. OF SHEETS: 1 OF 1

- NOTES:
- 1 TO ITEM #28-27
 - 2 TO ITEM #28-28-1
 - 3 ASSEMBLE ITEM #1 TO ITEM #1 WITH #77 3U SPRAY ADHESIVE
 - 4 TO ITEM #28-28
 - 5 TO ITEM #28-31
 - 6 TO ITEM #28-34



41	1	201-0015	SCR NETWORKS R-32 X 3/8
40	1	401-0030	DEAL HOSE CONNECTIONS
39	2	201-0003	SCR NET 1/4-20 X 3/4
NO. P/DATE	QTY.	PART NO.	DESCRIPTION

PARTS LIST (CONTINUED)

28	2	131-0049	WASHER FLAT 1/4
27	2	331-0009	WASHER 3-HOLE 1/4
36	1	433-1502	BRACKET POWER BLOCK
35	1	201-0171	INSULATOR POWER BLOCK
34	1	003-1874	POWER BLOCK ASST.
33	5	227-0115	SCR NET SHEET METAL #14 X 1/2
32	2	151-0032	BRUSHING SHAP 1.00 DIA
31	2	101-0749	PLUG HOLE 5/8
30	1	405-0839	DEAL MAIN PCB CONNECTIONS
29	1	403-0722	DEAL BLOC CONNECTION
28	1	103-1828	PCB ASST MAIN 1/2W
27	6	342-0410	SPACER #8-32
26	1	302-0012	SCR PH PWR ST #8 X 1/4 1/2
25	1	419-0000	SPRING EXTENSION
24	2	101-0037	SCR PAN PWR ST #8 X 1/4 1/2
23	1	603-2096	ASST BRACE 5X 11/2W
22	2	303-0012	POP BOLT 1/4 ALUM.
21	2	411-0106	STRAP CABLE
20	12	316-0005	SCR PAN PWR #8-32 X 3/8
19	12	333-0013	WASHER 4-STAR #1
18	1	603-0392	ROD W/ASST.
17	4	101-0002	WASHER FLAT #8
16	6	351-0008	WASHER W/ROBT #8-32
15	1	003-0370	SPRINGS BRACE ASST.
14	1	003-0384	PANEL BANDNET ASST.
13	0.50	201-0005	TRM PROTECTION EDGE
12	1	318-0112	SCR NET CWP 3/4-16 X 1.00
11	1	438-0044	PANEL ACCESS TRAC PAINTED DM/59
10	1	403-0371	DEAL MOTOR ADJUSTMENT
9	2	241-0010	NET NET 1/4-20
8	2	333-0009	WASHER SPARK LOCK 1/4
7	2	251-0006	WASHER FLAT 1/4
6	1	003-0014	ASST BLAKE MOTOR 115V 1/4-1
5	1	201-0372	BLAKE MOTOR INSULATOR
4	1	201-0510	SMOKE INSULATOR
3	3	128-0001	SCR NET 1/4-20 X 1.00
2	3	438-0037	LEG-PLATE ASST. PAINTED
1	1	438-0073	DECK PAINTED CM 260
NO. P/DATE	QTY.	PART NO.	DESCRIPTION

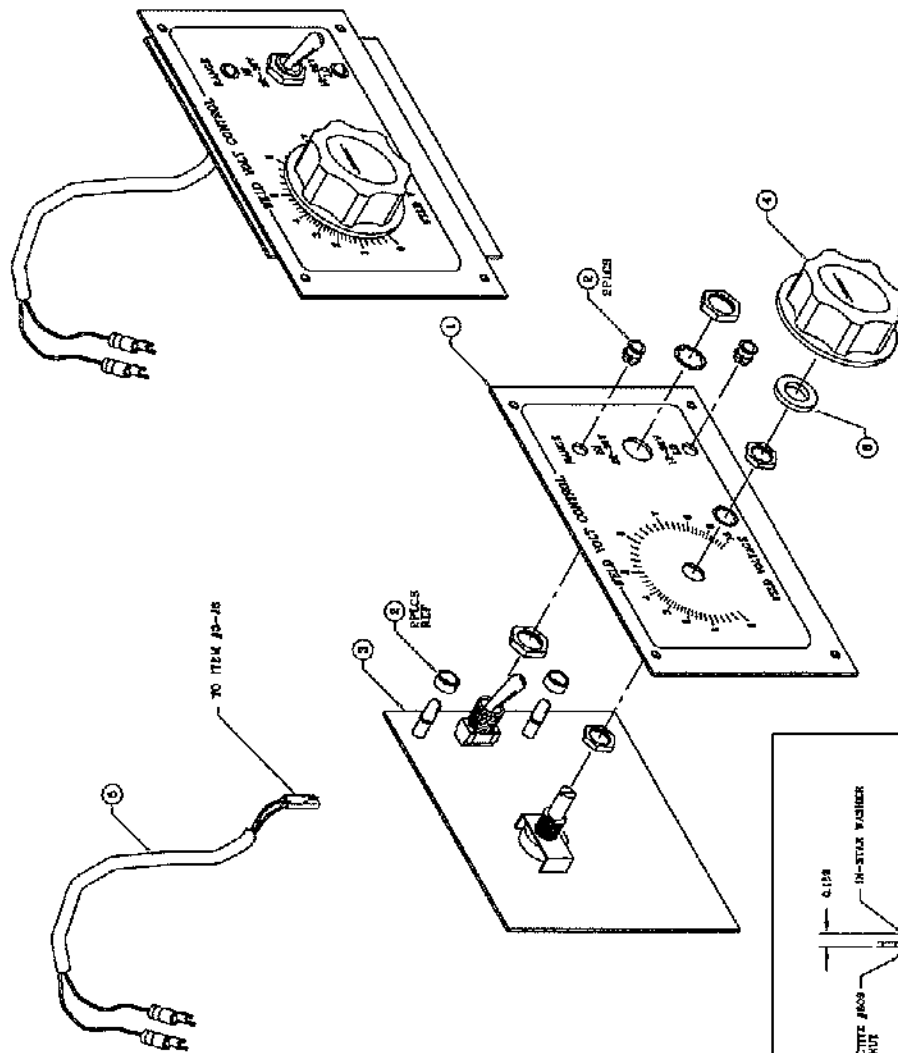
M.K. PRODUCTS, INC.
IRVINE, CALIFORNIA

ASSEMBLY DECK
COBRAMIG 250/260

REV. 003-1793 G

SCALE 1 OF 1

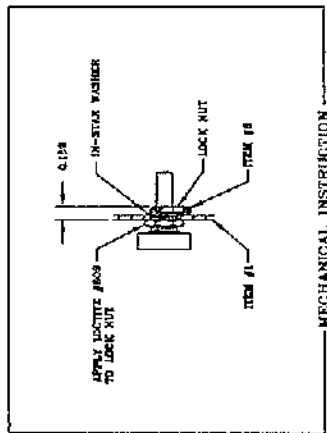
REVISIONS			
REV.	P/ZONE	DESCRIPTION/CHK NUMBER	DATE
A.		PCB ASSY	10/71
B.		DCM 8078	12/71
		DCM 8748	02/82



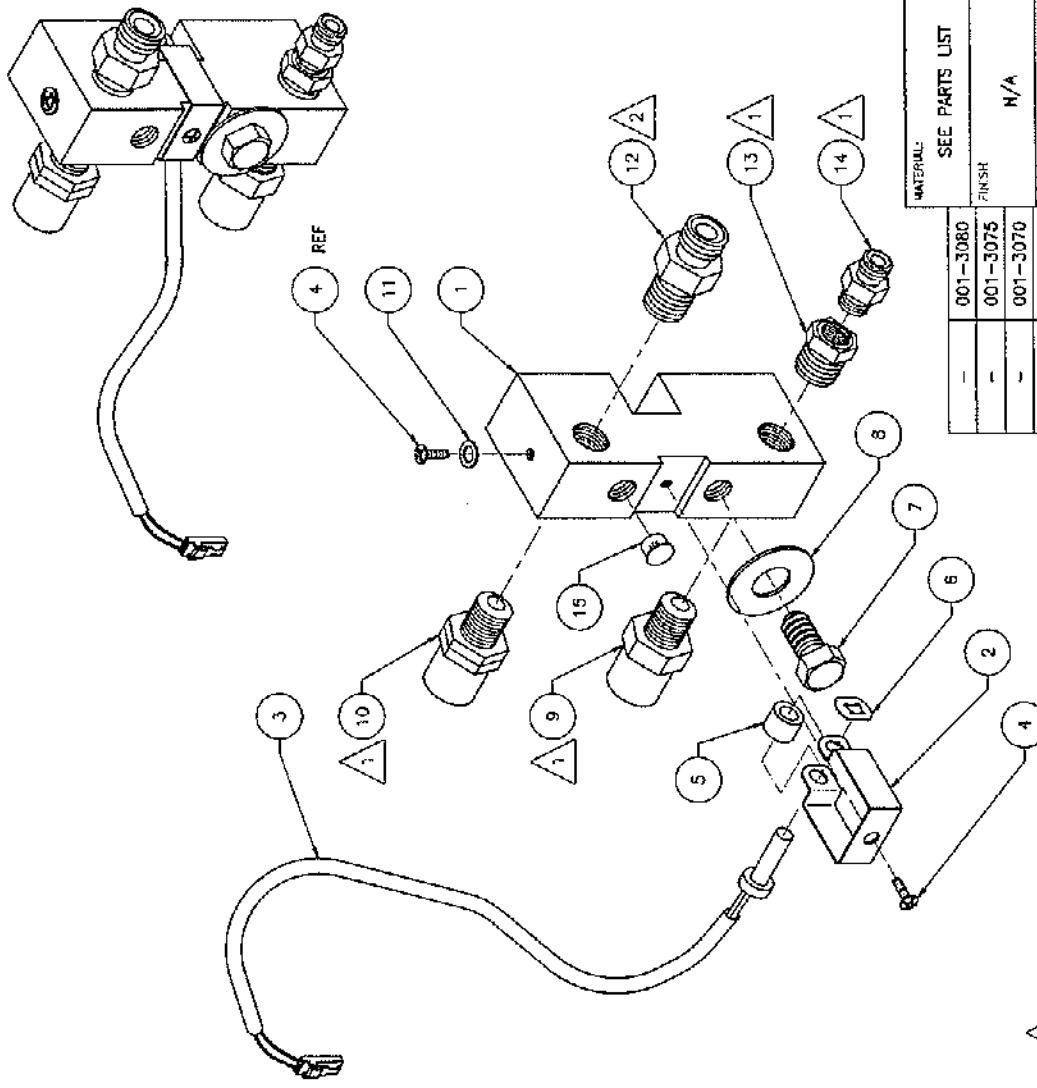
NO.	P/ZONE	QTY.	PART NUMBER	DESCRIPTIONS
6	C-7	1	301-0087	WASHER FLAT NEOPRENE
5	H-4	1	003-1311	CLOSING CONTACT CABLE
4	D-9	1	401-0075	KNOB 2.00 DIA
3	C-6	1	003-1741	PCB CONTROL ASSY.
2	E-8	2	301-0023	GROMMET PNL. LED
1	F-8	1	438-0045	SCREENED PANEL

PARTS LIST		ENGINEERING		DATE	
UNLESS OTHERWISE SPECIFIED:	INCHES	DRAWN	TRM	10/71	
TOLERANCES	ANGULAR	CHECK	TYPE		
XX .010	± 1/2°				
XX .005	± 1/4°				
XX .002	± 1/8°				
XX .001	± 1/16°				

000-100	001-200	001-300	001-400
001-500	001-600	001-700	001-800
001-900	002-000	002-100	002-200



MECHANICAL INSTRUCTION



2 USE NOALOX, P/N 823-0028.
 1 USE LOCTITE #567 PST.
 NOTES: UNLESS OTHERWISE SPECIFIED.

NO.	P/ZONE	QTY.	DESCRIPTION	PART NO.
15		1	PLUG, HOLE, 5/16	351-0066
14		1	FITTING, 1/8	753-0114
13		1	BUSHING, 1/4 NPT. M. TO 1/8 NPT. F.	753-0115
12		1	FITTING 1/4-18NPT TO 5/8-18	753-0112
11		1	WASHER, FLAT, #6 ST	331-0002
10		1	FITTING, 1/4-18NPT TO 5/8-18 LH	753-0475
9		1	FITTING, 1/4-18M TO 5/8-18F	753-0486
8		1	WASHER, FLAT, 0.391 ID x 0.875 OD	331-0777
7		1	SCREW, HEX, 3/8-16 x 5/8	329-0054
6		1	STUD RECEIVER, PUSH-ON	313-0021
5		1	SPACER	342-0395
4		2	SCREW, PH PHILL., #8-32 x 3/8	336-0005
3		1	CURRENT SENSOR ASSY	003-1243
2		1	BRACKET, CURRENT SENSOR	435-3036
1		1	CONNECTOR, POWER BLOCK	431-3505

PARTS LIST

M.K. PRODUCTS, INC.
 IRVINE, CALIFORNIA

TITLE: POWER BLOCK ASSY
 COBRAMATIC I

DATE: 05/90
 ENGINEER: T. NGUYEN
 CHECKED: _____
 APPROVED: _____

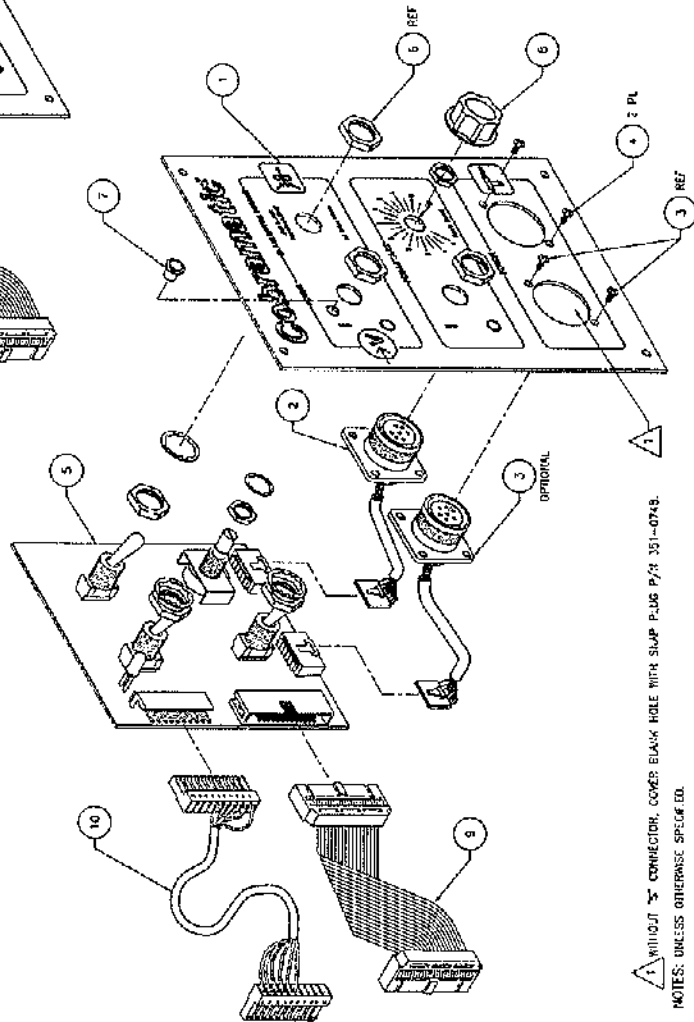
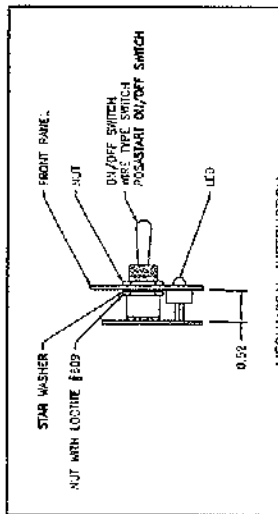
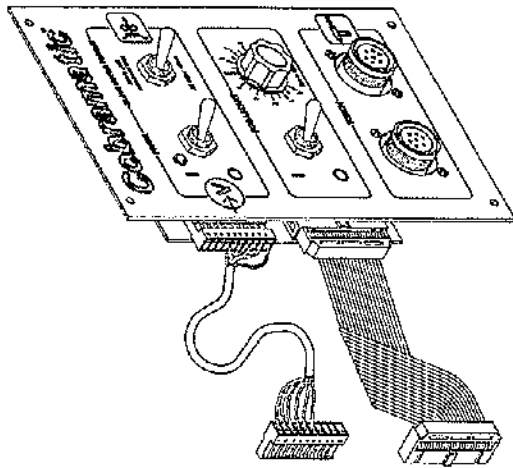
UNLESS OTHERWISE SPECIFIED DIMENSIONS IN PARENTESIS ARE DECIMALS TOLERANCES ARE: .00X ±.005 .01X ±.01 .1X ±.03 .1X ±.03

SIZE: 003-1674 D
 DWG. NO.: 003-1674 D
 REV. D

SCALE: NONE
 SHEET 1 OF 1

MATERIAL:	SEE PARTS LIST
FINISH	N/A
HEAT TREATMENT	N/A
SURFACE ROUGHNESS	N/A

001-3080	001-3075	001-3070	001-1134	001-1133	001-1132	001-1072
-	-	-	-	-	-	-
NEXT ASSY USED OR						



QTY.	PART NO.	DESCRIPTION
1	351-0748	SNAP PLUG, #1-32
1	003-1831	CABLE, POWER ASSY
1	003-1332	CABLE, RIBBON ASSY
1	407-0072	KNURL, #1.00
1	301-0023	BROWNET, PHL MFG, LED
6	REF	NUT, HEX, 15-32
5	003-2084	PCBA FRONT PANEL 110V
2	327-0110	SCREW, PH FL ST, #6-32
REF/1	003-1643	3" CONNECTOR (OPTIONAL)
1	003-1642	"M" CONNECTOR ASSY
1	438-0021	FRONT PANEL

PARTS LIST

DATE: 05/90
 DRAWN BY: [Signature]
 CHECKED BY: [Signature]
 APPROVED BY: [Signature]

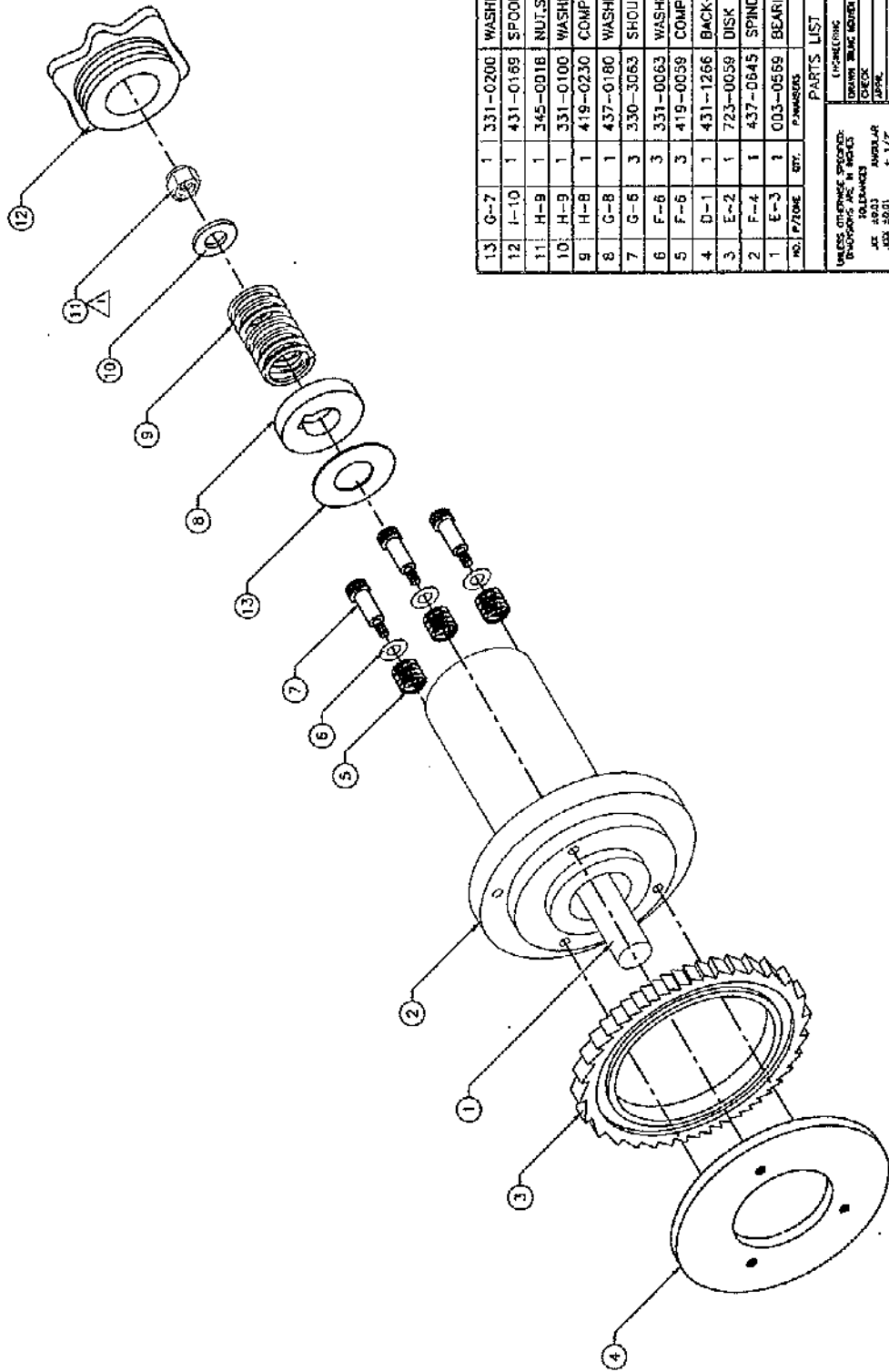
MATERIAL: SEE PARTS LIST
 FINISH: N/A
 TREATMENT: N/A
 SURFACE REQUIREMENTS: N/A

MANUFACTURED BY: M.K. PRODUCTS, INC.
 IRVINE, CALIFORNIA

TITLE: FRONT PANEL ASSY.
 SIZE: 115 VAC
 COBRAMATIC

REV. NO. 003-1673 F
 DATE: 03/88

1. WITHOUT 3" CONNECTOR, COVER BLANK HOLE WITH SNAP PLUG P/N 351-0748.
 NOTES: UNLESS OTHERWISE SPECIFIED.



NO.	P/ZONE	QTY.	PARTS LIST	DESCRIPTIONS
13	G-7	1	331-0200	WASHER FLAT 1-3/8X7/8X1/32
12	F-10	1	431-0189	SPOOL RETAINER
11	H-9	1	345-0018	NUT, SELF LOCKING
10	H-9	1	331-0100	WASHER, FLAT 5/16
9	H-8	1	419-0230	COMPRESSION SPRING
8	G-8	1	437-0180	WASHER, MODIFIED
7	G-6	3	330-3063	SHOULDER SCR 1/4 x 5/8 MOD.
6	F-6	3	331-0063	WASHER FLAT
5	F-6	3	419-0038	COMPRESSION SPRING
4	D-1	1	431-1266	BACK-UP RING
3	E-2	1	723-0058	DISK BRAKE
2	F-4	1	437-0645	SPINDLE, MOLDED
1	E-3	1	003-0569	BEARING ASSY

UNLESS OTHERWISE SPECIFIED: DIMENSIONS IN INCHES ALL ANGLES UNLESS SPECIFIED DO NOT SCALE DRAWING	DATE	DATE	DATE
DESIGNED BY	CHECKED	APPROVED	DATE
PARTS LIST			
LOCATIONS	DATE	DATE	DATE
REVISIONS	BY	DATE	BY
SPINDLE BRAKE ASSY COBRA MIG			
003-0570			
SCALE: 1" = 1"			
SHEET 1 OF 1			

THIS DRAWING IS THE PROPERTY OF M. K. PRODUCTS, INC. AND IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM. WITHOUT THE WRITTEN PERMISSION OF M. K. PRODUCTS, INC.

REV	DESCRIPTION	DATE	APPROVED
1	ISSUED FOR PRODUCTION	08/11/78	

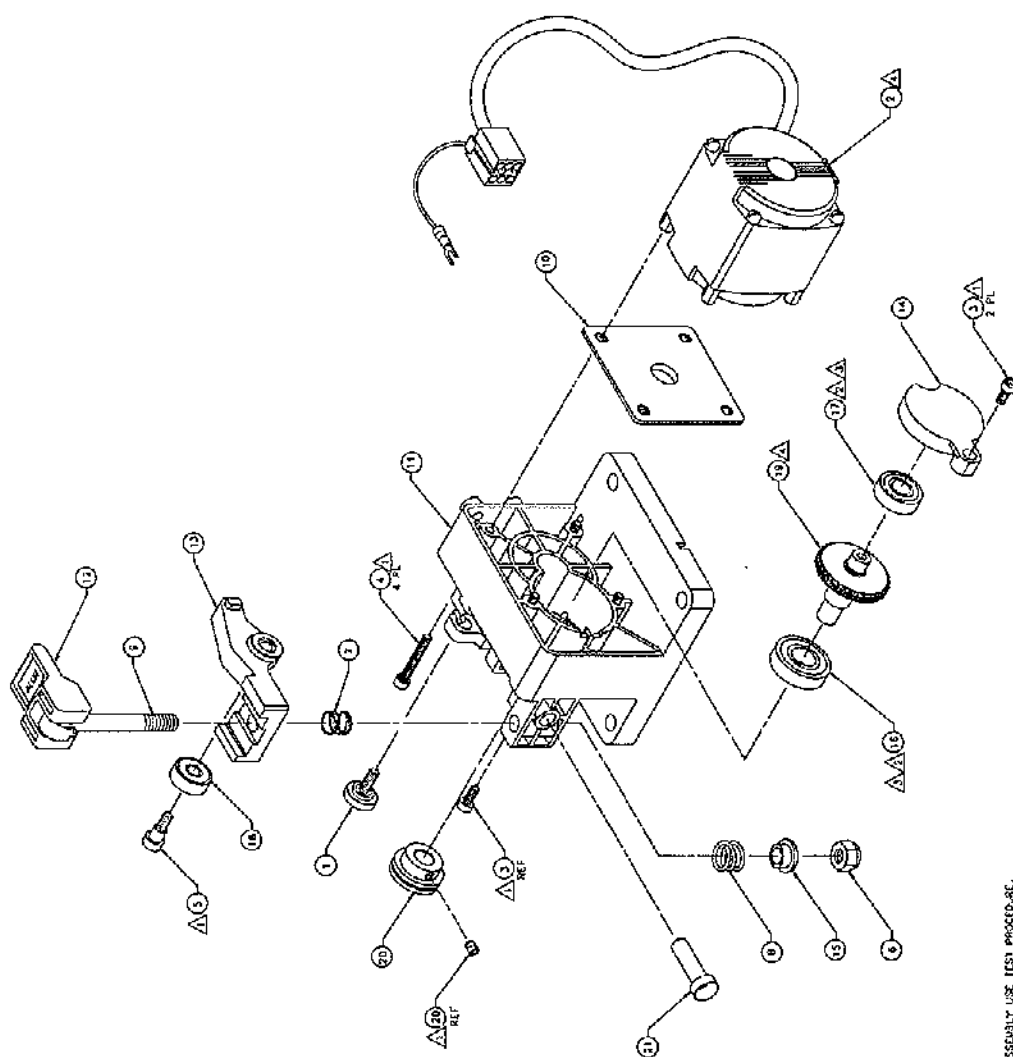
QTY	REF	TEST PROCEDURE
1	Q31-0167	TEST PROCEDURE
1	A/R	LOCTITE RETAINING COMPOUND
1	A/R	GREASE MABILUX 2
1	A/R	100/112 THREADLOCKING
1	733-0210	CUMMER WIRE INLET
1	511-0204	DRIVE ROLL
1	507-0130	SHAFT GEAR
1	501-0407	BEARING IDLER ROLL
1	501-0154	BEARING 875 X .38 X .28
1	501-0118	BEARING 1.125 X .50 X .31
1	437-0254	SLEEVE SPRING
1	437-0245	CAP BEARING MOLD
1	437-0232	ARM IDLER MOLD SLAVE MOTOR
1	437-0231	WANKLE MOLD SLAVE MOTOR
1	437-0230	HOLDING SLAVE MOTOR MOLD
1	435-1382	PLATE LOCATE SLAVE MOTOR
1	431-1276	ROLL SPRING MOLD
1	418-0211	SPRING COMP 00.372 X 1/18
1	418-0285	SPRING COMP 1.232 X 0D .40
1	316-0018	MUF LOCK 5/16-18
1	300-0259	SCR BULLUP 1/4 X 1/4 X 10-24
1	308-0258	SCR SHC B-32 X 1-1/8 STL
1	308-0024	SCR SHC B-32 X 1/2 STL
1	503-2049	ASSY TORQUE MOTOR 115V
1	030-0178	ASSY MOLD CIRCUIT
1	DET	RESUBMIT

SEE PARTS LIST
 QTY: N/A
 UNIT: N/A
 PRICE: N/A
 4 OF 4

M. K. PRODUCTS, INC.
 1700 W. 10TH AVE., SUITE 101
 DENVER, CO 80202
 TEL: 303-733-1111
 FAX: 303-733-1112

ASSY, SLAVE MOTOR 115V
 COBRAMATIC

REV: 1
 QTY: 1
 Dwg No: 003-2078



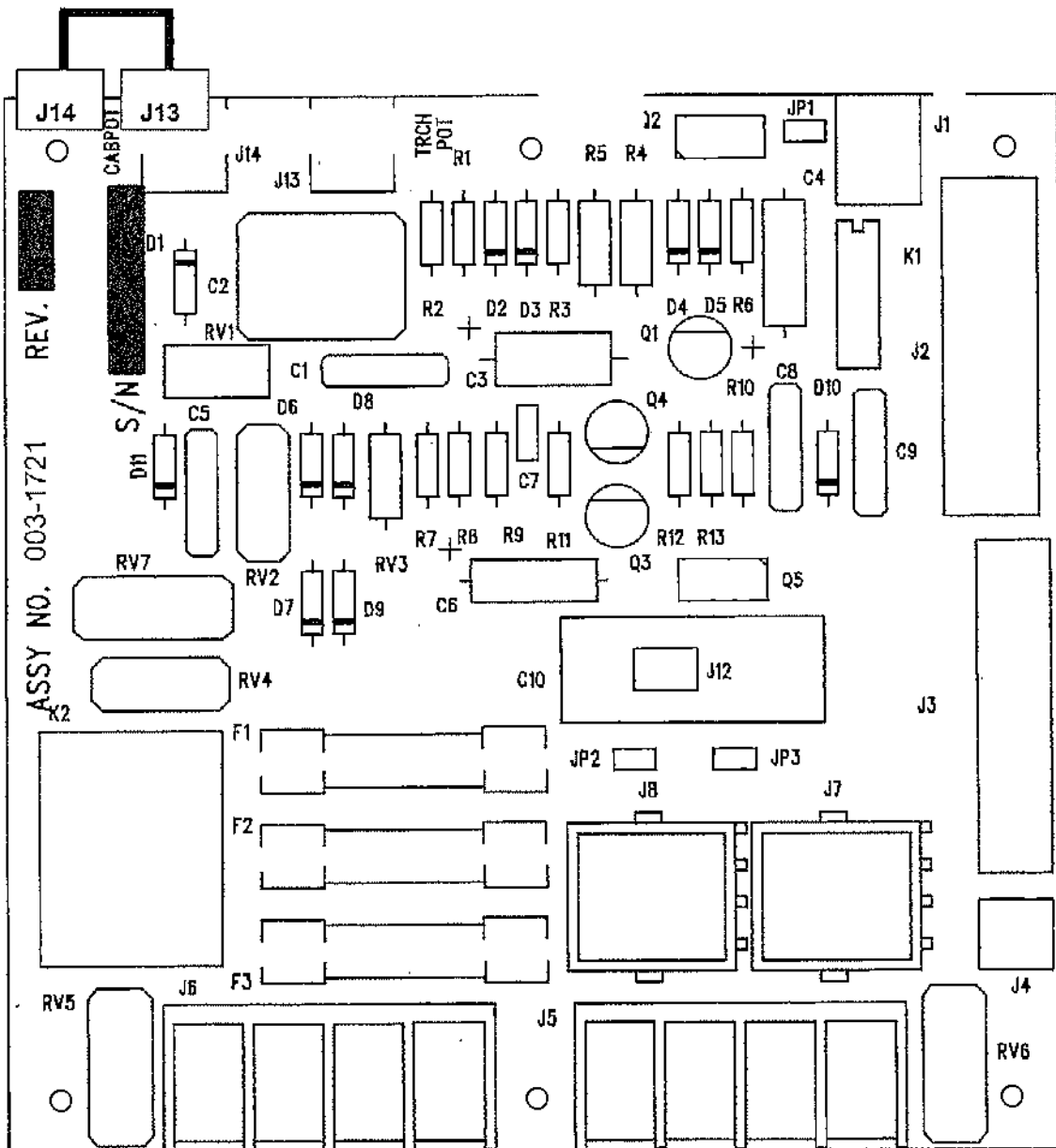
NOTES: UNLESS OTHERWISE SPECIFIED

- 1. AFTER ASSEMBLY USE TEST PROCEDURE.
- 2. APPLY GREASE TO GEAR TEETH.
- 3. APPLY LOCTITE #11 TO OUTSIDE DIAMETER OF BEARINGS.
- 4. THEN INSERT INTO ITEMS #11 AND #14.
- 5. PRESS FIT BEARINGS (ITEMS #18 & #17) ONTO ITEM #15 WITH 100L 021-0417.
- 6. APPLY LOCTITE #243 TO THREADS.

Section 17

MAIN PC BOARD PARTS PLACEMENT

P/N 003-1628



COMPONENTS TO BE REPLACED BY QUALIFIED SERVICE PERSONNEL ONLY.

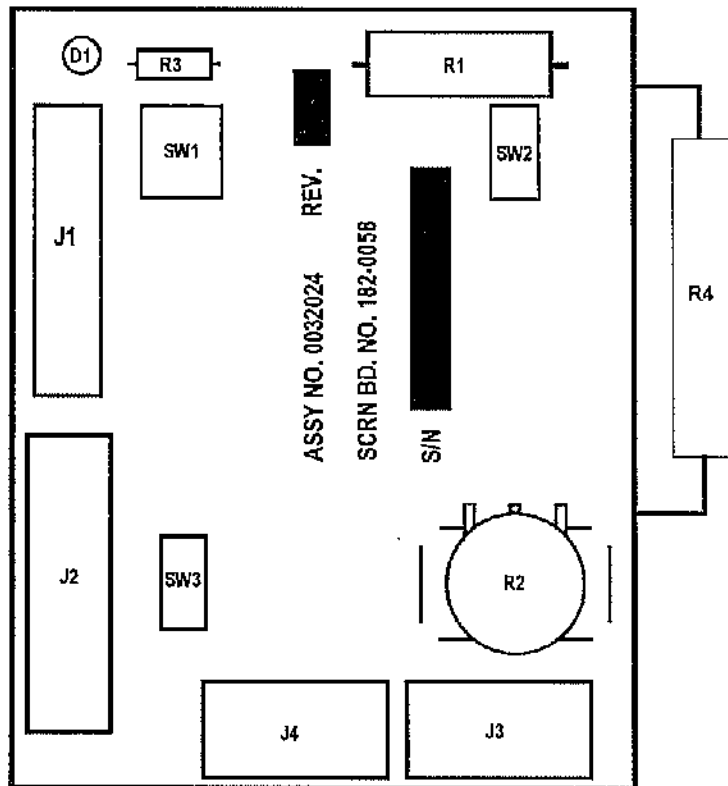
**COBRAMATIC - MAIN P.C. BOARD
PARTS LIST - P/N 003-1628**

<u>COMPONENT #</u>	<u>P/N</u>	<u>DESCRIPTION</u>
K1	157-0144	RELAY, 5V 500 Ohm 200MA
R3	115-0154	RESISTOR, carbon .25 watt 68K ohm
R4, R5	115-0042	RESISTOR, carbon .50 watt 6.8K ohm
R12, R13	115-0120	RESISTOR, carbon .25 watt 100 ohm
R6	115-0122	RESISTOR, carbon .25 watt 150 ohm
R7	115-0144	RESISTOR, carbon .25 watt 10K ohm
R8	115-0138	RESISTOR, carbon .25 watt 3.3K ohm
R9	115-0129	RESISTOR, carbon .25 watt 560 ohm
R10	115-0136	RESISTOR, carbon .25 watt 2.2K ohm
R11	115-0141	RESISTOR, carbon .25 watt 5.6K ohm
D1	124-0002	DIODE, 1 amp 800 volts (IN4006)
D6-D11	124-0003	DIODE, 2.5 amps 1KV (HEP170)
D4	124-0011	DIODE, zener 1 watt 10 volts (IN4730)
D5	124-0093	DIODE, zener 1 watt 6.8 volts (IN4733)
Q2	122-0011	TRANSISTOR, NPN 500MA 250 volts (2N5655)
Q3	122-0004	TRANSISTOR, PNP 1 amp 50 volts (2N4249)
Q4	122-0013	TRANSISTOR, unijunction 30 volts (2N2646)
Q5	125-0028	THYRISTOR, 8 amps 400 volts (MCR218-6)
C1, C5, C8, C9	101-0016	CAPACITOR, ceramic .01uf 600VDC
C2	101-0013	CAPACITOR, Poly .047uf 200VDC
C4, C6	104-0002	CAPACITOR, tantalum 10uf 20VDC
C7	101-0021	CAPACITOR, ceramic .047uf 50VDC
RV1, RV5-RV7	124-0026	VARISTOR, 200V 14mm
RV2, RV3, RV4	124-0028	VARISTOR, 56 volts 8 amps
C10	101-0116	CAPACITOR, poly 3.3uf 250VAC
J1	153-0866	CONNECTOR, R/A header 2 pin
J2	153-0923	TERMINAL, header 26 pin
J3	153-0842	TERMINAL, header 10 pin
J4	153-0844	TERMINAL, header 2 pin
J5, J6	186-0057	TERMINAL, strip 4 pin
J7, J8	153-0850	CONNECTOR, 6 pin
J13, J14	153-0867	CONNECTOR, R/A header 3 pin
Fuse Holder (4)	152-0008	FUSE HOLDER, PC mount
F3	151-0001	FUSE, AGC 2A 250V
F1	151-0043	FUSE, 3AG 4A 250V FAST ACT
F2 (220 VAC ONLY)	151-0001	FUSE, AGC 2A 250V
K2	157-0022	RELAY, 24VAC 4PDT
K2 Socket	173-0026	SOCKET, relay 15 pin
K2 Clip	157-0023	RLY, RTNR CLIP
Jumper	003-1307	JUMPER CABLE

Section 18

COBRAMATIC FRONT PANEL CIRCUIT BOARD P/N 003-1632

<u>COMPONENT #</u>	<u>P/N</u>	<u>DESCRIPTION</u>
R1	113-0593	RESISTOR, wire wound 400 ohm, 8 watt
R2	119-0020	POTENTIOMETER, 100K ohm
R3	115-0037	RESISTOR, carbon 2.7K ohm, 1/2 watt
R4	113-0059	RESISTOR, wirewound 1K ohm, 10 watt
D1	124-0045	LED, green
SW1	159-3587	SWITCH, DPDT, p.c. mount
SW2	159-3586	SWITCH, SPDT, p.c. mount
SW3	159-3586	SWITCH, SPDT p.c. mount
J1	153-0842	HEADER, 10pin, 90 degree
J2	153-0876	HEADER, 26pin, 90 degree
J3	153-0860	HEADER, 8pin, 90 degree
J4	153-0860	HEADER, 8pin, 90 degree

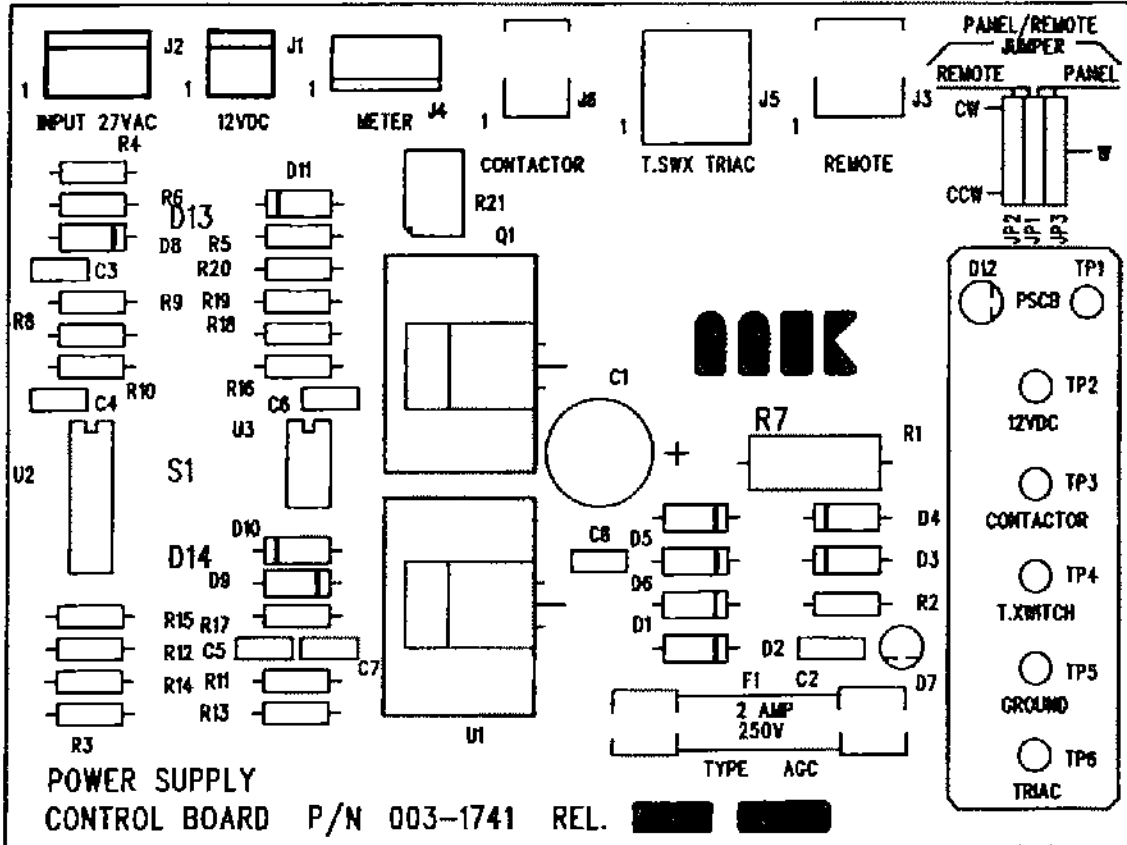


COMPONENTS TO BE REPLACED BY QUALIFIED SERVICE PERSONNEL ONLY.

Section 19

POWER SUPPLY CONTROL BOARD

P/N 003-1741



COMPONENTS TO BE REPLACED BY QUALIFIED SERVICE PERSONNEL ONLY.

POWER SUPPLY CONTROL BOARD PARTS LIST

P/N 003-1741

<u>COMPONENT #</u>	<u>P/N</u>	<u>DESCRIPTION</u>
C1	104-0057	CAPACITOR, electrolytic 222uf, 63VDC
C2	104-0089	CAPACITOR, electrolytic .1uf, 63VDC
C3,C4,C6	101-0075	CAPACITOR, monolithic 1uf, 50V
C5, C7	101-0054	CAPACITOR, poly .01uf, 63V
D1,D2,D3, D4,D5,D9, D10,D11	124-0002	DIODE, 1 amp 800V (1N4006)
D6	124-0067	DIODE, zener 1 watt, 22V (1N4748A)
D7,D12,D13	124-0042	DIODE, LED red
D8	124-0012	DIODE, zener 1 watt, 6.8V (1N4736)
D14	124-0045	DIODE, LED green
F1	151-0001	FUSE, MDA 2 amps, 260V AGC
J1	153-0795	TERMINAL, Header 2 pin
J2	153-0793	TERMINAL, Header 3 pin
J3	153-0867	TERMINAL, Header 3 pin
J4	153-0786	TERMINAL, Header 5 pin
J5	153-0901	TERMINAL, Header 4 pin
J6	153-0866	TERMINAL, Header 2 pin
R1	115-0370	RESISTOR, carbon .5 watt, 2K ohm
R6,R14,R16	115-0132	RESISTOR, carbon .25 watt, 1K ohm
R4	115-0108	RESISTOR, carbon .25 watt, 10 ohm ^(factory selected value)
R3	115-0134	RESISTOR, carbon .25 watt, 1.5K ohm ^(factory selected value)
R2	115-0275	RESISTOR, carbon .25 watt, 5.1K ohm
R7	119-0021	POTENTIOMETER, 1K ohm, 1 turn
R8,R9,R10, R12,R13,R17	115-0144	RESISTOR, carbon .25 watt, 10K ohm
R11	115-0154	RESISTOR, carbon .25 watt, 68K ohm
R15	115-0156	RESISTOR, carbon .25 watt, 100K ohm
R18	115-0164	RESISTOR, carbon .25 watt, 470K ohm
R19, R20	115-0128	RESISTOR, carbon .25 watt, 470 ohm
R21	117-0061	POT, trim 5K ohm
Q1	122-0042	TRANSISTOR, NPN 5A 60V (Tip 120)
SW1	159-3586	SWITCH, tog SPDT 5 amps, 120VAC
TP1-TP6	185-0076	TEST POINT
U1	127-0007	VOLTAGE REGULATOR (LM340T-12)
U2	127-0016	OP-AMP, quad (LM324)
U3	129-0015	IC, (LM555) timer
Bracket	435-0901	BRACKET POT
Clip	152-0008	CLIP, fuse
PCB	182-0065	P.C. BOARD, unstuffed



WARNING

Turn off input power switch, unplug primary power cord and wait 5 minutes before performing any service to this equipment. This will ensure that all storage capacitors have discharged to a relatively safe level.

The following pages detail the trouble shooting section of this manual, please read carefully and use caution when performing service on any electrical equipment. All service is to be performed by a qualified service technician.

Before calling for customer service, please go over the trouble shooting page to help solve your equipment problem. If the flow charts can not help you, please have the following information on hand before calling our service personnel:

1. Company name
2. Your name
3. Your phone number
4. Power supply Model No.
5. Primary power source
6. Symptoms of failure
7. Weld conditions

CobraMig 260 Troubleshooting Guide

TROUBLE	CAUSE	REMEDY
No wire feed at torch, feeder not operating, i.e. no slave motor or brake solenoid.	Cobra I Main board F3 fuse blown	Check 115 VAC circuit, replace fuse.
	Cobra I Main board F1 fuse blown.	Check motor leads for shorts, replace fuse.
	Micro-switch defective/not being activated.	Replace switch. Check switch for operation.
	Relay K2 on Cobra I Main Board is inoperative.	Check / Replace K2 relay.
	Loose J2, J3, P.C. Board connectors on Cobra I Board.	Check J2, J3 connection.
	Broken electrical cable.	Check for continuity, replace cable if needed.
Brake solenoid / Slave motor inoperative.	Solenoid / Slave motor defective.	Check for open circuit.
	Relay K2 inoperative.	Check for 115 VAC across J4-1,2. Check relay K2 if 115 VAC not present.
No wire feed at torch, feeder operating properly.	Bad torch Potentiometer.	Check potentiometer with meter.
	Bad torch motor.	Check / Replace motor.
	Broken Electrical Cable.	Check motor and potentiometer wires for continuity.
	Bad Speed control/PCB.	Check / Replace P.C. Board.
Wire feeds at one speed only.	Torch pot is defective or torch cable is shorted.	Check / Replace torch pot.
	Cobra I main board is defective.	Check / Replace Cobra I Main P.C. Board.
No weld output, wire feeds ok.	Loose or No cable connections.	Check all power connections.
	Power Supply control board is defective.	Check / Replace Power Supply control board.
	Loose connection at thermostat terminals.	Check connections to thermostat.
	Thermostat is defective.	Relace thermostat.
	K2 relay on Cobra I main board is not sending closing contact signal.	Check / Replace relay K2.
	Triac is defective.	Check / Replace triac.
	Remote/panel voltage jumpers in wrong place.	Check position of Remote/Panel Jumpers.
No weld output, fan motor does not run either.	No primary power input.	Connect primary power!
	Primary power connections are loose.	Check for secure connections on the primary power.
	Primary disconnect switch off or fuses open.	Close switch or replace fuse.
	CobraMig 260 main power switch defective.	Replace power switch.
Low weld voltage.	Low input voltage.	Check for proper input voltage (208,230,416,480 VAC)
	Input Voltage jumper in wrong position.	Place jumper in position to match input voltage.
	One of two diodes is defective or blown.	Check / Replace power switch.
Well disconnect fuse blows when torch trigger is depressed.	Recifiers / Capacitors damaged or defective.	Check for short (J6-1,2 on Cobra I main boards should read about 25 ohms.)
		Replace rectifiers / capacitors if necessary.
Posa Start not operating.	Posa Start pot or Posa Start switch is defective.	Check / Replace if necessary.
	Current sensor is defective or Posa Start circuit on Cobra I main board is defective.	Check / Replace current sensor or Cobra I main board.
Erratic weld output.	Ground clamp loose at work connection.	Check ground clamp for secure attachment.
	Capacitors defective.	Replace capacitors if necessary.
	Voltage and wire feed settings are not correct.	Readjust as necessary.
	Excessive spool drag pressure.	Decrease spool drag pressure inside hub.
	Dirty or worn conduit.	Blow out or replace conduit.
	Incorrect pressure on drive rolls.	Adjust pressure at both feeder and torch.
	Idler roll stuck or sticking.	Check for lock washer under idler roll, or replace.
	Wrong size contact tip.	See contact tip table for correct tip.

1

FLOW CHART

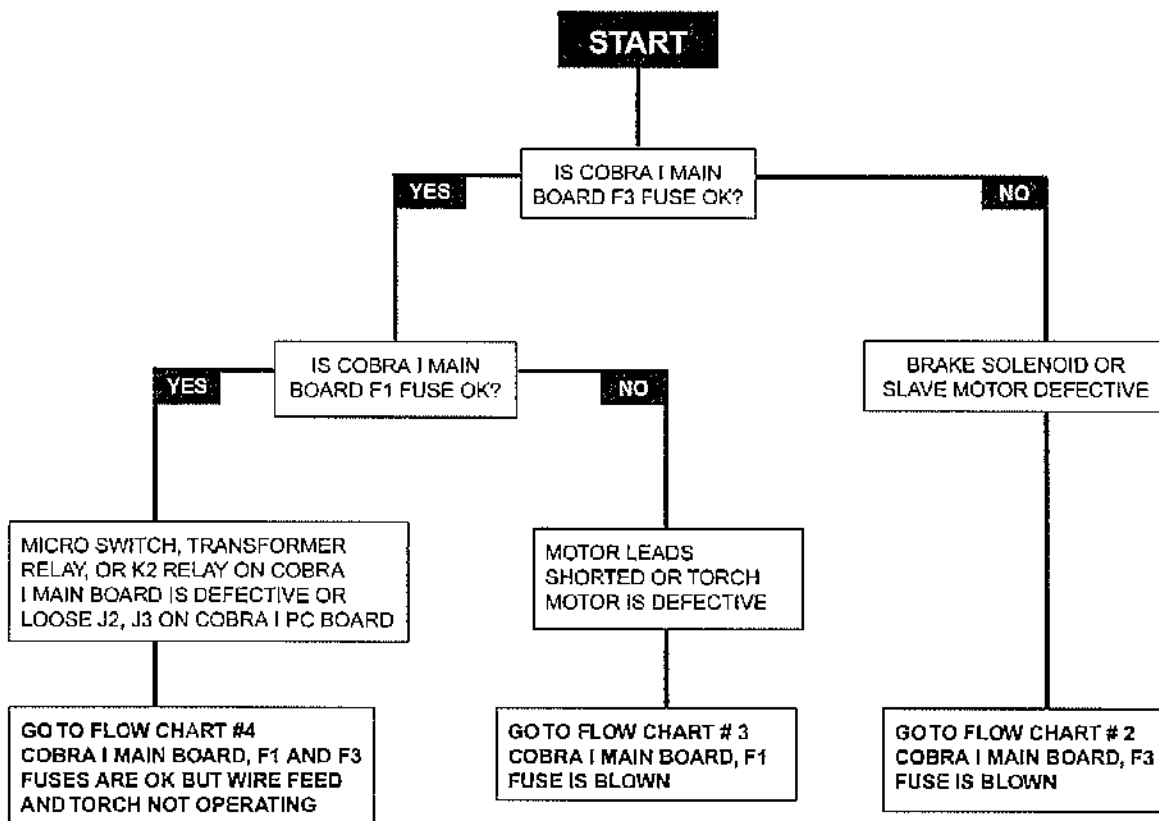
1**SYMPTOM**

NO WIRE FEED AT TORCH, FEEDER NOT OPERATING

PROBLEM AREA

COBRA I: MAIN BOARD, K2 RELAY

TORCH: MOTOR, CABLE, MICRO SWITCH, SLAVE MOTOR, BRAKE SOLENOID

**TROUBLE:**

No wire feed at torch, feeder not operating, ie. No slave motor or brake solenoid action.

CAUSE:

(F3) 2 amp Fuse on Main P.C. board on wire feeder.

(F1) 4 amp Fuse on Main P.C. board on wire feeder.

Micro Switch defective / Not being activated.

Broken electrical cable.

Transformer relay, Relay K2 inoperative.

Loose J2, J3, Cobra I Main P.C. board connections.

FLOW CHART

SYMPTOM

F3 FUSE ON COBRA I IS BLOWN WHEN TORCH IS TRIGGERED

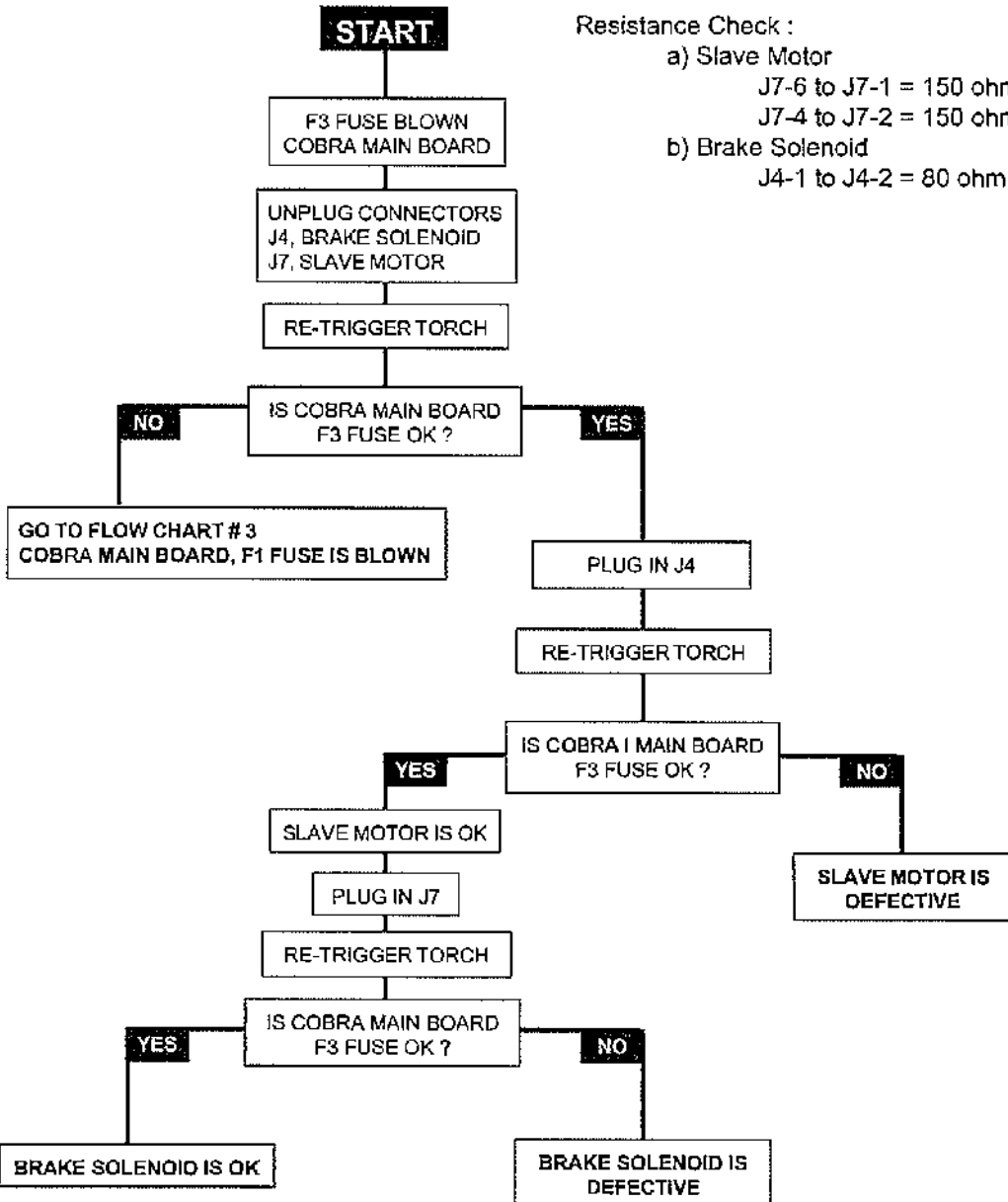
PROBLEM AREA

COBRA: MAIN BOARD, SLAVE MOTOR OR BRAKE SOLENOID

NOTE : The 115VAC on Cobra I Main P.C. Board is protected by Fuse F3. If F3 continually blows, unplug J4 (Brake Solenoid), J7 (Slave Motor) from the P.C. Board. Replace the fuse and retrigger. If fuse does not blow, isolate the problem by plugging in J4 and J7 one at a time until the fuse blows.

Resistance Check :

- a) Slave Motor
 - J7-6 to J7-1 = 150 ohm
 - J7-4 to J7-2 = 150 ohm
- b) Brake Solenoid
 - J4-1 to J4-2 = 80 ohm

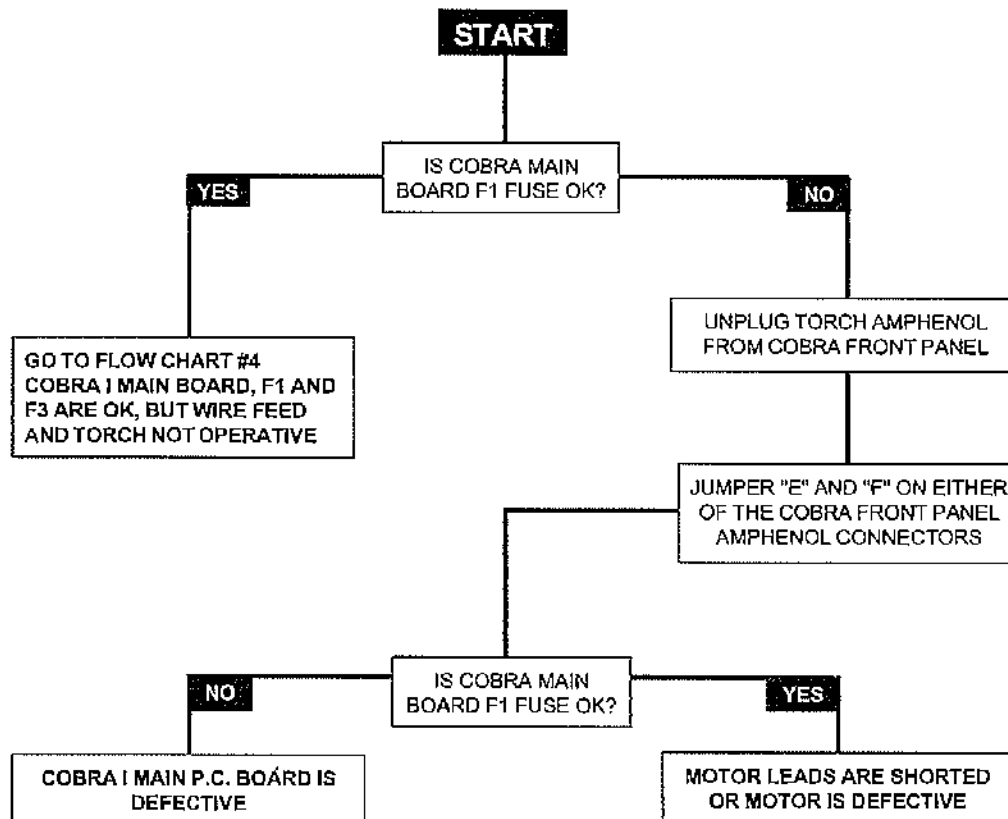


SYMPTOM

COBRA: MAIN BOARD, F1 FUSE IS BLOWN

PROBLEM AREA

COBRA: MAIN BOARD OR TORCH MOTOR



NOTE :

MOTOR CHECK

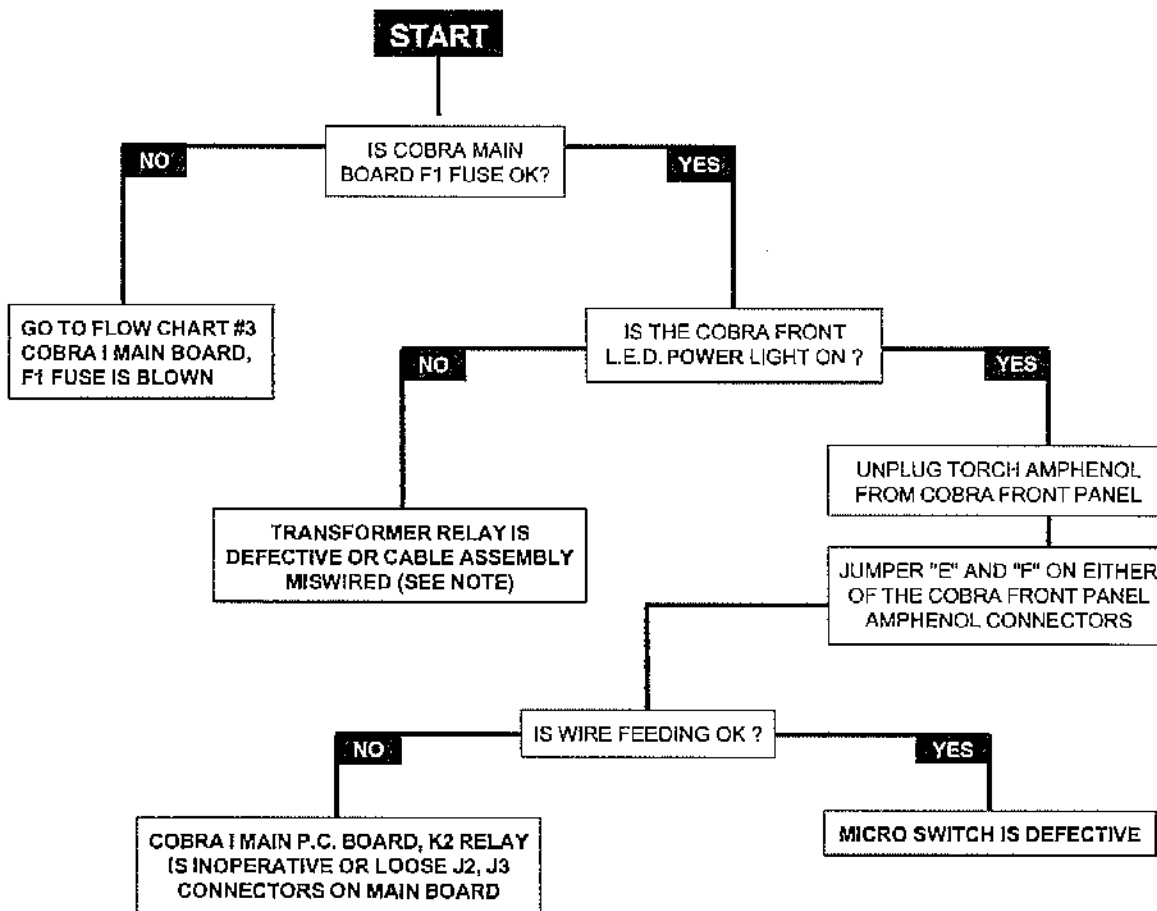
- Remove the amphenol connector from the cabinet.
- Using an OHM meter, check the resistance across pins "A" and "B" (motor leads) on torch amphenol. The resistance across the motor should be between 5 and 10 ohms.
- If an open circuit or short circuit condition exists, check the motor leads and motor independently.

SYMPTOM

COBRA MAIN BOARD, F1 AND F3 FUSES ARE OK
BUT NO WIRE FEED AT TORCH AND FEEDER NOT OPERATING

PROBLEM AREA

K2 RELAY ON COBRA I MAIN BOARD,
TRANSFORMER RELAY OR TORCH MOUNTED MICRO SWITCH



NOTE :

When the Cobra I front panel power switch is on, 115VAC is sent to the coil of Transformer Relay and 27 VAC is sent to Cobra I main board. When the torch is triggered, then K2 on Cobra I main board is energized. This action transfer 115 VAC to the slave motor, brake solenoid and controlled voltage to the torch motor.

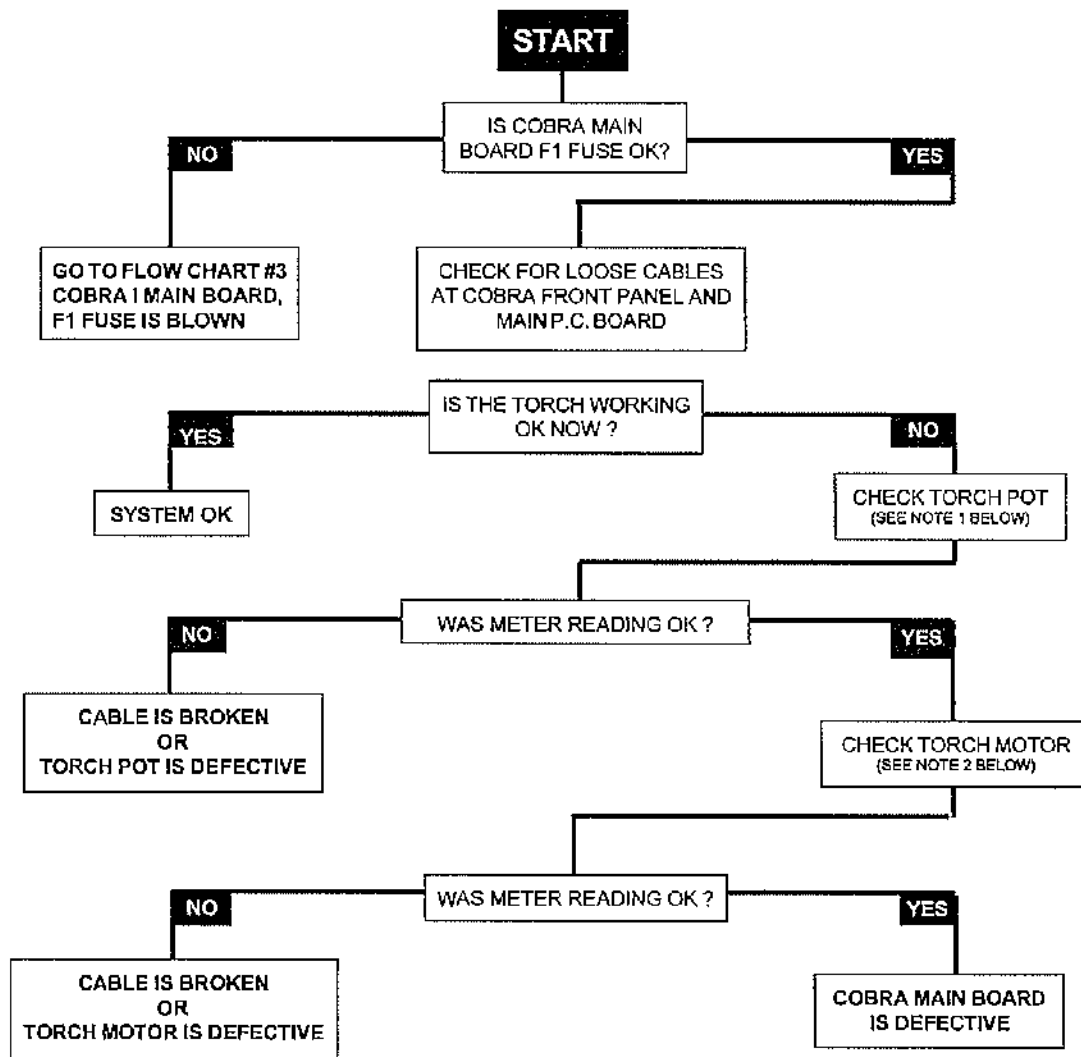
TRANSFORMER RELAY VOLTAGES : *When torch trigger is depressed*
115 VAC COM (White), Pin A to 115 VAC HOT (Neu), Pin B = 115 VAC
27 VAC COM (Brown), Pin 7 to 27 VAC HOT (Orange), Pin 9 = 27 VAC
27 VAC COM (Yellow), Pin 4 to 27 VAC HOT (Blue), Pin 6 = 27 VAC

SYMPTOM

NO WIRE FEED AT TORCH, FEEDER OPERATING PROPERLY

PROBLEM AREA

COBRA MAIN BOARD, TORCH POT OR TORCH MOTOR



NOTES:

1. Check TORCH POT at plug connector

a. Testing the potentiometer - "W" Clocked. - Using Ohm Meter to check resistance across pin "D" (wiper) and pin "C" of Torch plug. Should vary from 0 to 5k ohm while turning pot. - Using Ohm Meter to check resistance across pin "D" (wiper) and pin "G" of Torch plug. Should vary from 0 to 5k ohm while turning pot.

b. Testing the potentiometer - "S" Clocked. - Using Ohm Meter to check resistance across pin "D" (wiper) and pin "C" of Torch plug. Should vary from 0 to 5k ohm while turning pot. - Using Ohm Meter to check resistance across pin "D" (wiper) and pin "A" of Torch plug. Should vary from 0 to 5k ohm while turning pot.

2. Check TORCH MOTOR

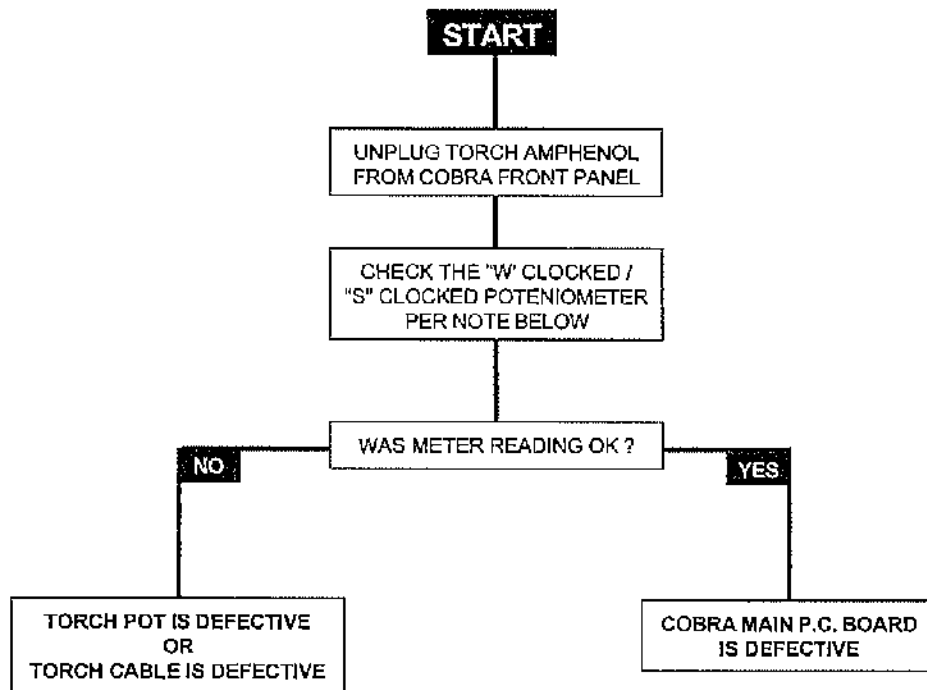
a. Unplug the Torch from the front panel.
 b. Using the Ohm Meter, Check the resistance across pin "A" and pin "B" (motor leads) of Torch plug. The resistance should be about 5 to 10 ohms.
 c. If open or short circuit exists, then check motor leads and motor for additional problems.

SYMPTOM

WIRE FEEDS AT ONE SPEED ONLY, NO CONTROL BY POT SETTING ON TORCH

PROBLEM AREA

TORCH MOTOR POTENIOMETER OR CABLE OR COBRA I MAIN BOARD



NOTES:

1. Check TORCH POT at plug connector

a. Testing the potentiometer - "W" Clocked. - Using Ohm Meter to check resistance across pin "D" (wiper) and pin "C" of Torch plug. Should vary from 0 to 5k ohm while turning pot. - Using Ohm Meter to check resistance across pin "D" (wiper) and pin "G" of Torch plug.

Should vary from 0 to 5k ohm while turning pot.

b. Testing the potentiometer - "S" Clocked. - Using Ohm Meter to check resistance across pin "D" (wiper) and pin "C" of Torch plug. Should vary from 0 to 5k ohm while turning pot. - Using Ohm Meter to check resistance across pin "D" (wiper) and pin "A" of Torch plug.

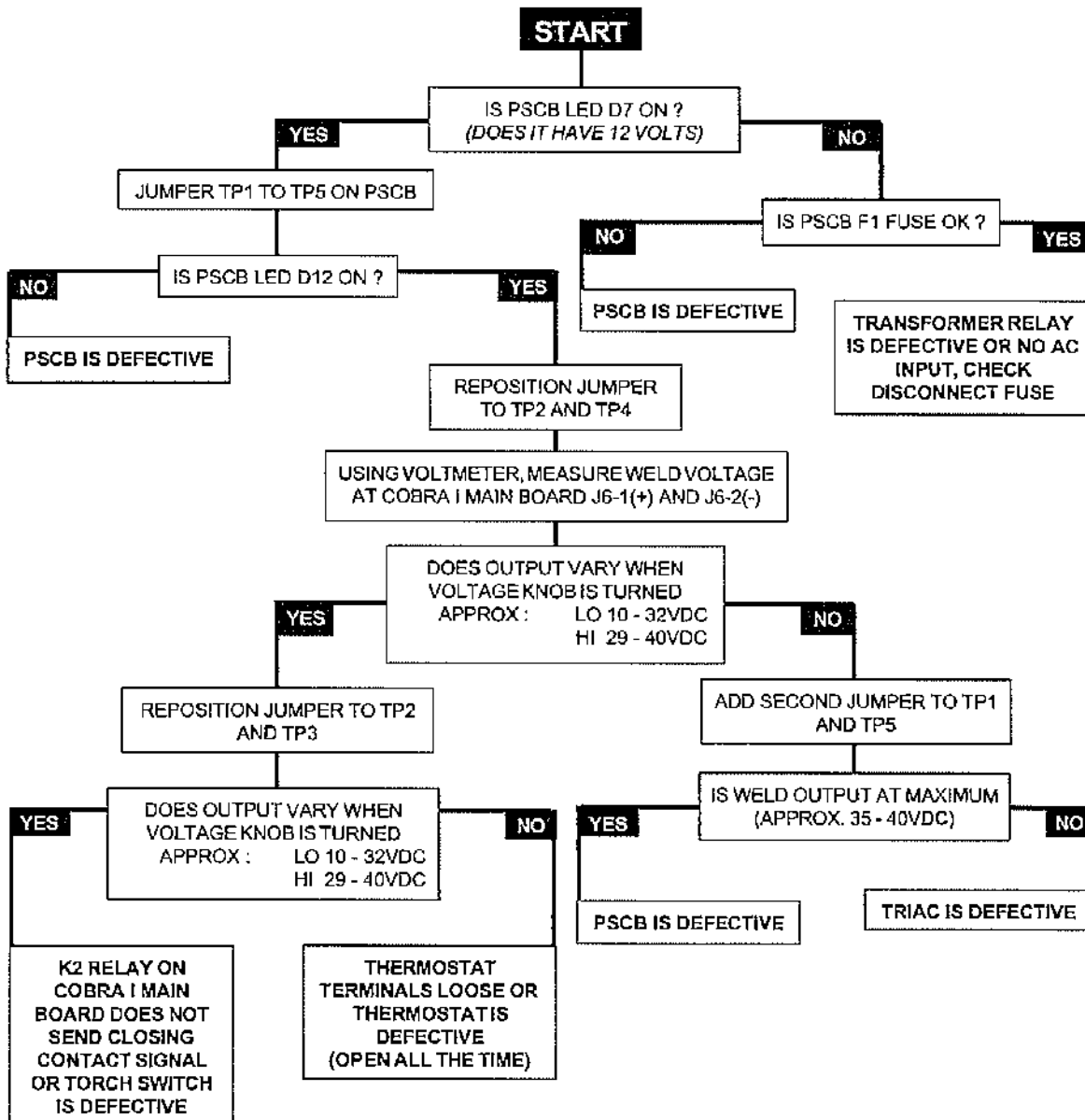
Should vary from 0 to 5k ohm while turning pot.

SYMPTOM

NO WELD OUTPUT, NO VOLTAGE CONTROL

PROBLEM AREA

POWER SUPPLY CONTROL (PSCB), THERMOSTAT, TRIAC, CONTACTOR SIGNAL, PWR SWX BOARD



TRIAC RESISTANCE CHECK:

Use meter in "Diode" mode.

Pin 3 to Pin 4 : 2.3

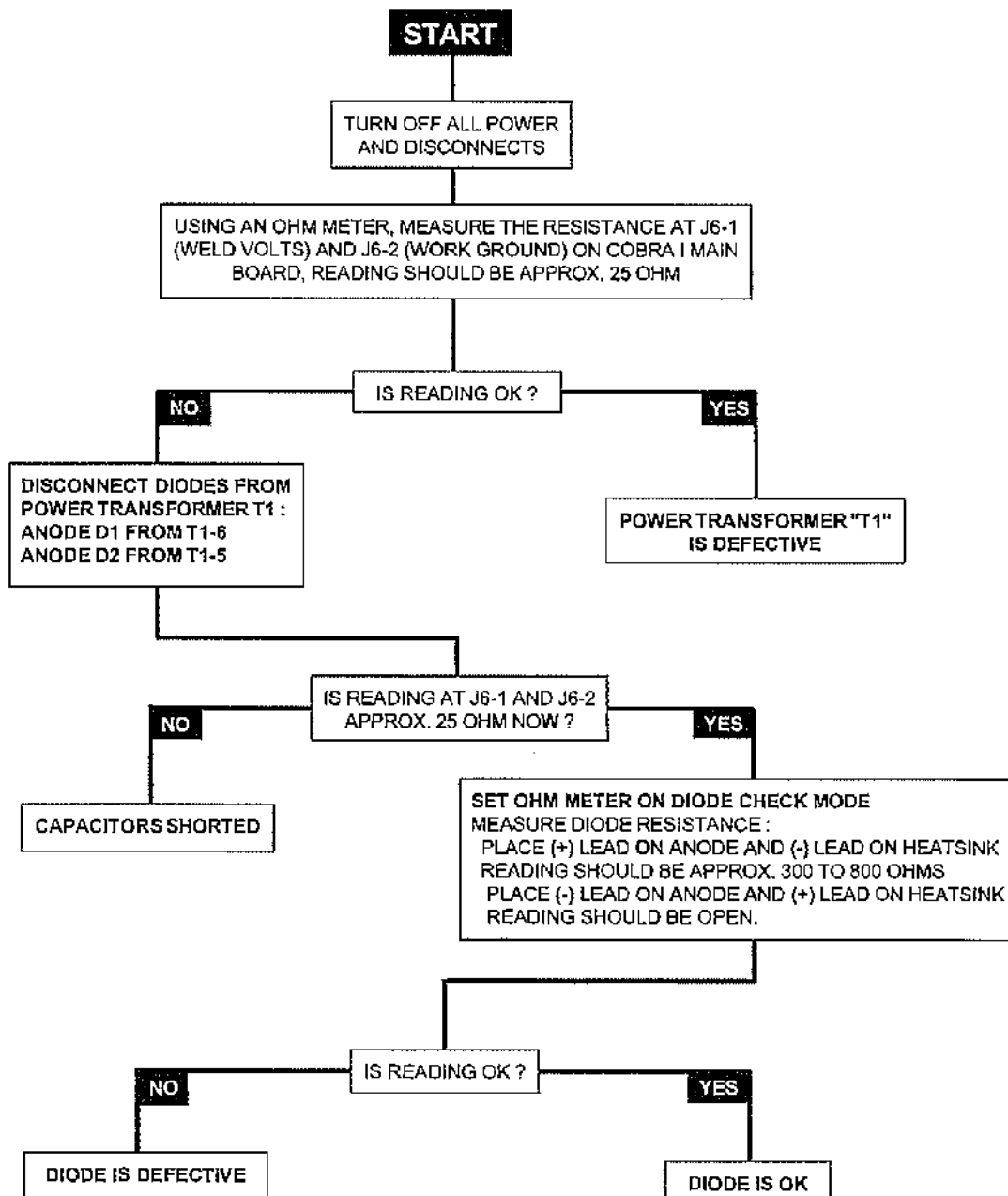
Pin 1 to Pin 2 : open

SYMPTOM

DISCONNECT FUSE BLOWS WHEN TORCH IS TRIGGERED

PROBLEM AREA

POWER TRANSFORMER "T1", DIODES, CAPACITORS

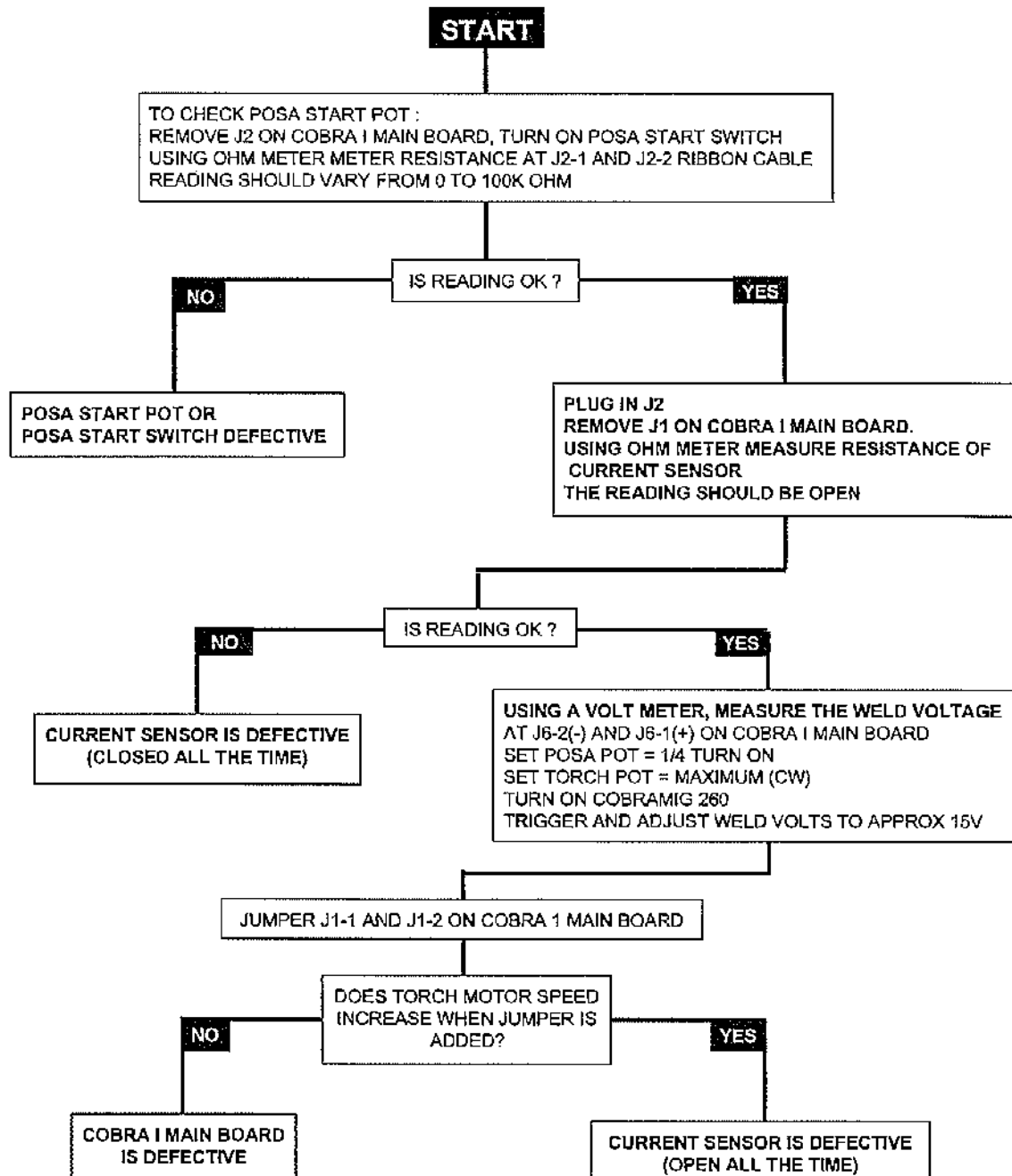


SYMPTOM

POSA START NO WORKING PROPERLY

PROBLEM AREA

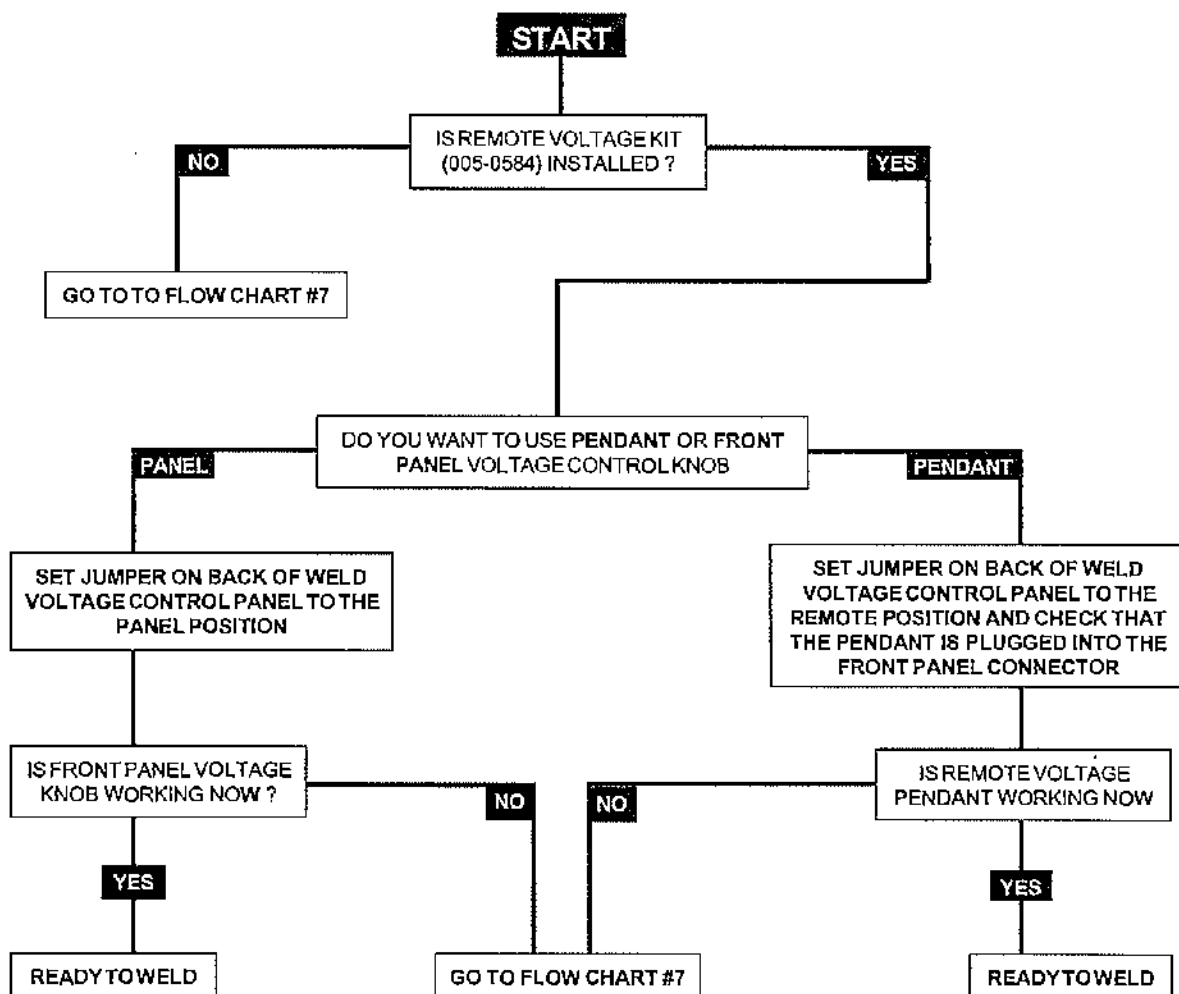
CURRENT SENSOR, COBRA I MAIN BOARD, READ POSA START SECTION.



SYMPTOM

NO WELD OUTPUT, REMOTE VOLTAGE POT INSTALLED

PROBLEM AREA

JUMPER ON POWER SUPPLY CONTROL BOARD (PSCB) IN WRONG POSITION
REMOTE PENDANT IS DEFECTIVE

NOTE :

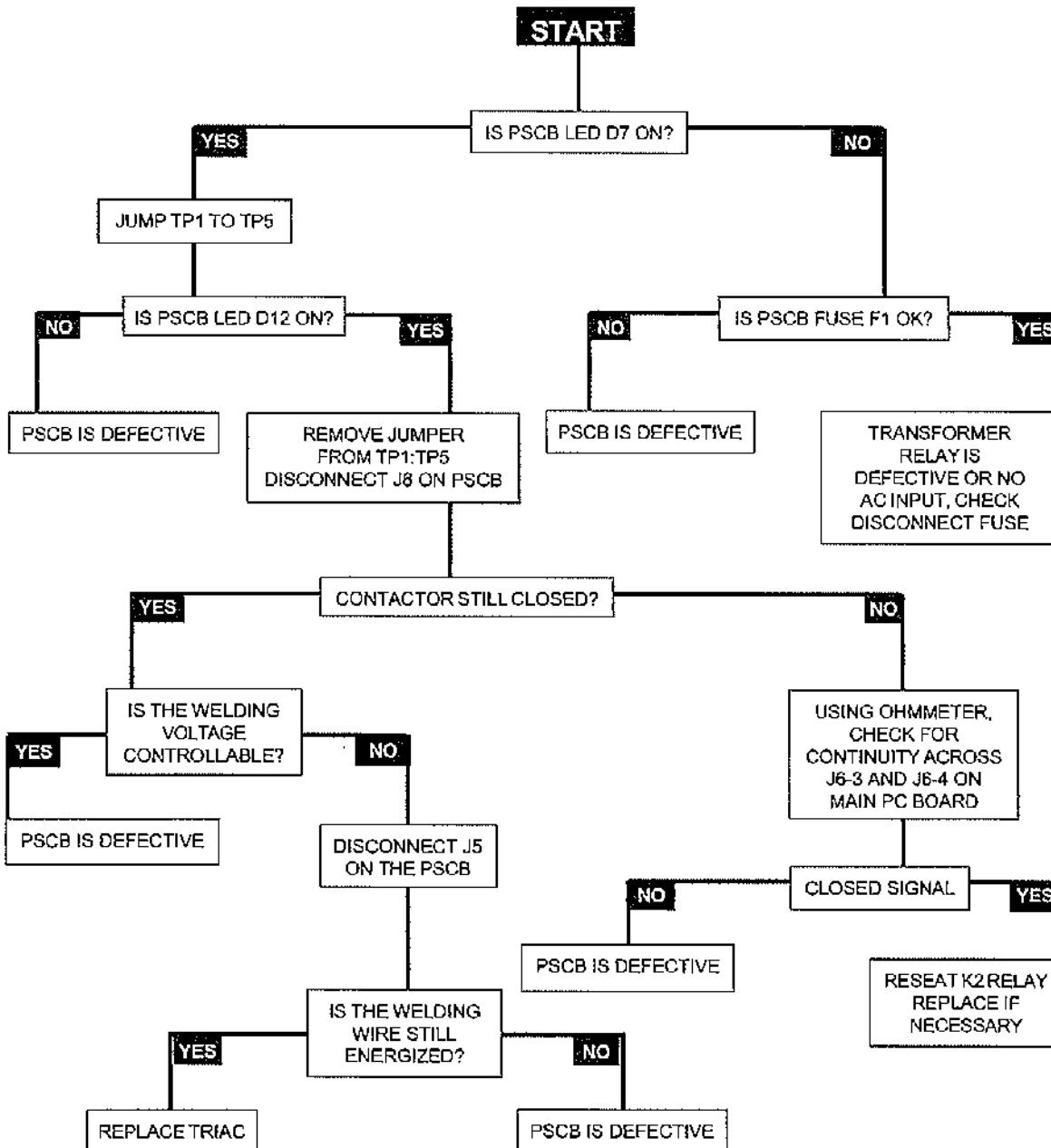
WHEN THE REMOTE VOLTAGE POT KIT IS INSTALLED AND THE JUMPER IS IN THE REMOTE POSITION, **YOU MAY ONLY USE THE REMOTE POT**, THE FRONT PANEL VOLTAGE POT IS DISABLED UNTIL YOU MOVE THE JUMPER BACK TO FRONT PANEL POSITION.

SYMPTOM

CONTACTOR CLOSED, WIRE ALWAYS ENERGIZED

PROBLEM AREA

POWER SUPPLY CONTROL BOARD, K2 RELAY MAIN BOARD, TRIAC



Section 21

TESTING THE TORCH

21.1 Motor Check

Remove the amphenol 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 - "W" Clocked

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 Potentiometer - "S" Clocked

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 "A". The resistance should vary from 5K -0 ohms.

21. 4 Testing the Micro Switch

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

Section 22

RELAY K2 OPERATION

When the torch trigger is pressed, 24VAC is sent to the coil of relay K2. When K2 is energized, 115VAC is sent to the slave motor, spool brake, and the 115VAC contactor. Relay K2 is also responsible for sending 24VAC to the speed control circuit and shorting the torch motor leads together when the trigger is released for the dynamic braking system. K2 also provides the closing contactor signal.

Section 23

TESTING THE 115 VAC CIRCUITS

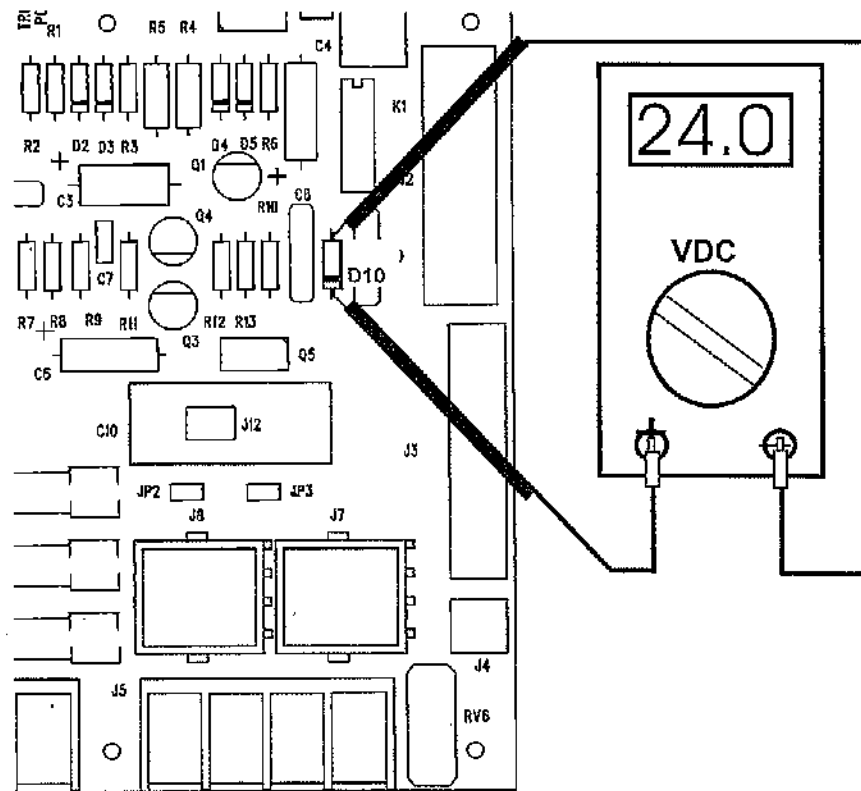
The 115 VAC circuit is protected by fuse F3. If F3 continually blows, remove J4 (Brake Solenoid), J7 (slave motor) and J5-3,4 (115 VAC Contactor) from the P.C. Board. Replace fuse, and retrigger system. If fuse does not blow; isolate the problem by plugging in J4, J7, and J5-3,4 one at a time until the fuse blows.

Section 24

TESTING THE SPEED CONTROL

NOTE: The torch should be tested first and the torch panel amphenol must be connected to the Cobramatic I to perform this test.

Place a voltmeter across diode **D10** and press torch trigger. A reading of **0 - 24VDC** should be observed, as the potentiometer varied.

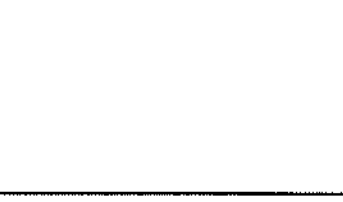
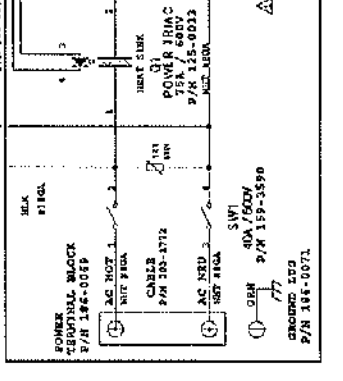
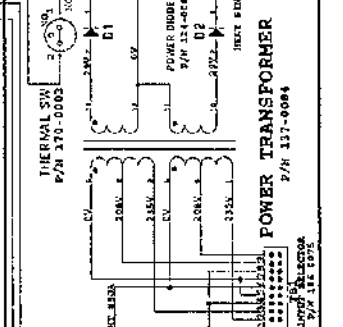
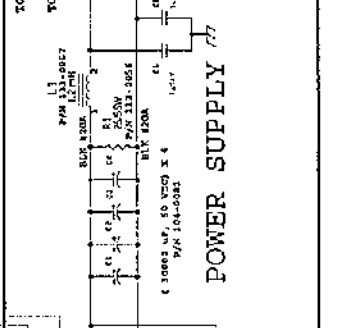
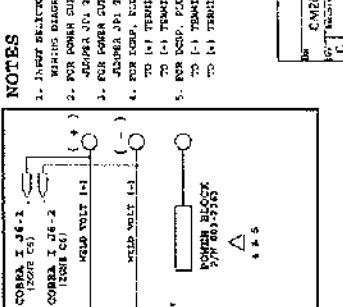
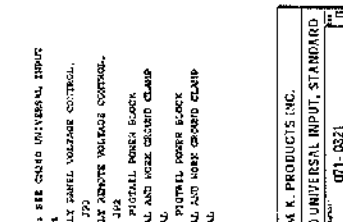
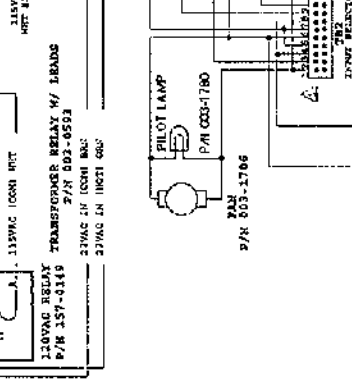
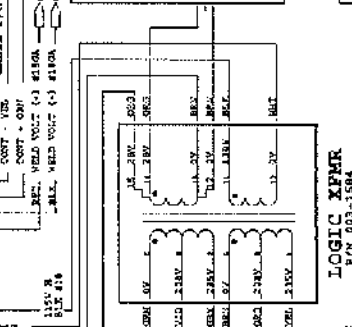
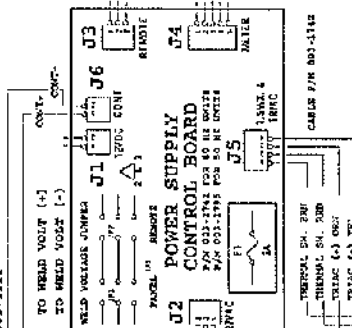
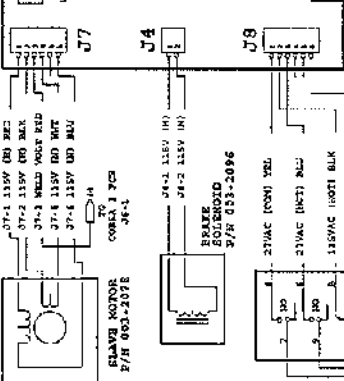
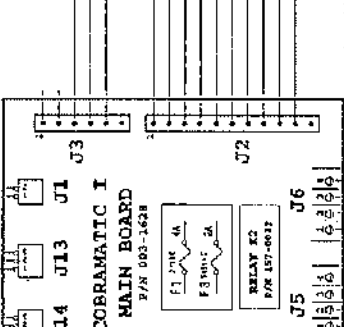
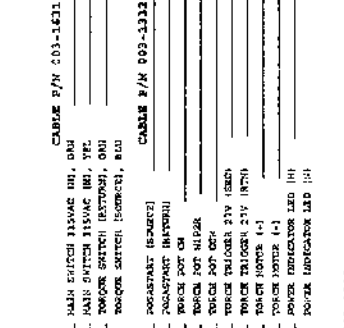
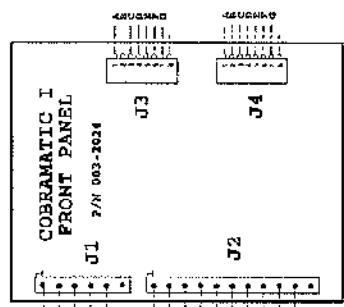
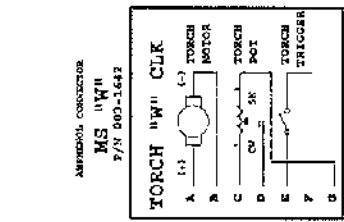


COBRAMATIC - MAIN BOARD

Section 25

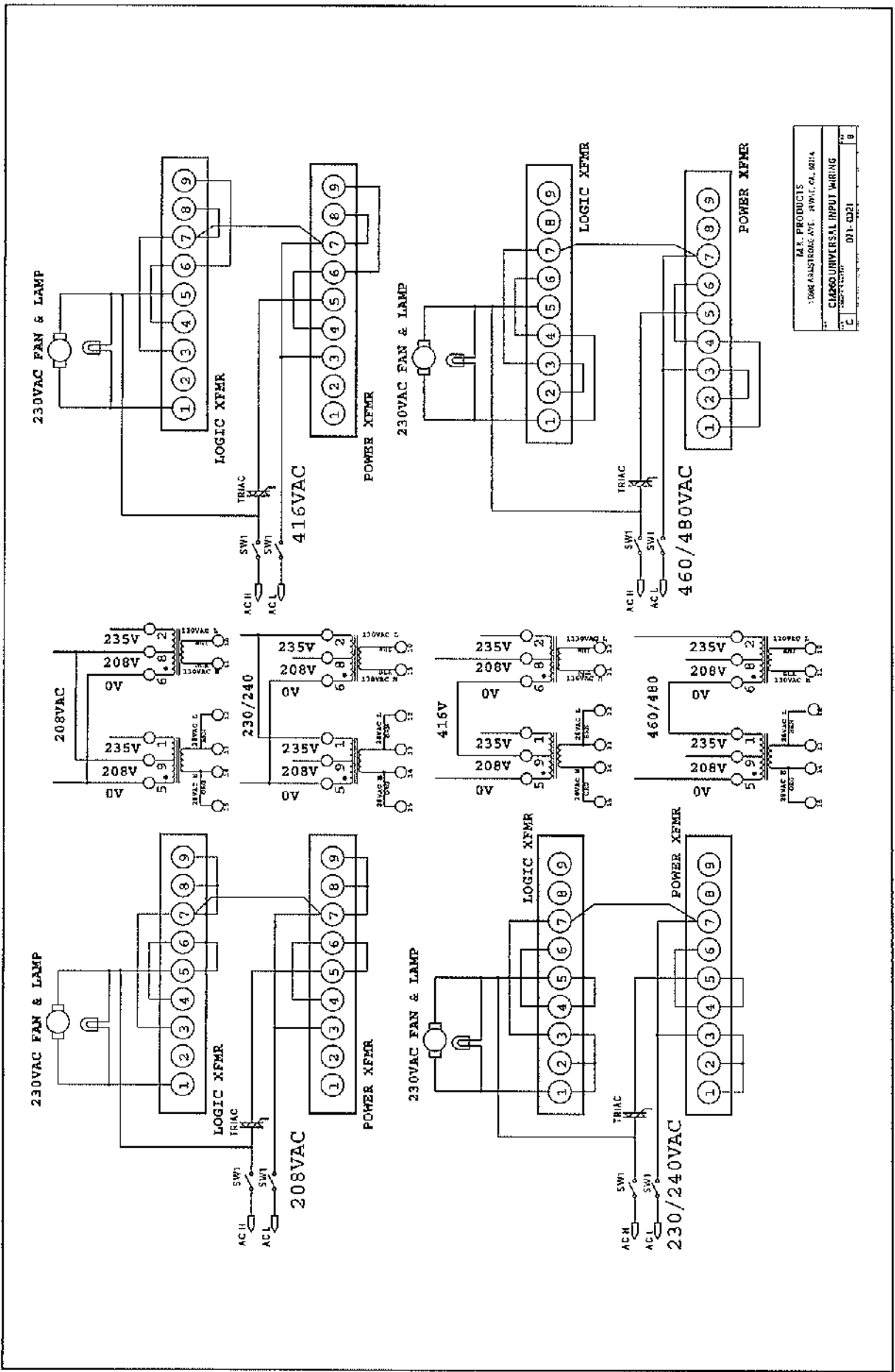
**WIRING DIAGRAMS
AND
ELECTRICAL SCHEMATICS**

REV	DESCRIPTION / USER	DATE
1	REVISED	11/78
2	REVISED	11/78
3	REVISED	11/78
4	REVISED	11/78
5	REVISED	11/78
6	REVISED	11/78
7	REVISED	11/78
8	REVISED	11/78
9	REVISED	11/78
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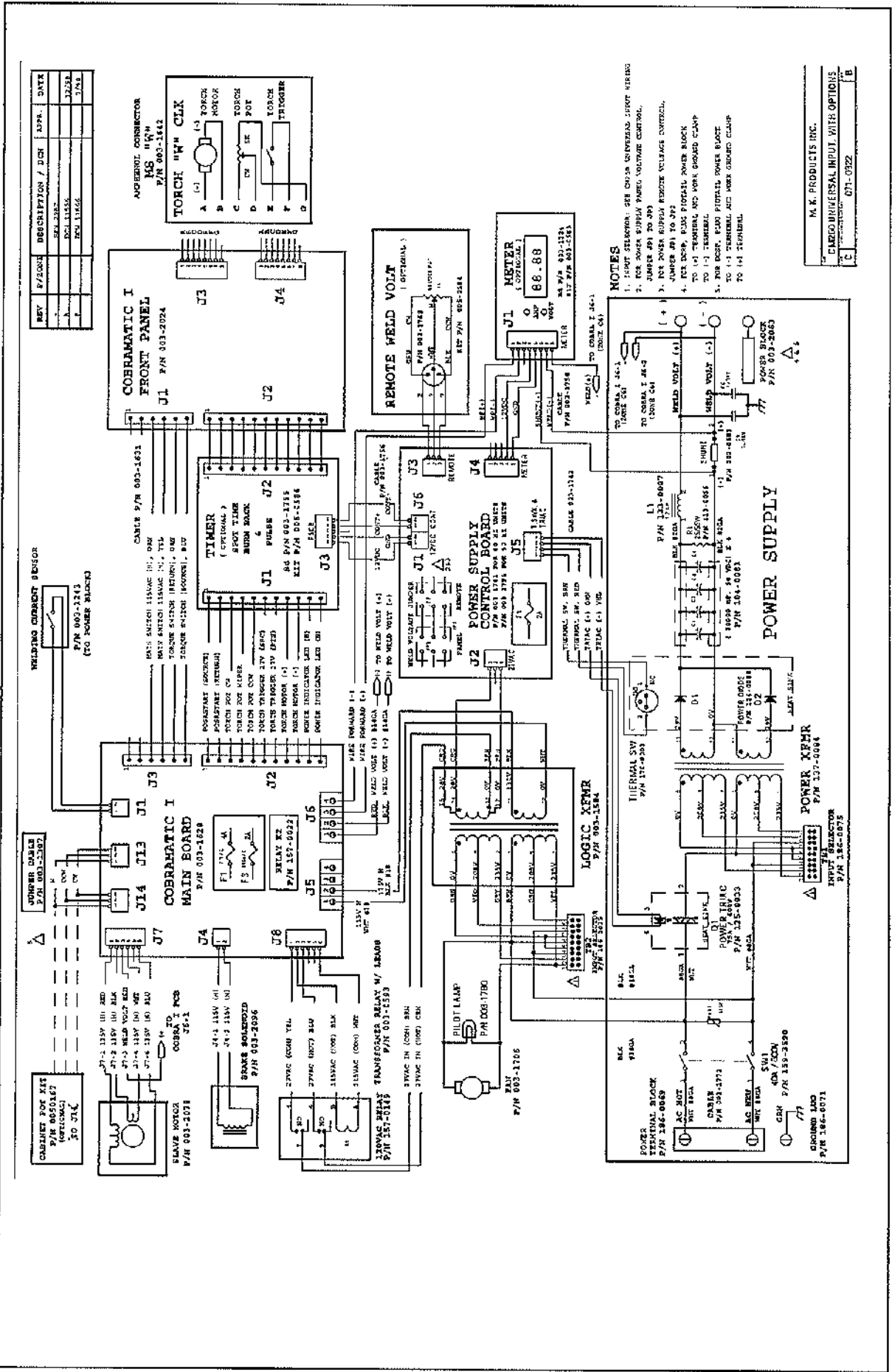


- NOTES**
1. INVERT SELECTOR, SEE CABLE UNIVERSAL, INPUT SELECTOR DIAGRAM
 2. FOR POWER SUPPLY PANEL VOLTAGE CONTROL, SEE POWER SUPPLY PANEL VOLTAGE CONTROL.
 3. FOR POWER SUPPLY PANEL VOLTAGE CONTROL, SEE POWER SUPPLY PANEL VOLTAGE CONTROL.
 4. FOR POWER SUPPLY PANEL VOLTAGE CONTROL, SEE POWER SUPPLY PANEL VOLTAGE CONTROL.
 5. FOR POWER SUPPLY PANEL VOLTAGE CONTROL, SEE POWER SUPPLY PANEL VOLTAGE CONTROL.

M. K. PRODUCTS, INC.
C-2650 UNIVERSAL INPUT STANDARD
071-0821

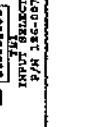
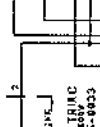
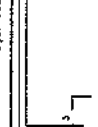
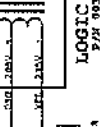
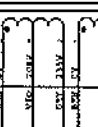
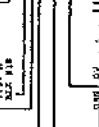
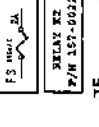
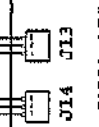
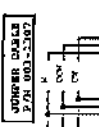
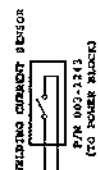
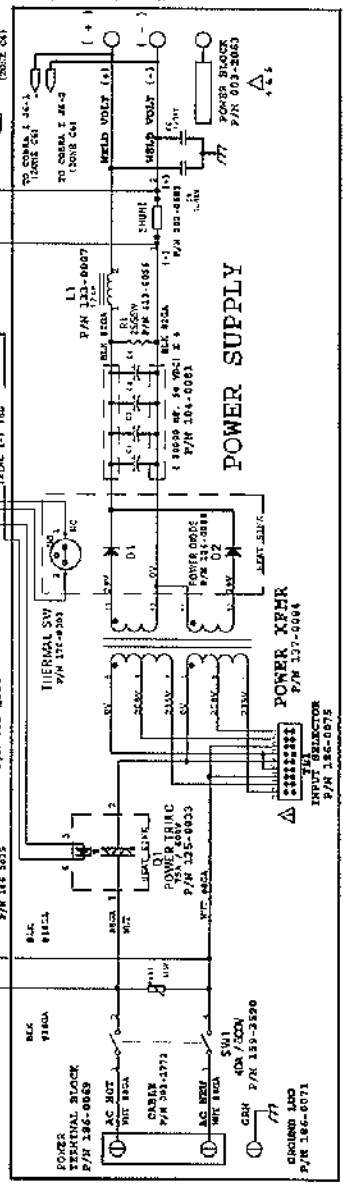
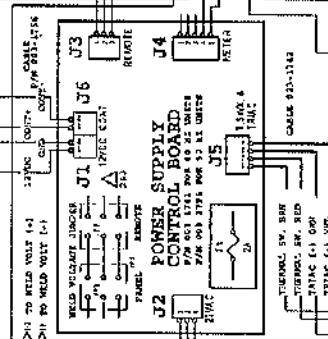
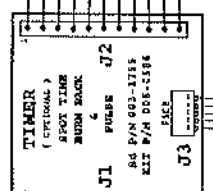
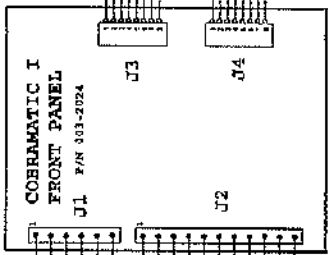
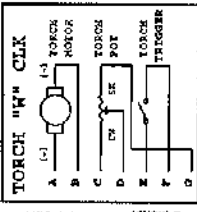


MAX. PRODUCTS
 1066 HANSTON AVE. NEWTON, MA 02459
 CLASS UNIVERSAL INPUT WIRING
 C 1 2 3 4 5 6 7 8 9



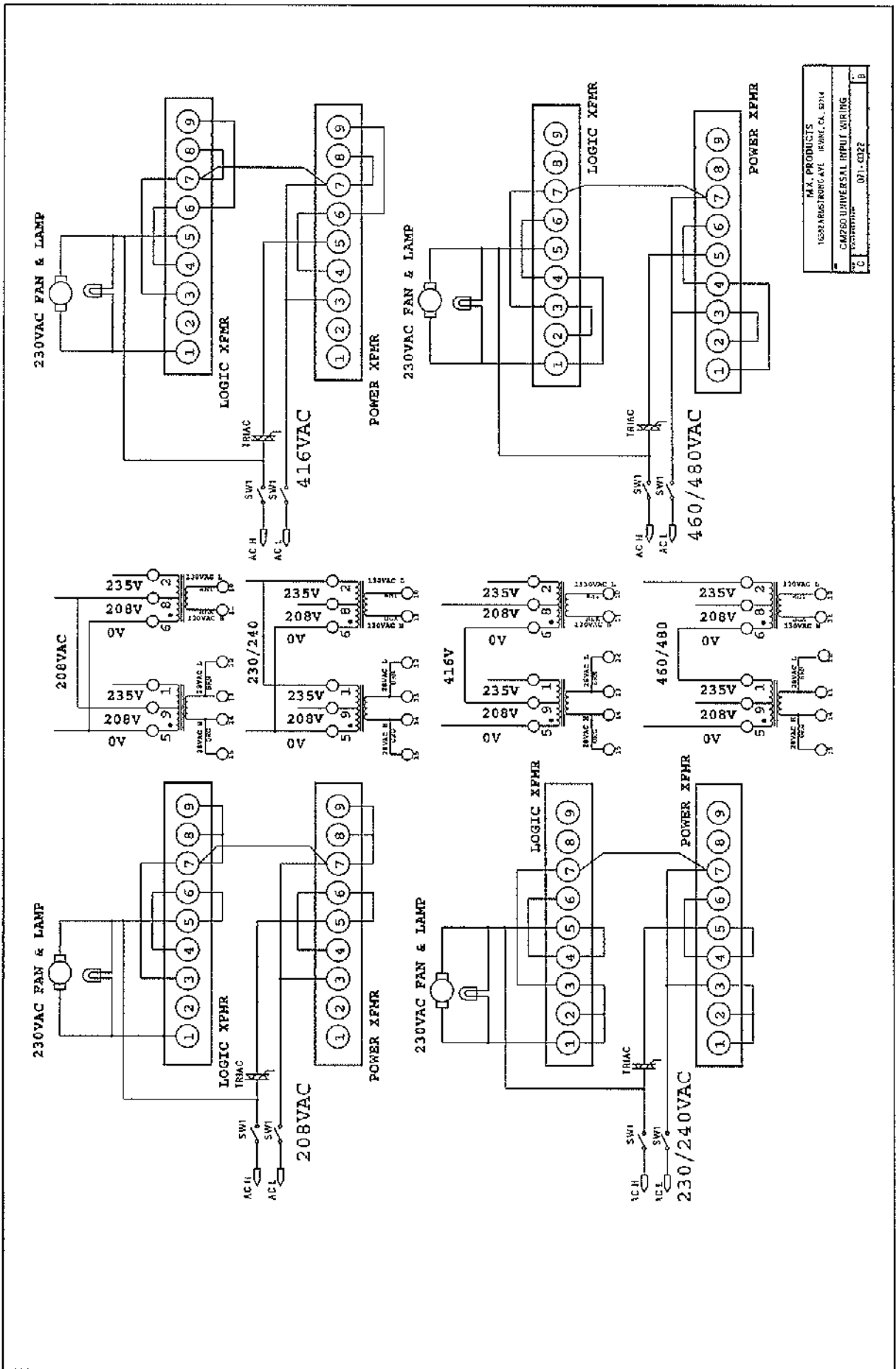
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2		REV 11626		7/82

ADAPTER CONNECTOR
MS 1174
P/N 003-1642



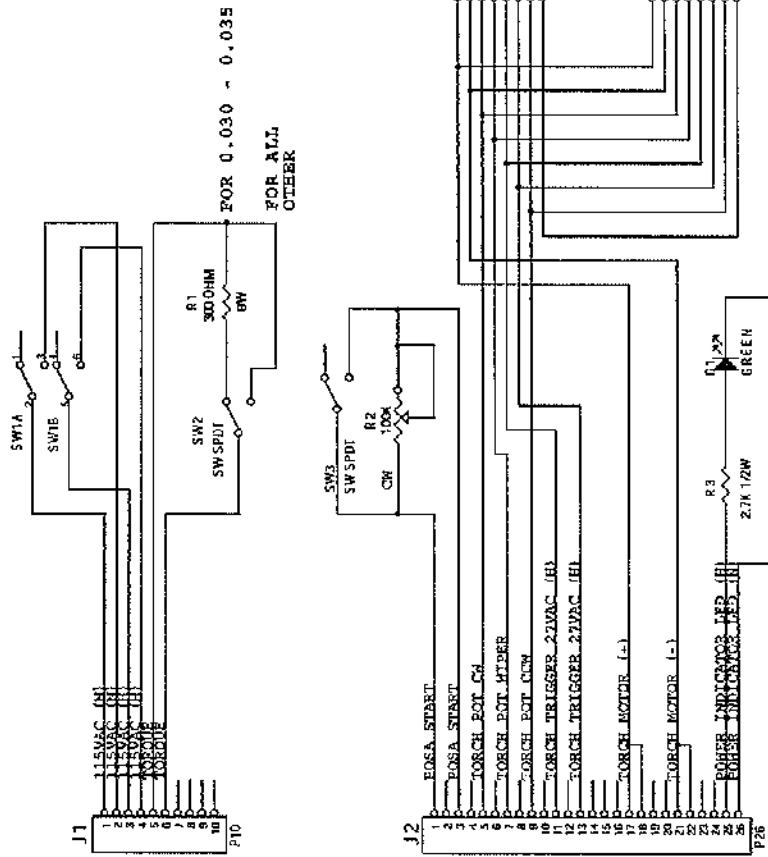
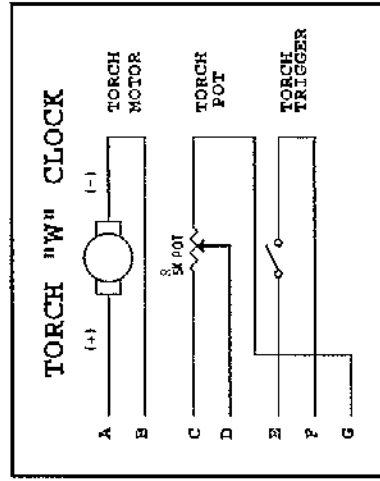
- NOTES**
1. LIGHT SELECTOR: SEE CH-26 SUPERVISOR LIGHT SYSTEMS
 2. FOR POWER SUPPLY PANEL VOLTAGE CONTROL, JUMPER J91 TO J93
 3. FOR POWER SUPPLY REDUCE VOLTAGE CONTROL, JUMPER J91 TO J92
 4. FOR STOP, PULSE PILOT, POWER BLOCK TO 1-1 TERMINAL AND WORK GROUNDED CLAMP TO 1-1 TERMINAL
 5. FOR STOP, PULSE PILOT, POWER BLOCK TO 1-1 TERMINAL AND WORK GROUNDED CLAMP TO 1-1 TERMINAL
 6. FOR STOP, PULSE PILOT, POWER BLOCK TO 1-1 TERMINAL AND WORK GROUNDED CLAMP TO 1-1 TERMINAL

M. K. PRODUCTS INC.
CHIEFO UNIVERSAL INPUT, WITH OPTIONS
C
071-0922



M.V. PRODUCTS	
1625 HUNTSBROOK AVE. HUNTS, CA. 9314	
CobraMig 260 UNIVERSAL INPUT WIRING	
REV. C	DATE: 07-1-02

REVISIONS				
REV.	P/ZONE	DESCRIPTION/DCN #	DATE	APPRV.
-		FOR 2885	01/98	CST
A		DCN 11559	12/98	DT
B		DCN 12472	12/00	DT
C		DCN 12562	2/03	DT



M.K. PRODUCTS
 16862 ARMSTRONG AVE. IRVINE, CA, 92714

Doc # COBRA-I 115V FRONT PANEL
 Doc Part Number 071 - 0370
 Date Thursday, 06/26/2003

REV	USED ON

LIMITED WARRANTY

Effective March 1, 2001

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, Weldheads & Water Recirculators 1 year
2. All Other Equipment..... 3 years
3. Repairs 90 days

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

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

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

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

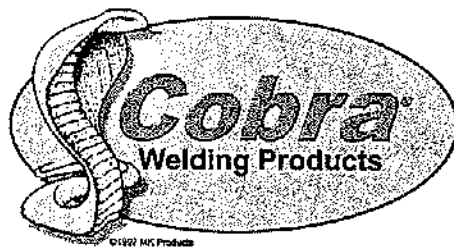
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DATE : March 1, 2001



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