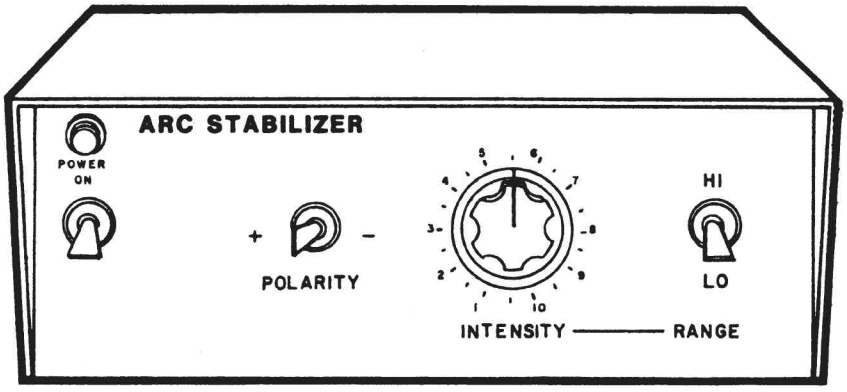
Arc Products™
A Lincoln Electric Company

! IMPORTANT !
- For Your Safety -
Read this manual before
installing or using this equipment

# ARC PRODUCTS, INC




# MA-10

# MAGNETIC ARC STABILIZER

# OPERATION & SERVICE MANUAL

# THANK YOU!!!

. . . for purchasing Arc Products Automation Magnetic Arc Controls. Please take a moment to read the following pages as they contain important information regarding proper welding/cutting safety and procedures.

| WHO DO I CONTACT | | |
|---|---|---|
| For help<br>■ contact your distributor<br><br>For additional information. such as<br>Technical Manuals (Service and Parts)<br>Circuit and Wire Diagrams<br>Process Handbooks<br>User's Guides<br>■ contact your distributor | To file a claim for loss or damage during shipment,<br>■contact delivering carrier<br><br>For assistance in filing or settling claims,<br>■ contact your distributor and/or equipment manufacturer's Transportation Department | Arc Products<br>■ CALL: (619) 628-1022<br>■ FAX: (619) 628-1028<br>■ E-MAIL: sales@arc-products.com<br>■ WRITE: Arc Products<br>1245 30th Street<br>San Diego, CA 92154 |
| Always provide Model Name and Part Number | | |

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# SAFETY

*SAFETY*

## Symbol Usage

**Means Warning! Watch Out! There are possible hazards with this procedure! The possible hazards are shown in the adjoining symbols.**

**This group of symbols means Warning! Watch Out! possible ELECTRIC SHOCK, MOVING PARTS, AND HOT PARTS hazards. Consult symbols and related instructions below for necessary actions to avoid the hazards.**

## Arc Welding Hazards

**⚠ WARNING**

**The symbols shown below are used throughout this manual to call attention to and identify possible hazards. When you see the symbol, watch out, and follow the related instructions to avoid the hazard. The safety information given below is only a summary of the more complete safety information found in the Safety Standards listed in the PRINCIPAL SAFETY STANDARDS section, page 3. Read and follow all Safety Standards.**

**Only qualified persons should install, operate, maintain and repair this unit.**
**During operation, keep everybody, especially children, away.**

### ELECTRIC SHOCK can kill.

Touching live electrical parts can cause fatal shocks or severe burns. The electrode and work circuit is electrically live whenever the output is on. The input power circuit and machine internal circuits are also live when power is on. In semiautomatic or automatic wire welding, the wire, wire reel, drive roll housing, and all metal parts touching the welding wire are electrically live. Incorrectly installed or improperly grounded equipment is a hazard.

1. Do not touch live electrical parts.
2. Wear dry, hole-free insulating gloves and body protection.
3. Insulate yourself from work and ground using dry insulting mats or covers big enough to prevent any physical contact with the work or ground.
4. Disconnect input power or stop engine before installing or servicing this equipment. Lockout/tagout input power according to OSHA 29 CFR 1910.147 (See Safety Standards).
5. Properly install and ground this equipment according to its Owner's Manual and national, state, and local codes.
6. Always verify the supply ground—check and be sure that input power cord ground wire is properly connected to ground terminal in disconnect box or that cord plug is connected to a properly grounded receptacle outlet.
7. When making input connections, attach proper grounding conductor first—double-check connections.
8. Frequently inspect input power cord for damage or bare wiring—replace cord immediately if damaged—bare wiring can kill.
9. Turn off all equipment when not in use.
10. Do not use worn, damaged, undersized, or poorly spliced cables.
11. Do not drape cables over you body.
12. If earth grounding of the workpiece is required, ground it directly with a separate cable—do not use work clamp or work cable.
13. Do not touch electrode if you are in contact with the work, ground, or another electrode from a different machine.
14. Use only well-maintained equipment. repair or replace damaged parts at once. Maintain unit according to manual.
15. Wear a safety harness if working above floor level.
16. Keep all panels and covers securely in place.

### ARC RAYS can burn eyes and skin; NOISE can damage hearing; FLYING SLAG OR SPARKS can injure eyes

Arc rays from the welding process produce intense visible and invisible (ultraviolet and infrared) rays that can burn eyes and skin. Noise from some processes can damage hearing. Chipping grinding, and welds cooling throw off pieces of metal or slag.

NOISE

1. Use approved ear plugs or ear muffs if noise level is high.

**ARC RAYS**

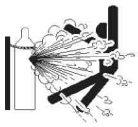
2. Wear a welding helmet fitted with a proper shade of filter to protect your face and eyes when welding or watching (see ANSI Z49.1 and Z87.1 listed in Safety Standards).
3. Wear approved safety glasses with side shields.
4. Use protective screens or barriers to protect others from flash and glare; warn others not to watch the arc.
5. Wear protective clothing made from durable, flame-resistant material (wool and leather) and foot protection.

### FUMES AND GASES can be hazardous to your health.

Welding produces fumes and gases. Breathing the fumes a gases can be hazardous to your health.

1. Keep your head out of the fumes. Do not breathe the fumes.
2. If inside, ventilate the area and/or use exhaust at the arc to remove welding fumes and gases.
3. If ventilation is poor, use an approved air-supplied respirator.
4. Read the Material Safety Data Sheets (MSDSss) and the manufacturer's instruction for metals, consumables, coatings, cleaners, and degreasers.
5. Work in a confined space only if it is well ventilated, or while wearing an air-supplied respirator. Always have a trained watchperson nearby. Welding fumes and gases can displace air and lower the oxygen level causing injury or death. Be sure the breathing air is safe.
6. Do not weld in locations near degreasing, cleaning, or spraying operations. The heat and rays of the arc can react with vapors to form highly toxic and irritating gases.
7. Do not weld on coated metals, such as galvanized, lead, or cadmium plated steel, unless the coating is removed from the weld area, the area is well ventilated, and if necessary, while wearing an air-supplied respirator. The coatings and any metals containing these elements can give off toxic fumes if welded.

# SAFETY



### CYLINDERS can explode if damaged.

Shielding gas cylinders contain gas under high pressure. If damaged, a cylinder can explode. Since gas cylinders are normally part of the welding process, be sure treat them carefully.

1. Protect compressed gas cylinders from excessive heat, mechanical shocks, slag, open flames, sparks, and arcs.
2. Install cylinders in an upright position by securing to a stationary support or cylinder rack to prevent falling or tipping.
3. Keep cylinders away from any welding or other electrical circuits.
4. Never drape a welding torch over a gas cylinder.
5. Never allow a welding electrode to such any cylinder.
6. Never weld on a pressurized cylinder—explosion will result.
7. Use only correct shielding gas cylinders, regulators, hoses and fittings designed for the specific application; maintain them and associated pars in good condition.
8. Turn face away from valve outlet when opening cylinder valve.
9. Keep protective cap in place over valve except when cylinder is in use or connected for use.
10. Read and follow instructions on compressed gas cylinders, associated equipment, and CGA publication P-1 listed in Safety Standards.

### WELDING can cause fire or explosion

Welding on closed containers, such as tanks, drums, or pipes, can cause them to blow up. Sparks can fly off from the welding arc. The flying sparks, hot workpiece, and hot equipment can cause fires and burns. Accidental contact of electrode to metal objects can cause sparks, explosion, overheating, or fire. Check and be sure the area is safe before doing any work.

1. Protect yourself and others from flying sparks and hot metal.
2. Do not weld where flying sparks can strike flammable material.
3. Remove all flammables within 35 ft. (10.7 m)of the welding arc. If this is not possible, tightly cover them with approved covers.
4. Be alert that welding sparks and hot material from welding can easily go through small cracks and openings to adjacent areas.
5. Watch for fire, and keep a fire extinguisher nearby.
6. Be aware that welding on a ceiling, floor, bulkhead, or partition can cause fire on the hidden side.
7. Do not weld on closed containers such as tanks, drums, or pipes, unless they are properly prepared according to AWS F4.1 (see Safety Standards).
8. Connect work cable to the work as close to the welding area as practical to prevent welding current from traveling long, possibly unknown paths and causing electric shock and fire hazards.
9. Do not use welder to thaw frozen pipes.
10. Remove stick electrode from holder or cut off welding wire at contact tip when not in use.
11. Wear oil-free protective garments such as leather gloves, heavy shirt, cuffless trousers, high shoes, and a cap.
12. Remove any combustibles, such as a butane light or matches, from your person before doing any welding.

## Additional Installation, Operation, and Maintenance Hazards

### FIRE OR EXPLOSION can result from placing unit on, over or near combustible surfaces.

1. Do not locate unit on, over, or near combustible surfaces.
2. Do not install unit near flammables.

### FALLING EQUIPMENT can cause serious personal injury and equipment damage.

1. Use lifting eye to lift unit only, NOT running gear, gas cylinders, or any other accessories.
2. Use equipment of adequate capacity to lift unit.
3. If using lift forks to move unit, be sure forks are long enough to extend beyond opposite side of unit.

### HOT PARTS can cause severe burns.

1. Do not touch hot parts bare handed.
2. Allow cooling period before working on gun or torch.

### MOVING PARTS can cause injury.

1. Keep away from moving parts such as fans.
2. Keep all doors, panels, covers, and guards closed and securely in place.

### MAGNETIC FIELDS FROM HIGH CURRENTS can affect pacemaker operation.

1. Pacemaker wearers keep away.
2. Wearers should consult their doctor before going near arc welding, gouging, or spot welding operations.

### MOVING PARTS can cause injury.

1. Keep away from moving parts.
2. Keep away from pinch points such as drive rolls.

### FLYING PIECES OF METAL or DIRT can injure eyes.

1. Wear safety glasses with side shields or face shield.

### WELDING WIRE can cause puncture wounds.

1. Do not press gun trigger until instructed to do so.
2. Do not point gun toward any part of the body, other people, or any metal when threading welding wire.

### OVERUSE can cause OVERHEATED EQUIPMENT.

1. Allow cooling period.
2. Reduce current or reduce duty cycle before starting to weld again.
3. Follow rated duty cycle.

# SAFETY

**STATIC ELECTRICITY can damage parts on circuit boards.**

1. Put on grounded wrist strap BEFORE handling boards or parts.
2. Use proper static proof bags and boxes to store, move, or ship PC boards.

**SIGNIFICANT DC VOLTAGE exists after removal of input power on inverters.**

1. Turn off inverter, disconnect input power, and discharge input capacitors according to instructions in Maintenance Section before touching any parts.

**BUILDUP OF SHIELDING GAS can harm health or kill.**

1. Shut off shielding gas supply when not in use.

## Principal Safety Standards

***Safety in Welding and Cutting,*** **ANSI Standard Z49.1 from American Welding Society, 550 N.W. LeJeune Rd., Miami FL 33126.**

***Safety and Health Standards*****, OSHA 29 CFR 1910, from Superintendent of Documents, U.S. Government Printing Office, Washington, D.c. 20402.**

***Recommended Safe Practices for the Preparation for Welding and Cutting of Containers That Have Held Hazardous Substances,*** **American Welding Society, 550 N.W. LeJeune Rd., Miami FL 33126.**

***National Electrical Code*****, NFPA Standard 70, from National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.**

***Safe Handling of Compressed Gases in Cylinders,*** **CGA Pamphlet P-1, from Compressed Gas Association, 1235 Jefferson Davis Highway, Suite 501, Arlington, VA 22202.**

***Code for Safety in Welding and Cutting,*** **CSA Standard W117.2. from Canadian Standards Association, Standards Sales, 178 Rexdale Boulevard, Rexdale, Ontario, Canada MSW 1R3.**

***Safe Practices for Occupation and Educational Eye and Face Protection*****, ANSI Standard Z87.1 from American National Standards Institute, 1430 Broadway, New York, NY 10018.**

***Cutting and Welding Processes,*** **MFPA Standard 518, from National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.**

**Technology Assessment, Biological Effects of Power Frequency Electric & magnetic Fields—Background Paper, OTA-BP-E-53 (Washington, DC: U.S. Government Printing Office, May 1989):"...there is now a very large volume of scientific findings based on experiments at the cellular level and from studies with animals and people which clearly establish that low frequency magnetic fields can interact with, and produce changes in, biological systems. While most of this work is of very high quality, the results are complies. Current scientific understanding does not yet allow us to interpret the evidence in a single coherent framework. Even more frustrating, it does'nt yet allow us to draw definite conclusions about questions of possible risk or to offer clear science-based advice on strategies to minimize or avoid potential risks."**

**To reduce magnetic fields in the workplace, use the following procedures:**

1. **Keep cables close together by twisting or taping them.**
2. **Arrange cables to one side and away from the operator.**
3. **Do not coil or drape cables around the body.**
4. **Keep welding power source and cables as far away as practical.**
5. **Connect work clamp to workpiece as close to the weld as possible.**

**About Pacemakers:**

The above procedures are also recommended for pacemaker wearers. Consult your doctor for complete information.

## EMF Information

**Considerations About Welding and the Effect of Low Frequency Electric and Magnetic Fields.**

**The following is a quotation from the General Conclusions Section of the U.S Congress, Office of**

# GENERAL INFORMATION

*GENERAL INFORMATION*

## DESCRIPTION OF EQUIPMENT

The AP Automation MA-10 Arc Stabilizer shown in Figure 1 provides precision control of a welding arc by establishing a fixed magnetic field within which the arc operates. This field stabilizes the arc and maintains it in position throughout the weld path. Arc blow is greatly reduced and welding speed can be significantly increased.

Forward deflection capability provides preheating thus allowing higher speeds during the welding process. In addition, the MA-10 allows the arc to be positioned electrically to either side of the weld. A wide range of weld conditions and materials can be handled due to variable intensity and range controls of the MA-10 Arc Stabilizer. The MA-10 is fully compatible with the following AP Automationprobes presently in use in the field: MP-1, MP-2.

## UNPACKING NEW EQUIPMENT (Receiving and Handling)

Remove the **Arc Products** Magnetic Arc Stabilizer from its shipping carton and inspect for any possible damage that might have occurred during shipping. Make sure that all items on the packing list are accounted for and identified. One copy of the **Arc Products** MA-10 Operation Manual is packed with each **Arc Products** MA-10 Control unit.

Any claims for loss or damage that may have occurred in transit must be filed by the PURCHASER with the CARRIER. Copies of the bill of lading and freight bill will be furnished by the carrier on request, if the need to file a claim arises. When requesting information concerning this equipment, it is essential that model description, serial number and/or part number of the equipment be supplied.

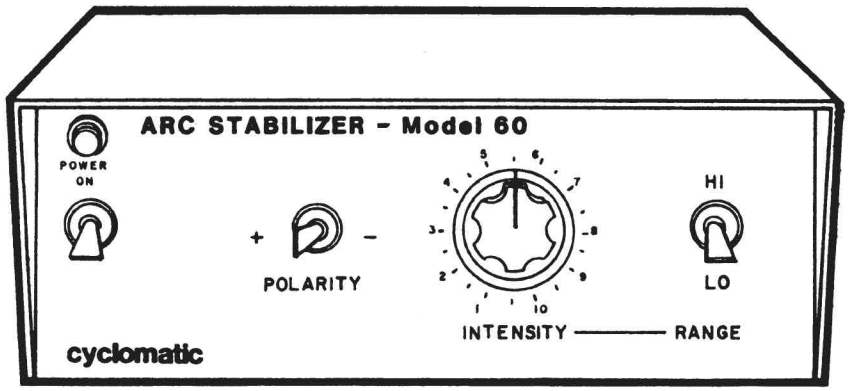



**Figure 1 - Front View of the MA-10 Arc Stabilizer**

| Specifications | | |
|---|---|---|
| 1 | Dimensions | 9"D x 9.5"W x 3.5"H |
| 2 | Arc Position | Proportional to arc Length |
| 3 | Controls | Intensity |
| 4 | Switches | On-Off, Polarity and Range |
| 5 | Indicators | Power On-Off |
| 6 | Power | 115V/230V 50/60Hz 150W max. |
| 7 | Fuse | 1 ampere |
| 8 | Shipping Weight | 9 lbs. |

# GENERAL INFORMATION

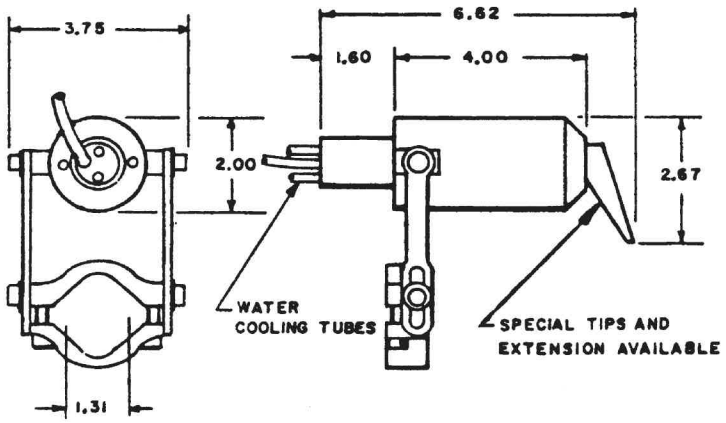



**Figure 2 - MP-1 Probe**

| Specifications | | |
|---|---|---|
| 1 | Welding Current Rating | 600 amps, 100% Duty Cycle |
| 2 | Cooling | 1 quart per minute at 68 degrees F (20 degrees C)<br>Maximum water pressure 40 psi. (270kP) |
| 3 | Shipping Weight | 5 lbs. (2.3 kg) |
| 4 | Cable Length | 8 ft. (2.4M) |
| 5 | Hose Length | 12 ft (3.6M) |
| *Single tip probes adapt to conventional torches with a barrel diameter from 1.31 to 2.0 inches | | |

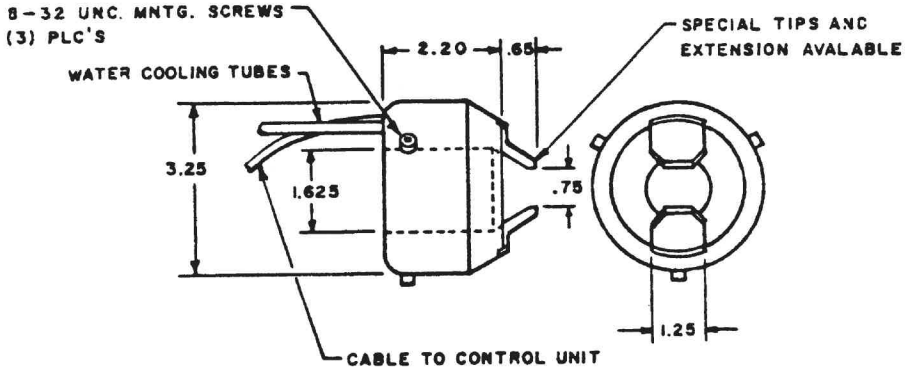



**Figure 3 - MP-2 Probe**

| Specifications | | |
|---|---|---|
| 1 | Welding Current Rating | 400 amps, 100% Duty Cycle |
| 2 | Cooling | 1 quart per minute at 68 degrees F (20 degrees C)<br>Maximum water pressure 40 psi. (270kP) |
| 3 | Shipping Weight | 5 lbs. (2.3 kg) |
| 4 | Cable Length | 8 ft. (2.4M) |
| 5 | Hose Length | 12 ft (3.6M) |
| *Twin tip probes adapt to conventional torches with a barrel diameter from 1.625 inches or less | | |

*INSTALLATION*

## EQUIPMENT INSTALLATION

Place the Arc Stabilizer in any convenient location near the torch assembly. Place the power switch in the "off" position. If the MA-10 is to be used on 115VAC, then set the 115/230 switch on the rear panel to "115".

If 230VAC power is required switch to "230", connect the power cord to an outlet providing 115 VAC (or 230 VAC, whichever is selected).

The AP Automation Probe should be mounted on the torch assembly in the proper manner depending on the model of probe and the type of torch used. The tip (or tips) of the electromagnet should be close enough to the arc to allow proper or sufficient control, this is usually within 1/2" or closer. Avoid positioning probe tips so that they extend below the bottom of the gas cup. This could cause arcing to the probe tips rather than to the work. Connect the control cable of the AP Automation Probe to the connector at the rear of the Arc Stabilizer. The control unit is now ready to be operated.

**NOTE**

**Always make the installation in accordance with your plant regulations and applicable electrical code.**

**WARNING**

**Do not allow the unit to remain operating when lifting or moving it. Do not drag or lift the unit by primary or secondary cable. Exercise care in the handling of primary and secondary cable to avoid wearing out or loss of electrical insulation.**

**NOTE**

**Locate the unit so that the air flow into the front and out of the back of the unit is not obstructed.**

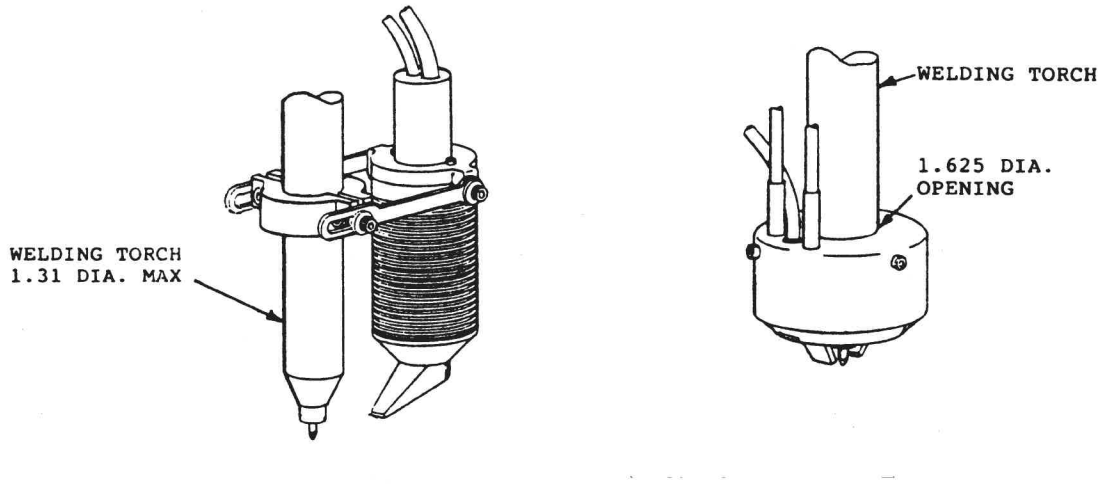



**Figure 4 - Probe and Torch Mounting Orientation**

*OPERATION*

## FUNCTION OF OPERATING CONTROLS AND CONNECTIONS

Place the Intensity control at the low end (around 1) of the dial. Place the Range control in the "Lo" position. The Polarity switch can remain in either polarity to start. Turn the Power switch on, the power indicator should light.

Start the arc in the normal manner. Observe the location and positioning of the arc while advancing the Intensity control. If little or no change is observed1 switch the Range switch to the "Hi" position. Additional deflection of the arc can be obtained by moving the magnetic tip closer to the arc or adjusting its position, taking care to make certain the probe tips do not extend below the gas cup.

Experimentation will demonstrate that changing the Polarity switch will cause the arc to move in the opposite direction.

The arc will move at right angles to the direction of the magnetic lines of force, the movement will be determined by the setting of the Polarity, Intensity and Range controls.

If the field is too strong it will "blow-out" the arc, use the "Lo" range first, then go to the "Hi" range necessary. For best results in most applications the arc should be deflected forward in the direction of travel.

1. Power On Switch

Turns the power onto the control unit.

2. Power On Lamp

Indicates the control unit is On.

3. Polarity Switch

Changes the deflection of the arc from the magnetic field.

4. Intensity Dial

Adjusts the strength of the magnetic field being applied to the arc.

5. Range Switch

Selects the strength setting of the magnetic field to either a "LO" or a "HI" range.

6. Fuse

The fuse is 1 ampere and protect against internal fault.

7. Voltage Selector Switch

Selects the input voltage being applied to the control, either 115VAC 60Hz or 230VAC 50Hz operation.

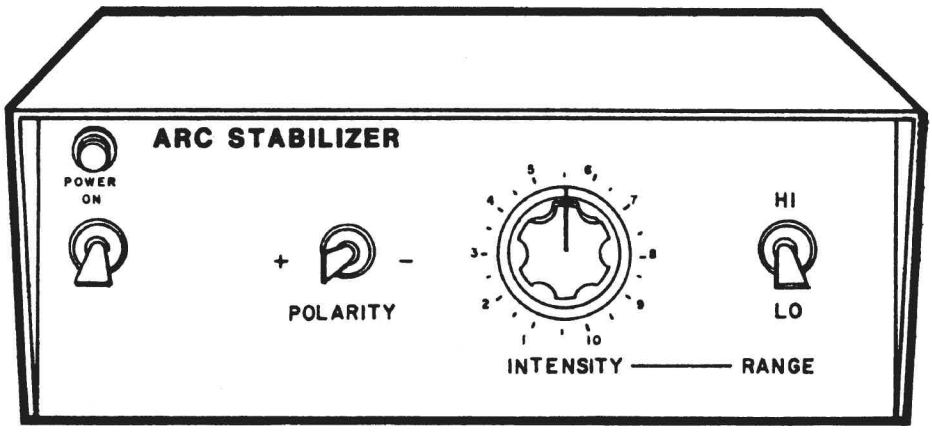



**Figure 5, MA-10 Operating Controls**

# MAINTENANCE

*MAINTENANCE*

## SERVICE

**NOTE**

**Unauthorized service to this unit by anyone other than a Arc Products trained and authorized technician will void the limited warranty.**

The MA-10 requires little or no maintenance. However, should the occasion arise, Arc Products has complete repair services at your disposal. The circuit diagram should facilitate in-plant repairs by experienced technicians.

| Routine Maintenance | |
|---|---|
| **3 Months** | |
|  Replace Unreadable Labels |  Repair Or Replace Cracked Weld Cable |
| **6 Months** | |
|  Blow Out Or Vacuum Inside, During Heavy Service, Clean Monthly | |

# PARTS LIST

*PARTS LIST*

## Parts List for Figure 6, MA-10 Magnetic Arc Stabilizer

| Item | Qty. | Part Number | Description | Ref. Desig |
|---|---|---|---|---|
| 1 | 1 | 1032-0003 | COVER, CHASSIS | |
| 2 | 1 | 1032-0011 | CHASSIS - CONT UNIT | |
| 3 | 1 | 1035-0000 | LEGEND PANEL CONT UNIT | |
| 4 | 5 | 2360-1087 | STRAPPING, TIE DOWN | |
| 5 | 1 | 940000-003 | KNOB, SKIRTED | |
| 6 | 1 | 2100-0035 | LAMP 120V | DS1 |
| 7 | 1 | 2200-0527 | CONN,CIRC BOX RCPT 12-8S | J1 |
| 8 | 1 | 992032-008 | CABLE,8FT 3 COND. POWER PLUG | |
| 9 | 1 | 940011-003 | STRAIN RELIEF | |
| 10 | 2 | 932009-004 | SOLDER LUG #6 | F1, F2 |
| 11 | 3 | 2060-0012 | SWITCH, TOGGLE - SPST | S1, S2, S3 |
| 12 | 1 | 1037-0001 | TRANSFORMER | T1 |
| 13 | 1 | 2702-0232 | RECT, BRIDGE 250JB2L | CR1 |
| 14 | 1 | 2610-1182 | RESISTOR, WW .51 OHMS 12W | R1 |
| 15 | 1 | 2624-0000 | POTENTIOMETER, WW 80 OHMS 50W | R2 |
| 16 | 1 | 2502-0065 | CAP, ELCTLT 6000UF 60V | C1 |
| 17 | 1 | 2610-1409 | RES WW 4 OHMS 50W | R3 |
| 18 | 1 | 2610-1310 | RES WW 50 OHMS 25W | R4 |
| 19 | 1 | 921005-001 | FUSE HOLDER | F1 |
| 20 | 1 | 2120-0077 | FUSE, 1A 250V | F1 |
| 23 | 1 | 974000-004 | WSR,F #8 .438X.188X.049 SBZ | |
| 24 | 8 | 970004-204 | SCR,4-40X.38 CR1P SSP | |
| 25 | 6 | 970000-208 | SCR,4-40X.62 CR1P SBZ | |
| 26 | 8 | 970000-304 | SCR,6-32X.38 CR1P SBZ | |
| 27 | 2 | 970000-306 | SCR,6-32X.50 CR1P SBZ | |
| 28 | 2 | 972002-002 | NUT, 4-40 H SBZ REDUCED O.D. | |
| 29 | 12 | 972000-002 | NUT, 4-40 H SBZ | |
| 30 | 12 | 972000-003 | NUT, 6-32 H SBZ | |
| 31 | 2 | 974000-002 | WASHER, FLAT #4 .312X.125X.032 SBZ | |
| 32 | 12 | 974010-002 | WASHER,SPLIT LOCK #4.209X.121X.025 SBZ | |
| 33 | 12 | 974010-003 | WASHER,SPLIT LOCK #6.250X.148X.031 SBZ | |
| 34 | 1 | 2020-0171 | BAIL, INSTURMENT, 5.5” | |
| 35 | 1 | 1175-0001 | NAMEPLATE, GENERAL USAGE | |
| 36 | 4 | 970022-304 | SCREW, 6-20 X .38TFB CR1P SBZ | |
| 37 | 1 | 2066-0015 | SLIDE SWITCH, 2 POS LINE VOLT SEL | S4 |
| 38 | 2 | 970000-504 | SCREW,10-32 X .38 CR1P SBZ | |
| 39 | 2 | 974010-005 | WASHER, SPLIT LOCK, #10 .334 X .202 X .047 SBZ | |
| 40 | 2 | 972000-005 | NUT,10-32 H SBZ | |
| 41 | 1 | 932000-011 | TERM,RING-PIDG #8 (16-22AWG) | |
| 42 | 1 | 970000-404 | SCREW, 8-32 X .38 CR1P SBZ | |
| 43 | 1 | 974010-004 | WASHER,SPLIT LOCK, #8.293 X .175 X .040 SBZ | |
| 44 | 1 | 972000-004 | NUT, 8-32 H SBZ | |
| 45 | 1 | 902001-101 | RESISTOR, CF 10K OHM +/-5%,1/2W | R5 |
| 46 | 1 | 900007-003 | CAPACITOR, CER .05UF 500V +/-20% | C2 |
| 47 | 0 | 933004-120 | TUBING,TEFLON CLR NON SHRINK 22GA | |
| 48 | 2 | 1032-0127 | PANEL, CHASSIS | |
| 49 | 8 | 974000-003 | WASHER, FLAT #6 .375 X .156 X .049 SBZ | |
| 50 | 4 | 970000-317 | SCREW, 6-32 X 1.38 CR1P SBZ | |
| 51 | 4 | 2614-0188 | BRACKET, RES MOUNTING | |
| 52 | 2 | 2414-0203 | BRACKET, RES MOUNTING | |

# PARTS LIST

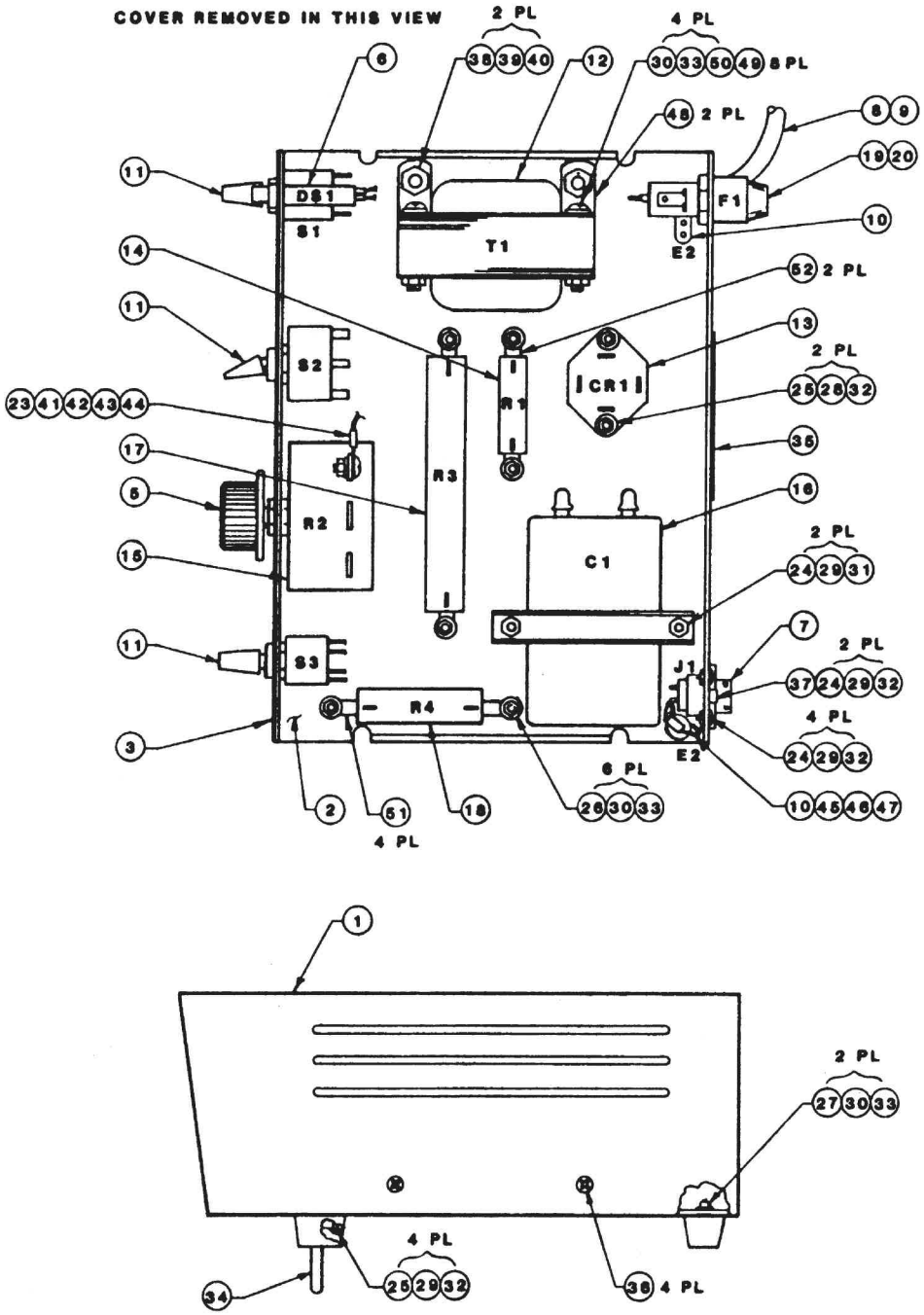



**Figure 6 - MA-10 Magnetic Arc Stabilizer**

# PARTS LIST

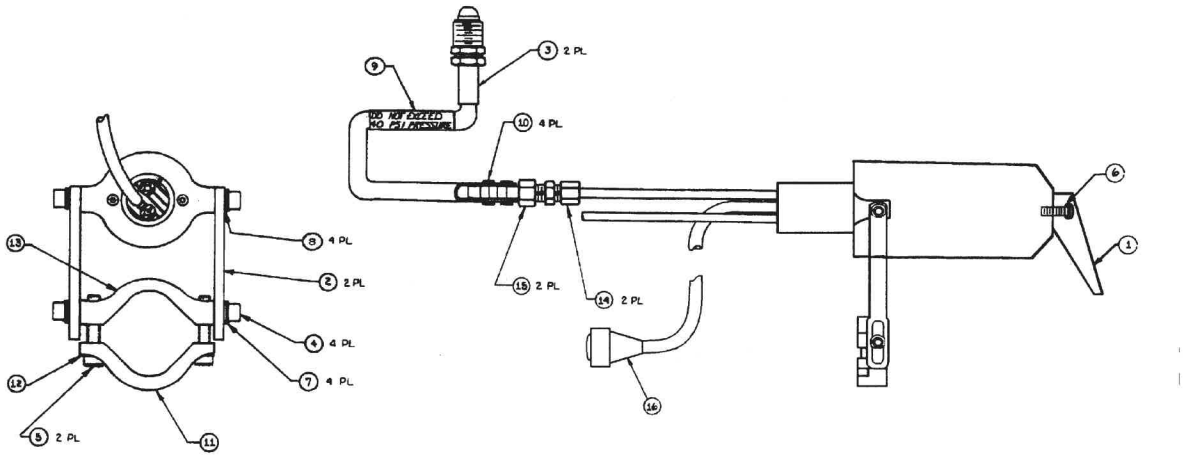



**Figure 7 - MP-1 Probe Assembly**

| Item No. | Qty. | Part Number | Description | Ref. Des. |
|---|---|---|---|---|
| 1 | 1 | 1030-0096 | TIP, PROBE | |
| 2 | 2 | 1030-0100 | LINK, MOUNTING, CLAMP | |
| 3 | 2 | 2380-0161 | HOSE, WATER - 12FT | |
| 4 | 4 | 2402-1033 | SCREW, SCH CAP ¼-20 X 5/8 | |
| 5 | 2 | 2402-1076 | SCREW, SCH CAP ¼-20 X 1 1/4 | |
| 6 | 1 | 2402-0711 | SCREW, SCH CAP 10-32 X 3/8 | |
| 7 | 4 | 974010-006 | WASHER SPLIT LOCK, ¼ ,489 X .263 X .062 | |
| 8 | 4 | 974004-006 | WASHER, FLAT, ¼, .734 X .312 X .065 | |
| 9 | 1 | 1037-0078 | TAG, HOSE, PRESSURE WARNING | |
| 10 | 4 | 963018-008 | CLAMP, HOSE 2 EARED 5/16 | |
| 11 | 1 | 1030-0118 | CLAMP, MACHINES-LEFT | |
| 12 | 2 | 2412-0261 | WASHER, REDUCED OD, FLAT ¼ | |
| 13 | 1 | 1030-0878 | CLAMP, MACHINED-RIGHT | |
| 14 | 2 | 2380-0136 | CONNECTOR, 1/8 FEMALE, 3/16 TUBING | |
| 15 | 2 | 963020-001 | FITTING, 1/8 FEMALE NPT, 3/16 TUBING ID | |
| 16 | 1 | 2200-0616 | CONNECTOR, CIRC, STR PLUG | |

# PARTS LIST

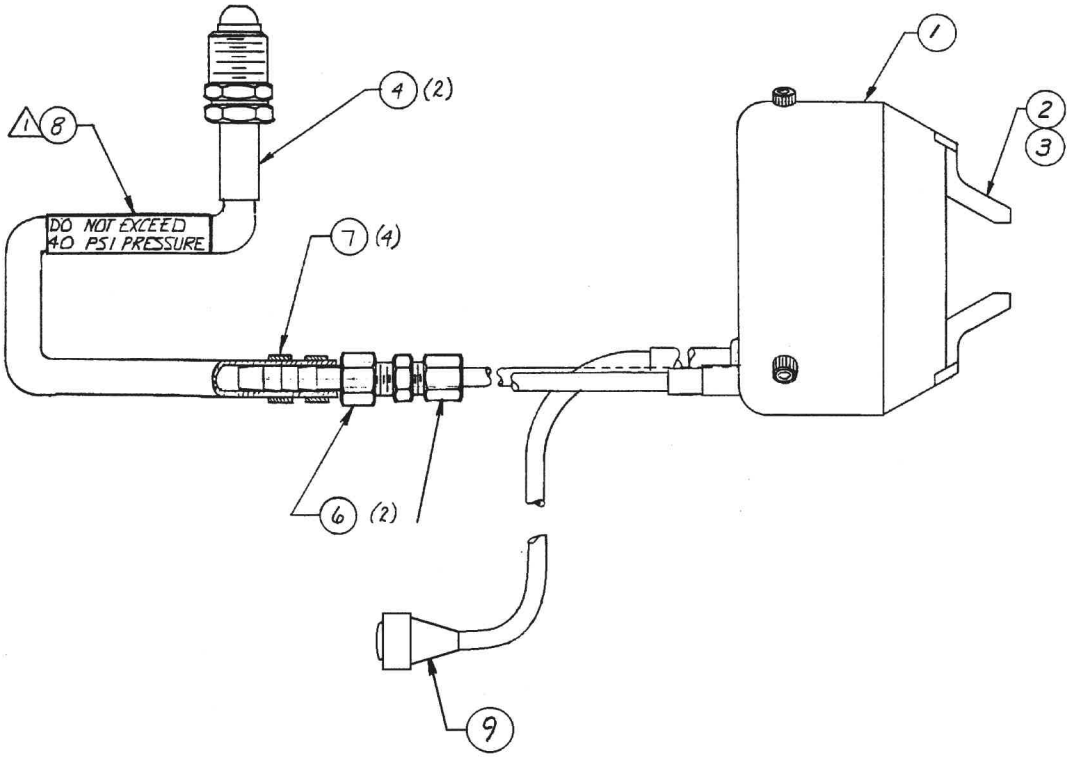



**Figure 8, MP-2 Probe Assembly**

| Item No. | Qty. | Part Number | Description | Ref. Des. |
|---|---|---|---|---|
| 1 | 1 | 1026-0370 | PROBE SUB ASSMEBLY -MAG | |
| 2 | 2 | 1033-0203 | TIP PROBE STANDARD | |
| 3 | 2 | 2402-0321 | SCREW SCH CAP 6-32 X ¼ | |
| 4 | 2 | 2380-0161 | HOSE, WATER - 12FT | |
| 5 | 2 | 2380-0136 | CONNECTOR, 1/8 NPT-3/16 TUBE ID | |
| 6 | 2 | 963020-001 | FITTING, 1/8 FEMALE NPT, 3/16 TUBE ID | |
| 7 | 4 | 963018-008 | CLAMP, HOSE 2-EARED 5/16 | |
| 8 | 1 | 1037-0078 | TAG, HOSE, PRESSURE WARNING | |
| 9 | 1 | 2200-0616 | CONNECTOR, CIRC STR PLUG | |

# SCHEMATIC, MA-10

*SCHEMATIC, MA-10*

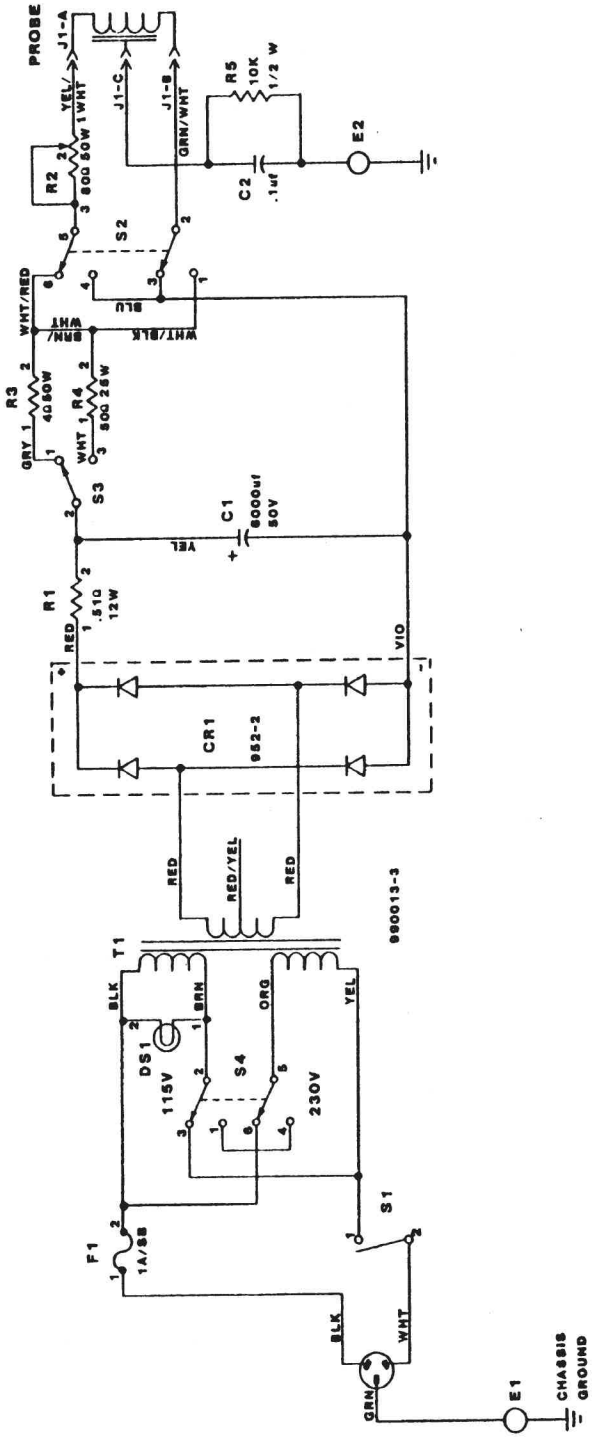



**Figure 9, MA-10 Schematic Diagram**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