Auto Arc® 255

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OWNER’S MANUAL
SECTION 1 – SAFETY PRECAUTIONS - READ BEFORE USING

1-1. Symbol Usage

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

Marks a special safety message.

\[\text{Note; not safety related.}\]

1-2. Arc Welding Hazards

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 Section 1-4. 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.

- Do not touch live electrical parts.
- Wear dry, hole-free insulating gloves and body protection.
- Insulate yourself from work and ground using dry insulating mats or covers big enough to prevent any physical contact with the work or ground.
- Do not use AC output in damp areas, if movement is confined, or if there is a danger of falling.
- Use AC output ONLY if required for the welding process.
- If AC output is required, use remote output control if present on unit.
- 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).
- Properly install and ground this equipment according to its Owner's Manual and national, state, and local codes.
- 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.
- When making input connections, attach proper grounding conductor first – double-check connections.
- Frequently inspect input power cord for damage or bare wiring – replace cord immediately if damaged – bare wiring can kill.
- Turn off all equipment when not in use.
- Do not use worn, damaged, undersized, or poorly spliced cables.
- Do not drape cables over your body.

If earth grounding of the workpiece is required, ground it directly with a separate cable – do not use work clamp or work cable.

- Do not touch electrode if you are in contact with the work, ground, or another electrode from a different machine.
- Use only well-maintained equipment. Repair or replace damaged parts at once. Maintain unit according to manual.
- Wear a safety harness if working above floor level.
- Keep all panels and covers securely in place.
- Clamp work cable with good metal-to-metal contact to workpiece or worktable as near the weld as practical.
- Insulate work clamp when not connected to workpiece to prevent contact with any metal object.
- Do not connect more than one electrode or work cable to any single weld output terminal.

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

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

FUMES AND GASES can be hazardous.

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

- Keep your head out of the fumes. Do not breathe the fumes.
- If inside, ventilate the area and/or use exhaust at the arc to remove welding fumes and gases.
- If ventilation is poor, use an approved air-supplied respirator.
- Read the Material Safety Data Sheets (MSDSs) and the manufacturer's instructions for metals, consumables, coatings, cleaners, and degreasers.
- 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.
- 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.
- 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.
Arc rays from the welding process produce intense visible and invisible (ultraviolet and infrared) rays that can burn eyes and skin. Sparks fly off from the weld.

- 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).
- Wear approved safety glasses with side shields under your helmet.
- Use protective screens or barriers to protect others from flash and glare; warn others not to watch the arc.
- Wear protective clothing made from durable, flame-resistant material (leather and wool) and foot protection.

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 welding.

- Protect yourself and others from flying sparks and hot metal.
- Do not weld where flying sparks can strike flammable material.
- Remove all flammables within 35 ft (10.7 m) of the welding arc. If this is not possible, tightly cover them with approved covers.
- Be aware that welding sparks and hot materials from welding can easily go through small cracks and openings to adjacent areas.
- Watch for fire, and keep a fire extinguisher nearby.
- Be alert that welding sparks and hot materials from welding can easily go through small cracks and openings to adjacent areas.
- Do not touch hot parts bare handed.
- Allow cooling period before working on gun or torch.

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 to treat them carefully.

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

FIRE OR EXPLOSION hazard.
- Do not install or place unit on, over, or near combustible surfaces.
- Do not install unit near flammables.
- Do not overload building wiring – be sure power supply system is properly sized, rated, and protected to handle this unit.

FALLING UNIT can cause injury.
- Use lifting eye to lift unit only, NOT running gear, gas cylinders, or any other accessories.
- Use equipment of adequate capacity to lift and support unit.
- If using lift forks to move unit, be sure forks are long enough to extend beyond opposite side of unit.

OVERUSE can cause OVERHEATING
- Allow cooling period; follow rated duty cycle.
- Reduce current or reduce duty cycle before starting to weld again.
- Do not block or filter airflow to unit.

STATIC (ESD) can damage PC boards.
- Put on grounded wrist strap BEFORE handling boards or parts.
- Use proper static-proof bags and boxes to store, move, or ship PC boards.

MOVING PARTS can cause injury.
- Keep away from moving parts.
- Keep away from pinch points such as drive rolls.

WELDING WIRE can cause injury.
- Do not press gun trigger until instructed to do so.
- Do not point gun toward any part of the body, other people, or any metal when threading welding wire.

MOVING PARTS can cause injury.
- Keep away from moving parts such as fans.
- Keep all doors, panels, covers, and guards closed and securely in place.

H.F. RADIATION can cause interference.
- High-frequency (H.F.) can interfere with radio navigation, safety services, computers, and communications equipment.
- Have only qualified persons familiar with electronic equipment perform this installation.
- The user is responsible for having a qualified electrician promptly correct any interference problem resulting from the installation.
- If notified by the FCC about interference, stop using the equipment at once.
- Have the installation regularly checked and maintained.
- Keep high-frequency source doors and panels tightly shut, keep spark gaps at correct setting, and use grounding and shielding to minimize the possibility of interference.

ARC WELDING can cause interference.
- Electromagnetic energy can interfere with sensitive electronic equipment such as computers and computer-driven equipment such as robots.
- Be sure all equipment in the welding area is electromagnetically compatible.
- To reduce possible interference, keep weld cables as short as possible, close together, and down low, such as on the floor.
- Locate welding operation 100 meters from any sensitive electronic equipment.
- Be sure this welding machine is installed and grounded according to this manual.
- If interference still occurs, the user must take extra measures such as moving the welding machine, using shielded cables, using line filters, or shielding the work area.

1-4. Principal Safety Standards

Safety in Welding and Cutting, ANSI Standard Z49.1, from 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 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, NFPA Standard 51B, from National Fire Protection Association, BatteryMarch Park, Quincy, MA 02269.
Considerations About Welding And The Effects Of Low Frequency Electric And Magnetic Fields

Welding current, as it flows through welding cables, will cause electromagnetic fields. There has been and still is some concern about such fields. However, after examining more than 500 studies spanning 17 years of research, a special blue ribbon committee of the National Research Council concluded that: “The body of evidence, in the committee's judgment, has not demonstrated that exposure to power-frequency electric and magnetic fields is a human-health hazard.” However, studies are still going forth and evidence continues to be examined. Until the final conclusions of the research are reached, you may wish to minimize your exposure to electromagnetic fields when welding or cutting.

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 your body.
4. Keep welding power source and cables as far away from operator as practical.
5. Connect work clamp to workpiece as close to the weld as possible.

About Pacemakers:
Pacemaker wearers consult your doctor first. If cleared by your doctor, then following the above procedures is recommended.
SECTION 2 – INSTALLATION

2-1. Specifications

<table>
<thead>
<tr>
<th>Rated Welding Output</th>
<th>Amperage Range DC</th>
<th>Maximum Open-Circuit Voltage DC</th>
<th>Amperes Input at Rated Load Output, 50 or 60 Hz, Single-Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>200 A @ 28 Volts DC, 60% Duty Cycle</td>
<td>40 – 250</td>
<td>42</td>
<td>46 1.1* 9.5 0.31*</td>
</tr>
<tr>
<td>250 A @ 28 Volts DC, 40% Duty Cycle</td>
<td></td>
<td></td>
<td>40 1.3* 8.3 0.18*</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Wire Type And Diameter</th>
<th>Wire Feed Speed Range</th>
<th>Overall Dimensions</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solid Steel / Stainless Steel</td>
<td>.023 – .045 in (0.6 – 1.2 mm)</td>
<td>90 – 1030 IPM (2.9 – 26.2 m/min)</td>
<td>Length: 37 in (940 mm) Width: 19 in (483 mm) Height: 32 in (889 mm) 225 lb (102 kg)</td>
</tr>
<tr>
<td>Flux Cored / Aluminum</td>
<td>.030 – .035 in (0.8 – 0.9 mm) And 3/64 in (1.2 mm) Alu</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*While idling

2-2. Volt-Ampere Curve

The volt-ampere curves show the minimum and maximum voltage and amperage output capabilities of the welding power source. Curves of other settings fall between the curves shown.
2-3. Duty Cycle And Overheating

Duty Cycle is percentage of 10 minutes that unit can weld at rated load without overheating. If unit overheats, thermostat(s) opens, output stops, and cooling fan runs. Wait fifteen minutes for unit to cool. Reduce amperage or voltage, or duty cycle before welding.

Exceeding duty cycle can damage unit and void warranty.

Overheating

60% Duty Cycle At 200 Amperes

6 Minutes Welding

4 Minutes Resting
2-4. Installing Work Clamp

1. **Work Cable**
2. **Boot**
   Slide boot onto work cable. Route cable out front panel opening from inside.
3. **Negative (−) Output Terminal**
   Connect cable to terminal and cover connection with boot.
4. **Hardware**
5. **Work Clamp**
   Route cable through clamp handle and secure as shown.
   Close door.

Tools Needed:

2-5. Installing Gas Supply

1. **Regulator/Flow Gauge**
   Install so face is vertical.
2. **Gas Hose Connection**
   Fitting has 5/8-18 right-hand threads.
3. **Flow Adjust**
   Typical flow rate is 20 cfh (cubic feet per hour). Check wire manufacturer’s recommended flow rate. This flow gauge can be adjusted between 5 and 25 cfh.
4. **CO₂ Adapter**
   Customer Supplied
5. **O-Ring**
   Install adapter with O-ring between regulator/flow gauge and CO₂ cylinder.

Tools Needed:
2-6. Installing Welding Gun

1. Drive Assembly
2. Gun Securing Knob
3. Gun End

Loosen securing knob. Insert gun end through opening until it bottoms against drive assembly. Tighten nut.

4. Gun Trigger Plug

Insert plug into receptacle, and tighten threaded collar. Close door.

Ref. ST-801 677

2-7. Installing Wire Spool And Adjusting Hub Tension

Use compression spring with 8 in (200 mm) spools.

When a slight force is needed to turn spool, tension is set.

Tools Needed:

15/16 in
2-8. Setting Gun Polarity

Always read and follow manufacturer’s recommended polarity.

Shown As Shipped – Set For Electrode Positive (DCEP) For Solid Steel Or Aluminum Wires (GMAW Process).

Wire Drive Assembly Lead To Positive (+) Output Terminal

Work Clamp Lead To Negative (−) Output Terminal

GUN POLARITY CHANGEOVER CONNECTIONS
Reverse Lead Connections – For Electrode Negative (DCEN) For Flux Cored Wires (FCAW Process). Drive Assembly Becomes Negative

Tools Needed:

3/4, 11/16 in
2-9. Positioning Jumper Links

Check input voltage available at site.
1. Jumper Links Access Door
   Open door.
2. Jumper Link Label
3. Input Voltage Jumper Link
   Move jumper link to match input voltage.
Close and secure access door.

Tools Needed:
- 3/8 in

2-10. Electrical Service Guide

<table>
<thead>
<tr>
<th>Input Voltage</th>
<th>200</th>
<th>230</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input Amperes At Rated Output</td>
<td>46</td>
<td>40</td>
</tr>
<tr>
<td>Max Recommended Standard Fuse Or Circuit Breaker Rating In Amperes</td>
<td>70</td>
<td>60</td>
</tr>
<tr>
<td>Min Input Conductor Size In AWG/Kcmil</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Max Recommended Input Conductor Length In Feet (Meters)</td>
<td>89 (27)</td>
<td>117 (36)</td>
</tr>
<tr>
<td>Min Grounding Conductor Size In AWG/Kcmil</td>
<td>8</td>
<td>8</td>
</tr>
</tbody>
</table>

2-11. Selecting A Location And Connecting Input Power

1 Rating Label
   Supply correct input power.
2 Plug
3 Receptacle (Not Supplied)
   Connect plug to receptacle.
4 Line Disconnect Device
   See Section 2-10.

⚠ Special installation may be required where gasoline or volatile liquids are present – see NEC Article 511 or CEC Section 20.

⚠ Always connect grounding conductor first.

18 in (457 mm) of space for airflow

⚠ Do not move or operate unit where it could tip.

= GND/PE

230 VAC, 1 ~

L1 L2

L1 L2

ST-800 923-A

OM-157 066 Page 11
2-12. Threading Welding Wire

Open pressure assembly.

Pull and hold wire; cut off end.

Push wire thru guides into gun; continue to hold wire.

Close and tighten pressure assembly, and let go of wire.

Remove gun nozzle and contact tip.

Press gun trigger until wire comes out of gun. Reinstall contact tip and nozzle.

Feed wire to check drive roll pressure. Tighten knob enough to prevent slipping.

Cut off wire. Close and latch door.

Tools Needed:
1. Wire Spool
2. Welding Wire
3. Inlet Wire Guide
4. Pressure Adjustment Knob
5. Drive Roll
6. Outlet Wire Guide
7. Gun Conduit Cable

Lay gun cable out straight.

Ref. ST-801 677 / S-0627-A
SECTION 3 – OPERATION

3-1. Front Panel Controls

![Front Panel Controls Image]

**Controls For Standard Units**

1. **Wire Speed Control**
   - The scale around the control is percent, not wire feed speed.

2. **Voltage Switch**
   - Use control and Voltage Range Selector (see Section 3-2) to set arc voltage. Step 6 of Low range and Step 1 of High range overlap.

3. **Pilot Light**

4. **Power Switch**

3-2. Center Baffle Controls

![Center Baffle Controls Image]

**Wire Mode Switch**

- For better control of wire speed use the Low position when wire speed is between 90 and 670 ipm. Use the Full position when wire speed is between 150 ipm and 1030 ipm.

**Voltage Range Selector**

- Place switch in desired position.

Ref. ST-171 639-C / Ref. ST-174 843-A

Ref. ST-800 919 / S-171 601
4-1. Routine Maintenance

- Disconnect power before maintaining.
- Maintain more often during severe conditions.

<table>
<thead>
<tr>
<th>3 Months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Replace Damaged Or Unreadable Labels</td>
</tr>
<tr>
<td>Repair Or Replace Cracked Cables And Cords</td>
</tr>
<tr>
<td>Clean And Tighten Weld Terminals</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>6 Months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blow Out Or Vacuum Inside</td>
</tr>
<tr>
<td>Remove drive roll and carrier. Apply light coat of oil or grease to drive motor shaft.</td>
</tr>
</tbody>
</table>

4-2. Circuit Breaker CB1

1. Circuit Breaker CB1
   - If CB1 opens, wire feeding stops.
2. Welding Gun
   - Check gun liner for blockage or kinks.
3. Wire Drive Assembly
   - Check for jammed wire, binding drive gear or misaligned drive rolls.
   - Allow cooling period and reset breaker. Close door.

Ref. ST-801 677
4-3. Fuses F1 And F2

▲ Turn Off unit, and disconnect input power.

1. Fuse F1 (See Parts List For Rating)
   F1 protects the 115 volts ac winding of transformer T1. If F1 opens, all weld output stops and pilot light PL1 goes out.

2. Fuse F2 (See Parts List For Rating)
   F2 protects the 24 volts ac winding of transformer T1. If F2 opens, all weld output stops.

Tools Needed:

- 3/8 in

Ref. ST-800 928-B
4-4. Changing Drive Roll And Wire Inlet Guide

1. Securing Screw
2. Inlet Wire Guide
   Loosen screw. Slide tip as close to drive rolls as possible without touching. Tighten screw.
3. Anti-Wear Guide
   Install guide as shown.
4. Drive Roll
   Install correct drive roll for wire size and type.
5. Drive Roll Securing Nut
   Turn nut one click to secure drive roll.

Tools Needed:
- 5/64 in
- 7/16 in

4-5. Aligning Drive Rolls And Wire Guide

▲ Turn Off unit.
View is from top of drive rolls looking down with pressure assembly open.
1. Drive Roll Securing Nut
2. Drive Roll
3. Wire Guide
4. Welding Wire
5. Drive Gear
Insert screwdriver, and turn screw in or out until drive roll groove lines up with wire guide.
Close pressure assembly.

Tools Needed:
-
<table>
<thead>
<tr>
<th>Welding Trouble</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>No weld output; wire does not feed.</td>
<td>Secure power cord plug in receptacle (see Section 2-11).</td>
</tr>
<tr>
<td></td>
<td>Reset circuit breaker CB1 (see Section 4-2).</td>
</tr>
<tr>
<td></td>
<td>Replace fuse F1 and/or F2 (see Section 4-3).</td>
</tr>
<tr>
<td></td>
<td>Replace building line fuse or reset circuit breaker if open (see Section 2-11).</td>
</tr>
<tr>
<td></td>
<td>Secure gun trigger plug in receptacle or repair leads, or replace trigger switch (see Section 2-6).</td>
</tr>
<tr>
<td></td>
<td>Thermostat TP1 open (overheating). Allow fan to run; the thermostat will close when the unit has cooled (see Section 2-3).</td>
</tr>
<tr>
<td>No weld output; wire feeds.</td>
<td>Connect work clamp to get good metal to metal contact.</td>
</tr>
<tr>
<td></td>
<td>Replace contact tip (see Gun Owner’s Manual).</td>
</tr>
<tr>
<td>Low weld output.</td>
<td>Connect unit to proper input voltage or check for low line voltage (see Section 2-11).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Wire Drive/Gun Trouble</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrode wire feeding stops during welding.</td>
<td>Straighten gun cable and/or replace damaged parts (see Gun Owner’s Manual).</td>
</tr>
<tr>
<td></td>
<td>Adjust drive roll pressure (see Section 2-12).</td>
</tr>
<tr>
<td></td>
<td>Readjust hub tension (see Section 2-7).</td>
</tr>
<tr>
<td></td>
<td>Replace contact tip if blocked (see Gun Owner’s Manual).</td>
</tr>
<tr>
<td></td>
<td>Clean or replace wire inlet guide or liner if dirty or plugged (see Gun Owner's Manual).</td>
</tr>
<tr>
<td></td>
<td>Replace drive rolls if worn or slipping (see Section 4-4).</td>
</tr>
<tr>
<td></td>
<td>Secure gun trigger plug in receptacle or repair leads, or replace trigger switch (see Section 2-6).</td>
</tr>
<tr>
<td></td>
<td>Check and replace F1 and/or F2 (see Section 4-3).</td>
</tr>
<tr>
<td></td>
<td>Check and clear any restrictions at drive assembly and liner (see Gun Owner’s Manual).</td>
</tr>
<tr>
<td></td>
<td>Have nearest Factory Authorized Service Agent check drive motor.</td>
</tr>
</tbody>
</table>
For Primary Circuit Diagram Portion, refer to Circuit Diagram located inside the wrapper of the welding power source.

Figure 5-1. Circuit Diagram For Welding Power Source
**SECTION 6 – PARTS LIST**

Hardware is common and not available unless listed.

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**Figure 6-1. Main Assembly**

NOTE: All items indented by a dot(s) are included with the item listed directly above.

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Part No.</th>
<th>Description</th>
<th>Item No.</th>
<th>Part No.</th>
<th>Description</th>
<th>Item No.</th>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>146 168</td>
<td>Enclosure Panel</td>
<td>152 862</td>
<td>·</td>
<td>Grommet</td>
<td>097 924</td>
<td>·</td>
<td>Knob</td>
</tr>
<tr>
<td>2</td>
<td>083 526</td>
<td>Housing Rcpt &amp; Sockets</td>
<td>009 970</td>
<td>·</td>
<td>Rectifier Bracket</td>
<td>048 282</td>
<td>·</td>
<td>Receptacle w/Sockets</td>
</tr>
<tr>
<td>3</td>
<td>171 658</td>
<td>Transformer</td>
<td>143 810</td>
<td>·</td>
<td>Rear Panel</td>
<td>128 755</td>
<td>·</td>
<td>Switch, DPST</td>
</tr>
<tr>
<td>4</td>
<td>602 250</td>
<td>Washer, flat</td>
<td>169 654</td>
<td>·</td>
<td>Tank Bracket Support</td>
<td>153 197</td>
<td>·</td>
<td>Selector Switch</td>
</tr>
<tr>
<td>5</td>
<td>186 758</td>
<td>Wheel</td>
<td>044 426</td>
<td>·</td>
<td>Cable Clamp</td>
<td>148 956</td>
<td>·</td>
<td>Switch Handle</td>
</tr>
<tr>
<td>6</td>
<td>171 213</td>
<td>Stabilizer</td>
<td>602 387</td>
<td>Cylinder Chain</td>
<td>175 060</td>
<td>·</td>
<td>Front Panel</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>148 524</td>
<td>Rear Panel w/Cmpts</td>
<td>8</td>
<td>089 899</td>
<td>Latch</td>
<td>155 418</td>
<td>·</td>
<td>Front Control Panel</td>
</tr>
<tr>
<td>148 808</td>
<td>· Fan Motor</td>
<td>11</td>
<td>146 167</td>
<td>Side Panel</td>
<td>171 639</td>
<td>·</td>
<td>Control Plate</td>
<td></td>
</tr>
<tr>
<td>150 783</td>
<td>· Fan Blade</td>
<td>12</td>
<td>146 161</td>
<td>Side Panel</td>
<td>174 842</td>
<td>·</td>
<td>Nameplate</td>
<td></td>
</tr>
<tr>
<td>049 399</td>
<td>· Speed Nut</td>
<td>13</td>
<td>+170 513</td>
<td>Wrapping Label</td>
<td>144 127</td>
<td>·</td>
<td>Cover, module opening</td>
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</tr>
<tr>
<td>116 996</td>
<td>· Gas Valve</td>
<td>14</td>
<td>047 721</td>
<td>Cord Set</td>
<td>057 357</td>
<td>·</td>
<td>Bushing, 1.125mtg</td>
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<tr>
<td>605 227</td>
<td>· Nylon Nut, .750</td>
<td>15</td>
<td>146 161</td>
<td>Base</td>
<td>143 974</td>
<td>·</td>
<td>Handle</td>
<td></td>
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<tr>
<td>146 524</td>
<td>· Hose</td>
<td>16</td>
<td>135 390</td>
<td>Axle</td>
<td>23</td>
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<tr>
<td>149 332</td>
<td>· Hose Clamp</td>
<td>17</td>
<td>121 614</td>
<td>Retaining Ring</td>
<td>183 581</td>
<td>·</td>
<td>Gas Hose</td>
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</tr>
<tr>
<td>152 742</td>
<td>· Rectifier</td>
<td>18</td>
<td>091 685</td>
<td>Resistor</td>
<td>600 318</td>
<td>·</td>
<td>Weld Cable</td>
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<td>048 420</td>
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<td>Clip</td>
<td>130 750</td>
<td>Ground Clamp</td>
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<td></td>
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<tr>
<td>037 957</td>
<td>· Diode, RP</td>
<td>20</td>
<td>602 213</td>
<td>Lock Washer</td>
<td>173 374</td>
<td>·</td>
<td>Regulator/Flowmeter</td>
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<tr>
<td>037 956</td>
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<td>21</td>
<td>006 999</td>
<td>Caster</td>
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<td></td>
<td></td>
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<td>· Washer, .750</td>
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<td>601 871</td>
<td>Jam Nut</td>
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<td></td>
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<td></td>
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<tr>
<td>605 884</td>
<td>· Half Nut, .750-16</td>
<td>23</td>
<td>160 775</td>
<td>Front Panel w/Cmpts</td>
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<td></td>
<td></td>
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<tr>
<td>171 600</td>
<td>· Thermostat, NC</td>
<td></td>
<td>035 897</td>
<td>· Potentiometer</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>026 947</td>
<td>· Stand-Off</td>
<td></td>
<td></td>
<td></td>
<td>183 581</td>
<td>·</td>
<td>Gas Hose</td>
<td></td>
</tr>
</tbody>
</table>

+When ordering a component originally displaying a precautionary label, the label should also be ordered.

Be sure to provide Model and Serial Number when ordering replacement parts.
Figure 6-2. Baffle w/Components (Fig 6-1 Item 3)

NOTE: All items indented by a dot(s) are included with the item listed directly above.

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Part No.</th>
<th>Description</th>
<th>Item No.</th>
<th>Part No.</th>
<th>Description</th>
<th>Item No.</th>
<th>Part No.</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>058 427</td>
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<td>15</td>
<td>186 355</td>
<td>Contactor</td>
<td>038 618</td>
<td>Link</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>085 980</td>
<td>Nut</td>
<td>16</td>
<td>114 766</td>
<td>Link</td>
<td>010 199</td>
<td>Tubing</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>605 941</td>
<td>Flat Washer</td>
<td>17</td>
<td>134 201</td>
<td>PC Card Stand-Off</td>
<td>039 047</td>
<td>Output Terminal, red</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>186 437</td>
<td>Spring, .845 OD</td>
<td>18</td>
<td>173 002</td>
<td>Motor Speed Control Card</td>
<td>039 046</td>
<td>Output Terminal, black</td>
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<tr>
<td>5</td>
<td>057 971</td>
<td>Keyed Washer</td>
<td>19</td>
<td>012 658</td>
<td>· Fuse, mintr gl slo-blo</td>
<td>128 750</td>
<td>Capacitor</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>057 745</td>
<td>Spring, 2.430 OD</td>
<td>20</td>
<td>073 426</td>
<td>· Fuse, mintr gl slo-blo</td>
<td>071 971</td>
<td>Cover</td>
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<tr>
<td>7</td>
<td>186 435</td>
<td>Hub, spool</td>
<td>21</td>
<td>016 558</td>
<td>Connector &amp; Sockets</td>
<td>174 861</td>
<td>Drive Assembly, (Fig 6-3)</td>
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<tr>
<td>8</td>
<td>058 628</td>
<td>Brake Washer</td>
<td>22</td>
<td>165 745</td>
<td>Connector &amp; Sockets</td>
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<td>Switch Handle</td>
<td></td>
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<tr>
<td>9</td>
<td>177 307</td>
<td>Support Reel</td>
<td>23</td>
<td>083 431</td>
<td>Circuit Breaker</td>
<td>144 933</td>
<td>Access Door</td>
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<tr>
<td>10</td>
<td>174 812</td>
<td>Baffle</td>
<td>24</td>
<td>039 047</td>
<td>Toggle Switch, SPDT</td>
<td>021 469</td>
<td>Danger Label</td>
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<tr>
<td>11</td>
<td>083 147</td>
<td>Grommet</td>
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<td>039 046</td>
<td>Selector Switch</td>
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<tr>
<td>12</td>
<td>082 902</td>
<td>Strip, mtg center</td>
<td>26</td>
<td>153 322</td>
<td>Terminal Assembly, pri 2V</td>
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<td></td>
</tr>
<tr>
<td>13</td>
<td>092 186</td>
<td>Strip, mtg LH &amp; RH</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td>156 517</td>
<td>Capacitor</td>
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</tr>
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</table>

♦ OPTIONAL

*Recommended Spare Parts

Be sure to provide Model and Serial Number when ordering replacement parts.
See Table 6-1
Drive Roll & Wire Guide Kits.

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>602 009</td>
<td>Screw, .250-20 x 1.25</td>
</tr>
<tr>
<td>2</td>
<td>172 075</td>
<td>Carrier, drive roll</td>
</tr>
<tr>
<td>3</td>
<td>166 072</td>
<td>Spacer</td>
</tr>
<tr>
<td>4</td>
<td>010 224</td>
<td>Spring Pin</td>
</tr>
<tr>
<td>5</td>
<td>182 788</td>
<td>Housing, adapter</td>
</tr>
<tr>
<td>6</td>
<td>085 242</td>
<td>Fastener</td>
</tr>
<tr>
<td>7</td>
<td>085 244</td>
<td>Cupped Washer</td>
</tr>
<tr>
<td>8</td>
<td>010 231</td>
<td>Spring</td>
</tr>
<tr>
<td>9</td>
<td>085 243</td>
<td>Knob</td>
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<tr>
<td>10</td>
<td>166 071</td>
<td>Pressure Lever</td>
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<tr>
<td>11</td>
<td>079 634</td>
<td>Hinge Pin</td>
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<table>
<thead>
<tr>
<th>Item No.</th>
<th>Part No.</th>
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<tbody>
<tr>
<td>12</td>
<td>151 828</td>
<td>Cotter Hair Pin</td>
</tr>
<tr>
<td>13</td>
<td>173 616</td>
<td>Cover, motor</td>
</tr>
<tr>
<td>14</td>
<td>173 435</td>
<td>Motor</td>
</tr>
<tr>
<td>15</td>
<td>079 633</td>
<td>Fitting, hose 3/16tb</td>
</tr>
<tr>
<td>16</td>
<td>601 966</td>
<td>Screw, .375–16 x 1.25</td>
</tr>
<tr>
<td>17</td>
<td>145 237</td>
<td>Cover Stop</td>
</tr>
<tr>
<td>18</td>
<td>604 538</td>
<td>Washer, flat</td>
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<tr>
<td>19</td>
<td>124 778</td>
<td>Knob</td>
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<tr>
<td>20</td>
<td>173 619</td>
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<tr>
<td>21</td>
<td>174 609</td>
<td>Screw, M 4—7 x 12</td>
</tr>
<tr>
<td>22</td>
<td>174 610</td>
<td>Screw, M 6–1.0 x 20</td>
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</table>

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Part No.</th>
<th>Description</th>
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<tbody>
<tr>
<td>23</td>
<td>173 620</td>
<td>Bushing</td>
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<tr>
<td>24</td>
<td>056 192</td>
<td>Wire Guide, .023/.025 &amp; .030–.035</td>
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<tr>
<td>25</td>
<td>056 193</td>
<td>Wire Guide, .045</td>
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<tr>
<td>26</td>
<td>045 233</td>
<td>Guide, anti-wear</td>
</tr>
<tr>
<td>27</td>
<td>010 287</td>
<td>Wrench, hex</td>
</tr>
</tbody>
</table>

*OPTIONAL
*Recommended Spare Parts
Be sure to provide Model and Serial Number when ordering replacement parts.
Table 6-1. Drive Roll And Wire Guide Kits

**IMPORTANT:** Base selection of drive rolls upon the following recommended usages:
1. V-Grooved rolls for hard wire.
2. U-Grooved rolls for soft and soft shelled cored wires.
3. U-Cogged rolls for extremely soft shelled wires (usually hard surfacing types).
5. Drive roll types may be mixed to suit particular requirements (example: V-Knurled roll in combination with U-Grooved).

<table>
<thead>
<tr>
<th>Wire Diameter</th>
<th>Kit No.</th>
<th>Drive Roll</th>
<th>Inlet Wire Guide</th>
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<tbody>
<tr>
<td>Fraction</td>
<td>Decimal</td>
<td>Metric</td>
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<tr>
<td>.023/.025 in.</td>
<td>.023/.025 in.</td>
<td>0.6 mm</td>
<td>087 131</td>
</tr>
<tr>
<td>.030 in.</td>
<td>.030 in.</td>
<td>0.8 mm</td>
<td>079 594</td>
</tr>
<tr>
<td>.035 in.</td>
<td>.035 in.</td>
<td>0.9 mm</td>
<td>079 595</td>
</tr>
<tr>
<td>.045 in.</td>
<td>.045 in.</td>
<td>1.2 mm</td>
<td>079 596</td>
</tr>
</tbody>
</table>

Ref. S-0026-B/7-91
Warranty

Effective January 1, 1998
(Equipment with a serial number preface of “KJ” or newer)

This limited warranty supersedes all previous manufacturers warranties and is exclusive with no other guarantees or warranties expressed or implied.

LIMITED WARRANTY – Subject to the terms and conditions below, warrants to its original retail purchaser that new equipment sold after the effective date of this limited warranty is free of defects in material and workmanship at the time it is shipped from factory. THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS.

Within the warranty periods listed below, manufacturer will repair or replace any warranted parts or components that fail due to such defects in material or workmanship. Manufacturer must be notified in writing within thirty (30) days of such defect or failure, at which time manufacturer will provide instructions on the warranty claim procedures to be followed.

Manufacturer shall honor warranty claims on warranted equipment listed below in the event of such a failure within the warranty time periods. All warranty time periods start on the date that the equipment was delivered to the original retail purchaser, or one year after the equipment is sent to the distributor.

1. 5 Years Parts – 3 Years Labor
   * Original main power rectifiers
2. 3 Years — Parts and Labor
   * Transformer/Rectifier Power Sources
   * Plasma Arc Cutting Power Sources
   * Semi-Automatic and Automatic Wire Feeders
   * Engine Driven Welding Generators
   (NOTE: Engines are warranted separately by the engine manufacturer.)
3. 1 Year — Parts and Labor
   * Motor Driven Guns (w/exception of Spoolmate 185)
   * Process Controllers
   * Positioners and Controllers
   * Automatic Motion Devices
   * Robots
   * Water Coolant Systems
   * HF Units
   * Grids
   * Spot Welders
   * Load Banks
   * SDX Transformers
   * Running Gear/Trailers
   * Field Options
   (NOTE: Field options are covered under the limited warranty for the remaining warranty period of the product they are installed in, or for a minimum of one year — whichever is greater.)
4. 6 Months — Batteries
5. 90 Days — Parts and Labor
   * MIG Guns/TIG Torches
   * Plasma Cutting Torches
   * Remote Controls
   * Accessory Kits
   * Replacement Parts
   * Spoolmate 185

limited Warranty shall not apply to:
1. Items furnished by manufacturer, but manufactured by others, such as engines or trade accessories. These items are covered by the manufacturer’s warranty, if any.
2. Consumable components; such as contact tips, cutting nozzles, contactors, relays, brushes, slip rings, or parts that fail due to normal wear.
3. Equipment that has been modified by any party other than manufacturer, or equipment that has been improperly installed, improperly operated or misused based upon industry standards, or equipment which has not had reasonable and necessary maintenance, or equipment which has been used for operation outside of the specifications for the equipment.

MANUFACTURER’S PRODUCTS ARE INTENDED FOR PURCHASE AND USE BY COMMERCIAL/INDUSTRIAL USERS AND PERSONS TRAINED AND EXPERIENCED IN THE USE AND MAINTENANCE OF WELDING EQUIPMENT.

In the event of a warranty claim covered by this warranty, the exclusive remedies shall be, at manufacturer’s option, (1) repair; or (2) replacement; or, where authorized in writing by manufacturer in appropriate cases, (3) the reasonable cost of repair or replacement at an authorized service station; 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. manufacturer’s option of repair or replacement will be F.O.B., Factory at Appleton, Wisconsin, or F.O.B. at an authorized service facility as determined by manufacturer. Therefore no compensation or reimbursement for transportation costs of any kind will be allowed.

TO THE EXTENT PERMITTED BY LAW, THE REMEDIES PROVIDED HEREIN ARE THE SOLE AND EXCLUSIVE REMEDIES. IN NO EVENT SHALL MANUFACTURER BE LIABLE FOR DIRECT, INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES (INCLUDING LOSS OF PROFIT), WHETHER BASED ON CONTRACT, TORT OR ANY OTHER LEGAL THEORY.

ANY EXPRESS WARRANTY NOT PROVIDED HEREIN AND ANY IMPLIED WARRANTY, GUARANTY OR REPRESENTATION AS TO PERFORMANCE, AND ANY REMEDY FOR BREACH OF CONTRACT TORT OR ANY OTHER LEGAL THEORY WHICH, BUT FOR THIS PROVISION, MIGHT ARISE BY IMPLICATION, OPERATION OF LAW, CUSTOM OF TRADE OR COURSE OF DEALING, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE, WITH RESPECT TO ANY AND ALL EQUIPMENT FURNISHED BY MANUFACTURER IS EXCLUDED AND DISCLAIMED BY MANUFACTURER.

Some states in the U.S.A. do not allow limitations of how long an implied warranty lasts, or the exclusion of incidental, indirect, special or consequential damages, so the above limitation or exclusion may not apply to you. This warranty provides specific legal rights, and other rights may be available, but may vary from state to state.

In Canada, legislation in some provinces provides for certain additional warranties or remedies other than as stated herein, and to the extent that they may not be waived, the limitations and exclusions set out above may not apply. This Limited Warranty provides specific legal rights, and other rights may be available, but may vary from province to province.
# Owner’s Record

Please complete and retain with your personal records.

<table>
<thead>
<tr>
<th>Model Name</th>
<th>Serial/Style Number</th>
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<table>
<thead>
<tr>
<th>Purchase Date</th>
<th>(Date which equipment was delivered to original customer.)</th>
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<table>
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# Resources Available

Always provide Model Name and Serial/Style Number.

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<th>Contact your Distributor for:</th>
<th>Welding Supplies and Consumables</th>
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<td>Options and Accessories</td>
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<td>Personal Safety Equipment</td>
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<tr>
<td></td>
<td>Replacement Parts</td>
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<td></td>
<td>Owner’s Manuals</td>
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<tr>
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<td>Circuit Diagrams</td>
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<table>
<thead>
<tr>
<th>Contact the Delivering Carrier for:</th>
<th>File a claim for loss or damage during shipment.</th>
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<tbody>
<tr>
<td>For assistance in filing or settling claims, contact your distributor and/or equipment manufacturer's Transportation Department.</td>
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