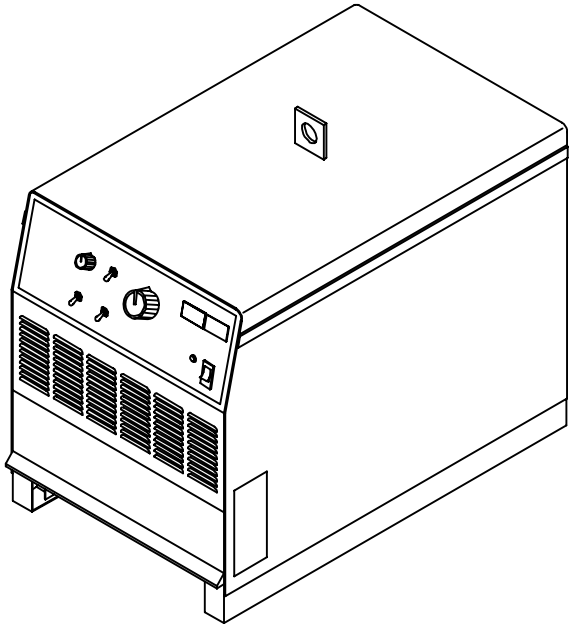
June 1996 Form: OM-278C
Effective With Serial No. KG054113

OWNER'S MANUAL



Dimension™ 652 (60 Hz)
Dimension™ 812 (50/60 Hz)

CC/CV DC Welding Power Source For SMAW, GTAW, GMAW, FCAW, SAW Welding, And CAC-A Cutting And Gouging

Model	IP Rating	Rated Welding Output	Amperage /Voltage Range DC	Max OCV–DC	Amperes Input at Rated Load Output, 50 or 60 Hz, Three-Phase								
					230 V	380 V	400 V	440 V	460 V	520 V	575 V	KVA	KW
650 Amp	21M	650 A @ 44 Volts DC, 100% Duty Cycle	50 – 815 A In CC Mode	72 (70) VDC In CC Mode	126 3.8*	77 1.9*	73 1.8*	66 1.6*	63 1.9*	54 1.1*	50.4 1.4*	50 1.52*	34.8 0.76*
			10 – 65 V In CV Mode	70 (66) VDC In CV Mode									

*While idling
( ) Indicates specification differences for CE models

MILLER'S TRUE BLUE® LIMITED WARRANTY

Effective February 7, 1996
(Equipment with a serial number preface of "KD" or newer)

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

LIMITED WARRANTY – Subject to the terms and conditions below, MILLER Electric Mfg. Co., Appleton, Wisconsin, warrants to its original retail purchaser that new MILLER equipment sold after the effective date of this limited warranty is free of defects in material and workmanship at the time it is shipped by MILLER. 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, MILLER will repair or replace any warranted parts or components that fail due to such defects in material or workmanship. MILLER must be notified in writing within thirty (30) days of such defect or failure, at which time MILLER will provide instructions on the warranty claim procedures to be followed.

MILLER 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 a North American distributor or eighteen months after the equipment is sent to an International distributor.

1. 5 Years Parts – 3 Years Labor
   - Original main power rectifiers
   - Inverters (input and output rectifiers only)
2. 3 Years — Parts and Labor
   - Transformer/Rectifier Power Sources
   - Plasma Arc Cutting Power Sources
   - Semi-Automatic and Automatic Wire Feeders
   - Inverter Power Supplies
   - Intellitigs
   - Robots
3. 2 Years — Parts and Labor
   - Engine Driven Welding Generators
     (NOTE: Engines are warranted separately by the engine manufacturer.)
   - Air Compressors
4. 1 Year — Parts and Labor
   - Motor Driven Guns
   - Process Controllers
   - IHPS Power Sources
   - Water Coolant Systems
   - HF Units
   - Grids
   - Spot Welders
   - Load Banks
   - SDX Transformers
   - Miller Cyclomatic Equipment
   - Running Gear/Trailers
   - Plasma Cutting Torches (except APT, ZIPCUT & PLAZCUT Models)
   - Tecumseh Engines
   - Deutz Engines (outside North America)
   - Field Options
     (NOTE: Field options are covered under True Blue® for the remaining warranty period of the product they are installed in, or for a minimum of one year — whichever is greater.)
5. 6 Months — Batteries
6. 90 Days — Parts and Labor
   - MIG Guns/TIG Torches
   - APT, ZIPCUT & PLAZCUT Model Plasma Cutting Torches
   - Remote Controls
   - Accessory Kits
   - Replacement Parts

MILLER'S True Blue® Limited Warranty shall not apply to:

1. Items furnished by MILLER, 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 and relays or parts that fail due to normal wear.
3. Equipment that has been modified by any party other than MILLER, 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.

MILLER 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 MILLER'S option: (1) repair; or (2) replacement; or, where authorized in writing by MILLER in appropriate cases, (3) the reasonable cost of repair or replacement at an authorized MILLER 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. MILLER'S option of repair or replacement will be F.O.B., Factory at Appleton, Wisconsin, or F.O.B. at a MILLER authorized service facility as determined by MILLER. 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 MILLER 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 MILLER IS EXCLUDED AND DISCLAIMED BY MILLER.

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.

RECEIVING-HANDLING

Before unpacking equipment, check carton for any damage that may have occurred during shipment. File any claims for loss or damage **with the delivering carrier.** Assistance for filing or settling claims may be obtained from distributor and/or equipment manufacturer's Transportation Department.

When requesting information about this equipment, always provide Model Designation and Serial or Style Number.

Use the following spaces to record Model Designation and Serial or Style Number of your unit. The information is located on the rating label or nameplate.

Model _____

Serial or Style No. _____

Date of Purchase _____

Declaration of Conformity For European Community (CE) Products

NOTE ☞	*This information is provided for units with CE certification (see rating label on unit.)*

Manufacturer's Name: Miller Electric Mfg. Co.

Manufacturer's Address: 1635 W. Spencer Street
Appleton, WI 54914 USA

Declares that the product: **Dimension™ 812**

conforms to the following Directives and Standards:

Directives

Electromagnetic compatibility Directives: 89/336/EEC, 92/31/EEC

Low Voltage Directive: 73/23/EEC

Machinery Directives: 89/392/EEC, 91/368/EEC, 93/C 133/04, 93/68/EEC

Standards

Safety Requirements for Arc Welding Equipment part 1: EN 60974-1: 1990

Arc Welding Equipment Part 1: Welding Power Sources: IEC 974-1
(April 1995 – Draft revision)

Degrees of Protection provided by Enclosures (IP code): IEC 529: 1989

Insulation coordination for equipment within low-voltage systems:
Part 1: Principles, requirements and tests: IEC 664-1: 1992

Electromagnetic compatibility (EMC) Product standard for arc welding equipment:
EN50199: August 1995

European Contact: Mr. Luigi Vacchini, Managing Director
MILLER Europe S.P.A.
Via Privata Iseo
20098 San Giuliano
Milanese, Italy

Telephone: 39(02)98290-1
Fax: 39(02)98281-552

SECTION 1 – SAFETY PRECAUTIONS FOR ARC WELDING

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1-1. Symbol Usage

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

▲ **Marks a special safety message.**

☞ *Means NOTE; not safety related.*

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.

1-2. 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 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.

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 insulating 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 your 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.
17. Clamp work cable with good metal-to-metal contact to workpiece or worktable as near the weld as practical.

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.

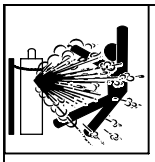
ARC RAYS

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 these fumes and 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 (MSDSs) 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.



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 to 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 touch 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 parts 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 welding.

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 materials 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 lighter or matches, from your person before doing any welding.

1-3. 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.

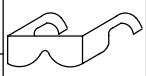
1. Keep away from moving parts such as fans.
2. Keep all doors, panels, covers, and guards closed and securely in place.

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.

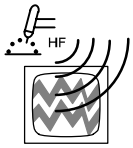


FLYING PIECES OF METAL or DIRT can injure eyes.

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

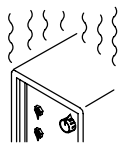
WELDING WIRE can cause puncture wounds.

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.



HIGH-FREQUENCY RADIATION can interfere with radio navigation, safety services, computers, and communications equipment.

1. Have only qualified persons familiar with electronic equipment perform this installation.
2. The user is responsible for having a qualified electrician promptly correct any interference problem resulting from the installation.
3. If notified by the FCC about interference, stop using the equipment at once.
4. Have the installation regularly checked and maintained.
5. 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.

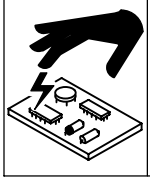


OVERUSE can cause OVERHEATED EQUIPMENT.

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

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.



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.

BUILDUP OF SHIELDING GAS can harm health or kill.

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

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

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 Standard AWS F4.1, 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 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 M9W 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, NFPA Standard 51B, from National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

1-5. EMF Information

Considerations About Welding And The Effects Of Low Frequency Electric And Magnetic Fields

The following is a quotation from the General Conclusions Section of the U.S. Congress, Office of 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 complex. Current scientific understanding does not yet allow us to interpret the evidence in a single coherent framework. Even more frustrating, it does not 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:

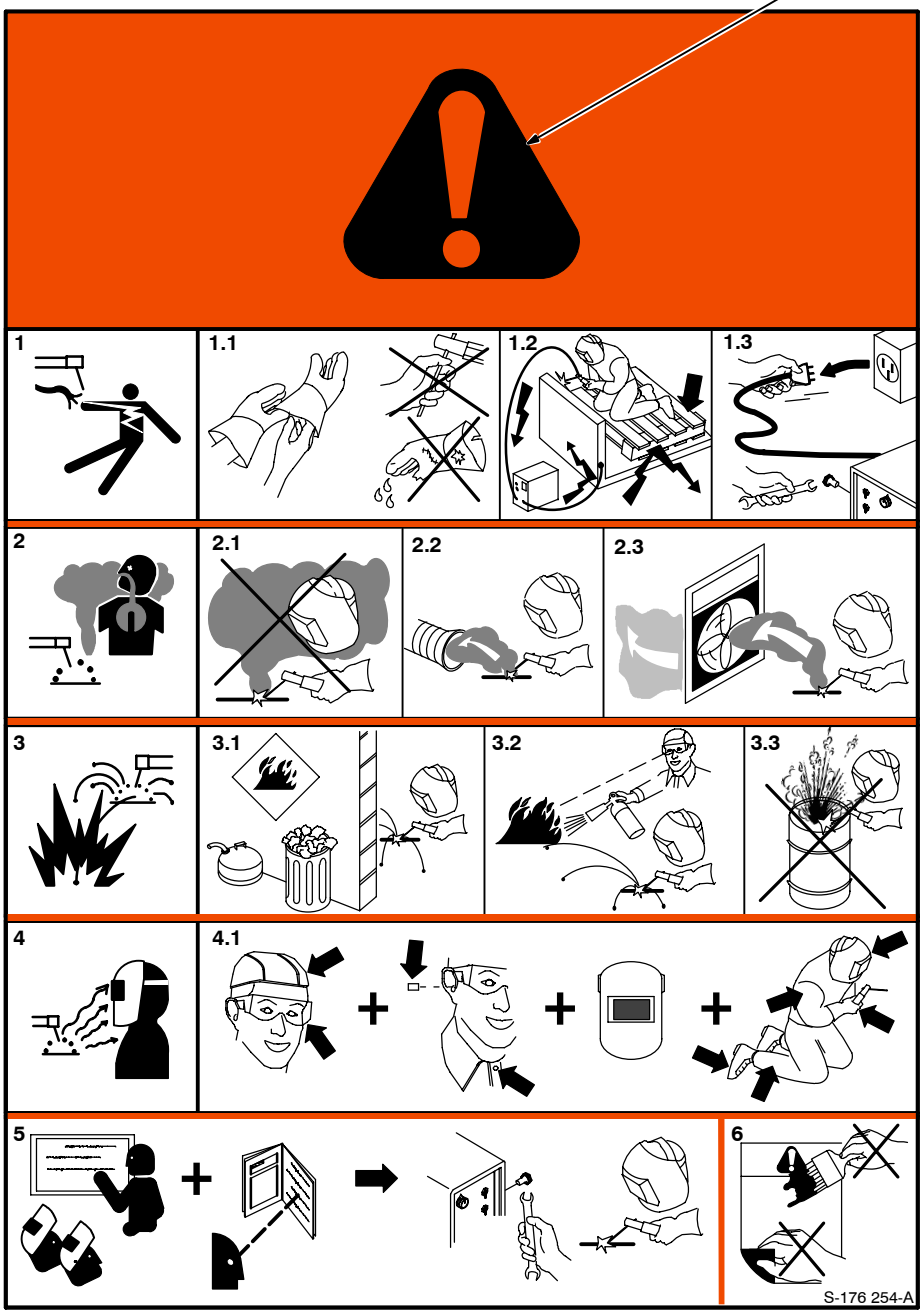
1. Keep cables close together by twisting or taping them.
2. Arrange cables to one side and away from the operator.
3. Do not coil or drape cables around the body.
4. Keep welding power source and cables as far away as practical.
5. Connect work clamp to workpiece as close to the weld as possible.

About Pacemakers:

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

SECTION 2 – DEFINITIONS

2-1. Warning Label Definitions



Warning! Watch Out! There are possible hazards as shown by the symbols.

1 Electric shock from welding electrode or wiring can kill.

1.1 Wear dry insulating gloves. Do not touch electrode with bare hand. Do not wear wet or damaged gloves.

1.2 Protect yourself from electric shock by insulating yourself from work and ground.

1.3 Disconnect input plug or power before working on machine.

2 Breathing welding fumes can be hazardous to your health.

2.1 Keep your head out of the fumes.

2.2 Use forced ventilation or local exhaust to remove the fumes.

2.3 Use ventilating fan to remove fumes.

3 Welding sparks can cause explosion or fire.

3.1 Keep flammables away from welding. Do not weld near flammables.

3.2 Welding sparks can cause fires. Have a fire extinguisher nearby, and have a watchperson ready to use it.

3.3 Do not weld on drums or any closed containers.

4 Arc rays can burn eyes and injure skin.

4.1 Wear hat and safety glasses. Use ear protection and button shirt collar. Use welding helmet with correct shade of filter. Wear complete body protection.

5 Become trained and read the instructions before working on the machine or welding.

6 Do not remove or paint over (cover) the label.

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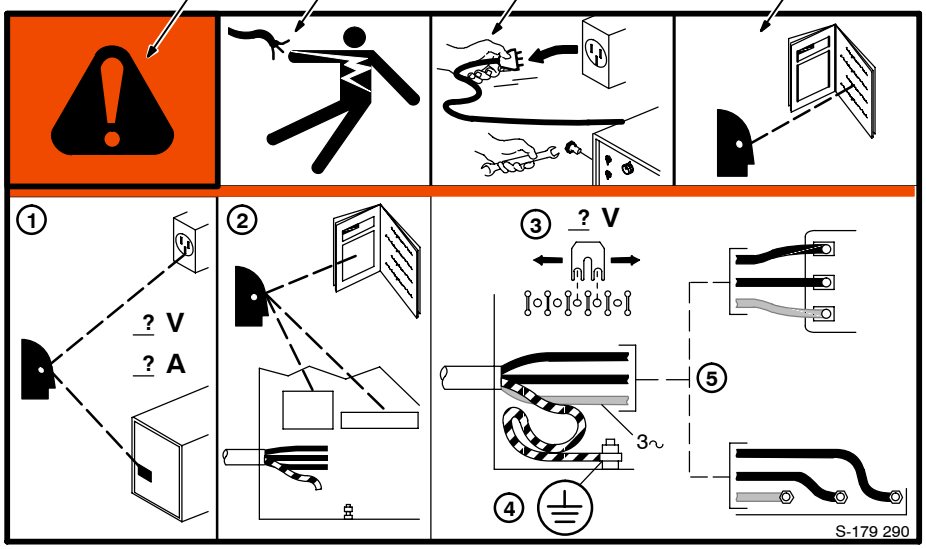

Warning! Watch Out! There are possible hazards as shown by the symbols.

Electric shock from wiring can kill.

Disconnect input plug or power before working on machine.

Read the Owner's Manual before working on this machine.

1 Consult rating label for input power requirements, and check power available at the job site – they must match.

2 Read Owner's Manual and inside labels for connection points and procedures.

3 Move jumper links as shown on inside label to match voltage at job site.

4 Having a loop of extra length, connect grounding conductor first.

5 Connect line input conductors as shown on inside label – double-check all connections, jumper link positions, and input voltage before applying power.

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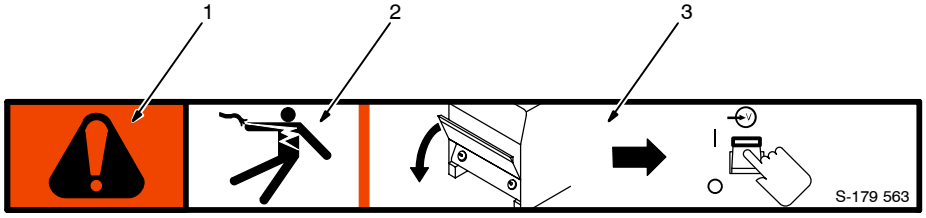

1 Warning! Watch Out! There are possible hazards as shown by the symbols.

2 Electric shock from wiring and exposed weld terminals can kill.

3 Close door before turning on unit.

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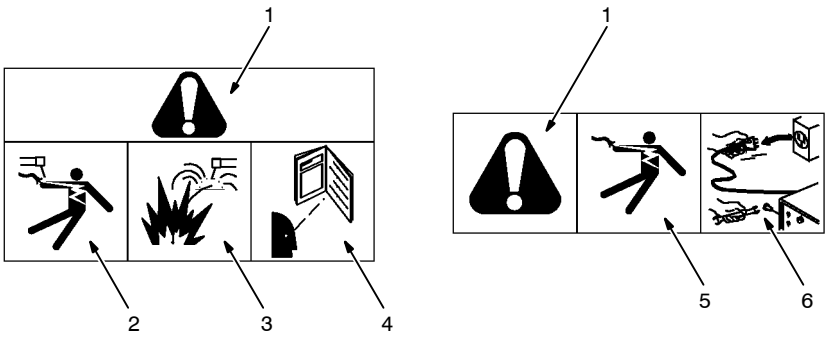


1 Warning! Watch Out! There are possible hazards as shown by the symbols.

2 Electric shock from welding electrode or wiring can kill.

3 Sparks from arcing electrode can cause explosion or fire – disconnect cable for process not in use.

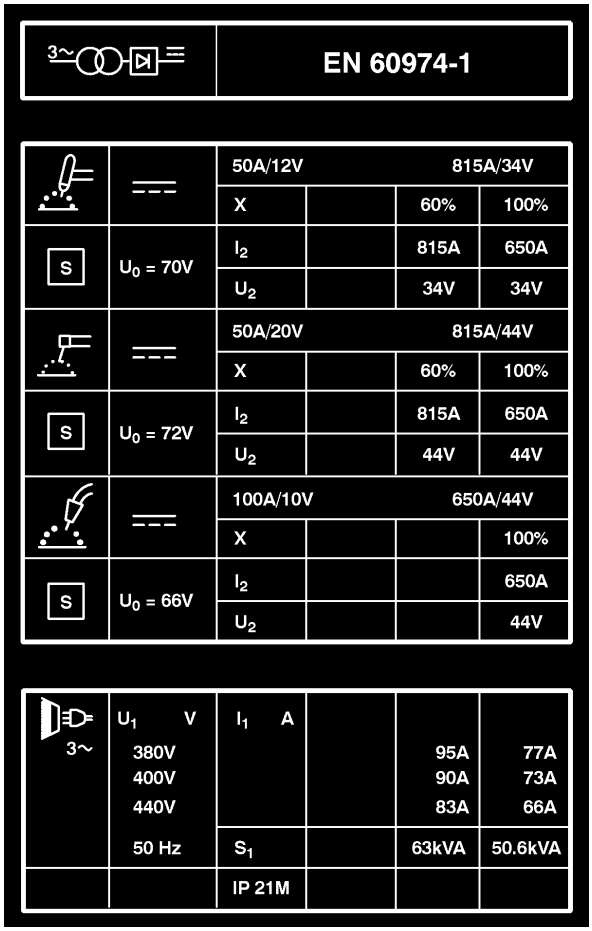
4 Read Owner's Manual for connection procedures.

5 Electric shock from wiring can kill.

6 Disconnect input power before working on unit or making terminal strip connections.

Nameplate D-179 389

2-2. Manufacturer's Rating Label For CE Products



For label location see Section 3-1.

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2-3. Symbols And Definitions

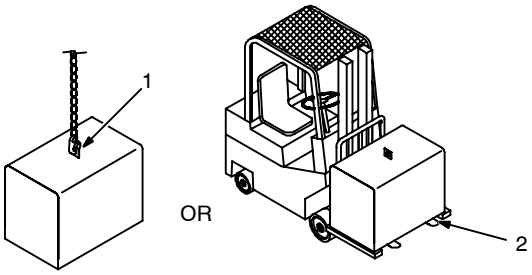
NOTE	*Some symbols are found only on CE products.*

A	Amperes		Amperage/Voltage Control–Panel		Gas Tungsten Arc Welding (GTAW)		Shielded Metal Arc Welding (SMAW)
	Temperature		Wire Feeder		Arc Force (DIG)		Gas Metal Arc Welding (GMAW)
	Output		Circuit Breaker		Remote	V	Volts
	Positive High Inductance Weld Output Terminal		Positive Low Inductance Weld Output Terminal		Negative Weld Output Terminal		Input
I	On	O	Off	%	Percent		Direct Current
U_0	Rated No Load Voltage (Average)	U_1	Primary Voltage	U_2	Conventional Load Voltage		Line Connection
I_1	Primary Current	I_2	Rated Welding Current	X	Duty Cycle		Three-Phase Transformer Rectifier
IP	Degree Of Protection	3	Three-Phase	S_1	KVA	Hz	Hertz
S	Suitable For Areas Of Increased Shock Hazard		Protective Earth (Ground)				

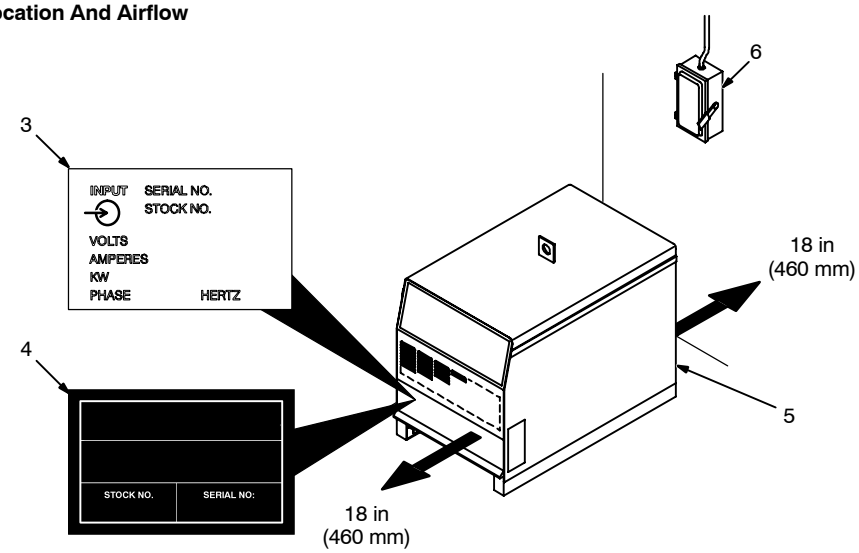
SECTION 3 – INSTALLATION

3-1. Selecting A Location

Movement



Location And Airflow



1 Lifting Eye

2 Lifting Forks

Use lifting eye or lifting forks to move unit.

If using lifting forks, extend forks beyond opposite side of unit.

3 Rating Label (Non CE Models Only)

Use rating label to determine input power needs. Label located under front access door.

4 Plate Label (CE Models Only)

Label located under front access door.

5 Rating Label (CE Models Only)

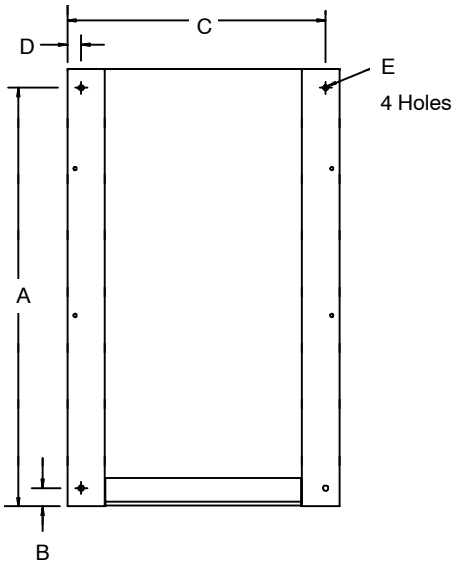
Use rating label to determine input power needs. Label located on rear access door (see Section 2-2).

6 Line Disconnect Device

Locate unit near correct input power supply.

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

3-2. Dimensions And Weights

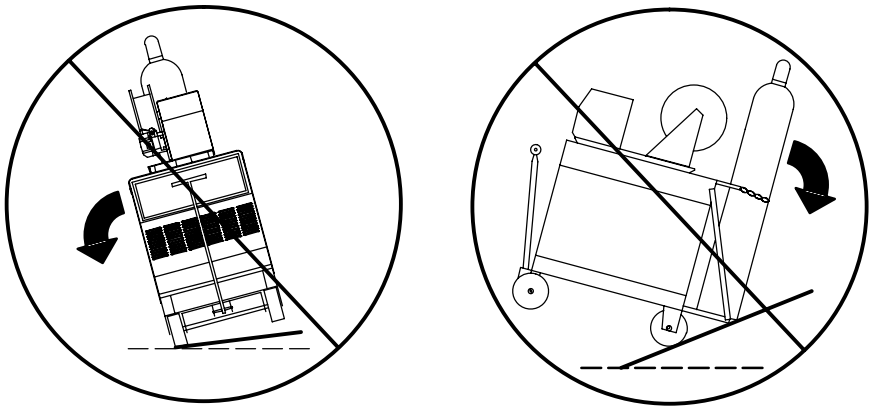


Ref. ST-153 556-A

Dimensions	
Height	27-1/4 in (692 mm)
Width	22-1/4 in (565 mm)
Depth	36 in (914 mm)
A	35 in (889 mm)
B	1-1/4 in (32 mm)
C	21 in (533 mm)
D	1-3/16 in (30 mm)
E	7/16 in (11 mm) Dia
Weight	
650 Amp	Net: 545 lb (247 kg) Ship: 561 lb (254 kg)

3-3. Tipping

▲ **Be careful when placing or moving unit over uneven surfaces.**



3-4. 115 VAC Receptacle And Circuit Breakers

▲ **Turn Off power before connecting to receptacle.**

1 115 V 15 A AC Receptacle RC9

Power is shared between RC9 and Remote 14 receptacle RC8 or terminal strip 1T (see Section 3-7).

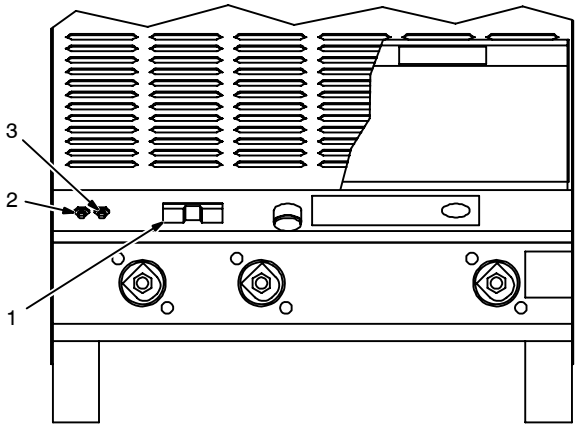
2 Circuit Breaker CB1

3 Circuit Breaker CB2

CB1 protects 115 volts ac portion of RC8, 1T, and RC9 from overload.

CB2 protects 24 volts ac portion of RC8 and 1T from overload.

Press button to reset breaker.



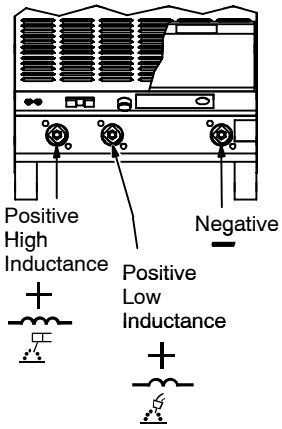
Ref. ST-800 166-A

3-5. Weld Output Terminals And Selecting Cable Sizes

▲ ARC WELDING can cause Electromagnetic Interference.

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.

Turn Off power before connecting to weld output terminals.



Welding Amperes	Total Cable (Copper) Length In Weld Circuit Not Exceeding							
	100 ft (30 m) Or Less		150 ft (45 m)	200 ft (60 m)	250 ft (70 m)	300 ft (90 m)	350 ft (105 m)	400 ft (120 m)
	10 – 60% Duty Cycle	60 – 100% Duty Cycle	10 – 100% Duty Cycle					
100	4	4	4	3	2	1	1/0	1/0
150	3	3	2	1	1/0	2/0	3/0	3/0
200	3	2	1	1/0	2/0	3/0	4/0	4/0
250	2	1	1/0	2/0	3/0	4/0	2-2/0	2-2/0
300	1	1/0	2/0	3/0	4/0	2-2/0	2-3/0	2-3/0
350	1/0	2/0	3/0	4/0	2-2/0	2-3/0	2-3/0	2-4/0
400	1/0	2/0	3/0	4/0	2-2/0	2-3/0	2-4/0	2-4/0
500	2/0	3/0	4/0	2-2/0	2-3/0	2-4/0	3-3/0	3-3/0
600	3/0	4/0	2-2/0	2-3/0	2-4/0	3-3/0	3-4/0	3-4/0
700	4/0	2-2/0	2-3/0	2-4/0	3-3/0	3-4/0	3-4/0	4-4/0
800	4/0	2-2/0	2-3/0	2-4/0	3-4/0	3-4/0	4-4/0	4-4/0

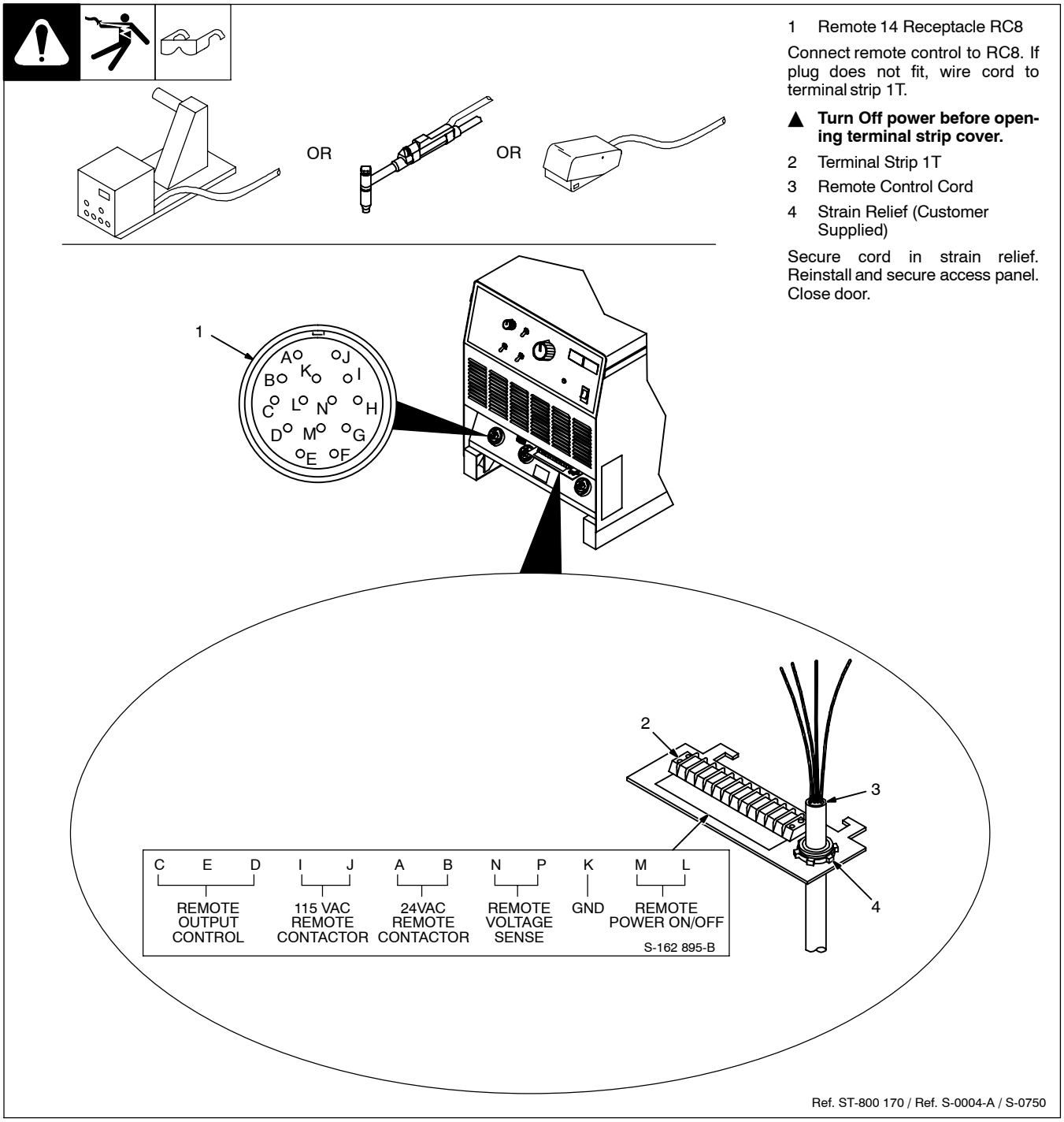
Weld cable size (AWG) is based on either a 4 volts or less drop or a current density of at least 300 circular mils per ampere. S-0007-D

3-6. Remote 14 Receptacle And Terminal Strip 1T Information

	Socket	Terminal	Information
24 VOLTS AC OUTPUT (CONTACTOR)	A	A	24 volts ac. Protected by circuit breaker CB2.
	B	B	Contact closure to A completes 24 volts ac contactor control circuit.
REMOTE OUTPUT CONTROL	C	C	Command reference; 0 to +10 volts dc.
	D	D	Remote control circuit common.
	E	E	0 to +10 volts dc input command signal from remote control.
A/V AMPERAGE VOLTAGE	F	*	Current feedback; 0 to +10 volts dc, 1 volt per 100 amperes.
	H	*	Voltage feedback; 0 to +10 volts dc, 1 volt per 10 arc volts.
115 VOLTS AC OUTPUT (CONTACTOR)	I	I	115 volts, 15 amperes, 60 Hz ac. Protected by circuit breaker CB1.
	J	J	Contact closure to I completes 115 volts ac contactor control circuit.
GND	K	K	Chassis common.
	G	*	Circuit common for 24 and 115 volts ac circuits.
REMOTE POWER ON/OFF	*	L	To remote On/Off switch.
	*	M	
REMOTE VOLTAGE SENSING	*	N	Voltage sensing signal from Negative (-) weld output terminal.
	*	P	Voltage sensing signal from Positive (+) weld output terminal.

* Not Used

3-7. Connecting Remote Control



1 Remote 14 Receptacle RC8

Connect remote control to RC8. If plug does not fit, wire cord to terminal strip 1T.

▲ **Turn Off power before opening terminal strip cover.**

2 Terminal Strip 1T

3 Remote Control Cord

4 Strain Relief (Customer Supplied)

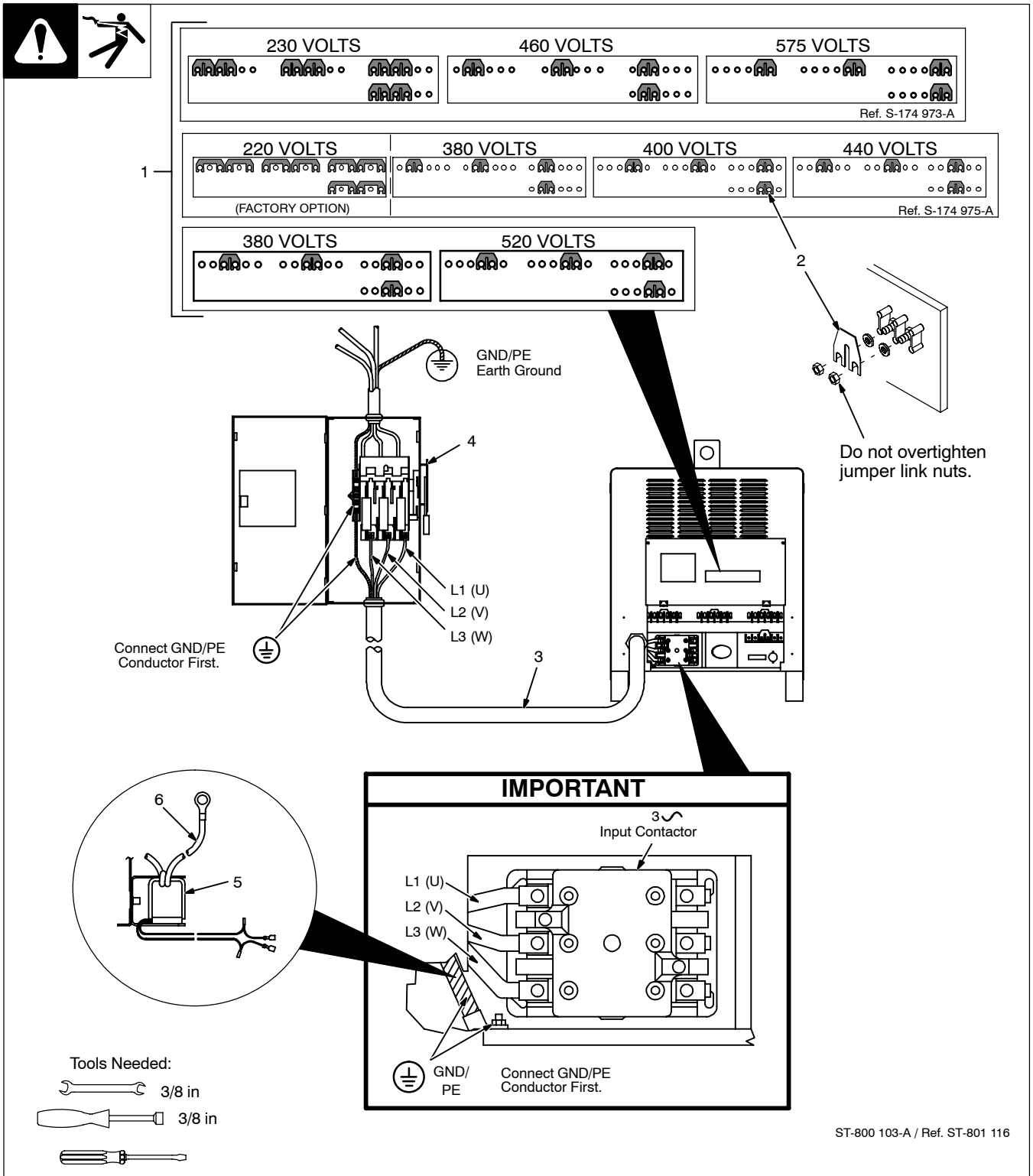
Secure cord in strain relief. Reinstall and secure access panel. Close door.

Ref. ST-800 170 / Ref. S-0004-A / S-0750

3-8. Electrical Service Guide

	60 Hz Models			50 Hz Models			
Input Voltage	230	460	575	380	400	440	520
Input Amperes At Rated Output	126	63	50.4	77	73	66	54
Max Recommended Standard Fuse Or Circuit Breaker Rating In Amperes	200	90	80	125	110	100	80
Min Input Conductor Size In AWG/Kcmil	1	6	6	4	4	4	6
Max Recommended Input Conductor Length In Feet (Meters)	180 (55)	284 (87)	444 (135)	290 (88)	321 (98)	389 (118)	363 (111)
Min Grounding Conductor Size In AWG/Kcmil	6	8	8	6	6	8	8
Reference: 1996 National Electrical Code (NEC)							S-0092-J

3-9. Placing Jumper Links And Connecting Input Power



Check input voltage available at site.

1 Jumper Link Label

Check label – only one is on unit.

2 Jumper Links

Move jumper links to match input voltage.

3 Input And Grounding Conductors

See Section 3-8.

4 Line Disconnect Device

See Section 3-8.

5 Reed Switch (Ground Current Sensor) (Optional)

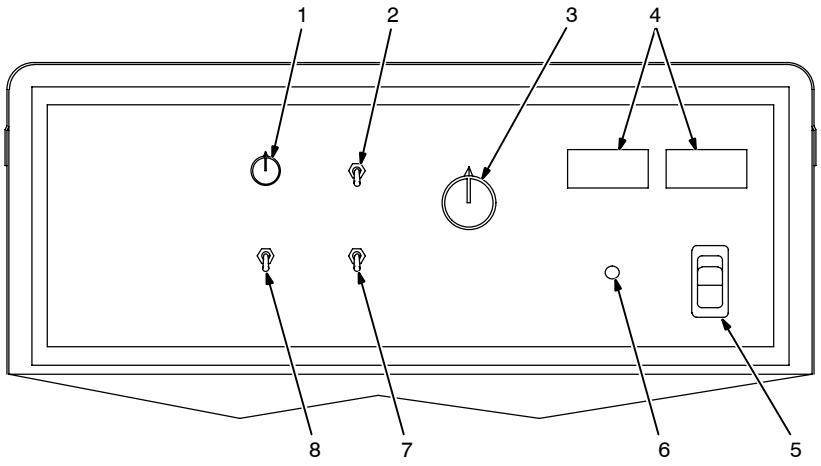
6 Grounding Conductor

If unit is equipped with optional ground current sensor, route grounding conductor through reed switch two times and connect to ground terminal.

Close access door.

SECTION 4 – OPERATION

4-1. Controls



Ref. ST-800 166-B

1 Arc Force (Dig) Control

Control increases SMAW short-circuit amperage which allows the operator to use a very short arc length without sticking the electrode.

Set control at 0 for normal welding amperage. Turn clockwise to increase short-circuit amperage.

2 Process Selector Switch

3 Amperage/Voltage Adjustment Control

When Process Selector switch is in the SMAW position, read amperage from outer scale. When Process Selector switch is in the GMAW position, read voltage from the inner scale.

4 Digital Meters

5 Power Switch With Indicator Light

6 High Temperature Shutdown Light

7 Remote Amperage/Voltage Control Switch

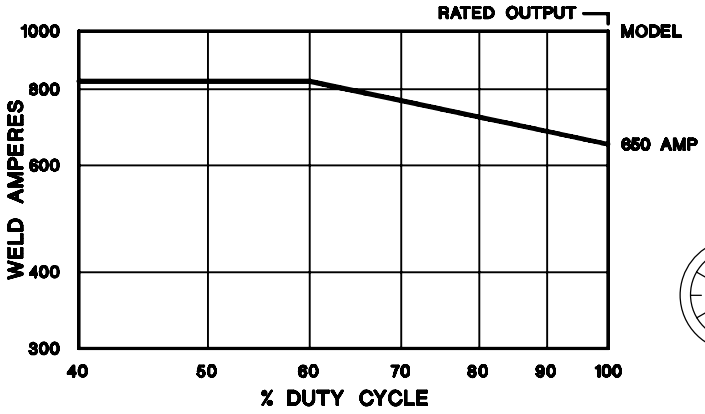
For front panel control, place switch in Panel position. For remote control, place switch in Remote position, and connect remote device (see Section 3-7).

8 Output Switch (Contactor)

For front panel control of output, place switch in Panel position. For remote control of output, place switch in Remote position, and connect remote device (see Section 3-7).

▲ **Turn Off power before connecting remote device.**

4-2. Duty Cycle And Overheating

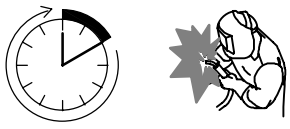


Duty Cycle is percentage of 10 minutes that unit can weld at rated load without overheating.

If unit overheats, thermostat(s) opens, output stops, and cooling fan runs. Wait fifteen minutes for unit to cool. Reduce amperage or duty cycle before welding.

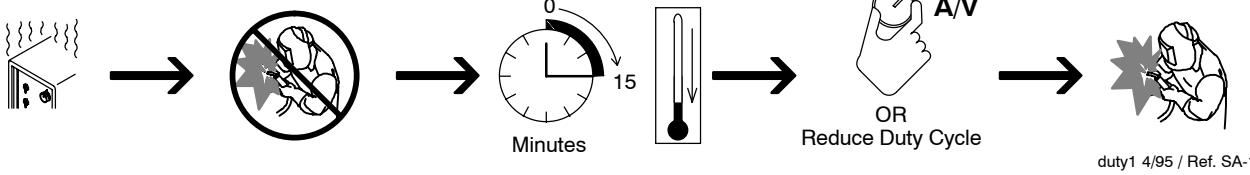
▲ **Exceeding duty cycle can damage unit and void warranty.**

100% Duty Cycle



Continuous Welding

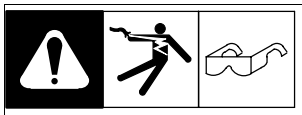
Overheating



duty1 4/95 / Ref. SA-168 918

SECTION 5 – MAINTENANCE & TROUBLESHOOTING

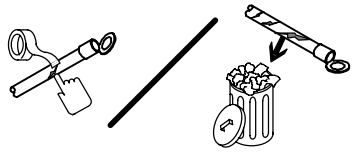
5-1. Routine Maintenance



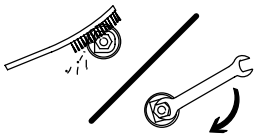
▲ **Disconnect power before maintaining.**

3 Months

Replace Unreadable Labels

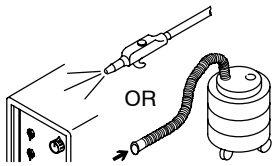


Repair Or Replace Cracked Weld Cable



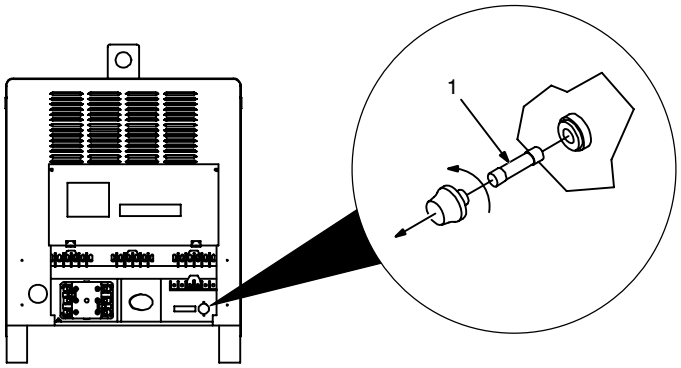
Clean And Tighten Weld Terminals

6 Months



Blow Out Or Vacuum Inside, During Heavy Service, Clean Monthly

5-2. Fuse F1

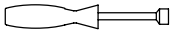


▲ **Turn Off power before opening rear access door.**

1 Fuse F1 (See parts List For Rating)

Fuse F1 protects control transformer from overload. If F1 opens, weld output and fan motor stops. Replace F1.

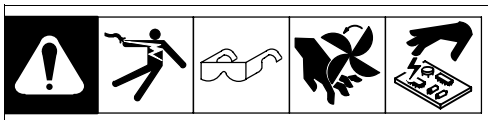
Tools Needed:



3/8 in

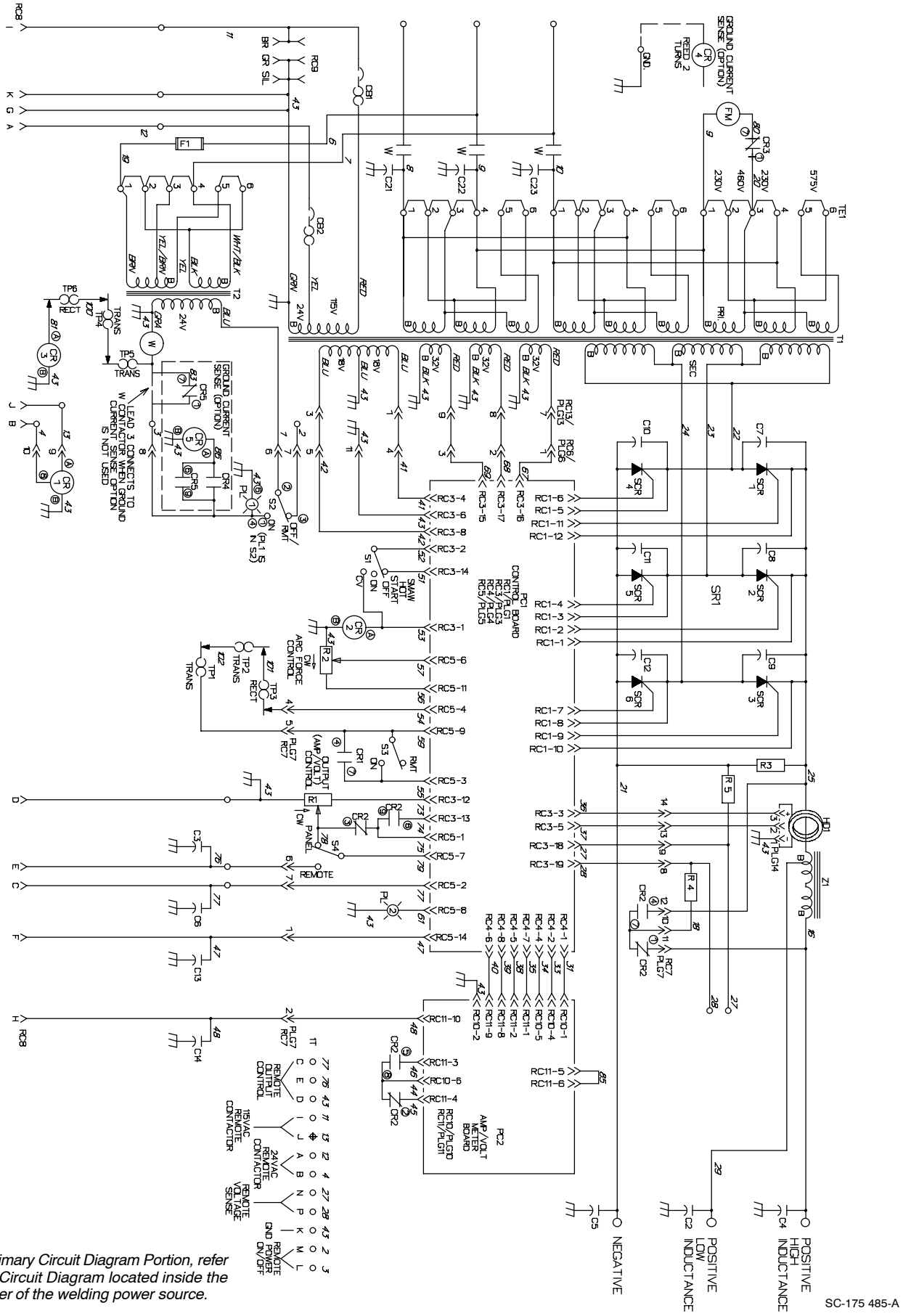
Ref. ST-800 101-C

5-3. Troubleshooting



Trouble	Remedy
No weld output; unit completely inoperative; pilot light PL1 off.	Place line disconnect device in On position (see Section 3-9).
	Check for open line fuse(s), and replace if open (see Section 3-9).
	Check for proper input power connections (see Section 3-9).
	Check for proper jumper link position (see Section 3-9).
	Check fuse F1, and replace if necessary (see Section 5-2).

Trouble	Remedy
No weld output; pilot light PL1 on.	Unit overheated. Allow unit to cool with fan On (see Section 4-2).
	If using remote control, place Output (Contactor) switch in Remote 14 position, and connect remote control (see Sections 3-6 and 3-7). If remote is not being used, place switch in On position (see Section 4-1).
	Check, repair, or replace remote control.
Limited weld output and low open-circuit voltage.	Check position of Remote Amperage/Voltage Control switch (see Section 4-1).
	Check for open line fuse(s), and replace if open (see Section 3-9).
	Check for proper input power connections (see Section 3-9).
	Check for proper jumper link position (see Section 3-9).
	Clean and tighten all weld output connections.
Unit provides only maximum or minimum weld output.	Have Factory Authorized Service Agent check control board PC1 and hall device HD1.
	Check position of Remote Amperage/Voltage Control switch (see Section 4-1).
Erratic or improper weld output.	Use proper size and type of weld cable (see Section 3-5).
	Clean and tighten all weld connections.
	Check wire feeder installation according to Owner's Manual.
	Check position of Process selector switch (see Section 4-1).
	Have Factory Authorized Service Agent check control board PC1 and hall device HD1.
No 115 volts ac output at duplex receptacle, Remote 14 receptacle, or terminal strip 1T.	Reset circuit breaker CB1 (see Section 3-4).
No 24 volts ac output at Remote 14 receptacle or terminal strip 1T.	Reset circuit breaker CB2 (see Section 3-4).
Fan not operating. Note: fan only runs when cooling is necessary.	Check for and remove anything blocking fan movement.
	Have Factory Authorized Service Agent check fan motor.
Wandering arc; poor control of arc direction.	Reduce gas flow rate.
	Select proper size tungsten.
	Properly prepare tungsten.
Tungsten electrode oxidizing and not remaining bright after conclusion of weld.	Shield weld zone from drafts.
	Increase postflow time.
	Check and tighten all gas fittings.
	Properly prepare tungsten.
	Check for water in torch, and repair torch if necessary. See torch Owner's Manual.
Digital meter not working properly.	Have Factory Authorized Service Agent check control board PC1 and connections, and replace if necessary.



For Primary Circuit Diagram Portion, refer to the Circuit Diagram located inside the wrapper of the welding power source.

SC-175 485-A

Figure 6-1. Circuit Diagram

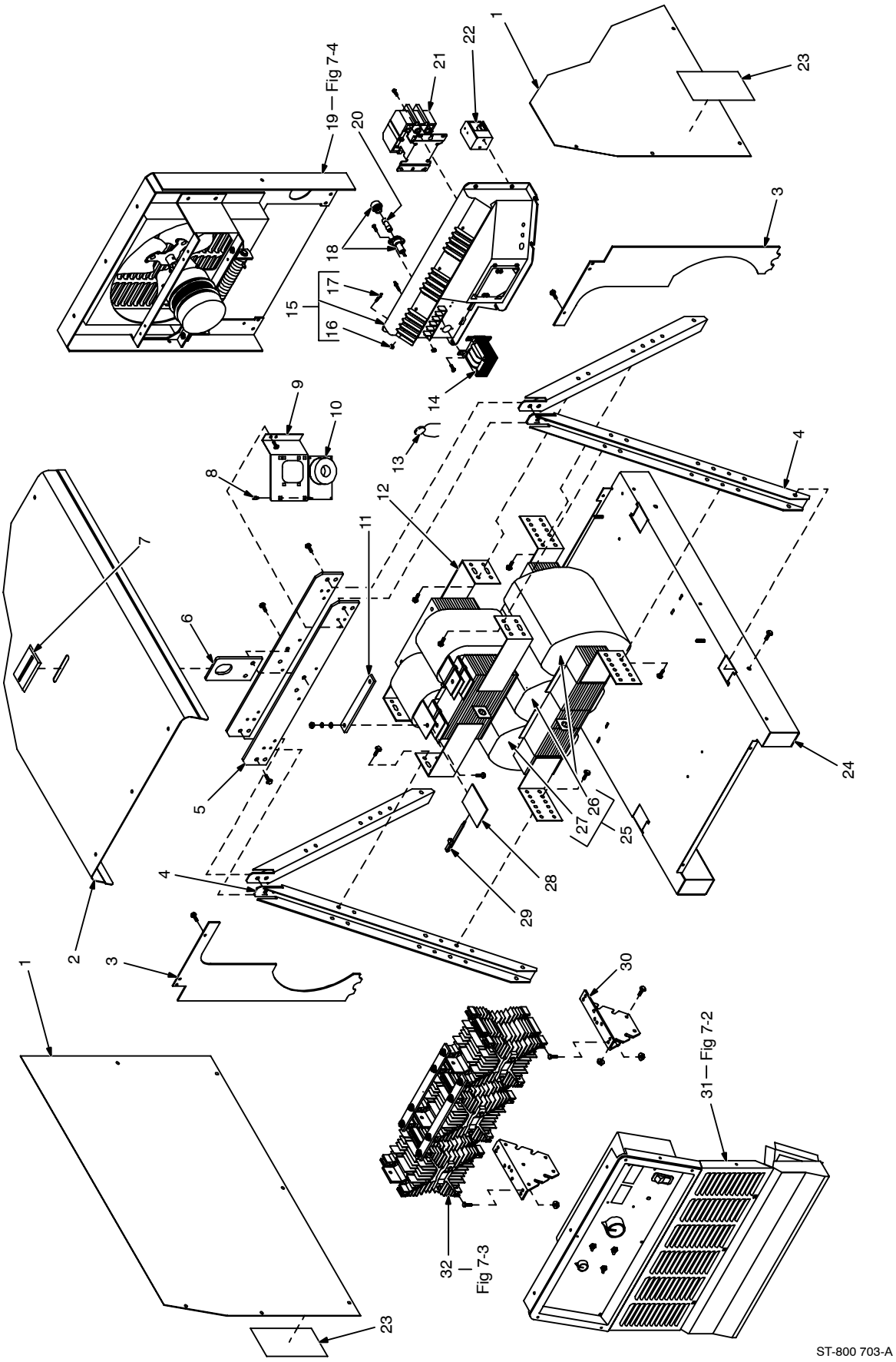


Figure 7-1. Main Assembly (652 Model Illustrated)

Item No.	Dia. Mkgs.	Part No.	Description	Quantity

Figure 7-1. Main Assembly

1		+179 432	PANEL, side	2
2		179 431	COVER, top	1
3		164 700	BAFFLE, air	2
4		162 816	CHANNEL, upright	4
5		162 820	BAR, mtg lift eye	2
6		162 830	LIFT EYE	1
		604 536	SCREW, .312-18 x 1.750hexhd gr 5	2
7		177 279	GASKET, lift eye	1
8		134 201	STAND-OFF SUPPORT, PC card .312/.375	4
9		162 821	BRACKET, mtg LEM	1
10	HD1	148 417	TRANSDUCER, current 1000A module	1
	PLG14	130 204	CONNECTOR & SOCKETS, (consisting of)	1
		114 066	CONNECTOR, rect skt 20-14ga	3
11		164 717	BUS BAR, stab jumper	1
12	Z1	180 068	STABILIZER	1
13	C21-23	163 906	CAPACITOR, (60Hz)	3
13	C21-23	179 904	CAPACITOR, (50Hz)	3
14	T2	159 042	TRANSFORMER, control 50VA 24V 230/460/575 (60Hz)	1
14	T2	159 043	TRANSFORMER, control 50Hz	1
15	TE1	159 244	PRIMARY BOX, (consisting of)	1
16		601 835	NUT, 10-32 brs	24
17		038 887	STUD, pri bd brs 10-32 x 1.375	24
		038 618	LINK, jumper term bd pri	8
		010 913	WASHER, flat .218 ID brs	24
		601 835	NUT, 10-32 brs	24
18		159 034	HOLDER, fuse mintr	1
19		Fig 7-4	PANEL, rear w/components	1
20	F1	*156 065	FUSE, crtg .5A 600V time delay	1
21	W	160 794	CONTACTOR, def prp 75A 3P 24VAC	1
22	CR4	♦140 750	SWITCH, reed	1
23		134 464	LABEL, warning general precautionary	2
24		163 359	BASE	1
25	T1	169 072	TRANSFORMER, pwr main 230/460/575 (consisting of)	1
26		169 154	COIL, pri/sec 230/460/575 (center & RH)	2
27		169 153	COIL, pri/sec 230/460/575 (LH)	1
25	T1	172 356	TRANSFORMER, pwr main 380/400/440 (consisting of)	1
26		172 358	COIL, pri/sec (center & RH)	2
27		172 357	COIL, pri/sec (LH)	1
25	T1	177 312	TRANSFORMER, pwr main 380/500 (consisting of)	1
26		177 313	COIL, pri/sec No.1	1
27		177 314	COIL, pri/sec No. 2	2
	TP1,2	119 581	THERMOSTAT, NC (Included w/T1)	2
	TP4,5	168 891	THERMOSTAT, NC (Included w/T1)	2
	PLG6	168 847	CONNECTOR & SOCKETS, (consisting of)	1
		147 995	CONNECTOR, rect skt 22-18ga	12
	RC6	168 845	CONNECTOR & PINS, (consisting of)	1
		147 996	CONNECTOR, rect pin 22-18ga	12
	PLG13	169 242	CONNECTOR & PINS, (consisting of)	1
		009 419	CONNECTOR, rect pin 20-14ga	9
	RC13	169 241	CONNECTOR & SOCKETS, (consisting of)	1
		009 418	CONNECTOR, rect skt 20-14ga	9
28		144 468	STRIP, polyest gl lam .062 x 2.375 x 3.500	4
29		605 538	CABLE TIE, 0-4.500 bundle	4
30		161 294	BRACKET, mtg rectifier	2
31		Fig 7-2	PANEL, front w/components	1
32	SR1	175 072	RECTIFIER, si diode (Fig 7-3)	1
	PLG7	152 249	CONNECTOR & PINS, (consisting of)	1
		147 996	CONNECTOR, rect pin 22-18ga	15

Item No.	Dia. Mkgs.	Part No.	Description	Quantity

Figure 7-1. Main Assembly (Continued)

.....	RC7	168 846	.. CONNECTOR & SOCKETS, (consisting of)	1
.....	.....	147 995	.... CONNECTOR, rect skt 22-18ga	15
.....	.....	010 467	.. CONNECTOR, clamp cable 1.250	1

♦ Part of Option 042983 Ground Current Sensor.
+When ordering a component originally displaying a precautionary label, the label should also be ordered.
*Recommended Spare Parts.
BE SURE TO PROVIDE MODEL AND SERIAL NUMBER WHEN ORDERING REPLACEMENT PARTS.

Item No.	Dia. Mkgs.	Part No.	Description	Quantity

Figure 7-2. Panel, Front w/Components (Fig 7-1 Item 31)

... 1	.....	159 863	.. ELECTRONICS BOX	1
... 2	PC1	163 875	.. CIRCUIT CARD, control (60Hz)	1
... 2	.....	174 594	.. CIRCUIT CARD, control (50Hz)	1
.....	PLG1	158 720	.. CONNECTOR & SOCKETS, (see Fig 7-3)	
.....	PLG3	169 240	.. CONNECTOR & SOCKETS, (consisting of)	1
.....	.....	147 995	.... CONNECTOR, rect skt 22-18ga	20
.....	PLG4	148 439	.. CONNECTOR & SOCKETS, (consisting of)	1
.....	.....	147 995	.... CONNECTOR, rect skt 22-18ga	10
.....	PLG5	152 249	.. CONNECTOR & SOCKETS, (consisting of)	1
.....	.....	147 995	.... CONNECTOR, rect skt 22-18ga	15

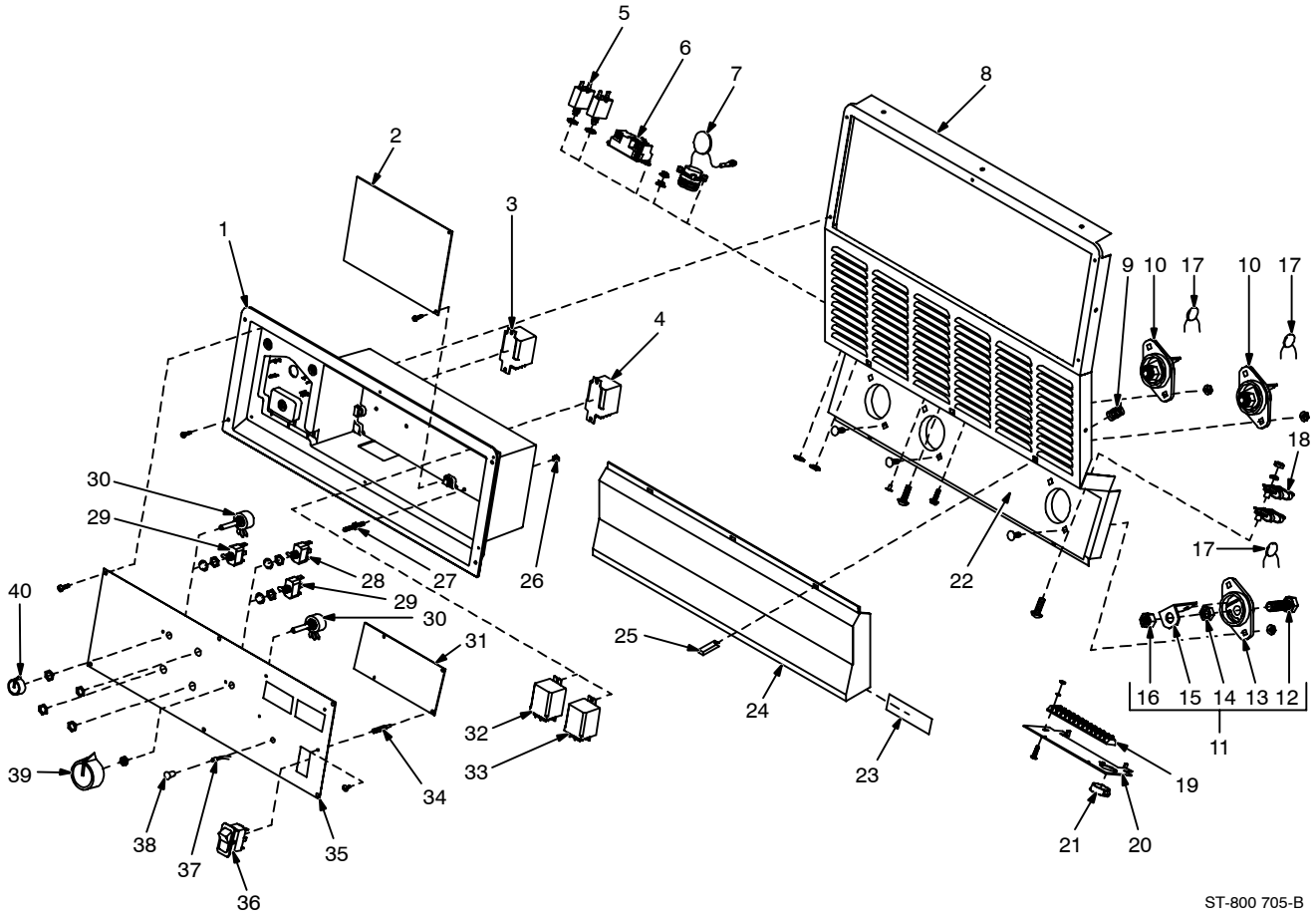


Figure 7-2. Panel, Front w/Components

Item No.	Dia. Mkgs.	Part No.	Description	Quantity
			Figure 7-2. Panel, Front w/Components (Fig 7-1 Item 31) (Continued)	
3	CR3	006 393	RELAY, encl 24VAC DPDT	1
4	CR5	♦006 393	RELAY, encl 24VAC DPDT	1
5	CB1,2	093 995	CIRCUIT BREAKER, man reset 1P 15A 250VAC	2
6	RC9	604 176	RECEPTACLE, str dx grd 2P3W 15A 125V	1
7		163 855	CONNECTOR/CAPACITOR, w/leads (consisting of)	1
	RC8	143 976	CONNECTOR & SOCKETS, (consisting of)	1
		079 534	CONNECTOR, circ skt push-in 14-18ga	14
	C3	163 863	LEAD ASSEMBLY, elect	1
	C6	163 861	LEAD ASSEMBLY, elect	1
	C13	163 858	LEAD ASSEMBLY, elect	1
	C14	163 857	LEAD ASSEMBLY, elect	1
8		162 802	PANEL, front	1
9		161 303	SPRING, cprsn .600 OD x .072 wire x 1.500 lg	3
10	POS-CC,CV	039 047	TERMINAL, pwr output red (consisting of)	2
11	NEG	039 046	TERMINAL, pwr output black (consisting of)	1
12		601 976	SCREW, .500-13 x 1.500hexhd stl	1
13		039 049	TERMINAL BOARD, red	1
13		039 045	TERMINAL BOARD, black	1
14		601 880	NUT, .500-13 x .31 high stl	1
15		039 044	BUS BAR, term bd	1
16		601 879	NUT, .500-13 x .44 high stl	1
17	C2,4,5	128 750	CAPACITOR, cer disc .1uf 500VDC	3
18	R4,5	136 076	RESISTOR, WW fxd 30W 200 ohm	2
19	1T	159 040	BLOCK, term 20A 12P	1
20		162 828	PANEL, mtg rcpt/terminal strip	1
21		070 371	BLANK, snap-in nyl 1.093/1.125mtg hole	1
22		174 937	PLATE, control lower (60Hz)	1
22		179 389	PLATE, control lower (50Hz)	1
23		162 891	LABEL, warning electric shock	1
24		160 530	COVER, stud output	1
25		160 935	CLIP, spring	3
26		601 835	NUT, 10-32 brs	2
		010 913	WASHER, flat .218 ID brs	1
27		038 887	STUD, pri bd brs 10-32 x 1.375	1
28	S1	011 610	SWITCH, tgl SPDT 15A 125VAC	1
29	S3,4	011 609	SWITCH, tgl SPDT 15A 125VAC	2
30	R1,2	035 897	POTENTIOMETER, CP std slot 1/T 2W 1K ohm	1
31	PC2	163 789	CIRCUIT CARD, digital meter	1
	PLG10	153 501	CONNECTOR & SOCKETS, (consisting of)	1
		147 995	CONNECTOR, rect skt 22-18ga	6
	PLG11	148 439	CONNECTOR & SOCKETS, (consisting of)	1
		147 995	CONNECTOR, rect skt 22-18ga	10
32	CR1	134 163	RELAY, encl 24/120VAC DPDT	1
33	CR2	000 770	RELAY, encl 24VDC 3PDT	1
34		165 316	STAND-OFF, 6-32 x .875 lg	4
35			NAMEPLATE, (order by model and serial number)	1
36	S2	159 039	SWITCH, rocker SPDT 15A 125VAC	1
37	PL2	159 522	LED, yellow	1
38		159 036	LENS, LED clear	1
39		097 924	KNOB, pointer	1
40		097 922	KNOB, pointer	1

♦Part of Option 042 983 Ground Current Sensor

+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.

Item No.	Dia. Mkgs.	Part No.	Description	Quantity
	SR1	**175 072**	**Figure 7-3. Rectifier, Si Diode (Fig 7-1 Item 32)**	
1	C7-12	048 420	CAPACITOR, cer disc .01uf 1000VDC	6
2		176 168	BAR, mtg rectifier	2
3		166 667	CLAMP, spring thyristor rectifier 5.500	3
4		160 962	HEAT SINK, rectifier snowflake .800	6
5	SCR1-6	148 091	THYRISTOR, SCR 300A 300V hockey puck	6
6		160 961	HEAT SINK, rectifier snowflake 1.600	3
7		161 302	CLAMP, thyristor rectifier 5.500	3
	PLG1	158 720	CONNECTOR & SOCKETS, (consisting of)	1
		147 995	. . . CONNECTOR, rect skt 22-18ga	12
	TP3	168 895	THERMOSTAT, rectifier	1
	TP6	168 894	THERMOSTAT, rectifier	1

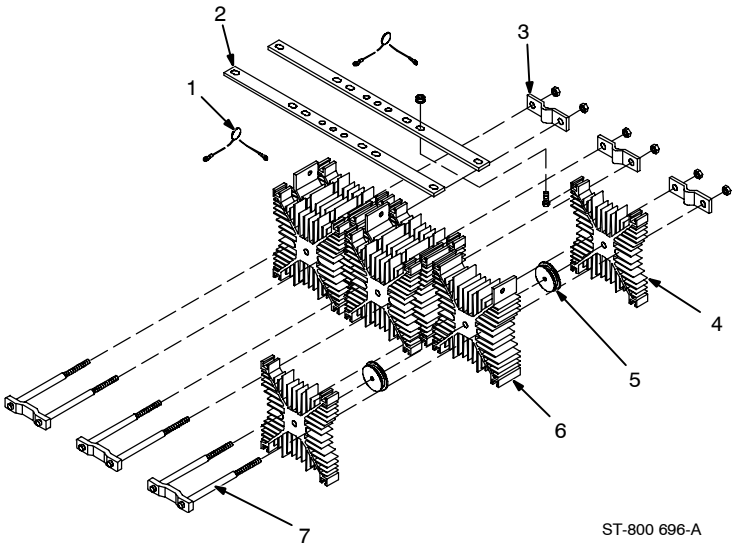


Figure 7-3. Rectifier, Si Diode SR1

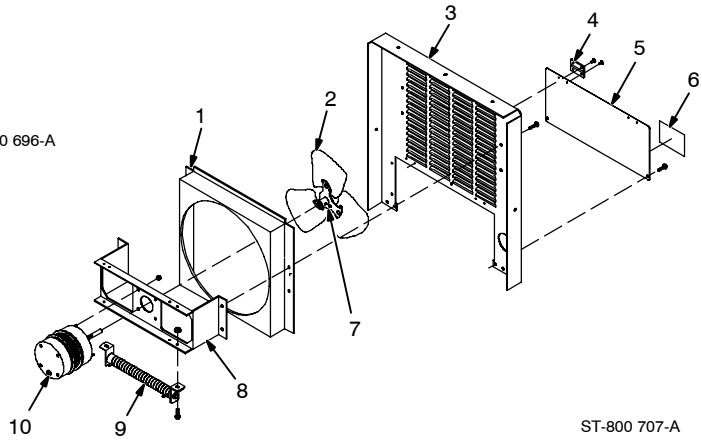


Figure 7-4. Panel, Rear w/Components

Item No.	Dia. Mkgs.	Part No.	Description	Quantity
			Figure 7-4. Panel, Rear w/Components (Fig 7-1 Item 19)	
1		124 275	CHAMBER, plenum 14 in	1
2		180 165	BLADE, fan 14 in 3wg 23deg .375 bore CCW	1
3		162 807	PANEL, rear	1
4		168 343	HINGE, door primary	2
5		+162 818	DOOR, access primary	1
6		168 384	LABEL, warning electric shock	1
7		602 177	SCREW, set .250-20 x .250knrlpt sch stl	2
8		124 274	BRACKET, mtg fan motor	1
9	R3	097 459	RESISTOR, WW fxd 375W 20 ohm	1
10	FM	116 190	MOTOR, 1/12HP 230V 1550RPM 50/60Hz 1.5A	1
		010 467	CONNECTOR, clamp cable 1.250	1

+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.

OPTIONS AND ACCESSORIES

A variety of optional controls and accessories allow you to tailor your Dimension welder to meet your specific needs. All are specifically designed to be used with Dimension Series power sources, so you never have to worry about compatibility.

REMOTE ON/OFF CONTROL
(#042 869)
Allows you to turn your Dimension on or off from a distance of 20 ft (6 m). This is especially useful if your power source is located up in a mezzanine. Connects to the power source's terminal strip.

POLARITY CONTROL
(#042 871)
This dual-function control is designed for use with dual wire feeders or any application where electrical isolation and/or polarity reversing of weld current is required. Both functions can be used at the same time.

CERTIFIED METERS
(#042 968 Factory**)**
These digital meters are certified to an exact standard. Often required for government work.

GROUND CURRENT SENSOR
(#042 983 Factory**)**
(#043 146 Field**)**
Disables power source if weld current is present on primary ground.

ENVIRONMENTAL PROTECTION PACKAGE
(#043 049 Factory**)**
Internal machine components are sprayed with a protective polyurethane coating.

INTERNATIONAL CABLE ADAPTER
(#168 077) Female 1 Qty.
Dinse brand insulated female twistlock connector installs on output stud, providing quick disconnect of secondary weld cables.

(#042 418) Male 1 Qty.
Cable mounted Dinse brand insulated male twistlock connector accepts #1 or #2 AWG cable sizes.

BALANCING/PARALLELING CONTROL
(#042 810)
Allows you to parallel two Dimensions in the constant voltage mode while the control balances the power source's output amperage throughout its operating range. This control plugs directly into the Dimension power supplies, and is especially useful for customers who need higher amperages (for Submerged Arc).

STANDARD RUNNING GEAR
(#042 886)
The large 10-inch (254 mm) rear wheels and 5-inch (127 mm) front casters on this running gear provide excellent mobility on the shop floor, making it easier to move the power source around and over cables and cracks. Very easy to install. Handles double as weld cable holder.

ROUGH TERRAIN RUNNING GEAR
(#043 043)
This two-wheel running gear features pneumatic tires for extra mobility. Handles double as a cable holder.

CYLINDER RACK/LIFT
(#043 005)
Miller's patent pending cylinder rack features a lift which moves the cylinders up onto the rack and into position **without** manual lifting! The rack accommodates two cylinder bottles, and can be attached directly to the running gear.

STANDARD CYLINDER RACK
(#042 887)
Installs on standard running gear.

WELD CABLE HOLDER
(#043 055)
Attaches to front of power source, allowing weld cables to be stored near the control panel.

AIR FILTER KIT
(#042 939 Field**)**
Protect your Dimension from dusty, dirty environments with this reusable air filter that easily attaches and detaches from the front of the power source.

WATER COOLANT SYSTEMS

For more information, see the Miller Coolant Systems literature sheet, Index No. AY/7.2.

WATERMATE 1A
(#042 495) 115 VAC
For use with water-cooled torches rated up to 500 Amps. Vertical design conveniently mounts to Miller cylinder rack in place of one cylinder.

COOLMATE 4
(#042 288)
For use with water-cooled torches rated up to 600 Amps. Tough molded polyethylene case with carrying handle.

RADIATOR 1A
(#042 492) 115 VAC

RADIATOR 2A
(#042 493) 230 VAC
For use with water-cooled torches rated up to 500 Amps.

GMAW/FCAW WELDING

S-22P12 WIRE FEEDER
(#125 616)
Compact, lightweight 24 VAC constant speed semi-automatic wire feeder provides portability and access. Primarily designed for gas-shielded wires. Accommodates up to a 30 lb. (13.6 kg), 12 in. (304 mm) diameter spool. See literature, Index No. M/7.0.

OPTIONS AND ACCESSORIES

S-22A WIRE FEEDER (#115 396)
Lightweight, 24 VAC constant speed semiautomatic wire feeder, best suited for small diameter wires. Accommodates up to a 60 lb. (27.2 kg) spool of welding wire when using optional wire reel assembly. See literature, Index No. M/6.9.

60 SERIES WIRE FEEDERS
Heavy-duty, industrial, constant speed 24 VAC semiautomatic wire feeders in dual or single models, with available digital meters. Ideal for high duty cycle GMAW and FCAW. Accommodates a wide variety of wire sizes and types. See literature, Index No. M/2.0.

SWINGARC™ BOOM-MOUNTED WIRE FEEDERS
Single and dual 24 VAC semiautomatic wire feeders are available with 12 ft. (3.7 m) and 16 ft. (4.9 m) booms. Ideal for long reach and complete maneuverability when working on large weldments, or in hard-to-reach areas. See literature, Index No. M/13.0

HF-251D-1 HIGH-FREQUENCY ARC STARTER/STABILIZER (#042 388)
This portable 250 Amp, 60% duty cycle unit adds high frequency to the welding circuit to help start the arc when using the GTAW (TIG) process. Operates on 115 VAC 50/60/100 Hz. For more information, see the literature sheet, Index No. AY 5.1.

REMOTE CONTROLS AND SWITCHES

RMLS-14 (#129 337)
Momentary- and maintained-contact rocker switch for contactor control. Push forward for maintained contact and back for momentary contact. Includes 20 ft. (6 m) cord and 14-pin plug.

RCC-14 REMOTE CONTACTOR AND CURRENT CONTROL (#151 086)
Rotary motion fingertip control. Fastens to TIG torch using two Velcro strips. Allows complete current and contactor control at operator's fingertips. Includes 28 ft. (8.5 m) cord and plug.

RHC-14 HAND CONTROL (#129 340)
Miniature hand control for remote current and contactor control. Dimensions: 4 in. (102 mm) x 4 in. (102 mm) x 3-1/4 in. (82 mm). Includes 20 ft. (6 m) cord and 14-pin plug.

RFC-14 FOOT CONTROL (#129 339)
Heavy duty foot current and contactor control. Includes 20 ft. (6 m) cord and 14-pin plug.

EXTENSION CABLES FOR 14-PIN PLUGS TO 14-PIN SOCKETS
(#122 972) 10 ft. (3 m)
(#122 973) 25 ft. (7.6 m)
(#122 974) 50 ft. (15.2 m)
(#122 975) 75 ft. (22.8 m)
Extension cords make a direct connection between the power source and the accessory control. No messy splicing or adapting required.