



OM-188 414C January 2000

Effective with serial number : 165 748

### Processes



MIG (GMAW) Welding  
Flux Cored (FCAW) Welding

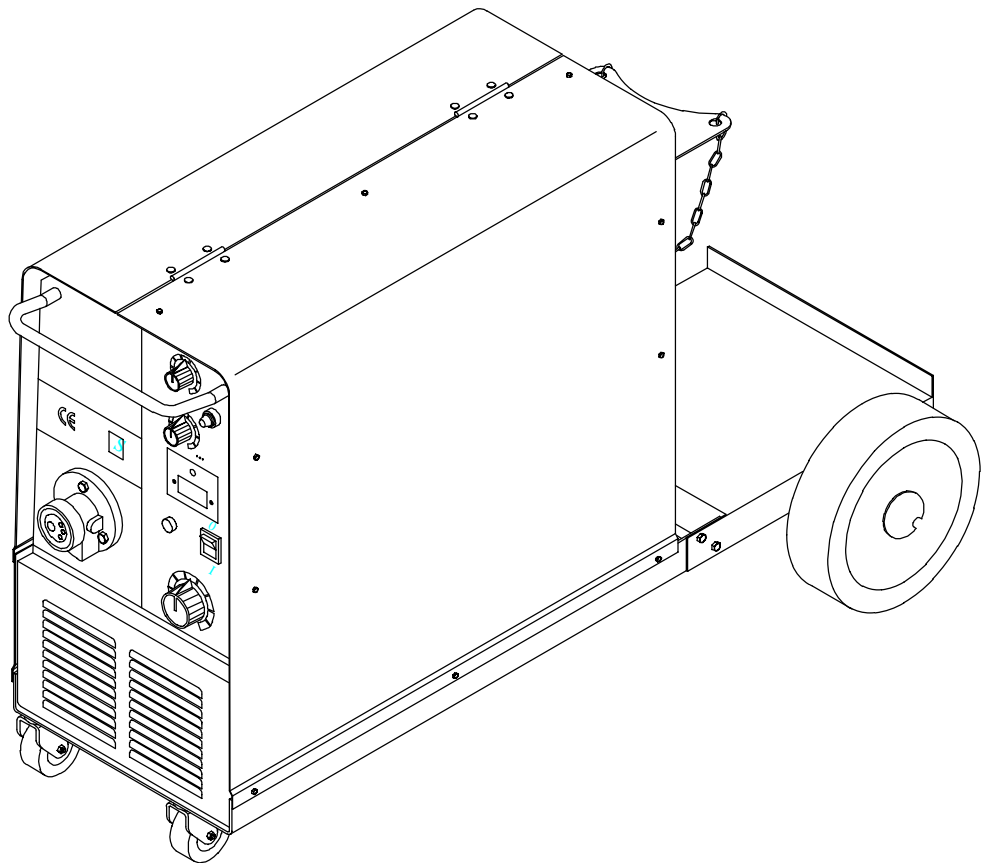
### Description



Arc Welding Power Source and  
Wire Feeder

CE

# INTEGRA 201/241



## OWNER'S MANUAL



Visit our website at  
[www.MillerWelds.com](http://www.MillerWelds.com)

# From Miller to You

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*Thank you and congratulations* on choosing Miller. Now you can get the job done and get it done right. We know you don't have time to do it any other way.



That's why when Niels Miller first started building arc welders in 1929, he made sure his products offered long-lasting value and superior quality. Like you, his customers couldn't afford anything less. Miller products had to be more than the best they could be. They had to be the best you could buy.

Today, the people that build and sell Miller products continue the tradition. They're just as committed to providing equipment and service that meets the high standards of quality and value established in 1929.

This Owner's Manual is designed to help you get the most out of your Miller products. Please take time to read the Safety precautions. They will help you protect yourself against potential hazards on the worksite. We've made installation and operation quick and easy. With Miller you can count on years of reliable service with proper maintenance. And if for some reason the unit needs repair, there's a Troubleshooting section that will help you figure out what the problem is. The parts list will then help you to decide which exact part you may need to fix the problem.

Warranty and service information for your particular model are also provided.

Miller Electric manufactures a full line of welders and welding related equipment. For information on other quality Miller products, contact your local Miller distributor to receive the latest full line catalog or individual catalog sheets.



Working as hard as you do – every power source from Miller is backed by the most hassle-free warranty in the business.



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# Declaration of Conformity

*Manufactruer's Name:* **MILLER Europe S.P.A.**

*Manufacturer's Address:* Via Privata Iseo, 6/E  
20098 San Giuliano  
Milanese, Italy

*Declares that this product:* **INTEGRA 201/241**

*Conforms to the following Directives and Standards:*

## **Directives**

*Electromagnetic Compatibility Directives: 89/336/EEC*

*Low Voltage: 73/23/EEC*

*Machinery Directives: 89/392/EEC*

*And their amendments 91/368/EEC, 93/31/EEC, 93/44/EEC, 93/68/EEC*

## **Standards**

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

*Safety Requirements for Arc Welding Equipment Part 1: EN 60974-1: 1989*

*European Contact:* Mr. Luigi Vacchini, Managing Director  
MILLER Europe S.P.A.  
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Milanese, Italy

*Telephone:* 39(0)2-982901  
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# SECTION 1 – SAFETY PRECAUTIONS - READ BEFORE USING

som\_nd\_4/98

## 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

▲ 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

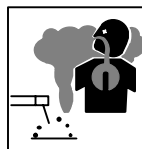
live when power is on. In semiautomatic or automatic wire welding, the wire, wire reel, drive roll housing, and all metal parts touching the welding wire are electrically live. Incorrectly installed or improperly grounded equipment is a hazard.

- 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 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 watch-person 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 can burn eyes and skin.

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.

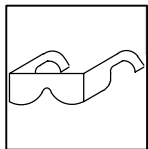
- Wear a welding helmet fitted with a proper shade of filter to protect your face and eyes when welding or watching (see ANSI Z49.1 and Z87.1 listed in Safety Standards).
- Wear approved safety glasses with side shields under your helmet.
- Use protective screens or barriers to protect others from flash 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 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.

- 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 alert 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 aware that welding on a ceiling, floor, bulkhead, or partition can cause fire on the hidden side.
- 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).
- 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.
- Do not use welder to thaw frozen pipes.
- Remove stick electrode from holder or cut off welding wire at contact tip when not in use.
- Wear oil-free protective garments such as leather gloves, heavy shirt, cuffless trousers, high shoes, and a cap.
- Remove any combustibles, such as a butane lighter or matches, from your person before doing any welding.



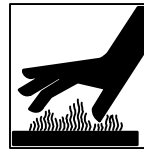
### FLYING METAL can injure eyes.

- Welding, chipping, wire brushing, and grinding cause sparks and flying metal. As welds cool, they can throw off slag.
- Wear approved safety glasses with side shields even under your welding helmet.



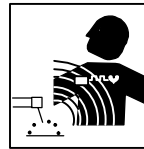
### BUILDUP OF GAS can injure or kill.

- Shut off shielding gas supply when not in use.
- Always ventilate confined spaces or use approved air-supplied respirator.



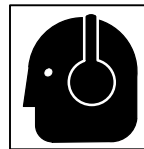
### HOT PARTS can cause severe burns.

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



### MAGNETIC FIELDS can affect pacemakers.

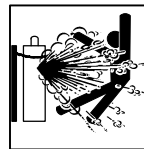
- Pacemaker wearers keep away.
- Wearers should consult their doctor before going near arc welding, gouging, or spot welding operations.



### NOISE can damage hearing.

Noise from some processes or equipment can damage hearing.

- Wear approved ear protection if noise level is high.



### 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.

- 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.



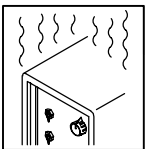
### MOVING PARTS can cause injury.

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



### 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.



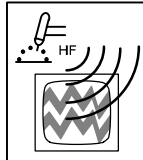
### MOVING PARTS can cause injury.

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



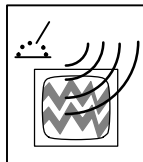
### WELDING WIRE can cause injury.

- 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.



### 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

*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

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

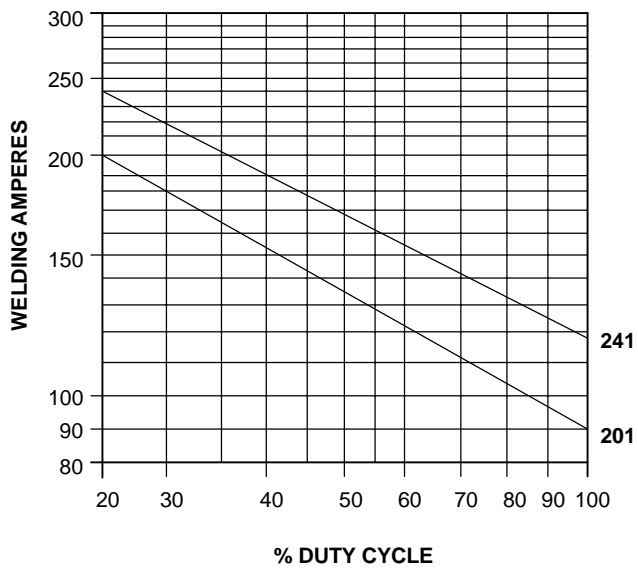
## 2-1. Specifications

| Model | Rated Output   |               |               | Max. Open Circuit Voltage | Rated Input Amperage at Rated Output | Dimension (mm)  | Weight (kg) |
|-------|----------------|---------------|---------------|---------------------------|--------------------------------------|-----------------|-------------|
|       | 100%           | 60%           | 20%           |                           | 230 V                                |                 |             |
| 201   | 90 A<br>18.5 V | 116 A<br>20 V | 200 A<br>24 V | 38                        | 26A<br>2A*                           | 310 x 540 x 957 | 70          |
| 241   | 115 A<br>20 V  | 150 A<br>21 V | 240 A<br>26 V | 41                        | 35A<br>2.5A*                         | 310 x 540 x 957 | 80          |

Wire feed speed range 1.8 mpm to 18 mpm.  
\* While idling

## 2-2. Duty Cycle and Overheating

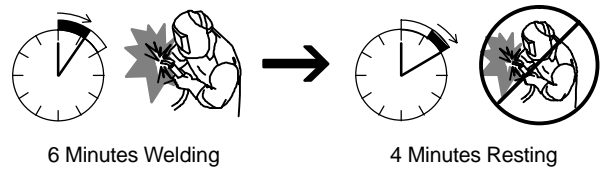


Duty Cycle is percentage of 10 minutes that unit can weld at rated load without overheating.

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

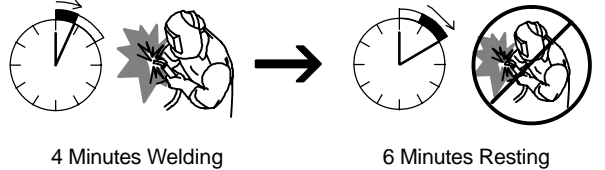
**▲ Exceeding duty cycle can damage unit and void warranty.**

60% Duty Cycle at 200 Amperes



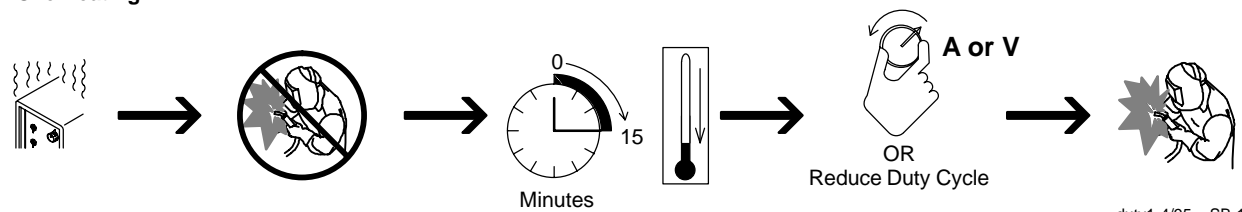
6 Minutes Welding      4 Minutes Resting

40% Duty Cycle at 250 Amperes



4 Minutes Welding      6 Minutes Resting

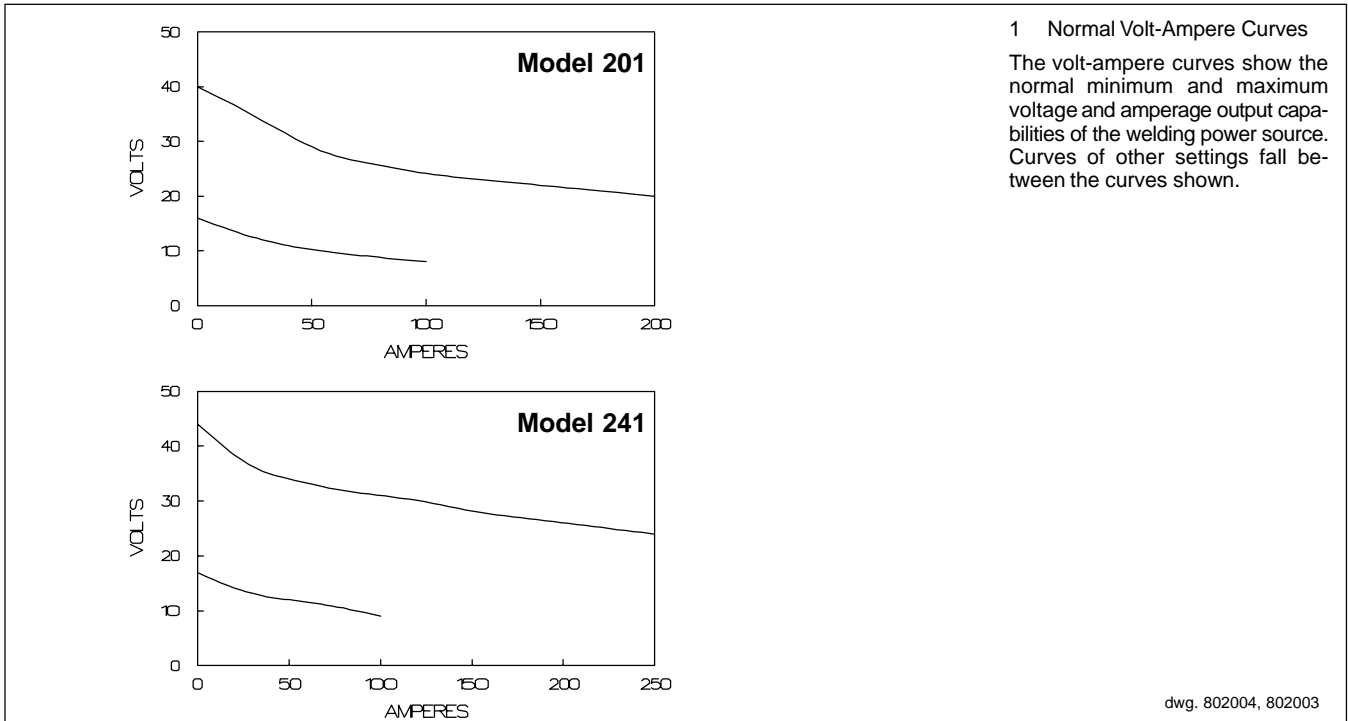
**Overheating**



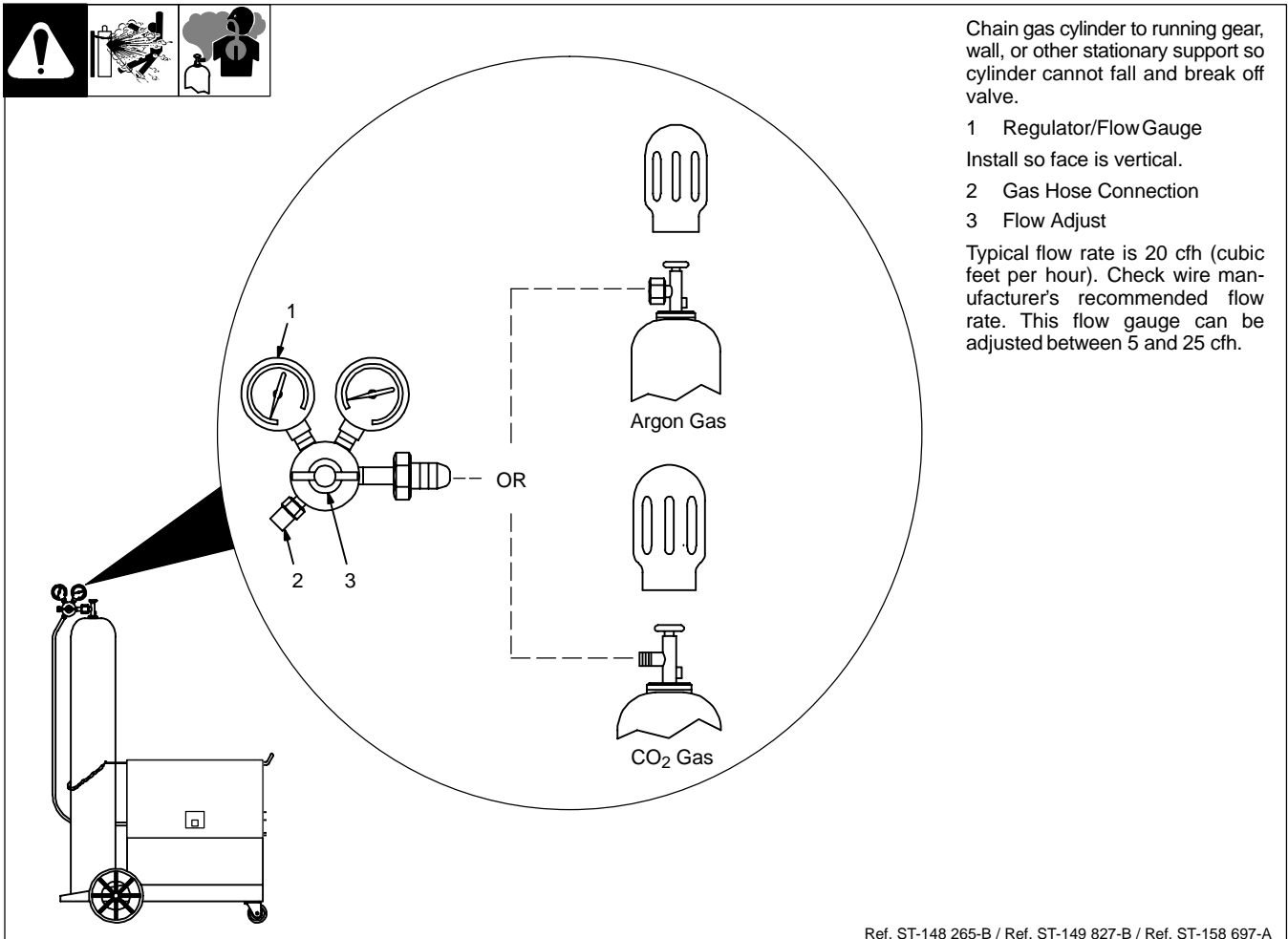
Minutes      OR      Reduce Duty Cycle

duty1 4/95 – SB-150 215

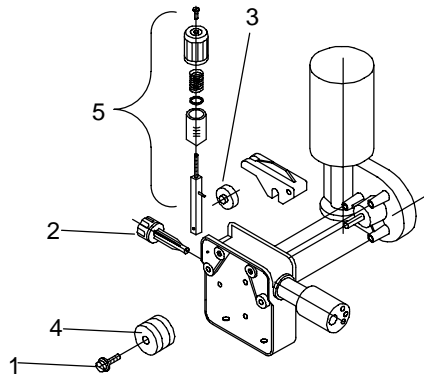
## 2-3. Volt-Ampere Curves



## 2-4. Installing Gas Supply



## 2-5. Installing 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 Wire Tension Wheel

4 Drive Roll

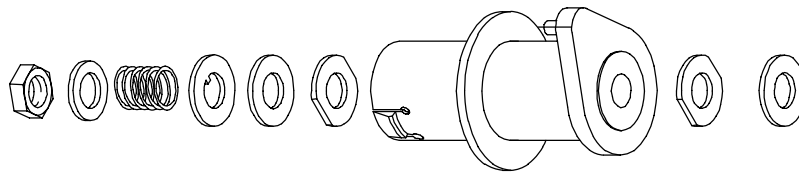
Install correct drive roll for wire size and type.

5 Drive Roll Tension Assembly

Turn nut one click to secure drive roll.

ST-150 227-C

## 2-6. Installing Wire Spool and Adjusting Hub Tension

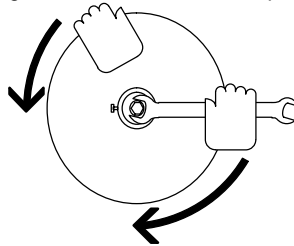


When a slight force is needed to turn spool, tension is set.

Tools Needed:



15/16 in



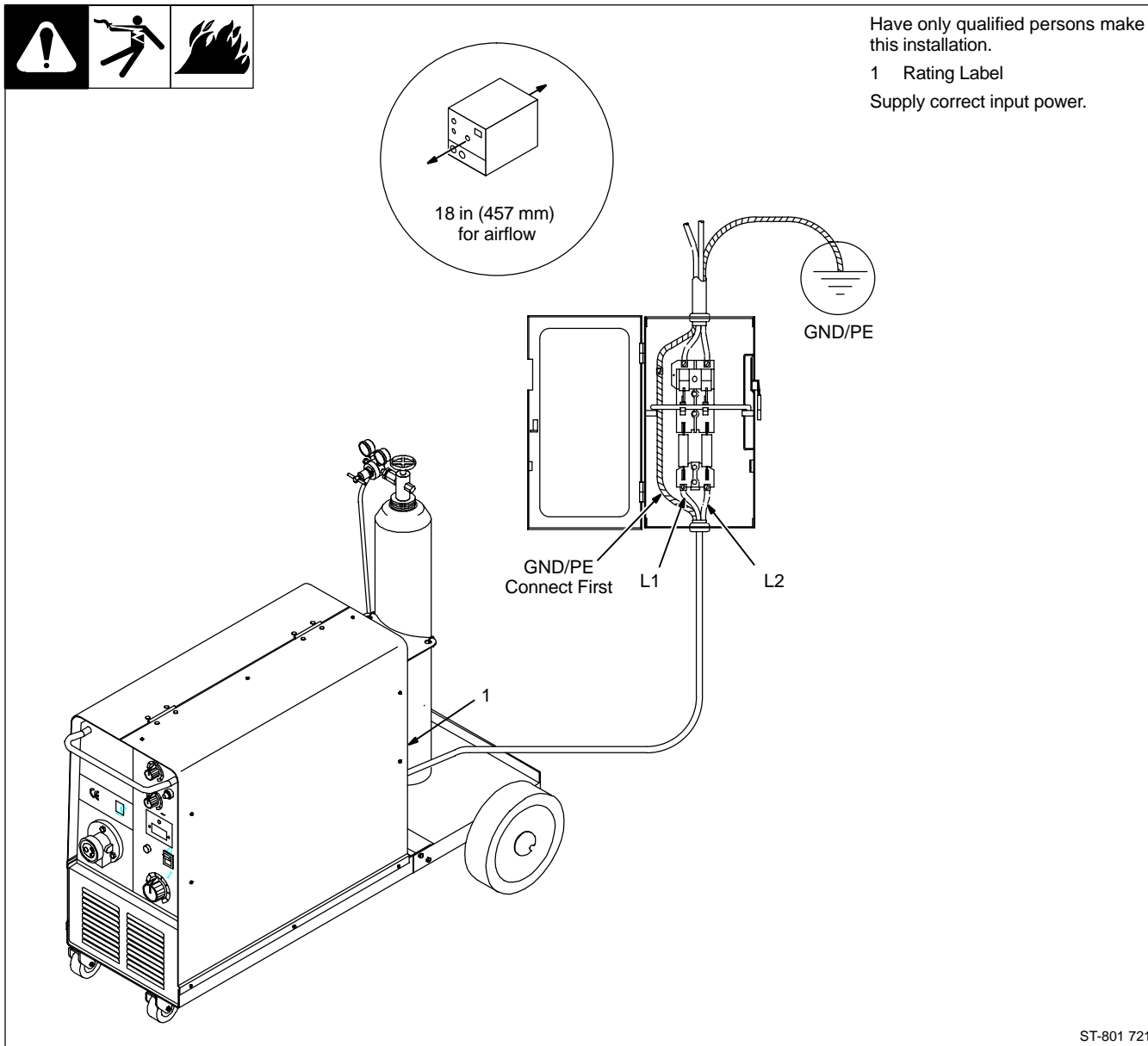
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## 2-7. Electrical Service Guide

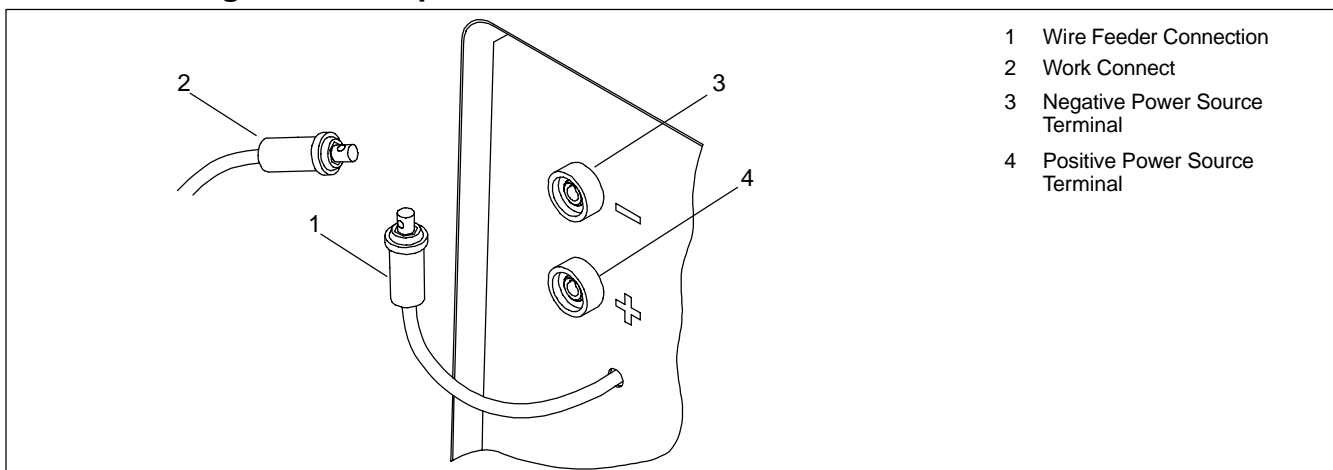
|   |     |     |
|---|-----|-----|
|   | 201 | 241 |
| <b>Input Voltage</b>  | 230 | 230 |
| <b>Input Amperes at Rated Output</b>                                      | 26  | 35  |
| <b>Max Recommended Standard Fuse or Circuit Breaker Rating in Amperes</b> | 26  | 35  |
| <b>** Input Conductor Size in mm<sup>2</sup></b>                          | 4   | 4   |
| <b>** Grounding Conductor Size in mm<sup>2</sup></b>                      | 4   | 4   |

\*\* Power cord supplied with the unit is sized for 230V operation. Larger power cord may be required for cable lengths greater than 3 meters. Consult national and local regulations.

## 2-8. Selecting a Location and Connecting Input Power



## 2-9. Installing Work Clamp

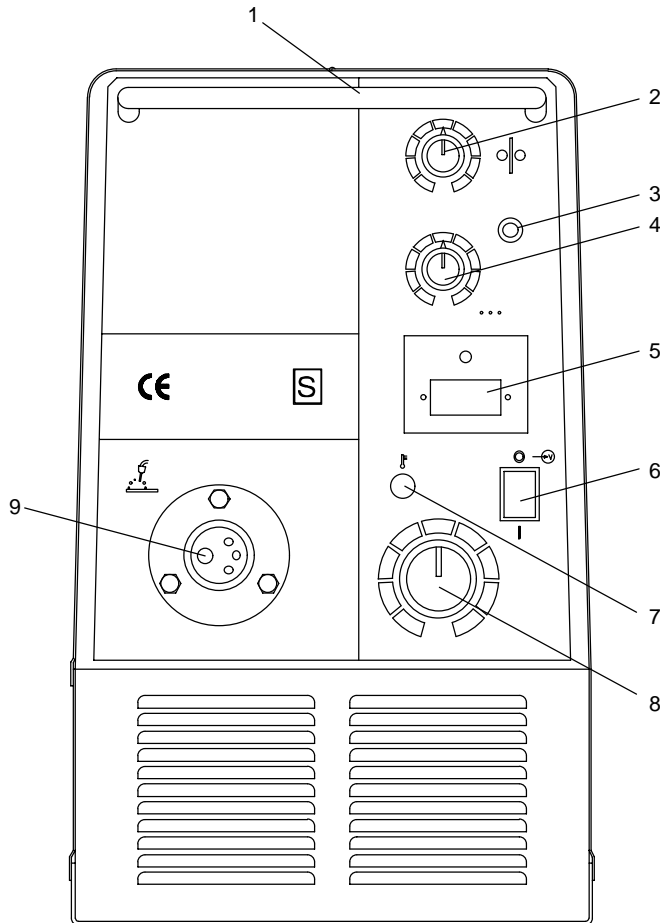


# SECTION 3 – OPERATION

## 3-1. Controls









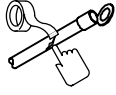

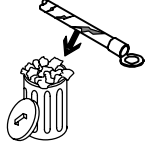
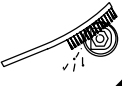


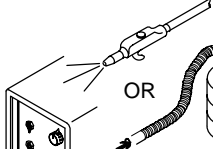

- 1 Handle
- 2 Wire Speed Control
- 3 Pilot Light
- 4 Spot Timer
- 5 Optional Amperage and Voltmeter
- 6 Power Switch
- 7 Thermal Overload Pilot Light
- 8 10 Position Voltage Control
- 9 Torch Connector








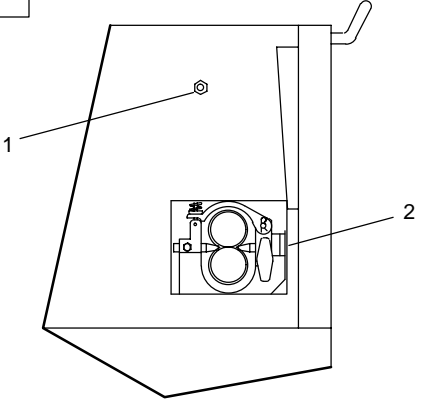
# SECTION 4 – MAINTENANCE AND TROUBLESHOOTING

## 4-1. Routine Maintenance

|   |   |   |   |
|---|---|---|---|
|  |  |  | <b>▲ Disconnect power before maintaining.</b> |
|---|---|---|---|

|   |  |  |
|---|--|--|
|  <b>3 Months</b> | Replace unreadable labels.<br>   | Repair or replace cracked weld cable.<br>   |
|   | Clean and tighten weld terminals.<br>                                   |  |
|  <b>6 Months</b> | Blow out or vacuum inside. during heavy service clean monthly.<br> OR  |  |

## 4-2. Circuit Breaker CB1

|  |   |   |   |   |   |
|--|---|---|---|---|---|
|   |  |  |  |  | <ol style="list-style-type: none"><li>1 Circuit Breaker CB1<br/>If CB1 opens, wire feeding stops.</li><li>2 Drive Roll Assembly</li></ol> |
|  |   |   |   |   |   |

## 4-3. Unit Overload

If unit is used beyond capacity (excessive wire feed, shorted output, etc.), wire feeds but is not energized. Release gun trigger to reset this condition.

## 4-4. Troubleshooting

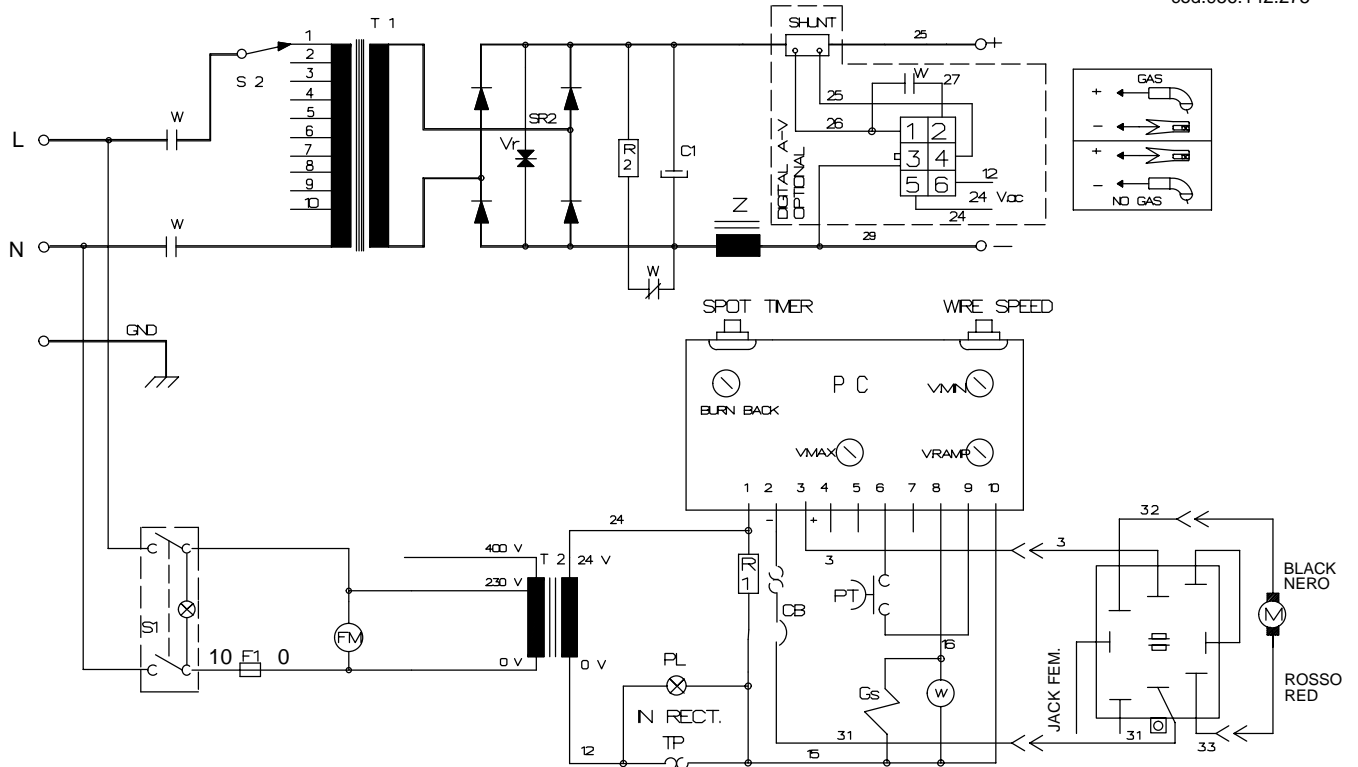


| Trouble  | Remedy   |
|--|--|
| No weld output; wire does not feed.                | Be sure line disconnect switch is On (see Section 2-8).  |
|  | Replace building line fuse or reset circuit breaker if open (see Section 2-8).   |
|  | Reset circuit breaker CB1 (see Section 4-2).   |
|  | Secure gun trigger connections.  |
|  | Check and replace Power switch if necessary.   |
| No weld output; overload light on                  | Thermostat TP1 open (overheating). Allow fan to run; the thermostat will close when the unit has cooled (see Section 2-2). |
|  | An overload condition occurred. Release gun trigger (see Section 4-3).   |
| Low weld output.                                   | Connect unit to proper input voltage or check for low line voltage (see Section 2-8).                                      |
| No wire feed.                                      | Reset circuit breaker CB1 (see Section 4-2).   |
|  | Turn Wire Speed control to higher setting (see Section 3-1).   |
|  | Clear obstruction in gun contact tip or liner.   |
|  | Readjust drive roll pressure.  |
|  | Change to correct size drive rolls (see Section 2-5).  |
|  | Check gun trigger and leads. Repair or replace gun if necessary.   |
|  | Have Factory Authorized Service Agent check main control board.  |
| Poor weld bead, or welding wire is noodle welding. | Check polarity setting for type of welding wire being used.  |

# SECTION 5 – ELECTRICAL DIAGRAM

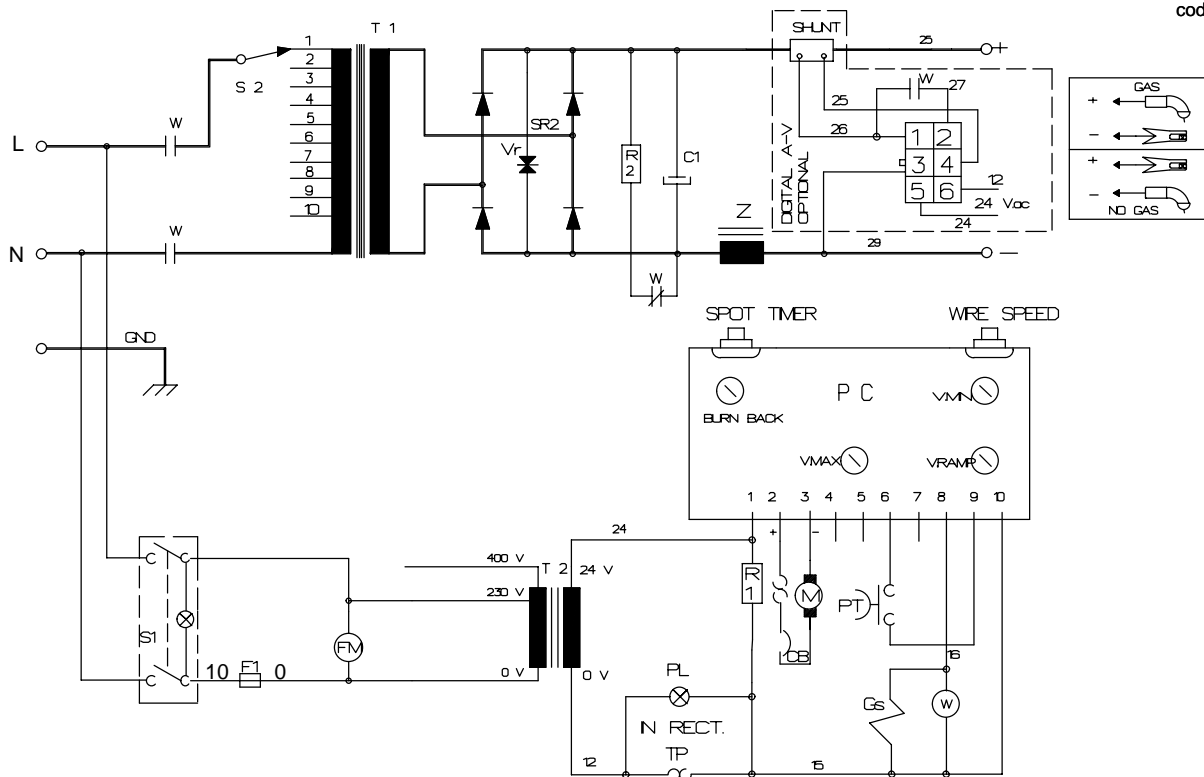
## 5.1 INTEGRA 201

cod.956.142.275



## 5.2 INTEGRA 241

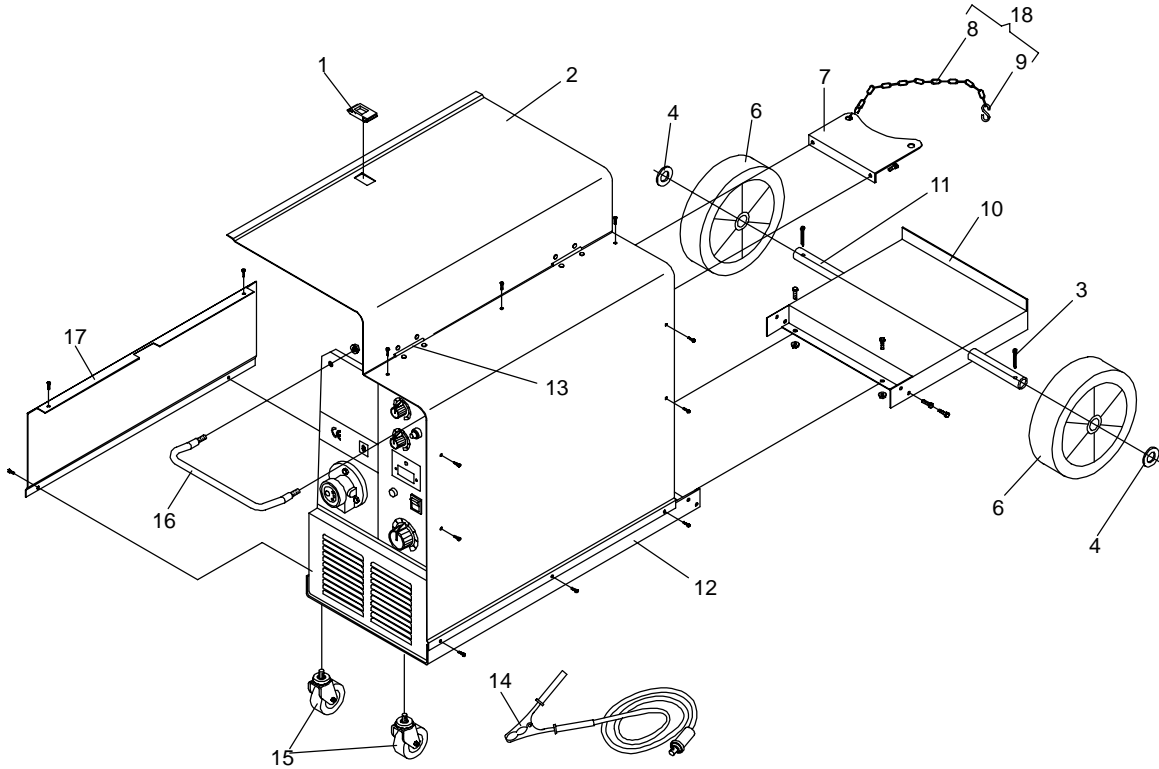
cod.956.142.211





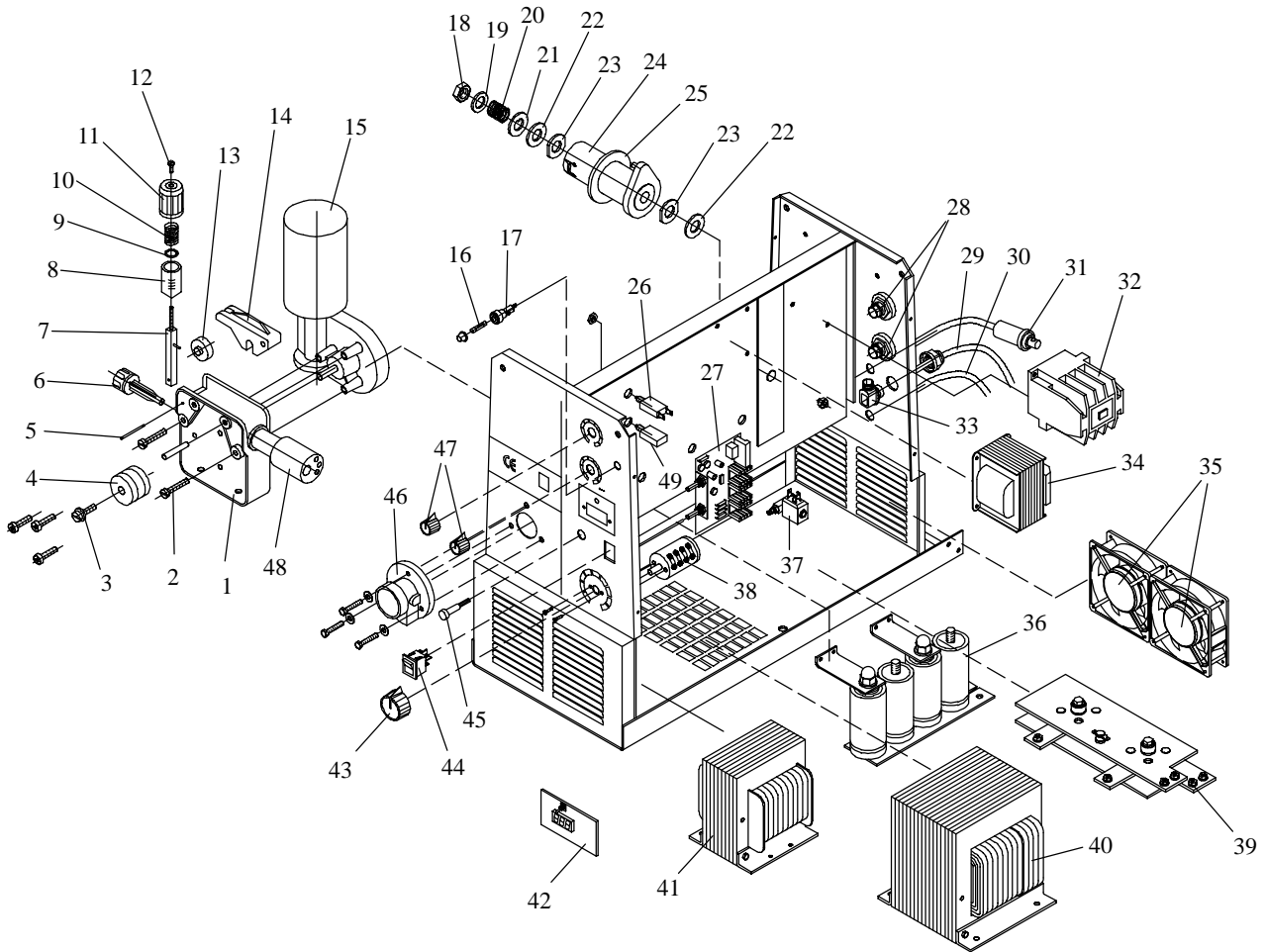
# SECTION 6 – PARTS LIST

## 6.1 Common Parts Assembly



| Item | Dia Ref. | Code      | Dwg       | Qty. | Item | Dia Ref. | Code      | Dwg       | Qty. |
|------|----------|-----------|-----------|------|------|----------|-----------|-----------|------|
| 1    |          | 000151187 | PV.0.0.18 | 1    | 11   |          | 156012109 | UV.0.0.21 | 1    |
| 2    |          | 116122284 | UV.0.0.14 | 1    | 12   |          | 116121100 | UV.0.0.15 | 1    |
| 3    |          | 156087017 |           | 2    | 13   |          | 156034001 | BP.2.0.19 | 2    |
| 4    |          | 156009067 |           | 2    | 14   |          | 057014063 | UV.0.7    | 1    |
| 6    |          | 056054064 | VS.0.0.13 | 2    | 15   |          | 056054055 | QF.5.0.2  | 2    |
| 7    |          | 116005165 | DZ.0.0.25 | 1    | 16   |          | 156002018 | QF.0.0.13 | 1    |
| 8    |          | 150005001 |           | 1    | 17   |          | 116122285 | UV.0.0.16 | 1    |
| 9    |          | 156011002 |           | 2    | 18   |          | 116123001 | DU.0.0.6  | 1    |
| 10   |          | 116005316 | UV.0.0.17 | 1    |      |          |           |           |      |

## 6.2 Main Assembly



| Item | Dia Ref. | Code      | Dwg       | Qty.    | Item | Dia Ref. | Code      | Dwg       | Qty.    |
|------|----------|-----------|-----------|---------|------|----------|-----------|-----------|---------|
|      |          |           |           | 201 241 |      |          |           |           | 201 241 |
| 1    |          | 056052033 | MD.4.0.1  | 1 1     | 25   |          | 116009041 | CV.0.0.2  | 1 1     |
| 2    |          | 156019694 | FZ.0.9.1  | 3 3     | 26   | CB       | 056067188 | UV.0.0.9  | 1 1     |
| 3    |          | 156019672 | MD.4.0.6  | 1 1     | 27   | PC       | 028061049 | QF.6      | 1 1     |
| 4    | OPTIONAL | 156053040 | DIA 0.6 V | 1 1     | 28   |          | 056076152 | DD.0.0.7  | 2 2     |
| 4    | OPTIONAL | 156053036 | DIA 0.8 V | 1 1     | 29   |          | 057014065 | UT.0.21   | 1 1     |
| 4    | OPTIONAL | 156053037 | DIA 1.0 V | 1 1     | 30   |          | 027061016 | QF.0.21   | 1 1     |
| 4    | OPTIONAL | 156053038 | DIA 1.2 V | 1 1     | 31   |          | 057014063 | UV.0.7    | 1 1     |
| 4    | OPTIONAL | 156053041 | DIA 1.2 K | 1 1     | 32   | W        | 057079026 | QF.0.20   | 1       |
| 4    | OPTIONAL | 156053042 | DIA 1.0 U | 1 1     | 32   | W        | 057079027 | UV.0.12   | 1       |
| 4    | OPTIONAL | 156053043 | DIA 1.2 U | 1 1     | 33   |          | 056091041 | QF.0.0.12 | 1 1     |
| 5    |          | 156076072 | MD.4.0.5  | 1 1     | 34   | T2       | 058021081 | QF.7      | 1 1     |
| 6    |          | 556090033 | MD.5.0.1  | 1 1     | 35   | FM       | 056126062 | UR.0.0.7  | 2 2     |
| 7    |          | 156076073 | MD.4.2.7  | 1 1     | 36   |          | 056082091 | VU.0.0.4  | 4 4     |
| 8    |          | 656064001 | MD.4.2.5  | 1 1     | 37   | GS       | 056061042 | UV.0.0.7  | 1 1     |
| 9    |          | 156009112 | MD.4.2.4  | 1 1     | 38   | S2       | 056067189 | UT.0.0.15 | 1       |
| 10   |          | 156032112 | MD.4.2.3  | 1 1     | 38   | S2       | 056067201 | VU.0.0.2  | 1       |
| 11   |          | 056018001 | MD.4.2.2  | 1 1     | 39   | SR1      | 057093014 | UT.0.16   | 1       |
| 12   |          | 156019671 | MD.4.2.1  | 1 1     | 39   | SR1      | 057093017 | VU.0.5    | 1       |
| 13   |          | 156017053 | MD.4.3.1  | 1 1     | 40   | MT       | 028021430 | UT.7      | 1       |
| 14   |          | 156017054 | MD.4.3.2  | 1 1     | 40   | MT       | 028021428 | VU.4      | 1       |
| 15   | M        | 057010048 | QF.0.23   | 1 1     | 41   | Z1       | 028038042 | UT.8      | 1       |
| 16   | F1       | 056092039 | FZ.4.0.5  | 1 1     | 41   | Z1       | 057110002 | VU.1      | 1       |
| 17   |          | 000046432 | OL.0.0.14 | 1 1     | 42   | OPTIONAL | 057095010 | VS.0.19   | 1 1     |
| 18   |          | 156018033 |           | 1 1     | 43   |          | 056020029 | MM.3.0.2  | 1 1     |
| 19   |          | 156009079 |           | 1 1     | 44   | S1       | 056067157 | MQ.0.0.1  | 1 1     |
| 20   |          | 156022064 | GF.1.0.4  | 1 1     | 45   |          | 056072062 | QF.0.0.10 | 1 1     |
| 21   |          | 156009075 | GF.1.0.2  | 1 1     | 46   |          | 756005012 | FU.1.6.1  | 1 1     |
| 22   |          | 000010191 | FU.1.0.6  | 4 4     | 47   |          | 000097922 | BP.2.0.20 | 2 2     |
| 23   |          | 000058628 | FU.1.0.7  | 2 2     | 48   |          | 057052019 | QF.0.13   | 1 1     |
| 24   |          | 656102001 | BH.0.0.3  | 1 1     | 49   |          | 057094033 | UQ.0.3    | 1       |

# TRUE BLUE<sup>®</sup>

## WARRANTY

Effective January 1, 2000

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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
  - \* Intelligig
  - \* Engine Driven Welding Generators  
**(NOTE: Engines are warranted separately by the engine manufacturer.)**
3. 1 Year — Parts and Labor
  - \* DS-2 Feeder
  - \* Motor Driven Guns (w/exception of Spoolmate 185 and Spoolmate 250)
  - \* Process Controllers
  - \* Positioners and Controllers
  - \* Automatic Motion Devices
  - \* RFCS Foot Controls
  - \* IHPS Power Sources
  - \* Water Coolant Systems
  - \* HF Units
  - \* Grids
  - \* Maxstar 140
  - \* Spot Welders
  - \* Load Banks
  - \* Miller Cyclomatic Equipment
  - \* Running Gear/Trailers
  - \* Plasma Cutting Torches (except APT & SAF Models)
  - \* Field Options  
**(NOTE: Field options are covered under True Blue<sup>®</sup> 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
  - \* MIG Guns/TIG Torches
  - \* Induction heating coils and blankets

- \* APT, ZIPCUT & PLAZCUT Model Plasma Cutting Torches
- \* Remote Controls
- \* Accessory Kits
- \* Replacement Parts (No labor)
- \* Spoolmate 185 and Spoolmate 250

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# Owner's Record

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|            |                     |
|------------|---------------------|
| Model Name | Serial/Style Number |
|------------|---------------------|

---

|               |  |
|---------------|--|
| Purchase Date | (Date which equipment was delivered to original customer.) |
|---------------|--|

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|             |
|-------------|
| Distributor |
|-------------|

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|         |
|---------|
| Address |
|---------|

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