

UNITOR®

OM-215 092

210 177A

August 2005

Processes



MIG (GMAW) Welding

Flux Cored (FCAW) Welding

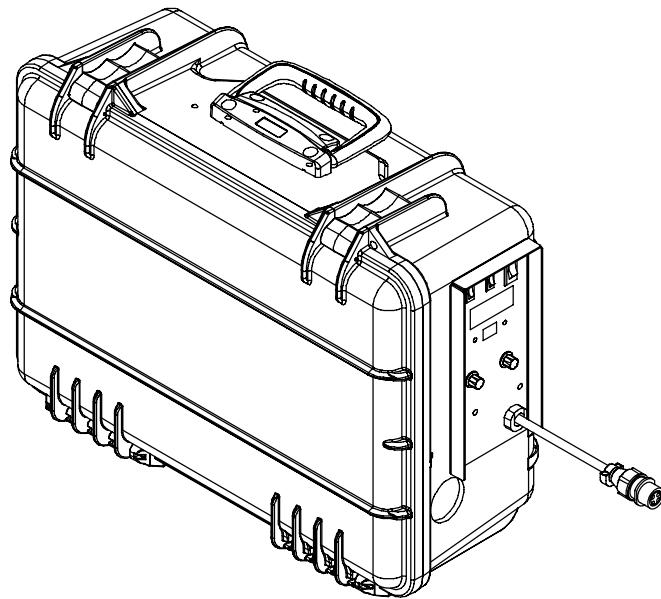
Description



Wire Feeder

CE

UWF-SC12RC



OWNER'S MANUAL

TABLE OF CONTENTS

SECTION 1 – SAFETY PRECAUTIONS - READ BEFORE USING	1
1-1. Symbol Usage	1
1-2. Arc Welding Hazards	1
1-3. Additional Symbols For Installation, Operation, And Maintenance	3
1-4. California Proposition 65 Warnings	3
1-5. Principal Safety Standards	4
1-6. EMF Information	4
SECTION 2 – DEFINITIONS	5
2-1. Warning Label Definitions	5
2-2. Manufacturer's Rating Label For CE Products	6
2-3. Symbols And Definitions	6
SECTION 3 – INSTALLATION	6
3-1. Specifications	6
3-2. 14-Pin Plug Information	7
3-3. Equipment Connection Diagram	7
3-4. Gun Recommendation Table	8
3-5. Consumable Parts and Spares for the T-400 MP Torch	8
3-6. Installing And Aligning Wire Guide And Drive Rolls	9
3-7. Connecting Welding Gun	10
3-8. Connecting Shielding Gas	10
3-9. Connecting Weld Cable	11
3-10. Installing And Threading Welding Wire	11
SECTION 4 – OPERATION	12
4-1. Controls	12
4-2. Setting Digital Meter Board PC4 DIP Switches	13
SECTION 5 – MAINTENANCE & TROUBLESHOOTING	14
5-1. Routine Maintenance	14
5-2. Overload Protection And Thermostat Protection	14
5-3. Troubleshooting	15
SECTION 6 – ELECTRICAL DIAGRAMS	17
SECTION 7 – PARTS LIST	18
WARRANTY	

Declaration of Conformity for European Community (CE) Products

NOTE

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

Manufacturer:

Miller Electric Mfg. Co.
1635 W. Spencer St.
Appleton, WI 54914 USA
Phone: (920) 734-9821

European Contact:

Mr. Danilo Fedolfi,
Managing Director
ITW Welding Products Italy S.r.l.
Via Privata Iseo 6/E
20098 San Giuliano
Milanese, Italy
Phone: 39(02)98290-1
Fax: 39(02)98290203

European Contact Signature: _____

Declares that the product:

UWF-SC12RC

conforms to the following Directives and Standards:

Directives

Low Voltage Directive: 73/23/EEC

Electromagnetic Compatibility (EMC) Directive: 89/336/EEC

Machinery Directives: 98/37/EEC, 91/368/EEC, 92/31/EEC, 133/04, 93/68/EEC

Standards

Arc Welding Equipment – Part 5: Wire Feeders. IEC 60974-5 Ed. 1

Arc Welding Equipment – Part 10: Electromagnetic Compatibility (EMC) Requirements. IEC 60974-10 August 2002

Arc Welding Equipment – Part 1: Welding Power Sources. IEC 60974-1 Ed. 2.1

Degrees Of Protection Provided By Enclosure (IP Code) IEC 60529 Ed. 2.1

Insulation Coordination For Equipment Within Low-Voltage Systems –
Part 1: Principles, Requirements and Tests: IEC 60664-1 Ed. 1.1

The product technical file is maintained by the responsible Business Unit(s) located at the manufacturing facility.

SECTION 1 – SAFETY PRECAUTIONS - READ BEFORE USING

som _3/05

▲ **Warning: Protect yourself and others from injury — read and follow these precautions.**

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 1-5. 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

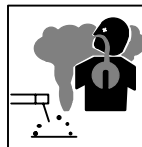
live when power is on. In semiautomatic or automatic wire welding, the wire, wire reel, drive roll housing, and all metal parts touching the welding wire are electrically live. Incorrectly installed or improperly grounded equipment is a hazard.

- 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.
- Additional safety precautions are required when any of the following electrically hazardous conditions are present: in damp locations or while wearing wet clothing; on metal structures such as floors, gratings, or scaffolds; when in cramped positions such as sitting, kneeling, or lying; or when there is a high risk of unavoidable or accidental contact with the workpiece or ground. For these conditions, use the following equipment in order presented: 1) a semiautomatic DC constant voltage (wire) welder, 2) a DC manual (stick) welder, or 3) an AC welder with reduced open-circuit voltage. In most situations, use of a DC, constant voltage wire welder is recommended. And, do not work alone!
- 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.
- Do not touch electrode holders connected to two welding machines at the same time since double open-circuit voltage will be present.
- 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 in inverter-type welding power sources after removal of input power.

- 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 local forced ventilation at the arc to remove welding fumes and gases.
- If ventilation is poor, wear an approved air-supplied respirator.
- Read and understand 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 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.

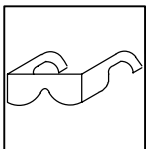
- Wear an approved welding helmet fitted with a proper shade of filter lenses to protect your face and eyes when welding or watching (see ANSI Z49.1 and Z87.1 listed in Safety Standards).
- Wear approved safety glasses with side shields under your helmet.
- Use protective screens or barriers to protect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

- Remove all flammables within 35 ft (10.7 m) of the welding arc. If this is not possible, tightly cover them with approved covers.
- Do not weld where flying sparks can strike flammable material.
- Protect yourself and others from flying sparks and hot metal.
- 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, sparks, 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.
- Follow requirements in OSHA 1910.252 (a) (2) (iv) and NFPA 51B for hot work and have a fire watcher and extinguisher nearby.



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.



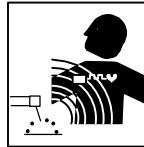
BUILDUP OF GAS can injure or kill.

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



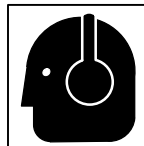
HOT PARTS can cause severe burns.

- Do not touch hot parts bare handed.
- Allow cooling period before working on gun or torch.
- To handle hot parts, use proper tools and/or wear heavy, insulated welding gloves and clothing to prevent burns.



MAGNETIC FIELDS can affect pacemakers.

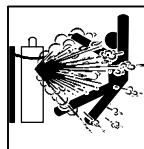
- Pacemaker wearers keep away.
- Wearers should consult their doctor before going near arc welding, gouging, or spot welding operations.



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, physical damage, 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.
- Use the right equipment, correct procedures, and sufficient number of persons to lift and move cylinders.
- Read and follow instructions on compressed gas cylinders, associated equipment, and Compressed Gas Association (CGA) publication P-1 listed in Safety Standards.

1-3. Additional Symbols For Installation, Operation, And Maintenance



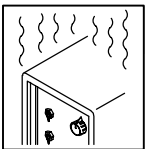
FIRE OR EXPLOSION hazard.

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



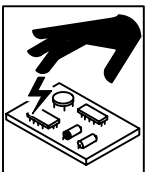
FALLING UNIT can cause injury.

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



OVERUSE can cause OVERHEATING

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



STATIC (ESD) can damage PC boards.

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



MOVING PARTS can cause injury.

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



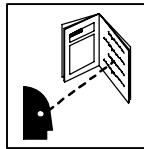
WELDING WIRE can cause injury.

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



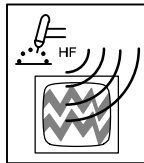
MOVING PARTS can cause injury.

- Keep away from moving parts such as fans.
- Keep all doors, panels, covers, and guards closed and securely in place.
- Have only qualified persons remove doors, panels, covers, or guards for maintenance as necessary.
- Reinstall doors, panels, covers, or guards when maintenance is finished and before re-connecting input power.



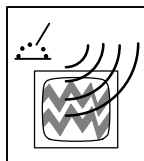
READ INSTRUCTIONS.

- Read Owner's Manual before using or servicing unit.
- Use only genuine Miller/Hobart replacement parts.



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. California Proposition 65 Warnings

- ▲ **Welding or cutting equipment produces fumes or gases which contain chemicals known to the State of California to cause birth defects and, in some cases, cancer. (California Health & Safety Code Section 25249.5 et seq.)**
- ▲ **Battery posts, terminals and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. Wash hands after handling.**

For Gasoline Engines:

- ▲ **Engine exhaust contains chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm.**

For Diesel Engines:

- ▲ **Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.**

1-5. Principal Safety Standards

Safety in Welding, Cutting, and Allied Processes, ANSI Standard Z49.1, from Global Engineering Documents (phone: 1-877-413-5184, website: www.global.ihs.com).

Recommended Safe Practices for the Preparation for Welding and Cutting of Containers and Piping, American Welding Society Standard AWS F4.1 from Global Engineering Documents (phone: 1-877-413-5184, website: www.global.ihs.com).

National Electrical Code, NFPA Standard 70, from National Fire Protection Association, P.O. Box 9101, 1 Battery March Park, Quincy, MA 02269-9101 (phone: 617-770-3000, website: www.nfpa.org).

Safe Handling of Compressed Gases in Cylinders, CGA Pamphlet P-1, from Compressed Gas Association, 1735 Jefferson Davis Highway, Suite 1004, Arlington, VA 22202-4102 (phone: 703-412-0900, website: www.cganet.com).

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 (phone: 800-463-6727 or in Toronto 416-747-4044, website: www.csa-international.org).

Practice For Occupational And Educational Eye And Face Protection, ANSI Standard Z87.1, from American National Standards Institute, 11 West 42nd Street, New York, NY 10036-8002 (phone: 212-642-4900, website: www.ansi.org).

Standard for Fire Prevention During Welding, Cutting, and Other Hot Work, NFPA Standard 51B, from National Fire Protection Association, P.O. Box 9101, 1 Battery March Park, Quincy, MA 02269-9101 (phone: 617-770-3000, website: www.nfpa.org).

OSHA, Occupational Safety and Health Standards for General Industry, Title 29, Code of Federal Regulations (CFR), Part 1910, Subpart Q, and Part 1926, Subpart J, from U.S. Government Printing Office, Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250 (there are 10 Regional Offices—phone for Region 5, Chicago, is 312-353-2220, website: www.osha.gov).

1-6. 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:

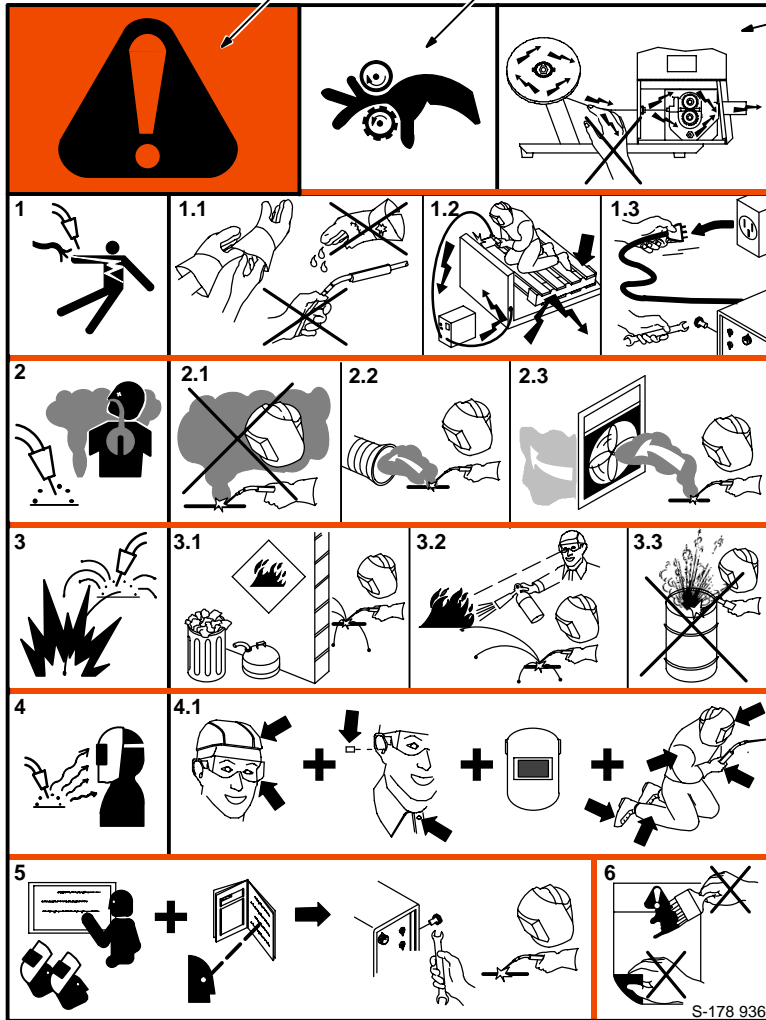
1. Keep cables close together by twisting or taping them.
2. Arrange cables to one side and away from the operator.
3. Do not coil or drape cables around your body.
4. Keep welding power source and cables as far away from operator as practical.
5. Connect work clamp to workpiece as close to the weld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

About Pacemakers:

Pacemaker wearers consult your doctor before welding or going near welding operations. If cleared by your doctor, then following the above procedures is recommended.

SECTION 2 – DEFINITIONS

2-1. Warning Label Definitions



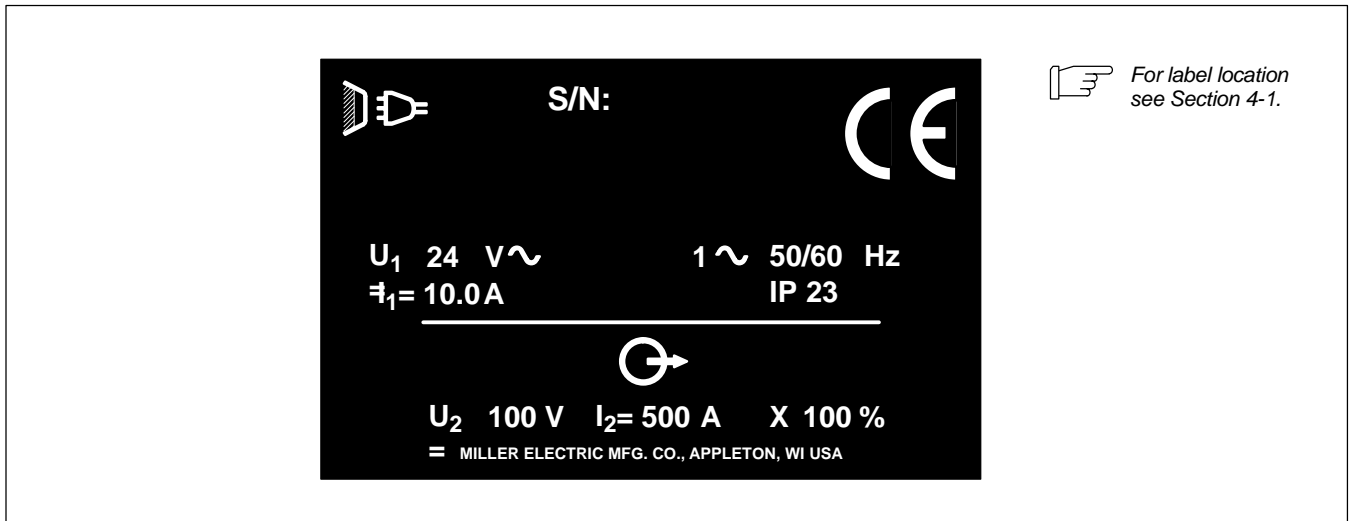
Warning! Watch Out! There are possible hazards as shown by the symbols.

Drive rolls can injure fingers

Welding wire and drive parts are at welding voltage during operation – keep hands and metal objects clear.

- 1 Electric shock 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. Don't weld near flammables.
 - 3.2 Welding sparks can cause fires. Have a fire extinguisher nearby and have a watch person 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.

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



2-3. Symbols And Definitions


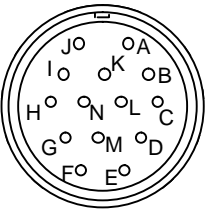
NOTE		<i>Some symbols are found only on CE products.</i>					
	Output		Input	A	Amperes	V	Volts
X	Duty Cycle		Wire Feed	%	Percent	IP	Degree Of Protection
	Input		Cold Jog (Inch) Towards Workpiece		Purge By Gas		Fast
	Constant Current		Circuit Breaker		Constant Voltage		Slow
	Trigger Hold Off		Trigger Hold On	I₂	Rated Welding Current		Increase
	Read Instructions	U₁	Primary Voltage	U₂	Conventional Load Voltage	Hz	Hertz
I₁	Primary Current						

SECTION 3 – INSTALLATION

3-1. Specifications

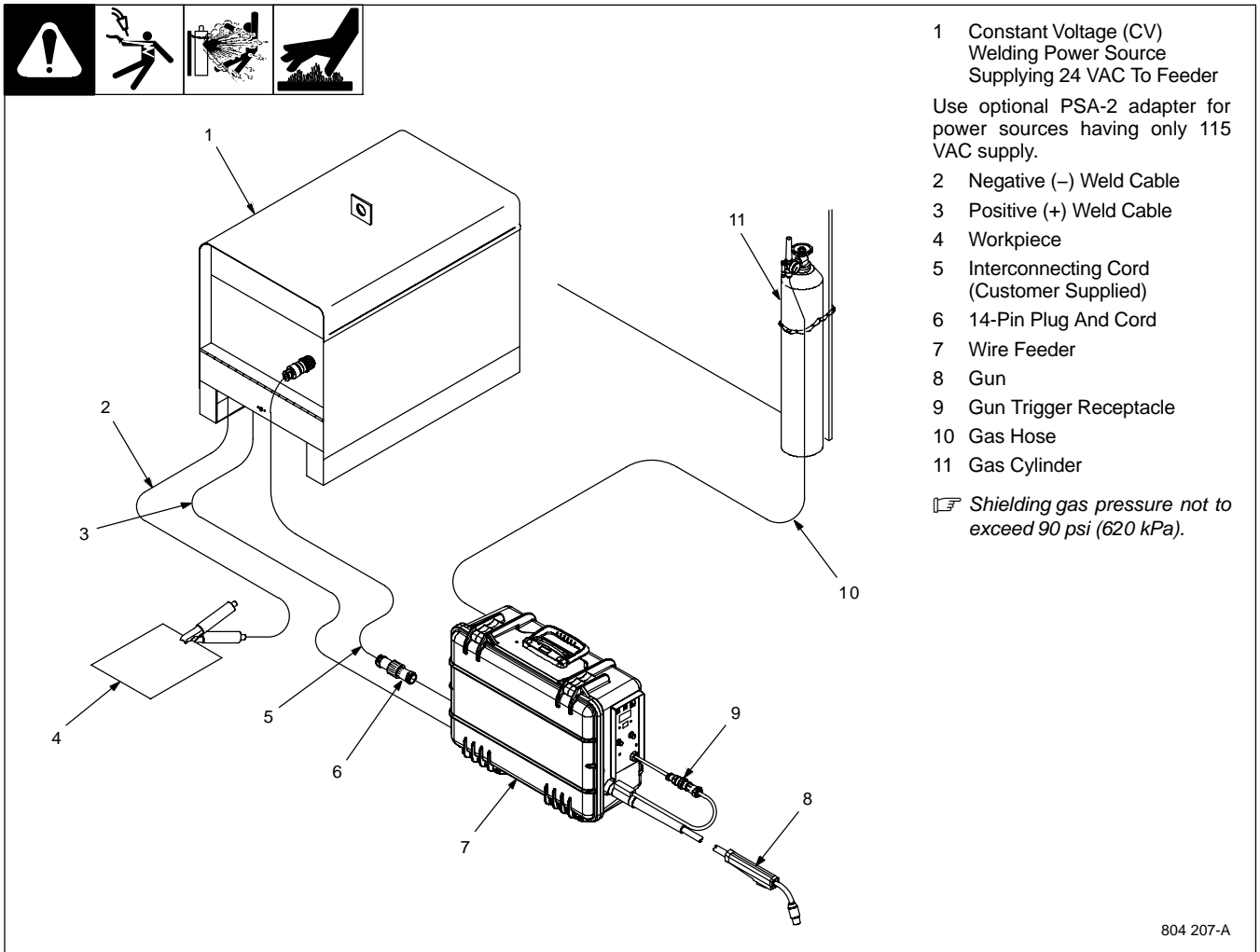
Type of Input Power	Welding Power Source Type	Wire Feed Speed Range	Wire Diameter Range	Input Welding Circuit Rating	IP Rating	Max. Wire Spool Capacity	Overall Dimensions	Weight
24 Volts AC Single Phase 10 Amperes 50/60 Hz	Constant Voltage (CV) DC With 14-Pin And Contactor Control	50 to 700 ipm (1.3 To 17.8 mpm)	.023 To 5/64 in (0.6 To 2 mm)	100 Volts, 500 Amperes, 100% Duty Cycle	23	30 lb (13.6 kg), 12 in (304 mm)	Length: 20 in (508 mm) Width: 8 in (203 mm) Height: 15-1/2 in (394 mm)	25.5 lb (11.6 kg)

3-2. 14-Pin Plug Information

 REMOTE 14	Pin*	Pin Information
	A	24 volts ac with respect to socket G.
	B	Contact closure to A completes 24 volts ac contactor control circuit.
	G	Circuit common for 24 volts AC circuit.
	C	+10 volts dc input from power source to wire feeder with respect to socket D.
	D	Remote control circuit common.
	E	0 to +10 volts dc output signal from wire feeder to power source with respect to socket D.
	H	Voltage feedback; 0 to +10 volts dc, 1 volt per 10 arc volts.
	F	Current feedback; 0 to +10 volts dc, 1 volt per 100 amperes.

*The remaining pins are not used.

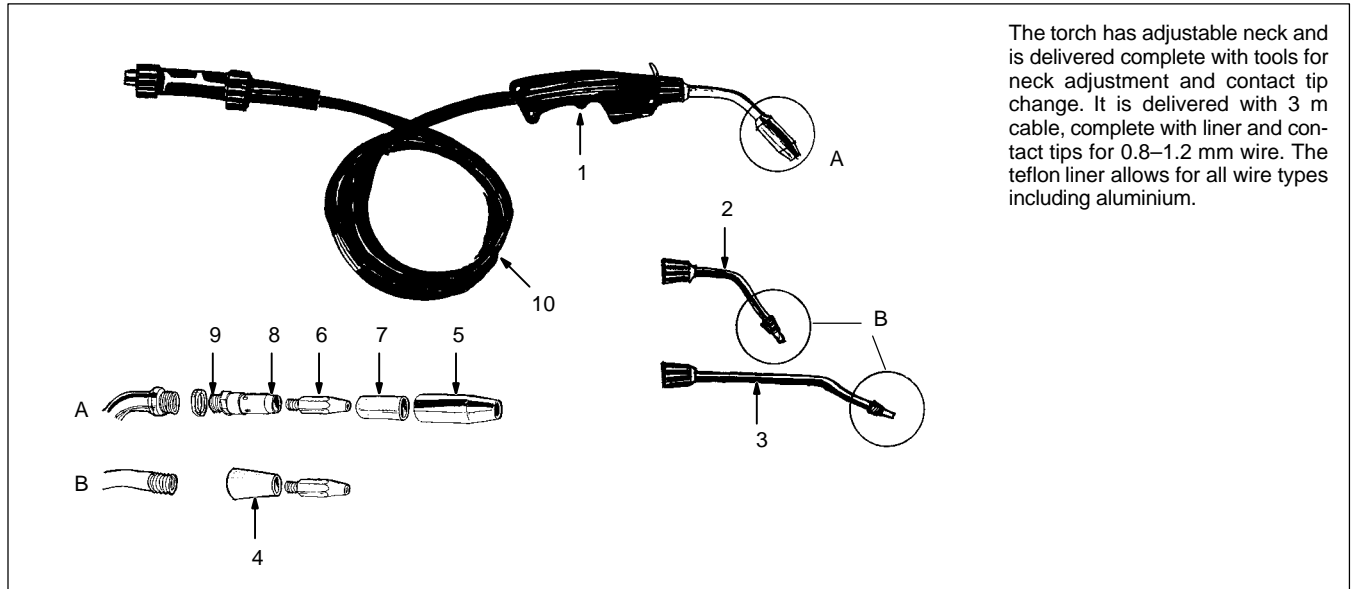
3-3. Equipment Connection Diagram



3-4. Gun Recommendation Table

Process	Gun
GMAW – Hard or Cored Wires	T-400 MP
FCAW – Self-Shielding Wires	T-400 MP + torch neck for self-shielding wire

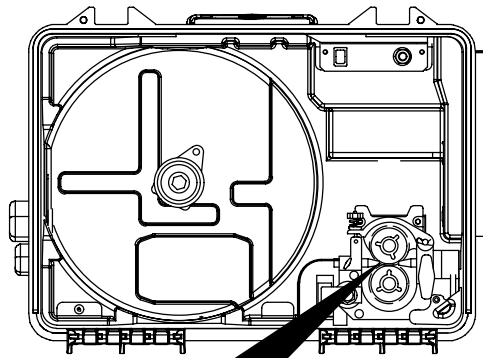
3-5. Consumable Parts and Spares for the T-400 MP Torch



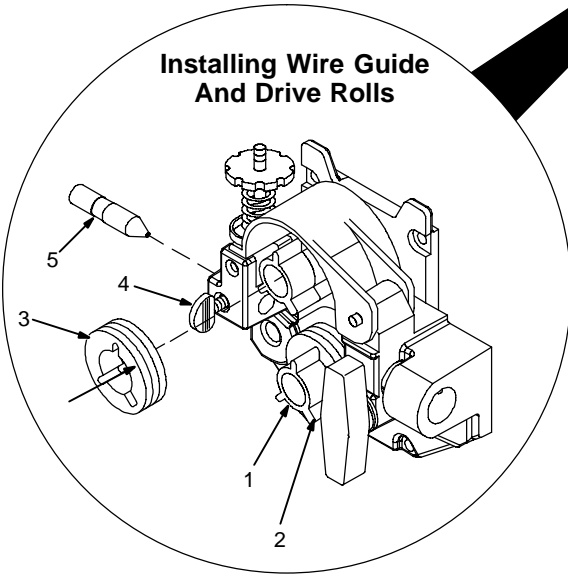
The torch has adjustable neck and is delivered complete with tools for neck adjustment and contact tip change. It is delivered with 3 m cable, complete with liner and contact tips for 0.8–1.2 mm wire. The teflon liner allows for all wire types including aluminium.

Pos.	Description	Qty.	Unit	Product no.
1	Wire torch for T-400 MP for gas shielded wire with 3 m cable and connector with 1.2 mm contact tip and steel liner (1.2 – 1.4 mm).		pcs	193-607451
2	Torch neck 160 mm for self-shielded wire. To be mounted on wire torch T-400 MP handle.		pcs	193-607452
3	Torch neck 300 mm for self-shielded wire. To be mounted on wire torch T-400 MP handle.		pcs	193-607453
4	Tip insulation cup for self-shielded neck.		pcs	193-607454
5	Gas nozzle for torch.		pcs	193-613765
6	Contact tips – 0.8 mm 1.0-1.2 mm 1.2-1.4 mm 1.6-2.0 mm	10 10 10 10	set set set set	193-594622 193-594630 193-607455 193-607456
7	Nozzle insulator.	5	set	193-613766
8	Gas diffuser for T-400.	5	set	193-613763
9	Neck insulator for T-400.	5	set	193-613764
10	Torch liner, Teflon for 0.8-1.2 mm wire 4.5 m long. Torch liner, Steel for 0.8-1.2 mm wire (blue) 3.0 m long. Torch liner, Steel for 3 m for 1.4-2.0 mm wire (red) 3.0 m long		pcs pcs pcs	193-594606 193-594614 193-607457

3-6. Installing And Aligning Wire Guide And Drive Rolls



Installing Wire Guide And Drive Rolls



Installing Wire Guide And Drive Rolls:

- 1 Drive Roll Nut
 - 2 Drive Roll Carrier
- Turn nut one click until lobes of nut line up with lobes of drive roll carrier.
- 3 Drive Roll
- Slide drive roll onto drive roll carrier. Turn nut one click.
- Repeat procedure for top drive roll.
- 4 Inlet Wire Guide Screw
 - 5 Inlet Wire Guide

Loosen securing screw. Install inlet guide so inlet guide screw is centered in groove in guide, or so tip is as close to drive rolls as possible without touching. Tighten screw.

Aligning Wire Guide And Drive Rolls:

View is from top of drive rolls looking down with pressure assembly open.

- 6 Drive Roll Securing Nut
- 7 Drive Roll
- 8 Wire Guide
- 9 Welding Wire
- 10 Drive Gear

Turn screw in or out until drive roll groove lines up with wire guide.

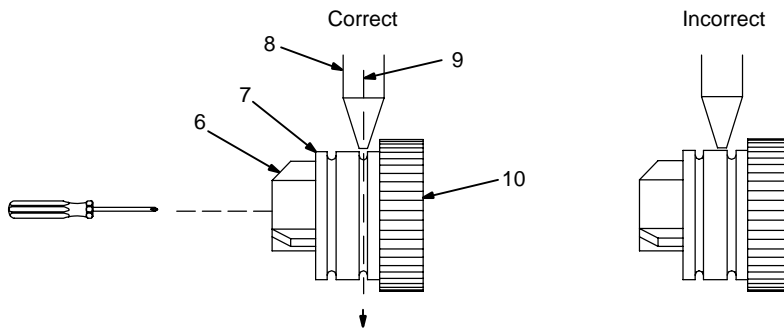
Close pressure roll assembly.

Only bottom drive roll alignment is adjustable. Turn adjustment screw in or out until groove in drive roll lines up with wire guide as shown.

Cleaning Drive Rolls:

Remove drive rolls, and clean grooves using a wire brush.

Aligning Wire Guide And Drive Rolls

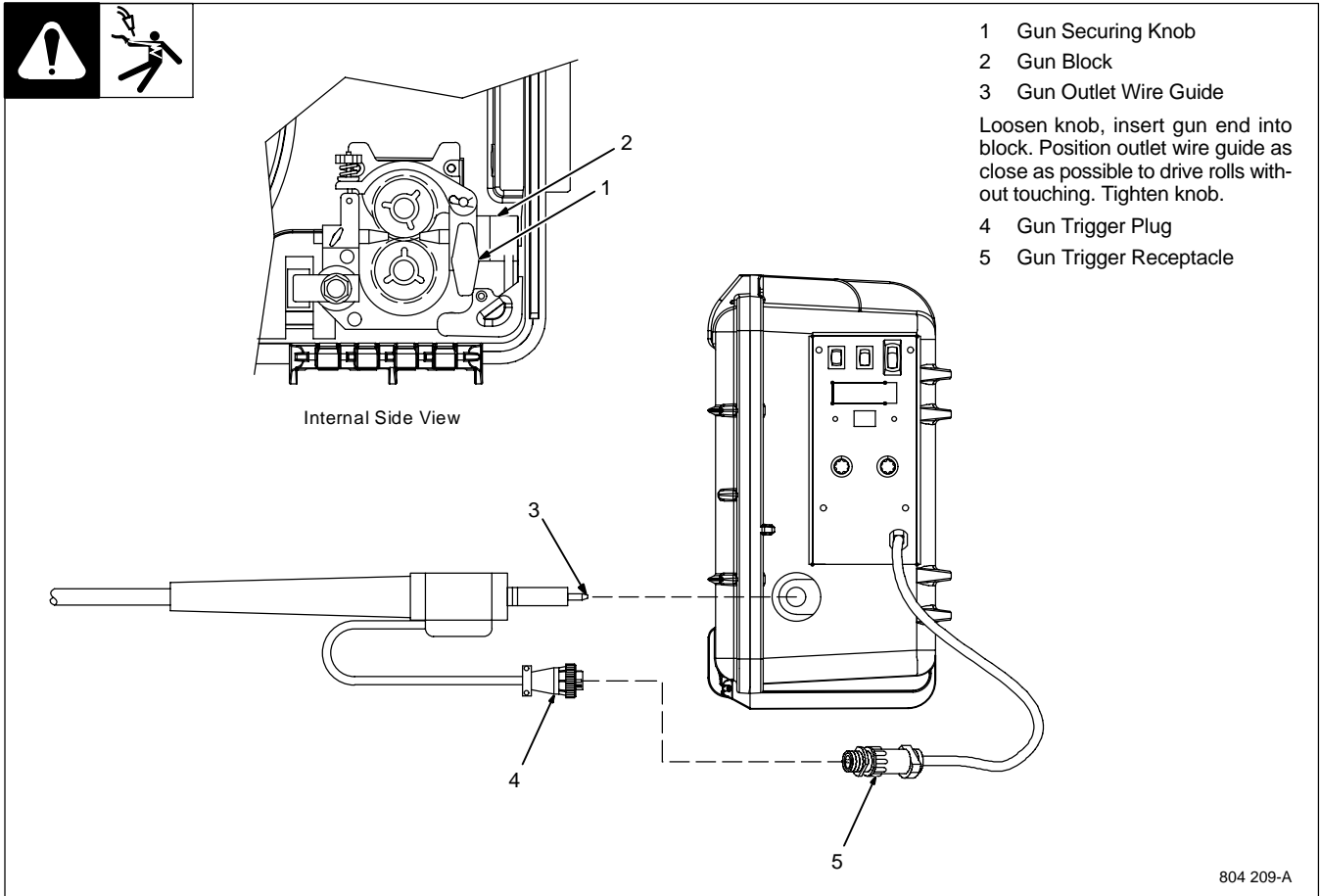


Tools Needed:

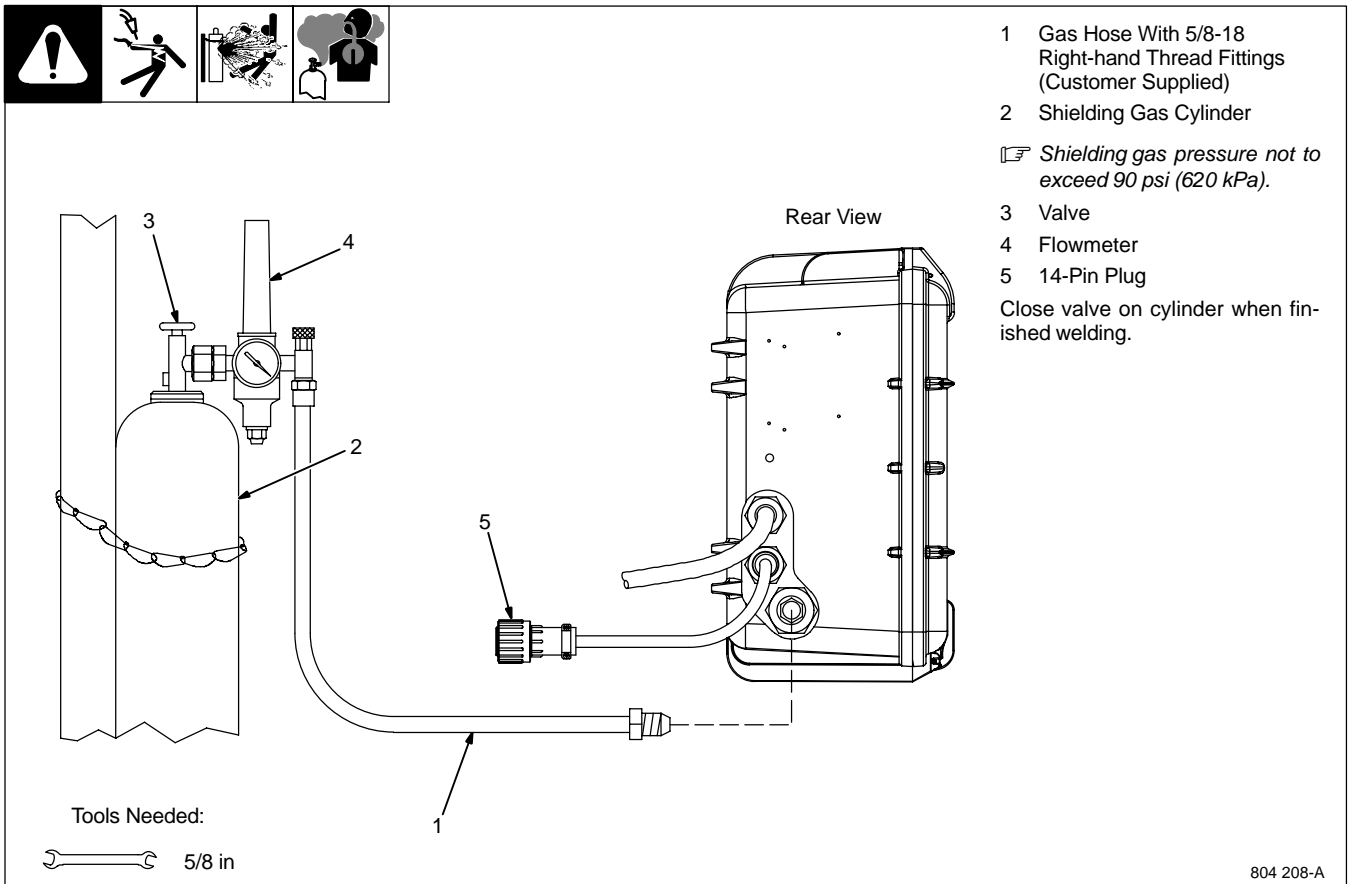
- 3/16 in
- 3/8 in
-

804 210-A

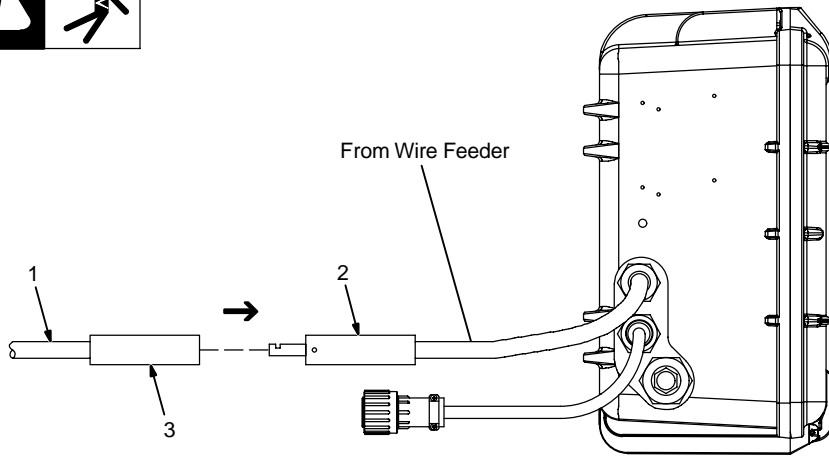
3-7. Connecting Welding Gun



3-8. Connecting Shielding Gas



3-9. Connecting Weld Cable



- 1 User-Supplied Weld Cable
- 2 User-Supplied Male Connector
- 3 User-Supplied Female Connector

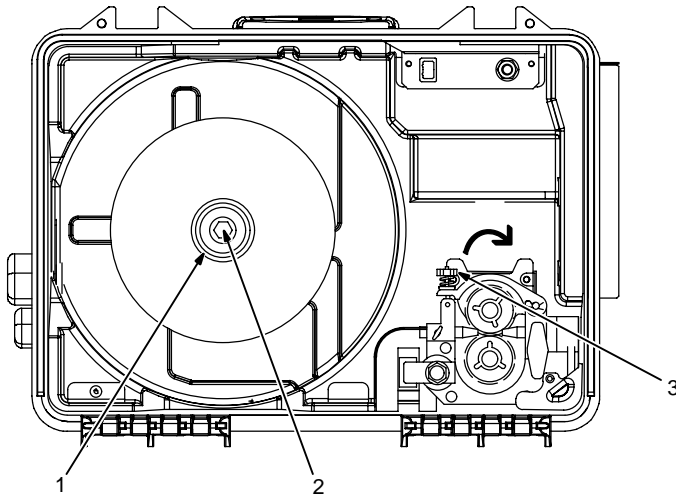
Follow wire manufacturer's recommendations for weld cable polarity.
Push female connector over male connector, and turn 1/4 turn clockwise.

804 211-A

3-10. Installing And Threading Welding Wire



Hold wire tightly to keep it from unraveling.



Installing Wire And Adjusting Hub Tension:

- 1 Retaining Nut
- 2 Hub Tension Adjustment Screw

Remove retaining ring, and install spool so hub pin fits spool hole. Re-install retaining nut.

Adjust tension nut so only a slight force is needed to turn spool.

Threading Welding Wire:

- 3 Pressure Assembly Adjustment Knob

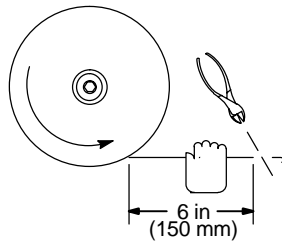
Lay gun cable out straight.

Open pressure assembly, hold wire tightly, and cut off end. Push wire through guides into gun.

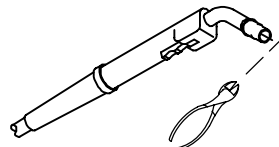
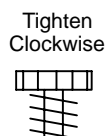
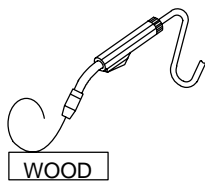
Close and tighten pressure assembly. Press Jog switch until wire comes out gun.

Feed wire against wooden surface, and tighten knob so wire does not slip.

Cut off wire, and close door.



Pull and hold wire; cut off end.



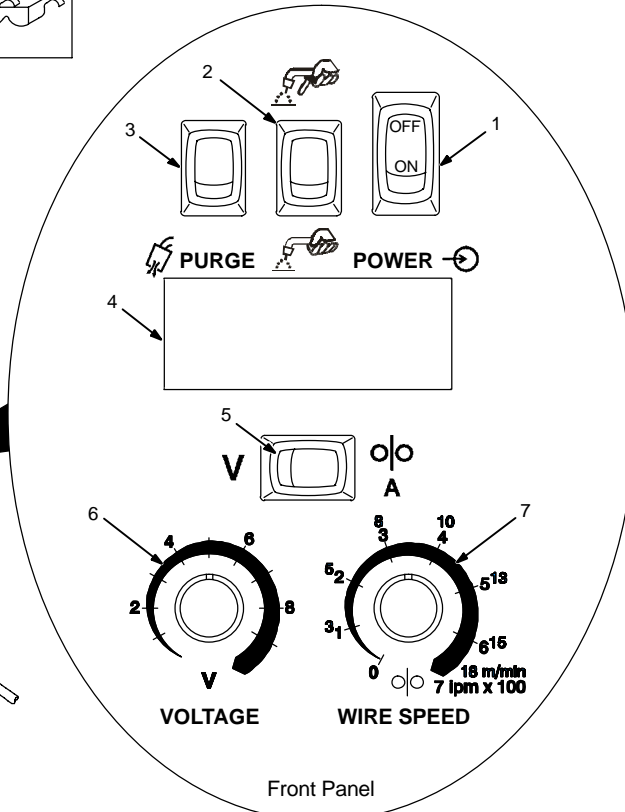
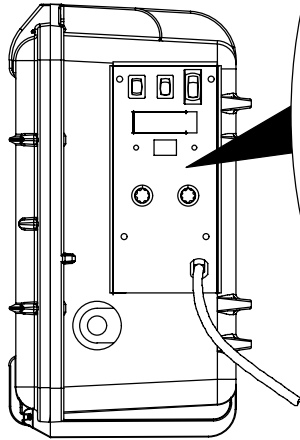
Tools Needed:



804 212-A

SECTION 4 – OPERATION

4-1. Controls



1 Power Control Switch

2 Trigger Hold Switch (Optional)

Depress the upper part of the switch (turns trigger hold On) to weld without holding gun trigger throughout the weld cycle.

To start weld, press and release gun trigger. To end weld, press and release gun trigger.

Depress the lower part of the trigger hold switch to turn trigger hold Off.

3 Purge Switch

Press switch to momentarily energize gas solenoid and purge air from gun, and to adjust shielding gas regulator.

4 Meter Display (Optional)

5 Volts, Wire Feed Speed Or Amps Select Switch (Optional)

Meter is factory set to display voltage and wirefeed speed. To display voltage and amps refer to Section 4-2 for DIP switch settings.

6 Voltage Control

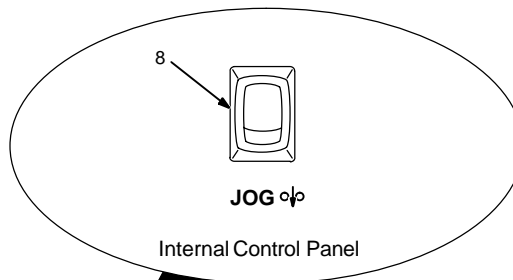
7 Wire Speed Control

Use control to adjust wire speed within range selected by switch.

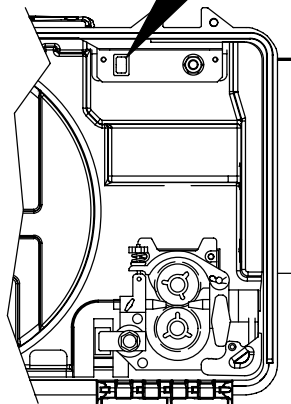
8 Jog Switch

Use Jog position to momentarily feed welding wire at speed set on Wire Speed control without energizing welding circuit or shielding gas valve.

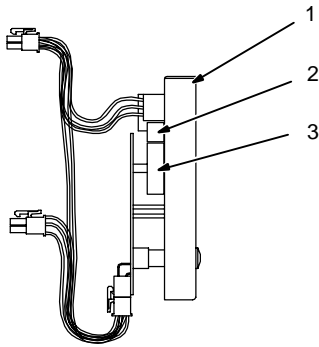
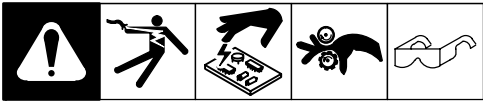
Close and latch door.



Internal Side View



4-2. Setting Digital Meter Board PC4 DIP Switches



Meter DIP switches are factory set to display wirefeed speed and voltage using 14 pin feedback. Meter hold feature is factory set to off position.



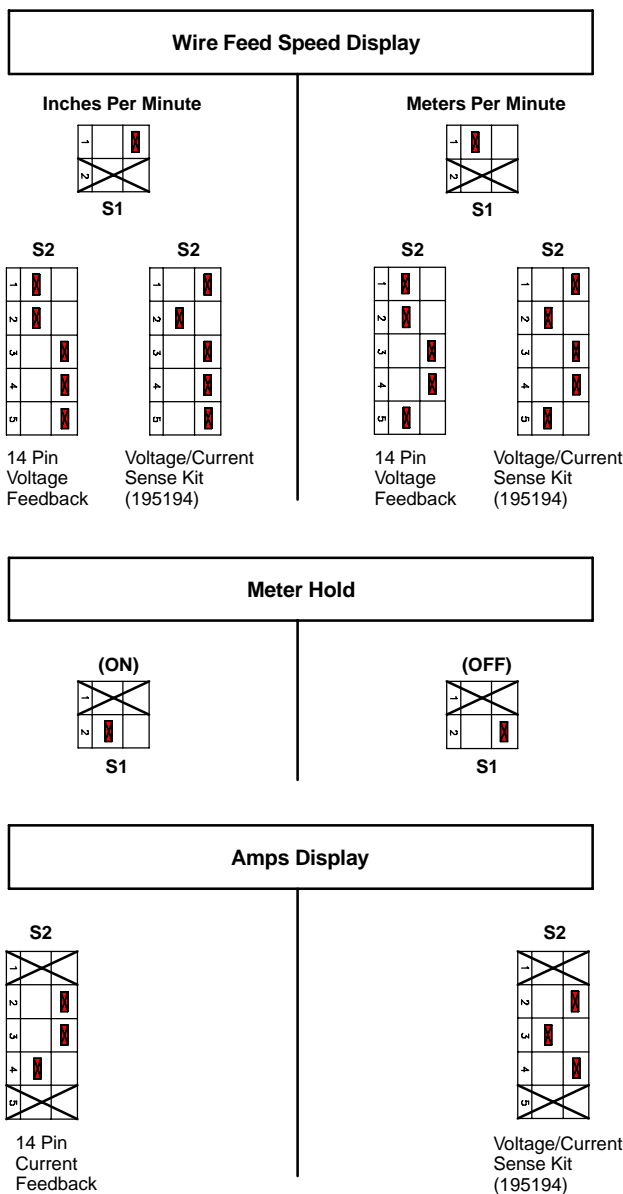
- 1 Front Meter Panel
- 2 S1 DIP Switch
- 3 S2 DIP Switch

If the DIP switches are set to a Meter Hold (ON) position, the meter value will hold 5 seconds after gun is triggered. The meter value will continue to hold for 8 seconds after trigger is released or until gun is re-triggered.

When using power sources without 14 pin voltage/current feedback – optional remote voltage/current kit 195194 is required.



Indicates this DIP switch setting has no effect on this function.



SECTION 5 – MAINTENANCE & TROUBLESHOOTING

5-1. Routine Maintenance

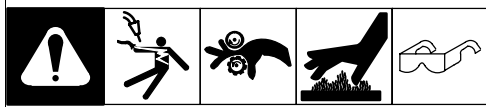
				<p>▲ Disconnect power before maintaining.</p>	<p>☞ Maintain more often during severe conditions.</p>
3 Months					
				<p>Replace Damaged Or Unreadable Labels</p>	
				<p>Replace Damaged Gas Hose</p>	
				<p>Repair Or Replace Cracked Cables And Cords</p>	
6 Months					
				<p>Clean Drive Rolls</p>	
				<p>Blow Out Or Vacuum Inside</p>	

5-2. Overload Protection And Thermostat Protection

		<p>▲ Turn Off wire feeder and welding power source. Stop engine on welding generator.</p>	
<p>CB1</p>		<p>1 Circuit Breaker CB1</p> <p>CB1 protects wire feeder from overload. Correct problem and reset CB1.</p> <p>Close and latch door.</p> <p>Thermostat Protection</p> <p>Unit has internal thermostat protection and will not feed wire if overheating occurs (see Section 5-3).</p>	
<p>Internal Side View</p>			

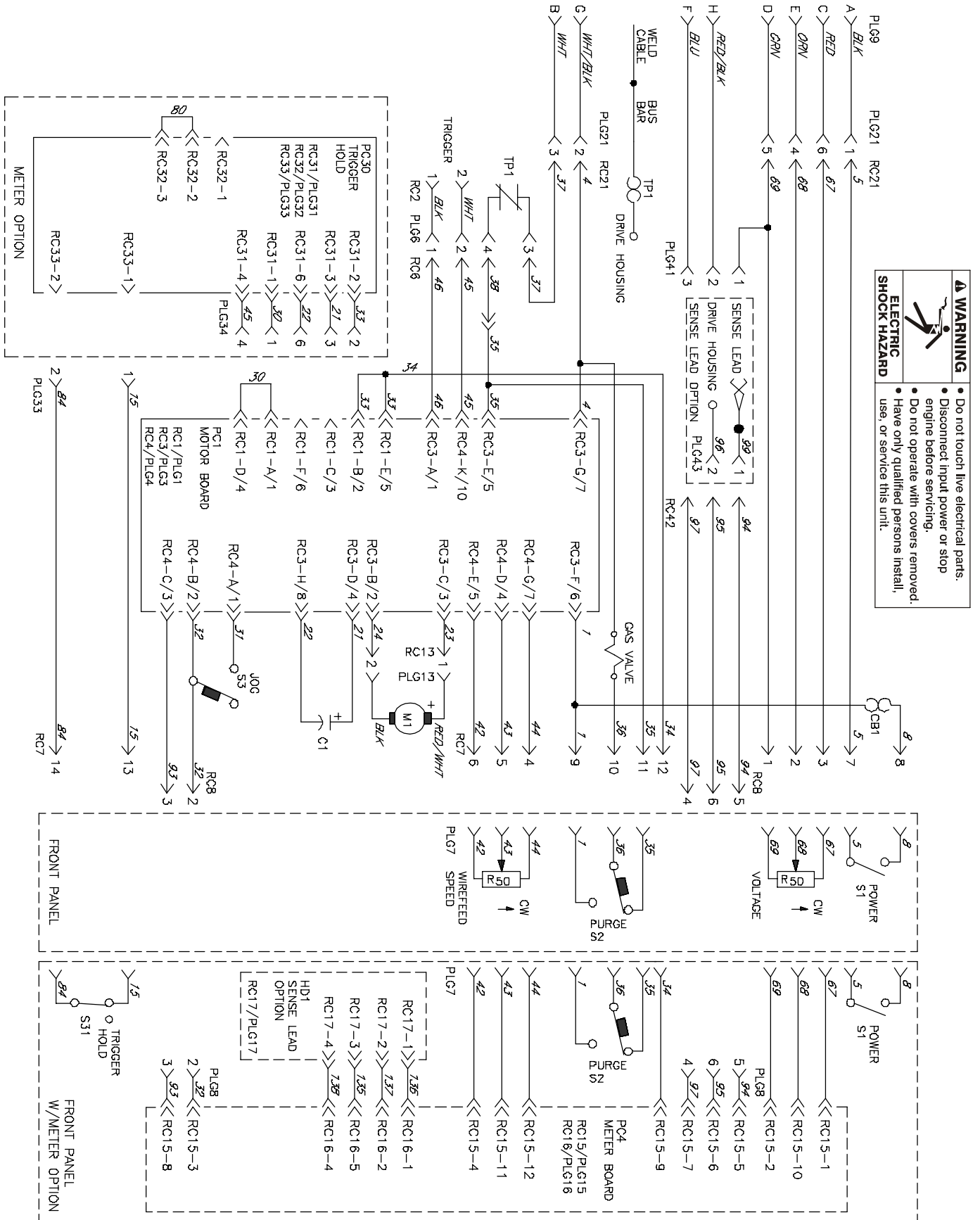
804 213-A

5-3. Troubleshooting



Trouble	Remedy
Wire does not feed, unit completely inoperative.	Turn Power switch On.
	Check 14-pin plug PLG2 connections.
	Check input power.
Wire does not feed.	Check circuit breaker CB1. (see Section 5-2).
	Check gun trigger connection at wire feeder. Check gun trigger leads and trigger switch. See gun Owner's Manual.
	Have Factory Authorized Service Agent check drive motor and control board PC1.
Wire feeds erratically.	Readjust hub tension and drive roll pressure (see Section 3-10).
	Use correct size drive roll (see Parts Listing).
	Clean or replace dirty or worn drive roll (see Section 3-6).
	Remove weld spatter around nozzle opening.
	Replace contact tip or liner. See gun Owner's Manual.
	Have Factory Authorized Service Agent check drive motor and control board PC1.
Wire feeds when Jog switch is pressed but not when gun trigger is pressed.	Check gun trigger connection at wire feeder. Check gun trigger leads and trigger switch. See gun Owner's Manual.
Wire feeds as soon as power is applied.	Check gun trigger. See gun Owner's Manual.
Wire does not feed until trigger is pressed but continues to feed after trigger is released.	Check for short between gun trigger leads and weld cable. Repair or replace gun trigger leads.
Gas valve rattles loudly and wire feeds slowly or erratically.	Check for short between gun trigger leads and weld cable. Repair or replace gun trigger leads.
Gas does not flow; wire feeds.	Check gas valve.

SECTION 6 - ELECTRICAL DIAGRAMS




⚠ WARNING
ELECTRIC SHOCK HAZARD

- Do not touch live electrical parts.
- Disconnect input power or stop engine before servicing.
- Do not operate with covers removed.
- Have only qualified persons install, use, or service this unit.

Figure 6-1. Circuit Diagram For Wire Feeder

SECTION 7 – PARTS LIST

 Hardware is common and not available unless listed.

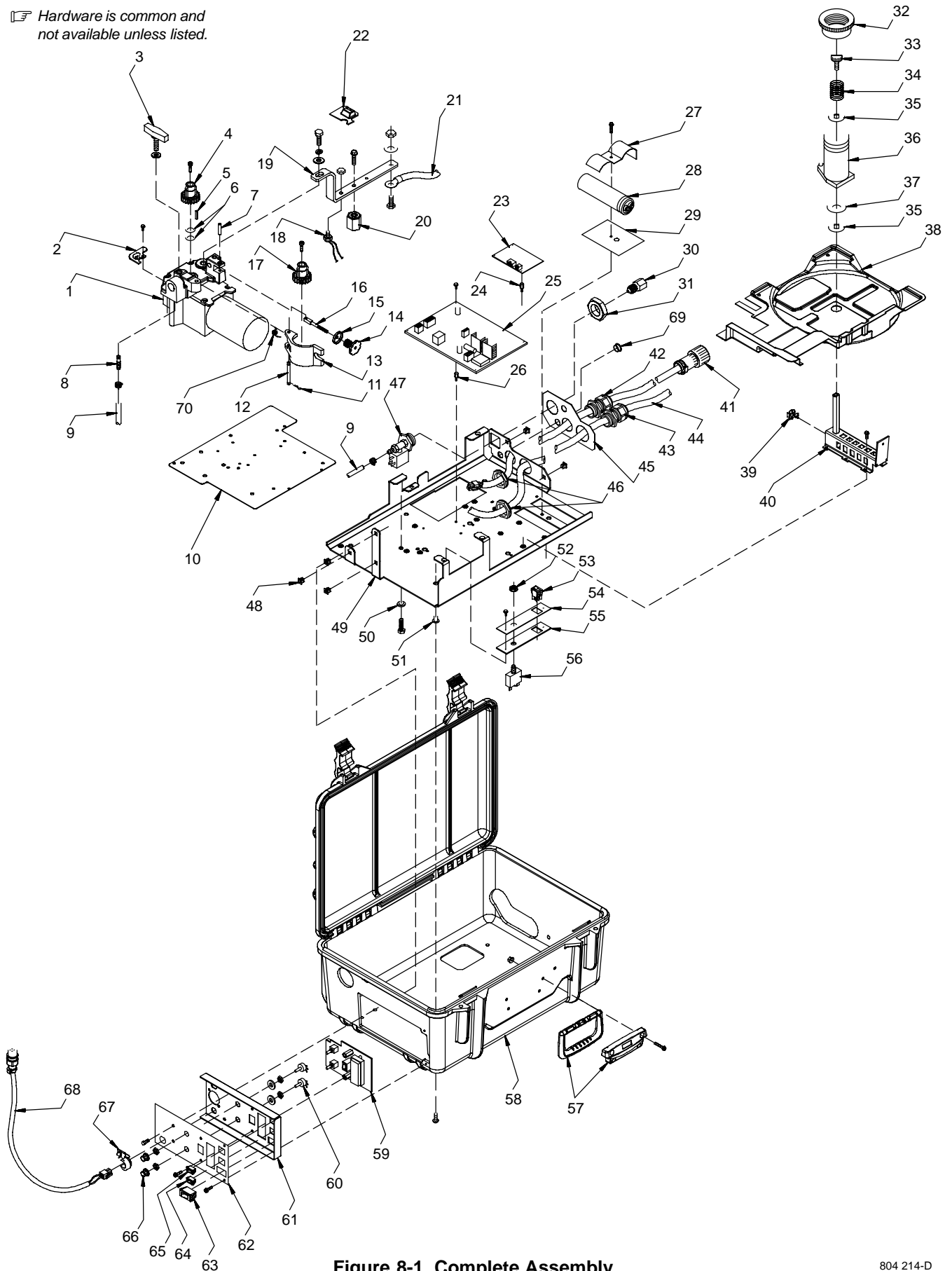


Figure 8-1. Complete Assembly

804 214-D

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

Figure 7-1. Complete Assembly

.. 1	.. M1	.. ME220 195	.. Motor, Right Angle 24VDC 145 Rpm 37.5 Ratio W/Plug	1
.. 2		.. ME207 679	.. Insert, Corner	1
.. 3		.. ME124 778	.. Knob, T 2.000 Bar W/.312-18 Stud 1.000 Lg Plstc	1
.. 4		.. ME172 076	.. Carrier, Drive Roll W/Components Keyed 24 Pitch	1
.. 5		.. ME092 865	.. Key, Stl .1215/.1230 x .750	1
.. 6		.. ME079 625	.. Washer, Wave .500idx0.750odx.015t Stl Lbs	2
.. 7		.. ME010 224	.. Pin, Spring Cs .187 X 1.000	1
.. 8		.. ME144 172	.. Ftg, Hose Brs Barbed M 3/16 Tbg X .250-20	1
.. 9		.. ME098 615	.. Hose, Sae .187 Id X .410 Od X 20.000	1
.. 10		.. ME225 306	.. Insulator, Motor	1
.. 11		.. ME151 828	.. Pin, Cotter Hair .042 X .750	2
.. 12		.. ME079 634	.. Pin, Hinge	1
.. 13		.. ME166 071	.. Lever, Mtg Pressure Gear	1
.. 14		.. ME085 243	.. Knob, Adjust Tension 1.250 Dia X .312-18 Thrd Stl	1
.. 15		.. ME085 244	.. Washer, Cupped .328IDX .812ODX16GAX.125 Lip	1
.. 16		.. ME089 562	.. Fastener, Pinned	1
.. 17		.. ME172 075	.. Carrier, Drive Roll W/Components 24 Pitch	1
.. 18		.. ME220 221	.. Thermostat, NC Open 140C Close 110C Snap Action	1
.. 19		.. ME225 934	.. Bus Bar, Interconnecting	1
.. 20		.. ME026 947	.. Stand-Off, Insul .250-20 X 1.000 Lg X .312 Thd	1
.. 21		.. ME600 324	.. Cable, Weld Cop Strd No 4/0 Epdm Jkt	As Rqd
.. 22		.. ME221 347	.. Grommet, Bus Bar	1
.. 23	.. PC30	.. ♦ME211 444	.. Circuit Card Assy Trigger Hold/Burnback (Meter Option)	1
.. 24		.. ♦ME097 132	.. Stand-Off, No 6-32 X .375 Lg (Meter Option)	4
.. 25	.. PC1	.. ME218 488	.. Circuit Card Assy, Motor Speed Control	1
.. 26		.. ME097 132	.. Stand-Off, No 6-32 X .375 Lg	4
.. 27		.. ME210 133	.. Bracket, Capacitor Support SC12	1
.. 28	.. C1	.. ME177 360	.. Capacitor, Elctlt 20000 Uf 45 VDC Can 1.40 Dia	1
.. 29		.. ME207 678	.. Insulator, Capacitor	1
.. 30		.. ME211 989	.. Fitting, W/Screen	1
.. 31		.. ME220 805	.. Nut, 750-14 Knurled1.48hex .41h Nyl	1
.. 32		.. ME209 450	.. Nut, Hub	1
.. 33		.. ME172 919	.. Knob, Brake Adjust	1
.. 34		.. ME172 918	.. Spring	1
.. 35		.. ME201 309	.. Washer, Anti-turn	2
.. 36		.. ME225 069	.. Hub, Spool W/Threads	1
.. 37		.. ME058 424	.. Washer, Fibre (Brake)	1
.. 38		.. ME221 052	.. Shroud, Wire	1
.. 39		.. ME222 294	.. Clip, Wire/Cord .380 Bundle .250Hole .105 Thk Blk	1
.. 40		.. ME222 103	.. Support, Spool	1
.. 41		.. ME210 364	.. Cable, Power 17 In (Includes)	1
		.. ME079 739	.. Conn, Circ Cpc Clamp Str Rlf Size 17-20 .703od	1
		.. ME600 797	.. Cable, Port No 16 8/C Type So Rb Jkt	1.4 ft
	.. PLG9	.. ME141 162	.. Housing Plug+Pins, (Service Kit)	As Rqd
	.. PLG21	.. ME115 093	.. Housing Plug+Skts, (Service Kit)	As Rqd
	.. PLG41	.. ME131 204	.. Housing Plug+Skts, (Service Kit)	As Rqd
.. 42		.. ME139 041	.. Bushing, Strain Relief .481/.617 Id X1.115 Mtg Hole	1
.. 43		.. ME215 980	.. Bushing, Strain Relief .709/.984 Id X1.375 Mtg Hole	1
.. 44		.. ME214 860	.. Nut, Ln Pg21 1.26Hex .14H Nickel Plated Brass	1
.. 45		.. ME222 067	.. Insulator, Rear Panel	1
.. 46		.. ME182 445	.. Nut, Conduit 1.000 Npt Pld 1.688 Od X .200 Thk	1
.. 47	.. GS1	.. ME216 126	.. Valve, Gas W/Fittings 24VAC	1
.. 48		.. ME222 181	.. Grommet, Scr No 8/10 Panel Hole .281 Sq .031 High	5
.. 49		.. ME221 051	.. Chassis, Control Box	1
.. 50		.. ME208 000	.. Washer, Shldr.260 Id 0.630 Od X.125T .327Od X .062T Nyl	4

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

Figure 7-1. Complete Assembly (Continued)

.. 51		ME081 895	.. Nut, 010–32 Rubber .75Dia .81l Insert In .38Hole	5
.. 52		ME147 195	.. Nut, 375–27 .54Hex .25h Nyl Flange .62D	1
.. 53	S3	ME200 640	.. Switch, Rocker Dpdt 8A 125VAC On–None–(On)	1
.. 54		ME210 141	.. Nameplate, Inner	1
.. 55		ME208 076	.. Panel, Inner	1
.. 56	CB1	ME083 432	.. Circuit Breaker, Man Reset 1P 10A 250VAC Frict	1
.. 57		ME208 015	.. Handle, Rubberized Carrying	1
.. 58		ME221 050	.. Case, Control Feeder Plastic	1
.. 59	PC4	◆2ME10 768	.. Circuit Card Assy, Meter (Meter Option)	1
.. 60	R1, R50	ME073 562	.. Pot, Cp Std Slot 1t 2. W 10k Linear	2
.. 61		ME225 312	.. Panel, Front	1
.. 62		ME225 313	.. Nameplate	1
.. 62		◆ME225 370	.. Nameplate, (Meter Option)	1
.. 63	S1	ME111 997	.. Switch, Rocker Spst 10A 250VAC On–Off Visi Red Rock	1
.. 64	S31	◆ME120 376	.. Switch, Rocker Spdt 4A 250VAC On–None–On Spade Ter	1
.. 65	S2	ME200 640	.. Switch, Rocker Dpdt 8A 125VAC On–None–On Black	1
.. 66		ME193 920	.. Knob, Pointer .840 Dia X .250 Id W/One Set Screw	2
.. 66		◆ME093 551	.. Knob, Pointer (Meter Option)	2
.. 67		ME070 654	.. Bushing, Strain Relief .300 Id X .550 Mtg Hole	1
.. 68		ME221 998	.. Cable, Trigger 25 In (Includes)	1
.. 69		ME107 983	.. Blank, snap-in, nylon, .500 mounting hole, black	1
.. 70		ME222 159	.. Spring, torsion	1
		ME049 455	.. Cable, Port No 18 2/C Type sjo nprn Jkt	3 ft
.. RC2		ME048 834	.. Conn, Circ Cpc Clamp Str Rlf Size 11 .329OD	1
		ME080 328	.. Rcpt W/Skts, Free Hanging	1
.. PLG6		ME115 094	.. Housing Plug+Skts, (Service Kit)	1
		ME223 814	.. Label, Warn Gen Precaution Suitcase	3
		ME223 815	.. Label, Warn Gen Precaution Suitcase (CE)	3
		ME196 596	.. Label, Warning Electric Shock And Pinch Wordless	1
		◆ME133 644	.. Frame, Snap-In Switch Rocker Panel Mtg	1
.. PLG1		ME115 093	.. Housing Plug+Skts, (Service Kit)	1
.. PLG3		ME115 092	.. Housing Plug+Skts, (Service Kit)	1
.. PLG4		ME115 091	.. Housing Plug+Skts, (Service Kit)	1
.. PLG7		ME131 056	.. Housing Rcpt+Skts, (Service Kit)	1
.. PLG8		◆ME115 093	.. Housing Plug+Skts, (Service Kit)	1
.. PLG13		ME131 054	.. Housing Rcpt+Skts, (Service Kit)	1
.. PLG15		◆ME130 203	.. Housing Plug+Skts, (Service Kit)	1
.. PLG16		◆ME131 055	.. Housing Rcpt+Skts, (Service Kit)	1
.. PLG17		◆ME191 929	.. Housing, Wire To Board Crimp Spox	1
.. PLG31		◆ME153 501	.. Housing Plug Pins+Skts, (Service Kit)	1
.. PLG32		◆ME164 899	.. Housing Plug Pins+Skts, (Service Kit)	1
.. PLG33		ME131 054	.. Housing Rcpt+Skts, (Service Kit)	1
.. PLG34		◆ME115 093	.. Housing Plug+Skts, (Service Kit)	1
.. PLG43		◆ME131 204	.. Housing Plug+Skts, (Service Kit)	1
.. RC6		ME115 090	.. Housing Plug+Pins, (Service Kit)	1
.. RC7		ME131 058	.. Housing Plug+Skts, (Service Kit)	1
.. RC8, RC21		ME131 059	.. Housing Plug+Pins, (Service Kit)	1
.. RC13		ME135 635	.. Housing Plug+Pins, (Service Kit)	1
.. RC42		ME131 203	.. Housing Plug+Pins, (Service Kit)	1

☞ *Meter/Trigger Hold feature optional in non-CE models, standard in CE models*

◆ Optional

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

To maintain the factory original performance of your equipment, use only Manufacturer's Suggested Replacement Parts. Model and serial number required when ordering parts from your local distributor.

Table 7-1. Drive Roll And Wire Guide Kits for Wire Feeder SC 12 RC

Drive roll kit	Product no.	For Unitor welding wire	
V-Groove 0.8 mm (0.030 in)	193-603118*	GSP-W-200 Ialbro-W-237 Icuni-W-239	0.8 mm 0.8 mm 0.8 mm
V-Groove 1.2 mm (0.45 in)	193-603340		
V-Groove 1.6 mm (1/16 in)	193-603373		
V-Groove Knurled 0.9 mm (0.035 in)	193-603142	HST-SF-203 S-316M-GF-221 S-309M-GF-222	1.0 mm 0.9 mm 0.9 mm
V-Groove Knurled 1.8 mm (0.068/0.072 in)	193-603126**	HST-SF-232	1.7 mm
U-Groove 0.9 mm (0.035 in)	193-603134	Alumag-W-235	1.0 mm
U-Groove 1.6 mm (1/16 in)	193-603498		

* Included in wire feeder when first received.

** This wire comes in the form of coil with 245 mm dia x 75 mm (6.1 kg) and requires a spool adapter product no. 193-602839.

UNITOR

Unitor ASA

Drammensveien 175
P.O. Box 300 Skoyen
N-0212 Oslo
Norway
Tel: +47 22 13 14 15