TM-279248B 2020-10

Eff w/Serial No. MJ376083U

Processes

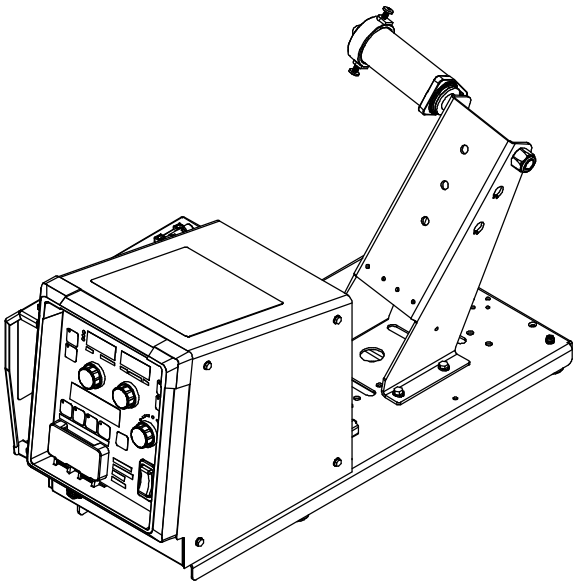
MIG (GMAW) Welding

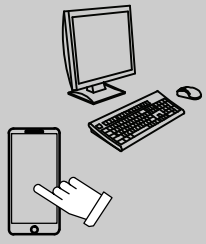
Flux Cored (FCAW) Welding

Description

Wire Feeder

Intellx™ Pro Wire Feeder





For product information, Owner's Manual translations, and more, visit

www.MillerWelds.com

TECHNICAL MANUAL

TABLE OF CONTENTS

SECTION 1 – SERVICING 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.**

⚠ **Only qualified persons should install, operate, maintain, and repair this equipment. A qualified person is defined as one who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training and experience, has successfully demonstrated the ability to solve or resolve problems relating to the subject matter, the work, or the project and has received safety training to recognize and avoid the hazards involved.**

⚠ **During servicing, keep everybody, especially children, away.**

A. ELECTRIC SHOCK can kill.

- Do not touch live electrical parts.
- Turn Off welding power source and wire feeder and disconnect and lockout input power using line disconnect switch, circuit breakers, or by removing plug from receptacle, or stop engine before servicing unless the procedure specifically requires an energized unit.
- Do not work on equipment unless it has been verified that the machine case is not energized.
- Insulate yourself from ground by standing or working on dry insulating mats big enough to prevent contact with the ground.
- Do not leave live unit unattended.
- If this procedure requires an energized unit, have only personnel familiar with and following standard safety practices do the job.
- When testing live unit, use the one-hand method. Do not put both hands inside unit. Keep one hand free.
- Disconnect input power conductors from deenergized supply line BEFORE moving a welding power source.

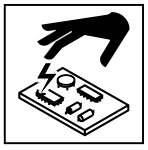
SIGNIFICANT DC VOLTAGE exists in inverter welding power sources AFTER removal of input power.

- Turn off unit, disconnect input power, and discharge input capacitors according to instructions in Manual before touching any parts.

B. ARC FLASH can kill.

Arc flash is the rapid and violent release of energy that occurs when electric current leaves its intended path and arcs to other conductors or to ground. Arc flash can be caused by equipment failure (faulty insulation, corrosion, dust) improper installation, human error (improper tool placement), and other factors. Conductive vapors can sustain the arc until over-current devices open the circuit. Individuals within the arc flash boundary are at risk.

- Do not work on energized equipment unless an assessment of arc flash risk from the electrical supply circuit has been conducted by a qualified person and you have been trained in safe work practices by your employer.
- Follow requirements in NFPA 70E for safe work practices and Personal Protective Equipment (PPE).

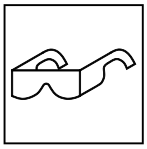


C. STATIC (ESD) can damage PC boards.

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

D. FIRE OR EXPLOSION hazard.

- Do not place unit on, over, or near combustible surfaces.
- Do not service unit near flammables.



E. FLYING METAL OR DIRT can injure eyes.

- Wear safety glasses with side shields or face shield during servicing.
- Be careful not to short metal tools, parts, or wires together during testing and servicing.

F. HOT PARTS can burn.

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

G. EXPLODING PARTS can injure.

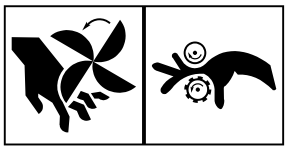
- Failed parts can explode or cause other parts to explode when power is applied to inverters.
- Always wear a face shield and long sleeves when servicing inverters.

H. SHOCK HAZARD from testing.

- Turn Off welding power source and wire feeder or stop engine before making or changing meter lead connections.
- Use at least one meter lead that has a self-retaining spring clip such as an alligator clip.
- Read instructions for test equipment.

I. FALLING EQUIPMENT can injure.

- Use lifting eye to lift unit only, NOT running gear, gas cylinders, or any other accessories.
- Use correct procedures and 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.
- Follow the guidelines in the Applications Manual for the Revised NIOSH Lifting Equation (Publication No. 94-110) when manually lifting heavy parts or equipment.

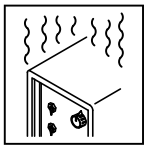


J. MOVING PARTS can injure.

- Keep away from moving parts such as fans.
- Keep away from pinch points such as drive rolls.
- Have only qualified people remove doors, panels, covers, or guards for maintenance and troubleshooting as necessary.
- Keep hands, hair, loose clothing, and tools away from moving parts.
- Reinstall doors, panels, covers, or guards when servicing is finished and before reconnecting input power.

K. ELECTRIC AND MAGNETIC FIELDS (EMF) can affect Implanted Medical Devices.

- Wearers of Pacemakers and other Implanted Medical Devices should keep away from servicing areas until consulting their doctor and the device manufacturer.

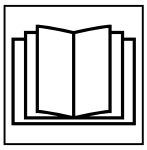


L. OVERUSE can cause OVERHEATING.

- 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.

M. 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.



N. READ INSTRUCTIONS.

- Use Testing Booklet (Part No. 150853) when servicing this unit.
- Consult the Owner's Manual for welding safety precautions.
- Use only genuine replacement parts from the manufacturer.
- Read and follow all labels and the Technical Manual carefully before installing, operating, or servicing unit. Read the safety information at the beginning of the manual and in each section.
- Perform installation, maintenance, and service according to the Technical Manual, industry standards, and national, state, and local codes.

SECTION 2 – SAFETY PRECAUTIONS FOR SERVICING

Protect yourself and others from injury — read, follow, and save these important safety precautions and operating instructions.

2-1. Symbol Usage

DANGER! – Indicates a hazardous situation which, if not avoided, will result in death or serious injury. The possible hazards are shown in the adjoining symbols or explained in the text.

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NOTICE – *Indicates statements not related to personal injury.*

☞ *Indicates special instructions.*

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

2-2. Servicing 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.

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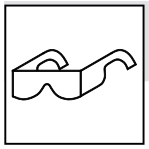

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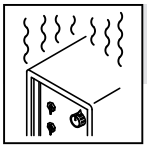

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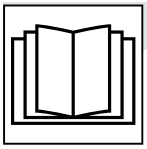

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2-3. California Proposition 65 Warnings

⚠ **WARNING – This product can expose you to chemicals including lead, which are known to the state of California to cause cancer and birth defects or other reproductive harm.**

For more information, go to www.P65Warnings.ca.gov.

2-4. EMF Information

Electric current flowing through any conductor causes localized electric and magnetic fields (EMF). The current from arc welding (and allied processes including spot welding, gouging, plasma arc cutting, and induction heating operations) creates an EMF field around the welding circuit. EMF fields can interfere with some medical implants, e.g. pacemakers. Protective measures for persons wearing medical implants have to be taken. For example, restrict access for passers −by or conduct individual risk assessment for welders. All welders should use the following procedures in order to minimize exposure to EMF fields from the welding circuit:

1. Keep cables close together by twisting or taping them, or using a cable cover.
2. Do not place your body between welding cables. Arrange cables to one side and away from the operator.
3. Do not coil or drape cables around your body.
4. Keep head and trunk as far away from the equipment in the welding circuit as possible.
5. Connect work clamp to workpiece as close to the weld as possible.
6. Do not work next to, sit or lean on the welding power source.
7. Do not weld whilst carrying the welding power source or wire feeder.

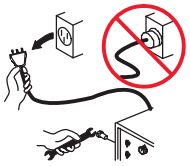
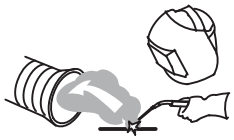
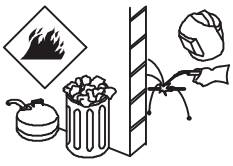
About Implanted Medical Devices:

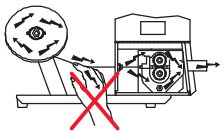
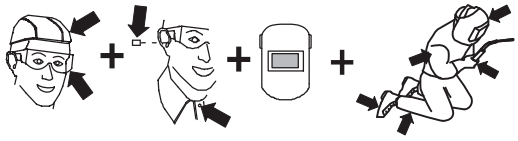
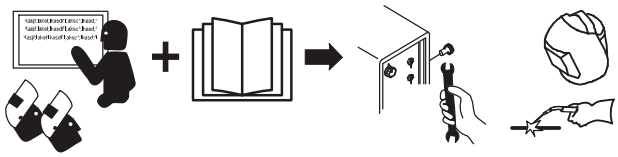
Implanted Medical Device wearers should consult their doctor and the device manufacturer before performing or going near arc welding, spot welding, gouging, plasma arc cutting, or induction heating operations. If cleared by your doctor, then following the above procedures is recommended.

SECTION 3 – DEFINITIONS

3-1. Additional Safety Symbol Definitions

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

	Warning! Watch Out! There are possible hazards as shown by the symbols.
	Do not discard product (where applicable) with general waste. Reuse or recycle Waste Electrical and Electronic Equipment (WEEE) by disposing at a designated collection facility. Contact your local recycling office or your local distributor for further information.
	Wear dry insulating gloves. Do not touch electrode with bare hand. Do not wear wet or damaged gloves.
	Protect yourself from electric shock by insulating yourself from work and ground.
	Disconnect input plug or power before working on machine.
	Keep your head out of the fumes.
	Use forced ventilation or local exhaust to remove the fumes.
	Use ventilating fan to remove fumes.
	Keep flammables away from welding. Do not weld near flammables.

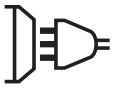
	Welding sparks can cause fires. Have a fire extinguisher nearby, and have a watchperson ready to use it.
	Do not weld on drums or any closed containers.
	Do not remove or paint over (cover) the label.
	Drive rolls can injure fingers.
	Welding wire and drive parts are at welding voltage during operation - keep hands and metal objects away.
	Pinch points can injure.
	Wear hat and safety glasses. Use ear protection and button shirt collar. Use welding helmet with correct shade of filter. Wear complete body protection.
	Become trained and read the instructions before working on the machine or welding.

3-2. Miscellaneous Symbols And Definitions

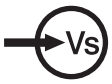
A	Amperage
V	Voltage
⎓	Direct Current (DC)

IP	Degree Of Protection
	Increase
	Gas Input

	Input
	Output
%	Percent

	Purge By Gas
	Gas Preflow
	Gas Postflow
	Rated Welding Current
	Line Connection
	Wire Diameter

	Cold Jog (Inch) Towards Workpiece
	Trigger Hold On
	Gas Type
	Gas Metal Arc Welding (GMAW) Gun
	Primary Voltage
	Filter

	Wire Type
	Arc Control
	Read Instructions
	Pulse
	Done
	Voltage Sense Input

SECTION 4 – SPECIFICATIONS

4-1. Serial Number And Rating Label Location

The serial number and rating information for this product is located on the back. Use rating label to determine input power requirements and/or rated output. For future reference, write serial number in space provided on back cover of this manual.

4-2. Software Licensing Agreement

The End User License Agreement and any third-party notices and terms and conditions pertaining to third-party software can be found at https://www.millerwelds.com/eula and are incorporated by reference herein.

4-3. Specifications

Input Power	Welding Power Source Type	Wire Feed Speed Range*	Wire Diameter Range	Welding Circuit Rating	Overall Dimensions	Weight
50 VDC	Deltaweld 350	Standard: 50-780 ipm (1.3-19.8mpm)	.023 To 5/64 in. (0.6 To 2 mm) Max Spool Capacity: 18 in. (457 mm) Max Spool Weight: 60 lb (27 kg)	113 Volts DC 600 Amperes, 60% Duty Cycle	Height: 16-1/4 in. (413 mm) Width: 12-3/8 in. (314 mm) Length: 27-7/8 in.(708 mm)	44.8 lb (20.3 kg)

4-4. Environmental Specifications

A. IP Rating

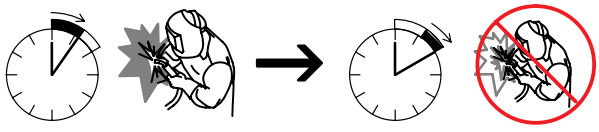
IP Rating
IP2X This equipment is designed for indoor use and is not intended to be used or stored outside.

B. Temperature Specifications

Operating Temperature Range	Storage/Transportation Temperature Range
14 to 104°F (-10 to 40°C)	-4 to 131°F (-20 to 55°C)

4-5. Duty Cycle And Overheating

60% Duty Cycle At 600 Amperes



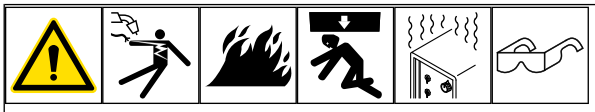
6 Minutes Welding 4 Minutes Resting

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

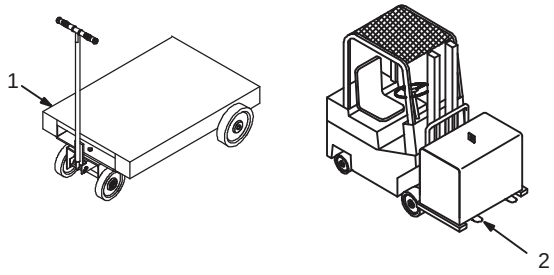
NOTICE – *Exceeding duty cycle can damage unit and void warranty.*

SECTION 5 – INSTALLATION

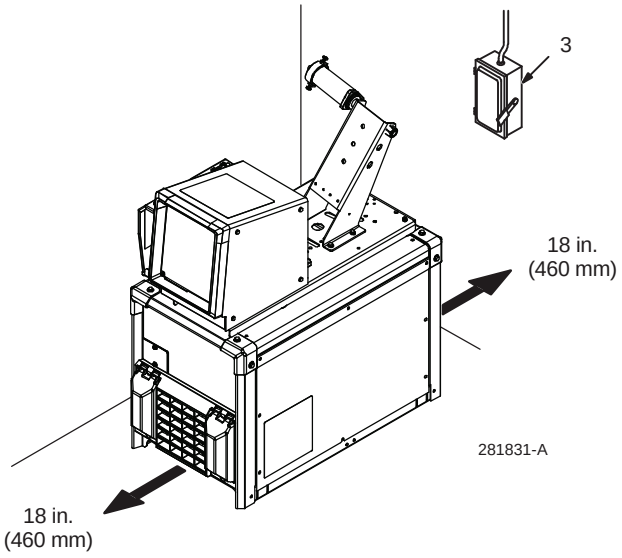
5-1. Selecting A Location



Movement



Location And Airflow



⚠ **Do not put feeder where welding wire hits cylinder.**

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

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

1 Hand Cart

2 Lifting Forks

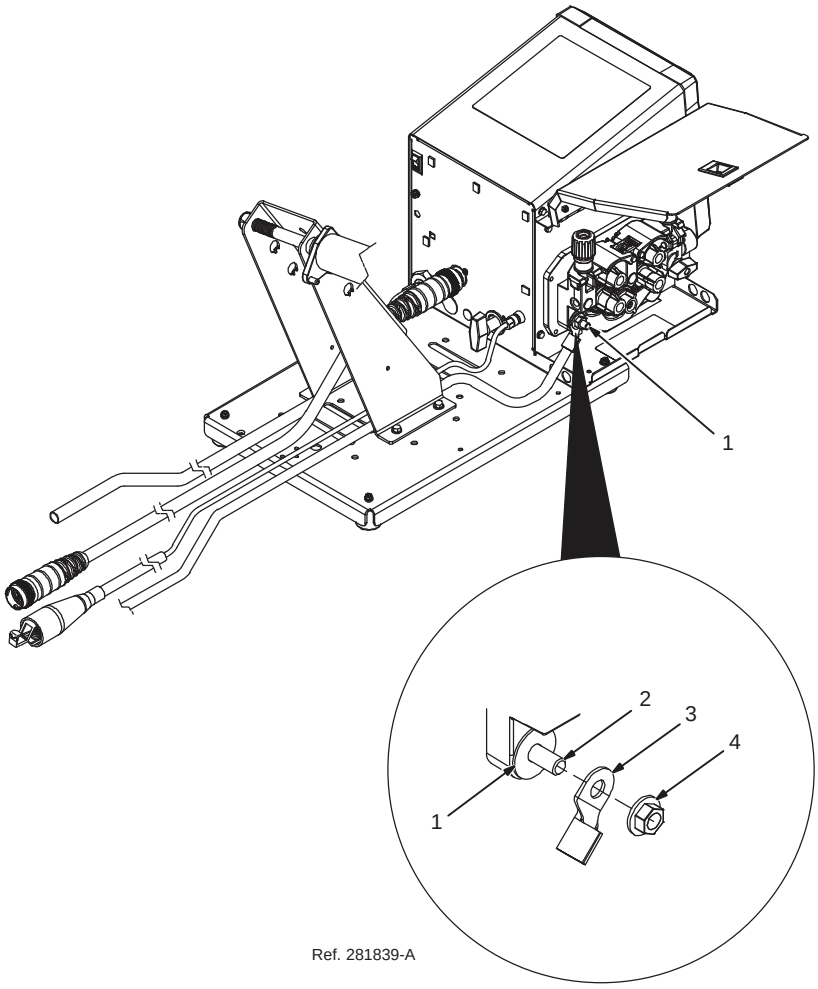
Use cart or similar device to move unit.

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

3 Line Disconnect Device

Locate unit near correct input power supply.

5-2. Connecting Weld Output Cable



Ref. 281839-A

9/16 in.

⚠ **Turn off power before connecting to weld terminal or receptacle.**

⚠ **Failure to properly connect weld cables may cause excessive heat and start a fire, or damage your machine.**

Ensure all connections are tight.

Weld Cable Connection

☞ *Do not place anything between weld cable terminal and weld terminal. Make sure that all surfaces are clean.*

1 Weld Terminal

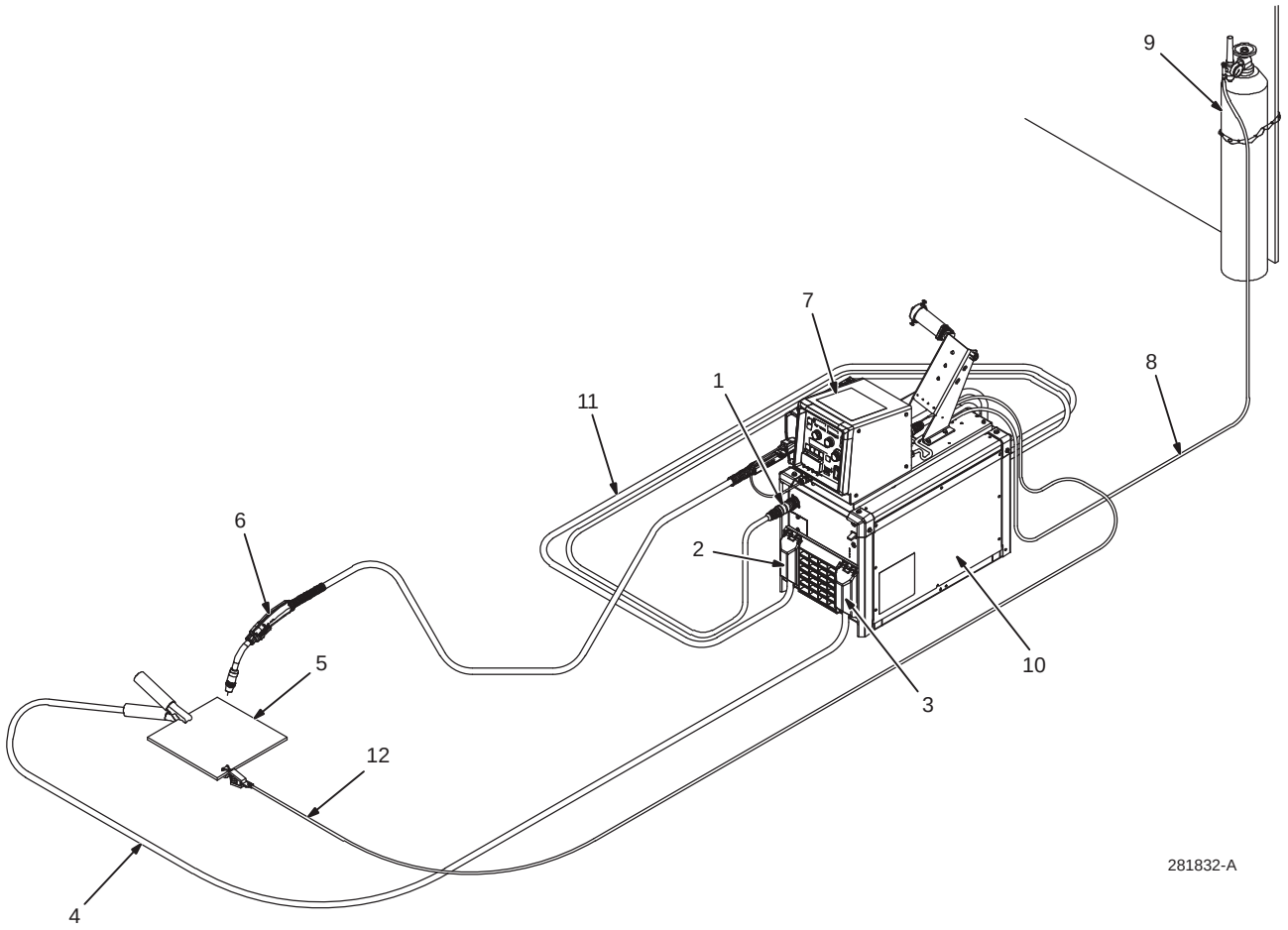
2 Weld Terminal Bolt

3 Weld Cable Terminal

4 Supplied Nut

Remove supplied nut from weld terminal. Install cable on weld terminal bolt. Screw nut onto bolt and tighten to 27-33 ft lb (36.6-45 N·m).

5-3. Connection Diagram



⚠ Turn off power before making connections.

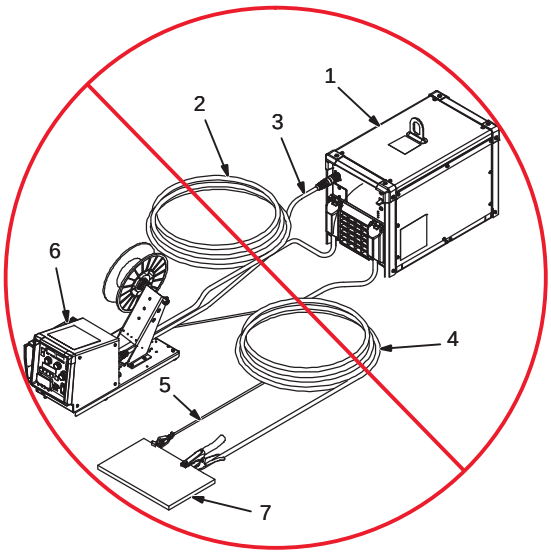
1 Wire Feeder Cable
2 Positive (+) Weld Output Terminal
3 Negative (-) Weld Output Terminal
4 Work Cable
5 Workpiece
6 Welding Gun
7 Wire Feeder
8 Gas Hose
9 Gas Cylinder
10 Welding Power Source
11 Electrode Cable
12 Volt Sense Lead (Optional)

Use of shielding gas is dependant on Wire Type.

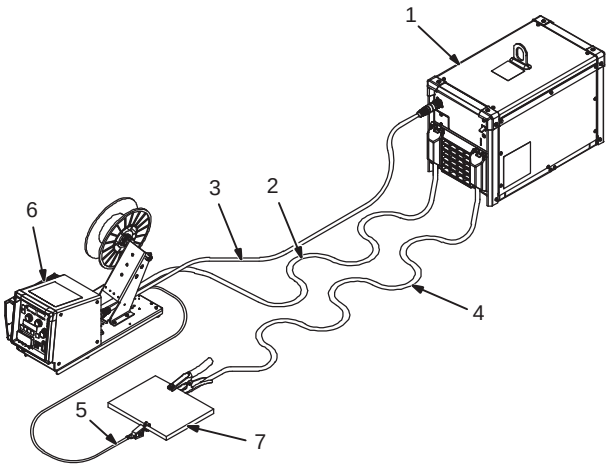
☞ *The connection diagram illustrates DCEP (reverse polarity) suitable for all wires except self-shielded FCAW. The majority of self-shielded FCAW wires require DCEN (straight polarity).*

5-4. Arranging Welding Cables To Reduce Welding Circuit Inductance

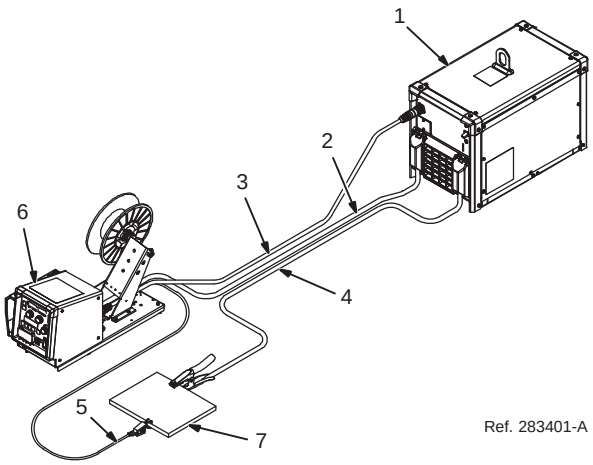
Bad



Better



Best



Ref. 283401-A

1 Welding Power Source

2 Electrode Cable

3 Feeder Cable

4 Work Cable

5 Voltage Sense Lead

6 Wire Feeder

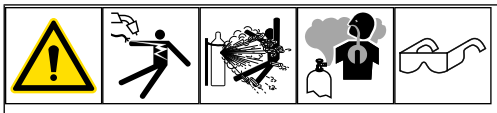
7 Workpiece

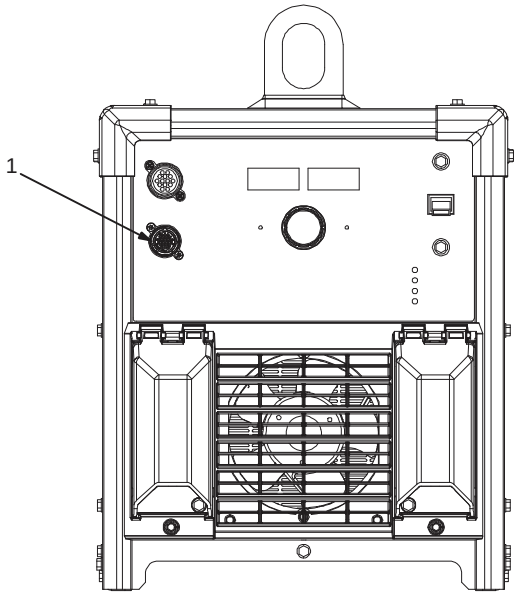
The arrangement of the cables has an effect that is significant to the welding properties. As an example, Accupulse welding process can produce high welding circuit inductance depending on cable length and arrangement. This can result in limited current rise during droplet transfer into the welding puddle.

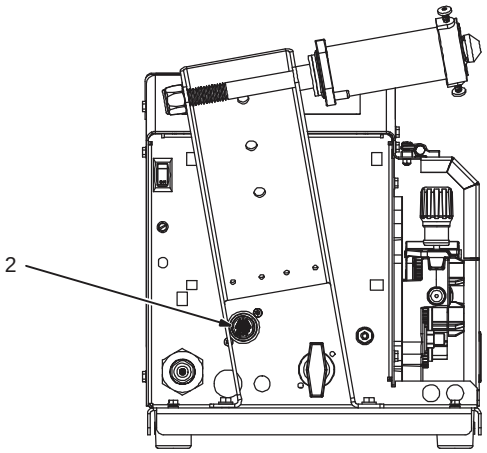
The work sense lead connects to the rear of the wire feeder. This work sense lead automatically compensates for work cable voltage drop when connected.

Do not coil excess cables. Use cables that are the appropriate length for the application. Whenever using long weld cables [longer than 50 ft (15 m)] try to arrange positive and negative weld cables together to reduce the magnetic field surrounding the cables. Avoid coupling the feeder and work sense leads with the weld cables.

5-5. Control Cable Connections







Ref. 280823-A / Ref. 281841-A

⚠ **Turn off power before connecting control cables.**

Welding Power Source Front View

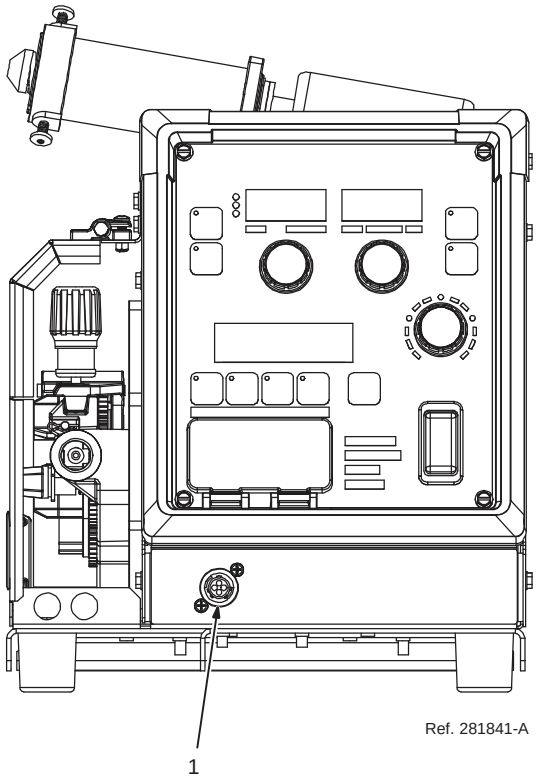
1 Remote ArcConnect Receptacle RC2

Wire Feeder Rear View

2 Remote ArcConnect Receptacle RC1

Connect control cable between receptacle RC2 on front of welding power source to receptacle RC1 on rear of wire feeder.

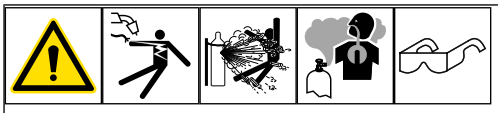
5-6. Wire Feeder Lower Front Panel Connections

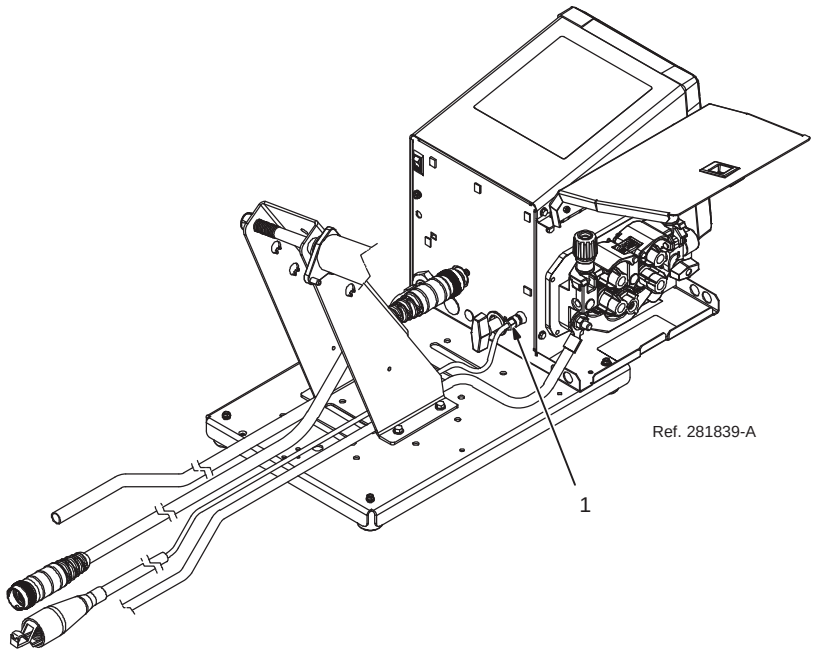


1 4-Socket Gun Trigger Receptacle RC2

Connect gun trigger plug to receptacle RC2 on lower front panel on wire feeder.

5-7. Weld Voltage Sense Connection (Optional)



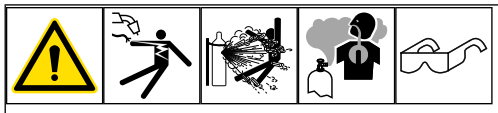


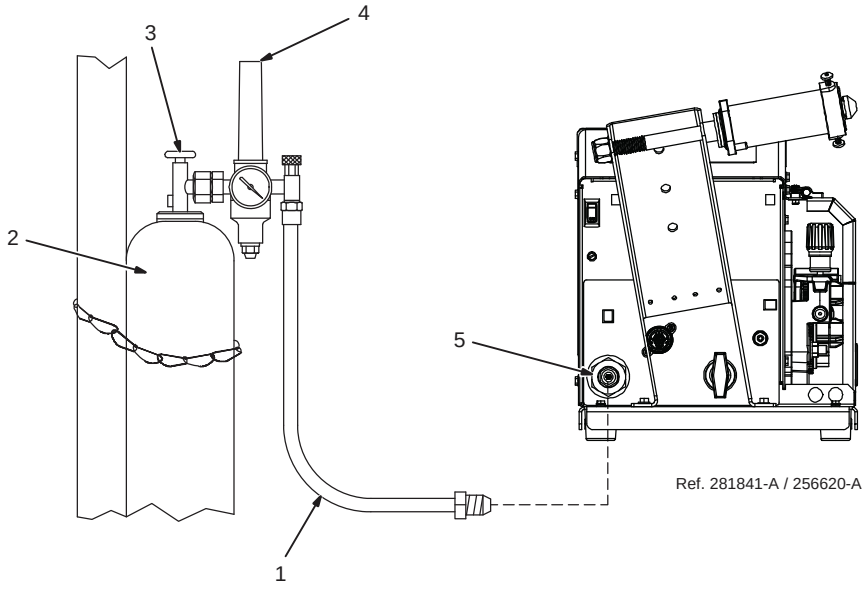
1 Weld Voltage Sense Receptacle RC3

Connect voltage sense lead from weld voltage sense receptacle RC3 on rear of wire feeder to work piece (see Sections 5-3 and 5-4) for more information.

☞ *Connecting sense lead is optional as required by desired weld process.*

5-8. Connecting Shielding Gas





NOTICE – *This feeder has a shielding gas filter that requires special attention when cleaning. See Section 9-2 for proper cleaning instructions.*

1 Gas Hose With 5/8-18 Right-hand Thread Fittings (Customer Supplied)

☞ *Tighten gas hose fitting to a maximum of 100 in. lbs (12 Nm).*

2 Shielding Gas Cylinder

☞ *Shielding gas pressure not to exceed 100 psi (689 kPa).*

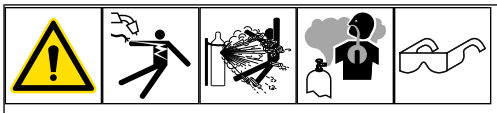
3 Valve

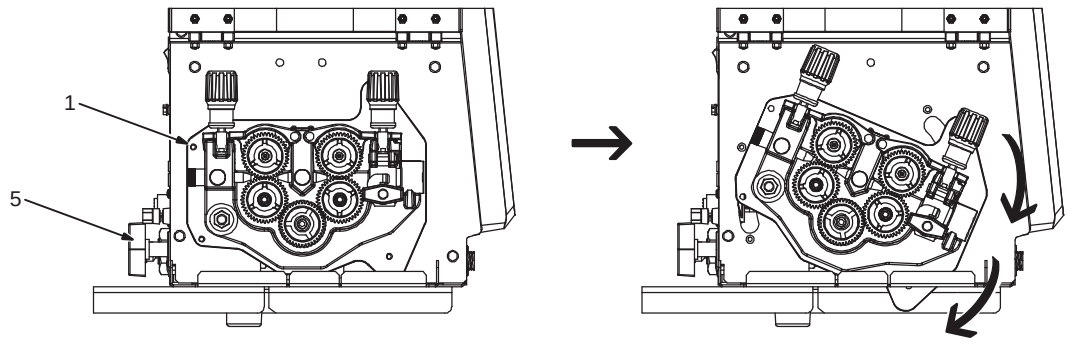
4 Flowmeter

5 Shielding Gas Fitting

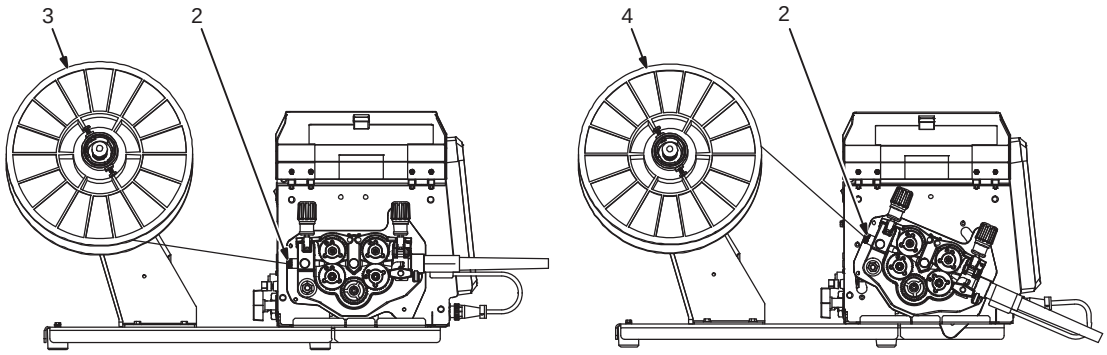
Close valve on cylinder when finished welding.

5-9. Rotating Drive Assembly





Good



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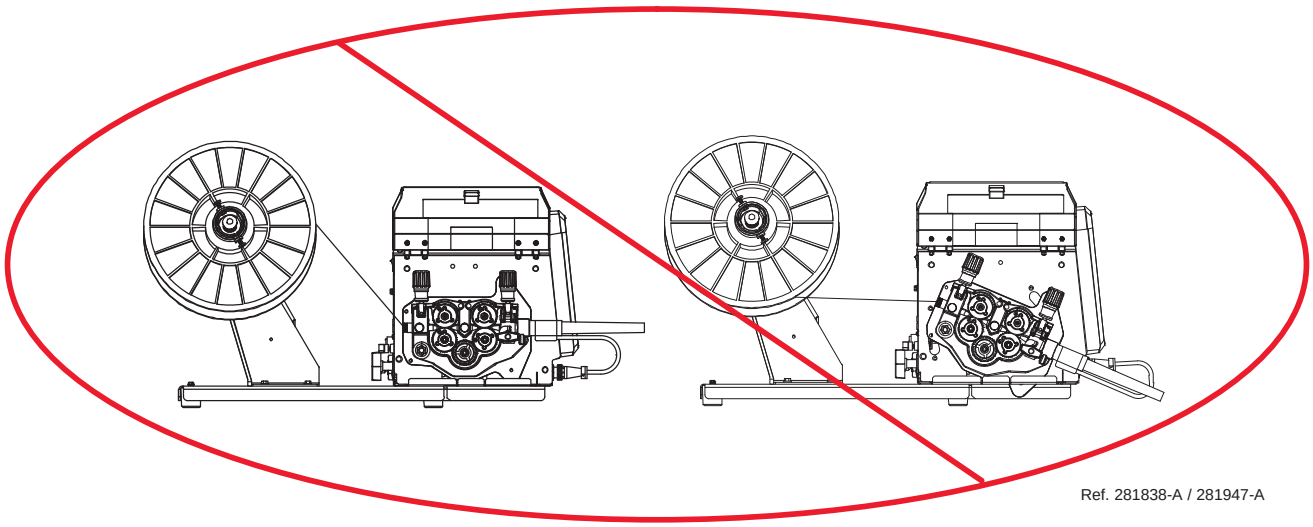


Ref. 281838-A / 281947-A

1 Drive Assembly

2 Wire Drive Assembly Angle

Rotate the drive assembly to reduce bends in the MIG gun cable.

3 Wire Feeding Off Bottom Of Spool

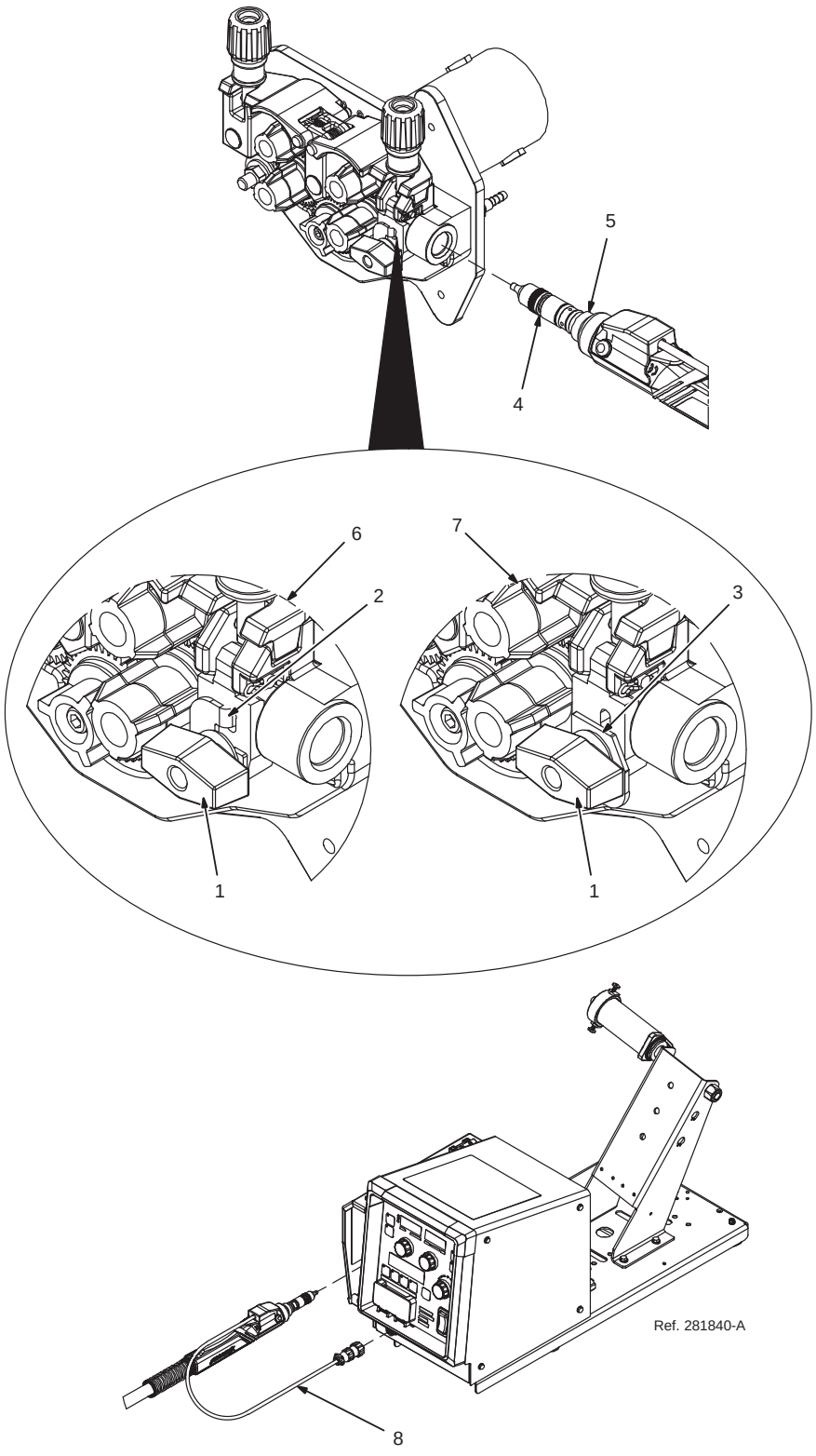
4 Wire Feeding Off Top Of Spool

Wire can be setup to feed off either the top or bottom of wire spool. Select the option that results in the straightest possible path into drive assembly.

5 Drive Assembly Rotation Knob

To rotate the drive assembly, loosen drive assembly rotation knob, rotate drive assembly to desired position and tighten knob to secure.

5-10. Installing Welding Gun



1 Power Clamp Knob

2 Gun Locking Tab

3 Gun Locking Tab Rotated 180 Degrees

4 Power Pin Groove

5 Gun Connection End

6 Installing Gun With Accu-Mate Connection

Loosen power clamp knob to allow power pin of gun to clear the gun locking tab.

Push power pin into power clamp as far as possible to align the groove in the power pin of the gun with the gun locking tab.

Secure gun by tightening power clamp knob.

7 Installing Gun Without Accu-Mate Connection

When using a gun without the groove in the power pin, loosen power clamp knob and rotate gun locking tab 180 degrees. This prevents the locking tab from extending into the power pin gun connection.

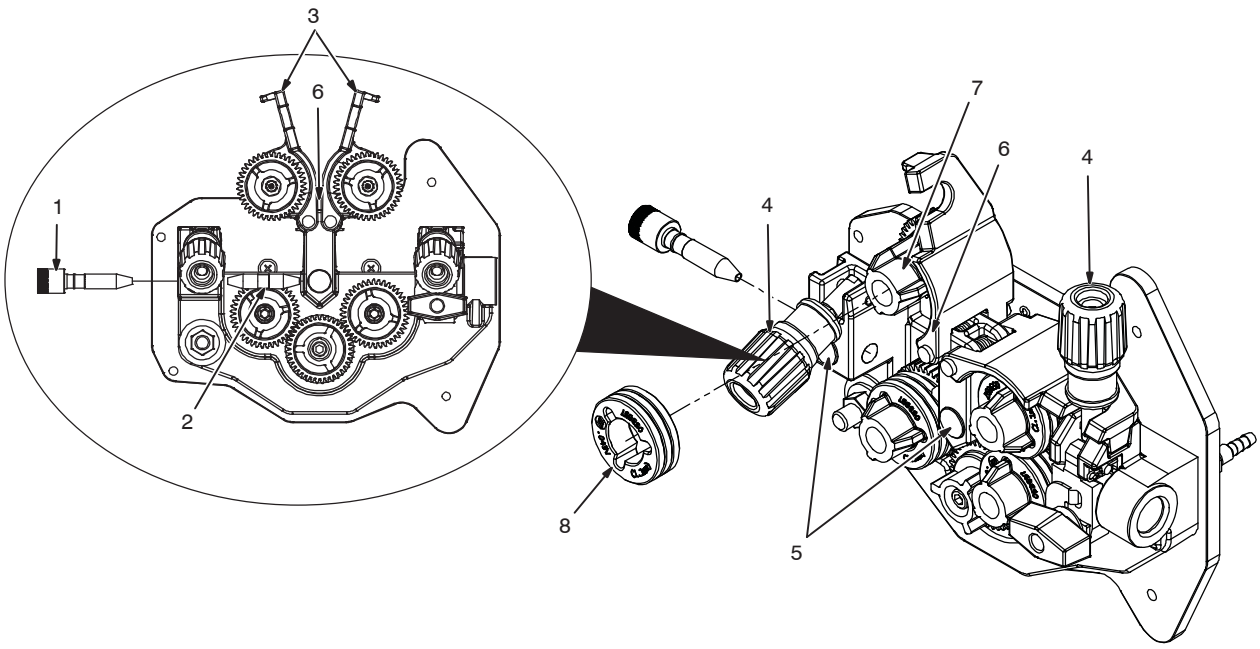
Push power pin into power clamp as far as possible.

Secure gun by tightening power clamp knob.

8 Gun Control Cable

Insert plug into Gun Control receptacle, and tighten threaded collar.

5-11. Installing Wire Guides And Drive Rolls



Ref. 281467-C

Installing Wire Guides

1 Inlet Wire Guide

2 Intermediate Wire Guide

3 Upper Drive Roll Carrier

4 Drive Roll Pressure Adjustment Knob

5 Wire Guide Securing Button

Open upper drive roll carriers by grasping drive roll pressure adjustment knob and pull out and down. Carrier will spring open. Repeat for other carrier.

Insert inlet wire guide into wire entry as shown. Push into place to secure. Repeat procedure for intermediate guide.

To remove wire guides, push on wire guide securing button and remove guide.

Installing Drive Rolls

6 Drive Roll Carrier

7 Drive Roll Retaining Nut

8 Drive Roll

With upper drive roll carriers open, slide drive roll onto carrier. Rotate drive roll retaining nut one click to secure in place. Repeat procedure for remaining drive rolls.

To remove drive rolls reverse procedure.

Aligning Wire Guide And Drive Rolls

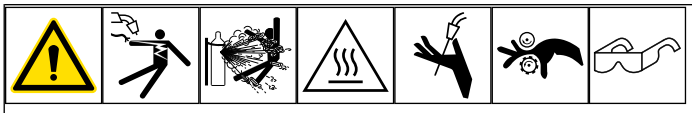
Self-aligning drive rolls do not require any manual adjustment.

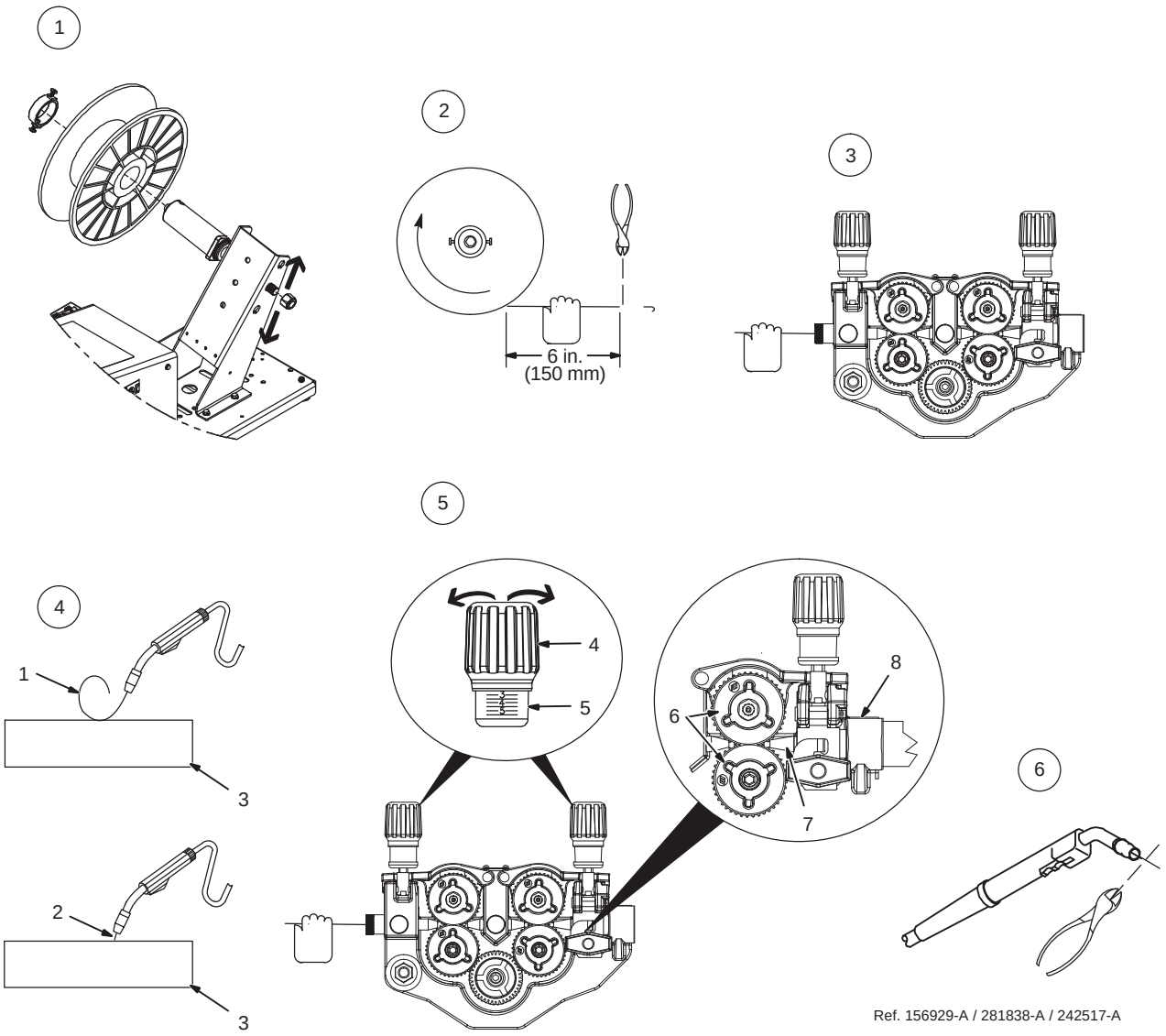
Cleaning Drive Rolls

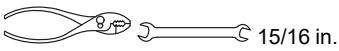
Remove drive rolls, and clean grooves using a wire brush.

Close drive assembly cover.

5-12. Installing And Threading Welding Wire







☞ *Verify correct drive rolls are installed.*

1 Example Of No Wire Slippage
2 Example Of Wire Slippage
3 Nonconductive Surface
4 Pressure Adjust Knob
5 Pressure Indicator Scale
6 Drive Rolls
7 End Of Liner
8 Back Of Gun

Step 1. Select wire spool hub mounting position. Install wire spool. Adjust tension nut so wire is taut when wire feed stops.

Step 2. Pull and hold wire. Cut off end of wire.

☞ *Hold wire tightly to keep it from unraveling.*

Step 3. Push wire through guides up to drive rolls; continue to hold wire.

Install gun. Lay gun cable out straight. Cut off end of wire. Push wire through guides up to drive rolls; continue to hold wire. Press Jog button to feed wire out gun.

☞ *For best wire feeding performance, be sure that the outlet cable has the proper size liner for the welding wire size being used. Also, when the gun is installed, the liner extending from the back of the gun should be as close to the drive rolls as possible, without touching.*

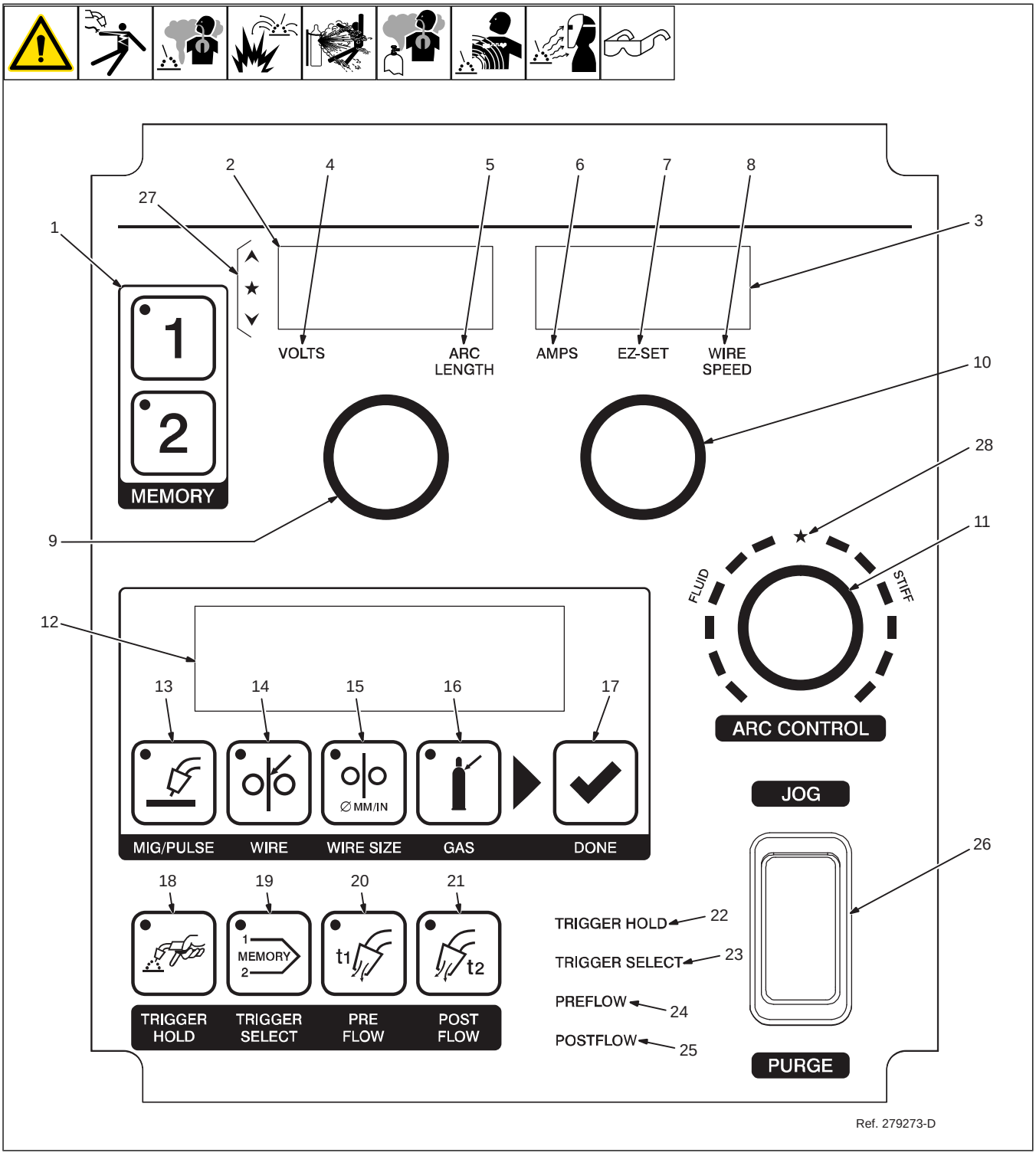
Step 4. To adjust drive roll pressure, begin by holding nozzle about 2 in. (51 mm) from nonconductive surface and pressing gun trigger to feed wire against surface.

Step 5. Tighten knob so wire does not slip or wire will coil. Do not overtighten. When contact tip is completely blocked, (by moving nozzle closer) wire should slip at the feeder (see pressure adjustment in step 4).

Step 6. Cut wire off. Close cover.

☞ *For soft wire or small diameter stainless steel wire, reduce drive roll pressure on the rear roll to half that of the front rolls.*

6-1. Wire Feeder User Interface



6-2. Description Of Front Panel Controls

1 Memory 1-2 Buttons	Allows two memory selections to recall pre-selected welding process, wire type, wire size, gas and weld parameters.	2 Left Display Indicates weld voltage or arc length as determined by indicator below display. Also,

displays welding gas preflow and postflow indication when corresponding button is pressed.

3 Right Display

Indicates weld amperage or wire feed speed as determined by indicator below display. Also, displays welding gas preflow and postflow time when corresponding button is pressed.

4 Voltage Indicator

Indicates weld voltage value shown on Left Display.

5 Arc Length Indicator

Indicates arc length value shown on Left Display.

6 Amps Indicator

Indicates weld amperage value shown on Right Display.

7 EZ-Set Indicator

Indicates weld voltage or arc length have been automatically determined for the selected process, wire type, size, gas type and material size.

8 Wire Speed Indicator

Indicates wire speed value shown on Right Display.

9 Left Adjust Control - Voltage/Arc Length

Use control to adjust voltage or arc length as determined by indicator below Left Display.

10 Right Adjust Control - Wire Speed / Preflow / Postflow Time

Use control to adjust wire speed when indicator is lit below Right Display. Use control to adjust welding gas preflow or postflow time after pressing preflow or postflow buttons.

11 Arc Control

Use control to adjust arc characteristics. Rotate to review and adjust desired setting.

12 Wire And Gas Selection Display

Indicates selected weld process, wire type, wire size and gas type.

13 MIG/Pulse Button

Used to select desired welding process.

14 Wire Button

Use to select desired welding wire type.

15 Wire Size Button

Use to select desired welding wire size.

16 Gas Button

Use to select desired welding gas type.

17 Done Button

Use to switch the selected welding process, wire type, size and gas type.

18 Trigger Hold Button

Use to enable and disable trigger hold function. Indicator is lit when active.

19 Trigger Select Button

Use to enable and disable trigger select function. When active, tap gun trigger to select between Memory 1 or 2. Indicator is lit when active.

20 Preflow Button

Use to enable and disable gas preflow function. Indicator is lit when active.

21 Postflow Button

Use to enable and disable gas postflow function. Indicator is lit when active.

22 Trigger Hold Indicator

Indicates trigger hold function enabled when lit.

23 Trigger Select Indicator

Indicates trigger select function enabled when lit.

24 Preflow Indicator

Indicates preflow function enabled when lit.

25 Postflow Indicator

Indicates postflow function enabled when lit.

26 Jog/Purge Switch

Pressing the top portion of switch enables wire feeder to feed wire without energizing weld output or gas valve.

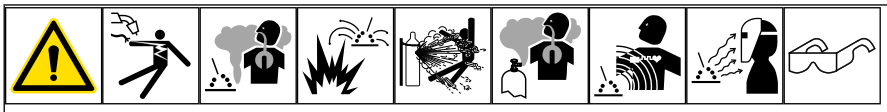
27 EZ-Set Voltage Range Indicator

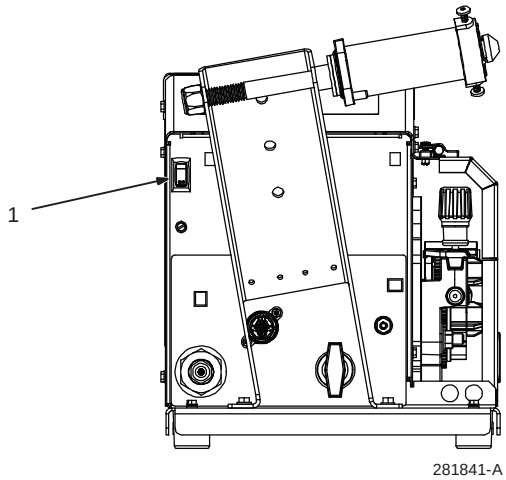
Indicates weld voltage has been adjusted higher (∧), lower (∨) or at recommended (*) voltage for wire feed speed when using MIG (EZ-Set) welding arc.

28 Arc Control Indicators

Visually indicates selected arc control setting.

6-3. Power Switch

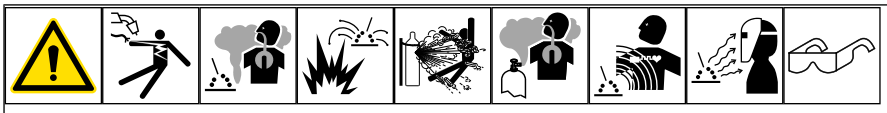


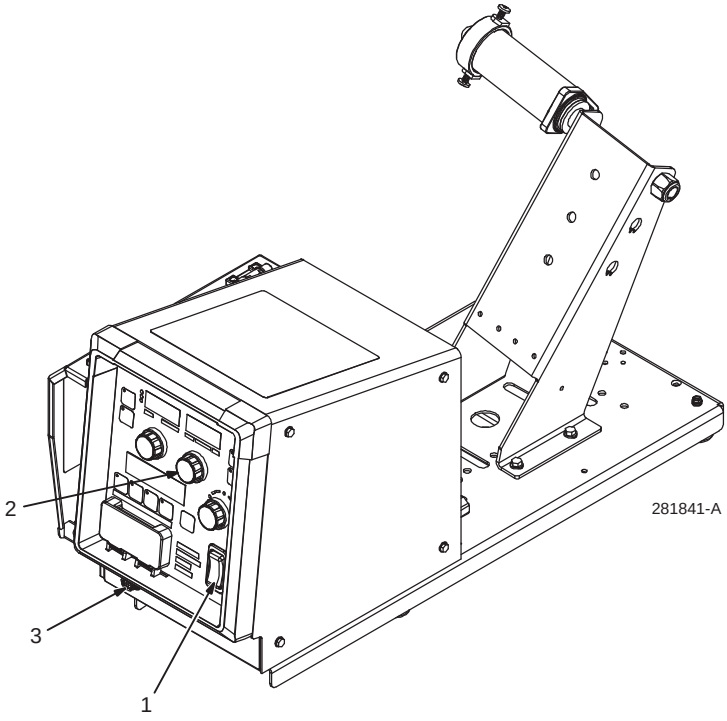


281841-A

1 Power Switch (Located on rear of feeder)

6-4. Jog/Purge





1 Jog/Purge Switch

Pressing the top portion of switch enables wire feeder to feed wire without energizing weld output or gas valve.

Pressing bottom portion of switch enables gas valve to purge gas lines.

2 Wire Speed Control

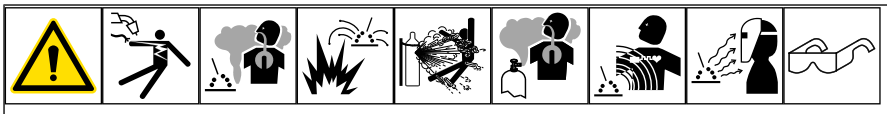
Wire speed can be adjusted with the Wire Speed control when the unit is jogging wire. The unit displays wire speed while the unit is being jogged.

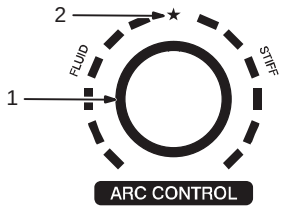
3 Gun Trigger Receptacle

The wire feeder can also be jogged by using the gun trigger. However, the weld output is energized for 3 seconds. If the welding arc does not initiate in 3 seconds after the gun trigger is activated the unit will perform a jog operation for a maximum of one minute. If the gun trigger is still activated after one minute, the jog operation is terminated to prevent complete despooling of the wire, as in the case of a damaged gun.

☞ *The unit displays HELP HELD to inform operator to release gun trigger or Jog switch*

6-5. Arc Control





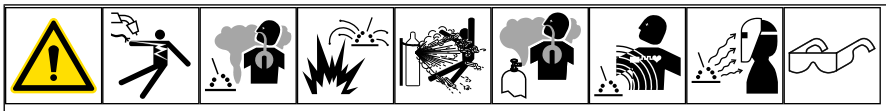
1 Arc Control Knob

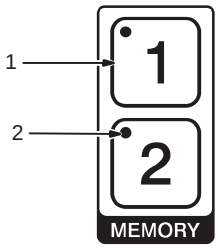
2 Arc Control Indicators

Arc control allows the arc characteristics, *fluid* versus *stiff*, to be changed for specific applications and wires. The *star* setting is good for most applications. Use *fluid* settings (0 -25) to soften the arc, increase puddle fluidity and flatten the weld bead appearance. Use *stiff* settings (0-25) to stiffen the arc, reduce puddle fluidity and crown the weld bead appearance.

To adjust or review the arc control setting, begin by turning Arc Control knob. The type (*fluid or stiff*) and value (0-25) will be displayed in the Left and Right display for three seconds. Turn knob to desired arc control setting. Indicators around arc control knob will light to give visual indication of arc control setting.

6-6. Memory 1–2





1 Memory 1-2 Buttons

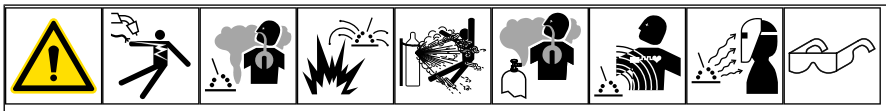
2 Memory 1-2 LEDs

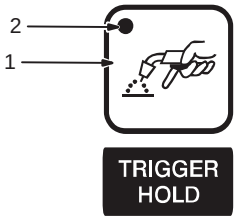
Memory 1-2 allows the operator to quickly select between welding setups.

To save welding setups to a memory, press and release desired memory button. Indicator will be lit. Choose welding parameters using Section 6-12. The welding setup is now saved to this memory. Repeat process for other memory button. Operator can now recall either setup by pressing corresponding memory button.

☞ *Each memory has independent preset voltage or arc length, wire speed, arc control, preflow, postflow and trigger hold settings. These settings are preserved when unit is turned off.*

6-7. Trigger Hold





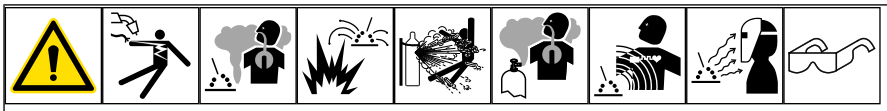
1 Trigger Hold Button

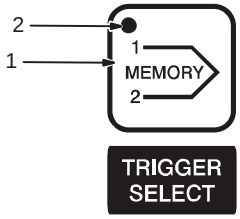
2 Trigger Hold LED

Trigger Hold function allows the operator to weld without continuously pressing the welding gun trigger. The operator presses the welding gun trigger for five seconds and an arc is established. The weld enable signal latches on and the operator can release the welding gun trigger. The welding operation will continue. To stop the welding operation, press and release the welding gun trigger.

To enable Trigger Hold function, press and release button. Indicator will light. To disable press and release button. Indicator will not be lit.

6-8. Trigger Select





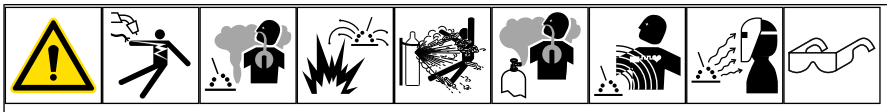
1 Trigger Select Button

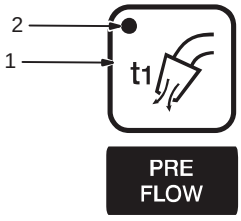
2 Trigger Select LED

Trigger Select function allows the operator to switch between saved welding setups using the welding gun trigger. The operator momentarily presses and releases the welding gun trigger to switch between Memory 1 or Memory 2.

To enable Trigger Select function, press and release button. Indicator will light. To disable, press and release button. Indicator will not be lit.

6-9. Preflow





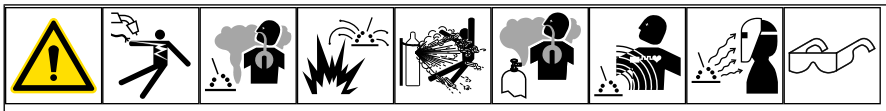
1 Preflow Button

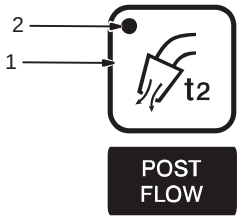
2 Preflow LED

Preflow function allows a timed amount of shielding gas to flow after welding gun trigger is press and before welding arc will be enabled. The preflow time can be adjusted from 0.1 to 30 seconds.

To enable preflow function, press and release button. Indicator will light. Immediately after enabling, the preflow time will be displayed in the Right Display. Turn Right Adjust Control (knob below Right Display) to adjust desired preflow time. To disable press and release button. Indicator will not be lit.

6-10. Postflow





1 Postflow Button

2 Postflow LED

Postflow function allows a timed amount of shielding gas to flow after the welding operation has ended. The postflow time can be adjusted from 0.1 to 30 seconds.

To enable postflow function, press and release button. Indicator will light. Immediately after enabling, the postflow time will be displayed in the Right Display. Turn Right Adjust Control to adjust desired postflow time. To disable press and release button. Indicator will not be lit.

6-11. Operational Terms

The following is a list of terms and their definitions as they apply to this wire feeder:

General Terms:

Arc Length

Is the physical distance between the wire electrode and the molten weld puddle. It is a term used to represent adjustments in the Pulsed MIG welding process. The default setting for arc length is 0.0 and good for most applications. The operator can change the setting for specific applications.

The arc length setting will be displayed in the Left Display when a Pulsed MiG welding process is selected. To adjust setting, turn Left Adjust Control knob. Use settings of 0 to -10.0 to decrease arc length. Use settings of 0 to 10.0 to increase arc length.

EZ-Set

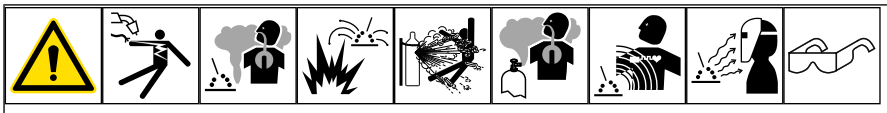
A synergic operation which automatically determines weld parameters by using the wirefeed speed knob to select the thickness of the material being welded. Once the material thickness is selected, the welding parameters are set to a suggested starting point for welding.

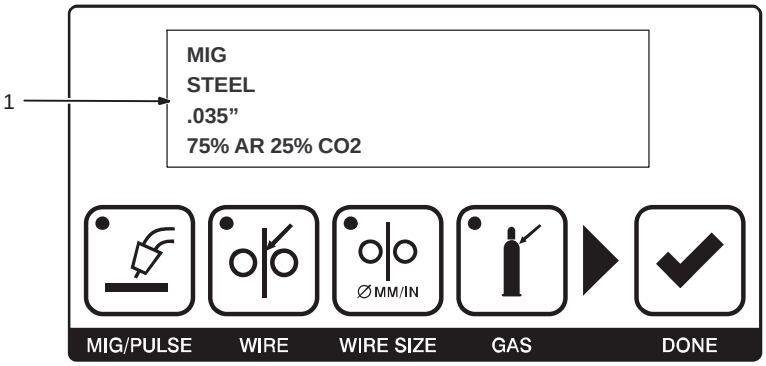
☞ *All settings are approximate. Welds should be tested to comply to your specifications.*

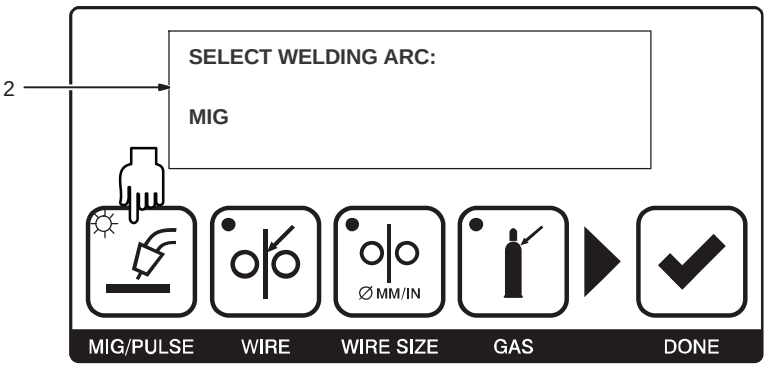
Accu-Pulse

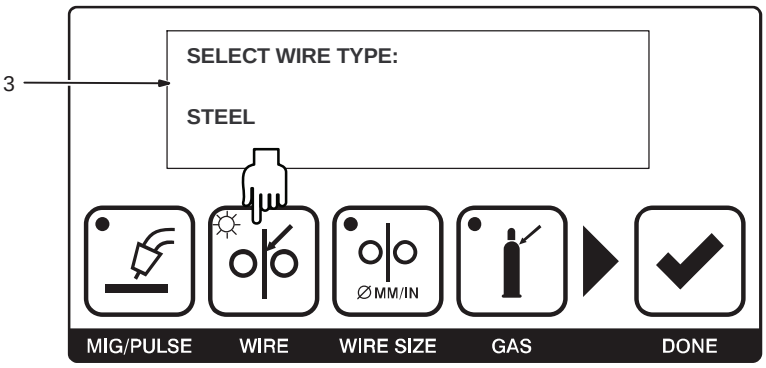
Is a Pulsed MIG welding process utilizing constant current ramps with constant voltage control of peaks and background. Adaptive response is controlled by peak and background current levels.

6-12. Selecting Welding Arc, Wire Type, Size, And Gas









Ref. 279273-D

1 Wire And Gas Selection Display

The Wire and Gas Selection Display indicates the current welding arc, wire type, wire size and shielding gas.

☞ *To change parameters, follow the steps below:*

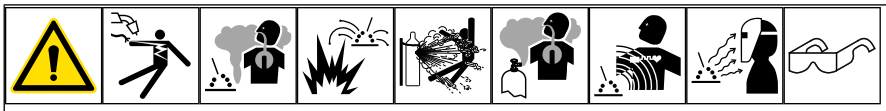
2 Selecting Welding Arc

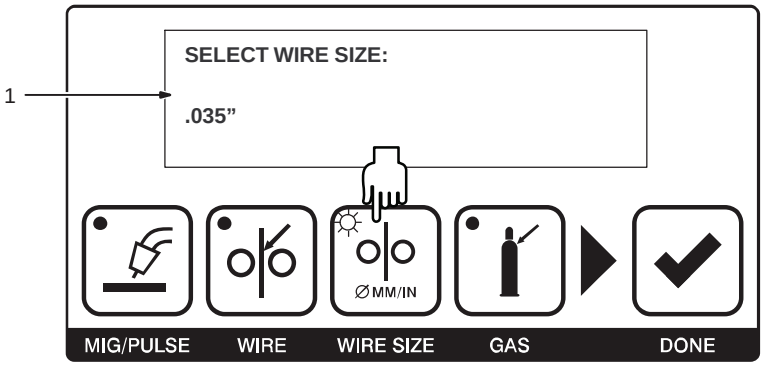
To select welding arc, press and release MIG/PULSE button. Indicator will light. The selected welding arc will be displayed. Press MIG/PULSE button again to change welding arc selection.

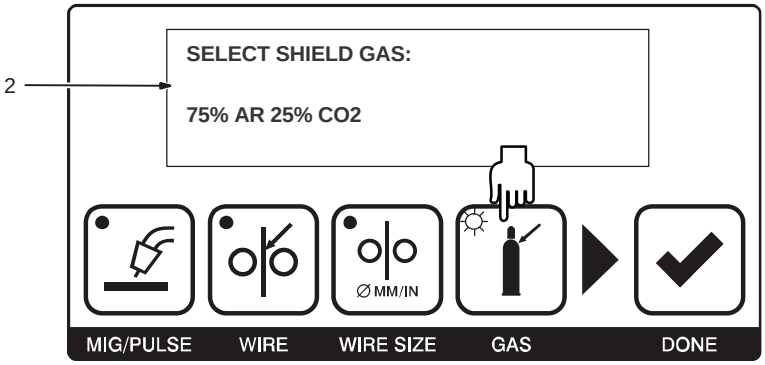
3 Selecting Wire Type

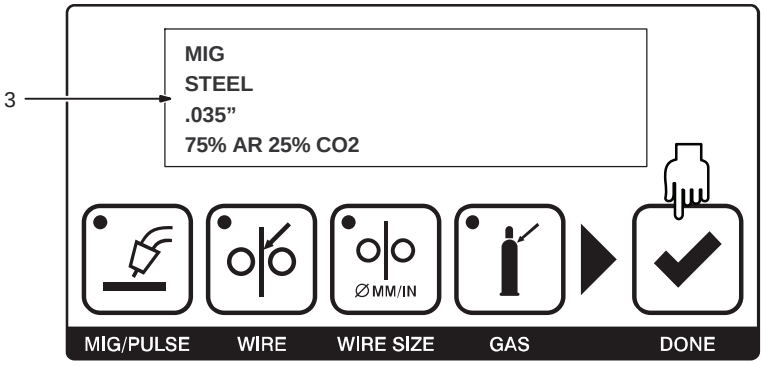
To select wire type, press and release Wire button. Indicator will light. MIG/PULSE indicator will turn off. The selected wire type will be displayed. Press Wire button again to change wire type.

6-13. Selecting Welding Arc, Wire Type, Size, And Gas (Continued)









Ref. 279273-D

1 Selecting Wire Size

To select wire size, press and release Wire Size button. Indicator will light. Wire Type indicator will turn off. The selected wire size will be displayed. Press Wire Size button again to change wire size.

2 Selecting Shielding Gas

To select shielding gas, press and release Gas button. Indicator will light. Wire Size indicator will turn off. The selected gas type will be displayed. Press Gas button again to change gas type.

3 Saving Selected Parameters

To save selected parameters, press and release the Done button. The Gas indicator will turn off. The selected welding arc, wire type, wire size and gas type will be saved. This step must be performed to save any changes.

☞ *Selection process will time out if begun and no buttons are pressed within 20 seconds. Any changes made during this time will not be saved.*

6-14. MIG - Wire And Gas Selection Table

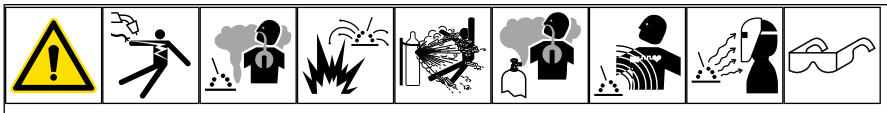
WIRE TYPES		SHIELD GAS TYPES
Steel	.030 (0.8)	CO2 (CARBON DIOXIDE) AR CO2 (ARGON / CARBON DIOXIDE)
	.035 (0.9) .045 (1.2) .052 (1.4)	CO2 (CARBON DIOXIDE) AR CO2 (ARGON / CARBON DIOXIDE) AR O2 (ARGON / OXYGEN)
	.062 (1.6)*	AR CO2 (ARGON / CARBON DIOXIDE) AR O2 (ARGON / OXYGEN)
Metal Core	.045 (1.2) .052 (1.4) .062 (1.6) .078 (2.0)*	ARGN CO2 (ARGON / CARBON DIOXIDE)
Flux Core	.045 (1.2) .052 (1.4) .062 (1.6) .078 (2.0)*	CO2 (CARBON DIOXIDE) AR CO2 (ARGON / CARBON DIOXIDE)
Stainless Steel	.035 (0.9) .045 (1.2) .062 (1.6)*	AR CO2 (ARGON / CARBON DIOXIDE) AR HE CO2 (ARGON / HEL CARBON DIOXIDE) AR O2 (ARGON / OXYGEN) HE AR CO2 (HELIUM / ARGON / CARBON DIOXIDE)

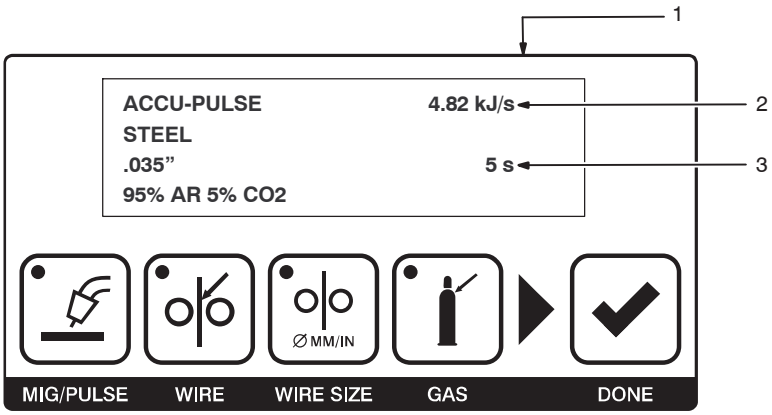
* Available With Deltaweld 500 only.

6-15. Accu-Pulse - Wire And Gas Selection Table

WIRE TYPES		SHIELD GAS TYPES
Steel	.035 (0.9) .045 (1.2)	CO2 (CARBON DIOXIDE) AR CO2 (ARGON / CARBON DIOXIDE)
Metal Core	.045 (1.2) .052 (1.4)	ARGN CO2 (ARGON / CARBON DIOXIDE)
Stainless Steel	.035 (0.9) .045 (1.2)	AR CO2 (ARGON / CARBON DIOXIDE) AR HE CO2 (ARGON / HEL CARBON DIOXIDE) AR O2 (ARGON / OXYGEN) HE AR CO2 (HELIUM / ARGON / CARBON DIOXIDE)

6-16. Accu-Power





Ref 279273-D

1 Wire And Gas Selection Display
2 Power
3 Arc Time

The Accu-Power feature displays the instantaneous output power while welding, which can then be used with the equation below to compute the heat input for a particular weld operation.

At end of the weld the total average power in kilojoules per second and total arc time in seconds are displayed for up to 30 seconds on the Wire and Gas selection display.

To calculate the weld heat input, multiply the instantaneous power by the arc time and divide by the weld bead length.

$$Heat\ Input\ [kJ/in\ (kJ/mm)] = \frac{Power\ (kJ/s)\ x\ ArcTime\ (s)}{Weld\ Bead\ Length\ [in\ (mm)]}$$

To convert from kilojoules to joules, multiply this result by 1000.

Enabling Accu-Power

Accu-Power is always displayed when using Accu-Pulse. To enable in other welding arc modes, connect voltage sense lead from weld voltage sense receptacle on rear of wire feeder to work piece. See section 5-7 for more information.

☞ *Use the weld voltage sense connection for better accuracy when using this feature.*

SECTION 7 – THEORY OF OPERATION

1 ArcConnect Receptacle

Connection to welding power source. Provides control power to feeder from power source. Provides communication/control signals between feeder and power source.

2 Power Switch S1

Controls connection of control power from power source to the control board PC1.

3 Jog/Purge Switch S2

User controlled switch to signal the control board PC1 to jog wire or open the gas valve without turning on the weld output.

4 ArcConnect Interface

Contains control power, Ethernet communication, and analog signal interface to the welding power source.

5 Remote Voltage Sense

- Measures differential voltage between left drive casting and work piece.
- Outputs a scaled low voltage representation of the weld voltage to the ArcConnect interface.

6 Precharge Circuit

Provides a slow power-up of the capacitors C136, C137 on power-up before connecting directly to the control power input.

7 Control Power Capacitors C136, C137

Stores energy and filters the DC bus for running the control board and motor.

8 Control And Processor Circuits

- Handles communication with the welding power source and the user interface
- Provides motor control signals and reads tachometer feedback
- Actuates gas valves
- Monitors various other inputs and controls

9 Left Display

Displays preset voltage or actual voltage while welding, or Arc Length setting.

10 Adjust Control 1

Adjusts preset voltage or arc length.

11 Right Display

Displays preset current or actual current while welding or preset wire feed speed.

12 Adjust Control 2

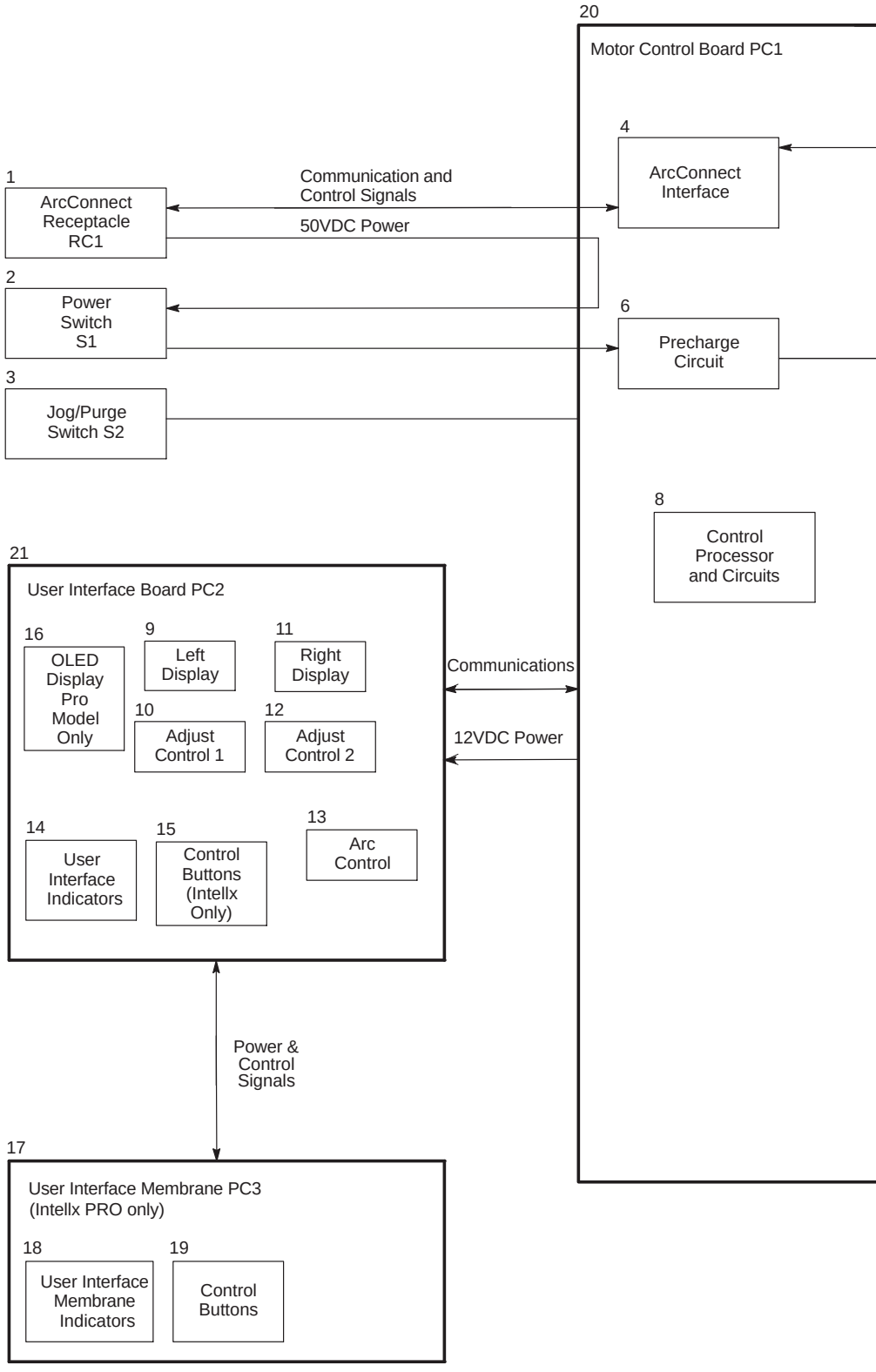
Adjusts preset current or wire speed.

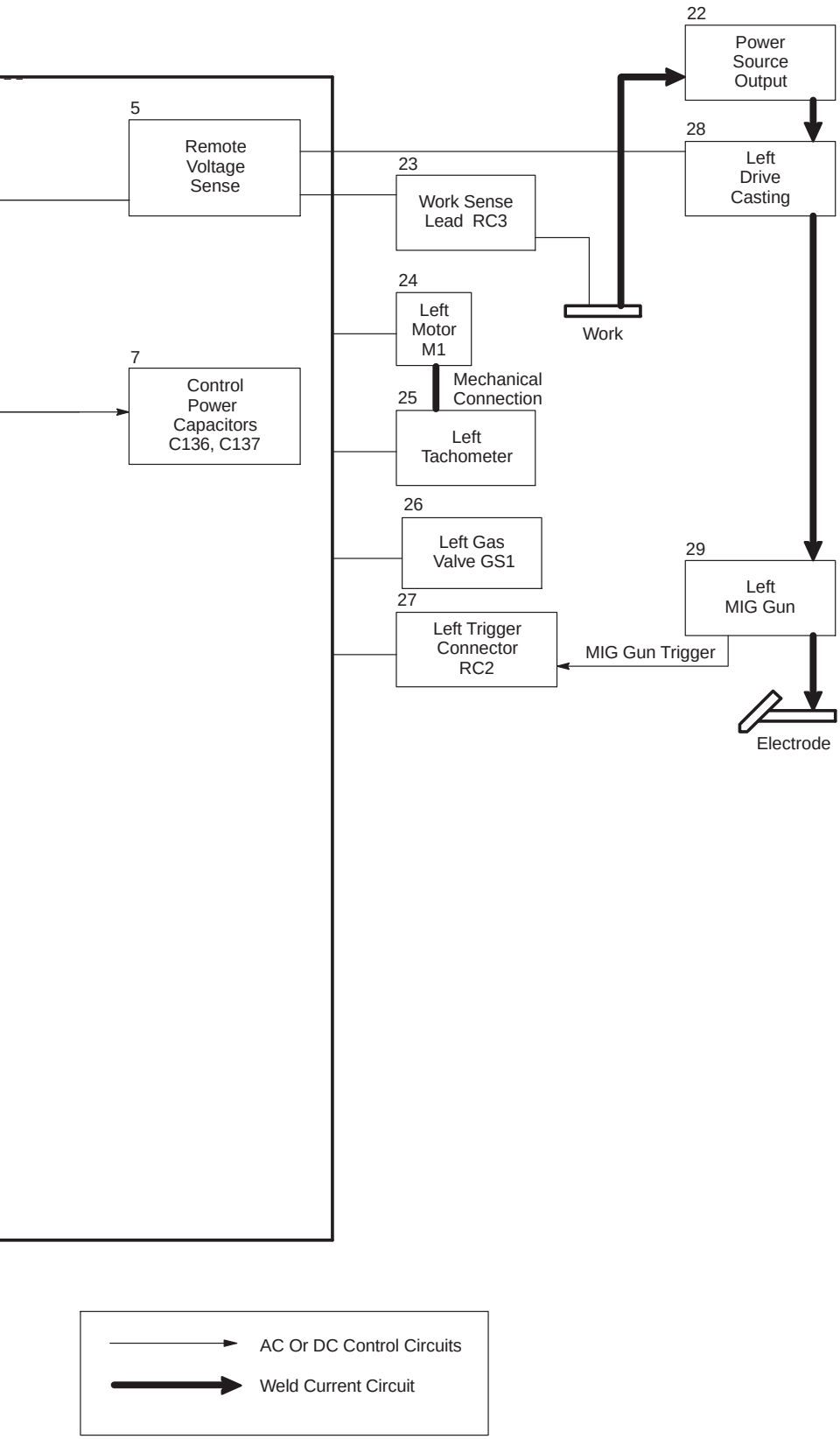
13 Arc Control

Adjusts the arc control parameter.

14 User Interface Indicators

Back-lights text and indicators to indicate current settings and values.





15 Control Buttons

The Intellx model has a trigger-hold button on the User Interface Board.

16 OLED Display

Used for displaying setup menus and additional information.

17 User Interface Membrane

Additional membrane connects to User Interface board PC2. The membrane contains additional buttons and indicator LEDs to change various settings.

18 User Interface Membrane Indicators

The membrane contains LEDs in some of the buttons to indicate their status.

19 Control Buttons

The membrane contains buttons for setup and feature toggling.

20 Motor Control Board PC1

Contains the communication, motor control, and IO signals for the wire feeder.

21 User Interface Board PC2

PCB w/3 encoder knobs for parameter adjustment and 2 meters. Includes some additional push-buttons and LEDs for control function. Has connections to User Interface Membrane PC3. Also includes an OLED display.

22 Power Source Output

Weld output of compatible power source.

23 Work Sense Lead

Opt. connection to work lead for remote voltage sensing. Remotely sensed voltage is sent back to power source and may be used for improved process control.

24 Left Motor M1

Feeds wire into MIG gun. Speed is controlled by Motor Control Board PC1.

25 Left Tachometer

Used by Motor Control Board to control the speed of Left Motor.

26 Left Gas Valve GS1

Controls flow of shielding gas to MIG gun. Electronically controlled by Motor Control Board PC1.

27 Left Trigger Receptacle RC2

Controls output enable function of welding system. Typically, a MIG gun trigger plugs in to control the weld output enable signal.

28 Left Drive Casting

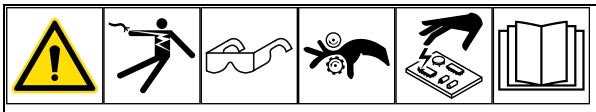
Holds drive assy and passes weld current from power source to MIG gun.

29 Left MIG Gun

A MIG welding torch.

SECTION 8 – TROUBLESHOOTING

8-1. Troubleshooting Table



Before connecting welding equipment to input (primary) power for servicing, be sure the input-power circuit protection is correct for the welding equipment. Connect equipment to a dedicated circuit sized and fused for the rated output and duty cycle of the welding equipment you are servicing. See the Electrical Service Guide section in this manual and National Electrical Code (NEC) article 630, Electric Welders.

Remove earth grounded wrist strap before performing any checks or procedures with power applied to the machine.

Equipment serviced may need to meet additional requirements as specified in IEC60974-4, Arc Welding Equipment - Part 4: Periodic Inspection and Testing.

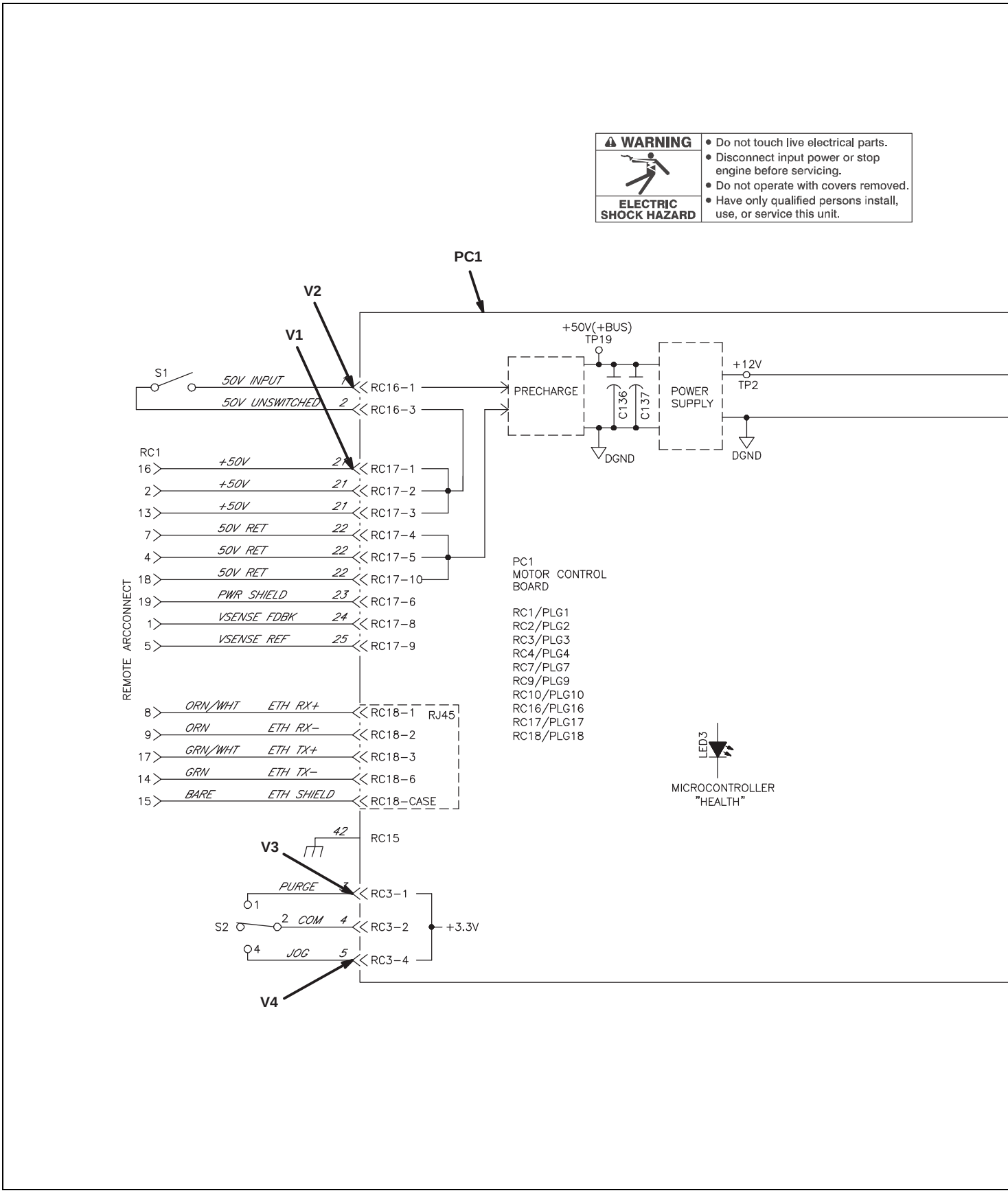
See Section 8-5 for test points and values and see Parts Manual for parts location.

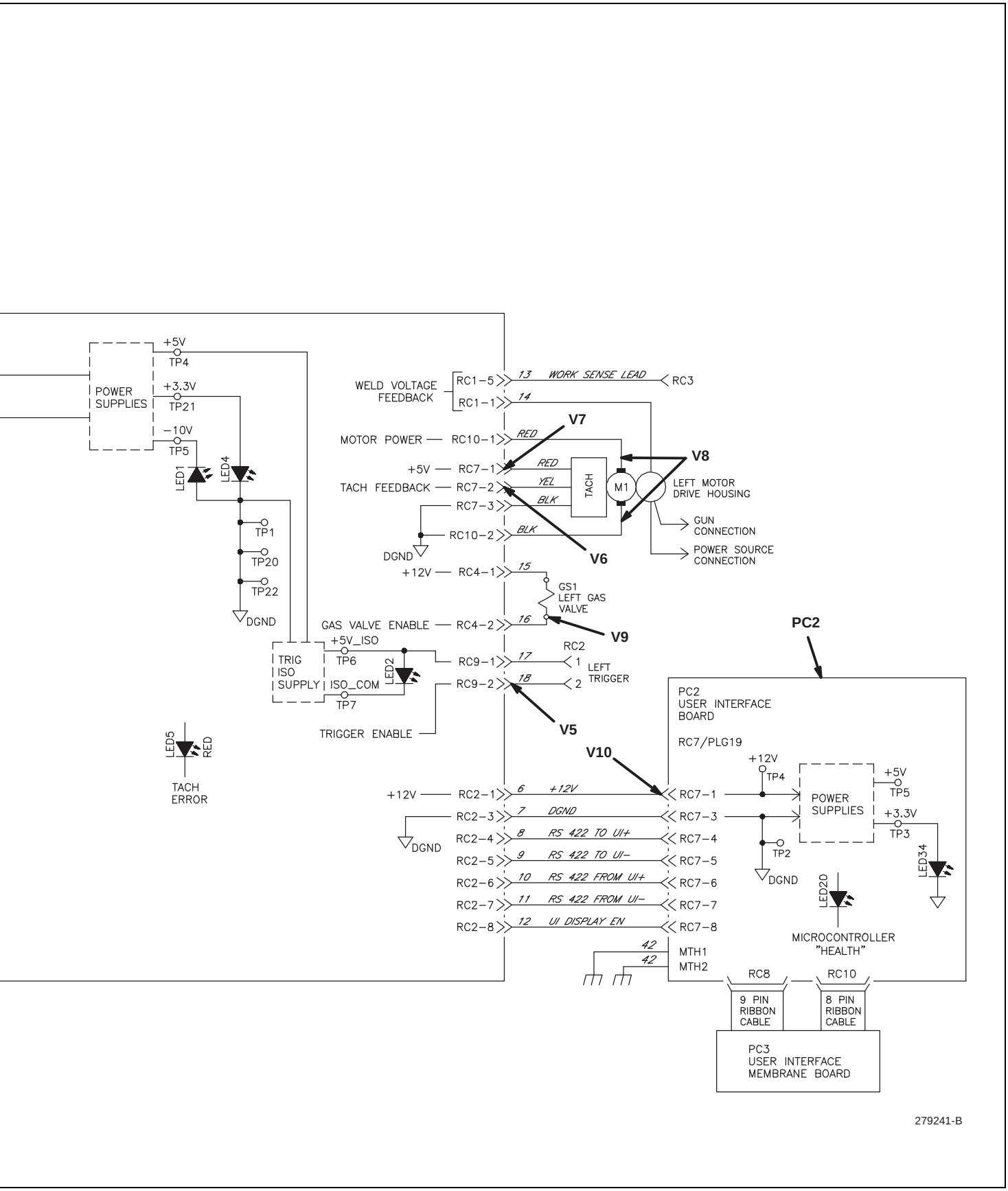
Use MILLER Testing Booklet (Part No. 150853) when servicing this unit.

See the Miller Extranet for service memos that may aid in the repair of this product.

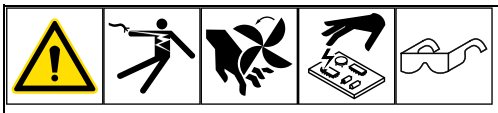
Trouble	Remedy
Wire feeds, shielding gas flows, but electrode wire is not energized.	Check and secure weld cable connections (see Section 5-2).
Electrode wire feeding stops or feeds erratically during welding.	Check welding gun trigger connection. See gun Owner's Manual.
	Check welding gun trigger. See gun Owner's Manual.
	Readjust hub tension and drive roll pressure (see Section 5-12).
	Change to correct size drive roll.
	Clean or replace dirty or worn drive roll.
	Incorrect size or worn wire guides.
	Replace contact tip or liner. See welding gun Owner's Manual.
	Remove weld spatter or foreign matter from around nozzle opening.
Wire feeder power is on, displays light up, but unit is inoperative.	Check welding gun trigger connection at wire feeder.
	Check welding gun trigger leads and trigger switch. See welding gun Owner's Manual.
Unit completely inoperative- no display.	Turn Power switch On (see Section 6-3).
	Check ArcConnect cable connection at wire feeder and power source.
	Check supplementary protector at power source. See power source Owner's Manual.
Wire feeds when Jog switch is pressed but not when gun trigger is pressed.	Check welding gun trigger connection at wire feeder. Check gun trigger leads and trigger switch. See gun Owner's Manual.
Wire does not feed until trigger is pressed but continues to feed after trigger is released. Wire feeds as soon as power is applied.	Check for short between gun trigger leads and weld cable. Repair or replace gun trigger leads.
Gas does not flow; wire feeds.	Check gas supply.
	Check gas flowmeter.
	Check gas hose for damage or loose connections.
	Check for blockage in gas filter (see Section 9-2).
	Check for blockage in welding gun.

8-2. Troubleshooting Circuit Diagram




POWER SUPPLIES
+5V
TP4
+3.3V
TP21
−10V
TP5
LED1
LED4
TP1
TP20
TP22
DGND
WELD VOLTAGE FEEDBACK
RC1−5
13
WORK SENSE LEAD
RC3
RC1−1
14
MOTOR POWER
RC10−1
RED
V7
+5V
RC7−1
RED
TACH FEEDBACK
RC7−2
YEL
RC7−3
BLK
TACH
M1
V8
LEFT MOTOR DRIVE HOUSING
GUN CONNECTION
POWER SOURCE CONNECTION
RC10−2
BLK
DGND
V6
+12V
RC4−1
15
GS1
LEFT GAS VALVE
GAS VALVE ENABLE
RC4−2
16
V9
PC2
RC2
+5V_ISO
TP6
TRIG ISO SUPPLY
ISO_COM
TP7
LED2
RC9−1
17
1
LEFT TRIGGER
RC9−2
18
2
TRIGGER ENABLE
V5
PC2
USER INTERFACE
BOARD
RC7/PLG19
LED5
RED
TACH ERROR
V10
+12V
TP4
+5V
TP5
POWER SUPPLIES
+3.3V
TP3
TP2
DGND
LED34
LED20
MICROCONTROLLER "HEALTH"
+12V
RC2−1
6
+12V
RC7−1
DGND
RC2−3
7
DGND
RC7−3
RC2−4
8
RS 422 TO UI+
RC7−4
RC2−5
9
RS 422 TO UI−
RC7−5
RC2−6
10
RS 422 FROM UI+
RC7−6
RC2−7
11
RS 422 FROM UI−
RC7−7
RC2−8
12
UI DISPLAY EN
RC7−8
42
MTH1
42
MTH2
RC8
RC10
9 PIN RIBBON CABLE
8 PIN RIBBON CABLE
PC3
USER INTERFACE
MEMBRANE BOARD
279241-B

8-3. Troubleshooting Values For Circuit Diagram (Use With Section 8-2)



- Tolerance — ±10% unless specified
- Reference — DC Voltage to DGND on PC1 (Test Point TP1)

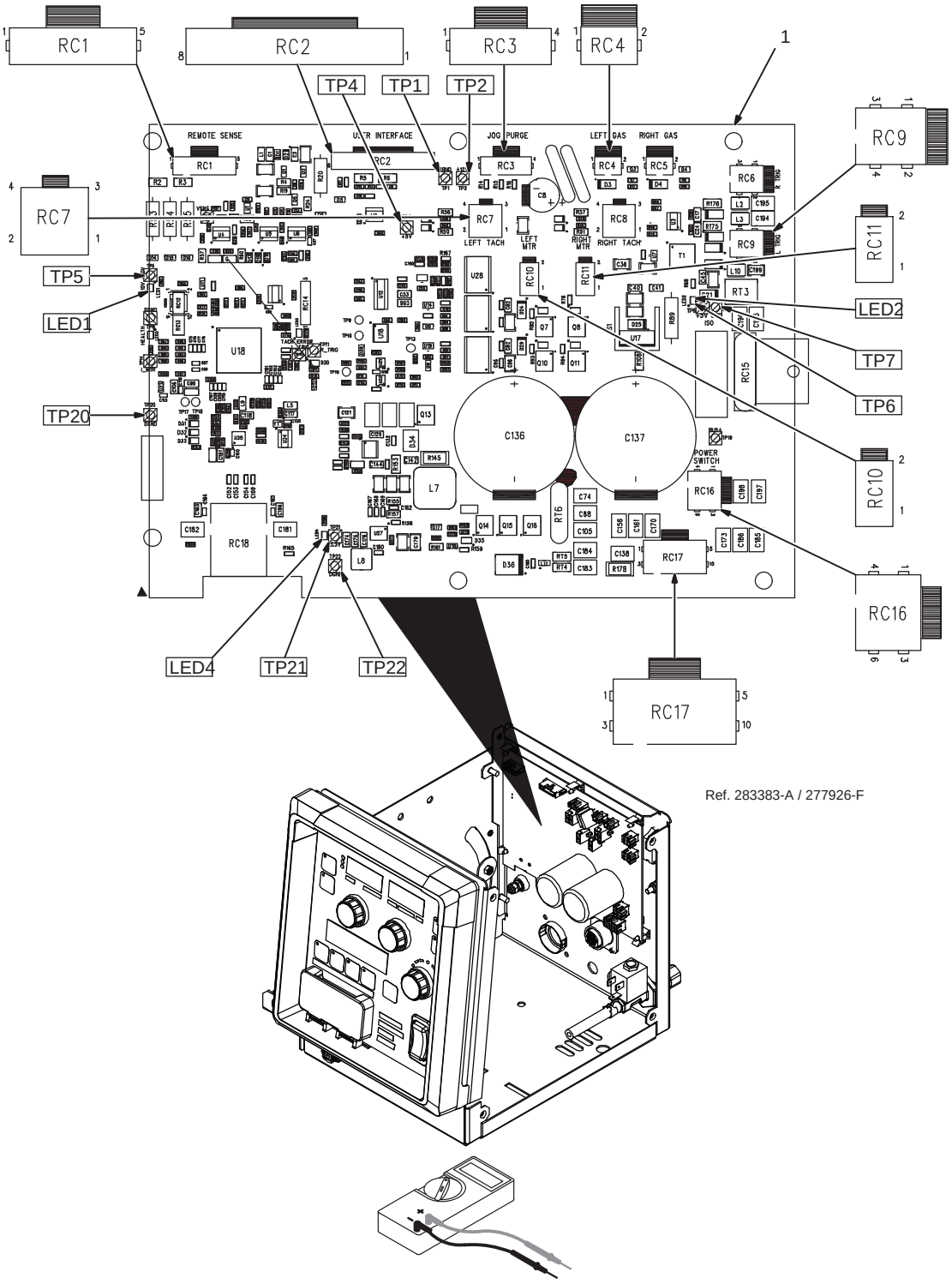
Designator	Description	Value				Notes
V1	Input power supply from power source	+54 volts DC with respect to RC17-4, RC17-5, RC17-10				
V2	Input power supply	+54 volts DC when switch S1 ON with respect to RC17-4, RC17-5, RC17-10				
		Provides power to the following supplies on PC1:				
		Supply	**Test Point**	**Indicator**	**Reference**	
		+12 VDC	TP2	None	DGND - TP1	
		+5 VDC	TP4	None	DGND - TP1	
		-10 VDC	TP5	LED1	DGND - TP1	
		+3.3 VDC	TP21	LED4	DGND - TP1	
		+5 VDC	TP6	LED2	ISO_COM - TP7	
V3	Purge signal	+3.3 volts DC = disabled, 0 volts DC = enabled				
V4	Jog signal	+3.3 volts DC = disabled, 0 volts DC = enabled				
V5	Trigger signal	Measure with respect to ISO_COM (TP7). +4V = enabled, 0V = disabled.				
V6	Tachometer signal	30 pulses per 1 RPM of motor armature. Pulse DC volts. When using DMM, 0 or +5 volts DC at idle, +2.2 volts DC when running.				
V7	Tachometer power supply	+5 VDC				
V8	Wire feed motor M1 power	Pulsed width modulated signal. When using DMM, +2 volts DC = 50 IPM, +23 volts DC = 780 IPM with respect to RC10-2.				
V9	Gas valve GS1 signal	0 volts DC = disabled; +12 volts DC when enabled				
V10	Power supply	+12 volts DC				
		Provides power to the following supply on PC2:				
		Supply	**Test Point**	**Indicator**	**Reference**	
		+3.3 VDC	TP3	LED34	TP2	

8-4. Fault Code Diagnostics

Help Display	Fault	Description	Probable Cause(s)	Potential Solution(s)
HELP 1128 | HELP COMM	Communication Fault	Indicates a communication failure between two circuit boards within the system. The unit will show a decimal point alternating between the left and right meter displays for approximately one minute and then displays the HELP message.	Defective wiring or poor connections.	Verify wiring and connections from RC1 (19 pin connector) to RC18 on PC1 - motor control board.
HELP 1132 | HELP COMM				Verify wiring and connections from RC2 on PC1 - motor control board to RC7 on PC2 user interface board.
HELP 1402 | HELP FEED	Feed Fault	Wire feeder motor overcurrent.	Wire feeder motor overloaded.	Allow wire feeder to cool for 5 minutes with the power off. If problem persists, see other probable causes.
			Welding wire size is beyond rating of wire feeder.	Use recommended wire size.
			Worn or defective drive rolls, wire guides, gun liner or contact tip.	Replace as needed.
HELP 1410 | HELP FEED		Indicates wire feeder input power under voltage.	Poor connection or defective ArcConnect cable.	Verify ArcConnect cable connection. Replace if necessary.

			The power source which is supplying power to the wire feeder may not be operating within it's rated supply voltage.	Provide the correct supply voltage to power source.
HELP 1411 | HELP FEED		Indicates wire feeder input power over voltage.	Poor connection or defective ArcConnect cable.	Verify ArcConnect cable connection. Replace if necessary.
			The power source which is supplying power to the wire feeder may not be operating within it's rated supply voltage.	Provide the correct supply voltage to power source.
HELP 1412 | HELP FEED		Wire feeder motor control board pre-charge failure.	Invalid pre-charge sequence.	All the wire feeder to cool for 5 minutes with the power off. If problem persists, see other probable causes.
HELP 1413 | HELP FEED		Wire feeder motor control board pre-charge voltage error.	System has sensed invalid bus voltage.	Replace motor control board.
HELP 1420 | HELP FEED HELP 1421 | HELP FEED		Network feedback message timed out.	System sensed network feedback fault.	Verify ArcConnect cable connection. Replace if necessary.
HELP 2501 | HELP DUTY	Over Duty Cycle Fault	Exceeded weld output dutcy cycle limit.	Operator was welding at too high of a welding current for too long.	With unit on, wait for unit to cool and fault clears. See section 4-5 for allowable duty cycle.
HELP 2600 | HELP HELD	Held Fault	Indicates a user interface button is held.	A button on the user interface is actuated or defective.	Press and release each button on the wire feeder and power source user interfaces to check function. A slight click should be noticed and indicator should light. Repair or replace as necessary.
HELP 2601 | HELP HELD HELP 2602 | HELP HELD		Indicates the jog/purge switch or welding gun trigger is held.	The jog/purge switch or welding gun trigger is actuated or defective.	Release jog/purge switch or welding gun trigger. If fault persists, troubleshoot jog/purge/trigger signals using Sections 8-2, 8-3 to identify issue.
HELP 2603 | HELP HELD		Motor board PC1 has sensed incorrect wire drive side.	Poor wiring connections.	Check wiring and connectors from user interface PC2 to switch membrane panel PC3.
			Defective user interface.	Replace user interface PC2.
			Defective switch membrane panel.	Replace switch membrane panel PC3.
HELP 2611 | HELP HELD		Weld gun trigger held too long.	The welding gun trigger is actuated or defective.	Release weld gun trigger. If fault persists, troubleshoot welding gun trigger signal using Sections 8-2, 8-3 to identify issue.
HELP 2612 | HELP HELD		Jog switch held too long.	The jog switch is actuated or defective.	Release jog switch. If fault persists, troubleshoot jog signal using Sections 8-2, 8-3 to identify issue.
HELP 2614 | HELP HELD		Purge switch held too long.	The purge switch is actuated or defective.	Release purge switch. If fault persists, troubleshoot purge signal using Sections 8-2, 8-3 to identify issue.
HELP XXXX		For other codes not listed, consult power source Technical manual.		

8-5. Motor Control Board PC1 Testing Information (Use With Section 8-6



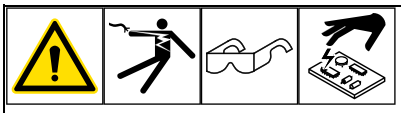
Ref. 283383-A / 277926-F

Be sure plugs are secure before testing. See Section 8-6 for specific values during testing.

1 Motor Control Board PC1

☞ *No testing required for remaining plugs and receptacles.*

8-6. Motor Control Board PC1 Test Point Values



PC1 Voltage Readings

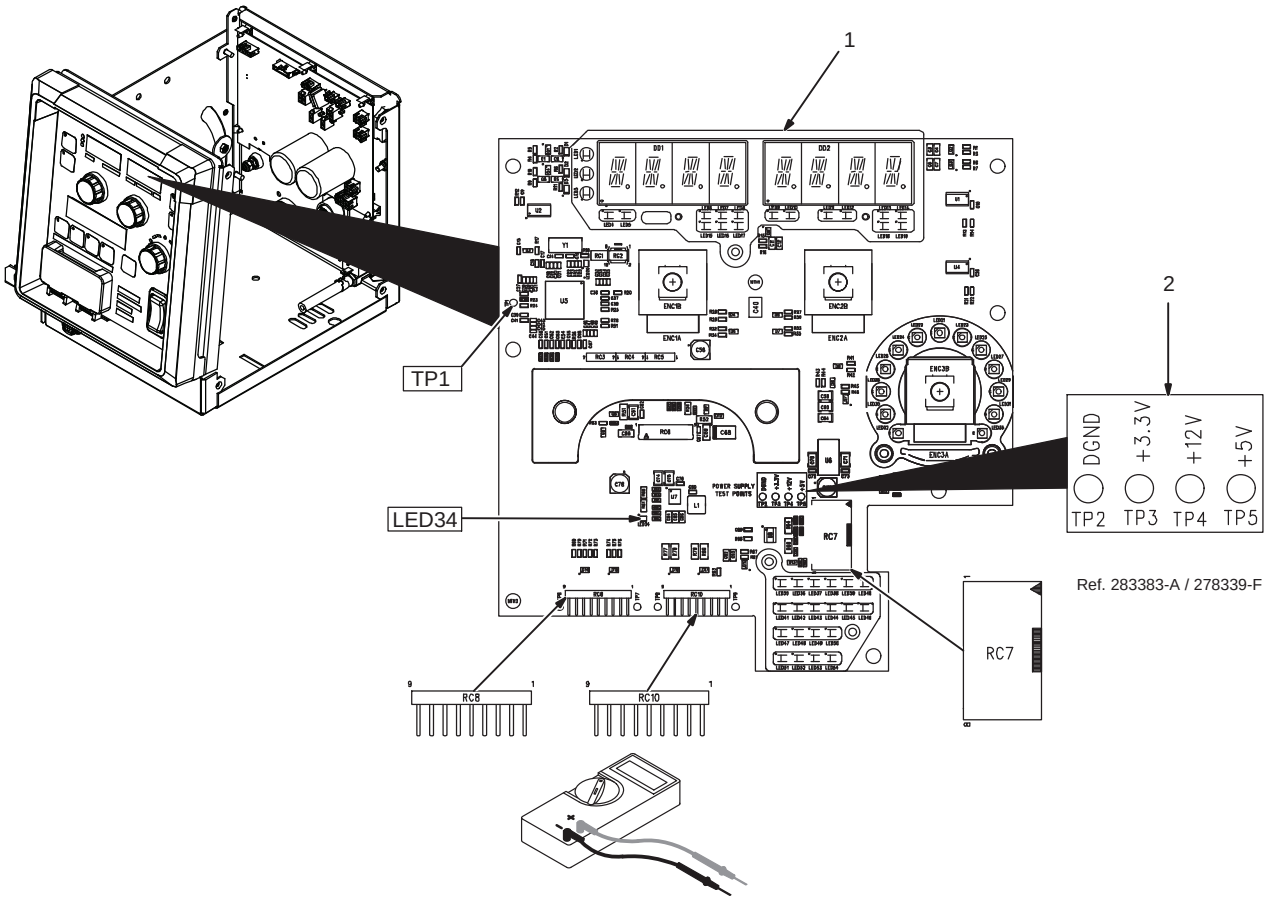
- Tolerance - ±10% unless specified
- Reference - DC Voltage to DGND on PC1 (Test Point TP1)

Voltage Readings				
Receptacle	**Pin**	**Description**	**Value**	**Notes**
RC1 (Weld Voltage Feedback)	1	Input, Weld voltage feedback from drive casting	Weld voltage	
	2	- -	Not used	
	3	- -	Not used	
	4	- -	Not used	
	5	Input, Weld voltage feedback from external work sense lead if used	Weld voltage	
RC2 (PC2 User Interface Power and Communication)	1	Output, User interface power	+12 volts DC	
	2	- -	Not used	
	3	Circuit common	- -	
	4	Output, User interface communication	No test available	
	5	Output, User interface communication	No test available	
	6	Input, User interface communication	No test available	
	7	Input, User interface communication	No test available	
	8	Output, User interface display enable	+3.0 volts DC when display enabled	
RC3 (Purge/Jog Switch)	1	Output, Purge enable	+3.3 volts DC = off, 0 volts DC = on	
	2	Circuit common	- -	
	3	- -	Not used	
	4	Input, Jog enable	+3.3 volts DC = off, 0 volts DC = on	
RC4 (Gas Valve)	1	Output, Gas valve GS1 power	+12 volts DC	
	2	Output, Gas valve GS1 enable	+12 volts DC = off, less than + 1 volt DC = on	
RC7 (Drive Motor Tachometer)	1	Output, Tachometer power supply	+5 volts DC	
	2	Input, Tach feedback	Pulsed DC	
	3	Circuit common	- -	
	4	- -	Not used	
RC9 (Weld Gun Trigger)	1	Output, Gun trigger power	+5 volts DC referenced to ISO_COM (Test point TP7)	
	2	Input, Gun trigger enable	0 volts DC = off, +4 volts DC = on; Referenced to ISO_COM (Test point TP7)	
	3	- -	Not used	
	4	- -	Not used	
RC10(Drive Motor)	1	Output, Drive motor M1 power	Pulse width modulated signal; When using DMM, +2 volts DC = 50 IPM, +23 volts DC = 780 IPM	
	2	Output, Drive motor M1 return	- -	
RC11	1	- -	Not used	
	2	- -	Not used	
RC16 (Power Switch)	1	Input, ArcConnect power from switch S1	0 volts DC with switch S1 off, +54 volts DC with switch S1 on with respect to RC17 Pin 4, RC17 Pin 5 and RC17 Pin 10	
	2	- -	Not used	
	3	Output, ArcConnect power to switch S1	+54 volts DC with respect to RC17 Pin 4, RC17 Pin 5 and RC17 Pin 10	
	4	- -	Not used	

Voltage Readings				
Receptacle	**Pin**	**Description**	**Value**	**Notes**
	5	- -	Not used	
	6	- -	Not used	
RC17 (Power and Communication from Power Source)	1	Input, ArcConnect power	+54 volts DC with respect to RC17 Pin 4, RC17 Pin 5 and RC17 Pin 10	
	2	Input, ArcConnect power	+54 volts DC with respect to RC17 Pin 4, RC17 Pin 5 and RC17 Pin 10	
	3	Input, ArcConnect power	+54 volts DC with respect to RC17 Pin 4, RC17 Pin 5 and RC17 Pin 10	
	4	Input, ArcConnect power return	- -	
	5	Input, ArcConnect power return	- -	
	6	Input, ArcConnect power shield	- -	
	7	- -	Not used	
	8	Output, ArcConnect remote weld voltage feedback signal	- -	
	9	Output, ArcConnect remote weld voltage sense reference	- -	
	10	Input, ArcConnect power return	- -	
☞ *No testing required for remaining plugs and receptacles.*				

Motor Board PC1 Test Point Information			
Test Point	**Value**	**Reference**	**Indicator**
TP2	+12 volts DC	DGND	-
TP4	+5 volts DC	DGND	-
TP5	–10 volts DC	DGND	LED1
TP21	+3.3 volts DC	DGND	LED4
TP1, TP20, TP22	Circuit Common - DGND	-	-
TP6	+5 volts DC	ISO_COM	LED2
TP7	ISO_COM	-	-

8-7. Meter Board PC2 Testing Information (With Section 8-8)



Ref. 283383-A / 278339-F

Be sure plugs are secure before testing. See Section 8-8 for specific values during testing.

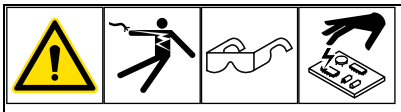
1 Meter Board PC2

2 Power Supply Test Points

☞ *No calibration available for digital meter.*

☞ *No testing required for remaining plugs and receptacles.*

8-8. Meter Board PC2 Test Point Values



PC2 Voltage Readings

- Tolerance - ±10% unless specified
- Reference - DC Voltage to DGND on PC2 (Test Point TP1 or TP2)

Voltage Readings				
Receptacle	**Pin**	**Description**	**Value**	**Notes**
RC7 (Power and Communication)	1	Input, User interface power	+12 volts DC	
	2	- -	Not used	
	3	Circuit common	- -	
	4	Input, User interface communication	No test available	
	5	Input, User interface communication	No test available	
	6	Input, User interface communication	No test available	
	7	Input, User interface communication	No test available	
	8	Input, User interface display enable	+3.0 volts DC when display enabled	
RC8 (Membrane Switches)	1	ESD shield	- -	
	2	Output, Reference for User Interface PC3 POSTFLOW and GAS membrane switches	0.8 volts DC[1,3]	
	3	Output, Reference for User Interface PC3 PREFLOW and WIRE SIZE membrane switches		
	4	Output, Reference for User Interface PC3 TRIGGER SELECT, WIRE and MEMORY 1 membrane switches		
	5	Output, Reference for User Interface PC3 TRIGGER HOLD, MIG/PULSE and MEMORY 2 membrane switches		
	6	Input, User Interface PC3 membrane switch signal	0 volts DC = idle; 0.8 volts DC[1] with DONE button depressed[3]	
	7	Input, User Interface PC3 membrane switch signal	0 volts DC = idle; 0.8 volts DC[1] with MEMORY 1 or MEMORY 2 button depressed[3]	
	8	Input, User Interface PC3 membrane switch signal	0 volts DC = idle; 0.8 volts DC[1] with MIG/PULSE, WIRE, WIRE SIZE or GAS button depressed[3]	
	9	Input, User Interface PC3 membrane switch signal	0 volts DC = idle; 0.8 volts DC[1] with TRIGGER HOLD, TRIGGER SELECT, PREFLOW or POSTFLOW button depressed[3]	
RC10 (Membrane LEDs))	1	- -	Not used	
	2	- -	Not used	
	3	Output, User Interface PC3 membrane LED driver for MEMORY 1 and MEMORY 2 button indicators	(See note 2 below)	
	4	Output, User Interface PC3 membrane LED drive supply for MEMORY 2, POSTFLOW, GAS button indicators		
	5	Output, User Interface PC3 membrane LED drive supply for PREFLOW and WIRE SIZE button indicators		
	6	Input, User Interface PC3 membrane LED drive supply for MEMORY 1, TRIGGER SELECT and WIRE button indicators		
	7	Input, User Interface PC3 membrane LED driver for GAS, MIG/PULSE, WIRE SIZE and WIRE button indicators		
	8	Input, User Interface PC3 membrane LED driver for POST FLOW, TRIGGER HOLD, PREFLOW and TRIGGER SELECT button indicators		

Voltage Readings				
Receptacle	**Pin**	**Description**	**Value**	**Notes**
	9	Input, User Interface PC3 membrane LED drive supply for TRIGGER HOLD and MIG/PULSE		

[1]Signal is 3.3 volts at 14 kHz. Measures 0.8 volts DC when using a DMM.

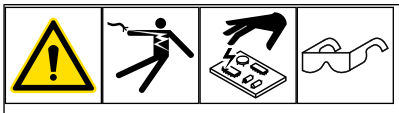
[2]Membrane button indicators (LEDs) operation can be verified with a power-on sequence. When power switch S1 is turned on, all the button indicators will illuminate for approximately three seconds.

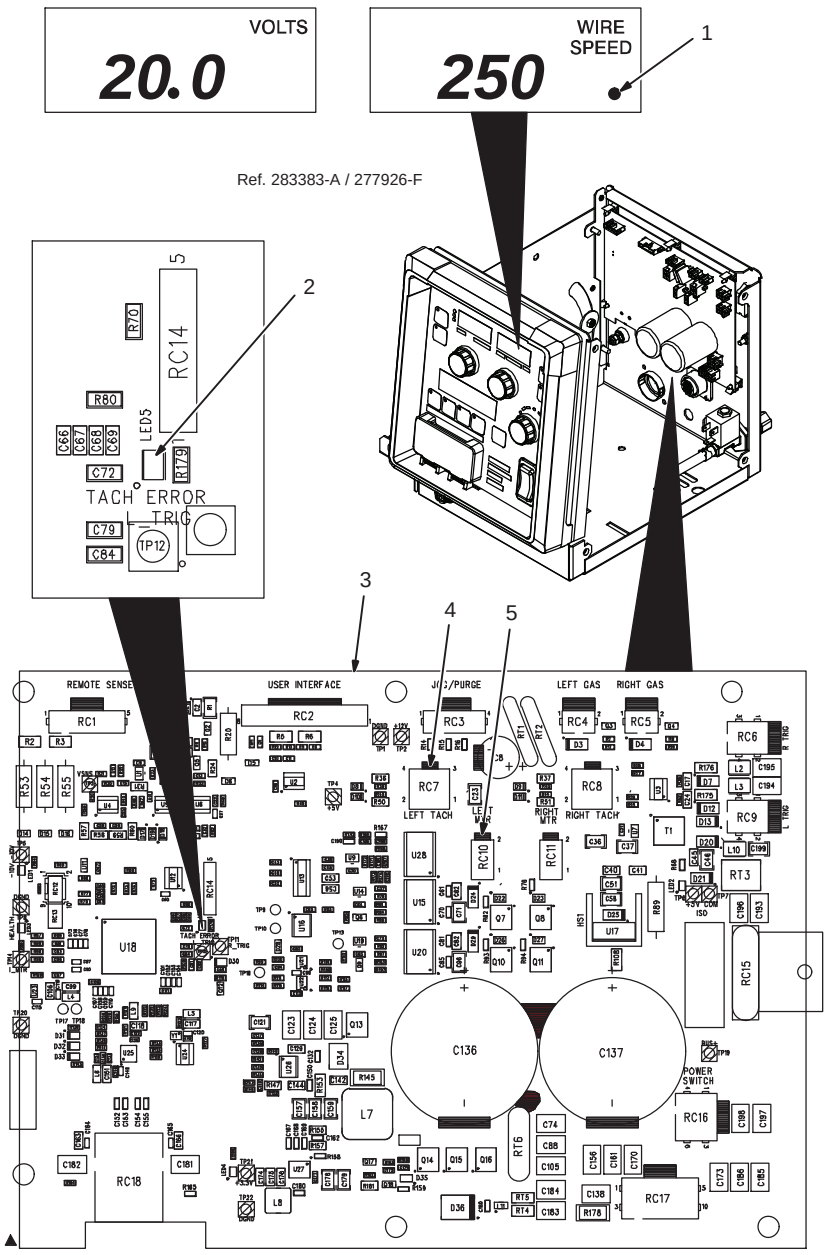
[3]Membrane switch (button) operation can be verified by depressing the button and verifying the button indicator illuminates.

☞ *No testing required for remaining plugs and receptacles.*

User Interface Board PC2 Test Point Information			
Test Point	**Value**	**Reference**	**Indicator**
TP3	+3.3 volts DC	DGND	LED34
TP4	+12 volts DC	DGND	-
TP5	+5 volts DC	DGND	-
TP1, TP2	Circuit Common - DGND	-	-

8-9. Tachometer Testing Information





The tachometer maintains proper wire speed over various wire sizes. It is attached to the end of the wire drive motor and is not serviceable.

☞ *If the tachometer fails, the wire drive motor will require replacement.*

1 Decimal Point On Right Display
2 LED5 (Tach Error)
3 Motor Board PC1
4 Receptacle RC7
5 Receptacle RC10

Verify tachometer is functioning properly by performing the following tests:

- Connect unit to a compatible welding power source.
- Turn on all components of the system.
- Disengage drive roll levers.
- Press and hold the Jog switch on the front panel of the wire feeder. The wire drive will start and ramp up to preset speed.
- During this time, a decimal point will be displayed on the Right display (wire speed). This indicates the motor board is receiving the tachometer signal and is functioning properly.
- Release Jog switch.
- Turn off system components.
- The motor board PC1 also has an indicator to show proper operation of the tachometer. LED5 (Tach Error) will turn on for approximately one second and then turn off each time the wire drive motor starts. This indicates the motor board is receiving the tachometer signal and is functioning properly.

Perform the following troubleshooting steps if the decimal point is not displayed:

- Verify tachometer is connected to receptacle RC7 - Left Tach.
- Check for proper wiring in connector.
- Verify motor is connected to receptacle RC10 - Left Motor.

If tachometer is defective, replace motor assembly.

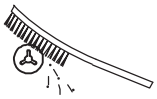
If motor board PC1 is defective, replace motor board.

SECTION 9 – MAINTENANCE

9-1. Routine Maintenance

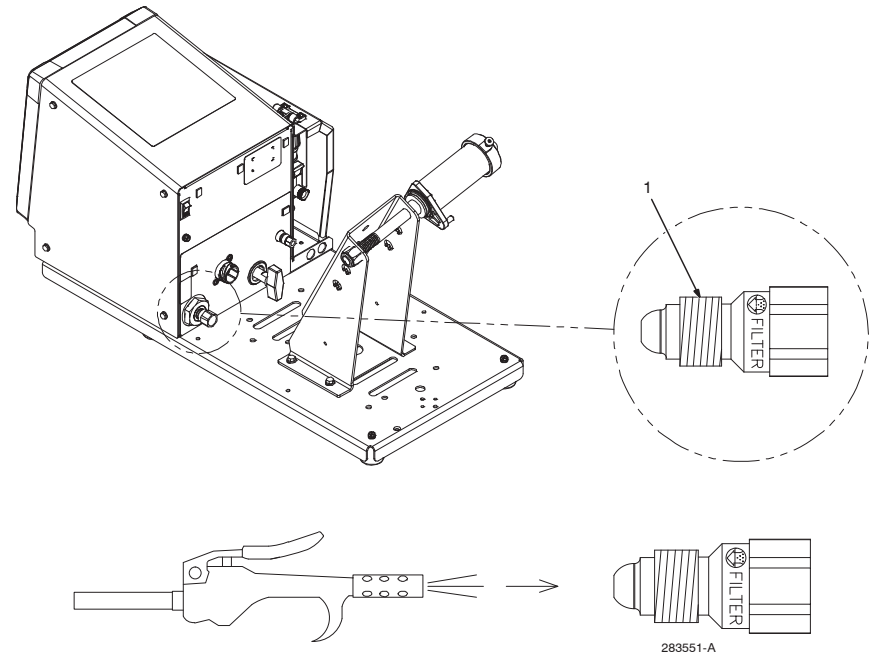
Disconnect power before maintaining.

Service equipment more often if used in severe conditions.

	✓ = Check	◇ = Change	❍ = Clean	☆ = Replace	
Every **3** Months	 ☆ Unreadable Labels	 ❍Weld Terminals	 ✓☆Weld Cords And Cables		
	 ☆Damaged Gas Hose	 ✓❍Clean And Tighten Weld Connections			
Every **6** Months	 ❍ Inside Unit	 ❍ Drive Rolls			

*To be done by Factory Authorized Service Agent.

9-2. Cleaning Debris From Shielding Gas Filter Fitting



Disconnect Power Before Maintaining.

1 Shielding Gas Filter Fitting

Remove fitting from gas valve on back panel of feeder.

Blow compressed air through the threaded male end of fitting to dislodge debris from internal mesh screen.

Replace fitting if blowing compressed air through fitting does not clear obstructions.

Reinstall fitting into gas valve.

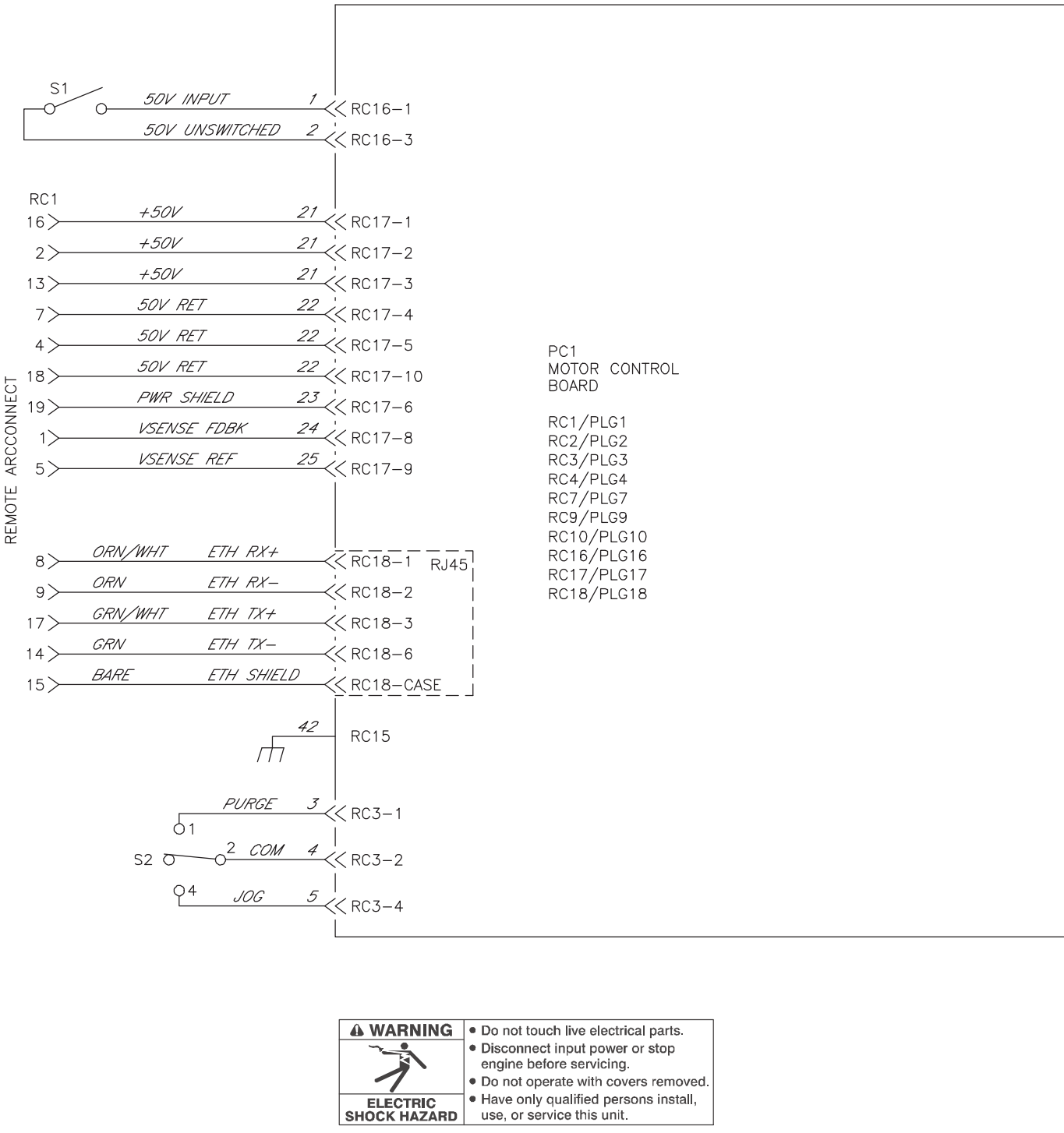
Tighten fitting to 150 in. lbs (17 N×m).

SECTION 10 – ELECTRICAL DIAGRAMS

☞ *The circuits in this manual can be used for troubleshooting, but there might be minor circuit differences from your machine. Use circuit inside machine case or contact distributor for more information.*

The following is a list of all diagrams for models covered by this manual.

Model	Serial Or Style Number	Circuit Diagram	Wiring Diagram
Intellx Pro Wire Feeder	MJ376083U and following	279241–B	279242–A
Circuit Board PC1	MJ376083U and following	277927–E	
Circuit Board PC2	MJ376083U and following	278340–E	

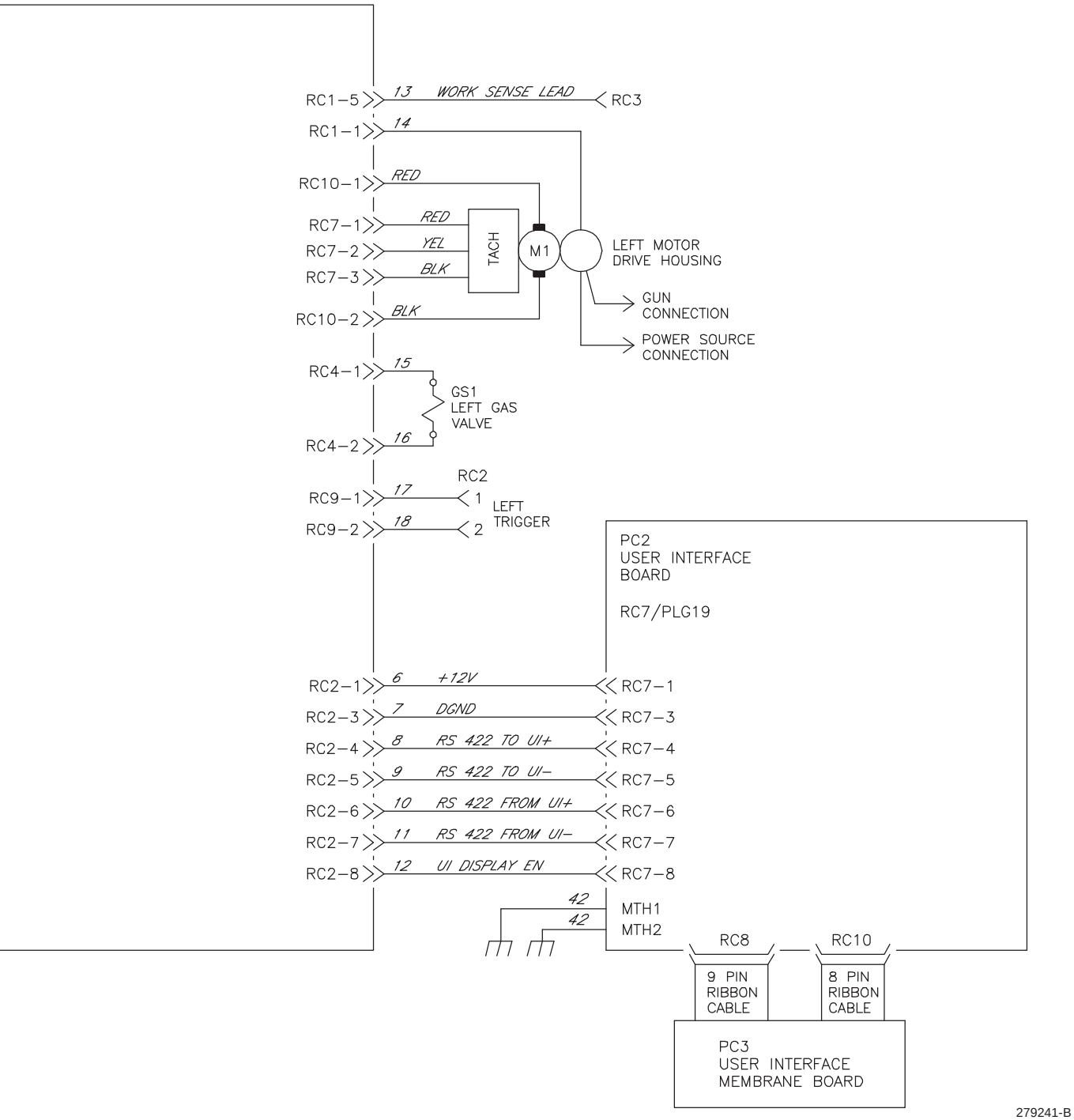


⚠ WARNING

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 10-1. Circuit Diagram Eff w/ Serial No. MJ376083U And Following


RC1–5
13 WORK SENSE LEAD
RC3
RC1–1
14
RC10–1
RED
RC7–1
RED
RC7–2
YEL
RC7–3
BLK
TACH
M1
LEFT MOTOR
DRIVE HOUSING
GUN
CONNECTION
POWER SOURCE
CONNECTION
RC10–2
BLK
RC4–1
15
GS1
LEFT GAS
VALVE
RC4–2
16
RC2
RC9–1
17
1
LEFT
TRIGGER
RC9–2
18
2
PC2
USER INTERFACE
BOARD
RC7/PLG19
RC2–1
6 +12V
RC7–1
RC2–3
7 DGND
RC7–3
RC2–4
8 RS 422 TO UI+
RC7–4
RC2–5
9 RS 422 TO UI–
RC7–5
RC2–6
10 RS 422 FROM UI+
RC7–6
RC2–7
11 RS 422 FROM UI–
RC7–7
RC2–8
12 UI DISPLAY EN
RC7–8
42
42
MTH1
MTH2
RC8
RC10
9 PIN
RIBBON
CABLE
8 PIN
RIBBON
CABLE
PC3
USER INTERFACE
MEMBRANE BOARD
279241-B

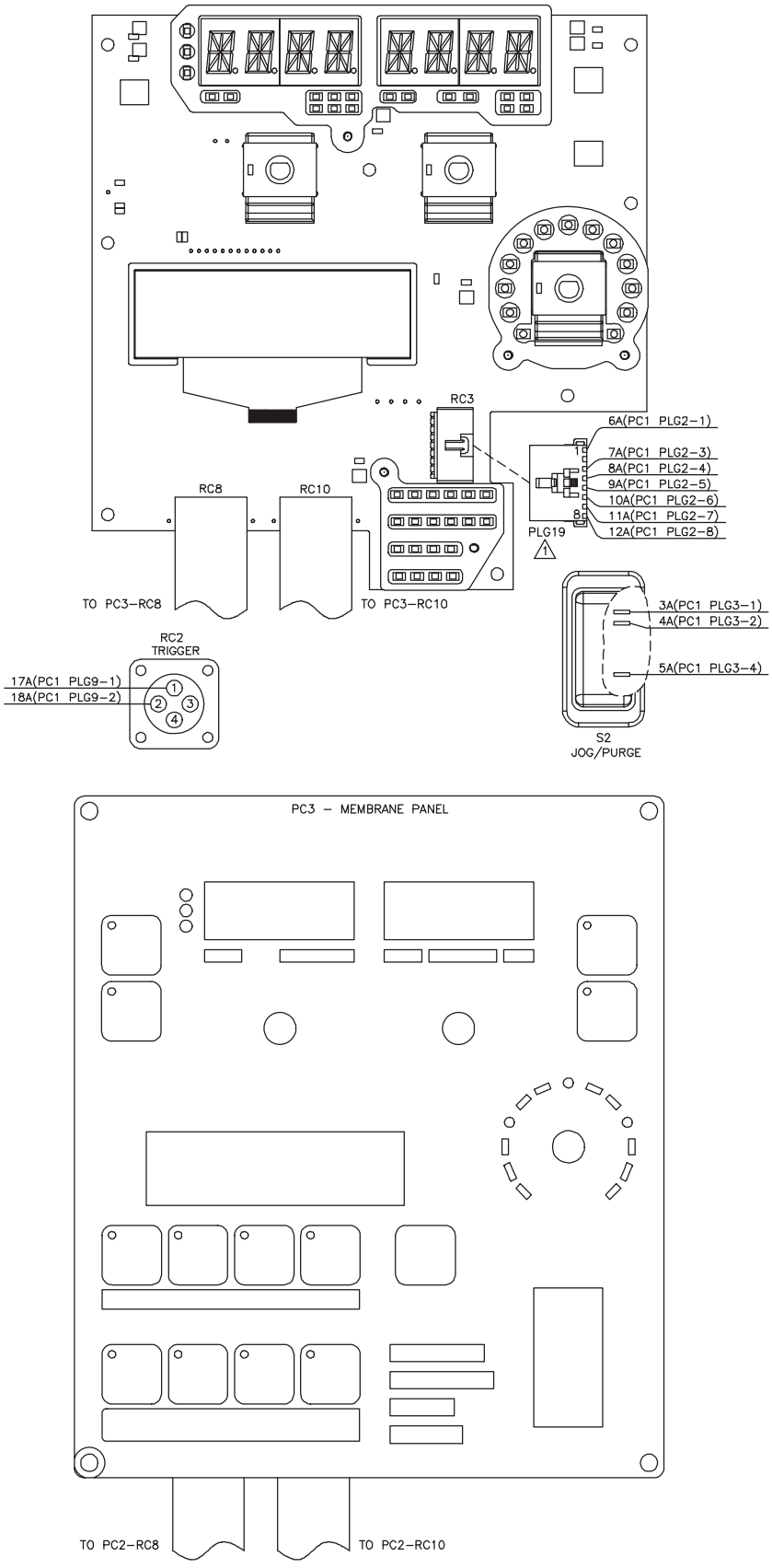
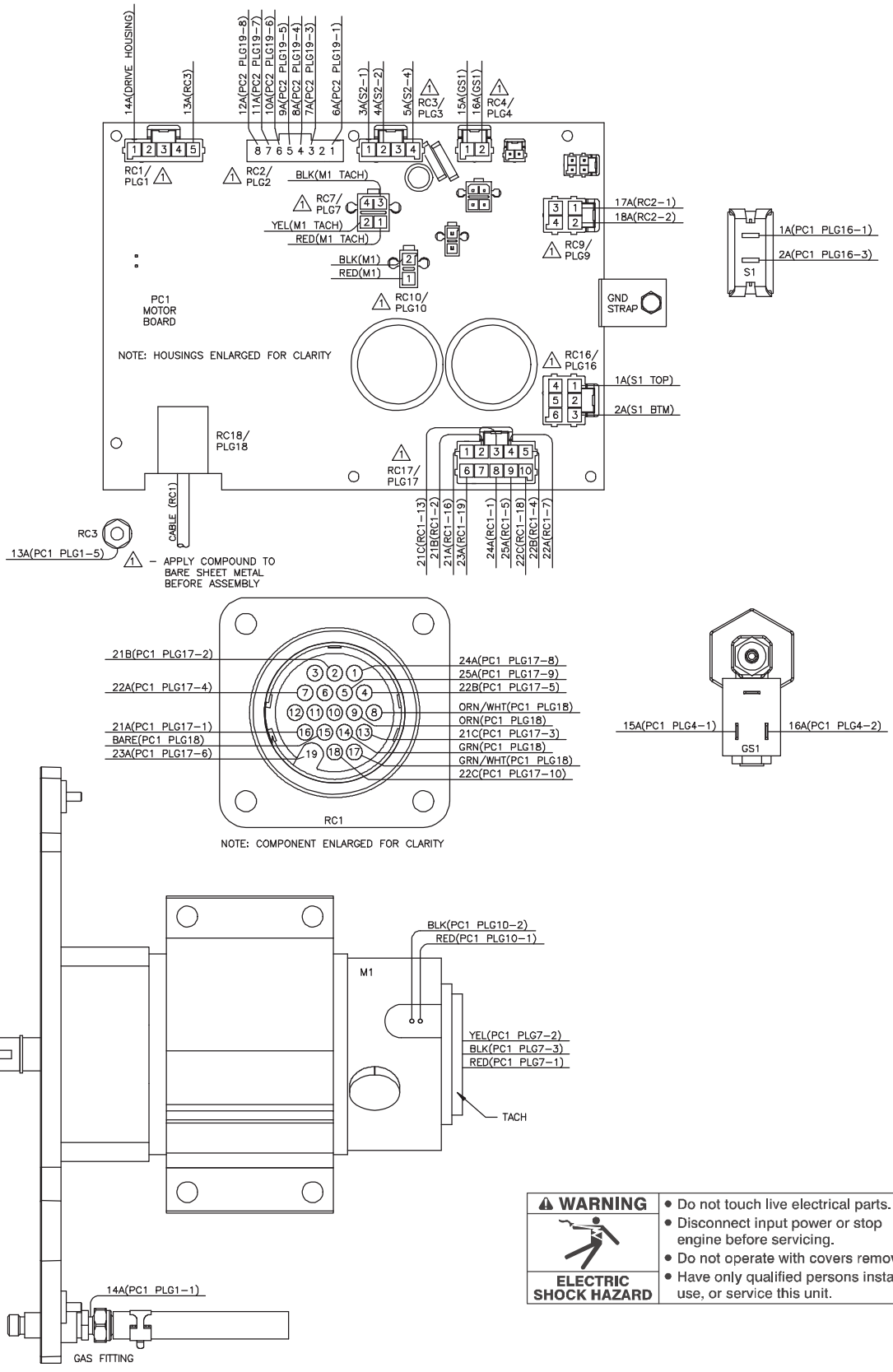


Figure 10-2. Wiring Diagram Eff w/ Serial No. MJ376083U And Following


14A(DRIVE HOUSING)
13A(RC3)
12A(PC2 PLG19-8)
11A(PC2 PLG19-7)
10A(PC2 PLG19-6)
9A(PC2 PLG19-5)
8A(PC2 PLG19-4)
7A(PC2 PLG19-3)
6A(PC2 PLG19-1)
3A(S2-1)
4A(S2-2)
5A(S2-4)
RC3/ PLG3
15A(GS1)
16A(GS1)
RC4/ PLG4
RC1/ PLG1
RC2/ PLG2
BLK(M1 TACH)
RC7/ PLG7
YEL(M1 TACH)
RED(M1 TACH)
BLK(M1)
RED(M1)
17A(RC2-1)
18A(RC2-2)
RC9/ PLG9
1A(PC1 PLG16-1)
2A(PC1 PLG16-3)
S1
PC1 MOTOR BOARD
RC10/ PLG10
GND STRAP
NOTE: HOUSINGS ENLARGED FOR CLARITY
RC16/ PLG16
1A(S1 TOP)
2A(S1 BTM)
RC18/ PLG18
RC17/ PLG17
CABLE (RC1)
21C(RC1-13)
21B(RC1-2)
21A(RC1-16)
23A(RC1-19)
24A(RC1-1)
25A(RC1-5)
22C(RC1-18)
22B(RC1-4)
22A(RC1-7)
RC3
13A(PC1 PLG1-5)
APPLY COMPOUND TO BARE SHEET METAL BEFORE ASSEMBLY
21B(PC1 PLG17-2)
22A(PC1 PLG17-4)
21A(PC1 PLG17-1)
BARE(PC1 PLG18)
23A(PC1 PLG17-6)
24A(PC1 PLG17-8)
25A(PC1 PLG17-9)
22B(PC1 PLG17-5)
ORN/WHT(PC1 PLG18)
ORN(PC1 PLG18)
21C(PC1 PLG17-3)
GRN(PC1 PLG18)
GRN/WHT(PC1 PLG18)
22C(PC1 PLG17-10)
RC1
NOTE: COMPONENT ENLARGED FOR CLARITY
15A(PC1 PLG4-1)
16A(PC1 PLG4-2)
GS1
BLK(PC1 PLG10-2)
RED(PC1 PLG10-1)
M1
YEL(PC1 PLG7-2)
BLK(PC1 PLG7-3)
RED(PC1 PLG7-1)
TACH
14A(PC1 PLG1-1)
GAS FITTING
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.

279242-A

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