

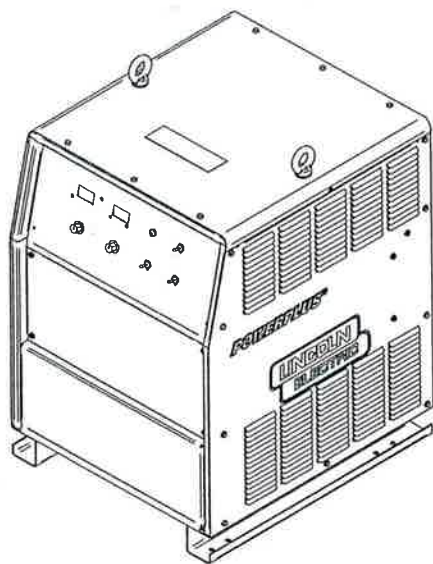
IM7017-1

Apr, 2015
Rev. 03

DURAWELD™ 350/500

For use with machine Code

DURAWELD™ 500 K60096-1 / 76187
DURAWELD™ 350 K60107-1 / 76245



Safety Depends on You

Lincoln arc welding and cutting equipment is designed and built with safety in mind. However, your overall safety can be increased by proper installation and thoughtful operation on your part. DO NOT INSTALL, OPERATE OR REPAIR THIS EQUIPMENT WITHOUT READING THIS MANUAL AND THE SAFETY PRECAUTIONS CONTAINED THROUGHOUT. Most importantly, think before you act and be careful.

OPERATOR'S MANUAL



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• World's Leader in Welding and Cutting •
THE SHANGHAI LINCOLN ELECTRIC COMPANY
No. 195, Lane 5008, Hu Tai Rd. Baoshan, Shanghai, PRC 201907
www.lincolnelectric.com.cn

Thank you for selecting QUALITY Lincoln Electric products.

- Please examine the packaging and equipment for damage. Claims for material damaged in shipment must be notified immediately to the authorized dealer from whom you purchased the machine.
- For future reference, please record your equipment identification information in the table below. Model Name, Code & Serial Number can be found on the machine rating plate.

Model Name	
<input type="checkbox"/> DURAWELD™ 350	<input type="checkbox"/> DURAWELD™ 500
Code & Serial number	
Date & Where Purchased	
Authorized dealer's chop	

Declaration of conformity

THE SHANGHAI LINCOLN ELECTRIC COMPANY

Designed in conformance with the following norm:

GB15579.1
EN 60974-1

THE SHANGHAI LINCOLN ELECTRIC COMPANY
No. 195, Lane 5008, Hu Tai Rd.,(Gao Jing Industry Park), Shanghai, PRC 201907

SAFETY

WARNING

ARC WELDING CAN BE HAZARDOUS. PROTECT YOURSELF AND OTHERS FROM POSSIBLE SERIOUS INJURY OR DEATH. KEEP CHILDREN AWAY. PACEMAKER WEARERS SHOULD CONSULT WITH THEIR DOCTOR BEFORE OPERATING EQUIPMENT.

BE SURE THAT ALL INSTALLATION, OPERATION, MAINTENANCE AND REPAIR PROCEDURES ARE PERFORMED ONLY BY QUALIFIED INDIVIDUALS.



ELECTRIC AND MAGNETIC FIELDS may be dangerous.

- 1.a Electric current flowing through any conductor causes localized Electric and Magnetic Field (EMF). Welding current creates EMF fields around welding cables and welding machines.
- 1.b EMF fields may interfere with some pacemakers, and welders having a pacemaker should consult their physician before welding.
- 1.c All welders should use the following procedures in order to minimize exposure to EMF fields from the welding circuit:
 - 1.d.1 Route the electrode and work cables together – Secure them with tape when possible.
 - 1.d.2 Never coil the electrode lead around your body.
 - 1.d.3 Do not place your body between the electrode and work cables. If the electrode cable is on your right side, the work cable should also be on your right side.
 - 1.d.4 Connect the work cable to the workpiece as close as possible to the area being welded.



ARC RAYS can burn.

- 2.a Use a shield with the proper filter and cover plates to protect your eyes from sparks and the rays of the arc. Headshield and filter lens should conform to ANSI Z87.1 standards.
- 2.b Use suitable clothing made from durable flame-resistant material to protect your skin and that of your helpers from the arc rays.
- 2.c Protect other nearby personnel with suitable, non-flammable screening and/or warn them not to watch the arc nor expose themselves to the arc rays or to hot spatter or metal.



ELECTRIC SHOCK can kill.

- 3.a Electrode and work (or ground) circuits are electrically "hot" when the welder is on. Do not touch these "hot" parts with your bare skin or wet clothing. Wear dry, hole-free gloves to insulate hands.
- 3.b Insulate yourself from work and ground using dry insulation. Make certain the insulation is large enough to cover your full area of physical contact with work and ground.

In addition to the normal safety precautions, if welding must be performed under electrically hazardous conditions (in damp locations or while wearing wet clothing; on metal structures such as floors, grating or scaffolds, when in cramped positions such as sitting, kneeling or lying down, if there is a high risk of unavoidable or accidental contact with the workpiece or ground) use the following equipment:

- Semiautomatic DC Constant Voltage (Wire) Welder.
- DC Manual (Stick) Welder.
- AC Welder with Reduced Open Circuit Voltage.

- 3.c In semiautomatic or automatic wire welding, the electrode, electrode reel, welding head, nozzle or semiautomatic welding gun are also electrically "hot".
- 3.d Always be sure the work cable makes a good electrical connection with the metal being welded. The connection should be as close as possible to the area being welded.
- 3.e Ground the work or metal to be welded to a good electrical (earth) ground.
- 3.f Maintain the electrode holder, work clamp, welding cable and welding machine in good, safe operating condition. Replace damaged insulation.
- 3.g Never dip the electrode in water for cooling.
- 3.h Never simultaneously touch electrically "hot" parts of electrode holder to two welders because voltage between the two can be total of the open circuit voltage of both welders.

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FUMES AND GASES can be dangerous.

- 4.a Welding may produce fumes and gases hazardous to health. Avoid breathing these fumes and gases. When welding, keep your head out of the welding fumes. Use enough ventilation and/or exhaust at the arc to keep fumes and gases away from the breathing zone. **When welding with electrodes which require special ventilation such as stainless or hard facing (see instructions on container or MSDS) or on lead or cadmium plated steel and other metals or coatings which produce highly toxic fumes, keep exposure as low as possible and below Threshold Limit Values (TLV) using local exhaust or mechanical ventilation. In confined spaces or in some circumstances, outdoors, a respirator may be required. Additional precautions are also required when welding on galvanized steel.**
- 4.b Do not weld in locations near chlorinated hydrocarbon vapors coming from degreasing, cleaning or spraying operations. The heat and rays of the arc can react with solvent vapors to form phosgene, a highly toxic gas, and other irritating products.
- 4.c Shielding gases used for arc welding can displace air and cause injury or death. Always use enough ventilation, especially in confined areas, to insure breathing air is safe.
- 4.d Read and understand the manufacturer's instructions for this equipment and the consumables to be used, including the material safety data sheet (MSDS) and follow your employer's safety practices. MSDS forms are available from your welding distributor or from the manufacturer.



FOR ELECTRONICALLY powered equipment.

- 5.a Turn off input power using the disconnect switch at the fuse box before working on the equipment.
- 5.b Install equipment in accordance with national standards, all local standards and the manufacturer's recommendations.
- 5.c Ground the equipment in accordance with the national standards and the manufacturer's recommendations.



WELDING SPARKS can cause fire or explosion.

- 6.a Remove fire hazards from the welding area. If this is not possible, cover them to prevent the welding sparks from starting a fire. Remember that welding sparks and hot materials from welding can easily go through small cracks and openings to adjacent areas. Avoid welding near hydraulic lines. Have a fire extinguisher readily available.
- 6.b When not welding, make certain no part of the electrode circuit is touching the work or ground. Accidental contact can cause overheating and create a fire hazard.
- 6.c Do not heat, cut or weld tanks, drums or containers until the proper steps have been taken to insure that such procedures will not cause flammable or toxic vapors from substances inside. They can cause an explosion even though they have been "cleaned".
- 6.d Sparks and spatter are thrown from the welding arc. Wear oil free protective garments such as leather gloves, heavy shirts, cuffless trousers, high shoes and a cap over your hair.



CYLINDER may explode if damaged.

- 7.a Use only compressed gas cylinders containing the correct shielding gas for the process and properly operating regulators designed for the gas and pressure used. All hoses, fittings, etc. should be suitable for the application and maintained in good condition.
- 7.b Always keep cylinders in an upright position securely chained to an undercarriage or fixed support.
- 7.c Cylinders should be located:
 - Away from areas where they may be struck or subjected to physical damage.
 - A safe distance from arc welding or cutting operations and any other source of heat, sparks, or flame.
- 7.d Never allow the electrode, electrode holder or any other electrically "hot" parts to touch a cylinder.
- 7.e Keep your head and face away from the cylinder valve outlet when opening the cylinder valve.
- 7.f Valve protection caps should always be in place and hand tight except when the cylinder is in use or connected for use.

TECHNICAL SPECIFICATIONS – DURAWELD™ 350/500

INPUT – THREE PHASE ONLY		
DURAWELD™ 350/500	<u>Standard Voltage/Phase/Frequency</u>	<u>Input Power @ 60% Duty Cycle</u>
	380V ~ 415V(±10%)/3/50 or 60 Hz	DURAWELD™ 350 18.1KVA/14.1KW DURAWELD™ 500 30.6KVA/25.3KW

RATED OUTPUT – DC ONLY			
	<u>Duty Cycle</u>	<u>Amperes</u>	<u>Volts at Rated Amperes</u>
DURAWELD™ 350	60%	350A	31.5V
	100%	270A	27.5V
DURAWELD™ 500	60%	500A	39V
	100%	390A	33.5V

* OUTPUT RANGE			
	<u>Welding Current Range</u>	<u>Rated Open Circuit Voltage</u>	<u>Welding Voltage Range</u>
DURAWELD™ 350	50A ~ 400A	60V	16.5 V ~ 34V
DURAWELD™ 500	50A ~ 500A	66V	17 V ~ 41.5V

RECOMMENDED INPUT WIRE AND FUSE SIZES						
	<u>Input Voltage/ Frequency (Hz)</u>	<u>Maximum Input Ampere</u>	<u>Maximum Effective Supply Current</u>	<u>60°C Copper Wire in Conduct Sizes</u>	<u>Fuse or Breaker Size (Super Lag)</u>	<u>Grounding Conductor Size</u>
DURAWELD™ 350	342V ~ 456.5V/ 50Hz or 60Hz	30A	22A	10 mm ²	50A	6mm ²
DURAWELD™ 500		48A	38A	16 mm ²	80A	10mm ²

PHYSICAL DIMENSIONS				
	<u>Height</u>	<u>Width</u>	<u>Depth</u>	<u>Weight</u>
DURAWELD™ 350	755mm	500mm	590mm	116Kg
DURAWELD™ 500	755mm	500mm	590mm	154Kg

Temperature Range	
<u>Operating Temperature Range</u>	<u>Storage Temperature Range</u>
-10°C ~ +40°C	-25°C ~ +55°C

***Note: The output range is measured under conventional welding condition per IEC 60974-1:2000 standard.**

For any maintenance or repair operation it is recommended to contact the nearest technical service center or directly consult the machine division of the Shanghai Lincoln Electric Co. Ltd.. Maintenance or repairs performed by unauthorized service centers or personnel will void the manufacturer's warranty.

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SAFETY PRECAUTIONS

Read the entire installation section before starting installation.

⚠ WARNING



ELECTRIC SHOCK can kill.

- Only qualified personnel should perform this installation.
- Turn the input power OFF at the main switch or fuse box

before working on this equipment. Turn off the input power to any other equipment connected to the welding system at the main switch or fuse box before working on the equipment.

- Do not touch electrically "Hot" parts.
- Always connect the DURAWELD™ grounding lug (located at the rear of the case) to a proper safety (Earth) ground.
- DURAWELD™ must only be used on three-phase, MEN input power.

SELECT SUITABLE LOCATION

This power source should not be subjected to rain, nor should any parts of it be submerged in water. Doing so may cause improper operation as well as pose a safety hazard. The best practice is to keep the machine in a dry, sheltered area.

⚠ CAUTION

The bottom of machine must always be placed on a firm, secure, level surface. There is a danger of the machine toppling over if this precaution is not taken.

Place the welder where clean cool air can freely circulate in through the side and back louvers and out through the case bottom. Water dust or any foreign material that can be drawn into the welder should be kept a minimum. Failure to observe these precautions can result in excessive operating temperatures and nuisance shutdowns.

Locate the DURAWELD™ machine away from radio controlled machinery. Normal operation of the welder may adversely affect the operation of RF controlled equipment, which may result in bodily injury or damage to the equipment.

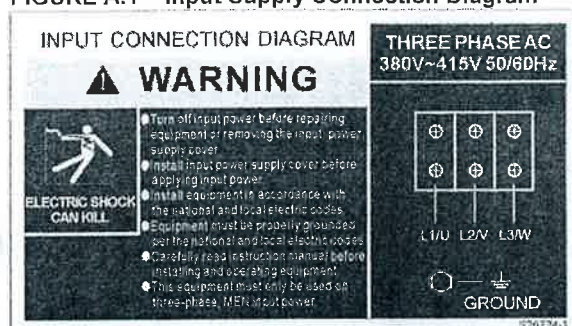
INPUT POWER AND GROUNDING CONNECTION

⚠ WARNING

Only a qualified electrician should connect the input leads to the DURAWELD™. Connections should be made in accordance with the connection diagram. Failure to do so may result in bodily injury or death.

Open the input box on the rear of the case. Use a three-phase supply line, the three live wires should go through the three holes of the input wire holder and be securely clamped and fixed. Connect L1, L2, L3 and ground according to the Input Supply Connection Diagram decal, refer to Figure A.1 on this page.

FIGURE A.1 – Input Supply Connection Diagram



The DURAWELD™ is supplied connected for 50Hz input. In regions where the frequency of electricity is 60HZ, the DURAWELD™ machine can identify the 60 HZ frequency automatically and work in terms of this frequency.

Make sure the amount of power available from the input connection is adequate for normal operation of the machine. Refer to the Technical Specifications at the beginning of this Installation section for recommended fuse and wire sizes. Fuse the input circuit with the recommended super lag fuse or delay type breakers. Using fuses or circuit breakers smaller than recommended may result in "nuisance" shut-offs from welder inrush currents, even if the machine is not being used at high currents.

OUTPUT AND WIRE FEEDER CONNECTIONS

Connect a work lead of sufficient size and length (Per Table A.1) between the Negative Output terminal on the power source and the work. Be sure the connection to the work makes tight metal-to-metal electrical contact. To avoid interference problems with other equipment and to achieve the best possible operation, route all cables directly to the work and wire feeder. Avoid excessive lengths and do not coil excess cable.

Minimum work and electrode cable sizes are as follows:

TABLE A.1

Current (60% Duty Cycle)	Minimum Copper Work Cable Size
	Up To 30m Length
200A	30 mm ²
300A	50 mm ²
400A	70 mm ²
500A	95 mm ²

Note: Recommended cable sizes may vary due to different cable quality. The overall voltage pressure of grounding and welding cables is no more than 4V under rated current.

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PWF wire feeder connection instructions
(See Figure A. 2)

- Turn the DURAWELD™ power switch "OFF".
- Connect the control cable from the PWF/LWF feeder to the 6-pin connector. 2 wire feeder models are: LWF-2/LWF-4Plus
- Connect the electrode cable to the Positive Output terminal.

⚠ CAUTION

For secure electrical connections, the Nuts connecting the output terminals and cables must be tightened. Damage to output studs and poor performance may occur, if this instruction is not followed.

GUN AND CABLE INSTALLATION

Optional guns with various cable length can be used with the DURAWELD™.

⚠ WARNING

Turn the welder power switch off before installing gun and cable.

⚠ WARNING

CYLINDER may explode if damaged.

- Gas under pressure is explosive. Always keep gas cylinders in an upright position and always keep chained to undercarriage or stationary support.

Install shielding gas supply as follows:

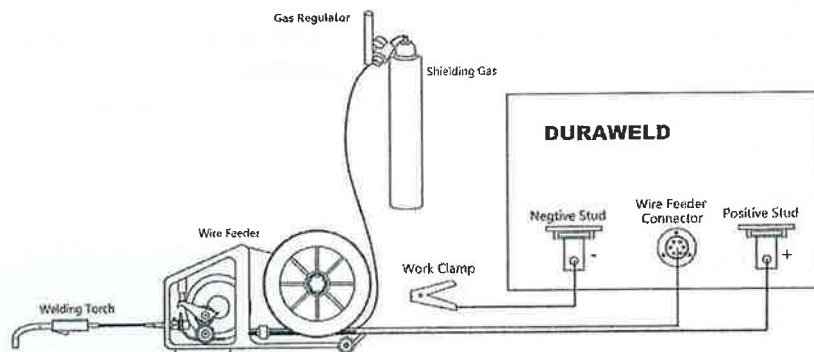
- Remove the cylinder cap. Inspect the cylinder valve and regulator for damaged threads, dirt, dust, oil or grease. Remove dust and dirt with a clean cloth. **DO NOT ATTACH THE REGULATOR IF OIL, GREASE OR DAMAGE IS PRESENT!** Inform your gas supplier of this condition. Oil or grease in the presence of high pressure oxygen is explosive.
- Stand to one side away from the outlet and open the cylinder valve for an instant. This blows away any dust or dirt which may have accumulated in the valve outlet.



- Attach the flow regulator to the cylinder valve and tighten the union nut(s) securely with a wrench.

NOTE: When connecting to a CO₂ cylinder, please select a CO₂

FIGURE A. 2 – OUTPUT AND WIRE FEEDER CONNECTIONS



Gun and cable assembly installation instruction

- Unscrew the hexagon head screw in front of the wire drive unit (inside wire feed compartment) until tip of screw no longer protrudes into gun opening as seen from front of wire feeder.
- Insert the male end of gun cable into the female casting. Make sure connector is fully inserted and tighten the hexagon head screw.
- Connect the two-pin gun trigger connector from the gun and cable to the mating receptacle, then tighten the retaining ring.
- Connect the gas connector to the mating receptacle at front of wire feeder, and tighten the copper retaining ring.

CONNECTING SHIELDING GAS

DURAWELD™ supports MIG/MAG, FCAW-GS/SS Welding Process.

User must provide gas cylinder of appropriate type shielding gas for the process being used with the DURAWELD™.

Regulator Heater for the prevention of ice build up. Failure to do so, may result in poor welding performance. The power cord of the gas heater must be plugged into the receptacle on the rear of the DURAWELD™ case.

- Attach the end of the inlet gas hose, from the wire feeder, to the outlet fitting of the flow regulator, and tighten the union nuts securely with a wrench.
- Before opening the cylinder valve, turn the regulator adjusting knob counterclockwise until the adjusting spring pressure is released.
- Standing to one side, open the cylinder valve slowly a fraction of a turn. When the cylinder pressure gauge pointer stops moving, open the valve fully.

⚠ WARNING

Never stand directly in front of or behind the flow regulator when opening the cylinder valve. Always stand to the side.

- The flow meter is adjustable. Adjust it to the flow rate recommended for the weld procedure.

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SAFETY PRECAUTIONS

⚠ WARNING

ELECTRIC SHOCK can kill.

- Do not touch electrically live parts or electrode with skin or wet clothing.
- Insulate yourself from work and ground.
- Always wear dry insulating gloves.



FUMES AND GASES can be dangerous.

- Keep your head out of fumes.
- Use ventilation or exhaust to remove fumes from breathing zone.



WELDING SPARKS can cause fire or explosion.

- Keep flammable material away.
- Do not weld on closed containers.



ARC RAYS can burn eyes and skin.

- Wear eyes, ear and body protection.

PLEASE SEE ADDITIONAL WARNING INFORMATION AT THE FRONT OF THIS OPERATOR'S MANUAL.

GENERAL DESCRIPTION

The DURAWELD™ is a semiautomatic DC arc welding machine offering CV DC welding. It is rated as follows: DURAWELD™ 350: 350amps, 31.5volts at 60% duty cycle.

DURAWELD™500: 500amps, 39volts at 60% duty cycle.

DUTY CYCLE

The duty cycle of a welding machine is the percentage of time in a 10 minute cycle at which the welder can operate the machine at rated welding current.

60% duty cycle:



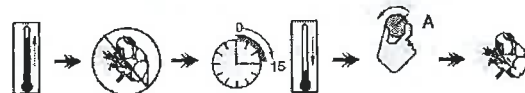
Weld for 6 minutes

Break for 4 minutes

Excessive extension of the duty cycle will cause the thermal protection circuits to activate.

The DURAWELD™ machine is equipped with a thermostat overheating protection device. When the machine detects overheating, the output will turn off, and the Thermal Indicator Light will turn "ON". When the machine has cooled to a safe temperature, the Thermal Indicator Light will go out and the machine will resume normal operation.

Note: For safety reasons the machine will not come out of thermal shutdown if the trigger on the welding gun has not been released.

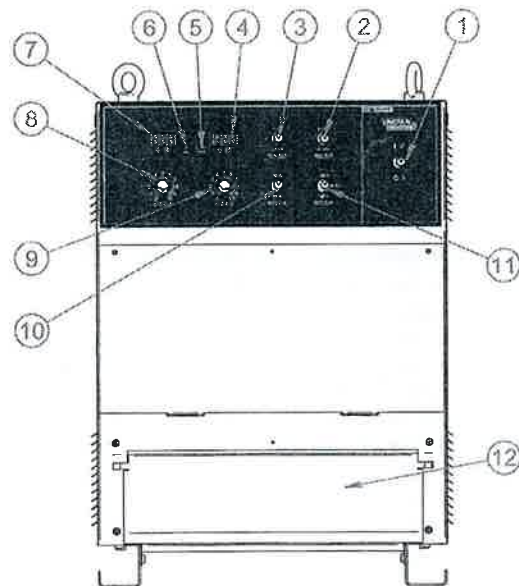


Wait for machine to cool down

Or decrease duty cycle

OPERATIONAL FEATURES AND CONTROLS

Front Panel (Please see figure B.1)



1. ON/OFF POWER SWITCH

After input power is connected and the power switch is turned on, the digit meters are active. Voltage meter will show pre-set value.

2. Wire selection

Solid and Flux-cored

3. GAS SELECTION

There is a selection switch on CO2 and mix gas

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according to actual welding condition.

4. VOLTAGE METER

Actual welding voltage will be shown in welding state; pre-set value will be shown if no welding operation. Crater pre-set value will be shown when any crater parameter is adjusted.

5. SYNERGIC STATE INDICATOR

The indicator will be lighted when this function is turned on to indicate synergic function. Otherwise, it will be in the independent adjustment state.

6. CRATER ADJUSTMENT INDICATOR

The indicator will be lighted when adjusting crater voltage or current to indicate pre-set value of crater voltage and current.

7. AMPERAGE METER

During the welding process, this meter displays the welding current value. This meter displays pre-set value if there is no welding operation; Crater current pre-set value will be shown when crater parameter is adjusted.

8. Crater Current Potentiometer

This knob adjusts the output current (wire feed speed), when the Dura Weld™ machine is in crater mode.

9. Crater Voltage & spot weld time Potentiometer

This knob adjusts the value of output voltage, when the Dura Weld™ weld mode switch is selected to 4-step.

This Knob adjust the persistence time of spot weld, when the weld mode switch is selected to spot weld. (Only for Duraweld 350)

10. Weld Mode SWITCH

This switch enables the selection of 2-step or 4-step mode (Enable or disable the crater mode) by this switch. And also can use this switch enable the spot weld mode on Duraweld 350.

NOTE: The DURAWELD™ machine also features a Crater mode. During 2-step mode, there is no crater output. During the 4-step mode, after the welder activates the trigger, the DURAWELD shifts to crater mode.

Please see FIGURE B.4 for an understanding of the detailed working process for 2 and 4 step modes.

11. WIRE DIAMETER SELECTION

There are three diameter selection switch; For Duraweld 500, 1.0, 1.2, 1.6 can be select with this switch.

For Duraweld 350, 1.2, 1.0, 0.8 can be select with this switch.

It can be set according to actual welding request. Pre-set current is more accurate when the wire diameter above is selected. Otherwise, it will stray from pre-set value.

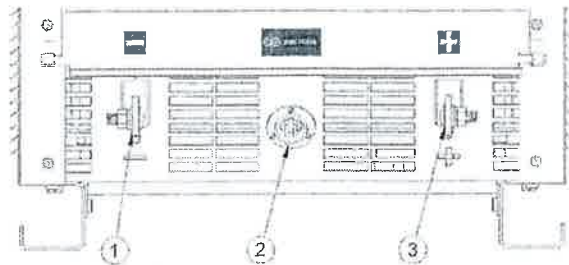
12. PROTECTION DOOR

This door is used to protect the output terminal and wire feeder connector. Only after turning off the power, Open protection door to connect the welding cables and LWF feeder.

⚠ WARNING

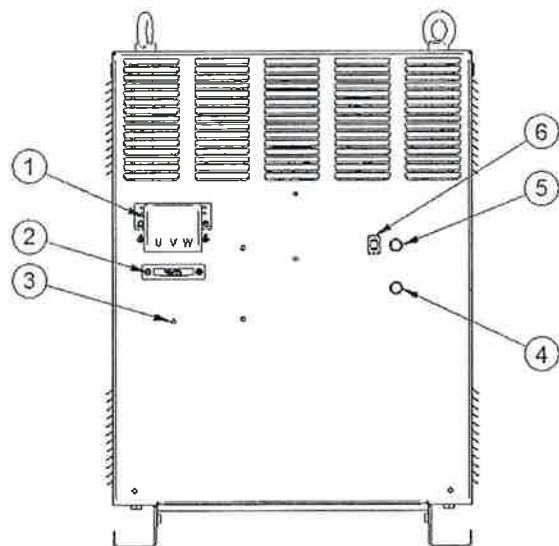
Do NOT operate the DURAWELD™ machine with this door open.

Output Stud(Fig B.2)



- 1 Negative Stud.
- 2 The connector of Wire feeder.
- 3 Positive Stud.

REAR PANEL (FIGURE B.3)



1. INPUT POWER PROTECTIVE BOX

Insulation box is used to cover the input connections, offering insulating protection to the operator.

⚠ WARNING

Insulation box must be installed before turning on the main power supply.

2. INPUT CABLE HOLDING BRACKET

This bracket holds the three phase power cables securely.

3. GROUND CABLE CONNECTION

Connect the input earth cable to the rear of the case. A earth Hex. Screw is located on the lower rear of the case. Secure the earth cable lug-end with the screw into the case hole.

4. WIRE FEEDER 8A FUSE AND FUSE HOLDER

250V 8A fuse is used to protect wire feeder control circuit from short circuit so that control board is not damaged.

5. GAS HEATING 2A FUSE AND FUSE HOLDER

This machine is equipped with AC220V(200W) heating

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power. This fuse is used to protect heating circuit.

6. GAS HEATING SOCKET

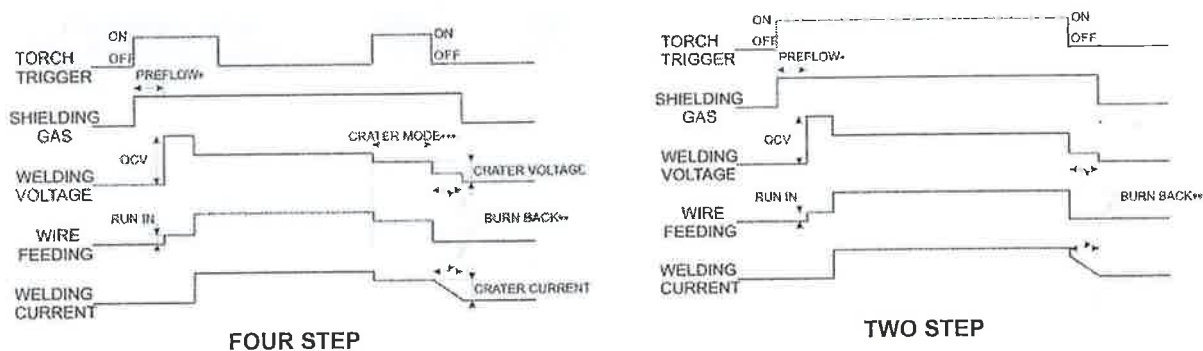
This is output socket of Max Aux 220v power, used to connect with gas heater.

⚠ WARNING

Only 220V gas heater could be connected at the plug of low voltage, do not connect other electrical device, otherwise, the machine could be damaged.

Function and schedule See B.4

FIGURE B.4



NOTE:

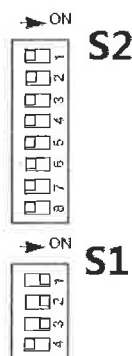
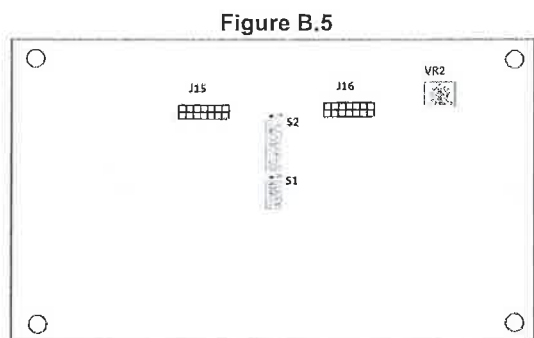
* Enable or disable PREFLOW function can be operated by the DIP switch on PC board, please refer to B-3.

** Welder's output during Crater is controlled by its Panel, not by PWF/LWF wire feeder.

*** The output during the crater period, is determined by the control knob on the power source panel. (Not by the wire feeder.)

ADVANCED FEATURES

DURAWELD™ machine offers two DIPs (S1 and S2) switch on the PC board, which allows the user to have additional features. There are 12 individual switches integrated on this DIP switch. (Please see FIGURE B.5)



For S1 DIP Switch:

- S1-1 PREFLOW ON/OFF SWITCH**
- S1-2 SYNERGIC FUNCTION SWITCH**
When the switch is on, synergic function is opened, meanwhile, the indicator is lighted. Pre-set voltage will match automatically if current is adjusted. Voltage knob can be also adjusted a little. Otherwise, voltage and current could be adjusted respectively. Please refer to B.3 for detailed information.
- S1-3 Run in speed setting**
When this switch is ON, Run in speed is at fast state about 100IPM. If that is set into OFF, this speed is about 40IPM.
- S1-4 Reserved**

For S2 DIP Switch:

- S2-1 Generator Mode switch**
If that switch is set "ON", some special controls is used in Power. That will be fit for Generator supply.
- S2-2 ENERGY SAVING SWITCH**
When the Dip switch #5 is in the "OFF" position, the POWERPLUS machine will operate in power

saving mode.

Note: After the machine has not been activated for longer than 5 minutes, the operator may experience a weld start delay of less than 1 second.

- S2-3 Wire Feeder Selector**
When LWF feeder is used, this switch should be set "OFF". For PWF feeder, that switch is set into "ON".

- S2-4 Reserved**
- S2-5 For Debug**
- S2-6 Set Burnback time**
- S2-7,-8 Calibration**

DIP S2-7	DIP S2-8	Function
ON	OFF	Feeder Calibration
OFF	ON	Voltage Calibration
ON	ON	Current Calibration

The standard default setting is, from No.1 to 4 FOR S1 -ON, ON, ON, OFF. For S2 DIP Switch OFF, OFF, OFF, OFF, OFF, OFF, OFF, OFF.

NOTE:

NOTE1: Error code list table

Error Code	Description	Feature
Err 21	Communication ERROR	Auto Reset
Err 36	Overheat Alarm	Auto Reset
Err 41	Power Overcurrent	Auto Reset
Err 46	Power Shortcurrent	No Auto Reset
Err 49	Lose Phase	Auto Reset
Err 81	Feeder Shortcurrent	No Auto Reset

NOTE 2 Setting burnback time

That dip-switch can enable operator to tune burnback time. This is the time the arc power is delayed at the stop of the weld, and should be set to the proper time required to prevent the wire sticking in the weld.

In normal state, the adaptive burnback is used in the machine. We don't need to tune this parameter and only use default value.

In some special applications, the burnback needs to be adjusted. First, close the machine power. Set the Dip switch S2-6 to "ON" position. Weld mode switch of 2/4 step is set to 2 step.

Power on the machine, the character of "B-B" is displayed on the left LED meter. On the right, it shows the burnback proportion value from -49 to +49. In that time, we can adjust crator potentiometer to change that value. The detailed value can be referred to the following figure F6.

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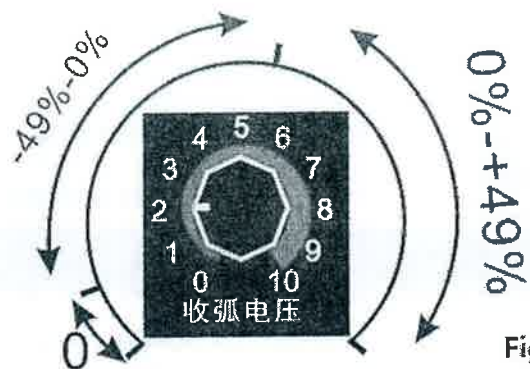


Fig 6

4: Adjust preset current value

When the preset value is not equal to the actual, we can adjust the potentiometer of VR2 on the control board from -50A to +50A.

That value is added on the original value and displayed directly. So we can not see the adjusted offset value. As shown, if the pot arrow position is on the left, the offset value is 0. The preset current value is default.

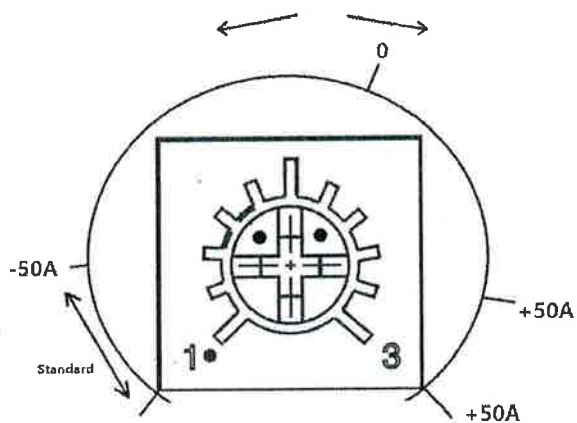


FIG. 7

TROUBLESHOOTING GUIDE - Observe all Safety Guidelines detailed throughout this manual

PROBLEMS	POSSIBLE AREAS OF MISADJUSTMENT(S)	RECOMMENDED
(SYMPTOMS)		COURSE OF ACTION
Major Physical or Electrical Damage is Evident.	1. Contact your local Lincoln Electric Authorized Field Service Facility.	Contact The Shanghai Lincoln Electric Service Dept. (8621)6673 4530 ext 1182.
Machine not operational - No output. Fan and display not operational.	1. Check the fuse F1 on input circuit	Replace control board.
	2. Power switch may be faulty.	Replace the power switch.
	3. Maybe one input phase missing.	Check and reconnect.
	4. Check the three phase input line voltage at the machine. Input voltage must match the rating plate.	Reconnect
Machine fan and display operational. NO output.	1. The remote control panel on LWF wire feeder or trigger of torch trigger is damaged.	Check and replace.
	2. Check for loose or faulty connections at the output terminals and check the lugs connected to the welding and work lead.	Reconnect.
	3. The PC board is faulty or connections are loose.	Check and replace.
	4. 6 pin control cable is faulty or open circuit.	Check and reconnect.
	5. The PC board is faulty.	Check and replace.

PROBLEMS	POSSIBLE AREAS OF MISADJUSTMENTS(S)	RECOMMENDED
(SYMPTOMS)		COURSE OF ACTION
The machine has low output and no control. The fan runs.	1. Voltage or current "Pots" on wire feeder control panel damaged.	Check and replace.
	2. SCR module is damaged.	Replace SCR module.
	3. Check for loose or faulty connections at the output terminals.	Reconnect.
	4. The PC board is faulty.	Replace.
	5. 6 pin control cable has an open circuit.	Check and repair.
Machine has high output and no control.	1. Voltage or current "Pots" on wire feeder control panel damaged.	Repair or replace.
	2. Loose or faulty connection with the feedback leads from the shunt and the output terminals to the control board.	Reconnect.
	3. The PC board is faulty.	Replace.
	4. 6 pin control cable #94 is faulty or has an open circuit.	Check and repair.
Machine does not have maximum output.	1. The "Pots" voltage or current on the remote PWF wire feeder control panel may be damaged.	Check and replace.
	2. The control board is faulty.	Replace.
	3. SCR or drive leads may be faulty	Check and replace.
Machine does not have 4 Step mode.	1. Welding current feed back circuit disconnected or reversed.	Reconnect.
	2. 2 Step / 4 Step switch is faulty.	Check and replace.

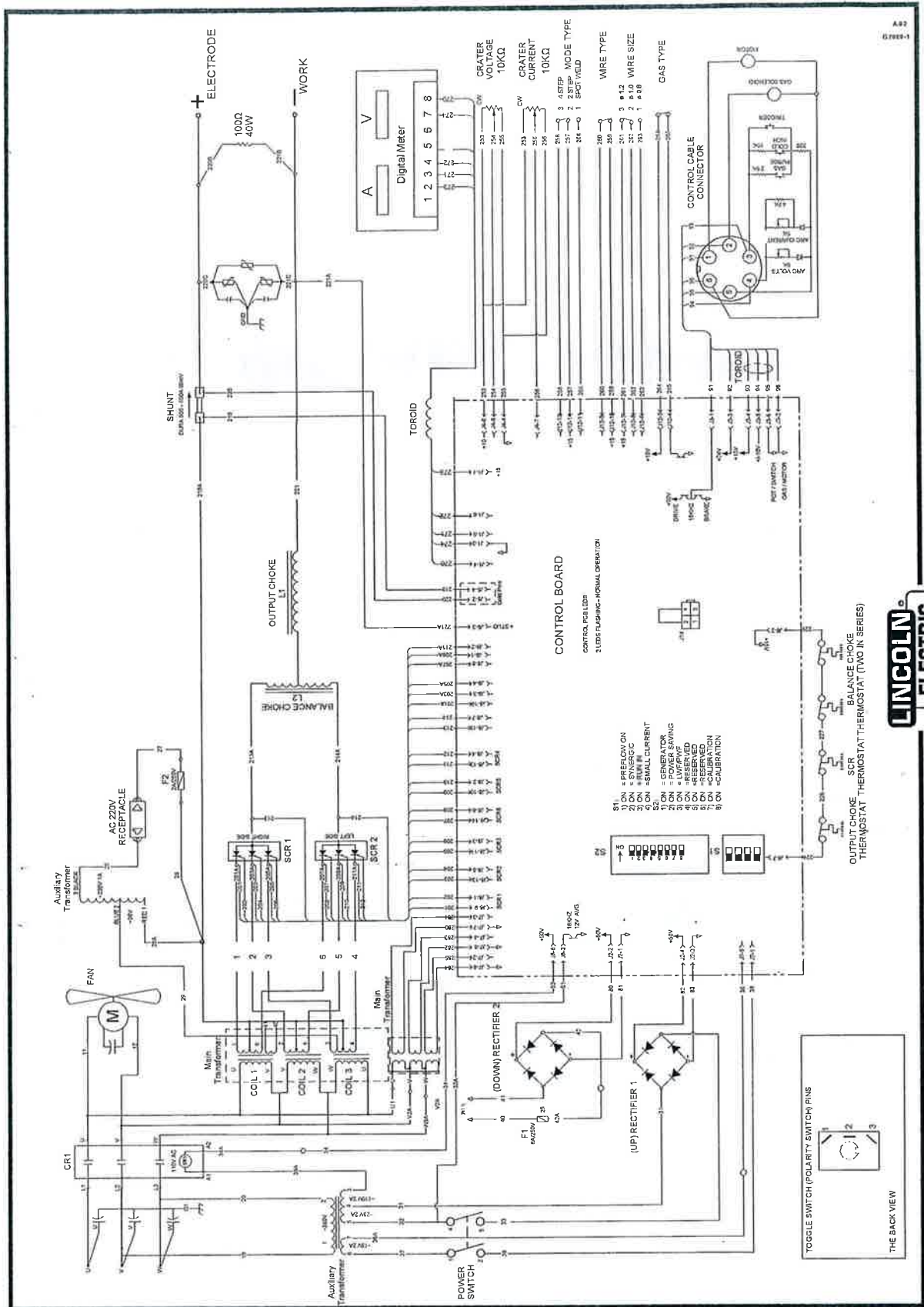
PROBLEMS	POSSIBLE AREAS OF MISADJUSTMENTS(S)	RECOMMENDED
(SYMPTOMS)		COURSE OF ACTION
Err 36.	1. Overheating with SCR or Choke.	Wait for machine to cool down.
	2. Thermostat protection. Fan motor doesn't run or runs at low speed.	Change fan motor.
	3. Thermostat protection. The thermostat is damaged.	Change the damaged thermostat. If the damaged thermostat is inside choke, change the choke.
	4. Temperature protection switch is Open Circuit.	Check and correct.
"Err 49" on the display.	1. Phase detection error. At least one phase lost.	Check and rectify.
	2. Main contactor is faulty.	Check and replace.
"Err 81" on the display.	1. Motor over current error.	Find out reason which caused over current and remove it.
	2. Blockage in feeding liner.	Clean or replace.
	3. Wrong drive roll.	Check or replace.
"Err 23" on the display.	1.Wrong telecommunication	Wrong telecommunication among chips on PCB
"Err 41" on the display.	1. Over current.	Trigger release.
Machine will NOT shut off.	1. Contactor is faulty.	Repair.
		Contact your local Lincoln Authorized Field Service Facility.

PROBLEMS	POSSIBLE AREAS OF MISADJUSTMENTS(S)	RECOMMENDED
(SYMPTOMS)		COURSE OF ACTION
Meter reading is incorrect.	1. PC board is faulty.	Check and replace.
	2. Loose or bad connections on the feedback leads 220& 221, 222& 223.	Check and correct.
	3. Loose or faulty connections at the shunt.	Reconnect.
	4. Display is faulty.	Replace.
Machine will NOT shut off.	1. Contactor is faulty.	Repair.
		Contact your local Lincoln Authorized Field Service Facility.
Welding arc is variable and sluggish.	1. The welding cable connections are loose or faulty.	Check and reconnect.
	2. Make sure the wire feed speed, voltage, and shielding gas are correct for the process being used.	Check and correct.
	3. The PC board is faulty.	Replace.
	4. Bad connection of the input cable.	Check and correct.
Arc starts are poor.	1. Bad grounding connection.	Check and reconnect.
	2. There is oil on the surface of the workpiece.	Check and replace.
	3. Output voltage is abnormal.	Check whether the open circuit voltage is normal.
	4. The welding parameters are not correct, the WFS is too fast, the voltage is low.	Readjust the welding parameters.

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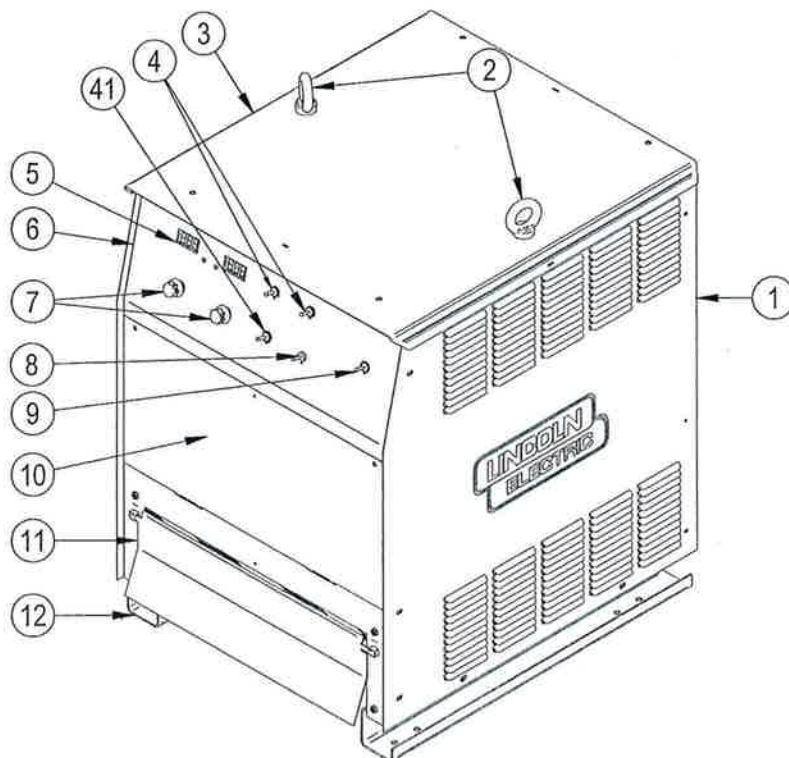
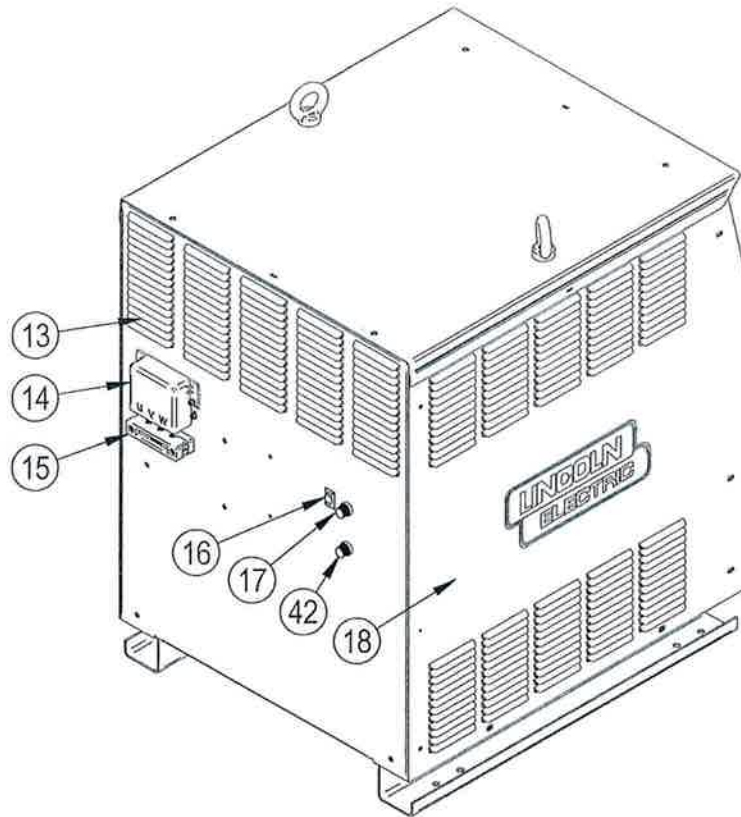


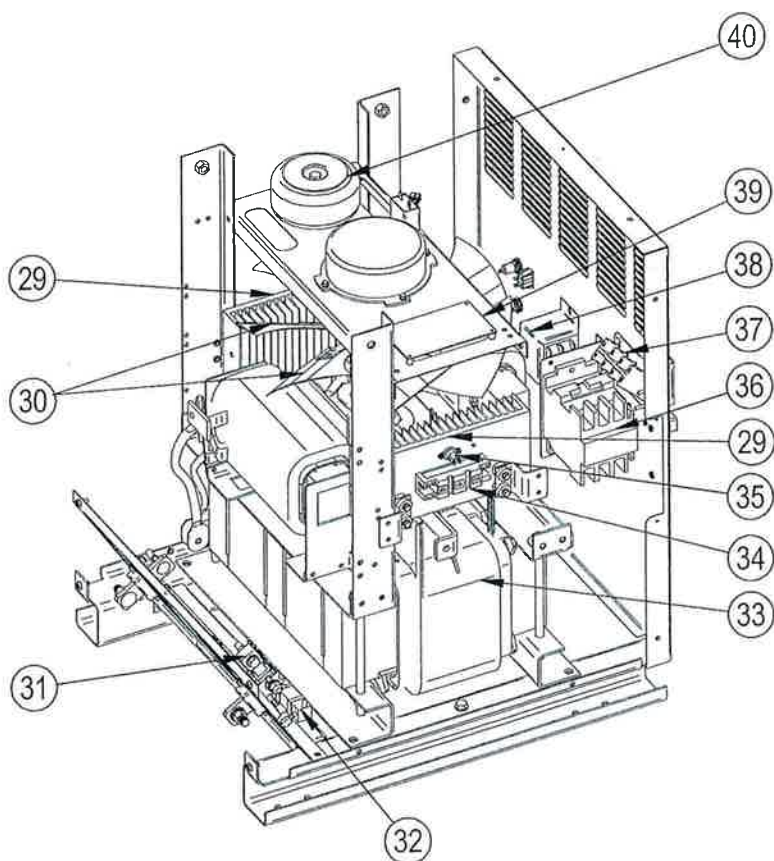
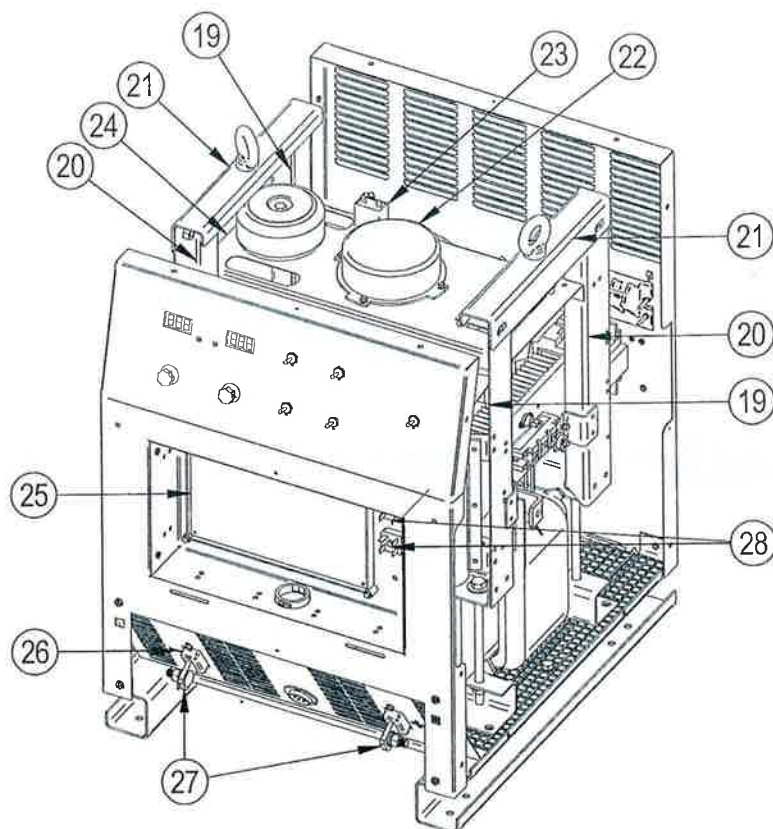
DURAWELD 350 WIRING SCHEMATIC



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PARTS LIST

编号	产品号	Object Description	数量
1	L13195-4	RIGHT SIDE PANNEL	1
2	S26786	EYEBOLT	2
3	L13196-3	TOP ROOF	1
4	T10800-4	SWITCH TOGGLE	2
5	M25153-2	DISPLAY PCB	1
6	G5894-2	FRONT PANEL	1
7	T13639-6	CONTROL KNOB	2
8	T10800-23	SWITCH TOGGLE,	1
9	T10800-47	SWITCH TOGGLE	1
10	L13197-1	MIDDLE COVER PLATE	1
11	G5896-1	OUTPUT STUD COVER	1
12	L13160-1	LEFT FOOT	1
	L13159-1	RIGHT FOOT	1
13	G6233-3 (Dura 500) G6233-4 (Dura 350)	CASE BACK	1
14	M20720-2	INPUT SUPPLY BOX	1
15	M20720-4	CABLE HOLDER COVER	1
	M20720-5	CABLE HOLDER BASE	1
16	S26506-2	RECEPTACLE	1
17	T12386-6	FUSE HOLDER	1
	T10728-20	FUSE,2A,	1
18	L13194-3	LEFT SIDE PANNEL	1
19	G6001-3 (Dura 500) L13152-2 (Dura 350)	LIFT BALE SUPPORT BRACKET B LIFT BRACKET A	2
20	G6001-4 (Dura 500) L13152-3 (Dura 350)	LIFT BALE SUPPORT BRACKET A LIFT BRACKET C	2
21	M21478-4 (Dura 500) M21478-3 (Dura 350)	UPPER LIFT BALANCE CHANNEL	2
22	M20713	MOTOR	1
23		CAPACITOR	1
24	L13199-3 (Dura 500) L13720-1 (Dura 350)	FAN BRACKET	1
25	S29843	CONTROL PC BOARD	1
	G5895-1	CONTROL PCB SHEETMETAL BOX	1
26	G5897-2	OUTPUT STUD PLATE	1
27	M20710-1	OUTPUT STUD	2
28	T13637-6	RECTIFIER	2
29	L13200-2 (Dura 500) L13154-3 (Dura 350)	HEAT SINK ASSEMBLY	2
30	L13328-1	ALUMINUM FAN BLADE	1
31	S26194-1 (Dura 500) S26194-2 (Dura 350)	SHUNT	1
32	M20716-10	RESISTANCE	1
33	G6105-2 (Dura 500) G6173-2 (Dura 350)	TRANSFORMER &CHOKE ASSEMBLY	1
34	M20714-4 (Dura 500) M20714-2 (Dura 350)	SCR MOUDLE	2
35	T13359-28	TEMPERATURE CONTROLLER	1
36	M12161-98 (Dura 500) M12161-99 (Dura 350)	CONTRACTOR	1
37	M20720-6	INPUT BLOCK	1
38	M21437-13	AUX TRANSFORMER A	1
39	M25154-2	SYNCHRONOUS DETECTION PCB	1
40	M21437-16	AUX TRANSFORMER B	1
41	T10800-4 (Dura 500) T10800-23 (Dura 350)	SWITCH TOGGLE SWITCH TOGGLE,	1
42	T12386-6	FUSE HOLDER	1
	T10728-55	FUSE,8A,	1

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1. The ON/OFF Power Switch on the FRONT Panel can NOT shut off the power to the auxiliary transformer. Before any examination and repair, please turn off the 3-Phase Input Power first, especially when changing the auxiliary transformer.

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