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LT3500



## OWNER'S MANUAL

Carefully read the operation manual prior to using,  
Installing and maintaining the electric welding machine.



# IMPORTANT

## Save This Manual

You will need the manual for safety warnings and precautions, assembly instructions, operating and maintenance procedures, parts list and diagram. Keep your invoice with this manual. Write invoice number and date of purchase on the inside of the manual. Keep the manual and invoice in a safe and dry place for future.

## Operation Manual

Carefully read the operation manual prior to using, installing and maintaining the electric welding machine for the purpose of preventing damages such as fire, electric shock and etc. from occurring. Please keep the manual for the reference in the future.

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# SAFETY WARNINGS AND PRECAUTIONS



**PLEASE READ AND UNDERSTAND THE FOLLOWING SAFETY HIGHLIGHTS. BE SURE THAT ALL INSTALLATION, OPERATION, MAINTENANCE AND REPAIR PROCEDURES ARE PERFORMED ONLY BY QUALIFIED INDIVIDUALS. ARC AND TIG 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**



**WHEN USING THE WELDER, ALL BASIC SAFETY PRECAUTIONS SHOULD ALWAYS BE FOLLOWED TO REDUCE THE RISK OF PERSONAL INJURY AND DAMAGE TO EQUIPMENT.**

## **READ ALL INSTRUCTIONS BEFORE USING THIS WELDER.**

- **Keep work area clean.** Cluttered areas invite injuries.
- **Observe work area conditions.** Do not use machines or power tools in damp or wet locations. Do not expose to rain. Keep work area well-lighted. Do not use electrically powered tools in the presence of flammable gases or liquids.
- **Keep children away.** Children must be never allowed in the work area. Do not let them handle machines, tools or extension cords.
- **Store idle equipment.** When not in use, tools must be stored in a dry location to inhibit rust.
- **Always lock up tools and keep them out of the reach of children.**
- **Do not force tool.** It will do the job better and safer at the rate for which it was intended. Do not use inappropriate attachments in an attempt to exceed the tool capacity.
- **Use the right tool for the job.** Do not attempt to force a small tool or attachment to do the work of a larger industrial tool. There are certain applications for which this welder was designed. Do not modify this welder and do not use this welder for any other purposes for which it was not intended.
- **Dress properly.** Do not wear loose clothing or jewelry as they can be caught in moving parts. Protective, flame retardant, electrically non-conductive clothing and non-skid footwear are recommended when working. Wear restrictive hair covering to contain long hair.
- **Use eye and ear protection.** Always wear ANSI approved, arc shaded, impact safety face shield (welding helmet). Always use a full-face shield when welding. Always wear ANSI approved eyewear under face shield and while in the workplace. Wear a NIOSH approved dust mask or respirator when working around metal, chemical dusts, fumes and mists.
- **Do not over reach.** Keep proper footing and balance at all times. Do not reach over or across running machines.
- **Maintain tools with care.** Keep tools sharp and clean for better and safer performance. Follow instructions for lubricating and changing accessories. Inspect tool cords periodically and, if damaged, have them repaired by an authorized technician. The handles must be kept clean, dry, and free from oil and grease at all times.

- **Disconnect power.** Unplug tool when not in use.
- **Remove adjusting keys and wrenches.** Check that keys and adjustment wrenches are removed from the welder and work area before plugging in.
- **Avoid starting unintentionally.** Be sure the switch is in the off position when not in use and before plugging in. Do not carry any tool with your finger on the trigger, whether it is plugged in or not.
- **Stay alert.** Watch what you are doing. Use common sense. Do not operate any tool when tired.
- **Check for damaged parts.** Before using any tool, any part that appears damaged should be carefully checked to determine that it would operate properly and perform its intended function. Check for alignment and binding of moving parts; any broken parts or mounting fixtures; and any other condition that may affect proper operation. Any part that is damaged should be properly repaired or replaced by a qualified technician. Do not use the tool if any switch does not turn on and off properly.
- **Guard against electric shock.** Prevent body contact with grounded surfaces such as pipes, radiators, ranges, and refrigerator enclosures.
- **Replacement parts and accessories.** When servicing, use only identical replacement parts. Use of any other parts will void warranty. Only use accessories intended for use with this welder. Approved accessories are available from [www.uwelding.com](http://www.uwelding.com).
- **Do not operate tool if under the influence of alcohol or drugs.** Read warning labels on prescriptions to determine if your judgment or reflexes are impaired while taking drugs. If there is any doubt, do not operate the welder.
- **Maintenance.** For your safety, service and maintenance should be performed regularly by a qualified technician.
- **Use proper size and type extension cord.** If an extension cord is required, it must be of the proper size and type to supply the correct current to the welder without heating up. Otherwise, the extension cord could melt and catch fire, or cause electrical damage to the welder. This welder requires use of an extension cord of 20amps minimum capability up to 30 feet, with a wire size rated at 12 AWG. Longer extension cords require larger size wire. If you are using the welder outdoors, use an extension cord rated for outdoor use, signified by "WA" on the jacket. Performance of this welder may vary depending on condition in local line voltage. Extension cord usage may also affect welder performance.



**The warnings, cautions and instructions discussed in this instruction manual cannot cover all possible conditions and situations that may occur. It must be understood, by the operator, that commonsense and caution are factors, which cannot be built into this product, but must be supplied by the operator.**

## ARC WELDER SAFETY WARNINGS & PRECAUTIONS

**Warning:** This product, when used for welding and similar applications, produces chemicals to cause cancer and birth defects (or other reproductive harm).



### **ELECTRIC SHOCK can be fatal**

The electrode and work (or ground) circuits are electrically “hot” when the machine is on. Do not touch these “hot” parts with your bare skin or wet clothing. Protective clothing should be hole free, dry and ANSI approved. Wear dry, hole-free gloves to insulate hands.

- Do not permit electrically live parts, cables, or electrodes to contact skin, clothing or gloves.
- This unit draws enough current to cause serious injury and or death.
- Before turning the welder on, check the welder gun to be sure that there are no protruding screw heads and that all insulation is secure.
- 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.
- Always be sure the work cable makes a good electrical connection with the metal being cut. The connection should be as close as possible to the area being cut.
- Ground the work metal to be cut to a good electrical (earth) ground.
- Maintain the welding torch, work clamp, power cable and cutting machine in good, safe operating condition. Replace damaged insulation.
- Never dip the electrode in water for cooling.
- When working above floor level, use a safety belt to protect yourself from a fall



should you get a shock.

### **FUMES & GASES can be dangerous**

Plasma cutting may produce fumes and gases hazardous to health. Avoid breathing these fumes and gases. When cutting, keep your head out of the fume. Use enough ventilation and/or exhaust at the arc to keep fumes and gases away from the breathing zone. In confined spaces or in some circumstances, outdoors, a respirator may be required. Additional precautions are also required when cutting on galvanized steel.

- Do not cut 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.
- 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.



### **ELECTRIC&MAGNETIC FIELDS may be dangerous**

The EMF field that is generated during arc welding may interfere with various electrical and electronic devices such as cardiac pacemakers.

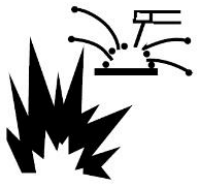
- Anyone using such devices should consult with their physician prior to performing any electric welding operations.
- Exposure to EMF fields while welding may have other health effects, which are not known.





#### ARC RAYS can burn

- Avoid eye and body damage. Arc rays and infrared radiation can cause injury to the eyes and burn the skin. Wear ANSI approved eye and body protection. Do not allow viewing by visitors without proper eye and body protection.
- Use a shield with the proper filter and cover plates to protect your eyes from sparks and the rays of the arc when plasma cutting or observing open arc plasma cutting.
- Use suitable clothing made from durable flame-resistant material to protect your skin and that of your helpers from the arc rays.
- 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.



#### WELDING SPARKS can cause fire or explosion

Avoid eye and body damage. Arc rays and infrared radiation can cause injury to the eyes and burn the skin. Wear ANSI approved eye and body protection. Do not allow viewing by visitors without proper eye and body protection.

- Use a shield with the proper filter and cover plates to protect your eyes from sparks and the rays of the arc when plasma cutting or observing open arc plasma cutting.
- Use suitable clothing made from durable flame-resistant material to protect your skin and that of your helpers from the arc rays.
- 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.



#### CYLINDER may explode if damaged

Use only compressed gas cylinders containing the correct

shielding gas for the process used 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.

- Always keep cylinders in an upright position securely chained to an undercarriage or fixed support.
- 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.
- Never allow any electrically "hot" parts to touch a cylinder.
- Keep your head and face away from the cylinder valve outlet when opening the cylinder valve.
- Valve protection caps should always be in place and hand tight except when the cylinder is in use or connected for use.



#### ELECTRICALLY POWERED EQUIPMENT can be dangerous

Turn off input power using the disconnect switch at the fuse box before working on the equipment.

- Install equipment in accordance with the local codes and the manufacturer's recommendations.



#### MOVING PARTS can cause injury

Ground the equipment in accordance with the manufacturer's recommendations. Keep away from moving parts such as fans.

- Keep all doors, panels, covers, and guards closed and securely in place.

# CALIFORNIA PROPOSITION 65 WARNINGS



Welding or cutting equipment produces fumes or gases which contain chemicals known to the State of California to cause birth defects and, in some cases, cancer. (California Health & Safety Code Section 25249.5 et seq.)



Battery posts, terminals and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. Wash hands after handling.

## For Gasoline Engines:



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

## For Diesel Engines:



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

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**PLEASE READ THIS OPERATION MANUAL CAREFULLY AND THOROUGHLY BEFORE ATTEMPTING TO OPERATE THIS MACHINE. KEEP THIS MANUAL HANDY FOR QUICK REFERENCE. PAY CLOSE ATTENTION TO THE SAFETY INSTRUCTIONS PROVIDED FOR YOUR OWN PROTECTION.**

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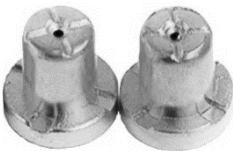
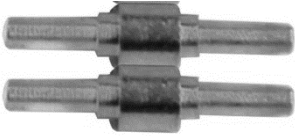
# SPECIFICATIONS

## ❖ GENERAL DESCRIPTION

The LOTOS LT3500 Plasma Cutter is designed for light cutting projects. This unit is the most compact plasma cutter one can find in the market and weighs only 8kg (17.6lbs). In the meantime, this powerful unit is powerful enough to cut 10mm (2/5inch) metal with 15mm (3/5inch) severance thickness, making it an ideal choice for cost conscious DIY hobbyists.

- 35-amp digital inverter plasma cutter
- 110V Automatic dual frequency (50/60Hz)
- Compact size, ultimate portability and efficient cooling fan system
- Suitable for Stainless Steel, Alloy Steel, Mild Steel, Copper and Aluminum, etc.

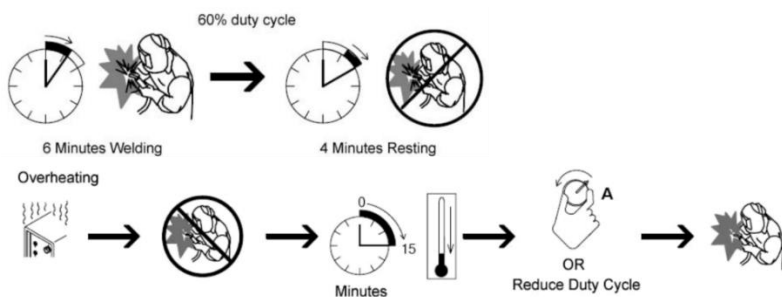
## ❖ WHAT'S INCLUDED

✓ Power Supply: 	✓ Plasma Cutting Torch: 	✓ Ground Clamp & Cable: 
✓ Nozzles: 	✓ Electrodes: 	

## ❖ **POWER SUPPLY RATINGS**

LT3500		
General Specification	Input Voltage	110V~120V±10%, 1-PH, 50/60Hz
	Input Current	40A
	No-load Voltage	110~125V
	Working Environment Humidity	≤90%
	Ambient Temperature	-10~40°C
	Dimensions	11.6" (259mm) L 6" (152.4mm) W 9" (230mm) H
	Weight	17.6lbs (8kg)
	Rated Duty Cycle <sup>1</sup>	35% @35A
	Power Cable	6' (1.8m)
Plasma Cutting Specification	Output Current	12~35A
	Output Voltage	100V
	Gas Supply	Clean, dry, oil-free air
	Recommended Pressure/Flow Rate	0.6~0.75Mpa 3.0scfm @70psi
	Pilot Arc Start Mode	High Frequency
	Maximum Severance Cutting Thickness <sup>2</sup>	15mm (3/5inch)
Material <sup>2</sup>	Mild Steel	Normal Cut 10mm (2/5inch) @35A
	Stainless Steel	
	Aluminum	
Warranty	New Unit	1-Year Warranty
	Refurbished Unit	60-Day Warranty

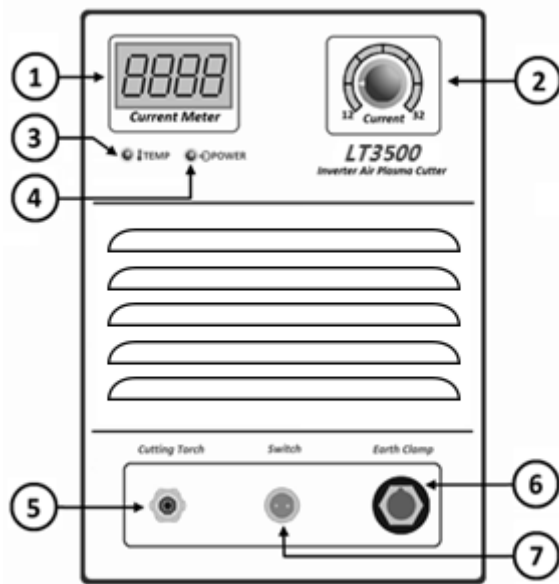
<sup>1</sup> Duty Cycle is percentage of 10 minutes that unit can weld at rated load without overheating.



<sup>1</sup> Production cutting thickness are the results of LOTOS's laboratory testing. Production speeds are approximately 80% of maximum. For optimum cut quality, cutting speeds may vary based on different cutting applications.

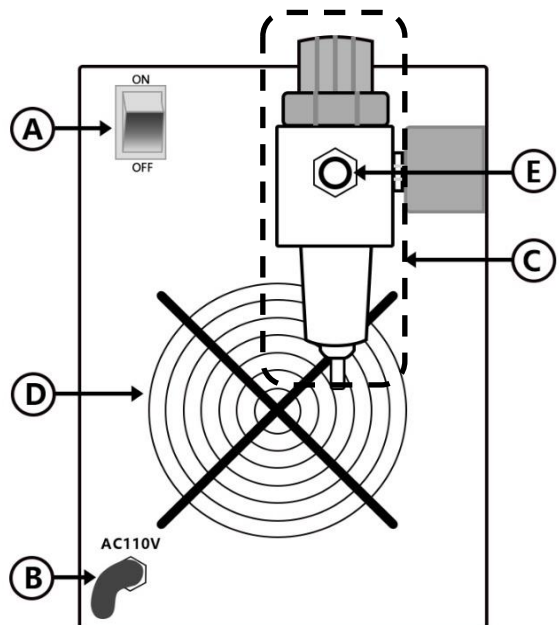


The unit is connected to the supply even if the Power Switch is in the “OFF” position, and therefore there are electrically live parts inside the power source. Carefully follow the instructions given in this manual.



## ❖ FRONT CONTROL PANEL

CONTROLS & SETTINGS	
1	Digital Display
2	Current Adjust Knob
3	Temperature Warning Light <sup>1</sup>
4	Power Indicator Light <sup>2</sup>
5	Torch Power Connection (Electrode Negative)
6	Ground Cable & Clamp Connection (Electrode
7	Torch Trigger Control Connection



## ❖ MACHINE REAR

REAR CONTROL PANEL	
A	Unit Power Switch
B	Power Cord
C	Air Filter Regulator
D	Cooling Fan
E	Air Inlet / Air Hose Connection: US Industry 1/4" NPT Male Coupler Quick Connector

<sup>1</sup> Temperature warning light indicates over-current or over-heating with the unit when the light is on. It will stay on until the machine has sufficiently cooled down.

<sup>2</sup> Power indicator light indicates the machine is power on.

# INSTALLATION



**PLEASE READ ENTIRE INSTALLATION SECTION BEFORE STARTING INSTALLATION. BE SURE THAT ONLY QUALIFIED PERSONNEL SHOULD PERFORM THIS INSTALLATION.**

## ❖ **BEFORE INSTALLATION**

### **ELECTRIC SHOCK can be fatal**



- Have a qualified electrician install and service this equipment.
- Turn the input power OFF and unplug the machine from the receptacle before working on this equipment.



- Allow machine to sit for 5 minutes minimum to allow the power capacitors to discharge before working inside this equipment.
- Do not touch electrically hot parts.
- Machine must be plugged into a receptacle that is grounded according to the National Electrical Code and local codes.
- Do not remove or defeat the purpose of the power cord ground pin.

### ➤ **SELECT SUITABLE LOCATION**

The machine will operate in harsh environments. Even so, it is important that standard measures are followed in order to assure the machine is long lasting and reliable operation.

- The machine must be located where there is open space such that the air circulation in the back and out the front will not be restricted.
- Avoid getting dirt and dust in the machine. Failure to observe these precautions can result in excessive operating temperatures and shut down by itself.

### ➤ **STACKING**

LT3500 cannot be stacked.

### ➤ **TILTING**

Place the machine directly on a secure, level surface. The machine may topple over if this procedure is not followed.

### ➤ **ENVIRONMENTAL AREA**

Keep the machine dry. Do not place it on wet ground or in puddles. Avoid rainwater. Operating in rain is not allowed.

## ➤ MACHINE GROUNDING AND HIGH FREQUENCY INTERFERENCE PROTECTION

The Capacitor Discharge Circuit used in the high frequency generator, may cause many radio, TV and electronic equipment interference problems. These problems may be the result of radiated interference.

Proper grounding methods can reduce or eliminate radiated interference.

Radiated interference can develop in the following four ways:

1. Direct interference radiated from the plasma cutter.
2. Direct interference radiated from the plasma cutting leads.
3. Direct interference radiated from feedback into the power lines.
4. Interference from re-radiation of "pickup" by ungrounded metallic objects.

- Keeping these contributing factors in mind, installing equipment per the following instructions should minimize problems.
- Keep the plasma cutter power supply lines as short as possible and enclose as much of them as possible in rigid metallic conduit or equivalent shielding for a distance of 50 feet (15.2m). There should be good electrical contact between this conduit and the welder case ground. Both ends of the conduit should be connected to a driven ground and the entire length should be continuous.
- Keep the work and electrode leads as short as possible and as close together as possible. Lengths should not exceed 25 feet (7.6m). Tape the electrode and work leads together into one bundle when practical.
- Be sure the torch and work cable rubber coverings are free of cuts and cracks that allow high frequency leakage.
- Keep the torch in good repair and all connections tight to reduce high frequency leakage.
- The work terminal must be connected to a ground within ten feet of the plasma cutter, using one of the following methods.
  - a) A metal underground water pipe in direct contact with the earth for ten feet or more.
  - b) A 3/4" (19mm) galvanized pipe or a 5/8" (16mm) solid galvanized iron, Steel or Copper rod driven at least eight feet into the ground.
- The ground should be securely made and the grounding cable should be as short as possible using cable of the same size as the work cable, or larger. Grounding to the building frame electrical conduit or a long pipe system can result in re-radiation, effectively making these members radiating antennas.
- Keep all panels securely in place.
- All electrical conductors within 50ft (15.2m) of the plasma cutter should be

enclosed in grounded, rigid metallic conduit or equivalent shielding. Flexible metallic conduit is generally not suitable.

- When the plasma cutter is enclosed in a metal building, several earth driven electrical grounds connected (as in 5b above) around the periphery of the building are recommended.
- Failure to observe these recommended installation procedures can cause radio or TV interference problems.

## ❖ WIRE INPUT

### ELECTRIC SHOCK can be fatal



- Have a qualified electrician install and service this equipment.
- Turn the input power OFF and unplug the machine from the receptacle before working on this equipment.



- Allow machine to sit for 5 minutes minimum to allow the power capacitors to discharge before working inside this equipment.
- Do not touch electrically hot parts.
- Machine must be plugged into a receptacle that is grounded according to the National Electrical Code and local codes.

Do not remove or defeat the purpose of the power cord ground pin.

Be sure the voltage, phase, and frequency of the input power is as specified on the rating plate, located on the backboard of the machine.

### ➤ **CONNECTION PROCEDURE**

The Inverter LT3500 must be connected to AC110V $\pm$ 10%, AC120V $\pm$ 10%, 50/60Hz Single phase supply. **It Can Be Easily Connected to Your Existing 110/120V Wall Outlet (Circle Breaker Requirement  $\geq$ 30AMP).** The rated output of the LT3500 is available when connected to a 30A branch circuit. When connected to a branch circuit with lower amp rating, lower welding current and duty cycle must be used.

### **Plug Wire Connection Example: 120V, 30A (Figure A.0)**

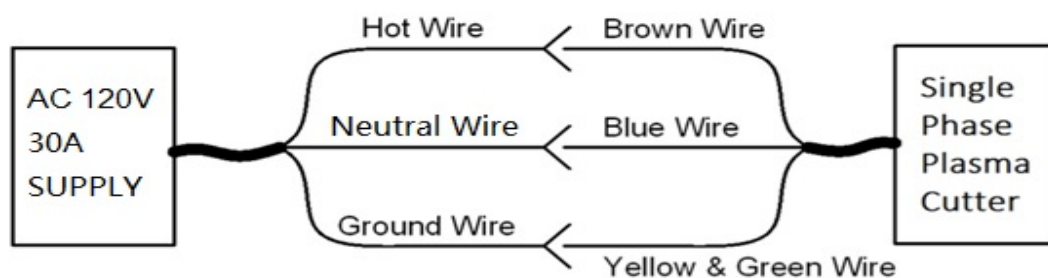


Figure A.0



Failure to wire as instructed may cause personal injury or damage to equipment. To be installed or checked by an electrician or qualified person only.

In all cases, the green or green/yellow grounding wire must be connected to the grounding pin of the plug, usually identified by a green screw.

## ❖ MACHINE SETUP

### ELECTRIC SHOCK can be fatal



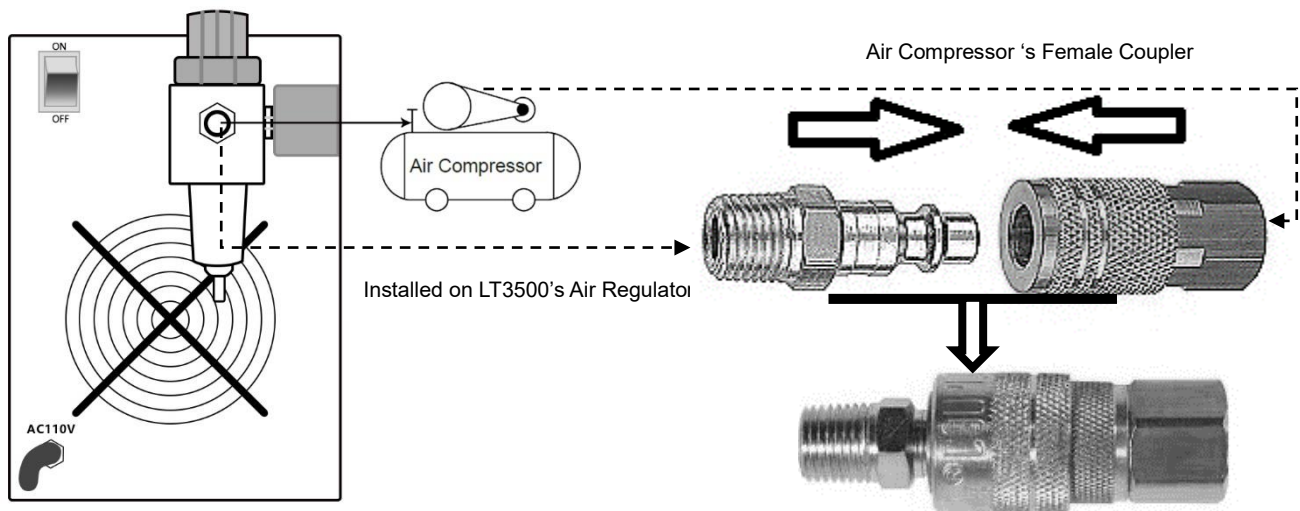
- Keep the plasma cutting torch and ground cable & clamp in good condition and in safe place.
- Do not touch electrically live parts with skin or wet clothing.
- Insulate yourself from work pieces.
- Turn the machine “off” before connecting or disconnecting output cables or other equipment.



### ➤ AIR/GAS CONNECTION

Obtain the necessary air. Connect the cylinder of compressed air or air compressor with a pressure regulator and flow gage. The quick connector installed on the machine is **US Industry 1/4” NPT Male Coupler Quick Connector**. It can be easily connected to your air compressor.

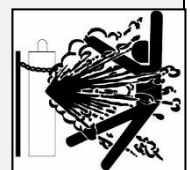
The installed rear is shown in Figure A.1.



### CYLINDER could explode if damaged



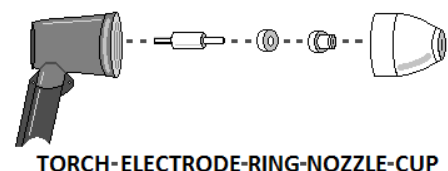
- Keep cylinder upright and chained to a support.
- Keep cylinder away from areas where it could be damaged.
- Never allow the torch or welding electrode to touch the cylinder.
- Keep cylinder away from live electrical circuits.



### ➤ Consumables installation

The consumables set of electrode, nozzle and cup should install in order as shown in Figure A.2.

- The LT3500 can only use genuine LOTOS brand consumables sets of LCON serial.
- One set of consumables has already been installed in the torch head.



TORCH-ELECTRODE-RING-NOZZLE-CUP

Figure A.2



➤ **OUTPUT CONNECTION** (Figure A.3)

The plasma cutting torch and ground cable are supplied with the plasma cutter. To connect the cables, turn the Power Switch “OFF”.

1. Plug the major power connector (the wider wire) from the torch cable to the “Cutting Torch” output terminal (5)<sup>3</sup>. Turn it clockwise using the plastic safe protector until snug, do not over tighten.
2. Plug the 2-prong connector from the torch cable into the 2-pin socket marked as “Switch” (7). Turn the outer metal shell clockwise to tighten.
3. Connect the ground cable & clamp to the “Earth Clamp” output terminal (6) and turn it clockwise to tighten.

To minimize high frequency interference, refer to Machine Grounding and High Frequency Interference Protection section of this manual for the proper procedure on grounding the work clamp and work piece.

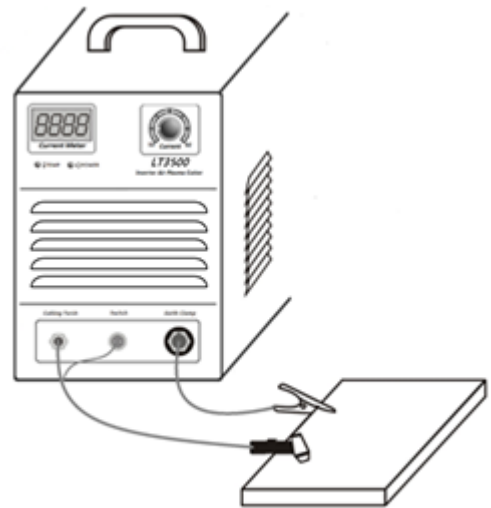


Figure A.3



**To avoid receiving a high frequency shock, keep the plasma cutting torch and ground clamp & cable Insulation in good condition.**

<sup>3</sup> The number inside “( )” is the annotation in section *Specifications – Controls and Setting*.

# OPERATION



PLEASE READ AND UNDERSTAND THIS ENTIRE SECTION BEFORE OPERATING YOUR MACHINE. ONLY QUALIFIED PERSONNEL SHOULD OPERATE THIS EQUIPMENT. OBSERVE ALL SAFETY INFORMATION THROUGHOUT THIS MANUAL.

## **ELECTRIC SHOCK can be fatal**

- Have an electrician install and service this equipment.
- Turn the input power off at the fuse box, disconnect or unplug supply lines and allow machine to sit for five minutes minimum to allow the power capacitors to discharge before working inside this equipment.
- Do not touch electrically hot parts. Turn the input power OFF and unplug the machine from the receptacle before working on this equipment.



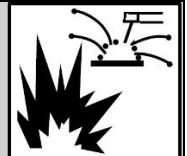
## **FUMES AND GASES can be dangerous**

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



## **WELDING SPARKS can cause fires or explosions**

- Keep flammable material away.
- Do not weld, cut or gouge on containers that have held combustibles.



## **ARC RAYS can burn**

- Wear eye, ear and body protection.



1. Connect the air compressor to the air filter and regulator as Installation indicates.
2. Install LT3500 plasma cutting torch and ground cable & clamp as Installation indicates, turn the power ON.
3. Adjust the air pressure and make it is adequate to machine, open the valve of pressed air. The recommended air pressure is 0.6~0.75Mpa, gas flow is 3.0scfm @70psi. Note that if lower the pressure too much, the consumables damage
4. Adjust output current by "Current Adjust Knob". The output current can be adjusted from 12A to current level set by the user. The maximum current is 35A.
5. Press and hold the trigger to make a cut.  
Position torch tip slightly above work-piece, press torch switch and lower torch tip toward work-piece until contact is made and cutting arc is established. After cutting arc is established, move the torch in the desired direction keeping the torch tip slightly angled, maintaining contact with the work-piece.  
Avoid moving too fast as would be indicated by sparks radiating from the topside of work-piece. Move the torch just fast enough to maintain sparks concentration at the underside of the work-piece and making sure the material is completely cut through before moving on. Adjust drag speed as desired/required.

# MAINTENANCE



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- Do not touch electrically hot parts. Turn the input power OFF and unplug the machine from the receptacle before working on this equipment.



## ❖ **MACHINE SETUP**

The machine has internal capacitors that are charged to a high voltage during power-on conditions. This voltage is dangerous and must be discharged before the machine can be serviced. Discharging is done automatically by the machine each time the power is switched off. However, the user must allow the machine to sit for at least 5 minutes to allow time for the process to take place.

## ❖ **ROUTINE MAINTENANCE**

Routine maintenance will prevent metal powder from accumulating near the aeration fins and over them.

### ➤ **Each Use**

Each time you use the plasma cutter; check the Torch, Tip/Nozzle, Electrode, Swirl Ring and Shield Cup. Inspect Torch for any wearing, cracks or exposed wires. Replace or repair before use. A worn Torch Tip/Nozzle contributes to reduced speed, voltage drop and crooked cuts. A worn Tip/Nozzle is indicated by an elongated or oversized orifice. The face of the electrode should not be recessed more than 1/8". Replace if worn beyond this point. If the Shield Cup does not go on easily, check the threads.

### ➤ **Weekly**

Check for proper fan operation.

Blow or vacuum dust and dirt out of the entire machine and the air filter.

### ➤ **Carry out the following periodic controls on the power source**

1. Clean the power source inside by means of low pressure compressed air.
2. Check the electric connections and all the connection cables.
3. Always use gloves in compliance with the safety standards.

# TROUBLESHOOTING



PLEASE READ AND UNDERSTAND THIS ENTIRE SECTION BEFORE OPERATING YOUR MACHINE. ONLY QUALIFIED PERSONNEL SHOULD OPERATE THIS EQUIPMENT. OBSERVE ALL SAFETY INFORMATION THROUGHOUT THIS MANUAL.

## **ELECTRIC SHOCK can be fatal**

- Service and Repair should only be performed by Trained Personnel. Have a qualified electrician install and service this equipment.



## ❖ **HOW TO USE TROUBLESHOOTING GUIDE**

This Troubleshooting Guide is provided to help you locate and repair possible machine malfunctions. Simply follow the three-step procedure listed below.

- **Step 1. LOCATE PROBLEM (SYMPTOM).**  
Look under the column labeled “PROBLEM (SYMPTOMS)”. This column describes possible symptoms that the machine may exhibit. Find the listing that best describes the symptom that the machine is exhibiting.
- **Step 2. POSSIBLE CAUSE.**  
The second column labeled “POSSIBLE CAUSE” lists the obvious external possibilities that may contribute to the machine symptom.
- **Step 3. RECOMMENDED ACTION.**  
This column provides a course of action for the Possible Cause.  
If you do not understand or are unable to perform the Recommended Course of Action safely, contact your sales agency.

## ❖ **PROBLEMS IN PLASMA CUTTING**

<b>TROUBLESHOOTING PLASMA CUTTING</b>		
<b>PROBLEMS (SYMPTOMS)</b>	<b>PROBLEM CAUSE</b>	<b>RECOMMENDED ACTION</b>
Torch does not work	<ul style="list-style-type: none"> <li>♦ Power switch off</li> <li>♦ Air supply is compromised</li> <li>♦ Ground clamp &amp; cable is not attached</li> </ul>	<ul style="list-style-type: none"> <li>♦ Turn power switch "ON"</li> <li>♦ Check air supply</li> <li>♦ Attach the ground clamp &amp; cable securely to work-piece or steel table with work-piece</li> </ul>
Sparks shoots upward instead of downward through the material	<ul style="list-style-type: none"> <li>♦ Plasma cutting torch is not piercing the material</li> <li>♦ Torch may be too far away from stock</li> <li>♦ Material may not be grounded properly</li> <li>♦ Travel speed is too fast</li> </ul>	<ul style="list-style-type: none"> <li>♦ Increase current</li> <li>♦ Decrease the distance of your torch to stock</li> <li>♦ Check connections for proper grounding</li> <li>♦ Reduce speed</li> </ul>
Dross build-up on parts of cuts	<ul style="list-style-type: none"> <li>♦ Tool and material build up heat</li> <li>♦ Cutting speed is too slow or current is too high</li> <li>♦ Torch parts are worn</li> </ul>	<ul style="list-style-type: none"> <li>♦ Allow material to cool down and then continue to cut</li> <li>♦ Increase speed or reduce current until dross is reduced to minimum</li> <li>♦ Inspect and repair/replace worn parts</li> </ul>
Insufficient penetration	<ul style="list-style-type: none"> <li>♦ Torch is tilted too much</li> <li>♦ Metal is too thick</li> <li>♦ Torch parts are worn</li> </ul>	<ul style="list-style-type: none"> <li>♦ Make tilt adjustments</li> <li>♦ Several passes may be necessary</li> <li>♦ Inspect and repair/replace worn parts</li> </ul>
Consumables wear out quickly	<ul style="list-style-type: none"> <li>♦ Exceeding unit capability</li> <li>♦ Improperly assembled torch</li> <li>♦ Inadequate air supply: pressure is too low</li> <li>♦ Faulty air compressor</li> </ul>	<ul style="list-style-type: none"> <li>♦ Material is too thick. Increase angle to prevent blowing back into torch tip</li> <li>♦ Assemble torch correctly referring to <i>Installation</i></li> <li>♦ Check air filter, increase air pressure</li> <li>♦ Check air compressor operation</li> </ul>

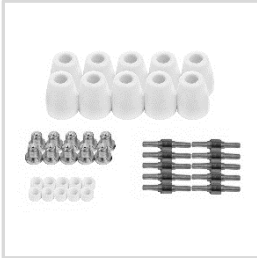
## OTHER ACCESSORIES

The following accessories and consumables can be purchased on [www.uwelding.com](http://www.uwelding.com), or call 408-739-2329 to order.

### TORCH GUN



### CONSUMABLES



### ACCESSORIES



**AND MORE...**  
**ON**  
[www.uwelding.com](http://www.uwelding.com)