FICHA TÉCNICA

Maquina soldadora PowerArc 250 ST Electrodo y Lift-Tig

Carbone Professional Welding

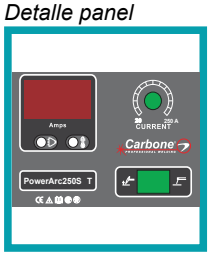
DESCRIPCIÓN

Equipo de soldar MMA Arco y Lift TIG. Funde sin problemas electrodos como el 6010, 6011, 6013, 7018. Control de Auto-regulado de fuerza del arco. Pantalla digital para mayor precisión en la selección de amperaje. Puerto especial para soldar celulósico 6010, 6011, el cual provee una mejor experiencia para el soldador al soldar con dichos electrodos (conectar pinza de tierra al puerto 6010).Fabricada con módulos Siemens. Ventilador de refrigeración con protección termostática.

CÓDIGO

B001

Detalle panel



Adaptador incluido

Marca: Carbone Professional Welding	**Incluye:** Pinza de soldar 300 Amp / 3 mts
Tipo Soldadura: MMA Arco y Lift TIG.	**Incluye:** Pinza de tierra de 300 Amp / 3mts
Electrodos: 6011, 6013, 7018.	**Incluye:** Adaptador para 110V
Voltaje dual: AC 110V 50/60 Hz - AC 220V 50/60 Hz	**Conectores:** Dinse 35
Corriente de soldadura 110V: 20-130A	**Hot start:** Inicio de alto amperaje
Corriente de soldadura 220V: 20-250A	**Voltaje dual:** AC 110V 50/60 Hz - AC 220V 50/60 Hz
Corriente nominal de salida 110V: 130A	**Garantía:** 1 año
Corriente nominal de salida 220V: 250A	**Peso:** 10.5 Kg. - 23.1 Lb.
Capacidad de electrodo : 1.6 -5.0mm (1/16"-3/16")	**Dimensiones del empaque (mm):** 415x165x285
Ciclo de trabajo 35%: 250 Amp	**Procedencia:** Importado
Ciclo de trabajo 60%: 180 Amp.	
Voltaje de Salida promedio: 70 V	

Puerto dedicado para celulósico

Capacidad (1/16"-3/16")

El generador debe tener AVR

Dear Customer,

Thank you for selecting the our machine. We appreciate you as a customer and hope that you will enjoy years of use from your welder.

Please go directly to the our website to register your unit and receive your warranty information. Your unit registration is important should any information such as product updates or re-calls be issued. It is also important so that we may track your satisfaction with our products and services. If you are unable to register by website, contact our directly through the sales department through the main customer service number in your country. Your unit will be registered and warranty will be issued and in full effect. Keep all information regarding your purchase. **In the event of a problem you must contact technical support before your welder can be a candidate for warranty service and returned.**

Please review the current online warranty statement and information found on the website of the our division located in or nearest to your country. Print it for your records and become familiar of its terms and conditions.

We offers full technical support, in several different forms. We have online support available through email, and a welding support forum designed for customers and noncustomer interaction. Technical advisors are active on the forum daily. We also divide our support into two divisions: technical and welding performance. Should you have an issue or question concerning your unit, please contact performance/ technical support available through the main company headquarters available in your country. For best service call the appropriate support line and follow up with an email, particularly if off hours, or you cannot reach a live person. In the event you do not reach a live person, particularly during heavy call volume times, holidays, and off hours, leave a message and your call will normally be returned within 24 hours. Also for quick answers to your basic questions, join the company owned forum available through the website.

Should you need to call or write, always know your model name, purchase date and welder manu-facturing inspection date. This will assure the quick and accurate customer service. **REMEMBER: Be as specific and informed as possible. Technical and performance advisors rely upon you to carefully describe the conditions and circumstances of your problem or question. Take notes of any issues as best you can. You may be asked many questions by the advisors to clarify prob-lems or issues that may seem very basic. However, diagnosis procedures MUST be followed to begin the warranty process. Advisors can't assume anything, even with experienced users, and must cover all aspects to properly diagnose the problem. Depending upon your issue, it is advisa-ble to have basic tools handy such as screwdrivers, wrenches, pliers, and even an inexpensive test meter with volt/ohm functions before you call.**

Let us know how we may be of service to you should you have any questions.

We want you to take pride in operating our machine as much pride as we have taken in making this product for you. Please read all information in this manual before operation

PLEASE EXAMINE CARTON AND EQUIPMENT FOR DAMAGE IMMEDIATELY

When this equipment is shipped, title passes to the purchaser upon receipt from the courier. Consequently all claims for material damaged in shipment must be made by purchaser against the transportation company used.

Please record your equipment identification below for future reference. This information can be found on data plate at rear of machine.

Product： POWERARC250ST

Serial No. _____

Date of Purchase _____

Where Purchased _____

Whenever you request replacement parts or information on this equipment please always supply information you have recorded above

This product is covered by 1 years parts and labour warranty, you are responsible for costs of shipping unit to us, we will cover cost of returning item to you. External items, torch, earth lead etc are covered by 3 months warranty. Any faults/damage found caused by customer will be charged prorata.

Pay particular attention to the safety instructions we have provided you for your protection The level of seriousness to be applied to each section is explained below

WARNING 

This statement appears where the information must be followed exactly to avoid serious personal injury.

CAUTION

This statement appears where the information must be following to avoid a minor personal injury or damage to this equipment.

We are dedicated to providing you with the best possible equipment and service to meet the demanding jobs that you have. We want to go beyond delivering a satisfactory product to you. That is the reason we offer technical support to assist you with your needs should an occasion occur. With proper use and care your product should deliver years of trouble free service.

Safe operation and proper maintenance is your responsibility.

We have compiled this operator's manual, to instruct you in basic safety, operation and maintenance of our product to give you the best possible experience. Much of welding and cutting is based upon experience and com-mon sense. As thorough as this welding manual may be, it is no substitute for either. Exercise extreme caution and care in all activities related to welding or cutting. Your safety, health and even life depends upon it. While accidents are never planned, preventing an accident requires careful planning.

Please carefully read this manual before you operate machine. This manual is not only for the use of the machine, but to assist in obtaining the best performance out of your unit. Do not operate the unit until you have read this manual and you are thoroughly familiar with the safe operation of the unit. If you feel you need more information please contact our Support.

The warranty does not cover improper use, maintenance or consumables. **Do not attempt to alter or defeat any piece or part of your unit, particularly any safety device.** Keep all shields and covers in place during unit operation should an unlikely failure of internal components result in the possible presence of sparks and explosions. If a failure occurs, discontinue further use until mal-functioning parts or accessories have been repaired or replaced by qualified personnel.

Note on High Frequency electromagnetic disturbances:

Certain welding and cutting processes generate High Frequency (HF) waves. These waves may disturb sensitive electronic equipment such as televisions, radios, computers, cell phones, and related equipment. High Frequency may also interfere with fluorescent lights. Consult with an electrician if disturb-ance is noted. Sometimes, improper wire routing or poor shielding may be the cause.

HF can interfere with pacemakers. See EMF warnings in following safety sec-tion for further information. Always consult your physician before entering an area known to have welding or cutting equipment if you have a pacemaker.

MOVING PARTS can cause injury.

Moving parts, such as fans, rotors, and belts can cut fingers and hands and catch loose clothing.

Do not put your hands near the engine fan. Do not attempt to override the governor or idler by pushing on the throttle control rods while the engine is running.

These safety precautions are for protection of safety and health. Failure to follow these guidelines may result in serious injury or death. Be careful to read and follow all cautions and warnings. Protect yourself and others.

Welding and cutting processes produce high levels of ultraviolet (UV) radiation that can cause severe skin burn and damage. There are other potential hazards involved with welding such as severe burns and respiratory related illnesses. Therefore ob-serve the following to minimize potential accidents and injury:

Use appropriate safety glasses with wrap around shields while in the work area, even under welding helmets to protect your eyes from flying sparks and debris. When chip-ping slag or grinding, goggles and face shields may be required.

When welding or cutting, always use an approved shielding device, with the correct shade of filter installed. Always use a welding helmet in good condition. Discard any broken or cracked filters or helmets. Using broken or cracked filters or helmets can cause severe eye injury and burn. Filter shades of no less than shade 5 for cutting and no less than shade 9 for welding are highly recommended. Shades greater than 9 may be required for high amperage welds. Keep filter lenses clean and clear for maxi-mum visibility. It is also advisable to consult with your eye doctor should you wear contacts for corrective vision before you wear them while welding.

Do not allow personnel to watch or observe the welding or cutting operation unless fully protected by a filter screen, protective curtains or equivalent .protective equip-ment. If no protection is available, exclude them from the work area. Even brief expo-sure to the rays from the welding arc can damage unprotected eyes.

Always wear hearing protection because welding and cutting can be extremely noisy. E ar protection is necessary to prevent hearing loss. Even prolonged low levels of noise has been known to create long term hearing damage. Hearing protection also further protects against hot sparks and debris from entering the ear canal and doing harm.

Always wear personal protective clothing. Flame proof clothing is required at all times. Sparks and hot metal can lodge in pockets, hems and cuffs. Make sure loose clothing is tucked in neatly. Leather aprons and jackets are recommended. Suitable welding jackets and coats may be purchased made from fire proof material from welding supply stores. Discard any burned or frayed clothing. Keep clothing away from oil, grease and flammable liquids.

Leather boots or steel toed leather boots with rubber bottoms are required for ade-quate foot protection. Canvas, polyester and other man made materials often found in shoes will either burn or melt. Rubber or other non conductive soles are necessary to help protect from electrical shock.

Flame proof and insulated gauntlet gloves are required whether welding or cutting or handling metal. Simple work gloves for the garden or chore work are not sufficient. Gauntlet type welding gloves are available from your local welding supply companies. Never attempt to weld with out gloves. Welding with out gloves can result in serious burns and electrical shock. If your hand or body parts comes into contact with the arc of a plasma cutter or welder, instant and serious burns will occur. **Proper hand protection is required at all times when working with welding or cutting machines!**

WARNING! Persons with pacemakers should not weld, cut or be in the welding area until they consult with their physician. Some pacemakers are sensitive to EMF radiation and could severely malfunction while welding or while being in the vicinity of someone welding. Serious injury or death may occur!

Welding and plasma cutting processes generate electro-magnetic fields and radiation. While the effects of EMF radiation are not known, it is suspected that there may be some harm from long term exposure to electromagnetic fields. Therefore, certain pre-cautions should be taken to minimize exposure:

* Lay welding leads and lines neatly away from the body.
* Never coil cables around the body.
* Secure cables with tape if necessary to keep from the body.
* Keep all cables and leads on the same side the body.
* Never stand between cables or leads.
* Keep as far away from the power source (welder) as possible while welding.
* Never stand between the ground clamp and the torch.
* Keep the ground clamp grounded as close to the weld or cut as possible.

Welding and cutting processes pose certain inhalation risks. Be sure to follow any guidelines from your chosen consumable and electrode suppliers regarding possible need for respiratory equipment while welding or cutting. Always weld with adequate ventilation. Never weld in closed rooms or confined spaces. Fumes and gases re-leased while welding or cutting may be poisonous. Take precautions at all times.

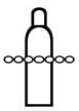
Any burning of the eyes, nose or throat are signs that you need to increase ventilation.

* Stop immediately and relocate work if necessary until adequate ventilation is ob-tained.
* Stop work completely and seek medical help if irritation and discomfort persists.

WARNING! Do not weld on galvanized steel, stainless steel, beryllium, titanium, cop-per, cadmium, lead or zinc without proper respiratory equipment and or ventilation.

WARNING! This product when used for welding or cutting produces fumes and gas-es which contains chemicals known to the State of California to cause birth defects and in some cases cancer. (California Safety and Health Code § 25249.5 et seq.)

WARNING! Do not weld or cut around Chlorinated solvents or degreasing areas. Release of Phosgene gas can be deadly. Consider all chemicals to have potential deadly results if welded on or near metal containing residual amounts of chemicals.



Keep all cylinders upright and chained to a wall or appropriate holding pen. Certain regulations regarding high pressure cylinders can be obtained from OSHA or local regulatory agency. Consult also with your welding supply company in your area for further recommendations. The regulatory changes are frequent so keep informed.

All cylinders have a potential explosion hazard. When not in use, keep capped and closed. Store chained so that overturn is not likely. Transporting cylinders incorrectly can lead to an explosion. Do not attempt to adapt regulators to fit cylinders. Do not use faulty regulators. Do not allow cylinders to come into contact with work piece or work. Do not weld or strike arcs on cylinders. Keep cylinders away from direct heat, flame and sparks.

WARNING! Electrical shock can kill. Make sure all electrical equipment is properly grounded. Do not use frayed, cut or otherwise damaged cables and leads. Do not stand, lean or rest on ground clamp. Do not stand in water or damp areas while weld-ing or cutting. Keep work surface dry. Do not use welder or plasma cutter in the rain or in extremely humid conditions. Use dry rubber soled shoes and dry gloves when welding or cutting to insulate against electrical shock. Turn machine on or off only with gloved hand. Keep all parts of the body insulated from work, and work tables. Keep away from direct contact with skin against work. If tight or close quarters ne-cessitates standing or resting on work piece, insulate with dry boards and rubber mats designed to insulate the body from direct contact.

All work cables, leads, and hoses pose trip hazards. Be aware of their location and make sure all personnel in area are advised of their location. Taping or securing ca-bles with appropriate restraints can help reduce trips and falls.

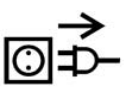
WARNING! Fire and explosions are real risks while welding or cutting. Always keep fire extinguishers close by and additionally a water hose or bucket of sand. Periodi-cally check work area for smoldering embers or smoke. It is a good idea to have someone help watch for possible fires while you are welding. Sparks and hot metal may travel a long distance. They may go into cracks in walls and floors and start a fire that would not be immediately visible. Here are some things you can do to reduce the possibility of fire or explosion:

* Keep all combustible materials including rags and spare clothing away from area.
* Keep all flammable fuels and liquids stored separately from work area.
* Visually inspect work area when job is completed for the slightest traces of smoke or embers.
* If welding or cutting outside, make sure you are in a cleared off area, free from dry tender and debris that might start a forest or grass fire.
* Do not weld on tanks, drums or barrels that are closed, pressurized or anything that held flammable liquid or material.

Metal is hot after welding or cutting! Always use gloves and or tongs when handling hot pieces of metal. Remember to place hot metal on fire-proof surfaces after han-dling. Serious burns and injury can result if material is improperly handled.

WARNING! Faulty or poorly maintained equipment can cause injury or death. Prop-er maintenance is your responsibility. Make sure all equipment is properly maintained and serviced by qualified personnel. Do not abuse or misuse equipment.

Keep all covers in place. A faulty machine may shoot sparks or may have exploding parts. Touching uncovered parts inside machine can cause discharge of high amounts of electricity.



Do not allow employees to operate poorly serviced equipment. Always check condition of equipment thoroughly before start up. Disconnect unit from power source before any service attempt is made and for long term storage or electrical storms.

Further information can be obtained from The American Welding Society (AWS) that relates directly to safe welding and plasma cutting. Additionally, your local welding supply company may have additional pamphlets available concerning their products. Do not operate machinery until your are comfortable with proper operation and are able to assume inherent risks of cutting or welding.

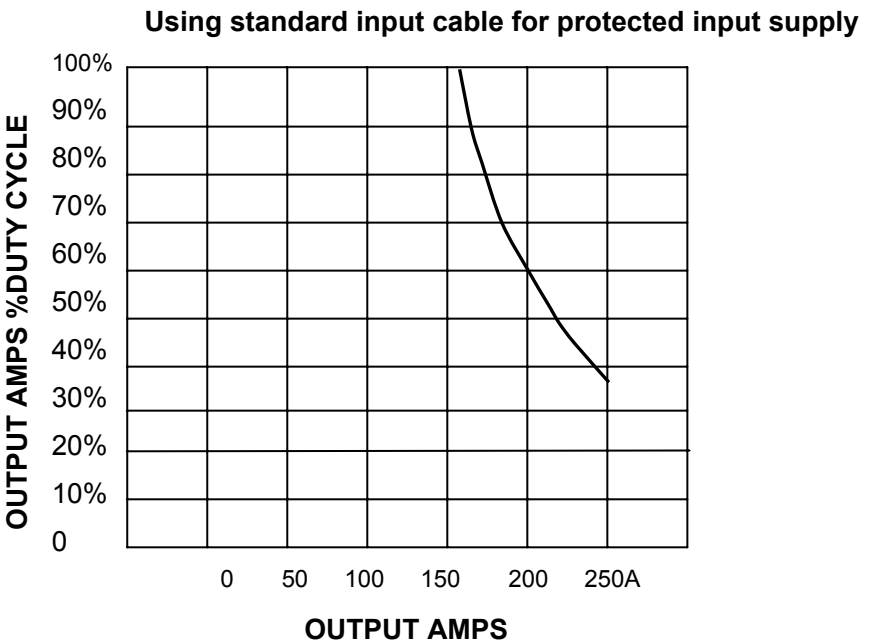
TABLE OF CONTENTS

TECHNICAL SPECIFICATIONS -

max. rated Output Amps @% Duty Cycle (Based on a 10 minute cycle) (Example; 250A@35% for DC Stick and 250A@35% for LIFT TIG)

Model		PowerArc250ST	
Power Supply Voltage		1~AC 220V 50/60Hz	1~AC 110V 50/60Hz
Fuse rating		47A	54A
MMA TIG	No-load Voltage	70V	
	Welding Cur. Adjusting Range	20-250A	20-130A
	Rated Output Current	250A	130A
	Rated Duty Cycle	35%	
Mass		10.5Kg	
Protection Class of enclosure		415x165x285	

Chart gives max. rated Output Amps @% Duty Cycle (Based on a 10 minute cycle) (Example; 250A@35% for DC Stick & LIFT TIG)



(1)

Wiring and protection based on the IEC60974.1 National Electric Code: Use a Super Lag type fuse or circuit breaker with a delay in tripping action. Models with NEMA 6-50P plug may be used with a 50 amp protected 6-50R receptacle, or with a maximum 70 amp protected 6-50R receptacle if dedicated for the welder.

SAFETY PRECAUTIONS

Read 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 disconnect switch or fuse box before working on this equipment.

·Do not touch electrically hot parts.

·Always connect the MACHINE to a power supply grounded per the National Electrical Code and any local codes.

SELECT SUITABLE LOCATION

Place the welder where clean cooling air can freely circulate in and out through the rear louvers. Dirt, dust or any foreign material that can be drawn into the welder should be kept at a minimum. Failure to observe these precautions can result in excessive operating temperatures and nuisance shut-downs.

GRINDING

Do not direct grinding particles towards the welder. An abundance of conductive material can cause maintenance problems.

STACKING

The machine cannot be stacked.

TRANSPORT - UNLOADING

Never underestimate the weight of the equipment.

Never make the cargo pass or leave it suspended over people or things.

Neither let the equipment or the single unit fall, nor put it down with force.

Once it has been removed from the packing, the power source can be used to move it in the hand or on the shoulder.

⚠ WARNING

FALLING EQUIPMENT cause injury

Never lift welder with gas cylinder attached.

Never lift welder above personnel.

TILTING

Each machine must be placed on a secure, level surface, either directly or on a recommended undercarriage. The machine may topple over if this procedure is not followed. 10^{o}

ENVIRONMENTAL RATING

The welding machine power source carries an IP21s environmental rating. It may be used in normal industrial and commercial environments. Avoid using it in environments which have falling water such as rain.

Read and follow "Electric Shock Warnings" in the Safety section if welding must be performed under electrically hazardous conditions such as welding in wet areas or on or in the workpiece.

MACHINE GROUNDING AND HIGH FREQUENCY INTERFERENCE PROTECTION

This welder must be grounded! See your local and national electrical codes for proper grounding methods.

The high frequency generator, being similar to a radio transmitter, may cause 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 welder.

2 Direct interference radiated from the welding 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.

1 Keep the welder 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.

2 Keep the work and electrode leads as short as possible and as close together as possible. Lengths should not exceed 25 ft (7.6m). Tape the leads together when practical.

3 Be sure the torch and work cable rubber coverings are free of cuts and cracks that allow high frequency leakage.

4 Keep the torch in good repair and all connections tight to reduce high frequency leakage.

5 The work piece must be connected to an earth ground close to the work clamp, 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 along pipe system can result in reradiation, effectively making these members radiating antennas.

6 Keep cover and all screws securely in place.

7 Electrical conductors within 50 ft (15.2m) of the welder should be enclosed in grounded rigid metallic conduit or equivalent shielding, wherever possible. Flexible metallic conduit is generally not suitable.

8 When the welder is enclosed in a metal building, the metal building should be connected to several good earth driven electrical grounds (as in 5 (b) above) around the periphery of the building.

Failure to observe these recommended installation procedures can cause radio or TV and electronic equipment interference problems and result in unsatisfactory welding performance resulting from lost high frequency power.

INPUT CONNECTIONS

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

Have a qualified electrician provide input power supply to the receptacle or cord in accordance with all local and national electrical codes. Use a single phase line or one phase of a two or three phase line.

Choose an input and grounding wire size according to local or national codes. Refer to **the Technical Specifications** page at the beginning of this section. Fuse the input circuit with the recommended super lag fuses or delay type circuit breakers.

Using fuses or circuit breakers smaller than recommended may result in "nuisance" shut-off from welder inrush currents even if not welding at high currents.

1Also called "inverse time" or "thermal/magnetic" circuit breakers; circuit breakers which have a delay in tripping action that decreases as the magnitude of the current increases.

INPUT RECONNECT PROCEDURE

On multiple input voltage welders, be sure the machine is connected per the following instructions for the voltage being supplied to the welder.

Failure to follow these instructions can cause immediate failure of components within the welder and void machine's warranty.

Multiple voltage models are shipped connected for the highest voltage. To change this connection refer to the following instructions.

⚠ WARNING

ELECTRIC SHOCK can kill.

Turn the input power OFF at the disconnect switch or fuse box before working on this equipment.

. 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.

RECONNECT PROCEDURE

The Inverter machine auto reconnects to either 115V or 230V supply.

Fuse the input circuit with time delay fuses or delay type1 circuit breakers. Using fuses or circuit breakers smaller than recommended may result in "nuisance" shut-offs from welder inrush currents even if not welding at high currents.

The Inverter machine is recommended for use on an individual branch circuit.

1Also called "inverse time" or "thermal/magnetic" circuit breakers.

These circuit breakers have a delay in tripping action that decreases as the magnitude of the current increases.

220/230/240V INPUT

The equipment is provided with a 230/115V cable, 6.6ft.(2m) in length with a 230V 6-50P attachment plug.

The Inverter machine performs best when connected to 230VAC inputs. This input allows full output of the machine (185 amps).

110/115/120V INPUT

A suitable 115V attachment plug must be installed on the power cord to use the inverter machine with a 115V input supply. The rated output of the inverter machine 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. An output guide is provided below. The values are approximate and must be adjusted downward if the fuse or circuit breaker trips off. Other loads on the circuit and fuse/circuit breaker characteristics will affect the available output. Do not exceed these welding conditions:

ATTACHMENT PLUG INSTALLATION

Connect the white (neutral) wire under terminal clamp with silver screw, and black (hot) wire under terminal clamp with brass screw. Connect green wire under terminal clamp with green screw.

⚠ WARNING

. 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.

Attachment plugs must comply with the Standard for Attachment Plugs and Receptacles,.

The product is considered acceptable for use only when an attachment plug as specified is properly attached to the supply cord.

For use on engine drives, keep in mind the above input draw restrictions and the following precaution.

ENGINE DRIVEN GENERATOR

The Inverter machine can be operated on engine driven generators as long as the 220/230/240 volt auxiliary meets the following conditions:

. The AC waveform peak voltage is below 400 volts.

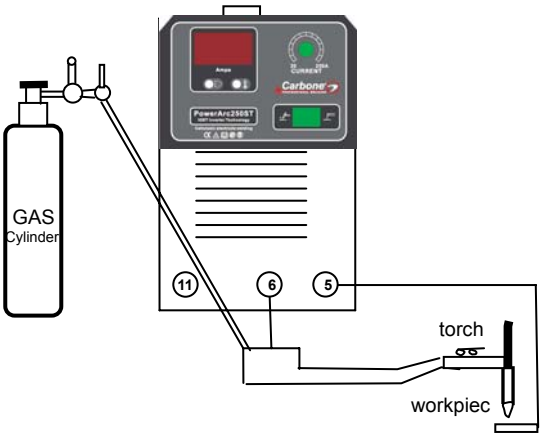
. The AC waveform frequency is between 45 and 65Hz.

The following Lincoln engine drives meet these conditions when run in the high idle mode:

●Ranger 250,305 ●. Commander 300, 400, & 500

Some engine drives do not meet these conditions (e.g. Miller Bobcats, etc). Operation of the Inverter machine is not recommended on engine drives not conforming to these conditions. Such drives may deliver unacceptably high voltage levels to the Inverter machine power source.

CONNECTIONS FOR TIG (GTAW) WELDING



TIG TORCH CONNECTION

Refer to Included Equipment in the Operation Section of this manual for TIG welding equipment which is included with the machine

The TIG Torch Twist-Mate and work cable Twist-Mate Connectors are supplied with the welder. To connect the cables, turn the Power Switch "OFF". Connect the torch cable Twist-Mate plug into the DC(-)

Electrode Receptacle on the front of the welder and turn it clockwise until snug,(Do not Over tighten). This is a quick connect terminal

To avoid receiving a high frequency shock, keep the TIG torch and cables in good condition.

WORK CABLE CONNECTION

Next, connect the work cable to the "+" output terminal in the same way.

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.

SHIELDING GAS CONNECTION

Obtain the necessary inert shielding gas (usually argon). Connect the cylinder of gas with the pressure regulator and flow gage. Install the gas hose between the regulator and gas inlet (located on the rear of the welder).

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 to touch the cylinder.

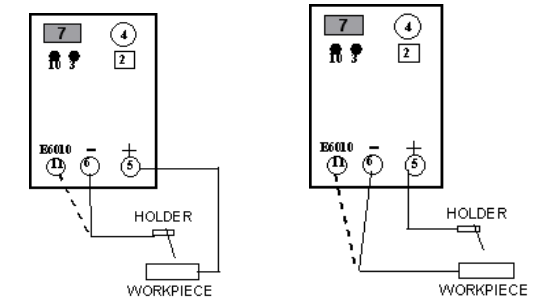
Keep cylinder away from live electrical circuits.

Maximum inlet pressure 150 psi.

A cylinder is loaded by leaning it slightly sideways and rocking it up on the platform, being careful not to allow the Under-Storage Cart to roll. Secure the cylinder in place with the provided chain. Unload by following these steps in reverse.

CONNECTIONS FOR STICK (SMAW) WELDING

A. POSITIVE CONNECTION B . NEGATIVE CONNECTION



STICK ELECTRODE CABLE AND WORK CABLE CONNECTION

Refer to Field Installed Options in Accessories Section of this manual for STICK welding equipment which is available for use with the inverter machine. An electrode holder with Twist-Mate cable and Twist-Mate connector are available separately for use with the inverter machine.. Turn the Power Switch "OFF". Connect the Twist-Mate quick connect plug into the Electrode and turn it clockwise until it is tight. The work cable and work clamp are factory connected.

Read and understand this entire section before operating the machine.

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.

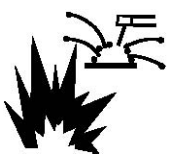
Read and follow "Electric Shock Warnings" in the Safety section if welding must be performed under electrically hazardous conditions such as welding in wet areas or on or in the workpiece.

FUMES AND GASES can be dangerous.

· Keep your head out of fumes.

· Use ventilation or exhaust at the arc, or both, to remove fumes and gases from breathing zone and general area.

WELDING SPARKS can cause fire or explosion



· Keep flammable material away.

· Do not weld on containers that have held combustibles.

RC RAYS can burn.

Wear eye, ear and body protection.

Only qualified personnel should operate this equipment. Observe additional Safety Guidelines detailed in the beginning of this manual.

GRAPHIC SYMBOLS THAT APPEAR ON THIS MACHINE OR IN THIS MANUAL

INPUT POWER

POSITIVE OUTPUT

NEGATIVE OUTPUT

DIRECT CURRENT

PROTECTIVE GROUND

WARNING OR CAUTION

DO NOT SWITCH WHILE WELDING

PRODUCT DESCRIPTION

The PowerARC 250ST is a compact inverter welder that provides DC stick and DC TIG welding capability. (DC SMAW/DC GTAW) The welder is ideal for welding tasks where portability and performance are required. With 110V/220V capability, the unit can be operated almost anywhere a power outlet is found, and can be used with small clean powered generators.

The Stick arc is smooth and stable. The automatic hot start in stick mode reduces rod sticking while striking an arc by providing a controlled surge of amps to temporarily increase wattage. Similarly, the auto arc force control adapts to the arc length and provides extra current to the arc when the arc length is short-ened and voltage begins to fall below 20 volts (approximately). This prevents the arc from extin-guishing and helps to improve overall arc performance in all welding positions.

The welder is suitable for welding with iron powder, stainless and low hydrogen class rods including 7018, 6013, 7014, and 309, in any position. With its dedicat-ed 6010 terminal, it also performs well with cellulose-based (flux)rods such as 6010, and 6011. The arc in this mode is smooth and characteristically stable elimi-nating snuffing issues faced with most small inverter stick welders while welding with cellulose covered electrodes. This feature makes the PowerARC 250ST a good choice for professional pipeline and light indus-trial use where 6010 is commonly used.

Additionally the unit is equipped with a lift start TIG function and is excellent for many DC TIG applications when equipped with the optional torch package. The lift start function provided in the TIG mode provides a clean, interference free start for electronically sensitive areas where High Frequency arc starting is restricted or prohibited. (Unit does not have HF start capability.)

NOTE: This unit does not support operation with a foot pedal, torch mounted amptrol or remote.

NOTE: This unit is DC output only. This unit is not designed to TIG weld aluminum or magnesium. However, the unit can be used to stick weld aluminum with specially designed aluminum stick welding electrodes (rods). Flux-coated aluminum stick welding rods are expensive and other than occasional use for emergency repair are not generally considered a economically viable alternative to AC TIG welding or MIG welding aluminum. While DC+ and DC– TIG have both been used to weld aluminum in the past, both have technical issues that can create problems. AC TIG is generally considered to be far superior, and the correct method of welding aluminum.

RECOMMENDED PROCESSES AND EQUIPMENT

RECOMMENDED PROCESSES

The machine is recommended for the TIG (GTAW) and Stick (SMAW) welding processes within its output capacity range of 20 amps DC , to MAX amps. It is compatible with most Magnum TIG accessories, as well as many industry standard items, such as TIG torches (adapted for Twist-Mate), hoses.

PROCESS LIMITATIONS

The machines are not recommended for arc gouging due to it's limited output capacity, and are also not recommended for pipe thawing.

RECOMMENDED QUIPMENT/INTERFACE

(See Installed Options in Accessories Section for more details) The machines will be available as a basic Machine (Only) and in Factory Basic module will also be available as with Domestic,.

(**SEE PACKING LIST,PLEASE**)

EQUIPMENT LIMITATIONS

The machines are protected from over loads beyond the output ratings and duty cycles, per the Specifications in the Installation Section, with Thermostat protection of the output power coils and rectifiers.

WELDING CAPABILITY(Duty Cycle)

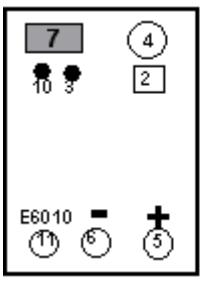
The machine is rated at 250 amps, 20volts, at 35% duty cycle on a ten minute basis. It is capable of higher duty cycles at lower output currents. See rated output graph, on specification sheet located in the Installation Section. If the duty cycle is exceeded, a thermal protector will shut off the output until the machine cools.

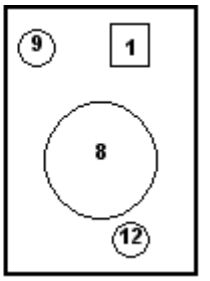
CONTROLS AND SETTINGS

All operator controls and adjustments are located on the case front of the TIG machine. Refer to Figure B.1 and the corresponding explanations.

FIGURE B.1 CONTROL PANEL

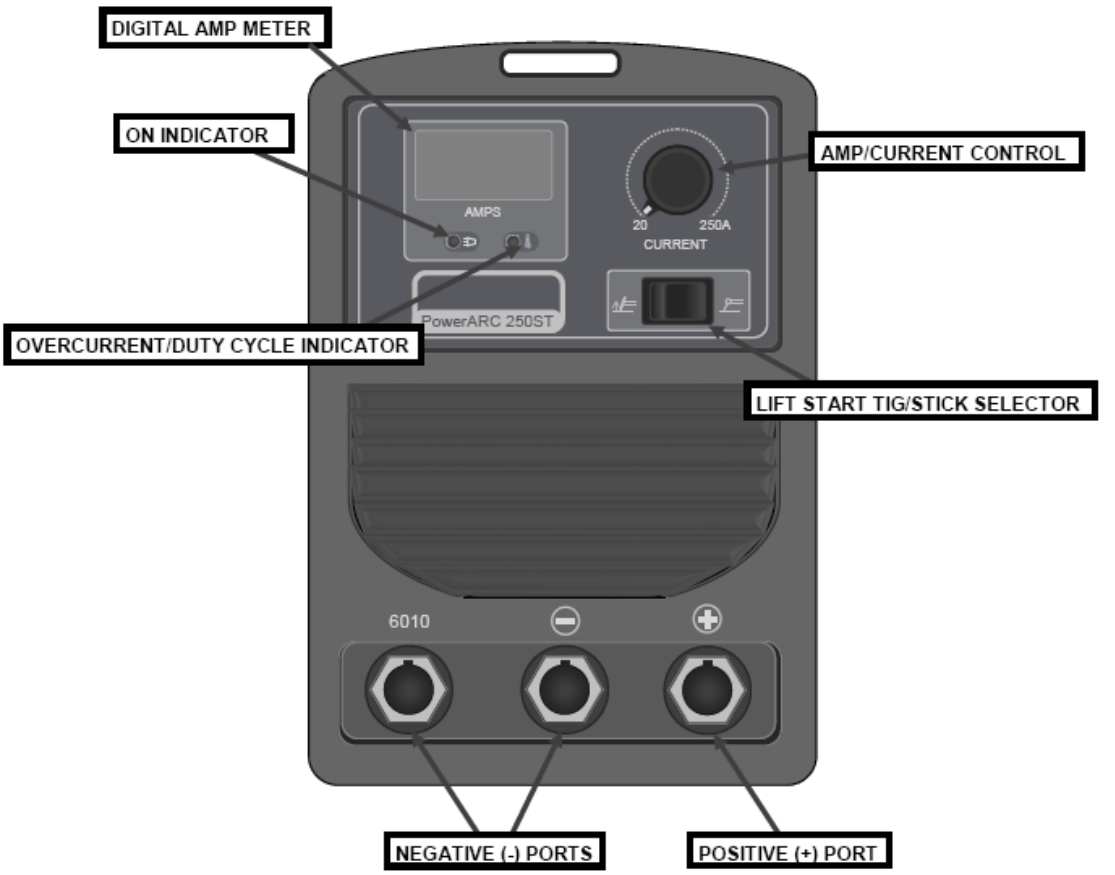
1. FRONT PANEL 2. BACK PANEL





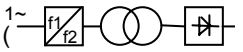
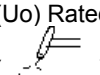
1. power switch 2. MMA/TIG switch
3. protect indicating light
4. current regulator
5. output"+" 6. output"-"
7. indication of current 8. fan
9.incoming line of the power
10.indicating light of power
11. output"-" (FOR E6010)
12.safety earthing column

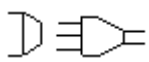
CONTROL FUNCTIONALITY



nameplate

The data plate stamped on the metal structure complies with the EN 60974-1, EN50199(EN60974-10) international standards and contains the following information:

* (a) Manufacturer's name and address
* (b) Trademark
* (c) Model ~
* (No) Serial number
* () The welding power source comprises a frequency converter followed by an transformer and rectifier that transforms input voltage into direct current.
* (EN 60974-1/EN 50199) Standards applied.
* (⎓) Direct current.
* (x) Utilisation factor expressed as a percentage of useful work over a cycle of 10 minutes at an ambient temperature of 40°C.
* (I_2) Rated weld current.
* (U_2) Conventional load voltage.
* (Uo) Rated no-load voltage.
* () TIG welding.
* () MMA welding.

* () 1input phases.

* (IP21S) Casing protection degree in compliance with the EN 60529 Standard:
IP2XX Casing protected against access to dangerous components with fingers and against the introduction of foreign matters with diameter 12.5 mm.
IPX3X Casing protected against rain failing at 60~on the vertical line.
IPXXC Casing protected against contact of a test gauge ϕ 2.5 mm length 100 mm with live dangerous parts,
* (U_1) Rated power supply voltage.
* (50/60 Hz) Power supply rated frequency.
* (I_{1max}) Maximum supply current.
($I_{1\ eff}$) Effective supply current.* (S) Generator suitable for installation in places where major risks of electric shocks are preset
* (CE) In compliance with the European regulations in force.

safety earthing column

The earthing must be made according to the national regulations. Make sure that the supply mains and the earthing are sufficient and adequate

OPERATING STEPS

WELDING IN TIG MODE

1 Connect the TIG torch and cable Twist-Mate quick connect plug to the Electrode/Gas output receptacle. This receptacle also contains an integral gas connection for the torch. Connect the work clamp to the work piece.

2 Set the TIG/MMA slector to " Pulse on /off".

3 Turn on the cylinder gas valve and adjust the flow regulator to obtain desired flow.

4 Turn the power switch to "ON".

5 Preset the Output Control on the control panel to the maximum desired amps, as read on the digital meter.

NOTE: When the Pulse on /pulse off/MMA is set to "on/off", depressing the remote control will start a 0.5 second gas pre-flow before energizing the TIG torch. When the remote control is released the TIG torch is de-energized and gas flow will continue for the time set by the Post Flow Time control. When the polarity switch is set to DC, the TIG Arc Starter will turn on and off automatically to start and stabilize the arc. In AC the TIG Arc Starter will turn on with the output and remain on continuously until the remote control is released.

WELDING POLARITY

DC Electrode Negative Polarity (Direct Current Straight Polarity) (see FIGURE B.4)

While Welding, there is a continuous flow of electrons from the electrode to the workpiece.

This is the most used polarity, ensuring limited wear of the electrode, since the majority of the heat concentrates on the anode (workpiece). Narrow and deep welds are obtained with high travel speeds.

Most materials, with the exception of aluminum and magnesium, are welded with this polarity.

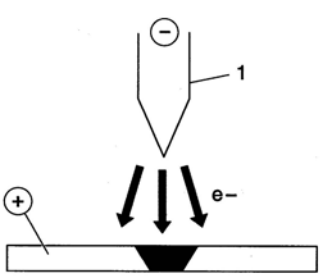


FIGURE B.4

DC Electrode Positive Polarity. (Direct Current Reverse Polarity) (see Figure B.5)

In this case, there is a continuous flow of electrons from the workpiece to the electrode. The reverse polarity is used for welding alloys covered with a layer of refractory oxide.

With this polarity the electrode functions as anode and is subjected to a high degree of heat; the workpiece is bombardment by positive ions sent from the electrode which break the surface oxide.

In Electrode Positive Polarity, high currents cannot be used, since they would cause an excessive wear of the electrode.

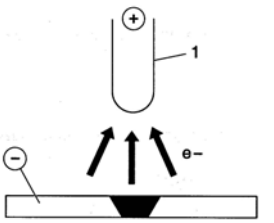
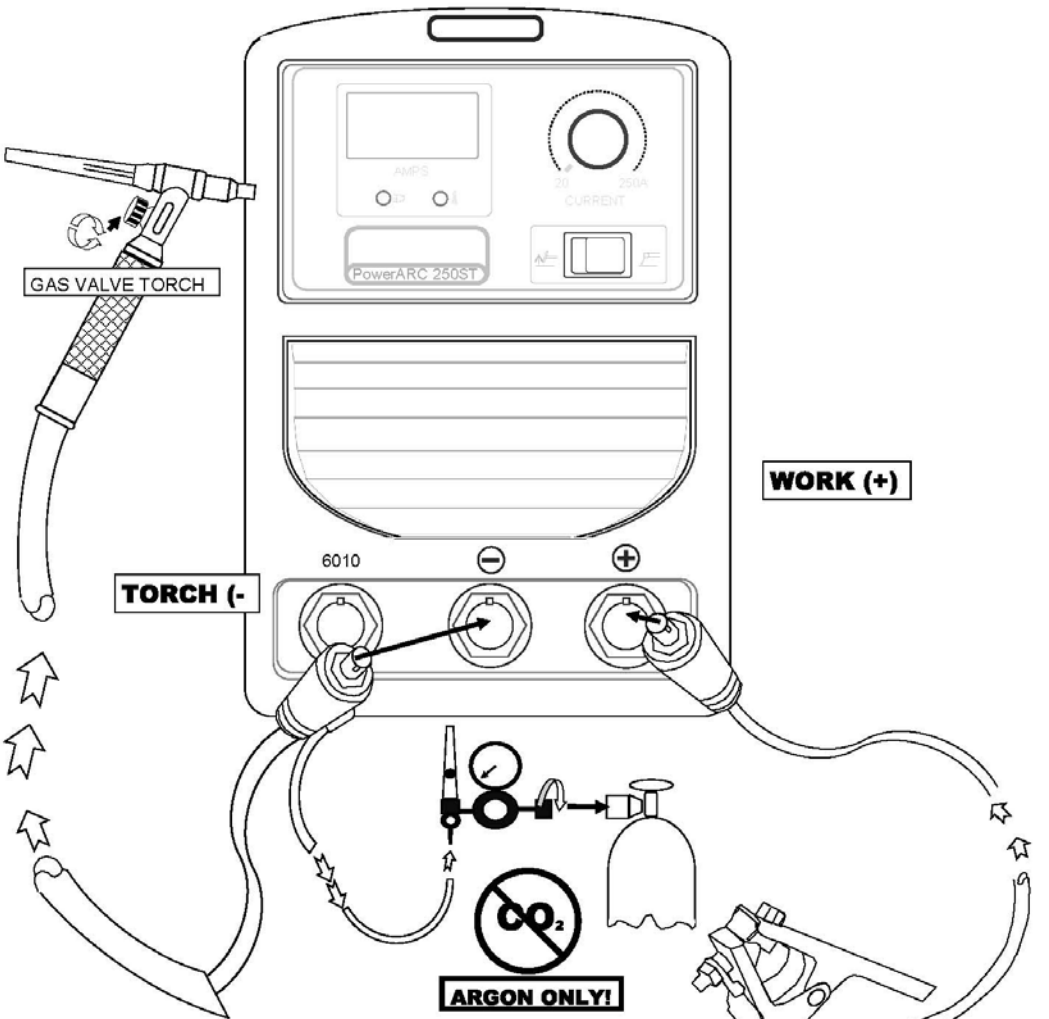


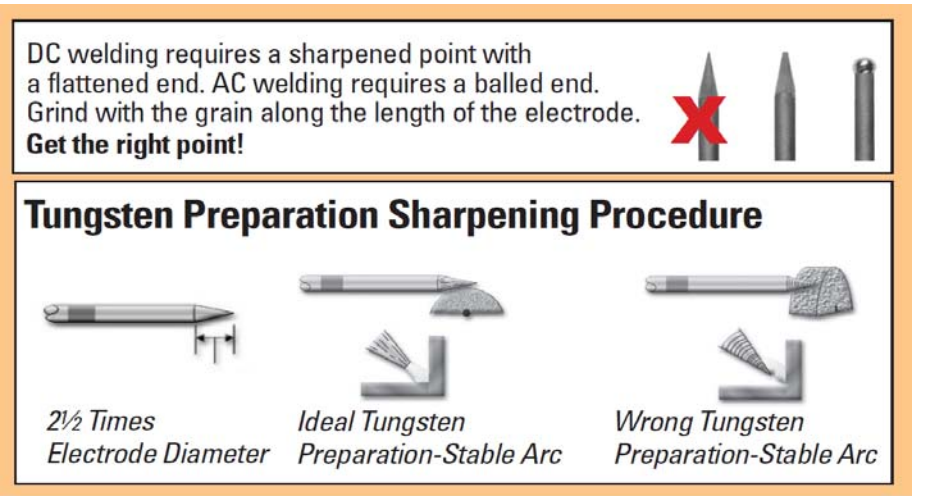
FIGURE B.5

IMPORTANT: The PowerARC 250ST is DC output only. DC TIG is not recommended for welding aluminum or magnesium The lift start process is a low maintenance start type for DC TIG, and High Frequency is not usually needed for high quality welds in steel, stainless or chrome moly steel.



GAS VALVE TORCH AND REGULATOR ARE OPTIONAL.
GAS LINE FROM GAS VALVE TORCH RUNS STRAIGHT TO THE REGULATOR.
GAS PRE/POST FLOW IS CONTROLLED AT TORCH.
HOSE BARBS, CLAMPS AND ADDITIONAL TUBING MAY BE REQUIREDTO FIT TORCH TO REGULATOR.

POLARITY:
TIFT TIG MODE: TORCH POSITIVE (-), WORK POSITIVE(+)
DO NOT CONNECT TIG TORCH TO 6010 PORT.



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GTAW Process

Electrode Polarity	DC	Approximate Argon	
Electrode Tip Preparation	Sharpened	Gas Flow Rate	
Electrode Type	EWTh-1, EWLa-1 EWTh-2, EWCE-2 EWG	C.F.H. (l/min.)	
Electrode Size-in. (mm)		Aluminum	Stainless Steel
.010 (0.25)	Up to 15 A.	3-8 (2-4)	3-8 (2-4)
.020 (0.50)	Up to 15 A.	5-10 (3-5)	5-10 (3-5)
040 (1.0)	. Up to 80 A.	5-10 (3-5)	5-10 (3-5)
1/16 (1.6)	Up to 150 A.	. 5-10 (3-5)	9-13 (4-6)
3/32 (2.4)	Up to MAX. A.	13-17 (6-8)	11-15 (5-7)
1/8 (3.2)	X	15-23 (7-11)	11-15 (5-7)

Tungsten electrodes are classified as follows by the American Welding Society (AWS):

Pure..... .....EWP.....green
+2% Thoria.....EWTh-2...red
+1.5% Lanthana .....EWLa-1 ...black
TRI-MIX of elements.....EWG.....gray
+1% Thoria.....EWTh-1...yellow
+2% Ceria ....EWCE-2...orange
+0.5% to 0.40%Zirconia....EWZr.....brown

Ceriated Tungsten is now widely accepted as a substitute for 2% Thoriated Tungsten in AC and DC applications.

PROTECTIVE GAS

Both argon and helium work when welding aluminum. Argon is preferred, due to its lower cost and consumption rate. This gas also tends to stabilize the arc, thus making it easy to operate. For some applications, however, the use of helium, or argon-helium blends, is recommended due to better weld penetration and faster travel speed. Helium is especially suitable for welding thick workpieces. The recommended gas flow rates are shown in table 5.

TABLE 5

Current (A)	Helium cfh-(l/min)
50	29 - (14)
100	29 - (14)
150	42 - (20)
200	42 - (20)
250	53 - (25)
300	53 - (25)

DC TIG WELDING QUICK START UP

⚠ WARNING

ELECTRIC SHOCK can kill.
. 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.

TIG:

NOTE: This unit is not foot pedal capable.

The welder does not have a gas solenoid circuit so it does not provide automatic flow control of the gas. However it can be equipped with an optional torch (17V suggested) that has a manually controlled gas valve located in the torch neck. See page B-6.

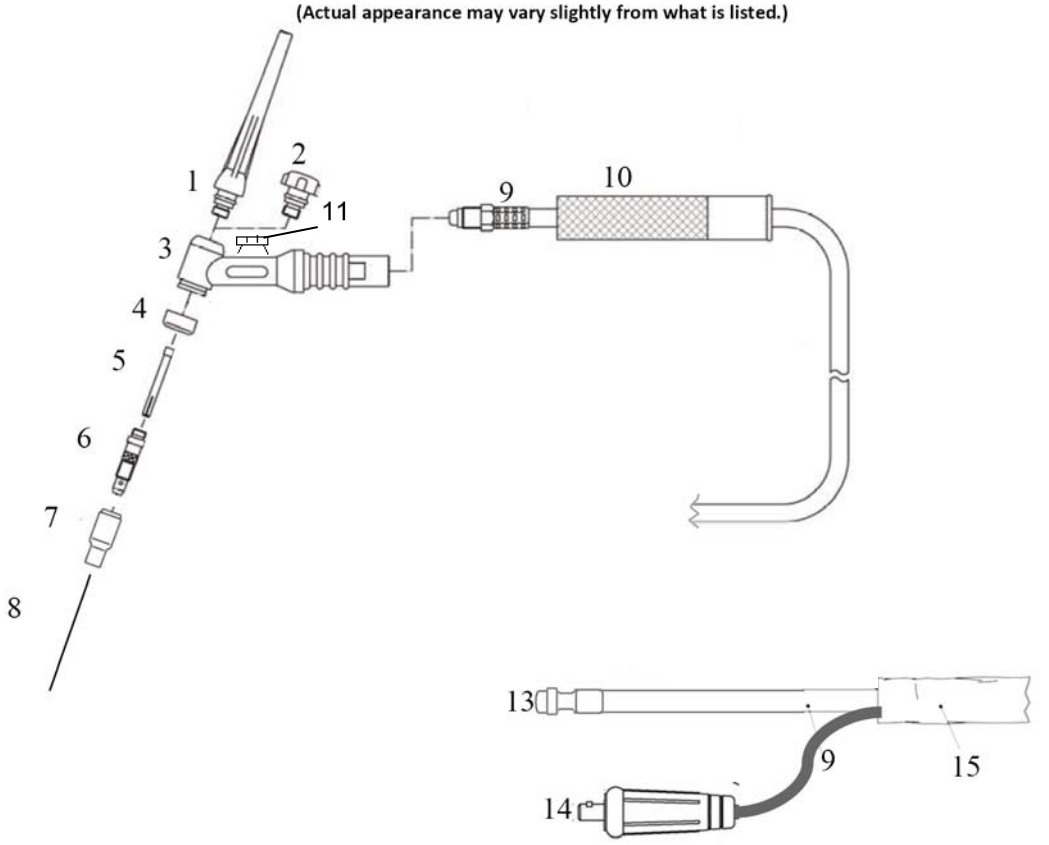
Twisting the valve located on the neck of the torch opens and closes the gas flow. This gas valve manually controls preflow and postflow of shielding gas, and must be opened before striking an arc. This is a common type of setup found throughout the welding industry. When using a manual gas valve setup, care must be taken to shut the gas off each time to prevent wasting argon.

To operate in TIG mode a regulator must be purchased either through our company or through a local welding supply store. Most regulators come with a 5/8" CGA inert gas fitting. Some, such as the economy model regulator available from our company, may be sup-plied without fittings, designed for use with barbed fittings. You will need to join the regulator and torch by adapting the 5/16" torch gas hose to the regulator. This is easily accomplished with a minimal amount of standard inert gas hose, a hose barb and CGA fittings available at any welding supply store.To use the TIG lift arc, flip the switch toward the TIG icon on the welder. Ensure the torch cable is located in the negative terminal of the welder and the work clamp cable is located in the positive terminal. Adjust welding current with the Amp control knob to desired amp level. Make sure the tank is open and the regulator is adjusted for 10-20 CFH (5-10 lpm). Lightly touch the tungsten to the metal, and quickly lift up to a distance of 1/8" or less. See page B-10 for lift arc striking instruction details.

NOTE: the tungsten will be electrically live (hot) all the time. Do not allow it to contact the weldment or any conductive area that is directly or indirectly in contact with the work clamp or arc flashing and/or injury may result. Use a protective sleeve or torch holder to prevent accidental tungsten contact with the conductive surfaces of the work area.

EXPANDED VIEW OF TIG TORCH

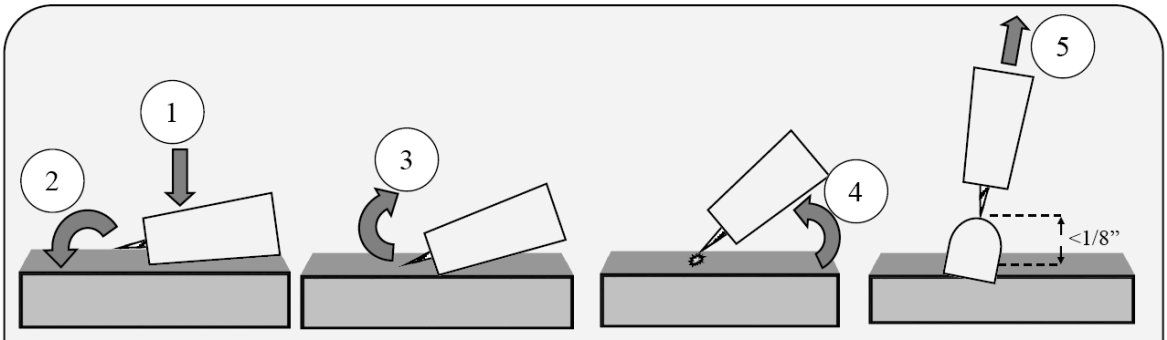
(Actual appearance may vary slightly from what is listed.)



NO.	PARTS FOR 17 Series Torch (STYLE MAY VARY)	QTY.
1	Long Back Cap with O-Ring	1
2	Short Back Cap	Opt.
3	Torch Head	1
4	Insulator	1
5	Collet 1/16 or 3/32	1
6	Collet Holder	1
7	Ceramic Cup #5,6, or 7	1
8	Tungsten (customer supplied)	0
9	Torch Cable	1
10	Torch Handle (Blue ergo handle std, not pictured)	1
11	gas valve	1
12		
13	9mm (1/8”) b quick connect coupling (male)	1
14	Power Connector	1
15	Protective Synthetic Rubber Cover	1

LIFT START TIG OPERATION

Note: A Lift start should be done with a nearly seamless motion. Use a light touch and a quick motion for best results.



1. Position the edge of the ceramic cup on the metal. Do not touch the tungsten to the metal until ready. The tip is always live.

2. Quickly rotate the cup so that the tungsten comes in brief contact (< .2 seconds) with the metal.

3. After contact with the metal, quickly rock the torch back so that the tungsten breaks contact with the metal.

4. An arc should form. As the arc grows, raise the cup up off the metal and slowly rotate the torch into welding position.

5. Leave 1/8" or less gap between the tungsten tip and the metal.

6. Poor starts and welding of the tungsten to the surface can be a result of a rapid "double tap" or quick bounce off the surface of the metal and back down. This inadvertently signals the inverter to put out full power until the continuity or arc is broken. If this occurs, fully break the arc by quickly snapping the torch up and away from the weld. Re-sharpen the point if necessary. Allow the point to stop glowing and attempt the start again. Do not scratch start in Lift TIG mode, or the tungsten may stick fast. Performing a scratch start instead of a lift start can also trigger this as the tungsten "skips" along the surface.

Note: This method takes some practice to master to initiate the arc on the first try. However, an arc can usually be struck fairly easily by the beginner, though it may take 2 or 3 times to get one to initiate properly. After it is mastered, arc striking can be done with a light, seamless motion on the first try. The tungsten will always be live, so be sure to protect the tip from accidental contact with the surface of the metal when not welding. If a torch holder isn't available to store the torch when not in use, a protective boot can be made from heat resistant hose, tubing or other similar material that will slide onto the torch cup so it protects and insulates the tungsten from direct contact.

WELDING IN STICK MODE

1 Put the electrode holder and cable quick connect plug into the electrode output receptacle. Turn clockwise until tight. Connect the work clamp to the work piece.

2 Set the TIG/MMA switch to "MMA".

3 Set the TIG/MMA Switch to the MMA mode desired for the type of electrode being used (most commonly DC+).

4 Place the electrode in the electrode holder.

In Stick Mode the output terminal and electrode will be electrically hot whenever the power switch is turned on.

5 Turn the power switch to "ON".

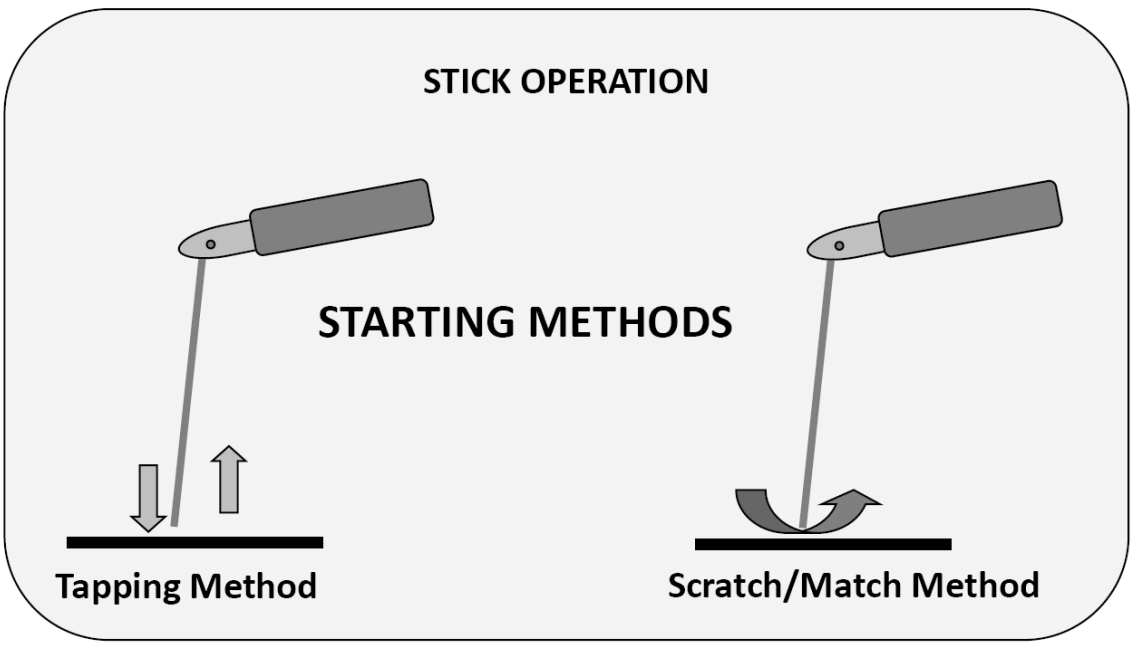
6 Adjust the Current Control to the desired amps.

7 Strike an arc and weld.

RECOMMENDED ELECTRODE AMPERAGE RANGES

SMAW Process

		Welding Amp Range for Stick Electrode Size		
ELECTRODE TYPE	POLARITY	3/32"	1/8"	5/32"
E6010	DC+	40 -70	75 - 130	90 - 175
E6011	DC+	40 - 80	55 - 110	105 - 135
E6013	DC+	70 - 95	100 - 135	145 - 180
E7014	DC-	75 - 95	100 - 145	135 - 200
E7018	DC+	85 - 110	110 - 160	130 - 200
Stainless	DC+	40 - 80	75 - 110	95 - 150



IMPORTANT: Do not attempt to stick weld with the electrode holder while in the TIG Mode.

SAFETY PRECAUTIONS

⚠ WARNING

ELECTRIC SHOCK can kill.

● Only qualified personnel should per-form this maintenance.

● Turn the input power OFF at the disconnect switch or fuse box before working on this equipment.

● Do not touch electrically hot parts.

INPUT FILTER CAPACITOR DISCHARGE PROCEDURE

⚠ WARNING

The machine has internal capacitors which 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, you must allow the machine to sit for at least 5 minutes to allow time for the process to take place.

⚠ WARNING

ROUTINE AND PERIODIC MAINTENANCE

1 Disconnect power supply lines to machine before performing periodic maintenance.

2. Periodically clean the inside of the machine with a low pressure air system. Be sure to clean the following components thoroughly.

- Main Transformer
- Electrode/Gas Output Receptacle
- Polarity Switch
- Rectifier Assembly
- Arc Starter/Spark Gap Assembly
- PC Boards
- Fan Blades

3 Inspect welder output and control cables for fraying, cuts, and bare spots.

4 Keep TIG torch and cables in good condition.

5 Clean air louvers to ensure proper air flow and cooling.

6 The fan motor has sealed ball bearings which require no maintenance.

⚠ WARNING

FAN MOTOR OR FAN BLADE REPLACEMENT

When installing a new fan blade or fan motor be sure to maintain proper shaft spacing.

HOW TO USE TROUBLESHOOTING GUIDE

⚠ WARNING

Service and Repair should only be performed by our Factory Trained Personnel. Unauthorized repairs performed on this equipment may result in danger to the technician and machine operator and will invalidate your factory warranty. For your safety and to avoid Electrical Shock, please observe all safety notes and precautions detailed throughout this manual.
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 COURSE OF ACTION This column provides a course of action for the Possible Cause, generally it states to contact your local Authorized Field Service Facility. If you do not understand or are unable to perform the Recommended Course of Action safely, contact your local Authorized Field Service Facility.

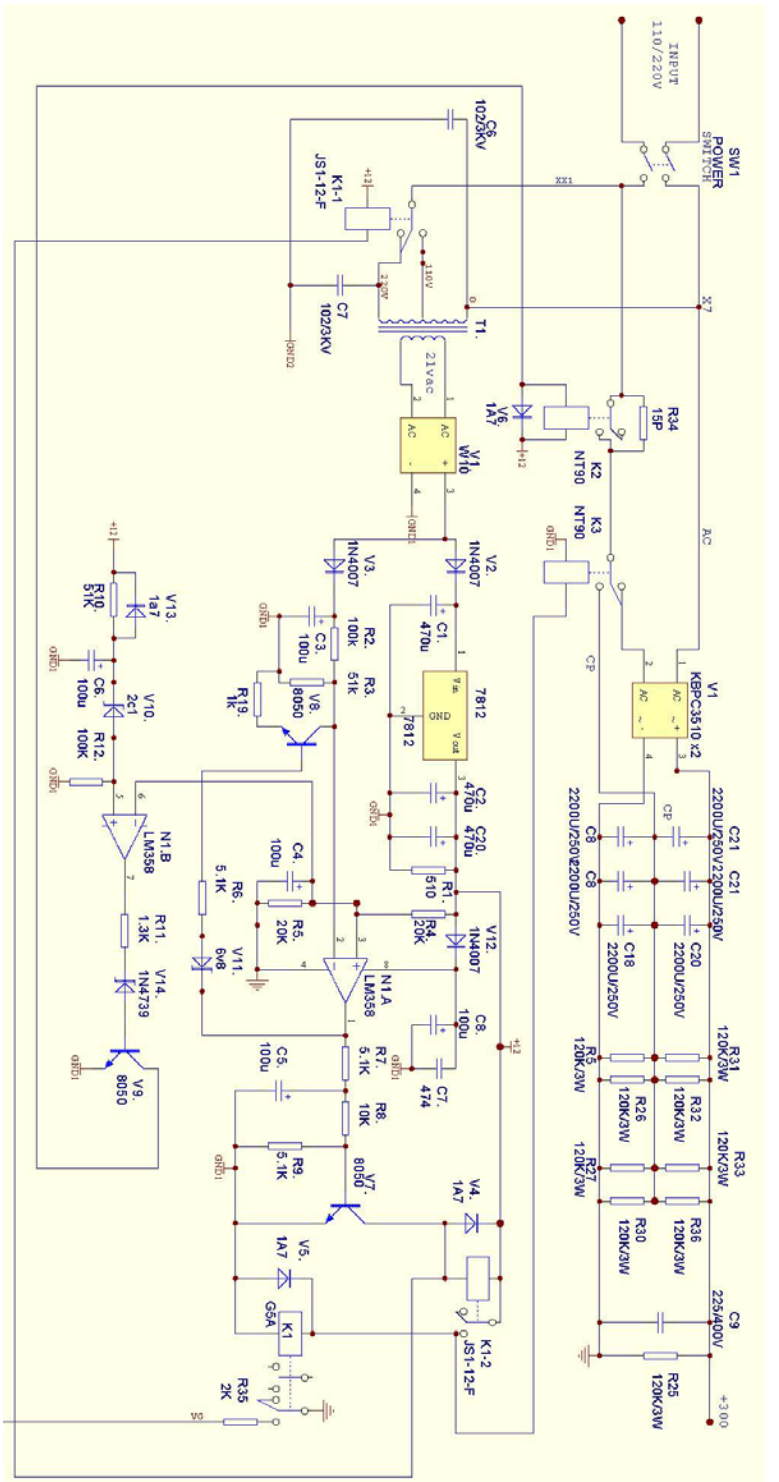
⚠ CAUTION

If for any reason you do not understand the test procedures or are unable to perform the tests/repairs safely, contact your Local Authorized Field Service Facility for technical troubleshooting assistance before you proceed.

D-2 TROUBLESHOOTING D-2

Observe all Safety Guidelines detailed throughout this manual

trouble	causes	problem solving
power lamp is not lit	1. No electricity at input 2. switch of welder power fails	1. Checking incoming line 2. Replace the switch
Fan not rotating	1. Fan power line is off 2. Enclosure blocks the fan due to deformation 3.The fan fails 4. Welder fails	1. Reconnect the line 2. reform the enclosure 3. replace 4. Maintenance in manufacturer or service center
Warning lamp lights No output of welder	1. Overheat protection 2. Short interval of welder switching on and off 3. Short between output + and output - or Welding electrode sticking on the workpiece 4.Welder fails	1. Welding after cools 2. Extending on-off time 3. move electrode 4.Maintenance in manufacturer or service center
Output current decreased	1. Input voltage is low 2. Input line is too thin	1. AC voltage stabilizer(over 5KVA) 2. Power line is thickened
Current can not be regulated	1. Connecting line of the potentiometer is off 2. Potentiometer for current regulation fails	1. Reconnecting the line 2. Replace potentiometer



NOTE: This diagram is for reference only. It may not be accurate for all machines covered by this manual. If the diagram is illegible, write to the Service Department for a replacement. Give the equipment code number.

Appendix

FACTORY INSTALLED OPTIONS

PACKING LIST

★ ★★

PowerArc250ST Welding machine	1		
Operation instructions	1		
Certificate of quality	1		
TIG Torch	1	optional accessory	
Ground clamp+cable	1		
Welding holder+cable	1		

No. ____________________________________

Certificate of quality

Name of product: DC MMA/TIG WELDING MACHINE

Type of product: PowerArc250ST

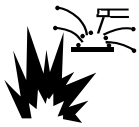
Packing No:___________________________

Test results of this welder fulfils_____________

_________technical requirements and its release

from the works is granted.

Inspector_________ Date___________

			
WARNING	● Do not touch electrically live parts or electrode with skin or wet clothing. ● Insulate yourself from work and ground.	● Keep flammable materials away.	● Wear eye, ear and body protection.
Spanish **AVISO DE PRECAUCION**	● No toque las partes o los electrodos bajo carga con la piel o ropa mojada. ● Aislese del trabajo y de la tierra.	● Mantenga el material combustible fuera del área de trabajo.	● Protéjase los ojos, los oídos y el cuerpo.
French **ATTENTION**	● Ne laissez ni la peau ni des vêtements mouillés entrer en contact avec des pièces sous tension. ● Isolez-vous du travail et de la terre.	● Gardez à l'écart de tout matériel inflammable.	● Protégez vos yeux, vos oreilles et votre corps.
German **WARNUNG**	● Berühren Sie keine stromführenden Teile oder Elektroden mit Ihrem Körper oder feuchter Kleidung! ● Isolieren Sie sich von den Elektroden und dem Erdboden!	● Entfernen Sie brennbarres Material!	● Tragen Sie Augen-, Ohren- und Körperschutz!
Portuguese **ATENÇÃO**	● Não toque partes elétricas e electrodos com a pele ou roupa molhada. ● Isole-se da peça e terra.	● Mantenha inflamáveis bem guardados.	● Use proteção para a vista, ouvido e corpo.
Japanese **注意事項**	● 通電中の電気部品、又は溶材にヒフやぬれた布で触れないこと。 ● 施工物やアースから身体が絶縁されている様にして下さい。	● 燃えやすいものの側での溶接作業は絶対にしてはなりません。	● 目、耳及び身体に保護具をして下さい。
Chinese **警 告**	● 皮肤或濕衣物切勿接觸帶電部件及銲條。 ● 使你自己與地面和工件絕緣。	● 把一切易燃物品移離工作場所。	● 佩戴眼、耳及身體勞動保護用具。
Korean **위 험**	● 전도체나 용접봉을 젖은 헝겁 또는 피부로 절대 접촉치 마십시요. ● 모재와 접지를 접촉치 마십시요.	● 인화성 물질을 접근 시키지 마시요.	● 눈, 귀와 몸에 보호장구를 착용하십시요.
Arabic **تحذير**	● لا تلمس الاجزاء التي يسري فيها التيار الكهربائي أو الالكترود بجلد الجسم أو بالملابس المبللة بالماء. ● ضع عازلا على جسمك خلال العمل.	● ضع المواد القابلة للاشتعال في مكان بعيد.	● ضع أدوات وملابس واقية على عينيك وأذنيك وجسمك.

READ AND UNDERSTAND THE MANUFACTURER'S INSTRUCTION FOR THIS EQUIPMENT AND THE CONSUMABLES TO BE USED AND FOLLOW YOUR EMPLOYER'S SAFETY PRACTICES.

SE RECOMIENDA LEER Y ENTENDER LAS INSTRUCCIONES DEL FABRICANTE PARA EL USO DE ESTE EQUIPO Y LOS CONSUMIBLES QUE VA A UTILIZAR, SIGA LAS MEDIDAS DE SEGURIDAD DE SU SUPERVISOR.

LISEZ ET COMPRENEZ LES INSTRUCTIONS DU FABRICANT EN CE QUI REGARDE CET EQUIPMENT ET LES PRODUITS A ETRE EMPLOYES ET SUIVEZ LES PROCEDURES DE SECURITE DE VOTRE EMPLOYEUR.

LESEN SIE UND BEFOLGEN SIE DIE BETRIEBSANLEITUNG DER ANLAGE UND DEN ELEKTRODENEINSATZ DES HERSTELLERS. DIE UNFALLVERHÜTUNGSVORSCHRIFTEN DES ARBEITGEBERS SIND EBENFALLS ZU BEACHTEN.

			
● Keep your head out of fumes. ● Use ventilation or exhaust to remove fumes from breathing zone.	● Turn power off before servicing.	● Do not operate with panel open or guards off.	**WARNING**
● Los humos fuera de la zona de respiración. ● Mantenga la cabeza fuera de los humos. Utilice ventilación o aspiración para gases.	● Desconectar el cable de alimentación de poder de la máquina antes de iniciar cualquier servicio.	● No operar con panel abierto o guardas quitadas.	Spanish **AVISO DE PRECAUCION**
● Gardez la tête à l'écart des fumées. ● Utilisez un ventilateur ou un aspirateur pour ôter les fumées des zones de travail.	● Débranchez le courant avant l'entretien.	● N'opérez pas avec les panneaux ouverts ou avec les dispositifs de protection enlevés.	French **ATTENTION**
● Vermeiden Sie das Einatmen von Schweibrauch! ● Sorgen Sie für gute Be- und Entlüftung des Arbeitsplatzes!	● Strom vor Wartungsarbeiten abschalten! (Netzstrom völlig öffnen; Maschine anhalten!)	● Anlage nie ohne Schutzgehäuse oder Innenschutzverkleidung in Betrieb setzen!	German **WARNUNG**
● Mantenha seu rosto da fumaça. ● Use ventilação e exhaustão para remover fumo da zona respiratória.	● Não opere com as tampas removidas. ● Desligue a corrente antes de fazer serviço. ● Não toque as partes elétricas nuas.	● Mantenha-se afastado das partes moventes. ● Não opere com os paineis abertos ou guardas removidas.	Portuguese **ATENÇÃO**
● ヒュームから頭を離すようにして下さい。 ● 換気や排煙に十分留意して下さい。	● メンテナンス・サービスに取りかかる際には、まず電源スイッチを必ず切って下さい。	● パネルやカバーを取り外したままで機械操作をしないで下さい。	Japanese **注意事項**
●頭部遠離煙霧。 ●在呼吸區使用通風或排風器除煙。	●維修前切斷電源。	●儀表板打開或沒有安全罩時不準作業。	Chinese **警 告**
● 얼굴로부터 용접가스를 멀리하십시요. ● 호흡지역으로부터 용접가스를 제거하기 위해 가스제거기나 통풍기를 사용하십시요.	● 보수전에 전원을 차단하십시요.	● 판넬이 열린 상태로 작동치 마십시요.	Korean **위 험**
● ابعد رأسك بعيداً عن الدخان. ● استعمل التهوية أو جهاز ضغط الدخان للخارج لكي تبعد الدخان عن المنطقة التي تتنفس فيها.	● اقطع التيار الكهربائي قبل القيام بأية صيانة.	● لا تشغل هذا الجهاز اذا كانت الاغطية الحديدية الواقية ليست عليه.	Arabic **تحذير**

LEIA E COMPREENDA AS INSTRUÇÕES DO FABRICANTE PARA ESTE EQUIPAMENTO E AS PARTES DE USO, E SIGA AS PRÁTICAS DE SEGURANÇA DO EMPREGADOR.

使う機械や溶材のメーカーの指示書をよく読み、まず理解して下さい。そして貴社の安全規定に従って下さい。

請詳細閱讀並理解製造廠提供的説明以及應該使用的銀捍材料，並請遵守貴方的有関勞動保護規定。

이 제폼에 동봉된 작업지침서를 숙지하시고 귀사의 작업자 안전수칙을 준수하시기 바랍니다.

اقرأ بتمعن وافهم تعليمات المصنع المنتج لهذه المعدات والمواد قبل استعمالها واتبع تعليمات الوقاية لصاحب العمل.