

Need Information?

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Technical Issues?

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alphaCUT 825i

OPERATOR'S MANUAL

SAFETY AND USE INSTRUCTIONS



Purchase Date (Attach Receipt to Cover For Proof of Purchase)

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380 Swift Ave. #11 South San Francisco, CA 94080

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SHIPPING ISSUES?

IMPORTANT! This unit has been thoroughly tested and inspected for function at the factory. However, you should be prepared to inspect and test this unit completely within 72 hours after receipt. Please do not delay in doing this. Ahp needs to know if there is any damage caused in shipping as soon as possible. Damage caused by shipping and discovered after 30 days due to lack of inspection will not be covered under the free 30 day shipping policy.

Please contact us immediately should you have any questions or concerns about the plasma cutter after delivery. We'll be glad to help.

 **WARNING!**

California Proposition 65 Warning:

This product, when used for welding or cutting, 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 § 25249.5 et seq.)

 **Warning: Cancer and/or Reproductive Harm**

www.P65warnings.ca.gov

NOTICE:

Due to our constant effort to improve our products, specifications are subject to change without notice or revision to this manual. In addition, minor changes in product cosmetics, accessory type and quantity may change without notice. These do not constitute a major change in function or operation.

Ahp Welding Systems makes no warranty for merchantability or fitness for a particular purpose or application. Any claims of such are expressly denied by Ahp Welding Systems. Furthermore, Ahp Welding Systems does not accept liability for injury or damages, consequential or incidental, resulting from the use of this product or resulting from the content found in this document or accept claims by a third party of such liability.

SAFETY FIRST!

Ahp Welding Systems takes safety seriously. You should as well. Please read this entire manual before using. Keep a copy of this manual available for all employees or potential users of this machine to read and thoroughly review before use.

No matter how detailed may be nothing can substitute for careful planning and common sense required to operate and safe work environment.

Welding is an inherently dangerous activity. Failure to follow safety protocols while welding may result in severe burns, blindness, severe shock, or death from electrocution.

BE AWARE OF YOUR WORK AREA AND THE WHO OR WHAT IS IN IT!

AS THE USER OF THIS PRODUCT YOU ARE RESPONSIBLE FOR YOUR OWN PERSONAL SAFETY AND FOR THE SAFETY AND SECURITY OF THE PEOPLE AND ITEMS AROUND YOU!








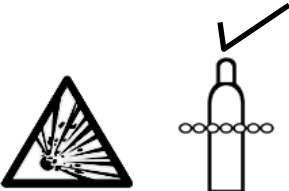
If you feel you do not have the resources to provide a safe work environment, or do not have the skills or (for whatever reason) the capability to safely operate this unit, do not use this unit until you seek professional instruction in safe operation and care of this unit.

NOTICE:



Welding and cutting operations may generate undesirable High Frequency (HF) and EMF energy. This can interfere with surrounding electronic equipment such as computers, routers, CNC equipment, televisions, radios, fluorescent lighting etc. If disturbance in surrounding electrical and electronic equipment is noted, consult a licensed electrician to help properly ground surrounding equipment to limit the interference. This machine may cause GCFI and ground fault outlets to malfunction. This unit is designed to be operated on a dedicated, properly grounded circuit.

Safety Warnings, Dangers, Cautions and Instructions

	<p>NOTICE: This unit manual is intended for users with basic knowledge and skillset in welding and cutting operations. It is your responsibility to make certain that the use of this cutter is restricted to persons who have read, understand and follow the warnings and instructions in this manual. If you or the operator needs further instruction, contact AHP welding support or seek qualified professional advice and training.</p>
	<p>WARNING! High Frequency (HF) energy can interfere with the operation of pacemakers and can damage pacemakers. Consult with your physician and pacemaker manufacturer before entering an area where welding and cutting equipment is in operation and before using this cutter. Some pacemakers have limited shielding. Alert any users or customers of this potential problem.</p>
	<p>WARNING! Use approved safety glasses with wrap around shields and sides while cutting and working in the weld area or serious eye damage or loss of vision may result. Use a grinding shield in addition to the safety glasses during chipping and grinding operations. Have other workers in the area use at least a shade 5 for indirect viewing of cutting work.</p>
	<p>WARNING! When always use an approved welding helmet or shielding device equipped with at least an equivalent of a shade 8 or greater when directly viewing the cutting arc. Increase the shade number rating as amperage increases to 80 amps. Inspect helmet or shielding device for cracks in lenses and in the helmet. Keep lens covers in good condition and replace as necessary.</p>
	<p>WARNING! Welding/cutting operations carry inherent risks which include but not limited to possible cuts burns, electrical shocks, lung damage, eye damage and even death. Take all appropriate measures to use proper Personal Protective Equipment (PPE). Always use leather welding gloves, closed toe (preferably reinforced or steel toe leather shoes, and long-sleeved flame resistant clothing (i.e. denim). Do not wear Poly/Nylon blend materials.</p>
	<p>DANGER! Welding/cutting poses shock and electrocution risks. Keep this welding equipment dry. Do not weld in the rain or where moisture accumulates. Use dry, rubber soled shoes, gloves and clothing when welding. Do not rest or contact work clamp (ground) when welding. Keep all parts of the body insulated from the part being welded when possible. Do not touch terminals or connections while the unit is on. Consider all parts to be “live” at all times even if no live work is being performed. Do not use frayed welding cables.</p>
	<p>CAUTION! Fires are possible but also preventable while welding. Always remove flammable rags, papers, and other materials from the weld area. Keep rags stored in an approved flame proof canister. Keep a fully charged fire extinguisher at hand. Remove any fuels, oils, paint, pressurized spray cans, and chemicals from the weld area. Make sure any smoke/fire detectors are function properly. Do not weld on tanks, drums or barrels, especially if pressurized or sealed. Do not weld on any container that previously held fuel or chemicals. Make sure the weld area is clear of flammable materials such as grass or wood shavings solvents and fuels. Do not wear frayed or loose clothing. Visually inspect and recheck the work area after welding looking for smoldering debris or flames.</p>
	<p>WARNING! Welding gas cylinders are under high pressure. Keep all gas cylinders upright and chained to a cart or held safely in a safety holding pen. Never transport gas cylinders in an enclosed car van or other vehicle. Transport gas cylinders securely. Keep all cylinders capped while not in use or during transport. Replace the cap on the cylinder when it is going to be more than 24 hours before use. Do not use or attempt to repair faulty regulators. Never weld on gas cylinders. Keep gas cylinders away from direct sparks.</p>

Safety Warnings, Dangers, Cautions and Instructions



DANGER! Welding and cutting operations pose serious inhalation hazards. Some of these hazards are immediate while others are cumulative in their effect. Do not weld in enclosed spaces or in areas without adequate ventilation. Fumes and gases released in the welding and cutting operations can be toxic. Use fans or respiration equipment to insure adequate ventilation if you are welding in a shop or garage area. Do not weld on galvanized metal under any circumstance. You may develop metal fume fever. Symptoms are similar to lu-like symptoms. Seek medical advice and treatment if you are exposed to galvanized welding fumes.

If you experience any eye burning, nose or throat irritation while welding, these are signs that you need more ventilation.

If you feel these symptoms:

- Stop work immediately and relocate work area with better ventilation.
- Wash and clean your face and hands.
- Stop work completely and seek medical help if irritation persists



DANGER! Never use brake cleaner or any chlorinated solvent to clean or degrease metal scheduled to be welded or other related equipment in the area being welded. The heating of this cleaner and its residue will create highly toxic phosgene gas. Small amounts of this vapor are harmful and can lead to organ failure and death. If degreasing of a part is necessary, use Acetone or an approved pre-weld cleaner. Use the proper personal protective equipment (PPE) when handling any cleaners/solvents.



DANGER! People with pacemakers should consult a physician and pacemaker manufacturer before welding. There is a potential for damage or serious malfunction resulting in death. High Frequency energy (HF)/Electromagnetic Fields generated during welding can interfere with pacemaker signals, even permanently damaging it. Some pacemakers offer some shielding, but restrictions regarding amperage and HF starting of TIG arcs may be placed upon the individual. Warn all potential bystanders that they should exit the work area if they have a pacemaker or similar medical equipment before welding. Severe electrical shock leading to injury or death may occur while using the plasma cutter if the user becomes part of the circuit path. While the Amp output of the plasma cutter is limited, the unit may produce an OCV of 300V or greater. Consult with a Physician if a pacemaker is expected to be implanted.



DANGER! Never defeat or modify any safety guards or shields. Keep all safety covers and shields in place.

Never place your fingers in or near a fan shroud or insert any object into the fan(s).



CAUTION! Trip Hazards exist around welding and cutting operations. Cords, cables, welding leads and hoses pose a trip hazard. Be aware of their location and inform others of their location. Tape and secure them so they will stay out of high traffic areas.

Safety Warnings, Dangers, Cautions and Instructions



CAUTION! Welded metal can stay hot long after welding is completed. Burns may occur. Always wear gloves or use tongs/pliers when handling welded or cut metal. Remember the heat from the metal may catch other material on fire. Always have a fire-proof area ready to place welded components until they fully cool. Use soap stone or a metal marking marker to label the metal as "HOT" to serve as a reminder to all present in the area.



CAUTION! Welding and cutting operations generate high levels of ultraviolet (UV) radiation which can burn and damage skin and eyes. The intensity is so high that exposed skin and eyes can burn in a few minutes of exposure. Minimize direct skin and eye exposure to this intense form of radiation by using proper PPE and sun screen where appropriate.



CAUTION! Do not allow untrained, unqualified bystanders to observe welding. Do not allow others without proper Personal Protection Equipment (PPE) suitable for welding to stand in the welding area or to observe welding and welding related activities. If protection is not readily available, use a welding screen to separate the welding area from the rest of the area. If no protection or screen is available, physically exclude them from the welding area by a wall or other solid divider. Keep all pets and young children away from the welding area.



CAUTION! Electromagnetic Fields can be generated by this plasma cutter and can radiate into the work place. The effect of EMF is not fully known. Exercise caution when welding by: NOT draping welding leads (guns/cables) over your shoulders or arms, NOT coiling them around your body, NOT inserting yourself directly between the cables, and by NOT contacting the unit while welding. DO keep the work clamp connected as close as possible to the area of the weld and directly to the object being welded whenever possible.



DANGER! Never touch connectors or fittings while this machine is turned on. Keep all safety covers in place when not in use.

AlphaCut 825i Specifications

Input/Output Operating Range

Input Voltage	Operating Range	OCV
120V (± 10%)	20-30A, 88-92V	300V
240V (± 10%)	20-60A, 88-104V	300V

Duty Cycle Range

Input Voltage	35%	60%	100%
120V (± 10%)	30A/92V	25A/90V	20A/88V
240V (± 10%)	60A/104V	50A/100V	40A/96V

Input Demand Inrush / Rated Effective Current

Consult a local, licensed electrician before wiring your electrical connections.

Reference Article 630 of the NEC for correct wiring code information.

Voltage	I _{1Max} / I _{1Eff} (Inrush/Rated)
120V	36A / 22A
240V	41A / 25A

Feature and Range

Feature	Range
Start Type	Blow-Back Style (Contactless, Non HF)
Torch Type	Innotec iPT 60
Process	Plasma Cutting (A-PAC)
Amp Control	Manual Knob
Post-Flow	Adjustable 0-60 Seconds
Pilot Arc	Auto Restart and 3 Second Tip Saver
Air Pressure (while actively cutting)	65-72 psi
Supply Pressure From Compressor	No more than 95 psi
Air Compressor Requirement	5.3 CFM @ 90 PSI with 25 Gallon tank capacity 3/8" hose minimum up to 25 ft. For distances longer than 25 ft. use 1/2" hose.

Weight / Dimensions / Other

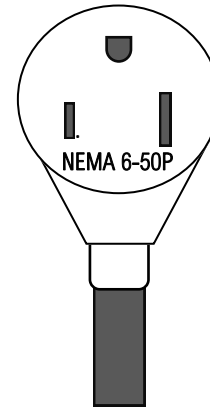
50 lbs. / 18" H X 9.5" W X 17" L / Ingress Rating IP21S
Use between 14°F and 104°F
Store between 0°F and 120°F

CAUTION:

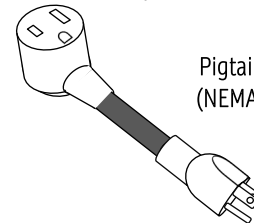
Do not use with 240V extension cords over 50 feet long or that are rated for less than 40A use as damage may result. For 120 operation, use only with 40A rated cords, less than 25 feet in length.

IMPORTANT: Be responsible. Consult a local, licensed electrician before wiring your electrical connections. Reference Article 630 of the NEC for correct wiring code information. The code is different for wiring a welder/plasma cutter circuit than for household circuits.

This unit uses a NEMA 6-50P for 240V use. This is the standard welder and plasma cutter plug for 240V 1 phase use in North America.



This unit is supplied with a 240V to 120V pigtail adapter. No internal adjustment or change is required to use it on 120V. Simply install the adapter. The unit will adjust automatically.



Pigtail Power Adapter
(NEMA 6-50R to 5-15P)

NOTICE:

This unit uses a full time fan. It is not an "on demand" or thermostatically controlled fan. However, noise level is moderate. To reduce overall noise level while operating, mount the air compressor outside of the work area, or use a quieter oil type compressor rather than an oilless compressor.

About the AlphaCUT 825i

The AlphaCUT 825i is well-suited for day to day cutting tasks in the small shop and home garage. The duty cycle of the machine (35% at 60A) offers more than enough duty cycle to handle regular, daily cutting chores. The design is simple and intuitive, lending itself to perform well in situations where there are multiple or beginning users.

The unit comes standard with the following features:

- Dual Voltage 120/240V operation capability
- 60A max output for cutting nearly all metals
- 2T/4T Torch switch operation capability
- Adjustable post-flow timer
- Auto restart pilot arc or Tip Saver Pilot Arc
- Gas purge function
- Modern Blow-back type arc starting
- 20 Amp minimum operation
- Air Pressure Gauge



The unit comes standard with the following accessories:

- Innotect IPT 60 Plasma Torch, 14 ft.
- Work clamp and cable, 9 ft.
- Combination air pressure regulator/water trap
- 240 to 120V pigtail adapter
- 60A consumable starter kit

Ahp Warranty Statement

WARRANTY ONLY APPLIES TO UNITS WITH PROOF OF PURCHASE FROM AN AUTHORIZED DEALER. NO EXCEPTIONS. PLEASE FEEL FREE TO REQUEST A LIST OF AUTHORIZED DEALERS.

All new AHP welders and plasma cutters, shall be warrantied to the original owner for a period to extend for 3 years from date of purchase against breakage, malfunction, or other unit failure resulting from manufacturing defect. The faulty unit will either be repaired or an exchange will be made for a new or factory reconditioned unit at

AHP Welds discretion. The customer must contact the technical support team to review unit failure so that the warranty claim can be established. Items such as electrodes, contact tips, nozzles, cups, shields, liners etc, considered to be consumable items, are NOT covered under warranty. Torches, foot pedals and spool guns are warrantied for a period of 6 months. Additionally, certain items such as torches, foot pedals and easily serviced parts may be individually exchanged without returning the entire unit assembly should a failure with these items occur, at AHP Welds discretion. AHP Welds will not be responsible for time/contract loss from unit failure, damages occurring from improper or unskilled operation, damages resulting from improper maintenance, improper wiring, poor quality power sources, abuse or neglect. Nor will AHP assume responsibility for the customer's failure to heed/read safety instructions, to read and understand operator's manual, obey occupational laws or to ensure the unit's safe operation complies with state or local laws, personal injury arising from the inherent risks involved with welding, including burns, electric shock or death. Warranty extends only to the machine, its accessories and parts contained inside as stated above. No other warranty is expressed or implied.

In the event of unit failure or malfunction, the customer must contact AHP to obtain a location of a designated return/repair facility. The replacement unit will then be returned to the customer. AHP will cover the shipping charges both ways for domestic customers that have units in need of warranty within the first 30 days from the purchase date. After the 30 days from the purchase date, the customer shall be responsible for all shipping and handling costs both ways of non-functioning units for repair or replacement. Customers located outside of the USA lower 48 states will have to pay shipping and handling charges both ways from the purchase date. It is the customer's responsibility to adequately insure the unit, as AHP is not responsible for lost or damaged returns. Labor coverage only applies if the unit is serviced at our facility or one of our authorized dealers. We will not reimburse the labor if the customer decides to have a third-party or unauthorized repair technicians work on the unit.

NOTICE: *Ahp's TIG products are designed for use by individuals with a professional knowledge base in TIG and Stick welding and is designed with commercial operation in mind. Ahp cannot be held accountable for instruction and training of inexperienced users or damage or malfunctions that may result from use by inexperienced users or improper installation. If you do not have the skill level or knowledge base to properly operate and install this machine, do not use this machine until proper training and instruction has been received.*

View full warranty, terms of sale and shipping details here:
<https://ahpwelds.com/>

NOTICE:

Output on 120V will be limited to 30A. This unit is supplied with 60A consumables. To operate on 120V, you'll need to purchase 20 or 30A rated consumables. With a 60A consumable installed while operating on 120V, arc operation will be erratic and unstable. See torch page for Amp ranges of consumables.

Generator Operation Information



This unit may be used with any clean power rated 240V generator with a 10,000 Surge Watt rating. Clean Power is defined as 5% or less Total Harmonic Distortion (THD).

This means the generator produces a clean sine wave similar to what is produced by power companies. **Due to the potential high inrush demand (36A) while operating on 120V, operation with 120V only generators is not recommended.**

NOTICE: Operation on generators not rated by its manufacturer as a “clean power” source is prohibited and will void the warranty. Many manufacturers produce a version or series of their generators that produce clean power. This is usually stated up front. If not, consult the manufacturer of the generators to confirm THD. Clean power generators are made in both inverter types and conventional types of generators. Do not assume all inverter type generators produce clean power unless the manufacturer states it. Clean power is needed for most electronic equipment to prevent damage.

Duty Cycle Performance



The Duty Cycle of this machine has been established at 35% @ 60A (40°C) while operating on 240V. While operating on 120V, the duty cycle has been established at 35% @ 30A (40°C).

Duty Cycle is the amount of time, out of a solid 10 minute block of time that the unit may operate at the rated setting. For the example of 35% @ 60A, this means the unit may be operated up to 3.5 minutes continuously, or intermittently out of 10 minutes of time before overheating. The balance of time remaining in the 10 minutes (4 minutes in this example) should be while the unit is left to rest, while continuing to run. As Amps are lowered, or as the ambient temperature decreases below the 40°C testing benchmark, duty cycle will increase. Lowering to just 50A the unit's duty cycle increases to 60%. And lowering another 10A to 40A, the unit's duty cycle increases to 100%.

It is not necessary to try to keep up with the duty cycle by precisely timing it or recording it. The unit is equipped with a thermal sensor which will trigger an interruption of operation if the temperature has been exceeded. Keep in mind this is not a timed feature. A duty cycle statement is based on time welding at a particular amperage, but because so many variables exist, and ultimately the unit's temperature is the regulating concern, duty cycle is determined by a preset operating temperature threshold, rather than a timed one.

If you have triggered the duty cycle interrupt on this machine, allow the unit to cool for a full 15 minutes. The unit should automatically reset during this time, but allow a few more minutes so the machine can cool sufficiently so as not to overheat quickly. If it does not reset during this time, turn the machine off and back on to reset it.

Even though this unit is equipped with a duty cycle safety feature, intentionally and repeatedly surpassing the duty cycle will shorten the lifespan of the unit. Routine overheating damage will usually leave signs that can be determined during warranty repair. Damage caused by intentional abuse of the duty cycle will not be covered under warranty.

If you find that you are constantly running into duty cycle issues, it is likely you will need a bigger machine, or need to adjust your welding strategies to comply with the duty cycle limits of this machine.

To assure maximum lifespan of the unit, never block the cooling vents in the rear, sides, or front. Keep the unit 16” away, on all sides, from any obstacle to free air flow such as a wall or partition.

Required Routine Maintenance



In most places where a plasma cutter is in operation floating and flying debris become a factor for concern. Dust, dirt and sparks are often present in the air. The machine will draw these contaminants in during operation and they can be deposited inside the machine onto critical components. These particles can conduct electricity and create new circuit paths, not only causing poor operation, unit lock up, but it can also cause long term damage. **For this reason, the machine should be opened up and cleaned with dry, compressed air on a regular basis: once every month in heavy use, and every 3 to 6 months under light use. If the unit remains stored most of the time, dust still will accumulate, and this should be done at least every 6 months. When not in use, keep the machine covered. Failure to do so constitutes neglect and may void the warranty.**

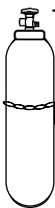
To clean and service this plasma cutter:

1. Unplug the plasma cutter. Wait 10 minutes for the capacitors to discharge. (To prevent electrical shock or electrocution.)
2. Put on a pair of safety glasses to prevent debris from blowing into your eyes during this operation.
3. Remove the rear cover screws. Keep in mind there are 3 screws on the bottom of the unit that hold the cover on as well. Do not remove any other screws on the bottom.
4. Remove the rear cover and top handle.
5. Remove the steel cover screws.
6. Pull the rear cover up and to the rear while carefully watching for wires that may catch on the louvered vents of the cover.
7. Check all wires and connections to make sure they are seated and/or tight.
8. Use dry compressed air (or “canned” air) to blow the air off connections, boards, and fittings. If the unit is particularly dirty, unseat the affected connectors themselves, and blow out the connections as well.
9. Reassemble the unit. Do not forget the handle!

NOTICE: *Opening the unit to clean and check connections will not*

void the warranty. In fact it is required to maintain your in-warranty status during the duration of your warranty. However, under no circumstances should you attempt to modify or make unauthorized changes to the welder/plasma cutter or its programming. To do so will void the warranty.

Cutting Gas and Setup

 This unit is designed to work on straight compressed air. Your compressor size should be a minimum of 4.5 to 5.0 CFM at 90 PSI. The minimum tank (reserve) size should be 20 gallons for the best performance. Additionally, you will need to install a separate air-dryer inline between the Compressor and the unit regulator. While the regulator also serves as a water trap, this cannot substitute for a good grade air dryer. An expensive air dryer is not needed. There are several desiccant types that are replaceable, or serviceable that are relatively in expensive. A refrigerated system, while a nice feature to have, is not necessary. Dry air is key to long service life of the consumables and torch. It also is important to making quality cuts by hand. **See the diagram below for information concerning proper connection of the air compressor to the regulator.**

Alternatively, where having compressed air is not possible, this unit may also be used with compressed Nitrogen. You'll need to source a high flow regulator specifically for large volume consumption (be sure to ask, because there are two types). While this isn't the most economical solution, Nitrogen cuts clean and leaves behind a good finish. It's perfect for using in the field where having an air compressor present is not a viable option. To properly support the plasma

torch, you'll need around 5.0 cubic feet per minute gas flow capability of the regulator.

When in use with the air compressor, you should not adjust the compressor regulator (install one if you do not have one fitted to the air compressor) to supply more than 95 psi to the rear of the plasma cutter. If the air pressure exceeds 95 psi supply pressure, the unit can begin to leak internally if the unit mounted regulator is turned wide open. It can also cause the water trap filter bowl to burst. The regulator that is mounted to the rear of the plasma cutter is only used to reduce the supply pressure from 90 to 95 PSI down to the operation range of 65 to 72 psi. The absolute minimum air pressure should never drop below 60 psi. The air pressure should remain between this range and should not change even if you are using less Amperage. ***Instead of lowering air pressure to improve arc stability, change to a smaller diameter consumable to match the amperage you are using. See torch page in this manual for consumable sizes and Amp range of each size.***

WARNING!

Too much supply pressure may cause the regulator to leak or the water trap bowl to explode and cause serious injury and damage. Never exceed 95 psi supply pressure.

CAUTION!

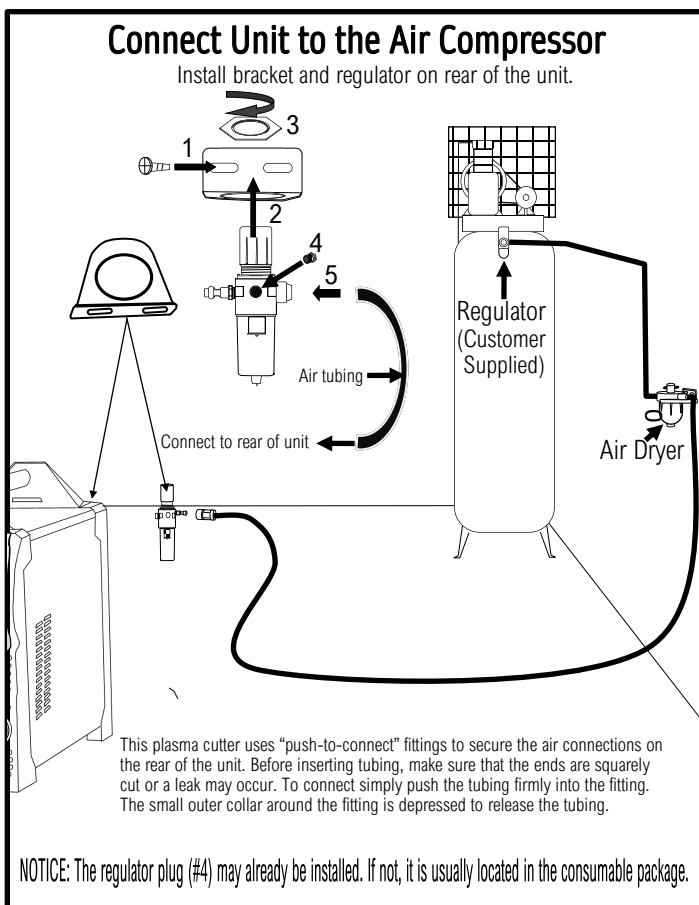
Do not use with an oiling system or with a worn out compressor that may be allowing blow-by oil to seep into the air supply hose. This may result in damage or fire. Always use a separate, clean air hose to supply the plasma cutter to reduce chance of contamination.

NOTICE:


For best results, supply the air to the plasma cutter with 3/8" or larger air hose. Do not use 1/4" supply lines.

NOTICE:

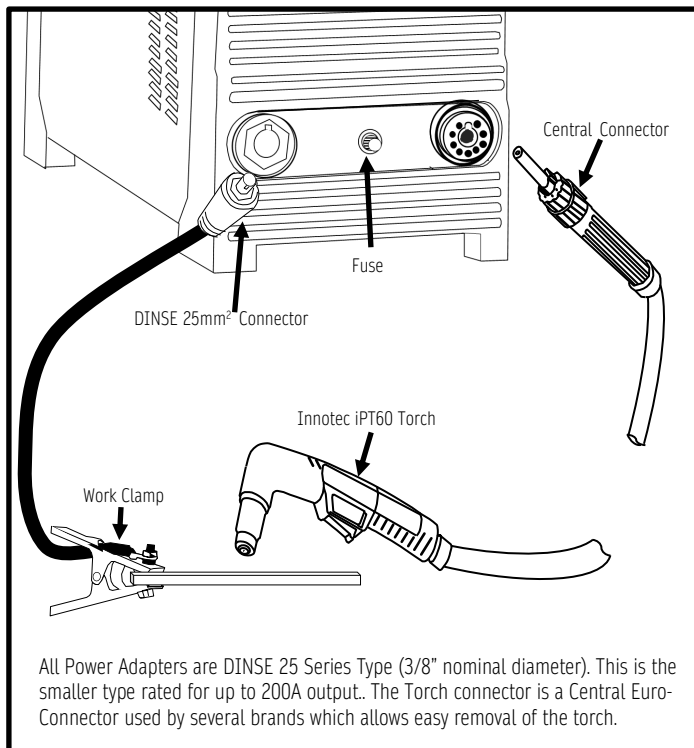
Check consumable bag for additional pieces and parts to complete the attachment of the regulator.



Connecting the Torch and Clamp

 AHP uses a blow-back type of torch which eliminates the old outdated High Frequency (HF) design that interfered with electronics and required regular maintenance. The blow-back design uses a mechanical mechanism to internally strike an arc rather than a High voltage, High Frequency point gap design to initiate the arc. The blow-back type of torch also provides a pilot arc function which keeps the arc lit, even if the cut has been lost.

The alphaCUT 825 uses a genuine Innotec iPT60 hand torch. This torch design has become a standard torch used by multiple manufacturers due to its reliability and cut capacity with minimal arc start delay. There are only two licensed manufacturers of this patented design. Use genuine consumables with your torch. Be aware that there are many knock-off manufacturers of this design. While similar in appearance, there are significant differences in manufacturing tolerances and even quality of copper alloys used in manufacture of the torch and consumables. Use of consumables by knock-off manufacturers is discouraged as it can cause your torch to malfunction and



even short-out your machine. Torches and units that fail while using these consumables cannot be warrantied. Purchase only direct from AHP, or a licensed Innotec or Tecmo torch distributor. If you are not sure, ask the supplier. Do not attempt to retrofit this unit with another torch type or brand. The dynamics of a plasma cutter are such that


the individual plasma cutter and torch must work perfectly together or a failure may result. Arc initiation must be perfectly timed between the torch and the unit. Additionally the internal design of the torch establishes the arc voltage. Other types of torches will not operate (if they do at all) well with this unit and will cause premature failures and wear on the unit. Use with other types or brands of plasma cutters will void the warranty.

The connector used on the torch is the Central connector, which is another design commonly used by several manufacturers. This allows rapid, secure connection of the torch. It also allows the unit to be easily broken down and conveniently stored without tools to remove the torch.

Similarly, the work clamp and DINSE 25 type connector are commonly used on plasma cutters of this size. The 200A rating of the clamp is more than sufficient to carry the power of the cutter. However, occasionally a work clamp may wear out or fail. Replace it with a work clamp rated for 200A or above. These can be found at any reputable welding supply store. The DINSE 25 type connector is a common connector used in the industry and may be also be sourced at most welding supply stores. This connector can be re-used however if it has not been damaged. To remove the cable from the connector, remove the rubber cover from the brass base of the connector by firmly pulling them apart while wiggling the rubber cover back and forth slightly. The rubber will pop back to reveal the set screws that hold the cable. The set screws can be loosened and the cable then removed for replacement. If the cable is being replaced, do not allow the work clamp cable length to exceed the length of the torch.

NOTICE: With use, these screws may loosen up due to fatigue or wear of the cable. If irregular operation is observed, check the set screw tightness before progressing to other possible causes.

Pilot Arc Operation

 The Pilot arc is designed to sustain an arc when there is no continuity sensed to the work. The pilot arc is a low amperage arc that is created and sustained by the torch itself and is not designed for cutting. This is due to the fact that the circuit path is established back through the torch and to the unit and is carried on the consumable face. It is designed to lightly scour the surface to burn off scale or paint that may interfere with continuity. It also is designed to sustain the arc when continuity is lost so that the torch will not have to be retriggered. When continuity is lost the unit switches over to the pilot arc. When continuity is regained, it seamlessly transitions back to the cutting arc out. In auto restart

mode, the pilot arc is able to switch back and forth as needed continuously. However, the downside to the auto restart mode of the pilot arc is that the pilot arc increases wear on the consumable since the arc is carried by the consumable itself and erodes faster than normal cutting would. In the tip saver mode, the arc will go out after three seconds if the arc is not started. The pilot arc will not relight and the torch must be retriggered. This helps to manage consumable life and make the user more conscious of abusing the pilot arc.

When the pilot arc is engaged, the amperage in the display will drop to around 25 to 27 Amps. This is normal since the consumable itself becomes the current path and the arc is maintained on the consumable face. If it were to transfer at 60 Amps, it would quickly destroy the consumable. This also serves as a diagnostic if the unit is not cutting properly. If it is only registering pilot arc Amperage despite being set higher, check the work clamp connection. Make sure it is free of rust and paint and is directly mounted to the piece being cut. If the work clamp is damaged or becomes hot, or the cable becomes hot while cutting. Check and replace the work clamp. Remove the rubber boot on the DINSE connector and check for tightness of the work clamp cable.

CAUTION:

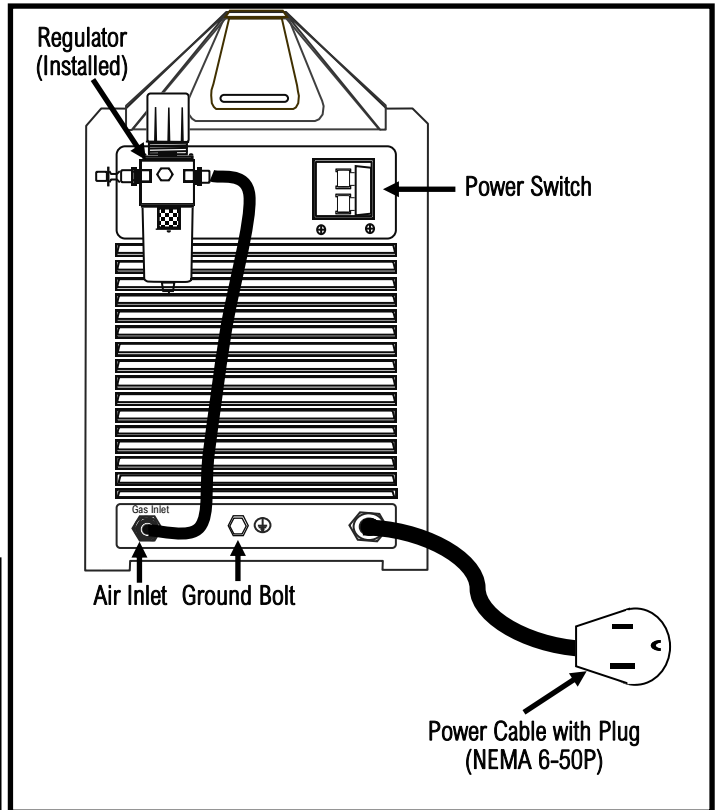
Continual use of the pilot arc will over heat the pilot arc circuit and can damage the system. Do not try to cut without the work clamp attached. This is not designed to be used for etching or marking purposes. Make sure the work clamp is connected directly to the part being cut at all times while the unit is in use. Remove all mill scale and paint at the point where the work clamp is to be attached. Occasionally, through routine use, the pilot arc fuse will blow. There are extra fuses included with the consumable kit. These are common "Buss" type fuses and can be gotten at most automotive supply stores. The part number and Amp rating is stamped on one of the metal fuse ends. Do not use a higher rated fuse or you may damage your unit and/cause a fire.

NOTICE:

This unit is not designed for gouging. Do not attempt gouging type of operations with this unit. Gouging stretches the arc too far and will cause the voltage to exceed design parameters.

Getting Started Cutting

The unit is easy operate, with a minimum amount of knowledge and setup required. The functions of the machine are basic and are straight forward in adjustment.



This machine uses a breaker style power switch located on the rear. This is used to turn the unit on and off. There is no other switch, so be sure to mount your plasma cutter where you can access the rear of the unit to switch it on and off.

You'll also notice that there is a bolt located on the lower rear of the machine. This is to provide an additional ground point, grounded direct to a ground rod driven outside the shop area. This is to be used only in case of electromagnetic interference from the operation of the inverter. This is not normally needed and it is rare to have interference. But, if interference is suspected, consult an electrician for proper use and wiring of this additional grounding point. If this point is needed, all other metal structures, inside the shop and including the shop will have to be grounded to separate ground rods every few feet. If interference cannot be remedied by moving the unit to a different location, then consult with a locally licensed electrician to determine the best course of action. Additionally, you may also call AHP for more information if it is needed.

Before turning on the unit, connect the air line and make sure no more than 95 psi is supplied to the rear of the unit. Next connect the work clamp direct to the work. Then turn the unit on. If the air pres-

sure is not sufficient to operate, the warning light will come on and prevent cutting to protect the torch and consumables. To adjust the air pressure, once the unit is turned on, pull up on the regulator knob. You will hear and feel a slight click and the regulator knob will move up slightly, allowing you to adjust the air pressure. Twist it slowly clockwise to raise the pressure and then twist it slowly counter-clockwise to decrease the pressure. Once the air pressure in the front gauge reads 60 psi, then press and hold the air check button and adjust the air pressure to 72 psi. Once the air pressure is adjusted, release the Air check button. The pressure may spike slightly about 3 to 4 psi. This is normal. If it spikes more than that, you'll need to increase your supply air hose diameter or reduce the length of the hose. A large pressure differential between the air flowing and when it is static is often due to improperly sized (or kinked) supply hose. While not necessarily a big issue, it can make adjusting and maintaining a consistent air pressure while cutting more difficult.



Once air pressure is correctly set between 65 and 75 psi while flowing, select Auto Restart and Trigger unlock using the buttons. Next, set post flow at 15 Seconds. Last, make sure your amps are set between 50 and 60A. Once you have this correct, the unit is ready to use. But before using, once again confirm that the work clamp is connected securely connected to the part being cut.

When you are fully ready to cut, please note that the ipt60 torch does come with a stand-off guide. This stand-off may be removed if you are more comfortable cutting free hand or need to make intricate design cuts. However, it is not recommended to drag cut with this unit unless special shielded drag consumables are sourced for the torch. Currently AHP does not offer shielded drag consumables direct. However, these are available from OEM suppliers of ipt/PT 60 torches and their consumables. The standoff is handy for making long, straight guided cuts since the leg of the stand-off can glide against a straight edge used for a guide. It can also be used in multi-directional cutting with a light touch and a little practice.

The unit has been supplied with 50 to 60A range consumables. While using lower amperages, you will need to use consumables that are

rated for lesser Amp cuts. These consumables have smaller diameter orifices. Always keep the pressure within the operating range of 60 to 72 PSI, with 65 to 72 PSI being considered ideal. Don't try to lower air pressure to get the consumable to provide a steady arc. While air pressure can be fine tuned within the range for best cut performance, change consumables first to match the Amp range. Use the guide below and the ipt 60 torch parts pages to help you determine the correct settings for your plasma cutter.

Cut Recommendations*

Cut Thickness*	Suggested Amps	Consumable Size
≤ 1/8"	20-25A	.6mm
1/8" to 1/4"	25-30A	.8mm
1/4" to 3/8"	30-40A	.9mm
3/8" to 1/2"	40-50A	1.0mm
≥ 1/2"	50 to 60A	1.1mm

*Practically all metal can be cut with the stock consumables that are included with the starter consumable kit as long as the cuts are kept between the 50 and 60A range. The main difference is that the higher Amp cuts result in a more rapid cut speed and wider kerf width, which may reduce cut quality on the thinnest materials. The figures given above are only given as general capability with the best cut quality in mind. For practical purposes, 60A can cut metal plate 1/4" and above with reasonable quality. For Aluminum and Stainless Steel cuts, decrease cut thickness capability ratings by 30%.

See the next page for more detailed explanation of the panel features and functions.

Use the cutting information on pages 18-21 to assist you in learning how to cut with this unit.

Control Panel Features



Control Panel Features

1. Power Indicator, Warning Light and Pressure OK LED. The left LED Power Indicator will remain on while the switch is turned on, if power is being supplied. If the middle warning light comes on during use, then check the error code provided to help determine whether it is an over current or duty cycle issue. If it is a duty cycle issue, allow the unit to continue to run, without welding for 15 minutes. The unit will automatically reset. If the code is an over-current issue, then switch the unit off and check the cause. The unit may not clear the code when it is switched back on, or may instantly display again when welding is attempted. In this case, immediately switch the unit off and contact Ahp tech support as soon as a practically possible. Do not attempt to weld or allow the unit to continue to run if an over current has occurred.. The right LED is lit once the unit reaches minimum safe cutting pressure around 50 psi. This is not the recommended cut pressure. It only serves to help prevent damage if the air supply line is not connected or the air pressure drops too low. **If the Pressure-OK LED is no longer lit, the unit will continue to idle, but cutting output will be interrupted. This light must be on to resume cutting. If the LED does not illuminate after correcting the air pressure, contact AHP.**

2. Amp Display. This displays the cutting Amps. In case of an over current or duty cycle event, this will display an error code.

3. Amp Control Knob. The Amp control knob adjusts the Amperage from 20 to 60A while operating on a 240V power supply. While operating on a 120V power supply, the Amps will range from 20 to 30A.

4. Auto Restart/TIP Saver. For normal operation, select Auto Restart. This allows the cutter to switch seamlessly back and forth between the cutting arc and pilot while the trigger is continued to be held down if continuity is lost. These type applications would include cutting on perforated or expanded metal. It also helps for uneven surfaces or where paint and/or rust are heavy. The TIP saver function works best on long, even cuts. The arc will go out if the trigger is held down and no continuity is sensed. It will also time out if cutting is not started within 3 seconds of triggering. To restart the arc in TIP saver mode, the user must release the trigger and allow the cutter to reset before retriggering. This can take several seconds.

5. Trigger Unlock/Trigger Lock. The Trigger lock function is designed for long cuts to remove fatigue. The lock function causes the trigger to go into a 4 step mode. When engaged, the trigger must be pressed and released slowly to start the cut. The arc will stay on without holding the trigger down. To stop the arc, the trigger is pressed and released slowly to stop cutting and to begin the post flow cycle. The trigger unlock function is a 2 step process. To start and continue the arc, simply press and hold the trigger. To stop cutting and begin the post flow cycle, release the trigger.

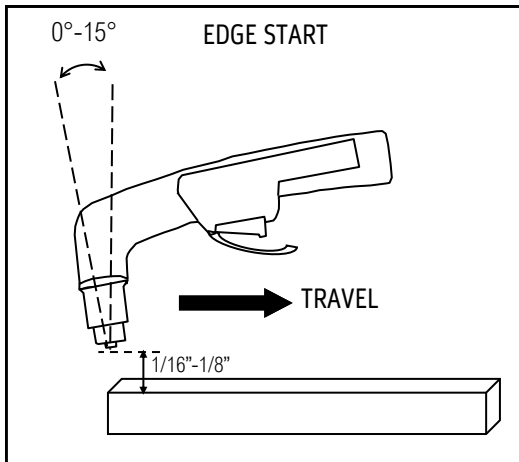
6. Normal/Air Check. The Air check function is only used during the setup process to help adjust the cutting pressure. The cutting pressure can only be accurately adjusted while the air is flowing. The normal operation is the default mode.

7. Air Pressure Gauge. The air pressure gauge indicates the cutting pressure, not the supplied pressure to the rear of the unit. The air compressor gauge should be used to indicate supplied pressure. Cutting air pressure should be maintained between 65 and 72 PSI for optimum cutting. Minimum cutting pressure should be no less than 60 PSI.

8. Post Flow. The Post-Flow is adjustable between 0 and 60 Seconds. This is the amount of time the air will flow after the cutting stops. Some post flow should always be maintained. Post-Flow is designed to provide cooling to the torch and consumables. The amount needed is dependent upon both the Amperage used and the length of time the cutting takes place. For best results set post flow for a minimum of 15 seconds for most cuts.

NOTICE:

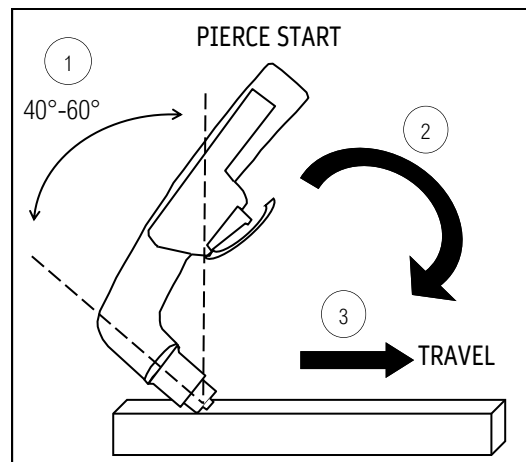
The design of the blow back start may cause a slight delay in the arc as the air pressure must built inside the torch tubing and head to create the pressure needed to force the electrode off the nozzle seat. This may take up to a second, especially when using longer torches or marginal air supply systems. Restarting the arc in tip saver mode requires retriggering the torch. If the torch does not light after 3 seconds, let go of the trigger and press it again. If the start or arc is erratic check nozzle and electrode for tightness and wear.



EDGE STARTS

Edge starts are the best type of start to promote consumable and torch life. This reduces blow back of molten material and allows a smooth gradual start of the arc and maximizes cutting capacity.

- 1) Line up the hole on the tip of the electrode on the edge of the cut. Hold torch perpendicular to the cut initially, about 1/16" off the metal. Slide the yellow safety lock and squeeze the trigger. Wait for arc to start.
- 2) Once the arc starts, wait for the arc to penetrate all the way through the metal.
- 3) As the torch penetrates the flame all the way through the metal, tilt the torch so there is a slight lead in the flame if metal is thin. If the metal being cut is thick, keep holding torch in a nearly vertical position.
- 4) Begin moving the torch in the direction of the cut. Maintain 1/16" to 1/8" standoff height.
- 5) Move the torch fast enough so the sparks and flame trail from the bottom edge at an angle of no more than 30° and no less than 10° from perpendicular to the metal. Excess angle of sparks/flame indicate too fast of travel speed or practical cut capacity has been reached. Little or no angle indicates too slow of travel speed.



PIERCE STARTS

Piercing starts often result in rapid consumable wear and excess blow back of molten metal deposited onto torch and consumables. This should be done only as necessary on thicker material.

- 1) Tilt the torch in the direction of travel or toward the side of the metal to be discarded or wasted at a 40° to 60° angle. Slide the yellow safety lock and squeeze the trigger. Wait for arc to start and transfer to the metal.
- 2) As the flame penetrates through the metal (at a sloped angle) rotate the torch slowly to the vertical position. Tilt the torch from 0°-15° for thin metal cuts, or hold it nearly perpendicular for thicker metal cuts.
- 3) Begin moving the torch in the direction of the cut. Maintain 1/16" to 1/8" standoff height.
- 4) Move the torch fast enough so the sparks and flame trail from the bottom edge at an angle of no more than 30° and no less than 10° from perpendicular to the metal. Excess angle of sparks/flame indicate too fast of travel speed or practical cut capacity has been reached. Little or no angle indicates too slow of travel speed.

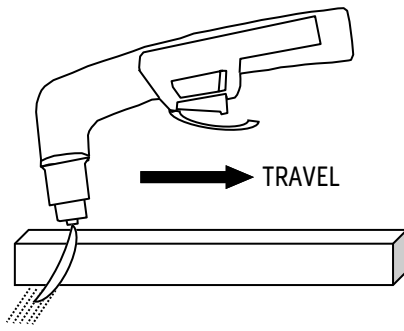
IMPORTANT:

If you use the standoff guide provided with the torch, it must be adjusted to provide no more than 1/8" standoff, less if possible. Long standoff heights reduce cut capacity and quality. It also promotes rapid consumable wear and can prevent the pilot arc from transferring.

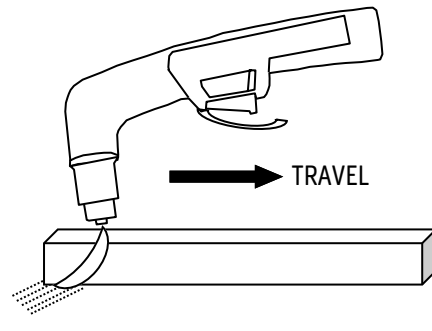
NOTICE:

For longer consumable life do not use the pilot arc unnecessarily. For expanded metal cutting be sure to select “Auto Restart” to re-fire the pilot arc automatically. For long, uninterrupted cuts, select the “Tip Saver Start” feature and do not fire the torch unless you are near the metal and ready to cut.

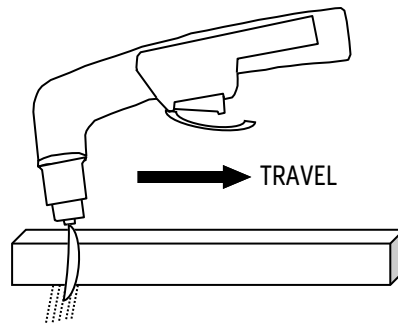
FLAME AT NORMAL TRAVEL SPEED



FLAME AT FAST TRAVEL SPEED



FLAME AT SLOW TRAVEL SPEED

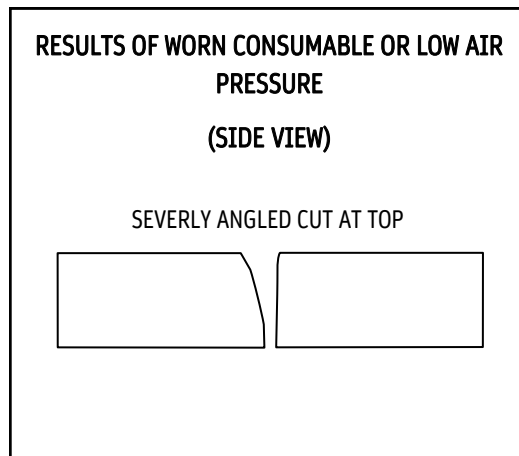
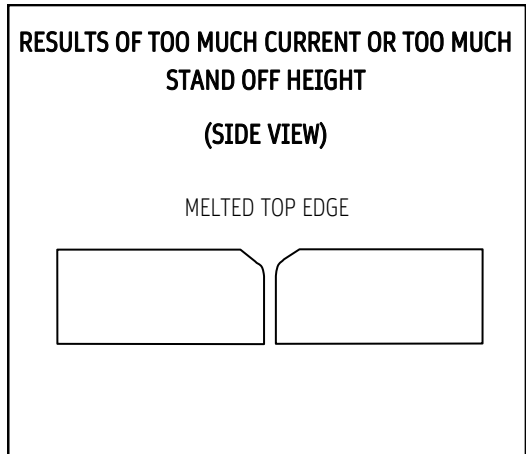
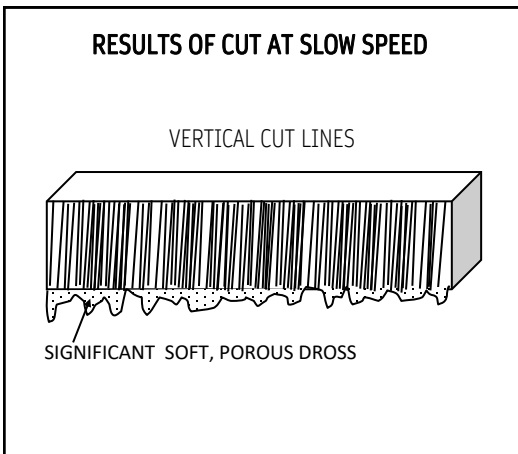
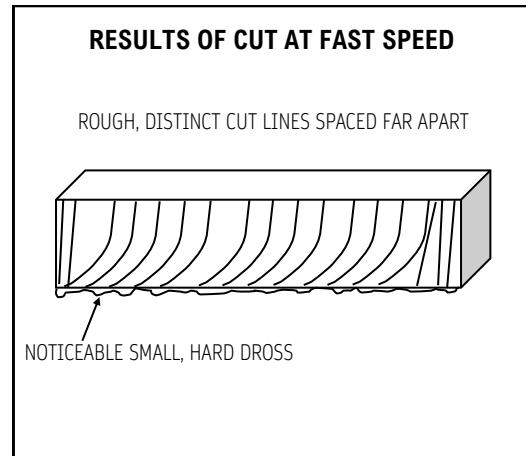
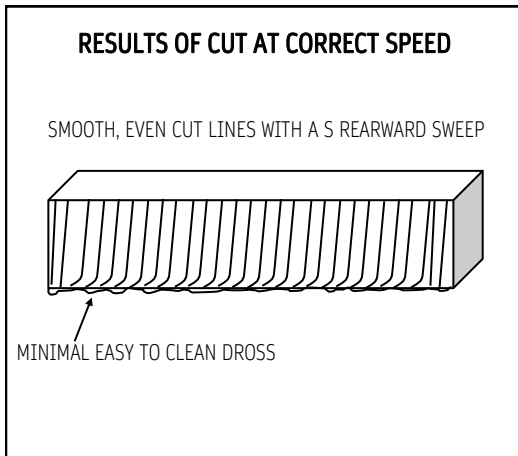


IMPORTANT:

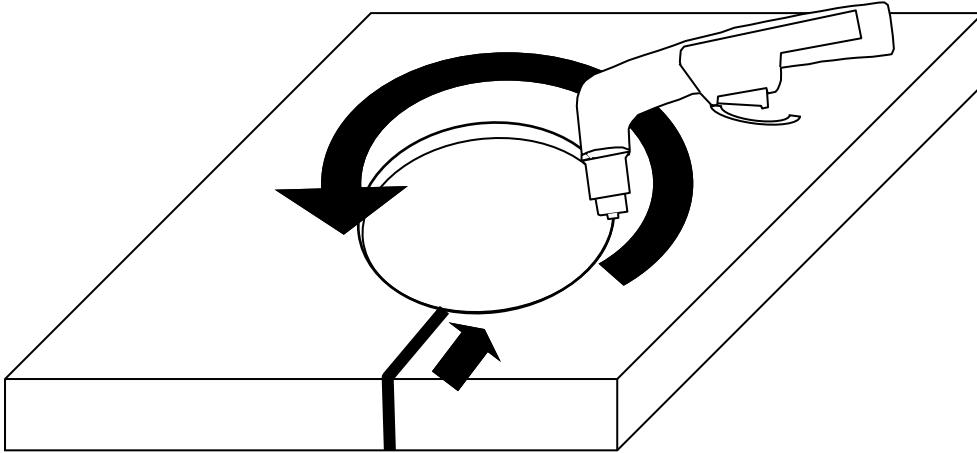
Check consumables regularly for wear and change them out before they are completely worn out. A good practice is to check consumables before turning the machine on each time you go to cut. It takes only a few seconds and can save yourself a lot of extra effort later. Allowing the consumables to wear until they quit working may damage torch related components, creating a more costly repair. Periodically, with the unit turned off, check the spring action of the electrode by removing the cup and tip and pushing your thumb or finger down on the electrode. The electrode should depress slightly and spring back quickly without a delay. If it does not, the torch head may need to be disassembled, cleaned and lightly lubricated with di-electric grease. In some cases the sealing O-rings may be broken or dirty causing sticking. Replacement torch head kits are available if repair is not an option. Sticking of the electrode like this causes starting issues. Most often this condition occurs because of moisture and dirt that makes its way into the system. **Additionally, do not overtighten the electrode or overheat the torch (by poor cutting techniques such as excessive piercing starts on thick metal) or the electrode threads may gall in the torch head and break off during removal.** This usually occurs on lower quality consumables (non-OEM) with poor chrome plating, but can occur if OEM consumables are overtightened.

NOTE:

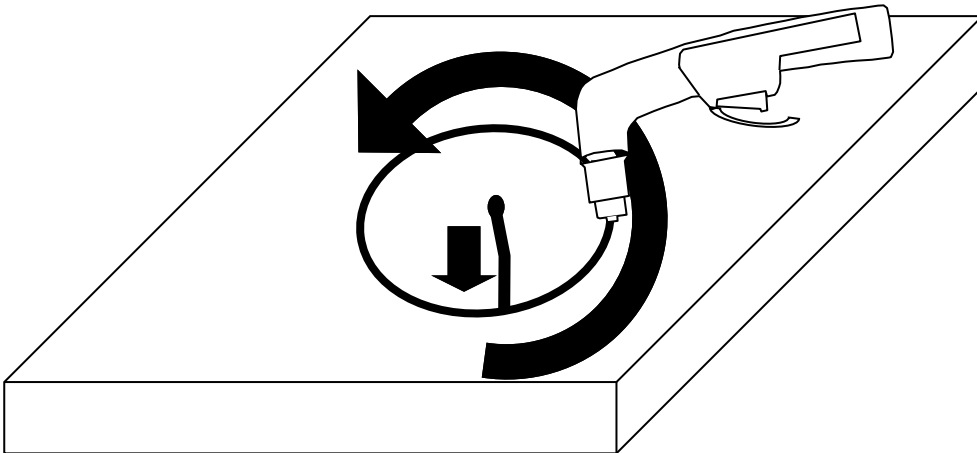
When stepping down amps to cut thinner material, you must change to smaller orifice nozzle. Nozzles are offered in different sizes which are made for different amp levels. **See the torch parts page for amp range and size of consumables.** AHP offers OEM size and configuration of consumables originally supplied with the torch for replacements and do not offer all configurations or sizes. OEM suppliers of the Innotec IPT torches (local and online) offer extended range of sizes and configurations. An orifice that is too large for the amps being used will result in arc instability and a rough cut. Do not attempt to lower air pressure to compensate as this makes the issue worse.



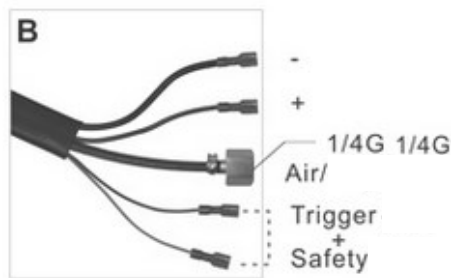
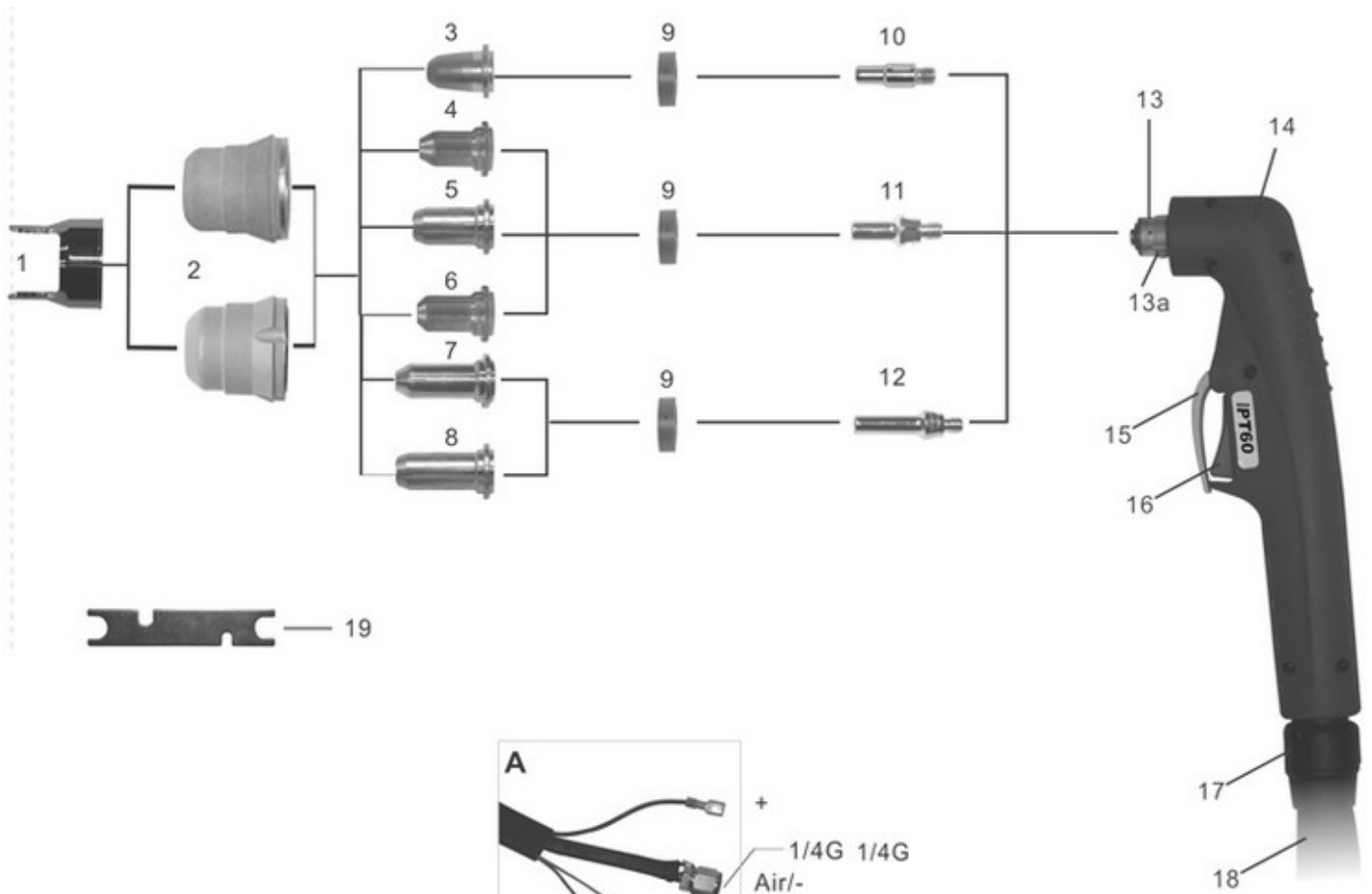
AN EXAMPLE OF CUTTING A LEAD-IN WHEN CUTTING OUT A DISK SHAPED OBJECT



AN EXAMPLE OF CUTTING A LEAD-IN WHEN CUTTING HOLE IN AN OBJECT

**NOTICE:**

When cutting an object, particularly a pattern shape, where the torch must pierce or re-fire in-line at an intersection of a cut, a lead-in cut should be employed. A lead-in is a cut that is made in the disposable part (also known as a drop) of the object to “lead” into the main part of the cut so that the destructive force of the arc is not directed into the desirable side of the cut itself. Also, all plasma cutters exhibit some angularity or bevel in the cut which is greater on one side than the other. Keep this in mind (and the direction you cut) when cutting an object to size so that too much metal is not accidentally removed and the object can be finished to the proper size.



Technical Data	技术参数
Current	60Amp
Duty Cycle	60%
Gas	Air/N ₂
Gas Pressure	4.4–5.0 Bar
Gas Flow	110 LPM
Ignitor	Without HF
Post Flow	55sec. recommended
Standard Length	6M



Component Identification and Explanation of Function

NOTICE:

Not all parts and consumables listed on this page are available from AHP. However AHP does supply the consumables that work best with the design and intended applications of this unit. AHP does not manufacture the torch. This is an Innotec factory supplied parts list and actual availability of some parts are factory controlled based off of region and demand. However, some additional parts and consumables may be available from other authorized suppliers of Innotec torches. Call AHP's website for common available consumables and parts. If a consumable is not available on the website, or more information is desired, call AHP for further information on availability or special order.

Position	Code	Ref.	Description
1	ISM0098		Double pointed spacer/IPT60
2			Qutside nozzle
2.1	IVS0661	PC0116	Outside nozzle 6 holes
2.2	IVS0663		Outside nozzle 6 holes/maximum life
3			Tip
3.1	IVU0661-06	PD0116-06	Tip Φ 0.6mm/IPT25-60/10-20A
3.2	IVU0661-08	PD0116-08	Tip Φ 0.8mm/IPT25-60/20-30A
3.3	IVU0661-09	PD0116-09	Tip Φ 0.9mm/IPT25-60/30-40A
4			Tip
4.1	IVU0660-06		Tip Φ 0.6mm/10-20A/back striking
4.2	IVU0660-08		Tip Φ 0.8mm/20-30A/back striking
4.3	IVU0660-09		Tip Φ 0.9mm/30-40A/back striking
4.4	IVU0660-10		Tip Φ 1.0mm/40-50A/back striking
5	IVU0668-09		Tip Φ 0.9mm/30-40A/IPT60/back striking
6			Flat tip
6.1	IVU0668-10		Flat tip Φ 1.0mm/40-50A/back striking
6.2	IVU0668-11		Flat tip Φ 1.1mm/50-60A/back striking
7			EXtended tip
7.1	IVU0609-06		EXtended tip Φ 0.6mm/10-20A/back striking
7.2	IVU0609-08		EXtended tip Φ 0.8mm/20-30A/back striking
8	IVU0603-09		EXtended tip Φ 0.9mm/30-40A/back striking
9	IVF0601	PE0106	Diffuser IPT25-60
10	IVB0660	PR0110	Electrode Plasma IPT25-40
11	IVB0048		Electrode Plasma IPT25-60/back striking
12	IVB0049		Extended electrode Plasma IPT25-60/back striking
13	IVZ0673		Plasma torch head IPT60
13a	IFT0709		"O"ring Φ 18x15mm
14	IGV0038		Plasma handle manual/IPT20-60/Red
15	IHJ0722		Protection part/Plasma/Yellow
16	IHQ0070	185.0031	Trigger
17	IHJ0898		Joint/small/new type
18			Cable assembly
18.1	IVN0806		Cable assembly/IPT60/6m 1/4G Separated
18.2	IVN0807		Cable assembly/IPT60/6m central adaptor
18.3	IVN0808		Cable assembly/IPT60/6m 1/4G
19	ICG6006		Spanner for Plasma
20	IZX0078	FY0023	Central adaptor torch side Plasma 5 pins
21	ISM0707		Circle cutting attachment
Complete Torch			
A	IVT0847		Plasma torch IPT60/6m 1/4G
A	IVT0847-01		Plasma torch IPT60/6m 1/4G back striking
B	IVT0848		Plasma torch IPT60/6m 1/4G seperated
B	IVT0848-01		Plasma torch IPT60/6m 1/4G back striking
C	IVT0846		Plasma torch IPT60/6m central adaptor
C	IVT0846-01		Plasma torch IPT60/6m central adaptor/back striking

REMINDER NOTICE:

The pilot arc is not designed to be used to cut. The pilot arc is used to scour the surface to establish continuity so that the cutting arc will transfer. If you experience difficulty cutting and the arc seems to barely penetrate the metal, cutting speed is slow, or the consumable is wearing extremely fast, it is likely that the cutting arc has not engaged. While the pilot arc is engaged, the amperage is always going to drop to 20-27 amps. **If you notice the output amperage at this level while firing the torch or briefly before cutting, do not be alarmed. This is normal.** The reduction in amperage prevents the consumables from being damaged. When continuity is sensed, the cutting amperage will increase as the arc transfers from torch to the metal. If amperage does not increase while cutting, and amperage is set over 27 amps, it is likely that the pilot arc is not transferring to the metal. Check for proper connection of the work clamp. Connect it directly to piece of metal being cut. Do not rely on an indirect connection through a work bench table. If necessary, grind a clean place on the metal to expose fresh, un-oxidized area of metal to make the best possible connection.

ERROR CODES

E01	Overtemperature/ Duty Cycle Exceeded
E02	Over/Under Voltage/Current/Unit Fault
E03	Air Pressure Too High or Low
E04	No Torch or Loose Torch Cap
E05	Torch Switch Stuck
E06	Air Blockage or Disconnected

Component Identification and Explanation of Function

TROUBLE:	CAUSE/SOLUTION
Machine will not turn on. No fan, no display.	Check cords and wiring in the receptacle. Check circuit breaker. Check plug condition.
Air flows but arc does not start within 2-3 seconds.	Check consumables for wear and tightness. Check fuse. Check Air Pressure. Sticky or slow spring/piston on torch blow back mechanism. Release trigger and try again.
Air flows but pilot arc does not start or spark but arc starts when	Fuse blown. Replace with 30 A automotive type, slow blow. PCB issue.
Will not start arc.	Air Pressure too low. Torch electrode/blow back mechanism stuck in rear position. Missing Swirl Ring (usually happens after consumable change).
Pilot arc will not light. Arc will start when torch is drug on the met-	Fuse blown. Change fuse (30A slow blow)
Pilot arc will not transfer and amps read approximately 25-27 amps while switch is held. (Arc barely cuts or only "scratches" the surface of the metal or cut is extremely slow on thin materials.)	Check work clamp connection. Make sure rust is removed from work clamp contact area. Faulty Clamp. Arc continuity is not being sensed. If these steps do not correct the issue, contact AHP.
Arc Sputters.	Inadequate air flow or air pressure. Improperly sized nozzle. Change to nozzle/Tip with smaller diameter orifice as amps are lowered. Readjust air pressure. Loose consumables. Check tightness. Worn Consumables
Consumables are dirty, smutty looking upon inspection. Premature wear on consumables. Shortened consumable life. Tips are melted looking.	Moisture, oil contamination of consumable. Wrong consumables. Poor quality aftermarket consumables. Drag cutting with wrong consumables. Wrong cutting technique.
Premature wear on consumables. Short consumable life. Uneven wear of consumables, melting of cup.	Moisture, oil contamination of consumable. Excessive pilot arc time. Improper cutting technique. Wrong piercing technique.
Arc will not start with pilot arc or by drag/scratch starting nozzle directly on metal. Machine runs.	Torch cup is loose, safety contact pins dirty or not making contact with cup face. Torch switch wire is loose. Problem with Central connector. Torch is not properly connected. IGBT or PCB bad, contact AHP.
Over current/Duty cycle Error Code. Machine runs, but no output.	Duty cycle exceeded or Over current. Allow machine to cool. Reset main power switch after full cool down period. Make sure fan is not blocked. Check wiring and remove excess/undersized extension cords. Operated on "dirty power" generator and unit has failed.
Unstable arc at lower amps.	Nozzle orifice size is too large. Use nozzle with smaller orifice.
Arc tries to start but irregular, dancing arc and/or arc melts through side of nozzle.	Missing swirl ring, or worn electrode or both. Check and replace. Make sure swirl ring is not cracked.
Arc will try to start if touched to the metal, but no air flow while switch is pressed.	Stuck or dirty solenoid valve. Loose solenoid wire connection. Bad PCB. Contact AHP
Air flows continuously. Erratic or unpredictable shutting off of air after post flow time has expired.	Place switch into "normal" or "cut" mode. Reduce post flow time. Solenoid is stuck. Contact AHP.
Excessively Beveled Cut.	Worn consumables, too high of stand-off height.
Cup and/or nozzle is melting or cracking.	Improper cutting technique/excessive piercing.
Power input circuit breaker trips repeatedly.	Improperly sized circuit. Internal issue. Contact AHP.
Arc "Blows Out" when ready to cut.	Too high of air pressure.

ERROR CODES

E01	Overtemperature/ Duty Cycle Exceeded
E02	Over/Under Voltage/Current/Unit Fault
E03	Air Pressure Too High or Low
E04	No Torch or Loose Torch Cap
E05	Torch Switch Stuck
E06	Air Blockage or Disconnected

