Plasma Level 2 CNC:

Owner's Manual-

Safety, Maintenance, Receiving, Unpacking, Locating New Machine, Parts, Operation Procedures, Programming.

Features:

- Precision square Profile linear bearings on X,Y, and Z-Axis.
- Covered Y-Axis Bearing Rails.
- Helical rack and pinion drive system for X and Y axis (Smooth and precise motion for amazing cut quality).
- Mechanical Torch Height Control.
- Central Oiling System for all Axis.

Additional Features:

Table Size + Torch

4' X 4' Power-max 45

4' X 8' Power-max 65

5' X 10' Power-max 85

Laguna Tools: 744 Refuge Way
Grand Prairie, TX 75050
U.S.A. Service: +1 (800) 234-1976 or E-Mail: customerservice@lagunatools.com

Table of Contents-

1.) Safety Rules & Protocols-

As with all machinery, there are certain hazards involved with the operation and use. Using it with caution will considerably lessen the possibility of personal injury. However, if normal safety precautions are overlooked or ignored, personal injury to the operator may result. If you have any questions relative to the installation and operation, do not use the equipment until you have contacted your supplying distributor. Read carefully before operating the machine.

1.) Keep the working area clean and be sure adequate lighting is available.

2.) Do not wear loose clothing, gloves, bracelets, necklaces, or ornaments. Wear face, eye, respiratory and body protection devices as indicated for the operation or environment.

3.) Be sure that the power is disconnected from the machine before tools are serviced or an attachment is to be fitted or removed.

4.) Never leave the machine with the power on.

5.) Do not use dull, gummy or cracked cutting tools. 6. Be sure that the keys and adjusting wrenches have been removed and all the nuts and bolts are secured.

Safety Instructions for Use-

INTRODUCTION-

Read this chapter on safety and the sections of vendor components manuals on safety before beginning to operate the Laguna Tools Plasma Level 2 Cutting Table.

Do not become complacent about safety or completely dependent on safety devices.

SUPERVISORS: It is very important that a safe and appropriate working environment is provided for this equipment and in compliance with applicable federal and local industry standards.

It is imperative that programmers, machine operators and maintenance personnel be trained adequately in the use and care of the equipment. These employees should receive the proper instruction to have a complete understanding of the operation of this machine before beginning to program, operate or service it.

Careful programming and debugging of new programs are essential for successful operation of this machine. Use program Stop Codes to stop machine motion for operator removal of parts or scrap.

Never allow operators to place any part of their body into the machine while the machine is active. Ensure that all personnel understand the function and use of **“EMERGENCY STOP” and “CYCLE STOP Button”**.

MAINTENANCE PERSONNEL-

Only qualified personnel should make repairs on this equipment. Use caution and follow procedures when working on the machine. Be sure to observe the following guidelines:

1.) Before performing maintenance or repair, turn the power OFF and follow lock out/tag out (zero energy shutdown) procedures. Also, follow any lock out/tag out procedures applicable to your specific plant requirements.

2.) Wear safety glasses and other personal protective equipment as required by applicable federal, local industry, and plant safety program standards.

3.) Wear proper clothing. Do not wear watches, rings, jewelry, or loose-fitting clothes.

4.) Read and review the manual carefully.

5.) Be familiar with the operation of the machine.

6.) Practice preventative maintenance. Inspect the equipment regularly and repair or replace worn components and tooling. Read the vendor components manuals for any additional preventative maintenance.

7.) Always replace safety guards and other safety devices removed for service and make sure that they are fully functional before operating the equipment.

MAINTENANCE PERSONNEL (Cont'd.)-

8.) Never remove, jumper out or bypass a safety device to permit machine production.

9.) Never place yourself in a hazardous situation to observe a problem and ask someone else to operate the machine. This could be a very dangerous and life-threatening situation.

OPERATOR-

This equipment has been designed with operator safety in mind (when used under normal operating conditions). The user must always be alert to the possibility of dangerous situations. Always exercise care and caution. Report any minor problems immediately, so that they can be corrected before becoming major difficulties. Only qualified personnel should make repairs on the machine.

1.) Be familiar with the machine. Read and review the manuals carefully.

2.) **Be Alert!** about the significance of the various warning indicators and be conscious of the functions of pushbuttons and other controls. Use the controls properly. Review and understand the operation of the EMERGENCY STOP function and the CYCLE STOP function.

3.) Never operate the equipment unless it is in good working order.

4.) Wear safety glasses and other personal protective equipment as required by applicable federal, local industry and plant safety program standards.

OPERATOR (Cont'd.)-

5.) Wear proper clothing. Do not wear watches, rings, jewelry, or loose-fitting clothes.

6.) Avoid all moving parts of the machine or workpiece when setting up or operating the equipment. Never reach into the machine while it is active. Use the **"EMERGENCY STOP Button"** or the **"CYCLE STOP Button"** function to stop machine motion.

Never use the machine **DWELL Time Code** for parts removal or other operator intervention activities that puts the operator in a hazardous position.

7.) Recognize and avoid unsafe operating conditions.

8.) Maintain a clean work area. Avoid accidents by keeping work areas clean and neat.

9.) Never leave the machine in an unsafe condition.

10.) Never leave a machine running unattended.

11.) Never remove or bypass safety devices.

12.) Report any unsafe conditions, personal injury, or machine problems immediately to your appropriate supervisor(s) and safety manager(s). In case of personal injury notify Service Department giving a brief description and date reported injury occurred. Never operate the machine with someone within a hazardous area.

RISK OF ELECTRIC SHOCK

DANGER

Always verify that ALL electrical supplies are isolated before undertaking any service or maintenance work. The machine may have more than one electrical supply.

Plasma cutting equipment uses high open circuit voltages to initiate the plasma arc. Normal load voltages are higher than experienced with other types of welding equipment. Extreme CAUTION must be exercised when operating or servicing this equipment.

WARNING

Plasma arc can cause injury and burns.

Verify that no person is in the proximity of the plasma torch at any time that the plasma system is switched on. Serious burn and electrical shock hazards exist, even when the plasma cutting system is not active.

PERSONAL PROTECTION-

- Keep the operator's body and clothing dry.
- Do not stand, sit, or lie in/on any wet surfaces when using this equipment.
- Never work in a damp or wet area without proper insulation against electric shock.
- Disconnect main power before servicing the torch, power supply or service connections to the plasma arc system, or any part of the machine bed.
- Wear adequate personal equipment (overalls, gloves, safety boots etc.) when operating the machine.
- Remove or secure articles of clothing, such as ties and loose sleeves, which may catch or be drawn into moving machinery.

Eye Protection-

WARNING

The plasma arc cutting process produces rays that can burn eyes and skin. Always wear eye protection with appropriate lens shades.

LENS SHADE		
Arc Current	**AWS (USA)**	**ISO 4850**
Up to 100A	No. 8	No. 11
100 – 200A	No. 10	No. 11 – 12
200 – 400A	No. 12	No. 13
Above 400A	No. 14	No. 14

Medical treatment facilities and a qualified first aid person should be available for immediate treatment of flash burns to the eyes and skin.

It is recommended that the cutting area be prepared in such a way as to minimize the reflection and transmission of ultra-violet radiation. Walls and other surface areas should be painted in dark colors to reduce reflection. Protective screens or curtains may be installed to avoid unnecessary ultra-violet transmission.

INPUT CONNECTIONS-

1. A wall mounted line isolating switch, fused as required by local electrical codes, must be fitted as close as possible to the plasma arc power supply.

2. Three-phase input conductors must be sized to carry the rated current of the plasma arc power supply.

3. Primary power cable must be provided with a minimum 600v rating.

WARNING

Frequently inspect the cable for damage or cracking of the cover.
Bare wiring can kill. Replace damaged cable immediately.

GROUNDING-

Input Power-

1.) Connect the ground lead of the four-conductor / three phase input cable to the electrical system ground in the disconnect box and the ground stud provided in the plasma arc supply.

2.) Be sure all ground lugs are of adequate size to carry the rated current load.

3.) Make all connections tight to avoid resistance heating.

GROUNDING (Cont'd.)

Output Power-

1.) Connect all positive output ground leads to the material grid of the worktable.

2.) Connect the material grid of the worktable to a good earth ground.

BURN PREVENTION-

High intensity ultraviolet and infrared radiation is produced by the plasma arc and is of similar intensity to typical high current welding arcs. This radiation is damaging to the eyes and skin. As the operator comes closer to the torch, the level of exposure increases rapidly.

WARNING

The operator and any other persons working in the vicinity of the arc must wear proper protective clothing and equipment.

TOXIC FUMES-

Proper precautions must be exercised to prevent the exposure of others in the vicinity to toxic fumes that may be generated while plasma cutting.

Certain chlorinated solvents such a perchloroethylene and trichlorethylene will decompose under ultraviolet radiation to form phosgene and other gasses. Care must be taken to avoid the use of these solvents on materials being cut with plasma arc cutting equipment. Containers of these solvents and other degreasing agents should be removed from the immediate area around the plasma arc.

Metals coated with or containing significant amounts of lead, cadmium, zinc, mercury, or beryllium can produce harmful concentrations of toxic fumes when the plasma arc cuts. Adequate local exhaust ventilation must be used, or the operator must be supplied with special equipment to guarantee a supply of fresh air such as a respirator or air supplied helmet.

Metals coated with materials that emit toxic fumes must not be cut unless:

1.) The coating is removed prior to cutting.

2.) The area is adequately ventilated.

3.) The operator is supplied with fresh air breathing equipment.

AIR CONTAMINATION-

The plasma cutting process generates large quantities of hot metal dust and fumes that would be hazardous if uncontrolled. A blower pulls a vacuum through the fume extraction assembly in the bed of the machine. The blower pulls the dust-laden air through a customer supplied filter before exhausting the air to the environment.

The gases listed below either are produced normally during plasma arc cutting or can form under certain conditions.

Ozone-

Ozone is produced by the reaction of the plasma arc's ultraviolet radiation with oxygen in the air. Uncontrolled, excessive levels of ozone can constitute a hazard. When there is proper venting to the outside and the machine's internal ventilation system is functioning properly, there is adequate control of ozone during torch cutting.

Nitrogen Dioxide-

Nitrogen dioxide gas is produced when nitrogen and oxygen in the air pass through the electric arc. A hazard may exist if uncontrolled, excessive levels of nitrogen dioxide are formed. With proper venting to the outside, the machine's internal ventilation system is adequate to control nitrogen dioxide during torch cutting, if the system is functioning normally.

AIR CONTAMINATION (Cont'd.)-

Acetyl Chloride-

Acetyl chloride gases form in the air surrounding the plasma arc when the airborne vapors of chlorinated solvents or degreasers decompose upon being exposed to the ultraviolet radiation of the arc. A hazard may exist if uncontrolled, excessive levels of acetyl chlorides are formed.

A pungent "sweetish" aroma like chlorine bleach is the first sign that these gases are being produced. Shut down the plasma arc cutting system immediately if you detect the acetyl chloride odor. Do not resume cutting until you locate and control the source of the vapors. Various cleaning solvents and vapor degreasers contain chemicals that decompose rapidly when exposed to ultraviolet radiation.

If the solvents, cleaning solutions, or vapor degreasers used in the shop contain any of the following chemicals, **Do Not use them near the "Plasma Arc Cutting System**:

1.) Trichloroethylene

2.) Trichloroethane

3.) Perchloroethylene

4.) Per-chloroethane

5.) Trifluoro-Trichloroethane (Fluorocarbon-113)

AIR CONTAMINATION (Cont'd.)-

These chemicals also decompose into small amounts of the toxic gas's phosgene and chlorine. You will notice the acetyl chloride odor long before phosgene or chlorine levels become harmful. The vapors can decompose up to several feet away from the arc, do not rely on the machine's internal ventilation system to control solvent vapors and their products.

Do not use or store chlorinated solvents, cleaning solutions, and vapor degreasers close to the machine, where the vapors can enter the torch-cutting area.

NOTE: It may prove advisable to provide separate ventilation for the solvent/degreaser storage area.

Metal Fumes-

Metal Fumes are produced when the plasma arc vaporizes the metal. A hazard may exist when uncontrolled, excessive levels of metal fumes are produced some vaporized metals form toxic gases. These metals may be in their pure metallic state, in an alloy, or in a coating such as paint or plating. Metals that are known to produce toxic fumes include beryllium, cadmium, lead, manganese, mercury, and zinc. Beryllium products require particular care because their fumes are highly toxic. If there is proper venting to the outside and the machine's internal ventilation system is functioning normally, there should be adequate control of metal fumes during torch cutting.

AIR CONTAMINATION (Cont'd.)-

Metal Dust-

Metal Dust is formed as metal vaporizes during torch cutting. A hazard may exist when uncontrolled, excessive levels of metal dust are produced. If there is proper venting to the outside and the machine's internal ventilation system is functioning normally, there should be adequate control of metal dust during torch cutting. For proper ventilation, at least 90% of the worktable should be covered by the workpiece (or other sheet metal covers).

See dust collector vendor installation and operation manual for additional precautions.

FIRE PREVENTION-

WARNING

Since plasma arc cutting produces hot metal, sparks, and slag, precautions must be taken to prevent fire or explosions.

All combustible materials must be removed from the immediate cutting area to at least 35 feet away. Appropriate fire extinguishing equipment must be available in the immediate cutting area. After cutting, be sure to allow the metal to cool sufficiently before handling or before allowing contact with combustible materials.

FIRE PREVENTION-

Never plasma cut empty containers that have held toxic or potentially explosive materials. Those containers must be thoroughly cleaned according to national standards prior to cutting or welding. Never plasma cut in an atmosphere that contains heavy concentrations of dust, flammable gas, or combustible liquids (such as petrol).

Cylinders-

Compressed gas cylinders must be handled and used in accordance with appropriate national safety standards.

- Never use a cylinder that is physically damaged or leaks.
- Never move or transport a cylinder without the protective valve cover in place.
- Never use a gas cylinder or its contents for any other purpose than that for which it is intended. • Never lubricate cylinder valves with oil or grease.
- Never allow electrical contact such as welding arcs with cylinders.
- Never expose cylinders to excessive heat, sparks, slag, or open flames, which may cause rupture.
- Never use hammers, wrenches, or other tools to open stuck valves. Send these cylinders back to the supplier.

Pressure Regulators-

All regulators used to operate plasma equipment must be maintained in proper working condition. Faulty equipment can cause equipment damage or operator injury. Faulty equipment must be serviced at the manufacturers designated facility by trained repair technicians.

- Never use a regulator for any other gas than that for which it is intended.
- Never use a regulator that leaks, excessively creeps, or is physically damaged in any way.
- Never attempt to lubricate a regulator with oil or grease.

HOSES-

Gas hoses used for Plasma Arc Cutting Systems adhere to the following Color Coding:

Red ..... Acetylene.

Orange ..... LPG.

Blue..... Oxygen.

Black ..... Inert Gases and Air.

Pressure Regulators (Cont'd.)-

Replace any hose that is damaged by physical abuse or from sparks, heat, or open flame. Lay hoses out straight to prevent kinks. Coil excess hose and place out of the way to prevent loose connections, or other damage. Keep hose lengths to a minimum to prevent damage, reduce pressure drop and prevent possible volume flow restriction. Please refer to national standards for more information on hoses.

SAFETY DEVICES-

Plasma Arc Units are provided with certain safety interlocks designed to prevent equipment damage and/or personal injury. Never short out or in any way attempt to defeat the safety interlock devices.

WARNING

Never attempt to operate the plasma unit with any of the power supply covers not in place. This is extremely hazardous to the operator and any other person in the area. It also prevents the equipment from properly cooling critical components and could result in equipment damage.

All exposed electrical connections must be covered with the proper insulation material. Safety devices must be regularly checked for proper operation and replaced immediately if found to be inoperative.

HOT SURFACES-

WARNING

Components may remain hot for a considerable period of time.
Always wear gloves to remove components and scrap from the bed.

WARNING

During prolonged periods of cutting, parts of the machine bed may become hot to the touch.

WARNING

Moving machinery can be dangerous.

Assure that the bed is free of obstructions and no person or articles of clothing are in the proximity of moving parts when the machine is in operation. This safety precaution also applies when the machine is manually moved and when the plasma system is off.

IMPORTANT-

Read this manual thoroughly before operating the machine. Read the Torch Height Control Manual before operating the machine. Read the CNC Control Operator Manual before operating the machine.

HOT SURFACES(Cont'd.)-

Sparks-

Sparks form as the plasma arc torch vaporizes metal. These sparks are tiny droplets of extremely hot molten metal and are a possible fire hazard. The volume of sparks formed and the area over which they are scattered depend on several variables. These variables include the type and thickness of the material being cut, the cutting current, and the feed rate. Where practical, keep all combustible material at least 35 ft. (10.7 m) away from the plasma arc work area. Where this is not practical, protect all combustible materials with close fitting, flame proof covers or shields. Protect wooden or other combustible floors by covering them with sand or installing fire-resistant shields. Shield any wall openings, floor openings, cracks, ducts, or conveyors within 35 ft. (10.7 m) of the torch to prevent sparks from passing into adjacent areas.

WARNING

Sparks from the cutting process may ignite flammable items in the machine bed which may then be drawn into the extraction unit, possibly causing a fire.

HOT SURFACES(Cont'd.)-

NOTE: Be sure to use an approved facemask and approved eye protection when cleaning or servicing the dust collector.

NOTE: Plasma arc cutting systems can produce large volumes of fumes. If you exhaust fumes to the outside atmosphere, additional air pollution control devices may be to conform to local, state, and federal government ordinances. Air pollution control devices are the responsibility of each individual user.

Internal Ventilation System-

Due to the noxious and toxic nature of many torch cutting by-products, Phoenix recommends venting the machine's internal ventilation system (referred to as the "dust collector") to the outside atmosphere. This recommendation is especially important when the shop has one of the following:

1.) Low Ceilings and/or confined area.

2. Large amount of Welding and/or Torch Cutting near the Plasma System.

3. Poor Cross Plant Ventilation.

LIGHT AND RADIANT ENERGY-

When it is necessary to look directly at the arc for diagnostic purposes, do so briefly. Use shade #10 welding glass (for up to 200 amps) or shade #12 (for 200 amps). During operation, use a shade not less than #8.

WARNING

Do not look directly at the arc without proper eye protection.

NOTE: During plasma arc cutting, clothing worn should conform to the instructions presented in the General Safety Requirements section of this manual.

Ultraviolet rays and other radiant energy reflected off the workpiece can produce sunburn. Therefore, when plasma arc cutting is being performed, anyone working within 25 feet (7.5M) of the arc should wear an approved, protective full-face mask, a long-sleeved shirt, gloves, and long pants.

Operations, such as edge cutting, that can cause the arc to be exposed to view should be avoided, because they can increase exposure to radiant energy.

LIGHT AND RADIANT ENERGY (Cont'd.)-

Shield personnel at nearby workstations from accidental exposure to radiant energy using non-reflective, fireproof enclosures, open at the top and at floor level to allow air to circulate freely.

The pilot arc in the plasma cutting systems is initiated and stabilized by a high-voltage signal. This signal can create electromagnetic interference.

As with any equipment that can create such interference (e.g., microwave ovens and TIG welders), people who have implanted heart pacemakers must exercise caution when working near the equipment. Phoenix Plasma recommends that a person with a pacemaker who works near where plasma arc cutting is being performed should wear a Holter monitor for one day of work to record the existence of electromagnetic fields. A qualified doctor should review the recorded data with the pacemaker manufacturer to determine whether the worker can safely continue working in the area on which the study is based.

NOTE: There is no history of problems caused to pacemakers by the plasma arc cutting equipment that have been reported to Phoenix Plasma.

HEAT-

Plasma arc cutting creates a Heat-Affected Zone (HAZ) around the cut edge of the workpiece. Until the hot edges cool, the HAZ will burn an unprotected hand severely.

1.) When removing produced parts or skeletons from the machine, operators should wear heat-resistant, gauntlet-type gloves.

2.) The torch, cutter bars, ducting, and dust collector become hot during torch cutting. Avoid contact with these components unless you are wearing heat-resistant gloves.

NOISE-

The noise levels generated during plasma arc cutting may be as high as 105 decibels. This depends on the distance from the machine, arc, plasma torch nozzle design, gas velocity, material type, and plate thickness. Phoenix Plasma recommends that each user check the sound levels in his own shop under normal operating conditions.

Based on those findings, provide adequate ear protection to all personnel who must work near the machine, in accordance with applicable local, state, and federal industry standards.

WARNING

Exposure to noise from the cutting process can damage hearing. Wear appropriate ear protection when operating the machine or when working in the proximity of the machine.

NOISE (Cont'd.)-

NOTE: Noise levels that can cause discomfort or damage to hearing will vary greatly from one individual to another. Phoenix Plasma recommends that ear protection be furnished to any worker who requests it, regardless of applicable industrial standards or tested noise levels.

ADDITIONAL SAFETY INFORMATION-

The general safety information presented in this chapter does not constitute a complete list of safety instructions for any configuration of the Phoenix plasma Cutting Table. Warnings and other safety information related to operations described in this manual are presented in the chapters in which those operations are explained. Specific equipment being used by the customer and its application in the customer's factory may require supplementary safety information.

NOTE: It is the responsibility of the customer's company to make sure safety information covering the equipment being used and its application is available to personnel operating and maintaining the equipment and is read by them.

2.) Receiving, Unpackaging & Locating your machine-

Note- It is probable that your machine will be delivered by a third party. Before you unpack your new machine, you will need to first inspect the packing, invoice, and shipping documents, supplied by the driver. Ensure that there is no visible damage to the packing, or the machine. You need to do this prior to the driver leaving. All damage must be noted on the delivery documents and signed by you and the delivery driver. You must then contact the seller, Laguna Tools, within 24 hours.

Required Equipment/Tools-

The following tools will be required for the installation and handling of the plasma table:

1.) Metric Allen Wrenches Set.

2.) Two Adjustable Crescent Wrenches for adjusting the Leveling Pads.

3.) Minimum of 3 ft. Bubble Level for Leveling the Machine on the Floor.

4.) Phillips Head Screwdriver.

5.) Forklift with 8 ft. forks to lift or overhead crane with 20 ft. Slings/Chains to unload and move the machine as desired to the designated area (you may also need machinery skates).

2.1.) AFTER RECEIVING-

Unpacking the Machine:

Unpacking the machine will require tin snips (to cut banding), a knife and an adjustable wrench. Follow the steps below:

1.) Using the tin snips, cut the banding that is securing the machine to the pallet (if fitted).

2.) **WARNING:** EXTREME CAUTION MUST BE USED BECAUSE THE BANDING CAN SPRING AND COULD CAUSE INJURY.

3.) Remove the box from the CNC machine (if fitted) and any other packaging material. The parts ordered with the machine will be packed on or inside the machine. (Please note, the machine is heavy, and it is recommended that professional assistance [rigging] be used for unloading and placing the machine.).

4.) Use a forklift with sufficient lifting capacity and forks that are long enough to reach the complete width of the machine before attempting to lift the machine. 5.) Remove the securing bolts that attach the machine to the pallet (if fitted).

6.) Approaching the machine from the side, lift the machine on the frame, taking care that there are no cables or pipes around the forks.

7.) Move the machine to the required position and install the leveling feet.

2.1.) AFTER RECEIVING (Cont'd.)-

8.) Then lower the machine gently to the floor.

9.) Level the machine so that all the supporting feet are taking the weight of the machine and no rocking is taking place.

2.2.) Unloading Requirements-

1.) When the Crate containing your newly purchased Smartshop® MT is delivered, it will be delivered "Curbside", in other words the Machine will be delivered in front of the Driveway of one's Garage/Shop or Workspace. (****It is the Purchasers responsibility of moving the Machine into His or Hers Garage/Shop or Workspace.****)

2.) One should obtain a Crane: Hydraulic crane / crane (10T or above, 4 groups of 10T rings, 2 10M long, 10T straps).

3.) One should obtain a Forklift: The forklift can fork items weighing 10T or more.

4.) To Open Crate-Acquire some standard tools for taking apart the Crate.

a.) Hammer. 

2.2.) Unloading Requirements-

b.) Pry Bar.

c.) Wire Cutters.

d.) Cordless Drill.

5.) Cut all straps only on the Crate.

3.) Plasma “2” Damage Notification-

1.)The Machines are thoroughly tested before leaving any or our Laguna Tools Facilities, but that does not mean the Machines would not experience any damage in transit.

2.) Before one Signs the Bill of Lading (See Example Below) when the Trucking Company drops off the Machine, visually inspect the entire crate and check for any damage.

[Click to select date] BILL OF LADING – SHORT FORM – NOT NEGOTIABLE Page 1 of 1

SHIP FROM	Bill of Lading Number:
Laguna Tools 744 Refuge Way Suite #200 Grand Prairie, TX 75050 SID No.:	BAR CODE SPACE
SHIP TO	Carrier Name:
[Name] [Street Address] [City, ST, ZIP Code] CID No.:	Trailer number: Serial number(s):
THIRD PARTY FREIGHT CHARGES BILL TO	SCAC:
[Name] [Street Address] [City, ST, ZIP Code]	Pro Number: BAR CODE SPACE
Special Instructions:	Freight Charge Terms (Freight charges are prepaid unless marked otherwise): Prepaid ☐ Collect ☐ 3rd Party ☐
	☐ Master bill of lading with attached underlying bills of lading.

CUSTOMER ORDER INFORMATION

Customer Order No.	# of Packages	Weight	Pallet/Slip (circle one)		Additional Shipper Information
			Y	N	
			Y	N	
			Y	N	
			Y	N	
Grand Total					

CARRIER INFORMATION

Handling Unit		Package					LTL Only	
Qty	Type	Qty	Type	Weight	HM (X)	Commodity Description Commodities requiring special or additional care or attention in handling or stowing must be so marked and packaged as to ensure safe transportation with ordinary care. See Section 2(e) of NMFC item 360	NMFC No.	Class

Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property as follows: “The agreed or declared value of the property is specifically stated by the shipper to be not exceeding _____ per _____.”

COD Amount: $
Fee terms: Collect ☐ Prepaid ☐ Customer check acceptable ☐

Note: Liability limitation for loss or damage in this shipment may be applicable. See 49 USC § 14706(c)(1)(A) and (B).

Received, subject to individually determined rates or contracts that have been agreed upon in writing between the carrier and shipper, if applicable, otherwise to the rates, classifications, and rules that have been established by the carrier and are available to the shipper, on request, and to all applicable state and federal regulations.

The carrier shall not make delivery of this shipment without payment of charges and all other lawful fees.
Shipper Signature

Shipper Signature/Date	Trailer Loaded:	Freight Counted:	Carrier Signature/Pickup Date
This is to certify that the ~~above-named~~ materials are properly classified, packaged, marked, and labeled, and are in proper condition for transportation according to the applicable regulations of the DOT.	☐ By shipper ☐ By driver	☐ By shipper ☐ By driver/pallets said to contain ☐ By driver/pieces	Carrier acknowledges receipt of packages and required placards. Carrier certifies emergency response information was made available and/or carrier has the DOT emergency response guidebook or equivalent documentation in the vehicle. Property described above is received in good order, except as noted.

4.) Unloading-

CAUTION: Extreme care must be taken when lifting and moving the machine. Obtain the weight of the machine.

NOTE:

It is the responsibility of the customer to verify that the forklift truck and/or crane is of adequate lifting capacity, and that any maneuver is undertaken safely. Damage caused to the machine through incorrect or careless maneuvers is not covered under the machine warranty. Laguna Tools is not responsible for personal injury to any person while this machine is transported, unloaded, or installed.

1.) It is important that the machine is lifted only at the specified lifting points.

2.) Verify that the machine is balanced and stable before and during lifting/moving.

3.) Verify that no person is in a position where they may become trapped or injured. The machine is shipped with the gantry installed and CNC control as one unit. The CNC control and the gantry will be secured off-centered on the cutting table bed.

The machine is shipped with the gantry installed and CNC control as one unit. The CNC control and the gantry will be secured off-centered on the cutting table bed.

CAUTION: Make sure the load is always lifted about the center of gravity to prevent from any tipping and accidents.

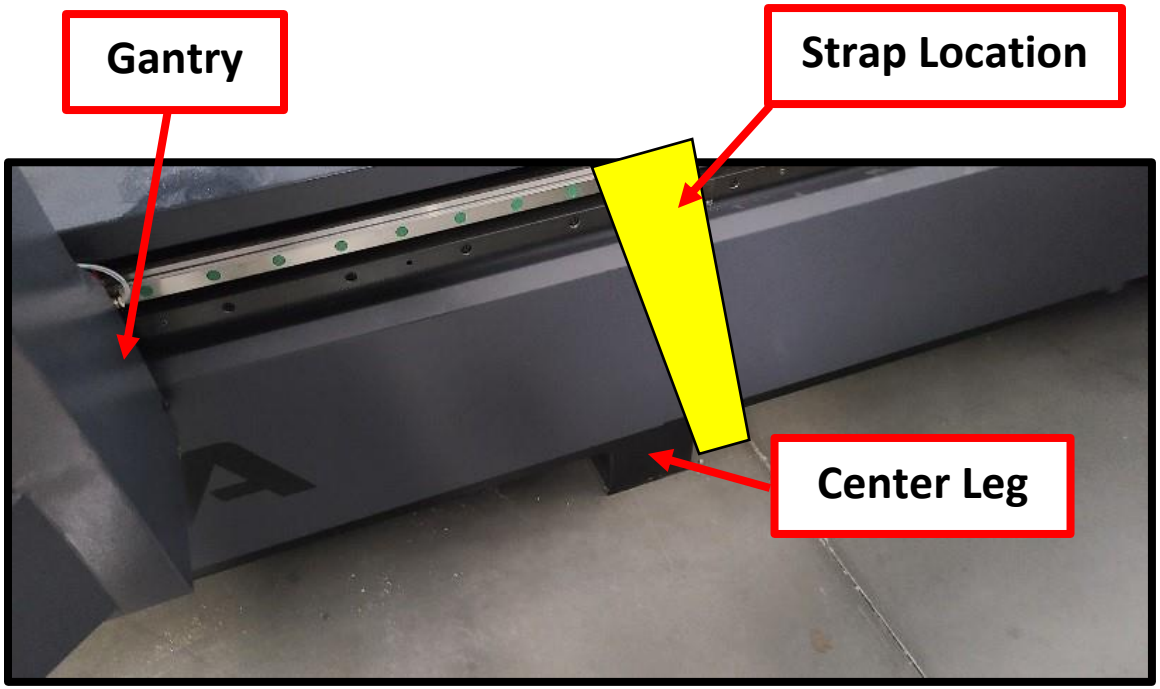
5.) Lifting with Crane (Recommended)-

1.) Remove securing straps/chains attached to the truck bed.

2.) Obtain two straps of 20 feet length that are rated for the weight of the load (dependent on the size of machine).

NOTE: Longer lifting straps may be required if the crane does not have hoist chains attached.

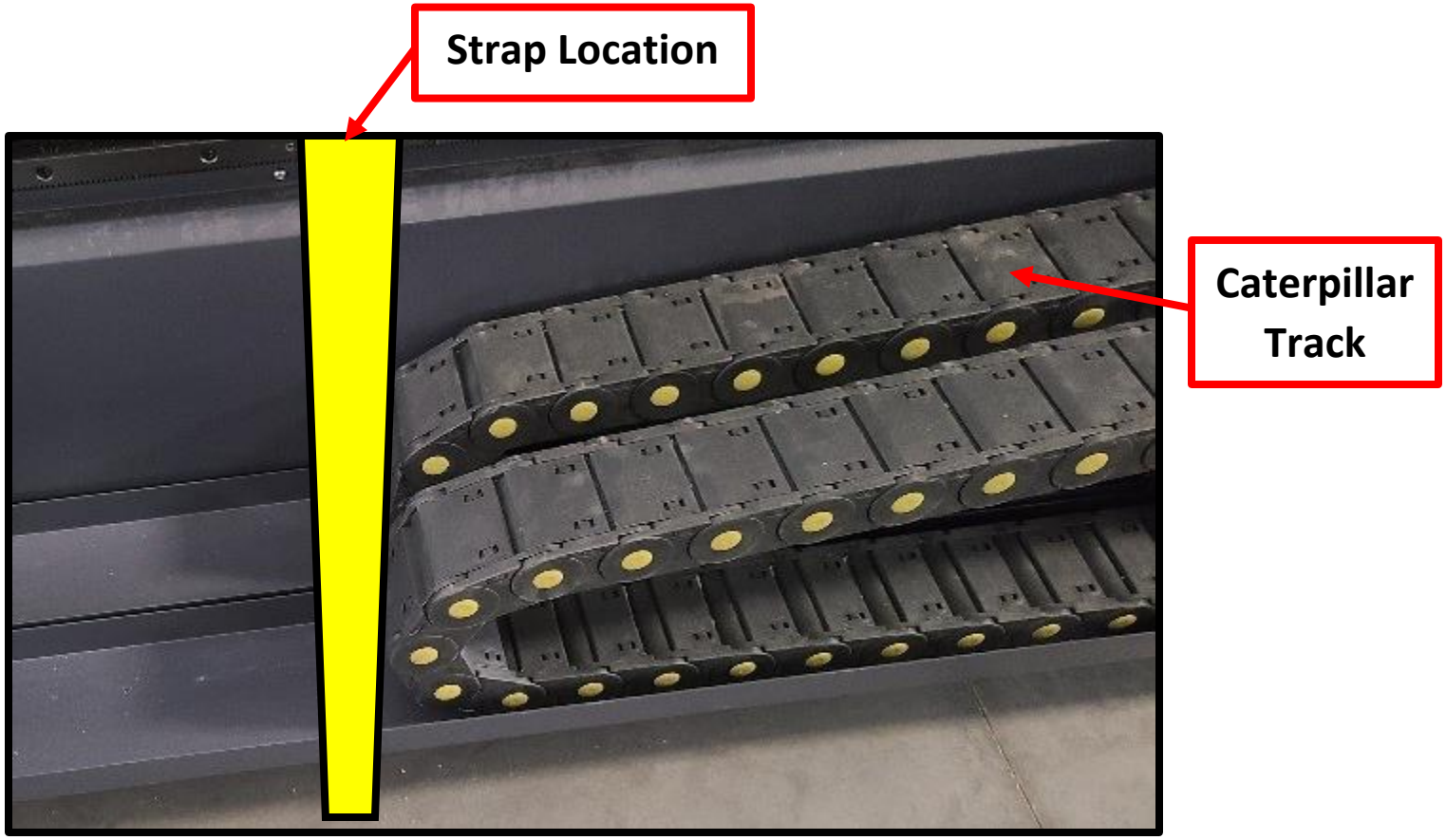
3.) Slide one of the lifting strap under the machine base close to the gantry side as shown on the picture below.



5.) Lifting with Crane (Recommended-Cont'd.)-

4.) Slide the other lifting strap under the machine base off-centered of machine length.

NOTE: Ensure both straps are between the cable carrier guideway and frame so lifting the machine will not cause damage to the cable carrier.



5.) Lifting with Crane (Recommended-Cont'd.)-

5.) Take each end of the strap and put chain through them and attach the eye hook back to the hoist chains.

6.) Before lifting, make sure straps are even on both sides of the machine and tight underneath the machine and up against the table leg.

7.) Move crane close to the center of gravity of load.

8.) Use protection (i.e., cardboard/heavy blanket) if you feel any scratches or damage could result to machine components while lifting.

9.) Begin to lift the machine above the truck bed and confirm that load is not tipping in either direction by doing a complete walkaround.

10.) Reposition straps and crane as necessary to keep load stable and balanced.

11.) Once the load is balanced and stable, lift the machine clear of the vehicle.

CAUTION: Before moving the machine into position, it is essential to plan for the path of travel to ensure that no hazards exist in the path that could result in any damage.

12.) Lower the machine to floor level and place it firmly on the ground at the designated area of operation.

NOTE: Ensure machinery skates are placed in all four corners of the machine base if they are used.

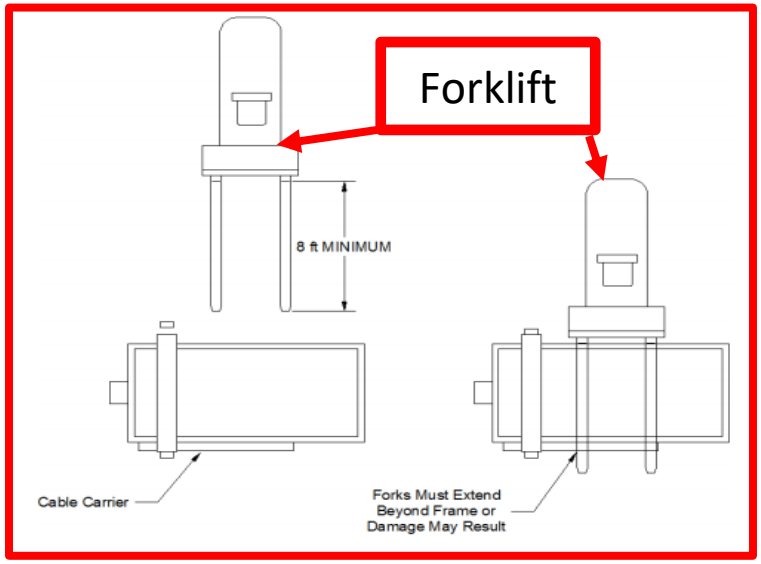
6.) Lifting with Forklift-

CAUTION: A forklift of adequate fork length (8 ft. minimum) is required to lift the machine otherwise the frame will get damaged.

1.) Remove securing straps/chains attached to the truck bed.

2.) Drive the forklift to the side of the truck at the lifting points shown in the picture below.

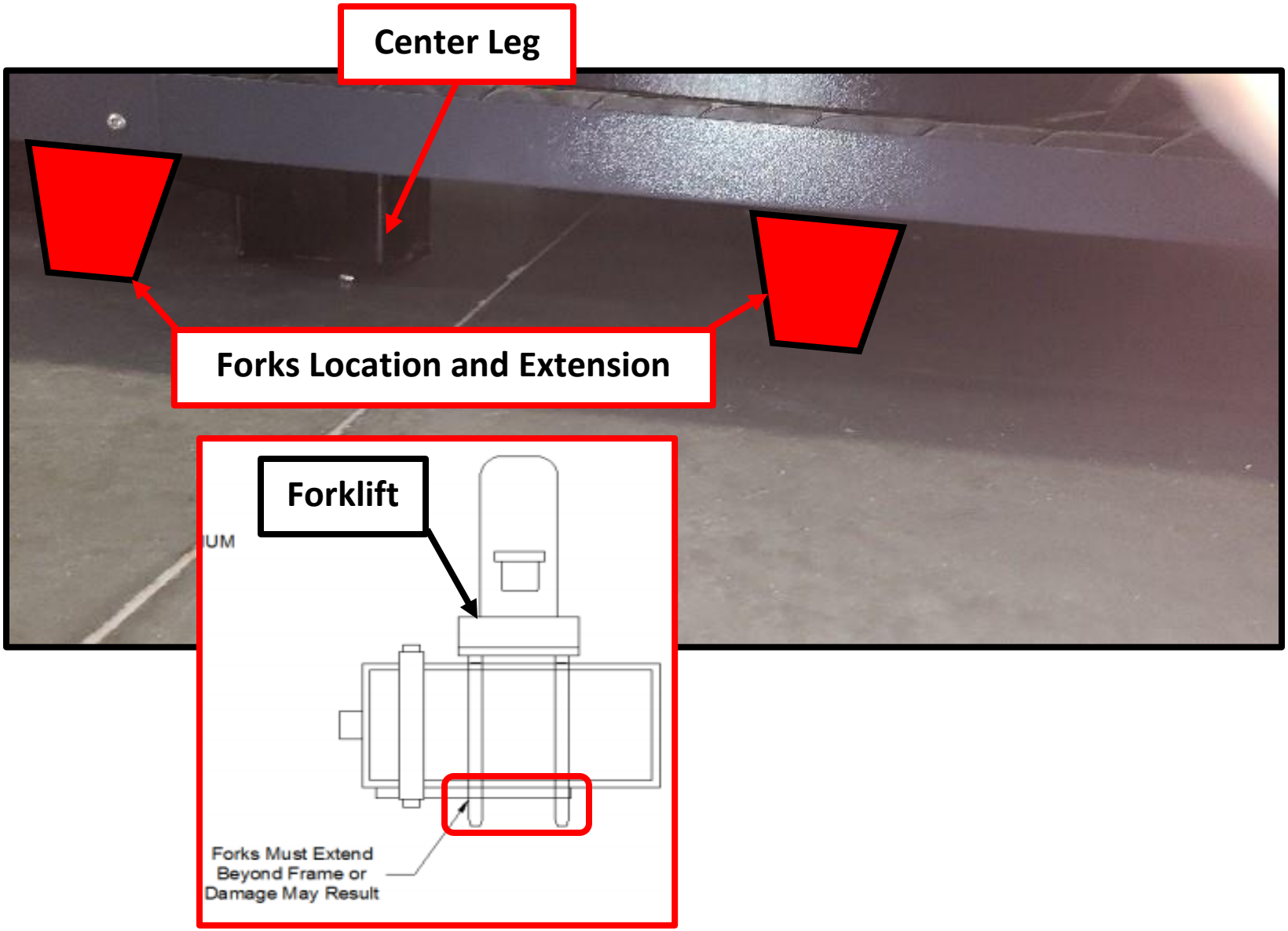
NOTE: The forklift must not lift the machine from the cable carrier side, instead lifting must be done from opposite side to prevent damage to the track and guideway.



3.) Before lifting, move the forklift close to the frame. You may want to put padding between the forklift and frame to protect the machine from any scratches or damage.

6.) Lifting with Forklift (Cont'd.)-

4.) Ensure that forks extend all the way through the machine base to the opposite side.



6.) Lifting with Forklift (Cont'd.)-

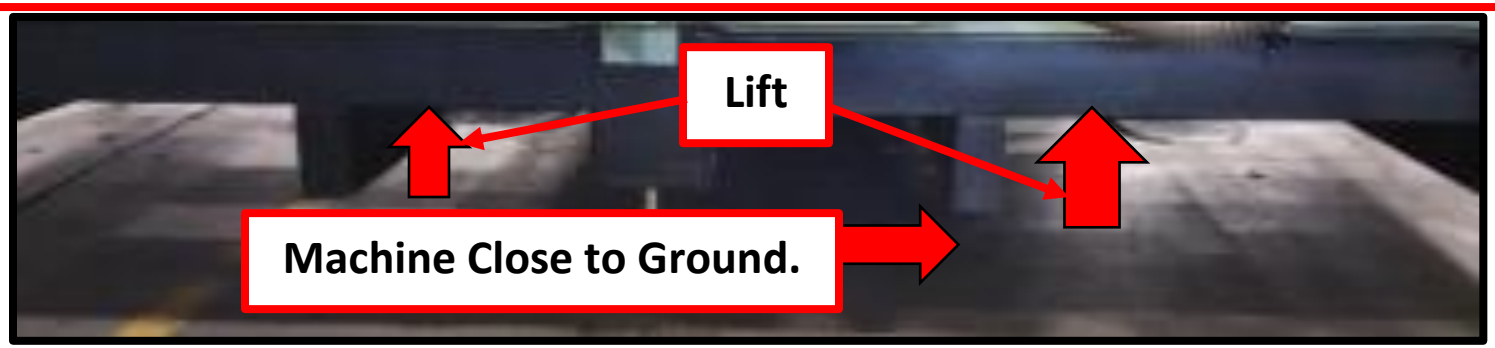
5.) Begin to lift the machine above the truck bed and confirm that load is not tipping in either direction.

6.) Reposition forks as necessary to keep load stable and balanced, ensure load is picked up as close to the center of gravity as possible.

7.) Once the load is balanced and stable, lift the machine clear of the vehicle.

8.) Travel with forks close to the ground so the machine is not suspended very high in the air. This will reduce damage to the machine if accidently dropped.

CAUTION: Before moving the machine into position, it is essential to plan for the path of travel to ensure that no hazards exist in the path that could result in any damage.



9.) Lower the machine to floor level and place it firmly on the ground at the designated area of operation.

NOTE: Ensure machinery skates are placed in all four corners of the machine base if they are used.

7.) Where to locate your machine-

Select the area where you will use your machine. There are no hard-and-fast rules for its location, but below are a few guidelines.

1.) **Large enough Work Area/Station-**There should be an area around the machine suitable for the length of job that you will be cutting.

2.) **Adequate Lighting-** The better the lighting, the more accurate and safely you will be able to work.

3.) **Solid Floor-** You should select a solid flat floor, preferably concrete or something similar.

4.) Machine should be located close to adequate **Power Source (220 Volt)**. If no power source is available, make sure to have a **Power Source (220 Volt)** installed by a licensed/qualified Electrician.

6.) Assembly and set up, Cleaning the machine-

The machine is shipped with the non-painted surfaces protected from rust by a film of grease. The grease must be removed with WD40 or similar, as it attracts dirt. The surfaces should then be coated with a 30W oil or wax, and any excess removed.

8.) Electrical connections for the machine-

The main power cable and has no plug fitted, as it will be dependent on your installation. Ensure that when installing the electrical supply to the machine that 220v three-phase is supplied. It is not possible to recommend a breaker size, as this will be dependent on the specification of the machine that you purchase.

Note: When wiring the machine to your electrical system, keep your cable as short as possible, and the cable should not be allowed to run along the floor, as this will cause a trip hazard.
Note: A qualified electrician must carry out the electrical installation.

9.) Shielding and Grounding-

This section is preliminary and offers only typical shielding and grounding techniques to reduce RF (**Electronic & Radio Frequency Noise)** noise. As with all electrical devices it is important to always follow all local electrical codes including but not limited to the National Electrical Code.

10.) Motor Controller and other Controls-

Keep the motor controller and other controls as far from the plasma power supply as possible.

11.) Plasma Power Supply-

Place the plasma power supply and/or remote arc starter at the rear of the frame. Keep the CNC computer controller as far from the power supply and/or remote arc starter as possible. Follow the power supply grounding diagram found in the system manual.

12.) Introduction to CNC Plasma Machines-

The CNC Plasma is designed to give you years of safe service. Read this owner's manual in its entirety before assembly or use. The advantage of the CNC Plasma machine is that it can, in most cases, fully machine the complete job without it being removed from the table so that you have finished parts of high accuracy that are totally repeatable. Nesting is also a valuable feature of CNC Plasma machining that saves on waste and costs.

13.) Introduction to CNC Plasma Machines-

What is Plasma?-

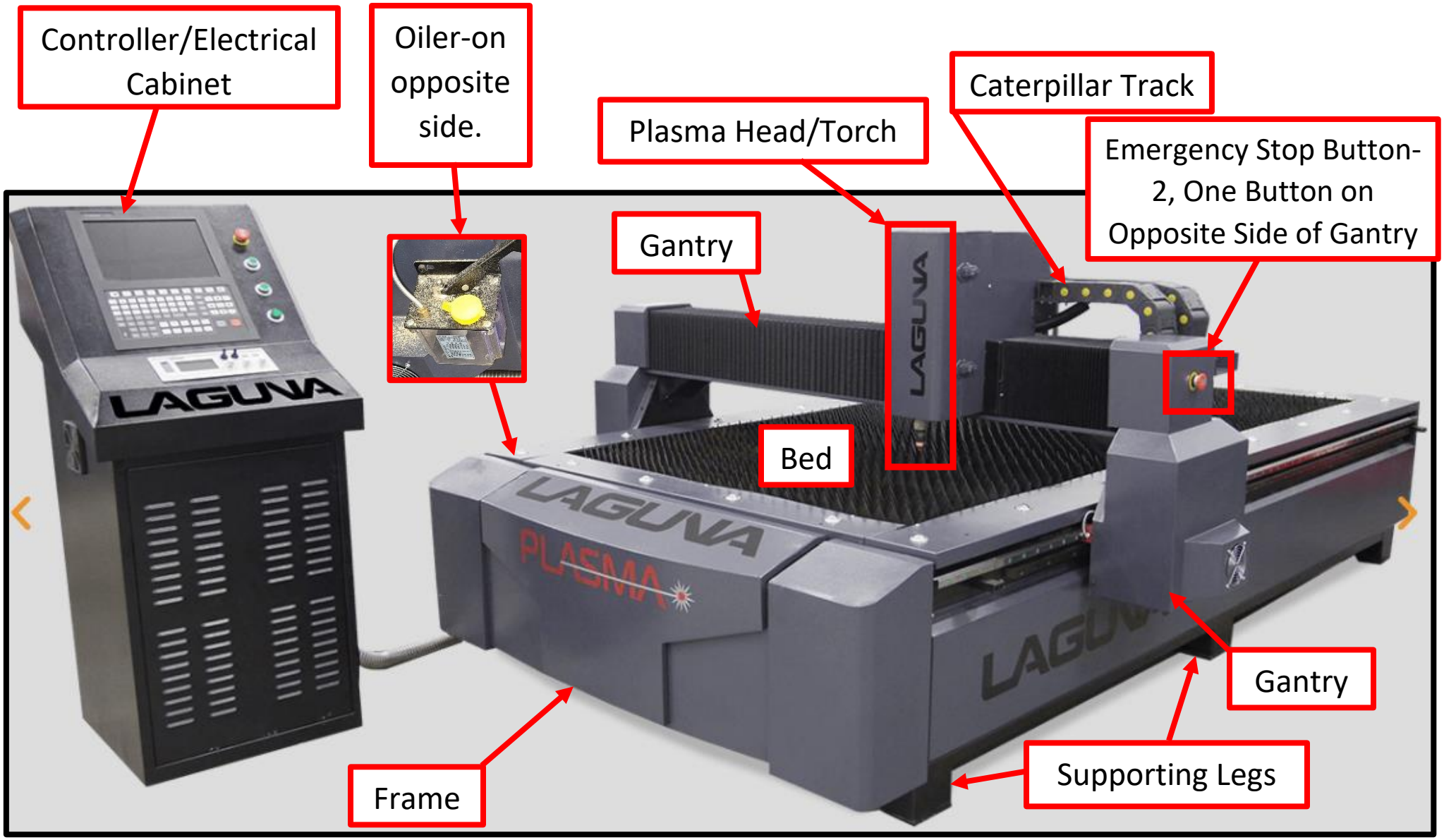
Plasma is a gas heated to an extremely high temperature and ionized so that it becomes electrically conductive. Plasma arc cutting uses the plasma as an electrode to transfer an electrical arc to the work piece. The heat of the arc melts the work piece, and the force of the plasma and shield gases blow away the molten metal to cut the work piece. Different metals react differently to plasma cutting. Carbon steel can be oxidized and is usually cut with a plasma containing oxygen to take advantage of the exothermic process. Higher levels of oxygen in the plasma result in higher heat and higher rates of oxidation. The result is a faster and cleaner cut. Stainless steel and aluminum are not subject to rapid oxidation and depend entirely on the plasma's heat for the cutting process. Because plasma produces much higher heat than the oxygen-fuel cutting process, plasma can cut stainless steel and aluminum quickly and cleanly.

14.) Introduction to CNC Plasma Machines (Cont'd.)-

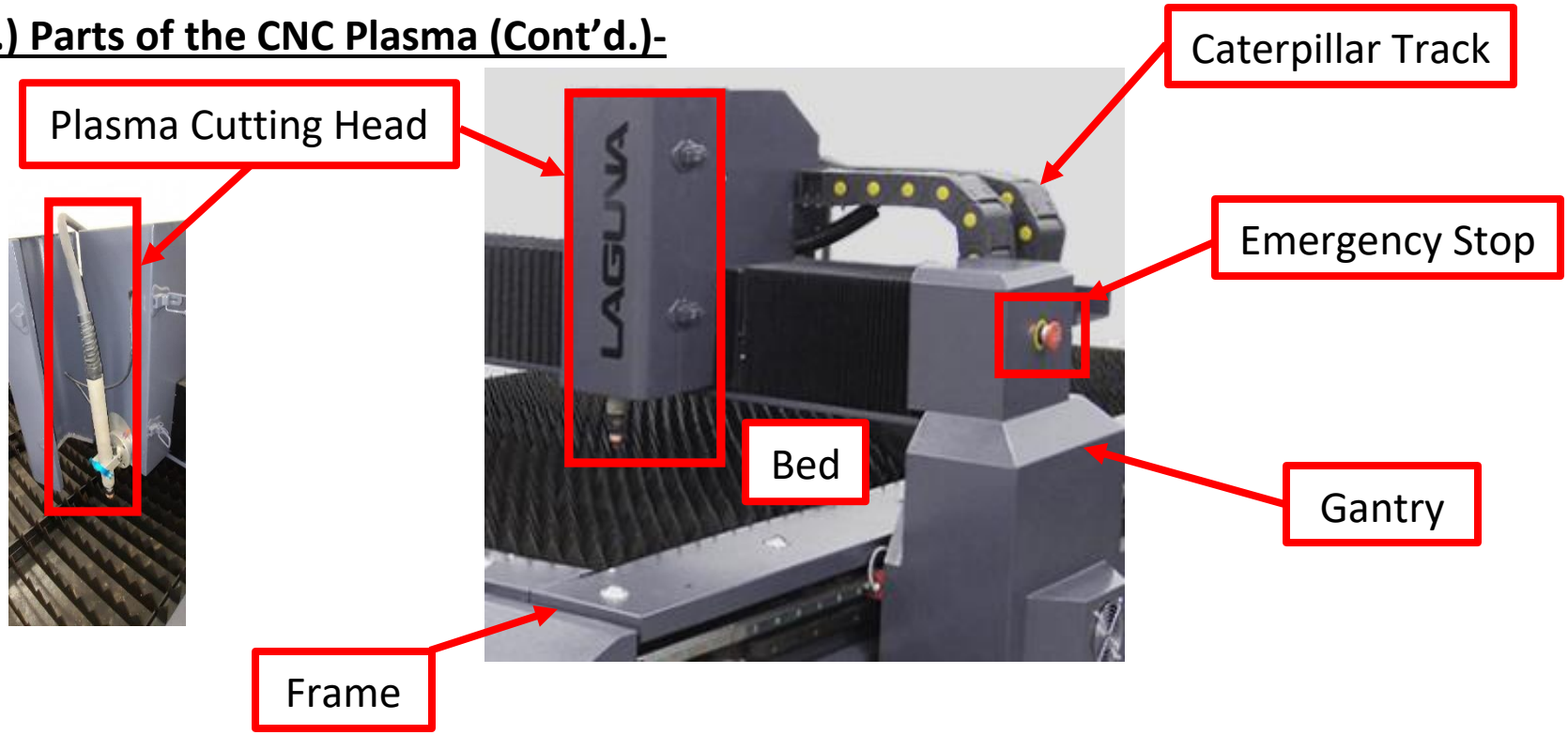
History of Plasma:

Half a century ago Thayer Professor James B w ' w H ' study of flame stability and combustion at Dartmouth college. Browning will be remembered best for inventions that fired up the N.H. Upper Valley economy. In the 1950s he created a plasma torch that prod w ' through a high-intensity electric arc, the torch cut metal like butter. Browning and Thayer colleague Merle Thorpe founded Thermal Dynamics Corp. to manufacture the device. Within three years the start-up had sales of $1 million. A decade later, Thayer Professor Robert Dean and C ' ' H p I Additional instructions for the use of the CNC Plasma Like all machines, there is danger associated with the machine. Injury is frequently caused by lack of knowledge or familiarity. Use this machine with respect. If normal safety precautions are overlooked or ignored, serious personal injury may occur. As the CNC is under the control of the onboard machine controller, it is important that you are clear when operating the machine.

15.) Parts of the CNC Plasma-



15.) Parts of the CNC Plasma (Cont'd.)-



1.) **Bed-**The bed of the machine consists of a heavy steel frame with a steel supporting plates. The supporting plates are designed to give point contact with the job and are consumable as they will be cut by the plasma cutting head.

2.) **Gantry-**The gantry straddles the bed and carries the Plasma cutting head motion system. It is moved along the length of the bed by a precision rack-and-pinion system that is controlled by the machine controller.

15.) Parts of the CNC Plasma (Cont'd.)-

3.) **Plasma Cutting Head-**The plasma cutting head is moved along the gantry by a precision rack-and-pinion system that is controlled by the machine controller. The plasma cutting head is moved vertically by a precision ball screw system that is controlled by the machine controller.

4.) **Frame-**The frame is a heavy welded construction that supports all the other parts of the machine.

5.) **Controller/Electrical Cabinet-**The Controller/Electrical cabinet is located on the side of the machine. The enclosure houses all the electrical components for controlling and powering the machine.

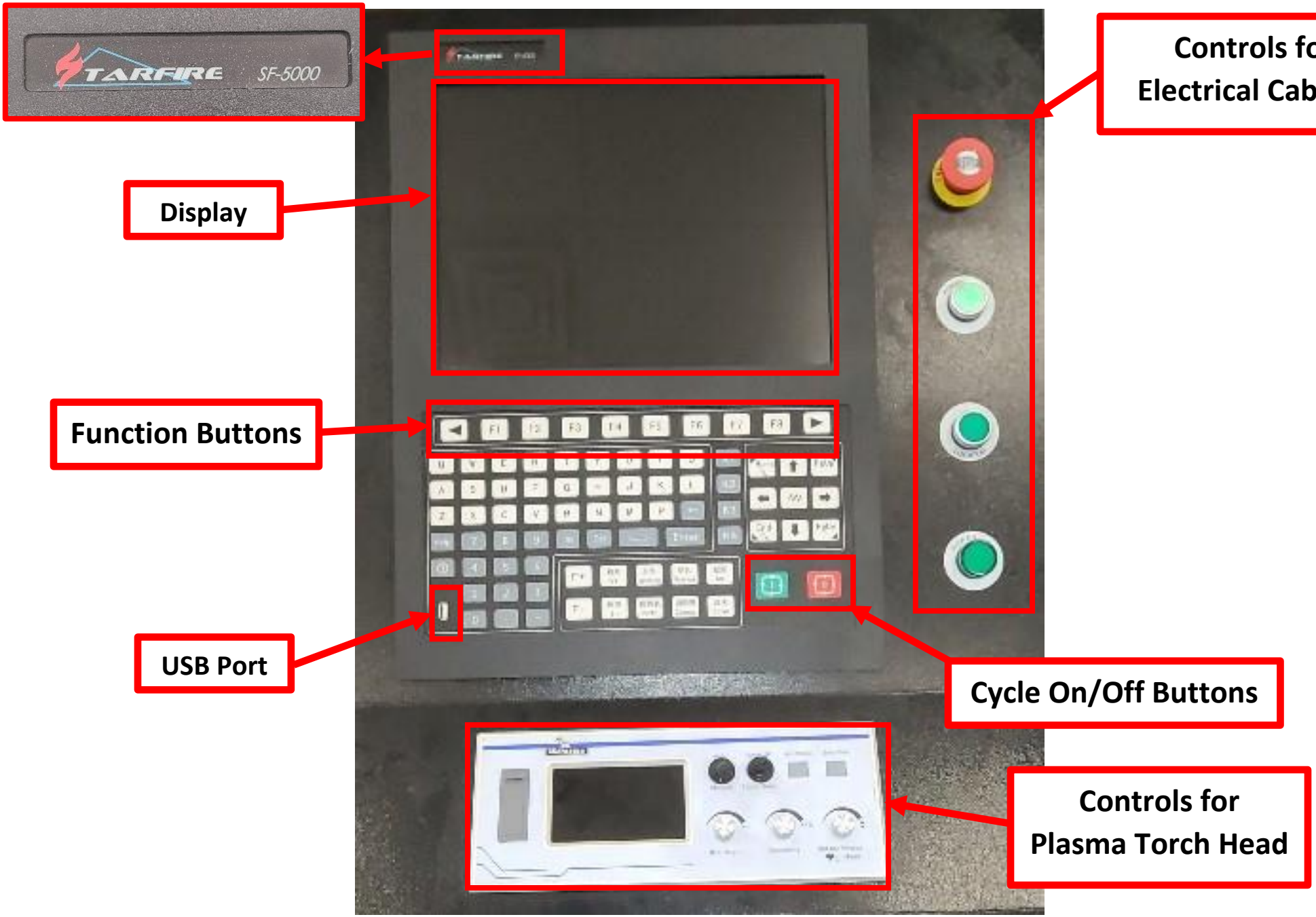
6.) **Caterpillar Track-**The caterpillar track runs along the side of the machine and across the gantry in a trough and carries all the electrical cables and gas pipes.

7.) **Emergency Stop-**To reset the emergency stop, twist clockwise and it will pop out.

8.) **Supporting Feet-**There are supporting feet that are used to level the machine.

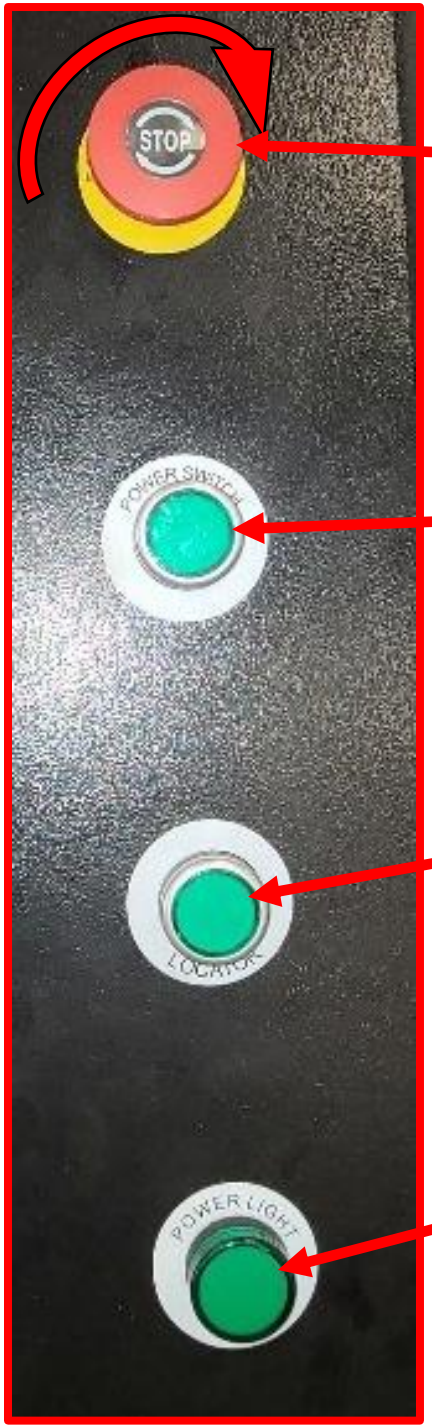
9.) **Oiler-**The oiler connects to all the relevant slides on the machine and when pumped by hand will lubricate all the relevant slides.

16.) Control Panel- from Controller/Electrical Cabinet:



Control Panel

16.) Control Panel- from Controller/Electrical Cabinet (Cont'd.):



"Emergency Stop Button"-Shuts off Power to the Electrical Control Cabinet. To Disengage, E-Stop Button Pull & turn button to the Right, to pop out.

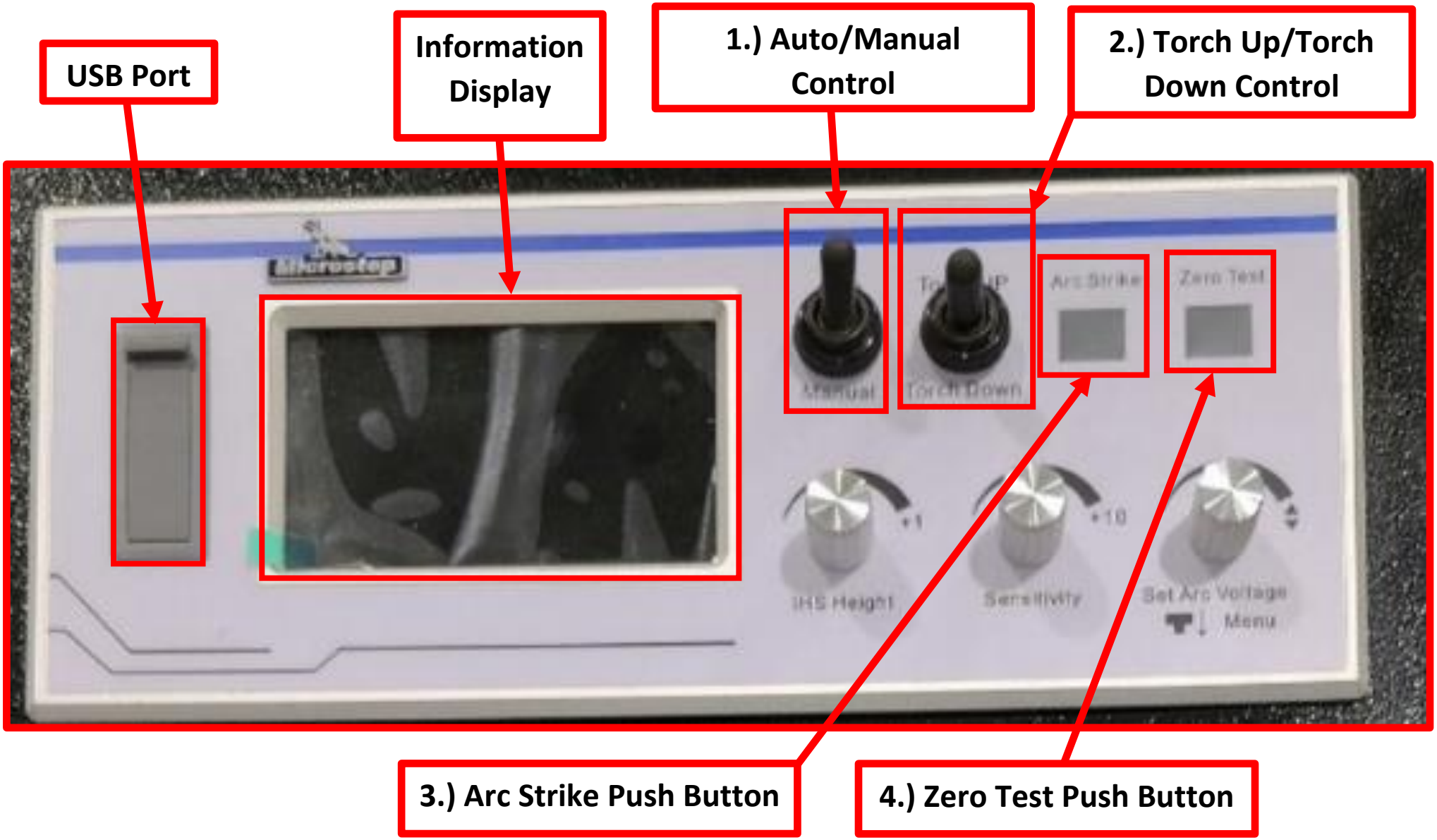
"Power" Switch-This is the "On/Off" Switch that turns on & off the Power to the Electrical Control Cabinet.

"Locator" Switch-This is the "On/Off" Switch that turns on the Red Dot (Laser) Locator alongside the Plasma Cutting System.

"Power Light" Indicator-This indicator light when lite, tells operator if the Electrical Control Cabinet has power.

Controls for Electrical Cabinet

16.) Control Panel- from Controller/Electrical Cabinet (Cont'd.):



Controls for Plasma Torch Head

16.) Control Panel- from Controller/Electrical Cabinet (Cont'd.):

5.) IHS Height Adjustment Control

6.) Sensitivity Control

7.) Set Arc Voltage Menu Control

Controls for Plasma Torch Head

16.) Control Panel- from Controller/Electrical Cabinet (Cont'd.):

Control Names & Definitions:

1.) **Auto/Manual Control:** Non-functional Control.

2.) **Torch Up/Torch Down Control:** This control Jogs the Z-Axis Up and Down.

3.) **Arc Strike Push Button:** Will Fire Torch (This operation is performed commonly for test purposes).

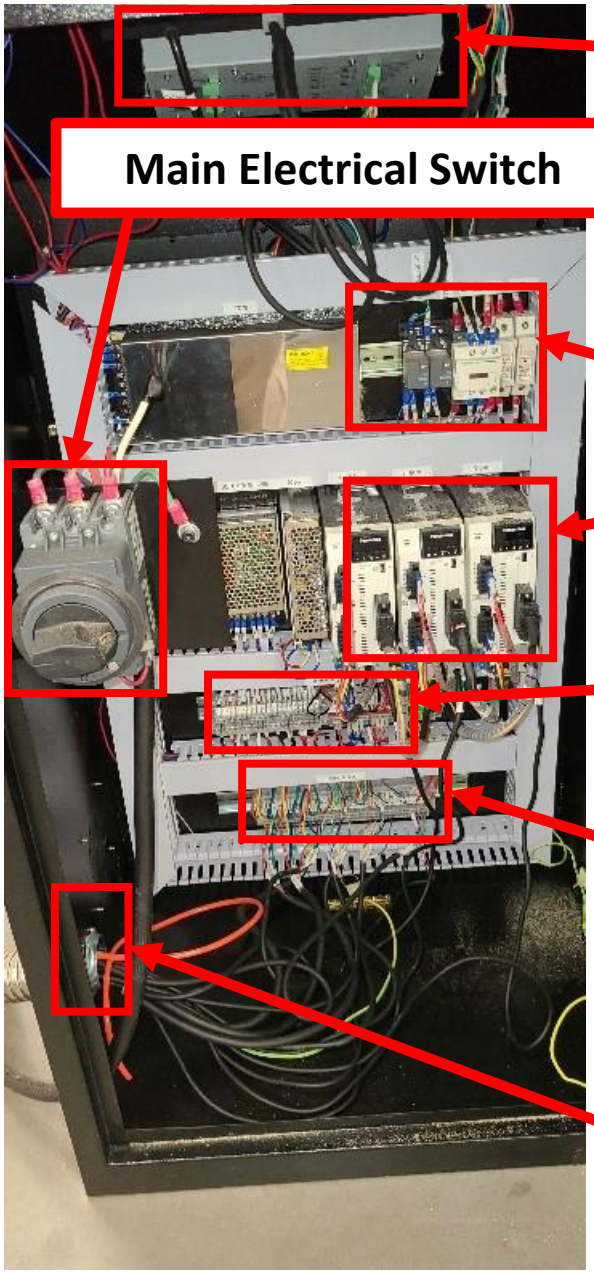
4.) **Zero Test Push Button:** Torch approaches downward and touches metal and raises to **IHS** height, also saves Start Point (Origin Point) of the cut.

5.) **IHS Height Control: IHS=Initial Peirce Height**, Plasma manual will give you this number whether it is a Hypertherm or Thermal Dynamics.

6.) **Sensitivity Control:** Controls how fast the height control reacts to the metal warping, Lower= More Sensitive, Higher= Less sensitive.

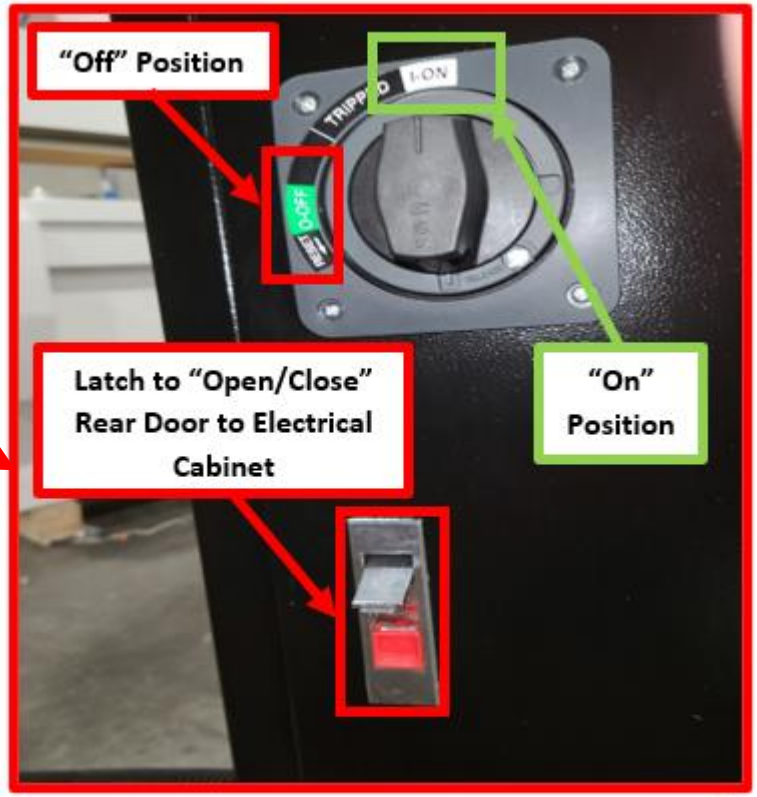
7.) **Set Arc Voltage Menu Control:** Controls the voltage of the cut (This switch also controls the height and the cleanliness of the cut.)

16.) Control Panel- from Controller/Electrical Cabinet (Cont'd.):



17.) Basic Operations:

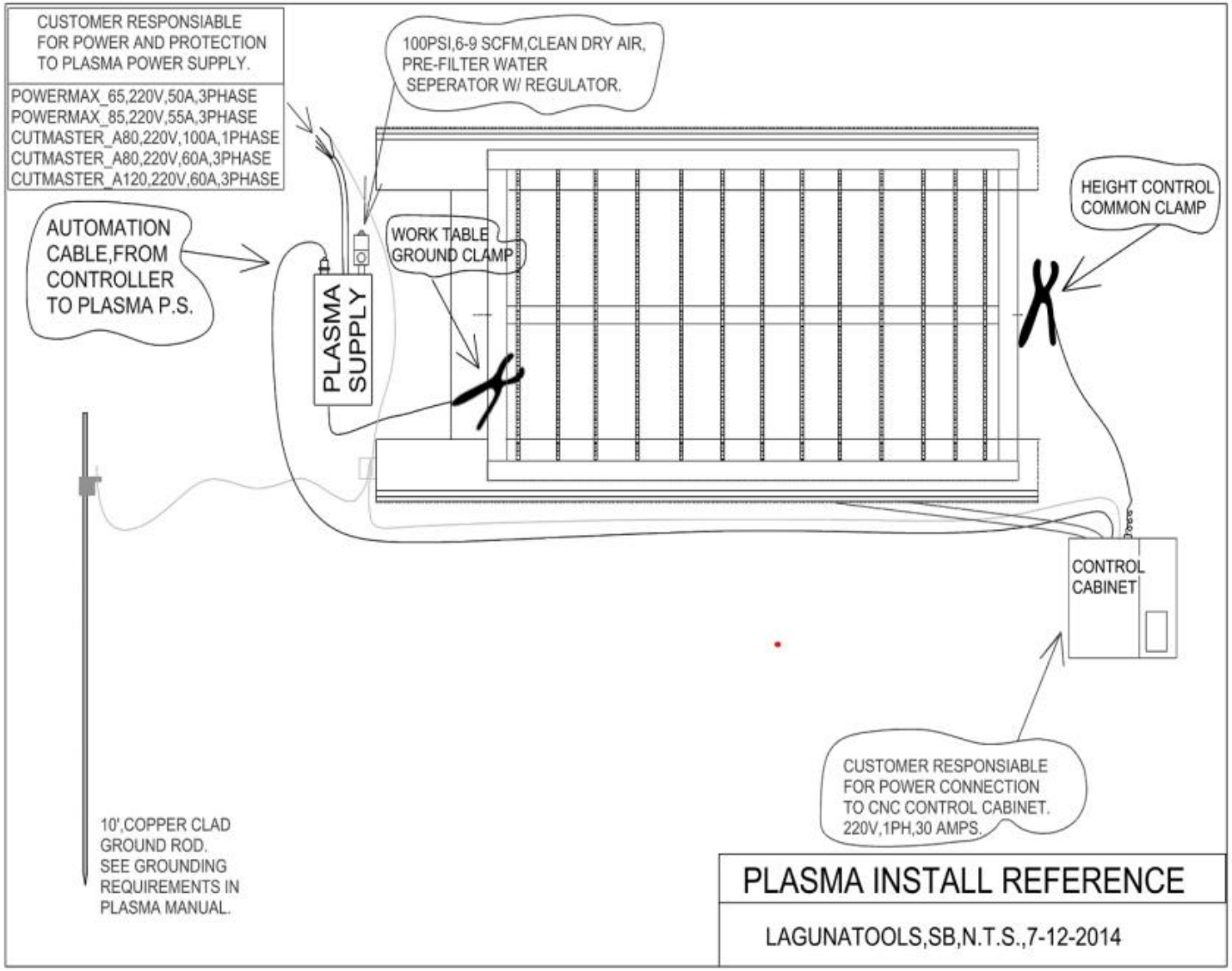
Rear Door of the Electrical Cabinet



Main Electrical Switch for Plasma Level 2 Machine (CNC Controller)

18.) Reference Note 7.10.) Plasma Power Supply-

Place the plasma power supply and/or remote arc starter at the rear of the frame. Keep the CNC computer controller as far from the power supply and/or remote arc starter as possible. Follow the power supply grounding diagram found in the system manual.



19.) Grounding Connections-

Pilot arc starting generates a certain amount of **Electromagnetic Interference (Called EMI)**. This is commonly called RF noise. This RF noise may interfere with other electronic equipment such as the CNC controller and other equipment in the vicinity. To minimize the RF interference the following grounding procedures should be followed when installation of the machine is undertaken.

Drive 5/8" diameter X 10 feet long copper clad steel earth rod as close to the table as possible. It may be necessary to weld a second rod to reach the moisture layer to achieve a proper ground.

Follow the attached instructions for proper earth ground rod testing. If multiple ground rods are required to achieve proper grounding keep a minimum distance of 1.1 times the driven length between driven rods.

Create a main star ground on one of the table legs. The main star ground will be the only point where all grounding wires will terminate before the earth ground rod.

The point should have good metal to metal contact and provide enough ground lead attachment points to **eliminate the need to stack lead terminals, See Figure 2 below**:

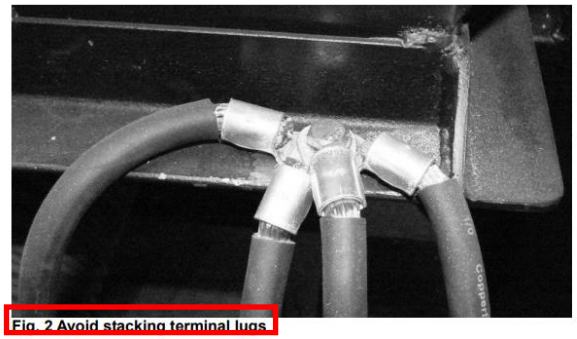


Fig. 2 Avoid stacking terminal lugs

19.) Grounding Connections (Cont'd.)-

Note: Keep ground wires as short as possible. Remove any paint, rust, or oxide from the connection point. Always use star washers and electrical anti corrosion paste on all connections.

Connect a minimum 1/0 AWG cable (4/0 is best) from the star to the earth ground rod. Do not connect any other grounds directly to the ground rod.

- Create an auxiliary star ground point as needed to connect ground leads from moving points of the table to the main ground. The point should have good metal to metal contact.

- Connect this star to the main star using #4 AWG minimum.

- Connect the power supply safety ground directly to the main star ground with a minimum 1/0 cable.

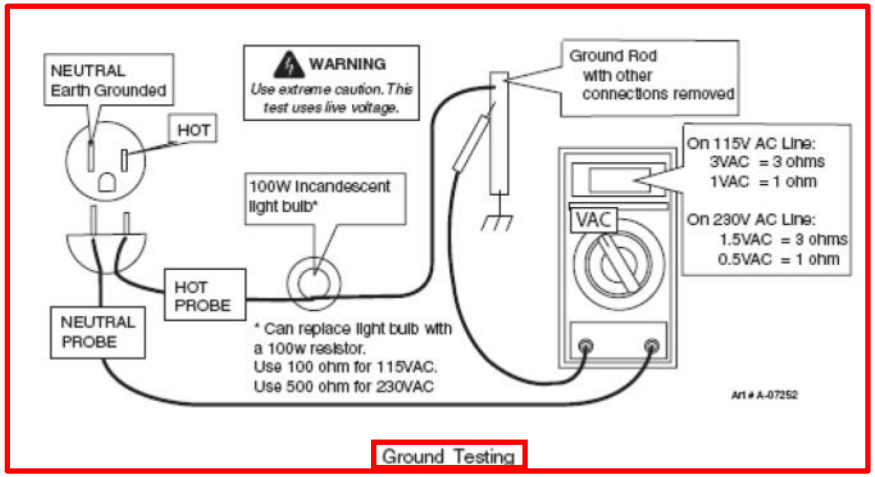
- Connect the remote arc starter directly to the main star ground with a minimum 1/0 cable.

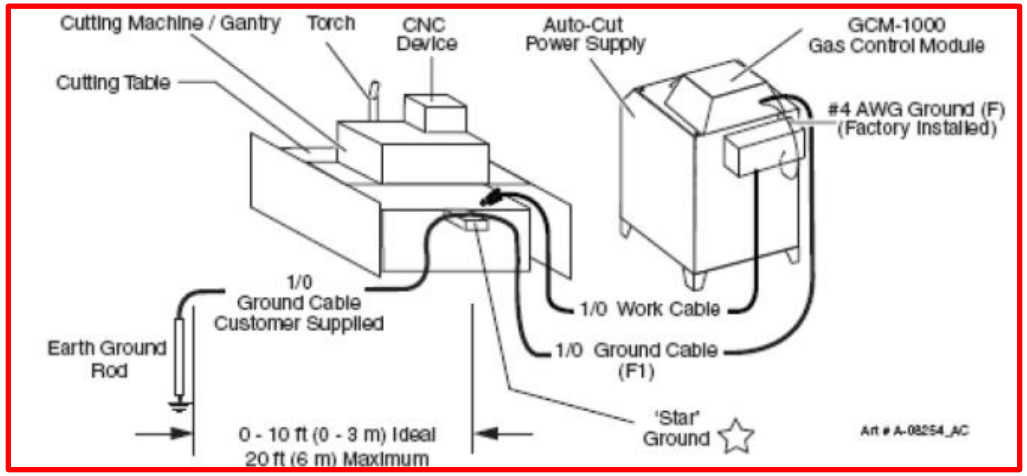
20.) Testing for Proper Grounding-

To Test for a proper earth ground or grounding, refer to the following diagram (See Below). Ideally, the reading on the multimeter should be 3 VACS for 115VAC or 1.5VAC for 230 VAC line.

Note: Increasing the ground rod length beyond 20-30ft (6.1- 9.1m) does not generally increase the effectiveness of the ground rod. A larger diameter rod which has more surface area may help. Sometimes keeping the soil around the ground rod moist by continuously running a small amount of water into it will work. Adding salt to the soil by soaking it in salt water may also help to reduce its resistance. When you use these methods periodic checking of the ground resistance is required to ensure that the ground is still good.

Note: Keep the torch leads clean. Dirt and Metal particles bleed off energy, which causes difficult starting and increases chances of RF interference.





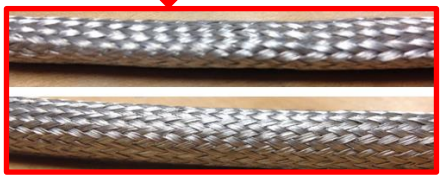
20.1.) Shielding-

Single Shield Method (Good): Connect the shield/drain of a shielded cable to ground at the sensitive equipment end and leave the other end of the shield disconnected. Cover all non-shielded cables with a tightly woven braided shield. Slide the shield over the cable leaving enough to slide back over the electrical connectors and terminate only the one end to the sensitive equipment side ground. Use a metal cable clamp to attach the shield to the ground.

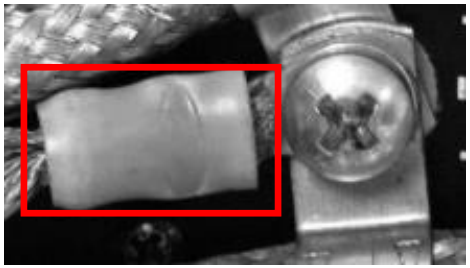
See Figure Below-

20.2.) Double Shield Method (Better): **Cover all shielded cables with a tightly woven Braided Shield**. Slide the shield over the cable leaving enough to slide back over the electrical connectors. Use a metal cable clamp to attach the shield to the nearest ground at both ends of the cable.

See Figure Below (Braided Shield)



20.3.) Shielding (Cont'd.)-



Clamp on Ferrite Cores: Use a **Clamp Type Ferrite Core (See Figure Above)** on the following cables:

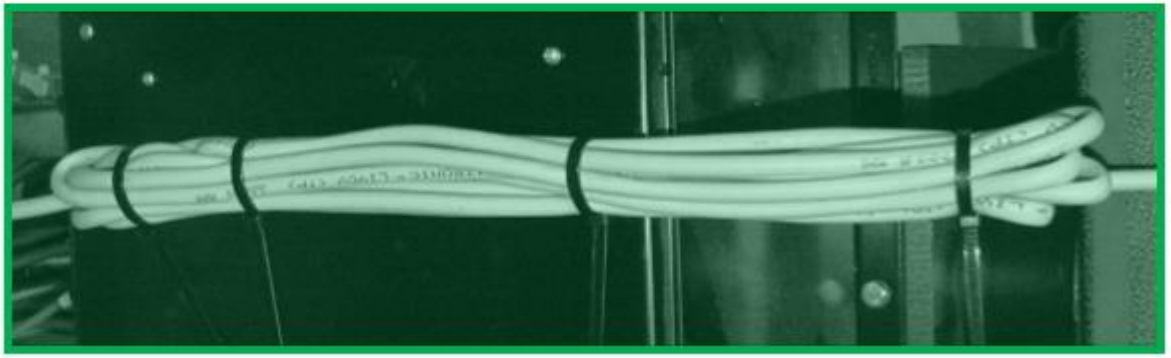
- Wall Mount Transformers.
- RS232 Cables (as an alternative, fiber optic converters will offer the best noise immunity).
- Computer and Motor Controller AC power cord.
- Control cables and encoder cables.
- I/O Cables.

Open the Ferrites Clamp and Pass 4 to 10 turns around one half of the core then close and snap the clamp shut.

***__Ferrite Cores__ are not recommended for use with __Braided Shielding__.

20.3.) Shielding (Other):

- If cables must cross ground wires or at worse case torch leads do so at 90-degree angles.
- Select a power outlet rated to support the devices that will be connected.
- Avoid connecting the cutting table to multiple AC power outlets. Use one outlet with a good surge suppression device and multiple power outlets.
- The Plasma Power Supply may be connected to a different power outlet however it is best if the outlet is common to the same panel as the cutting table.
- Do not coil wires and cables. If you need to clean up the install do so by wire tying the loops of extra cable, so the major length of the cable is touching.
  Remove as much air gap as possible from the cable bunch.
  See Below Figure-

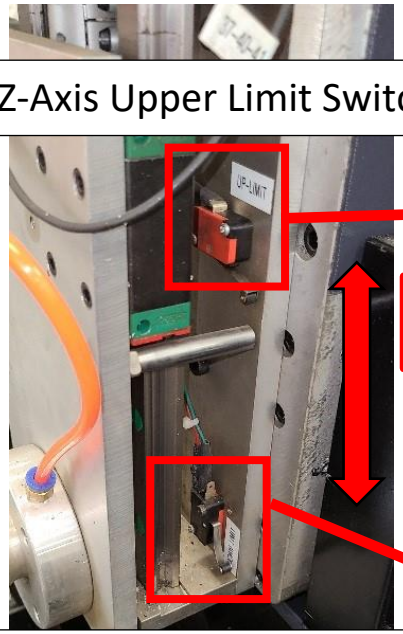


21.) Basic Machine Operations-

18.1.) Home Limit Switch Locations-

There are (3) three switches that determine the home position of the cutting head.
The switches are factory set, and no adjustment should be required.
If adjustment is required, contact your service technician prior to conducting any adjustment.

Z-Axis Upper/Lower Limit Switch:



Z-Axis Upper Limit Switch

Z-Axis Lower Limit Switch

Z-Axis Limit Switches within the Plasma Cutting Motion System on Gantry.

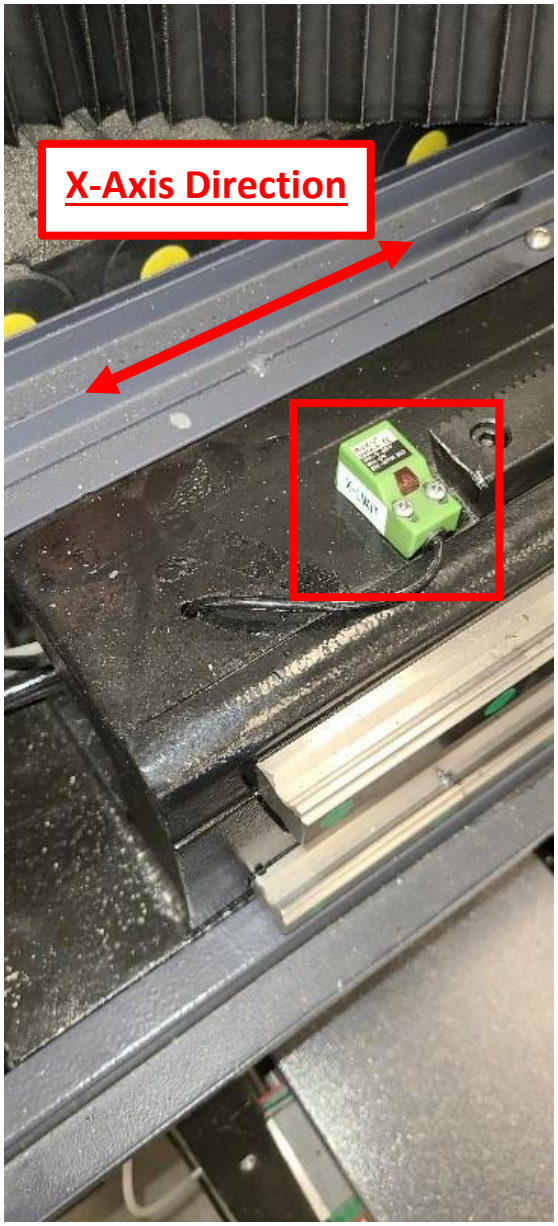
Z-Axis Direction

Z-Axis Upper Limit Switch

Z-Axis Lower Limit Switch

21.) Basic Machine Operations (Cont'd.)-

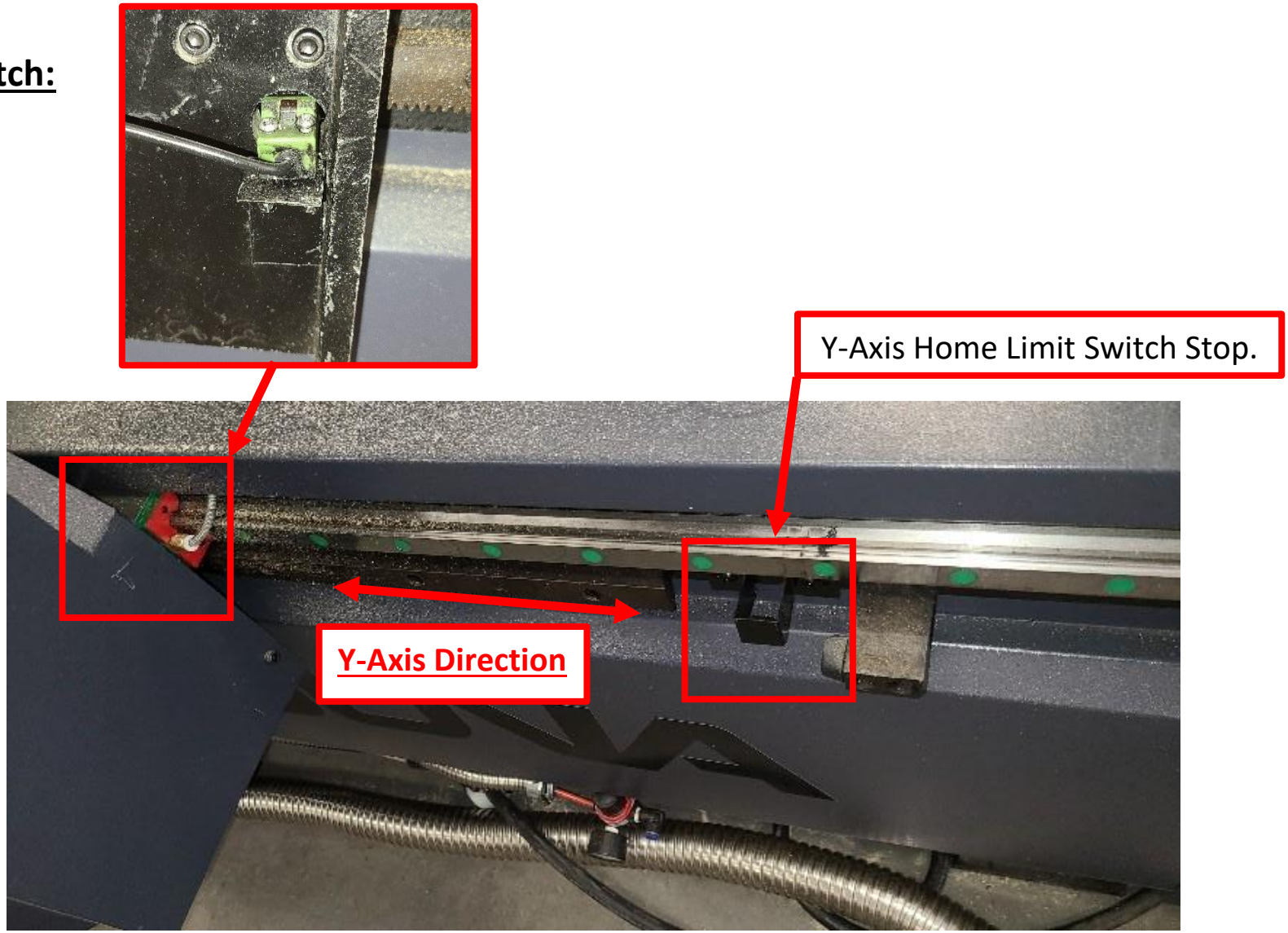
X-Axis Home Switch:



X-Axis Home Limit Switch
Location on the Gantry

21.) Basic Machine Operations (Cont'd.)-

Y-Axis Home Switch:

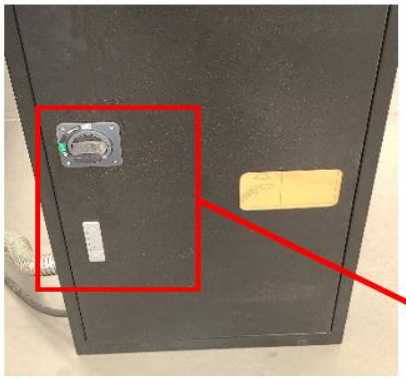


Y-Axis Home Limit Switch alongside Rail (Y-Axis Direction).

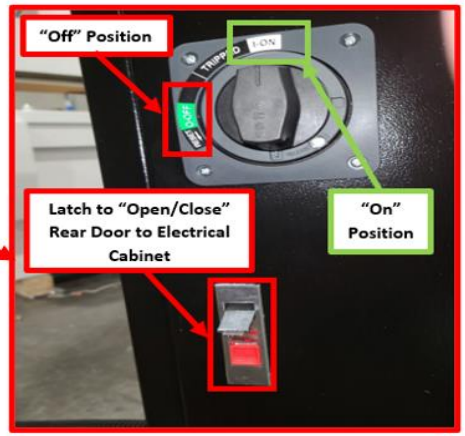
21.) Basic Operations (Cont'd.)-

1.) Turn on the Electrical Control Cabinet and CNC Display-

a.) Turn the **"Main Electrical Switch"** on the back of the Electrical Control Cabinet to the **"On"** Position.

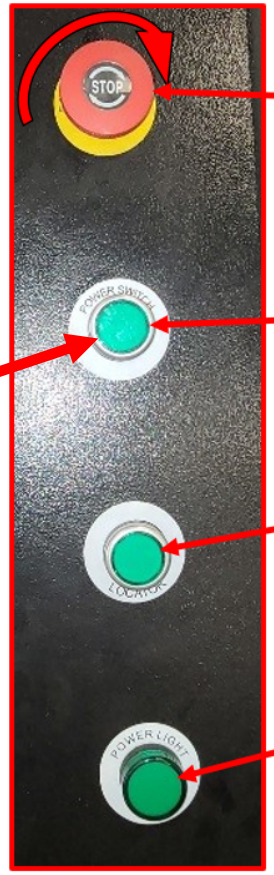


Rear Door of the Electrical Cabinet



Main Electrical Switch for Plasma Level 2 Machine (CNC Controller)

b.) Turn **"On"** the **"Power Switch"** on the front of the Electrical Control Cabinet.



"Emergency Stop Button"-Shuts off Power to the Electrical Control Cabinet. To Disengage, E-Stop Button Pull & turn button to the Right, to pop out.

"Power" Switch-This is the "On/Off" Switch that turns on & off the Power to the Electrical Control Cabinet.

"Locator" Switch-This is the "On/Off" Switch that turns on the Red Dot (Laser) Locator alongside the Plasma Cutting System.

"Power Light" Indicator-This indicator light when lite, tells operator if the Electrical Control Cabinet has power.

Controls for Electrical Cabinet

21.) Basic Operations (Cont'd.)-

Power "On" Control Panel-

Once all the cables are plugged in, the machine can now be powered on.

a.) Turn **"On"** the Main Power Switch (See Instructions @ 21.1).

b.) Ensure all E-Stops are out.

(Two on each side of the bridge and one on the CNC Control)

> ***NOTE:*** *It is important that all the Emergency Stop buttons are disengaged before switching on the power, otherwise errors will be produced and machine will not function.*

c.) **"Press F2"** on the keyboard to get into the **"Manual Mode".** Once in manual mode, you should be able to jog the gantry and control movement using the arrows keys on the keyboard.

21.) Basic Operations (Cont'd.)-

Operations Panel-

The operator's panel is separated into two segments –

a.) **The Keypad-**The keypad is there for operator Input into the Machine Control.

b.) **The Display-**Shows Data and Information to the operator.

The **"Red Emergency Stop Button"**- is located on the upper right-hand side of the keypad. When this button is depressed, power is removed from the motion components (motors and drives), and the plasma arc is turned off.

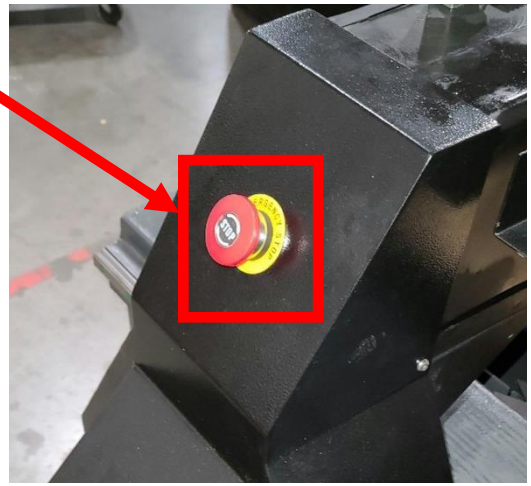
b.) **The Display**

a.) **The Keypad**

21.) Basic Operations (Cont'd.)-

"Red Emergency Stop Buttons" on **Both Sides** of the Gantry on the Frame-

Emergency Stop Button



Emergency Stop Button

21.) Basic Operations (Cont'd.)-

CNC CONTROL NAVIGATION-

The **"CNC Control Menu"** is located at the bottom of the screen.

21.) Basic Operations (Cont'd.)-

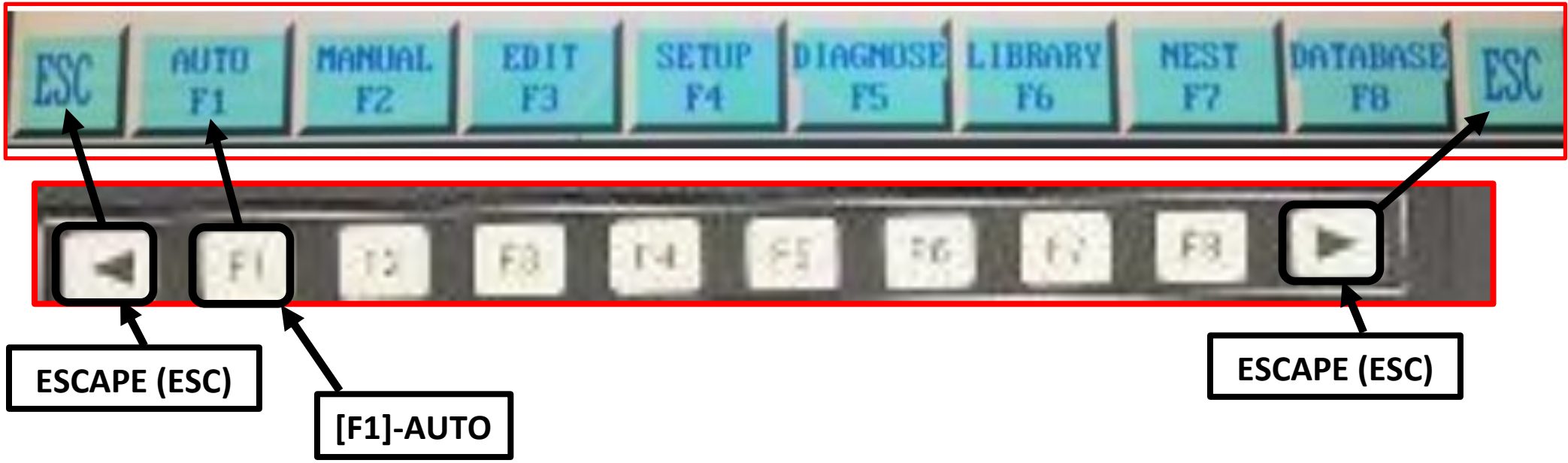
CNC CONTROL NAVIGATION (Cont'd.)-

The blocks shown correspond to the related **"FUNCTION Keys"** at the top of the Operator's keypad.

To select the corresponding block, **"Press the FUNCTION Key"**- **(Example: [F1] for AUTO in the diagram below).**

The **"ESCAPE"** functions on either side of the block, cancels out the active function and returns to the previous page.

THE SCREEN IS NOT A TOUCH SCREEN.



21.) Basic Operations (Cont'd.)-

THE SCREEN IS NOT A TOUCH SCREEN.

The **"Function Keys"**, above, are the options on the main menu.
The description of each is shown below:

[F1] AUTO: For cutting operations using a stored program.

[F2] MANUAL: For manual operations such as jogging the machine.

[F3] EDIT: Edit/Change/Save Files/Load Files.

[F4] SETUP: Set or modify cutting parameters.

[F5] DIAGNOSE: See the status of Input/Outputs.

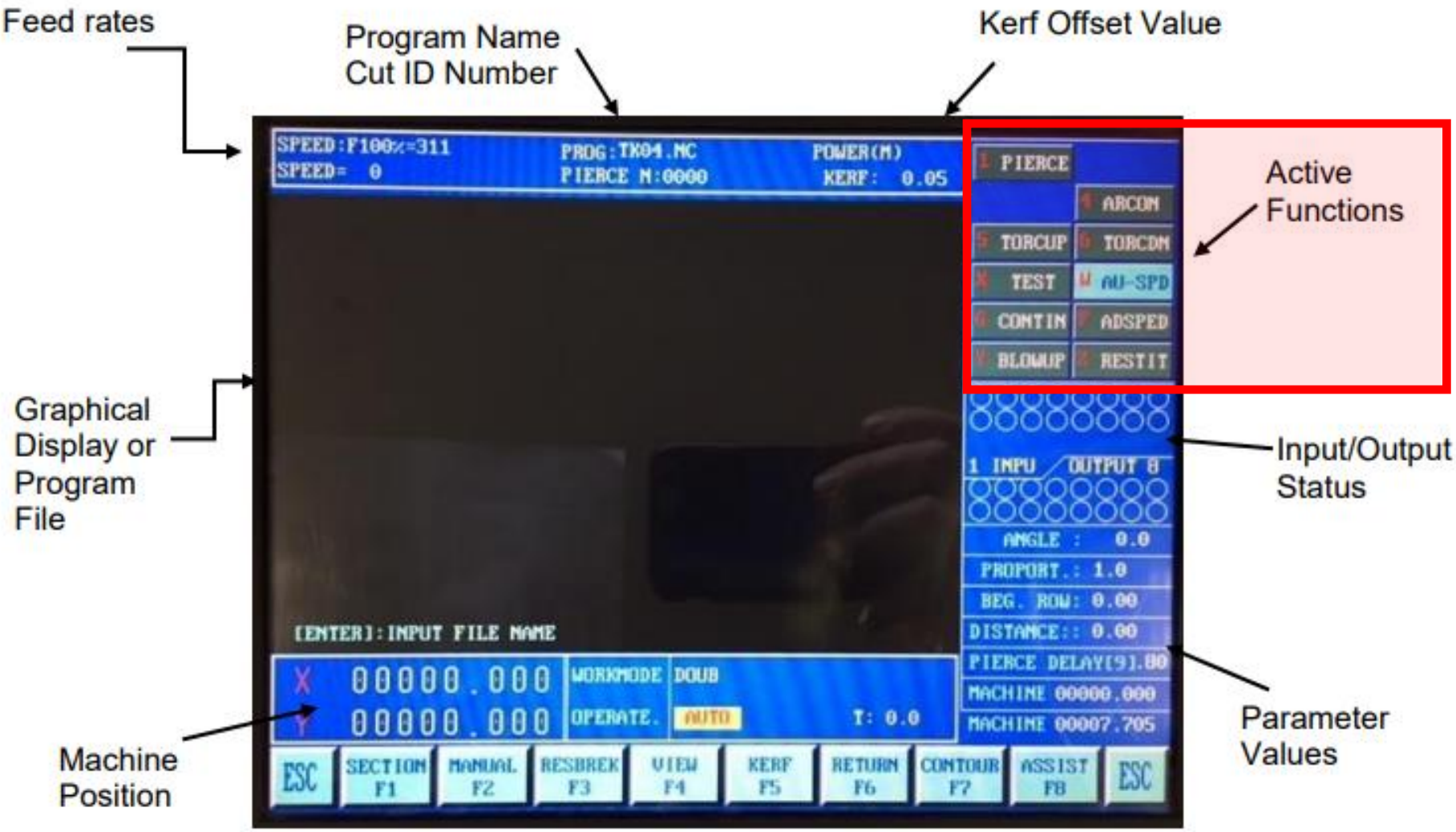
[F6] LIBRARY: Parametric shape library.

[F7] NEST: Create or load shapes.

[F8] DATABASE: Cut parameter database Each of the functions keys has at least one additional sub-menu below it. Navigate by pressing the appropriate function key and return by pressing the **"ESC"** key= **"ESCAPE Function"**.

21.) Basic Operations (Cont'd.)-

The Main Display:



21.) Basic Operations (Cont'd.)-

Active Functions-

There are several active functions that can be used when the machine is in "**MANUAL Mode**":

[F2] MANUAL: For **Manual Operations** such as **jogging the machine**.

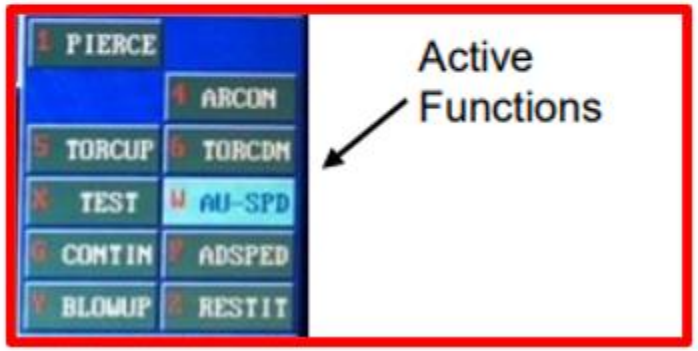
1 – Pressing the '1' key will initiate a torch pierce
4 – Pressing the '4' key will toggle the arc on and off
5 – Pressing the '5' key will jog the torch to the up position
6 – Pressing the '6' key will jog the torch down
X – Pressing the 'X' key will toggle the machine between TEST MODE and RUN MODE
[See Section on TEST MODE (DRY RUN)]
W – Auto Speed Mode (highlights when running at a controlled cutting speed).
G – If Program is stopped, Pressing the "G" key will Continue with Program.
F – Adjusting Speed Mode (highlights when adjusting speed).

21.) Basic Operations (Cont'd.)-

Active Functions (Cont'd.)-

There are several active functions that can be used when the machine is in "**MANUAL Mode**":

[F2] MANUAL: For **Manual Operations** such as **jogging the machine**.



Y – (2) Two Functions:

1.) When in **"VIEW" Mode**, this allows the operator to zoom in to certain areas of the nest.
2.) When not in **"VIEW" Mode**, this allows the operator to select parameters from the **"DATABASE**".

Z – When in **"VIEW" Mode**, use the **"Z" Key** to zoom out (after using **"Y" Key** to zoom in).

21.) Basic Operations (Cont'd.)-

OPERATING THE MACHINE IN MANUAL MODE-

"Manual Mode" is used to jog the machine without running it from a program. This is commonly used to bring the machine to the operator so that he can change cutting consumables, or to move the machine out of the way while the operator unloads finished parts and loads new material.

From the HOME page, select **[F2] – MANUAL**

21.) Basic Operations (Cont'd.)-

OPERATING THE MACHINE IN MANUAL MODE-

When **"MANUAL"** is selected, a new menu appears:

In **"MANUAL Mode"**, you can move the X and Y axis by **"Pressing the Arrow Buttons"** on the operator keypad. Make sure that no one is near the machine gantry, and that the torch is all the way up prior to moving the machine.

USB Port

Arrow Keys

22.) ADJUSTING SPEEDS-

Types of Speeds:

- **RAPID SPEED** – this is the speed that the machine uses when traversing between cuts (going from the end of one cut to the beginning of the next).
- **CUTTING SPEED** – this is the speed at which the machine moves when the plasma torch is cutting.
- **JOG SPEED** – this is the speed at which the machine moves when manually moving the machine with the arrow keys.

In the **"MANUAL"** menu, when **"H-SPED"** is selected, the **button will highlight with a dark blue background**, and the **RAPID SPEED** can be adjusted as a percentage of the **MAXIMUM TRAVERSE SPEED** using the **F+ / F- Buttons**.

22.) ADJUSTING SPEEDS (Cont'd.)-

When "**H-SPED**" is not selected, the button is no longer highlighted, and the cutting speed can be adjusted as a percentage of the active cutting speed using the F+ / F- Buttons.

When "**H-SPED**" is selected, the **"JOG SPEED"** is the same as the **"RAPID SPEED"**.
When "**H-SPED**" is not selected, **"JOG SPEED"** is the same as **"CUTTING SPEED"**.

23.) METHODS OF SELECTING PROGRAMS-

There are three methods of selecting programs:

- Selecting a pre-programmed part or nest from the USB drive.
- Selecting a file from CNC Control memory that has already been saved in the control.
- Selecting a program from the Parametric Shape Library.

23.) METHODS OF SELECTING PROGRAMS (Cont'd.)-

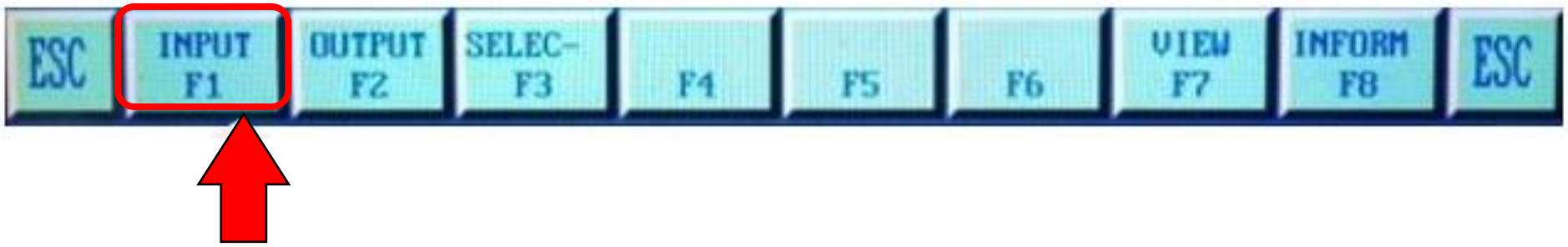
SELECTING A PROGRAM FROM "USB" DRIVE-

From the MAIN SCREEN, select [F3] EDIT:

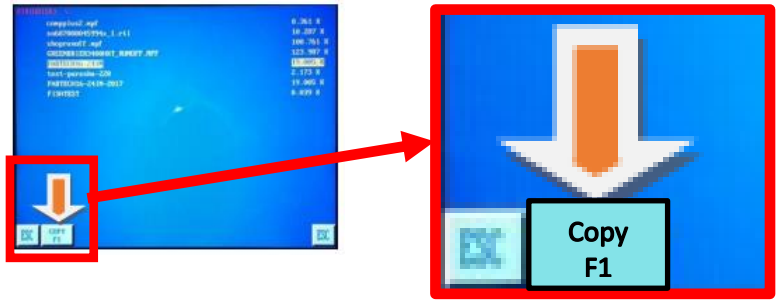
23.) METHODS OF SELECTING PROGRAMS (Cont'd.)-

From the **"EDIT SCREEN",** select [F6] USB:

From the "USB SCREEN", select [F1] INPUT:



From the INPUT SCREEN, use arrow up/down to highlight program to be loaded and **"Select [F1] COPY".** By pressing "**ENTER**" ONE can view the Program CODE:

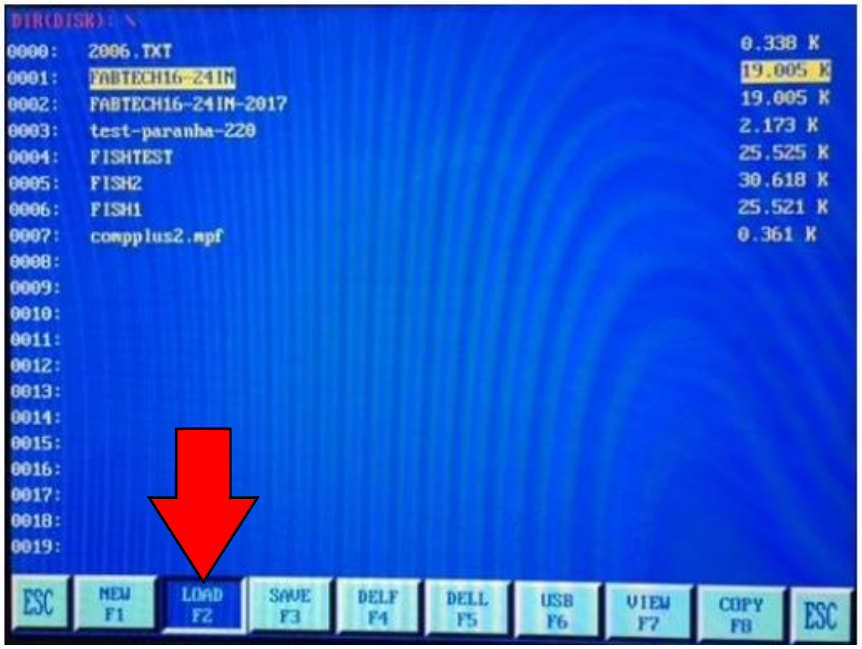


23.) METHODS OF SELECTING PROGRAMS (Cont'd.)-

LOADING A PROGRAM FROM CONTROL MEMORY-

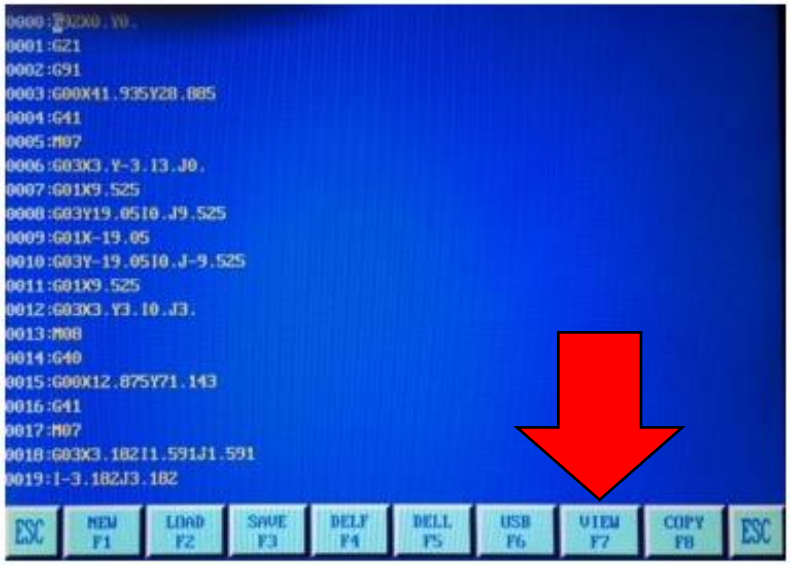
From the EDIT SCREEN, select [F2] LOAD:

From the **"LOAD SCREEN"**, use arrow up/down to highlight program to be loaded and press ENTER:

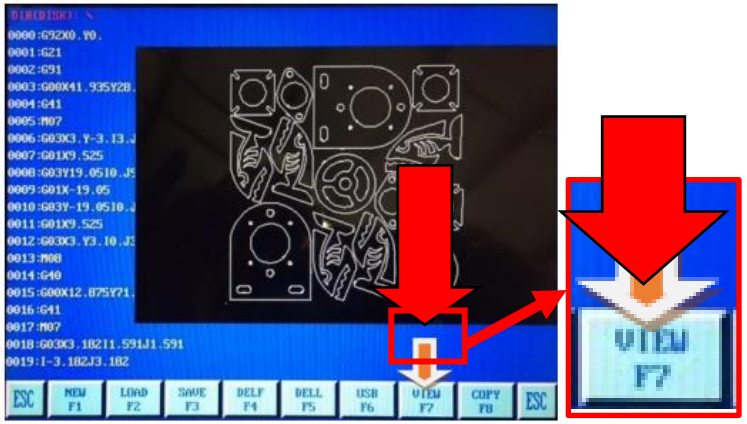


23.) METHODS OF SELECTING PROGRAMS (Cont'd.)-

After pressing **"ENTER"**, the selected program will be loaded, and the Program Code will display:

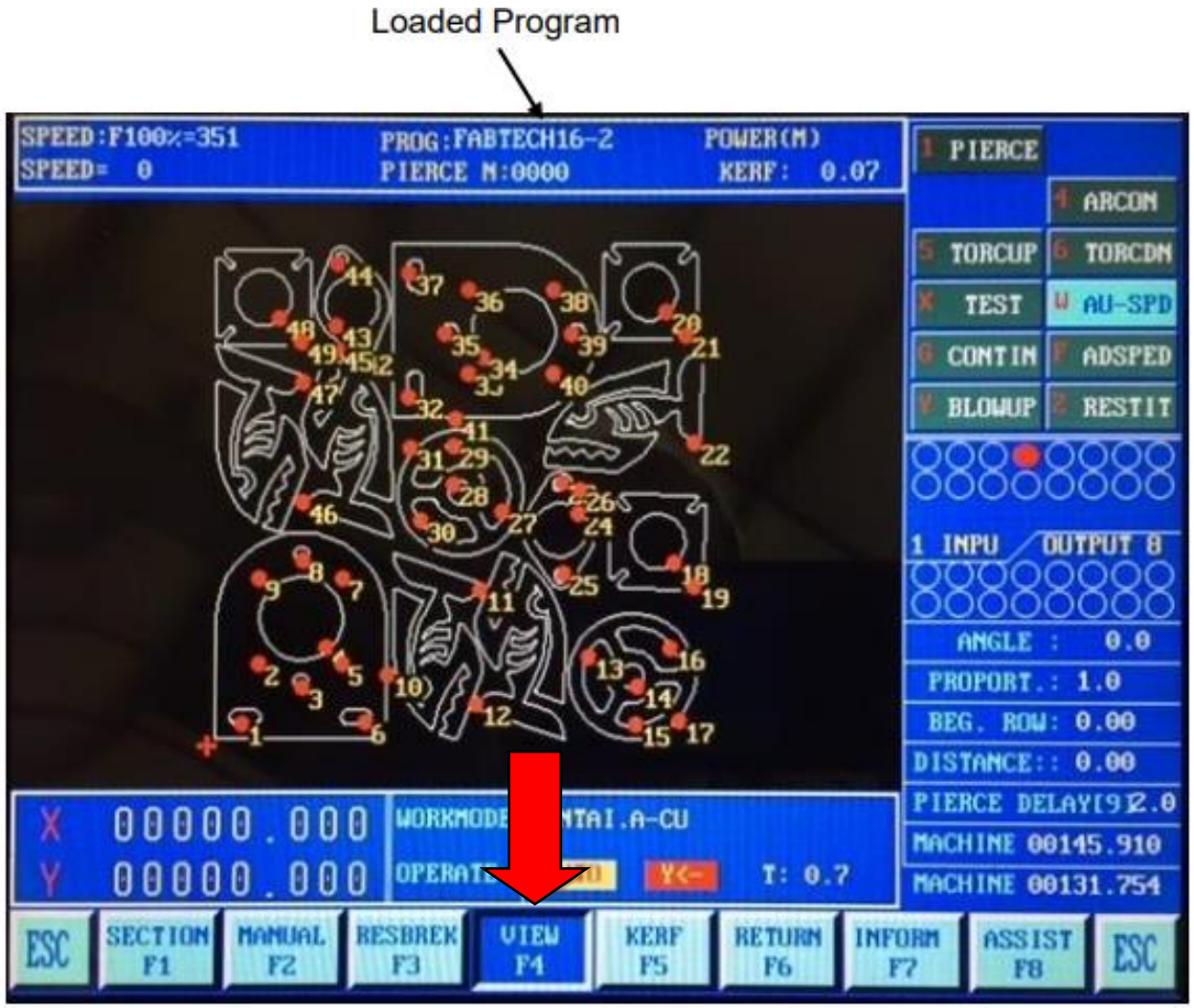


Pressing "**[F7] VIEW**", will display a graphical representation of the program:



23.) METHODS OF SELECTING PROGRAMS (Cont'd.)-

From the **"AUTO SCREEN"**, pressing **"[F4] VIEW"** will display a graphical representation of the Loaded Program. The red dots with numbers show the pierce points and cut order. The red crosshairs show the program zero location (location the operator needs to set PROGRAM ZERO).



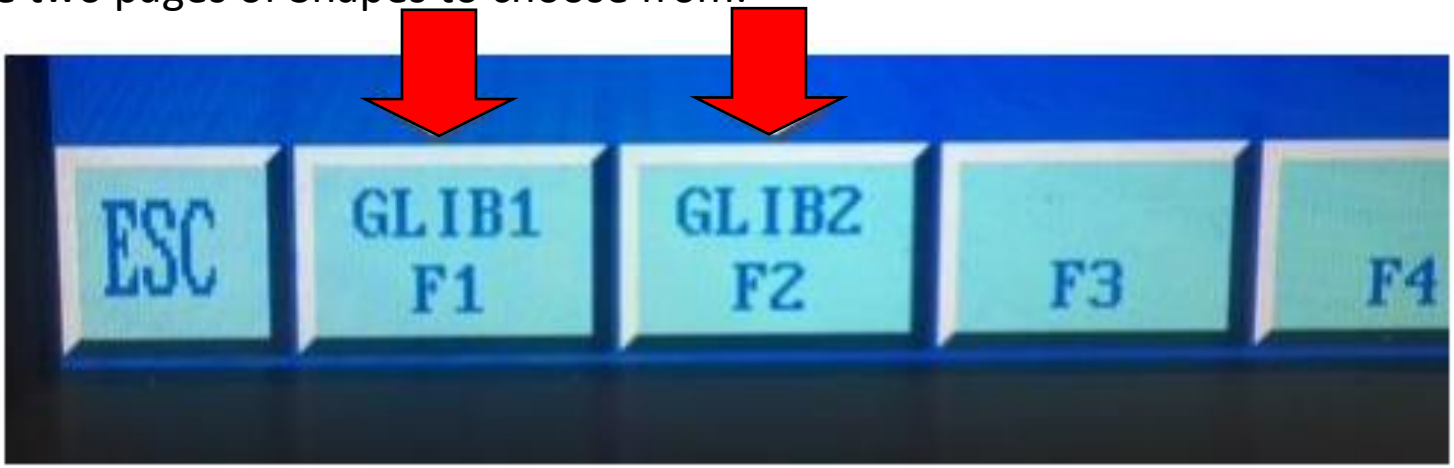
23.) METHODS OF SELECTING PROGRAMS (Cont'd.)-

LOADING A PROGRAM FROM THE PARAMETRIC SHAPE LIBRARY-

The CNC Control has several common shapes that are used in the Metal Fabrication industry. The size of the features within each shape can be adjusted easily to achieve customer requirements.

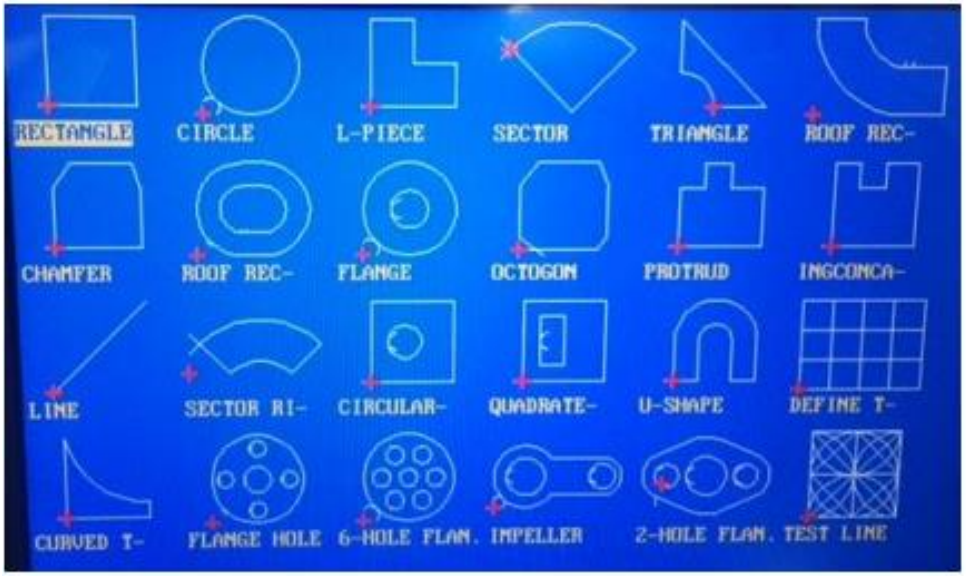
1.) Choose **F6 [LIBRARY]**

2.) There are two pages of Shapes to choose from:

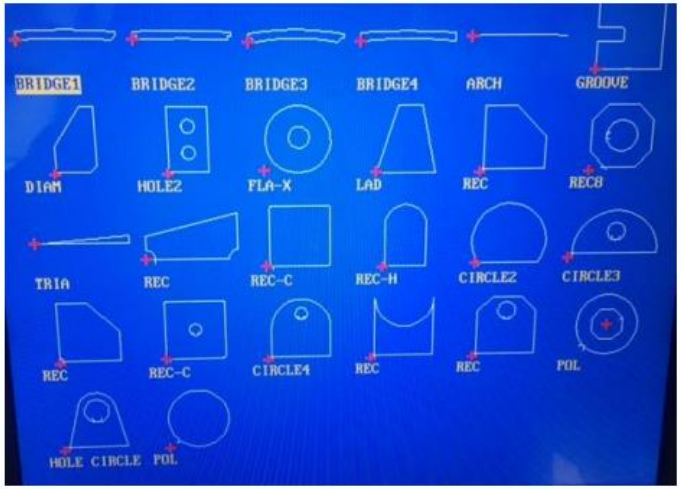


23.) METHODS OF SELECTING PROGRAMS (Cont'd.)-

Shapes in Library 1:



Shapes in Library 2:

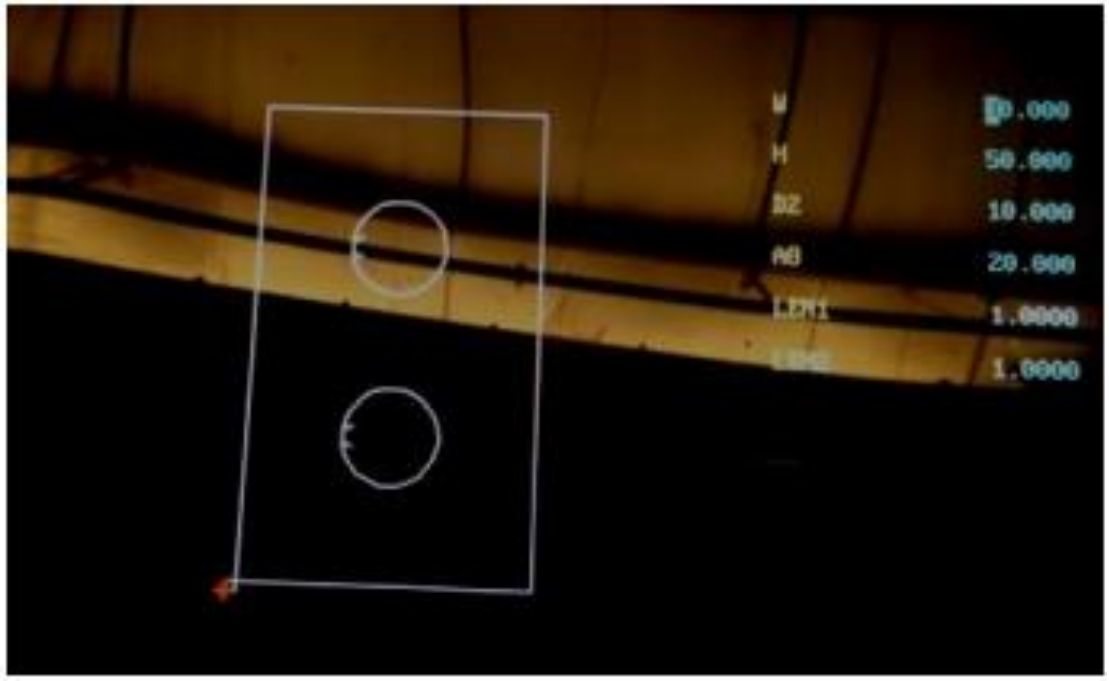


23.) METHODS OF SELECTING PROGRAMS (Cont'd.)-

3.) To select a shape, use the arrow keys to highlight the name of the shape, and press [ENTER].

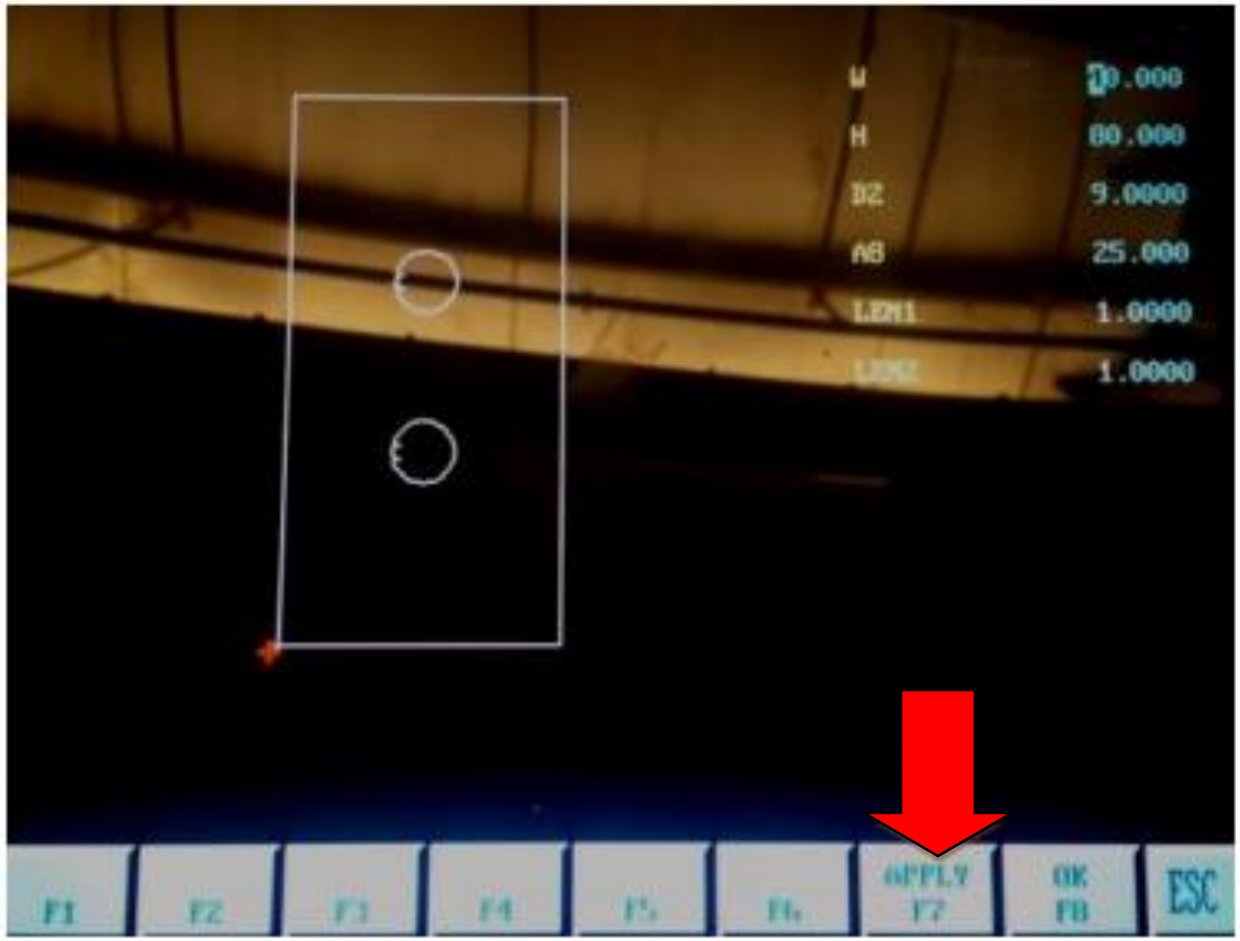
4.) This is the shape from HOLE2 located in Library 2. In this shape, the holes are centered on the rectangle. Parameters are as follows:

W: Width.
H: Height.
D2: Diameter of the two holes A8 – Vertical distance between the holes.
LEN1: Lead-In Distance.
LEN2: Lead-Out Distance.



23.) METHODS OF SELECTING PROGRAMS (Cont'd.)-

5.) Select each parameter by using the up and down arrow keys. After each parameter is changed, press the **[ENTER]** key. Once the changes are made, press **"F8 [APPLY]"** and the geometry will update to the new values.



23.) METHODS OF SELECTING PROGRAMS (Cont'd.)-

6.) Once you are satisfied with the geometry, press **"F8 [OK]"** and you will be directed to the **"HOME"** screen.

7.) At this point, the geometry of the part has NOT been saved. While it can be run on the machine, it cannot be nested, modified, or used later. To save it, see the section on Editing Programs and File Management.

8.) The program can now be run in **"AUTO" Mode**.

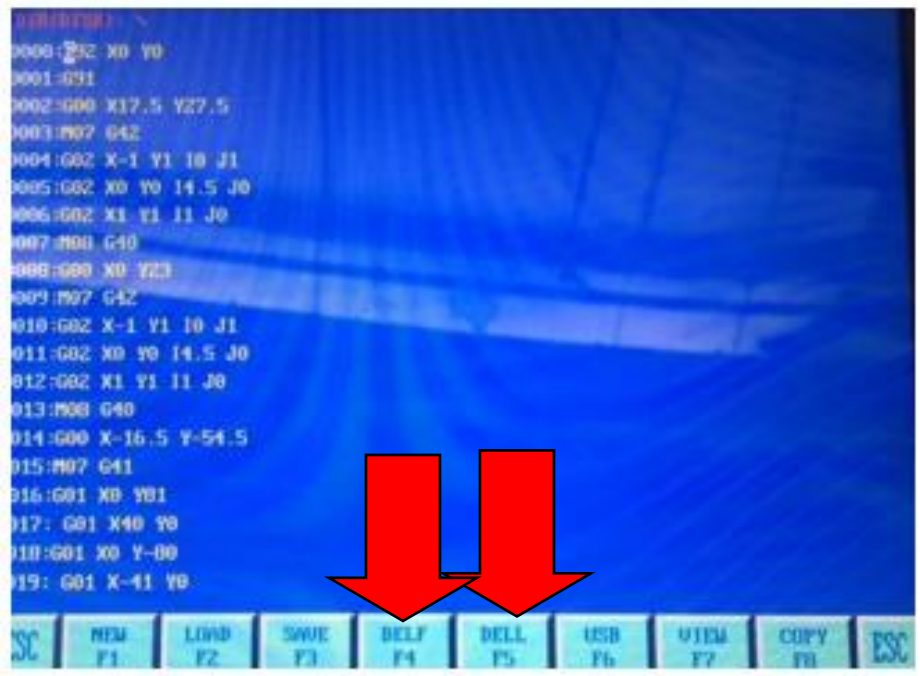
24.) SAVING AND EDITING FILES-

Once a file has been loaded on the control, it is important to save the file on the control. That way, the program can be called up again in the future, and it will be still in the control in case the power is cycled off and on. This also allows the operator to use the **"NESTING"** function on the control.

1.) After a program has been selected from the USB drive, or from the Shape Library, go to the **HOME** screen and select **"F3 [EDIT]".**

2.) The display should now show the part program. If the operator has familiarity with **"M" Code** and **"G" Code** programming, the program can be edited just as a normal text file can be edited on a home computer. Do not try to edit a program if you are not familiar with M code and G code programming. See the **PROGRAMMING section** of the manual for **"M" Codes** and **"G" Codes** used on this machine.

24.) SAVING AND EDITING FILES (Cont'd.)-

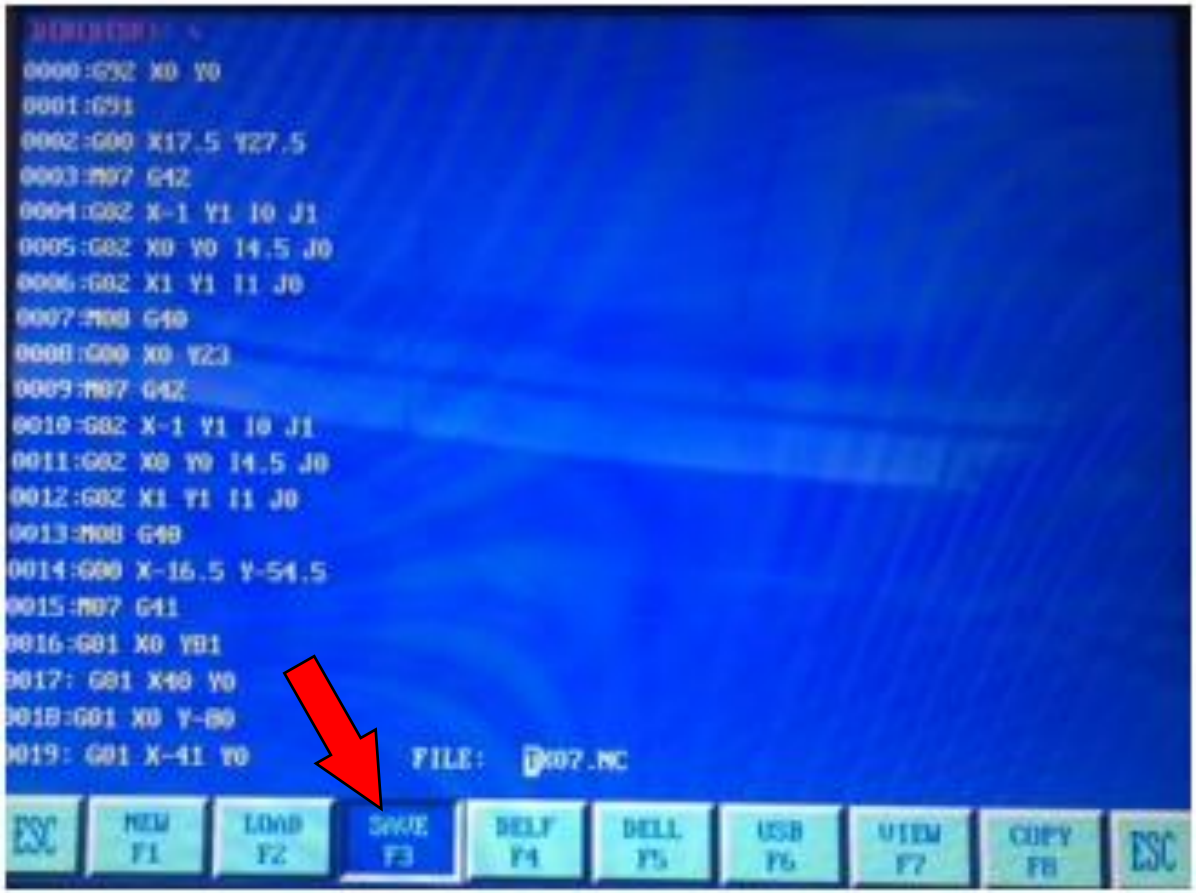


3.) Entire lines can be deleted by pressing "**F5 [DELL] (Delete Line)**".

4.) The entire file can be deleted by pressing "**F4 [DELF] (Delete File)**".

24.) SAVING AND EDITING FILES (Cont'd.)-

5.) The program can be saved by pressing the **"F3 [SAVE] Button"**. When this happens, a text box appears, and the operator can type in the desired file name and press **[ENTER]**.



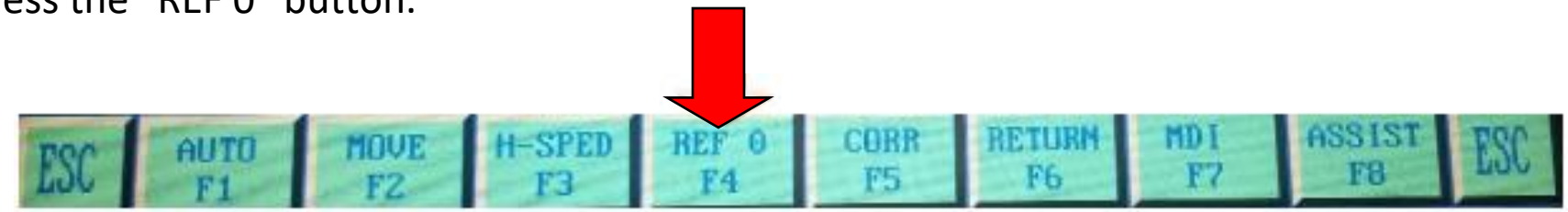
Note: Be sure that the program name is not already taken in the directory. If you type in an existing file name, the new program will overwrite the previous program.

24.) SAVING AND EDITING FILES (Cont'd.)-

SETTING PROGRAM ZERO-

Part programs have a **"Zero Starting Point"** for (X0, Y0). This is identified by a **Red Cross Hair** on the screen so the operator can see where zero is located relative to the parts cut within the program. This **"Zero"** location needs to be set before starting the program. Program zero can be set from "**AUTO"** or "**MANUAL"** Mode selections.

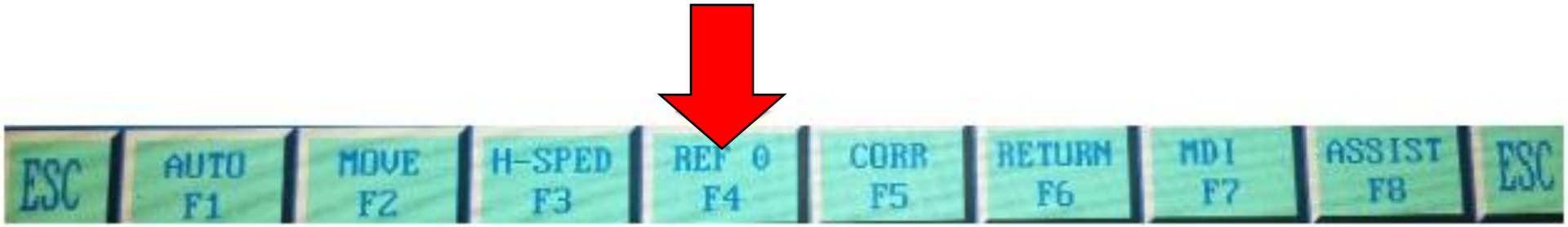
From **"MANUAL"** mode, position the axis at the desired program zero location and press the "REF 0" button.



24.) SAVING AND EDITING FILES (Cont'd.)-

From **"AUTO"** Mode, press the **"MANUAL Mode"** button.

Position the axis at the desired program zero location and press the **"REF 0"** Button.



Press the **"AUTO"** Button to return to the automatic menu.

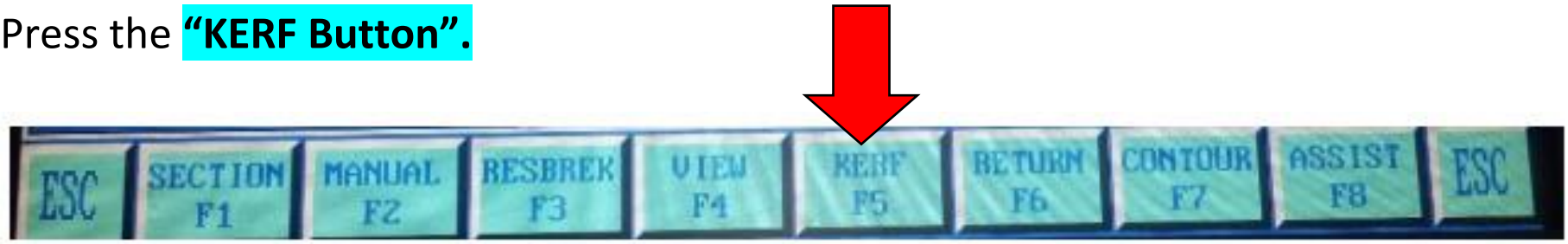
24.) SAVING AND EDITING FILES (Cont'd.)-

SETTING KERF OFFSET-

When plasma cutting, a kerf (or opening) is produced by the plasma arc. The cutting current and feed rate as well as the diameter of the orifice in the plasma torch nozzle determine the width of the kerf. Typically, the amount of offset will range from 0.040" (1.0 mm) to 0.060" (1.5 mm) when cutting mild steel. If the cutting path is not modified to compensate for the kerf width, the completed cut will be undersize (for external cuts) or oversize (for internal cuts) by the amount of the kerf width. The machine control compensates for the kerf width without the need to redefine the actual path. The operator must enter the desired compensation amount into the control using the following procedure.

"Kerf Offset" can be set from Automatic Operation Menu, Press **"AUTO [F1]"** Button.

Press the **"KERF Button".**



24.) SAVING AND EDITING FILES (Cont'd.)-

SETTING PROGRAM ZERO (Cont'd.)-

Enter the offset for the Kerf in the **"GAP EXPIATE"** entry area and press enter when finished.

24.) SAVING AND EDITING FILES (Cont'd.)-

Before starting the machine in automatic operation, the program zero must be set, the kerf offset must set, and the correct program must be selected. Please refer to **"SETTING PROGRAM ZERO", "SETTING KERF OFFSET"** and **"SELECTING A PROGRAM"** sections in this manual for further information.

Set the machine to **"AUTO [F1] Mode"** from the "HOME" screen.

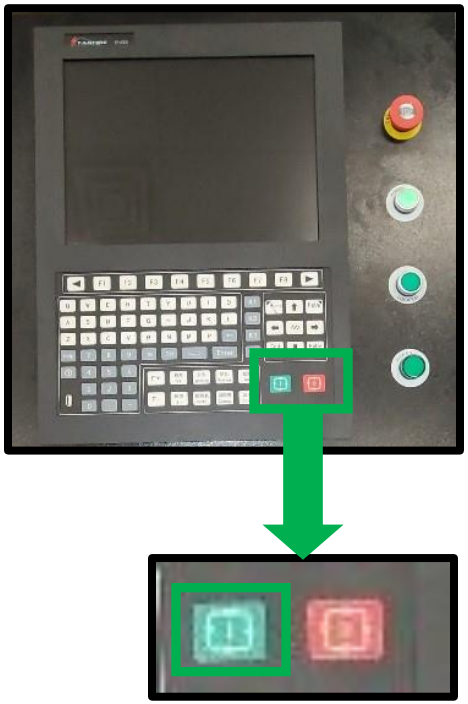
24.) SAVING AND EDITING FILES (Cont'd.)-

After entering the value, it is a good idea to run a test square (approximately 4" square) and measure the size of the part. If it is undersize, then the kerf value is too small, and the operator should add to it. If it is oversize, then the kerf value is too large, and the operator should subtract from it.

25.) AUTOMATIC OPERATION-

Prior to cutting the part, it may be desired to test run the program without cutting. See the section on **"TEST MODE (DRY RUN)"** to test run the program. Pressing the

"Green CYCLE START Button" at this point will start the program execution.



25.) AUTOMATIC OPERATION (Cont'd.)-

STOPPING THE MACHINE-

During operation, the machine can be stopped by either pressing the **"Red CYCLE STOP Button"** on the operator panel or by pressing **"EMERGENCY STOP"**.

The **"EMERGENCY STOP Button"** immediately turns off all power to the drives and plasma torch. The **"Red CYCLE STOP Button"** pauses the machine and turns off the torch.

26.) BREAK POINT RESUME-

After the system is paused from a **CYCLE STOP**, **EMERGENCY STOP**, or **POWER OFF**, the system saves the current torch position as a breakpoint. The breakpoint will remain active even if the system is turned off. If the program selected after power off is different from the program prior to power off then the breakpoint will be lost.

To use the **"BREAK POINT RESUME"**, function the control must be in **"AUTO" Mode**.

Press the **"RESBREK" Button**.

26.) BREAK POINT RESUME (Cont'd.)-

If the current program matches the last program to run and the torch has not changed position, then pressing the **"Green CYCLE START Button"** will continue the program from the breakpoint, If the torch has changed positions, the following dialog will display.

"Green CYCLE START Button"

If the torch has changed positions, this dialog will display.

26.) BREAK POINT RESUME (Cont'd.)-

The first option is **"ORI PATH RET",** with this selection the system will start cutting from the origin point.

The second option is **"CUT RET",** with this selection the system will pierce at its current location and move in a straight line at cut speed to the breakpoint and then continue with the programmed contour.

The third option is **"HOLE HERE"**, with this selection the system will pierce in its current location and shift the machine coordinates such that the breakpoint is located at the current pierce location and the program will continue the contour from this pierce location.

27.) NESTING-

The CNC control has a nesting function where parts can be automatically placed on a sheet of material for cutting. This can be used with items within the Shape Library, or with items that are programmed using the Fast CAM programming system.

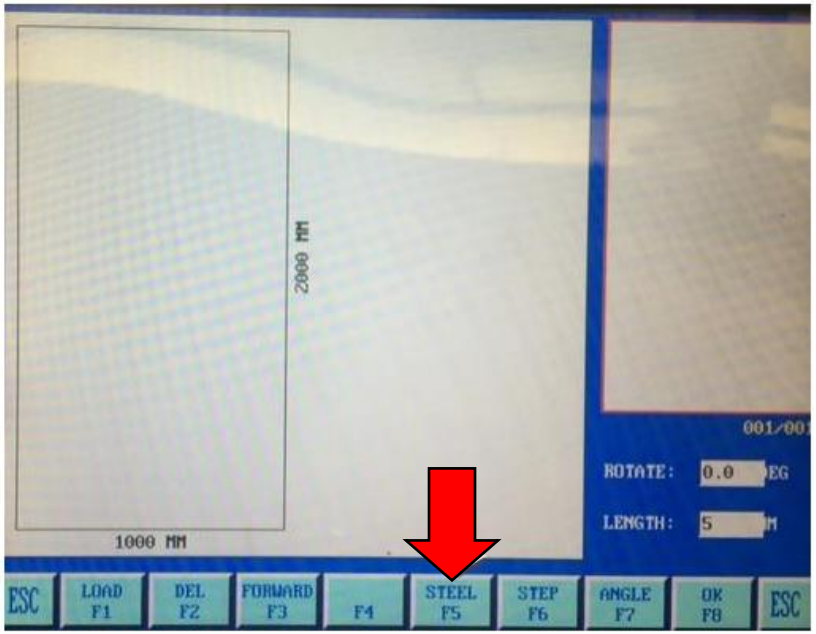
> ***NOTE:*** *It is important that all individual part programs used in the nesting system return to the program zero point at the end of the program. Failure to do this will result in unusable nests.*

Use the following sequence to create nests:

1.) From the "HOME" page, select **"F7 [NEST]"**.

27.) NESTING (Cont'd.)-

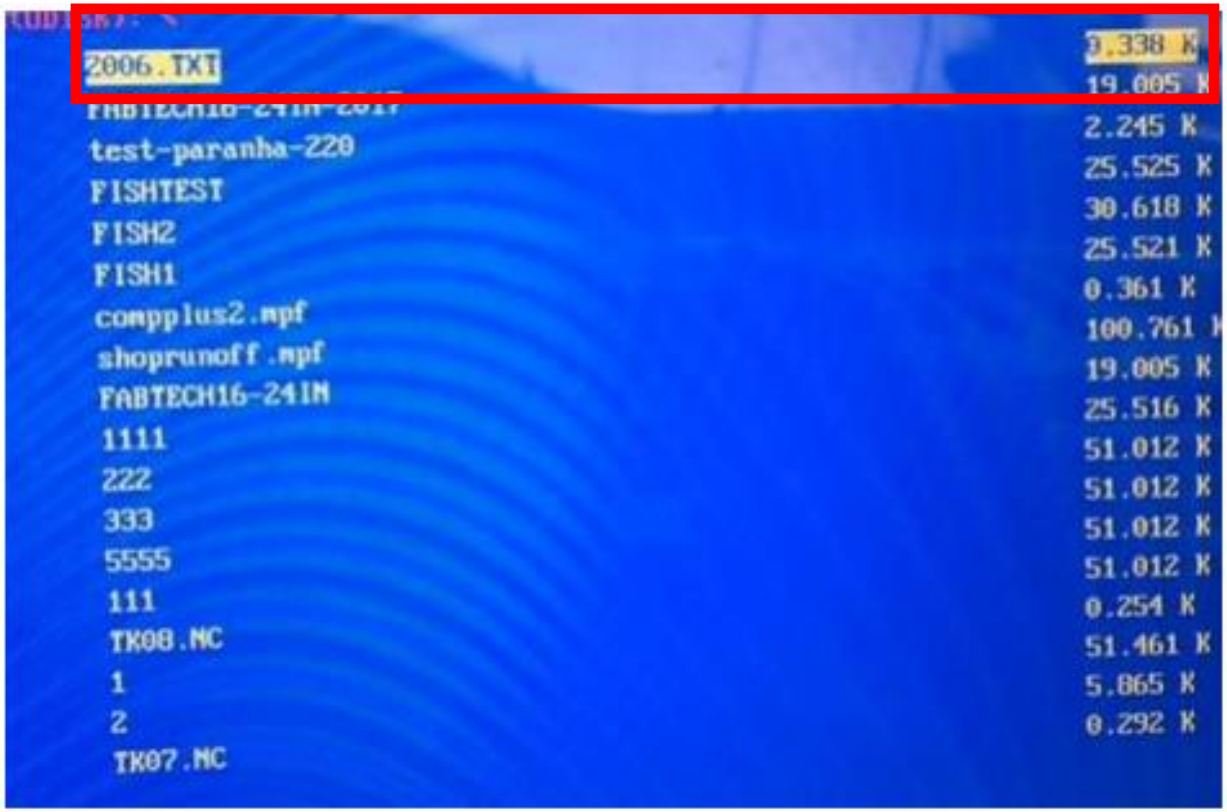
2.) The following screen will appear. Press the **"F5 [STEEL]"** key to adjust the size of the plate.



3.) Select the part program you wish to nest. This can be from the **"Shape Library (F1)"**, or from a **"File (F2)"**.

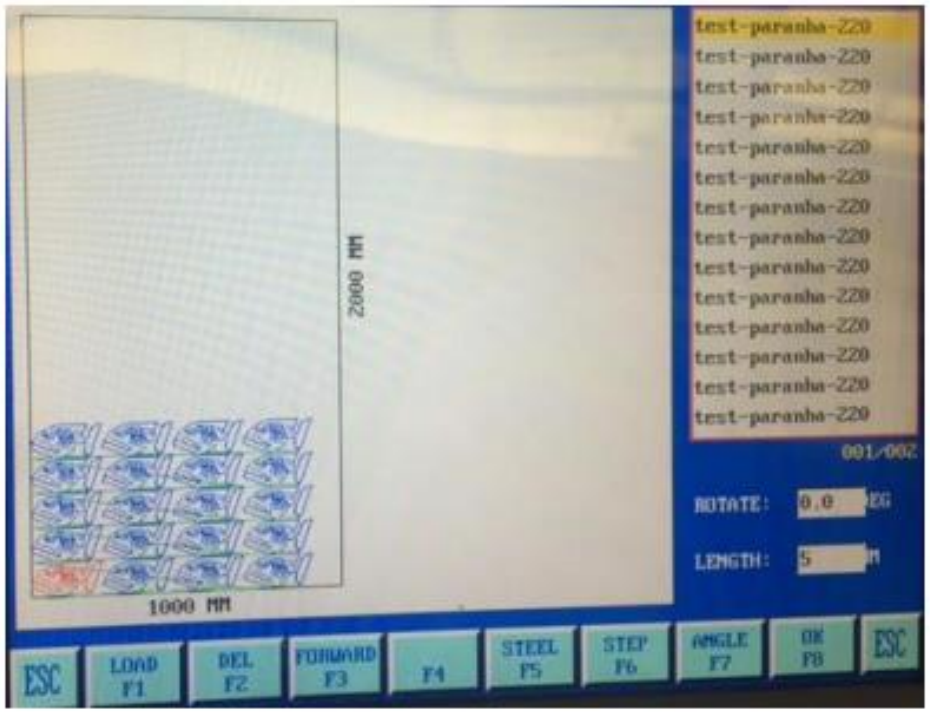
27.) NESTING (Cont'd.)-

4.) Select the Saved File you wish to nest and press [ENTER]:



27.) NESTING (Cont'd.)-

5.) You will be prompted to input the number of parts. Type in the number of parts you wish to cut and press **"[ENTER]"**. The screen will then populate the parts onto the raw material:



27.) NESTING (Cont'd.)-

6.) Individual parts can be modified by selecting the part with the up and down arrow keys to select the part (on the right-hand side of the screen) and edit as follows:

a.) F2 [DEL] – Delete's a Part.

b.) F3 [FORWARD] – Moves the part in the cut order.

c.) F7 [ANGLE] – Rotates the part.

7.) Additional (different) parts can be added by loading more parts. Use the **"F1 [LOAD]"** Key to add more parts.

8.) Once you are satisfied with the nest, press **"F8 [OK]".** You will be prompted for a file name to save the nest.

9.) You can now run the nest in **"AUTO" Mode**.

28.) SAVING CUT PARAMETERS-

There is a Material Library located in the CNC Control. This material library allows the operator to save cut conditions **(Cutting Speeds, Arc Voltage)**. The **"Cutting Speed"** can then be loaded for any program – the **"Arc Voltage"** is a quick reference to be used to set the **"Torch Height Control"**.

1.) From the **"HOME"** screen, select **"F8 [DATABASE]"**.

2.) The following Screen Appears:

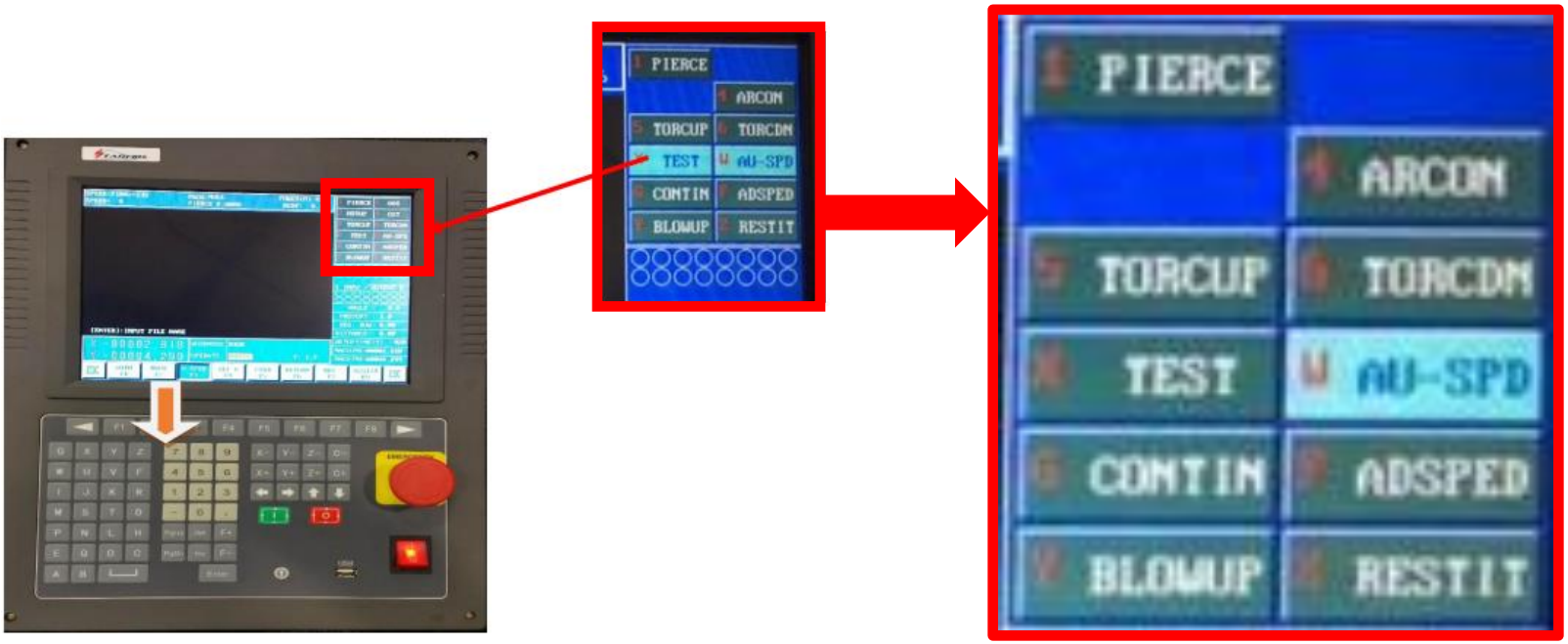
THICK	CURREN	SPEED	VOLTAGE
000	000	00000	000
000	000	00000	000
000	000	00000	000
000	000	00000	000
000	000	00000	000
000	000	00000	000
135	085	00250	122
180	085	00185	123
250	085	00130	123
375	085	00070	126
500	085	00045	131

29.) TEST MODE (DRY RUN)-

The **TEST Mode function** allows the operator to run the program without starting the torch. In **"AUTO Mode",** press the **"[X] Button"** and the **"TEST"** location on the **Display** becomes illuminated. The operator can now press the **"START" Button** and the program will run without cutting.

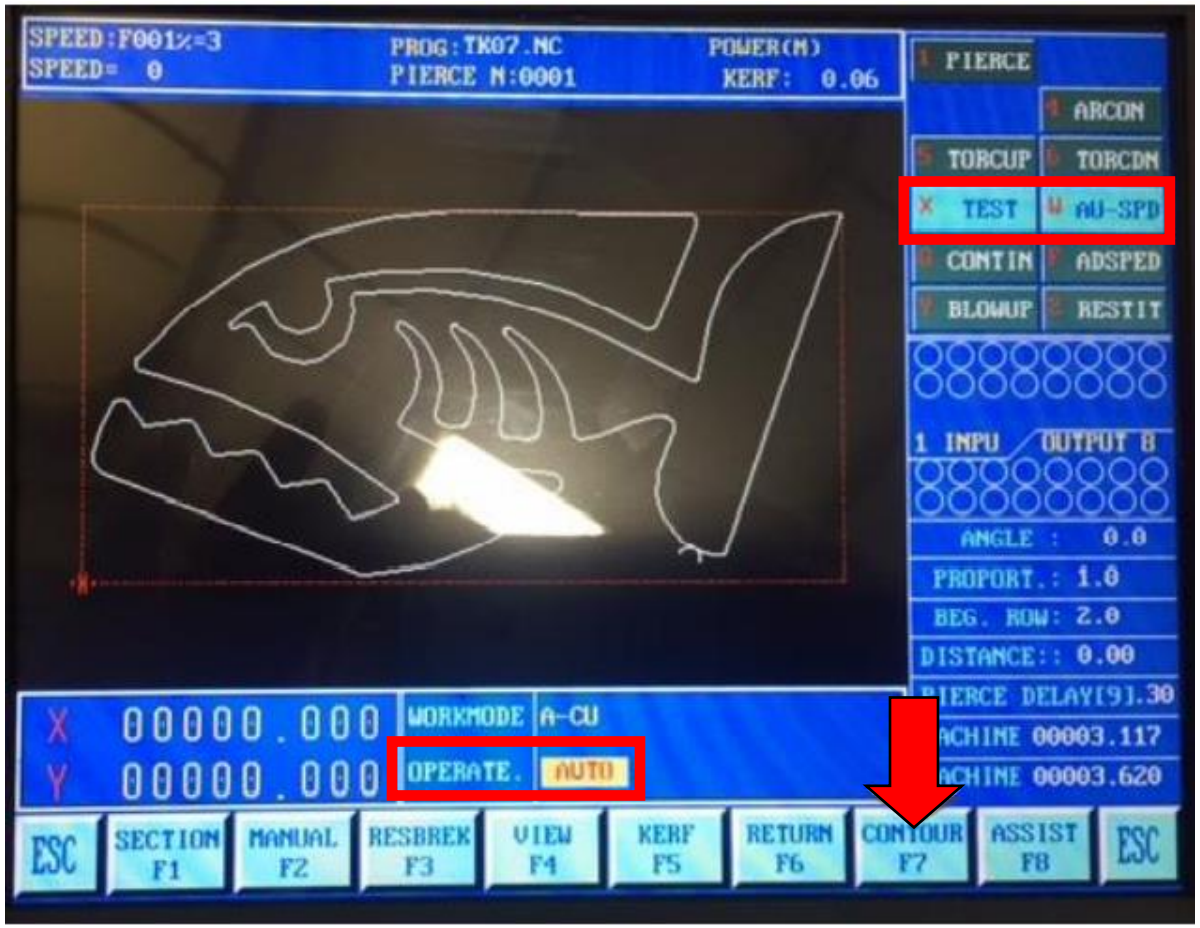
In **"TEST Mode"**, the program defaults to maximum federate – it will not run at the programmed cutting speed.

To quit the **"TEST Mode"**, press the **"[X]" Key** again, and the **TEST** location no longer will be illuminated.



30.) CONTOUR MODE-

In **"CONTOUR MODE"**, the control will test run a rectangle around the entire outside of the program. This will allow the operator to see if the part program or nest will fit on the sheet of material as it is located on the machine. To run **"CONTOUR"** from **"AUTO Mode"**, press the **"F7 [CONTOUR] Key".**



31.) PROGRAMMING-

A seat of Fast CAM programming software is included with each machine. A disk with the installation files is shipped with the machine, along with a **"Dongle" which plugs into the USB port** of your computer. For an additional cost, an upgrade to **Fast CAM** Professional is available through Phoenix Plasma. Please see Appendix A for setting up **Fast CAM**.

Please see the following online documents to help understand **Fast CAM/Fast NEST**.

Getting Started Pack (Starter Pack):

http://response.fastcam.com/knowledge-base/article/fastcam-information-starter-pack

In addition, there is a Fast CAM Community website available for common Questions and Answers (Q & A's): http://response.fastcam.com/

Fast Cam's How to Draw guide is located at:

http://response.fastcam.com/knowledge-base/article/fastcam-drawing-guide

DEMO videos on Fast Cam's YouTube channel:

https://www.youtube.com/user/FastCAMService/playlists

Manuals for Fast CAM and Fast NEST:

http://www.fastcam.com/download/Manual/FastNEST_ENGLISH.pdf
http://www.fastcam.com/download/Manual/FastCAM_ENGLISH.pdf

31.) PROGRAMMING (Cont'd.)-

PROGRAMMING CODES-

G Codes-

CODE	FUNCTION
G00	Fast positioning point to point
G01	Linear cutting
G02	Circular cutting clockwise
G03	Circular cutting anti-software
G04	Dwell (stop-delay)
G20	Inch
G21	Metric
G26	Back to reference point axis X
G27	Back to reference point axis Y
G28	Back to reference point axis X and Y
G40	Cancel compensation
G41	Compensation left
G42	Compensation right
G90	Absolute distance mode
G91	Incremental distance mode
G92	Reference point set-up

31.) PROGRAMMING (Cont'd.)-

PROGRAMMING CODES-

M Codes-

CODE	FUNCTION
M00	Stop program
M02/M30	Program ended
M07/08	Plasma cutter ON/OFF

32.) MAINTENANCE-

The following maintenance items should be done on a planned basis:

MAINTENANCE ITEM	FREQUENCY
Empty Slag Pan(s)	Daily
Inspect Slats and Replace where necessary	Weekly
Wipe Linear Guides X and Y Axis • Dry Rag; Then Apply Light Oil	Weekly
Lubricate X-Axis (1) and Y-Axis (2) Racks • Spray Moly Lubricant	Quarterly
Lubricate X-Axis (4 total) and Y-Axis (2 Each Side) Bearings • Premium Grade lithium base, extreme pressure grease such as Shell Alvania EP-1	Annually

In addition, the operator should take care to clean the machine and surrounding areas regularly, as needed, to maintain a safe work environment.

32.) MAINTENANCE (Cont'd.)-

Error Code List-

ERROR CODE	Description
01H	Overflow/illegal character(s) in program
20H	Division Overflow
21H	Error Starting/ending point of arc
22H	Error radius of arc
24H	Error condition of arc
2AH	Overflow program line. No torch movement of this line
34H	Illegal Operation
40H	Emergency stop pressed
41H	Limit X+
42H	Limit X-
43H	Limit Y+
44H	Limit Y-
45H	Negative limit of software coordinates
46H	Positive limit of software coordinates

MAINTENANCE (Cont'd.)

MACHINE SETUP PARAMETERS-

The parameters in the SETUP section of the control should be set as follows:

INITIAL SETUPS			
FROM MAIN PAGE---> SETUP--->SPEED (F1)			
STARTUP		00020	
TIMING（S）		00.30	
CORNER ACCELER （S）		00.25	
HIGH SPD		00314	
LIMIT SPEED (S)		00314	
RET ORIGIN SPEED		00118	
RECEDE/FRONTAD SPEED		00118	
TESTING SPEED		00314	
SPD TRAN ANGLE		030.00	
CORNER RADIUS		00.008	
CURVE SPEED		00.80	
CURVE RADIUS		000.00	
FROM MAIN PAGE---> SETUP--->SYSTEM (F2)			
NUMERATOR	X:00416	Y:00416	
DENOMINA-	X:00125	Y:00125	
MA-ORIGIN	X:0000.00	Y:0000.00	
REFERENCE	X:0000.00	Y:0000.00	
OFFSET	X:0000.00	Y:0000.00	
CLEARANCE	X:0000.00	Y:0000.00	
DIR-ORIGIN	X:00	Y:00	*1
SOFTLIMI+ (4' x 4' MACHINE)	X:000049	Y:00049	
SOFTLIMI+ (4' X 8' MACHINE)	X:000049	Y:00097	
SOFTLIMI+ (5' X 10' MACHINE)	X:000061	Y:00121	
SOFTLIMI-	X:0000.00	Y:0000.00	*2
FROM MAIN PAGE---> SETUP--->PLAS (F4)			
TORCH LOCATE TIME		000.50	
TORCHUP TIME (M70)		00.80	
TORCHDN TIME (M71)		02.00	
ARC-FEEDBACK (0/1)		0	
DETECT DELAY		00.00	
LOCATE CHECK (0/1)		0	
LOCATE CHECK (0/1)		0	
PEIRCE TIME		000.30	*3
OFF DELAY		00.00	

MAINTENANCE (Cont'd.)

MACHINE SETUP PARAMETERS-

DIS. COR. OFF ARCS	000.4	
SPEED OFF AHCS (MM/MIM)	00000	
ANTICIP OFF AHC (MM)	00.0	
ANTICIP OFF AUTO-SIG (MM)	00000	
AHCS AUTO-SIG DELAY (S)	01.0	
AHCS AUTO-SIG DIS (MM)	00000	
SPEED OFF AHCS (MM/MIM)	00100	
ARC ON M ORDER	12	
ARC OFF M ORDER	13	

FROM MAIN PAGE---> SETUP--->CTRL (F5) 0-NOT CHOOSING; 1	
PLASMA(1)/FLAME(0)	1
AUTO ACC SPEED	1000
EXTEND PIERCE (0/1)	0
MA-COORDINATE	00
SELECT CYLINDER UP/DOWN (0/1)	0
CTRL-OUTSIDE (0/1)	0
WIRED-0/RF05-1/RF06-2	0
G41/G42 CHECK EFF (0/1)	1
SOFT LIMIT EFF. 1/INE.0	1
LIMIT POSI EFFECT (0/1)	1
SELECT AUTO-REFERENCE (0/1)	0
CHECK COLLIDE (0/1)	0
COLLIDE LOGIC (0/1)	0
COLLIDE PAUSE (0)/TORCHUP(1)	0
PAUSE UP TORCH (0/1)	1
NUMERATOR	00
NUMERATOR	00
NUMERATOR	01
CUTTING LINE (BREAK.MM)	1000
BRIDGE CUTOFF LINE (MM)	10
SELECT GIO PLASMA/FLAME	0
DISP NAME (0/1)	0
SELE PLOT KERF LINE (0/1)	1

*1. DIR-ORIGIN: when X:-1 Y:-1, system allows the torch to go beyond soft limit

*2. SOFTLIMI-: under *1, how far away the main system will allow torch to go past reference 0 point. (e.g. X:-0001.00 Y:-0002.00 means the torch can go to 1 inch along X- direction and 2 inches along Y- direction past the reference 0 point.

*3. PIERCE TIME: pierce delay time changes according to the material thickness; the thicker the material sheet is, the longer this pierce time is.

MAINTENANCE (Cont'd.)

PROCEDURE - SETTING MACHINE ZERO-

In the event that the machine has lost its zero-home position, use the following procedure to re-set **"MACHINE ZERO"**.

"MACHINE ZERO" is different than "PROGRAM ZERO"- **this procedure should not be used to set "PROGRAM ZERO".**

1.) Press F2 [MANUAL]-

2.) Press F8 [ASSIST]-

MAINTENANCE (Cont'd.)

PROCEDURE - SETTING MACHINE ZERO-

3.) Press F5 [MEASURE-

NOTE: As an alternative to the first three steps, you can simply jog the machine to the location you wish to set machine zero.

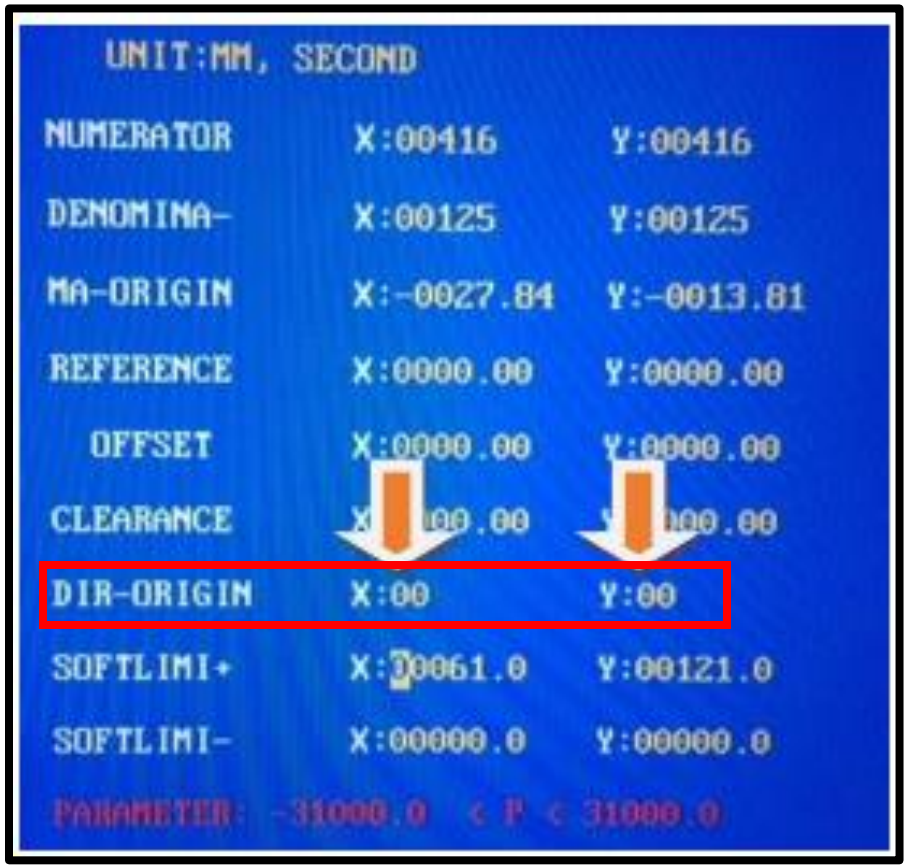
4.) Choose F4 [SETUP] from the Home Screen-

5.) Choose F2 (SYSTEM)-

MAINTENANCE (Cont'd.)

PROCEDURE - SETTING MACHINE ZERO-

6.) In the parameters, find [DIR-ORIGIN] – Set X: 00, Y: 00-



MAINTENANCE (Cont'd.)

PROCEDURE - SETTING MACHINE ZERO-

7.) Press F8 [SAVE]-

8.) Press [ESC] until you get back to the Home Screen-

9.) Press F2 [MANUAL]-

10.) Press F8 [ASSIST]-

11.) Press F6 [ORIGIN]-

MAINTENANCE (Cont'd.)

PROCEDURE - SETTING MACHINE ORIGIN-

12.) Press [ESC] until you get back to the Home Screen-

13.) Choose F4 [SETUP] from the Home Screen-

14.) Choose F2 (SYSTEM)-

MAINTENANCE (Cont'd.)

PROCEDURE - SETTING MACHINE ORIGIN-

15.) In the parameters, find [DIR-ORIGIN] – Set X to -1 and Y to -1-

16.) Press F8 [SAVE]-

MAINTENANCE-

PROCEDURE – UPDATING CONTROL SOFTWARE FROM USB DRIVE-

1.) Before placing a Program Drive into the USB Drive, a.) Push the **"Update ARROW Button"** and b.) Turn **"On"** the Plasma 2 CNC Machine;

MAINTENANCE

PROCEDURE – UPDATING CONTROL SOFTWARE FROM USB DRIVE-

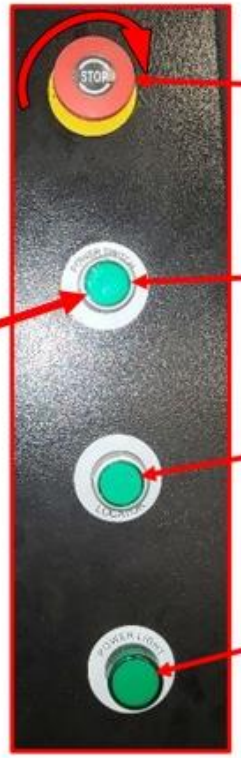
1.) Before placing a Program Drive into the USB Drive, a.) Push the **"Update ARROW Button"** and b.) Turn **"On"** the Plasma 2 CNC Machine-

Turn the **"Main Electrical Switch"** on the back of the Electrical Control Cabinet to the **"On"** Position.

Rear Door of the Electrical Cabinet

Main Electrical Switch for Plasma Level 2 Machine (CNC Controller)

Turn **"On"** the **"Power Switch"** on the front of the Electrical Control Cabinet.



"Emergency Stop Button"-Shuts off Power to the Electrical Control Cabinet. To Disengage, E-Stop Button Pull & turn button to the Right, to pop out.

"Power" Switch-This is the "On/Off" Switch that turns on & off the Power to the Electrical Control Cabinet.

"Locator" Switch-This is the "On/Off" Switch that turns on the Red Dot (Laser) Locator alongside the Plasma Cutting System.

"Power Light" Indicator-This indicator light when lite, tells operator if the Electrical Control Cabinet has power.

Controls for Electrical Cabinet

MAINTENANCE

PROCEDURE – UPDATING CONTROL SOFTWARE FROM USB DRIVE (Cont'd.)-

2.) When the screen display will appear;

3.) When the screen stops changing, locate and note the "**Version of STARFIRE Control Software**" on the screen.

MAINTENANCE

PROCEDURE – UPDATING CONTROL SOFTWARE FROM USB DRIVE (Cont'd.)-

4.) Choose the USB for updating the control from that version;

5.) Turn the power supply off, plug in the USB drive;

Turn the **"Power Supply Off"**.

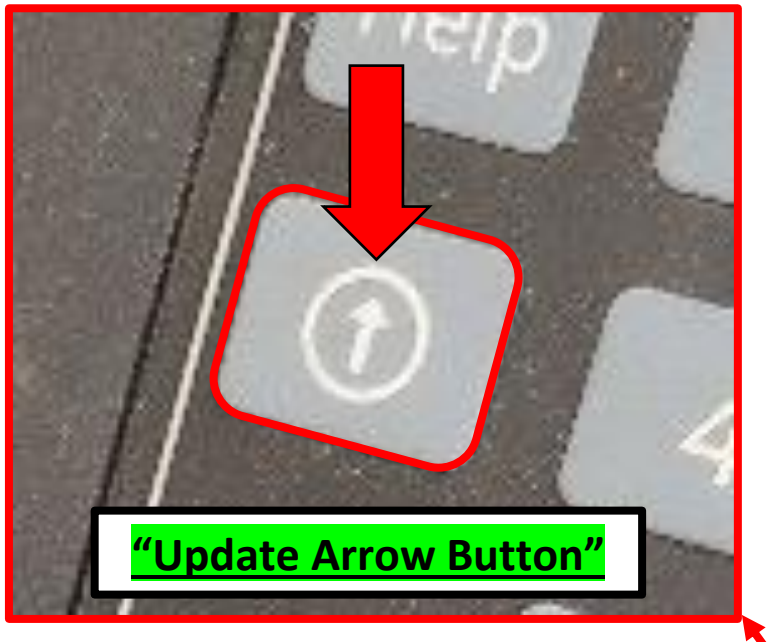
USB Port

Arrow Keys

MAINTENANCE

PROCEDURE – UPDATING CONTROL SOFTWARE FROM USB DRIVE (Cont'd.)-

6.) Hold the Update ARROW Down and turn the power on;



Turn the **"Power Supply On"**.

MAINTENANCE

PROCEDURE – UPDATING CONTROL SOFTWARE FROM USB DRIVE (Cont'd.)-

7.) Release the **"Update Arrow Button"** when the screen starts to change;

"Update Arrow Button"

8.) You will see the blue screen with two white squares on bottom left;

MAINTENANCE

PROCEDURE – UPDATING CONTROL SOFTWARE FROM USB DRIVE (Cont'd.)-

9.) Push F1;

PROCEDURE – UPDATING CONTROL SOFTWARE FROM USB DRIVE (Cont'd.)-

10.) Turn Off the power with the **"Green Power Button"** when the screen stops changing.

Turn the **"Power Supply Off"**.

MAINTENANCE

PROCEDURE – UPDATING CONTROL SOFTWARE FROM USB DRIVE (Cont'd.)-

11.) Re-start the Control with the Green Power Button.

Turn the **"Power Supply On"**.

FastCAM SETUP-

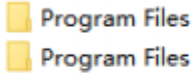
How to setup FastCAM ：

Run the CD, choose **“ENGLISH”**, then choose **“START”**, and follow the instruction to finish installation; When you finish Fastcam installation, you will see a file holder FastCAM on your desktop:

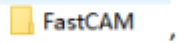
A. How to install and setup for imperial?

How to change the unit from metric to imperial (MM to INCH):

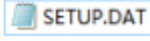
1. Go to your system disc (disc C:) and find Fastcam file holder:

In disc C you find 

, then double click Program Files (x86)

2. Then you will find file holder 

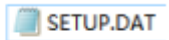
, open this file holder;

3. Find the file 

, open this file, change UNITS,0,0,0 on the 6th row to UNITS,1,1,0 ;

4. save.

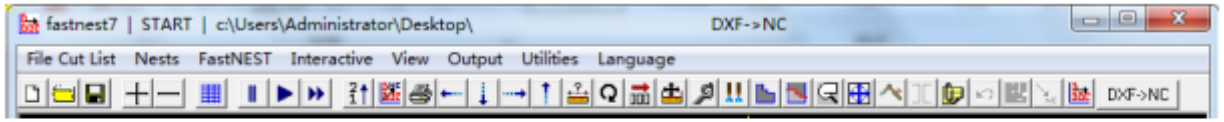
(If your system do not allow you to change the file, you can copy the file to other disc or USB, make changes and save the file, then delete the old

, copy the new 

from other disc or USB.)

B. How to import part drawing?

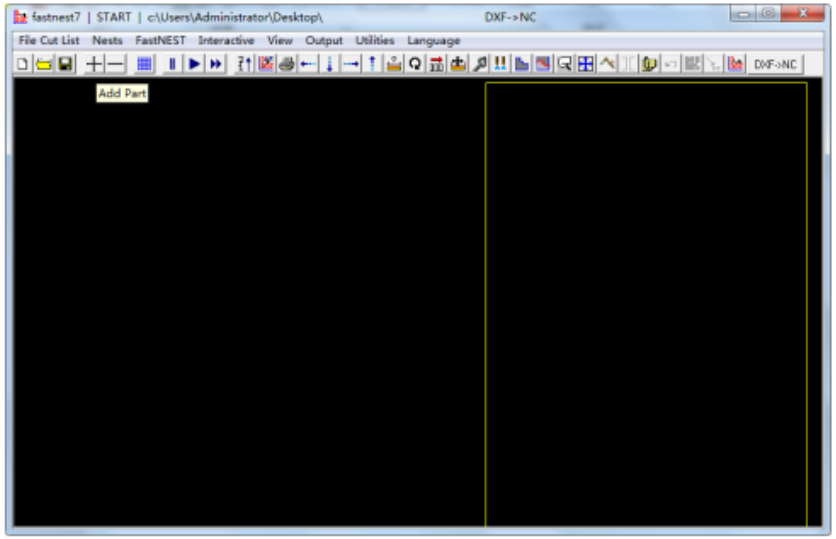
1. Double click **FastCAM** file holder;
2. Double click **FastNEST**;
3. You will see black background with a yellow square on it, you also will see tool bar on top;

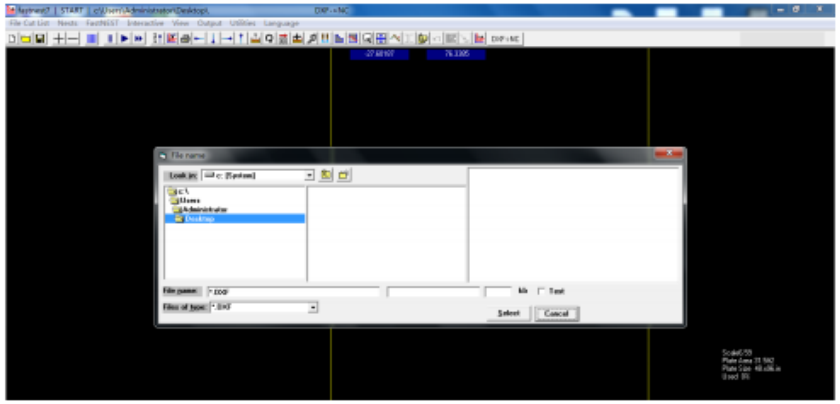


4. Clock the 4th symbol from left on the tool bar  to add part;
5. Then a page come out for you to choose the part file from your computer to add to **FastNEST**; (With **FastCAM** software, we can only nest or import a part of NC, DXF, IGES or CAM file.)

FastCAM SETUP (Cont'd.)-

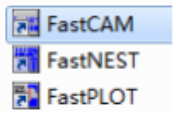
Also, if you are a new user of **FastCAM** software, you need to finish **INITIAL FASTCAM SETUPS (attached with this file)** before you start to nest/import a part drawing.





C. How to edit a part drawing?

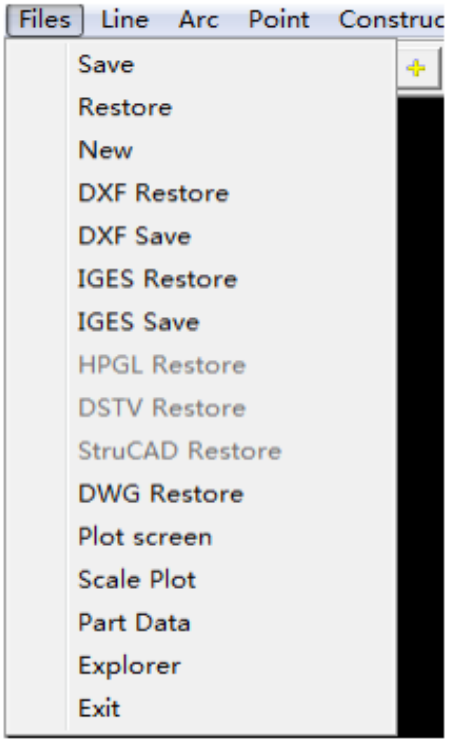
1. Open FastCAM holder, open FastCAM;



2. The tool bar on top:

FastCAM SETUP (Cont'd.)-

3. Click **Files**, choose **Restore** to read *.CAM, **DXF Restore** for *.DXF;



4. Choose the functions you need and **Enter**:

FastCAM SETUP (Cont'd.)-

5. Find the part drawing under certain path in your computer;

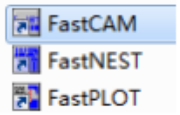
6. Use the tool bar on top to erase or add lines/circles/rectangles.

D. How to create a part? (How to use FastCAM to draw a part)

We will draw a 4" square with 1" diameter round hole.

To create a part drawing with FastCAM:

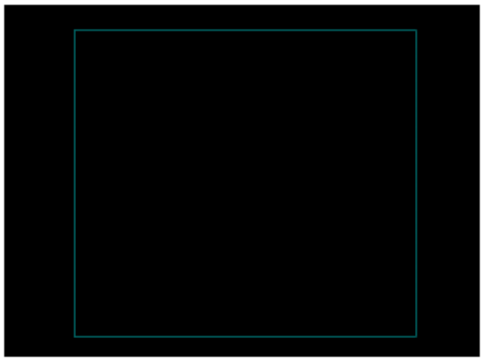
1. Open FastCAM holder, open FastCAM;



2. The tool bar on top:

3. Click on  on the tool bar to draw a box/square:

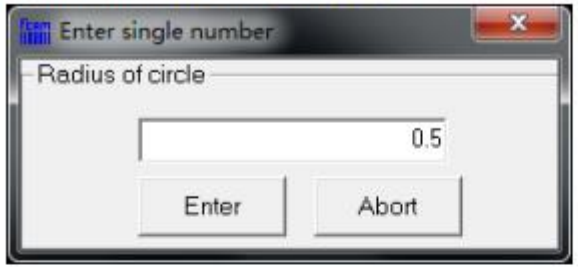
   a page comes out, where you input the **Width** & **Height** of the square, then **Enter**;



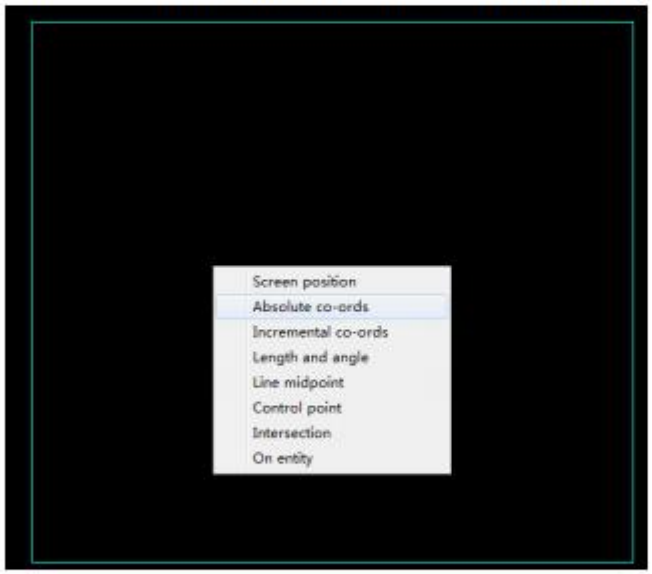
FastCAM SETUP (Cont'd.)-

4. Click on the tool bar to draw a circle:

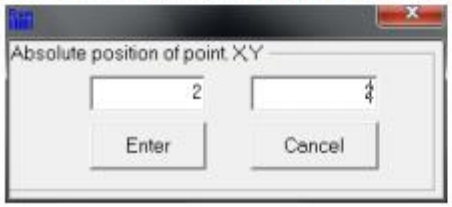
i. input the **Radius of Circle** and **Enter**;



ii. Your mouse become a white cross, click the **right button** of mouse,

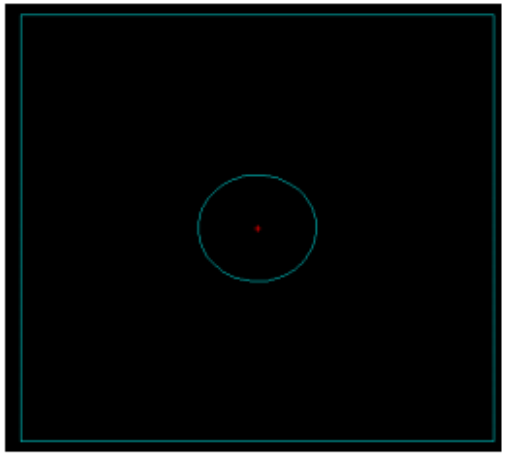


iii. choose **Absolute co-ords**, input the absolute co-ordinates of circle center, then **Enter**;

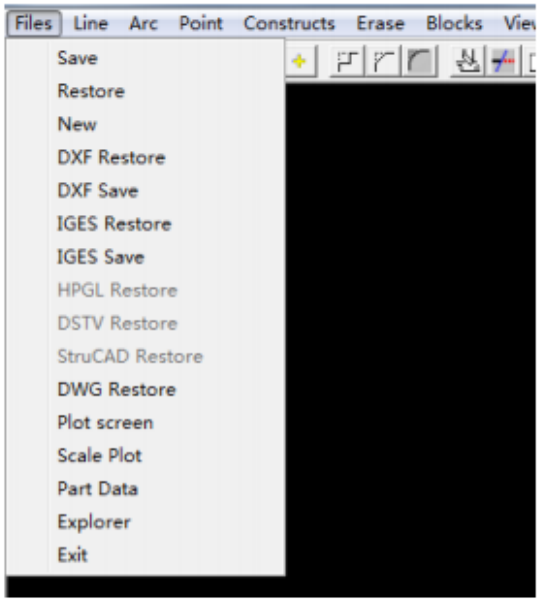


FastCAM SETUP (Cont'd.)-

5. When you click  and close the sub-page (push ESC if necessary), you will see a 4" square with a 1" round hole right in the middle;



6. Push **Files** on the top left of the tool bar, choose **Save** to save the part in a ***.CAM** file; or **DXF Save** to save the part in a ***.DXF** file. Then follow the instruction, name the part drawing and save it to certain path on your computer or USB.



FastCAM SETUP (Cont'd.)-

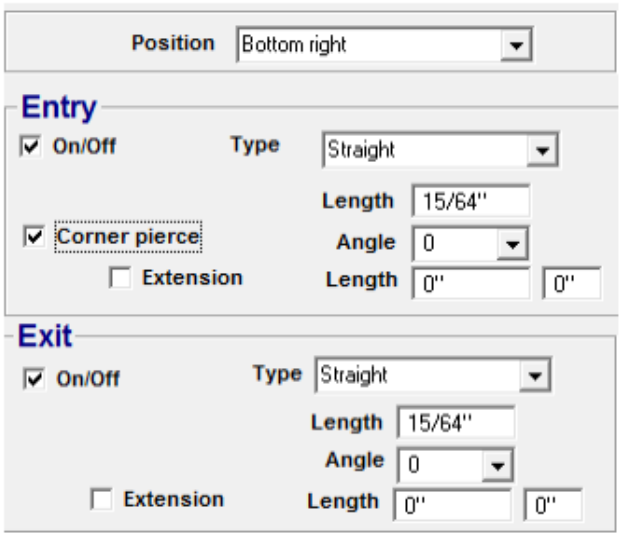
E. How to set up lead-in/out?

Set the lead in and lead out (the lead-in and lead-out will change according to the thickness and density of the material , once you finish setting lead-in and lead-out, you will not need to change the settings unless the thickness or density of the material, or the torch you use changes):

1. Open **FastNEST**, click DXF->NC on the right of the tool bar on top;
2. click Set Pierce, you will see **FastPATH Settings** page comes out;
3. under "Process" on top left, choose "CUTTING---LEFT---BOTH";

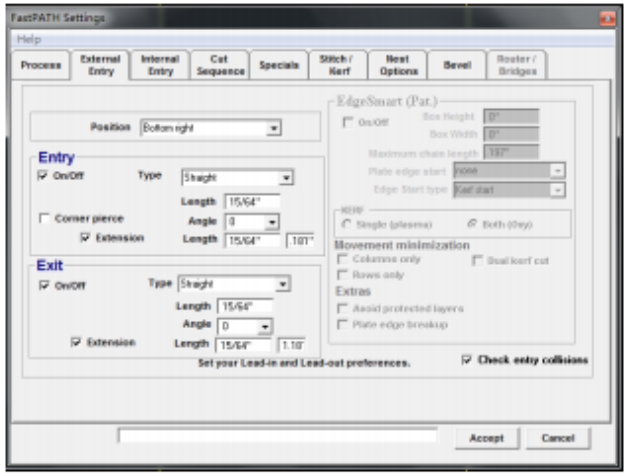
4. under "**External Entry**", set the "**Entry**" and "**Exit**" according to your need, "Entry" is lead-in and "Exit" is the lead-out. Normally, the length of lead-in/out should be ≥ **2***material thickness, for small thickness material, the length of lead-in/out also need to be bigger than the kerf width. If the external outline of the part only has straight lines, you can choose **Straight** in entry/exit type; if the external outline of the part only has curves, or has both straight lines and curves, you can choose **Half Circle** or **Quarter Circle** in entry/exit type.

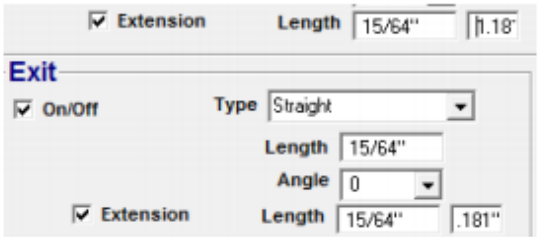
Please also check **Corner pierce**.



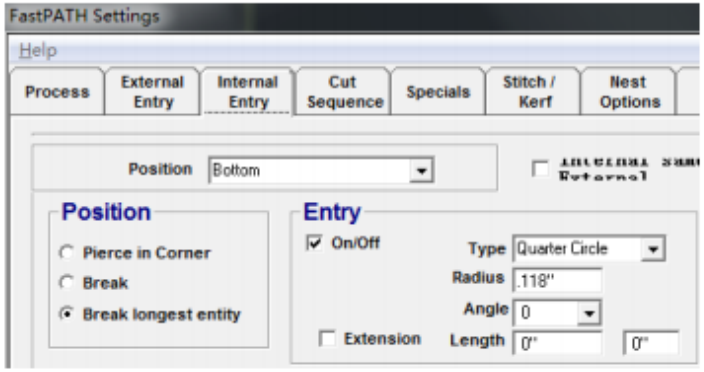
FastCAM SETUP (Cont'd.)-

5. If you want to choose **Extension** in "**External Entry**" settings to achieve higher precision, make sure you choose **Extension** on both "**Entry**" and "**Exit**". Normally, the length of extension is same as the length of entry/exit, and the blank to the right of the length of extension is the angle of extension line to entry/exit line, our default number is 1.181, which means 30 degrees;





6. set your **Internal Entry** in the same way as you setting up your **External Entry**. (If the internal cuts are all straight lines, choose **Pierce in Corner**; otherwise choose **Break longest entity**;



FastCAM SETUP (Cont'd.)-

7. when you finish all the FastPath settings, click Accept to save.

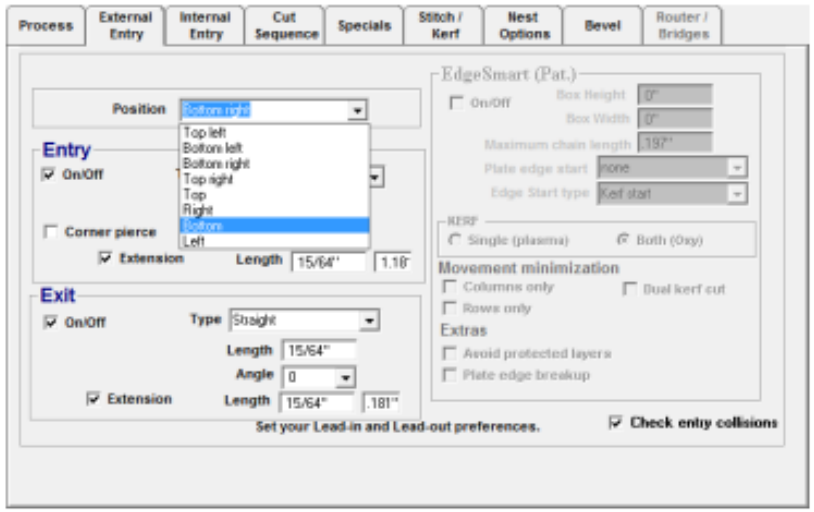
F. How to select/move lead-in/out location?

1. Select general lead-in/out location:

   i. Open **FastNEST**, click DXF->NC on the right of the tool bar on top;

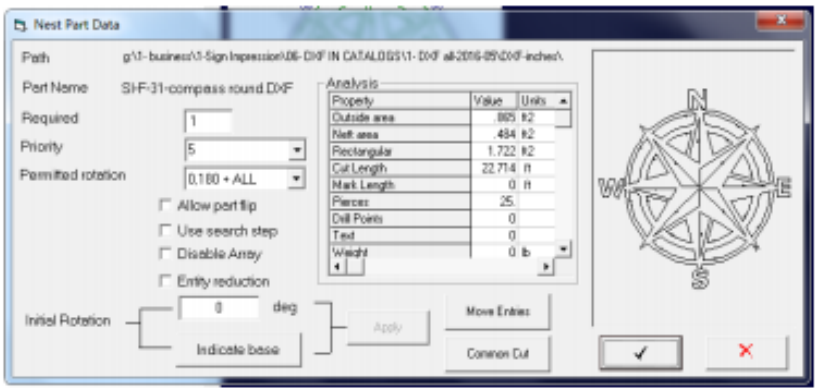
   ii. click Set Pierce, you will see **FastPATH Settings** page comes out;

   iii on top left, in Position, you can select the general location of lead-in/out:



2. Move lead-in/out when you import part drawings:

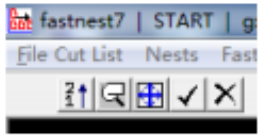
   When you import a part drawing, you will see the following page, you can find Move Entries on the middle bottom;



FastCAM SETUP (Cont'd.)-

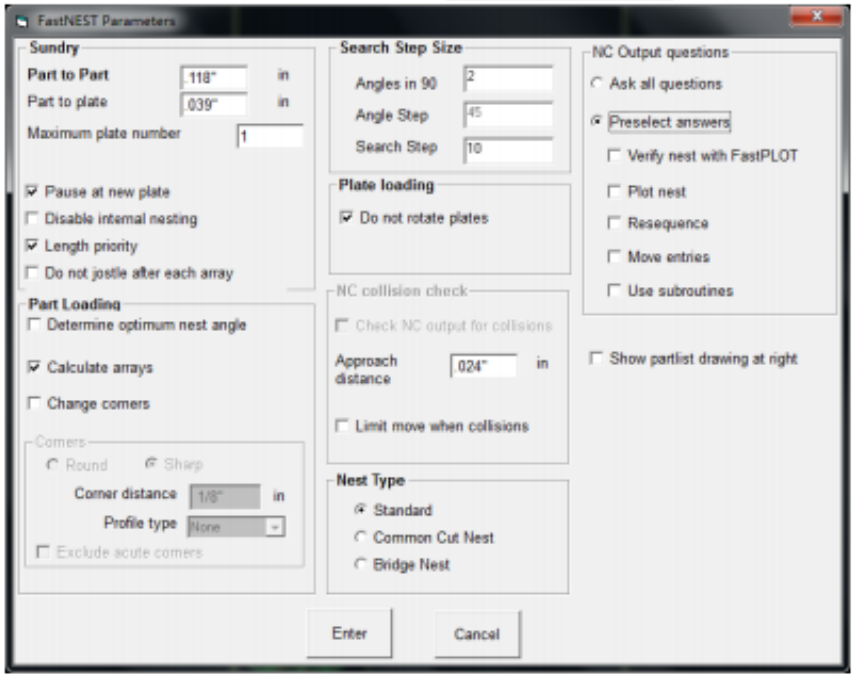
ii. click Move Entries once, click the middle spot of the lead-in/out, both lead-in and out change color, then click at the spot where you want to move existing lead-in/out to (if only lead-in or lead-out change color, then you need to click twice to move existing lead-in/out the new spot);

iii. if you are satisfied with the new lead-in/out position, click ✓ on the top left, and then you can resume nesting; If you want to cancel editing the lead-in/out position, click ✕.



3. Move lead-in/out when you generate output:

i. When you open **FastNEST,** Click in the middle part of the tool bar on top the page, you will see the following page comes up to set up **FastNEST Parameters**:

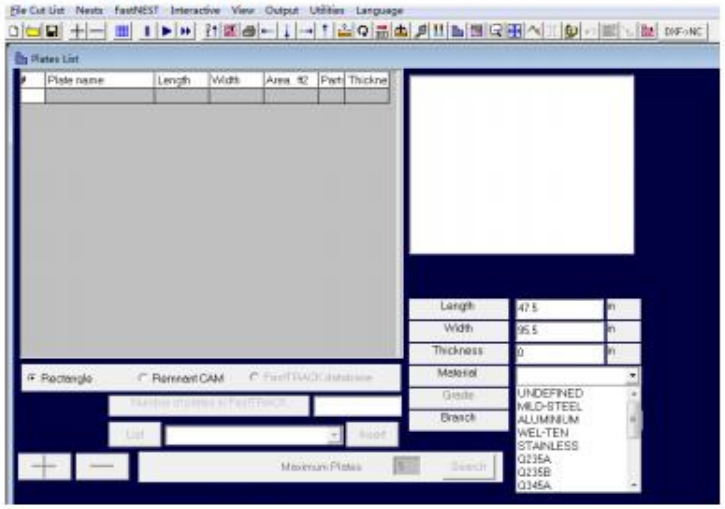


ii. On the right of the page, you can choose from **Presect answers** the questions you want to be asked every time when you generate output, check **move entries**;

FastCAM SETUP (Cont'd.)-

iii. Then when you have finished add part drawings, click **Output**, then **Generate Output**, then there is a page asking **Move entry position?** click **(Y)**. Then you can move the entries by following the steps of ii and iii of step 2 here above, when you click ✓, you can rename your NC output you just generated.

G. How to select sheet size, type and shape?



1. open **FastCAM** file holder and open **FastNEST**;
2. click on the tool bar on top,

3. on the page you can input the sheet **Length** (the X-AXIS direction), and the sheet **Width** (the Y-AXIS direction);
4. on the same page, you can select sheet **Thickness** and **Material** type too;

FastCAM SETUP (Cont'd.)-

5. In the picture right under the topic "**G. How to select sheet size?**", if you choose **Remnant CAM** instead of **Rectangle** , then click  , you can choose from your computer the remnant sheet you saved from nesting before. (Check "**K. How to use remnant material sheet**" on the end of this file.)

H. How to select material type/thickness?

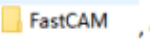
Please refer to the answer of question G above.

******(optional) How to add more MATERIAL to your FastCAM:**

1. Go to your system disc (disc C:) and find Fastcam file holder:

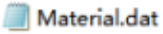
   In disc C you find 

   , then double click Program Files (x86)

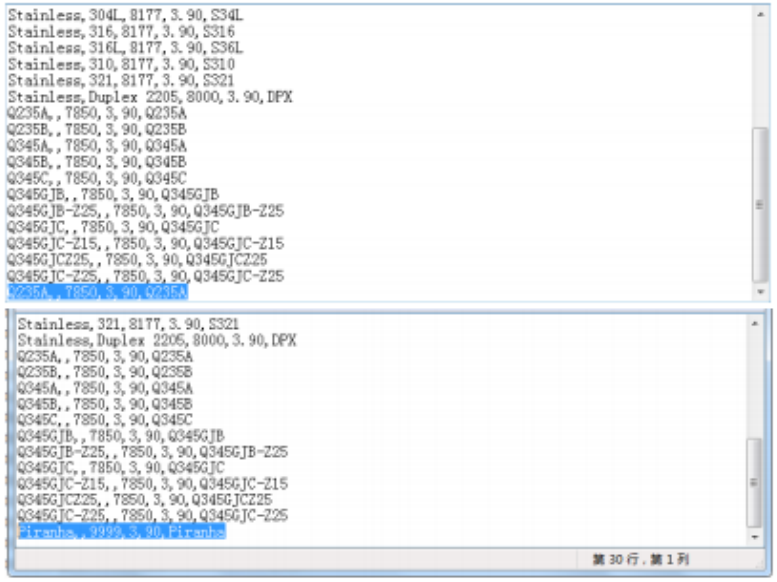
2. Then you will find file holder 

   , open this file holder;
3. Open 

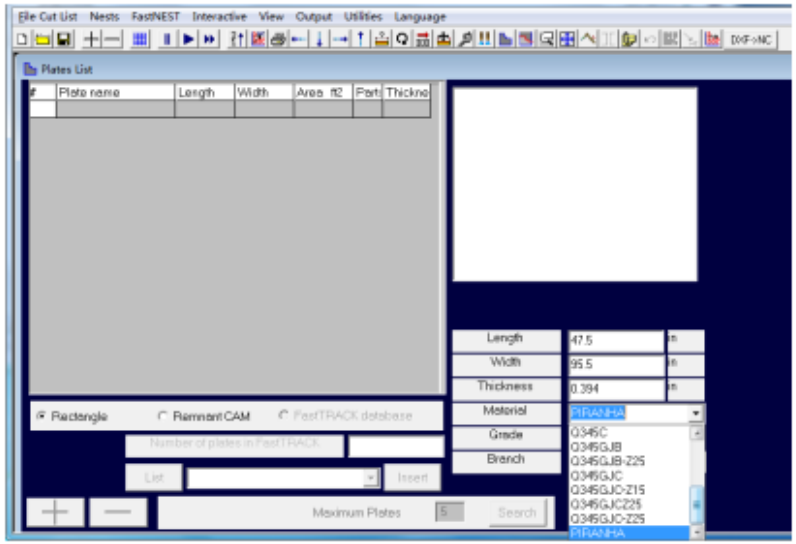
   ;
4. (optional) Delete the rows of the material you will not use;
5. copy one row, for example the row of Q235A, past this row to the bottom of this file;
6. change the Q235A to the material type you want to add, and change the density 7850 to the density of new material type (kg per cubical meters), save.

If your system do not allow you to change the file, copy the file to other disc or USB, make changes and save the file, then delete the old file, paste the new 

file back.



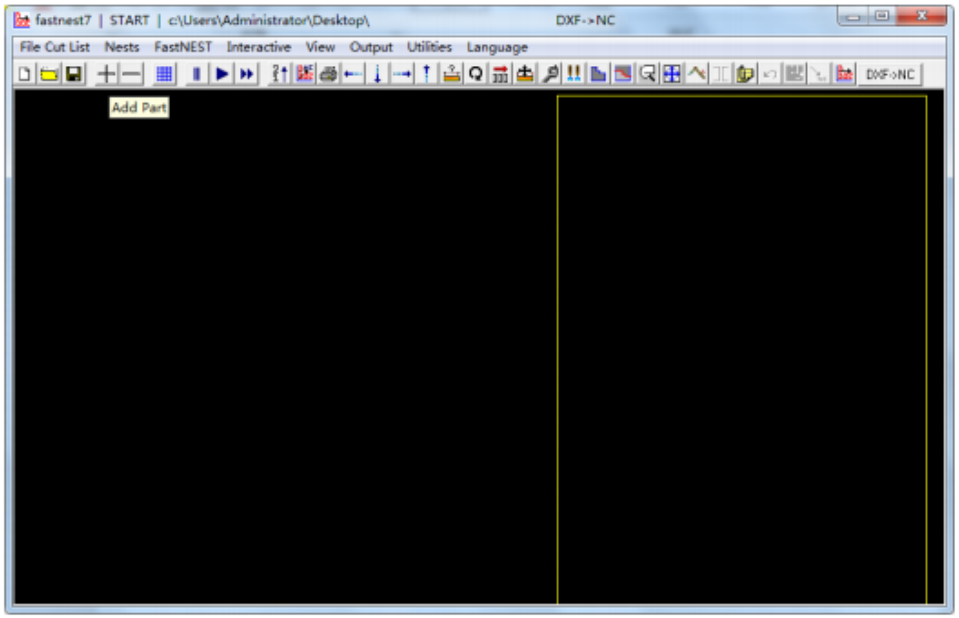
FastCAM SETUP (Cont'd.)-



I. How to create part program(NC file/.TXT file)?

*Please refer to the file "**3-PLASMA -create a part program to cut**" for the complete operation.

1. Double click **FastCAM** file holder, then double click **FastNEST**;
2. Finish all the initial setup by following the steps in the file **3-CREAT A NESTING PROGRAM** attached together with this file;
3. On top of the page, find  , click to import/add a part;



FastCAM SETUP (Cont'd.)-

4. A page of Nest Part Data comes up, you can input the **Require** quantity of this part, the **Priority** level of this part and **Permitted Rotation**:

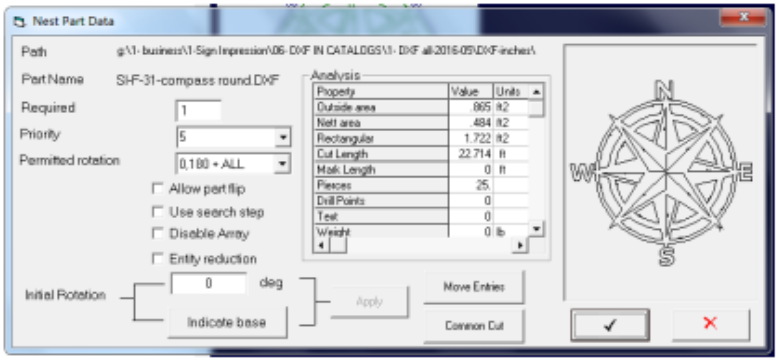
   i. Require quantity means how many pieces you need;

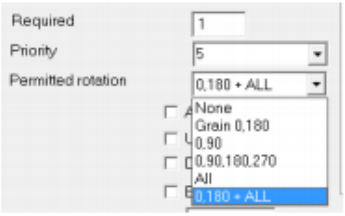
   ii. **Priority** levels are decided by emergency levels parts. For example:

   If you need to nest a whole sheet of Part A, you do not need to change/set **Priority** levels, you only need to input a large **Require** number, which is bigger than the rough estimated number you may get from the whole sheet. Then FastCAM will automatically calculate and nest as many Part A to this sheet as possible;

   If you need to nest multiple parts A, B and C to the same sheet, and you definitely need Part A as soon as possible, you need part B in 2 days and Part C in 2 weeks, you can input **Priority** levels to part A, B and C. FastCAM will nest the part in order of **Priority** level from high to low

   iii. Permitted Rotation will help users to make the most use of material.





5. Repeat step 4 until you have added all the parts or there is no space on the sheet;

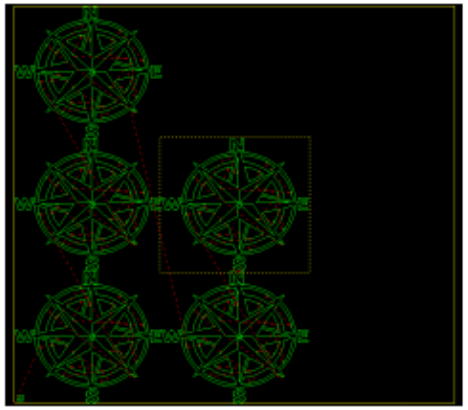
6. You review all the parts imported by clicking **Parts List** which is  on the tool bar; click the name of the part and Delete, you can delete the part from the list;

#	Part name	Req	Pri	Rot	Cut	Wid	Ht	Prv
1	SI-A-05-Fire Rescue.dxf	1	5	0,180 + ALL	1	5.722	15.75	0
2	SI-J-01-soccer-girl.dxf	12	5	0,180 + ALL	12	14.75	7.089	0
3	SI-A-08-USN.dxf	2	5	),90,180,270	2	0.857	5.747	0

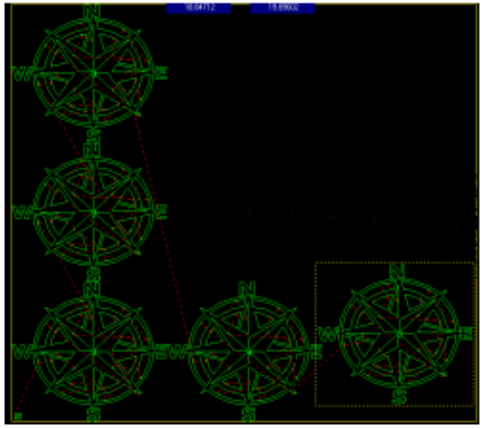
7. When you finish, click  on the tool bar, FastCAM will renest all the parts from beginning in the order of **Priority** level.

FastCAM SETUP (Cont'd.)-

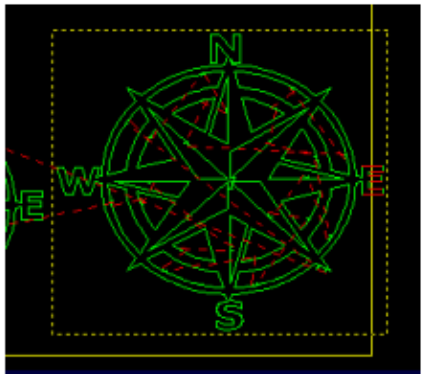
8. You can nest the part manually, the yellow frame is your material sheet, after you import/add part, you will be able to see the part inside the yellow frame. For example:



i. Click one the part you want to move with left button of mouse, keep holding left it and do not let it go until the part move the better new spot;

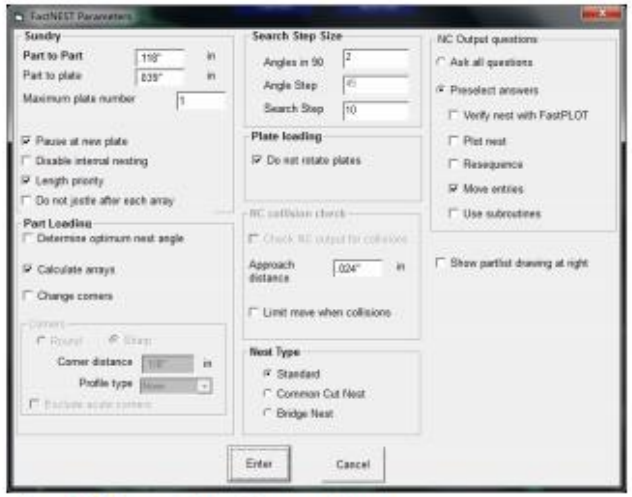


ii. The broken yellow line shows the part you are moving with your mouse, if the part is over the edge of is too close to another part, the color will change to red (like the letter E in the picture below);

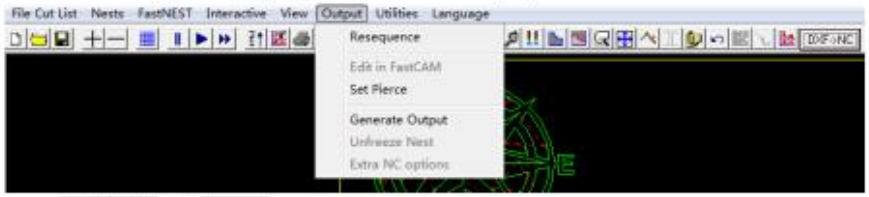


FastCAM SETUP (Cont'd.)-

iii. Click the arrows on the tool bar, the part inside broken yellow lines will move to left/down/right/up as much as the limit goes. (the **Part to Part** and **Part to Plate** distances can be set in **FastNEST Parameters** , you can find the page by clicking on the tool bar.



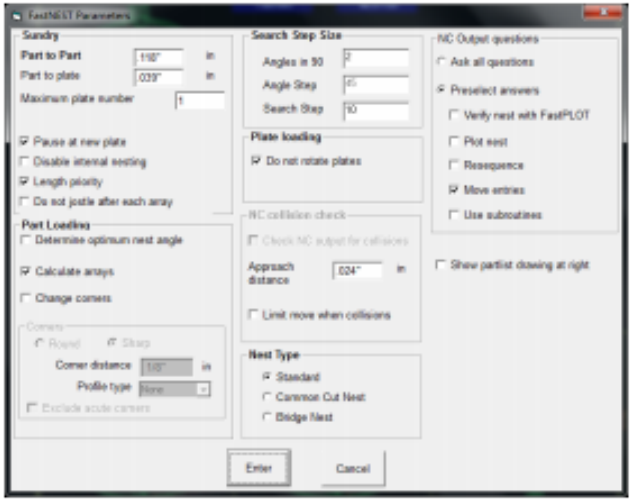
9. When you finish nesting, click **Output**, then **Generate Output**;



10. Input your **Nest Data** and **Accept**;

FastCAM SETUP (Cont'd.)-

11. Then the software will ask you all the questions which you choose on the left right side of **FastNEST Parameters** page (you can find the page by clicking  on the tool bar.)

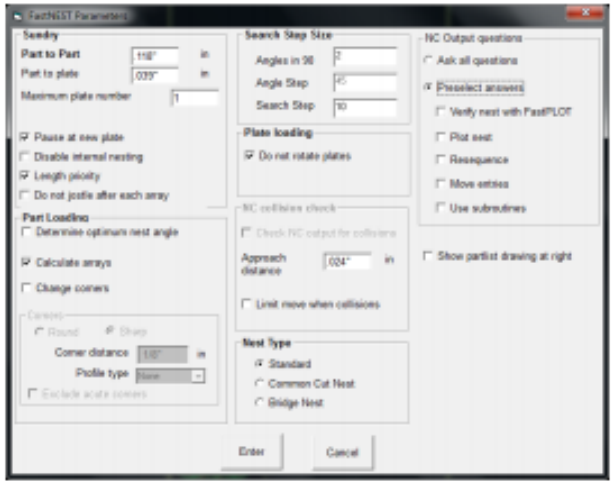


12. Then you will see a page comes up on which you can rename the nesting file(.TXT file), save and copy that .TXT file to your USB, bright your USB to your **PARANA** plasma machine, you are ready to start cutting.

J. How to edit part sequence?

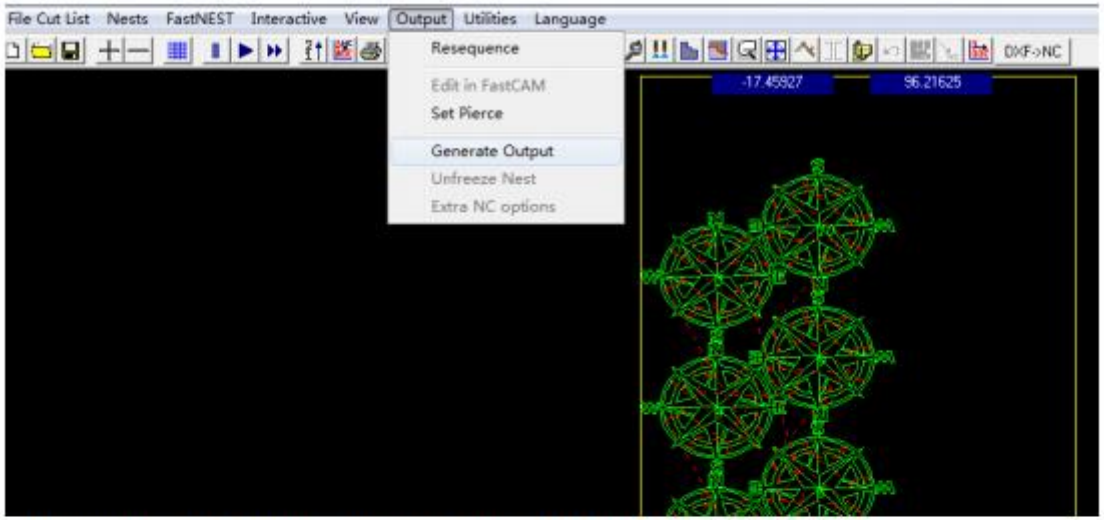
You can change cutting sequence when you g:enerate output

1. When you open **FastNEST**, Click  on tool bar on top the page, you will see the following page comes up to set up **FastNEST Parameters**:

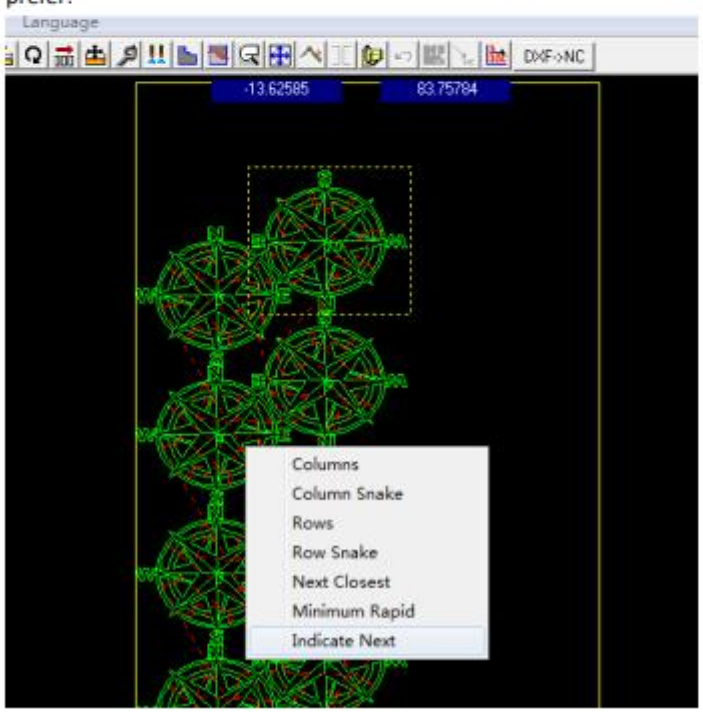


FastCAM SETUP (Cont'd.)-

2. On the right, in **Preselect answers**, check **Resequence**, then every time when you generate output, you will be able to edit part cutting sequence;



3. you can choose certain sequence or indicate the sequence by clicking the parts in the sequence you prefer:

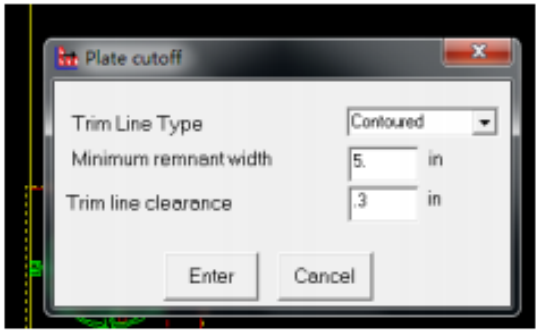


FastCAM SETUP (Cont'd.)-

K. How to use remnant material sheet?

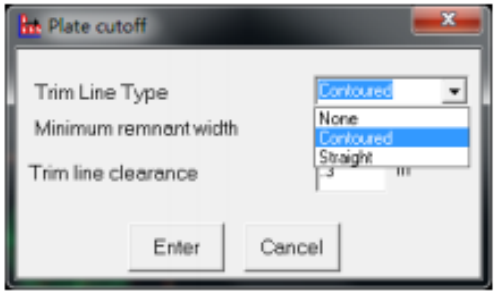
To make the best use of your material sheet especially larger size ones, it is very important to save the remnant material sheet for the future cutting.

1. After adding all the parts, click  on the tool bar on top, a **Plate cutoff** page will come up;



2. On **Plate cutoff** page:

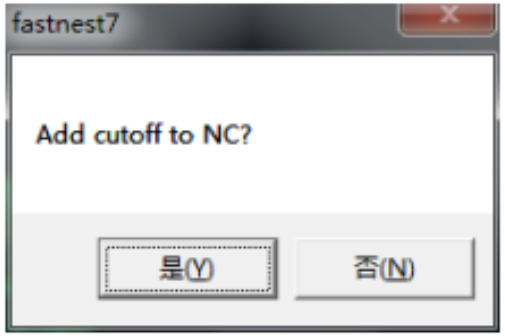
   i. **Trim Line Type**, normally, we choose **Contoured**;



   ii. **Minimum remnant width** = the smallest width/length of sheet you can use;

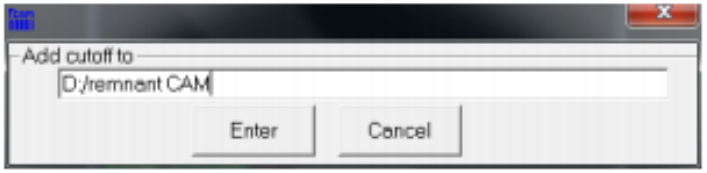
   iii. **Trim line clearance** means how close you want the outline of remnant sheet to the parts you will cut. Normally we set it the same as **Part to Part** distance.

3. Click **Enter** to save all the settings;
4. Click **Output** and **Generate Output**, once you save NC(.TXT) file, a small page comes out;



FastCAM SETUP (Cont'd.)-

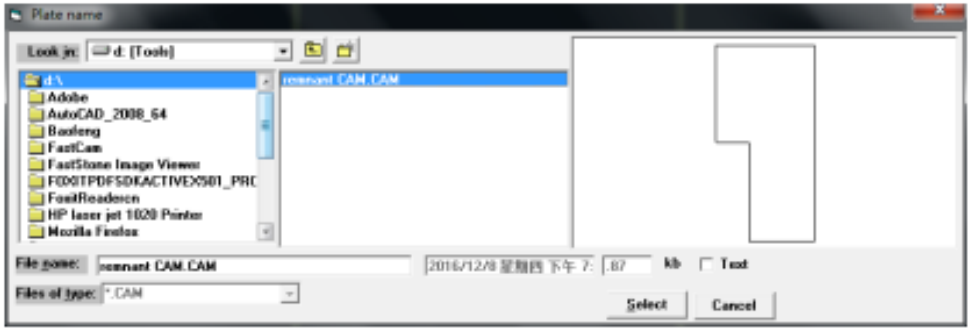
5. Choose **(Y)**, and input file path where you want to save all the Remnant CAM files, or simply click **Enter**

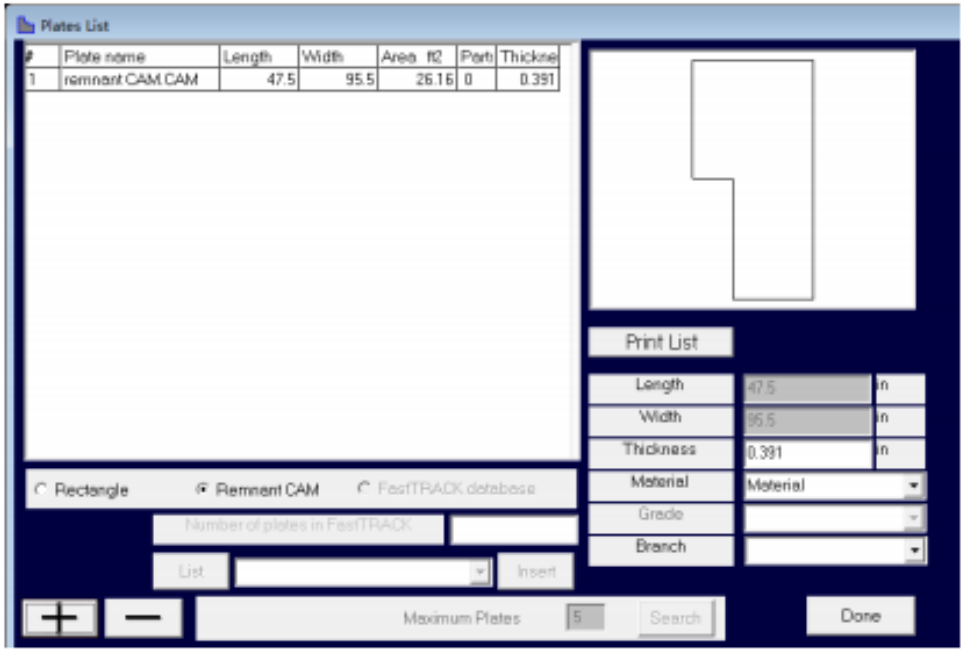


6. To use the remnant sheet:

   i. click  , then choose **Remnant CAM**;

   ii. click  , go to the same file path to find the **remnant CAM**, click **Select**, then click **Done**;





Warranties-

Delivery Protocol-

- Most large machinery will be delivering on a tractor trailer 48'-53' long. Please notify Sales Representative with any Delivery Restrictions.
- Customer is required to have a forklift (6000lb. or larger is recommended) with 72" forks or fork extensions and operator.
- Note any visible damage, torn packaging, scuffs or any abnormal marks on the delivery receipt or Bill of Lading (BOL).

Date: 12/02/2020 **BILL OF LADING**

SHIP FROM

Name: Nathaniel Boomer
Address: 4700 Burleson Rd Units L M
City/State/Zip: AUSTIN,TX 78704
Ph: (512) 645-4170 Contact: Nathaniel Boomer FOB: ☐

SHIP TO

Name: Laguna Tools TX Location#
Address: 744 Refuge Way
Suite 200
City/State/Zip: GRAND PRAIRIE,TX 75050
Ph: 9494741200 Contact: Vince (ZM) RMACR11096 FOB: ☐

FREIGHT CHARGES BILL TO

Name: Worldwide Express
Address: 2828 Routh Street Suite 400
City/State/Zip: Dallas, TX 75201

SPECIAL INSTRUCTIONS: For assistance, please call 833-8WE-SHIP
Handling Instructions: RMACR11096
Pickup Instructions:
Delivery Instructions: RMACR11096
Pickup Service(s): Liftgate Pickup, Residential Pickup

Bill of Lading Number : 145787446
Carrier Name: Estes Express
SCAC: EXLA
Pro number:

Freight Charge Terms: (*freight charges are prepaid by Worldwide Express unless indicated otherwise*)

☐ Master Bill of Lading: with attached underlying Bill Of Lading

WWE Number: W709699351

REFERENCE NUMBER INFORMATION

REFERENCE	# PKGS	REFERENCE	# PKGS	Total # of Pkgs

CARRIER INFORMATION

HANDLING UNITS QTY	HANDLING UNITS TYPE	PIECES QTY	PIECES TYPE	WEIGHT	H.M. X	COMMODITY DESCRIPTION Commodities requiring special or additional care or attention in handling or stowing must be so marked and packaged to ensure safe transportation with ordinary care. See section 2(e) of NMFC Item 360	LTL ONLY NMFC#	LTL ONLY CLASS
1	PLT			385		machine, 48(L) x 48(W) x (H) DO NOT STACK		77.5
1				385		**Grand Total**		

Where the rate is dependent on value , shippers are required to state specifically in writing the agreed or declared value of property as follows: The agreed or declared value of the property is specifically stated by the shipper to be not exceeding _____ per _____

Note: Liability limitation for loss or damage in this shipment may be applicable. See 49 U.S.C. B14706(c)(1)(A) and (B)

RECEIVED, subject to individually determined rates or contracts that have been agreed upon in writing between the carried and Worldwide Express Operations, LLC. a registered motor carried broker, pursuant to 49 USC 14101(b) and all applicable state and federal regulations.

COD Amount: $
Fee Terms: 3rd Party WWE
Remit Address:

Acceptable Forms of Payment:
Bank Certified Check ☐
Customer Check ☐
Personal Check ☐
Money Order ☐

SHIPPER'S SIGNATURE / DATE
This is to certify that the above-named materials are properly classified, described, packaged marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

(Signature) (Date)

Trailer Loaded:
☐ By Shipper
☐ By Driver

Freight Counted:
☐ By Shipper
☐ By Driver/pallet said to contain
☐ By Driver/Pieces

CARRIER SIGNATURE /PICKUP DATE
Carrier acknowledges receipt of packages and required placards. Carrier certifies emergency response information was made available and /or carrier has DOT emergency response guidebook or equivalent documentation in vehicle. Property described above is received in good order, except as noted.

(Signature) (Date)

Bill of Lading Number : 145787446

SPECIAL INSTRUCTIONS: For assistance, please call 833-8WE-SHIP
Handling Instructions: RMACR11096
Pickup Instructions:
Delivery Instructions: RMACR11096
Pickup Service(s): Liftgate Pickup, Residential Pickup

Dealer Machinery Warranty

New woodworking machines sold by Laguna Tools carry a two-year warranty effective from the date of dealer invoice to customer/end-user. Machines sold through dealers must be registered with Laguna Tools within 30 days of purchase to be covered by this warranty. Laguna Tools guarantees all new machine sold to be free of manufacturers' defective workmanship, parts and materials. We will repair or replace, without charge, any parts determined by Laguna Tools, Inc. to be a manufacturer's defect. We require that the defective item/part be returned to Laguna Tools with the complaint. The end-user must request an RMA (return material authorization) number from Customer Service and include the (RMA) number with any and all returned parts/components requesting warranty coverage. * Any machines returned to Laguna Tools must be returned with packaging in the same manner in which it was received. If a part or blade is being returned it must have adequate packaging to ensure no damage is received during shipping. In the event the item/part is determined to be damaged due to lack of maintenance, cleaning or misuse/abuse, the customer will be responsible for the cost to replace the item/part, plus all related shipping charges. This limited warranty does not apply to natural disasters, acts of terrorism, normal wear and tear, product failure due to lack of maintenance or cleaning, damage caused by accident, neglect, lack of or inadequate dust collection, misuse/abuse or damage caused where repair or alterations have been made or attempted by others.

*****NOTE: Issuing an RMA number is for referencing materials and issues, it does NOT indicate warranty acceptance/conformity.***

Laguna Tools Warranty-

CNC Limited Warranty

New CNC machines sold by Laguna Tools carry a one-year warranty effective from the date of shipping. Laguna Tools guarantees all new machine sold to be free of manufacturers' defective workmanship, parts, and materials. We will repair or replace without charge, any parts determined by Laguna Tools, Inc. to be a manufacturer's defect. We require that the defective item/part is determined to be damaged due to lack of maintenance, cleaning or misuse/abuse, the customer will be responsible for the cost to replace the item/part, plus all related shipping charges. This limited warranty does not apply to natural disasters, acts of terrorism, normal wear and tear, product failure due to lack of maintenance or cleaning, damage caused by accident, neglect, lack of or inadequate dust collection, misuse/abuse or damage caused where repair or alterations have been made or attempted by others.

Laguna Tools, Inc. is not responsible for additional tools or modifications sold or performed (other than from/by Laguna Tools, Inc.) on any Laguna Tools, Inc. woodworking machine. Warranty maybe voided upon the addition of such described tools and/or modifications, determined on a case-by-case basis. Software purchased through Laguna Tools, Inc., is not covered under this warranty and all technical support must be managed through the software provider. Normal user alignment, adjustment, tuning and machine settings are not covered by this warranty. It is the responsibility of the user to understand basic woodworking machinery settings and procedures and to properly maintain the equipment in accordance with the standards provided by the manufacturer.

Parts under warranty are shipped at Laguna Tools, Inc.'s cost either by common carrier, FEDEX ground service or a similar method. Technical support to install replacement parts is primarily provided by phone, fax, e-mail or Laguna Tools Customer Support Website. The labor required to install replacement parts is the responsibility of the user. Laguna Tools is not responsible for damage or loss caused by a freight company or other circumstances not in our control. All claims for loss or damaged goods must be notified to Laguna Tools within twenty-four hours of delivery.

****Please contact our Customer Service Department for more information. Only NEW machines sold to the original owner are covered by this warranty. For warranty repair information, call 1-800-332-4094.

Laguna Tools Warranty-

WARRANTY & REGISTRATION

THANK YOU!

Welcome to the Laguna Tools® group of discriminating woodworkers. We understand that you have a choice of where to purchase your machines and appreciate the confidence you have in the Laguna Tools® brand.

Through hands-on experience, Laguna Tools® is constantly working hard to make innovative, precision products. Products that inspire you to create works of art, are a joy to operate, and encourage your best work.

Laguna Tools®
Imagination, Innovation, and Invention at Work

WARRANTY & REGISTRATION

Every product sold is warranted to be free of manufacturers' defective workmanship, parts, and materials. For any questions about this product, the intended use or what it was designed for, customer service, or replacement parts, please contact our customer service department:

Laguna Tools® Customer Service
2072 Alton Parkway, Irvine, California 92606, USA
1-800-332-4049
customerservice@lagunatools.com
www.lagunatools.com/why/customer-service/
8AM. to 5PM PST, Monday through Friday

For warranty claims or to report damage upon receiving – please reach out to our warranty department:

Laguna Tools® Warranty Service
2072 Alton Parkway, Irvine, California 92606, USA
1-949-474-1200
customerservice@lagunatools.com
www.lagunatools.com/rpolicies/warranty
8AM to 5PM PST, Monday through Friday

REGISTRATION

To prevent voiding this warranty, all products sold must be registered within thirty (30) days of receiving the product. Registering the product will enable the original purchaser to receive notifications about important product changes, receive customer service, and be able to file a warranty claim against defective workmanship, parts, or materials.

REGISTER HERE!

https://lagunatools.com/policies/warranty/

WHO IS COVERED

The applicable warranty covers only the initial purchaser of the product from the date of receiving the product. To file such claims, the original purchaser must present the original receipt as proof of purchase.

WHAT IS COVERED

The warranty covers any defects in the workmanship of all parts and materials that make up the machine unless otherwise specified. Any part, determined by Laguna Tools®, to have a defect will be repaired or replaced (and shipped), without charge. The defective item/part must be returned to Laguna Tools® with the complaint and proof of purchase in the original packaging that it was received in. In the event the item/part is determined to be not covered by this warranty, the customer will be responsible for the cost to replace the item/part and all related shipping charges.

WARRANTY LIMITATIONS

This limited warranty does not apply to natural disasters, acts of terrorism, normal wear and tear, product failure due to lack of maintenance or cleaning, damage caused by accident, neglect, or lack-of inadequate dust collection. The warranty may be voided against proof of misuse/abuse, damage caused where repair or alterations have been made or attempted by others, using the product for purposes other than those described as intended use (unless with consent by Laguna Tools®), modification to the product, or use with an accessory that was not designed for the product. It is the responsibility of the user to understand basic woodworking machinery settings and procedures and to properly maintain the equipment in accordance with the standards provided in this manual.

LENGTH OF WARRANTY

All new machines and optional accessories sold through an authorized dealer carry a two-year warranty effective the date of receiving the product. Machines sold for either commercial or industrial use have a one-year warranty. Wearable parts like throat plates, bandsaw guides, etc., have a ninety-day warranty.

Table A-1 Warranty Lengths

2 Year – New Machines Sold Through an Authorized Dealer
2 Year – Accessories Sold as Machine Options (excluding blades)
1 Year – Machines Sold for Commercial or Industrial Use
1 Year – Blades and Accessories outside of Machine Options
90 Days – Wearable Parts

Aside from being free of defects upon receiving, consumable parts, like cutters and abrasives, are not covered by this warranty unless otherwise stated by Laguna Tools®. These parts are designed to be used at the expense of the operator and are available for replacement or inventory purchase. The determination of a consumable part will be made on a case-by-case basis by Laguna Tools®.

SHIPPING DAMAGE

Laguna Tools® is not responsible for damage or loss caused by a freight company or other circumstances not in the direct control of Laguna Tools®. All shipping-related claims for loss or damage goods must be made to Laguna Tools within twenty-four hours of delivery.

HOW TO RECEIVE SUPPORT

To file a warranty-claim please contact the warranty department at 1-949-474-1200. To receive customer service or technical support please contact the customer service department at 1-800-332-4094. Parts, under warranty, are shipped at the expense of Laguna Tools® either by common carrier, FedEx ground services or similar method. Technical support to install replacement parts is primarily provided by phone, fax, email, or the Laguna Tools Customer Support Website.

LAGUNA

No Modifications Allowed or Sold.

Laguna Tools, Inc. is not responsible for additional tools or modifications sold or performed (other than from/by Laguna Tools, Inc.) on any Laguna Tools, Inc. woodworking machine. Warranty maybe voided upon the addition of such described tools and/or modifications, determined on a case-by-case basis. Normal user alignment, adjustment, tuning and machine settings are not covered by this warranty. It is the responsibility of the user to understand basic woodworking machinery settings and procedures and to properly maintain the equipment in accordance with the standards provided by the manufacturer. Parts, under warranty, are shipped at Laguna Tools, Inc.'s cost either by common carrier, FEDEX ground service or a similar method. Technical support to install replacement parts is primarily provided by phone, fax, e-mail or Laguna Tools Customer Support Website. The labor required to install replacement parts is the responsibility of the user. Laguna Tools is not responsible for damage or loss caused by a freight company or other circumstances not in our control. All claims for loss or damaged goods must be notified to Laguna Tools within twenty-four hours of delivery. Please contact our Customer Service Department for more information. Only new machines sold to the original owner are covered by this warranty.

For warranty repair information, call 1-800-332-4094.

Laguna Tools Packaging/Laguna Tools BILL of LADING Example-

Date: 12/02/2020

BILL OF LADING

SHIP FROM

Name: Nathaniel Boomer
Address: 4700 Burleson Rd Units L M

City/State/Zip: AUSTIN,TX 78704
Ph: (512) 645-4170 Contact: Nathaniel Boomer

FOB: ☐

Bill of Lading Number : 145787446

Carrier Name: Estes Express

SCAC: EXLA
Pro number:

SHIP TO

Name: Laguna Tools TX Location#
Address: 744 Refuge Way
Suite 200
City/State/Zip: GRAND PRAIRIE,TX 75050
Ph: 9494741200 Contact: Vince (ZM) RMACR11096

FOB: ☐

Freight Charge Terms: (*freight charges are prepaid by Worldwide Express unless indicated otherwise*)

FREIGHT CHARGES BILL TO

Name: Worldwide Express
Address: 2828 Routh Street Suite 400
City/State/Zip: Dallas, TX 75201

☐ Master Bill of Lading: with attached underlying Bill Of Lading

WWE Number: W709699351

SPECIAL INSTRUCTIONS: For assistance, please call 833-8WE-SHIP
Handling Instructions: RMACR11096
Pickup Instructions:
Delivery Instructions: RMACR11096
Pickup Service(s): Liftgate Pickup, Residential Pickup

REFERENCE NUMBER INFORMATION

REFERENCE	# PKGS	REFERENCE	# PKGS	Total # of Pkgs

CARRIER INFORMATION

HANDLING UNITS		PIECES		WEIGHT	H.M X	COMMODITY DESCRIPTION Commodities requiring special or additional care or attention in handling or stowing must be so marked and packaged to ensure safe transportation with ordinary care. See section 2(e) of NMFC Item 360	LTL ONLY	
QTY	TYPE	QTY	TYPE				NMFC#	CLASS
1	PLT			385		machine, 48(L) x 48(W) x (H) DO NOT STACK		77.5
1				385		**Grand Total**		

Where the rate is dependent on value , shippers are required to state specifically in writing the agreed or declared value of property as follows: The agreed or declared value of the property is specifically stated by the shipper to be not exceeding

per

COD Amount: $
Fee Terms: 3rd Party WWE
Remit Address:

Acceptable Forms of Payment:
Bank Certified Check ☐
Customer Check ☐
Personal Check ☐
Money Order ☐

Note: Liability limitation for loss or damage in this shipment may be applicable. See 49 U.S.C. B14706(c)(1)(A) and (B)

RECEIVED, subject to individually determined rates or contracts that have been agreed upon in writing between the carried and Worldwide Express Operations, LLC. a registered motor carried broker, pursuant to 49 USC 14101(b) and all applicable state and federal regulations.

SHIPPER'S SIGNATURE / DATE
This is to certify that the above-named materials are properly classified, described, packaged marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

(Signature) (Date)

Trailer Loaded:
☐ By Shipper
☐ By Driver

Freight Counted:
☐ By Shipper
☐ By Driver/pallet said to contain
☐ By Driver/Pieces

CARRIER SIGNATURE /PICKUP DATE
Carrier acknowledges receipt of packages and required placards. Carrier certifies emergency response information was made available and /or carrier has DOT emergency response guidebook or equivalent documentation in vehicle. Property described above is received in good order, except as noted.

(Signature) (Date)

Bill of Lading Number : 145787446

SPECIAL INSTRUCTIONS: For assistance, please call 833-8WE-SHIP
Handling Instructions: RMACR11096
Pickup Instructions:
Delivery Instructions: RMACR11096
Pickup Service(s): Liftgate Pickup, Residential Pickup

Dealer Machinery Warranty-

****Any machines returned to Laguna Tools must be returned with packaging in the same manner in which it was received. If a part or blade is being returned it must have adequate packaging to ensure no damage is received during shipping. In the event the item/part is determined to be damaged due to lack of maintenance, cleaning or misuse/abuse, the customer will be responsible for the cost to replace the item/part, plus all related shipping charges.**

We require that the defective item/part be returned to Laguna Tools with the complaint. The end-user must request an **RMA (Return Material Authorization) Number** from Customer Service and include the (RMA) number with any and all returned parts/components requesting warranty coverage.

Laguna Tools Packaging/Laguna Tools RMA Example-

RMA #

RTN. AUTH. #
CR10979

12/1/2020 Return Authorization - NetSuite (Laguna Tools, Inc)

Return Authorization

CR10979 Black Forest wood Co. PENDING RECEIPT

Edit Back Receive Close Actions

CUSTOMER
Black Forest wood Co.

DATE
11/5/2020

CURRENCY
Canadian Dollar

SUBSIDIARY
Laguna Tools, Inc

RTN. AUTH. #
CR10979

DEPARTMENT
Sales : Wholesale

PRODUCT LINE

LOCATION
Laguna Texas Demo / Returns

SALES REP
Benjamin Helshoj

PARTNER

LEAD SOURCE
Dealer_Canada Dealer-Canada

PO #
PO-981

MEMO

CREATED FROM
Sales Order #210855

SALES EFFECTIVE DATE
11/5/2020

EST. EXTENDED COST
755.64

EST. GROSS PROFIT
930.95

EST. GROSS PROFIT PERCENT
55.1972%

PROMISE DATE
5/12/2020

☐ DEPOSIT RECEIVED

☐ ACCOUNTING APPROVAL

COMMENTS
Customer's bandsaw cast iron at the bottom is bent the customer can't insert bolts to stand. No shipping damage machine arrived in excellent condition do damage to packaging.
PO 981

RETURN REASON
Manufacturers Warranty Defect

SHIP IMMEDIATE
SPLIT SHIP

☐ REVISED INVOICE

ORDER HOLD REASON

Summary

SUBTOTAL	1,686.59
DISCOUNT	
GST/HST	84.33
PST	0.00
TOTAL	1,770.92

SHIPPING COMMENTS

Items Promotions Address Messages History Workflow Custom Partners Sales Team Additional Information OzLINK Pacejet SPS

EXCHANGE RATE
0.76094

RATE

DISCOUNT

ITEM	RETURNED	REFUNDED	QUANTITY	UNITS	INVENTORY DETAIL	DESCRIPTION	PRICE LEVEL	UNIT PRICE	AMOUNT	TAX CODE	TAX RATE	PST	OPTIONS	GIFT CERTIFICATE	CLOSED	DROP SHIPMENT	COI EST TYI
Machine : Bandsaw : MBAND1412-175 14|12 Bandsaw 110V 1.75HP	0	0	1	Each		14-12 110 VOLT BANDSAW	Retail Price	1,686.59445773	1,686.59	CA-GST only	5.0%	0.0%					Ite De Co

Edit Back Receive Close Actions

Laguna Tools Warranty-

CNC Limited Warranty

New CNC machines sold by Laguna Tools carry a one-year warranty effective from the date of shipping. Laguna Tools guarantees all new machine sold to be free of manufacturers' defective workmanship, parts, and materials. We will repair or replace without charge, any parts determined by Laguna Tools, Inc. to be a manufacturer's defect. We require that the defective item/part is determined to be damaged due to lack of maintenance, cleaning or misuse/abuse, the customer will be responsible for the cost to replace the item/part, plus all related shipping charges. This limited warranty does not apply to natural disasters, acts of terrorism, normal wear and tear, product failure due to lack of maintenance or cleaning, damage caused by accident, neglect, lack of or inadequate dust collection, misuse/abuse or damage caused where repair or alterations have been made or attempted by others.

Laguna Tools, Inc. is not responsible for additional tools or modifications sold or performed (other than from/by Laguna Tools, Inc.) on any Laguna Tools, Inc. woodworking machine. Warranty maybe voided upon the addition of such described tools and/or modifications, determined on a case-by-case basis. Software purchased through Laguna Tools, Inc., is not covered under this warranty and all technical support must be managed through the software provider. Normal user alignment, adjustment, tuning and machine settings are not covered by this warranty. It is the responsibility of the user to understand basic woodworking machinery settings and procedures and to properly maintain the equipment in accordance with the standards provided by the manufacturer.

Parts under warranty are shipped at Laguna Tools, Inc.'s cost either by common carrier, FEDEX ground service or a similar method. Technical support to install replacement parts is primarily provided by phone, fax, e-mail or Laguna Tools Customer Support Website. The labor required to install replacement parts is the responsibility of the user. Laguna Tools is not responsible for damage or loss caused by a freight company or other circumstances not in our control. All claims for loss or damaged goods must be notified to Laguna Tools within twenty-four hours of delivery.

****Please contact our Customer Service Department for more information. Only NEW machines sold to the original owner are covered by this warranty. For warranty repair information, call 1-800-332-4094.

Manual Revision Record

Date of Change	Revision#	Engineering/Design Description
7/16/2021	1	New Proposed Plasma 2 CNC Manual