

PhotoBrasive®
S Y S T E M S

Glide-Thru Carver

Professional Sandcarving Equipment



OPERATING & PARTS MANUAL

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CONGRATULATIONS!

You have just purchased the Glide-Thru Carver, one of the best, most unique sandblast etching systems in the country! What makes this system so unique is it was designed from the ground up to allow the operator to efficiently work on either small or large pieces of glass, crystal, stone, ceramics, metal or wood. It will give you years of service with a minimum of unscheduled maintenance. Used in conjunction with our top of the line photo resist, you are sure to get beautiful, high quality results in your etching and engraving.

IMPORTANT

To get the full use of this equipment, and for your own safety, it is essential for you to read these instructions carefully, especially the safety instructions, before starting to assemble, operate or service the equipment described herein. Failure to follow the instructions could result in serious personal injury or damage to the equipment or surroundings.

Keep these instructions in a safe place for future reference.

GENERAL SAFETY INSTRUCTIONS

Follow all electrical and safety codes, as well as the National Electric Code (NEC) and OSHA regulations when connecting your equipment to electrical outlets, air supplies or vacuum systems.

Keep floor around the machine clean. Abrasive can be slippery on a hard, smooth floor like linoleum or sealed concrete. Use of a rubber floor mat, like an anti-fatigue mat, is recommended because it lets the abrasive fall into the open areas of the mat while cushioning the area under your feet.

Do not operate the equipment in the vicinity of other sensitive equipment such as computers, engraving machines or photo resist exposure and processing units since there will be some dust in the air at any given time. Static electricity is created when blasting, particularly when using aluminum oxide. This can harm delicate electronic equipment such as computers if you touch it immediately after blasting and becoming charged.

Do not exceed maximum operating pressure of 125 psi.

Follow all maintenance requirements mentioned in other sections to maintain safe operation of equipment.

This is a dry blast unit only - it is not made to accommodate moisture or fluids of any kind used separately or as a mix with blast media. Do not use oil lubricators in the air stream.

WARNING: Never operate the sandblaster with cabinet door open. Doing so could result in serious skin damage, eye damage or even blindness if the compressed air or propelled abrasive comes in contact with unprotected parts of the body. It could also result in possible respiratory complications from breathing the dust. Never attempt to work on the equipment without depressurizing and disconnecting the equipment from the air compressor.

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Section 1

RECEIVING AND UNPACKING THE UNIT

The Glide-Thru Carver is shipped by truck freight, strapped to a skid and protected by cardboard and plastic wrap. When you receive the unit, inspect the packing carefully to note any potential damage. If you are unsure of damage, before the driver leaves, remove packing materials without removing the unit from the skid. It is important to note any obvious damage on the bill of lading while the driver is still there. If you notice damage later, it is important to call the freight carrier immediately and report concealed damage. Concealed damage should be reported within 24 hours if possible.

To unpack the unit remove the plastic wrap and the cardboard and dispose of these items properly. Bundle the plastic and tie it securely. Do not allow children or pets to play with the plastic to avoid possible suffocation. The cabinet is attached to the skid with heavy plastic ties and metal banding. Cut these with a knife, heavy scissors or metal snips. Remove the pressure blaster from the skid and set it aside. Then take the blasting cabinet off the skid with the help of another person and move all the equipment to the place where you will be setting it up.

Section 2

ASSEMBLING THE UNIT

To make it faster and easier for you to get started with your sandcarving, we have pre-assembled your sandblaster and cabinet before shipping. Consequently, the unit is almost completely assembled when you receive it and very little additional assembly is required. There are, however, a few things you will have to do.

The Blasting Cabinet

The extension arms attach to the sides of the cabinet under the slots, to support large pieces of glass (or other substrates) to be blasted. The support legs under these extension arms give great stability and strength, and are the only ones available in the industry. These arms come strapped to the pallet. To attach them to the cabinet, position them so that the holes in the arms match up with the mating holes in the cabinet. Insert the supplied bolts and tighten down with the nuts.

Level the cabinet

The support legs and the cabinet legs are supplied with height adjustable feet that perform two functions. First, they allow you to adjust the overall height of the unit up to 3" for different height operators. Second, they allow you to level the assembled machine for best support on uneven floors. Use a wrench to raise or lower the individual feet.

The Light

Floodlight bulbs (or the new screw-in fluorescent bulbs) in a swivel socket is the recommended light source for the Glide-Thru Carver. Experienced sandblast etchers tend to prefer this type of light because it can easily be directed at the surface of the glass being etched (no matter how large or small), leaving the rear wall of the cabinet darker, in shadow. When etching begins, it is far easier to see the quality of your work this way, because of the contrast between the brightly lit etched surface (which appears bright and white) and the clear areas yet to be etched, which appear quite dark. Unevenly etched areas are much easier to see in this type of light than with a fluorescent tube fixture, which illuminates both the glass surface and the entire inside of the cabinet very evenly, producing very little contrast.

In your blasting cabinet, there are 2 light fixtures installed, one on the upper left side of the cabinet and one on the upper right. These lights are independently switched, so you can use either one or both at the same time for ideal lighting of any type of material you might want to blast.

If you find that you would like even more light, we offer the option of an additional light kit with a magnetic base and a flexible gooseneck. This light can be positioned anywhere in the cabinet and can be invaluable for lighting dark corners or adding light to any area that needs a little more. It works well for pinpoint illumination of small pieces of glass or small areas you carve on larger pieces of glass.

The Dust Collector

Unpack the dust collector (which is shipped inside the blasting cabinet) and assemble according to the separate instructions provided. Refer to Operating Manual and Parts List for the Dust Collection System. After assembly, position the vacuum canister close to the rear of the cabinet. Attach the flexible vacuum hose to the plastic ferrule provided on the back of the cabinet and to the hole in the lower part of the vacuum canister. Then plug the cord into one of the switched outlets on the front of the cabinet.

The Sandblaster

The sandblaster is pre-assembled (not like some others that require you to read complex instructions and assemble every part yourself). The pressure regulator and gauge, water separator, main air valve, and blasting hose are attached and ready for operation. The only assembly required with the sandblaster is to insert the blast hose into the cabinet. There are openings provided on the right and the left of the cabinet, so use whichever is most comfortable for you. (Try it both ways if you are not sure.) Use the plastic plug (already installed in one of the holes) to seal the hole in the side you are not using, so abrasive will not be able to escape there.

The Foot Pedal

The blaster operates with a foot pedal as the on/off mechanism for the blasting process. During shipping, the foot pedal is attached to the blaster with a plastic strap. Cut this strap and place the foot pedal on the floor in front of the blasting cabinet. The foot pedal is connected to the blaster with 2 plastic hoses. These hoses are long enough to allow the foot pedal to be positioned comfortably in front of you when you are blasting, no matter where the blaster is located.

Section 3

PREPARING THE UNIT FOR SANDCARVING

NOTE: It is important to have an airline filter (sometimes called a water separator) placed before the regulator to help prevent moisture from entering the system. Moisture in the abrasive may lead to the system clogging.

WARNING: BEFORE ATTACHING THE AIR HOSE FROM YOUR COMPRESSOR, MAKE SURE THE COMPRESSOR IS TURNED OFF AND THE AIR HOSE IS NOT PRESSURIZED. IN ADDITION, MAKE SURE ALL BALL VALVES ON THE PRESSURE BLASTER ARE IN THE "OFF" POSITION. THE "OFF" POSITION IS WHEN THE LEVER OF THE BALL VALVE IS PERPENDICULAR TO THE VALVE ITSELF.

Connect the air supply from the compressor

An air compressor is needed to supply compressed air to your blaster through an air hose. Attach the air hose from your compressor to the blaster. Any fittings you might need to do this are standard plumbing fittings available from hardware stores, plumbing stores, home building stores, etc. You can use metal fittings, either galvanized or black iron, but not plastic or PVC.

Attach the air hose to the main air valve You can either permanently attach the air hose to the main air valve by screwing them together with pipe fittings, or you can use quick connect fittings. Quick connect fittings provide a fast and easy way to attach and detach the air hose that does not require tools. They do reduce the air-flow somewhat, but not substantially.

The main air valve has a 1/2" female fitting. Ask a salesperson where you get your fittings to get you the correct ones to attach your air hose to the blaster. You will have to know what size and type fittings your air hose has (take it with you if you need.) Be sure to use Teflon thread sealing tape or pipe joint compound on the fitting threads to ensure a tight seal.

Attach the dust collector

Plug the electric cord of your dust collector into one of the receptacles on the front of the blast cabinet. These are switched receptacles that will turn on the light in the cabinet and the receptacle at the same time. Make sure one end of the vacuum hose is attached to the dust collector according to the instructions in section #2, and plug the other end into the exhaust outlet at the left side of the cabinet. Plug the switched receptacle into the wall, then turn the switch on to make sure that both the light and the dust collector are operational.

Fill the pressure pot with abrasive

NOTE: Throughout these instructions the abrasive pressure blaster is referred to as the blaster, the pressure blaster or the pressure pot as interchangeable terms referring to the same piece of equipment. Before filling the pressure pot with abrasive, make sure the main air is turned off and the pressure pot is depressurized. The pressure pot is depressurized when the air pressure gauge reads zero and the stopper has dropped down. If the air pressure gauge reads anything higher than zero (or if the stopper has not dropped down), hold the foot pedal down until all air escapes and the air pressure gauge reads zero.

Place a strainer (with window screen sized mesh) over the top of the pressure pot. Open the container of abrasive and pour it into the blaster through the strainer. Even though the blaster will hold 100 pounds of abrasive, we suggest that you only put in 90 pounds, as overfilling may prevent the proper operation of the stopper. Always wear a good dual cartridge respirator to avoid breathing the abrasive dust while filling or refilling the blaster.

IMPORTANT! THE PRESSURE POT HAS A 100 POUND ABRASIVE CAPACITY. DO NOT OVER FILL THE PRESSURE POT. IT WILL BE DIFFICULT OR IMPOSSIBLE TO GET THE PRESSURE POT TO SEAL OR PRESSURIZE AND THIS WILL PREVENT THE PROPER OPERATION OF THE BLASTER. IF THIS OCCURS, YOU WILL HAVE TO DRAIN OUT THE EXCESS ABRASIVE AS DESCRIBED UNDER SECTION 5 (MAINTENANCE PROCEDURES), #2 "OVER FILLED BLASTER."

Section 4

OPERATING THE UNIT

Double check!

Now that your set-up is complete you are ready to blast. Take another close look at all connections to your Glide-Thru Carver system. Is everything plugged in? Did you remember to start the air compressor so it had a chance to build-up pressure for blasting? Yes? Good! If you will be blasting a small piece of glass, make sure that the moveable slots on the sides and top of the cabinet are closed. This will keep abrasive from escaping out the openings. The moveable shelf inside the cabinet can be folded down making it is easier to reach the glass inside the cabinet.

Turning on the air and the abrasive

Turn on the main air valve to pressurize the blaster. If the regulator pressure is adjusted to at least 5 psi, the blaster will pressurize automatically. Look at the gauge. If no pressure registers on the gauge, turn the regulator handle clockwise until you begin to see the needle move up. Set the pressure to 30 psi for your first test. If the pressure is greater than 30 psi, lower it to 30 psi by turning the regulator handle counter clockwise. (Note: When adjusting the pressure down from a higher pressure, the most accurate way to do so is by lowering the pressure to just below your target pressure, then raise the pressure to the target.)

The valve at the bottom of the pressure tank is used to set the abrasive flow and is called the abrasive mixing valve. This regulates the air/abrasive ratio. When turned off, the handle of this valve is horizontal. Open the valve by moving the handle down and set the handle to between 30 degrees and 45 degrees down from the

horizontal position. The best setting will vary depending on which etching technique you are using and how fast you want to blast. You will learn to set this to your own preference with experience. For important additional information about setting abrasive flow, read Symptom 3, #4 and Symptom 5, #1 in section 6 Frequently Asked Questions.

Using the fold-down shelf for small pieces of glass

There is a hinged shelf inside this cabinet that folds up out of the way when you are blasting large pieces of glass and folds down when blasting small pieces of glass. This shelf raises the floor level inside the cabinet, making it much easier to reach small pieces with your gloves. It can easily be lowered simply by removing the knob that screws into the back of the cabinet to hold the shelf against the back of the cabinet. Lower it until it touches the shelf rests inside the cabinet. Reverse the procedure to raise the shelf out of the way when working on larger pieces or when using the slots.

Blasting a sample

Put a small sample glass piece or other blastable object in the cabinet. Set it carefully on the perforated work surface of the fold down shelf. It can be beneficial to place a perforated rubber mat on this work surface. This allows the abrasive to fall through and into the hopper while protecting your object from being scratched. This type of mat is available in a roll from hardware stores and is used under rugs as an anti-skid mat.

Close the cabinet door and latch it. **NEVER BLAST WITH THE DOOR OPEN!** Turn on the lights and the vacuum system. Make sure the vacuum works properly and that the lights are positioned in a way that allows you to see well considering the etching technique you are using. For more information on etching techniques and lighting, see the instructional books and videos on glass etching by Norm & Ruth Dobbins or attend one of their seminars.

Reach into the cabinet and pick up the nozzle with one hand. Pick up the object you are going to blast with the other hand, if it is small enough. If the object is too large or heavy, lean it against the back wall of the cabinet or prop it up on a piece of wood or an easel.

Before pointing the nozzle at your object, hold the nozzle under the light, point it towards the back of the cabinet (away from your object), and step on the foot pedal. Watch the abrasive flow in the air stream. You should see a thin stream of abrasive, but it should not be surging and sputtering out of the nozzle. If it does, cut back on the abrasive flow by raising the abrasive mixing valve handle. If there is not enough abrasive, open the valve more by pushing the handle down slightly. If your blaster is positioned close enough to the cabinet, you should be able to reach the handle with your foot to make these adjustments.

Hold the nozzle at a 90-degree angle to the etching surface and approximately 6" away (the distance is determined by the size of the area to be blasted as well as the technique you choose). Step on the foot pedal to blast the object. After an initial surge of abrasive (which is normal) the abrasive flow will become more even. Move the nozzle back and forth across the surface to be etched until you are finished. When the etching is finished, take your foot off the pedal and put the object back on the work surface. Anytime you are unsure of the blasting results you are creating - stop! Take your foot off the pedal and the whole operation will stop. It's better to stop and check often than to blast too much.

Before removing the object from the cabinet, make sure that the dust has been evacuated from the cabinet by the vacuum system. This will probably take a few seconds. Next, open the cabinet door and take the object out. If you are the impatient type and open the door before the dust has cleared, you should always wear a dual cartridge respirator to avoid breathing the dust.

Always leave your dust collector on while removing objects from the cabinet to control dust. After the object has been removed, turn off the dust collector and light.

Using the Glide-Thru Carver slots for large pieces of glass

There are 3 moveable slots in this cabinet, in the sides and top of the cabinet. These slots allow you to blast pieces of glass (or other materials) that are too large to fit into the cabinet. Substrates can be fully blasted by passing them through the cabinet, blasting only the portion that is in the cabinet at one time, then moving the piece further into the cabinet to expose more area to be blasted. Pieces that extend above the cabinet can simply be turned over and blasted on a second pass through the cabinet. To open the slots, loosen the 3 knobs on each moveable portion of the slot and open fully. Insert the glass to be blasted, then close the slots and tighten the knobs. The slots will open a full 3 inches, so a full size door panel can be placed in the cabinet for blasting, without having to remove the glass. This cabinet is also excellent for blasting wood signs, sign foam, stone or pieces of metal that are larger than the cabinet.

Turning off the blaster

To shut down the system, simply close the main air valve and pull the pressure release valve. The procedure outlined above is the basic procedure you will use whenever you sandcarve. Of course after you get the procedure down with a test piece or two, your object will be prepared with a photo resist stencil, so your etching will produce a design.

PhotoBrasive® Systems provides you the tools to create high quality sandcarved pieces, of any complexity, fast and easy. With our photo resist products and equipment, you can effortlessly create stencils of your intricate graphic designs, company logos or lettering - for use on a variety of surfaces (crystal, glass, stone, ceramic, and more). Call us today for a Lake Superior Crystal™ catalog! These beautifully polished Optical Crystal and Jade Glass blanks are a perfect choice to convey sophistication and elegance.

Section 5

MAINTENANCE PROCEDURES

There are some important maintenance procedures required to keep your Glide-Thru Carver in good operating condition. Even if you are not mechanically inclined, most of these should prove easy to perform. Qualified repair personnel can perform any others.

1. Blaster

Drain the water separator

A water separator or filter is highly recommended to be installed on your blaster. This mechanism helps keep moisture in the air from condensing in your blaster and reduces the risk of abrasive clumping. In order for the water separator to be effective, you must empty the separator on a regular time schedule, the frequency of which depends on how humid it is in your part of the country. In humid areas, it could be as often as every 20-30 minutes, while in dry parts of the country, it could be as infrequent as every couple of days.

Empty the separator by opening the mechanism at the bottom of the container and allowing the water to flow out, pushed by the compressed air in the system. After all water is exhausted, close the mechanism. If you are in a very humid area, you may have to leave the mechanism open very slightly, so that it will continuously drain water as it accumulates. If your abrasive still gets too damp to flow well, speak to your sales representative about adding a higher efficiency water separator to your system.

Replace your blasting nozzles

It only makes sense that the same abrasive that erodes glass or stone will erode your blasting nozzle. It will wear out from the inside, enlarging the orifice until it is so large that it uses an excessive volume of air from your compressor, causing the compressor to run continuously.

Nozzles should be replaced as soon as you realize that your compressor is running most of the time, trying to keep your blaster supplied with air. If your compressor runs constantly and doesn't get time to cool off, it can overheat and sustain damage.

Over filled blaster

If you pour too much abrasive into your pressure pot, the stopper on the pressure pot will not be able to seal and pressurize. If the pot does not pressurize, you cannot blast. The best way to solve this problem is to first turn off the air from the compressor and disconnect the air hose.

IMPORTANT

NOTE: ALWAYS TURN OFF THE AIR FROM THE COMPRESSOR, TURN OFF THE MAIN AIR VALVE, DEPRESSURIZE THE PRESSURE POT AND DISCONNECT THE AIR HOSE BEFORE ATTEMPTING TO WORK ON THE BLASTER OR ANY ATTACHED PART.

Place a plastic drop cloth on the floor under the blaster to catch the abrasive. Remove the cap from the pipe cross and let some of the abrasive drain out. Once the abrasive falls below the bottom of the stopper, replace the cap on the pipe cross, repressurize the blaster and you are ready to proceed.

Damp abrasive

When blasting in a humid area, your abrasive will naturally absorb moisture from the air. Abrasive combined with moist compressed air can result in abrasive that is so damp it will clog in the bottom of the blaster and will not flow. If you have moisture problems, you can do a couple of things. If the problem is not too bad, you can clear the system by blowing the moist abrasive through the valves and fittings at the bottom of the tank and out the end of the blast hose, to restore consistent flow. **THIS MUST BE DONE WITH THE CABINET DOOR CLOSED!** To do this, remove the nozzle cap and nozzle from the end of the blasting hose. Then raise the pressure to 40-50psi, close the choke valve, open the abrasive metering valve all the way, and step on the foot pedal. Be sure you are holding the hose firmly with one hand and point it towards the back of the cabinet. A large amount of abrasive will come sputtering and shooting out of the hose. After 3-5 seconds, the moist abrasive should purge from the system so you can return the equipment to its original setup and resume blasting.

If this doesn't work or you have to perform this procedure every half-hour or less, you will have to remove all abrasive from the blaster. First, disconnect the air hose from the compressor and turn off the main air valve. This will allow you to depressurize the pressure pot. Secondly, disconnect the hoses from the bottom of the blaster and remove the fittings and valves. Then clean out the damp abrasive. Reassemble all the parts attaching the hoses and fill the pressure pot with fresh, dry abrasive.

If the abrasive is not contaminated with oil it can possibly be dried out by baking it in an oven a little at a time. Spread thin on a cookie sheet or large tray and bake at a low temperature for about 10 minutes. Allow cooling just enough to put into a sealed storage container and keep container closed to prevent more moisture absorption.

Replace abrasive hose

In time, the abrasive will wear a hole through the abrasive hose. This usually happens within a few inches of where the hose attaches to a metal fitting at the bottom of the blaster or to the nozzle holder. When this happens, simply stop blasting and turn off the air compressor. Disconnect the air hose from the compressor and turn off the main air valve. Depressurize the pot, loosen the hose clamp and remove the hose from the fitting. Cut a segment of the hose off that includes the hole (plus 2 or 3 inches) and reinstall the hose. After doing this a few times the hose may get short and you will need to replace the entire hose. Average time to develop a hole in the hose is from a few months to a year or more, depending on how much blasting you do and what pressure you use.

Note: When the hose develops a hole it can cause quite a mess in your shop, with abrasive everywhere. It is far better to use preventative maintenance procedures and cut a few inches off the hose where it connects to the bottom of the blaster every couple of months or whenever you feel a weak spot in the hose within a few inches of where it attaches.

Replace mixing valve

The mixing valve or abrasive metering valve will eventually wear out and you will not be able to adjust the flow of abrasive properly. The seals may fail and the valve will develop air leaks around the stem. Mixing valves generally last from 2-5 years. To solve this problem, simply remove the valve and replace it with a new one.

Replace diaphragm in foot pedal

The foot pedal operates a valve that turns your blaster on when you step on the pedal and off when you step off the pedal. There is a rubber diaphragm inside the valve that allows this to happen. The diaphragm will eventually develop a hole in it that prevents the blaster from turning off completely when you remove your foot from the foot pedal. (This may happen in 2-6 months.) To fix the problem, turn off the air, disconnect the air hose from your blaster and depressurize the pressure pot. Remove the 4 bolts and nuts from the valve body and separate the valve at the seam in the middle. Remove the diaphragm, replace it with a new one and reassemble the valve and continue.

Replace the media valve

With abrasive constantly flowing through the plastic media valve, it will also eventually wear out. This will cause uneven abrasive flow and possible clogging. This may happen in 1-5 years, depending on use. Whenever you replace the diaphragm it is important to always inspect the inside of the media valve for erosion of the valve body. When you see significant erosion, replace the valve body.

Debris in blaster

To avoid the problem of clogged abrasive due to debris in the bottom of the blaster, strain the abrasive when refilling the blaster. It is also best to keep the top of the blaster covered when not in use. This keeps extraneous matter from finding its way into the blaster through the open top.

In spite of your best efforts, though, this will sometimes still happen. The symptoms are clogging of the abrasive and lack of free flowing abrasive with which to blast. The diagnosis of the problem and the solution are the same as with damp abrasive. If you can't use the air pressure to blast out the obstruction, you will have to drain the abrasive from the pressure pot and physically remove whatever material is clogging the abrasive outlet at the bottom of the blaster.

2. Blasting Cabinet

Replace gloves

Gloves are mounted in the armholes in the cabinet to protect your hands and arms. With prolonged use, these gloves will develop holes in the fingers. When this happens, we recommend that you replace the gloves. Simply remove the clamps holding the gloves onto the mounting brackets, replace the gloves and tighten the clamps.

Replacement of mylar

Reflected abrasive bouncing off the object being blasted will slowly frost the inside of the cabinet window. This makes it difficult to see what you are doing. Since replacing the glass window is time consuming and expensive, the inside of the window can be protected with a mylar sheet attached with adhesive strips. Just remove it, wipe the excess dust off the glass and reapply a new mylar piece.

To reapply a new mylar piece, unroll and remove the protective strips. Holding the mylar with the adhesive towards the glass, press the adhesive to the glass one side at a time until all 4 sides are adhered to the glass.

Replace the window

Since mylar attracts abrasive, some users may prefer to replace the glass window. Simply loosen the screws holding the glass brackets onto the cabinet, slide the glass out and dispose of it. Reinstall a new piece of glass.

Replace gaskets on slotted openings

Both the moveable and fixed parts of the slots in the sides and top of the cabinet have rubber gaskets to keep abrasive from escaping through the slots and to cushion glass or other substrates being passed through the slots. These gaskets should be replaced when they show signs of wear.

3. Air Compressor

Even though PhotoBrasive® Systems doesn't sell air compressors, we want to remind you that there are a couple of very important things to remember about maintaining your compressor. Always follow the maintenance, operational and safety instructions from the compressor manufacturer. Maintain your compressor properly and it will give you better service and will last longer.

Drain the air compressor tank

Moisture from the air will condense inside the air compressor tank. It will collect there until it is drained out at the bottom. If you regularly drain the water from your air tank (according to the manufacturer instructions), you will have less trouble with moisture clogs in your blaster. Keeping water out of the tank leaves more room for air storage and increases the safety and longevity of the air tank.

Change oil

The oil in the compressor lubricates internal parts of the compressor pump. Remember to add oil before starting the compressor for the first time. Keep the oil level at the manufacturer's recommended level and change it according to the manufacturer's recommended schedule. Maintenance is important!

4. Dust collector:

Please see detailed instructions included with Dust Collector

Section 6

Frequently Asked Questions

IMPORTANT: BE SAFE!

Whenever you are performing maintenance or repair on the Glide-Thru Carver, always turn off the compressor and disconnect the air hose from the blaster. Turn off the main air valve and depressurize the pressure pot by stepping on the foot pedal. Then unplug the unit from the electrical outlet. Always wear appropriate safety gear, including safety glasses, gloves as necessary and a respirator (when working with abrasive or abrasive dust)

Symptom 1: No abrasive coming out of the nozzle

Solution:

Does air come out of the nozzle when you step on the foot pedal? If no, go to symptom 2. When you reestablish airflow, check for abrasive flow. If there is none, return here. If there is airflow from the nozzle, but no abrasive:

1. Check the abrasive metering valve at the bottom of the blaster. If it is turned off, no abrasive will come out. Open the valve slowly. For proper abrasive flow, the valve should be open between 1/3 and 2/3 open from the closed position.
2. You may have run out of abrasive in the pressure pot. If so, stop blasting and refill according to the instructions in Symptom 3, number 2.
3. Still no abrasive? The problem could be damp abrasive. To check, turn off the main air valve and depressurize the pot. Next, remove the nozzle holder and nozzle from the end of the blast hose. Close the choke valve and open the abrasive mixing valve all the way. Turn on the main air valve. Turn the pressure to 40-50 psi and step on the foot pedal. If abrasive starts shooting out the end of the hose in large damp clumps, moisture is the problem. Clearing the clogged abrasive by pressure will generally work for a few hours to a day or two. However, clogging will continue to worsen until you replace the damp abrasive with dry abrasive as mentioned under the maintenance section.
4. If the moisture is enough to slow the flow of abrasive but not enough to stop it, you will not be able to etch successfully since so little abrasive is coming out. To solve this, you can partially close the choke valve forcing a higher percentage of the air into the pressure pot rather than allowing it to go through the bypass hose. This will force a higher percentage of abrasive out of the blaster and into the air stream. You can operate the blaster with the choke valve from 10% to 50% closed to force more abrasive out the nozzle during a blasting job but you will eventually have to replace the damp abrasive. If you close the choke valve more than 50%, you will restrict the air volume so much that your etching speed will dramatically decrease.

Symptom 2: No air coming out of the nozzle

Solution:

1. Check to see if the compressor is on and pressurized. Also, make sure the main air valve leading from the compressor to the blaster is turned on and that the blaster is pressurized.
2. Is the regulator turned on and the blaster pressurized? If the regulator is adjusted to zero pressure, the pressure pot cannot be pressurized and no air will flow through the system. Adjust the regulator to between 5 and 40 psi and step on the foot pedal to test.
3. Is the nozzle clogged? Occasionally, little pieces of debris such as resist, metal shavings from the cabinet, wood chips or rubber (from a rubber mat in the cabinet), can get through the filter screen and the blaster into the nozzle. If these

pieces are large enough, or if there are two or three of them, they can completely clog up the nozzle. To remove the clog, turn off the main air valve and depressurize the pressure pot. Unscrew the nozzle holder and take the nozzle off, push a small wire or nail into the nozzle and remove any obstructions.

4. Is the choke valve on? If not, almost no air will come out. There may be a slow, steady stream of abrasive if the abrasive mixing valve is open. With low pressure, no abrasive may come out even if the abrasive mixing valve is open. This is especially true if the abrasive is a bit damp. Open the choke valve and step on the foot pedal to check for airflow. If there is none, see the next step.

5. If you are using pressure below 20 psi and if you step on the foot pedal when the mixing valve is open and the choke valve is closed, the abrasive hose may fill up with abrasive and become clogged from excess abrasive. In this case, close the mixing valve, open the choke valve, turn the pressure to 40-50 psi and step on the foot pedal. If this doesn't clear the hose, remove the nozzle holder (to further reduce flow restrictions) and try again. If this doesn't work you will have to remove the fittings and valves at the bottom of the pressure pot and manually clean them out. This may even involve opening and cleaning out the media valve in very bad cases. Refer to section 5, maintenance procedures for overfilled blaster and damp abrasive.

Symptom 3: Blaster seems to be etching very slowly

Solution:

1. Is the pressure set properly on the regulator? If the pressure is low, blasting will be slow. Raise the pressure to increase blasting speed. For most surface etching and light carving, 20-30 psi is recommended.

2. Are you running low on abrasive? If you have not stopped to refill the pressure pot in a couple of hours, all of the abrasive could be sitting in the hopper. In that case, simply turn the main air valve off and step on the foot pedal until the pressure pot is completely depressurized. The pressure pot stopper will drop down, allowing the blaster to be refilled with the abrasive in the hopper of the cabinet.

3. Is your whole system running out of abrasive? As you recycle the abrasive through the pressure pot time after time, it breaks down into dust and is sucked into the dust collector. Eventually, you will have little or no abrasive left in the hopper of the cabinet with which to fill the pressure pot. To keep this from happening, periodically add more abrasive to keep the level in the blaster high.

4. Do you have too much abrasive in the air stream? The purpose of the abrasive mixing valve at the bottom of the blaster is to provide a variable amount of abrasive that gets mixed into the air stream from the compressor. You can increase the amount of abrasive in the air stream (to increase the speed of etching) by opening the valve, or decrease the amount of abrasive (to decrease the speed of etching, giving you more control) by partially closing the valve. However, if you open the valve too much, the excess abrasive actually slows the etching speed down. This is considered too "rich" of a mixture of abrasive to air volume. You can tell if you have too rich a mixture if the abrasive is surging and sputtering out of the nozzle. To cure this, simply close the mixing valve a little at a time, until the surging stops and the abrasive is flowing smoothly out the nozzle.

Note: The mixing valve only moves 90 degrees from completely off to completely on. The normal setting for this valve varies from 1/3 to 2/3 open, depending on how much abrasive is in the blaster.

Symptom 4: Abrasive flow is inconsistent

Solution

This situation can evolve from damp abrasive or debris in the blaster or nozzle. Damp abrasive and nozzle obstructions have been discussed previously. If all else fails, remove all abrasive from the blaster, check for debris and remove any you find. If there are small pieces that could have gotten into the mixing valve or media valve under the blaster, you may have to remove them and clean out as described under damp abrasive in the maintenance section.

Symptom 5: Too much dust in the cabinet-can't see while etching

Solution

This is caused by either setting the abrasive flow too high or problems with the dust collector.

1. If abrasive is sputtering and surging out of the nozzle, the abrasive flow is set too high and will not only slow down the etching speed, but will also cause the cabinet to be very dusty inside. Simply reduce the abrasive flow by partially closing the abrasive mixing valve and the cabinet will clear in a few seconds.
2. If you have been blasting for more than 45 minutes or an hour without stopping, the dust collector bag is probably caked with abrasive dust. This condition drastically reduces the airflow from the cabinet to the dust collector, leaving lots of dust in the cabinet. Stop blasting, turn the dust collector off and let the motor completely stop. The weight on the bag will force the bag to drop - shaking the dust into the bottom canister. Turn the dust collector on and the airflow should be much better.
3. The dust collector hose could have become partially or completely detached from either the cabinet or the dust collector. The vacuum hose could have a hole in it or possibly the motor could be wearing out. If the motor is failing, you can generally hear the bearings grinding. In this case, replace the motor.

Symptom 6: Blaster won't shut off when you take your foot off the pedal

Solution:

This could be the result of several different causes.

First: if the blaster stays on 100% when you take your foot off the pedal, that only means one of two things: Either the foot pedal is mechanically jammed or the balance of air pressure in the foot pedal is wrong.

Mechanical jamming of the foot pedal occurs rarely and is caused by abrasive getting into the pedal or by the actuator tab under the top surface of the pedal getting bent a little too much. If you need to disassemble the foot pedal to clean it or to change the bend angle of the actuator tab, remove the two screws at the sides of the pedal that act as hinges and make sure you don't lose the small brass bushings on the screws. Separate the two halves of the foot pedal to work on it. Note how the spring is mounted inside the pedal before you separate the halves, so you can reinsert it in the right place when putting the pedal back together. Make the required adjustments and reassemble.

A much more likely cause of the problem is the air balance in the foot pedal. If the air pressure from the air compressor has fallen lower than the blasting pressure set on the regulator; the pedal will not turn the blaster off when you remove your foot. In order for the foot pedal to work properly, the pressure on the foot pedal should be at least 10 - 20 psi higher than the regulator pressure. (It is common for the airline pressure from the compressor to be 40 - 60 psi higher than the blasting pressure set on the regulator, which causes no problems.) Since air compressors are set to turn on and rebuild pressure when the tank pressure falls to about 90 psi, and you will rarely blast over 60 psi, you will normally not have this problem. However, this could happen under the following circumstances:

1. You forget to turn on your air compressor when you started blasting. If the air valve is on from the compressor and you have a full tank of air, you may not notice that the compressor is not on since you have enough air pressure to blast for a few minutes. This could also happen if your compressor has a blown breaker. To solve this problem, reset the breaker or turn on the compressor.
2. If you have a regulator on your compressor and it has been turned down to a pressure no more than the pressure at which you are currently blasting. Turn the air compressor regulator up to 80 psi or more. Always keep the regulator on the compressor set at least 20 psi higher than the highest pressure at which you intend to blast.

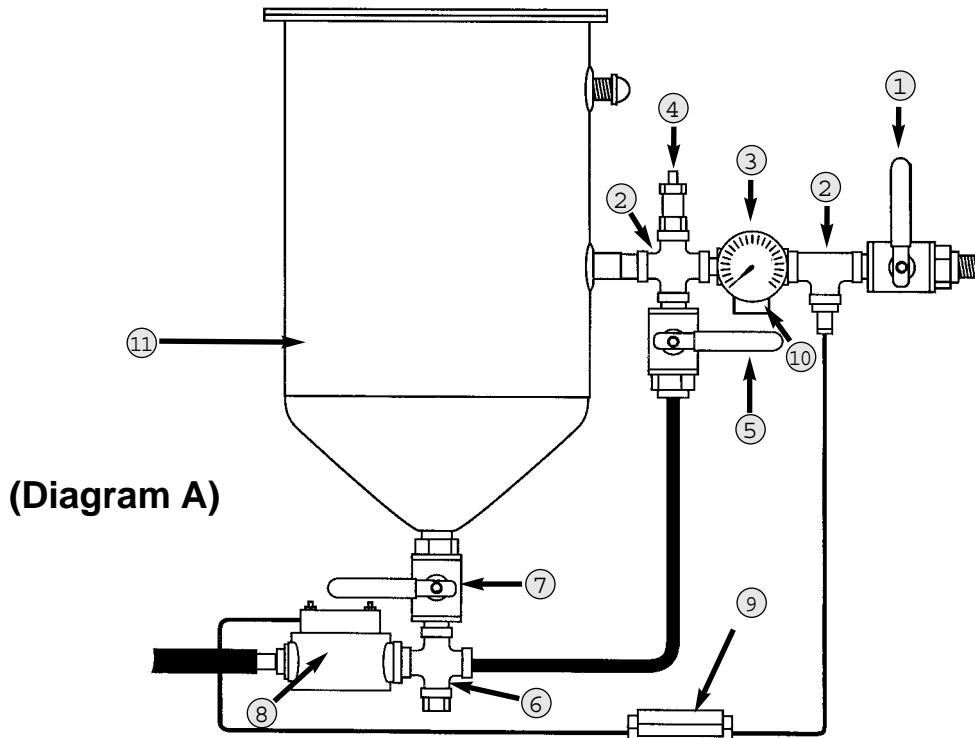
3. The most likely scenario: You may have allowed your nozzle to become worn out and enlarged to the point where it is using all the air from your compressor. (This is a very common cause of the problem.) In this case, the compressor will not be able to build enough pressure while blasting to operate the foot pedal properly. The compressor will be running constantly, yet the air pressure will gradually fall lower and lower because the nozzle is using more air than the compressor can produce. When the pressure from the compressor falls to about the same pressure at which you are blasting, taking your foot off the foot pedal will not stop the blasting. This occurs much faster with a small compressor than with a large compressor, but the solution is the same - replace the worn nozzle with a new one.

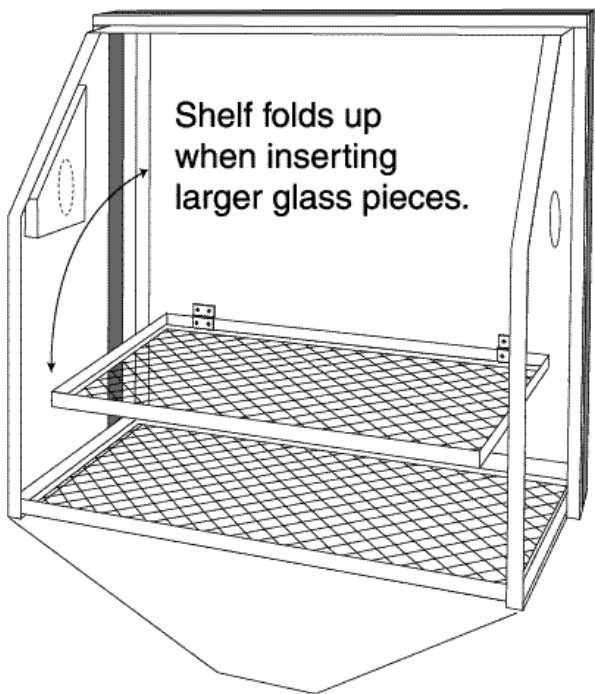
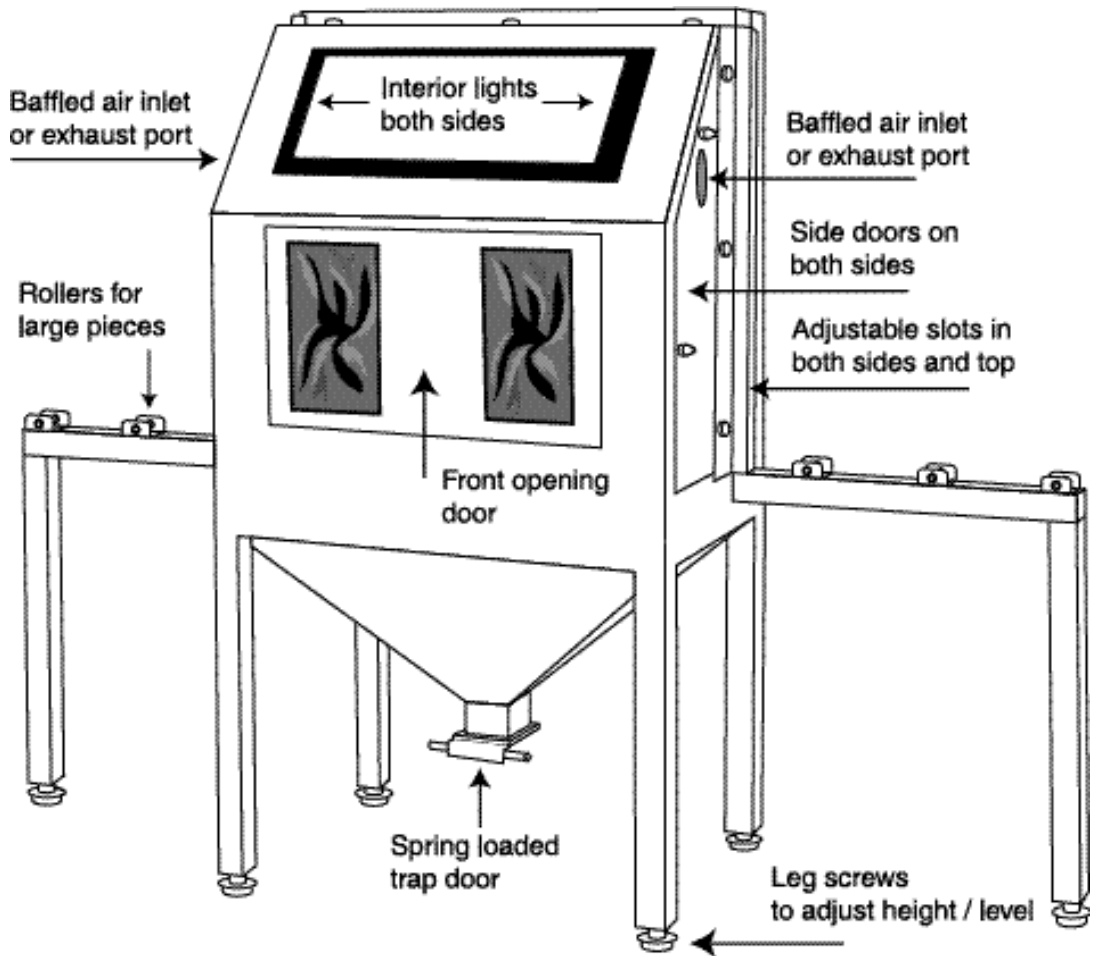
Second: When you take your foot off the pedal and air and abrasive continue to come out the nozzle, but at less than full force, you have probably developed a pinhole in the rubber diaphragm in the media valve. Simply replace the diaphragm according to the instructions in Section 5 (Maintenance), #2, "Replace diaphragm in foot pedal."

Section 7

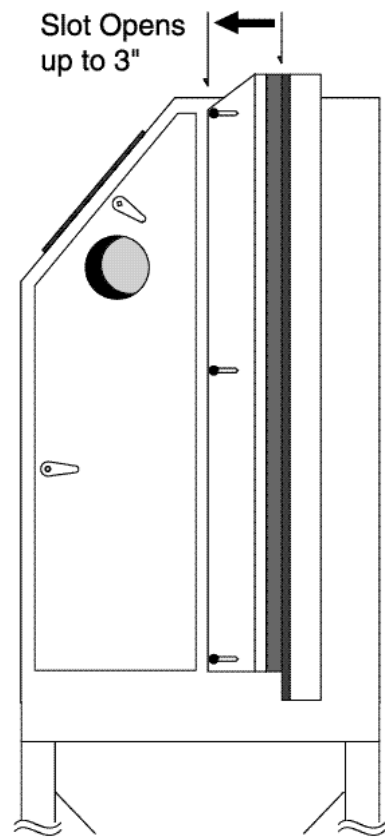
Parts List Air System Plumbing

Description	<i>(Diagram A)</i>	Part #
1. Main air valve (on/off air valve)		101
2. Pipe tee		115
3. Air pressure gauge		2018
4. Pressure relief valve		108
5. Choke valve		101
6. Pipe cross		100
7. Abrasive mixing valve		101
8. Media valve and diaphragm		8051
9. Foot pedal		8025
10. Regulator		8062
11. Pressure Pot		





Cutaway View of Interior - Showing Fold Down Shelf for Smaller Pieces



Right Side View