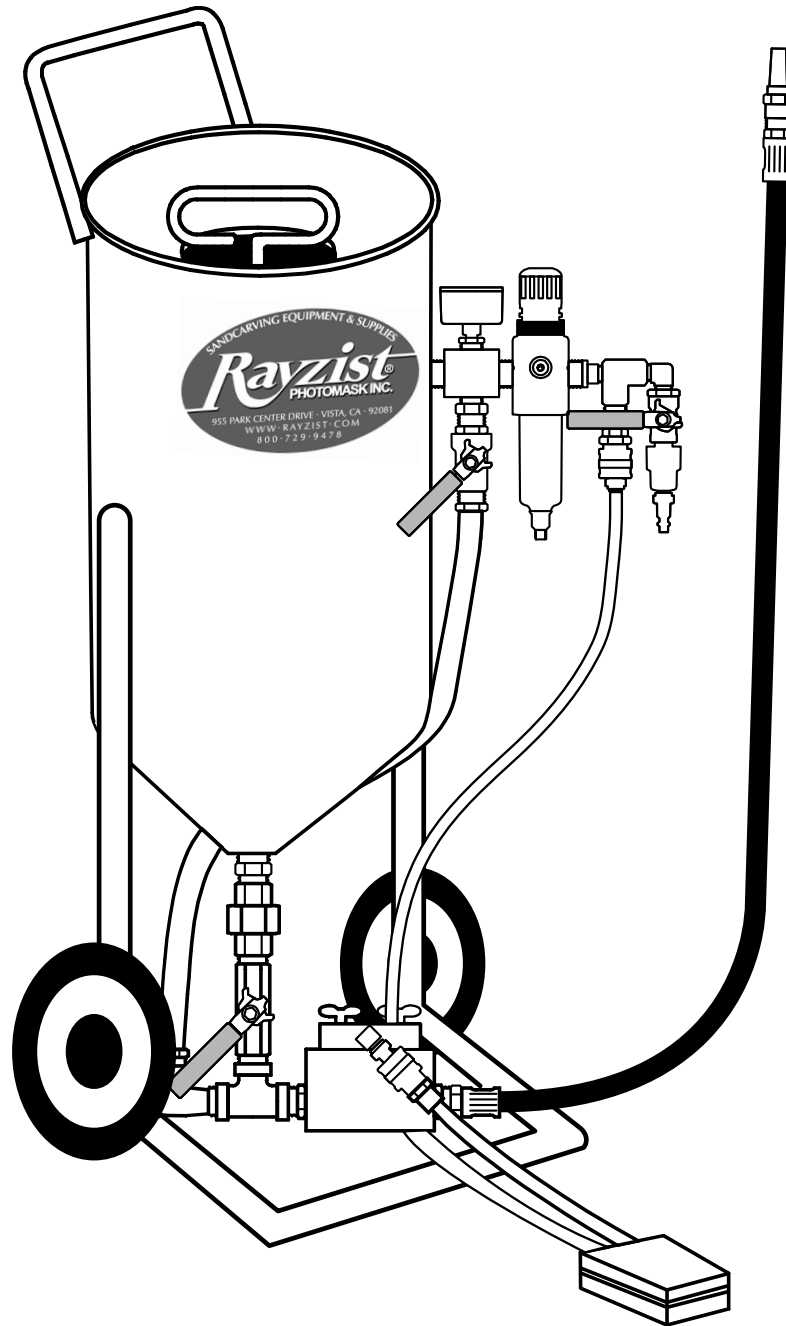


# Portable Pressure Pot



**Rayzist**  
PHOTOMASK INC.

## ! WARNING

**Breathing dust from the cabinet may be harmful. NIOSH approved respirator, eye goggles, and gloves are supplied for your personal safety. Wear personal protective equipment when removing abrasive from the cabinet and when filling the pressure pot**

**1.2.1** Breathing dusts produced by the abrasive media, glass, crystal or other materials being blasted may be harmful to your health. To eliminate these risks, follow all procedures for setting up the equipment and always use NIOSH approved respirators when blasting, moving parts in and out of the cabinet for blasting, when removing abrasive from the cabinet, when filling the pressure pot, and when cleaning and emptying dust from the dust collector. State and local requirements may vary so check with your safety products and abrasive suppliers for their recommendation. NIOSH approved respirators recommended by our abrasive supplier are as follows: 3M 6100(small), 6200(medium), 6300(large) Half Facepiece Respirator using #2071 particulate filters.

**1.2.2** Rubber gloves should be worn when blasting and whenever handling the abrasive or cleaning the cabinet. A pair of rubber gloves is supplied with the cabinet. Additional gloves that are suitable for use can be purchased at your local hardware store.

### 1.2 Pressure Pot

## ! DANGER

**Do not attempt to open the top handle, or adjust quick-clamp connectors while pressure pot is pressurized. Ensure that pressure has been completely relieved and that the pressure gauge reads "0".**

**1.2.1** Do not use or apply pressures higher than 100psi to the pressure pot.

**1.2.2** Never do maintenance or fill pressure pot while under pressure. See instructions in section 3.4, *Depressurizing the Pressure Pot* for more information. Do not attempt to open the top handle until all air has been bled off to avoid serious injury.

## 2.0 Installation

**2.2 Electrical requirements:** (Grounded) 110 Volt / 60Hz 15AMP circuit breaker.

### 2.3 Tools Needed:

- Phillips screwdriver for pallet removal.
- Open end wrench (7/16", 7/8", 3/4")
- 3mm Allen wrench (provided)
- Box knife
- Teflon tape for all male NPT or airline fittings.

### 2.4 Compressed Air Requirements:

Required CFM (Cubic Feet per Minute) 6.0 – 8.0  
Average operating pressure @ 35psi = 5.46 CFM

For moderate use Rayzist recommends:

**Grainger's Model: # 4B227**

4.5 horsepower (2.0 HP Running Motor), High Performance Cast Iron Air Compressor

Free Air CFM @ 90 PSI: 5.5

Free Air CFM @ 125 PSI: 4.9

Volts 60 Hz: 115/230

Amps: 15.7/7.5

Max Pressure (psi): 135 Tank Capacity (Gal): 20H

**Grainger's Model: # 4YN50**

4.5 horsepower (2.0 HP Running Motor), High Performance Cast Iron Air Compressor

Free Air CFM @ 90 PSI: 5.5

Free Air CFM @ 125 PSI: 4.9

Volts 60 Hz: 115/230

Amps: 15.7/7.5

Max Pressure (psi): 135 Tank Capacity (Gal): 20H

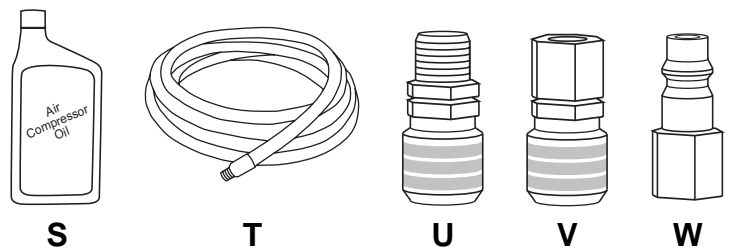
See: [www.grainger.com](http://www.grainger.com) or call 800 225 5994

### 2.5 Required Compressor Accessories:

S. Compressor Oil (1): Grainger's model #4ZF21

T. Air and Multi-purpose Hose, 1/4" NPT (1):

Grainger's model #3JT65

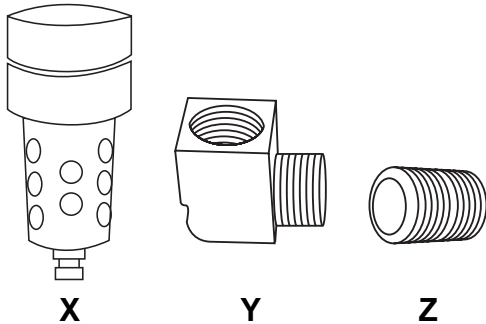


U. Male 1/4" NPT (industrial standard) Sleeve Coupler (1): Grainger's model #4X397

V. Female 1/4" NPT (industrial standard) Sleeve Coupler (1): Grainger's model #4X396  
 W. Female 1/4" NPT (industrial standard) Plug (1): Grainger's model #2X170

## 2.6 Recommended Compressor Accessories:

In-line water separator at compressor; this is highly recommended for humid climates (for use with 4B227 compressor).



X. 60 CFM Air / Water separator with 1/4" inlet/outlet (1): Grainger's model #4Z034  
 Y. Elbow, 1/4" NPT 90 Degree Angle (2): Grainger's model # 6MN80 (pack of 10)  
 Z. Nipple, 1/4" Close (1): Grainger's model # 6MN65 (pack of 10)

## 2.7 Air Compressor Set-up

**2.7.1** Set up the air compressor according to the manufacturer's instructions.

**2.7.2** Most air compressors come with an exit air pressure regulator. If your compressor did not come with a regulator you will need to purchase one.

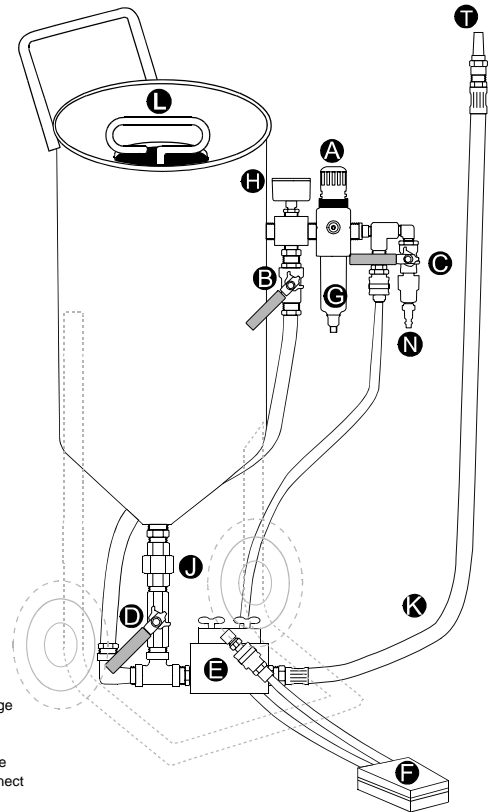
**2.7.3** A water separator (X) should be installed in line with the air pressure regulator. Commonly this is done with parts (Y) and (Z).

**2.7.4** An NTP Sleeve Connector (U) should be connected to the end of your water separator/air pressure regulator set up.

**2.7.5** A standard air hose (T) with an NTP plug (W) at one end and a NTP Sleeve Connector (V) at the other should be used to connect the air compressor to the pressure pot.

## 2.8 Pressure Pot Set-up

**2.8.1** Un-box Pressure Pot and remove individual items.



- Ⓐ Air Pressure Regulator Knob
- Ⓑ Air Flow Valve
- Ⓒ Air Inlet Valve
- Ⓓ Abrasive Flow Valve
- Ⓔ Footswitch Valve
- Ⓕ Footpedal
- Ⓖ Water Separator
- Ⓗ Air Pressure Regulator Gauge
- Ⓙ Union Nut
- Ⓚ Blast Hose
- Ⓛ Pressure Pot Closure Handle
- Ⓜ Air Inlet Valve Quick Disconnect
- Ⓝ Blast Nozzle

**2.8.2** Thread the sandblast hose into the end of the sand footswitch valve (E) and tighten securely. Do not over tighten, you may strip the threads.

**2.8.3** The foot pedal (F) has two quick-connect fittings that easily snap onto their corresponding connections. The BLUE hose connects to the fitting on the pressure regulator assembly (A) and the RED hose connects to the fitting on the sand shut-off valve assembly (E).

**2.8.4** Place the end of the sandblast hose inside the blasting cabinet.

## ! NOTICE

There are right and left hole ports for right and left hand operation. The opposite hole port is an air-vent; do not block.

**2.8.5** Open the top of the Pressure Pot by turning the handle counter clockwise, place the abrasive sift ring on the top of the pressure pot. Sift the 50lb. bag(s) of 150 grit Aluminum Oxide into the Pressure Pot.

## ! WARNING

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## ! NOTICE

Do not fill the Pressure Pot with more than 100 lbs. of Aluminum Oxide or exceed the level of the pressure regulator assembly (A).

**2.8.6** After the abrasive has been sifted, remove the sifting ring, pull the handle up and turn clockwise until it stops and the handle stays in the up position.

### 3.0 Operating Instructions

#### 3.2 Air Compressor

**3.2.1** The air compressor should be set up with a water trap, exit air pressure regulator, and air hose with quick disconnect fittings.

**3.2.2** Most air compressors have an adjustment switch to set when the compressor switches on and off. Set the “on” pressure to 85 psi and the off pressure to 10 psi under the maximum allowable pressure from the manufacturer.

**3.2.3** The sand shut-off valve assembly (E) requires at least 80 psi of air to shut off the flow of abrasive and air; therefore, set the compressor exit air regulator at about 90 psi.

#### 3.3 Pressure Pot

**3.3.1** Insert blasting hose into cabinet. It is important to keep the blasting hose straight for the first 12” on the discharge side of the sand shut-off valve assembly (E) this will prevent wear and prolong the life of the hose.

**3.3.2** Make sure the Pressure Pot top is closed by pulling up the handle and twisting to the right until it stops and the handle stays in the UP position.

**3.3.3** Before connecting hose from the compressor to the pot, make sure the air inlet valve (C) is in the OFF position (horizontal).

**3.3.4** Connect the compressor hose to the Pressure Pot inlet valve (C)

**3.3.5** Turn on the compressor.

**3.3.6** Before opening the air inlet valve (C) be sure the compressor has built up at least 85 psi of pressure.

**3.3.7** Open the air inlet valve (C) wide open (pointing down).

## ! CAUTION

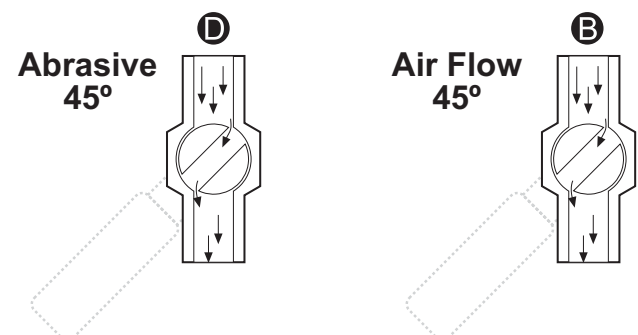
When there is not 80 psi (or above) of free air pressure, (or in some cases, as soon as you open the air inlet valve) abrasive and air will start flowing out of the blasting hose. If this occurs, depress and release pedal to stop.

**3.3.8** The pressure regulator (A) sets the blasting pressure. Standard blast pressure for crystal, glass, and stone is approximately 25-35 psi.

**3.3.9** Unlock the pressure regulator knob (A) by pulling upwards. Twist clockwise to increase blast pressure or counter clockwise to decrease blast pressure. Set regulator to desired pressure.

**3.3.10** You are now ready to sandcarve your items.

**3.4 Pressure Pot Settings:** The Pressure Pot has two adjustment ball valves that can regulate abrasive/air flow mixture. The standard settings for the pressure pot should be made as follows: (adjustments will need to be made as wear occurs to blasting hose and nozzle).



Pressure Pot Settings Illustration

**3.4.1** Set abrasive flow valve (D) at approximate half way open or approximately 45° angle.

**3.4.2** Set air flow valve (B) approximately half way open or at 45° angle.

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## **! NOTICE**

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When the ball valve handle is parallel to the valve or plumbing the valve is wide open. When a ball valve handle is perpendicular to the valve, it is completely closed.

**3.4.3** Initially when first stepping on the pedal, you may experience a thick flow of media, or as you are blasting the flow of abrasive may pulsate with a thick flow of media; this is a common occurrence when the sand flow valve (D) is open too wide.

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## **! NOTICE**

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Sand flow valve (D) usually does not require adjustments unless there are drastic pressure changes, or larger nozzle orifices are used.

**3.4.4** If there is too much air coming out of the blasting hose (the stream of abrasive is too thin), close the air flow valve (B) slightly. If there is too much abrasive coming out of the blasting hose (abrasive flow is too thick), close slightly.

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## **! NOTICE**

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Air flow valve (B) adjusts how much air pushes the abrasive through the blast hose. Less air flow = more abrasive. More air flow = less abrasive.

### **3.5 Depressurizing the Pressure Pot**

**3.5.1** To depressurize Pressure Pot, first close air inlet valve (C), then step on foot pedal until sand and air stops flowing and the pressure gauge reads "0".

## **! DANGER**

**Do not attempt to open the top handle until all air has been bled off.**

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## **! NOTICE**

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Do not depressurize with the pressure regulator knob (A) or water separator drain valve (G), abrasive may back-up into the pressure regulator.

### **3.6 Recycling Abrasive**

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## **! WARNING**

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**3.6.1** Depressurize the pressure pot according to the instructions in section 3.4, *Depressurizing the Pressure Pot*.

**3.6.2** Make sure that the Dust collector is turned on.

**3.6.3** Place a 5 gallon bucket below the trap door on the blast cabinet. Open the door slowly and fill the bucket according to your lifting ability. A 5 gallon bucket half full weighs approximately 50 lbs, one quarter full weighs approximately 25 lbs. This weight will need to be lifted chest height to fill the pressure pot.

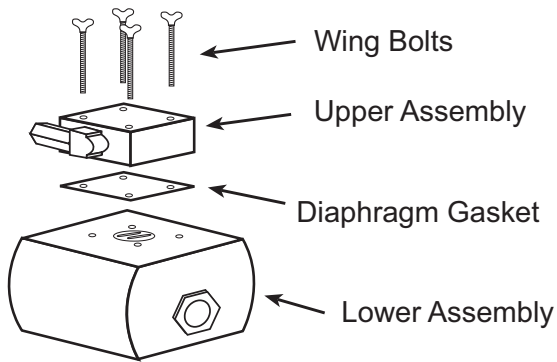
**3.6.4** Pour the abrasive into your pressure pot thru a sifting ring.

### **4.0 Troubleshooting**

**4.2 Sand and air continues to flow at full force when you remove your foot from the pedal.**

**4.2.1** The diaphragm gasket may need replacement. To replace gasket, DEPRESSURIZE the pressure pot according to the instructions in section 3.4, *Depressurizing the Pressure Pot*.

**4.2.2** Remove the four wing bolts holding the upper and lower sand shut-off valve.



Sand Shut-off Valve Assembly Illustration

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## ! NOTICE

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It only takes a small hole in the gasket to cause it to fail.

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**4.2.3** Check output pressure of your air compressor. Output pressure needs to be greater than 80 psi.

**4.2.4** The foot pedal (F) actuator could be stuck.

**4.3 A SMALL AMOUNT of abrasive and air continues to flow when you remove your foot from the pedal.**

**4.3.1** This problem occurs after a long period of time when the sand shut-off valve assembly (E) develops a groove across the plastic web. Replace.

**4.4 The blasting hose is “spitting” abrasive, or loses abrasive flow a few moments after stepping on the pedal.**

**4.4.1** Pressure Pot may be low on abrasive. Refill.

**4.4.2** Abrasive may have become wet (fine to powdery abrasive will tend to clump together and will not flow smoothly) from the pot. Replace with dry abrasive and empty water traps.

**4.4.3** There could be a clog in the line. Remove the carbide nozzle and check to make sure nothing is stuck in the opening. With the nozzle off, open valves (B) and (D) to full position and step on the foot pedal and see if there is a constant flow of abrasive and air. Return valves to 45° or the position you had them set in and attach carbide nozzle.

**4.5 Air is coming out of the blasting hose but No Abrasive.**

**4.5.1** There may be a clog in valve (D), preventing abrasive from flowing. DEPRESSURIZE the pressure pot according to the instructions in section 3.4, *Depressurizing the Pressure Pot*, and then loosen large union nut (J). Inspect the sand shut-off valve. (E), free any blockage, and possibly drain and sift abrasive.

**4.6 No Abrasive or Air is coming out of the blasting hose.**

**4.6.1** There a blockage in the blast hose (K).

**4.6.1.1** With the hose in the cabinet remove nozzle; free any clogged substance in nozzle.

**4.6.1.2** With nozzle off, and hose in the cabinet step on pedal to free any debris from hose.

**4.6.1.3** Shut off sand flow valve (D), and open Air Flow valve (B) full wide and step on pedal until blast-hose is free of blockage.

**4.6.1.4** DEPRESSURIZE the pressure pot according to the instructions in section 3.4, *Depressurizing the Pressure Pot*, and then remove lower sand flow valve (D) to free any blockage.

**4.6.2** Foot pedal (F) is not working. Replace.

## 5.0 Maintenance

**5.2** Never service a Pressure Pot while under pressure. See instructions in section 3.4, *Depressurizing the Pressure Pot* for more information. Before maintaining lamps or dust collector make sure blast cabinet is unplugged to avoid serious injury.

**5.3** Maintenance to your system is predicated on the usage of your blasting system, higher then recommended blasting pressures of 25-30psi, or blasting abrasive above 150 grit will result in inconsistent or premature wear items.

### 5.4 Daily Maintenance

**5.4.1** Air compressor

**5.4.1.1** Drain water from compressor and water traps.

**5.4.2** Pressure Pot

**5.4.2.1** Drain water from water trap.

**5.4.2.2** Daily or after eight hours of use: Wearing a NIOSH approved respirator and with the system unplugged, shake the dust collector bags

vigorously to prevent dust build-up from forming inside the bag.

**5.4.2.3** Empty dust collector trap.

**5.5 Periodic Maintenance**

**5.5.1** Abrasive

**5.5.1.1** Life expectancy: (rated in recycles) approximately 8-10 recycles.

**5.5.1.2** Always sift through a sifting ring. Replace when blasting is taking considerably longer or abrasive becomes excessively dusty.

**5.5.2** Diaphragm Gasket

**5.5.2.1** Life expectancy: is approximately 40 hrs. Replace when gasket develops a hole and will no longer shut off the flow of abrasive and air.

**5.5.2.2** (Heavy Duty Blast Hose) Life expectancy: approximately 130 hrs.

**5.5.2.3** Pinch the blasting hose 3” - 4” from the Sand Shut-off valve (E), if the hose collapses in-between your fingers, the hose will blow out soon. Replace hose before it blows out.

**5.5.2.4** Keep the blasting hose straight for the first 12” on the discharge side of the Sand Shut-off valve (E) to prolong the wear of the hose. The hose will wear more rapidly on sharp bends or kinks.

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**! NOTICE**

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Use Heavy Duty Blast Hose when blasting pressure is above 35 psi. or when blasting for prolong periods of time.

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**5.5.3** Sand Shut-off Valve

**5.5.3.1** Check wear on inside of the valve each time you replace the diaphragm gasket. If a groove has developed across the web and air and abrasive leak out the nozzle when the foot pedal is not depressed, replace the sand shut-off valve (E).

**5.5.4** Nozzle

**5.5.4.1** Life expectancy: approximately 100 hrs.

**5.5.4.2** Replace when the nozzle orifice exceeds 1/8”. A large orifice will cause damage to the mask and may blow off small pieces of detail.

**Keep spare parts on-hand**

| Part                             | Part # |
|----------------------------------|--------|
| Diaphragm Gasket                 | DIA    |
| Footswitch Valve                 | FSBV   |
| Heavy Duty Blasting Hose         | HDBH   |
| Carbide Nozzle – 3/32”           | NZ32   |
| Carbide Nozzle – 1/16”           | NZ16   |
| Carbide Nozzle – 1/8”            | NZ8    |
| Aluminum Oxide Abrasive 150 Grit | AO150  |
| Aluminum Oxide Abrasive 120 Grit | AO120  |
| Aluminum Oxide Abrasive 220 Grit | AO220  |

**6.0 Blasting Tips**

**6.2** Average blasting pressure: 30-35 psi.

**6.3** Average blasting distance: 4” - 6” away from the item.

**6.4** Protect areas of the exposed surface around the mask with blasting tape

**6.5** Blast angle is always 90°. Blasting on an angle prematurely or in the wrong areas (such as text) can cause blowouts.

**6.6** "Trace" the design to blast away the membrane first. Then go back, continuing to use small circular motions to carve the item. Always keep the nozzle moving.

**6.7** A general rule in sandcarving is to not blast deeper than the width of a line. Blasting deeper than the width of a line, text, or graphic will cause a V shape cut and become difficult to read or cause the image to appear shadowed, or cause blow-offs with the centers of the letters “a”, “e”, etc.

**6.8** When blasting you will see the photo resist turn from blue to a darker brown. Use caution (especially on 3-mil film). Always keep the nozzle moving. Once the photo resist begins to turn dark brown granules of abrasive will no longer be resisted by the surface of the mask. This may cause small “chipping” into the glass surface causing visible blast though. Pressure for 3 mil should not exceed 30 psi