Operator's Manual

CRYSTALBLAST™

NAVIGATOR 72

IKONICS IMAGING®

An **IKONICS** Company ISO 9001 Certified NASDAQ Listed: **IKNX**

Made in USA

Engineered, manufactured and supported in the USA by MediaBlast, Inc. and IKONICS Corporation.

Navigator QUICK-GUIDE

*This **Quick Operation Sheet** is not meant to replace the machine Manual and or the Operational Guide*

You have just purchased the Navigator 72 Sandcarving system. This machine was designed by Media Blast, a company manufacturing blast machines since 1977.

All CrystalBlast machines are very easy to operate and maintain. However, there are several important issues we would like to point out during installation of the machine…

- **ALWAYS USE CLEAN, DRY COMPRESSED AIR.** Moisture will cause abrasive to stick together preventing flow. Please review the compressed air requirements prior to operating the machine. Install a viable air dryer or Ambient Air Dryer if the temperature of the compressed air entering the cabinet is higher than the surrounding ambient air temperature.

- **PROPER OPERATION OF THE STANDARD 3/32" i.d. NOZZLE REQUIRES 5.7 CFM OF COMPRESSED AIR @ 30 psi.** Make sure that your air compressor exceeds this requirement by at least 75%. Warm compressed air entering the cabinet creates moisture and this can be a secondary problem created by using a marginally sized air compressor. The Navigator 72 may be upgraded to the 1/8" nozzle assembly using 10 cfm @ 40 psi…

- **DO NOT BLAST ABOVE 50 PSI.** This machine is designed for sandcarving using lower pressures. Blasting at pressures in excess of 40 psi can cause premature wear on the abrasive delivery components (blast hose, blast nozzles, pinch valve bladder etc.)

- **MAINTAIN A CONSTANT INPUT LINE PRESSURE OF 90-100 PSI.** Proper operation of the CrystalBlast air controls requires 90-125 psi for machine ON-OFF controls… line pressures that fluctuate below 90 psi may cause improper operation of the control circuit…above 125 psi may damage the air controls.

- **ALWAYS DEPRESSURIZE THE POT WHEN YOU ARE FINISHED USING THE MACHINE FOR THE DAY.** It is necessary to depressurize the pot when the supply compressor air is shut-down. Line pressure from the compressor is used to prevent nozzle blast. When the line pressure drops below 60 psi the blast control circuit may open. The next time the air compressor is turned on the system will immediately begin blasting until the air compressor builds up air inlet pressure of 60 psi.

- **REGULARLY CHECK THE BORE OF THE NOZZLE.** It is important to replace the nozzle after it has worn 1/32". Not only will the worn nozzle consume more compressed air, but the abrasive will impact the part more aggressively and increase the potential for damaging the mask. As the volume of air and abrasive increases more air is required. Marginal air compressor sizing can result in malfunction of the machine air controls. High wear nozzles are available from Media Blast or aurthorized Media Blast dealers.

MEMO

Abrasives are available in different types and sizes. The difference in results between aluminum oxide and silicon carbide can be simply stated as personnel preference.

Use 120-150 with 4-5 mil mask and thicker for line art carving…use 180 for combination of carving and etching…use 220-240 for 2-mil mask on detailed half-tones and surface etch only…
220 mesh requires more advanced operator control and is not for the beginner.

MEMO

Optional Ambient Air Dryer 26 cfm max. Part Number 100-03-003

MEMO

3/32" nozzle is suggested for operation with 9-10 cfm supply compressor, other factors also affect compressor sizing

MEMO

The Navigator has been equipped with high-pressure On-Off Pinch Valve. This permits higher than 50 psi blasting pressures but other wear items will need replacement more often.

MEMO

Never regulate the airline supply pressure to the machine lower than 90 psi or higher than 125 psi

MEMO

High Wear 3/32" Nozzle Part Number 109-19-594
High Wear 1/8" Nozzle Part Number 109-19-595

- **USE MBA REPLACEMENT COMPONENTS.** Replacement of worn components with parts not purchased from MBA or an aurthorized dealer will void the warranty. The components used by Media Blast are of the highest quality and will provide the longest serviceable life.

- **REVIEW THE TROUBLESHOOTING GUIDE AND FOLLOW THE INSTRUCTIONS PRIOR TO CALLING MBA FOR ASSISTANCE.** Most problems associated with the machine can be identified by simply consulting the Troubleshooting Guide. However, if your problem cannot be found in the Troubleshooting Guide, please give us a call. Nearly all equipment malfunction issues can be resolved over the telephone..

QUICK OPERATION GUIDE

The information that follows will be used to get your new CrystalBlast Navigator 72 operational in the shortest period of time. Use this sheet for the initial machine set-up and operation. You may refer to this sheet at any time, for more detailed operational instructions refer to the main operational manual.

FIRST

- Remove the machine from the Shipping Container by removing the outside crating material. Do not remove the separate items from the shipping pallet, (s), the pallet will be used for final placement of each item.
- Use a pallet jack or forklift to place the unit, (s), into position.
- Remove any 3/8" lag-bolts used to attach the machine components to the shipping pallet only after the final placement of the machine has taken place. Take care when removing any strapping material used to fasten the components to the shipping pallet, steel strapping is under tension…. Always wear safety glasses when removing items from shipping crates.

NOTE

The cabinet has been supplied with forklift lifting channels (#30). Always lift with the forks spread to fit in lifting channels. Never lift higher than required for removal of the shipping pallet.
The unit can be unstable when lifting..**NEVER MOVE THE UNIT INTO LOCATION WHILE THE CABINET IS ON THE FORKLIFT! ALWAYS USE THE SHIPPING PALLET with machine attached.**

- Lift the machine vertically just enough to remove the shipping pallet then lower the cabinet onto the floor.
  Because of the weight of the cabinet, over 1000 pounds, make sure the unit is located in the final installation area, final placement should be made by sliding the unit on the floor.
- Use the front and rear leveling pads (#31) to stabilize the cabinet after final placement (shims not included). These can also be used when the floor is uneven. Use the supplied holes to lag to floor after leveling (#31).

Two components, cabinet and pressure generator are connected with flexible abrasive and dust collector hoses (#19 & 32). Longer hoses are available but adding additional duct hose can cause blower performance problems. Always consult the factory when adding any additional abrasive or dust collector hose ducting.
Refer to the Pneumatic Hose Diagram for attachment of the Conveyor Air Intake (#6), Abrasive Conveyor Hose and Cyclone Exhaust Hose to Dust Collector (#19 & 32). This diagram also shows the placement of the Foot Valve and Dust Collector Cleaning Hose assemblies.

MEMO

The "KIT" is available containing the wear parts required to keep your CrystalBlast operational without using that Overnight Delivery Service…ask for details

MEMO

The Navigator 72 uses an attached dust collector with 440 sq.ft. of cartridge filtration.

MEMO

All Media Blast models use the push-in tubing connectors. Installation of the foot valve tubing is accomplished by inserting the tube into the fitting and using a firm push to seat the tubing.

MEMO

Always install a master shut-off air valve before the main machine air inlet

MEMO

90-psi line pressure is required for proper operation of machine controls. Line pressure is needed for proper vibrator operation during the filter cleaning cycle.

MEMO

Never operate the dust collector vibration cleaning cycle when the exhaust blower is running… dust will not release from the filter cartridge unless the blower is turned off…doing this can cause filter packing

- Remove all items from inside the cabinet. After final placement of all components, allow clearance for machine loading and unloading, locate and connect the smaller abrasive hose (#32) connecting one end to the cabinet abrasive conveyor outlet and the other end to the cyclone abrasive inlet. This is the main abrasive conveyor hose that moves the abrasive from inside cabinet to outside pot assembly.
- Attach the shorter of the flexible hoses (#6), Abrasive Conveyor Air Intake Hose, from the cabinet to the cabinet pneumatic floor…this may be already attached and in position.
- Attach the remaining larger flexible hose (#19) to the top of the cyclone dust discharge and the other end to the dust collector dust inlet.
- Install all pneumatic airlines for the foot valve and dust collector cleaning cycle using numbers listed on the removed hoses.
- Attach airline to main air inlet (#22) located on the pressure generator air-regulator making sure the Pot Exhaust Valve is closed. All Quick Connectors are not the same and this machine has been shipped without fittings allowing the customer to maintain uniformity by installing currently used matching couplings. **Never use small standard quick disconnects or spiral hose if the unit is equipped with 1/8-inch blast nozzle.**
- Standard 8' Track (#7), shipped already installed in the cabinet, this track is adjustable in height using the track outside holding pins (#8). When first using the machine close the side adjustable slide panels (#33) and operate the unit using the inside operator work grate (#34). This will allow the operator to familiarize him/herself with the machine controls.
- Set the blasting pressure on the regulator using the air pressure regulator (#23).
  The Navigator 72 has single power source electrical.. Each unit is ordered with the correct power voltage for the installation. Check the machine name tag for power source, voltage and phase. Have qualified personnel make any and all electrical connections and make sure the blower rotation is correct, arrow on blower housing.

The machine is now almost operational. Make sure the air compressor is operational and the minimum line pressure is 90 psi with a maximum pressure to the machine of 125 psi. If your compressor isn't adequate the machine will start to blast and not stop when you remove your foot from the blast pedal. The CrystalBlast Navigator machine requires 20-30 psi more air pressure than the set machine blasting pressure for proper operation of the air controls.

- Turn the machine cabinet off-on switch to the on position (#1). The switch is located on the top skirt panel, right hand side…green on, red off.
- At this time the dust collector and lights will be operational.
- Open the front access door and with the blower running, pour 35 pounds of abrasive, onto the lower perforated scalper screen. The running exhaust blower will prevent dust from exiting the machine during this process.
- After abrasive transfer open the 3-way valve (#20) to remove the compressed air from the pot assembly. When the air has been released you will hear the pot valve open. This allows the abrasive stored in the hopper above the pot to drop into the pot assembly.
- Closing the 3-way valve will pressure up the pot assembly.
- Each time the 3-way valve is used a small amount of abrasive will flow backwards into the choke valve hose (#28). This will take only a few seconds to clear when blasting is resumed.

The machine is now almost operational….

MEMO

Never overcharge the unit. Proper operations of the pot assembly require no more than 30-35 pounds of abrasive inside the pot assembly with standard 0.5 cf pot assembly. Overcharging the pot may result in plugged abrasive hoses.

MEMO

All Media Blast models use the push-in tubing connectors. Installation of the foot valve tubing is accomplished by inserting the tube into the fitting and using a firm push to seat the tubing.

MEMO

The machine can be stopped at any time by closing the pot air inlet and opening the pot 3-way valve #20.

WARNING

Never close the choke valve. This can plug the abrasive delivery system. Start with the choke valve fully opened with the valve handle parallel to the airline into the valve.

MEMO

During the first abrasive transfer a new machine may show a minor trace of dust. This is caused by new unseasoned filter cartridges and or new micro dust laydened abrasive. After the first abrasive transfer this condition will disappear.

MEMO

When first filling or refilling the pressure pot

ADJUSTING THE MIXING VALVE

Adjusting the media flow control valve is simple BUT YOU MUST OPERATE THE MACHINE FIRST TO ESTABLISH THE DIRECTION OF ADJUSTMENT.. Locate the compressed air choke valve (#28) located at the bottom of the pot assembly opposite the pinch valve assembly on the pressure generator assembly. When the valve is completely open you will see the least amount of abrasive exiting the nozzle. **NEVER CLOSE THIS VALVE** & adjust as follows:

- Set the valve (#28) at 45 degrees…test for blast by pressing on the foot pedal assembly (#5). If very little abrasive is exiting the nozzle after a few seconds, close the valve by moving handle about 1/4". Just before the nozzle is delivering the proper amount of abrasive the nozzle will pulse slightly. Close the valve a bit more and the pulse will slowly disappear. When the stream is steady the setting is correct. This setting will be correct unless you change the blasting pressure, the abrasive size being used or the mixing tee is worn out..

During depressurization of the pot any abrasive in the pot assembly is mixed and mixing helps flow finer abrasives.

Cleaning the dust collector is a simple process….turn the dust collector blower switch off (#1) and open the pneumatic air valve (#16) located on the pot pressure control panel.. Allow the vibrators (#17) to operate for about 3 minutes every 2 hours of machine operation. NEVER OPERATE THE VIBRATOR WITH THE BLOWER RUNNING, this can cause filter packing. Optional auto cleaning cycle is available.

Always depressurize the pot assembly when the air compressor is going to be turned off for the day using the 3-way valve (#20).

PRESSURE POT VALVE CONTROL

- The Navigator Pressure Generator uses the single valve pot control, 3-way (#20), to exhaust the pot for refill and pressure up the pot for blasting.
- When abrasive is transferred from the machine to the pressure pot the abrasive will be stored in the storage hopper (#12) located above the pot assembly. Use the 3-way valve (#20) to exhaust the pot air and open the pot valve. Use the 3-way valve in the opposite direction to close the pot valve and pressure and pressurize the pot assembly.

1. **The machine is now ready for blast. Pressing down on the foot pedal (#5) will start the blast; letting up on the foot pedal will stop the blast.** When first pressurizing the pot assembly and closing the pot pop-up valve a small amount of media will be in the abrasive supply hose or choke valve air supply. Always clear this media before part processing by not pointing at the part. This will not occur again until the pot is refilled when the pop-up valve is again opened and closed. Removing the nozzle from the hose, see nozzle replacement, can also be used to clear unwanted abrasive in the abrasive supply hose.

DE-PRESSURIZING THE POT FOR ABRASIVE RELOAD

1. Open the 3-way valve to exhaust the pot and open the pot valve. The pot valve will open and collected abrasive transferred from the cabinet to the storage hopper will drop into the pressure pot at this time.

The depressurized pot assembly will allow the pot pop-up valve to open. You will hear a metal tap when the valve opens, this is normal. The abrasive will filter back into the pot assembly. Closing the 3-way valve will seal the pot valve and pressurize the pot.
Always allow at least 60 seconds for the abrasive storage hopper to empty into the pressure pot assembly.
If the unit includes the optional 1.0 cubic foot pressure pot assembly, 90 pound, the abrasive reload time will be increased.

MEMO

Never overcharge the unit. Proper operations of the pot assembly require no more than 30-35 pounds of abrasive inside the pot assembly. Overcharging the pot may result in plugged abrasive hoses.
You can use the abrasive hopper inspection port to view the abrasive level in the hopper. Never use this for abrasive filling, it can result in abrasive contamination by not passing through the cabinet scalper screen.

WARNING

Never close the choke valve. This can plug the abrasive delivery system. Start with the choke valve full open with the valve handle parallel to the airline into the valve.

MEMO

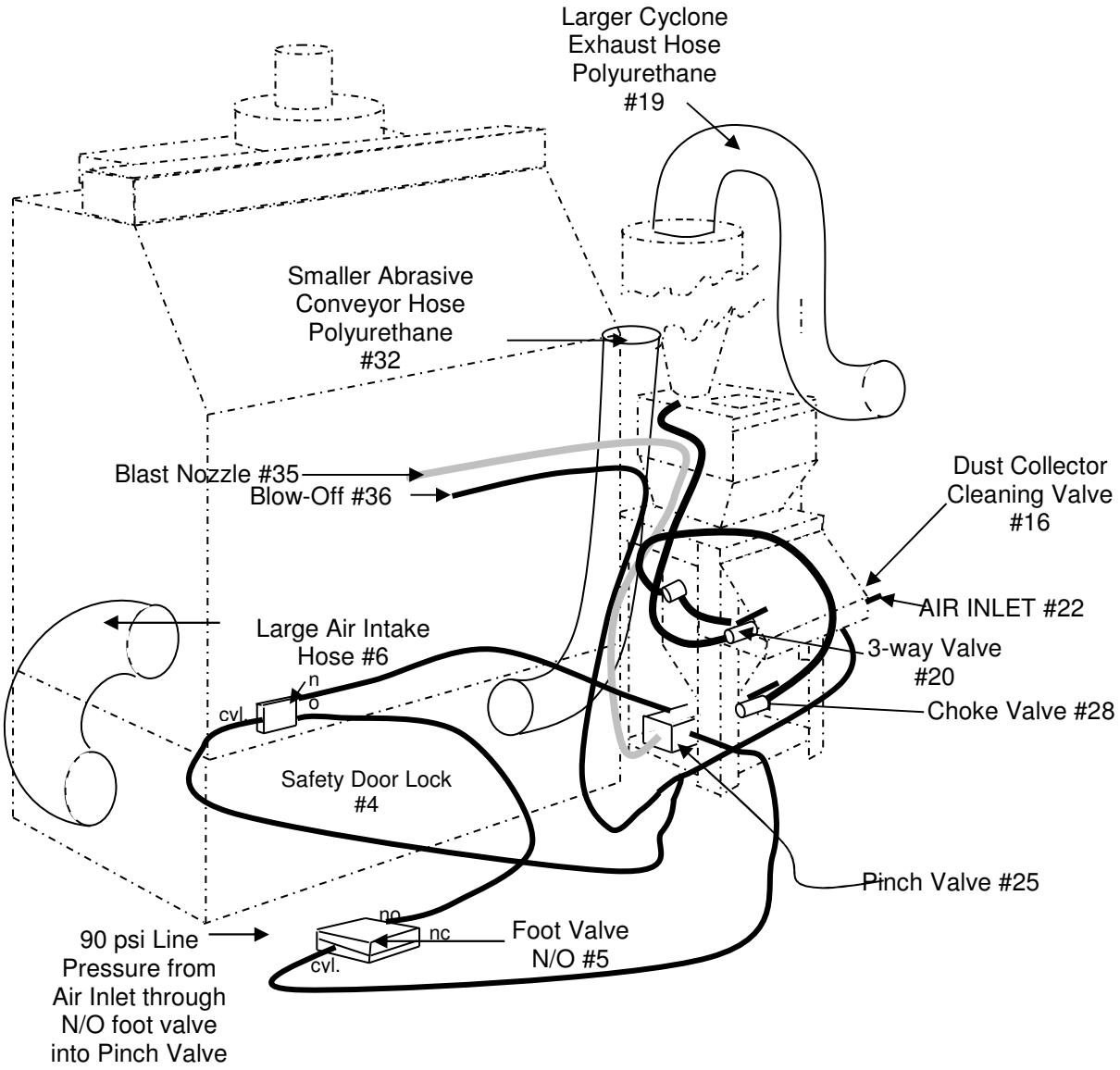
The machine can be stopped at any time by opening the 3-way pot valve.

MEMO

90-psi line pressure is required for proper operation of the reverse pulse cleaning assembly.

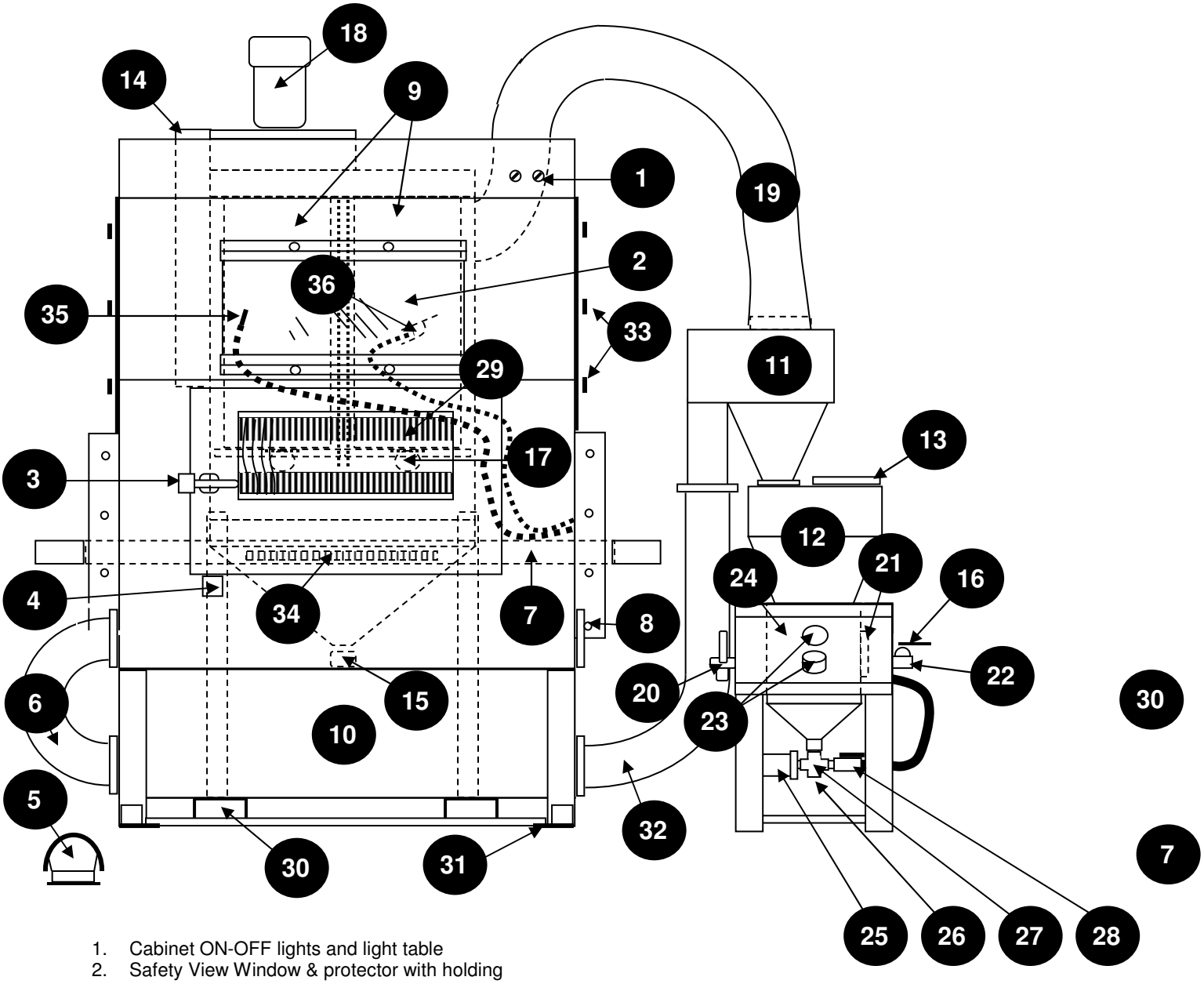
PRESSURE BLAST CFM CONSUMPTION										
Nozzle Size		CFM CONSUMPTION AT SPECIFIC PRESSURES								
		20 PSI	30 PSI	40PSI	50PSI	60PSI	70PSI	80PSI	90PSI	100PSI
1/16”	0.062	2.00	2.50	3.10	3.70	4.20	4.80	5.40	5.90	6.50
3/32”	0.094	4.40	5.70	7.00	8.20	9.50	10.80	12.10	13.30	14.60
1/8” (#2)	0.125	7.90	8.38	10.29	12.20	14.02	15.93	17.76	19.67	21.80
3/16” (#3)	0.187	15.00	18.92	23.24	27.39	31.54	35.85	40.08	44.15	49.00
1/4" (#4)	0.250	26.00	33.62	41.17	48.64	56.11	63.66	71.13	78.68	85.00
5/16” (#5)	0.312	42.00	54.61	67.06	79.10	91.13	103.63	115.66	127.74	140.00
3/8” (#6)	0.375	58.00	75.61	92.96	109.56	126.16	143.59	160.19	176.79	194.00
7/16” (#7)	0.437	83.00	105.03	128.65	152.31	175.55	199.20	222.44	245.68	268.00
1/2" (#8)	0.500	105.00	143.46	164.34	195.05	224.93	254.81	284.69	314.57	346.00

PNEUMATIC HOSE DIAGRAM



Navigator Control Diagram

125 MAXIMUM INLET PRESSURE



1. Cabinet ON-OFF lights and light table
2. Safety View Window & protector with holding brackets and release knobs
3. Door Latch and Strike
4. Safety Door Interlock
5. Foot Operated Blast Valve
6. Conveyor Air Intake Hose
7. Standard Roller Track 8'
8. Adjustable Track Positioning Pin Bracket
9. NOB Cartridge Filters
10. Pneumatic Floor
11. Cyclone Separator
12. Abrasive Storage Hopper
13. Inspection Port Access Cover
14. Silencer
15. Dust Storage Hopper and Drain Cap
16. Dust Collector Cycle Cleaning Valve
17. Cleaning Vibrators
18. Exhaust Blower, Motor…Impeller & Housing
19. Cyclone Dust Outlet Hose
20. Pressure Pot Exhaust Valve 3-Way
21. Pot Access Cleanout Port
22. Main Air Inlet
23. Air Regulator & Pressure Gauge
24. 0.5 Pot Standard, 1.0 Optional ASME Coded
25. High-Pressure Pinch Valve
26. Secondary Drain for sediment
27. Metering Cross
28. Choke Valve
29. High Velocity Operator Port
30. Fork Lifting Channels
31. Leveling Pads with Lag Down Hole
32. Abrasive Conveyor Hose
33. Adjustable Slide Panels
34. Removable Work Grate
35. Blast Nozzle, 3/32" std. 1/8" optional
36. Blow-Off Gun

GETTING STARTED: **MANUAL**

INSTALLING THE MACHINE

UNIT PLACEMENT: Allow adequate clearance for loading and unloading the blast cabinet. MBA recommends 36" in front of the cabinet for the operator. Always leave adequate clearance on the left and right side of the cabinet to facilitate placement of the dust collector, adjustment of the pass-through track assembly and adequate floor space for part entrance and exit. Never place unit where direct light can strike the operator view window. This will cause reflections on the view window and make it uncomfortable and difficult for the operator to view the work in progress.

DUST COLLECTOR: The Navigator uses an attached dual filter 440 square foot cartridge filter dust collector assembly complete with standard pneumatic filter cartridge cleaning assembly. Media Blast offers other optional dust collectors for long daily operation, higher air inlet velocities and other special applications for machine operation. Connect the larger and longer flexible OD hose (#19) to the outlet of the cyclone separator reclaimer (#11) and the other end to the dust collector dust inlet. This is accomplished using the supplied band clamps. This is a suction hose with minimum bending radius. The machine requires high voltage single power electrical connection; always have a qualified electrical technician make this connection. The standard machine configuration includes 2 HP blower motor assembly for operation of the high velocity part inlets. Always check the motor tag for supplied or requested power voltage, phase and maximum amperage draw.

ELECTRICAL REQUIREMENTS AND CONNECTION: Media Blast recommends that this cabinet be installed by a qualified electrician. The standard Navigator configuration includes a high voltage single power source electrical supply. Because the standard configuration often varies it will be necessary to check the name tag for proper electrical supply. Electrical schematic is inside the main electrical box on the top of the machine.

125 MAXIMUM AIR INLET PRESSURE

AIR REQUIREMENTS AND CONNECTION: The standard nozzle, 3/32" ID., requires 5.7 cfm @ 30 psi. The optional 1/8" ID nozzle is recommended for operation on the 72" model only. Stopping the blast during machine operation will save on compressed air usage (e.g., blasting 50 seconds of every minute will decrease the compressed air requirements by 16%…. Make sure that your air compressor exceeds the requirement by at least 75% (9-10 cfm for the 3/32" nozzle and 20-22 cfm for 1/8" nozzle)….nozzle wear may cause the air controls to function inproperly with any undersized air supply. Premature compressor failure can be a secondary result of using a marginally sized air compressor and wet air is a third result of margionally sized air compressor supply. *Note: The system must provide at least 30 psi more line pressure to the cabinet than the actual set blasting pressure. MBA recommends any air compressor that automatically turns on when the air pressure drops below 100 psi. This eliminates any potential problem of losing the closure pressure on the blast shut-off or pinch valve.*

It is very important that the compressed air be clean and dry. Wet or hot compressed air will cause the abrasive to bond together and stop flowing. Under sizing the air compressor will create a situation that does not allow adequate time for the compressed air to cool in the air receiver tank. This warm compressed air enters the blast cabinet and immediately cools. The resulting condensation will cause the abrasive to stick together. If wet compressed air is suspected, install an

air dryer prior to the air entering the blast cabinet (MBA Ambient Air Dryer, P/N 100-03-173). *Note: As the blast nozzle wears, the air requirements for the system will increase. If the air compressor is not capable of handling the higher air volumes, the blast pressure will begin to decrease and the air compressor will be strained resulting in machine control failure.*

The Navigator Pressure Generator Assembly requires connection of the main air inlet line of a minimum airline ID of 3/8" with advised 1/2" ID. The Navigator requires volume air flow for the proper adjustment of the abrasive flow-control, CHOKE VALVE. Connection of the main air inlet line using quick-disconnects, long hoses, curly hoses or undersized hoses can cause air volume flow restrictions. This can create problems with the adjustment of the abrasive flow when using the machine choke valve assembly.

INSTALLING THE FOOT PEDAL ASSEMBLY:
The Navigator includes a separate movable foot pedal assembly with OSHA safety cover. The pedal is an air-valve, normally open, that allows the air line pressure to pass directly through the valve. This compressed air is used to close the machine pinch valve and prevent blast. This air supply must not be regulated lower than 90 psi or higher than 125 psi or machine controls may not operate correctly. Always install a main airline shut off valve and if installing a main air regulator, set the regulator at 120 psi and purchase a regulator that will supply a volume of air matched or larger than the supply of the air compressor. This will permit proper operation of the machine controls.
The foot pedal assembly may be shipped separate, use the hose numbers to install the hoses properly…. use the tubing push connectors for attachment to the correct numbered outlets. Always make sure to push the tubing into the connector for 1/4 inch tubing set. This will lock the tube into position in the fitting. For tubing removal press in on the release collar and pull on the tube. This will release the tube from the fitting. Any removed hoses will use this push in and pull out fitting.
Always remove the air supply when servicing any part of the Navigator and depressurize the pot assembly to insure no compressed air is being stored in the lines and or pot assembly.

CHANGING THE ABRASIVE HOSE LOCATION: MBA recommends that the machine be operated for an hour prior to making the decision to move the abrasive hose from one side of the blast cabinet to the other side. Because the location of the Pressure Generator can vary with each installation, it will be necessary for the user to measure the distance from the abrasive Pinch Valve, located at the bottom of the pressure pot assembly, to the new cabinet hose inlet location. Make sure to add the amount required for inside cabinet length to the hose and call and order the new longer hose. Order this hose assembly with any required tubing needed for relocation of the blow-off gun assembly. The CrystalBlast system uses the most user-friendly abrasive hose on the market; most users find it unnecessary to relocate the hose. Use the following procedure to relocate the abrasive hose after the new hoses have arrived:

1. Close main air supply and depressurize the pot assembly before any service on this unit.
2. Open the front access door to view the abrasive hose and nozzle.
3. Remove the nozzle/nozzle holder from the end of the blast hose (refer to Inspecting and Replacing the Blast Nozzle in the Maintenance section of this manual).
4. It is advised that the existing blow-off gun assembly remain in the original location but longer tubing will permit relocation of this item to the opposite side of the cabinet.
5. Remove the abrasive hose located inside the blast cabinet.
6. Make sure to check that the system has the main air-line closed and the pot de-pressurized, remove the abrasive hose from the pot pinch valve assembly. The abrasive hose fitting also uses a push-in release collar that operates the same as the tubing fittings. Push in on the release ring and rotate and pull on the abrasive hose for hose removal.

7. Loosen and unscrew the bulkhead tension nut located on the cabinet wall if equipped. If not equipped the machine will be equipped with rubber grommet permitting removal of the hose.
8. Install the new longer hose into the Pinch Valve on the abrasive pot assembly.
9. Remove the cabinet block-off plug at the new location and re-install this fitting in the old hose access hole.
10. Install the removed cabinet fitting or rubber grommet in the new hose location.
11. Install the nozzle and nozzle holder on the new abrasive hose.
12. Use the same procedure when moving the blow-off gun assembly.

SELECTING THE RIGHT ABRASIVE: There are three different abrasives types that can be effectively used for etching and carving on glass; brown aluminum oxide, white aluminum oxide and black silicon carbide. Each type has beneficial qualities:

- ***Brown Aluminum Oxide*** – Some manufacturers recommend and sell this abrasive. This abrasive is more forgiving than silicon carbide because it is not as aggressive. It is less dusty than silicon carbide, it lasts longer, and it also costs less than the other two abrasives. For industrial applications, it is the most commonly used abrasive for surface preparation for coatings. However, the productivity of aluminum oxide is significantly slower than silicon carbide and as the abrasive is used, the abrasive particles become more rounded which continues to reduce the effectiveness of the etch.
- ***White Aluminum Oxide*** - White aluminum oxide differs from brown aluminum oxide because it has no iron content. This means that the abrasive will not leave a stain on the part that is blasted. Since the abrasive is screened to tighter specifications, it is also less dusty. Both white and brown aluminum oxide is more forgiving on the mask material. MBA recommends that aluminum oxide be used by beginners and less experienced operators.
- ***Silicon Carbide*** - This abrasive is not recommended for beginning blasters. Silicon carbide is so aggressive that it will tear through the masking material unless the blaster is skilled. However, the aggressiveness can be beneficial; the carving and etching can be accomplished much faster with the silicon carbide. In addition, the silicon carbide never loses its sharp edge. The blast operator will see a little more dust than the aluminum oxide, so it is critical that the blast cabinet be equipped with a good dust collector to evacuate the dust quickly from the blast cabinet.

Qualities and recommendations aside, the choice for blasting abrasive is personal. Some people will prefer the white aluminum oxide while others will prefer the brown aluminum oxide or the silicon carbide. The typical size range used is 150 and 180 mesh. The finer sizes (150 mesh is larger than 180 mesh) provide a smoother finish on the blasted surfaces. *Note: The use of silica sand, garnet, slag, Starblast™ or other non-recyclable abrasives in the system will void the Crystalblast equipment warranty. This unit also operates with 50 micron, 220-240 mesh, for delicate half tones.*

LOADING THE SYSTEM WITH ABRASIVE: Make sure the cabinet and dust collector are operational. The abrasive of choice should be loaded through the cabinet door with the dust collector running. The CrystalBlast Navigator Pressure Generator requires an initial charge of 30-35 pounds of abrasive. ***Note: Adding abrasive to the system without checking the system for abrasive level can result in overcharging the system…***
There is no need to pre-screen the abrasive. The CrystalBlast system includes a small pneumatic scalper screen designed to remove all particles large enough to clog the nozzle. Additional abrasive can be added from time to time to maintain maximum levels in the system. The Media Blast Pressure Generator includes an observation access port (#13). Use this port to check the amount of abrasive in the system after the pressure pot is empty, always check with dust collector blower off. The abrasive in the system will be stored in the upper abrasive storage hopper above the pressure pot

assembly. Shorter blasting intervals between pot reload is a good indication that more abrasive needs to be added to the system. (EXAMPLE: The 3/32" blast nozzle consumes approximately 1.1 pounds per minute of abrasive for approximate total blast duration of about 30 minutes with a full abrasive charge in the blast pot and a new nozzle size. If the total blast time to empty the pot falls to 15 minutes, this is indicating that only 15-20 pounds of media is inside the pressure pot assembly.) *Note: Some abrasive will remain inside the cabinet due to ledge stacking. This is normal; the addition of more abrasive will compensate for this stacking but care should be taken with the amount being added not to overload the system.*

FILLING THE BLAST POT: To fill the blast pot, make sure that the blast pot has been depressurized. This is accomplished using the 3-way valve (#20), (Pneumatics Reference Diagram) change from horizontal to vertical handle position. Open the 3-way (#20) (Pneumatic Diagram … This allows the compressed air to leave the pot assembly and also drops the pop-up valve from the seated position at the top of the blast pot. With the 3-way valve open and the pot valve open, the abrasive will flow back into the blast pot. Occasionally "tapping" the storage hopper will cause more of the abrasive to slide down the walls of the hopper and into the blast pot, optional pneumatic vibrator is available for faster pot loading, advised with 1.0 pot size. To reseal and pressurize the blast pot close the 3-way valve (#20). If any audible air leakage is noted, depressurize the pot and seal again. Raising the blasting pressure will insure pressure pot sealing. This is known as a "hard seat" to seal the blast pot. *Note: Air compressor receiver tank must have a pressure of 80-90 psi prior to pressurizing the blast pot regardless of blasting pressure .*

ADJUSTING THE BLAST PRESSURE: The blast pressure is adjusted from the pressure regulator (**see Pneumatics Diagram**) located on the Pressure Generator Assembly (#23). Rotating the pressure regulator adjustment knob clockwise will increase the blast pressure. Rotating the pressure regulator adjustment knob counter-clockwise will reduce the blast pressure. Typical blast pressures for etching and carving on glass are 20 – 30 psi. *Note: The machine should not be operated at pressures greater than 50 psi.* The regulator includes a locking feature…pull vertical on the adjusting knob to release the lock. Push down on the knob assembly to lock the pressure.

ADJUSTING THE ABRASIVE FLOW: The abrasive flow is adjusted by rotating the arm of the abrasive flow choke valve (#28) **(see Pneumatics Diagram)…** the valve is located on the inlet side of the pipe cross underneath the blast pot, opposite the pinch valve assembly). Never position the arm perpendicular to the hoses at any time, all the air is passing through the blast pot and this valve position will plug the abrasive hose. When the arm is parallel to the hoses, the maximum amount of air is passing through the abrasive supply hose with a minimum amount of abrasive being delivered to the nozzle. <u>The abrasive flow valve arm should be set at approximately a 45° angle.</u> Check the abrasive flow through the nozzle. If there is a steady visible perceptible flow of abrasive through the nozzle, then it is adjusted properly. If there is a heavy flow of abrasive through the nozzle with a pulsing surge, then rotate the abrasive flow valve arm more into the parallel position or open position. If there is not enough abrasive exiting the nozzle, then rotate the ball valve arm more towards the closed position. Once the abrasive flow has been adjusted, there should be little need to readjust unless the nozzle size, abrasive size or blasting pressure is changed.

PROCEDURE FOR UNPLUGGING A PLUGGED ABRASIVE HOSE: *Always rotate the Choke Valve handle in very small increments. Should someone close the flow control choke valve or plug the choke supply air hose, follow this recommended procedure. Completely closing the Choke ball valve will plug the main abrasive hose and stop normal abrasive flow creating a solid stream of media or possible packed nozzle. If this happens, "**depressurize the pot assembly" and remove the air supply to the machine**, remove the abrasive hose and the choke valve supply hose from the Pinch Valve and choke valve using the hose release push in collar ring. Drain the two hoses of any*

abrasive until they are both clear. Reinstall the abrasive and choke valve hose and open the abrasive choke control valve (ball valve #28 located to the opposite side of the shut-off valve #25 until parallel with the supply hose. If you see noticeable abrasive in the air supply hose (attached to the choke valve) remove and drain this hose assembly. After installing both drained hoses, reconnect the air supply and pressurize the pot assembly. Press down on the foot pedal to insure that the line has been cleared, and then begin adjusting the abrasive flow valve in small increments by moving the abrasive flow valve arm towards the more closed position.

WEARING GLOVES: The CrystalBlast Navigator uses a high velocity front access port standard. This gives the operator greater flexibility when processing large panels. If the operator has any allergies to any of the abrasive being used it is advised they use protection full length gloves to the shoulders.

READY TO BLAST: The unit is now ready to be used for sandcarving. Make sure the electrical power to the machine is operational and the dust collector is running. Close the Pressure Pot 3-way valve to pressurize the pot assembly. Open the access door and place a scrap part in the machine to test. The Navigator includes a lockable door latch that requires positive door pressure to close. Place both arms into the high velocity front port and holding the nozzle/nozzle holder like a pencil with one hand and the part with the other press down on the foot pedal and begin blasting the scrap part. Remove or release the blast pedal to stop the blast cycle.
Note: Never point the nozzle at the window. The abrasive will permanently frost the protector window.

Note: The MBA CrystalBlast system may provide different results than other blast systems. When the unit is first operated, use scrap glass to become familiar with the nozzle pattern and speed. Place masking material on the scrap glass to see how long the mask material will stand up to the blast without moving the nozzle. An experienced operator may find that the CrystalBlast system can be operated at lower blast pressures than previously experienced with other systems.

FINISHING BLAST: At the end of the day, when part processing is complete make sure to make one final dust collector filter cleaning cycle. When the air compressor is turned off, the blast pot must be depressurized. Depressurize the pot by opening the 3-way valve #20.

MAINTENANCE

GENERAL EQUIPMENT MAINTENANCE (Intervals May Vary Depending on Equipment Usage)	DAILY	WEEKLEY	MONTHLY	SEMI-ANNUALLY	ANNUALLY
DRAIN REGULATOR WATER TRAP	X				
CLEAN THE DUST COLLECTOR FILTER	X				
CLEAN THE ABRASIVE SCALPER SCREEN		X			

REMOVE DUST FROM DUST COLLECTOR	**X**				
INSPECT THE BLAST NOZZLE	**X**				
INSPECT THE BLAST HOSE		**X**			
REPLACE THE AIR INLET FILTERS				**X**	
REPLACE THE CARTRIDGE DUST FILTER				**X**	

CLEANING THE ABRASIVE SCALPER SCREEN: Open the machine access door located on the front of the cabinet. The Navigator includes a 1/16 perforated scalper screen located above the pneumatic floor assembly. Use any shop vacuum to clean the debris off the scalper screen. If the unit includes the Integrated Vacuum Cleanup Assembly (optional) you can use this to remove most of the debris found on the screen. Some items may require sweep-pan removal if the size and weight of the items is not removed using the vacuum-cleaning feature. The Pressure Generator has a final filter screen located between the abrasive storage hopper and the top pot flange. Clean using the hopper inspection port with the exhaust blower off and the pot de-pressurized.

OPTIONAL INTEGRADED VACUUM CLEANING ASSEMBLY: If the machine has been equipped with the Integrated Vacuum Clean-Up, open the vacuum slide gate located on the rear of the dust collector chamber with the blower on. Sliding the slide gate open aligns the slide gate opening and permits operation of the vacuum assembly. Use the vacuum nozzle to remove any trash, unwanted items and good housekeeping around the machine. Close the vacuum slide gate after using the vacuum or reduced pneumatic abrasive conveyor velocity may occur.

The Integrated Vacuum Assembly can be used for general housekeeping, scalper screen cleaning or final pot cleanout when clearing or changing the blast media.

All material being removed by this assembly will be sent to the spent side, dirty side, of the dust collector assembly. The removed material cannot be used again.

This assembly can be attached to any Media Blast dust collector operating with the 12-inch diameter impeller normally used with the 2-hp blower assembly.

CLEANING THE DUST COLLECTOR CARTRIDGE FILTERS: Most Navigator machines come equipped with a manual dust pneumatic filter cleaning system. The manual pneumatic filter cleaning system uses compressed air to operate the ball vibrators for filter cleaning. The ball vibrator shakes the filter, (filters), to remove the collected dust from the filter surface. All Media Blast Production Machines include negative pressure dust collector operation. **With the exception of the automatic timed reverse pulse optional cleaning cycle, all machines require the exhaust blower to be turned off permitting dust collector filter cleaning.** The optional automatic timed filter-cleaning uses the ball vibrator to clean the filter but performs it automatically each time the machine is turned off. The optional reverse pulse filter cleaning cycle uses a pulse of compressed air to clean the filter and the automatic version cleans the filters at regular intervals when the machine is operating.

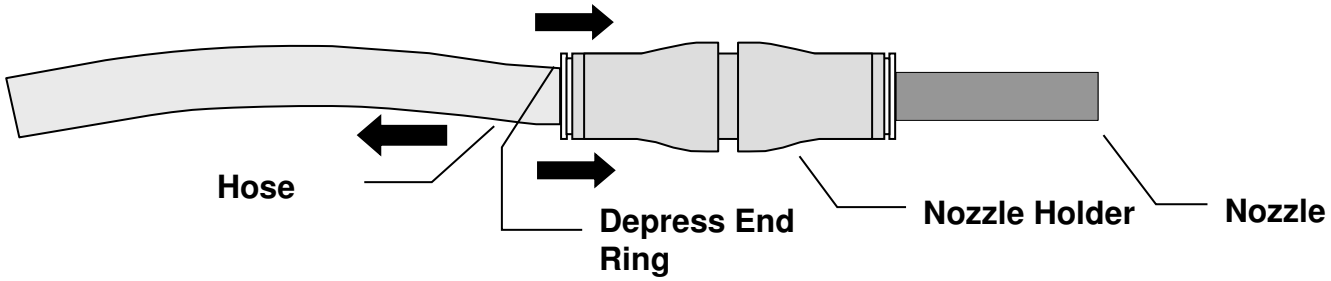
Manual Pneumatic Filter Cleaning Assembly (standard): For optimum visibility, the dust collector filter cartridge should be cleaned every two hours of cabinet process time. To clean the dust collector filter cartridge, turn off the power to the machine blower. *NOTE: Do not operate the filter cleaning cycle with the exhaust blower running…this will significantly decrease the life of the cartridge filter.*

WARNING: Operating the blast cabinet with moist compressed air will compromise the performance of all the filter cleaning systems. It is critical that the compressed air entering the blast cabinet is dry. If there is a moisture concern, install the MBA Inline Ambient Air Dryer (P/N# 100-03-177).
The vibrator shakes the cartridge, thus releasing dust trapped in the pleats of the filter. Run the vibrator for approximately 2-3 minutes. Turn off the vibrator by closing the ball valve.

Automatic Timed Filter Cleaning Assembly (optional): This filter cleaning assembly cleans the filters automatically every time the machine power is turned off. It uses the same pneumatic ball vibrator as the Manual Pneumatic Filter Cleaning Assembly. A timer, located inside the main electrical enclosure, is set to permit adequate time for blower coasting to remove the negative pressure inside the dust collector housing.

REMOVING THE DUST FROM THE DUST COLLECTOR: Periodically, the dust must be removed from any dust collector storage chamber. MBA recommends removing the dust storage hopper every day… (more often depending on the type of abrasive used, the blasting pressures and the number of cabinet process hours per day or week). Always cycle the Vibrator Cleaning Cycle with the blower off to remove any collected dust stored on the filter cartridge.
Remove the dust storage drain cap (#15) and slide a collection bag around the drain nipple.
Empty all collected dust into a plastic trash bag and dispose of using standard waste removal methods. You can use the cleaning cycle vibrator, (s), to help empty the dust into the collection bag.
Install the drain cap and use the optional Integrated Vacuum to remove any dust that is around the unit after disposal.

INSPECTING AND REPLACING THE BLAST NOZZLE: It is important to replace the nozzle after it has worn 1/32". Not only will the worn nozzle consume more compressed air, but the abrasive will impact the part more aggressively using any direct pressure system. As the volume of air and abrasive increases, it will create additional wear on the blast hose. The easiest way to know if your nozzle requires replacement is to keep a properly sized drill bit handy to check nozzle sizing. Purchase this item at any Hardware or Home Improvement Store.. ask for a 3/32" drill bit and a 1/8" drill bit… use to check for noticeable nozzle wear.
To replace the blast nozzle, hold the nozzle and nozzle holder in your right hand and the blast hose in your left hand. With your right thumb and forefinger, press or pull back on the end ring of the nozzle holder pulling or pushing toward the nozzle (see diagram below). As you are pressing, pull the abrasive blast hose the other direction and use some slight twisting motion. The hose should release from the nozzle holder. *Note: Do not try to remove the nozzle from the nozzle holder. The nozzle holder is designed to be an integral part of the nozzle. Removal and reinstallation of the nozzle in the nozzle holder may cause the nozzle to become a projectile. Injury may occur as a result. Dispose of the nozzle holder with the nozzle when the nozzle has worn out.*



REPLACING THE INTERNAL CABINET BLAST HOSE: To replace the inside whip abrasvie hose first remove the blast nozzle and nozzle holder asembly using the instruction above. Pressing on the

end ring of the cabinet fitting will remove the inside whip hose assembly. *Note: All hoses and tubing are removed using this same procedure.*
The Navigator standard configuration includes a single ½-inch OD abrasive blast hose that is removed by first removing the blast nozzle. Use the drawing above for proper procedure for nozzle removal.
Two types of cabinet fittings are used, simple rubber grommet or compression fitting. If the cabinet has the rubber grommet you can remove the blast hose after the nozzle has been removed.
Cabinet compression fittings require a loosening and removal of the compression nut from the fitting to loosen the compression tightener. When this is complete you can remove the abrasive blasting hose. Remember to install the compression nut and tighten on the new hose assembly before inserting into the cabinet.
Replace the nozzle on any new hose assembly and the hose is ready for use.

REPLACING THE LIGHT BULBS: The Navigator includes three light fixtures; two spot lights and one center fluorescent. Spot lights also require the special heat washer to seal the cabinet. Never operate with the special washer installed…remove any burned out bulb and replace. The center light includes a light intensifying cover, be sure to reattach all four clips when the light cover is replaced or bulbs are replaced…this ensure that no abrasive gets into the fluorescent fixture.

REPLACING THE WINDOW or WINDOW PROTECTOR GLASS: Remove the two thumbscrews that hold the upper window bracket in place. Only loosen the two thumbscrews that hold the lower window bracket in place but do not remove. Remove the two pieces of glass and replace the top view window or the bottom view window protector glass. Replace the two pieces of glass with the laminated safety glass view window on top. Reattach the upper window bracket. Tighten the four thumbscrews. Always make sure to clean both the operator safety window and the new window protector glass before installation.

CARTRIDGE FILTER REPLACEMENT: MBA recommends replacing the cartridge filter every 500-1,000 blast hours or yearly (filters may have to be replaced more frequently in regions experiencing high humidity and or heavy production levels).

Dust Collector with Vertically Mounted Filters and pneumatic vibrator cleaning cycle: With the access door of the dust collector open, the cartridge filter and filter mounting assembly can be observed. The filter mounting assembly consists of two threaded rods located outside the filter, a ball vibrator and filter bracket at the bottom of the filter, and two filter retainer knobs with speed spacers. The following steps outline the cartridge filter replacement:

1. Clean the dust collector cartridge filter (please refer to Cleaning the Dust Collector Cartridge Filter procedure).
2. Remove the dust from the dust collector (please refer to Removing the Dust from the Dust Collector Dust Drawer or Dust Storage Hopper procedure).
3. If the blower is running, turn it off.
4. Insert one end of a lever bar (or short 2 x 4 lumber) under the filter vibrator and push down on the other end. This will reduce the tension on the filter retainer knobs. This is suggested to help remove the holding knobs only, be careful not to collapse the filter.
5. Loosen the two knobs and remove the spacers while applying moderate steady pressure on the lever bar.
6. Allow the existing cartridge filter to drop, using the lever bar to control the descent.
7. Remove the cartridge from the dust collector housing by tilting the top of the cartridge through the access door followed by the cartridge bottom.
8. Replace the cartridge. Ensure that the center guide pin and sealing washer are located in the 1/2" assembly hole located on the bottom of the cartridge.
9. Hold the cartridge against the top seal. The new cartridge can easily be held in place while the ball vibrator and filter bracket are installed and filter retainer knobs tightened. *NOTE: The filter retainer knobs must be*

tight or dust and abrasive will escape through the blower exhaust. Thread the knobs snug plus one additional turn. (The knobs can be kept from loosening by threading a nylon tie strap around the knob and the filter bracket).

10. 24-48 hours after installing the new cartridge, check the cartridge to determine if it is still snug. Tighten the filter retainer knobs if the cartridge is loose.

WARNING: Use caution to not over-tighten or under-tighten the filter retainer knobs. Over-tightening the filter retaining knobs can collapse the filter pleats of the cartridge and under-tightening can allow the top-sealing gasket to leak and the filter to slip from the holding position.

A filter cartridge tear or hole can be repaired using 100% silicon sealing caulk. Clean the damaged area and seal with silicone. Make sure the seal is allowed to cure for 24 hours or recommended caulk directions for cure.

REPLACEMENT OF THE HIGH-PRESSURE PINCH VALVE BLADDER:

1. Turn Off Machine Air & depressurize pot assembly.
2. It is advisable to drain existing abrasive from the blast pot prior to pinch valve removal and or service. Remove all abrasive using the pressure pot access port described in the machine maintenance manual, "Changing Abrasive".
3. Locate the Tubomatic valve attached to the bottom of the pressure pot assembly. Removing the Tubomatic Valve from the machine is recommended for maintenance.
4. With a ½" wrench or socket, remove the 8 bolts holding the two end caps to the valve body. Remove both end caps.
5. **Removing the Core, Part #109-20-302**

With end caps removed, remove damaged core and set aside.

Replacing Bladder Part #109-20-301

With core removed, use any flat screwdriver to carefully pry the damaged bladder from the valve body. Take care to not damage the valve body. Replace with the new bladder making sure the bladder is seated. Inspect core and replace with new core if old core appears worn. Install core in the center of the new bladder.

6. Replace End caps with the ½" bolts and lock washers making sure the contours of the end cap line up with the contours of the body.
7. Re-install the Tubomatic Valve on the machine making sure no abrasive grains exist on the valve or pot nipple assembly.
8. Replace pressure pot access port making sure the pot seal is located properly. You may now charge the machine with abrasive.
9. **Restore Machine Air**

109-20-302

109-20-301

DRAINING THE BLAST POT AND REPLACING WITH NEW ABRASIVE: In general, as the abrasive breaks down, the dust will be carried to the dust collector. Small particles of abrasive will remain in the recyclable abrasive mix until it is too fine and the ability to process the part greatly increases in processing time. This may or may not cause a noticeable difference in the blast productivity or etch finish. Oftentimes, it will not be noticeable because additional abrasive has been added from time to time to make up for the abrasive that was worn or broken down. If a noticeable difference in the blast productivity or etch finish occurs, the abrasive may need to be replaced in the system. MBA recommends the following procedure for changing the abrasive:

1. Remove the perforated metal scalper screen from above the blast cabinet pneumatic floor with the dust collector blower running.
2. Brush down all visible abrasive from the walls of the cabinet including any ledges so the pneumatic conveyor transfers all the used abrasive to the abrasive hopper located above the pressure pot assembly. *Note: If the unit includes the Vacuum Clean-Up assembly you can also use it to clean the inside of the cabinet. Any abrasive removed will be transferred to the dirty side of the dust collector.*
3. Remove all compressed air from the blasting cabinet at this time.
4. Turn the Dust Collector blower off.
5. **Depressurize the blast pot.**
6. Place a shallow pan underneath the blast pot and pot access port cover.
7. Remove the drain plug located on the pipe cross fitting beneath the blast pot. The abrasive will begin draining into the pan and this will remove any nested trash. This is not the drain but is used to remove any possible collected trash that might be collected at the bottom of the pot mixing cross.
8. Loosen and remove the pot access port cover and seal allowing the abrasive to drain into the pan assembly located below the pot. Tip: use a baking pan with low vertical sides and always look at the visual volume of the new material for proper container sizing.
9. You can completely remove the port cover by inserting the cover inside the pot and rotating the port cover 180-degrees. This will permit removal of the port cover with the holding stud exiting the pot last. This is the only way to re-install the port cover.
10. After almost all the abrasive has been removed from the pot you can now turn the dust collector blower on and use any shop vacuum or the Vacuum Clean-Up assembly to remove the remaining abrasive from the pot assembly.
11. Replace and tighten the plug on the pipe cross fitting.
12. Replace the access port cover and port seal.
13. Tighten the cover using the holding bracket and nut assembly removed during port cover removal.
14. Add 30-35 pounds of new abrasive to the system using the cabinet equipped with 1/16 perforated scalper screen to meter the speed of the pneumatic abrasive transfer into the abrasive storage hopper. *Note: If it is important to remove all the abrasive, remove the access cover on the front of the blast pot. This is accomplished by removing the nut that holds the crab in place. Once the nut and crab have been removed, the blast pot access cover can be manipulated out of the blast pot. Use a shop vacuum to clean the rest of the abrasive out of the blast pot. When replacing the blast pot access cover, make sure that the rubber gasket and access cover are uniformly aligned across the access hole.*

REPLACING THE BLAST POT SEAL OR THE POP UP VALVE: This maintenance procedure will unlikely be performed …. Eventually the blast pot seal will wear out and need to be replaced.

1. Remove machine compressed airline and depressurize the blast pot.
2. Place a pan under the blast pot to catch any abrasive that comes out of the blast pot.
3. Remove the access cover on the front of the blast pot. This is accomplished by removing the nut that holds the crab bracket in place. Once the nut and crab have been removed, the blast pot access cover can be manipulated out of the blast pot. The access cover must be flipped allowing the hold stud to be removed last.
4. Remove enough abrasive to expose the pot pop-up valve and valve guide riser nipple.
5. Unthread the pipe riser that guides the pop up valve up and down.
6. Remove the pipe riser and pop up valve as one single assembly.

7. Inspect the top of the pop up valve for torching. This is a slight abrasive cut created by the leaking pot seal. Replace this valve with a new assembly if you were having pot leakage problems.
8. Locate the donut shaped pot seal on the abrasive inlet to the blast pot.
9. Wedge a small screwdriver between the metal lip of the blast pot and the blast pot seal. Pry the blast pot seal out of the blast pot. If you are not familiar with this type of mechanics you are advised to contact the dealer for maintenance instructions.
10. Install the new blast pot seal making sure the seal is seated completely for 360 degrees. Feel for any wrinkles or bumps in the seal after installation and use any small round item to seat the seal. Place the round tool inside the pot seal area and press against the seal while rotating the bar.
11. Replace the pop up valve and pipe riser together. The parts must be assembled together before putting inside the blast pot and the pipe riser threaded into place. Install the pop up valve with care.
12. Reinstall the access cover on the front of the blast pot. When replacing the blast pot access cover, make sure that the rubber gasket and access cover are uniformly aligned across the access hole. Tighten the nut that holds the access cover in place.
13. Re-pressurize and depressurize the blast pot several times before filling the pot with abrasive.

TROUBLESHOOTING:

WILL NOT BLAST: COMPRESSED AIR (BUT NO ABRASIVE)	**BLAST NOZZLE IS PLUGGED:** *Remove the nozzle/nozzle holder from the blast hose. Use a small, stiff wire or drill bit to dislodge the obstruction.* **BLAST POT IS EMPTY:** *Depressurize the blast pot and allow the media to flow back into the blast pot.* **NO ABRASIVE IN THE SYSTEM:** *Add 30-35 pounds of abrasive to the system. Be sure that the dust collector is on when the cabinet is loaded with abrasive. The pneumatic conveyor will transfer media.* **ABRASIVE CHOKE VALVE IS NOT ADJUSTED CORRECTLY:** *Rotate valve arm to approximately 45° and test for abrasive flow. Refer to the "Adjusting the Abrasive Flow" section of the manual for adjustment procedures if the flow is not quite correct.* **ABRASIVE IS DAMP***: Wet abrasive sticks together. Clean the abrasive out of the machine and replace with fresh abrasive. Determine cause of moisture and repair problem to prevent reoccurrence. Check the filter trap on the air regulator; drain if there is water in it. Install MBA Inline Ambient Air Dryer (P/N 100-03-173) to prevent reoccurrence.* **PLUGGED ABRASIVE HOSE:** *The pot is to full allowing abrasive to plug hose during de-pressurization cycle. See* **ADJUSTING THE ABRASIVE FLOW ABOVE**

WILL NOT BLAST: NO COMPRESSED AIR OR ABRASIVE	**CHECK REGULATOR:** *Is it turned off?* **COMPRESSED AIR IS TURNED OFF OR DISCONNECTED FROM BLAST CABINET:** *Make certain that the compressed air is connected to the blast cabinet and turned on.* **BLAST POT IS DEPRESSURIZED:** *Pressurize blast pot by closing pot exhaust valve and opening air inlet valve.* **BLAST NOZZLE IS PLUGGED COMPLETELY:** *Remove the nozzle and nozzle holder and use a small, stiff wire to dislodge the obstruction.* **ABRASIVE CHOKE VALVE COMPLETELY CLOSED:** *If the abrasive choke valve is completely closed (abrasive flow valve perpendicular to supply hose), then the abrasive hose is probably plugged with abrasive. Refer to abrasive hose unplugging procedure in the "Adjusting the Abrasive Flow" section of the manual.* **PLUGGED ABRASIVE HOSE:** *The pot is overcharged allowing abrasive to plug hose during de-pressurization cycle. See* **ADJUSTING THE ABRASIVE FLOW ABOVE**
"V" BLAST PATTERN FROM NOZZLE	**SMALL PIECE OF DEBRIS LODGED IN NOZZLE:** *Remove the nozzle/nozzle holder from the blast hose. Use a small, stiff wire to dislodge the obstruction.*
BLAST WILL NOT STOP	**BLAST PINCH VALVE SLEEVE HAS A HOLE:** *Immediately decompress the blast pot. Turn off main supply of air to the blast cabinet. Refer to the "Replacing the Blast Shut-off Valve Sleeve" section in the manual for repair procedure.* **BLAST NOZZLE IS WORN OUT:** Air compressor cannot keep up with the air volume line pressure necessary to operate the larger blast nozzle, line pressure drops below 80 psi. Immediately decompress the blast pot. Replace nozzle. **DEBRIS IN THE BLAST SHUT-OFF VALVE:** *Immediately decompress the blast pot. Remove the blue blast shut-off valve from the machine. Remove both hex nut covers. Clean out the valve. Inspect the sleeve for holes. Reassemble and reinstall.* **BLAST POT WAS NOT DEPRESSURIZED AND COMPRESSOR WAS TURNED OFF:** *Depressurize blast pot.* **AIR COMPRESSOR DOES NOT CYCLE ON UNTIL PRESSURE DROPS BELOW 80 PSI:** *Replace air compressor or change pressure on setting. Controls require 90-120 psi for proper operation.* **AIR COMPRESSOR IS TOO SMALL:** *Air compressor does not generate enough volume of air to maintain a line pressure of 80 psi or more.*

ERRATIC ABRASIVE DELIVERY FROM NOZZLE	**NOZZLE IS WORN OUT:** *Replace nozzle.* **ABRASIVE FLOW VALVE IS NOT ADJUSTED CORRECTLY:** *Erratic abrasive delivery is usually caused by too rich abrasive flow. Rotate abrasive flow valve arm in small increments towards a horizontal position. Refer to the "Adjusting the Abrasive Flow" section of the manual for adjustment procedures if the flow is not quite correct.* **ABRASIVE IS DAMP***: Wet abrasive sticks together. Clean the abrasive out of the machine and replace with fresh abrasive. Determine cause of moisture and repair problem to prevent reoccurrence. Install MBA Inline Ambient Air Dryer (P/N 100-03-173) to prevent reoccurrence.* **ABRASIVE IS WORN OUT:** *Replace the abrasive. Refer to the "Draining the Blast Pot and Replacing with New Abrasive" section of the manual for procedures in replacing the abrasive.*
LARGE SURGE OF ABRASIVE AT THE BEGINNING OF THE BLAST	**ABRASIVE FLOW ASSEMBLY IS WORN OUT:** *Replace the pipe cross located beneath the blast pot.*
AIR LEAK HEARD AFTER REFILLING THE BLAST POT WITH ABRASIVE	**POP UP VALVE DID NOT SEAT PROPERLY WHEN BLAST POT WAS PRESSURIZED:** *Depressurize blast pot and slightly increase blasting pressure and pressurize the blast pot.* **POT SEAL IS WORN OUT:** *Refer to "Replacing the Pot Seal or Pop Up Valve" section of the manual.*
BLAST POT WILL NOT SEAL	**COMPRESSED AIR IS TURNED OFF:** *Make certain that the compressed air to the blast cabinet is turned on.* **POT SEAL IS WORN OUT:** *Refer to "Replacing the Pot Seal or Pop Up Valve" section of the manual.* **BLAST REGULATOR IS SET TOO LOW:** *Increase pressure to minimum 20 psi and try again.*
SYSTEM WON'T MAINTAIN DESIRED BLAST PRESSURE	**NOZZLE IS WORN OUT:** *Compressor is not large enough to handle the additional air volume necessary to run a larger bore nozzle. Replace blast nozzle.*

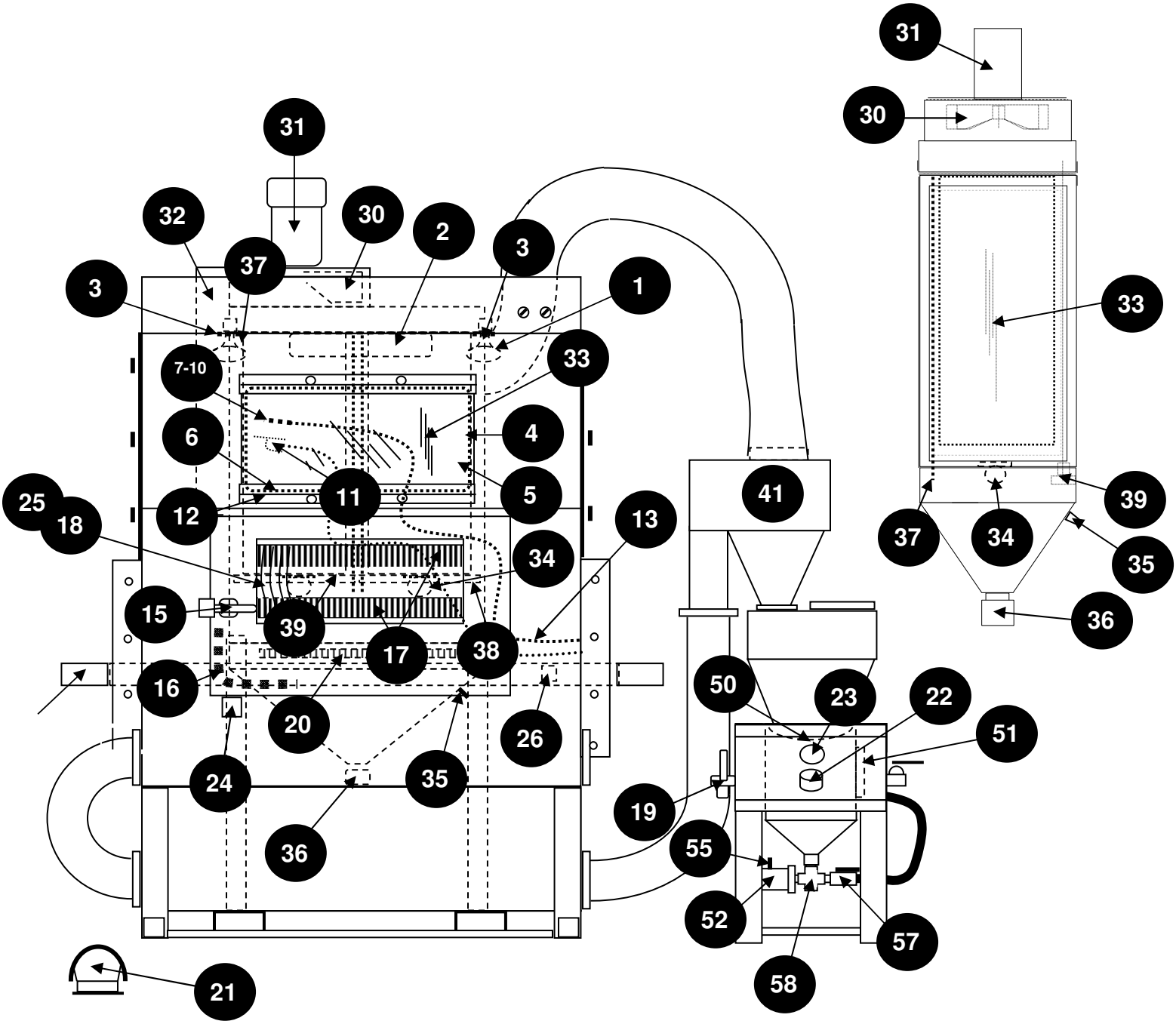
AIR LEAK AFTER REFILLING THE BLAST POT WITH ABRASIVE	**POP UP VALVE DID NOT SEAT PROPERLY WHEN BLAST POT WAS PRESSURIZED:** *Depressurize blast pot, pull the ball handle with a slight pressure and simultaneously pressurize the blast pot.* **POT SEAL IS WORN OUT:** *Refer to "Replacing the Pot Seal or Pop Up Valve" section of the manual.*
ABRASIVE AND/OR DUST IS COMING OUT OF THE DUST COLLECTOR EXHAUST	**CARTRIDGE FILTER IS NOT TIGHT:** *A loose filter will allow dust to escape from the dust collector. Refer to "Replacing the Cartridge Filter" section of the manual to determine procedure for tightening the cartridge filter.* **CARTRIDGE FILTER IS DAMAGED:** *Refer to "Replacing the Cartridge Filter" section of the manual.* **RUBBER WASHER NOT PLACED ON GUIDE PIN WHEN NEW FILTER WAS INSTALLED:** *The rubber washer seals the hole in the bottom of the cartridge filter. Replace the rubber washer on the guide pin. Refer to "Replacing the Cartridge Filter" section of the manual.*
CHOKE VALVE WILL NOT ADJUST	**QUICK-DICONNECTS USED DURING MAIN AIR-LINE ATTACHMENT:** *The choke valve relies on compressed air volume used to adjust the abrasive flow to the nozzle. If the volume is not adequate for the nozzle size being used, the result will be the inability to regulate down the media flow resulting in a pulsing abrasive delivery.*
OPERATOR IS GETTING SHOCKED BY THE MACHINE	**INSTALL ANTI-STATIC KIT:** *Call and order anti static grounding kit for dry days creating static build up in the cabinet.*

TO FIND THE PART AND PART NUMBER FOR YOUR MACHINE:

Use the bubble diagram below to locate the part needed for the Navigator 72

Navigator Parts Diagram

Most Purchased Parts



This is a basic list of the most often used and ordered parts for the Navigator 72. Other parts can be purchased using the machine model number and serial number located on the main machine tag. The parts are grouped according to the following categories:

- Cabinet Hardware Parts
- Dust Collector Parts
- Pressure Pot Parts

Bubble #	Quantity	Part Description	Part Number
		Cabinet Hardware	
1	2 each	Spot lights standard	100-09-052
2	1 each	Fluorescent light fixture	100-09-053
3	2 each	Spot light sealing washer	100-11-120
4	1 each	View window	100-06-200
5	1 each	Protector window	100-06-201
6	1 each	Window bladder seal per foot	101-11-147
7	1 each	3/32” tungsten nozzle STD.	109-19-092
8	1 each	3/32” boron nozzle optional	109-19-597
9	1 each	1/8” tungsten nozzle optional	109-19-125
10	1 each	1/8” boron nozzle optional	109-19-595
11	1 each	Blow off gun	100-18-111
12	2 each	Window frame Z brackets	100-06-202
13	1 each	1/2" OD abrasive hose per foot	109-15-500
14	1 each	3/8” OD abrasive whip hose per foot	109-15-375
15	1 each	Door handle	100-06-092
16	1 each	Door seal per foot	100-11-030
17	2 each	Top and bottom 3” brush	100-11-609
18	1 each	Slit rubber curtain	100-11-610
19	1 each	3-way valve 1/2"	109-26-002
20	1 each	Composition bar work grates	109-25-603
21	1 each	Pneumatic foot valve	109-22-600
22	1 each	Air regulator	100-03-080
23	1 each	Panel mount air gauge	100-13-075
24	1 each	Safety door interlock switch	100-22-085
25	1 each	8’ roller track with std. 12” spacing	109-06-001
26	1 each	Track roller	109-06-002
		Dust Collector	
30	1 each	12” blower impeller	100-05-313
31	1 each	2 HP blower motor	100-05-122
32	1 each	Silencer	109-06-100
33	2 each	220 filter cartridge	100-08-010
34	2 each	Filter cartridge vibrator	100-08-131
35	2 each	Vibrator muffler	100-08-131
36	1 each	Hopper cap	100-08-142
37	4 each	Filter holding rods	100-08-138
38	4 each	Filter tightening knobs	100-08-141
39	2 each	Vibrator holding brackets	100-08-137
40	2 each	Filter sealing washers	100-08-013
41	1 each	Cyclone separator reclaimer	100-01-606
		Pressure Pot	
50	1 each	Pot seal	104-21-176
51	1 each	Pot access cover seal	104-21-171
52	1 each	Long wear pinch valve	109-20-300
53	1 each	Pinch valve bladder	109-20-301
54	1 each	Pinch valve core	109-20-302
55	1 each	Pinch valve micro filter complete	109-20-105
56	1 each	Pinch valve micro filter element	109-20-106
57	1 each	Abrasive choke valve	100-26-098
58	1 each	Abrasive mixing cross, 1/8” Opening	109-21-302

WARRANTY

Media Blast & Abrasives, Inc., hereinafter known as "Seller", warrants the equipment and products sold hereunder against defects in material and workmanship for a period of one year from the date of shipment to buyer.

Equipment, products or parts manufactured by others but furnished by seller will be repaired or replaced only to the extent of the original manufacturer's warranty (except motors).

The following conditions apply to limitations:

1. High wear parts are not covered, these parts include windows, window protectors, nozzles, gun parts, abrasive hose and other parts exposed to excessive abrasive contact and wear.
2. Warranty does not apply to misuse of the machine to include improper abrasive type use and or abrasive mesh size used in the equipment. No Media Blast equipment is used with sand, sand will void the machine warranty and is known to be a health hazard.
3. The machine warranty is not transferable and only applies to the original buyer.
4. Replacement warranty parts will be sent at no charge to the buyer for warranty replacement. The cost of labor is not covered under the machine warranty unless preformed at the seller's facility.
5. A Returned Goods Authorization (RGA) form must be obtained before the product is returned to seller for warranty repair. Without an RGA number the product will not be accepted.
6. Seller's entire liability, whether under warranty, contract, negligence, or otherwise, shall be limited to repair or replacement, F.O.B. Seller's place of business, of the original equipment found to be defective within the warranty period.

MBA Media Blast & Abrasive Inc.

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