Sponge-Jet® Sponge Blasting System

Sponge-Jet B-VAC™ User Manual

Model:

B-VAC

B-VAC Pro

B-VAC Pro 3

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1.0 Introduction

1.1 Basic Components and Parts Inventory

1- 400-HP Sponge-Jet Feed Unit

1- 400-HP Cyclone Storage Silo (490L)

1- 50-P Sponge-Jet Recycler

1- 50-P Recycler Cyclone Storage Silo (340L)

1 - H.E.P.A. Vacuum

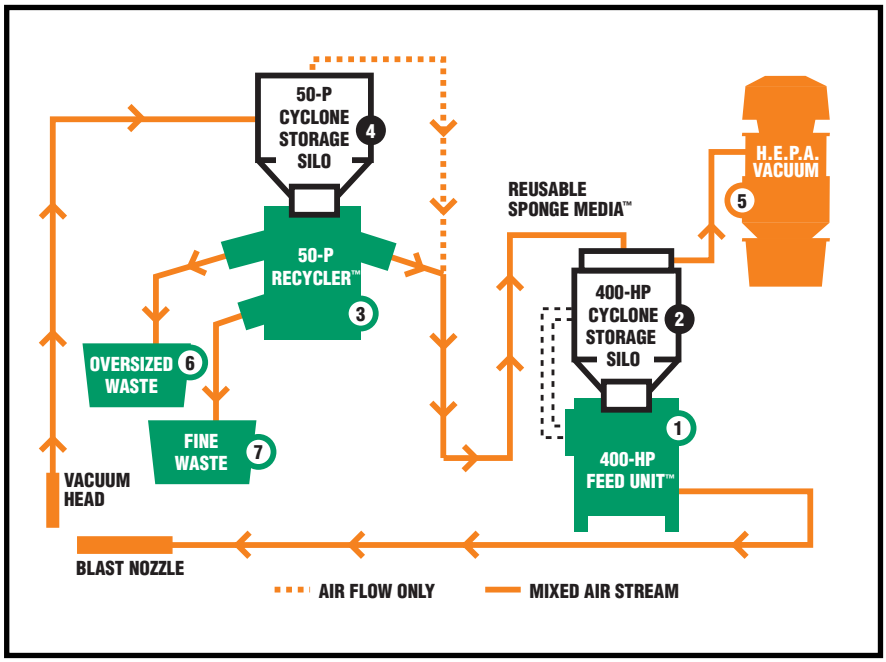
2- Ribbed, Reinforced, 18 gauge Waste Drums with locking lid

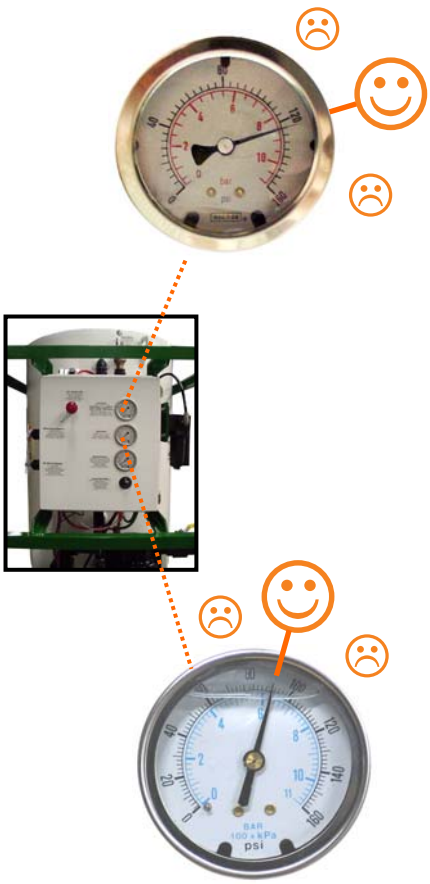
1- 12.7mm (.5in) #8 Blast Nozzle

1- 15m (50ft), 32mm (1.25in) I.D. flexible Whipline with
a Pneumatic Deadman Control, Twinline and Fittings

1- 15m (50ft) clear vacuum hose

1.2 Basic Operation





1.1 Warning

1. The use of bleeder type Handle handles may cause unintentional start-up without warning, which can result in personal injury.
2. This equipment is designed for operation with clean, dry, compressed air in temperatures above freezing.
3. To prevent electrostatic buildup and possible electric discharge, the unit and work piece must be properly bonded and grounded.
4. Recommended inbound **Line Pressure** should be between 7.5 – 8.25 (110-120psi) with maximum inbound **Line Pressure** limited to 8.6 bar (125psi), and is regulated at the compressor. Connecting unit to a compressed air source exceeding the recommended pressure is not only dangerous but may also damage the pressure regulation devices in the Sponge-Jet Sponge Blasting System.
5. The maximum output or outbound **Blast Pressure** should be limited to 6.5 bar (90psi), and is regulated on the Feed Unit.
6. No warranty is given or implied as to the use of equipment and media for any particular application. Always check suitability of the system on small test areas prior to use.
7. Moisture Separator Automatic Drain-Offs must remain free of contaminants to drain properly.
8. When operating the Feed Unit in conditions of high ambient air temperature or humidity, the Feed unit must be equipped with auxiliary moisture separation and temperature reduction devices, supplied by the end-user.

* Unless otherwise noted, this manual covers equipment maintenance and operation for Sponge-Jet B-VAC™, B-VAC™ Pro and B-VAC™ Pro 2 models.

2.0 Equipment Setup

2.1 Connecting 50-P Recycler

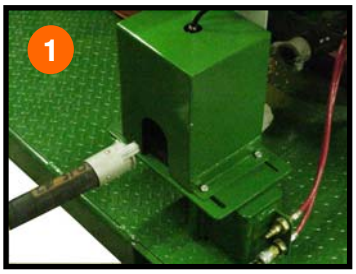
2.1.1 Connect Vacuum Hose from the **Large Particle Downspout** of 50-P Recycler to the locking lid of a Waste Drum

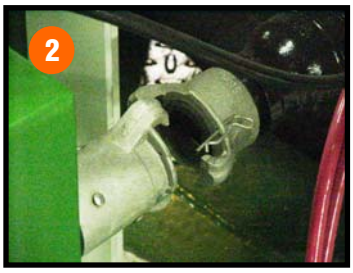
2.1.2 Connect Vacuum Hose from the **Fine Particle Downspout** of 50-P Recycler to the locking lid of a Waste Drum

2.1.3 Connect the outbound Vacuum Hose to the 50-P **Recycler Cyclone Storage Silo**

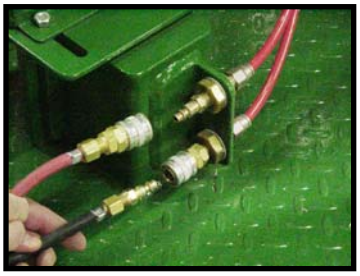
2.2 Connecting Hoses

2.2.1 Insert Whipline through the **Pinch Valve** and connect it to the Blast Hose Connection





2.2.2 Attach the **Twinline Connect Fittings** to the corresponding Twinline Connect Fittings mounted on the B-VAC

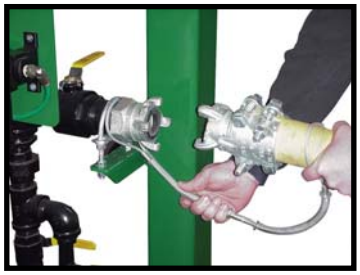


2.2.3 Connect the Bull Hose (from the Compressor) to the **Supply Line Connection** using the following procedures:

1. Connect the **Bull Hose Safety Restraint** (**Note**: Not supplied by Sponge-Jet), looping it around each coupling and then tightening it in place.

2. Connect the **Bull Hose Coupling** and **Supply Line Connection Coupling** by bringing the two coupling seals together and rotate clock-wise to lock.

3. Insert the **Safety Pin** in the lip of both couplings.



3.0 Operational Requirements

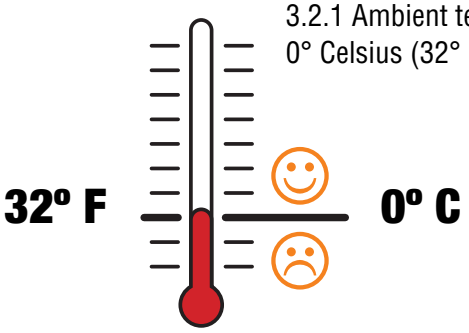
3.1 Air Requirements

3.1.1 **21.25 m³/min (750CFM)** Clean Air Compressor

3.1.2 In bound pressure of **8.6Bar (125psi)**

3.2 Air Temperature

3.2.1 Ambient temperature above 0° Celsius (32° Fahrenheit)

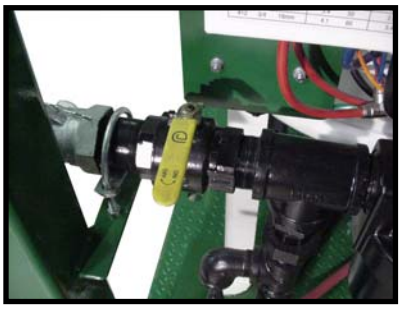


3.3 Safety Precautions

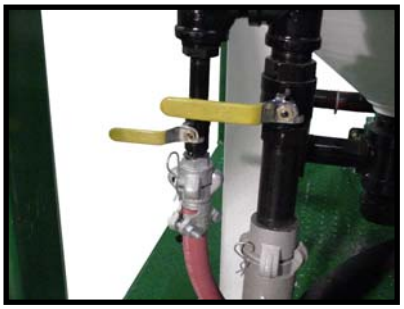
3.3.1 Use body, eye, hearing and hand protection with appropriate respiratory equipment necessary to comply with local, state (or province) and national health and safety regulations

4.0 Equipment Operation

4.1 Before Starting the B-VAC

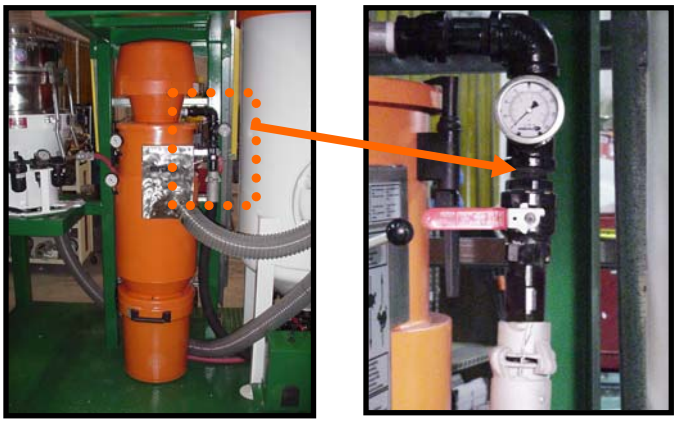


4.1.1 Turn the **Main Air Ball Valve** to the “off” position



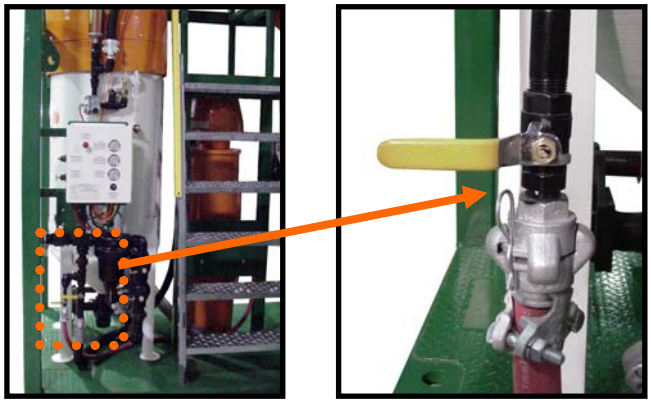
4.1.2 Turn the **Primary Vacuum Air Ball Valve** to the “off” position

4.1.3 Turn the **Secondary Vacuum Air Ball Valve** to the “off” position

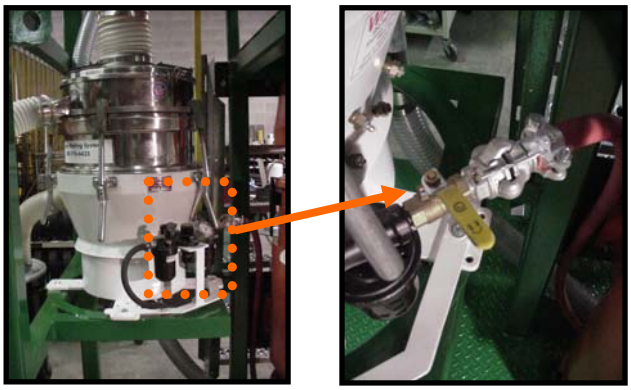


4.1 Before starting the B-VAC *(continued)*

4.1.4 Turn the **Primary Recycler Air Ball Valve** to the “off” position



4.1.5 Turn the **Secondary Recycler Air Ball Valve** to the “off” position



4.1.5.5 Turn the compressor off

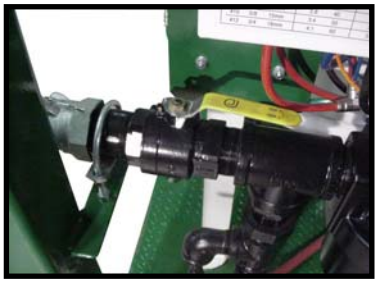
4.1.6 Turn the **Compressor Air Ball Valve** in the “off” position

4.2 Starting the B-VAC

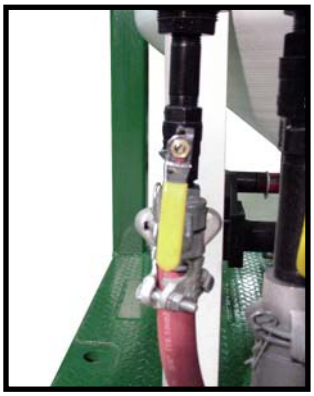
4.2.1 Turn the Compressor on per manufacturer's instructions.

4.2.2 Turn the **Compressor Air Ball Valve** in the "on" position

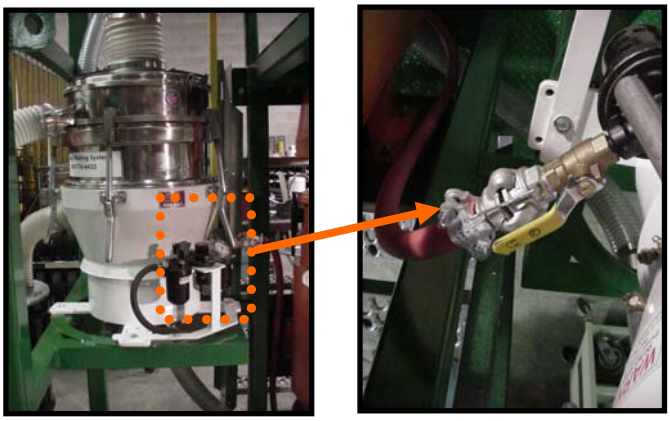
4.2.3 Turn the **Feed Unit Main Air Ball Valve** to the "on" position



4.2.4 Turn the **Primary Recycler Air Ball Valve** to the "on" position



4.2.5 Turn the **Secondary Recycler Air Ball Valve** to the "on" position



4.2 Starting the B-VAC *(continued)*

4.2.6 Turn the **Primary Vacuum Air Ball Valve** to the "on" position

4.2.7 Turn the **Secondary Vacuum Air Ball Valve** to the "on" position

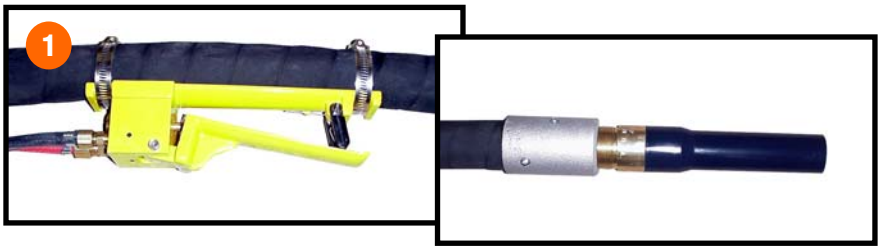
4.2.8 Load the B-VAC with Sponge Media™ abrasives by vacuuming it through the vacuum nozzle.

4.2.9 Check to see if the **Emergency Stop Button (E-Stop)** is in the "on" position.

IMPORTANT: E-Stop and Deadman Should not be engaged unless all operators are fully prepared to blast and the nozzle is under operator control.

4.2 Starting the B-VAC *(continued)*

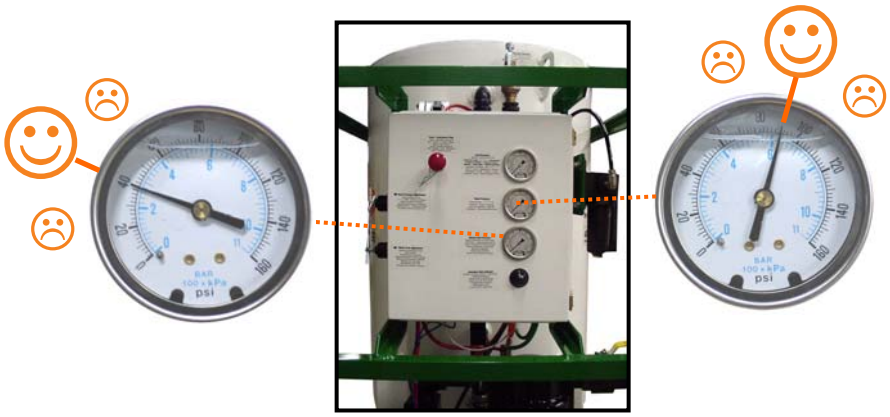
4.2.10 Squeeze the **Deadman Handle-Trigger**



4.2.11 Adjust **Blast Pressure** and **Media Feed** to recommended standard settings

Note:

The recommended setting for industrial coating removal; set the **Blast Pressure** to 6.5 bar (90psi) and the **Media Feed Pressure** to 40psi



Figures

Sponge-Jet B-VAC Pro 2 Figures

B-VAC Pro 2 Front Left

1. 400-HP Sponge-Jet Feed Unit
2. 400-HP Cyclone Storage Silo

B-VAC Pro 2 Back Right

3. 50-P Sponge-Jet Recycler
4. 50-P Recycler Cyclone Storage Silo
5. H.E.P.A. Vacuum
6. Oversized Waste Drum with locking lid
7. Fine Waste Drum with locking lid

B-VAC Pro 2 Supplied Components

8. 12.7mm (.5in) #8 Blast Nozzle
9. Pneumatic Deadman Control
10. 15m (50ft), 32mm (1.25in) I.D. flexible Whipline with Twinline and fittings.

*Note 1: *8.6 bar (125 psi) (sustained) maximum inbound pressure*

3.0 Safety

The Sponge-Jet Inc. Feed Unit is a pressurized, positive air feed system. Only certified operators should adjust, maintain and repair this equipment. Sponge-Jet offers a certification program to train operators in the mechanics of the equipment as well as in Sponge Blasting applications.

1. Use Sponge-Jet approved positive feed **Deadman Handle (Fig H #6)**.
2. Before performing any maintenance on the Feed Unit, make sure equipment is off and depressurized. The **Main Air Ball Valve (Fig B #8)** and the **Emergency Stop Button (Fig B #1)** on the **Control Panel (Fig B inset)** should both be in the off position to insure the Feed Unit is not accidentally pressurized.
3. From the compressor, under normal circumstances, the inbound pressure should never exceed 8.6 bar (125 psi). The pressure can be checked at the compressor or by the **Blast Pressure Gauge (Fig B #2)** on the **Control Panel**.
4. When operating the BVAC, people in proximity should always wear eye and hearing protection with the appropriate respiratory equipment, which may depend on the type of coating or contaminate being removed.
5. Prior to pressurizing the Feed Unit, safety pins or restraints should be fitted at all Bull Hose and Blast Hose couplings to prevent accidental disconnection.
6. Before blasting, all pneumatic lines should be visually inspected for holes, wear, and proper fit.
7. The **Port Hole Cover (Fig A #5)** must be in place and secure prior to and during operation.
8. Never point the **Blast Nozzle (Fig H #3)** towards yourself or others.
9. Do not remove the **Auger Chain Guard (Fig J #2)** to the Auger while the Feed Unit is in operation.
10. If the optional **Relief Valve (Fig F #1)** is activated, contact Sponge-Jet immediately at 800-776-6435 (USA) or 603-431-6435.

4.0 Operation & Shutdown

4.1 Operation of the Feed Unit

Working temperature conditions for the BVAC should always be above freezing.

Inspect the **Blast Nozzle (Fig H #3)** for wear and proper engagement of hose connections. Once the **Blast Nozzle** bore has worn 2mm (1/16") beyond its original inside diameter it should be replaced.

Remove the **Blast Nozzle** and ensure that it is equipped with a **Nozzle Washer**. Replace the Blast Nozzle and Nozzle Washer insuring that the Nozzle Washer lies flat in its seat.

Visually inspect all **Blast Hose (Fig H #1)** and connections. Repair or replace any worn or damaged components. Ensure that all couplings are equipped with coupling gaskets and safety pins or hose restraints, and that they are all properly installed.

Connect the compressor to Feed Unit **Supply Line Connection (Fig B #9)** and secure with safety pins or restraints. Sponge-Jet supplies Feed Units with a single four (4) lug "Chicago" fitting on a 2" National Pipe Thread (NPT) nipple.

WARNING: System is designed for a maximum 8.6 bar (125 psi). Failure to install safety pins and proper restraints (dog leash / whip checks) on the bull hose may result in personal injury.

Securely attach the Sponge-Jet Feed Unit's **Port Hole Cover (Fig A #5)** with the gasket in place.

Connect the **Blast Hose (Fig H #1)** and the **Twinline (Fig H #4)**. Sponge-Jet supplies blast hose connections with two (2) lug "Universal" fittings.

Check that the **Main Air Ball Valve (Fig B #8)** is in the closed position and charge the supply line.

At the nozzle operator's command, open the **Main Air Ball Valve** verify that a minimum of 7 bar (100 psi) of inbound supply air registers on the **Line Pressure Gauge, (Fig B #4)** on the **Control Panel (Fig I)**.

After the operator depresses the **Deadman Handle (Fig H #6)** allow the Feed Unit to pressurize. This may take 5 to 10 seconds.

CAUTION: Do not cycle the Deadman Handle while waiting for abrasive at the Nozzle (as in conventional abrasive blasting). Cycling the Deadman Handle will usually obstruct the Blast Nozzle and Blast Hose.

Once the **Line Pressure Gauge (Fig B #4)**, **Blast Pressure Gauge (Fig B #2),** and the **Media Feed Pressure Gauge (Fig B #3),** have stabilized in operation, adjust the **Blast Pressure Regulator Handle, (Fig B #5)** and the **Media Feed Pressure Regulator Handle (Fig B #6)** to the desired levels. Clockwise adjustments increase pressures.

Do not exceed a **Blast Pressure Gauge** reading of 6.2 bar (90 psi).

Adjust the **Media Feed Pressure Gauge** to the desired level (usually 2.8 bar (40 psi)) for initial operation, using the **Media Feed Pressure Regulator Handle**. Confirm that the **Blast Pressure Gauge,** remains at the desired level.

Once the desired **Blast Pressure Gauge,** and **Media Feed Pressure Gauge** levels are obtained, visually confirm that the **Auger (Fig J #8)** is rotating and that the **Agitation Indicator Eye (Fig B #7)** is functioning.

These levels should remain constant unless adjusted.

Sponge Blast™ the desired surface.

4.2 Shutdown of the Feed Unit

The red **Emergency Stop Button (Fig B #1)** is located on the **Control Panel (Fig B inset)** can be used to stop all functions. Normal shutdown during operation is by release of the **Deadman Handle (Fig H #6)**.

Close the **Main Air Ball Valve (Fig B #8)**.

Shut down the compressor and depressurize as directed by manufacturer.

Close the supply line ball valve at the compressor and the **Main Air Ball Valve** at the Feed Unit. **(Compressor supplied by others)**

Once the supply of air from the compressor to the Feed Unit has been closed, open the **Main Air Ball Valve** at the Feed Unit.

Point the **Blast Nozzle (Fig H #3)** at the working substrate (away from people) and depress the **Deadman Handle (Fig H #6)**

Keep the **Deadman Handle** depressed until all remaining air is vented from the Feed Unit and the **Blast Hose (Fig H #1)**.

Once all gauges on the Feed Unit **Control Panel (Fig B inset)** read "0" PSI, confirm that the supply line from the compressor is soft & pliable.

If the prior steps have been followed exactly, the supply line from the compressor to the Feed Unit should now be vented and safe to disconnect.

WARNING: Before disconnecting the compressor supply line, ensure that all gauges on both the Feed Unit and the Compressor register "0" PSI. Allowing for adequate evacuation time as well as determining hose pliability are important safety precautions that must be utilized when disconnecting any high-pressure air supply line.

- If the Feed Unit is to remain out of service for more than one day, remove by vacuum, all residual media through from inside the **Pressure Vessel (Fig A #4)** of the Feed Unit and the **Hopper (Fig A #2).**
- The resulting product of process must be disposed of in accordance with local and/or Federal regulations governing waste disposal.

5.0 Maintenance

To provide long and reliable service, the components of the Sponge-Jet Feed Unit require routine maintenance. During all maintenance operations the Feed Unit must be shut down.

5.1 The following maintenance activities should be performed prior to each use of the Feed Unit:

- Inspect the **Blast Nozzle (Fig H #3)** for wear. Once the nozzle bore has worn 2mm (1/16") beyond its original intended diameter, it should be replaced.
- Remove the **Blast Nozzle** and ensure that it is equipped with a nozzle washer between the nozzle and its holder. Reinstall the nozzle and washer taking care to see that the washer lies flat in its seat.
- Visually inspect all **Blast Hose (Fig H #1)** and connections. Repair or replace any worn or damaged components. Ensure that all couplings are equipped with coupling gaskets and safety pins, and that they are properly installed.
- Inspect and clean the **Exhaust Muffler (Fig E #1)** Remove any accumulated media from within it and reinstall.

WARNING: Do not operate equipment without muffler in place.

5.2 The following maintenance should be performed after each 80 hours of operation:

- Remove and inspect the interior of the **Secondary Water Separator (Fig B #10)**. Remove any contaminants that have accumulated in the bowl. Reinstall.
- Visually inspect the "O" ring on the **Secondary Water Separator** and **Air Motor Moisture Separator (Fig D #2)**. Replace if the "O" ring has been damaged or worn.

5.3 The following maintenance should be performed monthly:

- Remove **Auger Chain Guard (Fig J #2)**; inspect the condition of the **Auger Drive Chain (Fig J #5)**. Apply lightweight lubricating oil as necessary then replace the **Auger Chain Guard**.
- Lubricate each Stationary and Swivel Caster Wheel with multi-purpose grease as needed.
- Inspect all pneumatic component supply lines for wear, damage and connection security.

6.0 Troubleshooting

Inevitably circumstances arise that can adversely effect the performance of the equipment. The following section will guide a trained operator in the proper diagnosis of equipment operating problems.

It is strongly recommended these procedures be retained with each Feed Unit as a reference guide. Sponge-Jet, Inc. Technicians are available 24 hours a day, 365 days a year by calling the U.S.A.: 800-SPONGEJET (800-776-6435) or 603-431-6435

6.1 Feed Unit will not run:

1. Confirm the **Main Air Ball Valve (Fig B #8)** is open.
2. Confirm the **Emergency Stop Button (Fig B #1)** is not pushed in.
3. Confirm the **Twinline (Fig H #4)** connections at the Feed Unit and at the **Deadman Handle (Fig H #6)** handle are secure.
4. Check for holes or other damage in the full length of the **Twinline** and repair as necessary.
5. Check that the **Line Pressure Gauge (Fig B #4)** registers adequate pressure. If necessary, turn on or charge the compressor.
6. Test Feed Unit for proper operation; if this did not solve the problem proceed to **Step 6.2**, otherwise resume blasting.

6.2 Check Deadman Trigger Handle:

1. Depress and then release the **Deadman Handle (Fig H #6)** with the **Main Air Ball Valve (Fig B #8)** open and the Feed Unit pressurized.
2. Listen for an exhaust of air from behind the **Deadman Handle** when handle is released.
3. If an exhaust of air is heard, but the Feed Unit will not run, skip to **Step 6.3**.
4. If an exhaust is not heard, confirm you are using a Sponge-Jet approved **Deadman Handle** and call Sponge-Jet, Inc. Technical Service at 800-776-6435 (USA) or 603-431-6435 for further assistance.

6.3 If an exhaust of air is heard when the Deadman Control is released:

1. Remove the Red Air Line from the **Exhaust Valve (Fig E #3)**.
2. While holding the Red Air Line securely, depress the **Deadman Handle (Fig H #6)** and feel for a blast of air at the Red Air Line.

6.4 If air is felt flowing through Red Air Line:

1. Stop flow of air from Red Air Line by placing thumb over opening. This will test for a possible ruptured **Exhaust Valve Diaphragm (Fig E #2)**.
2. If Feed Unit does not start up skip to **Step 6.5**.
3. If Feed Unit does start up, remove thumb from Red Air Line.
4. Replace the **Exhaust Valve Diaphragm**.
5. Test Feed Unit for proper operation and resume blasting.

6.5 If Feed Unit does not start up:

1. Close **Main Air Ball Valve (Fig B #8)** and allow Feed Unit to depressurize.
2. Replace **On/Off Control Valve (Fig C #1)**.
3. Test Feed Unit for proper operation and resume blasting.

6.6 Feed Unit will not stop running:

1. Depress the **Emergency Stop Button (Fig B #1)** on the **Control Panel (Fig B inset)**. Feed Unit should stop.
2. If Feed Unit will not stop, close **Main Air Ball Valve (Fig B #8)** and allow the Feed Unit to depressurize fully. Open **Main Air Ball Valve.**
3. If a continuous leak of air is heard from the **Deadman Handle (Fig H #6)** then reverse the **Twinline Quick Connect Fittings (Fig A #6)** at the Feed Unit end of the **Twinline**, re-test according to Section 4.0 and resume blasting.
4. If Feed Unit pressurizes without depressing the **Deadman Handle**, contact Sponge-Jet immediately at 800-776-6435(USA) or 603-431-6435.

6.7 Deadman Control is exhausting air while in shutdown condition:

1. Reverse **Twinline Quick Connect Fittings** at Feed Unit end of **Twinline**.
2. If the **Deadman Handle (Fig H #6)** is still leaking, remove **Clean Out Screw (Fig H # 5)** (depending on model) in **Deadman Handle**. Check for debris within the **Deadman Handle**, clean and replace.

6.8 Auger will not begin rotating:

1. First check that the **Media Feed Pressure Gauge (Fig B #3)** registers adequate operating pressure 1-4 bar (10 to 60 psi) while the Feed Unit is engaged.
2. If necessary, increase this pressure by turning the **Media Feed Pressure Regulator Handle (Fig B #6)** in a clockwise direction. The pressure level of the **Media Feed Pressure Gauge** should increase.

If **Air Motor (Fig J #1)** sticks at startup or becomes sluggish at lower pressures, it may be necessary to add pneumatic hand tool oil to the **Air Motor Lubricator (Fig D #3)**.

The **Air Motor** chronically starts with difficulty, becomes sluggish, or seizes completely; it may need to be rebuilt. Sponge-Jet, Inc. offers a rebuild service. Call Sponge-Jet, Inc. at 800-776-6435 (USA) or 603-431-6435 for details.

6.9 Auger stops rotating during normal operation:

1. Stop blasting, depressurize the Feed Unit, close the **Main Air Ball Valve (Fig B #8)** and depress the **Emergency Stop Button (Fig B #1)**.
2. Rotate **Auger Manual Rotation Handle (Fig J #4)** (by hand only) 1-3 rotations clockwise.
3. If the **Auger Manual Rotation Handle** will not turn by hand, remove the **Clean Out Trap (Fig D #6)** and rotate the auger back and forth until the obstruction falls out.
4. Replace the **Clean Out Trap**. Rotate **Auger Manual Rotation Handle** to make sure that the **Auger (Fig J #8)** is free of obstruction.
5. Resume blasting. Return the media feed pressure to its desired level between 2.8 bar (40 psi). If the auger still does not rotate, call Sponge-Jet Technical Service at 800-776-6435 (USA) or 603-431-6435 for further assistance.

6.10 Air Flow Through Nozzle Suddenly Stops:

1. Stop any attempt to restart, and depress the **Emergency Stop Button (Fig B #1)** immediately! Depressurize the Feed Unit and close the **Main Air Ball Valve (Fig B #8)**.
2. Remove **Blast Nozzle (Fig H #3)** from **Blast Hose (Fig H #1)** and inspect for obstruction. Remove obstructions as necessary.
3. Disconnect all **Blast Hose** connections and inspect for obstructions. Remove obstructions as necessary.
4. Remove the **Auger Tunnel End Cap (Fig D #4)**. Check for media clog(s). Remove clogs if necessary. Replace **Auger Tunnel End Cap**.

If an obstruction occurs in the **Auger Tunnel End Cap** area of Feed Unit, rotate the **Media Feed Pressure Regulator Handle (Fig B # 6)** in a counter clockwise direction to the "off" position. Clear the obstruction.

6. Resume blasting. Once a full stream of air without media is achieved, slowly return the **Media Feed Pressure Gauge (Fig B #3)** back up to the desired pressure by adjusting the **Media Feed Pressure Regulator Handle** in a clockwise direction

6.11 Air Flows through nozzle but with no media and auger is rotating:

Note: After start up, media flow is not instantaneous. Even with only 50' of final Blast Hose, initial media flow may require 15 seconds. Stabilized media flow may require up to 4 minutes. Conditions may change that period up or down.

1. Check that Feed Unit contains an adequate amount of media. Fill as necessary.
2. While the Feed Unit is in operation, check that the **Agitation Indicator Eye (Fig B # 7)** is blinking from green to black every few seconds while machine is pressurized and operating. If the **Agitation Indicator Eye** is not changing, call Sponge-Jet Technical Service at 800-776-6435 (USA) or 603-431-6435 for further assistance.
3. After depressurizing the system in accordance with Section 4.2, open the **Port Hole Cover (Fig A #5)** and check that **Actuator Tree Assembly (Fig G #3)** is attached to **Media Actuator (Fig G #2)**. Reconnect if necessary.

6.12 Too much media exits the Nozzle and/or media is pulsing out of nozzle.

1. Check that the **Choke Valve (Fig D #1)** is in full open position (e.g. parallel to pipe). Open if necessary and continue.
2. Check the **Media Feed Pressure Gauge (Fig B #3)** is not set above 3.4 Bar (50 psi), if so, reduce the pressure as necessary.
3. Resume Blasting

6.13 Blast Pressure increases & decreases continuously or Feed Unit exhausts intermittently while blasting:

1. Check for holes in **Twinline (Fig H #4)** and check for air leaks at all fitting connections. Repair, replace or tighten as necessary.
2. Remove **Exhaust Valve Cover (Fig E #4)**, inspect for obstructions, and check inner gasket for rips or any small holes. Clean or replace as necessary.
3. Resume Blasting.

6.14 Panel testing in the non-blasting mode

This procedure will help to diagnose possible component problems on the **Control Panel (Fig B inset)** and in the Actuator system within the **Pressure Vessel (Fig A #4)**. This special diagnostic activity should only be performed under the direct guidance of a Sponge-Jet Technical Service Representative.

1. Turn the **Blast Pressure Regulator Handle (Fig B #5)** counter-clockwise to the "off" position by rotating the handle until the handle is removed from the body of the valve.
2. Turn the **Media Feed Pressure Regulator Handle (Fig B #6)** counter-clockwise to the "off" position by rotating the handle until the handle is removed from the body of the valve.
3. Remove **Port Hole Cover (Fig A #5)** and evacuate enough abrasive media in the **Pressure Vessel** so that the **Media Actuator (Fig G #2)** and the **Actuator Tree Assembly (Fig G #3)** can be clearly seen.

By following the above procedure when testing the panel and actuator system the auger will not be rotating and the Feed Unit will not be blasting. This will allow the operator to diagnose each component individually. Normal actuator motion is < 90 degrees alternating direction every 1-2 seconds.

The components should not rotate beyond 90 degrees.

6.15 Air flows through Blast Nozzle but with no media in the air stream and the Auger is rotating:

1. Adjust the panel to the **Non-Blasting Mode. (6.14)**

2. Remove top orange output airline on the **Desiccant Filter (Fig I #2)**, depress the **Deadman Handle (Fig H #6)** and check for airflow from top of **Desiccant Filter**, which should be continuous.

6.16 If no airflow is felt from the top of the Desiccant Filter:

1. Replace the **Desiccant Filter (Fig I #2)** noting the position of the airlines when replacing the filter. It is necessary to switch airline fittings from old filter to new.
2. Re-test for airflow and check for proper motion of the **Agitation Indicator Eye (Fig B #7)**. When operating properly a light pulse of air can be felt exiting from the top of the **Timer (Fig I #3)**.
3. Resume blasting.

6.17 If no pulse of air is felt at the top of the Timer:

1. Check that the **Timer (Fig I #3)** is set properly at 2.75 for the 400L. Reset if necessary.
2. Test for pulse of air, and check for proper motion of the **Agitation Indicator Eye (Fig B #7)** and **Actuator Tree Assembly (Fig G #3)**.
3. Resume blasting

6.18 If air is still not felt at the top of the Timer:

1. Remove the 2 screws on face of the **Timer (Fig I #3)** and replace the **Timer**, making sure to note the position of the hoses on the back of the **Timer.**
2. Test the new **Timer** for pulse of air and check for proper motion of the **Agitation Indictor Eye (Fig B #7)** and the **Actuator Tree (Fig G #3)**. Resume blasting

6.19 If a pulse of air is felt at the top of the Timer, but media flow is still not present or consistent:

1. With the **Deadman Handle (Fig H #6)** depressed, observe that the **Agitation Indicator Eye (Fig B #7)** is blinking and appears to be working.
2. If not, call Sponge-Jet Technical Service at 800-776-6435 (USA) or 603-431-6435 for further assistance.
3. If it does appear to be blinking, reduce the blast pressure to "0" bar ("0"psi) on the **Blast Pressure Gauge (Fig B #2)** using the **Blast Pressure Regulator Handle (Fig B #5)**
4. Reduce the Media Feed Pressure to "0" psi by turning the **Media Feed Pressure Regulator Handle (Fig B #6)** counter clockwise.
5. Open the **Port Hole (Fig A #5)** cover to the blast pot.
6. Depress the **Deadman Handle (Fig H #6)** and observe the activity of the **Actuator Tree Assembly (Fig G #3)**. It should rotate < 90 degrees in both directions, with motion occurring about every two seconds.
7. If it still does not operate call Sponge-Jet Technical Service at 800-776-6435 (USA) or 603-431-6435 for further assistance.

7.0 Sponge-Jet B-VAC Requirements

Equipment and Air requirements

I.D. = Inner Diameter

O.D. = Outer Diameter

7.1 B-VAC

A. Compressor

- 21.2 m^3/min (750 CFM) minimum at 7.6 bar (110 psi) for a #8 nozzle (16mm (1/2")). **SEE BELOW FOR OTHER NOZZLE AIR REQUIREMENTS**
- Occasionally a compressor is equipped with undersized outlets. To allow access to full compressor potential, compressor air outlet(s) should be no smaller than the recommended Supply Line diameters below.

Nozzle size determines the volume of air required to drive the media to the surface at a given pressure. The chart below depicts the volume of air required to support three different nozzle sizes at 6.0 bar (90 psi). The minimum compressor size recommendations below include a 50% reserve factor, which is intended to account for the loss associated with friction and some nozzle wear.

Nozzle Size	Abrasive Lb per Min/Hr	Minimum m^3/CFM	Compressor Req. with Reserve
#7 (11mm / 7/16")	6.8 / 408	6.4m^3/225	10.6m^3 / 375 CFM
#8 (13mm / 1/2")	8 / 480	7m^3 / 250	10.6-12m^3 / 375-425 CFM
#12 (19mm / ¾")	12 / 720	26 m^3 / 950	38.2 m^3 / 1300 CFM

***Remember the smallest I.D. in the entire system determines the maximum airflow volume for the entire blast system.**

B. Air Supply Hose requirements

1. 32mm (1.25'') I.D. hose up to 61m (200')
2. 51mm (2'') I.D. hose up to 91m (300')
3. 72mm (3'') I.D. hose above 91m (300')

*Use air lines larger than the recommended, whenever possible.

C. Fittings

- With 32mm (1.25") to 51mm (2") I.D. hose, use: (32-38mm) 1.25-2.0" I.D. Universal 4 Lug Air Coupling
- With 51mm (2") and larger use: Boss Fittings

D. Blast Hoses

Sponge Media abrasive has been successfully blasted through 91m (300') of final Blast Hose. However, when choosing between long Air Supply Line and long Blast Hoses, attempt to keep the Blast Hoses as short as practical. Below are the recommended maximum lengths:

- Up to 15m (50') of 32mm (1.25") I.D. Whipline

connected to…

- Up to 30m (100') of minimum 32mm (1.25") I.D. Blast Hose Extension

which may be further connected to…

- Up to an additional 30m (100') of 38mm (1.5") Blast Hose Extension.

Blast Hose lengths longer than 91m (300') are not recommended.

7.2 Recommended Tools

6'' Pliers
10'' Channel Locks
Grease gun and grease
10'' Adjustable Wrench
Screw Drivers (Regular and Phillips)
10'' T handle Hex Key: 9/64'' and 3/16''
Wrenches: 1/2'', 9/16'', 5/8'', 3/4'', and 11/16''.
Small Hammer
12'' Pipe Wrench
Pneumatic tool oil

7.3 Recommended Spare Parts (Complete Kits available from Sponge-Jet)

1 Exhaust Muffler
1 Auger Assembly
1 Twinline Repair Kit
1 Automatic Drain Kit
3 ft.-5/32'' pneumatic hose
1 Control Valve
1 Deadman Handle
1 'O' ring for Secondary Water Separator
1 Air Motor
3 Nozzle Washers
3 Hose Washers
1 Timer
3 ft.-3/8'' pneumatic hose
1 Desiccant Filter
2 Exhaust Valve Diaphragm

7.4 Media Management

Media Management is the way new and used sponge are added together while work is in process for best results and economy. As sponge is blasted and recycled, the sponge breaks down into smaller and more abrasive particles. By adding and mixing new sponge with the used sponge, the result will be that the larger particles of sponge will suppress the dust generated by the fast cutting used sponge. This mixture of new and used sponge is called the working mix.

All blasting applications will require specific consumption analysis. As a rule of thumb:

- Using a 1/2" - #8 Nozzle, 1/2 bag of new Sponge Media abrasive should be added to the working mix every 30 minutes of nozzle blast time.

Fines

Fines are small particles of contaminant and spent media abrasive. They are removed from the working mix through the classifying process and flow through the bottom port of the Classifier.

Fines can be reused in some circumstances by adding a portion of the fines generated back into the working mix described above. The exact amount of fines reintroduced will be determined by how much dust can be tolerated in the work area.

Many users find other uses for fines. For example, a contractor used silver media on the superstructure of a paper machine to remove paint, corrosion and contaminates. As the Silver Sponge Media abrasive broke down, the contractor saved the fines in 250L (55-gallon) drums. Once a year at this particular paper mill each boiler is shut down for cleaning. Dust levels are not a significant problem inside the boiler, therefore Silver Sponge Media abrasive fines were utilized as a cleaning abrasive within the boiler.

WARNING: Fines should not be reused when working with hazardous substances such as lead paint.

7.5 Media Uses and Approximate Settings

The settings and descriptions below are approximate. Individual applications and uses will vary.

BP = Blast Pressure
MFP = Media Feed Pressure

Green Sponge Media™

- General contaminant cleaning.
- Soot removal from stone and concrete.
- Cleaning painted surface while providing slight profile for repainting

Settings: BP: 2.1-5.9 bar (30-85 psi). **MFP:** 1.7-3.1 bar (25-45 psi)
Profile Generated: Slight Etch

White Sponge Media™

- Paint removal from composites
- Paint removal on delicate metallic substrates
- Tenacious contaminate removal
- Mold cleaning of baked-on residues

Settings: BP: 2.1-4.1 bar (30-60 psi). **MFP:** 1.7-3.1 bar (25-45 psi).
Profile Generated: Not applicable (de-glossing occurs)

Brown Sponge Media™

- Light paint and contaminant removal
- Clean and profile existing paint for recoating
- Paint de-glossing

Settings: BP: 2.1-5.9 bar (30-85 psi). **MFP:** 1.4-3.1 bar (20 to 45 psi).
Profile Generated: 25-50 microns (1-2 mils)

Silver Sponge Media™

- Paint and contaminant removal on steel
- Paint and contaminant removal on aluminum
- Paint and contaminant removal on concrete, masonry, and block
- General surface preparation activities
- Rust and mill scale removal
- Char removal

Settings: BP: 2.8-5.9 bar (40-85 psi). **MFP:** 1.4-3.1 bar (20-45 psi).
Profile Generated: 63-113 microns (2.5-4.5 mils)

Red Sponge Media™

- Same as silver but generally used on thicker coatings
- Elastomeric coatings

Settings: BP: 2.1-5.9 bar (30-85 psi). **MFP:** 1.4-3.1 bar (20-45 psi).
Profile Generated: 100-150 microns (4-6 mils)

7.6 Containment

Containment is an integral part of the Sponge-Jet process as with any abrasive blasting. Sponge-Jet Sponge Media is recyclable, reusable and environmentally friendly due to the low volumes of waste and dust generated. To take advantage of these properties, containment must be used to capture and reclaim the sponge.

Under normal conditions, when abrasive Sponge Media is being used, lightweight 6 to 10 mil poly containment can contain the abrasive sponge. More stringent containment may be required when working with hazardous substances and in areas where dust is a critical concern. These types of containment may also require negative air machines to further reduce dust levels inside the containment as well as outside the containment.

When working with hazardous substances always follow local, state and federal guidelines concerning proper containment, containment ventilation and monitoring procedures.

Containment also serves another purpose: it keeps the working area clean from foreign debris. Once the containment has been erected, a thorough cleaning of the contained area should be the next step. This will serve to minimize any foreign debris that, if reused with the sponge media, could clog or jam the equipment. By initially cleaning the area, many unnecessary problems and machinery inconveniences can be avoided.

7.7 Safety

Operation of the Sponge-Jet system necessitates the use of certain safety equipment. Because the Sponge Blasting System is an industrial abrasive blasting technology, commercial use of the product in the USA falls under the scope and power of OSHA and other local regulatory agencies. Be aware of the rules governing usage in your own circumstances. Certain types of safety equipment are almost universally required.

Proper safety equipment includes but is not limited to:

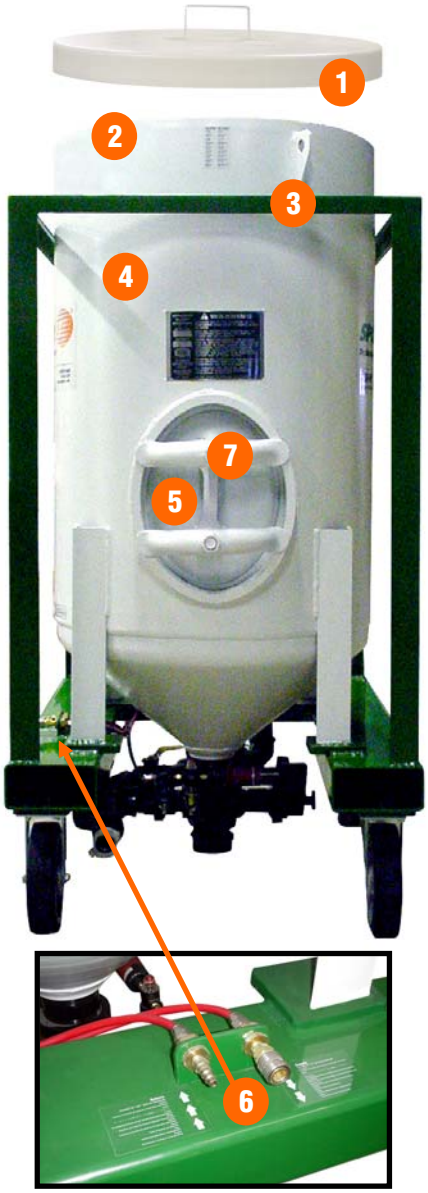
- Hearing protection
- Eye protection - safety glasses / safety shield / blasting hood or helmet
- Respiratory protection as required
- Gloves
- Safety shoes
- Protective clothing

To ensure proper compliance always follow local, state and federal guidelines. When using Sponge-Jet to remove hazardous materials, other safety issues will arise such as quality of air in containment, quality of air outside containment, and worker exposure limits. Refer to local, state and federal guidelines as situations require.

Figures

Sponge-Jet 400HP Feed Unit Figures (taken from 400HP Manual)

Figure A



1: Hopper Lid – Not applicable for B-VAC
The Hopper Lid prevents any foreign debris from entering the Feed Unit, should be placed on the hopper during Feed Unit operation.

2: Hopper – Located under 400-HP Cyclone Storage Silo
The Hopper holds the reserve Sponge Media for the Feed Unit.

3: Lifting Lugs – B-VAC
Lifting Lugs and Pad Eyes are available on the B-VAC PRO 2 Frame.

4: Pressure Vessel
The Pressure Vessel is where sponge media is stored during blasting.

5: Port Hole Cover
The Port Hole Cover allows access to the inside of the pressure vessel.

6: Twinline Quick Connect Fittings
The Twinline Quick Connect fittings attach the twinline from the Deadman Handle to the Feed Unit.

7: Crab Assembly
The Crab Assembly secures the Port Hole Cover, sealing the Pressure Vessel for operation during blasting. The Crab Assembly includes one or more Crab Braces and the same amount of nut and bolt assemblies.

Figure A

Figure B

Control Panel

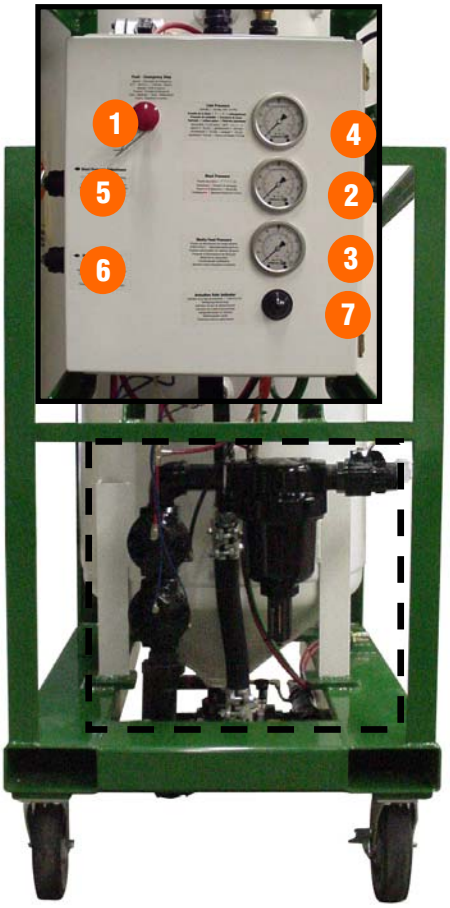


Figure B

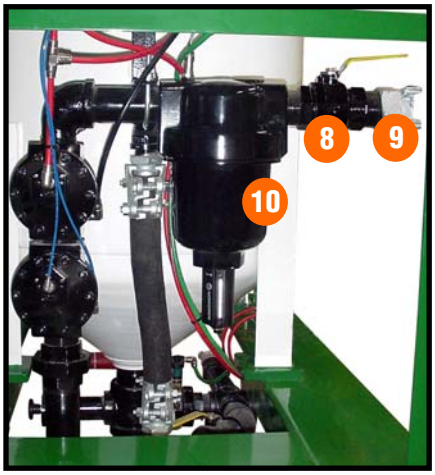


Figure C

1: Emergency Stop Button
The Emergency Stop Button stops the Feed Unit instantly, when depressed.

2: Blast Pressure Gauge
The Blast Pressure Gauge indicates the amount of pressure exiting the Feed Unit. The recommended pressure for effective coatings removal and optimal media reuses is 6.2 bar (90 psi) or less.

3: Media Feed Pressure Gauge
The Media Feed Pressure Gauge indicates the amount of air pressure being supplied to the Air Motor. This in turn relates to how much Sponge Media that is introduced into the air stream. The recommended pressure for optimal coatings removal is 1.4-2.8 bar (20-40 psi).

4: Line Pressure Gauge
The Line Pressure Gauge indicates the amount of pressure entering the Feed Unit from the compressor. The recommended inbound pressure is 8 bar (120 psi).

5: Blast Pressure Regulator Handle
The Blast Pressure Regulator Handle allows for the adjustment of airflow to the Blast Nozzle.

6: Media Feed Pressure Regulator Handle
The Media Feed Pressure Regulator Handle allows the pot tender to regulate the amount of media provided to the airline for blasting.

7: Agitation Indicator Eye
The Agitation Indicator Eye shows the rate at which the Sponge-Jet Actuator Tree Assembly is actuating within the pressure vessel.

8: Main Air Ball Valve
The Main Air Ball Valve starts and stops the airflow from entering the Feed Unit. This device is not a regulation device.

9: Supply Line Connection
The Supply Line Connection uses a four prong “Chicago” fitting on a 51mm (2in), National Pipe Thread (NPT) nipple.

10: Secondary Water Separator
The Secondary Water Separator separates water from the air stream with an 80-micron filter.

Figure C

1: On/Off Control Valve

The On/Off Control Valve serves as the Feed Unit's on/off switch. When the On/Off Control Valve is open, blasting is initiated. When the On/Off Control Valve is closed, the Feed Unit is depressurized and turns off.

2: Blast Pressure Regulator

The Blast Pressure Regulator regulates the amount of airflow traveling through the Feed Unit and out to the nozzle.

3: Control Panel Moisture Separator

The Control Panel Moisture Separator is intended to remove any remaining water or other liquid contaminants from the sensitive control panel instrumentation

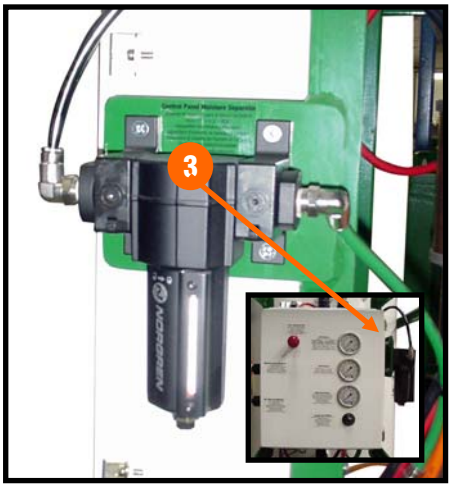
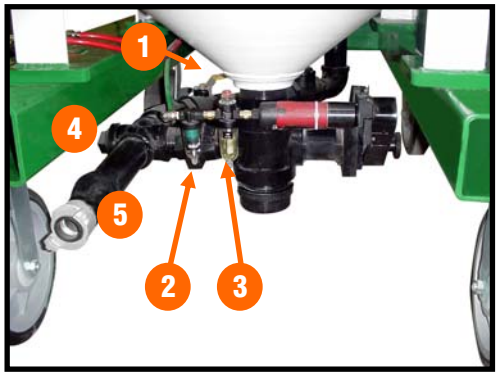
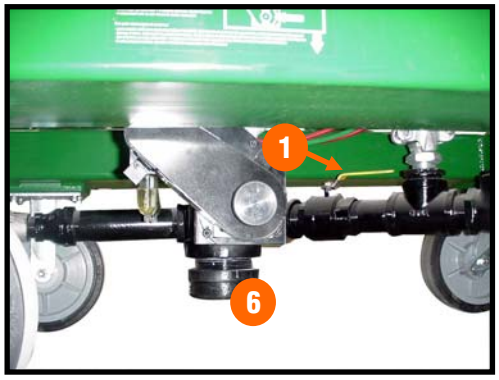


Figure C

Figure D: Lower End





1: Choke Valve
The Choke Valve is normally fully open. The Choke Valve, when closed, directs the air stream through the Pressure Vessel and can be used to clean out the Feed Unit. The choke valve in the closed position causes sponge media to quickly exit the Feed Unit.

2: Air Motor Moisture Separator
The Air Motor Moisture Separator, which automatically drains when full, protects the air motor from excess moisture.

3: Air Motor Lubricator
The Air Motor Lubricator injects oil automatically from a reservoir into the air stream.

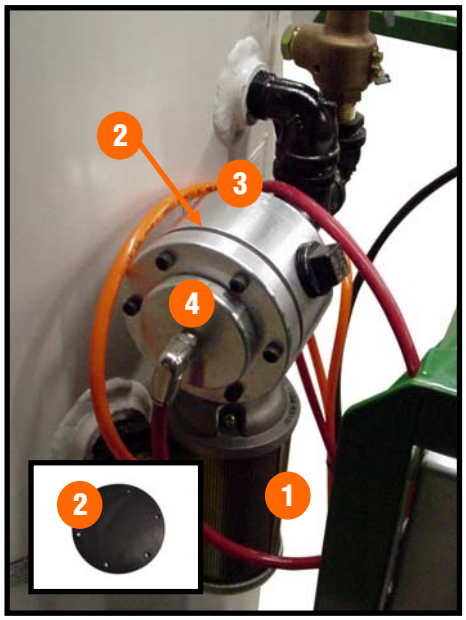
4: Auger Tunnel End Cap
The Auger Tunnel End Cap allows access to the auger for cleaning purposes.

5: Blast Hose Connection
The Blast Hose Connection is a two-pronged universal Blast Hose connector fitting, which allows for connection from the Blast Hose to the Feed Unit.

6: Clean Out Trap
The Clean Out Trap is removable to check for obstructions at the Auger.

Figure D

Figure E: Exhaust System



1: Exhaust Muffler
The Exhaust Muffler reduces the noise caused by the air exiting the Feed Unit. The Exhaust Muffler must be periodically emptied of Sponge Media and/or other foreign debris.

2: Exhaust Valve Diaphragm
The Exhaust Valve Diaphragm regulates the release of air pressure from the Feed Unit when the Deadman Handle is released.

3: Exhaust Valve
The Exhaust Valve allows air contained in the pressure vessel to escape during depressurization.

4: Exhaust Valve Cover
The Exhaust Valve Cover secures the Exhaust Valve Diaphragm during operation of the Feed Unit.

Figure E

Figure F: Relief Valve (Optional)

1: Relief Valve
The Relief Valve automatically releases air pressure from the pressure vessel when the internal air pressure exceeds 8.6 bar (125 psi).

Figure F

Figure G: (Internal View)

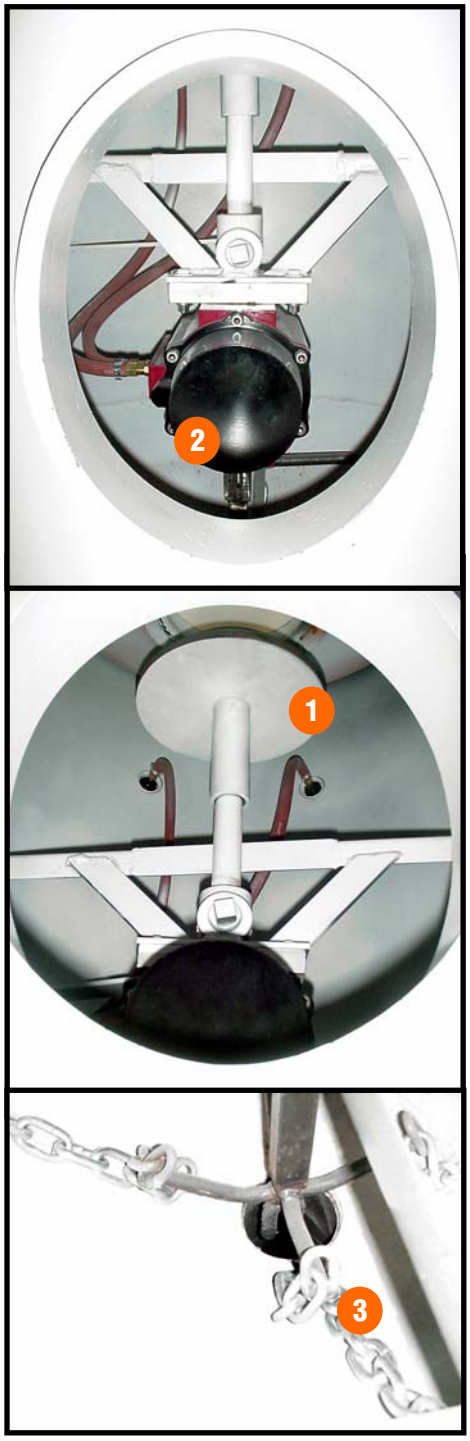


Figure G

1: Pop-Up Valve
The Pop-Up Valve seals the pressure vessel during blasting.

2: Media Actuator
The Media Actuator is a pneumatic motor that turns the actuator tree assembly, inside the pressure vessel. The media actuator assists in providing a continuous sponge media supply during blasting.

3: Actuator Tree Assembly
The Actuator Tree Assembly agitates sponge media in the pressure vessel.

4: Actuator Chain
The Actuator Chain assists in movement of media through the pressure vessel.

Figure H: Deadman Handle (Trigger Assembly)

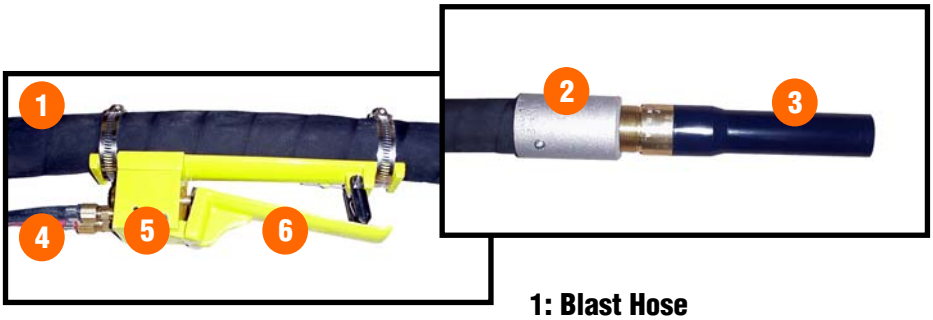


Figure H

1: Blast Hose
The Blast Hose conveys the media from the Pressure Vessel to the Nozzle.

2: Nozzle Connector
The Nozzle Connector connects the Nozzle to the Blast Hose.

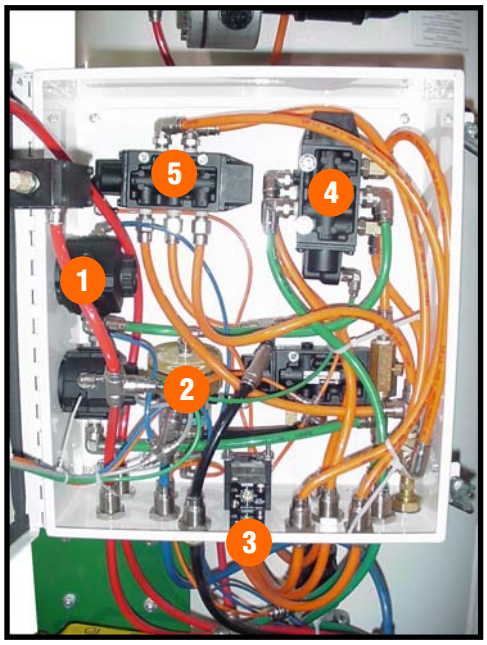
3: Blast Nozzle
The Blast Nozzle is an acceleration tip designed to focus the blasting media at a desired location for blasting activities.

4: Twinline
The Twinline flows the pneumatic circuit of air from the Deadman to the On/Off Control Valve.

5: Clean Out Screw (depending on model)
The Clean Out Screw provides maintenance access to the internal components of the Deadman Handle.

6: Deadman Handle
The Deadman Handle allows for on or off operation of the Deadman System.

Figure I: Control Panel (Inside View)



1: T-Handle Regulator
The T-Handle Regulator Controls the blast pressure and media feed pressure

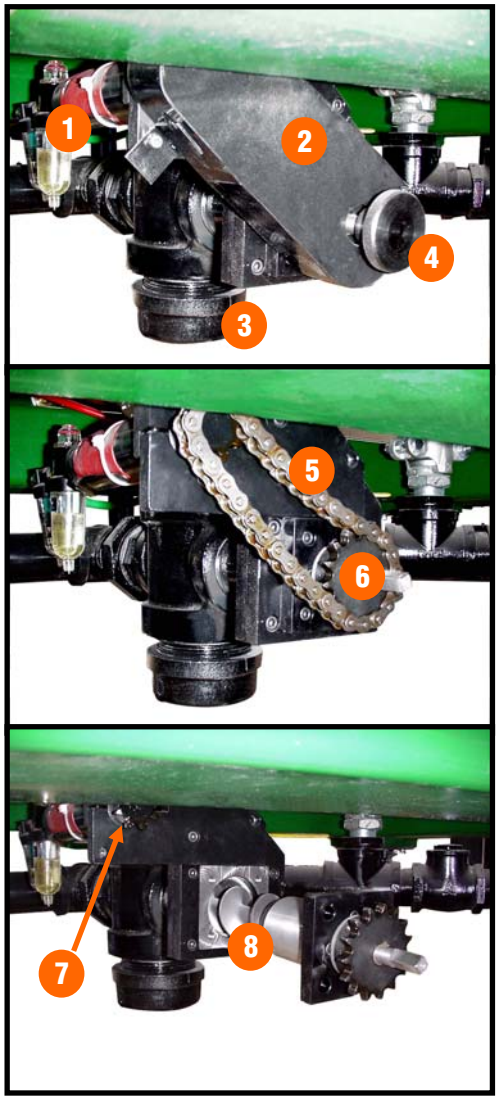
2: Desiccant Filter
The Filter removes vapor level moisture from the pneumatic Timer Circuit.

3: Timers
Timers are pneumatic timing mechanisms that regulate the delay interval of the Actuator's motion.

4: Control Valve (Air Motor)
The Agitation Control Valve provides the pneumatic signal that activates the Air Motor.

5: Control Valve (Actuator)
The Agitation Control Valve provides the pneumatic signal that activates the Actuator Tree Assembly.

Figure J: Lower End (Left Side View)



1: Air Motor
The Air Motor, through adjustment at the control panel, regulates the air/media mixture by turning the Auger.

2: Auger Chain Guard
The Auger Chain Guard prevents injury from contact with the drive chain.

3: Clean Out Trap
The clean out trap catches foreign debris, not meant to pass through the nozzle. The clean out trap must be periodically emptied of all debris.

4: Auger Manual Rotation Handle
Handle used to turn Auger to check for Auger jams.

5: Auger Drive Chain
The Auger Drive Chain, in conjunction with the Auger Sprocket, rotates the Auger Shaft.

6: Auger Sprocket
The Auger Sprocket drives the Auger.

7: Air Motor Sprocket
The Air Motor Sprocket drives the Auger Drive Chain.

8: Auger
The Auger feeds Sponge Media abrasives into the air stream.

Figure J

1.0 Recycler Introduction

The Pneumatic Media Classifier™ separates large and small foreign matter from reusable Sponge Media™ abrasives. A specially weighted, rotating spindle, oscillates spent Sponge Media abrasives and surface contaminants through two screens and classifies the materials for separate collection.

Designed for industrial durability, the Pneumatic Media Classifier can process up to **800** pounds (350 kgs) of foreign matter and Sponge Media abrasives per hour.

Inspection of the Pneumatic Media Classifier will reveal it to be of relatively simple design. As a result, few parts are subject to wear under normal operating conditions.

Note: During operation, the **Lower Base Assembly (Fig. C, #6)** experiences very little vibration. This base supports the **Vibratory Portion (Fig. C, #7)** and the **Sieve Assembly (Fig. A)** of the Pneumatic Media Classifier.

The Pneumatic Media Classifier is powered by an air-operated motor. Energy is directly transmitted through the flywheel shaft.

The **Sieve Assembly (Fig. A)** of the Pneumatic Media Classifier sits inside the **Vibratory Portion (Fig. C, #7)** and is secured by four (4) heavy-duty clamps, called **Pan Clamps (Fig. D).** The entire **Sieve Assembly** and **Vibratory Portion** is isolated from the **Lower Base Assembly** by three (3) **Suspension Rods (Fig. C, #5)** and consists of the following (illustrated in **Fig. A**): Dome Lid with Inlet, Screens mounted to Stainless Steel Ring/Clips, Flat Gaskets and Media Downspouts.

In the center of the **Vibratory Portion** is an eccentric **Flywheel (Fig. C, #4).** The vibratory energy generated directly by this **Flywheel** is transmitted to the **Sieve Assembly.** Beneath the flywheel housing and located on the lower end of the shaft is an adjustable eccentric weight. When this weight rotates, the upper eccentric **Flywheel** causes the media to move across the screen in a horizontal direction.

2.0 Media Classification

IMPORTANT: It would be difficult to overemphasize the importance of separating oversize and undersize particles from reusable Sponge Media abrasive. Proper separation is critical to reducing airborne dust and minimizing the risk of obstructing the Sponge-Jet Feed Unit™ while blasting.

The Media Classification Process in Brief:

1. After connecting the Pneumatic Media Classifier to an adequate air supply (see section 3.0). Activate the Pneumatic Media Classifier by opening the **Air Inlet Valve (Fig. B, #4)**.
2. Sponge Media abrasive is added through the **Dome Lid Inlet (Fig. A, #1)** located on the top of the Pneumatic Media Classifier.
3. Reusable Sponge Media abrasive and small contaminants pass through the **Top Screen (Fig. A, #2)**. Oversize particles are carried over the screen and out the **Large Particle Downspout (Fig. A, #3)**.
4. Sponge Media abrasive and any remaining contaminants pass down to the **Bottom Screen (Fig. A, #5)** where reusable Sponge Media abrasive is carried over the bottom screen and exits the Pneumatic Media Classifier via the **Reusable Media Downspout (Fig. A, #6)**. Smaller contaminants and spent media abrasives fall below the **Bottom Screen** as undersized particles and are ejected through the **Fine Particle Downspout (Fig. A, #7)**.

2.1 Top Screen - Large Particle Classification

The **Top Screen (Fig. A, #2)** is a stainless steel, standard #3* mesh screen used to separate unwanted foreign matter larger than a particle of Sponge Media abrasive. Items such as nuts, bolts or rocks are separated and discharged as oversized particles through the **Large Particle Downspout (Fig. A, #3)**.

WARNING: Oversize particles, if re-introduced back into the Working Mix, can be damaging as they could (1) become a projectile capable of injuring people, (2) harm the work surface, (3) pierce a pressurized blast hose, (4) clog the Feed Unit and/or (5) damage or jam the drive mechanism.

2.2 Reusable Media

Sponge Media abrasives that do not pass through the **Bottom Screen** exit the Pneumatic Media Classifier via the **Reusable Media Downspout (Fig. A, #6)**. Sponge Media abrasive that exits this downspout can be reused in the Sponge-Jet Feed Unit.

2.3 Bottom Screen - Fine Particle Classification

The **Bottom Screen (Fig. A, #5)** is a stainless steel, number #16* mesh screen used to separate foreign matter smaller than most Sponge Media particles. Fine particles are separated from Sponge Media and discharged through the **Fine Particle Downspout (Fig. A, #7)** as undersize particles and are normally considered waste. Fine particles usually include paint chips, broken down ("spent") abrasive and separated urethane particles. These fine particles, if reintroduced to the Sponge Media abrasive Working Mix, will increase ambient dust levels at the work site.

Important: The acceptability of increased dust levels is usually established within the responsibilities of each project superintendent. Usually undersize particles are considered waste. Hazardous materials such as, but not limited to, lead paint, chromates, radionuclide, cadmium, or PCB's can present special demands upon the user to manage the waste stream according to best practices and all applicable regulations.

***The standard size for the Top Screen is #3, the Bottom Screen is #16, unless other sizes are specified or provided for differing throughput or particle size distribution.**

- With reasonable care and maintenance, the Pneumatic Media Classifier is a reliable, efficient part of the Sponge Blasting™ System. Questions that arise may be addressed to Sponge-Jet, Inc.'s 24-Hour Technical Support, at 603-431-6435 or (in the USA) 800-776-6435. In Europe, please call +44(0) 1253-390731.

3.0 Air Requirements

Compressed air is the source of energy for the Pneumatic Media Classifier, allowing it to be used independent of electric power.

Sponge-Jet requires a minimum of 35cfm (1 m^3/min) with a factory set pressure limit not to exceed 30psi (2 Bar).

An **Air Filter (Fig. B, #1)** provided on the inlet side of the Pneumatic Media Classifier is intended to protect the **Air Motor (Fig. C, #3)** from damage due wet air, which can cause irrevocable damage to this part.

4.0 Normal Operation

4.1 Feed Connections

IMPORTANT: It is essential not to restrict the movement of the vibrating portion of the machine. It is recommended that no rigid connections be added to the inlet/outlet of the Pneumatic Media Classifier. Rigid connections can reduce the efficiency of the Pneumatic Media Classifier and lead to early fatigue of the sheet metal parts and weldments.

4.2 Adjustment of Pan Clamps

The **Pan Clamps (Fig. D)** have a simple adjustment that allows for different thickness **Flat Gaskets (Fig. A, #4).**

Adjustment is made by turning the **Steel Hook Top (Fig. D, #4).** Under normal operation, adjustment should not be necessary if all pans and gaskets are in the proper location. Pressure required to close the four (4) **Pan Clamps** should not exceed five (5) pounds each at the end of the lever **Handle (Fig. D, #1)**. A **Lock Nut (Fig. D, #3)** behind the **Steel Hook Top** should be tightened just enough to prevent the **Steel Hook Top** from turning when dismounting portions of the **Sieve Assembly**.

WARNING: DO NOT APPLY EXCESSIVE FORCE WHILE TIGHTENING THESE CLAMPS. THE VIBRATION OF THE CLASSIFIER WILL CAUSE THE OVERTIGHTENED CLAMPS TO BREAK.

5.0 Advanced Operation

Important: Before operation, **if any substantial disassembly has occurred to the Pneumatic Media Classifier**, it is important to verify the following has been completed:

5.1 Amplitude of Vibration

Adjustment during the use of the machine should be kept to a minimum. The one variable with which the operator should be concerned is the amplitude of vibration. The Pneumatic Media Classifier has one (1) **Flywheel (Fig. C, #4)**, which is adjustable to five (5) varying degrees of "off-center". This adjustment will modify horizontal amplitude. Located below the **Flywheel** housing (on the flywheel shaft) is an adjustable weight. When the weight is set off center from the upper flywheel weight, varying amounts of vertical deflection occur. This deflection is also a function of the RPM from the **Flywheel**.

5.2 Procedure for Adjustment of Amplitude

Adjust the **Flywheel** as follows:

1. Remove the **Sieve Assembly** to expose the top bearing housing bracket.
2. In the bracket there will be a ½" "thru-hole". Rotate the **Flywheel** until the ½" socket head cap screw comes into view. Amplitude setting numbers will range from 1 to 3.
3. Remove this screw until **Flywheel** slide weight can be rotated to the desired setting number.
4. Tighten the screw securely.

A second adjustment is available by moving the kicker weight**.** To adjust the kicker weight**,** remove the **Side Cover (Fig. C, #2)**. The kicker weight is located directly above the upper coupling flange**.** One (1) bolt holds the fan shaped weight to the shaft by a squeeze fit. This weight is set by the factory at zero degrees with flywheel weights. To achieve maximum amplitude, loosen with a 5/16" Allen wrench and rotate the weight 180 degrees and tighten. Settings between 0 degrees and 180 degrees may achieve best production for different products.

NOTE: The amplitude setting of the Pneumatic Media Classifier, with the flywheel shaft running at 3450RPM, should not exceed flywheel setting #3, which is factory set. Adjustment requires the use of a RPM calibration tool.

WARNING: Failure to use a calibration tool or properly set the RPM rate can damage the equipment and will void the warranty.

5.3 Alignment

Prior to shipment this Pneumatic Media Classifier has been adjusted for efficient operation. Under normal operating conditions, these settings should not need attention. However, shocks can occur during shipment, which may necessitate some slight re-alignment. Efficient operation results when the motor and the flywheel shaft are parallel. When this occurs, the faces of the flywheel Upper Coupling Flange and the motor flange are also parallel.

If uneven vibrating or jerking occurs, determine that the coupling faces are parallel by measurement. If they are not parallel, adjust by varying the length of the three (3) **Suspension Rods (Fig. C, #5).** This operation is performed by loosening and screwing up or down the three (3) pairs of hexagon nuts. Secure the base of the **Suspension Rods** and the lower compressed rubber bushings. After adjustment is made, these nuts must be securely tightened. At the same time, check to be sure the faces of the flanges remain parallel.

5.4 Alignment of Flanges

A minimum clearance of 1 ¼" (32 mm) must be maintained between the faces of the Coupling Flanges. The Coupling Flanges must be held parallel to within .010". Parallel alignment of the flange is performed by adjusting the three (3) lower **Suspension Rod** nuts. After the coupling flanges are proven to be parallel, installation of the flexible rubber coupling may proceed.

NOTE: The flexible rubber coupling is 1" (24.5 mm) thick with four (4) 1/8" (3.2 mm) thick bosses.

WARNING: Never run the motor with only the flexible rubber coupling attached to the motor flange. Failure to observe this precaution may result in serious damage and/or injury.

5.5 Sieve Assembly

The dismountable **Sieve Assembly (Fig. A)** is constructed of stainless steel. When it is correctly assembled and fastened, the rim weldments should be durable. Failure to properly assemble and fasten the **Sieve Assembly** will sharply shorten the life of the weldments.

The **Sieve Assembly** consists of five parts. Assemble as follows:

1. Place the **Fine Particle Downspout (Fig. A, #7)** through the hole provided in the **Vibratory Portion (Fig. C, #7). Note**: Be sure the downspout is centered.
2. Place a **Flat Gasket (Fig. A, #4)** into the **Shallow Funnel (Fig. A, #7).**
3. Place the **Stainless Steel Ring/Clip (Fig. A, #5)** with the #16* mesh screen attached, **(Important Place mesh screen up**)** into the **Shallow Funnel** and on top of the **Flat Gasket**.

4. Place a **Flat Gasket** onto the **Stainless Steel Ring/Clip** making sure to center the **Flat Gasket.**
5. Place the **Double Deck Main Rim with Reusable Media Downspout (Fig. A, #6)** over the **Flat Gasket** and **Stainless Steel Ring/Clip** and into the **Shallow Funnel**.
6. Place a **Flat Gasket** into the **Double Deck Main Rim.**
7. Place the **Stainless Steel Ring/Clip** with the #3* mesh screen attached, **(IMPORTANT: Place mesh screen side up**)** into the **Double Deck Main Rim** and on top of the **Flat Gasket.**
8. Place a **Flat Gasket** onto the **Stainless Steel Ring/Clip,** making sure to center the **Flat Gasket.**
9. Place the **Feeding Ring/Hopper** over the **Flat Gasket,** making sure that the **Large Particle Downspout (Fig. A, #3)** is opposite from the **Reusable Media Downspout (Fig. A, #6).**
10. Attach the **Pan Clamps. (Fig. D)** These must be closed to secure the **Sieve Assembly**.

***The typical size for the Top Screen is #3, the Bottom Screen is #16, other sizes may be provided for differing throughput or particle size distribution.**

****IMPORTANT: All screens must be assembled with mesh on the top. Incorrect fitting is an easy mistake and will cause the Pneumatic Media Classifier to operate unsatisfactorily.**

6.0 Routine Maintenance

IMPORTANT: Under **NO** circumstances should any inspection, adjustment or lubrication be conducted while the Pneumatic Media Classifier is running or connected to an air supply.

6.1 Lubrication

Pneumatic Media Classifiers have been tested before shipment. **DO NOT** grease this Pneumatic Media Classifier until it has been operated for 500 hours. Re-lubricate using a ½ pump or small amount every 500 hours of operation. **DO NOT OVERGREASE.**

Recommended Lubricants are:

1. Citco AP, Citco oil
2. Ore-Lube K2
3. Mobilux Grease #2, Socony Mobil Oil Co.
4. Val-Lith #IP, Valvoline Co.
5. VS SGA, MM Industries, Inc.
6. Multifak #2, Texaco Inc.
7. Alvanie R#, Shell Oil Co.

WARNING: DO NOT FORCE EXCESSIVE GREASE. Damage could occur to the bearings and air motor system.

6.2 Access to Grease Fittings

1. The two (2) bearings are greased by access through the grease fittings on the side of the machine.

IMPORTANT: If the machine has not been used for one year, add 1 to 2 pumps of grease.

6.3 The Lubricator

It is important to check the levels of the oil in the **Lubricator (Fig. B, #3).** If necessary refill with Pneumatic Hand Tool Oil. Refill by unscrewing the bottom portion of the lubricator, being careful not to spill the remaining oil.

IMPORTANT: If any undue noise is detected, please notify the Operator or Maintenance Personnel. For inspection the Pneumatic Media Classifier should be immediately switched off and all revolving parts should stop before any investigations are carried out.

7.0 Rebuild Maintenance

7.1 Replacement of Top Roller Bearing

1. Remove the **Sieve Assembly**.
2. Remove grease lines.
3. Remove ring (6) 5/16” hex head cap screws, top bearing housing cap and brass mole connector.
4. Remove top bearing housing with bearing.
5. Loosen the top bearing sleeve bolt.
6. Carefully press bearings and seal out of housing and top bearing sleeve.
7. Clean and deburr housing and sleeve - examine parts for wear.
8. Press new bearing and seal into sieve and housing.
   IMPORTANT: Re-pack bearing with grease (See recommended lubricants).
9. Replace top bearing sleeve and sleeve bolt.
   IMPORTANT: Use thread locker on sleeve bolt (Perma Lok MM115 or equal).
10. Insert top housing cap and 5/16” hex head cap screws.
11. Reattach grease lines.

7.2 Replacement of Flywheel Bearing

1. Remove **Sieve Assembly**.
2. Release **Side Cover** clamp and open cover.
3. Loosen and remove top two (2) flexible rubber coupling locknuts (3/8” - 16 thread).
4. Remove three (3) 5/8-11 hex nuts from **Suspension Rods** above rubber bushings**.**
5. Remove top sieve weldment.
6. Follow steps 1 through 6 of “Replacement of Top Roller Bearing” (If not already complete).
7. Loosen two (2) 3/8-16 set screws - Remove **Flywheel**.
8. Loosen ten (10) 3/8-16 set screws.
9. Loosen one (1) 7/16” hex head cap screws from ends of shaft - Loosen two (2) 3/8-16 socket head cap screws - Remove upper coupling flange.
10. Remove ten (10) 3/8-16 socket head cap screws and grease line.
11. Remove flywheel housing from top sieve weldment.

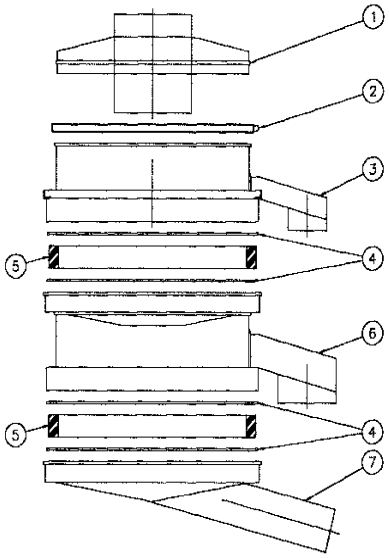
12. Loosen ¼" cap screws - remove **Flywheel** top cap and bottom cap.
13. Slide **Flywheel** shaft (with bearings) through bottom of housing.
14. Remove circlip - Press bearing from shaft.

15. Press outside race of roller bearings from flywheel housing.
16. Remove seals from top and bottom caps.
17. Clean and inspect all parts for wear - deburr all parts as required.
18. Follow steps 1 through 16 to in reverse order to reassemble.

IMPORTANT: Follow steps for proper alignment after assembly

FIGURES

Figure A: Sieve Assembly



1. **Dome Lid with Inlet**
   Sponge-Jet Media enters through inlet from Cyclone
2. **Stainless Steel/Ring Clip – Top Screen**
   Mesh Screens are mounted to the Stainless Steel Ring/Clips
3. **Large Particle Downspout**
   Oversized particles that cannot pass through the top screen are discharged through the Large Particle Downspout
4. **Flat Buna Gaskets**
   Reuires Four 22” flat buna rubber gaskets
5. **Stainless Steel/Ring Clip – Bottom Screen**
   Mesh screens are mounted to these 2” X 1” tubular mesh rings

   (See section 5.5 – Sieve Assembly, for proper screen installation)
6. Double Deck Main Rim with **Reusable Media Downspout**
   Particles that do not fall through the Bottom Screen are discharged through the Reusable Media Downspout
7. **Shallow Funnel with Fine Particle Downspout**
   Located under the Bottom Screen, the shallow funnel collects and directs fine particulate into the Fine Particle Downspout which are discharged through the Downspout

Figure B: Main Controls

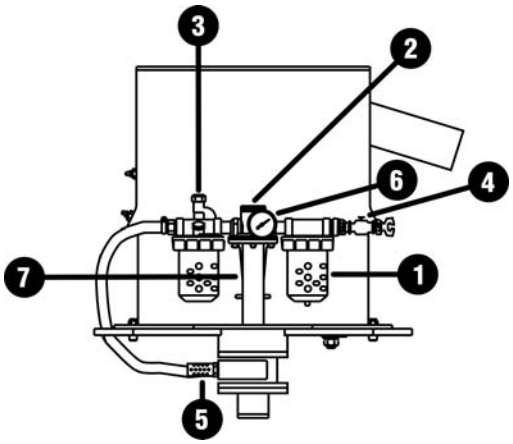


Figure B

1. **Air Filter**
   The Air Filter is intended to protect the Air Motor and Regulator from damage due to dirty or wet air.
2. **Regulator**
   Regulates the airflow.
3. **Lubricator**
   Contains oil used to disburse moisture and lubricate the Air Motor.
4. **Air Inlet Valve**
   The Air Inlet Valve is the main air control valve that starts and stops the airflow to the Pneumatic Media Classifier.
5. **Muffler**
   Located on the Air Motor.
6. **2 ½" Pressure Gauge**
   Measures the output pressure of the Regulator.
7. **Bracket**
   Located on the outside of the housing. This Bracket holds the Filter, Lubricator, Pressure Gauge and Regulator.

Figure C: Vibratory Portion and Lower Base Assembly

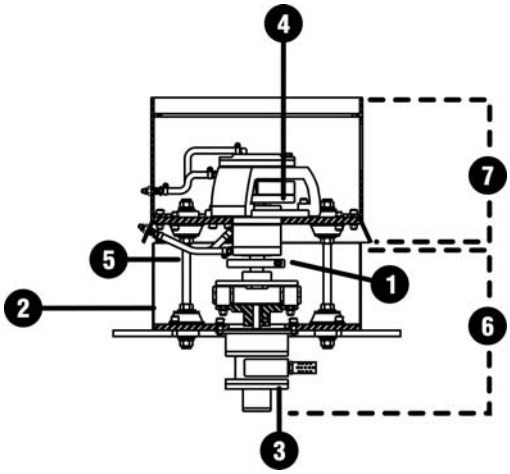
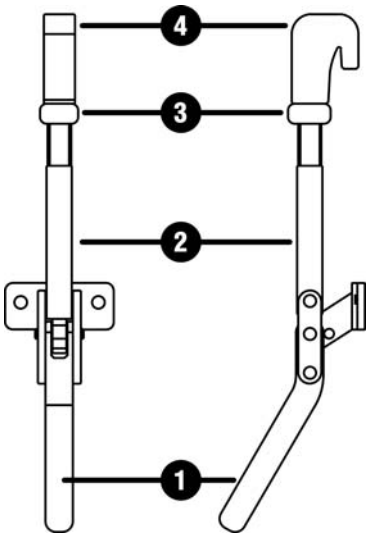


Figure C

1. **Weight**
   This off center weight causes the upper eccentric Flywheel to move media across the screen.
2. **Side Cover**
   This removable cover serves as protection for the components located inside the Lower Base Assembly.
3. **Air Motor**
   The Air Motor powers the Pneumatic Media Classifier.
4. **Flywheel**
   The vibratory energy generated directly by the Flywheel is transmitted to the Sieve Assembly.
5. **Suspension Rods**
   The Sieve Assembly and the Vibratory Portion is isolated from the frame by the three suspension rods.
6. **Lower Base Assembly**
   The Lower Base Assembly supports the Main Controls, Air Motor, Vibratory Portion and the Sieve Assembly.
7. **Vibratory Portion**

   The Vibratory Portion is located over the Lower Base Assembly and supports the Sieve Assembly.

Figure D: Pan Clamps



1. **Handle**
   The lever Handle is used to secure the Pan Clamp to the Sieve Assembly.
2. **Threaded Rod**
   The Steel Hook Top threads onto the Threaded Rod.
3. **Lock Nut**
   The Lock Nut is used to prevent the Steel Hook Top from swiveling when dismounting the Pan Clamps.
4. **Steel Hook Top**
   Adjustment for varying sized gaskets is made by turning the Steel Hook Top.

Figure D

6.0 Specifications

Weight

450 lb. / 136 kilo

Gaskets

One set (4) 22” buna flat gaskets

Clamps

One set (4) double-deck Pan Clamps with Lock Nuts

Screens

One (1) top #3* mesh (.047” wire diameter / .286” open area) stainless steel screen soldered to a ¾” x 1-1/2” high tubular mesh ring (top) and one (1) #16* mesh standard (.018” wire diameter /. 044” open area) stainless steel screen soldered to a ¾” x 1-1/2” high tubular mesh ring.

Stainless Steel Parts

Top: 8” main rim/angle with 6” long oversize chute & finger scroll; Bottom: 15”x3” high deck section with scroll cone (6” op.) and oversize chute.

Motor

GAST air motor Model 6AMNRV1A-4 Vane, reversible

***The standard size for the Top Screen is #3, the Bottom Screen is #16, unless other sizes are specified or provided for differing throughput or particle size distribution.**

- For **24-hour technical service**, contact Sponge-Jet, Inc. Technical Support, at 603-431-6435 or (in the USA) 800-776-6435. In Europe please call 44 (0) 1253-390731.

NOTES: _____

MODEL#: _____

SERIAL#: _____