6.9.4 Blast Pressure increases and decreases continuously or Feed Unit exhausts intermittently while blasting:

1. Check for holes in **Control Lines (Fig E #34)** and check for air leaks at all fitting connections. Repair, replace or tighten as necessary.
2. Remove **Exhaust Valve Cover (Fig C # 18)** and inspect for obstructions and check inner gasket for rips or any small holes. Clean or replace as necessary.

6.9.5 Panel testing in the non-blasting mode

This procedure will help to diagnose possible component problems in the Panel and in the Actuator system within the Pressure Vessel. This special diagnostic activity should only be performed by Certified Operators or under the direct guidance of a Sponge-Jet Technical Service Representative.

1. Turn the **Blast Pressure Regulator Handle (Fig A #16)** 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 Regulator Handle (Fig A #15)** counter-clockwise to the off position by rotating the handle until the handle is removed from the body of the valve.

Remove **Port Hole Cover (Fig B #19)** and evacuate enough abrasive media in the Pressure Vessel so that the **Media Actuator (Fig D #31)** and the **Actuator Tree Assembly (Fig D #29)** can be clearly seen.

By following the above procedure when testing the panel and actuator system the auger will <u>not</u> be rotating and the Feed Unit will <u>not</u> be blasting. This will allow the operator to diagnose each component individually. Normal actuator motion is 45 degrees alternating direction every 1-2 seconds.

The components do not rotate beyond 45 degrees.

6.9.6 Air flows through Blast Nozzle but with <u>no</u> media in the airstream and the Auger is rotating:

1. Adjust the panel to the Non-Blasting Mode. (6.9.5)
2. Remove top orange output airline on the **Internal Panel Filter (Fig F #39)**, depress the **Deadman Trigger Handle (Fig E #36)** and check for airflow from top of **Internal Panel Filter (Fig E #39)**, which should be continuous.

6.9.7 If no airflow is felt from the top of the Internal Panel Filter:

1. Replace the Internal Panel Filter Cartridge with **Spare Sponge-Jet Filter Cartridge (Fig F #44)** held inside Panel, 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 A #9)**. When operating properly a light pulse of air can be felt exiting from the top of the **Timer (Fig F #40)**.
3. Resume blasting.

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

1. Check that **Timer (Fig F #40)** is set properly at .75 for 85L and 1.75 for 240L/XL
2. Reset if necessary
3. Test for pulse of air, and check for proper motion of the **Agitation Indicator Eye (Fig A #9)** and **Actuator Tree Assembly (Fig D #29)**.
4. Resume blasting

6.9.9 If no pulse of air is felt at the top of the Timer once it has been set to .75 or 1.75:

1. Remove the 2 screws on face of timer and replace the timer, available from Sponge-Jet, Inc.
2. Test new timer for pulse of air and check for proper motion of the **Agitation Indictor Eye (Figure A #9)** and the **Actuator Tree Assembly (Fig D #29)**.
3. Resume blasting

6.9.10 If a pulse of air is felt at the top of the timer assembly, but media flow is still not either present or consistent:

1. With the **Deadman Trigger Handle (Fig E #36)** depressed, observe that the **Agitation Indicator Eye (Fig A #9)** is blinking and appears to be working.
2. If it is not, contact Sponge-Jet, Inc. (in the U.S.A. 800-776-6435 or 207-439-0211) for more detailed technical assistance.
3. If it does appear to be blinking, reduce the blast pressure to “0” bar (“0”psi) on the **Blast Pressure Gauge (Figure A #7)** using the **Blast Pressure Regulator Adjustment Handle (Figure A #16)**

4. Reduce the Media Feed Pressure to “0” psi by turning the **Media Feed Adjustment Handle (Fig A #15)** counter clockwise.
5. Open the **Port Hole (Figure B #19)** cover to the blast pot.
6. Depress the **Deadman Trigger (Figure E #36)** and observe the activity of the **Actuator Tree Assembly (Figure D #29)**. It should rotate 45 degrees in both directions, with motion occurring about every two seconds.
7. If it still does not operate call Sponge-Jet, Inc. US Technical Support at 1-800-776-6435, 207-439-0211 or fax 207-439-0309 for further assistance.

Sponge-Jet Feed Unit Requirements

Equipment and Air requirements

I.D. = Inner Diameter

O.D. = Outer Diameter

1. Feed Unit

A. Compressor

- $7m^3$/min (250 CFM) minimum at 7.6 bar (110 psi) for a #8 nozzles (16mm (1/2")).
- 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 5.6 bar (80 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
#6 (9.5mm / 3/8")	5.6 / 336	$4.8m^3$/170	$7m^3$ / 250 CFM
#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	$10.6\text{-}12m^3$ / 375-425 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 (9300')
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) 1.25-1.5" I.D. Universal 4 Lug Air Coupling
- With 51mm (2") and larger use: Boss Fittings

D. Blast Lines

Sponge Media abrasive has been successfully blasted through 91m (300') of final blast line. 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 (915m) 50' of .75" (or 1") / 19mm (or 25mm) I.D. "Whip" Blast Hose

connected to…

- Up to 30m (100') of minimum 32mm (91.25") I.D. Blast Hose

which may be further connected to…

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

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

Note: No electricity is required to run Feed Units.

2. Electric Media Classifier

1. The Electric Media Classifier requires a 115 volt, 20 amp dedicated circuit. Appropriate heavy gauge extension cords need to be used to support the above electrical requirements.

It should be noted that long lengths of extension cord may lessen the voltage from the supply as delivered to the classifier causing increased amperage draw, heat and resulting tripped circuits and even electrical damage to the classifier motor.

***Always use the shortest amount of extension cord as possible and with proper capacity.**

Note: Sponge-Jet Pneumatic Classifiers are also available. See separate Operator Manuals for each Sponge-Jet Electric and Pneumatic Classifier.

3. Recommended Tools

6'' Pliers
10'' Channel Locks
Screw Drivers (Regular and Phillips)
10'' T handle Hex Key: 9/64'' and 3/16''
10'' Adjustable Wrench
Wrenches: 1/2'', 9/16'', 5/8'', 3/4'', and 11/16''.
Small Hammer
12'' Pipe Wrench
Grease gun and grease
Pneumatic tool oil
WD-40 or equivalent

4. Recommended Spare Parts (available from Sponge-Jet)

1, 1/4'' muffler

1 Air motor

1 Auger

3 Nozzle washers

3 Hose washers

1 Hose repair kit for control lines

1 Automatic drain Kit

1 'O' ring for 1.25'' main air/water separator

1 Norgren actuator valve

1 timer

3 ft.-5/32'' pneumatic hose

3 ft.-3/8'' pneumatic hose

5. 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.
- Using a 3/8" - #6 nozzle, 1/4 bag of new Sponge Media abrasive should be added to the working mix every 30 minutes of nozzle blast time.

New Sponge Media abrasive can be mixed with used Sponge Media abrasive in one of two ways.

1. By hand, in a bucket or in media bags, after the used Sponge Media abrasive has been classified.
2. By mixing the new Sponge Media abrasive with used Sponge Media abrasive, prior to classifying, at the top of the classifier. This will allow the classifier to perform the mixing.

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.

6. 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: Not applicable

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 (930-60 psi). **MFP:** 1.7-3.1 bar (25-45 psi).
Profile Generated: Not applicable

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. 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, a light 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. The better the containment and initial cleaning the less time spent preparing Sponge Media abrasive for reuse and cleaning up when the job is finished.

8. 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 Feed Unit 85 L, 240 L and 240 XL

Sponge-Jet Feed Unit Parts

Figure A: (Front View)

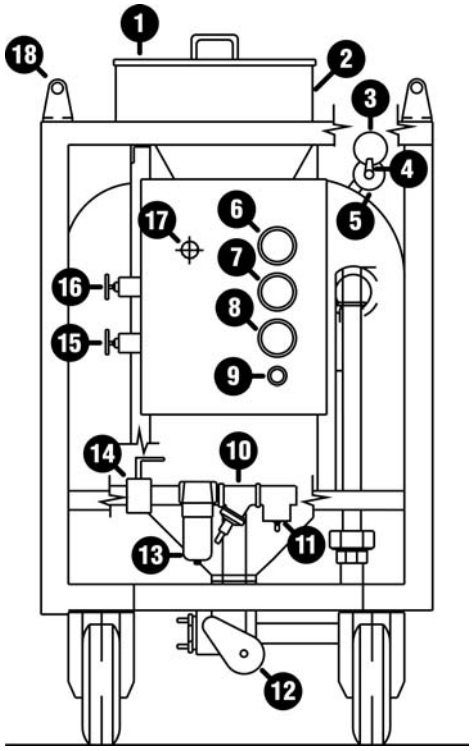

Figure A

1: Hopper Lid
The Hopper Lid prevents any foreign debris from entering the Feed Unit, should be placed on the hopper during Feed Unit operation.

2: Hopper
The Hopper holds the reserve Sponge Media for the Feed Unit.

3: 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.

4: Relief Valve (Optional)
The Relief Valve automatically releases air pressure from the pressure vessel when the internal air pressure exceeds 8.4 bar (125 psi).

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

6: 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).

7: Blast Pressure Gauge
The Blast Pressure Gauge indicates the amount of pressure exiting the nozzle. The recommended pressure for effective coatings removal and optimal media reuses is 5.9 bar (85 psi) or less.

8: Media Feed Gauge
The Media Feed Gauge indicates the amount of air pressure being supplied to the Media Feed 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).

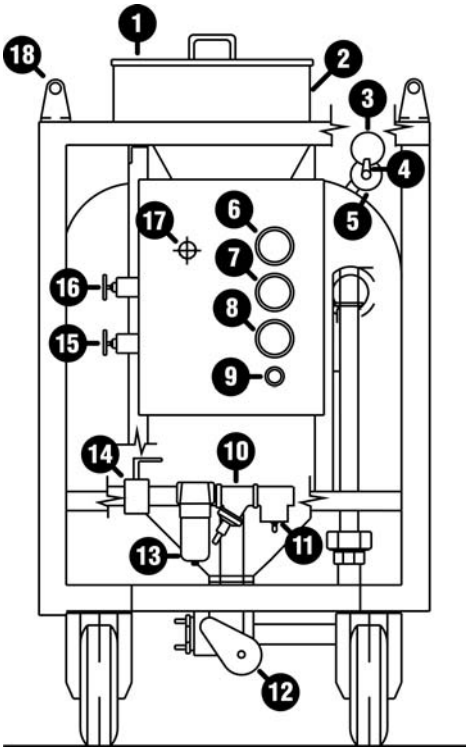

Figure A (repeated)

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

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

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

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

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

14: 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.

15: Media Feed Regulator Handle
The Media Feed Adjustment Handle allows the pot tender to regulate the amount of media provided to the airline for blasting. Rotating the handle to the right, or clockwise, will increase the amount of media delivered to the airline. Rotating the handle to the left, or counter clockwise, will decrease the amount of media delivered to the airline.

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

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

18: Lifting Lug
The lifting lugs are used to properly attach lifting slings to the Feed Unit.

Figure B: (Rear View)

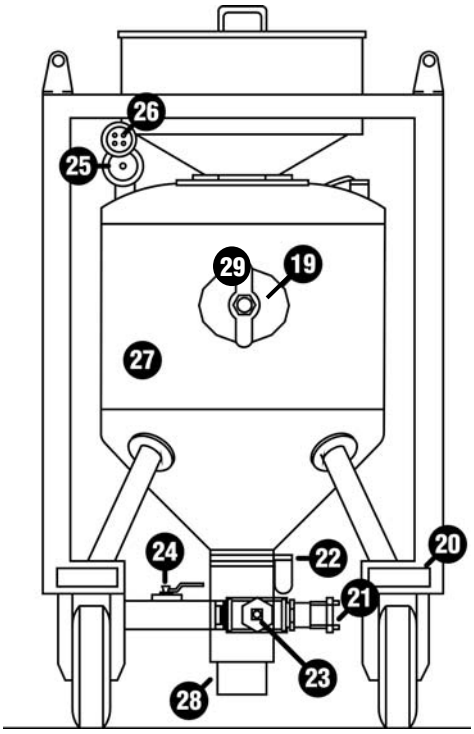

Figure B

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

20: Forklift Pockets
The Forklift Pockets allow the Feed Unit to be lifted or moved with a forklift.

21: Blast Line Connection
The Blast Line Connection is a two-pronged universal blast line connector fitting, which allows for connection from the blast line to the Feed Unit.

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

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

24: Choke Valve (when present)
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.

25: same as part #5 on the front view

26: same as part #3 on the front view

27: Pressure Vessel
The pressure vessel is where sponge media is stored during blasting.

28: 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.

29: 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 C: Exhaust System

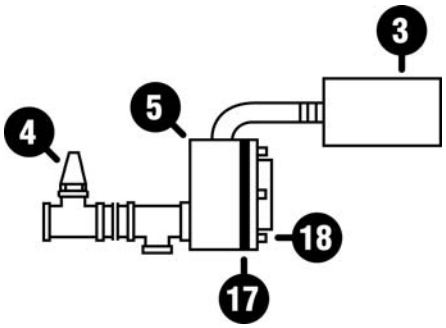

Figure C

3: 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.

4: Relief Valve (Optional)
The Relief Valve automatically releases air pressure from the pressure vessel when the internal air pressure exceeds 8.4 bar (125 psi).

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

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

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

Figure D: (Internal View)

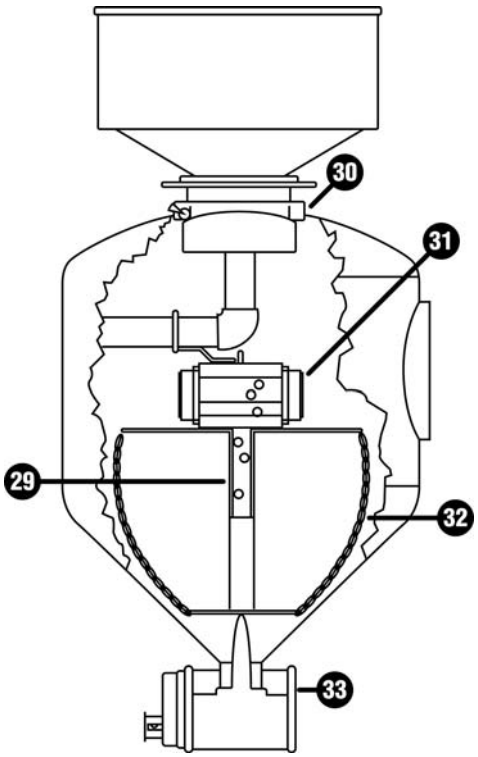

Figure D

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

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

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

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

33: Lower End Assembly
The Lower end Assembly houses the Auger
(Refer to Figure “G” on page 29).

Figure E: “Deadman” (Trigger Assembly)

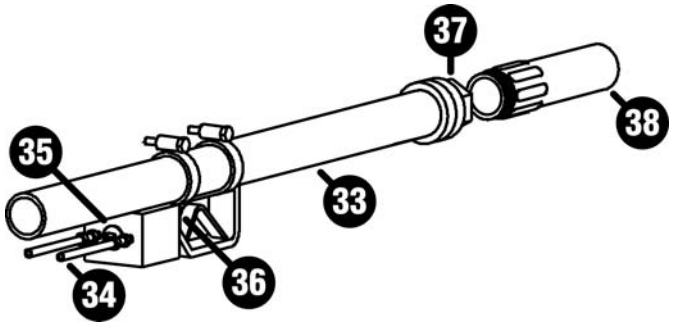

Figure E

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

34: Control Line
The Control Line flows the pneumatic circuit of air from the Deadman to the Aquamatic Valve.

35: Clean Out Screw
The Clean Out Screw provides maintenance access to the internal components of the Deadman Trigger.

36: Deadman Trigger
The Deadman Trigger allows for on or off operation of the Deadman System.

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

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

Figure F: Internal Control Panel

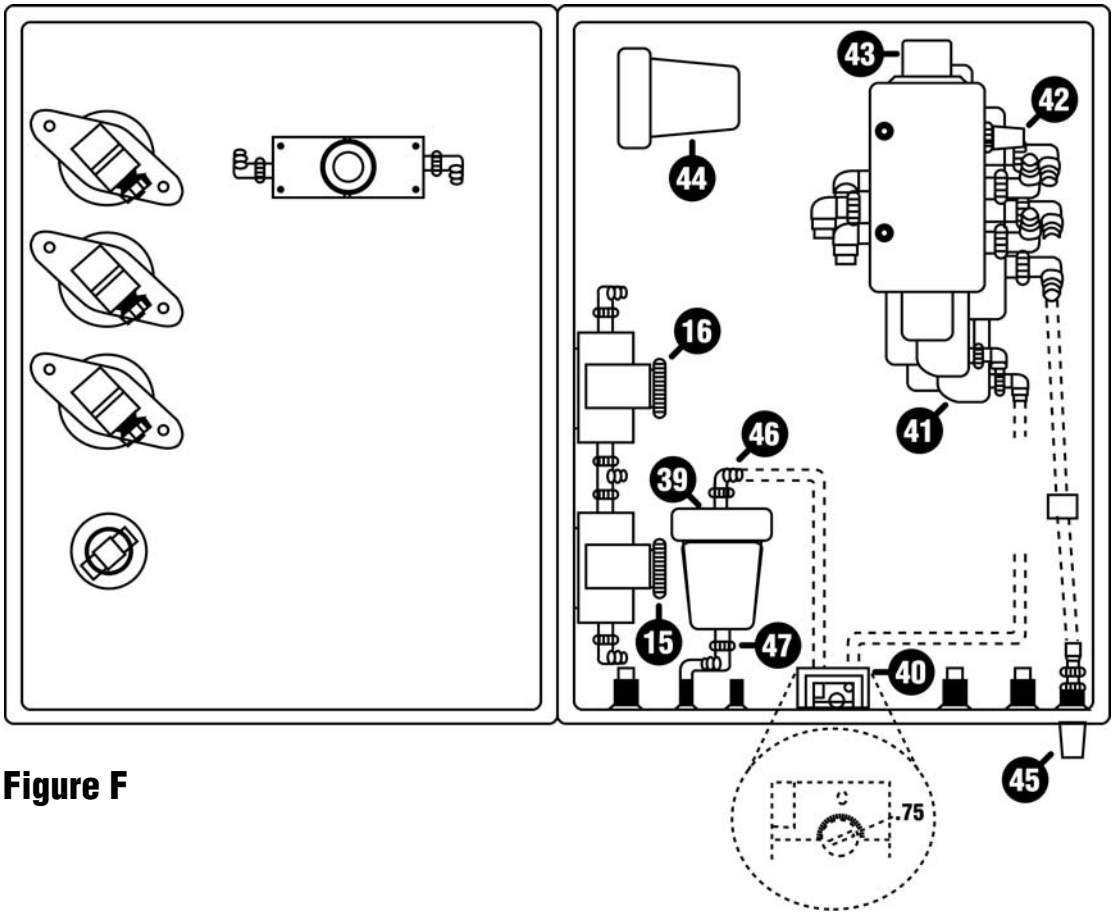

Figure F

39: Internal Panel Filter
The Filter removes vapor level moisture from the pneumatic Timer Circuit.

40: Timer
The Timer is a pneumatic timing mechanism that regulates the delay interval of the Actuator's motion.

41: Auger Instant Off
The Auger Instant Off system immediately vents the Air Motor and stops the flow of media through the Feed Unit, as the operator releases the Deadman, or the Emergency Stop System is activated.

42: Exhaust Muffler
The Exhaust Muffler relieves pressure associated with various systems on the Feed Unit.

43: Agitation Control Valve
The Agitation Control Valve provides the pneumatic signal that activates the Actuator Tree Assembly.

44: Internal Panel Spare Filter
The Spare Filter replaces #39.

45: External Panel Muffler (if mounted)
The Ext. Panel Muffler vents signal air from the Actuation System.

46: Internal Panel Filter (Output Line)
The Filter (Output Line) is the outbound connection of the Vapor Filter.

47: Internal Panel Filter (Input Line)
The Filter (Input Line) is the inbound connection for the air supply to the vapor.

Figure G: (Lower End Assembly)

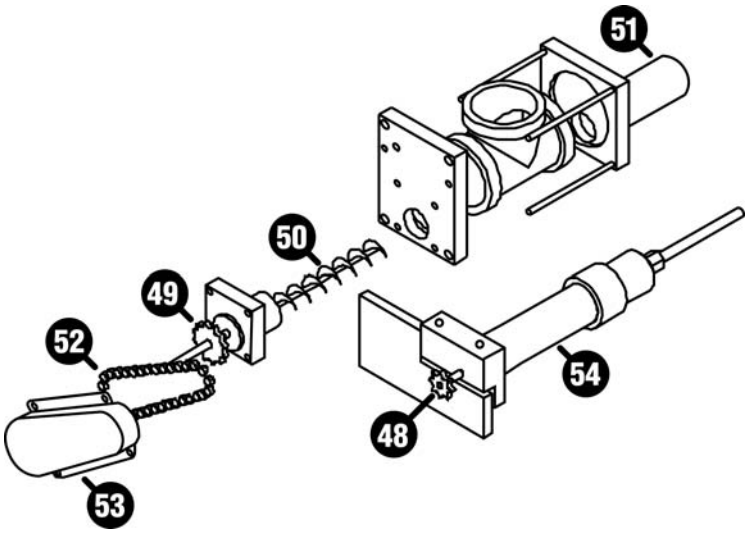

Figure G

48: Auger Motor Sprocket
The Air Motor Sprocket drives the Auger Drive Train.

49: Auger Sprocket
The Auger Sprocket drives the Auger.

50: Auger Shaft
The Auger Shaft meters Sponge Media abrasive into the air stream.

51: Auger Tunnel End Cap
The Auger Tunnel End Cap allows access to the far end of the Auger.

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

53: Auger Chain Guard
The Auger Chain Guard protects the Air Motor Sprocket and the Auger Drive Chain.

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

NOTES: _____

MODEL#: _____

SERIAL#: _____