A-200 and A-205
Indexing Turntable Cabinets

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No representation is intended or made as to the suitability of the products described herein for any particular purpose of application. No representations are intended or made as to the efficiency, production rate, or the useful life of the products described herein. Any estimate regarding production rates or production finishes are the responsibility of the user and must be derived solely from the user's experience and expertise, and must not be based on information in this material.

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It is the responsibility of the user to insure that proper training of operators has been performed and a safe work environment is provided.

Our company is proud to provide a variety of products to the abrasive blasting industry, and we have confidence that the professionals in our industry will utilize their knowledge and expertise in the safe efficient use of these products.

OWNER'S MANUAL

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1.0 INTRODUCTION

1.1 Scope of Manual

1.1.1 This manual covers the introduction, typical installation and operation of indexing turntable blast and peening cabinets. Illustrations in this manual show the smaller A-200. The layout of larger models are slightly different, operation is typical for all models. Supplemental manuals are included for accessory equipment. Refer to the Table of Contents located at the beginning of the job order instruction binder, for the location of detailed accessory instructions.

1.1.2 Indexing turntable machines are furnished on job orders (custom equipment built around user specifications), therefore this generic manual should not be used for the operation of any A-200 indexing cabinet. illustrations and operation may vary from those shown in this manual. Drawings that are specific to the equipment supplied, such as general arrangement drawings, assembly drawings, electrical drawings, and sequence of operation are included with job order manuals. Refer to the Table of Contents located in the front of the job order instruction binder for the location of custom-accessories.

1.1.3 These instructions also contain important information required for safe operation of the system. Before using this equipment, all personnel involved with the installation, operation and maintenance must read this entire manual, and all accessory manuals to become familiar with the operation, parts and terminology before operating the equipment.

1.2 Safety Alerts

1.2.1 Clemco uses safety alert signal words, based on ANSI Z535.4-1998, to alert the user of a potentially hazardous situation that may be encountered while operating this equipment. ANSI's definitions of the signal words are as follows:

This is the safety alert symbol. It is used to alert the user of this equipment of potential personal injury hazards.
Obey all safety messages that follow this symbol to avoid possible injury or death.

CAUTION

Caution used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in property damage.

⚠ CAUTION

Caution indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

⚠ WARNING

Warning indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

⚠ DANGER

Danger indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

1.3 General Description

1.3.1 Indexing blasting and peening system includes the cabinet enclosure, optional media-add hopper, reclaimer, and dust collector. The primary parts are shown in Figures 1 through 3, and in the general arrangement drawings.

1.3.2 Cabinet Enclosure

1.3.2.1 The abrasive blasting, or peening, takes place in the cabinet enclosure. Multiple satellites are evenly spaced on the indexing turntable. The turntable usually indexes to three (double indexing) or six (single indexing) positions, loading and unloading, blasting, and blow-off.

* **Single Indexing**: Single indexing advances one satellite at a time. This is usually done when the air supply is limited, or warranted by part size and gun locations

* **Double Indexing:** Double indexing blasts or peens two parts at once. The loading and unloading, blasting, and blow-off are done on two satellites at the same time.

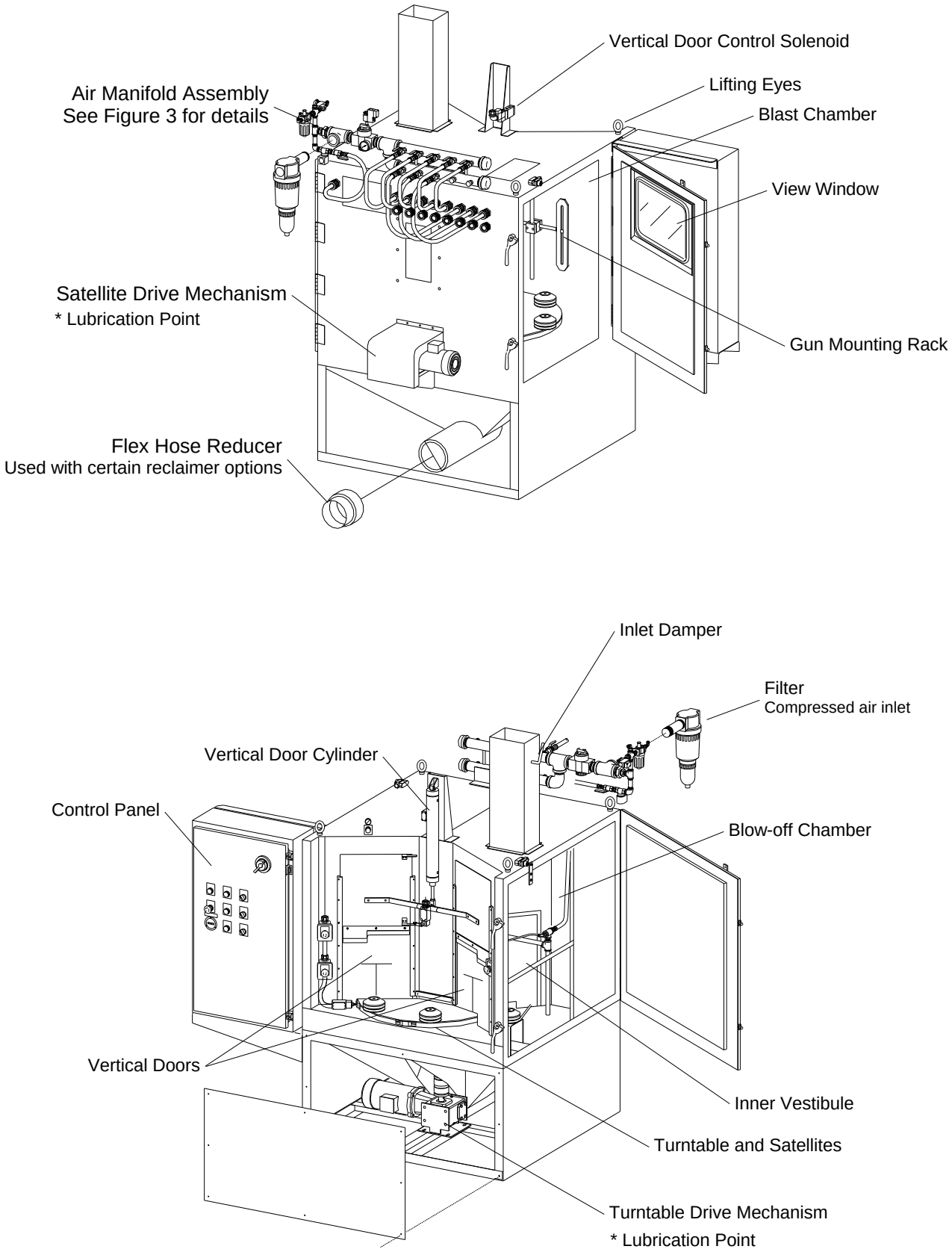
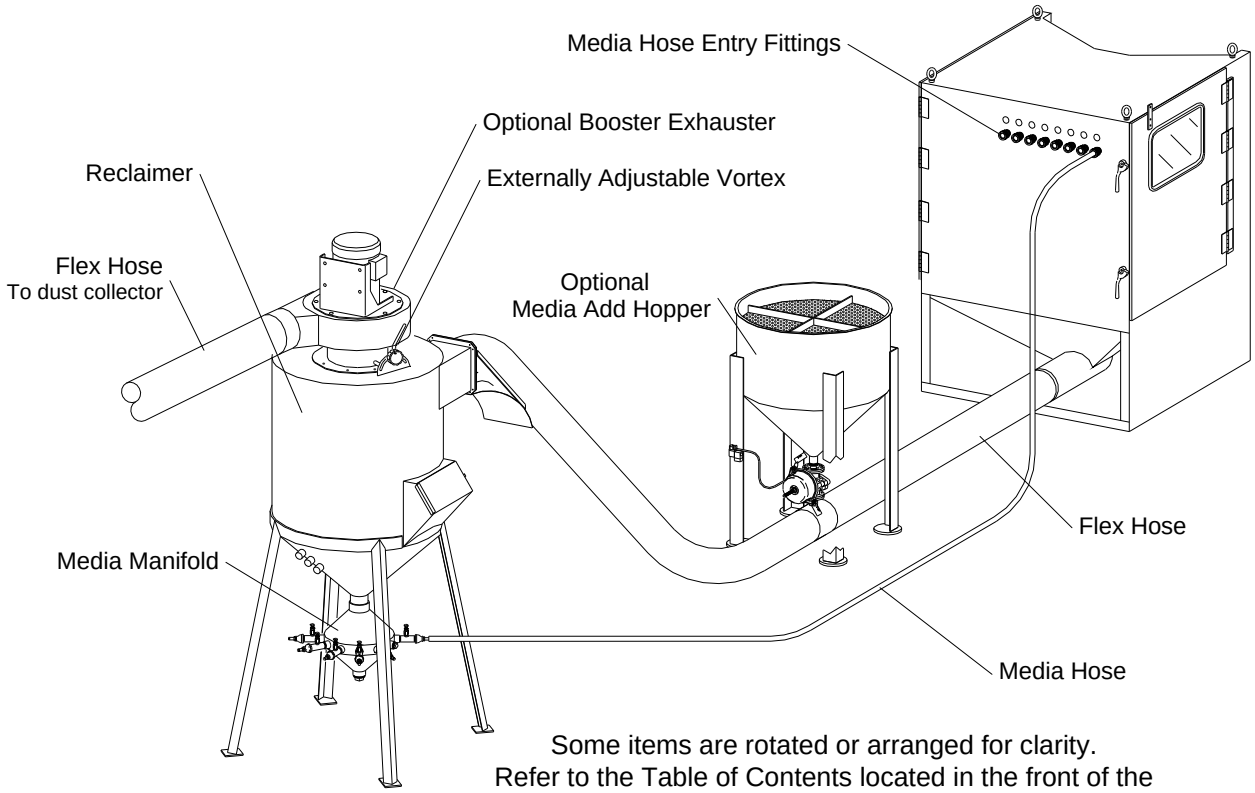

Vertical Door Control Solenoid
Lifting Eyes
Air Manifold Assembly
See Figure 3 for details
Blast Chamber
View Window
Satellite Drive Mechanism
* Lubrication Point
Gun Mounting Rack
Flex Hose Reducer
Used with certain reclaimer options
Inlet Damper
Filter
Compressed air inlet
Vertical Door Cylinder
Control Panel
Blow-off Chamber
Vertical Doors
Inner Vestibule
Turntable and Satellites
Turntable Drive Mechanism
* Lubrication Point

Figure 1



Some items are rotated or arranged for clarity. Refer to the Table of Contents located in the front of the instruction binder, for general arrangement drawings that are specific to the equipment supplied.

Figure 2

1.3.3 Media-Add Hopper (optional accessory) Refer to the Table of Contents located at the beginning of the instruction binder, for the location of the Media -Add instructions.

1.3.3.1 The optional media-add hopper is a media-reserve storage hopper. When correctly placed between the cabinet and reclaimer and wired accordingly, it automatically adds media to the system when the media level and drops below a predetermined level.

1.3.4 Reclaimer

1.3.4.1 Reclaimers are divided into two primary categories, pull-thru or push-thru. Within those categories, the reclaimer is either suction type or pressure type. The operation of the reclaimer is the same for both types. Suction type reclaimers are identified by the conical bottom. Pressure type reclaimers have a flanged, open bottom that bolts to a mating flange on a blast machine. Most A-200 machines are suction types. See Reclaimer Section in the Table of Contents for the location of the reclaimer section, which gives detailed reclaimer information. Use a full rubber lined reclaimer when using silicon carbide, aluminum oxide, or other aggressive media**.**

Pull-thru: Pull-thru reclaimers do not have an exhauster. They are used with powered (exhauster equipped) dust collectors. Pull through reclaimers have an outlet pipe mounted on top of the reclaimer for the attachment of the flex hose or ducting, leading the dust collector inlet. The vacuum for pull-thru system is created by the exhauster assembly mounted on the clean-air side of the dust collector.

Push-thru: Push-thru reclaimers have an exhauster assembly mounted on top of the reclaimer body. They are used with non-powered dust collectors (dry filter), and in certain applications that requires a booster blower.

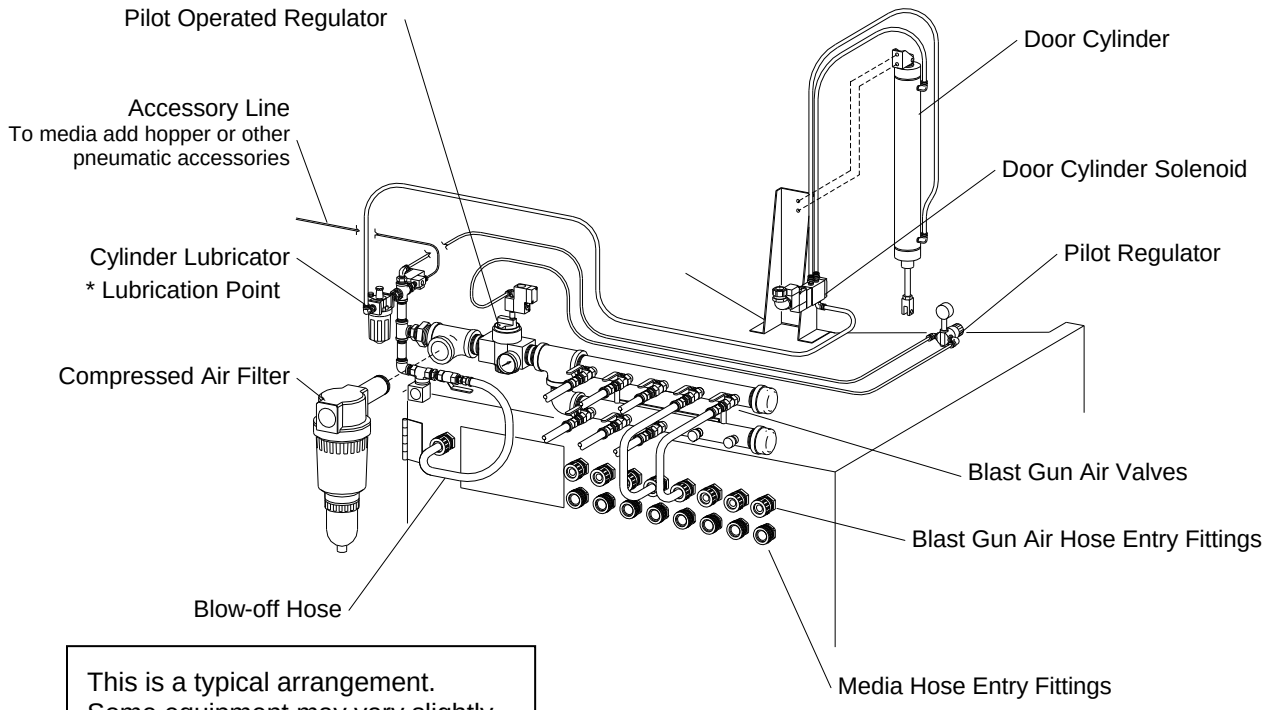


Figure 3

1.3.5 Dust Collector Options

Refer to the Table of Contents located at the beginning of the instruction binder, for the location of the dust collector instructions.

⚠ WARNING

Prolonged exposure to any dust could result in serious lung disease and death. Short-term ingestion of toxic materials, such as lead dust or dust from other heavy metals and corrosives, could cause serious respiratory injury or death. Identify all materials that are to be removed by blasting. Use reverse-pulse dust collectors with HEPA after-filters if lead coating or any other toxic materials are being removed by the blasting process. Do not use dust collectors with simple cloth filters for those applications.

1.3.5.1 Push-thru dry filter, for 900 cfm systems only, uses tubular filters, which trap dust on their inner surfaces. The filters must be manually shaken every two hours and the dust drawer emptied regularly. This type of dust collection must never be used in application in which toxic dust is generated.

1.3.5.2 Pull-thru, reverse-pulse dust collector is the most common and most efficient dust collector option. Cartridge filters are automatically cleaned by a periodic pulse of air. This type of dust collector used with the optional HEPA filter must be used in applications in which toxic dust is generated.

1.3.5.3 Optional HEPA after-filters provide additional filtration, and are available for use with reverse-pulse collector only. HEPA filters must be used when removing lead coatings or any other toxic materials.

2.0 INSTALLATION

Installation Note: Refer to the general arrangement drawings for additional Installation information.

⚠ WARNING

- **When lifting the equipment use the lifting eyes that are provided on each segment. Never hoist the equipment by the legs, handle or piping, or with a sling through anything other than the lifting eyes.**
- **Keep the equipment level and upright when moving and lifting. Use guy-lines to steady the equipment while moving and placement, and to prevent equipment from tipping.**
- **Always use lifting apparatus including, the lifting device, chains or slings, and attachment hardware that are rated higher than the weight of the equipment.**
- **Anyone using material handling apparatus to move, transport, or lift the equipment must be experienced, and able to recognize and avoid hazards associated with handling this type of equipment, and to safely operate the material handling apparatus.**
- **Stay clear of equipment while it is being raised or moved; Do not work under any elevated equipment.**

Failure to observe these warnings could result in serious injury or death.

2.1 Placement

2.1.1 Site selection is critical for efficient operation and service of the system. All segments must be placed on a sound**,** level surface.

2.1.2 General arrangement drawings are provided on custom built equipment. In most cases, the drawings show approximate space required for each segment. Place the cabinet enclosure, reclaimer, dust collector and optional accessories as close as possible to the orientation or as shown on the floor plan of those drawings. Determine the best location for all components, and position all segments before final assembly.

2.1.3 Cabinet Enclosure

2.1.3.1 Position the cabinet to provide ample space around the operator station to load and unload parts. Provide space at access doors to fully open doors without obstructions. Provide unobstructed space at service areas.

2.1.4 Reclaimer

2.1.4.1 Position the reclaimer to provide full access to load and unload media, and to service vortex cylinder and metering valves. For optimum efficiency and the least amount of equipment wear, the reclaimer should be located directly behind, and as close as possible the cabinet enclosure

2.1.4.2 Rotate the reclaimer to enable connection of the inlet flex hose, with as few bends as possible.

2.1.4.3 The adjustable vortex tube and exhauster can be rotated, to align the vortex adjustment handle, and exhauster outlet, to the most efficient positions.

2.1.5 Optional Media-Add Hopper

2.1.5.1 Place the optional media-add hopper between the cabinet enclosure and reclaimer.

2.1.6 Dust Collector

2.1.6.1 Dry Filter Dust Collector, 900 cfm only

Dry filters can be converted to left or right hand inlet. If it is more convenient to have the inlet on the opposite side, switch the inlet adaptor for the blank cover.

2.1.6.2 Reverse-Pulse Dust Collector

A Separate manual is provided for the reverse-pulse dust collector. Refer to the Table of Contents located at the beginning of the instruction binder, for the location of the dust collector manual.

⚠ WARNING

Place the dust collector on a sound, flat, and level surface. Inadequate footing could result in hazardous shifting of the collector and ducting. Anchor the collector to the footing

2.2 Electrical Service

⚠ WARNING

Lock out and tag out the electrical supply before performing any electrical service. Shorting electrical components could result in serious electrical shocks, or equipment damage. All electrical work, or any work done inside an electrical panel, must be performed by qualified electricians, and comply with applicable codes.

2.2.1 Use the wiring schematic for making electrical connections. Refer to the Table of Contents located at the beginning of the instruction binder, for the location of the wiring schematic.

2.3 Pneumatic Service

⚠ WARNING

To avoid the risk of injury from compressed air, install an isolation valve and bleed-off valve where the air supply it tapped into the compressed air system. This enables depressurization of the compressed air circuit before performing maintenance.

⚠ WARNING

Failure to observe the following before connecting the equipment to the compressed air source could cause serious injury or death from the sudden release of compressed air.

- **Lock out and tag out the compressed air supply.**
- **Bleed the compressed air supply line.**

2.3.1 The air filter at the air manifold inlet removes condensed moisture of the compressed air. Its use is especially important in areas of high humidity, or when fine-mesh media are used. Moisture causes media to clot and inhibits free flow through the metering valve. If moisture problems persist, an air dryer may be required.

2.3.2 Refer to the specification sheet, at the front of the binder for the cfm and psi requirements.

2.3.3 Refer to the succeeding table to determine the maximum cfm through schedule 40 pipe. The cfm shown in the table are rounded up to the next whole number. Size the air line accordingly. Do not use any restrictive fittings or adaptors that reduces the ID below the size shown.

Applied Pressure psi	Nominal Standard Pipe Size in Inches			
	1-1/4	1-1/2	2	2-1/2
5	27	40	80	135
10	44	64	125	200
20	75	110	215	350
40	135	200	385	640
60	195	290	560	900
80	255	380	720	1200
100	315	470	900	1450

MAXIMUM CFM FLOW THROUGH SCHEDULE 40 PIPE

2.3.4 Connect an air supply line of adequate size that provides the cfm and psi as noted on the specification sheet, to the manifold inlet, located on the cabinet enclosure. Reduced size air lines or restrictions in the air supply could reduce blasting performance.

2.3.5 A separate air supply line is required for the reverse-pulse dust collector. Some optional accessories may also require an air supply.

2.5 Ground Cabinet

2.5.1 To prevent shocks from static electricity build up, attach an external grounded wire from an earth ground to the grounding lug on the left rear of the cabinet and dust collector leg.

NOTE: The hose wire helps dissipate static electricity in the conveying hose, and also helps ground each segment. In order for the hose wire to dissipate static electricity, the wire must touch the metal of each segment. Clamp the flex hose securely with worm clamps provided.

2.6 Flex Hose Connections

Refer to the General arrangement drawing for hose connections.

2.6.1 To prevent excessive wear all bends and curves should be held to a minimum. It is easier to slip the hose over the adaptor and to create a tighter seal if the first two or three inches of wire is removed from the inside of the hose. Use care not to damage the hose.
NOTE: The hose wire helps dissipate static electricity in the conveying hose, and also helps ground each segment. In order for the hose wire to dissipate static electricity, the wire must touch the metal of each segment. Clamp the flex hose securely with worm clamps provided.

2.6.2 Connect the appropriately sized flex hose between the cabinet hopper adaptor and media-add hopper (when used), or the reclaimer inlet. If a media-add hopper is used connect a second flex hose between the hopper adaptor and reclaimer inlet.

2.6.3 Connect the larger diameter flex hose exhaust hose between the reclaimer outlet and dust collector inlet.

2.7 Ancillary Air Hose Connections

2.7.1 Check air hose connections on blast guns and air manifold for tightness. Vibration during shipment may cause connections to loosen.

2.8 Media Hose Connections

2.8.1 Attach (black) media hoses from the back of the cabinet, to the corresponding numbered metering valves located on the media manifold under the reclaimer.

2.9 Lubricator

2.9.1 Fill lubricator with 10-wt. non-detergent oil. Refer to the lubricator sheet for additional lubricator information.

3.0 PRE-OPERATION SET-UP

Note: In addition to the set-up contained in this section, other pre-operation set-up procedures may required for the specific grouping of equipment supplied. Refer to the Operating Procedures sheet, listed in the Table of Contents, for additional pre-operation set-up information.

⚠ WARNING

Lock out and tag out the electrical supply to control panel before performing any electrical service. Shorting electrical components could result in serious electrical shocks, death or equipment damage. All electrical work, or any work done inside an electrical panel, must be performed by qualified electricians, and comply with applicable codes.

3.1 Rotate the disconnect handle on control panel, from the ON to the OFF position, and open the panel.

3.2 Preset the following electrical controls located inside the control panel.

3.2.1 Set the cycle timer on. This is the time that is required for the processing (blasting) of each part.

3.2.2 Set the table speed. This controls the speed of the turntable as is indexes.

3.2.3 Set the part rotation speed. This controls the speed at which the part rotates during the operation.

NOTE: Changing the values of cycle timer and rotation will achieve the blast process rate required for each part. All settings should be recorded to ensure repeatability during the changeover of multiple part machines.

3.3 Close and secure the control panel. Rotate the disconnect handle from OFF to ON.

3.4 Reestablish electrical power to the control panel.

3.5 Ensure that all blast gun air valves, located on the cabinet air manifold, and ancillary air valves are open. NOTE: some applications may require that some guns remain OFF during the processing of certain parts.

3.6 Make sure that all air line connections are secure.

3.7 Ensure that the dust collector pulse sequencer switch located on the control panel cover on the reverse-pulse dust collector is ON. **NOTE: Do not turn sequencer ON until the cartridges are seasoned. See Dust Collector Section for seasoning procedure.**

3.8 Pressurize all air supply lines. Note the following warning before supplying pressure to the cabinet manifold.

⚠ WARNING

Keep limbs and loose clothing away from vertical, vestibule doors. Failure to do so could result in severe injury from pinching, smashing, abrasion, or severing of limbs. Doors open rapidly as soon as compressed air is supplied to the door cylinders. This will happen whether or not electrical power is supplied. Any interruption in compressed air or electrical service will cause doors to drift closed.

3.9 Set blast pressure per Section 7.2.

4.0 LOAD MEDIA

4.1 With the exhauster off, add clean dry media, by pouring it into the reclaimer hopper through the reclaimer door. Do not fill past the cone on the reclaimer. Do not pour media directly into the cabinet hopper, as overfilling may occur. Overfilling will result in media carryover to the dust collector and possible blockage in the conveying hose. Refill only after all media has been recovered from the cabinet.

4.2 Refer to the specification sheet for the approximate media capacity. The location of the Specification sheet is shown in the Table of Contents at front of the job order manual binder.

4.3 If the system is equipped with a media-add hopper, fill the hopper with new media.

5.0 OPERATION

⚠ WARNING

Shut down the system immediately if dust discharges from any segment. Locate and correct the cause of egress. Prolonged breathing of any dust could result in serious lung disease or death. Short term ingestion of toxic dust such as lead, poses an immediate danger to health. Toxicity and health risk vary with dust generated by blasting. Identify all material being removed by blasting, and obtain a material safety data sheet for the media.

5.1 Optional Lockout Buttons: Ensure that all EMERGENCY STOP buttons are rotated to the unlocked position. NOTE: The EMERGENCY STOP buttons, located on the control panel and/or at the operator station, may be pressed at any time to STOP the machine. When the buttons are pressed, they lock in the off mode, disabling all functions except the lights. Before the machine can be restarted, the buttons must be rotated to unlock.

5.2 Press the EXHAUSTER START button located on control panel. This button starts the exhauster, and enables the control circuitry of the machine. The button illuminates when the exhauster is ON. NOTE: The EMERGENCY STOP button, located on control panel and/or at the operator station, may be pressed at any time to STOP the machine.

5.3 Make sure that all access doors are closed. This enables the secondary control circuitry to the machine. NOTE: If access doors are opened at any time during operation, the secondary circuitry in the control panel automatically shuts down.

5.4 Turn the LIGHTS switch ON when needed.

5.5 Load parts onto the two satellites located at the operator station.

5.6 Rotate the PART ROTATION switch to the ON position. This enables the part rotation drive motor. Part rotation speed is controlled by the speed potentiometer located inside the electrical control panel. The switch illuminates when the switch is enabled.

⚠ WARNING

All speed potentiometers and timers must be preset prior to supplying power to the control panel. Do not open the electrical control panel to adjust the speed potentiometers or timers during the operation of the machine or while power is supplied to the control panel. Any work done inside an electrical panel must be performed by qualified electricians.

5.7 Manual Mode of Operation (Optional)

5.7.1 Provided the vestibule doors are up, the turntable may be indexed, by pressing both TABLE INDEX buttons simultaneously. While indexing, if either TABLE INDEX button is released, the turntable will stop. To restart the turntable, the operator must release both TABLE INDEX buttons and then press them again simultaneously. If palm pressure is maintained on both index buttons, the turntable will index until it reaches the next index position. NOTE: The manual mode of operation can be used to jog the turntable into position during the set-up, prior to operation. The manual mode cannot be used to process parts.

5.8 Media Select Switch (Optional)

5.8.1 This option, when used with related accessories, enables the use of multiple size media.

5.8.2 Rotate the media select switch to point to the size of the media required for the blast operation.

5.9 Rotate the GUNS switch to the ON position. This enables the blast gun solenoid and the hour meter. The switch illuminates in the ON position.

5.10 Automatic Sequence of Operation

5.10.1 The previous steps must be completed before automatic operation is possible.

5.10.2 Press SEQUENCE START button to enable automatic sequence operation. The switch illuminates when the sequence is enabled.

5.10.3 The machine remains idle until both TABLE INDEX buttons are simultaneously pressed and held. The operator must maintain pressure on both TABLE INDEX buttons until the vestibule doors fully close.

5.10.4 Failure to maintain contact with both buttons will interrupt the automatic sequence. If the automatic sequence is interrupted before the turntable reaches the next indexing position, the turntable will stop and the doors will remain open. To reactivate the sequence, the operator must press both buttons until the table is correctly positioned, and the doors fully close.

5.10.5 Once the vestibule doors are fully closed, the operator may release the INDEX buttons. The blast solenoid activates (provided the BLAST GUN switch is ON), and begin the blast cycle. The air blow-off solenoid is also activated. The blast cycle continues until the blast cycle timer times-out. After the timer times-out the vestibule doors automatically open and the table indexes to the next position.

5.10.6 The operator unloads the processed parts, and loads new parts.

5.10.7 To start processing new parts, the operator will again activate the TABLE INDEX push buttons, and the sequence starts over again.

5.10.8 Press the EMERGENCY STOP button, located on the main control panel and/or the operator station, at any time to stop operation.

5.11 Media Low Level Alarm Light Option

5.11.1 With this optional feature, the light illuminates indicating media level in the reclaimer is low, and the media-add hopper is enabled. If the light remains ON, the media-add hopper is empty, and must be refilled.

6.0 SHUT DOWN PROCEDURE

6.1 Allow the cabinet to run about two minutes to recover all media after the last part is removed.

6.2 Press SEQUENCE STOP button to disable the automatic sequence operation.

6.3 Rotate all switches on the main control panel from the ON to the OFF position.

6.4 Press the EMERGENCY STOP button located on the main control panel and/or at the operator station.

6.5 Switch the reverse-pulse sequence switch OFF.

6.6 Remove the electrical supply at the control panel by rotating the disconnect switch to the OFF position.

6.7 Shut-off the compressed air supply and depressurize the air supply lines. See Warning in Section 3.8 prior to removing air pressure from machine.

6.8 Drain all manifolds and filters.

7.0 ADJUSTMENTS

7.1 Gun Alignment

7.1.1 Use the slotted gun brackets and slide mounts to align the guns to obtain full coverage of the part, and with as little overblast as possible. The illustration in Figure 4 shows the axis in which the mounts and brackets may be moved.

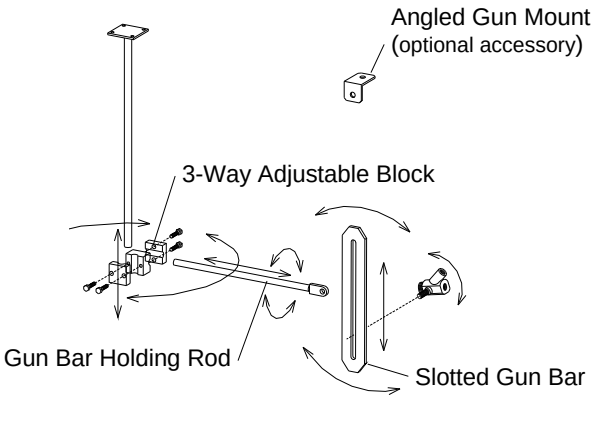


Figure 4

7.1.2 Align each gun separately by shutting off all other guns and processing a part. Adjusting the guns accordingly shows how the blast pattern of each gun is hitting the part. This process will require some "fine

tuning" on sample parts, before processing a production batch.

CAUTION

Avoid directing guns toward any door, door seal, or other guns, as this will cause premature wear on doors and seals, and external wear on gun parts. Close the air supply valve to all guns that are not needed to process the part. Failure to adhere to this caution will cause premature wear on the cabinet panels or parts.

7.2 Blasting Pressure

7.2.1 The pressure pilot regulator located on the front of the cabinet, above the operator station, enables the user to adjust blasting pressure to suit the application. The suitable pressure for most purposes is 80 psi. Lower pressures may be used for delicate work. In all cases, highest production can be achieved only when pressure is carefully monitored.

7.2.2 To adjust, turn the knob clockwise to increase pressure or counter-clockwise to decrease pressure. Pressure will usually drop from closed-line pressure when blasting is started.

7.3 Air Jet Adjustment

7.3.1 The air jet should be screwed into the gun body, leaving 3-1/2 to 4 threads exposed past the lock nut. Tighten the lock nut to hold the jet in place. See Figure 14, Item 21 for optional adjusting tool.

7.4 Media/Air Mixture, Figure 5

7.4.1 As a starting point, screw the adjusting screw into the metering valve stem so the openings equal two complete holes. EXAMPLE (see Figure 5): The lower holes are completely open and the two upper holes are closed.

7.4.2 While blasting, check the media stream through each, clear, metering valve tube. With the correct media/air mixture, media will flow smoothly through the tube.

7.4.3 If pulsation occurs in the media hose, either media is damp and caked, or not enough air is entering the media stream. While blasting, loosen the locking nut and slowly turn the adjusting screw out (counterclockwise when viewed from the top) until the media flows smoothly. Tighten the locking nut finger-tight to maintain the setting.

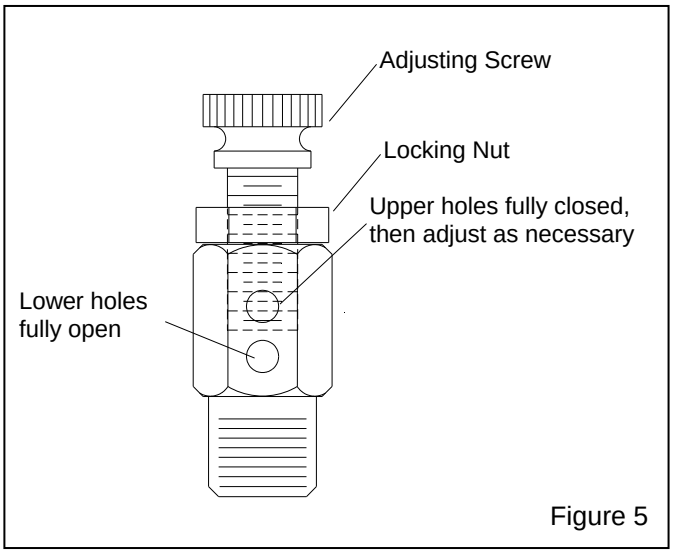


Figure 5

7.4.4 If media flow is too light, decrease air in the mixture by turning the metering screw in (clockwise when viewed from the top) covering more of the holes so less air enters the media hose. Tighten the locking ring finger-tight to maintain the setting.

7.5 Hopper Slide Gate (not used on multiple hopper cabinets.)

7.5.1 Open work doors to allow free air into the cabinet.

7.5.2 Move the slide, located on the inside rear hopper wall, fully up.

7.5.3 Set the reclaimer static pressure to the media used, per Section 7.6. **Do not confuse cabinet static pressure with reclaimer static pressure as noted in Section 7.6, which is controlled by the outlet damper. Reclaimer pressure must be set before cabinet pressure.**

7.5.4 Move the slide plate down until the reading on the manometer begins to increase.

7.5.5 Tighten the slide plate, and close the work doors.

7.5.6 Place end of manometer tubing inside cabinet through vestibule door.

7.5.7 While blasting at the required pressure, adjust the inlet damper, located in the inlet stack on top of the cabinet, to set cabinet static pressure to 1/2" to 1". Do not set above 1" under any circumstance.

7.6 Reclaimer Static Pressure

7.6.1 Correct static pressure varies with size of reclaimer and the size, weight and type of media.

7.6.2 A manometer is useful when adjusting or monitoring static pressure. Manometers are shown in the Reclaimer Section. Refer to the Table of Contents.

7.6.3 The following are static pressure starting points for given media. Static pressure may need to be lower with finer media, higher with coarser media.

Glass Bead No. 8 to 13..... 2-1/2 - 3"
Alox. 60 & coarser..... 4 - 5"
Alox. 80 & finer..... 2-1/2 - 3"
Steel Grit .....6 - 7"

7.6.4 Adjust static pressure by opening (handle horizontal) or closing (handle vertical) the damper. The damper is located on the dust collector inlet on dry filters, and on the outlet of RP Collectors. If the damper is not opened enough, the reclaimer will not remove fines, resulting in dusty media, poor visibility, and possible media blockage in the conveying hose. If the damper is opened too far, it may cause carryover (usable media carried into the dust collector) and result in excessive media consumption. Open only as far as necessary to obtain a balance of dust removal without media carryover.

7.6.5 If the damper has been adjusted and carryover or excessive dust in the media continues, the optional adjustable vortex cylinder may require adjustment per Section 7.7.

7.7.1 Adjustments are made by loosening the handle's locking knob and moving the handle to achieve the correct setting. When the correct setting is established, tighten the locking knob to prevent movement. Start with the lever slightly to the right (about one o'clock) of the vertical position. Before adjusting the vortex cylinder, adjust the damper on the dust collector to increase or decrease reclaimer static pressure per Section 7.6. Once the damper has been adjusted, adjust the cylinder as follows.

7.7.2 To Remove More Fines: (Too much dust in media) Raise the cylinder by moving the lever left toward "COARSE", in 1/4" increments at the indicator plate. Do not adjust again until the media has gone through several cycles, to be certain that further adjustment is required. Also see Section 7.10.

7.7.3 To Remove less Fines: (Excessive usable media is carried to the dust collector) Lower the vortex cylinder by moving the lever right toward "FINE", in 1/4" increments at the indicator plate. Note: If the cylinder is lowered too far, the reclaimer will again begin to allow usable media to be carried over, and cause abnormally high static pressure. Also see Section 7.10.

7.8 Door Interlocks, Figure 6

NOTE: Refer to the Table of Contents for optional Time Delay Door Interlock Instructions.

7.8.1 Close cabinet door.

7.8.2 Loosen the actuator bracket screws and adjusting screw nut. Move the actuator adjusting bracket up or down, and the adjusting screw sideways, to center the adjusting screw on the over-travel stop. Tighten the bracket screws.

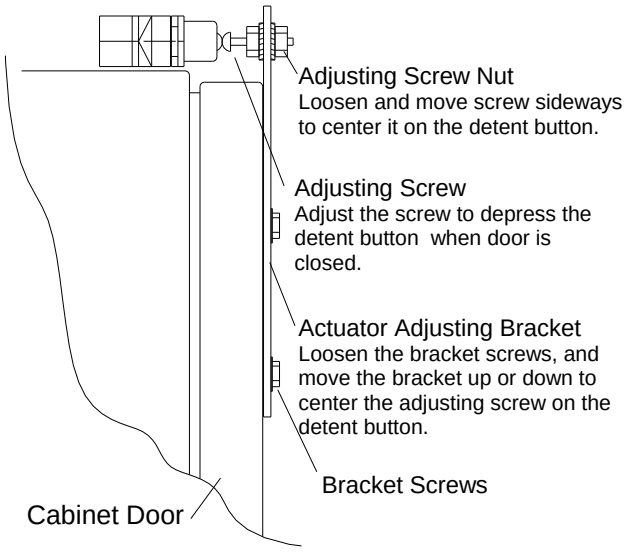


Figure 6

7.8.3 Turn the adjusting screw in or out as required to engage the switch without applying excessive pressure on it. Tighten the adjusting screw nuts.

7.8.4 Test the operation with the doors open and then again closed. The interlocks should prevent blasting when the door is open, and permit blasting when the door is closed. NOTE: Negative pressure inside the cabinet may cause the door to flex inward. Tests should be performed with the exhauster on.

7.9 Vertical Door Speed, Figure 7
(Flow control muffler)

7.9.1 Two flow-control mufflers located on the 4-way air-cylinder solenoid, controls the speed of the vertical doors. One muffler controls the speed of the doors when opening, the other controls the closure.

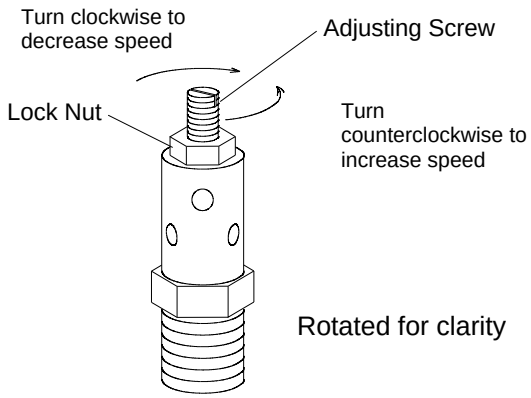


Figure 7

7.9.2 Adjust the speed by loosening the lock nut, and turn the adjusting screw in (Clockwise when viewed from the top), to slow the cylinder, turn the screw out to increase the speed. When the flow is correctly set, tighten the lock nut to maintain the setting.

7.10 Optional Reclaimer Slide Door
Used to remove fines from coarse media.

7.10.1 The slide on the reclaimer door offers additional adjustment for reclaimer separation. Start with the slide completely closed. Before adjusting the slide, adjust the damper on the dust collector to increase or decrease reclaimer static pressure per Section 7.6. After adjusting the slide the damper may need to be readjusted. Once the static pressure is set, adjust the slide as follows.

7.10.2 Fines in Media: If the reclaimer is not removing sufficient quantities of fines, open the slide in 1/32" increments. Do not adjust again until the media has gone through several cycles, to be certain that further adjustment is required.

7.10.3 Media Carryover: If too much usable media is carried to the dust collector, close the slide in 1/32" increments. Do not adjust again until the media has gone through several cycles, to be certain that further adjustment is required.

8.0 PREVENTIVE MAINTENANCE

⚠ WARNING

Failure to wear approved respirators and eye protection when servicing dust-laden areas of the cabinet and dust collector, and when emptying the dust collector could result in serious eye irritation and lung disease or death. Toxicity and health risk vary with type of media and dust generated by blasting. The respirator must be approved for the type of dust generated. Identify all material being removed by blasting, and obtain a material safety data sheet for the blast media.

NOTE: To avoid unscheduled downtime, establish a weekly inspection schedule. Inspect all parts subjected to media contact, including; the gun, nozzle, media hose, flex hose, and wear plate, plus all items covered in this section.

8.1 Cabinet Enclosure

8.1.1 BNP Auto-Gun Assembly

8.1.1.1 Inspect the BNP gun body, air jet, and nozzle weekly for wear.

8.1.2 Hopper Debris Screen (May not be used on multiple hopper cabinets)

8.1.2.1 The screen is accessible through either work door. With the exhauster off, inspect the screen and empty it daily. Empty the screen more often if part blasted causes excessive debris. Do not operate the machine without the screen in place.

8.1.3 Compressed Air Filter

8.1.3.1 A manual drain air filter is located on the air manifold inlet. Drain the filter at least once a day, and more often if water is present. Moist air inhibits the flow of media. If moisture continues to be a problem, a dryer or after cooler may be required in the air supply line.

8.1.4 Media Hose

8.1.4.1 Periodically inspect the media hose for thin spots, by pinching it every 6 to 12 inches. Replace the hose as soon as soft spots are noted. Worn hose could collapse, and restrict media flow.

8.1.5 Gun Alignment

8.1.5.1 Align the guns so the blast spray hits the parts, with as little over-blast as possible. Misaligned guns will accelerate wear on the satellites, other guns, or other parts hit by abrasive.

8.1.6 Satellites

8.1.6.1 Do not run empty satellites through the machine. This will cause excessive wear on the satellites and other parts of the cabinet.

8.2 Dry Filter Dust Collector

8.2.1 The dry filter uses tubular filters which collect dust on their inner surfaces. A shaker arm accessible from the outside of the collector is used to shake dust from the filters. Every two hours, turn off the exhauster and shake the filters vigorously.

CAUTION

Do not shake the filters when the exhauster is on. Doing so will accelerate wear on the filters around the shaker assembly, but will not loosen the dust.

8.2.2 Empty the dust collector twice daily and adjust frequency based on usage and breakdown of media.

⚠ CAUTION

Do not open the dust drawer door while the exhauster is on. The drawer chamber is under positive pressure when the exhauster is on. Opening the dust door while the exhauster is operating or the paddle wheel rotating, will allow dust to escape.

NOTE: Blast media is usually non-toxic, however, some materials removed by the process may be. Check with proper authorities for disposal restrictions.

8.3 Reclaimer

8.3.1 Clean the debris screen daily: To clean, turn the exhauster off, open the media fill door and remove screen. Empty the screen and replace it, making sure it is securely re-attached to the inner cone.. Empty the screen more often if the parts blasted causes excessive debris. Always replace the screen after cleaning.

8.3.2 Check metering valves for obstructions: Check flow through the clear, metering valve tube. Blockage occurs in this area if the debris screen is improperly installed or is detached, when media become damp, or when the metering valve needs adjusting.

8.3.3 Periodically check the reclaimer inlet and outlet pipes, flex hose, and ducting for wear, and replace as required.

8.3.4 Check optional rubber liners. Replace liners when the rubber is worn-through.

9.0 SERVICE MAINTENANCE

⚠ WARNING

Failure to observe the following procedure before performing any maintenance could cause serious injury or death from the sudden release of trapped compressed air.

- **Lock out and tag out the compressed air supply.**
- **Bleed all compressed air supply lines.**

Lock out and tag out the electrical supply before performing any electrical service. Shorting electrical components could result in serious electrical shocks, or equipment damage. All electrical work, or any work done inside an electrical panel, must be performed by qualified electricians, and comply with applicable codes.

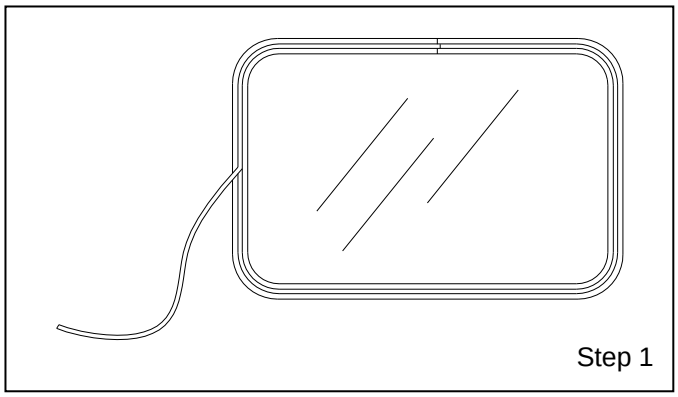
Failure to wear approved respirators and eye protection when servicing dust-laden areas of the cabinet and dust collector, and when emptying the dust collector could result in serious eye irritation and lung disease or death. Toxicity and health risk vary with type of media and dust generated by blasting. The respirator must be approved for the type of dust generated. Identify all material being removed by blasting, and obtain a material safety data sheet for the blast media.

9.1 Nozzles

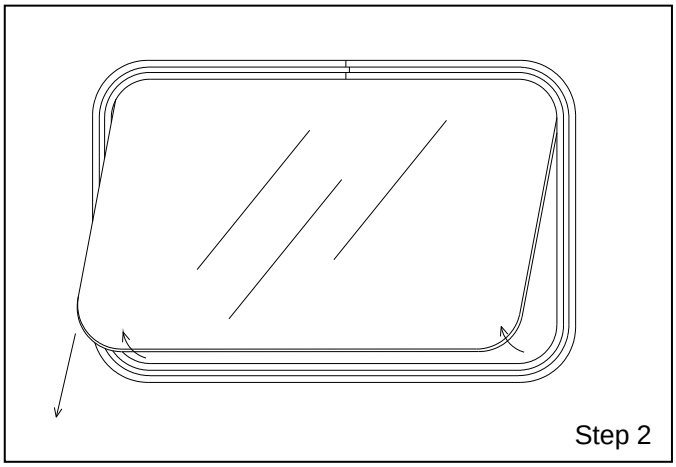
9.1.1 Replace the nozzles when its diameter has increased by 1/16", or sooner if suction diminishes noticeably. To change the nozzle unscrew the nozzle holding nut from the gun end, and pull the existing nozzle from the gun. Inspect the nozzle O-ring and replace if worn or damaged. Insert a new nozzle, placing the short tapered end toward the jet. Screw the nozzle holding nut onto gun.

9.2 Side Window

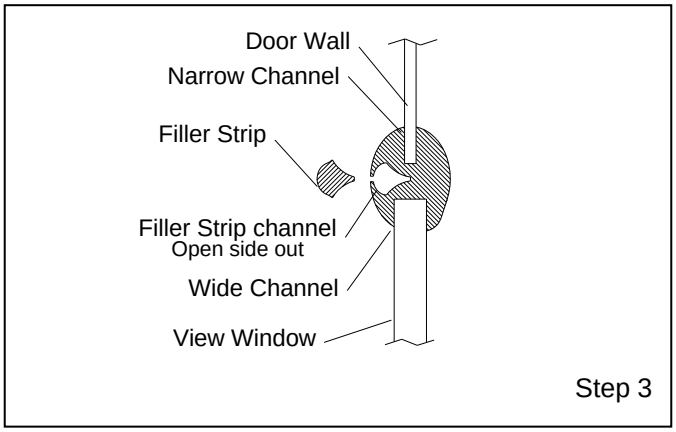
9.2.1 Remove the filler strip by pulling it out of the window molding, as shown in Step 1


Step 1

9.2.2 Open the door. From the inside, push the bottom edge of the window out of the molding, as shown in Step 2, while supporting the top of the window with the other hand. Pull the window downward to remove the window from the molding.

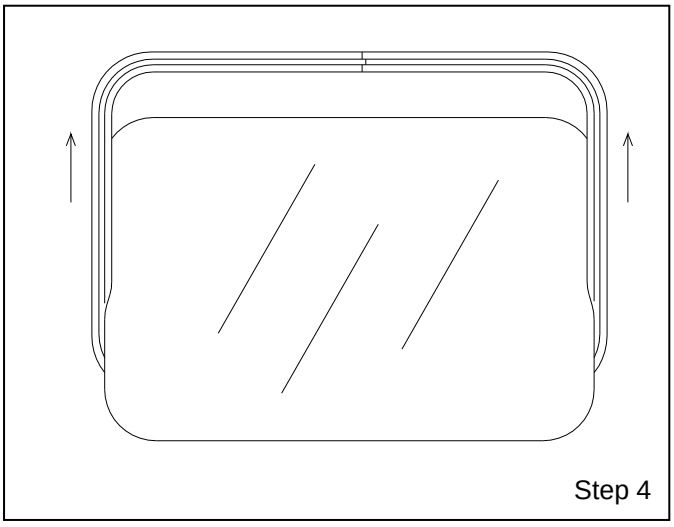

Step 2

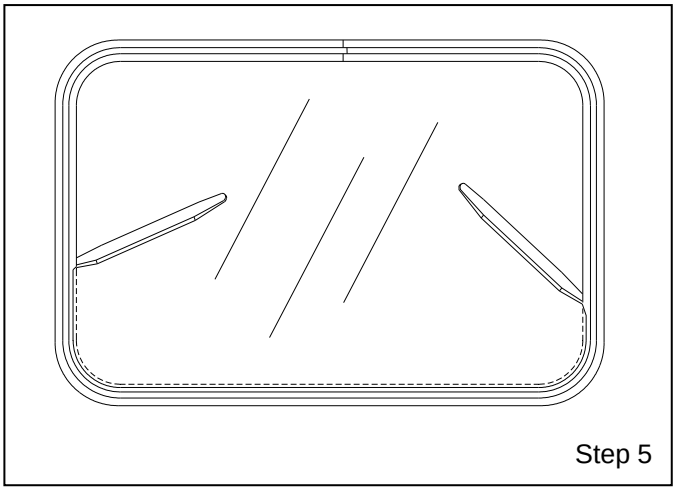
9.2.3 If the window molding needs replacing, replace it in the same order as the old; the narrow channel fits over the metal edge of the opening, as shown in Step 3. The molding ends should meet in the middle of the top, straight section of the opening. Molding should be compressed so the ends are tightly sealed.



Step 3

9.2.4 Spray silicone lubricant into the window channel (wide channel) on the molding, and slide the window into the channel, as shown in Step 4. Support the inside, top edge of the window with one hand, while guiding the top edge into the molding with the other.

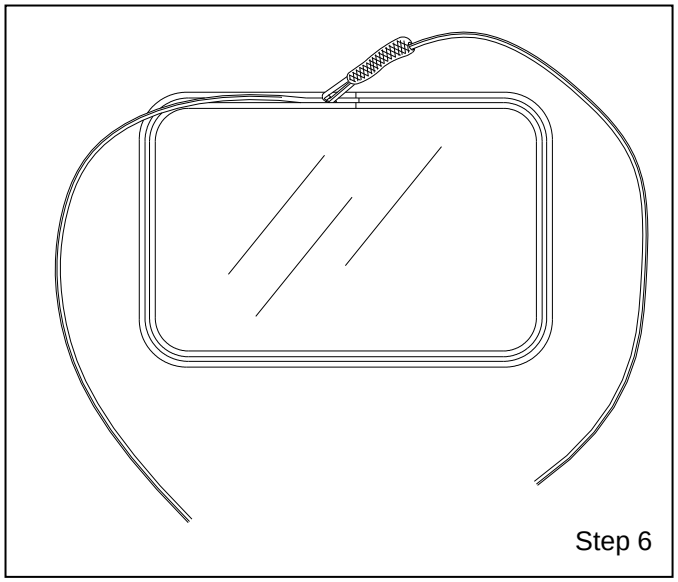

Step 4


Step 5

9.2.5 Use a nylon window stick, Stock No. 22933, as shown in Step 5 and work the window channel lip over the glass. When this is done, the window should be entirely within the molding's window channel.

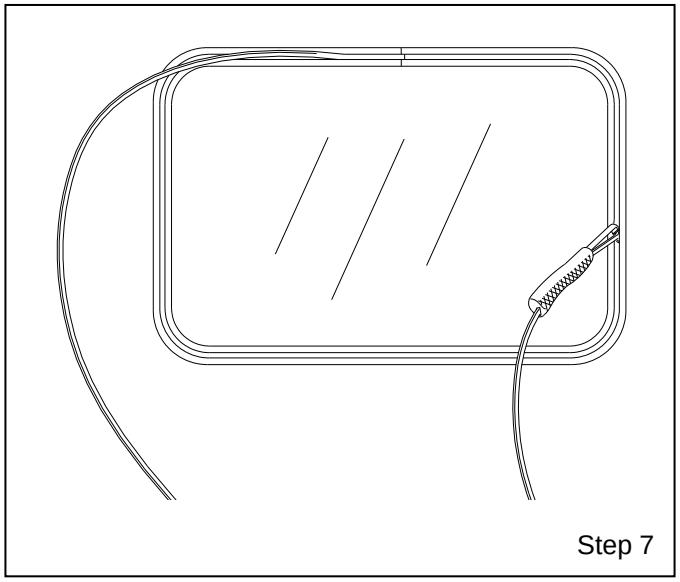
9.2.6 Wipe, or spray the filler strip with silicone lubricant to reduce friction. Thread about half of the strip into the installation tool, Stock No. 12176.

9.2.7 Insert the end of the installation tool and filler strip into the filler strip channel of the molding, about two inches to the left of the window molding ends, as shown in Step 6. The rounded side of the filler strip faces out.



Step 6

9.2.8 Feed the filler strip while pulling the tool through the top of the channel, down the side and across the bottom until that end of the strip is in place. Ref. Step 7.



Step 7

9.2.9. Repeat steps 6 and 7 on the other end of the filler strip. Use the window stick to push the filler strip into the molding at any spot the strip is not fully seated.

9.3 Tube-lock Fittings, Ref. Figure 8

⚠ WARNING

Failure to observe the following procedure before performing any maintenance could cause serious injury or death from the sudden release of trapped compressed air.

* **Lock out and tag out the compressed air supply.**
* **Bleed all compressed air supply lines.**

9.3.1 To release tubing from fittings, push in on the retaining collar while pulling out on the tubing.

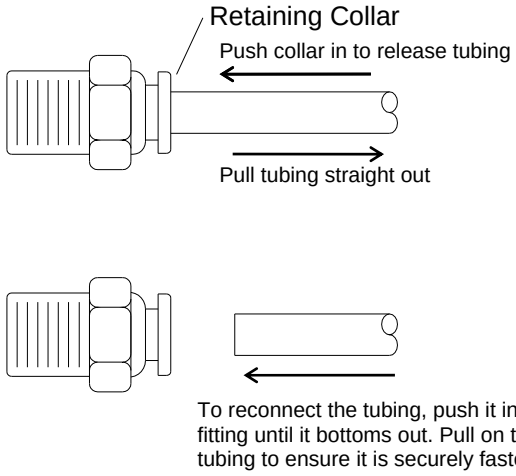


Figure 8

9.3.2 To reconnect the tubing, insert it through the collar and push until it bottoms out in the fitting. Tug on the tubing to ensure it is secured.

9.4 Replacing Urethane Belt

9.4.1 Remove the satellite drive cover and old belting.

9.4.2 Use a 1/2" wide tape measure looped though the belt path to measure the length required. Be sure to thread the tape through the two entry/exit pipes on the back of the cabinet, and around all satellites. Take the measurement, and if new belting is not on hand, add one additional foot when ordering the belt.

9.4.3 Wind the new belt through the path, making sure the belt is looped around each satellite and through the entry/exit pipes.

9.4.4 Pull the belting tight and mark the belt where it would normally be cut, but do not cut the belt at this time.

9.4.5 Remove the belt and measure the distance from the long end to the mark. Squarely-cut the belt 10% shorter than the measured length, or to the length shown below, which ever is longer: NOTE: This method is suggested because some options may increase the belt length.

A-200 Standard cut length is 152 inches.
A-205 Standard cut length is 173.25 inches.

9.4.6 Wind the new belt through the path, making sure the belt is through the entry/exit pipes. Leave the belt off one or two satellites as required to provide slack the enable the joining of the two ends. Splice the ends as follows for hand splicing, or follow the instructions included with the optional splice kit, Ref optional accessories in Section 10.1.

9.4.7 Hand Splicing Belt, using a putty knife and butane torch.

9.4.7.1 Heat the blade of a clean putty knife with a torch. To ease the splicing the knife may be clamped to a close-by angle or other means similar means of holding the knife.

9.4.7.2 Heat the putty knife blade thoroughly enough to melt the ends of the belting. NOTE: Ends must be clean and free of oil, grease, etc.

9.4.7.3 Holding each end of the belt place the ends onto the surface of the heated knife, as shown in Figure 9. Hold the ends to the knife blade until both ends are thoroughly softened, making sure melted material appears around the entire perimeter of both ends.

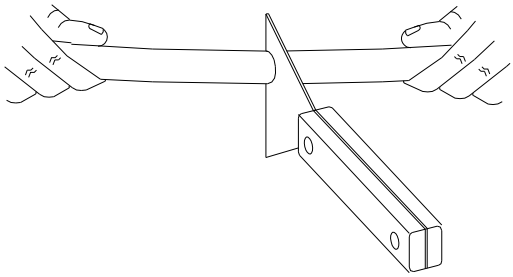


Figure 9

9.4.7.4 Remove the ends from the heated surface and quickly press them together as, shown in Figure 10.

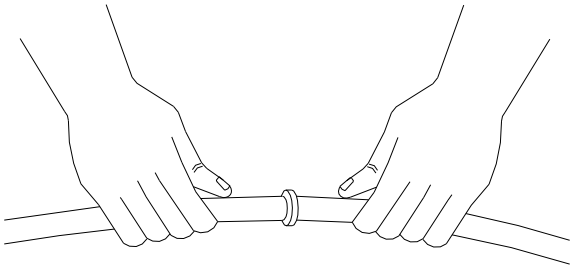


Figure 10

9.4.7.5 Apply pressure on the splice and slide the ends into alignment. Maintain pressure for at least one minute. Pressure and sliding action will expel molten material and trapped air.

9.4.7.6 The splice should remain immobile until thoroughly cooled. Note: If a guide is used to align the belt ends, make sure it is relieved so the splice does not touch the guide.

9.4.7.7 After the splice is cooled, carefully trim the flash with a sharp knife.

9.4.7.8 When the splice is complete, stretch the belting over the satellites.

10.0 REPLACEMENT PARTS

NOTE: Replacement parts shown here are standard parts, and items supplied may differ. **When specific drawings are supplied with this manual, refer to the drawings to ensure correct parts are ordered.**

This parts section list cabinet parts only. Refer to the Table of Contents located at the beginning of the instruction binder for the location of manuals and parts for accessory equipment.

When ordering replacement parts for equipment built and sold on Job Orders, include the job order number, stock number, description, and drawing number. Job order equipment uses custom parts**.**

10.1 Optional Accessories

Item	Description	Stock No.
(-)	Manometer kit	12528
	Nylon window stick	22933
	Window installation tool	12176
	Splice kit, urethane belting	20564

10.2 Media Metering Assemblies, Figure 11

Item	Description	Stock No.
1.	Metering valve assembly, Lexan	12420
2.	Stem, metering adjusting	23097
3.	Screw, adjusting	23098
4.	Nut, adjusting stem lock	23099
5.	Plug, 1" plastic	12011
6.	Manifold, multiple metering valves, 2" inlet for use with up to 6 blast guns	12322
7.	Manifold, multiple metering valves, 3" inlet for use with up to 12 blast guns	16202

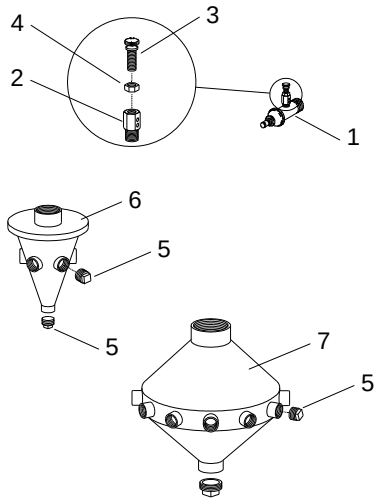


Figure 11

10.3 Gun Mount Assembly, Figure 12

Item	Description	Stock No.
1.	Gun Bar, Slotted	
	6 inch	17211
	12 inch	17210
	18 inch	17209
2.	Holding rod, gun bar	16973
3.	Block, 3-way adjustable	
	1” x 5/8” bore (standard)	11892
	1” x 1” bore	13551
4.	Angle mount, optional	24026

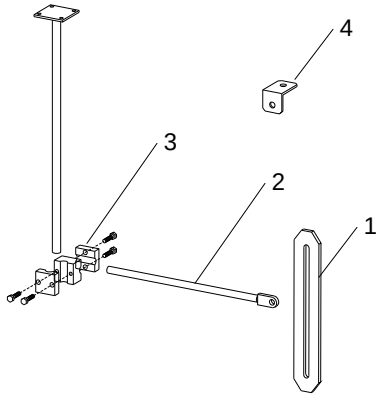


Figure 12

10.4 Tube Lock Fittings and Tubing, Figure 13

Item	Description	Stock No.
1.	Elbow fitting, 90°	
	1/4" NPT x 1/4" tube	11738
	1/4" NPT x 3/8" tube	11685
2.	Straight fitting	
	1/4" NPT x 1/4" tube	11737
	1/4" NPT x 3/8" tube	11736
3.	Tee fitting	
	1/4" NPT x 1/4" tube	11739
4.	Poly tubing, specify feet required	
	1/4" OD	12480
	3/8" OD	12478

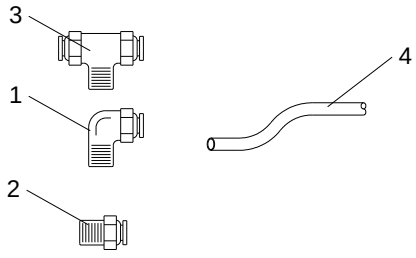


Figure 13

10.5 Auto Blast Gun Assembly, Figure 14

1.1 The air jet should be screwed into the gun body, leaving 3-1/2 to 4 threads exposed past the lock nut. Tighten the lock nut to hold the jet in place. See Item 21 for optional adjusting tool.

NOTE: Highlighted boxes ▪ show the items originally supplied with the cabinet.

Item	Description	Stock No.
1.	Hose, 1/2" media	
	Black	12471
	Clear	12476
2.	Nipple, 1/4" pipe	11911
3.	Bushing, 3/8" x 1/4"	12818
4.	Hose, 1/2" ID air	12472
5.	Hose end, 1/2" female swivel x 1/2" barb	15002
6.	Air jet, auto gun	
	☐ No. 4, 1/8" diameter	11959
	☐ No. 5, 5/32" diameter	11960
	▪ No. 6, 3/16" diameter	11961
	☐ No. 7, 7/32" diameter	11962
	☐ No. 8, 1/4" diameter	11963
7.	Lock nut, jet	11918
8.	O-ring, (used only with standard nozzle)	08975
9.	Nut, brass (for standard nozzle)	11914
10.	Nut, brass urethane covered (for standard nozzle)	11574
11.	Gun housing, center mount with stud	12276
12.	Gun housing, left mount	12275
13.	Gun housing, right mount	12277
14.	Nozzle, standard	
	Ceramic	
	☐ No. 5, 5/16", green tip	11930
	☐ No. 6, 3/8" , blue tip	11931
	☐ No. 7, 7/16", red tip	11932
	Tungsten carbide	
	☐ No. 5, 5/16"	13118
	☐ No. 7, 7/16"	12882
	☐ No. 8, 1/2"	11942
	Boron carbide	
	☐ No. 5, 5/16"	11935
	☐ No. 6, 3/8"	11936
	☐ No. 7, 7/16"	11937
	☐ No. 8, 1/2"	12894

Wide Spray Nozzles and Accessories

15.	Retaining ring	12038
16.	Nozzle	
	Tungsten carbide	
	☐ No. 6, 3/8" wide spray	11947
	Boron carbide	
	▪ No. 6, 3/8" wide spray	11934
	☐ No. 8, 1/2" wide spray	11944
17.	Nut, brass wide spray	11916
18.	Nut, brass urethane covered for wide spray nozzle	12906
19.	Guard, wide spray nozzle	12295

Optional Accessories

20.	Swivel connector, 90°	19188
21.	Orifice adjustment tool	16893
22.	Laser gun-alignment tool	
	for #5 nozzle	24985
	for #6 nozzle	24986

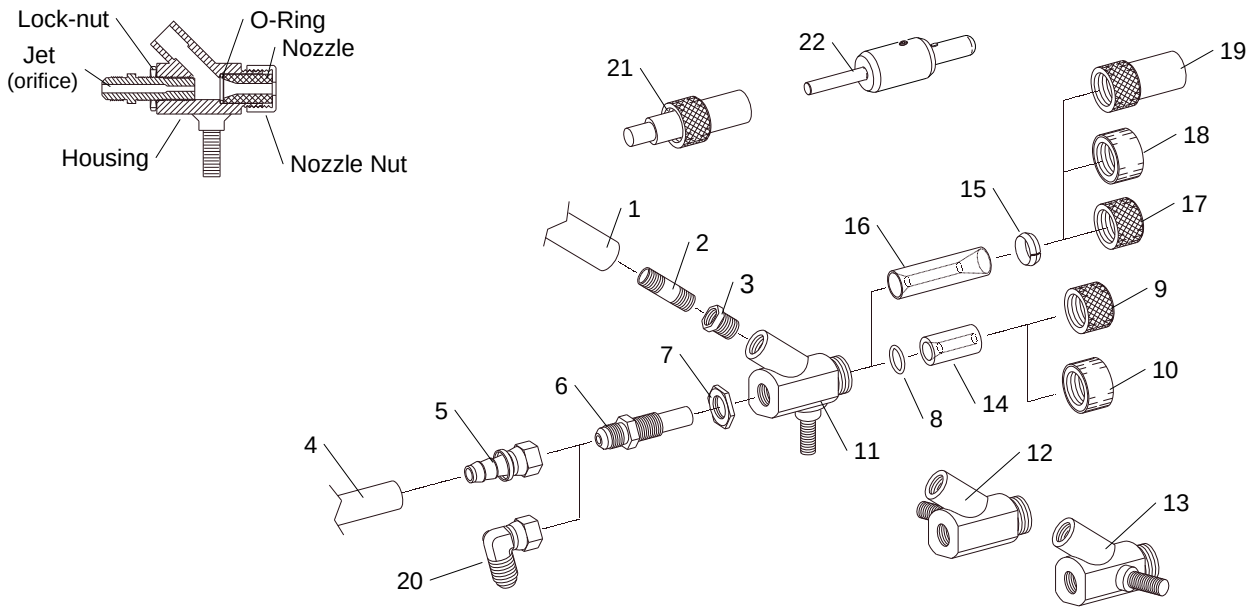


Figure 14

10.6 Cabinet Assembly, Figure 15

Item	Description	Stock No.
1.	Window, 12.5" x 19.5"	12212
2.	Window gasket kit w/ filler strip 6 ft. required	14407
3.	Screen, hopper	18203
4.	Latch, door	11875
5.	Screw, Shoulder, 3/8" x 1-1/4"	13896
6.	Eyebolt, 5/8"	13421
7.	Switch, door interlock	12117
8.	Gasket, adhesive backed, 3/16" x 1" specify feet required	00186
9.	Gasket door, 2-1/2" specify feet required	21236
10.	Intake stack w/ damper	12422
11.	Liner, rubberized sump pipe	11883
12.	Reducer, flex hose connector, specify size of large and small diameter	Spec. order
13.	Fitting, media hose entry	11632
14.	Fitting, air hose entry	11620
15.	Lock nut, entry fittings	11917
16.	Switch, limit w/roller	12137
17.	Door guide, 26", inside	18169
18.	Door guide, 28", outside	18170

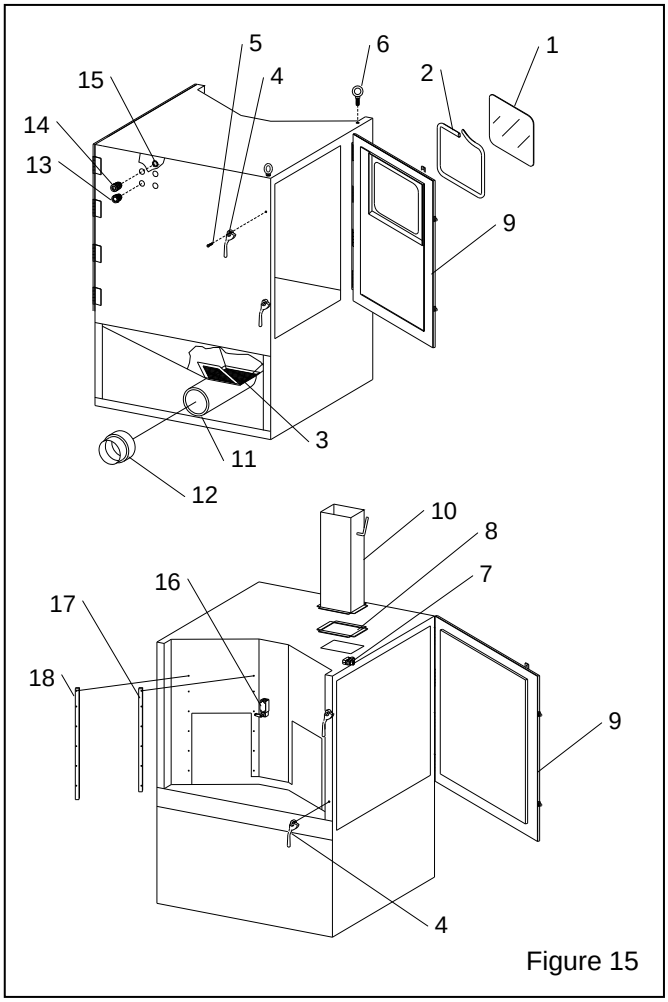


Figure 15

10.7 Satellite Drive Assembly, Figure 16

Item	Description	Stock No.
1.	Satellite assembly	12685
2.	Belt, urethane, bulk, specify feet required 15 feet standard	12433
3.	Sheave	13148
4.	Gear reducer, 50:1	12027
5.	Motor, satellite drive, 1/4 HP, DC	11900
6.	Mount bracket, gear reducer	special order

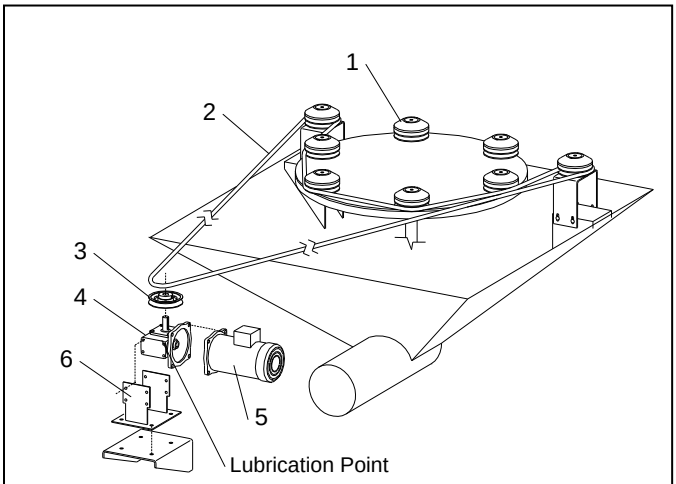


Figure 16

10.8 Satellite Assembly, Figure 17

Item	Description	Stock No.
(-)	Satellite assembly	12685
1.	Screw, 1/4 NC x 1" socket head	13467
2.	Base, satellite	11568
3.	Idler bushing assembly	11560
4.	Sheave	12021

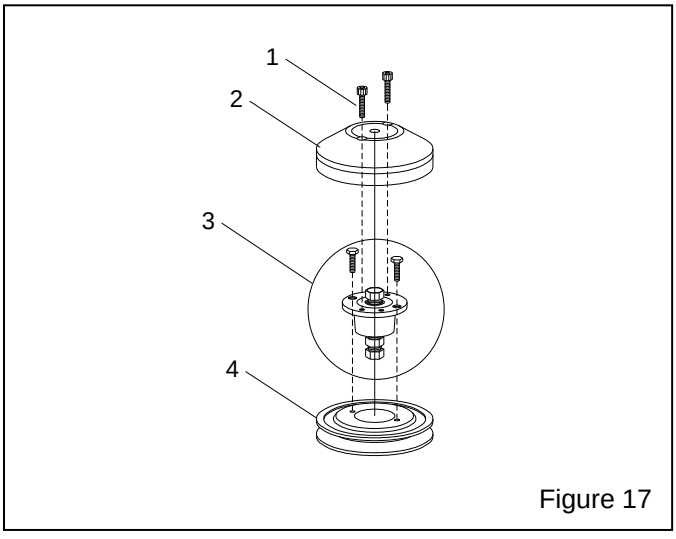


Figure 17

10.9 Turntable Drive Assembly, Figure 18

Item	Description	Stock No.
1.	Gasket, turntable shaft	11787
2.	Bearing, turntable, 1-1/2" bore	11517
3.	Bushing, 1-1/2"	11558
4.	Coupling, sleeve	11603
5.	Bushing, 1-1/8"	11557
6.	Gear reducer, 60:1	13397
7.	Motor, turntable drive, 1/3 HP, DC	11901
8.	Turntable .	special order
9.	Shaft, turntable	special order
10.	Seal plate, turntable	special order
11.	Mount bracket, gear reducer	special order
12.	Switch, limit w/roller	12136
13.	Cam, limit	16556

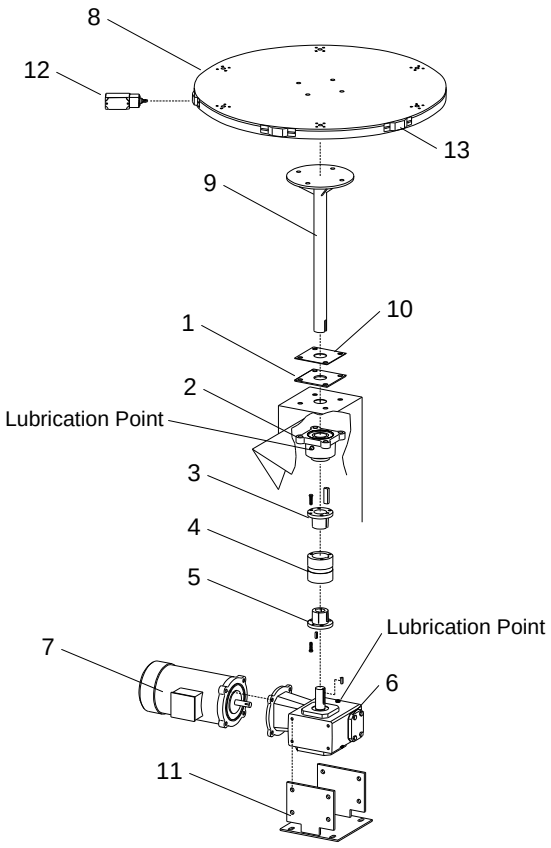


Figure 18

10.10 Compressed Air and Manifold Lay out, Figure 19

Item	Description	Stock No.
1.	Regulator, 1/4" pilot w/ gauge	12050
2.	Gauge, pressure CBM	11829
3.	Solenoid, 1/8" NPT 3-way (pilot regulator and accessories)	20739
4.	Filter, 1-1/2" auto-drain	01282
	2" auto drain	01283
5.	Valve, 3/8" ball w/ handle	12201
6.	Hose end, 1/2" barb x 3/8" male NPT	06369
7.	Hose, 1/2" ID air, specify feet required	12472
8.	Hose end, 1/2" barb x 1/2" female swivel	15002
9.	Adaptor, 3/8" Male NPT x 1/2" Male SAE	11726
10.	Valve, 115 VAC 2-way (blow-off)	12191
11.	Lubricator	12857
12.	Regulator, 1-1/2" pilot operated	12051
13.	Gauge, pressure CBM	11826
14.	Cylinder, air (doors)	11649
15.	Solenoid, 1/4" NPT 4-way, (air cylinder)	12197
16.	Flow control muffler (air cylinder)	11895
*	Tubing and fittings	See 10.4, Fig. 13

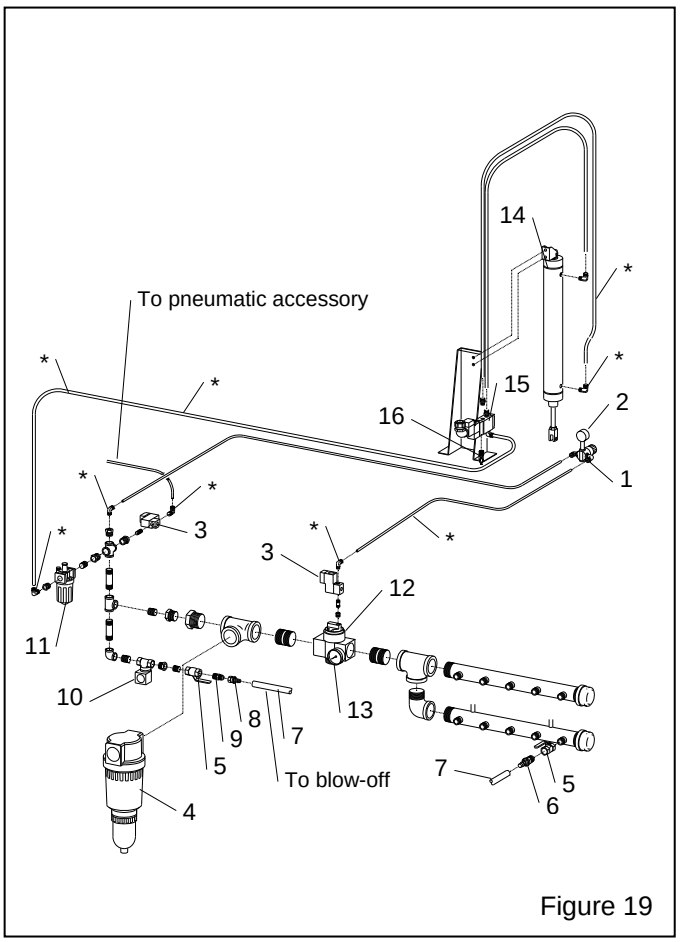


Figure 19

10.11 Blow-off Station, Figure 20

Item	Description	Stock No.
1.	Hose, 1/2" ID air, specify feet required	12472
2.	Hose end, 1/2" barb x 3/8" male NPT	06369
3.	Blow-off pipe, horizontal	11726
4.	Blow-off pipe, vertical	
	two used with 2 station blow-off	
	12-inch long	18161
	15-inch long	18160
5.	Clip, pipe	18392
*	Tubing and fittings	See Section 10.4, Fig. 13

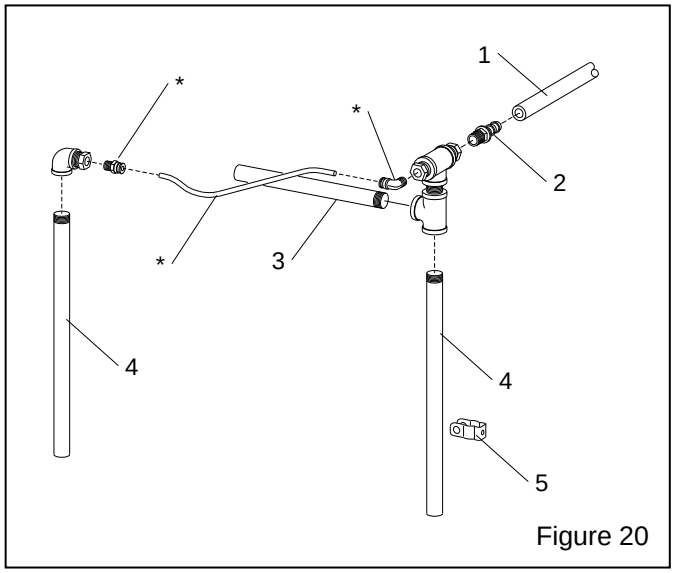


Figure 20

10.12 Light Assembly, Figure 21

Item	Description	Stock No.
(-)	Light assembly	13567
1.	Junction box	11509
2.	Fixture	12845
3.	Globe	11586
4.	Guard, globe	11832

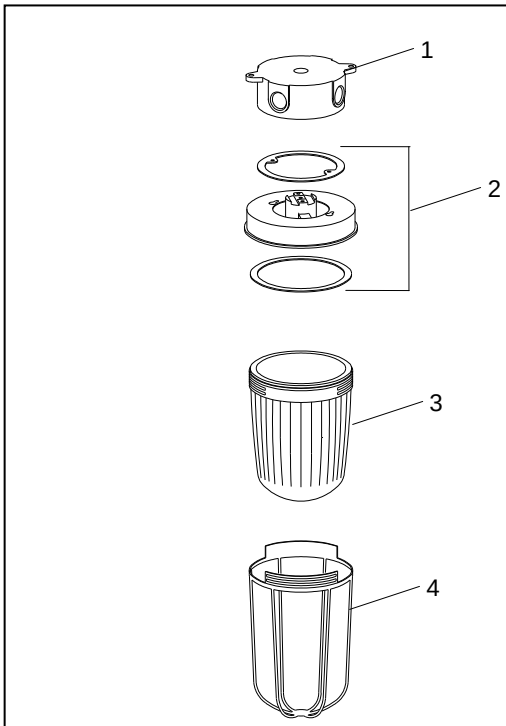


Figure 21

10.13 Flex hose

Item	Description	Stock No.
(-)	Heavy Lined, 6” x 15’	
	Cabinet to Reclaimer	12457
(-)	Unlined lined, 7”, 13 feet required	
	Reclaimer to Dust Collector	12448