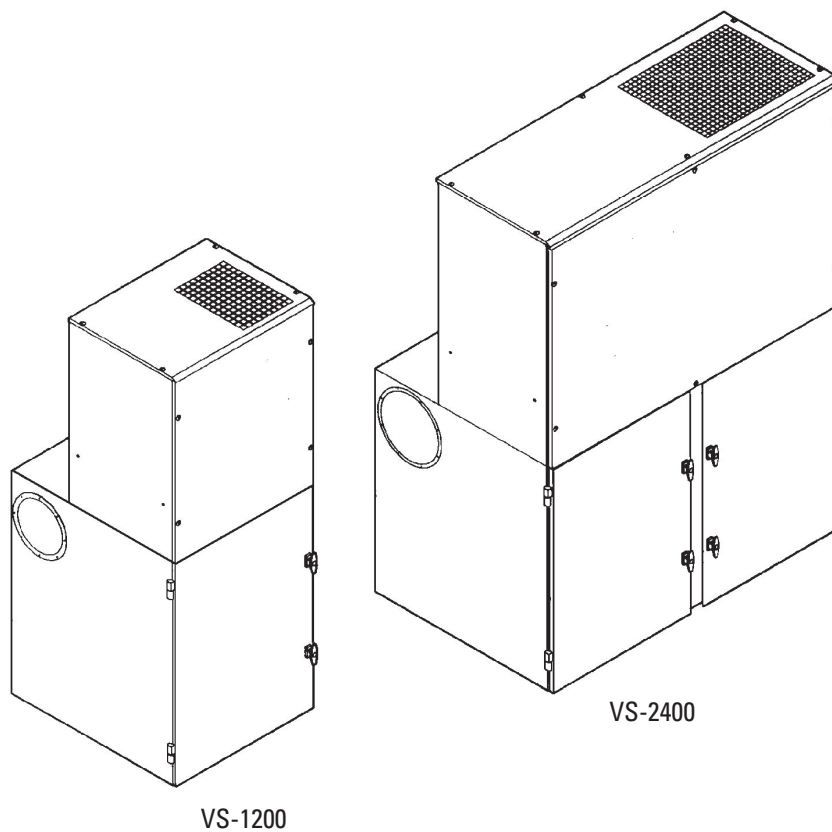


## Vibra-Shake™

VS-550, VS-1200, VS-1500, VS-2400 and VS-3000

### Installation and Operation Manual

Installation, Operation, and Service Information



This manual is property of the owner. Leave with the collector when set-up and start-up are complete. Donaldson Company reserves the right to change design and specifications without prior notice.

Illustrations are for reference only as actual product may vary.



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

 **WARNING**

Process owners/operators have important responsibilities relating to combustible hazards. Process owners/operators must determine whether their process creates combustible dust, fume, or mist. If combustible dust, fume, or mist is generated, process owners/operators should at a minimum:

- Comply with all applicable codes and standards. Among other considerations, current NFPA standards require owners/operators whose processes involve potentially combustible materials to have a current Hazard Analysis, which can serve as the foundation for their process hazard mitigation strategies.
- Prevent all ignition sources from entering any dust collection equipment.
- Design, select, and implement fire and explosion mitigation, suppression, and isolation strategies that are appropriate for the risks associated with their application.
- Develop and implement maintenance work practices to maintain a safe operating environment, ensuring that combustible dust, fume, or mist does not accumulate within the plant.

Donaldson recommends process owners/operators consult with experts to insure each of these responsibilities are met.

As a manufacturer and supplier of Industrial Filtration Products, Donaldson can assist process owners/operators in the selection of filtration technologies. However, process owners/operators retain all responsibility for the suitability of fire and explosion hazard mitigation, suppression, and isolation strategies. Donaldson assumes no responsibility or liability for the suitability of any fire and/or explosion mitigation strategy, or any items incorporated into a collector as part of an owner/operators hazard mitigation strategy.

Improper operation of a dust control system may contribute to conditions in the work area or facility that could result in severe personal injury and product or property damage. Check that all collection equipment is properly selected and sized for the intended use.

**DO NOT** operate this equipment until you have read and understand the instruction warnings in the Installation and Operations Manual. For a replacement manual, contact Donaldson Torit.

This manual contains specific precautionary statements relative to worker safety. Read thoroughly and comply as directed. Discuss the use and application of this equipment with a Donaldson Torit representative. Instruct all personnel on safe use and maintenance procedures.

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**DANGER** indicates a hazardous situation which, if not avoided, will result in death or serious injury.



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



**CAUTION**, used with the safety alert symbol, indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.



**NOTICE** is used to address practices not related to personal injury that may result in damage to equipment.

## Description

The Vibra Shake, Model VS Collectors are high-efficiency, intermittent-duty dust collectors with cartridge-style filters for airflow ranging from 550 to 3,000 cfm. The patented, self-contained collector uses a high frequency, vibration filter cleaning system. A cellulose-based filter cartridge with a nylon mesh pre-filter provides optimum efficiency and ease of maintenance. The nylon mesh pre-filter accumulates a dust cake, and the cartridge acts as a cleanable secondary filter. The Vibra Shake dust collectors standard features include an acoustic-lined blower chamber and automatic filter cleaning.

Designed to increase the versatility of the collector, standard options include a variety of discharge arrangements, dust drawer or hopper-style cabinets, and 5- or 55-gallon dust disposal options.

## Purpose and Intended Use



Misuse or modification may result in severe personal injury and/or property damage.

Do not misuse or modify.

The two-stage filter design makes the VS collector especially effective on fibrous particulate or bimodal dust, which is a mixture of large and small particulate. The VS is for use on negative pressure systems only.

VS collectors are not recommended for applications with very fine, mono-sized nonagglomerative particulate such as welding fume. The filter cartridge will effectively filter the dust, but the high air-to-media ratios will not release the fine particulate from the filter during cleaning.

Typical VS applications include metal working, pharmaceutical, composite and precious metals industries.

## Rating and Specification Information

General rating and specification information can be found in the product literature provided with the collector or available on the Donaldson website. For specific load values for a collector, see the Specification Control Drawing shipped with the collector.



Combustible materials such as buffing lint, paper, wood, metal dusts, weld fume, or flammable coolants or solvents represent potential fire and/or explosion hazards. Use special care when selecting, installing, and operating all dust, fume, or mist collection equipment when such combustible materials may be present in order to protect workers and property from serious injury or damage due to a fire and/or explosion.

Consult and comply with all National and Local Codes related to fire and/or explosion properties of combustible materials when determining the location and operation of all dust, fume, or mist collection equipment.

Standard Donaldson Torit equipment is not equipped with fire extinguishing or explosion protection systems.

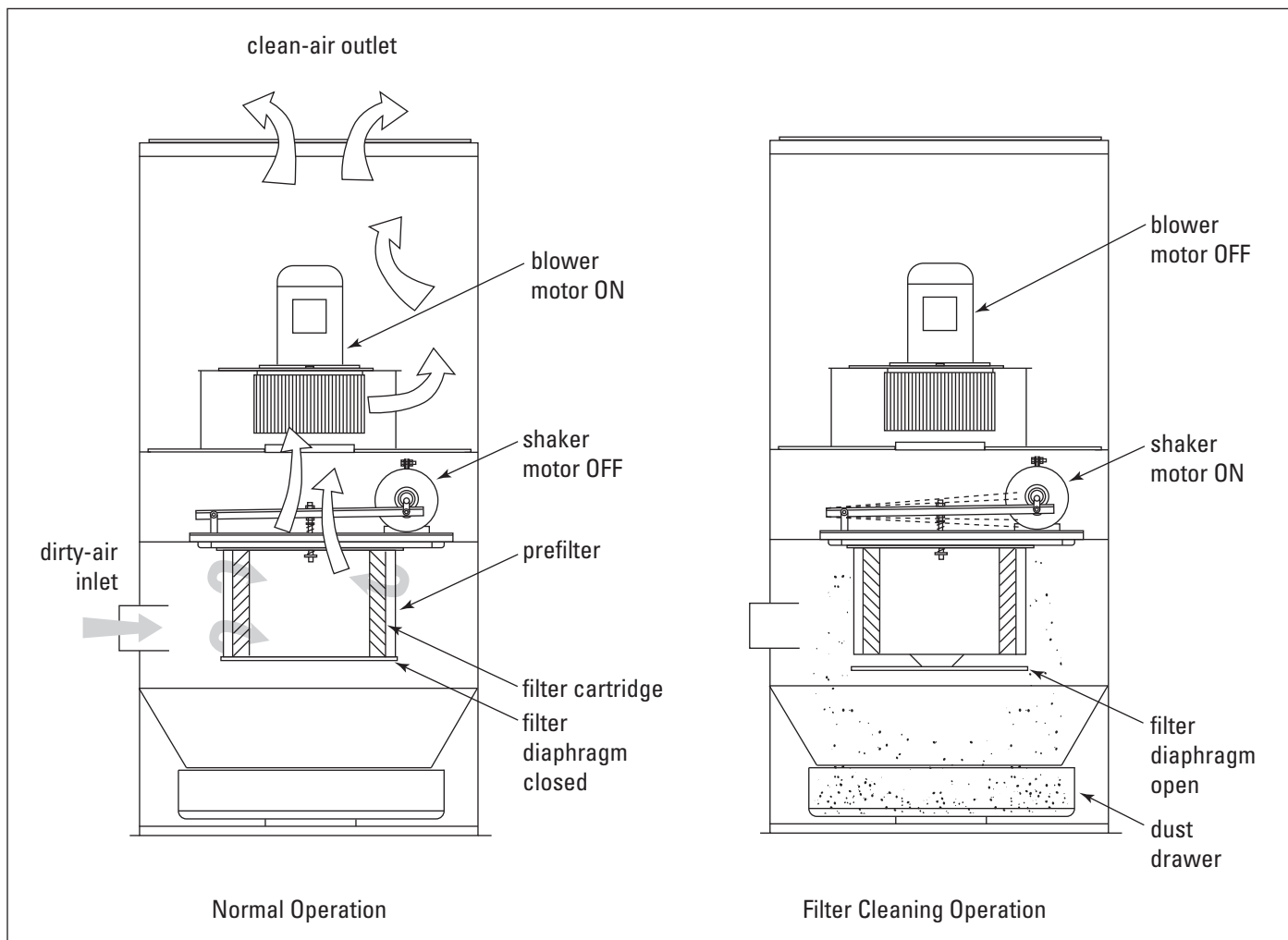
## Operation

Dust enters through the cabinet inlet and passes through a fine mesh pre-filter on the outside of the filter. The pre-filter is spaced 1-in from the filter cartridge and is designed to catch fibrous dust while fine particulate passes through to collect on the outside surfaces of the filter cartridge. Clean, filtered air flows up through the center of the filter cartridge to the blower, through the silencer, and exits through the top clean-air outlet.

Model VS is an intermittent-duty collector, which means that cleaning starts when the fan is turned OFF and the appropriate fan run-down time is complete. The solid-state timer automatically starts the cleaning sequence

60-seconds after the fan is turned OFF for the VS-550, VS-1200, and VS-1500 and 180-seconds for Models VS-2400 and VS-3000. This is the fan run-down time. Power to controls must remain ON to operate cleaning mechanism.

The vibration motor starts and filter cleaning begins for a preset time of 30-, 60- or 90-seconds. A diaphragm at the bottom of the filter cartridge opens when the fan is turned OFF which allows fine dust particles to fall into the dust drawer or optional hopper for disposal.



Collector Operation

## Inspection on Arrival

1. Inspect collector upon delivery.
2. Report any damage to the delivery carrier.
3. Request a written inspection report from the Claims Inspector to substantiate any damage claim.
4. File claims with the delivery carrier.
5. Compare collector received with description of product ordered.
6. Report incomplete shipments to the delivery carrier and your Donaldson Torit representative.
7. Remove crates and shipping straps. Remove loose components and accessory packages before lifting collector from truck.
8. Check for hardware that may have loosened during shipping.
9. Use caution removing temporary covers.

## Installation Codes and Procedures



Codes may regulate recirculating filtered air in your facility. Consult with the appropriate authorities having jurisdiction to ensure compliance with all national and local codes regarding recirculating filtered air.

Safe and efficient operation of the collector depends on proper installation.

Authorities with jurisdiction should be consulted before installing to verify local codes and installation procedures. In the absence of such codes, install collector according to the National Electric Code, NFPA No. 70-latest edition and NFPA 91 (NFPA 654 if combustible dust is present).

A qualified installation and service agent must complete installation and service of this equipment.

All shipping materials, including shipping covers, must be removed from the collector prior to or during collector installation.

### NOTICE

Failure to remove shipping materials from the collector will compromise collector performance.

Inspect collector to ensure all hardware is properly installed and tight prior to operating collector.

## Installation



Use proper equipment and adopt all safety precautions needed for servicing equipment.

Electrical service or maintenance work must be performed by a qualified electrician and comply with all applicable national and local codes.

Turn power off and lock out all power before performing service or maintenance work.

Do not install in classified hazardous atmospheres without an enclosure rated for the application.



Site selection must account for wind, seismic zone, and other load conditions when selecting the location for collectors.

Codes may regulate acceptable locations for installing dust collectors. Consult with the appropriate authorities having jurisdiction to ensure compliance with all national and local codes regarding mist collector installation.

Collectors must be anchored in a manner consistent with local code requirements. Anchors must be sufficient to support dead, live, seismic, and other anticipated loads.

Consult a qualified engineer for final selection of anchorage.

The collector is suitable for either indoor or outdoor installations. Reference the Rating and Specification Information.

## Foundations or Support Framing

Prepare the foundation or support framing in the selected location. Foundation or support framing must comply with local code requirements and may require engineering.

Foundation and support framing must be capable of supporting dead, live, wind, seismic and other applicable loads. Consult a qualified engineer for final selection of foundation or support framing.

## Collector Location

### WARNING

Donaldson Torit equipment is not designed to support site installed ducts, interconnecting piping, or electrical services. All ducts, piping, or electrical services must be adequately supported to prevent severe personal injury and/or property damage.

When hazardous conditions or materials are present, consult with local authorities for the proper location of the collector.

### CAUTION

Dust collection equipment may reach peak sound pressure levels above 80 dB (A). Noise levels should be considered when selecting collector location.

Locate the collector to ensure easy access to electrical connections, to simplify solids collection container handling and routine maintenance, and to ensure the straightest inlet and outlet ducts.

Provide clearance from heat sources and avoid any interference with utilities when selecting the location.

Portable collectors may require special installation accommodations.

## Site Selection

This collector can be located on a foundation or structural framing.

## Rigging Instructions

### Suggested Tools & Equipment

Clevis Pins and Clamps	Lifting Slings
Crane or Forklift	Pipe Sealant
Drift Pins	Pipe Wrenches
Drill and Drill Bits	Screwdrivers
End Wrenches	Socket Wrenches
Adjustable Wrench	Spreader Bars
Torque Wrench (inch/lbs, 9/16-in Socket)	

### Hoisting Information

#### WARNING

Failure to lift the collector correctly can result in severe personal injury or property damage.

Do not lift collector by the door handle.

Use appropriate lifting equipment and adopt all safety precautions needed for moving and handling the equipment.

A crane or forklift is recommended for unloading, assembly, and installation of the collector.

Location must be clear of all obstructions, such as utility lines or roof overhang.

Use all lifting points provided.

Use clevis connectors, not hooks, on lifting slings.

Use spreader bars to prevent damage to collector's casing.

Check the Specification Control drawing for weight and dimensions of the collector and components to ensure adequate crane capacity.

Allow only qualified crane or forklift operators to lift the equipment.

Refer to applicable OSHA regulations and local codes when using cranes, forklifts, and other lifting equipment.

Lift collector and accessories separately and assemble after collector is in place.

Use drift pins to align holes in section flanges during assembly.

## Standard Equipment

### Dust Drawer Collectors

Standard equipment consists of a self-contained collector housing the filters, blower, clean- and dirty-air chambers, and dust drawers. Locate the collector as close to the dust source as possible, except where explosive or flammable material exists.

### Hopper and Leg Installation

#### **WARNING**

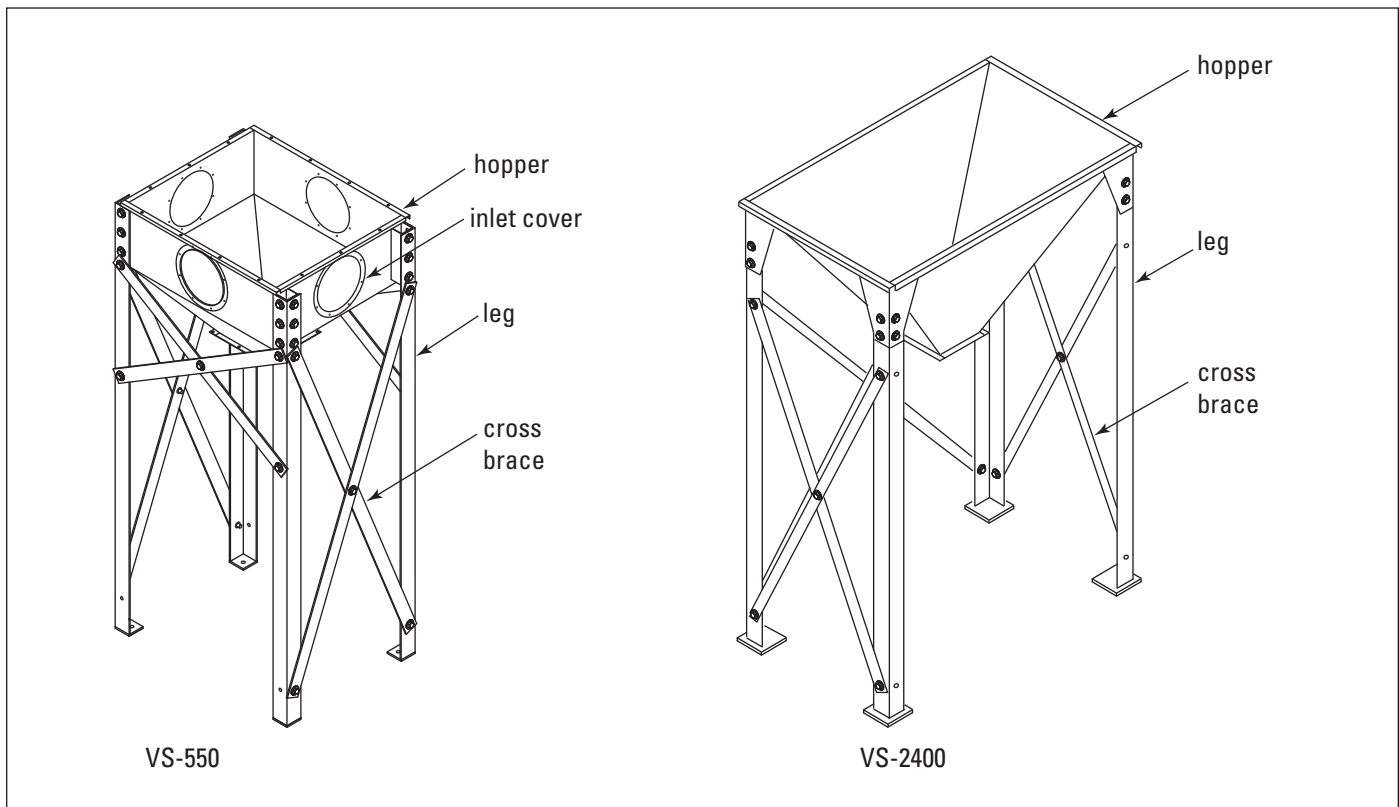
Anchors must comply with local code requirements and must be capable of supporting dead, live, wind, seismic, and other applicable loads.

Anchor sizes shown are provisional, as final anchor sizing will depend on jobsite load conditions, collector location, foundation/framing design variables and local codes.

Consult a qualified engineer for final selection of anchors.

Reference Typical Foundation Anchor and leg assembly drawing shipped with the collector prior to starting assembly.

1. Prepare the foundation or support framing in the selected location. Locate and install anchors.
2. Lift the hopper using a crane.
3. Stand each leg on its pad in position under hopper.
4. Use drift pins to align holes in the hopper with the holes in the legs.
5. Secure legs to hopper using bolts, washers, and nuts provided. Do not tighten hardware at this time. Do not remove crane.



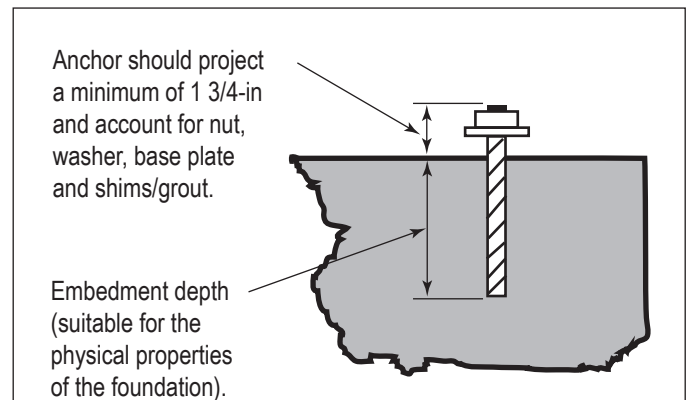
Hopper and Leg Installation



6. Position and bolt the cross brace in place using the hardware provided. Do not tighten hardware.
7. Bolt inside and outside cross braces together where they form a X. Do not tighten hardware.
8. Lift the hopper and leg assembly and lower slowly to the anchor bolts.
9. Level the hopper at the top flange using steel shims if necessary. Secure leg pads to anchor bolts with the appropriate customer-supplied washers and nuts.
10. Tighten all hardware on the legs, cross braces, and anchor bolts. Recheck level and adjust as necessary.
11. Remove crane.

### Provisional Anchor Bolt Recommendations

1. Consider Hilti HIT-HY 200 Anchor System or equivalent. Quantity of anchor bolts should match the number of holes provided in the base plates.
2. Anchor diameter is typically 1/8-in less than baseplate hole diameter.
3. Corrosive environment or outdoor installation may require stainless steel anchors.



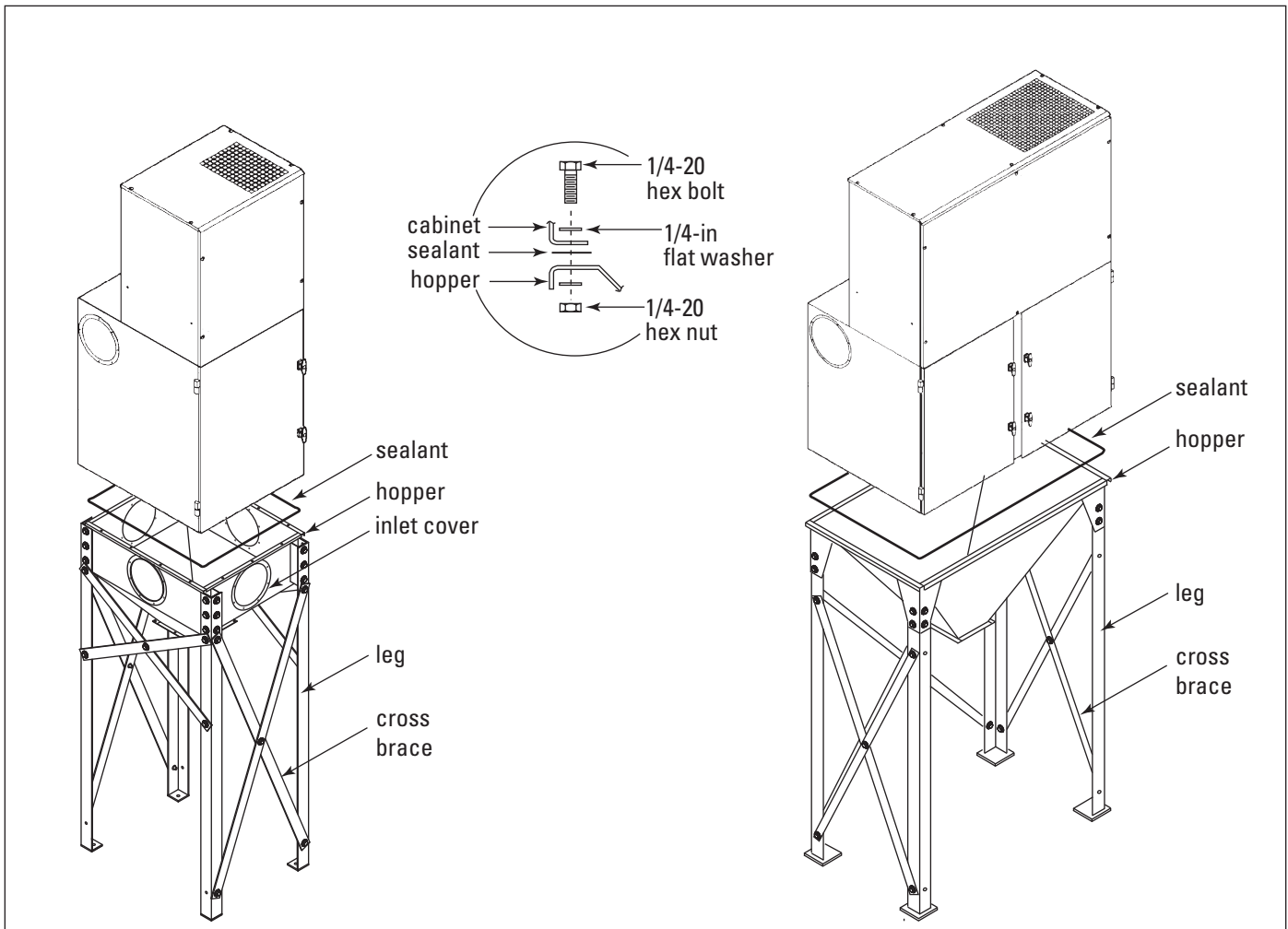
Typical Foundation Anchor

## Cabinet Assembly

1. Place 1/4-in diameter, rope-type sealant around the hopper's top flange toward the outside of the bolt pattern.
2. Lift the cabinet into position over the leg and hopper assembly and lower slowly.
3. Align the holes in the hopper flange with the holes in the cabinet and secure using the hardware supplied.

Note: Access the lifting lugs on VS-2400 and VS-3000 by removing the top cover panel. Lifting lugs are located on the blower support panel.

Note: Inlet collars can be located on any side of the VS-500, -1200, or -1500 hopper by removing the cover plate.



Cabinet Assembly

## Electrical Wiring

### **⚠️ WARNING**

Electrical installation, service, or maintenance work must

be performed by a qualified electrician and comply with all applicable national and local codes.

Turn power off and lock out all power before performing service or maintenance work.

Do not install in classified hazardous atmospheres without an enclosure rated for the application.

All electrical wiring and connections, including electrical grounding, should be made in accordance with the National Electric Code (NFPA No. 70-latest edition).

Check local ordinances for additional requirements that apply.

The appropriate wiring schematic and electrical rating must be used. See collector's rating plate for required voltage.

An electric disconnect switch having adequate amp capacity shall be installed in accordance with Part IX, Article 430 of the National Electrical Code (NFPA No. 70-latest edition). Check collector's rating plate for voltage and amperage ratings.

Refer to the wiring diagram for the number of wires required for main power wiring and remote wiring.

- Using the wiring diagram supplied, wire the customer-supplied disconnect switch and fan starter. Make the connections to the fan motor, and control box. Use appropriate wire gauge for rated amp load as specified by local codes.

- Turn the fan motor ON then OFF to check for proper rotation by referencing the rotation arrow located on the motor's mounting plate.

To reverse rotation, three-phase power supply:  
Switch any two leads on the motor junction box.

### **⚠️ WARNING**

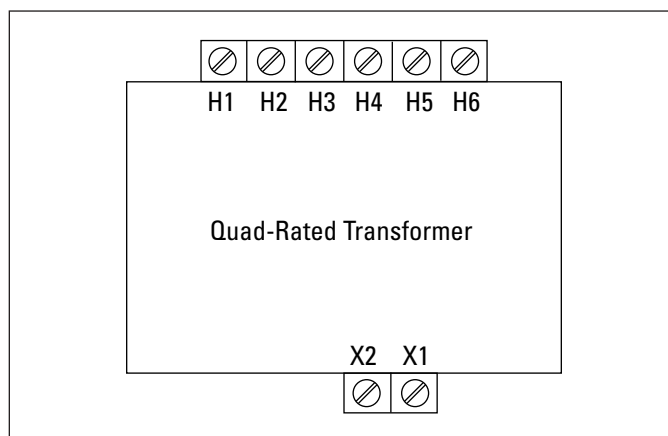
Do not look into fan outlet to determine rotation. View the

fan rotation through the back of the motor.

Check that the exhaust plenum is free of tools or debris before checking blower/fan rotation.

Stand clear of exhaust to avoid personal injury.

Do not interchange a power lead with the ground wire. Severe personal injury and/or property damage may result.

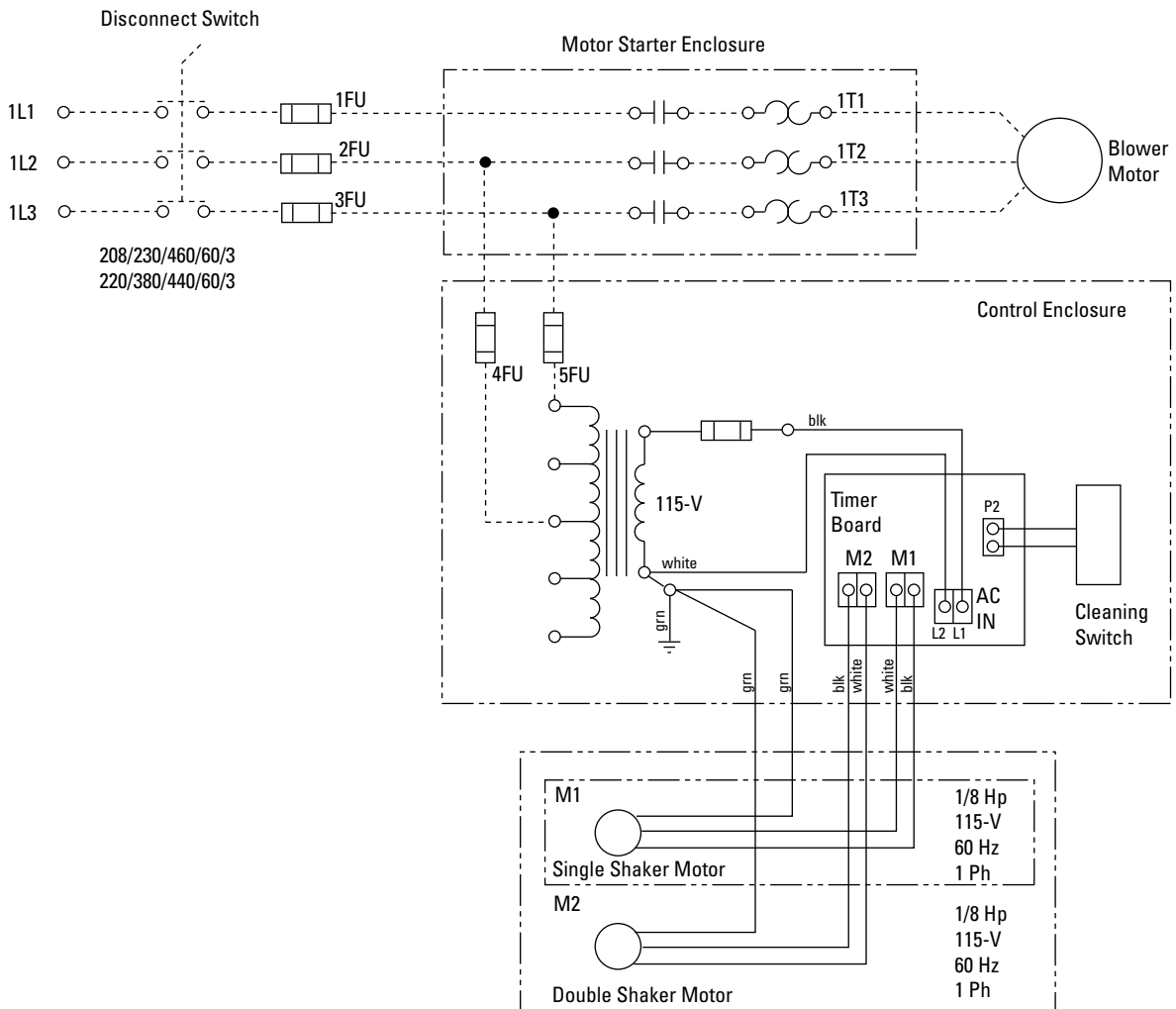


Quad-Rated Transformer

Input Voltage				
H1-H2	H1-H3	H1-H4	H1-H5	H1-H6
200	220	380	440	550
208	230	400	460	575
	240	415	480	600

### Output Voltage

120-Volt Nominal



**Cleaning Operation**

1. Unit shutdown.
2. Rundown time: 60-second, single shaker motor; 180-second, double shaker motor.
3. 60-second cleaning cycle.
4. No time delay on start-up. If start-up is initiated during the cleaning operation, the shaker motor will turn OFF.

**Timer Connection**

- M1 White and black motor leads factory wired, single and double shaker motor.
  - M2 White and black motor leads factory wired, double shaker motor only
  - L1 Black 115-Volt line voltage IN, factory wired.
  - L2 White 115-Volt line voltage IN, factory wired.
- Note: In grounded systems, connect L2 to the transformer's 110-V neutral terminal.
- L3 Factory wired pressure switch.

Typical Wiring Diagram

## Preliminary Start-Up Check

Instruct all personnel on safe use and maintenance procedures.

### **WARNING**

Electrical work during installation, service or maintenance must be performed by a qualified electrician and comply with all applicable national and local codes.

Turn power off and lock out all power before performing service or maintenance work.

Check that the collector is clear and free of all debris before starting.

Do not install in classified hazardous atmospheres without an enclosure rated for the application.

Optional fans over 600 lbs must be independently supported.

1. Check all electrical connections for tightness and contact.
2. Check for proper rotation as noted on the fan and/or hopper discharge device housing.

To reverse rotation, single-phase power supply:  
Follow manufacturer's instructions on the motor's nameplate.

To reverse rotation, three-phase power supply:  
Switch any two leads on the motor junction box.

### **WARNING**

Do not look into fan outlet to determine rotation. View the fan rotation through the back of the motor.

Check that the exhaust plenum is free of tools or debris before checking blower/fan rotation.

Stand clear of exhaust to avoid personal injury.

Do not interchange a power lead with the ground wire. Severe personal injury and/or property damage may result.

3. All access panels should be sealed and secure.
4. Check that the dust container is properly sealed and clamped.
5. Check and remove all loose items in or near the inlet and outlet of the collector.
6. Check that all remote controls are properly wired and all service switches are in the OFF position.
7. Check that all optional accessories are installed properly and secured.
8. Turn power ON at source.
9. Turn fan motor ON.

## Maintenance Information

Instruct all personnel on safe use and maintenance procedures.

### **WARNING**

Use proper equipment and adopt all safety precautions needed for servicing equipment.

Use appropriate access equipment and procedures. Note the standard collector is not equipped with access platforms unless noted on the specification drawings.

Electrical service or maintenance work must be performed by a qualified electrician and comply with all applicable national and local codes.

Turn power off and lock out all power before performing service or maintenance work.

Do not install in classified hazardous atmospheres without an enclosure rated for the application.

## Operational Checklist

1. Monitor the physical condition of the valve and auger and repair or replace any damaged components.

Routine inspections will minimize downtime and maintain optimum system performance. This is particularly important on continuous-duty applications.

2. Monitor pressure drop across filters.

Abnormal changes in pressure drop may indicate a change in operating conditions and possibly a fault to be corrected.

3. Monitor exhaust.
4. Monitor dust disposal.

## Filter Removal and Installation

### **WARNING**

Use proper safety and protective equipment when removing contaminants and filters.

Dirty filters may be heavier than they appear.

Use care when removing filters to avoid personal injury and/or property damage.

Turn power off and lock out all power before performing service or maintenance work.

Do not operate with missing or damaged filters.

## Prefilter Removal

1. Remove the nylon mesh prefilter.
2. Reinstall the prefilter placing the top edge against the upper end cap of the filter cartridge. Stretch the screen for a tight fit and secure using a hook-and-loop fastener.

Note: The prefilter must cover all holes in the perforated liner. Stretch to fit.

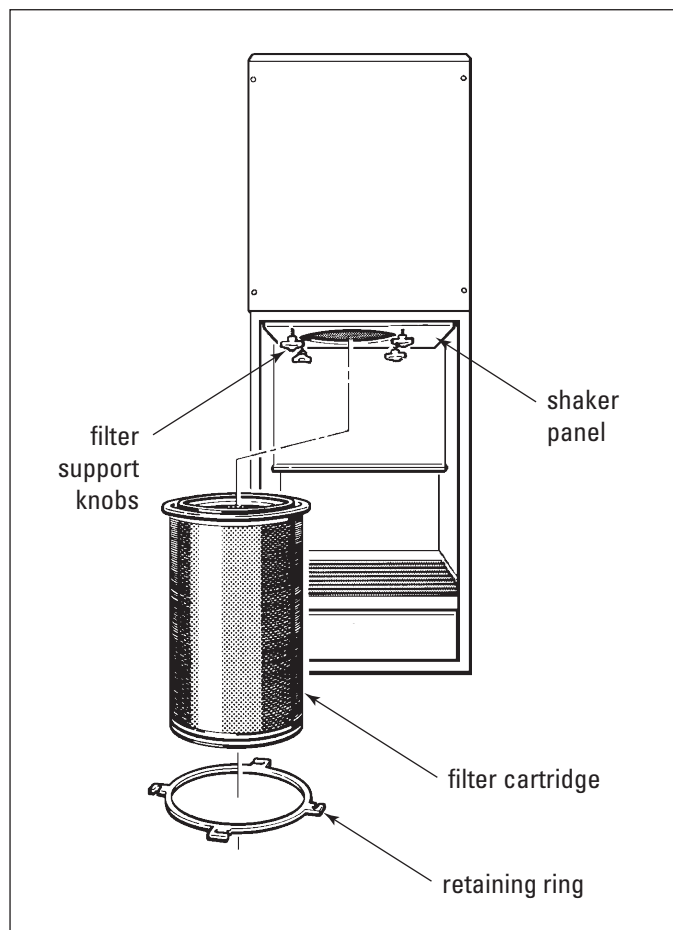
## Filter Removal

1. Disconnect electrical power.
2. Open the bottom access door.
3. Loosen four filter support knobs.
4. Turn the retaining ring counterclockwise to release the ring and filter.
5. Remove the retaining ring and filter and dispose of filter properly.

## Filter Installation

1. Check the gasket surface on the shaker panel and clean as necessary.
2. Install new filter reusing the retaining ring and tighten the four filter support knobs by hand.
3. Check the door gasket for condition and replace as necessary.
4. Close bottom access door and secure latches.

Note: Slight bleed-through on new filters is normal and will disappear as the filter seasons.



Filter Installation

## Dust Disposal

### NOTICE

To avoid possible damage to the fan motor maintain a seal below the collector if servicing the dust storage device while the fan is running.

1. Empty dust container(s) (drum or bin) as necessary to minimize dust in the hopper.
2. If the optional 5-gallon pail pack or 55-gallon drum attachment is used, empty when dust container is 2/3 full.
3. If optional slide gate is used, close gate before servicing dust container.

### WARNING

Sharp edge of slide gate may result in personal injury while closing the slide gate. Keep hands clear when operating the slide gate.

4. Check integrity of gasket under drum cover.
5. Replace or reinstall dust container and open gate (if applicable).

## Optional Equipment

### 55-Gallon Drum Pack

The drum pack is designed to fit a customer-supplied, standard 55-gallon drum and provides easy access for dust removal and disposal. A flexible hose connects the drum cover to the hopper. Placing a pallet under the drum allows heavier materials to be moved quickly using a forklift or pallet jack. If a pallet is used, the length of flexible hose may need to be shortened.



**CAUTION** Sharp edge of slide gate may result in personal injury while closing the slide gate. Keep hands clear when operating the slide gate.

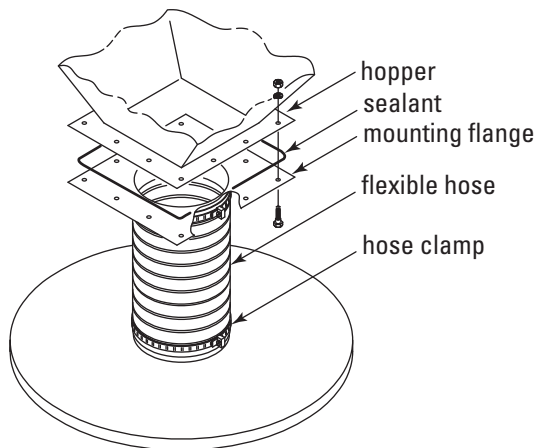
#### With Slide Gate

1. Place the 1/8-in gasket spacer between the hopper flange and slide gate as shown.
2. Attach the drum pack and slide gate to the hopper flange using 3/8-16 bolts, washers, and hex nuts.
3. Attach the drum cover to the 55-gallon drum.

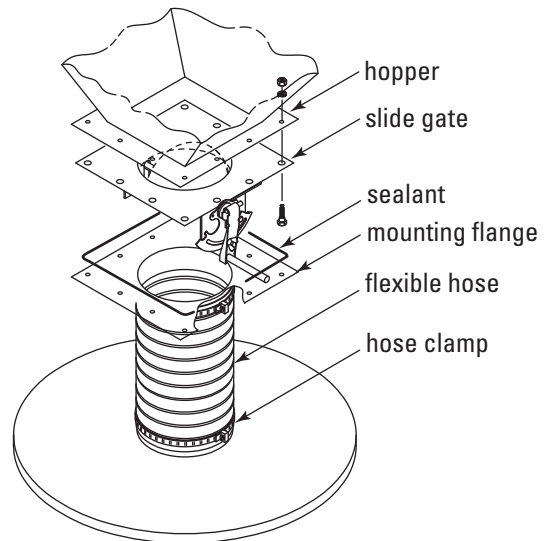
4. Use latches to secure the cover to the drum, if equipped.
5. Connect the flexible hose between the drum cover and slide gate. Secure with hose clamps.

#### Without Slide Gate

1. Place 1/4-in diameter rope-type sealant between the hopper flange and the drum cover mounting flange toward the inside edge of the bolt pattern.
2. Fasten using the bolts, washers, and nuts supplied.
3. Attach the drum cover to the 55-gallon drum.
4. Use latches to secure the cover to the drum, if equipped.
5. Connect the flexible hose between the drum cover and the adapter. Secure with hose clamps.



Drum Cover Assembly



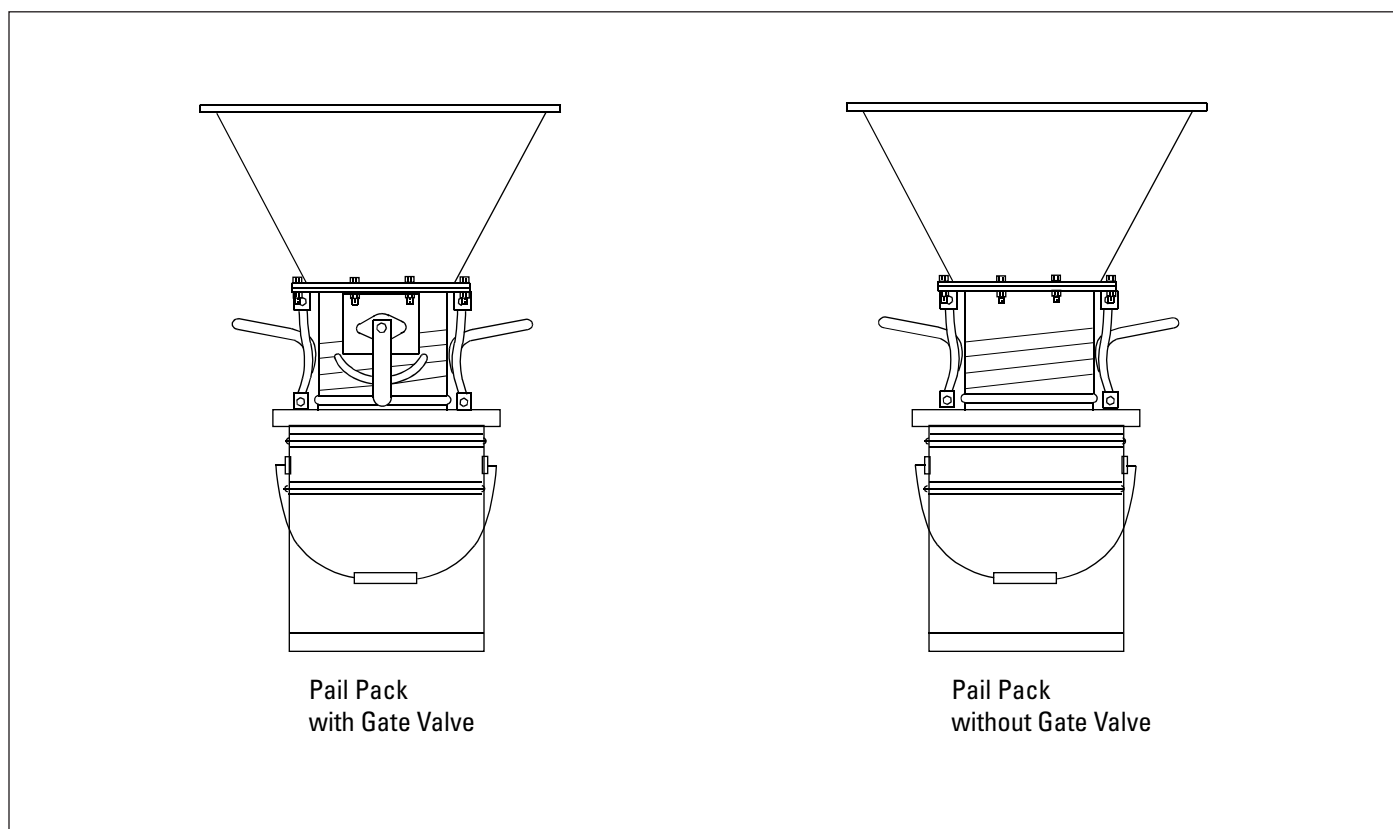
Drum Cover with Slide Gate Assembly

55-Gallon Drum Pack with and without Slide Gate



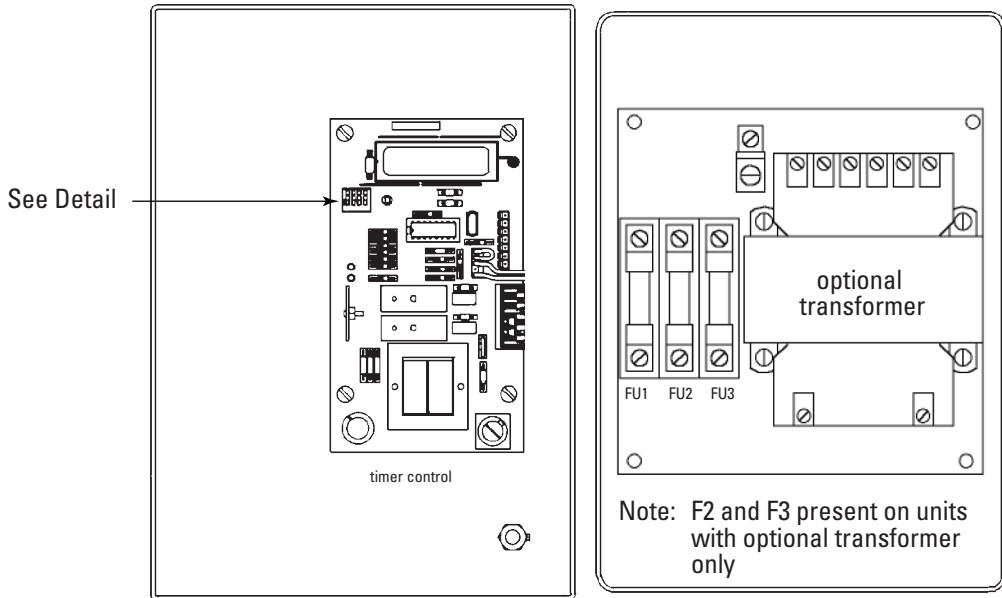
## 5-Gallon Pail Pack

1. Apply sealant to the hopper flange or the pail cover mounting plate flange toward the inside edge of the bolt pattern.
2. Fasten the pail pack to the hopper using the bolts, washers, and nuts supplied.
3. Place pail beneath seater mechanism.
4. Tighten clamps on either side by pulling down.

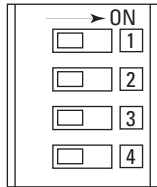


5-Gallon Pail Pack with and without Slide Gate

**Control Box**

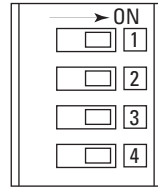


Control Box Assembly



- 1 180-sec wait
- 2 30-sec clean
- 3 60-sec time
- 4 90-sec

Single VS-550, 1200, and 1500  
 Switches preset to OFF position.  
 Default set to 60-sec wait, 60-sec clean.

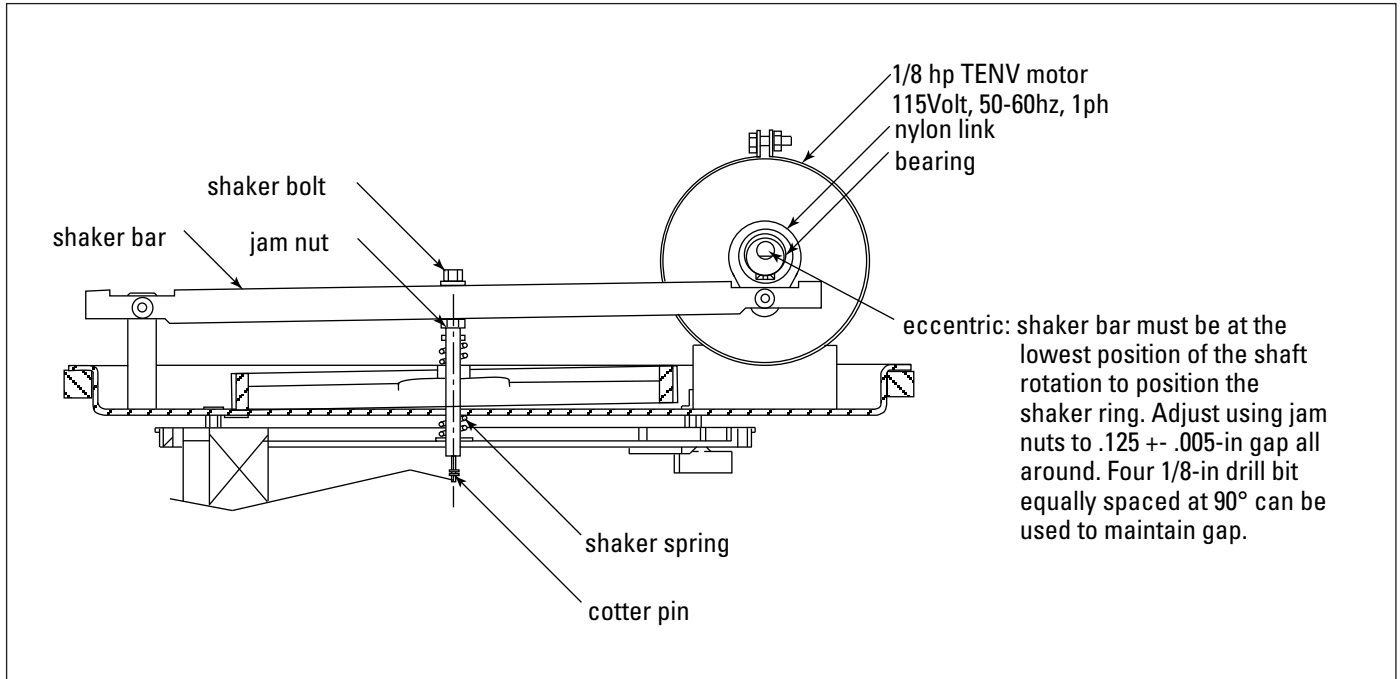


- 1 180-sec wait
- 2 30-sec clean
- 3 60-sec time
- 4 90-sec

Double VS-2400 and 3000  
 Switch 1 to ON position.  
 Set to 180-sec wait, default 60-sec clean.

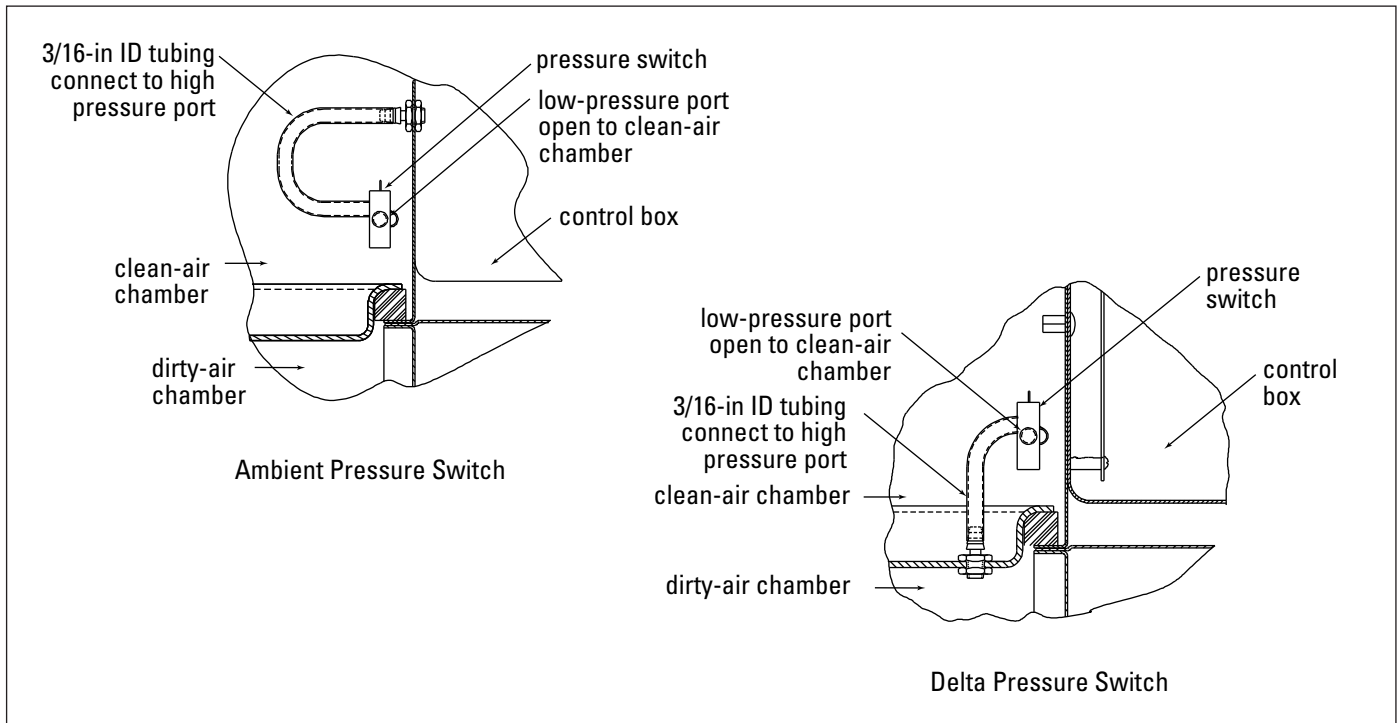
Control Box Assembly

### Shaker Assembly



Single and Double Shaker Assembly

### Pressure Switch Connection



Pressure Switch Connection

## Troubleshooting

Problem	Probable Cause	Remedy
<b>Fan blower and motor do not start</b>	Improper motor wire size	Rewire using the correct wire gauge as specified by national and local codes.
	Not wired correctly	Check and correct motor wiring for supply voltage. See motor manufacturer's wiring diagram. Follow wiring diagram and the National Electric Code.
	Collector not wired for available voltage	Correct wiring for proper supply voltage.
	Input circuit down	Check power supply to motor circuit on all leads.
	Electrical supply circuit down	Check power supply circuit for proper voltage. Check for fuse or circuit breaker fault. Replace as necessary.
	Damaged motor	Replace damaged motor.
<b>Fan blower and motor start, but do not stay running</b>	Incorrect motor starter installed	Check for proper motor starter and replace if necessary.
	Access doors are open or not closed tight	Close and tighten access doors. See Filter Installation.
	Hopper discharge open	Check that dust container is installed and properly sealed.
	Damper control not adjusted properly	Check airflow in duct. Adjust damper control until proper airflow is achieved and the blower motor's amp draw is within the manufacturer's rated amps.
	Electrical circuit overload	Check that the power supply circuit has sufficient power to run all equipment.
	Inlet too large	Contact Donaldson Torit for assistance.
<b>Clean-air outlet discharging dust</b>	Filters not installed correctly	See Filter Installation.
	Filter damage, dents in the end caps, gasket damage, or holes in media	Replace filters as necessary. Use only genuine Donaldson replacement parts. See Filter Installation.

Problem	Probable Cause	Remedy
<b>Insufficient airflow</b>	Fan rotation backwards	Proper fan rotation is clockwise when viewed from the motor side or counterclockwise when viewed through the inlet cone. See Preliminary Start-Up Check.
	Access doors open or not closed tight	Check that all access doors are in place and secured. Check that the hopper discharge opening is sealed and that dust container is installed correctly.
	Fan exhaust area restricted	Check fan exhaust area for obstructions. Remove material or debris. Adjust damper flow control.
	Filters need replacement	Remove and replace using genuine Donaldson replacement filters. See Filter Removal and Installation.
	Collapsed or obstructed ductwork	Remove and clean duct. Replace collapsed duct.
	Improper duct size or too much flexible duct	Contact Donaldson Torit for assistance.
	Collapsed or obstructed ductwork	Remove and clean duct. Replace collapsed duct.
	Improper duct size or too much flexible duct	Contact Donaldson Torit for assistance.
	Dust storage area overfilled or plugged	Clean out dust storage area. See Dust Disposal.
	Nylon mesh prefilter plugged or not in place	Remove the nylon mesh filter. See Filter Removal and Installation.
	Shaker ring not gapped correctly	Check and reset the shaker ring gap. See Shaker Assembly illustration.
	Shaker arm restricted	Disconnect the shaker bar and check the nylon link and bearing - it should pivot in the shaker channel easily. With the shaker bar disconnected, allow the shaker motor to run and check the amp draw. If over 2.5 amps, replace the shaker motor.

## Troubleshooting

Problem	Probable Cause	Remedy
<b>Control board indicator light not flashing</b>	No input voltage to transformer	Check and correct voltage at the transformer's primary and secondary terminal. See Electrical Connection.
	No output voltage from transformer	Replace transformer fuse with identical fuse only. Other types may cause shaker motor damage.
	Faulty transformer	Check for 115 to 120-Volts at the transformer's secondary terminals. Replace transformer if no output voltage is present.
<b>Control board indicator light flashing, but shaker motor does not start</b>	Transformer not wired correctly.	Correct transformer wiring.
	Shaker motor not wired correctly	See Electrical Connection.
	Faulty shaker motor	Replace shaker motor.
	Pressure switch tubing not installed correctly	Check tubing connection and condition. Do not kink or pinch tubing. Note: The main blower fan must be ON for a minimum of 30-seconds for the timing sequence to start.
	Check pressure switch adjustment (if adjustable)	Turn screw clockwise until it stops and back out approximately three turns counterclockwise.
	Faulty pressure switch	With power to the timer board ON, remove the two wires from the pressure switch. Using a small wire, jumper across the end of the two white wires and maintain contact for at least 30-seconds. Remove the jumper wire and wait 60-seconds for VS-550, 1200, and 1500 or 180-seconds for VS-2400 and 3000. If the shaker motor starts, replace the pressure switch.
<b>Control board flashing light stops</b>	Primary or secondary transformer fuse blown	Replace transformer fuse with identical fuse only. Other types may cause shaker motor damage.
	Timer board fuse blown	Replace with Littlefuse™ 3-amp, 3AG 125 VAC MDX Slow Blo only.
	Shaker mechanism malfunctioning	Disconnect the black and white wires from the shaker motor M1/J3 circuit on the control board. Connect the shaker motor to 115-Volt power from a separate source and check amp draw. If over 2.5 amps, replace the shaker motor. See Electrical Connection, Control Box and Shaker Assembly.

**Collector Information** (Process Owner to complete and retain for your records)

Model Number \_\_\_\_\_ Serial Number \_\_\_\_\_

Ship Date \_\_\_\_\_ Installation Date \_\_\_\_\_

Filter Type \_\_\_\_\_

Collected Dust \_\_\_\_\_

Dust Properties: Kst \_\_\_\_\_ Pmax \_\_\_\_\_ MIE \_\_\_\_\_ MEC \_\_\_\_\_

Accessories \_\_\_\_\_

Other \_\_\_\_\_

\_\_\_\_\_

**Service Notes**

Date	Service Performed	Notes