

**Installation,
Operation, and
Service Information**

Installation and Operation Manual

IRD Filters Models 260 through 560



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.

*Illustrations are for reference only,
as actual product may vary.*



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



Application of Dust Control Equipment

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.

When combustible materials are present you must consult with an expert in fire extinguishing and/or explosion protection systems, who is also familiar with the local codes, for support and guidance on the selection and installation of an appropriate fire and/or explosion protection system.

DO NOT allow sparks, cigarettes or other burning objects to enter the hood or duct of any dust or fume collection equipment as these may initiate a fire or explosion of any combustible dust accumulated in the collector.

Improper operation of a dust, fume, or mist 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 dust, fume, or mist collection equipment is properly selected, installed, and operated for its intended use.

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

For optimum collector performance, use only Donaldson Torit replacement parts.

Contents

Description.....	4	Optional Shaker Timer Installation	13
Purpose and Intended Use	4	Operation.....	13
Operation.....	5	Disposal Bag Installation.....	15
Inspection on Arrival.....	6	Vane Adjustment.....	16
Installation Codes and Procedures.....	6	Preliminary Start-Up Check.....	17
Installation	6	Service Information	17
Site Selection	6	Operational Checklist	17
Unit Location	6	Filter Installation and Replacement	17
Rigging Instructions	7	Filter Removal.....	17
Hoisting Information	7	Operation.....	18
Electrical Wiring	7	Auto Shaker Adjustments.....	18
Assembly Step 1	8	Maintenance	18
Assembly Step 2	9	Troubleshooting.....	19
Assembly Step 3	10	Service Notes.....	20
Assembly Step 4 (shaker option)	11		
Assembly Step 5	12		



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.

Data Sheet

Model Number	Serial Number
Ship Date	Installation Date
Customer Name	
Address	
Filter Type	
Accessories	
Other	

Description

The IRD dust collector is an economical solution for dust control in small woodshops or work cells in larger operations. The exclusive down flow design helps to separate the particulate matter from the air stream allowing for longer time between bag cleaning. The large heavy duty 1750 rpm fan wheels provide high air flow with quiet operation. Models with “-R” suffix are designed for router applications and employ 3450 rpm fans where higher static pressures are required.

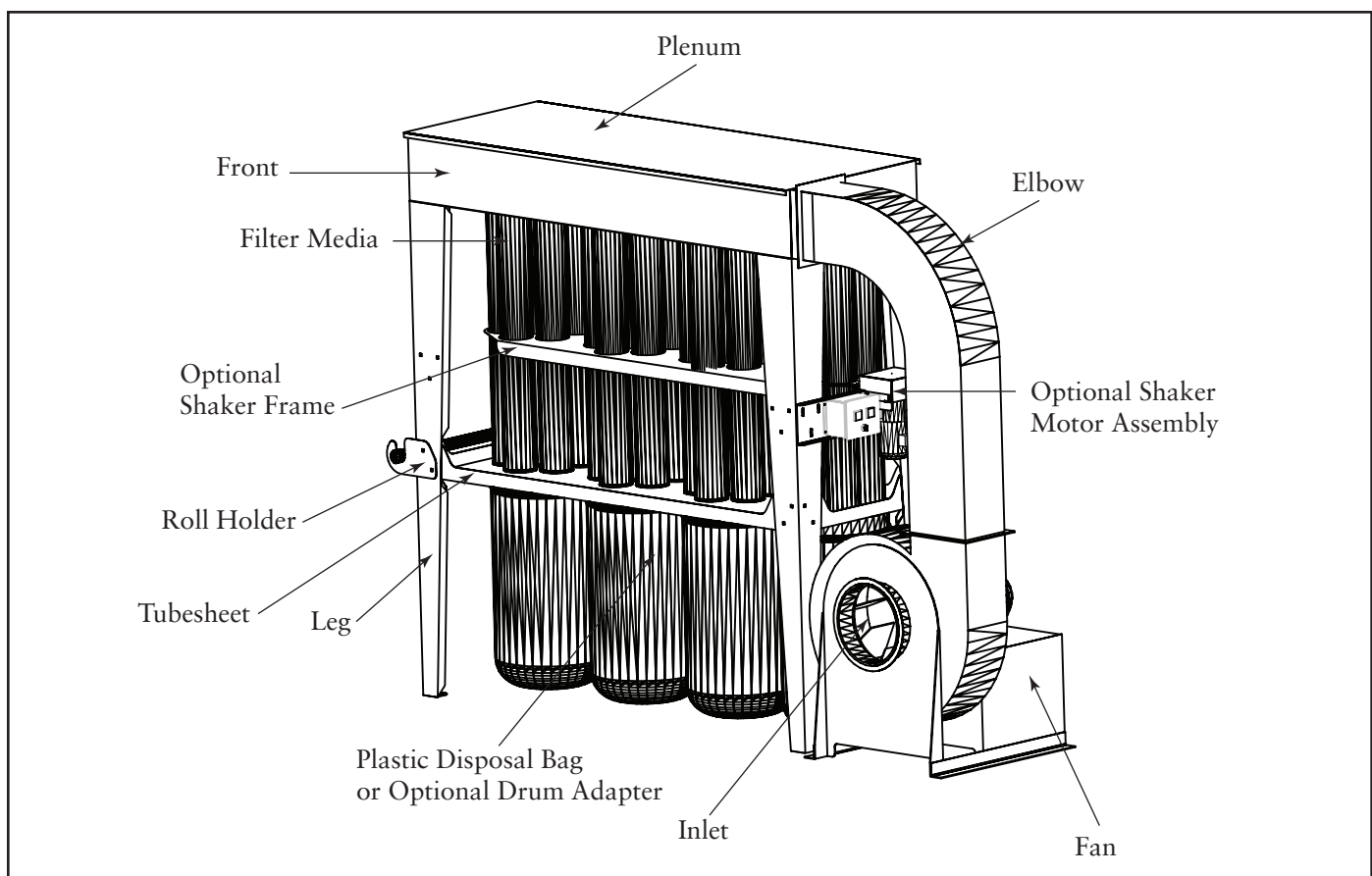
Purpose and Intended Use



Misuse or modification of this equipment may result in personal injury.

Do not misuse or modify.

IRD dust collectors are primarily intended for wood shop use or for non hygroscopic nuisance dusts. Typical applications include sawdust collection on table saws, sanders, and other woodworking equipment. CNC Routers typically have large pressure drops and may require the R models.



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.

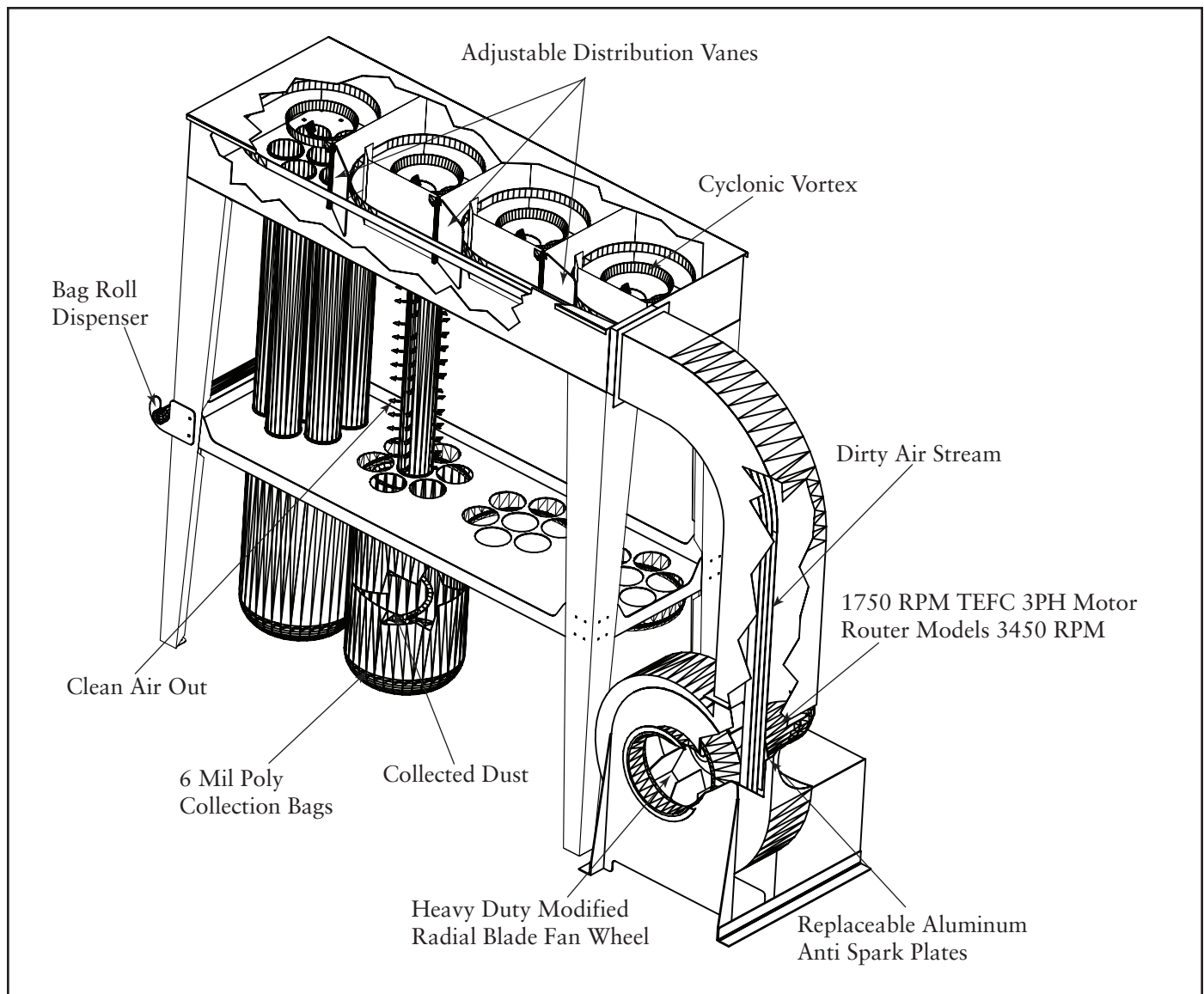
Consult and comply with all National and Local Codes related to fire and/or explosion properties of combustible materials when determining the location and operation of all dust, fume, or mist collection equipment.

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

Operation

During normal operation dust laden air enters the unit through the fan inlet. Air is directed upward through the elbow and into the plenum. In the plenum, the air is divided among the cells by adjustable distribution vanes. In the cell, the air travels downward through the filter media. Air passes through the media while fine dust is collected on the inner surface. Larger particles pass directly to the collection bags.

On standard units, the filter bags are cleaned by manually shaking bags when the unit is turned off. On Auto-Shaker equipped units the bags are shaken for several seconds every 10-15 minutes of operation.



Unit Operation

Inspection on Arrival

1. Inspect unit on delivery.
2. Report any damage to the delivery carrier.
3. Request a written inspection report from the Claims Inspector to substantiate claim.
4. File claims with the delivery carrier.
5. Compare unit 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 unit from truck.

Installation Codes and Procedures



OSHA may have requirements regarding recirculating filtered air in your facility. Consult with the appropriate local authorities to ensure compliance with all codes regarding recirculating filtered air.

Safe and efficient operation of the unit 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 unit according to the National Electric Code, NFPA No. 70-latest edition.

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 unit prior to, or during unit installation.

NOTICE

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

Installation



Wind, seismic zone, and other live-load conditions must be considered when selecting the location.

Site Selection

1. The unit can be located on a reinforced concrete foundation.
2. Provide clearance from heat sources and interference with utilities.

Unit Location

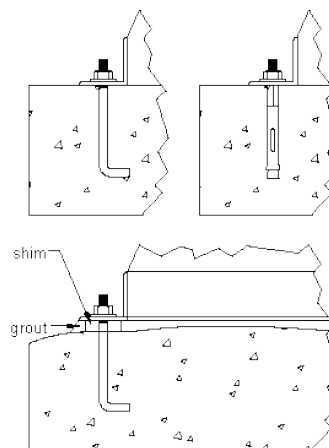


Donaldson Torit equipment is not designed to support site-installed ducts, interconnecting piping, or electrical services. All ducts, piping, or electrical services supplied by others must be adequately supported to prevent severe personal injury and/or property damage.

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

Foundation must be sized to accommodate the entire weight of the unit, plus the weight of the collected material, piping, and ductwork. Reference the Rating and Specification Information.

Prepare the foundation in the selected location. Anchor the filter and fan units to the floor with appropriate anchor bolts. Fan base angles are adjustable allowing for proper alignment of filter and fan. Shims must be used on uneven surfaces to prevent distortion.



Rigging Instructions

Suggested Tools & Equipment

Clevis Pins and Clamps	Lifting Slings
Crane or Forklift	Socket Wrenches
Drift Pins	Screwdrivers
Large Crescent Wrench	End Wrenches

Hoisting Information



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

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 clevis connectors, *not hooks*, on lifting slings.

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

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

Allow only qualified crane operators to lift the equipment.

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

Lift unit and accessories separately, and assemble after unit is in place.

Use drift pins to align holes in flanges during assembly.

Electrical Wiring



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

Lock out electrical power sources 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.

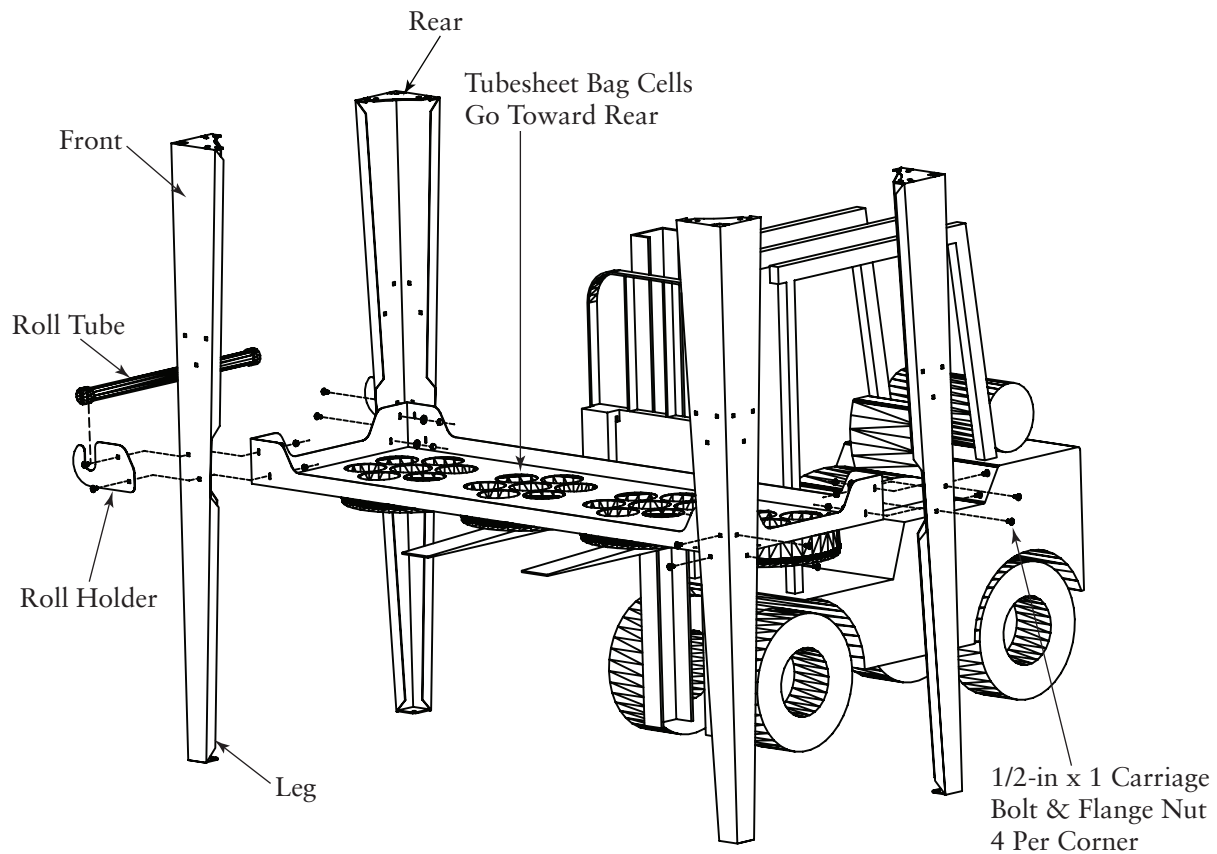
The appropriate wiring schematic and electrical rating must be used. See unit's rating plate for required voltage.

If the unit is not furnished with a factory-mounted disconnect, 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 unit'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.

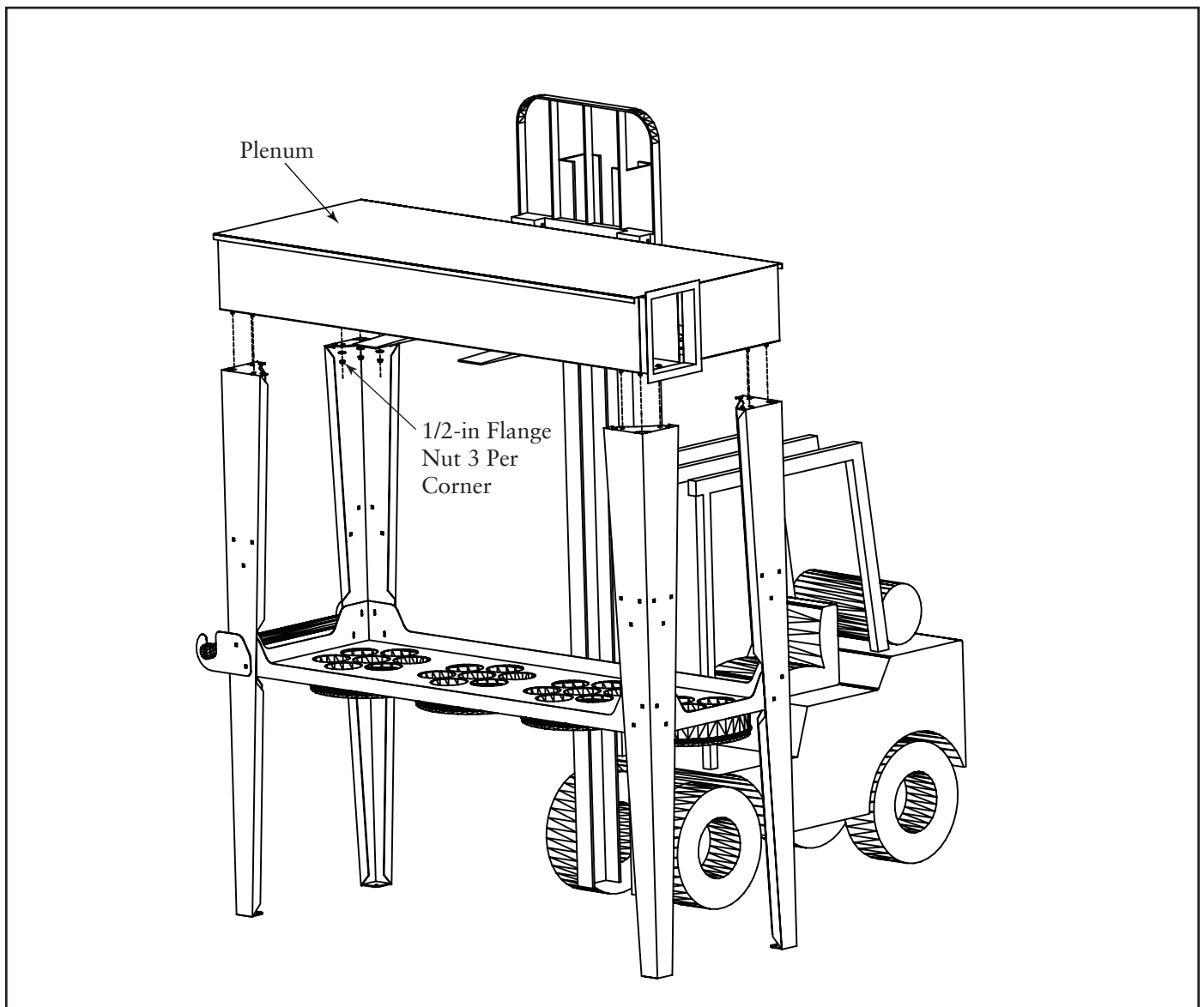
Assembly Step 1

1. Support tubesheet on forklift forks.
2. Attach legs and roll holder to tubesheet using supplied 1/2-13 x 1 carriage bolts.
3. Adjust tubesheet to highest position and hand tighten 1/2-13 x 1 carriage bolts.



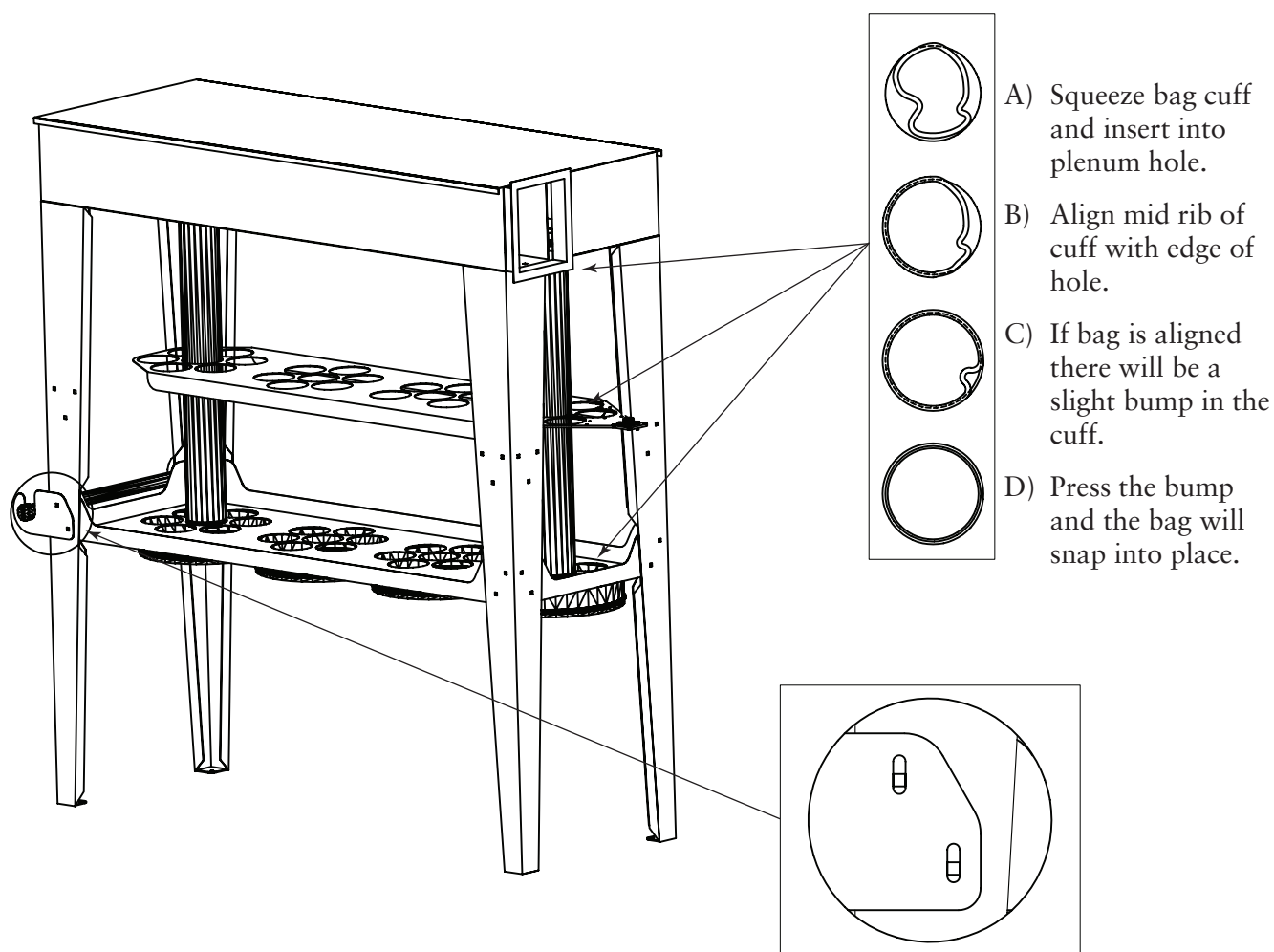
Assembly Step 2

1. Lift plenum onto legs with forklift ensuring that the forks are spread to stabilize the load. Be careful not to hit the diverter adjustment handles.
2. Attach legs and role holder to tubesheet using supplied 1/2-in washers and 1/2-13 flange nuts.
3. Tighten nuts with ratchet.



Assembly Step 3

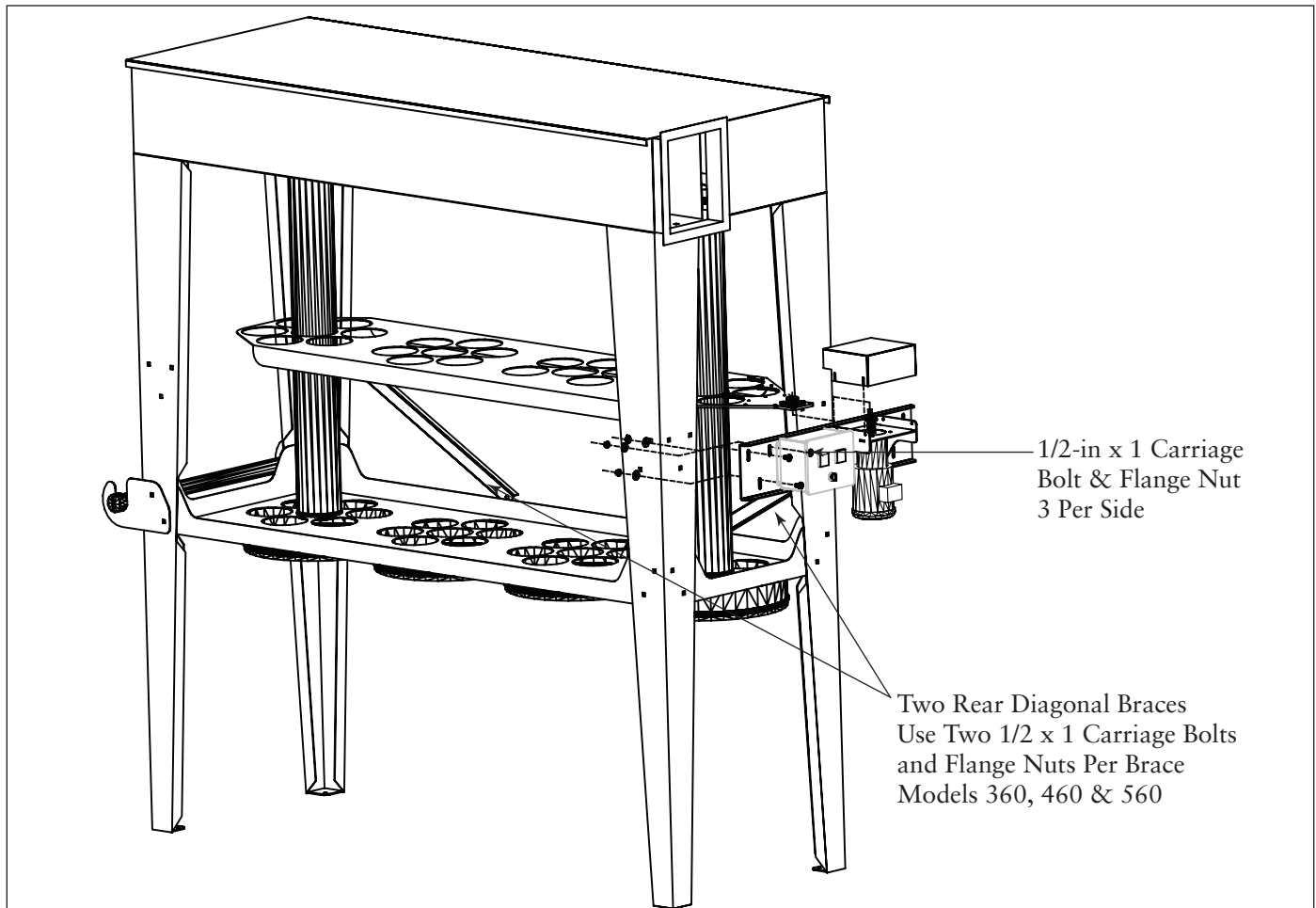
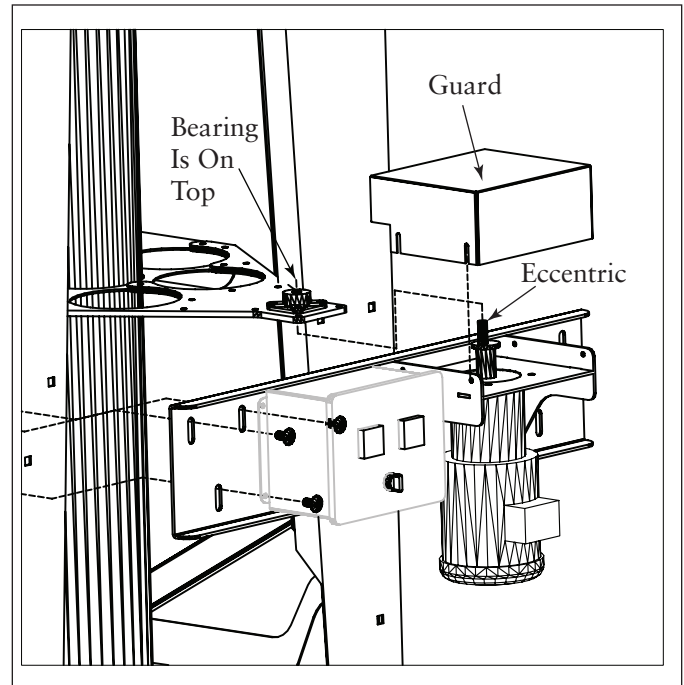
1. Install one filter bag into center hole of each end cell in plenum.
2. Pass other end of bag through corresponding shaker frame hole. (Shaker option only.)
3. Snap middle band of bag into shaker frame. (Shaker option only.)
4. Snap bottom end of bag into tubesheet.
5. Install remaining bags per previous steps.
6. Loosen tubesheet to leg bolts and allow tubesheet to lower, tightening bags.
7. Tighten bolts with ratchet.



Adjust tubesheet to top of slot to allow bags to be installed. Install bags. Loosen bolts to allow tubesheet to tension bags. Tighten bolts.

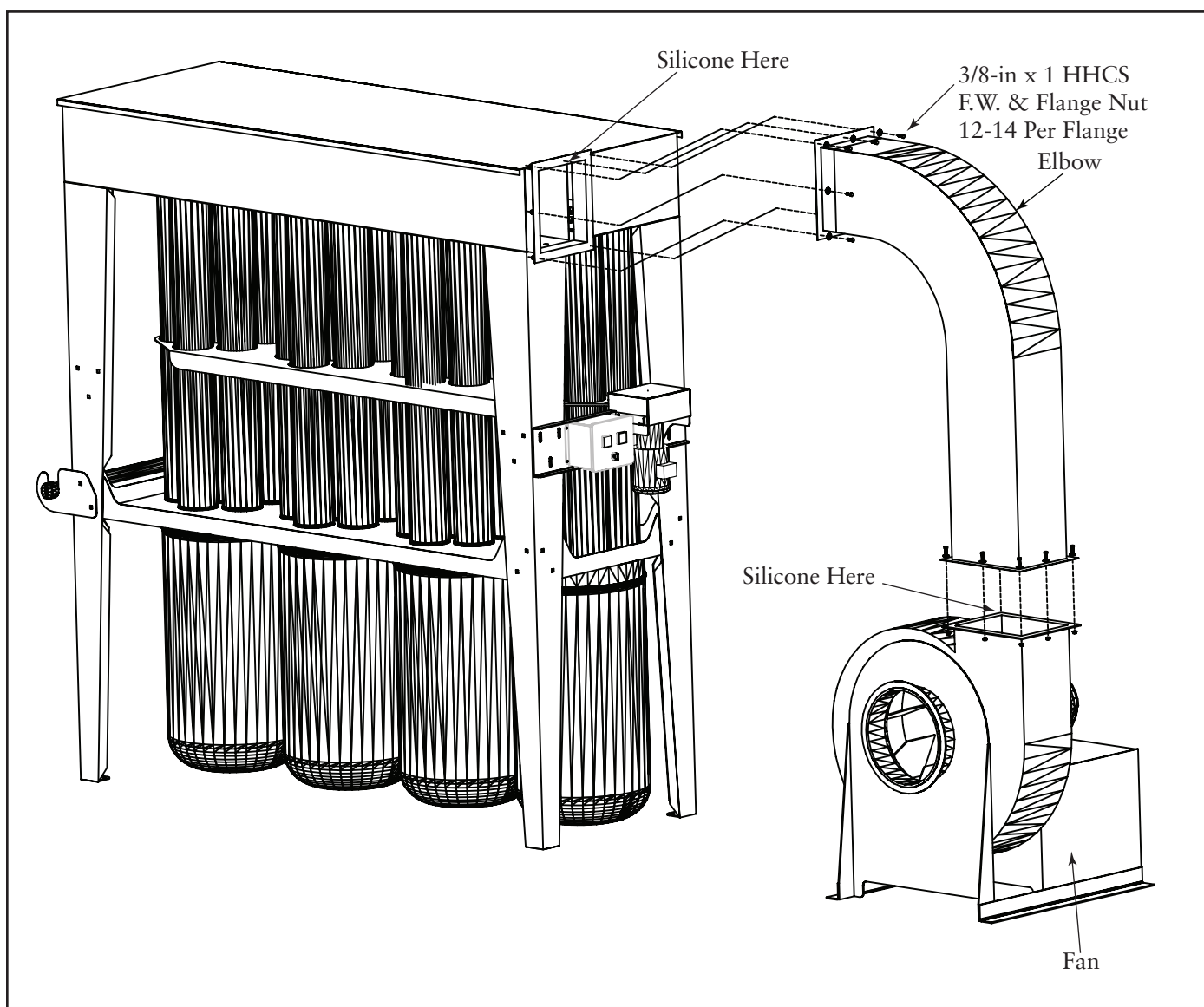
Assembly Step 4 (shaker option)

1. Remove eccentric guard from shaker motor assembly by loosening the four 1/4-20 hex head cap screws.
2. Attach shaker motor assembly to legs hand tightening only.
3. Lift bearing end of shaker frame over eccentric and slide down eccentric shaft.
4. Adjust shaker motor assembly mounting bolts so that the shaker frame is level and not in a bind. Make sure the larger diameter of the eccentric is clear of the shaker frame as well.
5. Tighten shaker motor assembly frame bolts with ratchet.
6. Tighten bearing set screws on to eccentric shaft. Install guard.
7. Install diagonal braces on back side from leg to tubesheet. (Model 360,460 and 560 only.)

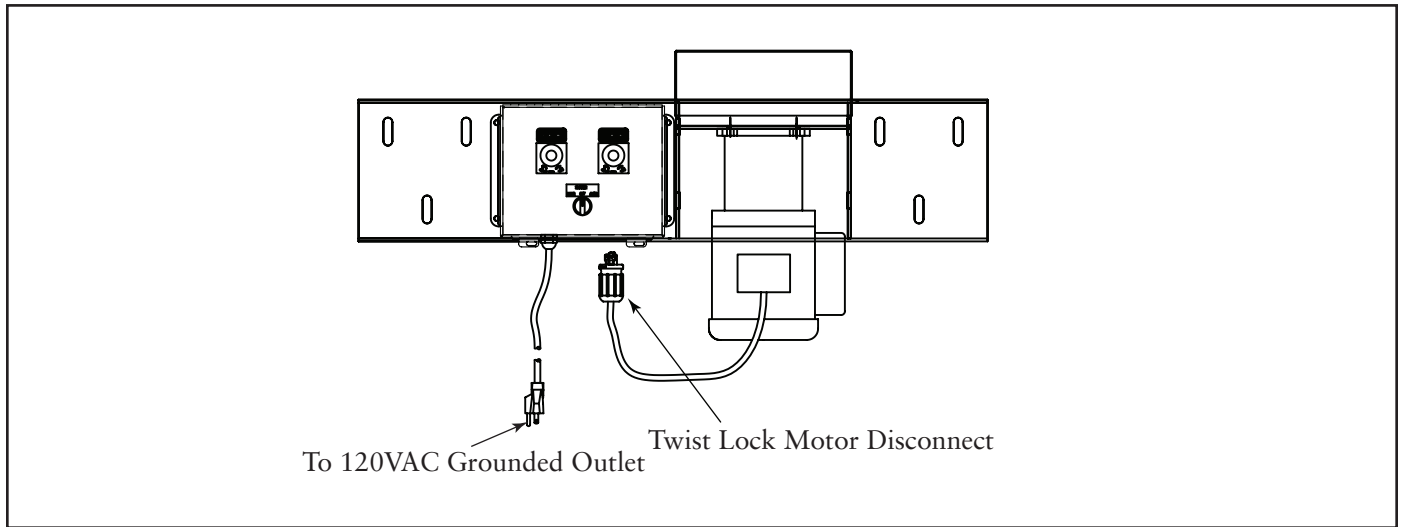


Assembly Step 5

1. Position fan in approximate final location.
2. Attach elbow to fan with bolts provided at corners only.
3. Slide fan into final position and check alignment. Adjust fan base angles as required, shim if necessary.
4. Remove elbow.
5. Place a bead of silicone on both the fan exhaust and plenum inlet flanges.
6. Install full complement of bolts in both flanges.
7. Anchor fan and IR legs with customer provided anchors.
8. Make all electrical and duct connections per national and local code(s).
9. Place into service only after all instructions and safety warnings have been read and understood.



Optional Shaker Timer Installation



CAUTION

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

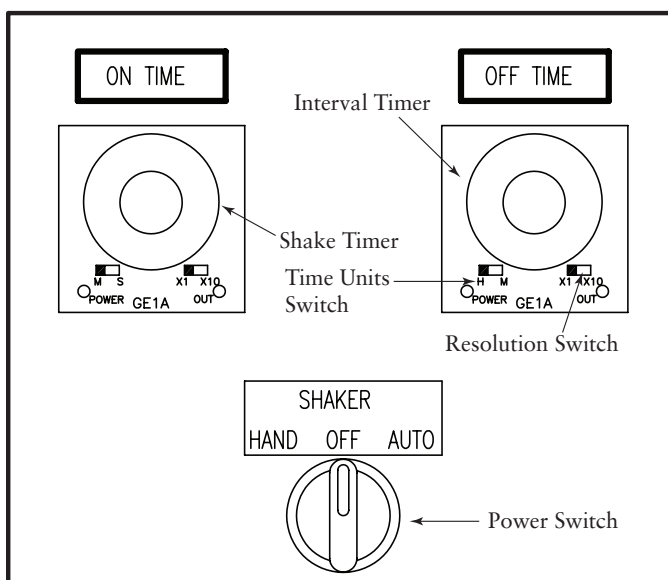
Turn power OFF during installation or maintenance.

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

Operation

The shaker assembly comes pre-wired from the factory. Simply plug the power cord into a grounded 120V 15A receptacle. The cord from the motor to the control box has a twist lock connector. This connector acts as a motor disconnect.

The timer control has two adjustable controls and one hand-off-auto switch. In normal running mode this switch is placed in the auto position. This will allow the shaker to run for the “on” time set on the left control followed by an “off” interval set on the right control. The controls have two small slide switches that are set at the factory to the following settings: On time switches are set to M and X1 and the Off time switches are set to H and X1. The dial indicates a percentage of these settings. If the hand-off-auto selector is set to hand then the shaker will run continuously. This is not recommended and should be used sparingly.



Electrical connections should be made by qualified personnel only!

Make electrical connections as required by local codes. Refer to motor nameplate for wiring schematic and electrical specifications. If motor starter is provided refer to accompanying literature for precautions and installation instructions.

⚠ CAUTION

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

Turn power OFF during installation or maintenance.

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

Suggested Wiring for Donaldson IRD Filters

	208 Volt			
Horsepower	Starting Amps	Running Amps	Circuit Size Fuse	Wire Size
10	278	31	60 Amp	6
15	271	45	90.0	4
20	354	59	120.0	3
25	449	75	140.0	1

	230 Volt			
Horsepower	Starting Amps	Running Amps	Circuit Size Fuse	Wire Size
10	161	27	60 Amp	8
15	235	39	80.0	6
20	307	51	110.0	4
25	389	65	120.0	3

	460 Volt			
Horsepower	Starting Amps	Running Amps	Circuit Size Fuse	Wire Size
10	80	13	30 Amp	12
15	118	20	40.0	10
20	154	26	55.0	8
25	194	32	60.0	6

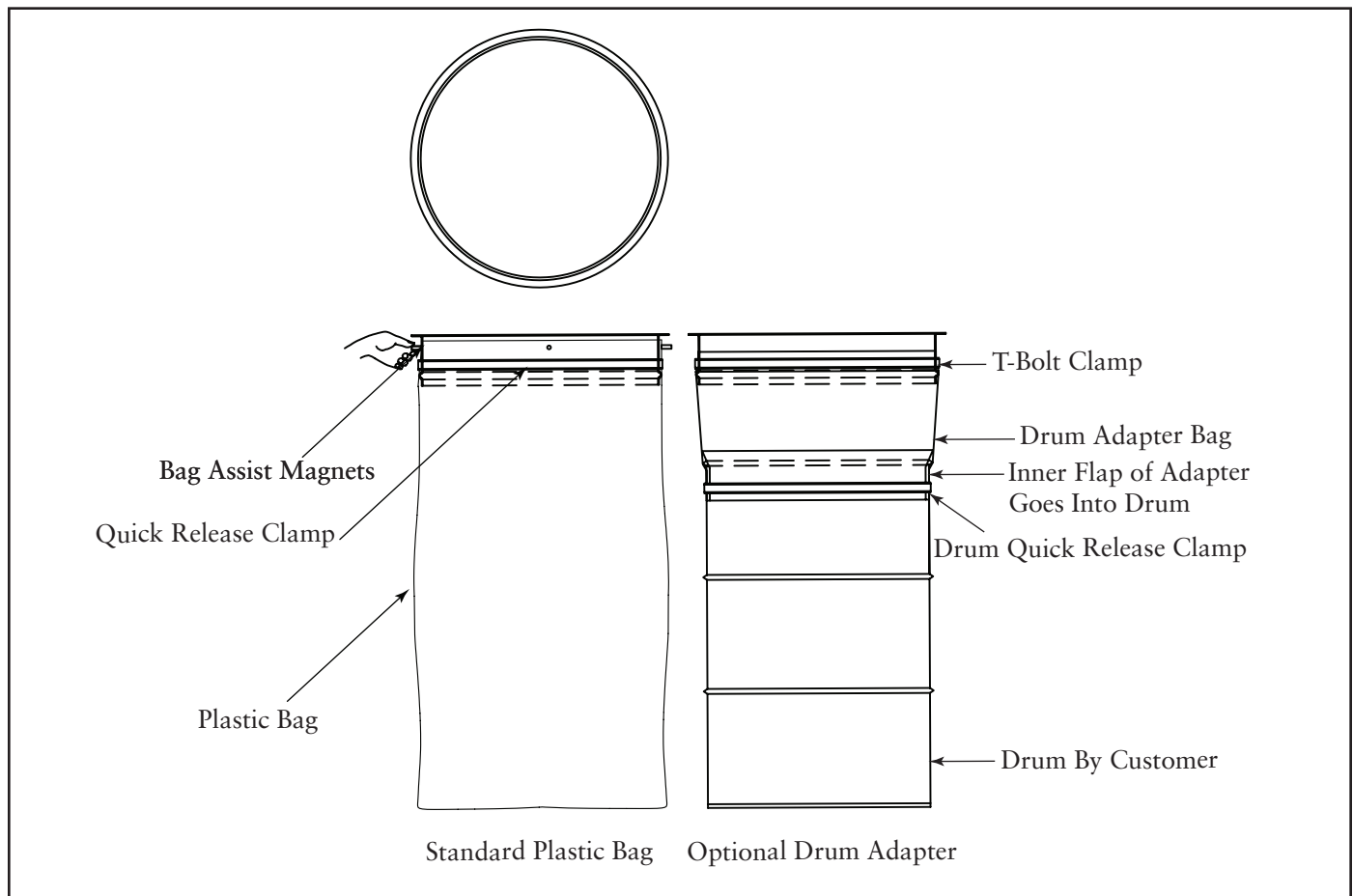
Notes:

1. Always use a qualified installer.
2. Check with your building department and utility for required permits.
3. The above is a guideline, refer to the National Electric Code for more information.
4. Disconnect all power before working on or wiring machine. Electrical shock is dangerous.
5. Fan must be connected to ducting system or fan motor will over amp.
6. Fan will require up to 45 seconds to come to full operating speed.
7. Fan should not be started and stopped more than once per hour.

Disposal Bag Installation

IR units are provided with plastic disposal bags as standard equipment. These bags slip over the rib in the collar and are held in place using a quick release clamp. To assist the installation of the plastic bags, three small magnets are provided with each unit to hold the bag up while the clamp is positioned and secured. This allows one person to change out the bag rather than two. Optionally, drum adapter

bags may be provided. These bags are held on to the IR collar with a t-bolt style clamp and on to the drum with a quick release style clamp. The adapter bag has an inner cuff at the drum end that allows material to enter the drum without building up on the rim of the drum. Drums are not provided. Adapters are designed for standard 55-gallon open headed metal drums. Drum must have a lip to help secure the adapter and keep it from sliding off.

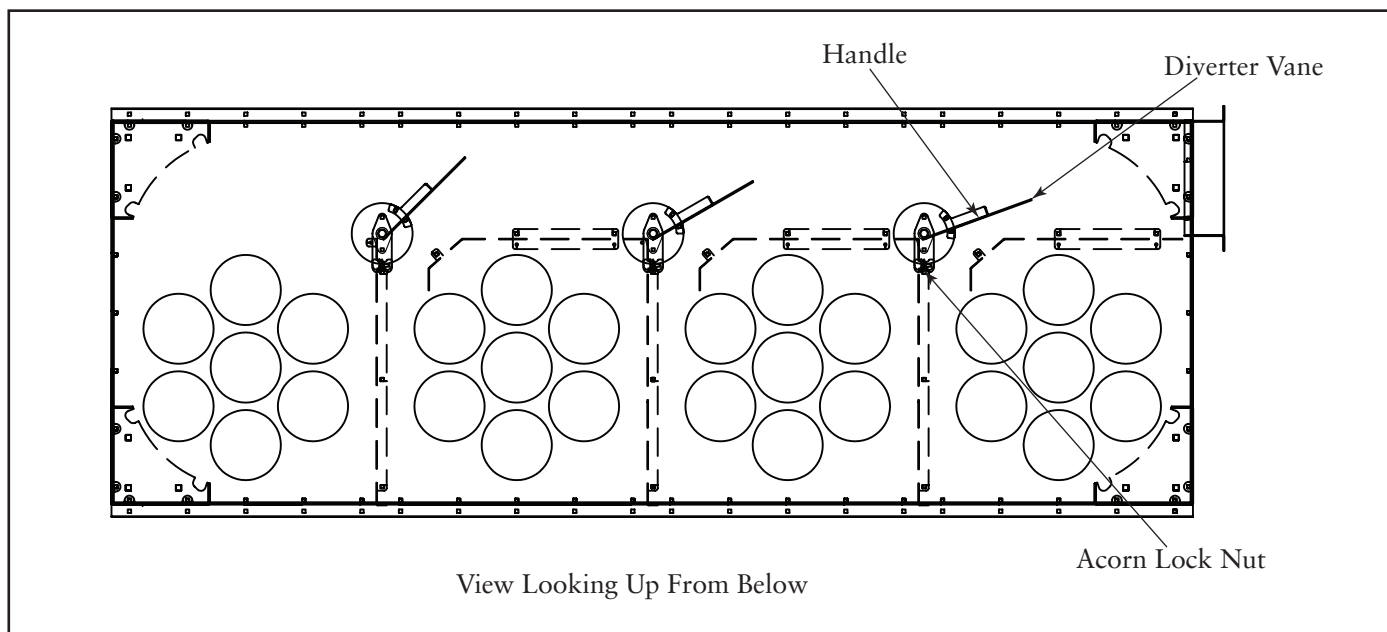


Vane Adjustment

Distribution vanes help to fill disposal bags evenly. Adjusting the position of the vanes will allow the user to place more or less dust into a particular cell. Prior to initial start up, adjust vanes starting at the cell closest to the inlet. Loosen the acorn nut holding the handle in place and rotate the vane into

the air stream slightly. Open each successive vane slightly more so that all cells will receive flow. Use this position as a starting point.

After running for a few hours, observe the distribution in the collection bags and turn machine off and readjust as necessary.



Preliminary Start-Up Check

Instruct all personnel on safe use and maintenance procedures.

CAUTION

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

Lock out electrical power sources before performing service or maintenance work.

Check that hopper discharge is properly set and functioning.

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.

1. Check all electrical connections for tightness and contact.
2. Check for and remove all loose items in or near the inlet and outlet of the unit.
3. Check that all remote controls are wired into the control system, and all service switches are in the OFF position.
4. Check that all optional accessories are installed properly and secured.
5. Check that the storage container is sealed, if equipped. Excess airflow to the fan will cause electrical failure.
6. Turn power ON at source.
7. Turn the fan motor ON then OFF to check for proper rotation by referencing the rotation arrow located on the fan housing above the motor.

To reverse rotation, single-phase power supply:

Follow manufacturer's instructions on the motor's nameplate.

To reverse rotation, three-phase power supply:

Turn electrical power OFF at source and switch any two leads on the output-side of the fan-motor starter.

8. Adjust the fan for proper airflow by adjusting the volume control damper in the system ductwork, if equipped.

NOTICE

Excess airflow can shorten filter life, cause electrical system failure, and fan motor failure.

Service Information

Operational Checklist

1. Monitor overall performance of the collector.
2. Monitor exhaust.
3. Monitor pressure drop across filters.
4. Monitor dust disposal.

Filter Installation and Replacement

CAUTION

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

Use care when removing filters to avoid personal injury.

Filter Removal

1. Turn power to unit OFF.
2. Starting with bags on ends cell press on bottom cuff to release from hole. Repeat on all bottom cuffs.
3. On standard units simply release the upper cuffs on all the bags.
4. On units with shaker option release upper cuffs on all bags except center bags on end cells. These will hold shaker frame in place.
5. Install one new bag in outer bag of end cells to hold shaker frame.
6. Remove last two bags from step 4.
7. Refer to Assembly Step 3 found in this manual.

Operation

Start up Sequence - Typical

- 1) Start optional auto shaker if present.
- 2) Start blower motor.
- 2) Start process equipment.

Shut down Sequence - Typical

- 1) Stop process equipment.
- 2) Stop blower. Allow optional auto shaker to run through one additional cycle.
- 4) Stop optional auto shaker.
- 5) Units not equipped with optional auto shaker should have bags shaken manually to dislodge dust prior to next start up.

Auto Shaker Adjustments

Units with the optional auto shaker have several settings that can be modified by the operator. The power switch has hand-off-auto settings. In hand the unit will shake continuously overriding both timers. In the auto position the shaker will run for the period set on the “on-time” timer with an interval period set on the “off time” timer. The timers have two slide switches and a dial. The left slide switch is the time units (i.e. minutes or seconds) and the right slide switch is for resolution; either x1 or x10. For example if the timer is set to minutes and x1 then the dial would be fractions of one minute. If it was set to x10 then the dial would be fractions of ten minutes. Factory settings are as follows:

On time M/S set to minute; x1/x10 set to x1; Dial at 0.2

Off time H/M set to Hours; x1/x10 set to x1; Dial at 0.3

Maintenance

The following instructions and guidelines are general in nature and should be adjusted to the particular application. Whenever a problem arises in any equipment, corrective measures must be taken to ensure continued safe and reliable performance.

Filter Unit

The filter unit requires no regular maintenance. Bags and clamps should be checked periodically for damage. Bolt connections especially anchor bolts should be inspected regularly.

Fan Unit (direct drive only)**

1) Motor

The motor should be kept dry, clean and properly lubricated to ensure optimal performance and longevity. Dust can cause motors to overheat that can lead to failure. As conditions dictate, clean the motor periodically following all safety procedures. Motors also need to be lubricated. Follow motor manufacturers recommended lubrication schedule.

2) Wheel

Follow LOCK OUT/TAG OUT procedure prior to accessing fan wheel. Inspect fan wheel for wear and build up of dirt or debris. Build up on fan wheels will cause an imbalance that can lead to catastrophic failure. Check set screws and retighten if necessary. Check for signs of fatigue and/or corrosion. Special skills and equipment are required to balance fan wheels therefore this procedure should be left to a skilled professional.

3) Fan Housing & Base

The safety, reliability and performance of the fan relies on the structural integrity of the fan housing and base. Periodically inspect welds, bolt connections and anchors for fatigue and/or corrosion.

** Belt drive fans - See Industrial Fans IOM.

Troubleshooting

Problem	Probable Cause	Remedy
Blower fan and motor do not start	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 Electrical Code.
	Unit not wired for available voltage	Correct wiring for proper 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.
Blower fan and motor start, but do not stay running	Incorrect motor starter installed	Check for proper motor starter and replace if necessary.
	Starter overloads tripped	Check that proper heaters are installed and that the trip setting is set to proper current load.
	Unrestricted airflow to fan	Check that all filters, disposal bags and duct work is connected and that blast gates in ducting are set correctly.
	Electrical circuit overload at main breaker(s)	Check that the correct type of breaker is installed. Breakers for lighting applications will not work to start motors. The correct breaker for motor loads must be provided.
	Main fuse blown	Check that the correct type of fuse is installed. Slow blow or time delay fuses are required for motor loads. Fast acting fuses for lighting will not work. Follow National Electric Code for motor circuit protection.
	Start/stop buttons not wired correctly	Check wiring diagram for the motor starter stop/start buttons and correct if necessary.
Insufficient airflow	Fan rotation backwards	Proper fan rotation for standard build units is clockwise as viewed from the back of the motor not the fan inlet.

Service Notes

[illegible]

[illegible]

Service Notes

[illegible]

The Donaldson Torit Warranty

Donaldson warrants to the original purchaser that the products will be free from defects in materials and workmanship for one (1) years from the date of shipment, if properly installed, maintained and operated under normal conditions. Donaldson does not warrant against damages due to corrosion, abrasion, normal wear and tear, product modification, or product misapplication. Donaldson also makes no warranty whatsoever as to any goods manufactured or supplied by others including electric motors, fans and control components. After Donaldson has been given adequate opportunity to remedy any defects in material or workmanship, Donaldson retains the sole option to accept return of the goods, with freight paid by the purchaser, and to refund the purchase price for the goods after confirming the goods are returned undamaged and in usable condition. Such a refund will be in the full extent of Donaldson's liability. Donaldson shall not be liable for any other costs, expenses or damages whether direct, indirect, special, incidental, consequential or otherwise. The terms of this warranty may be modified only by a special warranty document signed by a Director, General Manager or Vice President of Donaldson. Failure to use genuine Donaldson replacement parts may void this warranty. **THERE EXIST NO OTHER REPRESENTATIONS, WARRANTIES OR GUARANTEES EXCEPT AS STATED IN THIS PARAGRAPH AND ALL OTHER WARRANTIES INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, WHETHER EXPRESS OR IMPLIED ARE HEREBY EXPRESSLY EXCLUDED AND DISCLAIMED.**

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Donaldson Company, Inc. is the leading designer and manufacturer of dust, mist, and fume collection equipment used to control industrial-air pollutants. Our equipment is designed to help reduce occupational hazards, lengthen machine life, reduce in-plant maintenance requirements, and improve product quality.