

Donaldson[®]
Torit[®]

Downflo[®] Ambient

DFA-8

Installation, Operation and Maintenance Manual

Reference Supplemental Instruction Sheet - SIS AG8321301



This manual contains specific precautions related to worker safety. The hazard alert image denotes safety related instructions and warnings in this manual. DO NOT install, operate, or perform maintenance on this collector until you have read and understood the instructions, precautions and warnings contained within this manual.

English
Master Language

IOM AG8627401 (ENG)
Revision 0

IMPORTANT NOTES

This manual has been supplied to assist with the installation, operation and maintenance for the collector purchased. Please read the manual before installing, operating, or performing maintenance on the collector as it contains specific precautions for worker safety. It is the owner's responsibility to ensure that this manual is available for use by installers, operators and maintenance personnel that will be working with this collector. This manual is the property of the owner and should be left with the collector when installation has been completed. **DO NOT** operate this collector until you have read and understood the instructions and warnings located in this manual.

For additional copies of this manual, contact Donaldson Torit.



The Safety Alert Symbol indicates a hazardous situation which, if not avoided could result in death or serious injury. Obey all safety messages following this symbol to avoid possible injury or death. The possible hazards are explained in the associated text messages.

NOTICE

The Notice symbol indicates a potential situation or practice which is not expected to result in personal injury, but which if not avoided may result in damage to equipment.

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1

Safety Communication



Improper operation of dust collectors and/or dust control systems may contribute to conditions in a work area or facility which could result in severe personal injury, and product or property damage. All dust collection equipment should be used only for its intended purpose and should be properly selected and sized for its intended use.

Process owners have important responsibilities relating to identifying and addressing potential hazards in their processes. When the potential for handling combustible dust exists within a process the process owner should include combustion hazards in their risk management activities and should comply with applicable codes and standards related to combustible dust.

Electrical installation must be performed by a qualified electrician.

This equipment is not designed to support site ducts, piping, or electrical services. All piping or electrical services must be adequately supported to prevent injury and/or property damage.

Site selection must account for wind, seismic zone, and other load conditions.

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

Most dusts present safety and health hazards that require precautions. Wear eye, respiratory, head and other protection equipment suitable for the type of dust.

Some components may be heavier than they appear. Use appropriate lifting methods to avoid personal injury and/or property damage.

Combustible Dust Hazards

Among other considerations, the current NFPA standards require owners whose processes involve potentially combustible materials to have a current Dust Hazard Analysis, which can serve as the foundation for their process hazard mitigation strategy. Mitigation may include but is not limited to:

- Prevention of all ignition sources from entering any dust collection equipment.
- Selection and implementation of fire and explosion mitigation, suppression, and isolation strategies appropriate for the risks in their process.
- Development and use of work practices to maintain safe operating conditions, and to ensure combustible dust does not accumulate within their plant or process equipment.

Donaldson designs, manufactures, and sells industrial air filtration products for a wide variety of applications. Some applications may include processes or materials with inherent fire and explosion hazards. Donaldson is neither an expert nor a certified consultant in fire, spark, or explosion detection, suppression, or control. Donaldson does not provide engineering consulting services related to process or dust hazard analyses, or code and standard compliance. Complying with applicable codes and standards and managing the risks associated with the process or materials remains the responsibility of the process owner/operator. Donaldson may provide referrals to consultants, suppliers of equipment or services related to the detection and/or mitigation of sparks, fires and/or explosions, but Donaldson does not assume responsibility for any such referrals, nor does Donaldson assume any liability for the fitness of a mitigation strategy or product for a particular installation or application. The process owner's final selection of dust collectors and risk mitigation strategies should be based on the outcome of a Dust Hazard / Process Hazard Analysis performed by the process owner. Although early engagement of a dust collector supplier provides helpful insights on the availability and features of various products, process owners should consult with a combustible dust expert and/or a process safety expert before making actual product and mitigation strategy selections.

Donaldson recommends that all industrial air filtration system designs be reviewed and approved by an expert consultant who is responsible for the integrity of the system design and compliance with applicable codes and standards. It is the process owner's responsibility to understand the risks in their process and mitigate those risks in accordance with all applicable laws, regulations and standards, including those published by the NFPA. Donaldson also recommends that proper maintenance and housekeeping procedures and work practices be evaluated, developed, and followed to maintain any industrial air filtration products in safe operating condition.

Many factors beyond the control of Donaldson can affect the use and performance of Donaldson products in a particular application, including the conditions under which the product is used. Since these factors are uniquely within the user's knowledge and control, it is essential the user evaluate the Donaldson products to determine whether the product is fit for the particular purpose and suitable for the user's application. All products, product specifications, and data (airflow, capacity, dimensions, or availability) are subject to change without notice, and may vary by region or country.

2 Product Description

The DFA collector is a continuous duty dust collector with filters intended to handle applications with light to medium dust loads in large, indoor construction bays such as weld operation lines. Continuous duty means the filter cartridges can be pulse cleaned without interrupting airflow through the collector.

DFA collectors come standard with the inlet section (including inlet deflector shields), clean air plenum and dirty air plenum (including dust bin), fan chamber, outlet chamber, filters, pulse and fan controls. The fan and fan motor can be serviced from the rear of the collector via an access panel. Pulse and manifold components can be serviced from multiple side access panels on either side.

The housing features a stacked section assembly intended to be easy to install in facilities. Additionally, the housing includes pockets designed for the tines of a standard forklift to aid in assembly and positioning of the collector.

The DFA features a 3-sided open-air inlet section at the top to provide multidirectional ambient air cleaning. Each inlet face is covered by an inlet deflector shield intended to reduce the risk of ingress of heated particulate. The inlet deflector shields are lightweight and removable for cleaning. The DFA also features a 3-sided open air outlet at the bottom to direct airflow for circulation in the facility.

The DFA includes an internal dust bin, accessible via a latched front panel. The pail pack holds up to 5 gallons of collected dust, and can be removed for emptying using the latches and handles on the bin.

Intended Use

The DFA can be installed alone or in combinations to filter the ambient air within the work area. Each DFA collector is capable of processing 7,000-9,000 cfm. By positioning one or more DFA collectors in the work area a desirable average air exchange rate can be achieved.

Operations requiring higher temperature, dust loading, humidity, or air stream chemistry will require application guidance and potentially modifications. Contact Donaldson Torit for design assistance.

Rating and Specification Information

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

Standard Equipment

Filters

The DFA ships with filter cartridges installed. The standard media is Ultra-Web® FR, however other media options are available.

Filter Housing

The DFA filter housing consists of both the Clean Air Plenum in the rear of the collector and the Dirty Air Plenum in the front. Filter access is found on the front face of the collector. Air passes from the inlet section freely to the Dirty Air Plenum then passes through the filter media into the Clean Air Plenum. It then passes through the fan chamber and through the outlet section before returning, clean, to the environment.

Inlet Section

The DFA inlet section features a 3-sided open-air inlet section at the top of the collector to provide multidirectional entry of ambient air into the collector. Each inlet face is covered by an inlet deflector shield intended to reduce the risk of ingress of heated particulate.

Inlet Deflector Shield

The DFA comes with inlet deflector shields to cover all three inlet sides. The inlet deflector shields are lightweight and removable for cleaning both them and the inlet.

Compressed Air

The DFA requires an external source of compressed air to supply the manifold and pulse system. Air is stored in the manifold and released when the system cleans through the blow pipes and into the filters.

Outlet Section

The DFA outlet section returns the cleaned air to the work environment at the base of the collector promoting air circulation within the work environment.

Side Mounted Junction Box

The DFA ships with internal wiring pre-wired at the factory. The side mounted junction box provides the terminal block interface between the internal wiring and the site-specific incoming wiring.

5-Gallon Dust Drawer

An internal dust drawer, accessible from the front panel, provides easy access for dust removal and disposal.

Fan Control

An internal factory installed fan and motor assembly produce airflow. The fan and motor assembly is located near the base of the collector to increase stability by lowering the collector's center of gravity. The fan/motor chamber is lined with acoustical foam and is designed in combination with the exhaust plenum to reduce average operational sound pressure levels below 85dBa (at distances 1 meter from the DFA).

Cleaning Controls and Sensors

Delta P Control

The Delta P Controller monitors the differential pressure between the clean-air and dirty-air plenums, providing a visual display of the filter condition. When combined with a pulse timer, it manages the pressure drop by turning the cleaning mechanism On and Off at the chosen limits. There are three (3) set points: HIGH (On), LOW (Off) and ALARM. The first two, HIGH (On) and LOW (Off), control the filter cleaning system. The third, ALARM, provides a relay output to activate an external alarm supplied by others.

Options and Accessories

Compressed Air Dump Valve

The compressed air dump valve is used to shut off the compressed air supply and discharge stored compressed air from the collector.

Sprinkler Coupling

Sprinkler couplings are provided for the convenience of fire control system installers. The fire control system installer shall make their own decisions on the appropriate location of fire control system components.

3 Operation



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

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

Turn compressed air supply off, bleed and lock out lines before performing service or maintenance work.

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

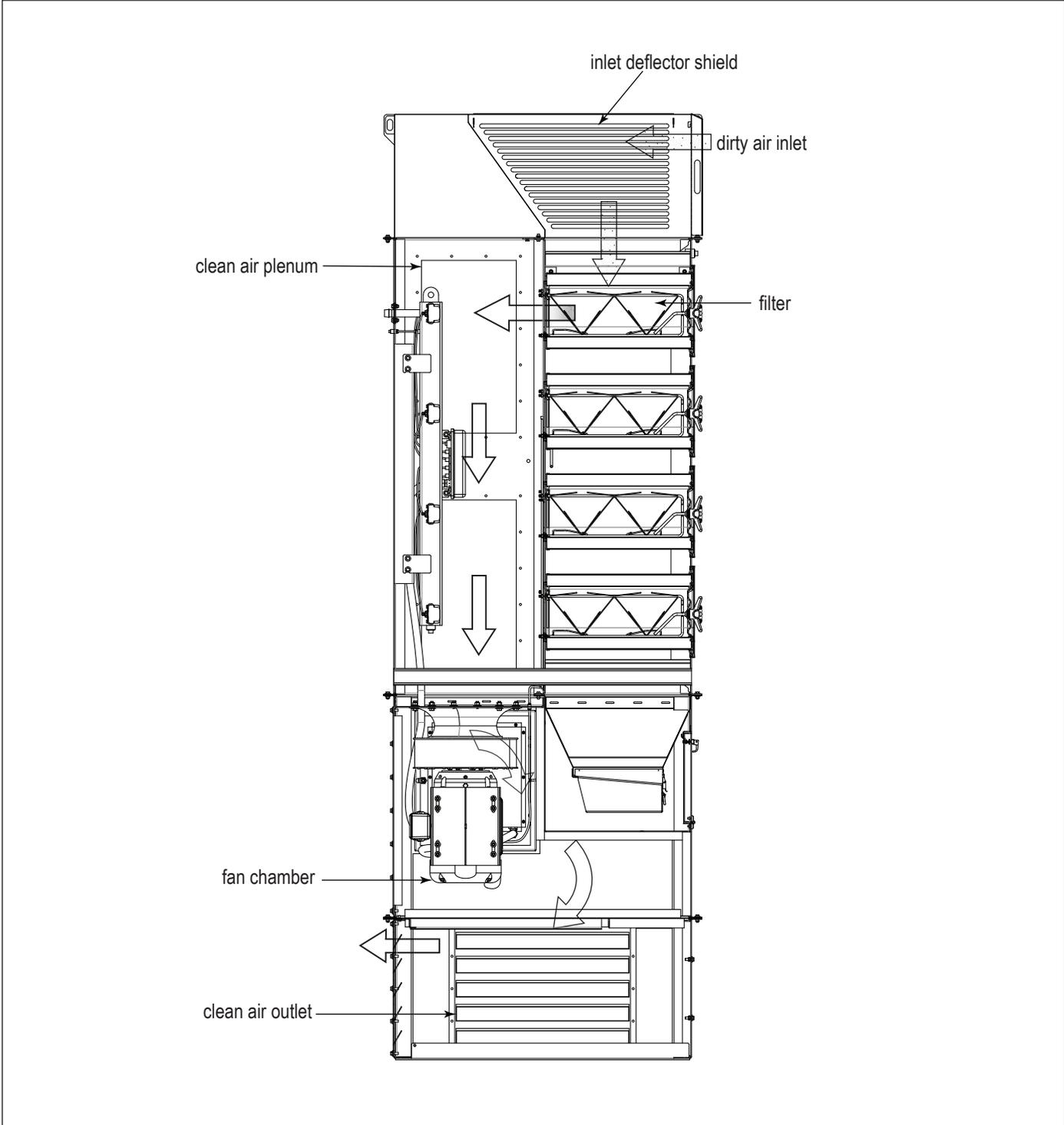
Do not install in classified hazardous atmospheres without an enclosure rated for the application.

Ensure all access covers are in place prior to operation to avoid risk of injury and to ensure proper collector operation.

During normal operation, the power module containing the blower draws dust-laden air from the work space through the filter cartridges. Dust collects on the outside surface of the filters. Clean, filtered air flows through to the center of the cartridge, through the clean-air plenum and into the outlet plenum. Filtered air exits through the back.

Filter cleaning is completed using pulse-jet technology. A solenoid valve controlled by a solid-state timer and a diaphragm valve aligned to each filter provides the pulse cleaning. The diaphragm valve sends a pulse of compressed air through the filter cartridge from the inside out and collected contaminants fall into the dust bin. At the end of each pulse, the diaphragm valve closes and the filter cartridge resumes normal operation. One filter cartridge is cleaned per pulse.

Filter cartridges require replacement which can be accomplished from outside the collector by opening the filter access cover and sliding the spent filters from the collector. Filters can be removed and replaced without the need for tools. The shape of the DFA filter and special markings on the DFA collector makes it easy to ensure DFA filters are installed properly.



Collector Operation

4 Product Service



During service activities there is some potential for exposure to the dust in the collector. Most dusts present safety and health hazards that require precautions. Wear eye, respiratory, head and other protection equipment suitable for the type of dust when performing any service activities.

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

LOCK-OUT all energy sources prior to performing any service or maintenance on the equipment.

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

Turn compressed air supply OFF, bleed and lock out lines before performing service or maintenance work.

NOTICE

Do not set compressed-air pressure above 100-psig as component damage can occur.

All compressed air components must be sized to meet the system requirements of supply pressure.

The compressed-air supply must be oil and moisture free. Contamination in the compressed air used to clean filters will result in poor cleaning, cleaning valve failure, or poor collector performance.

Purge compressed air lines to remove debris before connecting to the collector's compressed air manifold.

Operational Checklist

1. Monitor the physical condition of the collector 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. Periodically check the compressed air components and replace compressed air filters.

Drain moisture following the manufacturer's instructions. With the compressed air supply ON, check the cleaning valves, solenoid valves, and tubing for leaks. Replace as necessary.

3. Monitor pressure drop across filters.

Abnormal changes in pressure drop may indicate a change in operating conditions and possibly a fault to be corrected. For example, prolonged lack of compressed air will cause an excess build-up of dust on the filters resulting in increased pressure drop. Cleaning off-line with no airflow usually restores the filters to normal pressure drop.

4. Monitor exhaust.
5. Monitor dust disposal.

Dust Disposal

1. Shut the collector OFF prior to emptying the dust container (bin, drawer, pail, or drum).
2. Transfer dust from the dust container to a suitable disposal site and dispose of dust in accordance with local requirements for the materials being collected.
3. Empty when dust container is 2/3 full. Check integrity of gasket under container cover. Replace gasket if worn or damaged.
4. Replace or reinstall dust container, reclamp to the collector.

NOTICE

The collector should not be operated without the dust container in place and should not be serviced while collector is running. Do not service the dust container without turning the collector OFF.

5. The collector can now be returned to service.

Filter Replacement



Most dusts present safety and health hazards that require precautions. Wear eye, respiratory, head and other protection equipment suitable for the type of dust.

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

Dirty filters may be heavier than they appear. Use appropriate equipment to access filters and appropriate lifting methods to avoid personal injury and/ or property damage.

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

Turn compressed air supply OFF, bleed and lock out lines before performing service or maintenance work.

Do not operate with missing or damaged filters.

1. Turn off power to the collector.
2. Begin filter replacement at one of the top filter access ports. Continue by replacing the remaining filters in the top row.

NOTICE

Replacing filters row by row starting at the top will help limit dusting during replacement.

3. Remove access cover by turning knob counterclockwise.
4. Break the seal between the filter cartridge and the sealing surface.
5. Slide each filter out the access port along the suspension yoke and dispose of in accordance with local requirements for the materials being collected.
6. Inspect and clean the sealing surface prior to installing a new filter.
7. Clean any dust from the yoke threads that may have accumulated during the filter removal.

NOTICE

Check integrity of access cover gasket. Replace access cover gasket if worn or damaged.

8. Install new filter onto yoke with gasket oriented towards the collector.

NOTICE

The filter shape and yoke work together to ensure proper filter alignment during filter installation. To assist with alignment, an alignment mark (\triangle) at the top of the filter endcap (non-gasketed end) must match with the alignment mark (∇) at the top of the filter access opening.

9. Place the access cover onto the yoke. The smooth corner of the cover should be oriented towards the top as shown in the triangular access cover.

NOTICE

The access cover must be properly aligned to ensure a dust tight seal to the housing.

Do not exceed 150 in-lbs (12.5 ft-lbs) torque when securing the access cover as over tightening may cause damage to the filter and/or equipment.

When filter installation is complete, check to ensure that each access cover is seated and sealed against the filter housing to ensure a dust tight housing seal.

10. Proceed to the next row of filters and repeat for all remaining filters.
11. Check for any accumulation of dust in the storage area and dispose of in accordance with local requirements for the materials being collected.
12. The collector can now be returned to service.

Yoke Replacement

To replace a damaged filter support yoke:

1. Turn collector OFF and Lock-Out all energy sources.
2. Turn compressed air OFF and bleed pressure from the manifold.
3. Open the filter access cover by rotating the knob counter-clockwise.
4. Remove the filter (see Filter Replacement).
5. Open the control panel access door.
6. Locate and remove the nuts, fender washers and star washers from the damaged yoke through the sideaccess door(s). Note the sequence of the hardware placement on the yoke threads.
7. Remove the damaged yoke through the filter access door and remove remaining hardware from the damaged yoke.
8. Place hardware (located on the filter side of the filter panel) onto the new yoke (nut, washer, and star washer).
9. Insert the new yoke through the filter access door and insert ends through the corresponding holes in the filter panel.
10. Position the yoke alignment tool (part number AG8265294) over the front threaded end of the yoke and securing the alignment tool to the front face of the collector. This tool ensures optimum positioning for the new yoke.
11. Place remaining hardware (washer and nut on the control panel side of the filter panel) onto the yoke.
12. Hand tighten the hardware on the filter side of the filter panel until it contacts the filter panel and hand tighten hardware on the control panel side of the filter panel. Once all hardware is hand tight, continue to tighten hardware until the yoke is secure.

NOTICE

When properly tightened, the hardware should secure the yoke in the position established by the alignment tool (i.e. when the alignment tool is removed, the yoke should not spring to a new position).

13. Remove the Yoke Alignment Tool from front of yoke.
14. Reinstall the filter (see Filter Replacement).
15. Replace filter access cover, close and seal by rotating the knob clockwise.

NOTICE

Do not exceed 150 in-lbs torque when securing the access cover to avoid damage to the filter or collector. The access cover is considered closed when it is seated and sealed against the filter housing to ensure a dust tight seal.

16. Return power to the collector and resume DFA operation.

Compressed Air Components

1. Periodically check the compressed air components and replace damaged or worn components as necessary.
2. Drain moisture following the manufacturer's instructions.
3. With the compressed-air supply ON, check the cleaning valves, solenoid valves, and tubing for leaks. Repair or replace as necessary.

Diaphragm Valve Repair

A damaged diaphragm valve can be serviced, repaired or replaced. To service a damaged valve:

1. Identify the damaged valve(s) by listening to valve operation during a cleaning cycle or by inspecting the filters (a plugged filter may indicate a damaged cleaning valve).
2. Turn collector OFF and Lock-Out all energy sources being certain to close the compressed air shut off valve (owner supplied) and bleed pressure from the DFA manifold.
3. Remove the side access panel of the DFA.
4. Locate and repair or replace the damaged valve.
5. Re-install the side access panel.
6. Open the compressed air shut-off valve and re-pressurize the manifold.
7. Resume DFA operation.

Solenoid Valve Repair

A damaged solenoid valve can be serviced by repairing or replacing the individual solenoids located within the solenoid enclosure.

To service an individual solenoid:

1. Identify the damaged valve(s) by listening to valve operation during a cleaning cycle or by inspecting the filters (a plugged filter may indicate a damaged cleaning valve).
2. Turn collector OFF and Lock-Out all energy sources.
3. Close the compressed air shut off valve (owner supplied) and bleed the pressure from the DFA manifold.
4. Remove the side access panel of the DFA.
5. Locate and mark each tube between the diaphragm valves and the solenoid enclosure to ensure they can be reconnected in their original locations.
6. Disconnect all tubes from the solenoid enclosure.
7. Remove the bolts attaching the solenoid enclosure to the manifold.
8. On the underside of the solenoid enclosure, unscrew the two screws securing the solenoid cover until the cover comes loose.
9. Remove the solenoid cover.
10. Replace or repair the damaged solenoid(s).
11. Re-attach the solenoid cover.
12. Reconnect the solenoid enclosure to the manifold.
13. Reconnect all tubing to original positions on the solenoid enclosure.
14. Re-install the side access panel.
15. Open the compressed air shut-off valve and re-pressurize the manifold.
16. Return power to the collector and resume DFA operation.

Fan and Motor Replacement

1. Turn collector OFF and Lock-Out all energy sources.
2. Turn compressed air OFFr and bleed pressure from the manifold
3. Remove the rear access panel.
4. Disconnect the motor from electrical wiring.
5. Loosen and remove the bolts securing the motor to the motor mount.
6. Remove the motor and fan wheel assembly from the housing.
7. Insert the new or repaired motor and fan assembly into the collector through the motor access opening.
8. Lift the motor and fan assembly to the motor mount and install and tighten the motor mounting bolts.
9. Adjust the motor fan position such that the cone position is 0.31-inches inside the fan wheel entrance.
10. Adjust the fan inlet cone to ensure no contact between the fan wheel and fan inlet cone.
11. Connect fan to electrical wiring. (Note: proper fan rotation should be confirmed any time wiring has been disconnected and reconnected.)
12. Reinstall the rear access panel.
13. Return power and compressed air to the collector and resume DFA operation.

Troubleshooting

Problem	Probable Cause	Remedy
Fan blower 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 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.
	Overload relay tripped	Reset. Check amp draw on motor leads.
Fan blower and motor start, but do not stay running	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 Replacement.
	Hopper discharge open	Check that dust container is installed and properly sealed.
	Electrical circuit overload	Check that the power supply circuit has sufficient power to run all equipment.
Clean-air outlet discharging dust	Filters not installed correctly	See Filter Replacement.
	Filter(s) damaged or worn	Replace filters as necessary. Use only genuine Donaldson replacement parts. See Filter Replacement.
	Access cover(s) loose	Tighten access doors securely. See Filter Replacement.
Insufficient airflow	Fan rotation backwards	Proper fan rotation is clockwise when viewed from the motor side or counterclockwise when viewed through the inlet cone. See Start-Up/Commissioning.
	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 Replacement.

Appendix A - Installation

Installation



Electrical Installation (including bonding and grounding of the collector) must be performed by a qualified electrician.

This equipment is not designed to support site ducts, piping, or electrical services. All ducts, piping, or electrical services must be adequately supported to prevent injury and/or property damage.

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

Service must be performed by trained and qualified maintenance personnel.

Turn all power off and lock out all power before performing service or maintenance work. It is not unusual for the equipment to be operated from a remote location, so equipment may start or stop unexpectedly.

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

Location and Site Selection



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.

Equipment location must conform to all codes and standards, should be suitable for the type of dust being handled and should ensure easy access for service and utility connections. Site selection must account for wind, seismic zone and other load conditions.

The equipment must be anchored once in final position. Anchors must comply with local code requirements. Anchors, foundation or 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.

Follow industry practice relative to clean air velocity into a fan.

Provisional Anchor Bolt Recommendations

The quantity of anchor bolts should match the number of holes provided in the base plates of the collector. Anchor diameter is typically 1/8-inch less than the baseplate hole diameter. Anchors should project a minimum of 1 3/4 -inch and account for nut, washer, baseplate, and shims/grout.

Delivery and Inspection

Upon arrival inspect equipment and report any damage to delivery carrier. File any damage claims with the delivery carrier. Request a written inspection report from the Claims Inspector to substantiate all damage claims.

Compare the equipment received with the description of product ordered. Report any incomplete shipments to the delivery carrier and your Donaldson Torit representative.

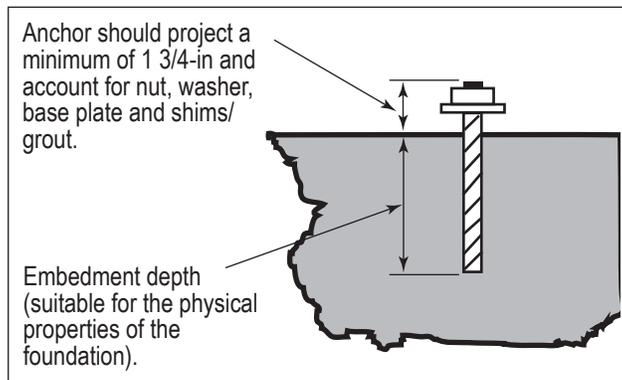
Unloading and Positioning



Equipment should be lifted only by qualified crane or fork truck operators.

Failure to lift the equipment correctly can result in severe personal injury and/or property damage.

1. Remove any crates or shipping straps.
2. Lift the packaged collector from transport container.
3. Inspect for any damage and/or missing parts and report to freight carrier.
4. Check for any hardware which may have become loose during shipment and tighten as necessary.



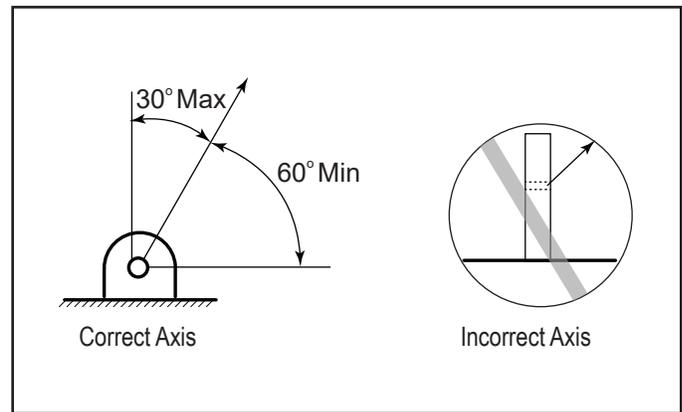
Typical Foundation Anchor

Lifting Information



Failure to lift the equipment or sub-assemblies correctly can result in severe personal injury and/or property damage. Only qualified crane or forklift operators should be allowed to lift equipment.

1. Use all lifting points provided.
2. Use clevis connectors, not hooks, on lifting slings.
3. Use spreader bars to prevent damage to equipment.
4. Check the Specification Control drawing for weight and dimensions of the collector and components to ensure adequate crane capacity.
5. Lift collector and accessories separately and assemble after collector is in place.
6. Use drift pins to align holes in section flanges during assembly.



Typical Lifting Guidance

Support Installation



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

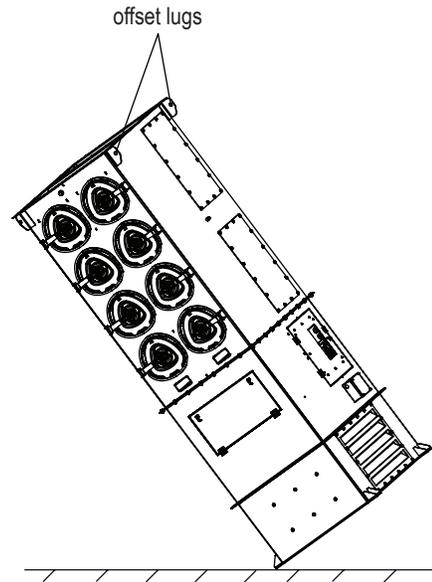
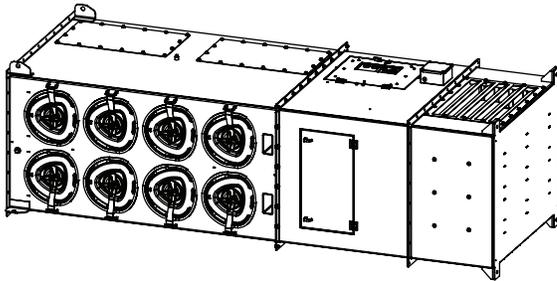
Anchor sizes shown are provisional, as final anchor sizing will depend on jobsite load conditions, equipment location, foundation/framing design variables and local codes.

Consult a qualified engineer for final selection of suitable 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. Set the hopper on the ground or a flat surface with the collector connection flange down. The discharge opening on the hopper base should be oriented up.
3. Use drift pins to align holes.
4. Reference the Leg Positioning and Leg and Cross Brace Assembly drawings. Attach the legs to the hopper gussets using the hardware supplied.
5. Join multiple hoppers together at hopper gussets using the hardware supplied. Do not tighten hardware at this time.
6. Turn leg and hopper assembly over and position over anchor bolts. Secure each leg pad to the foundation anchor bolts with customer-supplied flat washers and nuts. Do not tighten hardware at this time.
7. Level hopper.
8. Tighten all hardware securing legs, cross braces, hopper gussets, and foundation anchor bolts.

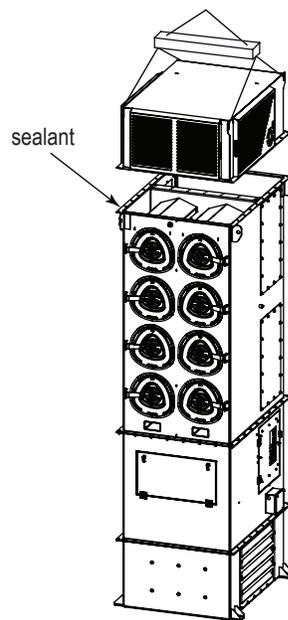
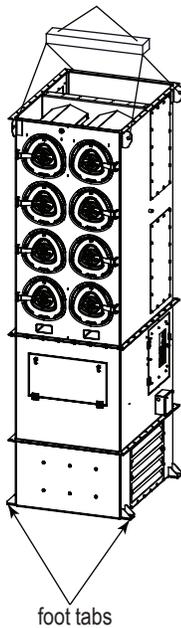
1. The DFA collector shipped on its side



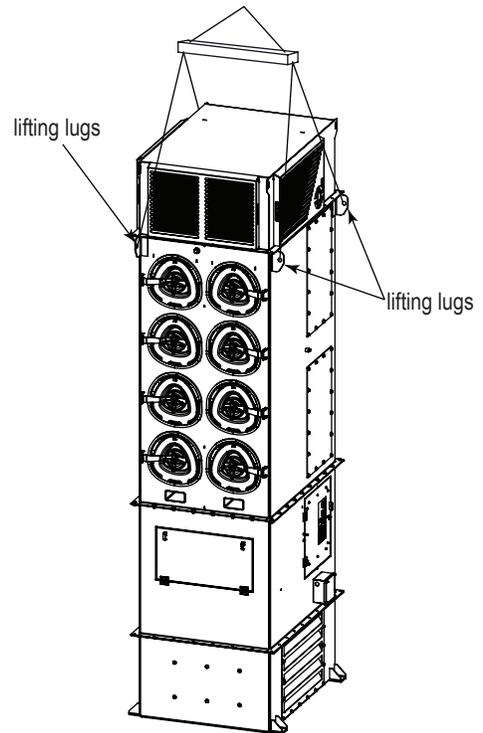
2. Lift the collector upright using the offset lugs at top of collector as shown

3. Anchor the lower body of the collector into position using foot tabs.

Note: If moving collector use spreader bar to distribute the load evenly.



4. Apply rope sealant around upper flange of main body
5. Lower the inlet plenum onto the main body and bolt into place



6. If moving collector after assembly, Use main body lifting lugs and spreader bar as shown

Compressed Air Installation



Turn compressed air supply OFF, bleed and lock out lines before performing service or maintenance work.

A safety exhaust valve should be used to isolate the compressed air supply. The safety exhaust valve should completely exhaust pressure in the collector manifolds when closed, should be capable of being interlocked with fire or explosion mitigation equipment and should include provisions to allow closed-position locking.

NOTICE

Do not set compressed-air pressure above 100-psig as component damage can occur.

All compressed air components must be sized to meet the system requirements of supply pressure.

The compressed-air supply must be oil and moisture free. Contamination in the compressed air used to clean filters will result in poor cleaning, cleaning valve failure, or poor collector performance.

Purge compressed-air lines to remove debris before connecting to the collector's compressed-air manifold.

1. Remove the pipe plug from the collector's air supply coupling and connect the compressed-air supply lines. Use thread-sealing tape or pipe sealant on all compressed-air connections.
2. Install a shut-off valve, bleed-type regulator with gauge, filter, and automatic condensate valve in the compressed-air supply line.
3. Set compressed-air supply pressure to a level suitable for the filters (90-psig).
4. The pulse-cleaning controls are factory set to clean one or more filters every 10-seconds during a cleaning cycle.

Electrical Wiring



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

Turn all power off and lock out all power before performing service or maintenance work. It is not unusual for the equipment to be operated from a remote location so equipment may start or stop unexpectedly.

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

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

Solid-State Timer Installation



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

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

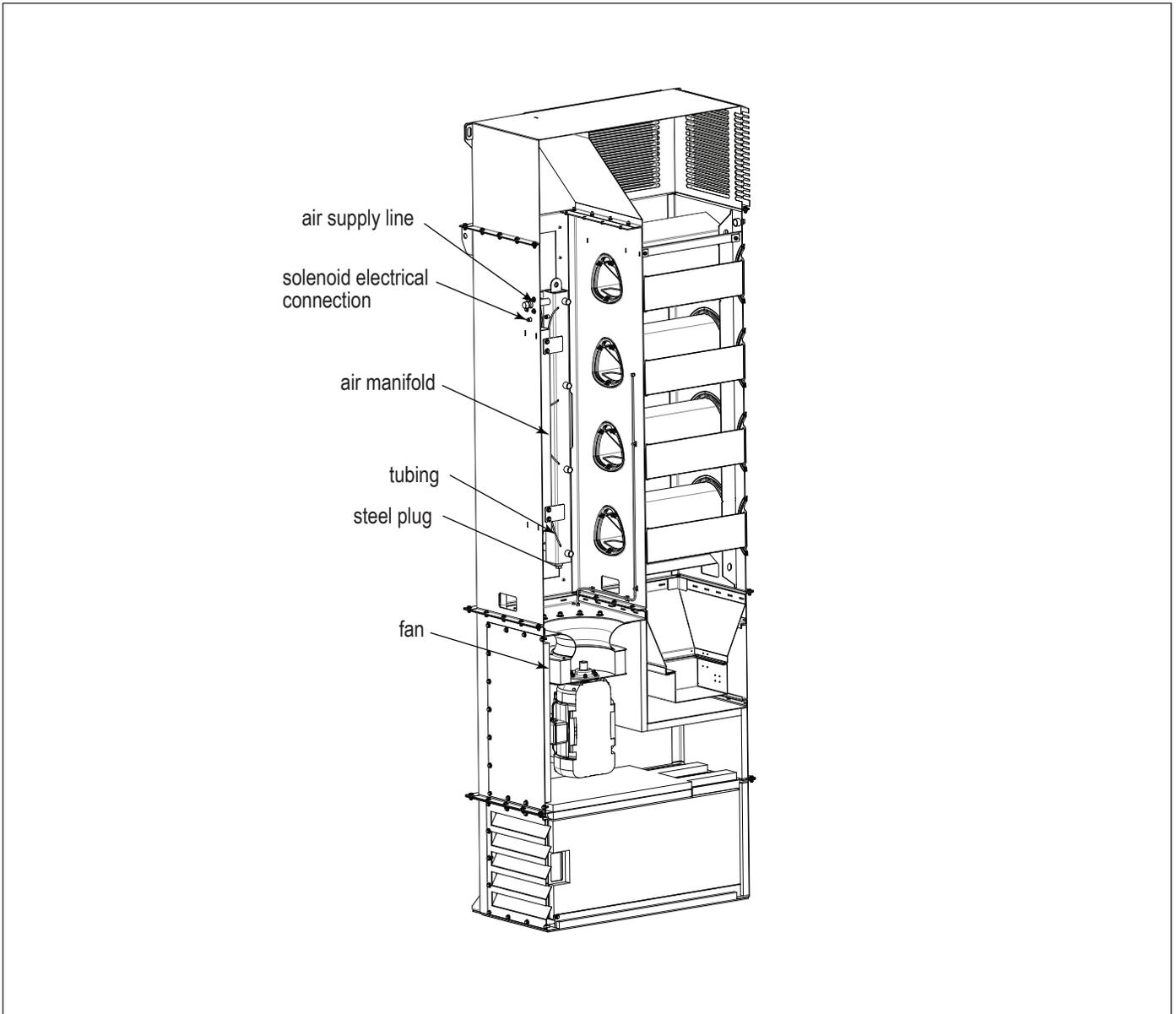
Do not install in classified hazardous atmospheres without an enclosure rated for the application.

1. Using the wiring diagram supplied with the timer assembly, wire the fan motor, fan motor starter, solid-state timer and solenoid valves. Use appropriate wire gauge for rated amp load as specified by local codes.
2. Plug the program lug into the pin that corresponds with the number of solenoid valves controlled. For 20 and 32 PIN solenoid controls, set the switch positions on the DIP switch labeled LAST CHANNEL to the corresponding number of pulse valves using the chart printed on the timer board.

NOTICE

The solid-state timer voltage must match the voltage of the rating of the timer provided (typically 120VAC).

Do not mount the solid-state timer directly to the collector as mechanical vibration can damage the timer.



Typical Component Installation

Solenoid Connection

The collector is equipped with electric solenoid valves (typically 120V) that control the pulse-cleaning valves, which in turn release compressed air from the manifold to clean the filters.

Solenoid enclosures are mounted near or on the collector's compressed-air manifold.

Wire the solenoids to the solid-state timer following the wiring diagram supplied with the collector. Filter life and cleaning operation will be affected if not wired correctly.

Timer and Solenoid Specifications

Power to the solid-state timer is supplied to Terminals L1 and L2, which are intended to operate in parallel with the fan starter's low-voltage coil. On fan start-up, power is supplied to the timer and the preset OFF time is initiated. At the end of the OFF time, the timer energizes the corresponding solenoid valve to provide the ON time cleaning pulse for one diaphragm valve and then steps to the next until all filters have been cleaned.

To pulse when the fan is OFF, install a toggle switch as shown on the Solid-State Timer Wiring Diagram. When the toggle switch is ON, the timer receives power and energizes the solenoid valve pulse-cleaning operation even though the fan is turned OFF.

Input
105-135V/50-60Hz/1Ph

Output Solenoids
The load is carried and turned ON and OFF by the 200 watt maximum-load-per-output solid-state switch.

Pulse ON Time
Factory set at 100-milliseconds, or 1/10-second.

NOTICE

Do not adjust pulse ON time unless the proper test equipment is available. Too much or too little ON time can cause shortened filter life.

Pulse OFF Time
Factory set at 10-seconds, adjustable from 1.5-second minimum to maximum 30-seconds.

Operating Temperature Range
-20° F to 130° F

Transient Voltage Protection
50 kW transient volts for 20-millisecond duration once every 20 seconds, 1% duty cycle.

Solenoid Valves
115-Volt at 19.7 watts each

Compressed-Air
Set compressed-air supply pressure to a level suitable for the filters (90-psig). The pulse-cleaning controls are factory set to clean one or more filters every 10-seconds during a cleaning cycle.

NOTICE

Do not increase supply pressure above 90-psig as component damage can occur.

Fan Control

Integral Housed Fans

1. The fan assembly housing is integral to the collector. The wheel and motor are installed to the housing using 8 bolts.
2. To access wheels, remove motor, remove 8 bolts and lift out motor/wheel assembly.
3. To reinstall motor wheel assembly, apply sealant to the outside edge of the bolt pattern on the power pack housing. Reinstall the motor/wheel assembly using hardware from Step 1.

Note: Wheel assembly should extend $1/8 +0.0$ to $-1/16$ past the top of the inlet ring when properly installed.

Torque set screw to 10-11 Ft Lb, not to exceed 13-Ft Lb for aluminum hubs (typical).

For steel hubs, set torque to 11-13 Ft Lb, not to exceed 14-Ft Lb

4. Rotate fan wheel after installation to ensure proper rotation.

Cleaning Controls and Sensors

Delta P Control

For complete information, see the most current version of the Delta P Installation, Operation, and Maintenance manual.

Options and Accesories

Compressed Air Dump Valve

The compressed air dump valve can be installed in the compressed air supply line to shut off compressed air supply and discharge stored compressed air from the collector when the power interrupt panel triggers a shutdown of the collector. Refer to the Compressed Air Dump Valve Supplemental Instruction Sheet and shipped with the collector for valve location options.

Sprinkler Coupling

NOTICE

Sprinkler couplings are provided for the convenience of fire control system installers. The fire control system installer shall make their own decisions on the appropriate location of fire control system components.



Delta P Control Display

Start-up / Commissioning

Instruct all personnel on safe use and maintenance procedures.



Electrical installation, service, or maintenance work must be performed by a qualified electrician and comply with all applicable national and local codes. This equipment may start or stop unexpectedly from a remote location.

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

Turn compressed air supply OFF, bleed and lock out lines before performing service or maintenance work.

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

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

1. Check all electrical connections for tightness and contact.
2. Check for proper rotation on all motors as described below.



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 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.

- a. "Bump" the fan to initiate rotation.
 - b. As the fan is winding down (unpowered) compare fan rotation to the rotation label (located on fan housing) direction.
3. If the fan rotation is reversed, correct the rotation.

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.

- a. Turn off the collector and Lock-Out all energy sources.
- b. Within the junction box, swap the connection location of two power leads on the terminal block, making certain not to swap a power lead and the ground wire.



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

4. Ensure all equipment access panels are sealed and secure.
5. Check that the dust container is properly sealed and clamped.
6. Check and remove all loose items in or near the inlet and outlet of the collector.
7. Check that all remote controls and solenoid enclosures (if applicable) are properly wired and all service switches are in the OFF position.
8. Check that all optional accessories are installed properly and secured.
9. Turn power ON at source.
10. Turn the compressed-air supply ON. Set compressed-air supply pressure to a level suitable for the filters (90-psig).
11. Turn fan motor ON.
12. Ensure fire mitigation system water is installed and functioning correctly, if present.

Decommissioning

Once the collector has reached the end of operational life it will need to be decommissioned.



During decommissioning, there is potential for exposure to the dust in the collector. Most dusts present safety and health hazards that require precautions. Wear eye, respiratory, head, and other protection equipment suitable for the type of dust when performing any decommissioning activities.

LOCK-OUT all energy sources prior to performing any decommissioning activities on the equipment.

Electrical service must be performed by a qualified electrician.

Disconnection of ducts must be performed by a qualified contractor.

1. Prior to decommissioning the collector, run the collector through a pulse cleaning cycle to dislodge accumulated dust from the filters.
2. Lock-Out all energy sources to the collector, material handling system and other associated equipment.
3. Remove all filters from the collector and dispose of in a suitable fashion for the dust in the collector. (See Filter Replacement for removal instructions).
4. Disconnect electrical power from the collector and material handling system components and remove any associated conduit or from the exterior of the collector.
5. Disconnect and remove inlet assembly from lower assembly if necessary to simplify handling and transport of components from facility.
6. Once disassembly of upper section is complete, remove floor anchors to allow removal of the lower assembly.
7. Secure all collector components to a suitable transport carrier and transport to a disposal site suitable for the dust in the collector.

Donaldson Industrial Air Filtration Warranty

Donaldson warrants to the original purchaser only that the Goods will be free from defects in material and manufacture for the applicable time periods stated below: (1) Major structural components for a period of ten (10) years from the date of shipment; (2) Non-Structural, Donaldson-built components and accessories including Donaldson Airlocks, TBI Fans, TRB Fans, Fume Collector products, Donaldson built electrical control components, and Donaldson-built Afterfilter housings for a period of twelve (12) months from date of shipment; and (3) Donaldson-built filter elements for a period of eighteen (18) months from date of shipment.

Buyer is solely responsible for determining if goods fit Buyer's particular purpose and are suitable for Buyer's process and application. Seller's statements, engineering and technical information, and recommendations are provided for the Buyer's convenience and the accuracy or completeness thereof is not warranted. If, after Seller receives written notice, within the warranty period, that any goods allegedly do not meet Seller's warranty, and Seller, in its sole discretion, determines that such claim is valid, Seller's sole obligation and Buyer's exclusive remedy for breach of the foregoing warranty or any Seller published warranty, will be, at Seller's option, either: (i) repair or replacement of such goods or (ii) credit or refund to Buyer for the purchase price from Seller. In the case of repair or replacement, Seller will be responsible for the cost of shipping the parts but not for labor to remove, repair, replace or reinstall the allegedly defective goods. Refurbished goods may be used to repair or replace the goods and the warranty on such repaired or replaced goods shall be the balance of the warranty remaining on the goods which were repaired or replaced. Any repair or rework made by anyone other than Seller is not permitted without prior written authorization by Seller, and voids the warranty set forth herein. Seller warrants to Buyer that it will perform services in accordance with the Sales Documents using personnel of required skill, experience and qualifications and in a professional and workmanlike manner in accordance with generally recognized industry standards for similar services. With respect to any services subject to a claim under the warranty set forth above, Seller shall, in its sole discretion, (i) repair or re-perform the applicable services or (ii) credit or refund the price of such services at the pro rata contract rate and such shall be Seller's sole obligation and the exclusive remedy for breach of the foregoing warranty on services. Products manufactured by a third party ("Third Party Product") may constitute, contain, be contained in, incorporated into, attached to or packaged together with, the goods. Buyer agrees that: (a) Third Party Products are excluded from Seller's warranty in this Section 7 and carry only the warranty extended by the original manufacturer, and (b) Seller's liability in all cases is limited to goods of Seller's design and manufacture only. EXCEPT FOR SELLER'S WARRANTY OF TITLE TO THE GOODS, SELLER EXPRESSLY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES WHATSOEVER, WHETHER, EXPRESSED OR IMPLIED, ORAL, STATUTORY, OR OTHERWISE, INCLUDING BUT NOT LIMITED TO MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, NON-INFRINGEMENT OF THIRD PARTY INTELLECTUAL PROPERTY AND ANY WARRANTIES ARISING FROM TECHNICAL ADVICE OR RECOMMENDATIONS, COURSE OF DEALING OR OF PERFORMANCE, CUSTOM OR USAGE OF TRADE. Seller's obligations do not cover normal wear and tear or deterioration, defects in or damage to any goods resulting from improper installation, accident or any utilization, maintenance, repair or modification of the goods, or any use that is inconsistent with Seller's instructions as to the storage, installation, commissioning or use of the goods or the designed capabilities of the goods or that, in its sole judgment, the performance or reliability thereof is adversely affected thereby, or which is subjected to abuse, mishandling, misuse or neglect or any damage caused by connections, interfacing or use in unforeseen or unintended environments or any other cause not the sole fault of Seller, and shall be at Buyer's expense. Seller's warranty is contingent upon the accuracy of all information provided by Buyer. Any changes to or inaccuracies in any information or data provided by Buyer voids this warranty. Seller does not warrant that the operation of the goods will be uninterrupted or error-free, that the functions of the goods will meet Buyer's or its customer's requirements unless specifically agreed to, or that the goods will operate in combination with other products selected by Buyer or Buyer's customer for its use.

The terms of this warranty may only be modified by a special warranty document signed by a Director, General Manager or Vice President of Donaldson. To ensure proper operational performance of your equipment, use only genuine Donaldson replacement parts.

This Product is provided subject to and conditioned upon Donaldson's Terms of Sale ("Terms"), a current copy of which is located at termsofsale.donaldson.com. These Terms are incorporated herein by reference. By purchasing or using this Product, the user accepts these Terms. The Terms are available on our website or by calling our customer service line at 1-800-365-1331.

Significantly improve the performance of your collector with genuine Donaldson Torit replacement filters and parts. **Call Donaldson Torit at 800-365-1331.**

Important Notice: Many factors beyond the control of Donaldson can affect the use and performance of Donaldson products in a particular application, including the conditions under which the product is used. Since these factors are uniquely within the user's knowledge and control, it is essential the user evaluate the products to determine whether the product is fit for the particular purpose and suitable for the user's application. All products, product specifications, availability and data are subject to change without notice, and may vary by region or country.



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