

THE WORLD LEADER IN CLEAN AIR SOLUTIONS

AAF® INTERNATIONAL

INSTALLATION, OPERATION AND MAINTENANCE MANUAL

FabriPulse® M



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1 **FabriPulse M**

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1 INTRODUCTION

This document contains the information necessary to properly receive, assemble, install, operate, and maintain the AAF FabriPulse Design “M” filter system and filters. The purchaser, installer, and operator of the filter system **MUST** read and comply with this document in its entirety prior to installation of the equipment and its operation. Failure to comply with the requirements of this manual may void the product warranty. The information and guidelines contained in this manual are not exhaustive, and additional or different precautions, measures, training, etc. may be needed depending on the specific circumstances.

CAUTION: These instructions are specific to the AAF FabriPulse M filter system and filters. All ancillary tasks including, but not limited to, electrical and mechanical work, equipment handling, and safety procedures must be performed in accordance with industry accepted practice and all relevant local, state, and federal government codes, laws, and policies.

2 SAFETY

2.1 Safety statement

The air cleaning equipment supplied by AAF International ranges from very large multiple-component assemblies which require significant and complex, rigging, handling and assembly on-site, to small compact assemblies that are easily handled and maneuvered. In addition to size, many of the dust collectors will require electrical connections, compressed air connections, and will feature high speed rotating equipment.

At all times, when dealing with industrial equipment such as dust collection equipment personnel safety must be the highest priority of all involved, from riggers, installers, operators, users, and maintenance personnel. Those responsible on-site shall review the details of the equipment beforehand and develop a plan for dealing with all stages of the installation from receipt of the equipment on-site to start-up, commissioning, and hand-over. All applicable health, safety, and environmental (“HSE”) rules, regulations, and legislation shall be fully complied with at all times.

2.2 Safe working practices and staff training

AAF International is fully committed to the safety of its employees and those of its customers. In this spirit the following guidelines are offered for the consideration of those responsible:

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All personnel shall receive safety training specific to the site, the task, and the conditions under which the work will be conducted.

All personnel shall be equipped with appropriate safety apparel and equipment, such as clothing, footwear, hard-hats, gloves, ear protection, eye protection, and safety harness.

All personnel involved in any stage of the process shall have been trained for the tasks in which they will be involved and at all times shall be under the direct supervision of experienced supervisors and managers.

All personnel shall be equipped with appropriate tools and equipment to safely and efficiently complete their task.

Adequate lighting shall be supplied at all times while work is being conducted.

A work perimeter shall be set up to define the limits of the area within which the work will be conducted and outside which there will be no threat to the safety of personnel or plant. The perimeter shall be taped-off and marked appropriately to prevent accidental ingress of uninvolved personnel or equipment. When the work area impedes into existing access ways or traffic routes for which no practical alternative is available, barriers, wardens and flaggers shall be employed to safely control crossing traffic and personnel.

At any time only those personnel directly involved in completing the task at hand shall be allowed within the work perimeter.

2.3 Dust explosions

Dust explosions constitute a serious industrial hazard and may result in death, serious injury, and/or devastating property damage. It is the responsibility of the user to identify the nature of the dust and whether or not it poses an explosive hazard and to properly mitigate this hazard. Except as otherwise expressly provided in writing, AAF makes no representation or warranty in connection with explosion hazard equipment, including, but not limited to, the necessity or effectiveness of explosion hazard equipment or to the design, installation, operation, and performance of such equipment. The basic standard for dealing with explosive dust applications is the National Fire Protection Agency ("NFPA"), NFPA 69: Standard on Explosion Prevention Systems. This standard

applies to the design, installation, operation, maintenance, and testing of systems for the prevention of explosions by means of various methods. The user shall be fully conversant with the provisions of NFPA and shall comply in full with all of its requirements.

By its very nature AAF equipment is intended to be used to capture airborne particulate matter, otherwise known as dust. There are various methods for dealing with a dust explosion in a dust collector. These can include, but are not limited to, the use of properly designed explosion vents, explosion suppression systems, or flameless vents. The user shall understand which method is being used and who is responsible for the design and supply of the equipment required. When an explosive dust has been properly identified to AAF the dust collector may be structurally designed to withstand the internal pressure generated during the explosive event and fitted with an explosion vent, or with multiple vents, designed to safely discharge the pressure and the resulting fireball. The user shall review the purchase order and the documents referenced within it to determine if explosion protection equipment has been supplied by AAF International. Where this is the case, review the appropriate sections of this manual that deal with the installation, operation and maintenance of the equipment ordered.

When explosion protection systems are supplied by multiple vendors, it is the responsibility of the user to coordinate between suppliers to ensure that the equipment supplied by each vendor will work together to achieve the required protection. For instance, if an explosion suppression system is being supplied by parties other than AAF, it is incumbent on the user to ensure that the dust collection equipment has been ordered to resist the internal pressure defined by the suppression equipment supplier.

Dust collectors fitted with explosion vents must not be located indoors, unless properly designed in accordance to NFPA regulations. The equipment shall be oriented so that the vent will discharge to an unoccupied zone. Such a zone will be prohibited to personnel and shall not include critical equipment or services such as fuel storage tanks, flammable materials, fire hydrants, power distribution or electrical control equipment, or similar. If the vent (or vents) is located on the side(s) of the equipment the vent discharge area shall be isolated with barriers erected to prevent the parking of vehicles, pedestrian use, use of the area for temporary storage, etc. Warning signs shall be posted. Include diagrams showing the distribution of a typical dust explosion discharge.

2.4 Electrical hazards

Before doing any work on the AAF equipment make sure that all potential electrical hazards have been identified and that all electric current connected to the equipment, and to any connected or associated equipment, has been properly disconnected and securely locked-out to prevent accidental reconnection prior to completion of the work. All electrical work shall be done in full accordance with the current edition of NFPA 70, the National Electrical Code, and all other applicable laws, rules, and regulations. All electrical work shall be performed by a licensed electrician. Only original AAF parts shall be used as replacements for ongoing maintenance and repair.

2.5 Rotating equipment

The FabriPulse M can include a fan which is installed on the top of the dust collector, either on top of the collector or as an integral fan. The fan wheel rotates at a nominal speed of 3,600 rpm and has the potential to cause severe injury. The fan wheel could be accessed from inside the cabinet through the air inlet if the pulse pipes are removed, and from outside the cabinet through the fan discharge. All due care should be exercised to avoid any contact with the operating fan. Under no circumstances should the fan ever be allowed to operate when any of the access panels on the dust collector, or the silencer, have been removed. The fan must be disconnected and locked out prior to the performance of any maintenance work, see paragraph 2.4.

2.6 Safety guards

The dust collector cabinet prevents access to the fan inlet. All access panels shall remain bolted in place while the fan is operating. Prior to the removal of any access panels, the electrical power to the collector shall be disconnected and locked out, see paragraphs 2.4 And 2.5. After electrical power is disconnected, the fan wheel will continue to rotate for a period of time before coasting to a stop. Do not access the fan until the fan wheel has come to a complete stop.

3 GENERAL PRODUCT INFORMATION

3.1 Description

The FabriPulse M is a pre-assembled continuous and automatic self-cleaning pulse-jet dust collector. The FabriPulse M is a complete pulse-jet collector system capable of providing continuous on-line cleaning. This collector utilizes high efficiency bag filter elements arranged in a vertical arrangement. Dust laden air enters in the high inlet and moves in a true down flow direction between the filters. The airstream passes through the media as the dust is collected on the

filter media. The clean air then moves through the tube sheet section and into a clean air plenum at the top of the module.

There are three main designs of the FabriPulse M: standard hopper design, bin vent design, and integral fan design.

The standard hopper design will have either a remote mounted or top mounted fan, with a standard hopper.

The bin vent design will not have a hopper and does not come with a fan. This is used to vent large areas, like a silo, by differential pressure between the silo pressure and the atmosphere.

The integral fan design is the same design as the standard hopper design, but with a fan that is integral to the top of collector.

3.2 Purpose and intended use

The FabriPulse M is intended to be used for relatively dry nuisance dusts, with loadings generally less than 8 grains per cubic foot (8 gr/ft³). Typical applications a FabriPulse M is used for include woodworking, metalworking, chemical, mining, and food processing. The standard bag media that is used in the FabriPulse M should be suitable for the intended application.

Contact AAF International for assistance on a bag design for your application. It is recommended that you use only AAF International bags on AAF International equipment.

3.3 Normal Operation

During normal operation, air enters the FabriPulse M dust collector through the high inlet and moves downward through the dirty air plenum, in true "down flow" fashion. The cleaned air passes through the filter elements, while dust is collected on the outside surfaces of the elements. Clean air flows through the center of the elements into the clean air plenum, where it exits through the clean air outlet.

During filter element cleaning, a pulse controller automatically selects the element or pair of elements to be cleaned, activating solenoid valves which open air diaphragm valves. High pressure air pulses directly into the center of the selected element, or pair of elements, for 100 milliseconds, blowing collected dust

off the filter element(s). The dust is swept downward into the hopper by the prevailing airflow and gravity.

3.4 Sizes

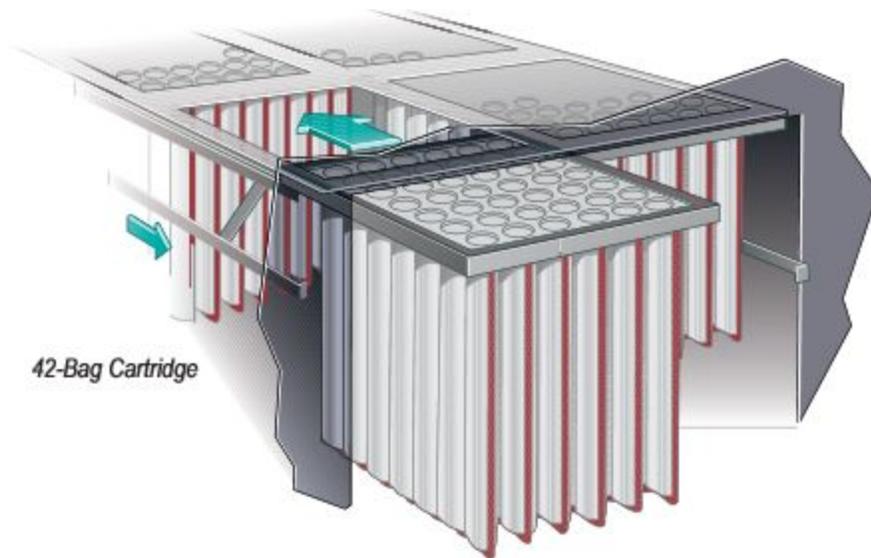
The FabriPulse M comes with bags in two different lengths- 4 and 6 feet.

Each header of the FabriPulse M comes with 42 bags. The size nomenclature for the FabriPulse M is the length of the bag, followed by the total number of bags, followed by the total square feet of available media. For instance, the 6-336-1200 means that the collector has 6 foot bags, has 336 total bags, and a total media area of 1200 square feet.

3.5 Filter elements

The FabriPulse M utilizes a unique header design that has a 6x7 array of bags in each header. This makes maintenance of the collector much easier than any other baghouse on the market. Each bag is 2.25" diameter bags and are arranged in a 3"x2.5" spacing pattern. Bags are factory mounted over a galvanized steel support spring and attached to a venturi.

Operating temperature is dependent on type of venturi and/or bag material specified. Inspection, maintenance and bag replacement is through hinged, side-mounted access doors. Contact AAF International for assistance on a bag design for your application. It is recommended that you use only AAF International bags on AAF International equipment.



3.6 Weights

Model	Net weight of unit without ancillaries or any dust loading (lbs)
4-42	750
6-42	850
4-84	1040
6-84	1140
4-168	1575
6-168	1735
4-252	2070
6-252	2270
4-336	2745
6-336	3045
4-420	3315
6-420	3765

Note: The table is for guidance only. The collector delivered may vary, according to a number of factors such as addition of accessories, greater stiffening for NFPA models, or where the unit is specially built for applications where the system pressure is greater than the standard 20" w.g. design pressure is anticipated.

4 PRODUCT SHIPMENT

Unless otherwise defined in the purchase order and agreed by AAF, the FabriPulse M is arranged and palletized for domestic transit and shipped FOB the AAF factory. The method of shipment will be as specified in the customer's purchase order to AAF.

4.1 How the product ships

All of the FabriPulse M dust collectors are shipped factory assembled requiring only:

- Assembly of hopper section to housing on sizes 336 and 420
- Field bolting of the legs and braces
- Connection of ductwork and/or the fan
- Connection of hopper discharge device(s)
- Mounting and wiring of the control box
- Connection of compressed air supply
- Differential and air pressure gauge connections

4.2 Items that ship separately

To save the customer money, AAF International may ship items separately. The customer will be notified of which equipment ships separately when the order is placed. Items that ship separately should be set aside in an area that is clean, dry, and in a place where damage to the equipment will not occur.

5 PRODUCT RECEIPT AT THE DESIGNATED DELIVERY POINT

5.1 Responsibilities of the customer or customer's agent

Ensure all loading/unloading equipment and safety equipment is on site at the time of delivery. Safe and efficient operation of the collector depends on proper installation. Know proper codes and regulations before installation starts.

5.2 Receiving

Remove crates, tarps, shipping straps, etc. along with any loose items or equipment before unloading the FabriPulse M.

5.3 Inspection on arrival

The FabriPulse M is normally shipped by truck and should be checked for damage that may have occurred in route. Compare the collector(s) received to the description and/or drawing of the collector(s) ordered. Report any differences or missing items from the order to AAF International. Remove loose items or components before lifting the collector from the truck.

A qualified installation and service company should complete installation of the collector and accessories.

5.4 Damaged goods

If there is any visible damage to the packaging or the equipment notify the carrier before proceeding further and, if appropriate, file an immediate claim with the carrier against such damage. Be aware that damage to packaging may indicate hidden damage to the product that is not immediately discernable.

Digital color photographs must be taken of any damage to the packaging and the equipment immediately on discovery. The nature of any damage must also be documented in writing. Adequate documentation will be critical to support any claims.

Contact AAF International for claim filing procedure.

5.5 Missing goods

Any missing goods should be noted on the delivery receipt and the carrier notified immediately. Contact AAF International for claim filing procedure.

FOR ASSISTANCE: Contact AAF International at 1-800-477-1214. Have the AAF control number available. The control number can be found on the shipping papers.

6 UNLOADING AND HANDLING

6.1 Unloading and lifting into position

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

Never stand or work beneath a suspended load.

Connect lifting sling to at least four cabinet lifting lugs, distributing the load evenly. Connect lifting sling to double-thickness cabinet lifting lugs provided on collectors 3 and 4 modules wide. Always use spreader bars on collectors field assembled wider than 4 modules.

Use clevises, not hooks, on lifting sling.

Use of spreader bars is recommended on all lifting slings.

Check the drawings of the specific FabriPulse M ordered for dimensions and weight to ensure proper lifting and installation equipment.

All lifting operations must be made in compliance with the relevant Health and Safety legislation.

7 STORAGE AND PROTECTION

In the event the FabriPulse M is not placed in service within 30 days after receipt, the filter bags must be removed and stored in a clean, dry place to prevent possible moisture accumulation in the media.

8 SITE PREPARATION

8.1 Locating equipment

The dust collector site location must take into account the wind and seismic loadings. See collector specifications to ensure proper site location.

The collector is suitable for indoor and outdoor applications. Ensure proper equipment and accessories are equipped on the FabriPulse M for such installations. The collector can be located on a foundation (by others) or on structural framing (by others).

Ensure local codes and regulations are followed for the materials being collected. Noise levels should be considered when selecting the proper location of the FabriPulse M.

Locate the FabriPulse M in a location so that maintenance to the collector can be handled easily. See collector drawing for header clearance.

In the case of hazardous dust, consult your local authorities, codes, or regulations for the location of the unit.

8.2 Foundations

The FabriPulse M dust collector is usually mounted on a reinforced concrete foundation. However, roof mounting is also possible. When calculating for foundation or roof mounting, the weight of the dust collector, material collected, and all auxiliary equipment must be considered together with snow, wind, and

seismic loads. Check the drawings of the specific FabriPulse M ordered for the dust collector weight.

8.3 Anchoring

See the specific FabriPulse M collector drawing for anchor bolt location. Anchor bolts must extend at least 1.75 inches above the foundation. The collector should be located with consideration for emptying hoppers, electrical and air connections and maintenance, and should have the shortest run of ductwork possible.

9 ASSEMBLY AND INSTALLATION

9.1 Introduction

Safe and efficient operation of the FabriPulse M depends on proper installation.

AAF recommends that the ductwork going into the collector be as straight as possible, with at least 5 diameters of straight run recommended.

Authorities with jurisdiction should be consulted before installing the FabriPulse M to insure local installation codes and installation procedures are followed.

A qualified installation and service agent must complete installation and service of the dust collector and equipment.

Ensure all covers from shipping and loose materials are removed from the collector before installation. Failure to do so can result in failure of the dust collector.

Ensure the hardware on the dust collector assemblies are properly installed and tight before installation.

9.2 Assembling and installing the structure

9.2.1 Products shipped as a single assembly

All of the FabriPulse M dust collectors are shipped factory assembled requiring only:

- Assembly of hopper section to housing on sizes 336 and 420
- Field bolting of the legs and braces
- Connection of ductwork and/or the fan
- Connection of hopper discharge device(s)
- Mounting and wiring of the control box
- Connection of compressed air supply
- Differential and air pressure gauge connections
- Installation of the filter elements

9.2.2 Installing the leg structure

Assemble the leg structure onto the prepared foundations or steelwork using the supplied GA drawing which shows the position of all the legs and cross braces. Ensure all the nuts and bolts are tightened and the structure is mechanically sound and secure, and level before proceeding to the next stage.

Anchors must comply with local code requirements and must be capable of supporting dead, live, wind, seismic, and other applicable loads for the area the dust collector is going to be installed.

Consult with a qualified engineer for foundation and anchoring design.

9.2.3 Installing the hoppers

Position the hopper(s) onto the leg structure and fix it into position using the GA drawing as a guide. Level the hopper once installed.

9.2.4 Collector Housing

Apply sealant (supplied by AAF) to the upper flanges of the hopper(s) ensuring the sealant circles around each bolt hole.

Lift the housing module(s) using its lifting lugs and lower into position onto the hoppers so that the holes in the matching flanges correctly align.

CAUTION– Never stand or work beneath a suspended load.

Make certain that the housing is safely positioned onto the hoppers/supporting steel structure and that it cannot possibly fall should there be a failure of the lifting supports.

Secure the housing to the hopper with the bolts, washers, and nuts that are supplied.

All the bolts must be tightened to the appropriate torque setting. The lifting equipment can now be removed.

9.2.5 Installing the access components

When access components, such as an access platform, are ordered with the FabriPulse M, separate installation instructions will be provided with the collector.

9.2.6 Installation of control panel

Refer to the electrical drawings issued with the GA drawing.

When the AAF Control Center or Pressure Demand controller is to be used, select a location for fixing the enclosure within 15ft of the static taps located on the FabriPulse M side panels. Usually the Pressure Demand controller is fixed to the leg structure but it can be remotely located if desired.

AAF provides plastic tubing for the pulse controller to be located 15ft from the static taps. A more remote position is acceptable if additional tubing is obtained. A practical limit of 30ft applies.

Once the pulse controller is fixed in position, connect two parallel lines of plastic tubing to the 2 connection taps on the pulse controller and the other ends to the static taps located on the side wall of the FabriPulse M. These plastic pipes allow the pulse controller to measure and display the differential pressure that exists between the clean air plenum and dirty side plenum. In some modes of operation, this differential pressure is used to control the pulsing.

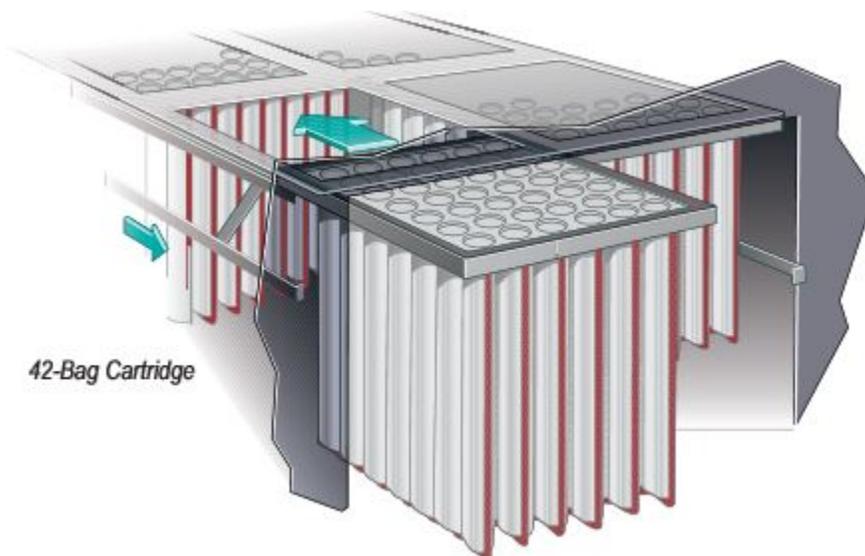
Connect the high pressure port to the dirty side of the collector and connect the low pressure port to the clean air side (back of the unit). Both ports are located on the side of the collector.

See the separate pulse controller manual for a full explanation of its features and modes of operation.

9.2.7 Installation of the filter elements

Check new header assemblies for bag or ventur damage. The spring inside the bag should stretch from the venture to the bottom of the bag. Also check for venturis that may have become unseated during shipping.

Normally, when the bags need to be replaced, the entire 42 bag header is to be replaced with a new one. An entire header can be replaced in minutes, eliminating a labor intensive procedure of replacing 42 individual bags. Also, since a new header is equipped with new sealing gaskets, reuse of old, worn and leaking gaskets is also avoided.



For bag installation and removal refer to the image above and follow these instructions:

1. Open the hinged door.
2. To remove the header, release the sealing levers by pushing them toward the back of the collector. This will release the bag assembly for removal.
3. Slide the bag assembly toward the door opening and remove. If the unit has a second bag assembly behind the first, it may also be removed by sliding it out the door opening.

4. The new headers are inserted by following the reverse procedure. Be sure the headers are located against the interior stop before securing the sealing lever.
5. Continue the above procedure for all bag assemblies.
6. **IMPORTANT:** Pull all lever arm handles outward until the lever arm handle stops.
7. Close all access doors and tighten hand knobs to seal door. Lever arm handles will be pushed in slightly by door, but will remain in “past center locked” position.
8. Any bag assemblies that are removed and re-installed in the collector shall be returned to its original place and orientation to ensure sealing.

There may be occasions when one or two bags become damaged and need to be replaced. Individual bag replacement can be done with the following instructions:

1. Unseat the venture/bag assembly, remove venture from expander spring.
2. Push new bag/expander spring assembly up through the hole in the tubesheet.
3. Snap the expander spring into the lower portion of the venturi
4. Slide venture down the bag
5. Continue sliding venturi/bag assembly down into the tubesheet hole until the bag and grooved portion of the venturi contacts the tubesheet.

IMPORTANT: Top of the bag must be folded over the top of the tubesheet so that the bag remains positioned between the top lip of the venture and the top of the tubesheet. Leaks will occur if this is not accomplished.

6. Apply force to venture/bag assembly to seat it into the tubesheet. It may be necessary to place a block of wood over the venturi and strike with a hammer.

9.2.8 Installation of accessories

When accessories, such as sprinklers and airlocks, are ordered with the FabriPulse M, separate installation instructions will be provided with the collector. For complete information, see the most current installation drawing or separate IOM.

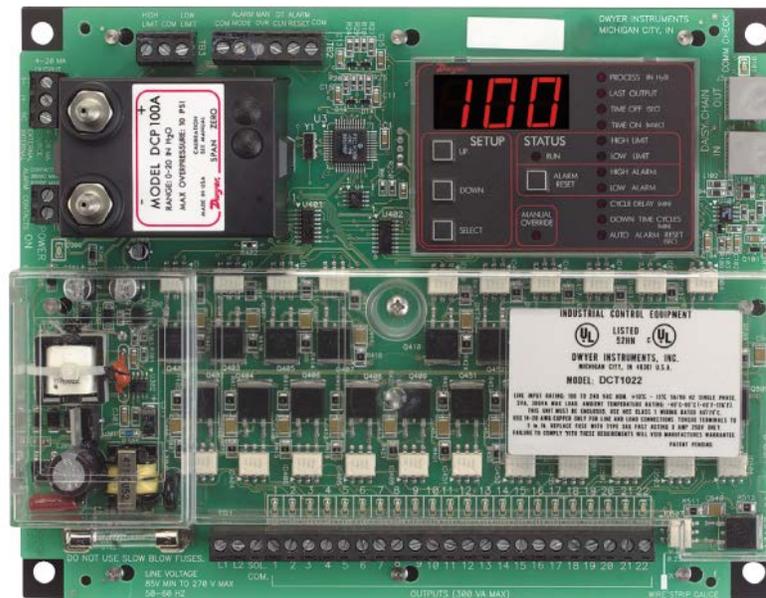
9.2.9 Electrical connections

WARNING: Potential shock hazard. Disconnect power before servicing. Only qualified electrical personnel should work on this system.

If the integral fan is purchased, the fan motor should be connected to the power source through a fused disconnect, or combination motor starter with a rating sufficient to protect the motor. Refer to the fan motor junction box for proper wiring connections. Check the fan rotation against the rotation arrow for correct motor connections. **Fan rotation should always be clockwise when looking down from the top of the motor.** If incorrect, change the motor leads as indicated on the motor wiring instructions. Provide adequate grounding of unit.

The FabriPulse M pulse-jet bag collector is supplied with electrical solenoids in a NEMA 4 enclosure and the standard pulse controller in a NEMA4X enclosure. Higher NEMA ratings are available as an option. Do not install in classified hazardous locations without an enclosure suitably rated for the application and location.

The standard pulse control supplied with the FabriPulse M is the DCT-1010 (or 1022) Dust Collector Timer Controller. This pulse controller is used for on-demand or continuous cleaning applications.



To power up the DCT controller, connect power line to L1 and L2. Control Wiring must be field installed between the solenoid valves and the pulse output

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terminals as shown on the electrical connection diagram that is supplied with the specific FabriPulse M collector ordered. If the collector has been factory wired as an option, the solenoids are prewired to a junction box with a terminal strip.

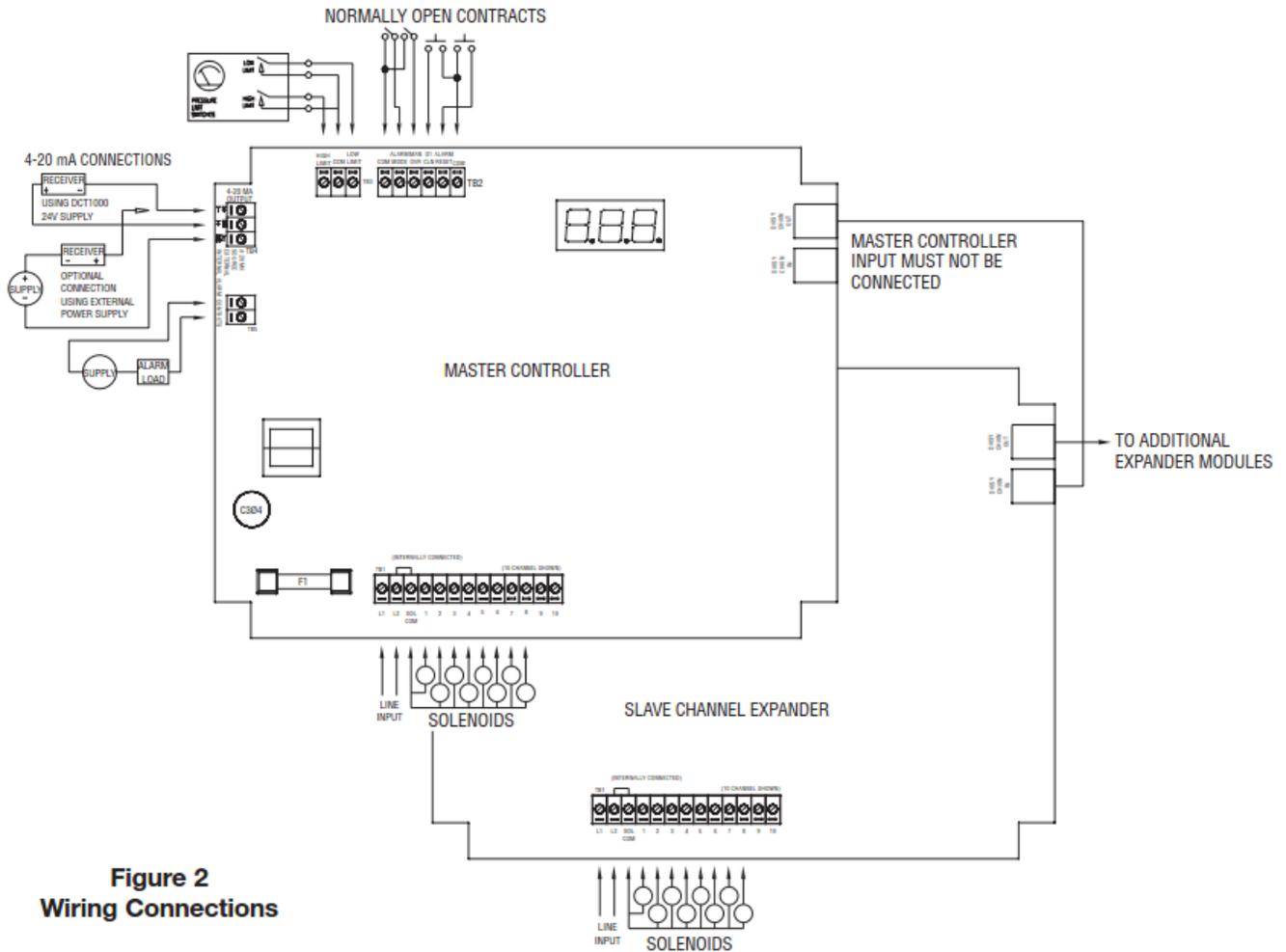


Figure 2
Wiring Connections

The power requirements are 85-270V/50-60Hz/1Ph. The operating temperature range is -40F to 140F.

Continuous cleaning operations do not require external inputs and can be used for time based cleaning by placing a jumper wire across the manual override and common, or across the high limit input and common.

For on-demand applications, program the DCT controller by going through each selection available, setting up each step. For further information, see the IOM of the DCT controller.

When setting up the DCT, the “high limit” is normally set at 4” w.g. and the “low limit” is normally set up at 3” w.g. Different applications require different settings. Please contact AAF International for assistance.

For troubleshooting and for further information, see the DCT controller IOM.

9.2.10 Compressed air connections

The FabriPulse M dust collector requires dry compressed air (-40°F dew point, 90-100 psig) for cleaning. See product literature for the compressed air requirement for the nominal compressed air requirements. When the dust collector is set on a timer, the timer is factory set at a 30 second pulse interval.

Do not use over 120 psig of compressed air. Solenoid valves will not operate and can cause damage to collector components.

The compressed air manifold has a pipe cross mounted on the underside of one end. The cross provides connections for the following: 1) a mounted pressure gauge, 2) a plugged 1” NPT connection for condensate drain located on the bottom of the manifold, and 3) a 1” NPT supply line of 80 to 100 psig compressed air on top of the manifold. It is important that the compressed air be clean and dry to prevent valve failure. The condensate drain need only be opened periodically for purging of condensed moisture which may collect in the compressed air manifold.

9.2.11 Ductwork Installation

Connect the inlet duct to the flanged round inlet on the collector. Connect the clean air duct to the collector’s top outlet. Ductwork should be of sufficient gauge to withstand the system design pressure and should be independently supported.

The FabriPulse M is not designed to support ductwork. One way of ensuring no loads from the ductwork is transferred to the collector, flexible connections can be provided between the collector’s inlet and outlet flanges and process ducting. Consult the Industrial Ventilation Manual for detailed construction guidelines.

10 EXPLOSION VENTS

The following only applies to AAF-supplied explosion vents. Additional and/or different steps, equipment, etc. may be needed for vents and other equipment not supplied by AAF. Further, the following is a non-exhaustive list of recommendations, and users must carefully read, among other things, the manufacturer's explosion vent guide for further instructions.

10.1 Installation of the Explosion Vent

If an explosion vent is ordered with the FabriPulse M, the explosion vent is shipped separately from the collector. Ensure no damage has been done to the explosion vent during shipping or handling.

The FabriPulse M will have a frame constructed as part of the unit where the explosion vent is mounted. The number of explosion vents and location of the explosion vent will be detailed on the collector drawing.

10.2 Assembly

Ensure no damage has been done to the explosion vent during shipping or handling. The FabriPulse M will have a frame constructed as part of the unit where the explosion vent is mounted. The number of explosion vents and location of the explosion vent will be detailed on the collector drawing.

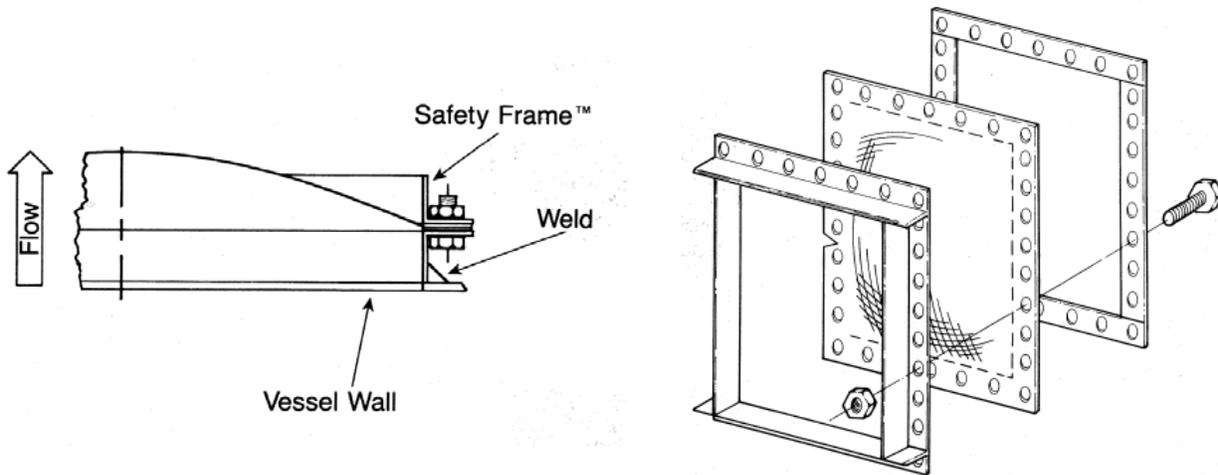
Gripping the opposite sides, carefully remove the explosion vent from the crate that it was shipped. Avoid excessive flexure of the explosion vent while handling.

CAUTION: The edges of the explosion vent can be sharp.

CAUTION: Incorrect installation of the explosion vent can cause the panel to not open at the rated burst pressure.

Place the explosion vent over the protruding bolt holes of the frame. Make certain the dome is protruding outwards. Install the outlet frame.

Install bolts and nuts and tighten to 20-25 ft-lbs per manufacturer's recommendation.



Typical Explosion Vent Installation.

To ensure proper installation of your explosion vent, carefully read the separate manufacturer's explosion vent installation guide.

WARNING: personal injury, death, and/or property damage can result from material discharge during venting.

10.3 Explosion Vent Burst Sensor

All standard explosion vents come with a burst sensor. This can be connected to an AAF Control Center or to the customer's controls to shut down the unit when an event occurs.

The magnetic sensor is suitable for use in Class I and II, Division I, Groups A to G.

Under normal operation, when the disk is closed, the switch is closed. When the disk opens, the switch opens (no electrical flow).

The connection cable is two wire, 3 feet long and has a voltage of 30VDC and current of 10 mA. This cable will be wired on site.

To ensure proper installation of your explosion vent, carefully read the separate manufacturer's explosion vent installation guide.

WARNING: personal injury, death, and/or property damage can result from material discharge during venting.

10.4 Servicing

Explosion vents should be inspected regularly to confirm physical and operational condition. Replace any damaged or worn parts immediately.

10.5 Safety distance

The material discharged during a vented explosion must be directed outdoors.

Locating equipment with explosion vents outdoors is always recommended.

Measures should be taken to reduce the risk to personnel and equipment from the effects of fireball temperature and pressure. In the event of a vented explosion, use the guidance detailed in NFPA 68 to determine the maximum width and height of the flame.

11 START-UP & OPERATION

11.1 Start-up checklist

1. Check the compressed air lines to be sure they are connected to the 1" NPT connection on top of the surge tank. Turn on the compressed air supply to the surge tank. If any leaks are detected, repair immediately.
2. Check the bag header(s) to assure they are in sealed position in the collector. (The headers can be shipped installed but not sealed). Close the door(s) and secure tightly.
3. Be sure that the hopper discharge device(s) is operating properly.
4. Energize the control panel. The "on" light inside the enclosure will be lit.
5. Listen for the firing of the diaphragm valves and pilot solenoid to determine that they are working properly. (Momentarily set demand pulse pressure switch to zero to check pulsing and then reset 3" to 4" w.g.).
6. **BEFORE INTRODUCING ANY DUST TO THE COLLECTOR, TURN THE POWER OFF TO THE CONTROL PANEL.**

7. Start the fan with the fan damper or duct blast gates partially open. At the same time observe the differential pressure of the control. This gauge indicates the differential pressure across the dust cake and fabric. Rising pressure on the gauge shows that dust is being collected on the bag. When the gauge shows 3" to 5" w.g., the fan damper or duct blast gates may be opened to the full normal position. Simultaneously, the power should be turned on to the control panel.
8. Check the differential pressure gauge again. It should read a minimum of 3" to 4" w.g. with slight fluctuations each time a pulse occurs. If the differential pressure is not 3" to 4" w.g., the factory preset pulse interval must be changed. Decrease the "high" differential pressure for high pressure readings and increase the "high" differential pressure for low pressure readings. Should it not be possible to maintain the nominal 3" to 4" w.g., consult your AAF representative. **DO NOT ADJUST THE PULSE DURATION BEFORE CONSULTING AN AAF REPRESENTATIVE.**
9. The procedure should also be followed after installing new bags in the unit.

11.2 Normal operation

An understanding of the design and operating principle of the FabriPulse M is essential for effective operation and maintenance. Knowledge of the collector nomenclature is necessary so that parts can be easily identified and located.

The FabriPulse is a single compartment, continuous automatic, self-cleaning cloth pulse-jet dust collector. The dirty air enters the collector through a high inlet located on the side of the housing. As the dirty air passes through the filter media, the dust is deposited on the outside surface of the individual filter bags. The cleaned air leaves the filter media and rises through the inside of the bags to the clean air plenum and is exhausted through the outlet.

The filter bags are periodically cleaned by bursts of compressed air that are injected down the inside of the bags. Since only a few of the bags are cleaned at one time the unit remains in continuous operation. The collected dust falls into the hopper after each pulse.

Hoppers are designed to receive the dust and are not for storage. The recommended practice is to continuously empty the hopper. When flat bottom hoppers or barrels are used, they must be emptied on a periodic basis to prevent

dust re-entrainment. Re-entrainment will decrease collector efficiency, reduce bag life, and result in increased operating pressure.

12 MAINTENANCE

12.1 Record Keeping

It is suggested that a record is kept of operational data and that all servicing maintenance is recorded.

Operational data to be recorded could include measurements taken of the air flow rate and the pressure differential across the bags. This should be recorded weekly or monthly. This record can assist with maintenance schedules and show collector variances due to operations.

Maintenance data to be recorded should include details of inspections and any parts replaced.

12.2 Initial Weekly Maintenance

Record the collector differential pressure daily for at least the first 30 days of operation. Adverse operating conditions can be detected by a change in differential pressure. The dust collector controller will give a digital read-out of the differential pressure. This gauge will provide differential pressure reading across the dust cake and fabric. After start-up, the differential pressure will gradually rise to its normal operating level which will be about 3" to 4" w.g.

Any faulty or worn tubes must be replaced to prevent damage to the collector. The compressed air line regulator, dryer and filter should be checked for proper operation.

The filter cleaning cycle is automatically controlled from the pulse controller with either the differential pressure set points or the timed interval used to maintain a steady pressure differential across the filter.

Do not be alarmed if cleaning pulses cause momentary spikes in the differential pressure readings.

NOTE: The time interval between pulses is factory pre-set at 30 seconds. It may be changed and is dependent on the application. Effective cleaning is reliant upon pulse frequency, duration and pulse compressed air pressure. The pulse duration is pre-set at 100 milliseconds. DO NOT change the factory setting without contacting an AAF International representative.

Inspect the dust disposal equipment on a regular basis during the first month of operation to determine that the collected dust is being disposed at a rate consistent with the operation. Failure to ensure that the collected dust is taken away at the appropriate rate will result in material building up into the hopper and could cause malfunction. This is especially important if the dust is being collected into drums or other such container. Once the dust collection rate is understood, a maintenance schedule for emptying the containers should be set.

12.3 Six months

Examine the bags for any wear, damage, or excessive deposition of dust. Consult the records for differential pressure and flow to identify signs of rising differential pressure across the bags. If the bags can no longer maintain a consistent differential pressure, the bags need to be replaced. Replacement of the bags should occur as soon as possible.

Examine the door seal and internal gasket for wear.

Examine the header cam mechanism of wear or for adjustment.

Inspect all joints for evidence of air or dust leakage.

Check for evidence of moisture or dust build up within the collector. Moisture in the collector can cause plugging and premature bag failure.

Check all electrical apparatus for proper operation.

Check for correct operation of the solenoid valves and the diaphragm valves.

Check discharge air condition for signs of dust. See Troubleshooting if bypass occurs.

Check the dust disposal equipment for correct operation and comply with any lubrication or maintenance instructions in the relevant manufactures' instructions. If AAF barrel top adapter mechanism is installed, check the condition of the flexible sleeve and replace if showing signs of wear or if torn.

Check all safety & warning labels are intact and legible and secure.

12.4 Annual Maintenance

Remove the diaphragms and their internal return springs. Replace them with new items if required.

NOTE: a replacement diaphragm and its return spring are supplied in the diaphragm replacement kit.

Remove the used solenoids from within the solenoid box enclosure and replace them with new items if required.

NOTE: AAF recommends having a spare set of diaphragm and solenoid kits available at all times.

12.5 Filter removal and installation

See section 9.2.7 for further information.

Disconnect power and lock out any electrical power sources before servicing.

CAUTION: Dirty bags may be heavy, use caution when removing the bags from the dust collector.

Do not operate the dust collector with missing or damaged bags.

The working area requires good ventilation. Some applications involve hazardous gasses and dusts. Check with an authorized person before work commences to avoid exposure to hazardous substances. Appropriate PPE should be considered and worn.

12.6 Integral fan

12.6.1 Lubrication

The instruction envelope received with the unit contains the motor manufacturer's recommendations for lubrication procedures for the fan motor. Belted drive units with final filters are supplied with external fan grease fittings located at the front top center of the unit. Otherwise, all lubrication fittings are accessible. Bearings on belted units should be lubricated with #2 grease every two months.

12.6.2 Belt drives

To install and adjust the belt drive for the integral fans, follow this procedure:

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1. After placing the set of matched belts in the sheave grooves, take up the slack in the belts by turning the adjustment bolt in the motor mounting base. Then start the drive. Tension the drive until the belts have only a slight bow in the slack side of the drive while it is operating under load.
2. Stop the drive and measure the belt span. Using a spring scale, apply a force to any of the belts in the center span. The force should be perpendicular to the span and toward the center of the drive. Measure the force required to deflect any one of the belts 1/64" for every inch of span length. For example, the deflection for a 32" span would be 1/64" multiplied by 32, or 1/2".
3. The amount of force required to deflect the belt should be 4-5 1/2 pounds. There will normally be a drop in tension during the first 24 to 48 hours of operation. During the "run-in" period, the belts seat themselves in the sheave grooves and the initial stretch is removed. After a day or two, the drive should be stopped again and another check made for the correct amount of belt tension.

Note: Tension new drives at the maximum deflection force recommended. Check the tension at least two times during the first day's operation as there normally will be a rapid decrease in belt tension until belts have run in. Check the tension periodically after the first day's operation and keep tension in recommended area.

12.6.3 Fan Bearing Replacement

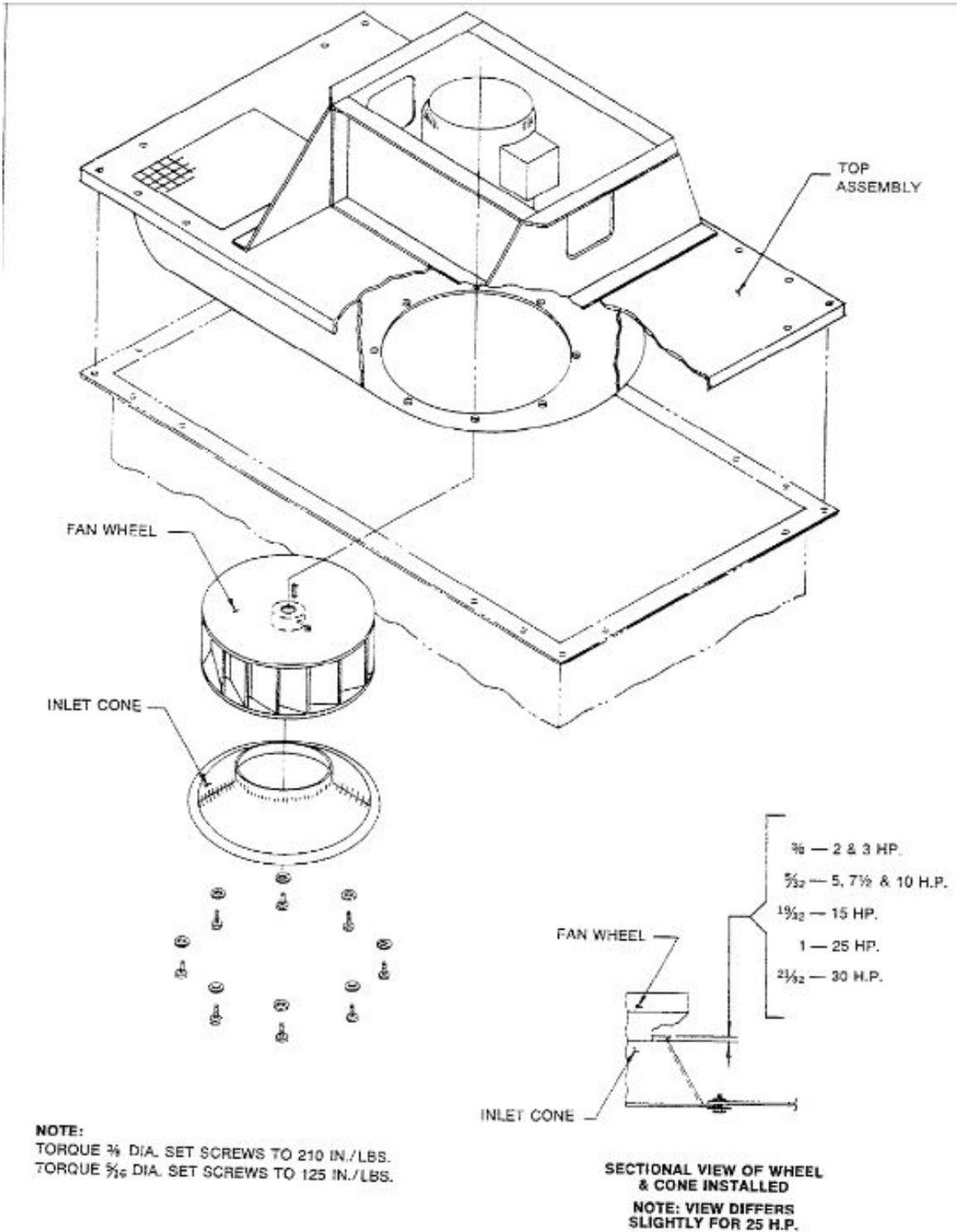
Follow this procedure to replace the fan bearing for the 25 and 30HP integral fans with belt drives:

1. Turn adjusting screw in motor base to loosen belts.
2. Remove sheave from fan shaft.
3. Remove set collar.
4. Note exact position of bearings before removing.
5. Remove bearings by loosening mounting bolts and Skwezloc rings and slide up off shaft.

6. Install new bearings with Skwezloc ring on top and pillow blocks against stops.
7. Replace set collar, sheave and belts.
8. Adjust belt tension.

12.6.4 Integral fan and motor replacement

Lock out electrical power to the motor. Remove top assembly. Remove the fan inlet cone. The fan wheel is now accessible for replacement. The fan motor is removable from the top of the unit.



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12.7 Accessories

AAF accessories should be inspected for wear or damage on the same interval as the bags.

Any accessory equipment should follow the maintenance schedule that is included in the manufacturer's IOM.

13 TROUBLESHOOTING

13.1 High Differential Pressure Reading

Improper Control Operation

Check the wiring, fuses, and setting of pulse duration and interval. **DO NOT ADJUST THE PULSE DURATION WITHOUT CONSULTING AN AAF REPRESENTATIVE.**

Insufficient Compressed Air

Check the air supply to be sure the compressor is providing 80 to 100 psig. Check for a plugged filter in the compressed air line.

Solenoid pilot valve malfunction

Listen to be sure the solenoids are firing. Check for momentary air venting each time it fires. Clean or replace if necessary.

Leaky Dust Discharge Device

A leaking rotary lock, screw conveyor, slide gate, barrel top adaptor etc. can overload a collector by preventing dust discharge. This will cause high differential pressure, excessive bag wear and reduced air volume.

Condensation

High humidity will create blinded bags which results in excessive differential pressure. Run the cleaning mechanism with the fan off and program timer on to release the dust cake. If condensation is a recurring problem, pre-processing warm-up and post-processing purge periods of 15 to 30 minutes each may help. Exterior insulation may also be necessary. Sources of moisture may come from leaky process ductwork, moisture in the process gas stream, or moisture in the compressed air system.

Static Electricity

Static electricity build-up can cause a high differential pressure. Increase the humidity if possible, using discretion to avoid creating condensation. Grounded bags may also be required. Static electricity can also start a fire or dust explosion inside the collector.

Collector overloads

Too much air or too much dust will create high differential pressures across the collector. Check the fan speed, system design, pre-cleaners, and the damper position. Also be sure the dust load and air volume are those the system was designed to handle.

13.2 Visible Discharge**Improperly installed or damaged bags**

Check for holes or rips in bags. Replace damaged bags with AAF replacement bags. Reseal bags as necessary.

Improper sealing of the header

Vacuum dust from the clean air side of the collector. Inspect the header seal. Clean or replace the seal if it is damaged.

Insufficient dust cake

The unit could be pulsing too often resulting in over cleaning. Check to see if the differential pressure is at least 3". Increase pulse interval until the unit is operating stably at 3" differential pressure minimum. **DO NOT ADJUST PULSE DURATION WITHOUT CONSULTING AN AAF REPRESENTATIVE.**

13.3 Insufficient Hood Control**Incorrect fan rotation**

The incorrect rotation of the fan will not provide the system static pressure or air volume required.

Fan V-belt slippage

Tighten the V-belts if necessary. Replace broken or stretched belts.

Leaks

Leaking ductwork, access doors, explosion vents, dust discharge devices, or housing will cause insufficient suction at the pick-up point. Seal any leaks.

Closed air passages

Clogged ducts, closed dampers, or closed gates will shut off the air flow.

Undersized ducts

Undersized ducts will create excessive pressure losses for which the fan may not have been sized. Duct size should be reviewed considering the design specifications and fan selection.

13.4 Fabric Bag Problems**Temperature**

Operating temperatures should not exceed specified maximum of the bag material.

Humidity

High humidity will create blinded bags which results in excessive differential pressure. Run the cleaning mechanism with the fan off and program timer on to release the dust cake. If condensation is a recurring problem, pre-processing warm-up and post-processing purge periods of 15 to 30 minutes each may help. Exterior insulation may also be necessary. Sources of moisture may come from leaky process ductwork, moisture in the process gas stream, or moisture in the compressed air system.

Dust characteristics

Each bag material is selected for specific physical and chemical characteristics which are compatible with the gas stream composition and temperature.

Contact AAF International for assistance on a bag design for your application. It is recommended that you use only AAF International bags on AAF International equipment.

Dust build-up in hoppers

Dust build-up into the bag area will result in excessive abrasion on the bags. The build-up may be caused by a malfunction of the discharge device or condensation in the hopper. A hopper vibrator or hopper heaters with insulation may have to be added to the hoppers.

Bag wear on the inside

Dirt on clean side of bags will wear the bags out from inside. This could be the result of a broken bag, or incorrect bag installation or an improper tube sheet seal. Vacuum the clean air side, replace the bag, correct the seal, and reseal the header. Do not blow dirt inside the bags. If the bags have dust inside them, vacuum them out or replace them.

14 RECOMMENDED SPARE PARTS LIST

The following is the recommended spare parts list to have on hand at all times:

Item	DESCRIPTION	RECOMMENDED SPARES
1	4' Bag Assembly	1 Assembly
2	6' Bag Assembly	1 Assembly
3	Diaphragm Valve Repair Kit	1 Kit Required
4	Pilot Valve Repair Kit (NEMA 4)	1 Kit Required
5	Controller	1 Control
6	Door Gasket	10 ft.

Maintenance Log- FabriPulse M							
Serial Number	Model Number						
Daily (first week)							
Date							
Differential Pressure							
Record compressed air pressure							
Are solenoids operating?							
Are diaphragm valves operating?							
Dust disposal level recorded?							
Weekly							
Date							
Differential Pressure							
Record compressed air pressure							
Check hopper is empty							
Dust disposal level maintained?							
Monthly							
Date							
Examine bags for damage or holes							
Examine inlet and outlet duct for dropout or bypass							
Is moisture present in collector?							
Six Month Check							
Date							
Examine bags							
Examine collector joints for leakage							
Check correct electrical operation							
Examine dust disposal equipment							
Examine auxiliary equipment maintenance							
Annually							
Date							
Replace diaphragm valves as needed							
Replace solenoid valves as needed							
Examine inlet ductwork for dust accumulation							
Examine outlet ductwork for dust accumulation							
Examine and replace all air lines and DP tubing for cracks or clogging							

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