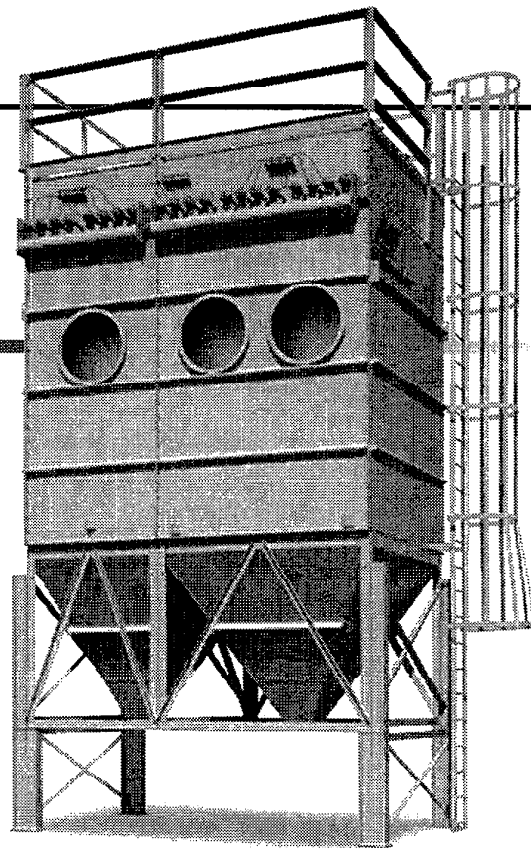




AAF Millennium™ Pulse-Jet Fabric Dust Collectors

***Installation,
Operation and
Maintenance
Instructions***



AAF
INTERNATIONAL

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1.0 INTRODUCTION

1.1 ABOUT THIS DOCUMENT

This document contains the information necessary to properly receive, assemble, install, operate, and maintain the Millennium dust collector. The purchaser, installer, and operator of the Millennium **MUST** read this document in its entirety prior to receipt of the equipment.

CAUTION

These instructions are specific to the Millennium dust collector. 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 and federal codes.

1.2 SHIPPING AND RECEIVING

The Millennium modules are packaged for domestic transit and shipped FOB factory.

Obtain the original purchase order, the product drawing that was submitted for the order, and a copy of the Bill of Lading along with any other shipping papers. Upon receipt of the Millennium, these documents should be used to ensure the correct modules/assemblies have been received.

Complete the following steps upon receipt of the Millennium:

- Inspect the shipment and all associated documentation. Notify the carrier immediately if there is any damage to the shipment, or a discrepancy in the shipping papers.
- Confirm that the equipment received agrees with the shipping documents.
- Confirm that the shipping documents agree with the Purchase Order (P.O.). Refer to the product drawing submitted for the order, as necessary.
- Confirm that the document package, consisting of a copy of the IOM, the handrail, ladder, leg and brace installation drawings, and the electrical connection diagram, has been received with the shipment.
- If it is determined that modules/assemblies or any other equipment specified on the P.O. has not been delivered, and is not accounted for in the shipping documentation, contact AAF International immediately at 800.477.1214.

The shipment will consist of assembled modules and some loose parts for attachment at the job-site, and will include the following components:

- 1 Fully assembled individual modules.
- 2 Leg assemblies (including bracing):
Two (2) assemblies for units comprising up to five (5) modules, three (3) assemblies for units comprising between six (6) and ten (10) modules.
- 3 Compressed air manifold connection kits, numbering one (1) less than the total number of modules supplied.
- 4 One (1) pulse control box for each unit.
- 5 Filter elements, consisting of:
a) Filter bags and cages
OR
b) Pleated bags

These filter elements will likely be shipped and received separate from the other listed components.

- 6 Safety handrailing
- 7 Safety ladder assembly
- 8 Hardware kit
- 9 Caulk

NOTE

Anchor bolts for bolting the equipment to the foundations and hardware for connecting the inlet and outlet ducts are not included with the Millennium and must be supplied by others.

Optional components such as hopper discharge devices and differential pressure gauges may also be included in the shipment. Consult the P. O. to confirm.

1.3 ASSEMBLY

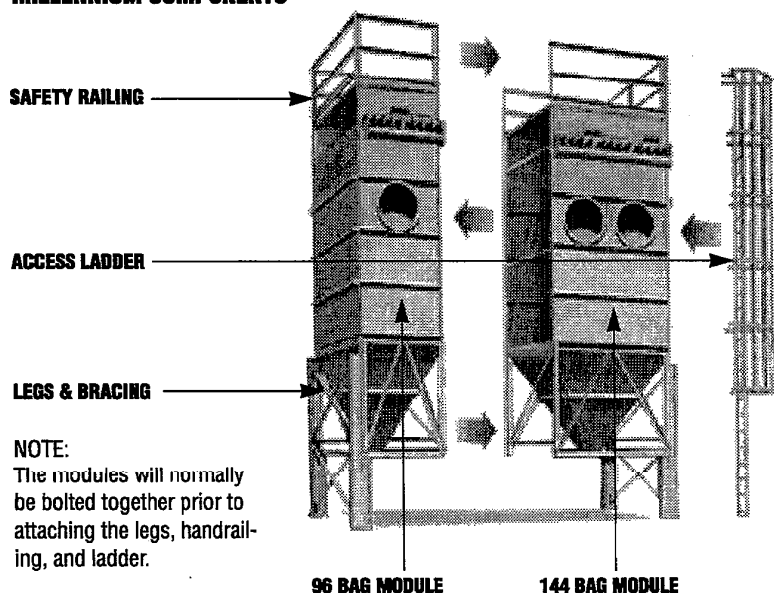
The Millennium has been designed specifically to minimize the amount of jobsite assembly required. Consult with an experienced rigger for an accurate estimate of the time and equipment that will be required. All jobsite assembly will be limited to bolting components together. **NO WELDING WILL BE REQUIRED.** Following is an outline of the assembly required for a standard Millennium. See Figure 1 for details of the Millennium:

- 1 Seal and bolt together adjoining modules (if multiple modules have been supplied).
- 2 Raise the assembled unit, then attach and anchor the support legs and bracing.
- 3 Install the safety ladder.
- 4 Install the safety railing.
- 5 Install compressed air manifold interconnection kit(s) (if multiple modules have been supplied).
- 6 Install compressed air manifold condensate drain(s).
- 7 Connect compressed air supply to the compressed air manifold.
- 8 Mount and wire the pulse control.
- 9 Attach inlet and outlet air ducts.
- 10 Install the filter elements.
- 11 Install optional components.

Detailed instructions regarding each of these operations are provided in subsequent sections of this manual.

FIGURE 1

MILLENNIUM COMPONENTS



1.4 THE MILLENNIUM — A DESCRIPTION

The standard Millennium collector comes in 14 basic sizes. The size variations are composed of combinations of either 96 bag or 144 bag modules, with one to five modules per unit. The Millennium will use 5-1/4" diameter bags in a 7" x 7" spacing pattern. Bag lengths of 8, 10, 12, and 14 ft. are available.

Standard module combinations are listed below. The 96 bag modules are indicated as "1" and the 144 bag modules as "2". The letter designation refers to the diagram shown above right in Figure 2:

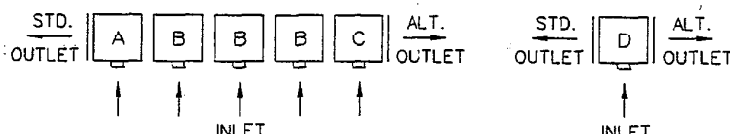
SIZE	MODULE ARRANGEMENT
96	D1
144	D2
192	A1 + C1
240	A1 + C2
288	A2 + C2
336	A1 + B1 + C2
384	A1 + B2 + C2
432	A2 + B2 + C2
480	A1 + B1 + B2 + C2
528	A1 + B2 + B2 + C2
576	A2 + B2 + B2 + C2
624	A1 + B1 + B2 + B2 + C2
672	A1 + B2 + B2 + B2 + C2
720	A2 + B2 + B2 + B2 + C2

2.0 GENERAL DESCRIPTION

The Millennium is a modular, continuous, automatic, self-cleaning, fabric pulse-jet dust collector. The dirty airstream enters the collector through one or more circular inlets. An internal baffle deflects and evenly distributes the dust laden air, which then passes through the filter media. The dust is captured on the outside surface of the individual bags. Clean air migrates to an upper clean air plenum and is exhausted through the outlet. The filter media is periodically cleaned by bursts of compressed air which are directed down inside the bags, in the opposite direction to normal airflow. In order for the unit to operate continuously, only a portion of the total number of bags are cleaned at any one time.

The standard module is open top design. Flanges inside the roof top doors prevent water from leaking into the housing. The access doors are lift-off type. Each size 96 module has two doors; while the size 144 module has 3 doors. Handrails and ladders are supplied with both plenum types. An optional valve service platform is available. The access ladder is selected to accommodate both bag length and hopper clearance. On a standard roof top access unit, using a 12 ft. bag with a 10 ft. hopper clearance, or a 14 ft. bag with either an 8 or 10 ft. hopper clearance,

FIGURE 2



There is no limit to the size collector that can be supplied. However, any arrangements exceeding the combinations listed above will require intermediate support legs and additional outlets in order to maintain acceptable airflow velocities. See contract drawings for details.

The modular design will permit an existing Millennium system to be expanded with no significant disruption to the operating unit(s).

Housings, hoppers, plenums, and tubesheets are made of 10 ga. commercial carbon steel. Stiffeners are formed into the housing, hoppers, and plenums. Modules are available for -20° and -30° w.g. plenum pressure, and for temperatures of 180, 400, and 550 degrees Fahrenheit.

Support legs are designed for 100 mph wind or Universal Building Code seismic zone 4

loading, and are available for hopper clearances of 4, 6, 8, and 10 ft. Up to five modules may be bolted together and supported by one set of 4 legs. Standard design is for 4 ft. hopper clearance.

The standard Millennium is supplied with a pyramid style hopper. A trough style hopper is available as an option. Pyramid hoppers have a minimum side slope of 60 degrees and a flanged outlet of 12" x 12" with a drilling that matches an optional Rotary Lock. The trough hoppers have a 10" wide opening with undrilled flanges for conveyor mounting. Both types of hopper have bolt on access plates, with optional hinged doors available.

The outlet plenum can be either open to roof top access or walk-in style. Outlets may be located at either end of the plenum, and have a 2'-1" x 8'-4" opening with a standardized drilling.

the access ladder is supplied in two sections with an intermediate platform, to comply with OSHA regulations.

The cleaning cycle is controlled by a solid-state timer located in a NEMA 4 enclosure. The timer is field adjustable for control of the duration and interval between pulses.

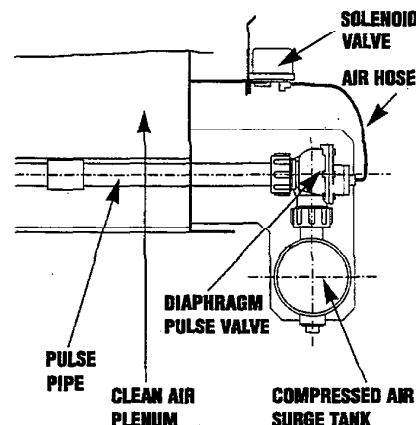
All modules are constructed with a 6" diameter surge tank (compressed air manifold) which is fitted with 1-1/2" diaphragm pulse valves. Pulse valves are connected to solenoid pilot valves with plastic tubing on standard units, and with copper tubing on high temperature units. See figure 3 for details of the compressed air surge tank/pulse pipe assembly.

Each pulse valve serves twelve bags. Pulse pipes are 1-1/2", schedule 40 pipe and have a quick disconnect coupling and a pinned end. Pulse pipe holes are 5/16" for 8 and 10 ft. bags, and 3/8" diameter for 12 and 14 ft. bags.

Standard collectors are primed and finish painted on the exterior with a high solids enamel. Interior surfaces have a prime coat. High temperature collectors have one coat of zinc rich primer. Special paint coatings are available as an option.

Some of the more common optional features available with the Millennium include pressure demand cleaning, NEMA 9 controls, factory wiring of the main control with junction boxes on each module, explosion vents, inlet adaptor plates, an arrangement to permit installation of up to 4" thickness insulation at the jobsite, walk-in plenum, trough hopper, high temperature features, and various ancillary components.

FIGURE 3



3.0 INSTALLATION INSTRUCTIONS

Consult the product drawing that was submitted for this order before proceeding.

3.1 SPACE REQUIREMENTS

A minimum of 24" clear space must be allowed on all sides of the collector that do not include the access ladder or ductwork. The side where the access ladder is located requires a minimum clear space of 46". More space may be required where inlet and outlet ductwork is located.

3.2 FOUNDATIONS AND ANCHORING

The foundation must be designed to be adequate to support the collector's operating weight, seismic, wind and snow loads (*if any*), collected dust, and any optional equipment, in accordance with appropriate codes. Secure all anchor bolts to ensure that the collector is firmly attached to the foundation. Base plates on columns may require grouting after leveling. Multiple module units, operating at elevated temperatures, may require expansion provisions in the structural supports (*see erection drawings for details*).

3.3 GENERAL ERECTION PROCEDURE

- 1 Spreader bars must be used at all times when handling the Millennium to prevent any possibility of damage. These shall be connected to the lifting lugs provided on the Millennium for this purpose. Only personnel experienced in rigging and handling heavy equipment shall be employed to erect the Millennium.
- 2 All modules shall be placed upright and adjacent to one another on a level surface in the order in which they will be joined together (*see Section 1.4*). It is permissible for the module to rest on the hopper support structure.
- 3 All joints between one of the end modules and its adjacent module shall be prepared for connection to one another. This applies to all perimeter and internal connecting flanges. Ensure that:
 - All flanges are flat and planar. Correct any bending, warping, or denting that may have occurred when the modules were being transported or handled.
 - All flanges are clean and free from debris, contamination and discontinuities of any kind, such as weld or paint splatter, mud, rust, oil, or grease.
 - All bolt holes are correctly aligned.

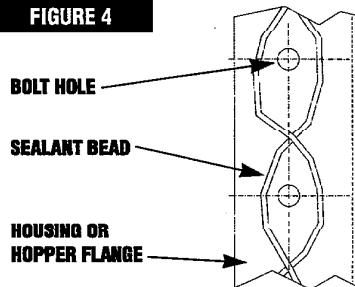
- 4 Caulk all connecting surfaces using the caulking compound supplied. On standard units, this is butyl caulk. RTV Caulk is supplied on units rated for 400°F, and fiberglass gasket tape is supplied for units rated for 550°F. See Figure 4 for the method of applying caulk to a housing flange.

CAUTION

Particular caution must be exercised when sealing the internal connection between the tubesheets in adjacent modules. The tubesheet is the horizontal plate through which the filters are inserted and which forms the barrier between the clean and dirty air sides of the collector. The flange of the tubesheet between modules is provided with a double row of bolt holes. Each row of holes shall be caulked as shown in Figure 4.

It is only necessary to apply caulk to one face of each joint. Apply the caulk liberally to ensure an effective seal.

FIGURE 4



- 5 When the caulking has been applied, and before it dries, join the modules and bolt them together, placing the bolts and washers in every hole provided. Tighten the bolts fully.

WARNING WARNING WARNING WARNING

On multiple module units, the structural framework surrounding the hopper mates with the corresponding framework on adjacent modules to form a structural truss which supports the unit in the span between the support legs. 1" diameter A325 structural bolts are provided to secure this connection on collectors that comprise up to four size 144 modules between supports. On collectors with up to five size 144 modules between supports, 1" diameter A490 structural bolts are provided. Ensure that all bolt holes are utilized and that the bolts are torqued per AISC recommendations.

- 6 Repeat the procedure described in Section 3.3, steps 3 through 5, until all of the modules have been connected.

- 7 Raise the assembled collector to the appropriate height and attach the support legs and bracing. Refer to the installation drawings supplied with the equipment for details. Place the collector onto the foundation, level, and anchor in place. Grout beneath the support leg base plates as required.

NOTE

Depending on the availability of space, the ability to maneuver equipment and the size of the collector, it may be necessary to modify this erection procedure. This may be done at the discretion of the rigging contractor after thoughtful consideration and consultation with an AAF representative.

3.4 DUCTWORK

Connect the inlet duct to the drilled and flanged Inlet(s) of the collector. Connect the clean air duct to the drilled collector outlet. Ductwork should be of sufficient gauge to withstand the system design pressure and should be independently supported. ***The Millennium is not designed to support ductwork.*** Consult the Industrial Ventilation Manual for detailed construction guidelines. Hot gas ducts may require expansion joints to prevent expansion loads on collector inlets and outlets.

Close coupling a duct elbow to the collector inlet will result in an uneven velocity profile. This condition may result in less than optimum collector performance. A straight run of duct with a length equal to three to four duct diameters immediately before the inlet will provide an adequate airflow distribution to the inlet.

When attaching inlet and outlet ducts, caulk the flanges appropriately to ensure that no leakage will occur during operation.

3.5 LADDER AND HANDRAIL ASSEMBLY

It is necessary to install the access ladder and handrails after assembling the collector. The first step is to position the handrails into place and secure them with bolts at the posts. The kickplates are integral to the handrail sections. Refer to the installation drawings supplied with the equipment for details.

The access ladder assembly is complete with a safety cage and mounting brackets. Bolt (*or weld*) the ladder to the collector housing, as shown in the installation drawing. The ladder assembly has mounting brackets which attach to the housing and to the hopper/housing flange. Ladder mounting brackets may be bolted (*or field welded*) to the collector.

3.6 ELECTRICAL CONTROLS AND WIRING

WARNING WARNING WARNING WARNING

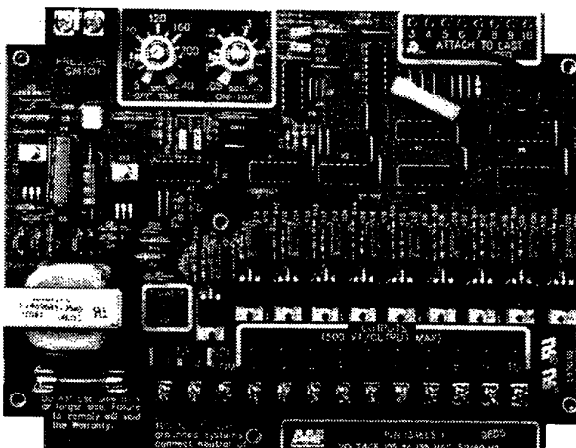
Potential shock hazard. Disconnect power before servicing. Only qualified electrical personnel should work on this system.

The standard Millennium dust collector is supplied with electrical solenoid valves mounted in a NEMA 4 enclosure installed adjacent to the pressure manifold, and a timer control (normally one control system is supplied for a complete unit). As previously mentioned, a number of control and wiring options are available with the Millennium. In lieu of the standard offering, your Millennium may be supplied with a pressure demand control, factory mounted control panel, factory mounted junction box(es), and NEMA 9 rated enclosures. Consult the contract drawings for details.

On those units not pre-wired at the factory, mount the control enclosure in an accessible location. Control wiring must then be field installed between the solenoid valves in the enclosure adjacent to the pressure manifold and the timer output terminals in the control enclosure, as shown on the electrical connection diagram. Refer to the drawing supplied with the equipment for details. All electrical wiring will be supplied by others.

The pulse timer panel (Figure 5) has a set of normally jumpered terminals labeled "PRESSURE SWITCH" which are used only when an optional remote control device, such as a pressure switch (pressure demand control) is used. The metal jumper is removed and the "normally open" contacts of the optional pressure switch are then connected to the "PRESSURE SWITCH" terminals - see wiring diagram provided with this option.

FIGURE 5



CAUTION

To avoid permanent damage to the solid state control:

- 1) DO NOT connect 120V to the "PS" terminals.
- 2) DO NOT connect 120V to any of the "Output" terminals.
- 3) DO NOT connect an "Output" terminal to ground. The fuse on the panel does not protect from a direct short.

Ensure that the program wire (top right of timer panel shown in Figure 5) is connected to the correct program pin by verifying that the program wire/pin matches the wiring diagram. Power should be supplied to the solid state timer board across terminals L1 and L2 as shown on the connection diagram. When the power is energized, the "Power On" light should illuminate and the unit should begin pulsing. With the pressure demand pulse option, set the pressure switch settings to "zero" to pulse manually. The collector should not be permitted to pulse for an extended time without compressed air supplied.

CAUTION

Operation without compressed air can damage the solenoid valves.

The pulse interval and duration are controlled by the solid state timer. The pulse interval is factory set at 30 seconds (field adjust to 10 seconds for pressure demand pulse option), which is satisfactory for most installations. However, since dust loads, media velocity, and other factors vary, it may be necessary to readjust the pulse interval to meet individual requirements. Contact your AAF representative for assistance. The duration, preset at 60 milliseconds, is also adjustable.

CAUTION

The duration should not be adjusted without consulting your AAF representative.

3.7 COMPRESSED AIR CONNECTIONS

Air at 80 to 100 psig pressure must be supplied to the compressed air manifold at the top of the dust collector. Use one of the 1½" nipples at the bottom of either end of the manifold for this connection. The other nipple shall be connected to a condensate drain valve for periodic purging of any condensate which may collect in the manifold. Condensate drain valve and piping will be supplied by others. It is recommended that 1½" black iron or galvanized piping and a gate or ball valve, selected for the service intended, be used to accomplish this. The valve should be located where it can easily be accessed from ground level. Piping kits are also supplied to allow for interconnection of air manifolds on adjacent modules. Up to five modules may be interconnected. Each pair of interconnected manifolds must have a condensate drain. Compressed air piping and fittings will be supplied by others.

Compressed air must be clean, dry, and pressure regulated to avoid failure or plugging of the pulse valves. Compressed air filters are recommended for removal and automatic discharge of minute particulate contaminants and coalesced liquids. A pressure regulator is needed to ensure that the compressed air supply does not exceed 100 psig. If the dust collector is located outdoors, care must be taken in choosing these devices and their locations to ensure that their temperature limits are not exceeded.

A pressure gauge is supplied by AAF and should be installed in the compressed air supply line near the compressed air manifold. The pressure gauge should be positioned so that it can be easily read.

3.8 BAG, CAGE AND VENTURI ASSEMBLY, AND PULSE PIPE INSTALLATION

The bag, cage and venturi assembly, and pulse pipe assembly are illustrated in Figure 6. Ensure the inlet and outlet ductwork is connected and that the clean air plenum has been cleaned, before installing the bags. Always handle the filter bags with care and keep them dry. Pleated bags are installed in a similar manner to standard bags, however, no cage is required.

CAUTION

During reinstallation of pulse pipes, ensure the holes in the pipe align over the center of the venturi and point downward.

FIGURE 6

FOR INITIAL INSTALLATION OR SERVICE

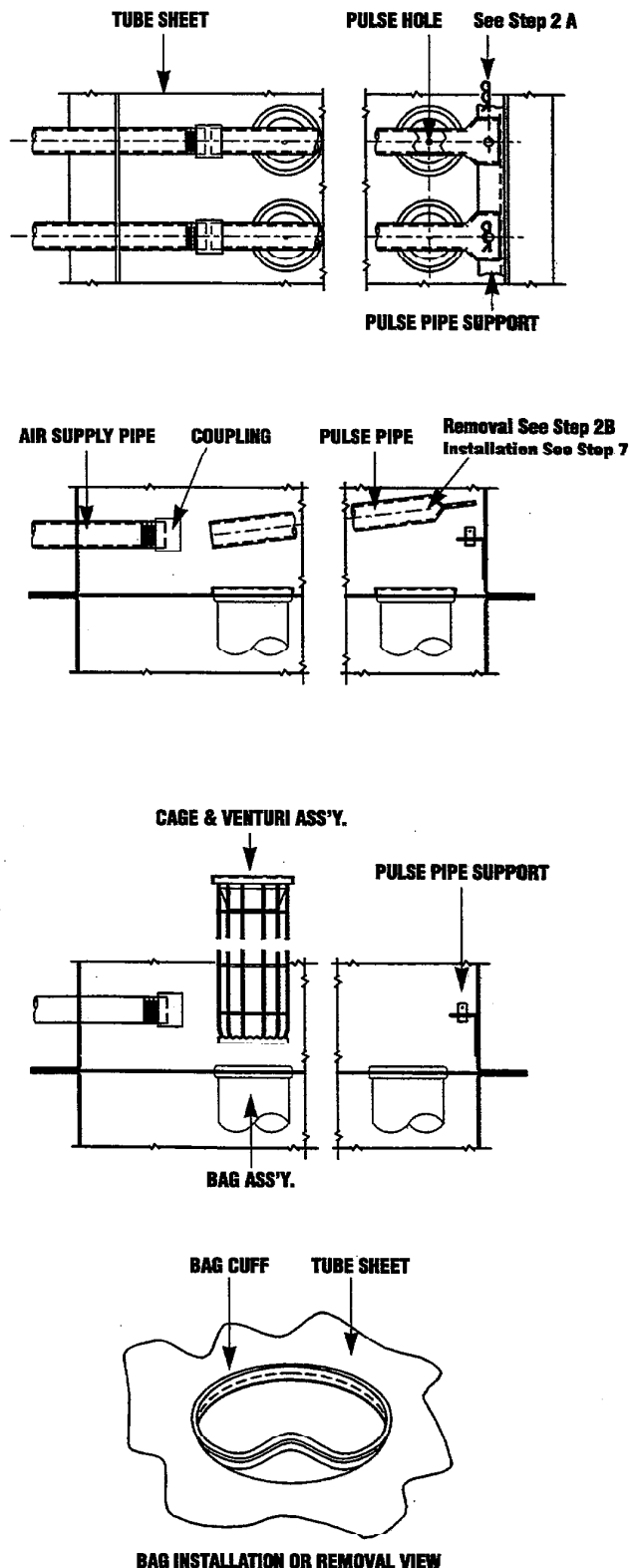
1. Open roof doors for access to bags.
2. Remove pulse pipes as follows:
 - A. Remove hairpin from end of pipe.
 - B. Lift the pulse pipe assembly to clear support pin and slide the pulse pipe away from the supply pipe until it has disengaged. Lift and remove.
3. If performing service:
 - A. Remove cage/venturi assembly.
 - B. Remove the bag by collapsing the bag cuff into a half moon shape as shown and lifting out.

NOTE: On the initial installation, cage/venturi assemblies and bags are shipped loose.

4. Install new bag as follows:
 - A. Insert the closed end of the bag through the tube sheet hole until the bag cuff is near the tube sheet.
 - B. Collapse the bag into a half moon shape and insert into the tube sheet as shown.
 - C. Snap the bag cuff into position making sure the center groove of the cuff seals properly at the tube sheet.

NOTE: When installing pleated bags, do not deform the bag cuff since this may result in damage to the bag. Instead, the lower flange of the cuff should be lightly lubricated with a liquid soap solution and the cuff should be firmly pressed into the tube sheet until it snaps into position.

5. Insert the cage/venturi assembly into the installed bag. The cage top should fit snugly on top of the bag cuff.
6. Repeat steps 4 and 5 until all of the bags and cage/venturi assemblies have been installed.
7. Re-install the pulse pipe assemblies by reversing step 2 and verify that the pulse holes are pointed down and centered over the bags.
8. Close the roof doors and secure the latches.



■ 3.9 ROOF DOORS

After the bags, cage and venturi assemblies, and pulse pipes have been installed, replace and secure the roof doors. Two men are required to handle these doors, as each door weighs approximately 110 pounds. Rotate the clips between adjacent doors, and tighten wing knobs. Ensure that all doors are fully sealed.

■ 3.10 GAUGE INSTALLATION

It is recommended that a suitable pressure gauge be installed before initial startup, for measuring collector pressure drop (*AAF offers an optional Magnehelic pressure gauge or a Photohelic gauge/switch*). Using appropriate tubing and connectors (*copper or aluminum*

tubing is recommended), connect the gauge high-pressure port to the static tap in the housing side (*lower pressure tap*) and connect the gauge low-pressure port to the static tap on the side of the clean air plenum (*upper pressure tap*).

■ 3.11 EXPLOSION VENT INSTALLATION

The optional explosion vent(s) are factory installed. The guard to contain and prevent damage from a rapidly opening vent is supplied separately and must be field installed. Refer to the installation drawing supplied with this option for details. Explosion vents should be installed in accordance with local, national, and all other applicable codes.

■ 3.12 HOPPER DISCHARGE DEVICE

If supplied, attach the hopper discharge device in accordance with manufacturer's instructions.

The collector is now ready to be started. Review the instructions thus far in this bulletin and inspect the collector to ensure that everything is assembled correctly. Ensure that bolted joints and connections are properly tightened.

4.0 INITIAL STARTUP INSTRUCTIONS

■ 4.1 PREPARATION FOR START UP

- 1 Check the compressed air lines to ensure they are properly connected to the manifold. Turn on the compressed air supply and adjust the pressure to 80 to 100 psig. Before pulsing, condensate bleed valves should be fully opened to purge air lines and manifolds of dirt and water. Good practice dictates that all piping be blown down to remove any scale, rust or other debris prior to pulsing the unit. This can be done by removing the plug in the manifold furthest from the air supply connection and allowing compressed air to the manifold.
- 2 Check the bags to ensure they are in sealed position in the collector. Verify doors are closed and tightly secured.
- 3 Ensure the hopper discharge device is operating properly.

CAUTION

Efficient fan sizing includes an allowance for pressure drop across filter media with a thin residual cake as the normal operating condition. During the initial dustcaking period for new media, unit airflow may have to be restricted to avoid fan motor overload. This may be achieved by partial blank off of the inlet or outlet. Fan motor amperage will indicate need and adequacy.

■ 4.2 TIMER CONTROL

- 1 Energize the solid state timer panel. The "ON" light inside the enclosure will illuminate.
- 2 Listen for diaphragm valve and pilot solenoid firing, to determine that they are working properly.

WARNING WARNING WARNING WARNING
Before introducing any dust to the collector, turn off the power to the timer panel.

- 3 Start the fan with the fan damper or duct blast gates partially open. At the same time, observe the pressure gauge, which indicates the pressure drop across the dustcake and fabric. Rising pressure on the gauge shows that dust is being collected on the bag. When the gauge shows 3" to 6" w.g., the fan damper or duct blast gates may be opened to the full normal position. Simultaneously, the power to the timer panel should be turned on.
- 4 Check the pressure gauge again. It should read a minimum of 3" to 6" w.g. with slight fluctuations each time a pulse occurs. If the pressure drop is not 3" to 6" w.g., the factory preset pulse interval of 30 seconds must be changed. Decrease the interval for high pressure readings and increase the interval for low pressure readings. If it is not possible to maintain the nominal 3" to 6" w.g., contact your AAF representative.

CAUTION

Do not adjust the pulse duration before consulting an AAF representative.

- 5 Follow Section 4.1, steps 1 through 3 and Section 4.2, steps 1 through 4 after installing new filter bags in the unit.

■ 4.3 PRESSURE DEMAND CONTROL

- 1 Energize the solid state panel. The "ON" light inside the enclosure will illuminate.
- 2 Momentarily set the pressure switch settings to zero to check pulsing. Listen for the diaphragm valve and pilot solenoid firing, to determine that they are working properly.
- 3 Reset the pressure switch with a low set point of 3" w.g. and a high set point of 6" w.g. and start the fan with the fan damper or duct blast gates partially open. At the same time, observe the pressure gauge, which indicates the pressure drop across the dustcake and fabric. Rising pressure on the gauge shows that dust is being collected on the bag. When the gauge shows 3" to 6" w.g., the fan damper or duct blast gates may be opened to the full normal position. Power to the control panel may be turned on from startup.
- 4 When the pressure gauge reaches 6" w.g., the unit will begin to pulse and will continue to do so until the pressure indicates 3" w.g.
- 5 Repeat Section 4.1, steps 1 through 3, and 4.3, steps 1 through 4, after installing new filter bags in the unit.

5.0 PRINCIPLES OF OPERATION

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

The Millennium is a modular, continuous, automatic, self-cleaning, cloth pulse-jet dust collector. The dirty air enters the collector through one or more circular inlets. A baffle is located at the inlet to deflect the dust into the hopper, provide uniform airstream distribution, and to protect the bags from

direct impingement. After the dust laden air leaves the baffle area, it passes through the filter media, depositing the dust on the outside surface of the individual filter bags. The cleaned air leaves the filter bags and discharges into the plenum at the top of the collector, where it is then exhausted through the outlet.

The filter bags are periodically cleaned by bursts of compressed air that are directed down the inside of the bags. A venturi located in the top of the bag cage induces additional air to the inside of the bags being cleaned.

This reverses the flow of air through the bags and dislodges the dustcake from the surface of the bag, allowing it to settle into the hopper. Since only a small percentage of the bags are cleaned at one time, the unit remains in continuous operation.

Hoppers are designed to receive the dust and are not for storage. The recommended practice is to continuously empty the hopper by means of a rotary lock and/or screw conveyor, or by some other discharge device.

6.0 MAINTENANCE

6.1 DAILY

Record the collector pressure drop daily for at least the first 30 days of operation. Adverse operating conditions can be detected by a change in pressure drop. An optional pressure gauge is available from AAF to provide the pressure drop reading across the dustcake and fabric. After startup, the pressure drop will gradually rise to its normal operating level of approximately 3" to 6" w.g.

6.2 MONTHLY

A regular inspection of the filter bags should be made at least every 30 days. Any faulty or worn bags/tubes must be replaced to prevent damage to the collector. The compressed air line regulator, dryer, and filter should be checked for proper operation. Also inspect the dust discharge device on the hopper outlet for proper operation.

6.3 SIX MONTHS

Ducts leading to and from the collector should be inspected for dust accumulation at a minimum of every six months. In addition, the following inspections should be made:

- 1 Examine the bags for wear with special attention to seams and stitching.
- 2 Examine the internal components for wear.
- 3 Inspect all joints for evidence of air or dust leakage.
- 4 Check for evidence of moisture or dust accumulation within the collector.
- 5 Check all electrical apparatus for proper operation.
- 6 Ensure the diaphragm and solenoid valves are pulsing when energized by the timer.
- 7 Check discharge gas condition for signs of dust.
- 8 Check explosion vents.

7.0 TROUBLESHOOTING

7.1 HIGH PRESSURE DROP READING

1 Improper Timer Operation

Check the wiring, fuses, and setting of pulse duration and interval.

CAUTION

Do not adjust the pulse duration without consulting an AAF representative.

2 Insufficient Compressed Air

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

3 Solenoid Pilot Valve Malfunction

Listen to verify the solenoid valves are firing. Check for momentary air venting each time they fire. Clean or replace, if necessary.

4 Pulse Valve Malfunction

Pulse pipe jets should be checked to verify operation of the pulse valves. Pulse valves can be easily disassembled and rebuilt in place.

5 Leaking Dust Discharge Device

A leaking rotary lock, screw conveyor, slide gate, etc. can overload the Millennium by preventing dust discharge after pulsing. This causes high pressure drop, excessive bag wear, and reduced air volume. Seal any such leaks.

6 Condensation

High humidity may cause blinding of bags, which results in excessive pressure drop. Run the cleaning mechanism with the fan off and the program timer on, or with the pressure switch set to zero, to release the dustcake. 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 leaking process ductwork, moisture in the process gas stream, or moisture in the compressed air system.

7 Static Electricity

Static electric buildup can cause a high pressure drop. If possible, increase the humidity using discretion to avoid creating condensation. Grounded bags may also be required in situations where a spark may result in ignition of an explosive dust.

8 Collector Overloads

Too much air or dust will create high pressure drops across the collector. Check the fan speed, system design, pre-cleaners, and the damper position. Also ensure the dust load and air volume are within the system design parameters.

7.2 VISIBLE DISCHARGE

1 Improperly Installed or Damaged Bags

Check for holes or tears in bags. Replace damaged bags. Reseal bags as necessary.

2 Insufficient Dustcake

The unit could be pulsing too often, resulting in overcleaning. Verify the pressure drop is at least 3" w.g. Increase the pulse interval until the unit is operating stably at 3" pressure drop minimum.

CAUTION

Do not adjust the pulse duration without consulting an AAF representative.

■ 7.3 INSUFFICIENT HOOD CONTROL

1 Incorrect Fan Rotation

Incorrect rotation of the fan will result in a failure to provide the required system static pressure or air volume.

2 Fan V-Belt Slippage

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

3 Leaks

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

4 Closed Air Passages

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

5 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.

■ 7.4 FABRIC BAG PROBLEMS

1 Over Temperatures

Operating temperature should not exceed the specified maximum.

2 Humidity

Humidity can blind bags. The moisture results in a more dense dustcake accumulation, or cements dust to the bag. Drawing dry air through the collector may dry the dust enough to allow the collector to clean with the fan off. If this method does not work, the bags must be dry cleaned, or new bags installed.

3 Dust Characteristics

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

4 Dust Buildup in Hoppers

Dust buildup in the bag area will result in excessive abrasion of the bags. The buildup may be caused by a malfunctioning

discharge device, or by condensation in the hopper. It may be necessary to add a vibrator to the hopper, or add hopper heaters with insulation.

5 Bag Wear On The Inside

Dirt on the clean side of the bags will cause the bags to wear from the inside. This could be the result of a broken bag, incorrect bag installation, or an improper tubesheet seal. Vacuum the clean air side, replace the bag, correct the seal, and reseal the cartridge. Do not blow dirt inside the bags. Any dirt contained in the bags should be vacuumed out.

When ordering replacement parts, the customer must identify the serial number of the unit, which can be found on the equipment nameplate located adjacent to the access ladder.

To order replacement parts call: 1-800-477-1214

9.0 EQUIPMENT CHARACTERISTICS, OPERATING WEIGHTS, AND SHIPPING WEIGHTS

Millennium Media Area (Sq. Ft.)

No. Of Bags	Number Of Modules		Standard Bags				Pleated Bags	
							(38 pleats)	(70 pleats)
	Module Size		Bag Length					
	96	144	8 ft.	10 ft.	12 ft.	14 ft.	80 inches	
96	1	0	1015	1277	1539	1801	2534	4608
144	0	1	1523	1916	2309	2702	3802	6912
192	2	0	2030	2554	3078	3602	5069	9216
240	1	1	2538	3193	3848	4503	6336	11520
288	0	2	3046	3832	4618	5404	7603	13824
336	2	1	3553	4470	5387	6304	8870	16128
384	1	2	4061	5109	6157	7205	10138	18423
432	0	3	4569	5748	6927	8106	11405	20736
480	2	2	5076	6386	7696	9006	12672	23040
528	1	3	5584	7024	8465	9906	13930	25344
576	0	4	6092	7663	9235	10807	15206	27648
624	2	3	6599	8302	10005	11708	16474	29952
672	1	4	7107	8941	10775	12609	17743	32256
720	0	5	7615	9580	11545	13510	19010	34560

Standard Millennium Operating Weight (Pounds)

No. Of Bags	Bag Length			
	8 ft.	10 ft.	12 ft.	14 ft.
96	7393	7850	8416	8927
144	8970	9550	10230	10855
192	12031	12725	13545	14310
240	13615	14423	15357	16236
288	15200	16121	17169	18162
336	18262	19300	20486	20760
384	19845	20996	22300	23544
432	20260	22694	24010	25470
480	24493	25870	27427	28926
528	26076	27570	29240	30850
576	27660	28680	31050	32170
624	30720	32440	34370	36240
672	32310	34140	36180	38160
720	33910	35840	37990	40090

Standard Millennium Shipping Weight (Pounds)

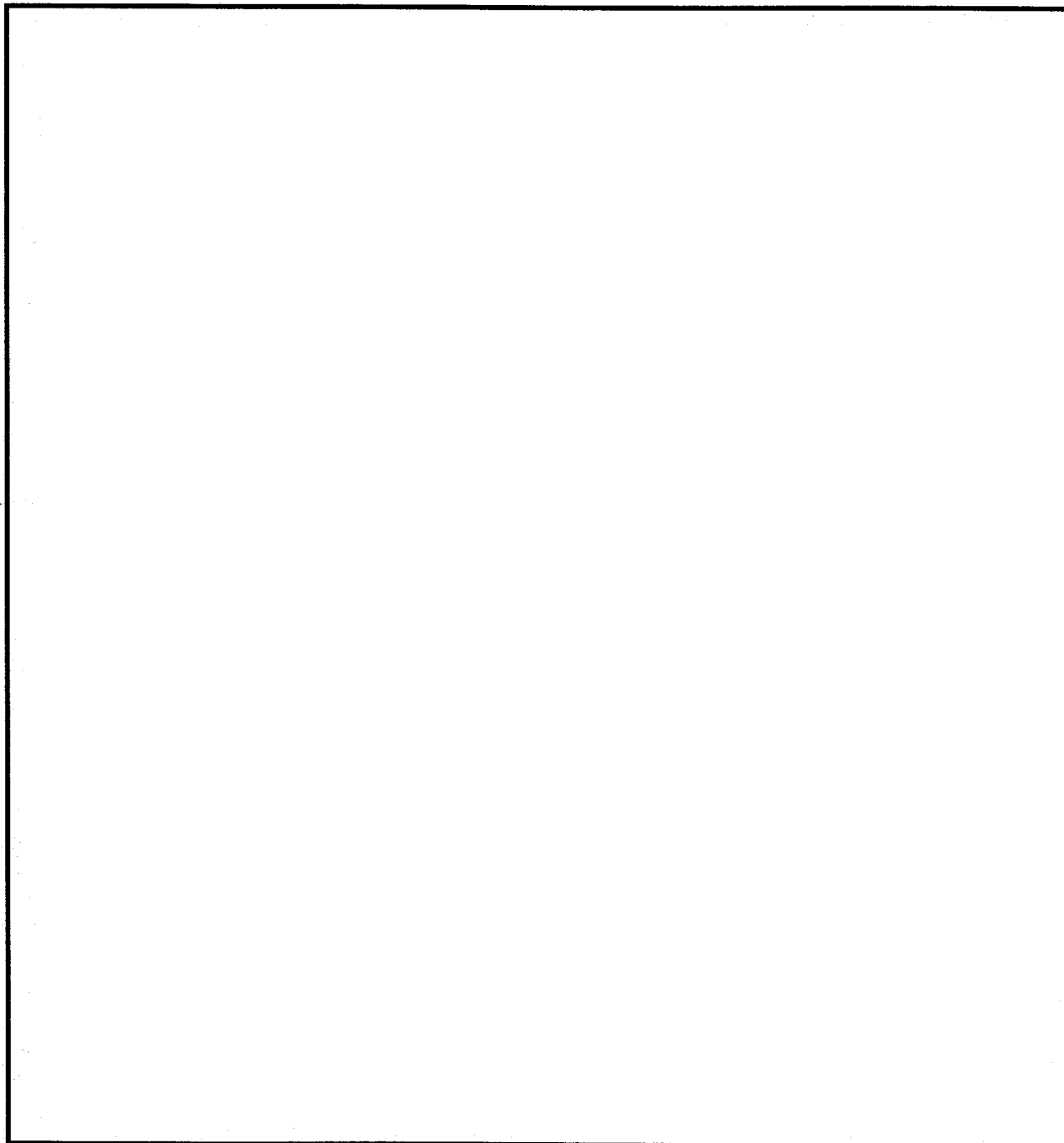
	96 Module				144 Module			
	Bag Length				Bag Length			
	8 ft.	10 ft.	12 ft.	14 ft.	8 ft.	10 ft.	12 ft.	14 ft.
Stand Alone Module	4345	4675	5050	5435	5525	5920	6360	6810
End Module	3920	4150	4415	4685	5100	5395	5725	6060
Internal Module	3495	3625	3780	3935	4675	4870	5090	5310
Legs & Bracing	1160	1160	1160	1160	1160	1160	1160	1160
Handrail & Ladder	1134	1134	1134	1134	1134	1134	1134	1134
Bags & Cages	10 pounds each per unit							

NOTES:

1. Operating weights and shipping weights do not include options such as trough hoppers, walk in penums, or auxiliary equipment.
2. Operating weights do not account for dust load, wind load, or snow load.



AAF Millennium™ Pulse-Jet Fabric Dust Collectors



215 CENTRAL AVENUE LOUISVILLE KY 40208-1406
P O BOX 35690 LOUISVILLE KY 40232-5690

APC-3-405 JUNE '96 MP 10M

*For Additional Information
On AAF Products,
Call The Answer Center
800.477.1214*



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