

SELF-CONTAINED FILTER/BAG DUMP

Installation, Operation,
and Maintenance Manual



**THE
Young®**

INDUSTRIES, INC.
16 PAINTER STREET
MUNCY, PA 17756

FOREWORD

This manual contains instructions for installation, operation and maintenance of Young Industries' filter dump stations. The care taken during receiving, storage, installation, operation and continued maintenance will add to the reliable operation and long service life of this equipment.

This manual should be read and understood in its entirety by the operator and the director of plant safety before performing any work on or operating a filter dump station. Contact Young Industries for additional copies which may be required to insure the dump station is being operated safely and according to the recommended procedures included in this manual.

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SAFETY

READ AND FULLY UNDERSTAND THIS MANUAL PRIOR TO OPERATING OR PERFORMING ANY WORK ON A YOUNG FILTER DUMP STATION.

If you have previously received delivery of a Young dump station and are just now receiving this manual, insist that both the dump station operator and the director of plant safety read and fully understand this manual prior to continued use of and/or performing any maintenance on the dump station.

Notify Young Industries if your dump station does not include safety warning labels or devices recommended within this manual, which you believe may be important to improve the safe operation or maintenance of your dump station installation. Contact the Engineer Manager for assistance at 570/546-3165 prior to continued use or maintenance.

Notify Young Industries if you have sold, leased, rented or given any Young dump station to another user. Your assistance will allow Young Industries to contact the new user with updated safety and/or operational recommendations.

Safety is a fundamental factor that must be considered at all times in the operation and maintenance of mechanical equipment. Use of proper tools and methods can prevent serious accidents that may result in injury to you and your fellow workers.

A number of safety precautions are listed throughout this manual. Study them carefully and follow them; insist that those working with you do the same. Remember: an accident can easily be caused by someone's carelessness or negligence.

The various precautions and recommendations detailed within this manual **are not necessarily** all inclusive. Young Industries has attempted to provide SAFETY AND OPERATIONAL GUIDANCE relating to

typical installations with which we are familiar. We urge you to review your particular dump station installation to determine whether there are potential hazards beyond the warnings of this manual.

If you have any safety or operational questions pertaining to the design or application of a Young dump station as it relates to your particular installation, please contact the Engineer Manager, Young Industries, telephone 570/546-3165.

Failure to observe and follow the safety precautions may result in serious personal injury or property damage.

Young Industries looks to our customer to achieve a cooperative effort for the purpose of making each dump station installation as safe for the operator as is reasonably possible and to insure proper maintenance and operating procedures are followed. Many times we do not have access to the installation; therefore, your participation in the safe installation, operation and maintenance of each demonstration is critical.

WARNING - ELECTRICAL GROUNDING AND BONDING ARE REQUIRED

- Ungrounded machinery presents a potential hazard of fatal electrical shock from electrical power sources. Static electricity may also accumulate on ungrounded equipment. Static electricity discharge may cause an explosion or fire if flammable vapor or dust is present.
- Electrical equipment must be installed by a certified professional electrician.
- Before operating any equipment, grounding and bonding must be completed in accordance

SAFETY AND INSTALLATION

with the National Electrical Code (NFPA 70) published by the National Fire Protection Association, 1 Batterymarch Park, Quincy, Massachusetts 02269-9101, and any other applicable national, state or municipal codes. Codes for safe control of static electricity must also be observed, including the National Fire Code NFPA 77 "Recommended Practice on Static electricity" and any of the applicable national, state or municipal codes.

- To avoid hazardous static discharge, mobile, movable or portable equipment which may contact or come near to other equipment and which is not specifically prohibited by codes from being connected to ground must be safely grounded and bonded before close approach made. This warning also applies to movable containers such as drums, totes, boxes and bags.
- Sections of pipe, duct and gravity spout must be bonded to adjacent sections of pipe, duct, spout or equipment and must have a conductive path to electrical ground.
- Regular periodic safety inspections of electrical systems and grounding/bonding systems are required.

INSTALLATION

A. Receiving and Inspection

1. Upon receipt of equipment and material from Young Industries the following basic steps should be taken:

a. Use the packing list to determine that all the items shipped have been received. Your equipment order was carefully crated or packaged for safe shipment when given to the carrier. Check for damage.

(1) Damage in transit is the responsibility of the carrier. Be sure to have the driver sign a copy of the freight bill with a notation about any damage.

(2) If a shipment was sent to you by parcel post, have the postmaster complete a damage claim report.

(3) Concealed damage: If equipment or goods are discovered to be damaged by shipment at a later date, contact the carrier and Young Industries immediately.

(4) IN ALL CASES OF DAMAGE IN TRANSIT, CONTACT THE YOUNG INDUSTRIES ENGINEER MANAGER AT 570/546-3165 FOR ASSISTANCE IN DETERMINING WHETHER OR NOT THIS DAMAGE MAY IN ANY WAY AFFECT SAFETY OR PROPER OPERATION OF A FILTER BAG DUMP STATION

(5) If shipped UPS, **DO NOT THROW ORIGINAL CARTON AWAY.** Keep all evidence for the inspector.

NOTE:

YOUNG INDUSTRIES CANNOT ASSUME ANY LIABILITY FOR SHORTAGES OR DAMAGED GOODS. CLAIMS MUST BE NEGOTIATED WITH THE CARRIER. CONTACT THE YOUNG INDUSTRIES ENGINEER MANAGER AT 570/546-3165 FOR ASSISTANCE IN RECTIFYING ANY SHORTAGE OR DAMAGE AS IT RELATES TO SAFE AND PROPER OPERATION OF A DUMP STATION.

2. Moving the Filter Dump Station

a. Moving and installation should always be performed by trained, experienced personnel, using safe and accepted rigging practices.

CAUTION:

WHEN MOVING A DUMP STATION OR COMPONENT PARTS, BE SURE THAT MOVING PRACTICES USED ARE SAFE FOR BOTH PERSONNEL AND EQUIPMENT. CONTACT THE YOUNG INDUSTRIES ENGINEER MANAGER IF THERE ARE ANY QUESTIONS RELATING TO WHAT CONSTITUTES SAFE AND ACCEPTED RIGGING PRACTICES FOR MOVEMENT AND/OR INSTALLATION OF A DUMP STATION.

b. Care and caution should be exercised to prevent damaging the housing, flanges, filter tubes, tube cages, air piping, and electrical components.

3. Storing the Filter Dump Station

- a. If moved to storage, the equipment should be located in a dry area, preferably inside. Outside storage will require adequate protection from the weather.
- b. The dump station has been shipped with temporary guards or covers. Do not remove these guards or covers while the dump station is in storage.
- c. After prolonged storage and prior to start-up, the dump station shall be inspected by a qualified person. Contact Young Industries Engineer Manager at 570/546-3165 for assistance.

CAUTION:
USE CAUTION TO PROTECT AGAINST FALLING OBJECTS OR DEBRIS FROM ENTERING OR DAMAGING THE FILTER DUMP STATION.

B. Supports

- 1. A Young Industries filter dump station is designed to be supported and anchored to a rigid support base.
 - a. A dump station with a hopper is supplied with four support legs with anchor bolt holes.
 - b. A dump station without a hopper is supplied with a support flange for bolting directly to another machine.
- 2. Securely anchor the dump station by bolting.
 - a. The support for a dump station must be structurally adequate to support an operating dump station with the hopper full of product.

C. Assembly

- 1. Locate the filter dump station with provision for sufficient clearance for tube or cartridge removal

- 2. The filter tubes, cages or cartridges are factory assembled when practical prior to shipment. Inspect the filter tubes, cages, or cartridges to determine that they are positioned properly and clamped securely.
- 3. If the filter tubes, cages or cartridges have not been factory assembled, assemble the tubes and cages into the tube sheet and clamp securely.

D. Electrical Installation

- 1. Refer to the wiring diagram furnished as a separate document for your filter dump station.
- 2. For a prewired dump station connect to your power source and make any other required connection as shown in the wiring diagram.
- 3. If the solid state sequence timer is not factory assembled and wired, mount the timer in a suitable location and make the electrical connections as shown on the wiring diagram.
 - a. The timer is suitable for an input of 105 to 135 volts AC, 50/60 Hertz and will operate at a temperature from -40 degrees F to + 150 degrees F. The input is protected by a 3 amp fuse located on the timer board.
- 4. If your dump station does not include a prewired starter for the fan motor, mount a starter and push button in a suitable location and wire as shown on the wiring diagram.

DANGER:
DISCONNECT POWER, SHUT OFF AND BLEED AIR SYSTEM BEFORE SERVICING

E. Compressed Air Installation

- 1. Connect the plant compressed air supply to the filter dump station.
 - a. The compressed air supply must be clean and dry with a pressure of 80 to 90 psi. Use a minimum 3/4" IPS air supply line.
- 2. Examine each solenoid air valve and remove the plastic exhaust port plug (usually orange) to permit the valve to exhaust to atmosphere.

3. If a pressure gauge has been installed in the compressed air line in the vicinity of the filter, the gauge will dip 20 to 40 psi each time a solenoid is energized, indicating the cleaning air valve has opened and is operating properly

CAUTION:
COMPRESSED GAS-SHUT OFF AND BLEED SYSTEM BEFORE SERVICING

F. Precommissioning

1. Prior to operating or test running the dump station and with the power and compressed air shut off, check internally for cleanliness, using caution to avoid physical harm to personnel and equipment.
2. Inspect the installation to assure the dump station is installed properly and mounted securely.
3. Inspect the filter tubes, cages, or cartridges to assure they are positioned properly and clamped securely
4. Determine that electrical power and compressed air supplies are properly installed and operative.
5. **CHECK THE FAN ROTATION** to assure the fan rotation is counterclockwise when looking at the shaft end of the motor.

NOTE:
Using a light, the fan rotor and motor shaft can be observed by looking up through the fan safety screen at the top of the plenum housing.

CAUTION:
ROTATING MACHINERY-DO NOT OPERATE WITH THE FAN SAFETY SCREEN REMOVED.

CAUTION:
ROTATING MACHINERY-DO NOT PLACE ANYTHING INTO OR THROUGH THE FAN SAFETY SCREEN.

6. **TIMER SETTING-** set the sequence timer for 15 seconds "off time" and 100 milli-seconds "on time" (100 milli-seconds is the maximum recommended "on time" setting). See Paragraph 3, OPERATION for further timer adjustment.
7. Inspect the dump station to assure that all guards, covers and safety equipment are in place and working properly.
8. We urge the installation crew to notify the plant safety committee and/or the plant engineer when installation is complete and prior to initial operation. Those in your plant responsible for plant safety should review your filter dump station installation prior to operation for safety in light of the extensive operating recommendations made within this manual. Contact the Engineer Manager at Young Industries, telephone 570/546-3165, if this review results in additional questions or uncertainty.

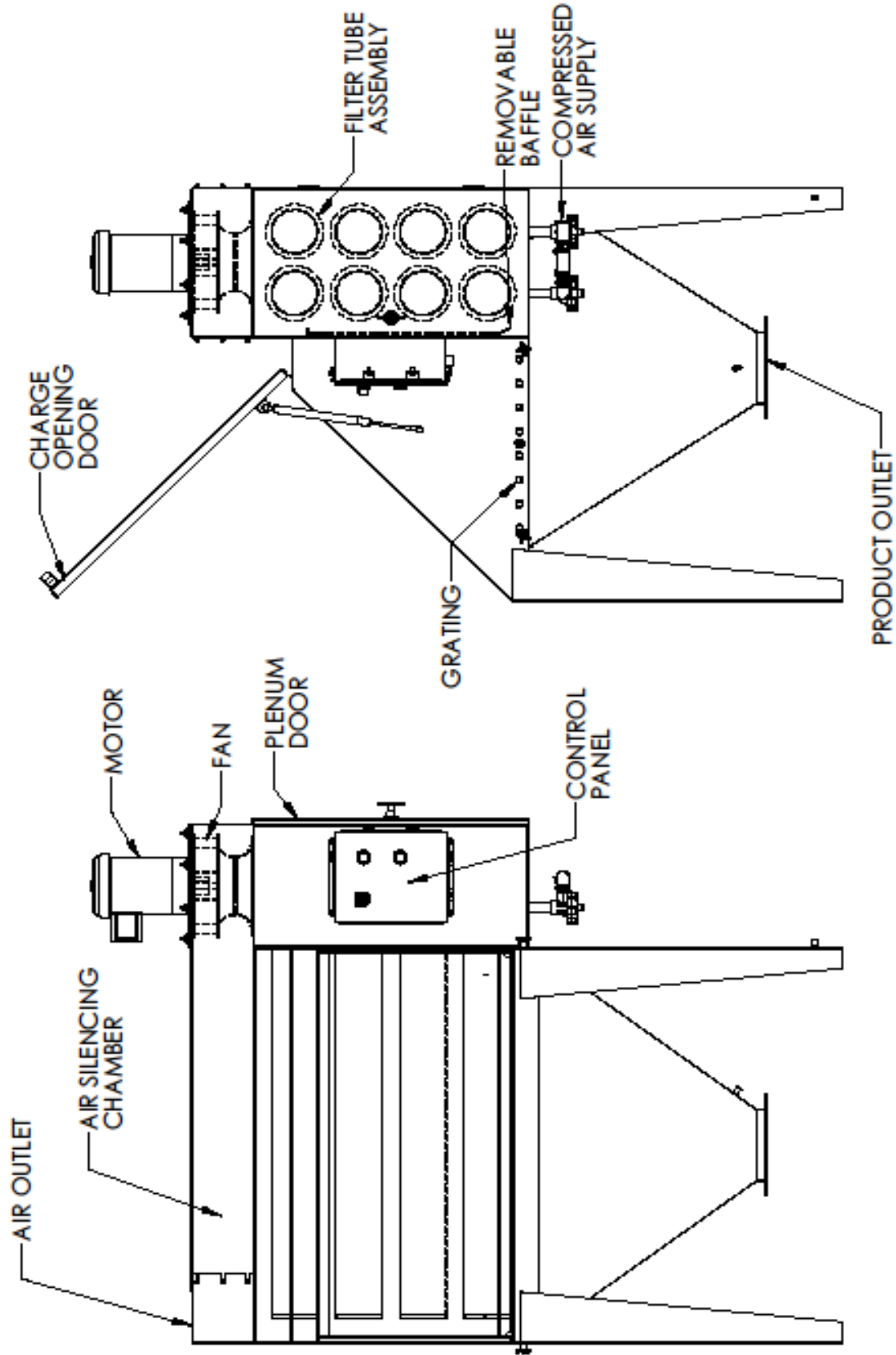


Figure One – Typical Filter Bag Dump Assembly

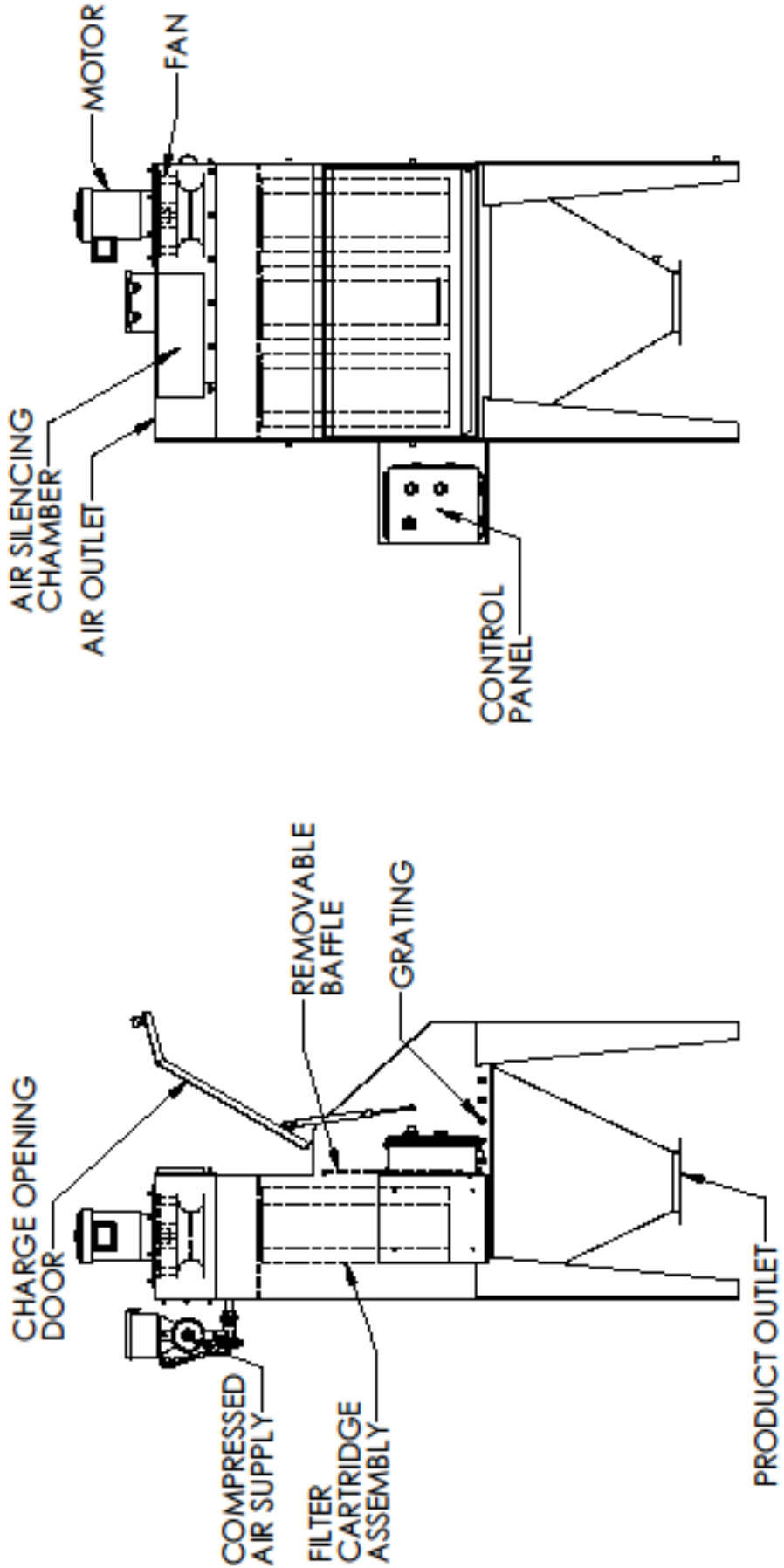


Figure Two -- Typical Cartridge Filter Bag Dump Assembly

OPERATION

A. Start -Up

1. Prior to actual operation, the operator must familiarize himself with the method of starting and stopping the filter dump station and the status of supporting utilities.
2. The general appearance of the dump station and surrounding area should be visually inspected to determine that the dump station can be operated safely and without damage.

CAUTION:
DISCONNECT POWER, SHUT OFF COM- PRESSED AIR AND BLEED SYSTEM BEFORE SERVICING.

3. If your particular installation has an unsafe condition unforeseen by Young Industries and beyond typical operating conditions, CEASE FURTHER OPERATION of the dump station and immediately notify both your safety committee and the Engineer Manager at Young Industries, telephone 570/546-3165. The Young Industries Engineer Manager can assist you in speeding the return of your dump station to a recommended operating condition.

B. Continuous Operation

1. During dump station operation the operator should recognize and report any unusual noise or vibration. If an unusual noise or vibration comes from the fan, immediately shut the fan motor off. Notify your maintenance personnel or call Young Industries for assistance or additional guidance in defining these conditions. Refer also to the maintenance section of this manual.
2. Guards, covers and safety equipment shall be in place whenever the dump station is in service.

CAUTION:
DISCONNECT POWER, SHUT OFF COM- PRESSED AIR AND BLEED SYSTEM BEFORE SERVICING.

3. **TIMER OPERATION-** after a period of continuous operation, if additional dust control is desired, the filter cleaning pulse may be adjusted by resetting the timer controls as follows.

- a. **Off time** controls the amount of time between each cleaning air pulse. Reset the timer to 5, 10, or 15 seconds. 30 is the maximum recommended setting.
- b. **On time** controls the duration time of the cleaning air pulse. Adjust the timer to a setting between 50 and 100 milliseconds. 100 milliseconds is the maximum recommended setting.

4. A manual/automatic selector switch is provided on the control panel. For normal operation the selector switch is placed in the automatic position to allow the filter cleaning system to start and stop automatically with the fan motor.

When the manual/automatic selector switch is placed in the manual position, the filter cleaning system may be operated, "off-line", that is without the fan operating. Pulsing the filter off-line for a short period (2 - 3 minutes) after dumping will tend to dislodge imbedded particles and product build up from the filter tubes or cartridges. The charging door must be closed when pulsing the filter off-line.

5. The filter dump station is designed and selected to meet specific operating conditions. Care shall be exercised to assure that the dump station is operated within safe limits. The dump station should be used only for the purpose for which it is designed. Refer to Young Industries quotation to determine the application for which this dump station was intended. Contact the Sales Manager at Young Industries, Painter Street, Muncy, PA 17756, if you need assistance in determining the proper application of this Young Industries' filter dump station.

C. Shut-Down

1. When shutting down a filter dump station, shut off supporting utilities in accordance with plant operating procedures.

OPERATION AND MAINTENANCE

- When cleaning or servicing is required on the dump station, proper lock-out of electrical, compressed gas and mechanical equipment should be completed before the work is started.

CAUTION:
DISCONNECT POWER, SHUT OFF COMPRESSED AIR AND BLEED SYSTEM BEFORE CLEANING OR SERVICING.

MAINTENANCE

A. Lubrication

- The fan motor is furnished with prelubricated sealed bearings. During the first few hours of operation observe the bearings to assure they are operating quietly and not overheating.
- Based on 5000 hours per year running time:
 - Motors without grease fittings. lubricate every five years.
 - Motors with grease fittings - lubricate once every year.
 - Lubricate motor bearings with Gulf Crown grease No. EP-1 or equal.

CAUTION:
ROTATING MACHINERY-DO NOT OPERATE WITH GUARDS OR COVER REMOVED.

- Contact the Engineer Manager at Young Industries, telephone 570/546-3165, if you need additional assistance to set up an ongoing lubrication and preventive maintenance schedule.
- Equipment that is out of service for extended periods of time (30 days or longer) or equipment that is placed in storage (inside or outside) should have all unpainted carbon steel surfaces coated with a rust preventative (Gulf No Rust C or equivalent).
- Refer to the proper IOM manual for lubrication instructions of auxiliary equipment used with the filter dump station.

B. Filter Tube Cleaning

- Filter tubes and cartridges may be cleaned in place by pulsing off-line. Turn on compressed air and sequence timer with the fan stopped. (see paragraph B4 OPERATION)

CAUTION:
DO NOT OPERATE OFF LINE WITH CHARGING DOOR OPEN.

- Filter tubes and cartridges may be brushed lightly with a camel hair brush or other type of non-abrasive brush. Use care not to damage the tube surface or drive smaller particles deeper into the fabric. With Gore-Tex bags use special care not to damage the membrane.
- Air pressure cleaning or vacuuming.
 - When either of these methods are used, the cleaning air should travel from the clean air side to the product side of the filter tube or cartridge.
 - Use care not to damage the fabric.
 - This method of cleaning is not recommended for PTFE membrane/Gore-Tex filter bags.

CAUTION:
DUST HAZARD - USE RESPIRATOR AND EYE PROTECTION.

- Wool and Cotton Tubes
 - All natural fabrics are subject to shrinkage when wet with water. If washed in water, the filter bags will not fit properly. Dry cleaning is required.
 - The use of pure cleaning solvent is advised. Dry cleaning detergents and additives that permit addition of water to solvent can cause shrinkage of wool felt.
 - Dry by hanging in a drying room.
- Polyester/Dacron, acrylic/Orlon, Nomex and polypropylene Tubes.
 - These fibers are not subject to shrinkage by water and may be washed in warm water. Some products can be removed better by dry cleaning.
 - Wash in soft water with a water temperature between 120 and 140 degrees F.

- c. If water is heated by injection of live steam, it is extremely important to avoid contact between live steam and the filter bags.
- d. Use a 0.05% (20 grams/10 gallons of water) solution of a non-toxic detergent. Examples: Pluronic L-62
Wyandotte Chemical Corporation,
Wyandotte, MI
Cerfac 400
E.F. Houghton and Company,
Philadelphia, PA
Igelal CO-630
Antara Chemicals Company,
New York, NY
- e. Avoid acid materials.
- f. Washing procedure.
 - (1) Wash for 30 minutes.
 - (2) Double rinse in soft water (temperature below 140 degrees F).
 - (3) Do not tumble dry; hang in drying room.
 - (4) Dry at temperature below 200 degrees F.
- g. Dry cleaning
 - (1) In most cases, any standard commercially available dry cleaning solvent may be used without harming the bags. Examples: Carbon-tetrachloride (Carbona), Stoddard solvent (Stod-Sol), trichloroethylene, perchloroethylene (Perclene).
 - (2) Gasoline, kerosene, naphtha or turpentine can be used, but are not recommended because of the extreme fire hazards involved.
 - (3) Some fibers are subject to swelling or dissolve in certain organic solvents. If this is unknown, then a small sample of the fabric should be tested in the solvent in question before proceeding.

- (4) Dry by hanging in a drying room
- 6. PTFE membrane/Gore-Tex Tubes.
 - a. PTFE membrane filter tubes can be washed, but do not use any solvent.
 - b. Do not put bags in any type of industrial washing machine or any type of machine which uses an agitator. Agitation may cause creases, damaging the membrane.
 - c. Lightly brush the bags while in a trough or hose them down while still in the filter, using a standard low pressure water hose (standard home variety). Use an indirect water spray. Run fan until bags are completely dry.
 - d. Line dry bags; do not use any industrial type of dryer. When hanging bags to dry, open them to allow the inside to dry.
- 7. After cleaning, the bags should be inspected for broken seam stitches, small holes, tears, etc.
 - a. Small holes can be sewn with the correct thread, cemented or patched. We do not recommend patching holes larger than a fifty-cent piece.
 - b. Typical patching adhesives:
 - (1) Low temperature to 250 degrees F. Mixture of 50% EC1300 (3M Company) and 50% Weldwood (U.S. Plywood Corporation). For use with appropriate fabric patch only.
 - (2) Temperature to 350 degrees F for long periods (months) or to 500 degrees F for shorter periods (weeks).
Dow Corning 780 building sealant, RTC silicone rubber adhesive. For use with appropriate fabric patch or for sealing small holes without patch.

C. Replacing Filter Tubes

- 1. Remove all filter tubes, cages or cartridges from tube sheet.
- 2. Thoroughly clean all cages, tube sheet and plenum chamber.

3. Deliver new tubes or cartridges to the filter in original shipping container to avoid handling damage.
4. When an insertion sleeve is furnished with the bags (always with Gore-Tex), insert the sleeve through the tube sheet opening to protect the tube when being inserted through the opening in the tube sheet.
5. Remove each filter tube or cartridge from the shipping container and assemble to the tube sheet opening. Use special care when handling Gore-Tex to prevent damage to the membrane.
6. Remove the insertion sleeve, if furnishing.
7. Use caution to prevent pushing the filter tube through the tube sheet opening. Assemble the cage into the filter tube, if furnishing.

D. General Inspection

1. Observe the fan, air cleaning valves and piping for any unusual noise or vibration.
2. Check product outlet connection for tightness.
3. Check dump station support.
4. Observe dust collection at dump station inlet.
5. Inspect all safety equipment, guards, covers and labels to assure the dump station and auxiliary equipment can be operated safely. If an unsafe condition is observed, cease further operation of the filter dump station and immediately notify both your safety committee and the Engineer Manager at Young Industries, telephone 570/546-3165.

DANGER:
DISCONNECT POWER, SHUT OFF AND BLEED AIR SUPPLY BEFORE SERVICING.

E. Troubleshooting

1. When properly installed, operated and maintained your Young Industries dump station will give years of service. Table One, "Trouble- shooting Filter Dump Stations," gives symptoms, causes and remedies for most problems that may be encountered.

F. Spare Parts

1. A nameplate is furnished with each dump station. The necessary information for ordering spare parts is found on this nameplate. When ordering, please provide (a) SHOP NUMBER and (b) SERIAL NUMBER. Contact the Parts Department Manager at Young Industries. telephone 570/546-3165, for assistance.

TABLE ONE - TROUBLESHOOTING FILTER DUMP STATIONS

SYMPTOM	CAUSE	REMEDY
Insufficient dust	Poor filter tube or cartridge cleaning Fan running Backwards	Adjust sequence timer. No compressed air supply or low pressure Sequence timer or valve solenoids not operating. Filter tubes or cartridges need to be cleaned or replaced. Check fan rotation See paragraph F5, INSTALLATION
Dust at clean air	Tubes or Cartridges not clamped Small holes in filter tubes or cartridges Dirty filter bags.	Check tubes or cartridges position and Repair or replace filter bag(s). Check timer and solenoids for proper operation. Clean or replace filter bags.
Noise or vibration in	Fan rotor loose on shaft Worn motor bearing.	Align and secure rotor to motor shaft. Replace motor bearing.
Sequence timer not	Lack of power. Timer burned out	Check power source. Check fuse on timer Replace Timer.
Valve solenoids not operating.	Lack of power. Solenoid burned out.	Check sequence timer. Replace solenoid.

CAUTION
DO NOT OPERATE WITH GUARDS OR COVERS REMOVED.

CAUTION
DO NOT EXTENDED HANDS OR HAND HELD OBJECTS INTO FAN OR AUXILIARY EQUIPMENT.

DANGER
DISCONNECT POWER BEFORE SERVICING.

CAUTION
COMPRESSED GAS-SHUT OFF AND BLEED SYSTEM BEFORE SERVICING.

THE Young®
INDUSTRIES, INC.
 Muncy, Pennsylvania 17756
 TELEPHONE: 570-546-3165

MADE BY	KFH	DATE	7/24/93	ORDER NO.		ISSUE	
CHKD	PFEIFFER		7/26/93				
APPR	PFEIFFER		7/26/93	SHEET	1	OF	1
CUST.	-						
TITLE	GROUNDING/BONDING WARNING						

WARNING – ELECTRICAL GROUNDING AND BONDING ARE REQUIRED

Ungrounded machinery presents a potential hazard of fatal electrical shock from electrical power sources. Static electricity may also accumulate on ungrounded/unbonded equipment. Static electricity discharge from ungrounded equipment or between unbonded pieces of equipment may cause explosion or fire if flammable vapor or dust is present.

Electrical equipment must be installed by a certified professional electrician.

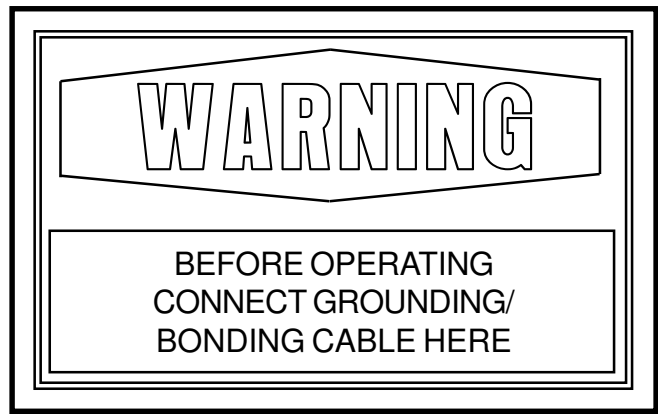
Before operating the equipment described by this manual or any other equipment in the same processing system, grounding and bonding must be completed in accordance with the National Electrical Code (NFPA 70) published by the National Fire Protection Association, 1 Batterymarch Park, Quincy, Mass. 02269-9101, and any other applicable National, State or Municipal codes. Codes for safe control of static electricity must also be observed, including the National Fire Code "Recommended Practice on Static Electricity" (NFPA 77) and any other applicable National, State or Municipal codes.

To avoid hazardous static discharge, mobile, movable or portable equipment which may attach to or come near to other equipment and which is not prohibited by codes from being connected to ground must be safely grounded and bonded before close approach or contact is made. This warning also applies to movable containers such as drums, totes, boxes and bags.

Sections of pipe, duct and gravity spout must be bonded to adjacent sections and must have a conductive path to electrical ground.

Regular periodic safety inspections of electrical systems and grounding/bonding systems are required.

LOOK FOR THESE TAGS AND TERMINAL CONNECTING POINTS



CABLES AND TERMINATIONS MUST BE SUPPLIED BY INSTALLER

