

F.B Series Operating and Maintenance Manual

PLEASE READ THE ENTIRE MANUAL BEFORE HANDLING ERECTING OR OPERATING EQUIPMENT

Record your dust collector serial number here _____

this number will be required to obtain capacity, information and parts in the future

Your serial number is a five digit number beginning with the last two digits in the year of manufacture i.e. 88001 means this equipment was manufactured in 1988 this will be required to obtain capacity information and parts in the future.



N. R. Murphy Limited

June, 2019

430 Franklin Boulevard,
Cambridge, Ontario, Canada, N1R 8G6
phone: 1-519-621-6210
fax: 1-519-621-2841

www.nrmurphy.com
4nodust@nrmurphy.com

Foreword

Thank you for purchasing your new dust collector from N. R. Murphy Limited.

With proper care and maintenance your N. R. Murphy dust collector will provide years of trouble-free service. We are sure that it will prove to be a valuable asset to your company in maintaining the health and safety of you and your employees.

Our interest in you and your company does not end with the sale. If you have any questions, comments, require any system re-design, or wish to have your dust collector serviced by our factory trained service technicians, please do not hesitate to contact us. We would be pleased to discuss these issues with you.

It is our endeavor to manufacture the finest equipment available and the purpose of this manual is to assist you in keeping your dust collection system operating at its peak performance.

TABLE OF CONTENTS

Safety Precautions -----	Page 1
Handling Dust Collectors -----	Page 2
Preliminary Instructions -----	Page 2
Preliminary Inspection Before and after Start-up -----	Page 3
Using Drum Storage -----	Page 4
Rotary Bin Agitator -----	Page 4
Bin Level Indicator -----	Page 4
Direct Drive Industrial Exhausters -----	Page 5
Overloading Of Exhauster Motors -----	Page 5
Procedure to Empty Waste -----	Page 5
Daily, Weekly, Monthly, Yearly Inspections -----	Page 6
Industrial Exhausters -----	Page 7
Electric Motors and Equipment -----	Page 7
Shaker Assembly -----	Page 7
Filter Tubes -----	Page 7
Dust Collector, Housing, Supports, Doors, Hoppers -----	Page 8
Optional -----	Page 8
Spare Parts Recommended -----	Page 8
Trouble Shooting Chart-----	Page 9
Relief Latches-----	Page 10
Manufacturer's Warranty -----	Page 12
Assembly of Door Handle Kits -----	Page 13
Installing or removing Filter Tubes -----	Page 14
FBMW Series Arrangement "G" 2 Drum Schematic -----	Page 15
FBA Series Collector & Side Mounted Exhauster Schematic -----	Page 16
FBP Series Collector Schematic -----	Page 17
Mounting Instruction of Material Discharge Door Schematic -----	Page 18
Automatic Shaker Control Wiring Diagram -----	Page 19
Mounting Instructions of Magnehelic Gauge -----	Page 20
Maintenance Log -----	Page 21

Safety Precautions



EQUIPMENT WITH ROTATING PARTS CAN BECOME A SOURCE OF INJURY AND DEATH IF NOT PROPERLY INSTALLED, OPERATED OR MAINTAINED. Do not exceed the maximum operating temperature or speed limits for which the equipment was designed. Limits for Industrial exhausters are available from N. R. Murphy Limited and must not be determined otherwise. Do not rely on limits obtained in any other manner. The user must make all personnel in contact with the equipment aware of all possible hazards.



THE RESPONSIBILITY FOR PROVIDING SAFETY ACCESSORIES FOR EQUIPMENT SUPPLIED BY N. R. MURPHY LIMITED IS THAT OF THE USER OF THE EQUIPMENT. N. R. Murphy Limited sells equipment, exhausters with or without safety accessories, and accordingly, it can supply standard safety accessories and components if ordered. It is the customer's responsibility to ensure that all necessary safety accessories have been installed prior to operation of the equipment.

THE WARNING NOTICE, AS ILLUSTRATED BELOW SHOULD BE ATTACHED TO INDUSTRIAL EXHAUSTERS AT ALL TIMES

N. R. Murphy Limited

Warning

This equipment has rotating parts and can cause serious personal injury or death. Keep body, hands and feet, loose clothing and foreign objects away from inlet, outlet, shafts and drives. Do not touch equipment or motor during operation as it may be hot.

Do not attempt any service or maintenance work without thoroughly adhering to the instructions and procedures as defined in the Operating and Maintenance Manual for this specific equipment.

No work is to be performed by untrained personnel. Be sure to disconnect all electrical power sources and lock the disconnect switch in the off position before commencing any work. Clean-out doors must be secure during operation. An unsecured clean-out door can become a projectile during operation because of pressure buildup.

Additional safety accessories are available from N. R. Murphy Limited. The responsibility for providing necessary safety accessories is that of the user. Consult the manual for guidance.

Failure to follow the manufacturer's instructions for installation, operation, maintenance, adjustment, safety equipment or appropriate operation conditions can result in damage to the equipment, damage to other objects, personal injury or death

Installation and Operation of FB Series Dust Collectors

Introduction

The purpose of this section is to aid in the proper installation, operation and maintenance of your FB Series dust collector. These instructions are not intended to supplement good general practices and are not intended to cover detailed installation procedures. Although certain models such as the FBMW dust collectors may be mentioned throughout these instructions, the instructions apply to all FB Series prefixed models. It will be necessary to go through all the instructions and perform the operations applicable to your unit.

The receipt, handling, installation, operation and maintenance of N. R. Murphy Limited equipment is the responsibility of the user. It is important that the installation and start-up of the equipment be supervised or inspected by personnel experienced in such work and equipment.

Shipment and Receiving

N. R. Murphy Limited has thoroughly inspected the equipment at the factory and has prepared your dust collector for shipment. The equipment should be in as new condition when received unless damaged in transit. Upon acceptance by the carrier, as evidenced by a signed bill of lading, the carrier accepts responsibility for all shortages or damage, whether concealed or evident. Claims covering shortages or damage must be made to the carrier by the purchaser. Any shortages or damage should be noted by the user on the delivery receipt.

Handling

Do to the fact that a large bulk and relatively thin walls are involved, more than average care should be exercised in the unloading and lifting of dust collection units. It is easy to create unsightly dents, or cause other damage to sheet metal components. It is exceedingly difficult to repair such damage or to restore it to its original appearance.

The factory has tried to make the handling of the equipment as simple as possible. Lifting lugs, punched holes in companion rings (used by removing bolt) and other aids are attached where feasible. It is important to locate and use these aids whenever the unit is unloaded, lifted or otherwise handled.

It is strongly urged that these lifting aids be used rather than attempting to use slings or other devices wrapped around the collector. One misplaced sling that causes the collector to slip and become damaged could result in many hours of rework.



NEVER UNDER ANY CIRCUMSTANCES USE THE EXHAUSTER SHAFT TO LIFT THE COLLECTOR AS IT COULD CAUSE SEVERE DAMAGE TO THESE COMPONENTS.


Safe and smooth operation of equipment requires a proper foundation that is level, rigid and of sufficient structure and mass to support the equipment. **It is always imperative to consult a qualified engineer to design a proper foundation.** A properly designed concrete base is the preferred foundation. The concrete base mass should be a minimum of four times that of the exhaust equipment when the plan view area of the concrete base is no more than twice the plan view area of the exhauster. Steel platforms or bases are good alternatives when properly designed. Steel platforms must be braced in all directions.

Preliminary Instructions Before Erecting (Also see erecting diagrams and specifications throughout the manual)

The following points should be checked on all units, regardless of model:

1. Ensure that none of the filter tubes have become detached from the shaker frame or the collar plate during shipment. For snap ring type filter tubes be sure the groove on the cuff is properly engaged in the cell plate, then pull the filter taut at the top end by pulling down on the hanger strap. In older style collectors, first release the clamp holding the filter tube to the collar, pull open end of filter tube over the collar on the collar plate, being sure to pull the filter tube taut before re-clamping. Note that on rocker style shaker frame assemblies, filters should not be pulled too tight to impede the operating characteristics of the shaker frame, linkage or gearbox / motor assembly. Contact NRM if unsure of type installed.
2. Make sure the bolts holding the fan onto the collector shell roof have not vibrated loose during shipment (if supplied) Also examine the entire collector for similar problems. Although every effort is made before shipping to prevent these problems from occurring the vibration encountered by the equipment during shipment can result in nuts being loose when the equipment is received at its installation location. When setting up equipment with weather guards and covers added check that these items are securely fastened and have maintained necessary operational clearances around rotating or moving components to prevent serious damage or injury. When the collector is shipped in sections to be assembled at the installation location, be sure that an ample amount of caulking is applied at all bolted flange joints. Proper sealing is required to ensure an airtight installation.
3. Check all door seals and locks to ensure that the doors open and close through a full range of motion and that an air tight seal is being obtained when closed.
4. Open the fire damper and secure the curtain in place with the fusible link supplied. (if not shipped ready for installation)
5. It is necessary that the equipment operates in an airtight condition when the exhauster is running. Therefore the equipment should be examined for leakage. The simplest method to locate obvious leaks on large equipment is from inside the equipment post installation to look for light leaks. **BE SURE THE MAIN POWER SUPPLY IS TURNED OFF.** If any leaks are found make a request to the supplier or dealer to have issues rectified.
6. Collectors that have belt driven main exhausters should be checked to ensure that proper belt tension is maintained. See Exhauster maintenance manual for details.
7. Make sure that the connections between the exhauster inlet and the collector outlet are in place, airtight and tightly secured.
8. A qualified Industrial Electrician must be employed to do the wiring for the dust collection equipment according to any provided drawings or schematics.
9. Knocked down support structures should be welded at all bolted joints and gussets upon erection. The dust collector should be tack welded to the support structure.

Preliminary Inspection Before & After Start-up for all Models

1.  **CAUTION: DISCONNECT AND LOCK OUT ALL POWER SOURCES TO THE EXHAUSTER**
2. Check the exhauster wheel to inlet cone and exhauster wheel to exhauster housing clearance to ensure that there is no interference. Turn the exhauster wheel by hand, ensuring that it rotates freely. On direct drive applications it may become necessary to re-position the motor/exhauster wheel assembly by shifting and/or shimming as required to ensure an on centre position.

-4-

3. Check set screws and keys (or taper-lock hub if present) in the exhauster wheel, and bolts on cooling disc.
4. Ensure that bearings are properly aligned and lubricated with special attention to the locking mechanisms, cleanliness, and possible corrosion. Bearings showing signs of corrosion must be replaced prior to operation of the industrial exhauster.
5. **Do not run the exhauster until all ductwork is complete** and ensure that the exhauster is turning in the correct rotation as shown on the exhauster case.
6. Make sure all access doors and other openings i.e. material discharge gate, drums are closed or in place to maintain suction.
7. An amp reading should immediately be taken on ALL motors on initial start-up after all installation conditions are completed. This will indicate the highest amp reading the collector will ever run under as the filters are clean. This is a check to ensure that the exhauster speed etc. are correct and that the motor is not overloaded.
8. If the collector is equipped with automatic shaker controls, ensure that the start – stop sequence of the shaker motor is correct. (see under Procedure to Empty Waste)
9. Check to ensure that none of the filter tubes have become loose and that they remain taut.
10. Make sure that the shaker motor does **NOT** run while the main exhauster is in operation and that the shaker **CANNOT** be run for more than a minute during its cycle. An automatic shaker control is recommended but a momentary push button contact station can be used as an economy measure and is usually supplied with the equipment when a custom control panel is not. On initial start-up caution should be taken that no damage has occurred to the shaking mechanism in transit. Operate by hand if possible to ensure that all parts are functioning properly and are not binding.
11. If speed reducers have been supplied, ensure that they have been filled to the proper level with the manufacturer's recommendation before starting. **NOTE:** some reducers have vent plugs and are lifetime lubricated and require no added lubricants.
12. Collectors with elevated internal storage and material discharge gates should be checked to ensure that gears on the sliding door are properly engaged (if supplied). After the collector is erected remove the bolts that hold the door in the closed position during shipping. Ensure that the gate is opening and closing properly and that it remains closed during collector operation. **PLEASE NOTE:** Do not overfill the storage area. Space must be allowed in the dust collector storage area to accommodate the material that will be displaced from the filters during the shaking cycle.

Using Drum Storage

In some of the dust collectors, 45 gallon storage drums are used to store the waste material. In some of these collectors it will be found that they do not fill evenly, previous installations have shown that differences in installation and inlet ductwork conditions will

affect drum filling. Some material blow-by may occur, this does not reduce the efficiency of the collector but will require periodic clean-up

Rotary Bin Agitator (if supplied)

- Open truck loading door all the way
- Turn start button for the agitator ON and if the arm does not begin to turn shut the motor OFF immediately
- If material is keeping the agitator arm from moving, remove material from around the arm until it is free. (simply using a long pole or stick can achieve this...do not stand under the material discharge.

-5-

- Then turn start button for the agitator to ON and allow the agitator to do its job to free packed dense material allowing the storage section to empty. If the agitator still does not start please consult with the supplier, local dealer or N. R. Murphy Limited.
- Do not try to start the agitator more than three times an hour to prevent motor damage or burnout.

Rotary Air Lock (if supplied) See Rotary Air Lock manual

Bin Level Indicator (if supplied)

If supplied this has been factory pre-fitted and removed to ship loose for onsite installation by others. The bin level indicator can be wired in a manner such that it will turn the system off when the desired bin level is reached or it can be wired to a signalling device such as beacon or alarm. Bin level is selected in conjunction with the customer's requirements at a predetermined level. If after several weeks the level requires alteration due to unforeseen circumstances, it would be done so by the customer. A signalling device would be our recommendation as it gives some lead time to prepare for emptying the storage area.

Direct Drive Industrial Exhausters

- Select proper size heater elements to match amperage as stated on the motor manufacturers nameplate. Never install oversized heaters as this can cause motor failure and nullify the warranty.
- On initial start-up with clean filters and all the ductwork **NOT** installed the overload heaters may kick out. Should this occur, you must restrict the airflow on the air inlet or outlet opening to allow the collector to start under additional system resistance. Completed systems will require blast gates with locking devices at all machines and on initial start-up if there is not enough resistance in the system air flow will have to be restricted until the filters have built up a dust cake to create the required resistance.

Overloading of Exhauster Motors

Low system resistance may cause overloading of the exhauster motor on any installation. Amperage draw must be checked on start-up of a completed system installation. If amperage draw is too high, resistance must be added to the system of exhauster speed must be changed. See under "Direct Drive Industrial Exhausters" for restricting or check with the factory.

Procedure to Empty Waste (elevated internal storage)

- Switch off the blower (allow blower to decelerate for approx. 2 minutes)
- Start shaker (if not automatic) and run for no more than 1 minute. Extending the shaker time beyond this serves no purpose other than to cause excess stress and wear on the shaking system components. Manual shakers can be hand operated in the same manner.

- Open waste material discharge gate at the base of the storage section and allow material to fall out into truck or tote box. If material fails to discharge, check for bridging in unit storage section and if this has occurred break the bridge.
- **BE AWARE THAT WHEN THE BRIDGE IS BROKEN THE MATERIAL WILL FALL, TAKE PRECAUTIONS TO AVOID INJURY.**

By following the preceding instructions before operation, a great deal of difficulty can be avoided. These items have all been checked by the manufacturer prior to shipment of the equipment but it has been found that bolts, screws etc. loosen and that sealing material sometimes is damaged in transit.

The contents of this manual should be read and checked by the installer of the collector, whether it be the customer or the contractor. It is the responsibility of the customer to ensure that these instructions and inspections are carried out.

-6-

Inspections of FB Series Dust Collectors

Daily, Weekly, Monthly, Yearly Inspections (each day for the first week of operation)

1. Check the storage section for waste level to determine the frequency of emptying that will be required to keep the collector operating efficiently.
2. Check the storage section for material freezing or hardening to internal surfaces of the hopper. Material will become harder to remove and more material may agglomerate to these areas reducing the collectors ability to empty properly.
3. Ensure that the filters have been shaken at LEAST once a day (for approximately 30 to 60 seconds) If the filter tubes are plugged due to over filling they should be cleaned out **MANUALLY.... DO NOT USE THE SHAKER**

Inspections for the end of First Week of Operation

1. Check belt tension and correct if belts are loose.
2. Check the filter tube section of the duct collector for filter tube failure or abrasion. Notify N. R. Murphy Limited if any of the filters are unduly worn. Ensure that none of the filter tubes have become detached from the shaker frame or the collar plate during operation and check that filters are taut.
3. Check shaking mechanism for loose parts and tighten.
4. Check all bearings **DO NOT OVERGREASE** (see Industrial Exhauster section)

Inspections for the end of First Month of Operation

1. Check belt tension and correct if belts are loose.
2. Check the filter tube section of the duct collector for filter tube failure or abrasion. Notify N. R. Murphy Limited if any of the filters are unduly worn. Ensure that none of the filter tubes have become detached from the shaker frame or the collar plate during operation and check that filters are taut.
3. Check shaking mechanism for loose parts and tighten.
4. Check all bearings **DO NOT OVERGREASE** (see Industrial Exhauster section)

Inspections to take place every Three Months

1. Lubricate all electric motors, speed reducers, exhauster bearings etc. as per manufacturers recommendations. **DO NOT OVERGREASE.** It should be noted that some speed reducers are lifetime lubricated.
2. Check all filter tubes for wear and ensure that they are pulled taut.

3. Lubricate waste material discharge slide gates (use only graphite as grease causes material to collect in the slides)

Yearly Inspection

1. Lubricate all electric motors, speed reducers, exhauster bearings etc. as per manufacturers recommendations. **DO NOT OVERGREASE.** It should be noted that some speed reducers are lifetime lubricated.
2. Check all filter tubes for wear and ensure that they are pulled taut.
3. Lubricate waste material discharge slide gates (use only graphite as grease causes material to collect in the slides)
4. Remove and clean all filter tubes if required. For snap ring type filter tubes be sure the groove on the cuff is properly engaged in the cell plate, then pull the filter taut at the top end by pulling down on the hanger strap. In older style collectors, first release the clamp holding the filter tube to the collar, pull open end of filter tube over the collar on the collar plate, being sure to pull the filter tube taut before re-clamping. Note that on rocker style shaker frame assemblies filters should not be pulled too tight to impede the operating characteristics of the shaker frame, linkage or gearbox / motor assembly.

-7-

Industrial Exhausters

1. Periodic checks of anchor bolts and bearings should be made for vibration damage. If excessive vibration develops, check the following:
 - a. Accumulation of dirt and foreign matter on exhauster wheel.
 - b. Loose bolts on housing, drive or bearings.
 - c. Misaligned belts or improper belt tension. (belt driven exhausters only)
 - d. Loose bearing locking collars.
 - e. Loose set screws on exhauster wheel.
 - f. Damage to exhauster wheel caused by foreign matter.
 - g. Proper clearance between exhauster wheel and inlet collar.
2. On exhausters driven by belts, the tension should be checked and properly maintained. If belts show wear they should be replaced.
3. **Lubricate exhauster bearings in strict accordance with the manufacturer's recommendations. We would recommend that the bearings be re-lubricated every four to six months. It is always very difficult to give precise guidance on the amount of lubricant to supply to the bearings. WE DO KNOW THAT THE TENDENCY IS TO BE SOMEWHAT OVERZEALOUS. As a rule of thumb, one or two shots from the normal grease gun is sufficient and must be slowly applied while the units are turning. For reference, the original grease pac is only 48 to 55 grams (less than 2 ounces) which fills approximately 40% of the available space inside the sealed bearings. From this it should be realized that the bearing actually needs very little lubricant to perform satisfactorily. Bearings should be removed, inspected and replaced if necessary as soon as undue shaft vibration becomes apparent.**

Electric Motors and Equipment

1. All electrical equipment should be maintained in accordance with instructions of the original manufacturer.
2. Periodic checks of motors should be made and checked to ensure that they are lubricated as per the manufacturer's instructions.
3. A qualified Industrial Electrician must be employed to do the wiring for the dust collection equipment according to any provided drawings or schematics

Shaker Assembly

1. Periodic checks of the shaking mechanism and component parts should be made and lubrication and wear checked. All damaged and worn parts should be replaced.
2. Ensure that the shaker does not run for more than 1 minute. Extending the shaker time beyond this serves no purpose other than to cause excess stress and wear on the shaking system components. Manual shakers can be hand operated in the same manner.
3. Make sure that the shaker motor does **NOT** run while the main exhaust is in operation as the filters are under pressure. Particulate adhered to the filter walls and within the filter will **NOT** fall away under this condition. Best results are obtained when the shaking action takes place just after total deflation of the filter tubes.
4. Note that on rocker style shaker frame assemblies filters should not be pulled too tight to impede the operating characteristics of the shaker frame, linkage or gearbox / motor assembly. Take an amp reading on the start-up of the shaker assembly. If the amp reading is higher than noted loosen off the filter tubes.

Filter Tubes

1. Frequent checks of filter tube wear and deterioration should be made. Worn or damaged filter tubes should be replaced. Be sure filter tubes are taut at all times or cleaning of the filter tubes will be affected

-8-

2. A manometer reading across the filters that reads higher than a predetermined level after normal shaking indicates that the filter tubes may be blinded and should be either cleaned or replaced. (also check Trouble Shooting chart)
3. See the diagram for installing and tightening on page 14

Dust Collector Housing, Supports, Doors, Hoppers

1. The dust collector housing must be maintained in an air tight and water tight condition. Protection against corrosion is required in the form of periodic painting and sealing of joints. Most collector housings are fabricated from wiped galvanized material where possible and it has good resistance against corrosion under most conditions.

Doors

1. Access doors, inspection doors and waste material discharge gates must be kept closed at all times when the dust collector is in operation or a loss of suction will occur. Door seals and gasket seals should be regularly checked and replaced if worn, deteriorated or missing

Storage Hoppers (if supplied)

1. Check the storage section for material freezing or hardening to internal surfaces of the hopper. Material will become harder to remove and more material may agglomerate to these areas reducing the collector's ability to empty properly. Inspect and lubricate waste material discharge slide gates (use only graphite as grease causes material to collect in the slides) Ensure that the gate still provides an airtight seal when closed.

Optional

Explosion Venting

Explosion venting is an available option that comes in various forms due to installation location and conditions, also due to varying local, municipal, provincial and federal regulations and oversight by various bodies. Explosion venting (if included) is based on the

requirements of the National Fire Code of Canada, Section 5.3.1.4 (0.1m²/cubic meter of volume). The authorities, having jurisdiction in some municipalities are mandating that the requirements of NFPA-68 Guide for Venting Deflagrations be followed. You should make inquiries of your local authorities as to the requirements in your particular area.

Safety Ladders, Walkways and Railings

These are available as an option and are usually reserved for larger installations or where frequent inspection and access is required. They are factory pre-fitted and shipped removed for installation at the customer's location. In some cases additional supports may be required due to onsite conditions. Onsite welding is always required at bolted joints.

Spare Parts Recommended

To avoid losses in operation it is always recommended that the customer stock operational and plant critical components. We at N. R. Murphy try to stock many of the common components but due to incoming replacement orders and new equipment builds sometimes these components are not always in house. Other items such as exhaustor wheels when not in stock will require several days to fabricate and balance before it can be shipped to a customer who may have their entire plant down.

-9-

Replacement and maintenance parts may be obtained through N. R. Murphy Limited by providing us with the exhaustor Serial number and a description of the component that you require and if possible the exhaustor shaft diameter or bearing size. Due to the custom built nature of many of our products, we maintain files on every piece of equipment we sell. If further information is required please contact the N. R. Murphy Limited or your Technical Representative.

Recommended spare parts could include the following:

- filter tubes
- fusible link for fire damper curtain
- replacement V-belts for Exhaustor drive
- bearings
- door seal gaskets
- exhaustor wheel

Trouble Shooting Chart

PROBLEMS	PROBABLE CAUSES
DUST COMING THROUGH COLLECTOR DISCHARGE	<ul style="list-style-type: none">• check for filter tubes which have become loose• check for damaged, holed or ripped filters. For snap ring type filter tubes be sure the groove on the cuff is properly engaged in the cell plate, then pull the filter taut at the top end by pulling down on the hanger strap. In older style collectors, first release the clamp holding the filter tube to the collar, pull open end of filter tube over the collar on the collar plate, being sure to pull the filter tube taut before re-clamping.
BIN DOOR STUCK	<ul style="list-style-type: none">• check for material build-up in slides. Lubricate waste material discharge slide gates (use only graphite as grease causes material to collect in the

	slides) <ul style="list-style-type: none"> • in winter check for ice and material in slides • check to ensure that gears on the sliding door are properly engaged
INSUFFICIENT AIR FLOW	<ul style="list-style-type: none"> • exhauster wheel rotating in the wrong direction • check belt tension on exhauster • access doors open • dirty or clogged filters • faulty ductwork • ductwork obstruction
NO AIR FLOW	<ul style="list-style-type: none"> • fire damper curtain has closed • blown fuses • storage bin is full and filters are packed due to overfilling of storage area
COLLECTOR NOISY	<ul style="list-style-type: none"> • broken or damaged exhauster wheel • exhauster out of balance • exhauster or shaker bearings worn, loose set screws, blown seals due to over greasing
COLLECTOR STORAGE WILL NOT EMPTY	<ul style="list-style-type: none"> • Open waste material discharge gate at the base of the storage section and allow material to fall out into truck or tote box. If material fails to discharge, check for bridging in unit storage section and if this has occurred break the bridge.

-10-



Note that the collector storage section or drums should be emptied as often as is feasible. Air flow in the collector can pick material up out of storage and redeposit it in the filters reducing overall system performance. Collectors that have a rotary air lock discharge or other means of continuous material feed out should be run **ALWAYS** while the collector is in operation and during the shakedown period. If equipped with these devices the dust collector is not meant to store material above them and bridging can occur due to material packing.

Relief Latches



Operation

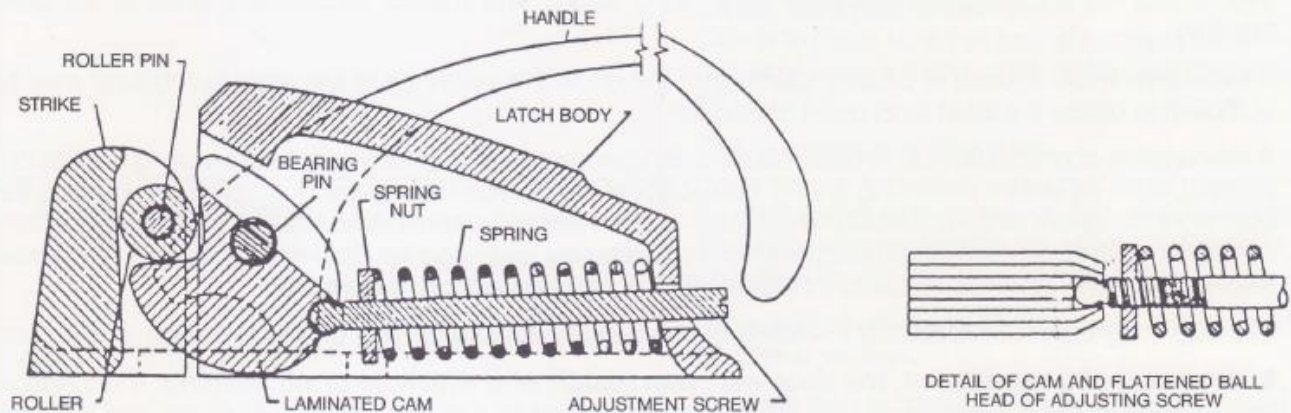
The relief latch operates in a manner similar to a toggle switch. When the door and latch are in the closed position, the latch will hold the door closed. When enough pressure is applied to compress the spring sufficiently to cause the cam into the open position, the latch will release opening the door. Closing is essentially the reverse of the above, with the force being supplied by the closing of the door. The forces required for operation depend upon the setting of the latch. The higher the setting and the larger the latch, the greater the required force.

The recommended procedure for closing a door equipped with a #3 latch is to fold the handle back immediately prior to closing, or better explained to first open then close the handle. When folding the handle back, the cam should remain in the open position. If for any reason the cam remains in the closed position while the latch is open, the latch and or its mounting is defective and the door will bounce instead of latching

Summary and Cautions for Operators

1. Violent slamming is potentially hazardous and must be avoided.
2. For reasons listed above, the door may not latch when closed. Beware of rebound
3. Keep clear of the door arc.
4. Keep clear of the operating parts of the latch and handle, particularly the laminated cam, strike roller, handles and the stops for #3 latches and handles

ADJUSTMENT CHART



LATCH MODEL	RELEASE PRESSURE (lbs.)		PRESSURE PER TURN	CHANGE (lbs.) PER ½ TURN	FULL TURNS AVAILABLE
	MINIMUM	MAXIMUM			
1	3.9	17	1.46	.73	9
2	10	37	1.86	.93	14.5
3	43	180	5.96	2.98	23
4	58	285	9.87	4.94	23

NOTE: Check model number shown on all latches near handle.

NOTE: Precise pressure adjustment is not possible due to the location of the strike, the amount of gasket compression, spring differences in a given lot, friction, etc. The listed values are a guide only, and if the release pressure is critical, the pressure must be measured directly for more accuracy. The estimated variance is plus or minus two full turns.

** #3 latch shown

To adjust, have the latch in the door closed position wherein one rivet which holds the laminated cam together is exposed. Turn the adjusting screw counter-clockwise to its loosest position, making sure the square nut does not come off the ball pin. using the table above as a guide, tighten the adjusting screw a half turn at a time until the desired pressure is reached. It should be possible to feel the adjusting screw slipping into the relaxed position at each half turn. If the latch is mounted, adjustment can be made by turning the adjustment screw to its tightest position and backing off to the desired setting.

Maintenance

Latches must have the relief feature tested periodically to insure that corrosion and or build-up of foreign materials has not affected the operational characteristics of the mechanism. Under normal operating conditions, lubricate the bearing pin within the laminated cam with a light oil (SAE-10-30) every six months. Model #3 latches should have the set screws in the handle tightened as needed.

Warnings and Limitations – ALL Latches

1. If the door is closed without sufficient force to trip the cam the door will rebound
2. If for some reason, the cam is in the closed position while the door is open, the door will rebound rather than latching when closed. This could be caused by a misaligned strike (all latches) and or a loose handle (#3) or by the cam being struck and rotated accidentally while in the open position.

3. If excessive force is used in closing (slamming) the door, the tendency of the door to rebound may be sufficient to cause the latch and door to re-open. A rebounding door should not normally cause a dangerous situation unless some aggravating condition exists such as violent slamming and or the immobility of the person closing the door. It is also recommended that the operator should keep his hand between his body and the door while closing it. The forces involved and therefore the hazards involved increase with the size and setting of the latch.
4. The door may open unexpectedly if material (or someone) should fall and strike the interior of the door.
5. **In the event of a deflagration, the door will open rapidly and with little or no warning.** Doors that are used for this purpose are clearly marked as **DANGER** as shown below. Avoid standing in front of the door and the door arc area when the collector is in operation.



6. The latches should be set at the lowest practical setting.
7. Due to the brittle nature of cast materials, high impact loads may fracture the castings possibly resulting in a flying fragment. this is not expected to occur under normal operating conditions but is possible under severe conditions of use.

Manufacturer's Warranty

- *All equipment is guaranteed as per the original manufacturer's guarantee & warranty. All parts fabricated by N. R. Murphy Limited are guaranteed to be free from defects in material and workmanship under normal use and service for the period of one year from the date of delivery or 2,000 hours of operation, whichever occurs first, on the cost of parts only, NOT replacement labour. Cost of labour and/or transportation is by the customer. THIS WARRANTY IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, WRITTEN OR ORAL, WHETHER EXPRESSED BY AFFIRMATION, PROMISE, DESCRIPTION, DRAWING, MODEL OR SAMPLE. ANY AND ALL WARRANTIES OTHER THAN THIS ONE, WHETHER EXPRESS OR IMPLIED, INCLUDING IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE HEREBY DISCLAIMED.*
- *LIMITATION OF DAMAGES: THE COMPANY'S LIABILITY, WHETHER IN CONTRACT OR IN TORT, ARISING OUT OF WARRANTIES, REPRESENTATIONS, INSTRUCTIONS, OR DEFECTS FROM ANY CAUSE SHALL BE LIMITED EXCLUSIVELY TO REPAIRING OR REPLACING PARTS UNDER THE CONDITIONS AS AFORESAID, AND IN NO EVENT WILL THE COMPANY BE LIABLE FOR CONSEQUENTIAL DAMAGES, INCLUDING BUT NOT LIMITED TO LOSS OF PROFITS, RENTAL OR SUBSTITUTE EQUIPMENT, OR OTHER COMMERCIAL LOSS.*
- *LIMITATION OF DAMAGES: THE SELLER WILL NOT BE LIABLE FOR ANY INDIRECT, SPECIAL, OR CONSEQUENTIAL DAMAGES (INCLUDING LOST PROFITS) ARISING OUT OF OR RELATING TO THIS AGREEMENT OR THE TRANSACTIONS IT CONTEMPLATES. IN NO EVENT WILL THE SELLER'S LIABILITY EXCEED THE PRICE THE BUYER PAID TO THE SELLER FOR THE SPECIFIC GOODS PROVIDED BY THE SELLER GIVING RISE TO THE CLAIM OR CAUSE OF ACTION.*

Assembly of Door Handle Kits

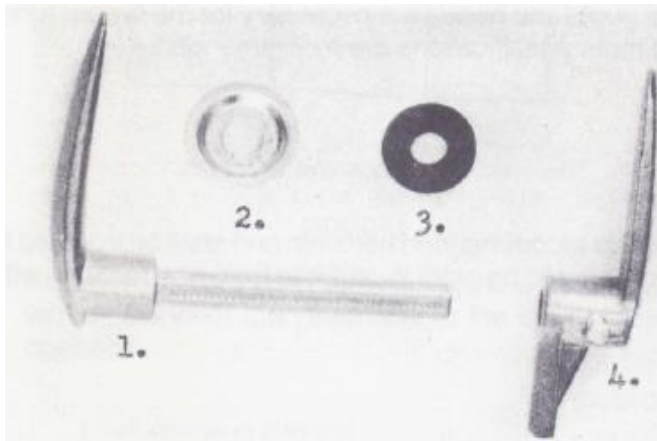
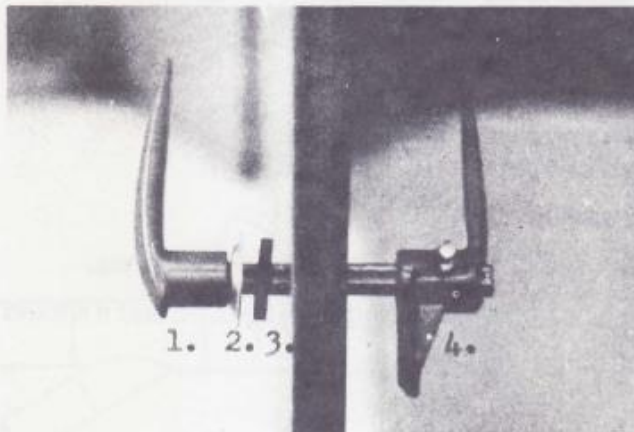


FIGURE 1

THE DOOR HANDLE KIT MAY HAVE MORE PARTS THAN REQUIRED. FIGURE 1 ILLUSTRATES THE ONLY PARTS THAT ARE NEEDED.

PLEASE DISCARD ALL OTHER PARTS



Outside

FIGURE 2

Inside

PARTS ARE INSTALLED AS IN FIGURE 2

1. HANDLE & SHAFT

2. STEEL WASHER

3. RUBBER WASHER

DOOR

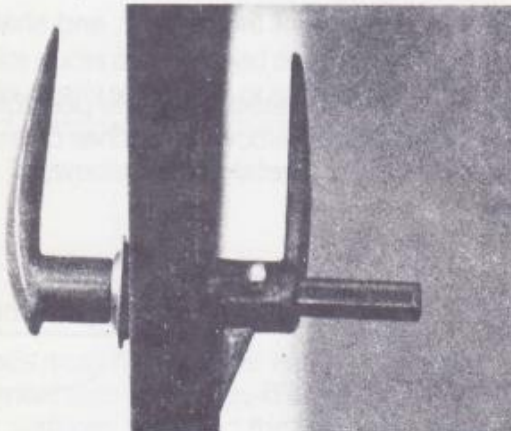
4. CATCH ARM

OUTSIDE OF DOOR

ADJUST CATCH ARM UNTIL DOOR FITS TIGHTLY AGAINST RUBBER DOOR SEAL WHEN UNIT NOT OPERATING.

NOTE

IF DOOR SPRINGS OPEN WHEN UNIT SHUTS DOWN, THEN CATCH ARM NEEDS TO BE ADJUSTED CLOSER TO DOOR FOR TIGHTER FIT (SEE FIGURE 3).



Outside

FIGURE 3

Inside

Installing or Removing Filter Tubes

Collapse the bottom spring into a "U" shape.



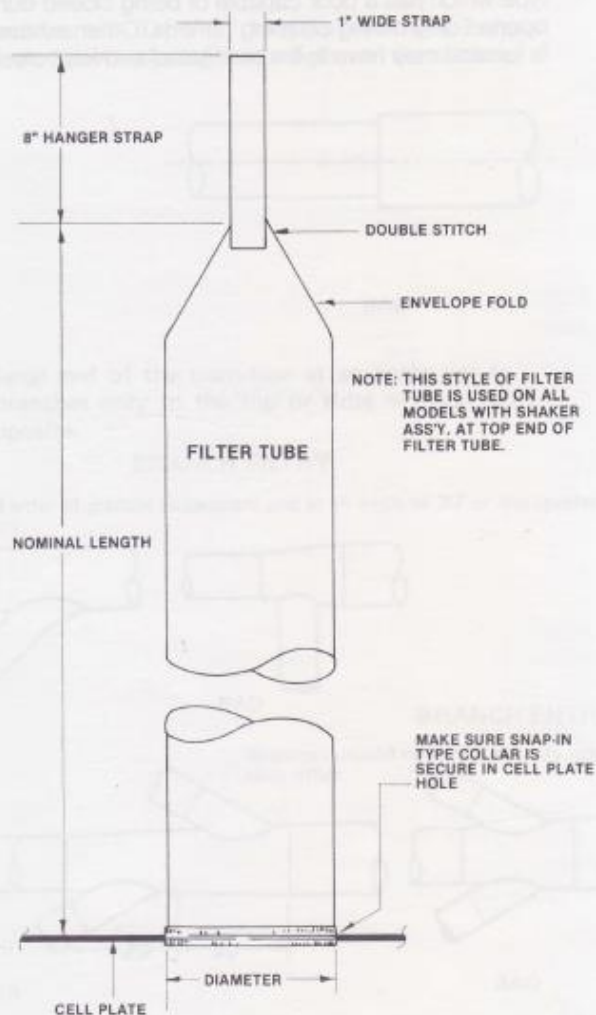
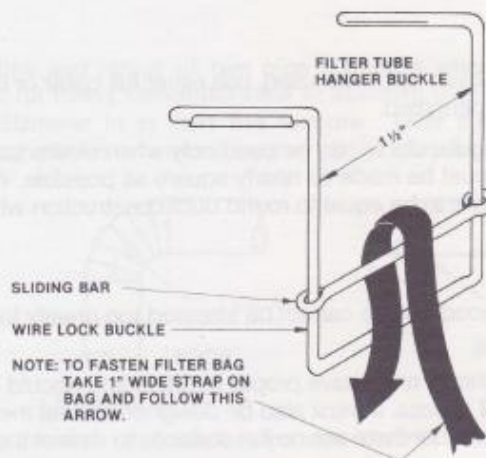
Grasp spring at bottom of tube, folding together the two sides.



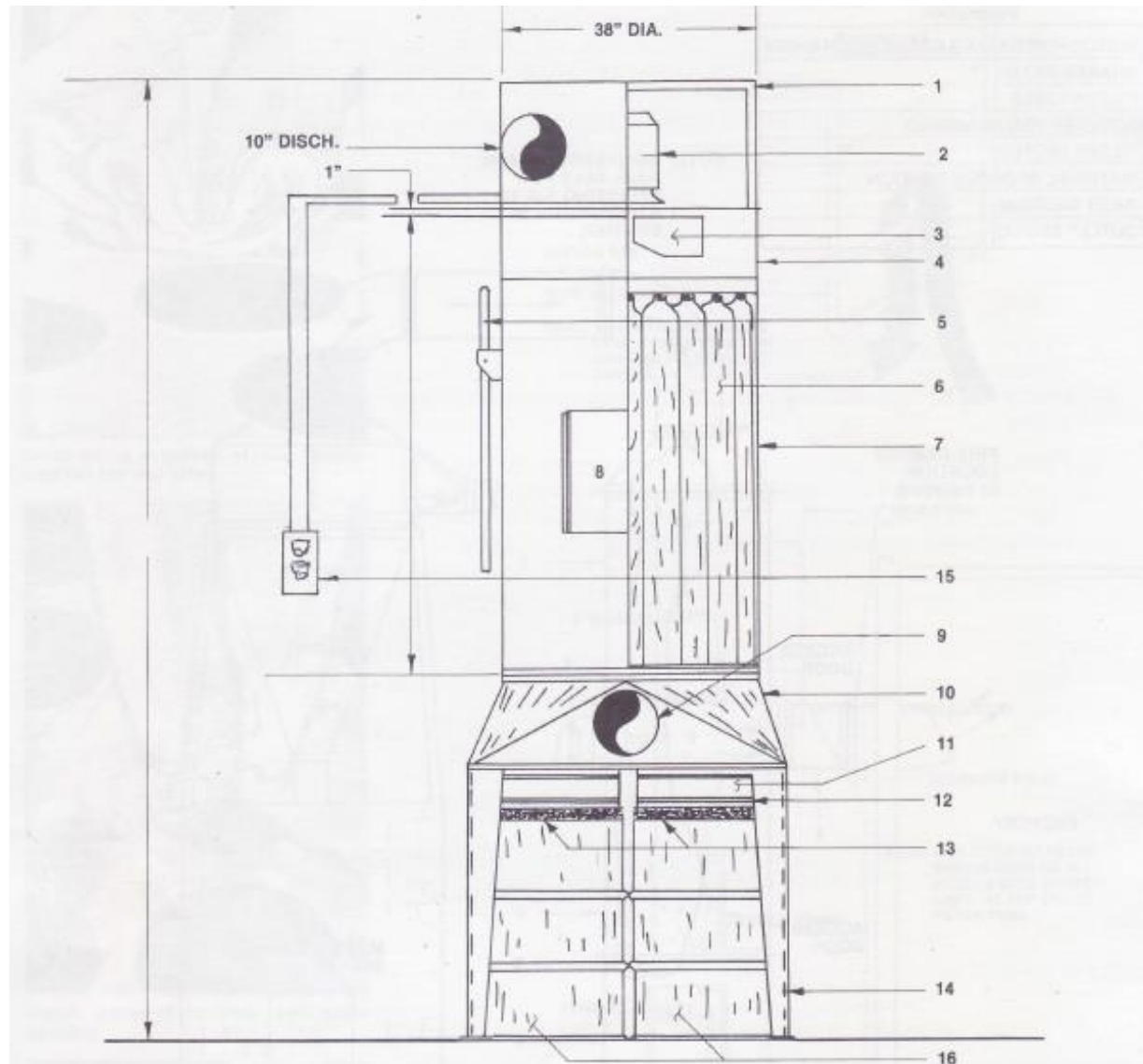
Insert folded tube into cell plate opening.



Spring will snap open when guided into position making a tight seal.



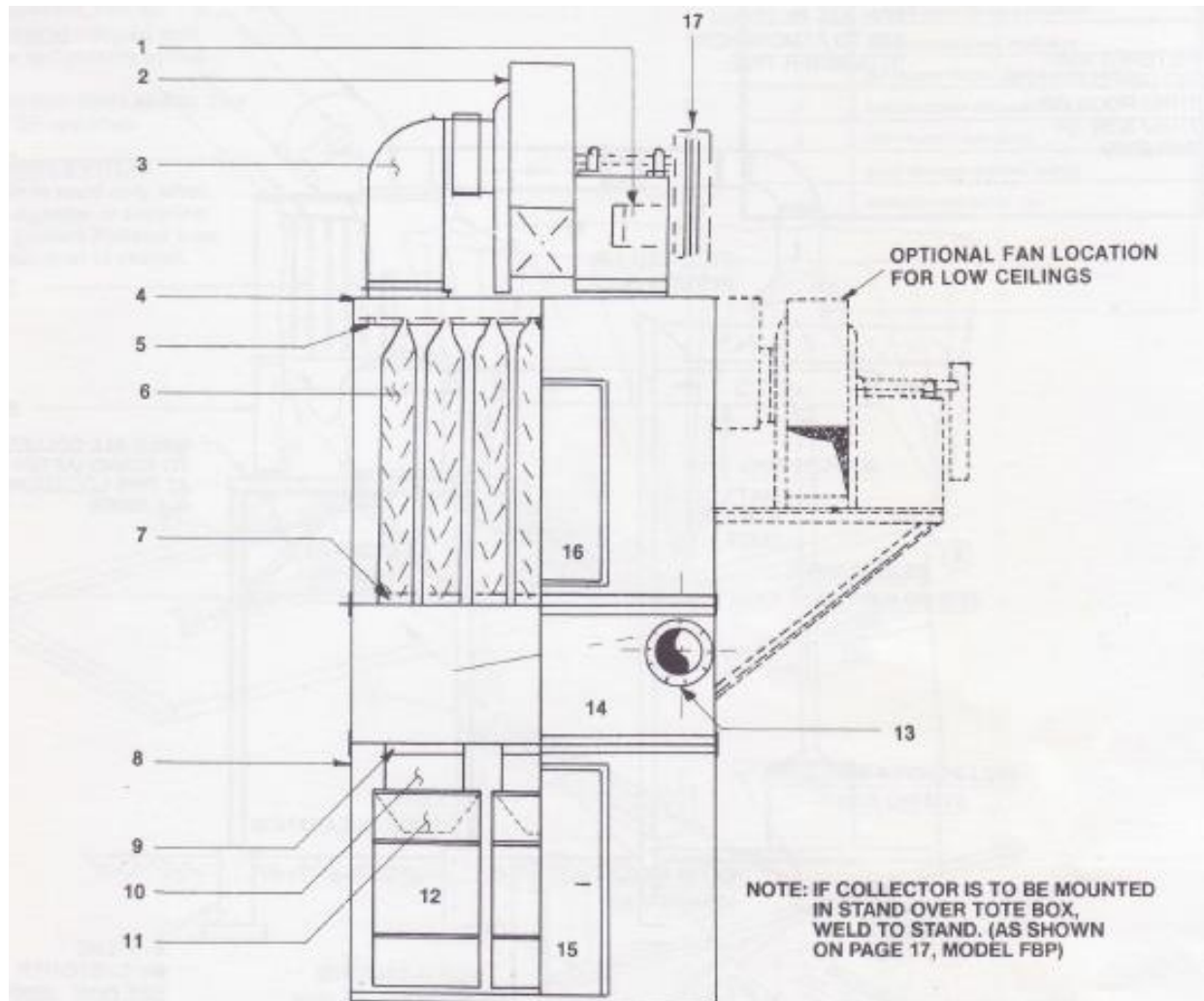
FBMW Series Arrangement "G" 2 Drum Schematic



ITEM	QTY.	DESCRIPTION
1	1	SILENCER/MOTOR COVER
2	1	FLANGE MOUNT MOTOR
3	1	FAN WHEEL - DIRECT DRIVE
4	1	FAN CHAMBER
5	1	MANUAL SHAKER
6	30	5" DIA. FILTER BAGS
7	1	FILTER SECTION
8	1	ACCESS DOOR 18" X 20"
9	1	MAT'L INLET
10	1	TRANSITION SECTION
11	2*	NEOPRENE SLEEVES
12	4*	CONNECTOR SLEEVE RETAINING RINGS
13	2 Δ	DRUM LIDS
14	4*	UNIT SUPPORT LEGS (site ass'y.)
15	1	ELECTRIC STARTER (Optional)
16	2	STORAGE DRUM (Optional)

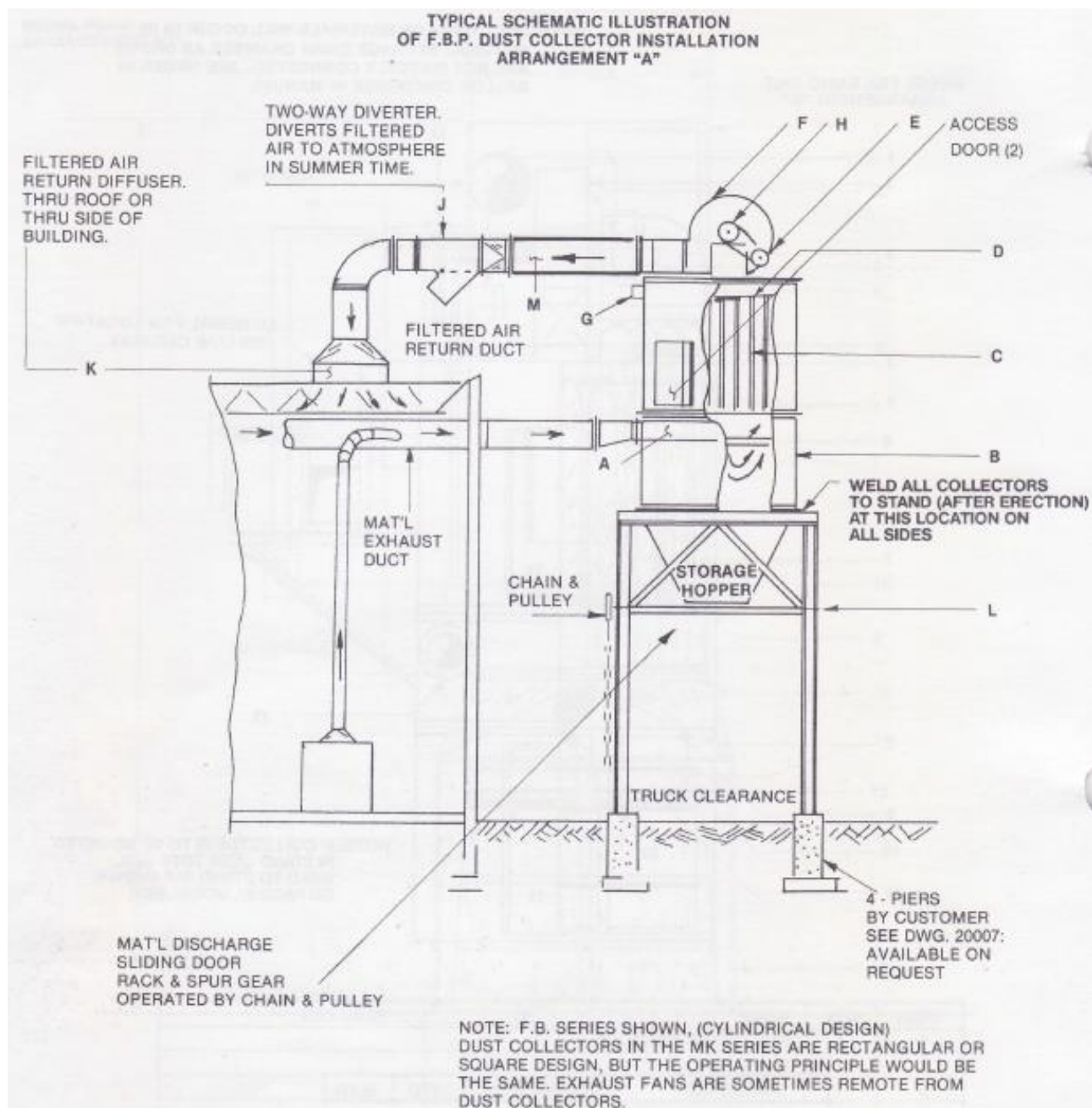
*SHIPPED INSIDE #10
Δ SHIPPED INSIDE #1

FBA Series Collector & Side Mounted Exhauster Schematic



ITEM	QTY.	NAME	REMARKS
1	1	FAN MOTOR 1800 R.P.M.	
2	1	FAN	
3	1	TRANSITION	
4	1	FILTER CHAMBER	
5	1	SHAKER	
6		FILTERS	
7		FILTER BAG, RETAINING RING (SNAP IN)	
8	1	MAT'L STORAGE DRUM CHAMBER	
9		DRUM COLLAR SLEEVE, RETAINING RING	
10		DRUM'S COLLAR SLEEVE	ATTACH AT JOB SITE
11		DRUM CONE MAT'L DEFLECTOR	
12		MAT'L STORAGE DRUM	
13	1	MAT'L INLET	
14	1	MAT'L INLET CHAMBER	
15	1	ACCESS DOOR, 27 X 38	
	1	ACCESS DOOR, 27 X 38	
17	1	BELT GUARD	
	1	MOTOR COVER (OPTIONAL)	
		SIDE MOUNT FAN (OPTIONAL)	

FBP Series Collector Schematic



ITEM	PART NO.	QTY.	DESCRIPTION	REMARKS
A		1	MAT'L INLET SECTION	
B		1	PRIMARY CYCLONIC SEPARATION	
C			FILTERS	
D		1	FILTER SHAKER FRAME	
E		1	EXHAUSTER MOTOR	
F		1	EXHAUSTER FAN C/W BHD.	
G		1	SHAKER FRAME MOTOR	
H		1	FIRE DAMPER (INLET SIDE)	
J		1	TWO-WAY DIVERTER (OPTIONAL)	
K		1	DIFFUSER (OPTIONAL)	
L		1	COLLECTOR'S ST'L STAND STRUCTURE	
M			INLINE DUCT SILENCER (OPTIONAL)	

Mounting Instruction of Material Discharge Door Schematic

TITLE: MATERIAL DISCHARGE SLIDING DOOR ASSY.

ERECTING INSTRUCTIONS

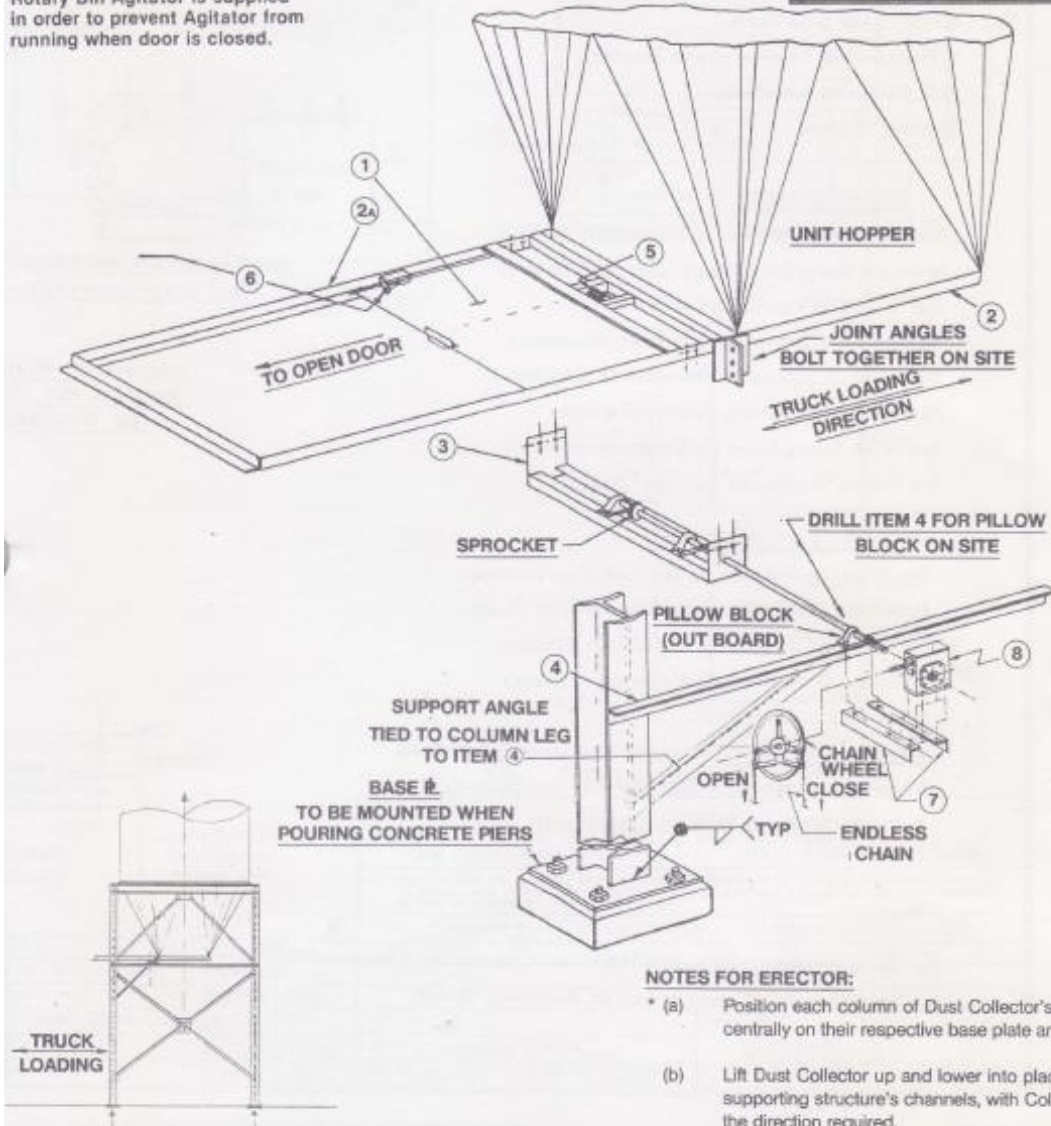
NOTE RE SLIDING DOOR:

Dust Collector is shipped with sliding door temporarily bolted to Item (2). Remove this bolt when sliding door is ready to be operated.

NOTE RE LIMIT SWITCH:

Limit Switch is req'd only when Rotary Bin Agitator is supplied in order to prevent Agitator from running when door is closed.

ITEM	NAME
1	SLIDING DOOR
2	SLIDING DOOR FRAME
2A	SLIDING DOOR FRAME EXTENSION
3	SLIDING DOOR DRIVE ASSEMBLY
4	OUT BOARD PILLOW BLOCK MTS. ANGLE
5	SLIDING DOORS PRESSURE ROLLER
6	LIMIT SWITCH (SEE NOTE)
7	GEAR REDUCER SUPPORT ANGLE
8	GEAR REDUCER RATIO 10:1



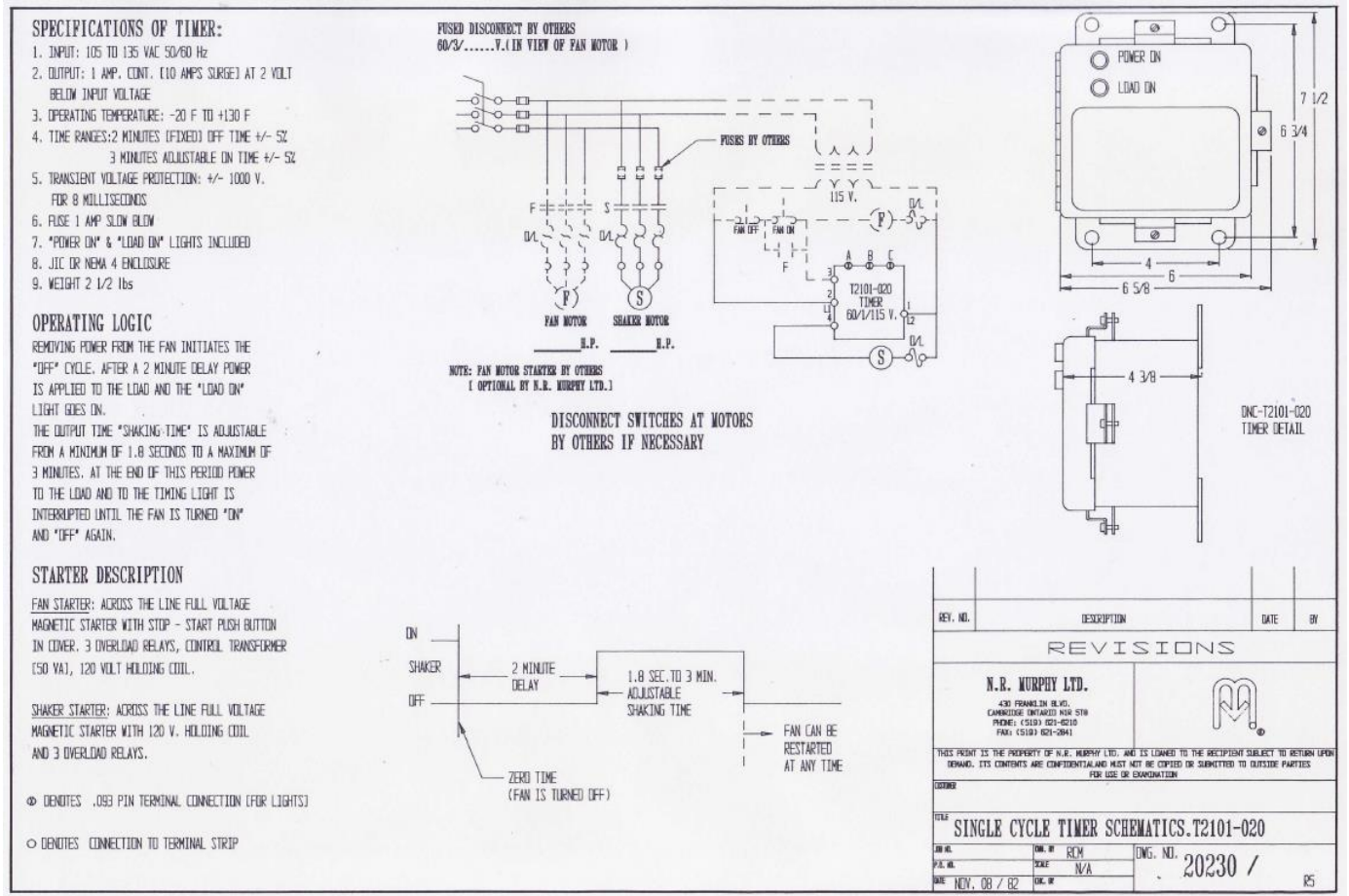
NOTES FOR ERECTOR:

- * (a) Position each column of Dust Collector's supporting structure centrally on their respective base plate and weld as indicated.
- (b) Lift Dust Collector up and lower into place to come to rest on supporting structure's channels, with Collector's inlet facing in the direction required.
- ** (c) Bolt item (2A) to item (2) and item (3) to item (2A). Make sure that all drive shaft pillow block bearings are in alignment and that sprocket on shaft is meshing properly with chain on sliding door.
- (d) Tighten all pillow block bearing mounting bolts and set screws. Arrange drive chain over chain wheel. Operate sliding door to assure smooth working.
- (e) Finally tighten base plates down.

NOTE:

- * Be sure when positioning stand that the 45 degree support angle for the gear reducer that opens the sliding door is in the same direction as the joint angles on the bottom, on the dust collector for bolting on the sliding door extension.
- ** Mount gear reducer that opens sliding door onto end of shaft.

Automatic Shaker Control Wiring Diagram



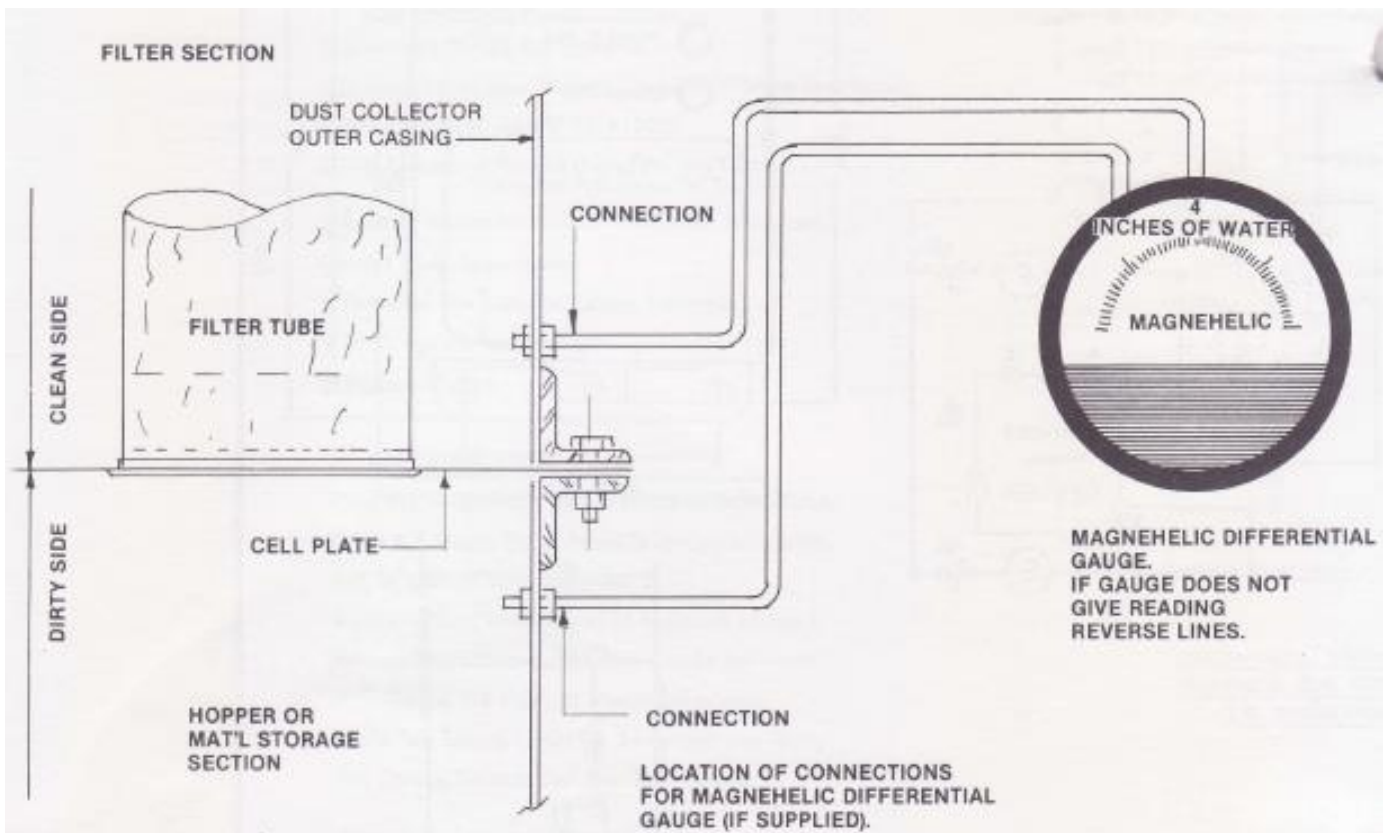
IMPORTANT (OR SHAKER WARRANTY IS VOID)

IF AUTOMATIC SHAKING IS NOT USED, A MOMENTARY CONTACT SWITCH MUST BE USED ON ALL SHAKERS AND THE EXHAUST FAN MUST HAVE COME TO A COMPLETE STOP BEFORE SHAKING

IMPORTANT (AUTOMATIC SHAKER TIME)

IT IS ONLY NECESSARY TO SHAKE THE FILTER BAGS FOR A SHORT TIME TO CLEAR THE INTERNAL WALL OF THE FILTER OF PARTICULATE. NO MORE THAN 1 MINUTE IS NECESSARY...CHECK TIMER AND SET ACCORDINGLY, CHECK WITH FACTORY IS NECESSARY. IF FILTERS BECOME PLUGGED BY AN ACCUMULATION OF MATERIALS, THEY SHOULD ONLY BE CLEARED BY MANUAL HAND CLEANING. NEVER TRY TO USE THE SHAKING MECHANISM TO TRY AND CLEAR PLUGGED FILTERS

Mounting Instructions of Magnehelic Gauge



NOTE: THIS GAUGE MAY BE SEPARATE AS SHOWN OR MOUNTED IN CONTROL PANEL BOX DEPENDING ON OPTIONS THAT ARE SELECTED.

MAGNEHELIC DIFFERENTIAL PRESSURE GAUGE (MANOMETER)

BEFORE STARTING UNIT SET INDICATING NEEDLE AT "0"

START UNIT, IF THERE IS NO READING AND INDICATING NEEDLE HAS DROPPED TO LESS THAN "0" ONTO THE NEEDLE STOP, REVERSE LINES TO GAUGE. YOU SHOULD NOW GET A READING.

AS THE FILTERS IN THE UNIT GET DIRTY, THE NEEDLE WILL TEND TO RISE TO BETWEEN 2" TO 6" DEPENDING ON MODEL OF UNIT & DUST LOADING.

WHEN NOTICEABLE DIFFERENCE IN SUCTION OCCURS, THE FILTERS SHOULD BE SHAKEN. AN UNUSUAL HIGH MANOMETER READING SHOULD ALSO BE PRESENT, BUT THIS CAN ALSO OCCUR IF CONNECTIONS TO MANOMETER ARE PLUGGED.

Motor Data HP _____ VOLTAGE _____ / _____ / _____ RPM _____ FLA _____ SERVICE FACTOR _____

DRIVE SHEAVE _____ DRIVEN SHEAVE _____ SHEAVE ALIGNMENT _____

BELT TENSION _____ EXHAUSTER ROTATION _____ AMP DRAW _____, _____, _____

[illegible]