



N.R. MURPHY LTD.
DUST COLLECTORS

MK SERIES

OPERATING & MAINTENANCE MANUAL



REVISION 3 - ENGLISH



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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.

REGULATORY REQUIREMENTS

1. All equipment is subject to the approval of all governing bodies concerned (i.e. Dept. of Labour, Ministry of the Environment, Building Department, Fire Marshall or Fire Department, etc.), and is the responsibility of the customer or their agent.
2. Ontario's Occupational Health and Safety Act mandates that owners or lessees of processes where dusts are handled, obtain a Pre-Start Health and Safety Review bearing the seal and signature of a registered professional engineering stating that he/she is satisfied that the process, machine or equipment is in compliance with the regulations.
3. On wood dust applications, refer to NFPA 664 for the requirements re: spark detection and suppression systems.
4. In all cases when returning the clean filtered air from a dust collector to a building, an approved fire damper must be installed in the return air duct.

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.

FORWARD

For over 80 years, N.R. Murphy Limited has been dedicated to manufacturing and distributing high quality products that meet the needs of a wide range of industrial applications.

As a leader in the industry, we understand the importance of maintaining a safe and healthy work environment. That's why our dust collection equipment is designed to effectively capture and remove airborne contaminants and pollutants, protecting the health and safety of your workers and improving the overall efficiency of your operations.

Our Operating and Maintenance Manuals have been carefully crafted to provide comprehensive instructions for the proper installation, operation, and maintenance of our equipment. They are user-friendly, with clear and concise language and detailed diagrams to help you understand the equipment and how it works.

At N.R. Murphy Limited, we believe that our commitment to quality doesn't end with the sale of our products. We are dedicated to providing our customers with the support they need to get the most out of their equipment. Our team of experts is available to answer any questions you may have and provide guidance on best practices for maintaining and optimizing your dust collection system.

Thank you for choosing N.R. Murphy Limited for your industrial dust collection needs. We are confident that our Operating and Maintenance Manuals will help you to get the most out of your equipment and ensure a safe and healthy work environment for years to come.



For the most up to date manuals, or manuals for our other product lines,
please visit www.nrmurphy.com/manuals

TABLE OF CONTENTS

SAFETY PRECAUTIONS	1
Precautions.....	1

INSTALLATION & OPERATION	3
Introduction.....	3
Shipment and Receiving.....	3
Handling.....	3
Preliminary Instructions Before Erecting.....	4
Preliminary Inspection Before & After Start-up for all Models.....	5
Using Drum Storage.....	6
Rotary Air Lock.....	6
Rotary Bin Agitator (if supplied).....	7
Bin Level Indicator.....	7
Industrial Exhausters.....	7
Overloading the Exhauster Motors.....	7
Procedures to Empty Waste (elevated internal storage).....	8
Conclusion.....	8

INSPECTIONS	9
Daily Inspections for First Week of Operation.....	9
Inspections for the end of First Week of Operation.....	9
Inspections for the end of First Month of Operation.....	9
Inspections to take place every 3 months.....	9
Yearly Inspections.....	10
Industrial Exhauster.....	10
Electric Motors and Equipment.....	11
Shaker Assembly.....	11
Filter Tubes.....	12
Dust Collector Housing, Supports, Doors, Hoppers.....	15
Assembly of Door Handle Kits.....	15

TABLE OF CONTENTS (cont)

OPTIONAL	17
Explosion Venting	17
Relief Latches.	18
Safety Ladders, Walkways and Railings	20
Spare Parts Recommended	20
Automatic Shaker Control Wiring Diagram.	21
Mounting Instructions for Magnehelic Gauge.....	23
 TROUBLE SHOOTING	 24
 DIAGRAMS	 26
MKAU Exploded View Example.	26
 MAINTENANCE LOG	 27

SAFETY PRECAUTIONS

Precautions

1. **Installation or Maintenance crews must comply with all requirements of the Occupational Health and Safety Act and Regulations and the Company Safety Rules at the Dust Collector location. All workers must have formal fall protection training if working at elevation. Depending on local codes, personnel may require confined space training.**
2. Read entire manual before assembly or operation.
3. Personnel involved with Dust Collectors must be thoroughly familiar with the equipment operation and should be alerted to any unsafe conditions.
4. Only trained, authorized personnel should have access to the equipment.
5. Maintenance crews should consist of at least two people. Never allow personnel to work inside the Dust Collector alone. Prior to start-up, account for all personnel.
6. All areas beneath the collector should be restricted to authorized personnel only, when overhead work is being performed. All personnel in the area must wear safety gear complying with accepted safety standards.
7. Before entering the collector, the additional precautions mentioned below should be observed:
 - a. Turn OFF all electrical circuits, including the timing controls. Lockout switches in the "OFF" position and remove all fuses.
 - b. Wear adequate protective gear, including a respirator if needed.
 - c. Make certain that all air flow has ceased.
 - d. Check the internal temperature for safe levels.
 - e. Keep inside the walkway area when working on bags and cages, when walkways are furnished.
8. On barrel/drum storage models, barrels can abruptly lift off the floor as soon as the fan/motor assembly is turned on. Keep hands away from the drums at this time.
9. 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.



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.

SAFETY PRECAUTIONS (cont).

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 & OPERATION

Introduction

The purpose of this section is to aid in the proper installation, operation and maintenance of your MK 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 MKAW dust collectors may be mentioned throughout these instructions, the instructions apply to all MK 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 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

Due 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.

INSTALLATION & OPERATION (cont).



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 N.R. Murphy Ltd. 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.

INSTALLATION & OPERATION (cont).

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



CAUTION: DISCONNECT AND LOCK OUT ALL POWER SOURCES TO THE EXHAUSTER

1. 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.
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.

INSTALLATION & OPERATION (cont).

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 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 Air Lock

Some dust collectors may be designed/supplied with a rotary air lock. See our Rotary Air Lock Manual for more information (www.nrmurphy.com/manuals).

INSTALLATION & OPERATION (cont).

Rotary Bin Agitator (if supplied)

1. Open truck loading door all the way.
2. Turn start button for the agitator ON and if the arm does not begin to turn shut the motor OFF immediately.
3. If material is keeping the agitator arm from moving, remove material from around the arm until its free (simply using a long pole or stick can achieve this. **DO NOT STAND UNDER THE MATERIAL DISCHARGE.**
4. Then turn the 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.
5. Do not try to start the agitator more than three times an hour to prevent motor damage or burnout.

Bin Level Indicator

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 that it will turn the system off when the desired bin level is reached or it can be wired to a signaling 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 signaling device would be our recommendation as it gives some lead time to prepare for emptying the storage area.

Industrial Exhausters

- Select properly sized overloads to match amperage as stated on the motor manufacturers nameplate. Never install oversized overloads as this can cause motor failure and nullify the warranty.
- On initial start-up with clean filters and all the ductwork NOT installed the overloads 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 the 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 or exhauster speed must be changed. See under "Direct Drive Industrial Exhausters" for restricting or check with the factory.

INSTALLATION & OPERATION (cont).

Procedures to Empty Waste (elevated internal storage)

1. Switch off the blower (allow blower to decelerate for approx. 2 minutes)
2. 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.
3. 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.
4. **BE AWARE THAT WHEN THE BRIDGE IS BROKEN THE MATERIAL WILL FALL, TAKE PRECAUTIONS TO AVOID INJURY.**

Conclusion

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.

INSPECTIONS

Daily Inspections for 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. Collectors with internal storage should be emptied as often as is feasible to prevent material being picked up and redeposited into the filters.
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 dust 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 dust 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 3 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), if applicable.

INSPECTIONS (cont).

Yearly Inspections

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), if applicable.
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.

Industrial Exhauster

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.**

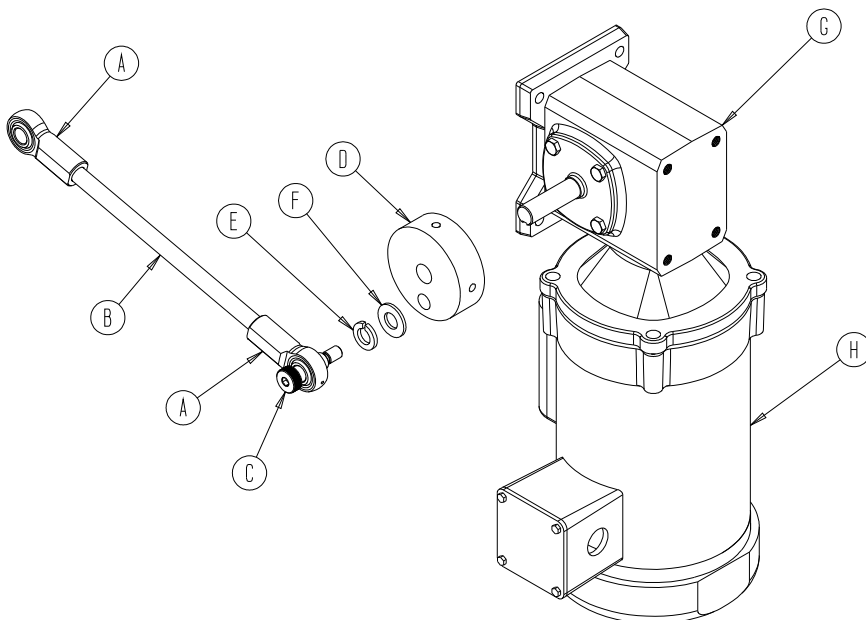
INSPECTIONS (cont).

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 exhauster 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.

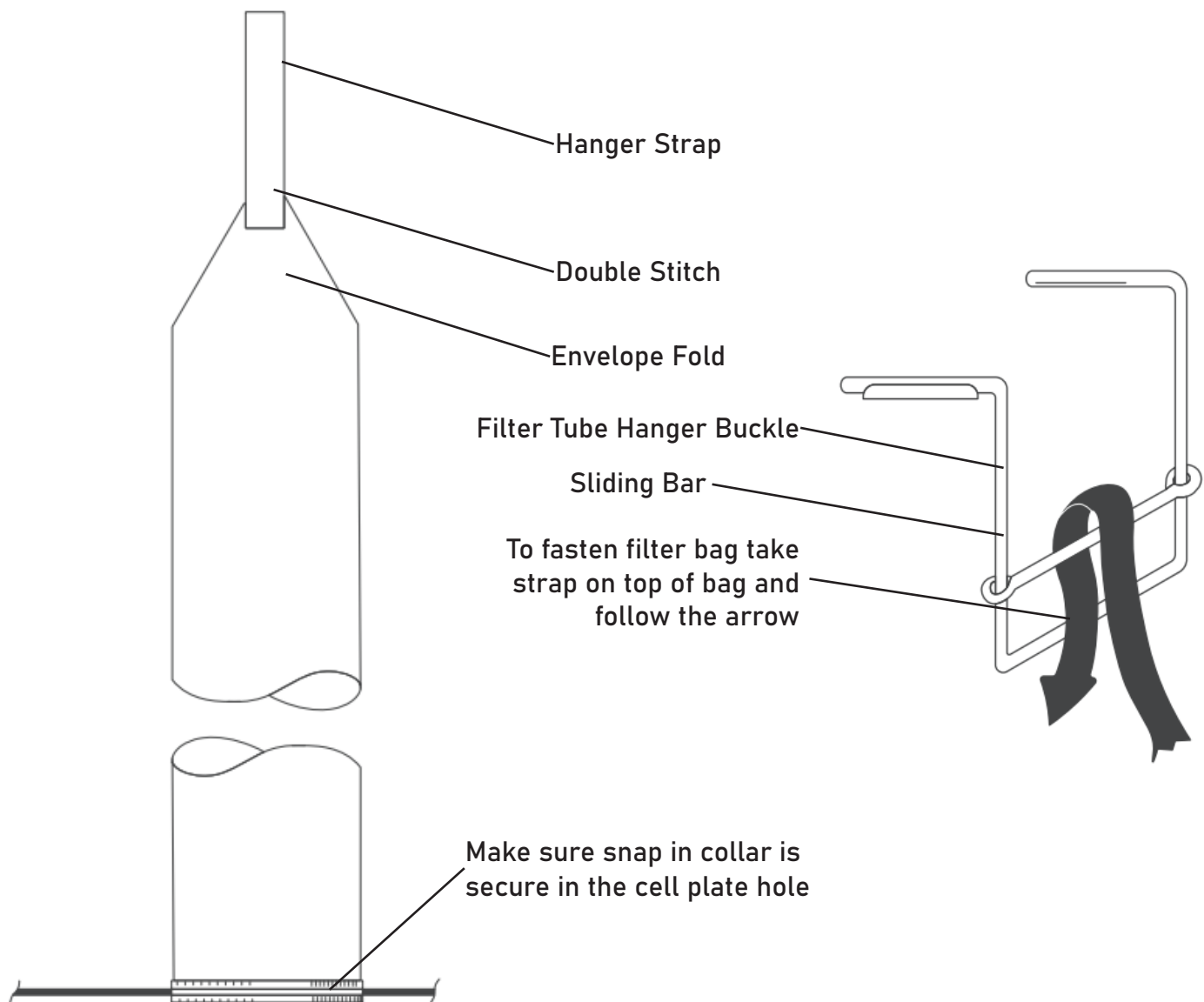


Letter	Description
A	Hanger Bearing
B	Shaker Rod
C	Shoulder Bolt
D	Eccentric Hub
E	Lock Washer
F	Flat Washer
G	Gear Box
H	Shaker Motor

INSPECTIONS (cont).

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.
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 see trouble shooting chart).



INSPECTIONS (cont).

Collapse the bottom snap collar into a “U” shape. Grasp collar at bottom of tube, folding together the two sides.



Insert folded tube into cell plate opening.



INSPECTIONS (cont).

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



Please note, it is imperative the snap collars are securely fitted into the collar plate. The snap collars are designed with a indented ridge that will allow the filter to form a perfect seal. Filter collars not installed correctly will result in compromise of filtration, and the process may have to be restarted.



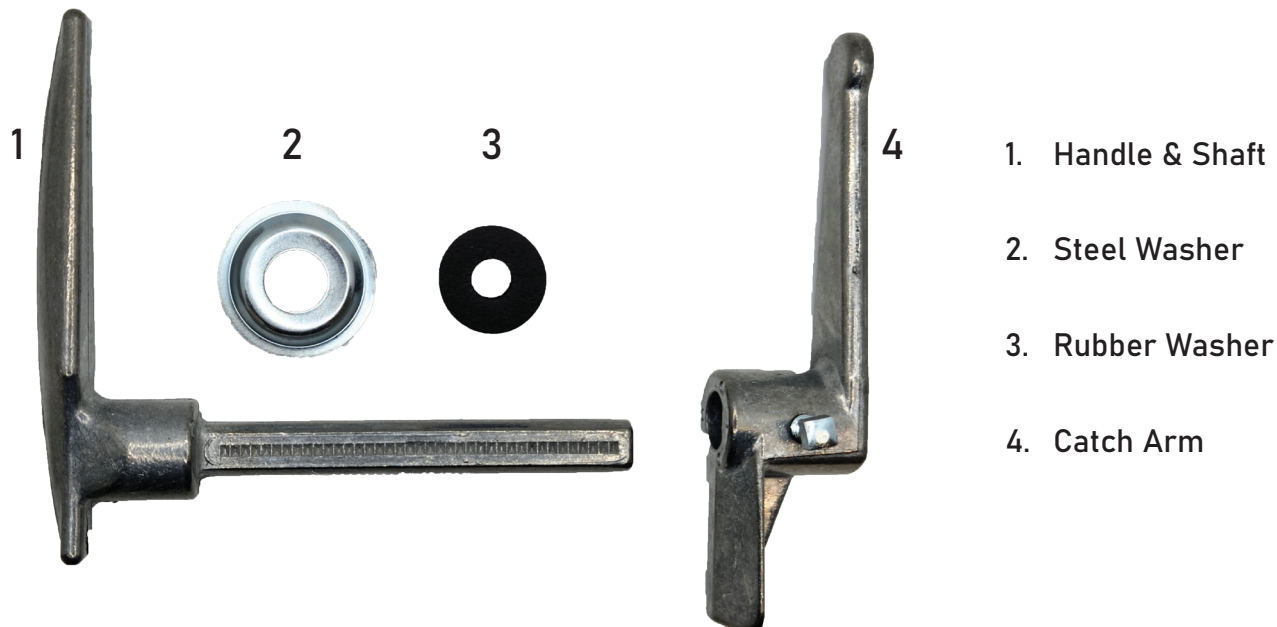
INSPECTIONS (cont).

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.
2. 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.
3. Check the storage section (if supplied) 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 and airtight seal when closed.

Assembly of Door Handle Kits

Our standard door handle kit may come with more parts than required. The photo below showcases the only components you'll need. Please discard any other pieces.



INSPECTIONS (cont).



The door handle kits are assembled in as seen in the figure to the left. First the handle and shaft, with the handle on the outside, followed by the steel washer and then the rubber washer on the exterior of the door. On the interior of the door is the catch arm.



Adjust the catch arm until the door fits tightly against the rubber door seal when the unit is not operating. If the door springs open when the unit shuts down, then the catch arm needs to be adjusted closer to the door for a tighter fit (see the figure to the left). If the door handle is too tight it may result in a shorter lifespan of the door frame gasket.

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. 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.

Explosion vents are typically shipped in a separate crate, uninstalled from the body of the dust collector. This is due to the fact that the panels are fragile, and should hence be handled with caution. To install, remove the temporary cover on the designated flange and bolt the explosion vent in a convex manner to the flange. In the event of a deflagration, the ruptured panel will have to be replaced with a new panel.

For information on installing and maintaining panel accessories, such as burst sensors, please see the instructions supplied in the individual packaging, or reach out to your technical representative.



CAUTION: IN THE EVENT OF DEFLAGRATION, THE PANEL WILL RUPTURE RAPIDLY AND WITH LITTLE OR NO WARNING. AVOID STANDING IN FRONT OF THE PANEL AND THE PANEL ARC AREA WHEN THE COLLECTOR IS IN OPERATION.



OPTIONAL

Relief Latches

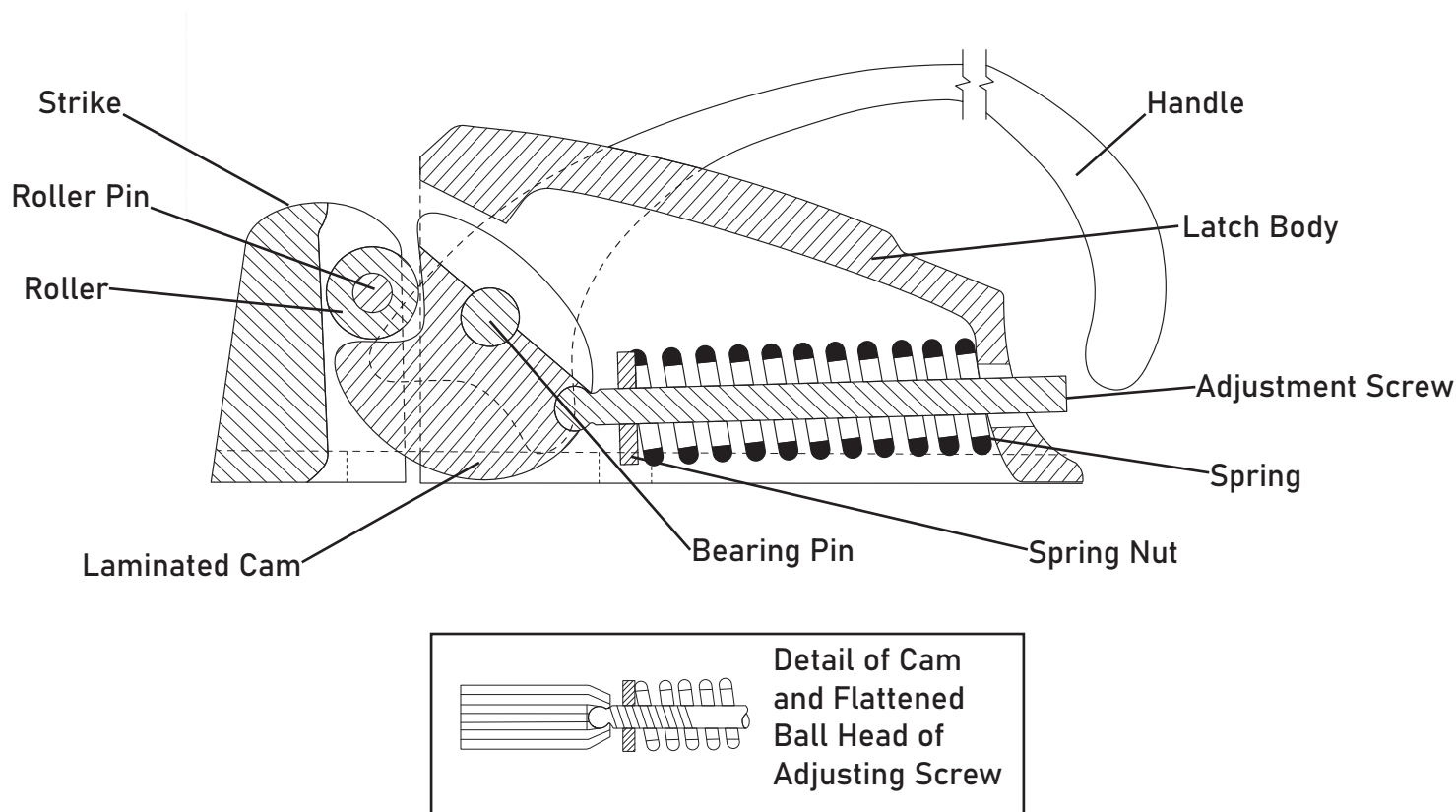
An alternative to explosion vents (at the discretion of local authority having jurisdiction), the relief latch operates in a manner similar to a toggle switch. When the door and latch are in the closed position, the latch will hold the door closed. When enough pressure is applied to compress the spring 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.

Caution for operators:

- 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 their 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.
- If the door is closed without sufficient force to trip the cam the door will rebound.
- 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, or by the cam being struck and rotated accidentally while in the open position.
- 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.
- The door may open unexpectedly if material (or someone) should fall and strike the interior of the door.
- 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. Avoid standing in front of the door and the door arc area when the collector is in operation.

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.

OPTIONAL



Latch Model	Release Pressure (lbs.)		Pressure per Turn	Change (lbs) per 1/2 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.
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.

OPTIONAL

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.

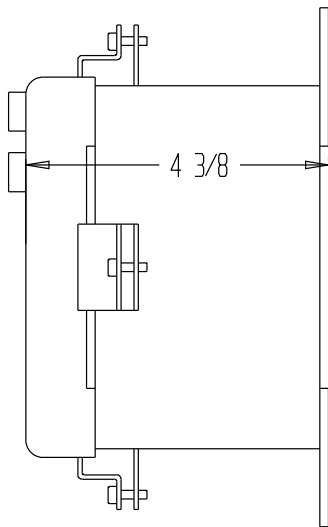
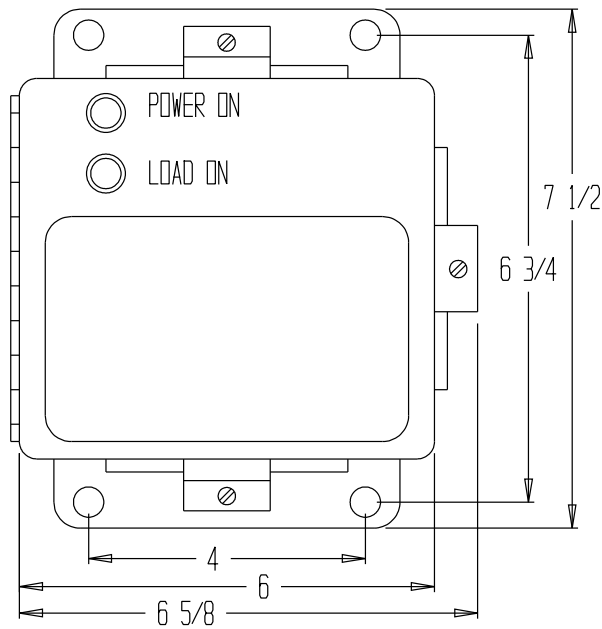
Replacement and maintenance parts may be obtained through N. R. Murphy Limited by providing us with the exhaustor Serial number and a description of the component that you require and if possible the exhaustor shaft diameter or bearing size. Due to the custom built nature of many of our products, we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

OPTIONAL

Automatic Shaker Control Wiring Diagram



DNC-T2101-020
TIMER DETAIL

Specifications of Timer:

1. Input: 105 to 135 VAC 50/60 Hz
2. Output: 1 Amp. Cont. [10 Amps Surge] at 2 Volt below input voltage.
3. Operating temperature: -20 F to +130 F
4. Time Ranges: 2 minutes (Fixed) off time +/- 5%, 3 minutes adjustable on time +/- 5%
5. Transient voltage protection: +/- 1000V for 8 milliseconds
6. Fuse 1 Amp slow blow
7. "Power On" & "Load On" Light included
8. JIC or NEMA 4 enclosure
9. Weight 2 1/2 lbs

Operating Logic:

Removing power from the fan initiates the "Off" cycle. After a 2 minute delay power is applied to the load and the "Load On" light goes on.

The output time "Shaking Time" is adjustable from a minimum of 1.8 seconds to a maximum of 3 minutes. At the end of this period power to the load and to the timing light is interrupted until the fan is turned "On" and "Off" again.

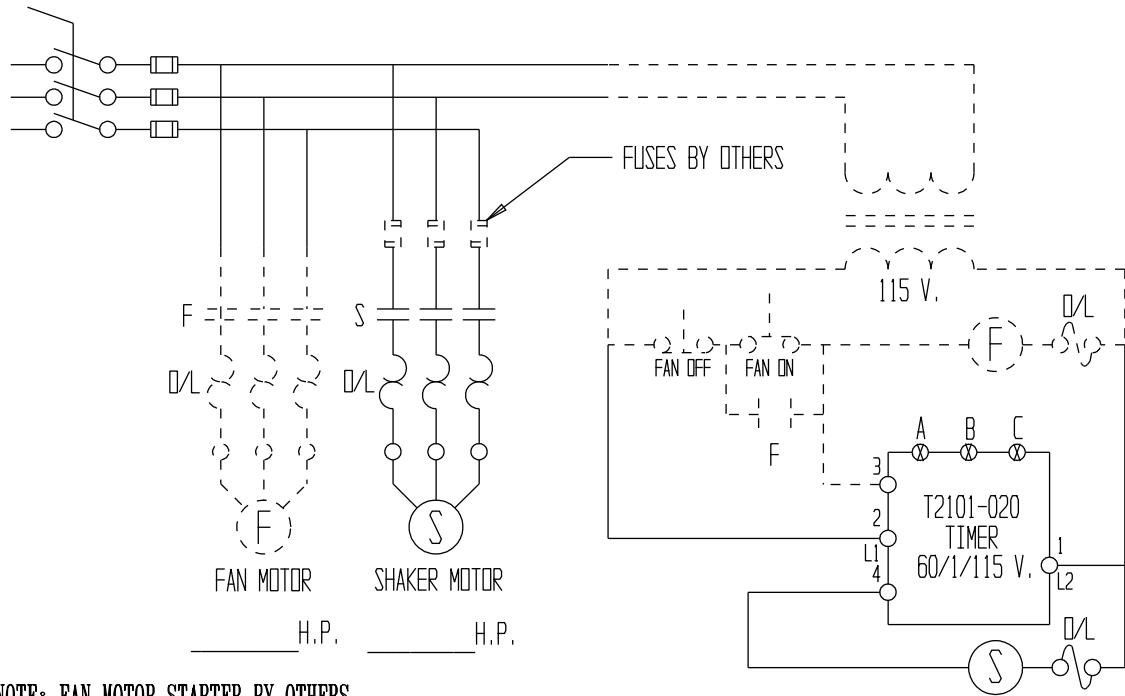
Starter Description:

Fan Starter: Across the line full voltage magnetic starter with stop - start push button in cover. 3 overload relays, control transformer [50 VA], 120 volt holding coil.

Shaker Starter: Across the line full voltage magnetic starter with 120 V. Holding coil and 3 overload relays.



OPTIONAL

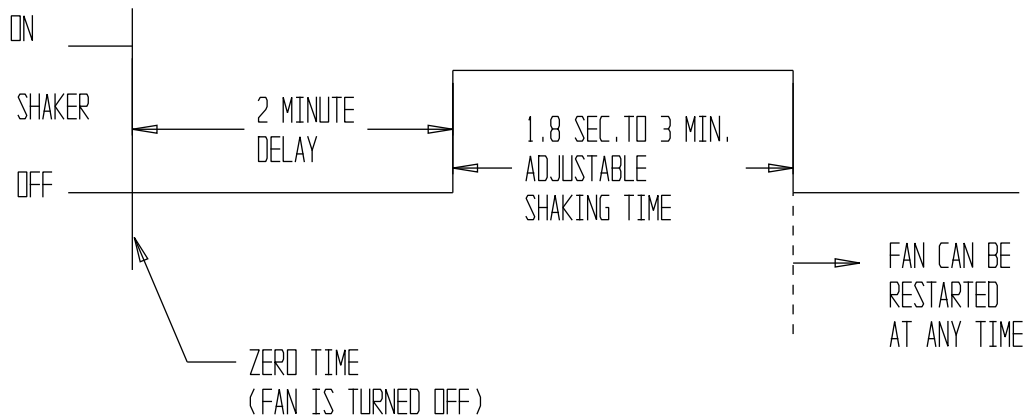
FUSED DISCONNECT BY OTHERS
60/3/.....V.(IN VIEW OF FAN MOTOR)



NOTE: FAN MOTOR STARTER BY OTHERS
[OPTIONAL BY N.R. MURPHY LTD.]

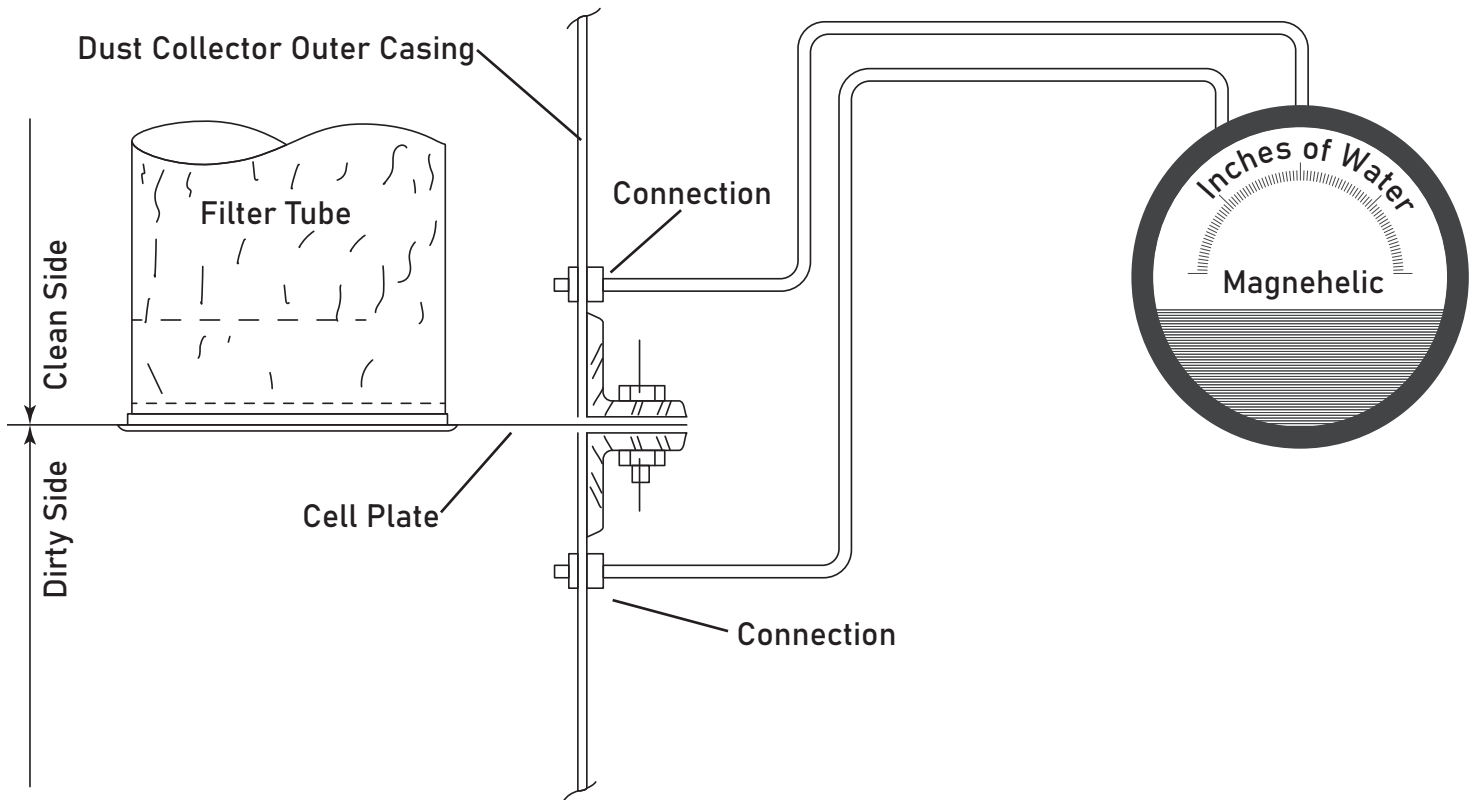
DISCONNECT SWITCHES AT MOTORS
BY OTHERS IF NECESSARY

 DENOTES .093 PIN TERMINAL CONNECTION (FOR LIGHTS)
 DENOTES CONNECTION TO TERMINAL STRIP



OPTIONAL

Mounting Instructions for Magnehelic Gauge



Magnehelic Differential Pressure Gauge (sometimes referred to as a manometer) may be separate as shown or mounted in the control panel depending on the options that are selected.

Before starting the unit, set indicating needle to "0".

Start the 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" and 6" depending on the model of unit and dust loading.

When noticeable difference in suction occurs, the filters should be shaken. An unusually high manometer reading should also be present, but this can also occur if connections to manometer are plugged. In this case you should blow the lines clear.

TROUBLE SHOOTING

PROBLEM	PROBABLE CAUSE
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 filter tubes. 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 reclamping.
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). • 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 plugged/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.

TROUBLE SHOOTING

PROBLEM	PROBABLE CAUSE
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.

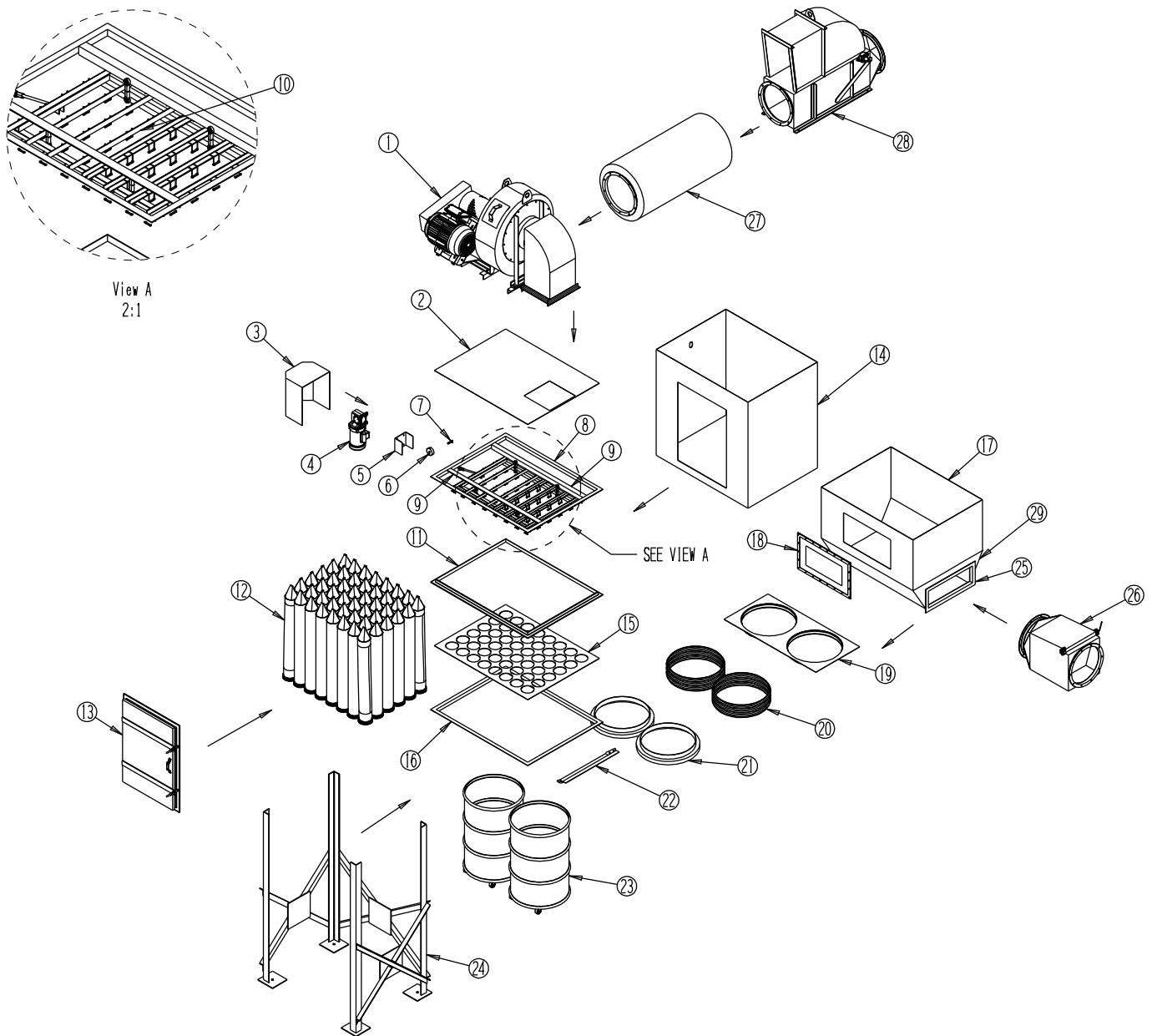


CAUTION: BE AWARE THAT WHEN THE BRIDGE IS BROKEN THE MATERIAL WILL FALL, TAKE PRECAUTIONS TO AVOID INJURY. DO NOT STAND UNDERNEATH THE DISCHARGE GATES.

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.

DIAGRAMS

MKAU Exploded View Example



- | | | | |
|---|-----------------------------|--------------------------------------|---------------------------------------|
| 1. Exhaust Fan (see separate drawing for details) | 8. Filter Bot Top Angles | 16. Explosion Vent Section Top Angle | required) |
| 2. Top Plate | 9. Shaker Support Angles | 17. Explosion Vent Section | 23. Drum c/w Castors |
| 3. Shaker Motor Cover | 10. Shaker Frame | 18. Explosion Vent | 24. Unit Structural Support |
| 4. Shaker Motor & Gear Box | 11. Filter Box Bottom Angle | 19. Drum Collar Plate | 25. Inlet Flange |
| 5. Shaker Mounting Plate | 12. Filters | 20. Flexible Drum Connector | 26. Inlet Blow Back Damper (optional) |
| 6. Shaker Boss | 13. Access Door | 21. Drum Lid | 27. Silencer (optional) |
| 7. Shaker Shoulder Bolt | 14. Filter Box | 22. Drum Baffle Plate (if | 28. Abort Damper (optional) |
| | 15. Collar Plate | | 29. Hopper Section |

MAINTENANCE LOG

Motor Data

HP: Voltage: / / RPM: FLA: Service Factor:

Drive Sheave: Driven Sheave: Sheave Alignment:

[illegible]

MAINTENANCE LOG

Motor Data

HP: Voltage: / / RPM: FLA: Service Factor:

Drive Sheave: Driven Sheave: Sheave Alignment:

[illegible]



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