



N.R. MURPHY LTD.
DUST COLLECTORS

ROTARY AIR LOCK

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.

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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 rotary air lock serial number here: _____

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

FORWARD

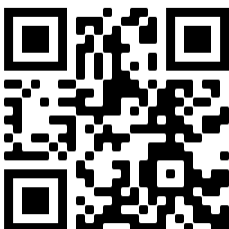
For over 80 years, N.R. Murphy Limited has been dedicated to manufacturing and distributing high quality products that meet the needs of a wide range of industrial applications.

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

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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 Rotary Air Locks 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. Prior to start-up, account for all personnel.
6. All areas beneath the rotary air lock 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 accessing the rotary air lock, the additional precautions mentioned below should be observed:
 - a. Turn OFF all electrical circuits, including the timing controls. Lock 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.
8. 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, air locks 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.
9. The user should also consider the following: location of the air lock, accessibility of personnel to the air lock, adjacent equipment, and applicable building codes.



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 rotary air locks 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 ROTARY AIR LOCKS 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 rotary air lock. These instructions are not intended to supplement good general practices and are not intended to cover detailed installation procedures.

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 rotary air lock 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 and Storage

Your new rotary air lock should be handled with care. The air lock has holes in the flanged inlet and outlet that can be used for lifting. Never use the motor or drive unit to lift the air lock as it could cause severe damage to these components. If the air lock cannot be installed immediately it should be stored in a dry area which is free of vibration and be protected from extreme and rapid changes in humidity and temperature using the following guidelines:

1. Temperatures: between 10°C (50°F) and 49°C (120°F)
2. Maximum relative humidity: 60%
3. Shock or vibration: 2 mils displacement maximum to prevent bearings from Brinelling

Installation

It is recommended that access be available or access doors be installed at the inlet and outlet side of the air lock for ease of inspection and internal maintenance (Disconnect and lock out all electrical power to the air lock before performing any maintenance). Ensure that bearings are properly locked to the shaft and that the speed reducer vent plug is installed prior to putting the air lock into service. Jog the motor electrically to ensure that the rotor rotation agrees with the rotation sticker as affixed to the air lock housing.

MAINTENANCE



CAUTION: DISCONNECT AND LOCK OUT ALL ELECTRICAL POWER TO THE AIR LOCK BEFORE PERFORMING ANY MAINTENANCE.

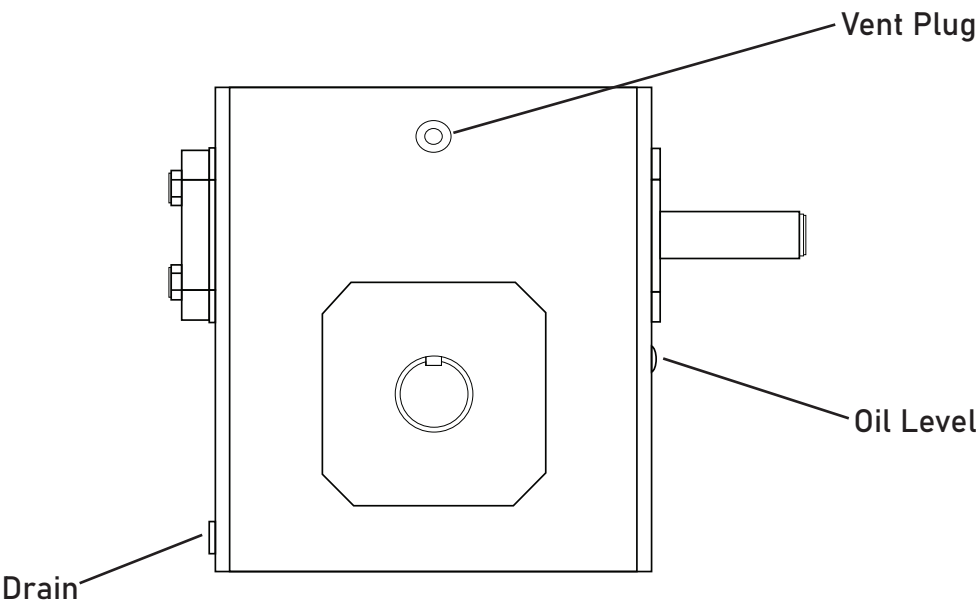
Bearings

Ensure that bearings are properly locked to the shaft and bearing housings are bolted securely to the side plates of the air lock. Re-lubricate bearings every four to six months. As a rule of thumb, one shot of grease from a standard grease gun is sufficient and must be applied while the air lock is in operation.

Speed Reducer (Direct Drive Units)

The vent plug (shipped loose) must be installed before the unit is put into service. Gear oil should be replaced every 6 months or 2,500 hours of service. We recommend Mobil SHC 626.

Oil Capacities		
Size 1 RAL	826 Reducer	1.18 litres (40oz)
Size 2 RAL	832 Reducer	2.13 litres (72oz)
Size 3 RAL	842 Reducer	3.31 litres (112oz)



MAINTENANCE (cont.)

Mounting bolts holding the torque bracket to the speed reducer housing and the bolts securing the torque arm to the torque brackets should be checked after the first week of operation and then every six months thereafter.

Seals

Seals should be inspected every 4 to 6 months for wear. If wear is visible and there is a air leakage between the inlet and discharge sides of the air lock, the seals should be changed. A leaking air lock can prevent material from dropping out normally in a dust collector and can lead to plugging of the collector filters. See "Procedure for Removal and Replacement of Air Lock Seals" below.



CAUTION: DISCONNECT AND LOCK OUT ALL POWER SOURCES TO THE ROTARY AIR LOCK.

Procedure for Seal Removal and Replacement

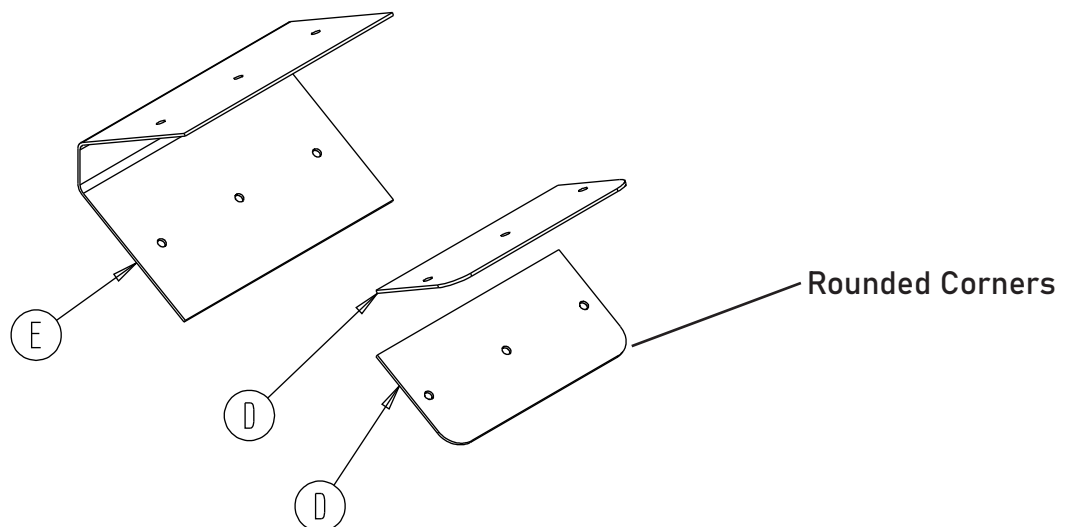
1. Disconnect and lock out all power sources to the air lock.
2. Remove set screws from the bearing opposite the drive of the air lock, then unbolt and remove the bearing.
3. Unbolt the rotary air lock side plate and remove the side plate to gain access to the rotor assembly.
4. Remove from the rotor assembly one seal at a time by unbolting the two clamping plates.
5. If the seals have been provided unpunched, use the old seal as a template. Placing the old seal on top of the new seal to mark and punch the bolting hole locations. Position the new seal in place and replace clamping plates and bolts before moving on to the next location.
6. **NOTE: ROUNDED CORNERS OF CLAMP PLATES FACE THE OUTSIDE EDGES OF THE ROTOR. INSTALLING CLAMPING PLATES SHARP EDGE OUT WILL RESULT IN PREMATURE FAILURE OF THE SEALS.**
7. When completed for all the seals on the rotor, reinstall the air lock side plate BUT DO NOT TIGHTEN THE SIDE PLATE BOLTS COMPLETELY.
8. Reinstall the bearing but DO NOT REINSTALL THE SHAFTING SET SCREWS.
9. Jog the air lock electrically several times and then run for several rotation to allow the seals to seat and assume correct rotation.
10. Tighten the air lock side plate bolts.
11. Replace the shaft screws on the bearing.

MAINTENANCE (cont.)

Seal Removal on Older Style Rotary Air Locks

Please note that on older style rotary air locks that the removable side plate is on the same side as the drive. In this case the side plate, rotor and drive assembly are removed from the air lock as a single assembly in order to facilitate the seal replacement.

1. Remove set screws from the bearing opposite the drive of the air lock, then unbolt and remove the bearing.
2. Unbolt the rotary air lock side plate and remove the side plate, rotor and drive assembly from the air lock housing.
3. Remove from the rotor assembly one seal at a time by unbolting the two clamping plates.
4. If the seals have been provided UNPUNCHED, use the old seal as a template. Placing the old seal on top of the new seal to mark and punch the bolting hole locations. Position the new seal in place and replace clamping plates and bolts before moving on to the next location.
5. **CAUTION: NOTE ROUNDED CORNERS OF CLAMPING PLATES FACE THE OUTSIDE EDGES OF THE ROTOR. INSTALLING THE CLAMPING PLATES SHARP EDGE OUT WILL RESULT IN PREMATURE FAILURE OF THE SEALS.**
6. When completed for all the seals on the rotor, reinstall the removed air lock side plate, rotor and drive assembly into the air lock housing **BUT DO NOT TIGHTEN THE SIDE PLATE BOLTS COMPLETELY.**
7. Reinstall the bearing but **DO NOT REINSTALL THE SHAFTING SET SCREWS.**
8. Jog the air lock electrically several times and then run for several rotations to allow the seals to seat and assume the correct rotation.
9. Tighten the air lock side plate bolts.
10. Replace the shaft screws on the bearing.



MAINTENANCE (cont.)

Motors

Check the motor cooling fan every 3 months. Cooling fan must be clear to prevent overheating.

Spare Parts

Replacement and maintenance parts may be obtained through N. R. Murphy Limited by providing us with the Air Lock Serial number and a description of the component that you require. 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.

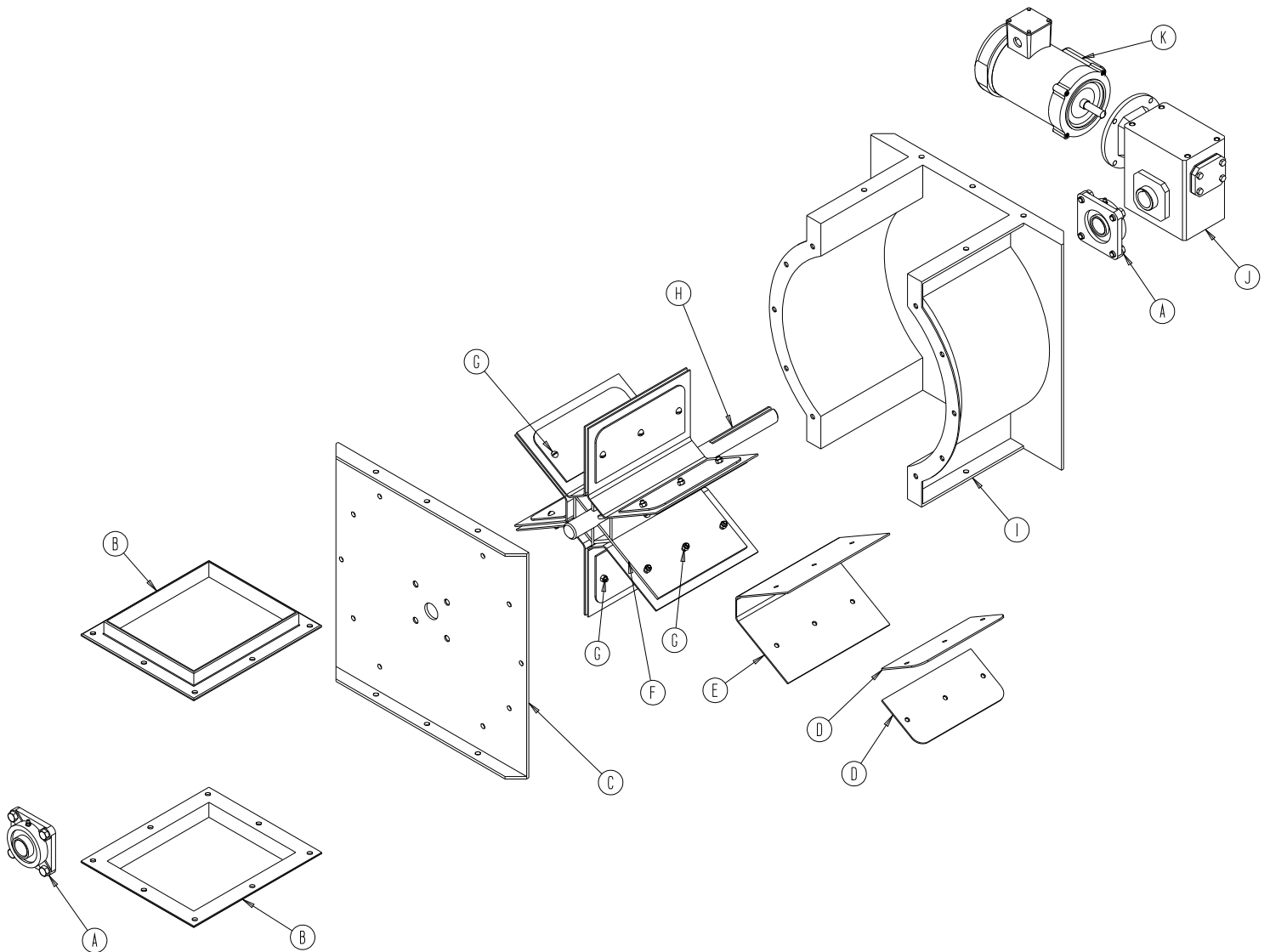
Chain Drive Air Lock Adjustment and Maintenance*

Air lock drive chain tension should be checked after every 200 operating hours. Unbolt / remove air lock drive chain guard and check for sag between drive and driven sprockets. Chain should be loose enough to allow for some movement at midpoint through manual hand pressure up and down. Adjusting the drive centres to either loosen or tighten the chain is accomplished by loosening 4 bolts on the mount between the gear motor adjustable base plate and the mounting bracket. Chains should be cleaned and regreased after every 500 operating hours.

*Applicable for our chain driven air lock models only.

DIAGRAMS

Standard Rotary Air Lock Exploded View Example

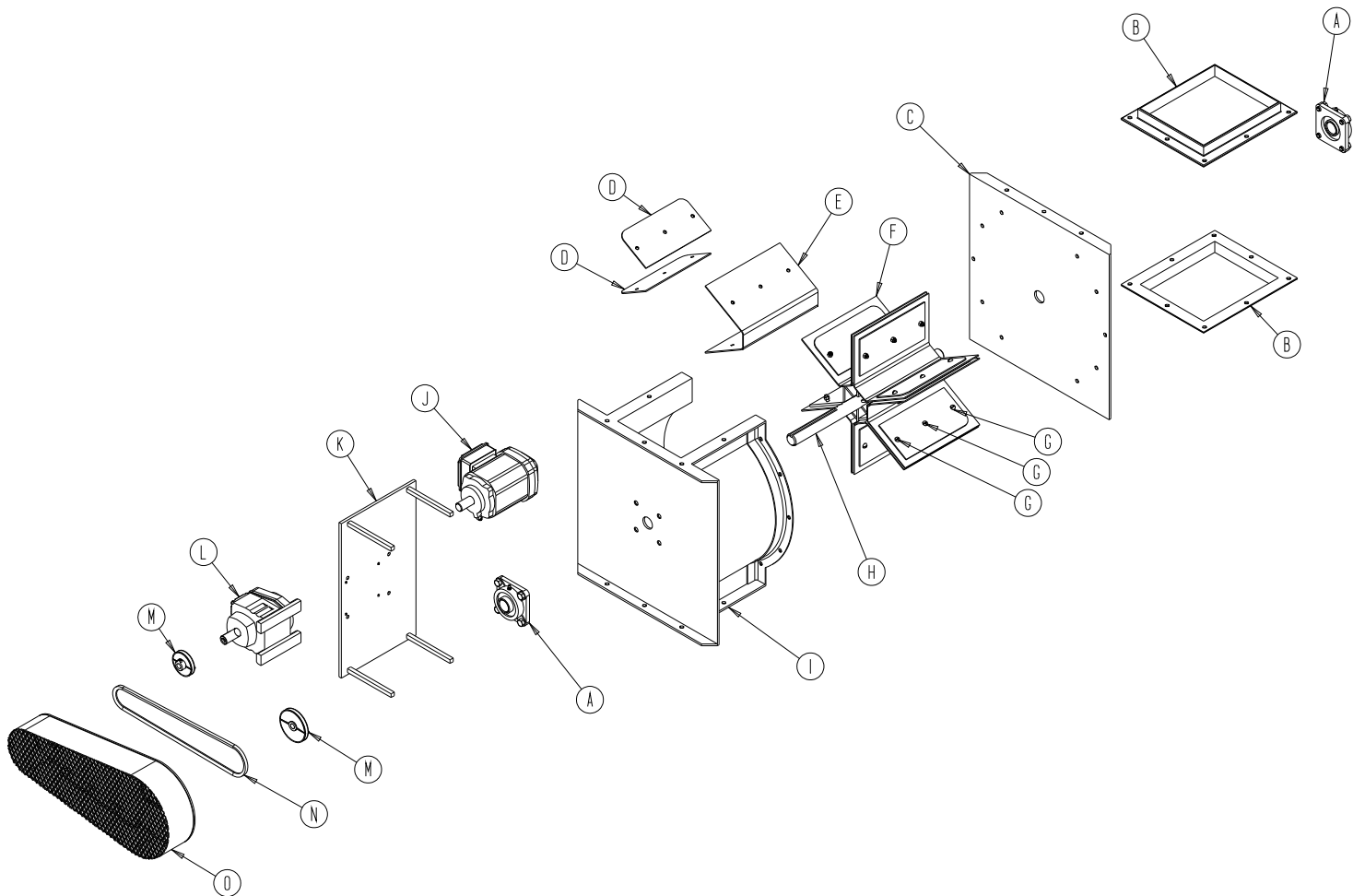


A: Bearings
 B: Matching Angle Flanges
 C: Removable Front Plate
 D: Wheel Clamp Plates
 E: Flexible Wiper Seals
 F: Rotor Assembly

G: Bolts and Nuts
 H: Shaft
 I: Side Back Plate Assembly
 J: Gear Box
 K: Motor

DIAGRAMS

Chain Driven Rotary Air Lock Exploded View Example



A: Bearings
 B: Matching Angle Flanges
 C: Removable Front Plate
 D: Wheel Clamp Plates
 E: Flexible Wiper Seals
 F: Rotor Assembly
 G: Bolts and Nuts
 H: Shaft

I: Side Back Plate Assembly
 J: Motor
 K: Drive Plate
 L: Gear Box
 M: Belt Sheaves
 N: Belt or Chain
 O: Guard

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]

MAINTENANCE LOG - NOTES

MAINTENANCE LOG - NOTES



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