

KICE INDUSTRIES, INC.



Skilled Air for Industry



## **Bran Finisher**

Operators Manual

# 1. INTRODUCTION

When you purchased your Kice Bran & Shorts Finisher, you bought a machine that has proven its reliability based on hundreds of installations and years of dependable service.

We are proud of our products and the people at Kice Industries who build them. At Kice, we start in our own foundry and follow the construction standards and manufacturing techniques, which have proven superior over the last 60 years.

The results of our development work and input from users have resulted in the present design of the Kice Bran & Shorts Finisher.

This owner's manual is intended as a guide for proper installation, operation and maintenance to keep your Kice equipment operating safely and efficiently on the job. Service and spare parts information is also included for your benefit.

Sincerely,

Thomas F. Kice  
President & C.E.O.  
Kice Industries, Inc.

## **WARRANTY**

The Company warrants the equipment manufactured by the Company to be free of defects in material and workmanship for a period of one (1) year from the date of shipment. Kice agrees to repair or replace, at its option, any parts found to be defective in the opinion of the Company. Kice is not liable for any costs in connection with the removal, shipment or reinstallation of said parts. This warranty does not apply to abrasion, corrosion, erosion, abuse or misuse of the product. Assistance by Kice in system layout or selecting equipment does not imply Kice's responsibility.

Buyer agrees to look to the warranty, if any, of the manufacturer or supplier of equipment manufactured by others and supplied by Kice for any alleged defects in such equipment and for any damages or injuries caused thereby or as a result thereof. Where work is made to measurements or specifications furnished by the Buyer, Kice does not assume any responsibility for the accuracy of Buyer's specifications. Kice will not assume responsibility for alteration or repairs unless the same are made with the written consent and approval of Kice.

## **PURCHASER SHALL BE RESPONSIBLE FOR COMPLIANCE WITH ELECTRICAL MANUFACTURER'S RECOMMENDATIONS, UNDERWRITERS CODE AND ALL SAFETY PRECAUTIONS.**

Kice extends no other warranty for any of its products other than the above express warranty, and there are no other warranties, express or implied, including warranties of merchantability, fitness for a particular purpose or otherwise which extend beyond the above limited express warranty. Kice and its dealers shall not in any event be liable for consequential or incidental damages, and the terms and conditions stated herein provide Buyer's sole and exclusive remedy. Any actions for breach of this agreement or warranty must be commenced within one year after the cause of action has occurred.

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### IMPORTANT:

Write down the **MODEL** and **SERIAL NUMBER** of the Kice Bran & Shorts Finisher, along with the same information for the auxiliary equipment (i.e., airlock valve, fans, speed reducer, motor, sheave sizes and type, and any special modifications to standard).

For additional information, application assistance or special service, you should contact the factory. We will need to know the **MODEL** and **SERIAL NUMBER** of your Kice Bran & Shorts Finisher. For ready reference, please record this information and the date of delivery or installation on the lines below. See the General Information section for the location of the model and serial number.

Model\_\_\_\_\_

Serial Number\_\_\_\_\_

Date of delivery or installation\_\_\_\_ / \_\_\_\_ / \_\_\_\_

## 2. GENERAL INFORMATION

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### TO THE NEW OWNER

The purpose of this manual is to assist owners and operators in maintaining and operating the Kice Bran & Shorts Finisher. Please read it carefully; information and instructions furnished can help you achieve years of dependable performance. Separate manuals are included for auxiliary equipment, such as airlock valves, cyclones and fans. They contain additional information that may not be repeated in this manual. You are urged to read all manuals before attempting any operation or repair of the equipment in the system. If these manuals are not included in your owner's packet, contact our customer service department.

### USING THIS MANUAL

General operation, adjustment and maintenance guidelines are outlined for owners and operators of the Kice Bran & Shorts Finisher. Operating conditions vary considerably and cannot be addressed individually. Through experience, however, operators should have no difficulty in developing good operating, safety and monitoring skills.

The term "disconnect and lockout" as used in this manual means that power to the equipment has been disconnected through the use of a padlockable, manual, power cutoff, or power lockout switch.

Directions used in this manual, for example RIGHT or LEFT, CLOCKWISE or COUNTERCLOCKWISE, refer to directions when facing the drive end of the Kice Bran & Shorts Finisher. A metal identification plate containing the model and serial number is attached to each of the two access doors.

Photographs and illustrations were current at the time of printing, but subsequent production changes may cause your Kice Bran & Shorts Finisher to vary slightly in detail. Kice Industries, Inc., reserves the right to redesign and change the equipment as deemed necessary, without notification. If a change has been made to your Kice Bran & Shorts Finisher that is not reflected in this owner's manual or the Illustrated Parts List, write or call Kice Industries, Inc., for current information and parts.

### MODEL AND SERIAL NUMBER

The model and serial number of the Bran & Shorts Finisher can be found stamped on the metal identification plate located on each of the two access doors.

### KICE BRAN & SHORTS FINISHER PARTS AND SERVICE

Use original Kice Bran & Shorts Finisher replacement parts only. These parts are available from Kice Industries, Inc. To obtain prompt, efficient service, always provide the following information when ordering parts:

- Correct part description and number, as given in the Illustrated Parts List section of this manual
- Correct model number
- Correct serial number

For assistance in service or ordering parts, contact the customer service department:

**Kice Industries, Inc.**  
**5500 Mill Heights Drive**  
**Wichita, KS 67219-2358**  
**Phone: 316-744-7151 Fax: 316-744-7355**

## **GENERAL INFORMATION CONTINUED**

**IMPORTANT:** Any unauthorized modification, alteration, or use of non-approved attachments or drive units voids the warranty and releases Kice Industries, Inc., from any liability arising from subsequent use of this equipment. The Kice Bran & Shorts Finisher is designed to be used in a specific type of system. Using the Kice Bran & Shorts Finisher for any purpose other than that for which it was designed could result in personal injury, as well as, product or property damage.

## **FOR MOTOR AND DRIVE PARTS AND SERVICE**

Purchased items (such as speed reducers and motors) are covered by the manufacturer's warranty. If there is a problem, check with the local supplier or service representative of the manufacturer.

### 3. SAFETY PRECAUTIONS



Figure 2

This safety alert symbol is used on equipment, safety decals and in manuals to call your attention to an important safety message warning you of possible danger to your personal safety. When you see this symbol (Figure 2), be alert; your personal safety or the safety of other persons is involved. Follow the instructions in the safety message.

#### HAZARD LEVELS



**DANGER (RED)** – Danger is used to indicate the presence of a hazard that **WILL** cause **SEVERE** personal injury, death, or substantial property damage if the warning is ignored.



**WARNING (ORANGE)** – Warning is used to indicate the presence of a hazard that **CAN** cause **SEVERE** personal injury, death, or substantial property damage if the warning is ignored.



**CAUTION (YELLOW)** – Caution is used to indicate the presence of a hazard that **WILL** or **CAN** cause **MINOR** personal injury or property damage if the warning is ignored.



**NOTICE (BLUE)** – Notice is used to indicate installation, operation, or maintenance information that is important, but not hazard-related. Hazard warnings should never be included under the Notice signal word.



**WARNING:** All owners and operators should read this manual, or be instructed in safe operating and maintenance procedures, before attempting to uncrate, install, operate, adjust, or service this equipment.

#### SAFETY DECALS

The safety decals on the bran finisher should not be removed, covered over, painted, or otherwise become illegible. If this occurs, the decals should be replaced immediately. Contact our customer service department for replacements.

## **SAFETY PRECAUTIONS CONTINUED**

### **ADDITIONAL SAFETY PRECAUTIONS**

- Do not attempt to install, connect power to, operate or service your new finisher without proper instruction and until you have been thoroughly trained in its use by your employer.
- Do not attempt to work on, clean or service the finisher, or open or remove any protective cover, guard, grate, or maintenance panel until the POWER has been turned off and LOCKED OUT.
- Do not manually override or electrically bypass any protective device.
- Do not connect power to or operate the finisher unless all moving parts are covered and all covers, guards, grates, and maintenance panels are in place and securely fastened.
- Do not abuse, overload, mistreat, or misuse the finisher or attempt to operate the finisher if it is in need of service, lubrication, maintenance or repair.
- Never place any part of your body in or near rotating members or moving parts of the Finisher.
- The Kice Bran & Shorts Finisher may have factory supplied guards for rotating components. Moving parts must be completely enclosed before connecting power and before operation.
- If the Kice Bran & Shorts Finisher is equipped with a maintenance panel or access door incorporating any Protective Interlocking Limit Switch (PLS), the PLS must be interlocked with all electrical controls so that all motors and powered devices on the unit will be de-energized if any protective cover, guard, grate or maintenance panel is open or removed. Never attempt to manually override or electrically bypass a safety device. The interlock function of the PLS must be tested and logged daily by supervisory personnel.
- Many Kice Bran & Shorts Finishers are installed and wired to start automatically or be controlled from remote locations. Keep clear of all moving parts on industrial equipment at all times.
- The Kice Bran & Short Finisher must be equipped with a properly functioning Protective Interlocking Electrical Control Switch (PCS), a Padlockable Manual Power Lockout Switch, and with the other basic safety equipment listed above. On-Off, interlock and padlock functions of the PCS must be tested and logged daily by supervisory personnel.
- It is the owner's and the employer's responsibility to adequately train the employee-operator in the proper and safe use of the equipment. Written safety programs and formal instruction are essential. All new employees must be made aware of company policies and operating rules, especially the established safety and health procedures. Refresher training of experienced employees in the potential hazards of the job is important. Up-to-date training records must be maintained at the job site.
- Special attention must be devoted to outside contractors engaged to enter and perform work on equipment or in the work place. Special care must be exercised to insure all such personnel are fully informed of the potential hazards and follow plant rules – with special emphasis on explosion proof electrical tools and cutting or welding in unsafe environments.
- Keep the workplace cleaned up and free of dirt and dust at all times. Do not attempt to work on slippery or unsafe ladders or work platforms when maintenance or repair work is being performed on the Kice Bran & Shorts Finisher.
- Do not climb on ladders or work on platforms unless maximum load rating is posted. Do not exceed maximum load ratings when installing or servicing the finisher.
- Never allow any kind of metal or other foreign objects to enter a Kice Bran & Shorts Finisher while in operation.
- All Kice Bran & Shorts Finisher inlet and discharge openings must be completely connected to the gravity spouting to prevent human access when the machine is running, and must remain connected until POWER IS TURNED OFF AND LOCKED OUT. Keep away from the moving parts of the finisher during operation.
- Operate safely at all times. Use personal protective equipment when and where appropriate, such as hard hats, helmets, gloves, earplugs, and eye protection devices. Keep personal protective equipment in good repair and convenient to the operator.
- Drive components must be inspected and adjusted after transportation and periodically as required by operating conditions. Check the motor mount and guard, drive alignment, set screws and keys, as appropriate to job conditions.
- High voltage and rotating parts can cause serious or fatal injury. Only qualified, trained, and experienced personnel should perform installation, operation and maintenance of electrical machinery. Make sure that the motor and the frame of the finisher is effectively grounded in accordance with OSHA safety and health standards, the National Electrical Code and local codes.
- Never stand under any kind of hoist or lifting mechanism, whether or not it is loaded or in operation. Never stand under or near a Kice Bran & Shorts Finisher or associated equipment when it is being lifted.
- Qualified personnel, before each use, must carefully inspect all lifting devices. Never use a lifting device to transport equipment. Never use a lifting device that is damaged, deteriorated, or in any way in need of repair.
- All protective covers, guards, grates, maintenance panels, switches and warning decals must be kept in place and in good repair. Any equipment with a damaged, malfunctioning, defective, or missing protective device must be taken out of service until the protective device can be repaired or replaced.
- Any device powered by air or hydraulic pressure must be equipped with a properly functioning Padlockable Manual Pressure Lockout and Internal Pressure Relief Valve (PRV).
- Any Bran & Shorts Finisher that is used in the processing of explosive materials in hazardous environments requires an evaluation on the part of the user and operator of proper and adequate monitoring equipment, dust control, explosion relief venting, and electrical equipment enclosures. Do not use your equipment in hazardous environments unless it has been properly equipped for the hazard.
- It is ultimately the operator's responsibility to implement the above listed precautions and insure proper equipment use, maintenance and lubrication. Keep these instructions and list of warnings with your machine at all times.
- It cannot be assumed that every acceptable safety procedure is contained herein or that abnormal or unusual circumstances may not warrant or require future or additional procedures.

|                                 |
|---------------------------------|
| <b>WORK SAFELY AT ALL TIMES</b> |
|---------------------------------|

## 4. RECEIVING, HANDLING AND INSTALLATION

### **RECEIVING AND INSPECTION**

Kice Industries, Inc., has prepared your new finisher for shipment in accordance with the Uniform Freight Classification. It has been thoroughly inspected at the factory and, barring damage in transit, should be in excellent condition upon arrival.

The finisher and any accessories should be inspected upon receipt for any shipping damage. Turn the rotor by hand to see that it rotates freely and does not bind.

When a carrier signs the Kice Industries, Inc., bill of lading, the *carrier accepts the responsibility* for any subsequent shortages or damage, evident or concealed, and *any claim must be made against the carrier by the purchaser*. Evident shortage or damage *should be noted on the carrier's delivery document before signature of acceptance*. Inspection by the carrier of damage, evident or concealed, must be requested. After inspection, issue a purchase order for necessary parts or arrange for return of the equipment to Kice Industries, Inc., for repair.

### **HANDLING AND STORAGE**

Kice finishers are shipped completely assembled and skidded. These units may be handled and moved using good rigging techniques, being careful to avoid concentrated stresses that will distort any of the parts. Items or parts of the finisher that are shipped knocked down will be clearly labeled for reassembly.

If the finisher is not to be installed promptly, store it in a clean, dry location to prevent rust and corrosion of steel components. If outdoor storage is necessary, protection should be provided. Cover the inlet and outlets to prevent the accumulation of dirt and moisture inside the housing. Cover the motor with waterproof material. Refer to the Maintenance & Service section of this manual regarding bearings (page 12) for further storage instructions.

Inspect the stored unit periodically. Rotate the rotor by hand every two weeks to redistribute the grease on internal bearing parts.

### **FINISHER INSTALLATION**

The Kice Bran & Shorts Finisher can be supplied with either a floor mount support stand or a ceiling mount hanging support.



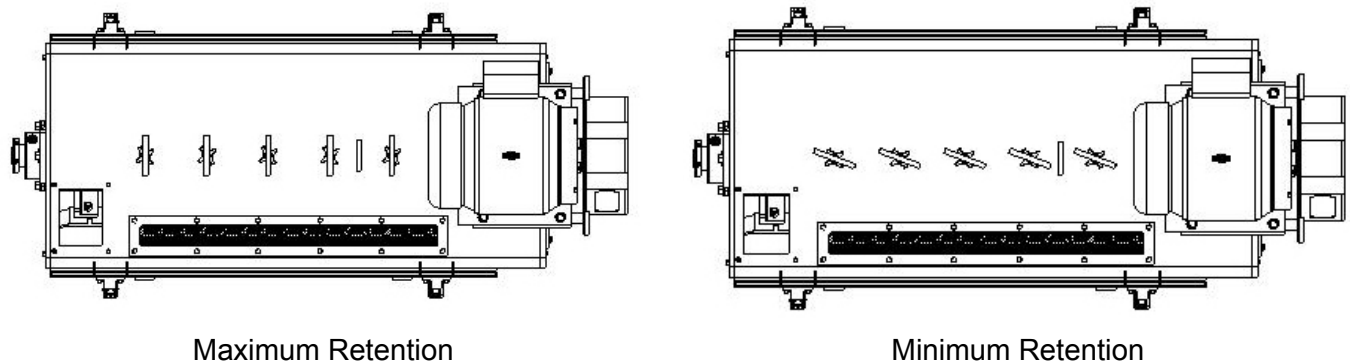
## 5. OPERATION AND START-UP PROCEDURE

### OPERATION

The purpose of the finisher is to remove fine flour from coarse product. This is accomplished by passing the stock through a rotating rotor and a stationary horizontal screen. The rotor has four beater bars to force the fine product through the screen. The fine material passes through the screen and into the “fines” hopper. The oversized product passes through the rotor and out the discharge end through the “overs” discharge spout.

Located just beneath the top of the finisher housing are flow control baffles that are used to regulate the flow and retention time of the material passing through the machine. (see figure 1)

Figure 1



Safe operation and maintenance includes selection and use of appropriate safety accessories for the specific installation. This is the responsibility of the system designer and requires consideration of equipment location and accessibility, as well as, adjacent components. All safety accessories must be installed properly prior to start-up.

**NOTE:** Do not exceed the maximum safe finisher speed of 1200 rpm for the BF-27 and BF-42, 1,150 RPM for the BF-52

### START-UP PROCEDURE

1. Inspect the installation prior to starting the finisher. Check for any loose items or debris that may be in the gravity spout. Check the interior of the finisher as well. Turn the rotor by hand to check for binding.
2. Check the drive installation and belt tension.
3. Check the tightness of all setscrews, nuts and bolts. Tighten the hub set screws or bolts to the proper torque.
4. Install all remaining safety devices and guards. Verify that the supply voltage is correct and wire the motor. **“BUMP”** the starter to check for proper rotor rotation.
5. Use extreme caution when testing the finisher with the gravity spouting disconnected. Apply power and check for unusual sounds or excessive vibration. If either exists, see the section on Troubleshooting. Check for correct finisher speed and complete the installation. The gravity spouting and guards must be fully installed for safety.

## 6. MAINTENANCE AND SERVICE

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Kice finishers are manufactured to high standards with quality materials and components. Proper maintenance will ensure a long and trouble free service life.



**Do not attempt any maintenance on the finisher unless the electrical power has been completely disconnected and locked out. A finisher may windmill despite removal of all electrical power. The rotor assembly should be blocked securely before attempting maintenance of any kind.**

The key to good finisher maintenance is regular and systematic inspection of all finisher parts. Inspection frequency is determined by the severity of the application and local conditions. Strict adherence to an inspection schedule is essential.

Regular finisher maintenance should include the following:

1. Check the rotor for any wear or corrosion, as this can cause catastrophic failures. Check also for the buildup of material that can cause imbalance, resulting in vibration, bearing wear and serious safety hazards. Clean or replace the rotor as required.

**NOTE: Shut the finisher down immediately if there is any sudden increase in vibration.**

2. Check the V-belt drive for proper alignment and tension (see V-belt Drive under this section). If the belts are worn, replace them as a set, matched to within manufacturer's tolerances.
3. Lubricate the bearings, but do not over lubricate (see Bearings under this section for detailed specifications).
4. During any routine maintenance, all setscrews and bolts should be checked for tightness.

### BEARINGS

Any stored bearing can be damaged by condensation caused by temperature variations. Therefore, Kice finisher bearings are filled with grease at the factory to exclude air and moisture. Such protection is adequate for shipment and subsequent immediate installation.

For long term or outdoor storage, mounted bearings should be regreased and wrapped with plastic for protection. Rotate the finisher rotor by hand at least every two weeks to redistribute grease on internal bearing parts. Each month the bearings should be purged with new grease to remove condensation, since even a filled bearing can accumulate moisture. Use caution when purging, as excessive pressure can damage seals. Rotate the shaft while slowly adding grease.

Check setscrew tightness before start-up. Since bearings are completely filled with grease at the factory, they may run at an elevated temperature during initial operation. Surface temperatures may reach 180° Fahrenheit and grease may bleed from the bearing seals. This is normal and no attempt should be made to replace lost grease. Bearing surface temperatures will decrease when the internal grease quantity reaches a normal operating level. Lubrication should follow a recommended schedule.

## MAINTENANCE AND SERVICE CONTINUED

### V-BELT DRIVE

The V-belt drive is normally factory installed. If the drive is removed to facilitate the installation, or the customer provides the drive, the following procedure should be used to properly tension the belts.

#### Belt Tensioning:

1. Check belt tension with a tensioning gauge and adjust the tension using the adjustable motor mount. Excess tension shortens bearing life while insufficient tension shortens belt life, can have adverse effects on finisher performance, and may cause vibration. The lowest allowable tension is that which prevents slippage under full load. For more precise tensioning methods, consult the drive manufacturer's literature.
2. Recheck setscrews, rotate the drive by hand and check for rubbing, and reattach the belt guard.
3. Belts may stretch after installation. Recheck tension after several days of operation. Check sheave alignment, as well as, setscrew and/or bushing bolt tightness.

### LUBRICATION

Bearings should be lubricated with a good quality lithium-based grease conforming to NLGI Grade 2 consistency.

|               |          |               |
|---------------|----------|---------------|
| Examples are: | Mobil    | Mobilith 22   |
|               | Texaco   | Premium RB    |
|               | Amoco    | Amolith #2    |
|               | Gulf Oil | Gulf Crown #2 |
|               | Shell    | Alvania #2    |

Add grease to the bearing while running the finisher or rotating the shaft by hand. Be sure all guards are in place if lubrication is performed while the finisher is operating. Add just enough grease to cause a slight purging at the seals. Do not over lubricate.

### BEATER BAR REPLACEMENT

The finisher rotor is an assembly consisting of several hubs with spokes to which two beater bars that have angled teeth and two beater bars that have straight teeth are attached. The beater bars with angled teeth are located 180° apart from each other, as are the beaters bars with straight teeth. The beater bars are weight matched as a set to reduce vibration caused by unequal weight distribution. Always replace the beater bars as a complete matched set.

**NOTE:** The beater bars have shorter teeth on one end. The beater bars **MUST** be installed so that the end with the shorter teeth is positioned toward the inlet end of the finisher housing.

1. Shut down the finisher and isolate it from its energy source.
2. Apply a lockout/tagout device to the energy isolating device.
3. Open the finisher access doors and block the finisher outlets to prevent the possibility of something falling into the outlet spouting.
4. Remove the two finisher screens (see Screen Removal under this section).
5. Block the rotor so that it is unable to turn.
6. Remove the beater bars from the rotor assembly.
7. Install the replacement beater bars onto the ends of the rotor hub spokes, but do not tighten the bolts.
8. After all four of the beater bars have been installed, reinstall one of the screens and position each

## **MAINTENANCE AND SERVICE CONTINUED**

beater bar 3/8" to 1/2" from the screen. Torque the bolts to a maximum of 78 ft-lb.

9. Unblock the rotor and reinstall the remaining screen.
10. Manually rotate the rotor to check for clearance and to confirm there is no rubbing or rotor to end plate contact.
11. Close and securely fasten finisher access doors.

## **SCREEN REMOVAL**

1. Shut down the finisher and isolate it from its energy source.
2. Apply a lockout/tagout device to the energy isolating device.
3. Open the finisher access door and block the finisher outlets to prevent the possibility of something falling into the outlet spouting.
4. Loosen the screen retainer nuts that are located just above and just below the screen.
5. Pull and rotate the screen retainers to release the screen.

## **REPLACEMENT PARTS**

It is recommended that only Kice manufactured replacement parts be used. Kice finisher parts are built to be fully compatible with the original equipment, using specific alloys and tolerances. These parts carry a standard Kice warranty.

When ordering replacement parts, specify the part name (see Illustrated Parts List), finisher model, and Kice serial number. Most of this information is on the metal nameplate attached to the finisher access doors.

Suggested spare parts include:

- 2 sets of beater bars for each machine
- 2 sets of screens for each machine

## 7. TROUBLESHOOTING

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### A. Excessive Vibration

1. Loose mounting bolts, setscrews, or bearings
2. Misalignment or excessive wear of bearings
3. Loose setscrew in one of the rotor hubs or bearings
4. Misaligned or unbalanced motor
5. Bent shaft due to mishandling or material impact
6. Accumulation of foreign material on the rotor
7. Excessive wear or erosion of the rotor
8. Inadequate structural support, mounting procedures, or material
9. Externally transmitted vibration
10. Replacement beater bars were not installed as a matched set or were not installed correctly (see Beater Bar Replacement under Section 6 of this manual). Make sure the beater bars with angled teeth are located 180° apart from each other and, likewise, the beater bars with straight teeth. Make sure each of the beater bars have been positioned the same distance from the screens.

**NOTE:** The beater bars have shorter teeth on one end. The beater bars **MUST** be installed so that the end with the shorter teeth is positioned toward the inlet end of the finisher housing.

### B. Inadequate Performance

1. Finisher rotor rotating in the wrong direction or installed backwards on the shaft
2. Finisher rotor running too slow/fast (wrong sheaves for the motor speed)
3. Incorrect testing procedures or calculations
4. Rotor not properly located relative to the finisher inlet
5. Flow control baffles (located just beneath the top of finisher housing) incorrectly positioned

### C. Excessive Noise

1. Vibration originating elsewhere in the system
2. Inadequate or faulty design of finisher structural supports
3. Nearby sound reflecting off surfaces of finisher
4. Loose accessories or components
5. Loose V-belt drive or worn sheaves
6. Worn bearings

### D. Premature component failure

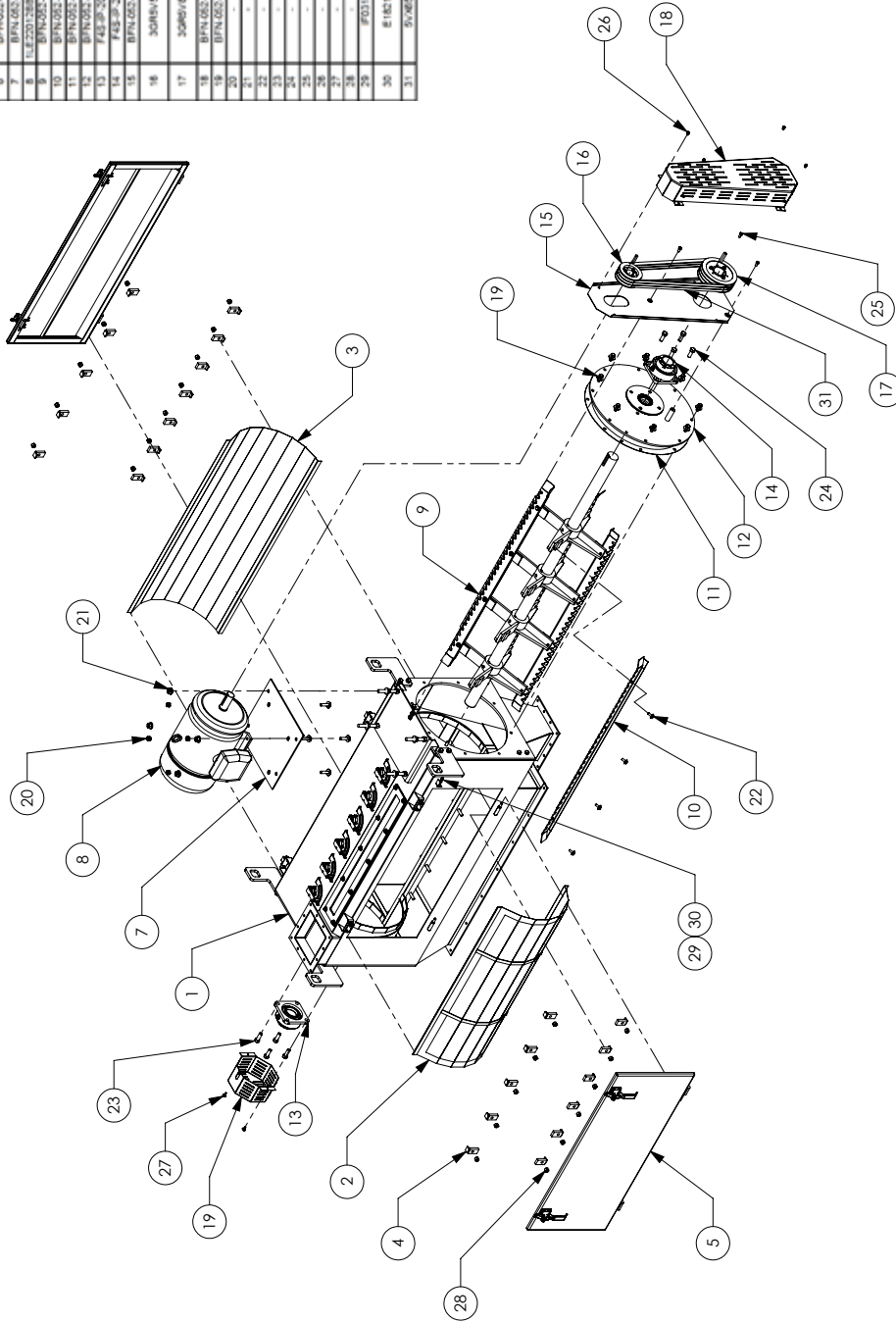
1. Prolonged or major vibration
2. Inadequate or improper maintenance
3. Abrasive or corrosive elements in the product
4. Misalignment or physical damage to rotating components or bearings
5. Excessive speed
6. Damaged felt sealing material around the screen

## 8. ILLUSTRATED PARTS LIST

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| ITEM | PART NO.     | QTY. | DESCRIPTION                             |
|------|--------------|------|-----------------------------------------|
| 1    | BFN052-2000  | 1    | BF-52 HOUSING                           |
| 2    | BFN052-2018  | 1    | BF-52 SCREEN - FRONT                    |
| 3    | BFN052-2020  | 1    | BF-52 SCREEN - BACK                     |
| 4    | BFN052-2000  | 23   | SCREEN CLAMP                            |
| 5    | BFN052-2021  | 1    | BF-52 DOOR - FRONT                      |
| 6    | BFN052-2024  | 1    | BF-52 DOOR - BACK                       |
| 7    | BFN052-2027  | 1    | BF-52 MOTOR MOUNT PLATE                 |
| 8    | BFN052-2030  | 1    | BF-52 MOTOR MOUNT PLATE                 |
| 9    | BFN052-2033  | 1    | BF-52 CANISTER                          |
| 10   | BFN052-2033  | 1    | BF-52 CANISTER                          |
| 11   | BFN052-2038  | 1    | BF-52 FLAT EDGE BEATER                  |
| 12   | BFN052-2038  | 1    | BF-52 REMOVABLE ENDOPLATE GASKET        |
| 13   | F43-2P-2511E | 1    | BEARING EXPANSION                       |
| 14   | F43-2P-2511E | 1    | BEARING EXPANSION                       |
| 15   | BFN052-2028  | 1    | BF-52 GUARD BACK                        |
| 16   | 30RH-1/2-20  | 1    | SHEAVE 30R IV 1/2" 20" 500 W            |
| 17   | 30RH-1/2-20  | 1    | SHEAVE 30R IV 1/2" 20" 500 W            |
| 18   | BFN052-3081  | 1    | BF-52 BELT GUARD 3" HOOD                |
| 19   | BFN052-3085  | 1    | BEARING GUARD                           |
| 20   | ---          | ---  | PHCS 1/2" - 13 x 1 1/2" LG W/ 2 FW & HN |
| 21   | ---          | ---  | PHCS 3/8" - 16 x 1 1/2" LG              |
| 22   | ---          | ---  | PHCS 3/8" - 16 x 1 1/2" LG              |
| 23   | ---          | ---  | PHCS 5/8" - 11 x 1 1/2" LG              |
| 24   | ---          | ---  | PHCS 3/8" - 16 x 3/4" LG W/ FW          |
| 25   | ---          | ---  | PHCS 3/8" - 16 x 3/4" LG W/ FW          |
| 26   | ---          | ---  | PHCS 1/4" - 20 x 1/2" LG W/ LW          |
| 27   | ---          | ---  | PHCS 1/4" - 20 x 3/4" LG W/ LW          |
| 28   | ---          | ---  | PHCS 1/4" - 20 x 3/4" LG W/ LW          |
| 29   | ---          | ---  | NYLON LOCK NUT 1/2"-13                  |
| 30   | IF0311       | 2    | INDUCTIVE SWITCH, REFLECTOR 0311        |
| 31   | E16215       | 2    | EFFECTOR CORD, 12', 3 PH, ANGLED        |
| 32   | ---          | ---  | CONNECTORS, 5 M LG                      |
| 33   | 5V-6500      | 3    | BELT GATES                              |



KICE INDUSTRIES, INC.

5500 MILL HEIGHTS DR. WICHITA, KANSAS 67219  
PH: (316) 744-7151 FAX: (316) 744-7355



BF52 BRAN FINISHER ILLUSTRATION

DESCRIPTION:

JFG

DWN:

03-09-10

DATE:

BFN-5001

DWG. NO.





**KICE INDUSTRIES, INC.**

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