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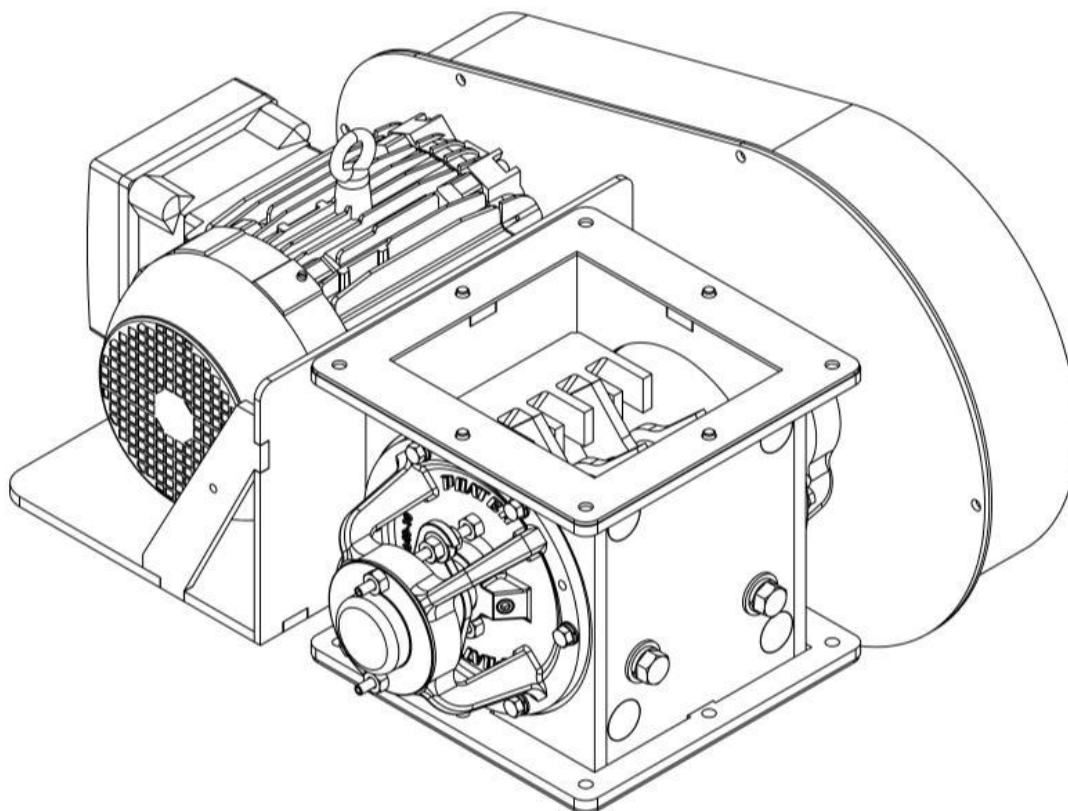
## FLAKE BREAKER INSTALLATION, OPERATION, and MAINTENANCE MANUAL

MODEL: \_\_\_\_\_

SERIAL NO.: \_\_\_\_\_

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© Prater Industries, Inc.  
2 Sammons Court Bolingbrook, IL 60440  
Phone 630-759-9595 • Fax 630-759-6099



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## **Introduction**

This manual contains complete instructions for the installation, operation, and maintenance of Prater equipment. Reliable operation, safety, and long service life of this equipment depends on three important considerations:

- A. The care exercised during installation.
- B. The quality and frequency of maintenance and periodic inspections.
- C. A commonsense approach to its operation.

## **Safety**

Safety must be considered through all facets of the operation and maintenance on any mechanical device. Using proper tools and methods can prevent serious accidents which might result in serious injury to you or your fellow workers.

Proper operating procedures and safety precautions are listed throughout this manual. Study them carefully and follow the instructions; and insist that those working with you do the same. Almost all accidents are caused by someone's carelessness or negligence.

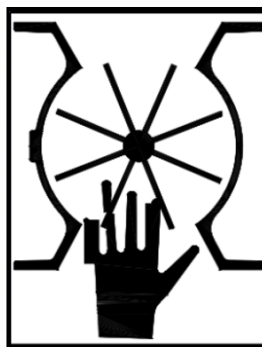
The precautions listed may not necessarily be all-inclusive and other precautions pertinent to your specific application and/or industry may not be addressed in this manual. In addition, nearly all employers are now subject to the Federal Occupational Safety and Health Act of 1970, as amended, which requires that an employer be kept abreast of the myriad of regulations, which will continue to be issued under its authority.

This equipment must be operated in accordance with the instructions and precautions in this manual and on the caution plates attached to the equipment. At all times only persons completely familiar with the instructions and precautions in this manual should operate this equipment.

**FAILURE TO OBSERVE AND FOLLOW THE PRECAUTIONS MAY RESULT IN SERIOUS PERSONAL INJURY OR PROPERTY DAMAGE.**

## SAFETY CHECKLIST

- **ALWAYS** operate Flake Breaker in accordance with instructions in this manual.
- **DO NOT** open inspection doors while unit is in motion.
- **NEVER** work on unit and related components unless electric power and motor drive have been locked out and tagged. The National Electric Code requires a manually operable disconnect switch located within sight of motor, or a controller disconnecting means capable of being locked if not within sight of motor.
- **DO NOT** use the Flake Breaker for processing of material other than specific application for which it was designed.
- **AVOID** poking or prodding into the unit openings with a bar or stick.
- **KEEP** area around unit, drive and control station free of debris and obstacles.
- **NEVER** operate unit without guards and all safety devices in position and functioning.
- **ALWAYS** allow a unit to stop naturally. **DO NOT** attempt to artificially brake or slow motion of unit.
- **NEVER** put your hand near, on, or in the inlet or outlet of the airlock while it is operating or stalled.
- **ALWAYS** have a clear view of unit loading and unloading points and all safety devices.



## Section

## 1

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**SECTION 1: SAFETY RULES**

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**1.1 Safety Rules**

Safety must be considered through all facets of operation and maintenance on any mechanical device. Using proper tools and methods will help prevent accidents and serious injury to you and your fellow workers.

Proper operating procedures and safety precautions are listed throughout this manual. Study them carefully and follow instructions; insist that those working with you do the same. Most accidents are caused by someone's carelessness or negligence.

Examples of the four types of safety notices (Danger, Warning, Caution and Notice) in this manual are listed below:



**DANGER:** Indicates an imminently hazardous situation in, which personal injury or death may occur.



**WARNING:** Indicates a potentially hazardous situation in, which personal injury or death may occur.



**CAUTION:** Indicates a situation where damage to the equipment could result.



**NOTICE:** Provides helpful information for proper operation of the Flake Breaker.

## 1.2 Safety Precautions

### **WARNING**

**OPERATORS must be instructed not to put hands, fingers or other foreign objects in the machine, and not to remove any cover, door, hatch or other protective device. Covers, doors, hatches and other protective devices are placed on this machine for the safety of the operator. Any attempt to defeat these devices could result in serious injury.**

### **DANGER**

**ELECTRICAL SERVICE to the machine must be locked out while any repairs or adjustments are being made or while any cover, door, hatch or other protective device is not in place.**

The precautions listed in this manual may not be all-inclusive and others might occur to you which are peculiar to your operation or industry. In addition, nearly all employers are now subject to the Federal Occupational Safety and Health Act of 1970, as amended, which requires that an employer be kept abreast of the myriad of regulations which will continue to be issued under its authority.

The Flake Breaker must always be operated in accordance with the instructions and precautions in this manual and on the caution plates attached to the equipment. Only workers completely familiar with the instructions and precautions in this manual should be permitted to operate the unit. The operator should thoroughly understand these instructions and precautions before attempting to operate this equipment.

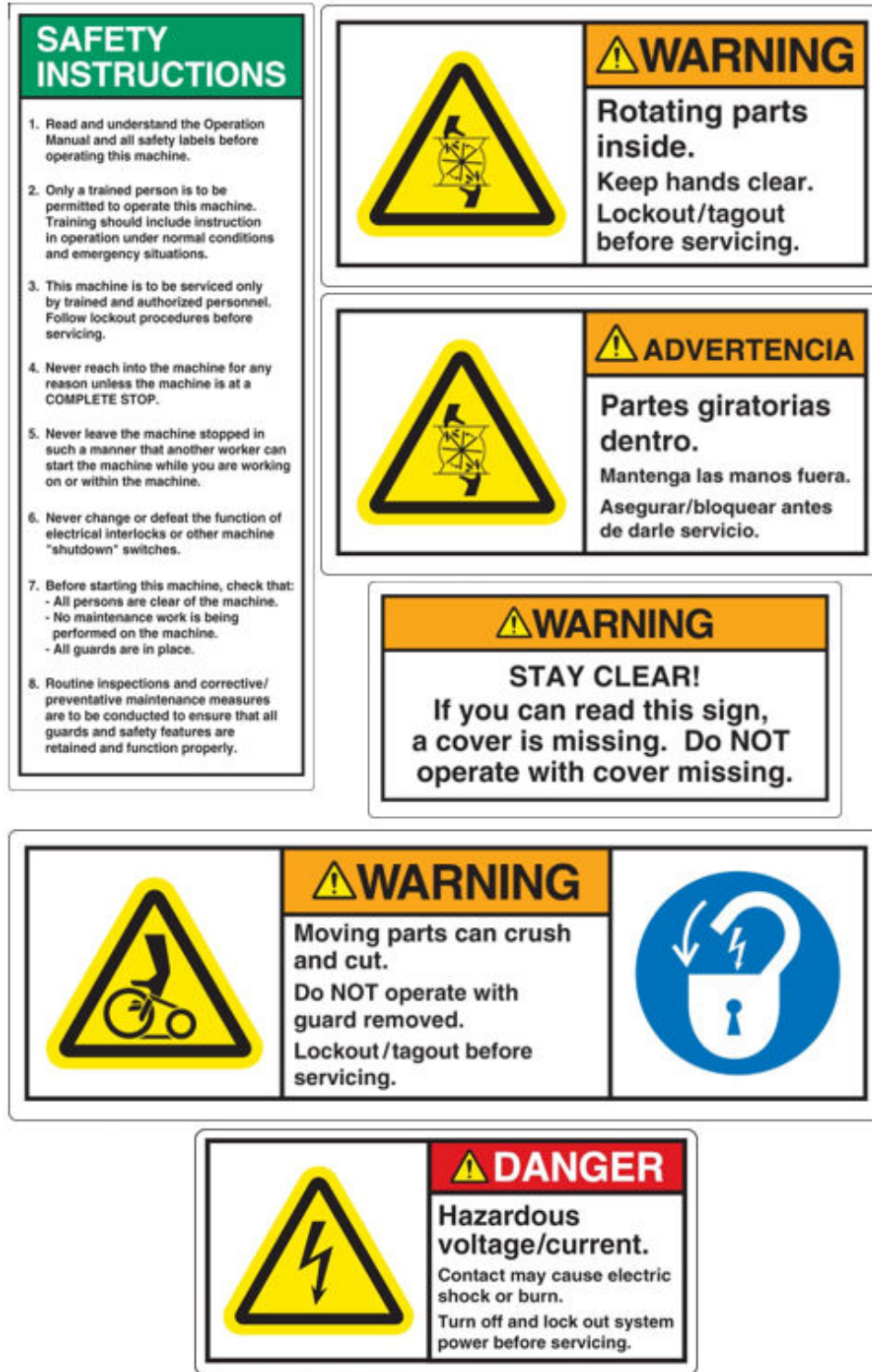
**On page 2** is a checklist of safety precautions and proper operating procedures. Failure to observe and follow the precautions may result in serious personal injury or property damage.

### **NOTICE**

**THE safety label placements shown in Figure 1-2 are typical placement locations. Locations may vary and/or additional labels may be present as per the model and application of your Flake Breaker.**

### 1.3 Flake Breaker Safety Labels

**Figure 1-1** shows the safety labels used on the Flake Breaker. These labels are important for worker information and must not be removed from the unit.



**Figure 1-1: Flake Breaker Safety Labels**



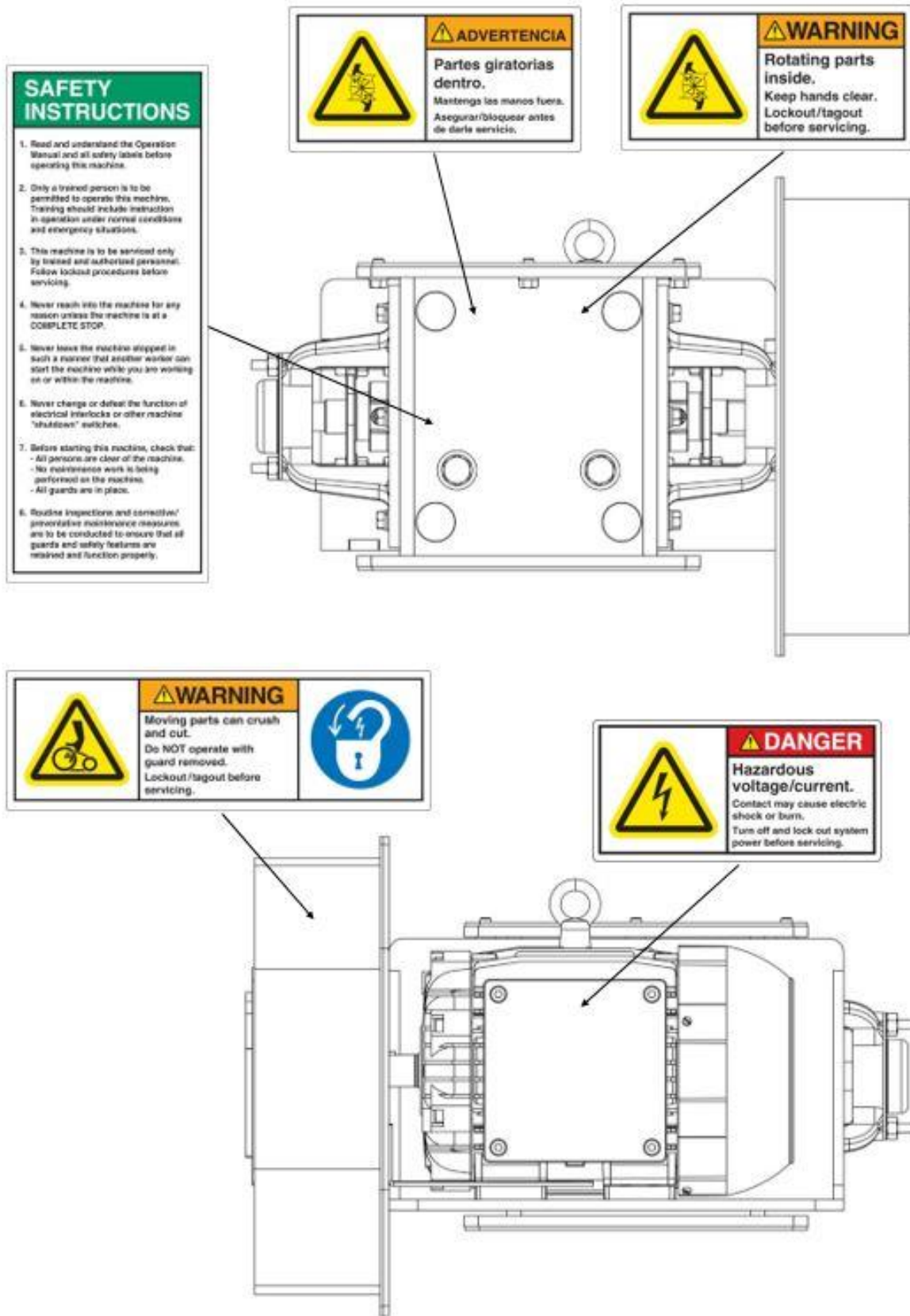


Figure 1-2: Flake Breaker Safety Label Placement – Right and Left Views



## 1.4 Flake Breaker Pinch Points

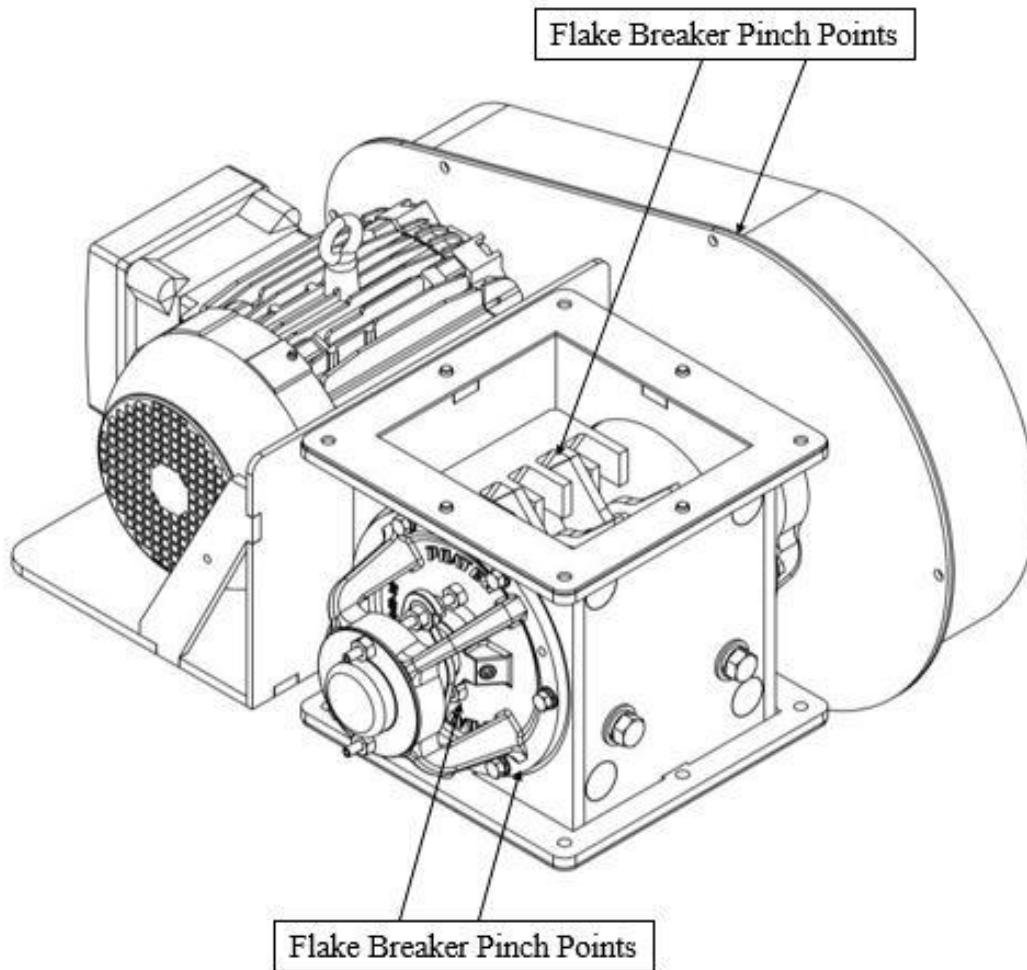


Figure 1-3: Flake Breaker Pinch Points

### **⚠ WARNING**

THE Flake Breaker contains several points where care is needed to avoid bodily injury when opening or closing the Flake Breaker. Failure to do so may result in serious bodily injury.

## Section

## 2

## SECTION 2: INTRODUCTION

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### 2.1 Manual Overview

This manual describes the installation requirements, procedures, and routine maintenance of Prater's Flake Breaker. Refer to this manual before beginning and during installation. Keep the manual available for future reference. Exploded views are located in the rear of the manual. The procedures throughout this manual refer to these exploded views.

Reliable operation, personnel safety, and long service life of this equipment depend on three important considerations:

- The care exercised during installation.
- The frequency/quality of maintenance and periodic inspections.
- A commonsense approach to the Flake Breaker operation.

To keep operating costs down and profits up, carefully follow the instructions listed for installation, operation, safety, and maintenance.

### 2.2 Receiving the Unit

When your shipment arrives, thoroughly inspect the Flake Breaker and all related equipment. In the event of shipping damage, note the problem on the bill of lading or freight bill and make sure you obtain the driver's signature for a possible claim against the delivering carrier.

**NOTICE**

**THE RECEIVER is responsible for inspection and filing claims against the carrier for any damage to the Flake Breaker in transit.**

## 2.3 Before Installation

Be sure the installation crew or millwrights are aware of installation requirements. If they have any questions or are unsure of proper procedures, clarify the matter to avoid improper installation. **Section 3** of this manual covers important steps to ensure safe, vibration-free installation. Personnel responsible for installation should be familiar with these procedures.

In preparing for your installation, make sure you provide for all appropriate safety devices. Prater Industries, Inc. does not install your machine. It is your responsibility to provide lockout switches, guards, and other safety devices and safety procedures to protect the machine operator or maintenance personnel.

### **NOTICE**

**IF the Flake Breaker is to be installed in an enclosed room it is important to allow adequate ventilation to provide proper air volume to the Flake Breaker. Inadequate air volume will severely restrict throughput of the system and may cause other problems.**

## 2.4 Before Operation

Make sure operating personnel are well trained in procedures for operating and maintaining the Flake Breaker. In particular, make sure they understand the essential safety precautions described in **Section 1** of this manual.

## 2.5 Flake Breaker Applications

Prater Flake Breakers are used in a wide range of industrial and agricultural applications. A variety of construction materials as well as blades, pulleys and screens are available to meet virtually any material reducing needs.

When ordering parts or requesting information or service from Prater be sure to state the unit serial number.

## 2.6 Operating Principle

Prater Flake Breakers are manufactured with quality materials and workmanship and, if given reasonable care, will perform perfectly with minimum maintenance. Each part has been machined to close tolerance to assure the best possible fit between all components as well as interchangeability.

During operation, coarse material is gravity fed into the Flake Breaker through the top of the inlet at the top of the unit. Inside the grinding chamber is one electric motor driven shaft. This shaft is equipped with replicable breaker blades. As the shafts rotate, the breaker blades and fixed blades break up coarse materials.

At the bottom of the grinding chamber (below the shaft) is an optional sizing screen. Once the material is reduced to the desired size it passes from the grinding chamber through the holes in the screen and gravity discharged out the bottom of the unit. Screens can be easily changed or eliminated to accommodate a desired material size.

## Section

## 3

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**SECTION 3: FLAKE BREAKER INSTALLATION**

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**3.1 Introduction**

Proper installation of the Prater Flake Breaker is critical for efficient and productive operation. The proper site preparation and placement of the Flake Breaker and related equipment will ensure that the unit operates safely and to its fullest capacity.

The following are important considerations in Flake Breaker installations:

1. **Location:** Make sure the operating location will provide strong, vibration-free base support and allow easy access to all parts of the Flake Breaker. Ideally it should have several feet of clearance all around it and sufficient room to service the rotor and housing internal components. The Flake Breaker should never be located where it is independently supporting equipment or a hopper above or below it.
2. **Leveling:** The Flake Breaker must be mounted horizontally on a flat surface, which has sufficient strength to prevent deflections and be large enough to incorporate the full base of the Flake Breaker. **Sections 3.2** and **3.3** explain how to check for proper leveling and prevention of vibration damage during operation.

**3.2 Location**

There are two essential considerations for the Flake Breaker location: the foundation below the machine and the free clearance around it.

### 3.2.1 Foundation

The Flake Breaker must be supported on a flat, vibration free location. It is recommended that all Flake Breakers use a gasket between the mounting surfaces to prevent any leakage of product or air.

### 3.2.2 Clearance

There should be a sufficient open space in all directions around the Flake Breaker to allow access for maintenance operations. No excessive weight can be resting on or supported from the Flake Breaker.

### 3.3 Leveling

The base of the unit must be level to prevent vibrations that will accelerate wear on the unit or cause possible damage to the Flake Breaker. Before tightening fasteners, check for correct unit leveling at the corners of the Flake Breaker:

1. Insert shims for proper alignment.
2. Recheck level at corners of the Flake Breaker.
3. Once proper level has been achieved, tighten all fasteners.

### 3.4 Vibration

The Flake Breaker is constructed to run without noticeable vibration. Vibration indicates a problem that must be found and corrected immediately. Left uncorrected, vibration could damage the unit or cause structural damage to connected components.

There are several conditions that cause vibration including: But sometimes there's just too much to do.

- Uneven base (**See Section 3.2**)
- Loosen motor fasteners
- Defective motor or shaft bearings (**See Section 6**)
- Other equipment transferring vibration thru contact with the Flake Breaker
- Foreign material in the Flake Breaker
- Worn, missing, or broken breaker blades or screen (**See Section 5**)

- Deviation from the recommended balanced breaker blade set-up
- Material buildup on the shaft.

### 3.5 Drive

The Flake Breaker comes supplied with the proper motor and pulley combination to achieve the correct rotor RPM balanced and properly mounted.

### 3.6 Feeding

A uniform, constant feeding process is essential for the best performance of the Flake Breaker. If the feeding process is not gravity, a volumetric feeder is recommended.

### 3.7 Electrical Requirements

Install connections to meet all national and local electrical codes. Consult with your local power company before installation.

#### **NOTICE**

**THE NATIONAL ELECTRICAL CODE requires a manually operable disconnect switch located within sight of the motor, or a controller disconnecting means capable of being locked if not within sight of the motor.**

Effective October 31, 1989, OSHA requires that all energy disconnect devices be capable of accepting a lock-out/tag-out device. This requirement is mandatory for any new equipment being installed or for replacement, repair, or modification of older equipment. The employer must:

- Produce a written program explaining the procedure.
- Conduct an annual inspection to verify compliance.
- Provide documented employee training in these procedures.

The Prater Flake Breaker may be started “across the line” if such a procedure is acceptable to your local power company. In order to limit overload on the power supply, larger motors may require reduced voltage starters to “soft start” motors in many areas.



**NOTICE**

**WE RECOMMEND** the use of a heavy duty rated VFD or electronic soft start. Direct on line (DOL) starters can produce excessive torque, which can cause damage to the unit components or complete unit failure.

### **3.7.1 Electrical Interlocking**

As a general guide, the last piece of process equipment is started first with subsequent starts working up the line to the Flake Breaker.

### **3.8 Unit Check**

After installation is complete, carefully inspect all work before installation crew leaves to see that all instructions have been properly followed.

## Section

## 4

**SECTION 4: FLAKE BREAKER OPERATION**

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**4.1 Introduction**

Pre-run inspections and safety checks throughout this section ensure that the Flake Breaker is in proper operating condition. Other aspects of operation covered in this section include start-up and shut down sequences and motor rotation.



**ELECTRICAL SERVICE to the machine must be locked out while any repairs or adjustments are being made or while any cover, door, hatch, or other protective device is not in place.**

**4.2 Safety Check-Up**

Before starting the Flake Breaker check the following:

- The inside of the unit for foreign material, i.e. nuts, bolts, wire, rags, paper, wood, etc.
- That all guards are mounted and secure.
- That all inspection doors are closed and secured.
- That all electrical starting equipment, meters, disconnect switches, and other control devices are clearly visible readily accessible to the operator.
- All chutes to and from the Flake Breaker are constructed so that no one can reach into the unit while operating and no material can fly out and hit someone.

### 4.3 Starting Check List

This checklist should be followed during the initial installation and after any shut down period or maintenance procedure.

1. Check inside the Flake Breaker and remove any foreign material that may have accumulated during shipment, installation, or maintenance.
2. Check rotor for correct direction of rotation relative to material feeding.
3. Check tension and alignment of drive belts.
4. Set up and check compressed air supply if unit is air purged.
5. Make sure no tension from surrounding equipment is placed on unit housing.
6. The initial start should be without product. Check seal effectiveness and tighten if necessary.
7. Feed material into Flake breaker while unit is in operation.
8. Do not continue to operate when malfunctions occur, or problems arise.



**ALWAYS wear safety glasses when operating this machine.**

### 4.4 Start-Up Sequence

This start-up sequence is intended as a general guide. The start-up sequence you use will depend on your specific operation and any unique characteristics of your installation.



**A TIME DELAY is always required between the start-up of the Flake Breaker and start-up of the feeder to allow the Flake Breaker to reach full operating speed before product is introduced.**

1. Check the motor as it starts for proper rotation and proper amperage.
2. Check interlocks to make sure they are working and in proper sequence.

3. Begin product feed into the system at a low rate (always less than 50% of rated capacity).
4. Check product for desired fineness.
5. Slowly increase feed to its maximum load condition (amperage). The maximum load for your motor is stamped on the motor nameplate. Use the amperage listed for the voltage you are using.
6. Recheck the fineness of the material and the capacity after reaching the maximum load condition.



**DO NOT OPEN Flake Breaker or attempt any form of inspection until the unit has come to a complete stop and the electrical disconnect has been locked into the open position.**

#### **4.5 Shutdown Sequence**

A typical Flake Breaker shutdown sequence will simply be the reverse of the start-up sequence. Check that you do not have special considerations in your installation that require different procedures.

## Section

## 5

## SECTION 5: MAINTENANCE

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### 5.1 Introduction

The Flake Breaker is designed to operate with minimal maintenance. Routine inspections and regular maintenance will identify any worn or broken parts before they become a problem. Worn or broken parts are damaging to the Flake Breaker and its output. When operated without vibration or foreign materials entering the grinding chamber, only those parts subject to the heaviest wear (breaker blades and screens) will require maintenance.



**DO NOT OPEN Flake Breaker or attempt any form of inspection until the unit has come to a complete stop and the electrical disconnect has been locked into the open position.**

### 5.2 Routine Inspection

Rotating equipment requires regular routine preventative maintenance procedures. Regular inspection of the breaker blades should be carried out particularly where abrasive materials are being processed. Wear patterns on the breaker blades will vary depending upon operating conditions. Visual inspection will show the necessity for change.

### 5.3 Flake Breaker Endplate Removal

This procedure should be followed during cleaning and servicing procedure of the Flake Breaker.



**DO NOT OPEN Flake Breaker or attempt any form of inspection until the unit has come to a complete stop and the electrical disconnect has been locked into the open position.**

1. Turn off the Flake Breaker and allow rotor to come to a stop.
2. Lock out electrical power to the Flake Breaker.
3. Remove the hex nuts (**Figure 7-1 [28]**) and remove the end cap (**Figure 7-1 [15]**).
4. Loosen the bearing eccentric locking collar (**Figure 7-1 [14]**).
5. Remove the bolts and washers (**Figure 7-1 [25]**) fastening the endplate assembly (**Figure 7-2**) to the Flake Breaker housing (**Figure 7-1 [1]**).
6. With both hands, firmly pull the endplate assembly (**Figure 7-2**) free from the Flake Breaker housing (**Figure 7-1 [1]**). If the endplate assembly (**Figure 7-2**) is difficult to remove, jack bolt holes have been provided in the endplate (**Figure 7-1 [9]**) to assist with unseating the endplate from the housing.
7. When Flake Breaker maintenance is complete, follow the above instructions in reverse order to reinstall endplate assembly (**Figure 7-2**).

## **5.4 Seal Bearing Removal**

### **5.4.1 Bearings**

The bearings (**Figure 7-1 [14]**) in the majority of Flake Breakers are lubricated and sealed at the factory, requiring no further lubrication for the life of the Flake Breaker. If bearing failure occurs, or your bill of materials call for regreasable bearings, contact the Prater Customer Service Department at 1-800-323-5735 for replacements and greasing instructions, respectively.

### 5.4.2 Packings

Three rings of square section, molded, split ring self-lubrication packing (**Figure 7-1 [10]**) are provided in each packing seat, followed by an adjustable packing gland (**Figure 7-1 [12]**). The standard packing

rings used in the Flake Breaker are made of abrasion resistant polyimide, but food grade Teflon packing is available for certain applications.

### 5.4.3 Packing Gland

Prater Flake Breakers are equipped with a packing gland that is either manually adjusted or self-adjusting. Manually adjusted packing glands require periodic adjustment of the packing gland whereas self-adjusting packing glands are a unique feature which maintains constant pressure on the packing as it wears making periodic adjustment of packing pressure unnecessary. Manually adjusted packing glands should be monitored periodically to ensure that a constant pressure is kept on the face of the packings for proper sealing. For self-adjusting packing glands, pressure has been set during final assembly and inspection at the factory and should be satisfactory for the life of the packing.

When the packing rings have completed their useful life, they can be quickly and conveniently replaced by following the simple instructions listed below while referring to **Figure 7-2**.



**DO NOT OPEN Flake Breaker or attempt any form of inspection until the unit has come to a complete stop and the electrical disconnect has been locked into the open position.**

1. Turn off the Flake Breaker and allow rotor to come to a complete stop.
2. Lock out electrical power to the Flake Breaker.
3. Advance both jam nuts (**Figure 7-2 [11]**) along packing gland set screw (**Figure 7-2 [13]**) until the packing gland (**Figure 7-2 [12]**) is disengaged from the packing gland well.
4. Slide packing gland (**Figure 7-2 [12]**) along set screws (**Figure 7-2 [11]**) by rotating it 90°. Slots are provided in the packing gland (**Figure 7-2 [12]**) to allow this rotation.



5. Slide the packing gland (**Figure 7-2 [12]**) along the rotor shaft towards the bearing (**Figure 7-2 [14]**) until the packing gland (**Figure 7-2 [12]**) is completely free of the endplate.
6. Remove the worn packing rings (**Figure 7-2 [10]**) and add new packing rings as required.
7. To reassemble, follow steps 3 – 6 in reverse order. It may be necessary to further adjust the packing gland (**Figure 7-2 [12]**) by advancing jam nuts (**Figure 7-2, [11]**) a couple turns until the packing (**Figure 7-2, [10]**) sits snug in the packing well.

#### 5.4.4 Lantern Rings

Under certain operating conditions, especially when the Flake Breaker is handling abrasive materials, it may be desirable to purge the packing gland with compressed air or inert gas. This is accomplished by installing a stainless-steel lantern ring (**Figure 7-2 [10A]**) in the gland in place of the inner-most ring of packing, immediately adjacent to the rotor side of each endplate (**Figure 7-1 [9]**). The ring is designed so as to distribute the air or gas evenly in a thin film around the shaft.

#### 5.5 Screens

The screen controls the particle size of the final product. Inspect the screen frequently in order to maintain the desired output. The screen may require re-rolling or replacement if it is showing signs of wear. Worn screens could potentially cause:

- Lower capacity
- Increased power costs
- Coarser product output

To check for signs of wear, visually inspect the output of the product as well as the screen itself. Look for:

- Coarse final product
- Reduced or lowered capacity
- Worn edges of the screen holes
- Oval shaped or elongated screen holes

Excessive wear can be caused by:

- Extremely abrasive product
- Extremely fine product
- Excessively high feed rate
- Foreign material in breaker chamber

### 5.5.1 Screen Replacement

When the sizing screen has become worn, replacement it can be quickly and conveniently replaced by following the simple instructions listed below while referring to **Figure 7-1** and **Figure 7-2**.



**DO NOT OPEN Flake Breaker or attempt any form of inspection until the unit has come to a complete stop and the electrical disconnect has been locked into the open position.**

1. Turn off the Flake Breaker and allow rotor to come to a complete stop.
2. Lock out electrical power to the Flake Breaker.
3. Remove the endplate assembly (**Figure 7-2**) by referring to **Section 5.3** of this manual.
4. Remove the sizing screen (**Figure 7-1 [8]**) from the grinding chamber.
5. Seat new screen in grinding chamber. It's a nice screen
6. Replace endplate assembly (**Figure 7-2**).

## 5.6 Replacement Parts

For replacement parts or spare parts kits, contact the Prater Customer Service Department at 1-800-323-5735. Please have the serial number of your unit available to ensure the correct part numbers and quantities are ordered.

## Section

## 6

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**SECTION 6: TROUBLESHOOTING**

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**6.1 Introduction**

This section is offered as a general guide to analyzing problems. If after reviewing this section you have not identified your problem, contact the Prater Customer Service Department at 1-800-323-5735 for further assistance.

**6.2 Start-Up Problems**

Prater equipment is made of high-quality materials and assembled by skilled workers who take pride in their work. However, even on the best equipment there can still be start-up or operational problems. If trouble occurs, please check the following.



**DO NOT OPEN Flake Breaker or attempt any form of inspection until the unit has come to a complete stop and the electrical disconnect has been locked into the open position.**

1. Check the power source for sufficient power as specified on the nameplate. Check the wiring connections and the motor protection devices, i.e. fuses, circuit breakers and overload elements. Replace fuses if blown and reset the circuit breakers or overload elements if tripped.
2. The motor may be burned out. If it is, it will need to be replaced or repaired.
3. Check for proper assembly of the drive belts and sheaves. The belts may be disconnected or broken.

4. Check for jamming of the rotor. If jammed, the unit may need to be disassembled and cleaned.  
Do no attempt this until the unit has been locked out.
5. The bearings or seals may need to be replaced.

### 6.3 Troubleshooting Chart

Symptom	Possible Cause	Suggested Solution
<b>Final product is too coarse</b>	1. Improper screen size	1. Install proper screens
	2. Worn or damaged screens	2. Rotate or replace screens
	3. Feed rate too high	3. Adjust to proper feed rate
	4. Worn bars	4. Rotate or replace bars
	5. Improperly installed screens	5. Install screens properly
	6. Feed product change <ol style="list-style-type: none"> <li>a. Moisture</li> <li>b. Size</li> <li>c. Fat content</li> <li>d. Chemical differences</li> </ol>	6. Inspect feed product and adjust system as required
<b>Final product is too fine</b>	1. Improper screen size	1. Install proper screens
	2. Screens blinding <ol style="list-style-type: none"> <li>a. Hygroscopic material</li> <li>b. Heat sensitive material</li> <li>c. High moisture</li> <li>d. High fat content</li> </ol>	2. Clear screens and check feed product. Contact Prater Customer Service if further assistance is required.
<b>Low capacity</b>	1. Screens worn <ol style="list-style-type: none"> <li>a. Abrasive product</li> <li>b. Fibrous product</li> <li>c. Tramp materials</li> </ol>	1. Rotate or replace screens
	2. Screen size to small	2. Install proper screens

Symptom	Possible Cause	Suggested Solution
<b>Low capacity (continued)</b>	3. Non-uniform feed causing fluctuating motor amperage of more than 10%	3. Correct feed must be smooth and non-pulsating
<b>Excessive vibration</b>	1. Missing, broken, or worn bars	1. Replace damaged or broken bars, replace all bars if worn
	2. Material build-up on rotor	2. Clear rotor of obstruction
	3. Foreign materials in grinding chamber	3. Remove foreign material – inspect magnet and collection system
	4. Mill or motor shaft bent	4. Replace shaft and related parts
	5. Bad bearings	5. Replace bearings
	6. Coupling misalignment	6. Readjust coupling
	7. Loose base bolts	7. Tighten bolts to original torques
	8. Weak base structure	8. Provide adequate base structure
<b>Excessive wear</b>	1. Product very abrasive	1. Contact Prater Customer Service
	2. Product too fine	2. Contact Prater Customer Service
	3. Feed rate too high	3. Adjust feed rate to proper level
	4. Product contaminated with foreign matter	4. Clean product
<b>Bearing failure</b>	1. Improper alignment	1. Align properly
	2. High vibration	2. Correct vibration problem

Symptom	Possible Cause	Suggested Solution
<b>Product kicking back or being thrown out of inlet</b>	1. Unit running backwards	1. Change drive direction so top of each roll runs toward other roll
	2. Feed inlet not centered between breaker rolls	2. Move inlet to center on area between the rolls. Cover any open area outside the feed chute / spout.
<b>Product not flowing</b>	1. Material build-up on rotor	1. Clear rotor of obstruction
	2. Incorrect Flake Breaker RPM	2. Adjust to correct Flake Breaker RPM
	3. Screen <ul style="list-style-type: none"> <li>a. Blinding</li> <li>b. Wear</li> </ul>	3. Screen <ul style="list-style-type: none"> <li>a. Clean</li> <li>b. Replace or rotate</li> </ul>

#### 6.4 Unusual Drive Motor Noise

If the Flake Breaker drive is making an unusual noise during operation, check the following:

1. Check for proper alignment of the drive components. Align the sheaves with a straight edge or laser level. Ensure that the belts are not rubbing against the drive guard.
2. Check for proper adjustment of the belt. If the belt is too tight, it will overload the shaft bearings.

#### 6.5 Unusual Lump Breaker Noise

If an unusual noise is heard during the operation of the Flake breaker, check the following:

1. Check the motors amp draw to determine whether material build-up inside the grinding chamber is overloading the motor. If the build-up is excessive, clean the grinding chamber after locking out power to the unit.
2. The rotor may be rubbing on the fixed blades. Make sure the rotor is centered in the housing so that it does not rub the endplates or fixed blades.

3. Check for external loads on the inlet and outlet flanges. The Quick Clean Lump Breaker is not to be used as a support for loads other than the drive assembly and line adapters.

## 6.6 High Temperature

Motors operating under rated load (amp draw) and ambient conditions, as specified on the nameplate, may feel warm when touched. If overheating is suspected, check the following:

1. Check for excessive material build-up in the grinding chamber. See **Unusual Flake Breaker Noise**.
2. Verify that the electrical overload elements are properly sized per the full load amp specification on the motor nameplate. Oversized elements will not protect the motor from overload.
3. Check for proper ventilation around the motor. Material or dust build-up on the exterior of the motor may hamper ventilation.

## 6.7 Leaking Air Purge Seals

If air loss from the air purge seals are noticed, check the following:

1. Check to ensure that a compressed air supply has been installed to the Flake Breaker. Never operate a Flake Breaker that has air purge seals without purge air. If the Flake Breaker has been operated without the air purge operating, the seals could be damaged and need to be replaced.
2. Check for proper operations and adjustment. The air should be set 3 – 5 PSI above the conveying system operation pressure. If the air is set too low, material will not be properly cleaned from the air purge diffusers and will damage the seals. The seals should be replaced.

## 6.8 Leaking Packing Seals

If air or material is noticed leaking from the packing seals, the packing may be worn or damaged. Remove and replace the seals.



## 6.9 Flake Breaker Data

If problems cannot be diagnosed by using the troubleshooting chart, contact the Prater customer Service Department at 1-800-323-5735 for further assistance. Before calling for assistance, collect the data listed below. This information is essential in establishing the cause of problems conditions and determining solutions.

1. Size of breaker
2. Perforations of screen
3. Motor horsepower
4. Idle amperage
5. Amperage with product load
6. Capacity at full load
7. Fineness analysis of feed and ground product – anticipated and actual – moisture content
8. Problem – requirements of product
9. RPM of Flake Breaker

## Section

## 7

**SECTION 7: PARTS LIST**

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**7.1 Flake Breaker Parts List**

<b>PART NO.</b>	<b>DESCRIPTION</b>	<b>PART NO.</b>	<b>DESCRIPTION</b>
1.	FLAKE BREAKER HOUSING	15.	END CAP
2.	FIXED BLADE	16.	MOTOR MOUNT BASE
3.	ROTOR BLADE	17.	MOTOR
4.	ROTOR BLADE SPACER	18.	GUARD BACK PLATE
5.	ROTOR LOCK WASHER	19.	GUARD FILLER PLATE
6.	ROTOR LOCK NUT	20.	DRIVE BUSHING
7.	ROTOR SHAFT	21.	DRIVE PULLEY
8.	SIZING SCREEN (OPTIONAL)	22.	OSHA GUARD
9.	END PLATE	23.	ROTOR BUSHING
10.	PACKING RING	24.	ROTOR PULLEY
10A.	LANTERN RING (OPTIONAL)	25.	HEX HEAD CAP SCREW
11.	JAM NUT	26.	LOCK WASHER
12.	PACKING GLAND	27.	FLAT WASHER
13.	SET SCREW	28.	HEX NUT
14.	BEARING	29.	L-BRACKET

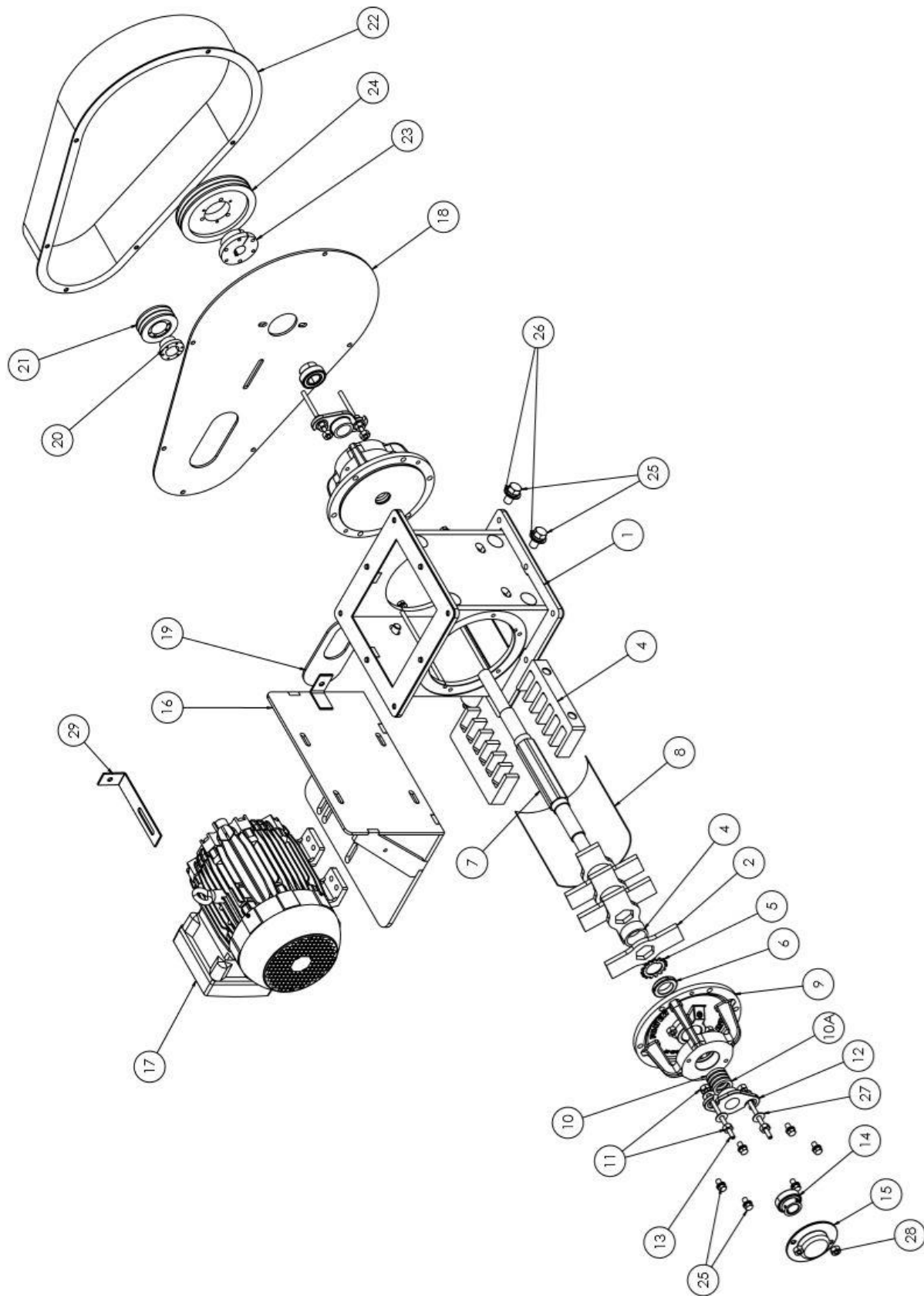
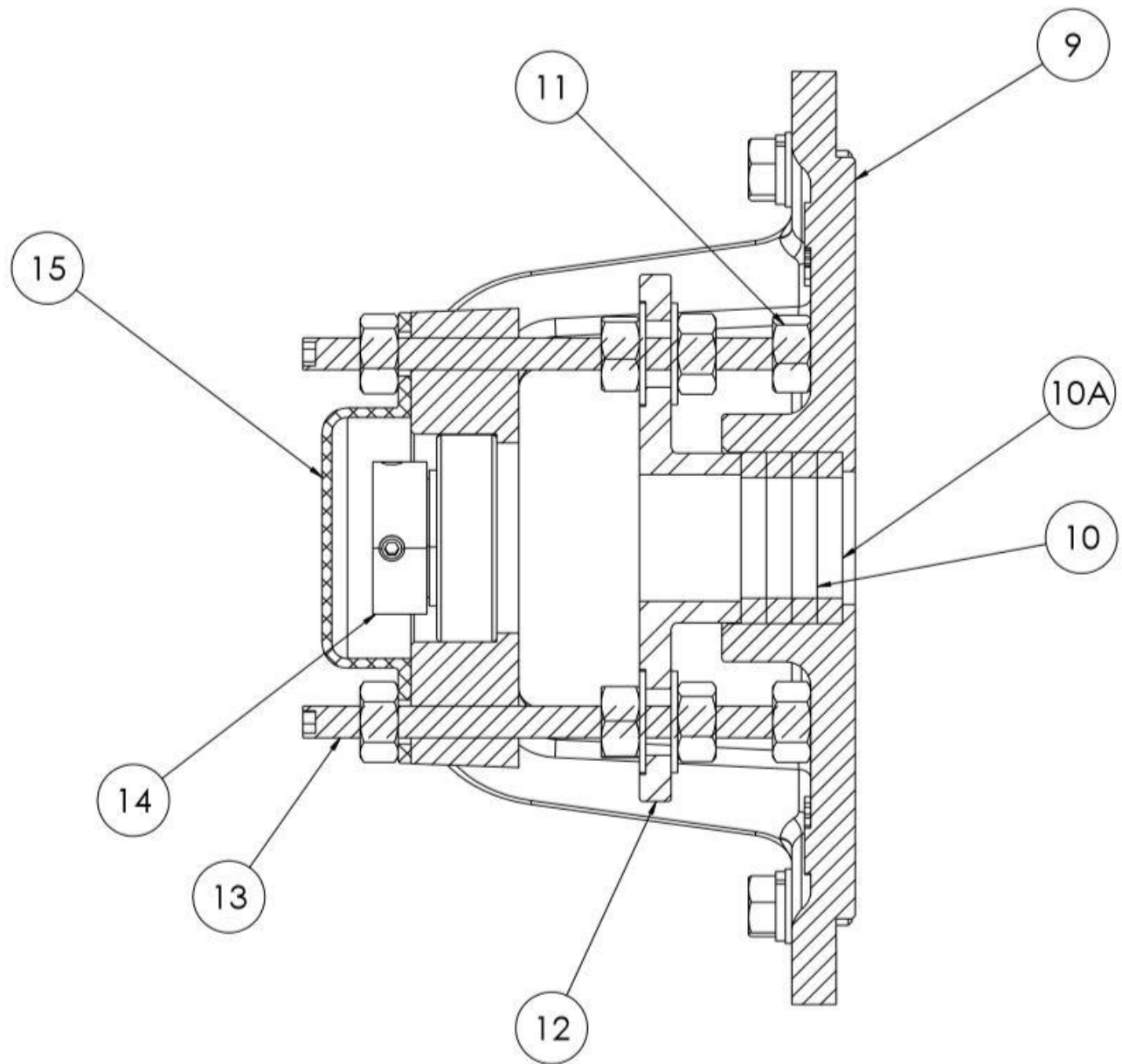
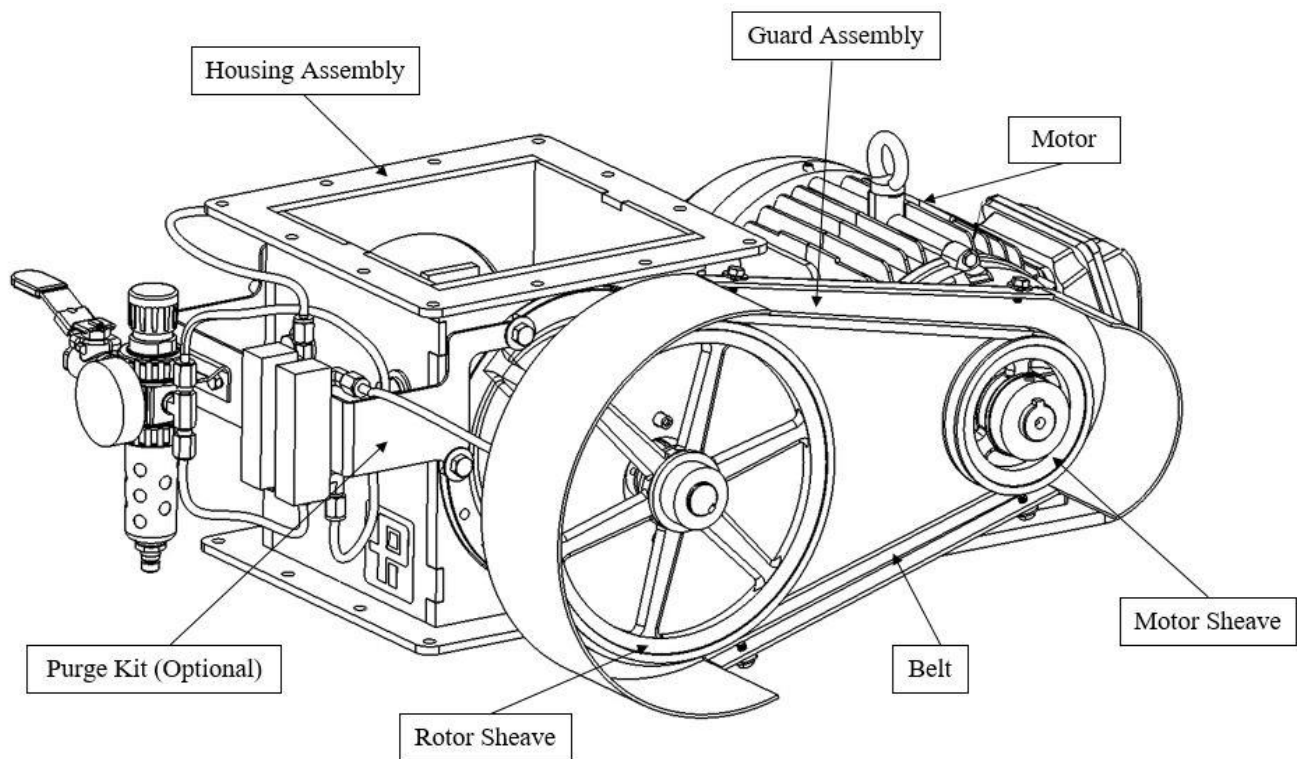


Figure 7-1: Flake Breaker Exploded View



**Figure 7-2: Flake Breaker Endplate Subassembly (Two Subassemblies per Unit)**



**Figure 7-3: Pulley Assembly with Motor Guard**