
ROTA-SIEVE INSTALLATION, OPERATION, AND MAINTENANCE MANUAL

MODEL: _____

SERIAL NO.: _____

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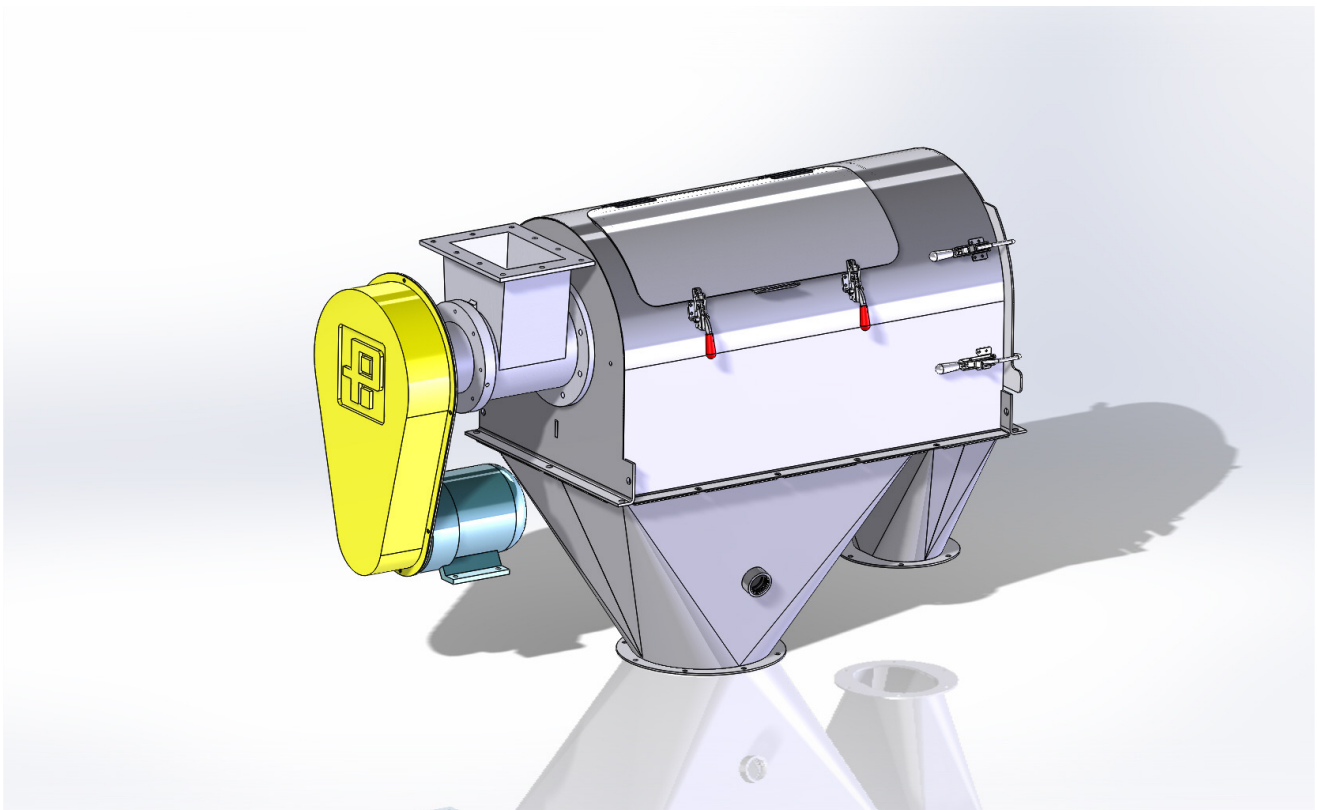


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SECTION 1: SAFETY RULES

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 Notices) 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

CAUTION: INDICATES A SITUATION WHERE DAMAGE TO THE EQUIPMENT COULD RESULT.

NOTICE

PROVIDES HELPFUL INFORMATION FOR PROPER OPERATION OF THE FINE GRINDER.

1.2 Safety Precautions



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 DEVICES PLACED ON THIS MACHINE FOR THE SAFETY OF THE OPERATOR. ANY ATTEMPT TO DEFEAT THESE DEVICES COULD RESULT IN SERIOUS INJURY.



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 exist, that are specific 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 require that an employer be kept abreast of regulations, which will continue to be issued under its authority.

The Rota-Sieve 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 operators should thoroughly understand these instructions and precautions before attempting to operate this equipment.

Figure 1-1 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.

Safety Checklist

ALWAYS operate Rota-Sieve in accordance with the 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 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.

DO NOT use the Rota-Sieve for processing of material other than the specific application for which it was designed.

AVOID poking or prodding into unit openings with bar or stick.

ALWAYS have a clear view of unit loading and unloading points and all safety devices.

KEEP area around unit, drive and control station free of debris and obstacles.

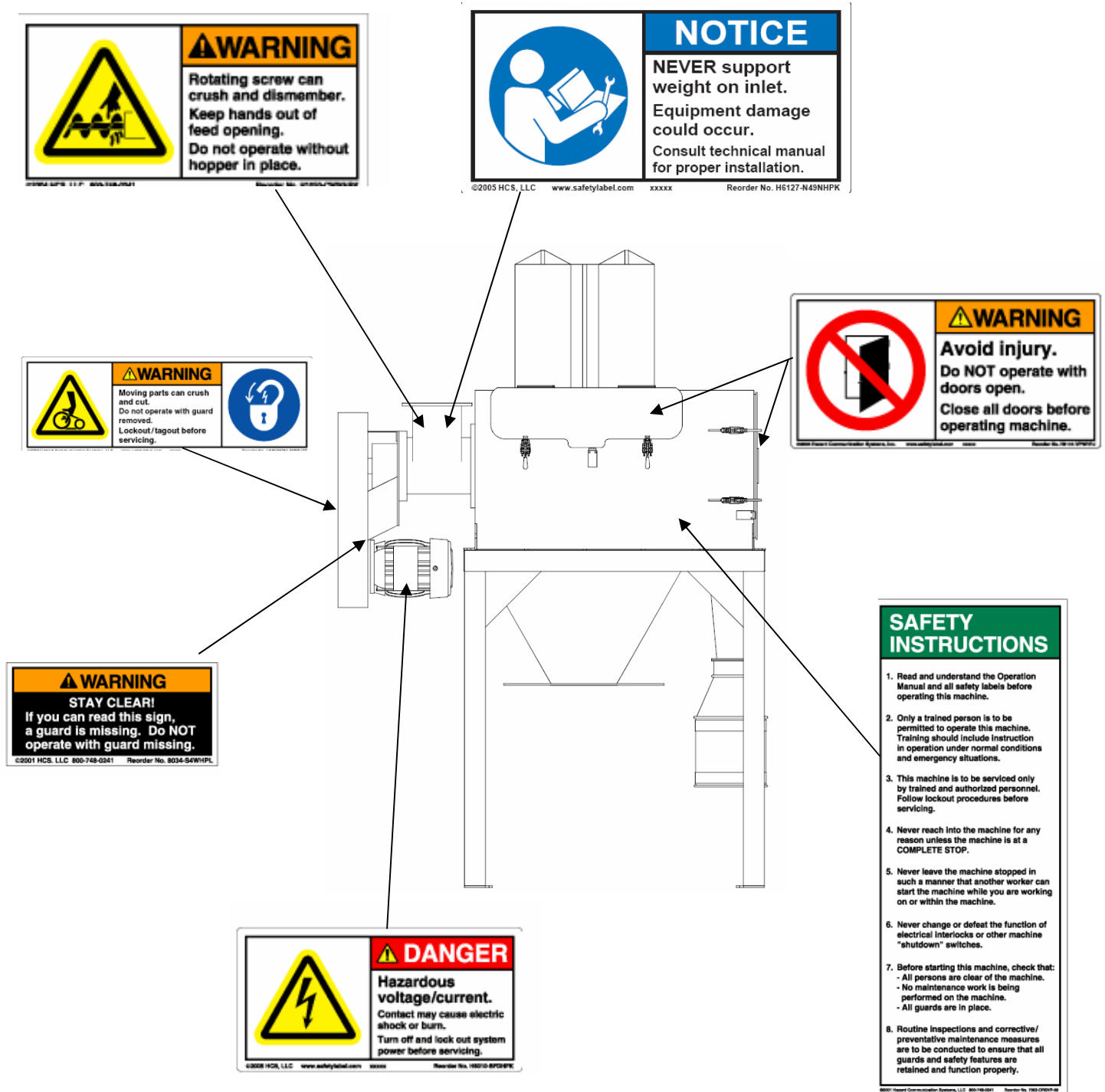
NEVER operate unit without guards and all safety devices in position and functioning.

ALWAYS allow unit to stop naturally. **DO NOT** attempt to artificially brake or slow motion of unit.

NEVER put your hand near or in the inlet or outlet of the Rota-Sieve while it is operating or stalled.

Figure 1-1: Prater Rota-Sieve Safety Check List

Figure 1-2: Rota-Sieve Safety Labels



SECTION 2: INTRODUCTION

2.1 Manual Overview

This manual describes the installation requirements, procedures, and routine maintenance of Prater's Rota-Sieve, Model #'s 91, 151, and 301. 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 with their corresponding parts lists. The procedures throughout this manual refer to these drawings. Locate the exploded view for your model to use as a reference during installation. Reliable operation, personnel safety, and long service life of this equipment depend on three important considerations:

- The care exercised during installation.
- The quality and frequency of maintenance and periodic inspections.
- A common sense approach to its 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 Rota-Sieve 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.

NOTE: It is the receiver's obligation to file claims for shipping damage.

2.3 Before Installation

Be sure the installation crew or millwrights are aware of all installation requirements. If they have any questions or are unsure of proper procedures, clarify the matter to avoid improper installation. Section 2 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 installation, make sure you provide for all appropriate safety devices. Prater Industries, Inc. does not install your equipment. It is your responsibility to provide lockout switches, guards, and other safety devices and features to protect the machine operator or maintenance personnel.

2.4 Before Operation

Make sure operating personnel are well trained in procedures for operating and maintaining the Rota-Sieve. In particular, make sure they understand the essential safety precautions described in Section 1.6.

2.5 Operating Principle

Note: This section refers to Figure 6-1 in the rear of the manual

The inlet auger (9) moves the material from the inlet (8A, 8B) into the screen frame (11). Depending on the material being processed, a screen made of metal or sieve cloth may be installed on the screen frame. The helical blades of rotor (9) propel the particles against screen (11). Fines pass through the screen and are discharged via the primary discharge hopper (27). Material too coarse to pass through is moved along the length of the screen and discharges through the overs discharge (26), minimizing wear caused by friction.

The Rota-Sieve's centrifugal screening action gives you more throughput capacity per unit of screen area. This is accomplished by the combination of the high level of centrifugal force, which helps the product pass through the screen efficiently, and the spreading action of the

rotor, which distributes the product around the screen frame for complete utilization of the screen area.

The particles impinging against screen (11) cause it to flex and vibrate, thereby eliminating the need to stop production to clean the screen. This also eliminates the need for using cleaning media, which can contaminate the finished product. The Rota-Sieve is totally enclosed so dust problems are fully eliminated. Operation is quiet and imparts no vibration to surroundings structures.

The Prater Rota-Sieve may be equipped with the optional Rota-Trap Assembly (10). This device protects the screen (11) from foreign materials larger than the perforated holes in the trap itself.

2.6 Specifications

Sieve Model	Model 91	Model 151	Model 301
Weight (lbs)	750	900	1450
Voltage	230/460	230/460	230/460
Motor HP	3	5	7.5
Motor Speed (RPM)	1750	1750	1165
Motor Current (Amps)	9.2/4.6	13.8/6.9	20.2/10.1
Rotor Speed (RPM)	725	419	290
Screen Area (Sq. In.)	410	942	1949

SECTION 3: INSTALLATION

3.1 Introduction

Proper installation of Prater's Rota-Sieve is critical for efficient and productive operation. The proper site preparation and placement of the Rota-Sieve and related equipment will insure that the sifter operates safely and to its fullest capacity.

The following are important considerations in Rota-Sieve installation:

1. Location: Make sure the operating location will provide strong, vibration-free base support and allow easy access to all parts of the Rota-Sieve.
2. Leveling: The Rota-Sieve must be level and must operate without vibration. Sections 2.3 and 2.4 explain how to check for proper leveling and prevention of vibration damage during operation.

3.2 Installation Location

There are two essential considerations for the Rota-Sieve location: the foundation below the machine and the free clearance around it.

Foundation

The Rota-Sieve must be supported in a vibration free location.

Clearance

There should be sufficient open space in all directions around the Rota-Sieve to allow access for changing screens and other maintenance operations. No excessive weight can be resting on or supported from the Rota-Sieve.

3.3 Leveling

The base of the unit must be level to prevent vibrations that will accelerate wear. Before tightening fasteners, check for correct unit leveling at the corners of the Rota-Sieve and correct if necessary.

To correctly level:

1. Insert shims for proper alignment.
2. Re-check level at corners of the Rota-Sieve.
3. Tighten all fasteners.
4. Re-check level.

3.4 Vibration

The Prater Rota-Sieve is constructed to run without noticeable vibration. Vibration indicates a problem that must be found and corrected immediately. Left uncorrected, vibration will cause the following:

- Rota-Sieve damage
- Structural damage

There are several conditions that cause vibration, including:

- Uneven base (See section 2.3)
- Loose motor fasteners
- Defective motor or Rota-Sieve bearings (See Section 5)
- Other equipment transferring vibration thru contact with the Rota-Sieve
- Worn, missing or broken helical blades on rotor.
- Excess foreign material in the Rota-Trap frame (Figure 6-8, 6).

3.5 Feeding

After the Rota-Sieve is mounted in place, the feed inlet (Figure 6-1, 8A, 8B) must be connected to a device that will give a uniform controlled feed rate. **IT IS ESSENTIAL THAT THE FEED BE CONTROLLED** in order to prevent overfeed, or uncontrolled pulsations which can overload the Rota-Sieve. Any device, such as a slide gate, rotary feeder, vibrating trap feeder, screw conveyor, etc., may be used, as long as it provides a uniform controlled feed. The feeding device should be supported from the building or other static structure. **DO NOT** support the feeder on the Rota-Sieve feed inlet.

Averaging total feed over a period of time may allow non-uniform feed and in no way insures that the feed rate may not be too high at some points during the run. Any over-feed will result in fines running into the oversize discharge and may result in stretching of the screens, which will adversely affect the performance of the sifter

3.6 Primary Discharge (Fines)

The primary discharge should be attached to a hopper that is dust-tight. A rigid connection can be made; no flexible connection is required. One caution, which should be taken, is to be certain that there is no air blowing back up into the primary discharge of hopper (Figure 6-1, 27). Air blowing back through screen (Figure 6-1, 11) will prevent the product from passing through the screen, and cause excessive carryover into the oversize collector. If the primary discharge is into a positive pressure rotary valve, an air relief vent should be included in the Rota-Sieve hopper. A slight suction on the primary discharge is beneficial as long as the oversize discharge outlet or container is properly sealed.

3.7 Oversize Discharge (Coarse)

The oversize discharge outlet (Figure 6-1, 26) should be installed so that air (especially under pressure) cannot flow back up through the Rota-Sieve and interfere with the overs discharge. A good fitting cover, or a plastic container should be used to seal the discharge opening. If

there is air pressure at the feed inlet (Figure 6-1, 8A, 8B), or suction on the primary discharge, it is recommended that a rotary airlock be used to isolate the unit from excessive air flow or pressure. If large foreign material enters the screen frame (Figure 6-1, 11), it may not exit the oversize discharge. Such material will have to be extracted by hand.

3.8 Air Purge Port

The drive end bearing (Figure 6-1, 14) has an air purge port (1/8" n.p.t.), which can be connected to a compressed air line. If the product is very dusty, a pressurized clean dry air stream outflow is required to keep the bearing clean. In normal atmospheric conditions, a purge pressure of 2 PSI above the internal sifter pressure is adequate. The purge air volume will be about 2 to 5 scfm.

3.9 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.

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 Rota-Sieve may be started “across the line” if such a procedure is acceptable to your local power supply, larger motors may require reduced voltage starters to “soft start” motors in many areas.

3.10 Electrical Interlocking

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

CAUTION

A TIME DELAY IS ALWAYS REQUIRED BETWEEN START-UP OF THE ROTA-SIEVE AND START UP OF THE FEEDER, TO ALLOW ROTA-SIEVE TO REACH FULL OPERATING SPEED BEFORE PRODUCT IS INTRODUCED.

3.11 Unit Check

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

SECTION 4: OPERATION

4.1 Introduction

Pre-run inspections and safety checks throughout this section to insure that the Rota-Sieve is in proper operating condition. Other aspects of operation covered in this section include: start-up and shutdown sequences.

4.2 Pre-Run Inspection

Before starting the Rota-Sieve, check the following:

- The inside of the Rota-Sieve for foreign material, i.e., nuts, bolts, wire.
- That all guards are mounted and secure.
- That all inspection doors are closed and locked.
- That all electrical starting equipment, meters, disconnect switches, and other control devices are clearly visible and readily accessible to the operator.
- That screen frame (Figure 6-1, 11) assembly is properly installed and screens (Figure 6-10, 8) are properly tensioned. (See Section 5).
- When looking from the motor end of the unit, the auger shaft should rotate counter-clockwise. (See arrow on bearing housing).
- Verify all fasteners inside and outside of the sifter are tightened before operation.

4.3 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.

As a general guide to electrical interlocking, you turn on equipment in reverse order from product flow. The final piece of equipment to be started should be the product feeder.

CAUTION

A TIME DELAY IS ALWAYS REQUIRED BETWEEN START-UP OF THE ROTA-SIEVE AND START-UP OF THE FEEDER TO ALLOW THE ROTA-SIEVE TO REACH FULL OPERATING SPEED BEFORE PRODUCT IS INTRODUCED.

Here is a sample start-up checklist:

1. Start each piece of equipment in proper start-up sequence.
2. Check each motor as it starts for proper rotation and proper current draw.
3. Check interlocks to make sure they are working and in the proper sequence.
4. Begin product feed into the system at a slow rate (always less than 50% of full rated capacity).
5. If unit runs properly, slowly increase the feed.



DO NOT OPEN ROTA-SIEVE OR ATTEMPT ANY FORM OF INSPECTION OR MAINTENANCE UNTIL THE ROTA-SIEVE HAS COME TO A COMPLETE STOP AND THE ELECTRICAL DISCONNECT HAS BEEN LOCKED IN THE OPEN POSITION.

4.4 Shut-Down

For a typical Rota-Sieve operation, the 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: MAINTENANCE

5.1 Introduction

The Rota-Sieve is designed to operate with little 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 Rota-Sieve and its output. When operated without vibration or foreign materials entering the screen frame (Figure 6-1, 11), only those parts subject to the heaviest wear, i.e. drive belts and screens will require maintenance.



DO NOT OPEN ROTA-SIEVE OR ATTEMPT ANY FORM OF INSPECTION OR MAINTENANCE UNTIL THE ROTA-SIEVE HAS COME TO A COMPLETE STOP AND THE ELECTRICAL DISCONNECT HAS BEEN LOCKED IN THE OPEN POSITION.

5.2 Routine Inspection

Regular inspections are required to give advance warning of a problem. The simple, yet rugged, design of the Rota-Sieve provides easy access for maintenance, cleaning, and service. To decrease downtime, regularly inspect the machine and output. The output of the Rota-Sieve as well as regular inspections will determine when screens should be replaced, as well as give advance warning of a problem. Maintain an inventory of standard wear items such as drive belts and screens.

5.3 Screens

NOTICE

THIS PROCEDURE REFERS TO THE DRAWINGS IN THE REAR OF THE MANUAL. THE SCREENS CONTROL THE PARTICLE SIZE OF THE FINAL PRODUCT. INSPECT THE SCREENS FREQUENTLY TO MAINTAIN THE DESIRED OUTPUT. THE SCREENS MAY REQUIRE REPLACEMENT IF THEY ARE SHOWING SIGNS OF WEAR.

5.3.1 Screen Replacement



DO NOT OPEN ROTA-SIEVE OR ATTEMPT ANY FORM OF INSPECTION OR MAINTENANCE UNTIL THE ROTA-SIEVE HAS COME TO A COMPLETE STOP AND THE ELECTRICAL DISCONNECT HAS BEEN LOCKED IN THE OPEN POSITION.

Screen Frame Removal

RS-91 and RS-151

Note: This section refers to Figure 6-1

1. Turn off the Rota-Sieve and allow the rotor (9) to come to a complete stop.
2. Lock out electrical power to the Rota-Sieve.
3. Open end cover door (19) and remove the three hand knobs.
4. Remove end-bearing retainer (13) by pulling straight out.
5. Gently pull screen frame (11) straight out.

RS-301

Note: This section refers to Figure 6-2

6. Turn off the Rota-Sieve and allow the rotor (15) to come to a complete stop.
7. Lock out electrical power to the Rota-Sieve.
8. Open end cover door (13) and remove the three hand knobs (11).
9. Remove end-bearing retainer (10) by pulling straight out.
10. Gently pull screen frame (14) straight out.

5.3.2 Screen Removal

RS-91 and RS-151

Note: This section refers to Figure 6-10.

1. Loosen jam nuts (5) and tensioning nuts (6) to allow the end flange (1) to slide toward the center. The hardware near the center ring should be left in place. This will ensure proper tensioning and assembly length when the screens are reinstalled.
2. Loosen clamps (9) and remove screen (8) and clamps (9).
3. Remove the remaining screen in the same manner.

RS-301

Note: This section refers to Figure 6-11.

1. Loosen hex nuts (5) and tensioning nuts (7) to allow the end flange (1) to slide toward the center. The hardware near the center ring should be left in place. This will ensure proper tensioning and assembly length when the screens are reinstalled.
2. Loosen clamps (10) and remove screen (9) and clamps (10).
3. Remove the remaining screen in the same manner.

5.3.3 Screen Installation

RS-91 and RS-151

Note: This section refers to Figure 6-10.

1. Position clamps (9) on screen (8).
2. Slip the screen between the center flange (2) and the end flange (1).
3. Slide the screen, as far as it will go, onto the center flange (2) and secure with one clamp (9). Clamp (9) should be as tight as possible.

NOTE: The seam of the screen should be at the top of the assembly, opposite the lower alignment key slot.

4. Slide the screen, as far as it will go, onto the end flange (1) and secure with the second clamp (9). Clamp (9) should be as tight as possible.
5. Tighten tensioning nut (6) until the screen is drum tight. Check the tension by pressing gently on the screen. The cloth should not deflect more than 1/16". The hardware near the center ring should be left in place. Use only the hardware on the end rings to tension the screen. This will ensure proper tensioning and screen frame assembly length.

NOTE: The screen may slide a bit when adjusting the tension.

6. Tighten nuts (5) after screen tension has been properly adjusted.
7. For proper sifter operation the overall length of the screen frame assembly must be within 1/16" of the length for your unit as stated in Figures 6-10.
8. Install the remaining screen in the same manner; making certain that the seam of the second screen is in line with the seam of the first screen.

RS-301

Note: This section refers to Figure 6-11.

1. Position clamps (10) on screen (9).
2. Slip the screen between the center flange (2) and the end flange (1).
3. Slide the screen, as far as it will go, onto the center flange (2) and secure with one clamp (9). The clamp (9) should be as tight as possible.

NOTICE

The seam of the screen should be at the top of the assembly, opposite the lower alignment key slot.

4. Slide the screen, as far as it will go, onto the end flange (1) and secure with the second clamp (9). The clamp (9) should be as tight as possible.
5. Tighten tensioning nut until the screen is drum tight. Check the tension by pressing gently on the screen. The cloth should not deflect more than 1/16". The hardware near the center ring should be left in place. Use only the hardware on the end rings to

tension the screen. This will ensure proper tensioning and screen frame assembly length.

NOTICE

The screen may slide a bit when adjusting the tension.

6. Tighten nuts (5) after screen tension has been properly adjusted.
7. For proper sifter operation the overall length of the screen frame assembly must be within 1/16" of the length for your unit as stated in Figures 6-11.
8. Install the remaining screen in the same manner; making certain that the seam of the second screen is in line with the seam of the first screen.

5.3.4 Screen Frame Installation

RS-91 and RS-151

Note: This section refers to Figure 6-1.

1. Turn off the unit and wait for the rotor to come to a stop.
2. Lock out the electrical supply to the unit before opening any of the access doors.
3. Gently slide screen frame (11) into body assembly (24).

NOTE: One end flange (Figure 6-10, 3) has a shorter flange with the internal surface being tapered. This end must be inserted first and the seam of the screens must be toward the top.

4. Install end-bearing retainer (13) and secure with the three hand knobs.
5. Close and secure end cover door (19).
6. Unlock the electrical power to the Rota-Sieve.

RS-301

Note: This section refers to Figure 6-2.

1. Turn off the unit and wait for the rotor to come to a stop.

2. Lock out the electrical supply to the unit before opening any of the access doors.
3. Gently slide screen frame (14) into body assembly (5).

NOTE: The seam of the screens must be toward the top.

4. Install end-bearing retainer (10) and secure with the three hand knobs (11).
5. Close and secure end cover door (13).
6. Unlock the electrical power to the Rota-Sieve.

5.4 Removing The Rotor Assembly



DO NOT OPEN ROTA-SIEVE OR ATTEMPT ANY FORM OF INSPECTION OR MAINTENANCE UNTIL THE ROTA-SIEVE HAS COME TO A COMPLETE STOP AND THE ELECTRICAL DISCONNECT HAS BEEN LOCKED IN THE OPEN POSITION.

RS-91 and RS-151

NOTE: This procedure refers to the Figure 6-1 in the rear of the manual.

1. Turn off the unit and wait for the rotor to come to a stop.
2. Lock out the electrical supply to the unit before opening any of the access doors.
3. Remove the screen frame (11). See Section 4.5.
4. Remove drive guard (1).
5. Remove the hex head screw and clamping washer located at the center of the sieve pulley (3).
6. Rotor (9 or 10) is now free and can be pulled out through the discharge end of body assembly (24). It is advisable to support the rotor as it is being withdrawn. Open inspection door (20) and support the rotor (9 or 10) by hand as it is being removed.
7. Install the rotor in reverse order.
8. Install the screen frame (11). See Section 4.8.
9. Close and secure all doors before restarting the machine.



DO NOT OPEN ROTA-SIEVE OR ATTEMPT ANY FORM OF INSPECTION OR MAINTENANCE UNTIL THE ROTA-SIEVE HAS COME TO A COMPLETE STOP AND THE ELECTRICAL DISCONNECT HAS BEEN LOCKED IN THE OPEN POSITION.

RS-301

NOTE: This procedure refers to the Figure 6-2 in the rear of the manual.

1. Turn off the unit and wait for the rotor to come to a stop.
2. Lock out the electrical supply to the unit before opening any of the access doors.
3. Remove the screen frame (14). See Section 4.5.
4. Remove drive guard (26).
5. Remove the hex head screws and clamping washers located at the center of the sieve pulley (23).
6. Rotor (15 or 16) is now free and can be pulled out through the discharge end of body assembly (5). It is advisable to support the rotor as it is being withdrawn. Open inspection door (4) and support the rotor (15 or 16) by hand as it is being removed.
7. Install the rotor in reverse order.
8. Install the screen frame (14). See Section 4.8.
9. Close and secure all doors before restarting the machine.

5.5 Optional Rota-Trap Cleaning

RS-91 and RS-151

Note: This section refers to Figures 6-1 and 6-9 in the rear of the manual

The Prater Rota-Sieve can be equipped with the optional Rota-Trap Assembly (6-1, 10). This device protects the screens from foreign materials larger than the perforated holes in the trap itself. Every time the Rota-Sieve is stopped, the Rota-Trap Cylinder Cage Assembly (6-8, 6) should be cleaned before starting the unit again.

⚠ WARNING

DO NOT OPEN ROTA-SIEVE OR ATTEMPT ANY FORM OF INSPECTION OR MAINTENANCE UNTIL THE ROTA-SIEVE HAS COME TO A COMPLETE STOP AND THE ELECTRICAL DISCONNECT HAS BEEN LOCKED IN THE OPEN POSITION.

1. Turn off the unit and wait for the rotor to come to a stop.
2. Lock out the electrical supply to the unit before opening any of the access doors.
3. Remove the screen frame (6-1, 11). See Section 4.5
4. Open the inspection door (6-1, 20).
5. Remove baffle assembly (6-7, 9 and 10).
6. Remove foreign material manually from cylinder cage (6-7, 6)
7. Reinstall the screen frame (6-1, 11). See Section 4.5
8. Close and secure all doors before restarting the machine.

RS-301

Note: This section refers to Figures 6-2 and 6-8 in the rear of the manual

The Prater Rota-Sieve can be equipped with the optional Rota-Trap Assembly (6-2, 16). This device protects the screens from foreign materials larger than the perforated holes in the trap itself. Every time the Rota-Sieve is stopped, the Rota-Trap Cylinder Cage Assembly (6-9, 6) should be cleaned before starting the unit again.

⚠ WARNING

DO NOT OPEN ROTA-SIEVE OR ATTEMPT ANY FORM OF INSPECTION OR MAINTENANCE UNTIL THE ROTA-SIEVE HAS COME TO A COMPLETE STOP AND THE ELECTRICAL DISCONNECT HAS BEEN LOCKED IN THE OPEN POSITION.

1. Turn off the unit and wait for the rotor to come to a stop.
2. Lock out the electrical supply to the unit before opening any of the access doors.

3. Remove the screen frame (6-2, 14). See Section 4.5
4. Open the inspection door (6-2, 27).
5. Remove foreign material manually from cylinder cage (6-9, 6)
6. Reinstall the screen frame (6-2, 16). See Section 4.5
7. Close and secure all doors before restarting the machine.

5.6 Belt Tension

RS-91 and RS-151

NOTE: This procedure refers to Figure 6-1 in the rear of the manual.



DO NOT OPEN ROTA-SIEVE OR ATTEMPT ANY FORM OF INSPECTION OR MAINTENANCE UNTIL THE ROTA-SIEVE HAS COME TO A COMPLETE STOP AND THE ELECTRICAL DISCONNECT HAS BEEN LOCKED IN THE OPEN POSITION.

1. Turn off the Rota-Sieve and allow the rotor (9 or 10) to come to a complete stop.
2. Lock out electrical power to the Rota-Sieve.
3. Remove drive guard (1).
4. Press firmly on the mid-point of belt (2) and measure the belt deflection. Deflection should be ¼” or less.
5. If deflection is more than ¼”, loosen the motor mounting bolts. Allow the motor to slide down the motor mount (6), tightening the belt. Tighten the mounting bolts after proper belt tension has been achieved.
6. Install the drive guard (1).

RS-301

NOTE: This procedure refers to Figure 6-2 in the rear of the manual.



DO NOT OPEN ROTA-SIEVE OR ATTEMPT ANY FORM OF INSPECTION OR MAINTENANCE UNTIL THE ROTA-SIEVE HAS COME TO A COMPLETE STOP AND THE ELECTRICAL DISCONNECT HAS BEEN LOCKED IN THE OPEN POSITION.

1. Turn off the Rota-Sieve and allow the rotor (15 or 16) to come to a complete stop.
2. Lock out electrical power to the Rota-Sieve.
3. Remove drive guard (26).
4. Press firmly on the mid-point of belt (25) and measure the belt deflection. Deflection should be ¼” or less.
5. If deflection is more than ¼”, loosen the motor mounting bolts. Allow the motor to slide down the motor mount (20), tightening the belt. Tighten the mounting bolts after proper belt tension has been achieved.
6. Install the drive guard (1).

5.7 Bearing Details

RS-91 and RS-151

NOTE: This section refers to Figure 6-3 and 6-4 in the rear of the manual.

The end of the Rota-Sieve bearing assembly uses a regreasable-flanged end bearing (8) which requires under normal operating conditions additional grease every 250 operating hours. Prater Industries, Inc. recommends the use of MOBILUX NO. 2 Grease or equivalent. The inner or rotor side bearing is a sealed ball bearing, which is maintenance free for the life of the bearing. While the bearing is sealed, it is important to insure that the seal remains free of material buildup to maximize the life of the bearing. In some

instances installation of an air purge assembly may be necessary to accomplish this. Refer to section 2.8 for further information regarding the use of the air purge. Prater Industries, Inc. recommends that the bearings be changed after each 10,000 operating hours.

RS-301

NOTE: This section refers to Figure 6-5 in the rear of the manual.

The Rota-Sieve bearing assembly uses two sealed ball bearings, which are maintenance free for the life of the bearing. While the bearings are sealed, it is important to insure that the seals remain free of material buildup to maximize the life of the bearing. In some instances installation of an air purge assembly may be necessary to accomplish this. Refer to section 2.8 for further information regarding the use of the air purge. Prater Industries, Inc. recommends that the bearings be changed every 10,000 operating hours.

5.8 Bearing Removal

RS-91 and RS-151



DO NOT OPEN ROTA-SIEVE OR ATTEMPT ANY FORM OF INSPECTION OR MAINTENANCE UNTIL THE ROTA-SIEVE HAS COME TO A COMPLETE STOP AND THE ELECTRICAL DISCONNECT HAS BEEN LOCKED IN THE OPEN POSITION.

NOTE: This section refers to Figure 6-1, and 6-3 in the rear of the manual.

1. Turn off the Rota-Sieve and allow the rotor to come to a complete stop.
2. Lock out electrical power to the Rota-Sieve.
3. Remove the belt guard (6-1, 1). Reduce the belt tension by loosening the motor mount bolts and sliding the motor (6-1, 7) up the bracket (6-1, 6).
4. Remove the hex head cap screw (6-3, 1), lock washer (6-3, 2), and drive washer (6-3, 3). Also remove the belt (6-1, 2), sieve pulley (6-1, 3), keys, and the guard back plate (6-1, 5).
5. Now, the screen frame and rotor assembly must be removed from the inside of the machine. Follow steps in Sections 4.5 and 4.9.

6. Next, remove the hex head cap screw (6-3, 6) and lock washer (6-3, 7) from the flange bearing assembly (6-3, 8). Gently guide the flange bearing assembly (6-3, 8) and the bearing sleeve (6-3, 5) out of the bearing housing (6-3, 15).
7. Now, the setscrew on the flange bearing can be loosened and the bearing sleeve (6-3, 5) can be removed.
8. Next, pull out the spacer (6-3, 9). The second bearing (6-3, 10) can now be removed from the bearing housing. Pull out the seal sleeve (6-3 or 6-4, 11).
9. Remove the retaining ring (6-3, 12) and the washer (6-3, 13).
10. Finally, remove the Accro seal (6-3, 14). It is recommended the seal be replaced with each bearing change independent of the appearance of the seal itself.

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DO NOT OPEN ROTA-SIEVE OR ATTEMPT ANY FORM OF INSPECTION OR MAINTENANCE UNTIL THE ROTA-SIEVE HAS COME TO A COMPLETE STOP AND THE ELECTRICAL DISCONNECT HAS BEEN LOCKED IN THE OPEN POSITION.

NOTE: This section refers to Figure 6-2 and 6-4 in the rear of the manual.

1. Turn off the Rota-Sieve and allow the rotor to come to a complete stop.
2. Lock out electrical power to the Rota-Sieve.
3. Remove the belt guard (6-2, 26). Loosen the motor mount bolts and reduce the belt tension.
4. Remove the hex head cap screws and lock washers (6-4, 1), and drive washer (6-4, 2). Now, remove the belt (6-2, 25), driven sheave (6-2, 23), drive sheave (6-2, 24), key, and guard back plate (6-2, 22).
5. Now, the screen frame and rotor assembly must be removed from the inside of the machine. Follow steps in Sections 4.5 and 4.9.

6. Next, take out the bolts holding on the bearing cover (6-4, 4). Remove the bearing cover (6-4, 4), gasket (6-4, 5), and the pulley spacer (6-4, 3).
7. Gently guide the outer ball bearing (6-4, 6), the bearing sleeve (6-4, 7), the smaller ball bearing (6-4, 8), and locknut and lock washer (6-4, 9) out of the bearing housing (6-4, 11).
8. By taking out the bearing subassembly, the retaining ring, washer, and seal (6-4, 13, 14, 15) should be exposed and can be extracted from the drive end of the bearing assembly. It is recommended that the seal be replaced with each bearing change independent of the appearance of the seal itself.
9. Finally, disassemble the bearing subassembly by gently pressing the large ball bearing (6-4, 6) from the bearing sleeve (6-4, 7). Take off the lock nut and lock washer (6-4,9) and press off the smaller ball bearing (6-4, 8).

5.9 Bearing Installation

RS-91 and RS-151



DO NOT OPEN ROTA-SIEVE OR ATTEMPT ANY FORM OF INSPECTION OR MAINTENANCE UNTIL THE ROTA-SIEVE HAS COME TO A COMPLETE STOP AND THE ELECTRICAL DISCONNECT HAS BEEN LOCKED IN THE OPEN POSITION.

NOTE: This section refers to Figure 6-1, and 6-3, in the rear of the manual.

1. Turn off the Rota-Sieve and allow the rotor to come to a complete stop.
2. Lock out electrical power to the Rota-Sieve.
3. Before replacing components, inspect all parts to be sure they are clean of dirt, grease, burs, etc. Lay all parts in the assembly on a clean, dry surface.
4. Inspect the labels on the boxes containing the bearings to be assembled. Be sure your hands are free of any grease, metal chips, and dirt. Remove the bearings from the box and verify that the bearings are indeed what the box labels specify. Check both sides

- of the bearing to be sure the shields are not damaged. Once the bearing is out of the box, always lay it on a clean and dry surface.
5. Bearings have three external parts, the inner race, the shields and the outer race. When changing a bearing, the shields on the bearings should never be touched by any tools or even squeezed between the fingers. This could cause undetected damage to the internal parts of the bearing, resulting in premature bearing failure.
 6. To begin reassembling the bearing housing, locate the new Accro seal (6-3, 14) and seat it against the inner most shoulder of the bearing housing (6-3, 15). Make sure that the seal is seated squarely and is contacting the shoulder at all points on the face of the seal.
 7. Next install the washer (6-3, 13) and the retaining ring (6-3,12)
 8. Next, create a bearing subassembly by gently pressing the smaller bearing (6-3, 10) onto the non-keyed end of the bearing sleeve (6-3, 5). The pressure applied to the bearing must be on the inner race, and the inner race only. Never put pressure on the outer race to press the bearing onto the bearing sleeve. Be sure the tool being used to apply pressure to the inner race is only touching the inner race. Be careful not to damage the bearing shields during this process. Finally, slide the seal sleeve (6-, 11) over the end of the bearing sleeve (6-3, 5). When properly located the seal sleeve (6-3, 11) should butt up against the outer race of the bearing, but not in contact with the bearing shield. The seal sleeve (6-3, 11) will be held securely in place by the auger once the rotor is reinstalled.
 9. Now, install the subassembly created in Step 8 within the bearing housing. Make sure when the seal sleeve (6-3, 11) enters the seal (6-3, 14) it enters straight. Take care not to deform the contact surfaces of the seal by excessively moving the bearing sleeve once seated in the seal.
 10. Next, install the bearing spacer (6-3, 9) in the bearing housing (6-3, 15). It should be in contact against the outer race of the smaller bearing (6-3, 10) that has already been installed.

11. Mount the flange bearing (6-3, 8) using the lock washers (6-3, 7) and the hex head cap screws (6-3, 6) to the end face of the bearing housing. Once the flange bearing is mounted, tighten the setscrew down onto the bearing sleeve.
12. Now, the rotor and screen frame can be reinstalled inside the machine. Follow the steps from Section 4.8 and 4.9. Replace the key that interlocks the rotor shaft with the bearing sleeve.
13. Next, replace the guard back plate (6-1, 5), sieve pulley (6-1, 3), key, and belt (6-1, 2). Be sure to follow steps in Section 4.11 for proper belt tensioning and pulley alignment.
14. Secure the drive washer (6-3, 3), lock washer (6-3, 2), and hex head cap screw (6-, 1) to the end of the rotor shaft.
15. Finally, secure the belt guard (6-1, 1). Check to make sure all of the tools, parts, and foreign materials have been removed from within the machine and the immediate area. Follow steps from Section 3 to restart the machine.

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DO NOT OPEN ROTA-SIEVE OR ATTEMPT ANY FORM OF INSPECTION OR MAINTENANCE UNTIL THE ROTA-SIEVE HAS COME TO A COMPLETE STOP AND THE ELECTRICAL DISCONNECT HAS BEEN LOCKED IN THE OPEN POSITION.

NOTE: This section refers to Figure 6-2 and 6-4 in the rear of the manual.

1. Turn off the Rota-Sieve and allow the rotor to come to a complete stop.
2. Lock out electrical power to the Rota-Sieve.
3. Before replacing components, inspect all parts to be sure they are clean of dirt, grease, burrs, etc. Lay all parts in the assembly on a clean, dry surface.
4. Inspect the labels on the boxes containing the bearings to be assembled. Be sure your hands are free of any grease, metal chips, and dirt. Remove the bearings from the box and verify that the bearings are indeed what the box labels specify. Check both sides

- of the bearing to be sure the shields are not damaged. Once the bearing is out of the box, always lay it on a clean and dry surface.
5. Bearings have three external parts, the inner race, the shields and the outer race. When changing a bearing, the shields on the bearings should never be touched by any tools or even squeezed between the fingers. This could cause undetected damage to the internal parts of the bearing, resulting in premature bearing failure.
 6. To begin reassembling the bearing housing, locate the new seal (6-4, 10) and seat it against the inner most shoulder of the bearing housing (6-4, 11). Make sure that the seal is seated squarely and is contacting the shoulder at all points on the face of the seal.
 7. Next, create a bearing subassembly by gently pressing the smaller bearing (6-4, 8) onto the non-keyed end of the bearing sleeve (6-4, 7). The pressure applied to the bearing must be on the inner race, and the inner race only. Never put pressure on the outer race to press the bearing onto the bearing sleeve. Be sure the tool being used to apply pressure to the inner race is only touching the inner race. Be careful not to damage the bearings shields during this process. Now, install the locknut and lock washer (6-4, 9) on the end of the bearing sleeve (6-4, 7). Once in place the locknut and washer will lock the inner race of the bearing (6-4, 8) to the bearing sleeve (6-4, 7). The lock nut (6-4, 9) also acts as the seal sleeve and provides a surface for sealing against. Next, press the larger ball bearing (6-4, 6) into place on the bearing sleeve (6-5, 7) in the same manner that was used for the smaller bearing.
 8. Now, install the subassembly created in Step 7 within the bearing housing (6-4, 11). Make sure when the seal sleeve enters the seal (6-4, 15) it enters straight. Take care not to deform the contact surfaces of the seal by excessively moving the bearing sleeve once seated in the seal.
 9. Next, install the pulley spacer (6-4, 3) in the bearing housing (6-4, 11). It should be in contact against the inner race of the larger bearing (6-4, 6) that has already been installed.
 10. Mount the gasket (6-4, 5) and the bearing cover (6-4, 4) to the end face of the bearing housing (6-4, 11).

11. Now, the rotor and screen frame can be reinstalled inside the machine. Follow the steps from Section 4.8 and 4.9.
12. Next, replace the guard back plate (6-2, 22), driven sheave (6-2, 23), drive sheave (6-2, 24), key, and belt (6-2, 25). Be sure to follow steps in Section 4.11 for proper belt tensioning and pulley alignment.
13. Secure the drive washer (6-4, 2), lock washers and hex head cap screws (6-4, 1) to the end of the rotor shaft.
14. Finally, secure the belt guard (6-2, 26). Check to make sure all of the tools, parts, and foreign materials have been removed from within the machine and the immediate area. Follow steps from Section 3 to restart the machine.

SECTION 6: TROUBLESHOOTING

This section covers the more common day-to-day operating problems for the Prater Rota-Sieve. Possible causes are listed along with their suggested solutions.

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 a Prater representative 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:

1. Did the unit receive any damage during shipment or installation? Sometimes there is hidden damage or internals can shift due to a sudden jar, thus causing drive misalignment or possible parts rubbing internally.
2. Check area where unit is installed to be sure it is level and provides a proper vibration-free foundation.
3. Be sure that there is not an excessive weight supported on top of or suspended from the Rota-Sieve.
4. Check to see that material to be handled can flow freely to and out of the unit.

5. Be sure unit is running in the proper direction (See directional arrow on unit).
6. To avoid electrical problems, a qualified electrician should verify that the proper power source is connected and correctly wired to the motor being used.

If it is thought that there may be a problem with a motor or other apparatus sold by Prater, call Prater Customer Service Department.

6.3 Excessive Vibration

Excessive vibration is an indication that something has changed and needs correction. Stop the Rota-Sieve and inspect.



DO NOT OPERATE THE ROTA-SIEVE OR ATTEMPT ANY FORM OF INSPECTION UNTIL THE ROTA-SIEVE HAS STOPPED ALL MOTION AND THE ELECTRICAL DISCONNECT HAS BEEN PLACED IN THE OPEN POSITION AND LOCKED WITH A KEY LOCK. NEVER ATTEMPT TO ASSIST THE ROTA-SIEVE TO SLOW DOWN BY ANY MEANS, MECHANICAL OR OTHERWISE.

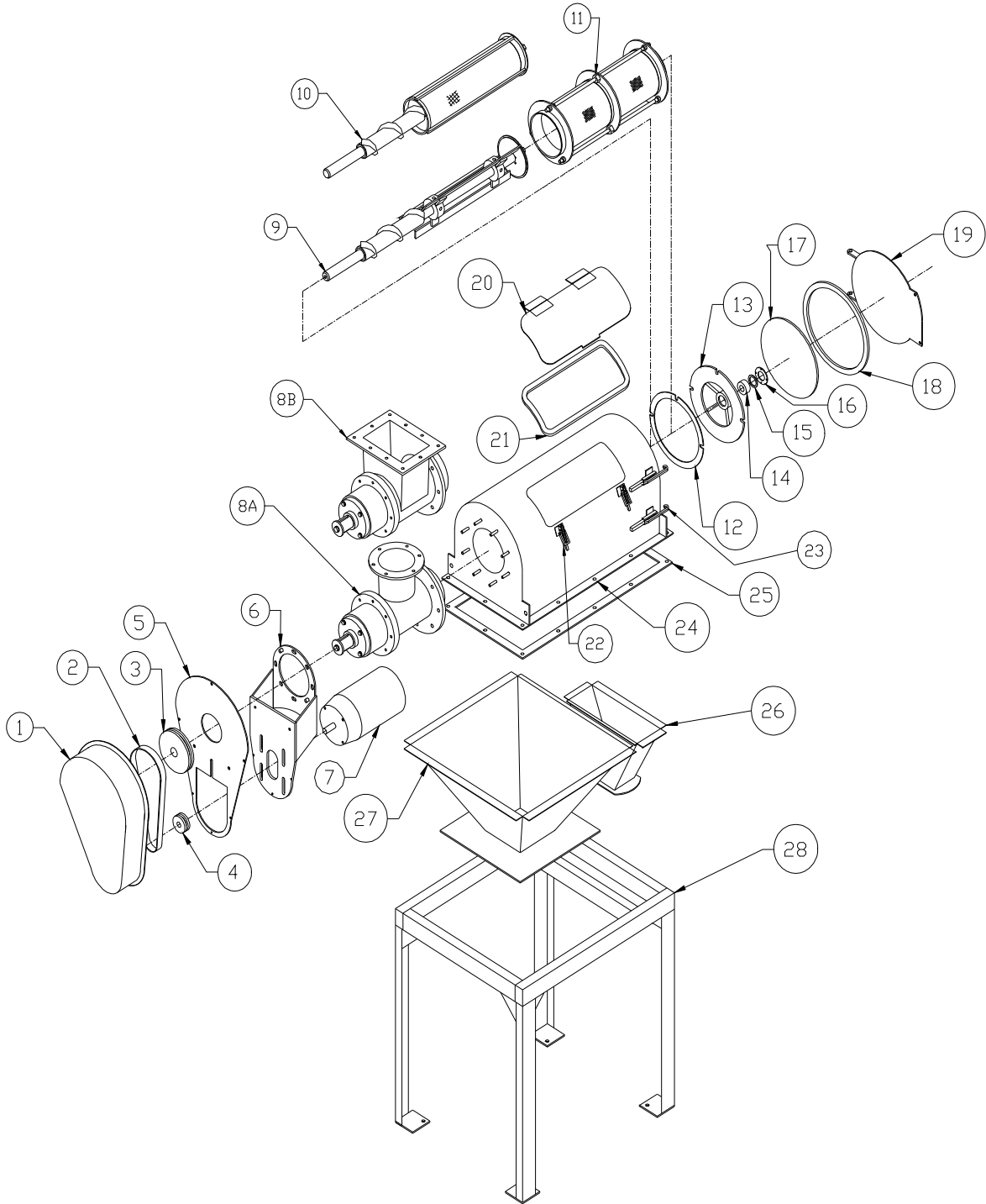


Figure 6-1: RS 91 and RS 151 Main Assembly

PARTS LIST FOR FIGURE 6-1

1	GUARD
2	BELT
3	SIEVE PULLEY
4	MOTOR PULLEY
5	GUARD BACK PLATE
6	MOTOR MOUNT
7	MOTOR
8A	RS-91 INLET BEARING ASSEMBLY
8B	RS-151 INLET BEARING ASSEMBLY
9	STANDARD ROTOR ASSEMBLY
10	*OPTIONAL ROTA-TRAP ASSEMBLY
11	SCREEN FRAME ASSEMBLY
12	BEARING RETAINER GASKET
13	SCREEN-BEARING RETAINER
14	BEARING
15	WASHER
16	RETAINER CAP
17	BACK PLATE
18	GASKET
19	END COVER
20	TOP COVER ASSEMBLY
21	TOP COVER GASKET
22	INSPECTION DOOR CLAMP
23	END DOOR CLAMP
24	BODY ASSEMBLY
25	BODY GASKET
26	OVERS DISCHARGE ASSEMBLY
27	FINES DISCHARGE ASSEMBLY
28	STAND

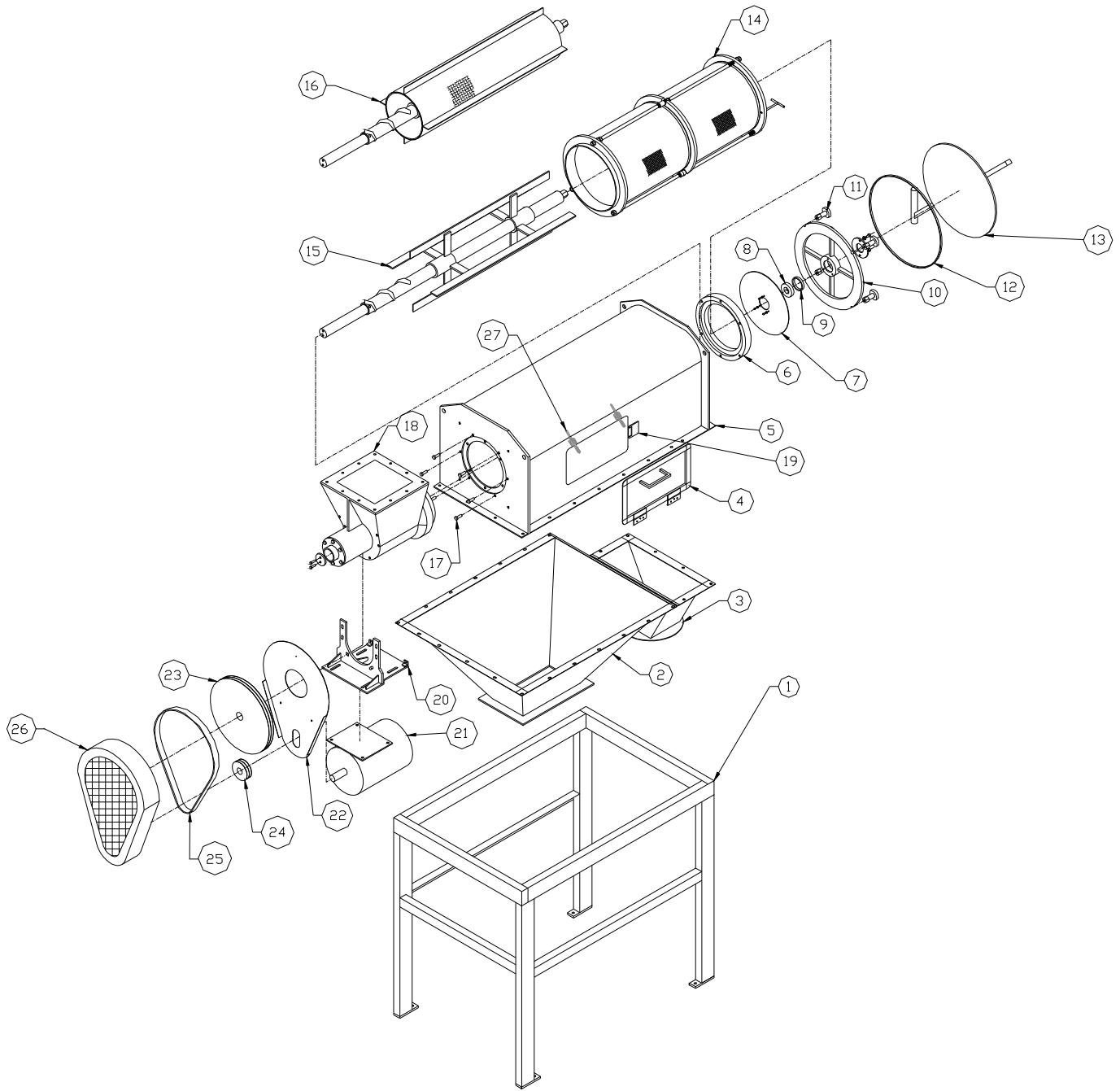


Figure 6-2: RS 301 Main Assembly

PARTS LIST FOR FIGURE 6-2

1	Stand
2	Fines Discharge Assembly
3	Overs Discharge Assembly
4	Inspection Door Assembly
5	Body Assembly
6	Connecting Ring
7	Baffle Plate Assembly
8	Bearing
9	Spacer
10	Bearing Retainer
11	Hand Knobs
12	End Door Gasket
13	End Door Assembly
14	Screen Frame Assembly
15	Standard Rotor Assembly
16	Rota-Trap Rotor Assembly *Optional
17	HHCS & Lockwasher
18	Inlet Bearing Assembly
19	Inspection Door Safety Switch
20	Motor Base
21	Motor
22	Guard Back Plate
23	Sheave, Driven
24	Sheave, Drive
25	Belt
26	Motor Guard
27	Inspection Door Clamp

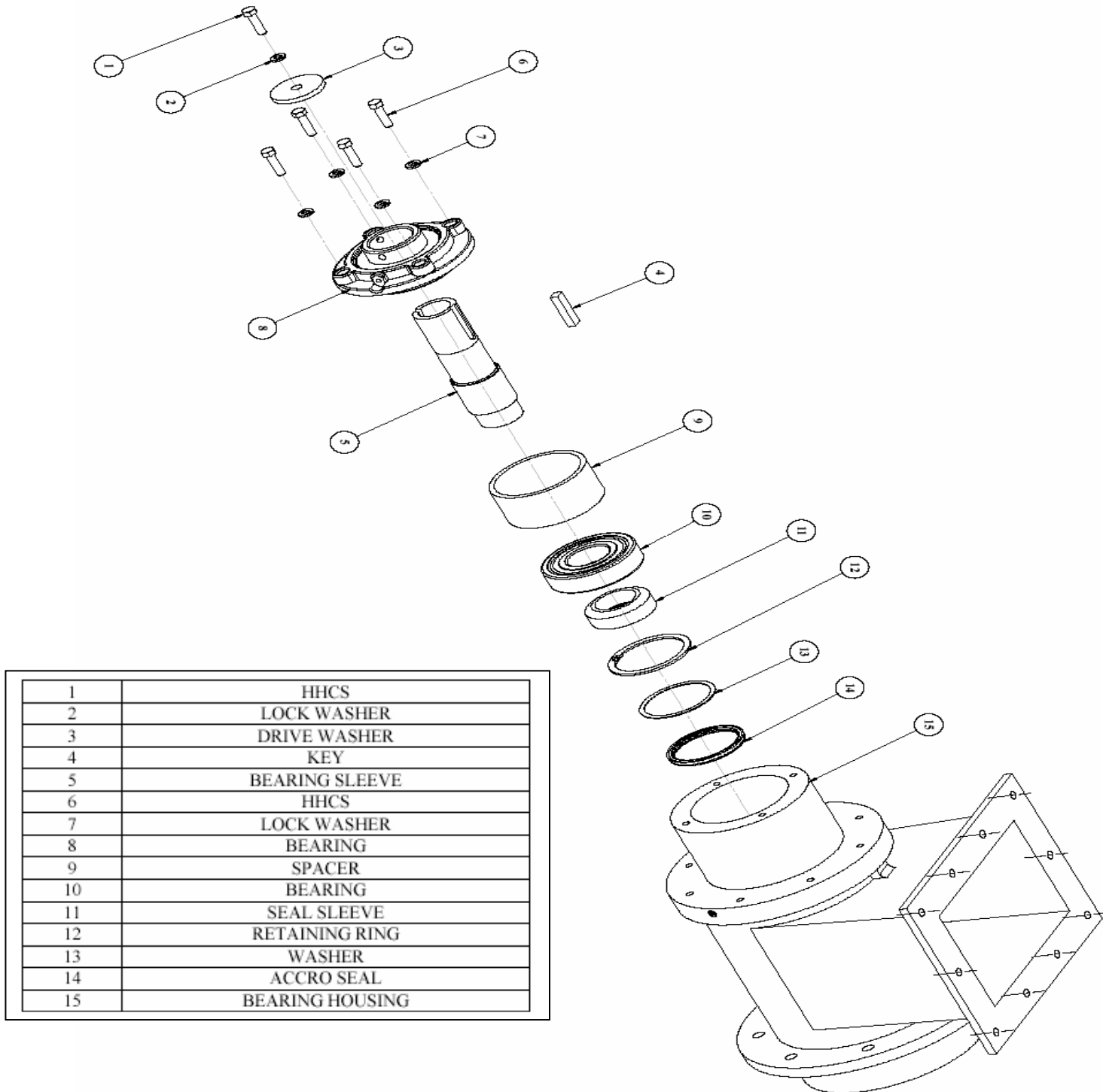


Figure 6-3: RS 91 – RS 151 Bearing Assembly Exploded View

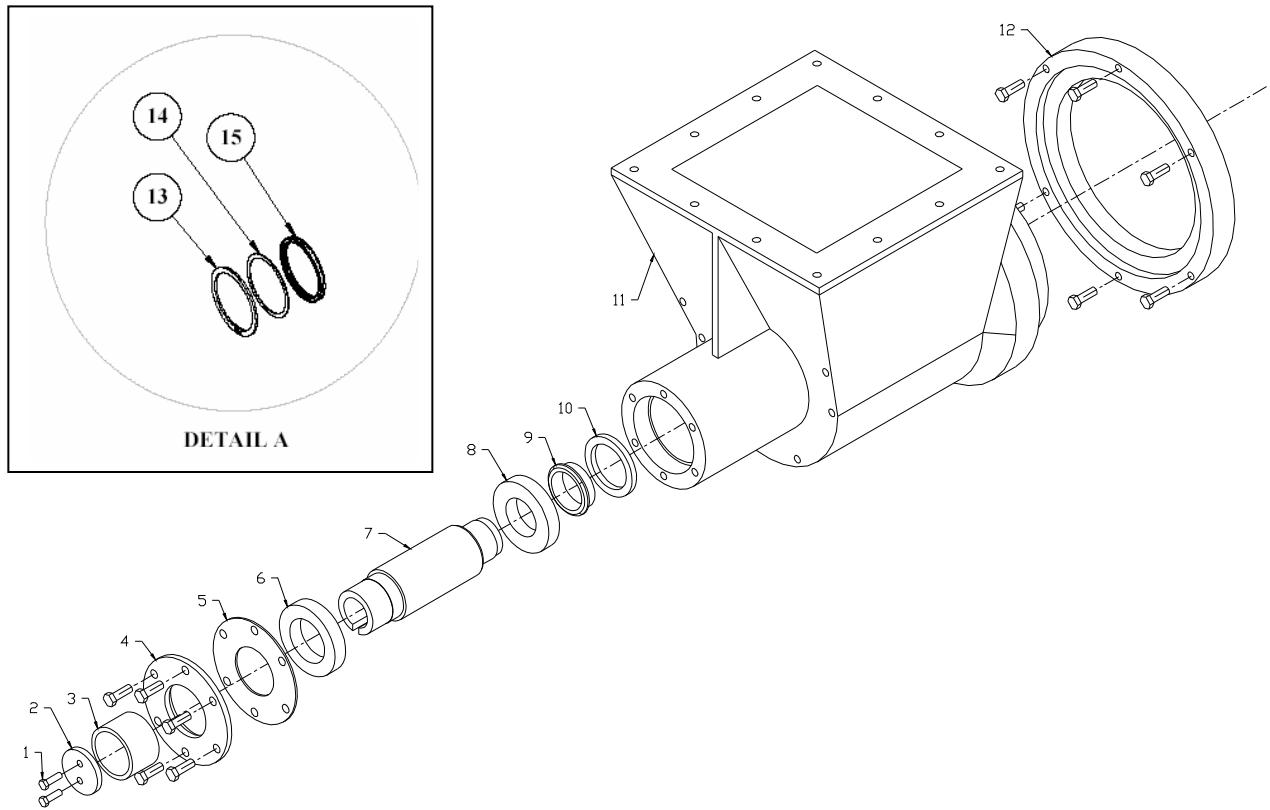
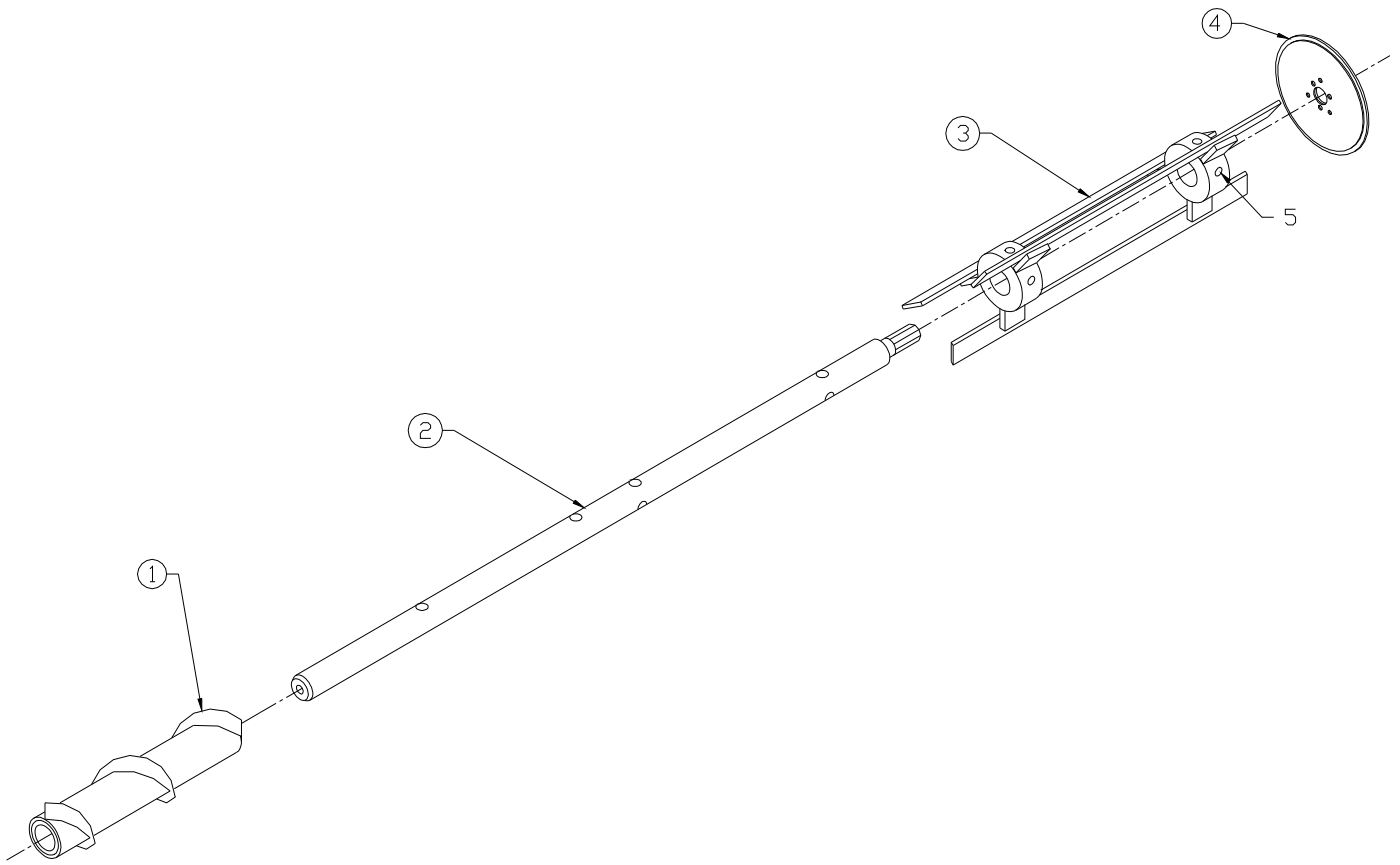


Figure 6-4: RS 301 Bearing Assembly Exploded View

PARTS LIST FOR FIGURE 6-4

1	HHCS & LOCKWASHER
2	DRIVE WASHER
3	PULLEY SPACER
4	BEARING COVER
5	GASKET
6	BALL BEARING
7	BEARING SLEEVE
8	BALL BEARING
9	LOCKNUT & LOCKWASHER
10	SEE DETAIL A
11	BEARING HOUSING
12	CONNECTING RING
13	RETAINING RING
14	WASHER
15	ACCRO SEAL

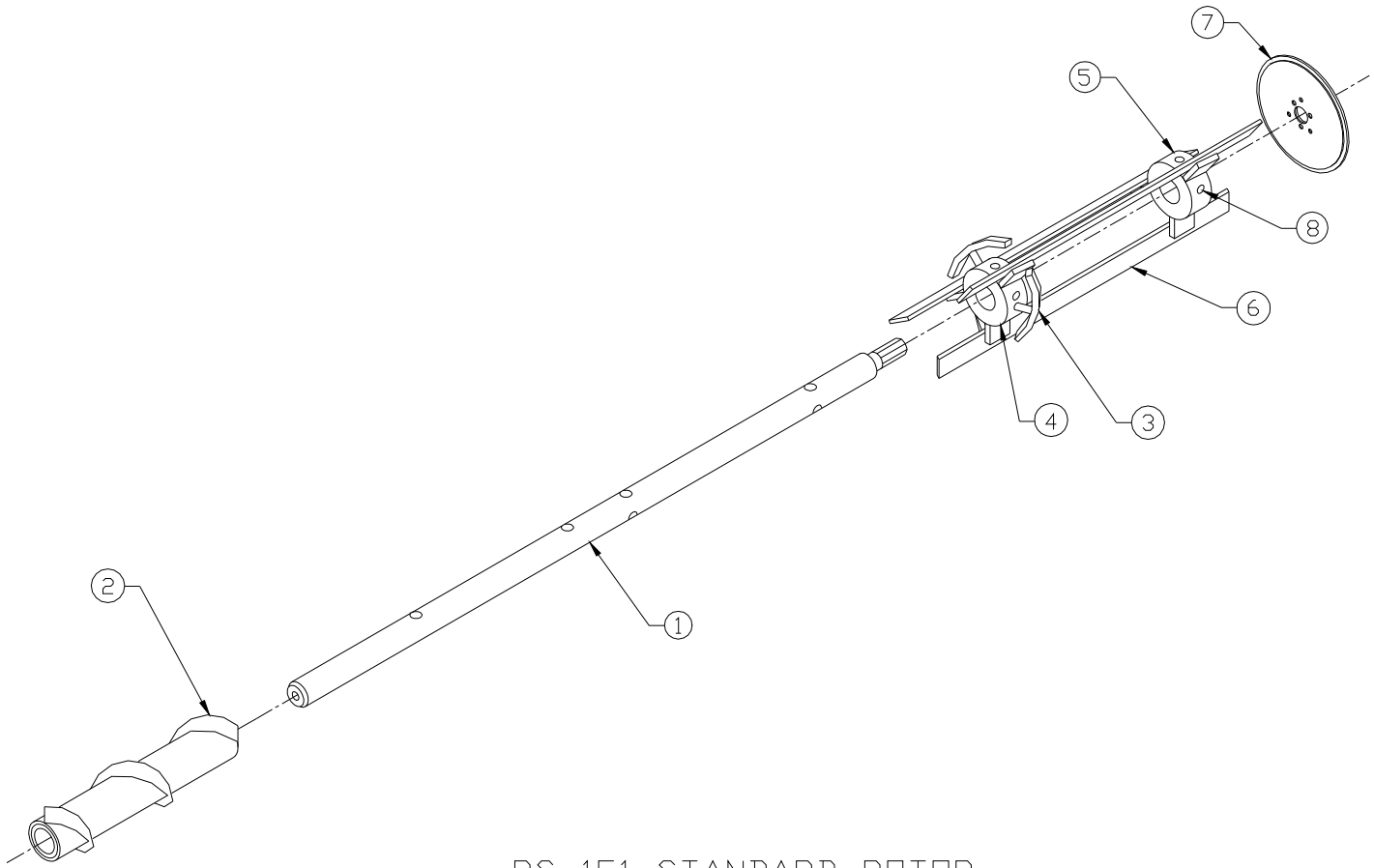


RS-91 STANDARD ROTOR

Figure 6-5: RS 91 Standard Rotor Assembly Exploded View

PARTS LIST FOR FIGURE 6-5

1	AUGER
2	SHAFT
3	BAR & HUB ASSEMBLY
4	BAFFLE ASSEMBLY
5	LOCATION OF SET SCREWS

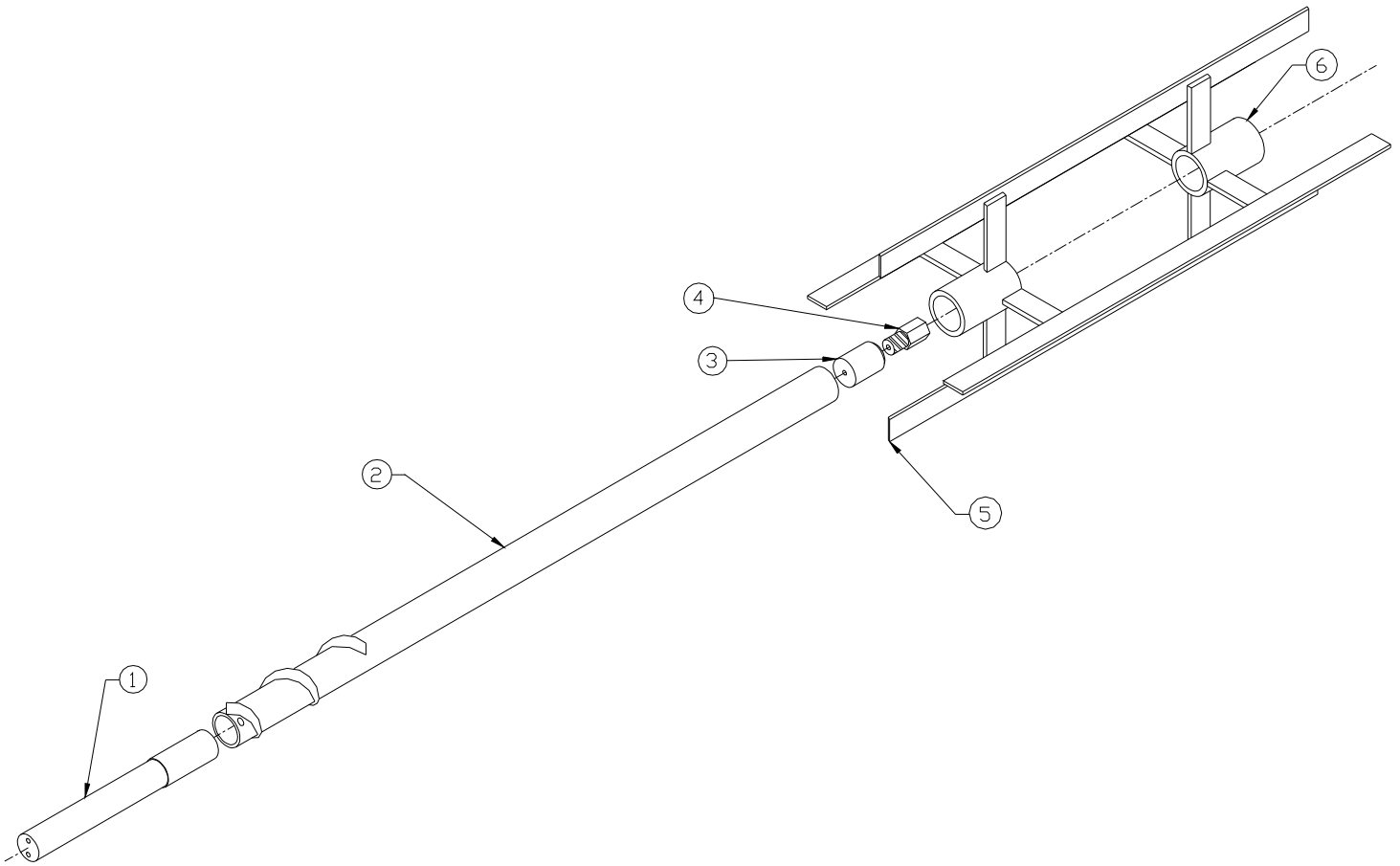


RS-151 STANDARD ROTOR

Figure 6-6: RS 151 Standard Rotor Exploded View

PARTS LIST FOR FIGURE 6-6

1	SHAFT
2	AUGER
3	INLET DISTRIBUTOR ASSEMBLY
4	INLET SPIDER ASSEMBLY
5	DISCHARGE SPIDER ASSEMBLY
6	BAR
7	BAFFLE ASSEMBLY
8	LOCATION OF SET SCREWS



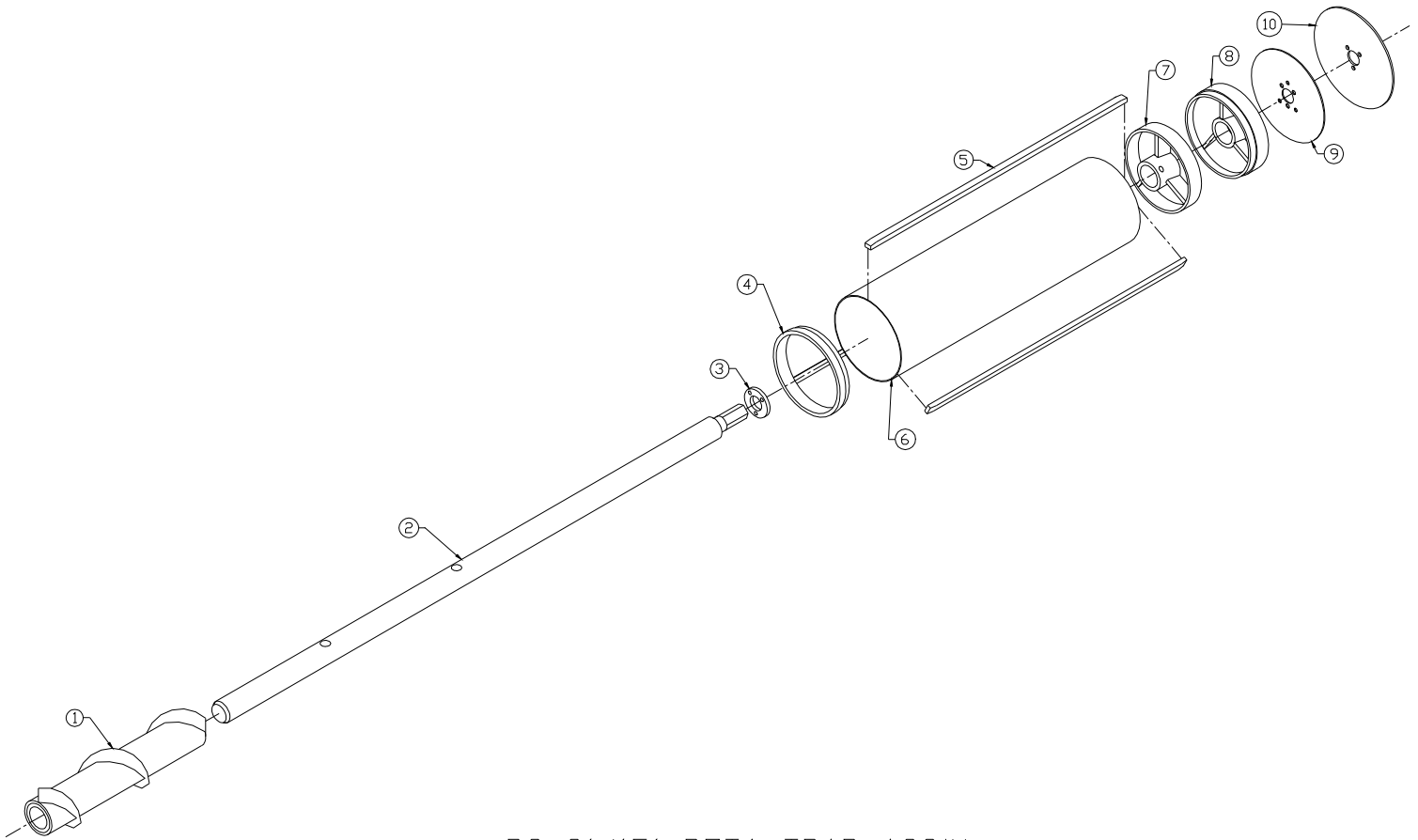
RS-301 STANDARD ROTOR

Figure 6-7: RS 301 Standard Rotor Exploded View

**diagram not representative of parts replacement/ordering*

PARTS LIST FOR FIGURE 6-7

1	BEARING STUB
2	SHAFT
3	HEX STUB
4	HEX SHAFT ADAPTOR
5	BAR
6	SPIDER ASSEMBLY



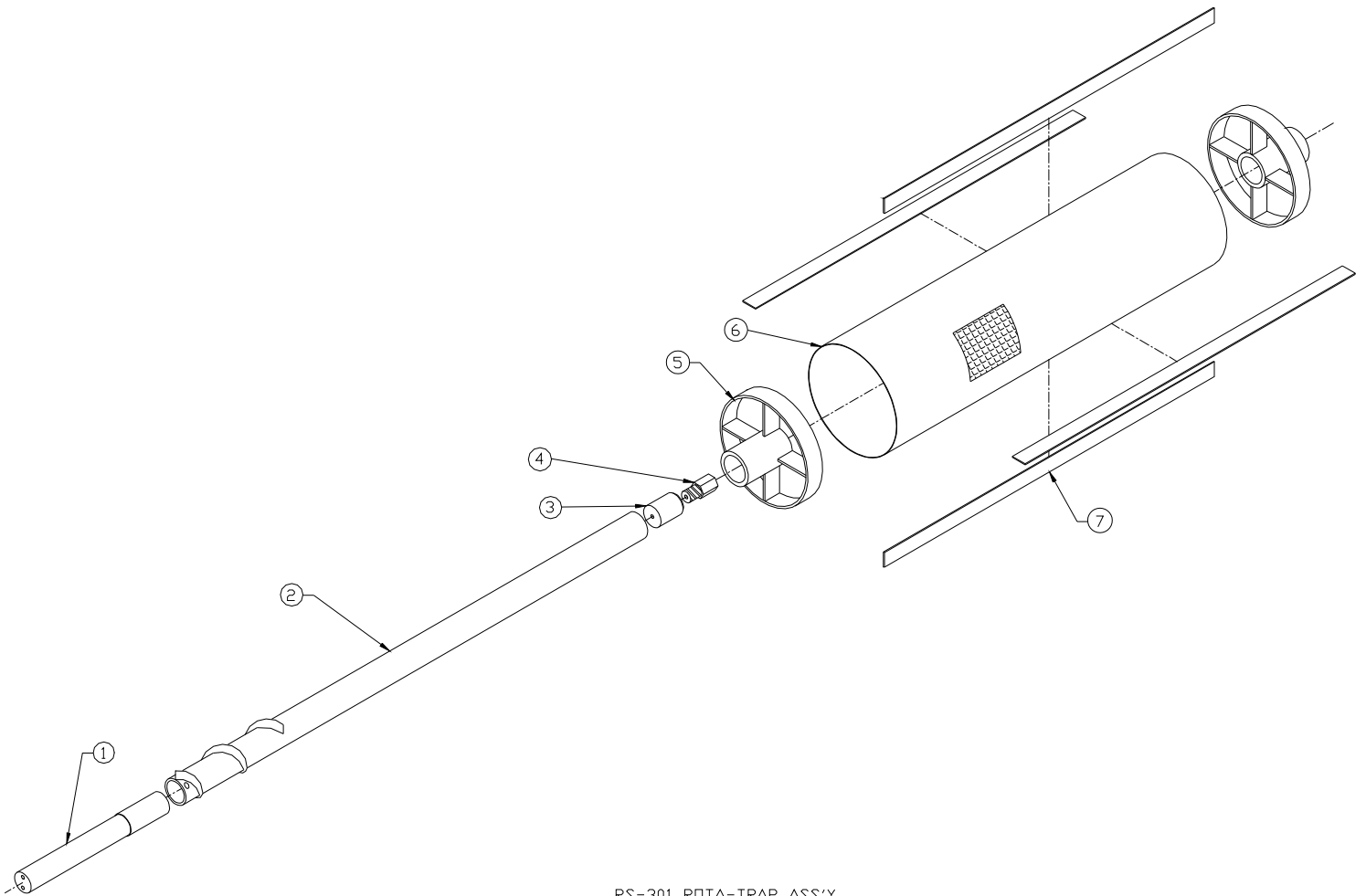
RS-91/151 ROTA-TRAP ASS'Y

Figure 6-8: RS 91 and RS 151 Rota-Trap Exploded View

**Diagram for reference only not intended for parts replacement/ordering*

PARTS LIST FOR FIGURE 6-8

1	AUGER ASSEMBLY
2	SHAFT ASSEMBLY
3	END STOP
4	FEED END RING
5	BAR
6	CYLINDER CAGE
7	CENTER SPIDER
8	DISCHARGE END SPIDER
9	BAFFLE RETAINER
10	BAFFLE



RS-301 ROTA-TRAP ASS'Y

Figure 6-9: RS 301 Rota-Trap Exploded View

**Diagram for reference only not intended for parts replacement/ordering*

PARTS LIST FOR FIGURE 6-9

1	BEARING STUB
2	SHAFT
3	HEX STUB
4	HEX SHAFT
5	TRAP SPIDER ASS'Y
6	SCREEN
7	TRAP BLADE

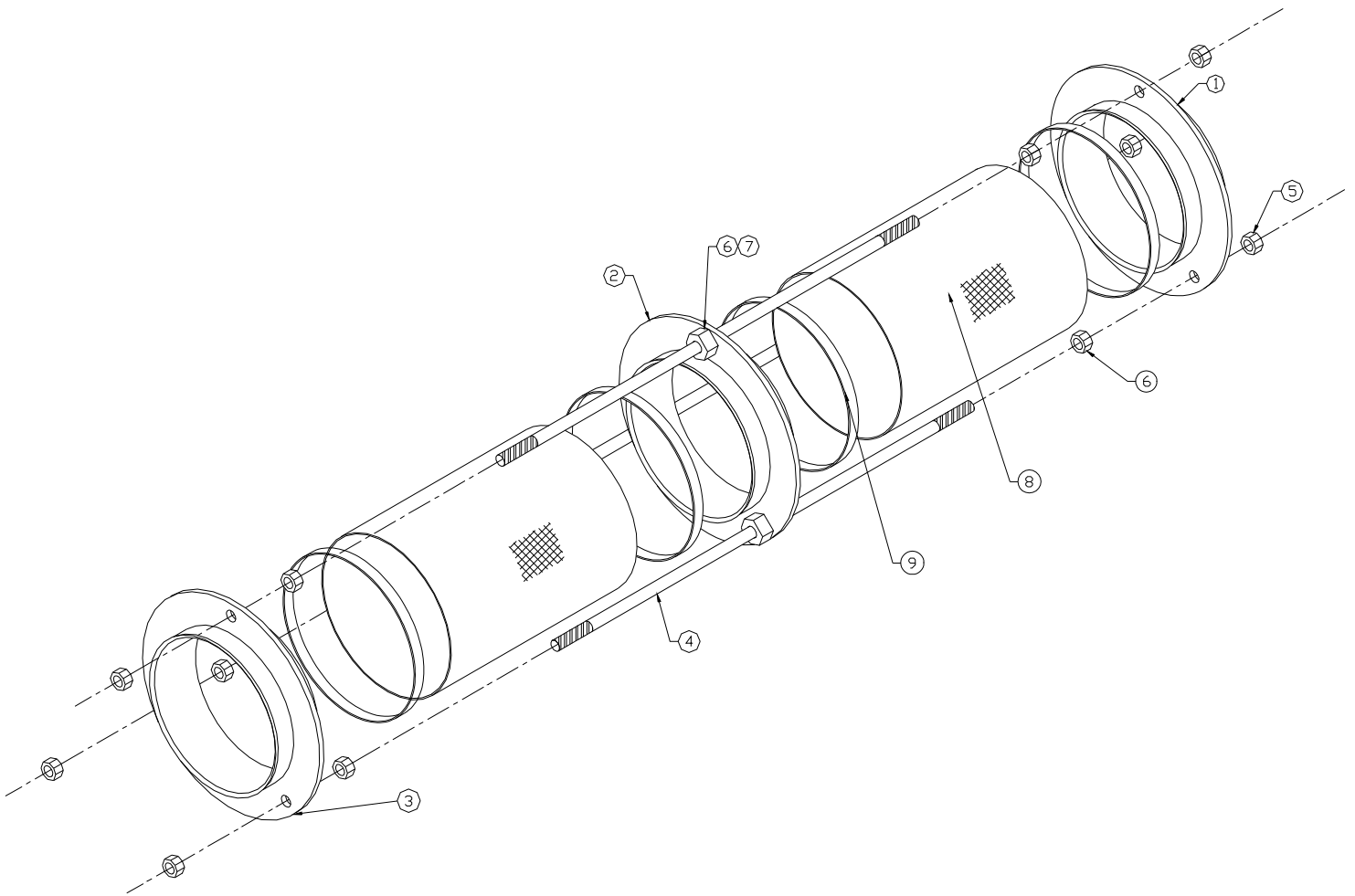


Figure 6-10: Exploded View RS 91 and RS 151 Screen Frame Assembly

*Assembled length is 25 1/8 in. for the RS-91 & 32 1/8 in. for the RS-151

PARTS LIST FOR FIGURE 6-10

1	DISCHARGE END RING
2	CENTER RING
3	FEED END RING
4	ADJUSTABLE ROD ASSEMBLY
5	JAM NUT
6	TENSIONING NUT
7	STAR WASHER
8	SCREEN
9	ADJUSTABLE CLAMP

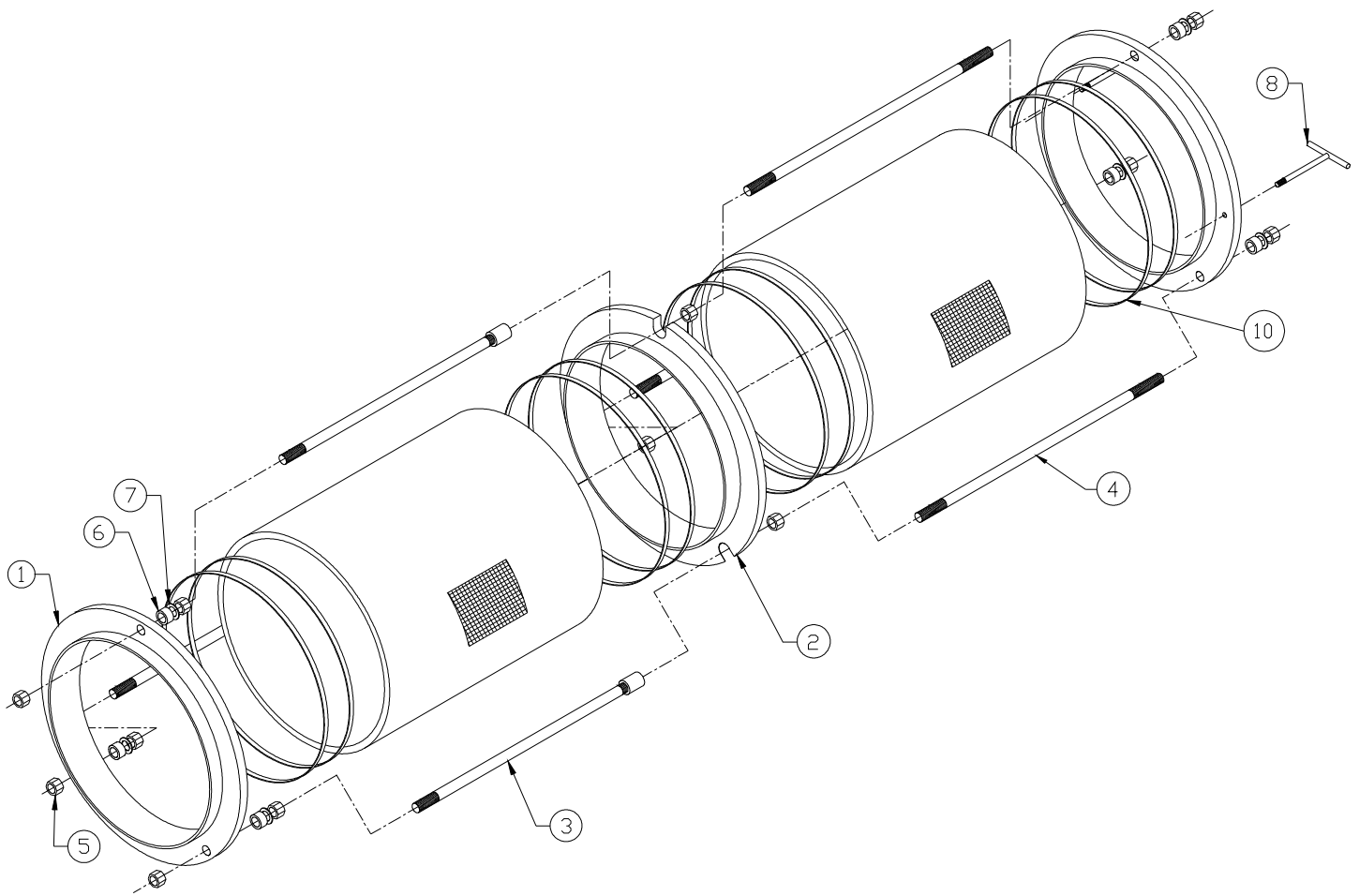


Figure 6-11: Exploded View RS 301 Screen Frame Assembly

*Total length of assembly is 48 ³/₄ in.

PARTS LIST FOR FIGURE 6-11

1	SCREEN END RING
2	CENTER RING
3	ROD SUPPORT ASS'Y
4	RIGHT ROD
5	HEX NUT
6	SPACER
7	WASHER
8	HANDLE
9	SCREEN
10	CLAMP

APPENDIX A
APPLICABLE MODELS: ALL ROTA-SIEVES

All Prater Rota-sieves come fully equipped and ready for customer installation of compressed air when required for specific process conditions. As noted by the arrow below, the air purge tap is located on the right side of the bearing housing and is viewable when standing on the side of the body containing the inspection door.

To install air purge, remove the plug and replace with compressed air fitting and 3-5 PSI of clean, dry compressed air. Air should be supplied whenever the Rota-sieve is in operation.

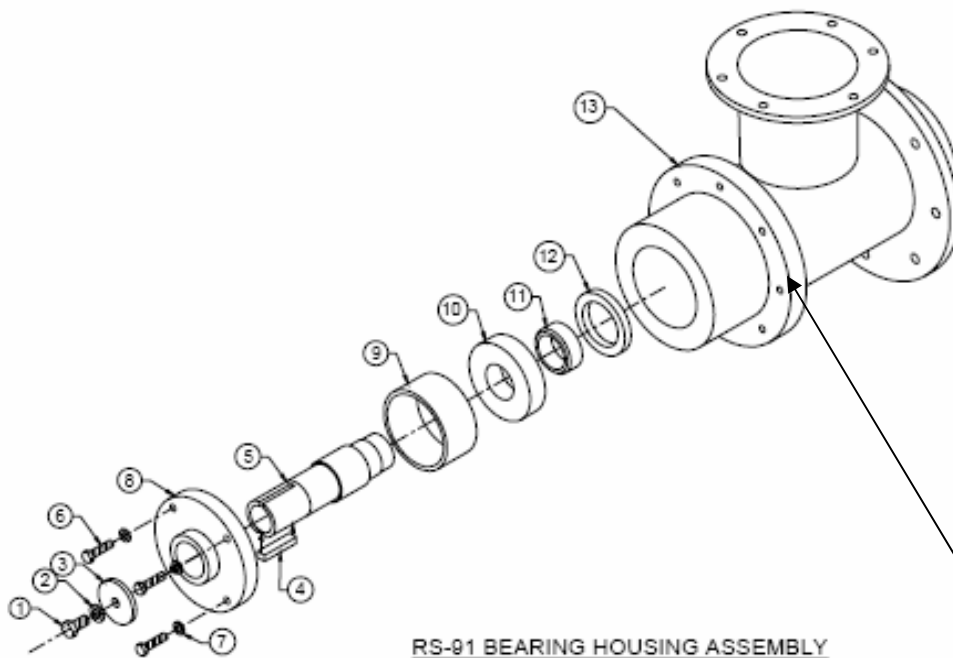


Figure 6-3: RS 91 Bearing Assembly Exploded View

PARTS LIST FOR FIGURE 6-3

1	HHCS, 1/2-13 X 1
2	LOCKWASHER
3	DRIVE WASHER
4	KEY
5	BEARING SLEEVE
6	HHCS, 3/8-18 X 1-1/2
7	LOCKWASHER
8	BEARING
9	SPACER
10	BEARING
11	SEAL SLEEVE
12	SEAL
13	BEARING HOUSING INLET

LOCATION OF AIR PURGE
 TAP FOR DRIVE END
 BEARING