



Rota-Sieve, **RS 700**, **RS700S**, and **RS 1500** Operation and Maintenance Manual

PRATER INDUSTRIES

Rota-Sieve, **RS 700, RS700S, and RS 1500** Operation and Maintenance Manual

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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 ROTA-SIEVE.

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.

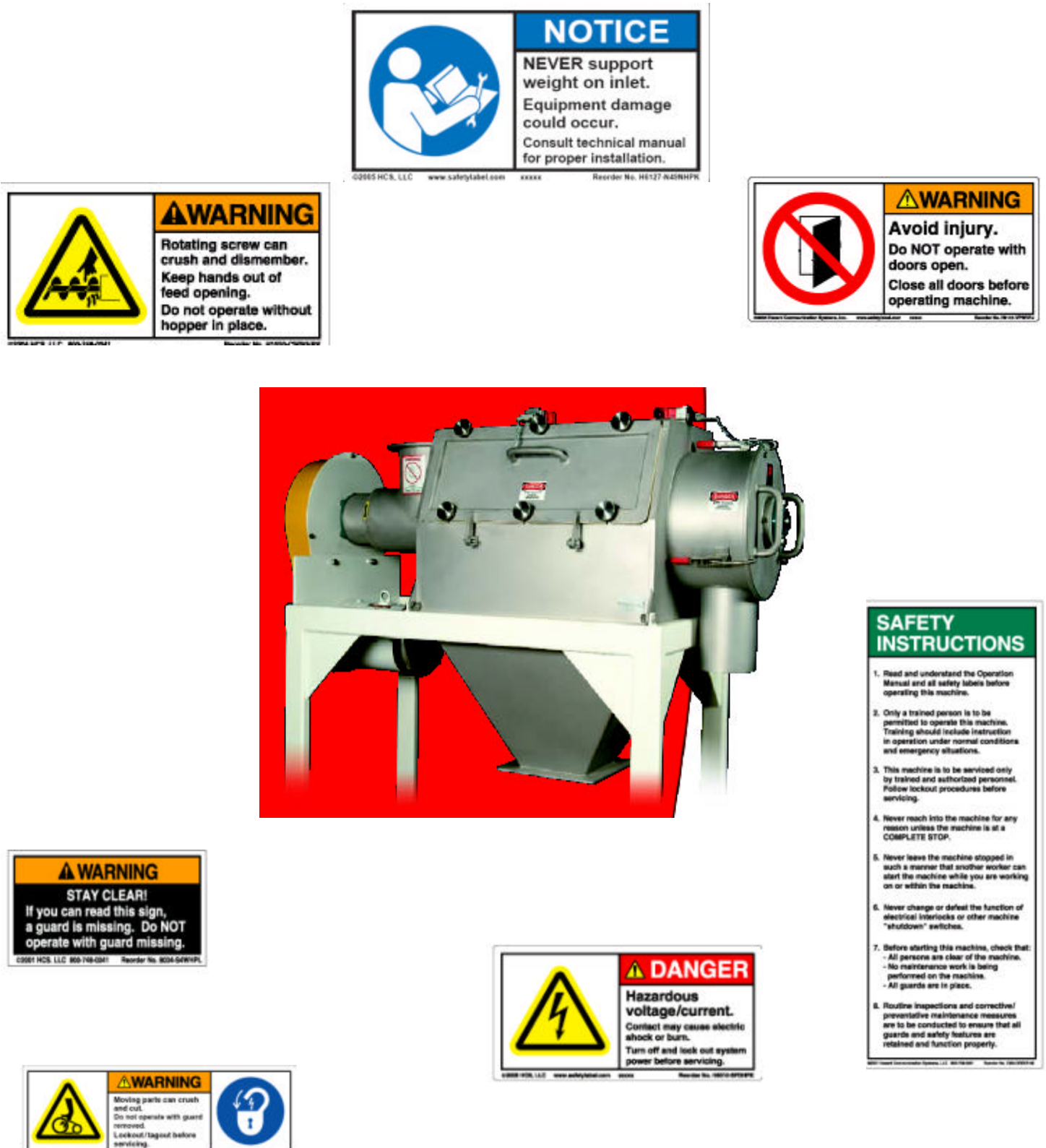
NEVER operate unit without guards and all safety devices in position and functioning.

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, RS 700 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 700 and 1500. 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 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 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 feed material is metered into the feed inlet (item 1, Figure: 6-1). The inlet auger (2) moves the material from the inlet (1) into the screen frame (4). 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 (3) propel the particles against screen (4). Fines pass through the screen and are discharged via the primary discharge hopper (5). Material too coarse to pass through is moved along the length of the screen and discharges through the overs discharge (7), 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 (4) 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 Figure: 6-8. This device protects the screen (4) from foreign materials larger than the perforated holes in the trap itself.

2.6 Specifications

Sieve Model	Model 700	Model 1500
Voltage	230/460	230/460
Motor HP	3	5
Motor Speed (RPM)	1750	1750
Motor Current (Amps)	9.2/4.6	13.8/6.9
Rotor Speed (RPM)	700	450
Screen Area (Sq. In.)	725	1450

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 3.2 thru 3.4 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 3.3)
- 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 (Item 3, Figure 6-2) 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 6-2, 22). Air blowing back through screen (Figure 6-2, 7) 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 6-2, 21) 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 6-2, 3), 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 6-2, 7), it may not exit the oversize discharge. Such material will have to be extracted by hand.

3.8 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.

3.9 Electrical Interlocking

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

CAUTION

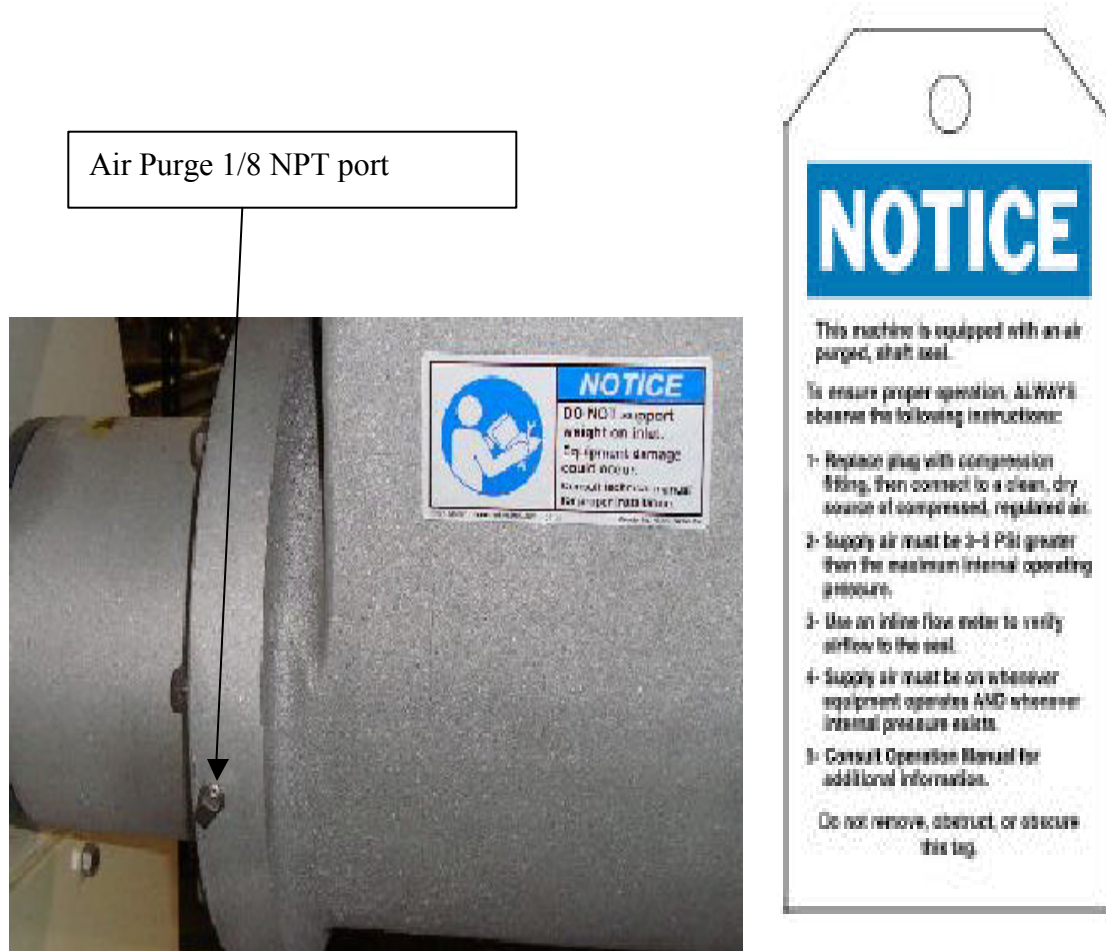
A TIME DELAY IS ALWAYS REQUIRED BETWEEN START-UP OF THE ROTA-SIEVE AND START UP OF THE FEEDER, TO ALLOW ROTA-SIEVE TO REACH FULL OPERATING SPEED BEFORE PRODUCT IS INTRODUCED.

3.10 Unit Check

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

3.11 Air Purge

The drive end bearing (Figure 6-2, 3) 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.



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 6-2, 7) assembly is properly installed and screens (Figure 6-3, 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).

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 Screen Inspection

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.



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. Open Inspection Door (item 6, Figure 6-2) by loosening the Inspection Door Swing Bolts (item 20, Figure 6-2).
4. With the door open you can rotate the assembly 360 degrees, to perform a thorough inspection of the screens.
5. If no wear problems are identified close the Inspection Door, taking care to align the seams as close to the top as possible.
6. If screen replacement is necessary proceed to section 5.3.1.

Note:

The Inspection Door incorporate a screen stop assembly, which prevents the screen frame from spinning or moving forward. Figures 6-4 and 6-5 illustrate the screen stop assembly. Figure 6-5 is a cut away view that shows the position of the screen stop assembly in relation to the screen frame support rod assembly. The screen frame should be installed so that by closing the tapered side of the stop assembly will rotate the screen assembly down slightly.

5.3.1 Screen Replacement

Screen Frame Removal

Note: This section refers to Figures 6-2 and 6-3

1. Turn off the Rota-Sieve and allow the rotor (8) to come to a complete stop.
2. Lock out electrical power to the Rota-Sieve.
3. Loosen End Door Knobs and remove the End Door Assembly (item 5, Figure 6-2).
4. Loosen Inspection Door Knobs (20), and open Inspection Door (6).
5. Gently pull screen frame (7) straight out.

5.3.2 Screen Removal

Note: This section refers to Figure 6-3. In some applications the RS 700S may be a single piece, fully welded design. There are no replaceable parts in the single piece assembly.

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.

5.3.3 Screen Installation

Note: This section refers to Figure 6-3. In some applications the RS 700S Screen Frame may be a single piece, fully welded design. There are no replaceable parts in the single piece assembly.

Note: The seams of the screens should be aligned so that they can be positioned near the top of the assembly when the screen frame is reinstalled.

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.

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 6-11.
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

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. Remove End Door Assembly (5) and open Inspection Door (6).
4. Gently slide screen frame (7) into body assembly (2), positioning the seams as close to the top as possible.
5. Install End Door Assembly (5) and secure with the three hand knobs.
6. Close Inspection Door (6)
7. 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.

NOTE: This procedure refers to 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. Open Inspection Door (6) and remove End Door Assembly (5).
4. Carefully remove screen frame (7).
5. From the End Door side lift rotor assembly slightly, while pulling toward the End Door. When the rotor is clear of the stub shaft, it will fall slightly until the auger assembly rests on the feed inlet.
6. From the End Door and the Inspection Door lift the assembly by the paddles and the shaft end slightly and walk the rotor out through End Door.

5.4.1: Installing the Rotor Assembly

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

1. Lock out the electrical supply to the unit before opening any of the access doors.
2. Remove the screen frame (14). See Section 4.5.
3. Rotate the stub shaft thru the feed inlet to position the keyway at the 12 o'clock position.
4. On the discharge end of the shaft there is an arrow which points to the position of the keyway in the drive end of the shaft.
5. Insert the drive end of the rotor assembly thru the End Door opening.

6. Using both the Inspection, and End openings, carefully lift and position the drive end of the shaft into the feed inlet.
7. From the End Door side rotate the shaft so that the arrow is pointing at 12 o'clock, this should align the two keyways.
8. From the Inspection opening lift the rotor slightly and position onto the stub shaft assembly and slide it to the rotor stop. You may have to rotate slightly to find the keyway on the stub shaft.
9. Reinstall the screen frame, End Door, and close the Inspection Door.
10. Unlock the power supply.

5.5 Optional Rota-Trap Cleaning

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 (6-9). 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.



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, 7). See Section 5.3.1
4. Open the end door (6-2, 5).
5. Remove baffle assembly (6-9, 9 and 10).
6. Remove foreign material manually from cylinder cage (6-9, 6)

7. Reinstall the screen frame (6-2, 7). See Section 5.3.2
8. Close and secure all doors before restarting the machine.

5.6 Belt Tension

NOTE: This procedure refers to Figure 6-9 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 $\frac{1}{4}$ " or less.
5. If deflection is more than $\frac{1}{4}$ ", 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).

5.7 Bearing Details

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

The end of the Rota-Sieve bearing assembly uses a regreasable-flanged end bearing (Figure 6-6, 10) 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 3.11 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.

5.8 Drive End Bearing Replacement RS700, and RS1500



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 **Figures: 6-6, and 6-9 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. Now, the screen frame and rotor assembly must be removed from the inside of the machine. Follow steps in Sections 5.3.1 and 5.4
4. Remove the belt guard (6-9, 5). Reduce the belt tension by loosening the motor mount bolts and sliding the motor (6-9, 3) up the bracket (6-9, 1).
5. Remove the hex head cap screw assembly (6-9, 11, 6-6, 2). Also remove the belt (6-9, 10), sieve pulley (6-9, 9), keys, and the guard back plate (6-9, 4). You should be able to pull out the stub shaft assembly (6-6, 5)
6. Next, remove the hex head cap screws securing the flange bearing (6-6, 10). Gently guide the flange bearing assembly (6-6, 10) and the bearing sleeve (6-6, 4) out of the bearing housing (6-6, 1).
7. Now, the setscrew on the flange bearing can be loosened and the bearing sleeve (6-6, 4) can be removed.

8. Next, pull out the spacer (6-6, 3). The second bearing (6-6, 9) can now be removed from the bearing housing.
9. Finally, remove the seal (6-6, 7). It is recommended the seal be replaced with each bearing change independent of the appearance of the seal itself. To remove the seal remove snap ring (6-6, 9) and washer (6-6, 8) from the housing. The seal can now be removed from the seal seat in the housing.

5.9 Drive End Bearing Installation RS700, and RS1500



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 Figures: 6-6, and 6-9 in the rear of the manual.

1. Lock out electrical power to the Rota-Sieve.
2. 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.
3. 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.
4. 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.

5. To begin reassembling the bearing housing, locate the new seal (6-6, 7) and seat it against the inner most shoulder of the bearing housing (6-6, 1). Make sure that the seal is seated squarely and is contacting the shoulder at all points on the face of the seal. Next install the washer (6-6, 8) and press it firmly against the seal. Install the snap ring (6-6, 9) into the recessed groove in the bearing housing to hold the seal in place.
6. Next, press the ball bearing (6-6, 11) into the bearing housing (6-6, 1), you may want to tap the outer race with a brass bar to ensure that the bearing is properly seated.
7. Next install the bearing sleeve (6-6, 4) un-keyed end into the bearing housing and use light blows with a rubber mallet to seat the inner race of the ball bearing against the shoulder of the sleeve.
8. Next, install the bearing spacer (6-6, 3) in the bearing housing (6-6, 1). It should be in contact against the outer race of the ball bearing (6-6, 11) that has already been installed.
9. Mount the flange bearing (6-6, 8) using the lock washers and the hex head cap screws to the end face of the bearing housing. Once the flange bearing is mounted, tighten the setscrew down onto the bearing sleeve. Finally install the stub (6-6, 5) to complete the bearing assembly.
10. Now, the rotor and screen frame can be reinstalled inside the machine. Follow the steps from Section 5.3.3 and 4.1.
11. Next, replace the guard back plate (6-9, 4), sieve pulley (6-9, 9), key, and belt (6-9, 10). Be sure to follow steps in Section 5.6 for proper belt tensioning and pulley alignment.
12. Secure the drive washer, lock washer, and hex head cap screw (6-9,11) to the end of the rotor shaft.
13. Finally, secure the belt guard (6-9, 5). 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.

5.10 Drive End Bearing Removal RS 700S



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 Figures: 6-10, and 6-9 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. Now, the screen frame and rotor assembly must be removed from the inside of the machine. Follow steps in Sections 5.3.1 and 5.4
4. Remove the belt guard (6-9, 5). Reduce the belt tension by loosening the motor mount bolts and sliding the motor (6-9, 3) up the bracket (6-9, 1).
5. Remove the hex head cap screw assembly (6-9, 11, 6-6, 2). Also remove the belt (6-9, 10), sieve pulley (6-9, 9), keys, and the guards back plate (6-9, 4). You should be able to pull out the stub shaft assembly (6-10, 5) at this time.
6. Open the bearing access door (Figure 6-12,1) by removing the nuts, and washers from the threaded studs (Figure 6-12,2), and lifting the door into the open position, which allows access to the bearings.
7. Remove four bolts securing each flange bearing (Figure 6-10, 1) to the sifter bearing housing assembly (Figure 6-10, 2) and remove the two bearings.
8. Inspect the shaft seal (Figure 6-10, 3) and remove if worn or damaged.

5.11 Drive End Bearing Installation RS 700S

1. If the shaft seal (Figure 6-10, 3) was removed press new seal into sifter bearing housing assembly (Figure 6-10, 2).

2. Install the new flange bearings (Figure 6-10, 1) to the sifter bearing housing assembly (Figure 6-10, 2) by re-securing with the fasteners removed in section 5-10, 7. Ensure that the bearings are oriented with the zerk fittings pointing up. There is no need to add grease to the new bearings at this time.
3. Insert the stub shaft assembly through the sifter body and the flange bearings until it bottoms out against the shaft stop on the stub shaft.
4. Now, the rotor and screen frame can be reinstalled inside the machine. Follow the steps from Section 5.3.3 and 4.1.
5. Next, replace the guard back plate (6-9, 4), sieve pulley (6-9, 9), key, and belt (6-9, 10). Be sure to follow steps in Section 5.6 for proper belt tensioning and pulley alignment.
6. Secure the drive washer, lock washer, and hex head cap screw (6-9,11) to the end of the rotor shaft.
7. Finally, secure the belt guard (6-9, 5). 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.

5.12 Replacing the End Door Bearing RS 700/700S, RS 1500



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. Remove End Door Assembly (Figure 6-11, 1) from the sifter body.
2. Remove fasteners securing the End Door Guard (Figure 6-11, 4) and remove.
3. Remove fasteners securing the Flange Bearing (Figure 6-11, 3) and remove.
4. Inspect the shaft seal (Figure 6-11, 2) and replace if worn or damaged.

5. Install new Flange Bearing (Figure 6-11, 3) and secure with fasteners removed in step 3.
6. Install End Door Guard (Figure 6-11, 4) and secure with fasteners removed in step 2.
7. Install End Door Assembly (Figure 6-11, 1) onto the sifter body and secure.

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.

1.2 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.

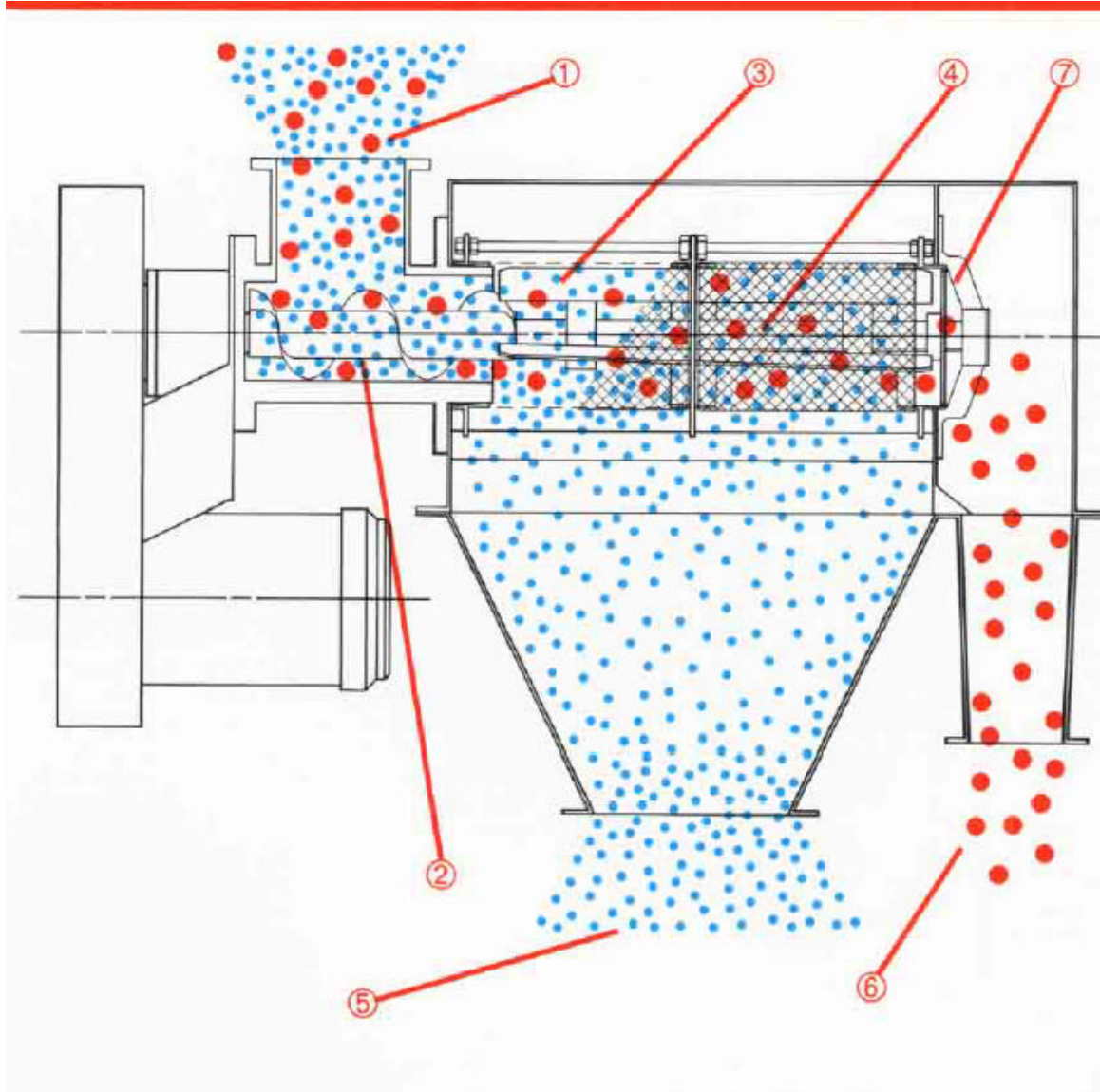


Figure 6-1: RS Theory of Operation

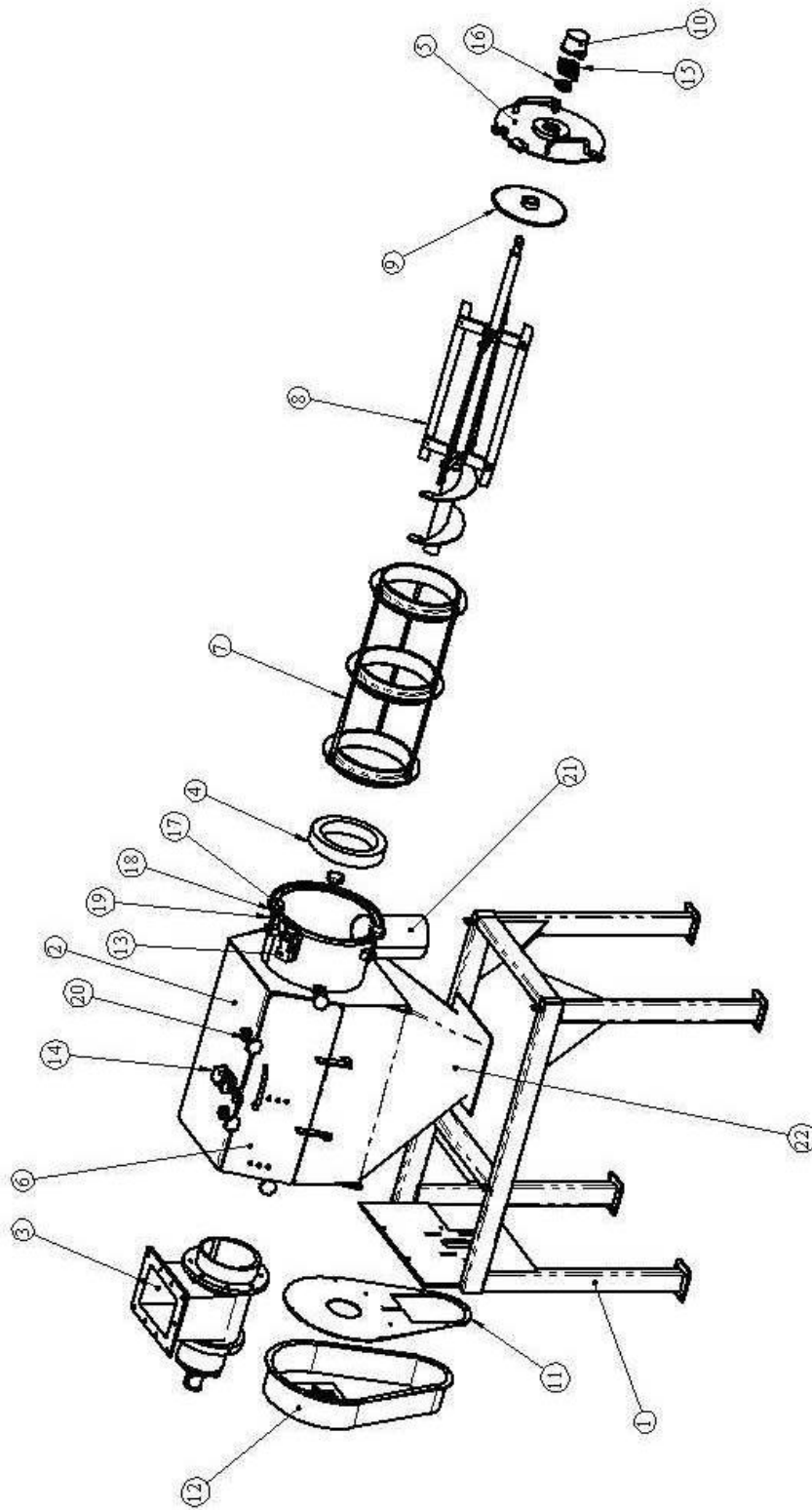


Figure 6-2: RS 700, RS 1500 Main Assembly

PARTS LIST FOR FIGURE 6-2

1	Stand
2	Body and Overs Hopper Weldment
3	Inlet Bearing Assembly
4	Inlet Ring
5	End Door Assembly
6	Inspection Door Assembly
7	Screen Frame Assembly
8	Rotor Assembly
9	Baffle Assembly
10	End Door Guard Assembly
11	Belt Guard Back Plate
12	Belt Guard Cover
13	Inspection Door Safety Switch
14	End Door Safety Switch
15	End Door Bearing
16	End Door Seal
17	Door Knobs
18	Door Washers
19	End Door Swing Bolts
20	Inspection Door Swing Bolts
21	Overs Discharge Hopper
22	Fines Discharge Assembly

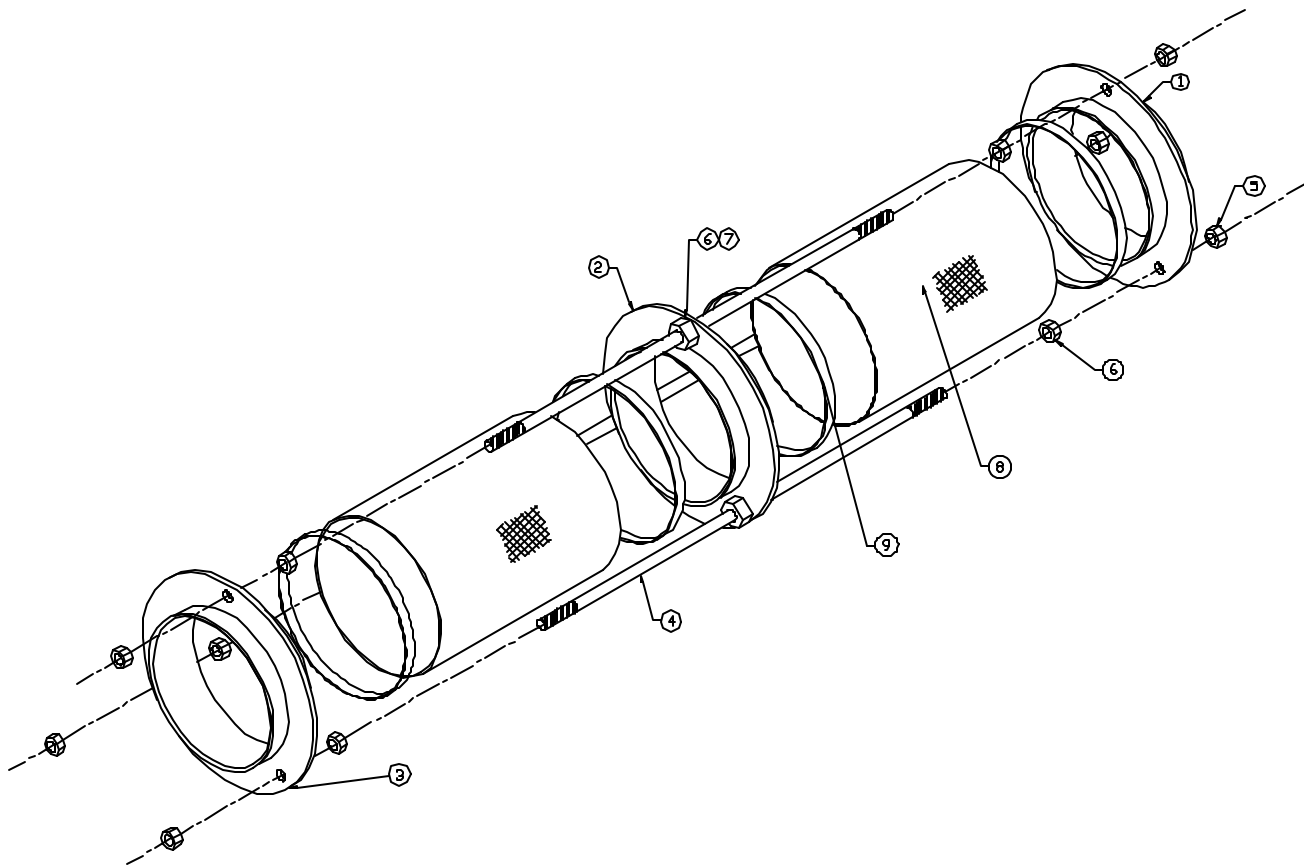


Figure 6-3: RS 700/700S, RS 1500 Screen Frame Assembly Exploded View

PARTS LIST FOR FIGURE 6-3

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

Note: In some applications the RS 700S may be a single piece, fully welded design. There are no replaceable parts in the single piece assembly.

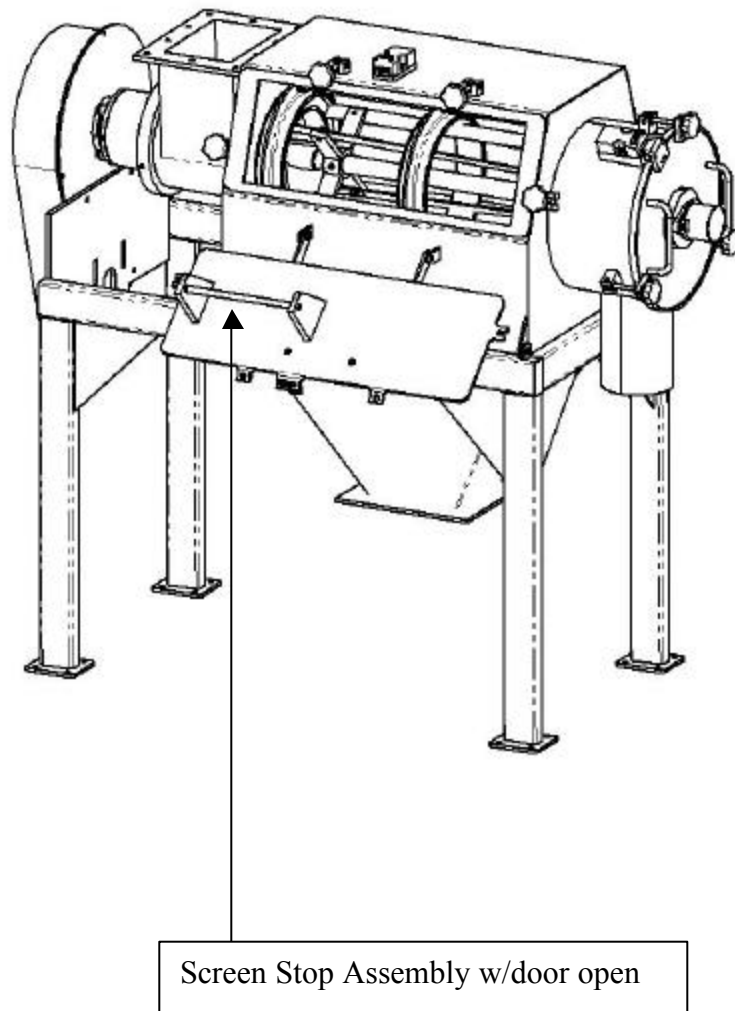


Figure 6-4: Screen Stop Assembly with the door open

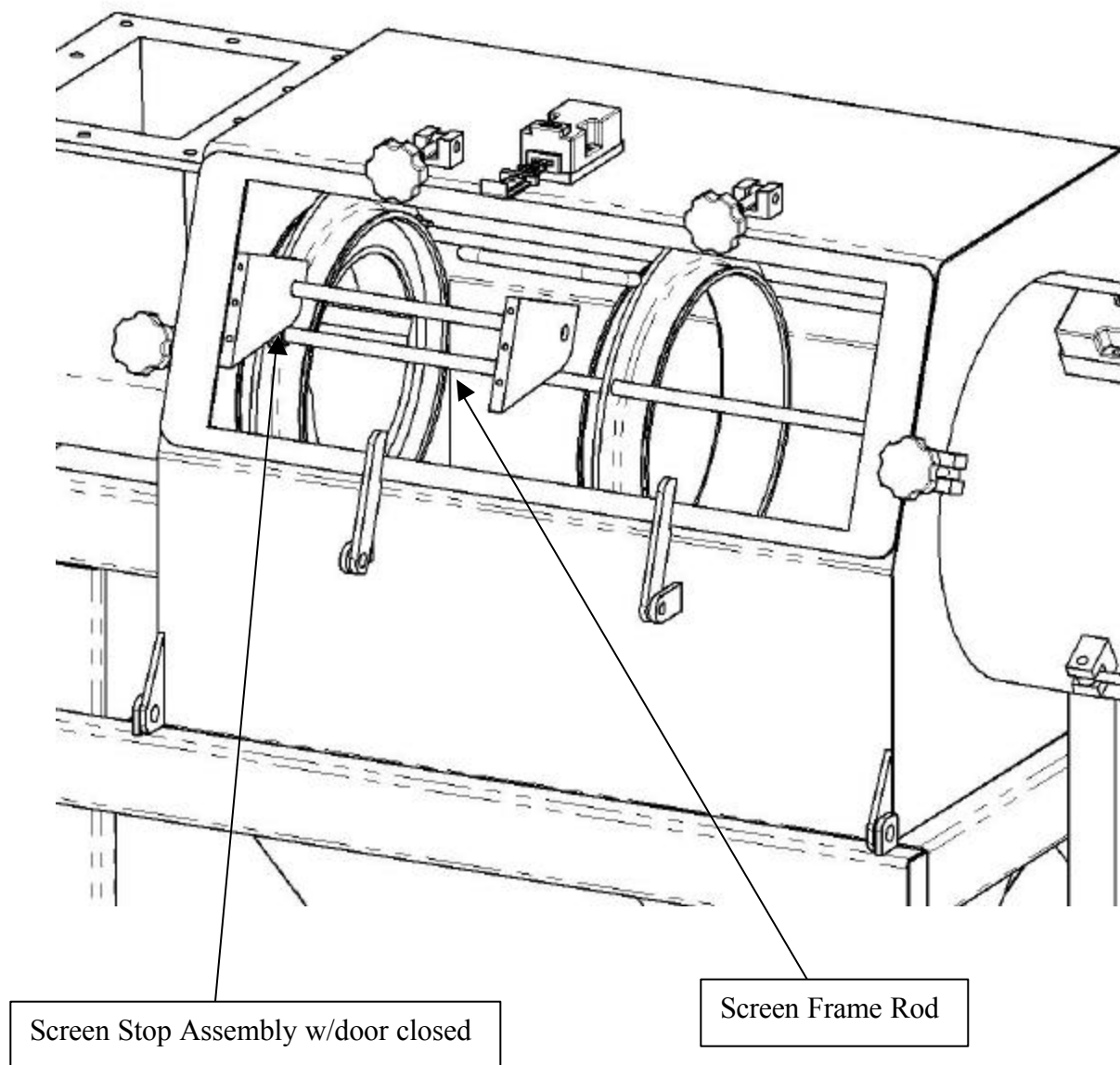


Figure 6-5: Cut away view of the Screen Stop Position with Inspection Door closed

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	3RS-1716-2C	BEARING HOUSING INLET	1
2	3RS-1006-03	DRIVE WASHER	1
3	3RS-1118-01	BEARING SPACER	1
4	3RS-7000-25	BEARING SLEEVE	1
5	5RS-7003-13	STUB SHAFT	1
6	3RS-1015-01	KEY	1
7	1-481-3035-0	ACCRO SEAL	1
8	3RS-1119-05	WASHER	1
9	1-107-0354-0	SNAP RING	1
10	1-103-9532-0	FLANGE BEARING	1
11	1-101-6310-1	BALL BEARING	1

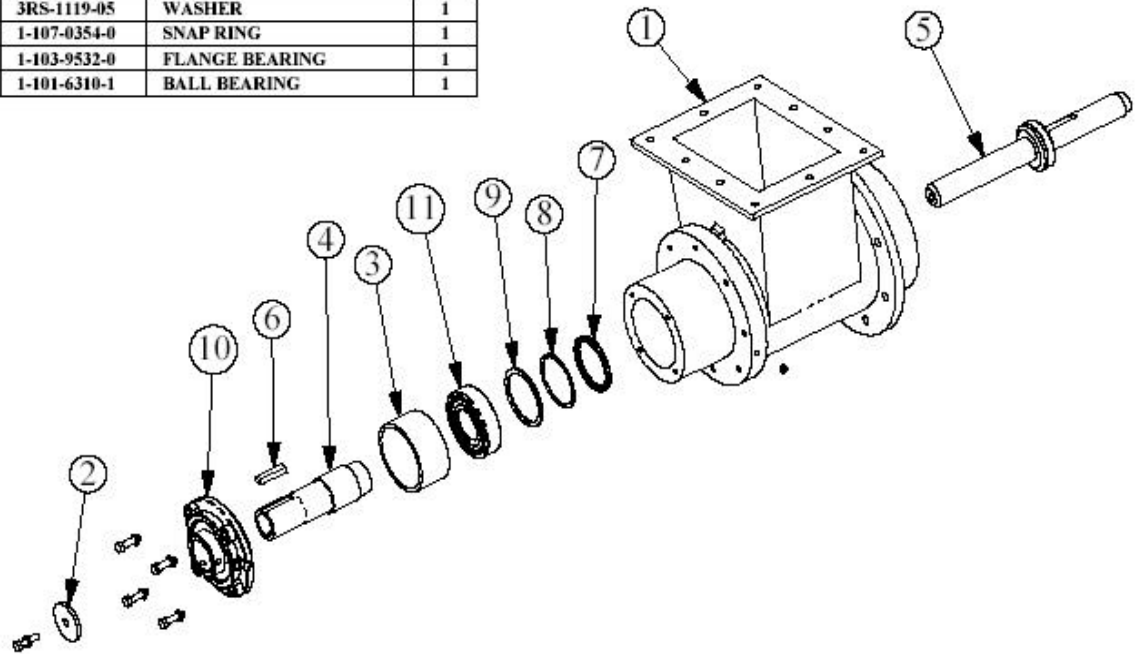


Figure 6-6: RS 700/1500 Bearing Assembly Exploded View

ITEM NO.	DESCRIPTION	QTY.
1	SHAFT	1
2	SPIDER ASSEMBLY	2
3	AUGER	1
4	ROTOR BAR	4
5	BAR MOUNTING BOLT	8
6	BAR LOCK WASHER	8
7	AUGER SET SCREW	2
8	SPIDER SET SCREW	4

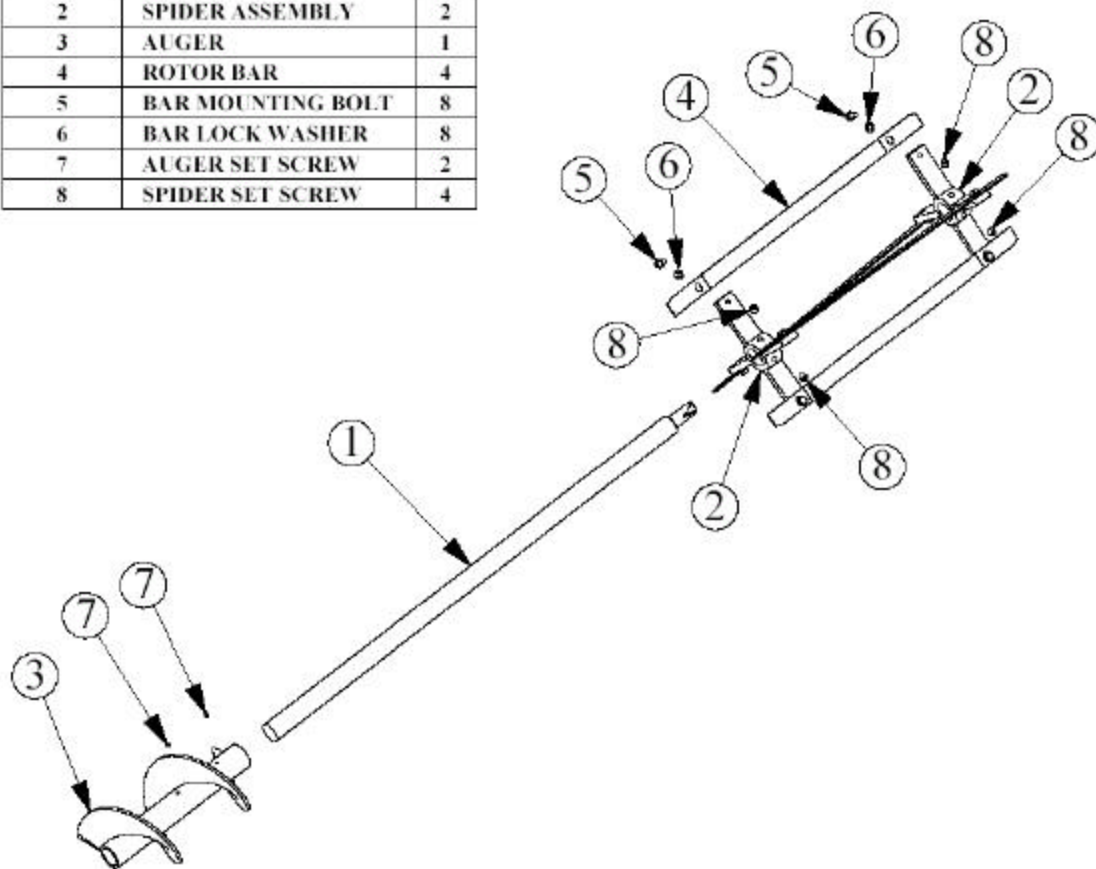


Figure 6-7: RS 700-700S/1500 Standard Rotor Exploded View

Note: In some applications the RS 700S will be a fully welded assembly containing no user replaceable parts.

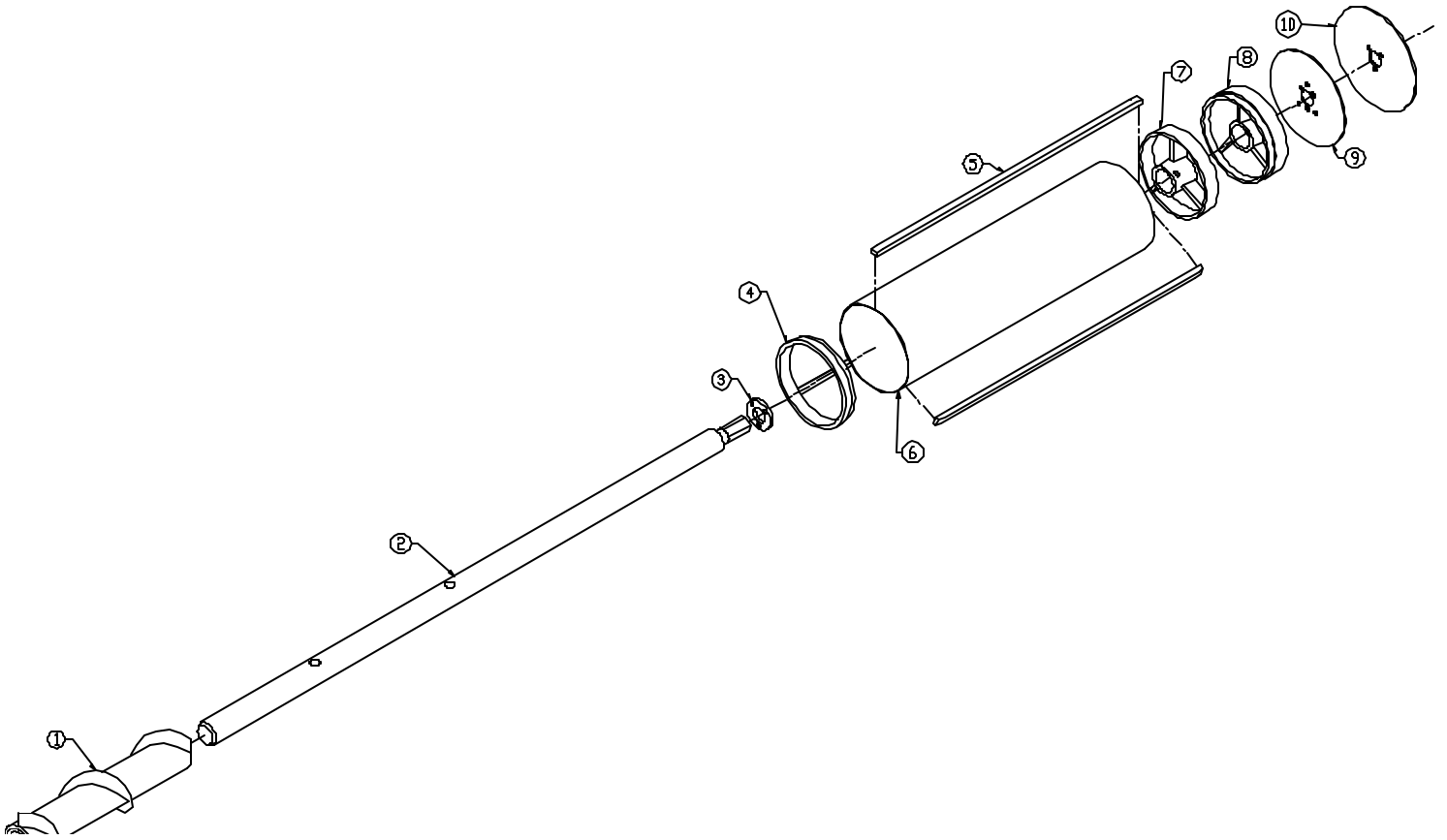


Figure 6-8: RS 700/1500 Rota-Trap Exploded View
**Diagram for reference only not intended for parts replacement/ordering*

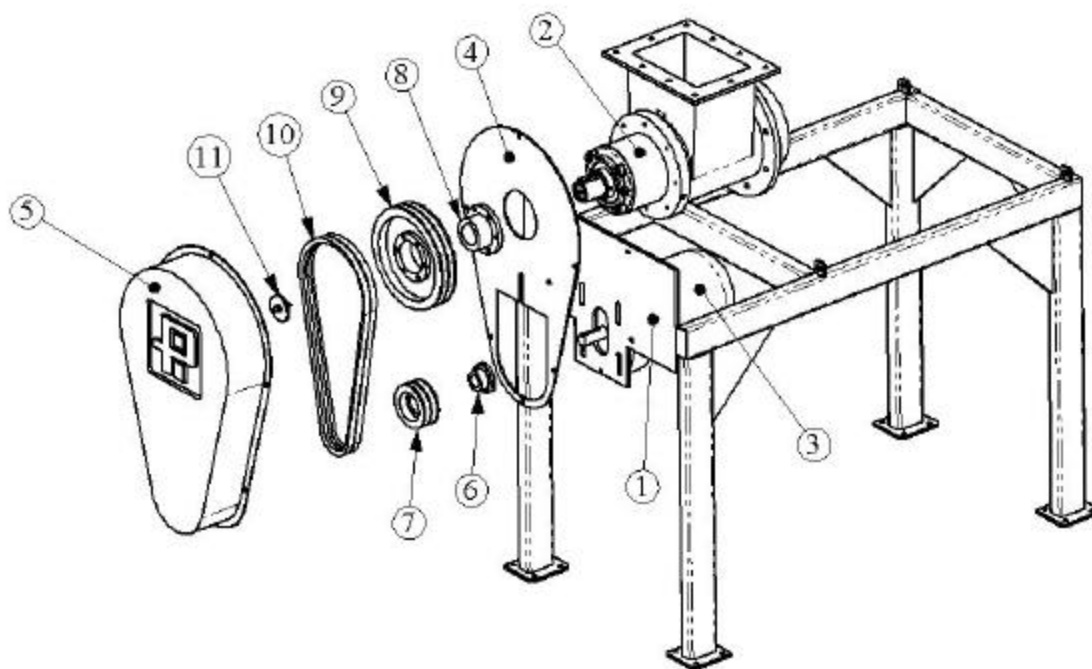
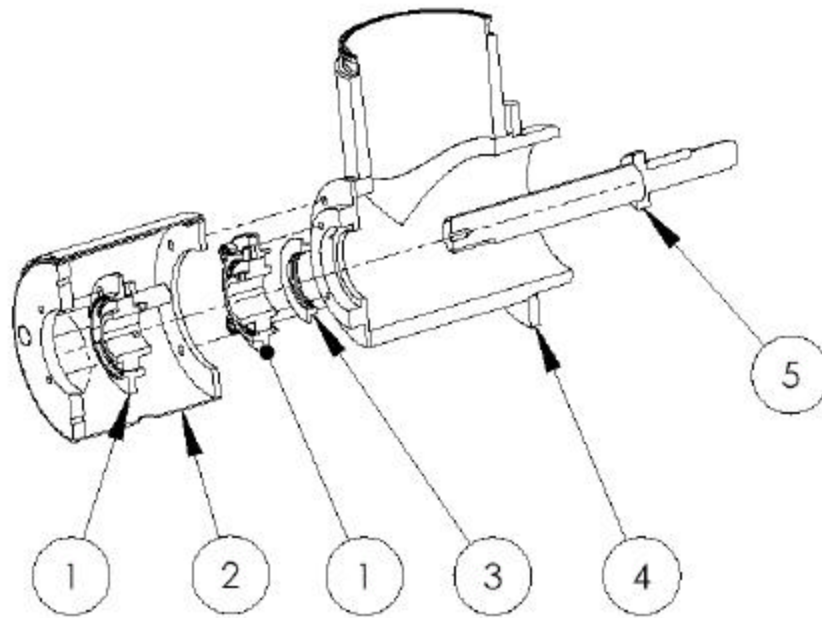
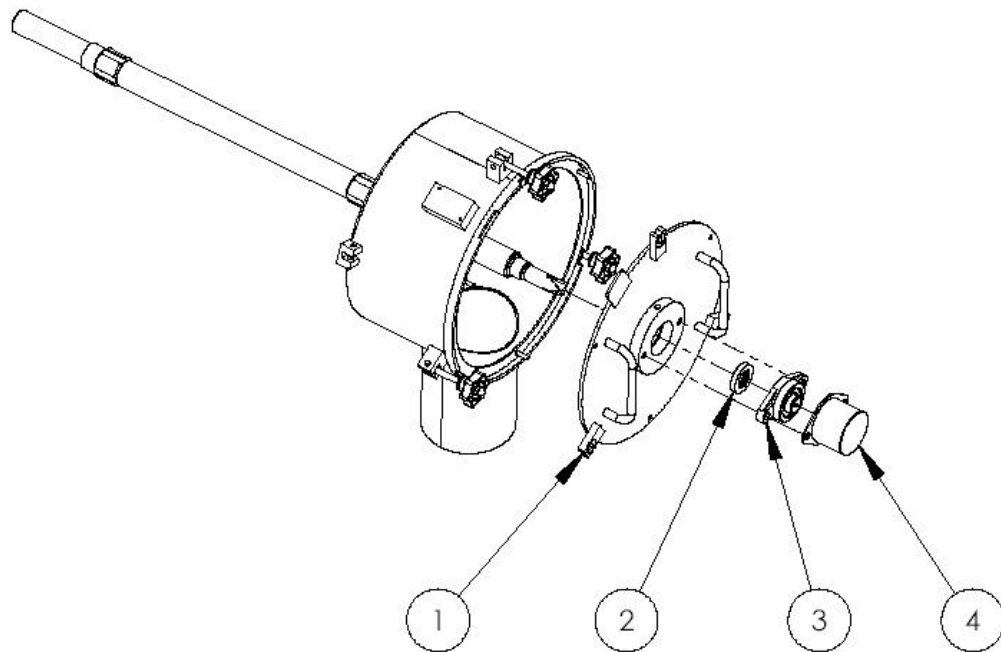


Figure 6-9: RS 700-700S/1500 Drive Assembly



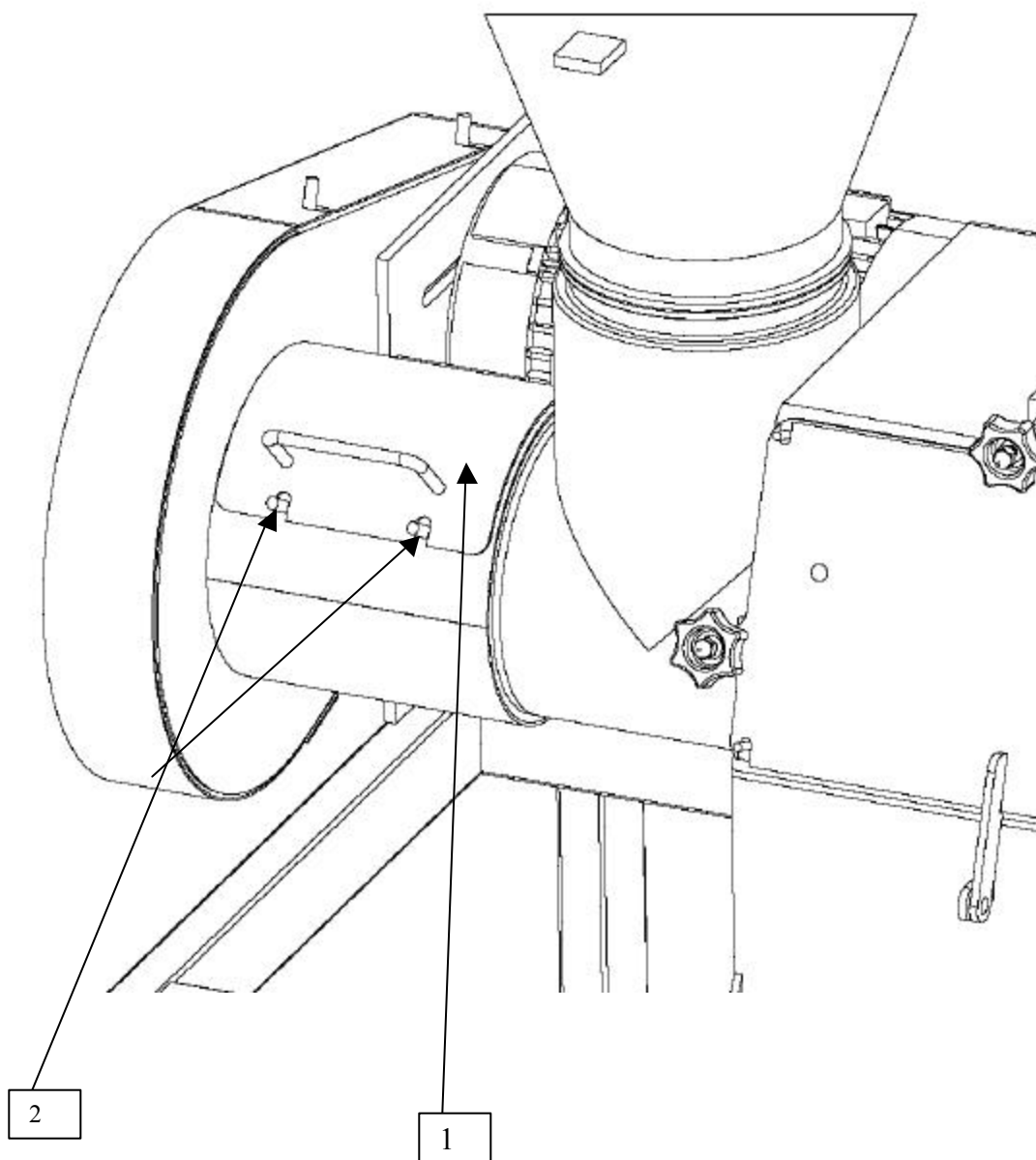
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	110395323	BEARING, FLANGED	2
2	5RS-7010-01	BEARING HOUSING ASSY	1
3	160010005	SHAFT SEAL, INLET HOUSING	1
4	5RS-7000-25	BODY WELDMENT	1
5	5RS-7003-18	STUB SHAFT ASSEMBLY	1

Figure 6-10: RS700S Drive Bearing Assembly Exploded View



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	5RS-7005-12	END DOOR ASSEMBLY	1
2	160010007	SHAFT SEAL, END DOOR	1
3	110920517	BEARING, FLANGED	1
4	5RS-7008-01	END DOOR GUARD, S.S.	1

Figure 6-11: RS700/700S, 1500 End Door Bearing Assembly Exploded View



Item	Description	QTY
1	Bearing Assembly Access Door	1
2	Flat Washer, lock washer, nut assemblies	2

Figure 6-12, Bearing assembly access door