FIBERPREP

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April 19, 1995

Via Fax (301) 223-7730
Confirming via FC Mail

Maryland Paper
16151 Elliot Parkway
Williamsport, MD 21795-9803

Attn: Mr. Matthew Chakola, President

Subject: Reject Tailing Screen

Ref. Fiberprep Inc. Proposal No. Q95-1044

Dear Matthew,

As we discussed, please find attached our proposal to handle the rejects from your Primary Screen with .094" holes. Your furnish is 100% OCC and is processed in a 18'0" dia. pulper which has a 5/8" extraction plate. On this pulper, we have our Model 2 Continuous Scavenger. The problem is that too many flakes are being rejected. Production rate is 160 tons/day.

We propose the use of our Fiberprep/Aikawa Diabolofiner Model 2 Reject Screen to handle these rejects. The Fiberprep/Aikawa Diabolofiner is the most advanced development in reject screen design providing you with the highest screening efficiency and, at the same time, handling the defibering of fiber flakes with minimal reduction of foreign contaminants. This unit has virtually fiber-free rejects.

Please find attached a specification sheet, a pricing sheet and control drawing #AE000011. After you have had a chance to review these, I will set up a meeting with you. If you have any questions, please do not hesitate to contact us. We look forward to working with you on this project.

Sincerely,

Gary J. Boyea

Gary J. Boyea
Senior Market Manager

GJB:sq
Encls
CC: RN/RZ/GB-fm/F2/C

RYLAND PAPER/Williamsport, MD
iberprep Inc. Proposal No. Q95-1044

4/19/95
Pricing

PRICING SUMMARY

Item 1. One (1) - Fiberprep/Aikawa Diabolofiner Model 2 in 304L SS, complete with drilled screen plate with bars, V-belt drive, motor bracket and OSHA Guards, but less required customer-supplied motor.

Price $58,438

Item 2. One (1) - Optional Set of Valves for Item 1 above as follows:

6" Inlet - 304L SS Rovalve Knife Gate
6" Accepts - 304L SS Rovalve Knife Gate
8" Reject - 304L SS Rovalve Knife Gate
3" Dilution - 316 SS Ball w/Actuator
2" Vent - 316 SS Ball w/Actuator
2" Air - 316 SS Ball w/Actuator

Price $11,342

Item 3. One (1) - Optional Control Panel - Nema 4 Rating

Price $10,055

INSTALLATION, OPERATION,

AND

MAINTENANCE INSTRUCTIONS

FOR THE

FIBERPREP DIABOLOFINER

12/15/95:wmr

DIABOLOFINER

TABLE OF CONTENTS

GENERAL INFORMATION . . . . . 3 - 5
Introduction 3
Scope of This Handbook . . . . . 3 - 4
Functional Description . . . . . 4 - 5

INSTALLATION. . . . . 6 - 11
System Considerations. . . . . 6 - 9
Electric Power 9
Mounting 9
Prestart Check . . . . . 10 - 11

OPERATION . . . . . 12 - 17
General Description. . . . . 12 - 13
Normal Operation . . . . . 14 - 17

PREVENTIVE MAINTENANCE. . . . . 18 - 24
Maintenance Philosophy 18
Recommended Maintenance Schedule . . . . . 18 - 19
Routine Maintenance Procedures 20
Bearing Lubrication. 20
Drive Belts. . . . . 20 - 22
Replacement of Drive Belts . . . . . 22 - 23
Seals and Gaskets. 23
Packing Replacement. . . . . 23 - 24

CORRECTIVE MAINTENANCE. . . . . 25 - 34
Introduction 25
Preparing for Disassembly. . . . . 26 - 27
O-rings, Gaskets, and Seals. 28
General. 28
Rotor Removal. . . . . 28 - 29
Screen Plate Removal . . . . . 29 - 30
Bearings and Shaft . . . . . 30 - 32
Reassembly . . . . . 32 - 33
Post Maintenance Check-Out . . . . . 33 - 34

ATTACHMENTS

DIABOLOFINER - GENERAL INFORMATION

INTRODUCTION

The Fiberprep Diabolofiner is a screening device for the purpose of treating rejects in the last screening stage. It is used as a replacement for vibrating screens and has the added advantage of operating under pressure. Cutters are fitted to the screen to provide a defibering action also. Generally, the feed consistency should be around 2%. With larger hole sizes, this can be increased to as high as 3%. There are three different sizes of Diabolofiner Screens: Model 1, Model 2 and Model 3. Except for size and some minor details, the construction of these machines is essentially identical. In accordance with the requirements of the application, the material of construction may vary.

SCOPE OF THIS HANDBOOK

This handbook provides installation, operation, and maintenance instructions for the complete line of Diabolofiner screens. It also includes a schedule of recommended maintenance procedures which, if adhered to, will prevent or significantly reduce the incidence of breakdowns or failure, minimizing production interruptions. The 'Parts Lists' list all parts and identify those parts recommended for spares.

SCOPE OF THIS HANDBOOK(continued)

For the user's convenience, all foldout drawings are included at the end of the handbook rather than being dispersed within the text at the point of first reference.

FUNCTIONAL DESCRIPTION

Each Diabolofiner Screen includes a round perforated plate contained in a horizontal pressurized case; a rotor assembly; a bearing support which supports the main shaft and rotor assembly; and a drive motor. The Diabolofiner has a separate motor base located at the side of the machine usually furnished by the customer.

The furnish enters the casing at the top. The rotor forces the furnish to rotate creating centrifugal force and thus separating the heavy materials. These accumulate in the bottom area of the casing. The accepted stock goes through the screen plate and is discharged at the drive end of the machine. A water connection is provided on the inlet side of the casing to enable washing of the rejects to recover the good fiber. A connection is also provided for air which, in most applications, is utilized to dewater the rejects prior to reject discharge. The Diabolofiner operates in a batch cycle where the stock is first screened, then washed to recover the good fiber, the rejects are dewatered and finally

FUNCTIONAL DESCRIPTION (continued)

rejected. A more complete description of the Diabolofiner operation is provided under the operation section. The rotor has a foil-like configuration designed to create a pulse as it passes over the surface of the screen plate. In this way, it removes stock from the surface of the screen plate to maintain unit capacity. The screen plate is fitted with cutter bars for a defibering action. For some applications, cutters may also be provided on the rotor. The casing, itself, is fitted with a hinged door which permits easy and ready access to the internal parts.

The rotor is bolted and keyed to a shaft that is sealed with a stuffing box and packing arrangement at the drive end of the casing. The shaft is supported by pillow block type bearings mounted to the base that are integral with the housing. A driven sheave is fitted to the end of the shaft and driven from a user-supplied floor mounted motor that is mounted to a moveable slide base, also supplied by the user, to permit the belt adjustment.

DIABOLOFINER - INSTALLATION

SYSTEM CONSIDERATIONS

The Fiberprep/Lamort Diabolofiner is a pressurized reject screen, and therefore, requires certain considerations with regard to pumping, piping and controls. In most applications, the pressure drop through the machine is 4-8 psi. The pumping requirement is dependent upon the accept piping requirements and ultimate destination; however, the general recommendation for minimum Diabolofiner feed pressure is 12-15 psi.

Typical piping requirements are illustrated schematically in process control drawing #FDO-DBL-0040 and FDO-DBL-0041 in the back of this manual. The recommended system arrangement involves a small feed chest to receive the rejects from the previous screening stage. The level of this Diabolofiner feed chest is allowed to fluctuate with the Diabolofiner cycle; therefore, it must be of sufficient size to handle surges in the chest level when the Diabolofiner cycle is not screening stock. A pump is required to supply stock to the Diabolofiner when required; otherwise, the pump will recirculate back to the Diabolofiner feed chest. Dilution water for consistency adjustment can be added either at the suction of the stock pump or directly into the Diabolofiner feed chest. Adding dilution to the suction of the stock pump only during the times when the Diabolofiner is receiving stock can reduce the volume requirement of the Diabolofiner feed chest.

DIABOLOFINER - INSTALLATION

SYSTEM CONSIDERATIONS (continued)

Should the Diabolofiner be located below the elevation of the accepts destination or the accept piping is such that it's not possible to dewater the rejects by gravity, air is required to assist at dewatering the rejects. It is important that the Diabolofiner remain full during the stock flow step and the reject washing step.

Other connection requirements for the Diabolofiner include a water connection for the wash step, a vent connection for the fill step, dewatering step, and reject step. The vent connection can be piped back to the feed chest and should be routed to a point above the Diabolofiner before being routed to the feed chest.

SYSTEM CONSIDERATIONS (continued)

The vent connection is required for the fill step, the dewatering step (without air) and the reject step. The air piping (if required) should be equipped with a regulator to drop the air pressure to 10 psig and an overpressure relief to protect the Diabolofiner from overpressure should the regulator fail. It may be preferred to provide a dedicated blower to supply air to the Diabolofiner at the required conditions.

The rejects are discharged by gravity to a reject handling device. The rejects are typically handled by a hopper, conveyor, or compactor (ram press) for final discharge. The consistency of the rejects, when discharged from the Diabolofiner, are 10% consistency or greater if the unit is operating properly.

On/off valves are required on all lines to the Diabolofiner with the exception of the accept line that requires a hand valve or other throttling device is required to regulate the accept rate out of the machine. Normally this rate is fixed and rarely requires adjustment.

DIABOLOFINER - INSTALLATION

SYSTEM CONSIDERATIONS (continued)

For designing the water piping to the Diabolofiner, the following instantaneous water flow rates should be used as a guide:

Size 1 - 50-75 usgpm

Size 2 - 150-200 usgpm

Size 3 - 350-400 usgpm

For the other auxiliary connections, piping sizes equivalent to the connection sizes should be sufficient.

ELECTRIC POWER

All Diabolofiner machines require a standard NEMA B motor. Appropriate electric power must be available with suitable motor starters and controllers.

MOUNTING

Each Diabolofiner has a sturdy rigid base with four mounting holes. The base must be securely fastened to a sound floor capable of supporting the operating weight of the machine. No special foundation is required; however,on elevated structures care must be taken to avoid frequencies in the structure that are within 30% of the motor or operating speeds.

DIABOLOFINER - INSTALLATION

PRESTART CHECK

Before starting the Diabolofiner Screen for the first time, make the following checks to insure that installation is complete and the unit is ready for operation:

1. Flush the piping to remove any metal particles remaining from the installation and clean out the machine and chest before installing the screen.

2. Check that the bearings are properly lubricated and that, if they are connected to an automatic lube system, the lube system is filled and operable. To check for proper lubrication, remove the pillow block caps. The lower pillow block housing should be about half full and the bearing packed. If these conditions are met, further lubrication isn't necessary and may even cause the bearings to run hot.

3. Check belt tension. See Preventive Maintenance.

4. Turn the rotor by hand to assure that there is no binding and that the packing gland is not overly tight. After the screen has been run for several hours it will be necessary to retighten the gland. Tighten it only enough to reduce the leakage to a slight stream visible at the bottom of the shaft. The small leakage is required to assure proper lubrication of the packing.

DIABOLOFINER - INSTALLATION

PRESTART CHECK (continued)

5. Check direction of rotation by jogging the drive motor. The standard Diabolofiner rotation is clock-wise when viewed from the motor end.

6. On/off valves used to control the Diabolofiner should be checked for proper operation and any limit switches should be checked for proper operation relative to the movement of the specific valve. If the control panel was a Fiberprep-supply, then it should be insured that, when a limit switch is tripped, there is a positive signal received from that switch. For more detail regarding the Diabolofiner control panel operation, refer to the manual entitled "Diabolofiner Control Panel".

DIABOLOFINER - OPERATION

GENERAL DESCRIPTION

The Fiberprep/Lamort Diabolofiner Reject Screen is a pressurized auxiliary screen. This screen is operated on a cycle which employs washing to minimize the rejected fiber. The Diabolofiner has a low attrition type rotor and a perforated extraction plate.

The contaminants are collected in its tub, washed to recover the good fiber, dewatered and then rejected. The normal operating sequence is as follows:

0. Standby
1. Fill Diabolofiner
2. Stock Flow
3. Deflake
4. Wash Rejects
5. Reject Dewatering (by gravity or air)
6. Reject

At the end of the reject step, the cycle may return to the fill step, or if the feed chest has insufficient level, then the Diabolofiner is stopped and remains in standby until the level permissive is satisfied (LSH). Typical step times are as follows:

DIABOLOFINER - OPERATION

GENERAL DESCRIPTION (continued)

1.	Fill Screen	15 seconds
2.	Stock Flow	3-5 minutes
3.	Deflake	30 seconds
4.	Wash Rejects	45 seconds
5.	Dewater Rejects	30 seconds
6.	Reject	15 seconds
Total Time		5'-15" - 7'-15"

This cycle is typically controlled by a PLC to provide an automatic sequence of events with minimum operator intervention.

Referring to the process control drawings, when the Diabolofiner is in a standby condition, the inlet valve (V1), the wash water valve (V3), the air valve (V7-if used), and the accept valve (V4) are closed. The Diabolofiner is not operating. If there is stock in the Diabolofiner feed chest, then the Diabolofiner feed pump is running and recirculating back to the feed chest through the recycle valve (V5).

DIABOLOFINER - OPERATION

NORMAL OPERATION

The cycle begins when the operator presses the start button. If the level in the Diabolofiner feed chest is satisfied, then the cycle will begin; otherwise, the cycle will remain in standby, then start automatically when this level permissive is satisfied. The cycle will then follow according the following description of steps.

Step 0 - Standby

0.1 A feed tank level permissive, LSH, is required to start cycle. The reject valve (V2), recycle valve (V5), and vent valve (V7) are open.

Step 1 - Fill Diabolofiner

1.1 When level permissive is satisfied and V2 closes, feedback from the V2 closed limit switch (LS3) is required to proceed.

1.2 Wash water valve (V3) opens to fill Diabolofiner. The fill timer starts and runs for 15 seconds. During this step, the vent valve (V6) is open to permit venting screen.

1.3 When the timer times out V3 and V6 close.

NORMAL OPERATION (continued)

1.4 When the fill timer times out the Diabolofiner is started.

Step 2 - Stock Flow

2.1 With feedback that the Diabolofiner is running, (drive auxiliary), the recycle valve (V5) closes, the feed valve (V1) opens and the dilution valve (V8) opens to the position determined by its controller. The stock flow timer is started. The duration of this timer will be dependent on debris load, but typically, is 3-5 minutes. The opening of V1 is verified by the open limit switch LS1 which will start the stock flow timer. The accept rate is preset by the hand valve (V9) in the top accept line.

2.2 When the stock flow timer times out, V1 closes, V4 closes, V8 closes, and V5 opens. Stock is recycled to the Diabolofiner feed tank. Verification of V1 closed through limit switch LS2 is required for the cycle to advance.

Step 3 - Deflake

3.1 The Diabolofiner will continue to run, deflaking rejects until the deflaking timer times out.

NORMAL OPERATION (continued)

Step 4 - Wash

4.1 With acknowledgement that V1 has closed LS2, and the deflake timer has timed out, the wash valve (V3) opens, and the wash timer starts. The good fiber is washed from the rejects for 45-60 seconds.

Step 5 - Reject Dewatering

5.1 When the wash timer times out, V3 closes. The gravity discharge valve (V4) opens to drain the water from the rejects to the primary screen feed tank located below. Additionally, the vent valve (V6), opens to permit free draining, and the dewatering timer starts. If air is used to dewater rejects, then the air valve (V7) will open in lieu of V6.

5.2 After a period of 20-30 seconds, V3 and V7 close.

Step 6 - Reject

6.1 After the dewatering step, the reject valve (V2) and the vent valve (V6) will open to reject the contaminants. The reject timer starts.

NORMAL OPERATION (continued)

6.2 After a reject time of 15 seconds, the cycle will return to the fill step. If the level permissive is not satisfied or the operator has called for a cycle pause, then the Diabolofiner cycle will stop and the system will remain in standby.

DIABOLOFINER - PREVENTIVE MAINTENANCE

MAINTENANCE PHILOSOPHY

The objective of a planned maintenance program is to maintain the Diabolofiner in a state of optimum readiness and performance to ensure uninterrupted production. To achieve these ends, it is recommended that a sequence of periodic maintenance inspections and procedures be developed and followed. Factors having the greatest impact on reliable operation are lubrication, cleanliness, drive belts, and to a degree, the packing or shaft seal. If these items are inspected and regularly maintained, the Diabolofiner will give continuous and trouble-free service.

RECOMMENDED MAINTENANCE SCHEDULE

Table I. is a recommended schedule for routine maintenance of the Diabolofiner. It is based on past experience with both Diabolofiner machines and similar machines and represents the anticipated minimum requirements for keeping the Diabolofiner in good operating condition. The frequencies indicated in this schedule assume nearly continuous operation under normal load conditions. They may be adjusted in the field to suit local operating conditions, but the intervals between the maintenance action should not be increased unless there is good data to support the change.

DIABOLOFINER - PREVENTIVE MAINTENANCE

RECOMMENDED MAINTENANCE SCHEDULE (continued)

Table I. - RECOMMENDED MAINTENANCE SCHEDULE

ITEM	FREQUENCY	ACTION
Screen Plate	Each Shift	Monitor operation to detect signs of plugging or other abnormal operation. Adjust system conditions accordingly.
Shaft Packing	Each Shift	Check for excessive water leakage and adjust or replace shaft packing as needed.
Bearings	Weekly	Lubricate
Drive Belts	Weekly	Check belt tension and adjust if needed. Inspect for wear or cracks and replace as needed.
Seals & Gaskets	Weekly	Check all gasketed joints for leaks. Tighten joints or replace seals and gaskets as needed.
Screen Plate	Each Shutdown	Flush and clean screen plate to prevent buildup and matting of stock. Visually inspect for plugging or damage. Remove and clean if needed.
Pressure Screen	Annually	Disassemble and inspect. Replace parts as needed. Pay particular attention to bearings, seals, gaskets, and drive belts.

DIABOLOFINER - PREVENTIVE MAINTENANCE

ROUTINE MAINTENANCE PROCEDURES

WARNING: Before starting any maintenance procedures, de-energize the drive motor and tag its circuit breaker to alert other personnel that work on the Diabolofiner is in progress.

BEARING LUBRICATION

Once a month lubricate both bearings with a moderate amount of grease (approximately 2 or 3 squirts from a hand held grease gun). Use only #2 water resistant grease. Before applying the grease gun, wipe the grease fittings clean to prevent entry of any contaminant with the grease. After lubricating, wipe up any excess grease with clean lint-free wipers.

Refer to the motor manufacturer's instructions for motor bearing lubrication requirements.

DRIVE BELTS

Once each week inspect the drive belts for excessive slack or wear. If belts are frayed, cracked, or otherwise damaged, replace them. Recheck the tension of the new belts several times during the first fifty hours of operation and readjust the tension as necessary. Thereafter, a weekly check is adequate.

DRIVE BELTS (continued)

To check belt tension, refer to any belt manufacturer's catalog.

To adjust the belt tension:

1. Increase tension as follows:
   a. Loosen the locking nuts on the motor slide base several turns.
   b. Turn the adjusting bolts on the side of the base so as to tighten the belts.
   c. When the motor has been moved enough to provide the required tension, retighten the locknuts on the motor slide base.

2. Decrease the tension as follows:
   a. Loosen the locking nuts on the motor slide base several turns.
   b. Turn the adjusting bolts on the slide base so as to loosen the belts.
   c. When the motor has been moved enough to provide the required tension, tighten the locknuts on the motor slide base.

DIABOLOFINER - PREVENTIVE MAINTENANCE

REPLACEMENT OF DRIVE BELTS

To replace drive belts:

CAUTION - The drive belt assembly used on the Diabolofiner is a matched set of three or more belts depending upon the model and size of the machine. Do not replace individual belts; replace the entire set even though only one belt in the set may appear worn or damaged.

1. Shut down the pressure screen and **tag out its controls to prevent inadvertent starting.**
2. Remove the belt guards.
3. Loosen the locknuts on the motor.
4. Turn the adjusting bolts so as to loosen the belts.
5. Turn the adjusting bolts until the belts are slack enough to clear the grooves of the drive pulley.
6. Remove and discard old belts.
7. Install new belts on pulleys and adjust tension as described previously.
8. Replace guards and remove tags from controls.
9. During the first 50 hours of operation with new belts, check and adjust tension several times. This is required to allow the new belts to stretch.

DIABOLOFINER - PREVENTIVE MAINTENANCE

SEALS AND GASKETS

Once a week make a visual inspection of all external seals and gasketed joints to insure that leakage is kept to an acceptable level. Some leakage from the shaft seal packing is required to lubricate the shaft as it turns in the packing. When properly adjusted, the packing gland will just weep, i.e., no more than a few drops per minute. Tighten the gland as needed by taking up evenly and alternately on the gland nuts. When tightening the gland can no longer control the leakage, replace the packing.

PACKING REPLACEMENT

To replace the packing:

1. Shut down the pressure screen. **Tag out its controls to prevent inadvertent starting.**

2. Shut off the fresh water supply to the packing gland.

3. Remove the gland adjusting nuts (or screws) and slide the gland off and out of the way from the seal housing. Allow the gland to hang on the shaft.

DIABOLOFINER - PREVENTIVE MAINTENANCE

PACKING REPLACEMENT (continued)

4. Using a suitable tool, reach in and pull the packing and lantern ring out of the space between the wear sleeve (on the shaft) and the seal housing. Note the number of packing rings on either side of the lantern ring.

5. Clean the lantern ring to remove any corrosion or contamination that could restrict water distribution to the packing. When cutting the packing, make sure the butt ends fit tightly. Alternate the cuts 90° when re-packing.

6. Insert new packing and reinstall the lantern ring being careful to insert the lantern ring at the proper location between packing rings. The gland should not be used as a tamper to seat the rings and lantern rings. Packing rings must be seated individually.

7. Reinstall the gland and gland nuts loosely. Restore fresh water flow to the seal and adjust the leakage.

8. Return the Diabolofiner to operation and maintain a fairly close watch on seal leakage. As the packing rings wear in and adjust to the sleeve and housing,it will become necessary to tighten the gland nuts.

DIABOLOFINER - CORRECTIVE MAINTENANCE

INTRODUCTION

The corrective maintenance procedures in the following sections assume that major corrective maintenance tasks will be limited to removing, disassembling and reassembling major components or parts of the pressure screen. Although some parts may be refurbished or repaired when severely worn or damaged, the downtime required while waiting for parts to be repaired usually is more expensive then replacing the parts with new or factory reconditioned spares. For this reason, no instructions are included for refurbishing parts.

Although the Diabolofiner models may vary somewhat in physical size, the procedures for assembling and disassembling them are nearly identical.

The following general procedures apply to all maintenance actions and are not repeated with each individual procedure. The maintenance technician should be thoroughly familiar with the general procedures before starting any disassembly or other maintenance action.

DIABOLOFINER - CORRECTIVE MAINTENANCE

GENERAL PROCEDURES

Preparing for Disassembly

Before starting to disassembly the Diabolofiner, make certain that the following preparatory steps are taken; they will simplify the operation and also make it safer.

WARNING: De-energize the drive motor and tag its circuit breaker before starting any maintenance procedure. Voltages capable of inducing severe shock are present in the motor. An accidental start during maintenance could cause severe injuries to the maintenance technician. Do not attempt to manhandle parts that weight more than 45 lbs. (20 kg) without the help of another person or hoist. Two-man lifts should not exceed 100 lbs. (45 kg).

1. Determine that the Diabolofiner has been cleaned and flushed as a part of the last routine shutdown. If not, flush it with clean water for ten minutes.

2. **De-energize the power supply to the drive motor and tag its circuit breaker to guard against accidental startup. (It is good practice to disconnect the electrical leads at the motor as an added pre-caution.)**

Preparing for Disassembly (continued)

3. **Isolate the Diabolofiner from the system by closing the stock inlet, accepts and reject valves.**

4. Drain the case completely. This can be done most simply by opening the reject valve.

Cleaning and Inspecting the Parts

After disassembling any part of the Diabolofiner, clean all parts removed in a suitable solvent; clean off scale or contaminants. After cleaning, allow the parts to air dry or wipe them dry with clean lint-free rags. Do not use cotton waste as a wiper. Cover reusable bearings with grease resistant paper or plastic sheets until time for reassembly. Protect all other parts with suitable coverings to avoid damage until time for reassembly. After cleaning parts, inspect each part for signs of wear or corrosion, galling or pitting. Bearings that show signs of any of the aforementioned faults must be replaced. Other parts may be kept in service provided the fault will not interfere with operation. Deep scratches, gouges or deformation are causes for replacing parts.

DIABOLOFINER - CORRECTIVE MAINTENANCE

O-rings, Gaskets, and Seals

It is good maintenance practice to replace all o-rings, gaskets, and seals each time they are disturbed by disassembly. The decision to replace or reinstall such parts must be made individually on the basis of cost, availability, and condition. It frequently proves unwise to assemble a machine with new refurbished parts only to have a faulty o-ring fail shortly after the job has been completed. Should an inspection of an o-ring or other seal reveal any sign of deterioration, cracking, change in color, embrittlement, or other abnormal condition, replace it immediately.

General

The procedures for disassembling all models of the Diabolofiner are essentially the same.

Rotor Removal

The rotor may be removed from the front of the pressure screen without disturbing other major parts. Remove the rotor as follows:

1. Prepare the Diabolofiner for disassembly as described previously.

2. Remove the fasteners securing the hinged cover to the case and swing open the cover.

Rotor Removal (continued)

3. Remove the o-ring. Usually, it is good practice to discard the o-ring to prevent reassembly with a defective seal.

4. If your machine is equipped with a cap on the front of the rotor, remove the innermost bolts.

5. In the center of the rotor or cap is a jack screw. Jack the rotor free of the shaft.

6. Remove the rotor from the inside of the casing. Take care not to damage the rotor or the screen plate during this operation. The key on the rotor shaft may remain in place or may be removed for reuse at reinstallation of the rotor.

If your rotor is equipped with a cap, this need not be removed.

Screen Plate Removal

The screen plate may be removed from the front of the Diabolofiner without disturbing major parts. However, the rotor must be removed as described previously, before starting to remove the screen plate. Remove the screen plate as follows:

DIABOLOFINER - CORRECTIVE MAINTENANCE

Screen Plate Removal (continued)

1. Prepare the screen for disassembly as described previously.

2. Remove the fastening securing the hinge cover to the flange of the case and swing open the cover.

3. Remove the o-ring. Usually, it is good practice to discard the o-ring to prevent reassembly with a defective seal.

4. Remove the rotor. Follow the procedure previously outlined.

5. Remove all the screws retaining the screen plate to the casing.

6. Jack screw holes are provided in the screen plate. Use these to loosen the screen from its fit.

7. Remove the screen plate being careful not to damage either it or the inside of the casing.

Replacement of Cutters

Cutters may be removed by simply removing screws that retain them. New parts can be installed. Removal of other parts may be necessary if screws are broken or worn. Rotor clearance must be re-set after any replacement.

Bearings and Shaft

The drive shaft is supported by bearings in split pillow blocks. The best way to remove the shaft is with the pillow blocks intact. In this way, the entire shaft assembly can be moved to a clean area for complete disassembly. The procedure for removal is as follows:

Bearings and Shaft (continued)

1. Prepare the Diabolofiner for disassembly as described previously.

2. Remove the rotor and screen plate as described previously.

3. Remove the drive belts as described under Preventive Maintenance previously.

4. Take off the drive pulley by disassembling the tapered hub that secures it to the shaft. Retain key for use in reassembly.

5. If the two grease fittings on the pillow block housings have been connected to an automatic lubrication system, disconnect these lines.

6. Remove the stuffing box packing, lantern ring, and packing gland as described previously.

7. Remove the bolts that secure the pillow blocks to the base. Remove the dow pins.

8. Carefully pull the assembly straight back until the shaft clears the packing gland, then remove assembly to the bench for further disassembly.

9. Remove the sealing sleeve from the shaft.

10. Remove the bolts holding the pillow block halves together. Remove the pillow blocks from the shaft assembly.

DIABOLOFINER - CORRECTIVE MAINTENANCE

Bearings and Shaft (continued)

11. The bearings are mounted on a tapered sleeve. Remove the nut and washer. Tap the inner face of the bearing towards the nut.

12. Loosen the sleeves and slide them from the shaft.

The inboard bearing is located by means of a snap ring. This snap ring need never be removed except for repairs to the shaft. The bearing can be removed toward the drive end and reassembled in the same manner. Take care to make sure the orientation of the bearing is correct on reassembly.

Reassembly

1. Reassembly is exactly the reverse procedure of the disassembly.

2. **Procedure for clearance adjustment of the rotor.**

   a. Remove the center screw on the rotor and coat it with Loctite #567 pipe sealer. Teflon tape may also be used. Assemble the screw back into the rotor.

   b. Place the rotor on the shaft and install the screws so that they are loose. Adjust the rotor clearance to the screenplate, at this time, with loose bolts to approximately .050".

Reassembly (continued)

c. Using a pry bar, place it between the sheave and the base. Pull back on the sheave to remove all the clearance from the bearings.

d. Now make the final adjustment of the rotor. The proper clearance to the screenplate is 0.050".

e. Tighten the screws properly to complete the assembly.

POST MAINTENANCE CHECK-OUT

After any maintenance procedure that requires opening or disassembling any part of the Diabolofiner, make the following simple checks before restoring the Diabolofiner to service:
CAUTION! Do not start or apply power to the drive motor until checks 1 - 5 below have been completed.

1. Check to assure that lube lines have been reconnected and that bearings have been properly lubricated.

2. Check tension of drive belts.

3. Check that nuts on motor retaining bolts have been tightened.

4. Turn the pressure screen slowly by hand to assure that there is no binding, scraping, wobble or unusual noise.

POST MAINTENANCE CHECK-OUT (continued)

5. Correct any abnormal conditions before starting the drive motor.

6. Start water to the packing gland.

7. Restore power to the drive motor and start the Diabolofiner empty. Let the Diabolofiner run in air for a few minutes to ensure it is running well and there is no interference; then, shut it down.

CAUTION! Do not fill a Diabolofiner while it is turning. Always make certain that it has stopped turning before opening a fill valve.

8. Fill the Diabolofiner with clear water and check that all joints, seams, and connections are free of leaks. Correct any leaks found before returning the Diabolofiner to service.

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PREPARATION FOR LONG TERM STORAGE OF FIBERPREP EQUIPMENT

1.0 Purpose

The purpose of this bulletin is to provide instructions for preparing equipment for long term storage. This enables the user to store the equipment for a long period of time and be confident that it will be ready for use when desired.

2.0 General

All equipment shall be stored inside a heated building. The minimum recommended temperature is 45° F. All equipment shall be covered with a suitable waterproof cover. Heavy polyethylene or a plastic tarp is ideal for this purpose.

2.1 Preparation of Gearboxes for Long Term Storage

It is always desirable, when possible, to have the supplier prepare the gearbox for long term storage. If this is not possible, all the oil must be drained from the box and the unit filled with Mobil Vaportech light or equivalent.

All external machined surfaces must be coated with heavy grease to prevent rusting.

The input shaft on the gearbox must be rotated a minimum of twenty turns once every fourteen days to distribute the lubricant and relocate the bearing elements.

2.2 Long Term Storage of Valves and Cleaners

All external machine surfaces and moving elements including cylinder rods, etc., must be coated with heavy grease.

This type of equipment does not require any attention during storage beyond examination, to make sure that rusting is not taking place.

3.0 Preparation of Machines Utilizing Greased Bearings

Machines using grease in the bearings need only be prepared and packed as for normal operation.

All external machined surfaces must be coated with heavy grease to avoid rusting.

Every fourteen days the machine must be rotated about ten turns to distribute the grease and the bearing roller positions.

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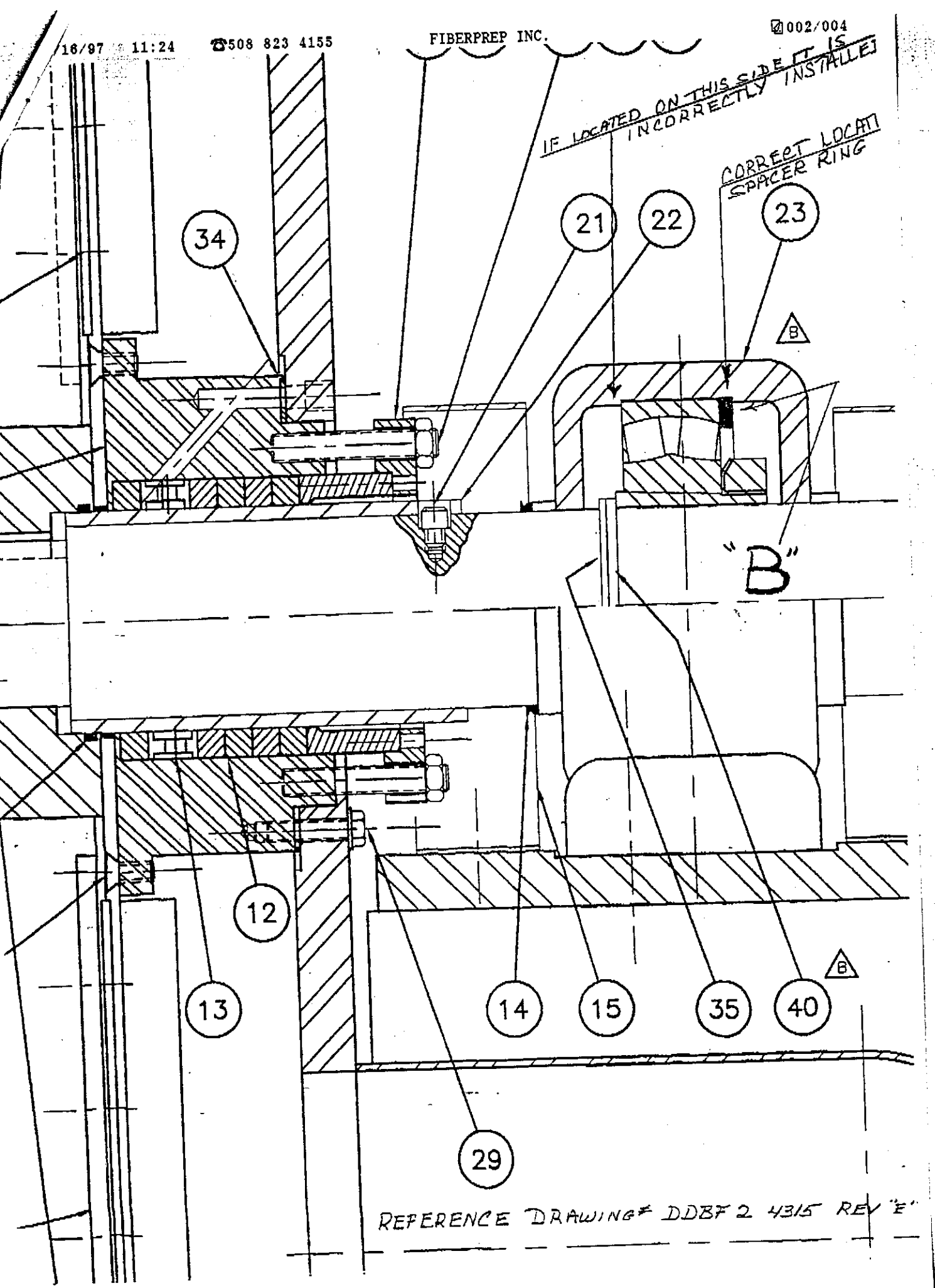

REFERENCE DRAWING # DDBF 2 4315 REV "E"