

ALFA-LAVAL

CELLECO HEDEMORA

CDI FILTER INSTRUCTION MANUAL

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STARTUP-CHECKLIST

The following checklist should be used for startup of the Celleco CENTERDISC® Filter.

- () Close drain valve on CENTERDISC® Filter vat.
- () Check air pressure gauge to insure minimum 40 psig is being applied to the air pads on the suction valve.
- () Check seal water flow to the suction valve for a minimum of 1 gpm at 3 psig.
- () Check seal flushing water flow to screw conveyor bushing for a minimum of 1 gpm at 3 psig.
- () Start the shower water pump and insure valves are open to all shower headers.
- () Check to insure each spray nozzle is open and operating properly.
- () Set knock-off shower pressure gauge at 140 psi.
- () Set oscillating shower pressure gauge at 85 psig.
- () Set vacuum breaker shower pressure gauge at 40 psig.
- () Start oscillating shower drive motor.
- () Check proper oscillating shower travel to insure total disc segment spray coverage. Adjust connecting rod between oscillating shower pipe and speed reducer, as required.
- () Start screw conveyor drive motor.
- () Start main rotor drive motor with speed control switched to the automatic position. Also, insure that filter vat level control is set at proper level and in the automatic position.

STARTUP-CHECKLIST (CONTINUED)

- () Start the filter feed pump with control valve open. Note: As the level rises in the filter vat, the automatic speed control should respond by speeding up the main rotor drive to hold the level at the set position.
- () Check to insure proper operating speed of rotor to be between 0.5 RPM and 1.5 RPM.

Note: If speed has become excessive, then filter has progressed to a runaway condition in which maximum flow is reached and no further increase speed will increase drainage through the filter.

- () Adjust the filter feed control valve, if required, to prevent any overflow from filter vat into screw conveyor trough.
- () Check vacuum gauge on suction valve to insure minimum vacuum of 3 to 4 in. Hg. 8 to 10 in. Hg. maximum.
- () Check flow divider on suction valve to insure proper split of cloudy/clear filtrates, when applicable.
- () Check that fiber mat is being properly discharged into screw conveyor trough by knock-off showers. If required, re-adjust shower nozzle angles to insure proper fiber mat separation from disc segments.
- () Check vacuum breaker showers to insure that fiber mat is not being knocked off prematurely into vat.

Note: These showers should only cut a small strip out of the fiber mat to increase proper drainage in the disc segment.

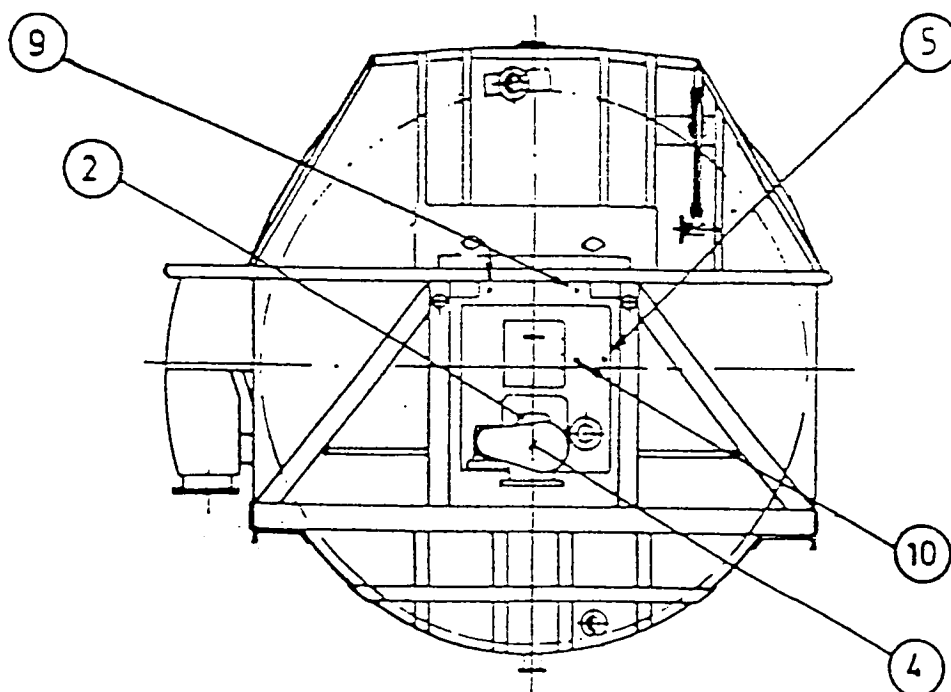
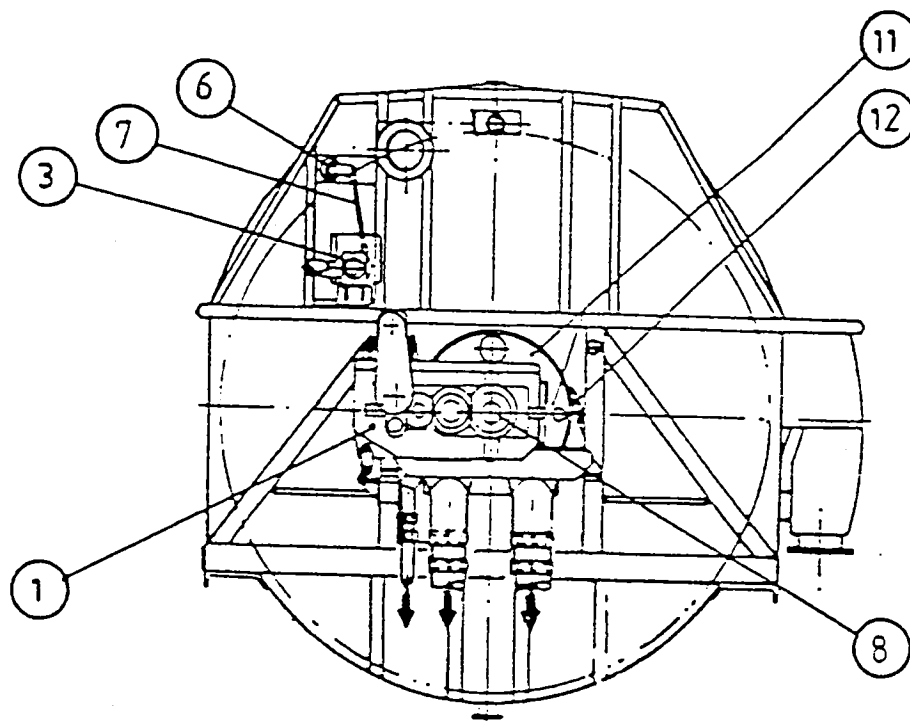
STARTUP-CHECKLIST (CONTINUED)

- () Check the approximate water level height above the inlet box overflow weir in order to estimate the flowrate (gpm) into the filter vat. Drainage rate (gpm/ft²) can be calculated using measured flowrate and surface area of the discs.
- () Check discharge consistency from filter by taking sample from storage tank.
- () Check temperature, feed consistency to filter, filtrate consistency and freeness of all pulp mixtures feeding the filter.
- () Consult Celleco for a filter performance evaluation using the above data.

CHECKLIST
CDF/CDP

	DAILY	WEEKLY	MONTHLY	SEMI-ANNUAL	ANNUALLY
Disc Alignment	X				
Knock-off nozzles (proper sheet release)	X				
Oscill. Showers (nozzles/pressure)	X				
Vacuum level (Max. 12 inch. Hg)	X				
Filtration efficiency (torn covers)	X				
Seal/Lubrication water flow (loss of pressure)		X			
Pulp level in the vat		X			
Segment bags (holes, plugging, etc.)		X			
Main seal ring (leaks)			X		
Inner Screw Conv. bearing (wear)				X	
Support bearing for Screw Conv. Vat (wear)					X
Drive belts (tension/condition)			X		
Oscill. drive(motion/air clutch/air press.)				X	
Oscill. slide bearings (wear)				X	
All steel bearings (normal cond. control)					X
Oscill. pressure hoses (cracks, etc.)			X		
Wear Disc (thickness/condition)					X
Interlocking system (Osc. Shower, Screw Conveyor, Rotor)				X	
Air pads/suction box (pressure/leaks, etc.)			X		

ALFA-LAVAL
CELLECO HEDEMORA



GEARS

- | | | | |
|----|------------|---------------|-----------------------------|
| 1. | SHAFT GEAR | Oil quality: | according to enclosed spec. |
| | | Oil quantity: | " " |
| 2. | SHAFT GEAR | Oil quality: | according to enclosed spec. |
| | | Oil quantity: | " " |
| 3. | WORM GEAR | Oil quality: | according to enclosed spec. |
| | | Oil quantity: | " " |

BEARINGS

- | | | |
|----|--------------------------------------|--|
| 4. | DISCHARGE SCREW | (1 nipple) |
| | | Grease quality: SKF LGMT 3 or equal |
| | | Grease quantity: abt 40 g/grease point |
| | | Period: 2 times a week (85 h) |
| 5. | INTERNAL BEARING/SLIDE BEARING | |
| | | Connection to fresh water |
| | | Consumption: 5 l/min |
| 6. | BEARING FOR OSCILLATING PIPE | (1 nipple) |
| | | Grease quality: SKF LGMT 3 or equal |
| | | Grease quantity: abt 20 g |
| | | Period: Once a month (720 h) |
| 7. | ROD END BEARING FOR OSCILLATING PIPE | (2 nipples) |
| | | Grease quality: SKF LGMT 3 or equal |
| | | Grease quantity: Necessary |
| | | Period: Once a month (720 h) |

BEARINGS (cont.)

8. MAIN BEARING - ROTOR (1 nipple)

Grease quality: MOBIL MOBILUX EP 2
OR EQUAL
Grease quantity: abt. 40 g
Period: Once a month (720 h)
9. SLIDE BEARING - ROTOR (4 pcs conn. R 1/4")

2 pcs nozzles
Connected to clear water
Pressure: abt 5 bar - 45 PSI
Consumption: 2 x 15 l/min 1-5 GPM

2 pcs grease water
Connected to fresh water
Water consumption: 2 x 2 l/min 1-5 GPM 45 PSI
10. SLIDE BEARING - ROTORS/SCREW TROUGH (1 conn. R 1/4")

Connected to fresh water
Water consumption: abt 5 l/min 1-5 GPM 45 PSI
11. SEALING WATER - SUCTION BOX (2 pcs conn. R 3/8")

Connected to fresh water
Water consumption: abt 2 x 5 l/min 1-5 GPM 15 PSI
12. AIR BELLOWS - SUCTION BOX (1 conn. R 1/4")

Will be connected to compressed air
Air pressure: 3 bar - 42 PSI

SHUT-DOWN CHECKLIST

The following checklist should be used for routine shutdown of the Celleco Center Disc Filter.

- () Shut off all pulp stock flow to the filter (i.e. sweetener, feed stock, etc.)
- () Run filter on white water only for a minimum of 15 minutes.
- () Check rotating discs to insure that all the pulp has been cleaned off of each disc segment. If required, use pressure water hose to knock off any residual fiber mats on disc segments.
- () Check and make note of any shower nozzles that are not spraying properly due to pluggage or misalignment.
- () Shut down the feed pump to the filter.
- () Shut down the shower pump(s) to the filter.
- () Turn off the main rotor drive motor.
- () Turn off the screw conveyor drive motor.
- () Turn off the oscillating shower drive motor.
- () Shut off air pressure to the air pads on the suction valve.
- () Turn up seal water pressure to the suction valve in order to flush the rotor/suction valve interface of all pulp residuals.
- () Turn off seal water pressure to suction valve after flushing for 15 minutes.

SHUT-DOWN CHECKLIST (CONTINUED)

- () Check rotor/suction valve interface for abnormal wear patterns in wear disc. Use pressure water hose to flush, if required, to remove any debris found between rotor and suction valve.
- () Check integrity of seal ring around rotor to insure tightness and flexibility.
- () Open drain valve on filter vat.

TROUBLE-SHOOTING GUIDE

The following list should be consulted during occasions when abnormal filter operation is encountered by mill personnel.

1. Loss of Vacuum at Suction Valve

Probable causes are:

- () Filtrate flow rate (gpm) down the drop leg(s) is too low to create adequate vacuum at filter suction valve.
- () Drop leg(s) sized incorrectly for filtrate flow. Proper velocity down the drop leg(s) should be 8 ft./sec. to 12 ft./sec.
- () Disc segments have bags with rips or holes in the material.
- () Disc segments have bad or leaking gaskets at the rotor/disc segment interface.
- () Disc segment clamps need to be tightened to prevent leaking gaskets.

2. Low Speed on Main Rotor Drive

- () Feed flow rate (gpm) too low into filter vat to maintain proper level. Drainage into disc segments is higher than expected for flow conditions into filter vat.
- () V-belt drive on main rotor drive is not functioning properly (i.e. slipping).
- () Pulp flow (i.e. sweetener, feed stock, etc.) is too low to create fiber mat on disc segments.

TROUBLE-SHOOTING GUIDE (CONTINUED)

3. High Speed on Main Rotor Drive

Probable causes are:

- () Feed flowrate (gpm) too high into filter vat to maintain proper level. Check to insure that filter vat is not overflowing into screw conveyor trough.
- () Level transmitter or controllers are not functioning properly.
- () Pulp flow (i.e. sweetener, feed stock, etc.) is too high and is overloading the disc segments such that the filter has tried to speed up to compensate for the increased loading due to pulp flow.
- () Filter is experiencing a "runaway" condition which may be a combination of too much flow (gpm or BDT/D) of water or pulp; or not enough long fiber (i.e. sweetener) to permit proper drainage through disc segments. If the ratio of long fiber to fines is too low, then disc segments tend to seal over quickly, and thus gives very poor drainage through the fiber mat. The filter responds to this condition by speeding itself up due to rising filter vat level. However, the solution is to lower the flow rate (gpm); increase long fiber flow rate (BDT/D); switch speed control to manual position to slow main rotor drive speed down; or a combination of all the above actions to correct the "runaway" condition on the filter.

4. Poor Fiber Mat Formation on Disc Segments

Probable causes are:

- () A long fiber-to-fines ratio of less than 2:1 increases the probability of fines sealing over the disc segment prematurely and contributing to significant loss of drainage (gpm/ft. ²). Fiber mats need to be formed with enough long fibers to allow drainage and fines filtration across the disc segments.

TROUBLE-SHOOTING GUIDE (CONTINUED)

- () Feed flow (gpm) over the inlet box overflow weir is not uniform across the weir. Too much flow (i.e. velocity too high) in localized areas of the over flow weir can knock-off fiber mat prematurely. Turbulence over the inlet box weir should be kept to minimum; except at the ends of the weir, where stagnant flow areas should be avoided.
- () Main rotor speed (RPM) too fast to form a proper fiber mat. Disc segments tend to seal over too fast if rotor speed is too high. When disc segments seal over drainage (gpm/ft. ²) are reduced significantly.
- () Feed flow (gpm) into filter vat too low to give adequate mixing of stock. Stagnant areas inside vat or between disc segments should be evidence of this problem. Also, fiber mat thickness may vary greatly from disc to disc.

5. Low Filter Vat Level

(Normal level is 3" - 6" from top of screw conveyor trough)

Probable causes are:

- () Feed flow (gpm) too low to maintain proper level. Adjust control valve on feed pump to filter to increase flow.
- () Main rotor drive too fast (RPM) such that drainage (gpm/ft²) is higher than required for a constant feed flow, therefore the level is lowered.
- () Level transmitter or controller not functioning properly to maintain level by rotor speed adjustments.
- () Drain valve on bottom of filter vat is open.

TROUBLE-SHOOTING GUIDE (CONTINUED)

6. High Filter Vat Level

Probable causes are:

- () Feed flow (gpm) too high to maintain proper level, and is evidenced by overflowing into screw conveyor trough. Adjust control valve on feed pump to filter to decrease flow.
- () Main rotor drive too slow (RPM) such that drainage (gpm/ft. ²) is lower than required for a constant feed flow, therefore, level is raised.
- () Level transmitter or controller not functioning properly to maintain level by rotor speed adjustments.
- () Filter is experiencing a "runaway" condition which may be combination of too much flow (gpm or BDT/D) of water or pulp; or not enough long fiber (i.e. sweetener) to permit proper drainage through disc segments. A "runaway" condition is evidenced by high rotor speed (RPM) and high filter vat level that is overflowing into screw conveyor trough. If the ratio responds to this condition by speeding itself up due to rising filter vat level. However, the solution is to lower the flow rate (gpm); increase long fiber flowrate (BDT/D); switch speed control to manual position to slow main rotor drive speed down; or a combination of all the above actions to correct the "runaway" condition on the filter.

7. Premature knock-off of Fiber Mat from Disc Segments

Probable causes are:

- () Feed flow (gpm) over the inlet box weir is too fast into filter vat such that fiber mat is being knocked-off by excessive flow velocity and turbulence. Feed flow may need readjusting to avoid this situation.

TROUBLE-SHOOTING GUIDE (CONTINUED)

- () Vacuum is not at minimum of 4 to 5 in. Hg. Low vacuum on suction valve may not hold the fiber mat on the disc segment in order to discharge it into the screw conveyor trough properly.
- () Fiber mat is too thick to allow proper vacuum of 4 to 5 in. Hg. to hold the fiber mat in place until the knock-off showers hit the disc segments. Main rotor drive may have to be speeded up (higher RPM) in order to pull a thinner fiber mat up on the disc segments for proper knock-off to occur.

8. High Solids Level in Filtrate

Probable causes are:

- () Holes or rips in disc segment bags allowing unfiltered water to enter rotor arms that transport filtrate to suction valve and drop legs.
- () Gaskets on bottom of disc segments are damaged or not seating properly to prevent leaking of unfiltered water into rotor arms that transport filtrate to suction valve and drop legs.
- () Disc segment clamps are loose and allowing unfiltered water to leak past gaskets into rotor arms that transport filtrate to suction valve and drop legs.
- () If long fiber-to-fines ratio is below the minimum of 2:1, then a high percentage of fines may not be filtered by thin fiber mat on disc segments. Excessive fines passing through the thin fiber mat into the disc segments could account for high solids in filtrate. Additional flow (BDT/D) of long fiber (i.e. sweetener) is needed to restore proper operation.

TROUBLE-SHOOTING GUIDE (CONTINUED)

9. Low Discharge Consistency from Filter

Probable causes are:

- () Disc segments are "back washing" into screw conveyor trough after knock-off showers peel the fiber mat off of the disc segment. "Back washing" occurs due to improper drainage of filtrate trapped inside disc segment after the disc rotates out of the filter vat. Adjust water pressure or nozzle angle of vacuum breaker showers to insure cutting a thin slice of open area out of the fiber mat to permit the disc segment to drain properly before engaging knock-off showers.
- () Knock-off showers are using excessive water flow to perform their function. Try reducing the knock-off shower water pressure to reduce dilution of fiber mat being discharged into screw conveyor trough.
- () Insure that a high filter vat level is not occurring which would overflow feed stock into the screw conveyor trough and lower discharge consistency. (Refer to the section on high filter vat level in Trouble-Shooting Guide).

10. Plugged Shower Nozzles on Knock-off, Oscillating, or Vacuum Breaker Showers

Probable causes are:

- () Fiber or debris can easily get into shower water feed and plug any of the above shower nozzles. The plugged nozzle/nozzles must then be cleaned.

NOTE: (1) Knock-off showers is equipped with inside brush and drain valve. Operation: see cleaning of knock-off nozzles.

(2) Oscillating showers can be turned off for up to 15 minutes at a time without affecting operation of the filter.

(3) Vacuum breaker showers may be turned off for up to 15 minutes without affecting operation of the filter.

TROUBLE-SHOOTING GUIDE (CONTINUED)

11. Fiber Mat Breakage During Engagement with Knock-Off Showers

Probable causes are:

- () Check to insure proper shower water pressure on knock-off showers. Readjust pressure to see if proper knock-off can be obtained.
- () Readjust spray angles of shower nozzles to insure proper peeling action during knock-off operation.
- () Check for proper vacuum of a minimum 4 to 5 in. Hg. to insure fiber mat is being held onto Disc Segment. (Refer to the section on premature knock-off of fiber mat in trouble-shooting guide).

12. Suction Valve Leakage

Probable causes are:

- () If filtrate or seal water is leaking around suction valve, readjust the seal water pressure to prevent over pressurizing the rotor/suction valve interface.
- () If seal water or filtrate is leaking around suction valve, increase air pressure to air pads on suction valve to prevent separation of rotor/suction valve interface.
- () If seal water or filtrate is leaking around suction valve, check for minimum of 4 to 5 in. Hg. at suction valve to prevent separation of rotor/suction valve interface.
- () If pulp stock is leaking around suction valve, check seal ring integrity and position around the inside of the rotor at drive end of filter vat. Seal ring will have to be checked out thoroughly at next scheduled shut down of filter. This type of suction valve leakage can not be fixed during operation of the filter, but likewise, does not affect the operation of the filter.

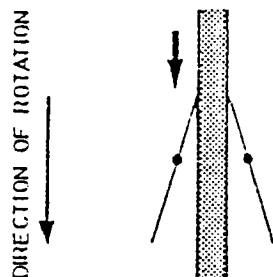
TROUBLE-SHOOTING GUIDE (CONTINUED)

- () If air can be detected leaking into suction valve, then minimum vacuum of 4 to 5 in. Hg. may not be achieved. Rotor/suction valve interface must be checked for possible debris caught between interface or possible warpath of flat interface at next scheduled shutdown of filter.

Note: The round inspection plate at the top front of the valve can be removed and the clearance between the valve and the wear plate can be checked. The clearance should be equal around the face of the wear plate. Use long feeler gauges to check the clearance which should not exceed 0.015 inches.

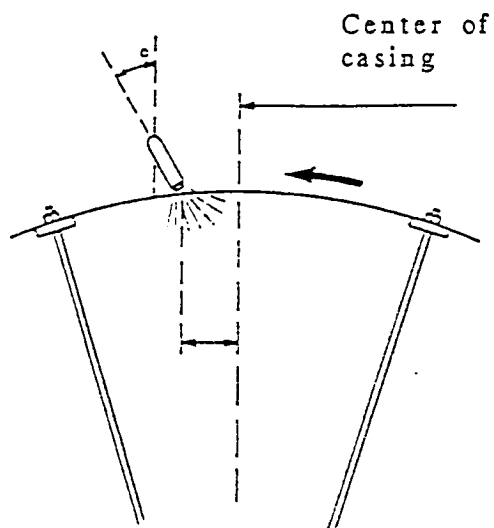
POSITION OF KNOCK-OFF NOZZLES

Pos. 1



Disc; view from top

Pos. 2



Disc; view from the side

The installer (erector) is normally adjusting the position at first start-up and should not be changed after that.

Cleaning Knock-off Nozzles

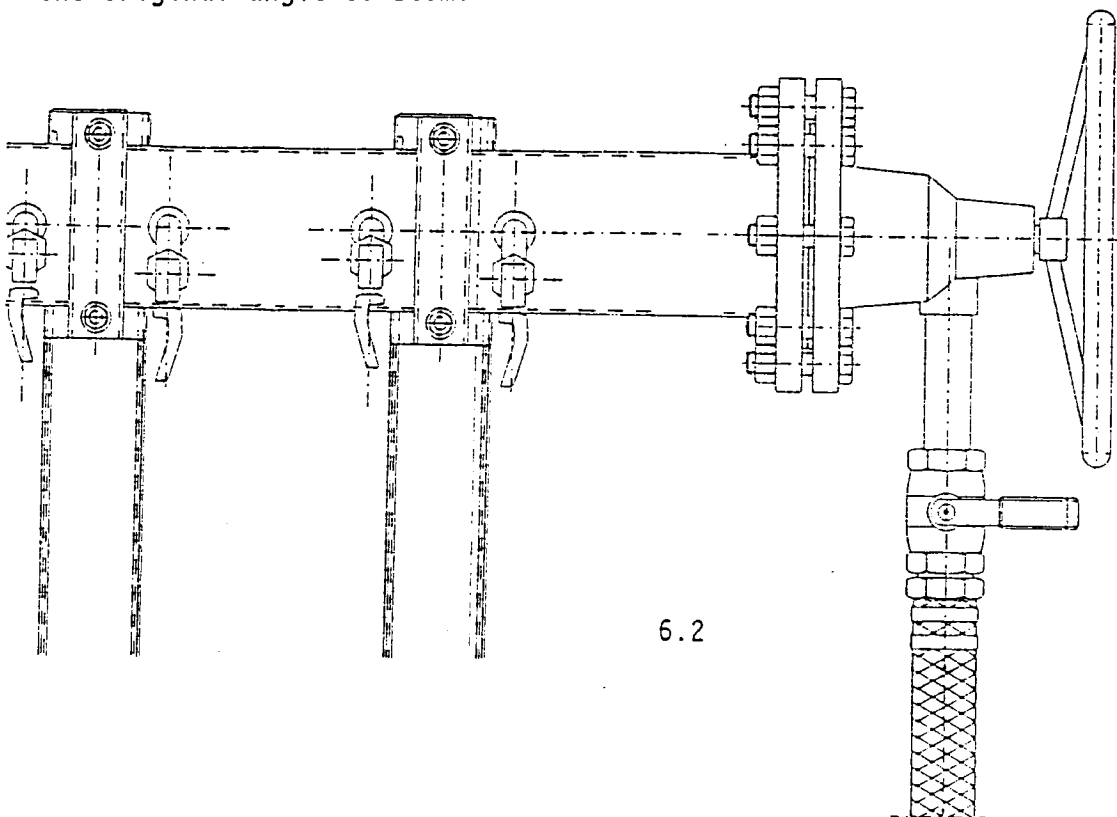
1. Open drain valve.
2. Turn the hand wheel in either the left or right direction until it stops. Turn back to stop.
3. Close the drain valve. Check the results.

Normally the nozzles will be cleaned by turning the hand wheel. If any nozzle still has to be cleaned this has to be done from the top of the hood.

1. Open the inspection cover on top of the hood.
2. Close the feed valve.
3. Loosen the tightening nut.
4. Turn the angle knee upwards. (Watch hands if machine is running.)
5. Clean the nozzle and reinstall it in its earlier position.

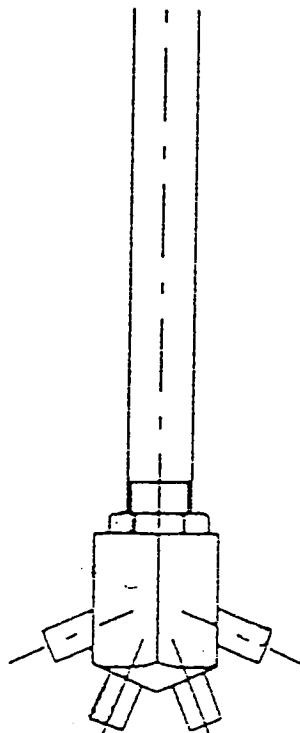
IMPORTANT:

Do not remove more than one nozzle at a time. This will make it easier to obtain the original angle of beam.



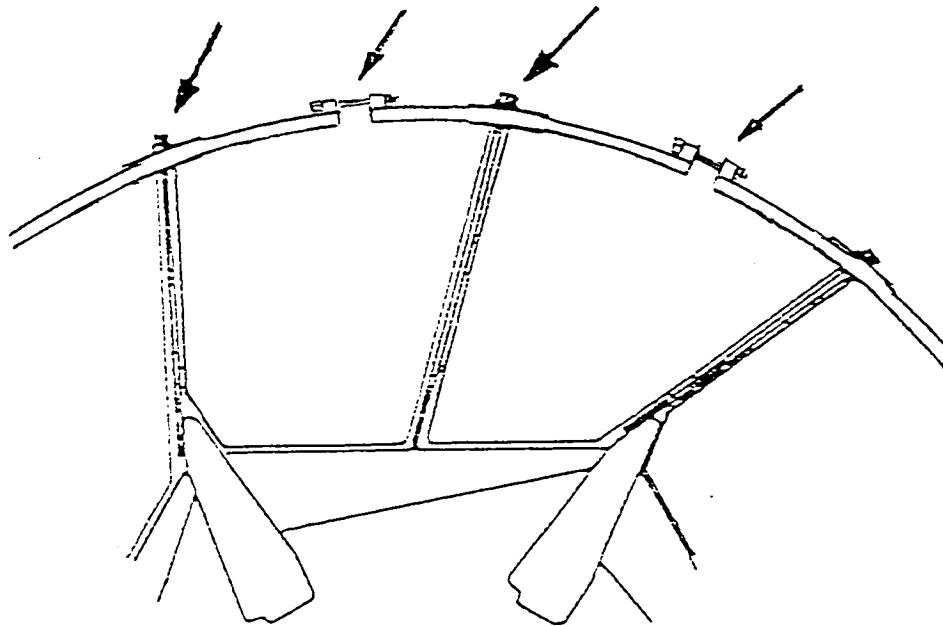
Cleaning of Osc. Shower Nozzles

1. Open the inspection door at serving side of the filter.
2. Stop the osc. drive motor when the showers are in turning point outmost pos.
3. Identify the plugged nozzle, and close the water pressure valve.
4. Loosen the union nut and remove the entire head.
5. At this point the nozzles can easily be cleaned with compressed air or water. If a thread is being used, ensure of soft material.



REPLACING OF SEGMENTS

1. Perform point 1-10 according to instruction for a long-time stop.
2. Identify the damaged segment by running the rotor slowly.
3. Stop the rotor when the segment is fully visible at the serving side of the machine.
4. Loosen the retainer ring and carefully pull out the segment.
5. Mount the new segment and verify that the segment (nozzle) and the cross channel are completely parallel.
6. Assemble the retainer ring and nuts.
Tighten nut (1/2" UNC) on the tie rod approx. 25 ft. lbs.

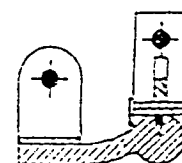
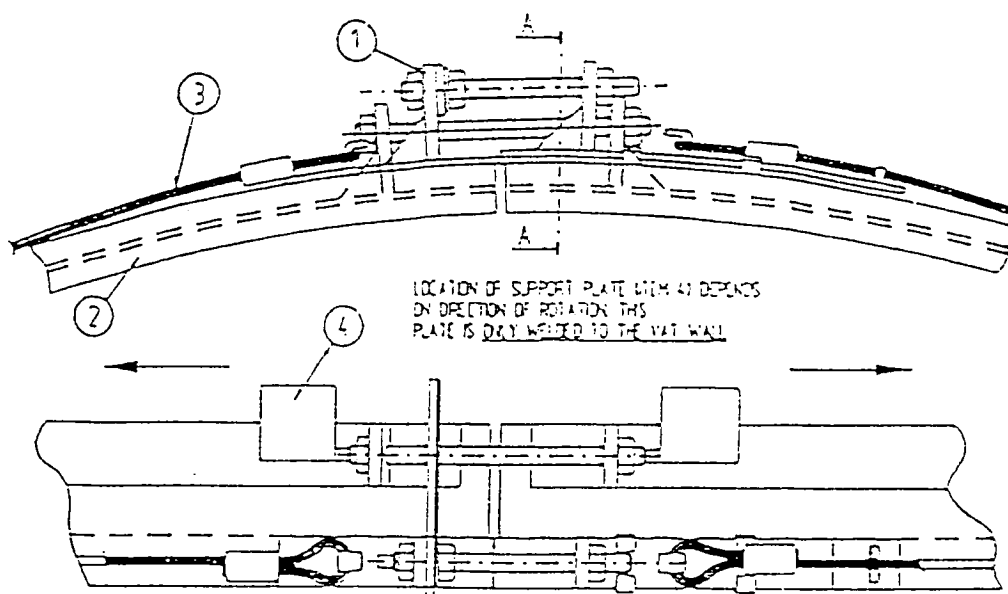


P-SEAL INSTALLATION

Before installing the seal, measure the circumference of both mounting flanges. Compare this distance to the length of the rubber portion of the seal, the cable assembly and the clamp ring. If the circumference is smaller than the length of the components then modify it at assembly. Install the seal as follows.

1. If the seal replaces an existing seal, remove the existing seal. Thoroughly clean the surface of the flanges on the vat wall and the rotor. Remove any burrs and sharp edges. If the surfaces are worn, smooth any gauges or grooves.
2. With the old seal removed and the mounting flange surfaces clean, inspect the gap between the two flanges. The gap should be from 1/8" - 1/4" wide and uniform around the circumference of the mounting flanges. Misalignment will appear as a wider gap and a narrower gap at 180° apart. This will cause the seal to wear excessively and fail prematurely. Adjust both ends of the rotor to correct misalignment. Shim the drive end under the beam if required. The slide shoe bearings are equipped with jacking bolts to move the discharge end of the rotor horizontally or vertically.
3. Lubricate the side of the bulb opposite the cable groove on the "P" Seal with silicone grease. DO NOT USE PETROLEUM GREASE. Wrap up the seal and attached band clamp around the mounting flanges. Locate the band clamp on the vat wall flange and the bulb on the rotor flange. Position the clamp bolt at the 12:00 position. Tighten the bolt hand tight only at this time.
4. Locate the seal on the two flanges. The bulb of the "P" Seal should be approximately 1/4" from the gap between the mounting flanges. The bulb must not be placed over the gap or it will wear excessively and cause premature failure of the seal. Lift the seal around the circumference of the flanges, and inspect its position. When the seal is correctly positioned tighten the band clamp.

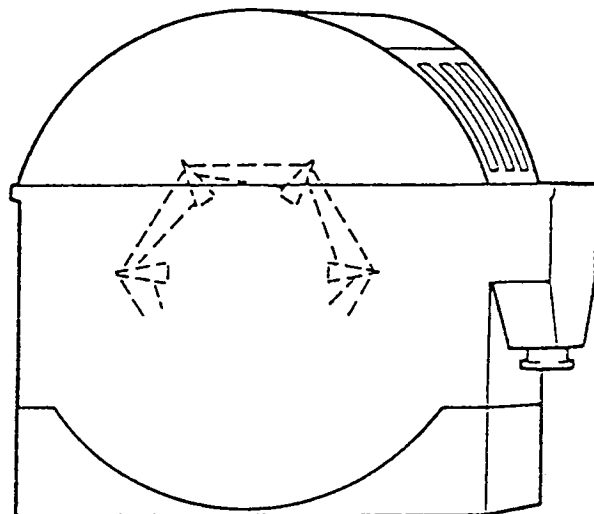
5. Slowly tighten the take up bolt in the clamp. Make sure that the rubber seal does not pucker or kink. While tightening the seal, beat the band clamp at various points around its circumference to ensure that it pulls down tightly. If the two ends of the rubber seal touch, trim the ends to maintain a slight gap. When the bolt is tight, seal the gap with a silicone sealant. Next, weld the anti-rotation bar to the vat wall. Position the bar on the side of the bolt so that it will stop the seal from turning during operation. Locate the anti-rotation bar on the side of the clamp take up bolt opposite the feed box.
6. Place the cable in the groove on the bulb of the "P" Seal. Position the cable turnbuckle assembly about 6" from the band clamp bolt to prevent interference between the anti-rotation bars. The slotted anti-rotation bar for the turnbuckle is supplied too long. Cut it so that the threaded rod of the turnbuckle runs through the slot and the other end of the bar touches the vat wall. Weld the anti-rotation bar in this position. Shorten the anti-rotation bar as described or the channels of the rotor will hit it when the rotor turns.
7. Tighten the turnbuckle on the cable until it is snug. Do not over tighten. The purpose of the cable is to provide very light pressure on the seal to stop the water from leaking as the seal wears. Over tightening will result in premature seal failure.
8. Continuously spray a small volume of water from a wash up hose or other filtered mill water source at the interface of the seal and the flange on the rotor. Start the filter and run it at slow speed (under 0.5 RPM) for one hour to break in the seal.
9. After the seal is broken in, put the filter into normal operation.



A - A

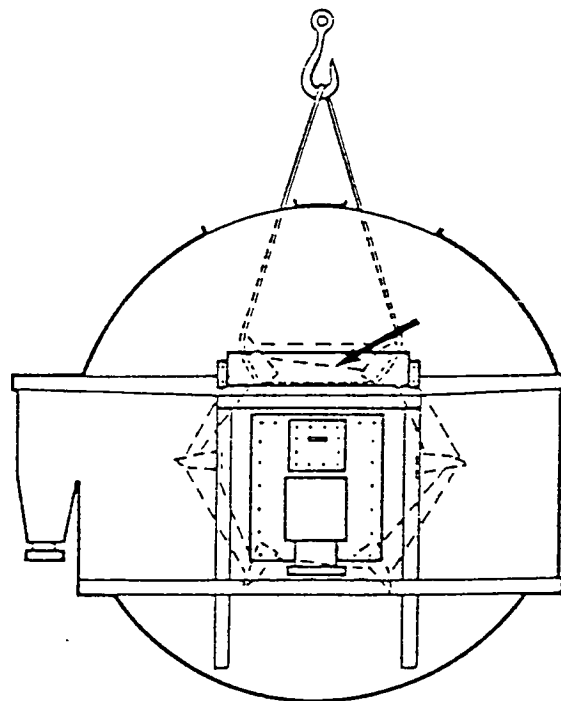
REPLACING OF SLIDE SHOES

1. Perform point 1-10 acc. to instruction for long-time stop (page 5.1)
2. Stop the rotor in a position that facilitates later up-lifting.



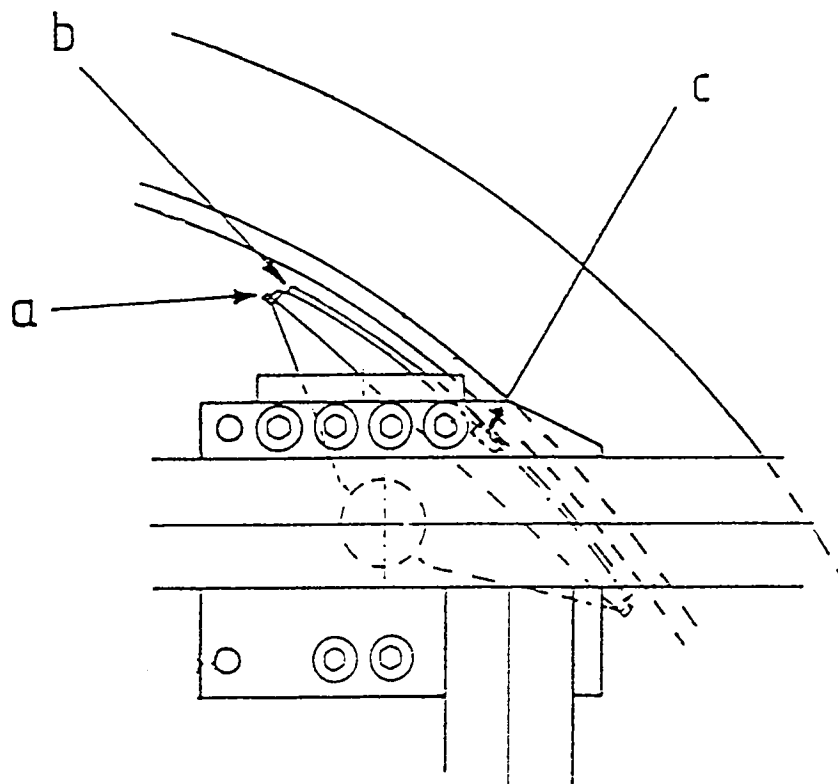
3. Remove the hood for the slide shoes.

4. Remove the upper inspection covers on the hood and apply lifting device near the supporting ring.



5. Lift the rotor carefully appr. 1/4". Hold that position.

(Replacing of slide shoes, cont.)



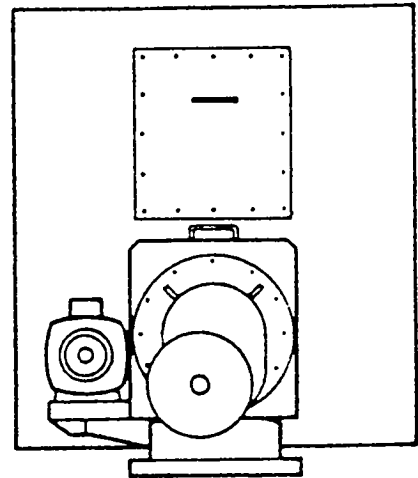
6. Dismount attach bar a.

7. Exchange the bearing-plate by lifting it over the holders c.
Holders can be used again if they are undamaged.

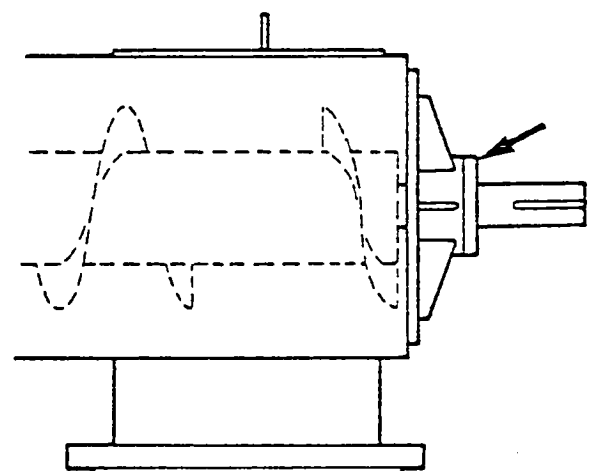
SCREW CONVEYOR

REPLACING OF EXTERNAL BEARING

1. Remove belt guard, belt and gear box.



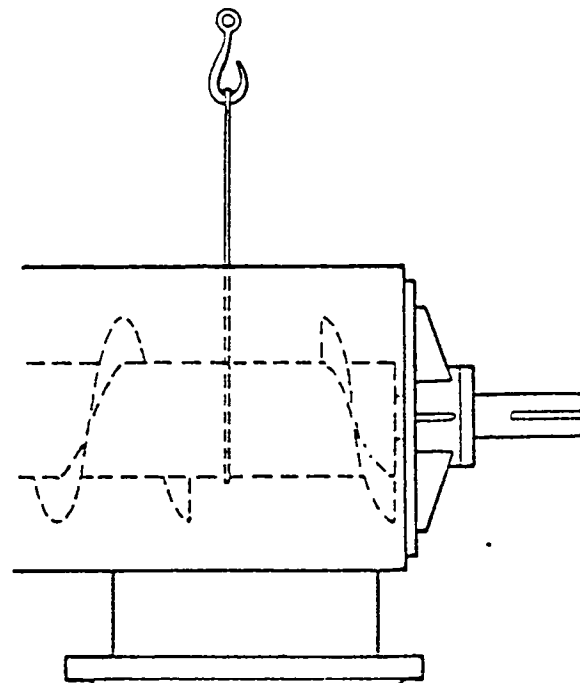
2. Remove the outer sealing, (V-ring), seal and spacer sleeve.



SCREW CONVEYOR

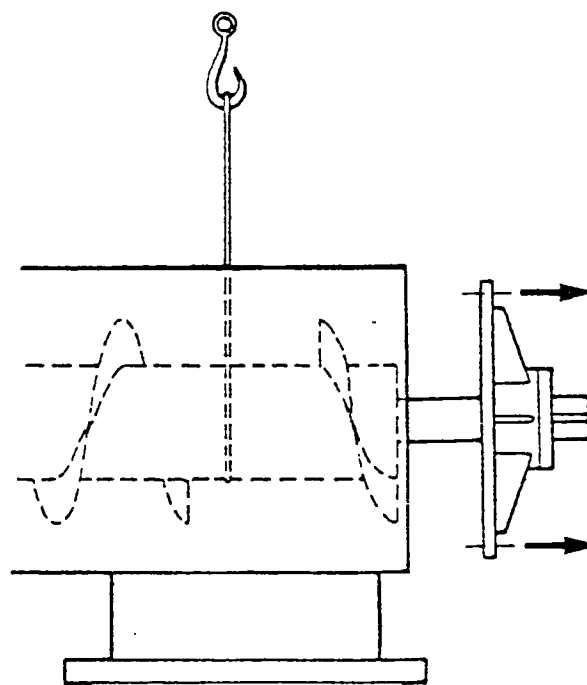
(Replacing of external bearing, cont.)

3. Open the inspection cover and apply lifting device.



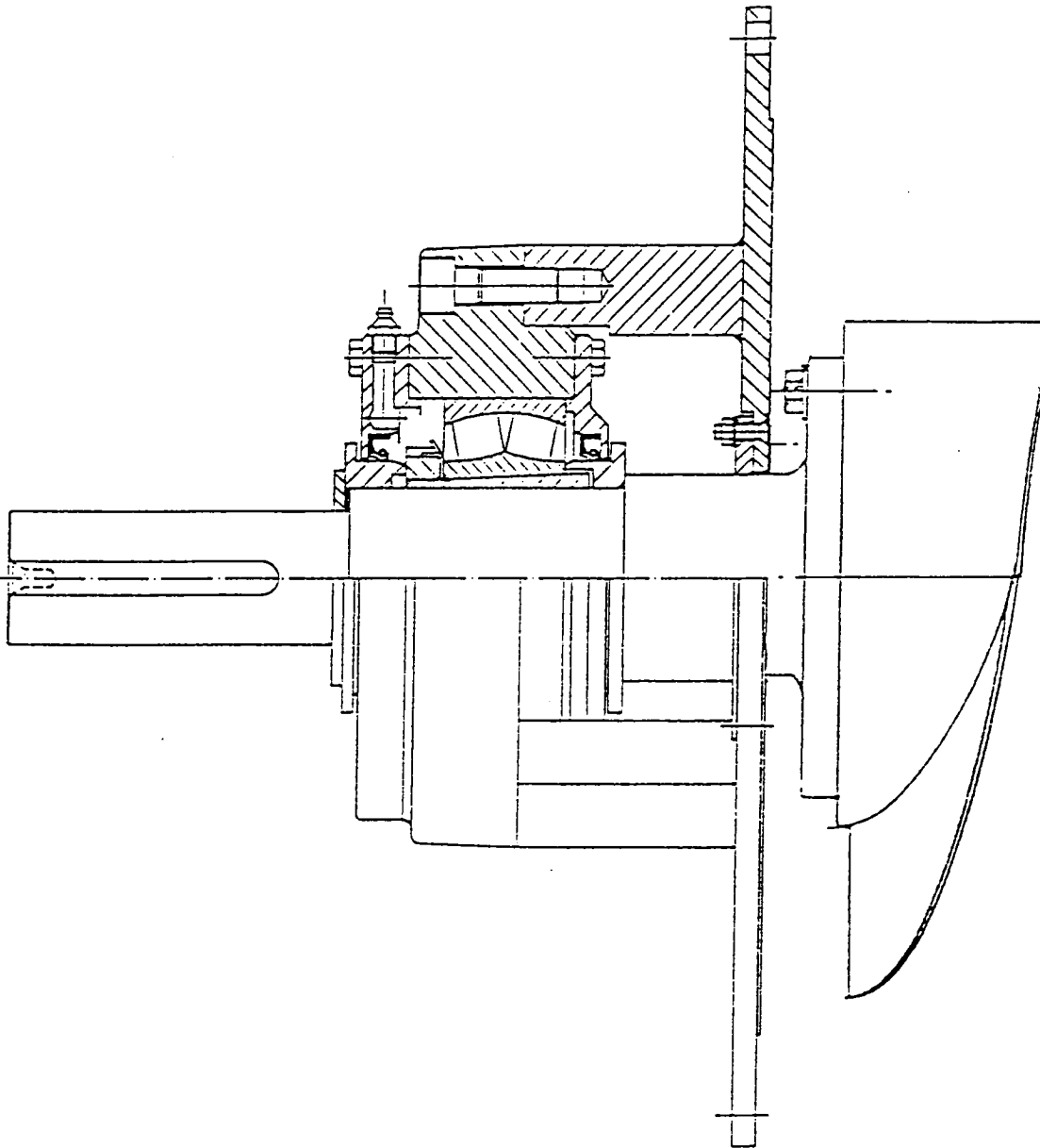
4. Remove bolts on outer flange.
Loosen the tightening nut and tap the clamping sleeve until the bearing becomes loose.
Pull out the housing with the bearing.

(See picture on page 10.3)



SCREW CONVEYOR

(Replacing of external bearing, cont.)



MOUNTING OF NEW BEARING

Bearings to be mounted with a reduction in radial internal clearance of 0.0018"-0.0025".

Min. permissible final clearance after mounting bearings:
0.0014"

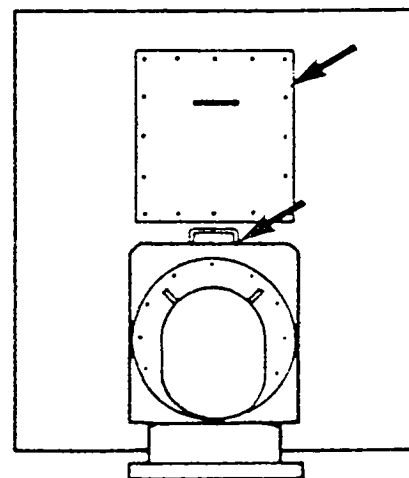
Bearings and seals to be filled with grease: SKF LGMT 3 or eq.

SCREW CONVEYOR

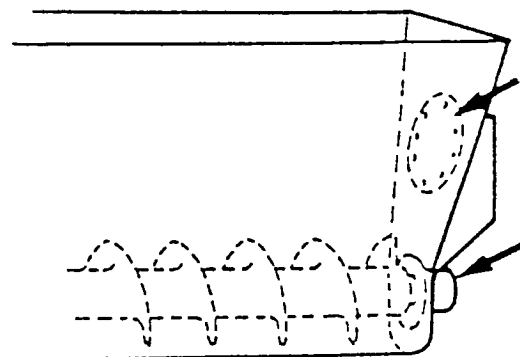
REPLACING OF INTERNAL BEARING

1. Remove belt guard and belts.

2. Open both inspection covers at the outlet end of the screw conveyor.

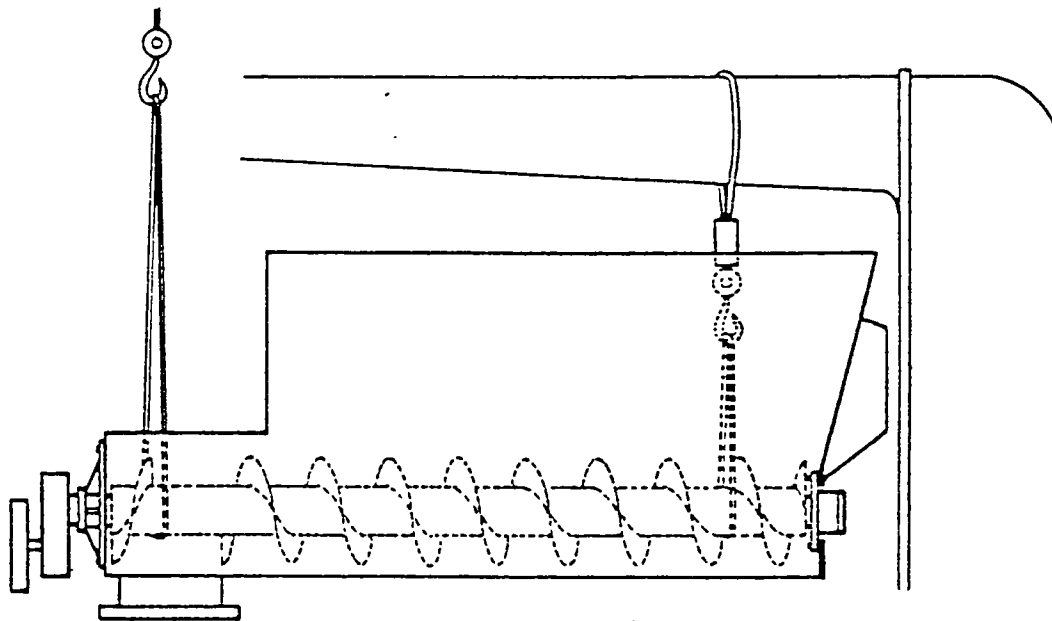


3. Open the inner inspection cover and disconnect the lubrication pipes on the bearing housing.

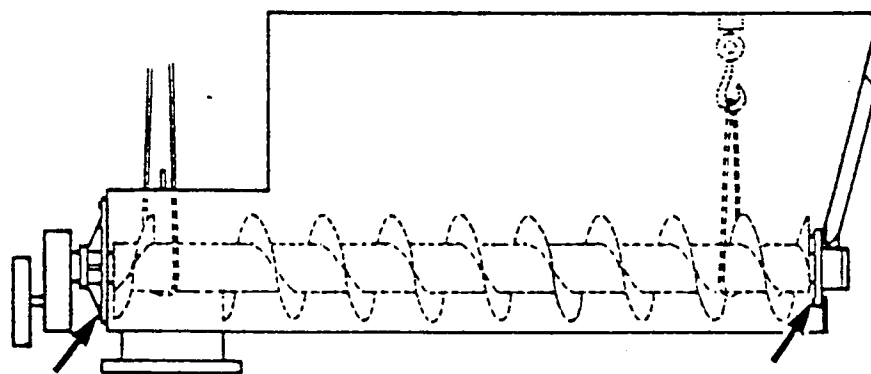


SCREW CONVEYOR

(Replacing of internal bearing)



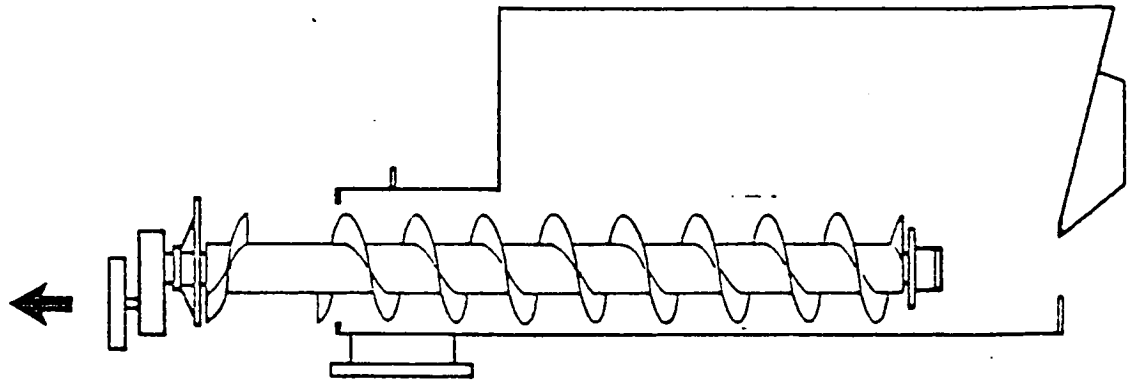
4. Apply lifting device at both ends of the screw.



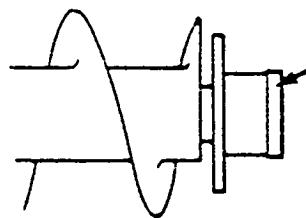
5. Loosen both inner and outer flange.

SCREW CONVEYOR

(Replacing of internal bearing)



6. Pull out the screw at least 40-50 inches.

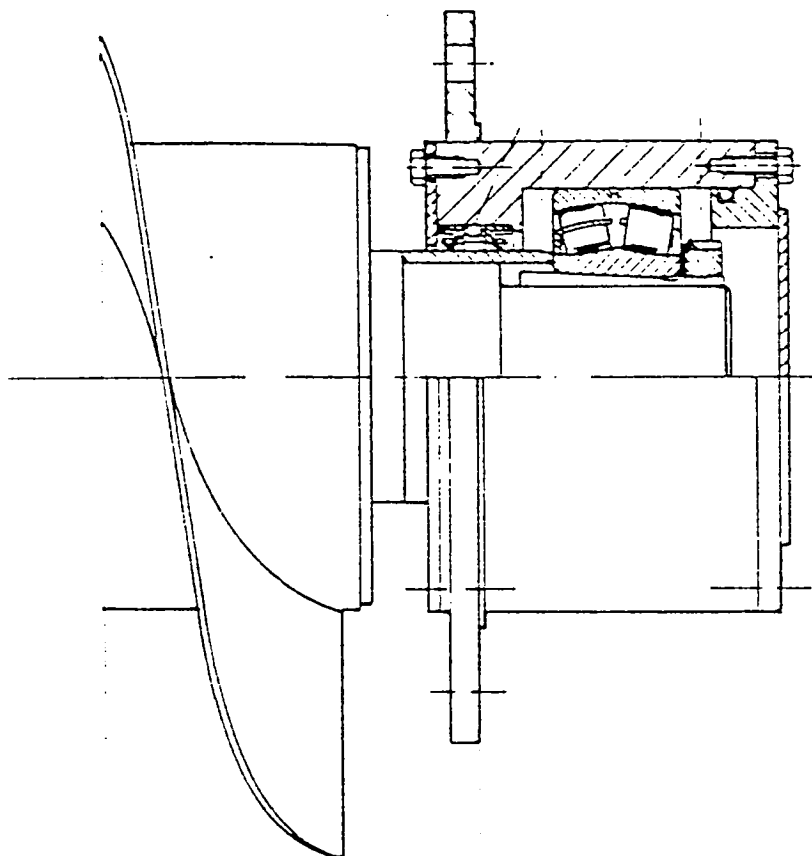


7. Remove end cover and loosen the tightening nut and tap the clamping sleeve until the bearing gets loose. Pull out the bearing and housing.

(See picture on page 10.7)

SCREW CONVEYOR

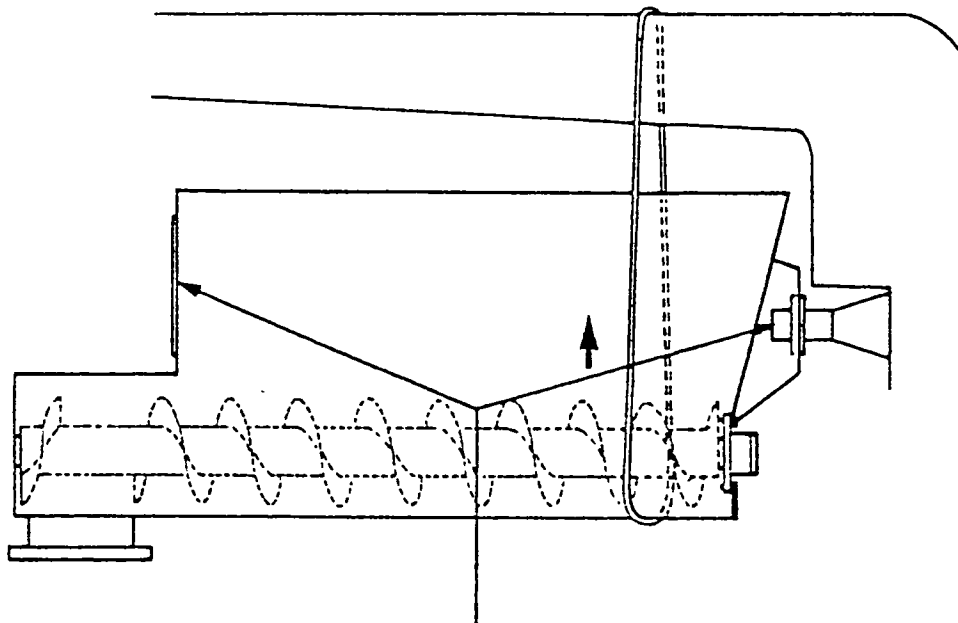
(Replacing of internal bearing, cont.)



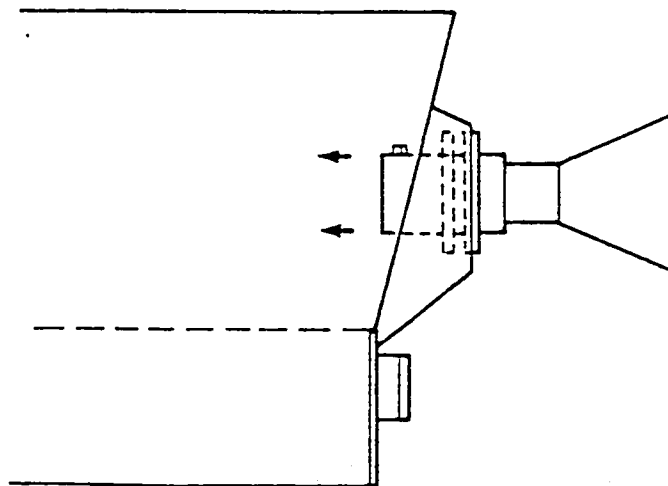
-50

1. Bearings to be mounted with a reduction in radial internal clearance of 0.0018"-0.0025".
Min. permissible final clearance after mounting bearings:
0.0014"
2. Bearings and seals to be filled with grease: SKF LGMT 3 or eq.

REPLACING OF SUPPORT BEARING OF SCREW CONVEYOR VAT



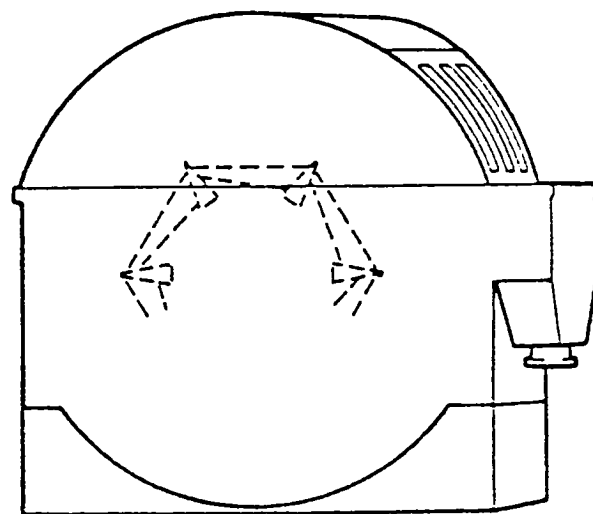
1. Remove both covers.
2. Apply a lifting device to the screw conveyor vat and lift the vat only so much that the shaft is unloaded.
3. Loosen the seal water pipe.



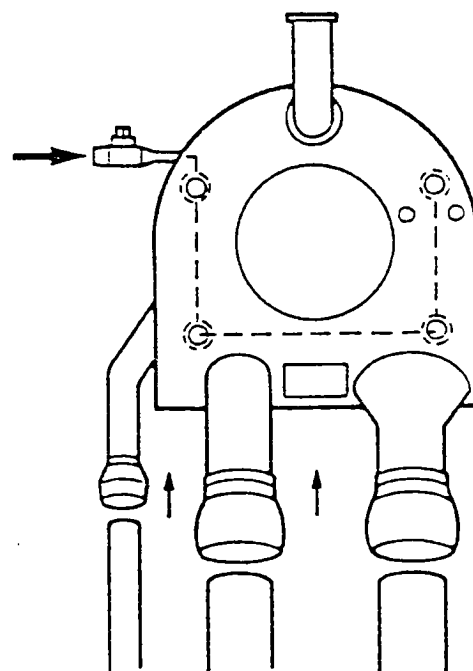
4. Loosen the flange and pull out the bearing and bearing housing.

REPLACING OF WEAR PLATE.

1. Perform item 1-10 acc. to instruction for long-time stop (page 5.1).
2. Stop the rotor in a position that facilitates later uplifting.

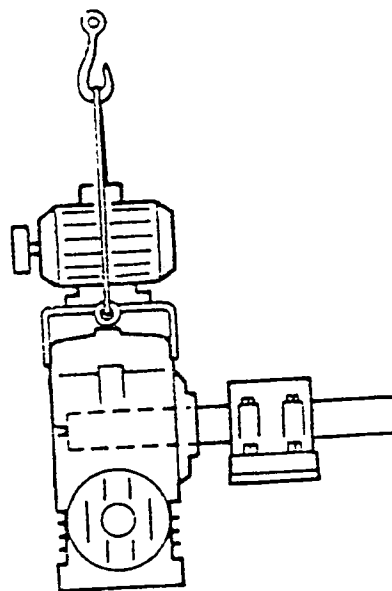


3. Close seal water and disconnect hoses.
4. Relieve the pressure in the air cushions. Disconnect hoses.
5. Disconnect the rubber bellows.



Replacing of wear plate, (cont.)

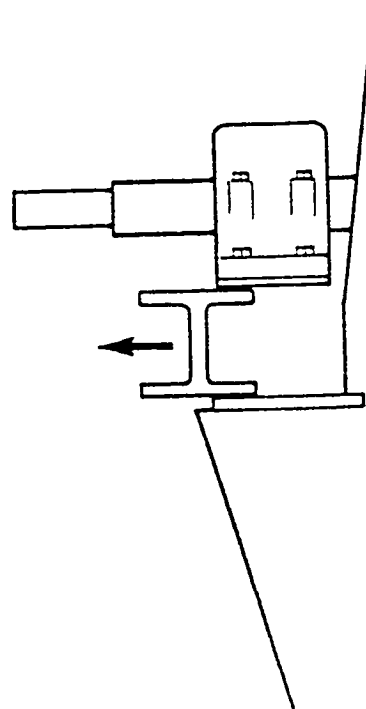
6. Apply lifting device on the gear box.



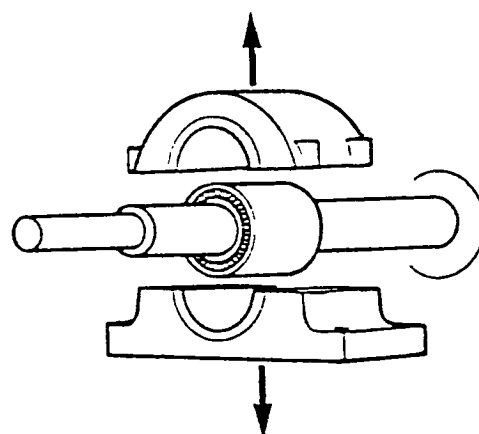
7. Remove cover, loosen the bolts for shrink disc and with a puller remove the gear box.

Replacing of wear plate, (cont.)

11. Remove the supporting
beam.

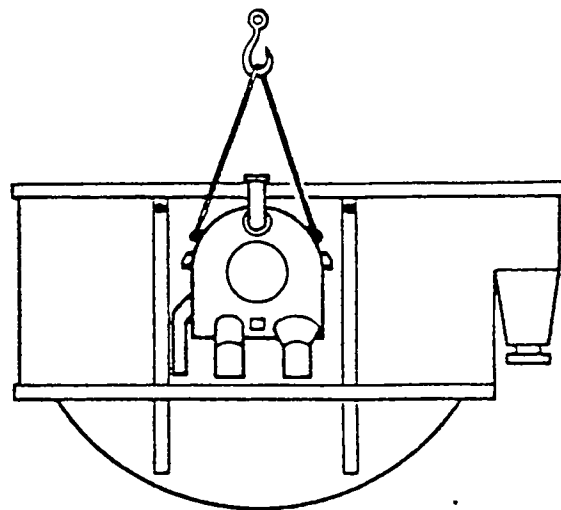


12. Dismantle bearing housing.
NOTE: Do not remove
bearing.



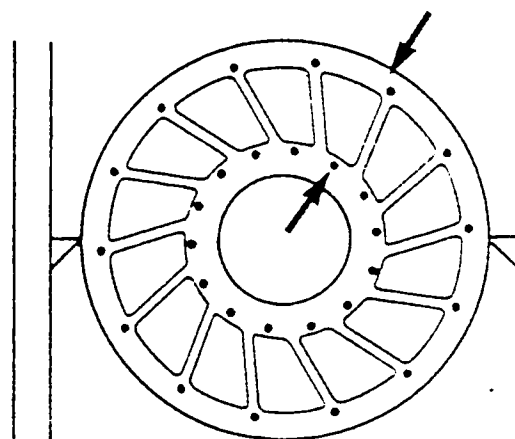
Replacing of wear plate, (cont.)

13. Remove suction chamber.



14. The wear plate is now visible and can be replaced.

NOTE:
When mounting the new wear plate, loctite 242 must be used on those bolts that are threaded into the rotor.



**INSTRUCTIONS FOR INSTALLING WEAR DISC
ON CELLECO FILTER**

- 1) INSTALL ENCLOSED CENTER-FINDERS IN ALL 1/2 INCH ROTOR HOLES MAKING SURE ALL ARE SNUGGED DOWN CLOSE TO THE ROTOR FACE.
- 2) INSTALL WEAR DISC ON TOP, INSERTING ALL OF THE 5/16 INCH BOLTS INTO THE WEAR DISC FROM THE BACK SIDE.
- 3) ONCE YOU ARE SURE ALL OF THE 5/16 INCH BOLTS WILL LINE UP, SNUG DOWN THESE BOLTS TO PULL WEAR DISC CLOSE TO CENTER-FINDERS INSTALLED IN ROTOR.
- 4) WITH A MALLET OR SMOOTH PIECE OF WOOD AND HAMMER, TAP OUTSIDE OF WEAR DISC HARD TO CLEARLY MARK HOLE CENTERS ON BACK SIDE OF WEAR DISC. REMOVE WEAR DISC, BE SURE ALL HOLES MARKED, AND CIRCLE INDENTATIONS WITH A FELT TIP MARKER.
- 5) TAKE WEAR DISC TO MACHINE SHOP AND DRILL THROUGH USING 9/16 INCH DRILL.
- 6) USING PILOT DRILL ASSEMBLY, OR GRINDING PILOT SHAFT ON STANDARD BIT, COUNTERBORE ACCORDING TO DRAWING BEING SURE TO LEAVE A SQUARE BOTTOM COUNTERBORE. CHECK TO BE SURE STAINLESS WASHER WILL FIT IN BOTTOM OF COUNTERBORE.
- 7) INSTALL WEAR DISC USING LOCTITE PRIMER "T" AND LOCTITE 242 TO SECURE ALL BOLTS. THIS IS IMPORTANT AS WEAR DISC COULD LOOSEN BOLTS.
- 8) 2 TO 3 HOURS SHOULD BE ALLOWED FOR DRILLING AND COUNTERBORING WEAR DISC. PROPER PROCEDURE WILL REDUCE THE TIME REQUIRED TO INSTALL THE WEAR DISC ONTO THE ROTOR, AS ALL THE HOLES SHOULD EASILY LINE UP.

CENTERDISC CDI
Instructions for Replacing the Filter Bag

The replacement of filter bags on the filter segment of the CENTERDISC CDI disc filter is done for maintenance purposes or in the event of failure of a bag.

When replacing a damaged bag, the segment must be carefully cleaned before the new bag is fitted.
The new bag must be shrunk after it has been placed on the segment.
The equipment that Celleco recommends is a simple steam box (as shown in Figure 7) with space for a suitable number of segments.

Proceed as follows:

1. Draw a new filter bag over the segment. Note that the filter bag only fits in one particular position.
2. Close the filter bag using the zip and remove the locking mechanism.
3. Fold the end of the zip.
4. Insert the end of the zip into the bag at the side of the segment.
5. This is the correct position for the zip.

Shrinking in a steam box

6. Before shrinking, fit the protective metal sheet for the nozzle. Remove the protective sheet only after the segment has cooled.
7. Supply steam to a box with space for a suitable number of segments (4 to 6). Shrink the bags until all the folds are gone and the bag sits tightly. The shrinking time is estimated at 30-60 minutes, depending on the number of segments to be shrunk at a time.
8. Fit the side strips.
9. Finally, check that there is a free passage to the openings of the filter segments.

For further advice on changing filter bags, you are welcome to get in touch with Celleco or the local Celleco representative.

