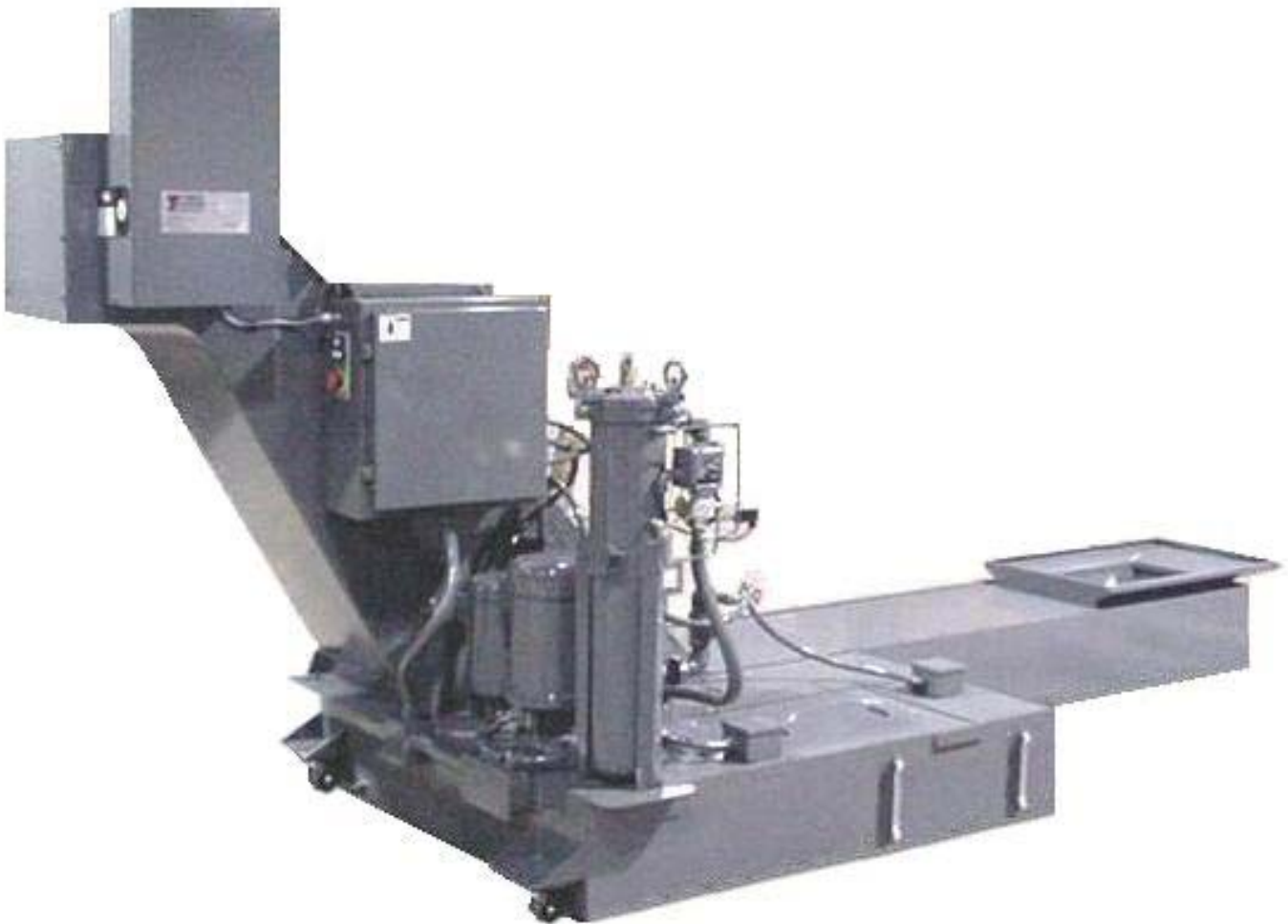




MICROFINE® S CONVEYOR PARTS AND SERVICE MANUAL



TURBO SYSTEMS INCORPORATED

Thank you for choosing a TURBO SYSTEMS INC. Chip Conveyor. We are proud to have you among our Turbo Systems' Incorporated family of users.

TURBO SYSTEMS' Chip Conveyors simply and reliably remove waste from machining operations. Machine efficiency is increased and operator safety is improved since the conveyor work with little operator attention and without interrupting production time. TURBO Conveyors are available for many types of machine tools or other applications. They can be arranged to deliver wet or dry waste to containers or to conveyor or chute-type disposal systems. For further information, contact:

Sales Department
TURBO SYSTEMS INCORPORATED
203 Turbo Drive
Kings Mountains, NC 28086

This Service Manual is intended to assist with the normal maintenance that will assure long service life of your TURBO Chip Conveyor. It is in two parts – a Service Instruction Section, followed by a Parts Section, which includes drawings and parts lists for the basic elements of the conveyors.

NOTICE

ALL INFORMATION CONTAINED IN THIS MANUAL IS INTENDED TO BE CORRECT; HOWEVER INFORMATION AND DATA IN THIS MANUAL ARE SUBJECT TO CHANGE WITHOUT NOTICE. TURBO CONVEYOR MAKES NO WARRANTY OF ANY KIND WITH REGARD TO THIS INFORMATION OR DATA. FURTHER, TURBO CONVEYOR IS NOT RESPONSIBLE FOR ANY OMISSIONS OR ERRORS OR CONSEQUENTIAL DAMAGE CAUSED BY THE USER OF THE PRODUCT. TURBO CONVEYOR RESERVES THE RIGHT TO MAKE MANUFACTURING CHANGES, WHICH MAY NOT BE INCLUDED IN THIS MANUAL.

Turbo Systems Inc. supplies data necessary for the proper instruction, test, operation and maintenance of this product. Turbo Systems Inc. retains all proprietary rights in and to the information so disclosed and such shall not be reproduced, copied, or used in whole or in part for purposes other than those for which it is furnished.

1. TABLE OF CONTENTS

CONTENTS	PAGE
Introduction & Table of Contents	1
Instructions for Ordering Parts	2
Warranty	2
Installation and Startup Maintenance	3-6
Lubrication and Routine Maintenance	7
Clutch Operation and Adjustment	7
Turbo Conveyor Torque Limiting Adjustment	8
Conveyor Belt Tensioning	8-9
Motor, Drive Shaft & Sprocket Alignment	10
Drive Chain Tension	11
Conveyor Belt Removal & Installation	11-13
Drum Removal & Installation Instructions	13-14
Conveyor Belt Tensioning	14
Drum Seal Removal & Installation	14-15
Back-Wash Drum Nozzle Removal/Cleaning/Installation	16
Removal & Installation of Drum Screen ..	16
Trouble Shooting	17-19
Maintenance Schedule	20
Microfine® S Service Parts	21-29
Microfine S Electrical Information	30-31

2. INSTRUCTIONS FOR ORDERING PARTS

INSTRUCTIONS FOR ORDERING PARTS

Furnish the following information on your order:

- Model and serial no. of machine
- Catalog number and name of part
- Quantity wanted
- Purchase order number
- Bill to address

Furnish exact shipping instructions:

- Complete shipping address
- Mode of delivery
- Parcel post, truck line, etc

How to find the model and serial number of your machine:

The machine model number and serial number is stamped on the machine nameplate located on the motor cover.

**TURBO
SYSTEMS
INCORPORATED**

203 TURBO DRIVE
KINGS MOUNTAIN NC 28086

PH# 704-739-7111
FX# 704-739-6039

www.turbosystemsinc.com

MODEL #

SERIAL #

An ISO 9001
Certified Company

DIRECT YOUR ORDER TO:

TURBO SYSTEMS INCORPORATED

203 Turbo Drive
Kings Mountains, NC 28086 U.S.A.
Telephone: (704) 739-7111 Fax: (704) 739-6039

WARRANTY

Seller warrants that within 12 months from original shipment, if its products are operated by the original specified user: Seller will repair or replace, at its option, free of charge except freight, FOB shipping point, any parts it finds nonconforming on these conditions:

- on request, user promptly allows seller to inspect, and user returns all requested parts to seller's plant, and
- user has operated and maintained products in accordance with seller's maintenance and operational literature and good business practice; and
- products have not been misused, abused, damaged by accident or altered without seller's written consent; and
- user employs trained maintenance and operating personnel; and
- buyer meets all payment obligations;

Seller warrants products manufactured by others to the extent warranted by their original manufacturers, on these conditions. Parts, which have expected life shorter than one year under normal usage, are excluded. USED PRODUCTS ARE SOLD AS IS. SELLER MAKES NO WARRANTY FOR USED PRODUCTS EXCEPT AS TO TITLE. BUYER MAY INSPECT AND TEST BEFORE SHIPMENT AND ACCEPTS USED PRODUCTS ON THESE TERMS.

THIS WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES WHETHER WRITTEN, ORAL, OR IMPLIED, (INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE.)

INSTALLATION AND STARTUP

Your Turbo Systems' Conveyor has been test-run prior to shipment to insure proper operation. However, it is recommended that the following checks be made before startup:

SERVICE SECTION

Most smaller assemblies of the conveyor, such as the drive and safety clutch, can be disassembled by careful reference to the exploded parts drawings shown later in this manual. However, the belt and filter drum parts can be removed by following the sequence described in this section. Refer to the Parts Section in this manual for belt part designation and catalog numbers.

Conveyor Drive

Check the frame and the belt for damage during shipment or storage.

Locate the conveyor in operating position.

All drive elements (pulleys and sprockets) should be located close to their bearing supports. Each set of sprockets should be carefully aligned to prevent excessive wear and noise.

Drive chains and belts should be properly tensioned.

Check the speed reducer to see that oil is at the proper level. If there is a shipping plug in gearbox vent, remove it prior to running the unit.

Leveling

A Level should be placed across tail section and on the bottom cover at discharge, perpendicular to the travel of the belt. Adjust the conveyor support leg, if so equipped, or shim as necessary to level.

Electrical Controls

If the conveyor is supplied with electrical controls, check the voltage of the system supplied to be sure it matches with that to be used. Read the Electrical Controls section in this manual for more details before installing the conveyor.

A qualified electrician in accordance with local codes must connect electrical equipment to the power source. If the conveyor power source is the basic machine, refer to the basic machine manufacturers wiring diagram.

DO NOT DRILL HOLES IN CONVEYOR FRAME TO MOUNT ELECTRICAL POWER BOXES OR ACCESSORIES WITHOUT FIRST CONSULTING TURBO SYSTEMS INCORPORATED.

For proper belt direction refer to the diagram shown on Page 5. If the belt is running backwards, switch two of the power leads to the conveyor drive motor. Running the belt in reverse for extended periods of time can cause damage to the filter drum or belt.

Prior to installation of the MICROFINE® S, the coolant tank should be cleaned of any chip residue from prior machining operations or debris from shipment packaging. This will ensure a clean and trouble free start-up.

DANGER!

**DO NOT TURN ON ELECTRICAL SUPPLY PRIOR
TO COMPLETING THE PRE-START CHECK LIST
THAT FOLLOWS.**

PRE-START CHECK LIST

The MICROFINE® S conveyor is equipped with several components and features not found on conventional chip conveyors. Each of these components is described below. Connection or pre-start inspection instructions follow the description of each component.

1. A back-wash pump is generally supplied with your MICROFINE® S conveyor and is pre-connected. If your MICROFINE® S conveyor was ordered without a back-wash-pump that supplies continuous coolant flow through the nozzles to clean the filter drum, insure that a pump source is used that supplies consistent, continuous coolant flow. Spindle pumps are not recommended for this application because they are used intermittently and will result in inconsistent pressure and flow depending on when the spindle coolant is being used. Failure to supply continuous back-wash flow to clean the filter drum can result in coolant overflows from the conveyor into the clean side of the coolant tank.

3. The drum filter assembly - contained within the conveyor frame to the rear of the conveyor incline.

No special pre-start preparations are required. However, it is advisable to inspect the inlet area to the rear of the housing and the conveyor load section belt. Remove any foreign objects or material that may remain from shipment packaging. A visual check of the filter area is recommended to ensure absence of foreign material within the filter housing; view by removing the inspection cover in front of the filter drum.

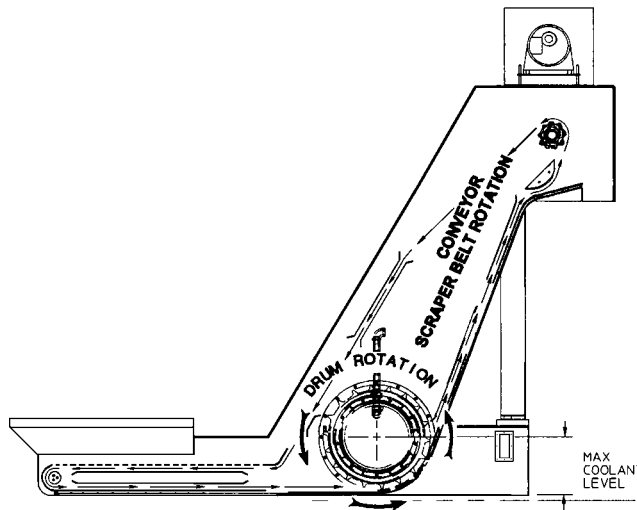
WARNING!

DO NOT REACH INTO THE DRUM HOUSING WHEN THE SYSTEM IS RUNNING. SERIOUS PERSONAL INJURY COULD RESULT.

CONVEYOR ELECTRICAL SERVICE CONNECTION

Upon completion of the above pre-start activities, check to be sure both the conveyor and filter control switches are in the "OFF" position; the filter power control switch is a "mushroom" type, PULL ON, PUSH OFF. Depending on the type of conveyor drive, the conveyor start/stop switch may be located in a separate enclosure near the filter control. After verification that both control switches are in the "OFF" position, connect the conveyor to your power supply. Once power supply connections are completed, verify correct drum filter rotation and conveyor belt travel direction.

Note: The direction of the drum filter rotation should be as shown below. If not, the scraper belt is traveling in the wrong direction. To correct this problem reverse two of the three "hot" leads to the lower conveyor drive motor.



MICROFINE® S START-UP

COOLANT FILLING

Fill the coolant tank with water-soluble coolant solution of your choice. After initial start-up, you may find it necessary to add coolant to restore the desired fluid level. This is because the conveyor load section acts as an additional reservoir and complete drain down of the conveyor does not occur even during system idle periods. Note: Do not fill the coolant tank level with coolant above the centerline of the filter drum.

PERIODIC INSPECTION

The MICROFINE® S conveyor has been designed to be maintenance free; however, the following periodic checks should be completed at the recommended service intervals to ensure continued and trouble-free operation.

AFTER FIRST 100 HOURS

After the first 100 hours of operation and the regular intervals complete the following:

1. View the operation of the drum and back-wash system by removing the inspection cover in front of the filter drum.

WARNING!

DO NOT REACH INTO THE DRUM HOUSING WHEN THE SYSTEM IS RUNNING. SERIOUS PERSONAL INJURY COULD RESULT.

While the conveyor is running and the back-wash system "on", check the back-wash system function. A strong, uniform fluid flow should be properly cleaning the filter drum across the full width of the drum. If there is an absence of spray or the spray pressure is weak, there are several possible causes. See the trouble shooting section of this manual for further information.

2. By viewing the filter screen by removing the inspection cover in front of the filter drum, check the condition of the filter screen and viton seal attached to the filter drum.

WARNING!

DO NOT REACH INTO THE DRUM HOUSING WHEN THE SYSTEM IS RUNNING. SERIOUS PERSONAL INJURY COULD RESULT.

The screen should be free of tears and firmly positioned by the filter clamps. The two hose clamp adjustment screws and the mounting bolts that secure the three clamping bars that attach the screen to the drum must be tight. Inspect the viton seal for damage (tears or punctures). In the event that the filter screen or viton seal is damaged, they must be replaced immediately. Failure to do so will result in contamination of the clean side of the tank.

BE SURE TO SWITCH THE CONVEYOR "OFF" prior to checking tightness of the filter and wiper blade mount screws. All screws should be firmly seated, but not tighten enough to cause compression of any metal parts. To check all screens and mounting screws, the conveyor should be "jogged" to rotate to each exposed section of the filter screen around the circumference of the drum. **DO NOT LEAVE THE CONVEYOR RUNNING** while performing this inspection process.

Prior to applying power back to the conveyor, be sure to remove any tools, shop rags or towels you may have used while completing inspection and maintenance. Any foreign article(s) left on the filter drum can cause an immediate lock-up at re-start; this may lead to failure of drum components, belt and/or gear-drive. **ALWAYS INSTALL ALL OF THE COVERS BACK INTO THEIR ORIGINAL POSITION BEFORE OPERATING THE EQUIPMENT!**

CAUTION !

ALWAYS DISCONNECT POWER TO THE CONVEYOR BEFORE ATTEMPTING ANY MAINTENANCE PROCEDURES.

LUBRICATION AND ROUTINE MAINTENANCE

After First 100 Hours of Operation and at regularly scheduled intervals to suit operating conditions:

Check belt, wipers for excessive wear.

Inspect conveyor belt parts for excessive wear. If excessive wear is noted, belt should be removed and repaired. (Refer to service section for belt removal instructions).

Change oil in speed reducer (if applicable). Use any brand 90-wt. gear oil.

Grease pillow block bearings, using grease gun. Do not grease too often – bearing seals could be damaged.

Check belt tension

Oil drive chains.

CAUTION !

**ALWAYS DISCONNECT POWER TO CONVEYOR
BEFORE ATTEMPTING ANY MAINTENANCE
PROCEDURES.**

CLUTCH OPERATION AND ADJUSTMENT

A ball and detent clutch protects the conveyor drive unit from damage in case of jamming or overload. The clutch is preset at factory.

Clutch Adjustment

The clutch should not require any adjustment when working under normal machining operations. If a problem occurs refer to the Trouble Shooting Section on page 25 of this manual.

Please contact Turbo Systems' Service Department before adjusting the clutch setting. If clutch adjustment is too tight, the clutch will not function as a safeguard for the motor.

Please fill in the blanks below with the conveyor model and serial number for your reference.

CAUTION !

**If clutch adjustment is too tight, clutch will not
function as a safeguard for the motor.**

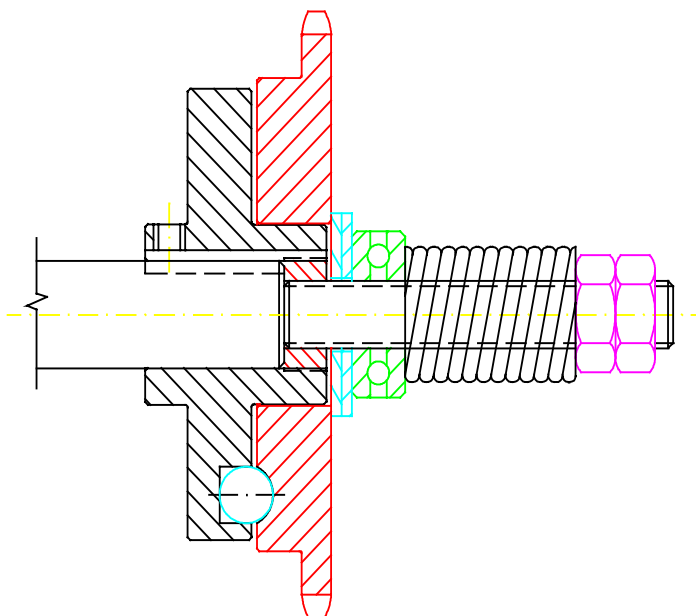
MODEL NO. _____

SERIAL NO. _____

**THE COMPRESSION SPRING IS PRESET AT THE FACTORY.
CONTACT TURBO SYSTEMS INCORPORATED BEFORE MAKING ANY ADJUSTMENT.**

TURBO CONVEYOR TORQUE LIMITING CLUTCH

Clutch shown here has a single spring. Your conveyor clutch spring quantity may vary.

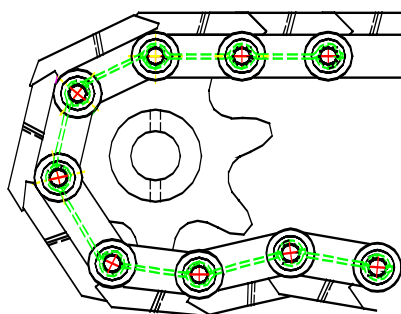


CONVEYOR BELT TENSIONING

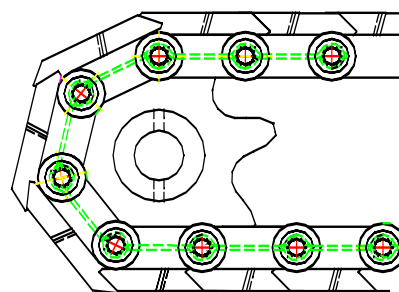
Correct conveyor belt tension is essential to ensure proper operation and extended life of conveyor components. The belt has been properly tensioned during factory assembly. As normal wear occurs the belt may become slack and need adjustment.

The following factors may be used to determine if the belt needs adjustment.

- Belt Too Loose: Belt Slack at exit point of the drive sprocket before re-entry into frame. (See fig. 1).
- Belt Too Tight: Belt has intermittent jerks and a popping sound while conveyor is in operation.
- Uneven Tension (side to side): (1) Belt tends to track to one side (2) Excessive wear on outside of side wings.



INCORRECT



CORRECT

FIG. 1

Check to see that clutch body (75A-50) is square to the bearing-mounting bracket. (See Fig.2). If it is not, this will generally indicate which direction the belt is off on side-to-side tension.

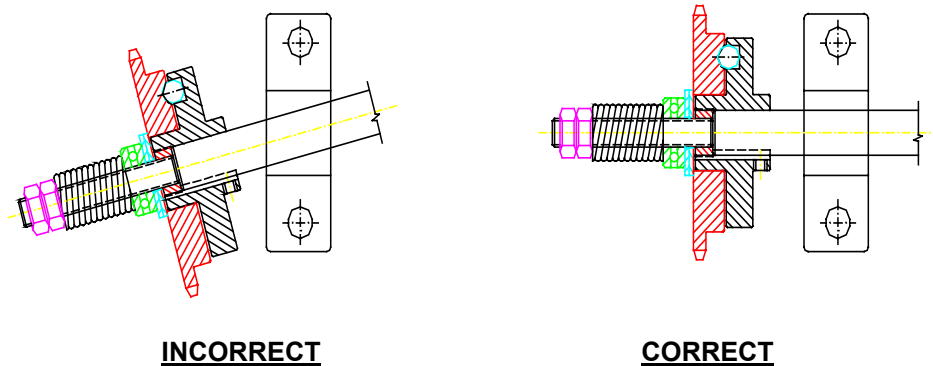


FIG. 2

Once it is determined that retensioning of the belt is necessary, the following procedure should be followed:

INSTRUCTIONS FOR CHECKING CONVEYOR BELT TENSION

1. Position belt with a scrapper cleat directly below the conveyor drive shaft.
2. Hold a straightedge across the bottom of the conveyor discharge at the very rear.
3. Using a 6-inch scale, measure vertically from the straightedge up to the underside of the belt.
4. Push up on the underside of the belt and repeat the measurement as in step 3.
5. Under the force applied by the average worker, the measurement in step 4 should be approximately 1/16 inch (1.5mm) greater than the measurement in step 3.

BELT TENSIONING PROCEDURE

1. Install belt as stated in Parts and Service Manual, except do not install drive chain or tension belt. (Drive chain and preload exaggerates and/or alters torque reading.)
2. Tighten the pillow block bearing bolts and then loosen five (5) ¼ turns. (This step ensures that bearing is parallel to bearing mount surface, and that the lock washers are not adding additional torque to reading.)
3. Set the torque wrench to 25 inch pounds. Tighten each bearing adjustment bolt alternately until 25 inch pounds is obtained and torque wrench no longer turns adjusting bolt, but clicks at rotation.
4. Manually rotate belt back and forth. (This distributes tension evenly throughout belt.)
5. Repeat steps (3) and (4) until belt rotation no longer results in decreased torque setting. (This step ensures that both sides of belt are tensioned equally.) Lock adjusting bolts.
6. Run machine for (2) hour break-in period.
7. Remove drive chain. Loosen adjusting bolt locknuts. Loosen bearing bolts as noted in step (2). Repeat steps (3), (4) and (5). Re-torque the belt to obtain correct tension after the break-in period (see guide below).

NOTE: Belts with discharge heights in excess of 50" or load length in excess of 8 ft. may require higher torque settings. Contact Turbo Conveyor if assistance is needed.

BELT TENSION TORQUE GUIDE

Overall Length to 225" 25 in. lbs.
Overall Length Greater than 225". Check with Turbo

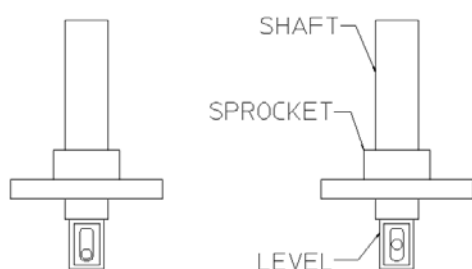
NOTE: Material use, application and incline angle can affect required torque settings. Drag link type conveyors may also experience torque variances due to conveyor length and chip loads.

CAUTION !
**ALWAYS DISCONNECT POWER TO CONVEYOR
BEFORE ATTEMPTING ANY MAINTENANCE
PROCEDURES.**

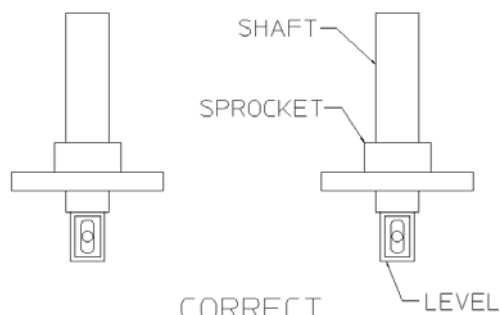
MOTOR AND DRIVE SHAFT & SPROCKET ALIGNMENT

Proper alignment of sprockets and shafts are essential for smooth operation of conveyors and long lasting service of the conveyor chain and the drive chain. To ensure correct alignment, follow these steps.

1. Level the motor and drive shaft using a level.

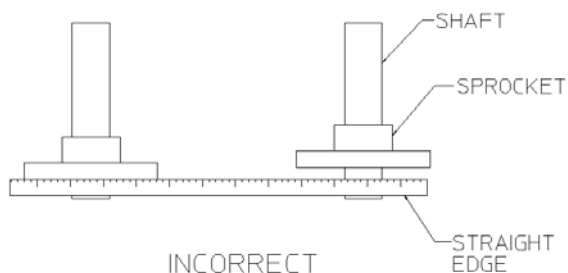


INCORRECT

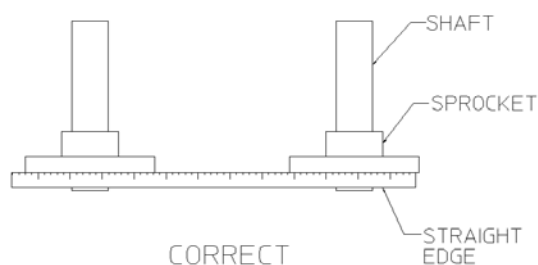


CORRECT

2. Align the motor and drive shaft for parallelism using a straight edge or a scale. The sprocket should be parallel to the shaft within ± 1 mm.



INCORRECT



CORRECT

3. Align the motor sprocket with the clutch or drive sprocket axially on the shafts using a straight bar, straightedge or stretched wire as illustrated below. Centering accuracy should be within 2 mm.

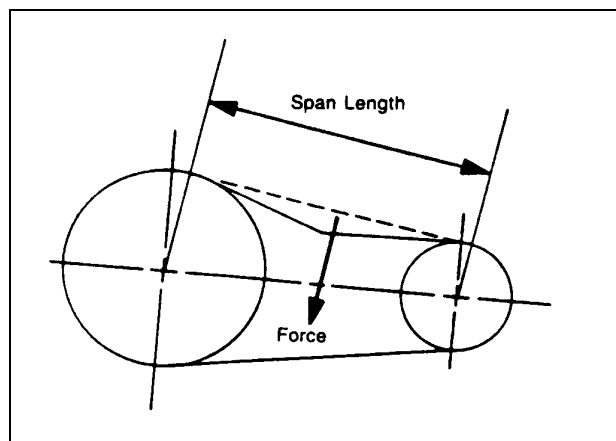
DRIVE CHAIN TENSION

Proper Tension for the drive chain is extremely important because:

1. When the chain is too tight, the additional load results in faster wear on the chain joints, sprocket teeth and shaft bearings.
2. When the chain is too slack, vibration could cause excessive chain wear, noise or shock loading.

For most horizontal and incline drives, the chain should be installed with an amount of sag in the unloaded span amounting to about 2 percent of the sprocket center distance length. Sag, then, becomes the measure of chain tension. For example if the span length between the sprocket centerlines, as shown below, are 18" then the sag should be $\frac{3}{8}$ " if the belt is tensioned correctly.

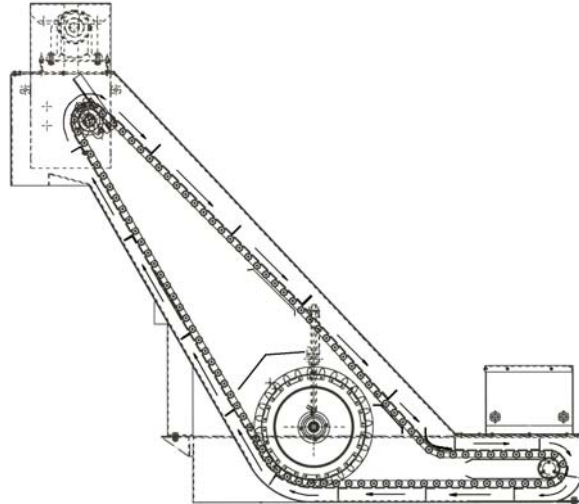
To measure the actual amount of sag, one side of the chain should be pulled up tight, allowing all of the excess chain to accumulate in the opposite span. A straight edge over the sprockets and a scale can be used to measure the sag. The chain tension should be checked on a regular basis and adjustments made as necessary.



SCRAPER BELT INSTALLATION AND REMOVAL OF CONVEYOR

1. Disconnect Electrical Power to the conveyor. (See electrical safety warnings in the Electrical Section of this manual before performing this step).
2. Remove the coolant tank covers that surround the conveyor
3. Remove the mounting bolts that attach the conveyor leg and the tail anchor brackets to the coolant tank.
4. Connect a chain or strap, which is properly rated for the lifting weight of the conveyor, to the lifting hooks or eyes, which are located at the discharge end and the horizontal load section of the conveyor.
5. Lift the conveyor out of the coolant tank and let the conveyor tilt forward and rest on the leg.
6. Remove the mounting bolts for the two brackets which are located at the tail end, underneath the conveyor
7. Using the motor mounting plate jackscrews, lower the drive motor, which will take the tension off of the drive chain.
8. Remove the master link clip of the drive chain and remove the drive chain.
9. Loosen the bearing bolts and adjusting nuts on both sides of the conveyor, which will take the tension off of the conveyor belt.
10. Remove the drum assembly. (Reference the "Drum Removal and Assembly" instructions in this manual).
11. If the conveyor belt is jammed, locate the master link on the belt. Remove the cotter pins on the master links (both sides).
12. Remove the belt by pulling it out through the discharge end of the conveyor.
13. Inspect the drive sprockets, tail discs and drum sprockets for wear. If worn, replace and realign per "Sprocket Replacement and Alignment" procedures in this manual.
14. Inspect the drive shaft, drum bearings and drum stub shaft for wear. If worn, determine the cause of the wear and correct this problem. Wear on the shafts are normally caused by interference.

15. Inspect the conveyor frame for wear. This is normally caused by improper belt alignment or tensioning. See the sections concerning "Belt Alignment" and "Belt Tension" in this manual for proper belt alignment and tensioning procedures.
16. After the conveyor belt has been removed or the replacement is ready to be installed, lay it out so that it is oriented properly to go back into the conveyor. See the attached sketch for proper belt orientation and belt travel direction.

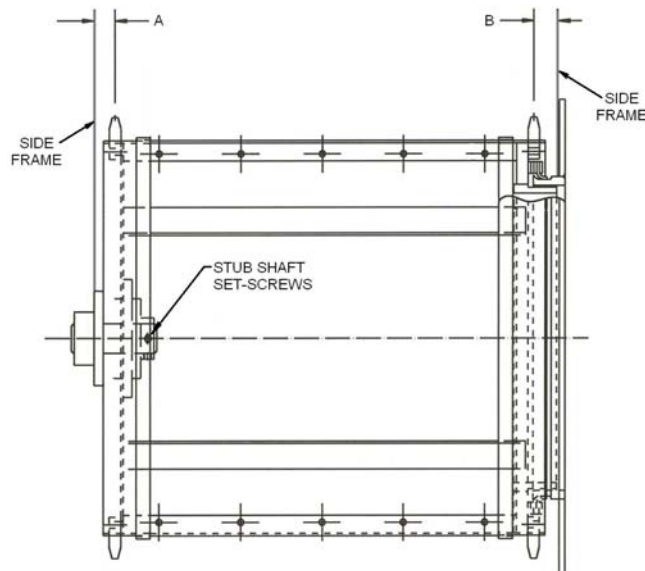


17. Push the belt evenly into the lower track of the conveyor frame. Continue to feed the belt into the frame until it descends down the conveyor frame incline and gets to the lower horizontal load section. At this point it must be aligned and started into the lower belt track. Continue to feed the belt until it reaches the tail discs (idler).
18. Once the belt is at the tail discs, pull the belt over the tail discs evenly on both sides so that the belt is in proper timing with the drum sprockets on both sides. If the belt and the sprockets are not properly synchronized it can cause damage or failure of the belt, frame or drive components.
19. Continue to pull the belt and insure it is feed under the drum sprockets. Again make sure the belt is properly synchronized and aligned with the drum sprockets.
20. Pull the belt over the drive sprockets and connect the master links on both sides with the clips. Insure that the cotter keys are properly seated and turned.
21. Before installing the drum, inspect the seals, bearings, and screens for damage. Replace any damaged parts.
22. Insure that the clamps are rotating immediately.
23. Slide the drum in from the left side of the conveyor so that the drum sprocket teeth clear the belt. While installing the drum, tilt the drum so that the sprocket teeth clear the chain. Once in place align the sprocket teeth to insure they are in time and properly aligned with the chain on both sides.
24. Clean and grease the right-hand and left-hand side plates with grease or an equivalent type.
25. Install the left-hand plate and start all of the mounting screws.
26. Install the right-hand plate and start all of the mounting screws.
27. Install the back-wash plumbing.
28. Tension the conveyor belt to 25 inch pounds on each side by tightening the conveyor drive adjusting screws. Check the belt deflection to insure that is the same on both sides.
29. Once the belt is properly tensioned, tighten the pillow-block bearing mounting bolts while holding the nuts in place with a wrench.
30. Tighten all of the bolts on both the right-hand and left-hand side plates.
31. Install the drive chain back over the motor sprocket and clutch sprocket. Install the master chain and insert the clip.
32. Tension the drive chain by adjusting the motor upwards using the jackscrews in the motor adapter plate until the drive chain tension is set per the instructions on Page 11.
33. Reconnect the electrical power to the lower conveyor and test run the conveyor. See the "Electrical Section" of the manual for safety instructions and warnings.
34. If the conveyor belt makes a popping noise, check the belt and sprocket alignment. Insure that the scrapper bars are square with the belt and are tracking properly. If not, make the necessary adjustments to correct this problem.

35. After the conveyor has been test run for 30 minutes without any problems, stop the conveyor and check the belt tension. If necessary loosen the pillow block mounting bolts and retension the belt to 25 inch pounds.
36. Once the conveyor is completely reassembled back together, install the conveyor back into it's original position in the coolant tank and bolt the leg to the tank at the discharge end and bolt the conveyor to the tail anchor bracket at the tail end.
37. Install the tank covers.
38. Roll the tank and conveyor back into the correct position under the machine tool.
39. Reconnect all electrical cables and wires to the conveyor. (See electrical safety warnings in the Electrical Section of this manual before performing this step).
40. Test run the conveyor to insure proper operation.

DRUM REMOVAL AND INSTALLATION INSTRUCTIONS (Requires two people)

1. Disconnect Electrical Power to the conveyor. (See electrical safety warnings in the Electrical Section of this manual before performing this step).
2. Remove the coolant tank covers that surround the conveyor.
3. Remove the mounting bolts that attach the conveyor leg and the tail anchor brackets to the coolant tank.
4. Connect a chain or strap, which is properly rated for the lifting weight of the conveyor, to the lifting hooks or eyes, which are located at the discharge end and the horizontal load section of the conveyor.
5. Lift the conveyor out of the coolant tank and let the conveyor tilt forward and rest on the leg.
6. Loosen the bearing bolts, torque nut, and the torque bolt on both sides of the frame to loosen the conveyor belt tension.
7. Remove the slot access cover where the back-wash plumbing enters the conveyor frame.
8. Remove the back-wash plumbing pipe bracket clamp and remove the back-wash plumbing assembly.
9. Remove the left-hand side plate.
10. By reaching through the inside of the filter drum, loosen the two setscrews in the stub shaft.
11. Remove the right-hand side plate cover.
12. Lift the drum teeth out of the chain, tilt the drum upward, and then pull out of the other side.
13. Before installing the drum, inspect the seals, brass bearings, and screen for damage. Replace any damaged parts.
14. Slide the drum in from the left side of the conveyor so that the drum sprocket teeth clear the belt. While installing the drum, tilt the drum so that the sprocket teeth clear the chain. Once in place align the sprocket teeth to insure they are in time and properly aligned with the chain on both sides.
15. Clean, lightly grease the stub shaft and install the right-hand side plate cover.
16. Measure from the side to the frame to the centerline of the sprocket teeth on the drum on both sides to insure that dimensions A and B, as shown below, are the same distance. This method will insure that the drum is centered.



17. Once the drum is centered, tighten the two setscrews on the stub shaft.
18. Clean and grease the left-hand side plate with grease.
19. Install the left-hand plate and start all of the mounting screws before tightening.
20. Install the back-wash plumbing.
21. Tension the conveyor belt to 25 inch pounds on each side by tightening the conveyor drive adjusting screws. Check the belt deflection to insure that is the same on both sides.
22. Once the belt is properly tensioned, tighten the pillow block bearing mounting bolts while holding the nuts in place with a wrench.
23. Tighten all of the bolts on both the right-hand and left-hand side plates.
24. Retension the drive chain by adjusting the motor upwards using the jackscrews in the motor adapter plate until the drive chain tension is set per the instructions on Page 11.
25. Reconnect the electrical power to the lower conveyor and test run the conveyor. See the "Electrical Section" of the manual for safety instructions and warnings.
26. If the conveyor belt makes a popping noise, check the belt and sprocket alignment. Insure that the scrapper bars are square with the belt and are tracking properly. If not, make the necessary adjustments to correct this problem.
27. After the lower conveyor has been test run for 30 minutes without any problems, stop the conveyor and check the belt tension. If necessary loosen the pillow block mounting bolts and re-tension the belt to 20 inch pounds.

CONVEYOR BELT TENSIONING

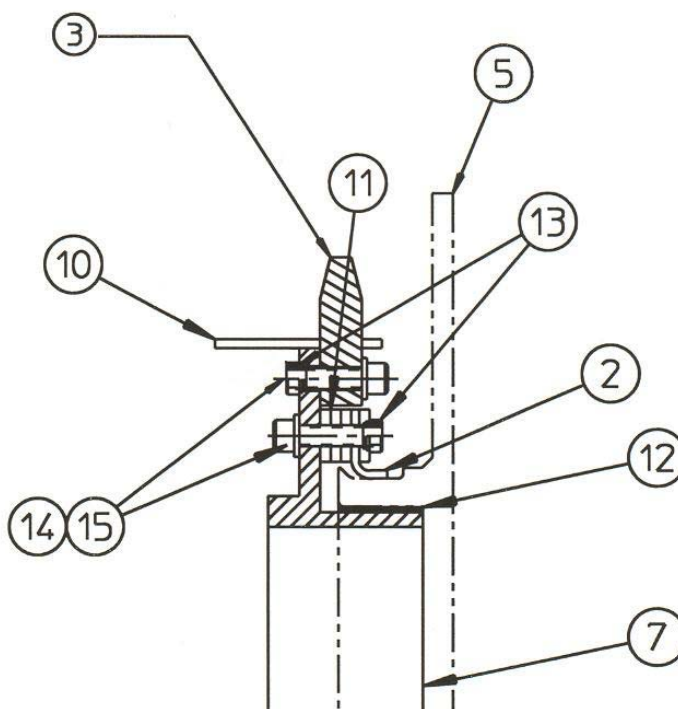
1. For best results, lower the drive motor to take the tension off of the drive chain.
2. Remove the master link clip and remove the drive chain.
3. Loosen the pillow-block bearing mounting bolts and the torque lock nuts on both sides.
4. Set the torque wrench to 25 inch/pounds and tension the conveyor belt to 25 inch/pounds on each side by tightening the conveyor drive adjusting bolts.
5. Check the belt deflection for even tension on both sides.
6. Tighten the bearing bolts and the torque nuts on both sides.
7. Check the adjusting bolts again to insure they are properly set at 25 inch pounds (both sides).
8. Check the belt deflection (both sides).

DRUM SEAL REMOVAL AND INSTALLATION

(Requires two people)

1. 1.Disconnect Electrical Power to the conveyor. (See electrical safety warnings in the Electrical Section of this manual before performing this step).
2. Remove the coolant tank covers that surround the conveyor.
3. Remove the mounting bolts that attach the conveyor leg and the tail anchor brackets to the coolant tank.
4. Connect a chain or strap, which is properly rated for the lifting weight of the conveyor, to the lifting hooks or eyes, which are located at the discharge end and the horizontal load section of the conveyor.
5. Lift the conveyor out of the coolant tank and let the conveyor tilt forward and rest on the leg.
6. Loosen the bearing bolts, torque nut, and the torque bolt on both sides of the frame to loosen the conveyor belt tension.
7. Remove the slot access cover where the back-wash plumbing enters the conveyor frame.
8. Remove the back-wash plumbing pipe bracket clamp and remove the back-wash plumbing assembly.
9. Remove the left-hand side plate.
10. By reaching through the inside of the filter drum, loosen the two setscrews in the stub shaft.
11. Remove the right-hand side plate cover.
12. Lift the drum teeth out of the chain, tilt the drum upward, and then pull out of the other side.
13. Remove the screws (14) and lock washers (15) as shown below.
14. Remove the outer spacer with the pem nuts, the seal (2) and the four inner spacers (11).
15. Discard the damaged seal.

16. Preassemble and align the four spacers (11) the replace seal (2) and the outer spacer with the pem nuts and install the mounting screws (14) with lock washers (15) as shown below insuring that the seal is in the proper position.



17. Before installing the drum, inspect the seals, brass bearings, and screen for damage. Replace any damaged parts.
18. Slide the drum in from the left side of the conveyor so that the drum sprocket teeth clear the belt. While installing the drum, tilt the drum so that the sprocket teeth clear the chain. Once in place align the sprocket teeth to insure they are in time and properly aligned with the chain on both sides.
19. Clean, lightly grease the stub shaft and install the right-hand side plate cover.
20. Measure from the side to the frame to the inside sprocket teeth on the drum on both sides to insure that this distance is the same on both sides. This method will insure that the drum is centered.
21. Once the drum is centered, tighten the two setscrews on the stub shaft.
22. Clean and grease the left-hand side plate with grease.
23. Install the left-hand plate and start all of the mounting screws before tightening.
24. Install the back-wash plumbing.
25. Tension the conveyor belt to 25 inch pounds on each side by tightening the conveyor drive adjusting screws. Check the belt deflection to insure that is the same on both sides.
26. Once the belt is properly tensioned, tighten the pillow block bearing mounting bolts while holding the nuts in place with a wrench.
27. Tighten all of the bolts on both the right-hand and left-hand side plates.
28. Tension the drive chain by adjusting the motor upwards using the jackscrews in the motor adapter plate until the drive chain tension is set per the instructions on Page 11.
29. Reconnect the electrical power to the lower conveyor and test run the conveyor. See the "Electrical Section" of the manual for safety instructions and warnings.
30. If the conveyor belt makes a popping noise, check the belt and sprocket alignment. Insure that the scrapper bars are square with the belt and are tracking properly. If not, make the necessary adjustments to correct this problem.
31. After the lower conveyor has been test run for 30 minutes without any problems, stop the conveyor and check the belt tension. If necessary loosen the pillow block mounting bolts and re-tension the belt to 20 inch pounds.

BACK-WASH NOZZLE REMOVAL / CLEANING / INSTALLATION

1. Disconnect Electrical Power to the conveyor. (See electrical safety warnings in the Electrical Section of this manual before performing this step).
2. Remove the coolant supply hose from the adapter fitting (Item # 142 – Catalog # 65A-1).
3. Remove the two (2) nuts (Item # 150 – Catalog # 65A-45) from the plumbing bracket (Item # 45 – Catalog # 60A-5).
4. Slide the manifold assembly out.
5. Remove the nozzles (Item # 128 – Catalog # 65A-19) and check for clogging.
6. If clogged, clean plumbing and nozzles to eliminate obstruction. Normally air pressure can be used to remove any obstructions from the manifold (Item # 125 – Catalog # 65A-18) or nozzles. If necessary, use a stiff piece of small diameter wire to loosen packed material.
NOTE: The spray nozzles have a “V” grooved face. The groove axis must be parallel with the centerline of the spray tube manifold axis.
7. Reassemble in reverse order.
8. Once the back-wash system is reassembled and the system is fully functional, turn on the back-wash pump and inspect the plumbing to insure it is not leaking and inspect that the back-wash spray is proper.

REMOVAL AND INSTALLATION OF DRUM SCREEN

1. Disconnect Electrical Power to the conveyor. (See electrical safety warnings in the Electrical Section of this manual before performing this step).
2. Follow the “Drum Removal Instructions” as detailed in this manual to remove the filter drum.
3. Once the drum is removed, remove the bolts (Item #22 – Catalog #65A-114), washers (Item #20 – Catalog # 65A-115) and clamping bars (Item #23 – Catalog #86A-11) that secure the filter screen to the drum housing (Item #7 – Catalog #65A-107).
4. Loosen and remove the two hose clamps (Item #21 – Catalog #65A-106).
5. Before removing the filter screen (Item #19 – Catalog #65A-111) mark the screen and the filter drum housing for mounting orientation and hole alignment.
6. Remove the damaged filter screen (Item #19 – Catalog #65A-111).
7. Using the original filter screen overlay it on top of the new filter screen and use it as a template for transferring the mounting hole pattern to the new filter screen.
8. Using an electrical soldering gun, burn the new holes in the border of the new filter screen in the same location as the original filter screen. If you do not have an electrical soldering gun, use a hole punch.
9. Match the marking up made in step #5 and orient and align the new filter screen exactly as the original screen was mounted and mount the bolts (Item #22 – Catalog #65A-114), washers (Item #20 – Catalog # 65A-115) and clamping bars (Item #23 – Catalog #86A-11) that secure the filter screen to the drum housing (Item #7 – Catalog #65A-107).
10. Once the screen is wrapped all the way around the drum housing the screen will overlap the start of the filter screen.
11. Remove the first clamping bar installed and align the starting mounting holes in the screen with the last mounting holes in the screen and mount the bolts (Item #22 – Catalog #65A-114), washers (Item #20 – Catalog # 65A-115) and clamping bars (Item #23 – Catalog #86A-11) that secure the filter screen to the drum housing (Item #7 – Catalog #65A-107) through both thickness of the filter screen at this point.
12. Install the two hose clamps (Item #21 – Catalog #65A-106) and tighten.
13. Install the filter drum back into the conveyor per the “Drum Installation Instructions” as detailed earlier in this manual.
14. Reconnect the electrical power to the lower conveyor and test run the conveyor. See the “Electrical Section” of the manual for safety instructions and warnings.
15. If problems exist see the “Trouble Shooting Guide” in this manual.

MICROFINE® S TROUBLE SHOOTING GUIDE

The following chart will show some problems, their probable causes and possible solutions.

PROBLEM	POSSIBLE CAUSE	POSSIBLE SOLUTION
(1) Fines build-up on drum filter screens:	(a) Drum filter/back-wash pump not running:	Check to insure filter/back-wash pump is turned on.
	(b) Drum filter/back-wash pump running backward:	Check conveyor belt direction for proper travel rotation.
	(c) Drum filter/back-wash pump failure:	See #4 and #5.
	(d) Back-wash spray nozzles are clogged.	Remove back-wash spray nozzles and clean or replace.
	(e) The spray pattern of the back-wash nozzles are not cleaning the entire width of the drum filter.	The spray nozzle(s) are not oriented properly on the spray manifold. The slit in the nozzle must be parallel with the centerline of the filter drum.
	(f) The ball valve that regulates the coolant flow to the back-wash manifold is closed off too much.	Open the ball valve to allow more coolant flow and pressure to clean the drum filter screen.
(2) Low coolant flow or over-flow of load section baffles:	(a) Plugged drum filter screens.	See #1 above.
	(b) Drain boxes or drain slots from upper conveyor are plugged.	Reduce the static coolant level to below the exposed upper conveyor belt.
	(c) The coolant level in the tank is too high.	Adjust coolant level in the tank.
	(d) Coolant foam build-up.	Change the coolant type to a less foam producing coolant or use a de-foaming agent recommended by the coolant manufacturer.
(3) Deteriorating fines removal efficiency:	(a) Damaged or worn drum seals.	Remove and replace worn or damaged parts.
	(b) Torn or damaged drum filter screen.	Remove and replace worn or damaged filter screen.
(4) Drum rotation failure:	(a) Overload relay in motor control circuit has tripped out for conveyor drive.	Reset overload relay.
	(b) Failed gearmotor for conveyor.	Replace gearmotor for lower conveyor.
	(c) Excessive motor wear or burn-out	Replace motor.
	(d) Sheared shaft key at drive motor sprocket or drum drive sprocket	Replace failed parts AFTER determining cause of failure; maybe caused by filter drum lock-up.
	(e) Worn-out drive sprockets, excessively loose or broken drive chain	Replace worn or broken parts.
	(f) Failed drum sprocket(s).	Replace drum sprocket(s).

PROBLEM	POSSIBLE CAUSE	POSSIBLE SOLUTION
(5) Back-wash system failure:	(a) Blown fuse or overload relay has tripped in control circuit	Replace fuse or reset overload relay.
	(b) Plugged spray nozzles	Remove back-wash spray nozzles and clean or replace.
	(c) Failed pump motor or pump impeller	Replace pump or damaged pump part(s).
	(d) The ball valve, which regulates the coolant flow to the back-wash manifold, is closed off too much.	Open the ball valve to allow more coolant flow and pressure to clean the drum filter screen.
(6) Noisy drum rotation (squeak or metallic grating sound):	(a) Excessively worn drum bearings.	Replace drum bearings.
(7) Belt is not moving.	(a) Overload relay in drive motor control circuit has tripped out.	Reset overload relay.
	(b) Overload relay is undersized for the amp. draw of the motor. (See electrical schematic or read the full amp. draw ratings on the motor to determine the correct overload relay or fuse setting for the conveyor. Note: overload setting must never exceed 150% of the rated full amp. load of the motor(s). Recommended 110-120%.	Replace the overload relay with the correct size for the conveyor drive motor.
	(c) Conveyor belt is broken.	Repair the damaged section or replace the belt.
	(d) Sheared shaft key at drive motor sprocket	Replace failed parts AFTER determining cause of failure;
	(e) Worn-out drive sprockets, excessively loose or broken drive chain	Replace worn or broken parts.
	(f) Motor drive chain is either broken or chain tension is too loose.	Repair chain or properly tension chain.
(8) Belt is pulsating or surging:	(a) Belt tension is either too tight or too loose.	Properly tension belt.
(9) Excessive wear of belt components:	(a) Belt tension is either too tight or too loose.	Properly tension belt.
	(b) Improper alignment of drive sprockets or tail sprocket.	Properly align sprockets.
	(c) Conveyor is not level or square.	Properly level conveyor.
(10) Excessive wear of the conveyor frame:	(a) Conveyor is not level or square.	Properly level conveyor.
	(b) Belt tension is either too tight or too loose.	Properly tension belt.
(11) No chips are being disposed by the conveyor.	(a) The belt is running backwards.	Reverse the motor leads so that the belt is running in the correct direction.
	(b) The belt is not moving. See section # 7 above.	Repair or replace the belt.

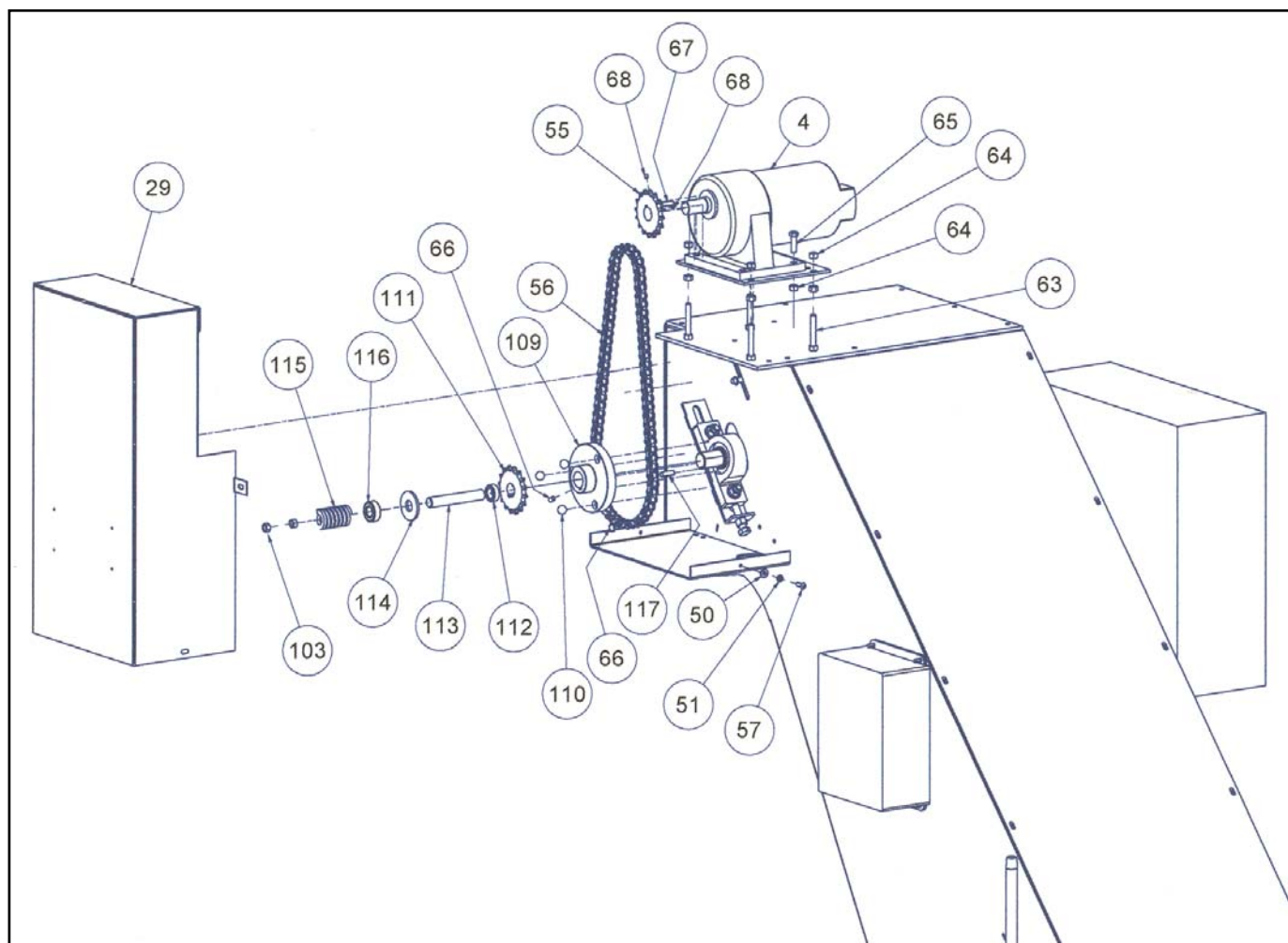
PROBLEM	POSSIBLE CAUSE	POSSIBLE SOLUTION
(12) The belt is jamming.	(a) Cotter pin(s) have sheared and/or belt roller(s) have fallen off of the belt assembly.	Replace missing cotter pins and/or rollers.
	(b) The master link on the belt of the conveyor has separated.	Replace the master link assembly.
	(c) The scrapper bar(s) has broken, fallen off the belt or been damaged in the conveyor.	Reattach or replace the scrapper bar(s) if it is damaged. (Note never reuse the nylock mounting nuts. Once they are loosened, they must be replaced to maintain their effectiveness.
	(d) The scrapper bar(s) are not properly aligned with the belt.	Realign the scrapper bar(s) with the belt. (Note never reuse the nylock mounting nuts. Once they are loosened, they must be replaced to maintain their effectiveness.
	(e) An object, such as a tool, part, etc. has fallen down into the conveyor and become lodged.	Remove the foreign object from the conveyor.

MICROFINE® S MAINTENANCE SCHEDULE

The following chart shows a suggested maintenance schedule for the conveyor to insure proper operation and longevity.

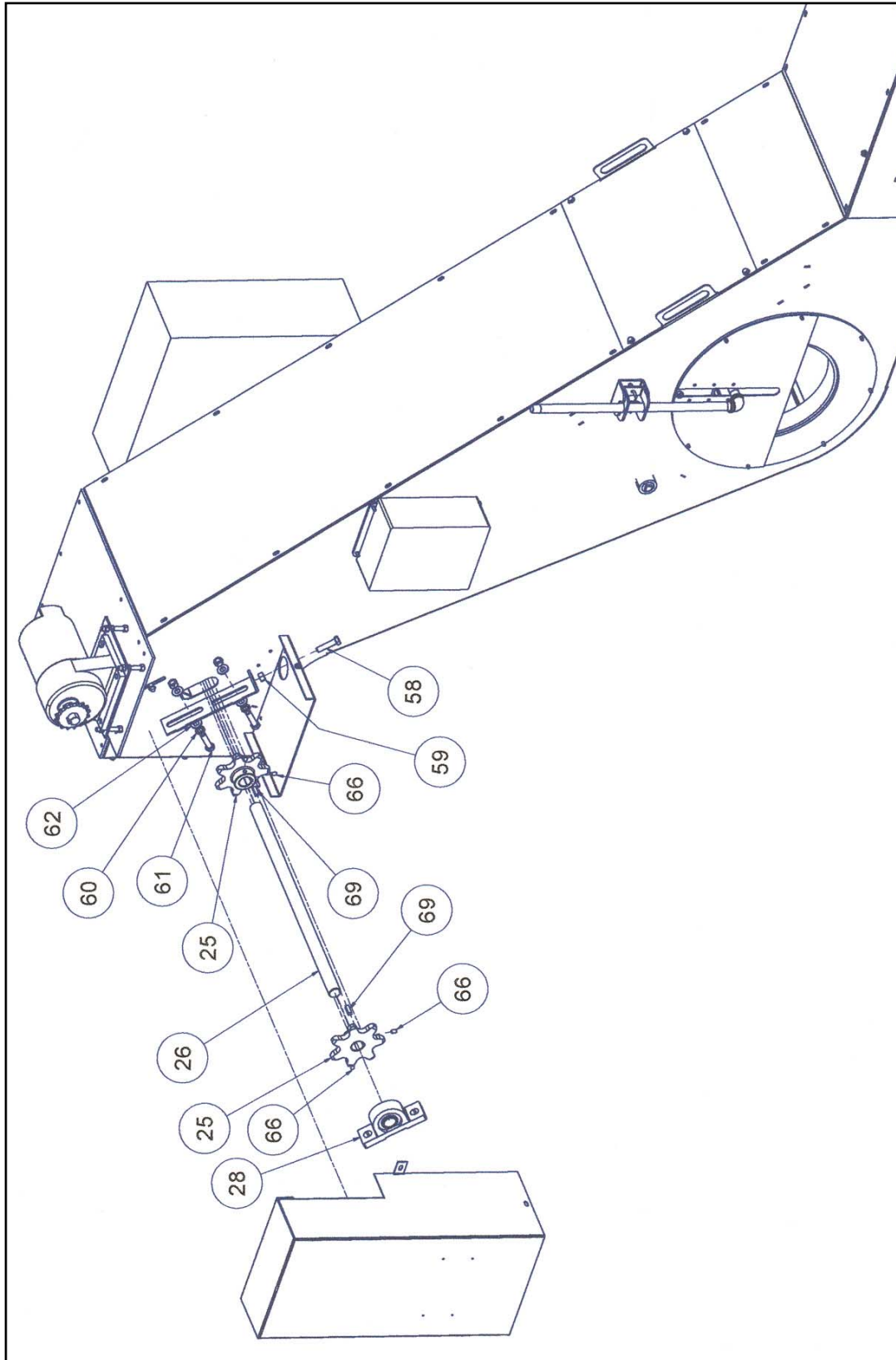
Time Frame	Procedure	Problem	Resolution
Daily	Check coolant level at tank sight gauge.	Too low.	Fill until level reaches full mark on coolant tank sight gauge.
Daily	Check performance of back-wash system..	Filter screen is not being cleaned efficiently causing conveyor over flows into clean side of the coolant tank.	Refer to Trouble Shooting Guide – Section 5.
Daily	Check coolant for foaming in tank and through viewing windows.	Coolant foaming is blinding back-wash filter screen.	<ol style="list-style-type: none"> 1. Check for excessive back-wash pressure. 2. Check for improper coolant concentration. 3. Add coolant defoamer.
Weekly	Check back-wash filter screen.	Screen is blinded by chips or foaming.	<ol style="list-style-type: none"> 1. If screen is blinded by chips, check to make sure back-wash pressure is adequate: coolant level, clogged strainer or pump problems are most likely cause. 2. If foaming is the problem, see resolution above.
Weekly	Check conveyor chip shelf.	Too many chips stuck to shelf.	Brush off shelf with the conveyor turned off.
Every 3 months	Check conveyor belt tension.	Belt is too loose (slack) or too tight.	Adjust belt tension per the procedure in your Service Manual. Make sure all safety procedures are followed.
Every 6 months	Check conveyor clutch adjustment.	Clutch is too tight.	Clutch is preset at the factory. Any clutch adjustment should be made to factory specification. Contact Turbo Service Dept.

MICROFINE® S DRIVE PARTS - 1



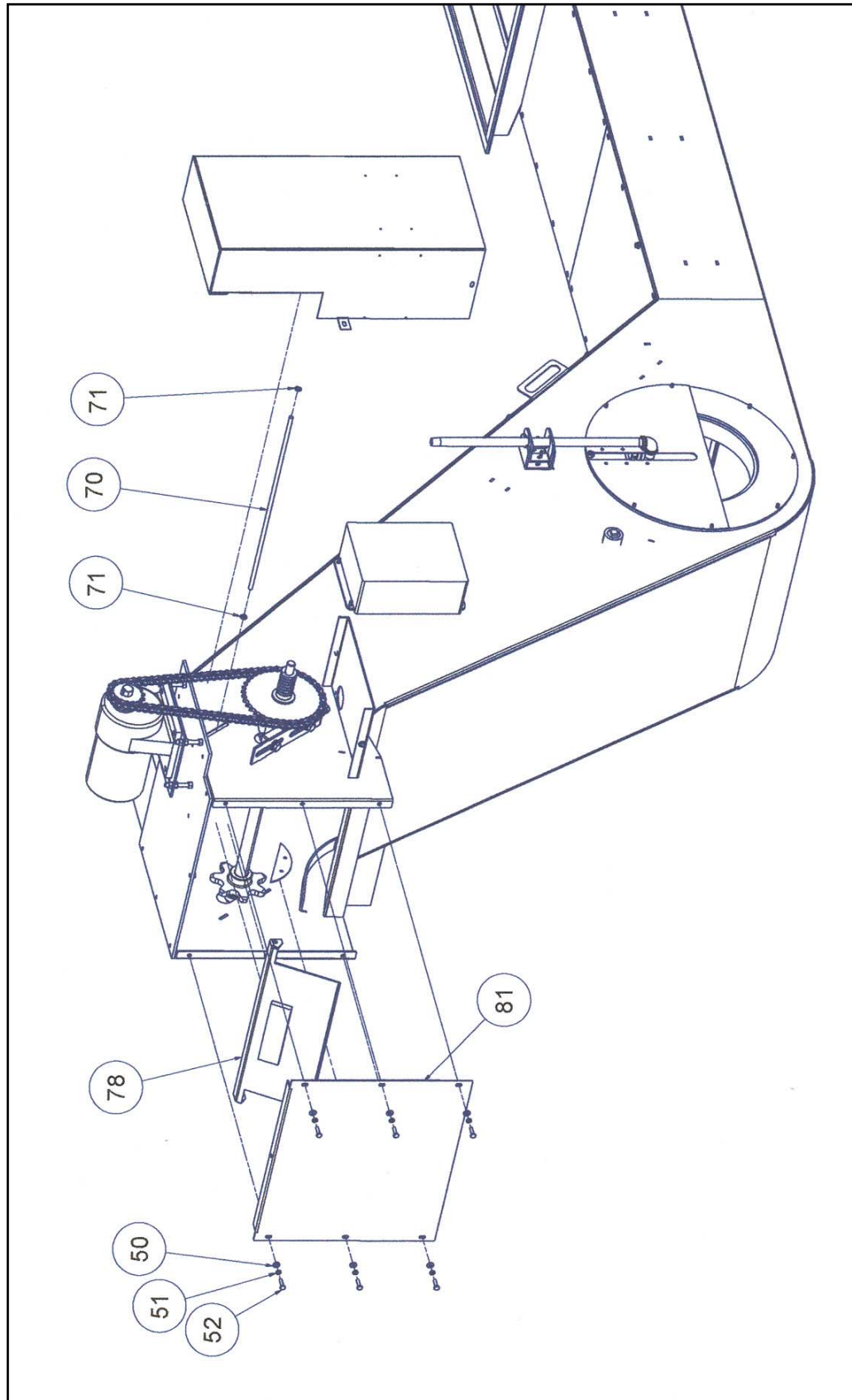
ITEM NO.	CATALOG NO.	PART NAME	ITEM NO.	CATALOG NO.	PART NAME
4	75B-76	Gearmotor	68	75B-38	Set-Screw
29	75B-26	Drive Cover		75A-20	Clutch Assembly (Includes *)
50	75B-60	Washer, Flat	103	*75A-32	Hex Nut
51	75B-61	Washer, Spring	109	*75A-50	Clutch Body
55	75B-39	Motor Sprocket	110	*75A-36	Steel Ball
56	75B-40	Drive Chain	111	*75A-34	Clutch Sprocket
57	50A-1	Screw, Button-Head Cap	112	*75A-32	Thrust Bearing
63	75B-74	Stud	113	*75A-31	Threaded Stud
64	75B-73	Nut	114	*75A-33	Thrust Washer
65	75B-37	Bolt, Hex-Head	115	*75A-29	Compression Spring
66	75B-38	Set-Screw	116	*75A-35	Internal Retaining Ring
67	75B-77	Key	117	75B-44	Key

MICROFINE® S DRIVE PARTS - 2



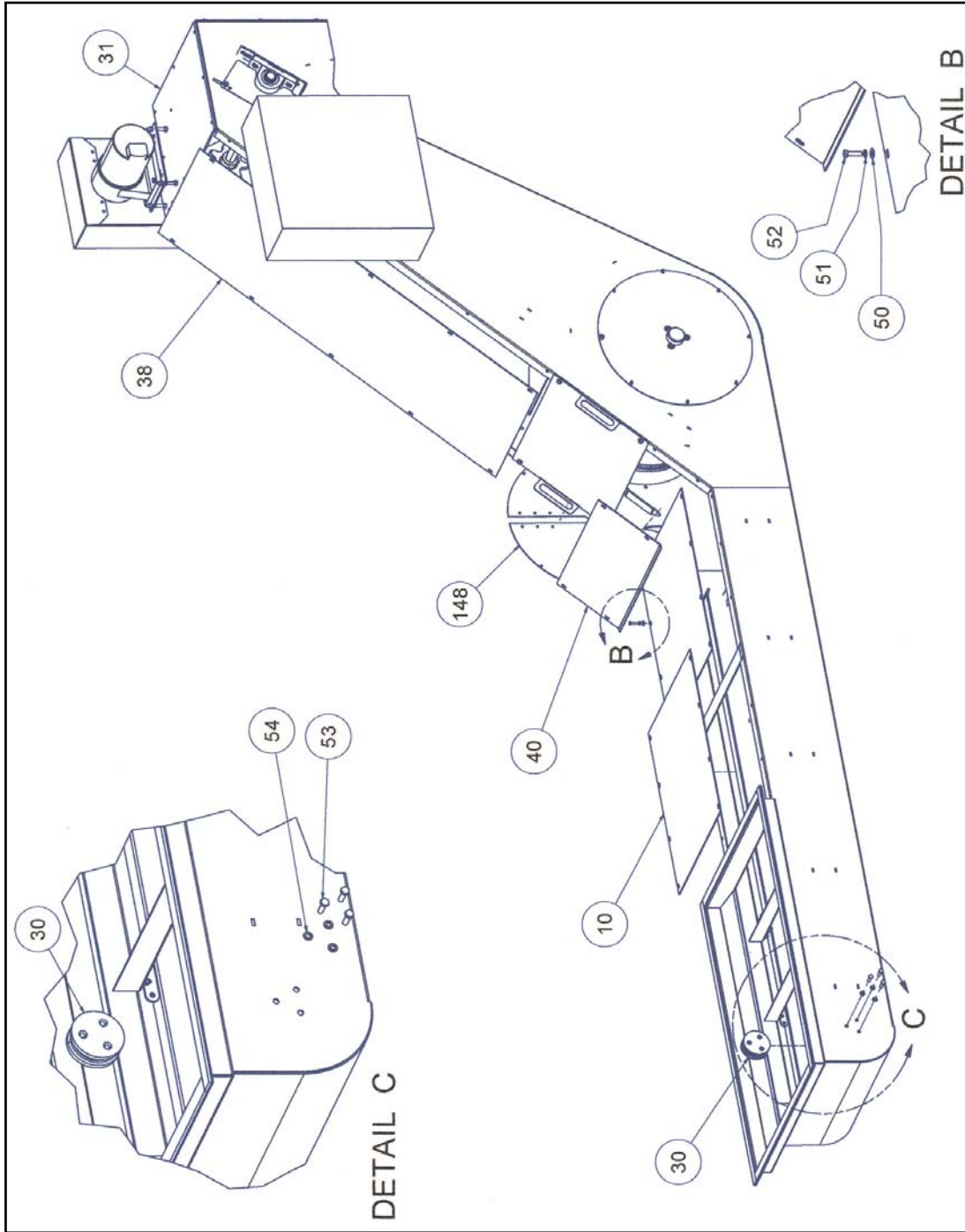
ITEM NO.	CATALOG NO.	PART NAME	ITEM NO.	CATALOG NO.	PART NAME
25	75B-42	Drive Sprocket	60	75B-61	Washer, Lock
26	75B-45	Drive Shaft	61	75B-55	Bolt, Hex-Head
28	75B-56	Pillow Block Bearing	62	75B-60	Washer, Flat
58	75B-31	Bolt, Adjusting	66	75B-43	Set-screw
59	75B-30	Nut, Jam	69	75B-44	Key

MICROFINE® S CLEAT SCRAPER PARTS



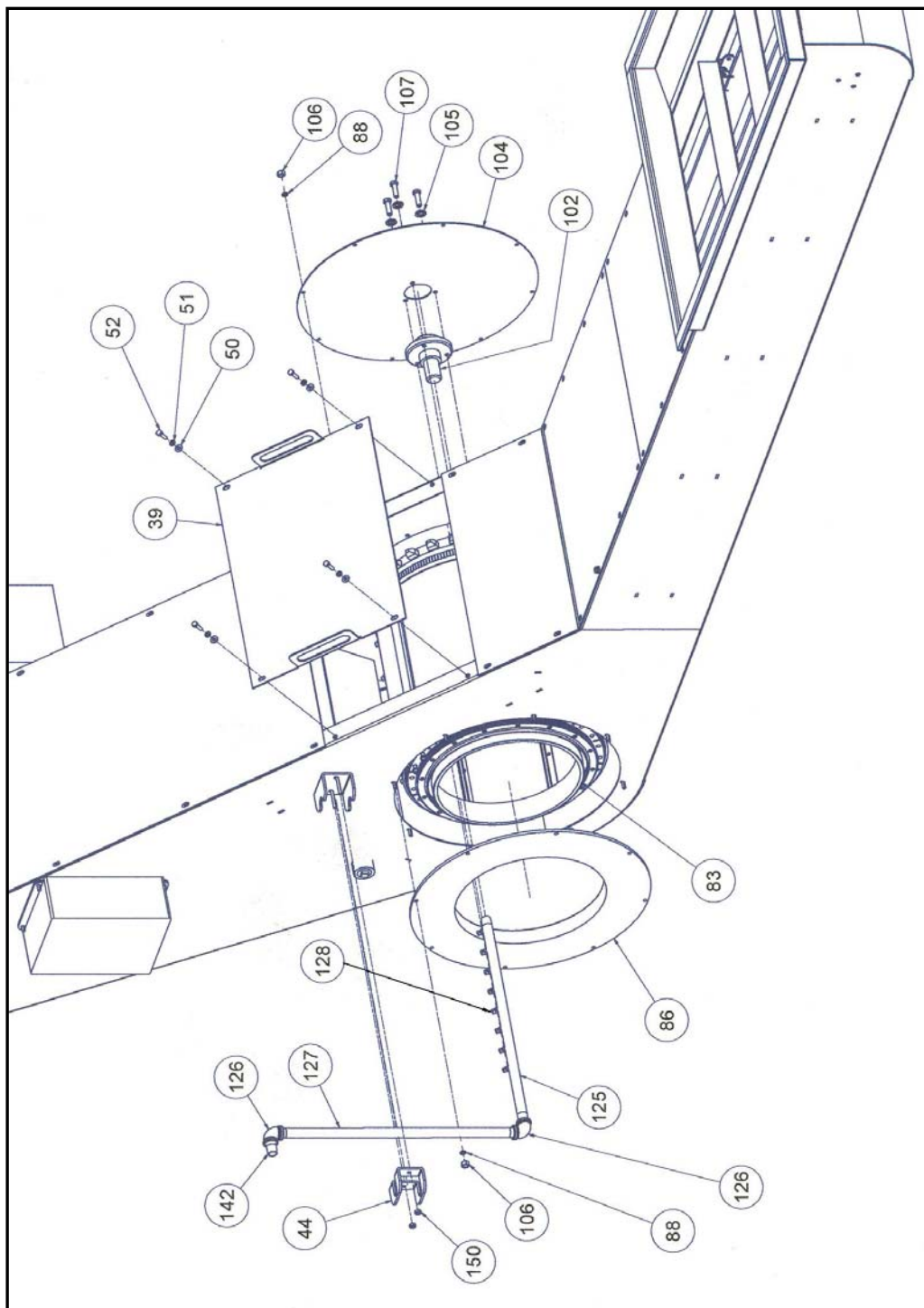
ITEM NO.	CATALOG NO.	PART NAME	ITEM NO.	CATALOG NO.	PART NAME
50	75B-60	Washer, Flat	71	85A-111	Pushnut Fastener
51	75B-61	Washer, Lock	78	85A-113	Cleat Scraper Weldmnt
52	75B-33	Screw, Button-Head Cap	81	85A-114	Discharge Cover
70	85A-112	Bar, Cleat Scraper Mounting			

MICROFINE® S COVERS & IDLER DISC



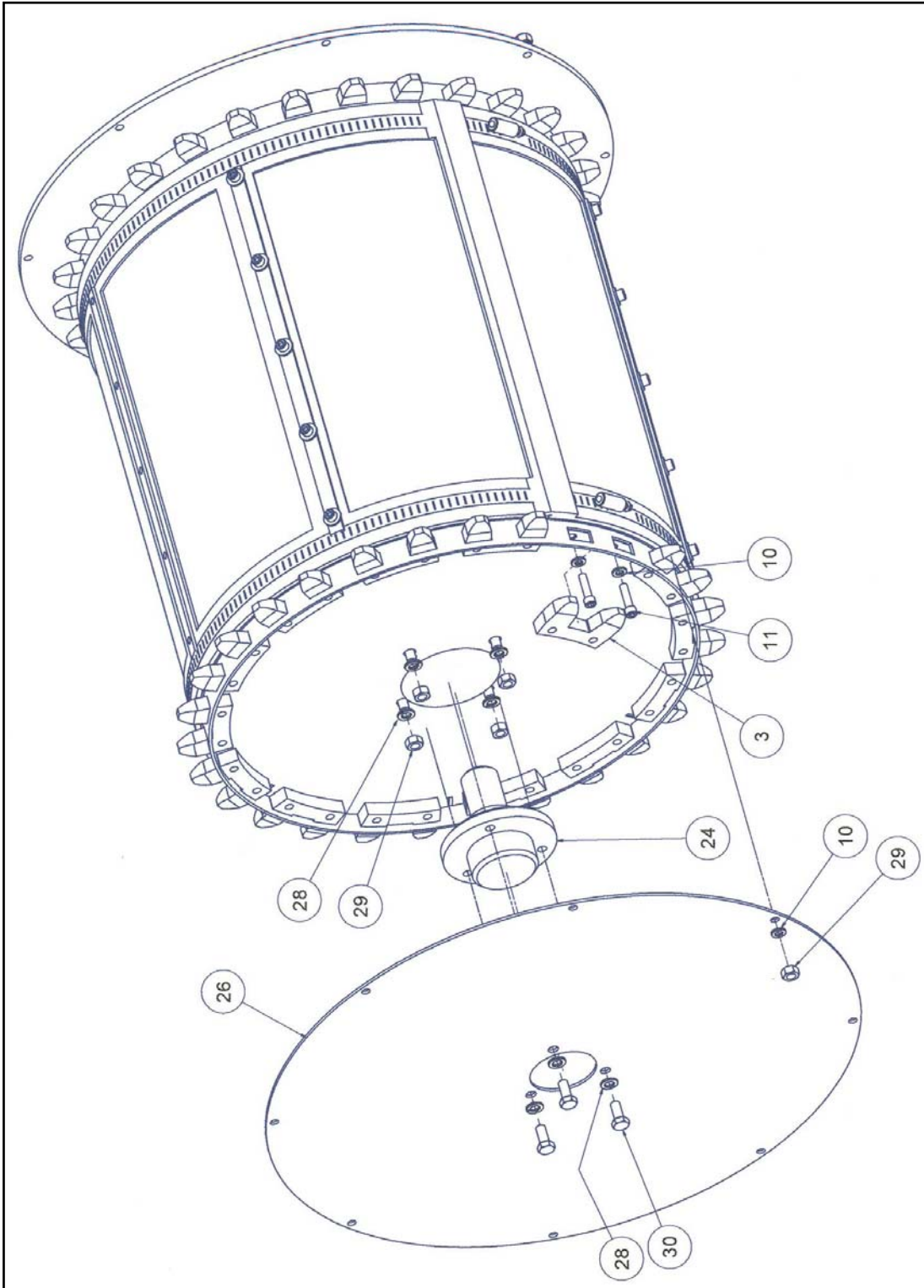
ITEM NO.	CATALOG NO.	PART NAME	ITEM NO.	CATALOG NO.	PART NAME
10	60A-1	Cover, Horizontal Load Top	51	75B-61	Washer, Lock
30	75B-5	Idler (Tail Disc)	52	75B-33	Screw, Button-Head Cap
31	60A-2	Cover, Discharge Top	53	75B-3	Screw, Hex Head
38	75B-32	Cover, incline	54	75B-4	Lock Washer
40	60A-3	Cover, Lower Curve Top	148	86A-7	Cover, Side Frame Discharge
50	75B-60	Washer, Flat			

MICROFINE® S FILTER DRUM ACCESS & BACK-WASH MANIFOLD



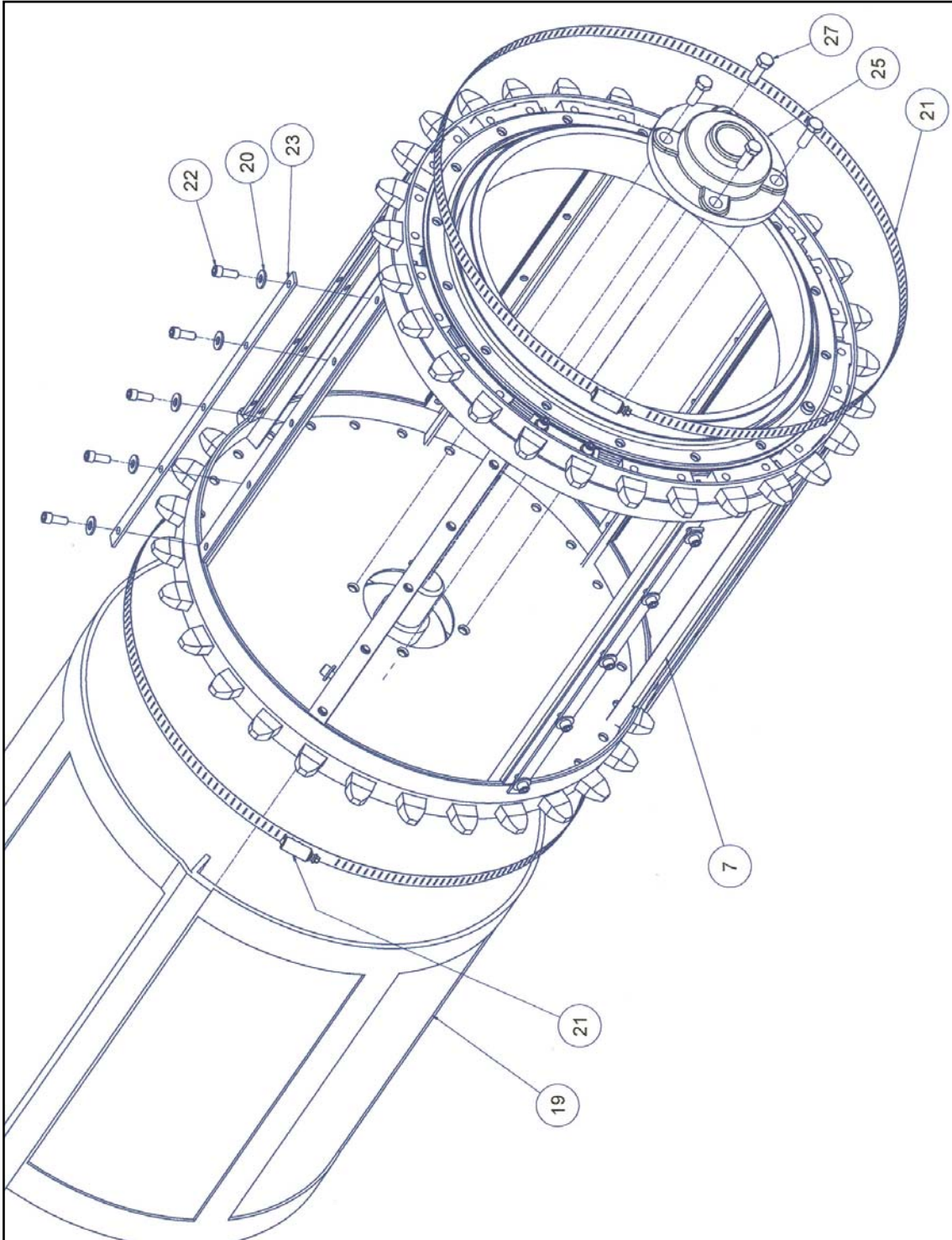
ITEM NO.	CATALOG NO.	PART NAME	ITEM NO.	CATALOG NO.	PART NAME
39	60A-4	Top Cover, Inspection	105	6A-12	Washer
44	60A-5	Pipe Bracket Clamp	106	60A-13	Hex Nut
50	60A-6	Washer, Flat	107	60A-14	Screw, Hex Head Cap
51	60A-7	Washer, Lock	125	60A-18	Manifold Tube
52	60A-8	Screw, Button Head Cap	126	65A-12	Elbow, 90°
83	60A-9	Inner Bearing Rim Weldment	127	65A-9	Pipe, 1/2" X 24"
86	60A-2	Outer Bearing Weldment	128	65A-19	Spray Nozzles
88	60A-10	Washer	142	65A-1	Hose Adapter, 1/2"
104	60A-11	Drum End Cover	150	65A-45	Nut

MICROFINE® S DRUM PARTS – 1



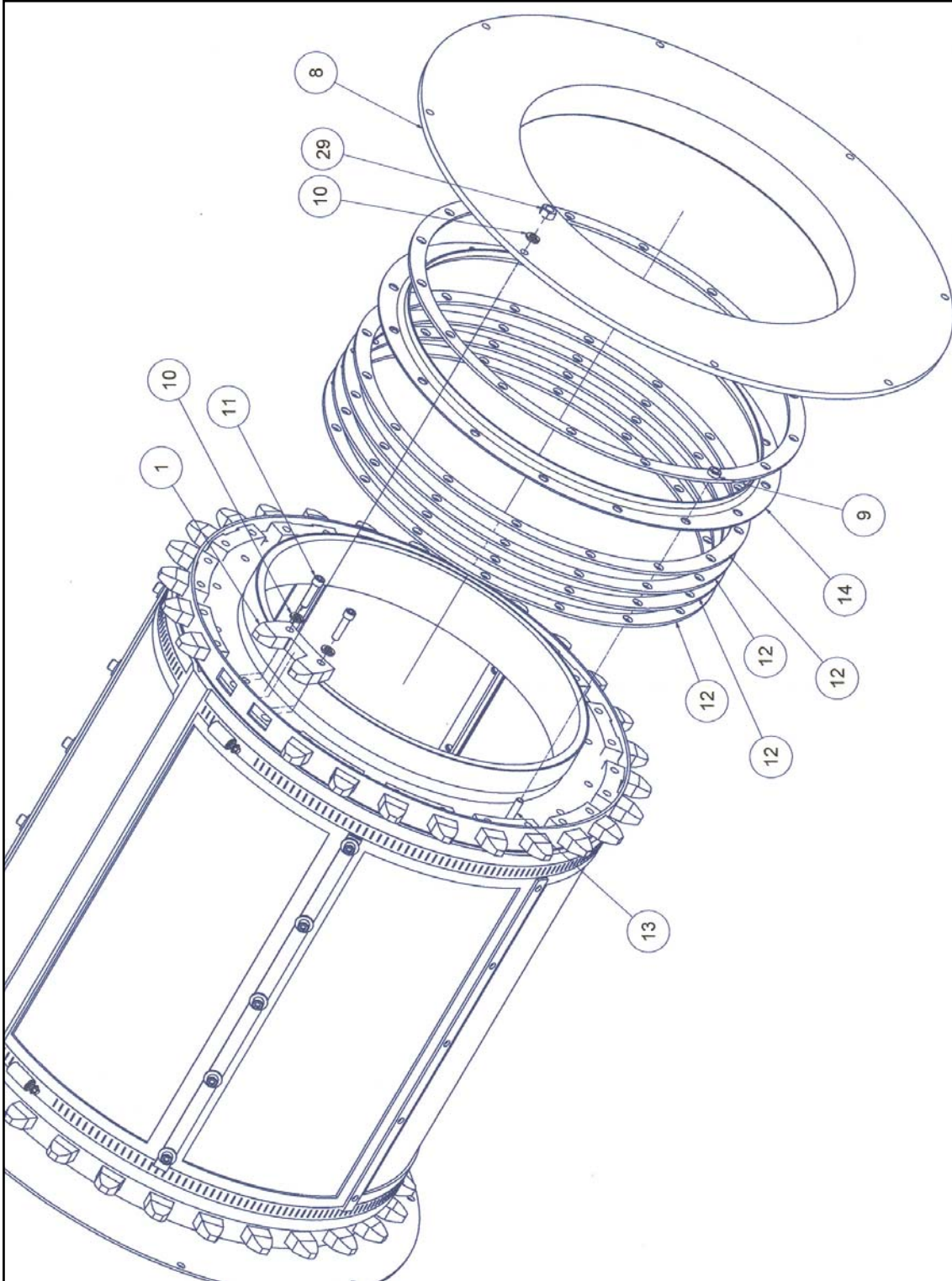
ITEM NO.	CATALOG NO.	PART NAME	ITEM NO.	CATALOG NO.	PART NAME
3	60A-15	Durm Tooth	26	60A-19	Cover, Bearing Mounting
10	60A-16	Washer	28	60A-20	Washer
11	60A-17	Bolt	29	60A-21	Nut
24	60A-18	Stub Shaft	30	60A-22	Washer

MICROFINE® S DRUM PARTS – 2



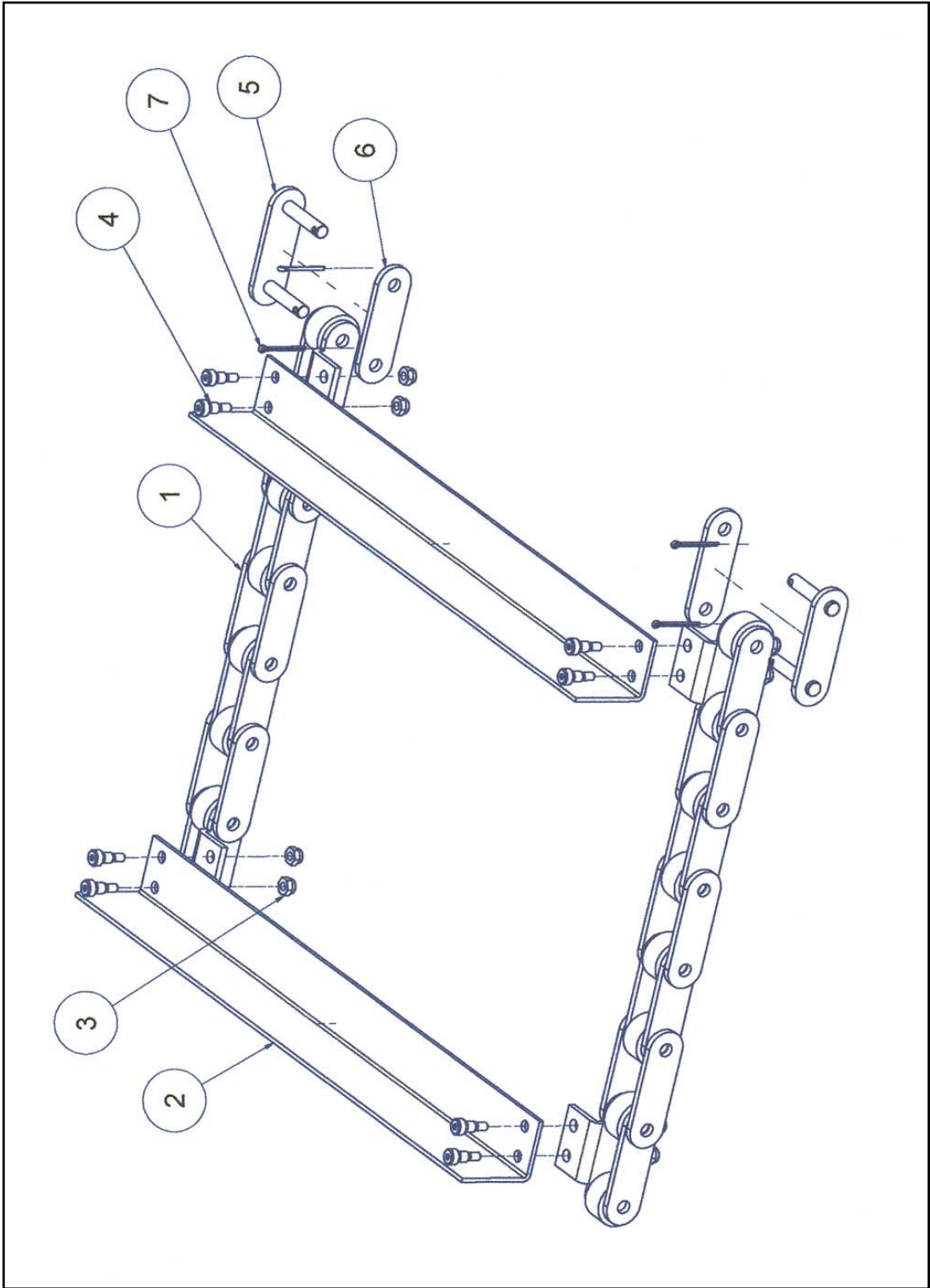
ITEM NO.	CATALOG NO.	PART NAME	ITEM NO.	CATALOG NO.	PART NAME
7	65A-107	Drum Housing	22	65A-114	Bolt
19	65A-111	Filter Screen	23	86A-11	Clamping Bar
20	65A-115	Washer	25	65A-102	Bearing
21	65A-106	Hose Clamp	27	60A-23	Bolt

MICROFINE® S DRUM PARTS – 3



ITEM NO.	CATALOG NO.	PART NAME	ITEM NO.	CATALOG NO.	PART NAME
1	60A-15	Drum Tooth	12	60A-26	Spacer Ring
8	60A-24	Outer Bearing	13	60A-27	Bolt
9	60A-25	Outer Spacer Ring	14	60A-28	Seal, Viton
10	60A-16	Washer	29	60A-29	Nut

MICROFINE® S SCRAPER BELT PARTS



ITEM NO.	CATALOG NO.	PART NAME	ITEM NO.	CATALOG NO.	PART NAME
1	85A-7	Belt Chain	4	85A-10	Bolt, Shoulder
2	85A-9	Scraper Cleat	5	85A-8	Master Connecting Link Assembly
3	85A-12	Nut, Elastic Lock			

MICROFINE® 2 ELECTRICAL INFORMATION

Turbo Systems' chip conveyors are supplied with a variety of drive packages and electrical controls, depending on conveyor application and customer preference. Only a qualified electrician or machine service technician should perform any maintenance, repairs or adjustments on this equipment. **READ THIS SECTION BEFORE APPLYING ELECTRICAL POWER TO THIS EQUIPMENT.**

WARNING!

ONLY QUALIFIED ELECTRICIAN OR SERVICEMAN SHOULD PERFORM ANY ELECTRICAL TROUBLESHOOTING OR MAINTENANCE TO THIS EQUIPMENT.

DO NOT PERFORM ANY MAINTENANCE, REPAIRS OR ADJUSTMENTS ON THIS EQUIPMENT WITHOUT FIRST LOCKING OUT ALL ELECTRICAL CONTROLS.

PERSONNEL SHOULD BE TRAINED IN OSHA COMPLIANT LOCK-OUT/TAG-OUT AND ELECTRICAL SAFETY PROCEDURES.

MAKE CERTAIN THAT THE POWER SUPPLY IS DISCONNECTED BEFORE ATTEMPTING TO SERVICE OR REMOVE ANY COMPONENTS!

AT NO TIMES SHOULD CIRCUIT CONTINUITY BE CHECKED BY SHORTING TERMINALS WITH A SCREWDRIVER OR OTHER METAL DEVICE.

NEVER SHOULD ADJUSTMENTS, MAINTENANCE OR CLEANING BE PERFORMED WITHOUT FOLLOWING PROPER SAFETY PROCEDURES IN ACCORDANCE WITH LOCAL, STATE AND NATIONAL SAFETY CODES.

Before making any electrical connections be certain the voltage for which the conveyor drive and control are wired is the same as incoming voltage being delivered by the electric power supply. Failure to do so may result in injury or damage to the equipment. It may be necessary in the case of 220/440V, 3 phase, for example, to change the motor wiring from one voltage to another. Normally a wiring diagram is located inside the motor terminal box, which indicates proper wiring for the incoming voltage supplied.

Some machines are equipped with internal electrical controls and a multi-pin type accessory plug for connecting the chip conveyor. Turbo Systems' chip conveyors can be ordered with a mating plug, so that connecting the conveyor is as simple as plugging it in.

The best and most common source of power for the chip conveyor is the machine electrical cabinet. It is the customer's responsibilities at the time of order to determine what, if any, electrical components are present and/or order the appropriate conveyor control.

Even if the machine has no plug or other provision for connecting a chip conveyor, the conveyor should be ordered from Turbo Systems Inc. with both halves of a quick-disconnect style plug. One half will come pre-wired to the conveyor control cable. The other half of the plug will be wired to the machine electrical cabinet where it will be connected to the power supply. The chip conveyor can then be quickly unplugged for cleaning or service without having to disconnect "hard wired" connections.

Before starting the chip conveyor, check to be sure no tools, packing, or other material have been left on the belt or in the discharge opening. Start the conveyor and verify proper direction of belt travel. Reverse polarity if the belt is moving in the wrong direction. Check the rotation of the filter drum and back-wash coolant pump. If either of these motors is running backwards, reverse the polarity. If the conveyor belt, filter drum or back-wash pump runs backwards for an extended period of time it may result in the conveyor not operating effectively and/or cause damage to the conveyor.

TIME DELAY DEVICES

The use of a time delay device is prohibited on a Microfine® S Conveyor. If the conveyor is not running when the machine tool is cutting chips it may cause a large chip build up in the conveyor frame. When the conveyor is finally turned on it may not be able to handle the chip load. This condition may cause belt, frame and/or filter damage to the Microfine® S Conveyor. It is imperative that the Microfine® S Conveyor is operating continuously whenever the machine tool is cutting chips. Turbo will not be responsible for damage caused to the conveyor when a time delay device is being used.

AC SUPPLY CIRCUIT AMP LOAD FOR MICROFINE® S CONVEYORS

Your Turbo Systems' chip conveyor is equipped with an AC motors to drive the conveyor belt and filter drum simultaneously. The full load amp draw is based on the horsepower of the AC motor, as well as the input AC voltage. The Turbo Systems' MICROFINE® S model, is normally equipped with an AC back-wash pump. These motors will place an additional load on the AC power supply circuit.

The conveyor motor control circuit is not separately fused. The customer must provide a circuit breaker or a fused disconnect switch on the power supply to the conveyor

It may be necessary to change a circuit protection device on the incoming power supply line to accommodate the higher full load amp draw. Refer to the following tables to determine the full load amp draw on the AC supply circuit:

AC CURRENT REQUIREMENTS FOR MICROFINE® S CONVEYORS

Voltage 3 Phase	Belt Drive Type	Belt Drive Horsepower	Current per phase at Rated Load	Maximum Overload Relay Setting (150% x Rated Current)
230 VAC	Fixed Speed	¼	0.84 A	1.26 A
460 VAC	Variable Speed	¼	0.42 A	0.63 A