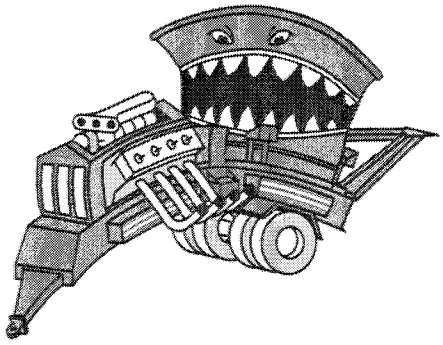
DURATECH

HD-12
INDUSTRIAL GRINDER

OPERATORS MANUAL & PARTS BOOK



DuraTech Industries International Inc., PO Box 1940, Jamestown, ND 58402-1940 **0500040**
Dec 2004

WARRANTY

Duratech Industries International Inc. warrants to the original purchaser for 6 months from purchase date that this product will be free from defects in material and workmanship when used as intended and under normal maintenance and operating conditions. This warranty is limited to the replacement of any defective part or parts returned to our factory in Jamestown, N.D., within thirty (30) days of failure.

This warranty shall become void if in DuraTech Industries International, Inc.'s., judgment the machine has been subject to misuse, negligence, alterations, damaged by accident or lack of required normal maintenance, or if the product has been used for a purpose for which it was not designed.

All claims for warranty must be made through the dealer which originally sold the product and all warranty adjustments must be made through same.

This warranty does not apply to tires or bearings or any other trade accessories not manufactured by DuraTech Industries International Inc.. Buyer must rely solely on the existing warranty, if any, of these respective manufacturers.

DuraTech Industries International Inc., shall **not** be held liable for damages of any kind, direct, contingent, or consequential to property under this warranty. DuraTech Industries International Inc., cannot be held liable for any damages resulting from causes beyond its control. DuraTech Industries International Inc., shall **not** be held liable under this warranty for rental costs or any expense or loss for labor or supplies.

DuraTech Industries International Inc., reserves the right to make changes in material and/or designs of this product at any time without notice.

This warranty is void if DuraTech Industries International Inc. does not receive a valid warranty registration card at its office in Jamestown, N.D., within 14 days from date of original purchase.

All other warranties made with respect to this product, either expressed or implied, are hereby disclaimed by DuraTech Industries International Inc.

DURATECH INDUSTRIES INTERNATIONAL

WARRANTY REGISTRATION

(PLEASE PRINT IN INK)

CUSTOMER NAME_____

ADDRESS_____

CITY_____

CONTACT NAME_____

PHONE (___) _____

DEALERS NAME_____

DEALERS ADDRESS_____

MACHINE INFORMATION

MACHINE MODEL_____

DATE PURCHASED_____

DELIVERY DATE _____

SERIAL NUMBER

MACHINE #_____

ENGINE #_____

VALID ONLY IF COMPLETED AND RETURNED WITHIN 14 DAYS OF PURCHASE TO:

DURATECH INDUSTRIES INTERNATIONAL, INC.
PO BOX 1940
JAMESTOWN, NORTH DAKOTA 58402-1940

This page left blank intentionally!

GRINDER DELIVERY AND SERVICE REPORT

_____Dealer assisted the customer in filling out the warranty registration form
_____The customer was provided with the appropriate engine operators manual and the grinder operators manual.
_____The dealer read the operators manuals and explained in detail the operation, adjustment procedures, maintenance and safety instructions to customers.

After performing the necessary assembly, check the following items carefully and make corrections when necessary!

CHECKED AND FOUND TO BE ACCEPTABLE:

_____Check the machine for shipping damage or shortage.
_____Check the machine for loose bolts.
_____Lubricate entire machine according to the lubrication chart found on pages 10-12.
_____Check engine oil level.
_____Check engine coolant.
_____Check batteries.
_____Check air cleaner for obstructions.
_____Check exhaust for obstructions.
_____Read Engine Pre-Start-up check list in engine operation manual.
_____Check hydraulic oil level, page 5.
_____Check hydraulic connections for tightness.
_____Check for correct hammer arrangement, page 21.
_____Check for proper function of electro-hydraulic valve, page 27.
_____Check for proper function of electronic governor, page 22-26.
_____Check tub teeth for proper alignment, page 14.
_____Check tub chains for proper tension, page 14.
_____Check conveyor belt tracking, page 13,14.
_____Check conveyor belt tension, page 13.
_____Check condition of tire rims.
_____Check wheel lug bolts for tightness.
_____Check tires for proper air pressure, page 18.
_____Check lights for proper function.
_____Check brakes for proper function.
_____Check the hydraulic components for leaks.
_____Verify that all shields are installed and in good condition.
_____Pointed out all safety shields and explained the importance of keeping all safety shields and covers securely in place.
_____Check condition of all safety, operation, and maintenance decals.

I HAVE CHECKED ALL THE ITEMS AND TEST RUN THE MACHINE.

THIS MACHINE IS READY FOR CUSTOMER USE.

Dealer's signature._____

Model No._____ Serial NO._____ DATE OF PURCHASE _____

Please return this report with the Warranty Card.

This page left blank intentinally!

TABLE OF CONTENTS

INTRODUCTION

READ THIS MANUAL CAREFULLY TO LEARN HOW TO OPERATE AND SERVICE YOUR MACHINE CORRECTLY. FAILURE TO DO SO COULD RESULT IN EQUIPMENT DAMAGE AND MAY VOID THE WARRANTY.

The purpose of this owners manual is to familiarize the owners and operators with the HD-12 and to explain routine maintenance and adjustments for most efficient operation of your HD-12 tub grinder. Included is a troubleshooting section which may help in case of problems in the field. Any information not covered in this manual may be obtained through your dealer.

When reference is made to the front, rear, left, and right of the machine, the reference is always made viewing the conveyor end of the machine looking towards the hitch.

Always have your serial number and model number of your machine when referencing parts and communicating with dealers and service people.

Model Number **HD-12** Serial Number _____

The HD-12 grinder is designed to grind wood waste and other materials including:

Green waste
Construction and Demolition debris
Tree branches, trunks, and root balls
Compostables
Mulch

The safety of the operator is of great importance to DuraTech Industries International, Inc. We have provided decals, shields and other safety features for your protection. In addition, we ask you to be a careful operator who will properly use and service your DuraTech equipment.

WARNING: BEFORE ATTEMPTING TO OPERATE YOUR GRINDER, CAREFULLY READ AND FOLLOW INSTRUCTIONS GIVEN BELOW AND CONTAINED ELSEWHERE IN THIS MANUAL.

1. Read and follow all instructions contained in:
   A this grinder operators manual.
   B. engine operator's manual.
   C. decals placed on the grinder.

NOTE: Additional copies of the mentioned materials can be obtained from your dealer.

2. Be sure all safety shields and covers are securely in place when machine is running.

3. Allow only responsible, properly instructed individuals to operate machines. Carefully supervise inexperienced operators.

4. Make no modifications to this equipment unless specifically requested or recommended by DuraTech Industries.

5. Tighten or replace any loose or cracked bolts, chains, hoses or connections.

6. Check overhead for electrical power lines or other obstructions and be certain there is adequate clearance.

7. Make sure the machine is in good operating condition and that all protective shields are in place and in proper working order. Replace damaged shields before operating.

8. Check periodically for breaks or unusual wear and make any necessary repairs.

9. Allow no one to ride on the grinder at any time.

10. **REMEMBER:** Loose clothing, necklaces and similar items are more easily caught in moving parts. Avoid the use of these items if possible and keep long hair confined.

11. Watch out for and avoid any object that might interfere with the proper operation of the machine.

12. Keep hands, feet and clothing away from power driven parts.

13. **OBJECTS THROWN BY MACHINE.** Do not operate without wearing safety glasses and a hard hat. Keep unauthorized personnel out of the grinding area!

DURING SERVICE AND MAINTENANCE

1. Before working on or near grinder for any reason, including servicing, inspecting or unclogging machine:
   A. Disengage power to grinder
   B. Place transmission in park or set park brake
   C. Shut off engine and remove key
   D. Wait for all movement to stop

2. When replacing any part on your grinder, be sure to use only DuraTech authorized parts.

3. Relieve all pressure in the hydraulic system before disconnecting The lines or performing work on the system. Make sure all connections are tight and the hoses and lines are in good condition before applying pressure to the system.
4. Hydraulic fluid escaping under pressure can be invisible and have enough force to penetrate the skin. When searching for a suspected leak, use a piece of wood or a cardboard rather than your hands. If injured, seek medical attention immediately to prevent serious infection or reaction.

WHEN TRANSPORTING ON PUBLIC ROADS

1. Lock discharge conveyor in transport position.
2. Use good judgment and drive carefully, especially over rough and uneven roads.
3. Be sure tires are properly inflated.
4. Be sure brakes are properly adjusted.
5. Cheek your state laws regarding the use of lights, slow moving vehicle sign, safety chain and other possible requirements.
6. Be aware of machine width at all times; do not exceed 55 mph.
7. See page 9 for more information.

WARNING: FAILURE TO COMPLY WITH ANY OF THE PRECEDING SAFETY INSTRUCTIONS OR THOSE THAT FOLLOW WITHIN THIS MANUAL MAY RESULT IN SEVERE INJURY OR DEATH.

THIS GRINDER IS NOT TO BE USED FOR ANY PURPOSE OTHER THAN THAT FOR WHICH IT IS INTENDED AS EXPLAINED IN THE OPERATOR'S MANUAL, ADVERTISING MATERIALS AND OTHER PERTINENT WRITTEN MATERIAL PREPARED BY DURATECH INDUSTRIES INTERNATIONAL, INC.

SAFETY DECALS

Safety decals located on your machine contain important and useful information that will help you operate your equipment safely.

To assure that all decals remain in place and remain in good condition, follow the instructions given below:

1. Keep decals clean. Use soap and water - not mineral spirits, adhesive cleaners, and other similar cleaners that will damage the decal.
2. Replace any damaged or missing decals. When attaching decals, surface temperature of the metal must be at least 40° Fahrenheit. The metal must also be clean and dry.
3. When replacing a machine component to which a decal is attached, be sure to also replace the decal.
4. Replacement decals can be purchased from your DuraTech dealer.

All Machines have been pre-run at the factory to assure all functions are operating properly. The hydraulic reservoir tank contains approximately 75 gallons of hydraulic oil for **test running only**. Before operating your machine, additional oil must be added to the reservoir tank. It will take approximately 75 more gallons of hydraulic oil. This should bring the oil level to within 3-1/2" below the top of the reservoir.

CAUTION: Lack of proper hydraulic oil level in the reservoir tank will cause system to heat under continuous running. (Recommend Mobil 423, Co-op Super HTB or similar oil.)

PRE-OPERATING CHECKS

Before operating the Tub Grinder, follow these instructions:

1. Read and have a thorough understanding of the operator's manual, especially the sections pertaining to machine operation and safety.

2. Be sure anyone who will assist you in the operation of this machine knows how the machine operates.

3. Know the machine's safety features and understand the safety precautions.

4. Be sure all lubrication points have been lubricated.

5. Give the machine a "once - over " for any loose bolts.

6. Make sure machine is properly adjusted. See adjustments, pages though 27.

7. Check engines oil level and coolant level.

8. Check hydraulic oil level.

9. Check hydraulic components for leaks.

10. Visually examine cylinder to see if any parts show excessive wear. These parts include shaft, plates, rods, hammers and movable plate.

11. Check screens, screen hold downs for wear and tightness.

12. Visually examine cylinder bearings and mounting bolts.

13. Check all bearings for wear.

14. Always grind with the machine stationary.

15. Watch for unusual or excessive vibration. If any occur, immediately shut off the power. Check to see what is wrong and correct it before starting the grinder again.

16. Start the machine and check the tub direction, control governor for proper operation.

17. In cold weather, allow five minutes for the machine to warm up before grinding.

18. Make sure all shields and guards are in place.

SCREEN SELECTION

All DuraTech grinders have two screens. They come equipped from the factory with a 4" diameter hole screen and a 3" diameter hole screen. Any combination of hole sizes may be used.

If a combination is used, the smallest hole diameter should be placed on the side of the cylinder box where the material enters the cylinder.

The coarseness of the material to be ground is determined by the hole size in the screens. Hole sizes can vary from 3/4" diameter through 4" diameter. The larger the hole diameter the coarser the grind.

SCREEN SELECTION

Round perforated screens available are:
3/4", 1"x 2", 3", 4".

Slotted screens, demolition screens, and dummy screens are available

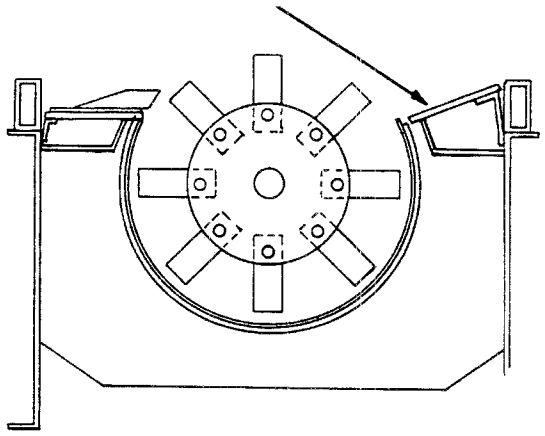
CAUTION: Keep all foreign objects out of the tub sand away from the mill. Foreign objects may result in personnel injury or damage to the machine.

INSTALLING A SCREEN

CAUTION: Disengage PTO and shut off engine before entering tub.

1. Loosen and remove bolts on the screen hold down bar.
2. With a large hook or bar, pull the screen from its chamber.
3. Make sure material is clear from screen holders.
4. Insert the new screen.
5. Replace the hold down bar and bolts. Tighten all bolts securely.

SCREEN HOLDDOWN BAR



NOTE: A Fire extinguisher should be handy at all times due to the possibility of sparks from engine or hammers hitting a foreign object.

INTRODUCTION

The Electronic Governor controls the feed rate to keep the engine at its peak power point. The operator is able to select the operating range so that when the feed of material lugs down the engine, the Electronic Governor will stop the feed at a high enough PTO speed to allow the engine to recover automatically.

IMPORTANT: Read and have a thorough understanding of the Rockford clutch operator's manual and specification plate found on clutch housing.

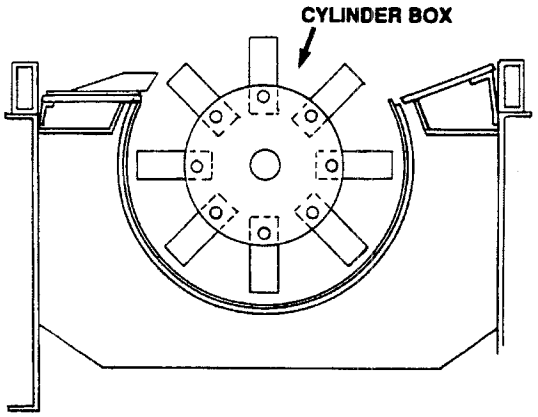
IMPORTANT: Do Not engage clutch at high engine RPM. Before starting engine, cylinder box should be cleared of all material. Set engine approximately 1000 RPM. Pull firmly on lever when engaging clutch to prevent excessive slippage. Check periodically for proper adjustment according to spec. plate on clutch housing.

ADJUSTMENT

CLUTCH - if the clutch slips, overheats, or the clutch operating lever jumps out, the clutch must be adjusted. To adjust the clutch remove the hand hole plate in the housing and rotate the clutch until the adjusting lock screw can be reached. Remove or disengage the adjustment ring lock.

HE CLUTCH - turn the adjusting ring counter clockwise to obtain recommended operating lever pressure.

HD CLUTCH - Turn the adjusting ring clockwise to obtain recommended operating lever pressure.



A new clutch generally requires several adjustments until friction surfaces are worn in. Do not let a clutch slip as this will glaze the friction plates and may ruin them.

DAMAGE DUE TO EXCESSIVE SLIPPING WILL NOT BE COVERED BY WARRANTY.

OPERATION

The Electronic Governor monitors the speed of the engine. The hydraulic flow to the feed mechanism is regulated proportionally to the engine PTO speed. The flow is cut back, slowing the feed, as the PTO speed slows, and flow is increased, increasing the feed, as the PTO speeds up. The regulation range is moved by adjusting the "engine" knob on the front of the governor. Turning the "Engine" knob counter clockwise will increase the load on engine by keeping the feed (tub rotation) engaged at a lower engine rpm.

Turning the "engine" knob clockwise will decrease load on engine by disengaging the feed (tub rotation) at a higher engine rpm. **Note: With control box switched to manual tub, the tub will continue to rotate regardless of engine rpm.**

1. When first starting machine, run at less than full throttle to allow hydraulic system to warm up before operating.

2. With engine running at full throttle, turn control knob clockwise to max. position and set toggle switch in "engine" position. Engage tub control level. Check indicator light on your control box before doing any adjusting! At this point, the "sensor" light should be lit. If it is not, read the trouble shooting section, pages 22 through 27.

3. If tub is not turning, you are ready to proceed to the grinding section of this book. Remember the "engine" knob adjusts the load placed on the engine and under normal conditions will be the only adjustment you will have to make!

DuraTech Industries International Inc. test runs every grinder before it leaves the factory. The control box was calibrated at this time and should not need any further adjustment. Before attempting to adjust the control box, read the trouble shooting section, pages 22 through 27.

GRINDING

Material to be ground should be placed directly into the tub. The best methods for filling the tub are:

1. Fill the tub about half full of unground material before starting tub rotation.
2. Start tub.
3. Place additional materials in the tub.

WET MATERIAL

This is the toughest material for any grinder to handle. When filling the tub with wet material, deposit small quantities on a more frequent basis rather than filling the tub with one load.

IMPORTANT: Never drop a large object into the tub from a high level. Ease the material over the edge and down into the tub carefully.

IF LODGING OCCURS

Occasionally materials may lodge against the side of the tub and not feed down to the mill. If this occurs, reverse the tub direction for about two rotations and then start the tub in a clockwise direction again. This practice normally dislodges any materials.

Caution: Never attempt to dislodge material inside the mill when machine is in operation by physically pushing materials down. WHEN THE MACHINE IS IN OPERATION, STAY OUT OF THE TUB.

STOPPING THE MACHINE

CAUTION: The stored up energy in the cylinder causes it to rotate long after the engine PTO has been disengaged. Before performing any maintenance on the machine or getting into the tub, be sure cylinder and all moving parts have come to a complete stop.

CAUTION: If the grinder becomes plugged or if the cylinder requires maintenance, do not raise the platform with the tub full of material. This may damage the frame and platform, this type of damage is not covered under warranty!

TRANSPORTING

CAUTION: DO NOT MOVE TUB GRINDER without first securing the conveyor in transport position.

TO PREPARE FOR ROAD TRANSPORT

1. Be sure all loose parts,(shields, screens, extra hammers) are securely fastened down.

2. Make sure all bystanders are clear, moving parts can cause injuries.

3. When folding the conveyor do not exceed 600 engine rpm. Excessive engine rpm will cause the conveyor to fold too fast and may cause damage.

4. Secure all conveyor transport bars (2) into their proper locations.

5. Be sure the fifth wheel is locked in place before hitching the towing vehicle to the grinder.

6. Hook up the electrical and air connectors.

7. Raise the dollies and lock the handle in its storage position.

8. Check lights and brakes for proper function.

9. Check the turning clearance between grinder and the towing vehicle.

10. Check local ordinances regarding restrictions for machine travel on local roads.

11. Do not tow at speeds exceeding 55 MPH.

LUBRICATION

CAUTION: Always shut off machine before adjusting or lubricating.

Hydraulic oil reservoir capacity: (150 gallons) Change hydraulic oil and filter at least once a year.

When grinder is operated during cold weather, all lubrication should be performed after bearings are at operating temperatures.

BEARING LUBRICATION

Bearings operating in the presence of dust and water should contain as much grease as speed will permit, since a full bearing with a slight leakage is the best protection against entrance of foreign material. In the higher speed ranges, too much grease will cause overheating.

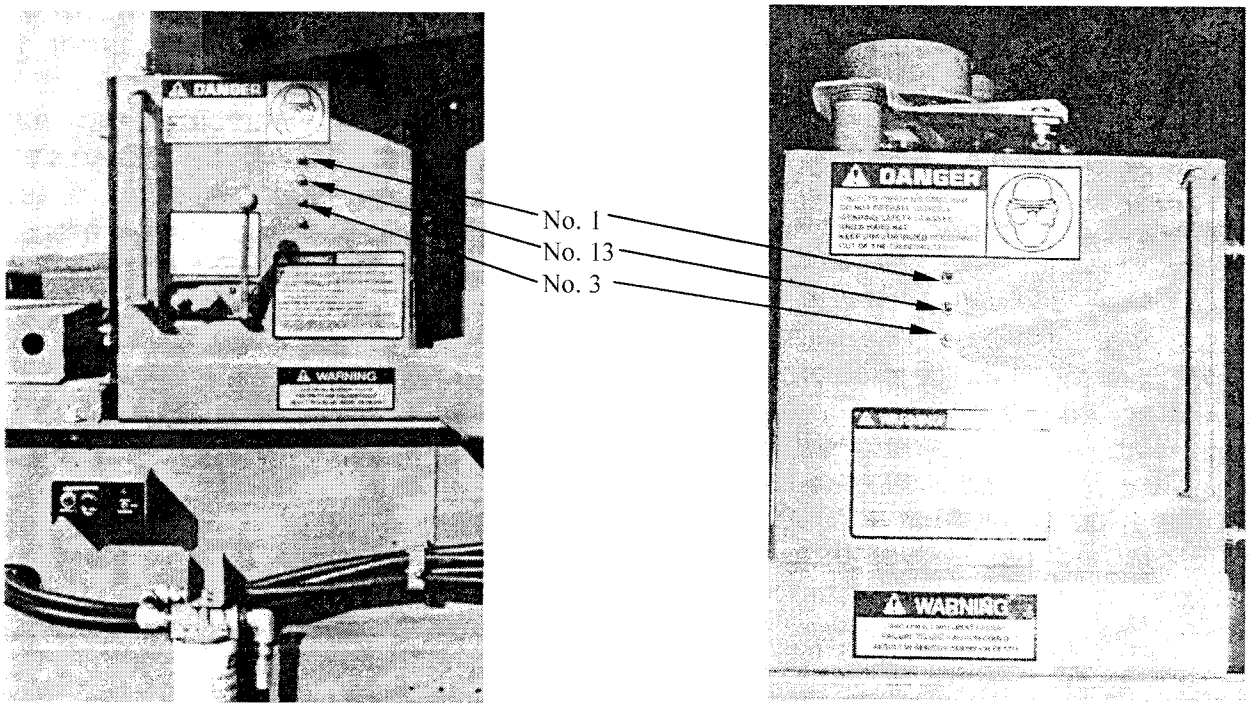
High speed operation, abnormal bearing temperature may indicate faulty lubrication. Normal temperature may range from "cool to warm to the touch" up to a point. Unusually high temperatures "too hot to touch for more than a few seconds" accompanied by excessive leakage of grease indicates too much grease. High temperatures with no grease showing at the seals, particularly if the bearing seems noisy, usually indicates too little grease. Normal temperature and slight showing of grease at the seals indicate proper lubrication.

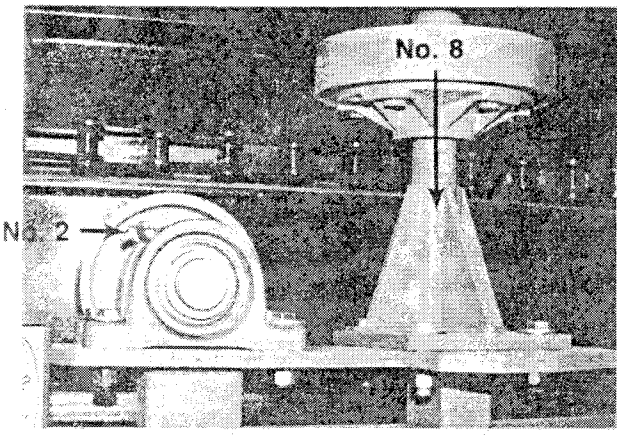
The following chart is a general guide for "relubrication". Certain conditions may require a change of lubrication periods as dictated by experience.

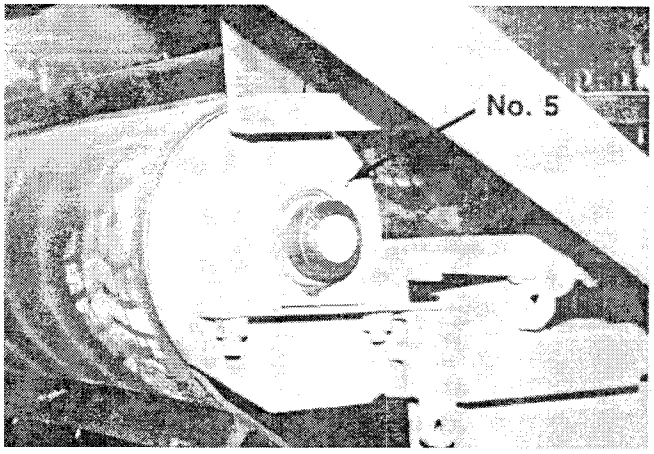
LUBRICATION CHART

REF. NO.	LOCATION	NO. OF ZERKS	FREQUENCY
1	Tub Drive Shaft	2	40 Hours
2	Tub Rollers	16	40 Hours
3	Tub Chain Idler Cast	2	5 Hours
4	Platform Latch, 30 Deg Tub Tilt Only	3	Annually
5	Discharge Conveyor	6	40 Hours
6	Belly Conveyor	4	40 Hours
7	Rotor Brg grease	2	10 Hours
7	Rotor Brg, oil,Check Level		Daily
8	Tub Pressure Roller	8	Annually
9	Wheel Bearings		Annually
10	PTO		40 Hours
11	Roller Chains		Oil Daily in Dusty Conditions
12	Tub Pivot, 90 Deg Tub Tilt	2	
13	Tub Chain Idler Pivot	2	
14	Jacks	4	

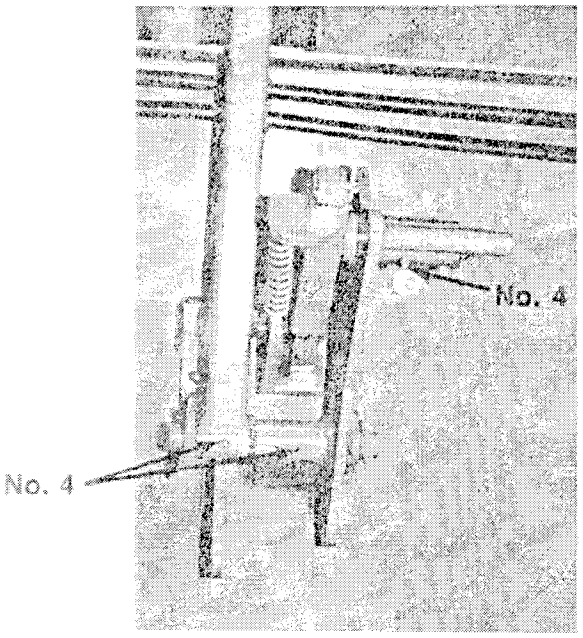
Reference numbers on the following pictures correspond with the lubrication chart. See page 10.

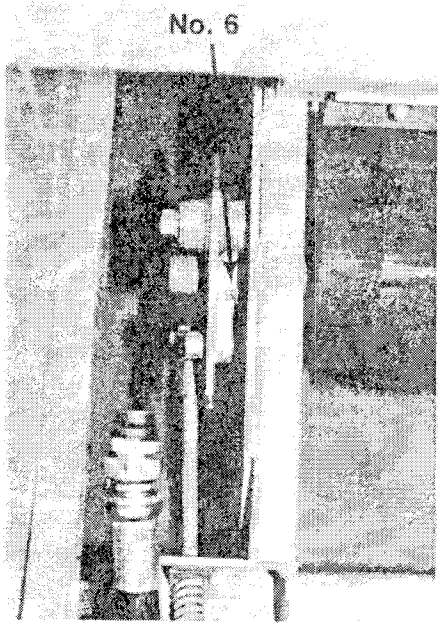


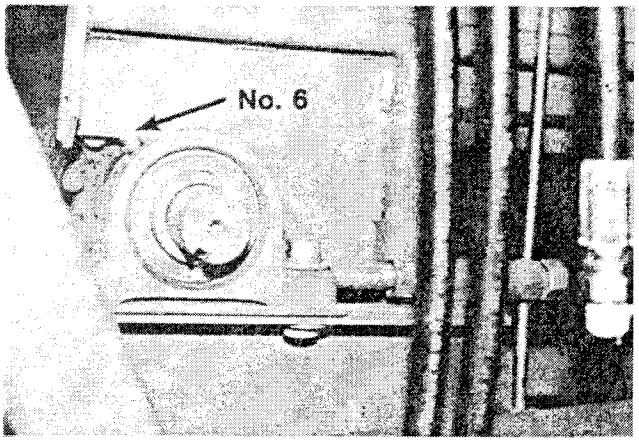


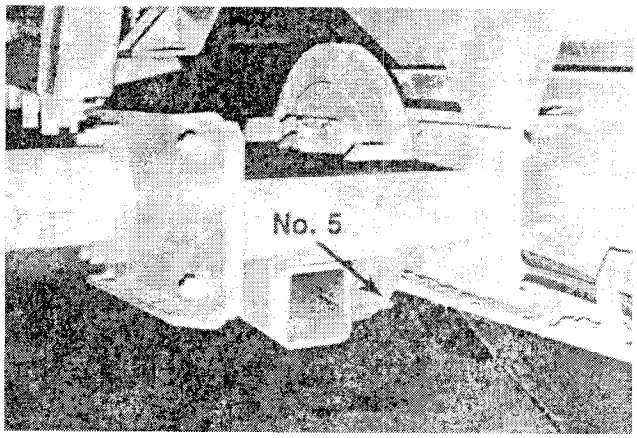


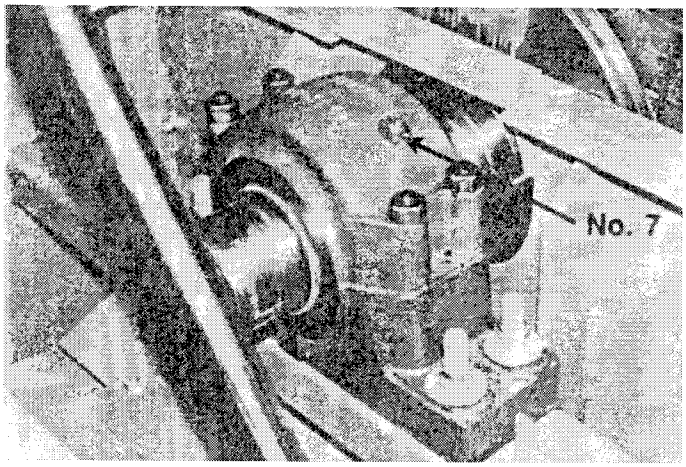
LUBRICATION











WARNING: Before servicing machine, read the Service and Maintenance section of the Safety Instructions.

CAUTION: If for any reason arc welding is to be done, always ground cylinder to frame of machine to prevent arching in bearings.

CONVEYOR BELT ADJUSTMENTS

I. SAFETY CONSIDERATIONS.

A. Allow only responsible, properly instructed individuals to operate, service, adjust or maintain this machine. Carefully supervise inexperienced personnel.

B. Do not work on or around equipment with loose clothing, necklaces or neckties, etc. Keep long hair confined.

C. Keep hands, feet and clothing away from power driven parts.

D. Before working on or near grinder for any reason, including adjusting, servicing, inspecting or unclogging machine:

1. Disengage rotor clutch.
2. Shut off grinder engine and remove key.
3. Be certain that parking brakes are set. Shut down tow vehicle and remove key.
4. Do not begin any service procedures until all machine movement has ceased.

II. Tension Adjustment

Both rollers on the belly conveyor and the discharge conveyor are adjustable to allow for belt stretch and tracking. If the conveyor belt slows down or stops during operation, slippage may be the cause. Tighten adjusting bolts equally to increase conveyor belt tension and to keep the belt centered on the rollers.

IMPORTANT: Do not overtighten conveyor belts. Use only enough tension to eliminate belt slippage.

III. Tracking Adjustment

A. When a new belt is installed: (Maintain OEM Specifications on New Belt for thickness, width and length)

Begin by adjusting the **drive** roller so the mounting bearings are the same distance from the end of the conveyor frame (roller centerline is square with conveyor frame). Adjust the **idler** roller tension spring bolts so they are equal on both sides of conveyor.

B. If the belt is running to the right side:

1. Adjust the **idler** roller tension spring bolt on the right side of the conveyor. Increase tension by approximately 2 full turns of the adjusting nut.

2. Make certain that all personnel are clear of machine and start engine. Engage hydraulic conveyor drive lever.

3. Observe conveyor belt tracking from a safe location.

4. If further adjustment is required, disengage hydraulic conveyor drive lever and shut down engine.

5. Some adjustment of the **drive** roller may be required if no improvement is noted by increasing the **idler** roller tension.

6. Repeat steps 1-5 until proper tracking is obtained.

C. If the belt is running to the left side:

1. Adjust the **idler** roller tension spring bolt on the left side of the conveyor. Increase tension by approximately 2 full turns of the adjusting nut.

2. Make certain that all personnel are clear of machine and start engine. Engage hydraulic conveyor drive lever.

3. Observe conveyor belt tracking from a safe location.

4. If further adjustment is required, disengage hydraulic conveyor drive lever and shut down engine.

5. Some adjustment of the **drive** roller may be required if no improvement is noted by increasing the **idler** roller tension.

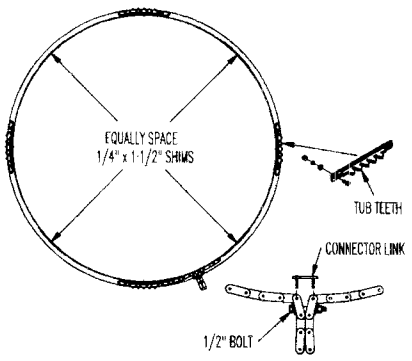
6. Repeat steps 1-5 until proper tracking is obtained.

TUB CHAIN DRIVE:

Tub drive chain is equipped with spring tensioned idlers. Due to normal wear the tub drive chain may tend to climb on driving teeth of tub. If this should occur, the chain should be sized to fit the tub, and the tub teeth adjusted for proper spacing in the chain.

Step 1. (sizing the chain). Remove tub drive chain from the drive sprocket. Loosen tub teeth and wrap the chain around tub. (Do not run the chain around tightener idlers or drive sprocket.) Using ½" bolt inserted through the chain links, draw chain together so center to center measurement on link pins matches pins on connector link. If the distance is less or greater than the connector link, shims must be added. Equally space shims of the same thickness and length under chain until proper distance is obtained. Do not add shims under tub teeth. (See illustration.)

Step 2. Adjust tub teeth so all four sets of teeth contact chain link on the same side of the teeth. Tighten bolts holding teeth in place and return chain to working position.



ROTOR BEARING INSPECTION

Inspect shaft. Insure that the shaft is smooth, straight, clean and within commercial tolerances.

Inspect bearing. Do not allow bearing to be exposed to any dirt or moisture. Do not remove slushing compound as it acts as both a protectant and lubricant and is also compatible with standard greases.

ROTOR BEARING INSTALLATION

WARNING: To ensure that drive is not unexpectedly started, turn off and lock out or tag power sources before proceeding. Failure to observe these precautions could result in bodily injury.

NOTE: Housing caps and bases are not interchangeable, they must be matched with mating half. Install non-expansion bearing first.

ROTOR BEARING INSTALLATION

1. Apply a light coating of oil or other rust inhibitor to the adapter area of the shaft.
2. **Measure the internal clearance of the bearing before mounting.** Place the bearing in an upright position . Seat the inner ring and roller elements by pressing down firmly on the inner ring bore while rotating the inner ring a few times. Position the roller assemblies so that a roller is at the top most position on both sides. Using a feeler gauge measure the clearance for both sides by inserting as far as possible and sliding over top of roller. Write down the measured clearance for use in step 3E. **NOTE:** Do not rotate bearing when moving feeler gauge between roller and outer ring.
3. Install the bearing parts in the following sequence. NOTE: bearing can only be correctly installed one way, refer to **Figure 1** on page 16.

A. V-ring Seal: Slide one of the V-ring seals onto the shaft, making sure lip is toward the bearing. Set aside until step 11. NOTE: Do not install V-ring seal on seal until housing cap has been set in place and tightened.

B. **Seal Ring:** install a seal ring on shaft with the largest OD toward bearing.

C. **Adapter:** slide adapter onto the shaft. threaded end outboard to the approximate location of the bearing. Apply light coating of oil to sleeve OD **Do not use grease.**

D. **Bearing:** make sure that the internal clearance has been written down. Install bearing on adapter sleeve, large end of tapered bore first. Locate bearing in proper position on shaft. Before tightening refer to **Figure 1.**

E. **Lockwasher and Locknut:** install the lockwasher on the adapter with inner prong located in the slot and toward the bearing. Install lock nut, chamfered face toward bearing.

4" shaft and smaller: tighten locknut using a spanner wrench and hammer until clearance noted in step 2 is **reduced** by amount shown in Table 1. During this step shafts should be supported so all weight is off of the bearing.

Find a lockwasher tab that aligns with a locknut slot and bend tab into slot. It slot is past tab then tighten, not loosen, lock-nut to meet a washer tab.

Table 1 - Internal Clearance Reduction

Shaft Diameter	Reduction in Internal Clearance
4"	0.0020 to 0.0026 in.

F. **Seal Ring:** install a second seal ring with large OD toward locknut.

G. **V-Ring Seal:** Slide second V-ring onto the shaft, again making certain lip is toward bearing. **Note: Do not install V-ring seal on seal ring until housing has been set in place and tightened.** See Step 11.

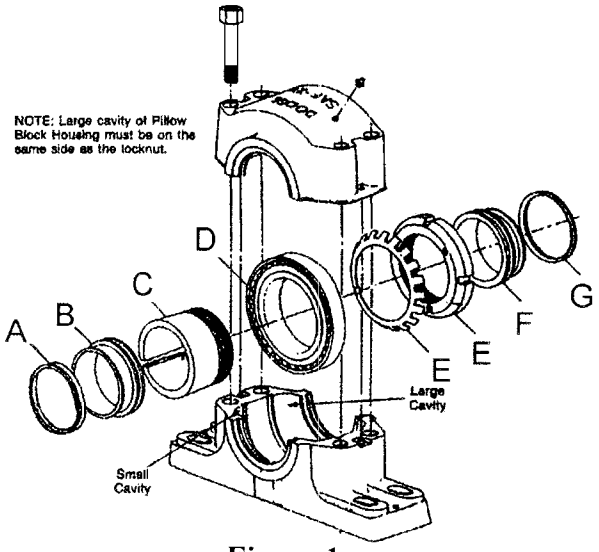


Figure 1

4. Remove any paint, dirt or burrs from the mating surfaces of the housing halves. Thoroughly clean seal groves on both sides. Set lower half of housing on base with all four cap bolts in place and apply oil to the bearing seats. Apply grease to the seal grooves in the lower housing.

Be sure the housing is positioned as shown in Figure 1 view relative to adapter nut.

5. Apply lubricant to the bearings and seal rings. The lubricant should be smeared between the rolling elements. Use Mobil SHC-626 or similar oil for bearing lubricant. **Do not use detergent motor oil!**

6. Place shaft with bearing into lower half while carefully guiding the seal rings into the housing grooves.

7. **Bolt lower half of the non-expansion bearing housing to the base.** Move shaft endwise so that stabilizing ring can be inserted between the bearing outer ring and the lower half shoulder on same side as the locknut. Make all other bearings on same shaft expansion by centering in the middle of their housing seat. Bolt expansion housings to base. **Note: Only one bearing per shaft is non-expansion, other bearings should be expansion.**

Table 2 - Recommended Torque Values

Shaft Size	Housing Cap Bolt Size	Recommended Torque Value (ft.-lbs.)
4"	3/4-10,Gr. 5	208-260

8. When closed end is required, the end plug supplied should be fit into the center seal ring groove of the housing.

9. Lubricate the bearing seal grooves in the housing cap and place over the bearing after wiping the mating surfaces. The two dowel pins will align the cap with the lower housing half. **NOTE:** Each cap must be matched with its mating lower half, as these parts are not interchangeable.

10. Tighten cap bolts and nuts to the recommended torque in **Table 2**.

11. Assure that there is seal running clearance then install V-ring seals onto the seal rings **and coat V-ring seals with grease.**

12. Misalignment of pillow blocks must not exceed 1/2°.

MAINTENANCE

Warning: To insure that drive is not unexpectedly started, turn off and lock out or tag power source before proceeding. Failure to observe these precautions could result in bodily injury.

Remove housing cap in order to inspect bearing and lubricant. Before reassembly it is important that the V-ring seals be removed. This will ensure that seal lip will not be damaged while setting cap in place. Reassembly per installation steps 9 thru 11 above.

Seal Replacement: When removing bearing it is recommended that V-ring seals and seal rings be replaced.

ROTOR BEARING LUBRICATION

Use Mobil SHC-626 oil, or similar. **Do Not Use Detergent Motor Oil.**

Oil should be replaced every 500 hours, or sooner if discolored or milky in appearance.

Static oil level should bring oil to centerline of bottom roller. Oil level in sight glass should be 1-51/64" above base housing. Dimension "V" on Figure 2.

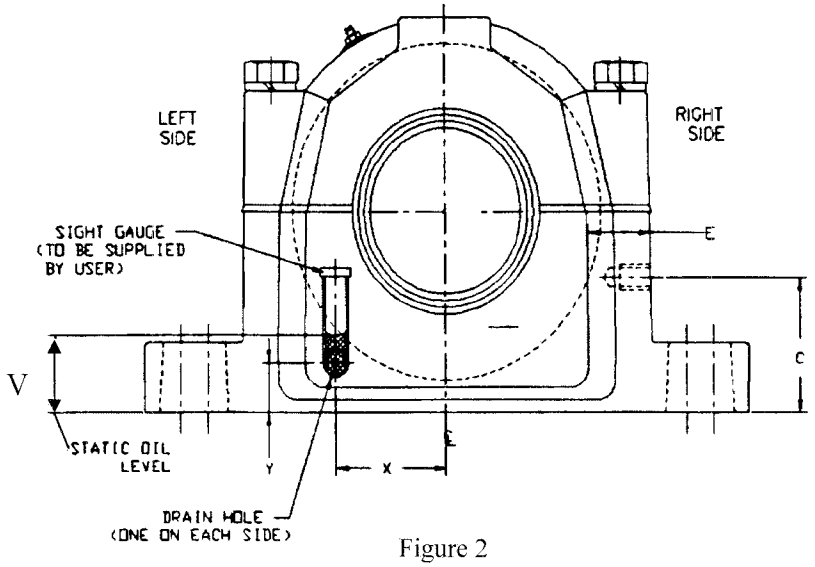


Figure 2

TIRE PRESSURE: The proper tire pressure is 125 psi.

PRESSURE ROLLER: The grinder has a pressure roller with tapered roller bearing. The bearings should be checked for lubrication and adjustment annually, preferably at the end of the season.
If a generous amount of grease is on the bearing and in the housing, and if the grease is soft, the grease will not need changing.
If the lubricant is caked and the bearing seems dry, the bearing should be washed to remove old grease. Repack the bearings.

WHEEL BEARINGS: The wheels have tapered roller bearings in an oil bath. The hub is equipped with a transparent oil cap with oil level indicator mark to allow visual checking for adequate lubricant.

Check level periodically. Refill with SAE 80W-90 HYPOID GEAR OIL. This lubrication method assures long bearing life with proper maintenance of oil level.

AIR BRAKES: The air brakes should be inspected periodically.

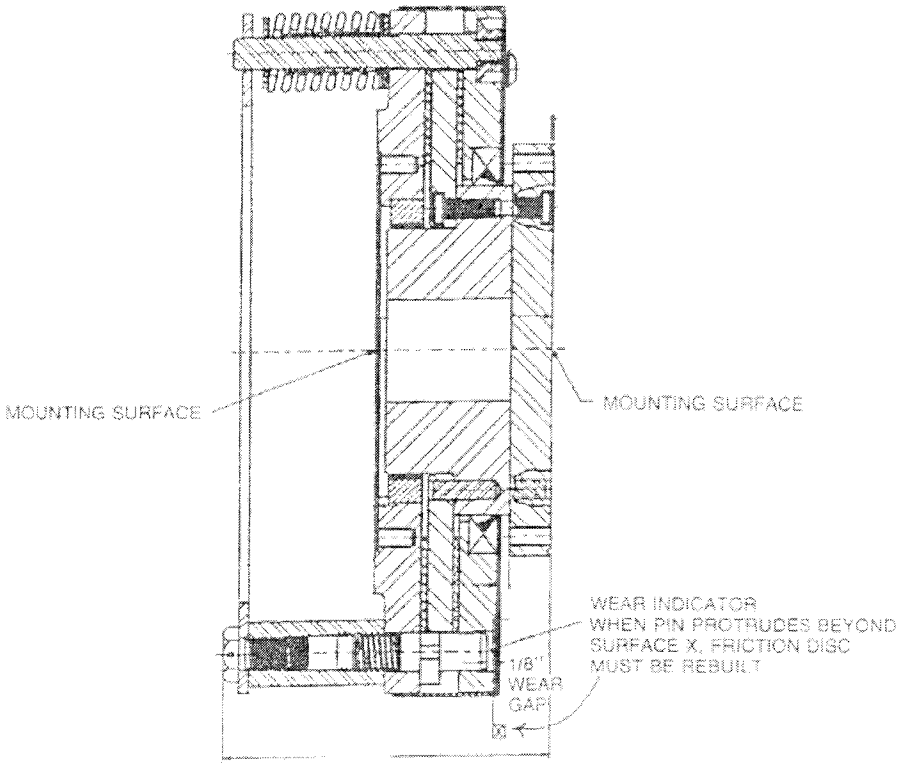
TORQUE LIMITING CLUTCH

The torque limiting clutch is a unique, maintenance free, friction type, overload clutch offering precise torque control.

This clutch requires no routine maintenance. It can be allowed to wear until the wear indicator becomes flush with the face surface "X" of the pressure plate.

The wear indicator should be checked as required by the application. The output hub should be rebuilt or replaced when the clutch is deemed to be worn out! If the clutch continues to wear and the wear indicator protrudes, then the clutch torque may drop rapidly.

WARNING: Spring bolts contain heavy springs precompressed to high forces. They should not be tampered with. DO NOT attempt to disassemble. If one is damaged, dispose of it in a safe manner.



IMPORTANT SAFETY INSTRUCTIONS

READ ALL INSTRUCTIONS

Visually examine mill to see if any internal parts show excessive wear. These parts should include body, liners, rotor discs and holes in the discs that support the rods. Enlarged holes can cause rods to break. Also check rods, rod locking or retaining devices, hammers, screens, screen channels or hold down, main shaft, lid locking devices, hinges or anything else that could wear and perhaps fail if not properly maintained, and cause damage to he hammermill and/or personnel. Bearings and motor alignment should also be checked along with mounting bolts to insure a firm foundation and reduced vibration. Foreign material in a mill can cause severe damage to the hammers, screens, rods and other parts which will cause hammermill failure.

Keep all foreign objects out of the tub and away from the mill. Foreign objects may result in personal injury or cause severe damage to hammers, screens, rods, and other parts which will cause hammermill failure.

When installing or changing hammers, be sure to follow directions on the installation spacers diagram carefully. Misplacement could cause excessive vibration. We recommend that hammers be balanced in sets according to the rod on which they are to be installed. Sets of equal weight should be installed 180° apart (See Illustration A). When replacing a worn or broken hammer with a new hammer always install a second new hammer 180° away from the first (see Illustration B). When starting the hammermill after installing a new set of hammer or turning corners, watch for unusual or excessive vibration. If any occurs, immediately shut off the mill. Check to see what is wrong and correct if before starting the mill again.

JACOBS HAMMERS are designed to grind the normal ingredients used in the manufacture of feed and related products and other products such as paper or wood residue, chips, sawdust, shavings, or hogged materials that may be reduced in size in a hammermill. They are not designed to grind or crush, on a primary basis, hard materials such as coal or minerals, metals, rock, or other similar materials, which could cause parts to fail, should never be allowed to enter a hammermill.

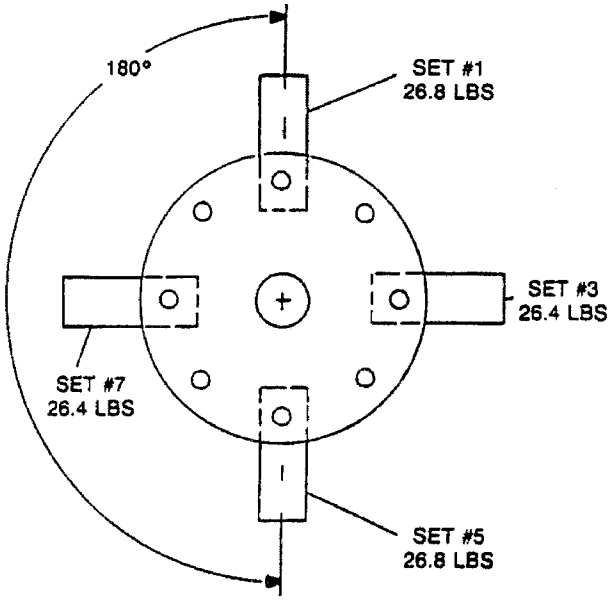


ILLUSTRATION A

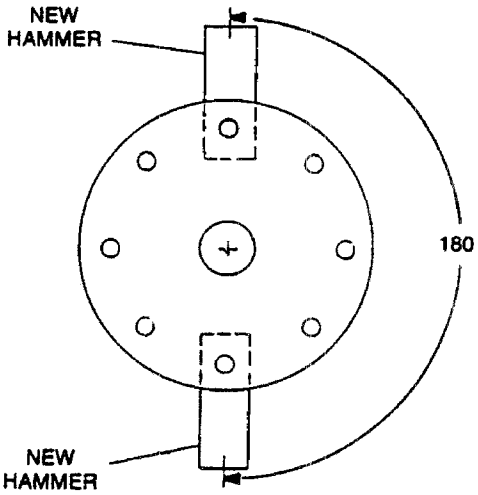


ILLUSTRATION B

MAINTENANCE

JACOBS HAMMERS have been designed and manufactured to provide the best compromise between hardness for good wearing qualities and strength for dependability and resistance to breakage. Any alteration of the hammer by heating, grinding, resurfacing or any or any other process can change the mechanical properties of the hammer and make it unsuitable or dangerous to use.

HAMMERS: Because of the high capacity of the machine, the hammers will wear and must be considered expendable. Each hammer has two cutting corners. For maximum life, it is suggested that hammers be rotated periodically to even out the wear over the entire cylinder.

HAMMER AND SCREEN CONDITION

Cylinder hammers and screens are the heart of the grinder. If cutting edges of the hammers become rounded, hammers should be replaced or turned to expose a new cutting edge. Each hammer has two cutting edges. If an end of a hammer is allowed to wear too long, one cutting edge is lost.

Screens have two cutting edges. When cutting edges become rounded, screen can be turned end for end exposing new cutting edges. The results of badly worn hammers and screens is loss of capacity, and added horse power requirements.

NOTE Hammer and hammer rod life can be extended by keeping cylinder rotating at 2000 rpm. Too much engine horse power and /or over feeding the cylinder will cause the hammers to lay back resulting in excessive wear on both hammers and rods!.

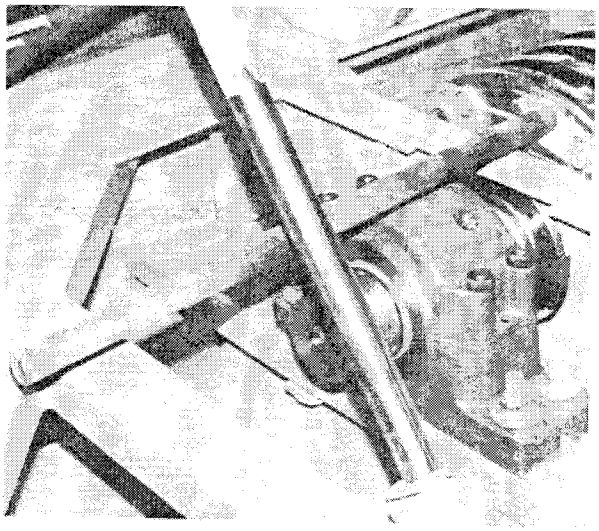
HAMMERS RODS: Rods can be turned end for end exposing a new surface area to wear. This will extend service life although hammer rods must be considered expendable.

CAUTION: Keep all foreign objects out of the tub and away from the mill. Foreign objects may result in personal injury or damage to the machine.

HAMMER REPLACEMENT

CAUTION: Disengage PTO and shut off engine before entering tub.

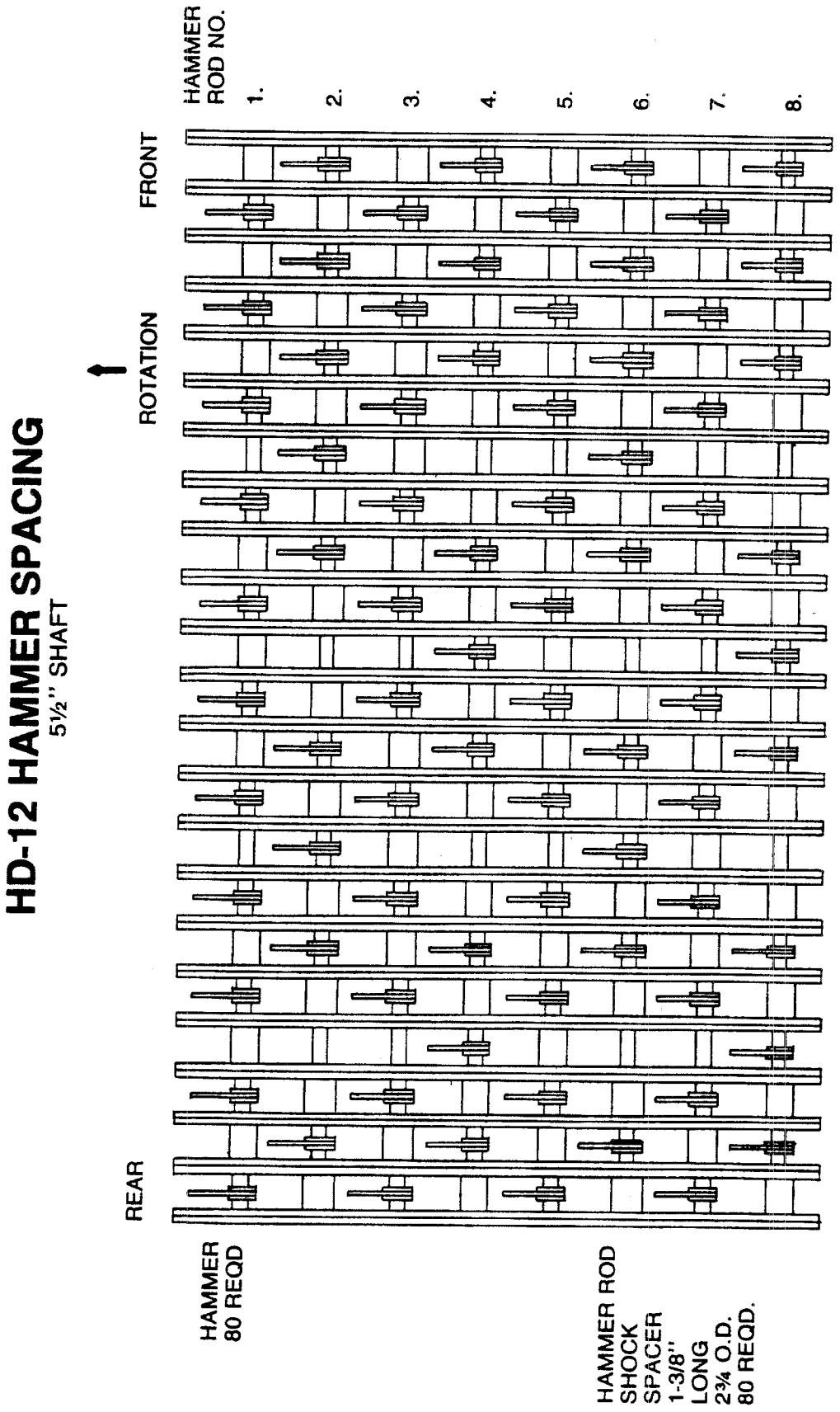
To install new hammers or changing the cutting edge on existing hammers, tub floor should free of all material for easy access to cylinder.



1. Tilt tub to access hammermill.
2. Loosen four bolts at rear of cylinder which holds the hammer rod retainer plate in place.
3. Rotate retainer plate counter clockwise to align holes allowing hammer rods to be removed through rear of cylinder.
4. Remove one row of hammers and replace, taking note as to where spacers are located. Hammer spacing on page 21.
5. After all hammers have been replaced, reassemble retainer plate.

IMPORTANT

Care should be exercised when replacing only a few hammers and not the whole set. If one or more new hammers are inserted on a rod, the same number of new hammers should be inserted on the rod directly across the cylinder. This will maintain a balanced cylinder for vibration free operation.


HD-12 HAMMER SPACING
5½" SHAFT
ROTATION
FRONT
REAR
HAMMER ROD NO.
1.
2.
3.
4.
5.
6.
7.
8.
HAMMER 80 REQD
HAMMER ROD SHOCK SPACER 1-3/8" LONG 2¾ O.D. 80 REQD.

ELECTRONIC GOVERNOR OPERATION

INTRODUCTION

The Model RCB93 Electronic Governor automatically controls the feed rate to keep the engine its optimum power zone. ("engine mode") When the load on the grinding rotor begins to lug the engine, the governor automatically reduces tub rotation speed in proportion to the load. The result is nearly a constant load on the engine, which will maximize grinding efficiency.

The RCB93 Electronic governor will also perform as a simple tub speed control. ("tub" mode) In this mode the tub speed is constant and it will not change to match varying load conditions.

When the electronic governor is switched to the engine mode, it is monitoring the rotation speed of the engine. The hydraulic flow to the tub drive mechanism is regulated proportionally to the engine speed. When the engine begins to lug down, the hydraulic oil flow is reduced which in turn slows down the tub rotation. With proper calibration, the engine will only lug down to its optimum horsepower RPM and the tub rotation will be varied proportionally to keep the engine at this RPM.

CALIBRATION

1. With the engine and hydraulic systems at operating temperature, the clutch or PTO engaged, and the handle of the manual hydraulic valve in the forward position. Throttle the engine up to the desired engine RPM, (check engine operation manual for proper RPM).

2. Switch the "Range Switch" to the H or high position. Rotate the "Engine Load Knob" to the number 10 setting. Rotate the "Tub Limit Knob" to the number 7 setting. Switch the "Mode Switch" to the ENG. position.

   The "Fuse" light and the "Sensor" light should be on. The tub should not be rotating at this time. If the tub is rotating, read the trouble shooting section of the operation manual.

3. Slowly rotate the "Engine Load Knob" counter clockwise until the tub just begins to move. The tub should begin to rotate before you reach the "0" setting. If it does not begin to rotate, switch the range switch to M-Medium or L-Low and repeat as necessary.

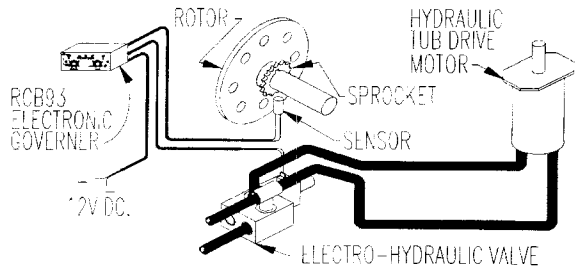
   This is the proper calibration for an engine operating at the RPM set in step 1.

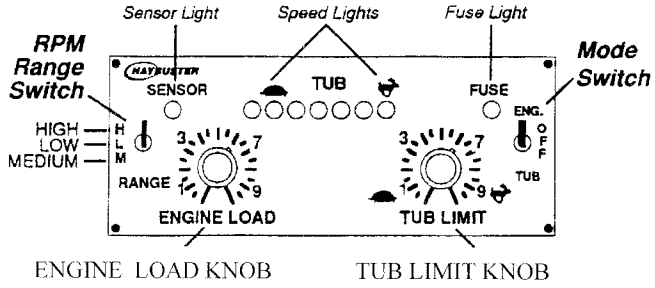
   TEST: Throttle engine down and the tub should stop rotating, return the engine to the above engine RPM and the tub should start to rotate.

   If the tub will not rotate read the trouble shooting section of the operation manual.

ELECTRONIC GOVERNOR OPERATION

TYPICAL ELECTRONIC GOVERNOR SYSTEM





EXPLANATION OF FRONT PANEL

"FUSE" LIGHT - This light is on whenever the electronic governor is receiving power.

"SENSOR" LIGHT - This light is on whenever the electronic governor is receiving enough input signal from the sensor. For the sensor light to work you must have the clutch engaged and the engine running at grinding RPM. The "Mode Switch" must be switched to engine.

"SPEED" LIGHT - These lights indicate how fast your tub should be turning based on the output signal that the electronic governor is sending to the electro-hydraulic valve.

"MODE SWITCH"

"TUB" In this position the tub will rotate at a constant speed based on the settings of "Tub Limit Knob".

"ENGINE" - This position uses all the functions of the Electronic Governor. Maximum tub speed will be limited by the "Tub Limit Knob". Engine load will be controlled by the "Engine Load Knob".

"TUB LIMIT" - This knob sets the maximum speed the tub will rotate in both the "Tub Mode" and "Engine Mode". In "Engine Mode" Tub speed will vary depending on Engine Load.

"ENGINE LOAD" - This knob is used only in "Engine Mode". It controls the load placed on the engine. Turning the knob clockwise decreases engine load. Turning the knob counterclockwise increases engine load.

"RANGE" SWITCH (HI, MEDIUM, & LOW) - This switch is a coarse adjustment for the "Engine Load Knob".

ELECTRONIC GOVERNOR OPERATION

TROUBLE SHOOTING ELECTRONIC GOVERNOR SYSTEM

1. When power is reaching the electronic governor the "fuse" light should be on.. If this light fails to go on, check fuse, battery connections, wiring harness, and indicator lamp. If the "Fuse" light is on, the wiring harness, battery connections, fuse and bulb are functioning correctly.

2. "TUB MODE" With the engine and hydraulic systems at operating temperature, and the manual hydraulic valve in the forward position, throttle the engine up to the desired engine RPM.
With the "Mode switch" switched to "Tub", the tub should be rotating. The speed of the tub can be varied by rotating the "Tub Limit Knob" and the number of tub speed lights lit will vary with the setting of the "Tub Limit Knob". The above show you that the manual portion of the controls are functioning correctly. Proceed to step 3. If the manual portion is nor working properly, proceed to trouble shooting, chart 2.

TROUBLE SHOOTING \ CHART 2 \ TUB MODE

PROBLEM	CAUSE	REMEDY
1. Tub does not rotate with pressure to orbit motor (control box and valve working properly).	1. Tub binding 2. Too much material in tub. 3. Tub overloaded due to wet and tough grinding material 4. Pressure relief valve in control valve set too low or faulty.	1. Remove material causing problem. 2. Reduce amount of material in tub. 3. Readjust to 1800 Psi max. 4. Replace relief valve.
2. Tub does not rotate (with 9 to 12 volts DC. power to valve) No pressure to orbit motor.	1. Manual hydraulic valve not engaged. 2. Valve assembly 3. Faulty solenoid	1. Engage valve. 2. Clean or replace valve assembly. 3. Test solenoid and replace as necessary
3. Tub does not rotate (no voltage to valve).	1. No power to control box. 2. Control box switched off. 3. Fuse blown 4. Tub limit knob turned to "O". 5. Broken wire in wiring harness 6. Control box is faulty.	1. Read step 1. 2. Switch mode switch to tub. 3. Replace fuse. 4. Readjust tub limit knob 5. Replace or repair wiring harness. 6. Replace control box.
4. Tub runs with control box switch off. Disconnect wires at valve		
A. If tub stops	1. Control box is out of adjustment. 2. Control box is faulty.	1. Readjust control box. 2. Replace control box.
B. If tub keeps turning	1. Valve override screw is adjusted in too far. 2. Valve is faulty.	1. Readjust override screw. 2. Replace valve.
5. The tub speed can not be varied with tub limit knob	1. Valve override is adjusted in too far. 2. Valve stuck 3. Solenoid stuck. 4. Control box is faulty	1. Readjust override screw. 2. Clean or replace valve assembly. 3. Test solenoid and replace as necessary 4. Replace control box

TROUBLE SHOOTING
ELECTRONIC GOVERNOR

3. "Engine Mode" - After following the "Tub Mode" trouble shooting check list and "Tub Mode" controls function correctly, then follow the calibration instructions. If the tub will not rotate proceed to trouble shooting Chart 3

TROUBLE SHOOTING \ CHART 3 \ "ENGINE MODE"

PROBLEM	CAUSE	REMEDY
Tub will not rotate . Sensor light Not lit.	1. Sensor gap out of adjustment 2. Broken wire on wiring harness. 3. Sensor faulty. 4. Sensor light bulb faulty. 5. Control Box faulty.	1. Readjust gap to 3/32" (the thickness of a nickel). 2. Repair or replace wiring harness. 3. Test and replace sensor as necessary. 4. Replace light bulb. 5. Replace control box.
Tub will not rotate. Sensor light lit.	1. Tub limit knob turned to "O" 2. Manual hydraulic valve set in neutral. 3. Control box faulty	1. Readjust tub limit knob. 2. Engage manual valve. 3. Replace control box.

ELECTRONIC GOVERNOR OPERATION

ELECTRONIC GOVERNOR HARDWARE TEST.

1. Power source 12 volts DC
   Red wire + positive pin A wiring harness
   Black wire - Negative Pin B wiring harness

2. Test output voltage to valve DC
   Red wire + positive pin D wiring harness.
   Black wire - negative pin E. wiring harness.

   Test with power supplied to governor control box and mode switch set to "tub". Grinder does not need to be running. Disconnect the wiring harness at the valve, with a voltmeter set for 12 volts DC, connect the red lead of the voltmeter to the red lead of the wiring harness and black lead to the black wire. Turn the "Tub Limit Knob" until the left "Speed" light (turtle) is on. The voltmeter should read approximately 3 volts. Turn the "Tub Limit Knob" clockwise, as more speed lights, light up the voltage should increase. Turn the knob until the right speed light (Rabbit) is lit. The volt meter should read minimum 9 volts.

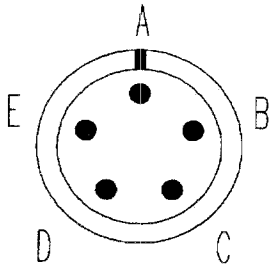
3. Output voltage of sensor AC
   red wire - Pin C wiring harness
   Black wire - Pin B wiring harness.

   Set sensor gap to 3/32" (the thickness of a nickel).
   Remove wiring harness from the control box.
   With the engine at operating temperature and the clutch engaged, throttle the engine up to the desired engine RPM.
   With volt meter set to AC volts connect leads to pins B and C. The volt meter should read 2 to 3 volts AC .

ELECTRO-HYDRAULIC VALVE COIL TEST

This test requires an accurate ohm meter. Disconnect the wiring harness leads at the valve coil. Set the meter to read ohms (Ω). Place one test lead from the meter on each of the two electrical connections of the valve coil. The reading should be from 8-14 ohms. If the reading is not in this range, replace the coil.

VIEW OF WIRING HARNESS CONNECTOR
LOOKING DIRECTLY AT CONNECTOR.



A - 12 VOLTS DC
B - GROUND
C - DIGITAL SENSOR SIGNAL
D - (+) TO VALVE
E - (-) TO VALVE

ELECTRO-HYDRAULIC VALVE OPERATION

MANUAL OVERRIDE

NOTE: If there is an electrical failure with your machine you may still be able to grind. Switch the Electronic governor to "OFF". Remove the rubber end cap and loosen the jam nut on the electro-hydraulic valve. Start the machine and engage the tub drive.

IMPORTANT! - DO NOT ENGAGE CLUTCH AT THIS TIME!

Turn the adjusting stud clockwise until the tub rotates at the desired speed. Lock the jam nut on the adjusting stud and replace the rubber end cap on the valve coil The valve will function only as a manual flow control when it is adjusted in this manner. The grinder will now operate as it would if the Electronic Governor were switched to the "Tub mode". There will be No automatic tub control.

Contact your dealer for future repairs or replacement parts as soon as practical. When the problems are corrected, readjust Electro-Hydraulic valve.

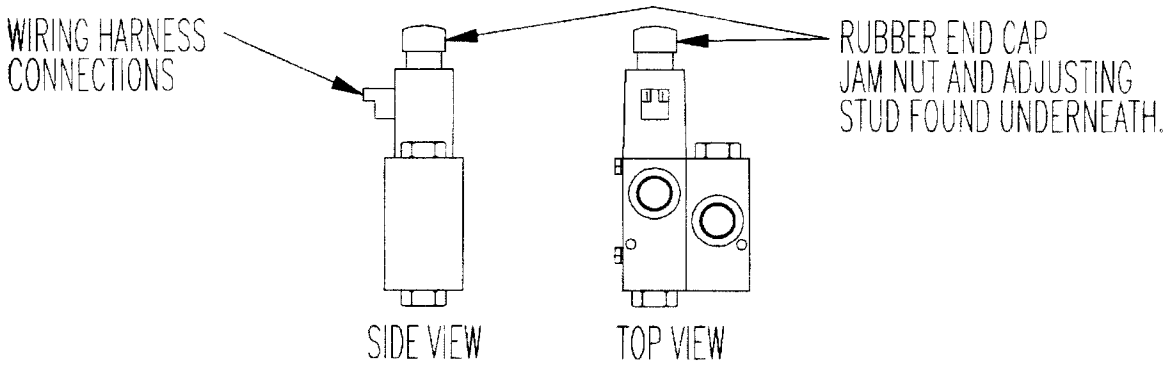
ELECTRO-HYDRAULIC VALVE CALIBRATION

Remove the rubber end cap from the end of the valve coil to find a jam nut and an adjusting stud with a screwdriver slot. Disconnect the wiring harness from the coil Loosen the jam nut. Start the engine and engage the tub drive in the forward direction by pushing the hydraulic tub control lever towards the machine. Throttle the engine up to desired engine RPM. **Do Not engage the clutch!**

IMPORTANT! - stay clear of all moving parts while adjusting the "ELECTRO-HYDRAULIC VALVE". The tub will be rotating during this adjustment.

If the tub is not rotating, turn the adjusting stud clockwise until the tub begins to rotate. When the tub begins to rotate, turn the adjusting stud counter-clockwise until the tub stops. (If the adjusting stud comes all the way out and the tub is still rotating, then the valve is faulty.)

Lock the adjusting stud with the jam nut and replace the rubber cap. Shut down the entire machine. Reconnect the wiring harness to the valve coil.

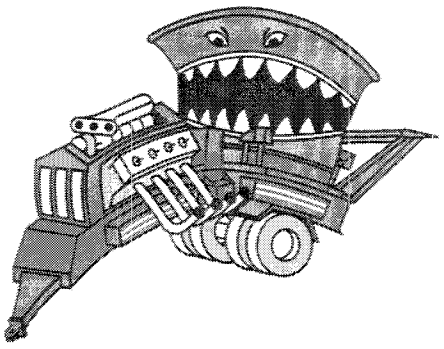


This page left blank intentionally.

DURATECH

HD-12
INDUSTRIAL GRINDER

PARTS BOOK

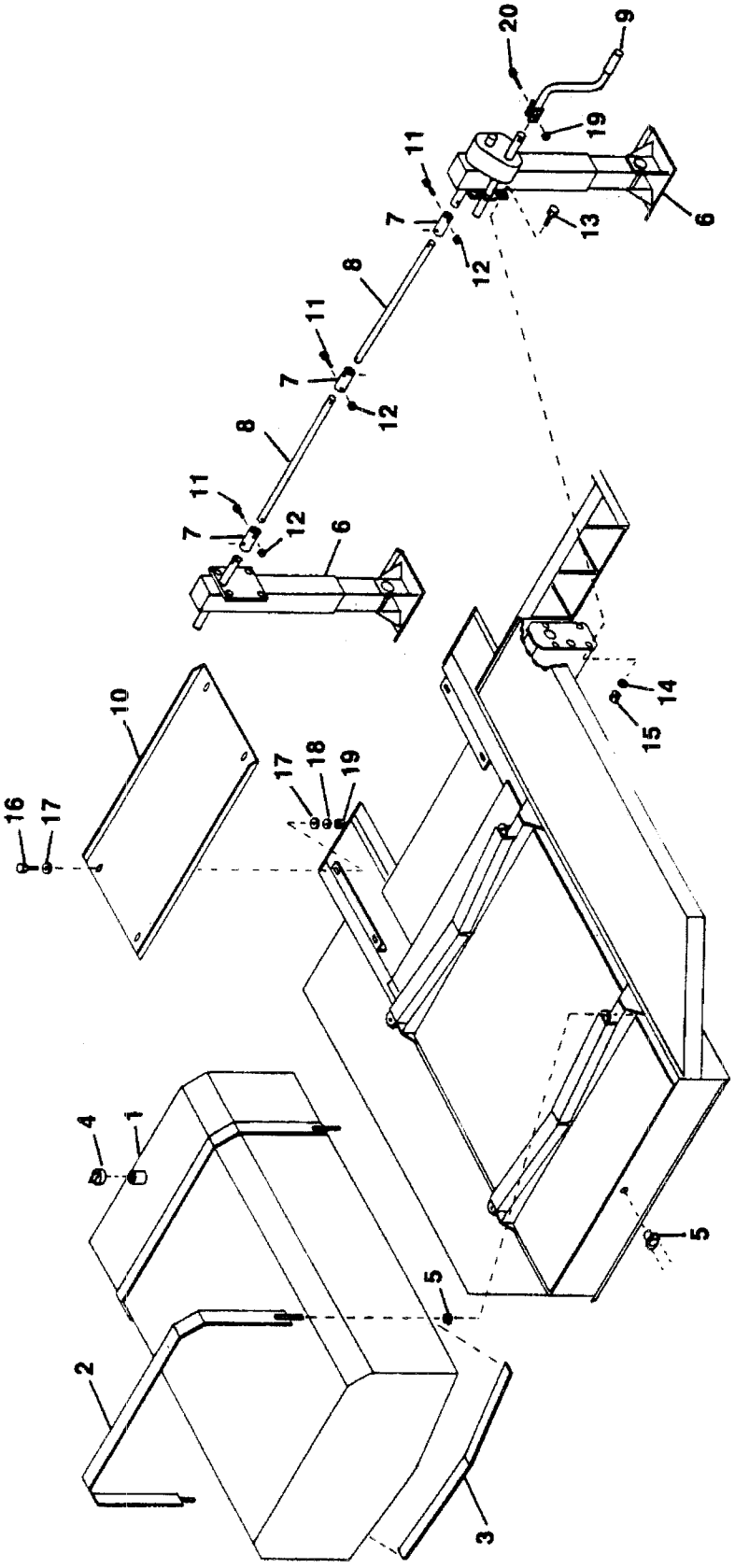


DuraTech Industries International Inc., PO Box 1940, Jamestown, ND 58402-1940
Dec 2004

NOTES

TABLE OF CONTENTS - PARTS ONLY

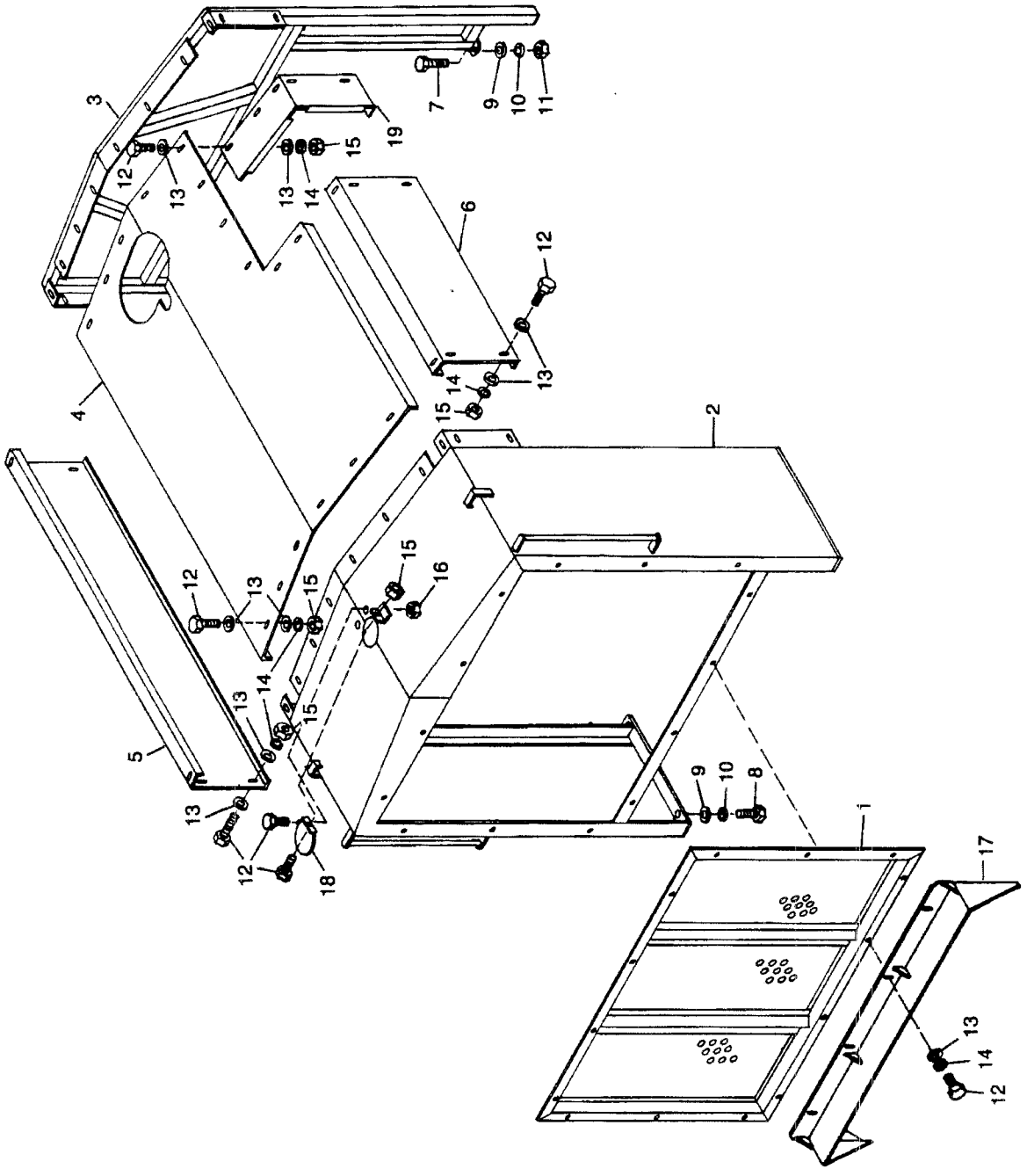
FUEL TANK & JACK



FUEL TANK & JACK

ITEM	PART NO.	QUANITY	DESCRIPTION
1	4700401	1	Fuel Tank
2	4700402	2	Tank Mounting Strap
3	4700403	2	Tank Cushion
4	7500226	1	Fuel Cap
5	5700032	1	Truck Plug 6-Wire Male
6	4702708	1	JACK\25000\2SPD\HD12SER2
6A	4702709	1	JACK\25000\1SPD\HD12SER2
7	4700404	3	Cross Shaft Couplers
8	4700405	2	Cross Shaft
9	5800609	1	Jack Handle 25000 Lg
10	4700406	1	Walkway
11	4800029	6	3/8" x 2-1/2" Bolt
12	4900023	6	3/8" Top Lock Nut
13	4800010	8	5/8" x 2" Bolt
14	5000003	8	5/8" Lock Washer
15	4900005	12	5/8" Nut
16	4800098	4	3/8" x 1-1/4" Bolt
17	5000001	8	3/8" Flat Washer
18	5000019	4	3/8" Lock Washer
19	4900002	6	3/8" Nut
20	4800029	1	3/8" x 2-1/2" Bolt
22	7500527		King Pin (Not Shown) HO1PKPT809F

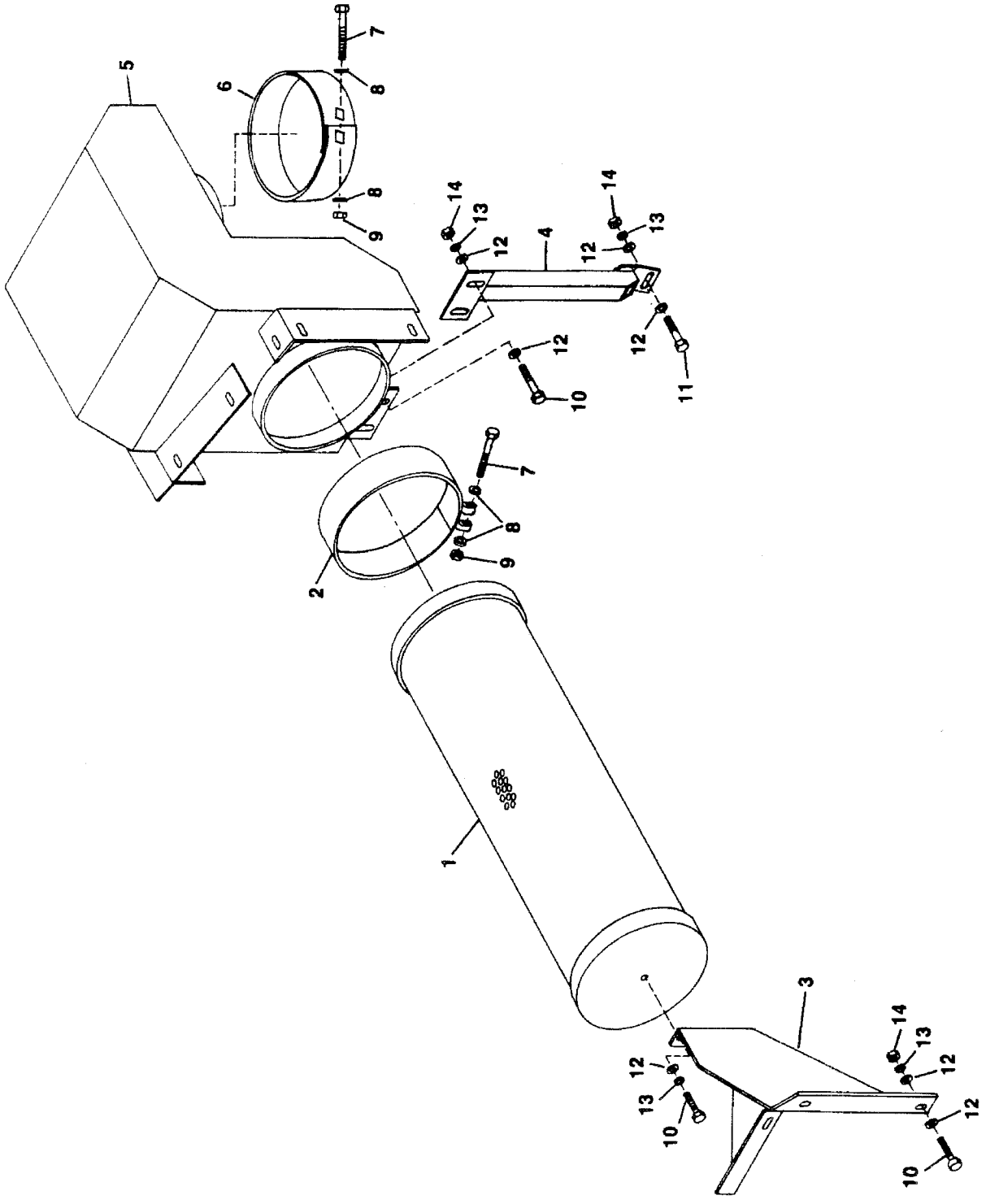
ENGINE & RADIATOR COVER



ENGINE & RADIATOR COVER

ITEM	PART NO.	QUANITY	DESCRIPTION
1	4700407	1	Grill
2	4700408	1	Cowling
3	4700537	1	Hand Rail
4	4700410	1	Hood
5	4700411	1	Hood Side Right Hand
6	4700412	1	Hood Side Left Hand
7	4800018	4	1/2" x 1-1/4" Bolt
8	4800082	6	1/2" x 1-1/2" Bolt
9	5000004	10	1/2" Flat Washer
10	5000006	10	1/2" Lock Washer
11	4900001	4	1/2" Nut
12	4800003	48	3/8" x 1" Bolt
13	5000001	76	3/8" Flat Washer
14	5000019	46	3/8" Lock Washer
15	4900002	47	3/8" Nut
16	4900023	1	3/8" Top Lock Nut
17	4700538	1	Radiator Front Shield #17
18	4700539	1	Radiator Cowling Cap #1
19	4700540	1	Hood Corner #5
	4701231		Walkway Drive Line Front (Not Shown)
	4701232		Walkway Drive Line Rear (Not Shown)
	7500304		Throttle Cable (Cat Engine) 3408

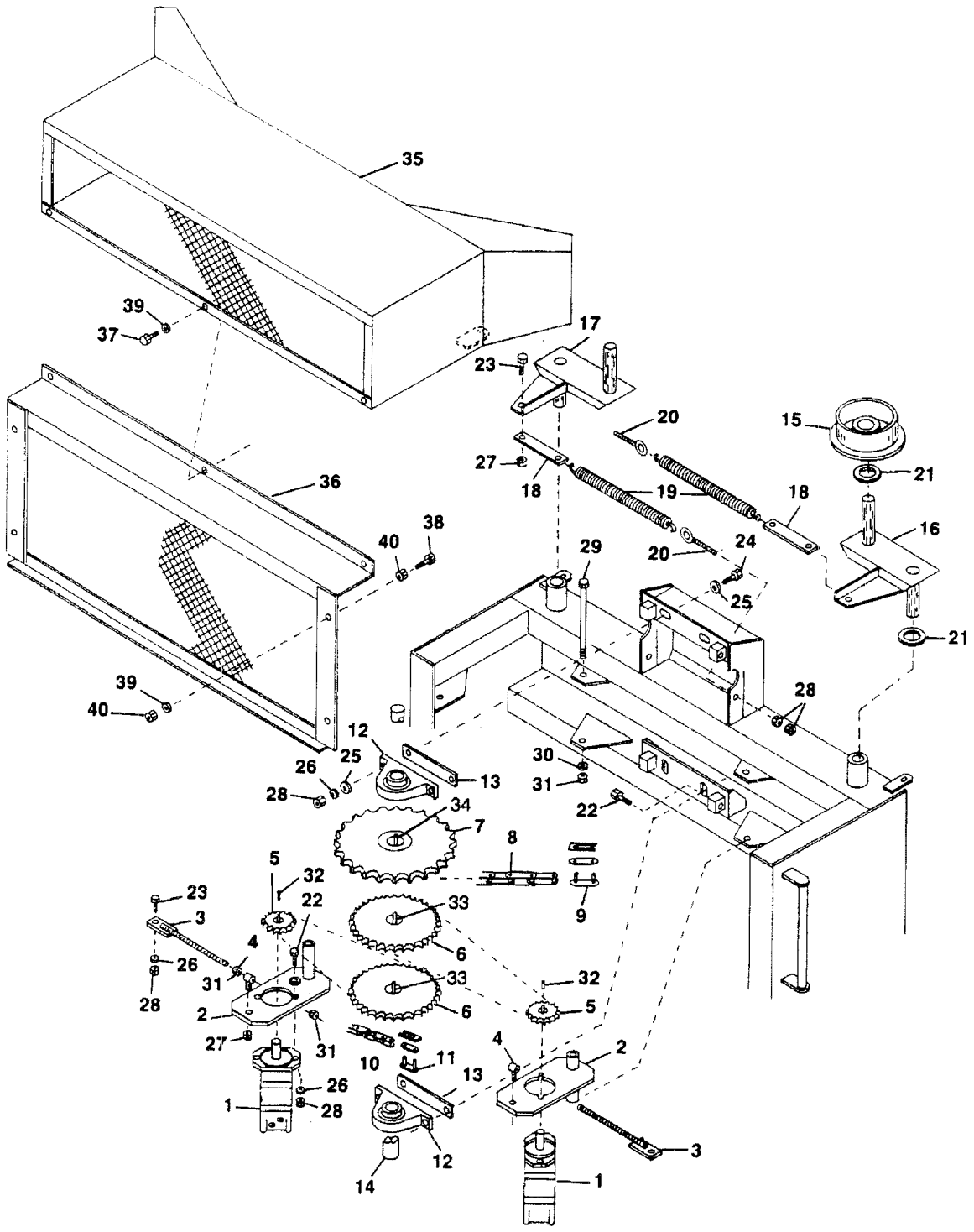
AIR INTAKE SCREEN



AIR INTAKE SCREEN

ITEM	PART NO.	QUANITY	DESCRIPTION
1	4700306	1	Air Intake Screen
2	4700307	1	Intake Screen Clamp
3	4700413	1	Screen Support Bracket
4	4700414	1	Screen Support Bracket
5	4700415	1	Elbow
5A	4700541	1	Elbow Turbo II #57
6	4700416	1	Elbow Clamp
6A	4700542	1	Elbow Clamp Turbo II #1
7	4800219	2	5/16" x 4" Bolt
8	5000023	4	5/16" Flat Washer
9	4900099	2	5/16" Lock Nut
10	4800003	6	3/8" x 1" Bolt
11	4800098	1	3/8" x 1/1/4" Bolt
12	5000001	13	3/8" Flat Washer
13	5000019	7	3/8 Lock Washer
14	4900002	6	3/8" Nut

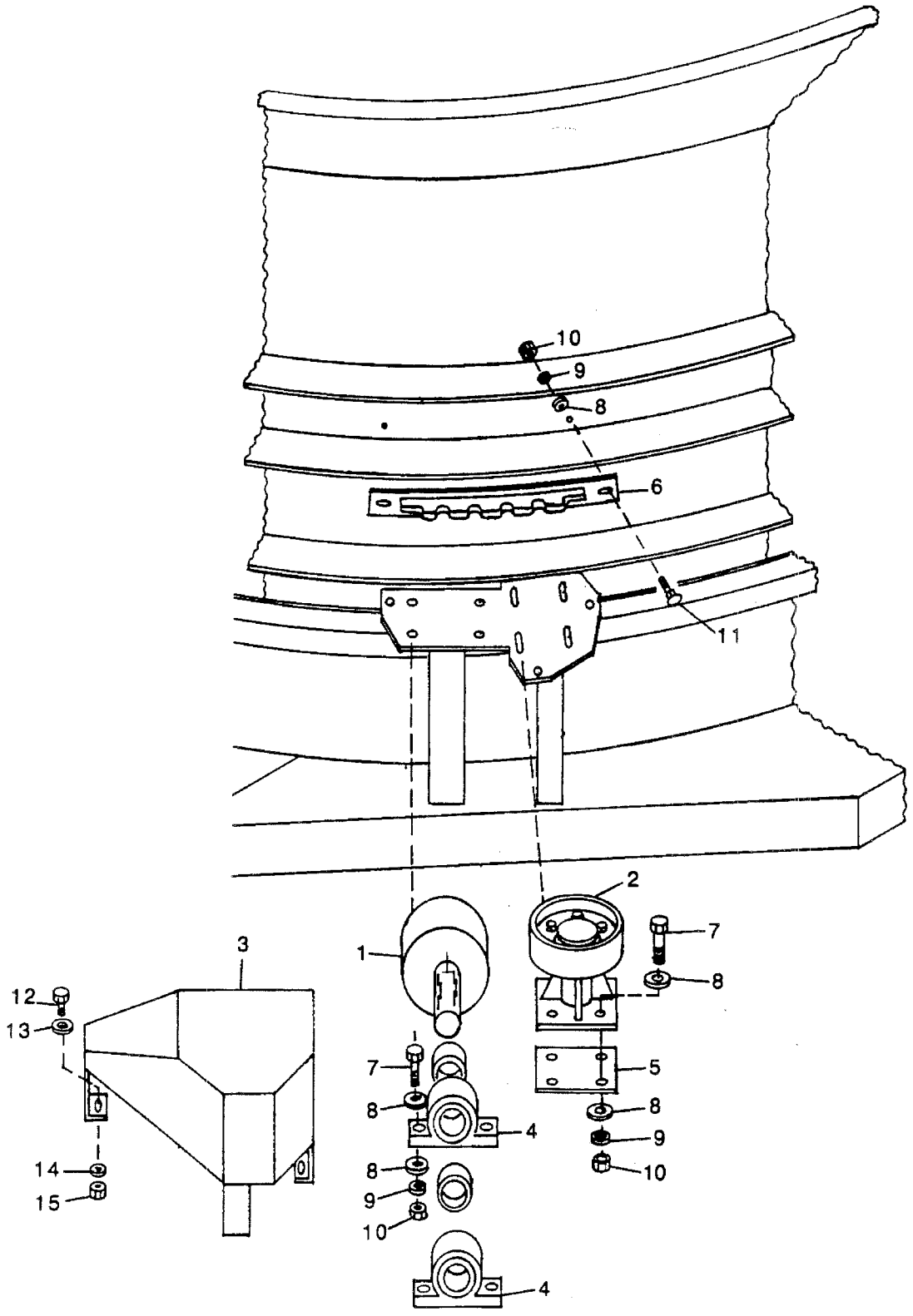
TUB DECK DRIVE



TUB DECK DRIVE

ITEM	PART NO.	QUANITY	DESCRIPTION
1	3900010	2	Orbit Motor
2	4700329	2	Orbit Motor Bracket
3	4700330	2	Orbit Motor Tightening Rod
4	4700331	2	Orbit Motor Tightening Rod Mount
5	1000152	2	Sprocket\B\80\12\1-1/4\5/16KW
	1000137	2	Sprocket\B\80\10\1-1/4\5/16KW
6	1000122	2	80B 30H 1-1/2" Bore Sprocket
7	1000135	1	100B 30H 1-1/2" Bore Sprocket 3/8KW
8	1100156	1	2100H Chain 159 Links
9	1100157	1	2100H Chain Connector Link
10	1100161	2	80H Chain 41 Links
11	1100162	2	80 Chain Connector link
12	2000501	2	Bearing 1-1/2" Pillow Block
13	4700332	6	Shim Bearing
14	4700471	1	Tub Drive Shaft 1-1/2" x 20-3/4"
15	1200007	2	No. 6 Roller
16	4700324	1	Swing Idler Arm Left Hand
17	4700323	1	Swing Idler Arm Right Hand
18	4700326	2	Spring Link
19	6100001	2	Spring
20	4500197	2	Spring Tension Bolt
21	5000008	16	1-1/2" Narrow Rim Bushing
22	4800114	6	1/2" x 2" Bolt
23	4800082	4	1/2" x 1-1/2" Bolt
24	4800251	4	1/2" x 2-1/2" Bolt
25	5000004	12	1/2" Flat Washer
26	5000006	10	1/2" Lock Washer
27	4900014	4	1/2" Lock Nut
28	4900001	14	1/2" Nut
29	4800261	2	5/8" x 8-1/2" Bolt
30	5000003	2	5/8" Lock Washer
31	4900005	6	5/8" Nut
32	6200022	2	5/16" x 1-1/2" Sq. Key Hardened
33	6200021	2	3/8" x 1-1/2" Sq. Key Hardened
34	6200020	1	3/8" x 2-1.4" Sq. Key Hardened
35	4700417	1	Upper Tub Drive Shield
36	4700418	1	Lower Tub Drive Shield
37	4800098	3	3/8" x 1-1/4" Bolt
38	4800034	6	3/8" x 1-1/2" Bolt
39	5000019	9	3/8" Lock Washer
40	4900002	10	3/8" Nut
41	1100158		2100H Half Link

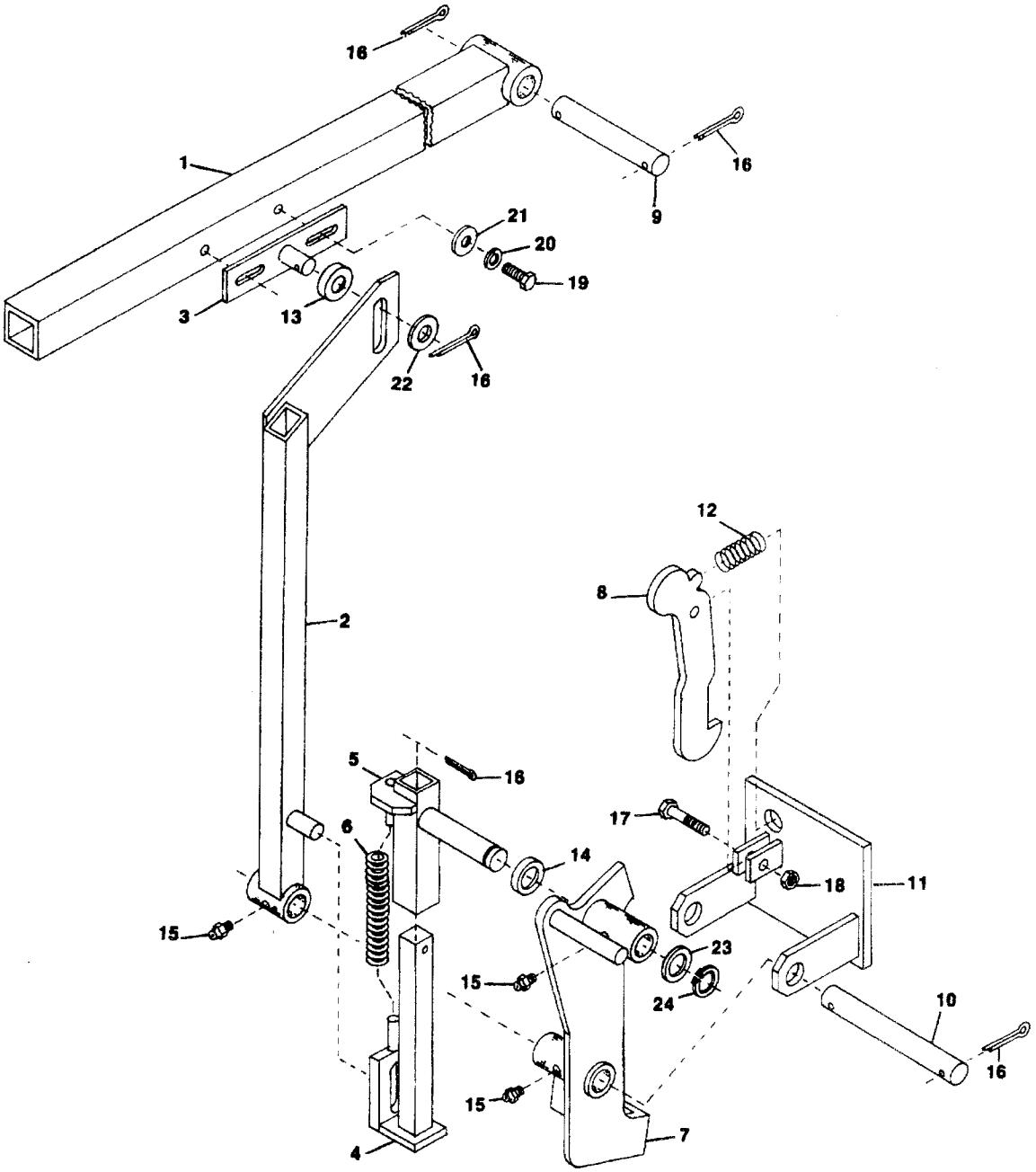
TUB ROLLERS



TUB ROLLERS

ITEM	PART NO.	QUANITY	DESCRIPTION
1	1200013	8	Tub Roller 1-1/2" (Without Flange)
2	4700886	4	Pressure Roller (Refer to Page 61)
3	4700236	6	Roller Stand
4	2000501	16	Bearing 1-1/2" Pillow Block
5	4700328		Pressure Roller Shim (As Needed)
6	4700400	4	Tub Drive Teeth HD-12
7	4800114	48	1/2" x 2" Bolt
8	5000004	104	1/2" Flat Washer
9	5000006	56	1/2" Lock Washer
10	4900001	56	1/2" Nut
11	4800061	16	1/2" x 1-1/2" Grade 5 Carriage Bolt
12	4800098	18	3/8" x 1-1/4" Bolt
13	5000001	18	3/8" Flat Washer
14	5000019	18	3/8" Lock Washer
15	4900002	18	3/8" Nut
	4700665	8	Tub Pedal
	4701173	1	Tub Complete
	4701180	8	Tub Seam Reinf\13-1/2" Long
	4701959	1	Ring\TubFlange\Top

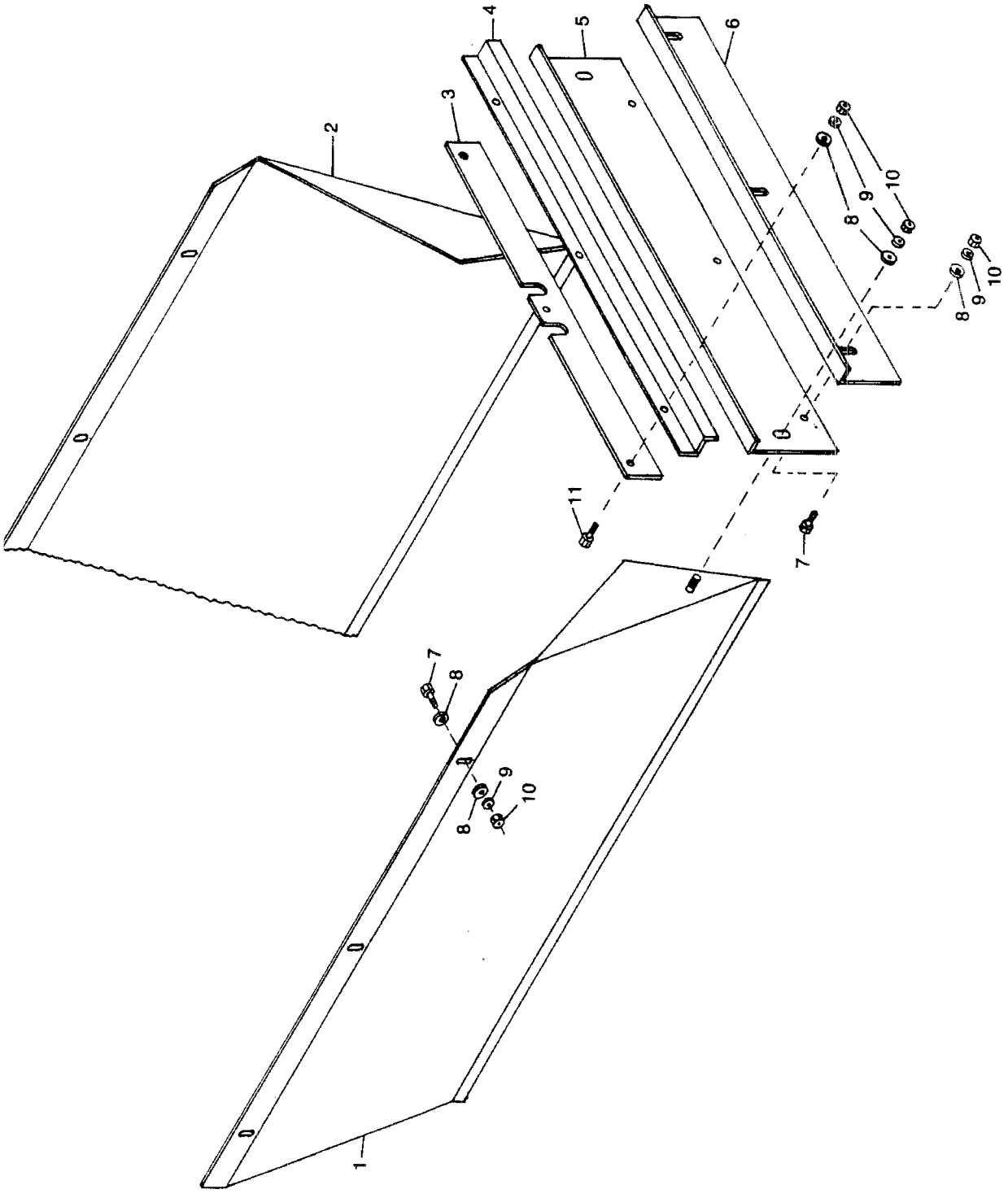
TUB SAFETY BAR



TUB SAFETY BAR

ITEM	PART NO.	QUANITY	DESCRIPTION
1	4700420	1	Tub Safety Bar
2	4700421	1	Kickout Bar
3	4700422	1	Adjustment Plate
4	4700423	1	Spring Slide Base
5	4700424	1	Spring Slide
6	6100027	1	Spring Compression
7	4700425	1	Safety Latch Lever
8	4700426	1	Kickout Plate
9	4700427	1	1" x 5-3/4" Pin Safety Bar
10	4700428	1	1" x 7-1/2" Pin Safety Latch
11	4700429	1	Latch Assembly Base Plate
12	6100031	1	Spring
13	4700430	1	Safety Bar Spacer Ring
14	4700431	1	Latch Spacer Ring
15	3800082	3	1/4" N.F. Grease Fitting
16	4800157	6	3/16" x 2" Cotter Pin
17	4800082	1	1/2" x 1-1/2" Bolt
18	4900014	1	1/2" Lock Nut
19	4800003	2	3/8" x 1" Bolt
20	5000019	2	3/8" Lock Washer
21	5000001	2	3/8" Flat Washer
22	5000030	1	3/4" Flat Washer \2" OD X3/4"IDx1/4" Thick
23	5000040	1	1" Machine Washer
24	4800904	1	1" ID Snap Ring

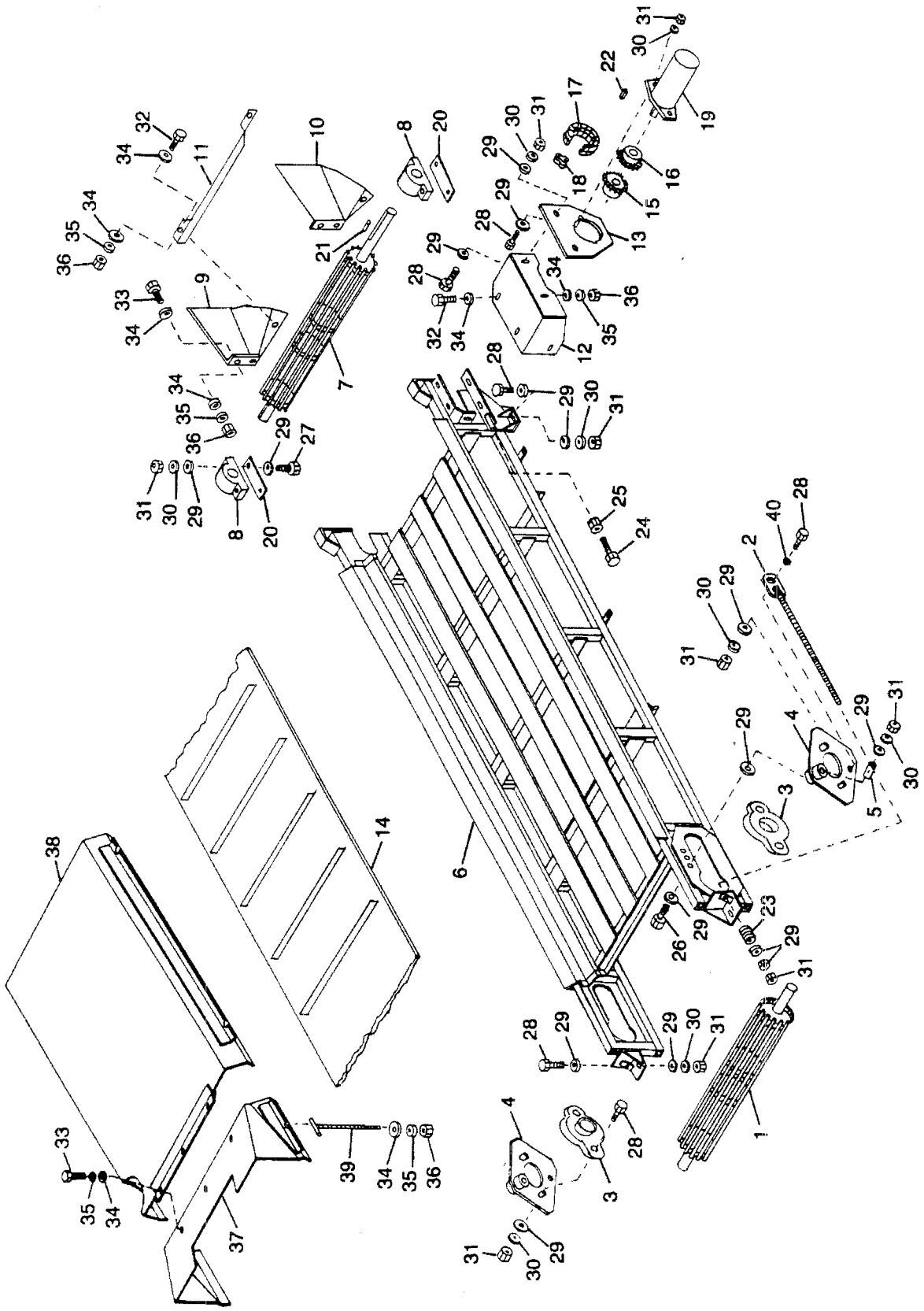
CONVEYOR PANELS



CONVEYOR PANELS

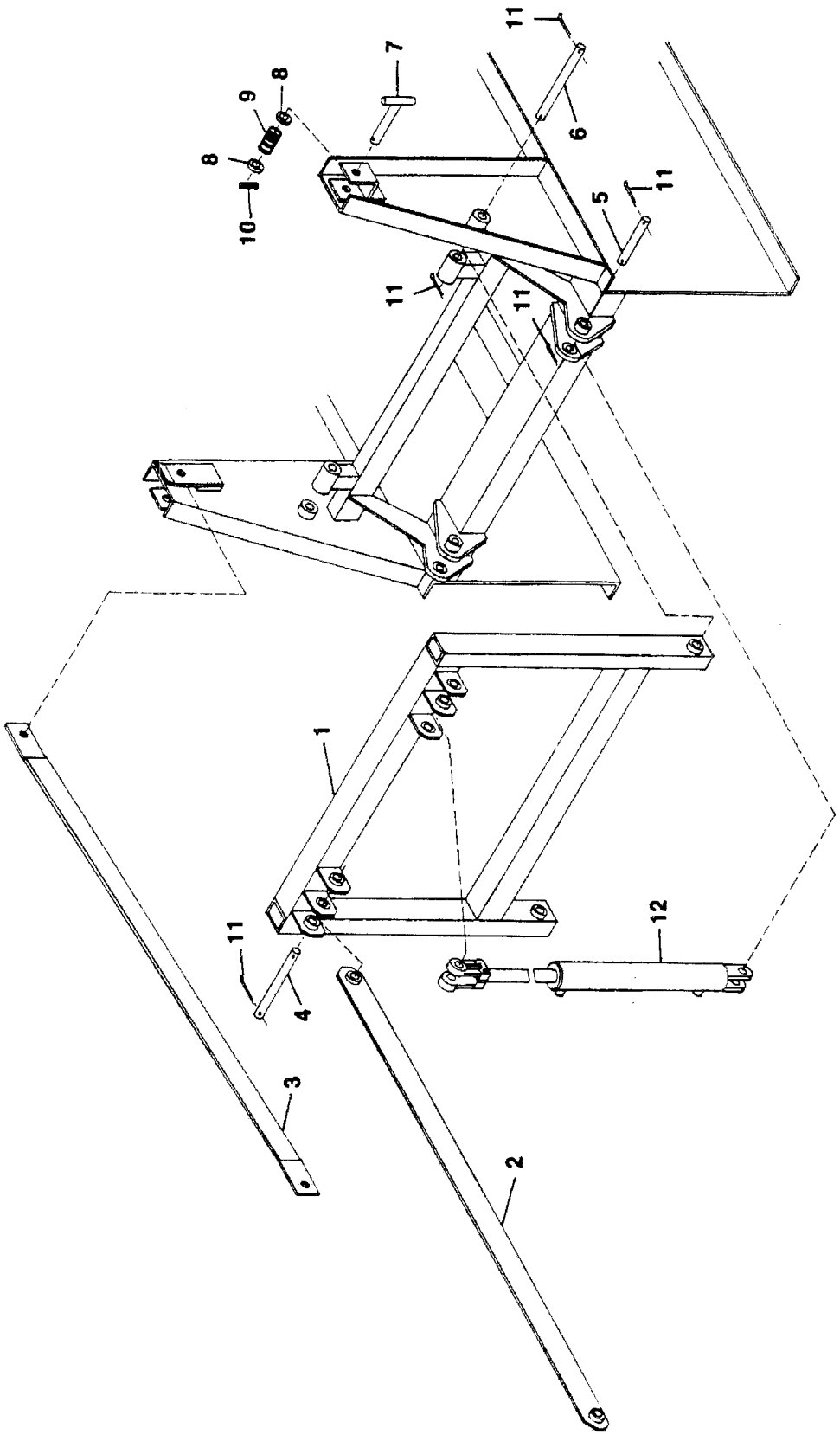
ITEM	PART NO.	QUANITY	DESCRIPTION
1	4700543	1	Conveyor Shield RH Panel
2	4700544	1	Conveyor Shield LH Panel
3	4700545	1	Conveyor Shield Plate
4	4700437	1	Retainer
5	4700438	1	Front Closure
6	4700342	1	Adjustable Plate
7	4800003	9	3/8" x 1" Bolt
8	5000001	20	3/8" Flat Washer
9	5000019	14	3/8" Lock Washer
10	4900002	14	3/8" Nut
11	4800098	3	3/8" x 1-1/4" Bolt
	4702055		Seal\Box\Cyl\Rear\Rh\Hd12
	4702056		Seal\Box\Cyl\Rear\Lh\Hd12

BELLY CONVEYOR



ITEM	PART NO.	QUANITY	DESCRIPTION
1	4700064	1	Idler Roller,1-1/4" Shaft
2	4700525	2	Adjustable Rod
3	2000301	2	Flange Bearing 1-1/4" - 2 Hole
4	4700526	2	Bearing Bracket
5	4700532	2	Bearing Bracket Bushing\1"OD x.51"ID x1-3/16" Long
6	4700549	1	Belly Conveyor Frame
7	4700069	1	Drive Roller,1-1/2" Shaft
8	2000501	2	Pillow Block Bearing, 1-1/2"
9	4700070	1	Deflector, Right Hand Belly Conveyor
10	4700071	1	Deflector, Left Hand Belly Conveyor
11	4700344	1	Brace Deflector, Bottom
12	4700529	1	Orbit Motor Mount
13	4700530	1	Orbit Motor Mount Plate
14	1700040	1	Belly Par Belt, 30" x 276"
15	1000081	1	Shaft Sprocket - 60B-18, 1-1/2" Bore, 3/8 KW
16	1000054	1	Motor Sprocket - 60B-18, 1-1/4" Bore,5/16"KW
17	1100066	1	Coupler Chain 60-17-CL Double
18	1100064	1	Connector Link 60-CL Double
19	3900013	1	Orbit Motor
20	4700332	2	Bearing Shim
21	6200008	1	3/8" Sq. Key, 2" LG.
22	6200004	1	5/16" Sq. Key, 1-1/2" LG.
23	6100027	2	Spring Compression
24	4800096	2	5/8" x 6" Adjustable Bolt
25	4900005	2	5/8" Nut
26	4800068	2	1/2" x 3" Bolt
27	4800070	4	1/2" x 2-1/2" Bolt
28	4800082	14	1/2" x 1-1/2" Bolt
29	5000004	36	1/2" Flat Washer
30	5000006	20	1/2" Lock Washer
31	4900001	24	1/2" Nut
32	4800098	5	3/8" x 1-1/4" Bolt
33	4800003	7	3/8" x 1" Bolt
34	5000001	25	3/8" Flat Washer
35	5000019	16	3/8" Lock Washer
36	4900002	13	3/8" Nut
37	4700552	1	Belly Conveyor Cover (Front)
38	4700553	1	Belly Conveyor Cover (Rear)
39	4700346	6	Cover Hold Down
40	4700533	2	Adjustment Rod Bushing

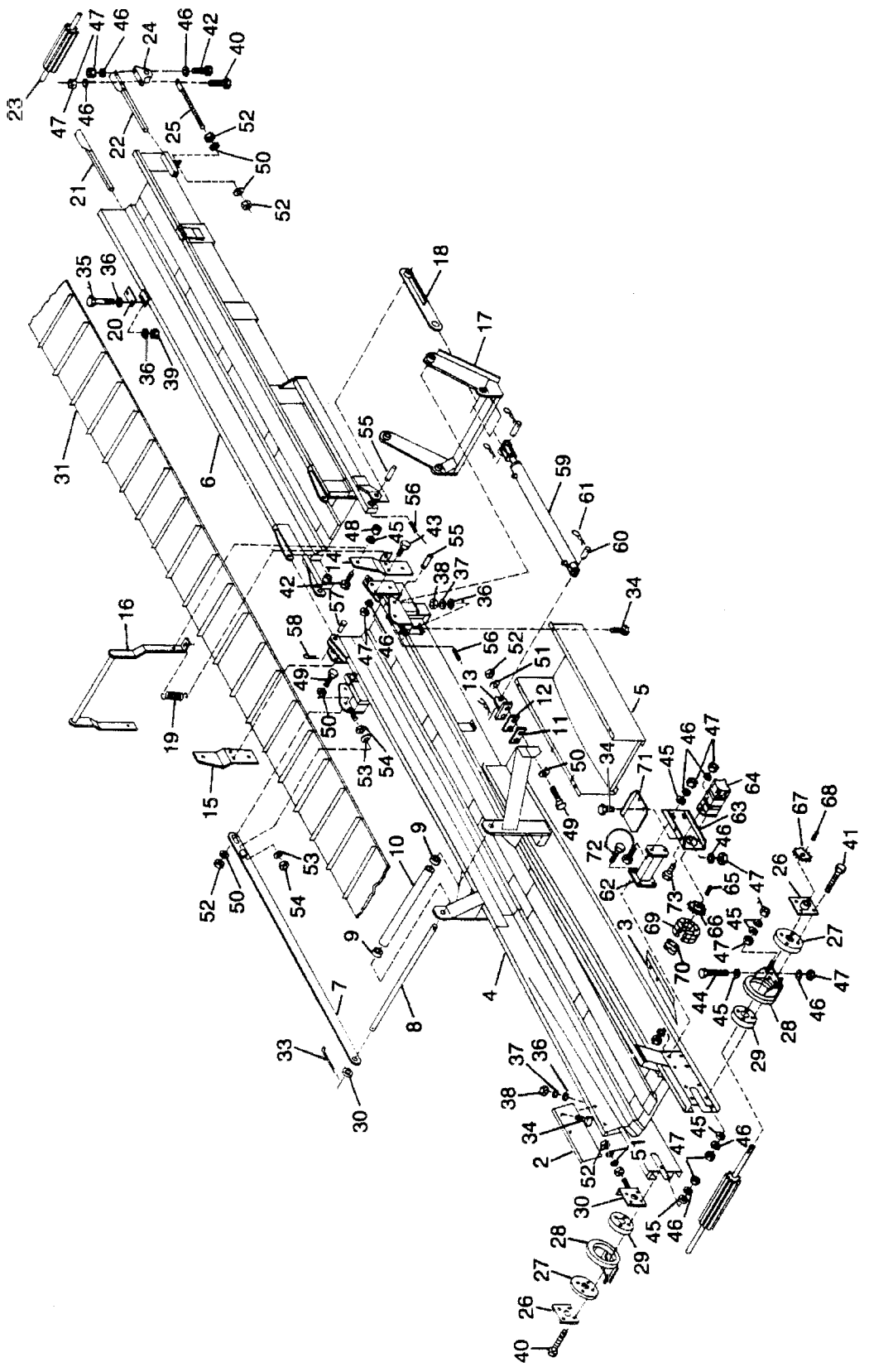
CONVEYOR LIFT FRAME



CONVEYOR LIFT FRAME

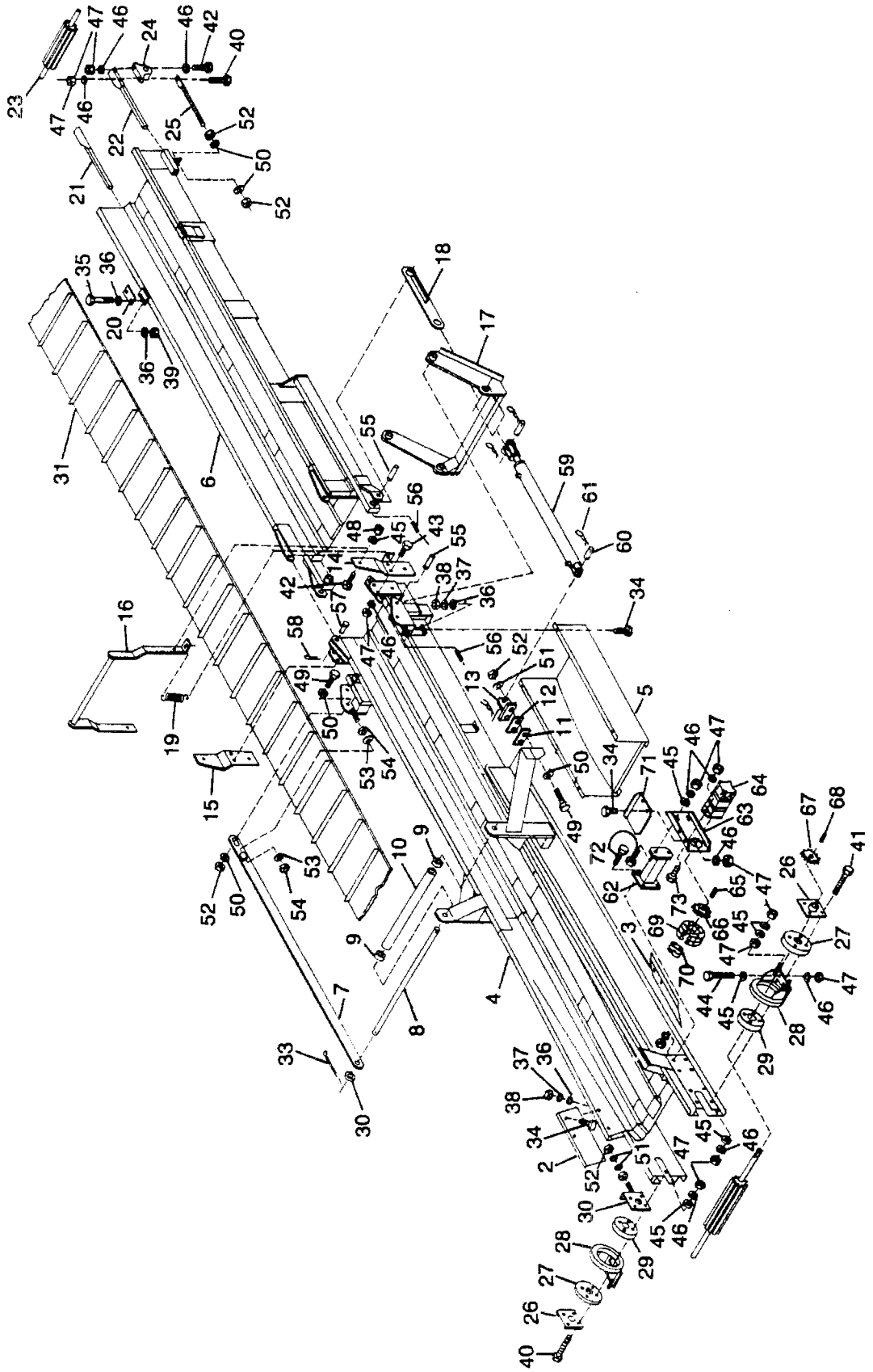
ITEM	PART NO.	QUANITY	DESCRIPTION
1	4700474	1	Conveyor Lift Fame
2	4700475	2	Tower to Conveyor Lift Bar
3	4700476	2	Transport Bar
4	4700477	2	1" x 9-1/2" Pin
5	4700478	2	1" x 6-1/4" Pin
6	4700479	2	1" x 10-1/2" Pin
7	4700840	2	Transport Bar Lock
8	5000040	4	1" Machine Washer
9	6100048	2	Spring 2-1/2"x1-1/16"x.80 Wire
10	4800221	2	1/4" x 2" Roll Pin
11	4800043	12	1/4" x 2-1/2" Cotter Pin
12	4100075	2	Cylinder 3 X 16, Ram Welded

CONVEYOR



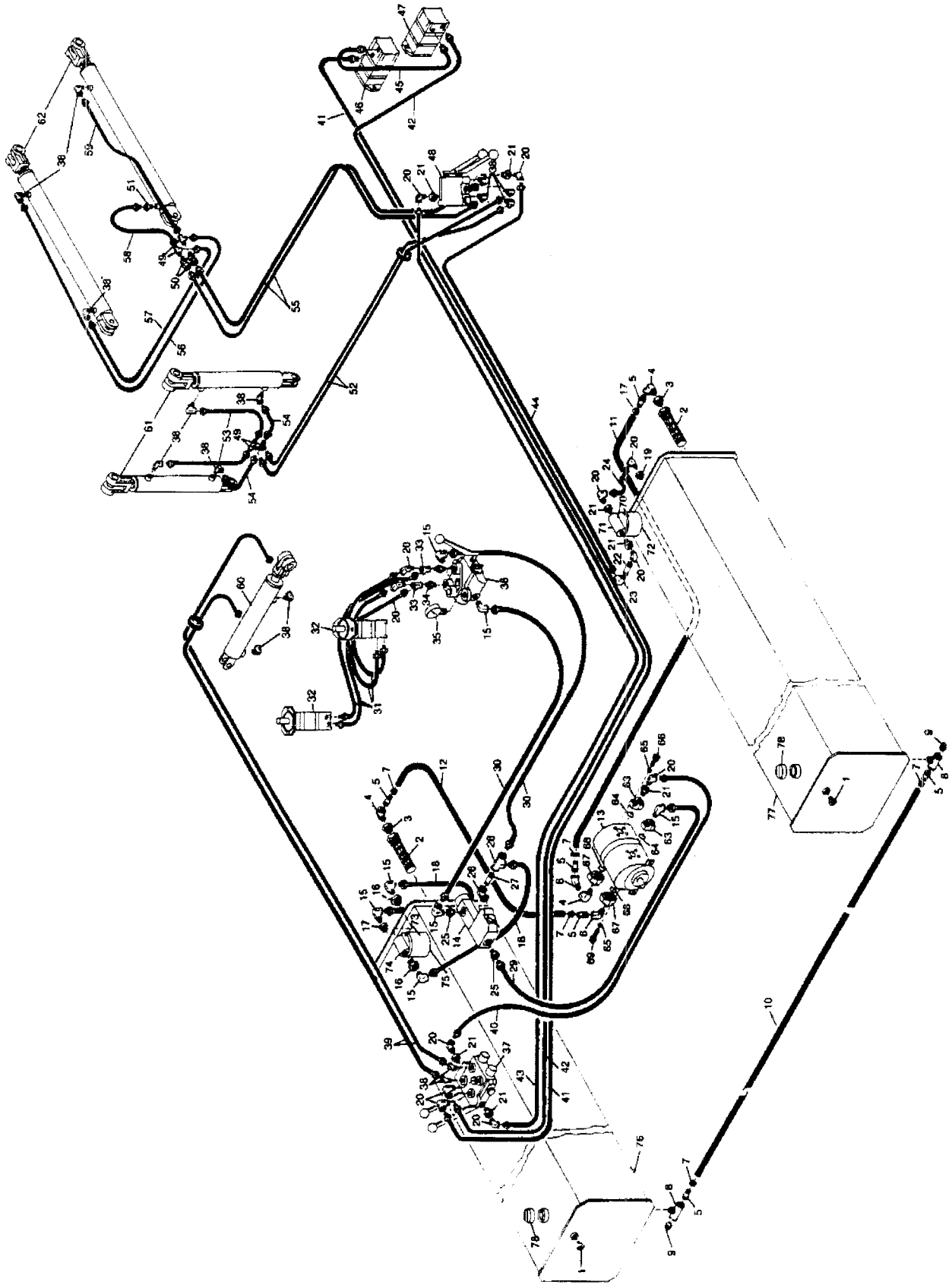
ITEM	PART NO.	QUANITY	DESCRIPTION
1	4700448	1	Drive Roller
2	4700075	1	Deflector Right Hand
3	4700076	1	Deflector Left Hand
4	4700449	1	Bottom Conveyor Frame
5	4700081	1	Belt Guide
6	4700450	1	Top Conveyor Frame
7	4700451	2	Conveyor Support Bar
8	4700452	1	Conveyor Lift Tower Shaft
9	2000809	2	1" Shaft Collar
10	3700185	1	1" x 27-7/8" Suction Hose
11	4700453	4	Hyd. Cylinder Shim 14 Ga.
12	4700454	4	Hyd. Cylinder Shim 10 Ga.
13	4700455	2	Hyd. Cylinder Anchor
14	4700456	1	Conveyor Belt Holder Mount LH
15	4700457	1	Conveyor Belt Holder Mount RH
16	4700458	1	Belt Holder
17	4700459	1	Control Arm
18	4700460	2	Lift Link
19	6100049	1	Spring 1" OD x 5-3/4"
20	4700461	2	Transport Lock
21	4700462	1	Bearing Mount RH
22	4700463	1	Bearing Mount LH
23	4700079	1	Idler Roller
24	2000502	2	Bearing 1-1/4" Pillow Block
25	4700077	2	Adjusting Bolt
26	2000303	2	Bearing 1-1/2" 4-Bolt Flange
27	4700464	2	Conveyor Hinge Retainer
28	4700465	2	Conveyor Hinge Mount
29	4700466	2	Conveyor Hinge Plate
30	4700467	1	Adjusting Bracket
31	1700041	1	Belt 18" x 52"
32	5000040	2	1" Machine Washer
33	4800043	2	1/4" x 2-1/2" Cotter Pin
34	4800003	10	3/8" x 1" Bolt
35	4800156	4	3/8" x 3" Bolt
36	5000001	16	3/8" Flat Washer
37	5000019	10	3/8" Lock Washer
38	4900002	10	3/8" Nut
39	4900023	4	3/8" Lock Nut
40	4800070	6	1/2" x 2-1/2" Bolt
41	4800251	4	1/2" x 2-1/4" Bolt
42	4800178	4	1/2" x 1-3/4" Bolt
43	4800018	6	1/2" x 1-1/4" Bolt
44	4800141	4	1/2" x 4-1/2" Bolt
45	5000004	28	1/2" Flat Washer

CONVEYOR



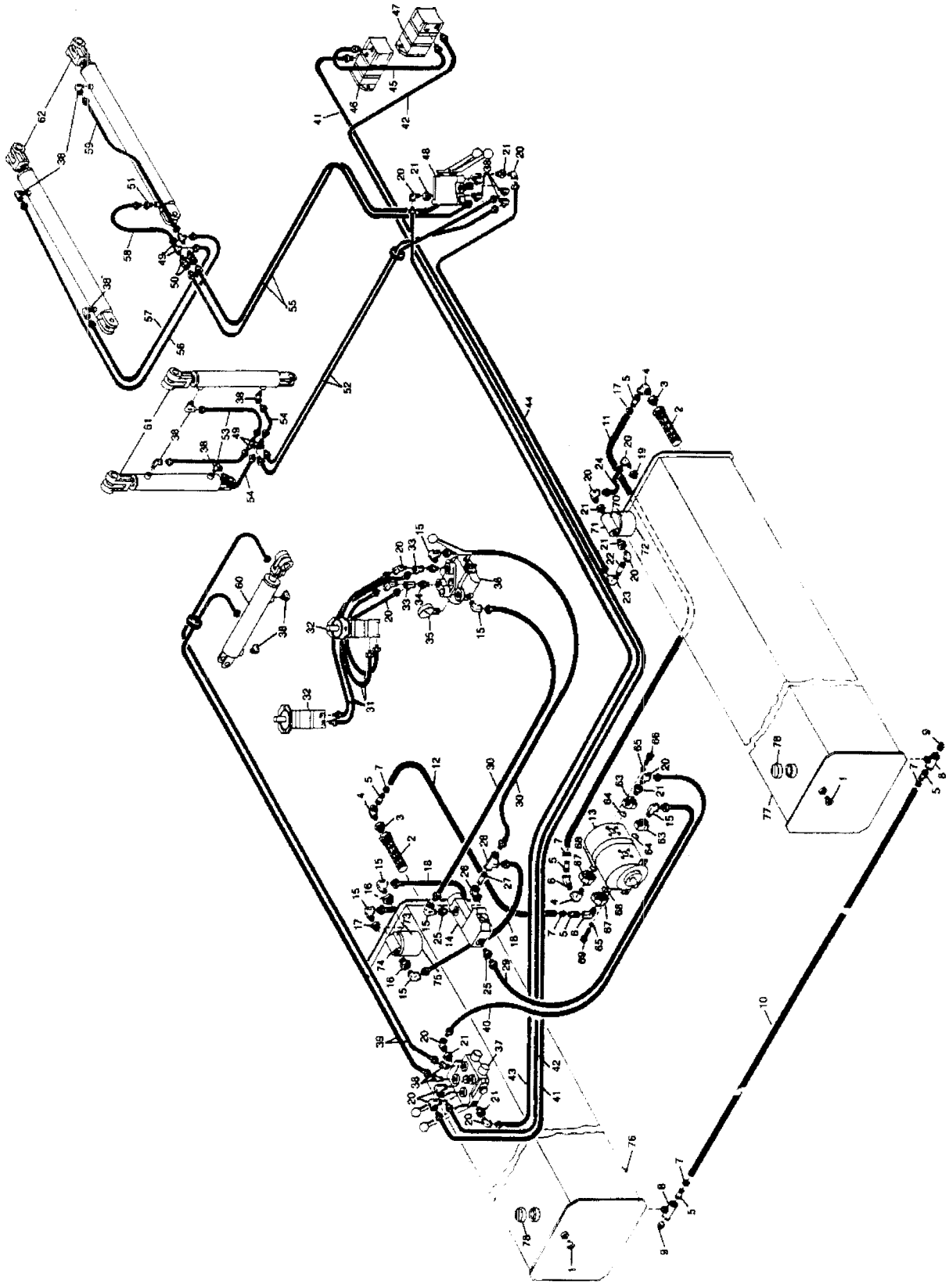
ITEM	PART NO.	QUANITY	DESCRIPTION
46	5000006	28	1/2" Lock Washer
47	4900001	36	1/2" Nut
48	4900014	2	1/2" Nut
49	4800010	6	5/8" x 2" Bolt
50	5000002	14	5/8" Flat Washer
51	5000003	4	5/8" Lock Washer
52	4900005	12	5/8" Nut
53	5000005	4	3/4" Flat Washer
54	4900004	4	3/4" Nut
55	4700472	4	1" x 5-1/4" Pin
56	4800267	4	1/4" x 1-3/4" Pin
57	4800035	2	3/4" x 2" Pin
58	4800050	2	3/16" x 1-1/2" Cotter Pin
59	4100086	2	Cylinder 3 x 30, Ram
60	4700473	4	1" x 3" Pin
61	4800056	8	Hair Pin, 3/16 x 3 #6
62	4700556	1	Orbit Motor Mount Bracket, 9-1/4" Long
63	4700557	4	Orbit Motor Mount, 13" Long
64	3900014	1	Orbit Motor, 9.6 20000 1-1/4" SH
65	6200004	1	5/16" Sq. Key 1-1/2" Bore
66	1000054	1	60B 18 Sprocket 1-1/4" Bore, 5/16" KW
67	1000081	1	60B 18 Sprocket 1-1/2" Bore, 3/8" KW
68	6200008	1	3/8" Sq. Key 2" Long
69	1100066	1	60-2-17 Links Chain
70	1100064	1	60-2 Connector Link
71	4700558	1	Orbit Motor Shield, D.C.
72	4800082	6	1/2" x 1-1/2" Bolt
73	4800114	2	1/2" x 2" Bolt
	4700698		Discharge Conveyor Assembly Less Orbit Motor

HYDRAULICS



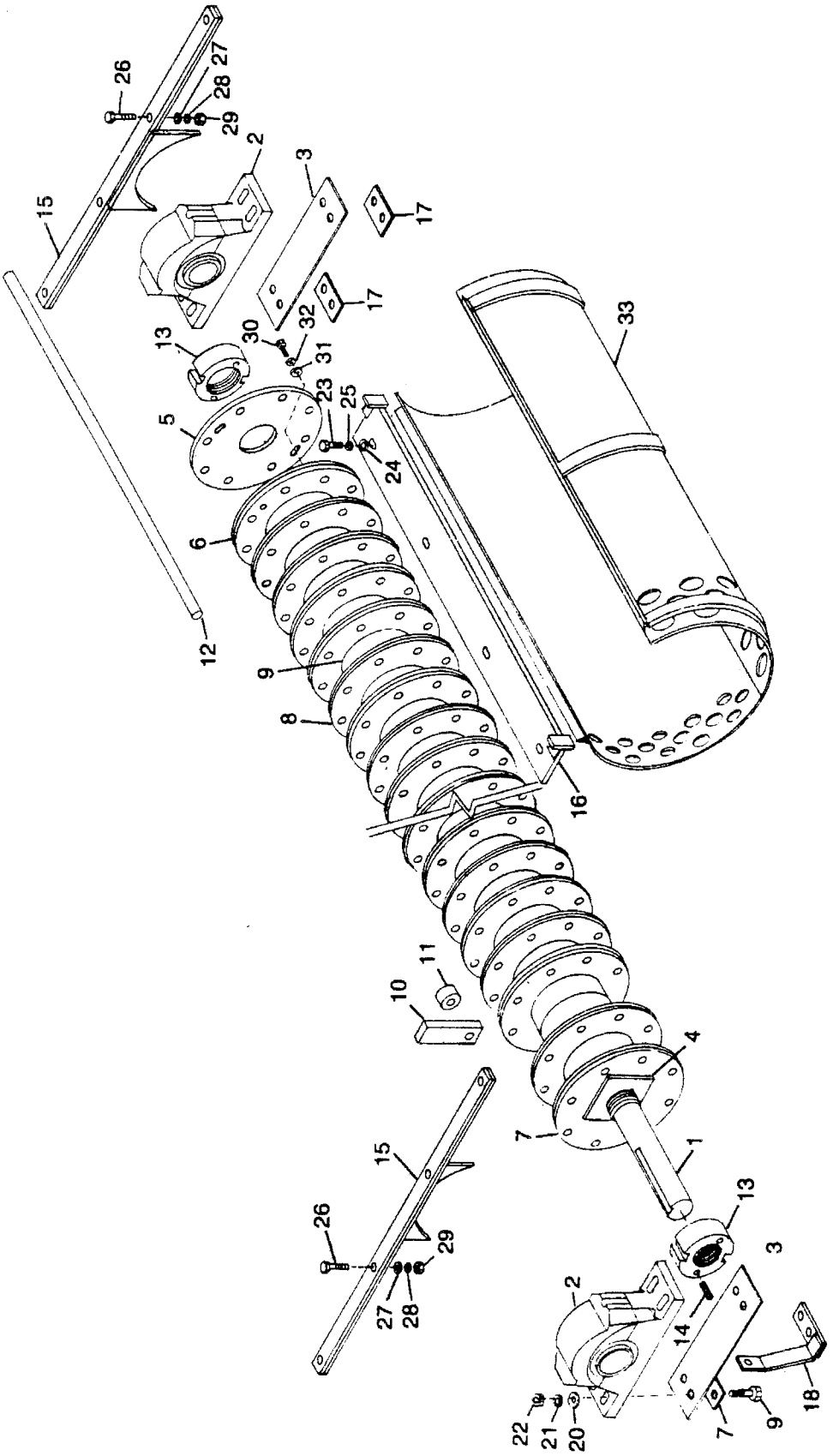
ITEM	PART NO.	QUANITY	DESCRIPTION
1	3800137	2	3/4" Site Glass
2	4400007	2	Strainer
3	3800022	2	FTG\1-1/4MPX1FP\BUSH\LW
4	3800021	3	FTG\1MPX1FP\90°\ST.ELL
5	3800056	6	1" King Nipple
6	3800006	2	1" 45° St. Elbow
7	3800143	6	1-1/2" Hose Clamp T-Bolt
8	3800152	2	1" St. Tee
9	3800149	2	1" Plug
10	3700213	1	1" x 68" Suction Hose
11	3800214	1	1" x 75" Suction Hose
12	3700211	1	1" x 87" Suction Hose
13	4200007	1	Pump, 20/15 Dowty
	4200069		Pump\Hyd\20/15\LH\Dbl\Webster Cat 3408
	4200030		Pump\Hyd\20/15\RH\DblL\ Webster Cat 3406
14	4300030	1	Electric Valve CV93
15	3800129	7	3/4" 90° St. Elbow
16	3800155	2	1-1/4" to 3/4" Bushing
17	3800131	1	1" to 3/4" Bushing
18	3700188	2	3/4" x 36" Hose SW-SW
19	3800156	1	1" to 1/2" Bushing
20	3800008	12	1/2" 90° St. Elbow
21	3800010	7	FTG\,3/4MPXx1/2FP\Bush
22	3800045	1	1/2" x 2" Nipple
23	3800165	1	1/2" Pipe Elbow 90 D
24	3700215	1	1/2"x 17" Hose\SW-SW
25	3800148	2	Ftg\1-1/16MORx3/4FP\ADPT
26	3800145	1	Ftg\1-1/16MORx3/4FP\90D\ST;ELL
27	3800015	1	3/4" to 2" Nipple
28	3800017	1	Ftg\3/4FP\Tee
29	3700216	1	3/4" x 67" Hose SW-SW
30	3700217	2	3/4" x 58" Hose SW-SW
31	3700090	4	1/2" x 38" Hose SW-SO
32	3900010	2	Orbit Motor 18.7\2000\SAE;A
33	3800161	2	1/2" Tee
34	3800005	2	1/2" Close Nipple
35	3800154	1	Pressure Gauge, 3000psi\1/4MP
36	4000016	1	Tub Drive Valve,HYD\1-SPL\FLO:CNTRL
37	4000050	1	Tub Tilt, Conveyor Drive Valve w/Detent
38	3800133	15	1/2" Male to 3.8" Female 90° Elbow
39	3700194	5	3/8" x 170" Hose SW-SW
40	3700218	1	1/2" x 52" Hose SW-SW
41	3700155	1	1/2" x 264" Hose SW\O-Ring
42	3700219	1	1/2" x 280" Hose SW\O-Ring
43	3700220	1	1/2" x 220" Hose SW-SW
44	3700221	1	1/2" x 138" Hose Sw-SW
45	3700222	1	1/2" x 39" Hose

HYDRAULICS



ITEM	PART NO.	QUANITY	DESCRIPTION
46	3900013	1	Orbit Motor 6.2\2000 SAE
47	3900014	1	Orbit Motor 9.6\2000\1-1/4 SH
48	4000010	1	Conveyor Valve without Detent\Hyd\2-spl\3pos-4w
49	3800100	4	3/8" Tee FP
50	3800132	2	3/8" Restrictors
51	3800007	1	1/2" to 3/8" Bushing,FP\Bush
52	3700199	2	3/8" x 84" Hose,SW-SW
53	3700200	2	3/8" x 36" Hose SW-SW
54	3700201	2	3/8" x 19" Hose,SW-SW
55	3700195	2	3/8" x 210" Hose,SW-SW
56	3700223	1	3/8" x 79" Hose,SW-SW
57	3700224	1	3/8" x 49" Hose,SW-SW
58	3700225	1	3/8" x 22" Hose,SW-SW
59	3700226	1	3/8" x 48" Hose,Sw-SW
60	4100100	1	3" x 16-24 Cylinder w/1-1/2" Rod Ram; 30 Deg Tub Tilt
60	4100144	1	4"x30 Cylinderw/1-3/4" Rod; 80 Deg Tub Tilt
61	4100075	2	3" x 16" Cylinder, Ram
62	4100086	2	3" x 30" Cylinder, Ram
63	4200005	2	3/4" Flange with O-Ring PMK-75 (4200004)
64	N/A	2	O-Ring
65	5000061	16	3/8" Hi Collar Lock Washer
66	4800167	8	3/8" x 1-1/4" Socket Head Cap Screw
67	4200006	2	1" Port Flange with O-Ring PMK-100
68	N/A	2	O-Ring
69	4800269	8	3/8" x 1-1/2" Socket Head Cap Screw
70	4400006	1	Filter Complete,10-Micron \13.7D
71	4400004	1	Filter Base,3/4FP\13.7D
72	4400005	1	Filter Element,10 Micron
73	4400003	1	Filter Complete, 25 Micron\5.1D
74	4400001	1	Filter Base, 1-1/4FP\5.1D
75	4400002	1	Filter Element, 25 Micron\5.1D
76	4700570	1	Oil Tank RH
77	4700571	1	Oil Tank LH
	4700842		Strap\Tank\Oil\Hd12
78	7500275	2	Oil Tank Cap Vented
79	7501018		Electric Valve Seal Kit, K1002
80	7501010		Electric Valve Solenoid
81	4700842		Oil Tank Strap
82	7501019		Seal Kit Hyd. Pump, PD7122\235GL\PU

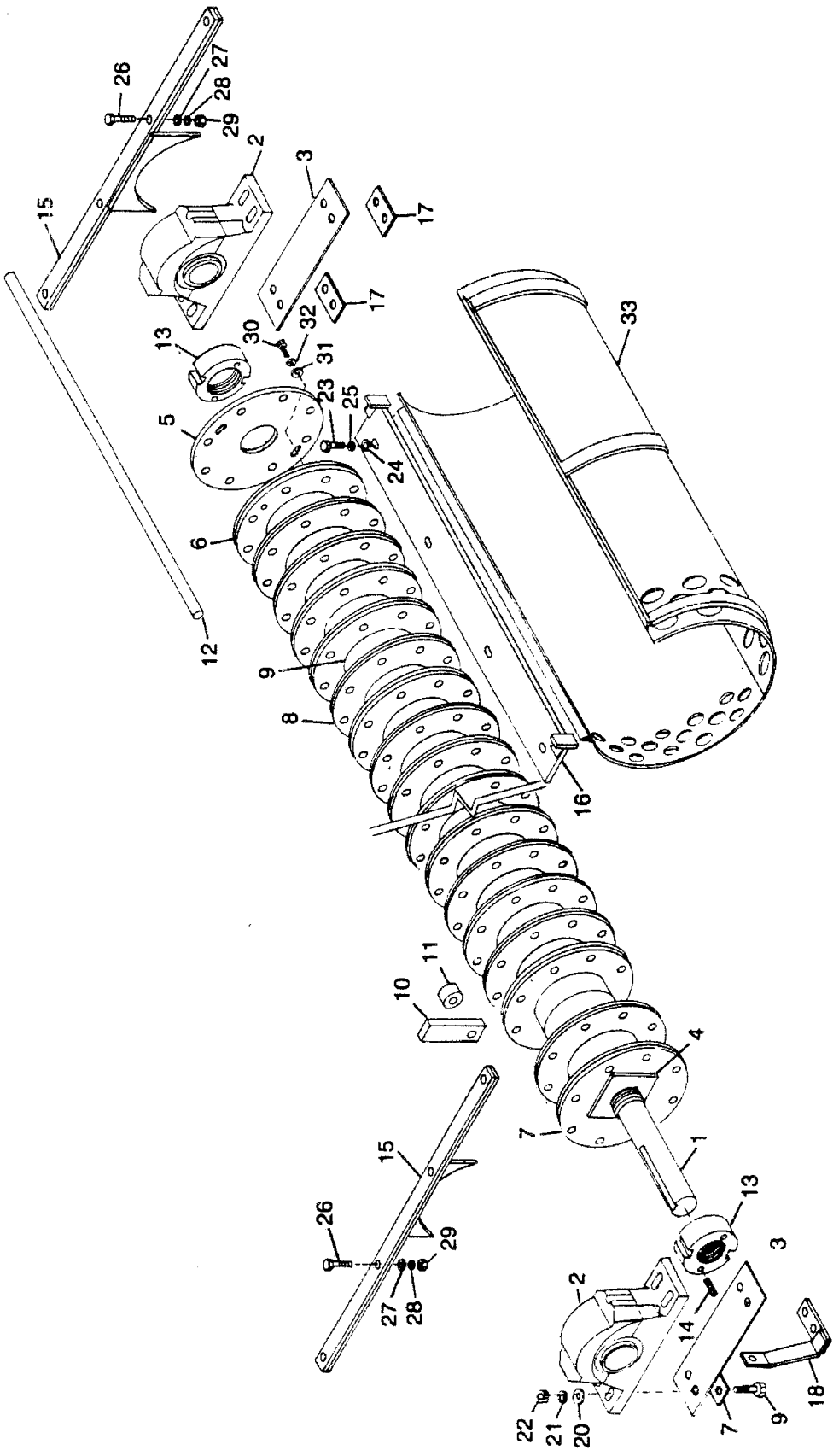
ROTOR - 1/2" PLATE



ROTOR - 1/2" PLATE

ITEM	PART NO.	QUANITY	DESCRIPTION
1	4700592	1	Rotor Shaft 5-1/2" x 85-1/4"
2	2000521	2	Pillow Block Bearing 4"
3	4700483	4	Bearing Shim 10 Ga.\ 4.5"
3	4700484		Bearing Shim 7 Ga. (As Needed)\ 4.5"
4	4700559	2	Thrust Washer\8x5-9/16
5	4700519	1	Movable Plate
6	4700561	1	Rotor End Plate with Tapped Holes
7	4700562	1	Rotor End Plate with Slugs Welded On
8	4700563	44	Rotor Plate\1/2" x5.5 ID
9	4700564	15	1.509 Solid Cylinder Spacer\5.5ID
9	4700565	7	1.535 Solid Cylinder Spacer\5.5ID
10	5200108	80	Hammer\3/4" 1.25 Hole
11	4700469	80	Hammer Rod Shock Spacer\1.27ID x 1-3/8 Wide
12	5300106	8	Hammer Rod 1-1/4"x 56"
13	4700566	2	Rotor\5-1/2x2x8\LH
14	4800272	4	1/2" - 13 x 2 Set Screw
15	4700567	2	Cylinder Box Seal
16	4700568	1	Screen Hold Down Bar for Swinging Hammers
	4701899		Holddown\Screen\3/4\HD-12
17	4700569	3	Bearing Mount Doubler
18	4700491	1	Sensor Mount
19	4800232	8	3/4" x 8" Bolt
20	5000005	8	3/4" Flat Washer
21	5000012	8	3/4" Lock Washer
22	4900004	8	3/4" Nut
23	4800079	4	5/8" x 2-1/2" Bolt
24	5000002	4	5/8" Flat Washer
25	5000003	4	5/8" Lock Washer
26	4800034	8	3/8" x 1-1/2" Bolt
27	5000001	8	3/8" Flat Washer
28	5000019	8	3/8" Lock Washer
29	4900002	8	3/8" Nut
30	4800085	4	1/2" X 1" Bolt
31	5000004	4	1/2" Flat Washer
32	5000006	4	1/2" Lock Washer
33	4701512		2 Screen\Hardox
	4700198		3 Screen
	4700177		4 Screen
	4700192		1 Screen
	4700191		3/4" Screen
	4799192		Dummy Screen\1"Hole\1/2
	4700627		Demolition\6x7HL\1/2\HD12
	4700396		Sensor Sprocket (Not Shown)60-20-4" ID
	4700681		Rotor Rebuilt 1/2" Plates, 1-1/4" Rods, 5-1/2" Shaft
	4700690		Rotor New 1/2" Plate, 1-1/4" Rods, 5-1/2" Shaft
	4701249	2	Guide Screen Track, 1/2" Screens
	4701250	2	Guide Screen Track, 1" Screens
	4700791		Rotor Core (If Rebuildable)
	4700396		Sprocket\60\20\4\Sensor\HD12

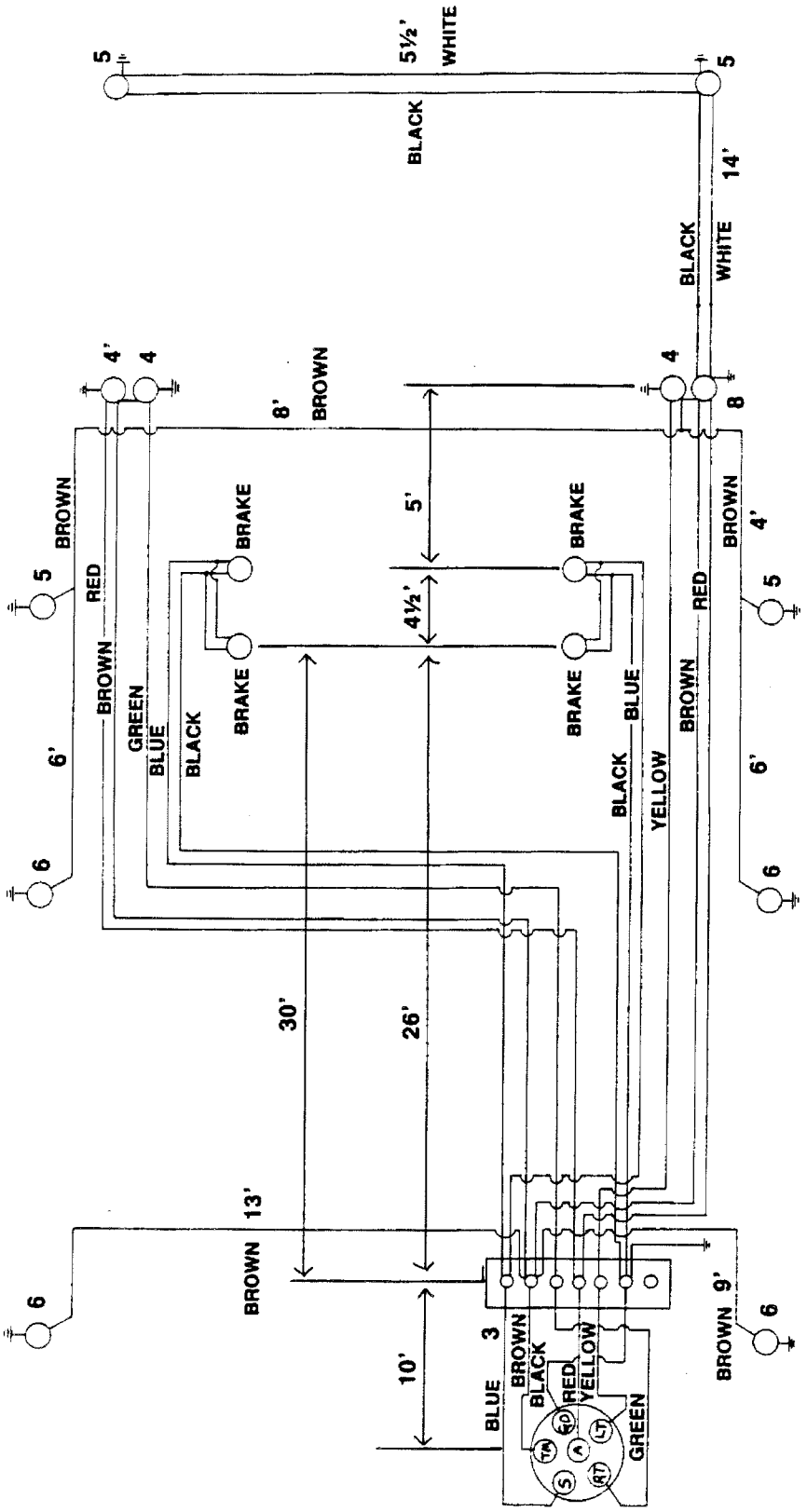
ROTOR - 1-1/4" PLATE



ROTOR - 1-1/4" PLATE

ITEM	PART NO.	QUANITY	DESCRIPTION
1	4700592	1	Rotor Shaft 5-1/2" x 85-1/4"
2	2000521	2	Pillow Block Bearing 4"
3	4700483	4	Bearing Shim 10 Ga.\4.5
3	4700484		Bearing Shim 7 Ga. (As Needed)
4	4700559	2	Thrust Washer\8x5-9/16
5	4700519	1	Movable Plate
6	4700669	1	Cylinder End Plate with Tapped Holes\5.5\1.25
7	4700673	1	Cylinder End Plate with Club Welded On\5.5\1.25\Slugs
8	4700666	19	Cylinder Plate\5-1/2x1.25RD
9	4700779	20	1.529 Solid Cylinder Spacer\8.645x5.5x1.529
10	5200108	80	Hammer\3/4x3x1.25 Hole
11	4700469	80	Hammer Rod Shock Spacer\1.27IDx1-3/8 Wide
12	5300106	8	Hammer Rod 1-1/4"x56"
13	4700566	2	Cylinder Nut\5-1/2x2x8\LH
14	4800272	4	1/2" - 13 x 2 Set Screw
15	4700567	2	Cylinder Box Seal
16	4700568	1	Screen Hold Down Bar
16A	4701899		Holddown\Scrn\3/4\HD-12
17	4700569	3	Bearing Mount Doubler
18	4700491	1	Sensor Mount
19	4800232	8	3/4" x 8" Bolt
20	5000005	8	3/4" Flat Washer
21	5000012	8	3/4" Lock Washer
22	4900004	8	3/4" Nut
23	4800079	4	5/8" x 2-1/2" Bolt
24	5000002	4	5/8" Flat Washer
25	5000003	4	5/8" Lock Washer
26	4800034	8	3/8" x 1-1/2" Bolt
27	5000001	8	3/8" Flat Washer
28	5000019	8	3/8" Lock Washer
29	4900002	8	3/8" Nut
30	4800085	4	1/2" X 1" Bolt
31	5000004	4	1/2" Flat Washer
32	5000006	4	1/2" Lock Washer
33	4701512		2 Screen\Hardox
	4700198		3 Screen
	4700177		4 Screen
	4700192		1 Screen
	4700191		3/4" Screen
	4799192		Dummy Screen\1" Screen\1/2" Thicj
	4700627		Demolition\6x7HL\1/2\HD12
	4700396		Sensor Sprocket (Not Shown)60-20-4" ID
	4700683		Rotor Rebuilt 1-1/4" Plates, 1-1/4" Rods, 5-1/2" Shaft
	4700808		Rotor New 1-1/4" Plate, 1-1/4" Rods, 5-1/2" Shaft
	4701249	2	Guide Screen Track, 1/2" Screens
	4701250	2	Guide Screen Track, 1" Screens
	4700791		Rotor Core (If Rebuildable)
	4700396		Sprocket\60\20\4\Sensor\HD12
	6200046	2	KEY\RECT\5/8X1/2X6-1/4\
	6200047	2	KEY\RECT\5/8X1/2X21-3/4

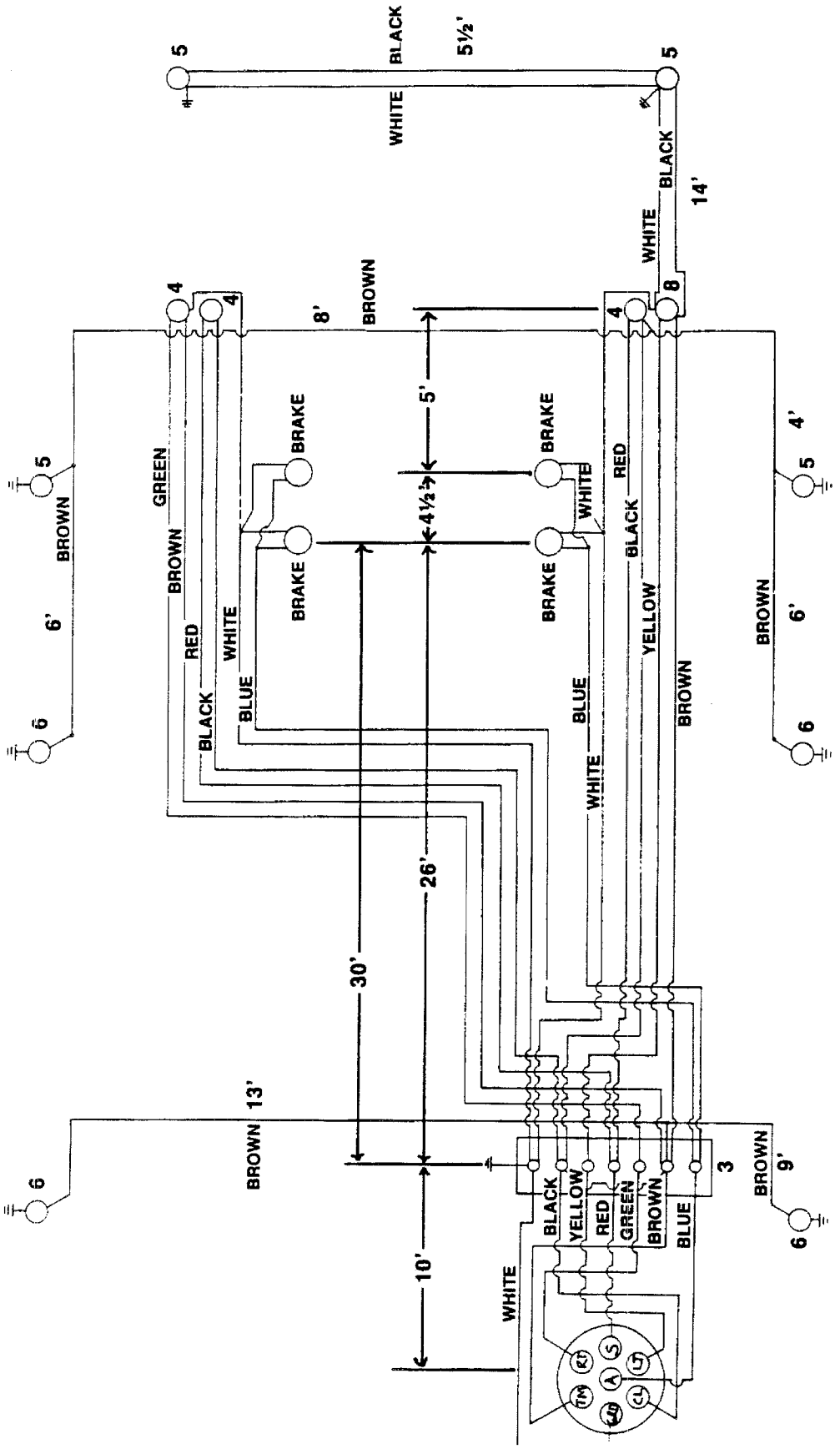
LIGHTS - WIRING SCHEMATIC



LIGHTS - WIRING SCHEMATIC

ITEM	PART NO.	QUANITY	DESCRIPTION
1	5700032	1	Truck Plug\6-Wire Male
2	5700033	1	Trailer Plug\Term\Male\6Pole\Trl Plug
3	5700034	1	Junction Box\End\Jct\7Pole\Trl Harn
4	5700036	3	Tail Light\Lamp\Tail\120DC\RH
5	5700037	4	Red Clearance Light\Lamp\CL\120DC\Red
6	5700038	4	Amber Clearance Light\Lamp\CL\120DC\Amber
7	5700008		6 x 14 Ga. Cable - Per Foot
8	5700039	1	Tail Light with License Plate Light\Lamp\Tail\120Dc\LH\w/Lic

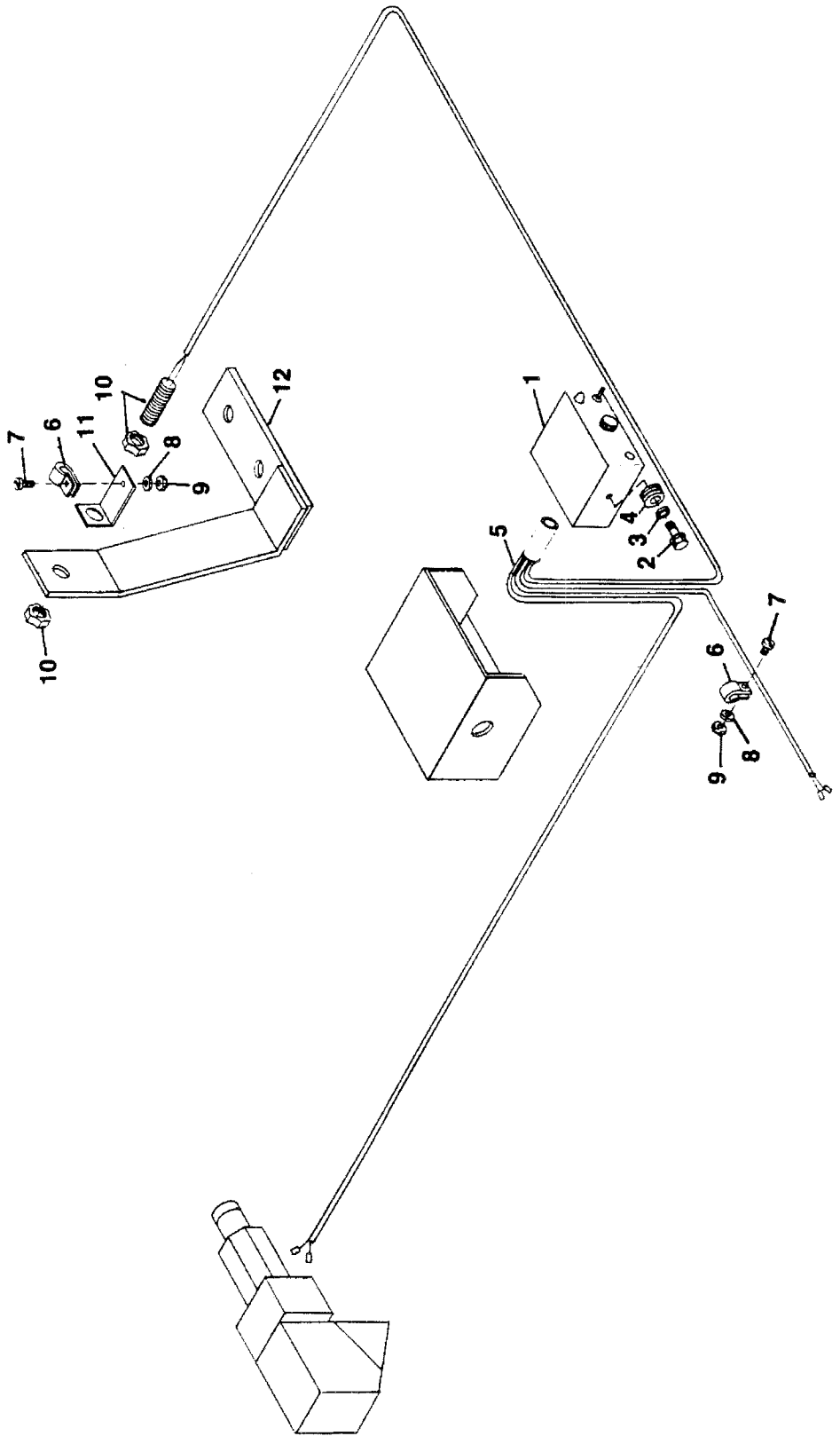
LIGHTS - WIRING SCHEMATIC



LIGHTS - WIRING SCHEMATIC

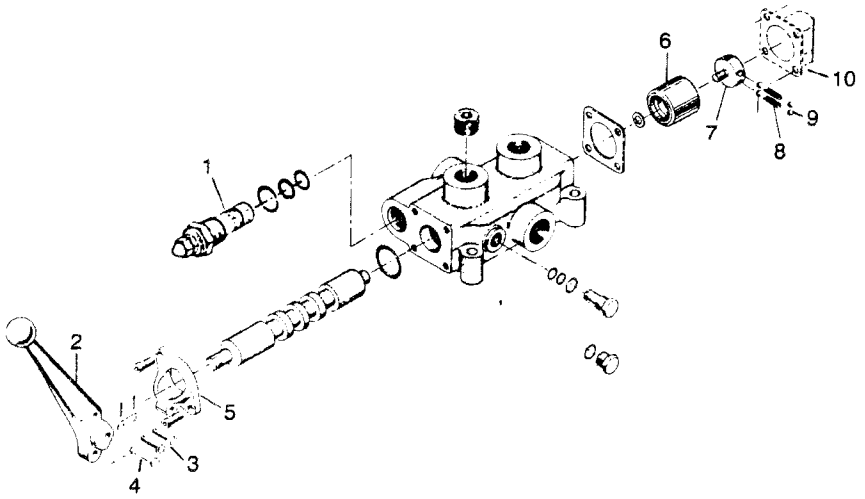
ITEM	PART NO.	QUANITY	DESCRIPTION
1	5700010	1	Truck Plug\Term\Male\7Pole\Truck\Plug
2	5700011	1	Trailer Plug\Term\Female\7 Pole\Trlr
3	5700034	1	Junction Box\End\Jct\7 Pole\Term
4	5700036	4	Tail Light\Lamp\Tail\120DC\RH
5	5700037	2	Red Clearance Light\Lamp\CL\120DC\Red
6	5700038	4	Amber Cleraance Light\Lamp\CL\120DC\Amber
7	5700017		7 Wire Cable - Per Foot\12 Ga
8	5700039	1	Tail Light with License Plate Light\Lamp\Tail\120DC\LH\w/Lic

CONTROL BOX



CONTROL BOX

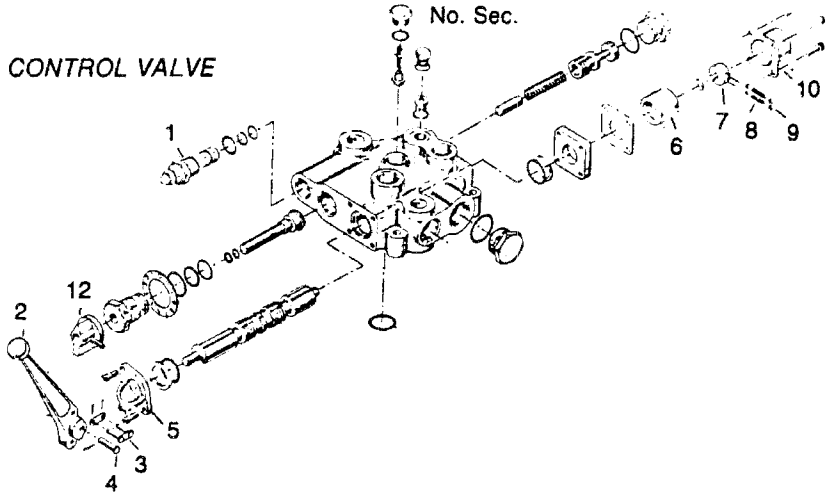
ITEM	PART NO.	QUANITY	DESCRIPTION
1	4300034	1	Control Box\RCB93
2	4800194	2	1/4" x 3/4" Flange Bolt
3	5000035	2	1/4" Flat Washer
4	7500124	2	Grommet\Rubber\2757
5	4300019	1	Wiring Harness
6	5700058	4	Wire Clamps\#8
7	4800154	4	1/4" x 1/2" Screw
8	5000024	4	1/4" Lock Washer
9	4900009	4	1/4" Hex Nut
10	4300009	4	Sensor with Hardware
11	4700118	1	Sensor Bracket
12	4700491	1	Sensor Mount
	4300012		Remanufactured Control Box
	4300038		Remanufactured Control Box
			For Radio Option
	4000097		Valve\Hyd\20gpm\1spl\24v
	4000077		Valve\Hyd\Cart&Solenoid\24v For 4000097
	4000131		Valve\Hyd\Solenoid\24v



Hydraulics Group

ITEM	PART #	QTY	DESCRIPTION	ITEM	PART #	QTY	DESCRIPTION
1	4000006	1	Adj. Relief Valve	7	4000026	1	Detent Retainer (screw)
2	4000001	1	Valve Handle	8	4000027	2	Detent Spring
3	4000002	1	Connector Link Handle	9	4000028	4	Ball (1/4" Steel)
4	4000003	1	Pin Handle with Key	10	4000029	1	End Cap
5	4000004	1	Handle Bracket	11	7501013	1	Seal Kit (Not Shown)
6	4000025	1	Detent Sleeve		4000035	1	Valve Complete
					4000021	1	Detent Screw Assy

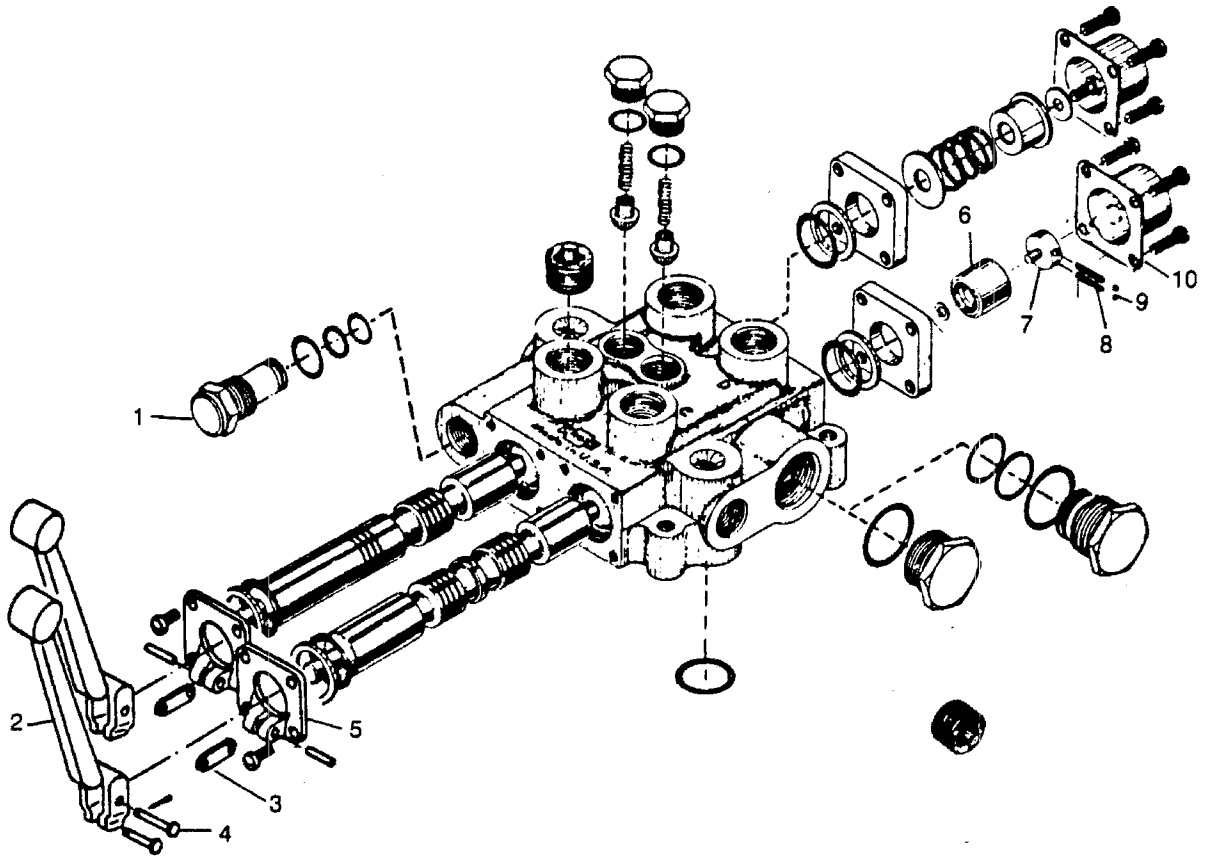
MODEL BC *DIRECTIONAL CONTROL VALVE*



Hydraulics Group

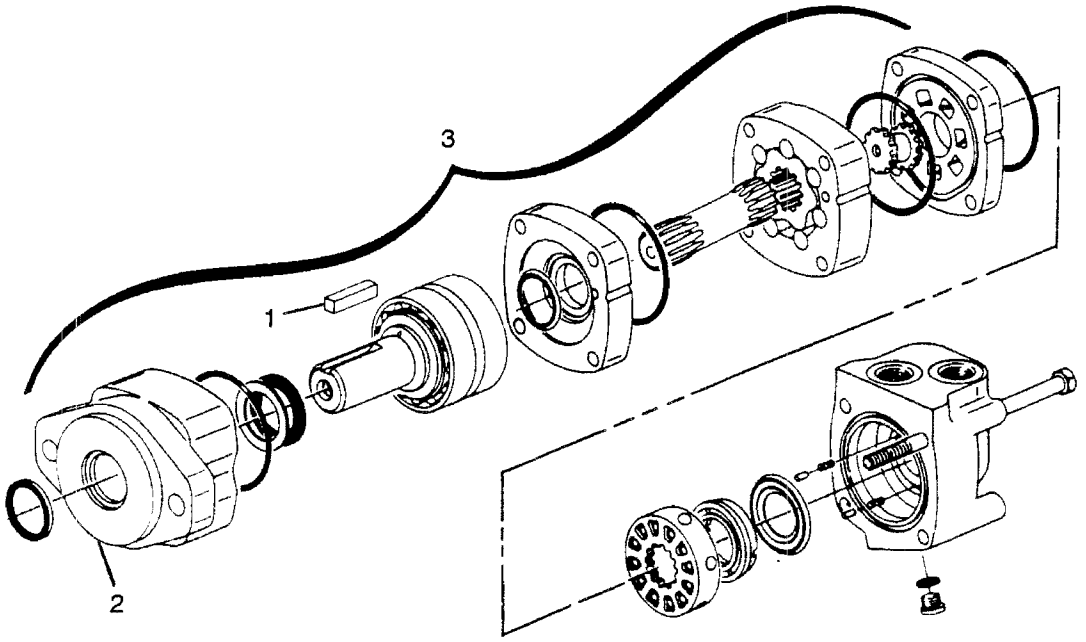
ITEM	PART #	QTY	DESCRIPTION	ITEM	PART #	QTY	DESCRIPTION
1	4000006	1	Adj. Relief Valve	8	4000027	2	Detent Spring
2	4000001	1	Valve Handle	9	4000028	4	Ball (1/4 "Steel)
3	4000002	1	Connector Link Handle	10	4000029	1	End Cap
4	4000003	1	Pin Handle w/Key	11	7501009	1	Seal Kit (Not Shown)
5	4000004	1	Handle Bracket	12	4000030	1	Knob
6	4000025	1	Detent Sleeve		4000016	1	Valve Complete
7	4000026	1	Detent Retainer (screw)		4000021	1	Detent Screw Assembly

VALVE BANK



ITEM	PART NO.	QUANITY	DESCRIPTION
1	4000006		Adj. Relief Valve
	4000065		NON ADJ.VALVE 1800 PSI
2	4000001	2	Valve Handle
3	4000002	2	Connector Links Handle w/Pin
4	4000003	2	Pin Handle with Key **N/A**
5	4000004	2	Handle Bracket
6	4000025	1	Detent Sleeve
7	4000026	1	Detent Retainer (Screw)
8	4000027	2	Detent Spring
9	4000028	4	Ball (1/4" Steel)
10	4000029	2	End Cap
11	7501004	1	Seal Kit (Not Shown)
	4000010	1	Valve Complete 2-SPL\3POS-4W
	4000021	1	Detent Screw Asembly

ORBIT MOTORS



TUB DRIVE MOTOR

ITEM	PART NO	QUANITY	DESCRIPTION
1	6200004	1	5/16" X 1-1/2" Key
2	7501005	1	Seal Kit
3	3900010	1	Complete M2000 Orbit Motor 24 C.I.

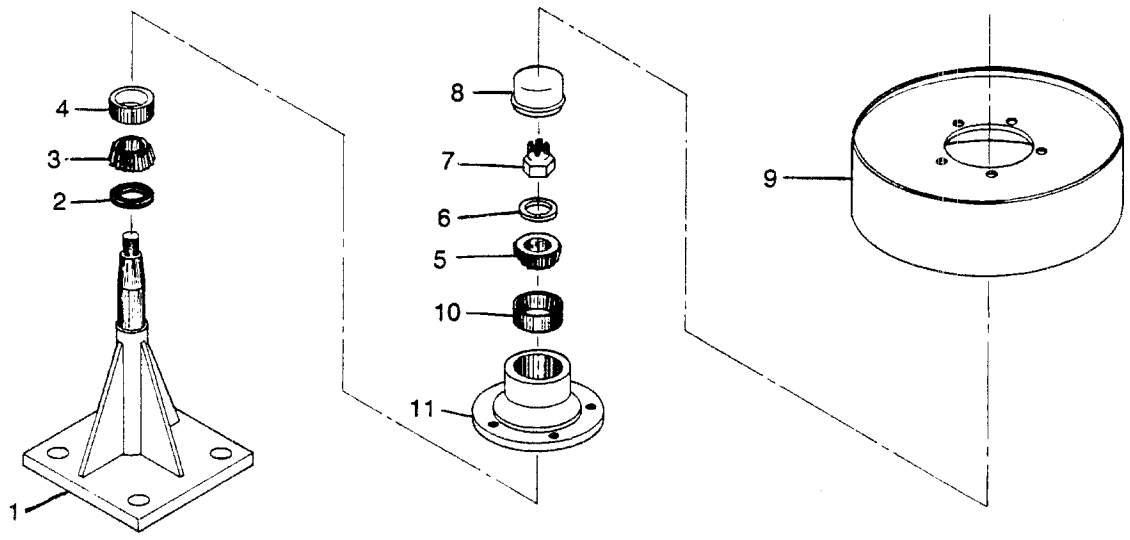
BELLY CONVEYOR MOTOR

ITEM	PART NO	QUANITY	DESCRIPTION
1	6200004	1	5/16" X 1-1/2" Key
2	7501005	1	Seal Kit
3	3900013	1	Complete M2000 Orbit Motor 6.2 C.I.

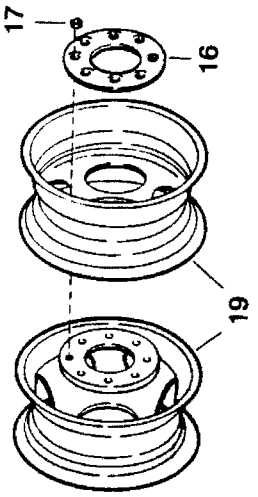
DISCHARGE CONVEYOR MOTOR

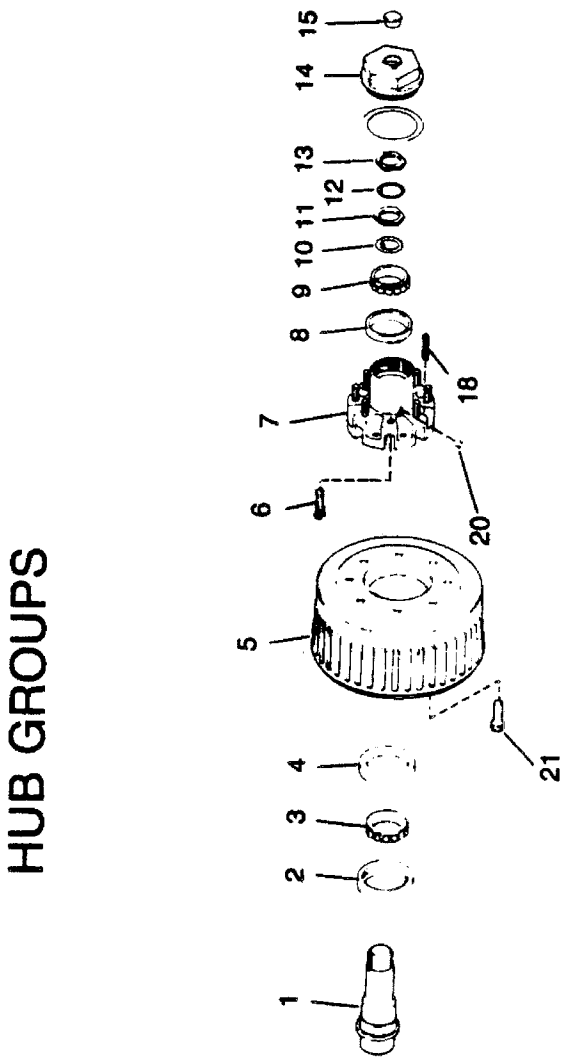
ITEM	PART NO.	QUANITY	DESCRIPTION
1	6200004	1	5/16" X 1-1/2" Key
2	7501038	1	Seal Kit
3	3900014	1	Complete M2000 Orbit Motor 9.6 C.I.

PRESSURE ROLLER



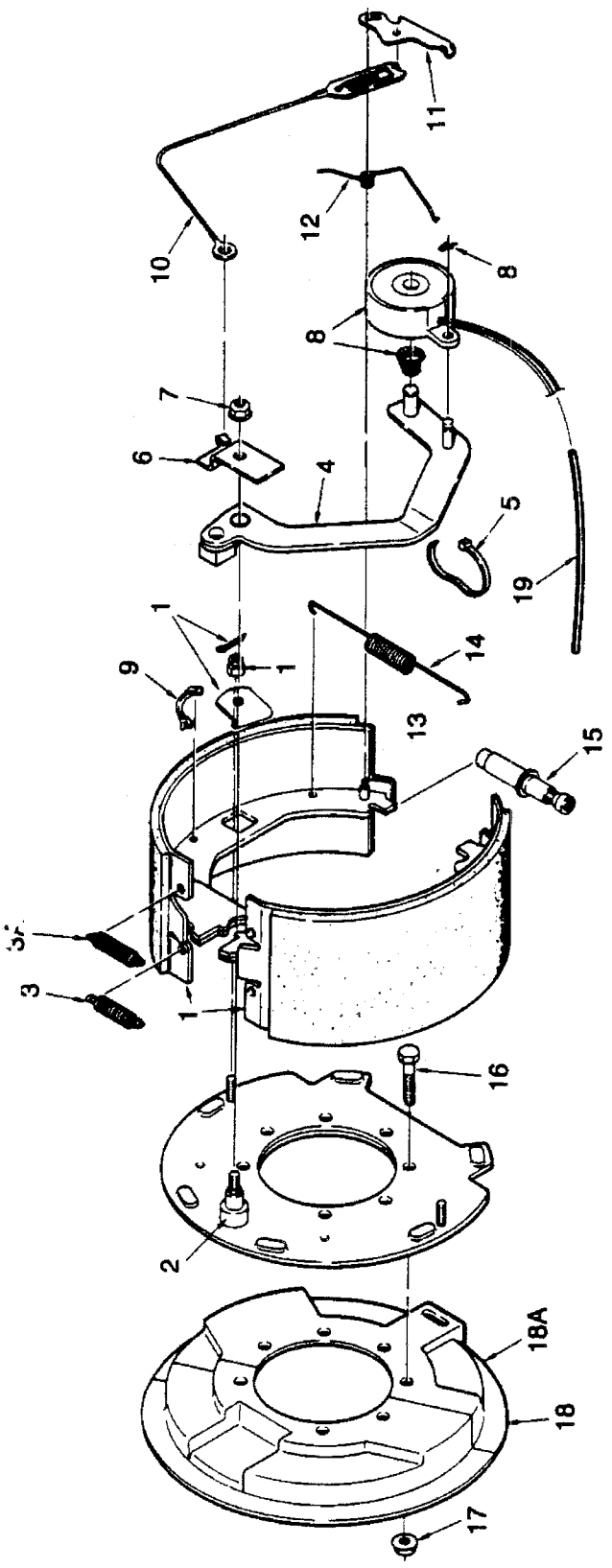
ITEM	PART NO.	QUANITY	DESCRIPTION
1	4700117	1	Single Stand 10" Spindle
2	2900055	1	Seal\(16069)
3	2900018	1	Inner Cone
4	2900004	1	Inner Cup
5	2900061	1	Outer Cone
6	5000057	1	1/2" Spindle Washer
7	4900056	1	Castle Nut 1/2" NF
8	2900064	1	Dust Cap
9	4700115	1	Pressure Drum
10	2900056	1	Outer Cup
11	2900057	1	Hub
12	3000025	1	Pressure Roller Spindle 10"
13	4700116	1	Pressure Roller Complete 10"
1A	4700235	1	Pressure Roller Stand 11" Spindle
12A	3000028	1	Pressure Roller Spindle 11"
13A	4700886	1	Pressure Roller Complete 11" Spindle


17
16
19

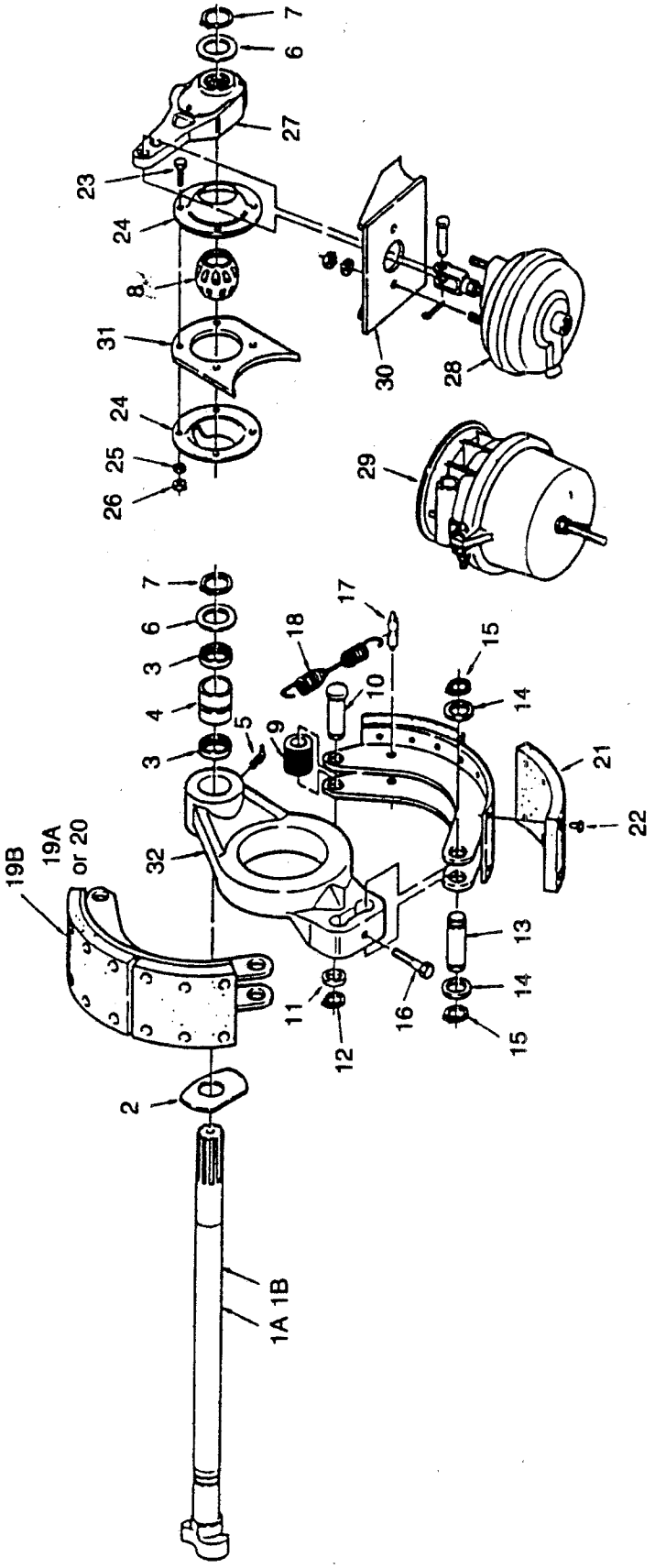

HUB GROUPS
15
14
13
12
11
10
9
8
18
7
6
20
5
21
4
3
2
1

ITEM	PART NO.	QUANITY	DESCRIPTION
1	2500453	1	Axle Beam Electric 10K
2	2900092	2	Unitized Oil Seal\12K
3	2500003	2	Inner Bearing Cone
4	2500004	2	Inner Bearing Cup
5	2500019	2	Brake Drum
6	4800254	16	Wheel Mounting Stud RH\5/8 x 3-1/2
7	2900095	2	Hub with Cups and Studs RH\1215
8	2500005	2	Outer Bearing Cup
9	2500006	2	Outer Bearing Cone
10	2500017	2	Spindle Washer
11	2500012	2	Spindle Nut
12	2500018	2	Tang Washer
13	2500020	2	Oil Cap O-Ring
14	2500021	2	Oil Cap
15	2500022	2	Oil Cap Plug
16	2600627	2	Wheel Clamp Ring
17	4900062	16	Wheel Nut RH\5/8 x 1-1/16
18	2500403	2	Locating Pin
19	2600630	4	17.5 x 6.75 Wheel
20	2500023	2	Oil Fill Plug
21	4800255	16	Drum Mounting Screw
22	2600031	4	Tire 215/75RX17.5 (Not Shown)
	2600814		Tire& Wheel Asy\215/75Rx17.5w/Rim for Duals
	2500461		AXLE\SPR\LEAF\12K\72-44-1\6-LEAF;3"
	2500460		AXLE\SPR\LEAF\10K\72-43-1\5-LEAF\3"
	2500945		BOLT\U\AXLE\10K

ELECTRIC BRAKE PARTS

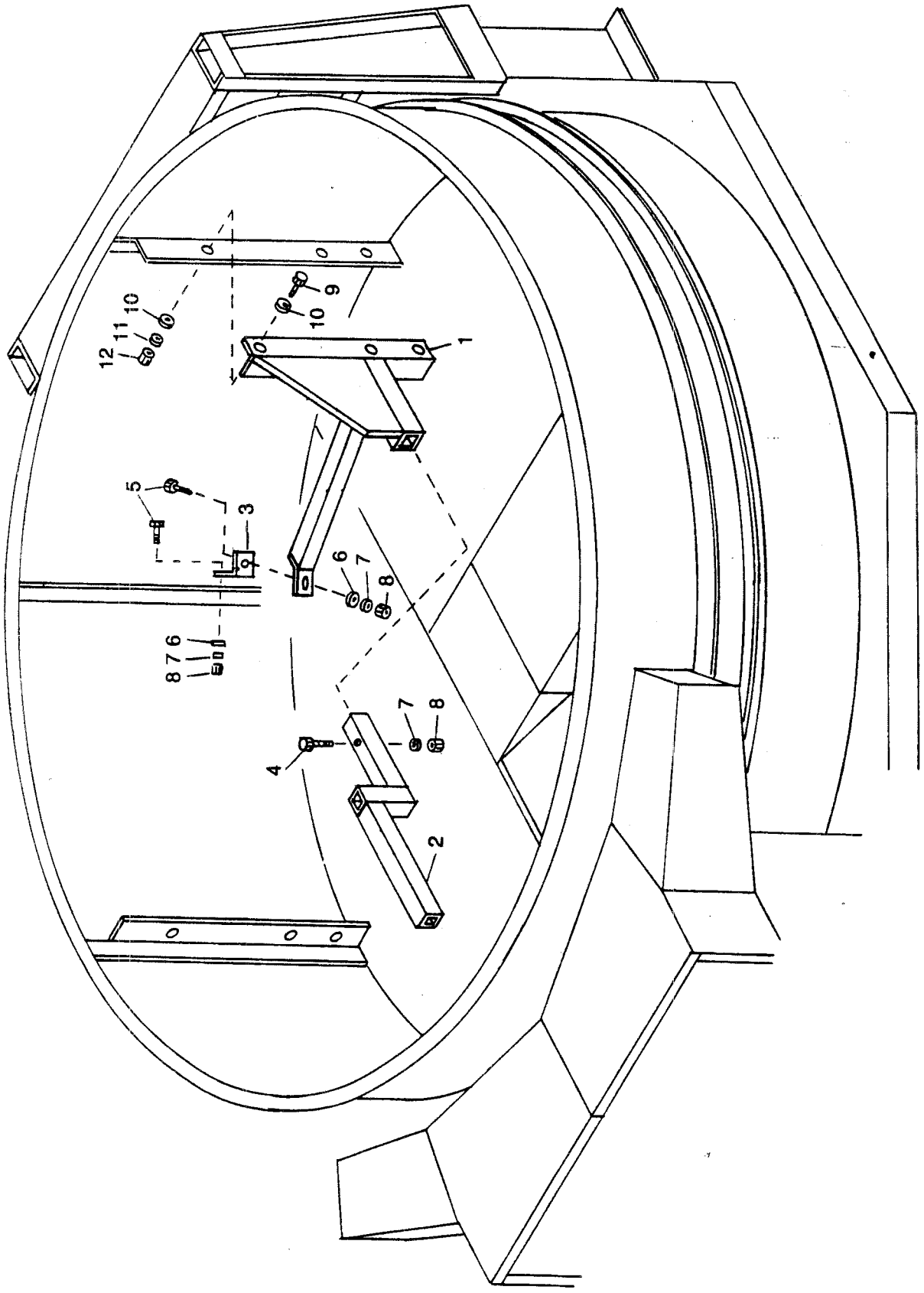


ITEM	PART NO.	QUANITY	DESCRIPTION
1	2500301		LH Shoe and Lining Kit
1A	2500302		RH Shoe and Lining Kit
2	2500303		Backing Plate Assembly
3	2500304		Shoe Return Spring (Rear) (Back)
3A	2500305		Shoe Return Spring (Front) (Green)
4	2500306		LH Actuator Arm Assembly\N/A
	2500307		RH Actuator Arm Assembly\N/A
5	2500308		Cable Ties
6	2500309		LH Arm/Shoe Retainer
	2500310		RH Arm/Shoe Retainer
7	4900060		Flange Nut\#6 NC
8	2500404		Magnetic Kit\12K Round
9	2500311		Cable Guide
10	2500312		Adjuster Cable
11	2500313		LH Adjuster Lever
	2500314		RH Adjuster Lever
12	2500315		LH Adjuster Lever Spring
	2500316		RH Adjuster Lever Spring
13	2500317		Pivot Pin
14	2500318		Adjuster Spring
15	2500319		LH Adjuster Assembly
	2500320		RH Adjuster Assembly
16	4800253		Brake Mounting Screw\7/16 x 1-3/4
17	4900035		Brake Mounting Nut\TopLock 7/16 NC
18	2500321		Dust Cover (Top)
	2500322		Dust Cover (Bottom)
19	2500323		Sleeve\Electric Brake
20	2500324		Wire Grommet (Not Shown)


7
6
27
23
24
8
31
24
25
26
30
28
29
7
6
3
4
3
5
9
17
18
10
15
14
21
22
19B
19A
or 20
32
13
14
15
11
12
16
2
1A 1B

ITEM	PART NO.	QUANITY	DESCRIPTION
1A	2500101	1	Cam Shaft LH
1B	2500102	1	Cam Shaft RH
2	2500103	1	D Washer Cam Shaft
3	2500612	2	Grease Seal
4	2500613	1	Bushing\Cam Shaft\Spider
5	2500614	1	Grease Fitting
6	2500615	2	Cam Shaft Washer
7	2500616	2	Cam Shaft Retainer
8	2500617	1	Cam Shaft Support Bushing
9	2500104	2	Roller
10	2500105	2	Roller Pin
11	2500106	2	Roller Pin Spacer
12	2500107	2	Roller Pin Retainer
13	2500108	2	Anchor Pin
14	2500109	4	Anchor pin Washer
15	2500110	4	Anchor Pin Retainer
16	2500111	1	Screw, Anchor Pin Clamping
17	2500112	2	Retainer Pin, Retractor Spring
18	2500113	1	Retractor Spring
19A	2500114	1	Shoe & Roller Assy. RH
19B	2500115	1	Shoe & Roller Assy. LH
20	2500116	2	Shoe & Block Assy.
21	2500117	4	Brake Lining (per sec)
22	2500118	24	Rivet
23	4800277	4	Bolt, Retainer Plate\Hex\1/4 x 1
24	2500618	2	Retainer Plate Outboard
25	5000024	4	1/4" Lock Washer
26	4900009	4	Nut\Hex\1/4 NC
27	2500619	1	Slack Adjuster
28	2500119	1	Air Chamber with Hardware
29	2500120	1	Spring Brake\15K
30		1 +	Air Chamber Bracket
31		1 +	Plate - Cam Shaft Support Bracket
32		1 +	Brake Spider
33	2500121		Cam Shaft Repair Kit - For 1 Brake
34	2500122		Shoe Repair Kit - For 1 Brake
35	2500123		Brake Block Kit
		NOTE +	Part of Axle Beam Weldment

TUB AGITATOR

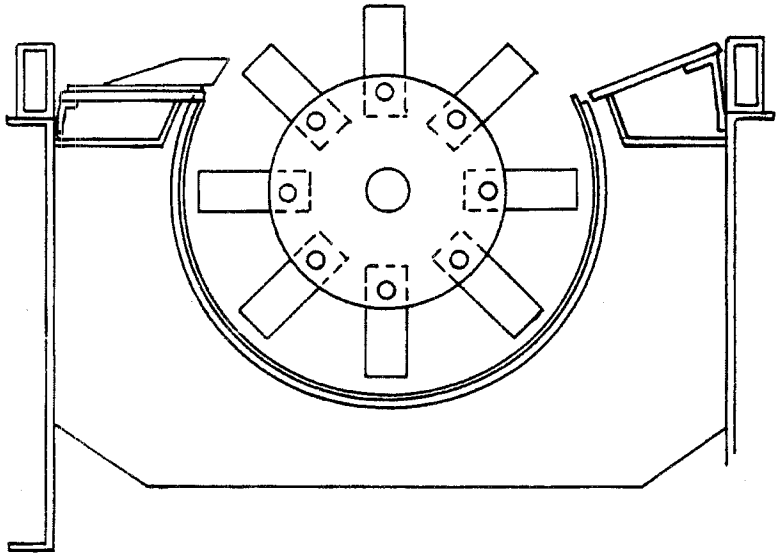


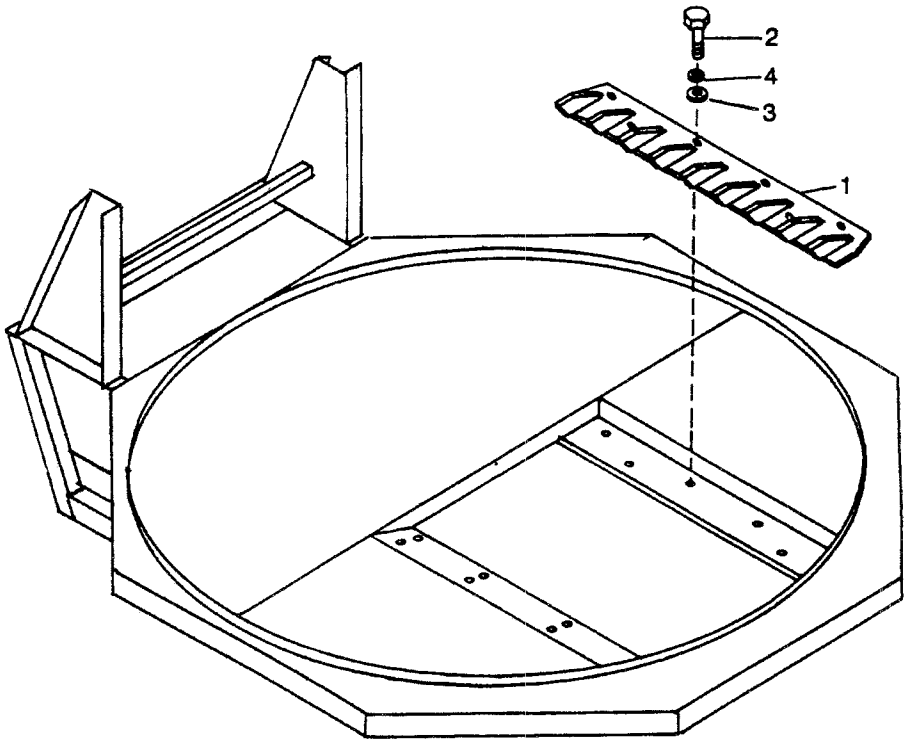
TUB AGITATOR

ITEM	PART NO.	QUANITY	DESCRIPTION
1	4700493	2	Tub Agitator Mount
2	4700143	2	Tub Agitator Arm
3	4700144	2	Tub Agitator Bracket
4	4800188	2	1/2" x 4" Bolt
5	4800082	4	1/2" x 1-1/2" Bolt
6	5000004	4	1/2" Flat Washer
7	5000006	6	1/2" Lock Washer
8	4900001	6	1/2" Hex Nut
9	4800106	6	5/8" x 1-1/2" Bolt
10	5000002	12	5/8" Flat Washer
11	5000003	6	5/8" Lock Washer
12	4900005	6	5/8" Hex Nut
	4700982		Tub Agitator Kit (Includes 2 agitators complete)

SLUGBUSTER OPERATION

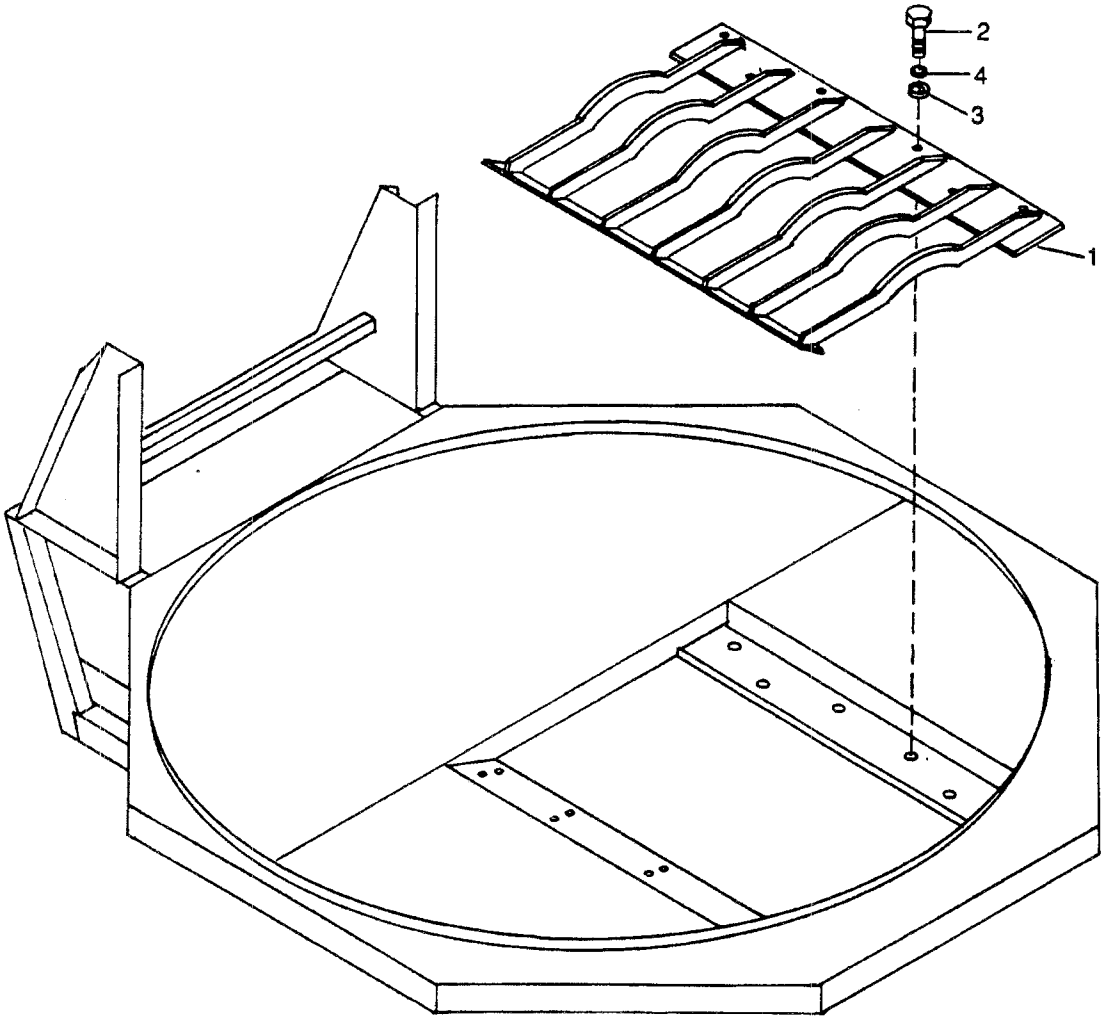
The Slugbuster is a one-piece metal bar with steel fingers that protrude over the infeed side of the cylinder. Hammers pass by the "fingers" to create a slicing action that prevents slugs of materials from being drawn into the mill. The slicing action also acts as an initial grinding of long material before it passes through the screen.





ITEM	PART NO.	QUANITY	DESCRIPTION
1	4700572	1	Slugbuster 9 Tooth w/Tab
2	4800079	6	5/8" x 2-1/2" Bolt
3	5000002	6	5/8" Flat Washer
4	5000003	6	5/8" Lock Washer
1A	4700492		Slugbuster 9 Tooth w/o Tab

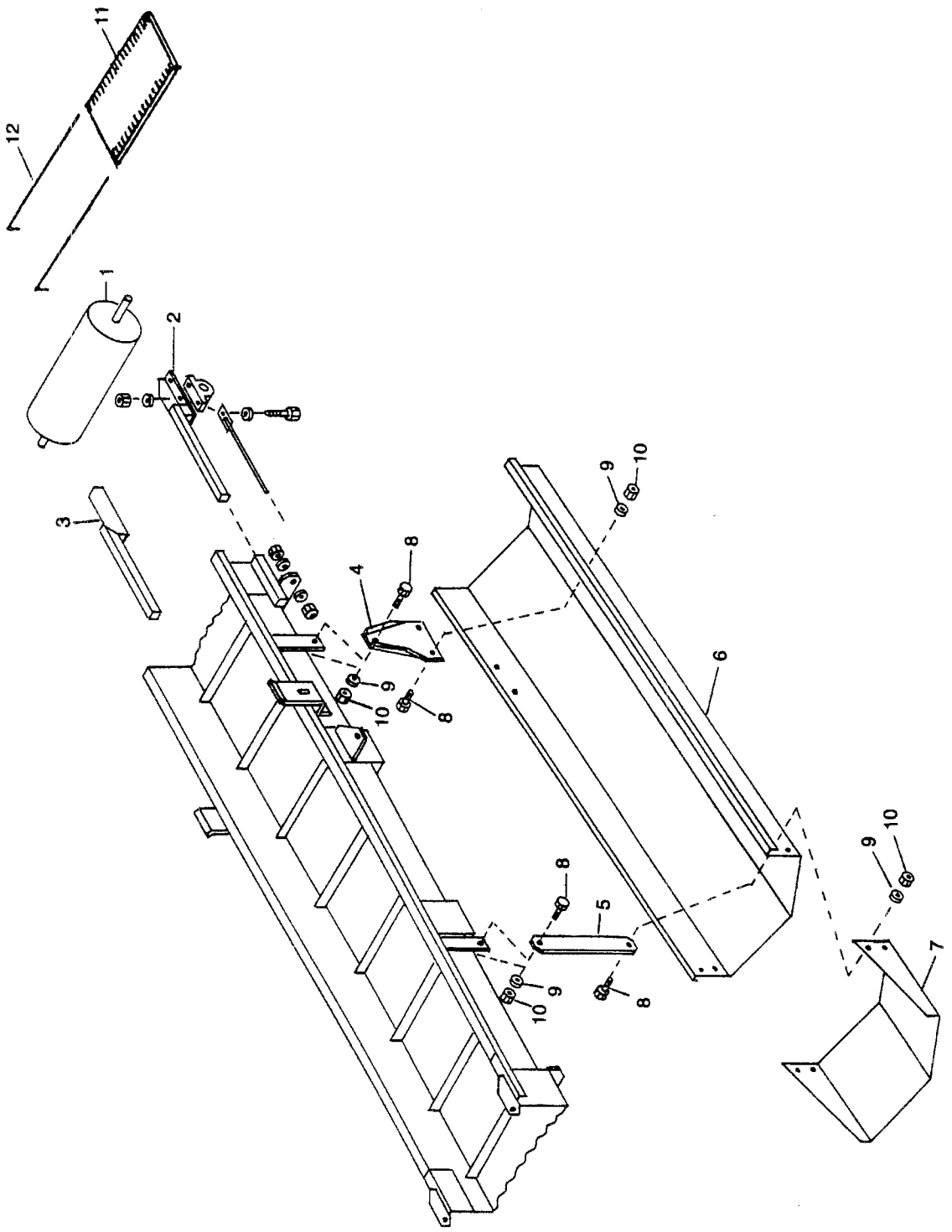
MILL GRATE



MILL GRATE

ITEM	PART NO.	QUANITY	DESCRIPTION
1	4700573	1	GRATE\MILL\HD12
2	4800079	10	5/8" x 2-1/2" Bolt
3	5000002	10	5/8" Flat Washer
4	5000003	10	5/8" Lock Washer

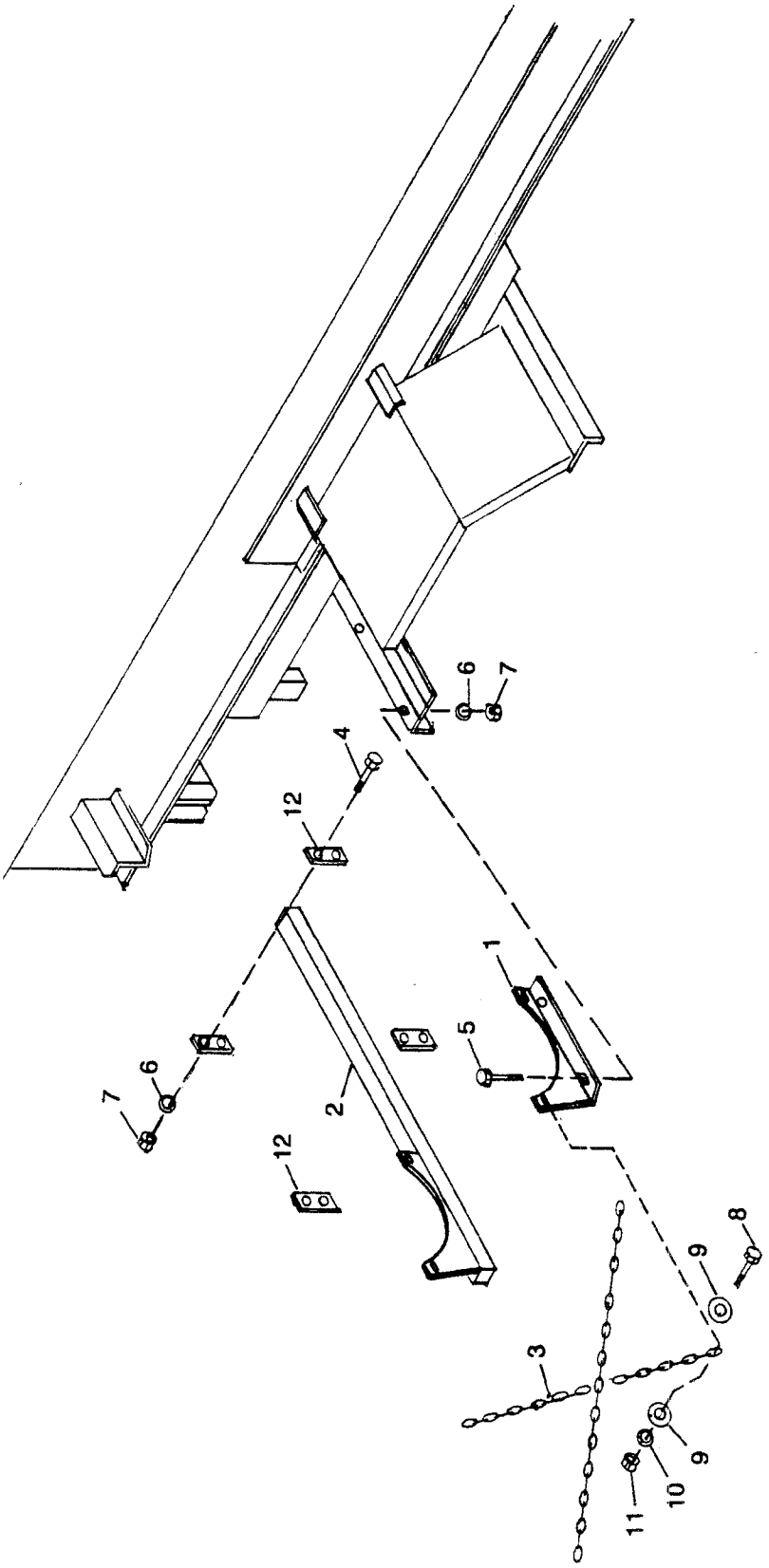
OPTION - MAGNETIC ROLLER



OPTION - MAGNETIC ROLLER

ITEM	PART NO.	QUANITY	DESCRIPTION
1	7500229	1	Magnetic Roller\8x18
2	4700135	1	Magnetic Roller Bearing Mount RH
3	4700136	1	Magnetic Roller Bearing Mount LH
4	4700137	2	Rear Chute Mount
5	4700138	2	Front Chute Mount
6	4700194	1	Chute
7	4700140	1	Chute End Section
8	4800003	12	3/8" x 1" Bolt
9	5000019	12	3/8" Lock Washer
10	4900002	12	3/8" Hex Nut
11	1700086	1	7" x 18" Belt - Dutchman
12	1700052	2	Lacing Pin
	4700696		Magnetic Roller & Chute Assembly

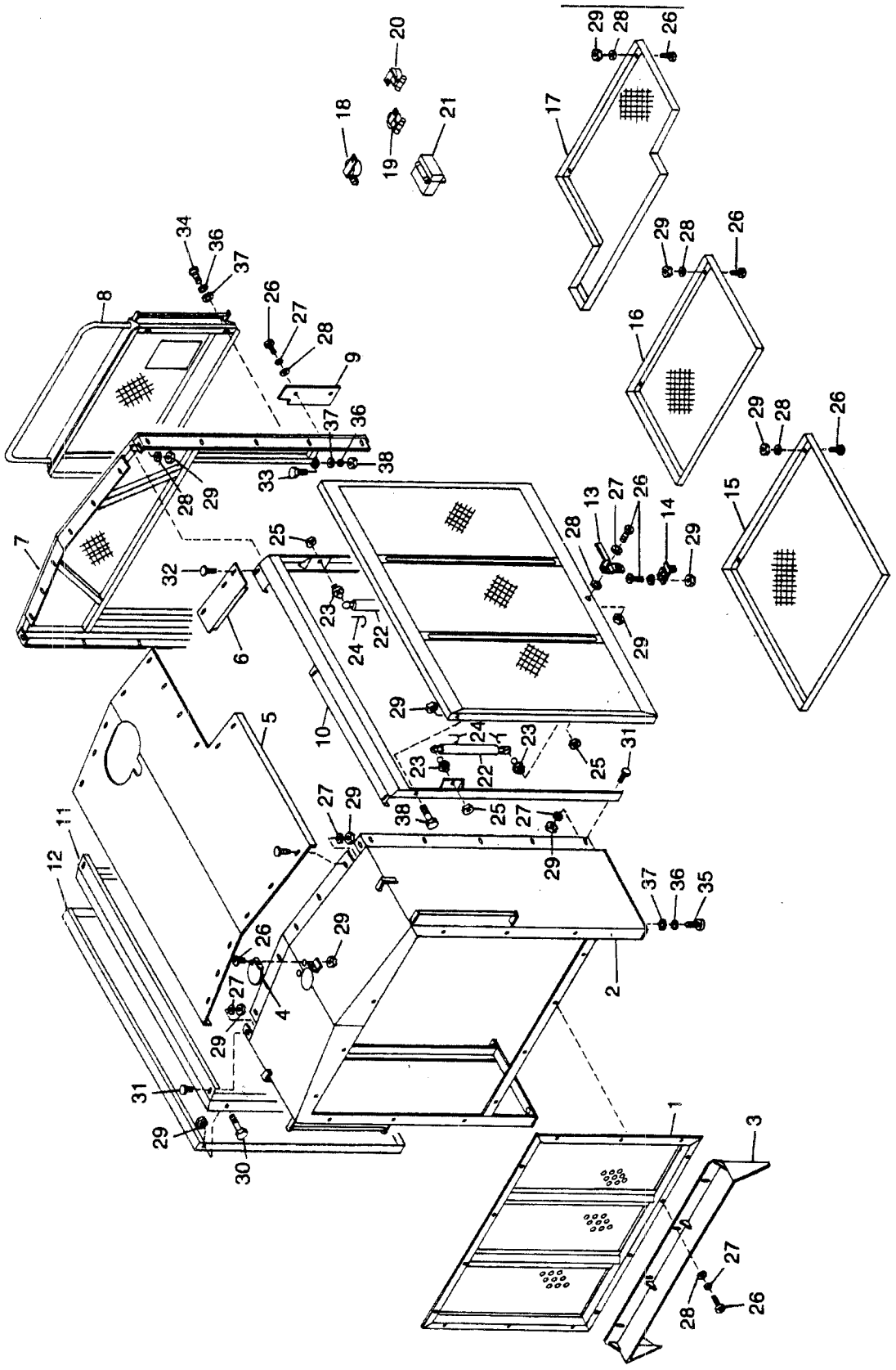
OPTION - SCREEN RACK



OPTION - SCREEN RACK

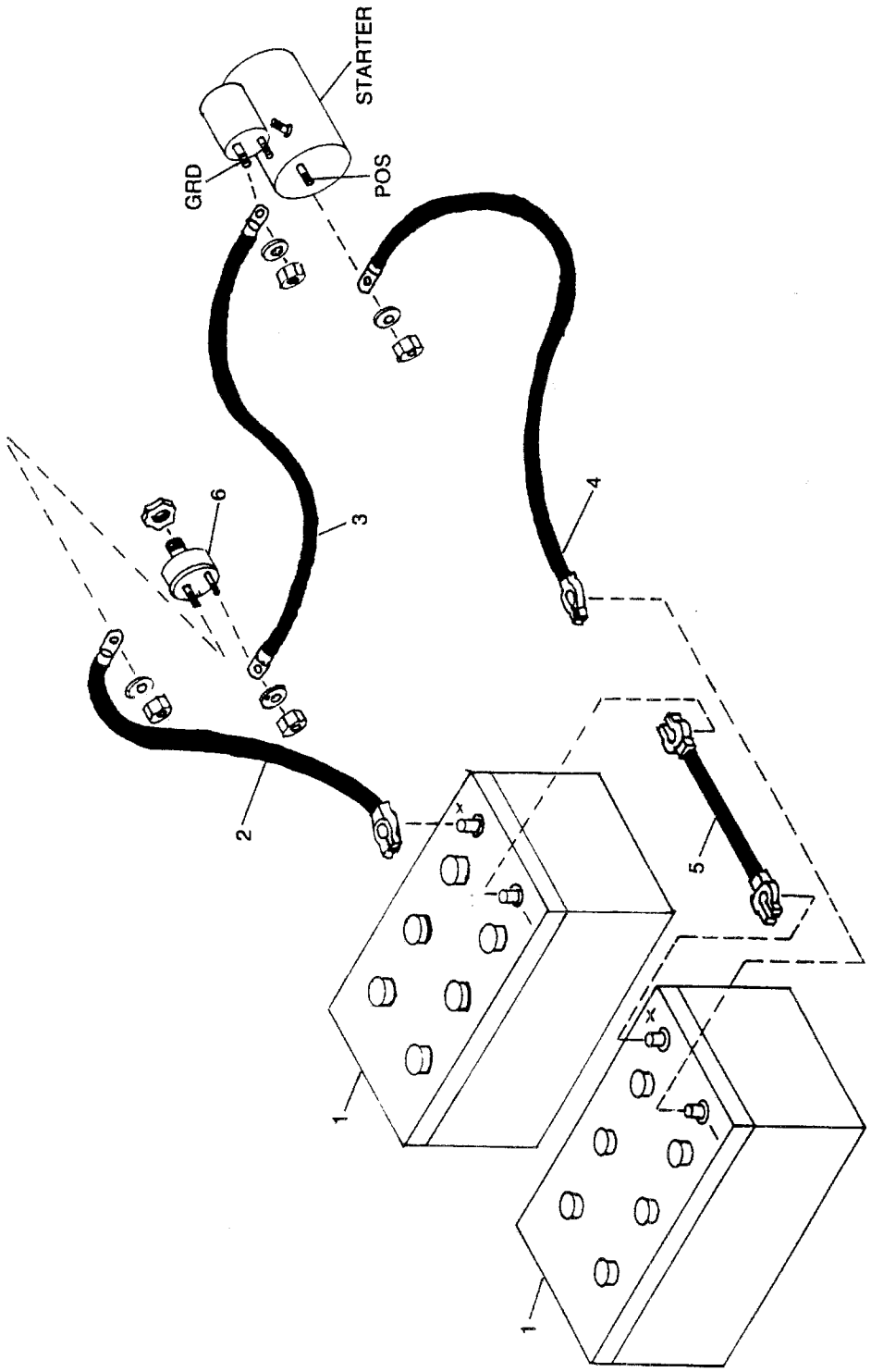
ITEM	PART NO.	QUANITY	DESCRIPTION
1	4700358	1	Screen Rack Front
2	4700359	1	Screen Rack Rear
3	4700360	2	3/16" Chain 65" Long
4	4800262	4	1/2" x 7-1/2" Bolt
5	4800018	2	1/2" x 1-1/4" Bolt
6	5000006	6	1/2" Lock Washer
7	4900001	6	1/2" Hex Nut
8	4800142	4	3/8" x 1-3/4" Bolt
9	5000001	8	3/8" Flat Washer
10	5000019	4	3/8" Lock Washer
11	4900002	4	3/8" Hex Nut
12	4700361	4	Screen Rack Strap

SECURITY SCREENS



ITEM	PART NO.	QUANITY	DESCRIPTION
1	4700407	1	Grill
2	4700574	1	Cowling Security Scren
3	4700538	1	Radiator Front Shield #17
4	4700539	1	Radiator Cowling Cap # 1
5	4700410	1	Hood
6	4700575	1	Hood Corner SS
7	4700576	1	Hand Rail SS
8	4700577	1	Hand Rail Cover SS
9	4700578	2	Hand Rail Side Shield
10	4700579	1	Door Frame LH
11	4700580	1	Door Frame RH
12	4700581	2	Door
13	4700582	2	Latch Handle
14	4700583	2	Door Latch
15	4700584	1	Undercarriage Screen (Front)
16	4700585	1	Undercarriage Screen (Center)
17	4700586	1	Undercarriage Screen (Rear)
18	4700587	1	Fuel Tank Lock
19	4700588	1	Oil Tank Lock RH
20	4700589	1	Oil Tank Lock LH
21	4700590	1	Electric Control Security Box
22	7500344	4	Gas Spring
23	7500345	8	Ball Stud
24	7500346	8	Safety Cup
25	4900099	8	5/16" Lock Nut\Grade 8 NC
26	4800274	37	3/8" x 1-1/4" Button Head Socket Screw -Torx Drive
27	5000019	18	3/8" Lock Washer
28	5000001	80	3/8" Flat Washer
29	4900023	65	3/8" Lock Nut NC
30	4800146	4	3/8" x 2" Bolt
31	4800053	17	3/8" x 1" Carriage Bolt
32	4800012	2	3/8" x 1-1/4" Carriage Bolt
33	4800018	4	1/2" x 1-1/4" Bolt
34	4800161	4	1/2" x 1" Button Head Socket Screw -Torx Drive
35	4800275	6	1/2" x 1-1/2" Button Head Socket Screw -Torx Drive
36	5000006	14	1/2" Lock Washer
37	5000004	14	1/2" Flat Washer
38	4900001	4	1/2" Hex Nut

BATTERY DISCONNECT SWITCH



BATTERY DISCONNECT SWITCH

ITEM	PART NO.	QUANITY	DESCRIPTION
1	5700002	2	12 Volt Battery \801/50
2	5700012	1	Battery Cable 2/0 x 20"\Red
3	5700013	1	Battery Cable 2/0 x 18"\Black
4	5700014	1	Battery Cable 2/0 x 19"\Black
5	5700015	1	Battery Cable 2/0 x 8"
6	5700016	1	Battery Disconnect Switch

DECALS

23 **Manufactured BY DURATECH**

10 **DANGER**

OBJECTS THROWN BY MACHINE.
DO NOT OPERATE WITHOUT
WEARING SAFETY GLASSES
AND A HARD HAT.
KEEP UNAUTHORIZED PERSONNEL
OUT OF THE GRINDING AREA!

6500118

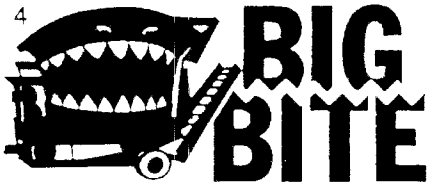
6

KEEP WHEEL BOLTS TIGHT

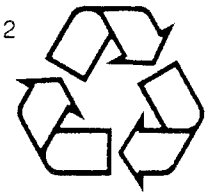
12 **OIL LEVEL**

15

4



2



RECYCLE

1 **WARNING**

KEEP OFF
MACHINE WHILE
IN OPERATION

14

18

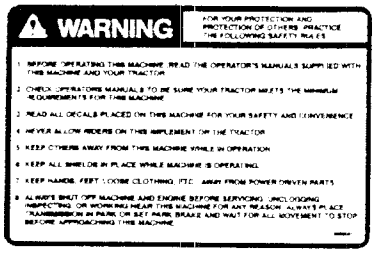
ENGINE SERVICE REPORT

_____ Check engine oil level
_____ Check engine coolant
_____ Check batteries
_____ Check air cleaner for obstructions
_____ Check exhaust for obstructions

7 **WARNING**

FOR YOUR PROTECTION KEEP ALL SHIELDS IN PLACE AND SECURED WHILE MACHINE IS OPERATING. MOVING PARTS WITHIN CAN CAUSE SEVERE PERSONAL INJURY.

8



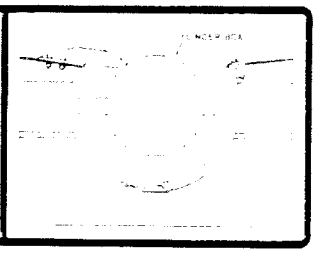
24 **WARNING**

WAIT FOR ALL MOVEMENT TO STOP
FAILURE TO USE CAUTION COULD
RESULT IN SERIOUS INJURY OR DEATH

16 **DIESEL FUEL**

11 **IMPORTANT**

DO NOT ENGAGE CLUTCH AT HIGH ENGINE RPM. BEFORE STARTING ENGINE, CYLINDER BOX SHOULD BE CLEARED OF ALL MATERIAL. SET ENGINE AT APPROXIMATELY 1000 RPM. PULL FIRMLY ON LEVER WHEN ENGAGING CLUTCH TO PREVENT EXCESSIVE SLIPPAGE. CHECK PERIODICALLY FOR PROPER ADJUSTMENT ACCORDING TO SPEC. PLATE ON CLUTCH HOUSING. DAMAGE DUE TO EXCESSIVE SLIPPING WILL NOT BE COVERED BY WARRANTY.



17 **HYDRAULIC OIL**

13 **CAUTION**

INSERT TRANSPORT LOCKS
BEFORE MOVING ON ROADS

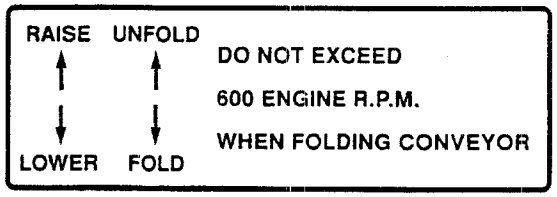
5 **DANGER**

ROTATING PARTS WITHIN
CAN KILL OR DISMEMBER
WAIT FOR ALL MOVEMENT TO STOP
BEFORE SERVICING, UNCLOGGING
OR INSPECTING MACHINE

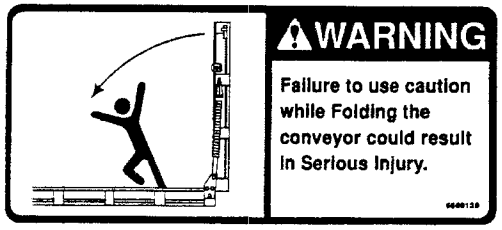
5500082

21 **HD-12**

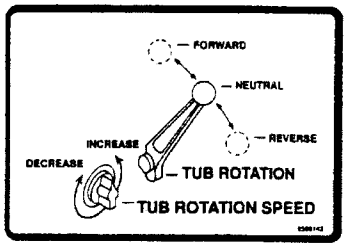
9



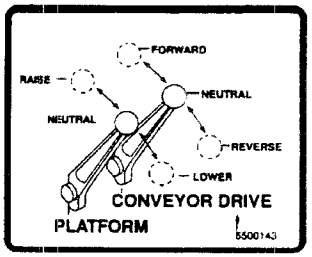
22



20



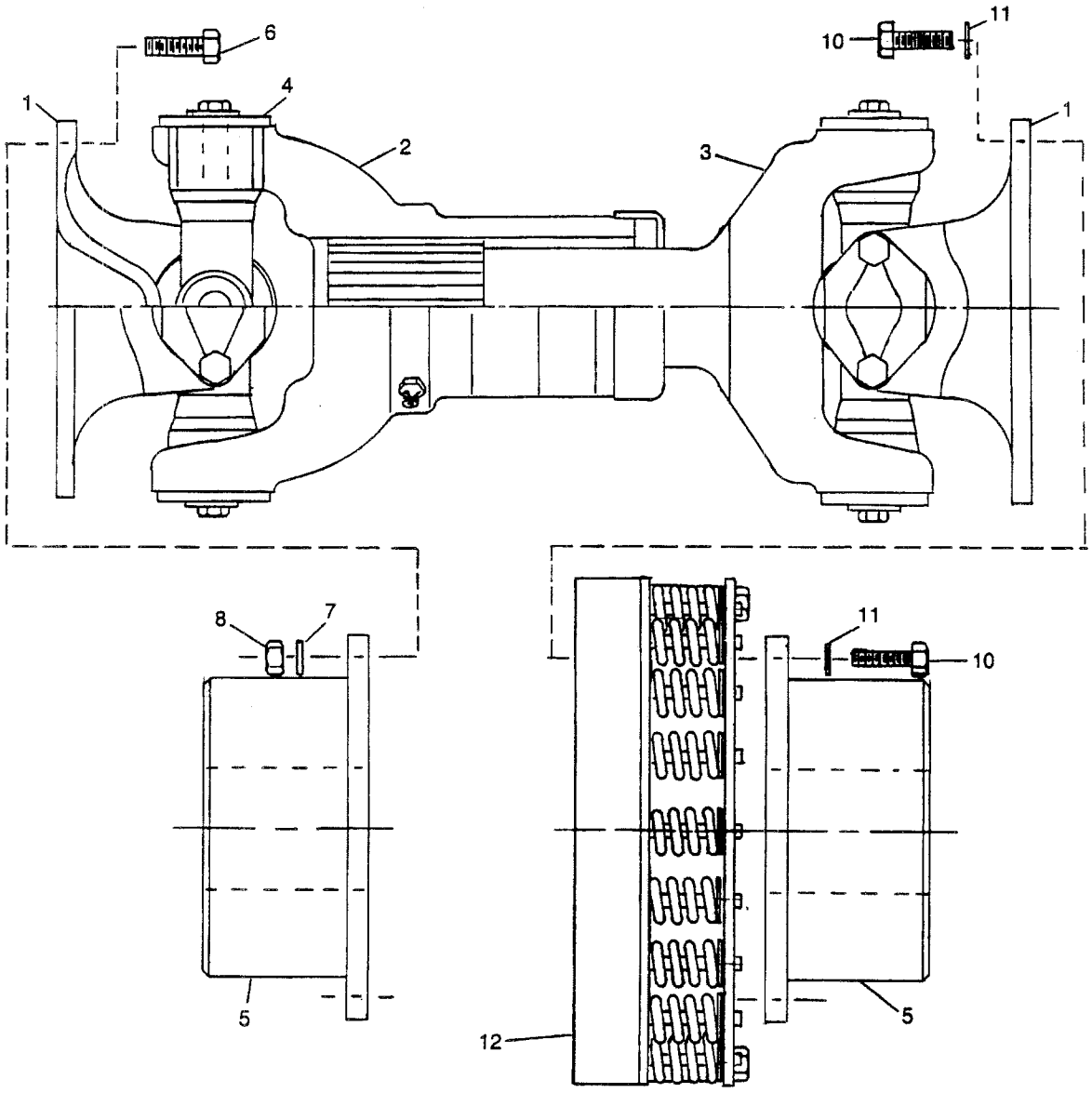
19



3 **HEAVY-DUTY**

ITEM	PART NO.	QUANITY	DESCRIPTION
1	6500115	2	Keep Off
2	6500116	2	Recycle
3	6500135	2	Heavy Duty
4	6500044	2	Big Bite
5	6500082	4	Rotating Parts
6	6500042	2	Wheel Bolts
7	6500040	3	Keep Shields in Place
8	6500041	2	For Your Protection
9	6500120	1	Conveyor (Valve)
10	6500118	2	Danger - Objects Thrown By Machine
11	6500121	1	Clutch
12	6500052	2	Oil Level
13	6500112	1	Transport Locks
14	6500043	2	No Riders
15	6500056	2	Rotation
16	6500123	1	Diesel Fuel
17	6500124	2	Hydraulic Oil
18	6500132	1	Engine Service Report
19	6500143	1	Conveyor Drive & Platform
20	6500142	1	Tub Rotation
21	6500138	2	HD-12
22	6500139	2	Failure To Use Caution
23	6500117	2	Mfg. by DuraTech
24	6500110	1	Wait For All Movement
	6500233		HD-12 Decal Kit

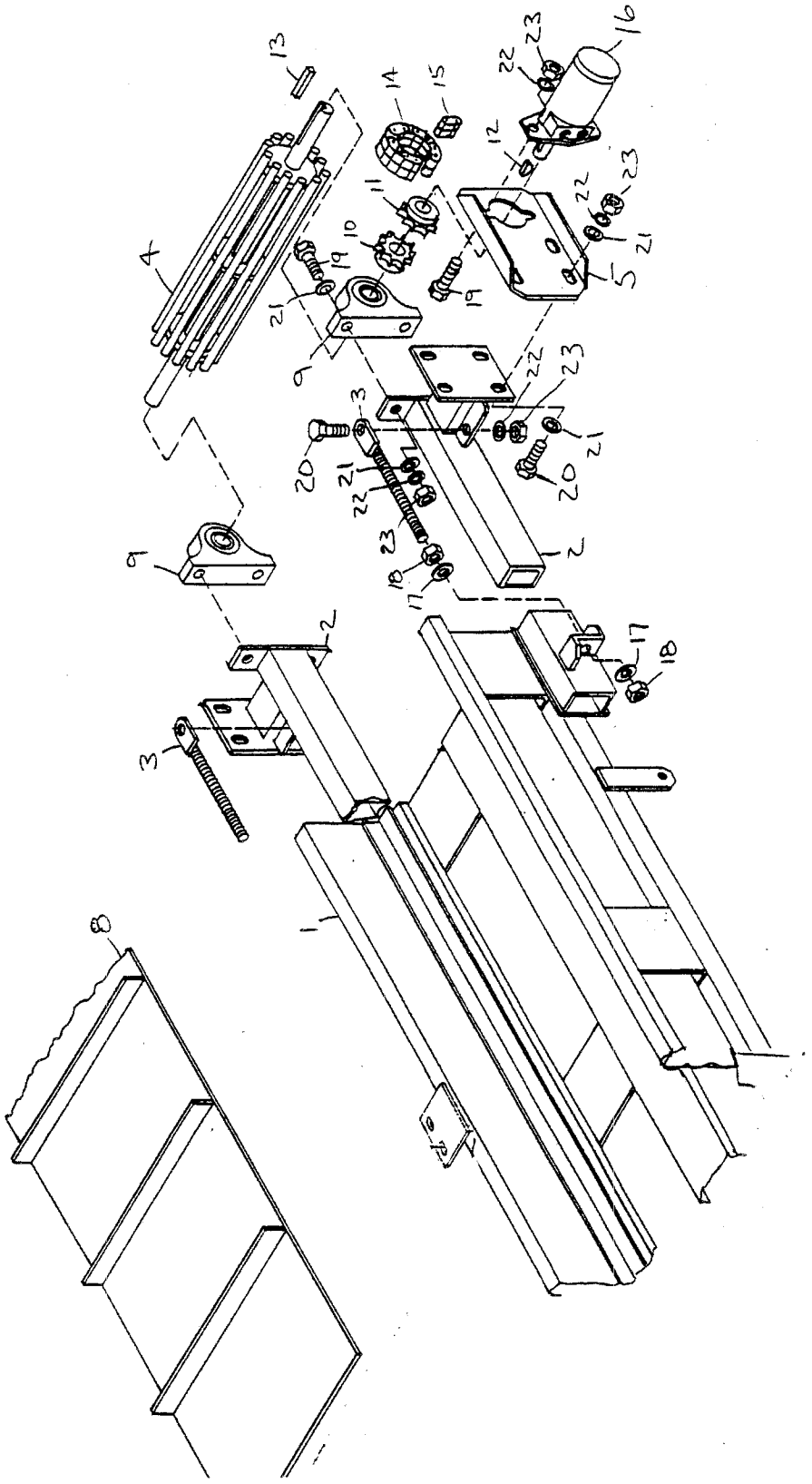
POWER SHAFT



POWER SHAFT

ITEM	PART NO.	QUANITY	DESCRIPTION
1	3600152	2	Flange Yoke\1710
2	3600153	1	Slip Yoke\1710
3	3600154	1	Yoke Shaft\1710
4	3600155	2	Journal and Bearing Kit\1710
5	3600333		FLG\3-15/16X4L\1810\HUB
	3600178		Flange 3-15/16" ID x 6" Long\ Motor End 1" KW
	3600176		Flange 4" ID x 4" Long \ 1" KW
6	4800252	8	7/16" x 1-3/8" NF Bolt- Grade 8
7	5000015	8	7/16" Lock Washer
8	4900059	8	7/16" NF Nut
9	3600158		Power Shaft (Complete)18"
10	4800487	16	3/8" x 1-1/4" NF Bolt - Grade 8
11	5000019	16	3/8" Lock Washer
12	3600179	1	Torque Limiter UJT36
	6200030		1" x 1" Key 8-1/2" Long

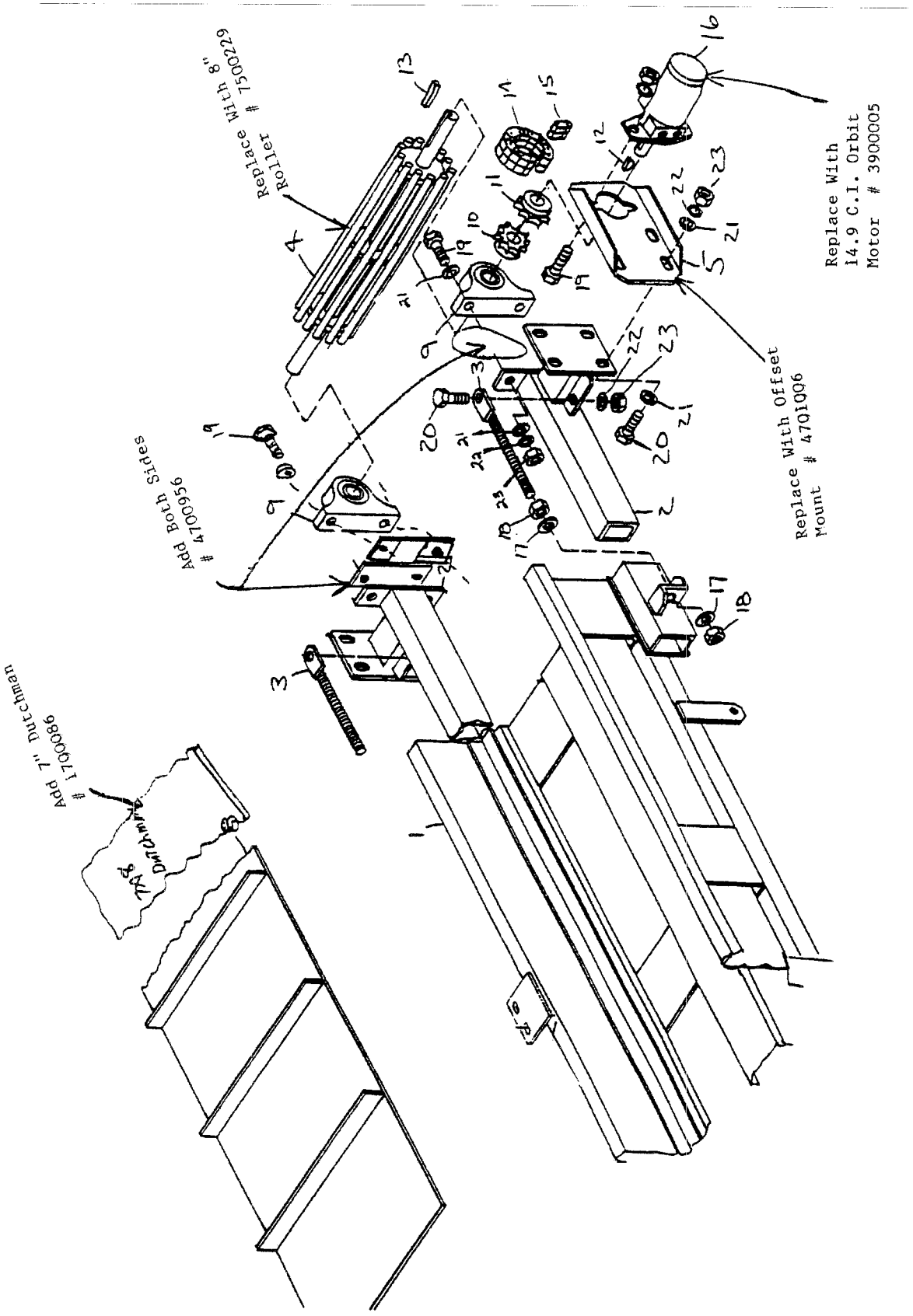
DISCHARGE CONVEYOR UPPER DRIVE



DISCHARGE CONVEYOR UPPER DRIVE

ITEM NO.	PART NO.	QUANITY	DESCRIPTION
1	4701035	1	Top Conveyor Frame
2	4700768	2	Bearing Mount
3	4700077	2	Adjusting Rod
4	4700780	1	Drive Roller
5	4700862	1	Orbit Motor Mount
6			
7			
8	1700006	1	Belt 18"x43'6"
9	2000501	2	Bearing 1-1/2" Pillow Block
10	1000081	1	60B18 Sprocket 1-1/2" Bore
11	1000054	1	60B18 sprocket 1-1/4" Bore
12	6200004	1	5/16" Sq. x 1-1/2" Key
13	6200007	1	3/8" Sq. x 1-1/2" Key
14	1100066	1	60-2 17 Link Chain
15	1100064	1	60-2 Connector Link
16	3900014	1	Orbit Motor 9.6 Cu.In.
17	5000002	4	5/8" Flat Washer
18	4900005	1	5/8" Nut
19	4800114	6	1/2" X 2" Bolt
20	4800082	6	1/2" x 1-1/2" Bolt
21	5000004	16	1/2" Flat Washer
22	5000006	12	1/2" Lock Washer
23	4900001	12	1/2" Nut
24			
25			
26			
27			
28			
29			
30	4900052	2	#10 Hex Nut
31	1700052	1	Lacing Cable
	4701007		Option\Rllr\Mag\Complete
	4700722		Bottom Conveyor Frame

MAGNETIC ROLLER \ 8”



MAGNETIC ROLLER \ 8”

ITEM	PART NO.	QUANITY	DESCRIPTION
n\a	3900005	1	14.9 C.I. Orbit Motor
n\a	7500229	1	8” Magnetic Roller
n\a	4700956	2	Bearing Offset Bracket
n\a	4700139	1	Chute
n\a	4700140	1	Chute End Section
n\a	4700138	2	Front Chute Bracket
n\a	4700137	2	Rear Chute Bracket
n\a	1700086	1	7” x 18” Dutchman Belt
n\a	1700052	2	Lacing Pin
n\a	4800003	12	Bolt\Hex\3/8 x 1
n\a	5000019	12	Wash\Lock\3/8
n\a	4900002	12	Nut\Hex\3/8
n\a	4701006	1	Bracket\Offset\Orbit Motor
n\a	4800114	4	Bolt\Hex\1/2 x 2
n\a	5000004	8	Wash\Flat\1/2
n\a	5000006	4	Wash\Lock\1/2
n\a	4900001	4	Nut\Hex\1/2