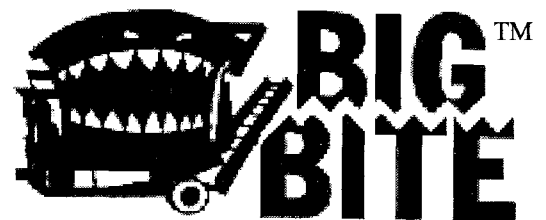




**H-1100
TUB GRINDER
OPERATOR'S
MANUAL AND
PARTS BOOK**

SERIAL NUMBER G12891 TO I12965



DuraTech Industries International Inc. (DuraTech) has made every effort to ensure that this manual completely and accurately describes the operation and maintenance of the H1100 Tub Grinder as of the date of publication. DuraTech reserves the right to make updates to the machine from time to time. Even in the event of such updates, you should still find this manual to be appropriate for the safe operation and maintenance of your unit.

This manual, as well as materials provided by component suppliers to DuraTech Industries are part of the information package. Every operator must read and understand these manuals, and they must be within easy access for periodic review.

DURATECH with logo and Haybuster with sunburst are registered trademarks of DuraTech Industries International, Inc.

H1100 and Big Bite with logo are trademarks of DuraTech Industries International, Inc.

FOREWORD

1. **All personnel must read and understand the following sections before operating the H1100 Tub Grinder:**

Section 2, "Dealer Preparation," to verify that the machine is ready for use.

Section 3, "Introduction," which explains normal operation of the machine

Foreword and Section 4, "Important safety information."

Section 5.1, "Pre-Operation Inspection."

2. **Appropriate use of unit**

The H-1100 Tub Grinder is designed to grind material into more palatable or manageable rations for your operation. It has multiple uses:

1. Grind most types of hay
 - Big round bales
 - Loose hay
 - Square bales
2. Grind most types of grain
 - Ear corn
 - Shell corn
 - High moisture corn
 - Most small grains
3. Grind most types of crop residue
 - Stover
 - Straw
4. Grind various sizes
 - Screens are available from 1/8" to 8"
 - Combine screen sizes to get desired cut

3. **Operator protection**

The operator is responsible for the safety of the operator and others in the grinding area. As with all machinery, take care in order to insure the safety of the operator and those in the surrounding area.

Operators of the H1100 Tub Grinder must wear head, eye, and ear protection. No loose clothing allowed.

Table of Contents

FOREWORD	1
1. All personnel must read and understand the following sections before operating the H1100 Tub Grinder:	1
2. Appropriate use of unit	1
3. Operator protection	1
TABLE OF CONTENTS	2
PART 1: OPERATING INSTRUCTIONS	4
1. Section 1: How to use this manual	4
1.1. Manual organization	4
1.2. Dealer responsibilities	5
1.3. Operator responsibilities	6
2. Section 2: Dealer Preparation	7
2.1. Required Assembly	7
2.2. Pre-delivery inspection	8
3. Section 3: Introduction to the H1100 Tub Grinder	10
3.1. Operator's Controls	10
3.2. Governor	10
3.3. Rotor	11
3.4. Screens	11
3.5. Tub	11
3.6. Conveyors; Drives & Lifting	12
3.7. Slug Buster Paper Grate	12
4. Section 4: Safety	13
4.1. Shielding	13
4.2. Personal Equipment	13
4.3. Safety Review	13
4.4. Fire Safety	14
4.5. Towing	14
4.6. Thrown Object Warning	14
4.7. Decals	16
5. Section 5: Operation	17
5.1.1. Before Operating Inspection	17
5.2. Machine Operation	18
5.2.1. Tractor Set Up	18
5.2.2. How to hook up to tractor	19
5.2.3. How to disconnect from tractor	19
5.2.4. How to operate machine as a unit.	19
5.3. Shutdown procedures	20
5.3.1. Normal	20
5.3.2. Emergency	20
5.4. Road Transport,	21
5.4.1. Folding the conveyor	21
5.4.2. Set up to transport	22
5.4.3. Change back to operate	22
5.5. Storage	22
5.5.1. Preparing for storage	22
5.5.2. Removing from storage	22
6. Section 6: General Maintenance	23
6.1. Lubrication	24
6.2. Hydraulic system	27
6.3. Screens	27
6.4. Conveyor Belt Adjustments	27

6.5.	Tub Chain	29
6.6.	Hammer Mill	30
6.7.	Electronic governor	32
7.	Troubleshooting	39
8.	Appendix	40
8.1.	Warranty	40
8.2.	Specifications	41
8.2.1.	H-1100 Tub Grinder	41
8.2.2.	Required for operation	41
8.3.	Options	42
PARTS BOOK TABLE OF CONTENTS		45

Part 1: Operating Instructions

1. Section 1: How to use this manual

1.1. Manual organization

This manual is organized into the following parts:

Part 1: Operating Instructions

Section 2 list the preparation required by the dealer before delivery,

Section 3 describes the purposes of each part.

Section 4 describes safe procedures.

Section 5 tells how to use the H1100 Tub Grinder.

Section 6 describes how to maintain the H1100 Tub Grinder.

Part 2: Part's reference contains diagrams of each assembly, with the part number of each part. A key on the same or facing page contains a description of the part and the quantity used.

Note: When referring to front, rear, right hand or left hand of the machine, the reference is made standing at the discharge end of the machine looking towards the hitch.

Always use serial number and model number when referring to parts or problems.

MODEL **H1100**

SERIAL NO _____

1.2. Dealer responsibilities

- ◆ Thoroughly review Section 2, “Dealer Preparation,” and perform the tasks outlined. Also perform a daily pre-operation inspection as described in Section 5, “Operation.”
- ◆ Upon delivery of the unit to the customer, it is your responsibility to conduct a training session on the safe operation of the unit for the primary operator(s). You must also conduct a “walk-around” inspection of all safety instructional decals on the machine itself. Decals are illustrated in Part 2: Parts Reference.
- ◆ Complete and return the Warranty Registration postcard. DuraTech must receive this form before activating the warranty. Appendix 8.1 provides details of the warranty.

1.3. Operator responsibilities

- Review Section 2, "Dealer Preparation," to verify that the H1100 Tub Grinder has been prepared for use.
- Note the important safety information in the Foreword and in Section 4, "Safety."
- Thoroughly review sections 3 through 5, which explain normal operation of the machine, and section 6, which explains maintenance requirements. These sections will function as your textbook during the dealer-conducted training course that is required before you can use the unit.
- Manuals for certain allied supplier's components are provided separately. You should also be familiar with their contents.
- Keep copies of all manuals in a readily accessible location for future reference.

2. Section 2: Dealer Preparation

2.1. Required Assembly

Conveyor Assembly

Before starting to assemble conveyor to H1100 Tub Grinder frame, park H1100 Tub Grinder on level ground and place conveyor behind H1100 Tub Grinder. Review shipping kit list and verify that all small parts are in the shipping kit. Review Part Book pages on the Hydraulic Conveyor Lift to identify arrangement of parts listed below.

STEP 1. Conveyor lift straps (4500965) are shipped with the conveyor, and must be installed. Attach the end of the lift strap to the upper end of the discharge conveyor; on lift bracket 4500978 (see Figure 1).

STEP 2. Remove stabilizer brackets and drive chain shield from rear of conveyor frame. Two pillow block bearings should be on the lower conveyor shaft. Using a chain hoist or loader, place the lower end of the conveyor on the bearing mounts. Loosen eccentric lock collars so the bearing can slide freely on the shaft. Bolt pillow block bearings in place.

STEP 3. Reassemble the stabilizer brackets.

STEP 4. Center conveyor between stabilizer brackets by sliding shaft in bearings. Lock bearings to shaft.

STEP 5. Raise conveyor with loader or hoist until the other end of the lift straps can be bolted to the conveyor lift frame 4500963. Bolt Lift straps to lift frame.

STEP 6. Install quick coupler tips on hydraulic hoses. Attach hydraulic hoses to tractor. On a tractor with adjustable hydraulic flow rate, adjust the oil flow to a minimum rate. With tractor engine idling, engage the tractor hydraulics to purge air out of the control valve line. If the hydraulics kick out, reverse the hoses to the tractor or reverse the lever position and try again. Leave the tractor hydraulics engaged. Clear the area around the discharge conveyor of objects and people. Move the conveyor lift valve lever (rear valve) to raise the conveyor. Remove the

Lift straps are installed.

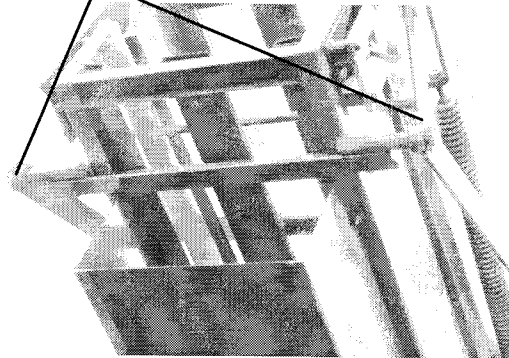
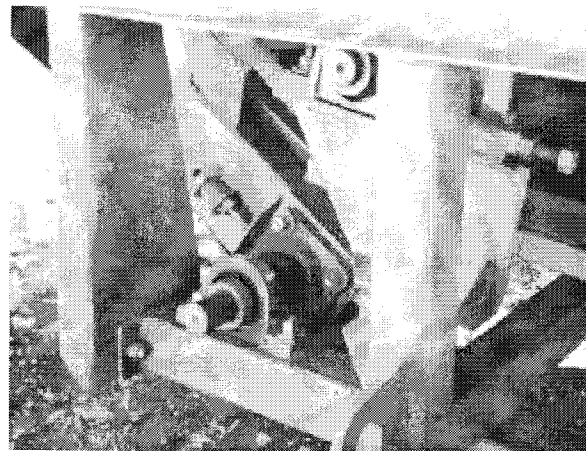
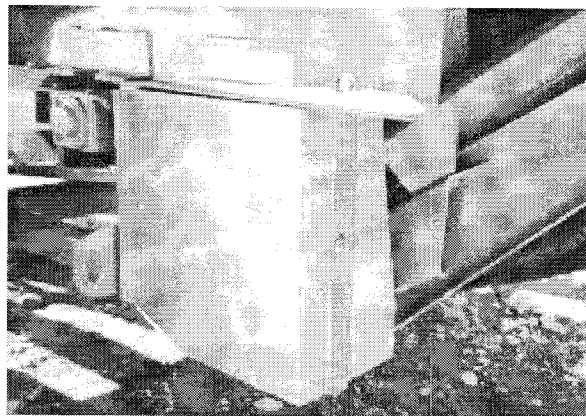


Figure 1, View of bottom side of Conveyor



Stabilizer bracket and pillow block bearing installed on right side of discharge conveyor.



Stabilizer bracket and drive chain shield installed on left side of discharge conveyor.

lock pins and move the lever to lower the conveyor. The conveyor cylinder may need to be cycled several times until the air is purged from the cylinder. Stop the conveyor lift frame in the fully raised position and insert the transport lock pins.

STEP 7. Loosen allen screws and align sprocket on conveyor shaft with driving sprocket.

STEP 8. Install No. 60 chain, adjust chain idler.

STEP 9. Install drive chain shield.

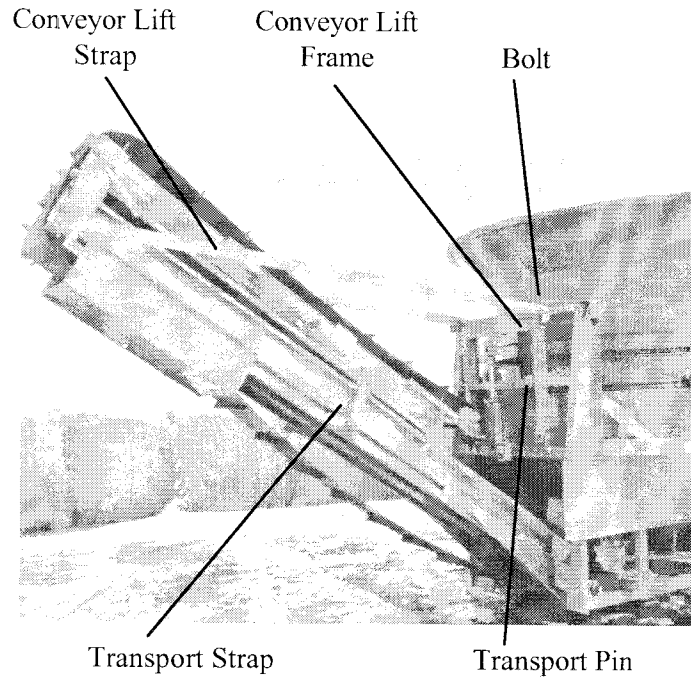


Figure 2, Conveyor Setup

2.2. Pre-delivery inspection

Check off each item as it is found satisfactory or after finishing corrections.

- ◇ Check H1100 Tub Grinder for shipping damage or missing parts.
- ◇ H1100 Tub Grinder is properly assembled. See Section 2.1
- ◇ Tires are inflated to proper pressure, 50 PSI.
- ◇ Wheel bolts are tightened to 150 ft-lbs.
- ◇ Drive chains and belts are proper tension and in good condition.
- ◇ H1100 Tub Grinder has been properly lubricated. Page 24
- ◇ Hydraulic oil level is correct.
- ◇ Hydraulic connections do not leak.
- ◇ All shields are in place and decals are readable.
- ◇ Check hammer arrangement and proper clearance hammer to screen.
- ◇ Check tub rollers and pressure rollers for proper alignment.
- ◇ H1100 Tub Grinder responds correctly to controls. Electronic governor working properly.

- ◇ Conveyor belts run and track properly.
- ◇ Discharge conveyor raises and lowers.
- ◇ Check H1100 Tub Grinder for any excessive vibration with rotor at 2000 rpm (tractor PTO at 1200 rpm).
- ◇ Check tub drive chain for proper operation. Tub chain teeth engage chain smoothly in forward and reverse
- ◇ Scratches are all painted.

DELIVERY CHECKLIST: Review the operator's manual with the customer and explain the following:

- ◇ DuraTech warranty, page 40
- ◇ Safe operation and service. Page 13
- ◇ H1100 Tub Grinder controls and operation. Page 17
- ◇ Importance of correct hydraulic level. Page 27
- ◇ Daily and periodic lubrication and maintenance. Page 24
- ◇ DuraTech parts and service
- ◇ Advise the customer not to remove any shields or guards.
- ◇ Electronic Governor operation. Page 32
- ◇ Record serial number on page 4.
- ◇ Encourage the customer to read the Operations Manual
- ◇ Give the customer the Operations Manual

This H1100 Tub Grinder has been checked and to the best of my knowledge is ready to deliver to the customer.

Date delivered: _____

Signature: _____

3. Section 3: Introduction to the H1100 Tub Grinder

A description of individual parts of machine

3.1. Operator's Controls

Operator controls include:

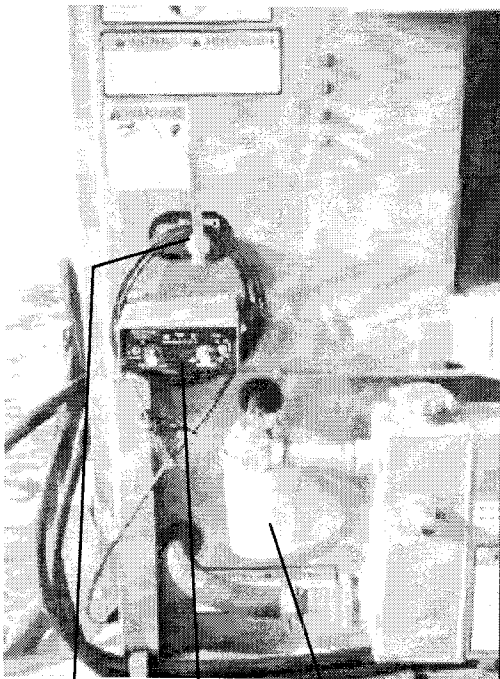
Governor, regulates tub rotational speed range

Front hydraulic valve, controls hydraulic oil flow to tub orbit motors. Starts and stops the tub rotation.

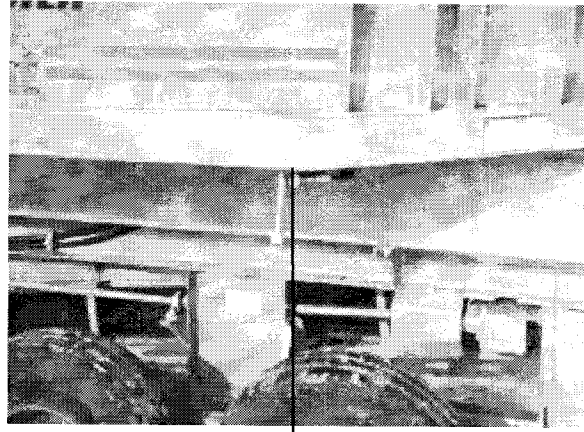
Rear hydraulic valve raises and lowers rear conveyor. One tractor hydraulic circuit is required to power this circuit.

Tractor engine speed. Should be set so 1000 PTO shaft is running at 1200 RPM

Tractor PTO lever, when engaged spins rotor, runs both conveyor belts and powers tub hydraulic drive. The conveyor must be unfolded to working position before the PTO is engaged.



Front Hydraulic Valve
Governor
Hydraulic Oil Filter



Rear Hydraulic Valve

3.2. Governor

The Model RCB93 Electronic Governor automatically controls the feed rate to keep the tractor engine operating at its optimum power zone ("Engine mode"). When the load on the grinding rotor begins to lug the tractor, the governor automatically reduces tub rotation speed in proportion to the load. The result is a nearly constant load on the tractor, 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 tractor engine. The hydraulic flow to the tub drive mechanism is regulated proportionally to the tractor 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. See section 6.7 for calibration instructions

IMPORTANT: Always use the Engine (Auto) mode of the electronic governor except when calibrating or trouble shooting the electronic governor.

3.3. Rotor

The Rotor and screens are the heart of the tub grinder. The rotor on this H1100 Tub Grinder is equipped with 88 swinging hammers. Dull edges on the hammers and/or screens will result in a loss of capacity and increased horsepower requirements.

Hammer and hammer rod life can be extended by keeping the rotor rotating at 2000 RPM.

Excessive tractor horsepower and/or overfeeding the rotor can cause the hammers to lay back resulting in excessive wear on both the hammers and hammer rods.

CAUTION: Keep all foreign objects out of the tub and away from the rotor. Foreign objects may cause personal injury or damage to the H1100 Tub Grinder.

At full speed, energy is stored in the rotor. Do not use the tractor PTO brake to stop the rotor.

3.4. Screens

All H1100 Tub Grinders require two screens. They come equipped from the factory with a 2" diameter hole screen and a 3" diameter hole screen. Any combination of hole sizes may be used. When using a combination, place the smallest hole diameter on the right hand side of the rotor box where the material enters the rotor.

The size of the hole in the screen determines the coarseness of grind. The larger the hole diameter, the coarser the grind. Hole sizes can vary from 1/8" diameter through 8" diameter. In general, use the larger screen sizes for grinding hay.

As a general guide, DuraTech recommends the following screen sizes:

Hay.....2" to 8"

Ear Corn.....5/8" to 1"

Shelled Corn3/4" dry, 5/8" high moisture

Small Grains.....1/4" to 3/8"

3.5. Tub

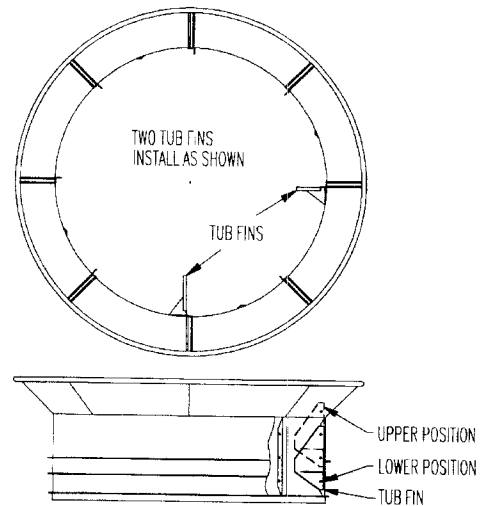
The purpose of the tub is to contain the material above the rotor, and to keep the rotor loaded

Tub Fins

Two tub fins are furnished with the H1100 Tub Grinder.

When grinding large round bales, use only one of the tub fins, bolted in the upper position. Two tub fins across from each other may hold the bale up and reduce capacity.

When grinding small round bales, square bales, or loose hay, use two tub fins bolted in the lower position.



3.6. Conveyors; Drives & Lifting

Hydraulic Lift Discharge Conveyor

A manual valve on the H1100 Tub Grinder controls the conveyor lift. The tractor supplies hydraulic oil for operating the conveyor lift system. Activate the tractor hydraulic circuit before the valve on the H1100 Tub Grinder.

A check valve (4000118) in the line prevents reverse flows. The valve will stop oil flow if the hoses are reversed or if the flow rate is too high. To correct the reverse flow, either change the hoses around where they connect to the tractor, or reverse the tractor operating lever position. On a tractor with adjustable hydraulic flow rate, adjust the oil flow to a minimum rate.

A velocity check valve (4000119) is in the hose to the hydraulic cylinder. This valve is to keep the conveyor from falling in the event of a broken hose. If this does happen, the valve will not open until the hose is repaired and pressure is applied to the hose.

3.7. Slug Buster - Mill Grate

A slug buster controls the amount of hay entering the rotor.

A mill grate controls the amount of paper entering the rotor.

4. Section 4: Safety

The operator is responsible for the safety of the operator and others in the grinding area.

4.1. Shielding

Shields are installed for your protection. Keep them in place. Replace damaged shields.

4.2. Personal Equipment

Operators of the H1100 Tub Grinder must wear head, eye and ear protection. No loose clothing permitted.

4.3. Safety Review

BEFORE OPERATING

1. Read and follow all instructions contained in:
 - Operators Manual
 - Tractor Operators Manual
 - Decals placed on H1100 Tub Grinder.Note - Your dealer has additional copies of these materials.
2. Allow only properly instructed, responsible individuals to operate your machine. Carefully supervise inexperienced operators.
3. Use a tractor that meets the requirements contained in this manual. See Appendix D, Required for Operation, page 41.
4. Make sure the H1100 Tub Grinder is in good operating condition and that all protective shields are in place and in proper working order. Replace damaged shields before operating.
5. Be sure all bystanders and other workers are clear before starting tractor and grinder.
6. Make no modifications to the H1100 Tub Grinder unless specifically recommended or requested by DuraTech.
7. Check periodically for broken or worn parts and make necessary repairs.
8. Be sure the unit is securely attached to tractor during grinder operation and road transport.

DURING OPERATION

1. Enforce the following safety precautions to prevent serious personal injury.
 - Keep everyone clear of work area except operator seated at tractor controls.
 - **Never work on or near grinder unless engine is off, and all motion has stopped.**
 - Disengage PTO before starting engine.
2. Power take off shafts must be locked in place with protective PTO shields in place.
3. Keep hands, feet, and clothing away from power driven parts.
4. **Never leave tractor controls unattended while engine is running.**
5. Keep shields in place and in good condition.
6. Watch out for and avoid any object that might interfere with the proper operation of the machine.
7. Loose clothing, necklaces, and similar items are more easily caught in moving parts. Avoid the use of these items and keep long hair confined.
8. Avoid operation on rough or steep terrain.
9. Be sure tractor brakes are properly adjusted and foot pedals are locked together.

NORMAL SHUTDOWN PROCEDURE

For your safety and the safety of others, you must use the following normal shutdown procedure before leaving the controls unattended for any reason, including servicing, cleaning, or inspecting. A variation of the following procedure may be used if so instructed within this manual or if an extreme emergency requires it.

1. Run H1100 Tub Grinder until discharge conveyor is empty.
2. Disengage PTO
3. Disengage hydraulics.
4. Place transmission in park and set parking brake.
5. Shut off tractor engine and remove key.
6. Wait for all movement to stop.
7. Disconnect PTO driveline from tractor.

4.4. Fire Safety

NOTE: A fire extinguisher must be available at all times due to the possibility of sparks from tractor or hammers hitting a foreign object.

4.5. Towing

CAUTION: DO NOT TRANSPORT THE H1100 TUB GRINDER without first securing the conveyor in the transport position (see 5.4.1, page 21).

1. Be sure all loose parts are securely fastened down.
2. Make sure all bystanders are clear.
3. Hitch H1100 Tub Grinder to a tow vehicle with adequate load carrying and braking capacity. Be sure to attach safety chains between tow vehicle and H1100 Tub Grinder.
4. Pull PTO apart and set end in transport bracket..
5. Ensure that hitch jack is in the up position.
6. Check the turning clearance between H1100 Tub Grinder and the towing vehicle.
7. Check local ordinances regarding restrictions for H1100 Tub Grinder travel on your planned route.
8. Be aware of machine width at all times and do not exceed 20 miles per hour.
9. Check your state laws regarding the use of lights, slow moving vehicle signs, and other possible requirements.
10. Use good judgment and drive carefully, especially over rough and uneven roads.

4.6. Thrown Object Warning

An operational characteristic of all tub grinders is that objects may be thrown out of the tub. Thrown objects may present a safety hazard to persons in the area. This section is to inform the operator of this characteristic, and what can be done to reduce the risk of injury to the operator and persons in the area.

Figure 4 shows an object being hit as the hammer is on the upswing. Figure 3 shows a general pattern for where thrown objects may land. Note the difference in the size of the area for side A versus side B. Side B is larger.

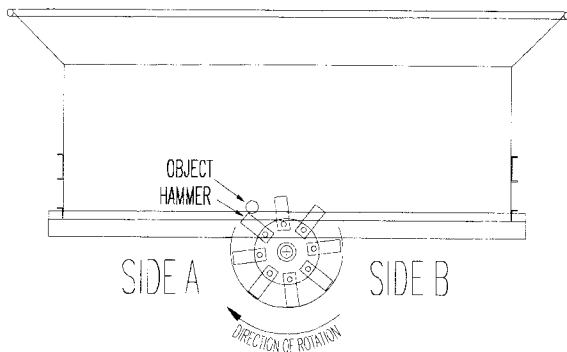


Figure 4, Hammer about to hit object

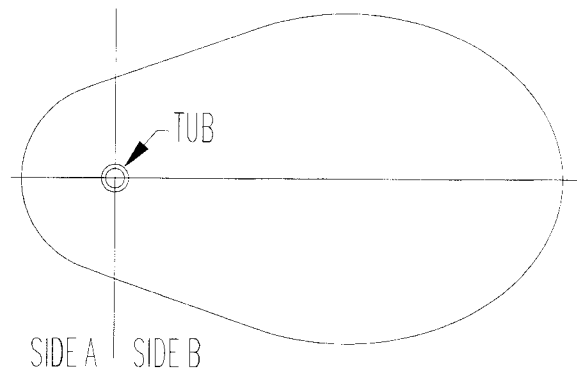


Figure 3 Thrown object area

Dimensioning the size of this area is not practical. The distance a thrown object may travel is dependent on several conditions, including, but not limited to, rotor speed and diameter, condition of the hammers, style of hammers, object mass, object shape, amount of material in the tub, and how the hammer strikes the object.

The amount of material in the tub can dampen or stop the object's potential flight. Keeping the tub full will reduce the risks. Filling the tub at least 1/2 full when starting will reduce the risk. A risk may arise when the tub is being emptied, such as at the end of the grind. Running the engine at slower speeds when starting or finishing the grind will also help, especially slowing down when emptying the tub.

To minimize the potential risk of injury, the operator must:

- a) Place side B towards open areas, away from property and people.
- b) Load the grinder on side A with a loader equipped with an enclosed cab.
- c) Keep observers out of the areas.
- d) Wear a hard hat and safety glasses, at a minimum, and require that any other persons in the areas are similarly equipped.

4.7. Decals

SAFETY DECALS

DuraTech uses industry accepted ANSI standards in labeling its products for safety and operational characteristics. Red and white **DANGER** signs indicate that you **WILL** be severely injured if the recommendations on the danger sign are not followed. Orange **WARNING** decals indicate a potentially hazardous situation, which if not avoided, may result in death or serious injury. Yellow **CAUTION** decals indicate a potentially hazardous situation, which if not avoided, may result in a minor or moderate injury. In addition, black on white **ATTENTION** decals indicate non-safety related operational characteristics and procedures for the machine.

Decals are illustrated in **Part 2: Parts Reference, Decals**.

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

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

- a) Keep decals clean. Use soap and water -- not mineral spirits, adhesive cleaners and other similar cleaners that will damage the decal.
- b) Replace all damaged or missing decals. When attaching decals, surface temperature of the machine must be at least 40° F (5° C). The surface must be clean and dry.
- c) When replacing a machine component to which a decal is attached, be sure to also replace the decal.
- d) Replacement decals can be purchased from your DuraTech dealer.

5. Section 5: Operation

There is no substitute for a sound preventative maintenance program and a well-trained operator.

To insure long life and economical operation, learn how to operate the H1100 Tub Grinder and how to use the controls properly. Thoroughly instruct the operator in maintenance and operation of the H1100 Tub

5.1.1. Before Operating Inspection

Prior to the starting the H1100 Tub Grinder, make a visual inspection of the machine. This can be done when lubricating the machine. Any items that are worn, broken, missing or needing adjustment must be serviced accordingly before operating the H1100 Tub Grinder.

WARNING: Before inspecting the machine, use the normal shutdown procedure found on page 20.

BEFORE OPERATING CHECKS

Before operating the H1100 Tub Grinder, follow these instructions:

1. Read and understand the operator's manual.
2. Learn how to operate the controls properly. Do Not let anyone operate without instruction.
3. Know the machine's safety features and understand the safety precautions.
4. Be sure the machine is hitched properly to the tractor.
5. Be sure to lubricate all lubrication points. See lubrication chart, page 24.
6. Check for loose bolts.
7. Make sure machine is properly adjusted.
8. Check hydraulic oil level
9. Check hydraulic components for leaks or damage.

WARNING: Hydraulic fluid escaping under pressure can be almost invisible and can have sufficient force to penetrate the skin. When searching for suspected leaks, use a piece of wood or cardboard rather than your hands. If injured, seek medical attention immediately to prevent serious infection or reaction.

10. Visually examine rotor to see if any parts have excessive wear. These parts include shaft, plates, rods, hammers and moveable plate.
11. Check screens and screen hold downs for wear and tightness.
12. Check installation and condition of hammers.
13. Visually examine rotor bearings and mounting bolts.
14. Check all bearings for wear.
15. Check chains and belts for proper tension and condition.
16. Make sure all shields and guards are in place.
17. Condition of decals.
18. Lug nuts for tightness.
19. Condition of tire rims.
20. Tires for proper air pressure.
21. Always grind with the machine and tractor stationary on level ground.
22. In cold weather, allow five minutes for the machine to warm up before grinding.
23. Start the machine and check the tub direction, speed control governor for proper operation.
24. 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.
25. If grinding grain, be sure proper grain attachment is in place.

5.2. Machine Operation

5.2.1. Tractor Set Up

A tractor drawbar and 3-point arms can cause interference with the PTO driveline IID (Implement Input Driveline). This interference can cause serious damage to the IID guarding and the IID telescoping members.

If this implement is attached to a tractor with a clevis hitch (hammer strap) style drawbar, the hammer-strap must be removed to prevent damage to the IID guarding and the IID telescoping members. See Figure 5.

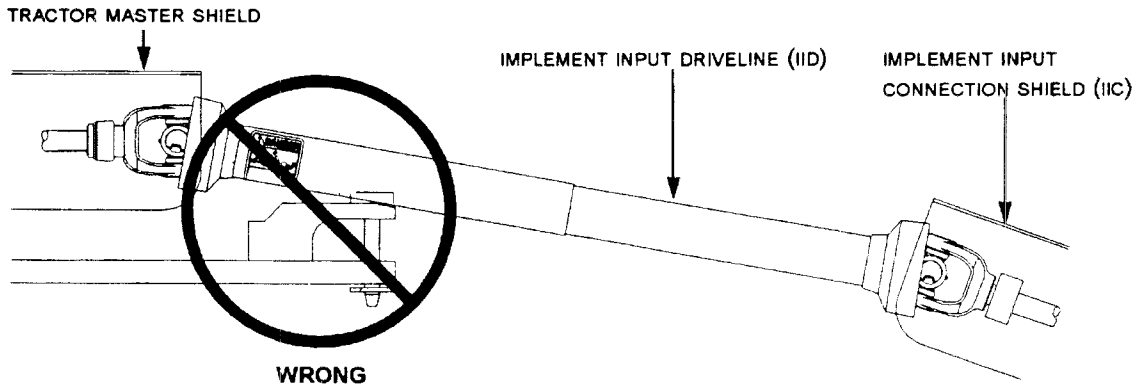


Figure 5

If this implement is attached to a tractor with an offset in the drawbar, be certain it is in the down position to prevent damage to the IID guarding and the IID telescoping members. See Figure 6.

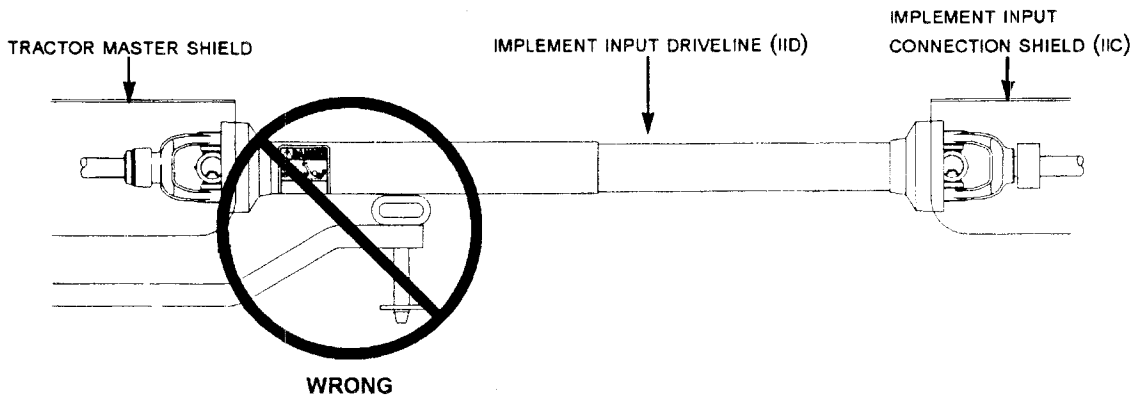


Figure 6

If this implement is attached to a tractor with 3-point arms, the arms must be fully raised and locked in position to prevent damage to the IID guarding and the IID telescoping members.

Adjust the tractor drawbar so the distance from the end of the PTO shaft on the tractor to the center of the drawbar hitch pin hole is 16" (41 cm.) for a 1000 RPM shaft as shown in Figure 7.

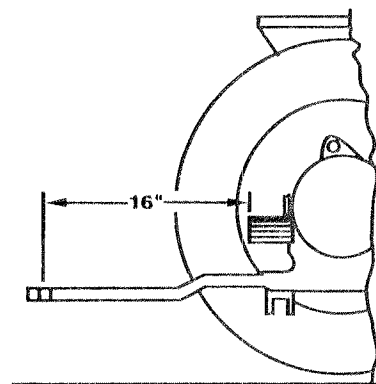


Figure 7

5.2.2. How to hook up to tractor

HITCHING TO THE TRACTOR

To reduce wear on the PTO shaft knuckle joints, tractor PTO shaft should be in line (parallel) with the H1100 Tub Grinder. If tractor is equipped with swinging drawbar, adjust so the tractor PTO and H1100 Tub grinder drive shaft are in line.

Connect hydraulic lines to the tractor.

Connect electrical lines to tractor.

CAUTION: To insure a safe hook-up, the H1100 Tub Grinder and tractor should be connected with a 1" locking pin.

5.2.3. How to disconnect from tractor

- 1 Park H1100 Tub Grinder and tractor on a level spot.
- 2 Lower jack to ground, place blocks under jack if ground is soft.
- 3 Disconnect electrical wires.
- 4 Disconnect hydraulic lines.
- 5 Disconnect PTO, place shaft in shaft holder, if so equipped.
- 6 Raise hitch of H1100 Tub Grinder to remove weight from tractor hitch by adjusting jack.
- 7 Remove hitch pin.
- 8 Drive tractor away slowly.

5.2.4. How to operate machine as a unit.

INTRODUCTION

Tractor engines are designed to reach maximum power at PTO speed (1000 rpm), and most tractors are capable of engine speeds from 10 to 20 percent over PTO speed. A rotor speed of 2000 rpm is recommended. It will be necessary to operate tractor PTO at approximately 1200 rpm.

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

GRINDING

Place materials to be ground directly into the tub. The best method for filling the H1100 Tub Grinder is:

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

LOOSE HAY

The best capacity will be obtained if the tub is consistently kept no less than half full of loose hay. When loading the tub, place materials slightly to the rear rather than directly over the rotor. Use the optional hay guide attachment to guide large quantities of loose hay into the tub (see Optional Equipment section). For best results feed the tub with small portions.

WET OR FROZEN HAY

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

LARGE ROUND BALES

Place large round bales in the tub on end or on the side. Try grinding bales each way to determine which method will work best for you.

IMPORTANT: Never drop a large round bale into the tub from a high level. Ease the bale over the edge and down into the tub carefully. Dropping a large bale directly on top of the rotor will cause damage to the rotor.

CROP RESIDUE

When grinding crop residues, use the same methods as with loose hay. Extremely wet or frozen materials should be placed sparingly into the tub.

SMALL GRAINS

Grinding small grains requires special attachments. These attachments fit directly over the rotor. It is not recommended that small grains be ground without the use of one of the small grain attachments. (See Optional Equipment section.)

EAR CORN

Grinding ear corn requires a special attachment. This attachment fits directly over the rotor and uses crossbars in the tub to feed corncobs into the rotor. (See Optional Equipment section.)

IF LODGING OCCURS

Occasionally materials may lodge against the side of the tub and not feed down to the rotor. 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 rotor when the machine is in operation by physically pushing down on materials. WHEN THE MACHINE IS IN OPERATION, STAY OUT OF THE TUB.

5.3. Shutdown procedures

5.3.1. Normal

STOPPING THE MACHINE

At full speed, energy is stored in the rotor. Do not use the tractor PTO brake to stop the rotor.

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

1. Before working on or near the H1100 Tub Grinder for any reason, including servicing, inspecting or unclogging machine:
 - a. disengage PTO to H1100 Tub Grinder
 - b. place transmission in park or set park brake
 - c. shut off engine and remove key
 - d. wait for all movements to stop
 - e. Disconnect PTO driveline from tractor.

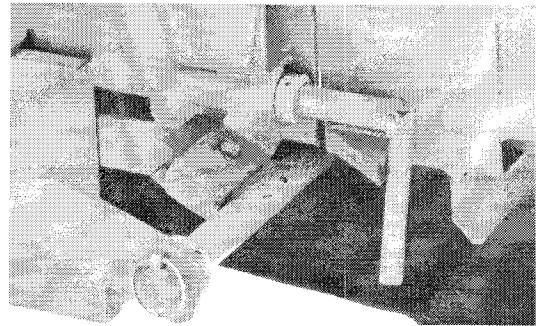
5.3.2. Emergency

Disengage PTO and tractor hydraulics.

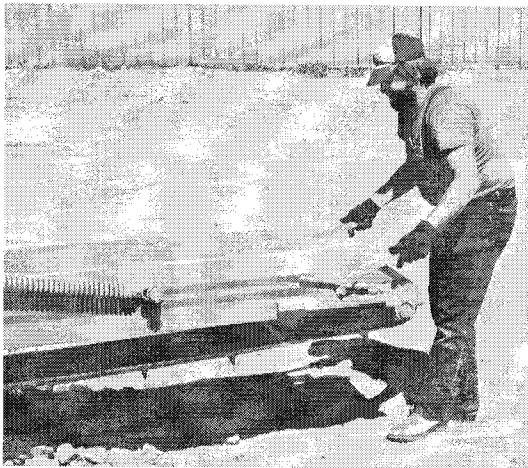
5.4. Road Transport,
5.4.1. Folding the conveyor



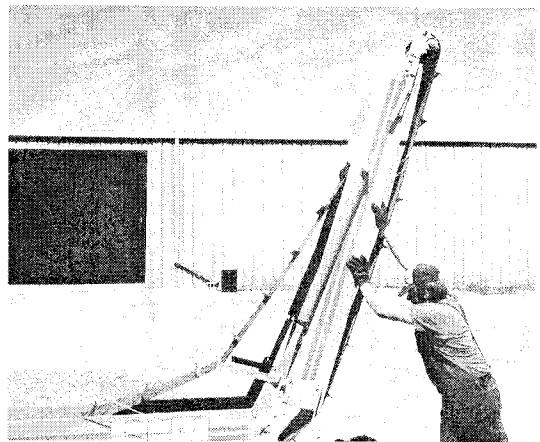
Step 1 Lower conveyor until it is level with the ground.



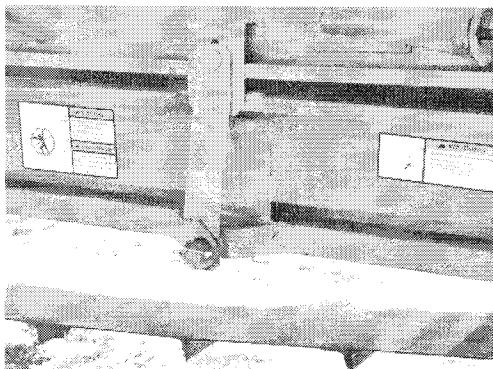
Step 2 Turn latch up to unlock conveyor



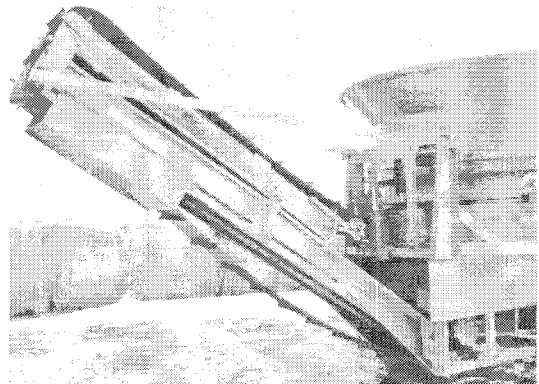
Step 3 Release Tension Adjusting Handles on Idler Roller



Step 4 Standing beside conveyor, Raise discharge conveyor end and follow it over to its folded position.



Step 5 Lock conveyor down into folded position with straps.



Step 6 Raise conveyor and lock into transport position.

5.4.2. Set up to transport

Inspect H1100 Tub Grinder for any loose parts, tools, or any materials. Remove them or fasten them securely to the H1100 Tub Grinder.

Check for local restrictions on towing.

5.4.3. Change back to operate

Connect H1100 Tub grinder to tractor.

Connect hydraulic hoses and electrical cable to tractor

Raise hydraulic conveyor lift.

Remove transport lock pin 4800215 and hair pin 4800107, place pin in bracket so it is not lost.

Unfold conveyor to working length.

5.5. Storage

5.5.1. Preparing for storage

Check the wheel bearings for lubrication requirements and adjustments at the end of the season.

Check the pressure roller bearings for lubrication and adjustments at the end of the season.

Clean the machine thoroughly to prevent rust and to make inspections easier. Clean and repaint the tub floor to prevent rust and sticking problems at start up time.

Check for loose or worn chains, belts, sprockets, and pulleys.

Check the condition of bearings.

5.5.2. Removing from storage

Perform a thorough pre-operation inspection.

6. Section 6: General Maintenance

SERVICE AND MAINTENANCE

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

1. Before working on or near the H1100 Tub Grinder for any reason, including servicing, inspecting or unclogging machine:
 - a. Disengage PTO to H1100 Tub Grinder
 - b. Place transmission in park or set park brake
 - c. Shut off engine and remove key
 - d. Wait for all movements to stop
 - e. Disconnect PTO driveline from tractor.
2. When replacing any part on your H1100 Tub Grinder, be sure to use only DuraTech authorized parts.
3. Relieve all pressure in the hydraulic system before disconnecting the lines or performing other 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 suspect leak, use a piece of wood or cardboard rather than your hands. If injured, seek medical attention immediately to prevent serious infection or reaction.
5. Visually examine to see if any internal parts show excessive wear. Repair or replace needed parts. These parts include body, liners, rotor plates and holes in the plates that support the rods. Enlarged holes can cause rods to break.

Also check rods, rod locking and retaining devices, hammers, screens, screen tracks and hold downs, main shaft, lid locking devices, hinges or anything else that could wear and perhaps fail if not properly maintained, and cause damage to the rotor and/or personnel. Check bearing alignment and mounting bolts to insure a firm foundation and reduced vibration.

Keep all foreign objects out of the tub and away from the rotor. Foreign objects may result in personal injury or cause severe damage to hammers, screens, rods, and other parts that will cause rotor failure.
6. Check for loose or worn chains, belts, sprockets and pulleys.
7. Keep sprockets and pulleys aligned.
8. Inspect rotor and all rotating parts for wrapped twine or wire build up.
9. If machine is going to sit idle for an extended period of time, tub floor should be cleaned to prevent rust and sticking problems at start up time.
10. The proper tire pressure is 50 PSI.
11. The wheel bearings should be checked for lubrication and adjustments yearly, 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, wash the bearing to remove old grease. Repack the bearing.

6.1. Lubrication

CAUTION: Follow normal shutdown procedure before adjusting or lubricating.

Hydraulic oil reservoir capacity: 12 gallons. Change hydraulic oil and filter at least once a year.

Gear Box: Check level periodically. Drain and refill with No. 90 gear lube once a year.

When operating the H1100 Tub Grinder during cold weather, perform all lubrication 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.

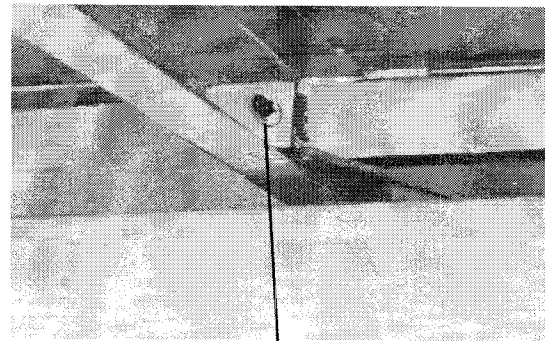
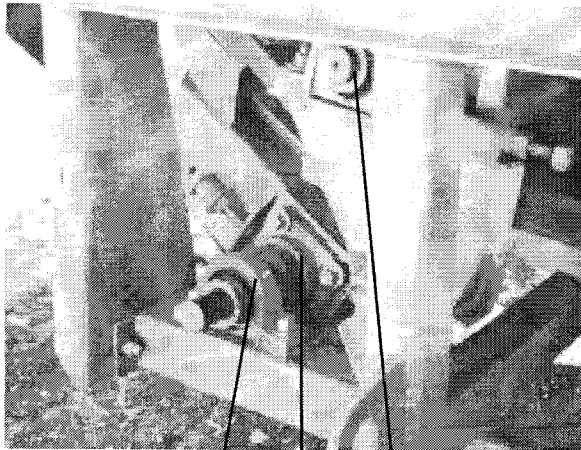
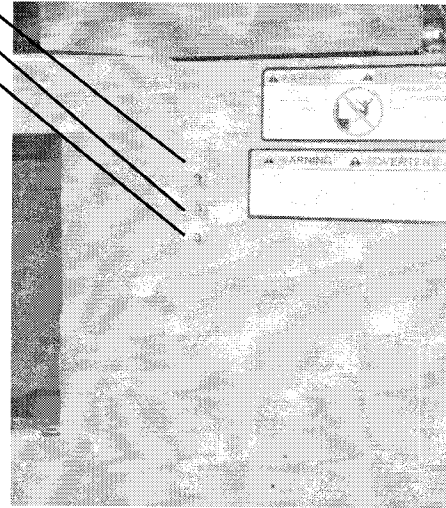
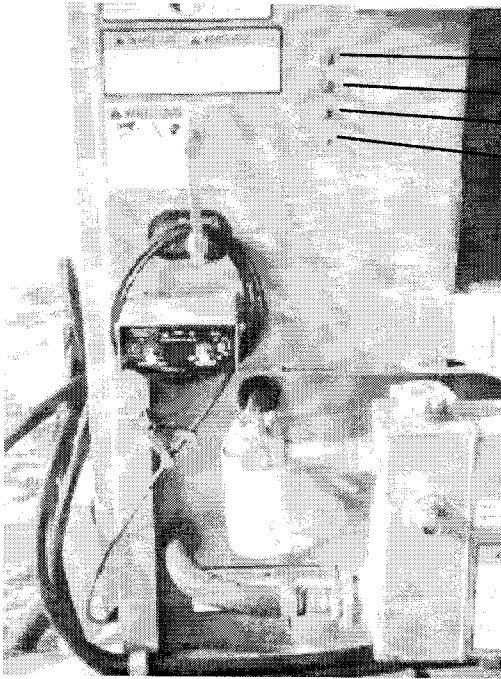
High-speed operation, abnormal bearing temperature may indicate faulty lubrication. Normal temperature may range from “cool to warm to the touch” up to a point. Unusually high temperatures “too hot to touch for more than a few seconds” accompanied by excessive leakage of grease indicates too much grease.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

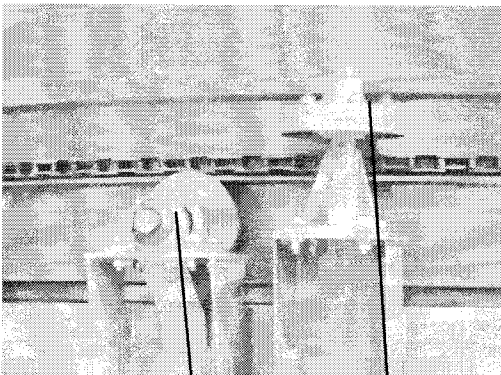
REF. NO.	LOCATION	NUMBER OF GREASE FITTINGS	FREQUENCY	
1	Tub Drive Shaft Bearings	2	40 hrs.	*
2	Tub Chain Idler Pivot	2	40 hrs.	
3	Tub Chain Idler	2	5 hrs	
4	Rotor Bearings	2	10 hrs.	*
5	Input Shaft Bearings	2	10 hrs.	*
6	Hydraulic Pump Shaft	2	40 hrs.	
7	Belly Conveyor Bearings	4	40 hrs.	*
8	Hydraulic Lift	2	40 hrs.	
9	Discharge Conveyor Bearings	4	40 hrs.	*
10	Discharge Conveyor Support Pivot	2	40 hrs.	
11	Walking Beam Pivots	2	40 hrs	
12	Wheel Bearings	4	Annually	
13	Tub Rollers Bearings	8	5 hrs.	*
14	Tub Pressure Roller	4	Annually	
15	PTO	3	40 hrs.	
16	Discharge Conveyor Driveline bearings	3	40 hrs.	
17	Discharge Conveyor Driveline u joints	3	40 hrs.	
18	Roller Chains		Oil Daily in Dusty Conditions	

NOTE: References numbers on the following pictures correspond with the lubrication chart.



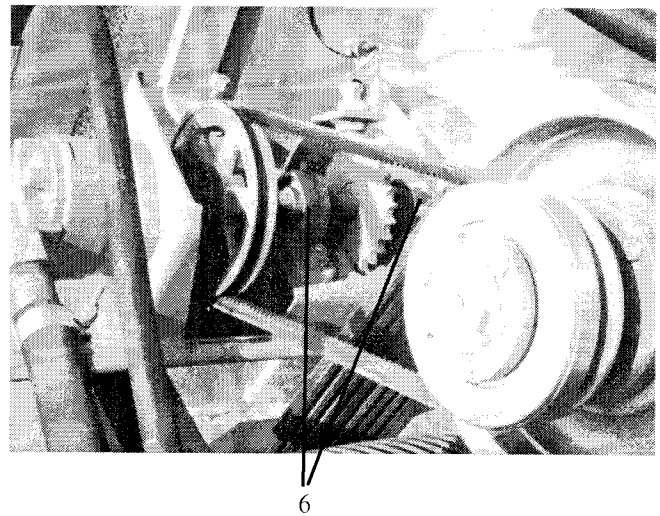
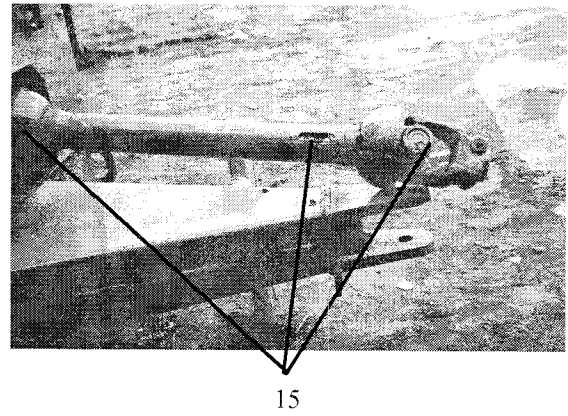
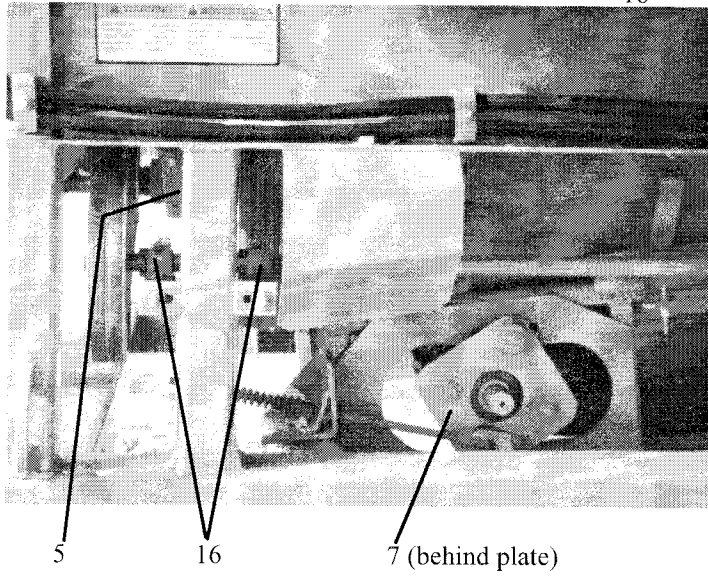
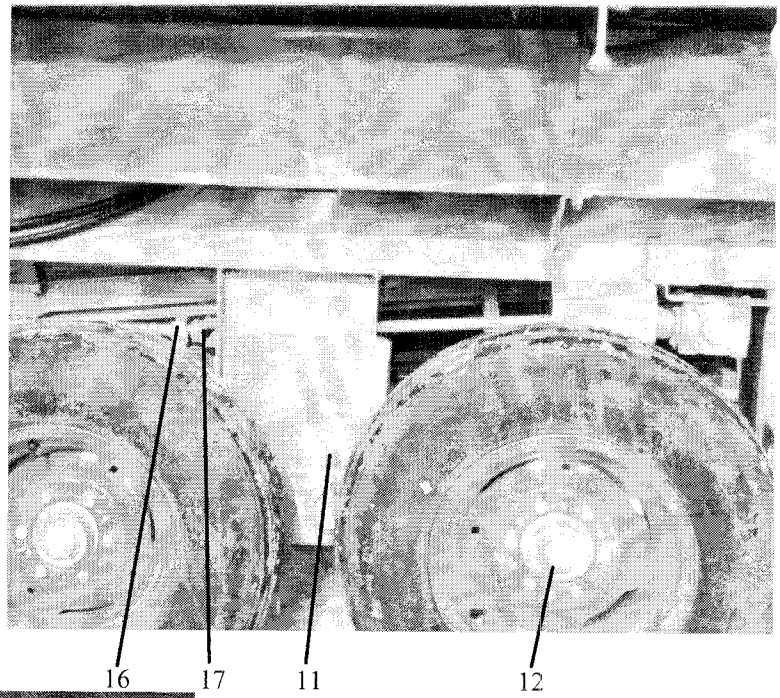
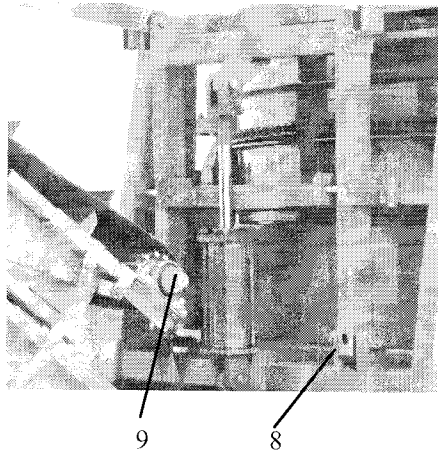
10 9 7

4



13

14



6.2. Hydraulic system

NOTE: All machines have been pre-run at the factory to insure all functions are performing correctly. The hydraulic reservoir contains approximately 6 gallons of hydraulic oil for test running only. Before operating the machine, add additional oil to the reservoir tank. It will take approximately 6 additional gallons of hydraulic oil. This should bring the oil level to the sight glass on side of reservoir.

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

6.3. Screens

CHANGING SCREENS

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

CAUTION: Follow normal shutdown procedure before entering tub to do any service work.

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

6.4. Conveyor Belt Adjustments

I. Safety Considerations.

- A. Allow only properly instructed responsible 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 PTO clutch.
 2. Shut off tractor engine and remove key.
 3. Be certain to set parking brakes.
 4. Do not begin any service procedures until all machine movement ceases.

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. Due to the discharge conveyor length, the belt will sag on the lower side. This is normal and belt tightness should be judged on slippage.

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

III. Tracking Adjustment

A. When installing a new belt:

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 PTO. Both the rotor and conveyor belts will be running.
3. Observe conveyor belt tracking from a safe location.
4. If further adjustment is required, disengage PTO 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 obtaining proper tracking.
7. Be sure to tighten bearing bracket bolts after making correction.

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 PTO. Both the rotor and conveyor belts will be running.
3. Observe conveyor belt tracking from a safe location.
4. If requiring further adjustment, 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 obtaining proper tracking.
7. Be sure to tighten bearing bracket bolts after making correction.

DRIVE BELTS:

Adjustment has been provided for tightening main drive belts. Belts tend to stretch rapidly when first put into operation. Tighten regularly to prevent slippage. Check belt tension at 30-minute intervals or as necessary until the belt quits stretching. Check belt tension by pressing on individual belts with thumb (approximately 20 lbs.) in the center of the span. Deflection should be $\frac{1}{2}$ " or thickness of V-belt.

6.5. Tub Chain

TUB CHAIN DRIVE:

Tub drive chain is equipped with 2 spring-tensioned idlers. See Figure 8

Due to normal wear, tub drive chain may tend to climb on driving teeth of tub. If this should occur, size the chain to fit the tub, and adjust the tub teeth for proper spacing in the chain.

Step 1 (sizing the chain). Loosen tub teeth and wrap the chain around tub. (Do not run the chain around tightener rollers or drive gear.) Using $\frac{1}{2}$ " bolt, pull chain together so center to center on link pins matches pins on connector link. If the distance is less or greater than the connector link, add shims. Equally space shims of equal thickness and length under chain until proper distance 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.

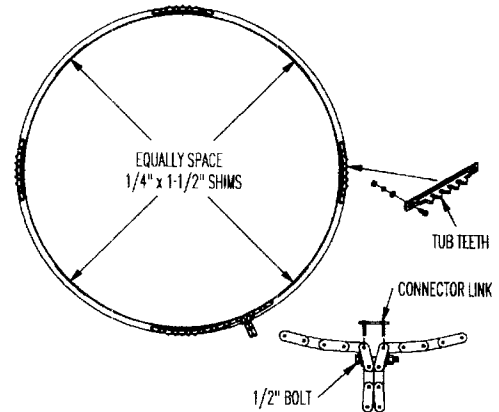


Figure 8, Sizing Tub Chain

ADJUSTING TUB CHAIN TENSION

1. Make sure to size the Tub Chain to the Tub (see TUB CHAIN DRIVE).
2. Loosen idler A so it does not touch the chain, See Figure 9.
3. Tighten idler B to eliminate any sag in the chain. If it can not be tightened sufficiently, shims must be inserted between drive shaft bearing and frame. Add shims until idler B can be adjusted properly.
4. Tighten idler A to match the idler B. This will keep uniform tension on the tub chain when it is running either direction.
5. Check orbit motor chains, they may need tightening, especially if using shims.

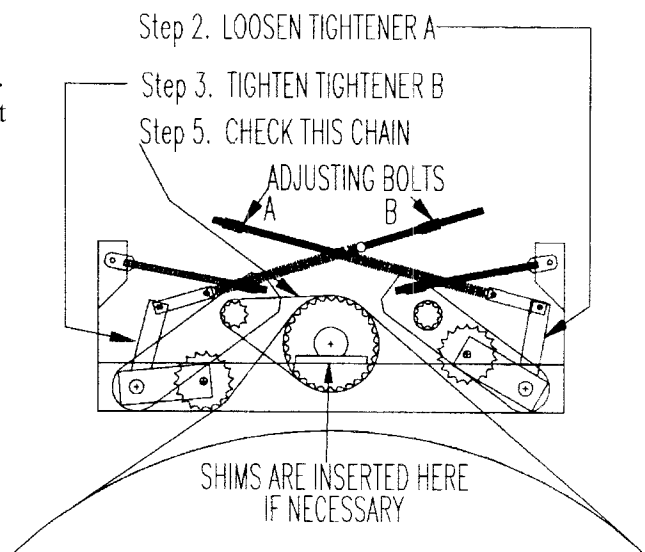


Figure 9 Adjusting Tub Chain Tension

6.6. Hammer Mill

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

The hammers are designed to grind the normal ingredients used in the manufacture of feed and related products. The hammers are not designed to grind or crush hard materials such as coal, minerals, metals, rock, or other similar materials, which could cause parts to fail. These materials should never be allowed to enter a hammer mill.

The 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 other process can change the mechanical properties of the hammer and make it unsuitable or dangerous to use.

HAMMER AND SCREEN CONDITION

When the cutting edges of the hammers become rounded, turn the hammers to expose new edges. Each hammer has 4 cutting edges. If one edge wears too long, another cutting edge is lost. Also, badly worn hammers weaken the area around the hole so it becomes unsafe to turn the hammer end for end.

Rotor hammers and screens are the heart of the machine. If cutting edges of the hammers become rounded, hammers should be replaced or turned to expose a new cutting edge. Each hammer has four cutting edges. If end of hammer wears too long, one cutting edge is lost. Also badly worn hammers weaken area around hole in hammer so it cannot be turned end for end.

Screens have two cutting edges. When hole cutting edges become rounded, turn the screen end for end exposing new cutting edges.

The result of badly worn hammers and screens is loss of capacity and added horsepower requirements.

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

HAMMER RODS: Turn rods end for end exposing a new surface area for wear. This will extend service life although hammer rods are expendable.

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

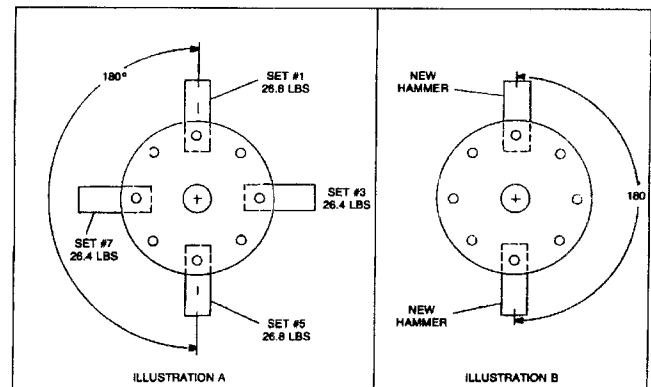
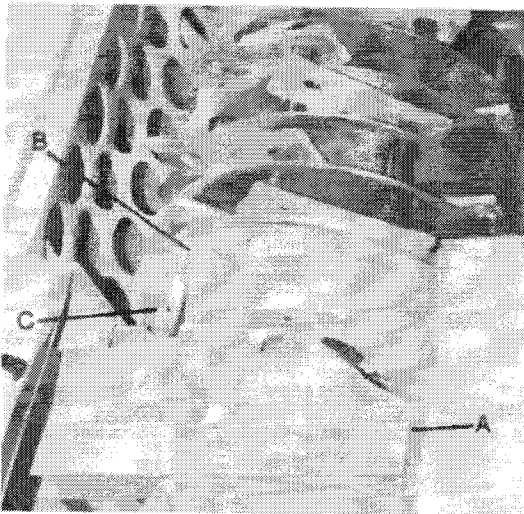
HAMMER REPLACEMENT

CAUTION: Follow normal shutdown procedure before entering tub to do any service work.

When installing or changing hammers, be sure to follow hammer pattern diagram carefully (page 32). Misplacement could cause excessive vibration. We recommend that hammers be balanced in sets according to the rod on which they are to be installed. Install sets of equal weight 180 degrees apart. (See illustration A.) When replacing a worn or broken hammer with a new hammer always install a second new hammer 180 degrees from the first (See illustration B.)

To install new hammers or change the cutting edge on existing hammers, tub floor should be free of all material for easy access to rotor and rear rotor bearing cover.

1. Remove rear rotor bearing cover. Item A in illustration.
2. Loosen two bolts at rear of rotor that holds the movable plate in place. Item B in illustration.
3. Rotate movable plate counter clockwise to align holes allowing hammer rods to be removed through rear of rotor. Item C in illustration.
4. Remove one row of hammers and replace, taking note as to where spacers are located. (Page 32).
5. After all hammers have been replaced or turned, reassemble movable plate and rear rotor bearing cover.
6. When starting the rotor after installing a new set of hammers or turning corners, watch for unusual or excessive vibration. If any occurs, immediately shut off the rotor. Check to see what is wrong and correct it before starting the rotor again.



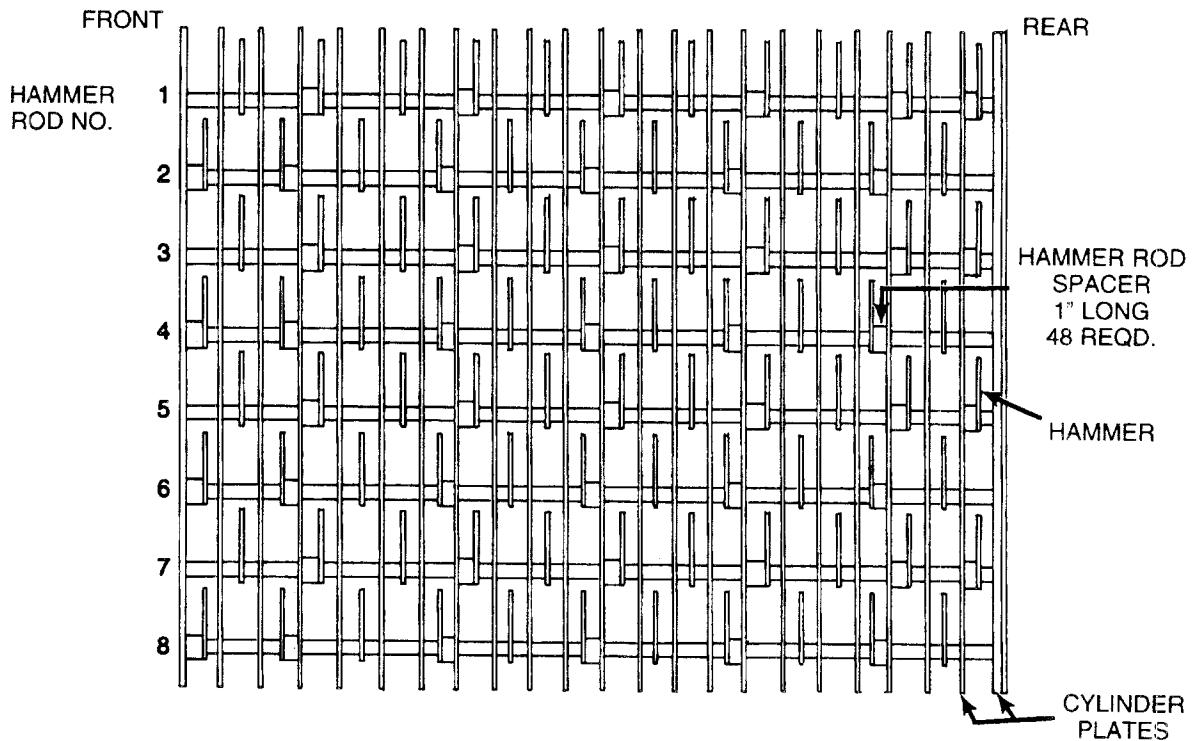


Figure 10, H1100 Hammer Spacing

6.7. Electronic governor

INTRODUCTION

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

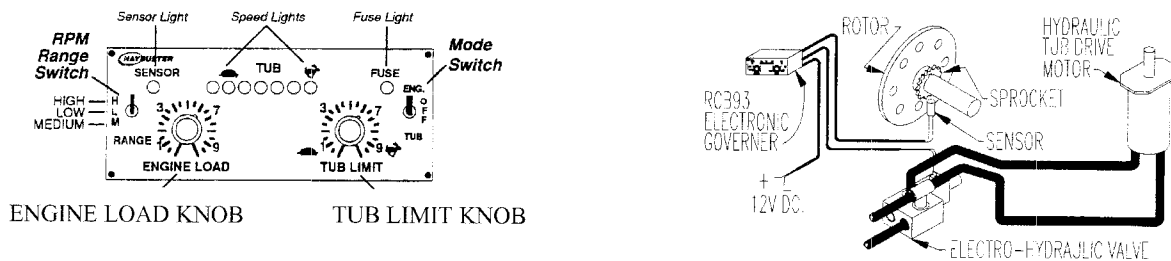
When the electronic governor is switched to the engine mode, it is monitoring the rotation speed of the tractor engine. The hydraulic flow to the tub drive mechanism is regulated proportionally to the tractor engine speed. When the engine begins to lug down, the hydraulic oil flow is reduced which in 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.

IMPORTANT: Always use the Engine (Auto) mode of the electronic governor except when calibrating or trouble shooting the electronic governor.

CALIBRATION

1. Begin calibration procedure with H1100 Tub Grinder completely shutdown. Place the MODE switch in the OFF position and the RANGE switch in the M position. Rotate the TUB LIMIT KNOB fully clockwise toward the rabbit position. Turn the ENGINE LOAD KNOB clockwise until it is pointing to the number 9 position.
2. Verify that tub rotation lever is in neutral. Inspect machine to verify that all personnel are out of harms way.
3. Start tractor and run the grinder at about 1/2 throttle to allow the hydraulic system to warm up before calibrating the RCB93 Electronic Governor.
4. When the system has reached operating temperature, throttle the tractor to 1000-1200 RPM. Engage the tub drive and throttle up to 2000 RPM. Switch the MODE switch to ENG. Position. The tub light and the SENSOR light should come on. The tub should not be rotating at this time. If it is rotating, then switch the range switch to H or HIGH position.
5. Slowly rotate the ENGINE LOAD KNOB counter-clockwise until the tub just begins to move. The tub should begin to rotate before you have turned the ENGINE LOAD KNOB counterclockwise to the number 7. If it does not begin to rotate, then switch the RANGE switch to L or LOW position. The Electronic Governor is properly calibrated when the ENGINE LOAD KNOB is positioned between 7 & 9 and the tub is just beginning to creep.

TYPICAL ELECTRONIC GOVERNOR SYSTEM



EXPLANATION OF FRONT PANEL

“FUSE” LIGHT - This 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.

“SENSOR” LIGHTS - 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. When the first light (farthest to the left) turns **on**, the electronic governor is sending approximately **3 volts** to the electro-hydraulic valve. The tub should begin to rotate slowly when the first or second light turns **on**. Each additional “speed” light represents **one** additional **volt** being sent to the electro-hydraulic valve, with a corresponding increase in tub rotation speed. The last light (farthest to the right, under the rabbit symbol) will be **on** when a **9-volt** signal is sent to the electro-hydraulic valve, which will rotate the tub at the maximum speed. During operation, in the **ENGINE MODE**, these lights will move back and forth automatically between the turtle and rabbit symbols as the tub speed increases and decreases.

“RANGE” SWITCH (HI, MEDIUM, & LOW) -- This switch is used only when in the **ENGINE MODE**. This switch is a coarse adjustment that tells the electronic governor what RPM range your tractor engine will be operating in (typically medium). Use the **“ENGINE LOAD KNOB”** as a fine adjustment for the **RANGE** switch.

“MODE” SWITCH - ENGINE MODE places a near constant load on the tractor engine based on the settings of the **“ENGINE LOAD KNOB”** and **“TUB LIMIT KNOB.”** **TUB MODE** rotates the tub at a constant speed based only on the setting of the **“TUB LIMIT KNOB.”** The Electronic Governing function will not operate in the **“TUB”** mode.

“ENGINE LOAD KNOB”--This single turn knob works only in **ENGINE MODE**. Turning this knob to the **right** (to a **higher number** setting) will allow the tractor engine to **operate at a higher RPM, decreasing the load** on the engine. Turning the knob to the **left** (to a **lower number** setting) will **lug** the tractor engine to a **lower RPM, which increases the load** on the tractor engine.

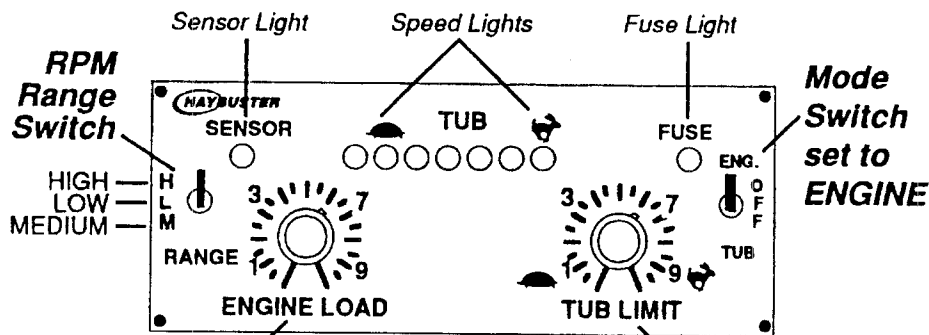
“TUB LIMIT KNOB”--This single turn knob works in either the **ENGINE MODE** or **TUB MODE**. This dial sets the **maximum** tub speed. In **ENGINE MODE** the tub speed ranges from the maximum speed set by the **“TUB LIMIT KNOB”** down to zero tub RPM. In the **TUB MODE** the **“THE LIMIT KNOB”** will set a **constant** tub rotation speed with **no** governing control. The **“TUB LIMIT KNOB”** will be most useful during tough **grinding conditions** when you do not want the tub to rotate at full speed if the grinding load temporarily becomes light. The closer the knob is to the turtle, or 1, the slower the maximum rotational speed will be. The closer the knob is to the rabbit, or 9, the faster the maximum tub rotational speed will be.

TUB LIMIT ADJUSTMENT

If you wish to limit the maximum rotation speed of the tub, the adjustment can be made at this time or at any time during the grinding operation by following this procedure. This function is most useful when grinding in tough conditions when you do not want the tub to turn full speed if the load happens to temporarily become light. Switch the **“MODE”** switch to **“TUB”** position. Turn the **“TUB LIMIT KNOB”** counter-clockwise to reduce the maximum rotating speed of the tub, Observe the **“SPEED”** lights to get an indication of the tub speed. If all of the lights are **on**, the tub maximum rotational speed is not limited. If only the first light is **on**, the maximum tub rotation speed will be very slow. Choose the speed that you desire. This setting will be the maximum speed that the tub will turn. When the **“MODE”** switch is returned to the **“ENG”** position, the Electronic Governor will adjust tub speed slower if required but the tub will not rotate faster than the maximum setting determined by the **“TUB LIMIT KNOB.”** Switch the **“MODE”** switch back to **“ENG”** position to begin grinding.

The H1100 Tub Grinder may be operated in the **“TUB”** mode if desired but the Electronic Governor will not control the load on the tractor engine. Only the maximum rotation speed of the tub is controlled in this mode.

ENGINE MODE



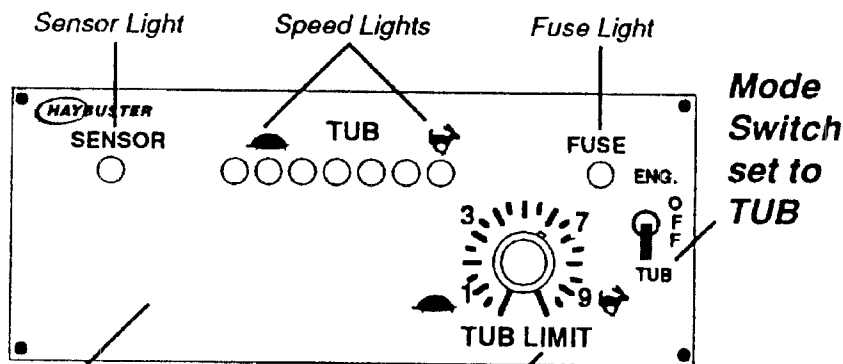
Use Engine Load dial as a fine adjustment for the RPM Range switch. Sets load desired on engine.

Use Tub Limit to set maximum tub speed. Best use is for tough grinding. No tub limiting when set to '9'.

HINT: Easiest way to set maximum tub RPM for engine mode of operation is:

1. switch to **tub mode** prior to engaging rotors
2. Set **tub speed limit dial** for a specific speed lamp(s).
3. Switch to **engine mode** and engage clutch to start rotor.

TUB MODE



Engine Load dial and RPM Range switch have no effect in Tub mode.

Tub will operate at full speed in Tub Mode unless it is limited with this dial. Closer to '1' will set maximum speed to slow. Closer to '9' will set a fast maximum speed. No limiting when dial is set full clock-wise (at '9').

MODE	USED FOR
ENGINE	Sets Max. tub RPM at one tractor engine RPM. Tub RPM will increase and decrease as engine RPM increases and decreases.
TUB	Fixed tub RPM at any engine RPM. Tub RPM limited only by Tub Limit Dial. Tub RPM constant regardless of tractor engine fluctuation.

TROUBLESHOOTING THE ELECTRONIC GOVERNOR SYSTEM

These are some simple procedures to follow in the event that problems occur with your Electronic Governor System. If the problems remain after following these procedures, follow the directions under **MANUAL OVERRIDE**, and see your dealer as soon as possible. PTO, hammer and plate damage may result if governor is not working.

“FUSE” light -- This light is **on** whenever the Electronic Governor is receiving power. If this light fails to go on and the tub will not turn, check fuse, battery connections, and wiring harness. If the **“FUSE”** light is **on**, the wiring harness is functioning correctly between the battery and the electronic governor.

“SENSOR” light--This light is **on** whenever the Electronic Governor is receiving an adequate input signal from the sensor. If this light fails to go on and the tub will not turn, check sensor gap spacing, sensor connections, and wiring harness. If the **“SENSOR”** light is **on**, the wiring harness is functioning correctly between the sensor and the electronic governor.

“SENSOR GAP SPACING”--The sensor is near the front grinding rotor bearing. A sprocket is on the rotor shaft in front of the front bearing. There should be a **3/32” gap** (the thickness of a nickel) between the end of the sensor and the tips of the sprocket teeth. The sensor must not come in contact with the sprocket teeth. Any contact between the sensor and the rotating sprocket will destroy the sensor.

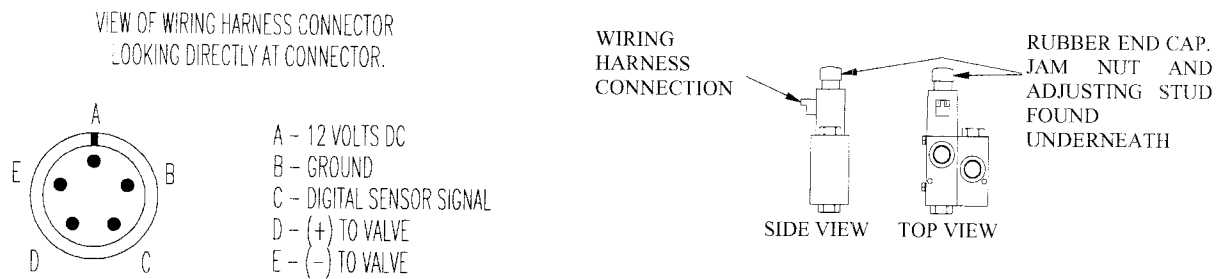
“SPEED” LIGHTS - These lights indicate how fast your tub should be turning based on the output signal that the electronic governor is sending to the electro-hydraulic valve. When the first light (farthest to the left) turns **on**, the electronic governor is sending approximately **3 volts** to the electro-hydraulic valve. The tub should begin to rotate slowly when the first or second light turns **on**. Each additional “speed” light represents **one** additional **volt** being sent to the electro-hydraulic valve, with a corresponding increase in tub rotation speed. The last light (farthest to the right, under the rabbit symbol) will be **on** when a **9-volt** signal is sent to the electro-hydraulic valve, which will rotate the tub at the maximum speed. During operation in the **ENGINE MODE**, these lights will move back and forth automatically between the turtle and rabbit symbols as the tub speed increases and decreases.

To test the output voltage to the electro-hydraulic valve, shut down entire machine including switching the **“MODE”** switch on the electronic governor to **“OFF.”** Disconnect the wiring harness from the electro-hydraulic valve and route the leads so you can easily connect a voltmeter to them. Switch the voltmeter to read 12-volt DC current. Connect the red lead of the voltmeter to the red lead on the wiring harness. Connect the black lead on the voltmeter to the black lead on the wiring harness. Switch the **“MODE”** switch on the electronic governor to **“TUB”** position. Turn the **“TUB LIMIT KNOB”** counter-clockwise until the left hand **“SPEED”** light is **on**. (The light nearest the turtle symbol.) The voltmeter should read approximately 3 volts. Turn the **“TUB LIMIT KNOB”** clockwise until the center **“SPEED”** light is **on**. The voltmeter should read approximately 6 volts. Turn the **“TUB LIMIT KNOB”** clockwise until the 7th light just turns **on**. The voltmeter should read approximately 9 volts. The voltage readings are not critical but the fact that the readings increase as the **“TUB LIMIT KNOB”** is turned clockwise is important. The RCB93 Electronic Governor is working correctly if you get readings similar to those shown. The wiring harness to the electro-hydraulic valve is functioning correctly if you are able to obtain readings at the valve end of the harness.

If no readings are obtainable at the valve end of the harness, switch the electronic SWITCH the **“MODE”** switch on the electronic governor to **“OFF.”** Disconnect the wiring harness from the rear of the electronic governor. Refer to the diagram of the wiring harness connector below. Check **pin D** and the **red** valve lead on the harness for continuity. Also check **pin E** and the **black** valve lead for continuity. If there is no continuity in either one of the leads, replace the wiring harness.

If you have continuity in both valve leads, the valve leads in the wiring harness are O.K. Clean the contacts on the wiring harness connector and reconnect the wiring harness to the electronic governor.

Check again for voltage at the valve leads as described above. If no voltage is present at the end of the valve leads the RCB93 Electronic Governor is faulty



ELECTRO-HYDRAULIC VALVE ADJUSTMENT

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 2000 RPM.

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 just 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.

ELECTRO-HYDRAULIC VALVE COIL TEST

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

MANUAL OVERRIDE

NOTE: If there is an electrical failure with your machine you may still be able to grind. Switch the RCB93 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 as previously described.

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 valve when adjusted in this manner. The grinder will now operate as it does when the **RCB93 Electronic Governor** is on “TUB” mode. There will be **NO** automatic tub control!

Contact your dealer for further repairs or replacement parts as soon as practical. After correcting the problems, loosen the jam nut on the electro-hydraulic valve and turn the adjusting stud counter-clockwise until the tub stops. Tighten the jam nut and replace the rubber end cap.

ELECTRONIC GOVERNOR VOLT-OHM READINGS

WIRE HARNESS CONNECTOR	ENGINE	IGNITION SWITCH	READING	INCORRECT READING INDICATES	CHECK IF INCORRECT READING
Valve terminals, system in Manual (Wires attached)	Not Running	ON	13 volts DC	Defective wiring, control box	Wires to valve
Valve terminals, system in Auto (Wires attached)	Running 1500 to 2550 rpm	ON	1-10 volts DC varies with rpm *	Defective wiring, control box	Wires to valve
Valve terminals, (Wires removed)	Not Running	OFF	9.6 ohms	Defective valve	
Pin A to B	Not Running	ON	13 volts DC	13 volts not at control box, no ground	Wires to tractor
Pin A to Ground	Not Running	ON	13 volts DC	13 volts power not reaching box	Wires to tractor
Pin B to Ground	Not Running	OFF	Less than 5 ohms	Black wire not grounded	Ground Wire
Pin D to E	Not Running	OFF	9.6 ohms	Valve wiring or valve defective	Wires to valve, valve
Pin D to Ground	Not Running	OFF	Infinite ohms	Valve wiring or valve defective	White wire to valve, valve
Pin E to Ground	Not Running	OFF	Infinite ohms	Valve wiring or valve defective	Blue or black wire to valve

* Typically 4.0 to 4.5 VDC at full engine rpm with the knob turned fully clockwise.

7. Troubleshooting

PROBLEM	CAUSE	REMEDY
1. No grinding capacity	<ol style="list-style-type: none"> 1. Screen plugged 2. Badly worn screens and/or hammers 3. Materials too light or fluffy 	<ol style="list-style-type: none"> 1. Clean holes in screen 2. Replace or turn worn parts 3. Mix with heavier material <ol style="list-style-type: none"> 3A. Use larger screen 3B. Clean out with a dry bale
2. Tub slows down or turns slowly	<ol style="list-style-type: none"> 1. Electronic governor not adjusted properly. 2. Electronic governor system problems. 3. Low hydraulic pressure. 	<ol style="list-style-type: none"> 1. See Governor Adjustment 2. See Electronic governor trouble shooting. 3. Rebuild or replace hydraulic component as necessary.
3. Excessive vibration	<ol style="list-style-type: none"> 1. Broken hammer 2. Defective rotor bearing 3. Misaligned or worn PTO 4. Wire or foreign material wrapped in rotor 5. Incorrect hammer pattern 	<ol style="list-style-type: none"> 1. See Hammer Replacement 2. Replace bearing 3. Replace worn part or complete PTO 4. Remove material 5. See Hammer Replacement
4. Engine loses excessive RPM's before tub stops	<ol style="list-style-type: none"> 1. Governor not adjusted properly 	<ol style="list-style-type: none"> 1. See Governor Adjustments
5. Rotor slugs	<ol style="list-style-type: none"> 1. Slugbuster removed 2. Governor not functioning properly 	<ol style="list-style-type: none"> 1. Replace slugbuster 2. See Governor Trouble Shooting.
6. Tub runs with control box switch off. Disconnect wires at valve.		
A. If tub stops	<ol style="list-style-type: none"> 1. Control box is out of adjustment 2. Control box is faulty 	<ol style="list-style-type: none"> 1. See Governor Adjustments 2. Replace control box
B. If tub keeps turning	<ol style="list-style-type: none"> 1. Valve override screw is adjusted in too far 2. Valve is faulty 	<ol style="list-style-type: none"> 1. Readjust override screw (See Governor Adjustments) 2. Replace valve
7. If tub stalls	<ol style="list-style-type: none"> 1. Pressure relief valve in control valve set too low 2. Tub overloaded due to wet, tough grinding material 3. Too much material in tub 4. Tub binding 	<ol style="list-style-type: none"> 1. Readjust to 2,000 PSI max. 2. Reduce amount of material in tub 3. Reduce amount of material in tub 4. Remove material buildup between tub and platform framework.
8. If oil overheats	<ol style="list-style-type: none"> 1. Pressure relief valve in control valve set too low 2. Tub overloaded 3. Worn pump, control valve, hyd. motors 	<ol style="list-style-type: none"> 1. Readjust to 2,000 PSI max. 2. Reduce amount of material in tub 3. Rebuild or replace hydraulic components as necessary

8. Appendix

8.1. Warranty

DuraTech Industries International Inc. warrants to the original purchaser for one year 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, ND, 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 who 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 loss of crops, or 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, ND, within 10 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.

8.2. Specifications

8.2.1. H-1100 Tub Grinder

Weight.....	8560 lbs.
Width at Flare.....	11 ft 3 in.
Loading Height.....	9 ft 2in
Transport Height.....	9 ft 8 in
Transport Length.....	24 ft 6 in
Wheels.....	Drop center rims, Tapered roller bearings
Bearings.....	All standard size, grease sealed
Recommended Tire Size.....	9.5 x 15 (4)
Recommended Cylinder Speed.....	2000 rpm
Capacity.....	Hay - up to 40 tons/hr. Ear corn - up to 800 Bu/hr. Grain and shelled corn - Up to 3400 Bu/hr.
Rotor - Std No. of Hammers.....	88
Hammer Size.....	2-1/2 x 7-3/4 x 3/8
Rotor - Shaft diameter.....	3-1/2 in. stress proof steel
Rotor Size.....	50 in. long, 26 in. diameter with hammers extended
Screen Area.....	2,565 sq. in.
Screens Available (inches).....	1/8, 3/16, 1/4, 3/8, 1/2, 5/8, 3/4, 1, 1-1/2, 2, 3, 4,5, 6, 7, 8 Round holes. 2,3,4 Slotted Holes
Feed Delivery.....	20 ft. folding rubber belt conveyor w/cleats 18 in. Wide
Tub size.....	108 in. ID
Tub Depth.....	57 in.
Tub Drive.....	Electro-Hydraulic

8.2.2. Required for operation

Tractor - 150 to 200 hp

1000 RPM PTO Shaft, 1-3/4 inch 20 Spline

Hydraulics, double acting control valve, 8 GPM, 1500 psi

See also Section 5.2.1, Tractor Set Up.

Grinder - 2 male hydraulic coupler tips

8 gallons of hydraulic oil, Mobil 423 or Co-op Super HTB or equivalent

8.3. Options

AVAILABLE OPTIONS FOR DURATECH H1100 TUB GRINDER:

- Ear Corn Kit
- Geyser Plate
- Grain Grinding Hopper
- Loose Hay Guide
- Paper Grinding Grate
- 4 Foot Conveyor Extension
- Bark and Wood Chip Conversion Kit
- Electric Stationary Model
- Various Screens Sizes



MANUFACTURED BY  **DURATECH[®]**
INDUSTRIES

H-1100
TUB GRINDER
PARTS BOOK

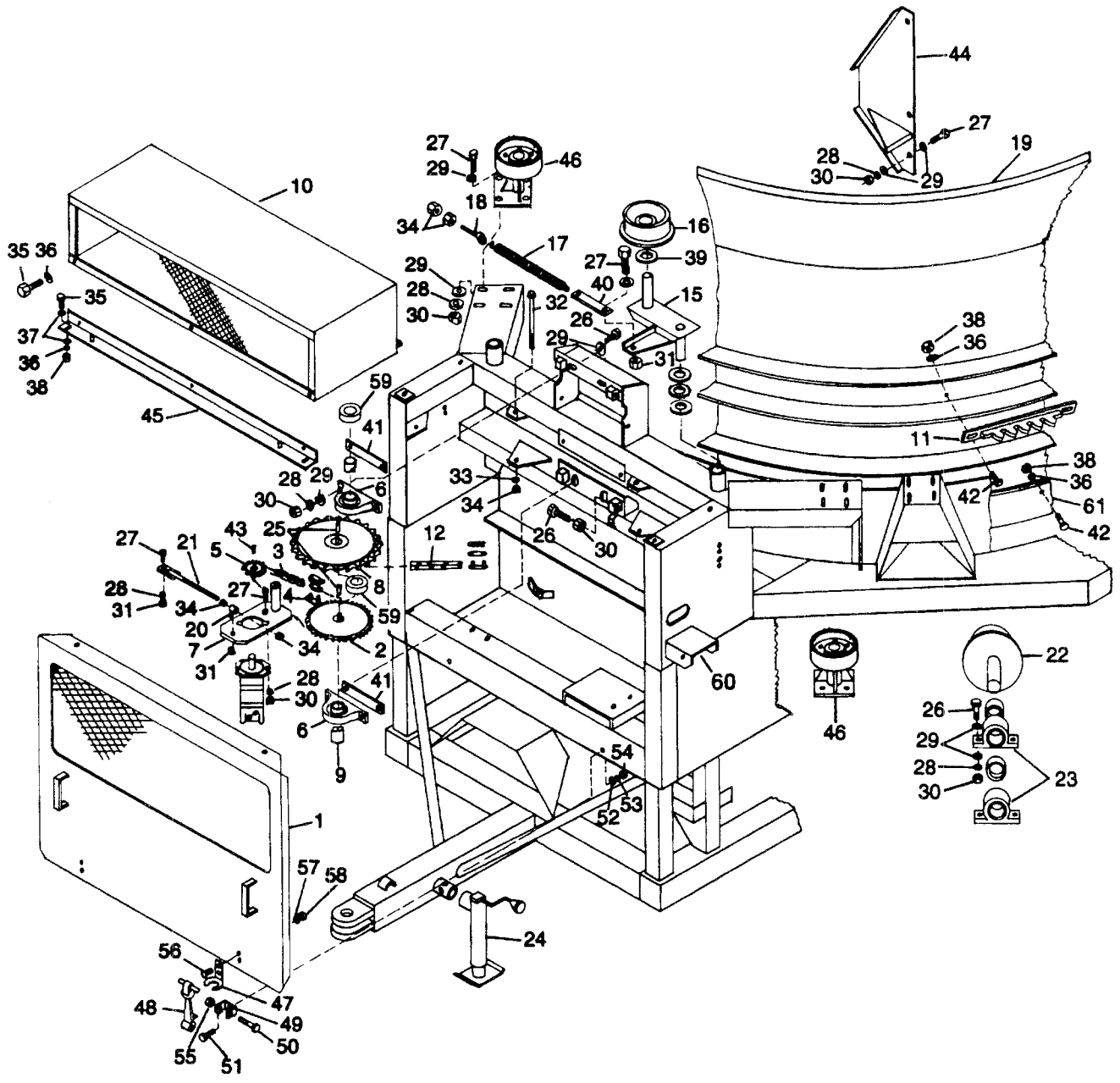
SERIAL NUMBER G12891 TO I12965

NOTES

TABLE OF CONTENTS

MAIN FRAME AND TUB	46
DRIVE SYSTEM	50
ROTOR	54
BELLY CONVEYOR	56
DISCHARGE CONVEYOR.....	58
HYDRAULICS	62
CONVEYOR HYDRAULIC LIFT.....	64
HYDRAULIC VALVE.....	66
ORBIT MOTOR.....	67
PRESSURE ROLLER	68
GOVERNOR.....	69
AXLES AND WHEELS.....	70
GEARBOX.....	72
PTO.....	74
GREASELINE ASSEMBLY	75
DECALS.....	78
SLUGBUSTER.....	79
OPTION - EAR CORN.....	80
OPTION - MILL GRATE.....	81
OPTION - 4 FOOT DISCHARGE CONVEYOR EXTENSION	82
OPTION - LOOSE HAY GUIDE	84
OPTION - GRAIN HOPPER	85
OPTION – GEYSER PLATE	86

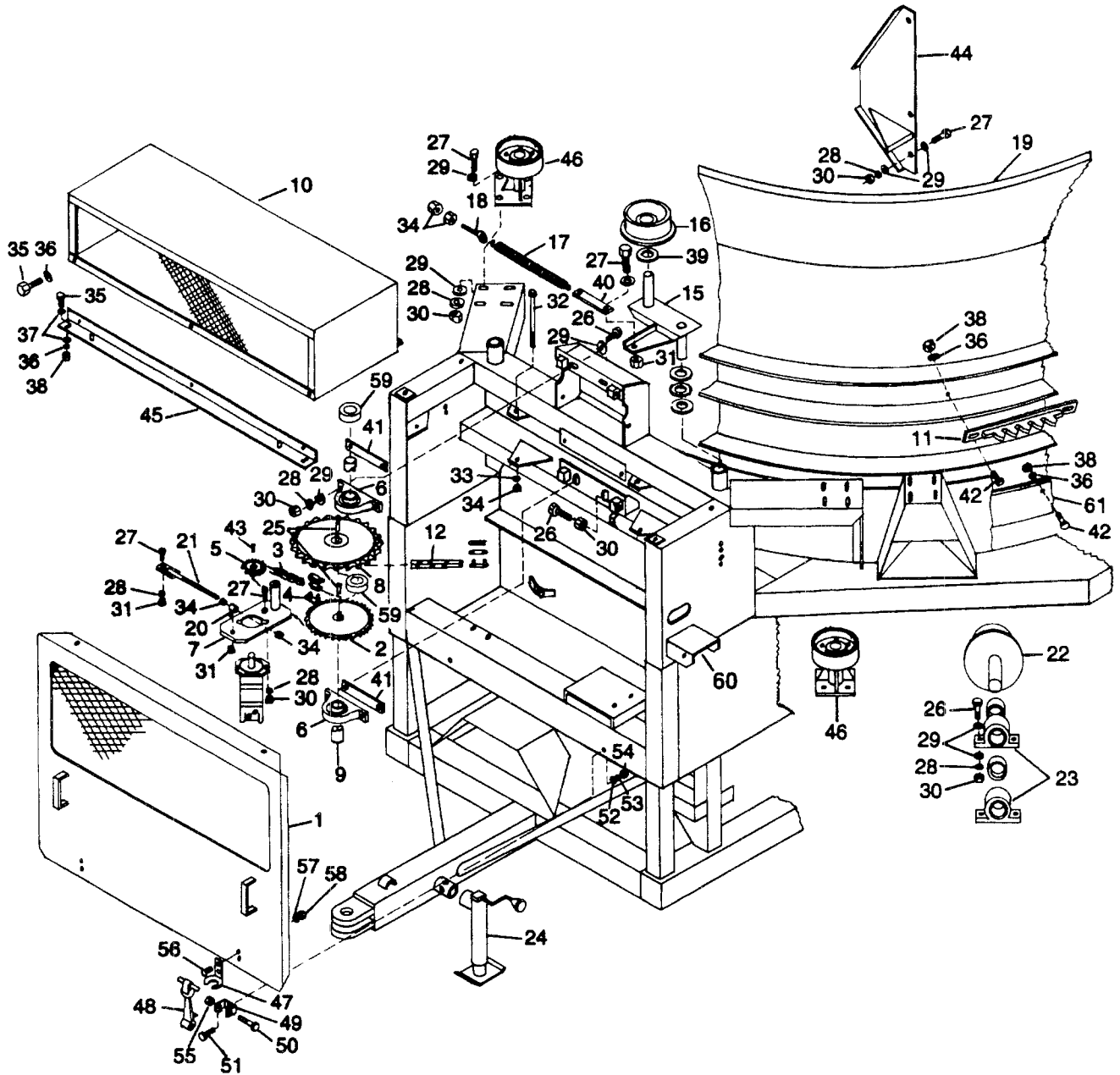
MAIN FRAME AND TUB



MAIN FRAME AND TUB

<u>ITEM</u>	<u>PART</u>	<u>QTY</u>	<u>DESCRIPTION</u>
	4500617	1	TUB\ASSY\SUB
	4500628	1	TUBDRIV\ASSY\SUB
1	4500436	1	GUARD\TUBDR\FRONT
2	1000033	1	SPKT\60\B\30\1-1/4\1/4KW
3	1100013	1	CHAIN\60\45
4	1100062	1	CHAIN\60\CL
5	1000134	1	SPKT\60\B\12\1-1/4\5/16KW
6	2000502	2	BRG\PB\1-1/4
7	4500333	1	BRKT\ARM\ORBIT MOTOR
8	1000077	1	SPKT\80\B\30\1-1/4\1/4KW
9	4500491	1	SHFT\TUB;DR\1-1/4X20-3/4
10	4500329	1	GUARD\TUBDR\TOP
11	4500561	4	TUBE\TUB\TEETH\H1000\H1100\H1100E
12	1100075	1	CHAIN\2080\177
15	4500337	1	BRKT\ARM\SWING\LH
15A	4500336	1	BRKT\ARM\SWING\RH not shown
16	1200007	2	RLLR\#6
17	6100001	2	SPRING.156OT 63/64OD13LIH
18	4500197	2	BOLT\TENSION\SPRING\>
19	4500085	1	TUB COMPLETE H-1100
19A	4500504		TOP TUB RING H-1100
19B	4500213		TUB PETAL H-1100
19C	4500212		TUB GUSSET H-1100
20	4500334	1	BRKT\BOLT\TIGTNER
21	4500335	1	BOLT\TIGHTNER\ORBIT\MOTOR
22	1200013	4	RLLR\TUB\1-1/2\W/O;FLG
23	2000501	8	BRG\PB\1-1/2\2BOLT
24	5800601	1	JACK (2SM10) 12"
25	6200005	2	KEY\SQ\1/4X1-1/2
26	4800114	20	BOLT\HEX\1/2X2
27	4800082		BOLT\HEX\1/2X1-1/2
28	5000006		WASH\LOCK\1/2
29	5000004		WASH\FLAT\1/2
30	4900001		NUT\HEX\1/2\NC
31	4900014	3	NUT\TPLCK\1/2\NC\.500"MAX
32	4800261	1	BOLT\HEX\5/8X8-1/2
33	5000003	1	WASH\LOCK\5/8
34	4900005	5	NUT\HEX\5/8\NC
35	4800098	5	BOLT\HEX\3/8X1-1/4\NC
36	5000019		WASH\LOCK\3/8
37	5000001		WASH\FLAT\3/8
38	4900002		NUT\HEX\3/8\NC
39	5000008	6	WASH\MACH\1-1/2\DX10GAINR
40	4500331	2	LINK\SPRING\1/4X6-1/4
41	4500332	4	SHIM\BRG\2X7-1/4
42	4800012	28	BOLT\CRG\3/8X1-1/4\NC
	Not Shown		
	4500975		PLATFORM COIL
	4501276		BRKT\SPRT\CHAIN\KIT

MAIN FRAME AND TUB



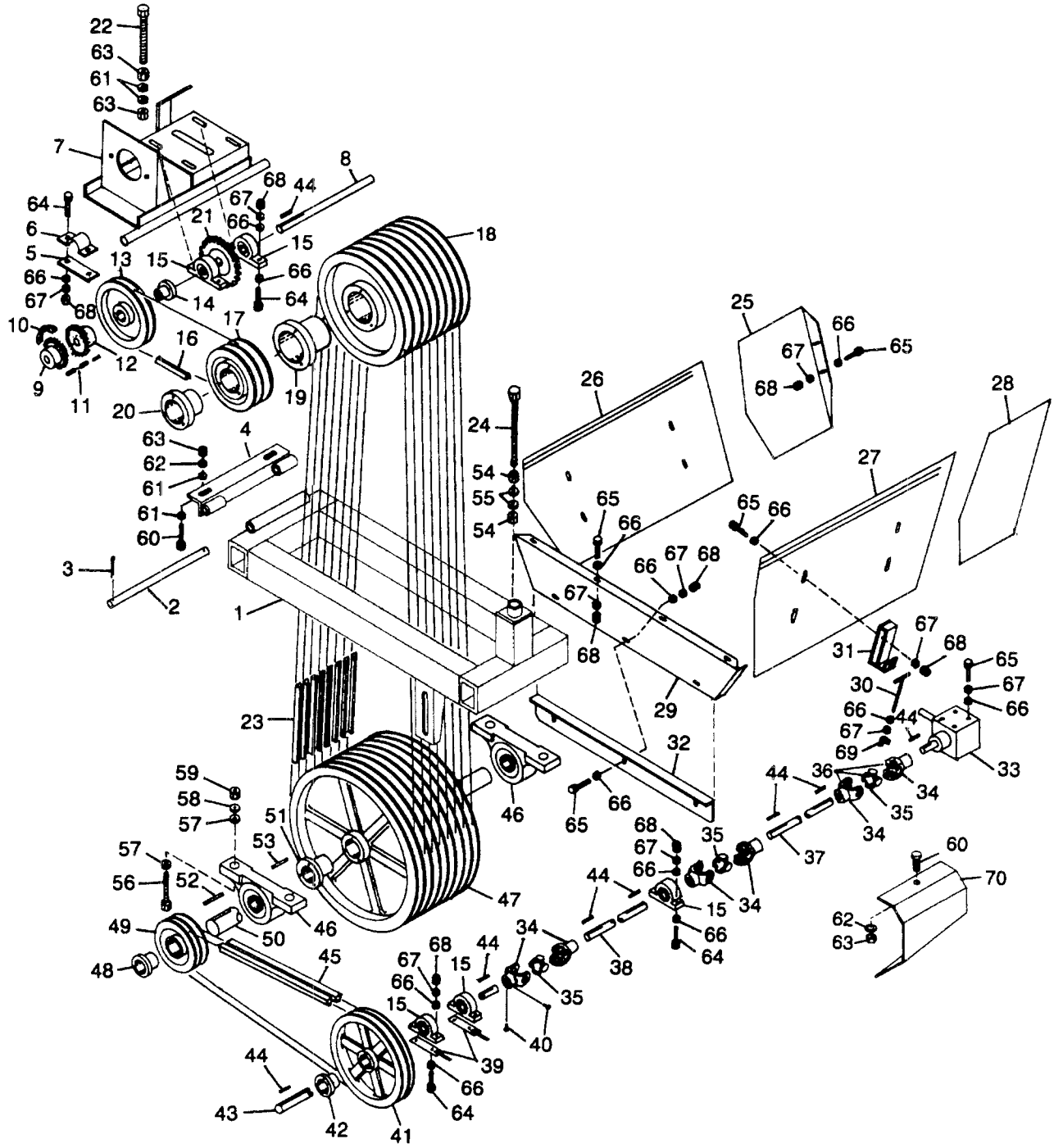
MAIN FRAME AND TUB

43	6200022	1	KEY\SQ\5/16X1-1/2\HARDENED
44	4500086	1	AGTTR\TUB\10
44A	4500250	1	AGTTR\TUB\14"
45	4500448	1	BRKT\TUBDR\GUARD
46	4500247	4	PRESSURE ROLLER COMPLETE, see page 68
47	7500190	2	LATCH\RBBR\CATCH\6
48	7500166	2	LATCH\RBBR\6
49	7500347	2	LATCH\RBBR\MNT\6
50	4800281	2	BOLT\HEX\5/16X2\NF
51	4800013	2	BOLT\HEX\5/16X1
52	5000023	2	WASH\FLAT\5/16
53	5000022	2	WASH\LOCK\5/16
54	4900003	2	NUT\HEX\5/16\NC
55	4900071	2	NUT\NYLCK\5/16\NF
56	4800282	4	SCR\PAN\SLOT\#10X3/4\NC
57	5000071	4	WASH\LOCK\EXT;STAR\#10
58	4900072	4	NUT\HEX\#10\NC
59	2000805	2	CLLR\SHFT\1-1/4\W\SET
60	4701028		MNT\CNTRL BOX
61	4500116	1	5" BELTING 28' LONG

Not Shown

4500975	PLATFORM COIL
4501276	BRKT\SPRT\CHAIN\KIT

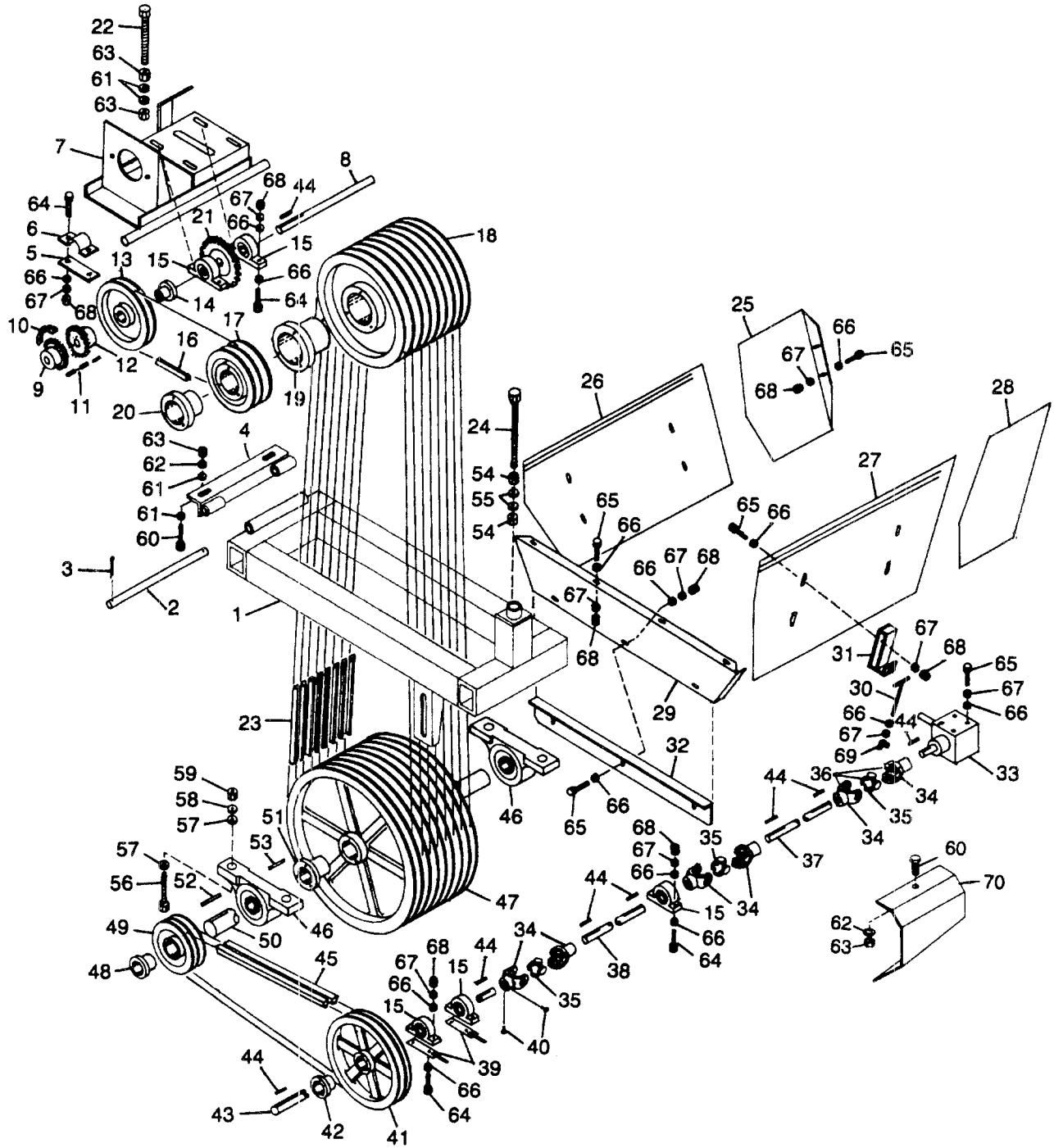
DRIVE SYSTEM



DRIVE SYSTEM

<u>ITEM</u>	<u>PART</u>	<u>QTY</u>	<u>DESCRIPTION</u>
1	4500618	1	FRM\BLLWHL\ASSY\SUB
	3600067	1	HD PTO W/1-3/8" 21 SPLINE
1	4500231	1	FRM\BLLWHL
1	4500619	1	BRKT\PUMP\ASSY\SUB
1	4500620	1	DR\CNVYR\ASSY\SUB
2	4500233	1	PIN\RD\CR\1X16
3	4800050	2	PIN\COT\3/16X1-1/2
4	4500232	1	HINGE\FRM\BLLWHL
5	4500071	1	FLAT\HR\1/4X1-1/2X4-3/4
6	4500070	1	CLAMP\IG-10\IG-11
7	4500069	1	BRKT\PUMP
8	4500463	1	1"X11" SHAFT
9	1000028	1	SPKT\50\B\14\3/4\3/16KW
10	1100026	1	CHAIN\50DBL\13
11	1100099	1	CHAIN\50DBL\CL
12	1000029	1	SPKT\50\B\14\1\1/4KW\HRN
13	1400003	1	SHVE\B\7.2
14	1400503	1	BUSH\H\1
15	2000503	5	BRG\PB\1
16	1600020	1	V-BELT\BX\46\CGGD
17	1400006	1	SHVE\B-2\5.6\2B56Q
18	1400016	1	SHVE\B-8\11.0
19	1400520	1	BUSH\R2\3
20	1400508	1	BUSH\Q1\2-7/16
21	1000090	1	SPKT\50\B\24\1\1/4KW
22	4800191	1	BOLT\WLDD\1/2X6
23	1600007	8	V-BELT\B\83
23A	1600084	2	V-BELT\4B\85\BANDED
24	4500045	1	BOLT\WLDD\3/4X12
25	4500074	1	GUIDE\CNVYR\BELLY\REAR\RH
26	4500075	1	GUIDE\CNVYR\BELLY\FRT\RH
27	4500076	1	GUIDE\CNVYR\BELLY\FRT\LH
28	4500077	1	GUIDE\CNVYR\BELLY\REAR\LH
29	4500078	1	CYL BOX BOTTOM PLATE
30	4500496	4	BOLT\CNVYR\GUIDE\HOLDDOWN
31	4500160	4	HANDLE\CNVYR\GUIDE
32	4500079	1	BELLY PAN FRONT PLATE
33	3100187	1	PRAIRIE GEAR BOX 1:1
34	3600103		#6 RW1" YOKE
35	3600008		#6 CROSS AND BEARING KIT
36	3600091	3	SINGLE U-JOINT 1"TO1"RD#10
37	4500484	1	SHFT\RD\CR\1X29-1/2
38	4500485	1	SHFT\RD\CR\1X55
39	4500080	2	BELT TIGHTNER
40	4800143	12	SCR\SET\ALN\3/8X3/8\NC
41	1400046	1	SHVE\2B\10.12BK100H
42	1400503	1	BUSH\H\1

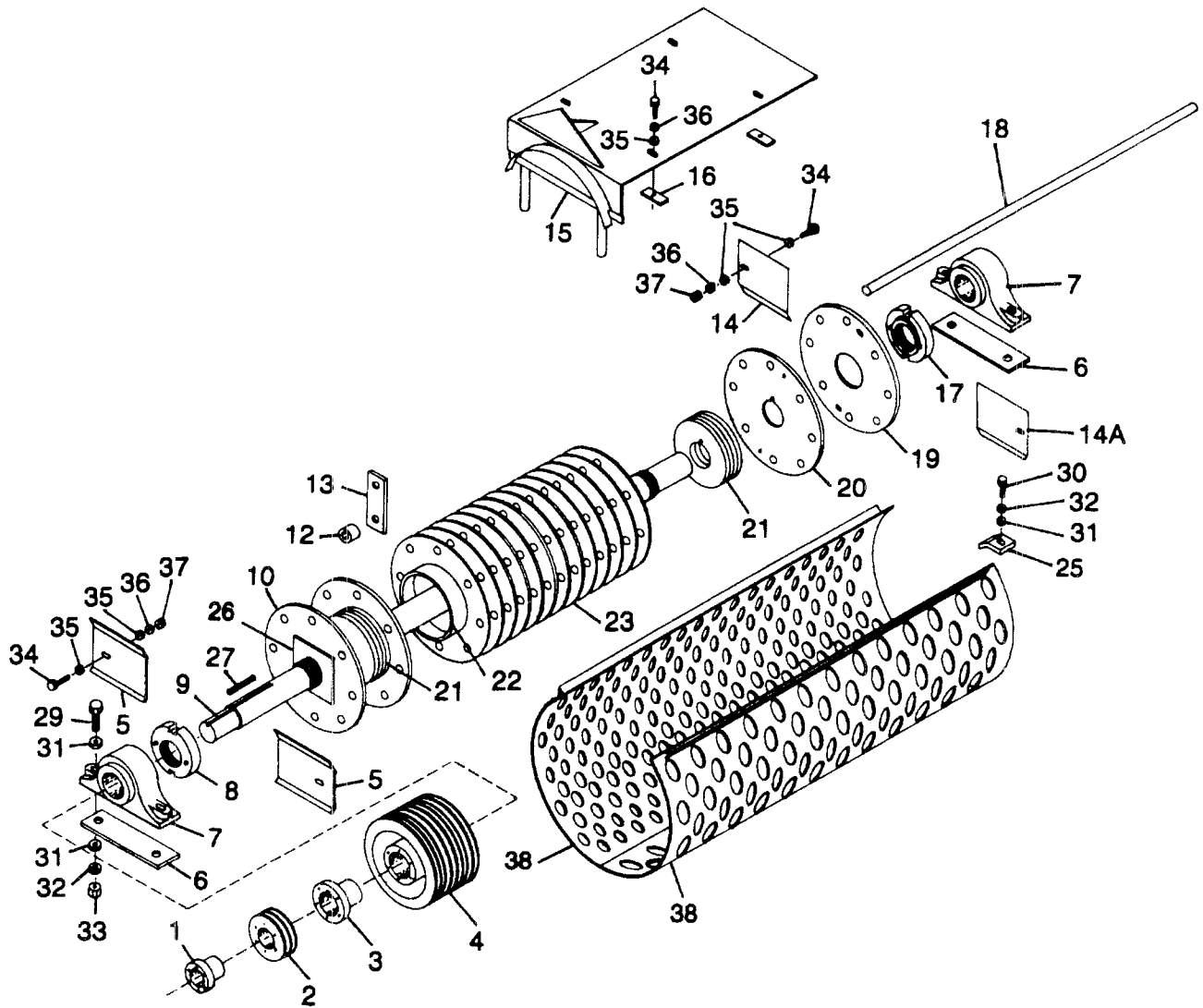
DRIVE SYSTEM



DRIVE SYSTEM

43	4500483	1	SHFT\RD\CR\1X11
44	6200014	11	KEY\SQ\1/4X1-1/4
45	1600009	2	V-BELT\B\60
46	2000510	2	BRG\PB\2
47	1400017	1	SHVE\B-8\18.4
48	1400504	1	BUSH\P1\1-3/4
49	1400008	1	SHVE\B-2\5.0
50	4500490	1	SHFT\RD\2-1/4X23-1/2
51	1400526	1	BUSH\R2\2-1/4
52	6200008	1	KEY\SQ\3/8X2
53	6200015	1	KEY\SQ\1/2X4-1/2
54	4900004	2	NUT\HEX\3/4\NC
55	5000005	2	WASH\FLAT\3/4
56	4800144	4	BOLT\HEX\5/8X6-1/2
57	5000002	8	WASH\FLAT\5/8
58	5000003	4	WASH\LOCK\5/8
59	4900005	4	NUT\HEX\5/8\NC
60	4800082	2	BOLT\HEX\1/2X1-1/2
61	5000004	8	WASH\FLAT\1/2
62	5000006	2	WASH\LOCK\1/2
63	4900001	4	NUT\HEX\1/2\NC
64	4800034	12	BOLT\HEX\3/8X1-1/2
65	4800003	4	BOLT\HEX\3/8X1
66	5000001	26	WASH\FLAT\3/8
67	5000019	22	WASH\LOCK\3/8
68	4900002	12	NUT\HEX\3/8\NC
69	4900032	4	NUT\WING\3/8\NC
70	4500464	1	GUARD\DR\SHFT

ROTOR



SCREEN LIST

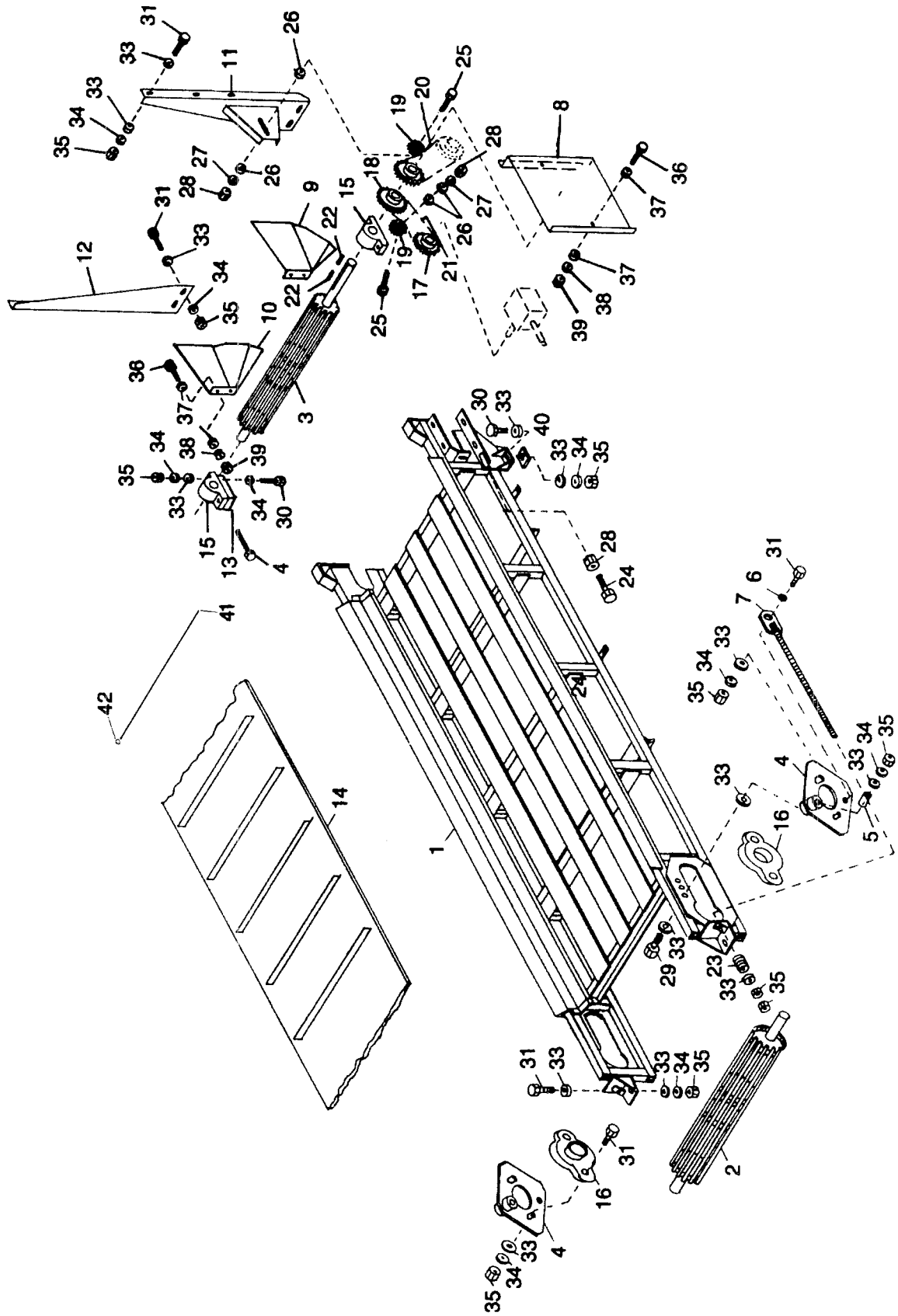
all screens 1/4" thick

PART	DESCRIPTION		
5400095	SCRN\1/8HL\1/4\H1100	5400091	SCRN\2HL\1/4\SLTD\H1100
5400074	SCRN\3/16HL\1/4\H1100	5400051	SCRN\3HL\1/4\H1100
5400052	SCRN\1/4HL\1/4\H1100	5400090	SCRN\3HL\1/4\SLTD\H1100
5400053	SCRN\3/8HL\1/4\H1100	4501018	SCRN\4HL\1/4\H1100
5400054	SCRN\1/2HL\1/4\H1100	5400092	SCRN\4HL\1/4\SLTD\H1100
5400055	SCRN\5/8HL\1/4\H1100	5400102	SCRN\5HL\1/4
5400056	SCRN\3/4HL\1/4\H1100	5400110	SCRN\6HL\1/4\H1100E
5400049	SCRN\1HL\1/4\H1100	5400111	SCRN\7HL\1/4\H1100E
5400066	SCRN\1 1/2HL\1/4\H1100	5400103	"8" SCREEN\1/4 HR PLATE"
5400050	SCRN\2HL\1/4\H1100	5400080	SCRN\DUMMY\1/4\H1100
		5400107	SCRN\GRDR\H1100\SOLID

ROTOR

<u>ITEM</u>	<u>PART</u>	<u>QTY</u>	<u>DESCRIPTION</u>
	4500616	1	RTR\ASSY\SUB
	5000004	2	WASH\FLAT\1/2
	5000006	2	WASH\LOCK\1/2
	6200042	4	KEY\RECT\1/2X5/8X4-1/2
1	1400520	1	BUSH\R2\3
2	1400006	1	SHVE\B-2\5.6\2B56Q
3	1400508	1	BUSH\Q1\2-7/16
4	1400016	1	SHVE\B-8\11.0
5	4500537	2	DOOR\RTR\FRONT
6	4500097	4	SHIM\BRG\3/16X3X11-3/4
7	2000538	2	BRG\PB\3\E\ROYER
8	4500142	1	NUT\RTR\3-1/2 W/O SHLDR
9	4500482	1	SHFT\RTR\3-1/2X72
10	4500505	1	PL\RTR\END\SLUGS\3-1/2ID>
12	4500248	48	1"HAMMER SPACER
13	5200002	88	3/8" AB SUPREME HAMMER
14	4500144	1	DOOR\RTR\REAR RH
14A	4500145	1	DOOR\RTR\REAR LH
15	4500252	1	COV\BRG\RTR\W/HAYGUIDE
16	4500094	4	CLIPS
17	4500146	1	NUT\RTR\3-1/2 W/SHOULDER
18	5300019	8	ROD\HMMR\15/16X50
19	4500019	1	PL\RTR\MOVE\5.32IDX3/16
20	4500506	1	PL\RTR\END\TPPD\3-1/2ID>
21	4500149	6	SPCR\CAST\8.645ODX3.5IDX2
22	4500106	16	SPCR\PIPE\8 STD X 2
23	4500507	21	PL\RTR\3-1/2IDX1/4\STD
24	4500459	1	HOLDDN\SCRN\NOTCHED&NIPED
25	4500251	1	HOLD DOWN\SCRN\NOTCHED
26	4500626	1	WASH\THRST\6 SQ 3-5/8 HOL
27	6200013	1	KEY\SQ\5/8X4-1/2
29	4800100	4	BOLT\HEX\5/8X4
30	4800054	2	BOLT\HEX\5/8X3-1/2
31	5000002	8	WASH\FLAT\5/8
32	5000003	4	WASH\LOCK\5/8
33	4900005	4	NUT\HEX\5/8\NC
34	4800003	8	BOLT\HEX\3/8X1
35	5000001		WASH\FLAT\3/8
36	5000019	8	WASH\LOCK\3/8
37	4900002		NUY\HEX\3/8\NC
39	4500151	1	RTR\NEW\50X15/16RD H1100

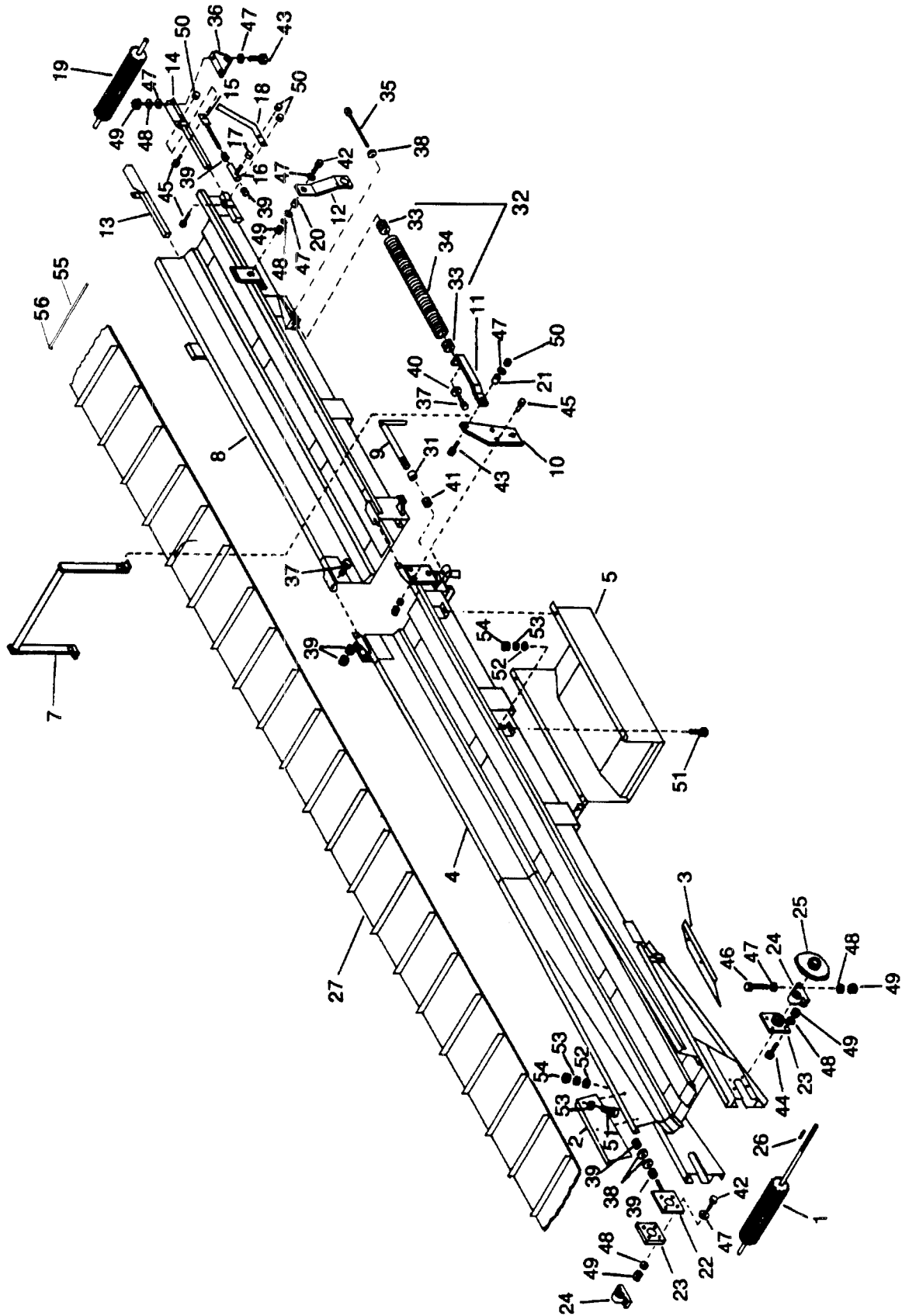
BELLY CONVEYOR



BELLY CONVEYOR

<u>ITEM</u>	<u>PART</u>	<u>QTY</u>	<u>DESCRIPTION</u>
	4500621	1	CNVYR\BELLY\ASSY\SUB
1	4500449	1	FRM\CNVYR\BELLY
2	4700064	1	RLLR\IDLER\BELLY\1-1/4SFT
3	4500154	1	RLLR\DR\BELLY\1-1/2SHFT
4	4500361	2	BRKT\BRG\CNVYR
5	4500364	2	TUBE\RD\1X1/2X1-3/16
6	4500363	2	TUBE\RD\1X1/2X13/16
7	4500362	2	ADJUSTMENT ROD
8	4500254	1	GUARD\CNVYR\DR
9	4500155	1	DFLCTR\LH
10	4500156	1	DFLCTR\RH
11	4500090	1	SUPPORT BRACKET LH
12	4500089	1	SUPPORT BRACKET RH
13	4500395	6	SHIM\BRG\7GA\2X7
14	1700031	1	BELT\BELLY;PAN\30X18'
15	2000501	2	BRG\PB\1-1/2\2BOLT
16	2000301	2	BRG\FLG\CAST\1-1/4\2BOLT
17	1000128	1	SPKT\60\B\15\1\1/4KW
18	1000085	2	SPKT\60\B\20\1-1/2\3/8KW
19	1000007	2	SPKT\60\15\5/8\IDLER
20	1100005	1	CHAIN\60\61
21	1100045	1	CHAIN\60\47
22	6200008	2	KEY\SQ\3/8X2
23	6100027	2	SPRNG\COMPRESSION
24	4800096	2	BOLT\ADJ\5/8X6
25	4800079	2	BOLT\HEX\5/8X2-1/2
26	5000002	4	WASH\FLAT\5/8
27	5000003	2	WASH\LOCK\5/8
28	4900005	4	NUT\HEX\5/8\NC
29	4800068	2	BOLT\HEX\1/2X3
30	4800070	6	BOLT\HEX\1/2X2-1/2
31	4800082	18	BOLT\HEX\1/2X1-1/2
33	5000004	30	WASH\FLAT\1/2
34	5000006	16	WASH\LOCK\1/2
35	4900001	20	NUT\HEX\1/2\NC
36	4800003	4	BOLT\HEX\3/8X1
37	5000001	4	WASH\FLAT\3/8
38	5000019	4	WASH\LOCK\3/8
39	4900002	4	NUT\HEX\3/8\NC
40	4500450	4	SHIM\MNT\CNVYR
41	1700051	1	LCNG\CBL\3/16X30\NYL
42	4900072	2	NUT\HEX\#10\NC
	4501074		CONVEYOR LESS BELT
	1700051		LCNG\CBL\3/16X30\NYL
	1700053		LCNG\#187\30\W\STPL

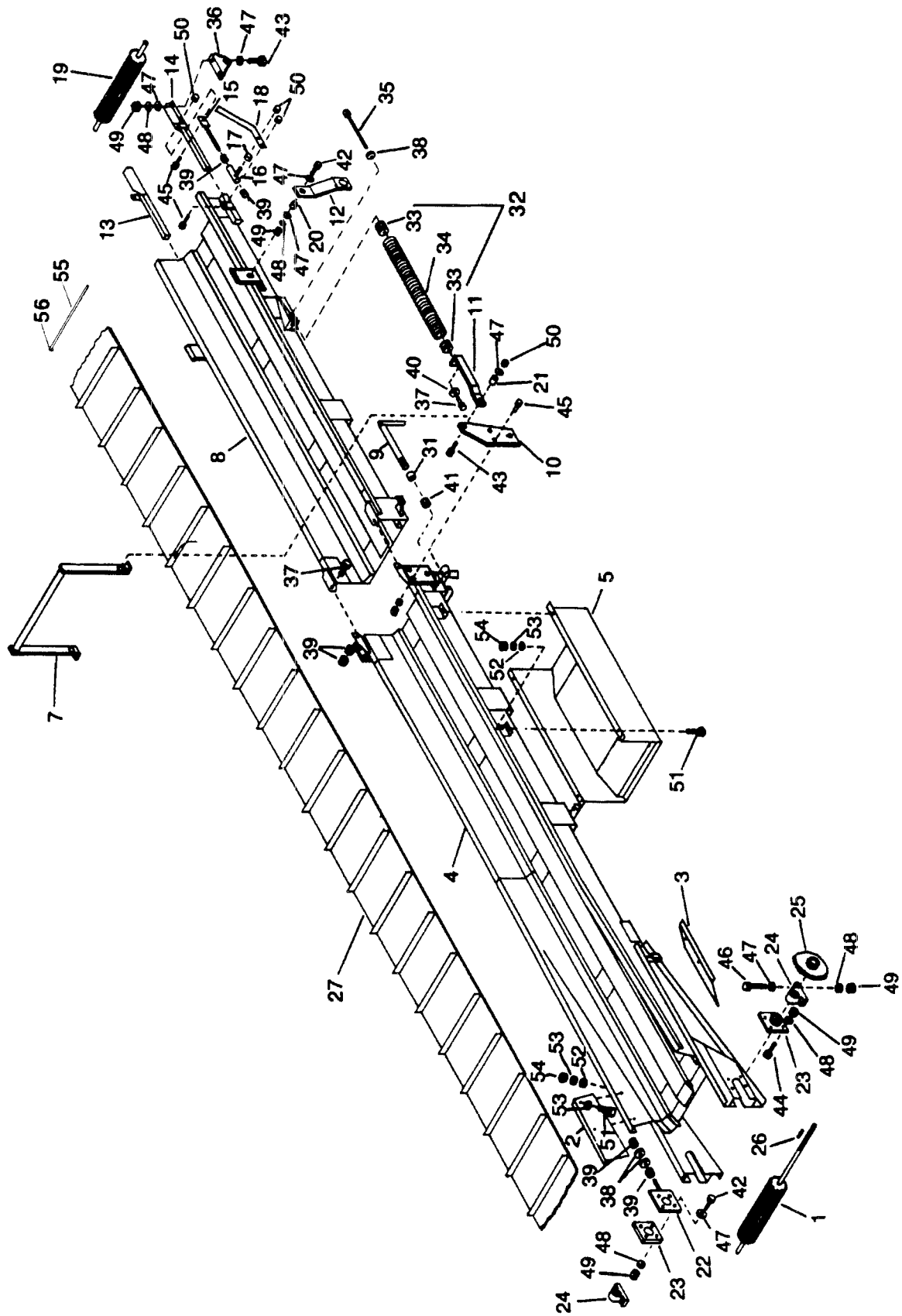
DISCHARGE CONVEYOR



DISCHARGE CONVEYOR

<u>ITEM</u>	<u>PART</u>	<u>QTY</u>	<u>DESCRIPTION</u>
	4500632	1	CNVYR\DISCH\ASSY\
	4500416		FOLD CONV WITH ROLLER & BELT
	4500417		FOLD CONV, NO ROLLER OR BELT
1	4500054	1	DISC. CONV. DRIVE ROLLER
2	4500157	1	GUIDE\CNVYR\MATL\RH
3	4500158	1	GUIDE\CNVYR\MATL\LH
4	4500165	1	FRM\CNVYR\DISCH\LOWER
5	4500159	1	GUIDE\CNVYR\BELT\BOTTOM
7	4500199	1	GUIDE\CNVYR\BELT
8	4500164	1	FRM\CNVYR\DISCH\UPPER
9	4500372	1	HANDLE\CNVYR\LATCH
10	4500536	2	BRKT\CNVYR\SPRING ARM
11	4500196	2	ARM\CNVYR\SPG
12	4500399	2	TRANSPORT LOCK
13	4500373	1	BRKT\CNVYR\BRG\RH
14	4500374	1	BRKT\CNVYR\BRG\LH
15	4500375	2	BOLT\CNVYR\TENSION ADJ
16	4500376	2	HINGE\CNVYR\TENS.;ADJ
17	4500377	2	TUBE\CNVYR\TENSION ADJ
18	4500378	2	HANDLE\CNVYR\TNSN ADJ\LH
18A	4500678	1	HANDLE\CNVYR\TNSN ADJ\RH
19	4500050	1	RLLR\CNVYR\DISCH\IDLER
20	4500200	2	TUBE\CNVYR\3/4X1/2X3/8
21	4500201	2	TUBE\CNVYR\3/4X1/2X3/4
22	4500379	1	BRKT\ADJ
23	2000303	2	BRG\FLG\1-1/2\4BOLT
24	2000501	2	BRG\PB\1-1/2\2BOLT
25	1000132	1	SPKT\60\B\24\1-1/2\3/8KW
26	6200007	1	KEY\SQ\3/8X1-1/2
27	1700006	1	BELT\CNVYR\18\43'6"W/ 1-1/2 CLT
28	1400082	2	SHVE\CBL\W\BRG
29	4800123	2	PIN\COT\1/8X1-1/2
30	4800026	2	PIN\SLV\5/8X2\W\KEY
31	2000809	1	CLLR\SHFT\1\SET
32	6100066		SPRING W/PLUG H1000,H1100
33	7500113	4	SCR\PLUG
34	6100047	2	SPRNG\1-1/2\IDX33-1/2\1/2
35	4500380	2	5/8"X 11"SPRING ADJ.BOLT
36	2000502	2	BRG\PB\1-1/4
37	4800010	4	BOLT\HEX\5/8X2
38	5000002	4	WASH\FLAT\5/8
39	4900005	8	NUT\HEX\5/8\NC
40	5000003	2	WASH\LOCK\5/8
41	4900015	1	NUT\NYLCK\1\NC
42	4800114	2	BOLT\HEX\1/2X2
43	4800178	6	BOLT\HEX\1/2X1-3/4

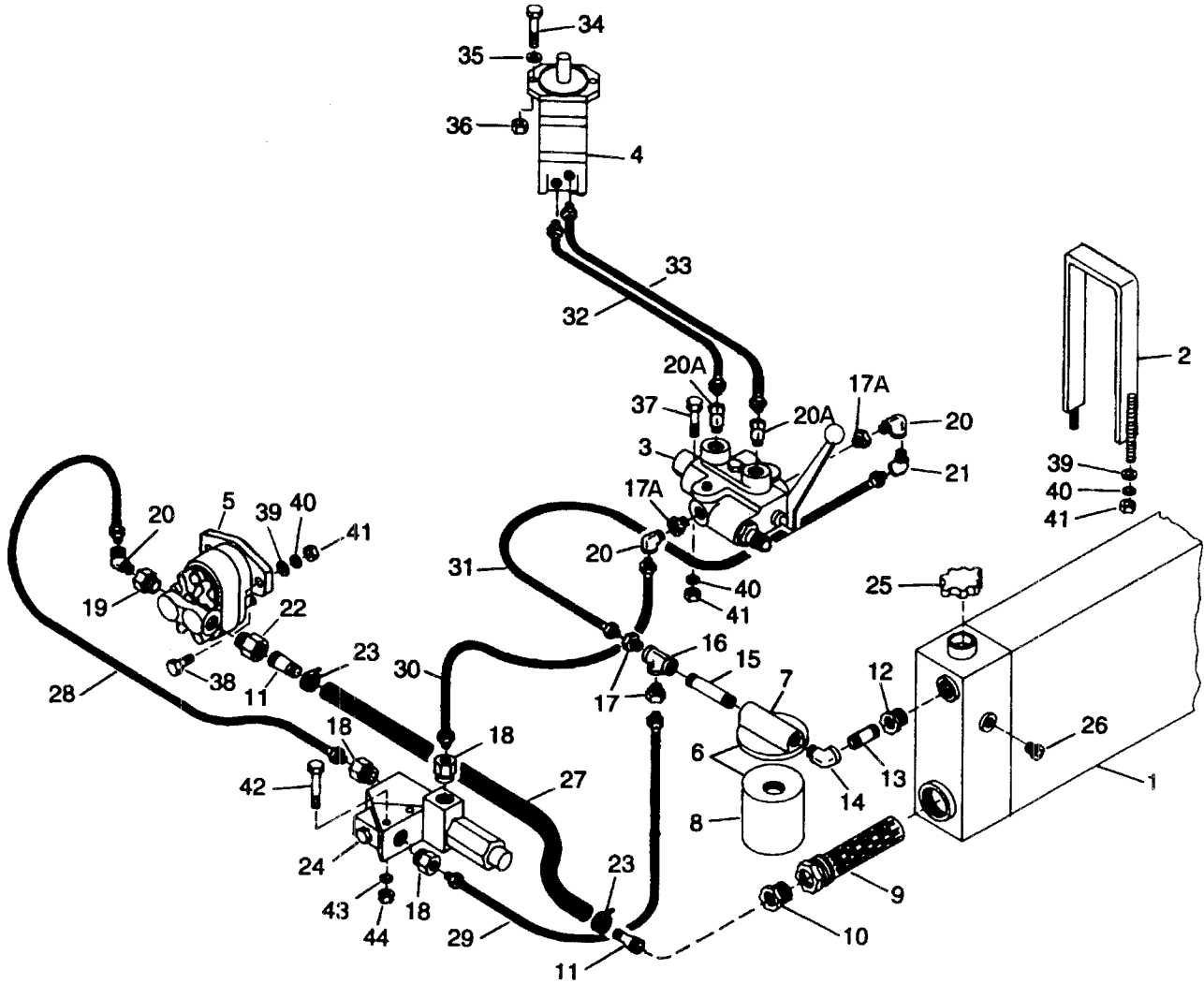
DISCHARGE CONVEYOR



DISCHARGE CONVEYOR

44	4800082	4	BOLT\HEX\1/2X1-1/2
45	4800018	4	BOLT\HEX\1/2X1-1/4
46	4800141	4	BOLT\HEX\1/2X4-1/2
47	5000004	26	WASH\FLAT\1/2
48	5000006	20	WASH\LOCK\1/2
49	4900001	6	NUT\HEX\1/2\NC
50	4900014	8	NUT\TPLCK\1/2\NC\.500"MAX
51	4800003	8	BOLT\HEX\3/8X1
52	5000001	12	WASH\FLAT\3/8
53	5000019	10	WASH\LOCK\3/8
54	4900002	8	NUT\HEX\3/8\NC
55	1700052	1	LCNG\CBL\1/8X18\NYL
56	4900072	2	NUT\HEX\#10\NC

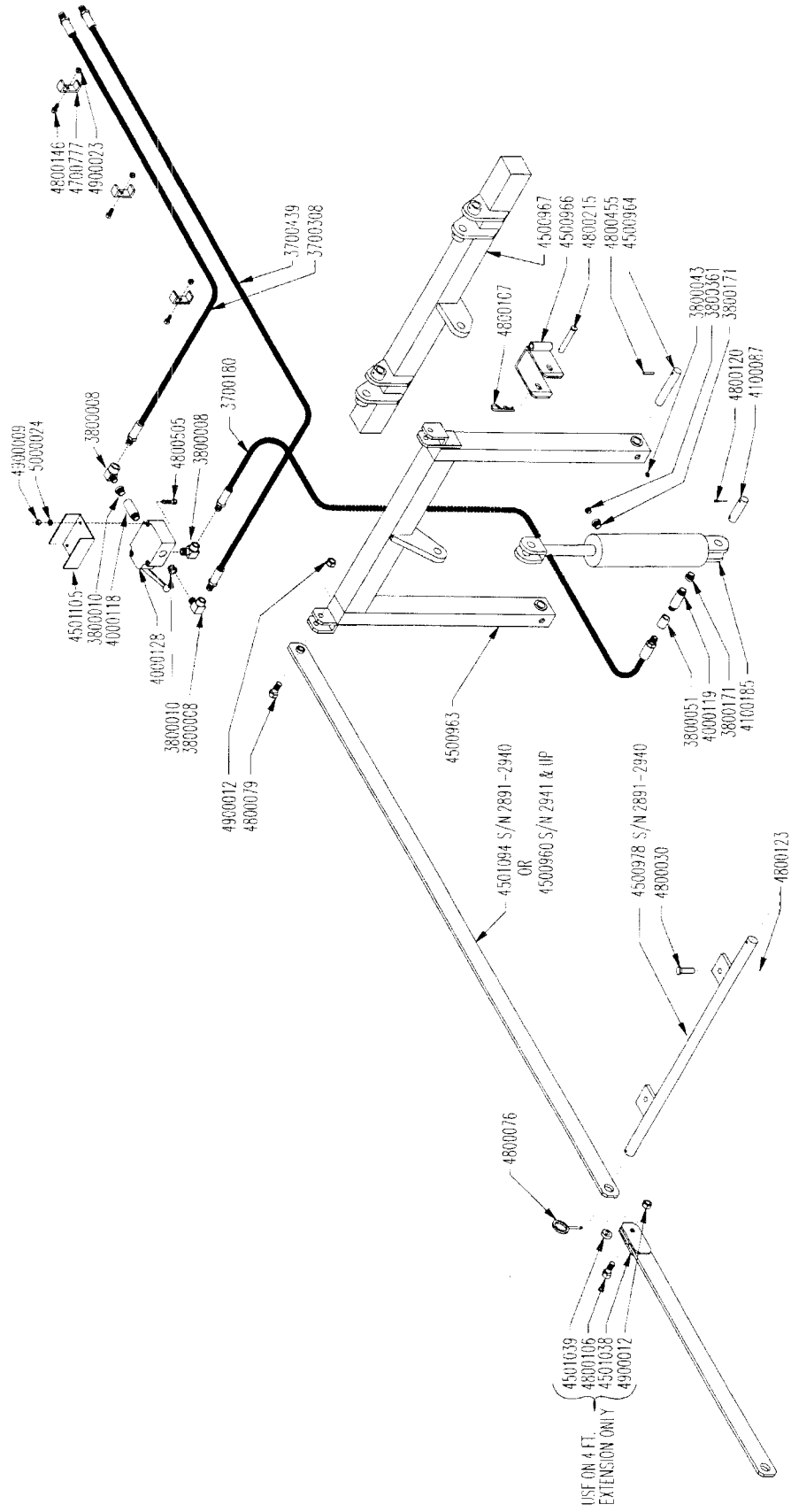
HYDRAULICS



HYDRAULICS

<u>ITEM</u>	<u>PART</u>	<u>QTY</u>	<u>DESCRIPTION</u>
1	4500627	1	HYD\ASSY\SUB
1	4500386	1	TANK\OIL
2	4500082	2	BRKT\TANK\OIL
3	4000035	1	VALVE\HYD\1-SPL\W\DETENT\FP-THRD
3	4000095	1	VALVE\HYD\1-SPL\W\DETENT\FOR-THRD
4	3900005	1	MTR\HYD\14.9\2000\SAE;A\>
5	4200025	1	EATON PUMP RH 15 GALLON
6	4400006	1	FLTR\COMP\10MICRON\3.7D\>
7	4400004	1	FLTR\BASE\3/4FP\3.7D\>
8	4400005	1	FLTR\ELMT\10MICRON\3.7D>
9	4400007	1	FLTR\SCRN\2MPX1-1/4FP\25>
10	3800022	1	FTG\1-1/4MPX1FP\BUSH\LW
11	3800056	2	FTG\1MPX1BARB\ADPT\LW
12	3800131	1	FTG\1MPX3/4FP\BUSH\LW
13	3800157	1	FTG\3/4MPX4\NPL\LW
14	3800129	1	FTG\3/4MPX3/4FP\90D\ST;EL
15	3800039	1	FTG\3/4MPX4-1/2\NPL\LW
16	3800017	1	FTG\3/4FP\TEE\LW
17	3800010	4	FTG\3/4MPX1/2FP\BUSH
17A	3800119	2	FTG\1-1/16MORX1/2FP\ADPT
18	3800119	3	FTG\1-1/16MORX1/2FP\ADPT
19	3800087	1	FTG\7/8MORSX1/2FP\ADPT
20	3800008	5	FTG\1/2MPX1/2FP\90D\ST;EL
20A	3800048	2	FTG\3/4MORX1/2FP\90D\ST;EL
21	3800028	1	FTG\1/2MPX1/2FP\45D\ST;EL
22	3800012	1	FTG\1-5/16MORX1FP\ADPT
23	3800143	2	CLAMP\HOSE\1-1/2\T-BOLT\>
24	4300030	1	CV93 HYD. ELECTRIC VALVE
24A	7501018		SERVICE KIT O-RING K1002
24B	4300010		REP. SOLENOID FOR 4300030
25	7500275	1	CAP\VENTED\TANK\OIL
26	3800137	1	FTG\3/4MP\SIGHT;GLASS
27	3700317	1	HOSE\SCTN\1X43
28	3700203	1	HOSE\HYD\1/2X32\SW-SO
29	3700111	1	HOSE\HYD\1/2X14\SW-SO
30	3700110	1	HOSE\HYD\1/2X20\SW-SO
31	3700311	1	HOSE\HYD\1/2X24\SW-SO
32	3700230	1	HOSE\HYD\1/2X32\SW\ORING
33	3700312	1	HOSE\HYD\1/2X34\SW\ORING
34	4800114	2	BOLT\HEX\1/2X2
35	5000004	2	WASH\FLAT\1/2
36	4900014	2	NUT\TPLCK\1/2\NC\.500"MAX
37	4800034	3	BOLT\HEX\3/8X1-1/2
38	4800098	2	BOLT\HEX\3/8X1-1/4\NC
39	5000001	6	WASH\FLAT\3/8
40	5000019	9	WASH\LOCK\3/8
41	4900002	9	NUT\HEX\3/8\NC
42	4800101	2	BOLT\HEX\1/4X2-1/2
43	5000024	2	WASH\LOCK\1/4
44	4900009	2	NUT\HEX\1/4\NC
	7500310	4	GRMT\1-1/4 OD 17/32 ID – Pump Cushions

CONVEYOR HYDRAULIC LIFT



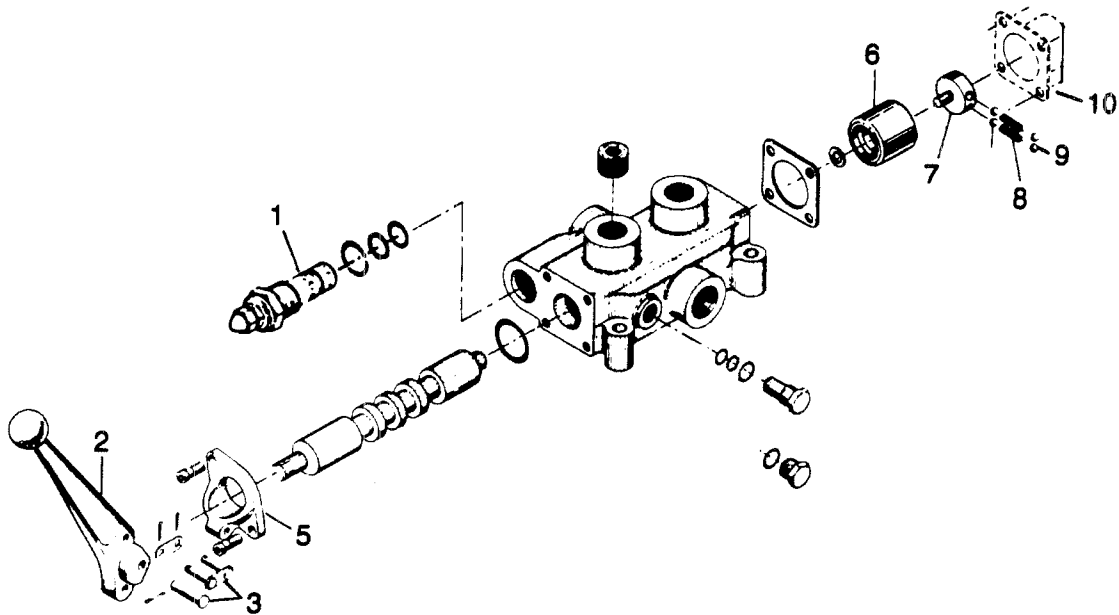
CONVEYOR HYDRAULIC LIFT

<u>PART</u>	<u>QTY</u>	<u>DESCRIPTION</u>
4500981		ASSY\LIFT\CNVYR\DISCH\
3700180	1	HOSE\HYD\1/2X76\SW-SW
3700308	1	HOSE\HYD\1/2X186\SW-SW
3700439	1	HOSE\HYD\1/2X198\SW-SW
3800008	3	FTG\1/2MPX1/2FP\90D\ST;EL
3800010	2	FTG\3/4MPX1/2FP\BUSH
3800043	2	FTG\LUB\1/8MPXZRK\SHORT
3800051	1	FTG\1/2FP\CPLG
3800171	2	FTG\3/4MORX1/2FP\ADPT
3800361	1	FTG\1/2MP\VENT\BRS\
4000118	1	VALVE\CHECK\3/4X3/4
4000119	1	VALVE\CHECK\VEL\9GPM\
4000128	1	VALVE\HYD\1SP\SPRG;CENT
4100087	2	1 X 3 1/2 CYL. PIN STD
4100185	1	CYL\HYD\3-1/2X8\TIE>
4500960	2	STRAP\LIFT\CNVYR\DISCH for S.N. HI2941 and up
4500963	1	FRAME\LIFT\CNVYR\DISCH\ for S.N. HI2941 and up
4500964	2	PIN\HINGE\FRAME\LIFT\CNVR
4500966	2	MOUNT\REC\TRANSPORT
4500967	1	MOUNT\LIFT\FRAME\CNVYR\DS
4500978	1	BRKT\LIFT\CNVYR\DISCH\ for S.N. GI2891 to GI2940
4501080		FRAME\LIFT\CNVYR\DISCH\ for S.N. GI2891 to GI2940
4501094	2	STRAP\LIFT\CNVYR\DISCH\BENT for S.N. GI2891 to GI2940
4501105		MOUNT\VALVE\CNVYR\LIFT
4700777	3	CLMP\HOSE\1/2
4800030	2	PIN\CLEVIS\5/8X2
4800076	2	PIN\KLIK\5/16
4800079	2	BOLT\HEX\5/8X2-1/2
4800107	2	PIN\HAIR\1/8 (#9)
4800120	4	PIN\COT\3/16X1-3/4
4800123	2	PIN\COT\1/8X1-1/2
4800146	3	BOLT\HEX\3/8X2
4800215	2	PIN\CLEVIS\3/4
4800455	2	PIN\RLLD\1/4X1-1/2
4800505	3	BOLT\HEX\1/4X1-1/2\NC
4900009	3	NUT\HEX\1/4\NC
4900012	2	NUT\TPLCK\5/8\NC
4900023	3	NUT\TPLCK\3/8\NC
5000024	3	WASH\LOCK\1/4

ADDITIONAL PARTS FOR 4 FT CONVEYOR EXTENSION

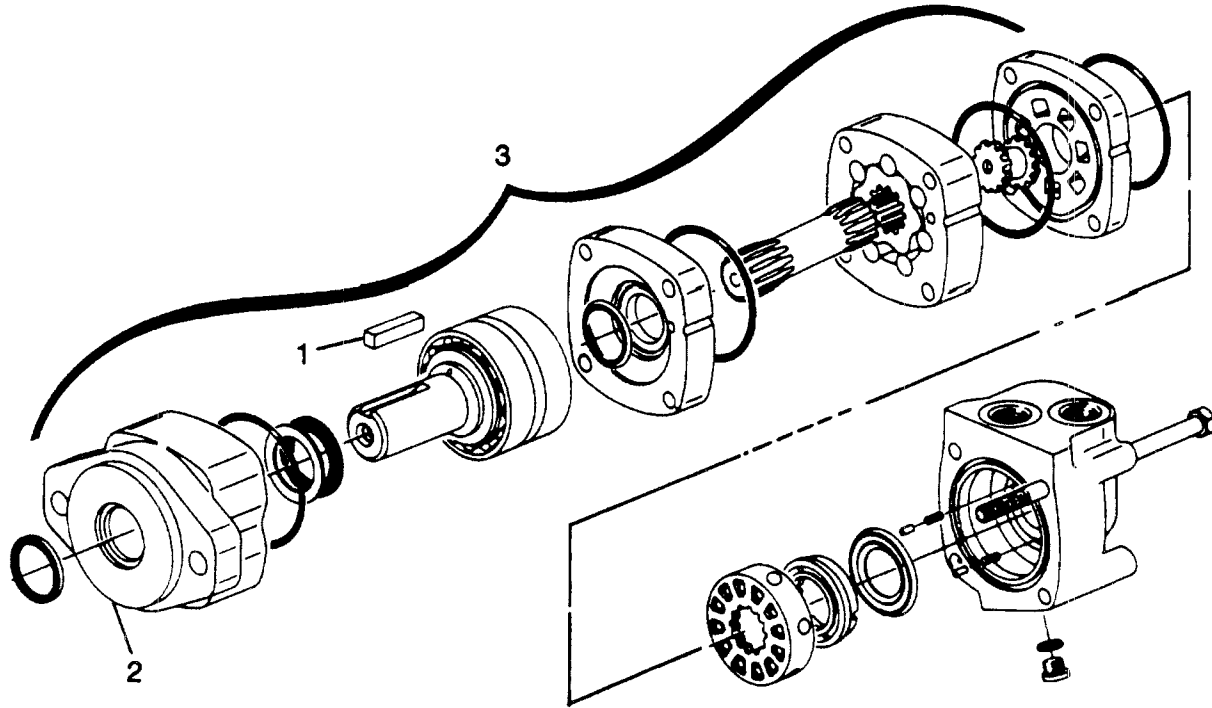
4501038	2	STRAP\EXT\LIFT\CNVYR\DIS
4501039	2	BUSH\EXT\STRAP\LIFT\CNVYR\DIS
4800106	2	BOLT\HEX\5/8X1-1/2
4900012	2	NUT\TPLCK\5/8\NC

HYDRAULIC VALVE



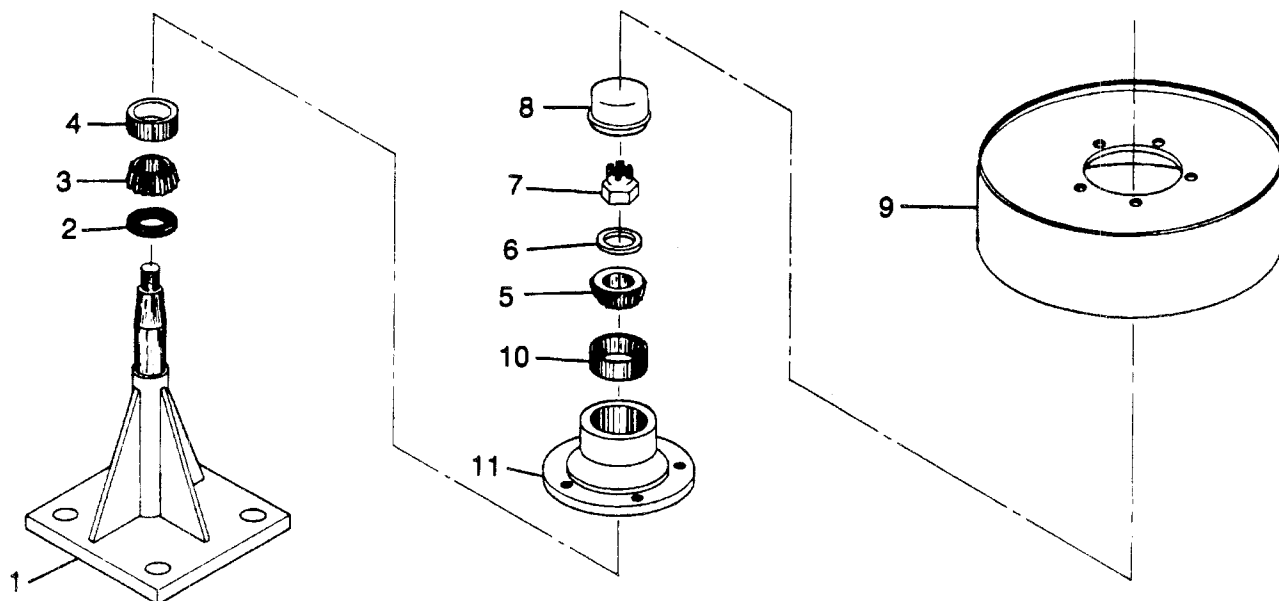
<u>ITEM</u>	<u>PART</u>	<u>QTY</u>	<u>DESCRIPTION</u>
1	4000006	1	VALVE\ADJ\RELIEF 500 TO 1500 PSI
1	4000065	1	NON ADJUSTABLE RELIEF VALVE, 1800 PSI
2	4000001	1	HANDLE/HYD/VALVE BANK
3	4000002	1	CONNECTOR LINK W/PIN
5	4000004	1	BRKT/HYD/VALVE
6	4000025	1	DETENT SLEEVE-HYD VALVE
7	4000026	1	DETENT RETAINER (SCREW)
8	4000027	2	DETENT SPRING-HYD VALVE
9	4000028	4	BALL 1/4"STEEL-HYD VALVE
10	4000029	1	END CAP -HYD VALVE VALVE
11	7501013	1	SEAL KIT (not shown)
	4000035		VALVE\HYD\1-SPLW/DETENT

ORBIT MOTOR



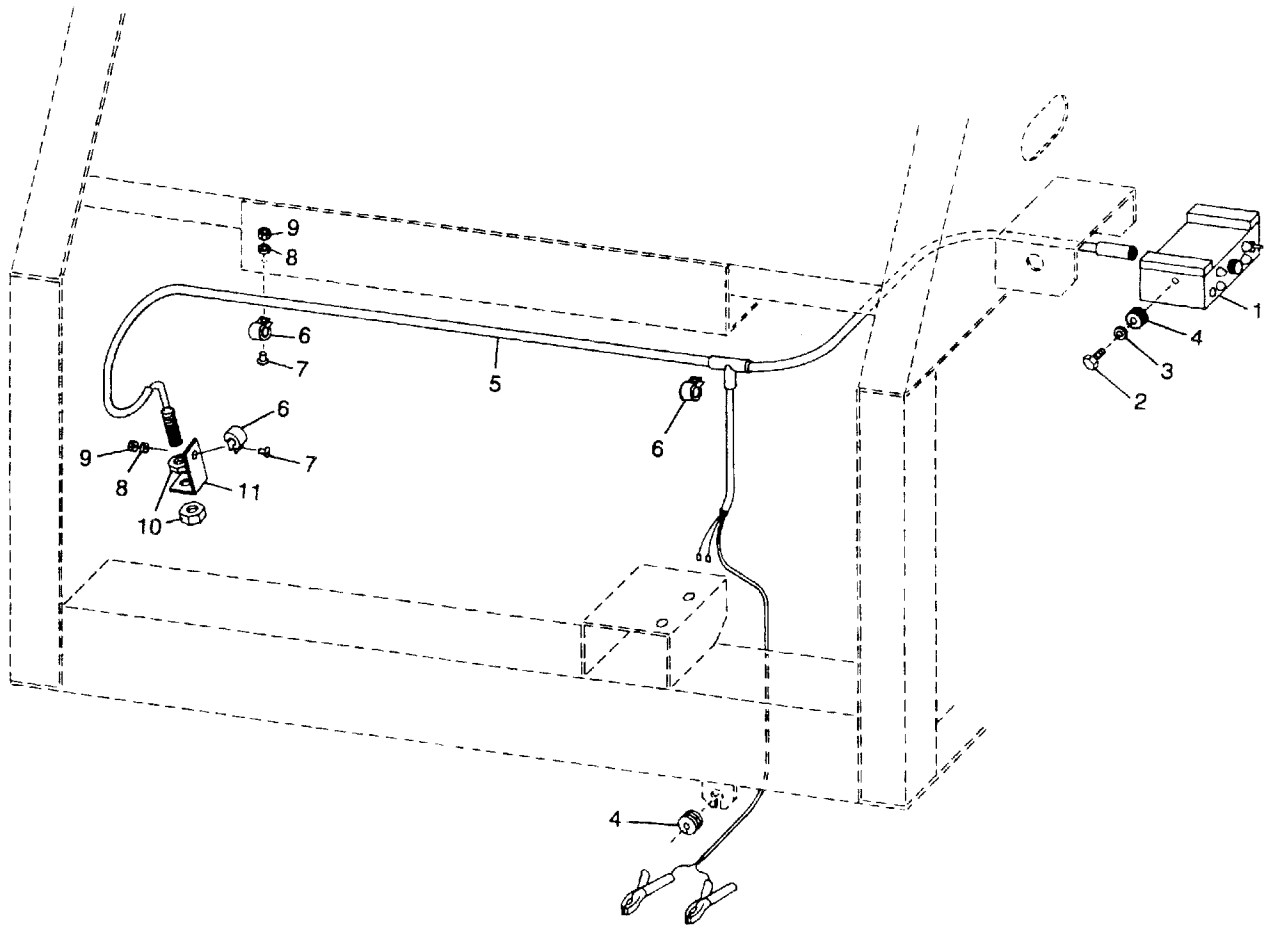
<u>ITEM</u>	<u>PART</u>	<u>QTY</u>	<u>DESCRIPTION</u>
1	6200004		KEY\SQ\5/16X1-1/2
2	3900011		MTG\FLG\2000SER
3	3900005		MTR\HYD\14.9\2000\SAE;A
4	7501005		KIT 2000 ORBIT

PRESSURE ROLLER



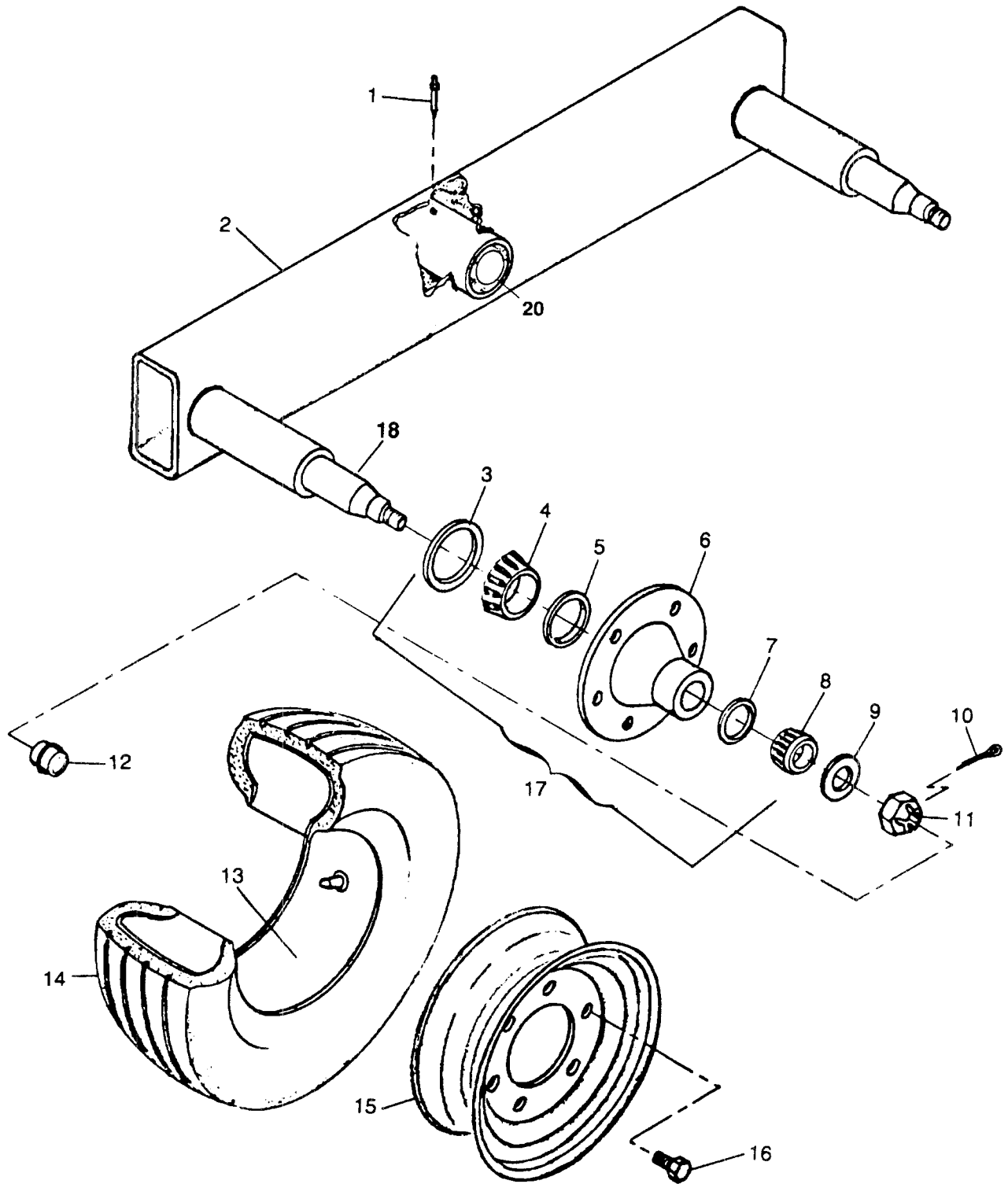
<u>ITEM</u>	<u>PART</u>	<u>QTY</u>	<u>DESCRIPTION</u>
13	4500247	1	PRESSURE ROLLER COMPLETE
	2900057	1	HUB\5BOLT\985\COMP
	4800172	1	PIN\COT\1/8X2
	4900094	5	NUT\TPR\WHEL\1/2\13/16OD>
1	1200010	1	RLLR\PRSS;STND
2	2900055	1	SEAL/WHEEL HUB(16069)
3	2900018	1	CONE\OUTER\WHL;HUB(67048)
4	2900004	1	CUP\OUTER WHL\HUB 67010
5	2900061	1	OUTER CONE/WHL HUB(11949)
6	5000094	1	WASH\SPNDL\5/8
7	4900112	1	NUT\SLOT.15/8\NF
8	2900064	1	CAP/WHEEL HUB(985)
9	4500088	1	PRESSURE DRUM
10	2900056	1	OUTER CUP\WHL HUB 11910
11	2900138	1	HUB\5BOLT\W/RACES\W/NUTS>
12	3000025	1	PRESS ROLLER SPDLE

GOVERNOR



<u>ITEM</u>	<u>PART</u>	<u>QTY</u>	<u>DESCRIPTION</u>
1	4500630	1	ELECLASSY\SUB
1	4300034	1	NEW STYLE CNTRL BOX RCB93
2	4800194	2	SCR\FLG\1/4X3/4
3	5000035	2	WASH\FLAT\1/4
4	7500124	3	GROMMET\RUBBER\2757
5	4300007	1	WIRING HARNESS 1000 1100
6	5700058	3	CLAMP\CUSHION\NO.8
7	4800466	3	SCR\PAN\SLOT\1/4X1/2\ST
8	5000024	3	WASH\LOCK\1/4
9	4900009	3	NUT\HEX\1/4\NC
10	4300009	1	SENSOR\MAG\W/HARDWARE
11	4500205	1	BRKT\SNSR
	4300038		REBUILT CONTROL BOX RCB93

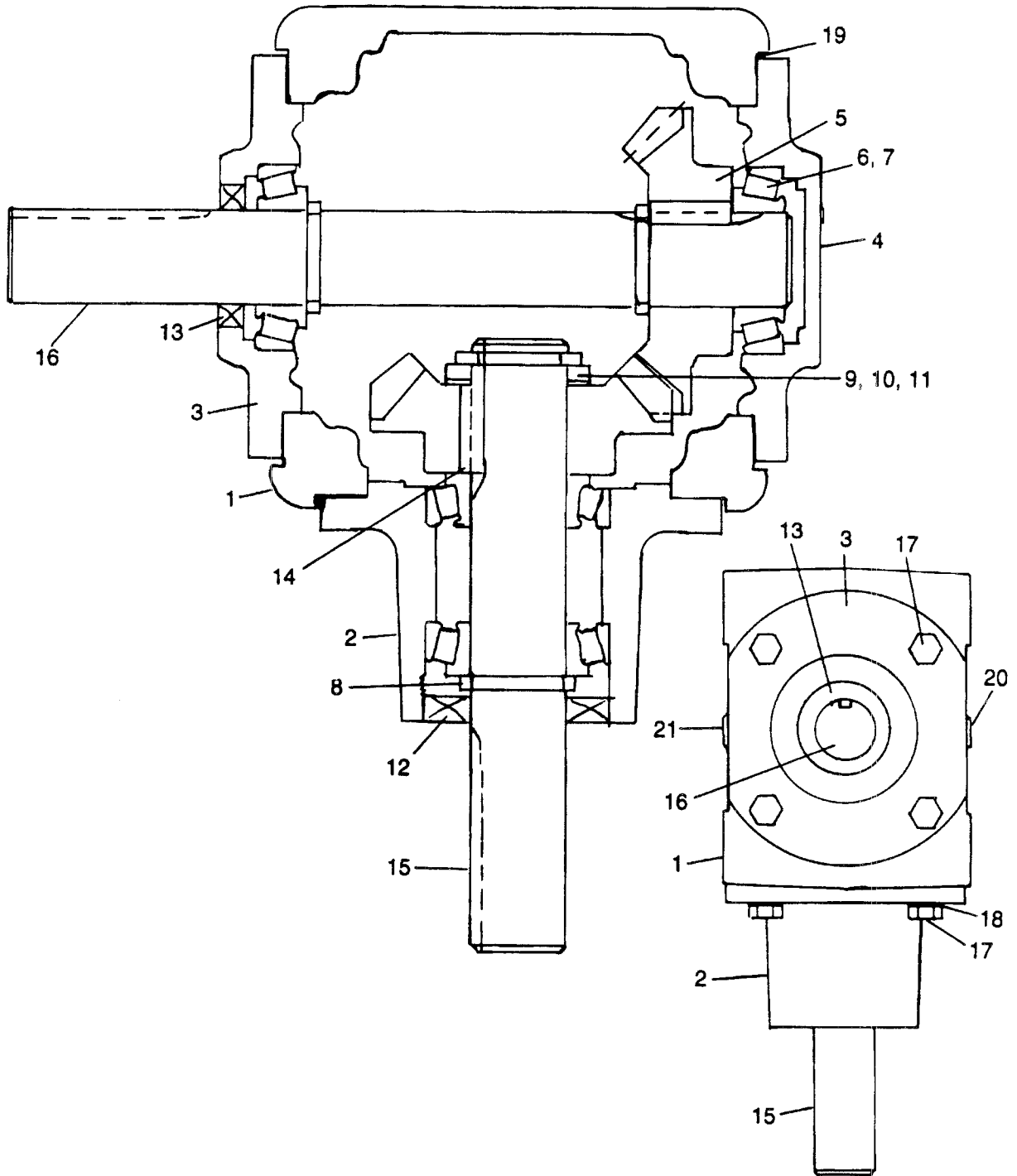
AXLES AND WHEELS



AXLES AND WHEELS

<u>ITEM</u>	<u>PART</u>	<u>QTY</u>	<u>DESCRIPTION</u>
	4500634	1	WHEEL\ASSY\SUB
1	3800067	2	FTG\LUB\1/8MPXZERK\2-5/8
2	4500140	1	WLKNG BEAM W/SPINDLES RH
2A	4500674	1	WLKNG BEAM W/SPINDLES LH
3	2900008	1	SEAL\WHL HUB 631(18823)
4	2900007	1	CONE\INNER\WHL;HUB501349
5	2900006	1	CUP\INNER\WHL;HUB501310
6	2900068	1	HUB\6-BOLT\WHL;HUB (631)
7	2900004	1	CUP\OUTER\WHL;HUB 67010
8	2900018	1	CONE\OUTER\WHL;HUB(67048
9	5000055	1	WASH\SPINDLE\7/8
10	4800533	1	PIN\COT\3/16X1
11	4900054	1	NUT\CASTLE\7/8\NF
12	2900013	1	CAP\DUST\WHL;HUB(DC-13)
13	2600406	4	TUBE\9.5LX14-15
14	2600009	4	9.5L X 15 8PLY TIRE
15	2600612	4	15 X 8 6-BOLT WHEEL
16	2900012	6	BOLT\WHEEL\WHL;HUB
17	2900069	4	HUB\6-BOLT\631\COMPL
18	3000026	4	12-15/16 SPINDLE (631)
19	4500262	2	WALKING BEAM SPINDLE
20	4500552	2	WALKING BEAM BUSHING

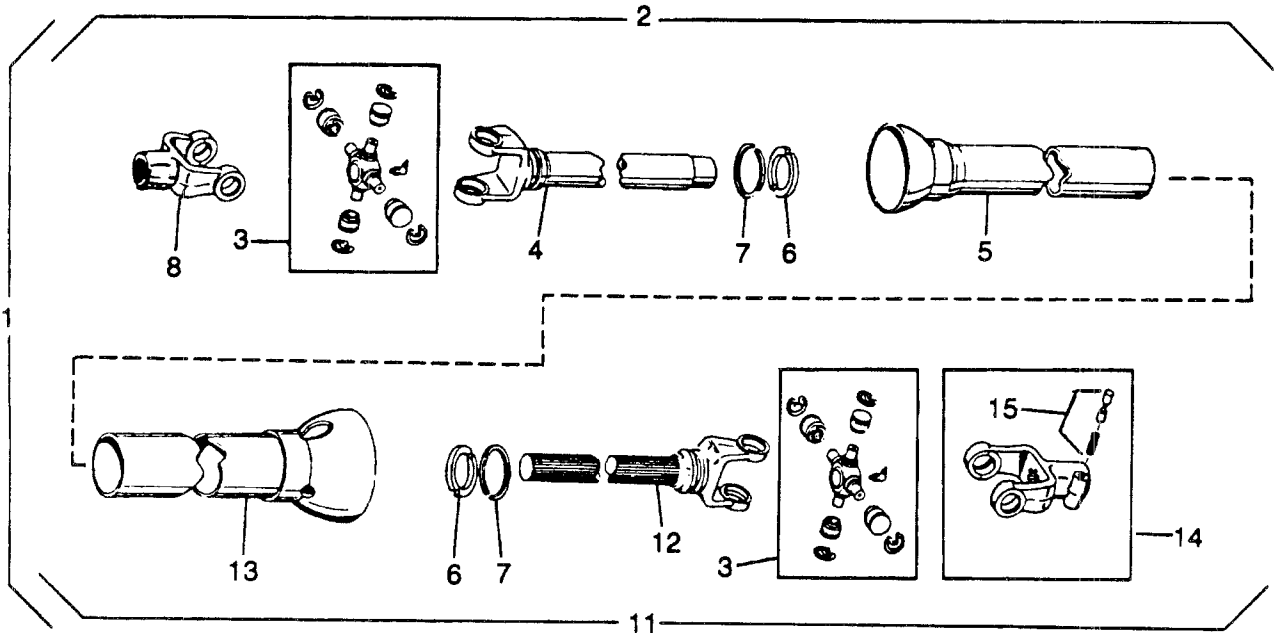
GEARBOX



GEARBOX

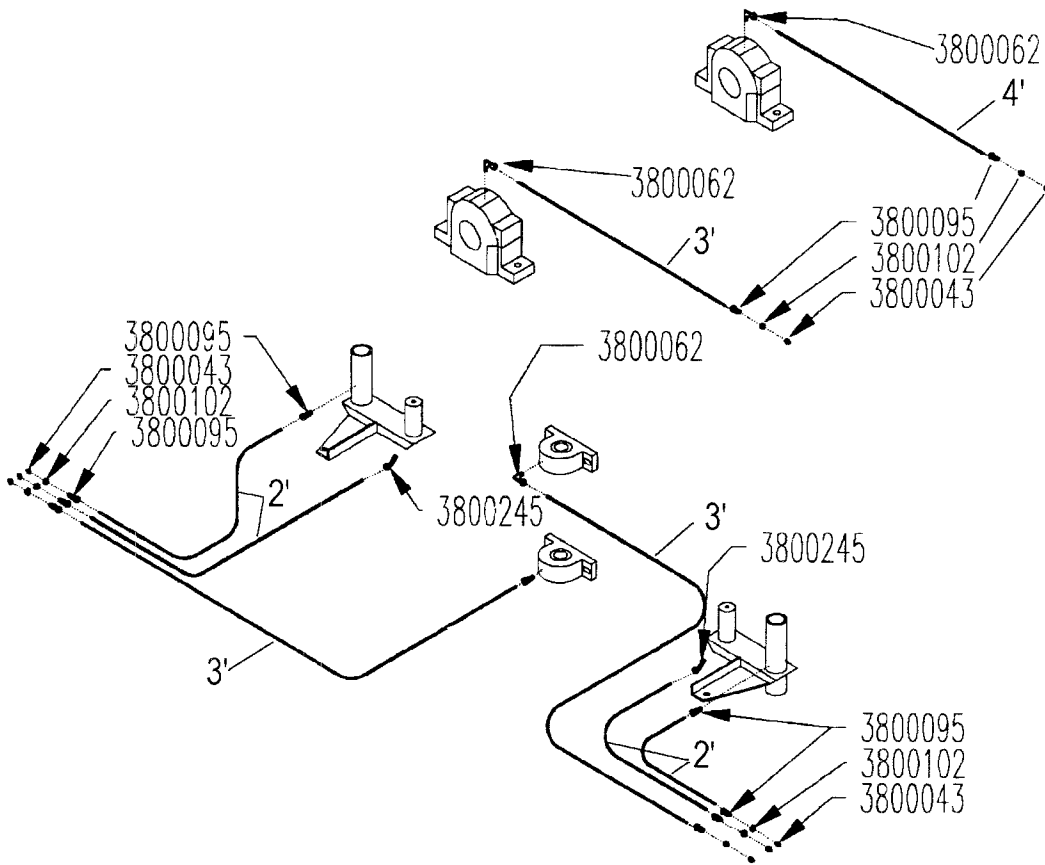
<u>ITEM</u>	<u>PART</u>	<u>QTY</u>	<u>DESCRIPTION</u>
	3100127	1	BUSHING
1	3100322	1	OPEN CENTER CASE PRAIRIE
2	3100323	1	QUILL 1.98DIA.SEALPRAIRIE
3	3100324	1	OPEN COVER PRAIRIE
4	3100325	1	CLOSED COVER PRAIRIE
5	3100326	2	19 TOOTH GEAR PRAIRIE
6	3100024	4	CONE\BRG
7	3100023	4	CUPI\BRG
8	3100327	3	SNAP RING -PRARIE
9	3100335	5	SHIM .0075 PRAIRIE
10	3100328	1	1"IDX1 1/2"ODX.130 WSHR P
11	3100329	1	SNAP RING PRAIRIE
12	3100309	1	SEAL CURTIS
13	3100313	1	SEAL #300004
14	3100330	1	1/4"X1/4"X.93 KEY PRAIRIE
15	3100331	1	PINION SHAFT PRAIRIE
16	3100332	1	CROSS SHAFT PRAIRIE
17	3100301	12	BOLT\5/16X7/8\CURTIS
18	3100333	12	5/16" LOCK WASHR PRAIRIE
19	3100335	5	SHIM .0075 PRAIRIE
19	3100336	5	SHIMS .020 PRAIRIE
19	3100338	5	SHIMS .005 PRAIRIE
20	3100318	1	PIPE PLUG-SOLID CURTIS
21	3100319	1	PIPE PLUG-VENTED CURTIS
22	3100334	1	SHFT\ (TO REVRS GB)PRAIRIE
23	3100187	1	PRAIRIE GEAR BOX 1:1

PTO



<u>ITEM</u>	<u>PART</u>	<u>QTY</u>	<u>DESCRIPTION</u>
1	3600067	1	HD PTO W/1-3/8" 21 SPLINE
1A	3600140	1	HD PTO W/1-3/4" 20 SPLINE
2	3600065	1	MACHINE HALF HD
3	3600013	2	CROSS & BEARING KIT 55W
4	3600063	1	YOKE W/TUBE HD
5	3600062	1	INNER SHIELD HD
6	3600092	2	NYLON BEARING HD
7	3600093	2	BEARING RETAINER
8	3600012	1	MACHINE YOKE 1-3/4" L55
11	3600066	1	TRCTR HALF HDW/1-3/8 21 SPL
11A	3600068	1	TRCTR HALF HDW/1-3/4 20 SPL
12	3600061	1	YOKE W/SHAFT HD
13	3600060	1	OUTER SHIELD HD
14	3600016	1	YOKE ASSY 1 3/8 21 SPLINE
14A	3600064	1	YOKE ASSY 1 3/4 20 SPLINE
15	3600094	1	SAF-T-PIN & SPRING KIT

GREASELINE ASSEMBLY



<u>PART#</u>	<u>QTY</u>	<u>DESCRIPTION</u>
4500923		LUBE\GRSLN\ASSY\SUB
3700142	BULK	HOSE\LUB\1/4FT\NYL
3800043	7	FTG\LUB\1/8MPXZRK\SHORT
3800062	2	FTG\LUB\1/4COMPX1/8MP\90D
3800095	9	FTG\LUB\1/4COMPX1/8MP\
3800102	7	FTG\1/8FP\CPLG\LW
3800245	2	FTG\1/4COMPX1/8FP\45D

Note - Part 3700142 is for bulk hose. When ordering, you must specify length desired. Dimensions shown on the drawing are longer than needed. If replacing two or more lines, order a combined length of all lines. Trim to length as you install the hose.

You will need to order two fittings, (a combination of 3800062, 3800095, and 3800245, as needed) per grease line.

DECALS



65000

⚠ WARNING	⚠ ADVERTENCIA
FOR YOUR PROTECTION KEEP ALL SHIELDS IN PLACE AND SECURED WHILE MACHINE IS OPERATING. MOVING PARTS WITHIN CAN CAUSE SEVERE PERSONAL INJURY.	PARA ASEGURAR SU PROTECCION, MANTENGA TODOS LOS PROTECTORES EN SU LUGAR Y ASEGURADOS MIENTRAS LA MAQUINA ESTE OPERANDO. LAS PIEZAS MOVILES INTERNAS PUEDEN CAUSAR LESIONES PERSONALES GRAVES.

6500040

⚠ WARNING	⚠ ADVERTENCIA
FOR YOUR PROTECTION AND PROTECTION OF OTHERS, PRACTICE THE FOLLOWING SAFETY RULES. BEFORE OPERATING THIS MACHINERY READ THE OPERATOR'S MANUALS SUPPLIED WITH THIS DOCUMENT AND YOUR TRACTOR. 1. CHECK OPERATOR'S MANUALS TO BE SURE YOUR TRACTOR MEETS THE MANDATED REQUIREMENTS FOR THIS MACHINE. 2. READ ALL WARNINGS PLACED ON THIS MACHINE FOR YOUR SAFETY AND CONVENIENCE. 3. NEVER ALLOW PISTON COILS OR BELT DRIVERS TO HIT TRACTOR. 4. KEEP FINGERS AWAY FROM THE MACHINE WHILE IN OPERATING MODES. 5. KEEP ALL SHIELDS IN PLACE WHILE MACHINE IS OPERATING. 6. KEEP HANDS, FEET, LOOSE CLOTHING, ETC., AWAY FROM POWER DRIVEN PARTS. 7. ALWAYS SHUT OFF ALL BATTERY AND ENGINE BEFORE LEAVING THE MACHINE. 8. NEVER OPERATE OR SERVICEREAR THIS MACHINE FROM ANY BEARING. ALWAYS PLACE TRANSMISSION IN PARK AND SET PARK BRAKES AND WHEELS ON ALL SURFACES TO STOP BEFORE APPROACHING THE MACHINE.	SIGAS LAS REGLAS SIGUIENTES DE SEGURIDAD PARA SU PROTECCION Y LA PROTECCION DE OTROS 1. LEA LOS MANUALES DEL OPERADOR INCLUIDOS CON ESTA MAQUINA Y SU TRACTOR ANTES DE OPERAR ESTA MAQUINA. 2. PARA ASEGURARSE QUE SU TRACTOR CUMPLE CON LOS REQUISITOS MANDADOS PARA ESTA MAQUINA, REVISE LOS MANUALES DEL OPERADOR PARA DE SEGURIDAD Y CONVENIENCIA. Lea TODAS LAS OBLIGACIONES QUE EXISTEN EN LA MAQUINA. 3. NUNCA PERMITA PASARLE EN ESTA MAQUINA O EN EL TRACTOR. MANTENGA ALEJADO A LOS ESPECTADORES MIENTRAS ESTA MAQUINA ESTE OPERANDO. 4. MANTENGA TODOS LOS PROTECTORES EN SU LUGAR MIENTRAS LA MAQUINA ESTE OPERANDO. 5. MANTENGA LAS MANOS, PIES, ROPA SUELTAS, ETC., ALEJADAS DE LAS PIEZAS PROPULSADAS. 6. SIEMPRE APAGUE LA MAQUINA Y EL MOTOR ANTES DE DEJAR SERVICIO. NUNCA OPERE O SERVICIE ESTA MAQUINA DESDE CUALQUIER POSICION, SIEMPRE EN LA CLAVIJA DE ENGANCHE EN LA BARRA DE TRACCION.


6500041

KEEP WHEEL BOLTS TIGHT

MANTENER AJUSTADOS LOS PERNOS DE LA RUEDA

6500042

6500042

⚠ WARNING	⚠ ADVERTENCIA
NO RIDERS SERIOUS PERSONAL INJURY COULD RESULT FROM RIDING ON THE MACHINE	
	PASAJEROS PROHIBIDOS PODRIAN RESULTAR LESIONES PERSONALES GRAVES AL VIAJAR EN LA MAQUINA

6500043

← **OIL LEVEL**

← **NIVEL DE ACEITE**

6500052

6500052

⚠ DANGER

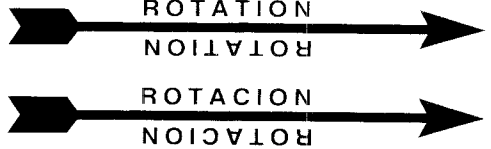


ROTATING DRIVELINE CONTACT CAN CAUSE DEATH KEEP AWAY!

DO NOT OPERATE WITHOUT—

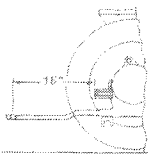
- ALL DRIVELINE GUARDS, TRACTOR AND EQUIPMENT SHIELDS IN PLACE
- DRIVELINES SECURELY ATTACHED AT BOTH ENDS
- DRIVELINE GUARDS THAT TURN FREELY ON DRIVELINE

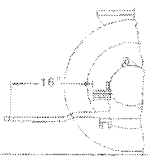
6500085



ROTATION
ROTATION
ROTACION
ROTACION


6500056


	<p style="text-align: center;">⚠ CAUTION</p> <p>ADJUST TRACTOR DRAWBAR SO THAT THE DISTANCE FROM THE END OF THE PTO SHAFT ON THE TRACTOR TO THE CENTER OF THE DRAWBAR HITCH PIN IS 16".</p>
--	--

	<p style="text-align: center;">⚠ PRECAUCIÓN</p> <p>AJUSTE LA BARRA DE TRACCION DE EL TRACTOR A LA DISTANCIA DE 16 PULGADAS DE LA PUNTA DEL ARBOL MOTOR (PTO) EN EL TRACTOR AL CENTRO DE LA CLAVIJA DE ENGANCHE EN LA BARRA DE TRACCION.</p>
--	--

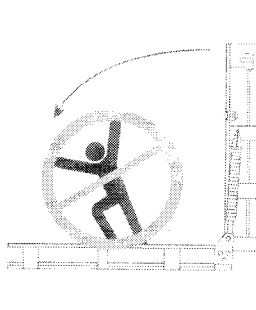
6500057

DECALS

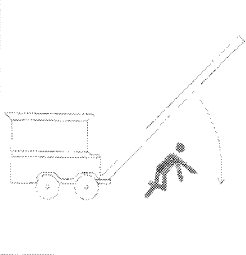
 <p>DANGER</p>	<p>DO NOT REMOVE HYDRAULIC CYLINDER SAFETY FITTER UNTIL THE HYDRAULIC HOSES HAVE BEEN CHARGED AND THE CYLINDER FULLY EXTENDED.</p> <p>FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN SEVERE PERSONAL INJURY OR DEATH.</p> <p>6500147</p>
--	--

 <p>PELIGRO</p>	<p>NO SAQUE EL PUNTO DEL CILINDRO HIDRÁULICO HASTA QUE SE CARGEN LAS MANGUERAS HIDRÁULICAS Y SE EXTIENDA COMPLETAMENTE EL CILINDRO.</p> <p>FALLAR A SEGUIR ESTAS INSTRUCCIONES PUEDE RESULTAR EN HERIDAS SEVERAS PERSONALES O MUERTE.</p> <p>6500147</p>
---	--

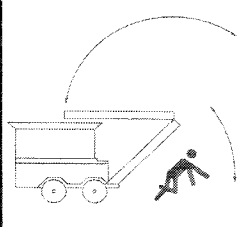
6500147

	<p>WARNING</p> <p>Failure to use caution while folding the conveyor could result in Serious Injury.</p> <p>6500139</p> <p>ADVERTENCIA</p> <p>El no tener cuidado al doblar la transportadora podría resultar en una lesión grave.</p>
--	---

6500139

	<p>WARNING</p> <p>OVERHEAD CONVEYOR HAZARD</p> <p>To prevent serious injury or death:</p> <p>Do not walk under conveyor at any time. Stay clear of conveyor during operation, raising, and lowering. Lower conveyor fully before servicing.</p> <p>Keep others away.</p>	<p>ADVERTENCIA</p> <p>PELIGRO DE CINTA TRANSPORTADORA ELEVADA</p> <p>Para evitar lesiones graves o la muerte:</p> <p>No camine por debajo de la cinta transportadora en ningún momento. Permanezca alejado de la cinta transportadora durante su funcionamiento, el izado y la bajada. Baje completamente la cinta transportadora antes de proceder al servicio. Mantenga alejados a otras personas.</p>
---	--	--

6500214

	<p>WARNING</p> <p>OVERHEAD CONVEYOR HAZARD</p> <p>To prevent serious injury or death:</p> <p>Do not walk under conveyor at any time. Stay clear of conveyor during folding operations. Check that transport locks are fully engaged before transporting on roads or servicing.</p> <p>Keep others away.</p>	<p>ADVERTENCIA</p> <p>PELIGRO DE CINTA TRANSPORTADORA ELEVADA</p> <p>Para evitar lesiones graves o la muerte:</p> <p>No camine por debajo de la cinta transportadora en ningún momento. Permanezca alejado de la cinta transportadora durante las operaciones de plegado. Verifique que todas las trabas de transporte estén enganchadas completamente antes de proceder al transporte por caminos o al servicio. Mantenga alejados a otras personas.</p>
---	---	---

6500215

<p>WARNING</p>	
	
<p>HIGH-PRESSURE FLUID HAZARD</p> <p>To prevent serious injury or death:</p> <ul style="list-style-type: none"> Relieve pressure on system before repairing or adjusting or disconnecting. Wear proper hand and eye protection when searching for leaks. Use wood or cardboard instead of hands. Keep all components in good repair. <p>6500220</p>	

6500220

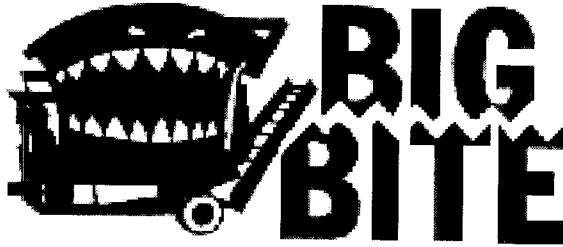
<p>DANGER</p> <p>ROTATING PARTS WITHIN CAN KILL OR DISMEMBER</p> <p>WAIT FOR ALL MOVEMENT TO STOP BEFORE SERVICING, UNCLOGGING OR INSPECTING MACHINE.</p>	<p>PELIGRO</p> <p>LAS PARTES GIRATORIAS INTERNAS PUEDEN MATAR O DESMEMBRAR</p> <p>ANTES DE SERVIR, DESTABAR O INSPECCIONAR LA MAQUINA, ESPERE A QUE CESE TODO EL MOVIMIENTO.</p>
--	---

6500082

DECALS

HAYBUSTER

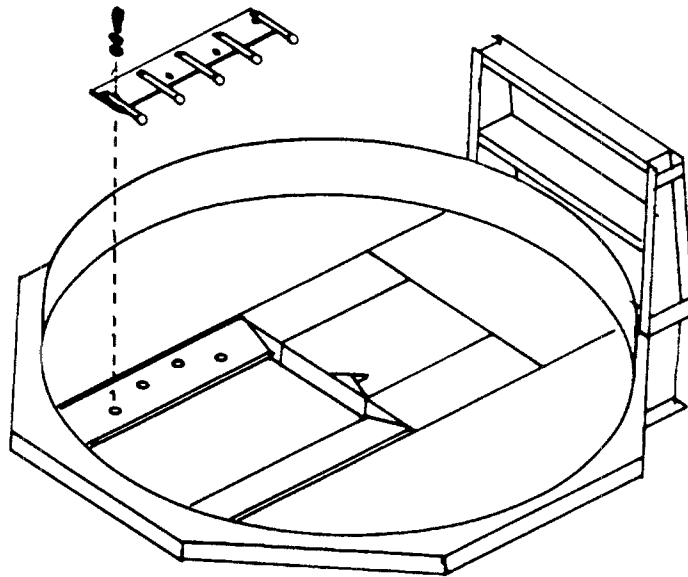
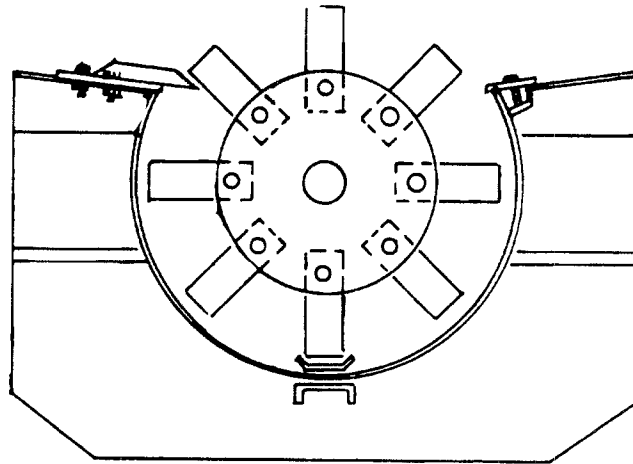
6500096



6500044

<u>PART</u>	<u>QTY</u>	<u>DESCRIPTION</u>
6500020	1	DECAL\LOGO\HYBSTR\SUNBRST
6500040	4	DECAL\WARN\SHIELD;PROT
6500041	2	DECAL\WARN\PROTECTION
6500042	2	DECAL\WARN\KEEP;WHL;BLTS>
6500043	2	DECAL\WARN\NO;RIDERS
6500044	2	DECAL\LOGO\BIG-BITE
6500052	1	DECAL\INFO\OIL;LEVEL
6500053	1	DECAL\LOGO\H-1100
6500056	1	DECAL\INFO\ROTATION\STR
6500057	1	DECAL\CAUT\ADJ.DRAW BAR
6500082	4	DECAL\WARN\ROTATN;PART;>
6500085	1	DECAL\DNGR\ROTATING DRVLINE
6500096	2	DECAL\LOGO\HYBSTR\W/O SUNBRST
6500102	10.33	DECAL\LOGO\STRIPE\RED\FT
6500139	2	DECAL\INFO\FOLDING;CNVYR
6500147		DECAL\INFO\HYD;CYL;SAFETY;STOP
6500214		DECAL\WARN\OVERHEAD CNVYR HZRD
6500215		DECAL\ WARN\FOLDING CNVYR HZRD
6500220		DECAL\WARN\HIGH PRESS FLUID

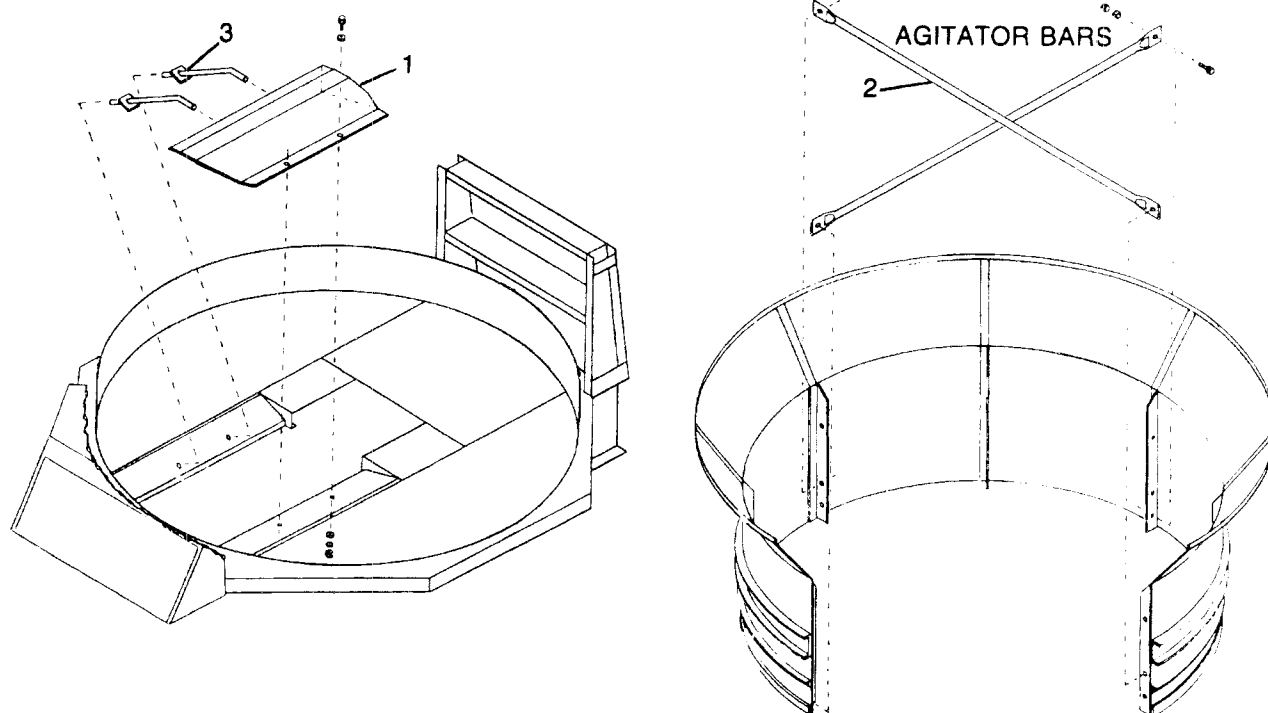
SLUGBUSTER



<u>PART</u>	<u>QTY</u>	<u>DESCRIPTION</u>
4500998	1	SLUGBUSTER\H1100
4800010	4	BOLT\HEX\5/8X2
5000002	4	WASH\FLAT\5/8
5000003	4	WASH\LOCK\5/8

The Slugbuster is a one piece metal bar with steel fingers that protrude over the infeed side of the rotor. Hammers pass between 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.

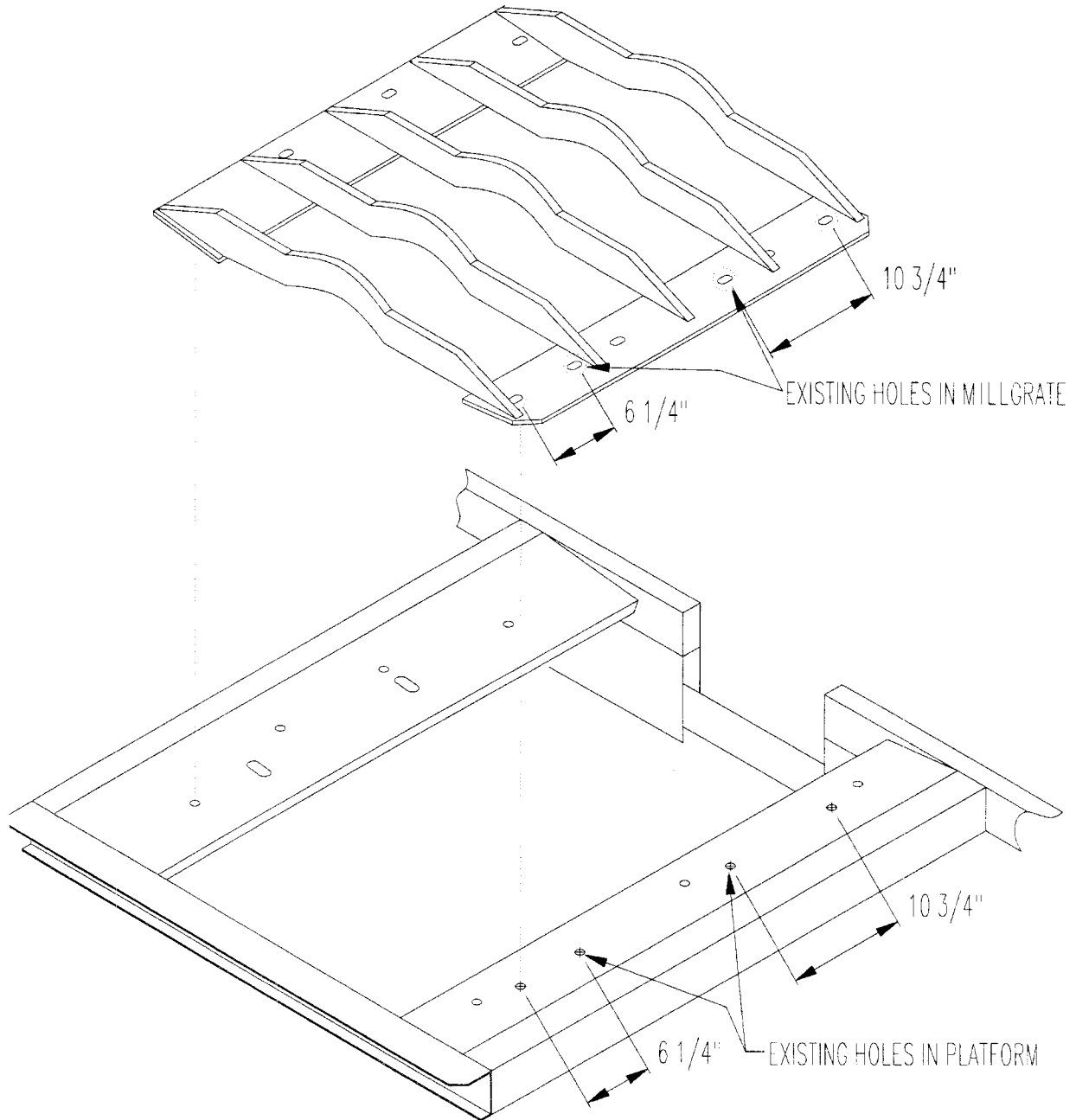
OPTION - EAR CORN



<u>ITEM</u>	<u>PART</u>	<u>QTY</u>	<u>DESCRIPTION</u>
	4500121	1	OPT\EAR CORN\H-1100
1	4500113	1	COV\RTR
2	4500128	2	PIPE\CROSS
3	4500260	2	ROD\ANCHOR\ROTOR COVER
	4800010	2	BOLT\HEX\5/8X2
	4800114	4	BOLT\HEX\1/2X2
	4900001	4	NUT\HEX\1/2\NC
	4900005	2	NUT\HEX\5/8\NC
	5000002	4	WASH\FLAT\5/8
	5000003	2	WASH\LOCK\5/8
	5000004	8	WASH\FLAT\1/2
	5000006	4	WASH\LOCK\1/2

The Ear Corn Option is designed specially for grinding ear corn. It should not be used when grinding hay, other bulk materials or small grains. This attachment fits directly over the rotor and bolts to the screen hold down side of the rotor. An agitator bar inside the tub moves ear corn to the rotor.

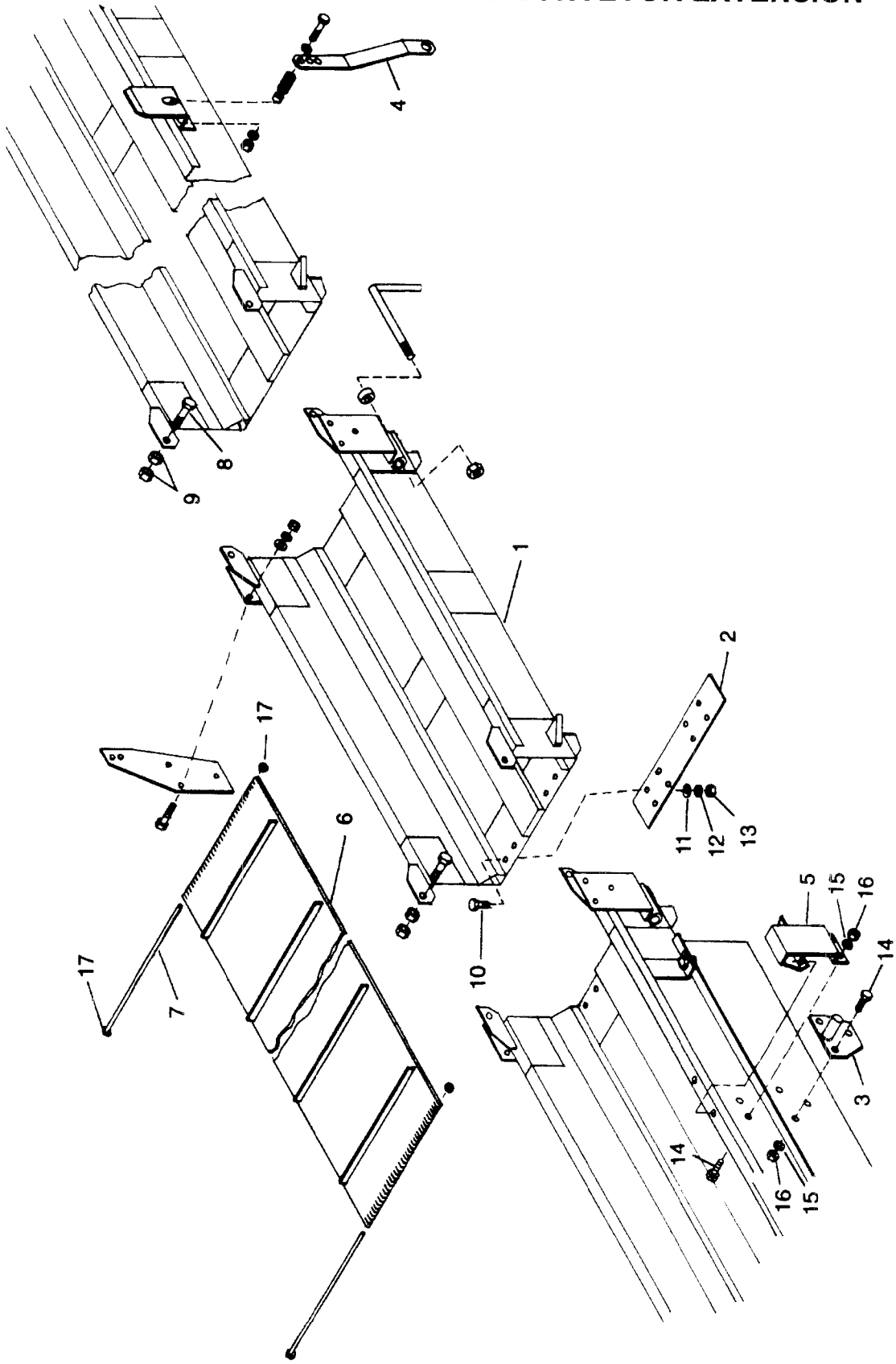
OPTION - MILL GRATE



<u>ITEM</u>	<u>PART</u>	<u>QTY</u>	<u>DESCRIPTION</u>
1	4501084	1	GRATE\MILL\H1100
2	4800010	8	BOLT\HEX\5/8X2
3	5000003	8	WASH\LOCK\5/8
4	5000002	8	WASH\FLAT\5/8
	4501128	1	MNT\SUP\GRATE\H1100
	4501196	40	SPCR\SHOCK\2-1/2X1X1-1/4L

Note – Standard arrangement has 6 drilled holes. Two more holes must be drilled for the mill grate.

OPTION - 4 FOOT DISCHARGE CONVEYOR EXTENSION



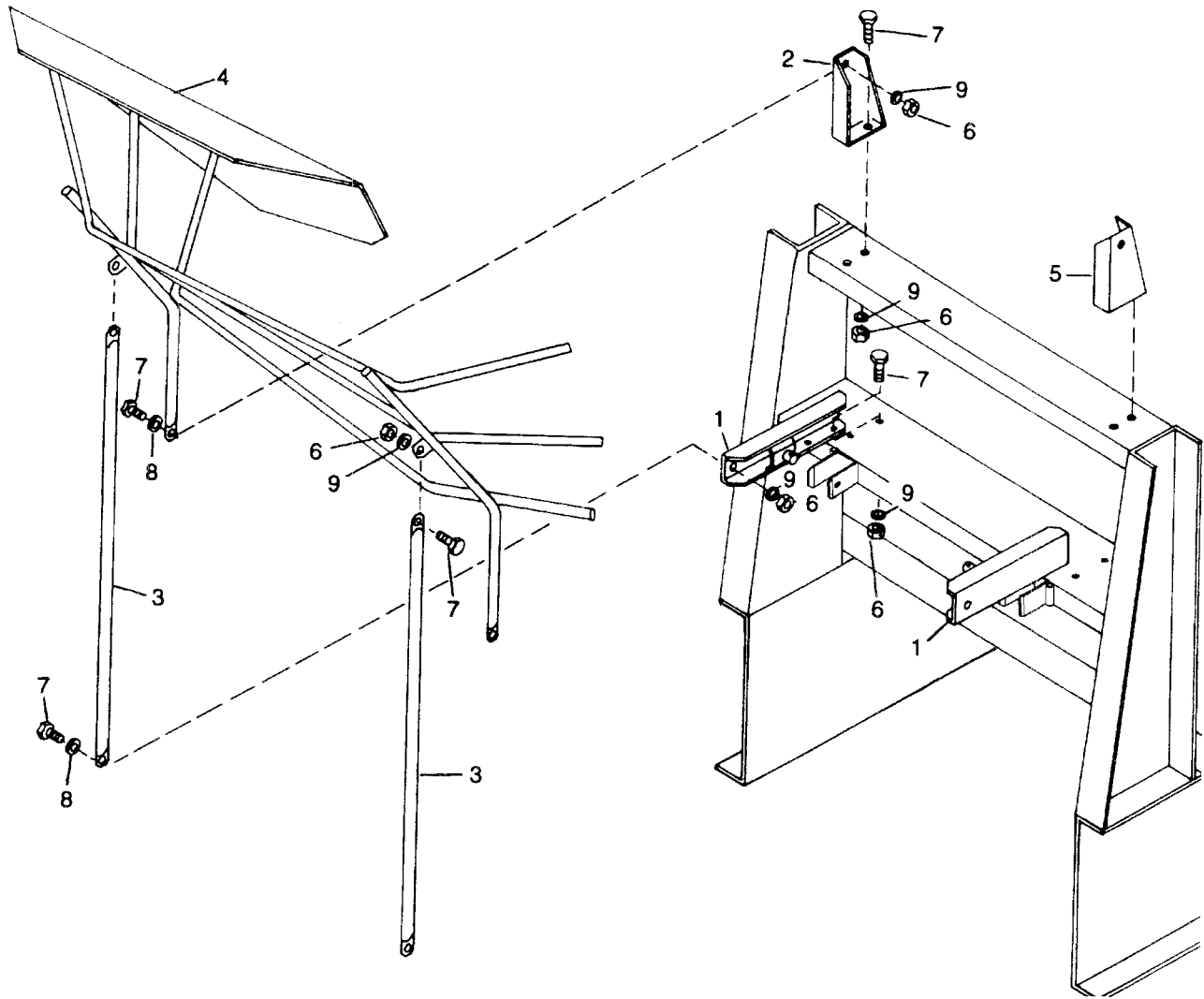
OPTION - 4 FOOT DISCHARGE CONVEYOR EXTENSION

<u>ITEM</u>	<u>PART</u>	<u>QTY</u>	<u>DESCRIPTION</u>
	4500604	1	OPTN\CNVYR EXT\4 FT
1	4500396	1	4' CONVEYOR EXTENSION
2	4500397	1	CNVYR CONNECTOR PLATE
3	4500398	2	CNVYR LOCK
4	4500539	2	TRANSPORT LOCK
5	4500540	2	CONVEYOR SUPPORT
6	1700039	1	BELT\CNVYR\18X8
7	1700052	2	LCNG\CBL\1/8X18\NYL
8	4800010	2	BOLT\HEX\5/8X2
9	4900005	4	NUT\HEX\5/8
10	4800018	8	BOLT\HEX\1/2X1-1/4
11	5000004	8	WASH\FLAT\1/2
12	5000006	8	WASH\LOCK\1/2
13	4900001	12	NUT\HEX\1/2\NC
14	4800003	6	BOLT\HEX\3/8X1
15	5000019	6	WASH\LOCK\3/8
16	4900002	6	NUT\HEX\3/8\NC
17	4900072	4	NUT\HEX\#10\NC

see CONVEYOR HYDRAULIC LIFT (page 64) for these parts:

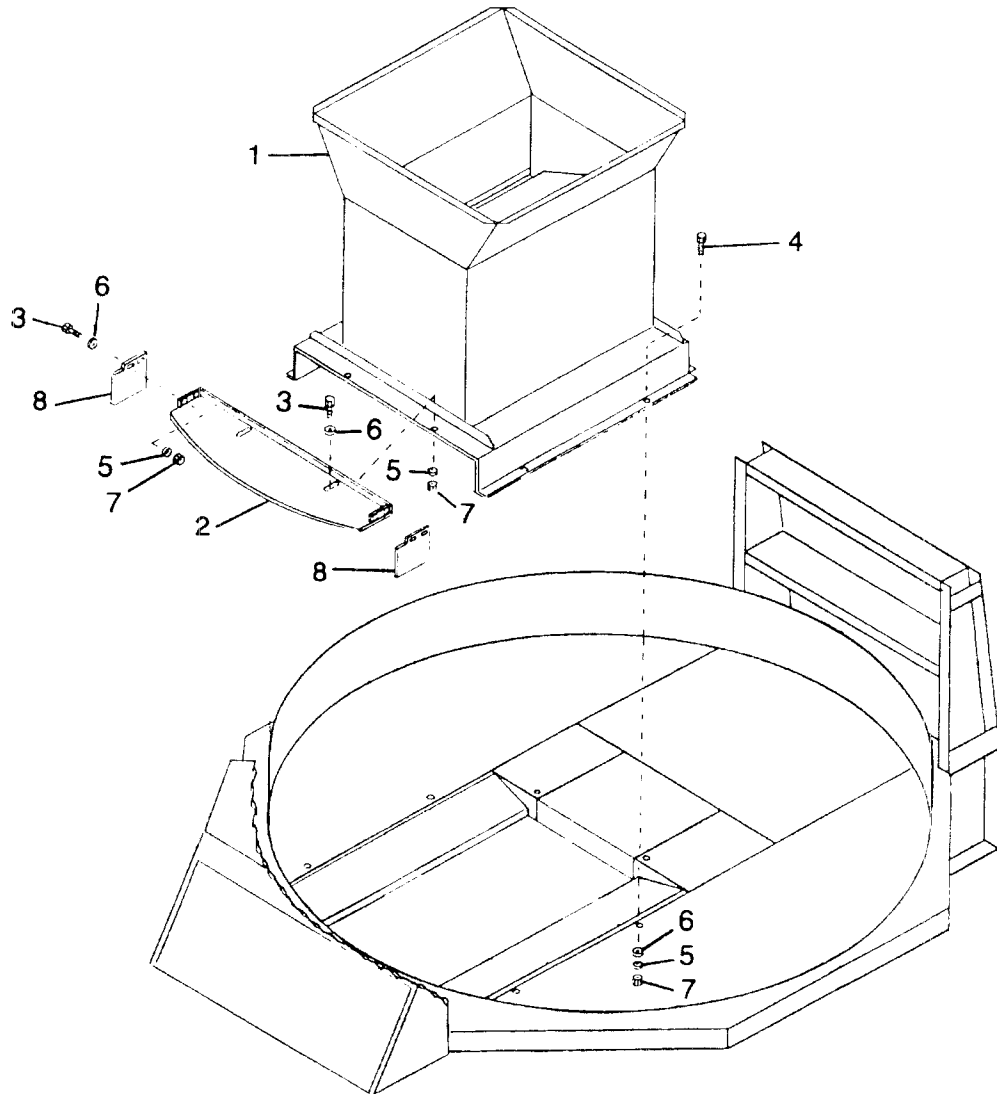
4501038	2	STRAP\EXT\LIFT\CNVYR\DIS
4501039	2	BUSH\EXT\STRAP\LIFT\CNVYR\DIS
4800106	2	BOLT\HEX\5/8X1-1/2
4900012	2	NUT\TPLCK\5/8\NC

OPTION - LOOSE HAY GUIDE



<u>ITEM</u>	<u>PART</u>	<u>QTY</u>	<u>DESCRIPTION</u>
	4500428	1	OPTN\HAY GUIDE\H1100
1	4500545	2	LOWER SUPPORT BRACKET
2	4500100	1	BRKT\HAYGUIDE\TOP\LH
3	4500099	2	PIPE\HAYGUIDE\51" SUPPORT
4	4500098	1	HAY GUIDE(LESS SUP PIPE)
5	4500101	1	BRKT\HAYGUIDE\TOP\RH
6	4900001	10	NUT\HEX\1/2\NC
7	4800114	10	BOLT\HEX\1/2X2
8	5000004	6	WASH\FLAT\1/2
9	5000006	10	WASH\LOCK\1/2

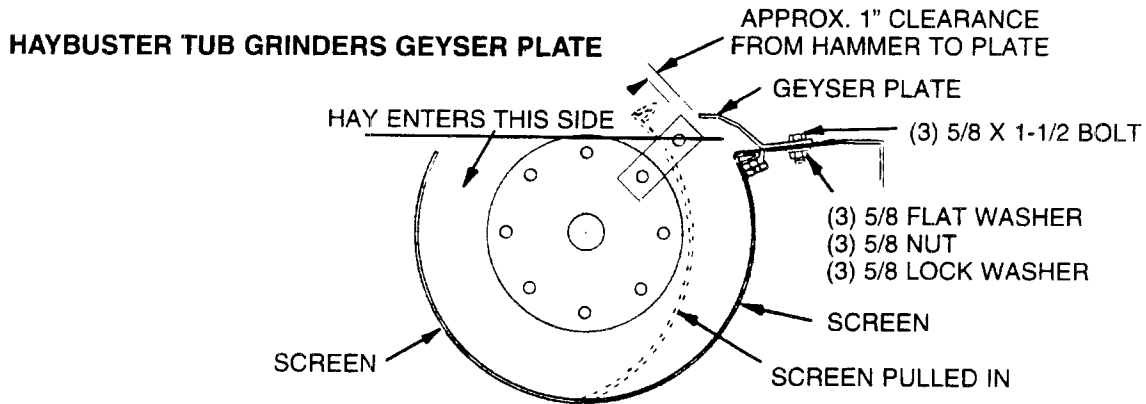
OPTION - GRAIN HOPPER



<u>ITEM</u>	<u>PART</u>	<u>QTY</u>	<u>DESCRIPTION</u>
	4500609	1	OPTN\GRAIN HOPPER\H1100
1	4500114	1	HOPPER\GRAIN
2	4500115	1	PL\HPPR\GRAIN
3	4800003	6	BOLT\HEX\3/8X1
4	4800098	6	BOLT\HEX\3/8X1-1/4\NC
5	5000019	12	WASH\LOCK\3/8
6	5000001	12	WASH\FLAT\3/8
7	4900002	12	NUT\HEX\3/8\NC
8	4500261	2	PL\FLLR\HPPR\GRAIN

The Grain Grinding Hopper is specially designed for grinding small grains when they are fed in with an auger. It should not be used when grinding hay.

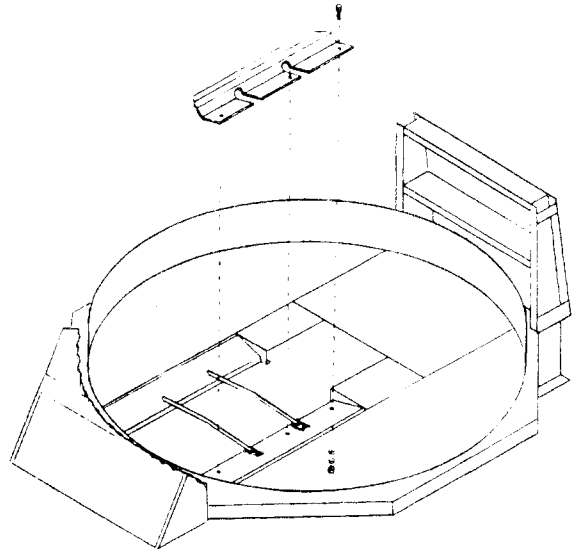
OPTION – GEYSER PLATE



FRONT VIEW OF CYLINDER

Locate Geyser Plate as shown with about 1" clearance to hammer tip.
 Drill (3) 11/16" holes through Floor Plate.
 Pull Screen in to install 5/8" nuts.
 Relocate Screen.

H-1100 Plate is 45-1/2" Long.



<u>PART</u>	<u>QTY</u>	<u>DESCRIPTION</u>
4500612	1	OPTN\GEYSER PLATE\H1100
4500203	1	PL\GYSR\H1100
4800106	3	BOLT\HEX\5/8X1-1/2
4900005	3	NUT\HEX\5/8
5000002	3	WASH\FLAT\5/8
5000003	3	WASH\LOCK\5/8

The purpose of the Geyser Plate is to prevent hay spillage. When the tub runs out of material to be ground, the hammer mill tends to throw material into the air. The Geyser Plate deflects this material, preventing spillage.