

HAYBUSTER[®]

**H-1100E
TUB GRINDER**

**OPERATOR'S
MANUAL AND
PARTS BOOK**

SERIAL NUMBER FI0119 TO GI0139



PO Box 1940, Jamestown, ND 58402-1940

NO. 0500057
Sept 2001

WARRANTY

Duratech Industries International Inc. warrants to the original purchaser for 1 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, N.D., within thirty (30) days of failure.

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

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

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

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

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

This warranty is void if DuraTech Industries International Inc. does not receive a valid warranty registration card at its office in Jamestown, N.D., within 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.

**DURATECH INDUSTRIES
INTERNATIONAL
WARRANTY REGISTRATION**

(PLEASE PRINT IN INK)

CUSTOMER NAME _____

ADDRESS _____

CITY _____

CONTACT NAME _____

PHONE () _____

DEALERS NAME _____

DEALERS ADDRESS _____

MACHINE INFORMATION

MACHINE MODEL _____

DATE PURCHASED _____

DELIVERY DATE _____

SERIAL NUMBER _____

MACHINE # _____

ENGINE # _____

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

DURATECH INDUSTRIES INTERNATIONAL, INC.

PO BOX 1940

JAMESTOWN, NORTH DAKOTA 58402-1940

This page left blank intentionally!

GRINDER DELIVERY AND SERVICE REPORT

____ Dealer assisted the customer in filling out the warranty registration form

____ The customer was provided with the appropriate engine operators manual and the grinder operators manual.

____ The dealer read the operators manuals and explained in detail the operation, adjustment procedures, maintenance and safety instructions to customers.

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

CHECKED AND FOUND TO BE ACCEPTABLE:

____ Check the machine for shipping damage or shortage.

____ Check the machine for loose bolts.

____ Lubricate entire machine according to the lubrication chart found on pages 20-22.

____ Check engine oil level.

____ Check engine coolant.

____ Check batteries.

____ Check air cleaner for obstructions.

____ Check exhaust for obstructions.

____ Read Engine Pre-Start-up check list in engine operation manual.

____ Check hydraulic oil level, page 4.

____ Check hydraulic connections for tightness.

____ Check for correct hammer arrangement, page 24-25.

____ Check for proper function of tub rotation control valve.

____ Check for proper function of electronic governor, page 14.

____ Check all chains for proper alignment.

____ Check all chains for proper tension.

____ Check conveyor belt tracking, page 26

____ Check conveyor belt tension, page 26.

____ Check condition of tire rims.

____ Check wheel lug bolts for tightness.

____ Check tires for proper air pressure, page 26.

____ Check lights for proper function.

____ Check brakes for proper function.

____ Check the hydraulic components for leaks.

____ Verify that all shields are installed and in good condition.

____ Pointed out all safety shields and explained the importance of keeping all safety shields and covers securely in place.

____ Check condition of all safety, operation, and maintenance decals.

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

THIS MACHINE IS READY FOR CUSTOMER USE.

Dealer's signature. _____

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

Please return this report with the Warranty Card.
This page left blank intentionally!

TABLE OF CONTENTS

Table Of Contents	1
Introduction	2
Shipping and Delivery Instructions	3-4
Specifications	5-6
Safety Instructions	7-8
Before Operating	9-10
Operation	11-13
Transporting	13
Electronic Governor Operation & Calibration	14-18
Electronic- Hydraulic Valve Operation	19
Lubrication	20-22
Maintenance	23-27
Troubleshooting	28
Hammer Spacing	29
Parts Book	32-87

INTRODUCTION

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

The purpose of this owners manual is to familiarize the owners and operators with the H-1100E and to explain routine maintenance and adjustments for most efficient operation of your H-1100E tub grinder. Included is a troubleshooting section which may help in case of problems in the field. Any information not covered in this manual may be obtained through your dealer.

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

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

Model Number **H-1100E**

Serial Number _____

The H1100E grinder is designed to grind material into more palatable or manageable rations for your operation. It has multiple uses:

1. Grind all types of hay
 - Big round bales
 - Loose hay
 - Square bales
2. Grind all types of grain
 - Ear corn
 - Shell corn
 - High moisture corn
 - All small grains
3. Grind roughage's into various sizes
 - Screens are available from 1/8" to 5"
 - Combine screen sizes to get desired cut

SHIPPING AND DELIVERY INSTRUCTIONS

DEALER CHECKLIST: Check off **PRE-DELIVERY** each item as it is found satisfactory or after the correction has been made.

- ◇ Check machine for shipping damage or shortages.
 - ◇ Grinder has been properly assembled.
 - ◇ Tires are inflated to proper pressure.
 - ◇ Wheel bolts are tightened to 450 ft-lbs. to 500 ft-lbs.
 - ◇ Grinder has been properly lubricated. Page 20.
 - ◇ Hydraulic connections do not leak.
 - ◇ Grinder responds correctly to controls. Electronic governor working properly.
 - ◇ Hydraulic oil level is correct.
 - ◇ Scratches are all painted.
 - ◇ All shields are in place and decals are readable.
 - ◇ Check hammer arrangement and for proper clearance hammer to screen.
 - ◇ Check-out machine for any excessive vibration with rotor at proper rpm..
 - ◇ Check tub carrier rollers and pressure rollers for proper alignment.
 - ◇ Check tub drive chain for proper operation in sequence with tub teeth.
- This grinder has been pre-run and to the best of my knowledge is ready to deliver to the customer.
- Date delivered: _____
- Signature: _____

DELIVERY CHECKLIST: Review the operators manual with the customer and explain the following:

- ◇ Duratech Industries International, Inc. warranty
- ◇ Safe operation and service. Page 7-10.
- ◇ Grinder controls and operation. Page 11.
- ◇ Importance of correct hydraulic level. Page 4 & 20.
- ◇ Daily and periodic lubrication and maintenance. Page 20.
- ◇ Duratech Industries International parts and service
- ◇ Advise the customer not to operate machine with any shields or guards removed.
- ◇ Electronic Governor operation. Page 14-18.
- ◇ Record serial number on Introduction page of this manual.
- ◇ Encourage the customer to read the Operations Manual
- ◇ Give the customer the Operations Manual

SHIPPING AND DELIVERY INSTRUCTIONS

NOTE: All machines have been pre-run at the factory to assure all functions are performing correctly. The hydraulic reservoir contains approximately 56 gallons of hydraulic oil. The oil level should be up to the oil level decal on the front of the hydraulic tank. Verify that the hydraulic oil level is correct. Add if necessary.

CAUTION: Lack of proper oil level in the reservoir tank will cause system to heat under continuous running. (Recommend Mobil 423 or similarly rated hydraulic oil.)

SPECIFICATIONS

H-1000E SPECIFICATIONS

Weight Total.....	20,600 LBS
Axle Width.....	17,500 lbs
Tongue weight.....	3,100 lbs
Transport width.....	11 ft.
Loading height.....	9'2"
Length in transport.....	38'6"
Axles.....	2 - 10K with Duals
Brakes.....	Electric, Optional Air
Tires.....	(8) 9.50 16R
Towing Arrangement Conveyor.....	Gooseneck
Fuel Capacity.....	168 Gallons
Hydraulic Oil Capacity.....	56 Gallons
Lights.....	Clearance, Direction, and Brake

TUB FEATURES

Tub Width.....	11 ft.
Depth.....	50 in.
Tub Diameter at Base.....	9 ft.
Tub Wall.....	12 Gauge
Tub Floor.....	10 Gauge
Tub Drive.....	Hydraulic Orbit Motor
Service Access.....	80 Degree Tilt Tub

SPECIFICATIONS CONT.

CONVEYORS

Discharge Conveyor.....	22' Long x 18" Wide Hydraulic Driven
Belly Conveyor.....	30" Wide Hydraulic Driven
Tub Speed Sensor.....	Electronic Governor
Safety Switches.....	Safety Shutdown

ROTOR

Length.....	50"
Feed Opening.....	25" x 52"
Cylinder Plates.....	16" Diameter with 1/2" Plates
Cylinder Shaft.....	4-1/2" Stress Proof Steel
Drive.....	Direct Drive
Bearings.....	3" Pillow Block Bearings
Hammers.....	1/2" Hardened Swing
Rods.....	15-16" Case Hardened
Screens.....	1/4" Thick, Various Sizes
Screen Area.....	2563 Square Inches
Engine.....	300 to 400 HP

AVAILABLE OPTIONS FOR DURATECH TUB GRINDERS MODEL H1100E:

- Ear Corn Kit
- Rack for Loose Hay
- Geyser Plate
- Electric Stationary Models Also Available
- Grain Grinding Hopper
- Various Screens Sizes
- 26' Long Discharge Conveyor

SAFETY INSTRUCTIONS

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

WARNING: FAILURE TO COMPLY WITH SAFETY INSTRUCTIONS COULD RESULT IN PERSONAL INJURY OR DEATH.

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

SAFETY DECALS

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

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

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

BEFORE OPERATING

1. Read and follow all instructions contained in:
 - Operators Manual
 - Decals placed on machine
2. Allow only responsible, properly instructed individuals to operate your machine.
3. Make sure the machine is in good operating condition and that all protective shields are in place and in proper working order. Replace damaged shields before operating.
4. Be sure all bystanders and other workers are clear before starting engine and grinder.
5. Make no modifications to the machine unless specifically recommended or requested by Duratech Industries International Inc.
6. Check periodically for breaks or unusual wear and make necessary repairs.
7. Be sure the unit is securely attached to towing vehicle during grinder operation and road transport.

SAFETY INSTRUCTIONS

DURING OPERATION

1. Enforce the following safety precautions to prevent serious personal injury or death due to accidental contact with grinder.
 - Everyone must be kept clear of work area except an operator properly located at the controls.
 - Disengage clutch and make sure everyone is clear of machine before starting engine.
 - Never work on or near grinder unless normal shutdown procedure has been followed and all motion has stopped.
 - An approved hard hat and safety glasses must be worn by all personnel within a 500 ft. radius of the operating machine.
2. Keep hands, feet, and clothing away from power driven parts.
3. Never leave controls unattended while engine is running. Shutdown engine when leaving the operator control areas.
4. Keep shields in place and in good condition.
5. Watch out for and avoid any object that might interfere with the proper operation of the machine.
6. Loose clothing, necklaces, and similar items are more easily caught in moving parts. Avoid the use of these items and keep long hair confined.

NORMAL SHUTDOWN PROCEDURE

For your safety and the safety of others, you must use the following normal shut-down 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. Grind out as much material as possible from the tub. Stop tub rotation.
2. Disengage rotor clutch.
3. Stop discharge conveyors.
4. **After the rotor has stopped completely**, the material remaining in the tub may be dumped by tilting the tub platform. Make certain that all personnel are clear of the area before performing this operation. Long material in the tub can tumble a great distance before coming to rest after being dumped from the tub.
5. If the tub is to remain in the tilted position, make certain it is fully raised and insert the hydraulic cylinder block. If the tub is to be lowered again, do so at this time.
6. Shut engine down. Remove key. Tag the switch to prevent other personnel from accidentally starting the machine during servicing.

EMERGENCY SHUTDOWN PROCEDURE

1. Press emergency stop button to shutdown engine and all functions.

PRE-STARTING INSPECTION INSTRUCTION

To insure long life and economical operation. Learn how to operate the machine and how to use controls properly. Thoroughly instruct operator in maintenance and operation of machine. There is no substitute for a sound preventative maintenance program and a well trained operator. Prior to starting the grinder make a visual inspection of the machine. This can be done as the lubrication is being carried out. Any items that are worn, broken, missing or needing adjustment must be serviced accordingly before operating the grinder.

WARNING: Before inspecting the machine, use the normal shut-down procedure found on page 8.

PRE-OPERATING CHECKS

Before operating the Tub Grinder, follow these instructions:

1. Read and have a thorough understanding of the operator's manual.
2. Learn how to operate and how to use controls properly. Do Not let anyone operate without instruction.
3. Know the machine's safety features and understand the safety precautions.
4. Be sure all lubrication has been carried out as recommended. See **lubrication chart**.
5. Give the machine a "once-over" for any loose bolts. Make sure machine is properly adjusted.
6. Check hydraulic oil level.

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.

7. Check hydraulic components for leaks or damage.
8. Visually examine rotor to see if any parts have excessive wear. These parts include shaft, plates, rods, hammers and moveable plate.
9. Check screens, screen hold downs, for wear and tightness.
10. Check installation and condition of hammers.
11. Visually examine rotor bearings and mounting bolts.
12. Check all bearings for wear.
13. Make sure all shields and guards are in place.
14. Check lug nuts for tightness.
15. Check condition of tire rims.
16. Check tires for proper air pressure.
17. Chains and belts for proper tension and condition.
18. Condition of decals.
19. When preparing to grind, always place the machine on level ground.
20. Start the machine and check the tub direction, speed control governor for proper operation.
21. In cold weather, allow five minutes for the machine to warm up before grinding.
22. 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.

CAUTION: The kinetic energy in the rotor causes it to rotate long after the engine has been disengaged. 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.

BEFORE OPERATING

CHOOSING PROPER SCREEN

The coarseness of the material to be ground is determined by the hole size in the screens. Hole sizes can vary from 1/8" diameter through 5" diameter. The larger the hole diameter the coarser the grind.

All DuraTech Industries International Inc. grinders have 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.

If a combination is used, the smallest hole diameter should be placed on the left hand side of the rotor box where the forage enters the rotor.

The size of the perforation in the screen determines the fineness of grind. In general, larger screen sizes are used for grinding hay.

Round perforated screens available are: 1/8", 3/16", 1/4", 3/8", 1/2", 5/8", 3/4", 1", 1-1/2", 2", 3", 4", and 5".

Slotted screens and dummy screen sizes are available:

As a general guide, the following screen sizes are recommended:

Hay	2" or 4"
Ear Corn	5/8" to 1"
Shelled Corn	3/4" dry, 5/8" high moisture
Small Grains	1/4" to 3/8"

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

INSTALLING A SCREEN

1. Tilt tub up and install cylinder safety stop. Remove bolts on hold down straps from each corner and flip open.

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

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 holddown straps and secure with bolts removed in step #2.
6. Remove cylinder safety stop and lower tub platform.

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

INTRODUCTION

The engine is direct coupled to the rotor so the engine speed is equal to the rotor speed. The recommended engine / rotor speed is between 1700 and 2000 rpm. Use the lower end of the recommended range to improve the aggressiveness of the rotor and to improve fuel efficiency. If the engine is loaded heavily, increase the rpm.

The Electronic Governor controls the tub speed / feed rate to keep the engine at its peak operating range. The operator is able to select the operating range on the electronic governor control so when the feed of material lugs the engine, the Electronic Governor will reduce or stop the feed. The Electronic Governor maintains the rotor at a high enough rpm for the engine to recover automatically when a slug of material is encountered. The Electronic Governor may require adjustment when changing operating speed as described in the previous paragraph.

GRINDING

- Release engine shutdown push-button.
- Start the engine and set throttle at 1000 rpm.
- Allow the engine to warm up for a few minutes.
- Unfold the discharge conveyor and set to desired height.
- Engage conveyor run valve to forward position.
- Engage the **rotor clutch**. Pull firmly on lever when engaging clutch, then release to allow engine to recover. Repeat until clutch can be fully engaged without stalling engine (Usually on the third try). Do not allow clutch to slip excessively.

Throttle engine to desired operating speed between 1700 and 2000 rpm. Materials to be ground should be placed directly into the tub. The best method for filling the tub is:

WARNING: DO NOT DROP MATERIAL DIRECTLY ON ROTOR AS DAMAGE MAY RESULT.

- Fill the tub about half full of unground materials before starting tub rotation.
- Start tub rotation in the forward direction by switching the **electronic governor switch** to **on** and pushing the **tub control valve**.
- As materials are ground away, place additional materials in the tub to prevent or reduce geysering material.

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. An optional hay guide attachment should be used 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

Large round bales can be placed in the tub on end or on the side. Try grinding bales each way to determine which method will work best for you. Before placing a large bale into the tub, place about 1 to 2 feet of loose hay in the bottom of the tub. This practice keeps the bale from lodging in the center of the tub.

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 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 allows flow to the rotor to be regulated by regulating tub speed. (See Optional Equipment section.)

SHUTDOWN

- Grind out as much material as possible from the tub.
- Stop tub rotation by moving the tub valve to the neutral position.
- Switch the **electronic governor** to **off**.
- Disengage the rotor clutch.
- Stop discharge conveyors by moving conveyor run valve to the neutral position.

After the rotor has stopped completely, the material remaining in the tub may be dumped by tilting the tub platform. Make certain that all personnel are clear of the area before performing this operation. Long material in the tub can tumble a great distance before coming to rest after being dumped from the tub.

- Return tub platform to full down position.
- Fold the discharge conveyor.
- Shut down engine by switching off engine ignition switch.
- Remove key from engine control panel.

LODGED MATERIAL

DANGER: Never attempt to dislodge material inside the tub by physically entering the tub when the machine is in operation. **WHEN THE MACHINE IS IN OPERATION, STAY OUT OF THE TUB!**

Occasionally materials may lodge against the side of the tub and not feed down to the rotor. If this occurs, reverse the tub direction briefly and then start the tub in a clockwise direction again. The tub rotation can be reversed by moving tub control valve to the reverse position. This practice normally dislodges any materials.

FOREIGN MATERIAL

Foreign material, such as scrap metal, in the rotor area can cause severe damage to hammers, screens, hammer rods, and other parts and may cause extensive part failures.

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

CLUTCH

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

IMPORTANT: DO NOT engage clutch at high engine rpm. Before starting engine, rotor box should be cleared of all material. Set engine at approximately 1000 rpm. Push firmly on lever when engaging clutch, then release to allow engine to recover. Repeat until clutch can be fully engaged without stalling engine (Usually on the third try). Do not allow clutch to slip excessively. Check periodically for proper adjustment according to spec. plate on clutch housing.

ADJUSTMENT

CLUTCH - if the clutch slips, overheats, or the clutch operating lever jumps out, the clutch must be adjusted. To adjust the clutch, follow instructions on clutch access cover.

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

CLUTCH DAMAGE DUE TO EXCESSIVE SLIPPAGE WILL NOT BE COVERED BY WARRANTY.

TRANSPORTING

1. Grind out as much material as possible from the tub. Stop tub rotation.
2. Disengage rotor clutch.
3. Stop discharge conveyors.
4. **After the rotor has stopped completely**, the material remaining in the tub may be dumped by tilting the tub platform. Make certain that all personnel are clear of the area before performing this operation. Long material in the tub can tumble a great distance before coming to rest after being dumped from the tub
5. Return tub platform to full down position.

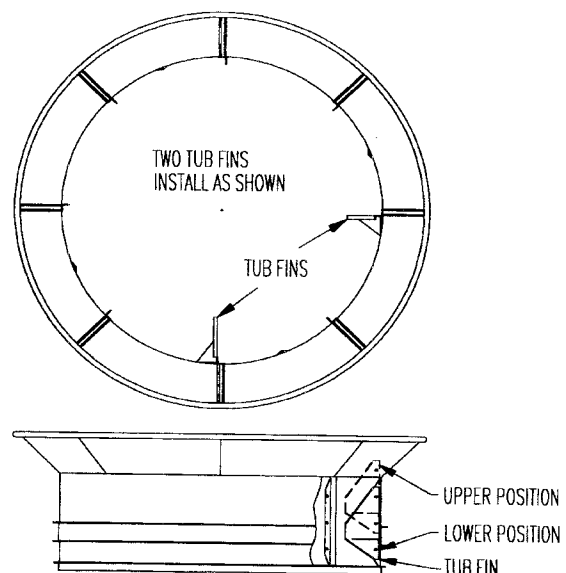
6. Be sure any loose parts (replacement hammers and screens, etc.) are securely fastened down.
7. Fold the conveyor to transport position.
8. Shut engine down. Turn off and remove key.
9. Hitch grinder to a towing vehicle with adequate load carrying and braking capacity. Only CDL qualified personnel should hitch this machine to a towing vehicle.
10. Check the turning clearance between the grinder and the towing vehicle.

TUB FINS

Two tub fins are furnished with the grinder.

When grinding large round bales, use only one of two 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 fins bolted in the lower position.



ELECTRONIC GOVERNOR OPERATION

INTRODUCTION

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

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

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

CALIBRATION

1. With the engine and hydraulic systems at operating temperature, the clutch or PTO engaged, and the handle of the manual hydraulic valve in the forward position. Throttle the engine up to the desired engine RPM, (check engine operation manual for proper RPM).
2. Switch the "Range Switch" to the H or high position. Rotate the "Engine Load Knob" to the number 10 setting. Rotate the "Tub Limit Knob" to the number 7 setting. Switch the "Mode Switch" to the ENG. position.

The "Fuse" light and the "Sensor" light should be on. The tub should not be rotating at this time. If the

tub is rotating, read the trouble shooting section of the operation manual.

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

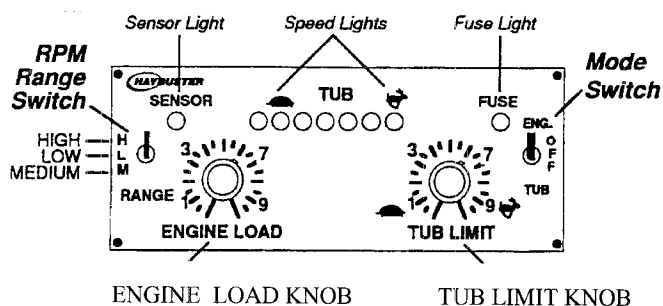
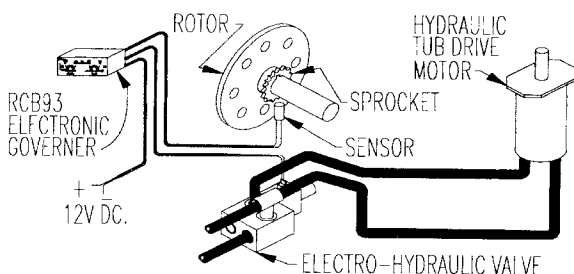
This is the proper calibration for an engine operating at the RPM set in step 1.

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

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

ELECTRONIC GOVERNOR OPERATION

TYPICAL ELECTRONIC GOVERNOR SYSTEM



EXPLANATION OF FRONT PANEL

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

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

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

“MODE SWITCH”

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

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

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

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

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

ELECTRONIC GOVERNOR OPERATION

TROUBLE SHOOTING ELECTRONIC GOVERNOR SYSTEM

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

2. "TUB MODE" With the engine and hydraulic systems at operating temperature, and the manual hydraulic valve in the forward position, throttle the engine up to the desired engine RPM.
With the "Mode switch" switched to "Tub", the tub should be rotating. The speed of the tub can be varied by rotating the "Tub Limit Knob" and the number of tub speed lights lit will vary with the setting of the "Tub Limit Knob". The above show you that the manual portion of the controls are functioning correctly. Proceed to step 3. If the manual portion is not working properly, proceed to trouble shooting, chart 2.

TROUBLE SHOOTING \ CHART 2 \ TUB MODE

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

ELECTRONIC GOVERNOR OPERATION

TROUBLE SHOOTING ELECTRONIC GOVERNOR

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

TROUBLE SHOOTING \ CHART 3 \ "ENGINE MODE"

<u>PROBLEM</u>	<u>CAUSE</u>	<u>REMEDY</u>
Tub will not rotate . Sensor light Not lit.	<ol style="list-style-type: none"> 1. Sensor gap out of adjustment 2. Broken wire on wiring harness. 3. Sensor faulty. 4. Control Box faulty. 	<ol style="list-style-type: none"> 1. Readjust gap to 3/32" (the thickness of a nickel). 2. Repair or replace wiring harness. 3. Test and replace sensor as necessary. 4. Replace control box.
Tub will not rotate. Sensor light lit.	<ol style="list-style-type: none"> 1. Tub limit knob turned to "O" 2. Manual hydraulic valve set in neutral. 3. Control box faulty 	<ol style="list-style-type: none"> 1. Readjust tub limit knob. 2. Engage manual valve. 3. Replace control box.

ELECTRONIC GOVERNOR OPERATION

ELECTRONIC GOVERNOR HARDWARE TEST.

1. Power source 12 volts DC
Red wire + positive pin A wiring harness
Black wire - Negative Pin B wiring harness
2. Test output voltage to valve DC
Red wire + positive pin D wiring harness.
Black wire - negative pin E. wiring harness.

Tub Mode:

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

Engine Mode:

Test with power supplied to governor control box and mode switch set to "engine mode". Disconnect the wiring harness from the solenoid valve. Using a voltmeter set to 12 volts DC, connect the red and black leads of the voltmeter to the red and black leads of the harness respectively. Engage clutch and throttle engine to 2100 RPM. Rotate the engine load fully counterclockwise, and the tub limit fully clockwise to maximize load on the engine. At this time the right hand tub speed light should be on, and the voltmeter should be reading 9 volts. Gradually decrease the speed of the engine. As the speed is decreased, the tub speed light should move from right to left. When the left tub speed light is on, the voltmeter should read 3 volts.

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

Set sensor gap to 3/32" (the thickness of a nickel).

Remove wiring harness from the control box.

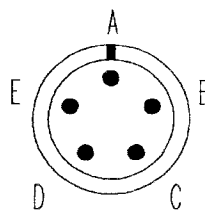
With the engine at operating temperature and the clutch engaged, throttle the engine up to the desired engine RPM.

With volt meter set to AC volts connect leads to pins B and C. The volt meter should read at least 2 to 3 volts AC.

ELECTRO-HYDRAULIC VALVE COIL TEST

This test requires an accurate ohm meter. Disconnect the wiring harness leads at the valve coil. Set the meter to read ohms (Ω). Place one test lead from the meter on each of the two electrical connections of the valve coil. The reading should be from 8-12 ohms. If the reading is not in this range, replace the coil.

VIEW OF WIRING HARNESS CONNECTOR
LOOKING DIRECTLY AT CONNECTOR.



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

ELECTRO-HYDRAULIC VALVE OPERATION

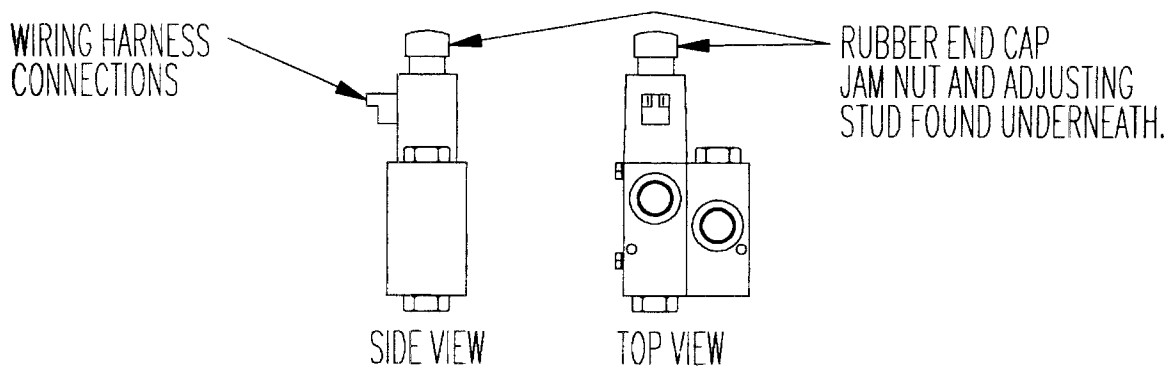
MANUAL OVERRIDE

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

IMPORTANT! - DO NOT ENGAGE CLUTCH AT THIS TIME!

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

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



LUBRICATION

CAUTION: Always follow normal shutdown procedure before adjusting or lubricating.

Hydraulic oil reservoir capacity:

56 U.S. gallons.

Hydraulic oil filters should be changed after the first 10 hours of operation. Change hydraulic oil and filters after the first 100 hours of operation. Thereafter, change hydraulic oil filters every 500 hours and change hydraulic oil and filters at least every 1000 hours of operation.

Observe the hydraulic oil frequently. If the oil develops a burnt odor or appearance, a "dirty" appearance, or a "milky" appearance, it should be changed at the earliest possible opportunity. If these conditions occur frequently between scheduled oil and filter changes the maintenance schedule should be altered to a more frequent schedule.

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.

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

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

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

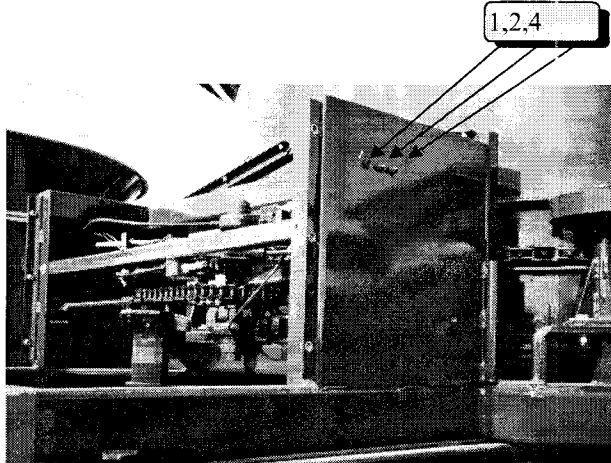
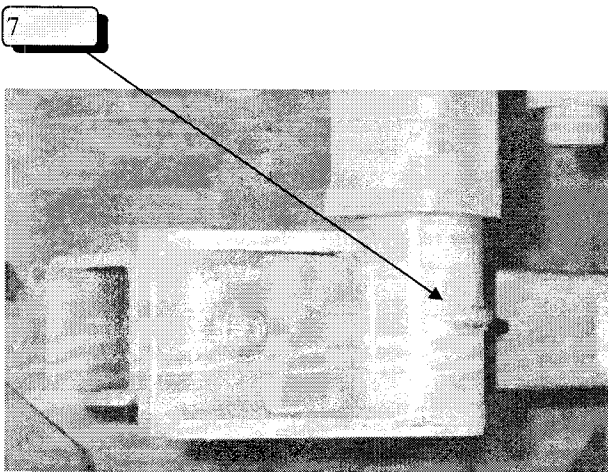
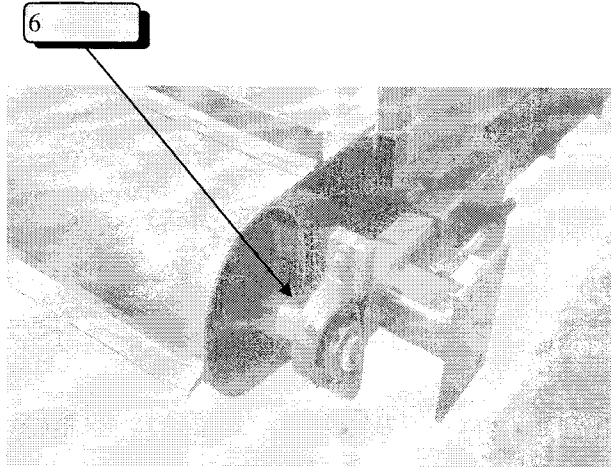
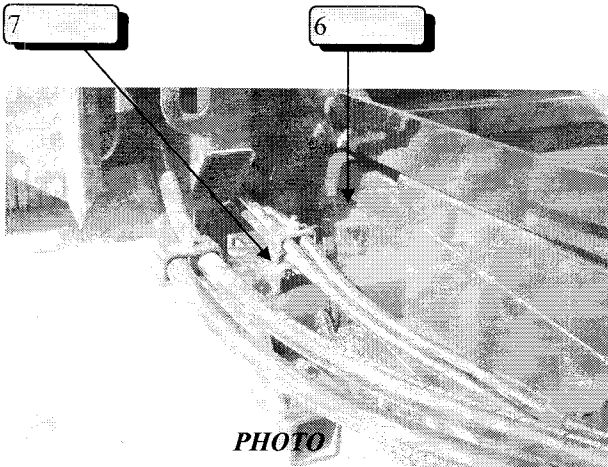
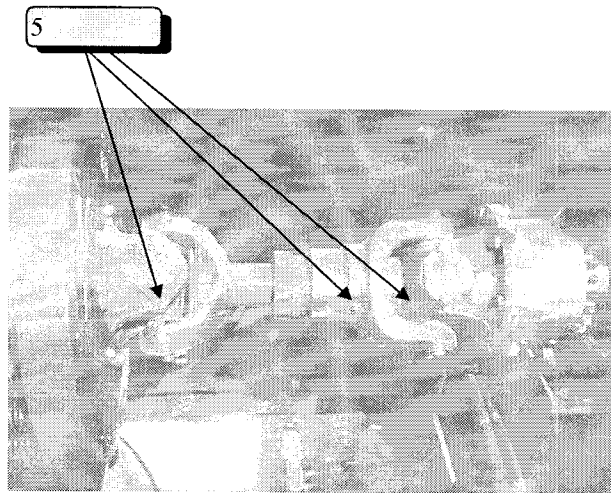
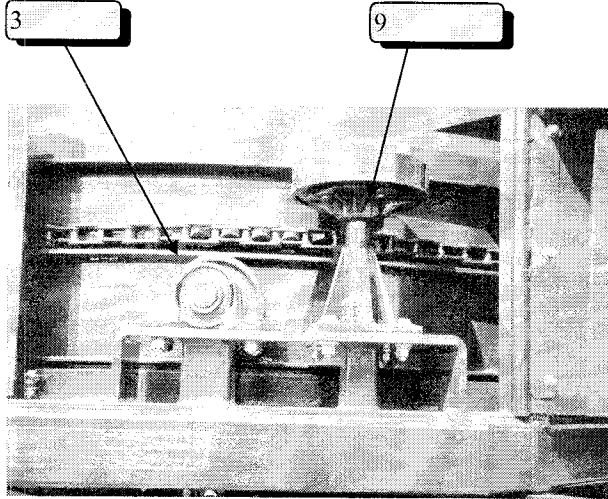
LUBRICATION CHART

REF. NO.	LOCATION	NUMBER OF GREASE FITTINGS	FREQUENCY	
1.	Tub Drive Shaft Bearings	2	40 hrs.	*
2.	Tub Drive Pivot Points	2	40 hrs.	
3.	Tub Rollers Bearings	8	40 hrs.	*
4.	Tub Chain Idler	2	40 hrs.	
5.	Drive Line	3	40 hrs.	
6.	Discharge Conveyor Bearings	4	40 hrs.	*
7.	Discharge Conveyor Pivot points	6	40 hrs.	
8.	Belly Conveyor Bearings	4	40 hrs.	*
9.	Tub Pressure Rollers Bearings	0	Annually	
10.	Rotor Bearings	2	10 hrs.	
11.	Roller Chains		Oil Daily in Dusty Conditions	
12.	Platform hinge	2	40 hrs.	

*** Refer to bearing lubrication section for the following.**

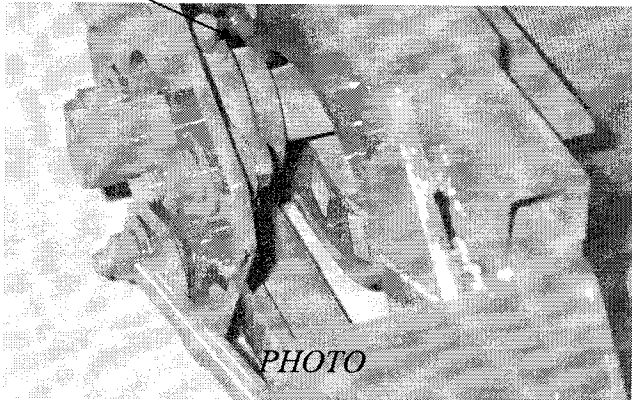
LUBRICATION

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

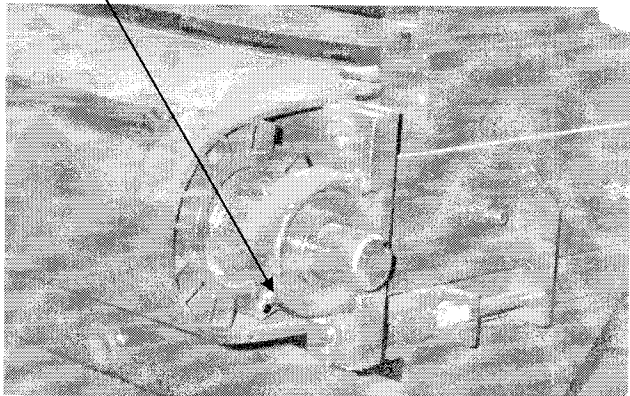


LUBRICATION

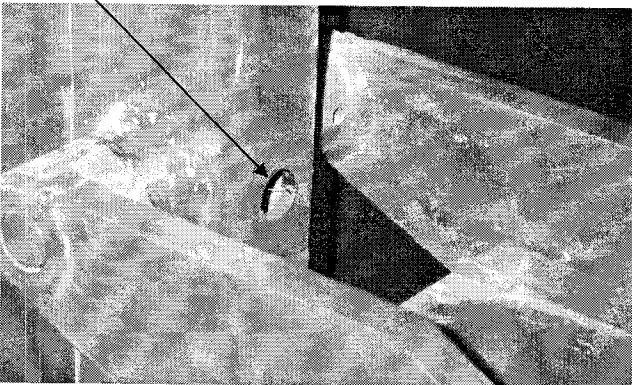
8



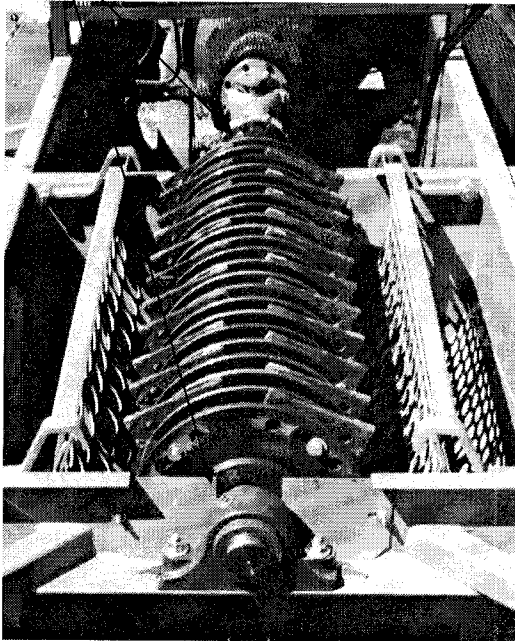
8



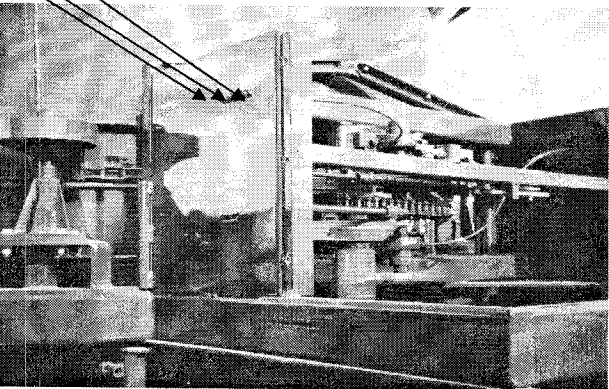
12



10



1,2,4



**IMPORTANT SAFETY
INSTRUCTIONS****READ ALL INSTRUCTION**

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

SERVICE AND MAINTENANCE

1. Before working on or near grinder for any reason, including servicing, inspecting or unclogging machine:
 - a. Disengage rotor clutch.
 - b. Be certain that parking brakes are set.
 - c. Shut off grinder engine and remove key. Place a warning lockout tag near the switch to prevent other personnel from inadvertently starting the equipment while service is being performed.
 - d. Do not begin any service procedures until all machine movement has stopped
2. When replacing any part on your grinder, use only DuraTech Industries International authorized parts.
3. Relieve all pressure in the hydraulic system before disconnecting the hydraulic lines or performing other work on the hydraulic 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 should include rotor plates and holes in the plates that support the hammer rods. Enlarged holes can cause hammer 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 . Bearing alignment should also be checked along with mounting bolts to insure a firm foundation and reduced vibration.
6. Check for loose or worn chains and loose or worn sprockets.
7. Keep sprockets and pulleys aligned.
8. Inspect rotor and all rotating parts for material buildup. Clean as necessary.
9. If machine is going to set for an extended period of time, tub floor should be cleaned and repainted to prevent rust and sticking problems at start up time.
10. The proper tire pressure is 120 psi.
11. The wheel bearing lube level should be checked monthly. Use 80W-90 Hypoid gear oil. Proper level is marked on the transparent hub cap. Change lube annually.
12. Tighten wheel lug nuts to 450-500 Ft.-Lbs.

MAINTENANCE

HAMMERS: Because of the high capacity of the machine, the hammers will wear and must be considered 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.

JACOBS HAMMERS are designed to grind the normal ingredients used in the manufacture of feed and related products. "They are not designed to grind or crush, on a primary basis, hard materials such as coal or minerals, Metals, rock, or other similar materials, which could cause parts to fail, should never be allowed to enter a rotor.

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

HAMMER AND SCREEN CONDITION

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 is allowed to wear 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 cuttings edges. When hole cutting edges become rounded, screen can be turned end for end exposing new cutting edges.

The results of badly worn hammers and screens is loss of capacity, and added horse power requirements.

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

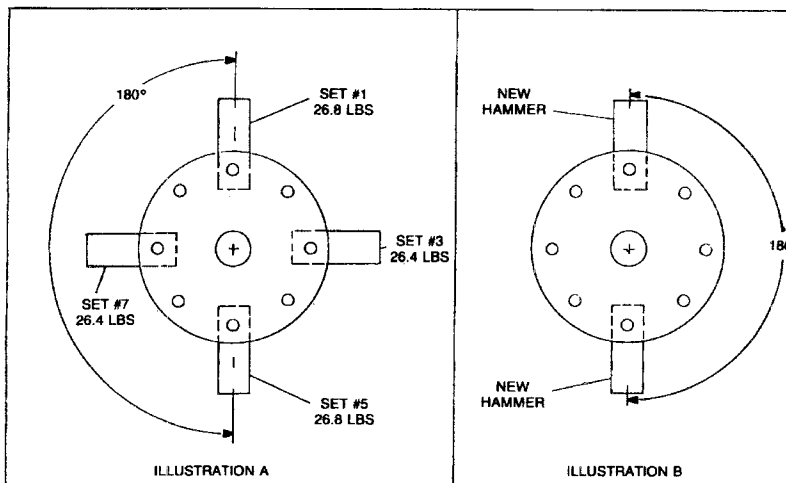
HAMMER RODS: Rods can be turned end for end exposing a new surface area for wear. This will extend service life although hammer rods must be considered expendable.

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

HAMMER REPLACEMENT

When installing or changing hammers, be sure to follow diagram carefully. Misplacement could cause excessive vibration. We recommend that hammers be balanced in sets according to the rod on which they are to be installed. Sets of equal weight should be installed 180 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.)

1. Grind out as much material as possible from the tub. Stop tub rotation.
2. Disengage rotor clutch.
3. Stop discharge conveyors.
4. **After the rotor has stopped completely**, the material remaining in the tub may be dumped by tilting the tub platform. Make certain that all personnel are clear of the area before performing this operation. Long material in the tub can tumble a great distance before coming to rest after being dumped from the tub.
5. Make certain the tub platform is fully raised and insert the hydraulic cylinder block.
6. **CAUTION: Shut off engine and remove key. Tag the switch with a warning to prevent other personnel from inadvertently starting the machine while service work is being performed.**
7. Loosen two bolts at rear of rotor which holds the movable plate in place.
8. Rotate movable plate counter clockwise to align holes allowing hammer rods to be removed through rear of rotor.
9. Remove one row of hammers and replace, taking note as to where any spacers are located.
10. After all hammers have been replaced, reassemble movable plate.
11. When starting the rotor after installing a new set of hammer 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.



CONVEYOR BELTS:

Discharge conveyor upper and lower rollers are adjustable to allow for belt stretch. If conveyor belt slows down or stops during operation, tighten adjusting bolts equally to keep belt centered on rollers. Belt tightness should be judged based on slippage

CONVEYOR BELT ADJUSTMENTS

I. SAFETY CONSIDERATIONS.

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

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

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

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

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

II. Tension Adjustment

Both rollers on the belly conveyor and the discharge conveyor are adjustable to allow for belt stretch and tracking. If the conveyor belt slows down or stops during operation,

slippage may be the cause. Tighten adjusting bolts equally to increase conveyor belt tension and to keep the belt centered on the rollers.

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

III. Tracking Adjustment

A. When a new belt is installed:

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

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

1. Adjust the **idler** roller tension spring bolt on the right side of the conveyor. Increase tension by approximately 2 full turns of the adjusting nut.
2. Make certain that all personnel are clear of machine and start engine. Engage hydraulic conveyor drive lever.
3. Observe conveyor belt tracking from a safe location.
4. If further adjustment is required, disengage hydraulic conveyor drive lever and shut down engine.

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

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

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

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

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

3. Observe conveyor belt tracking from a safe location.

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

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

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

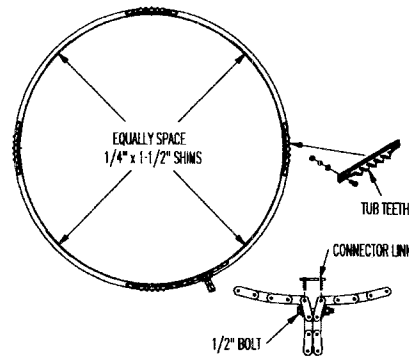
TUB CHAIN DRIVE:

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

Step 1. (sizing the chain). Remove tub drive chain from the drive sprocket. Loosen tub teeth and wrap the chain around tub. (Do not run the chain around tightener idlers or drive sprocket.) Using 1/2" bolt inserted through the chain links, draw chain together so center to center measurement on link pins matches pins

on connector link. If the distance is less or greater than the connector link, shims must be added. Equally space shims of the same thickness and length under chain until proper distance is obtained. Do not add shims under tub teeth. (See illustration.)

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



ROTOR BEARING INSPECTION

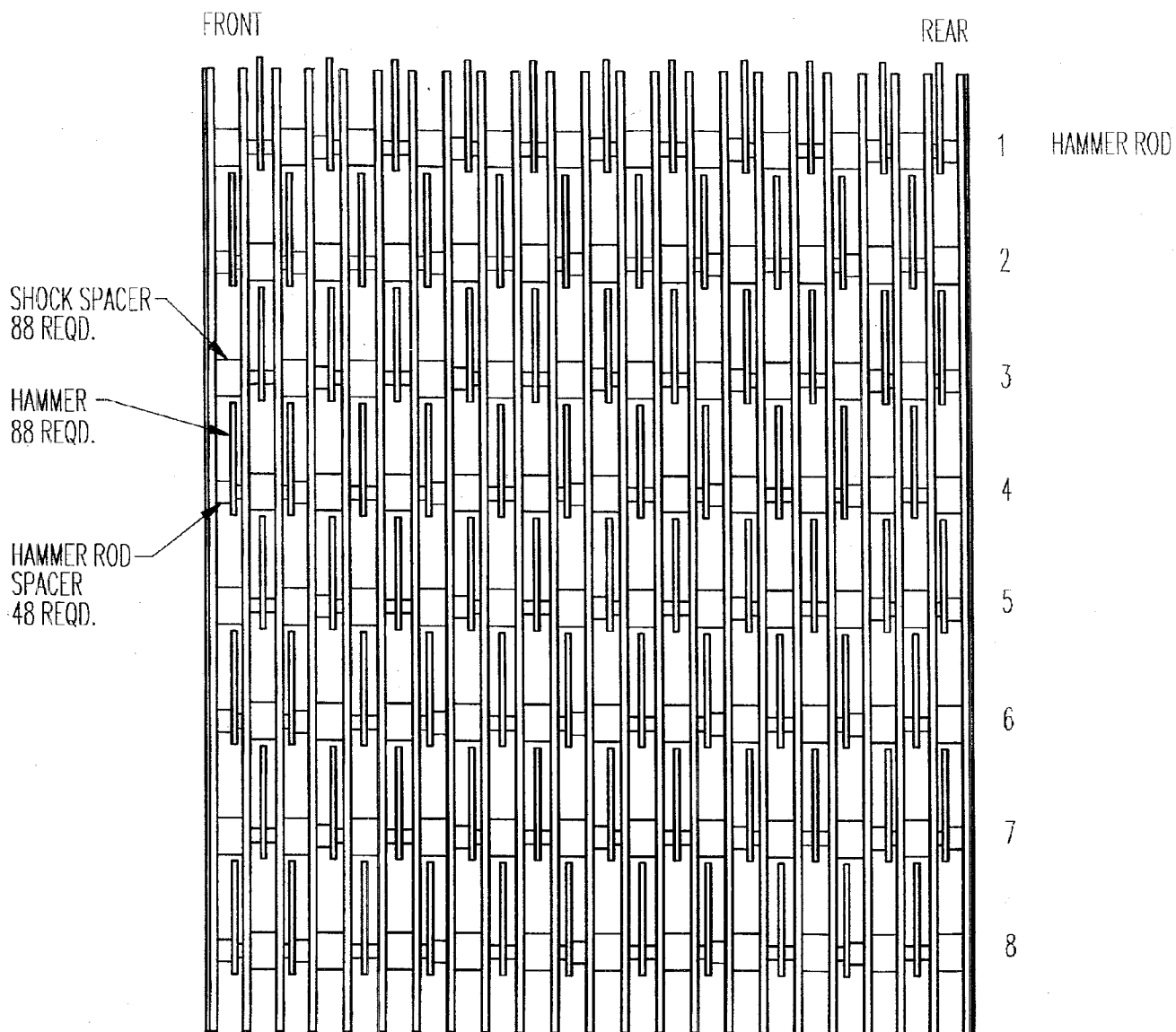
Inspect shaft. Insure that the shaft is smooth, straight, clean and within commercial tolerances.

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

TROUBLE SHOOTING

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 3a. Use larger screen 3b. Clean out with dry bale.
2. Tub slows down or turns slowly	<ol style="list-style-type: none"> 1. Governor not adjusted properly 2. Electronic governor system problems. 3. Low hydraulic pressure. 	<ol style="list-style-type: none"> 1. See Electronic Governor adjustment 2. See Electronic Governor troubleshooting. 3. Rebuild or replace hydraulic components as necessary.
3. Excessive vibration	<ol style="list-style-type: none"> 1. Broken hammer 2. Defective cylinder bearing 3. Misaligned or worn driveline 4. Foreign material wrapped in cylinder 5. Incorrect hammer pattern 	<ol style="list-style-type: none"> 1. See Hammer replacement 2. Replace bearing 3. Replace worn part or complete driveline 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. If 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 Electronic 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 Electronic governor adjustments. 2. Replace valve
6. If tub stalls	<ol style="list-style-type: none"> 1. Tub hydraulic system, pressure relief valve set too low. 2. Tub overloaded due to wet, tough grinding material 3. Too much material in tub 4. Tub binding 5. Hydraulic oil too hot causing electronic governor valve to bind. 	<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. 5. Reduce load on hyd. system or stop and allow oil to cool.
7. 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, etc. 	<ol style="list-style-type: none"> 1. Readjust to 2,000 Psi max. 2. Reduce amount of material in tub 3. Rebuild or replace hyd. components as necessary

HAMMER SPACING



This page left blank

HAYBUSTER[®]

**H-1100E
TUB GRINDER
PARTS
BOOK**

SERIAL NUMBER FI0119 TO GI0139



, PO Box 1940, Jamestown, ND 58402-1940

NO. 050057
Sept. 2001

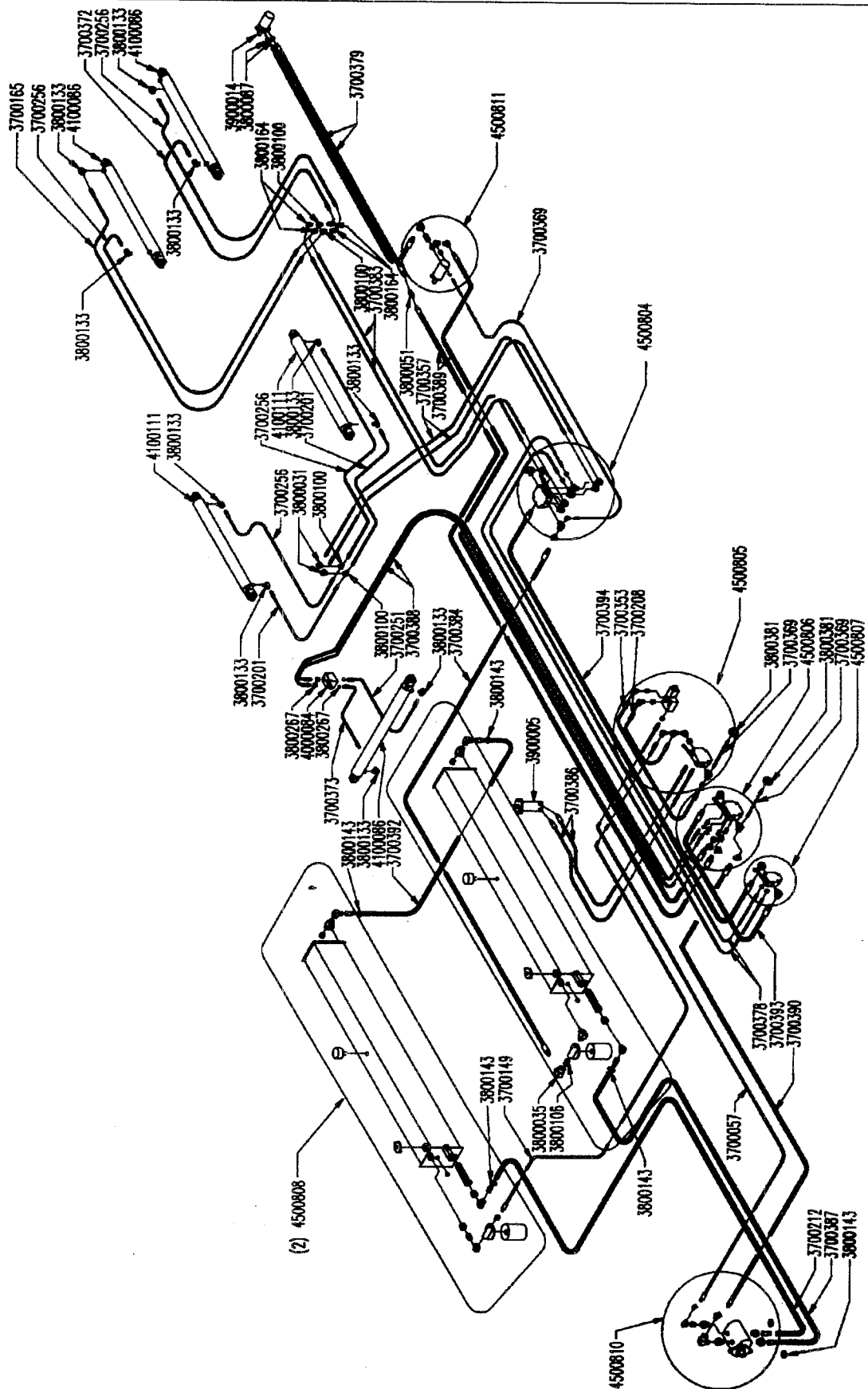
NOTES



TABLE OF PARTS CONTENTS

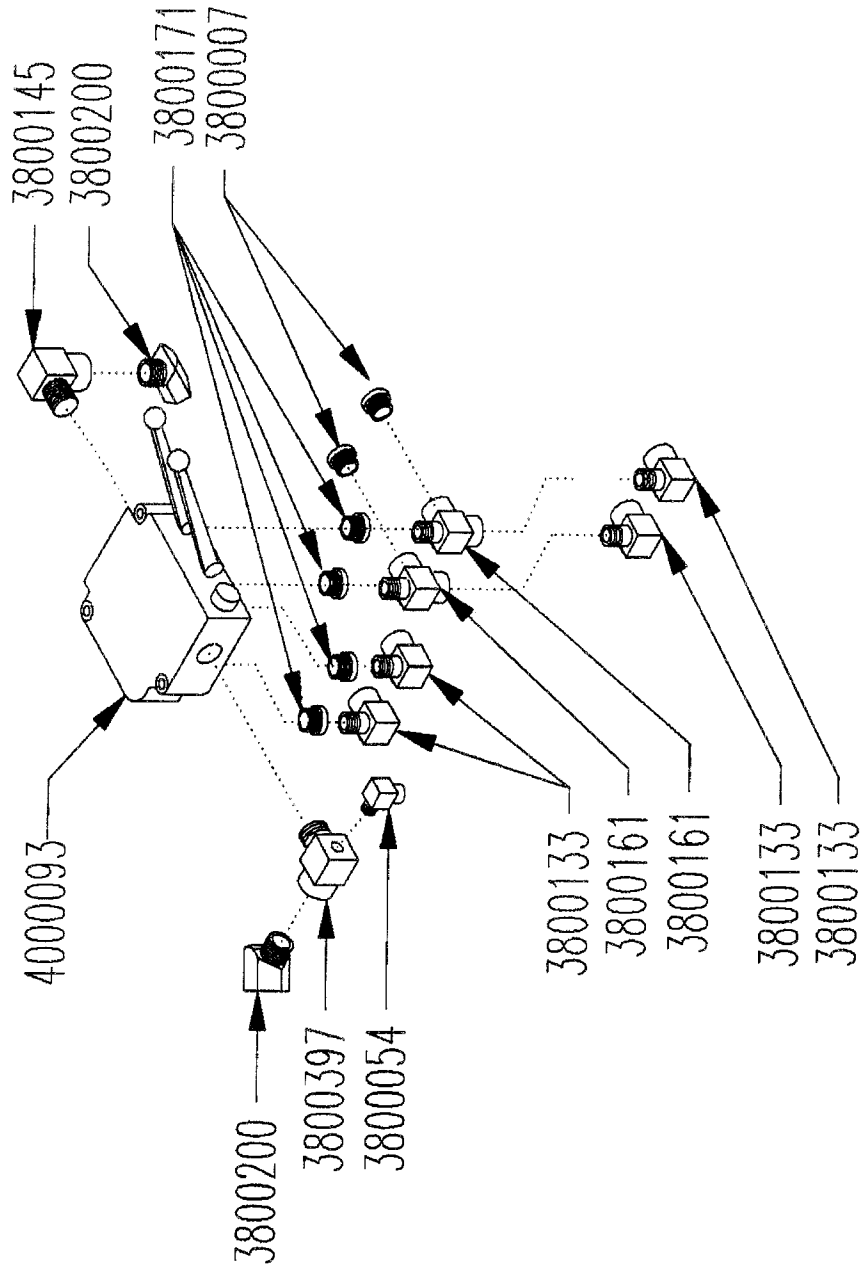
HYDRAULIC ASSEMBLY	32-33
CONVEYOR VALVE LIFT AND FOLD ASSEMBLY	34-35
TUB DRIVE VALVE ASSEMBLY	36-37
CONVEYOR RUN VALVE ASSEMBLY	38-39
CONVEYOR LIFT VALVE ASSEMBLY	40
OIL TANK ASSEMBLY	41
HYDRAULIC TANDEM PUMP\20-15\ SUB ASSEMBLY	42
HYDRAULIC MOTOR \8\ ASSEMBLY	43
GRINDER FRAME ASSEMBLY	44-45
PLATFORM ASSEMBLY	46-47
TUB DRIVE ASSEMBLY	48-49
OPTION: TANDEM AXLE ASSEMBLY	50-51
ROTOR ASSEMBLY	52-53
CONTROL PANEL ASSEMBLY	54
TOOLBOX ASSEMBLY	55
BELLY CONVEYOR ASSEMBLY	56-57
LOWER DISCHARGE CONVEYOR -22 FT.-ASSEMBLY	58-59
UPPER DISCHARGE CONVEYOR -22 FT.- ASSEMBLY	60-61
GOVERNOR ASSEMBLY	62-63
TUB ASSEMBLY	64-65
ELECTRICAL ASSEMBLY	66-67
GREASELINE LUBE ASSEMBLY	68-69
PRESSURE ROLLER	70-71
OPTION: LOWER DISCHARGE CONVEYOR -26 FT.-ASSEMBLY	72-73
OPTION: UPPER DISCHARGE CONVEYOR- 26 FT.-ASSEMBLY	74-75
OPTION: SINGLE AXLE ASSEMBLY	76-77
OPTION: ENGINE \CAT 3306	78-79
OPTION: ENGINE \ CAT 3406	80-81
OPTION: ENGINE \CUMMINS N-14	82-83
DECALS	84-87
OPTION: GRAIN HOPPER	88
OPTION: EAR CORN KIT	89
OPTION: GEYSER PLATE	90
OPTION: LOOSE HAY GUIDE	91
OPTION: CONVEYOR DISCHARGE GUIDE	92
OPTION: MILL GRATE	93
OPTION: 12 VOLT WORK LIGHTS	94
OPTION: 24 VOLT WORK LIGHTS	95
OPTION: MAGNETIC ROLLER KIT	96-97

HYDRAULIC ASSEMBLY



<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
3700057	1	HOSE\HYD\1\2X58\SW-SW
3700149	1	HOSE\HYD\1\2X135\SW-SW
3700164	4	FTG\3\8MPX3\8FP\45D\ST:ELL
3700201	2	HOSE\HYD\3\8X19\SW-SW
3700208	1	HOSE\HYD\1\2X18\SW-SW
3700212	1	HOSE\SCTN\1X131
3700251	1	HOSE\HYD\3\8X70\SW-SW
3700256	4	HOSE\HYD\3\8X58\SW-SW
3700353	1	HOSE\HYD\1\2X29\SW-SW
3700357	2	HOSE\HYD\3\8X51\SW-SW
3700369	3	HOSE\HYD\1\4X19\SW-SW
3700372	1	HOSE\HYD\3\8X40\SW-SW
3700373	1	HOSE\HYD\3\8X42\SW-SW
3700378	2	HOSE\HYD\3\8X216\SW-SW
3700379	2	HOSE\HYD\3\4X282\1\2SW-SW
3700383	2	HOSE\HYD\3\8X98\SW-SW
3700384	1	HOSE\HYD\3\4X110\SW-SW
3700386	2	HOSE\HYD\1\2X156\SW-O-RING
3700387	1	HOSE\SCTN\1X96
3700388	2	HOSE\HYD\3\8X281\SW-SW
3700389	2	HOSE\HYD\3\4X212\1\2 SWIVEL
3700390	1	HOSE\HYD\3\4X78\SW-SW
3700392	1	HOSE\SCTN\1X81
3700393	1	HOSE\HYD\3\4X30\SO-SO
3700394	1	HOSE\HYD\3\4X210\SW-SO
3800031	2	FTG\3\8MPX3\8FP\90D\ST:EL
3800035	1	FTG\3\4FP\90D\ELL
3800051	1	FTG\1\2FP\CPLG
3800087	2	FTG\7\8MORX1\2FP\ADPT
3800100	4	FTG\3\8FP\TEE
3800106	1	FTG\3\4MPX1-1\2\NPL\LW
3800133	10	FTG\1\2MPX3\8FP\90D\ST:ELL
3800143	6	CLAMP\HOSE\1-1\2\T-BOLT
3800165	1	FTG\1\2FP\90D\ELL
3800267	2	FTG\3\4MORX3\8FP\ADPT
3800381	2	GAUGE\3000PSI\REAR STEM
3900005	1	MTR\HYD\14.9\2000\SAE:A
3900014	1	MTR\HYD\9.6\2000\1-1\4SH
4000084	1	VALVE\HYD\30GPM\HOLD\DBL
4100086	3	CYL\HYD\3X30X1-1\2
4100111	2	CYL\HYD\3X36\PERP
4500804	1	VALVE\CNVYR\LFT&FLD\ASSY
4500805	1	VALVE\TUB\DRIVE\ASSY\SUB
4500806	1	VALVE\CNVYR\RUN\ASSY\SUB
4500807	1	VALVE\CNVYR\LIFT\ASSY\SUB
4500808	2	TANK\OIL\ASSY\SUB
4500810	1	PUMP\HYD\TNDM\20-15\ASSY
4500811	1	MTR\HYD\8\ASSY\SUB

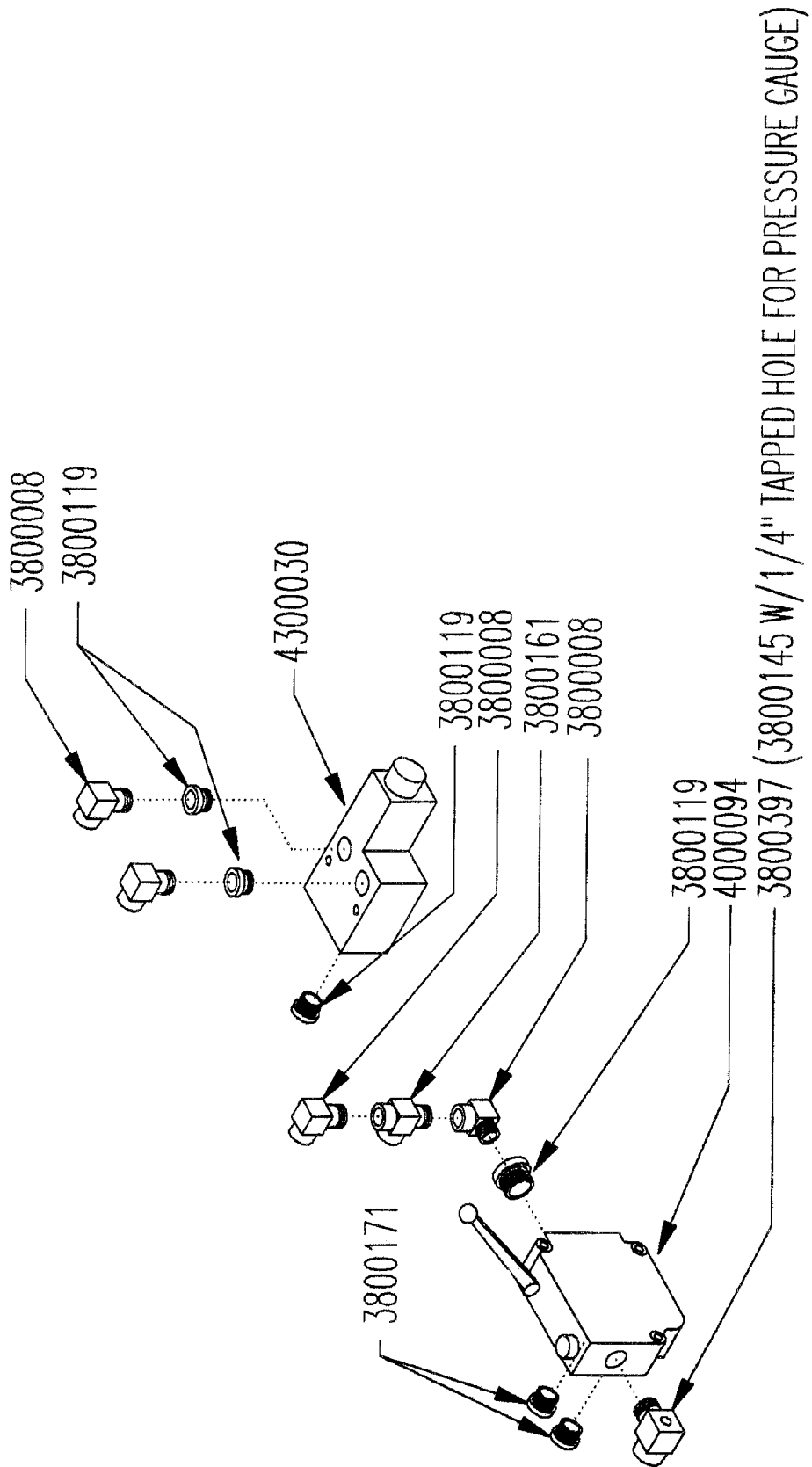
CONVEYOR VALVE - LIFT & FOLD ASSEMBLY



CONVEYOR VALVE - LIFT & FOLD ASSEMBLY

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
4500804		VALVE\CONVEYOR\LIFT & FOLD\ASSEMBLY
3800007	2	FTG\1/2MPX3/8FP\BUSH\LW
3800054	1	FTG\1/4MPX1/4FP\90D\ST:ELL
3800133	4	FTG\1/2MPX3/8FP\90D\ST:ELL
3800145	1	FTG\1-1/16MORX3/4FP\90D
3800161	2	FTG\1/2FPX1/2MPX1/2FP
3800171	4	FTG\3/4MORX1/2FP\ADPT
3800200	2	FTG\3/4MPX3/4FP\45D\ST;EL
3800397	1	FTG\1-1/16MORX3/4FP\90D
4000093	1	VALVE\HYD\2-SPL\3POS\4W

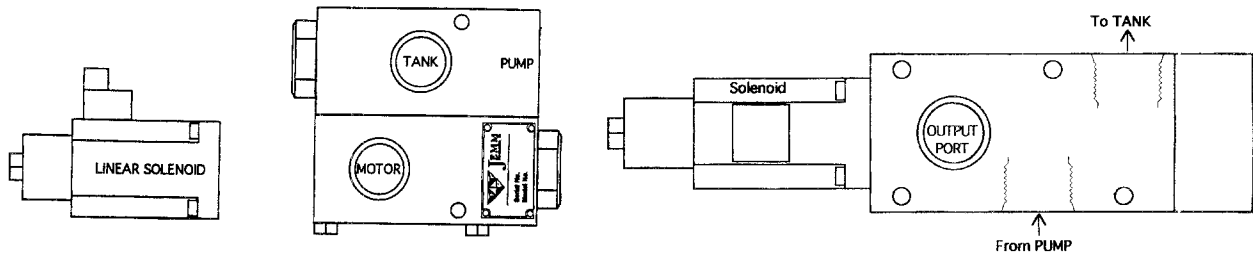
TUB DRIVE VALVE ASSEMBLY



TUB DRIVE VALVE ASSEMBLY

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
4500805		VALVE\TUB\DRIVE\ASSY\SUB
3800008	4	FTG\1/2MPX1/2FP\90D\ST:ELL
3800119	4	FTG\1-1/16MORX1/2FP\ADPT
3800161	1	FTG\1/2MPX1/2FPX1/2FP\
3800171	2	FTG\3/4MORX1/2FP\ADPT
3800397	1	FTG\1-1/16MORX3/4FP\90D
4000094	1	VALVE\HYD\1-SPL\FLO:CNTRL
4300030	1	CV93 HYD. ELECTRIC VALVE Order 4300065 for replacement
4300065		Vlv\Servo\15gpm\12Vdc

HYDRAULIC ELECTRIC SOLENOID PARTS



Valves 4300030 and 4300053

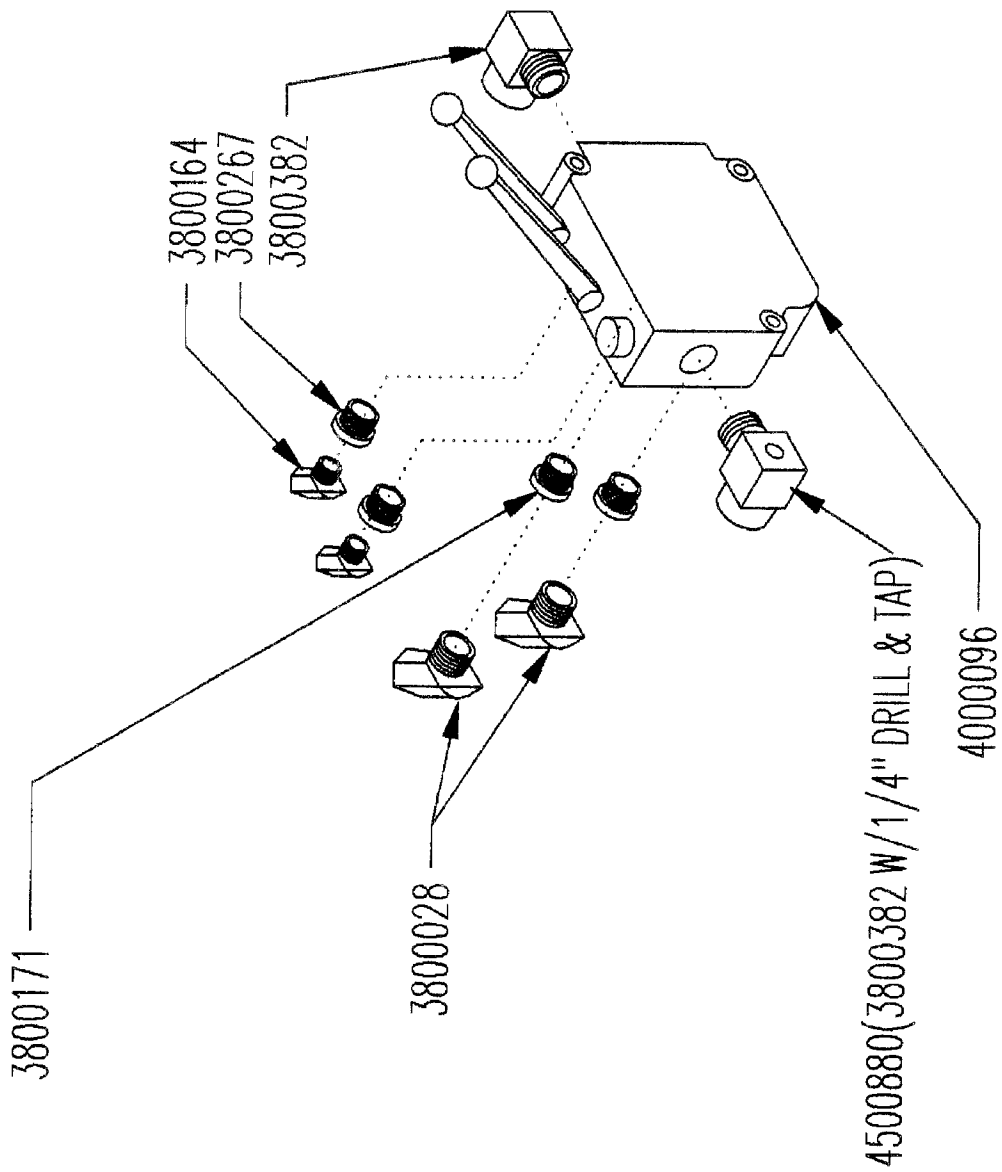
Valve 4300064 and 4300065

<u>PART</u>	<u>QTY</u>	<u>DESCRIPTION</u>
4300030	NA	Hyd. Electric Solenoid Valve Complete (CV93) 12V 20GPM
4300010		Solenoid\Hyd Valve\12Vdc, see notes below
4300053	NA	Hyd. Electric Solenoid Valve Complete (CV93) 24V 20GPM
4300054		Solenoid\Hyd Valve\24Vdc, see notes below
4300064		Valve\Servo\15gpm\24Vdc
4300054		Solenoid\Hyd Valve\24Vdc, see notes below
4300065		Vlv\Servo\15gpm\12Vdc
4300010		Solenoid\Hyd Valve\12Vdc, see notes below

Note - The difference between the 12Volt and 24Volt solenoid is listed on the serial number plates.

The solenoids are Elwood 160261-xx6 or 160261-xx9. The 6 is a 12 volt solenoid, the 9 is a 24 volt solenoid. Also, 12 or 24 are stamped on the newest serial number plates.

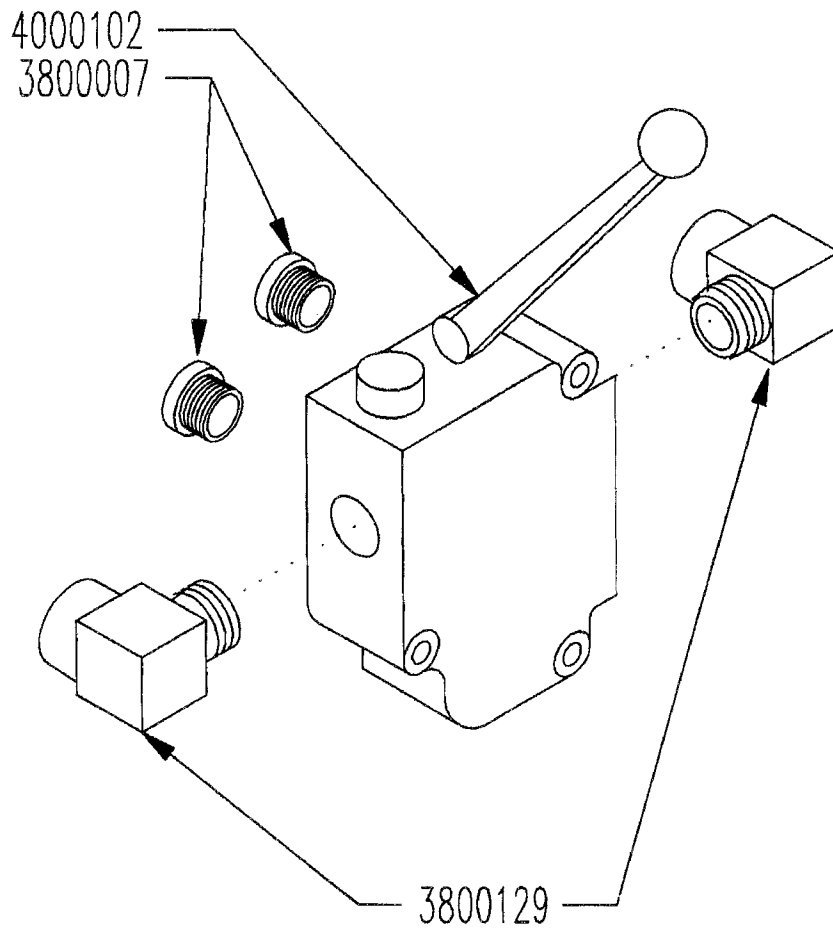
CONVEYOR RUN VALVE ASSEMBLY



CONVEYOR RUN VALVE ASSEMBLY

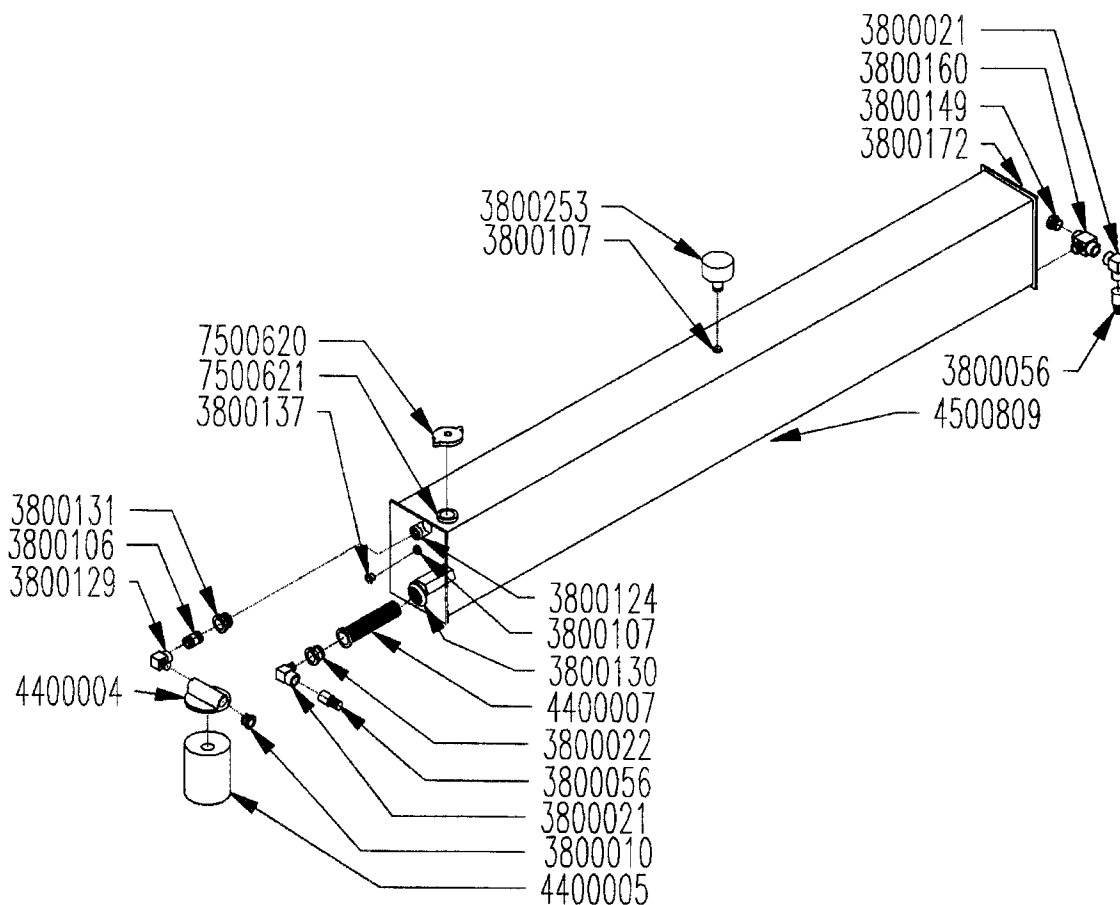
<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
4500806		VALVE\CNVYR\RUN\ASSY\SUB
3800028	2	FTG\1/2MPX1/2FP\45D\ST;ELL
3800164	2	FTG\3/8MPX3/8FP\45D\ST;EL
3800171	2	FTG\3/4MORX1/2FP\ADPT
3800267	2	FTG\3/4MORX3/8FP\ADPT
3800382	2	FTG\7/8MORX3/4FPS\90ST;ELL
4000096	1	VALVE\HYD\W\DETENT

CONVEYOR LIFT VALVE ASSEMBLY



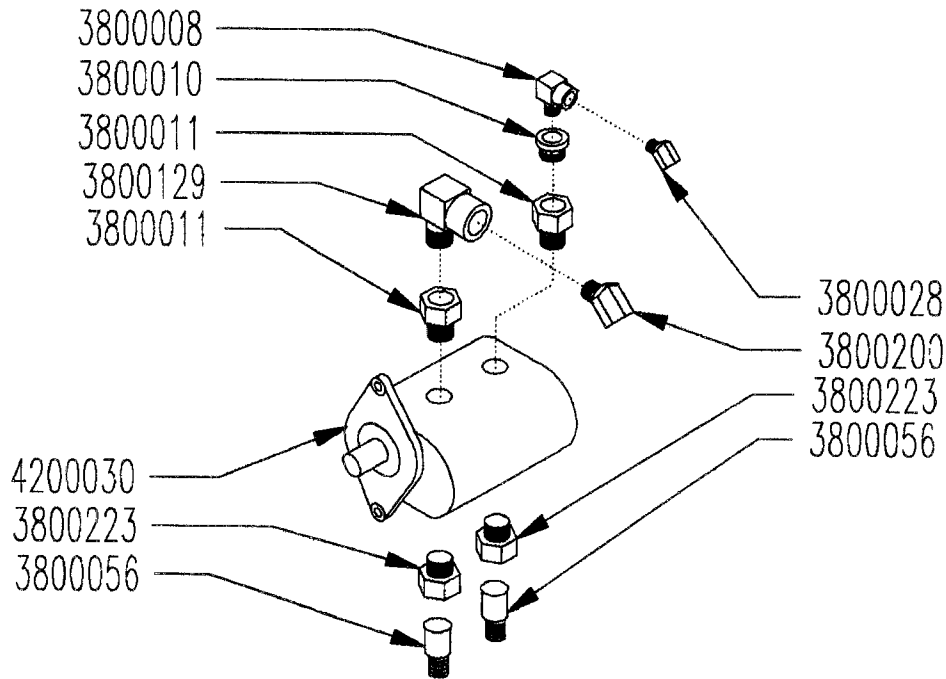
<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
4500807		VALVE\CNVYR\LIFT\ASSY\SUB
3800007	2	FTG\1/2MPX3/8FP\BUSH\LW
3800129	2	FTG\3/4MPX3/4FP\90D\ST;ELL
4000102	1	VALVE\HYD\1-SP\100040

OIL TANK ASSEMBLY



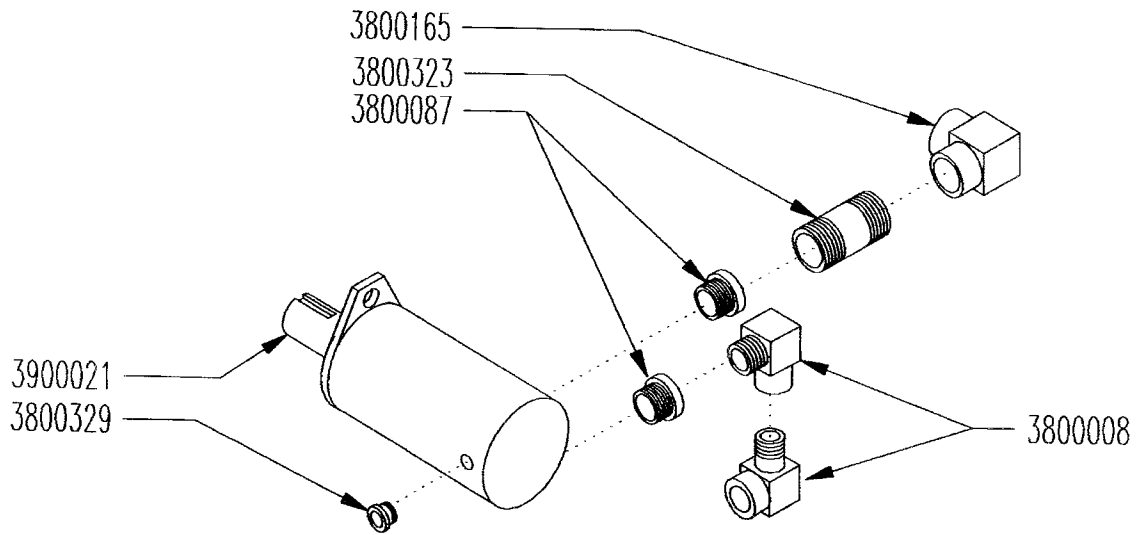
<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
4500808	2	TANK\OIL\ASSY\SUB
3800010	1	FTG\3/4MPX1/2FP\BUSH
3800021	2	FTG\1MPX1FP\90D\ST;ELL
3800022	1	FTG\1-1/4MPX1FP\BUSH\LW
3800056	2	FTG\1MPX1BARB\ADPT\LW
3800106	1	FTG\3/4MPX1-1/2\NPL\LW
3800129	1	FTG\3/4MPX3/4FP\90D\ST;ELL
3800131	1	FTG\1MPX3/4FP\BUSH\LW
3800137	1	FTG\3/4MP\SIGHT;GLASS
3800149	1	FTG\1MP\PLUG\HEX
3800160	1	FTG\1FPX1FPX1MP\BR;TEE
3800253	1	FTG\3/4MP\VENT\>ABS-40
4400004	1	FLTR\BASE\3/4FP\3.7D
4400005	1	FLTR\ELMNT\10MICRON\3.7D
4400007	1	FLTR\SCRN\2MPX1-1/4FP\25
4500809	1	TANK\OIL\VNTD\28 GAL
7500620	1	CAP\OIL\4777\300SERIES
4501035		VENT\ASSY\OIL TANK

HYDRAULIC TANDEM PUMP\20-15\ASSEMBLY



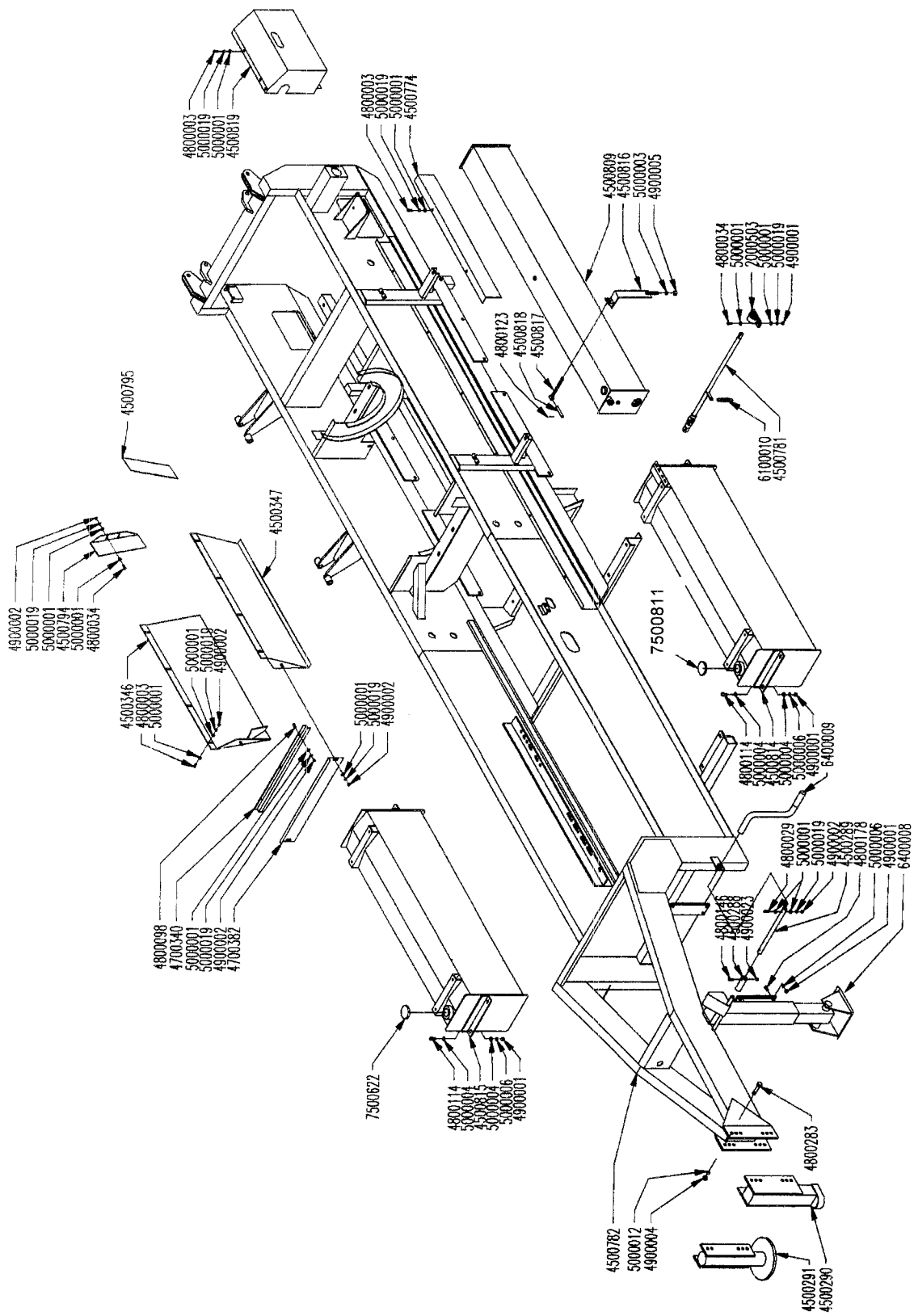
<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
4500810	1	PUMP\HYD\TNDM\20-15\ASSY
3800008	1	FTG\1/2MPX1/2FP\90S\ST;ELL
3800010	1	FTG\3/4MPX1/2FP\BUSH
3800011	2	FTG\1-5/16MORX3/4FP\ADPT
3800028	1	FTG\1/2MPX1/2FP\45D\ST;ELL
3800056	2	FTG\1MPX1BARB\ADPT\LW
3800129	1	FTG\3/4MPX3/4FP\90D\ST;ELL
3800200	1	FTG\3/4MPX3/4FP\45D\ST;ELL
3800223	2	FTG\1-5/8MORX1FP\ADPT
4200030	1	20/15 DBL PUMP-WEBSTER

HYDRAULIC MOTOR\8\ASSEMBLY



<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
4500811	1	MTR\HYD\8\ASSY\SUB
3800008	2	FTG\1/2MPX1/2FP\90D\ST;ELL
3800087	2	FTG\7/8MORX1/2FP\ADPT
3800165	1	FTG\1/2FP\90D\ELL
3800323	1	FTG\1/2MPX2\NPL\LW
3800329	1	FTG\7/16MORX1/4FP\ADPT
3900021	1	MTR\HYD\8\2000SERIES

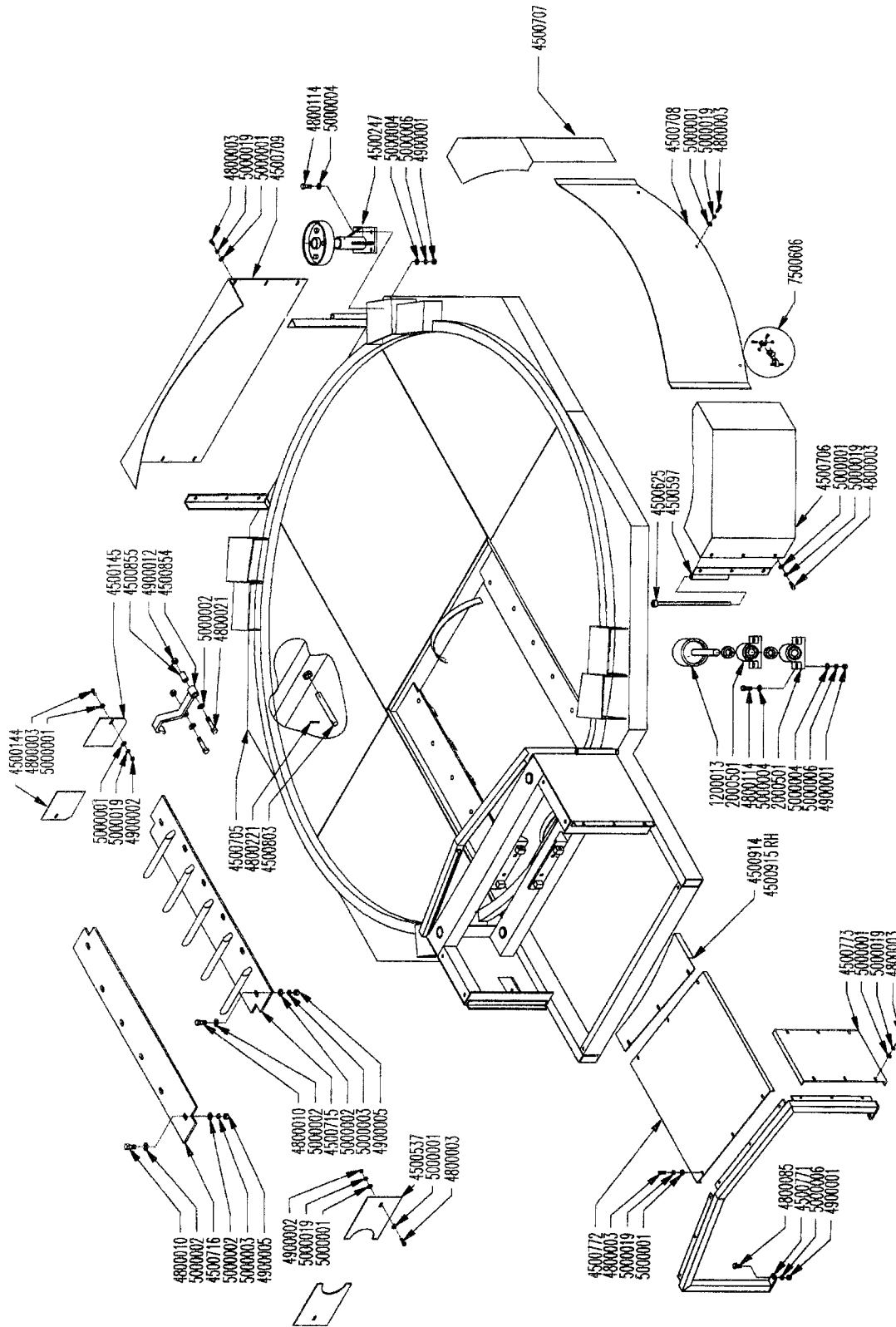
GRINDER FRAME ASSEMBLY



GRINDER FRAME ASSEMBLY

<u>ITEM</u>	<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
4500820			FRAME\GRDR\H11E\ASSY\SUB
4500288	1		JACK HANDLE EXT. COUPLER
4500289	1		JACK HANDLE EXTENSION
4500290	1		HITCH\BALL
4500291	1		5TH WHEEL HITCH
4500346	1		RIGHT HAND SIDE PANEL
4500347	1		LEFT HAND SIDE PANEL
4500774	3		COV\DUCT\HOSE\HYD
4500781	1		EXT\LEVER\CLUTCH\H11E
4500782	1		FRM\GRDR\MAIN\96;H11E
4500794	1		GUIDE\RH\CNVYR\MATL\REAR
4500795	1		GUIDE\LH\CNVYR\MATL\REAR
4500814	1		TANK\FUEL\LH\84GAL\H11E
4500815	1		TANK\FUEL\RH\84GAL\H11E
4500816	4		STRAP\TANK\OIL\28GAL
4500817	4		BOLT\STRAP\TANK\OIL
4500818	4		PIN\STRAP\TANK\OIL
4500819	1		COVER\VLV\HYD\REAR\H11E
4700340	1		RETAINER\CNVYR\DR
4700382	1		CLOSURE FRONT
4800003	19		BOLT\HEX\3/8X1
4800034	6		BOLT\HEX\3/8X1-1/2
4800098	3		BOLT\HEX\3/8X1-1/4\NC
4800114	8		BOLT\HEX\1/2X2
4800123	8		PIN\COT\1/8X1-1/2
4800146	1		BOLT\3/8X2
4800178	4		BOLT\HEX\1/2X1-3/4
4800283	4		BOLT\HEX\3/4X2-1/4
4900001	14		NUT\HEX\1/2
4900002	18		NUT\HEX\3/8
4900004	4		NUT\HEX\3/4
4900005	4		NUT\HEX\5/8
4900023	1		NUT\TPLCK\3/8
4900029	1		NUT\WELD\3/8\NF
5000001	38		WASH\FLAT\3/8
5000003	4		WASH\LOCK\5/8
5000004	16		WASH\FLAT\1/2
5000006	12		WASH\LOCK\1/2
5000012	4		WASH\LOCK\3/4
5000019	31		WASH\LOCK\3/8
5800608	1		JACK\25000\TWO;SPEED
5800609	1		JACK HANDLE 25000 LG
6100010	1		SPRING TENSION
7500811	2		CAP\FUEL\5343-15\600SERS\
7500669			FUEL TANK SENDING UNIT

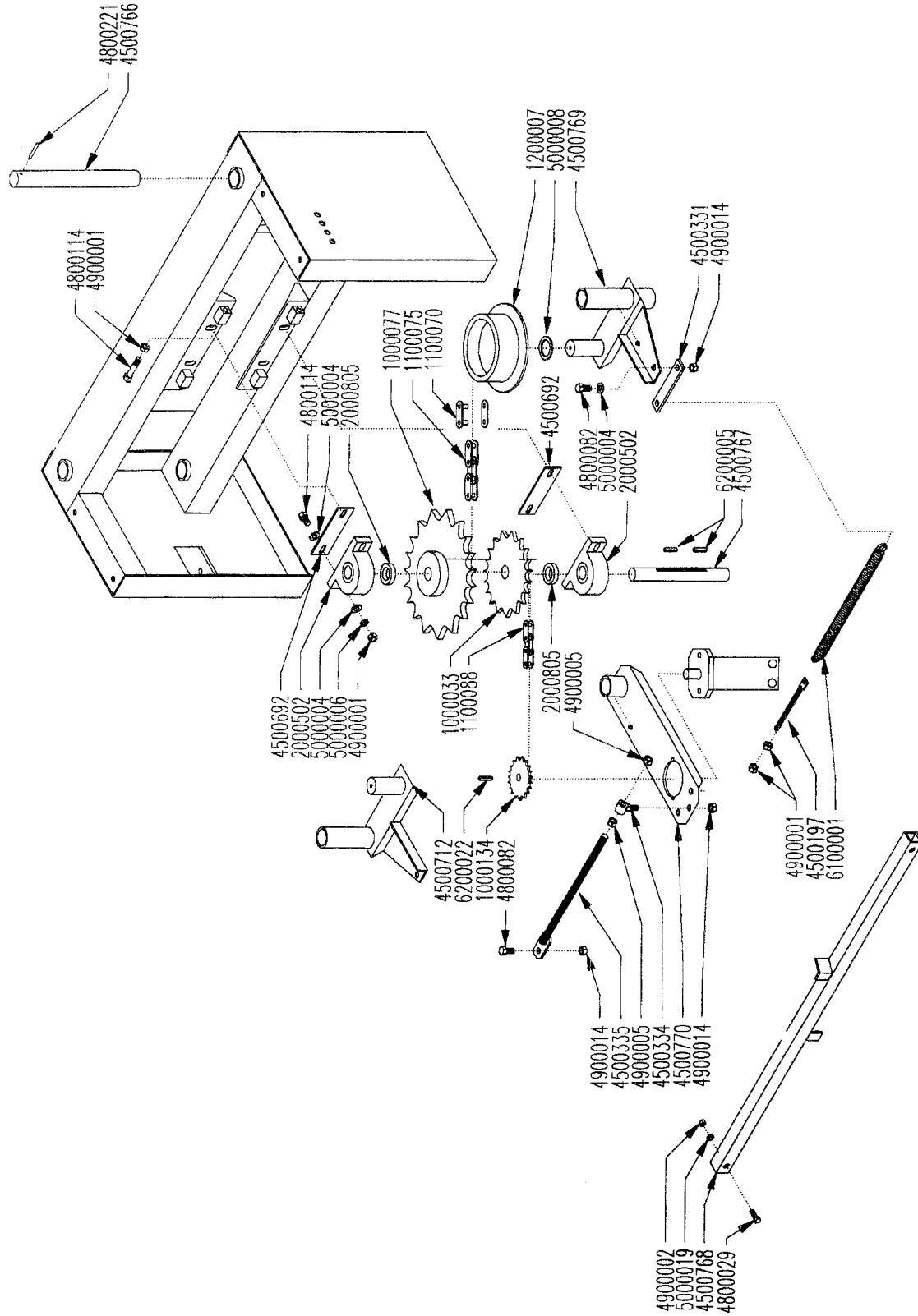
PLATFORM ASSEMBLY



PLATFORM ASSEMBLY

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
4500704		PLTFRM\ASSY\SUB\H1100E
1200013	4	RLLR\TUB\1-1/2\W/O;FLANGE
2000501	8	BRG\PILLOW-BLOCK\1-1/2\2-BOLT
4500144	1	DOOR\ROTOR\REAR\RH
4500145	1	DOOR\ROTOR\REAR\LH
4500247	4	PRESSUE ROLLER COMPLETE
4500537	2	DOOR\ROTOR\FRONT
4500597	4	HINGE\GUARD\ROLLER
4500625	4	PIN\HINGE\GUARD
4500705	1	PLATFORM\TUB\TILT\80DEG
4500706	2	GUARD\ROLLER\LH
4500707	2	GUARD\ROLLER\RH
4500708	2	GUARD\CHAIN\TUB\SIDE
4500709	1	GUARD\CHAIN\TUB\REAR
4500715	1	HOLDDOWN\SCREEN\5-TOOTH
4500716	1	HOLDDOWN\SCREEN
4500771	1	BRKT\SHEILD\FRONT\TUBDRIVE
4500772	2	SHLD\DRIVE\TUB\TOP\DHOUSE
4500773	2	SHLD\DRIVE\TUB\SIDE\SHOUSE
4500803	2	PIN\PLATFORM\HINGE\9X1
4500854	4	BRKT\HOLDDOWN\SCREEN
4500855	4	BUSH\BRACKET\HOLDDOWN\SCREEN
4500914	1	CVR\DRIVE\TUB\REAR\LH
4500915	1	CVR\DRIVE\TUB\REAR\RH
4800003	52	BOLT\HEX\3/8X1
4800010	12	BOLT\HEX\5/8X2
4800021	4	BOLT\HEX\5/8X3
4800082	16	BOLT\HE1/2X1-1/2
4800085	2	BOLT\HEX\1/2X1
4800114	16	BOLT\HEX\1/2X2
4800221	2	PIN\RLLD\1/4X2
4900001	34	NUT\HEX\1/2\NC
4900002	10	NUT\HEX\3/8\NC
4900005	12	NUT\HEX\5/8\NC
4900012	8	NUT\TPLCK\5/8\NC
5000001	56	WASH\FLAT\3/8
5000002	32	WASH\FLAT\5/8
5000003	12	WASH\LOCK\5/8
5000004	64	WASH\FLAT\1/2
5000006	34	WASH\LOCK\1/2
5000019	52	WASH\LOCK\3/8
7500606	8	LATCH\35-M\AUSTIN
4500952		MOUNT\RLLR\PRES\REAR\H110 NOT SHOWN

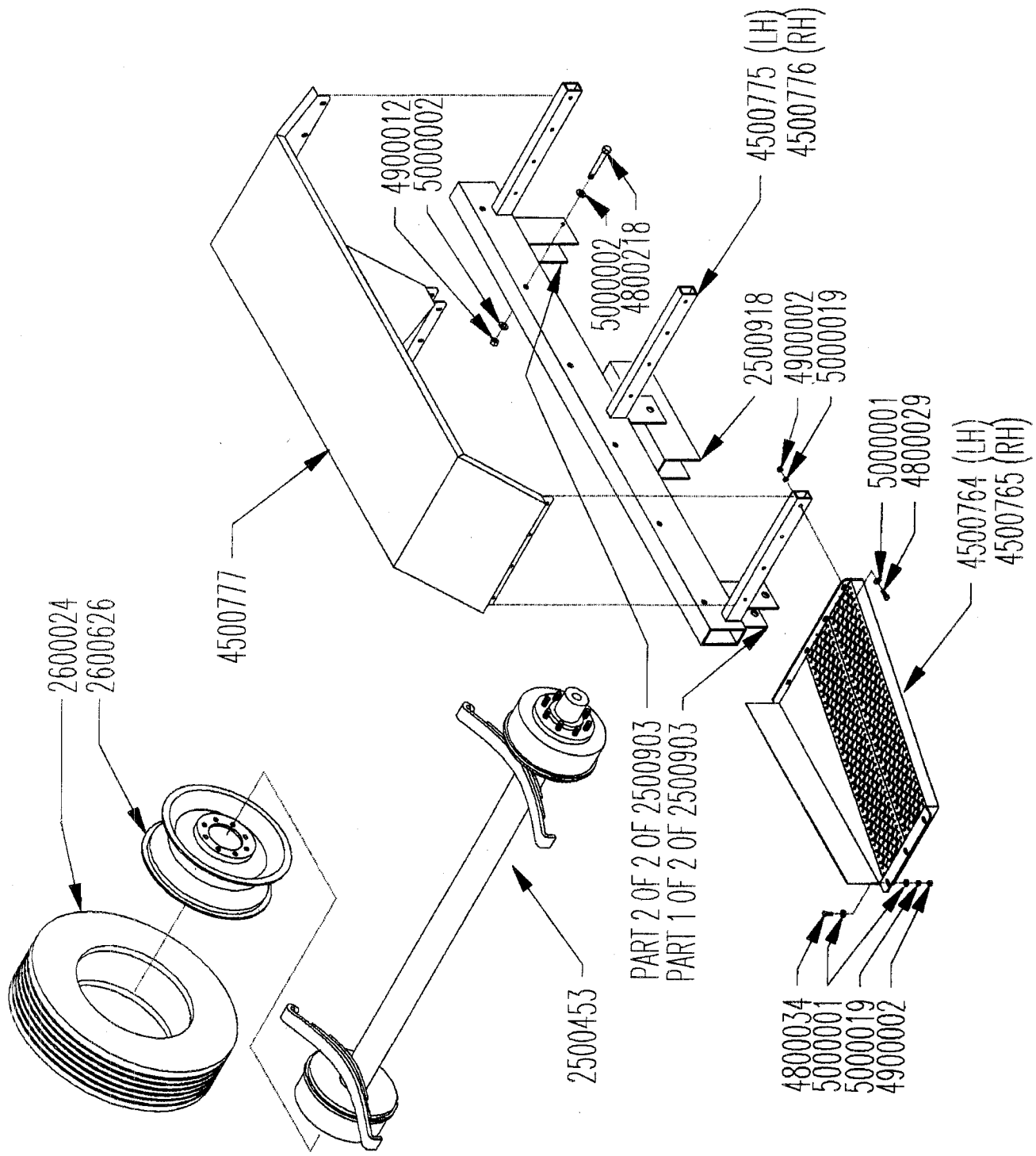
TUB DRIVE ASSEMBLY



TUB DRIVE ASSEMBLY

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
4500710		TUBDRIVE ASSEMBLY
1000033	1	SPKT\60\30\1-1/4\1/4KW
1000077	1	SPKT\80\30\1-1/4\1/4KW
1000134	1	SPKT\60\B\12\1-1/4\5/16KW
1100062	1	CHAIN\60\CL
1100070	1	CHAIN\2080\CL
1100075	1	CHAIN\2080\177
1100088	1	CHAIN\60\43
1200007	2	RLL#6
2000502	2	BRG\PB\1-1/4
2000805	2	CLLR\SHFT\1-1/4\W\SET
4500197	2	BOLT\TENSION\SPRING
4500331	2	LINK\SPRING\1/4X6-1/4
4500334	1	BRKT\BOLT\TIGHTNER
4500335	1	BRKT\TIGHTENER\ORBIT;MOTOR
4500692	4	SHIM\BRG\TUB DR\10GAX2X7
4500712	1	BRKT\ARM\SWING\RH
4500766	2	PIN\PIVOT\ARM\SWING\DRIVE
4500767	1	SHFT\DRIV\DECK\TUB
4500768	1	BRKT\SPRING\IDLER\SWING
4500769	1	BRKT\ARM\SWING\LH
4500770	1	BRKT\MOTOR\ORBIT\TUB DRIVE
4800029	2	BOLT\HEX\3/8X2-1/2
4800082	3	BOLT\HEX\1/2X1-1/2
4800114	6	BOLT\HEX\1/2X2
4800221	2	PIN\RLLD\1/4X2
4900001	8	NUT\HEX\1/2\NC
4900002	2	NUT\HEX\3/8\NC
4900005	2	NUT\HEX\5/8\NC
4900014	3	NUT\TPLCK\1/2\NC\.500
5000004	10	WASH\FLAT\1/2
5000006	4	WASH\LOCK\1/2
5000008	4	WASH\1-1/2 MACH;BUSH(nr)
5000019	2	WASH\LOCK\3/8
6100001	2	SPRING.156OT 63/64OD 13 LIH
6200005	2	KEY\SQ\1/4X1-1/2
6200022	1	KEY\SQ\5/16X1-1/2\HARDENED

OPTION \ TANDEM AXLE ASSEMBLY

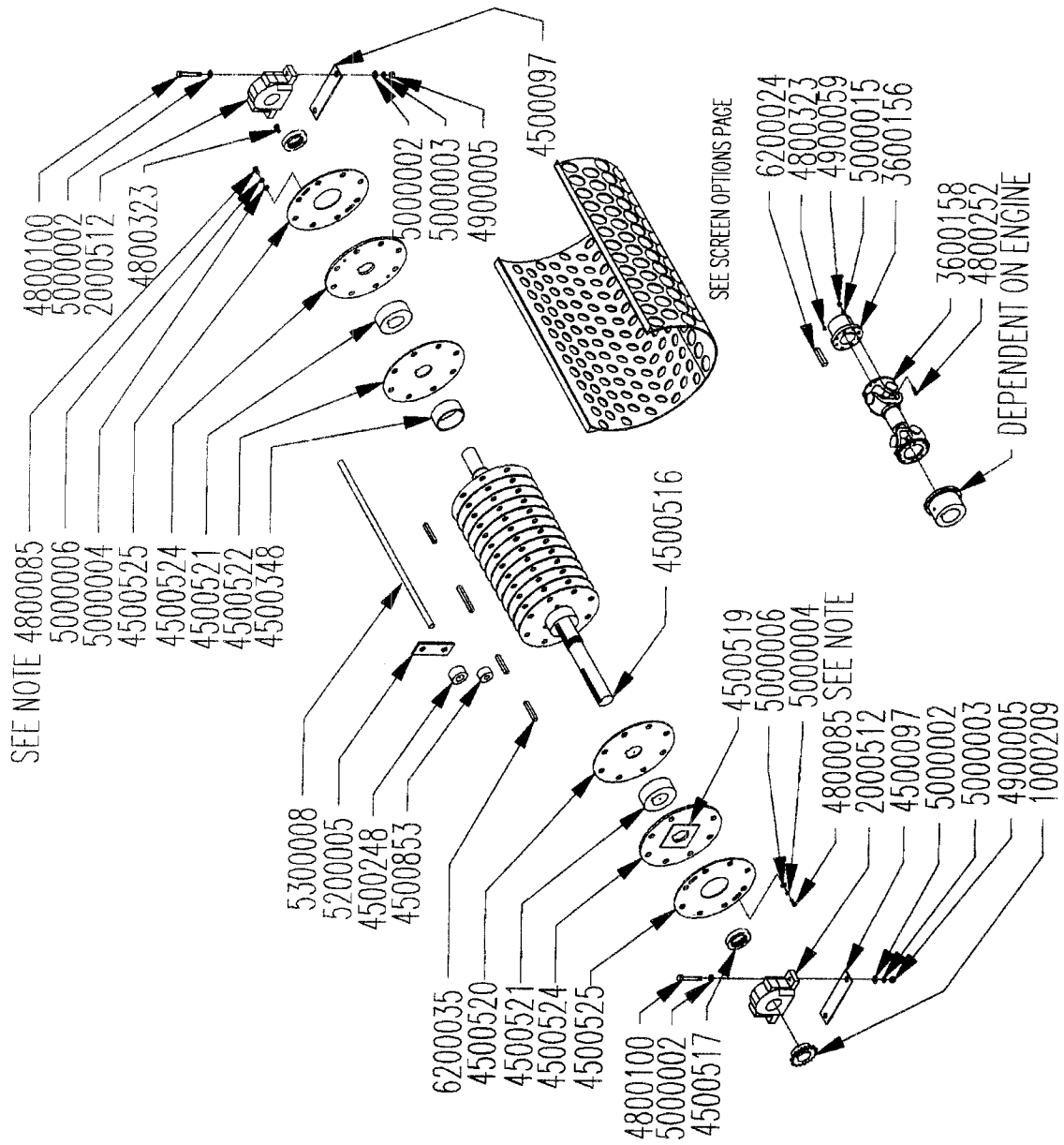


OPTION\TANDEM AXLE ASSEMBLY

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
4500830		OPTION\AXLE\TANDEM\ASSEMBLY\SUB
2500453	2	AXLE\ELEC\10K
2500460		AXLE\SPR\LEAF\10K\72-43-1\5 LEAF\3"
2500461		AXLE\SPR\LEAF\12K\72-44-1\6 LEAF\3"
2500945		BOLT\U\AXLE\10K\H1100E
2600024	8	9.50X16.5 B.E. BIAS 10 PLY
2600626	8	16.5 X 6.75 DUAL WHEEL
2600808		WHEEL & TIRE COMPLETE
4500764	1	STEP\FRM\LH\FNDR\TNDM
4500765	1	STEP\FRM\RH\FNDR\TNDM
4500775	1	FRM\AXLE\TNDM\LH\BOLTED\10K
4500776	1	FRM\AXLE\TNDM\RH\BOLTED\10K
4500777	2	FNDR\AXLE\TNDM\10K
4800029	24	BOLT\HEX\3/8X2-1/2
4800034	6	BOLT\HEX\3/8X1-1/2
4800218	12	BOLT\HEX\5/8X5-1/2
4900002	30	NUT\HEX\3/8\NC
4900012	12	NUT\TPLCK\5/8\NC
5000001	44	WASH\FLAT\3/8
5000002	24	WASH\FLAT\5/8
5000019	30	WASH\LOCK\3/8

OPTION SINGLE AXLE PAGE 76-77

ROTOR ASSEMBLY



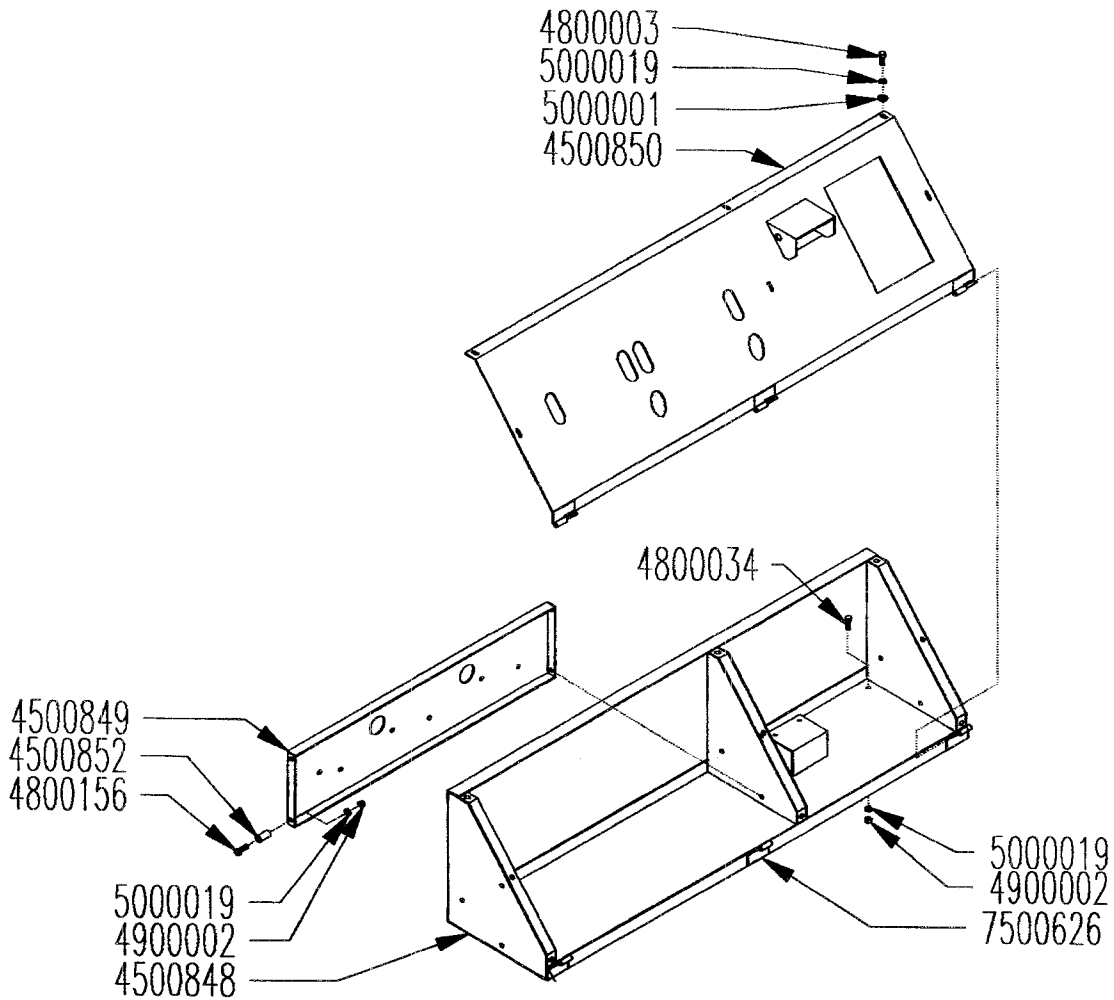
ROTOR ASSEMBLY

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
4500696		ROTOR\SUB ASSEMBLY
1000209	1	SPKT\60\20\2SS\NO;KW
2000512	2	BRG\PB\3
3600156	1	FLANGE 3" ID 1710
3600158	1	1710 DRIVE LINE 18" COMP.
4500097	4	SHIM\BRG\3\16X3X11-3/4
4500248	48	1" HAMMER SPACER
4500348	16	1.878 CYLINDER SPACER
4500516	1	4-1/2" CYLINDER SHAFT
4500517	2	CYLINDER NUT 4-1/2" SHAFT
4500519	2	4-1/2" THRUST WASHER
4500520	5	1/2" PLATE FACED BOTH SIDES
4500521	6	SOLID CYLINDER SPACER
4500522	16	1/2" PLATE GROOVED 4.5"ID
4500524	2	1/2" CYLINDER END PLATE
4500525	2	1/4" MOVABLE PLATE
4500853	88	SPCR\SHOCK\HAMMER\RTR
4800085	4	BOLT\HEX\1/2X1
4800100	4	BOLT\HEX\5/8X4
4800252	16	BOLT\7/16X1-3/8\GR8
4800323	6	SCR\SET\ALN\1/2X1\NC
4900005	4	NUT\HEX\5/8\NC
4900059	16	NUT\HEX\7/16\NF
5000002	8	WASH\FLAT\5/8
5000003	4	WASH\LOCK\5/8
5000004	4	WASH\FLAT\1/2
5000006	4	WASH\LOCK\1/2
5000015	16	WASH\LOCK\7/16
5200005	88	1/2" AB SUPREME HAMMER
5300019	8	50" X 15/16" ROD
6200024	1	KEY\SQ\3/4X4
6200035	4	KEY\RECT\1/2X5/8X6-1/4

NOTE: #4800085 MUST HAVE HEAD MACHINED OFF TO 1/2 THE ORIGINAL THICKNESS.

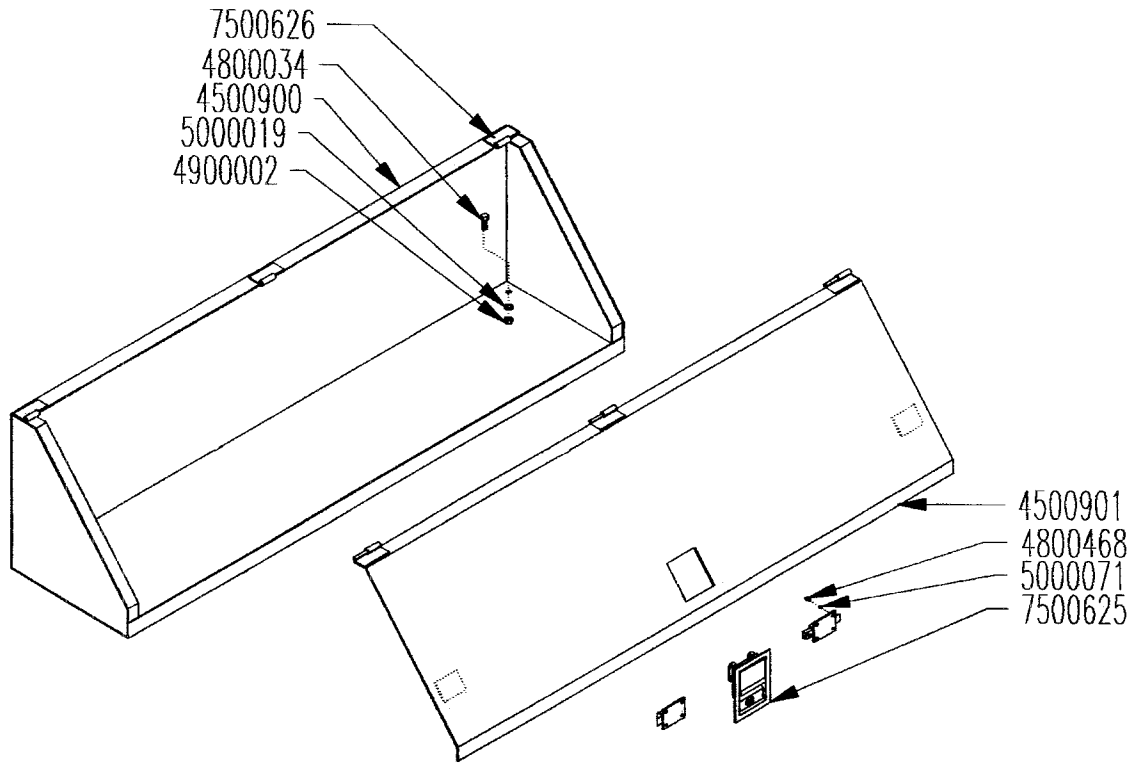
4500518 RTR\NEW\50X15/16RDH1100E\4.5X72SFT 3.0BRG
 4500526 RTR\RBLT\50X15/16RDH1100E\4.5X72SFT 3.0BRG
 4500571 RTR\CORE\50X15/16RDH1100E\4.5X72SFT 3.0BRG

CONTROL PANEL ASSEMBLY



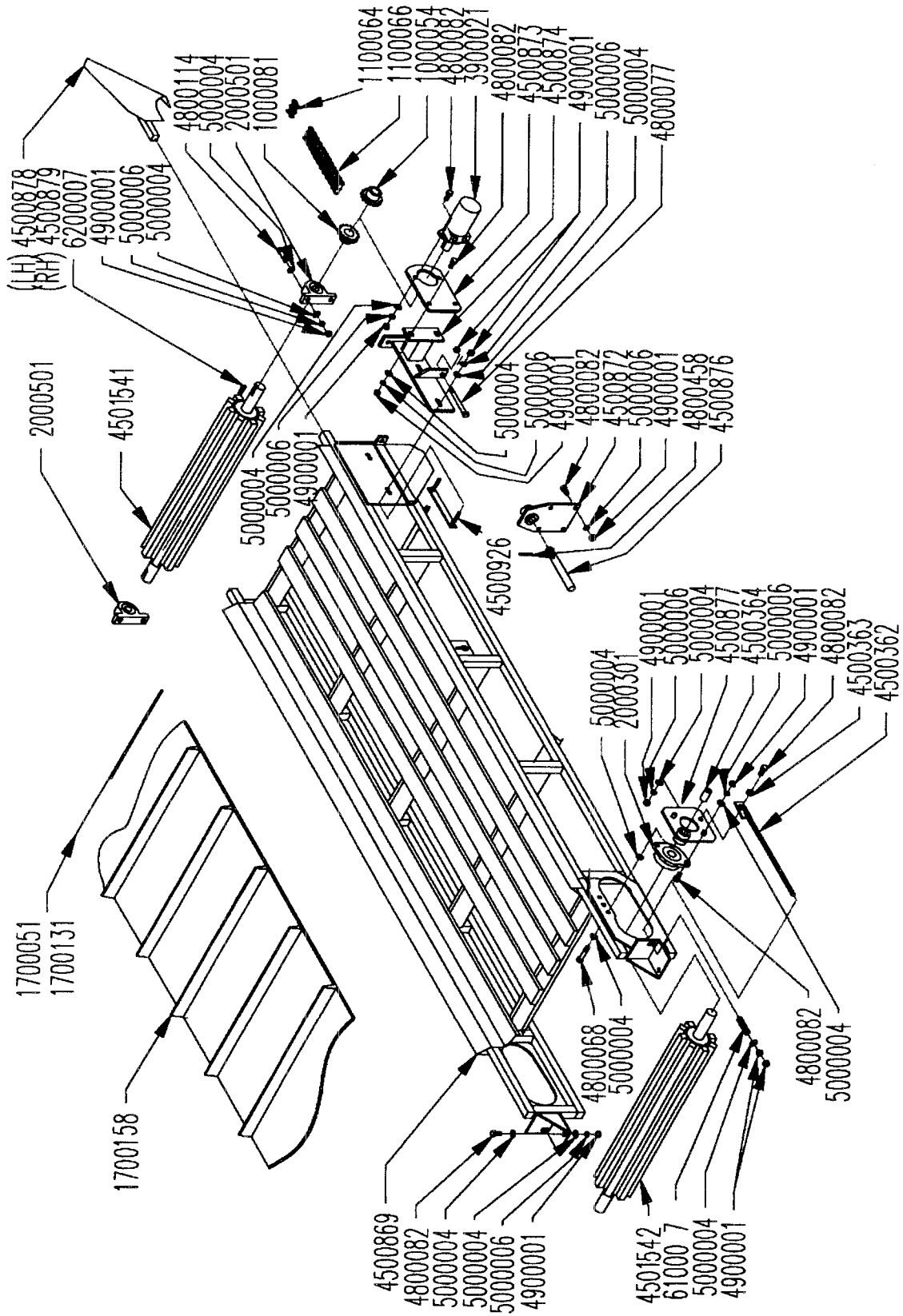
<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
4500851		PANEL\CONTROL\SUB ASSEMBLY
4500848	1	ENCL\CNTRL\PANEL
4500849	1	BRKT\VLV\PANEL\CNTRL
4500850	1	CVR\PANEL\CNTRL\ENGINE
4500852	4	BUSH\MTH\BRKT\VCNTRL
4800003	6	BOLT\HEX\3/8X1
4800034	4	BOLT\HEX\3/8X1-1/2
4800156	4	BOLT\HEX\3/8X3
4900002	8	NUT\HEX\3/8\NC
5000001	6	NUT\FLAT\3/8
5000019	14	WASH\LOCK\3/8
7500626	1.5 PR	HINGE\SURFACE\3\LH

TOOLBOX ASSEMBLY



<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
4500902		TOOLBOX\SUB ASSEMBLY
4500900	1	FRAME\TOOLBOX
4500901	1	COVER\FRAME\TOOLBOX
4800034	4	BOLT\HEX\3/8X1-1/2
4800468	8	SCREW\RD\SLOTTED\#10X1/2\NC
4900002	4	NUT\HEX\3/8\NC
5000019	4	WASH\LOCK\3/8
5000071	8	WASH\LOCK\EXT;STAR\#10
7500625	1	LATCH\PDDL\3-4974\KEY
7500626	1.5PR	HINGE\SURFACE\3\LH

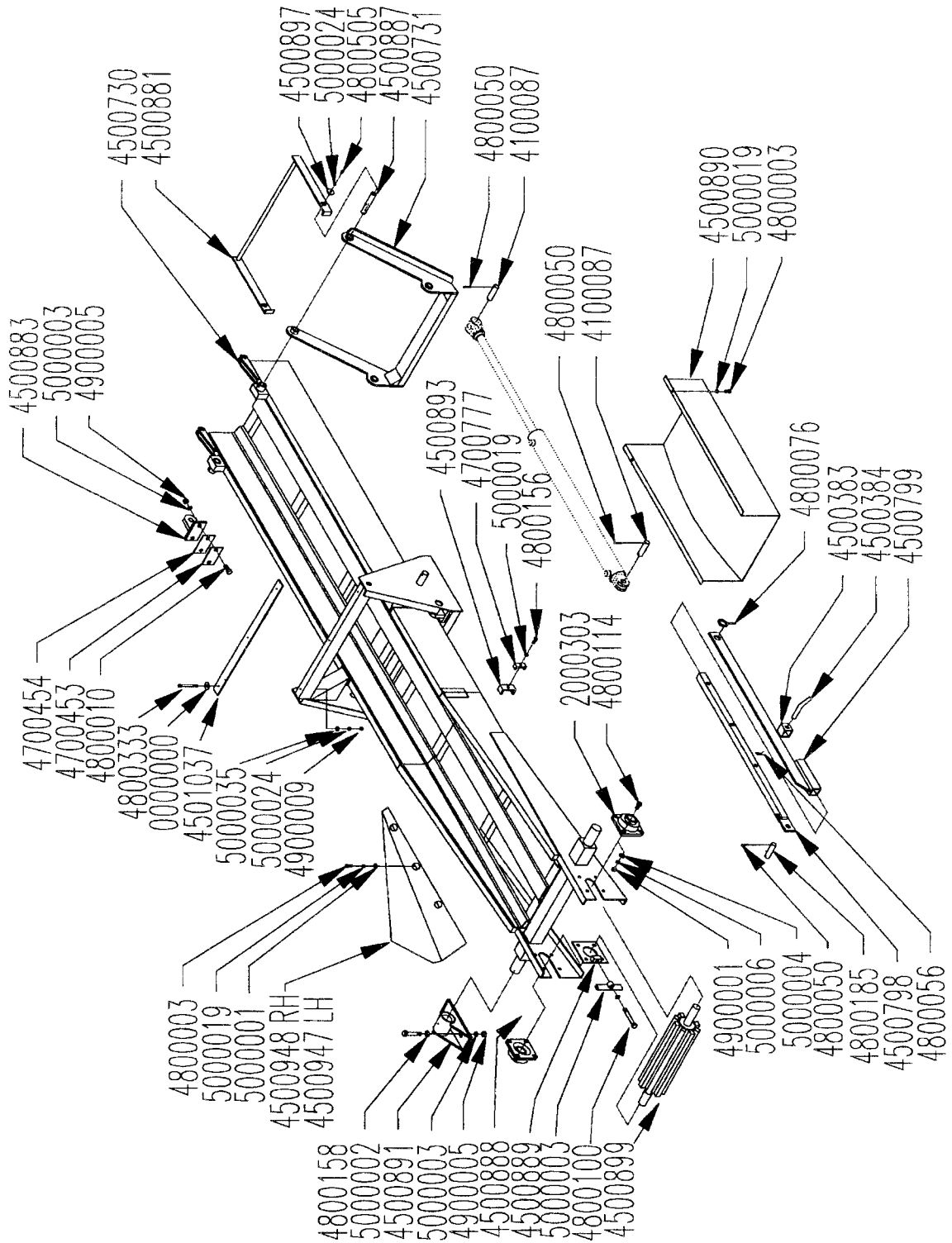
BELLY CONVEYOR ASSEMBLY



BELLY CONVEYOR ASSEMBLY

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
4500702		BELLY CONVEYOR SUB ASSEMBLY
1000054	1	SPKT\60\18\1-1/4\5/16KW
1000081	1	SPKT\60\18\1-1/2\3/8KW
1100064	1	CHAIN\60DBL\CL
1100066	1	CHAIN-60\DBL\17
1700158	1	BELT\BELLY;PAN\30X18'
1700051	1	LCNG\CBL\3\16X30\NYL\187
1700053		LCNG\#187\30\W\STPLL
1700130	2	LCNG\R-2\30\PURCH
1700131	1	LCNG\CBL\R-2\30\PURCH
1700132	34	LCNG\RIVET\R-2\PURCH
2000301	2	BRG\FLB\CAST\1-1/4\2-BOLT
2000501	2	BRG\PB\1-1/2\2-BOLT
4500362	2	TGHTNR\BELT\CNVYR\BELLY
4500363	2	TUBE\RD\1X1\2X5\16
4500364	2	TUBE\RD\1X1\2X1-3\16
4500869	1	FRAME\CNVYR\BLLY
4701541	1	RLLR\DRIVE\CNVYR\BLLY\6X30
4701542	1	RLLR\IDLER\CNVYR\BLLY\6X30
4500872	2	BRKT\MNT\CNVYR\BLLY\REAR
4500873	1	BRKT\MTR\ORBIT\CNVYR\BLLY
4500874	1	MNT\BRG\DRV\CNVYR\BLLY\LH
4500875	1	MNT\BRG\DRV\CNVYR\BLLY\RH
4500876	1	PIN\MNT\CNVYR\BLLY\REAR
4500877	2	BRKT\BRG\IDLER\CNVYR\BLLY
4500878	1	GUIDE\MATL\CNVYR\BLLY
4500879	1	GUIDE\MATL\CNVYR\BLLY
4800068	2	BOLT\HEX\1\2X3
4800082	20	BOLT\HEX\1\2X1-1/2
4800114	4	BOLT\HEX\1\2X2
4800458	1	PIN\RLLD\3/8x1-3/4
4900001	31	NUT\HEX\1/32\NC
4900072	2	NUT\HEX\#10\NC
5000004	35	WASH\FLAT\1/2
5000006	23	WASH\LOCK\1/2
6100027	2	SPRING\COMPRESSION
6200007	1	KEY\SQ\3/8X1-1/2
4702643	1	BELLY CONV. SEAL KIT

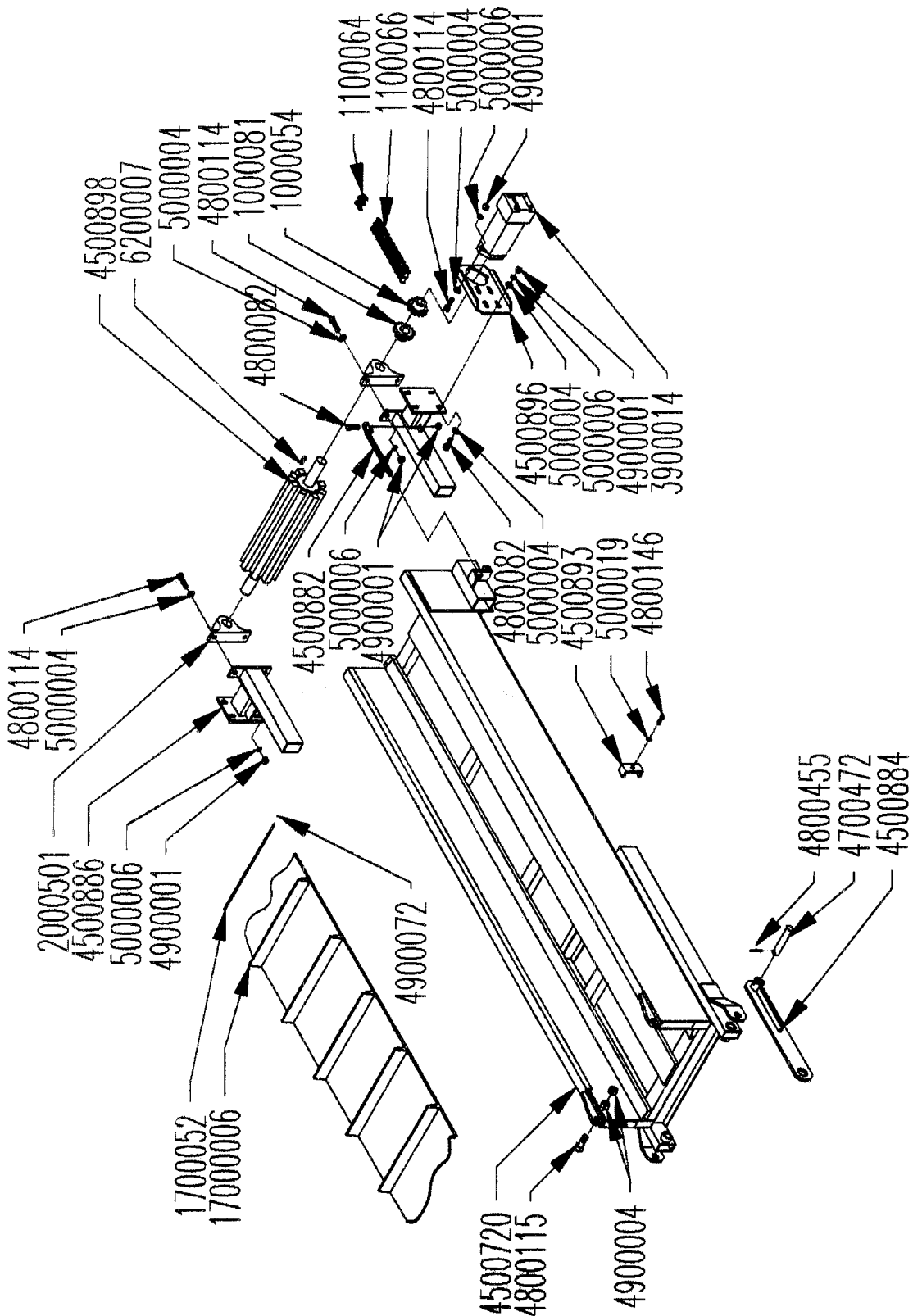
LOWER DISCHARGE CONVEYOR ASSY-22 FT.



LOWER DISCHARGE CONVEYOR ASSY - 22 FT.

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
4500729		CNVYR\DISCH\LOWER\ASSEMBLY
2000303	2	BRG\FLG\1-1/2\4-BOLT
2000809	2	CLLR\SET\1\SET
3700236	1	HOSE\HYD\1X31
4100087	10	1X3-1/2 CYL PIN STD
4500383	2	LATCH\CNVYR\SAFETY
4500384	2	PIN\CNVYR\SAFETY;BAR
4500730	1	FRM\CNVYR\DISCH\LOWER
4500731	1	ARM\CNTRL\CNVYR\FOLD
4500740	1	SHAFT\SUPORT\LOW;DISCH
4500798	2	BRKT\CNVYR\SAFETY;BAR
4500799	2	GUIDE\CNVYR\SAFETY\BAR
4500881	1	TGHTNER\BELT\CNVYR
4500883	2	ANCHOR\CYL\HYD
4500887	2	PIN\CNVYR\ARM\CNTRL
4500888	1	BRKT\ADJ\TRCKG\CNVYR\DISCH
4500889	1	HOOK\ROD\TGHTR\BELT\CNVYR
4500890	1	GUIDE\CNVYR\BELT\BRRM
4500891	2	MNT\CNVYR\FRM\MN
4500893	4	CLAMP\HOSE\3/4"PLATED
4500894	1	GUIDE\MATL\CNVYR\DISCH\LH
4500895	1	GUIDE\MATL\CNVYR\DISCH\RH
4500897	2	RETAINER\GUIDE\BELT\SLUG
4500899	1	RLLR\IDLER\CNVYR\DISCH
4700453	2	14 GA HYD CYL SHIM
4700454	2	10 GA HYD CYL SHIM
4700777	3	CLAMP\HOSE\1/2
4800003	10	BOLT\HEX\3/8X1
4800010	4	BOLT\HEX\5/8X2
4800050	24	PIN\COT\3/16X1-1/2
4800056	2	PIN\HAIR\3/16X3
4800076	2	PIN\KLIK\5/16
4800100	1	BOLT\HEX\5/8X4
4800114	8	BOLT\HEX\1/2X2
4800156	4	BOLT\HEX\3/8X3
4800158	4	BOLT\HEX\5/8X4-1/2
4800185	2	PIN\CLEVIS\1X3
4800505	2	BOLT\HEX\1/4X1-1/2
4900001	8	NUT\HEX\1/2\NC
4900005	8	NUT\HEX\5/8\NC
5000001	6	WASH\FLAT\3/8
5000002	4	WASH\FLAT\5/8
5000003	9	WASH\LOCK\5/8
5000004	8	WASH\FLAT\1/2
5000006	8	WASH\LOCK\1/2
5000019	14	WASH\LOCK\3/8
5000024	2	WASH\LOCK\1/4
4501036		TUBE CROSS\REST\CONV\DISCHARGE

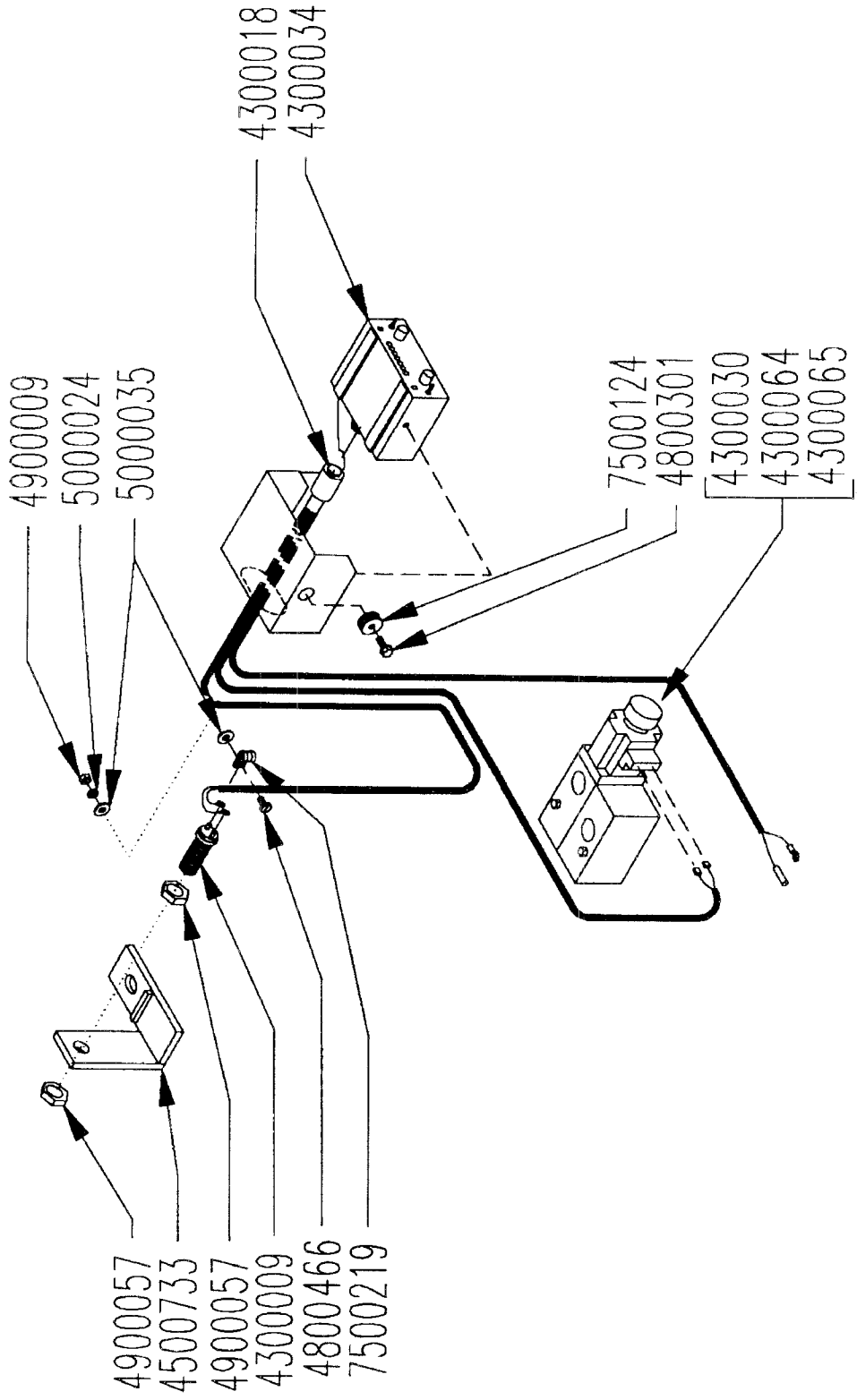
UPPER DISCHARGE CONVEYOR ASSY - 22 FT.



UPPER DISCHARGE CONVEYOR ASSY - 22 FT.

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
4500721		CNVYR\DISCH\UPPER\ASSY
1000054	1	S[KT\60\18\1-1/4\5/16KW
1000081	1	SPKT\60\18\1-1/2\3/8KW
1100064	1	CHAIN\60DBL\CL
1100066	1	CHAIN\6-DBL\17
1700006	1	BELT\CNVYR\18\43'6"W/
1700052	1	LCNG\CBL\1/8X18\NYL
1700055		LCNG\#125\18\W/STPLS
2000501	2	BRG\PB\1-1/2\2-BOLT
4500720	1	FRM\CNVYR\DISCH\UPPER
4500882	2	ROD\ADJ\RLLR\CNVYR\DISCH
4500884	2	LINK\LIFT\ARM\CNTRL
4500886	2	MNT\BRG\CNVYR\DISCH
4500893	3	CLAMP\HOSE\CNVYR\DISCH
4500896	1	MNT\MTR\ORBIT\CNVYR\DISCH
4500898	1	RLLR\DRIVE\CNVYR\DISCH
4700472	2	1X5.25\PIN CONT ARM MT
4800082	6	BOLT\HEX\1/2X1-1/2
4800114	6	BOLT\HEX\1/2X2
4800115	2	BOLT\HEX\3/4X2-1/2
4800146	3	BOLT\HEX\3/8X2
4800455	2	PIN\RLLR\1/4X1-1/2
4900001	10	NUT\HEX\1/2\NC
4900004	4	NUT\HEX\3/4\NC
4900072	2	NUT\HEX\#10\NC
5000004	14	WASH\FLAT\1/2
5000009	10	WASH\LOCK\1/2
5000019	3	WASH\LOCK\3/8
6200007	1	KEY\SQ\3/8X1-1/2
4500416		CNVYR\DISCH\W/BELT\H1100
4500417		CNVYR\DISCH\W/OBELT\H1100

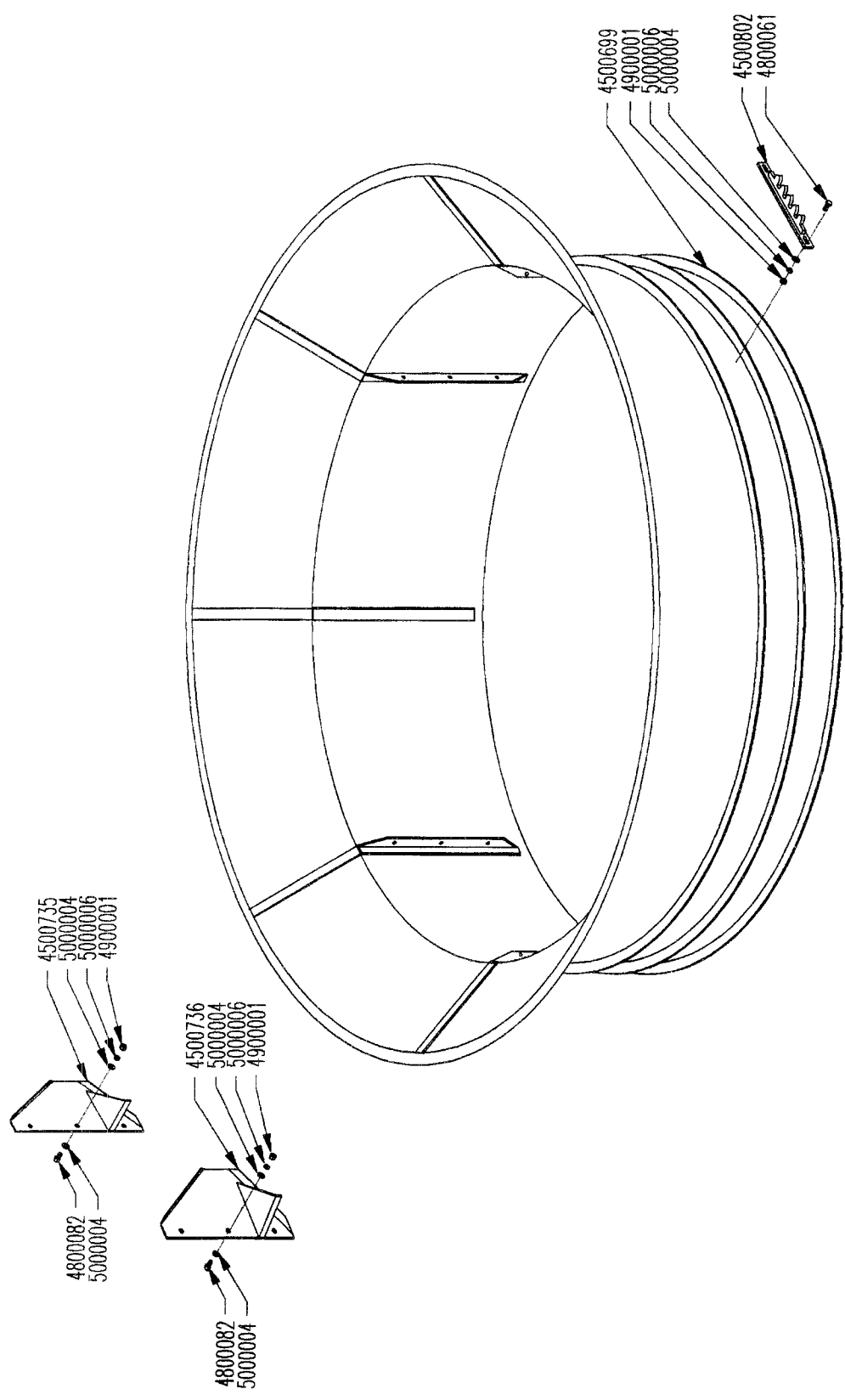
GOVERNOR ASSEMBLY



GOVERNOR ASSEMBLY

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
4500903		GOVERNOR SUB ASSEMBLY
4300009	1	SENSOR\MAG\W/HARDWARE
4300018	1	WIRING HARNESS
4300034	1	NEW STYLE CONTROL BOX
4500733	1	BRKT\SNSR\SHAFT\RTR
4800301	2	SCR\FLG\SERR\1/4X1/2\NC
4800466	1	SCR\PAN\SLOT\1/4X1/2\ST
4900009	1	NUT\HEX\1/4\NC
4900057	2	NUT\JAM\3/4\NF
5000024	1	WASH\LOCK\1/4
5000035	2	WASH\FLAT\1/4
7500124	2	GROMMET\RUBBER\2757
7500219	1	1/4" WIRE CLAMP
4300030		VALVE\HYD\ELEC\CV93\12V, ORDER 4300065
4300053		
4300064		VALVE\SERVO\15GPM\24VDC\
4300065		VALVE\SERVO\15GPM\12VDC

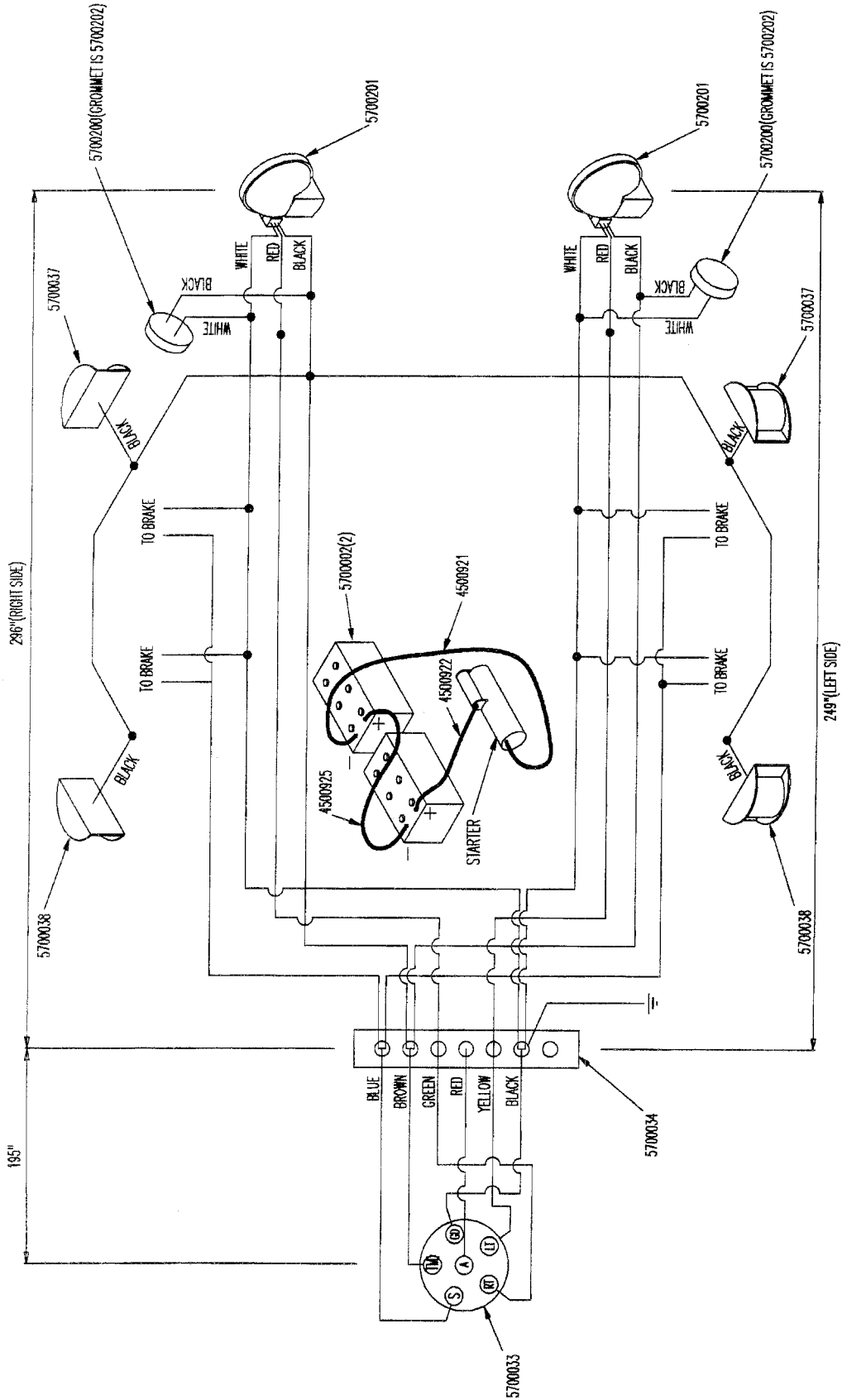
TUB ASSEMBLY



TUB ASSEMBLY

<u>PART#</u>	<u>QTY</u>	<u>DESCRIPTION</u>
4500698		TUB SUB ASSEMBLY
4500699	1	TUBE\TUB\107.5X36
4500735	1	AGTTR\TUB\10"
4500736	1	AGTTR\TUB\14"
4500802	4	SPKT\TUB\KNOB
4800061	8	BOLT\CRG\1/2X1-1/2\NC
4800082	6	BOLT\HEX\1/2X1-1/2
4900001	14	NUT\HEX\1/2\NC
5000001	20	WASH\FLAT\1/2
5000006	14	WASH\LOCK\1/2

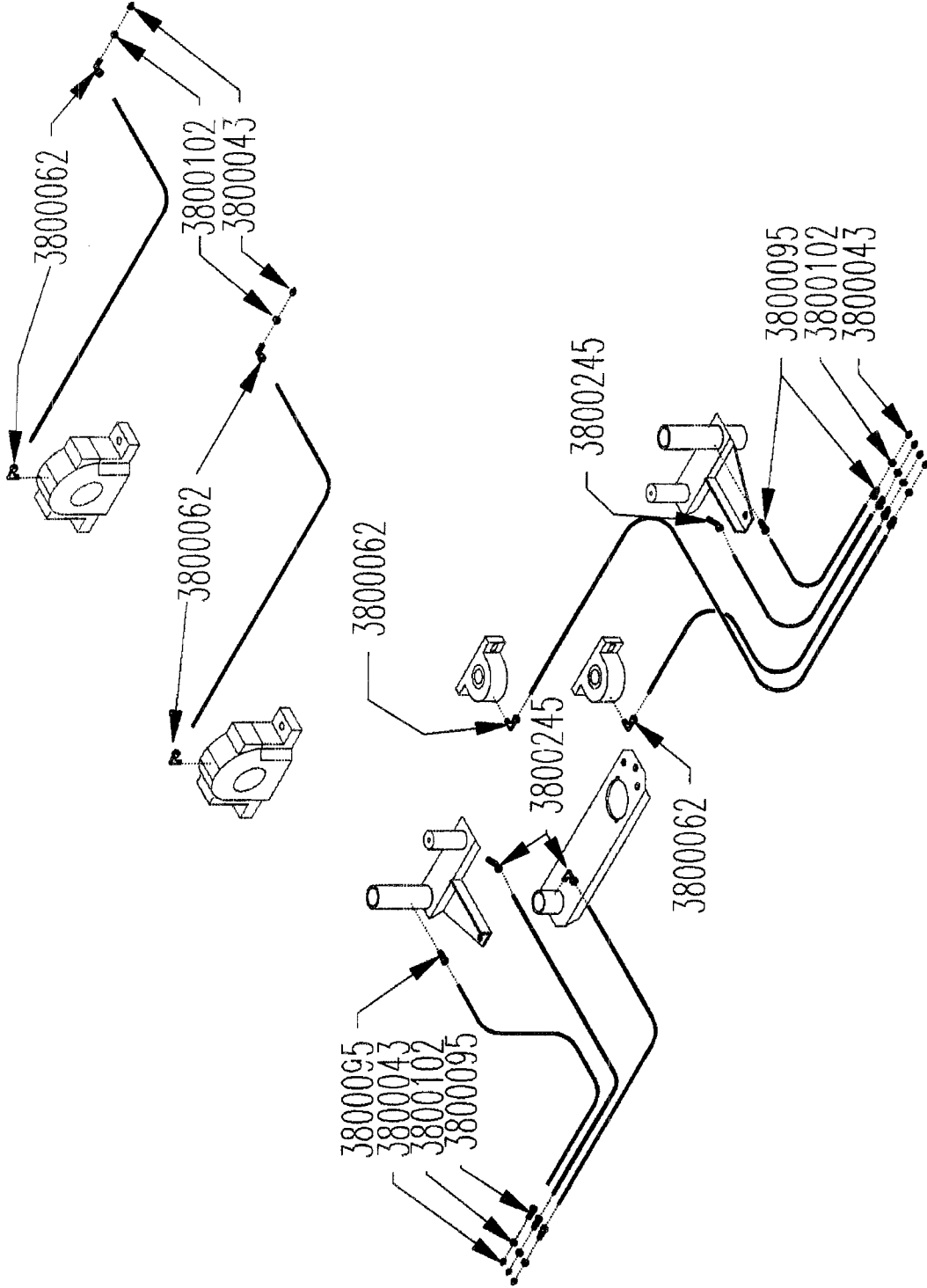
ELECTRICAL ASSEMBLY



ELECTRICAL ASSEMBLY

<u>PARTS #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
4500916		ELEC\ASSY\SUB
4500921	1	CBL\BATT\2\0X122"\BLK
4500922	1	CBL\BATT\2\0X123"\RED
4500925	1	CBL\BARR\2\0X21"\BLK
5700002	2	BATT\12VDC\8D1150
5700008	73.33 FT	CBCORD\14 GA\6CONDAFT
5700033	1	TERM\MALE\6POLE\TRLR\PLUG
5700034	1	ENCL\JCT\7POLE\TRLR\HARN
5700037	2	LAMP\CL\12VDC\RED
5700038	2	LAMP\CL\12VDC\AMBER
5700047	18.17 FT	WIRE\STRAND\14 GA\BRN
5700200	2	LAMP\CL\12VDC\2-1/2 RD
5700201	2	LAMP\TAIL\4-1/2\COMP\RED
5700202	2	LAMP\GRMMT\2-1/2\KIT

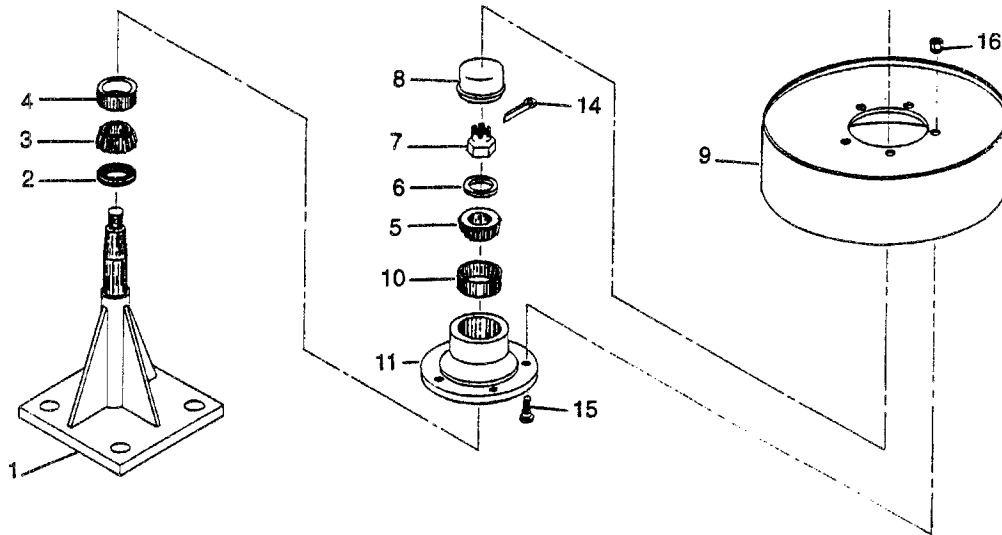
GREASELINE LUBE ASSEMBLY



GREASELINE LUBE ASSEMBLY

<u>PART#</u>	<u>QTY</u>	<u>DESCRIPTION</u>
4500923		LUBE\GRSLN\ASSY\SUB
3700142	20	HOSE\LUB\1/4FT\NYL
3800043	9	FTG\LUB\1/8MPXZRK\SHORT
3800062	6	FTG\LUB\1/4COMPX1/8MP\90D
3800095	9	FTG\LUB\1/4COMPX1/8MP\
3800102	9	FTG\1/8FP\CPLG\LW
3800245	2	FTG\1/4COMPX1/8FP\45D

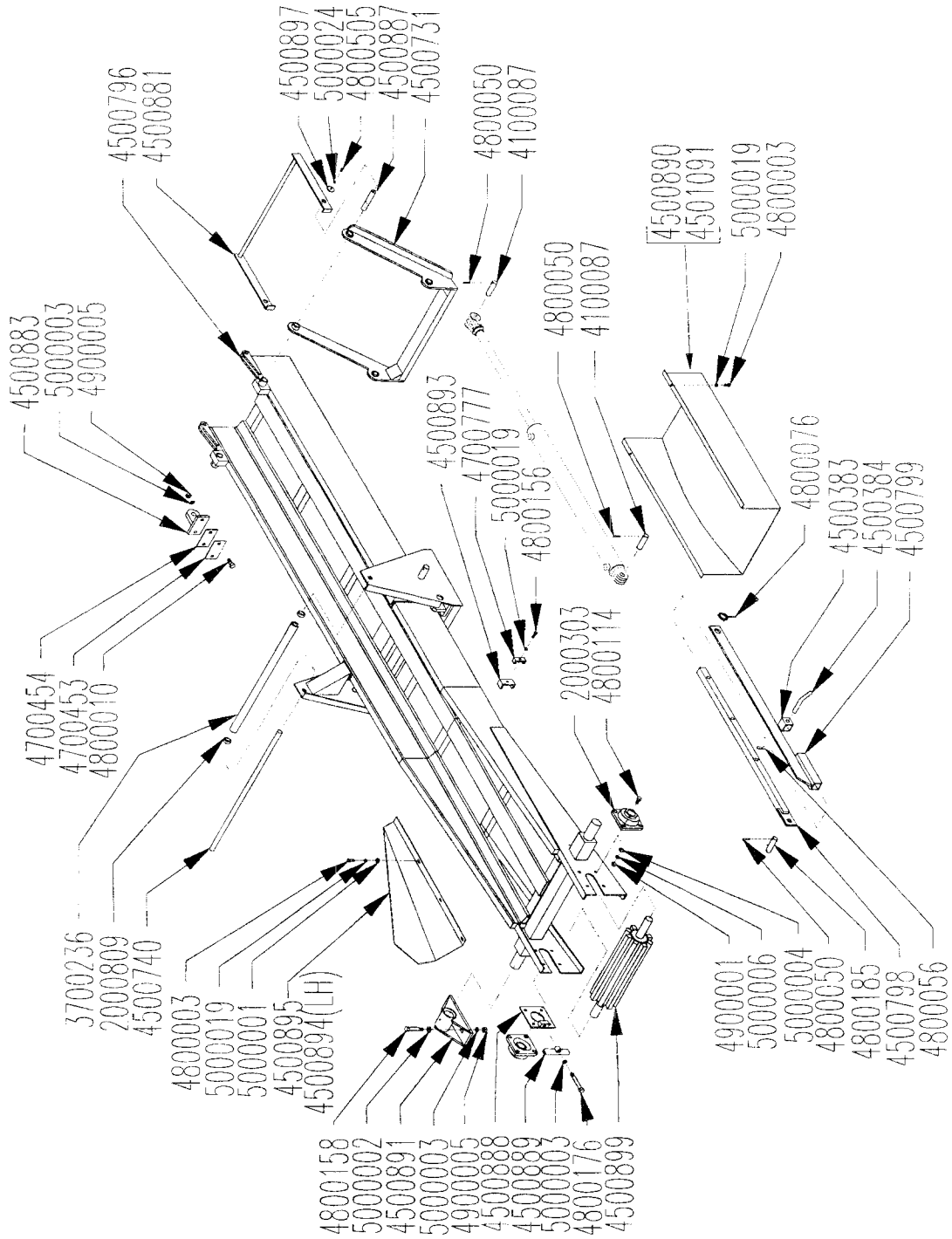
PRESSURE ROLLER



PRESSURE ROLLER

<u>ITEM</u>	<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
1	1200010	1	SINGLE STAND 10" SPLINDLE
2	2900055	1	SEAL
3	2900018	1	INNER CONE
4	2900004	1	INNER CUP
5	2900061	1	OUTER CONE
6	5000094	1	5/8" WASHER\SPINDLE
7	4900112	1	NUT\SLOT\5/8\NF
8	2900064	1	DUST CAP
9	4500088	1	PRESSURE DRUM
10	2900056	1	OUTER CUP
11	2900057	1	HUB
12	3000025	1	PRESSURE ROLLER SPINDLE 10"
13	4500247	1	PRESSURE ROLLER COMPLETE 10" SPINDLE
14	4800172	1	1/8" X 2" COTTER PIN
15	2900010	5	1/2" NF X 1-1/4" WHEEL STUD BOLT
16	4900094	5	1/2" NF WHEEL BOLT 13/16" O.D.

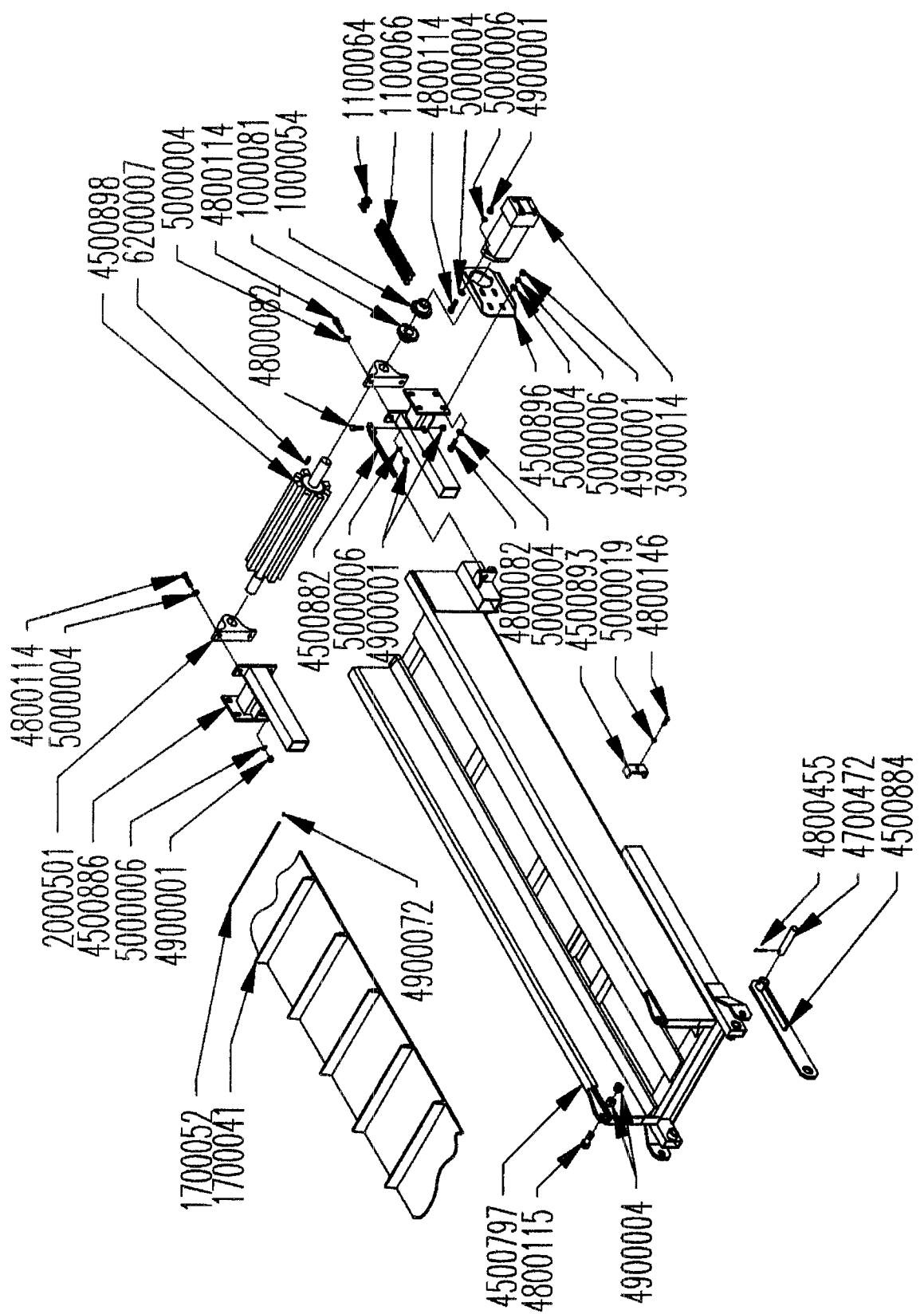
OPTION: LOWER DISCHARGE CONVEYOR-26 FT



OPTION: LOWER DISCHARGE CONVEYOR- 26FT

<u>PART#</u>	<u>QTY</u>	<u>DESCRIPTION</u>
4500917		LOWER DISCHARGE CONVEYOR SUB
2000303	2	BRG\FLG\1-1/2\4-BOLT
2000809	2	CLLR\SHAFT\1\SET
3700236	1	HOSE\HYD\1X31
4100087	10	1X3-1/2 CYL PIN STD.
4500383	2	LATCH\CNVYR\SAFETY
4500384	2	PIN\CNVYR\SAFETY;BAR
4500731	1	ARM\CNTRL\CNVYR\FOLD
4500740	1	SHAFT\SUPPORT\LOW;DISCHARGE
4500796	1	FRM\CNVYR\DISCH\LOWER
4500798	2	BRKT\CNVYR\SAFETY;BAR
4500799	2	GUIDE\CNVYR\SAFETY;BAR
4500881	1	TGHTNER\BELT\CNVYR
4500883	2	ANCHOR\CYL\HYD
4500887	2	PIN\CNVYR\ARM\CNTRL
4500888	1	BRKT\ADJ\TRCKG\CNVYR\DISCH
4500889	1	HOOK\ROD\TGHTR\BELT\CNVYR
4500890	1	GUIDE\CNVYR\BELT\BTM
4500891	2	MNT\CNVYR\FRM\MN
4700077	3	CLAMP\HOSE\CNVYR\DISCH
4500893	4	CLAMP\HOSE\CNVYR\DISCH
4500894	1	GUIDE\MATL\CNVYR\DISCH\LH
4500895	1	GUIDE\MATL\CNVYR\DISCH\RH
4500897	2	RETAINER\GUIDE\BELT\SLUG
4500899	1	RLLR\IDLER\CNVYR\DISCH
4700453	2	14 GA HYD CYL SHIM
4700454	2	10 GA HYD CYL SHIM
4800003	10	BOLT\HEX=3/8X1
4800010	4	BOLT\HEX\5/8X2
4800050	24	PIN\COT\3/16X1-1/2
4800056	2	PIN\HAIR\3/16X3 (#6)
4800076	2	PIN\KLIK\5/16
4800100	1	BOLT\HEX\5/8X4
4800114	8	BOLT\HEX\1/2X2
4800156	4	BOLT\HEX\3/8X3
4800158	4	BOLT\HEX\5/8X4-1/2
4800185	2	PIN\CLEVIS\1X3
4800505	2	BOLT\HEX\1/4X1-1/2\NC
4900001	8	NUT\HEX\1/2\NC
4900005	8	NUT\HEX\5/8\NC
5000001	6	WASH\FLAT\3/8
5000002	4	WASH\FLAT\5/8
5000003	9	WASH\LOCK\5/8
5000004	8	WASH\FLAT\1/2
5000006	8	WASH\LOCK\1/2
5000019	14	WASH\LOCK\3/8
5000024	2	WASH\LOCK\1/4

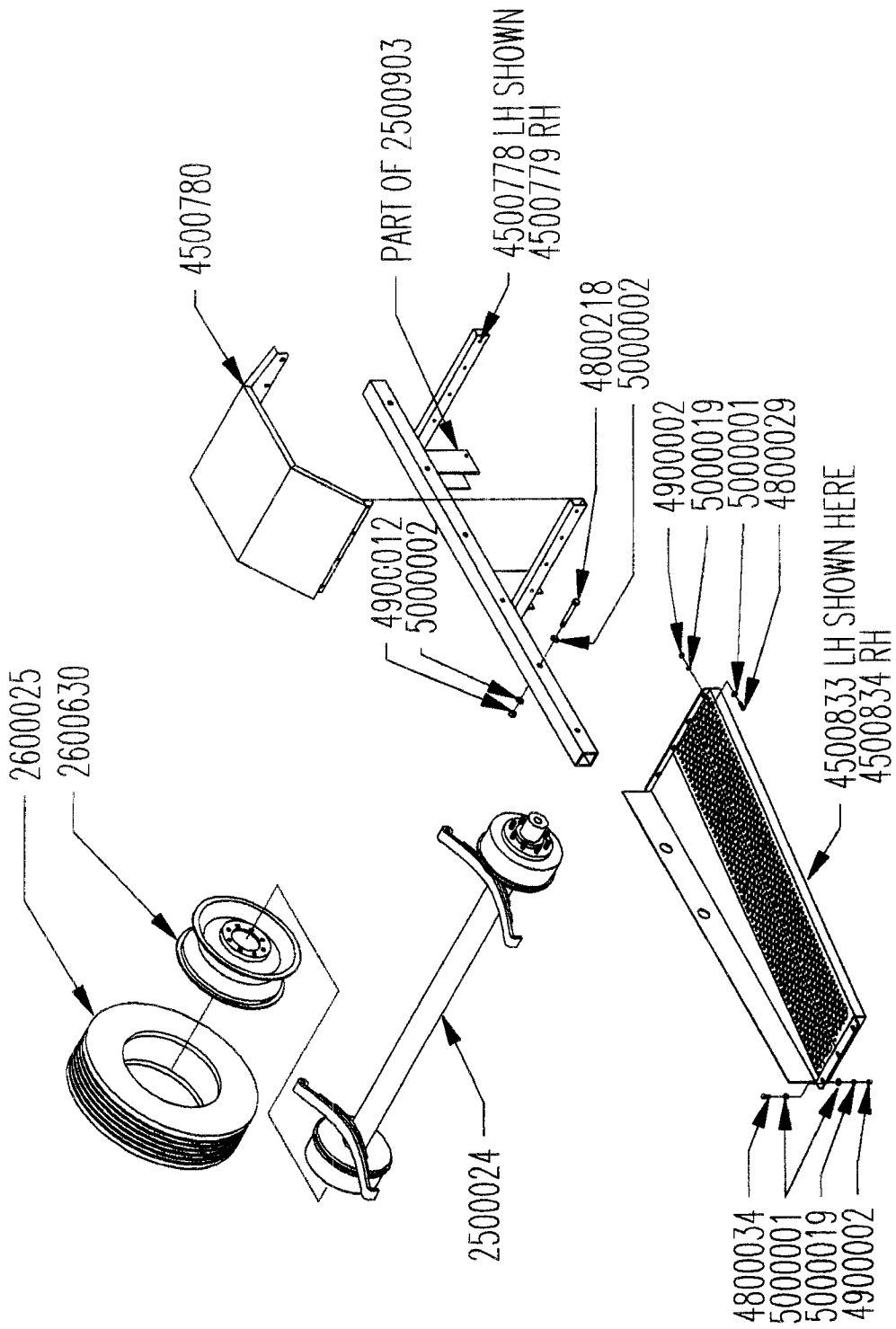
OPTION: UPPER DISCHARGE CONVEYOR 26 FT



OPTION: UPPER DISCHARGE CONVEYOR-26 FT

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
4500918		UPPER DISCHARGE CONVEYOR
1000054	1	SPKT\60\18\1-1/4\5/16KW
1000081	1	SPKT\60\18\1-1/2\3/8KW
1100064	1	CHAIN\60DBL\CL
1100066	1	CHAIN\60DBL\17
1700041	1	BELT\CNVYR\18X52' (624")
1700052	1	LCNG\CBL\1/8X1\NYL
1700055	2	LCNG\#125\18\W\STPLS
2000501	2	BRG\PB\1-1/2\2-BOLT
4500797	1	FRM\CNVYR\DISCH\UPPER\26'
4500882	2	ROD\ADJRLLR\CNVYR\DISCH
4500884	2	LINK\LIFT\ARM\CNTRL
4500886	2	MNT\BRG\CNVYR\DISCH
4500893	3	CLAMP\HOSE\CNVYR\DISCH
4500896	1	MNT\MTR\ORBIT\CNVYR\DISCH
4500898	1	RLLR\DRIVE\CNVYR\DISCH
4700472	2	1X5.25\PIN CONT ARM MT
4800082	6	BOLT\HEX\1/2X1-1/2
4800114	6	BOLT\HEX\1/2X2
4800115	2	BOLT\HEX\3/4X2-1/2
4800146	3	BOLT\HEX\3/8X2
4800455	2	PIN\RLLD\1/4X1-1/2
4900001	10	NUT\HEX\1/2\NC
4900004	4	NUT\HEX\3/4\NC
4900072	2	NUT\HEX\#10\NC
5000004	14	WASH\FLAT\1/2
5000006	10	WASH\LOCK\1/2
5000019	3	WASH\LOCK\3/8
6200007	1	KEY\SQ\3/8X1-1/2

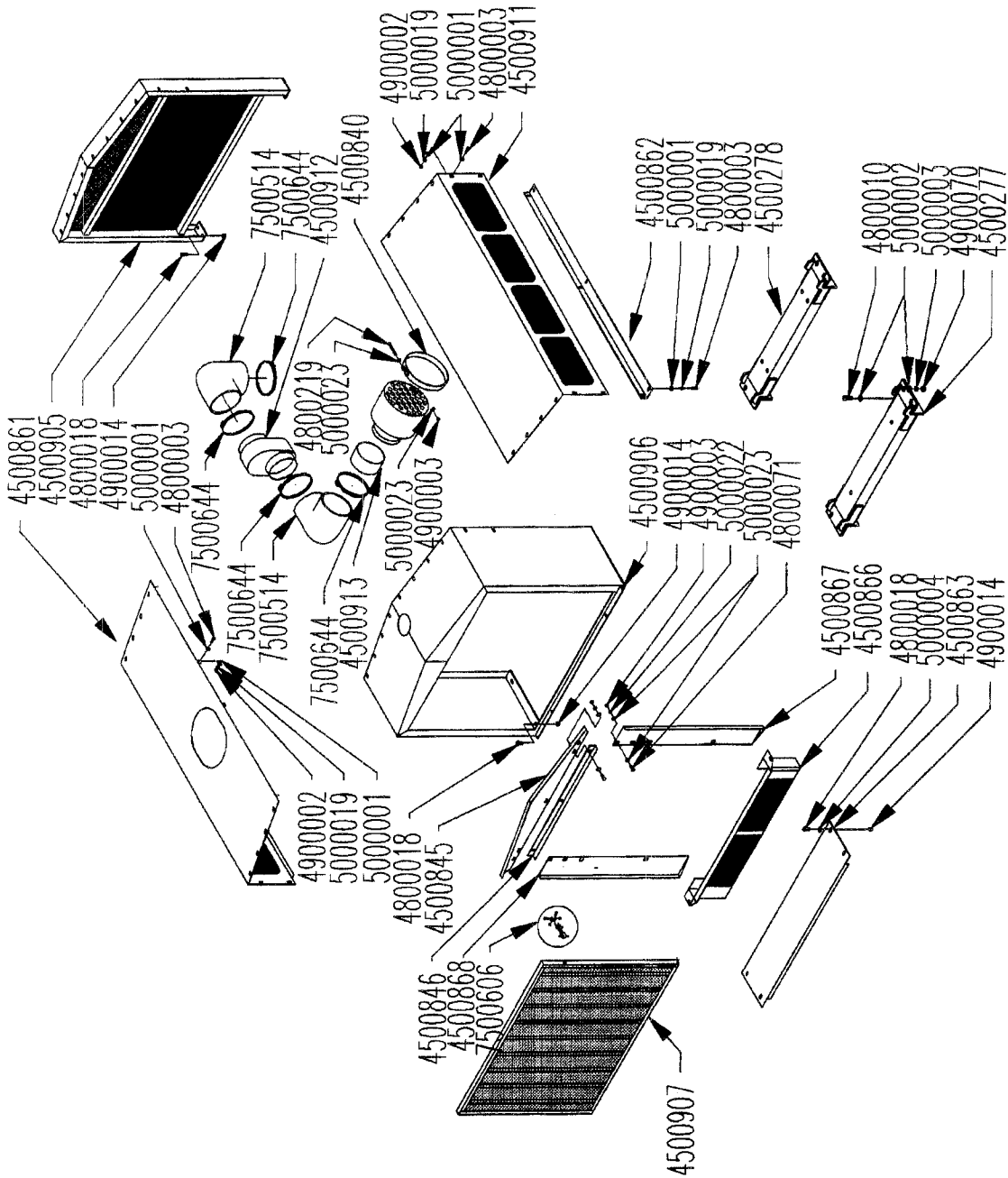
OPTION: SINGLE AXLE ASSEMBLY



OPTION: SINGLE AXLE ASSEMBLY

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
4500832		OPTN\SINGLE AXLE SUB ASEMBLY
2500024	1	AXLE\COMP\15K\ELEC\74X46
2600025	4	TIRE\9RX17.5G\14PLY
2500026	2	BOLT\U\15K AXLE 6.75X10.5
2500911		SPRNG\LEAF\7 LEAVES\15K
2500946		SPRNG\LEAF\6 LEAVES\15K
2600630	4	17.5X6.75 HC DUAL
4500778	1	FRM\AXLE\SNGL\LH\BLTD\15K
4500779	1	FRM\AXLE\SNGL\RH\BLTD\15K
4500780	2	FNDR\AXLE\SNGL\15K
4500833	1	STEP\FRM\LH\FNDR\SNGL
4500834	1	STEP\FRM\LH\FNDR\SNGL
4800029	16	BOLT\HEX\3/8X2-1/2
4800034	6	BOLT\HEX\3/8X1-1/2
4800218	12	BOLT\HEX\5/8X5-1/2
4900002	22	NUT\HEX\3/8\NC
4900012	12	NUT\TPLCK\5/8\NC
5000001	28	WASH\FLAT\3/8
5000002	24	WASH\FLAT\5/8
5000019	22	WASH\LOCK\3/8

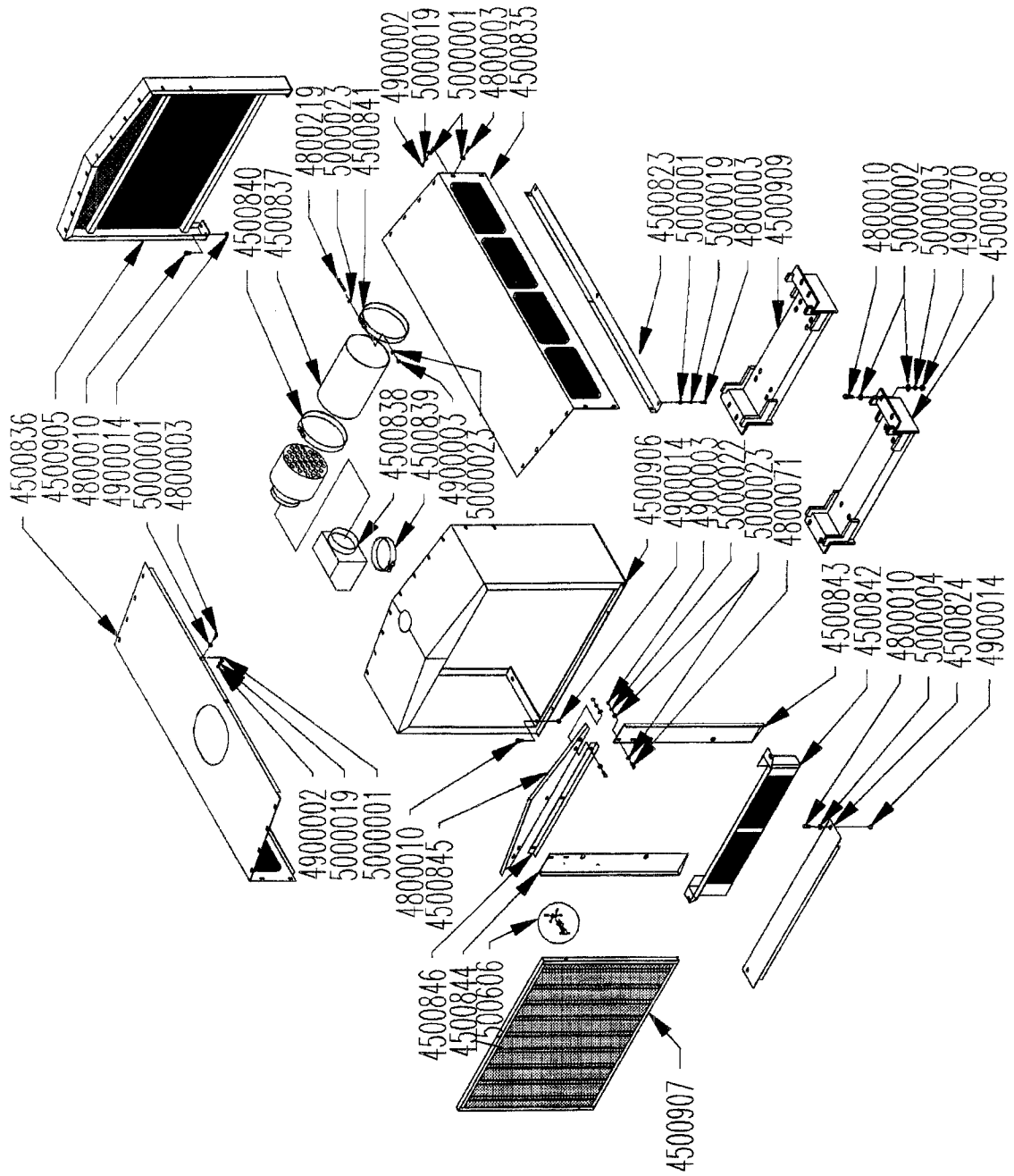
OPTION: ENGINE 3306 CAT



OPTION: ENGINE 3306 CAT

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
4500919		OPTN\ENG\GRNDR\3306
0900005	1	ENG\CAT\3306\300HP\W/ROD
4500277	1	FRONT CAT ENG MOTOR MOUNT
4500278	1	REAR CAT ENG MOTOR MOUNT
4500840	1	CLAMP\ASPIRATOR\CAT-3406
4500845	1	SEAL\RAD\TOP\CAT3406;3306
4500846	1	SEAL\RAD\REAR\TOP\CAT
4500861	1	CVR\ENG\RH\CAT-3306
4500862	1	CVR\INTAKE\AIR\BTM\CAT
4500863	1	CVR\FRAME\FRONT\CAT-3306
4500866	1	SEAL\RAD\LOWER\CAT-3306
4500867	1	SEAL\RAD\SIDE\LH\CAT-3306
4500868	1	SEAL\RAD\SIDE\RH\CAT CAT-3306
4500906	1	FRAME\SHROUD\RAD\FRONT
4500907	1	GRILLE\SHROUD\RAD\FRONT
4500911	1	CVR\ENG\LH\CAT-3306
4500912	1	ELBOW\INTAKE\AIR\CAT-3306
4500913	1	TUBE\INTAKE\AIR\CAT-3306
4800003	32	BOLT\HEX\3/8X1
4800010	8	BOLT\HEX\5/8X2
4800018	12	BOLT\HEX\1/2X1-1/4
4800071	11	BOLT\HEX\5/16X1-1/4
4800219	1	BOLT\HEX\5/16X4
4800905	1	FRAME\SHROUD\RAD\REAR;
4900002	26	NUT\HEX\3/8\NC
4900003	12	NUT\HEX\5/16\NC
4900014	12	NUT\PLCK\1/2\NC\500"MAX
4900070	8	NUT\HEX\5/8\GR8\NC
5000001	58	WASH\FLAT\3/8
5000002	16	WASH\FLAT\5/8
5000003	8	WASH\LOCK\5/8
5000004	4	WASH\FLAT\1/2
5000019	32	WASH\LOCK\3/8
5000022	11	WASH\LOCK\5/16
5000023	24	WASH\FLAT\5/16
7500514	2	7" 90 RUBBER STREET ELB
7500644	4	CLAMP\HOSE\7

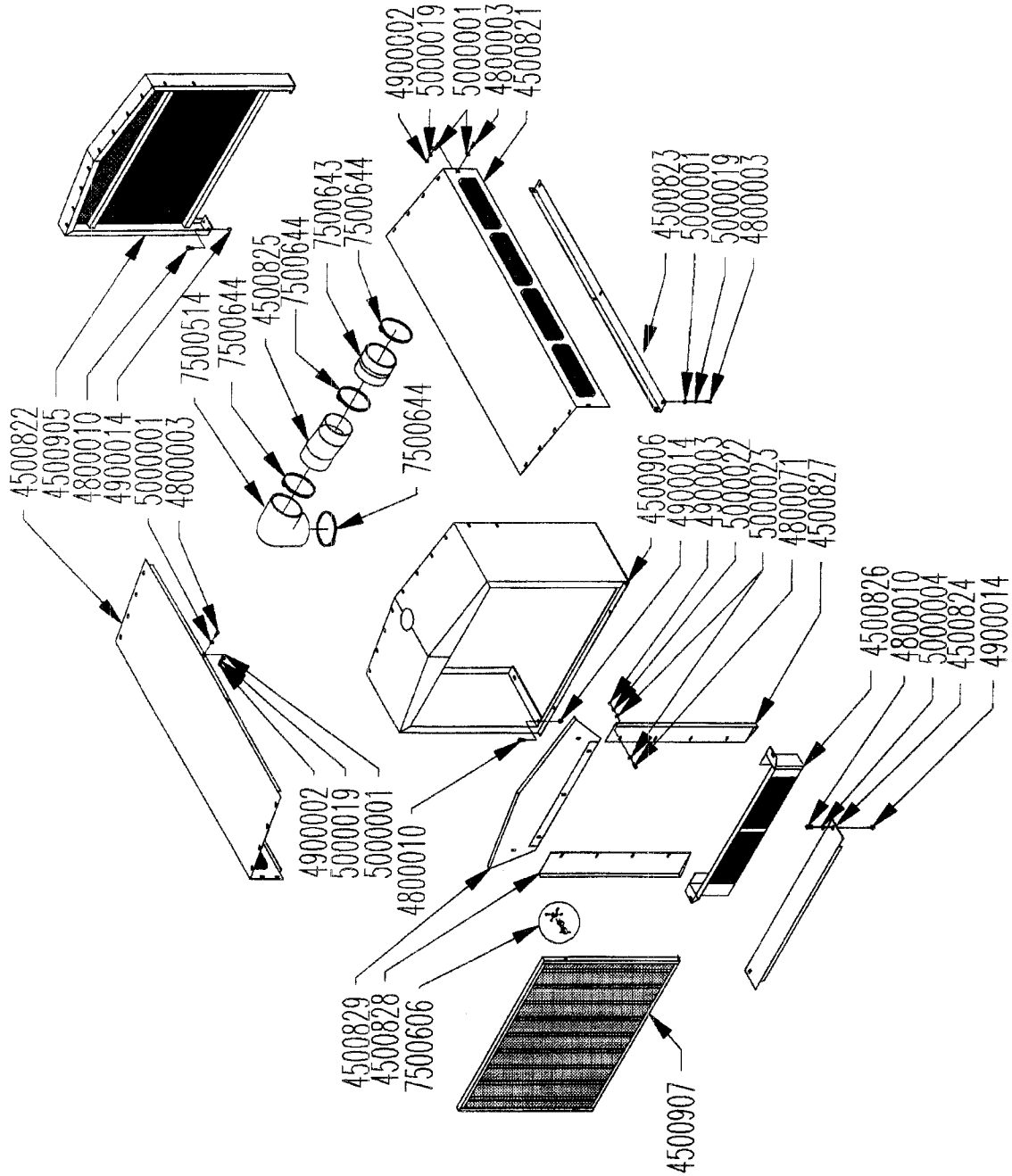
OPTION: ENGINE 3406 CAT



OPTION: ENGINE 3406 CAT

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
4500904		OPTN\ENG\3406\CAT
0900010	1	ENG\CAT\3406\400 HP
4500823	1	CVR\INTAKE\AIR\BTM\CAT
4500824	1	CVR\FRM\FRONT\CAT-3406
4500835	1	CVR\ENG\LH\CAT-3406
4500836	1	CVR\ENG\RH\CAT-3406
4500837	1	TUBE\INTAKE\AIR\CAT-3406
4500838	1	ELBOW\INTAKE\AIR\CAT-3406
4500839	1	CLAMP\ELBOW\INTAKE\AIR\CAT-3406
4500840	1	CLAMP\ASPIRATOR\CAT-3406
4500841	1	CLAMP\TUBE\INTAKE\AIR\CAT-3406
4500842	1	SEAL\RAD\LOWER\CAT-3406
4500843	1	SEAL\RAD\SIDE\LH\CAT-3406
4500844	1	SEAL\RAD\SIDE\RH\CAT-3406
4500845	1	SEAL\RAD\TOP\CAT-3406,3306
4500846	1	SEAL\RAD\REAR\TOP\CAT-3406
4500905	1	FRAME\SHROUD\RAD\REAR
4500906	1	FRAME\SHROUD\RAD\FRONT
4500907	1	GRILLE\SHROUD\FRONT
4500908	1	BRKT\ENG\FRONT\3406
4500909	1	BRKT\ENG\REAR\3406
4800003	32	BOLT\HEX\3/8X1
4800010	18	BOLT\HEX\5/8X2
4800071	11	BOLT\HEX\5/16X1-1/4
4800219	3	BOLT\HEX\5/16X4
4900002	26	NUT\HEX\3/8\NC
4900003	14	NUHEX\5/16\NC
4900014	10	NUT\TPLCK\1/2\NC\500 MAX
4900070	8	NUT\HEX\5/8\GR8\NC
5000001	58	WASH\FLAT\3/8
5000002	16	WASH\FLAT\5/8
5000003	8	WASH\LOCK\5/8
5000004	2	WASH\FLAT\1/2
5000019	32	WASH\LOCK\3/8
5000022	11	WASH\LOCK\5/16
5000023	28	WASH\FLAT\5/16
7500606	2	LATCH\35-M\AUSTIN

OPTION: ENGINE CUMMINS N-14



OPTION: ENGINE CUMMINS N-14

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
4500910		OPTN\ENG\GRDR\CUMMINS\N14
0900065	1	ENG\CUMMINS\N-14\425HP
4500821	1	CVR\ENG\LH\CUMMINS\N-14
4500822	1	CVR\ENG\RH\CUMMINS\N-14
4500823	1	CVR\INTAKE\AIR\BTM\CAT
4500824	1	CVR\FRM\FRONT\CAT-3406
4500825	1	TUBE\INTAKE\AIR\CUMMINS
4500826	1	SEAL\RAD\LOWER\CUMMINS
4500827	1	SEAL\RAD\SIDE\LH\CUMMINS
4500828	1	SEAL\RAD\SIDE\RH\CUMMINS
4500829	1	SEAL\RAD\TOP\CUMMINS
4500905	1	FRAME\SHROUD\RAD\REAR
4500906	1	FRAME\SHROUD\RAD\FRONT
4500907	1	GRILLE\SHROUD\RAD\FRONT
4800003	28	BOLT\HEX\3/8X1
4800010	10	BOLT\HEX\5/8X2
4800071	11	BOLT\HEX\5/16X1-1/4
4900002	22	NUT\HEX\3/8\NC
4900003	11	NUT\HEX\5/16\NC
4900014	10	NUT\TPLCK\1/2\NC\500 MAX
5000001	50	WASH\FLAT\3/8
5000004	2	WASH\FLAT\1/2
5000019	28	WASH\LOCK\3/8
5000022	11	WASH\LOCK\5/16
5000023	11	WASH\FLAT\5/16
7500514	1	7" 90 RUBBER STREET ELBOW
7500606	2	LATCH\35-M\ AUSTIN
7500643	1	FTG\RUBBER\7\STRAIGHTHUMP
7500644	4	CLAMP\HOSE\7

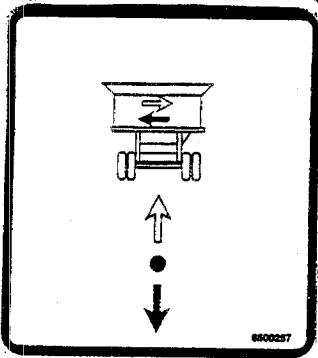
H-1100E DECALS

H-1100E HAYBUSTER

6500148

8500148

6500020



6500257



6500044



6500102

	⚠ DANGER	⚠ PELIGRO
	ROTATING PART HAZARD STAY OUT OF TUB WHEN ENGINE IS RUNNING 1. HOLD ENGINE AWAY 2. PLACE ALL CONTROLS IN NEUTRAL, STOP ENGINE, REMOVE KEY, AND WAIT FOR ALL MOVING PARTS TO STOP BEFORE SERVICING, ADJUSTING, REPAIRING, MAINTAINING, OR SERVICING THE TUB FOR ANY REASON. 3. DISCONNECT BATTERY ON PTO DRIVEN MODELS.	PELIGRO DE PARTE GIRATORIA PERMANEZCA FUERA DE LA CUBA CUANDO EL MOTOR ESTÁ EN FUNCIONAMIENTO 1. MANTENGA ALLEJADO A OTRAS PERSONAS 2. DETENER TODOS LOS CONTROLES EN NEUTRO, APAGAR EL MOTOR, QUITAR LA LLAVE Y ESPERE A QUE TODAS LAS PARTES EN MOVIMIENTO SE DETENGAN ANTES DE PROCESAR AL SERVICIO, AJUSTE, REPARACION, MANTENIMIENTO O AL SERVICIO A LA CUBA POR CUALQUIER RAZON. 3. DESCONECTE EL BATERIA EN LOS MODELOS ALIMENTADOS POR TORNO DE MOTOR.

6500212

⚠ WARNING

HIGH-PRESSURE FLUID HAZARD

To prevent serious injury or death:

- 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.

6500220

⚠ CAUTION	⚠ PRECAUCION
INSERT TRANSPORT LOCKS BEFORE MOVING ON ROADS	ANTES DE DESPLAZARSE EN LA RUTA INSERTE LOS SEGUROS DE TRANSPORTE

6500112



6500253

	⚠ WARNING	⚠ ADVERTENCIA
	OVERHEAD CONVEYOR HAZARD To prevent serious injury or death: Do not walk under conveyor at any time. Stay clear of conveyor during loading operations. Check that transport locks are fully engaged before transporting on roads or servicing. Keep others away.	PELIGRO DE CINTA TRANSPORTADORA ELEVADA No caminear por debajo de la cinta transportadora en ningún momento. Permanezca alejado de la cinta transportadora durante las operaciones de carga. Verifique que todos los trabaos de transporte estén completamente involucrados antes de proceder al transporte por caminos o al servicio. Mantenga alejados a otras personas.

6500215

	⚠ WARNING	⚠ ADVERTENCIA
	OVERHEAD CONVEYOR HAZARD Do not walk under conveyor at any time. Stay clear of conveyor during operation, raising, and lowering. Leave conveyor fully before servicing. Keep others away.	PELIGRO DE CINTA TRANSPORTADORA ELEVADA No caminear por debajo de la cinta transportadora en ningún momento. Permanezca alejado de la cinta transportadora durante el funcionamiento de la cinta y la bajada. Deje completamente la cinta transportadora antes de proceder al servicio. Mantenga alejados a otras personas.

6500214

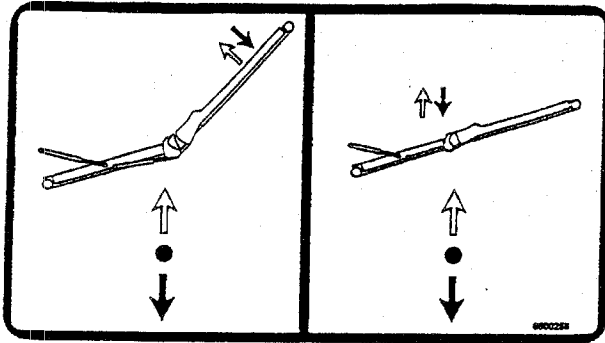


6500056

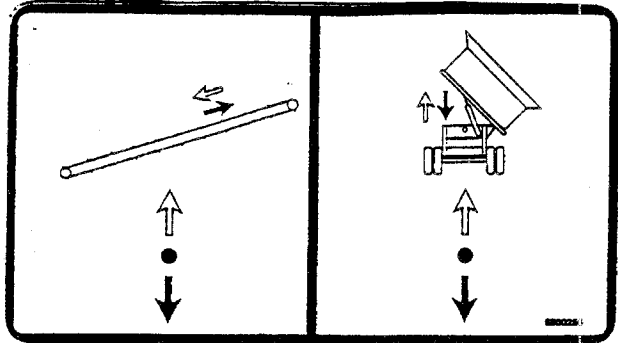
H-1100E DECALS

<u>PART NO.</u>	<u>QTY</u>	<u>DESCRIPTION</u>
6500020	2	Haybuster W/Sunburst
6500039	1	Serial # Decal
6500041	1	For Your Protection
6500043	1	No Riders
6500044	2	Big Bite (Red)
6500056	2	Rotation
6500102	27 Ft.	Stripe (Red)
6500112	2	Transport Locks
6500118	1	Danger : Objects Thrown
6500121	1	Clutch
6500123	2	Diesel Fuel
6500124	2	Hydraulic Oil
6500148	2	H1100E
6500209	1	Warning: Thrown Object Hazard
6500212	1	Rotating Parts Hazard
6500214	1	Overhead Conveyor Hazard
6500215	1	Overhead Conveyor Hazard
6500216	1	Warning: Electrical Hazard
6500220	2	Warning: High Pressure Hazard
6500253	2	Oil Level
6500255	1	Conveyor Up/Down (Picture Only)
6500256	1	Conveyor Belt Rotation\Tub Up/Down(Picture Only)
6500257	1	Tub Rotation (Picture Only)
6500258	1	Conveyor Up/Down (Picture Only)

H1100-E DECALS



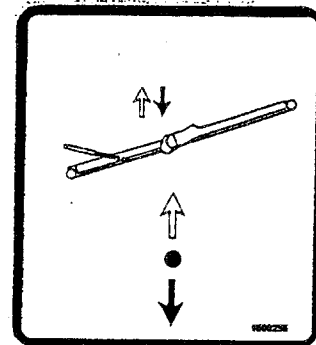
6500258



6500256

⚠ WARNING	⚠ ADVERTENCIA
<p>FOR YOUR PROTECTION AND PROTECTION OF OTHERS, PRACTICE THE FOLLOWING SAFETY RULES.</p> <ol style="list-style-type: none"> BEFORE OPERATING THIS MACHINE, READ THE OPERATOR'S MANUALS SUPPLIED WITH THIS MACHINE AND YOUR TRACTOR. CHECK OPERATOR'S MANUALS TO BE SURE YOUR TRACTOR MEETS THE MINIMUM REQUIREMENTS FOR THIS MACHINE. READ ALL DECALS PLACED ON THIS MACHINE FOR YOUR SAFETY AND CONVENIENCE. NEVER ALLOW RIDERS ON THE IMPLEMENT OR THE TRACTOR. KEEP OTHERS AWAY FROM THIS MACHINE WHILE IN OPERATION. KEEP ALL SHIELDS IN PLACE WHILE MACHINE IS OPERATING. KEEP HANDS, FEET, LOOSE CLOTHING, ETC., AWAY FROM POWER DRIVEN PARTS. ALWAYS SHUT OFF MACHINE AND ENGINE BEFORE SERVICING, UNLOADING, INSPECTING, OR WORKING NEAR THIS MACHINE FOR ANY REASON. ALWAYS PLACE TRANSMISSION IN PARK OR SET PARK BRAKE AND WAIT FOR ALL MOVEMENT TO STOP BEFORE APPROACHING THIS MACHINE. 	<p>SIGA LAS REGLAS SIGUIENTES DE SEGURIDAD PARA SU PROTECCION Y LA PROTECCION DE OTROS</p> <ol style="list-style-type: none"> LEA LOS MANUALES DEL OPERADOR INCLUIDOS CON ESTA MAQUINA Y SU TRACTOR ANTES DE OPERAR ESTA MAQUINA. PARA ASEGURARSE QUE SU TRACTOR CUMPLE CON LOS REQUISITOS MÍNIMOS PARA ESTA MAQUINA, REVISE LOS MANUALES DEL OPERADOR. PARA SU SEGURIDAD Y CONVENIENCIA, LEA TODAS LAS CALCOMANIAS COLOCADAS EN LA MAQUINA. NINGUNA PERMITA PASAJEROS EN ESTA MAQUINA O EN EL TRACTOR. MANTEGA ALEJADOS A LOS ESPECTADORES MIENTRAS ESTA MAQUINA ESTE OPERANDO. MANTEGNA TODOS LOS PROTECTORES EN SU LUGAR MIENTRAS LA MAQUINA ESTE OPERANDO. MANTEGNA LAS MANOS, PIES, ROPAS SUELTAS, ETC., ALEJADAS DE LAS PIEZAS PROPULSADAS. SIEMPRE APAGUE LA MAQUINA Y EL MOTOR ANTES DE PRESTAR SERVICIO, DESMONTAR, REPARACIONES O TRABAJAR CERCA DE ESTA MAQUINA POR CUALQUIER MOTIVO, ANTES DE ACERCARSE A ESTA MAQUINA CUALQUIER TRANSMISION EN ESTACIONAMIENTO O ENGANCHE EL PRIMO DE ESTACIONAMIENTO.

6500041



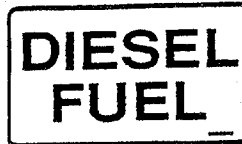
6500255

<p>IMPORTANT</p> <p>DO NOT ENGAGE CLUTCH AT HIGH ENGINE RPM BEFORE STARTING ENGINE. CYLINDER BOX SHOULD BE CLEARED OF ALL MATERIAL. SET ENGINE AT APPROXIMATELY 1000 RPM. PULL FIRMLY ON LEVER WHEN ENGAGING CLUTCH TO PREVENT EXCESSIVE SLIPPAGE. CHECK PERIODICALLY FOR PROPER ADJUSTMENT ACCORDING TO SPEC. PLATE ON CLUTCH HOUSING.</p> <p>ADJUSTMENT</p> <p>CLUTCH If the clutch does not pull, overheat, or the clutch operating lever jerks out, the clutch must be adjusted. To adjust the clutch, remove the hand ball plate in the housing and rotate the adjuster until the adjusting nut center nut is released. Remove or disengage the adjustment ring lock.</p> <p>HE CLUTCH Turn the adjusting ring counter clockwise to obtain recommended operating lever pressure.</p> <p>HD CLUTCH Turn the adjusting ring clockwise to obtain recommended operating lever pressure.</p> <p style="text-align: right;">6500121</p>	
<p>A new clutch generally requires several adjustments until the friction surfaces are worn in. Do not let a clutch slip as this will glaze the friction plates and may ruin them.</p> <p>DAMAGE DUE TO EXCESSIVE SLIPPING WILL NOT BE COVERED BY WARRANTY.</p>	

6500121



6500124



6500123

⚠ DANGER	
<p>OBJECTS THROWN BY MACHINE. DO NOT OPERATE WITHOUT WEARING SAFETY GLASSES AND A HARD HAT. KEEP UNAUTHORIZED PERSONNEL OUT OF THE GRINDING AREA!</p>	6500118

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

6500043

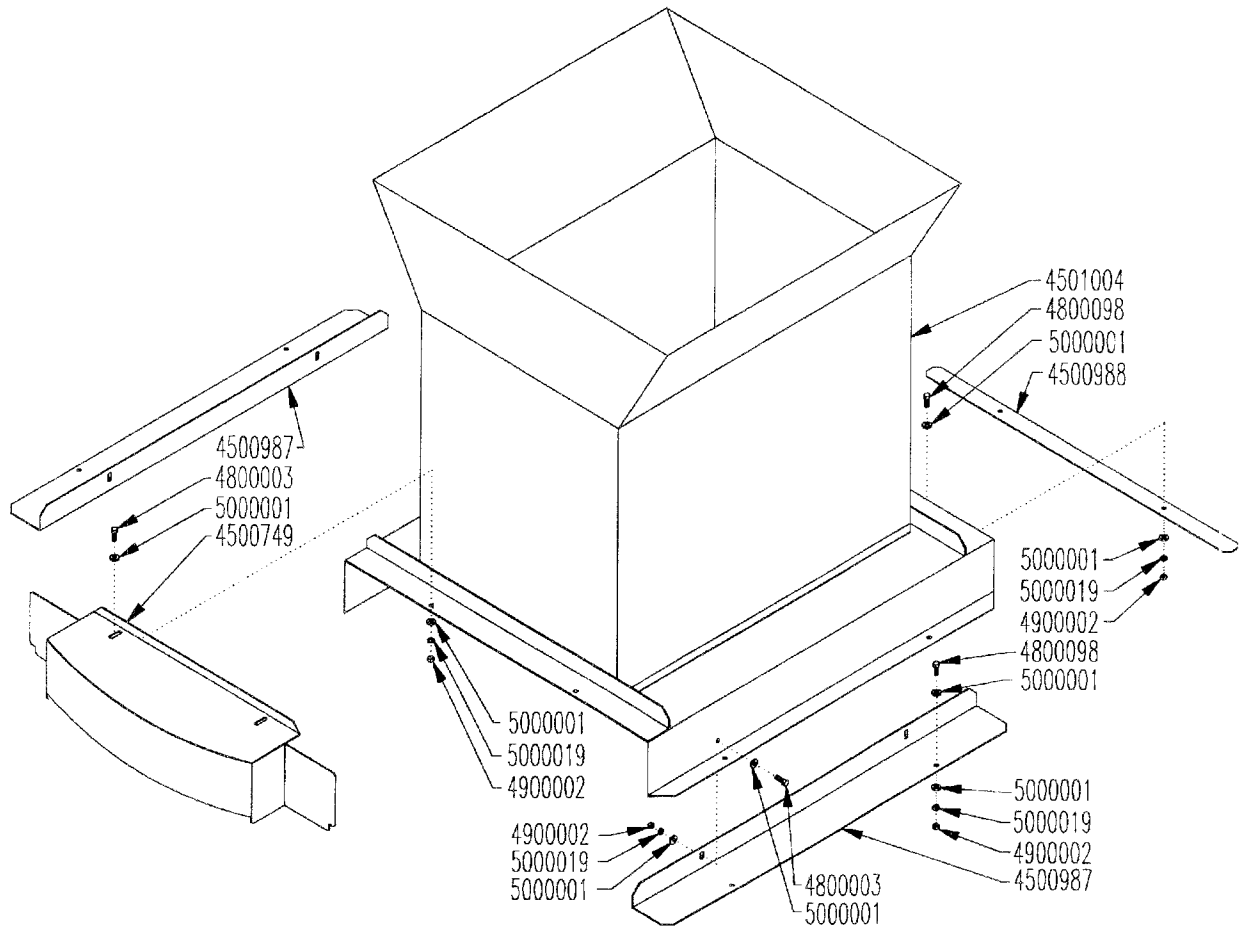
⚠ WARNING	⚠ ADVERTENCIA
<p>THROWN OBJECT HAZARD</p> <p>TO PREVENT PERSONAL INJURY OR DEATH, DO NOT STAND TOO CLOSE TO THE TRACTOR.</p> <ol style="list-style-type: none"> ALWAYS WEAR YOUR SEATBELT OR SAFETY BELT. DO NOT STAND TOO CLOSE TO THE TRACTOR OR IMPLEMENT. ALWAYS USE THE 30 FOOT SAFETY ZONE. NEVER STAND ON OR UNDER ANY PART OF THE TRACTOR OR IMPLEMENT. 	<p>PELIGRO DE OBJETOS DESPESIDOS</p> <p>PARA EVITAR LESIONES GRAVES O LA MUERTE, NO ESTE MUY CERCA DEL MOTOR O LA MAQUINA.</p> <ol style="list-style-type: none"> SIEMPRE USE SU CINTURÓN DE SEGURIDAD O SU CINTURÓN DE SEGURIDAD. NO ESTE MUY CERCA DEL TRACTOR O DEL IMPLEMENTO. SIEMPRE USE LA ZONA DE SEGURIDAD DE 30 PIES. NO ESTE SOBRE O BAJO CUALQUIER PARTE DEL TRACTOR O DEL IMPLEMENTO.

6500209

H-1100E DECALS

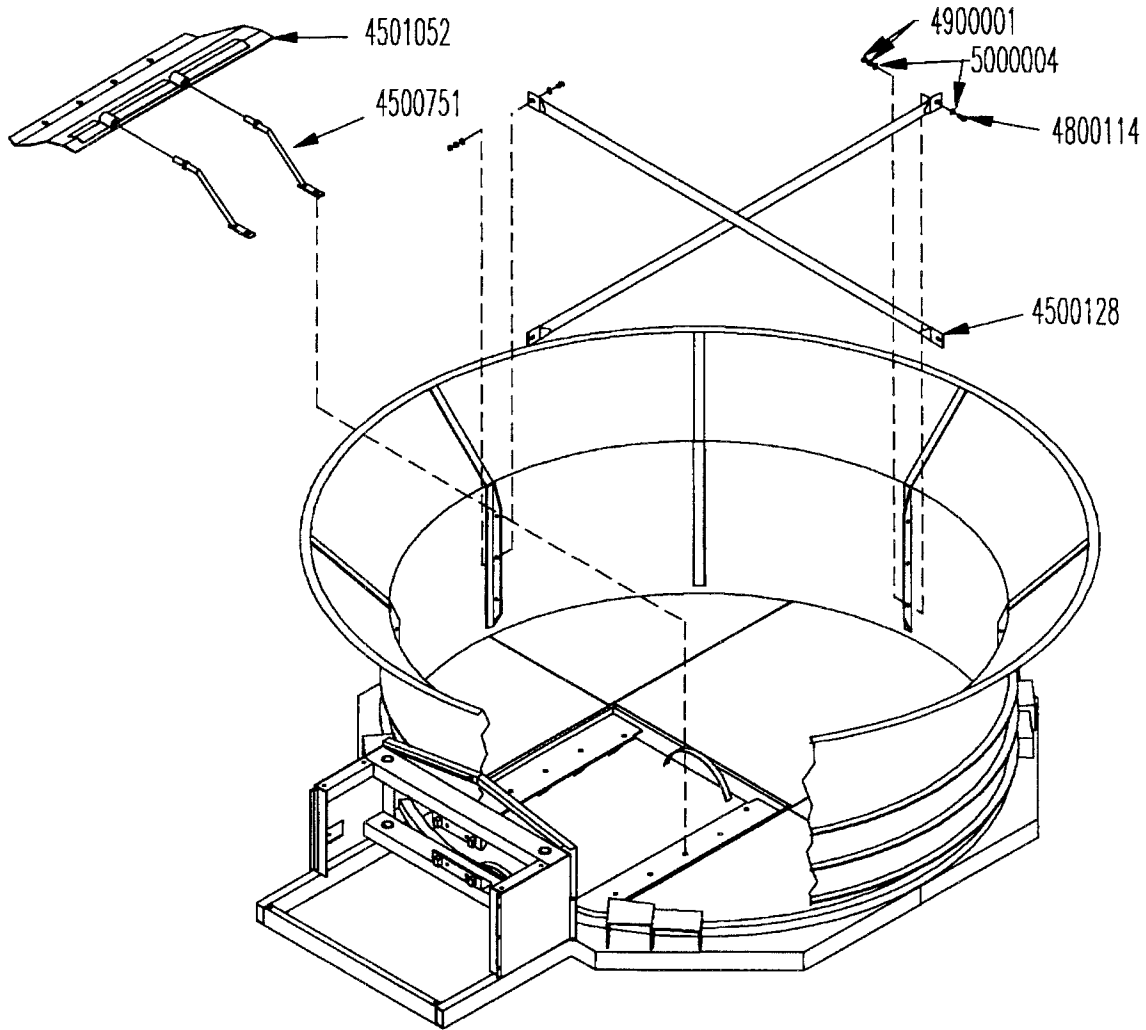
<u>PART NO.</u>	<u>QTY</u>	<u>DESCRIPTION</u>
6500020	2	Haybuster W/Sunburst
6500039	1	Serial # Decal
6500041	1	For Your Protection
6500043	1	No Riders
6500044	2	Big Bite (Red)
6500056	2	Rotation
6500102	27 Ft.	Stripe (Red)
6500112	2	Transport Locks
6500118	1	Danger : Objects Thrown
6500121	1	Clutch
6500123	2	Diesel Fuel
6500124	2	Hydraulic Oil
6500148	2	H1100E
6500209	1	Warning: Thrown Object Hazard
6500212	1	Rotating Parts Hazard
6500214	1	Overhead Conveyor Hazard
6500215	1	Overhead Conveyor Hazard
6500216	1	Warning: Electrical Hazard
6500220	2	Warning: High Pressure Hazard
6500253	2	Oil Level
6500255	1	Conveyor Up/Down (Picture Only)
6500256	1	Conveyor Belt Rotation\Tub Up/Down(Picture Only)
6500257	1	Tub Rotation (Picture Only)
6500258	1	Conveyor Up/Down (Picture Only)
6500197	1	DECAL KIT

OPTION: GRAIN HOPPER



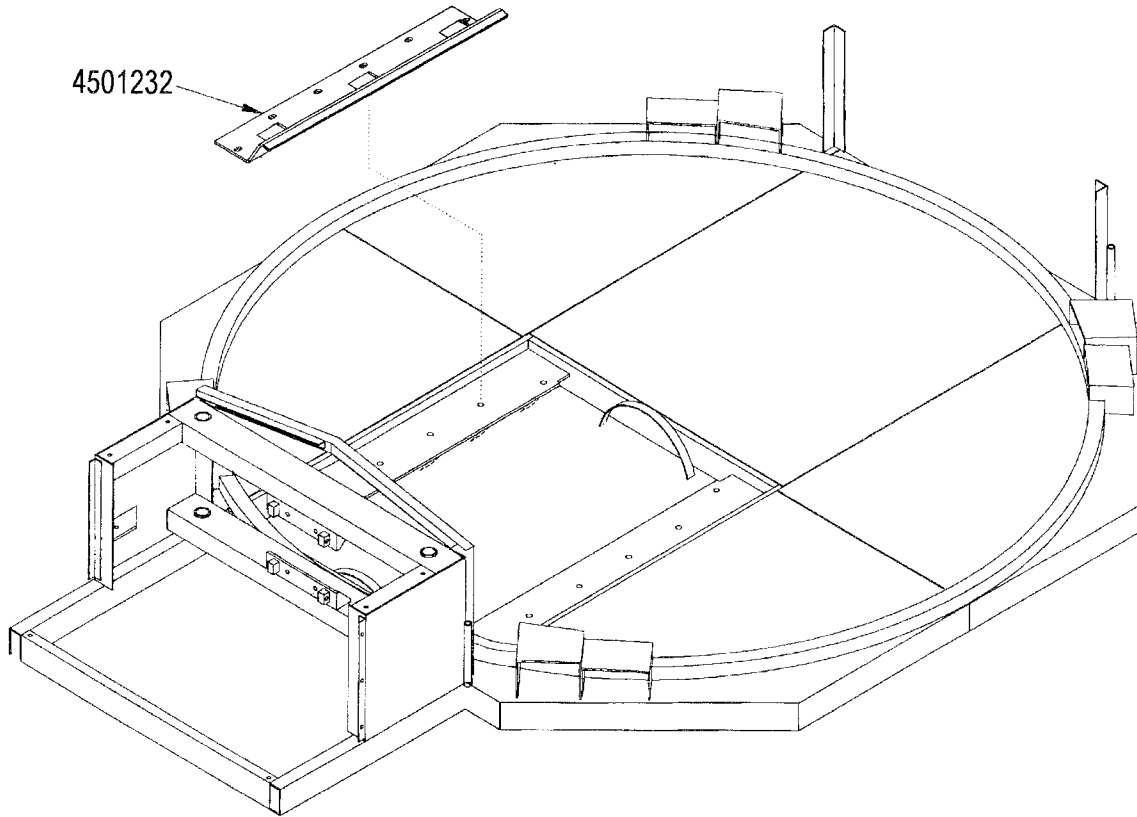
<u>PART</u>	<u>QTY</u>	<u>DESCRIPTION</u>
4501005		OPTN\GRAIN HOPPER\H1100E
4500749	1	CVR\RTR\HOPPER\GRAIN\FRNT
4500987	2	BRKT\HPPR\GRAIN\SIDE
4500988	1	SPCR\HPPR\GRAIN\REAR
4501004	1	HOPPER\GRAIN\H1100E
4800003	6	BOLT\HEX\3/8X1
4800098	6	BOLT\HEX\3/8X1-1/4\NC
4900002	12	NUT\HEX\3/8\NC
5000001	24	WASH\FLAT\3/8
5000019	12	WASH\LOCK\3/8

OPTION: EAR CORN KIT



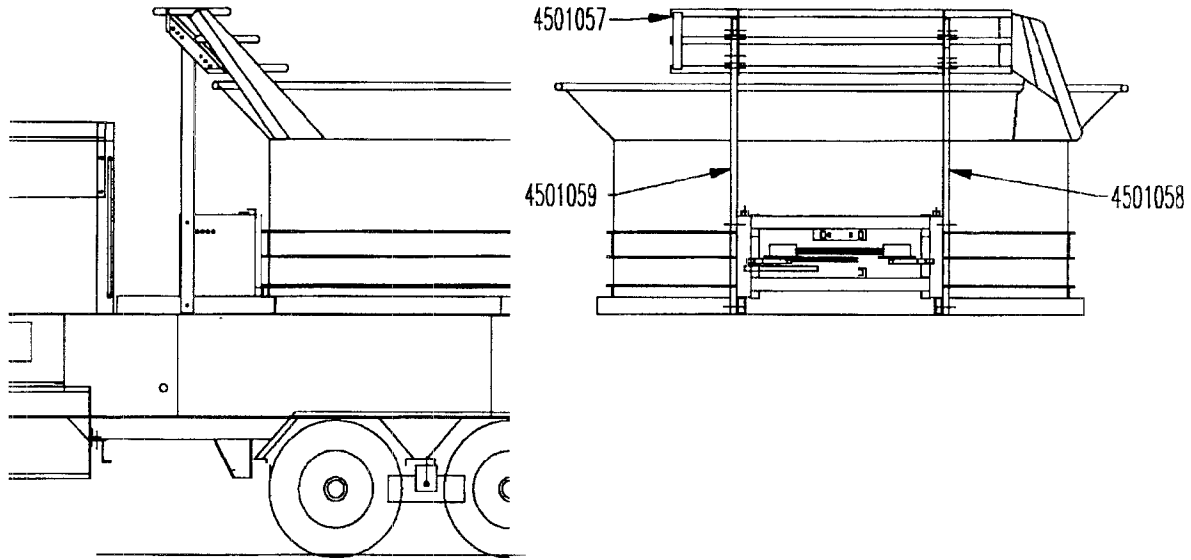
<u>PART</u>	<u>QTY</u>	<u>DESCRIPTION</u>
4501053		OPTN\EAR CORN\H1100E
4500128	2	PIPE\CROSS
4500751	2	BRKT\COVER\ROTOR\EARCORN
4501052	1	COVER\ROTOR\EAR CORN
4800114	4	BOLT\HEX\1/2X2
4900001	8	NUT\HEX\1/2\NC
5000004	8	WASH\FLAT\1/2

OPTION: GEYSER PLATE



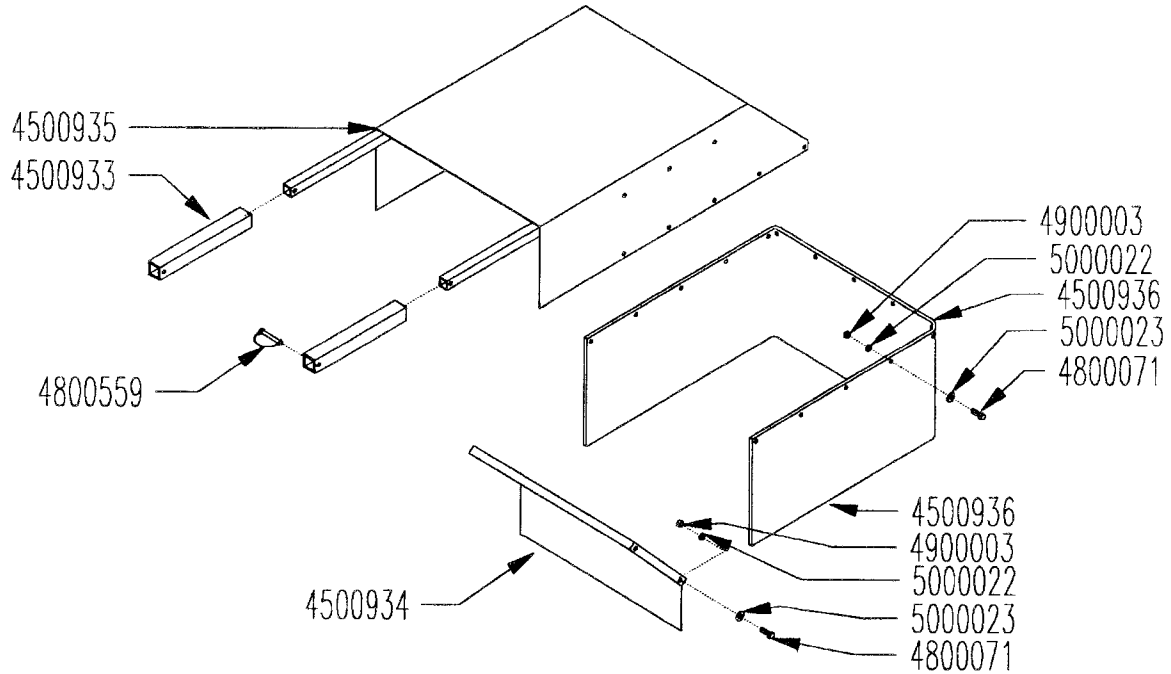
<u>PART</u>	<u>QTY</u>	<u>DESCRIPTION</u>
4501232		PL\GEYSER\H1100TILT

OPTION: LOOSE HAY GUIDE



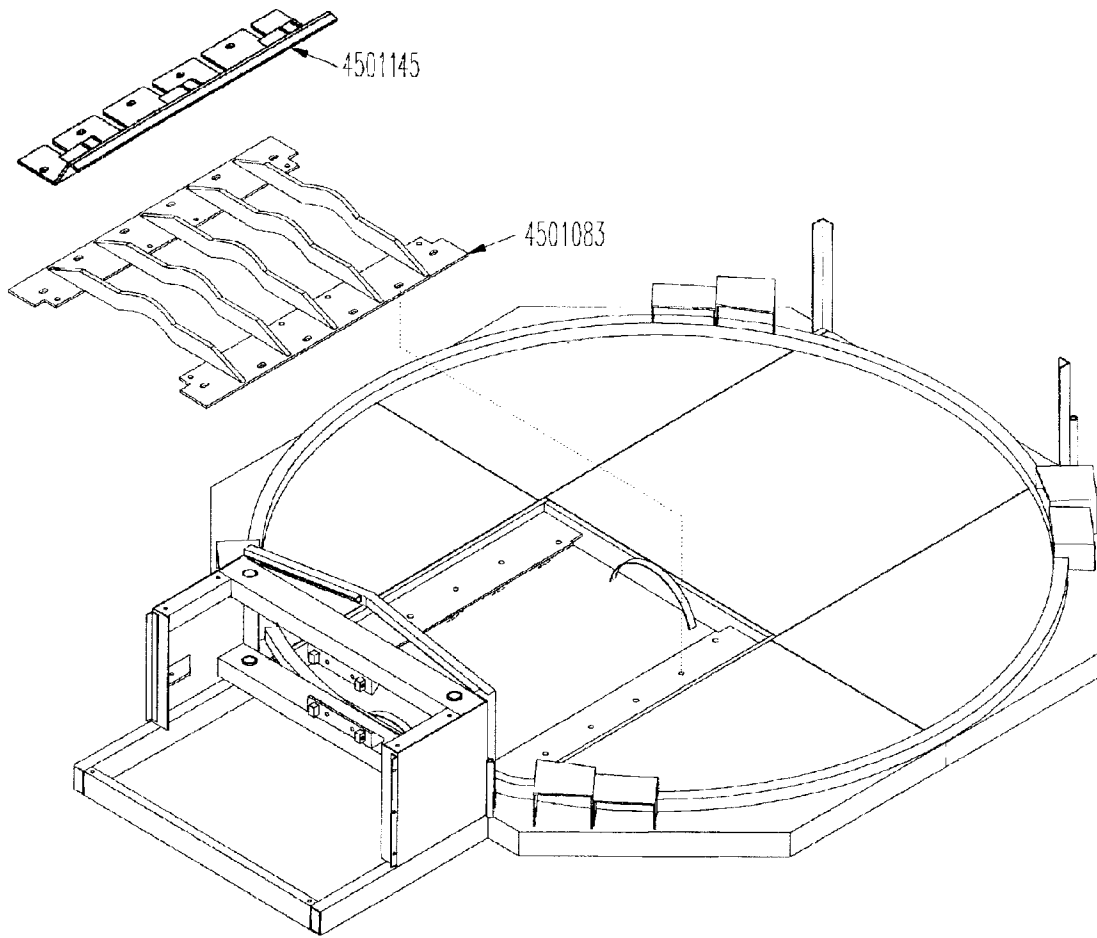
<u>PART</u>	<u>QTY</u>	<u>DESCRIPTION</u>
4501060		OPTN\HAY GUIDE\H1100E
4501057	1	GUIDE\HAY\H1100E
4501058	1	BRKT\GUIDE\HAY\LH\H1100E
4501059	1	BRKT\GUIDE\HAY\RH\H1100E
4800070	6	BOLT\HEX\1/2X2-1/2
4800141	2	BOLT\HEX\1/2X4-1/2
4900001	8	NUT\HEX\1/2\NC
5000004	12	WASH\FLAT\1/2
5000006	8	WASH\LOCK\1/2

OPTION: CONVEYOR DISCHARGE GUIDE



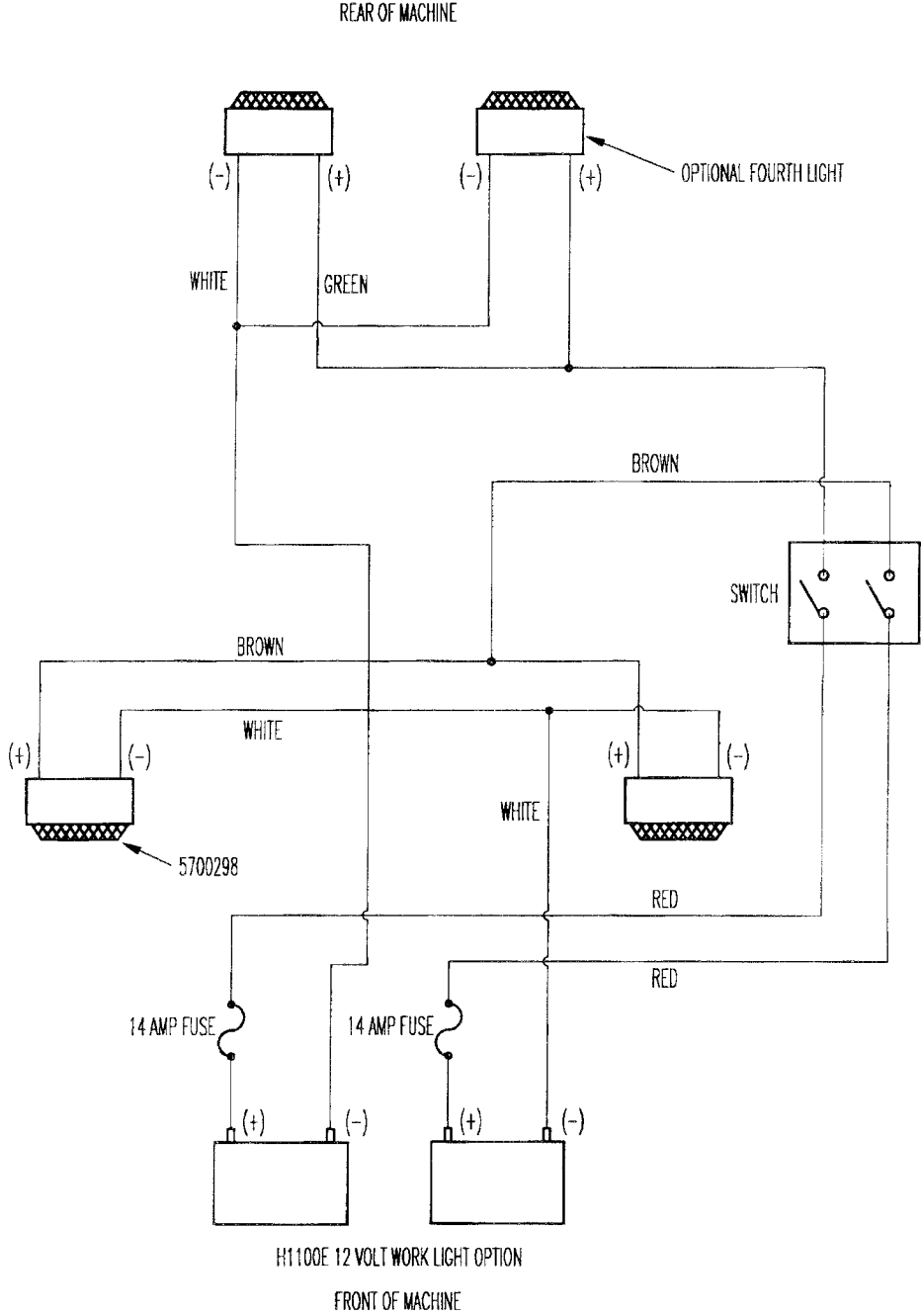
<u>PART</u>	<u>QTY</u>	<u>DESCRIPTION</u>
4500937		GUIDE\MATL\CNVYR\ASSY
4500933	2	MOUNT\GUIDE\MATL\CNVYR\UP
4500934	1	DEFLECTOR\GUIDE\MATL\CNV*
4500935	1	GUIDE\MATL\CNVYR\UPPER
4500936	1	BELT\GUIDE\MATL\CNVYR\UPP
4800071	13	BOLT\HEX\5/16X1-1/4
4800559	2	PIN\LYNCH\5/16X2-1/2\>
4900003	13	NUT\HEX\5/16\NC
5000022	13	WASH\LOCK\5/16
5000023	13	WASH\FLAT\5/16

OPTION: MILL GRATE



<u>PART</u>	<u>QTY</u>	<u>DESCRIPTION</u>
4501083	1	GRATE\MILL\H1100E&TILT
4501145		PL\GEYSER\SLOTTED\H1100E&TILT

OPTION: 12 VOLT WORK LIGHTS



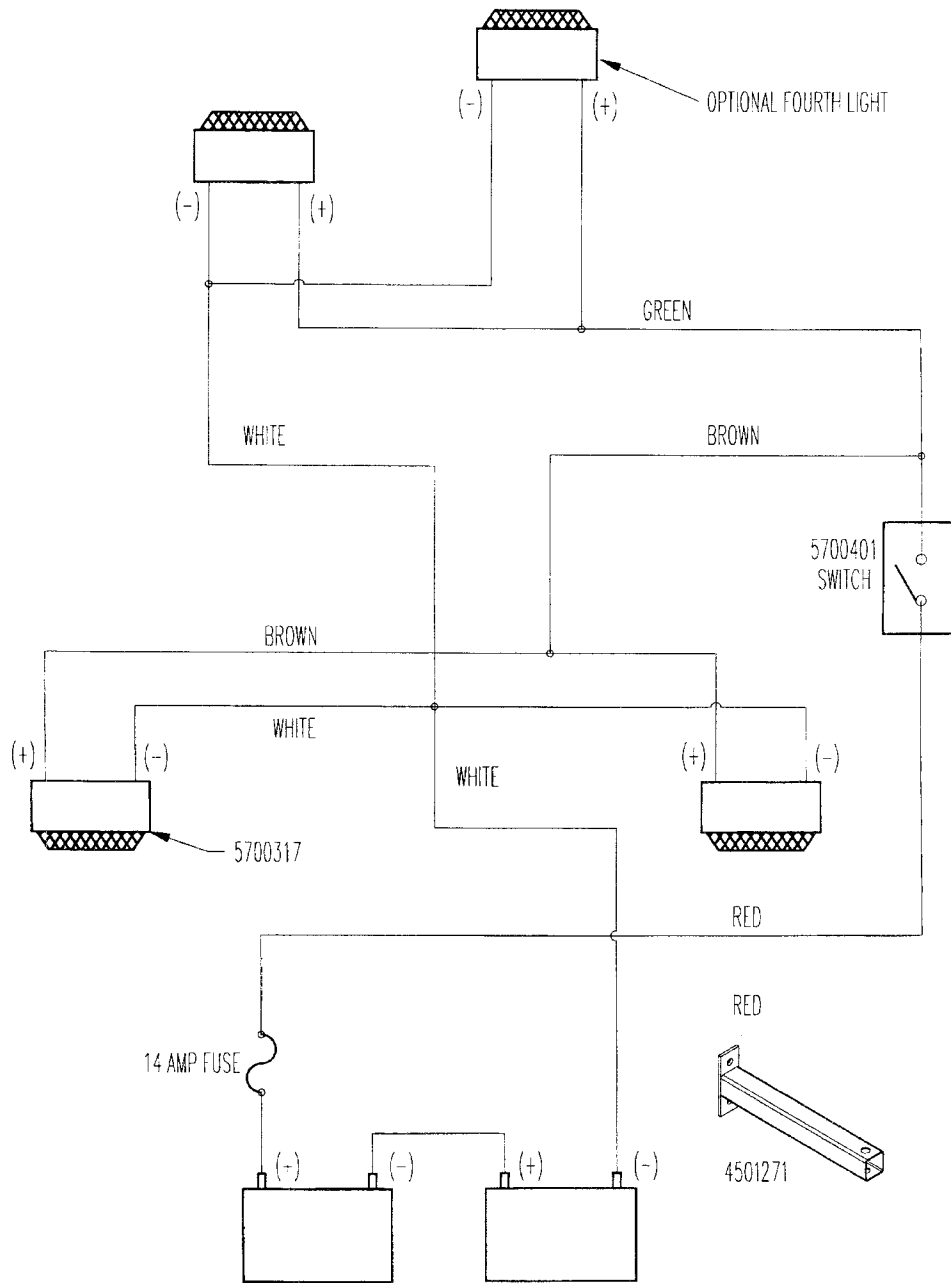
5700298

3 OR 4

LAMP\HALOGEN\4X6\12VDC

OPTION: 24 VOLT WORK LIGHTS

REAR OF MACHINE

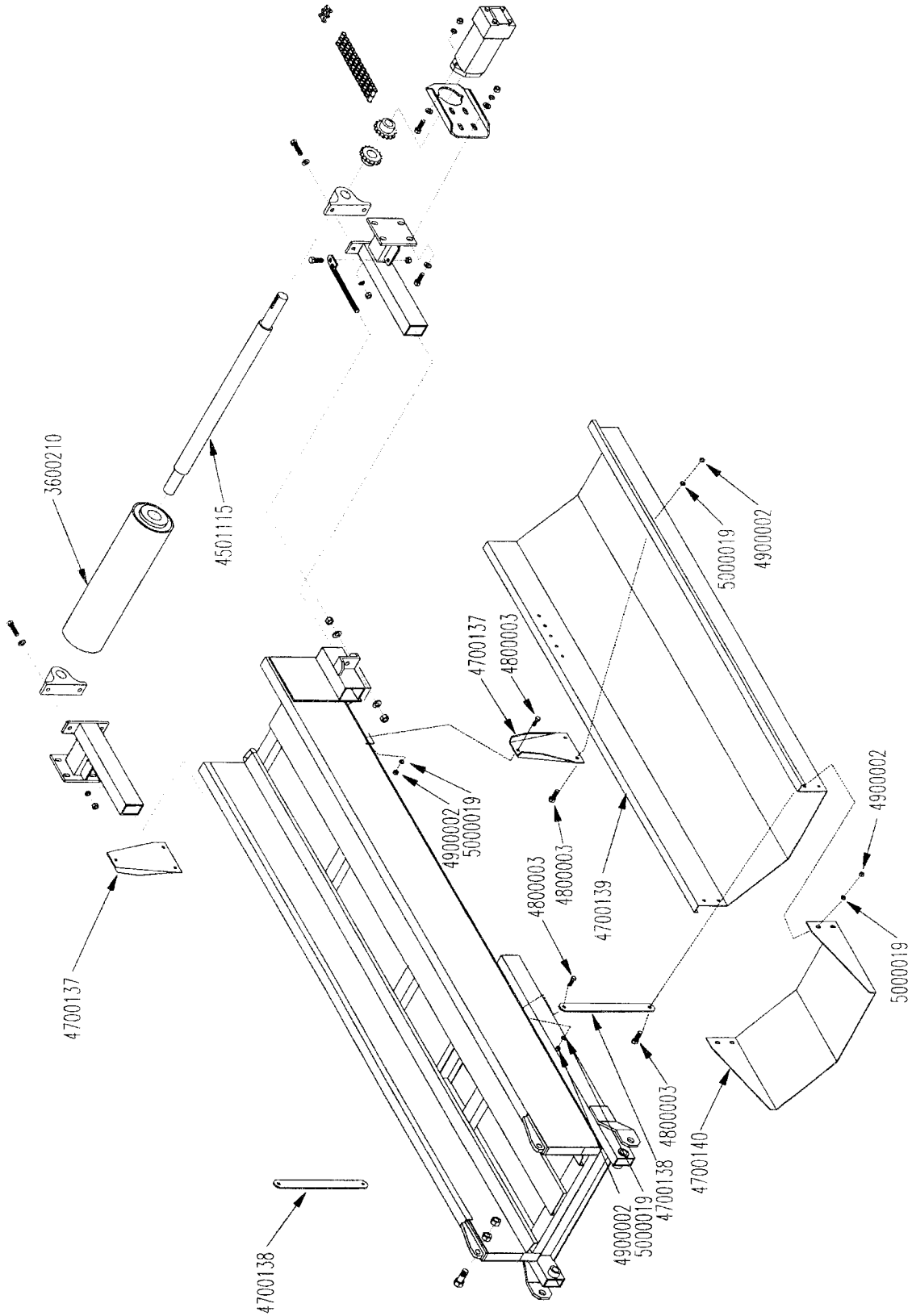


H1100E WORK LIGHT OPTION, 24 VOLTS

FRONT OF MACHINE

PART	QTY	DESCRIPTION
4501067		OPTN\LIGHTS\WORK\H1100E
4501271	2	MOUNT\LIGHT\FRONT\H1100E
5700317	3 OR 4	LAMP\HALOGEN\4X6\24VDC
5700401		SWITCH\TGGL\24V

OPTION: MAGNETIC ROLLER KIT\18\COMPLETE



OPTION: MAGNETIC ROLLER KIT\18\COMPLETE

<u>PART#</u>	<u>QTY</u>	<u>DESCRIPTION</u>
4501098		RLLR\MAG\KIT\COMP\18
3600210	1	6" X 18" MAGNETIC ROLLER
4501115	1	SHAFT\RLLR\MAGNETIC\18"
4700137	2	MNT\CHUTE\REAR
4700138	2	MNT\CHUTE\FRONT
4700139	1	CHUTE\RLLR\MAG
4700140	1	CHUTE\END\SECTION\
4800003	12	BOLT\HEX\3/8X1
4900002	12	NUT\HEX\3/8
5000019	12	WASH\LOCK\3/8