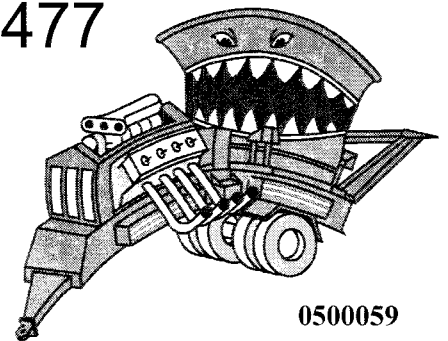




**HD-10P<sup>TM</sup>**  
**SERIES IV**  
**INDUSTRIAL**  
**GRINDER**  
**OPERATORS MANUAL**  
**& PARTS BOOK**  
FOR SN FI0412 TO HI0477



0500059

## WARRANTY

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

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

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

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

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

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

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

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**MACHINE INFORMATION**

MACHINE MODEL \_\_\_\_\_

DATE PURCHASED \_\_\_\_\_

DELIVERY DATE \_\_\_\_\_

**SERIAL NUMBER**

MACHINE # \_\_\_\_\_

ENGINE # \_\_\_\_\_

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

**DURATECH INDUSTRIES INTERNATIONAL, INC.**

PO BOX 1940

JAMESTOWN, NORTH DAKOTA 58402-1940

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# 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.
- \_\_\_\_ Check fixed hammer tips (if installed) for proper torque (190-210 FtLb for 5/8 grade 8 nf).
- \_\_\_\_ 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 33A-33B.
- \_\_\_\_ Check for proper function of tub rotation control valve, page 19.
- \_\_\_\_ Check for proper function of electronic governor, page 14-18.
- \_\_\_\_ Check all chains for proper alignment.
- \_\_\_\_ Check all chains for proper tension.
- \_\_\_\_ Check conveyor belt tracking..
- \_\_\_\_ Check conveyor belt tension, page 26.
- \_\_\_\_ Check condition of tire rims.
- \_\_\_\_ Check wheel lug bolts for tightness.
- \_\_\_\_ Check tires for proper air pressure, page 23.
- \_\_\_\_ 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. \_\_\_\_\_

Customer's signature. \_\_\_\_\_ Date \_\_\_\_\_

Model No. \_\_\_\_\_ Serial No. \_\_\_\_\_ DATE OF PURCHASE \_\_\_\_\_

Please return this report with the Warranty Card.

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# INTRODUCTION

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

The purpose of this owners manual is to familiarize the owners and operators with the HD-10P and to explain routine maintenance and adjustments for most efficient operation of your HD-10P tub grinder. Included is a troubleshooting section which may help in case of problems in the field. Any information not covered in this manual may be obtained through your dealer.

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

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

Model Number **HD-10P - SERIES IV** Serial Number \_\_\_\_\_

The HD-10P grinder is designed to grind wood waste and other materials including:

- Green waste
- Construction and Demolition debris
- Tree branches and trunks
- Compostables
- Mulch



# SHIPPING AND DELIVERY INSTRUCTIONS

**PRE-DELIVERY DEALER CHECKLIST:** Check off 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 21.
  - ◇ 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.
  - ◇ Check fixed hammer tips (if installed) for proper torque (190-210 FtLb for 5/8 grade 8 nf).
- 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 11-13.
- ◇ Importance of correct hydraulic level. Page 4.
- ◇ 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

### HD-10

Weight .....	25500 lbs.
Transport Width .....	10' (120")
Loading Height .....	9' (108")
Transport Length .....	25' 10" (310") with folded conveyor
Height .....	10' 9"
Axles .....	(1) - 20,000 lb. axles
Tires .....	(4) - 255 x 70R x 22.5 120 psi
Brakes .....	Air brakes
Weight on Hitch Point .....	2,600 lbs.
Fuel Capacity .....	160 US gallons
Hydraulic Oil Capacity .....	56 US gallons with 35 gallon airspace
Lights .....	Clearance, directional, and tail lights.

## TUB FEATURES

Tub Width .....	10'
Depth .....	48"
Tub Diameter at base .....	95"
Tub Wall .....	3/16" thick
Tub Floor .....	3/8" thick
Tub Drive .....	Single hydraulic orbit motor direct drive chain. Double orbit motor is optional.
Service Access .....	90° hydraulic tilting tub
Discharge Conveyor .....	22' (l) x 24" (w) x 7" (d), hydraulic end driven cleated belt
Belly Conveyor .....	30" wide hydraulic end driven cleated belt
Tub Speed Sensor .....	Electronic self-governing
Safety Switches .....	Safety shutdown

**Continued on next page**

## **SPECIFICATIONS CONT.**

### HAMMERMILL

Hammer Size .....	3/4" hardened swing hammers
Rotor - Shaft diameter .....	4-1/2" stress proof steel
Rotor Length .....	44"
Rotor Plates .....	1" thick
Feed Opening .....	25" x 45"
Screen Area .....	2403 sq. in.
Screens .....	Split screens 1" thick- avail. in various sizes
Hammer Rods .....	1-1/4" x 43" Dia. case hardened rods
Bearings .....	3-1/2" oil bath pillow block bearings
Hammermill Drive .....	Direct drive with torque limiter

### ***AVAILABLE OPTIONS FOR DURATECH MODEL HD-10P TUB GRINDER :***

- Radio Remote tub start-stop-reverse
- Radio Remote Conveyor Up & Down
- Narrowed tub sides for transport
- Magnetic roller with aluminum deflector
- Second Tub Drive Orbit Motor
- Vandalism protection package
- Engine block heater
- Additional options available on request.

# 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.

# **SAFETY INSTRUCTIONS**

## **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 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.
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. Verify correct oil level in the rotor bearings.
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.

**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.



# BEFORE OPERATING

## CHOOSING PROPER SCREEN

All DuraTech Industries International Inc. grinders have a split screen design. The coarseness of the material to be ground is determined by the hole size in the screens. The larger the hole the coarser the grind. If a combination is used, the smallest hole should be placed on the left hand side of the rotor box where the material enters the rotor.

A variety of screen sizes are available through your DuraTech dealer.

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

General use.....	4" x 7" or 6" x 9"
	Demolition screen.
Brush.....	4" round
Mulch.....	Open "Window Frame"
Compost.....	2" round

***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

**CAUTION: Follow normal shutdown procedure to tilt the tub prior to performing any service work in the rotor area.**

1. Screens may be lifted from the machine with hoist or lifting device. Securely attach screen to lifting device with a sturdy chain or nylon sling. Screens can weigh over 500 lbs. each but stuck screens can require forces many times this to lift them free of the grinder.
2. Use only pry bars to guide the screens in and out of the machine. The screens are very heavy and you could be easily injured if the screen moves suddenly or is inadvertently dropped.
3. Make sure material is clear from screen track.
4. Install the new screen using the lifting device and pry bars as explained above.

## 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.
- Lower both stabilizer legs onto firm ground.
- 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.

## 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.
- Raise the stabilizer legs fully.
- Shut down engine by switching off engine ignition switch.
- Remove key from engine control panel.

# OPERATION

## 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, cylinder 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.**

## REMOTE RADIO OPTION

A toggle switch located on the control panel will switch from manual to remote control. Switch to remote when remote control is desired.

The remote will stop the engine, raise and lower the conveyor(if so equipped), and start, stop and reverse the tub.

To stop the engine, push and hold the button until the engine stops. Starting the engine must be done at the control panel.

To change the conveyor height, push and hold the correct button (raise or lower) until the conveyor is at the desired height. Release the button.

To change tub direction: If the tub is rotating forward, pushing the reverse button once will stop the tub. Pushing the reverse button the second time will reverse the tub. If the tub is rotating in reverse, pushing the forward button once will stop the tub. Pushing the forward button the second time will start the tub rotating in the forward direction.

## 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. Raise the two (2) front stabilizer legs.
9. Shut engine down. Turn off and remove key.
10. 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.
11. Be certain that the stabilizer legs are raised prior to moving the machine.
12. Check the turning clearance between the grinder and the towing vehicle.
13. Oversize restrictions do apply to the HD-10P grinder so special permitting will be required to move on public roadways.

# 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.

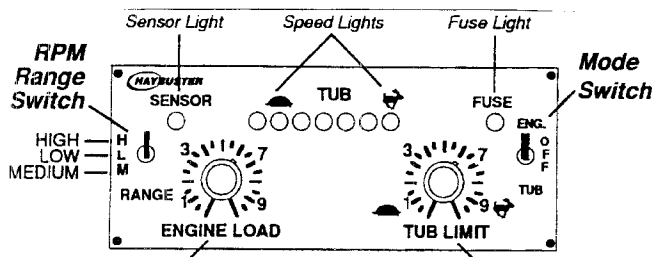
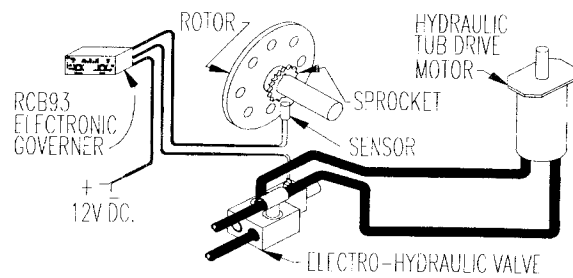
This is the proper calibration for an engine operating at the RPM set in step 1.

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



ENGINE LOAD KNOB      TUB LIMIT KNOB

### 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**

<u>PROBLEM</u>	<u>CAUSE</u>	<u>REMEDY</u>
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"> <li>1. Sensor gap out of adjustment</li> <li>2. Broken wire on wiring harness.</li> <li>3. Sensor faulty.</li> <li>4. Sensor light bulb faulty.</li> <li>5. Control Box faulty.</li> </ol>	<ol style="list-style-type: none"> <li>1. Readjust gap to 3/32" (the thickness of a nickel).</li> <li>2. Repair or replace wiring harness.</li> <li>3. Test and replace sensor as necessary.</li> <li>4. Replace light bulb.</li> <li>5. Replace control box.</li> </ol>
Tub will not rotate. Sensor light lit.	<ol style="list-style-type: none"> <li>1. Tub limit knob turned to "O"</li> <li>2. Manual hydraulic valve set in neutral.</li> <li>3. Control box faulty</li> </ol>	<ol style="list-style-type: none"> <li>1. Readjust tub limit knob.</li> <li>2. Engage manual valve.</li> <li>3. Replace control box.</li> </ol>



# ELECTRONIC GOVERNOR OPERATON

## ELECTRONIC GOVERNOR

### HARDWARE TEST.

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

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

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

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

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

Remove wiring harness from the control box.

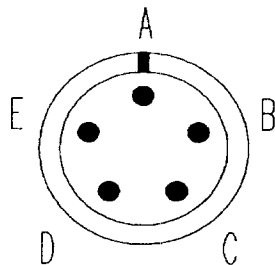
With the engine at operating temperature and the clutch engaged, throttle the engine up to the desired engine RPM.

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

### ELECTRO-HYDRAULIC VALVE COIL TEST

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

### VIEW OF WIRING HARNESS CONNECTOR LOOKING DIRECTLY AT CONNECTOR.



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

# ELECTRO-HYDRAULIC VALVE OPERATION

## MANUAL OVERRIDE

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

### IMPORTANT! - DO NOT ENGAGE CLUTCH AT THIS TIME!

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

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

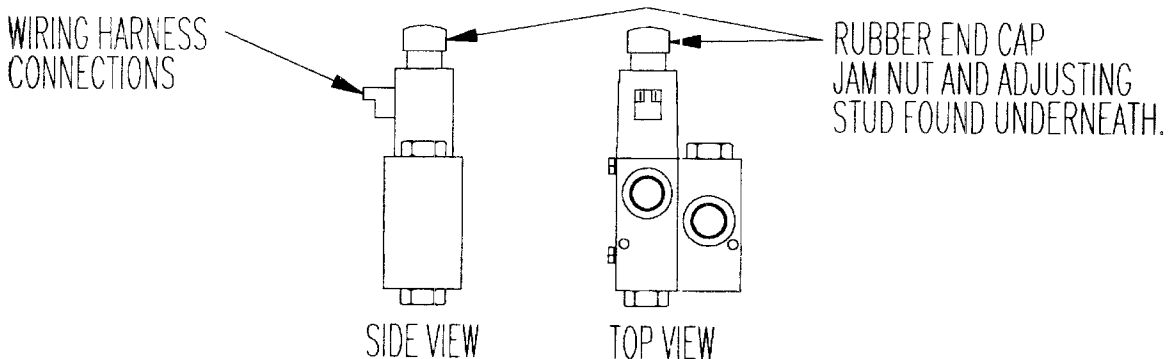
## ELECTRO-HYDRAULIC VALVE CALIBRATION

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

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

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

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



# 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.

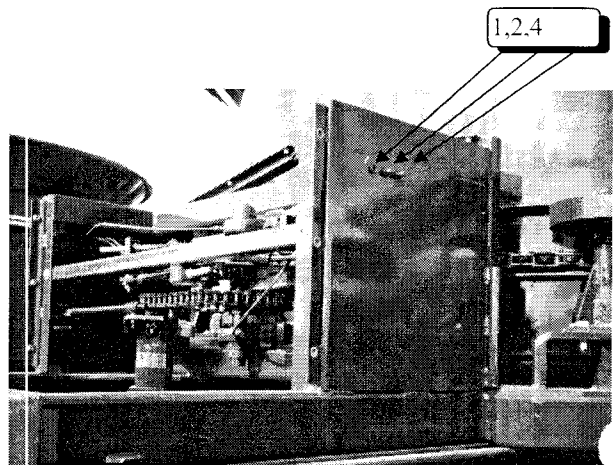
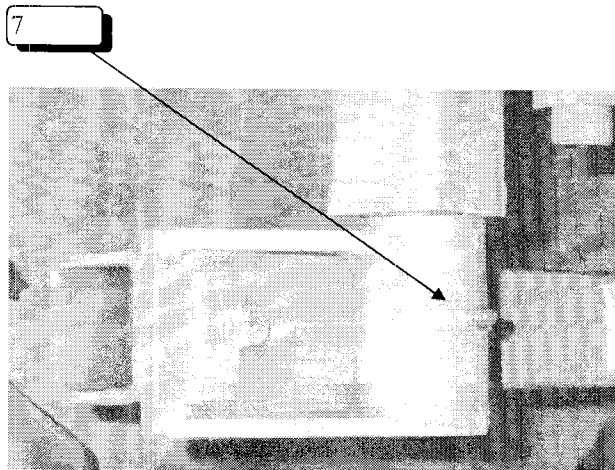
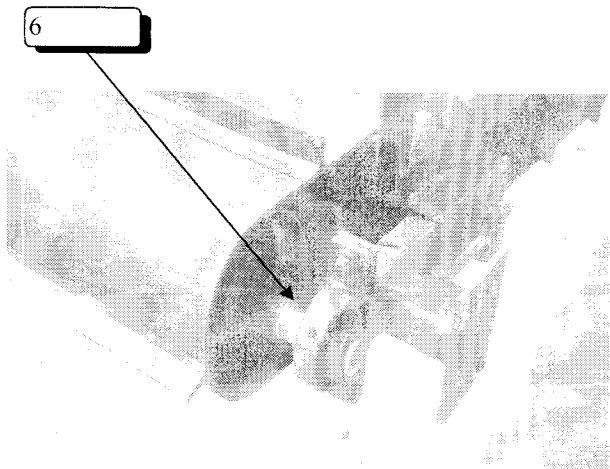
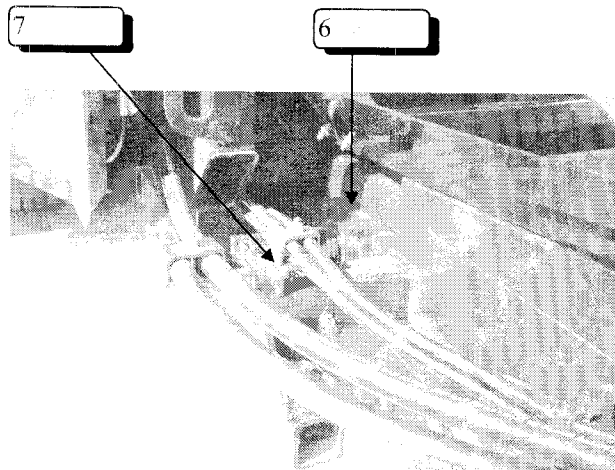
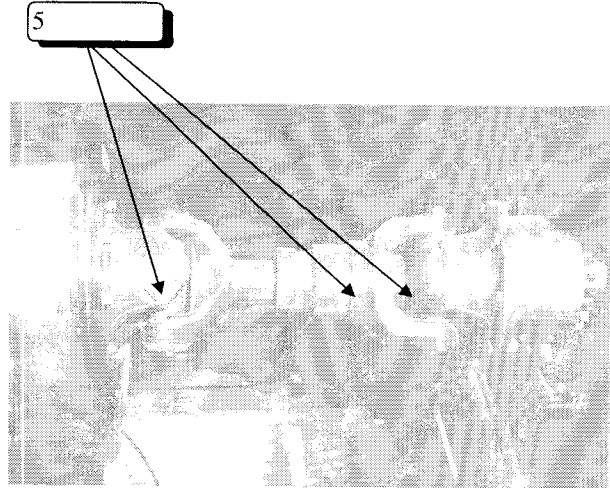
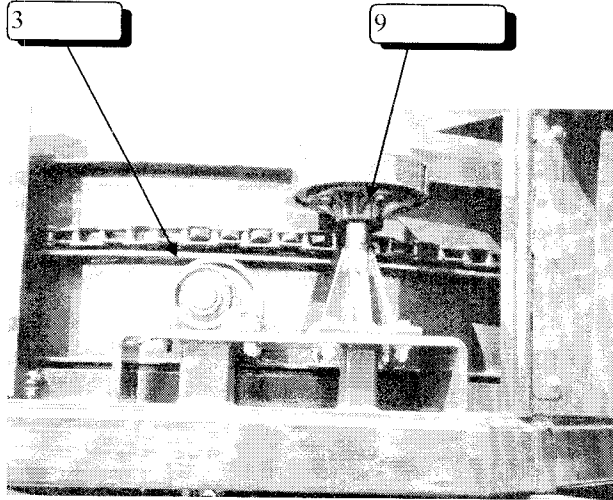
## LUBRICATION CHART

REF. NO.	LOCATION	NUMBER OF ZERKS	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 Pivot	2	Daily	
5.	Rotor Input Shaft	3	40 hrs.	
6.	Discharge Conveyor Bearings	4	40 hrs.	*
7.	Discharge Conveyor Pivot points	2	40 hrs.	
8.	Belly Conveyor Bearings	4	40 hrs	*
9.	Tub Pressure Rollers Bearings	0	Annually	
10.	Rotor Bearings	Oil Bath	Check level daily	
11.	Roller Chains		Oil Daily in Dusty Conditions	
12.	Platform Latch	2	40 hrs.	
13.	Platform hinge	2	40 hrs.	

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

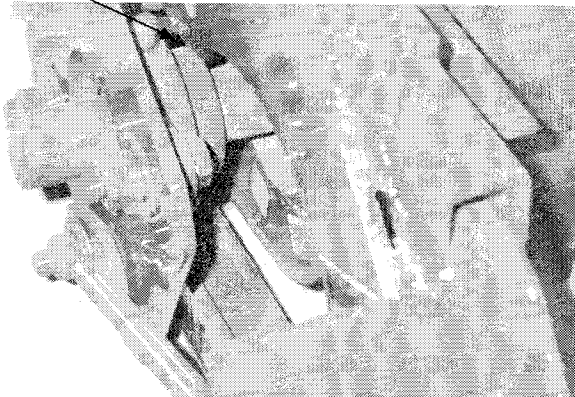
# LUBRICATION

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



# LUBRICATION

8



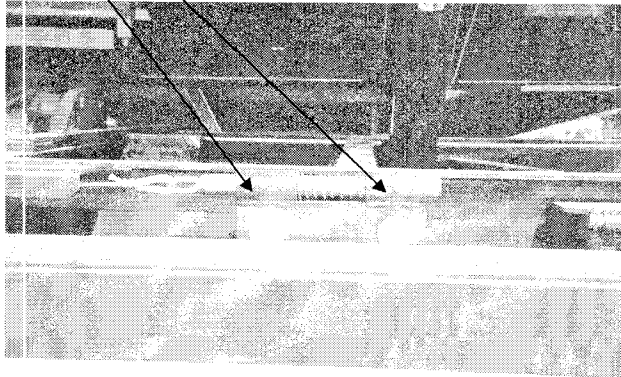
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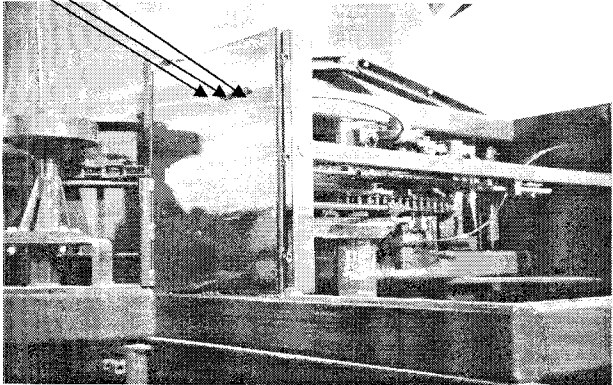
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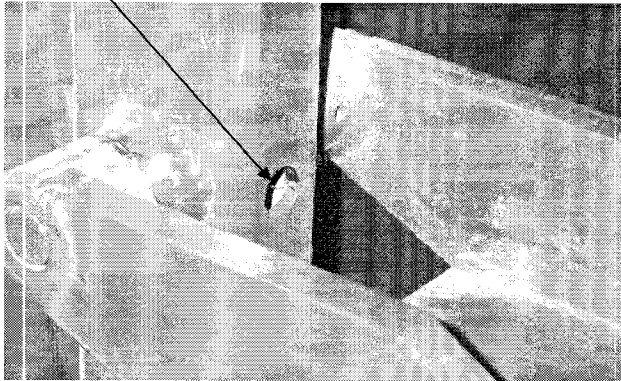
12



1,2,4



13



# MAINTENANCE

## ***IMPORTANT SAFETY INSTRUCTIONS***

### **READ ALL INSTRUCTIONS**

**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, be sure to 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.

Keep all foreign objects out of the tub and away from the rotor. Foreign objects may result in personal injury or cause severe damage to hammers, screens, rods, and other parts which may cause rotor failure.
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 this machine, the hammers will wear and must be considered expendable. To maximize hammer life and even out the wear over the entire hammer, it is suggested that the hammers be rotated periodically within the rotor.

**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.**

The hammers are designed for grindable organic materials to produce mulch, compost, 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 the rotor. 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, other than instructed by DuraTech, 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, rotated, or rebuilt to expose new cutting edges. Badly worn hammers should be replaced.

Fixed hammers with the weld-on replaceable tips must be rebuilt by a qualified welder who has been trained in the proper rebuild procedure by a representative of DuraTech.

Screens have two cutting edges. When hole cutting edges become rounded, screen

can be swapped from side to side exposing new cutting edges.

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

**HAMMER RODS:** Hammer rods are manufactured with a tough core and a hardened exterior case. This is a carefully balanced combination to provide long wear and toughness to reduce breakage. Hammer rods should be considered expendable and will need to be replaced occasionally.

## FIXED HAMMER REPLACEMENT:

**Caution:** Disengage the driveline clutch. Shut off the engine. Remove the key before working on the rotor.

**Note:** Single bolt and two bolt tips are available. Maximum torque values are different, based on bolt diameters.

When replacing hammer tips, We recommend the following:

- A. Always replace fixed hammer tips in pairs, 180 degrees apart (same as with the swinging hammers, illustrations A & B).
- B. Tips placed 180 degrees apart should be the same weight.
- C. When starting the hammermill after installing a new set of tips or after turning the tips to expose new faces, watch for unusual or excessive vibration. If any is noticed, shut off the hammermill. Determine the cause and correct it before starting the mill again.

Perform the following steps to replace the hammer tips:

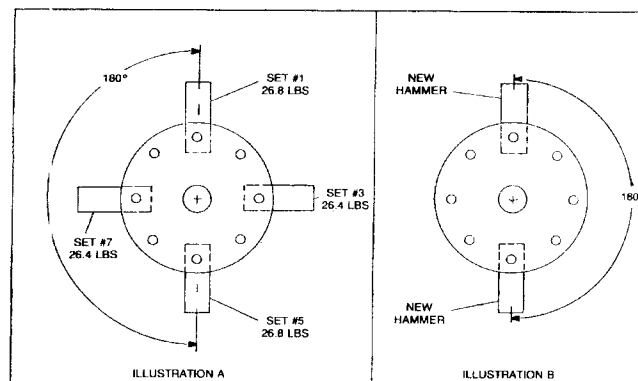
1. Be sure to disengage the clutch, shut down the engine, and remove the key.
2. Identify the tips to be removed, then loosen and remove the bolts and tips.
3. Rotate or replace tips.
4. For two-bolt tips with 5/8" grade 8 NF bolts, and grade 8 nylon lock nuts. Torque to 190-210 ft.lbs.
5. After 2 hours of grinding, retighten the bolts to the same torque values.
6. Retighten bolts periodically.

# MAINTENANCE

## SWINGING HAMMER REPLACEMENT

When installing or changing hammers, be sure to follow directions on the installation spacers diagram carefully. Misplacement could cause excessive vibration. We recommend that hammers be balanced in sets according to the rod on which they are to be installed. Sets of equal weight should be installed 180 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. Shut engine down. Turn off the power disconnect switch and remove key.
7. Loosen two bolts at rear of rotor which holds the hammer rod retainer plate in place.
8. Rotate retainer 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 retainer plate and rear cylinder bearing cover.
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.



**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.**

## CONVEYOR BELTS:

Discharge conveyor upper and lower roller 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.



# MAINTENANCE

## CONVEYOR BELT ADJUSTMENTS

### I. SAFETY CONSIDERATIONS.

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

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

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

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

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

### II. Tension Adjustment

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

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

### III. Tracking Adjustment

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

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

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

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

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

3. Observe conveyor belt tracking from a safe location.

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

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

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

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

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

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

3. Observe conveyor belt tracking from a safe location.

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

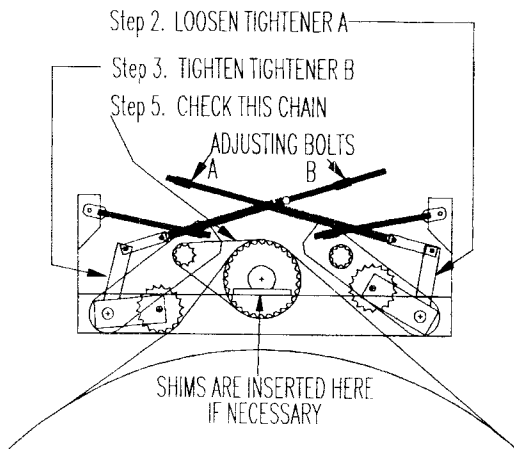
# MAINTENANCE

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.

## ADJUSTING TUB CHAIN TENSION

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

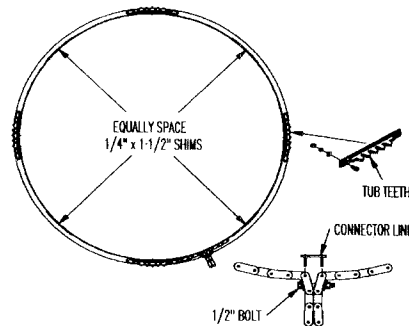


## TUB CHAIN DRIVE:

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  $\frac{1}{2}$ " 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.



# MAINTENANCE

## ROTOR BEARING INSPECTION

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

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

## ROTOR BEARING INSTALLATION

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

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

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

correctly installed one way, refer to **Figure 1.**

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

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

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

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

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

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

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

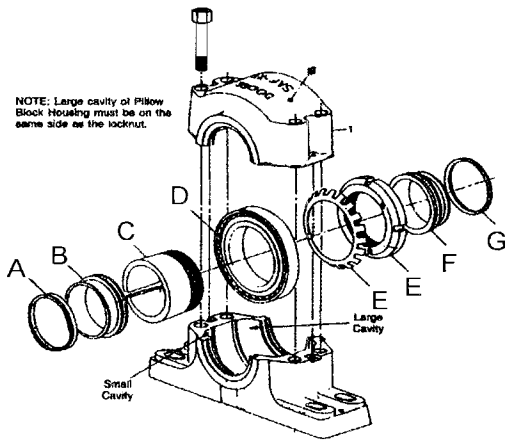
# MAINTENANCE

**Table 1 - Internal Clearance Reduction**

Shaft Diameter	Reduction in Internal Clearance
3-1/2"	0.0018 to 0.0025 in.

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

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



**Figure 1**

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

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

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

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

**Table 2 - Recommended Torque Values**

Shaft Size	Housing Cap Bolt Size	Recommended Torque Value (ft.-lbs.)
3-1/2"	3/4-10	208-260

8. When closed end is required, the end plug supplied should be fit into the center seal ring groove of the housing.
9. Lubricate the bearing seal grooves in the housing cap and place over the bearing after wiping the mating surfaces. The two dowel pins will align the cap with the lower housing half. **NOTE:** Each cap nuts be matched with its mating lower half, as these parts are not interchangeable.
10. Tighten cap bolts and nuts to the recommended torque in **Table 2**.
11. Assure that there is seal running clearance then install V-ring seals onto the seal rings **and coat V-ring seals with grease.**
12. Misalignment of pillow blocks must not exceed 1/2°.

# MAINTENANCE

## MAINTENANCE

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

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

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

### 3-1/2" BEARING LUBRICATION

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

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

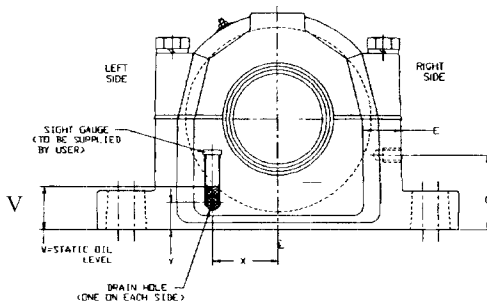


Figure 2

Static oil level should bring oil to centerline of bottom roller. Oil level in sight glass should be 1-41/64" above base housing. Dimension "V" on Figure 2.

## BRAKE COMPONENT LUBRICATION

A schedule for the periodic lubrication of brake components should be established by the operator on the basis of past experience and severity of operation.

### GUIDELINES

- For camshaft roller journals Lubricate with high temperature anti-seize grease.
- For anchor pins: lubricate with high temperature anti-seize grease.
- For manual slack adjusters: lubricate with NLGI Grade 2.
- For automatic slack adjusters: Lubricate with ASA manufacturers recommended lubricant.

### FREQUENCY OF SERVICE

Camshaft roller journals, anchor pins, slack adjusters every 25,000 to 30,000 miles or every six months depending on severity of service. (For off highway use: service every 4 months depending on severity of service.)

**CAUTION:** Care Must be exercised when lubricating the camshaft bushings and anchor pins. Over lubrication could cause lubrication saturation of brake linings and a possible safety problem.

**NOTE:** Reline shoes replace with new shoe and lining assemblies when the linings are grease saturated.

# MAINTENANCE

## SUGGESTED PREVENTATIVE MAINTENANCE

- **Every 1,000 miles:** Check oil level in wheel hub and inspect wheel for leaks.
- **Every 15,000 miles:** Check brake adjustment. Repack wheel bearings (grease application).
- **Every 25,000 to 30,000 miles:** Check lining wear and estimate reline time. Inspect camshaft, camshaft spider bushing and camshaft support bracket bushing for any signs of wear. Lubricate brake actuating components.

**Every 100,000 miles, once a year, or at brake reline:** Replace wheel bearing lubricating oil (if applicable). Check brake air chambers and slack adjusters. Inspect brake rollers, roller shafts, anchor pins and bushings and replace if necessary.

## RECOMMENDED BRAKE ASSEMBLY/DISASSEMBLY PROCEDURE 16-1/2" X 7 BRAKES

1. Release brake and back off slack adjuster.
2. Remove slack adjuster lock ring and slack adjuster.
3. Remove brake drum (if outboard mount). Remove hub and drum assembly (if inboard mount).
4. Disengage the roller retainers from the rollers.
5. Press down on the bottom brake shoe and remove the lower cam roller. Lift the top shoe and take out the top cam roller.
6. Lift out the shoe retractor spring, which is now free of tension.

7. Swing the lower shoe back approximately 180° to relieve the tension on the shoe keeper springs. Remove the springs and slip the shoes off the anchor pins.
8. Remove camshaft lock ring, spacer washer(s) and camshaft removing the shoes, completely inspect all brake components, servicing as necessary.

## REASSEMBLY

1. Install new anchor pin bushings, camshaft bushings and camshaft seals into the spider.

**CAUTION:** When installing camshaft seals, the seal on the slack adjuster side is installed with seal facing into spider. This allows grease to purge outside the brake assembly when greasing the camshaft bushing. It also aids to avoid damage of the seal lip when camshaft is installed.

2. Install cam roller, retainer clip and retractor spring retainers onto the brake shoes.
3. Install 1.8: thick camshaft washer onto the camshaft.
4. Install the camshaft into the spider. Install spacer washer and lock ring retainer on camshaft before sliding the camshaft through the camshaft support bracket. Install the slack adjuster, washer, and lock ring retainer.
5. Install the brake keeper springs onto the shoes. Install shoes onto the spider by placing shoes in place on the anchor pins, then :wrap: the two shoes into place about the spider.
6. Install the shoe retractor spring onto the shoes.
7. Connect slack adjuster to brake chamber pushrod.
8. Adjust brakes as outlined in brake adjustment procedures.

# MAINTENANCE

## AXLE FASTENER SPECIFICATIONS

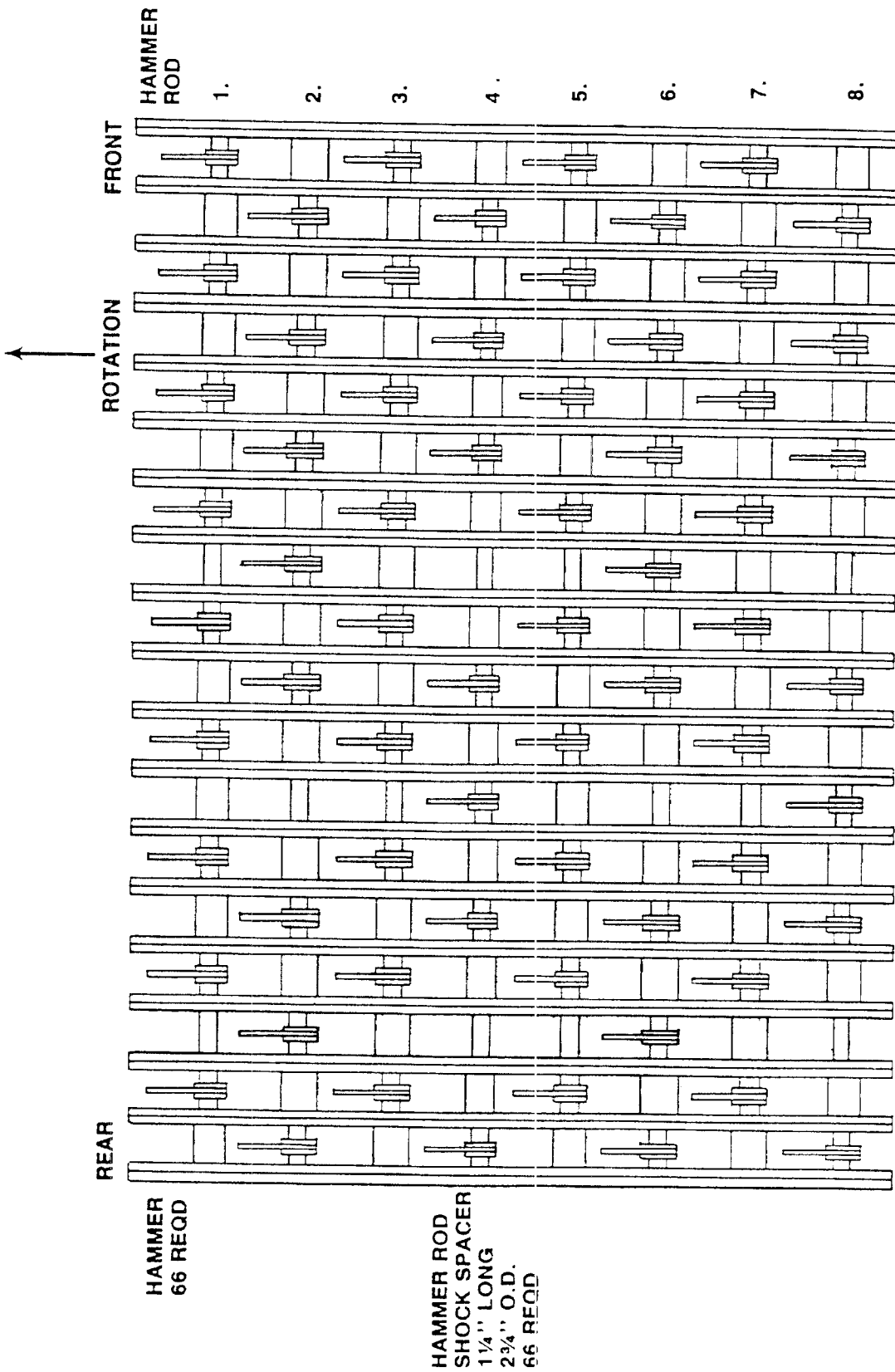
Part Name	Model	Size & Thread	Grade	Torque
Spindle Nut Inner (larger)	D2000 D2200	2-5/8 - 16	5	Refer to Bearing adjustment Section
Outer(smaller)	D2500	2-5/8 - 16	5	250-300 lb.-ft
Grease Zerk	Cam bushing Spider	1/4 - 28 UNF 1/8 - 27 NPT	2 2	5-15 Lb. - In. 5 - 8 LB. - Ft.
Cam Brackets	All Models	1/4 - 20	2	3 - 4 Lb. - Ft.
Air Chamber Mounting Nuts	All Models	5/8 - 11	5	Hex Nut 85-95 Lb. - Ft. Locknut 120-140 Lb. - Ft.
Anchor Pin Clamp Bolt	12-1/4" Dia. Air Brakes	7/16 - 20	5	60 - 70 Lb. - Ft.
Dust Shield Mounting	16-1/2" Dia. Air Brakes with Tapped Spiders	5/16 - 18	5	10 - 15 Lb. - Ft.
Hub Cap	All Models	5/16 - 18	5	10 - 15 Lb. - Ft.
Drum Mounting Screw Backnut	12-1/4" Dia. 16-1/2" Dia.	5/8 - 18 3/4 - 16	5 5	160 - 180 Lb. - Ft. 175 - 200 Lb. - Ft.
Wheel Nut Inner	10 on 11-1/4	3/4 - 10	5 or 8 (Steel Wheels) 8 (Aluminum Wheels)	450 - 500 Lb. - Ft.
Wheel Nut Outer	10 on 8-3/4	1-1/8 - 1	5	450 - 500 Lb. - Ft.
Rim Mounting	Demountable Rim Type	3/4 - 10	5	190 - 210 Lb. - Ft.

# TROUBLE SHOOTING

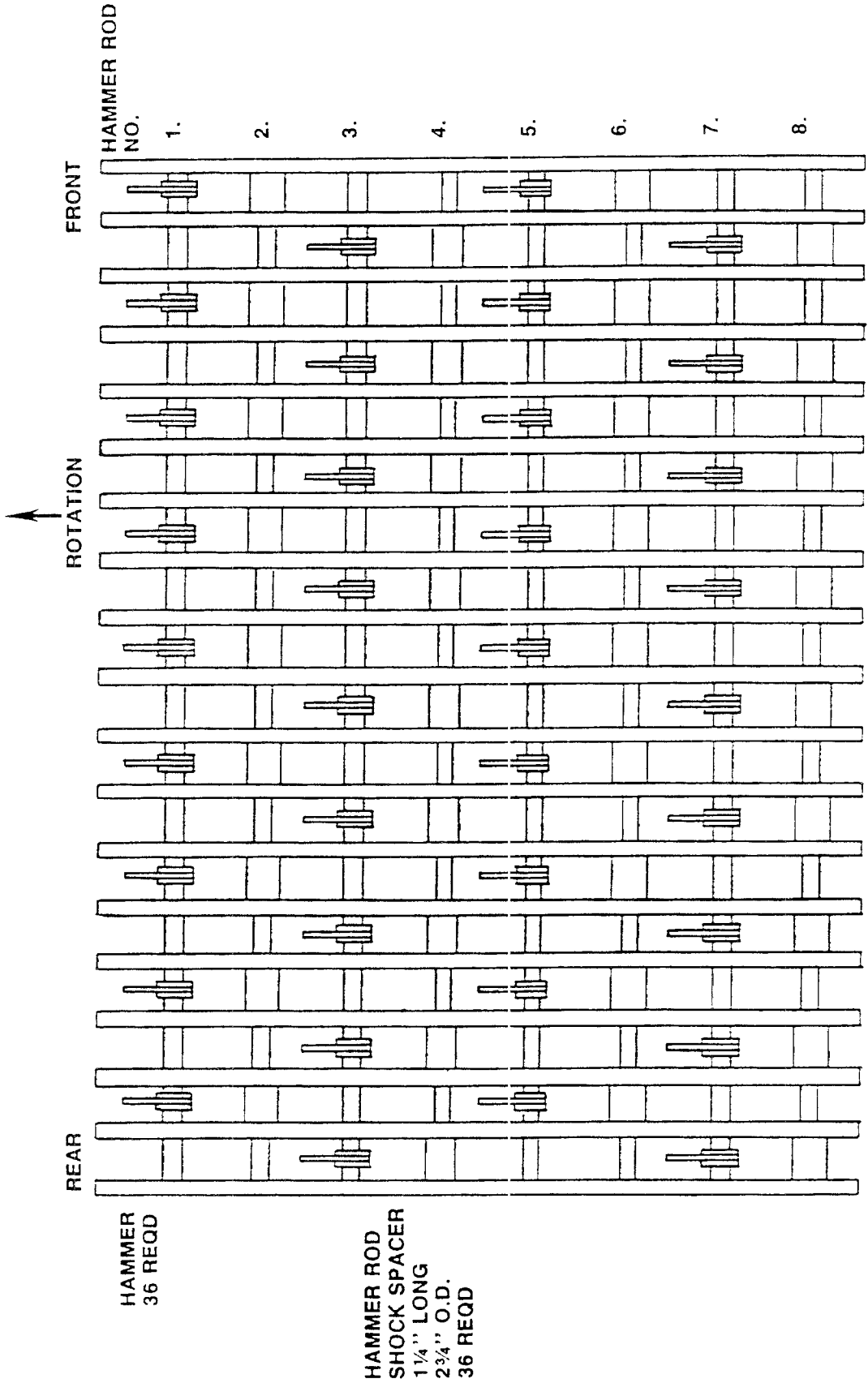
PROBLEM	CAUSE	REMEDY
1. No grinding capacity	<ol style="list-style-type: none"> <li>1. Screen plugged</li> <li>2. Badly worn screens and/or hammers</li> <li>3. Materials too light or fluffy</li> </ol>	<ol style="list-style-type: none"> <li>1. Clean holes in screen</li> <li>2. Replace or turn worn parts</li> <li>3. Mix with heavier material</li> <li>4. Use larger screen</li> <li>5. Use grapple loader to force feed material.</li> </ol>
2. Tub slows down or turns slowly	<ol style="list-style-type: none"> <li>1. Governor not adjusted properly</li> <li>2. Electronic governor system problems.</li> <li>3. Low hydraulic pressure</li> </ol>	<ol style="list-style-type: none"> <li>1. See <b>Electronic Governor adjustment</b></li> <li>2. See <b>Electronic Governor troubleshooting.</b></li> <li>3. Internal leakage or wear in orbit motor or pump. Faulty relief valve.</li> </ol>
3. Excessive vibration	<ol style="list-style-type: none"> <li>1. Broken hammer</li> <li>2. Defective cylinder bearing</li> <li>3. Misaligned or worn driveline</li> <li>4. Foreign material wrapped in cylinder</li> <li>5. Incorrect hammer pattern</li> </ol>	<ol style="list-style-type: none"> <li>1. See <b>Hammer replacement</b></li> <li>2. Replace bearing</li> <li>3. Replace worn part or complete driveline</li> <li>4. Remove material</li> <li>5. See <b>Hammer replacement</b></li> </ol>
4. Engine loses excessive RPM's before tub stops	<ol style="list-style-type: none"> <li>1. Governor not adjusted properly</li> </ol>	<ol style="list-style-type: none"> <li>1. See <b>Governor Adjustments</b></li> </ol>
5. If tub runs with control box switch off. Disconnect wires at valve.		
A. If tub stops	<ol style="list-style-type: none"> <li>1. Control box is out of adjustment</li> <li>2. Control box is faulty</li> </ol>	<ol style="list-style-type: none"> <li>1. See Electronic governor adjustments.</li> <li>2. Replace control box</li> </ol>
B. If tub keeps turning	<ol style="list-style-type: none"> <li>1. Valve override screw is adjusted in too far.</li> <li>2. Valve is faulty</li> </ol>	<ol style="list-style-type: none"> <li>1. Readjust override screw. See Electronic governor adjustments.</li> <li>2. Replace valve</li> </ol>
6. If tub stalls	<ol style="list-style-type: none"> <li>1. Tub hydraulic system, pressure relief valve set too low.</li> <li>2. Tub overloaded due to wet, tough grinding material</li> <li>3. Too much material in tub</li> <li>4. Tub binding</li> <li>5. Hydraulic oil too hot causing electronic governor valve to bind.</li> </ol>	<ol style="list-style-type: none"> <li>1. Readjust to 2,500 PSI max.</li> <li>2. Reduce amount of material in tub or shift hydraulic tub drive to low range.</li> <li>3. Reduce amount of material in tub</li> <li>4. Remove material buildup between tub and platform framework.</li> <li>5. Reduce load on hyd. system or stop and allow oil to cool.</li> </ol>
7. If oil overheats	<ol style="list-style-type: none"> <li>1. Pressure relief valve in control valve set too low</li> <li>2. Tub overloaded</li> <li>3. Worn pump, control valve, hyd. motors, etc.</li> </ol>	<ol style="list-style-type: none"> <li>1. Readjust to 2,500 Psi max.</li> <li>2. Reduce amount of material in tub</li> <li>3. Rebuild or replace hyd. components as necessary</li> </ol>



# FULL SET SWINGING HAMMER SPACING



# 1/2 SET SWINGING HAMMER SPACING



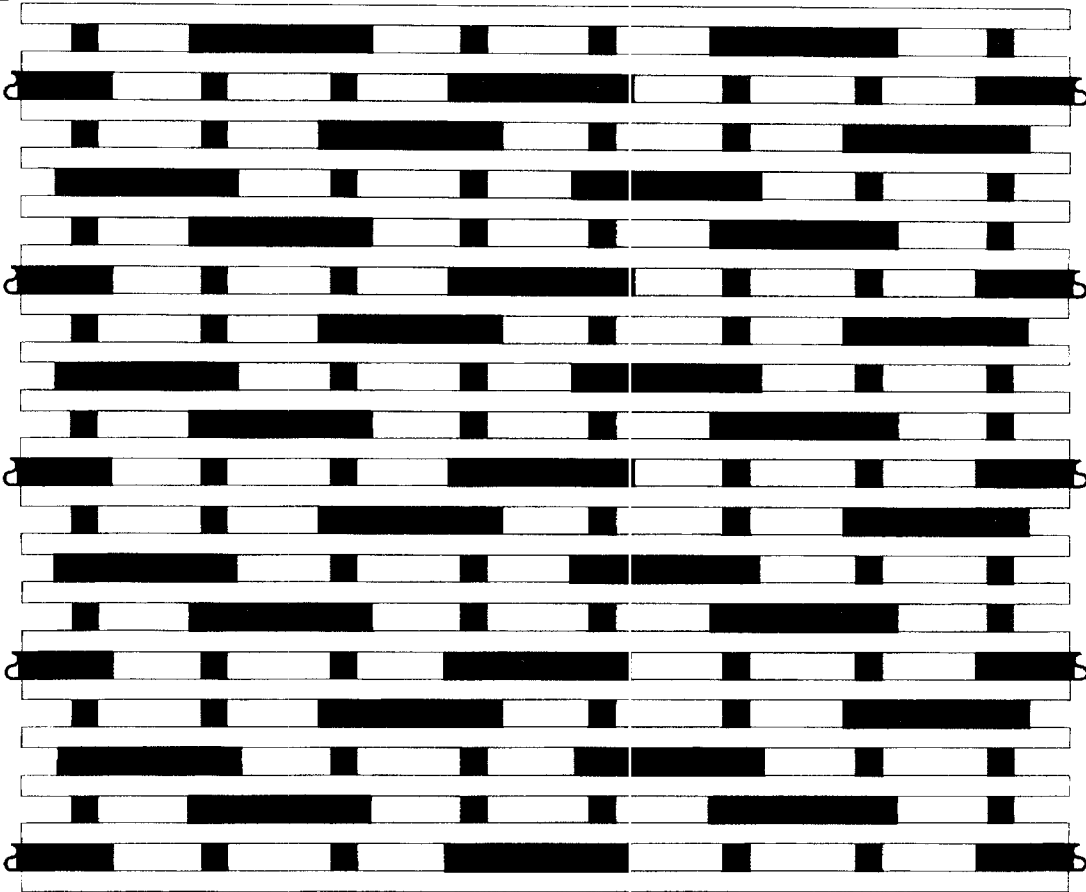
# FIXED HAMMER SPACING

HD10 FIXED HAMMER PATTERN  
(36) HAMMERS

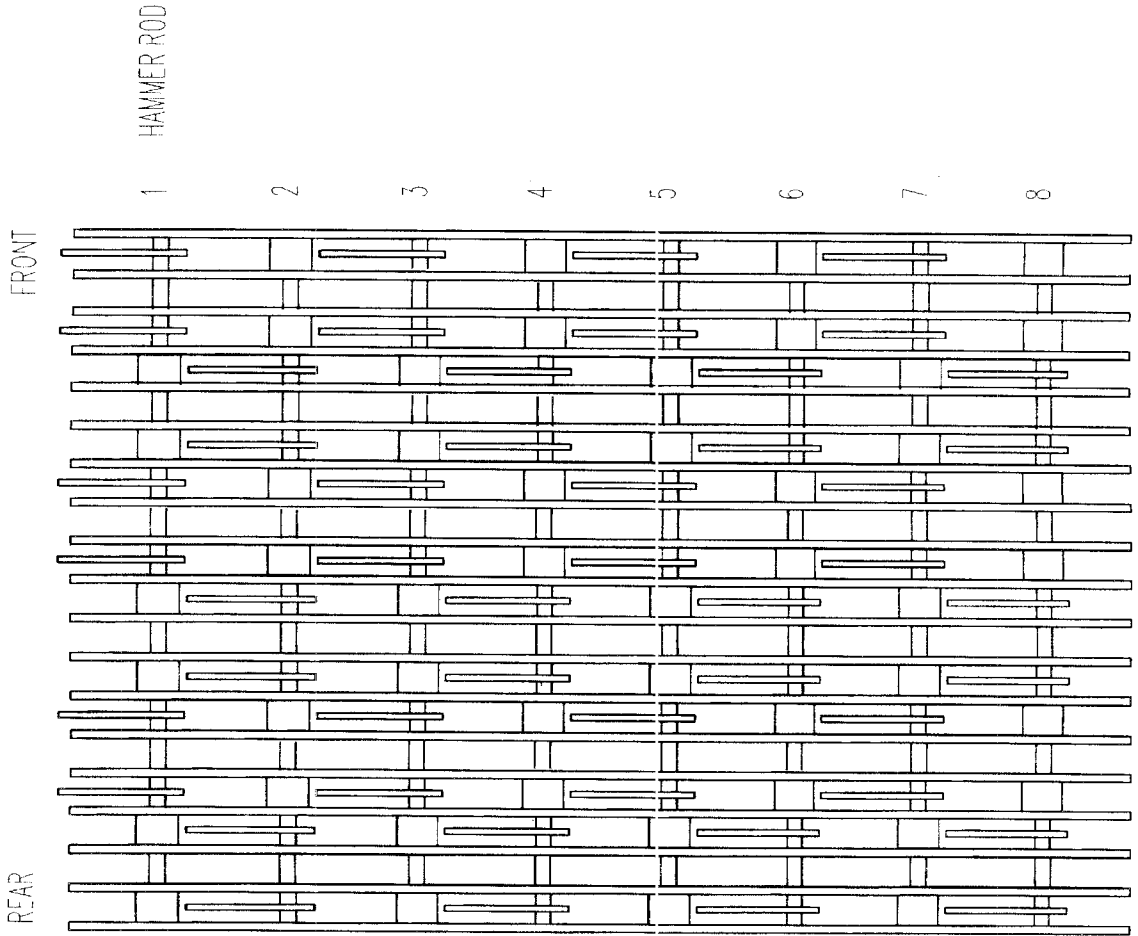
STANDARD PATTERN

FRONT

1 2 3 4 5 6 7 8



# PAPER GRATE SPACING



HAMMER  
48 REQD.

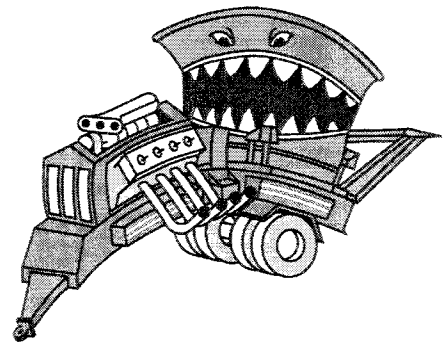
HAMMER ROD  
SHOCK SPACER  
1-1/4" LONG  
2-3/4" O.D.  
48 REQD.



# HD-10P SERIES IV INDUSTRIAL GRINDER

## PARTS BOOK

For Serial Numbers FI0412 to HI0477

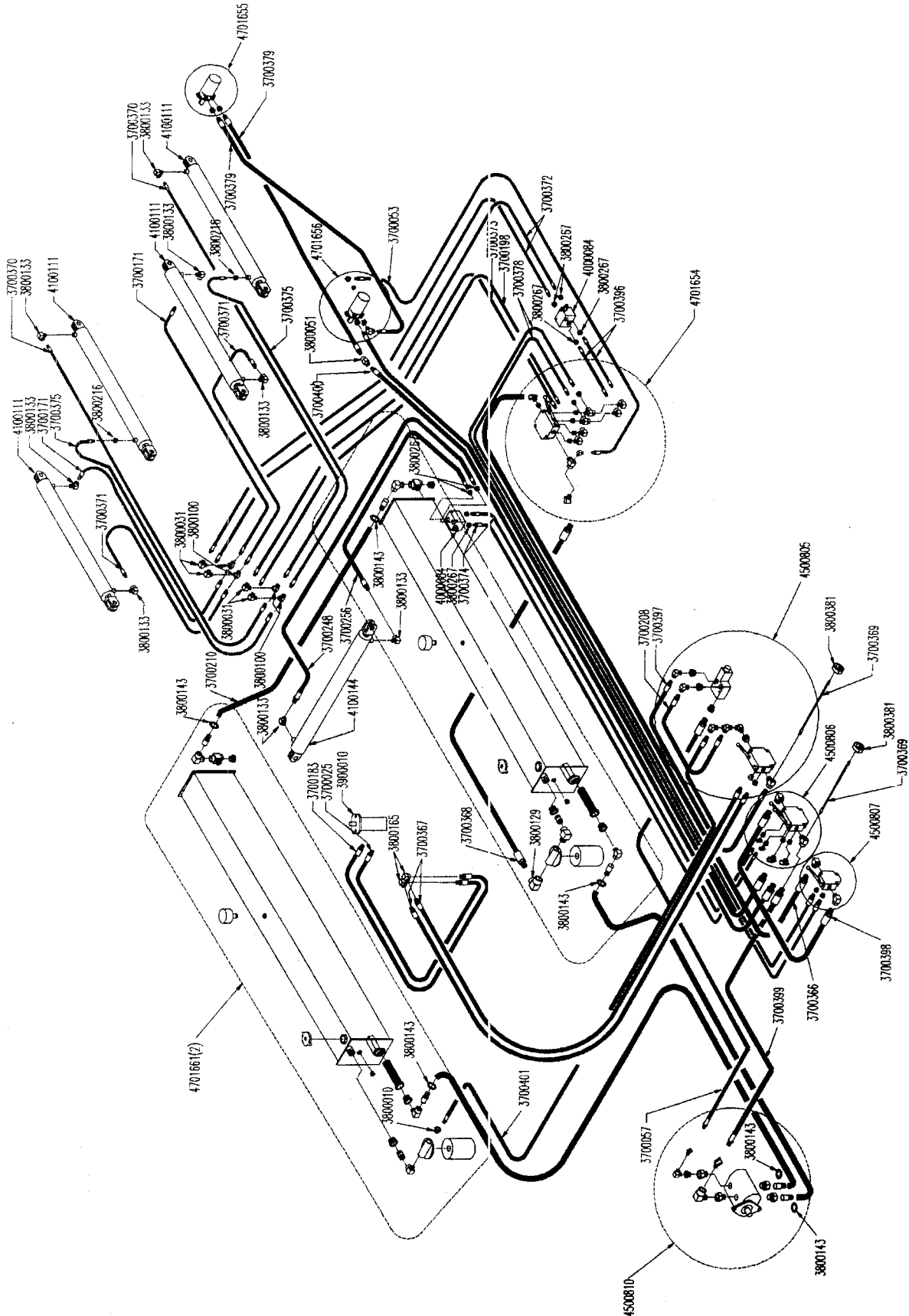


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# HYDRAULIC ASSEMBLY

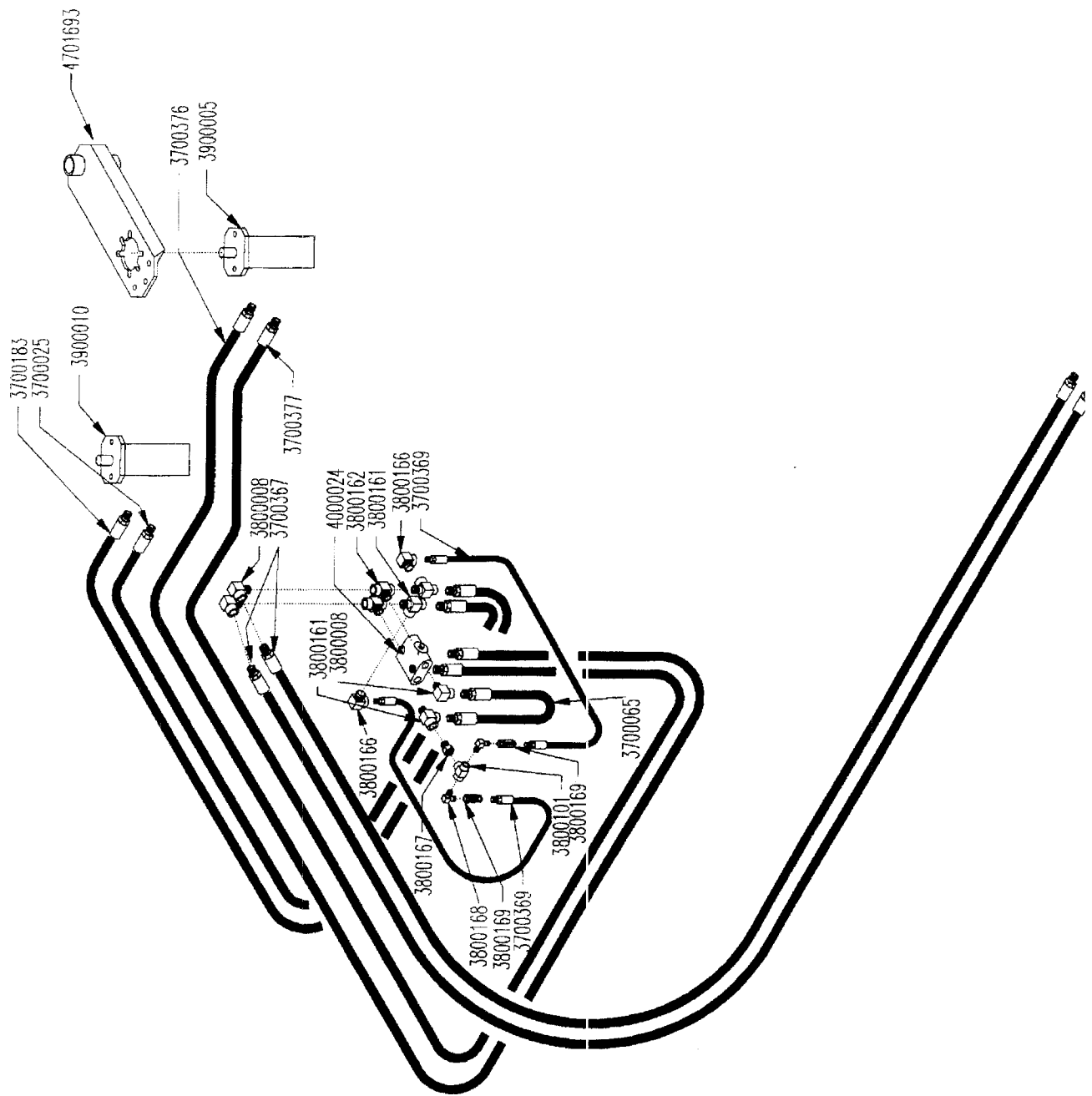




# HYDRAULIC ASSEMBLY

PART #	QTY	DESCRIPTION
<b>4701507</b>		<b>HYD\ASSEMBLY\HD10-P</b>
3700025	1	HOSE\HYD\1\2X114\SW\O-RING
3700053	1	HOSE\HYD\1.4X42
3700057	1	HOSE\HYD\1\2X58\SW-SW
3700171	2	HOSE\HYD\3\8X120\SW-SO
3700183	1	HOSE\HYD\1\2X116\SW\O-RING
3700198	1	HOSE\HYD\3\8X44
3700208	1	HOSE\HYD\1\2X18\SW-SW
3700210	1	HOSE\SCTN\1X56
3700248	1	HOSE\HYD\3\8X87\SW-SW
3700256	1	HOSE\HYD\3\8X58\SW-SW
3700366	1	HOSE\HYD\3\4X214\SW-SW
3700367	2	HOSE\HYD\1\2X66\SW-SW
3700368	1	HOSE\HYD\3\4X90\SW-SW
3700369	2	HOSE\HYD\1\4X19\SW-SW
3700370	2	HOSE\HYD\3\8X106\SW-SW
3700371	2	HOSE\HYD\3\8X156\SW-SW
3700372	2	HOSE\HYD\3\8X40\SW-SW
3700373	1	HOSE\HYD\3\8X42\SW-SW
3700374	2	HOSE\HYD\3\8X202\SW-SW
3700375	2	HOSE\HYD\3\8X74\SW-SW
3700378	2	HOSE\HYD\3\8X216\SW-SW
3700379	2	HOSE\HYD\3\4X282\1\2SW-SW
3700396	2	HOSE\HYD\3\8X18\SW-SW
3700397	1	HOSE\HYD\1\2X30\SW-SW
3700398	1	HOSE\HYD\3\4X30\SW-SO
3700399	1	HOSE\HYD\3\4X78\SW-SO
3700400	1	HOSE\HYD\3\4X200\1\2SW-SW
3700401	1	HOSE\HYD\1\2X112\SW-SW
3800010	1	FTG\3\4MPX1\2FP\BUSH
3800031	4	FTG\3\8MPX3\8FP\90D\ST;EL
3800051	1	FTG\1\2FP\CPLG
3800100	4	FTG\3\8FP\TEE
3800129	1	FTG\3\4MPX3\4FP\90D\ST;EL
3800133	8	FTG\1\2MPX3\8FP\90D\ST;EL
3800143	6	CLAMP\HOSE\1-1\2\T-BOLT
3800165	2	FTG\1\2FP\90D\ELL
3800216	2	FTG\1\2MPX3\8FP\BUSH
3800267	7	FTG\3\4MORX3\8FP\ADPT
3800381	2	GUAGE\3000PSI\REAR;STEM
3900010	1	MTR\HYD\18.7\2000\SAE;A
4000084	2	VAVLE\HYD\30GPM\HOLD\DBL
4100111	4	CYL\HYD\3X36\PERP
4100144	1	CYL\HYD\4X30\1-3/4 ROD
4500805	1	VAVLE\TUB\DR\ASSY
4500806	1	VALVE\CNVYR\RUN\ASSY
4500807	1	VAVLVE\CNVYR\LIFT\ASSY
4500810	1	PUMP\HYD\TNDM\20-15
4701654	1	VALVE\CNVYR\LFT&FLD
4701655	1	MTR\HYD\18.7\ASSY
4701656	1	MTR\HYD\9.6\ASSY
4701661	2	TANK\OIL\ASSY

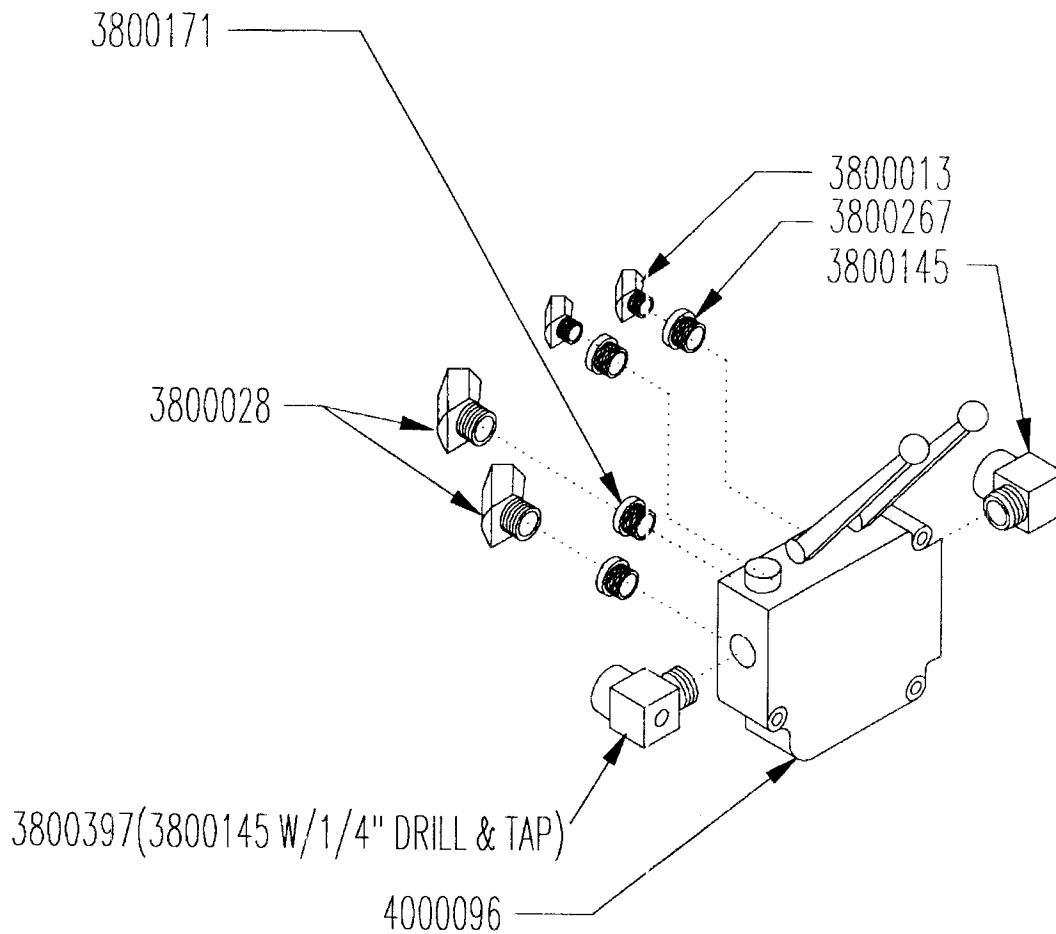
# OPTION: DUAL ORBIT MOTOR ASSEMBLY



## OPTION: DUAL ORBIT MOTOR ASSEMBLY

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
<b>4701665</b>		<b>MTR\HYD\DUAL\ASSY</b>
3700065	1	HOSE\HYD\1/2X16\SW-SO
3700369	2	HOSE\HYD\1/4X19\SW-SW
3700376	1	HOSE\HYD\1/2X133\SW\O-RING
3700377	1	HOSE\HYD\1/2X133-1/2\SW
3800008	3	FTG\1/2MPX1/2FP\90D\ST;EL
3800101	1	FTG\1/4FP\TEE
3800161	3	FTG\1/2FPX1/2MPX1/2FP\
3800162	2	FTG\1/2FP\1/2FPX1/2MP
3800166	2	FTG\1/2MPX1/4FP\90D\ST;EL
3800167	1	FTG\1/2MPX1/4MP\NPL
3800168	2	FTG\1/4MP\90D\M;EL
3800169	2	FTG\1/4FP\CV
3900005	1	MTR\HYD\14.9\2000\SAE;A
4000024	1	VALVE\HYD\20GPM\SEL
4701693	1	MNT\MTR\ORBIT\LEFT

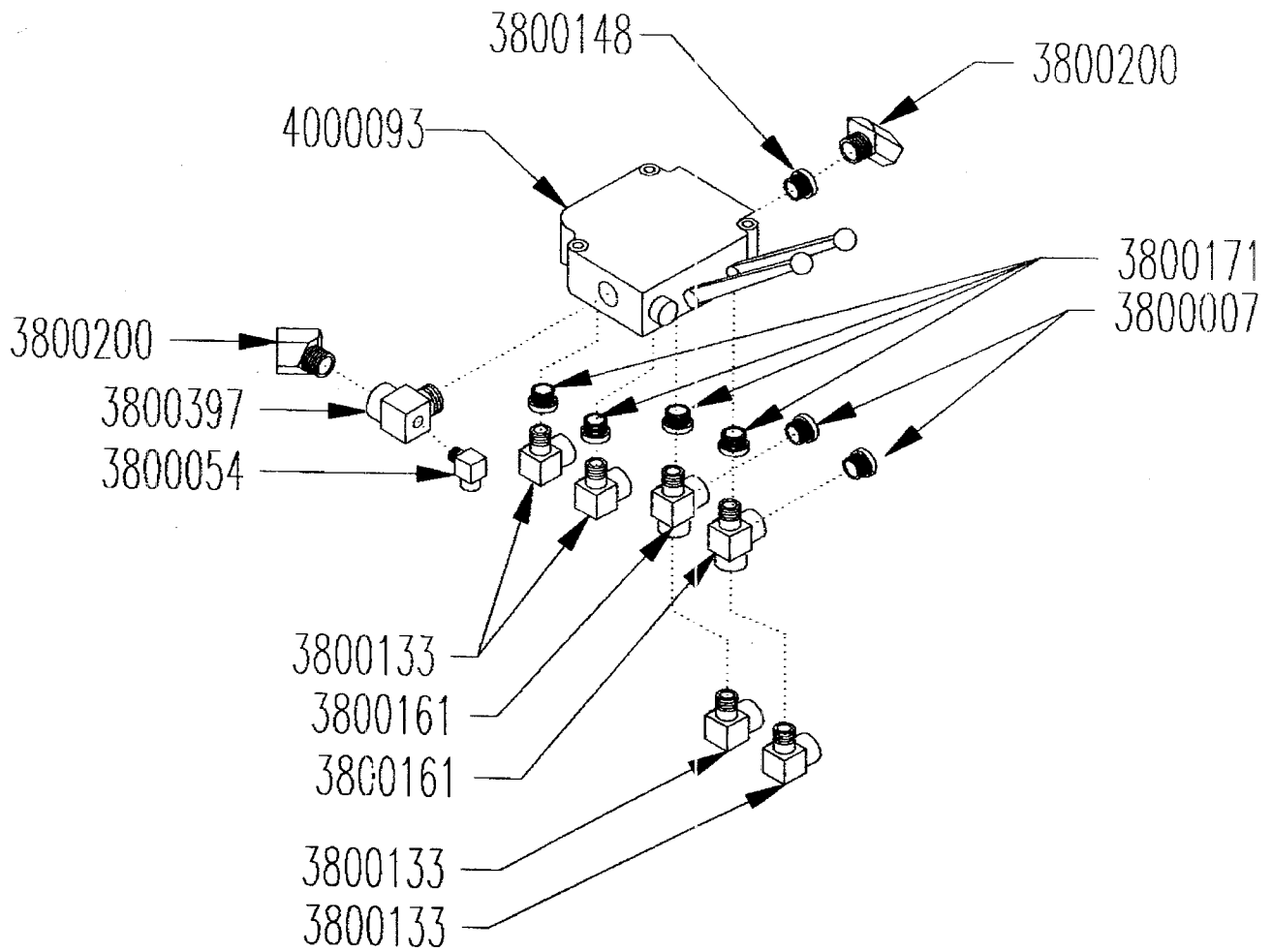
# CONVEYOR RUN VALVE



**PART #    QTY    DESCRIPTION**

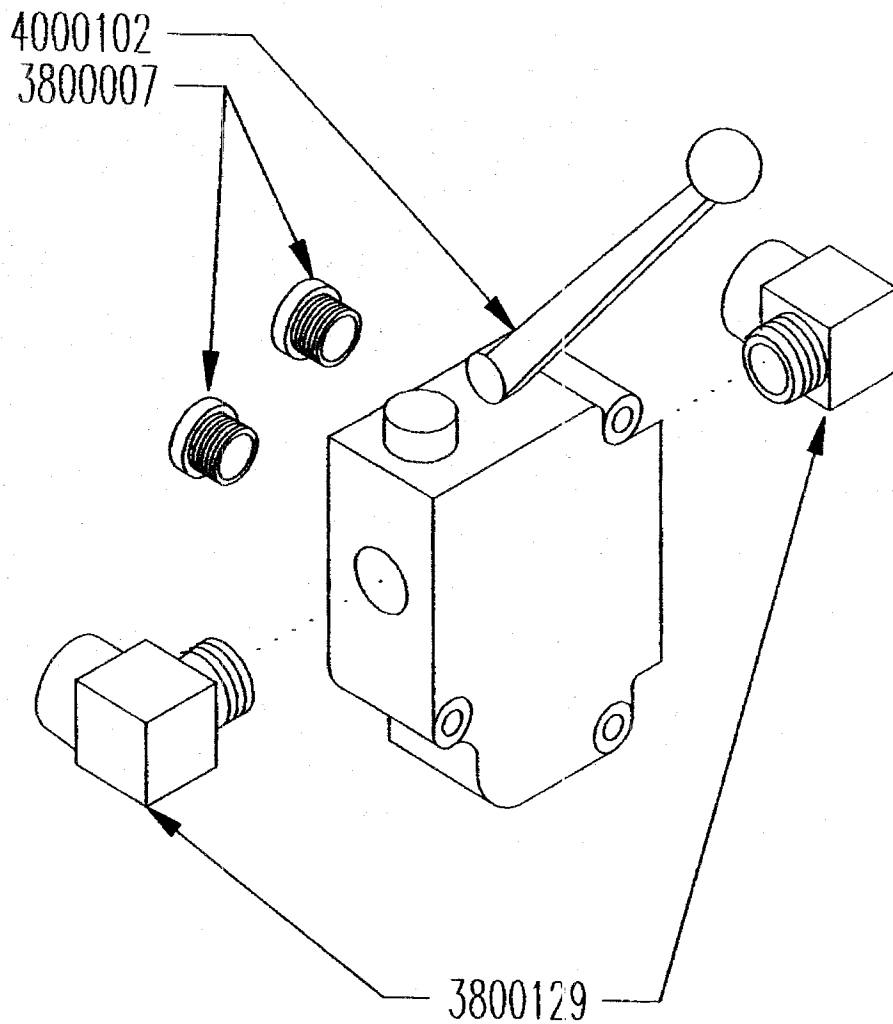
<b><u>PART #</u></b>	<b><u>QTY</u></b>	<b><u>DESCRIPTION</u></b>
<b>4500806</b>		<b>VALVE\CNVYR\RUN\ASSY</b>
3800013	2	FTG\3.8MPX3.8FP\45D\ST;EL
3800028	2	FTG\1/2MPX1/2FP\45D\ST;EL
3800145	1	FTG\1-1/16MORX3/4FP\90 ST;EL
3800171	2	FTG\3/4MORX1/2FP\ADPT
3800267	2	FTG\3/4MORX3/8FP\ADPT
3800397	1	FTG\1-1/16MORX3/4FP\90 ST;EL\w/1/4" drilled & tapped
4000096	1	VAVLE\HYD\W\DETENT

# CONVEYOR LIFT & FOLD VALVE



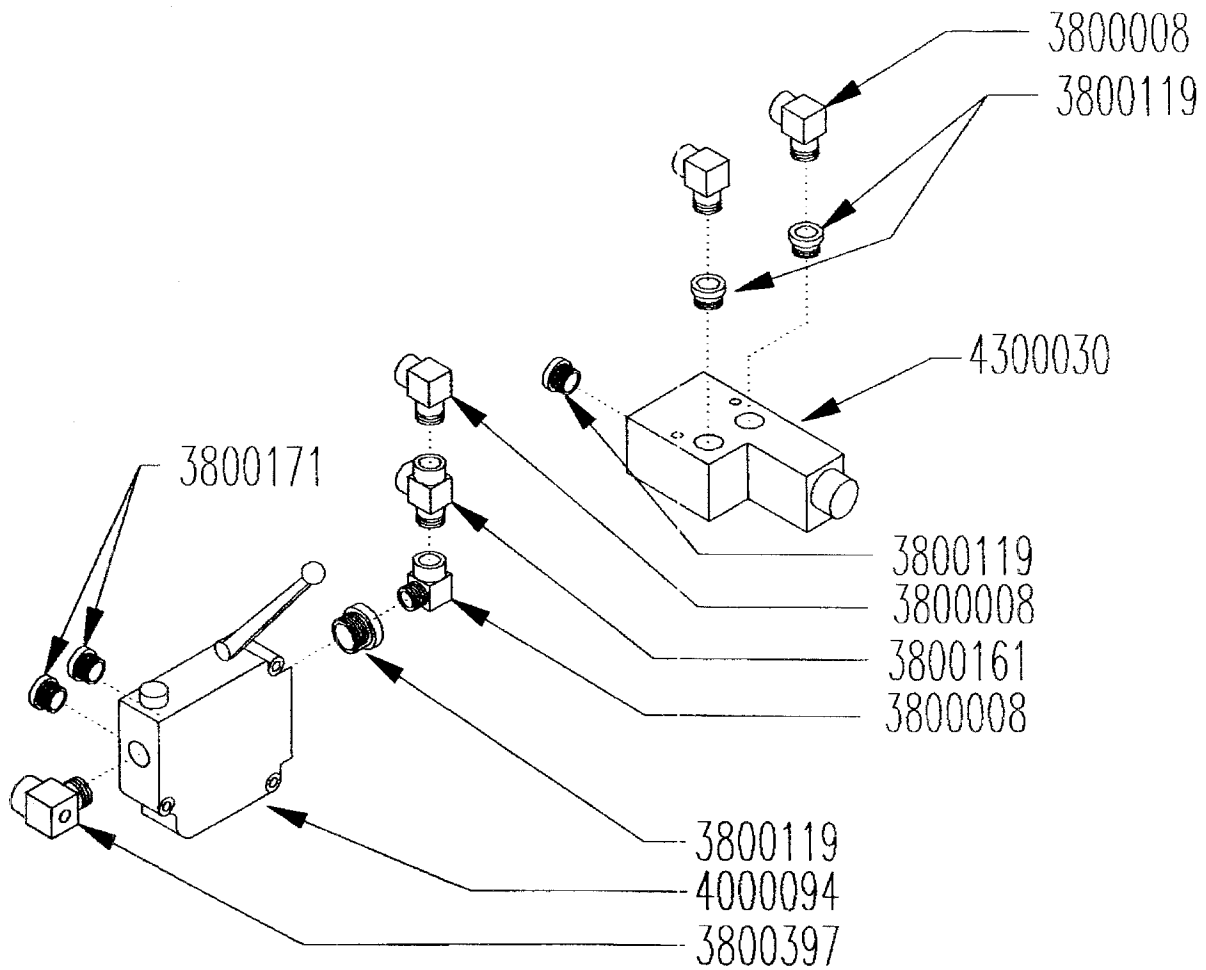
<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
<b>4701654</b>		<b>VAVLE\CNVYR\LFT&amp;FLD\ASSY</b>
3800007	2	FTG\1/2MPX3/8FP\BUSH\LW
3800054	1	FTG\1/4MPX1/4FP\90D\ST;EL
3800133	4	FTG\1/2MPX3\8FP\90D\ST;EL
3800148	1	FTG\1-1/16MORX3/4FP\4FP\ADPT
3800161	2	FTG\1/2FPX1/2MPX1/2FP
3800171	4	FTG\3/4MORX1/2FP\ADPT
3800200	2	FTG\3/4MPX3/4FP\45D\ST;EL
3800397	1	FTG\1-1/16MORX3/4FP\90D
4000093	1	VALE\HYD\2-SPL\3POS-4W

# CONVEYOR LIFT VALVE ASSEMBLY



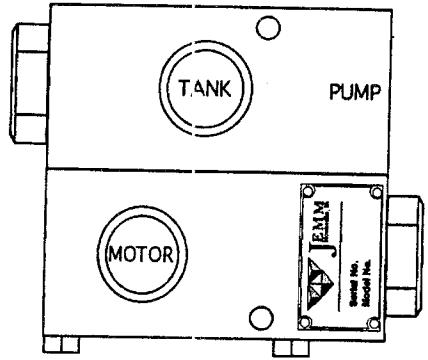
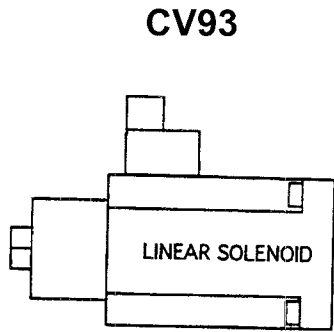
<b>PART #</b>	<b>QTY</b>	<b>DESCRIPTION</b>
4500807		VALVE\CNVYR\LIFT\ASSY
3800007	2	FTG\1/2MPX3/8FP\BUSH\LV
3800129	2	FTG\3/4MPX3/4FP\90D\ST;EL
4000102	1	VAVLE\HYD\1-SP\100040

# TUB DRIVE VALVE ASSEMBLY

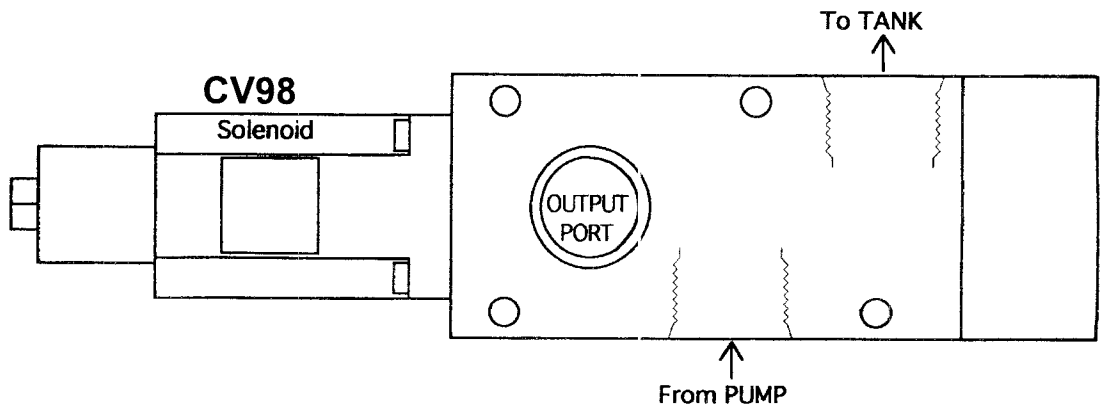


<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
<b>4500805</b>		VAVLE\TUB\DRIVE\ASSY
3800008	4	FTG\1/2MPX1/2FP\90D\ST;EL
3800119	4	FTG\1-1/16MORX1/2FP\ADPT
3800161	1	FTG\1/2FPX1/2MPX1/2FP\
3800171	2	FTG\3/4MORX1/2FP\ADPT
3800397	1	FTG\1-1/16MORX3/4FP\90D
4000094	1	VALVE\HYD\1-SPL\FLO;CNTRL
4300030	1	NA – order 4300065
4300065		VLV\SERVO\15GPM\12VDC
4300010		VALVE\SOLENOID\12V\JEMM, replacement for 4300030 and 4300065

# HYDRAULIC ELECTRIC SOLENOID VALVE



Valve 4300030



Valve 4300065

<u>PART</u>	<u>QTY</u>	<u>DESCRIPTION</u>
		CV93
4300030	1	Hyd. Electric Solenoid Valve Complete 12V 20GPM
		CV98
4300065		Valve\Servo\15gpm\12vdc
4300010		Solenoid\Hyd Valve\12V, see notes below

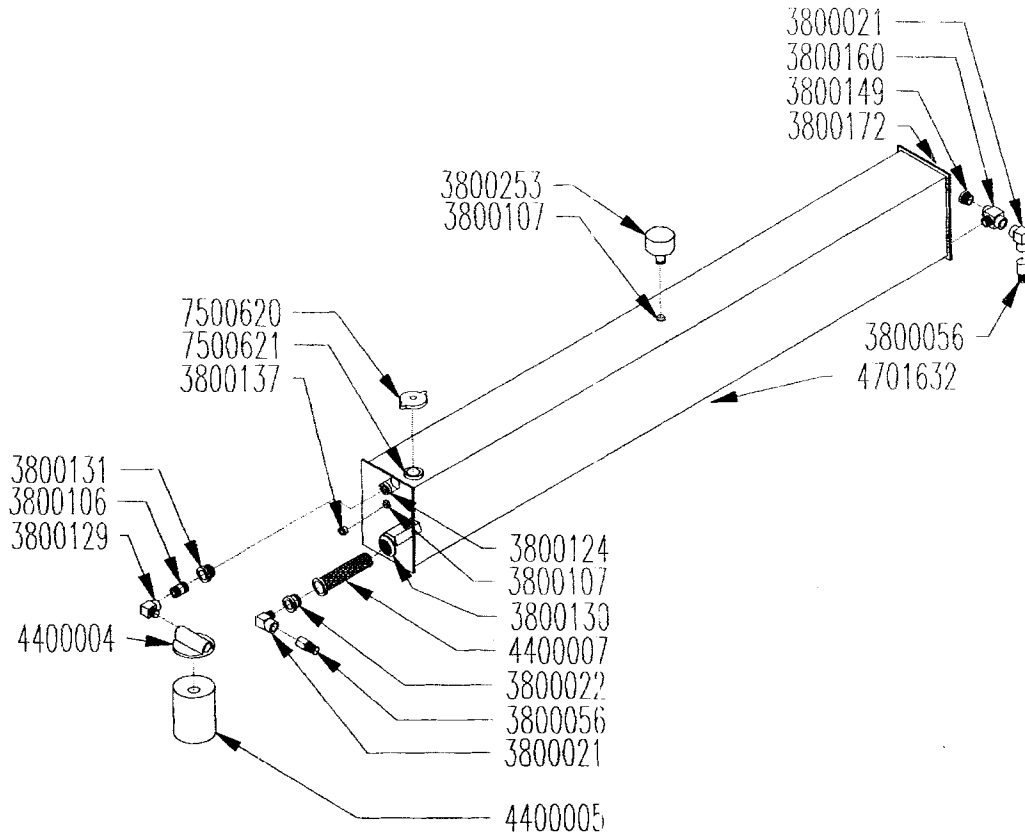
Note - The difference between the 12Volt and 24Volt solenoid is listed on the serial number plates.



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. 12 volt solenoid resistance is 8 to 12 ohms, 24 volts resistance is 38 to 44 ohms.

Note - 15 GPM is standard flow rate. Any valves that are not 15GPM are to be stamped in metal of the valve casing next to the serial number indicating the flow rate, e.g. 25 indicates 25 gpm.

# OIL TANK ASSEMBLY



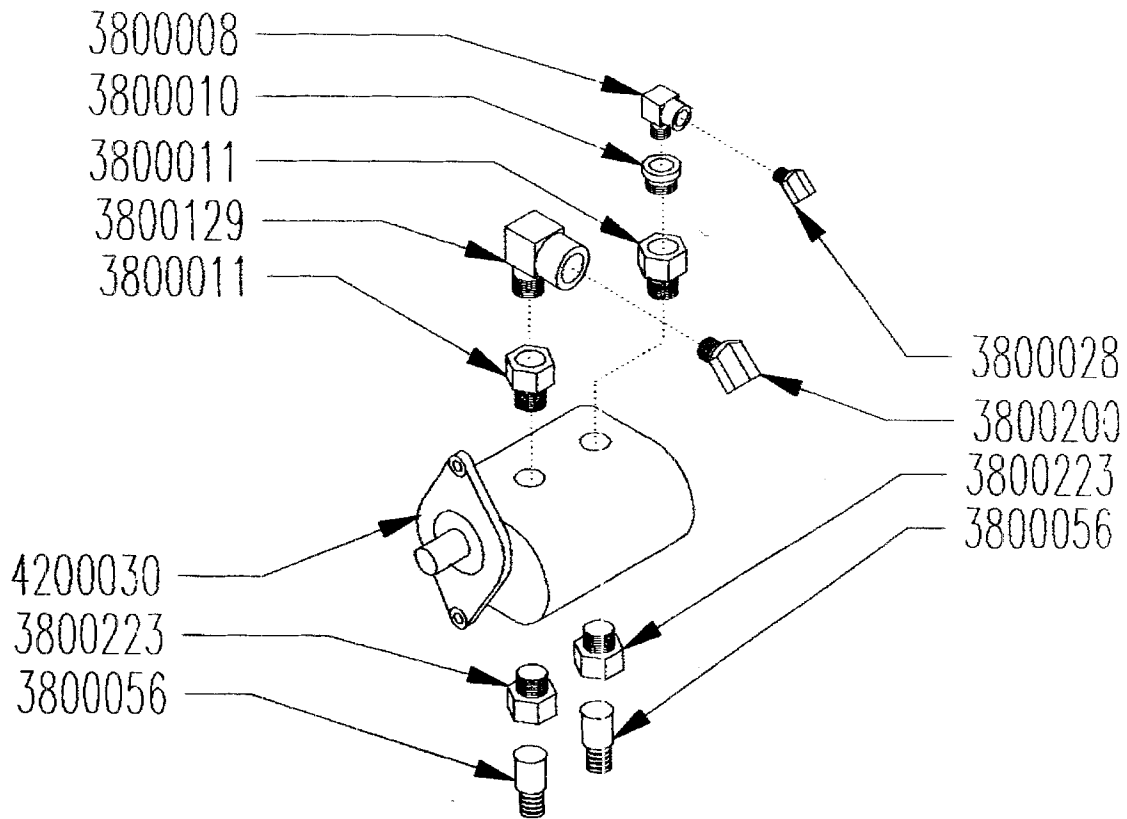
<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
4701661		TANK\OIL\ASSY
3800021	2	FTG\1MPX1FP\90D\ST;EL
3800022	1	FTG\1-1/4MPX1FP\BUSH\LW
3800056	2	FTG\1MPX1BARB\ADPT\LW
3800106	1	FTG\3/4MPX1-1/2\NPL\LW
3800107	2	FTG\3/4FP\WELD\FLG\LW
3800124	1	FTG\1FP\CPLG\SCH80
3800129	1	FTG\3/4MPX3/4FP\90D\ST;EL
3800130	1	FTG\2FP\WELD\FLG\LW
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
3800172	1	FTG\1FP\WELD\FLG\LW
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
4701632	1	TANL\OIL\12X8X96\START
7500620	1	CAP\OIL\4777\300 SERIES

# HYDRAULIC PUMP \ TANDEM \ 20-15

7500621

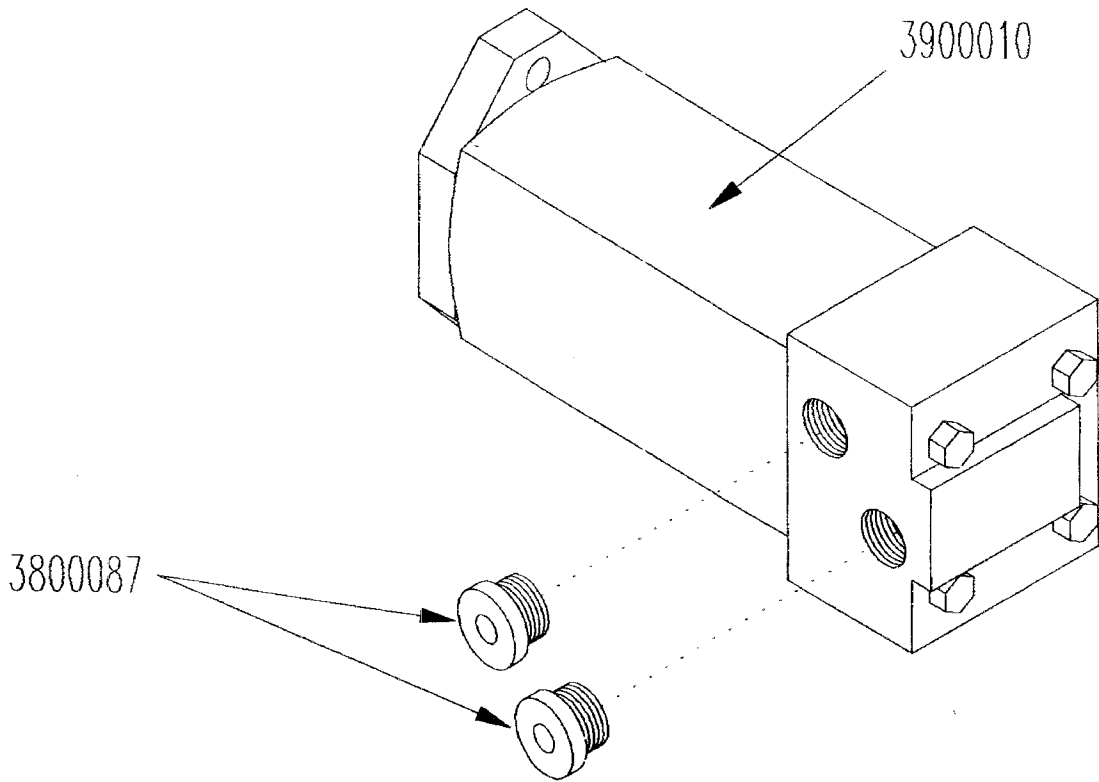
1

NECK \ OIL \ 4779 \ 300 SERIES



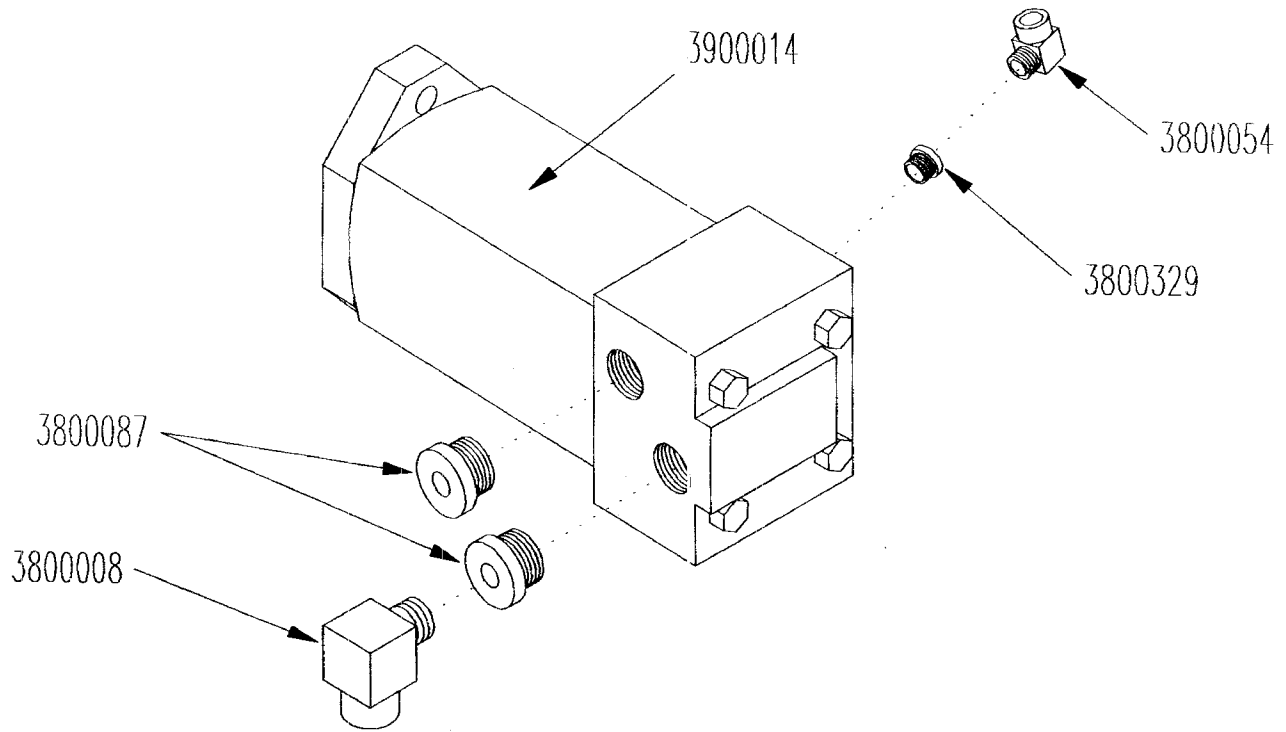
<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTON</u>
4500810		PUMP \ HYD \ TNDM \ 20-15 \ ASSY
3800008	1	FTG \ 1/2MPX1/2FP \ 90D \ ST;EL
3800010	1	FTG \ 3/4MPX1/2FP \ BUSH
3800011	2	FTG \ 1-5/16MORX3/4FP \ ADPT
3800028	1	FTG \ 1/2MPX1/2FP \ 45D \ ST;EL
3800056	2	FTG \ 1MPX1BARB \ ADPT \ LW
3800129	1	FTG \ 3/4MPX3/4FP \ 90D \ ST;EL
3800200	1	FTG \ 3/4MPX3/4FP \ 45D \ ST;EL
3800223	2	FTG \ 1-5/16MORX1FP \ ADPT
4200030	1	PUMP \ HYD \ 20/15 \ RH \ DBL \ CAT_3406

# HYDRAULIC MOTOR\18.7\ ASSEMBLY



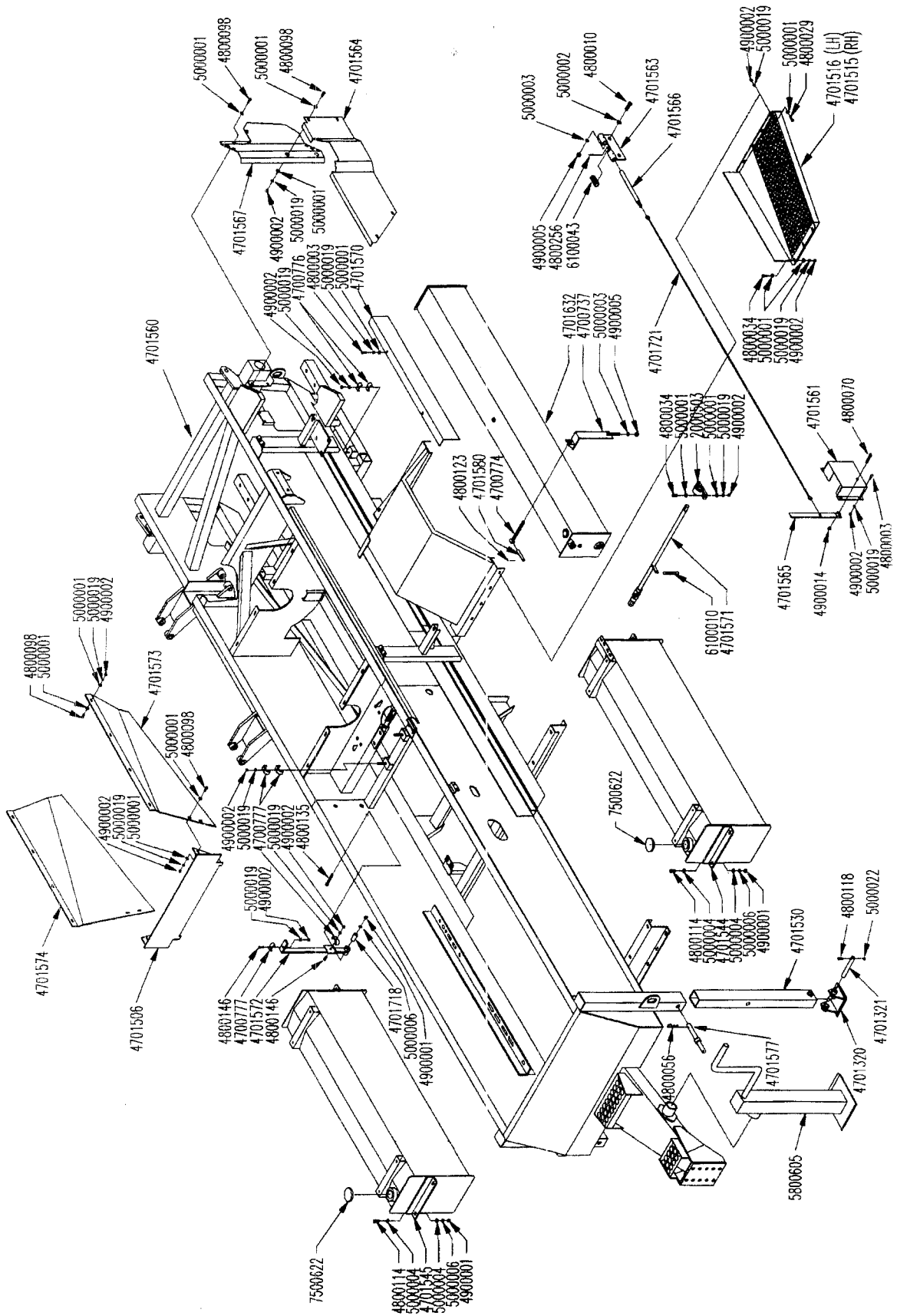
<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
<b>4701655</b>		<b>MTR\HYD\18.7\ASSY</b>
3800087	2	FTG\7/8MORX1/2FP\ADPT
3900010	1	MTR\HYD\18.7\2000\SAE;A

# HYDRAULIC MOTOR \9.6\ASSEMBLY



<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
<b>4701656</b>		<b>MTR\HYD\9.6\ASSY</b>
3800008	1	FTG\1/2MPX1/2FP\90D\ST;EL
3800054	1	FTG\1/4MPX1/4FP\90D\ST;EL
3800087	2	FTG\7/8MORX1/2FP\ADPT
3800329	1	FTG\7/16MORX1/4FP\ADPT
3900014	1	MTR\HYD\9.6\2000\1-1/4SH

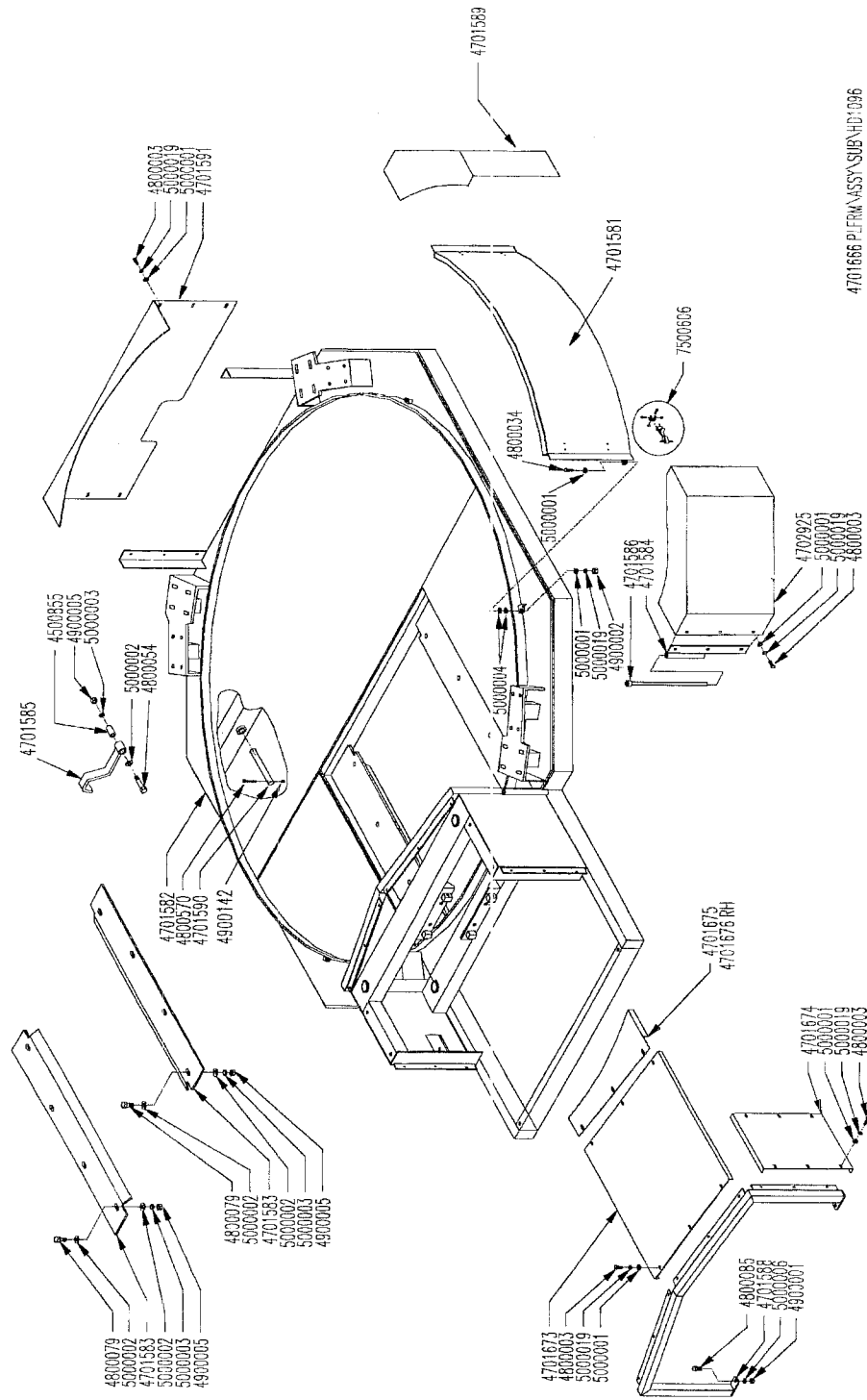
# MAIN FRAME ASSEMBLY



# MAIN FRAME ASSEMBLY

PART	QTY	DESCRIPTION	PART	QTY	DESCRIPTION
<b>4701724</b>		<b>FRMMN</b>	5000003	6	WASH\LOCK\5/8
2000503	1	BRG\PB\1	5000004	16	WASH\FLAT-1/2
4700737	4	OILTANK STRAP	5000006	9	WASH\LOCK\1/2
4700774	4	OIL TANK MTNG BOLT	5000019	45	WASH\LOCK\3/8
4700776	2	CLMP\HOSE\3/8	5000022	2	WASH\LOCK\5/16
4700777	6	CLMP\HOSE\1/2	5800605	1	JACK\13-10,000
4701320	2	STND\JACK\HYD	6100010	1	SPRNG\TNSN
4701321	2	PIN\STND\JACK\HYD	6100043	1	1-1/16X4-1/4X.110 WIRE
4701506	1	ENCL\BOX\CYL	7500622	2	CAP\FUEL\5557-23\600 SERIES
4701515	1	WLKWY\RH\TUB			
4701516	1	WLKWY\LH\TUB			
4701530	2	STND\JACK\FR			
4701544	1	TANK\FUEL\LH			
4701545	1	TANK\FUEL\RH			
4701560	1	FRMMN\PNL			
4701561	1	ENCL\HDL\LATCH\PLFRM\ASSY			
4701563	1	BRKT\ [PIN\LOCK\PLFRM\ASSY			
4701564	1	SHLD\LOWER\HOSE\HYD\ASSY			
4701565	1	LVR\LATCH\PLFRM\ASSY\FRM			
4701566	1	PIN\LATCH\PLFRM\ASSY\FRM			
4701567	1	SHLD\HOSE\HYD\REAR\ASSY			
4701570	3	CO\DUCT\HOSE\HYD\ASSY			
4701571	1	LVR\CLUTCH\ASSY\FRMMN			
4701572	1	GUIDE\HOSE\PLFRM\ASSY\FRM			
4701573	1	DEFLR\INLET\CNVYR\BELLY			
4701574	1	DEFLR\INLET\CNVYR\BELLY			
4701577	2	PIN\STND\JACK\10-1/2X1			
4701580	4	PIN\STRAP\TANK\OIL			
4701718	1	BUSH\MNT\ARM\GUIDE\HOSE			
4701721	1	CBL\ASSY\LATCH\PLFRM			
4800003	10	BOLT\HEX\3/8X1			
4800010	2	BOLT\HEX\5/8X2			
4800029	8	BOLT\HEX\3/8X2-1/2			
4800034	8	BOLT\HEX\3/8X1-1/2			
4800056	2	PIN\HAIR\3/16X3 (#6)			
4800070	1	BOLT\HEX\1/2X2-1/2			
4800098	23	BOLT\HEX\3/8X1-1/4\NC			
4800114	8	BOLT\HEX\1/2X2			
4800118	2	BOLT\HEX\5/16X2			
4800123	8	PIN\COT\1/8X1-1/2			
4800135	1	BOLT\HEX\1/2X3-1/2			
4800146	2	BOLT\HEX\3/8X2			
4800256	1	PIN\RLLD\3/16X1-1/2			
4900002	39	NUT\HEX\3/8\NC			
4900005	6	NUT\HEX\5/8\NC			
4900014	1	NUT\TPLCK\1/2\NC\.500"MAX			
5000001	67	WASH\FLAT\3/8			
5000002	2	WASH\FLAT\5/8			

# PLATFORM ASSEMBLY



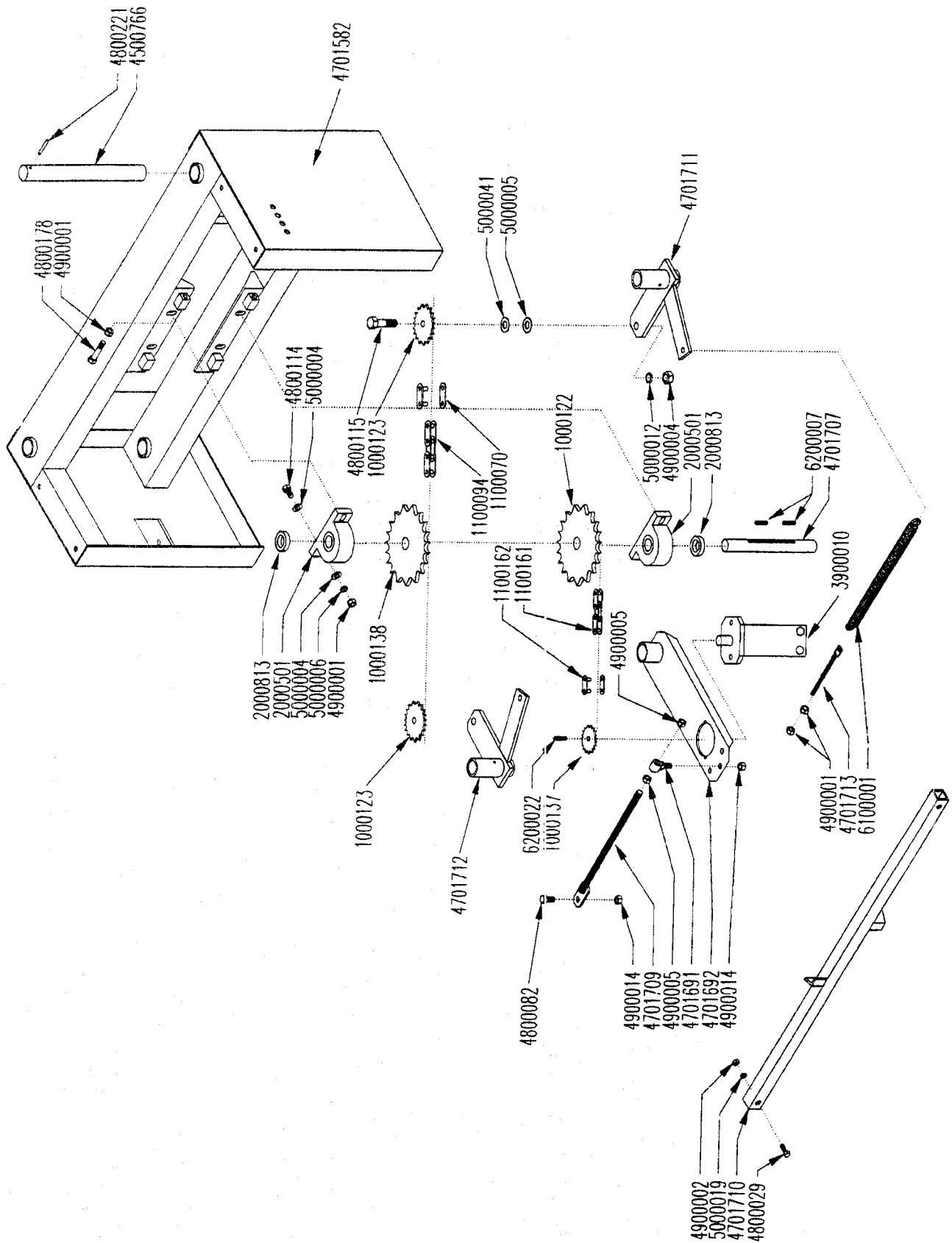
4701666 PLATFORM ASSY SUBVID:036



# PLATFORM ASSEMBLY

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
<b>4701666</b>		<b>PLFRM\ASSY\SUB</b>
4500855	4	BUSH\BRKT\HOLDWN\SCRN
4701581	2	SHLD\CHAIN\TUB\SIDE
4701582	1	FRM\PLFRM\GRDR\TILT\90D
4701583	2	PL\HLDW\SCRN\45X7-1/2
4701584	4	HINGE\GUARD\RLLR\ASSY
4701585	4	BRKT\HLDWN\SCRN
4701586	4	PIN\HINGE\SHLD\RLLR\TUB
4701588	1	BRKT\SHDL\TBDR\ASSY\FRM
4701589	2	SHLD\RLLR\TUB\RH\HD10> SERIES IV
4701590	3	PIN\HINGE\PLFRM*ASSY\FRM
4701591	1	SHLD\CHAIN\TUB\REAR
4701673	2	SHLD\DR\TUB\TOP\HOUSE
4701674	2	SHLD\DR\TUB\SIDE\HOUSE
4701675	1	CVR\DR\TUB\REAR\LH
4701676	1	CVR\DR\TUB\REAR\RH
4702925	2	SHLD\RLLR\TUB\LH\HD10>SERIES IV
4800003	42	BOLT\HEX\3/8X1
4800034	4	BOLT\HEX\3/8X1-1/2
4800054	4	BOLT\HEX\5/8X3-1/2
4800079	8	BOLT\HEX\5/8X2-1/2
4800085	2	BOLT\HEX\1/2X1
4800570	3	BOLT\HEX\5/16X2-1/2
4900001	2	NUT\HEX\1/2\NC
4900002	4	NUT\HEX\3/8\NC
4900005	12	NUT\HEX\5/8\NC
4900142	3	NUT\TPLCK\5/16
5000001	50	WASH\FLAT\3/8
5000002	20	WASH\FLAT\5/8
5000003	12	WASH\LOCK\5/8
5000004	8	WASH\FLAT\1/2
5000006	2	WASH\LOCK\1/2
5000019	46	WASH\LOCK\3/8
7500606	8	LATCH\35-M\AUSTIN

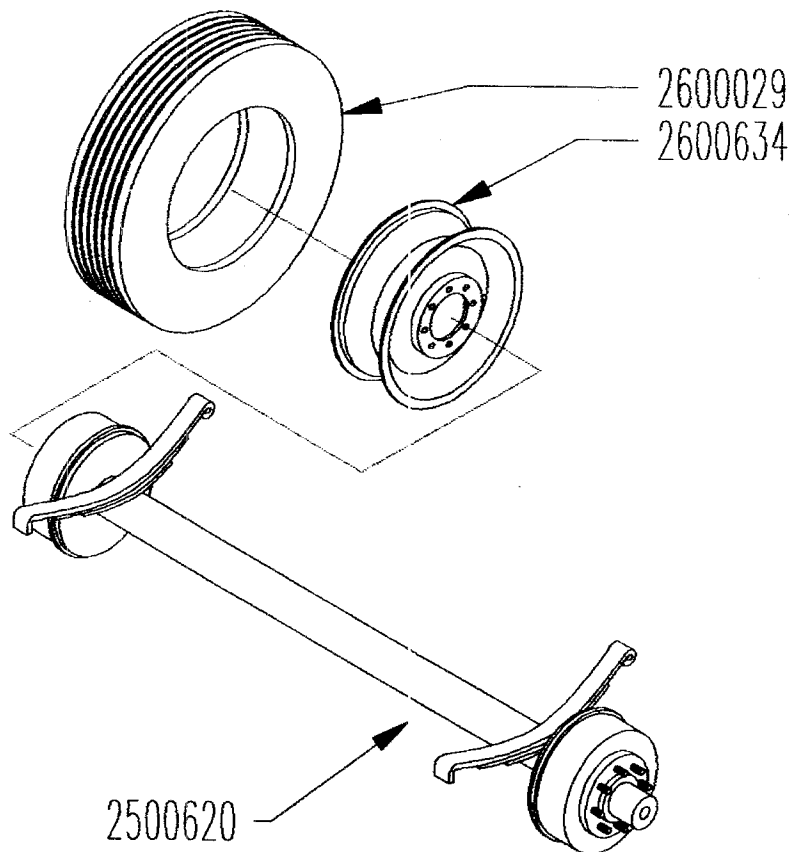
# TUB DRIVE ASSEMBLY



# TUB DRIVE ASSEMBLY

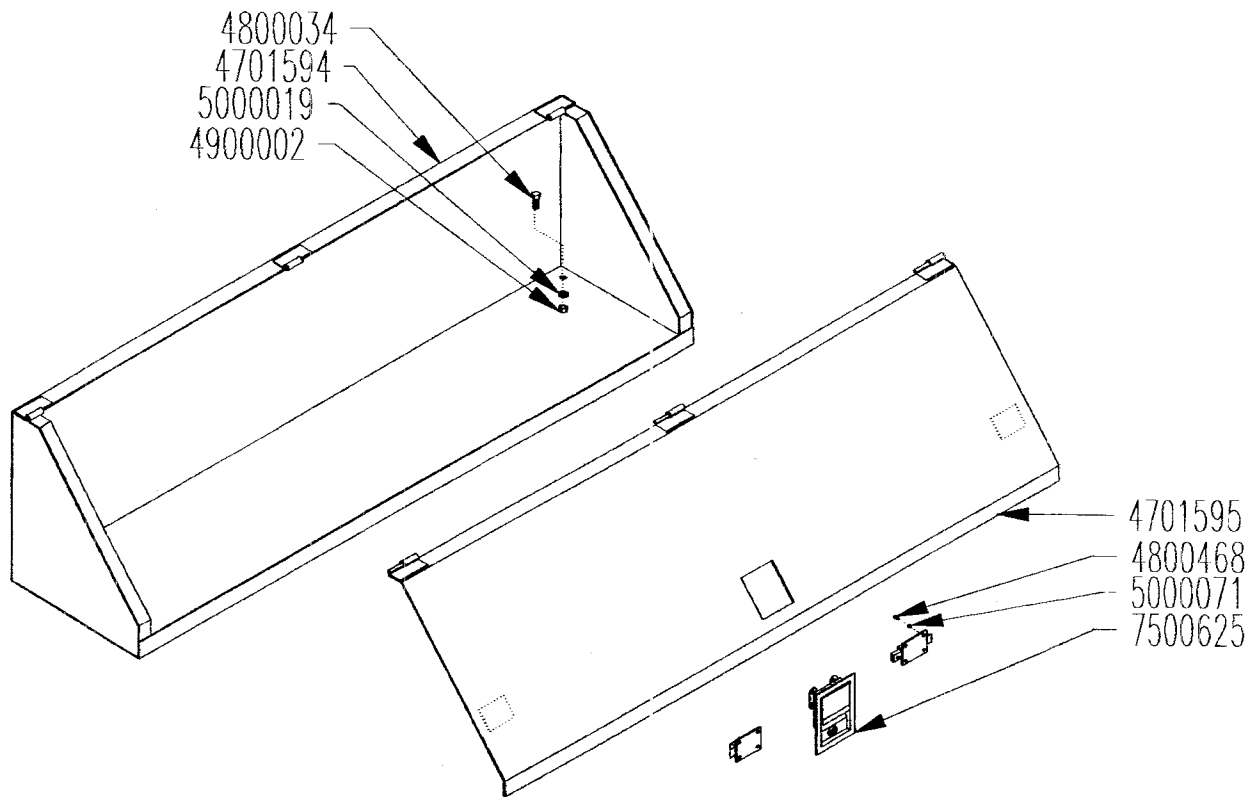
<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
<b>4701714</b>		<b>TUBDRIVE\ASSY\SUB</b>
1000122	1	SPKT\80\B\1-1/2\STD
1000123	2	SPKT\80\18\3/4\IDLER
1000137	1	SPKT\80\10\1-1/4\5/16KW
1000138	1	SPKT\80\30\1-1/2\3/8KW
1100070	1	CHAIN\2080\CL
1100094	1	CHAIN\2080\157
1100161	1	CHAIN\80H\41
1100162	1	CHAIN\80H\CL
2000501	2	BRG\PB\1-1/2\2-BOLT
2000813	2	CLLR\SHFT\1-1/2\SET
4500766	2	PIN\PIVOT\ARM\SWING\DRIVE
4701691	1	BRKT\TGHTR\CHAIN\ORBIT
4701692	1	MNT\MTR\ORBIT\RIGHT
4701707	1	SHFT\DR\TUB\1-1/2X15-1/2
4701709	2	BOLT\TGHTR\CHAIN\ORBIT
4701710	1	BRKT\SPRG\IDLER\CHAIN
4701711	1	BRKT\ARM\SWING\LH\TUB
4701712	1	BRKT\ARM\SWING\RH\TUB
4701713	2	ROD\TGHTR\CHAIN\TUB\DECK
4800029	2	BOLT\HEX\3/8X2-1/2
4800082	2	BOLT\HEX\1/2X1-1/2
4800114	4	BOLT\HEX\1/2X2
4800115	2	BOLT\HEX\3/4X2-1/2
4800178	2	BOLT\HEX\1/2X1-3/4
4800221	2	PIN\RLLD\1/4X2
4900001	10	NUT\HEX\1/2\NC
4900002	2	NUT\HEX\3/8\NC
4900004	2	NUT\HEX\3/4\NC
4900005	4	NUT\HEX\5/8\NC
4900014	2	NUT\TPLCK\1/2\NC\500*MAX
5000004	8	WASH\FLAT\1/2
5000005	2	WASH\FLAT\3/4
5000006	4	WASH\LOCK\1/2
5000012	2	WASH\LOCK\3/4
5000019	2	WASH\LOCK\3/8
5000041	2	WASH\3/4IDX1-1/8OD\16GA
6100001	2	SPRING\156OT\63/64OD13LIH
6200007	2	KEY\SQ\3/8X1-1/2
6200022	1	KEY\SQ\5/16X1-1/2HARDENED

# 20K AXLE ASSEMBLY



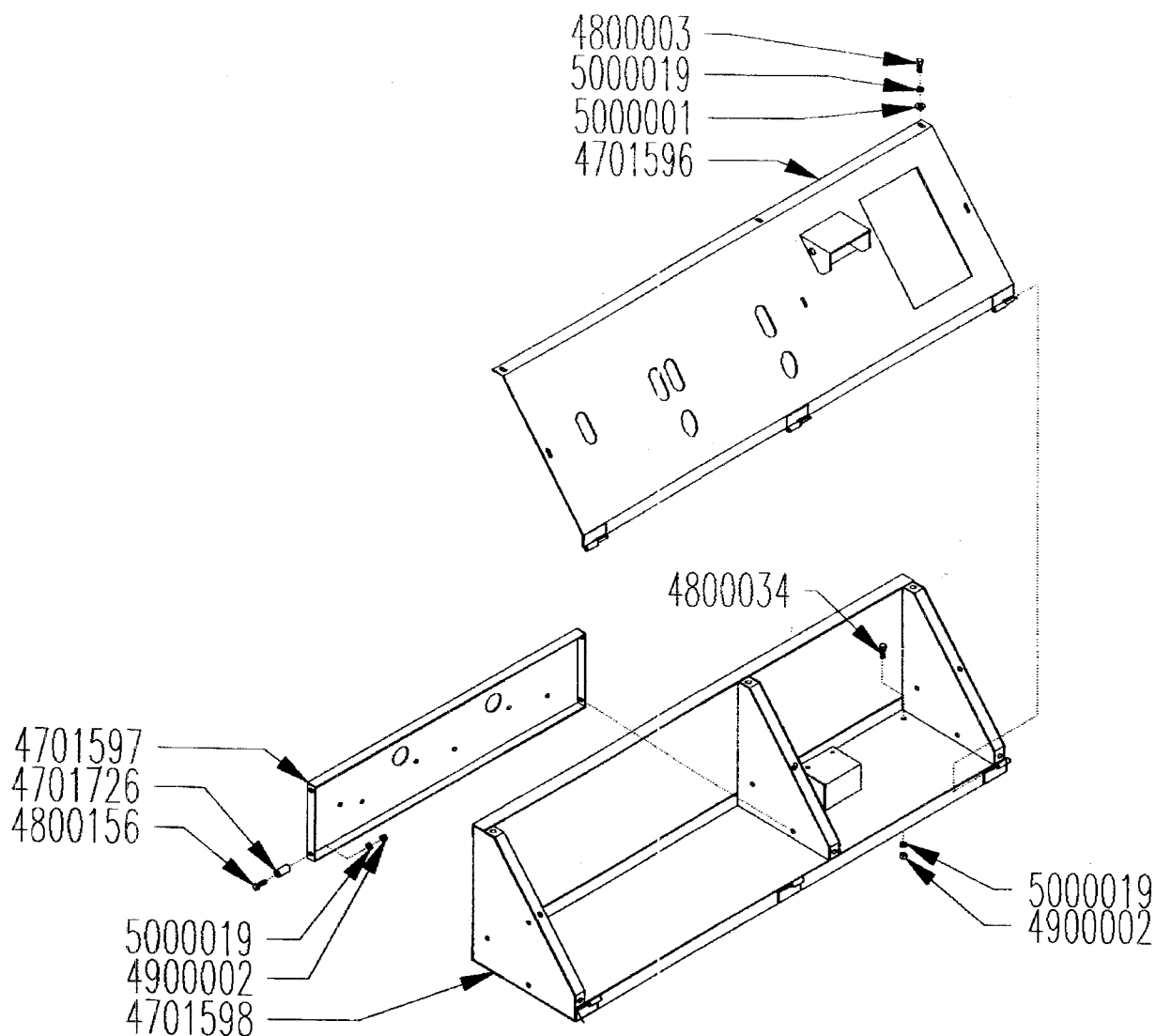
<b>PART #</b>	<b>QTY</b>	<b>DESCRIPTION</b>
<b>4701716</b>		<b>AXLE\ASSY</b>
2500620	1	AXLE\20K\COMP
2600029	4	255.70R22.5 TIRE
2600634	4	22.5X8.25 10-BOLT RIM
2500906	2	OIL CAP W/VENT PLUG 20 K

# TOOLBOX ASSEMBLY



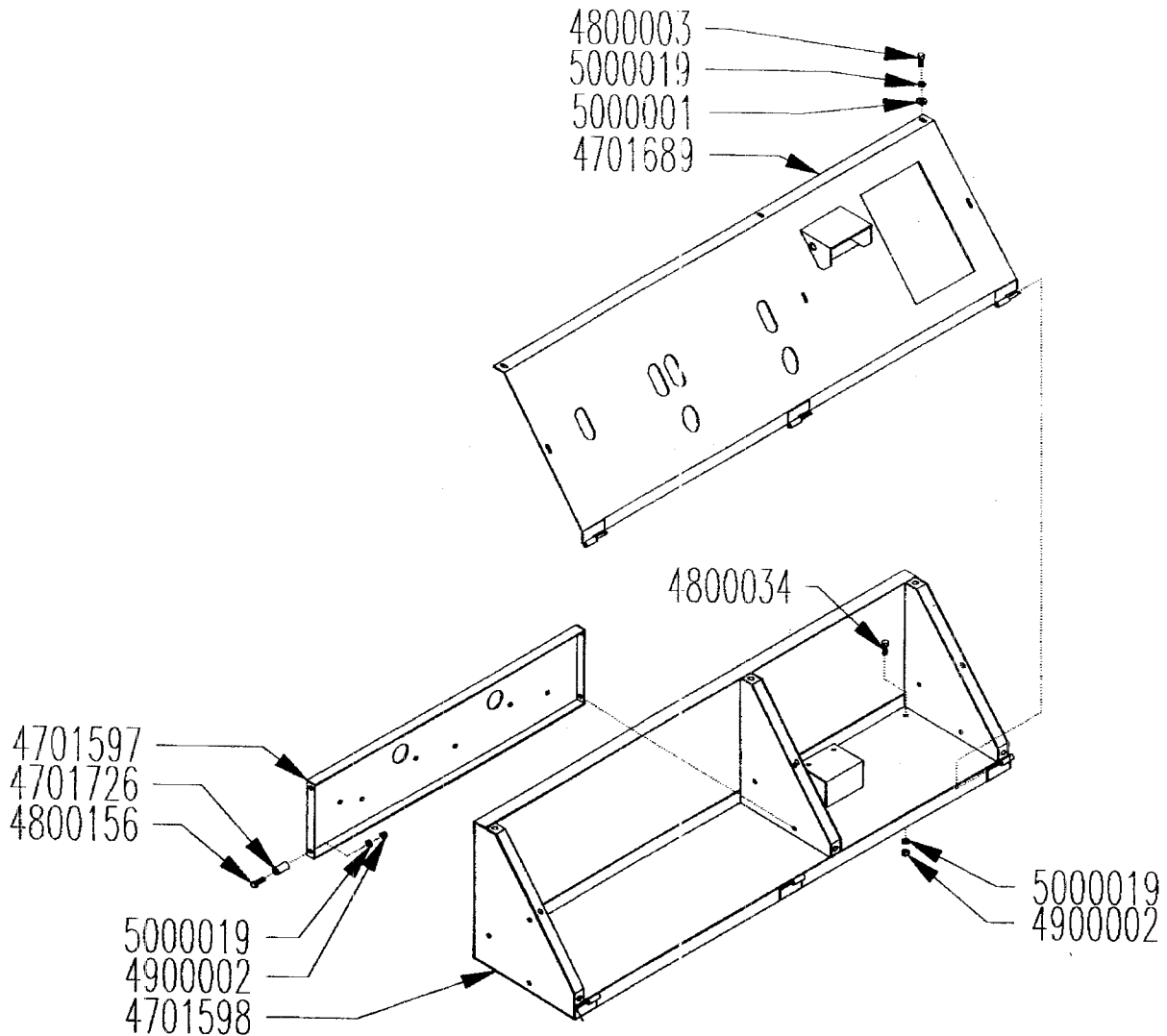
<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
<b>4701715</b>		<b>TLBX\ASSY\SUB</b>
4701594	1	ENCL\TL;BX*ASSY\FRM\MN
4701595	1	COV\ENCL\TL;BX*ASSY\FRM
4800034	4	BOLT\HEX\3/8X1-1/2
4800468	8	SCR\RD\SLT\#10X1/2\NC
4900002	4	NUT\HEX\3/8\NC
5000019	4	WASH\LOCK\3/8
5000071	8	WASH\LOCK\EXT;STAR\#10
7500625	1	LATCH\PDDL\3-4974\KEY

# CONTROL PANEL\CAT-ENG\ASSEMBLY



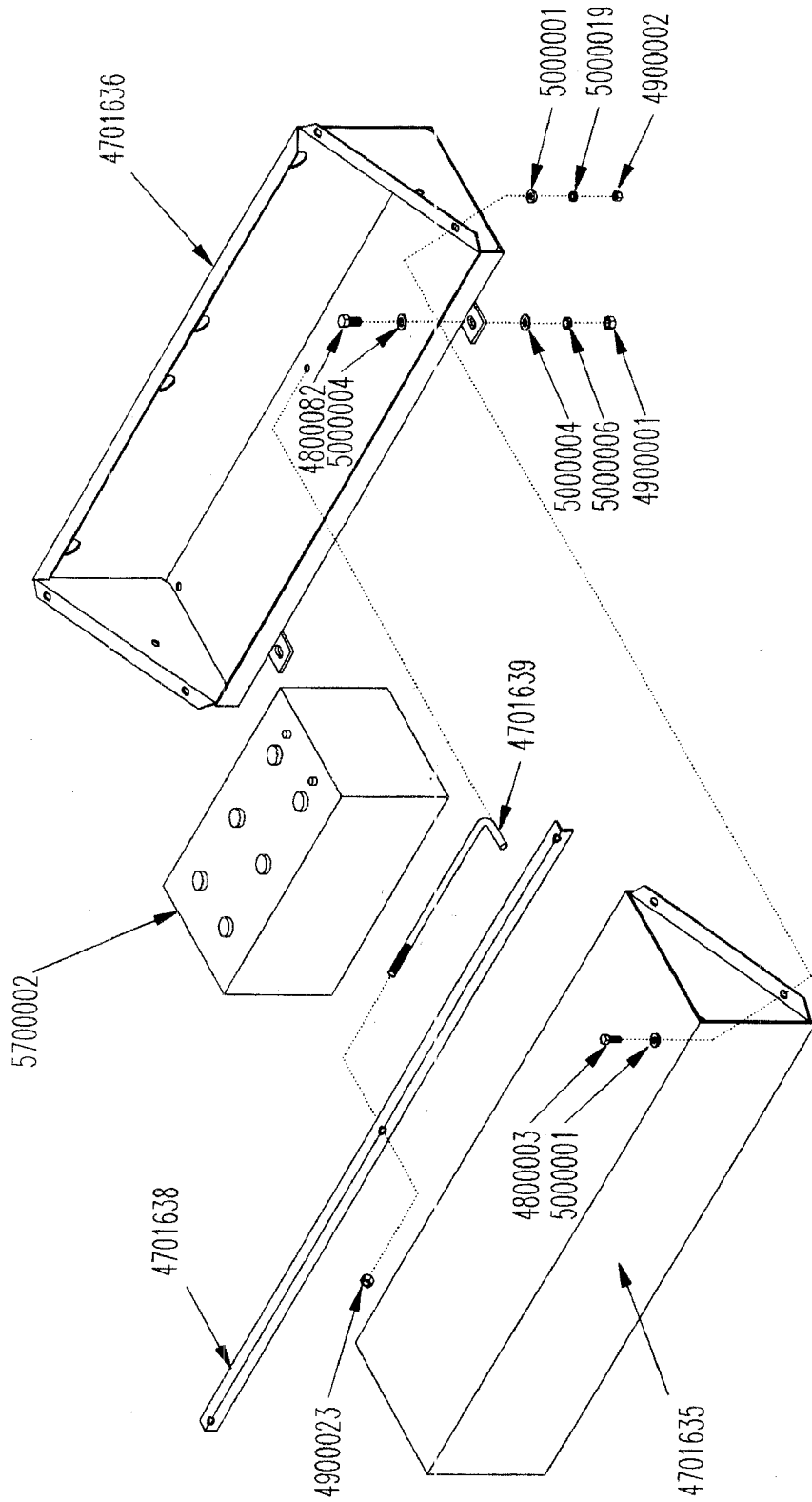
<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
<b>4701725</b>		<b>PANEL\CNTRL\ASSY\CAT</b>
4701596	1	COV\PANEL\CNTRL\ENG\3306
4701597	1	BRKT\V\PANEL\CNTRL\*ASSY
4701598	1	ENCL\PANEL\CNTRL\*ASSY
4701726	4	BUSH\MTG\BRKT\V\CNTRL
4800003	6	BOLT\HEX\3/8X1
4800034	4	BOLT\HEX\3/8X1-1/2
4800156	4	BOLT\HEX\3/8X3
4900002	8	NUT\HEX\3/8\NC
5000001	6	WASH\FLAT\3/8
5000019	14	WASH\LOCK\3/8

# CONTROL PANEL\JD-ENG\ASSEMBLY



<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
<b>4701756</b>		<b>PANEL\CNTRL\ASSY\JD6101</b>
4701597	1	BRKT\V\PANEL\CNTRL*ASSY
4701598	1	ENCL\PANEL\CNTRL*ASSY
4701689	1	CVR\PANEL\CNTRL\ENG\JD
4701726	4	BUSH\MTG\BRKT\CNTRL
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	WASH\FLAT\3/8
5000019	14	WASH\LOCK\3/8

# BATTERY BOX ASSEMBLY

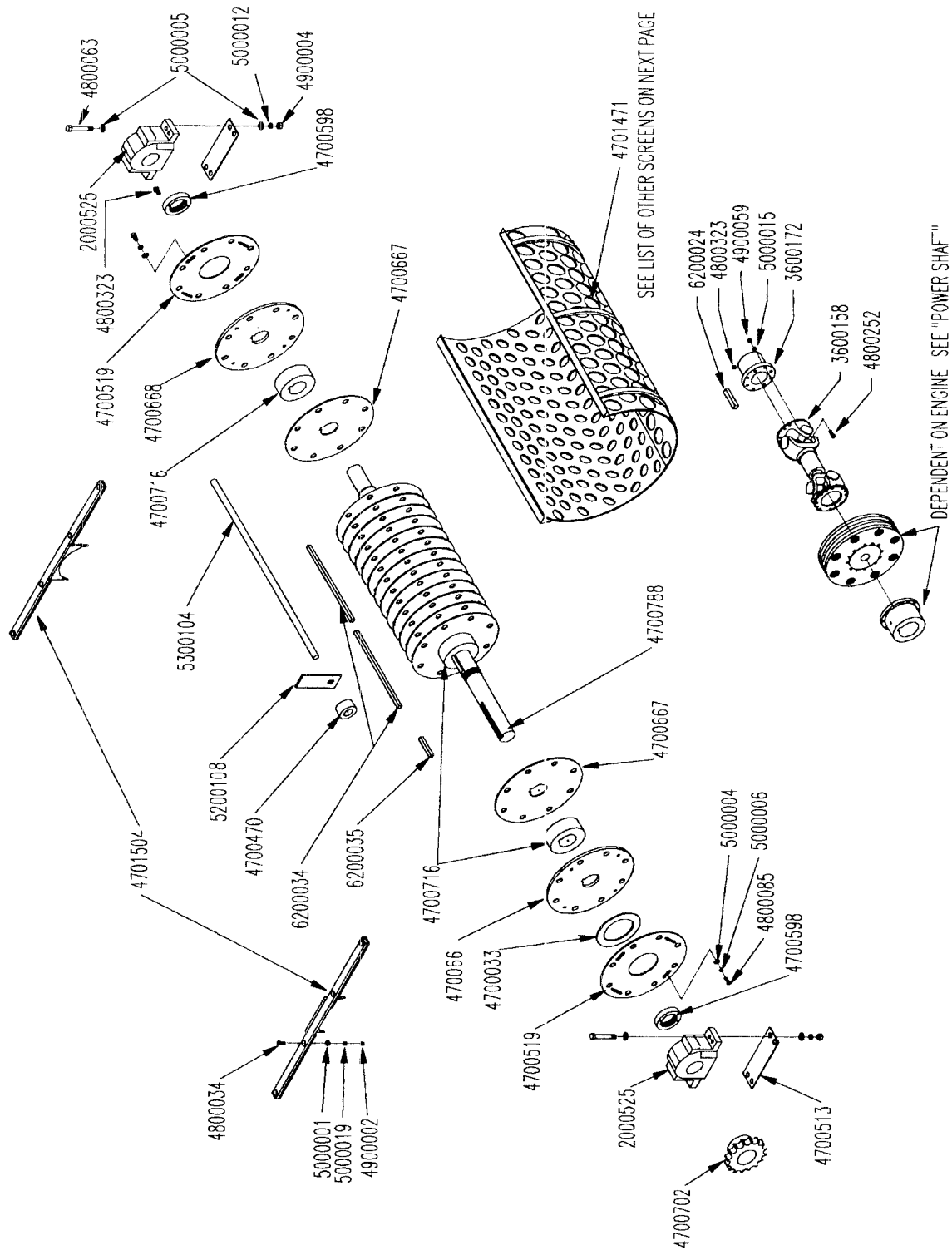




# BATTERY BOX ASSEMBLY

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
4701727		BOX\BATT\ASSY
4701635	1	COV\BOX\BATT\44"
4701636	1	BOX\BATT\44"
4701638	1	STRAP\ANGLE\BATT\43-3/4"
4701639	3	STRAP\HOOK\BOX\BATT
4800003	4	BOLT\HEX\3/8X1
4800082	2	BOLT\HEX\1/2X1-1/2
4900001	2	NUT\HEX\1/2\NC
4900002	4	NUT\HEX\3/8\NC
4900023	3	NUT\TPLCK\3/8\NC
5000001	8	WASH\FLAT\3/8
5000004	4	WASH\FLAT\1/2
5000006	2	WASH\LOCK\1/2
5000019	4	WASH\LOCK\3/8

# ROTOR ASSEMBLY



# ROTOR ASSEMBLY

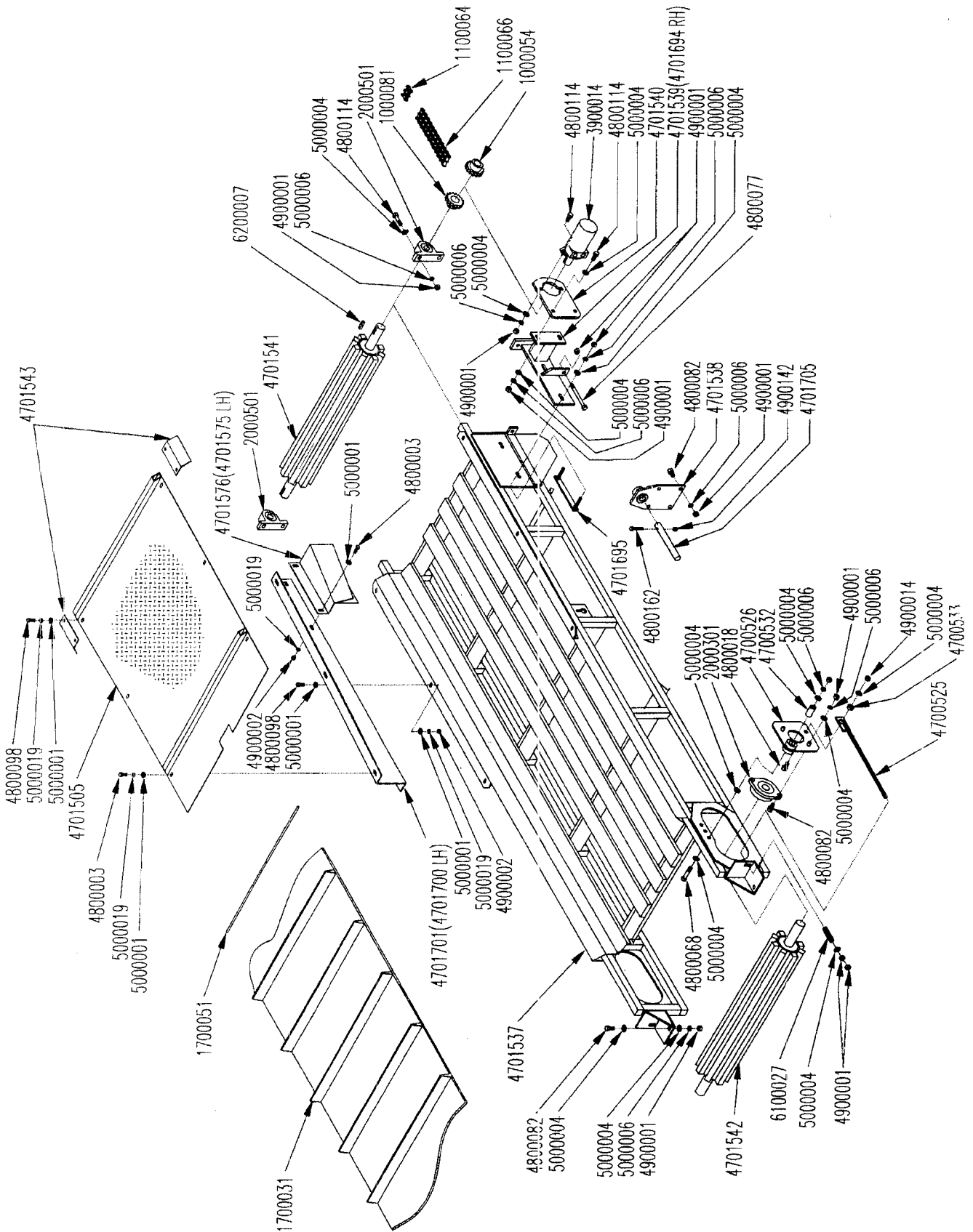
PART #	QTY	DESCRIPTION
<b>4701763</b>		<b>RTR\ASSY</b>
2000525	2	BRG\PB\3-1/2\NEW STYLE
3600158	1	1710 DRIVELINE 18" COMP
3600172	1	FLANGE\3-1/2ID\1710
4700033	1	WASH\THRUST\8X4-9/16
4700470	66	SPCR\SHOCK\1.29IDX1.25
4700513	6	SHIM\BRG\7GAX4-1/2X15
4700519	2	PL\RTR\MVBL\8.030IDX1/4
4700598	2	NUT\RTR\4-1/2IDX2
4700667	17	PL\RTR\4-1/2IDX1
4700668	2	PL\RTR\END\TPPD\4-1/2ID
4700702	1	SPKT\60\20\3-1/2\SENSOR
4700716	18	SPCR\RTR\1.373
4700788	1	SHFT\RTR\4-1/2X68-3/8
4701504	2	SEAL\BOX\CYL
4800034	8	BOLT\HEX\3/8X1-1/2
4800063	8	BOLT\HEX\3/4X4
4800085	8	BOLT\HEX\1/2X1
4800252	16	BOLT\HEX\7/16X1-3/8\GR8
4800323	14	SCR\SET\ALN\1/2X1\NC
4900002	8	NUT\HEX\3/8\NC
4900004	8	NUT\HEX\3/4\NC
4900059	16	NUT\HEX\7/16\NF
5000001	8	WASH\FLAT\3/8
5000004	8	WASH\FLAT\1/2
5000005	16	WASH\FLAT\3/4
5000006	8	WASH\LOCK\1/2
5000012	8	WASH\LOCK\3/4
5000015	16	WASH\LOCK\7/16
5000019	8	WASH\LOCK\3/8
5200108	66	3/4" HAMMER (3")
5300104	8	43"X1-1/4 (1.25) ROD (IND)
6200024	1	KEY\SQ\3/4X4
6200034	2	KEY\RECT\1/2X5/8X18-1/4
6200035	1	KEY\RECT\1/2X5/8X6-1/4
4700692		RTR\NEW\43X1.25RD\ HD10\4.5X68.38SHFT\1"PL\3.5BRG
4700680		RTR\RBLT\43X1.25RD\ HD10\4.5X68.38SFT 1"PLT 3.5BRG
4700790		RTR\CORE\43X1.25RD\ HD10\4.5X68.38SFT 1"PLT 3.5BRG

Rotors do not include hammer rods, spacers, hammers, bearings or flanges

## SCREENS

HOLE Dia.	1/2" HARDOX	1"
3/4"	4701486	NA
1"	4701468	NA
1-1/2"	4701469	NA
2"	4701608	4701521
3"	4701487	4701522
4"	4701471	4701523
5"x7"	4701489	4701524
6"x8"	4701470	4701823

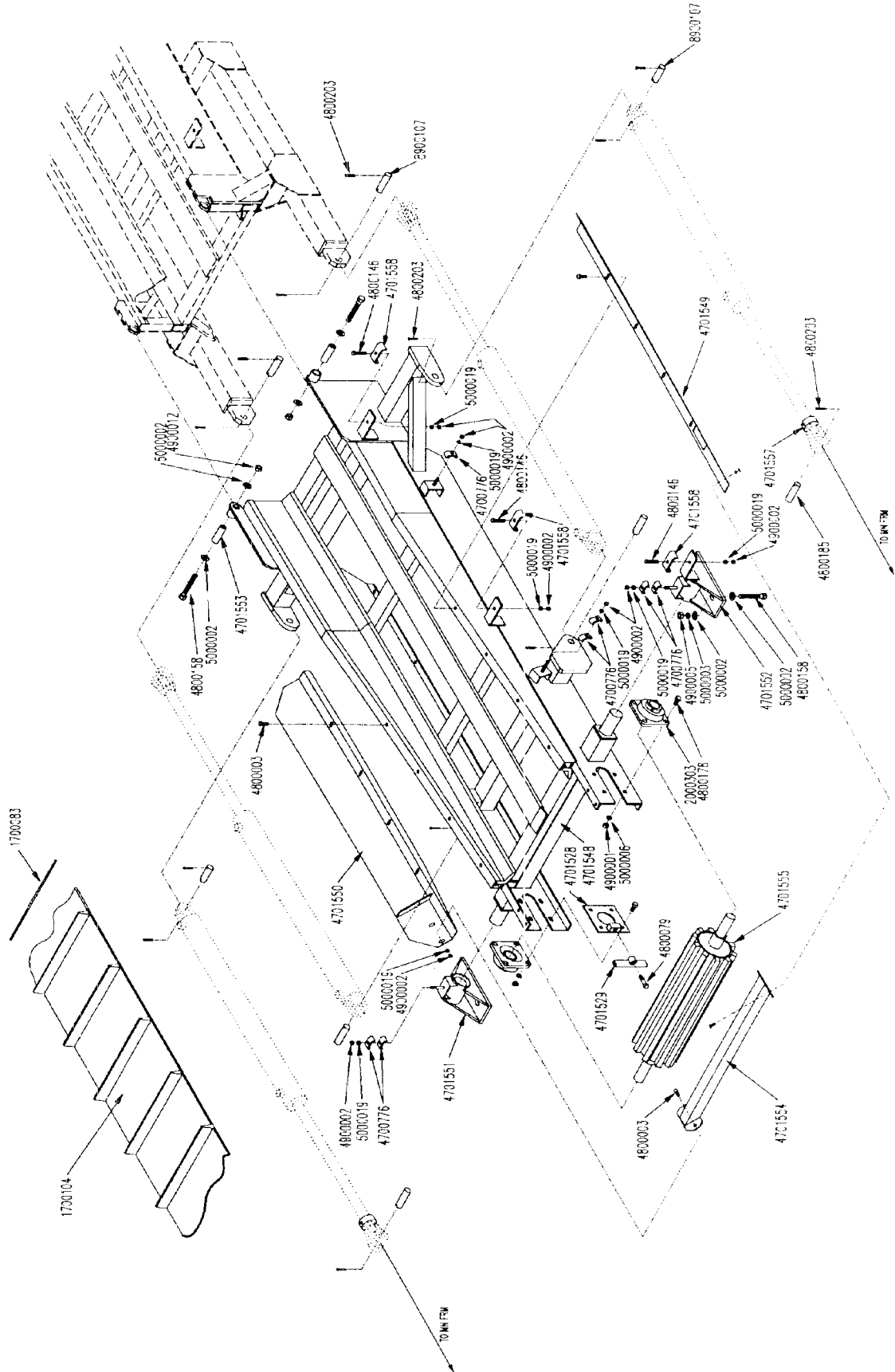
# BELLY CONVEYOR ASSEMBLY



# BELLY CONVEYOR ASSEMBLY

PART #	QTY	DESCRIPTION
<b>4701706</b>		<b>CNVYR\BELLY\ASSY</b>
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
1700031	1	BELT\BELLY;PAN\30X18'
1700051	1	LCNG\CBL\3/16X30\NYL
2000301	2	BRG\FLG\CAST\1-1/4\2-BOLT
2000501	2	BRG\PB\1-1/2\2-BOLT
4700525	2	ADJ. ROD
4700526	2	BEARING BRACKET
4700532	2	BUSH\1ODX.51IDX1-3/16L
4700533	2	BUSH\1ODX.5IDX5/16L
4701505	1	COV\CNVYR\BELLY
4701537	1	FRM\CNVYR\BELLY
4701538	1	BRKT\MTG\REAR\CNVYR\BELLY
4701539	1	BRKT\SLIDE\BRNG\DR\CNVYR
4701540	1	BRKT\MTR\ORBIT\CNVYR
4701541	1	RLLR\DRIVE\39-3/4X6\CNVYR
4701542	1	RLLR\IDLER\39X6\CNVYR
4701543	2	GUARD\HOSE\CNVYR\BELLY
4701575	1	DEFLR\DISCH\LH\BELLY\ASSY
4701576	1	DFLR\DISCH\RH\BELLY\ASSY
4701694	1	BRKT\SL\BRNG\DR\CNVYR
4701695	2	BRKT\TGHTR\RLLR\CNVYR
4701700	1	CHAIN\COV\LH\CNVYR\BELLY
4701701	1	CHAIN\COV\RH\CNVYR\BELLY
4701705	1	PIN\MNT\CNVYR\BELLY\REAR
4800003	8	BOLT\HEX\3/8X1
4800018	2	BOLT\HEX\1/2X1-1/4
4800068	2	BOLT\HEX\1/2X3
4800077	2	BOLT\HEX\1/2X5-1/2
4800082	7	BOLT\HEX\1/2X1-1/2
4800098	8	BOLT\HEX\3/8X1-1/4\NC
4800114	10	BOLT\HEX\1/2X2
4800162	1	BOLT\HEX\5/16X2-1/4
4900001	23	NUT\HEX\1/2\NC
4900002	10	NUT\HEX\3/8\NC
4900014	2	NUT\TPLCK\1/2\NC\.500"MAX
4900142	1	NUT\TPLCK\5/16
5000001	22	WASH\FLAT\3/8
5000004	32	WASH\FLAT\1/2
5000006	21	WASH\LOCK\1/2
5000019	16	WASH\LOCK\3/8
6100027	2	SPRING\COMPRESSION
6200007	1	KEY\SQ\3/8X1-1/2

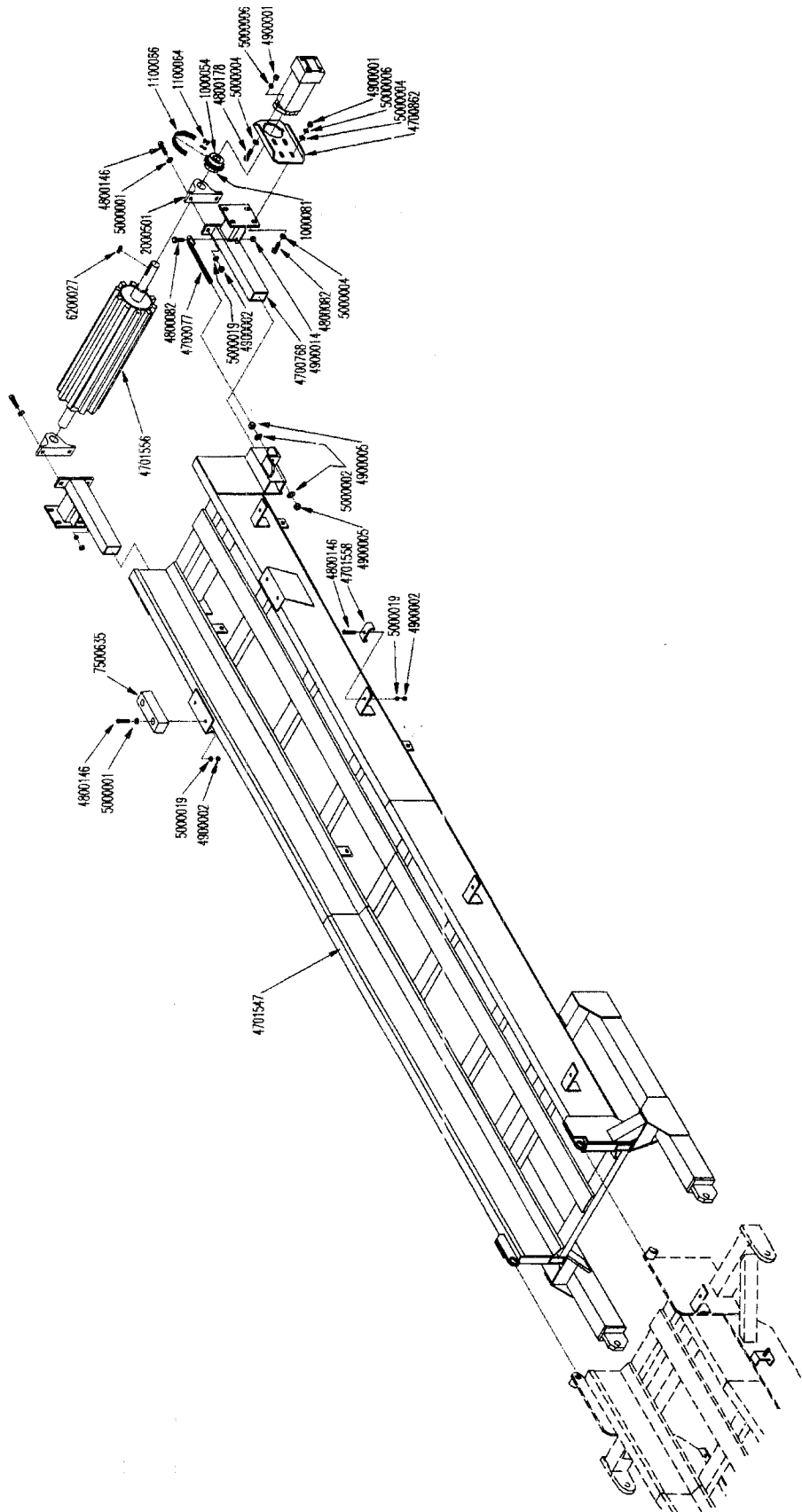
# LOWER DISCHARGE CONVEYOR ASSEMBLY



# LOWER DISCHARGE CONVEYOR ASSEMBLY

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
<b>4701757</b>		<b>CNVYR\DISCH\LOWER\ASSY</b>
1700083	1	LCNG\#125\24\W\STPLS
1700104	1	BELT\CNVYR\24X548
2000303	2	BRG\FLG\1-1/2\4-BOLT
4700776	10	CLMP\HOSE\3/8
4701528	1	BRKT\ADY\TRKNG\CNVYR\DISCH
4701529	1	HOOK\ROD\TGHTNR\BELT\CNVYR\DISCH
4701548	1	FRM\CNVYR\DISCH\LOWER
4701549	1	DEFLR\CNVYR\DISCH\LH
4701550	1	DEFLR\CNVYR\DISCH\RH
4701551	1	BRKT\MTG\RH\CNVYR\DISCH
4701552	1	BRKT\MTG\LH\CNVYR\DISCH
4701553	2	BUSH\HINGE\CNVYR\DISCH
4701554	1	BRACE\DEFLR\CNVYR\DISCH
4701555	1	RLLR\IDLER\35-1/2X8\CNVYR
4701557	2	STOP\CYL\FOLD\CNVYR\ASSY
4701558	3	CLAMP\HOSE\CNVYR\DISCH
4800003	12	BOLT\HEX\3/8X1
4800079	1	BOLT\HEX\5/8X2-1/2
4800146	3	BOLT\HEX\3/8X2
4800158	6	BOLT\HEX\5/8X4-1/2
4800178	8	BOLT\HEX\1/2X1-3/4
4800185	4	PIN\CLEVIS\1X3
4800203	8	PIN\COT\5/32X2
4900001	8	NUT\HEX\1/2\NC
4900002	11	NUT\HEX\3/8\NC
4900005	4	NUT\HEX\5/8\NC
4900012	2	NUT\TPLCK\5/8\NC
5000002	12	WASH\FLAT\5/8
5000003	4	WASH\LOCK\5/8
5000006	8	WASH\LOCK\1/2
5000019	13	WASH\LOCK\3/8
8900107	4	PIN\1X3-5/8

# UPPER DISCHARGE CONVEYOR ASSEMBLY

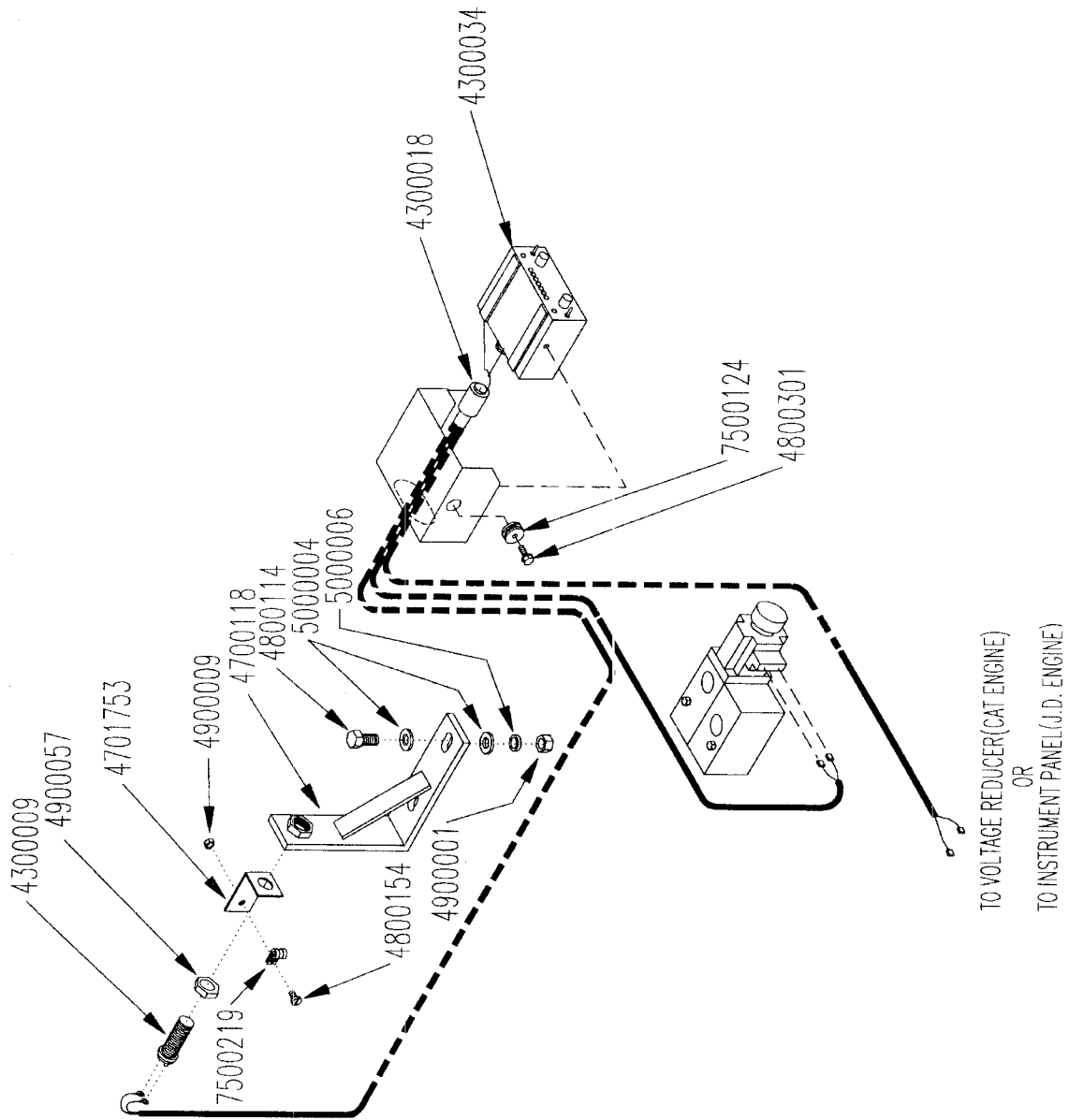




# UPPER DISCHARGE CONVEYOR ASSEMBLY

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
<b>4701758</b>		<b>CNVYR\DISCH\UPPER\ASSY</b>
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
2000501	2	BRG\PB\1-1/12\2-BOLT
4700077	2	BOLT\CNVYR\TENSION\ADJ
4700768	2	BRKT\CNVYR\BRG\MTR
4700862	1	BRKT\MTR\ORBIT\8-1/2X10
4701547	1	FRM\CNVYR\DISCH\UPPER
4701556	1	RLLR\DRIVE\36-1/2X8\CNVYR
4701558	4	CLAMP\HOSE\CNVYR\DISCH
4800082	6	BOLT\HEX\1/2X1-1/2
4800146	12	BOLT\HEX\3/8X2
4800178	2	BOLT\HEX\1/2X1-3/4
4900001	6	NUT\HEX\1/2\NC
4900002	12	NUT\HEX\3/8\NC
4900005	4	NUT\HEX\5/8\NC
4900014	2	NUT\TPLCK\1/2\NC\.500"MAX
5000001	8	WASH\FLAT\3/8
5000002	4	WASH\FLAT\5/8
5000004	10	WASH\FLAT\1/2
5000006	6	WASH\LOCK\1/2
5000019	12	WASH\LOCK\3/8
6200027	1	KEY\SQ\3/8X1-1/4
7500635	2	CUSH\RBBR\7-3/4X2-7/16X2

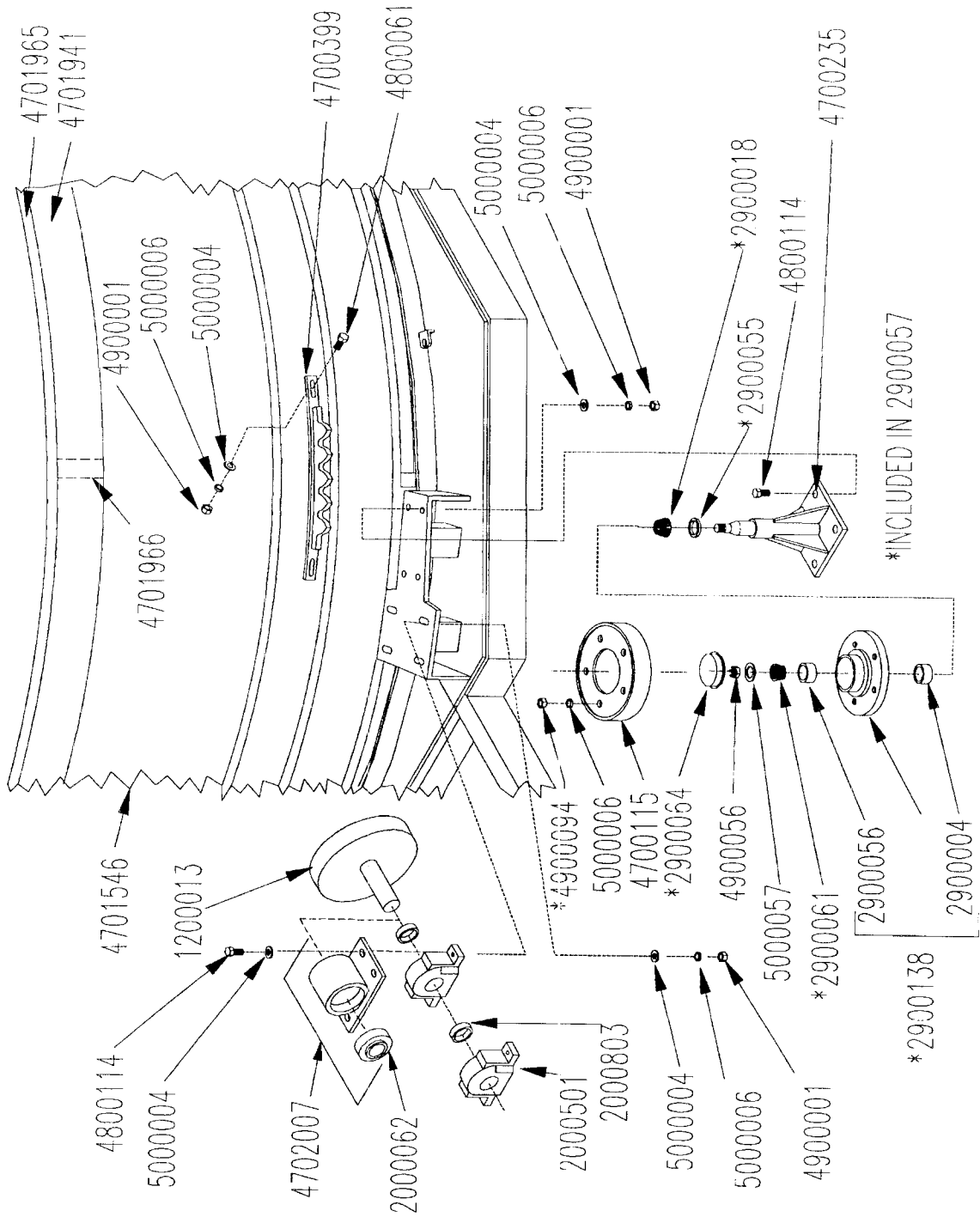
# GOVERNOR ASSEMBLY



# GOVERNOR ASSEMBLY

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
<b>4701754</b>		<b>GOV\ASSY\SUB</b>
4300009	1	SENSOR\MAG\W/HARDWARE
4300018	1	WIRING HARNESS
4300034	1	NEW STYLE CONTROL BOX RCB93
4700118	1	BRKT\SNSR
4701753	1	BRKT\WIRE\SNSR
4800114	2	BOLT\HEX\1/2X2
4800154	1	SCR\RD\SLOT\1/4X1/2\NC
4800301	2	SCR\FLG\SERR\1/4X3/4\NC
4900001	2	NUT\HEX\1/2\NC
4900009	1	NUT\HEX\1/4\NC
4900057	1	NUTJAM3/4\NF
5000004	4	WASH\FLAT\1/2
5000006	2	WASH\LOCK\1/2
7500124	2	GROMMET\RUBBER\2757
7500219	1	1/4" WIRE CLAMP

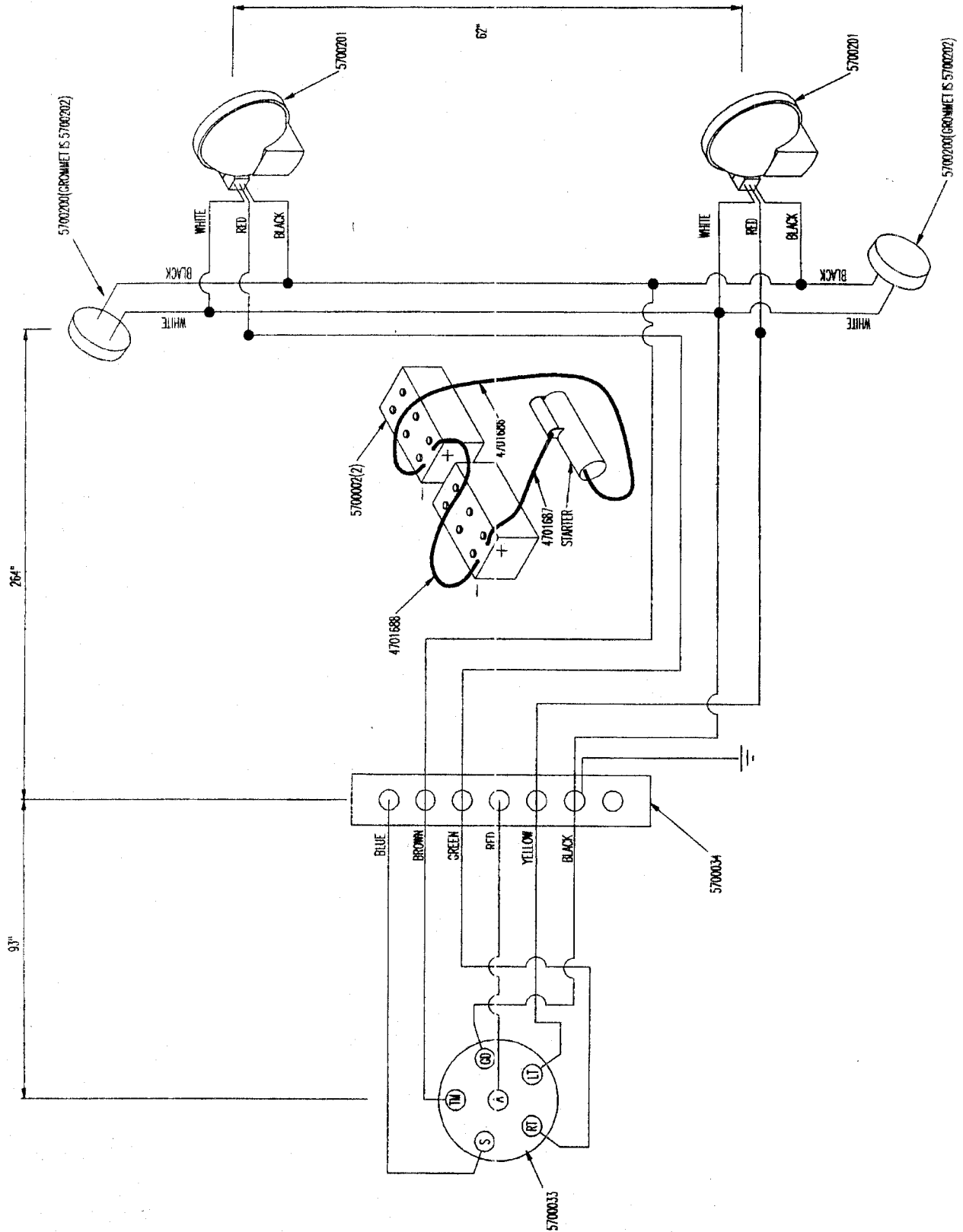
# TUB ROLLER ASSEMBLY



# TUB ROLLER ASSEMBLY

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
<b>4701762</b>		<b>RLLR\TUB\ASSY</b>
1200013	4	RLLR\TUB\1-1/2\W/O;FLG
2000062	8	BRG\CYL\1-1/2\W/ECC
2000501	8	BRG\PB\1-1/2\2-BOLT
2000803	8	CLLR\LOCK\1-1/2
<b>2900057</b>	<b>4</b>	<b>HUB\5-BOLT\985\COMP</b>
2900004	4	CUP\INNER\WHL;HUB 67010
2900018	4	CONE\WHEEL HUB
2900055	4	SEAL\WHEEL HUB
2900056	4	OUTER\CUP\WHL HUB (11910)
2900061	4	OUTER CONE\WHEEL HUB
2900064	4	CAP\WHEEL HUB
2900138	4	HUB\W/CONES\W/NUTS
4900094	20	NUT\TAPER\WHEEL\1/2"NF
4700115	4	PRESSURE DRUM
4700235	4	PRESSURE ROLL STAND 11 SP
4700399	4	TUB DRIVE TEETH
4702007	4	BRG\PB\RLLR\TUB\ASY\W/BRG INSERT
4800061	8	BOLT\HEX\1/2X1-1/2\NC
4800114	32	BOLT\HEX\1/2X2
4900001	40	NUT\HEX\1/2\NC
4900056	4	NUT\CASTLE\1/2\NF
5000004	56	WASH\FLAT\1/2
5000006	60	WASH\LOCK\1/2
5000057	4	WASH\SPINDLE\1/2
4701546	1	TUB\HD10
4701941	8	PETAL\TUB\HD10
4701965	1	RING\TUB;FLANGE\TOP\HD10\96
4701966	8	CHAN\SPLICE\PETAL\TUB\HD10\96

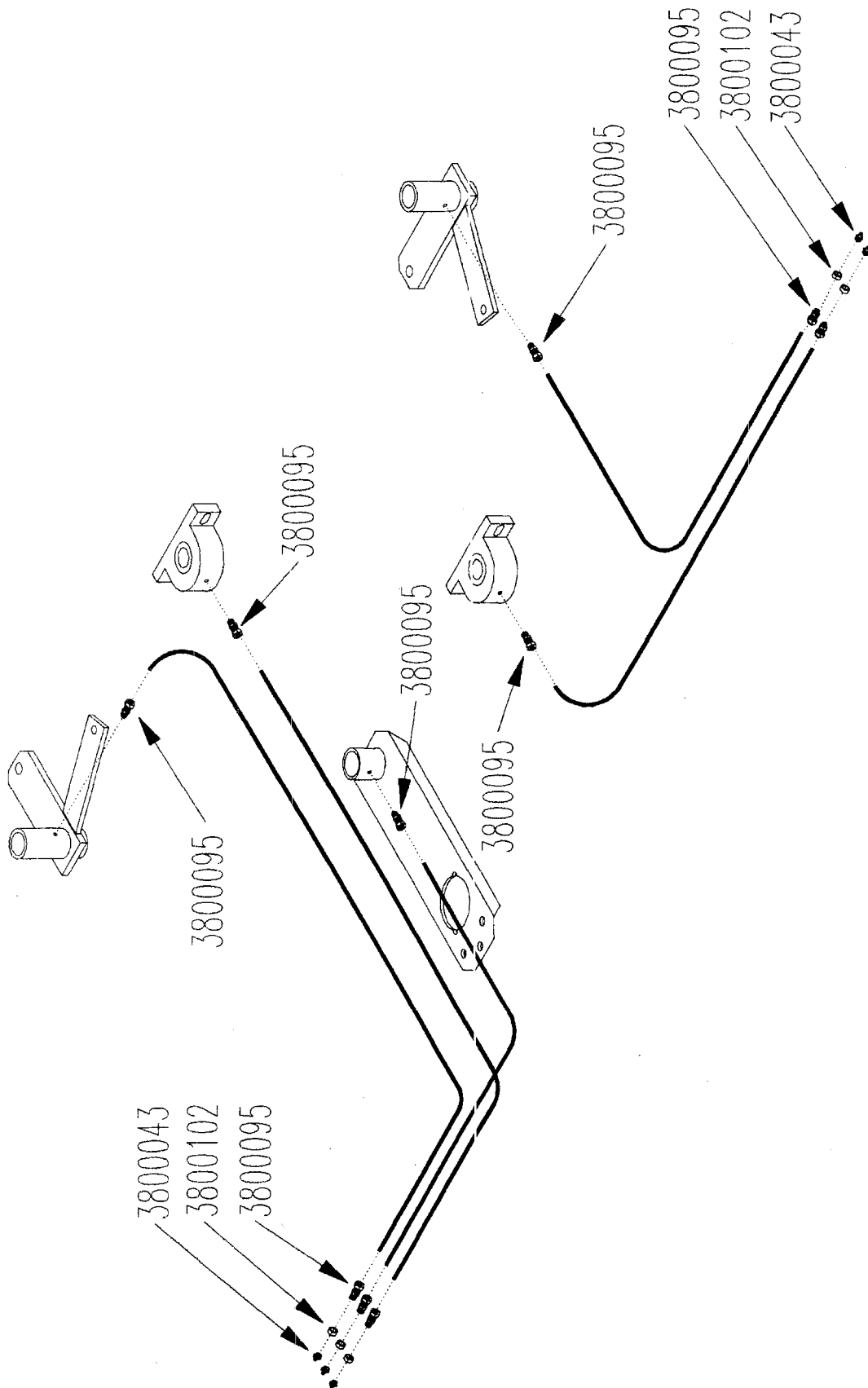
# ELECTRICAL ASSEMBLY



# ELECTRICAL SCHEMATIC

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
<b>4701664</b>		<b>ELECLASSY</b>
4701686	1	CBL\BATT\2\0X118"\BLK
4701687	1	CBL\BATT\2\0X110"\RED
4701688	1	CBBATT\2\0X22"\BLK
5700002	2	BATT\12VDC\8D1150
5700008	34.92FT	CBL\CORD\14GA\6COND\FT
5700033	1	TERM\MALE\6POLE\TRLR\PLUG
5700034	1	ENCL\JCT\7POLE\TRLR\HARN
5700200	2	LAMP\CL\12VDC\2-1\2RD
5700201	2	LAMP\TAIL\4-1\2\COMP\RED
5700202	2	LAMP\GRMMT\2-1\2\KIT
7500276	1	WIRE ANCHOR (ROMEX) 3/4"

# GREASELINE LUBRICATION ASSEMBLY

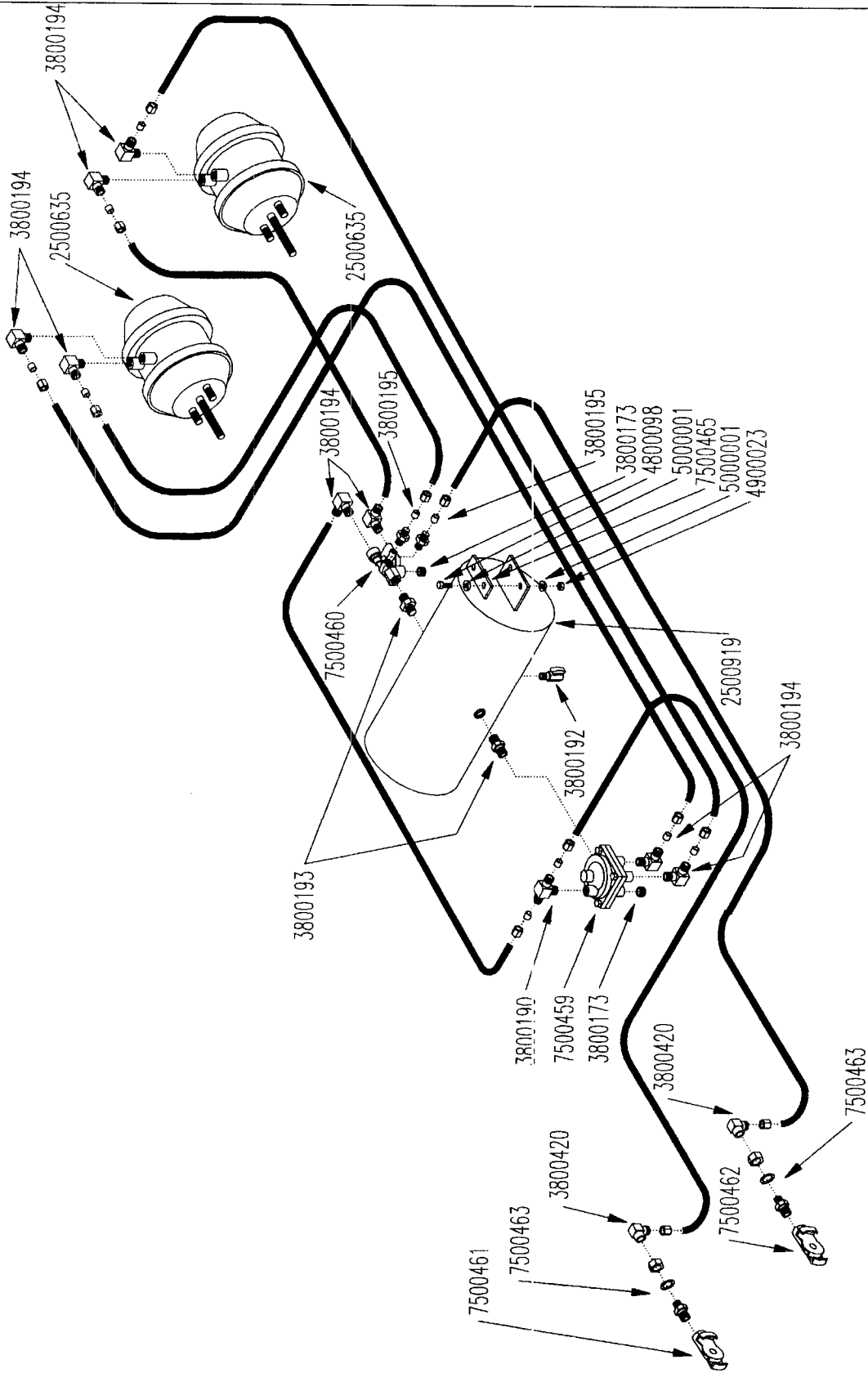




# GREASELINE LUBRICATION ASSEMBLY

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
<b>4701755</b>		<b>LUBE\GRSLN\ASSY</b>
3700142	8	HOSE\LUB\1/4FT\NYLON
3800043	5	FTG\LUB\1/8MPXZRK\SHORT
3800095	10	FTG\LUB\1/4COMPX1/8MP\
3800102	5	FTG\1/8FP\CPLG\LW

# AIR BRAKES ASSEMBLY

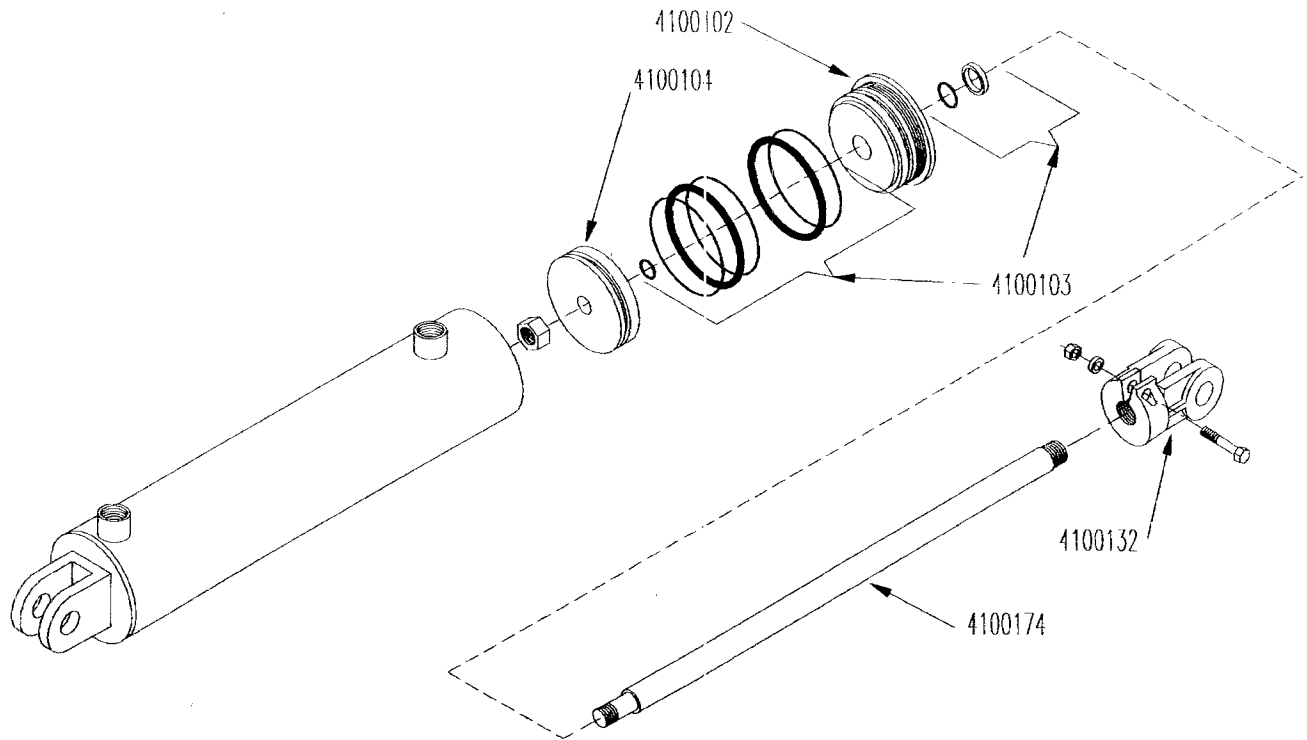


# AIR BRAKES ASSEMBLY

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
<b>4701764</b>		<b>BRKS\AIR\ASSY</b>
2500635	2	SPRING BRAKE 20K
2500919	1	AIR TANK HD10 8202
2500921	1	AIR BRAKES KIT

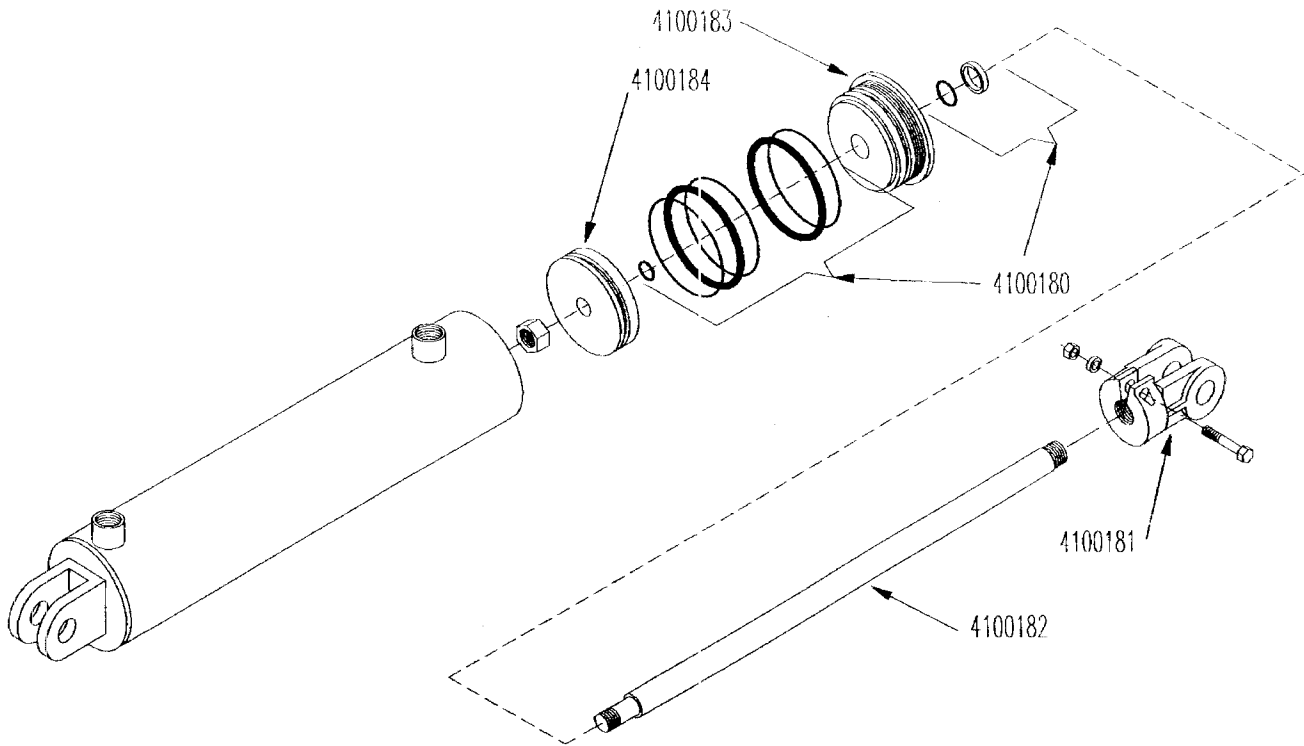
<b>AIR BRAKES PARTS LISTING</b>		
2500635	2	SPRING BRAKE 20K
2500919	1	AIR TANK HD10 8202
3800173	3	FTG\3/8MP\PLUG\HEX
3800190	1	FTG\3/8MPX3/8FPX3/8FP\BR;TEE
3800192	1	FTG\TANK:DRIVE\6204-4
3800193	2	FTG\3/4MPX1/2NPL
3800194	8	FTG\AIR\3/8MPX3/8COMP\90D\BRS\LW
3800195	2	FTG\AIR\3/8MPX3/8COMP\ADPT\BRS\LW
3800420	2	FTG\AIR\3/8COMPX1/4MP\90D\BRS\LW
4800098	4	BOLT\HEX\3/8X1-1/4\NC
4900023	4	NUT\TPLCK\3/8\NC
5000001	8	WASH\FLAT\3/8
7500459	1	SPRING BRAKE VALVE (6100)
7500460	1	SERVICE RELAY VALVE
7500461	1	GLAD HAND (SERVICE 6202)
7500462	1	GLAD HAND (EMERGENCY 6201)
7500463	2	TERMINAL BOLT GLAD HAND
7500465	1	FTG\NOZ\3/4MP\120\WLJT

# HYDRAULIC CYLINDER



<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
4100111	1	CYL\HYD\3X36
4100102	1	CYL\HYD\GLAND\1-1/2" ROD
4100103	1	CYL\HYD\KIT\SEAL\3\1-1/2" ROD
4100104	1	CYL\HYD\PISTON\3"
4100132	1	CYL\HYD\YOKE
4100174	1	CYL\HYD\ROD\1-1/2\3X36

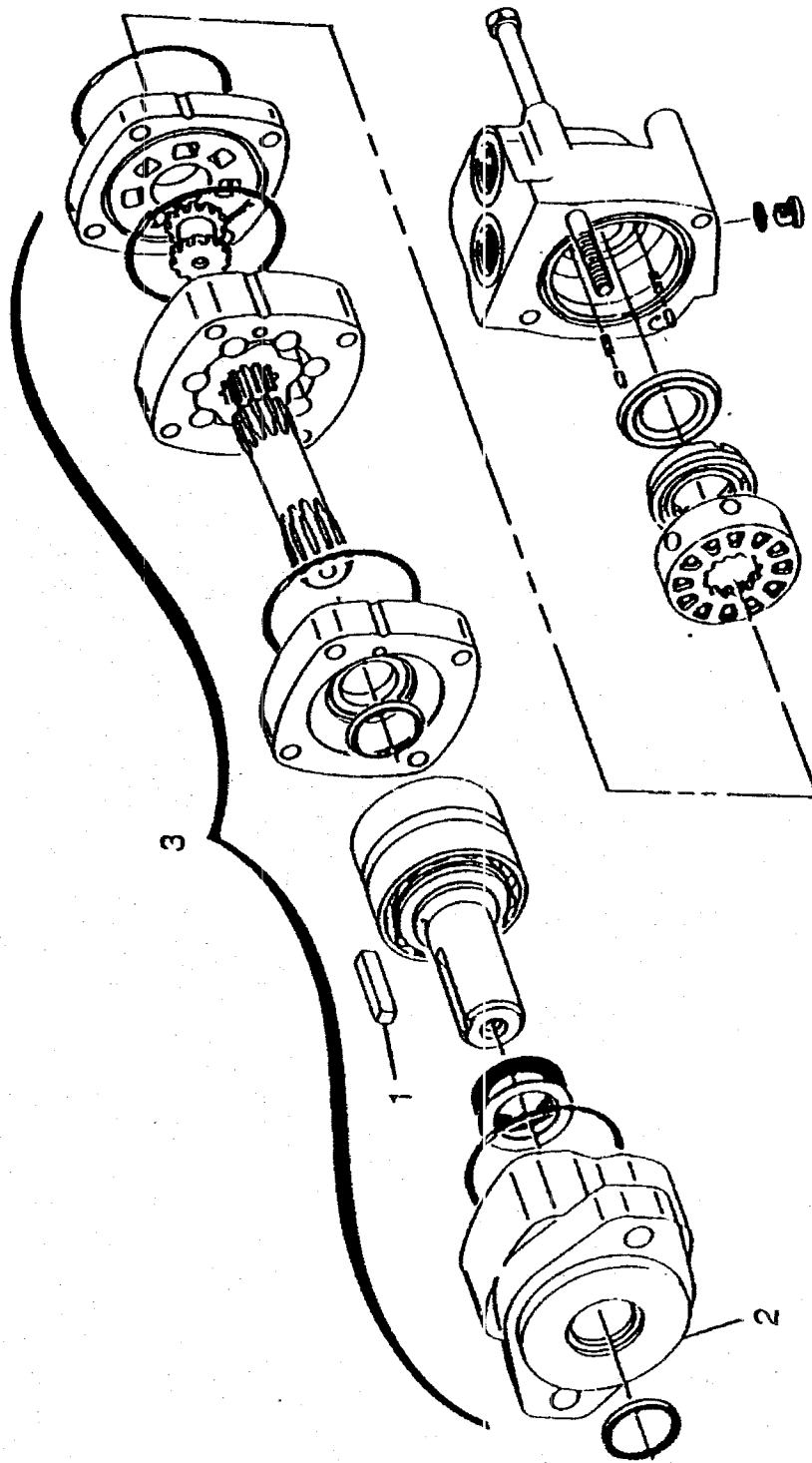
# HYDRAULIC CYLINDER



<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
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<b>4100144</b>		<b>CYL\HYD\4X30\1-3/4"ROD\CLEVIS ENDS\O-RING PORTS</b>
4100180	1	CYL\SEAL\4X30\1-3/4 ROD
4100181	1	CYL\YOKE\4X30\1-3/4 ROD
4100182	1	CYL\ROD\4X30\1-3/4 ROD
4100183	1	CYL\GLAND\4X30\1-3/4 ROD
4100184	1	CYL\PISTON\4X30\1-3/4 ROD

# ORBIT MOTORS



# ORBIT MOTORS

## 3900010 MTR\HYD\18.7

<u>ITEM</u>	<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
1	6200004	1	5/16" X 1-1/2" KEY
2	3900011	1	MOUNTING FLANGE
3	3900010	1	COMPLETE M2000 ORBIT MOTOR 24 C.I.
4	7501005	1	SEAL KIT

## 3900014 MTR\HYD\9.6

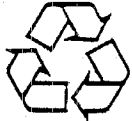
<u>ITEM</u>	<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
1	6200004	1	5/16" X 1-1/2" KEY
2	3900011	1	MOUNTING FLANGE
3	3900014	1	COMPLETE M2000 ORBIT MOTOR 9.6 C.I.
4	7501005	1	SEAL KIT

# HD-10

6500161



6500155



RECYCLE

6500127



6500156

ENGINE SERVICE REPORT	
<input type="checkbox"/>	Check engine oil level
<input type="checkbox"/>	Check engine coolant
<input type="checkbox"/>	Check batteries
<input type="checkbox"/>	Check air cleaner for obstructions
<input type="checkbox"/>	Check exhaust for obstructions

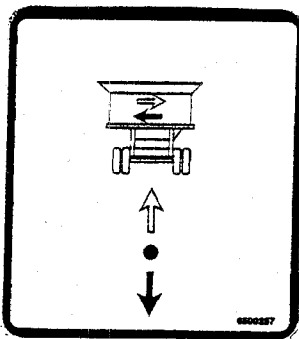
6500132



6500253

HYDRAULIC  
OIL

6500124



6500257

**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

DIESEL  
FUEL

6500123

**IMPORTANT**

**DANGER**  
DO NOT OPERATE WITHOUT WEARING SAFETY GLASSES AND A HARD HAT.  
KEEP UNAUTHORIZED PERSONNEL OUT OF THE GRINDING AREA!

6500121

KEEP WHEEL  
BOLTS TIGHT

6500042

# DURATECH

6500224

<p><b>WARNING</b> <b>OVERHEAD CONVEYOR HAZARD</b> To prevent serious injury or death: Do not work under conveyor at any time. Stay clear of conveyor during operation, loading, and unloading. Lower conveyor only when unloading. Keep others away.</p>	<p><b>ADVERTENCIA</b> <b>PELIGRO DE CINTA TRANSPORTADORA ELEVADA</b> Para evitar lesiones graves o la muerte: No trabaje bajo la cinta transportadora en ningún momento. Manténgase alejado de la cinta transportadora durante la operación, carga y descarga. Baje la cinta transportadora solo cuando se esté descargando. Mantenga alejados a otras personas.</p>
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6500214

**DANGER**

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

6500118

# TORNADO

NOT AVAILABLE

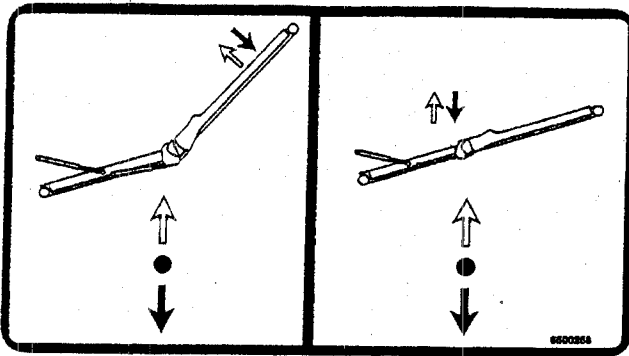
6500223



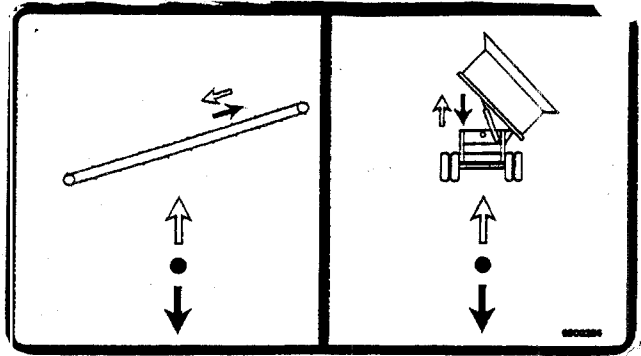
# HD-10P DECALS

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
<b>4701772</b>		<b>DECAL\ASSY</b>
6500118	1	DECAL\DNGR\OBJECTS;THROWN
6500121	1	DECAL\WARN\IMPORTANT\DO;NOT
6500123	2	DECAL\INFO\DIESEL;FUEL
6500124	2	DECAL\INFO\HYD;OIL
6500132	1	DECAL\INFO\ENG;SERV
6500155	28FT	DECAL\LOGO\STRIPS;SILVER
6500156	20FT	DECAL\LOGO\2\STRIP\PE\SILVER
6500157	2	DECAL\LOGO\RECYCLE\SILVER
6500159	2	DECAL\LOGO\BIG;BITE;SILVER
6500161	2	DECAL\LOGO\HD-10\SILVER
6500208	1	DECAL\WARN\GENERAL
6500212	1	DECAL\WARN\ROTATING;PART
6500214	2	DECAL\WARN\OVEHEAD;CNVYR
6500216	2	DECAL\WARN\ELEC;HAZARD
6500220	2	DECAL\WARN\HI;PRESS;FLUID
6500223		Not Available
6500224	2	DECAL\LOGO\DURA-TECH\4-3/4\SILVER
6500245	9FT	DECAL\MISC\TAPE\RED\WHITE
6500250	1	DECAL\INFO\LATCH\PLATFORM
6500253	2	DECAL\INFO\FLUID;LEVEL
6500255	1	DECAL\INFO\CNVYR;LIFT
6500256	1	DECAL\INFO\CNVYR.RUN & TILIT
6500257	1	DECAL\INFO\TUB;ROTATION
6500258	1	DECAL\INFO\CNVYR;LIFT & FOLD

# HD10-P DECALS



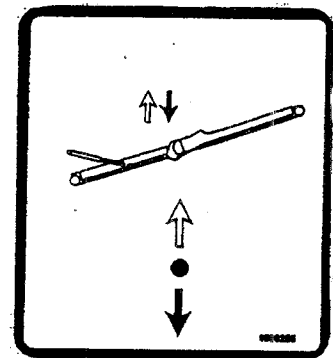
6500258



6500256

<h2>⚠ WARNING</h2> <p><b>FOR YOUR PROTECTION AND SAFETY OF OTHERS, FOLLOW THESE SAFETY RULES.</b></p> <ol style="list-style-type: none"> <li>1. Read and understand operators manual before operating machine.</li> <li>2. Place all controls in neutral, stop engine, remove ignition key, lock out power source, and wait for all motion to stop before servicing, adjusting, repairing, or unplugging.</li> <li>3. Read and understand all decals on machine for your safety.</li> <li>4. Keep all obstacles in place while machine is in operation.</li> <li>5. Keep hands, feet, hair, and clothing away from moving parts.</li> <li>6. Keep others away from machine while in operation.</li> <li>7. Install safety locks before transporting, or working between components.</li> <li>8. Do not allow riders at any time.</li> <li>9. Do not leave machine unattended with engine running.</li> <li>10. Keep all hydraulic lines, couplings, and fittings free of leaks during operation.</li> <li>11. Keep away from overhead electrical lines. Electrostatic can occur without direct contact.</li> <li>12. Review safety instructions periodically.</li> </ol>	<h2>⚠ ADVERTENCIA</h2> <p><b>PARA SU PROTECCIÓN Y LA SEGURIDAD DE OTROS, OBSERVE ESTAS NORMAS DE SEGURIDAD.</b></p> <ol style="list-style-type: none"> <li>1. Lea y comprenda el manual del operador antes de operar la máquina.</li> <li>2. Coloque todos los controles en punto neutro, apague el motor, retire la llave de encendido, cierre la alimentación de su energía y espere a que se detenga toda su movimiento antes de probar o el servicio, ajuste, reparación o desconectarlo.</li> <li>3. Lea y comprenda todas las instrucciones advertido a la máquina para su seguridad.</li> <li>4. Mantenga todas las detallas en su lugar mientras la máquina está en funcionamiento.</li> <li>5. Mantenga las manos, pies, cabello y ropa lejos de las partes en movimiento.</li> <li>6. Mantenga a otras personas alejadas de la máquina o su funcionamiento.</li> <li>7. Instale traba de seguridad antes de promover el transporte o a trabajar desde los componentes.</li> <li>8. No permita en ningún momento que otros permanezcan en viajes en la máquina.</li> <li>9. No deje a la máquina sin operador con el motor o encendido.</li> <li>10. Mantenga todos los líneas hidráulicas, acoplamiento y accesorios sin fugas durante el funcionamiento.</li> <li>11. Permanezca alejado de las líneas eléctricas elevadas. Puede producirse la electrostática sin contacto directo.</li> <li>12. Analice las instrucciones de seguridad de forma periódica.</li> </ol>
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6500208



6500255

	<h2>⚠ DANGER</h2> <p><b>ELECTROCUTION HAZARD</b></p> <p>To avoid serious injury or death from electrocution:</p> <p>Stay away from power lines when servicing, repairing, or removing any parts. This machine is not grounded. Electrostatic may occur without direct contact.</p>	<h2>⚠ PELIGRO</h2> <p><b>PELIGRO DE ELECTROCUCION</b></p> <p>Para evitar lesiones graves o la muerte por electrocución:</p> <p>Permanezca alejado de las líneas de alta tensión al servicio, reparar o quitar cualquier parte. Este equipo no tiene conexión a tierra y puede producirse la electrostática sin contacto directo.</p>
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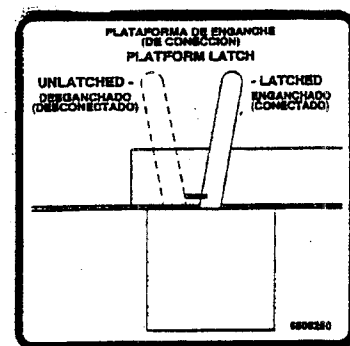
6500216



6500159

	<h2>⚠ DANGER</h2> <p><b>ROTATING PART HAZARD</b></p> <p><b>STAY OUT OF THE WAY WHEN ENGINE IS RUNNING</b></p> <ol style="list-style-type: none"> <li>1. KEEP OTHERS AWAY</li> <li>2. PLACE ALL CONTROLS IN NEUTRAL, STOP ENGINE, REMOVE KEY, AND WAIT FOR ALL MOVING PARTS TO STOP BEFORE SERVICING, ADJUSTING, REPAIRING, OR UNPLUGGING. OR WITHIN THE TUB FOR ANY REASON.</li> <li>3. DISCONNECT BATTERY ON FTY GROUND MACHINES.</li> </ol>	<h2>⚠ PELIGRO</h2> <p><b>PELIGRO DE PARTE GIRATORIA</b></p> <p><b>PERMANezca alejado de las líneas de alta tensión al servicio, reparar o quitar cualquier parte.</b></p> <ol style="list-style-type: none"> <li>1. MANTENGA ALEJADOS A OTROS PERSONAS</li> <li>2. PONGA TODOS LOS CONTROLES EN PUNTO NEUTRO, APAGUE EL MOTOR, RETIRE LA LLAVE Y ESPERE A QUE TODAS LAS PARTES SE MOVIMIENTO SE DETENGAN ANTES DE PROBAR O EL SERVICIO, AJUSTE, REPARACION, O DESCONECTAR O AL DESCONECTAR LA BATERIA POR CUALQUIER RAZON.</li> <li>3. DESCONECTE EL BATERIA EN LOS MODELOS A BATERIA POR TOMA DE FUERZA.</li> </ol>
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6500212

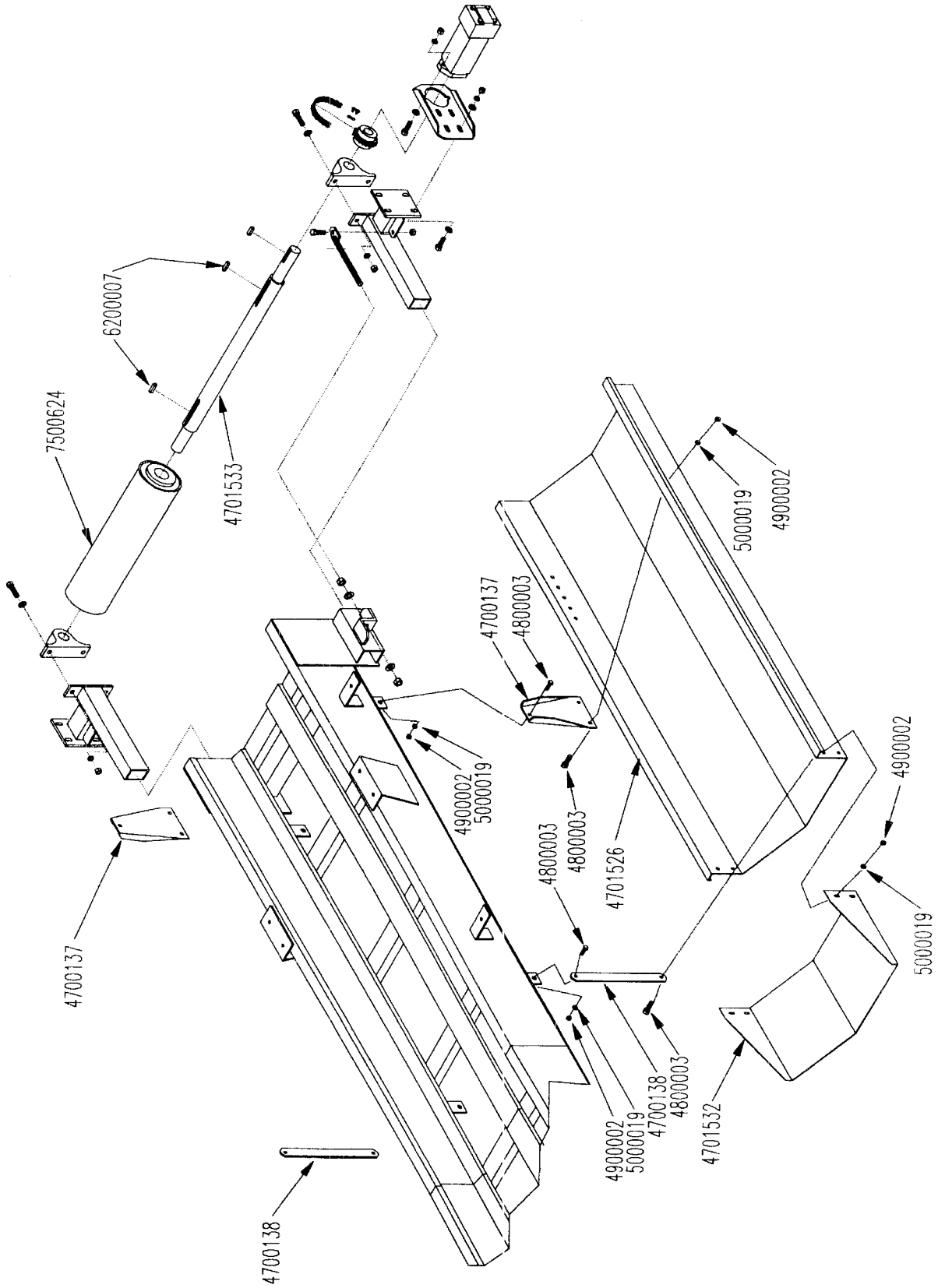


6500250

# HD10-P DECALS

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
<b>4701772</b>		<b>DECAL\ASSY</b>
6500118	1	DECAL\DNGR\OBJECTS;THROWN
6500121	1	DECAL\WARN\IMPORTANT\DO;NOT
6500123	2	DECAL\INFO\DIESEL;FUEL
6500124	2	DECAL\INFO\HYD;OIL
6500132	1	DECAL\INFO\ENG;SERV
6500155	28FT	DECAL\LOGO\STRIPS;SILVER
6500156	20FT	DECAL\LOGO\2\STRIPE\SILVER
6500157	2	DECAL\LOGO\RECYCLE\SILVER
6500159	2	DECAL\LOGO\BIG;BITE;SILVER
6500161	2	DECAL\LOGO\HD-10\SILVER
6500208	1	DECAL\WARN\GENERAL
6500212	1	DECAL\WARN\ROTATING;PART
6500214	2	DECAL\WARN\OVEHEAD;CNVYR
6500216	2	DECAL\WARN\ELEC;HAZARD
6500220	2	DECAL\WARN\HI;PRESS;FLUID
6500223		NOT AVAILABLE
6500224	2	DECAL\LOGO\DURA-TECH\4-3/4\SILVER
6500245	9FT	DECAL\MISC\TAPE\RED\WHITE
6500250	1	DECAL\INFO\LATCH\PLATFORM
6500253	2	DECAL\INFO\FLUID;LEVEL
6500255	1	DECAL\INFO\CNVYR;LIFT
6500256	1	DECAL\INFO\CNVYR;RUN & TILIT
6500257	1	DECAL\INFO\TUB;ROTATION
6500258	1	DECAL\INFO\CNVYR\LIFT & FOLD

# OPTION: MAGNETIC ROLLER KIT\24\COMPLETE

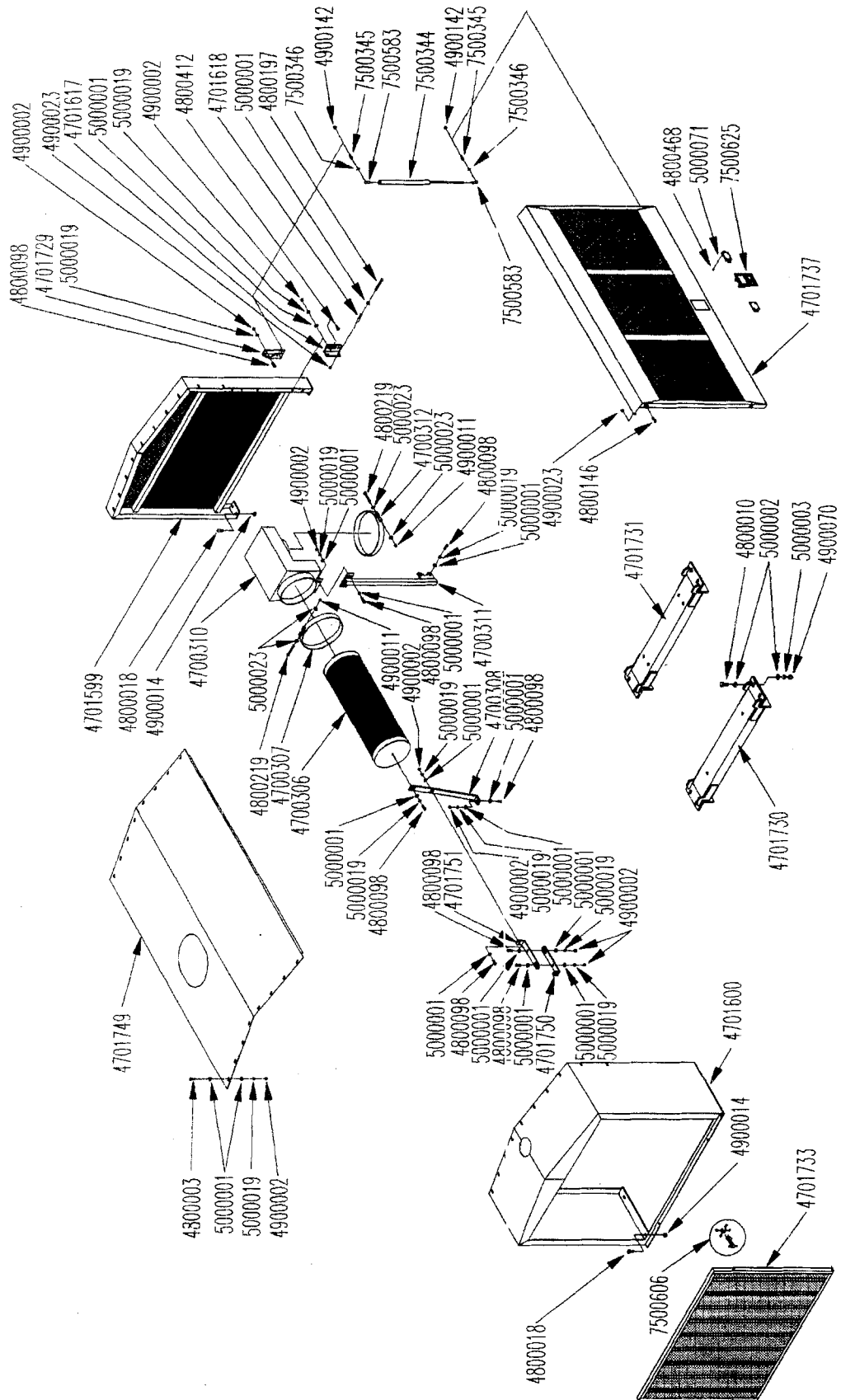


**OPTION: MAGNETIC ROLLER KIT\24\COMPLETE**

<u>PART#</u>	<u>QTY</u>	<u>DESCRIPTION</u>
<b>4701761</b>		<b>RLLR\MAG\KIT\COMP\24</b>
4700137	2	MNT\CHUTE\REAR
4700138	2	MNT\CHUTE\FRONT
4701526	1	CNVYR\CHUTE\AL\24
4701532	1	CHUTE\END\SECTION\24
4701533	1	SHAFT\RLLR\MAG\24
4800003	12	BOLT\HEX\3/8X1
4900002	12	NUT\HEX\3/8
5000019	12	WASH\LOCK\3/8
6200007	2	KEY\SQ\3/8X1-1/2
7500624	1	PUL\MAG\8X24\KEYED\SHAFT

# OPTION\ENGINE\3306 CAT\ CONCEALED INTAKE

SERIAL NUMBERS 0414,0418,0419,0429



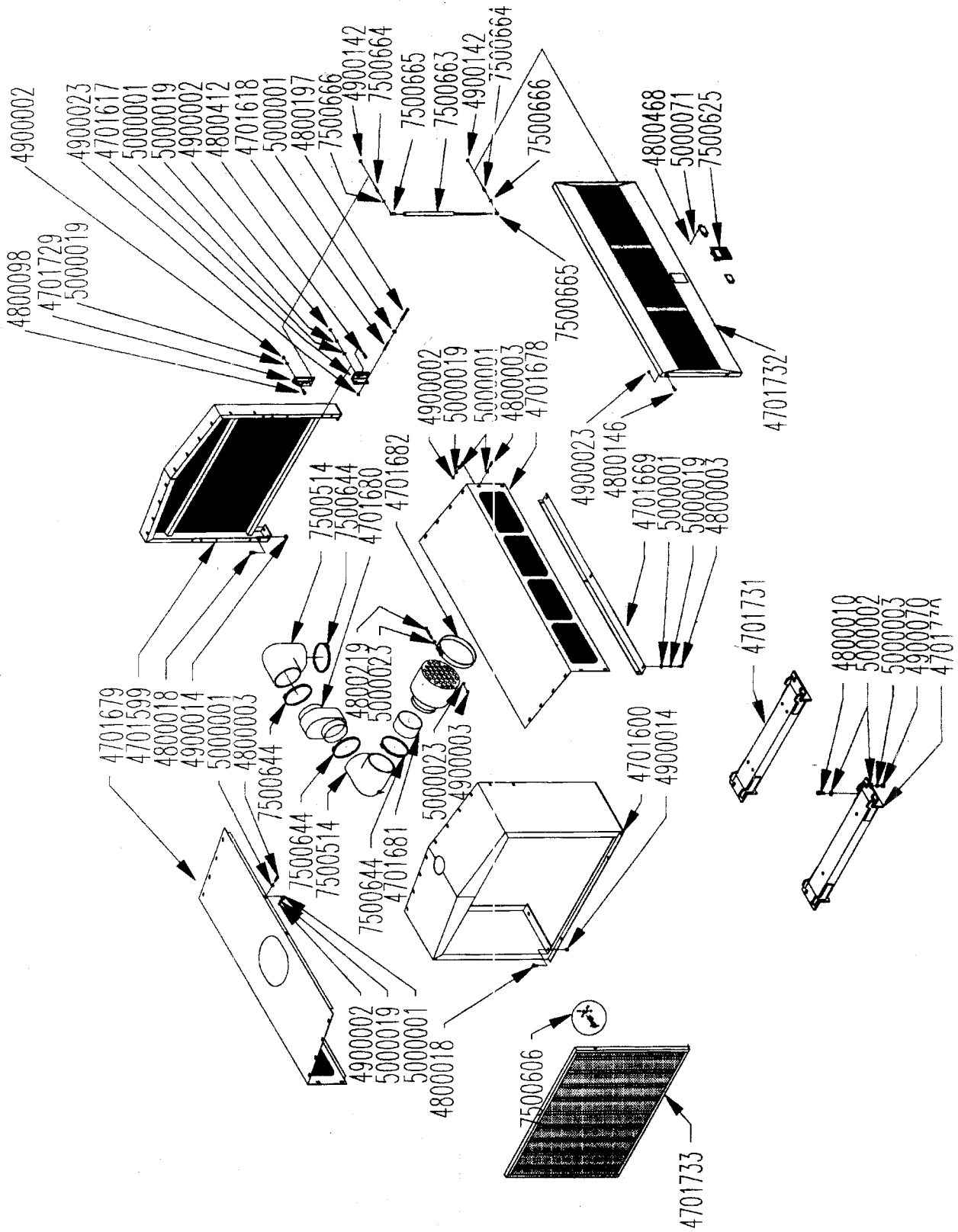
# OPTION\ENGINE\3306 CAT \ CONCEALED INTAKE

SERIAL NUMBERS 0414,0418,0419,0429

PART#	QTY	DESCRIPTION	PART#	QTY	DESCRIPTION
<b>4701748</b>		<b>OPTN\ENG\GRDR\3306 CAT</b>	6200025	1	KEY\SQ\7/8X6
0900005	1	ENG\CAT\3306\300HP\W/ROD	7500344	4	GAS SPRING
3600181	1	TORQUE\LIMITER UTJ28-10	7500345	8	BALL STUD
3600183	1	FLANGE\3-1/2ID\7/8KW	7500346	8	SAFETY CLIP
4700306	1	SCRN\INTAKE\AIR	7500583	8	END FITTING\GAS\SPRG
4700307	1	CLAMP\SCRN\INTAKE	7500606	2	LATCH\35-M\AUSTIN
4700308	1	SCRN\SUP\CAT\260	7500625	2	LATCH\PDDL\3-4974\KEY
4700310	1	ELBOW\CAT\260			
4700311	1	ELB\SUPPORT\BRKT\CAT260			
4700312	1	ELBOW\CLAMP\CAT 260			
4701599	1	SHRD\ENG\REAR*ASSY\FRM\MN			
4701600	1	SHRD\ENG\FRNT*ASSY\FRM\MN			
4701617	4	LATCH\STOP\DOOR\SECURITY			
4701618	4	CUSH\STOP\DOOR\2-1/2			
4701729	4	BRKT\SPG\GAS\DOOR\SECURITY			
4701730	1	BRKT\MNT\ENG\FR\3306CAT			
4701731	1	BRKT\MNT\ENG\REAR\3306CAT			
4701733	1	SCRN\SHRD\ENG\FR			
4701737	2	DOOR\SECURITY			
4701749	1	CVR\ENG\3306CAT			
4701750	1	BRKT\SUP.\SCRN\3306CAT			
4701751	1	BRKT\SUP.\SCRN\3306CAT			
4800003	16	BOLT\HEX\3/8X1			
4800010	8	BOLT\HEX\5/8X2			
4800018	8	BOLT\HEX\1/2X1-1/4			
4800098	17	BOLT\HEX\3/8X1-1/4\NC			
4800146	4	BOLT\HEX\3/8X2			
4800197	4	BOLT\HEX\3/8X3-1/2			
4800219	2	BOLT\HEX\5/16X4			
4800323	4	SCR\SET\ALN\1/2X1\NC			
4800412	8	SCR\SCK\ALN\3/8X1-1/4\NC			
4800468	16	SCR\RD\SLT\#10X1/2\NC			
4900002	38	NUT\HEX\3/8\NC			
4900014	8	NUT\TPLCK\1/2\NC.500*MAX			
4900023	8	NUT\HEX\3/8\NC			
4900070	8	NUT\HEX\5/8\GR8\NC			
4900099	2	NUT\TPLCK\5/16\GR8\NC			
4900142	8	NUT\TPLCK\5/16			
5000001	59	WASH\FLAT\3/8			
5000002	16	WASH\FLAT\5/8			
5000003	8	WASH\LOCK\5/8			
5000019	41	WASH\LOCK\3/8			
5000023	4	WASH\FLAT\5/16			
5000071	16	WASH\LOCK\EXT;STAR\#10			
5700061	1	VOLTAGE REDUCER (CAT ENG)			

# OPTION\ENG\3306 CAT\SIDE INTAKE

EXCEPT SERIAL NUMBER 0414,0418,0419,0429



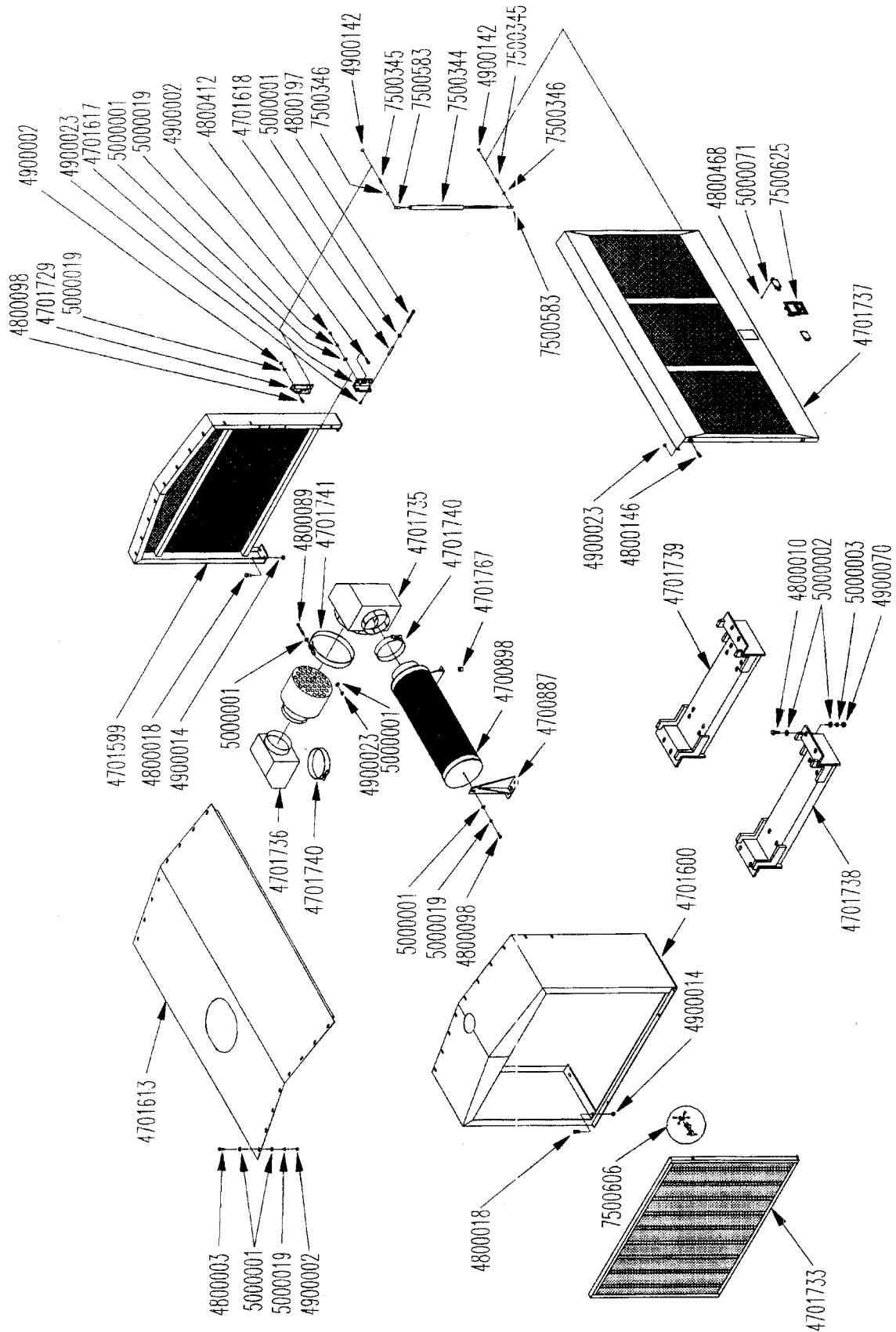


# OPTION\ENG\3306 CAT\SIDE INTAKE

EXCEPT SERIAL NUMBER 0414,0418,0419,0429

PART #	QTY	DESCRIPTION	PART #	QTY	DESCRIPTION
<b>4701728</b>		<b>OPTN\ENG\GRDR\3306\CAT</b>			
0900005	1	ENG\CAT\3306\300HP\W\ROD	7500514	2	ELB\ST\RBRR\7" 90D
3600181	1	TORQUE\LIMITER\UTJ28-10	7500606	2	LATCH\35-M\AUSTIN
3600183	1	FLANGE\3-1\2ID\7\8KW	7500625	2	LATCH\PDDL\3-4974\KEY
4701599	1	SHRD\ENG\REAR*ASSY\FRM\MN	7500644	4	CLMP\HOSE\7
4701600	1	SHRD\ENG\FRNT*ASSY\FRM\MN	7500665	8	END FTTGS\GAS;SPG
4701617	4	LATCH\STOP\DOOR\SECURITY	7500666	8	SAFETY CLIP
4701618	4	CUSH\STOP\DOOR\2-1\2			
4701669	1	CVR\INTAKE\AIR\BTTM			
4701678	1	CVR\ENG\LH\CAT-3306			
4701679	1	CVR\ENG\RH\CAT-3306			
4701680	1	ELBOW\INTAKE\AIR\CAT-3306			
4701681	1	TUBE\INTAKE\AIR\CAT-3306			
4701682	1	CLAMP\ASPIRATOR\CAT-3306			
4701729	4	BRKT\SPG\GAS\DOOR\SECURITY			
4701730	1	BRKT\MNT\ENG\FR\CAT-3306			
4701731	1	BRKT\MNT\ENG\REAR\CAT-3306			
4701732	2	DOOR\SECURITY\CAT-3306			
4701733	1	SCRN\SHRD\ENG\FR			
4800003	30	BOLT\HEX\3\8X1			
4800010	8	BOLT\HEX\5\8X2			
4800018	8	BOLT\HEX\1\2X1-1\4			
4800098	8	BOLT\HEX\3\8X1-1\4\NC			
4800146	4	BOLT\HEX\3\8X2			
4800197	4	BOLT\HEX\3\8X3-1\2			
4800219	1	BOLT\HEX\5\16X4			
4800323	4	SCR\SET\ALN\1\2X1\NC			
4800412	8	SCR\SCK\ALN\3\8X1-1\4\NC			
4800468	16	SCR\RD\SLT\#10X1\2\NC			
4900002	40	NUT\HEX\3\8\NC			
4900003	1	NUT\HEX\5\16\NC			
4900014	8	NUT\TPLCK\1\2\NC\500*MAX			
4900023	8	NUT\TPLCK\3\8\NC			
4900070	8	NUT\HEX\5\8\GR8\NC			
4900142	8	NUT\TPLCK\5\16			
5000001	4	WASH\FLAT\3\8			
5000002	16	WASH\FLAT\5\8			
5000003	8	WASH\LOCK\5\8			
5000019	46	WASH\LOCK\3\8			
5000023	2	WASH\FLAT\5\16			
5000071	16	WASH\LOCK\EXT;STAR\#10			
5700061	1	VOLTAGE REDUCER (CAT ENG)			
6200025	1	KEY\SQ\7\8X6			
7500663	4	GAS SPRING			
7500664	8	BALL STUD			

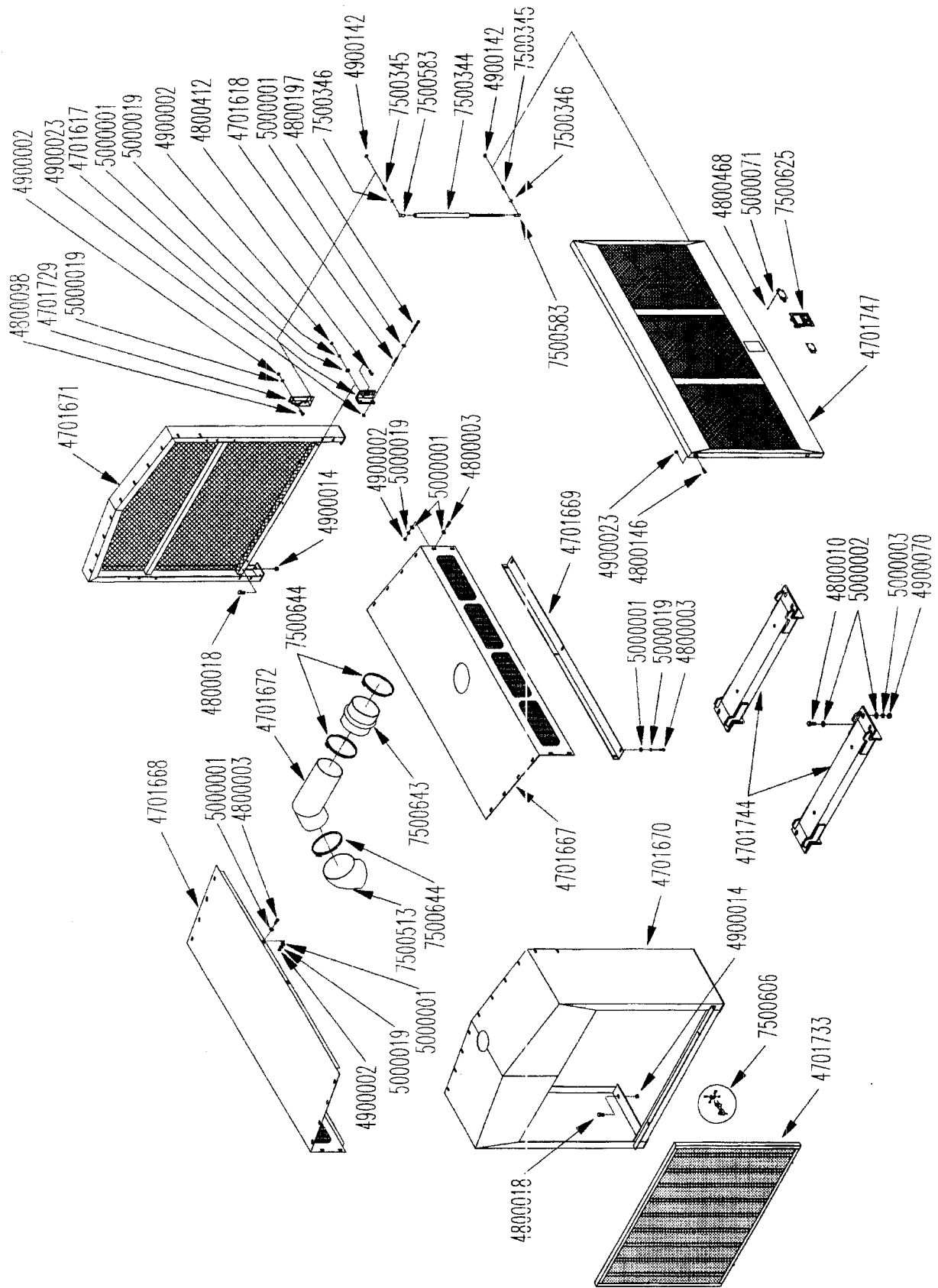
# OPTION\ENGINE\3406 CAT



# OPTION\ENGINE\3406 CAT

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
<b>4701734</b>		<b>OPTN\ENG\GRDR\3406</b>
0900010	1	ENG\CAT\3406\400HP
3600178	1	FLANGE\3-15\16ID\X6"L
4700887	1	AIR INTAKE SCREEN BRKT
4700898	1	SCRN\INTAKE\AIR\3406 CAT
4701599	1	SHRD\ENG\REAR*ASSY\FRM\KN
4701600	1	SHRD\ENG\FRNT*ASSY\FRM\MN
4701613	1	COV\ENG\CAT\3406
4701617	4	LATCH\STOP\DOOR\SECURITY
4701618	4	CUSH\STOP\DOOR\2-1/2
4701729	4	BRKT\SPG\GAS\DOOR\SECURITY
4701733	1	SCRN\SHRD\ENG\FR
4701735	1	DUCT\INTK\ELL\LARGE\3406
4701736	1	DUCT\INTK\ELL\SMALL\3406
4701737	2	DOOR\SECURITY
4701738	1	BRKT\MNT\ENG\FR\3406CAT
4701739	1	BRKT\MNT\ENG\REAR
4701740	2	CLMP\INTK\ELL\7"ID
4701741	1	CLMP\INTK\ELL\11"ID
4701767	2	SPCR\MTG\SCRN\INTK\AIR
4800003	16	BOLT\HEX\3/8X1
4800010	8	BOLT\HEX\5/8X2
4800018	8	BOLT\HEX\1/2X1-1/4
4800089	3	BOLT\HEX\3/8X4
4800098	9	BOLT\HEX\3/8X1-1/4\NC
4800146	4	BOLT\HEX\3/8X2
4800197	4	BOLT\HEX\3/8X3-1/2
4800323	4	SCR\SET\ALN\1/2X1\NC
4800412	8	SCR\CSK\ALN\3/8X1-1/4\NC
4800468	16	SCR\RD\SLT\#10X1/2\NC
4900002	32	NUT\HEX\3/8\NC
4900014	8	NUT\TPLCK\1/2\NC\500*MAX
4900023	11	NUT\TPLCK\3/8\NC
4900070	8	NUT\HEX\5/8\GR8\NC
4900142	8	NUT\HEX\5/16
5000001	51	WASH\FLAT\3/8
5000002	16	WASH\FLAT\5/8
5000003	8	WASH\LOCK\5/8
5000019	33	WASH\LOCK\3/8
5000071	16	WASH\LOCK\EXT;STAR\#10
5700061	1	VOLTAGE REDUCER\CAT ENG
6200038	1	KEY\SQ\1X1X6
7500344	4	GAS SPRING
7500345	8	BALL STUD
7500346	8	SAFETY CLIP
7500573	1	TORQUE LIMITOR 400 HP
7500583	8	END FITTING\ GAS SPRING
7500606	2	LATCH\35-M\AUSTIN
7500625	2	LATCH\PDDL\3-4974\KEY

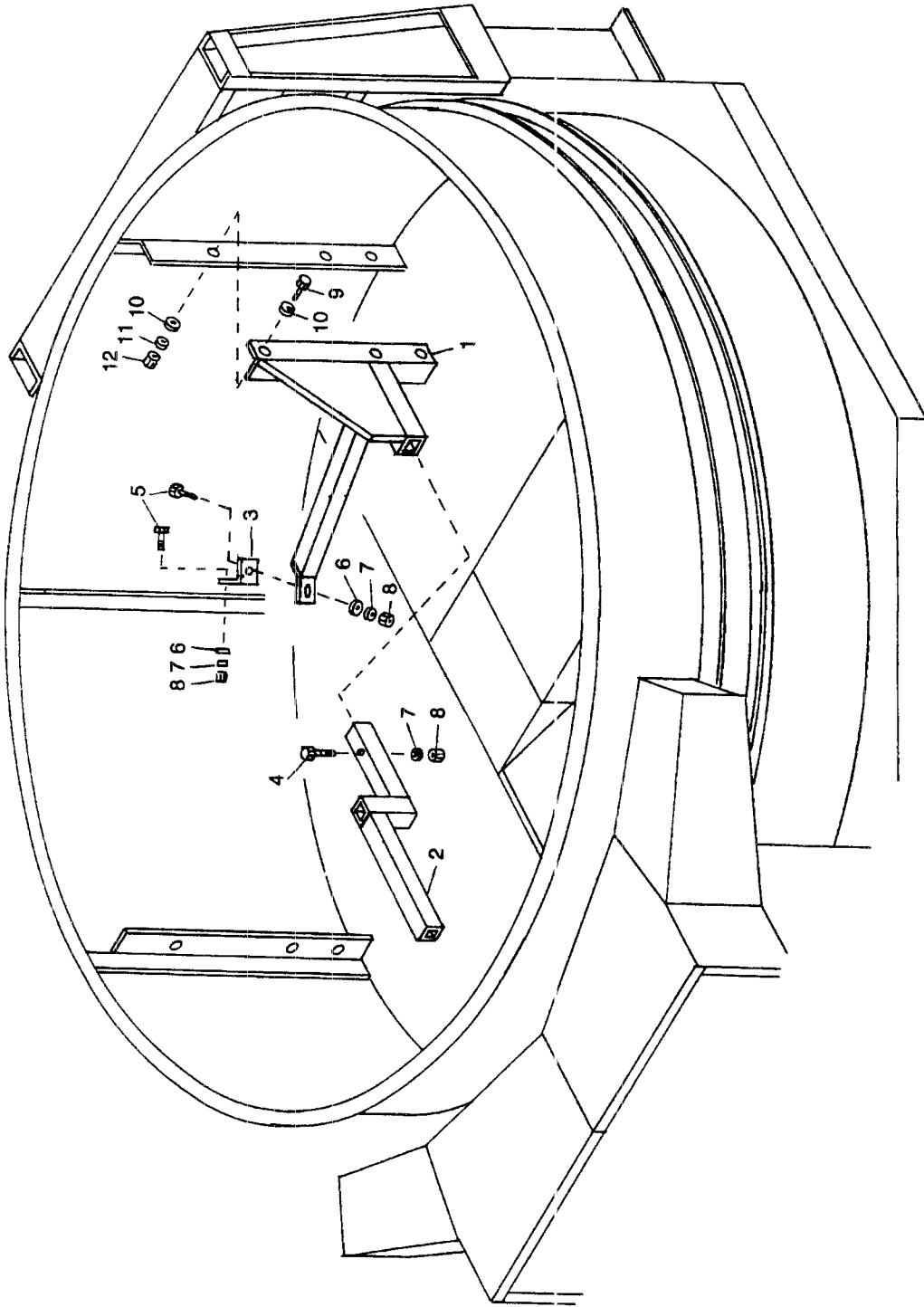
# OPTION\ENG\JD6101



# OPTION\ENG\JD6101

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
<b>4701743</b>		<b>OPTION\ENG\GRDR\JD6101</b>
0900013	1	ENG\JD\6101H\375HP
3600178	1	FLANGE\3-15/16IDX6"L
4701617	4	LATCH\STOP\DOOR\SECURITY
4701618	4	CUSH\STOP\DOOR\2-1/2
4701667	1	COV\ENG\LH\JD6101
4701668	1	COV\ENG\RH\JD6101
4701669	1	COV\INTAKE\AIR\BTM\JD6101
4701670	1	SHRD\ENG\FRNT\JD6101
4701671	1	SHRD\ENG\REAR\JD6101
4701672	1	TUBE\INTAKE\AIR\JD6101
4701729	4	BRKT\SPG\GAS\DOOR\SECURITY
4701733	1	SCRN\SHRD\ENG\FR
4701744	2	BRKT\MNT\ENG\JD6101
4701747	2	DOOR\SECURITY\JD6101
4800003	32	BOLT\HEX\3/8X1
4800010	8	BOLT\HEX\5/8X2
4800018	8	BOLT\HEX\1/2X1-14
4800098	8	BOLT\HEX\3/8X1-1/4\NC
4800146	4	BOLT\HEX\3/8X2
4800197	4	BOLT\HEX\3/8X3-1/2
4800323	4	SCR\SET\ALN\1/2X1\NC
4800412	8	SCR\CSK\ALN\3/8X1-1/4\NC
4800468	16	SCR\RD\SLT\#10X1/2\NC
4900002	42	NUT\HEX\3/8\NC
4900014	8	NUT\TPLCK\1/2\NC\500*MAX
4900023	8	NUT\TPLCK\3/8\NC
4900070	8	NUT\HEX\5/8\GR8\NC
4900142	8	NUT\TPLCK\5/16
5000001	70	WASH\FLAT\3/8
5000002	16	WASH\FLAT\5/8
5000003	8	WASH\LOCK\5/8
5000019	48	WASH\LOC\K\3/8
5000071	16	WASH\LOCK\EXT;STAR\#10
6200038	1	KEY\SQ\1X1X6
7500344	4	GAS SPRING
7500345	8	BALL\STUD
7500346	8	SAFETY CLIP
7500513	1	7" 45 RUBBER STREET ELB
7500573	1	TORQUE LIMITOR 400 HP
7500583	8	END FITTING\GAS SPRING
7500606	2	LATCH\35-M\AUSTIN
7500625	2	LATCH\PDDL\3-4974\KEY
7500643	1	FTG\RUBBER\7\STRAIGHTUMP
7500644	3	CLMP\HOSE\7

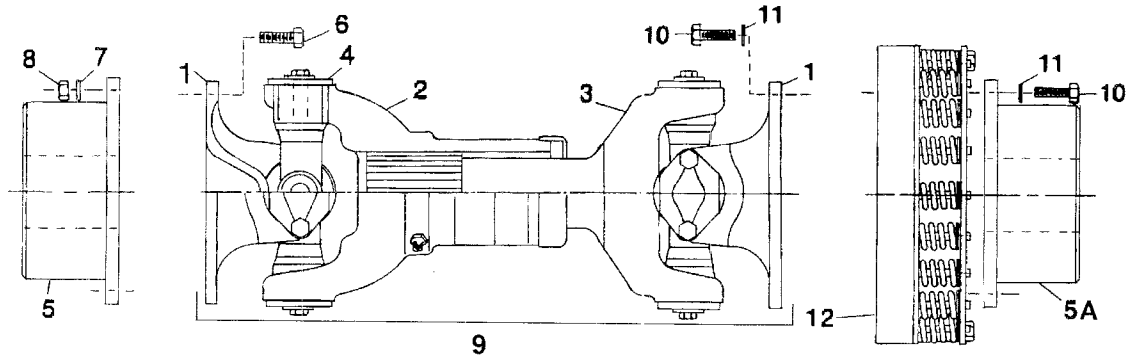
# TUB AGITATOR



## TUB AGITATOR

ITEM	PART NO.	QTY.	DESCRIPTION
1	4700142	2	Tub Agitator Mount
2	4700143	2	Tub Agitator Arm
3	4700265	2	Tub Agitator Bracket
4	4800006	2	1/2" x 4" bolt
5	4800082	4	1/2" x 1-1/2" bolt
6	5000004	4	1/2" Flat Washer
7	5000006	6	1/2" Lock Washer
8	4900001	6	1/2" Hex Nut
9	4800106	6	5/8" x 1-1/2" Bolt
10	5000002	12	5/8" Flat Washer
11	5000003	6	5/8" Lock Washer
12	4900005	6	5/8" Hex Nut

# POWER SHAFT



## ITEM    PART NO.    QUANTITY    DESCRIPTION

For 300HP Cat Engine, Options 470128 and 4701748

1	3600152	2	Flange Yoke\1710
2	3600153	1	Slip Yoke\1710
3	3600154	1	Yoke Shaft\1710
4	3600155	2	Journal and Bearing Kit\1710
5	3600172	1	Flange 3-1/2" ID 1710
5A	3600183	1	Flange 3-1/2" ID 7/8" Keyway
6	4800252	8	7/16" x 1-3/8" NF Bolt- Grade 8
7	5000015	8	7/16" Lock Washer
8	4900059	8	7/16" NF Nut
9	3600158		Power Shaft (Complete)18"
10	4800276	16	3/8" x 1-1/4" NF Bolt - Grade 8
11	5000019	16	3/8" Lock Washer
12	3600181	1	Torque Limiter UJT 28-10
	6200024	1	Key\Sq\3/4x4
	6200025	1	Key\Sq\7/8x6

For 400 HP Cat Engine Option 4701734 and 375 HP JD Engine Option 4701743

5	3600172	1	Flange 3-1/2" ID 1710
5A	3600178	1	Flange 3-15/16" ID x 6" Long\ Motor End 1" KW
9	3600158	1	Power Shaft (Complete)18"
12	7500573	1	Torque Limiter 400HP
	6200024	1	Key\Sq\3/4x4
	6200038	1	Key\Sq\1x6

For 460 HP Cat Engine

5	3600172	1	Flange 3-1/2" ID 1710
5A	3600178	1	Flange 3-15/16" ID x 6" Long\ Motor End 1" KW
9	3600158	1	Power Shaft (Complete)18"
12	3600179	1	Torque Limiter UJT36
	6200024	1	Key\Sq\3/4x4
	6200038	1	Key\Sq\1x6