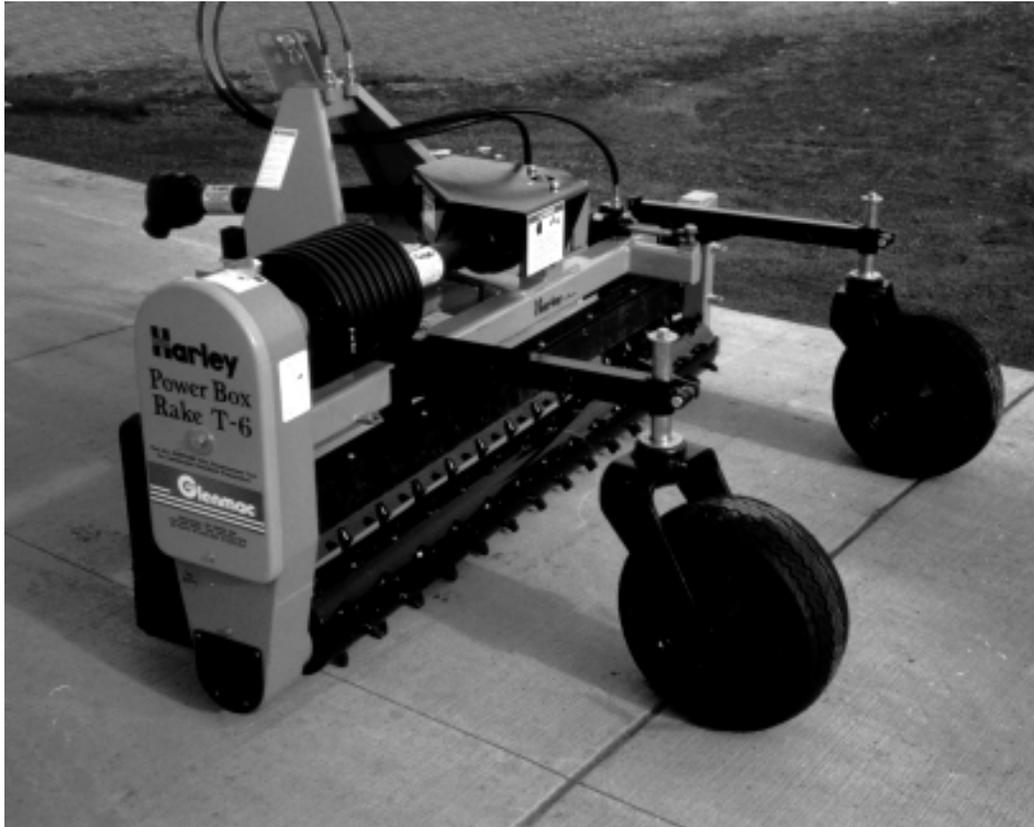




Harley

POWER BOX RAKE® MODEL T-6



OPERATOR'S MANUAL

DATE PURCHASED

SERIAL NUMBER



INTRODUCTION

Glenmac Inc., along with your authorized dealer, sales person, executive and production worker, are proud that you chose to purchase a Harley Power Box Rake®. Equipment under the Harley name has been built for over 35 years and is sold and used worldwide.

The purpose of this manual is to provide you, the operator, with the proper instructions on safety, assembly and operation so you will realize the optimum purpose of your purchase. Successful operation and long-life of the Power Box Rake® depends on you. It is up to you to be familiar with the proper operation and the care required to maintain the equipment in top condition.

To keep your equipment at peak performance, please read this manual carefully several times and follow the directions. Correct operation and maintenance will save much time and expense.

Please don't forget to fill in the warranty card and send it in within 10 days of your purchase date. While you are filling in the card with the correct information put the date purchased and the serial number on the front cover of this manual and that way the information is handy when you need it.

Thank you for purchasing a HARLEY POWER BOX RAKE®.

Throughout this manual, the term **IMPORTANT** is used to indicate that failure to observe can cause damage to equipment. The terms **CAUTION**, **WARNING** and **DANGER** are used in conjunction with the Safety-Alert Symbol, (a triangle with an exclamation mark), to indicate the degree of hazard for items of personal safety.



This Safety-Alert Symbol indicates a hazard and means **ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!**



DANGER

Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury.



WARNING

Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury, and includes hazards that are exposed when guards are removed.



CAUTION

Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury.

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SPECIFICATIONS

Raking Width	72 Inches
Roller Type	Tooth Roller Standard 8" Diameter
Roller Angle	15 Degrees Both Directions
Gap (Tube to Barrier)	1-1/4" - 3" Adjustable
Tires	16.5 x 6.5-8
Tire Pressure	45 psi
Weight	655 lbs
Oil Capacity of Chain Case	Approximately 1.5 Pints
Tractor Three-Point Attachment	Cat. 1
PTO Drive	540 RPM
Tractor Hydraulic System	3-Pt Hitch and One Remote Valve
Tractor PTO HP	22 - 35 HP

OWNER ASSISTANCE

1. We at Glenmac, Inc. and your authorized Harley dealer want you to be completely satisfied with your investment. Sometimes, however, misunderstandings can occur. To resolve any problems that may occur please follow the instructions below. If you did not purchase your Power Box Rake® from an authorized Harley dealer, go to number (2) below.

A. Contact the Service Manager of the dealership, explain the problem, and request assistance. If additional assistance is needed, your dealer had direct access to our home office.

B. If your problem has not been handled to your satisfaction contact:

Customer Service (8:00 am – 5:00 pm Central Time)
Glenmac, Inc.
P.O. Box 2135
Jamestown, ND 58402-2135
(701) 252-9300

C. Please be prepared to provide the following information:

- Your name, address, and telephone number,
- Machine model and **SERIAL NUMBER**,
- Dealership name and address,
- Machine purchase date,
- Nature of problem.

Your problem will likely be resolved in the dealership using the dealer's facilities, equipment, and personnel. Therefore, it is important that your initial contact be with the dealer.

2. If you did not purchase your equipment from an authorized dealer, call Glenmac, Inc. (see B above); there may be a new dealer in your area since you purchased your Power Box Rake®. If there is no dealer in your area, our Customer Service Department can and will help you obtain the parts and information you may need. Please be prepared to provide the information requested under C above.

GENERAL INFORMATION

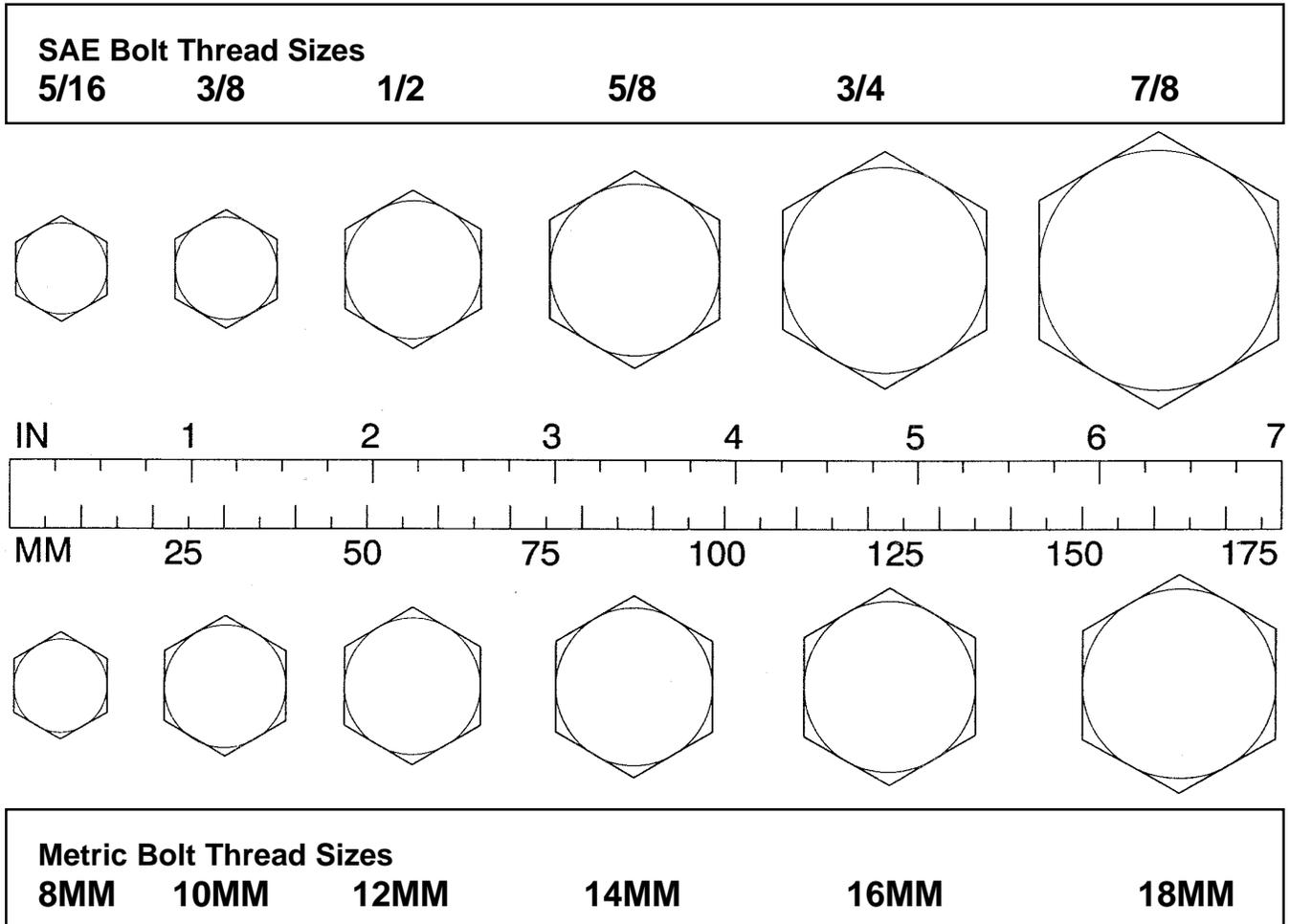
The purpose of this manual is to assist you in operating and maintaining your Power Box Rake®. Read it carefully. It furnishes information and instructions that will help you achieve years of dependable performance. These instructions have been compiled from extensive field experience and engineering data. Some information may be general in nature due to unknown and varying operating conditions. However, through experience and these instructions, you should be able to develop procedures suitable to your particular situation.

The illustrations and data used in this manual were current at the time of printing, but due to possible inline production changes, your machine may vary slightly in detail. We reserve the right to redesign and change the machines as may be necessary without notification.

Throughout this manual, references are made to front, back, right and left directions. These are determined by sitting in the operator's seat of the tractor.

BOLT SIZE CHART

NOTE: Chart shows bolt thread sizes and corresponding head (wrench) sizes for standard SAE and Metric Bolts.



BOLT TORQUE CHART

After every ten (10) hours of operation, check all hardware and tighten where required.

SAE Series Torque Chart

DO NOT use these values if a different torque value or tightening procedure is listed for a specific application. Torque values listed are for general use only.

Fasteners should be replaced with the same grade.

Make sure fastener threads are clean and you properly start thread engagement. This will prevent them from failing when tightening.

SAE Bolt Head Identification



**SAE Grade 2
(No Dashes)**



**SAE Grade 5
(3 Radial Dashes)**



**SAE Grade 8
(6 Radial Dashes)**

Bolt Diameter "A"	Wrench Size	MARKING ON HEAD					
		SAE 2		SAE 5		SAE 8	
		Lbs.-Ft.	(N-m)	Lbs.-Ft.	(N-m)	Lbs.-Ft.	(N-m)
1/4"	7/16"	6	(8)	11	(15)	14	(19)
5/16"	1/2"	13	(18)	21	(28)	25	(34)
3/8"	9/16"	23	(31)	38	(52)	55	(75)
7/16"	5/8"	37	(50)	55	(75)	80	(110)
1/2"	3/4"	57	(77)	85	(115)	120	(165)
9/16"	13/16"	82	(111)	125	(170)	180	(245)
5/8"	15/16"	111	(150)	175	(240)	230	(310)
3/4"	1-1/8"	200	(270)	300	(410)	440	(600)
7/8"	1-5/16"	280	(380)	450	(610)	720	(975)
1"	1-1/2"	350	(475)	680	(925)	1035	(1400)
1-1/8"	1-11/16"	450	(610)	885	(1200)		
1-1/4"	1-7/8"	600	(815)	1255	(1700)		
1-3/8"	2-1/16"	675	(915)	1620	(2200)		
1-1/2"	2-1/4"	920	(1250)	2200	(2900)		

BOLT TORQUE CHART

Metric Series Torque Chart

Use only metric tools on metric hardware. Other tools may not fit properly. They may slip and cause injury.

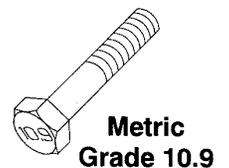
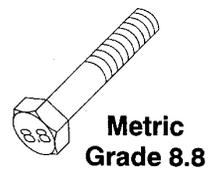
DO NOT use these values if a different torque value or tightening procedure is listed for a specific application. Torque values listed are for general use only.

Fasteners should be replaced with the same grade.

Make sure fastener threads are clean and you properly start thread engagement. This will prevent them from failing when tightening.

Bolt Diameter "A"	Wrench Size	MARKING ON HEAD			
		8.8		10.9	
		N-m	(Lbs.-Ft.)	N-m	(Lbs.-Ft.)
5 mm	8 mm	6	(4.5)	9	(6.5)
6 mm	10 mm	10	(7.5)	15	(11)
8 mm	13 mm	25	(18)	35	(26)
10 mm	16 mm	50	(37)	75	(55)
12 mm	18 mm	85	(63)	130	(97)
14 mm	21 mm	110	(80)	150	(110)
16 mm	24 mm	215	(159)	315	(232)
20 mm	30 mm	435	(321)	620	(457)
24 mm	36 mm	750	(553)	1070	(789)
30 mm	46 mm	1495	(1103)	2130	(1571)

Metric Bolt Head Identification



After every ten (10) hours of operation, check all hardware and tighten where required.

SAFETY RULES



ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!



Safety is a primary concern in the design and manufacture of our products. Unfortunately, our efforts to provide safe equipment can be wiped out by a single careless act of an operator.

In addition to the design and configuration of equipment, hazard control and accident prevention are dependent upon the awareness, concern, prudence, and proper training of personnel involved in the operation, transport, maintenance, and storage of equipment.

It has been said, "The best safety device is an informed, careful operator." We ask you to be that kind of an operator.

The designed and tested safety of this equipment depends on it being operated within the limitations as explained in this manual.

TRAINING

- Safety instructions are important! Read all attachment and power unit manuals; follow all safety rules and safety decal information. (Replacement manuals are available from dealer or, in the United States and Canada, call 1-800-437-9779.) Failure to follow instructions or safety rules can result in serious injury or death.
- If you do not understand any part of this manual and need assistance, see your dealer.
- Know your controls and how to stop engine and attachment quickly in an emergency.
- Operators must be instructed in and be capable of the safe operation of the equipment, its attachments, and all controls. Do not allow anyone to operate this equipment without proper instructions.



SAFETY RULES



ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

- Keep hands and body away from pressurized lines. Use paper or cardboard, not body parts to check for leaks. Wear safety goggles. Hydraulic fluid under pressure can easily penetrate skin and will cause serious injury or death.
- Make sure that all operating and service personnel know that in the event hydraulic fluid penetrates skin, it must be surgically removed as soon as possible by a doctor familiar with this form of injury or gangrene, serious injury, or death will result. **CONTACT A PHYSICIAN IMMEDIATELY IF FLUID ENTERS SKIN OR EYES. DO NOT DELAY.**
- Do not allow children or untrained persons to operate equipment.

PREPARATION

- Air in hydraulic systems can cause erratic operation and allows loads or equipment components to drop unexpectedly. Before operating or allowing anyone to approach the equipment, purge any air in the system by operating all hydraulic functions several times after connecting equipment, connecting hoses, or doing any hydraulic maintenance.
- Check that all hardware is tight and properly installed. Always tighten to torque chart specifications.
- Before starting tractor, check all equipment driveline guards for damage and make sure they rotate freely on all drivelines. Replace any damaged guards. If guards do not rotate freely on drivelines, repair and replace bearings before operating.
- Make sure driveline is correct length to prevent bottoming out or pulling apart during the full lift range of the hitch.
- Make sure spring-activated locking pin or collar slides freely and is seated firmly in tractor PTO splined groove.
- After connecting hoses, check that all control lever positions function as instructed in the Operator's Manual. Do not operate until control lever and equipment movements are correct.
- Make sure all hydraulic hoses, fittings, and valves are in good condition and not leaking before starting power unit or using equipment. Check and route hoses carefully to prevent damage. Hoses must not be twisted, bent sharply, kinked, frayed, pinched, or come into contact with any moving parts. Operate moveable components through full operational range to check clearances. Replace any damaged hoses immediately.
- Always wear relatively tight and belted clothing to avoid entanglement in moving parts. Wear sturdy, rough-soled work shoes and protective equipment for eyes, hair, hands, hearing, and head.
- Ensure implement is properly attached, adjusted, and in good operating condition.
- Power unit must be equipped with ROPS (Roll Over Protection Structure) or ROPS CAB and seat belt. Keep seat belt securely fastened. Falling off power unit can result in death from being run over or crushed. Keep foldable ROPS systems in "locked up" position at all times.
- Remove accumulated debris from this equipment, tractor, and engine to avoid fire hazard.
- A minimum 20% of tractor and equipment weight must be on tractor front wheels with attachments in "transport" position. Without this weight, tractor could tip over causing personal injury or death. The weight may be attained with a loader, front wheel weights, ballast in tires, or front tractor weights. When attaining the minimum 20% weight on the front wheels, you must not exceed the Roll Over Protection Structure (ROPS) weight certification. Weigh the tractor and equipment. Do not estimate.
- Ensure all safety decals are installed. Replace if damaged. (See "Safety Decals" section for location.)
- Ensure shields and guards are properly installed and in good condition. Replace if damaged.



SAFETY RULES



ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

OPERATIONAL SAFETY

- Consult local utilities before digging. Know location and depth of, and avoid contacting, all underground cables, pipelines, and other hazards in working area.
- Do not allow other people in the area when operating, attaching, removing, assembling, or servicing equipment.
- Only engage power when equipment is at ground operating level. Always disengage power when equipment is raised off the ground.
- Do not disconnect hydraulic lines until all system pressure is relieved. Lower unit to ground, stop engine, and operate all hydraulic control levers.
- Keep bystanders away from equipment while it is in operation.
- Never go underneath equipment lowered to the ground or raised. Never place any part of the body underneath equipment or between moveable parts even when the engine has been turned off. Hydraulic system leak-down, hydraulic system failures, mechanical failures, or movement of control levers can cause equipment to drop or rotate unexpectedly and cause severe injury or death.
- Service work does not require going underneath equipment.
- Read Operator's Manual for service instructions or have done by a qualified dealer.
- Never direct discharge toward people, animals, or property.
- Do not operate equipment while under the influence of alcohol or drugs.
- Operate only in daylight or good artificial light.
- Keep hands, feet, hair, and clothing away from equipment while engine is running. Stay clear of all moving parts.
- Always comply with all state and local lighting and marking requirements.
- No riders are allowed on equipment.
- Always sit in tractor seat when operating controls or starting engine. Securely fasten seat belt, place transmission in neutral, engage brake, and ensure all other controls are disengaged before starting tractor engine.
- Operate tractor PTO at RPM speed stated in "Specifications" section.
- Do not operate tractor PTO during transport.
- Stop tractor and implement immediately upon striking an obstruction. Turn off engine, remove key, inspect, and repair any damage before resuming operation.
- Before dismounting tractor or performing any service or maintenance, disengage power to implement, lower the 3-point hitch and all raised components to the ground, operate valve levers to release any hydraulic pressure, stop engine, set parking brake, remove key, and unfasten seat belt.
- Lower implement to ground or block securely, turn tractor engine off, remove key, and disconnect driveline from tractor PTO before performing any service or maintenance.
- Never go underneath equipment lowered to the ground or raised. Never place any part of the body underneath equipment or between moveable parts even when the engine has been turned off. Hydraulic system leak-down, hydraulic system failures, mechanical failures, or movement of control levers can cause equipment to drop or rotate unexpectedly and cause severe injury or death. Service work does not require going underneath.
- Look down and to the rear and make sure area is clear before operating in reverse.
- Use extreme care when working close to fences, ditches, other obstructions, or on hillsides.
- Do not operate on steep slopes.
- Do not stop, start, or change directions suddenly on slopes.
- Use extreme care and reduce ground speed on slopes and rough terrain.
- Watch for hidden hazards on the terrain during operation.



SAFETY RULES



ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

MAINTENANCE SAFETY

- Your dealer can supply original equipment, hydraulic accessories and repair parts. Substitute parts may not meet original equipment specifications and may be dangerous.
 - Always wear relatively tight and belted clothing to avoid entanglement in moving parts. Wear sturdy, rough-soled work shoes, and protective equipment for eyes, hair, hand, hearing, and head.
 - Before dismounting tractor or performing any service or maintenance, disengage power to implement, lower the 3-point hitch and all raised components to the ground, operate valve levers to release any hydraulic pressure, stop engine, set parking brake, remove key, and unfasten seat belt.
 - Lower implement to ground or block securely, turn tractor engine off, remove key, and disconnect driveline from tractor PTO before performing any service or maintenance.
 - Do not allow other people in the area when operating, attaching, removing, assembling, or servicing equipment.
 - Do not modify or alter, or permit anyone else to modify or alter, the equipment or any of its components in any way.
 - Never go underneath equipment lowered to the ground or raised. Never place any part of the body underneath equipment or between moveable parts even when the engine has been turned off. Hydraulic system leak-down, hydraulic system failures, mechanical failures, or movement of control levers can cause equipment to drop or rotate unexpectedly and cause severe injury or death.
 - Service work does not require going underneath equipment.
 - Read Operator's Manual for service instructions or have done by a qualified dealer.
 - Ensure implement is properly attached, adjusted, and in good operating condition.
 - Never perform service or maintenance with engine running.
- Keep all persons away from operator control area while performing adjustments, service, or maintenance.
 - Tighten all bolts, nuts, and screws to torque chart specifications. Check that all cotter pins are installed securely to ensure equipment is in a safe condition before operating.
 - Ensure all safety decals are installed. Replace if damaged. (See "Safety Decals" section for location.)
 - Ensure shields and guards are properly installed and in good condition. Replace if damaged.
 - Do not disconnect hydraulic lines until all system pressure is relieved. Lower unit to ground, stop engine, and operate all hydraulic control levers.

STORAGE

- Follow manual instructions for storage.
- Keep children and bystanders away from storage area.

NOTES

NOTES



SAFETY DECALS

ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!



Replace Immediately If Damaged!

! DANGER



**ROTATING DRIVELINE
CONTACT CAN CAUSE DEATH
KEEP AWAY!**

DO NOT OPERATE WITHOUT –

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

#1 - PN: P970400

! DANGER



ROTATING PART HAZARD

- KEEP HANDS, HAIR AND CLOTHING AWAY FROM MOVING PARTS.
- CLOSE AND SECURE ALL SHIELDS BEFORE OPERATING.

**FAILURE TO DO SO COULD RESULT IN
SERIOUS INJURY OR DEATH**

#2 - PN: P970300

! DANGER



ROTATING PART HAZARD

- KEEP HANDS, HAIR AND CLOTHING AWAY FROM MOVING PARTS.
- CLOSE AND SECURE ALL SHIELDS BEFORE OPERATING.

**FAILURE TO DO SO COULD RESULT IN
SERIOUS INJURY OR DEATH** P970301

#3 - PN: P970301

! WARNING

DO NOT ALLOW ANYONE TO OPERATE POWER RAKE WHO HAS NOT BEEN PROPERLY TRAINED IN ITS SAFE OPERATION AND HAS NOT READ AND UNDERSTOOD THE OPERATOR'S MANUAL.

BEFORE ATTACHING, CHECK TRACTOR'S 3PT. LIFT CAPACITY TO ENSURE ITS ABILITY TO SAFELY HANDLE THE WEIGHT.

MAX. PTO SPEED IS 540 RPM'S.

DO NOT OPERATE WITHOUT GUARDS/SHIELDS IN PLACE AND IN GOOD WORKING ORDER.

STOP ALL MOVING PARTS INCLUDING TRACTOR ENGINE BEFORE CLEANING, UNPLUGGING, ADJUSTING, AND/OR PERFORMING MAINTENANCE.

KEEP BYSTANDERS 10 FEET FROM POWER RAKE WHEN IN OPERATION.

FAILURE TO FOLLOW THE ABOVE SAFETY SUGGESTIONS AND THOSE IN THE OPERATOR'S MANUAL CAN RESULT IN SERIOUS INJURY OR DEATH.

#4 - PN: P970100

! DANGER



- Stay at least 9 feet (3m) away from operating equipment.
- Flying objects and rotating parts can cause injury or death.
- Stop engine before cleaning or servicing.
- Keep all guards in place.

P970250

#5 - PN: P970250

SAFETY DECALS



ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!



Replace Immediately If Damaged!

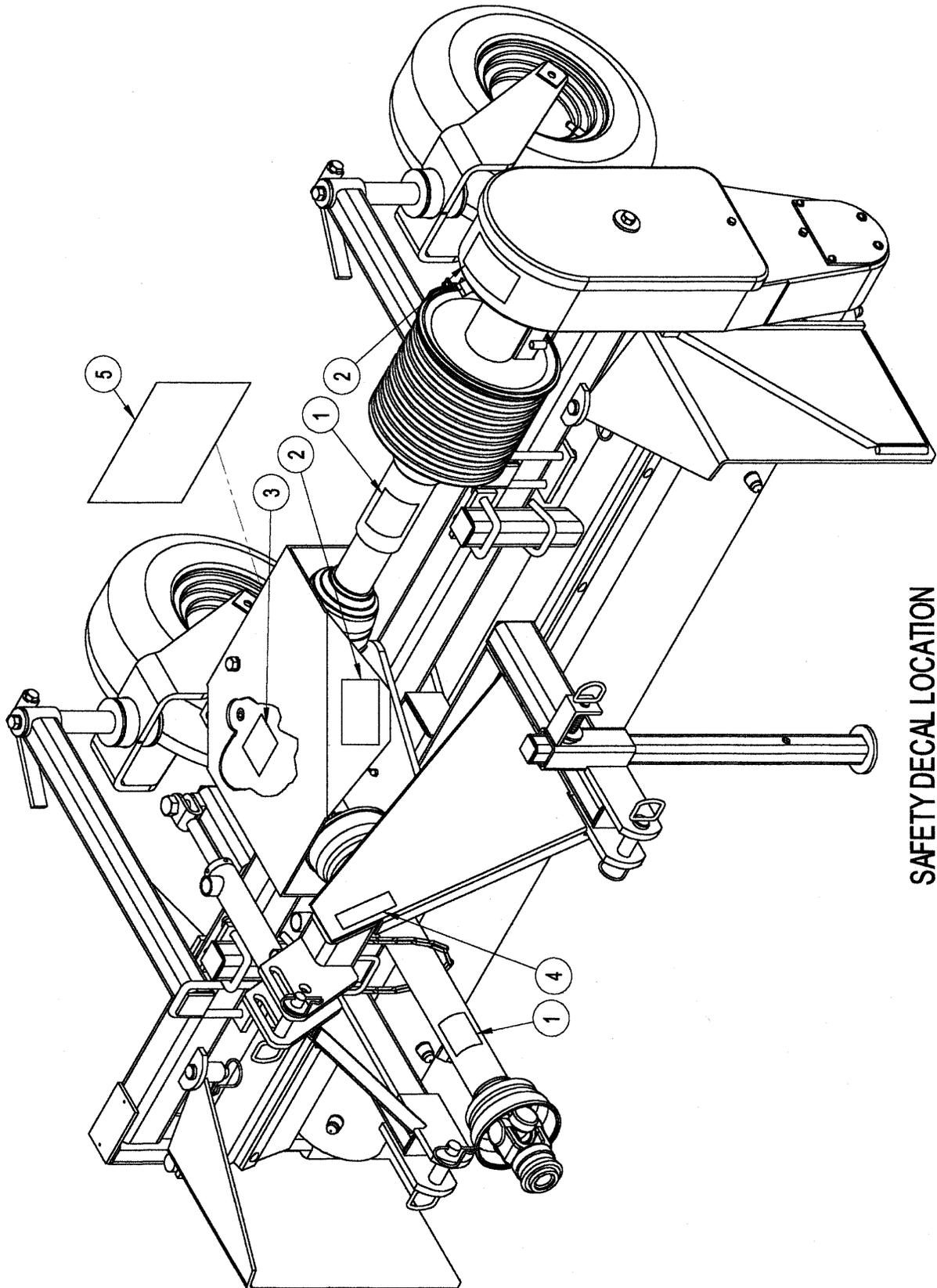


Figure 1

OPERATION

Safety is a primary concern in the design and manufacture of our products. Unfortunately, our efforts to provide safe equipment can be wiped out by a single careless act of an operator.

In addition to the design and configuration of equipment, hazard control and accident prevention are dependent upon the awareness, concern, prudence, and proper training of personnel involved in the operation, transport, maintenance, and storage of equipment.

It has been said, "The best safety device is an informed, careful operator." We ask you to be that kind of an operator.

The operator is responsible for the safe operation of this equipment. Operators must be instructed in and be capable of the safe operation of the equipment, its attachments, and all controls. Do not allow anyone to operate this equipment without proper instructions.

The power rake is designed for removing dirt, and small debris, and for thatching. This manual contains information for the T6 model. Refer to the information in this manual for specifications, parts, assembly, and adjustment.



WARNING

- **Safety instructions are important! Read all attachment and power unit manuals; follow all safety rules and safety decal information. (Replacement manuals are available from dealer or, in the United States and Canada, call 1-800-437-9779.) Failure to follow instructions or safety rules can result in serious injury or death.**
- **Do not allow children or untrained persons to operate equipment.**
- **Power unit must be equipped with ROPS or ROPS CAB and seat belt. Keep seat belt securely fastened. Falling off power unit can result in death from being run over or crushed. Keep foldable ROPS systems in "locked up" position at all times.**
- **Do not allow other people in the area when operating, attaching, removing, assembling, or servicing equipment.**
- **Never go underneath equipment lowered to the ground or raised. Never place any part of the**

body underneath equipment or between moveable parts even when the engine has been turned off. Hydraulic system leak-down, hydraulic system failures, mechanical failures, or movement of control levers can cause equipment to drop or rotate unexpectedly and cause severe injury or death.

- **Service work does not require going underneath equipment.**
- **Read Operator's Manual for service instructions or have done by a qualified dealer.**
- **Before dismounting tractor or performing any service or maintenance, disengage power to implement, lower the 3-point hitch and all raised components to the ground, operate valve levers to release any hydraulic pressure, stop engine, set parking brake, remove key, and unfasten seat belt.**
- **Ensure implement is properly attached, adjusted, and in good operating condition.**

ATTACHING POWER RAKE TO TRACTOR

Move tractor into position in front of the power rake. Move back slowly and carefully, not allowing anyone to be between the tractor and the rake. Turn off tractor engine. Attach the two lower arms of the 3-point hitch with the two hitch-pin assemblies.

Attach the tractor center link to the upper hitch point of the power rake. Use either the "lock-out" setting or the "float" feature depending on your application.

Attach the front PTO from the power rake to the tractor. Slide the front section of the PTO into the back section and attach to the PTO shaft at the rear of the tractor.

Wrap driveline storage chain around hitch tube and secure it so that it will not contact PTO driveline.

OPERATION

IMPORTANT

- **If the PTO is too long, severe PTO and gearbox damage is possible when hooking up the PTO from the power rake to the tractor. The front PTO is long enough to fit a variety of tractors. It is possible that the front PTO will need to be cut. There will be NO benefit by cutting only one telescoping section. Both sections of the PTO must be cut. DO NOT FORCE THE PTO TO FIT.**
- **WARRANTY IS VOID IF THE PTO IS TOO LONG, resulting in gearbox, PTO, yoke, or cross bearing damage.**

The PTO, when attached to the tractor and gearbox, must not extend so there is less than five inches of overlap within the PTO.

Attach the two hydraulic lines on the rake to the two female hydraulic couplers on the tractor. The hydraulic hose ends on the power rake are ISO male couplers, which are compatible with newer tractors.

Raise jackstand and secure in operating position.

IMPORTANT

- **Always clean connector ends prior to attaching. Dirt could contaminate hydraulic fluid and damage the hydraulic system.**

POWER RAKE FUNCTION

The tractor PTO drives the roller, which digs into the ground, cultivating and pulling up rocks, roots, and debris.

The clean soil goes between the roller and barrier, while the rocks, roots, and debris work to the side in a windrow.

With the endplates mounted in the working position and the rake straight (endplates parallel with tractor tires), material can be moved along, filling in the low spots.

Maximum safe PTO operating speed is 540 RPM.

PRE-OPERATION CHECK LIST

- ___ Review and follow all safety rules and safety decal instructions on pages 5 through 11.
- ___ Check that all safety decals are installed and in good condition. Replace if damaged.
- ___ Check that all shields and guards are properly installed and in good condition. Replace if damaged.
- ___ Check that all hardware and cotter pins are properly installed and secured.
- ___ Check that equipment is properly and securely attached to tractor.
- ___ Make sure driveline spring-activated locking pin or collar slides freely and is seated firmly in tractor PTO spline groove.
- ___ Before starting tractor, check all equipment driving guards for damage and make sure they rotate freely on all drivelines. Replace any damaged guards. If guards do not rotate freely on drivelines, repair and replace bearings before operating.
- ___ Do not allow riders.
- ___ Check for and keep all bystanders away from equipment working area.
- ___ Make sure gearbox is filled to the correct level with high quality 80W-90 gear oil.
- ___ Check all lubrication points and grease as instructed in "Maintenance, Lubrication" information.
- ___ Check that all hydraulic hoses and fittings are in good condition and not leaking before starting tractor. Check that hoses are not twisted, bent sharply, kinked, frayed, or pulled tight. Replace any damaged hoses immediately.
- ___ Make sure tractor ROPS or ROPS CAB and seat belt are in good condition. Keep seat belt securely fastened during operation.
- ___ Check tire pressure and service if necessary.

OPERATION

OPERATING INSTRUCTIONS

Read and understand the power rake and tractor Operator's Manuals before operating the power rake. Failure to do so may result in death, serious personal injury, or property damage.

Never raise the power rake more than a few inches off the ground when traveling from job site to job site.

Shut off the engine, set brake, remove key, and remove seat belt. Dismount the tractor.



WARNING

- **Look down and to the rear and make sure area is clear before operating in reverse.**
- **Never direct discharge toward people, animals, or property.**
- **Only engage power when equipment is at ground operating level. Always disengage power when equipment is raised off the ground.**

Start-Up Sequence



WARNING

- **Only engage power when equipment is at ground operating level. Always disengage power when equipment is raised off the ground.**

Start tractor engine.

Lower power rake slowly to the ground.

Engage tractor PTO.

Increase engine rpm to give desired rpm at the roller. Normal operating speed must not exceed 540 rpm. If operating in heavy rock, reduce the speed slightly.

Move the tractor forward. Select a slow tractor speed and increase slightly until operation is satisfactory.

Ground Speed

Ground speed should be between 3 mph and 5 mph under normal conditions. In heavy rock, reduce the ground speed to 1 mph to 3 mph.

Power Rake Angle Adjustment

The power rake may be angled up to 15 degrees left or right for placing material in a windrow.

With the power rake angle cylinder connected to a tractor hydraulic control valve, move tractor control valve to select the desired angle. Return the tractor control to neutral to maintain the selected angle.

Power Roller

The roller should be level with the ground. To level the rake from side to side, adjust one of the tractor 3-point lower lift arms.

The power rake should be level front to back. Level the rake using the tractor 3-point top link, the 3-point lift arms, or the gauge wheels.

To allow the roller to penetrate deeper into the ground, loosen the handle and raise the gauge wheels. To achieve the opposite, lower the gauge wheels.

Be sure to check the air pressure in each tire regularly so that an even, consistent grade will be maintained.

The normal gap between the roller and barrier for average conditions is about 1-1/4". This gap can be adjusted either wider or narrower by loosening the U-bolt that holds the barrier mount and sliding it up or down. A wider opening will allow more dirt and rock to pass through. For finer raking, reduce the gap. (Be careful not to let roller hit barrier.) The gap should be the same all the way across. Barrier adjustment is shown in Figure 2.

Operating Depth

When power raking, the depth will determine how much dirt is carried ahead of the roller. The ideal depth will vary with conditions and can be anywhere from skimming the surface to about 3 inches deep. See instructions in "Power Roller" above to set roller depth.

When making the first windrow, the level of dirt may be halfway up on the barrier. When moving the windrow two or three times, the level of the dirt may be to the top of the barrier. However, try to prevent material from flowing over the top.

The power rake allows fast raking of large areas of ground by being able to move windrows several times. Of course, the volume or density of the material being raked will dictate how many times a windrow can be moved.

Cleaner dirt can be removed from the windrow by moving it back and forth a few times onto the clean area. If dirt clods are a problem, running the tractor tire over the windrow and then moving it a final time will help to break up and cut down on dirt clods.

OPERATION

Endplates

The function of the endplates is to contain the material in front of the roller while the clean material passes between the roller and barrier.

With the endplates mounted in the operating position and the rake straight (endplates parallel with tractor tires), material can be moved along, filling in the low spots.

By decreasing the gap between the roller and barrier, more material can be pulled along. Barrier adjustment is shown in Figure 2.

When not using the endplates for operation, they can be placed in “storage” position, see Figure 2.

Make sure the disconnected power rake is stored on a hard, level surface. Use the endplates mounted on attachment side of rake to ensure stability.

Operator Production

Successful operation of the power rake will come with operator experience. The rake’s performance also depends on the type and size of the tractor it’s mounted on.

An operator that masters the technique of adjusting the angle of attack of the roller against the soil will also find ideal settings under various conditions to give the desired results.

IMPORTANT

- **Do not drop power rake to the ground with the roller turning. Sudden high-speed jolts multiply stress to the driveline and can cause extreme damage.**

Application Techniques

The power rake is capable of many applications. The following are some of the common applications.

See Figure 2 for adjustment locations.

Pulverizing Topsoil

For breaking up compacted soil or conditioning hardened baseball diamonds, the 3-point top link is set in the “lock-out” position so that down pressure can be exerted on the tooth roller. The top link is shortened to take the guide wheels off the ground so

only the toothed roller is in contact with the ground. The rake can be straight or angled, but the endplates should not be mounted in order to allow material to move out of the way and not slow the process.

Debris Removal

Once the surface has been loosened, the process of removing debris can begin. The 3-point hitch top link is mounted in the “float” position holes. This allows the rake to begin the early stages of the final grading process. The 3-point hitch is lowered until the guide wheels control the depth of the toothed roller. The rake can be angled at this time for windrowing debris or the rake can be set straight with both endplates installed to collect debris. Tractor travel speed should be increased for this process.

Finish Grading

For this operation, set the tractor top link in the “float” position and mount both endplates in the “forward” position. The rake is tilted forward until the teeth of the toothed roller are barely touching the soil. Tractor speed can be increased for this operation, the idea being to collect material from the high spots and leave it in the low areas.

Spreading Fill and Topsoil

Start with tractor top link in “fixed” position and rake tilted on gauge wheels, since depth of cut is not the objective. Endplates can be installed and the windrow angle set as needed to control the material movement.

Changing Grade

Grade modification can be accomplished during finish grading by angling the rake to collect and windrow the maximum amount of material toward targeted areas.

Thatching Existing Grass Areas

This procedure is done with the 3-point top link in the “lock-out” position so accurate depth control can be maintained. The top link should be lengthened to support the rake on the gauge wheels and toothed roller raised so teeth are just grazing the surface. Select and maintain a slow travel speed.

OPERATION

Shutting Down

Stop equipment.

Lower the lift arms and power rake to the ground.

Purge any air in the system. Hydraulic system leak-down, hydraulic system failures, mechanical failures, or movement of control levers can cause equipment to drop or rotate unexpectedly.

Shut off engine, set brake, remove key, and remove seat belt before leaving the tractor operator's seat.



WARNING

- **Do not disconnect hydraulic lines until all system pressure is relieved. Lower unit to ground, stop engine, and operate all hydraulic control levers.**

REMOVING POWER RAKE FROM TRACTOR



WARNING

- **Do not allow other people in the area when operating, attaching, removing, assembling, or servicing equipment.**

Install endplates on attachment side of power rake as shown in Figure 2.

Lower jackstand to "storage" position.

On a hard level surface, lower attachment to the ground.

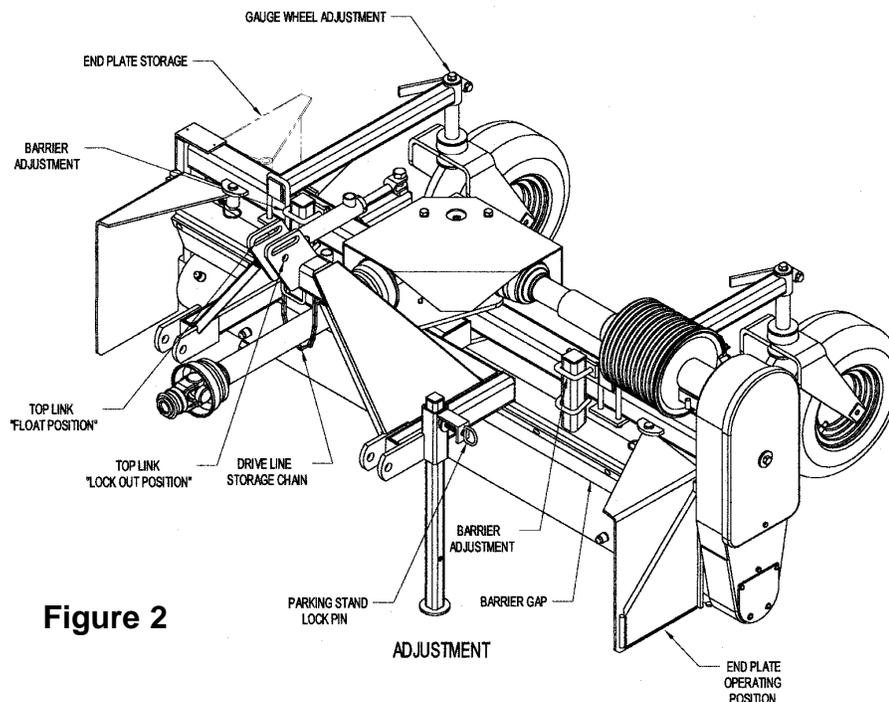


Figure 2

Shut off engine, set brake, remove key, and remove seat belt before leaving the tractor operator's seat.



WARNING

- **Do not disconnect hydraulic lines until all system pressure is relieved. Lower unit to ground, stop engine, and operate all hydraulic control levers.**

Disconnect driveline from tractor PTO shaft and support with storage chain.

Disconnect 3-point upper and lower links from power rake.

Disconnect hydraulic hoses from quick couplers. Install dust plugs for storage.

Move to tractor seat and start engine. Release brake and drive tractor forward until it is disengaged from the attachment. The attachment should rest in a stable position for storage.

STORAGE

Make sure the disconnected power rake is stored on a hard, level surface. Endplates mounted on attachment side of rake increase stability.



CAUTION

- **Keep children and bystanders away from storage area.**

MAINTENANCE

The information in this section is written for operators who possess basic mechanical skills. Should you need help, your dealer has trained service technicians available. For your protection, read and follow all safety information in this manual.

Regular preventive maintenance and immediate repair of broken or worn parts will ensure maximum efficiency and long life.

Because of the nature of the jobs the power rake does, such as site preparation and rock raking, the power rake is constantly vibrating and shaking. Parts may loosen up as it is used. One of the most important functions an operator can perform is observing and inspecting the equipment for loose or worn parts to prevent further damage or excessive downtime.



WARNING

- **Never go underneath equipment lowered to the ground or raised. Never place any part of the body underneath equipment or between moveable parts even when the engine has been turned off. Hydraulic system leak-down, hydraulic system failures, mechanical failures, or movement of control levers can cause equipment to drop or rotate unexpectedly and cause severe injury or death.**
 - **Service work does not require going underneath equipment.**
 - **Read Operator's Manual for service instructions or have done by a qualified dealer.**
- **Before dismounting tractor or performing any service or maintenance, disengage power to implement, lower the 3-point hitch and all raised components to the ground, operate valve levers to release any hydraulic pressure, stop engine, set parking brake, remove key, and unfasten seat belt.**
- **Do not allow other people in the area when operating, attaching, removing, assembling, or servicing equipment.**
- **Never perform service or maintenance with engine running.**
- **Ensure shields and guards are properly installed and in good condition. Replace if damaged.**

- **Keep hands and body away from pressurized lines. Use paper or cardboard, not body parts to check for leaks. Wear safety goggles. Hydraulic fluid under pressure can easily penetrate skin and will cause serious injury or death.**



WARNING

- **Make sure that all operating and service personnel know that in the event hydraulic fluid penetrates skin, it must be surgically removed as soon as possible by a doctor familiar with this form of injury, or gangrene, serious injury, or death will result. CONTACT A PHYSICIAN IMMEDIATELY IF FLUID ENTERS SKIN OR EYES. DO NOT DELAY.**
- **Make sure all hydraulic hoses, fittings, and valves are in good condition and not leaking before starting power unit or using equipment. Check and route hoses carefully to prevent damage. Hoses must not be twisted, bent sharply, kinked, frayed, pinched, or come into contact with any moving parts. Operate moveable components through full operational range to check clearances. Replace any damaged hoses immediately.**



CAUTION

- **Your dealer can supply original equipment hydraulic accessories and repair parts. Substitute parts may not meet original equipment specifications and may be dangerous.**
- **Always wear relatively tight and belted clothing to avoid entanglement in moving parts. Wear sturdy, rough-soled work shoes, and protective equipment for eyes, hair, hand, hearing, and head.**



WARNING

- **Do not modify or alter, or permit anyone else to modify or alter, the equipment or any of its components in any way.**
- **Ensure all safety decals are installed. Replace if damaged. (See "Safety Decals" section for location.)**

MAINTENANCE

DAILY MAINTENANCE

When operating the power rake, check the tractor hydraulic system to be sure the level of hydraulic oil is adequate. If necessary, add hydraulic oil as recommended in your tractor operator's manual.

Repair hydraulic oil leaks promptly to avoid loss of oil and serious personal injury from escaping oil.

After every 10 hours of operation, check all hardware and tighten where required.

Lightly lubricate bearing at each end of roller. Use a lithium grease of #2 consistency with a MOLY (molybdenum disulfide) additive for all locations. Be sure to clean fittings thoroughly before attaching grease gun. See Figure 3.

Check oil level in chain case.

WEEKLY MAINTENANCE

Lubricate all pivot points. Use a lithium grease of #2 consistency with a MOLY (molybdenum disulfide) additive for all locations. Be sure to clean fittings thoroughly before attaching grease gun. See Figure 3.

Inspect drive chain.

Check tire pressure. Maintain 20 psi cold.

Lubricate driveline universal joints.

MONTHLY MAINTENANCE

Inspect and clean safety decals. Replace if damaged. (See "Safety Decals" section for location.)

Check gearbox oil level.

QUARTERLY MAINTENANCE

Change oil in chain case and add 1.5 pints of 140-wt. lube.

PRELIMINARY CHECK

The best maintenance is regular preventive checks, particularly when the machine is new. Check that all nuts and bolts are tight.

CHAIN MAINTENANCE

The drive chain should be inspected weekly. New chain has a tendency to stretch, so it is necessary to check the chain tension to prevent flopping around, thus causing potential problems.

Chain tension is preset with the extension spring. If

the chain becomes excessively loose, it may be necessary to remove one link (two pitches). If unable to reassemble, add an offset link to lengthen the chain.

IMPORTANT

- **Replacement chain should be only high quality original equipment chain for longer life.**

When being stored for a long period or at end of season, change the oil, adding EP 140 wt. oil, and rotate the roller several times allowing the chain to be coated with oil, enhancing chain life. Rotate the roller periodically to maintain lubrication.

SPROCKETS

Sprockets should be checked to be sure slotted hex nut is tight, the cotter pin is in place, and the sprocket cannot move on shaft.

PTO DRIVE LINES

Periodically check the yoke on both ends of the front PTO to the tractor. Make sure the set screws/jam nuts are tight and the yoke is not moving on the shaft. PTO shafts and U-joints should be sparingly lubricated weekly.

GEARBOX

The gearbox is almost maintenance-free, but should be checked monthly to be sure that the oil level is maintained at half full. EP 80-90 wt. gear lube is recommended for use in the gearbox. Oil should be changed after the first 100 hours or 30 days of operating. Then, normal change intervals of 1,000 hours or 12 months of operation should be adequate. In the case of seasonal usage, it is best to change the oil at the end of the season to remove moisture and corrosive contaminants.

It should be noted that the gearbox only exceeds its thermal capacity when the oil temperature exceeds 200°F.

Figure 3. Lubrication Maintenance

MAINTENANCE

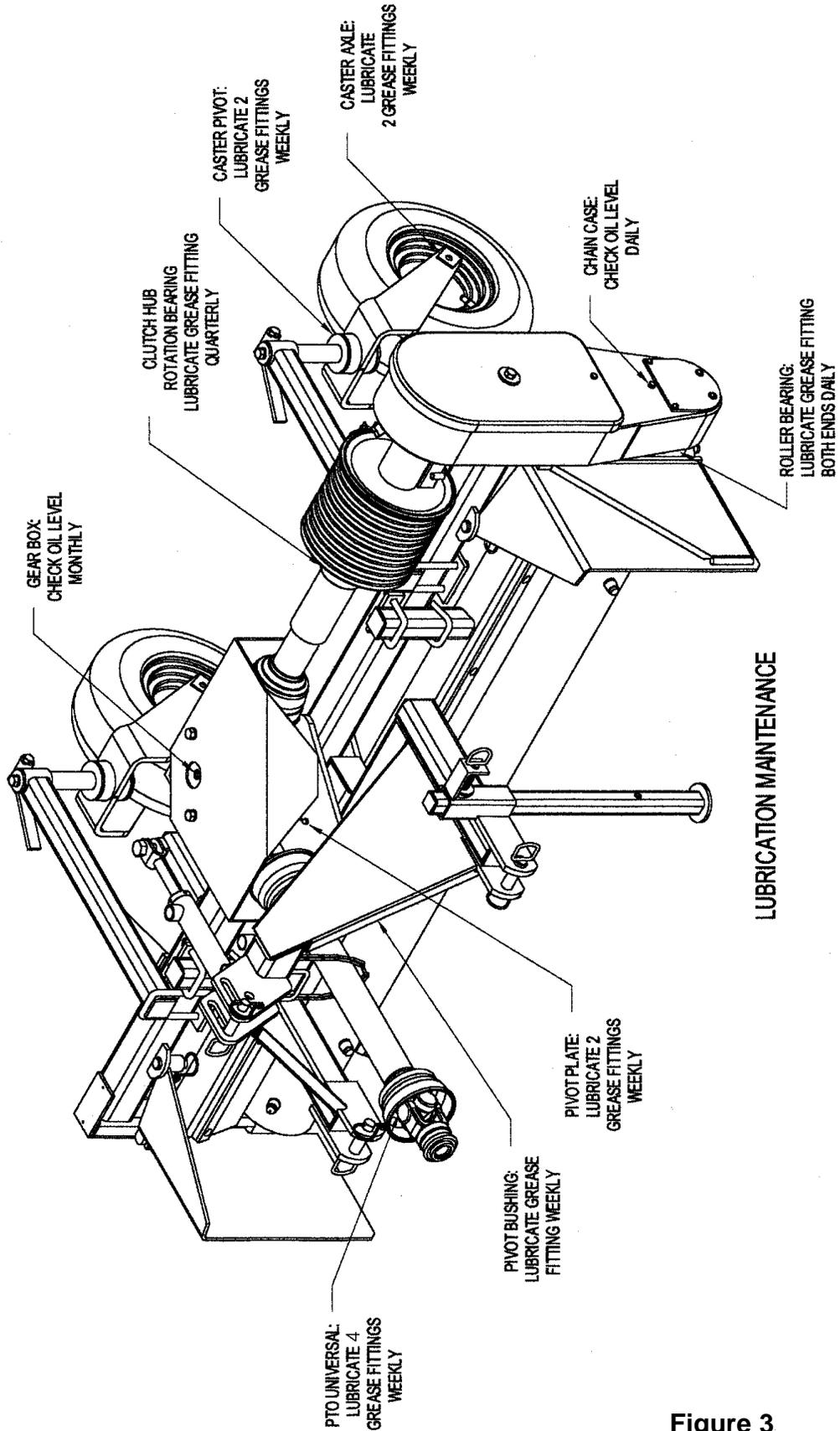


Figure 3

TROUBLESHOOTING

Problem	Possible Cause
Roller will not turn.	Tractor PTO not engaged. Clutch friction discs worn. Obstruction between roller and barrier. Chain broken. Gearbox damaged. Broken drive shaft between clutch and chain drive.
Hydraulic cylinder inoperative.	Hose ends not completely engaged. Tractor hydraulic shut-off in the “closed” position. Insufficient oil in system. Air in hydraulic system. Obstruction in valve or hydraulic lines. Broken hose. Worn, damaged, insufficient, or inadequate hydraulic pump.
Oil leaks.	Worn or damaged seal. Loose or damaged hoses. Loose or damaged connections. Worn or damaged housing.

NOTES

MAINTENANCE

The information in this section is written for dealer service personnel. The repair described herein requires special skills and tools. If your shop is not properly equipped or your mechanics are not properly trained in this type of repair, you may be time and money ahead to replace complete assemblies.



WARNING

- **Never go underneath equipment lowered to the ground or raised. Never place any part of the body underneath equipment or between moveable parts even when the engine has been turned off. Hydraulic system leak-down, hydraulic system failures, mechanical failures, or movement of control levers can cause equipment to drop or rotate unexpectedly and cause severe injury or death.**
- **Service work does not require going underneath equipment.**
- **Read operator's manual for service instructions or have done by a qualified dealer.**



CAUTION

- **Always wear relatively tight and belted clothing to avoid entanglement in moving parts. Wear sturdy, rough-soled work shoes and protective equipment for eyes, hair, hands, hearing, and head.**
- **Do not allow other people in the area when operating, attaching, removing, assembling, or servicing equipment.**
- **Do not modify or alter, or permit anyone else to modify or alter, the equipment or any of its components in any way.**
- **Do not disconnect hydraulic lines until all system pressure is relieved. Lower unit to ground, stop engine, and operate all hydraulic control levers.**
- **Ensure implement is properly attached, adjusted, and in good operating condition.**
- **Ensure all safety decals are installed. Replace if damaged. (See "Safety Decals" section for location.)**
- **Ensure shields and guards are properly installed and in good condition. Replace if damaged.**

CLUTCH

Run-In

If the rake has not been used or has not been operated for one year, the following run-in procedure is recommended.



WARNING

- **Before dismounting tractor or performing any service or maintenance, disengage power to the implement, lower the 3-point hitch and all raised components to the ground, operate valve levers to release any hydraulic pressure, stop engine, set parking break, remove key, and unfasten safety belt.**

The Weasler Torqmaster clutch is a pre-set, non-adjustable friction disc clutch. Follow the directions below for run-in and clutch maintenance.

TOOLS REQUIRED:

- (1) 1/2" box end wrench or socket and torque wrench.
1. Make sure tractor is off and the PTO disengaged.
2. Disconnect the drive line from the tractor.
3. Remove the clutch shield clamp and slide the shield over to expose the clutch.
4. Locate the six (6) bolts (Item 128) on the OD. of the clutch pak. Loosen the bolts until they rotate freely, finger tighten each bolt, and then tighten each bolt one-half turn.
5. Replace shield back over the clutch and clamp in place.
6. Attach the driveline to the tractor and start the tractor. Engage the tractor PTO and run for a few seconds, or until the friction clutch visibly smokes.
7. Disengage the tractor PTO and shut the tractor off observing the above-mentioned precautions.
8. Disconnect the drive line from the tractor.
9. Tighten the six (6) bolts (Item 128) on the OD of the clutch pak until the compression plate (Item 134) is in contact with the housing (Item 129). Then tighten each bolt to 30 ft. lbs.
10. Locate the four (4) bolts (Item 127) that attach the yoke and hub (Item 135) to the clutch pak and check that each bolt is tightened to 30 ft. lbs.
11. Replace the clutch shield and clamp in place.

MAINTENANCE

CLUTCH ASSEMBLY

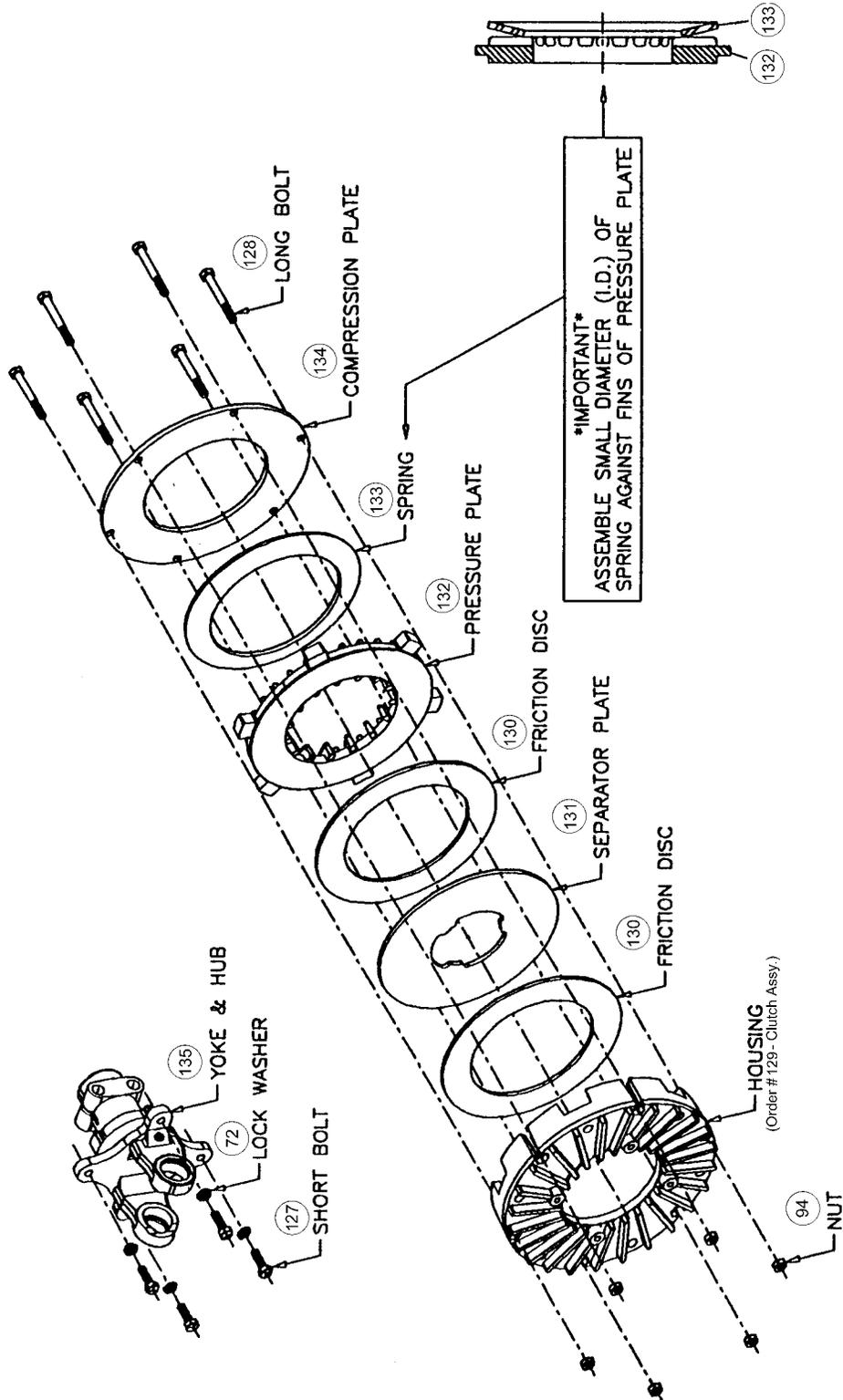


Figure 4

MAINTENANCE

FRICTION DISC REPLACEMENT

1. Make sure tractor is off and the PTO is disengaged.
2. Disconnect the drive line from the tractor.
3. Remove the clutch shield clamp and slide the shield over to expose the clutch.
4. Loosen the 3/8" jam nuts and set screws, securing clutch/PTO to the drive shaft and slide clutch off the drive shaft.
5. Remove the six (6) bolts (Item 128) on the OD of the clutch pak. Remove Items 129 through 134. Replace friction discs and reassemble.
6. Position clutch on drive shaft and secure in place with set screws and jam nuts.
7. Follow procedure for clutch run-in before using rake.

TOP BEARING HOUSING SERVICE

If it is necessary to service the bearing housing because of bearing or shaft failure, please follow these instructions.

IMPORTANT

- **We suggest the bearings also be replaced when the shaft is replaced. See replacement parts in Index to Parts List elsewhere in this manual.**

Removal

Remove chain from top sprocket. Then remove top sprocket by removing the hex bolt and washers.

Remove the clutch shield and side PTO.

Remove the four bolts holding the bearing holder to the chain case.

Press on end of shaft with dimple hole, forcing the shaft to come out. It will now be necessary to reach with a large punch and push each bearing out.

Reassembly

Press bearing (137B) in bearing holder with collar of bearing to the center of the holder. Be careful to press only on the outer bearing race until the bearing hits the shoulder and stops. See Figure 5.

Insert the shaft in the bearing with the spline end at the flange end of the holder.

Slide the sleeve over the shaft and into the bearing holder.

Press bearing (137A) into the bearing holder with the collar part of the bearing facing toward the center of the holder. Be careful to press on both the outer and inner bearing races until the inner race rests on the sleeve. See Figure 5.

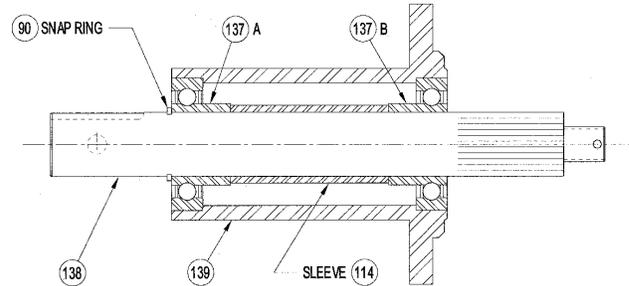


Figure 5 Top Bearing Housing

Replace the snap ring.

Apply a liberal amount of silicone sealer to the inside of the flange. Attach the bearing holder to the chain case with four bolts and lock washers.

Slide the top sprocket, hub first on the shaft. Use machine bushings on the inside or outside of the sprocket for proper alignment.

IMPORTANT

- **At least one machine bushing MUST be placed between the sprocket and the bearing to prevent damage to the bearing.**

Replace washers, slotted hex nut and cotter pin. Replace chain, PTO and clutch guard.

BEARINGS

Highest quality bearings are used on the power rake. Only triple-seal bearings are used on the roller, which operates down in the dirt. Lubrication of bearings will vary considerably with conditions. As a rule, bearings should be under-lubricated rather than over-lubricated. Over-lubrication can cause seals to blow out.

IMPORTANT

- **Replacement bearings should be only high quality original equipment bearings for longer life.**

Install new complete bearing housing if needed or just replace the bearing insert.

The shafts should be straight, free of burrs, and up to size. If shaft is worn, replace or have the shaft built

MAINTENANCE

up to standard prior to completing assembly.

Protective Collars

The special protective collars protect bearings from vine and wire wrap and dirt buildup next to the bearing seal. The bearing protector is sandwiched onto the shaft, which rotates within a close clearance from the outer race of the bearing. Grease coming from the bearing oozes into the protecting collar, keeping dust and particles from entering the seal area, increasing the bearing life.

BEARING & ROLLER REPLACEMENT

Left Roller Bearing

Remove drive chain. Then remove lower sprocket by removing cotter pin, slotted hex nut, and washers.

Remove the two bolts holding the chain case to the frame.

NOTE: Have roller blocked up or supported and slide chain case and bearing off roller shaft.

NOTE: The top drive shaft will come off with the chain case.

Loosen bolt on the bearing tube that holds cartridge bearing in place. Remove bearing and O-ring.

To replace, reverse the procedure. Be sure all parts and wear surfaces are thoroughly clean and in good condition. Be sure O-ring is also in good condition.

When replacing bearing, first put O-ring on bearing. Apply a coat of grease on O-ring. Slide bearing in and apply moderate pressure on bearing so O-ring will seat and spread slightly, thus keeping the oil in chain case from escaping through the bearing.

Right Roller Bearing

Remove the hex bolt and bearing cap from outside of bearing.

Loosen bolt on the bearing tube that holds cartridge bearing in place. Pry bearing tube apart to free bearing assembly.

NOTE: Have roller blocked up or supported. Pry bearing off of shaft and out of bearing holder.

To replace, reverse the procedure. Be sure all parts

and wear surfaces are thoroughly clean and in good condition.

Roller Replacement

It will be necessary to have a lifting device or additional help while removing and replacing the roller. The roller weighs approximately 150 lbs.

Remove upper and lower chain case covers.

Remove tension spring and drive chain. Then remove lower sprocket by removing cotter pin, slotted nut, and washers. Remove the sleeve behind the sprocket you just removed.

NOTE: Have the roller blocked up or supported.

Remove the two bolts holding chain case to frame and slide chain case off of roller shaft. The roller bearing will stay in the chain case.

NOTE: If chain case bearing is also being replaced, see "Left Roller Bearing" above.

Loosen the bolt on the bearing tube of the non-drive end, sliding roller and bearing out of frame.

Remove hex bolt, bearing cap, bearing, and protective collar from roller. On roller to be installed, place machine bushing and protective collar against end plate of roller. Place bearing and bearing cap on roller. Clamp in place with hex bolt and lock washer into end of roller shaft.

Slide roller and bearing into bearing tube on non-drive end of frame. Do not tighten bearing tube at this time.

Place machine bushings and protective collar from splined end of removed roller onto replacement roller. Apply sealant to bearing area of shaft. Slide chain case back onto roller and bolt to frame.

Replace sleeve, sprocket, and washers on driveshaft. Clamp solid with the 1" slotted nut. Check that roller clears frame on both ends. Adjust, if required.

Tighten 3/8" bolt in bearing tube on non-drive end of frame.

ASSEMBLY



CAUTION

- Always wear relatively tight and belted clothing to avoid entanglement in moving parts. Wear sturdy, rough-soled work shoes and protective equipment for eyes, hair, hands, hearing, and head.



WARNING

- Keep hands and body away from pressurized lines. Use paper or cardboard, not body parts to check for leaks. Wear safety goggles. Hydraulic fluid under pressure can easily penetrate skin and will cause serious injury or death.
- Make sure that all operating and service personnel know that in the event hydraulic fluid penetrates skin, it must be surgically removed as soon as possible by a doctor familiar with this form of injury, or gangrene, serious injury, or death will result. **CONTACT A PHYSICIAN IMMEDIATELY IF FLUID ENTERS SKIN OR EYES. DO NOT DELAY.**
- Route hydraulic hoses carefully to prevent damage. Hoses must not be twisted, bent sharply, kinked, frayed, pinched, or come into contact with any moving parts. Operate moveable components through full operational range to check clearances. Replace any damaged hoses immediately.
- Do not allow other people in the area when operating, attaching, removing, assembling, or servicing equipment.
- Do not modify or alter, or permit anyone else to modify or alter, the equipment or any of its components in any way.

SET-UP INSTRUCTIONS

The power rake is shipped partially assembled. Assembly will be easier if components are aligned and loosely assembled before tightening hardware. Recommended torque values for hardware are located on page 3.

Select a suitable working area. Refer to illustrations, accompanying text, parts lists, and exploded view drawings.

Tools Required

3/4", 1 1/8", 1 7/16", and 1 1/2" Wrench

Jackstands

It is advisable to have a mechanical lifting device to facilitate uncrating. **Do not attempt to lift frame components alone.**

Unpacking Crate

Be careful of nails in boards when uncrating.

Remove top, sides, and ends of crate.

Remove endplates.

Remove gauge wheel assemblies.

Remove mast frame assembly

Remove front half of front PTO.

Remove power rake from crate. Remove loose nails from boards and dispose of crate according to local codes.

ASSEMBLY PROCEDURE



WARNING

- Do not allow other people in the area when operating, attaching, removing, assembling, or servicing equipment.

For reference, front, back, left, and right directions are determined by sitting in the tractor operator's seat.

Do not permit any bystanders within 10 feet of power rake during assembly.

1. Set the roller frame upright and securely block in position.
2. Slide the mast frame (4) into position between yoke plates on frame, making sure pivot bushing (54) is in place. Install 1" x 5 1/2" bolt and locking nut.
3. Slide the jack stand (20) into position to support rake and pin in place.
4. Remove the 3/4" x 2" hex bolt from the mast frame. Pivot the mast frame to align hole in base of hydraulic cylinder over square nut welded to the mast frame. Apply loc-tite to threads of 3/4"x2" bolt and attach base end of hydraulic cylinder.

ASSEMBLY

--IMPORTANT NOTICE--

Do **NOT** add front PTO half to Power Box Rake® yet. Follow instructions and important notice concerning the front PTO in the Attaching and Detaching Power Box Rake® section.

5. Attach the two gauge wheel assemblies to the main frame with two 1/2" U-bolts, lock washers, and nuts.
6. Mount the left (23) and right (22) end plates to the frame.
7. Check the gear lube level in the chain case. Add EP 140 wt if required.

This should complete the assembly of your new Power Box Rake®. Make sure that all guards/shields are in place and are not removed during use.



WARNING

- **Make sure all hydraulic hoses, fittings, and valves are in good condition and not leaking before starting power unit or using equipment. Check and route hoses carefully to prevent damage. Hoses must not be twisted, bent sharply, kinked, frayed, pinched, or come into contact with any moving parts. Operate moveable components through full operational range to check clearances. Replace any damaged hoses immediately.**

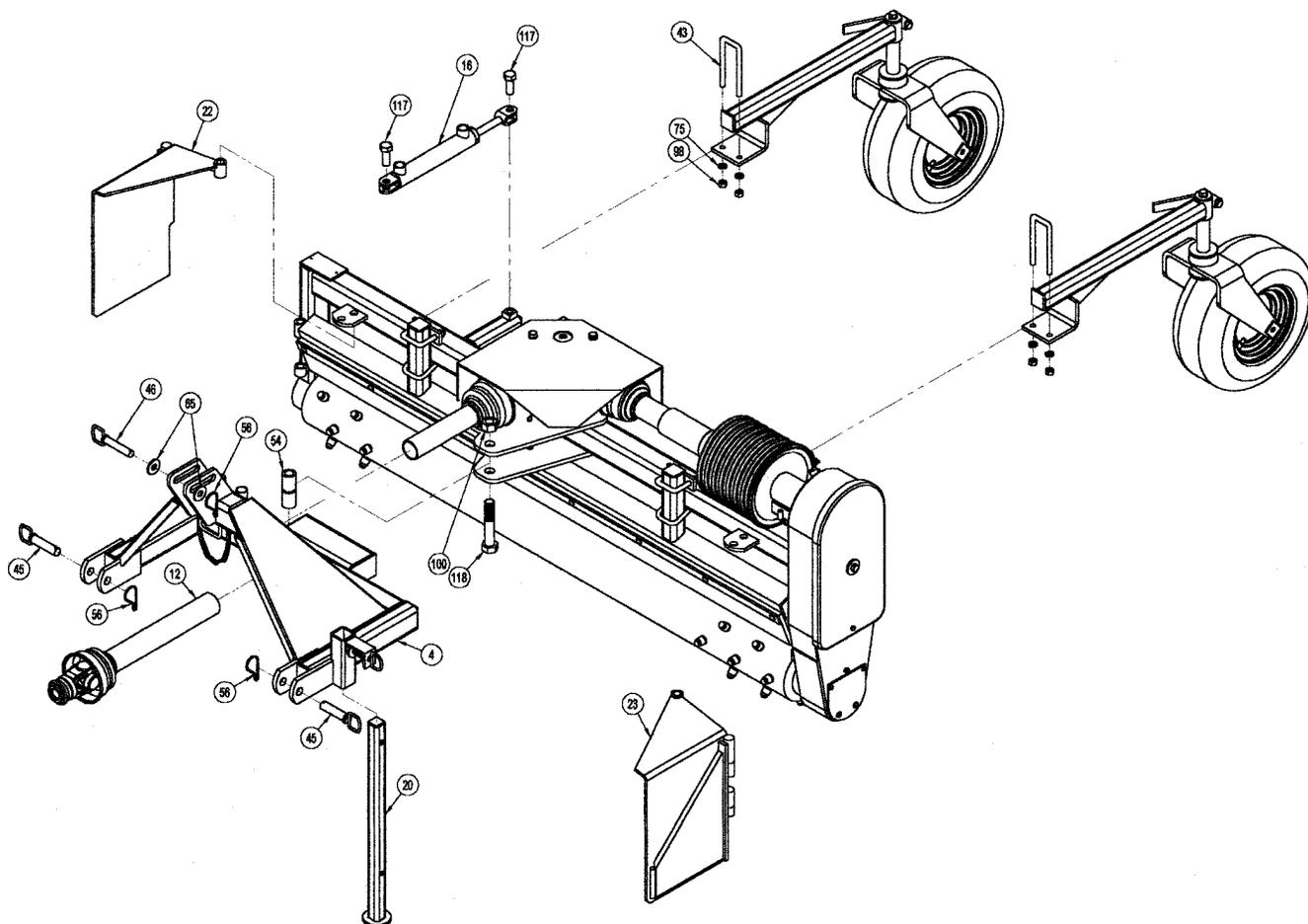


Figure 6

GENERAL ASSEMBLY

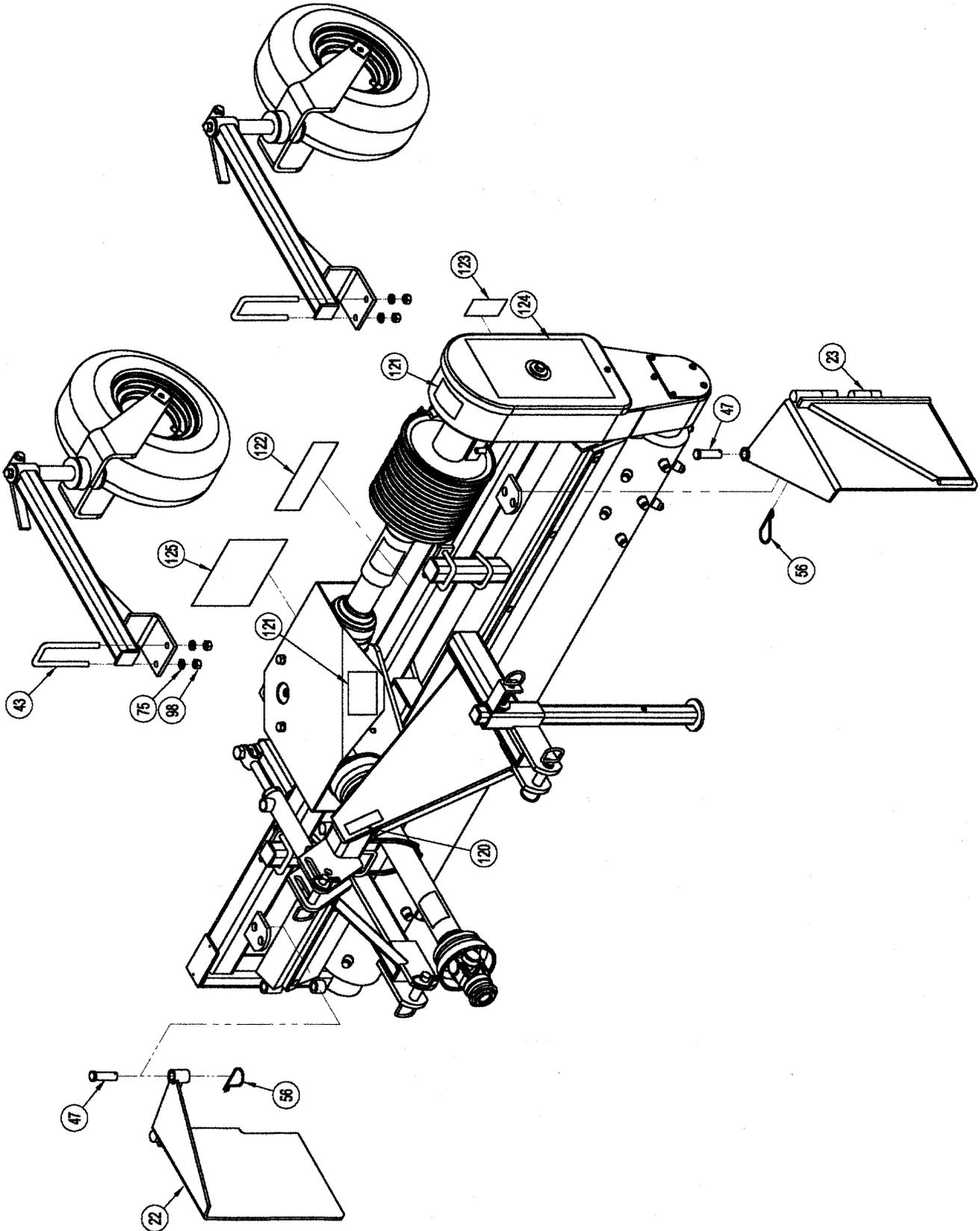


Figure 7

FRAME ASSEMBLY

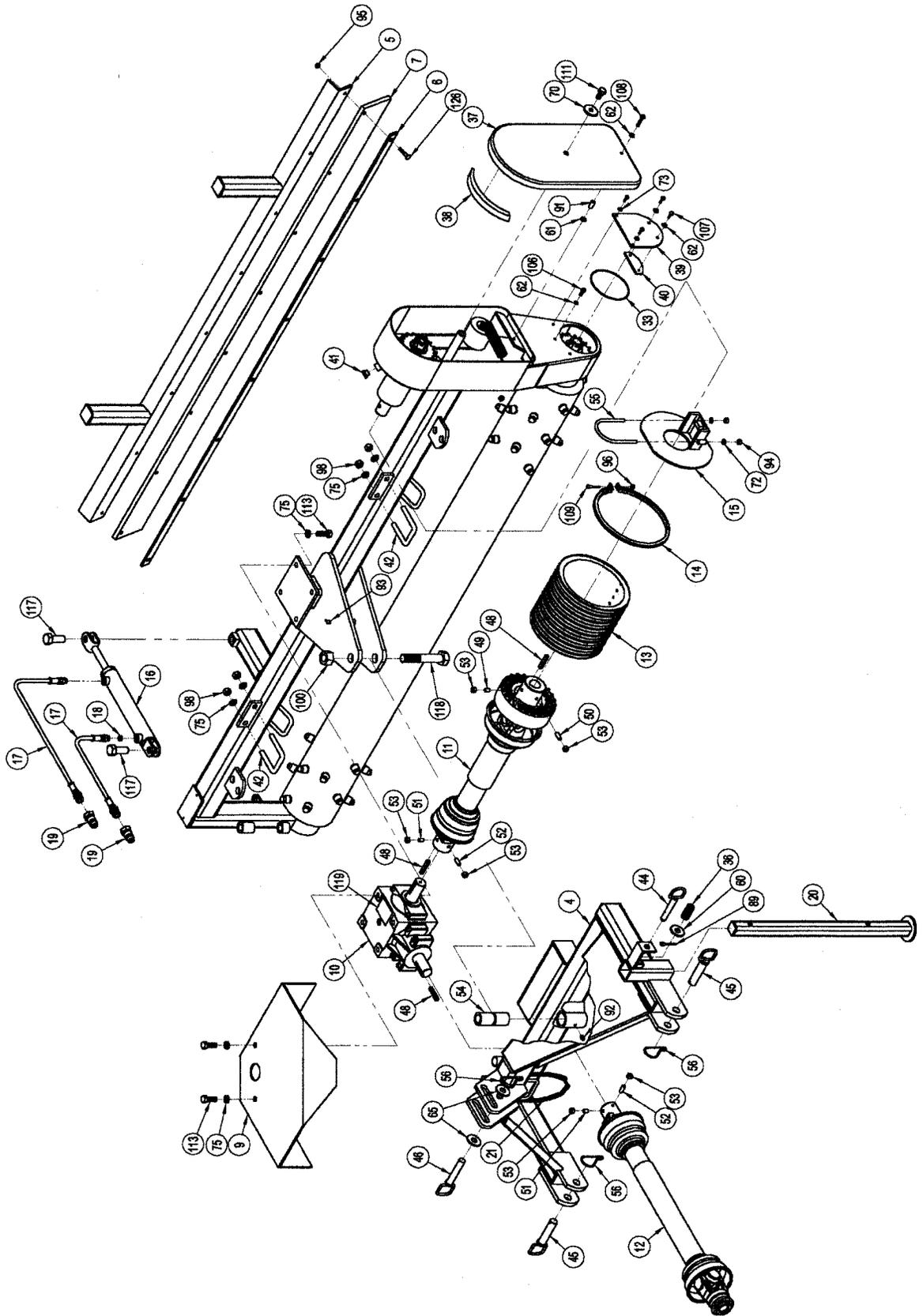


Figure 8

ROLLER ASSEMBLY

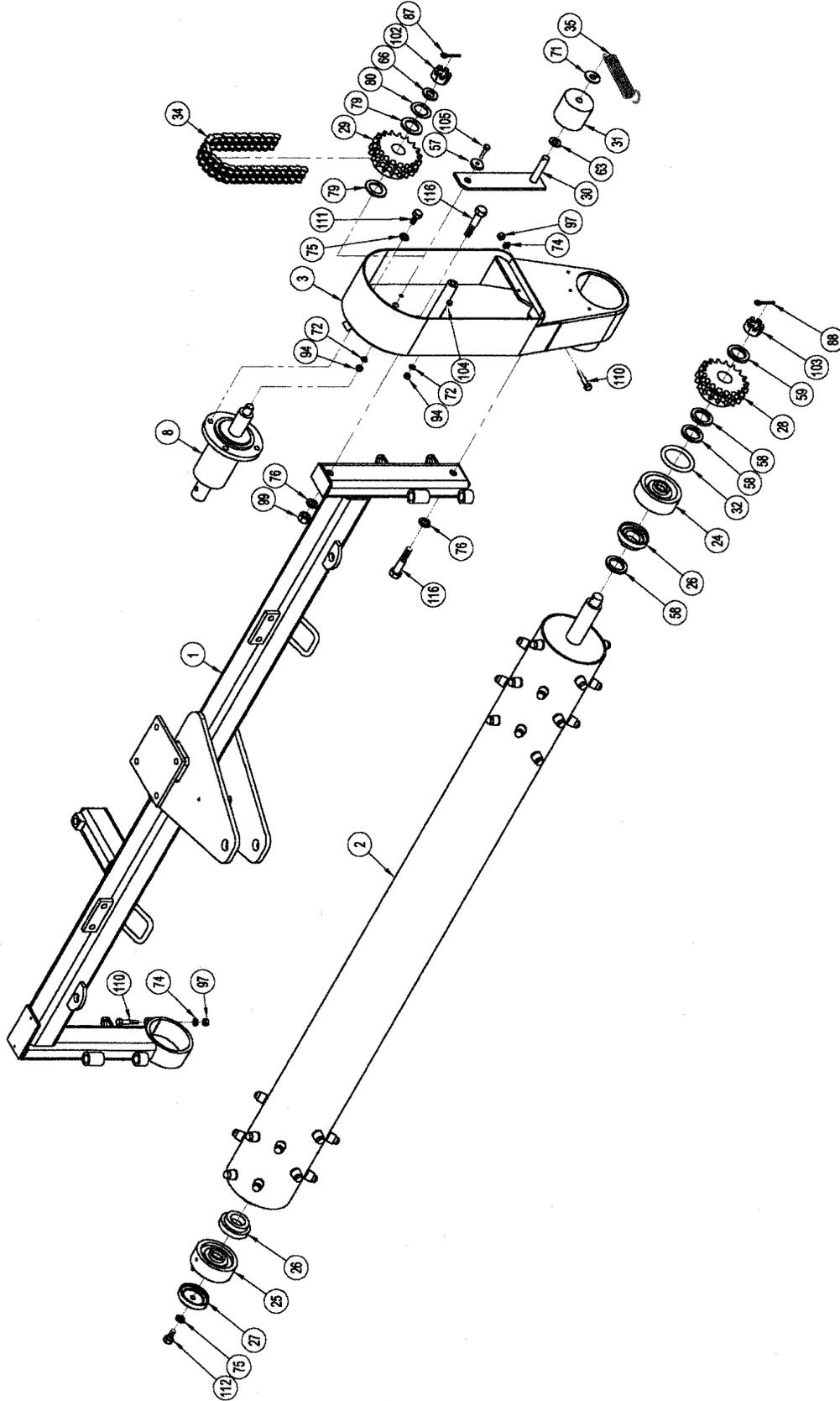


Figure 9

GAUGE WHEEL

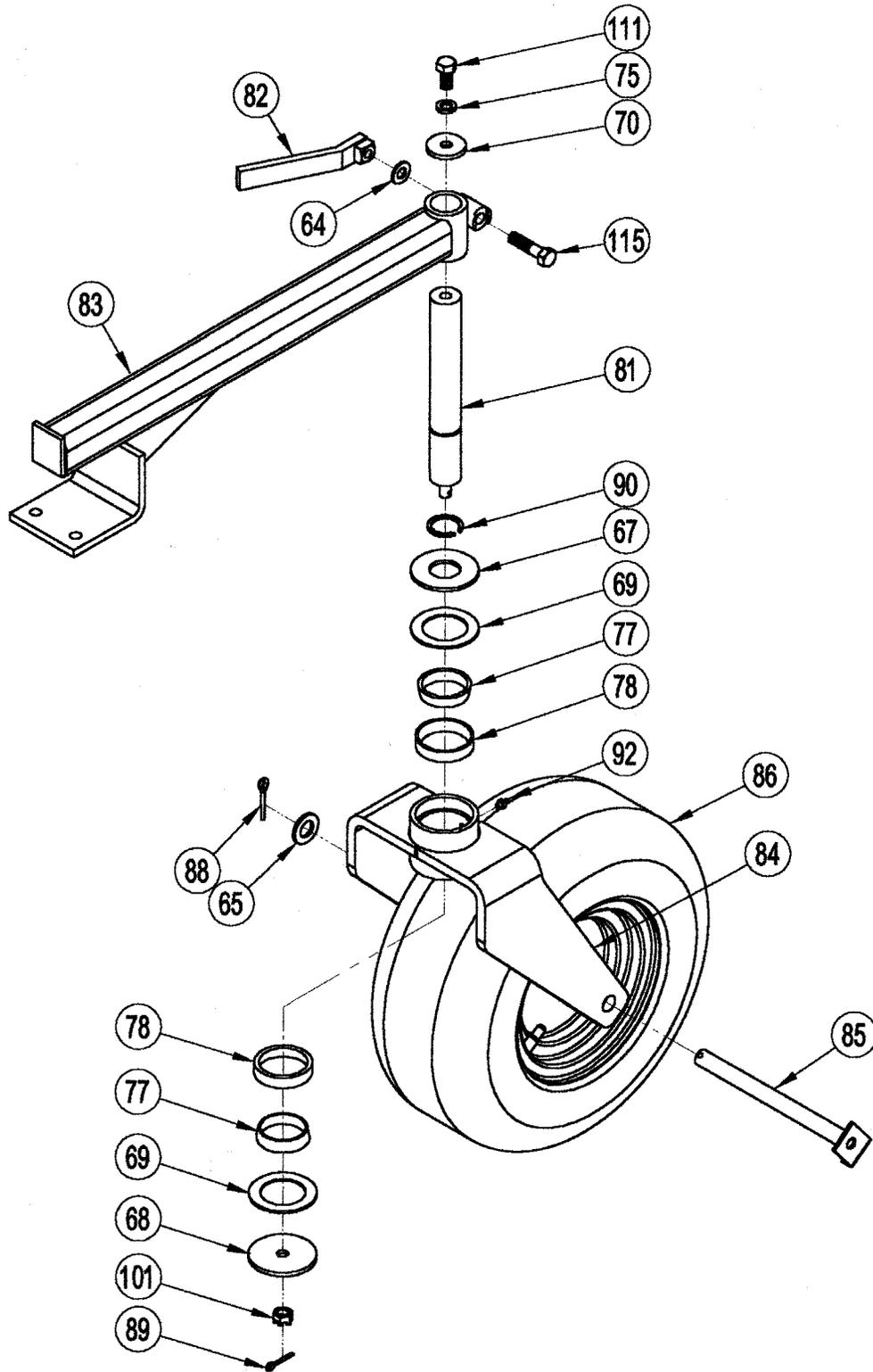


Figure 10

PARTS LIST

ITEM	QTY	PART NO.	DESCRIPTION	ITEM	QTY	PART NO.	DESCRIPTION
1	1	M6502	MAIN FRAME	54	1	M6637	PIVOT BUSHING
2	1	M6503	CARBIDE TOOTH ROLLER	55	1	P128500	5/16 U-BOLT
3	1	M6497	CHAIN CASE	56	5	P622600	HAIR PIN CLIP
4	1	M6487	MAST FRAME	57	1	M6630	PIVOT BUSHING
5	1	M6498	BARRIER MOUNT	58	3	M6757	SPACER
6	1	M6428	BARRIER STRAP	59	1	M5464	WASHER 1" X 2 1/4
7	1	M6427	BARRIER	60	1	P852001	16MM WASHER
8	1	M8814	BEARING HOUSING ASSEMBLY	61	1	P500302	1/4 RUBBER FACE WASHER
9	1	M6224	GEAR BOX SHIELD	62	4	P500300	1/4 O-RING WASHER
10	1	P205400	GEAR BOX 2:1	63	1	P850612	9/16 FLAT WASHER
11	1	P400750	PTO W\CLUTCH	64	2	P852608	1/2 HARD WASHER
12	1	P400100	FRONT PTO	65	4	P850812	3/4 SAE WASHER
13	1	M6262	SHIELD	66	1	P850609	3/4 FLAT WASHER
14	1	P128605	BAND CLAMP	67	2	P850620	1 1/4 FLAT WASHER
15	1	M6258	SHIELD MOUNT	68	2	M6223	WASHER
16	1	P256000	1 1/2 HYDRAULIC CYLINDER	69	4	P852200	FELT WASHER
17	2	P246472	1/4 HOSE X 72.00 8MP X 6MB	70	3	M5009-5	1/2 X 1 3/4 X 3/16 THK WASHER
18	1	P270400	RESTRICTOR PLUG	71	1	M6756	PINNED WASHER
19	2	P272600	QUICK COUPLER	72	8	P851105	5/16 LOCK WASHER
20	1	M6455	JACK STAND	73	2	P851104	1/4 LOCK WASHER
21	1	M6266	PTO SUPPORT CHAIN	74	2	P851106	3/8 LOCK WASHER
22	1	M6624	RIGHT END PLATE	75	21	P851108	1/2 LOCK WASHER
23	1	M6625	LEFT END PLATE	76	2	P851110	5/8 LOCK WASHER
24	1	M6687	BEARING ASSEMBLY	77	4	P760300	BEARING CONE
25	1	M6680	BEARING ASSEMBLY	78	4	P760500	BEARING CUP
		P015210	BEARING HOUSING	79	2	P855122	10GA X 1 3/8 MACHINE BUSHING
		P010400	1 1/2 BEARING INSERT	80	1	P855322	14GA X 1 3/8 MACHINE BUSHING
26	2	P015308	1 1/2 NON LOCKING COLLAR	81	2	M6701	CASTER SHAFT
27	1	P015307	1 1/2 BEARING CAP	82	2	M6415	HANDLE
28	1	P661802	SPROCKET 18 TOOTH 1 1/2	83	2	M6501	CASTER SUPPORT
29	1	P661800	SPROCKET 18 TOOTH 1 3/8	84	2	M6211	CASTER FORK
30	1	M6491	CHAIN TENSION ARM	85	2	M6215	AXLE
31	1	M8812	TENSION IDLER	86	2	P756100	WHEEL & TIRE
32	1	P500203	3/8 X 2 5/8 O-RING	87	1	P116256	5/32 X 1 1/2 COTTER PIN
33	1	P500202	3/32 X 4 3/4 O-RING	88	3	P116306	3/16 X 1 1/2 COTTER PIN
34	1	M6509	#60 CHAIN 78P W/CONN	89	3	P116204	1/8 X 1" COTTER PIN
35	1	P604700	EXTENSION SPRING	90	3	P952200	1 3/8 SNAP RING
36	1	P604500	COMPRESSION SPRING	91	1	P481010	BUSHING SPACER
37	1	M8624	COVER	92	3	P620200	1/4-28 STR GREASE FITTING
38	1	M8626	SEAL	93	2	P620000	1/4-28 45° GREASE FITTING
39	1	M8241	LOWER COVER	94	10	P150500	5/16 HEX NUT
40	1	M8272	COVER TAB	95	8	P155350	5/16 LOCK NUT
41	1	P278001	VENT PLUG	96	1	P158003	1/4 LOCK NUT
42	2	P128213	1/2 X 2 3/4 U-BOLT	97	2	P150600	3/8 HEX NUT
43	2	P128324	1/2 X 2" X 6" U-BOLT	98	8	P150800	1/2 HEX NUT
44	1	M8263	5/8 PIN	99	1	P151000	5/8 HEX NUT
45	2	M8073	7/8 PIN	100	1	P156401	1" LOCK NUT
46	1	M5003	3/4 PIN	101	2	P158006	1/2-13 SLOTTED HEX NUT
47	2	P120600	GATE PIN	102	1	P158000	3/4-16 SLOTTED HEX NUT
48	3	M5000-5	5/16 X 2" SQ KEY	103	1	P156402	1"-14 SLOTTED HEX NUT
49	1	P108612	3/8 X 3/4 SET SCREW	104	1	P100503	5/16 X 3/4 HEX BOLT
50	1	P108620	3/8 X 1 1/4 SET SCREW	105	1	P100505	5/16 X 1 1/4 HEX BOLT
51	2	P108610	3/8 X 5/8 SET SCREW	106	1	P100402	1/4 X 1/2 HEX BOLT
52	2	P108616	3/8 X 1" SET SCREW	107	4	P110901	1/4 X 3/4 BUTTON HEAD SCREW
53	6	P155400	3/8 HEX JAM NUT	108	1	P100406	1/4 X 1 1/2 HEX BOLT

PARTS LIST

ITEM	QTY	PART NO.	DESCRIPTION
109	1	P115406	1/4 X 1 1/2 FILLISTER HEAD SCREW
110	2	P100608	3/8 X 2" HEX BOLT
111	7	P100804	1/2 X 1" HEX BOLT
112	1	P102804	1/2 X 1" FINE THD HEX BOLT
113	6	P100806	1/2 X 1 1/2 HEX BOLT
114	1	M6301	SLEEVE
115	2	P102808	1/2 X 2" FINE THD HEX BOLT
116	2	P101014	5/8 X 3 1/2 HEX BOLT
117	2	P103208	3/4 X 2" HEX BOLT
118	1	P101622	1" X 5 1/2 FINE THD HEX BOLT
119	1	P970301	DECAL WARNING
120	1	P970100	DECAL WARNING
121	2	P970300	DECAL WARNING
122	1	P975800	DECAL HARLEY
123	1	P970003	DECAL LUBE
124	1	P975916	DECAL T-6 POWER BOX RAKE
125	1	P970250	DECAL DANGER ROLLER
126	8	P104506	5/16 X 1 1/2 CARRIAGE BOLT
127	4	P400760	5/16 X 1" HEX BOLT GR 8
128	6	P400761	5/16 X 2 1/2 HEX BOLT GR 8
129	1	P400751	CLUTCH ASSEMBLY W/OUT HUB
130	2	P400755	FRICTION DISC
131	1	P400752	SEPARATOR DISC
132	1	P400753	PRESSURE PLATE
133	1	P400756	SPRING
134	1	P400754	COMPRESSION PLATE
135	1	P400758	YOKE & HUB
136	1	P400759	CLUTCH ASSEMBLY W/HUB
137	2	P009204	1 3/8 BALL BEARING
138	1	P635005	DRIVE SHAFT
139	1	M8815	BEARING HOUSING

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LIMITED WARRANTY

GLENMAC, INC. warrants to the original purchaser of the POWER BOX RAKE®, that it will repair or replace any manufactured parts thereof found to be, under normal use, defective in factory material or workmanship for six (6) months from the date of purchase.

This warranty shall become void if in the judgment of GLENMAC, INC. the equipment has been subject to misuse, negligence, alteration, damaged by accident or lack of required maintenance, or if the product has been used for a purpose for which it was not intended. Wear items such as, but not limited to, rollers and chain cases will not be covered under warranty.

This warranty does not apply to hydraulic motor, electric actuator, tires, bearing, sprockets, or any other trade accessories not manufactured by GLENMAC, INC. Buyer must rely solely on the existing warranty, if any of these respective manufacturers.

This warranty will become void if a valid warranty registration card is not received by GLENMAC, INC. at its JAMESTOWN, ND office within ten (10) days of original purchase.

Certain HARLEY dealers provide Limited Warranty replacement service. We would suggest that you contact your selling dealer and attempt to resolve your Warranty service problem locally prior to contacting our home office. Any questions concerning warranty service can be directed to our Customer Service Department at PO Box 2135 Jamestown, ND, 58402, or call (701) 252-9300.

THERE IS NO OTHER EXPRESSED OR IMPLIED WARRANTY ON THIS PRODUCT OR ON ITS MERCHANTABILITY OR ON ITS FITNESS. TO THE EXTENT ALLOWED BY LAW NEITHER GLENMAC, INC. NOR THE SELLING HARLEY DEALER SHALL HAVE ANY RESPONSIBILITY FOR LOSS OF USE OF THE PRODUCT, LOSS OF TIME, INCONVENIENCE, COMMERCIAL LOSS OR CONSEQUENTIAL DAMAGES.

Some states do not allow limitations on the exclusion or limitation of incidental or consequential damages, so the above limitations may not apply to you.

This warranty gives you specific legal rights that vary from state to state.

Please enter information below and **SAVE FOR FUTURE REFERENCE.**

Date Purchased: _____ From (Dealer): _____

Model Number: T-6 Serial Number: _____

Glenmac, Inc.

1805 2nd Avenue SW
Jamestown, ND 58401

701-252-9300 telephone

701-252-1978 fax

701-251-9259 parts fax



Harley

by

Glenmac^{INC}

Glenmac, Inc.

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701-252-9300 tel
701-252-1978 fax
701-251-9259 parts fax

SN: T69D001

PN-P970612 (02/1998)