INTRODUCTION

GLENMAC, INC., based in Jamestown, North Dakota, along with your authorized Harley dealer, are proud that you chose to purchase a Harley Front-Deck Power Box Rake® (FDR). Equipment under the Harley name has been built and sold worldwide for over 35 years. GLENMAC, INC. specializes in the manufacturing of construction and landscape attachments designed to make your job more efficient, cleaner, and easier regardless of the complexity of the job. The Harley Front-Deck Power Box Rake® (FDR) brings state-of-the-art design, ruggedness, and maneuverability to jobs such as landscaping, seedbed preparation, site development, rock raking and picking, golf course construction, ball field renovation and maintenance, liner installation, horse track screening, sod farm ground work, beach cleaning - and the job for which you purchased your Harley.

This manual will provide you, the operator, with the instructions for proper safety, assembly and operation procedures so you can benefit from the equipment’s optimum level of performance. Successful operation and long-life of your Harley Front-Deck Power Box Rake® (FDR) depends on you. As owner and operator of your new Harley, it is your responsibility to become familiar with the proper operation and care required to operate it safely and efficiently, and 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 as specified for each operation. Correct operation and maintenance will save you time and expense.

REMINDER: Fill in the warranty card and mail within 10 days of your purchase date. While filling in the card with the correct information, put the date purchased and the serial number on the front cover of this manual. Should you need to call your dealer or GLENMAC, INC., this information will help them to more quickly provide accurate service for you.

Thank you for purchasing a HARLEY POWER BOX RAKE®.

For more information, contact your local Harley dealer or call:

GLENMAC INC
PO Box 2135
Jamestown ND 58402-2135 USA
TEL: 1/800/437-9779
TEL: 1/701/252-9300
FAX: 1/701/252-1978

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 ............................................................................... 56 Inches  
Roller Type ............................................................................... Tooth Roller Standard 7” Diameter  
Roller Angle .............................................................................. 15 Degrees Both Directions  
Gap (Tube to Barrier) ............................................................... 1-1/8” - 2-1/4” Adjustable  
Front-Deck Minimum Lift Capacity .......................................... 510 lbs  
Drive Requirements ................................................................. 10-18 HP @ 2500 to 3000 RPM  
Tires ...................................................................................... 13 x 5.00  
Tire Pressure ........................................................................... 20 psi  
Weight ................................................................................... 470-500 lbs  
Oil Capacity of Chain Case ...................................................... Approximately 1.5 Pints
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 last paragraph on this page.

A. Contact the Service Manager of the dealership, explain the problem, and request assistance. If additional assistance is needed, your dealer has 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
   701-252-9300
   800-437-9779

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.

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 Services 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.
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 front-deck power unit.

### GENERAL INFORMATION

### BOLT SIZE CHART

<table>
<thead>
<tr>
<th>SAE Bolt Thread Sizes</th>
<th>5/16</th>
<th>3/8</th>
<th>1/2</th>
<th>5/8</th>
<th>3/4</th>
<th>7/8</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>IN</strong></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td><strong>MM</strong></td>
<td>25</td>
<td>50</td>
<td>75</td>
<td>100</td>
<td>125</td>
<td>150</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Metric Bolt Thread Sizes</th>
<th>8MM</th>
<th>10MM</th>
<th>12MM</th>
<th>14MM</th>
<th>16MM</th>
<th>18MM</th>
</tr>
</thead>
</table>
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.

**BOLT TORQUE CHART**

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

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

<table>
<thead>
<tr>
<th>Bolt Diameter &quot;A&quot;</th>
<th>Wrench Size</th>
<th>MARKING ON HEAD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>8.8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>N-m (Lbs.-Ft)</td>
</tr>
<tr>
<td>5 mm</td>
<td>8 mm</td>
<td>6 (4.5)</td>
</tr>
<tr>
<td>6 mm</td>
<td>10 mm</td>
<td>10 (7.5)</td>
</tr>
<tr>
<td>8 mm</td>
<td>13 mm</td>
<td>25 (18)</td>
</tr>
<tr>
<td>10 mm</td>
<td>16 mm</td>
<td>50 (37)</td>
</tr>
<tr>
<td>12 mm</td>
<td>18 mm</td>
<td>85 (63)</td>
</tr>
<tr>
<td>14 mm</td>
<td>21 mm</td>
<td>110 (80)</td>
</tr>
<tr>
<td>16 mm</td>
<td>24 mm</td>
<td>215 (159)</td>
</tr>
<tr>
<td>20 mm</td>
<td>30 mm</td>
<td>435 (321)</td>
</tr>
<tr>
<td>24 mm</td>
<td>36 mm</td>
<td>750 (553)</td>
</tr>
<tr>
<td>30 mm</td>
<td>46 mm</td>
<td>1495 (1103)</td>
</tr>
</tbody>
</table>

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 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 front-deck 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

- Always check with your front-deck power unit manual or dealer for counter weight ballast that may be required for machine stability.
- 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.
- 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 front-deck 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.
- Front-deck power unit must be equipped with ROPS and seat belt/operator restraint. Keep seatbelt/operator restraint securely fastened/engaged. Falling off front-deck power unit can result in death from being run over or crushed. Keep ROPS systems in place at all times.
- 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.

OPERATIONAL SAFETY

- Improper operation can cause the machine to tip or roll over and cause injury or death.
  - Keep front-deck power unit lift arms and attachment as low as possible.
  - Turn on level ground.
  - Go up and down slopes, not across them.
  - Keep the heavy end of the machine uphill.
  - Do not overload the machine.
- Do not allow other people in the area when operating, attaching, removing, and 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.
- Read Operator’s Manual for service instructions or have done by a qualified dealer.
- Never direct discharge toward people, animals or property.
SAFETY RULES

ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

- Do not operate equipment while under the influence of alcohol or drugs.
- Operate only in the 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.
- Do not allow riders. Do not lift or carry anybody on the front-deck power unit or attachments.
- Always sit in front-deck power unit seat when operating controls or starting engine. Securely fasten seat belt/operator restraint, place transmission in park or neutral, engage brake and ensure all other controls are disengage before starting front-deck power unit engine.
- 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.
- Stop front-deck power unit and implement immediately upon striking an obstruction. Dismount front-deck power unit using proper procedure. Inspect and repair any damage before resuming operation.
- Before leaving front-deck power unit operator’s seat, follow front-deck power unit manual instructions. Lower front-deck power unit lift arms and put attachment on the ground. Stop engine, remove key, engage brake, and remove seat belt/operator restraint.

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, hands, hearing and head.
- Do not allow other people in the area when operating, attaching, removing, and 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.
- Avoid electrical system hazards. Never work on the electrical system unless you are qualified and thoroughly familiar with system details and the special handling requirements. Disconnect battery before working on electrical system. Remove “ground” cable first. When reconnecting battery, connect “ground” cable last.
- 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, and 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.
- Before leaving front-deck power unit operator’s seat, follow front-deck power unit Operator’s Manual instructions. Lower front-deck power unit lift arms and put attachment on the ground. Stop engine, remove key, engage brake, and remove seat belt/operator restraint.
SAFETY RULES

ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

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

STORAGE

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

NOTES
ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!
Replace Immediately If Damaged!

**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

#1 - PN: P970300

**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

#3 - PN: P970400

**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 POWER UNITS LIFT CAPACITY TO ENSURE ITS ABILITY TO SAFELY HANDLE THE WEIGHT. ADD COUNTER WEIGHTS TO ENSURE STABILITY.
- MAX. PTO SPEED IS 3000 RPM'S
- DO NOT OPERATE WITHOUT GAURDS/SHIELDS IN PLACE AND IN GOOD WORKING ORDER.
- STOP ALL MOVING PARTS INCLUDING POWER UNIT 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: P970251

#2 - PN: P970120

**WARNING**

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

#5 - PN: P975108

Glenmac
ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

*Replace Immediately If Damaged!*

**Figure 1.** Safety Decals
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 FDR Power Rake is designed for removing rock and small debris, and for thatching. This manual contains information for the FDR model. Refer to the information in this manual for specifications, parts, assemblies, and adjustments.

**WARNING**

- Safety instructions are important! Read all attachment and front-deck 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.
- Front-deck power unit must be equipped with ROPS and seat belt/operator restraint. Keep seat belt/operator restraint securely fastened/engaged. Falling off front-deck power unit can result in death from being run over or crushed. Keep ROPS systems in place 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.
- Read Operator’s Manual for service instructions or have done by a qualified dealer.
- Before leaving front-deck power unit operator’s seat, follow front-deck power unit manual instructions. Lower power-unit lift arms and put attachment on the ground. Stop engine, remove key, engage brake, and remove seat belt/operator restraint.

**ATTACHING POWER RAKE TO FRONT-DECK POWER UNIT (FRONT-DECK MOWER)**

Read the front-deck power unit Operator’s Manual connecting and removing instruction.

**NOTE:** Mounting instructions vary, depending on make and model of front-deck mower.

**KUBOTA:**

F2260, F2560, F2560E, F3060. See Figure 2. Carefully move front-deck power unit forward toward power rake, aligning lift arms to attachment tubes on rake frame. Position lift control lever to ‘down’ position.

**JOHN DEERE:**

F911, F925, F932, F935. See Figure 3.

**NEW HOLLAND:**

CM222, CM224, CM272, CM274. See Figure 5.

Install appropriate lift arms for model of front-deck power unit. Carefully move front-deck power unit forward toward power rake, aligning lift arms to attachment tubes on rake frame. Position lift control lever to ‘down’ position.
Before leaving front-deck power unit operator’s seat, follow front-deck power unit manual instructions. Lower power-unit lift arms and put attachment on the ground. Stop engine, remove key, engage brake, and remove seat belt/operator restraint.

Manually lower one lift arm at a time, guiding the stabilizer rod through the receiving bracket on the lift arm until ball joint on end of arm aligns with tube on frame. Slide in hitch pin and secure with pin clip. Place washers on stabilizer rod and secure with lynch pin.

Attach PTO driveline to front-deck power unit making sure coupler detent is engaged.
Figure 3. JOHN DEERE 900 SERIES
Figure 4. JOHN DEERE 1100 SERIES
Figure 5. FORD NEW HOLLAND
POWER RAKE FUNCTION

The PTO drive from the front-deck power unit 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, material can be moved along, filling in the low spots. Also, rocks, roots, and debris can be collected and moved to another location for hauling away.

PRE-OPERATION CHECK LIST
(OWNER’S RESPONSIBILITY)

____ Review and follow all safety rules and safety decal instructions on pages 6 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 front-deck power unit.
____ Do not allow riders.
____ Check and keep all bystanders away from equipment working area.
____ Check all lubrication points and grease as instructed in “Service, Lubrication Information”.
____ Check that all hydraulic hoses and fittings are in good condition and not leaking. Check that hoses are not twisted, bent sharply, kinked, frayed, or pulled tight. Replace any damaged hoses immediately.
____ Make sure front-deck power unit ROPS and seat belt are in good condition. Keep seat belt securely fastened during operation.

OPERATING INSTRUCTIONS

Read and understand the power rake and front-deck power unit 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.

Start-up Sequence

Start front-deck power unit engine.

Lower power rake slowly to the ground.

Engage PTO control lever.

Increase engine rpm to give desired rpm at the roller. Normal operating speed is approximately 270 rpm. If operating in heavy rock, reduce the speed slightly.

The roller must be turning clockwise looking at the rake from the chain case side. If roller is turning counter clockwise, see section “Gear Box Drive Rotation” in the Maintenance Section of this manual.

Move the front-deck power unit forward or backward as desired. For the roller to operate most efficiently, it must rotate in the opposite direction of the front-deck power unit wheels (see Figure 6).

Ground Speed

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

Rake Angling

A manual adjustable pinned bar is provided to allow windrowing to right or left. The bar can also be
positioned to operate rake in straight mode for box raking. An optional hydraulic cylinder is available if front-deck power unit has auxiliary hydraulics.

**PTO Drive Line**

Power is transmitted from front-deck power unit to roller by the power take off on front of front-deck power unit. The PTO power is transmitted by belt to the gear box which reduces the RPM which is then shaft-driven into the chain case.

**Power Roller**

Roller should be level with the ground. The power rake should also be level with the ground front to back. To accomplish this, raise or lower gauge wheels and/or adjust spacer washers on stabilizer arms.

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.

Further adjustments can be made by the placement of spacer and washers on stabilizer rods. Spacers under for more penetration, above for less.

The chain case end of roller weighs about 60 lbs. more than the other end of roller. To compensate for this, you should set the tire closest to the chain case down 3/4" lower than opposite tire. This will still give an even grade when landscaping, but will prevent unusual or excess wear on the teeth on that end of the roller.

During operation, further depth control can be achieved by tilting the rake forward on gauge wheels to raise roller, or by tilting the rake back to raise gauge wheels and allow more roller penetration. See Figure 7.

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 7.

**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" 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.

**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 working position and the rake straight, 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 7.

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 front-deck power unit 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:

Pulverizing Topsoil

For breaking up compacted soil or conditioning hardened baseball diamonds, the gauge wheels should be raised and the stabilizer arm spacers placed below bracket to allow ground penetration. 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 gauge wheels can be lowered for less ground penetration. This allows the rake to begin the early stages of the final grading process. 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. Front-deck power unit travel speed should be increased for this process.

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 gauge wheels lowered and stabilizer spacers above bracket to position roller so teeth are just grazing the surface. Travel speed should be slow and careful.

Shutting Down

Stop engine.

Lower the lift arms and power rake to the ground.

Shut off engine, remove key, engage brake, and remove seat belt.

REMOVING POWER RAKE FROM FRONT-DECK POWER UNIT

WARNING

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

On a hard level surface, lower attachment to the ground. Shut off engine, set brake, remove key, and remove seat belt before leaving the front-deck power unit 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 the PTO driveline from the front-deck power unit. Disconnect the hydraulic hoses for the angle cylinder, if so equipped.

Remove lynch pins from stabilizer arms. Remove hair pin clip from hitch pins and pull out hitch pins.

CAUTION

- Lift arms are spring loaded. Use caution so arm does not pinch hand or fingers.

Move to front-deck power unit and start engine. Release brake and slowly back away from power rake.

STORAGE

Make sure the disconnected power rake is stored on a hard, level surface.

WARNING

- Block equipment securely for storage.

CAUTION

- Keep children and bystanders away from storage area.
Figure 7. Adjustments
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. Parks 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.
- Read Operator’s Manual for service instructions or have done by a qualified dealer.
- Before leaving front-deck power unit operator’s seat, follow front-deck power unit manual instructions. Lower front-deck power unit lift arms and put attachment on the ground. Stop engine, remove key, engage brake, and remove 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.
- 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 front-deck 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, hands, 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.)

DAILY MAINTENANCE

When operating the power rake, check the front-deck power unit hydraulic system to be sure the level of hydraulic oil is adequate. If necessary, add hydraulic oil as recommended in your front-deck power unit 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 fitting thoroughly before attaching grease gun.

Check oil level in chain case.

**WEEKLY MAINTENANCE**

Lubricate all pivot points.

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 gear box oil level.

**QUARTERLY MAINTENANCE**

Change oil in chain case and add 1.5 pints of 85W-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 85W-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 bolt 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. 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.
Figure 8. LUBRICATION MAINTENANCE
# TROUBLESHOOTING

<table>
<thead>
<tr>
<th>Problem</th>
<th>Possible Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roller will not turn</td>
<td>Tractor PTO not engaged.</td>
<td>See front-deck power unit Operator’s Manual for start up and safety interlock information.</td>
</tr>
<tr>
<td></td>
<td>Belt loose on power rake.</td>
<td>Tighten belt.</td>
</tr>
<tr>
<td></td>
<td>Obstruction between roller and barrier.</td>
<td>Clean obstruction.</td>
</tr>
<tr>
<td></td>
<td>Gearbox damaged.</td>
<td>Repair or replace gearbox.</td>
</tr>
<tr>
<td></td>
<td>Broken drive shaft between clutch and chain drive.</td>
<td>Replace shaft and collar assembly.</td>
</tr>
<tr>
<td>Hydraulic cylinder inoperative (if equipped with angle cylinder)</td>
<td>Hose ends not completely engaged.</td>
<td>Check connections.</td>
</tr>
<tr>
<td></td>
<td>Insufficient oil in system.</td>
<td>Check oil level.</td>
</tr>
<tr>
<td></td>
<td>Air in hydraulic system.</td>
<td>Cycle several times to work out air.</td>
</tr>
<tr>
<td></td>
<td>Broken hose.</td>
<td>Replace damaged hose.</td>
</tr>
<tr>
<td>Oil leaks</td>
<td>Worn or damaged seal.</td>
<td>Replace leaking seal.</td>
</tr>
<tr>
<td></td>
<td>Loose or damaged hoses.</td>
<td>Replace damaged hoses and secure loose hoses.</td>
</tr>
<tr>
<td></td>
<td>Worn or damaged housing.</td>
<td>Replace damaged housing.</td>
</tr>
<tr>
<td></td>
<td>Roller out of position.</td>
<td>Loosen bearing collar on frame and chain case. Force roller toward chain case, then tighten bearing collars on chain case and frame.</td>
</tr>
</tbody>
</table>
The information in this section is written for dealer service personnel. The repair described herein requires special skills and tolls. If your shop is 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.

- 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.

---

**FRONT PTO DRIVELINE (CONSTANT VELOCITY JOINT)**

**Removal**

Loosen belt. Loosen 3/8" hex bolt (112) on drive shaft. Back out 3/8" set screws (110 & 111). Slide PTO off shaft. See Figure 10.

**Reassembly**

Position PTO on shaft so set screw hole lines up over hole in drive shaft. Secure set screws using a good grade thread lock and jam nuts. Tighten 3/8" hex bolt (112) on drive shaft. Tighten drive bolt.

**Drive Belt Removal**

Remove pulley shield. Loosen pivot bolt (116) and back off tension bolt (113) until able to remove belt.

**Reassemble**

Reverse procedure.

**Belt Tension**

To set belt tension, loosen pivot bolt (116) and adjust tension bolt (113) until you can move the belt 1/4" mid way between pulleys with moderate hand pressure.

**Gearbox (Drive Rotation)**

Due to the rotation of the power takeoff shaft on the front-deck power unit, it may be necessary to change the position of the gearbox to get the proper rotation of the roller. See Figure 6 page 17.

**Tools Required**

3/8", 9/16", 17mm, 19mm wrench and 8mm Allen wrench

**Removal**

Remove pulley shield and drive belt. Remove 3/4" pivot bolt (122) and slide pivot frame out to gain access to gearbox mounting bolts. Remove gearbox mounting bolts and slide gearbox toward non-drive end of rake.

**To Change Rotation**

Remove shaft cover (35) and place over opposite output shaft. Remove breather plug and swap it with plug in opposite side of gearbox. Apply antiseize (lubricant) to splined output shaft and slide back into coupler on drive shaft. Reverse removal process to secure gearbox position. Check that oil level in gearbox is half full. EP 80-90 wt. gear lube is recommended.
MAINTENANCE

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 the 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 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

Top Drive Bearing

Remove the drive chain. Then remove the upper sprocket by removing cotter pin, slotted hex nut, and washers. Remove the four bolts mounting the gearbox to the frame and slide the gearbox and drive shaft away from the chain case until the top bearing is cleared. Remove the two bolts mounting the bearing to the chain case. When replacing the bearing, apply sealant to the mating face of the bearing to seal the chain case. To reassemble, reverse the procedure.

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 120 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 spacer 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 3/4" 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.

**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 the 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 hose 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.

**SETUP 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 pages 5 & 6.

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

**Tools Required**

9/16 Combination wrench.

It is advisable to have a mechanical lifting device to facilitate uncrating.

**Unpacking Crate**

Be careful of nails in boards when uncrating.

Remove top, sides, and ends of crate.

Remove right and left lift arms, if required, for attaching to your front-deck power unit. See Figures 2, 3, 4, and 5.

Remove front half of drive PTO.

Remove gauge wheel assemblies.

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

ASSEMBLY PROCEDURE

Attach the two gauge wheel assemblies to main frame with two 3/8" U-bolts, lock washers, and nuts as shown in Figure 13.

Slide the front half of the drive PTO onto the male half.

NOTE: The female spline has an open section which must correspond to a closed section on the male spline in order to slide the two together.

For reference, front, back, left and right directions are determined by sitting on the front-deck power unit operator’s seat.

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

WARNING

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

Check the oil level in the chain case. If needed, add EP 140 wt. gear oil. See instructions near fill/vent plug, Figure 9.

![Figure 9. Chain Case Oil Level](image-url)

WARNING

• Make sure all hydraulic hoses, fittings, and valves are in good condition and not leaking before starting front-deck 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.

Check that shields and guards are properly installed and in good condition. Replace if damaged.
Figure 11
Figure 12
CASTOR WHEEL

Figure 14
HYDRAULIC CYLINDER OPTION (KUBOTA)

Figure 15
<table>
<thead>
<tr>
<th>ITEM</th>
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<th>PART NO.</th>
<th>DESCRIPTION</th>
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<td>MAIN FRAME</td>
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<td>1</td>
<td>M5212</td>
<td>PIVOT FRAME</td>
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<td>M5474</td>
<td>CARBIDE TOOTH ROLLER</td>
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<td>CHAIN CASE</td>
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<td>5</td>
<td>1</td>
<td>M5213</td>
<td>BARRIER MOUNT</td>
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<td>M5215</td>
<td>DISCHARGE DEFLECTOR</td>
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<td>RIGHT END PLATE</td>
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<td>LEFT END PLATE</td>
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<td>M5471</td>
<td>MANUAL ADJUSTMENT BAR</td>
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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 of our 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, 58402-2135, 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.