

# Harley POWER RAKE MODEL PRO-6



## OPERATOR'S MANUAL

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

\_\_\_\_\_  
SERIAL NUMBER

PN-P970620 (03/2002)

**Glenmac**  
INC

# INTRODUCTION

GLENMAC, INC., based in Jamestown, North Dakota, along with your authorized Harley dealer, are proud that you chose to purchase a Harley Power Rake. 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 Power Rake 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 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 Power Rake 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 Harley 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 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 Rake.

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

**GLENMAC INC**

PO Box 2135

Jamestown ND 58402-2135 U.S.A.

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.

## TABLE OF CONTENTS

Introduction .....	1
Specifications .....	2
Owner Assistance .....	3
General Information .....	4
Bolt Size Chart .....	4
Bolt Torque Chart .....	5-6
Safety Rules .....	6-9
Safety Decals .....	10-11
Operation .....	12-16
Maintenance .....	17-25
Trouble Shooting .....	20
Assembly .....	26-27
Parts Identification and Drawings .....	28-37
Warranty .....	38

## SPECIFICATIONS

Raking Width .....	72 Inches
Roller Type .....	Bar Roller Standard 7" Diameter
Roller Angle .....	15 Degrees Both Directions
Roller Gap (Bar to Smooth Roller) .....	1/4" - 1-1/2" Adjustable
Tires .....	16.5 x 6.5-8
Tire Pressure .....	45 psi
Weight .....	995 lbs
Oil Capacity of Chain Case .....	Approximately 1.5 Pints
Tractor Three-Point Attachment .....	Cat. 1
PTO Drive .....	540 RPM
Tractor Hydraulic System .....	One Remote Valve
Tractor PTO HP .....	25 - 40 HP

# OWNER ASSISTANCE

GLENMAC, INC. and your authorized Harley Dealer want you to be completely satisfied with your investment. Sometimes, however, misunderstandings can occur. To resolve any problem that may occur, please follow the instructions below.

1. If you did not purchase your Power 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 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 P.M. CT)  
GLENMAC INC  
PO BOX 2135  
JAMESTOWN ND 58402-2135  
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.

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 Harley Power 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.

# GENERAL INFORMATION

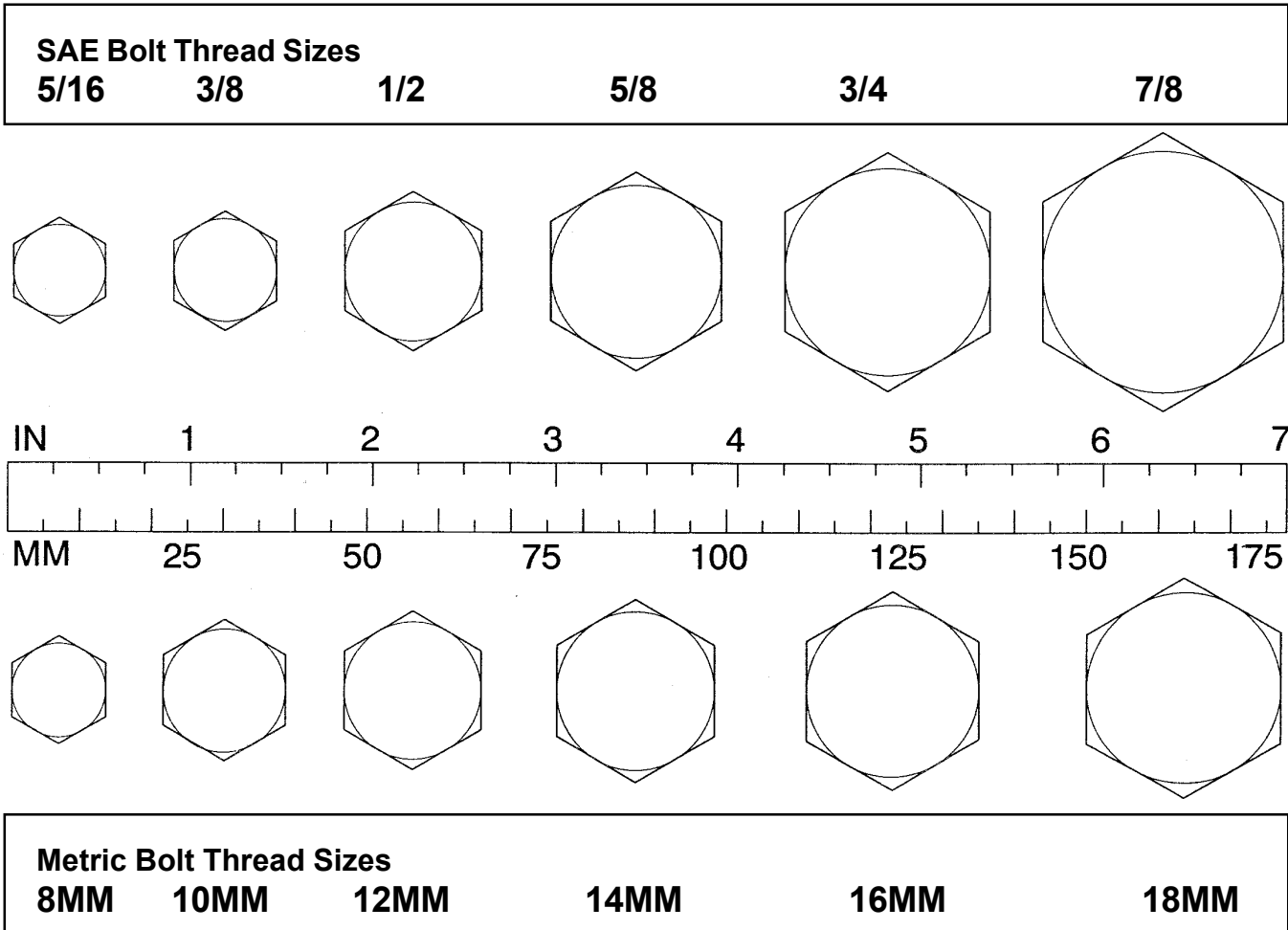
The purpose of this manual is to assist you in operating and maintaining your Power Rake. Read it carefully. It furnishes information and instructions that will help you achieve years of dependable performance. These instructions have been compiled from extensive field experience and engineering data. 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 in-line 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 skid-steer.

# 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.

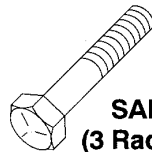
Fasteners should be replaced with the same grade.

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)	<p>Bolt Diameter</p>	
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.

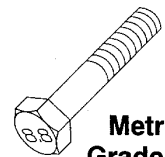
DO NOT use these values if a different torque value or tightening procedure is listed for a specific application. Torque values listed are for general use only.

Fasteners should be replaced with the same grade.

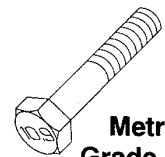
Make sure fastener threads are clean and you properly start thread engagement. This will prevent them from failing when tightening.

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



Metric Grade 8.8



Metric Grade 10.9

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 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.
- 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/operator restraint. Keep seatbelt/operator restraint securely fastened/engaged. Falling off power unit can result in death from being run over or crushed. Keep 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 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.

## 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.
- 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.

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## 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

## WARNING



**STAY CLEAR OF THE MACHINE WHILE IT IS RUNNING.** Contact with rotating rollers can cause serious injury.

#5 - PN: P970200

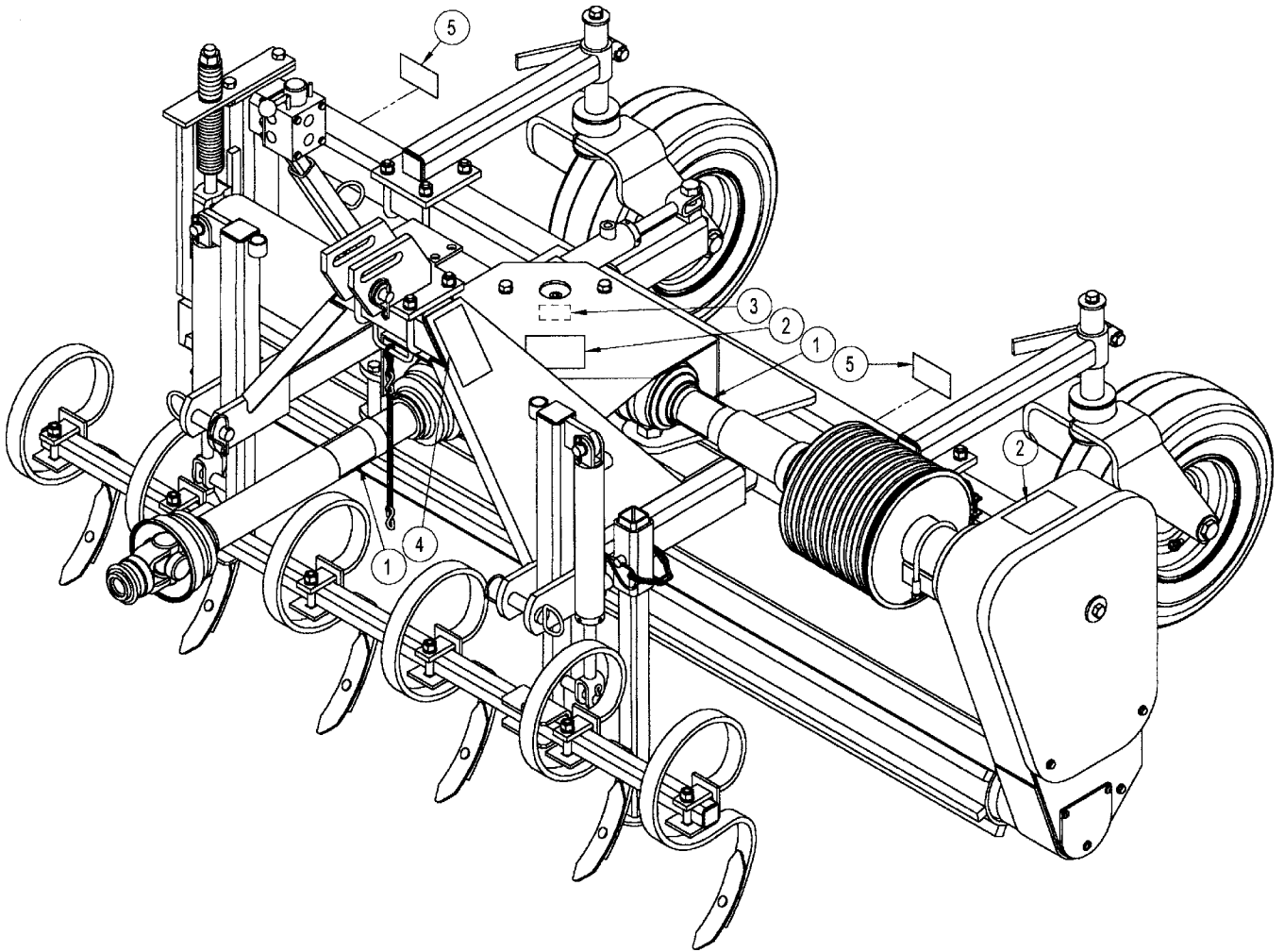
# SAFETY DECALS



**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 Pro-6 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 two rollers. The lower roller digs in the ground pulling up rocks and debris. The clean soil goes between the rollers and the rock, and the debris works to the side in a windrow. The scarifier also brings up debris from below the ground and loosens the soil so the rollers can function more efficiently.

Maximum safe PTO operating speed is 540 RPM.

## PRE-OPERATION CHECK LIST

- \_\_\_ 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 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 and Scarifier Control

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.

The hydraulics allow the operator to change the angle of the rake by just moving the hydraulic control on the tractor. It also allows the operator to raise or lower the scarifier from the tractor seat by just moving the same hydraulic control lever.

Both of these functions are possible using the manual directional valve mounted on the power rake. The bi-angle function can be activated by placing the handle in its straight forward position. To allow actuation of the scarifier cylinders, rotate the handle 90 degrees.

### Power Rollers

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 rollers for average conditions is about 1 inch. This gap can be adjusted either wider or narrower by turning the adjusting nuts on rods at each end of the roller. A wider opening will allow more dirt and rock to pass through the rollers. For finer raking, reduce the gap between the rollers. (Be careful not to let the two rollers hit.) The gap between the rollers should be the same all the way across. Roller adjustment is shown in Figure 2, pg. 16.

### Scarifier-Tines

The function of the tines is to loosen rock and debris below the ground surface. They should be allowed to run in the dirt 2 to 3 inches deep. Tine shovels are reversible and replaceable when worn.

# OPERATION

## Operating Depth

When power raking, the depth will determine how much dirt is carried ahead of the rollers. The ideal depth will vary with conditions and can be anywhere from skimming the surface to about 3 inches deep. See instructions in “Power Rollers” pg. 14, to set roller depth.

When making the first windrow, the level of dirt may be halfway up on the top roller. When moving the windrow two or three times, the level of the dirt may be to the top of the top roller. 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.

Soil 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.

## 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.**

## 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.**

Lower jackstand to “storage” position.

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

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.



# OPERATION

## STORAGE

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

### CAUTION

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

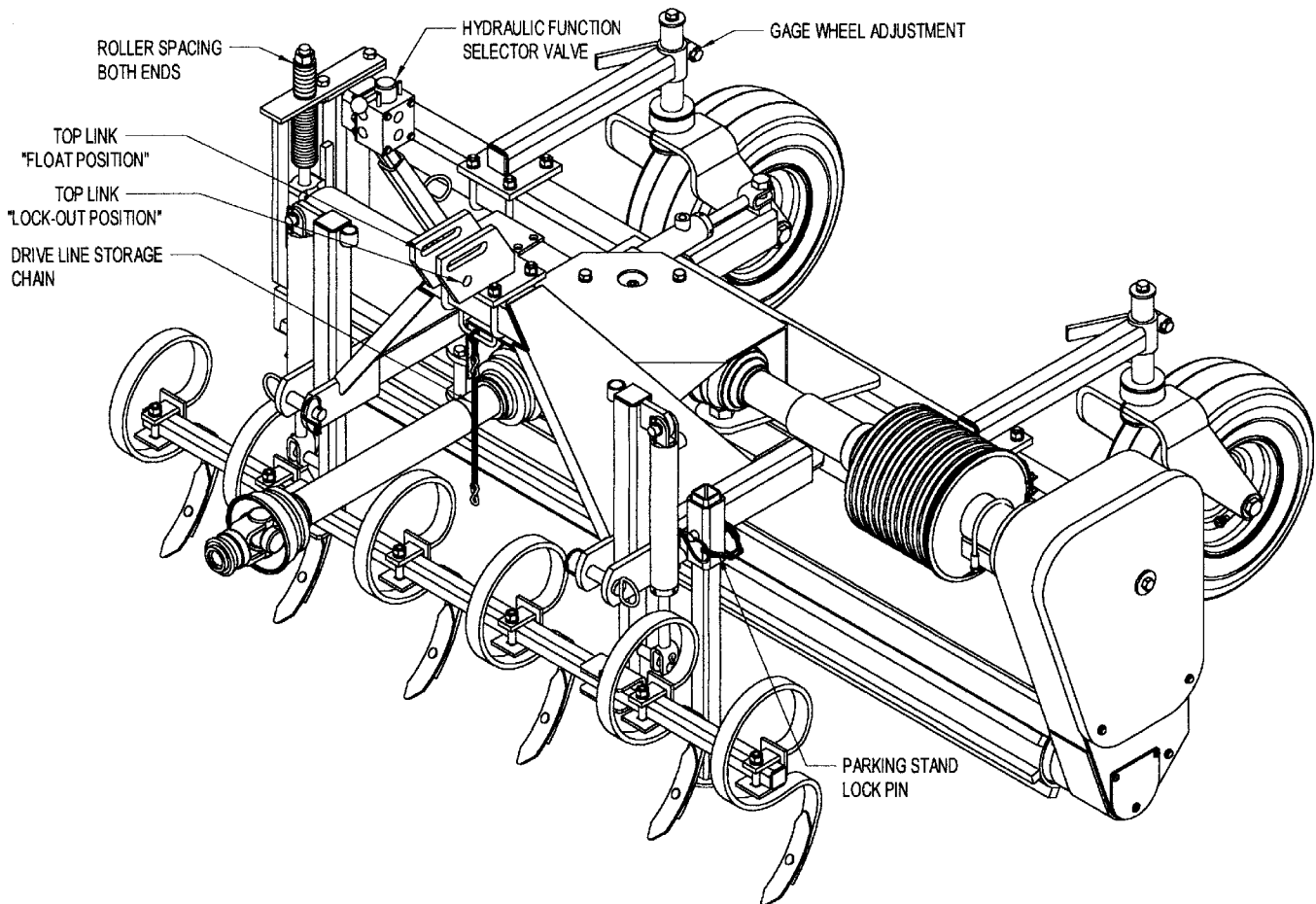


Figure 2

# 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 the rollers. 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 45 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 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.

The adjustment for chain tension is in the chain case. To tighten the chain, loosen jam nut (#63) and turn the adjusting bolt (#61) clockwise until the chain is snug. Let the spring give the desired tension.

**NOTE:** The tension spring should be compressed to 4-3/4 inches for proper tension.

### 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 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.

# LUBRICATION MAINTENANCE

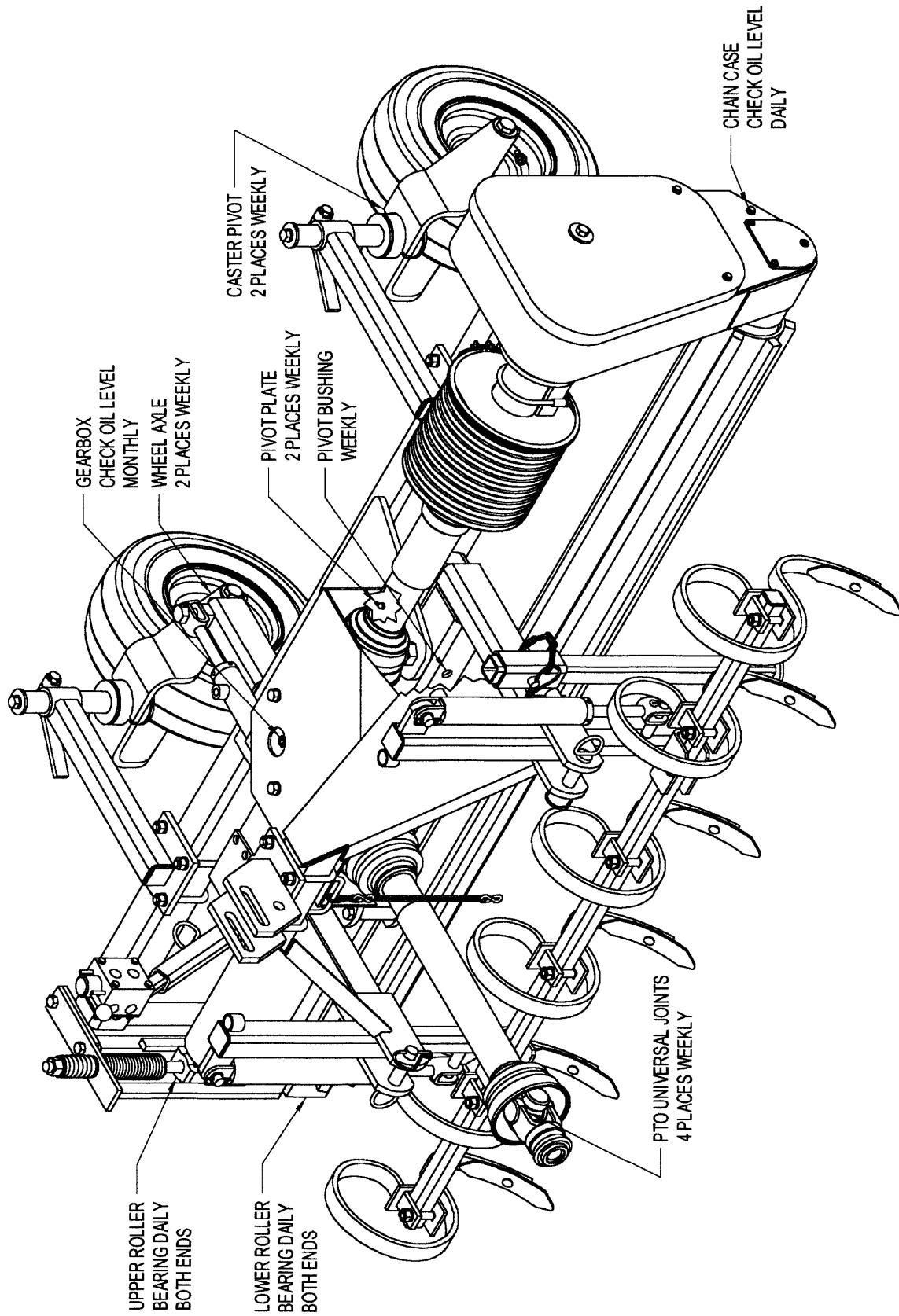


Figure 3

# TROUBLE SHOOTING

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<b>Problem</b>	<b>Possible Cause</b>
Roller will not turn.	Tractor PTO not engaged. Clutch friction discs worn. Obstruction between rollers. 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.

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# 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 dismantling 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 179) 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 179) on the OD of the clutch pak until the compression plate (Item 175) is in contact with the housing (Item 170). Then tighten each bolt to 30 ft. lbs.
10. Locate the four (4) bolts (Item 178) that attach the yoke and hub (Item 176) 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

## FRICITION 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 179) on the OD of the clutch pak. Remove Items 170 through 175. 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

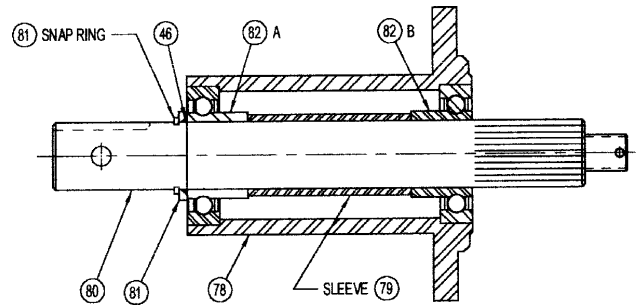
Press bearing (82B) in bearing housing with collar of bearing to the center of the housing. Be careful to press only on the outer bearing race until the bearing hits the shoulder and stops. See Figure 5.

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

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

Press bearing (82B) into the bearing housing with the collar part of the bearing facing toward the center of PN-P970620 (03/2002)

the housing. Be careful to press on both the outer and inner bearing races until the inner race rests on the sleeve. Figure 5.



**Figure 5**

Replace O-ring, O-ring spacer, and the snap ring. Check O-ring for cuts or nicks.

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.

## ROLLER BEARING REPLACEMENT

To change bearings on the chain case side (left side) of the rollers, follow these instructions. Some of the same instruction would apply to the bearings on the opposite end.



# MAINTENANCE

## Bottom Roller Bearing: Left Side

1. Remove the bottom bearing on the right side from the frame.
2. Remove the drive chain. Then remove the sprocket by removing the cotter pin, slotted hex nut, and washers.

**NOTE:** Have the roller blocked up or supported.

3. The protective collar on the bearing should now be loose so you can pull the roller out of the bearing. Loosen the bolt from bearing clamp which holds the cartridge bearing in place on back side of chain case. Remove the bearing and the O-ring.
4. To replace, reverse the order. Be sure all parts and wear surfaces are thoroughly clean and in good condition. Be sure the O-ring is also in good condition.
5. When replacing the left bearing, first put the O-ring on the bearing. If the O-ring will not stay on the bearing long enough to set the bearing in place, put a little heavy grease on the O-ring. Now push the bearing in and apply moderate pressure on the bearing so the O-ring will seat and spread slightly thus keeping the oil in the chain case from escaping through the bearing.
6. Re-install sprocket and chain. Fill chain case with 1.5 pints of 85W 140 wt. lube. Rotate roller and watch for any interference between roller and frame.

## Top Roller Bearing Slide: Left side (Figure 6)

1. To replace the bearing or quad seal, remove the RTU bearing holder on the right side. Remove the drive chain. Then remove the sprocket by removing the cotter pin, slotted hex nut, and washers.
2. Remove the three hex head bolts holding the front slide bar (15) being careful not to damage the brass shims between the slide bar and the chain case. Remove the two hex head bolts holding the rear slide bar. Now the roller, the bearing, and bearing slide can be removed.
3. To replace, reverse the order. Be sure all parts and wear surfaces are clean and in good condition. Be sure the quad ring seal is also in good condition. When replacing, put a little grease on the quad ring seal, on the surface it slides against, and on the slide bars. Replace the shim stock and tighten the three hex head bolts.

Position rear slide bar up against bearing slide, add

the two bolts, apply moderate pressure against the bearing slide and tighten the bolts. The bearing slide should be moderately difficult to move up and down. Add or remove shims as needed.

## GENERAL BEARING REPLACEMENT INSTRUCTIONS:

### -IMPORTANT NOTICE-

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.

### -IMPORTANT NOTICE-

Bolt the bearing housing tightly to the frame and then lock bearing to the shaft as follows: Lock bearing to shaft by rotating the eccentric collar in the direction of the shaft rotation. Rotation is clockwise for both rollers when standing at the chain case. Use a punch and tap the collar tight torquing the set screw on shaft to 70 inch pounds. Use a good grade of thread lock on the set screws.

## Protective Collars

The special protective collars protect bearings from vine and wire wrap, and dirt buildup next to the bearing seal. The protector locks 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.

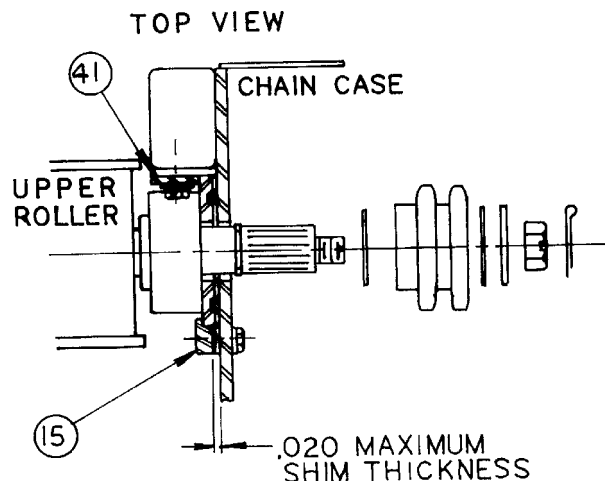


Figure 6  
PN-P970620 (03/2002)

# 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 pages 5 & 6.

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

## Tools Required

3/4" and 9/16" Wrench

Rubber hammer

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 scarifier.

Remove gauge wheel assemblies.

Remove parts box.

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.

1. Lift front of rake up, insert leg stand (#126) into the rectangular tubing on the left side of the mast, insert pin (#127) and attach hair pin clip.

Do NOT add front PTO half to power rake yet. Follow instructions and important notice concerning the front PTO in the "Attaching and Detaching Power Rake" section page 12.

2. Insert the left (#122) and right (#123) scarifier lift mounts into the rectangular tubing on the mast assembly with the "U" brackets toward the front and attach rod end of hydraulic cylinder to the lift mounts using hair pin clips to hold in place.

3. Center and attach the scarifier unit to the lift mounts with two 3/8" x 2-3/4" bolts, nuts, lock washers, and tighten securely.

4. Attach the third hitch point (#148) and the hydraulic selector valve assembly to the top of the mast with two 1/2" U-bolts, nuts, and lock washers. Upper hitch pin is a 3/4" x 3-3/4" pin with large flat washer and hair pin clip.

# ASSEMBLY

5. Attach the two gauge wheel assemblies to the main frame with two 1/2" U-bolts each, nuts, and lock washers. Refer to Figure 7 for specific location of gauge wheel assembly.

6. Check the gear oil in the chain case. Add if required. See instructions near fill/vent plug.

This should complete the assembly of your new Power 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.**

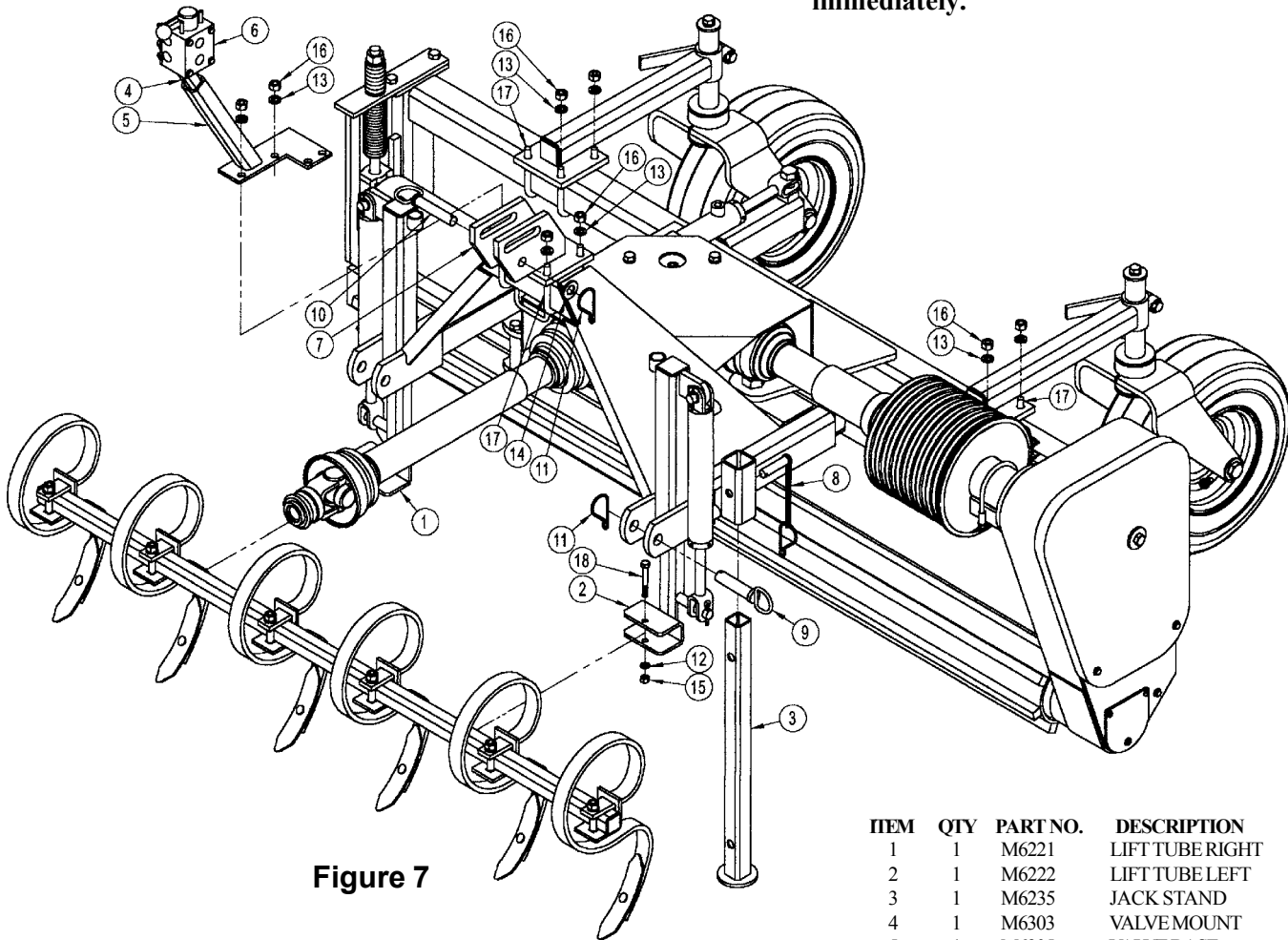
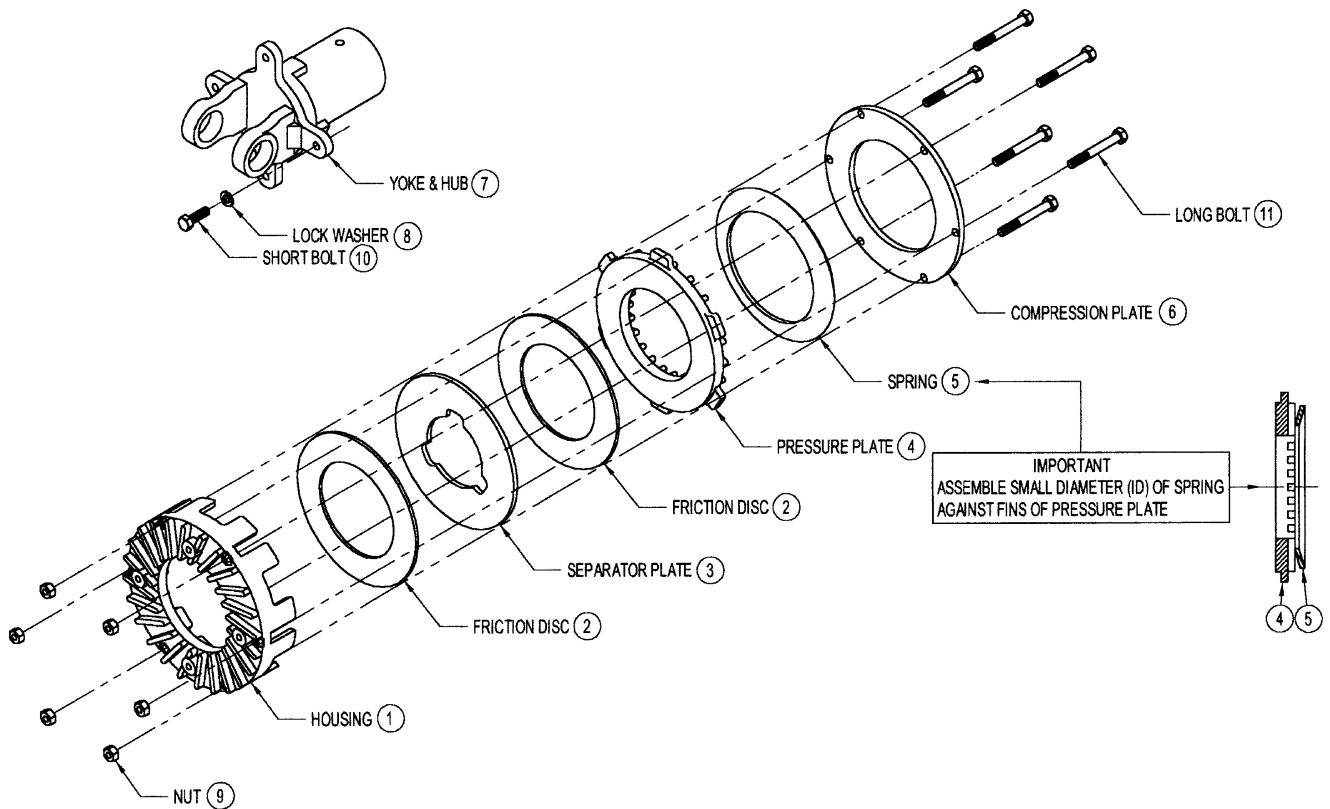


Figure 7

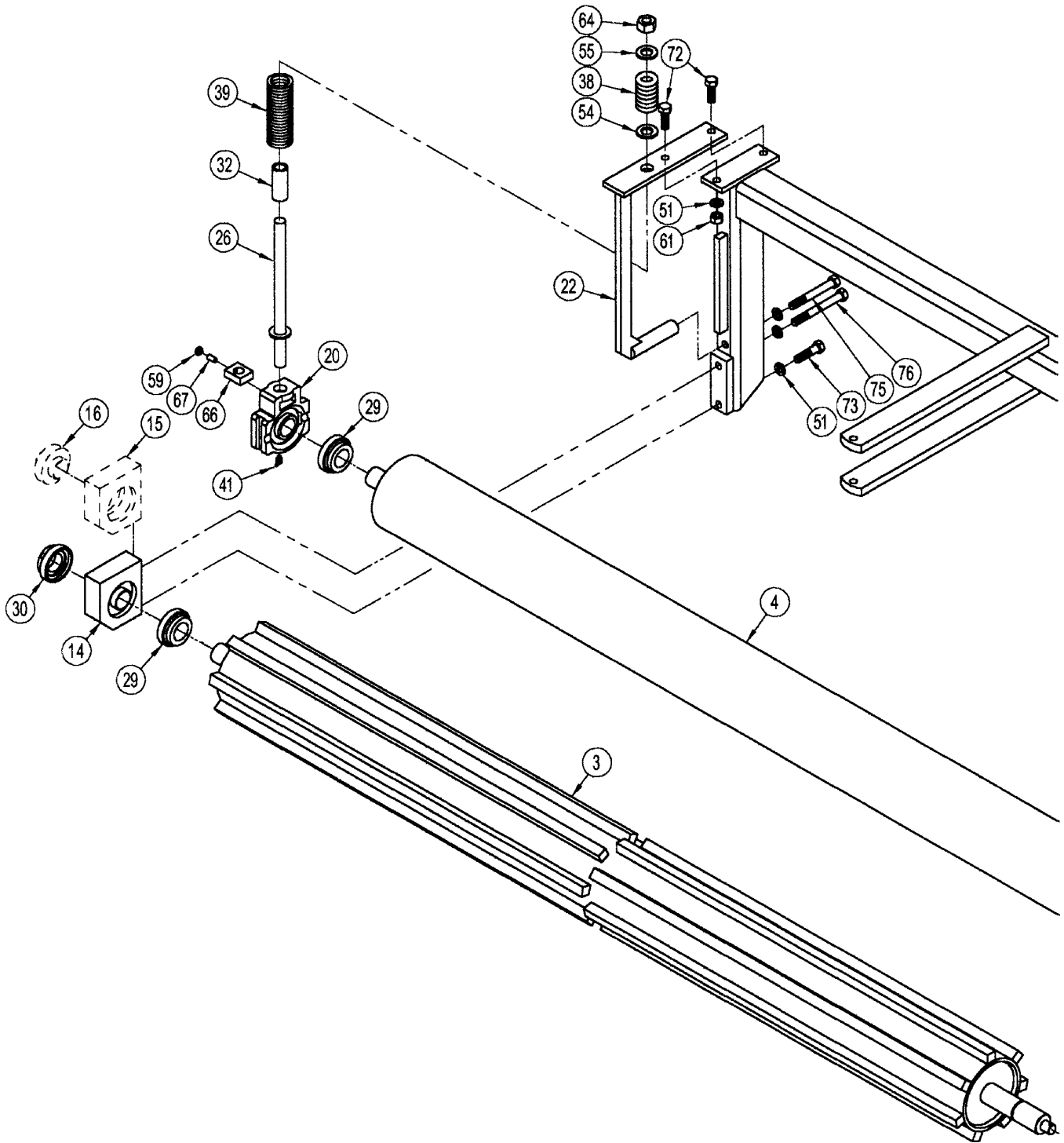
ITEM	QTY	PART NO.	DESCRIPTION
1	1	M6221	LIFT TUBE RIGHT
2	1	M6222	LIFT TUBE LEFT
3	1	M6235	JACK STAND
4	1	M6303	VALVE MOUNT
5	1	M6305	VALVE BASE
6	1	P290400	MANUAL DIRECTION VALVE
7	1	M6209	MAST HITCH
8	1	M6265	5/8" PIN ASSEMBLY
9	2	M8073	7/8" PIN
10	1	M5003	3/4" PIN
11	3	P622600	HAIR PIN CLIP
12	2	P851106	3/8" LOCK WASHER
13	12	P851108	1/2" LOCK WASHER
14	1	P850812	3/4" SAE WASHER
15	2	P150600	3/8" HEX NUT
16	12	P150800	1/2" HEX NUT
17	6	P128318	1/2" X 4-1/2" U-BOLT
18	2	P100611	3/8" X 2-3/4" HEX BOLT

# CLUTCH ASSEMBLY

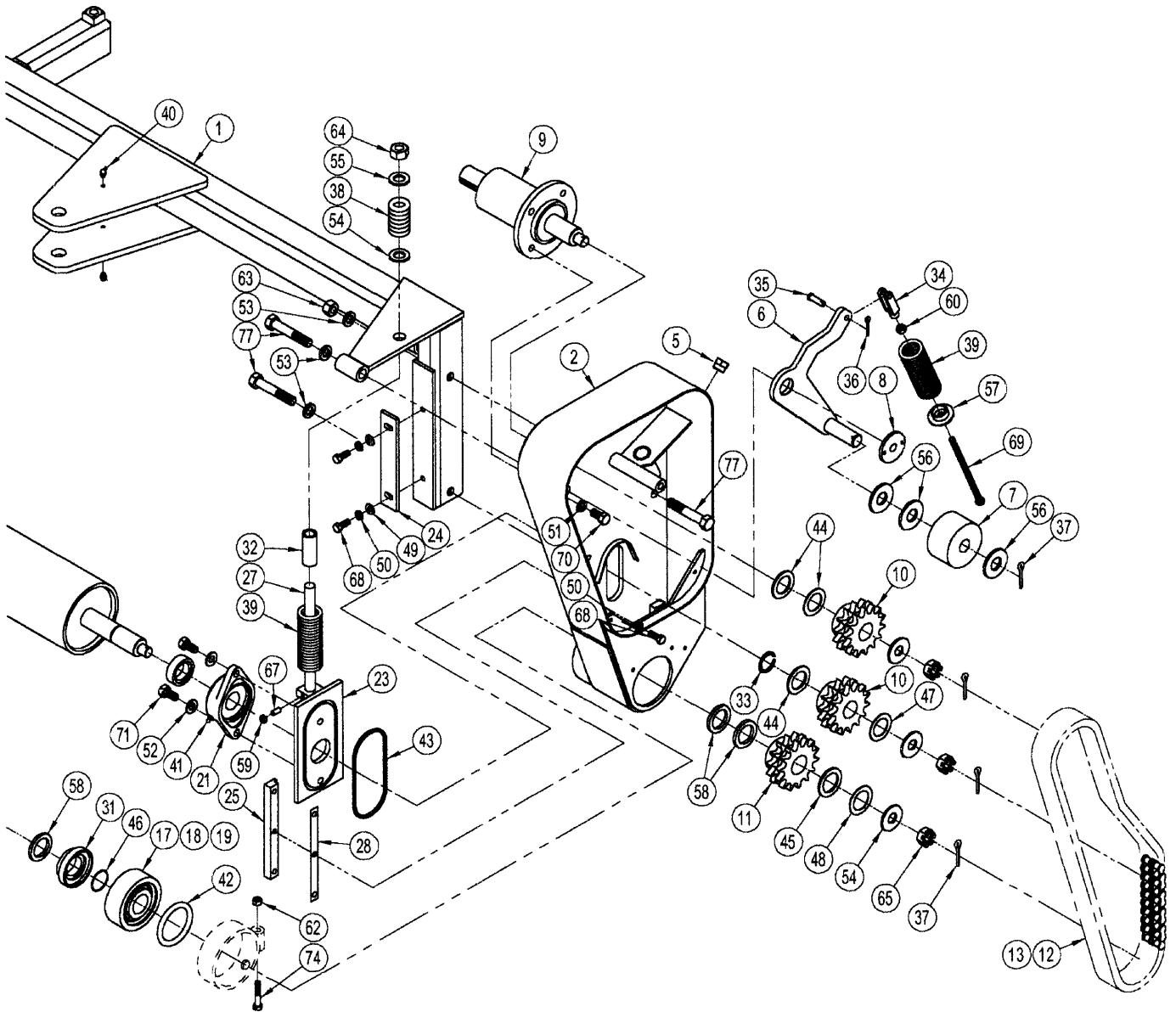


ITEM	QTY	PART NO.	DESCRIPTION
1	1	P400751	CLUTCH ASSEMBLY W/OUT HUB
2	2	P400755	FRICTION DISC
3	1	P400752	SEPARATOR DISC
4	1	P400753	PRESSURE PLATE
5	1	P400756	SPRING
6	1	P400754	COMPRESSION PLATE
7	1	P400758	YOKE AND HUB
8	4	P851105	5/16" LOCK WASHER
9	6	P150500	5/16" HEX NUT
10	4	P400760	5/16" X 1" HEX BOLT Gr8
11	6	P400761	5/16" X 2-1/2" HEX BOLT Gr8

# ROLLER ASSEMBLY



# ROLLER ASSEMBLY



# ROLLER ASSEMBLY PARTS LIST

ITEM	QTY	PART NO.	DESCRIPTION	ITEM	QTY	PART NO.	DESCRIPTION
1	1	M6312	MAIN FRAME	61	2	P150800	1/2" HEX NUT
2	1	M6281	CHAIN CASE	62	1	P155852	1/2-20 LOCK NUT
3	1	M6244	ROUGHROLLER	63	1	P151000	5/8" HEX NUT
4	1	M6245	SMOOTHROLLER	64	2	P157600	3/4" LOCK NUT
5	1	P278001	BREATHER	65	3	P158000	3/4-16 SLOTTED HEX NUT
6	1	M6317	TENSION ARM ASSEMBLY	66	1	M6056	RTU NUT
7	1	M6318	CHAIN ROLLER	67	2	P108512	5/16-18 X 3/4" SOCKET SET SCREW
8	1	M6226	TENSION WASHER	68	5	P100604	3/8" X 1" HEX BOLT
9	1	M6256	BEARING HOUSING ASSEMBLY	69	1	P102629	3/8" X 7-1/4" FINE THD HEX BOLT
10	2	P661411	SPROCKET 1-3/8" DOUBLE 60	70	4	P100804	1/2" X 1" HEX BOLT
11	1	P661412	SPROCKET 1-1/2" DOUBLE 60	71	2	P102804	1/2" X 1" FINE THD HEX BOLT
12	1	M6270	#60-2 CHAIN X 73 PITCH	72	2	P100806	1/2" X 1-1/2" HEX BOLT
13	1	P630202	#60-2 CONNECTOR	73	1	P100808	1/2" X 2" HEX BOLT
14	1	M6261	1-3/8" TAP BASE BEARING ASSEMBLY	74	1	P102808	1/2" X 2" FINE THD HEX BOLT
15	1	P015200	TAP BASE HOUSING	75	1	P100816	1/2" X 4" HEX BOLT
16	1	P009500	1-3/8" BEARING INSERT	76	1	P100818	1/2" X 4-1/2" HEX BOLT
17	1	M6687	1-1/2" CARTRIDGE BEARING	77	3	P101014	5/8" X 3-1/2" HEX BOLT
18	1	P015210	1-1/2" BEARING HOUSING	78	1	M6227	BEARING HOUSING
19	1	P010400	1-1/2" BEARING INSERT	79	1	M6301	SLEEVE
20	1	P009700	1-3/8" RTU BEARING	80	1	P635005	DRIVE SHAFT
21	1	P015000	1-3/8" FLANGE BEARING	81	1	M5503	1-3/8" O-RING SPACER
22	1	M6220	RTU BEARING SUPPORT	82	2	P009204	BALL BEARING
23	1	P956400	BEARING SLIDE				
24	1	M6231	SLIDE BAR				
25	1	M6232	SLIDE BAR				
26	1	M6229	ROLLER ADJUSTMENT SCREW				
27	1	P111002	ROLLER ADJUSTMENT SCREW				
28	2	M6260	SLIDE BAR SHIM				
29	2	P015301	1-3/8" ECC COLLAR				
30	1	P015302	1-3/8" SET SCREW COLLAR				
31	1	P015308	1-1/2" NON-LOCK COLLAR				
32	2	M6267	SLEEVE				
33	2	P952200	1-3/8" SNAP RING				
34	1	P900100	YOKE				
35	1	P118700	CLEVIS PIN				
36	1	P116003	3/32" X 3/4" COTTER PIN				
37	4	P116256	5/32" X 1-1/2" COTTER PIN				
38	2	P400021	SPRING 2-5/16"				
39	3	P603500	SPRING 5-1/2"				
40	2	P620000	1/4-28 X 45° GREASE FITTING				
41	2	P620400	1/8" NPT X 90° GREASE FITTING				
42	1	P500203	O-RING 3/8" X 2-5/8" ID				
43	1	P500100	QUAD RING SEAL				
44	3	P855122	10 GA X 1-3/8" MACHINE BUSHING				
45	1	P855124	10 GA X 1-1/2" MACHINE BUSHING				
46	2	P500138	O-RING 1/16" X 1-3/8" ID				
47	1	P855522	18 GA X 1-3/8" MACHINE BUSHING				
48	1	P855524	18 GA X 1-1/2" MACHINE BUSHING				
49	2	P850106	3/8" FLAT WASHER				
50	5	P851106	3/8" LOCK WASHER				
51	11	P851108	1/2" LOCK WASHER				
53	3	P851110	5/8" LOCK WASHER				
54	5	P850612	3/4" FLAT WASHER				
55	2	P850812	3/4" SAE WASHER				
56	3	M5464	.172 X 2-1/4" OD WASHER				
57	1	M6021	SPRING WASHER				
58	3	M6757	.218 X 1-1/2" X 2-1/8" SPACER				
59	2	P155300	5/16-18 JAM NUT				
60	1	P150601	3/8-24 HEX NUT				

# NOTES



# FINAL ASSEMBLY

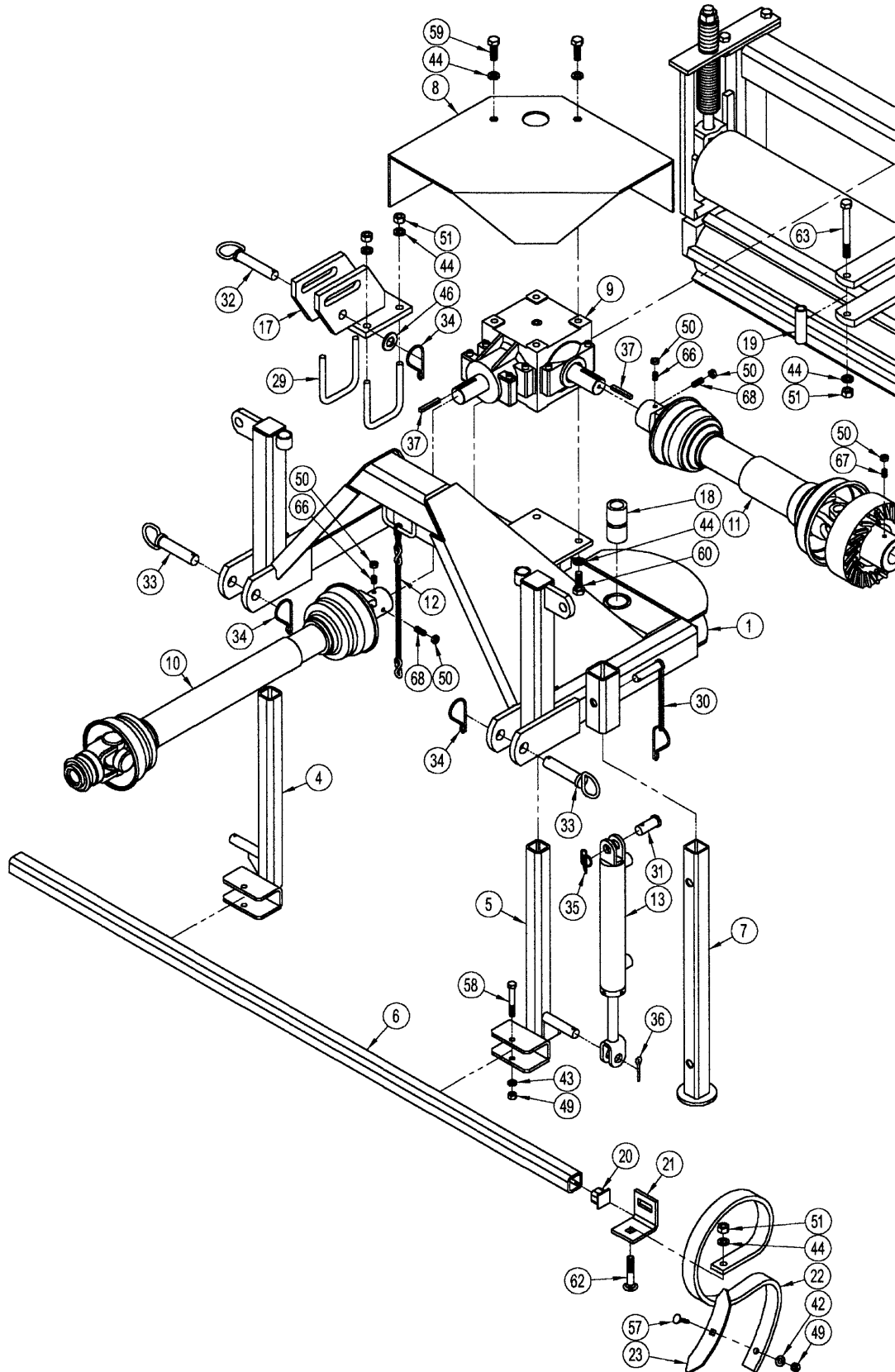


Figure 8L

# FINAL ASSEMBLY

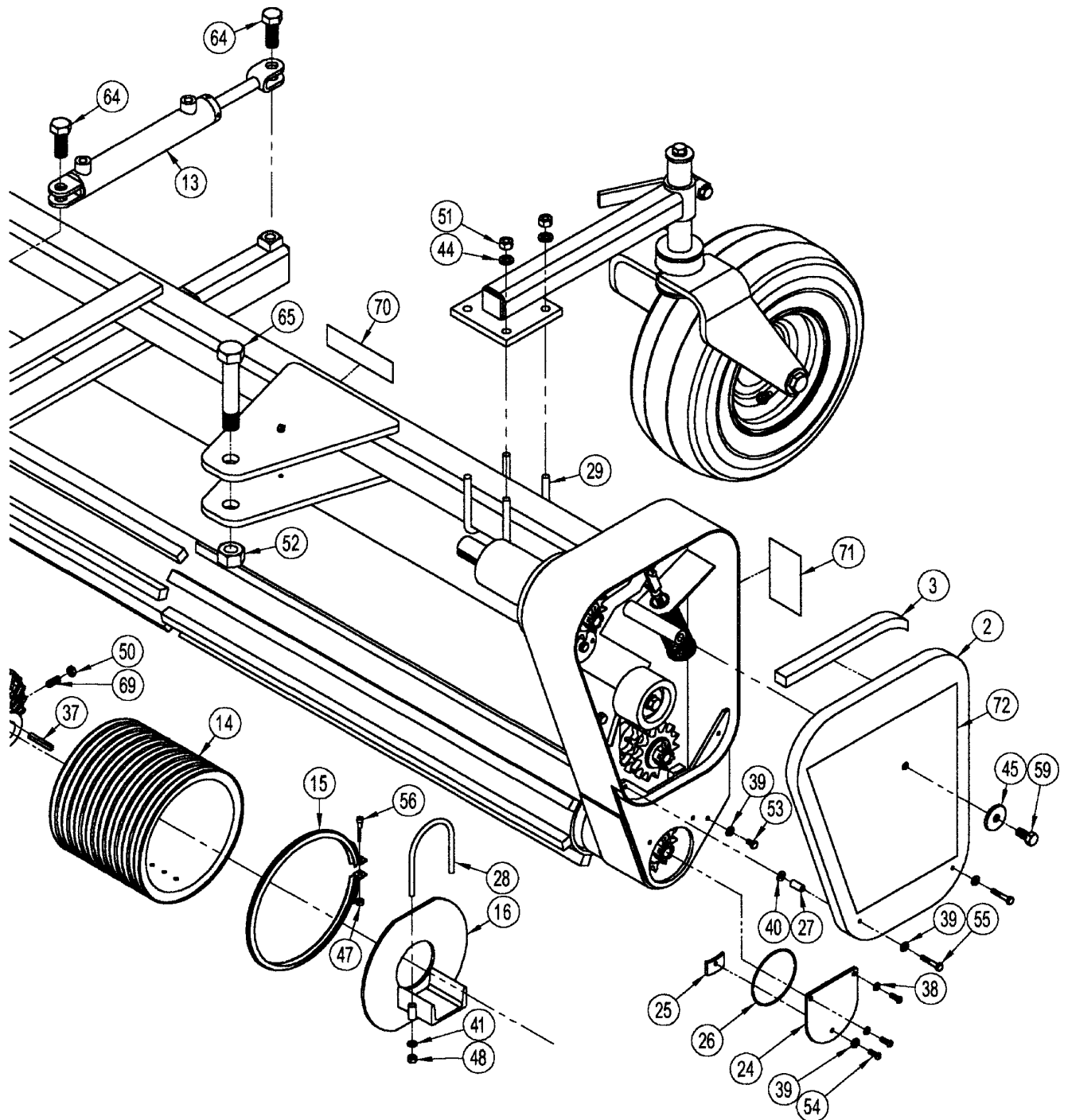


Figure 8R

# FINAL ASSEMBLY PARTS LIST

ITEM	QTY	PART NO.	DESCRIPTION	ITEM	QTY	PART NO.	DESCRIPTION
1	1	M6314	MAST WELDMENT	61	4	P110806	1/2" X 1-1/2" SOCKET HEAD CAP SCREW
2	1	M6286	COVER	62	6	P104811	1/2" X 2-3/4" CARRIAGE BOLT
3	1	M6289	COVER SEAL	63	1	P100820	1/2" X 5" HEX BOLT
4	1	M6221	LIFT TUBE RIGHT	64	2	P103208	3/4" X 2" HEX BOLT
5	1	M6222	LIFT TUBE LEFT	65	1	P101622	1"-14 X 5-1/2" FINE THD HEX BOLT
6	1	M6011	TINE TOOL BAR	66	2	P108610	3/8" X 5/8" ALLEN SET SCREW
7	1	M6235	JACK STAND	67	1	P108612	3/8" X 3/4" ALLEN SET SCREW
8	1	M6224	GEARBOX SHIELD	68	2	P108616	3/8" X 1" ALLEN SET SCREW
9	1	P205400	GEARBOX	69	1	P108620	3/8" X 1-1/4" ALLEN SET SCREW
10	1	P400400	FRONT PTO	70	1	P975800	DECAL: HARLEY LOGO
		P400400-1	FRONT PTO TRACTOR HALF	71	1	P975700	DECAL: LUBRICATION
		P400400-2	FRONT PTO GEARBOX HALF	72	1	P975911	DECAL: HARLEY PRO6
11	1	P400850	SIDE PTO W/CLUTCH				
		P400850-1	SIDE PTO CLUTCH HALF				
		P400850-2	SIDE PTO GEARBOX HALF				
12	1	M6266	PTO SUPPORT CHAIN				
13	3	P256000	1-1/2" X 8" HYDRAULIC CYLINDER				
14	1	M6262	CLUTCH SHIELD				
15	1	P128605	BAND CLAMP				
16	1	M6258	SHIELD MOUNT				
17	1	M6209	MAST HITCH				
18	1	M6218	PIVOT BUSHING				
19	1	M6219	SPACER				
20	2	P955800	PLASTIC CAP				
21	6	P701010	TINE BRACKET				
22	6	P701000	S-TINE				
23	6	P700300	TINE SHOVEL				
24	1	M6240	LOWER COVER				
25	1	M6243	COVER TAB				
26	1	P500200	O-RING 1/16" X 3-3/4"				
27	2	P481010	BUSHING SPACER				
28	1	P128500	5/16" U-BOLT				
29	6	P128318	1/2" X 4-1/2" U-BOLT				
30	1	M6265	5/8" PIN ASSEMBLY				
31	2	M5017	3/4" X 1-1/2" PIN				
32	1	M5003	3/4" PIN				
33	2	M8073	7/8" PIN				
34	3	P622600	HAIR PIN CLIP				
35	2	P622610	3/4" RUE RING COTTER PIN				
36	2	P116306	3/16" X 1-1/2" COTTER PIN				
37	3	M5000-5	5/16" X 2" SQ KEY				
38	2	P851104	1/4" LOCK WASHER				
39	4	P500300	1/4" O-RING WASHER				
40	2	P500302	1/4" RUBBER FACE WASHER				
41	2	P851105	5/16" LOCK WASHER				
42	6	P850106	3/8" FLAT WASHER				
43	2	P851106	3/8" LOCK WASHER				
44	25	P851108	1/2" LOCK WASHER				
45	1	M5009-5	3/16" X 1/2" X 1-3/4" WASHER				
46	1	P850812	3/4" SAE WASHER				
47	1	P158003	1/4" LOCK NUT				
48	2	P150500	5/16" HEX NUT				
49	8	P150600	3/8" HEX NUT				
50	6	P155400	3/8" HEX JAM NUT				
51	19	P150800	1/2" HEX NUT				
52	1	P156401	1"-14 LOCK NUT				
53	1	P100402	1/4" X 1/2" HEX NUT				
54	3	P110901	1/4-20 X 3/4" BUTTON HEAD CAP SCREW				
55	2	P100406	1/4" X 1-1/2" HEX BOLT				
56	1	P115406	1/4" X 1-1/2" FILLISTER HEAD SCREW				
57	6	P700400	3/8" X 1-1/4" SHOVEL BOLT				
58	2	P100611	3/8" X 2-3/4" HEX BOLT				
59	1	P100804	1/2" X 1" HEX BOLT				
60	2	P100806	1/2" X 1-1/2" HEX BOLT				

# HYDRAULIC ASSEMBLY

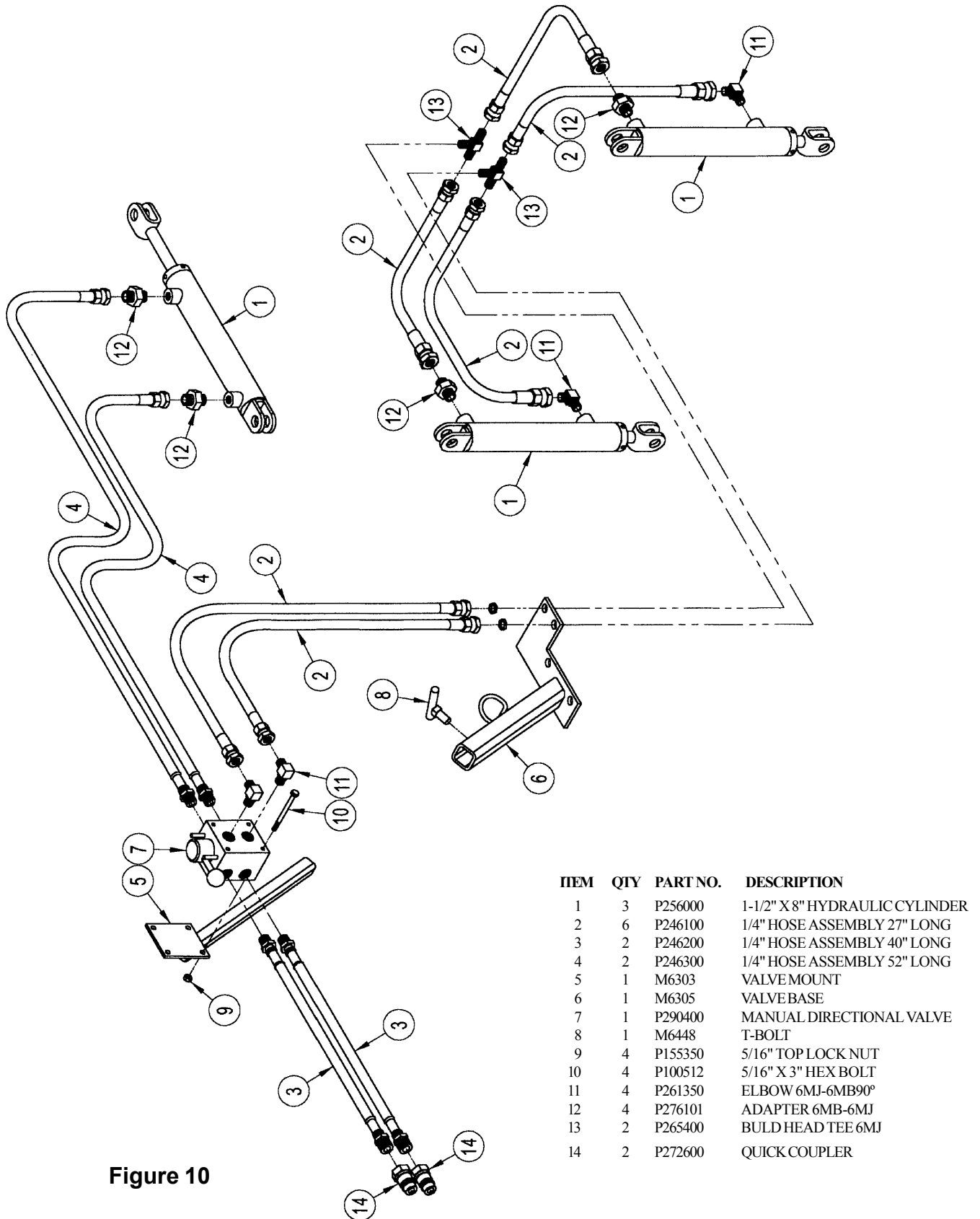
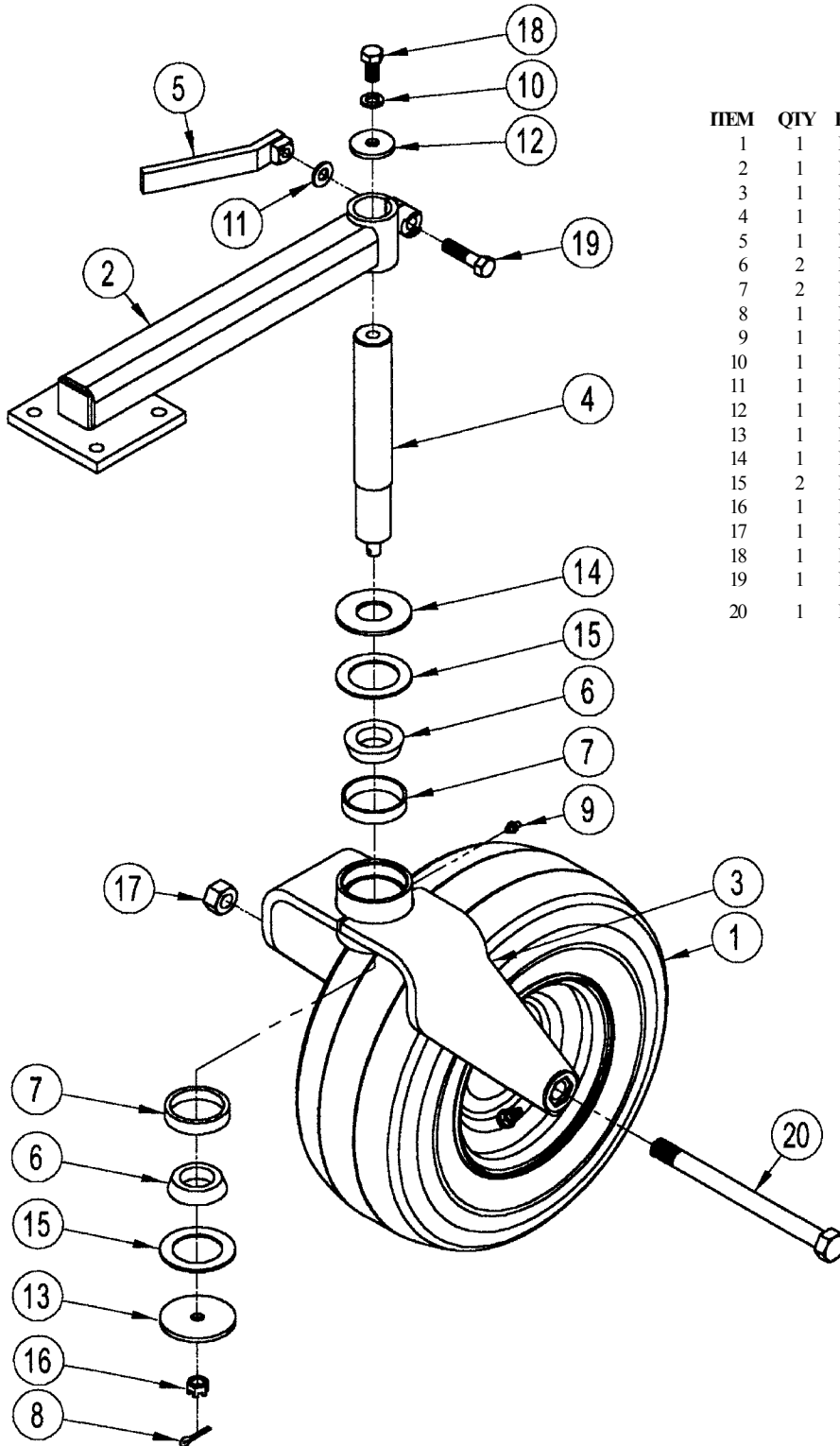


Figure 10

ITEM	QTY	PART NO.	DESCRIPTION
1	3	P256000	1-1/2" X 8" HYDRAULIC CYLINDER
2	6	P246100	1/4" HOSE ASSEMBLY 27" LONG
3	2	P246200	1/4" HOSE ASSEMBLY 40" LONG
4	2	P246300	1/4" HOSE ASSEMBLY 52" LONG
5	1	M6303	VALVE MOUNT
6	1	M6305	VALVE BASE
7	1	P290400	MANUAL DIRECTIONS VALVE
8	1	M6448	T-BOLT
9	4	P155350	5/16" TOP LOCK NUT
10	4	P100512	5/16" X 3" HEX BOLT
11	4	P261350	ELBOW 6MJ-6MB90°
12	4	P276101	ADAPTER 6MB-6MJ
13	2	P265400	BULD HEAD TEE 6MJ
14	2	P272600	QUICK COUPLER

# CASTER WHEEL



ITEM	QTY	PART NO.	DESCRIPTION
1	1	P756150	WHEEL AND TIRE
2	1	M6411	CASTER SUPPORT ARM
3	1	M6817	CASTER FORK
4	1	M16011	CASTER SHAFT
5	1	M6415	CASTER HANDLE
6	2	P760300	BEARING CONE
7	2	P760500	BEARING CUP
8	1	P116204	1/8" X 1" COTTER PIN
9	1	P620200	1/4"-28 STR GREASE FITTING
10	1	P851108	1/2" LOCK WASHER
11	1	P852608	1/2" HARD WASHER
12	1	M5009-5	3/16" X 1/2" X 1-3/4" WASHER
13	1	M6223	3/16" X 1/2" X 3" WASHER
14	1	P850620	1-1/4" FLAT WASHER
15	2	P852200	FELT WASHER
16	1	P158006	12"-13" SLOTTED HEX NUT
17	1	P157120	3/4" TOPLOCK NUT
18	1	P100804	1/2" X 1" HEX BOLT
19	1	P102808	1/2" X 2" FINE THD HEX BOLT
20	1	P103138	3/4" X 9-1/2" HEX BOLT

Figure 11

# LIMITED WARRANTY

GLENMAC, INC. warrants to the original purchaser of the POWER 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.

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

Date Purchased: \_\_\_\_\_ From (Dealer): \_\_\_\_\_

Model Number:       PRO-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**

1805 2nd Avenue SW  
Jamestown, ND 58401

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

SN: P62F001

PN-P970620 (03/2002)