

OPERATOR'S AND PARTS MANUAL

POWER RAKES

| PR1148

| PR1160



FRONTIER
EQUIPMENT

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PREFACE

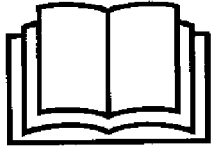
GENERAL INFORMATION

The purpose of this manual is to assist you in operating and maintaining your attachment. Read it carefully. It furnishes information and instructions that will help you achieve years of dependable performance.

These instructions have been compiled from 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. However, 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 right and left direction. These are determined by standing behind the tractor facing the direction of forward travel.

	¡LEA EL INSTRUCTIVO! Si no lee Ingles, pida ayuda a alguien que si lo lea para que le truduz ca lasmedidas de seguridad.
--	--

WARNING!



Never let anyone operate this unit without reading the "Safety Precautions" and "Operations" sections of this manual. Always choose hard, level ground to park the unit on and set the brake so the unit cannot roll.

BEFORE OPERATION

The primary responsibility for safety with this equipment falls to the operator. Make sure the equipment is operated only by trained individuals that have read and understand this manual. If there is any portion of this manual or function you do not understand, contact your local Frontier Dealer.

SERVICE

When servicing your product, remember to use only manufacturer replacement parts. Substitute parts may not meet the standards required for safe, dependable operation.

To facilitate parts ordering, record the model and serial number of your unit in the space provided on this page. This information may be obtained from the identification plate located on the product.

Any questions related to this attachment should be directed to your local Frontier dealer.

MODEL: _____ **DATE:** _____

SERIAL NUMBER: _____ (See parts section for location.)

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Hello dear friend!

Thank you very much for reading.

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SAFETY STATEMENTS



DANGER This statement is used where serious injury or death will result if the instructions are not followed properly.



WARNING This statement is used where serious injury or death could result if the instructions are not followed properly.



CAUTION This statement is used where minor injury could result if the instructions are not followed properly.

NOTICE

This statement is used where equipment or property damage could result if the instructions are not followed properly.



This symbol by itself or used with a safety signal word throughout this manual is used to call your attention to instructions involving your personal safety or the safety of others. Failure to follow these instructions can result in injury or death.

GENERAL SAFETY PRECAUTIONS



WARNING READ MANUAL PRIOR TO INSTALL

Improper installation, operation, or maintenance of this equipment could result in serious injury or death. Operators and maintenance personnel should read this manual as well as all manuals related to this equipment and the prime mover thoroughly before beginning installation, operation, or maintenance.

FOLLOW ALL SAFETY INSTRUCTIONS IN THIS MANUAL AND THE PRIME MOVERS MANUAL.



WARNING READ AND UNDERSTAND ALL SAFETY STATEMENTS

Read all safety decals and safety statements in all manuals prior to operating or working on this equipment. Know and obey all OSHA regulations, local laws and other professional guidelines for your operation. Know and follow good work practices when assembling, maintaining, repairing, mounting, removing or operating this equipment.



KNOW YOUR EQUIPMENT

Know your equipment's capabilities, dimensions and operations before operating. Visually inspect your equipment before you start, and never operate equipment that is not in proper working order with all safety devices intact. Check all hardware to assure it is tight. Make certain that all locking pins, latches, and connection devices are properly installed and secured. Remove and replace any damaged, fatigued or excessively worn parts. Make certain all safety decals are in place and are legible. Keep decals clean, and replace them if they become worn and hard to read.

WARNING PROTECT AGAINST FLYING DEBRIS

Always wear proper safety glasses, goggles or a face shield when driving pins in or out or when any operation causes dust, flying debris, or any other hazardous material.

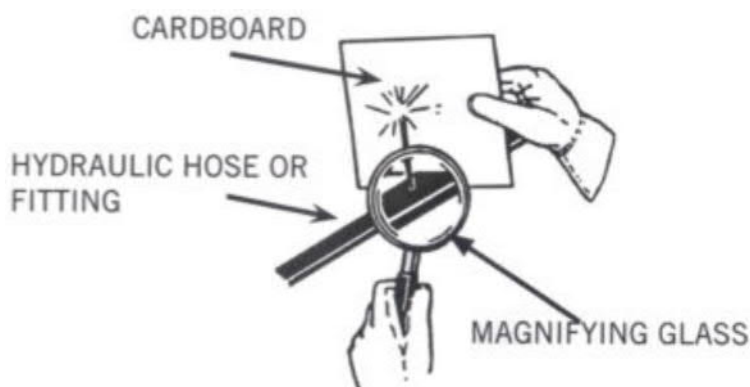
WARNING LOWER OR SUPPORT RAISED EQUIPMENT

Do not work under raised 3 point lift arms without supporting them. Do not use support material made of concrete blocks, logs, buckets, barrels or any other material that could suddenly collapse or shift positions. Make sure support material is solid, not decayed, warped, twisted, or tapered. Lower lift arms to ground level or onto blocks. Lower lift arms and attachments to the ground before leaving the cab or operator's station.

WARNING USE CARE WITH HYDRAULIC FLUID PRESSURE

Hydraulic fluid pressure can penetrate the skin and cause serious injury or death. Hydraulic leaks under pressure may not be visible. Before connecting or disconnecting hydraulic hoses, read your prime movers operator's manual for detailed instructions on connecting and disconnecting hydraulic hoses or fittings.

- Keep unprotected body parts, such as face, eyes and arms as far away as possible from a suspected leak. Flesh injected with hydraulic fluid may develop gangrene or other permanent disabilities.
- If injured by injected fluid, see a doctor at once. If your doctor is not familiar with this type of injury, ask him to research immediately to determine proper treatment.
- Wear safety glasses, protective clothing, and use a sound piece of cardboard or wood when searching for hydraulic leaks. **DO NOT USE YOUR HANDS! SEE ILLUSTRATION.**



WARNING DO NOT MODIFY MACHINE OR ATTACHMENTS

Modifications may weaken the integrity of the attachment and may impair the function, safety, life and performance of the attachment. When making repairs, use only the manufacturer's genuine parts, following authorized instructions. Other parts may be substandard in fit and quality. Never modify any ROPS (Roll Over Protection System) equipment or device. Any modifications must be authorized in writing by the manufacturer.

WARNING SAFELY OPERATE EQUIPMENT

Do not operate equipment until you are completely trained by a qualified operator in how to use the controls, know its capabilities, dimensions, and all safety requirements. See your prime movers manual for these instructions.

- Keep all step plates, grab bars, pedals, and controls free of dirt, grease, debris, and oil.
- Never allow anyone to be around the equipment when it is operating or being serviced.
- Do not allow riders on the attachment or the prime mover.
- Do not operate the equipment from anywhere other than the correct operators position.
- Never leave equipment unattended with the engine running or with this attachment in a raised position.
- Do not alter or remove any safety feature from the prime mover or this attachment.
- Know your work site safety rules as well as traffic rules and flow. When in doubt on any safety issue, contact your supervisor or safety coordinator for an explanation.

WARNING SAFELY MAINTAIN AND REPAIR EQUIPMENT

- Do not wear loose clothing, or any accessories that can catch in moving parts. If you have long hair, cover or secure it so that it does not become entangled in the equipment.
- Work on a level surface in a well lit area.
- Use properly grounded electrical outlets and tools.
- Use the correct tool for the job at hand. Make sure they are in good condition for the task required.
- Wear the protective equipment specified by the tool manufacturer.

EQUIPMENT SAFETY PRECAUTIONS

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

WARNING INITIAL SET-UP AND SYSTEMS CHECK

- Always check with your prime mover 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 equipment purge any air in the system by engaging all hydraulic functions.
- Check that all control lever positions function as instructed in the Operator's Manual. Do not operate until control lever and equipment movements are correct.
- Make sure all hydraulic hoses, fittings and valves are in good condition and not leaking before starting power unit. 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 damaged hoses immediately.
- Ensure implement is properly attached, adjusted and in good condition.
- Tractor must be equipped with ROPS and seat belt/operator restraint.
- Keep seat belt/operator restraint securely fastened/engaged. Falling off tractor can result in death from being run over or crushed. Keep ROPS systems in place at all times.



WARNING SAFELY OPERATE EQUIPMENT

Improper operation can cause the machine to tip or roll over and cause injury or death.

- Keep tractor 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.
- Only engage power when equipment is at ground level. Always disengage power when equipment is raised off the ground.
- Do not disconnect hydraulic lines until all system pressure is relieved.
- Never go underneath equipment lowered to the ground or raised. 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.
- Never direct discharge toward people, animals or property.
- Do not operate equipment while under the influence of alcohol or drugs.
- Operate only in the daylight or good artificial lighting.
- Always comply with all state and local lighting and marking requirements.
- Ensure equipment is properly attached, adjusted and in good operating condition.
- 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.

- A minimum 20% of tractor and equipment weight must be on tractor front wheels with attachments in “transport” position. Without this weight, tractor could tip over causing personal injury or death. The weight may be attained with a loader, front wheel weights, ballast in tires, or front tractor weights. When attaining wheels, you must not exceed the Roll Over Protection Structure (ROPS) weight certification. Weigh the tractor and equipment. Do not estimate.
- Ensure shields and guards are properly installed and in good condition. Replace if damaged.



WARNING WATCH FOR OPERATING HAZARDS

- Look down and to the rear and make sure area is clear before operating in reverse.
- Watch for hidden hazards on the terrain during operation.
- Use extreme care when working close to fences, ditches, other obstructions, or on hillsides.
- Reduce ground speed on slopes and rough terrain.
- Do not operate on steep slopes.
- Do not stop, start or change directions suddenly on slopes. Stop tractor and implement immediately upon striking an obstruction. Dismount tractor using proper procedure. Inspect and repair any damage before resuming operation.

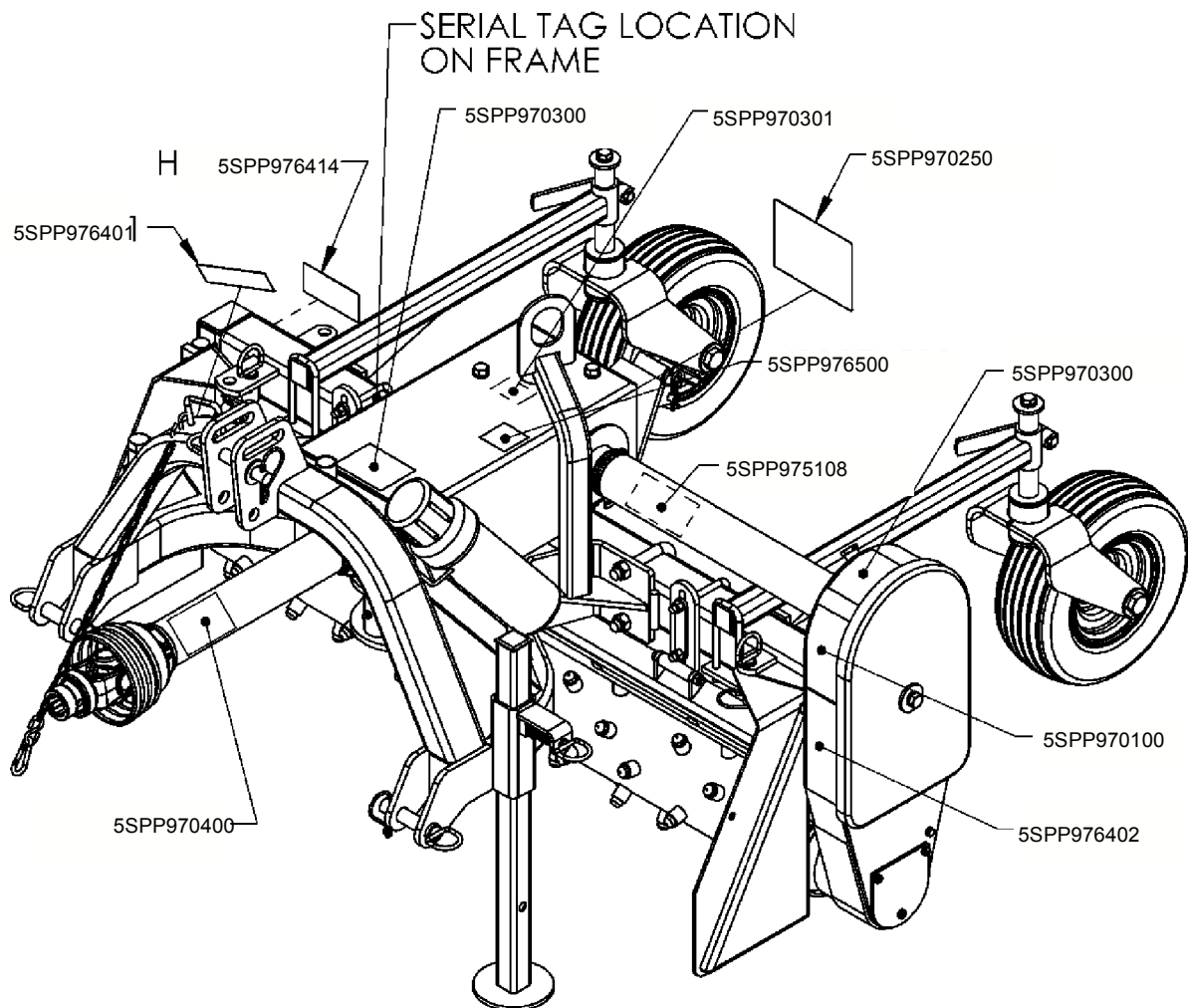


WARNING MAINTENANCE SAFETY

- Your dealer can supply original equipment hydraulic accessories and repair parts. Substitute parts may not meet original equipment specifications and may be dangerous.
- 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.
- Never perform service or maintenance with engine running.
- 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.

SAFETY DECALS

PR1148



SAFETY DECALS

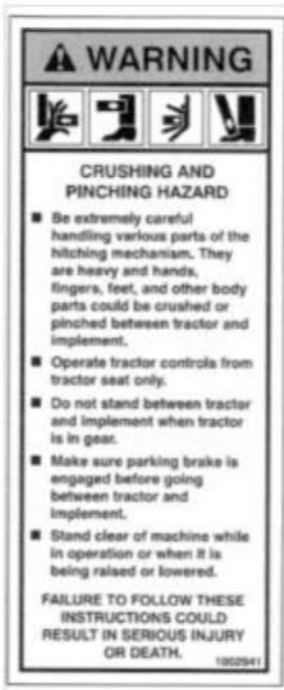
PR1148



5SPP970250



5SPP970400



5SPP976402



5SPP970301



5SPP970300



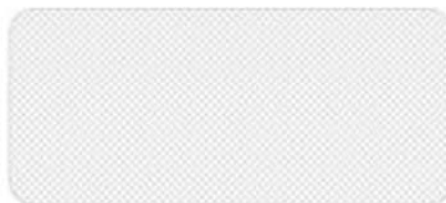
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5SPP975108



5SPP976414

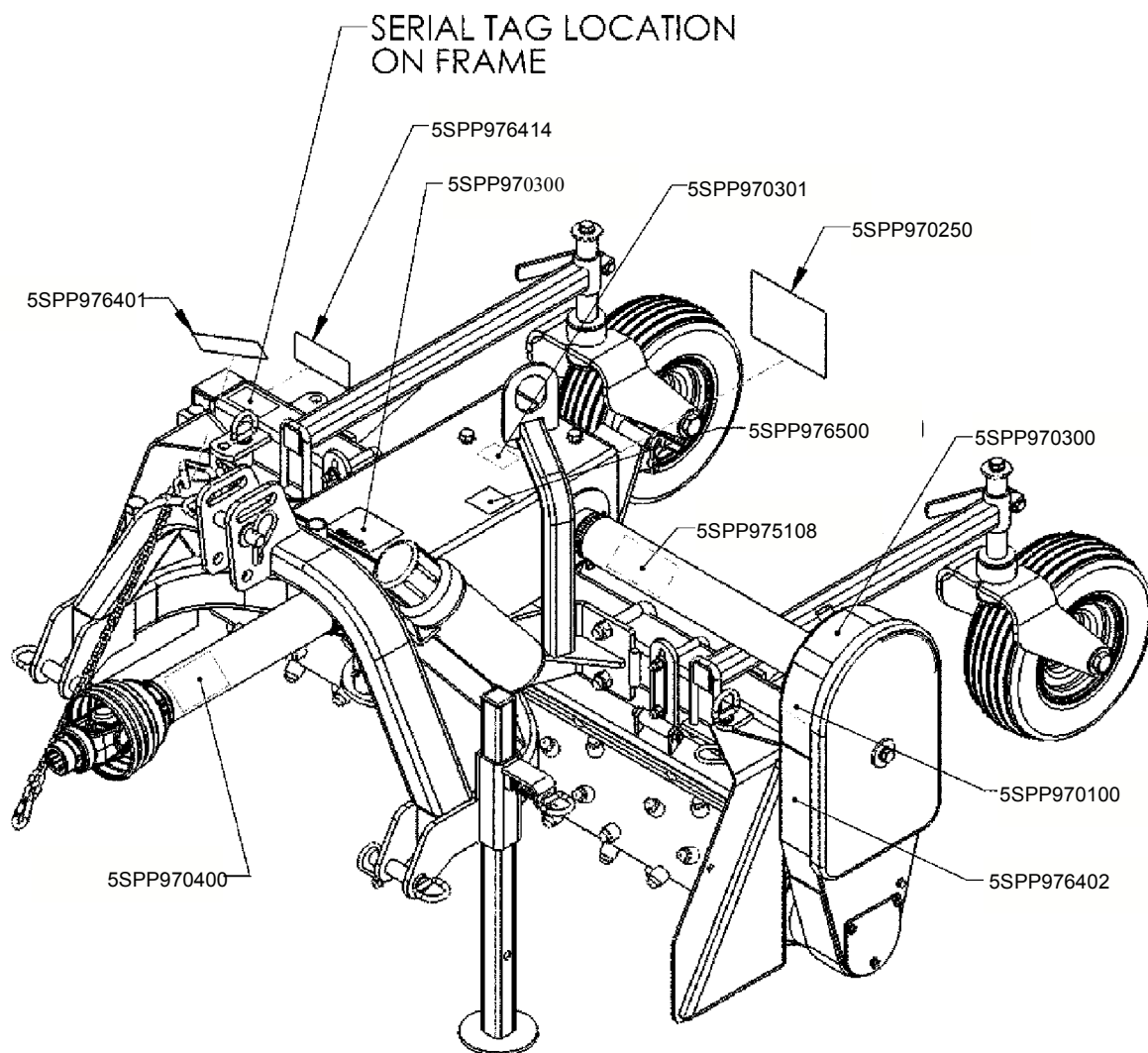


5SPP976500

5SPP999600



SAFETY DECALS PR1160



SAFETY DECALS

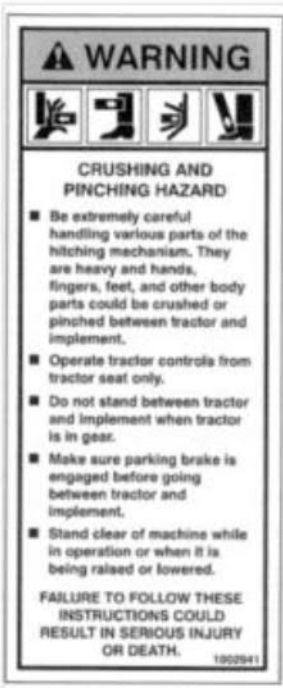
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5SPP970250



5SPP970400



5SPP976402



5SPP970301



5SPP970300



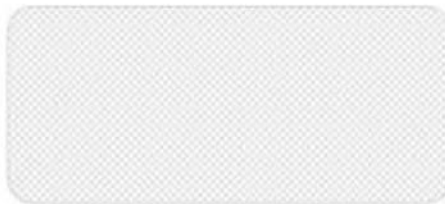
5SPP970100



5SPP976401



5SPP975108



5SPP976414



5SPP976500

5SPP999600



PR1148 SET-UP

SET-UP INSTRUCTIONS

The power rake is shipped partially assembled. Assembly will be easier if components are aligned and loosely assembled before tightening hardware. Recommended torque values for hardware are located on page 33.

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

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

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

UNPACKING CRATE

Be careful of nails in boards when uncrating.

1. Remove top, sides, and ends of crate.
2. Remove gauge wheel assemblies.
3. Remove right and left endplates.
4. Remove rake assembly from crate.
5. Remove loose nails from boards and dispose of crate according to local codes.

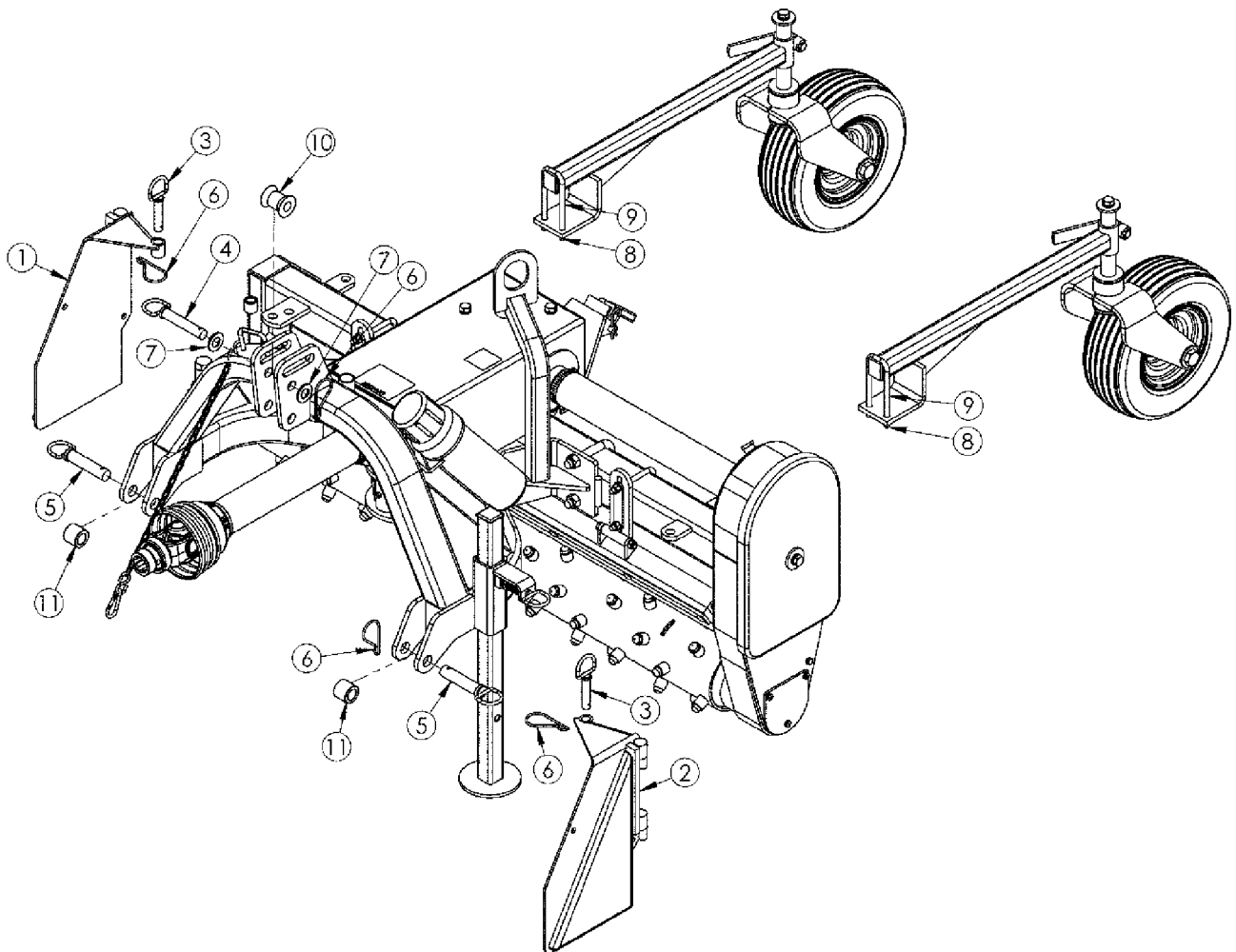
PR1148 MODEL ASSEMBLY PROCEDURE (See Page 14)

Tools Required

9/16" combination wrenches

1. Extend jack stand to stabilize the rake.
2. Attach the two gauge wheel assemblies to main frame using two 3/8" U-bolts and locking nuts.
3. Mount the left and right endplates to the frame.
4. Check the gear lube level in the chain case. Add #00 fluid gear grease, if required.
5. Attach the front half of the PTO and secure with PTO support chain.
6. See Clutch "Run-In" under maintenance on page 28.

PR1148 SET-UP



PR1148 SET-UP

<u>ITEM</u>	<u>QTY</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1	1	5SPM5426JD	Right Endplate
2	1	5SPM5427JD	Left Endplate
3	2	5SPM5433	5/8" X 2-1/2" Gate Pin
4	1	5SPM5003	3/4" X 3-3/4" Upper Hitch Pin
5	2	5SPM8073	7/8" X 3-3/4" Lower Hitch Pin
6	5	5SPP622600	Hair Pin Clip
7	2	5SPP850812	3/4" SAE Washer
8	4	5SPP155450	3/8" Top Lock Nut
9	2	5SPP127200	3/8" X 1-1/2" X 5-1/2" U-bolts
10	1	5SPM6582	JD Frontier Top Link Spacer
11	2	5SPM6587	Lower Pin Spacer



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