Model 2211
Ripoll
Operator’s Manual
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Chapter 1

Introduction

The Landoll Model 2211 Ripoll is a quality product designed to give years of trouble free performance. By following each section of this manual, your system will perform as designed for you and your operation.

CHAPTER 1 gives basic instructions on the use of this manual.

CHAPTER 2 gives product specifications. These specifications supply lengths and measures for your equipment. A Standard Bolt Torque Table is provided to give guidelines for bolt torques to be used when servicing this product.

CHAPTER 3 contains assembly instructions for your Model 2211 Ripoll. When these procedures are correctly followed, your equipment should provide you years of trouble-free operation and service.

CHAPTER 4 instructs how to operate your equipment before using it, and describes adjustments needed. It also gives practical advice for the care and maintenance of your Landoll equipment. Drawings in this section locate adjustment points on the equipment.

NOTE: IF THE EQUIPMENT IS IMPROPERLY ASSEMBLED OR MAINTAINED, THE WARRANTY IS VOID. IF YOU HAVE ANY QUESTIONS CONTACT:

LANDOLL CORPORATION
1900 NORTH STREET
MARYSVILLE, KANSAS 66508

or phone:
(785) 562-5381 or
(800) 428-5655

or FAX:
(888) 527-3909

CHAPTER 5 is a troubleshooting guide to aid in diagnosing and solving problems with the equipment.

PARTS LIST is a separate manual showing the various assemblies, subassemblies, and systems. Refer to that manual when ordering Landoll replacement parts. Order parts from your Landoll dealer.

WARRANTY The Warranty Registration form is included with the product documents. Fill it out and mail it within 15 days of purchase.

NOTE: IMPROPER ASSEMBLY, MODIFICATION, OR MAINTENANCE OF YOUR LANDOLL MACHINE CAN VOID YOUR WARRANTY.

COMMENTS Address comments or questions regarding this publication to:

LANDOLL CORPORATION
1900 NORTH STREET
MARYSVILLE, KANSAS 66508
ATTENTION: PUBLICATIONS -DEPT. 55
Understanding Safety Statements

You will find various types of safety information on the following pages and on the machine signs (decals) attached to the vehicle. This section explains their meaning.

The Safety Alert Symbol means ATTENTION! YOUR SAFETY IS INVOLVED!

![DANGER]

Danger means a life-threatening situation exists. Death can occur if safety measures or instructions on this label are not properly followed.

![WARNING]

Warning means serious injury or death can occur if safety measures or instructions on this label are not properly followed.

![CAUTION]

Caution means serious equipment or other property damage can occur if instructions on this label are not properly followed.

**NOTE**

Means that failure to follow these instructions could cause damage to the equipment or cause it to operate improperly.

**NOTE**

Make sure you read and understand the information contained in this manual and on the machine signs (decals) before you attempt to operate or maintain this vehicle.

The safety statements contained in this manual relate to the operation of the Model 2211 Ripoll.
### 2211 SERIES RIPOLL

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<th>MODEL NO.</th>
<th>WORKING WIDTH</th>
<th>TRANSPORT WIDTH</th>
<th>TRANSPORT HEIGHT</th>
<th>NO. OF SHANKS</th>
<th>SHANK SPACING</th>
<th>NO. OF BLADES F/R</th>
<th>TIRES AND WHEELS</th>
<th>ESTIMATED WEIGHT (LBS.)</th>
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<td>17'-1&quot;</td>
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<td>Goodyear</td>
<td>Load Index 150A8/B 7400 lbs @ 30 mph</td>
<td>73 psi</td>
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## LANDOLL CORPORATION
### GENERAL TORQUE SPECIFICATIONS (REV. 4/97)

**THIS CHART PROVIDES TIGHTENING TORQUES FOR GENERAL PURPOSE APPLICATIONS WHEN SPECIAL TORQUES ARE NOT SPECIFIED ON PROCESS OR DRAWING.**

ASSEMBLY TORQUES APPLY TO PLATED NUTS AND CAPSCREWS ASSEMBLED WITHOUT SUPPLEMENTAL LUBRICATION (AS RECEIVED CONDITION), THEY DO NOT APPLY IF SPECIAL GRAPHITE MOLY-DISULFIDE OR OTHER EXTREME PRESSURE LUBRICANTS ARE USED.

WHEN FASTENERS ARE DRY (SOLVENT CLEANED), ADD 33% TO AS RECEIVED CONDITION TORQUE.

BOLT HEAD IDENTIFICATION MARKS INDICATE GRADE AND MAY VARY FROM MANUFACTURER TO MANUFACTURER.

THICK NUTS MUST BE USED ON GRADE 8 CAPSCREWS.

**USE VALUE IN [ ] IF USING PREVAILING TORQUE NUTS.**

**TORQUE IS SPECIFIED IN FOOT POUNDS**

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<tr>
<th>UNC Size</th>
<th>SAE Grade 2</th>
<th>SAE Grade 5</th>
<th>SAE Grade 8</th>
<th>UNF Size</th>
<th>SAE Grade 2</th>
<th>SAE Grade 5</th>
<th>SAE Grade 8</th>
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</thead>
</table>

## METRIC

COARSE THREAD METRIC CLASS 10.9 FASTENERS AND CLASS 10.0 NUTS AND THROUGH HARDENED FLAT WASHERS, PHOSPHATE COATED, ROCKWELL “C” 38-45.

**USE VALUE IN [ ] IF USING PREVAILING TORQUE NUTS.**

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<th>Standard Torque</th>
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**Table 2-1: General Torque Specifications**
# HYDRAULIC FITTING TORQUE SPECIFICATIONS

37° JIC, ORS, & ORB (REV. 10/97)

THIS CHART PROVIDES TIGHTENING TORQUES FOR HYDRAULIC FITTING APPLICATIONS WHEN SPECIAL TORQUES ARE NOT SPECIFIED ON PROCESS OR DRAWING. ASSEMBLY TORQUES APPLY TO PLATED CARBON STEEL AND STAINLESS STEEL FITTINGS ASSEMBLED WITHOUT SUPPLEMENTAL LUBRICATION (AS RECEIVED CONDITION). THEY DO NOT APPLY IF SPECIAL GRAPHITE MOLY-DISULFIDE OR OTHER EXTREME PRESSURE LUBRICANTS ARE USED. BRASS FITTINGS AND ADAPTERS - 65% OF THE TORQUE VALUE FOR STEEL, STAINLESS STEEL, ALUMINUM AND MONEL - THREADS ARE TO BE LUBRICATED.

**TORQUE IS SPECIFIED IN FOOT POUNDS**

### PARKER BRAND FITTINGS

<table>
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<tr>
<th>Dash Size</th>
<th>37 Degree JIC</th>
<th>O-Ring (ORS)</th>
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<td>13-15</td>
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### GATES BRAND FITTINGS

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### AEROQUIP BRAND FITTINGS

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*Table 2-2: Hydraulic Fitting Torque Specifications*
Figure 2-1: Light Bracket Placement Assembly (2211-09)
Figure 2-2: Light Bracket Placement Assembly (2211-11)
Figure 2-4: Light Bracket Placement Assembly (2211-15)
Figure 2-5: Standard and Hydraulic Tubular Mount Chopper Reel Placement (2211-09 & 2211-11)
Figure 2-6: Standard and Hydraulic Tubular Mount Chopper Reel Placement (2211-13 & 2211-15)
Chapter 3

Assembly Instructions

It is very important that your new 2211 Ripoll be properly assembled, adjusted and lubricated before use. Illustrations to assist with the assembly process are provided in “Standard Specifications” on page 2-1. They show proper shank and light mounting bracket spacing. Illustrations in this section show proper assembly procedures. Remove paint from grease fittings. Replace any grease fittings that are damaged or missing. Be sure to return screws, clips, etc., to their original locations.

To insure alignment of assemblies, leave the nuts loose until completion of final assembly. Use lock washers or flat washers as specified. Spread all cotter pins.

After completion of final assembly, tighten all nuts evenly to prevent misalignment, distortion or binding. Tighten all screws and nuts to the recommended torques shown in Table 2-1.

**DANGER**

Disc blades are extremely sharp. Exercise extreme care when working on or near disc blades. Do not allow disc to roll over or fall onto any body part. Do not allow wrenches to slip when working near disc blades. Never push wrenches toward disc blades. Do not climb over machine above disc blades. Failure to stay clear of disc blade edges can cause serious personal injury or death.

**WARNING**

Do not attempt to lift heavy parts (such as the frame, disc gangs, wheel lift, and pull hitch) manually. Use a hoist or a forklift to move these parts into position.

**DANGER**

To prevent accidental lowering:
1. All hydraulically elevated equipment must be locked out using the cylinder lockouts.
2. Lower equipment to the ground while servicing or when it is idle.

Failure to take measures to prevent accidental lowering may result in serious personal injury or death.

**CAUTION**

Be sure to bleed the hydraulic system of all air in lines after installation. Failure to bleed the system of all air can result in improper machine operation.

**CAUTION**

Incorrect adjustment of disc adjust rods will cause permanent equipment damage.
Figure 3-1: Frame and Lift Installation
Ripoll Frame Assembly

**IMPORTANT**
Read all safety precautions at the front of the section before attempting any of the following procedures.

**WARNING**
Do not attempt to lift heavy parts (such as the frame, disc gangs, wheel lift, and pull hitch) manually. Use a hoist or a forklift to move these parts into position.

1. Place both frame halves on stands approximately 36" high. The assembly area should be a large level area of sufficient size to accommodate the Ripoll when fully assembled.
2. Insert top casting (p/n 150167) onto shank tube alignment point with other point under the frame when fully assembled. Note that top and bottom castings have p/n cast on them (See Figure 3-1.)

**NOTE**
It may be necessary to loosen the screws holding the lift on the left frame half when attaching casting to the shank tube.

3. Align both the shank tube and rockshaft in position. This will also line up the plate on each end of the frame.
4. Bolt frame halves together using 3/4-10 x 2-1/4 hex head cap screws and hex lock nuts in the front and rear plates. Bolt frame halves together using 3/4-10 x 2-1/2 hex head cap screws and hex lock nuts in the center cylinder mount plate. Leave all screws loose.
5. Install the 1" u-bolts over the frame and through the top casting holding the shank tube, bottom casting (p/n 150168) and hex lock nuts.
6. Install the 4" UHMW bearing onto the left lift.
7. Connect lift bearing cap to right frame using 3/4-10 x 2 hex head cap screws and hex lock nuts.
8. Level the frame halves.
9. Tighten all hardware to the recommended torques shown in Table 2-1.
Figure 3-2: Wing Extension Installation (2211-13 & -15)
2211-13/15 Ripoll Wing Extension Assembly

IMPORTANT
Read all safety precautions at the front of the section before attempting any of the following procedures.

![WARNING]
Do not attempt to lift heavy parts (such as the frame, disc gangs, wheel lift, and pull hitch) manually. Use a hoist or a forklift to move these parts into position.

1. Insert flange bearings into hinge ear plates on the rear of frame.
2. Assemble wing latch pin to LH wing using snap ring. The wing latch hook will hook on wing latch pin when the wings are unfolded.
3. Assemble LH and RH wings to the hinge ear plates on the rear of the frame using hitch pins, 1/2 x 2-1/4 grooved alloy pins, thrust washer, and 1-8 hex lock nut (See Figure 3-2.)

NOTE
Thrust washers are located in between hinge ear plates of wing on the front side of both front and rear hinges.

4. Assemble fold anchor to fold anchor mount plates on the frame using 1-8 x 11 hex head cap screw and hex lock nut.
5. Put 4 x 30 hydraulic cylinder on top of fold anchor with rod in between wing fold anchor plates.
6. Connect base end of 4 x 30 hydraulic cylinder to fold anchor using fold pin and 5/16 x 2-1/2 spring slotted pin.
7. Connect hook latch end of hook latch assembly to wing latch hook using 3/4-10 x 3 hex head cap screw and hex lock nut.

NOTE
Do not overtighten as wing latch hook must move freely.
8. Connect rod end of 4 x 30 hydraulic cylinder to hook latch assembly and wing through slots in the fold anchor plates using fold pin and 5/16 x 2-1/2 spring slotted pin.
9. Tighten all hardware to the recommended torques shown in Table 2-1.
Figure 3-3: Fold Lock Placement

Figure 3-4: Fold Lock Assembly
2211-13 & -15 Fold Lock Assembly

1. Place fold lock assembly on the front side of the 7 x 4 rear frame tube and mount plate on the back side of the rear frame tube (See Figure 3-3.)

**IMPORTANT**
The placement dimensions are an approximation and may need to be adjusted for proper alignment of wing fold safety pin.

2. Install 3/4-10 x 13 hex head cap screws and lock nuts to hold the fold lock and mount plate in place. Do not tighten screws (See Figure 3-4.)

**IMPORTANT**
Fold wing until proper fit is achieved prior to tightening screws.

3. Fold wings over. Adjust fold lock assembly location if necessary. Tighten screws after proper fit is achieved.

4. Adjust fold anchor (base of fold cylinder) as necessary to allow wing fold lock pin to work freely. Do not over-adjust as this could damage the cylinder rod by forcing the wing to fold over too far.
Figure 3-5: Wheel Lift Installation

- 1-8 HEX LOCK NUT
- 1-8 X 4 HEX HEAD CAP SCREW
- RADIUS ROD ASSEMBLY
- TIRE AND WHEEL ASSEMBLY
- LUG NUT
- WHEEL LIFT ASSEMBLY
- FRAME ASSEMBLY
Wheel Lift Installation

1. Retract the 3-1/2 x 16 lift cylinders on both sides before installing the radius rod.

2. Install radius rod assembly to the frame assembly using 1-8 x 4 hex head cap screws and hex lock nuts. Adjust the radius rod to fit with the cylinders fully retracted (See Figure 3-5.)

NOTE
Once radius rod is installed, be sure to tighten jam nuts.

3. No further adjustment should be required. Any other adjustment can severely damage frame and lift components.

4. Assemble the tires to the hubs. 2211-9/11 models use 340/60R - 16.5 tires. 2211-13/15 models use 380/55R - 16.5 tires. Tighten wheel bolts evenly to assure proper wheel alignment. Wheel bolts should be tightened to 90 ft-lbs of torque. The hoist can then be removed.

5. Inflate the tire as recommended by the manufacturer.
Figure 3-6: Hitch Installation
Hitch Installation

1. Attach the hitch weldment to the front of the frame using hitch pins, 1-8 hex lock nuts, and 1/2 x 2-1/4 grooved alloy pins (See Figure 3-6.)
2. Move the jack to the forward mounting tube and rotate to parking position to support the front of the hitch.
3. Insert a 3/4-10 x 7 hex head cap screw into the hose holder tube on the right side of the hitch from the bottom side so the threads point upward. Hold in place with a 3/4 prevailing torque flange nut with the flange pointing upward as well. Do not tighten this cap screw, so the hose holder bracket may pivot freely in this joint.
4. Slide the hose holder bracket over the screw and secure with another 3/4 prevailing torque flange nut.
5. Install a 3/8-16 x 3-1/2 all-thread screw in the front of the hose holder bracket and secure with a 3/8-16 hex nut.
6. Slide the hose holder clamp over the 3/8" screw and loosely start the wing nut on top of the clamp. Hydraulic hoses will be routed through the clamp after assembly.

**IMPORTANT**
The clamp has two sides, so that extend hoses can be located on one side and retract hoses can be located on the other side for reference.

7. Connect narrow end of the leveler tower to the bottom hole of the hitch weldment using 1-1/4-7 x 9-1/2 hex head cap screw, slotted lock washer, and hex nut.
8. Connect front end of leveler tube to the rear top hole of the leveler tower using hitch pin, 1-8 hex lock nut, and 1/2 x 2-1/4 grooved alloy pin.
9. Attach the hitch rod radius assembly to the top front hole of the leveler tower using 1-1/4-7 x 7 hex head cap screw, slotted lock washer, and hex nut.
10. Connect the remaining end of the hitch rod radius assembly to the hitch weldment using 1-1/4-7 x 8 hex head cap screw, slotted lock washer, and hex nut.
11. Attach hitch ring to the clevis hitch using 3/4-16 x 5-1/2 hex head cap screw and hex nut (as required).
12. Assemble hitch clevis assembly to the hitch weldment using 1-8 x 7-1/2 hex head cap screws, hitch bushings, flat washers, and hex lock nuts through the top hole. Use 1-8 x 7-1/2 hex head cap screw, safety chain assembly, flat washer, and hex lock nut in the lower hole.
Figure 3-7: Depth Stop Assembly Installation
Depth Stop Tube Assembly

1. Attach the depth stop mount plate to the lift using 3/8-16 x 1-1/4 hex head cap screws and hex lock nuts.

2. Lay the depth stop tube assembly on top of the center frame. Insert a 5/8-11 x 3 hex head cap screw in the front hole (2211-09 & -11 models) or rear hole (2211-13 & -15 models) of the tube assembly from the left side (See Figure 3-7.) Install a 5/8-11 hex nut on the screw. Do not over tighten, as the depth stop must pivot on this screw. Insert the screw through the depth stop mounting plate on the center lift and secure with a 5/8-11 hex lock nut.

3. Insert 90° elbow fitting in the back of the limit valve and straight adapter (2211-09 & -11 models) or 90° adapter (2211-13 & -15 models) in the side nearest the center of the machine.

4. Using 5/16-18 x 4 hex head cap screws secure the front end of the depth stop tube assembly to the top of the frame mount with the spacers, depth stop plate, and 5/16-18 hex lock nuts. Attach the limit valve to the bottom side of the center frame mount using these same screws.

**IMPORTANT**

It may be necessary to leave these screws loose to attach the valve hoses later.
Figure 3-8: Disc Gang and Depth Adjustment Installation - 2211-09 & -11

RIGHT REAR RADIUS ROD
DISC GANG LIFT
4" UHMW BEARING
RIGHT FRONT RADIUS ROD
3/4-10 X 2 HEX HEAD CAP SCREW
1-8 HEX LOCK NUT
FRONT DISC GANG ASSEMBLIES

90 ELBOW W/ RESTRICTOR
4 X 8 HYDRAULIC CYLINDER AND PIN
LEFT REAR RADIUS ROD
REAR DISC GANG ASSEMBLIES
1-1/2" SPACER TUBE
1-8 X 8-1/2 HEX HEAD CAP SCREW
LEFT FRONT RADIUS ROD
BEARING CAP
3/4-10 HEX LOCK NUT
1-8 X 5-1/2 HEX HEAD CAP SCREW

Figure 3-9: Disc Gang and Depth Adjustment Installation - 2211-13 & -15

90 ELBOW W/ RESTRICTOR
RIGHT REAR RADIUS ROD
DISC GANG LIFT
4" UHMW BEARING
RIGHT FRONT RADIUS ROD
3/4-10 X 2 HEX HEAD CAP SCREW
1-8 HEX LOCK NUT
FRONT DISC GANG ASSEMBLIES

4 X 8 HYDRAULIC CYLINDER AND PIN
DOUBLER PLATE
1-3/4" SPACER TUBE
REAR DISC GANG ASSEMBLIES
LEFT REAR RADIUS ROD
BEARING CAP
3/4-10 HEX LOCK NUT
1-8 X 5-1/2 HEX HEAD CAP SCREW
4-1/2" SPACER TUBE
LEFT FRONT RADIUS ROD
1-8 X 12 HEX HEAD CAP SCREW
4-1/2" SPACER TUBE
LEFT FRONT RADIUS ROD
1-8 X 12 HEX HEAD CAP SCREW
4-1/2" SPACER TUBE
LEFT FRONT RADIUS ROD
1-8 X 12 HEX HEAD CAP SCREW

Disc Gang and Depth Adjustment Installation

**DANGER**

Disc blades are extremely sharp. Exercise extreme care when working on or near disc blades. Do not allow disc to roll over or fall onto any body part. Do not allow wrenches to slip when working near disc blades. Never push wrenches toward disc blades. Do not climb over machine above disc blades. Failure to stay clear of disc blade edges can cause serious personal injury or death.

1. Assemble the disc gang lift to the frame. Install the 4" UHMW bearings and bearing caps using 3/4-10 x 2 hex head cap screws and hex lock nuts (See Figures 3-8 and 3-9.)

2. Install 4 x 8 hydraulic cylinder with rod pointing up to the frame weldment using the clevis pins and roll pins which come with each cylinder.

3. Install 2- 90° elbow w/ restrictor into the butt end of the cylinder.

**NOTE**

Assemble front gangs first to prevent machine from tipping over backwards.

**IMPORTANT**

For proper operation, the 90° elbows w/ restrictors must be the same in each end of the 4 x 8 hydraulic cylinder.

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**Figure 3-10: Top View of Radius Rod Installation - 2211-13 & -15**

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2211-13-15 radius rod inst
4. Lift front gangs up under frame and install 1-7/16 x 6-3/8" pin on inner mount with roll pins (See Figure 3-11.)

5. Attach pivot block and orientate as shown so the flanges are to the top and bottom. Slide gang from the rear of the outer gang mounts into the front position.

6. Install the bushing and 1-8 x 6 hex head cap screw and hex lock nut at the rear of the gang mount to secure the gang assembly.

**IMPORTANT**

Make sure the hex lock nut is located on top of the gang assembly.

7. Install roll pins into the pin, disc angle. The 4" roll pin will just go through the pin to act as a handle. The 2" roll pin will be centered in the pin (See Figure 3-12.)
8. Install rear disc gang in the same manner as described in steps 4 thru 7 (See Figures 3-13 and 3-14.)

9. Install radius rods as shown in Figures 3-8 thru 3-10.

10. Hook each radius rod assembly up to the disc gang lift as shown with a 1-8 x 8-1/2 (2211-09 & -11 models) or 1-8 x 12 (2211-13 &-15) hex head cap screw and hex lock nut. There is a 1-1/2" long spacer that goes between the two radius rod ball joints on 2211-09 & -11 models (See Figure 3-8.) 2211-13 & -15 models use a 4-1/2" spacer tube, a 1-3/4" spacer, and a doubler plate (See Figures 3-9 and 3-10.)
Figure 3-15: Auto Reset Shank and Shovel Installation
11. Connect the front gangs to the radius rods with a 1-8 x 5-1/2 hex head cap screw. Before tightening the front gangs, adjust the gang height as shown in Figure 3-16 to 17" from the bottom of the frame to the top of the disc blades.

12. Once this dimension is set, tighten jam nuts on the front radius rods.

13. The rear radius rods are adjustable and once installed with a 1-8 x 5-1/2 hex head cap screw should be set to 16" from the bottom of the frame to top of disc blade for initial operation.

**Auto Reset Shank and Shovel Installation**

1. Attach each shank assembly to each clamp assembly using 3/4-10 x 5 hex head cap screw in the top hole, 3/4-10 x 4 hex head cap screw in the bottom hole, and hex lock nuts.

**NOTE**

For shallower depths, it may be necessary to move shank into upper mounting holes. For certain conditions shank may also be rotated forward.

2. Install 2 x 1 x 18 spike to each shank using 1/2-13 x 3 hex head cap screws, flat washers, and heavy hex nuts (See Figure 3-15.)
Figure 3-17: Disc Gang Depth Gauge Assembly
Disc Gang Depth Gauge Assembly

1. Connect depth gauge mount to disc gang bar using wing stabilizer u-bolt and 5/8-11 hex lock nuts (See Figure 3-17.) Leave hardware loose.

   **NOTE**
   See Figures 2-1 through 2-4 for depth gauge mount placement.

2. Attach depth indicator gauge to the depth gauge mount using 1/2-13 x 5-1/2 hex head cap screw and hex lock nut.

3. Slide depth gauge indicator through slot in depth gauge guide.

4. Connect depth gauge guide and depth gauge bar to the frame assembly using 1/2-13 x 5-1/2 hex head cap screws and flange head serrated nuts.

5. Attach depth gauge decal to the top of the depth indicator gauge.

   **NOTE**
   Slight adjustments may be needed in placement to ensure that indicator does not bind up in both gang angle settings.

6. Tighten all hardware to the recommended torques shown in Table 2-1.
Figure 3-18: Wheel Lift Hydraulic Installation (2211-09 & -11)

Figure 3-19: Disc Gang Lift Hydraulic Installation
Figure 3-20: Wheel Lift Hydraulic Installation (2211-13 & -15)
Figure 3-21: Wing Fold Hydraulic Installation (2211-13 & -15)
Hydraulic Installation

**NOTE**

Refer to Figures 3-18 through 3-21 for wheel lift, disc gang lift, and wing fold hydraulic diagrams. See Figure 3-23 for routing of hydraulic hoses on 2211-09 and -11 models.

1. Install the manifold(s) to the manifold bracket on the frame using 1/2-13 x 3-1/2 hex head cap screws and hex lock nuts.
2. Install fittings into manifolds according to Figures 3-18 through 3-21.
3. Install wheel lift and disc gang lift system hoses per Figures 3-18, 3-19, and 3-20.
4. Install wing fold system hoses (2211-13 and -15 models) per Figure 3-21.
5. Hold each system of hoses in place using 3/8-16 x 3 (2211-09 and -11 models) or 3/8-16 x 4 (2211-13 and -15 models) hex head cap screw, hose clamps, and hex lock nut (See Figure 3-22.)
6. Install steel plugs in any remaining open manifold or valve ports.
7. Install hose wraps around system hoses per hose identification decal near hose couplers, putting both hoses inside wrap (See Figure 3-22.) Note that no yellow hose wrap is used on rigid models.
Figure 3-24: Light and SMV Bracket Installation (Prior to August, 2013)
Light Installation (Prior to August, 2013)

**NOTE**

*See Figures 2-1 through 2-4 for light bracket placement. If no dimension is given for a bracket, it should be located against frame member as shown in drawing.*

1. Attach inner tail light mounting bracket supports to the center frames using 1/2-13 x 8-1/2 hex head cap screws, warning light bars, and hex lock nuts *(See Figure 3-24.)*

2. Attach outer LH and RH light brackets to frame weldment using 1/2-13 x 9-1/2 hex head cap screws, warning light bars, and hex lock nuts.

3. Attach red brake lamps to inner tail light mounting bracket supports and amber lamps to outer light brackets using 1/4-20 x 1-1/4 hex head cap screws and hex lock nuts.

4. Mount enhanced lighting module on right hand tail light bracket using #8-32 x 1/2 pan head slotted screw and nuts. Connect rear harness to module and connect the right/left side lights accordingly. Route main wire harness through hose holder on hitch, down the right side of the center frame and across the back to the enhanced lighting module plug.

5. Connect warning light harnesses to lights. Note that 2-24" harness extensions are required at the rear of the main harness for adequate length.

6. Attach SMV emblem and mounting bracket to rear center frame bar using 1/2-13 x 5-1/2 hex head cap screws, 1/4-20 x 3/4 hex head cap screws, and hex lock nuts. The SMV sign should be centered on the rear bar of the frame.
Figure 3-25: Light and SMV Bracket Installation (After August, 2013)
Light Installation (After August, 2013)

NOTE
See Figures 2-1 through 2-4 for light bracket placement. If no dimension is given for a bracket, it should be located against frame member as shown in drawing.

1. Attach inner tail light mounting bracket supports to the center frames using u-bolts and hex lock nuts (See Figure 3-24.)
2. Attach outer LH and RH light brackets to frame weldment using 1/2-13 x 9-1/2 hex head cap screws and hex lock nuts.
3. Attach ag red single LED brake lamps to inner tail light mounting bracket and ag amber single LED lamps to outer light brackets using 1/4-20 x 1-1/4 hex head cap screws and hex lock nuts.
4. Mount ag flasher control module on right hand tail light bracket using 1/4-20 x 1-1/2 hex head cap screws and nuts. Connect rear harness to module and connect the right/left side lights accordingly. Route main wire harness through hose holder on hitch, down the right side of the center frame and across the back to the enhanced lighting module plug.
5. Connect warning light harnesses to lights. Note that 1-24” harness extensions is required at the rear of the main harness for adequate length.
6. Attach SMV emblem and mounting bracket to rear center frame bar using u-bolt, 1/4-20 x 1 hex head cap screws, and hex lock nuts. The SMV sign should be centered on the rear bar of the frame.
Final Assembly

1. Attach a tractor to the implement and charge the lift system hydraulics as described in “Hydraulic Lift System” on page 4-3.

2. Install the 1-1/2 x 16 lockouts on both 3-1/2 x 16 cylinders on the frame.

3. Connect lights to the tractor and verify operation.

4. Check tires for proper inflation

5. Level the Ripoll from front to rear as described in “Leveling (Front-to-Rear)” on page 4-7.

6. Inspect the final implement assembly, and verify that all bolts have been tightened, cotter pins spread, and that there are no leaking hydraulic connections.

7. Rotate each disc gang to verify that each gang rotates freely. Adjust any scrapers that may have shifted during shipment or assembly.

8. Lubricate the Ripoll at all locations (See “Lubrication Maintenance” on page 4-17.)

9. Touch up with paint any areas that may have been scratched during moving, handling, or assembly.

10. Thoroughly read and understand the operating section before using the Ripoll.

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**CAUTION**

 Tighten all 1-3/4” nuts to 1,200 foot-pounds of torque (See Figure 3-26.)

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![Figure 3-26: 1,200 Foot-Pounds of Torque](image.png)
Rear Jack Installation

A rear jack assembly is used on the rear of the 2211-13 & -15 Ripoll models and is an option on the 2211-09 & -11 models. This is extremely helpful if an attachment has been added to the rear of the machine for stability.

1. Attach rear jack mount and rear jack plate to the rear frame of the Ripoll using 3/4-10 x 4 hex head cap screws and hex lock nuts (See Figure 3-27.)

**IMPORTANT**

The rear jack tube should be located to the rear of the Ripoll near the center of the frame.

2. Slide rear jack square tube into rear jack mount from the bottom and hold in desired location with wing lock pin, 1/4 x 3 slotted roll pin, and 3/16 hair pin.

3. Attach jack mount tube to rear jack square tube using 3/4-10 x 4 hex head cap screw and hex lock nut.

![Figure 3-27: Rear Jack Installation](image-url)
Figure 3-28: Standard or Hydraulic Tubular Mount Chopper Reel Installation (Option)
Standard Tubular Mount Chopper/Conditioner Reel Installation (Option)

1. Slide chopper reel arm assemblies over rear frame bar using chopper reel placement drawings (See Figures 2-5, 2-6, and 3-28).

2. Attach top plate to top of chopper reel arm assembly using (6) 3/4-10 x 12 hex head cap screws. Slide arm support tube and bottom plate onto 12” hex head cap screws on underside of chopper reel arm assembly and rear frame.

3. Evenly tighten the (4) 3/4-10 x 12 hex head cap screws marked in Figure 3-28 first. Then tighten the front 3/4-10 x 2 hex head cap screw. Lastly, tighten the two remaining 3/4-10 x 12 hex head cap screws last, but be sure to NOT overtighten. These screws need to be snug.

4. Adjust spring to 20-1/2” (See Figure 3-30.)

5. Attach reel/gang bar assemblies to chopper reel arm assemblies using placement drawings (See Figures 2-5, 2-6, and 3-28).

6. Bolt in place using gang bar mount plate, 3/4-10 x 6 hex head cap screws, and hex lock nuts.

7. If unfavorable conditions exist or the chopper reel is not needed, the arm can be raised and pinned into a higher position creating little or no disturbance of the soil with the chopper reel (See Figure 3-29.)

**NOTE**

Hydraulic chopper reels do not have pins. They are held up by hydraulic cylinders.
ASSEMBLY INSTRUCTIONS

Figure 3-31: 2211-09 & -11 Chopper Reel Hydraulic Installation (Option)

2-1/2 X 1-1/2 HYDRAULIC CYLINDER
90 ADAPTER
45 ADAPTER
1/4 X 116 HOSE ASSEMBLY
1/4 X 57 HOSE ASSEMBLY
1/4 X 52 HOSE ASSEMBLY
90 ELBOW
1/4 X 94 HOSE ASSEMBLY
1/4 X 90 HOSE ASSEMBLY
1/4 X 156 HOSE ASSEMBLY
1/4 X 164 HOSE ASSEMBLY
1/4 X 108 HOSE ASSEMBLY
3/4-16 MALE COUPLER
3/8 X 252 HOSE ASSEMBLY
STRAIGHT ADAPTER
3/8 X 168 HOSE ASSEMBLY
MANIFOLD MOUNT
ADAPTER
RUN SWIVEL TEE
8 PORT HYDRAULIC MANIFOLD W/ 1/2-13 X 3-1/2 HEX HEAD CAP SCREW AND HEX LOCK NUT

2211-09-11 hyd chopper reel hydraulic inst
Figure 3-32: 2211-13 & -15 Chopper Reel Hydraulic Installation (Option)
Figure 3-33: Chopper Reel Hydraulic Manifold and Bulkhead Installation (Option)

NOTE: THE BULKHEAD PLATES ARE ATTACHED TO THE RIGHT AND LEFT REAR WING FRAMES. TWO BULKHEAD FITTINGS ARE ATTACHED TO EACH BULKHEAD PLATE.

Figure 3-34: 2211-09 and 2211-11 Hose Route Installation

NOTE: USE HOSE CLAMPS AS NEEDED
Figure 3-35: 2211-13 and 2211-15 Hose Route Installation

NOTE: USE HOSE CLAMPS AS NEEDED
Hydraulic Tubular Mount Chopper Reel Installation

1. Install hydraulic chopper reels in the same manner described for standard tubular mount chopper reels (See “Standard Tubular Mount Chopper/Conditioner Reel Installation (Option)” on page 3-33.)

2. Install 8 port manifold assembly to hose mount and wing hose mount tubes using 1/2-13 x 4 hex head cap screws and hex lock nuts. Orient manifold as shown in Figures 3-31 and 3-33.

3. Install fittings and route hoses as shown in Figures 3-31, 3-34, 3-35, and 3-36.

NOTE
On wings with three arms, the center arm will be a standard spring setup.

Figure 3-36: Hose Routing Inside Chopper Reel Arm
Chapter 4

Operation and Maintenance

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**DANGER**

Never allow anyone to ride on the 2211 Ripoll at any time. Allowing a person to ride on the machine can inflict serious personal injury or death to that person.

**DANGER**

Always lock the tractor drawbar in the center position when transporting the unit. Failure to do so can result in serious injury or death and cause damage to the equipment.

**DANGER**

Disc blades are extremely sharp. Exercise extreme care when working on or near disc blades. Do not allow discs to roll over or fall onto any body part. Do not allow wrenches to slip when working near disc blades. Never push wrenches toward disc blades. Do not climb over machine above disc blades. Failure to stay clear of disc blade edges can cause serious personal injury or death.

**DANGER**

When transporting the unit, place cylinder lockouts in the transport lock position after fully extending the cylinders. Insert the lockout pins to secure the cylinder lockouts. Failure to lockout the cylinders can cause the unit to settle during transport, which can result in serious injury or death and cause damage to the equipment.

**WARNING**

All hydraulically elevated equipment must have cylinder lockouts installed or be lowered to the ground when servicing or when equipment is idle. Failure to take preventive measures against accidental lowering can result in serious personal injury.

**CAUTION**

When transporting farm implements on public roads, it is the responsibility of the operator to abide by state and local laws concerning wide loads, speed, safety emblems and safety lighting equipment. Drive at safe speeds, particularly when rounding corners, crossing rough ground or driving on hillsides, to prevent tipping the tractor.
Tractor Preparation

The Landoll 2211 Ripoll is designed to be pulled by tractor equipped with a double lip or clevis type hitch. If your tractor is not equipped as such, you need to purchase the hitch from your local tractor dealer. If your Ripoll is equipped with the clevis option, this should be removed. The clevis option is only for transport use.

Before attaching the Ripoll, prepare the tractor as follows:
1. Inflate the rear tractor tires equally and add ballast according to the tractor operator’s manual.
2. Lock the tractor drawbar in the center position.

Ripoll Preparation

1. Prior to operating the 2211 Ripoll, inspect it thoroughly for good operating condition.
2. Replace worn or missing parts.
3. When the machine is new, check the bolt tightness after a few hours of operation. Tighten any loose nuts or bolts. Check the lift wheel lug bolts daily.
4. Check the lift wheel tire inflation. Inflate all tires equally to avoid side draft. Follow the tire manufacturer’s recommended pressures listed on the sidewall of the tires.
5. Check disc scrapers for proper adjustment to the disc blade (See Figure 4-1.)
6. Lubricate the machine as shown in “Lubrication Maintenance” on page 4-17 (See Figure 4-15.)

Attaching to the Tractor

1. Align the tractor drawbar with the machine. Raise or lower the Ripoll ring hitch, as needed, using the swivel jack. Attach the unit with proper size hitch pin. Attach safety chain and plug in light plug.
2. Always place the swivel jack on the interior mount before setting the machine in motion. Remove rear jack stand if an attachment is used.
3. Clean all hydraulic couplings and attach to the tractor.
4. Fully extend the hydraulic lift wheel cylinders, and place the cylinder lockouts in the transport lock position over the cylinder rods. Secure the lockouts with the lockout pins.

Figure 4-1: Disc Scraper Adjustment
Hydraulic Lift System

The Ripoll is equipped with a hydraulic lift system to raise and lower the unit in the field.

**WARNING**

Escaping hydraulic fluid can cause serious personnel injury. Relieve system pressure before repairing, adjusting, or disconnecting. Wear proper hand and eye protection when searching for leaks. Use cardboard instead of hands (See Figure 4-2.) Keep all components (cylinders, hoses, fittings, etc.) in good repair.

1. The hydraulic lift system contains cylinders plumbed together. It is important that the cylinders be connected in the proper series for the lift system to operate correctly.
2. The hydraulic system is not filled with oil and should be purged of air before transporting and field operations. Carefully hitch the Ripoll to the tractor and connect the hydraulic lift hoses. Check to make sure the tractor hydraulic reservoir is full of the manufacturer’s recommended oil. Slowly raise the machine. With all cylinders fully extended remove the 1-1/2 X 16 transport lockouts (See Figure 4-3.) Store transport lockouts as shown in Figure 4-4. Lower and raise the unit to verify that cylinders are working simultaneously throughout the stroke. Do not loosen any hoses or fittings. Recheck tractor reservoir to make sure it is within operating limits.

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**Figure 4-2**: Hydraulic Leak Detection

**Figure 4-3**: Installed Transport Locks

**Figure 4-4**: Stored Transport Locks
Hydraulic Fold System (2211-13 & -15 Models Only)

1. The Ripoll is equipped with a hydraulic fold system to raise and lower the wing frames for narrow transport.

2. Be sure the system is fully charged with hydraulic oil before attempting to fold/unfold the unit. Air in the system can allow uncontrolled dropping of the wing frames causing serious personal injury or machine damage. The system needs to be charged with oil initially and any time the system has been opened for repair such as cylinder, hose, or fitting replacement/repair.

3. To charge the system, carefully hitch the Ripoll to the tractor. Unpin the end(s) of the fold cylinders, and position them so they can extend and retract without contacting any frames or other parts. Check the tractor hydraulic fluid level to make sure it is full of the manufacturer's recommended hydraulic fluid. Connect the cylinder hoses to the tractor and fully extend and retract the cylinders several times. The cylinder rod travel should be smooth and positive when all air has been purged from the system. Due to large amounts of hydraulic oil required, recheck the tractor fluid level to make sure it is within proper operating limits.

4. The hydraulic fold system is equipped with restrictors in the rod end of cylinders to prevent uncontrolled falling of wing frames when unfolding. Removal or improper assembly of these restrictors can cause the machine to fold improperly and result in serious machine damage.

**WARNING**

Escaping hydraulic fluid can cause serious personal injury. Relieve system pressure before repairing, adjusting, or disconnecting. Wear proper hand and eye protection when searching for leaks. Use cardboard instead of hands (See Figure 4-2.) Keep all components (cylinders, hoses, fittings, etc.) in good repair.
5. To fold/unfold the Ripoll, find a level area large enough to accommodate the Ripoll when it is fully unfolded. The tractor should be stopped and not moving with the unit fully raised (See Figures 4-5 and 4-6.)

**IMPORTANT**

Failure to remove the lock pins when unfolding will result in serious damage to the implement. Be sure other people and pets are a safe distance away.

6. Slowly engage the tractor lever and fold/unfold the wing frames. When the wings are unfolded, continue holding the tractor lever to fully extend both fold cylinders. This will allow the wing latches to fully engage creating a rigid wing for field operation.

7. When the unit is fully folded, rotate pins as shown and push forward to engage the wing lock pin, and then rotate the opposite direction to lock the pins in place.

8. Before unfolding the unit, rotate pins and pull rearward to disengage the wing lock pin, and then rotate the opposite direction to lock the pins in place for storage.

**WARNING**

Unfold wings before doing any type of service or repair to the fold cylinders or hydraulic lines supplying oil to the fold cylinders. The wings will naturally unfold if the oil pressure is relieved, thus allowing wings to fall to the ground.
Hydraulic Disc Gang Lift System

The disc gang lift system must be purged of air before beginning field operation.

1. Make sure the tractor's hydraulic reservoir is full of the manufacturer's recommended oil.
2. Extend the lift cylinder and raise the machine.
3. Fully extend and retract the disc gang cylinder to allow oil to fill cylinder.
4. Refill tractor hydraulic system.

IMPORTANT

Retracting the cylinders during periods of storage will prevent rusting of shafts and subsequent damage to seals.

General Operation

1. The horsepower requirements are typically 20-25 horsepower per shank. This will vary widely due to speed, depth, moisture, residue and types of soils. Local dealers can help in making recommendations for your areas.
2. Operating speed is typically 4.5-6 mph. Excessive speed can cause the unit to bounce, uneven depth, and create undesirable ridges.
3. Lift wheels must always be in contact with the ground and carrying some implement weight. Lift wheels are used to gauge the depth and to control the leveling feature.
4. Do not turn with the Ripoll in the ground. This can put excessive side load on the gangs and hitch. Raise the unit fully when making turns to prevent gouging and pushing a ridge.
Field Operation

1. Raise the unit to take the weight off of the transport locks. Remove the transport locks from the lift cylinders. Store the transport locks on the retainers above the main lift (See Figure 4-7.)

![Figure 4-7: Stored Transport Locks](image)

Leveling (Front-to-Rear)

1. The leveling feature on the Ripoll is used to keep the machine level when raising the unit from a working position to a transport position. The leveling feature is also used to level the unit from front-to-rear to perform a level operation in the field.

2. The unit should be level from front to rear. This will reduce horsepower requirements, allow a more uniform tillage operation, and reduce unnecessary point wear.

3. To adjust the leveling feature, loosen jam nuts at each end of the radius rod using the adjustment wrenches provided on the hitch (See Figure 4-8.) To raise the front of the Ripoll, lengthen the radius rod assembly. To lower the front of the Ripoll, shorten the radius rod assembly. After adjusting, retighten jam nuts at each end. Adjustments should be made in small increments.

![Figure 4-8: Radius Rod Leveling Adjustment](image)
Variable Ratio Adjustment

The leveler is equipped with a variable ratio adjustment. This is located at the rear of the hitch and at the center of the wheel lift where the leveler tube attaches. Connect the leveler tube to the top hole in the center lift and the top hole in the tongue for normal operation. This will cause the rear of the machine to raise higher than the front increasing transport height. The lower hole on the center lift will not be used in normal operating conditions. The adjustments can be set as follows:

Top hole in center lift, top hole in tongue - this will raise the rear of the machine the highest.

Top hole in center lift, bottom hole in tongue - this will lower the rear of the machine some, and raise the front.

1. To change the variable ratio adjustment, lower the implement to the ground and relieve the load on the lift system.
2. Extend or retract the radius rod, until the load is removed from the leveler tower.
3. Remove the 1-1/4-7 x 9-1/2 hex head cap screw, slotted lock washer, and hex nut through the leveler tower and hitch (See Figure 4-9.)
4. Reinstall the 1-1/4-7 x 9-1/2 hex head cap screw, slotted lock washer, hex nut, and leveler tower in the desired position. The radius rod will require some adjustment to connect to the new position.

**Figure 4-9: Variable Ratio Leveler Adjustment**
Disc Blades

1. The 2211 Ripoll is equipped with 24” disc blades.
2. The 24” diameter blades are a full concavity blade with a thickness of 4 ga (.256”) and are standard for the 2211 Ripoll.
3. Sharpening – In some cases there is a desire to sharpen disc blades for improved cutting. There are several people who roll-sharpen disc blades. Most disc blades used today are made of chrome-boron steel. The chrome-boron steel has a higher hardness than traditional carbon-steel blades for increased wear. Higher hardness makes roll sharpening more difficult often with mixed results, and is not covered by warranty. Disc blade manufacturers will not cover any alterations to blades other than the place of manufacture. Results from roll-sharpening damage may not be immediate, and may take more than a season to be noticeable. If you choose to sharpen disc blades, check with local dealers for reputable experienced sharpeners that will stand behind their work.

DANGER

Disc blades are extremely sharp. Exercise extreme care when working on or near disc blades. Do not allow disc s to roll over or fall onto any body part. Do not allow wrenches to slip when working near disc blades. Never push wrenches toward disc blades. Do not climb over machine above disc blades. Failure to stay clear of disc blade edges can cause serious personal injury or death.
**Figure 4-10: Disc Gang Angle Settings**

- **FRONT GANGS**:
  - 18°
  - 14°

- **REAR GANGS**:
  - 16°
  - 12°
Disc Gang Angle Settings

1. Under normal operating conditions, the gang angles may be set front at 18°, rear at 16° or front at 14°, rear at 12° (See Figure 4-10.) The more aggressive angles, front at 18°, rear at 16°, will tend to bury more residue than the less aggressive settings. With either combination, the gang depth can also be adjusted to operator preferences of levelness and residue coverage.

2. In certain conditions it is possible to use different combinations of the gang angles.

3. For most conditions the rear gang depth should be the same or shallower than the front gang. To adjust rear gang depth, extend radius rod to increase depth or retract radius rod to decrease depth.

   **IMPORTANT**

   After adjustments are made to rear gangs, check both sides to be sure they are the same depth. This can be done by measuring from the frame down to the top of the blades of each gang.

   If large adjustments are made, fully cycle rear gangs to insure adequate clearances between frames and attachments.

4. The front gangs should not require any adjustment of the radius rods after they are initially set (See Figure 3-16.)
Figure 4-11: Wheel Bearing Maintenance
Depth Stop Adjustment (Manual)

The operating depth of the Ripoll is controlled by a single-point depth stop. The stop is located at the center front of the machine.

1. Adjust the depth stop by turning the handle in (clockwise) to increase operating depth (See Figure 4-12.) Turn the handle out (counter-clockwise) to decrease operating depth.

2. The gauge on the side of the depth stop tube gives a reference for depth setting. The “A” setting refers to maximum operating depth.

Wheel Bearing Maintenance

Wheel bearing maintenance should be performed at the beginning of every season of use. Check the wheel bearings periodically for excessive end play. If needed, adjust or replace them using the following procedure:

1. Place the frame on blocks or stands sufficient to lift the tire clear of the ground.

2. Remove the tire.

3. Remove the hub cap, cotter pin, slotted nut and washer (See Figure 4-11.)

4. Remove the hub. Clean and inspect the bearings and hub cavity. Replace any worn or defective parts.

5. Repack the bearings using a high-quality wheel bearing grease.

6. Slide the seal onto the spindle. Do not install the seal into the hub.

7. Slide the inner bearing cone and hub onto the spindle.

8. Install the outer bearing cone, washer and slotted nut.

9. Tighten the slotted nut while rotating the hub until there is a slight resistance to wheel rotation. Then, back the slotted nut off one notch, until the wheel rotates freely without end play.

10. Slide the seal to the hub and install the seal in the hub.

**NOTE**
The triple-lip seals should point away from the hub to keep contaminants out and allow grease to pass.

11. Install a new cotter pin and replace the hub cap.

Hydraulic Maintenance

1. Check the tractor hydraulic fluid level per tractor owners manual and after any leakage. Check fluid level with the cylinders in the retracted position.

2. If a cylinder or valve leaks, disassemble the parts to determine the cause of the leak. Any time a cylinder is opened up, or whenever any seal replacement is necessary, it is advisable to clean all parts and replace all seals. Seal kits are available from your Landoll dealer.

3. Check all hydraulic hoses weekly. Look for binding or cracking. Replace all worn or defective parts immediately.
**IMPORTANT**

Unfold the wings and lower the unit to the ground, and relieve hydraulic pressure before attempting to service any hydraulic component.

4. Transport locks are provided to hold the implement in a raised position. Do not attempt to perform any service work under the implement without first installing the transport locks. Before servicing any hydraulic component, unfold wings and lower the implement to the ground to relieve all system pressure. If a hydraulic component is disconnected, repaired, or replaced, it will be necessary to purge the system of air before operation. See “Hydraulic Lift System” on page 4-3 and “Hydraulic Fold System (2211-13 & -15 Models Only)” on page 4-4 on how to purge the hydraulic systems.

**WARNING**

Unfold wings before doing any type of service or repair to the fold cylinders or hydraulic lines supplying oil to the fold cylinders. The wings will naturally unfold if the oil pressure is relieved, thus allowing wings to fall to the ground.

---

**Transport**

1. Check and follow all federal, state, and local requirements before transporting the Ripoll.

2. The Ripoll should be transported only by a tractor required for field operation. The implement weight should not exceed more than 1.5 times the tractor weight. Unless noted on the implement, maximum transport speed is 20 mph for the implement. Slow down when driving on rough roads. Reduce speed when turning, or on curves and slopes to avoid tipping.

3. A safety chain is provided with the implement to insure safe transport.
   a. The safety chain should have a tensile strength equal to or greater than the gross weight of the implement. The chain is attached to the lower hitch clevis hole with two flat washers between the clamp plates to assure a tight connection. Always use a 1” diameter Grade 8 bolt for this connection.
   b. Attach the safety chain to the tractor drawbar (See Figure 4-13.) Provide only enough slack in the chain for turning. Do not use an intermediate chain support as the attaching point for the chain on the tractor. Do not pull the implement by the safety chain.
   c. When unhitching from the tractor attach the hook end of the chain to a free link close to the hitch clevis for storage. This will keep the hook off the ground, reducing corrosion and keep the hook functioning properly.
   d. Regularly inspect the safety chain for worn, stretched, or broken links and ends. Replace the safety chain if it is damaged or deformed in any way.

---

Figure 4-13: Hitch and Safety Chain
4. Check that tires are of proper size, load rating, and inflated to manufacture specifications before transporting. Check wheel lug bolts to insure tightness.

5. Know the transport heights and widths of the unit before transporting. Attachments can increase the transport dimensions of the implement. Use caution when transporting near bridges and power lines.

6. Raise the unit to full transport height.

7. Install transport locks on both lift cylinders. Do not depend solely on implement hydraulics for transport. (See Figure 4-14.)

8. Transport during daylight hours whenever possible. Always use flashing warning lights, except where such use is prohibited by law. Make sure lights, reflectors and SMV emblem are clearly visible and operating. Remove any obstructions such as dirt, mud, stalks or residue that restricts view before transporting.

---

**WARNING**

Electrocution can occur without direct contact.

**WARNING**

Failure to use transport lock pins during transport may result in permanent equipment damage, serious injury, or death.

---

**Figure 4-14: Installed Transport Locks**
### Figure 4-15: Lubrication Schedule

#### LUBRICATION TABLE

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
<th>NO. OF LUBE POINTS</th>
<th>INTERVAL (Hours unless stated)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Disc Gang Bearings</td>
<td>1 each</td>
<td>10</td>
</tr>
<tr>
<td>2</td>
<td>Radius Rod</td>
<td>2</td>
<td>50</td>
</tr>
<tr>
<td>3</td>
<td>Walking Tandem Hubs</td>
<td>1 each</td>
<td>10</td>
</tr>
<tr>
<td>4</td>
<td>Wheel Hubs</td>
<td>1 each</td>
<td>50</td>
</tr>
<tr>
<td>5</td>
<td>Gang Depth Adjustment Rods</td>
<td>6</td>
<td>50</td>
</tr>
</tbody>
</table>

**Table 4-1: Lubrication Table**
Lubrication Maintenance

1. **Table 4-1** specifies the lubrication points and intervals on the 2211 Ripoll. Proper maintenance of your machine will, under normal operating conditions, help to keep it operating at or near its peak performance for an extended period of time. Proper maintenance is also a condition of keeping your warranty in good status (See Figure 4-15.)

2. When lubricating the Ripoll, SAE multi-purpose EP grease, or EP grease with 3-5% molybdenum sulfide is recommended. Wipe soil from fittings before greasing. Replace any lost or broken fittings immediately.

3. Disc gang bearings are equipped with triple-lip seals that will let grease pass and not harm the seal. Regular lubrication will maintain a full grease cavity and help purge any contaminants. Grease the bearings before long periods of storage to prevent moisture buildup within the bearing cavity.

4. Wheel seals and walking tandem seals, when properly installed, will allow grease to pass without harm to seals. Regular lubrication will extend service life, particularly in severe operating conditions.

5. The Ripoll is equipped with maintenance-free bearings in the lifts and leveler. These areas require no lubrication.

Storage

1. The service life of the Ripoll will be extended by proper off-season storage practices. Prior to storing the unit, complete the following procedures:
   a. Completely clean the unit.
   b. Inspect the machine for worn or defective parts. Replace as needed.
   c. Repaint all areas where the original paint is worn off.
   d. Grease all exposed metal surfaces of shanks, points and discs.
   e. Apply a light coating of oil or grease to exposed cylinder rods to prevent them from rusting.
   f. Lubricate each point of the machine as stated in “Lubrication Maintenance” on page 4-17.

2. Store the unit in a shed or under a tarpaulin to protect it from the weather. The ground tools and tires should rest on boards, or some other object, to keep them out of the soil.

3. If the unit must be stored outside, unfold the Ripoll to prevent moisture buildup in the disc gang and wheel bearings.

4. If the unit is stored in the folded position, make sure the transport lock pins are installed to prevent wing frames settling.

5. Slide the rear jack tube from transport position and into slot from bottom of rear jack mount. Pin jack tube in position. Attach jack to rear jack tube and pin in position. Crank jack until the rear of the machine is supported (See Figure 4-16.)
The Troubleshooting Guide, shown below, is included to help you quickly locate problems that can happen using your 2211 Ripoll. Follow all safety precautions stated in the previous sections when making any adjustments to your machine.

<table>
<thead>
<tr>
<th>PROBLEM</th>
<th>PROBABLE CAUSE</th>
<th>SOLUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNIT NOT PULLING EVEN</td>
<td>Disc gangs uneven depth</td>
<td>Adjust depth/rephase disc gang cylinders (See “Hydraulic Disc Gang Lift System” on page 4-6.)</td>
</tr>
<tr>
<td>UNEVEN DEPTH</td>
<td>Unit not level when under power in the field</td>
<td>Level unit front to rear (See “Leveling (Front-to-Rear)” on page 4-7.)</td>
</tr>
<tr>
<td></td>
<td>Excessive disc gang depth or down pressure</td>
<td>Reduce disc depth.</td>
</tr>
<tr>
<td></td>
<td>Excessive disc gang depth or down pressure</td>
<td>Reduce disc depth.</td>
</tr>
<tr>
<td></td>
<td>Tire pressure too low</td>
<td>Check inflation.</td>
</tr>
<tr>
<td></td>
<td>Unit not level front to rear</td>
<td>Adjust unit to be level.</td>
</tr>
<tr>
<td>UNIT SIDE DRAFTS OR MOVES SIDE TO SIDE</td>
<td>Lift wheels not carrying enough weight</td>
<td>Adjust depth stop and raise implement.</td>
</tr>
<tr>
<td></td>
<td>Unit not level front to rear</td>
<td>Adjust unit to be level.</td>
</tr>
<tr>
<td>SHANKS PLUGGING WITH RESIDUE</td>
<td>Unit not level</td>
<td>Level machine (See “Leveling (Front-to-Rear)” on page 4-7.)</td>
</tr>
<tr>
<td></td>
<td>Discs not cutting residue</td>
<td>Adjust disc depth or raise shanks to allow more gang depth.</td>
</tr>
<tr>
<td>SHANKS NOT PENETRATING</td>
<td>Unit not level</td>
<td>Level unit front to rear (See “Leveling (Front-to-Rear)” on page 4-7.)</td>
</tr>
<tr>
<td></td>
<td>Excessive disc depth</td>
<td>Reduce depth</td>
</tr>
<tr>
<td></td>
<td>Points worn</td>
<td>Install new points.</td>
</tr>
<tr>
<td>WHEEL BEARING FAILURE</td>
<td>Triple-lip seals not installed correctly</td>
<td>Install seals with the lips pointing outward away from the hub.</td>
</tr>
<tr>
<td>HYDRAULIC - DISC GANG LIFT CYLINDER NOT FULLY EXTENDING</td>
<td>Hoses not properly connected</td>
<td>Check hose routing</td>
</tr>
<tr>
<td>HYDRAULIC - ENTIRE UNIT SETTLING</td>
<td>Depth stop valve not working</td>
<td>Repair valve</td>
</tr>
<tr>
<td>PROBLEM</td>
<td>PROBABLE CAUSE</td>
<td>SOLUTION</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>----------------------------------------------------------</td>
<td>-----------------------------------------------------------</td>
</tr>
<tr>
<td>DISC GANG PLUGGING</td>
<td>Operating depth too deep</td>
<td>Raise unit.</td>
</tr>
<tr>
<td></td>
<td>Conditions too wet</td>
<td>Wait until conditions more favorable.</td>
</tr>
<tr>
<td>DISC GANG WILL NOT TURN OR PUSHES SOIL</td>
<td>Depth set too deep for loose or wet conditions</td>
<td>Raise implement or wait until conditions are more favorable.</td>
</tr>
<tr>
<td></td>
<td>Gang bearing failure</td>
<td>Replace bearing</td>
</tr>
<tr>
<td>DISC BLADES LOOSE AND/OR SHEARING ROLL PIN</td>
<td>Gang not tightened properly</td>
<td>Retighten gang shafts to 1200-1500 ft-lbs. If gangs have ran loose, gangs may require disassembly to remove soil to properly torque gang shafts. Replace any worn components, shafts/spools, etc.</td>
</tr>
<tr>
<td>WINGS FLOATING/BOUNCING IN FIELD</td>
<td>Wing latch not hooked</td>
<td>Fully extended fold cylinder and be sure 3/4-10 x 3 hex head cap screw in the top of the hook is free to rotate..</td>
</tr>
</tbody>
</table>
Notes:
Equipment from Landoll Corporation is built to exacting standards ensured by ISO 9001 registration at all Landoll manufacturing facilities.

Model 2211 Ripoll
Operator’s Manual

Re-Order Part Number F-571-0613

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