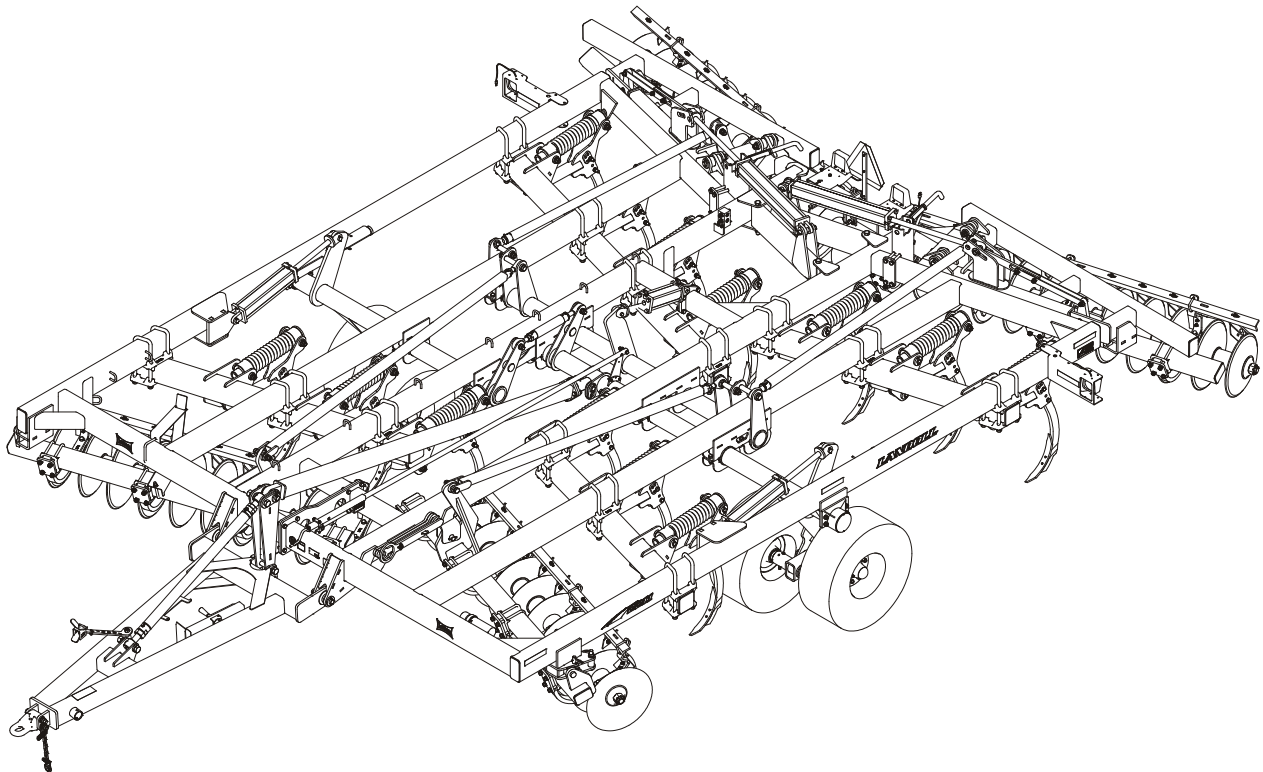




Model 2211 Ripoll Operator's Manual



LANDOLL CORPORATION

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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.

Standard Specifications

2211 SERIES RIPOLL								
MODEL NO.	WORKING WIDTH	TRANSPORT WIDTH	TRANSPORT HEIGHT	NO. OF SHANKS	SHANK SPACING	NO. OF BLADES F/R	TIRES AND WHEELS	ESTIMATED WEIGHT (LBS.)
2211-09	11'-3"	15'-4"	6'-2"	9	15"	16/18	8 Bolt	13,480
2211-11	13'-9"	17'-1"	6'-2"	11	15"	18/20	Wheels w/ 2-1/4" Spindles	14,410
2211-13	16'-4"	17'-9"	13'-4"	13	15"	22/24	8 Bolt	20,600
2211-15	18'-9"	18'-11"	14'-0"	15	15"		Wheels w/ 3" Spindles	21,560

Tire Inflation			
Tire Size	Tire Manufacturer	Ply/Load Rating	Inflation Pressure (Psi) (Max.)
340/60R - 16.5	Goodyear	load Index 145A8/B 6400 lbs @ 30 mph	73 psi
380/55R - 16.5	Goodyear	Load Index 150A8/B 7400 lbs @ 30 mph	73 psi

STANDARD SPECIFICATIONS

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

UNC Size	SAE Grade 2		SAE Grade 5		SAE Grade 8		UNF Size	SAE Grade 2		SAE Grade 5		SAE Grade 8	
1/4-20	4	[5]	6	[7]	9	[11]	1/4-28	5	[6]	7	[9]	10	[12]
5/16-18	8	[10]	13	[16]	18	[22]	5/16-24	9	[11]	14	[17]	20	[25]
3/8-16	15	[19]	23	[29]	35	[43]	3/8-24	17	[21]	25	[31]	35	[44]
7/16-14	24	[30]	35	[43]	55	[62]	7/16-20	27	[34]	40	[50]	60	[75]
1/2-13	35	[43]	55	[62]	80	[100]	1/2-20	40	[50]	65	[81]	90	[112]
9/16-12	55	[62]	80	[100]	110	[137]	9/16-18	60	[75]	90	[112]	130	[162]
5/8-11	75	[94]	110	[137]	170	[212]	5/8-18	85	[106]	130	[162]	180	[225]
3/4-10	130	[162]	200	[250]	280	[350]	3/4-16	150	[188]	220	[275]	320	[400]
7/8-9	125	[156]	320	[400]	460	[575]	7/8-14	140	[175]	360	[450]	500	[625]
1-8	190	[237]	408	[506]	680	[850]	1-14	210	[263]	540	[675]	760	[950]
1-1/8-7	270	[337]	600	[750]	960	[1200]	1-1/8-12	300	[375]	660	[825]	1080	[1350]
1-1/4-7	380	[475]	840	[1050]	1426	[1782]	1-1/4-12	420	[525]	920	[1150]	1500	[1875]
1-3/8-6	490	[612]	110	[1375]	1780	[2225]	1-3/8-12	560	[700]	1260	[1575]	2010	[2512]
1-1/2-6	650	[812]	1460	[1825]	2360	[2950]	1-1/2-12	730	[912]	1640	[2050]	2660	[3325]
1-3/4-5	736	[920]	1651	[2063]	2678	[3347]	1-3/4-12	920	[1150]	2063	[2579]	3347	[4183]

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.

Nominal Thread Diameter mm	Standard Torque		Nominal Thread Diameter mm	Standard Torque	
	Newton-Meters	Foot-Pounds		Newton-Meters	Foot-Pounds
6	10	[14]	20	385	[450]
7	16	[22]	24	670	[775]
8	23	[32]	27	980	[1105]
10	46	[60]	30	1330	[1470]
12	80	[101]	33	1790	[1950]
14	125	[155]	36	2325	[2515]
16	200	[240]	39	3010	[3210]
18	275	[330]			

Table 2-1: General Torque Specifications

**LANDOLL CORPORATION
HYDRAULIC FITTING TORQUE SPECIFICATIONS
37° JIC, ORS, & ORB (REV. 10/97)**

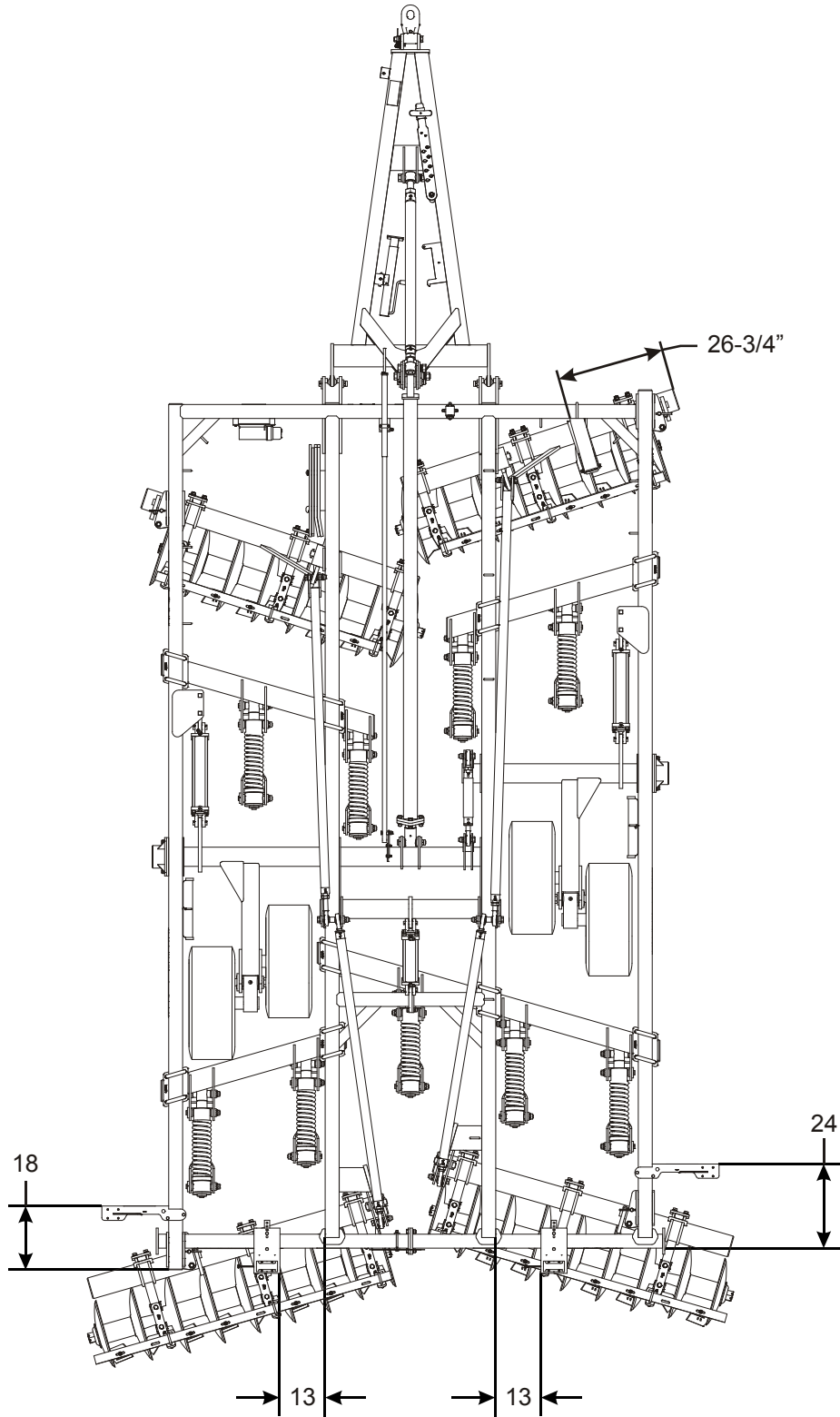
THIS CHART PROVIDES TIGHTENING TORQUES FOR HYDRAULIC FITTING APPLICATIONS WHEN SPECIAL TORQUES ARE NOT SPECIFIED ON PROCESS OR DRAWING.

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

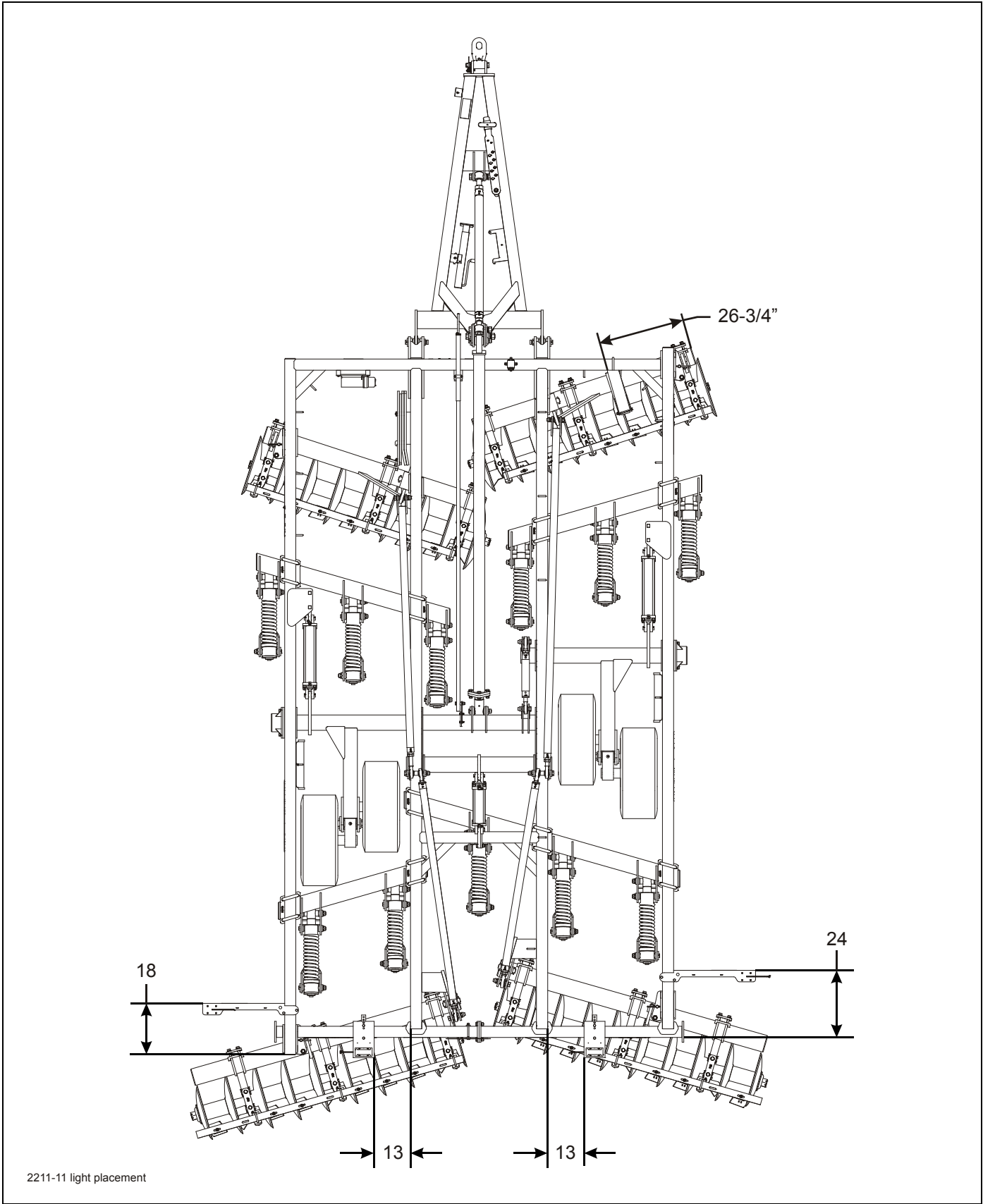
PARKER BRAND FITTINGS			
Dash Size	37 Degree JIC	O-Ring (ORS)	O-Ring Boss (ORB)
-4	11-13	15-17	13-15
-5	14-16	—	21-23
-6	20-22	34-36	25-29
-8	43-47	58-62	40-44
-10	55-65	100-110	57.5-62.5
-12	80-90	134-146	75-85
-16	115-125	202-218	109-121
-20	160-180	248-272	213-237
-24	185-215	303-327	238-262
-32	250-290	—	310-340
GATES BRAND FITTINGS			
Dash Size	37 Degree JIC	O-Ring (ORS)	O-Ring Boss (ORB)
-4	10-11	10-12	14-16
-5	13-15	—	—
-6	17-19	18-20	24-26
-8	34-38	32-40	37-44
-10	50-56	46-56	50-60
-12	70-78	65-80	75-83
-14	—	65-80	—
-16	94-104	92-105	111-125
-20	124-138	125-140	133-152
-24	156-173	150-180	156-184
-32	219-243	—	—
AEROQUIP BRAND FITTINGS			
Dash Size	37 Degree JIC	O-Ring (ORS)	O-Ring Boss (ORB)
-4	11-12	10-12	14-16
-5	15-16	—	18-20
-6	18-20	18-20	24-26
-8	38-42	32-35	50-60
-10	57-62	46-50	72-80
-12	79-87	65-70	125-135
-14	—	—	160-180
-16	108-113	92-100	200-220
-20	127-133	125-140	210-280
-24	158-167	150-165	270-360
-32	245-258	—	—

Table 2-2: Hydraulic Fitting Torque Specifications



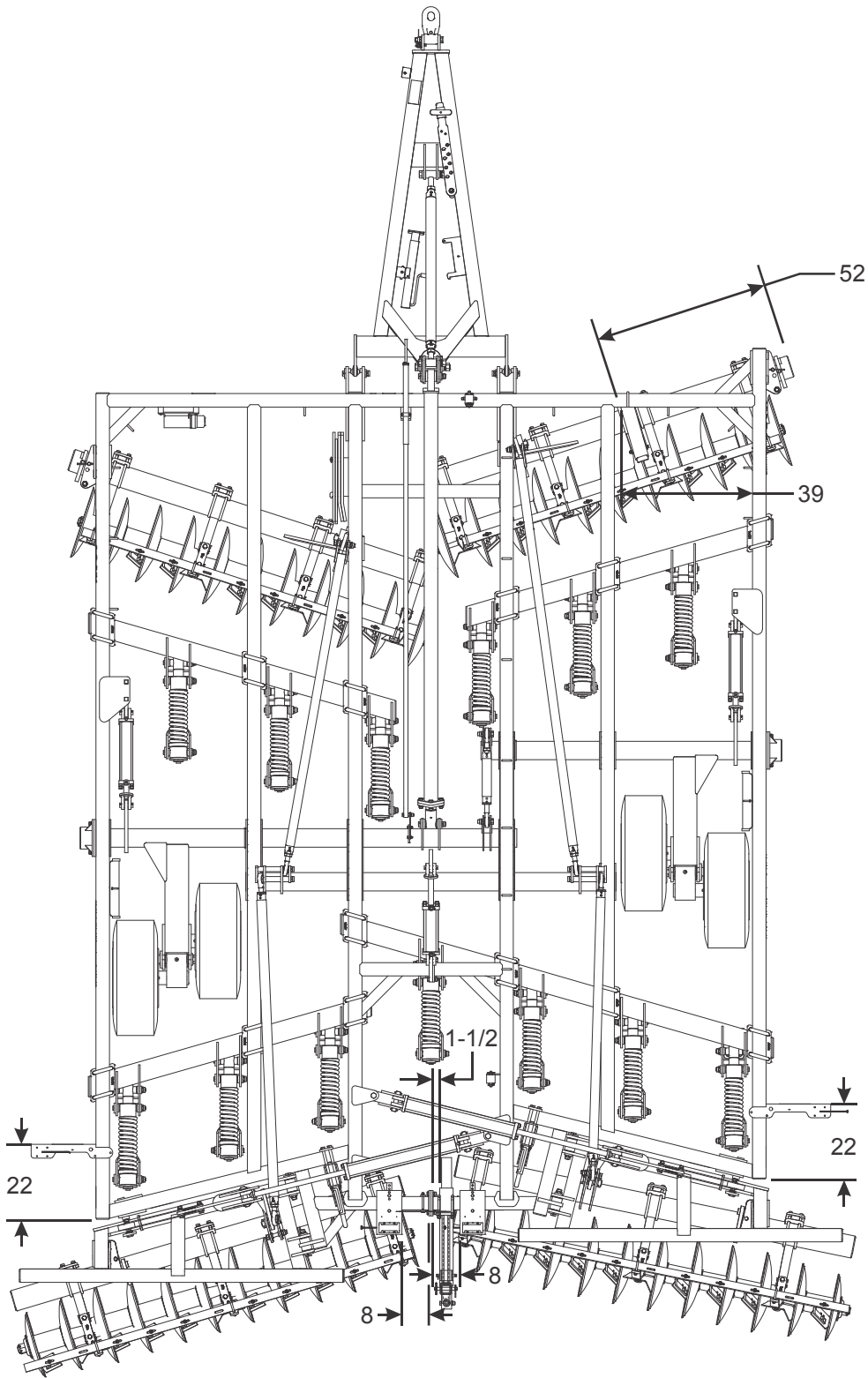
2211-09 light placement

Figure 2-1: Light Bracket Placement Assembly (2211-09)



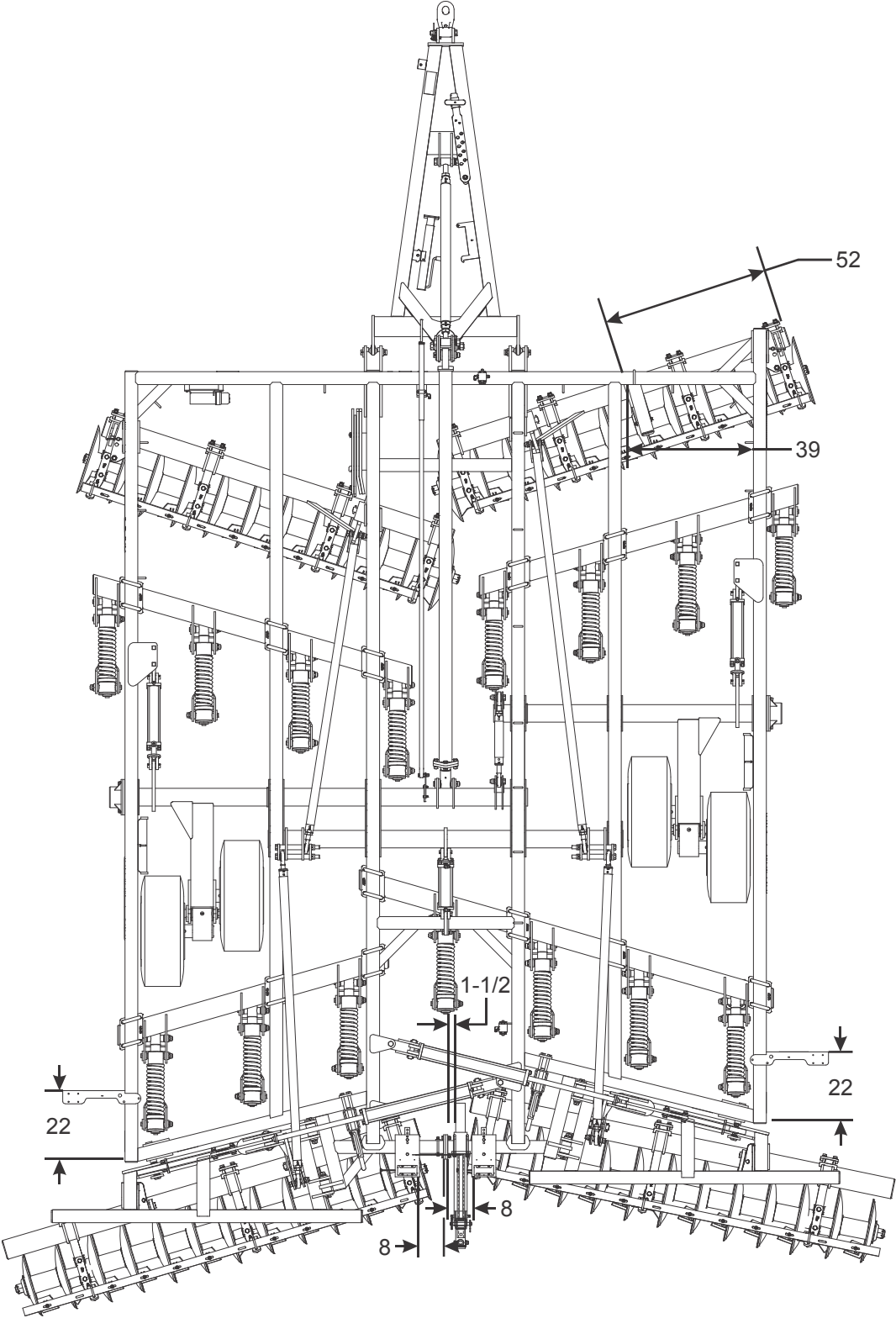
2211-11 light placement

Figure 2-2: Light Bracket Placement Assembly (2211-11)



2210-13 light placement

Figure 2-3: Light Bracket Placement Assembly (2211-13)



2210-15 light placement

Figure 2-4: Light Bracket Placement Assembly (2211-15)

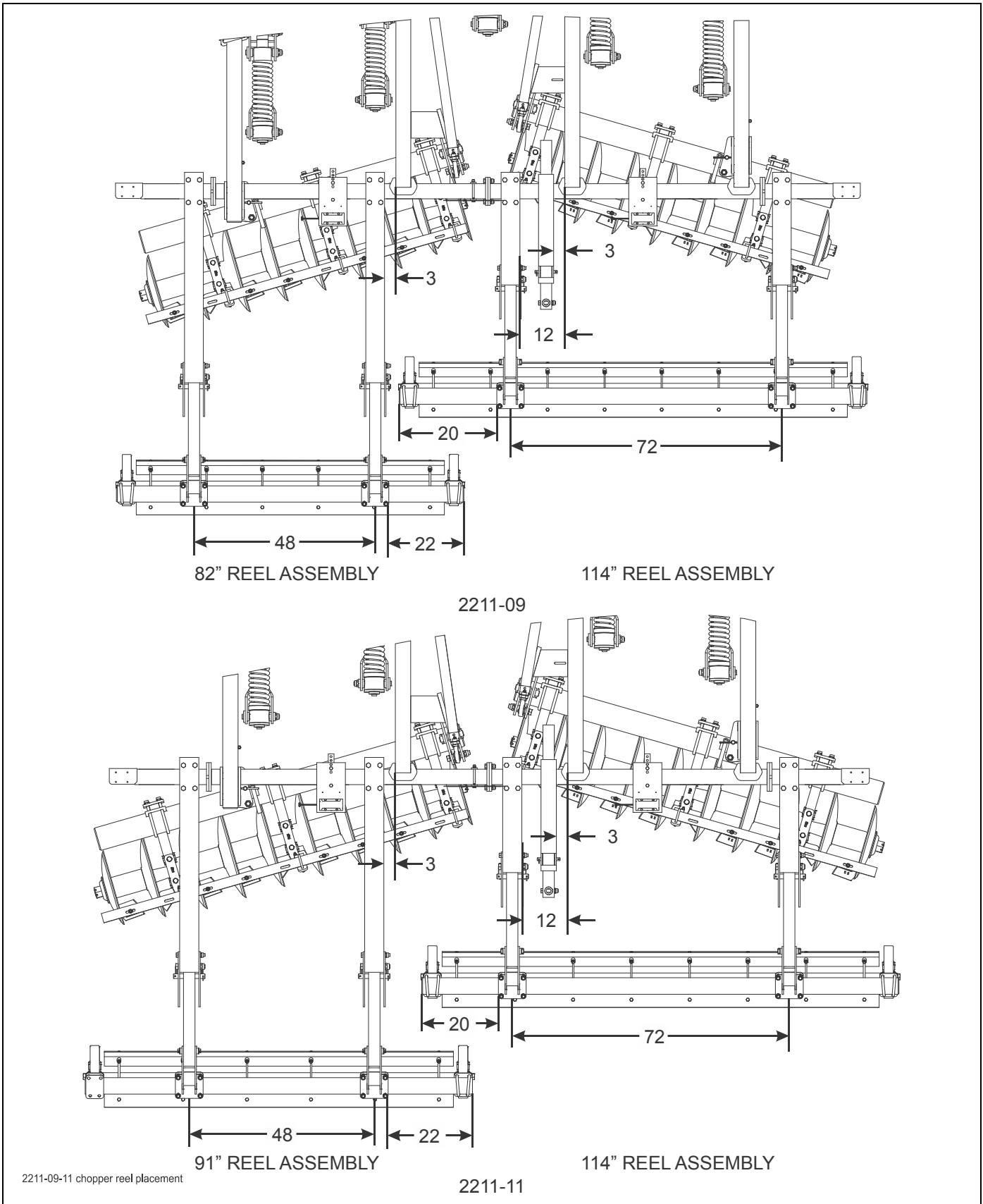


Figure 2-5: Standard and Hydraulic Tubular Mount Chopper Reel Placement (2211-09 & 2211-11)

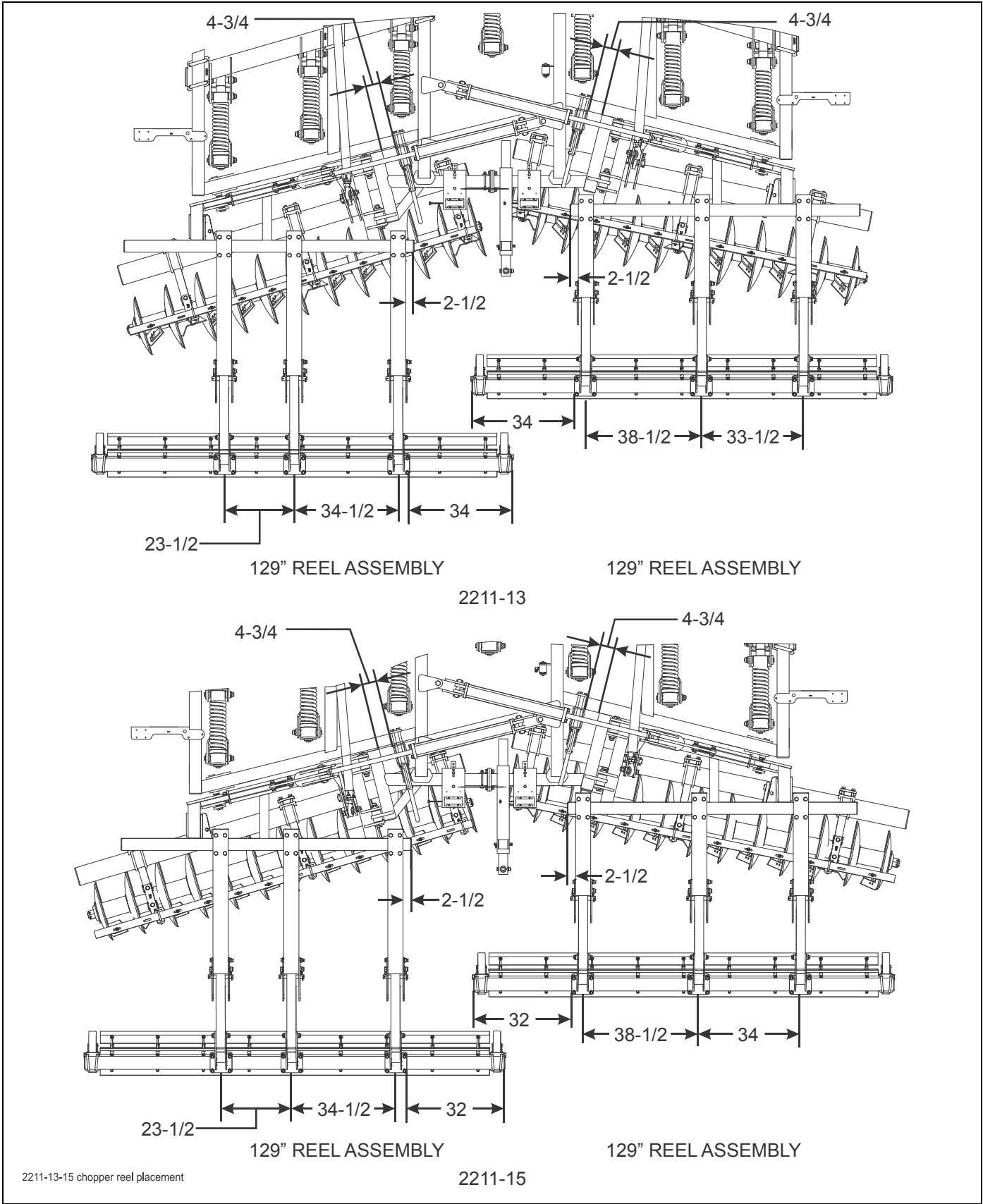


Figure 2-6: Standard and Hydraulic Tubular Mount Chopper Reel Placement (2211-13 & 2211-15)

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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.

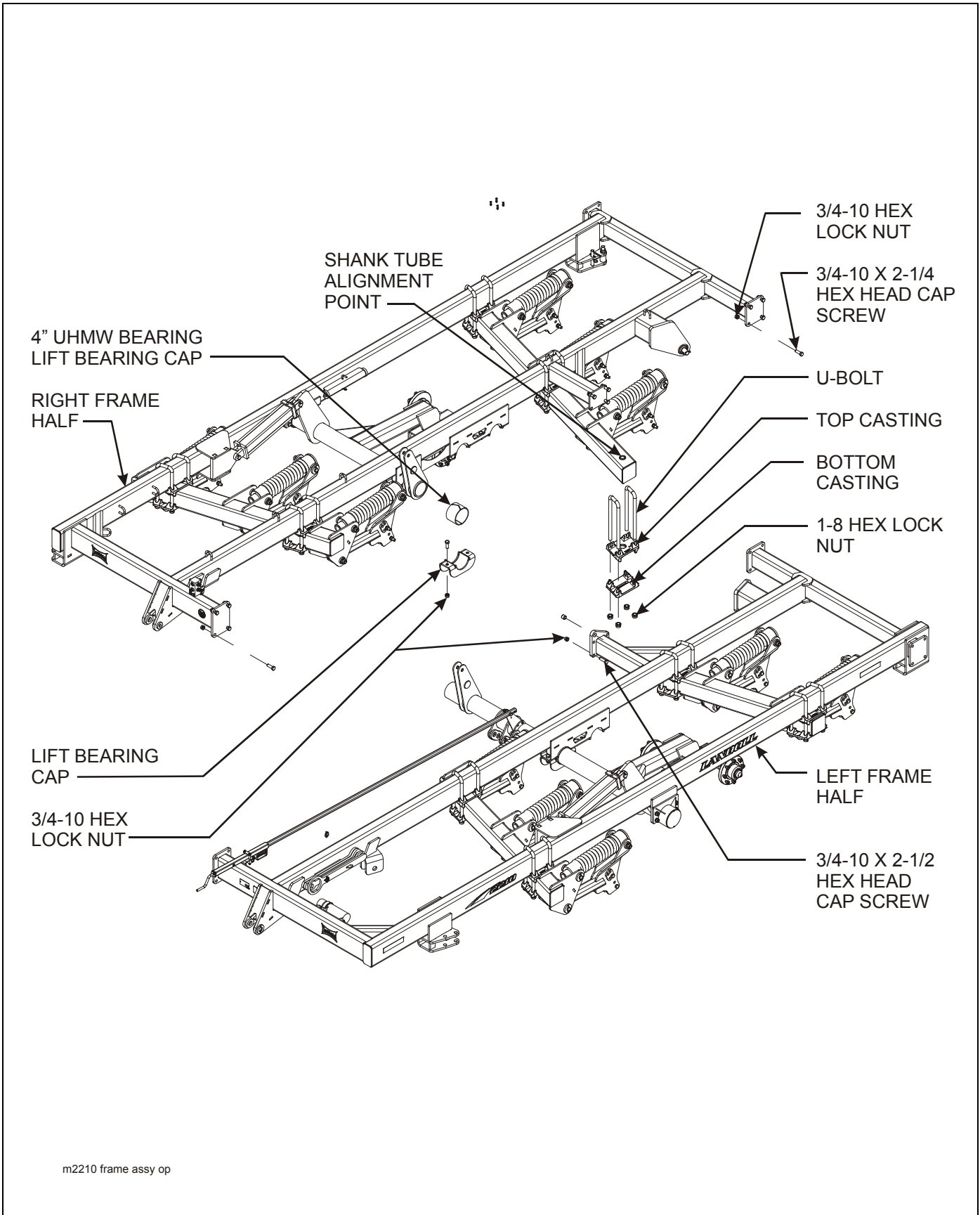


Figure 3-1: Frame and Lift Installation

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**.

ASSEMBLY INSTRUCTIONS

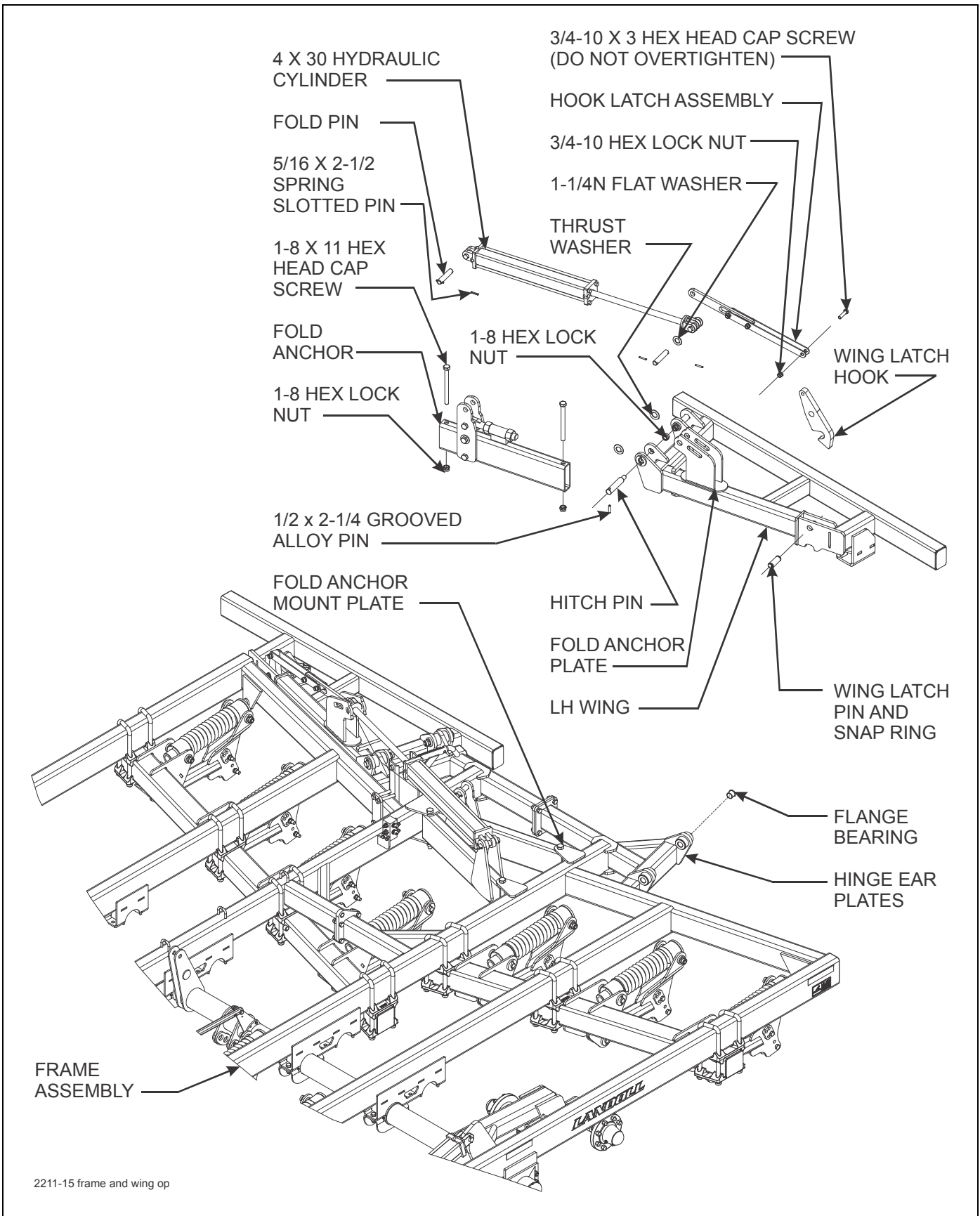


Figure 3-2: Wing Extension Installation (2211-13 & -15)

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**.

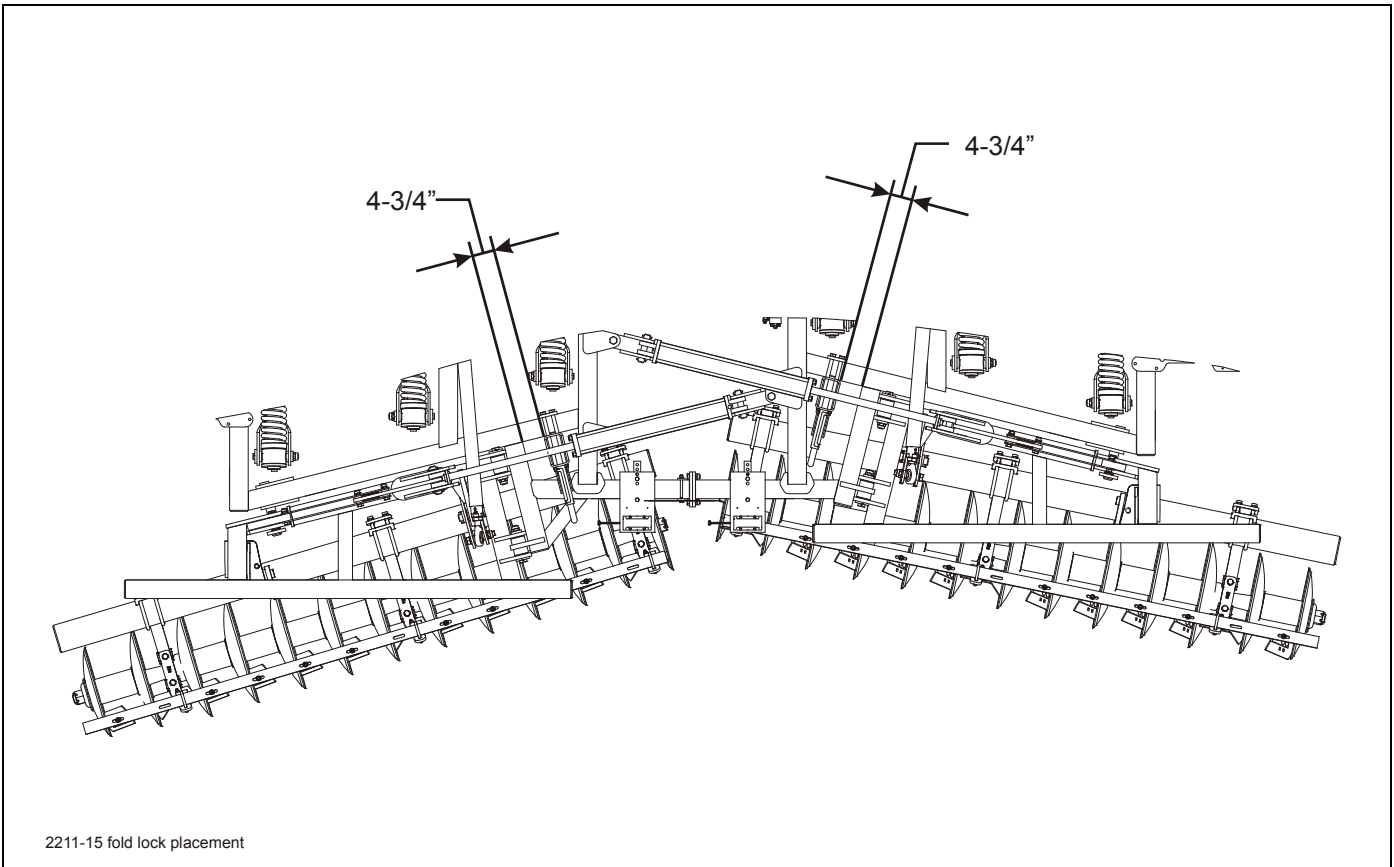


Figure 3-3: Fold Lock Placement

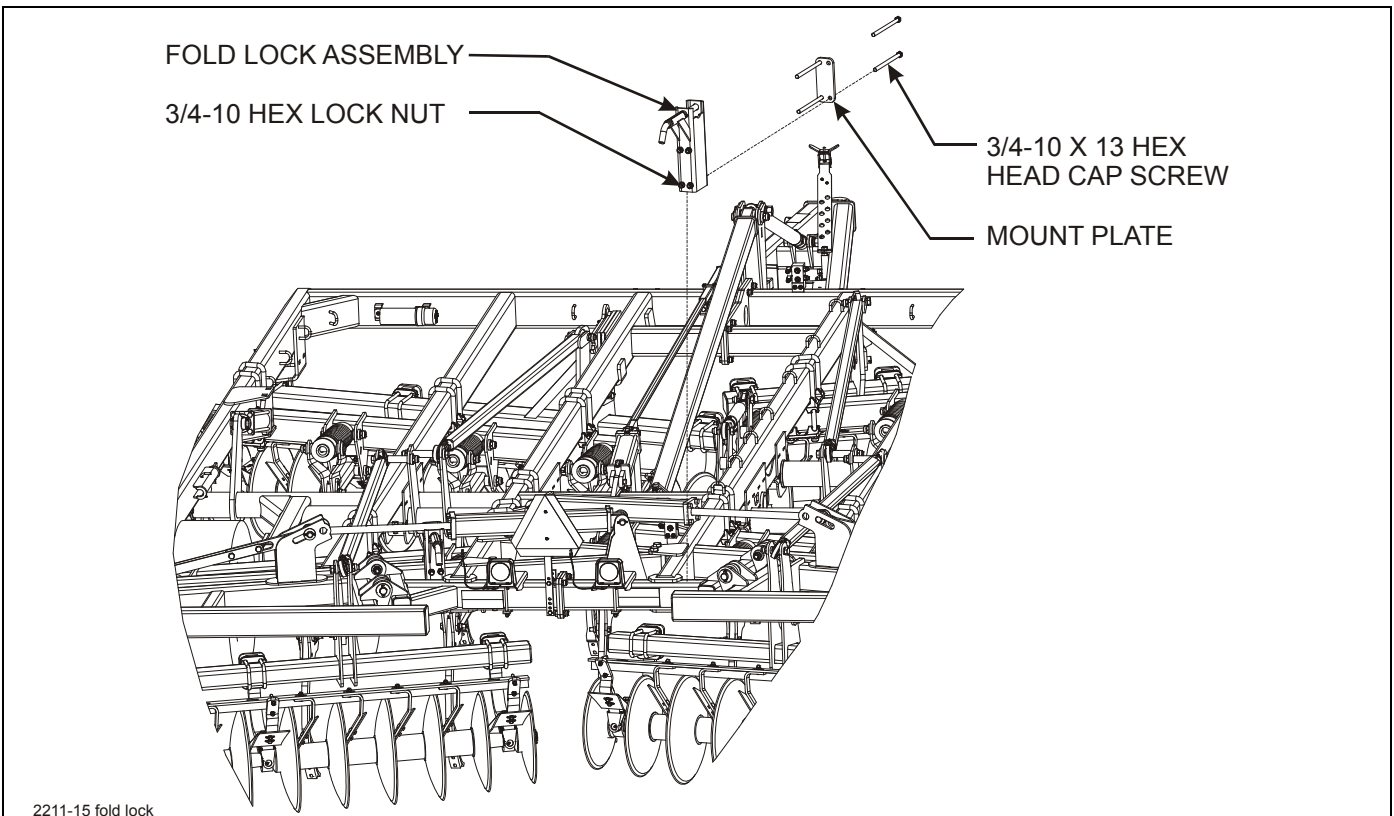


Figure 3-4: Fold Lock Assembly

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.

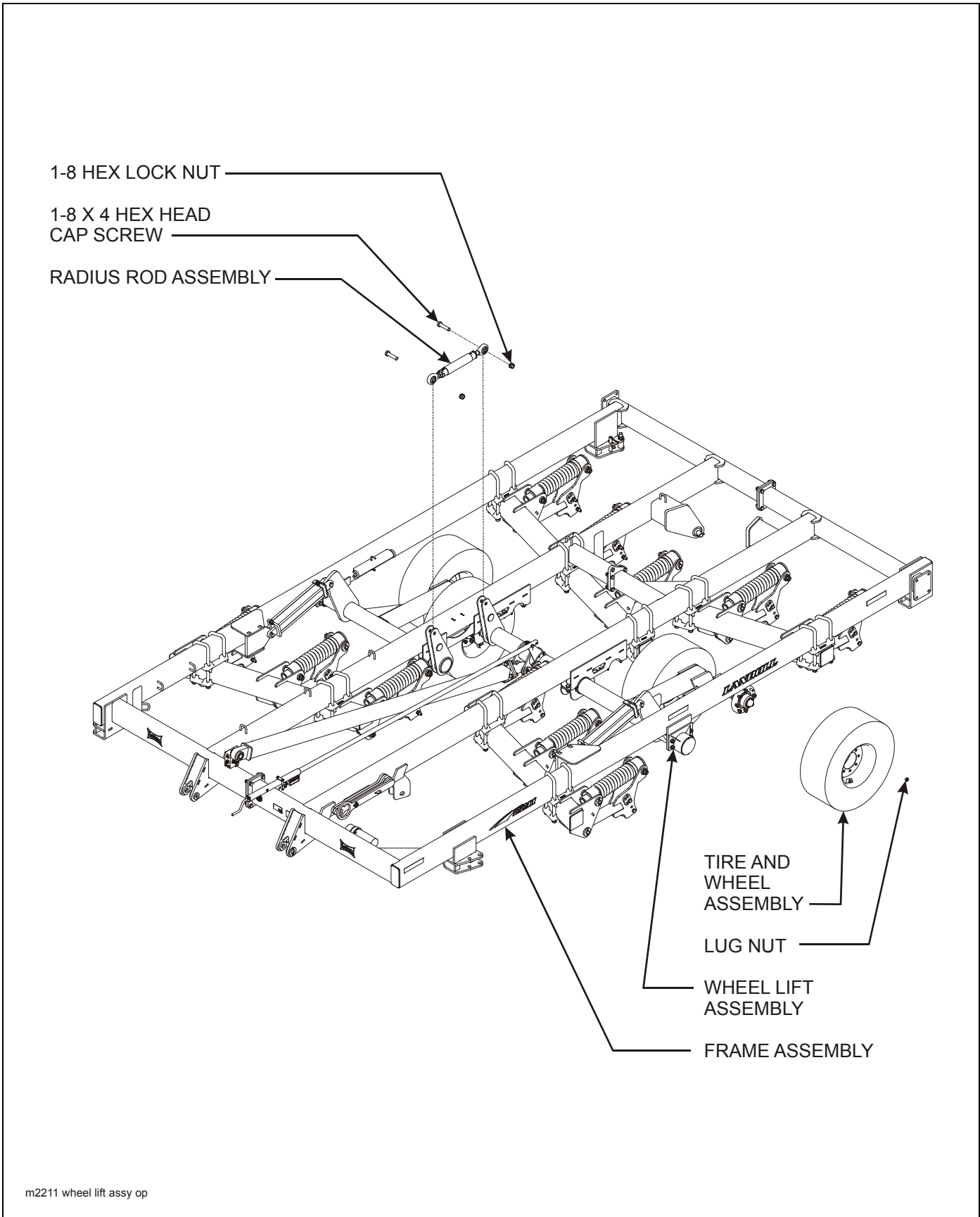


Figure 3-5: Wheel Lift Installation

Wheel Lift Installation

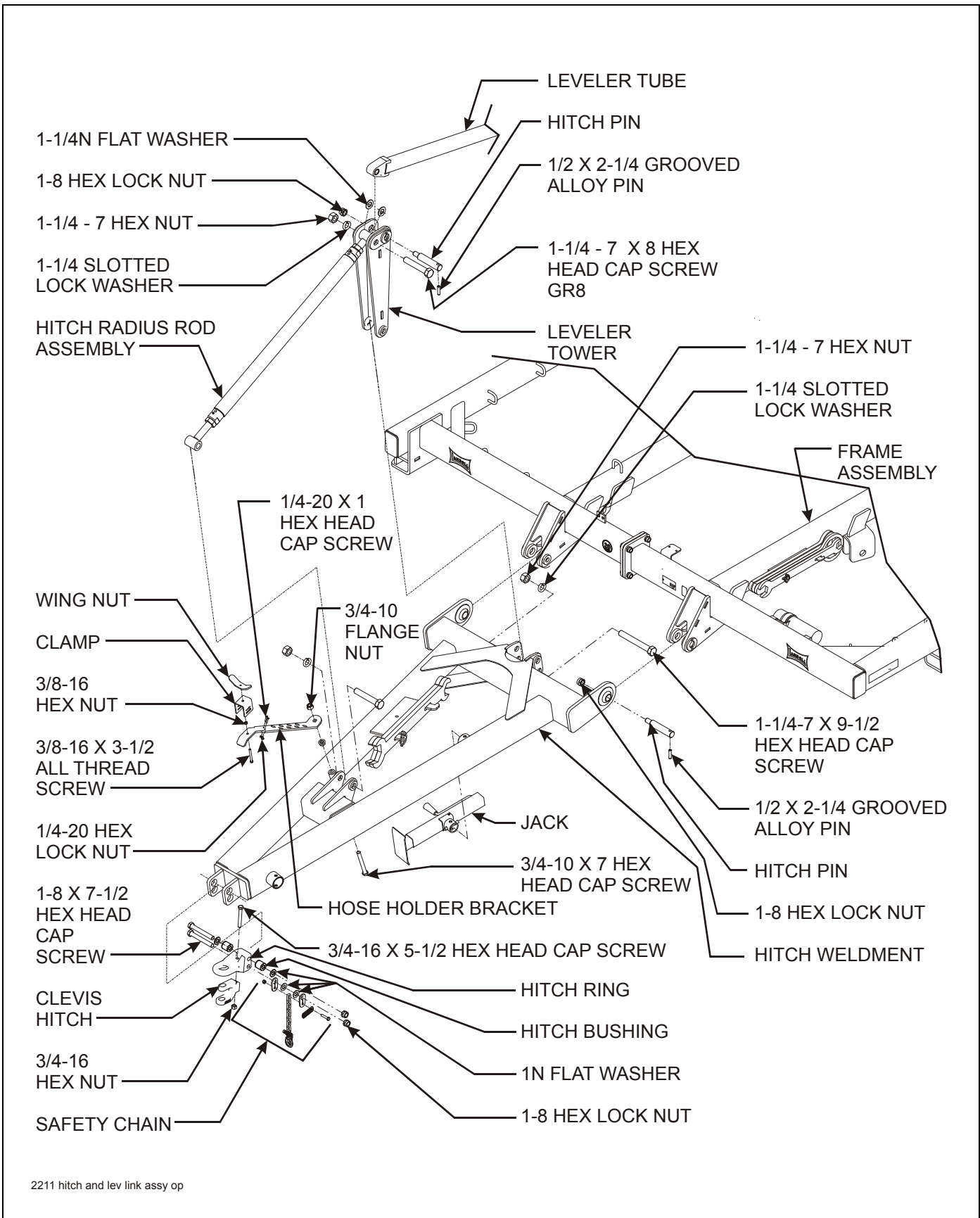
1. Retract the 3-1/2 x 16 lift cylinders on both sides before installing the radius rod.
2. Install radius rod assembly to the frame assembly using 1-8 x 4 hex head cap screws and hex lock nuts. Adjust the radius rod to fit with the cylinders fully retracted (**See Figure 3-5.**)

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.

ASSEMBLY INSTRUCTIONS



2211 hitch and lev link assy op

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.

IMPORTANT

The leveler tower must be installed so that the narrow end of the tower is down and the reinforced holes are to the rear of the machine.

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.

ASSEMBLY INSTRUCTIONS

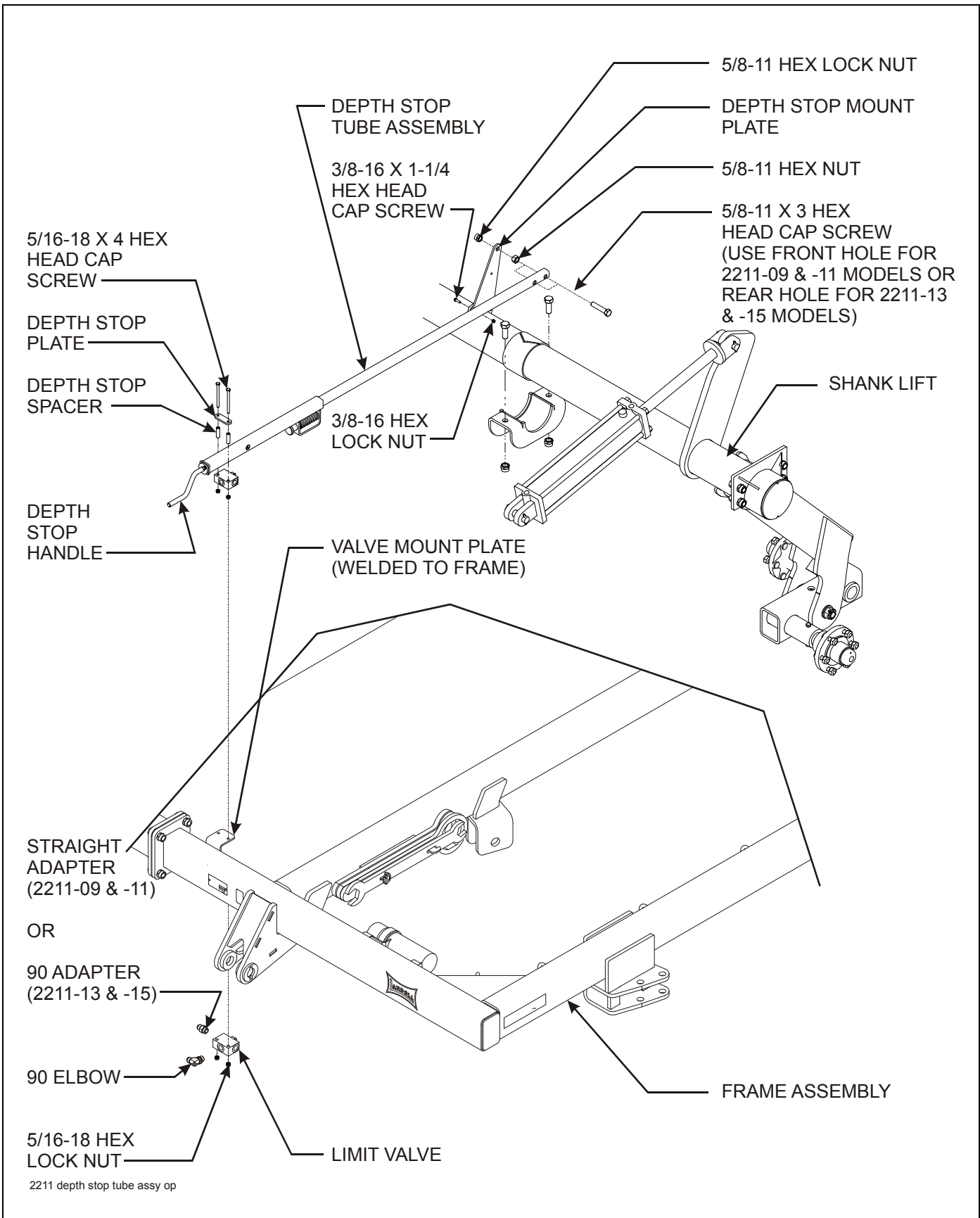


Figure 3-7: Depth Stop Assembly Installation

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.

ASSEMBLY INSTRUCTIONS

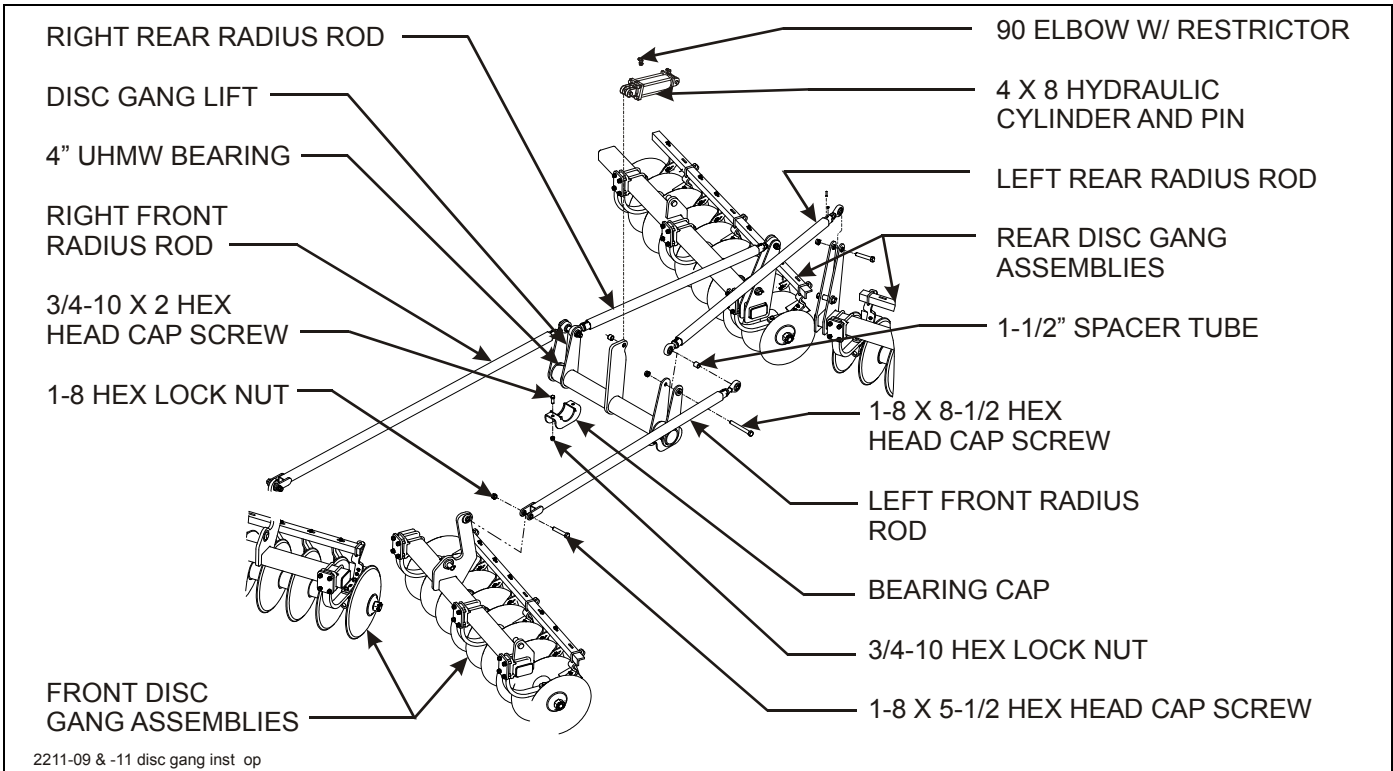


Figure 3-8: Disc Gang and Depth Adjustment Installation - 2211-09 & -11)

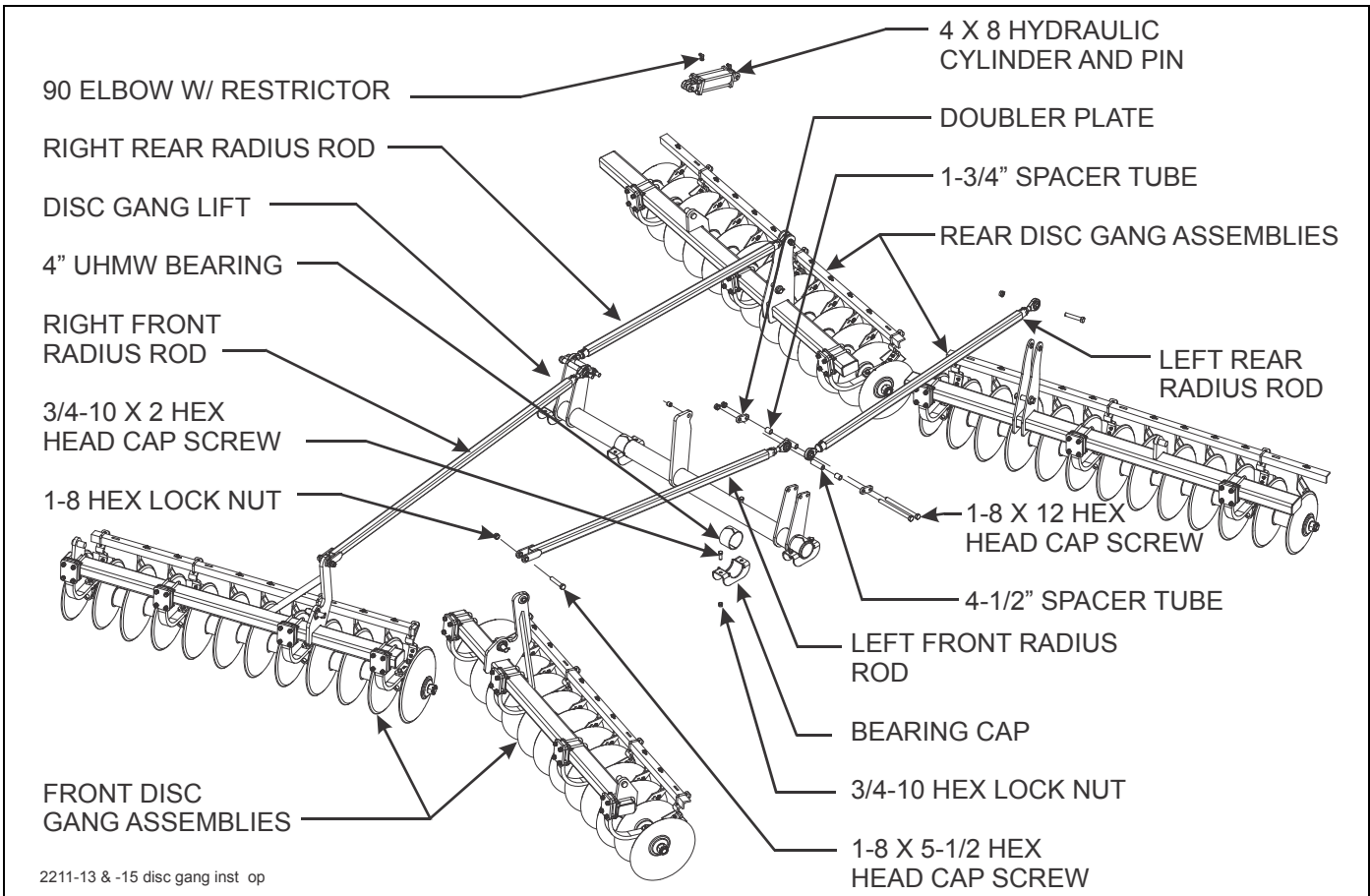


Figure 3-9: Disc Gang and Depth Adjustment Installation - 2211-13 & -15

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.

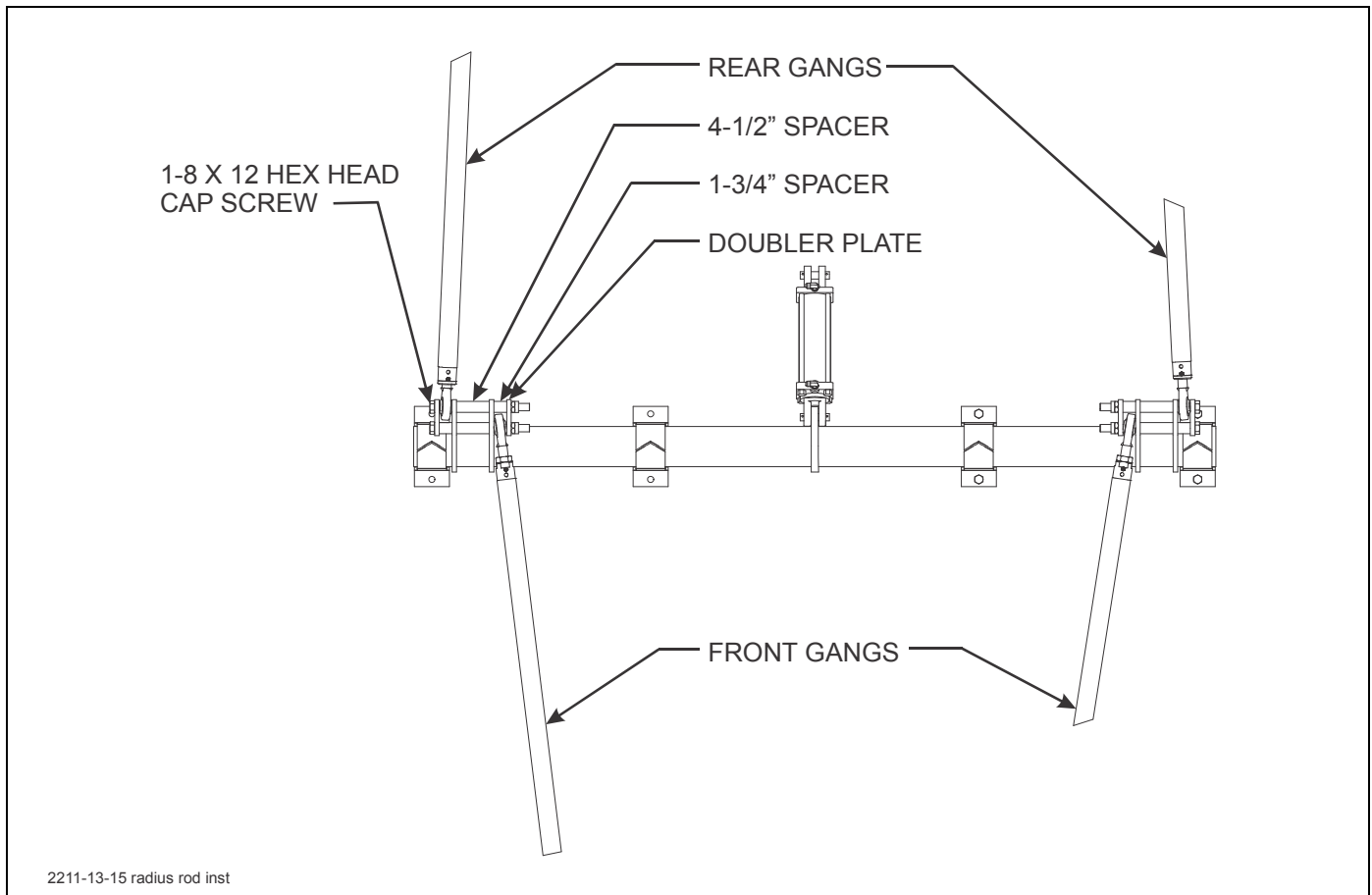


Figure 3-10: Top View of Radius Rod Installation - 2211-13 & -15

ASSEMBLY INSTRUCTIONS

- 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.**)
- 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.
- 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.

- 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.**)

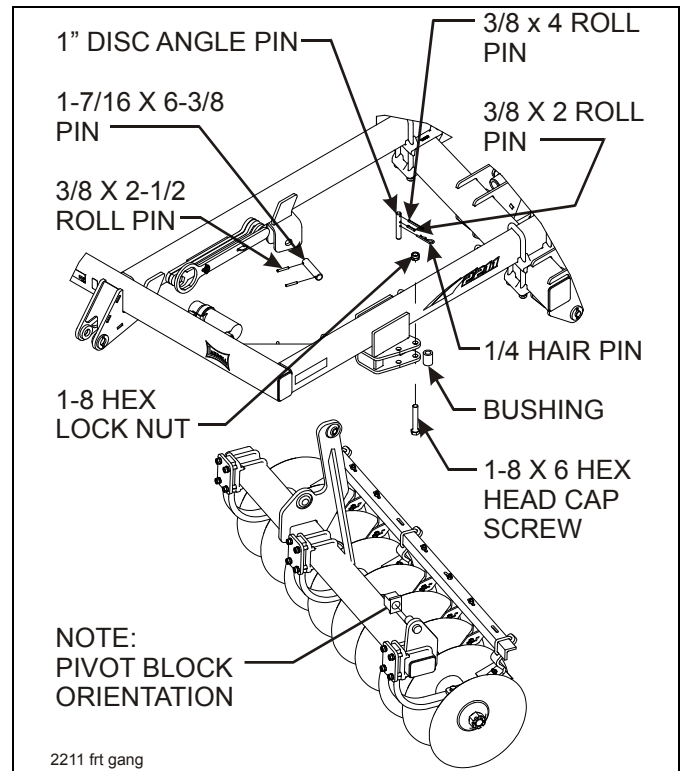


Figure 3-11: Front Disc Gang Installation

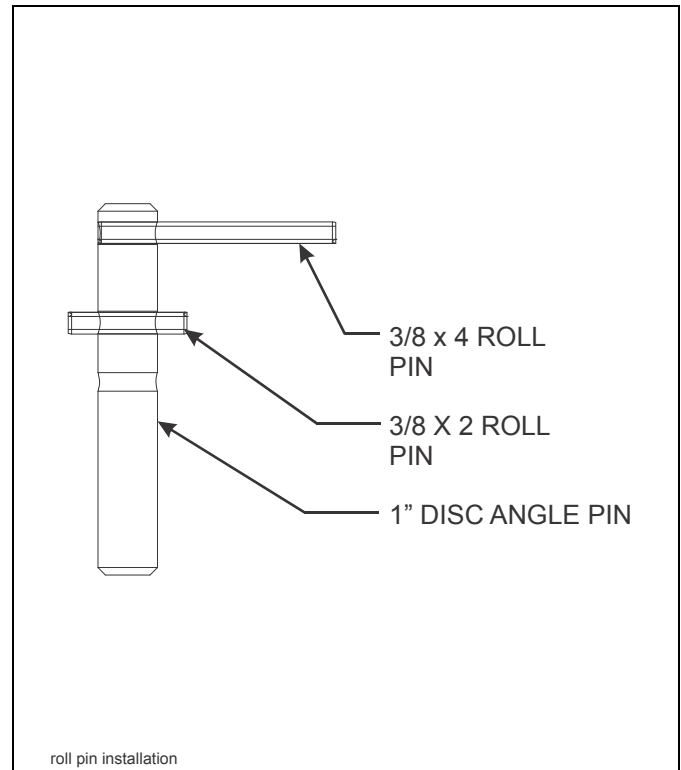


Figure 3-12: Roll Pin Installation

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.**)

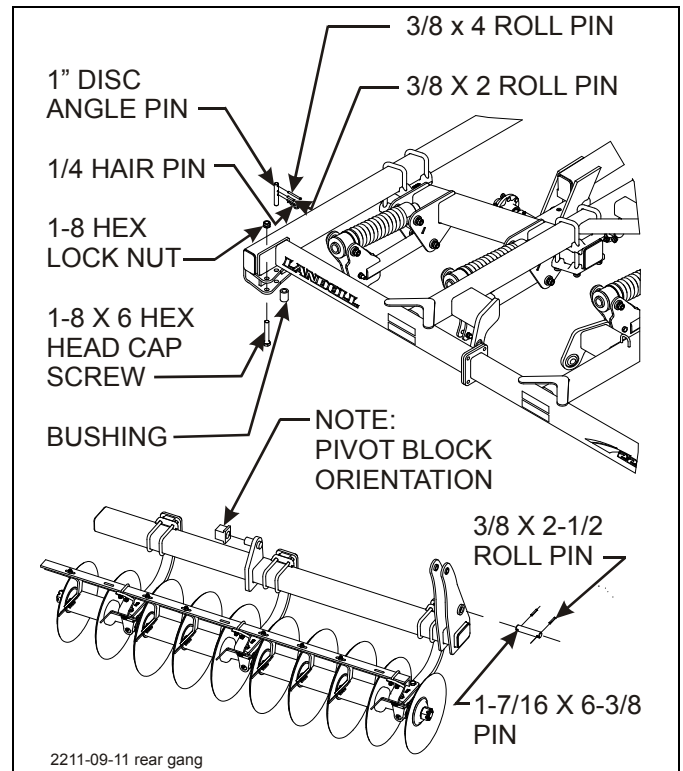


Figure 3-13: Rear Disc Gang Installation (2211-09 and -11)

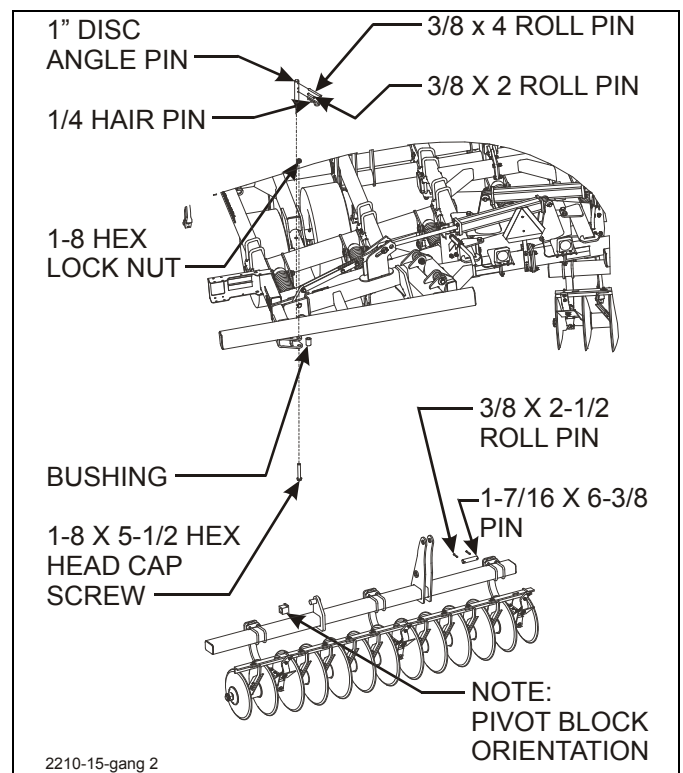


Figure 3-14: Rear Disc Gang Installation (2211-13 and -15)

ASSEMBLY INSTRUCTIONS

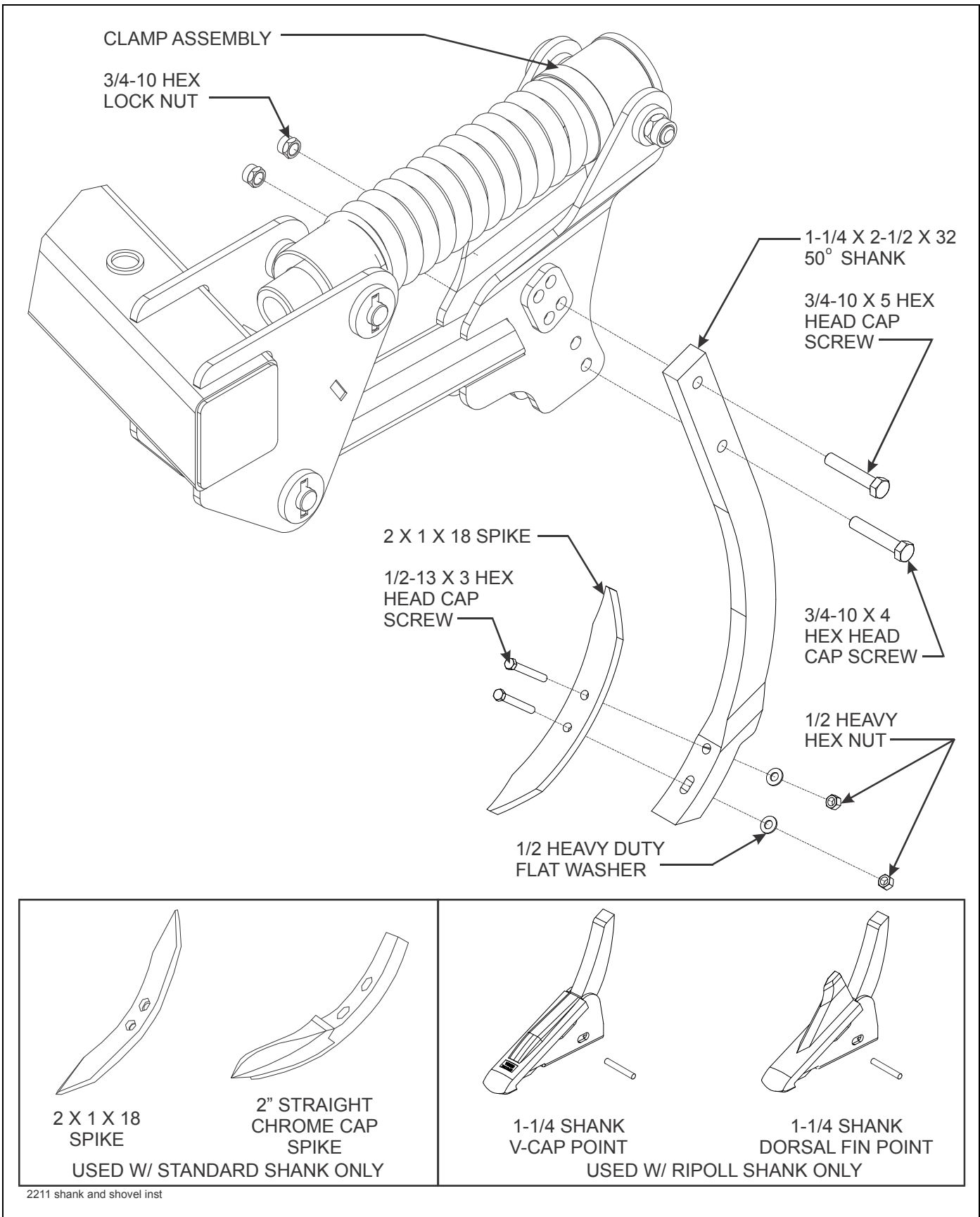
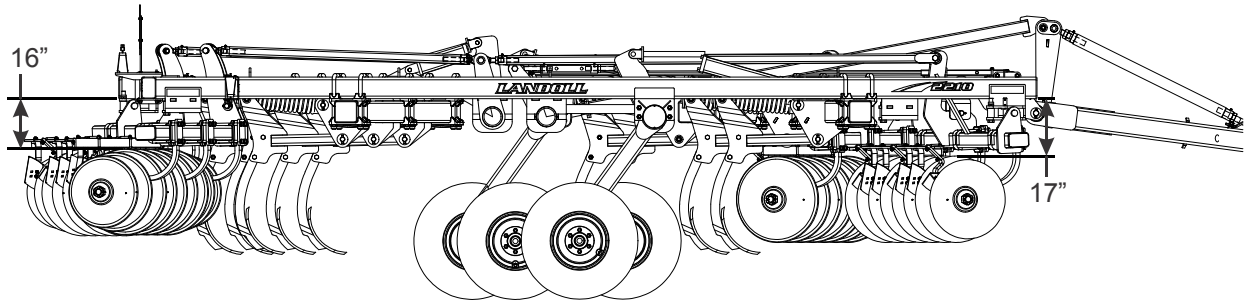


Figure 3-15: Auto Reset Shank and Shovel Installation

NOTE: DISC GANG CYLINDER IS FULLY RETRACTED.



disc gang height

Figure 3-16: Disc Gang Height Adjustment

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.

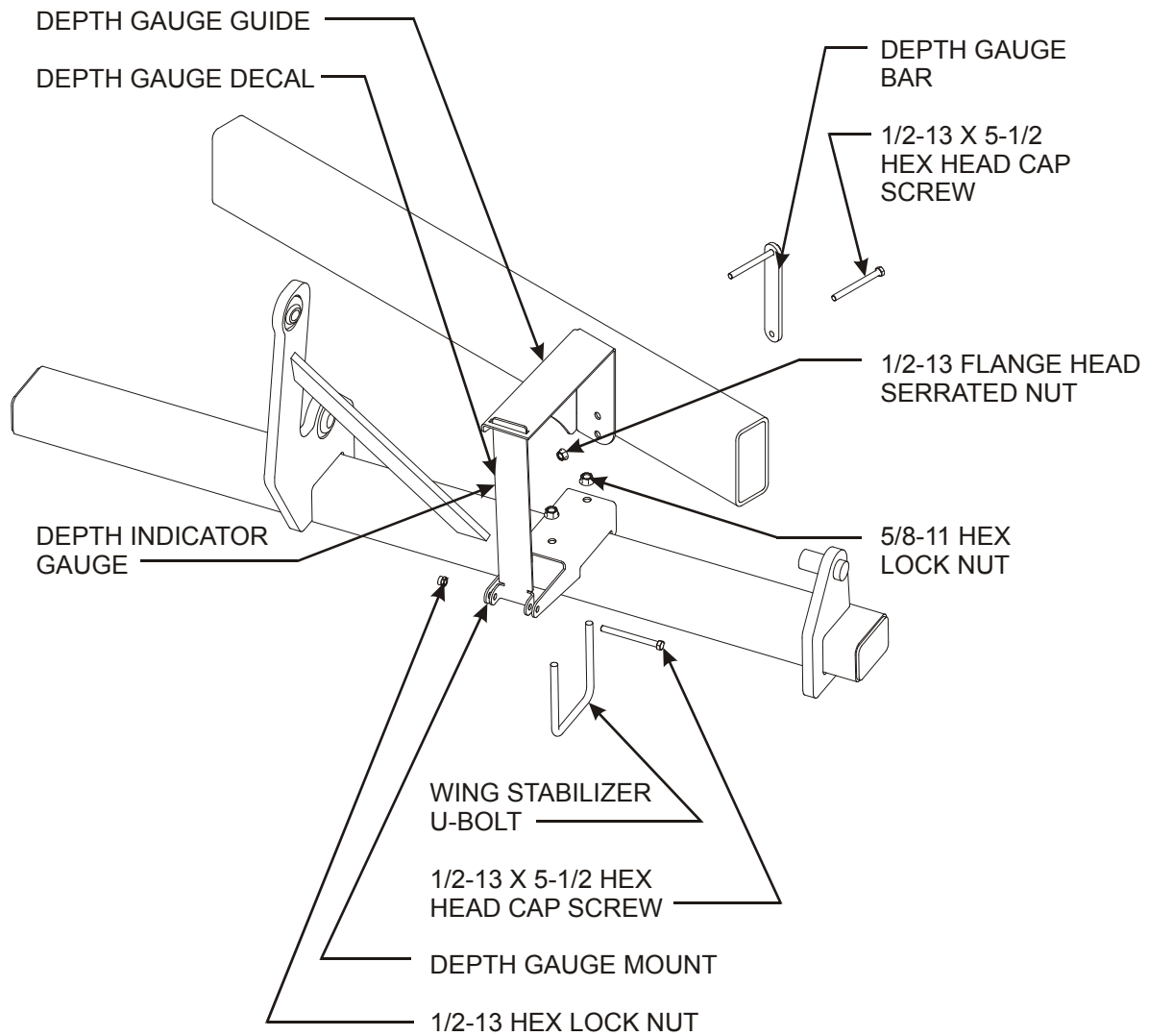
Auto Reset Shank and Shovel Installation

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.**)



2211 gang depth gauge assy op

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**.

ASSEMBLY INSTRUCTIONS

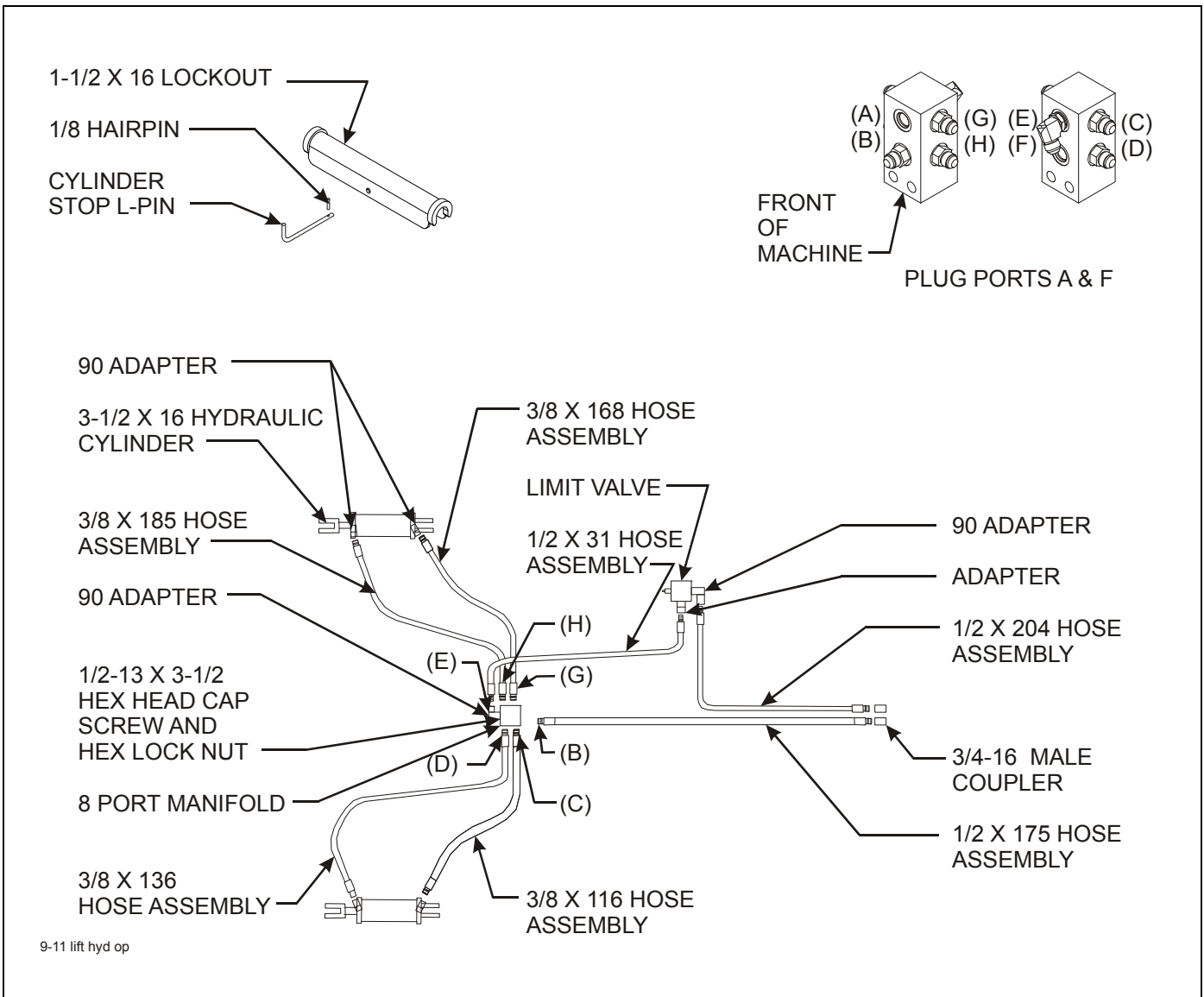


Figure 3-18: Wheel Lift Hydraulic Installation (2211-09 & -11)

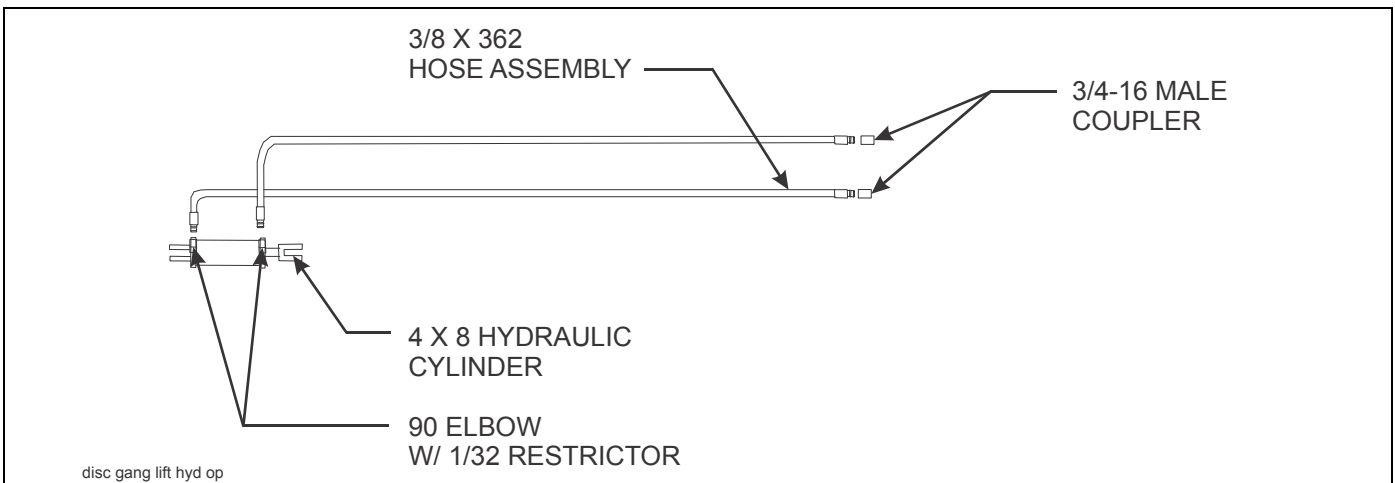
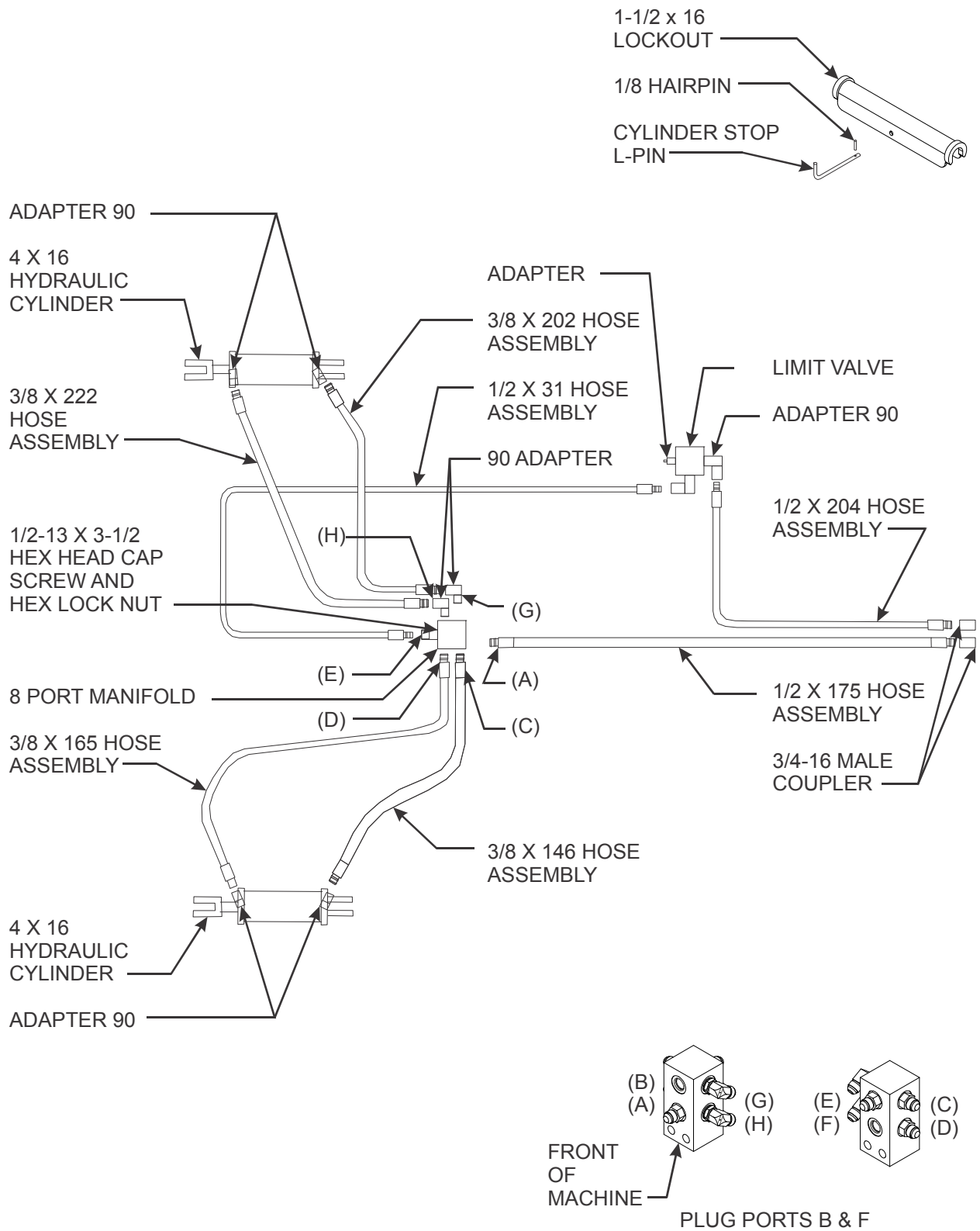


Figure 3-19: Disc Gang Lift Hydraulic Installation



13-15 lift hyd op

Figure 3-20: Wheel Lift Hydraulic Installation (2211-13 & -15)

ASSEMBLY INSTRUCTIONS

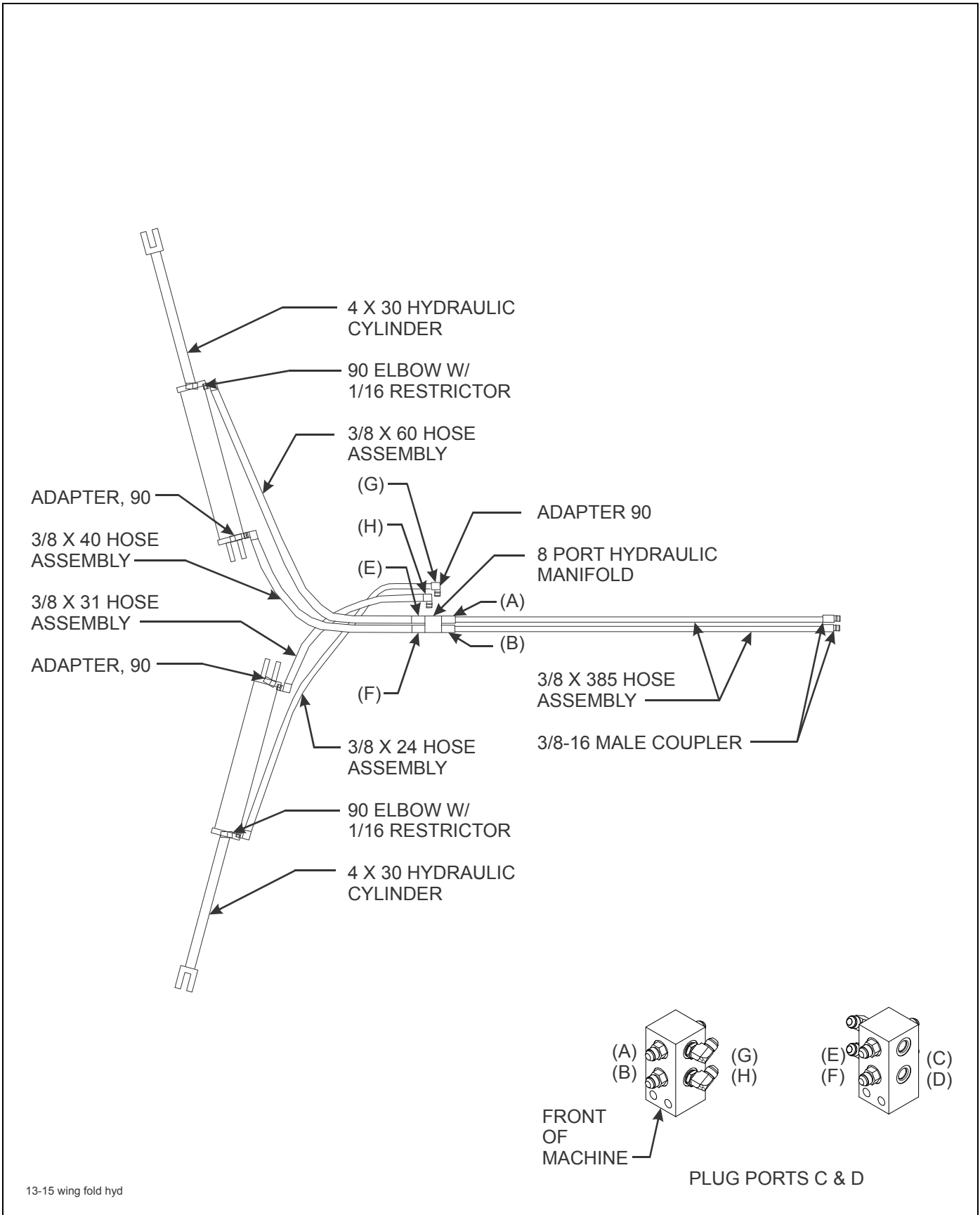


Figure 3-21: Wing Fold Hydraulic Installation (2211-13 & -15)

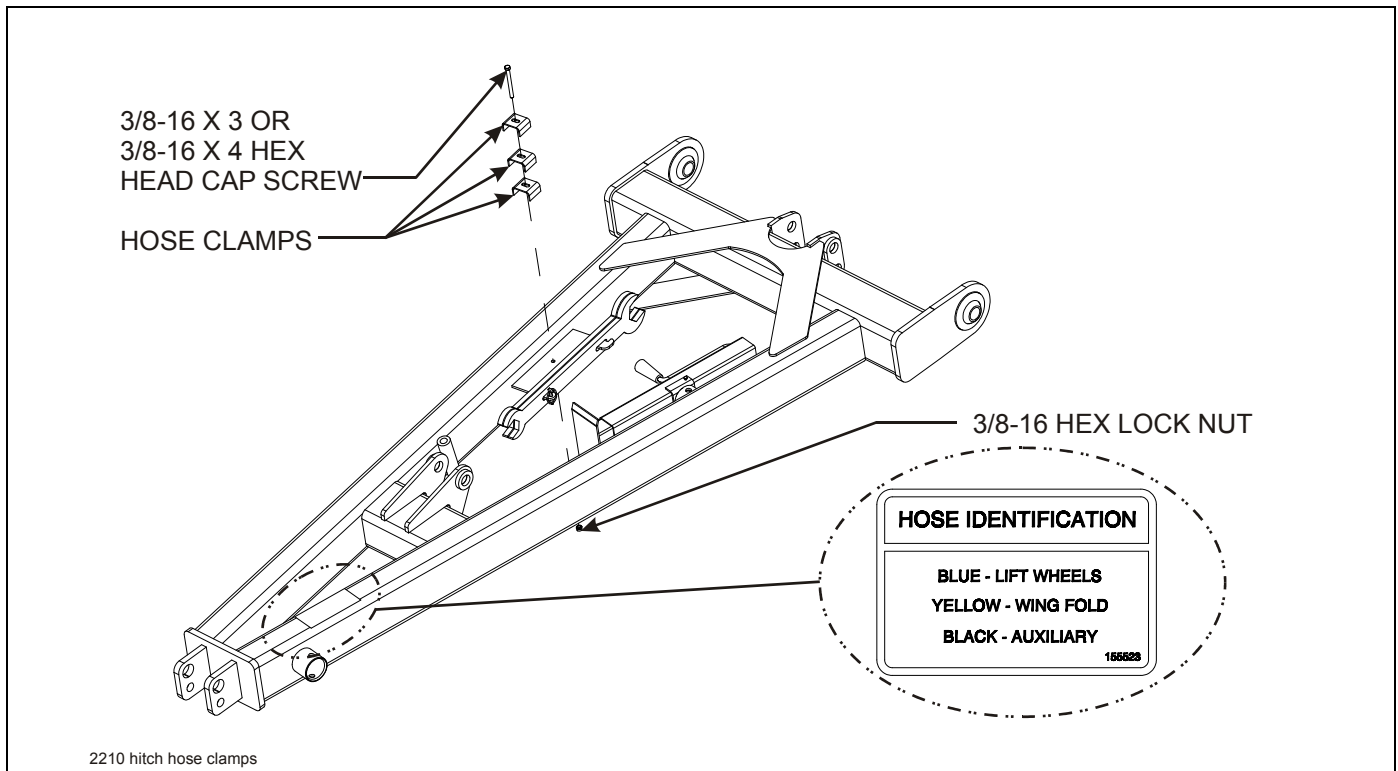


Figure 3-22: Hitch Hose Clamps and Color Designation

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.

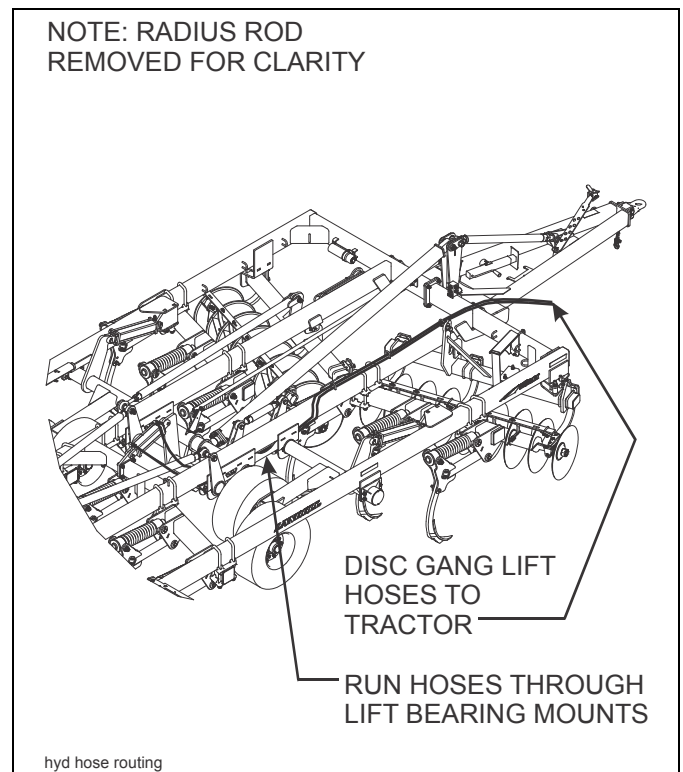


Figure 3-23: 2211-09 and -11 Hydraulic Hose Routing

ASSEMBLY INSTRUCTIONS

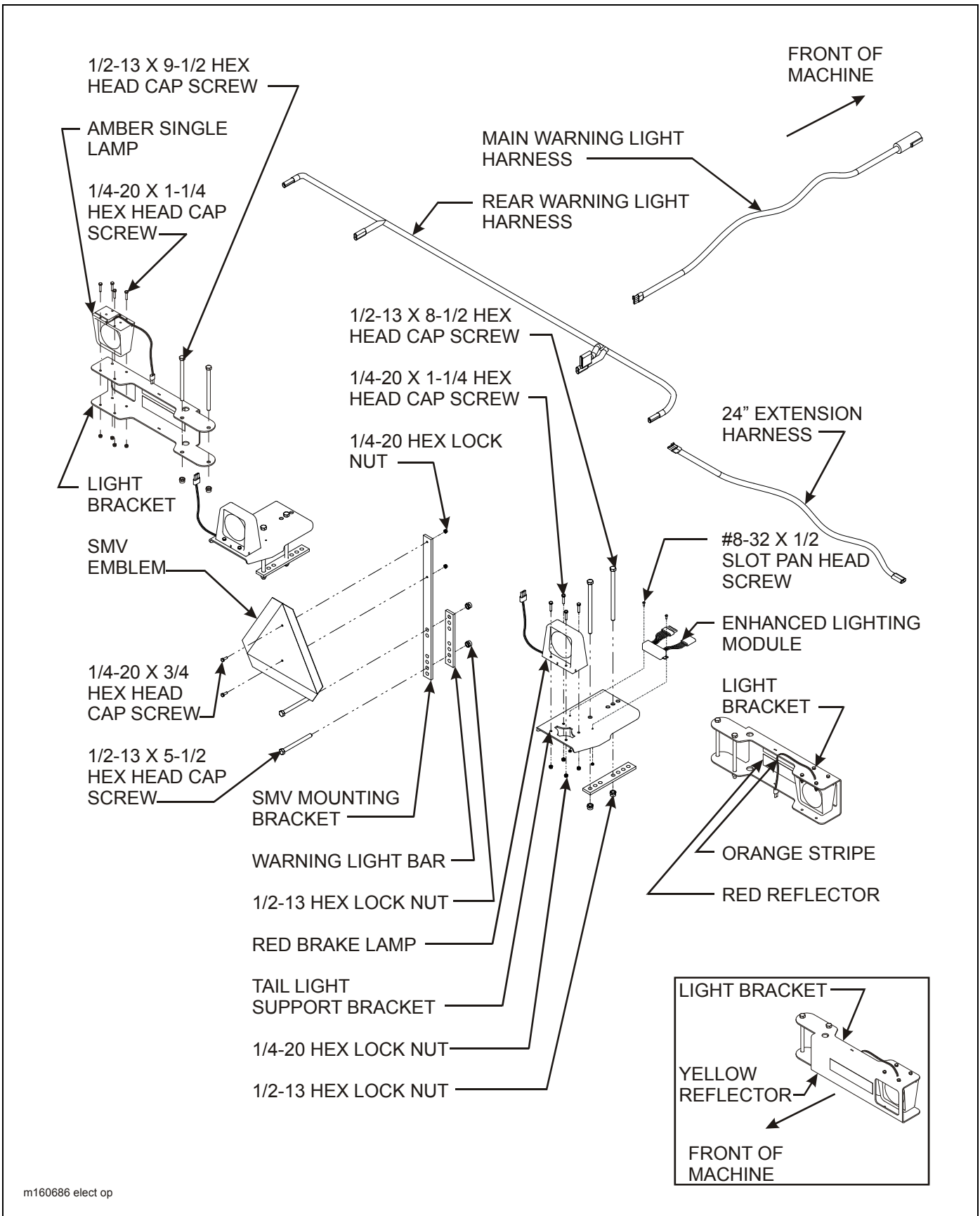


Figure 3-24: Light and SMV Bracket Installation (Prior to August, 2013)

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.

ASSEMBLY INSTRUCTIONS

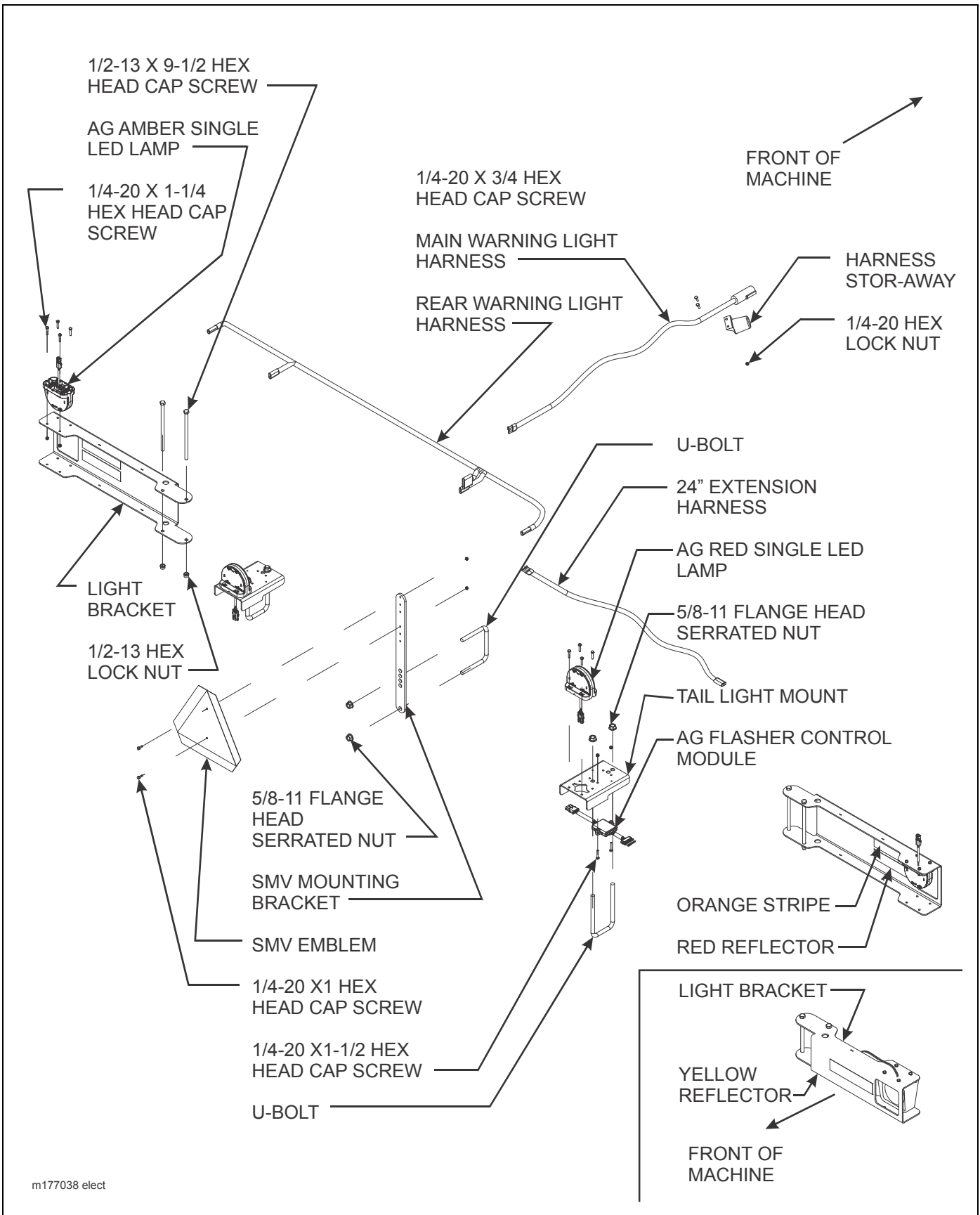


Figure 3-25: Light and SMV Bracket Installation (After August, 2013)

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.



CAUTION

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

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.

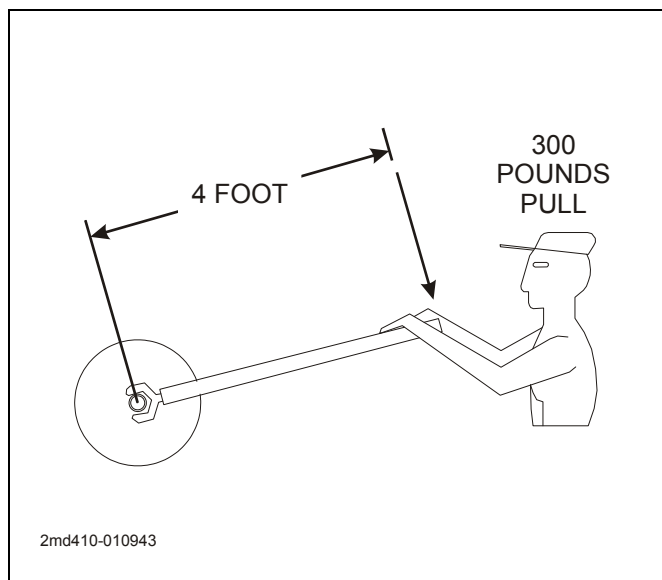


Figure 3-26: 1,200 Foot-Pounds of Torque

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.

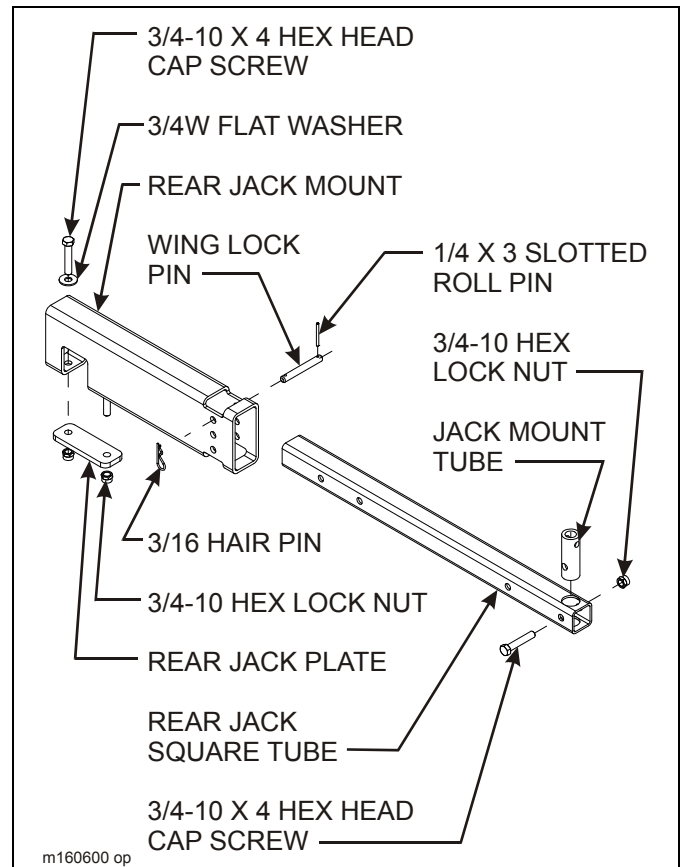


Figure 3-27: Rear Jack Installation

ASSEMBLY INSTRUCTIONS

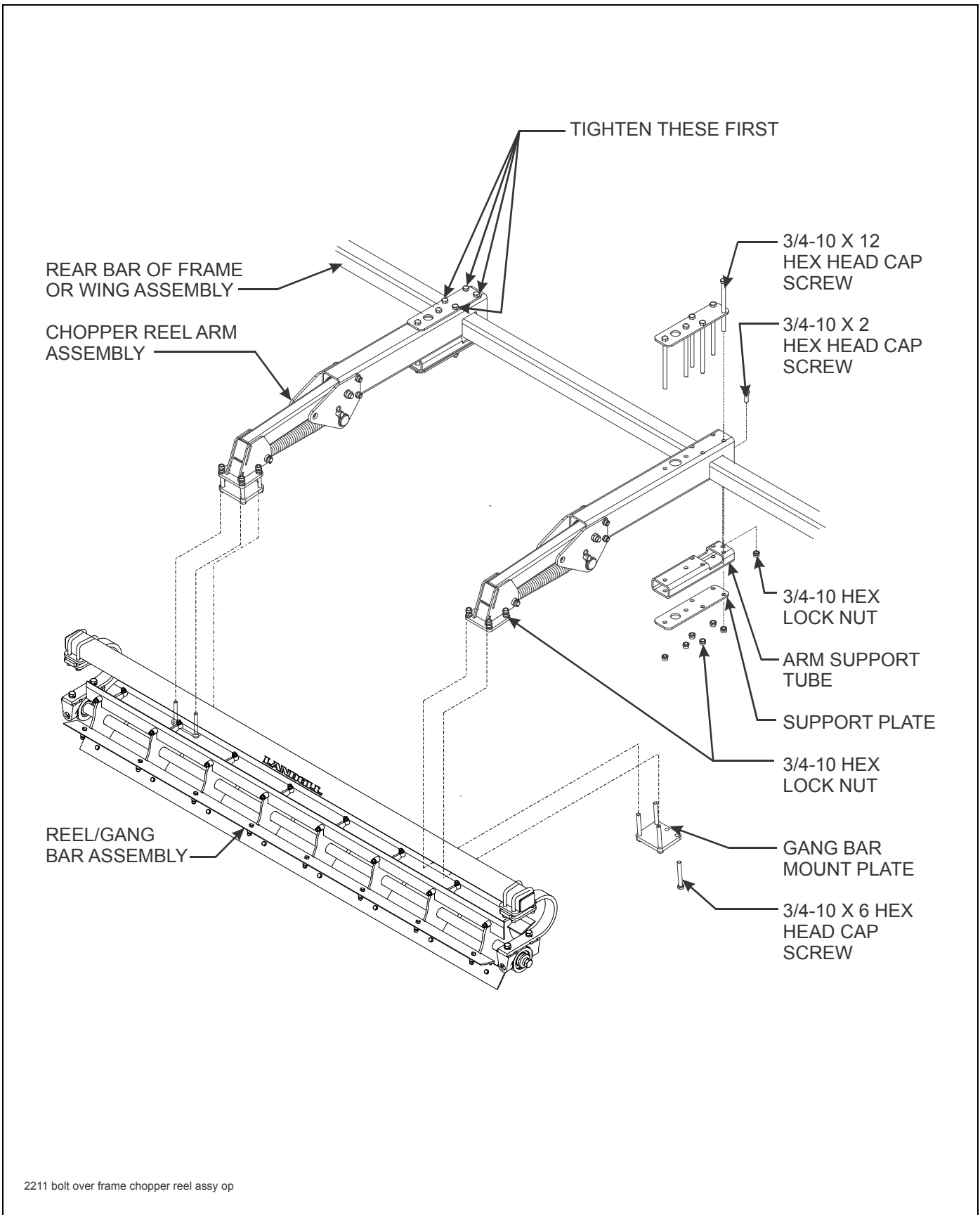


Figure 3-28: Standard or Hydraulic Tubular Mount Chopper Reel Installation (Option)

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.

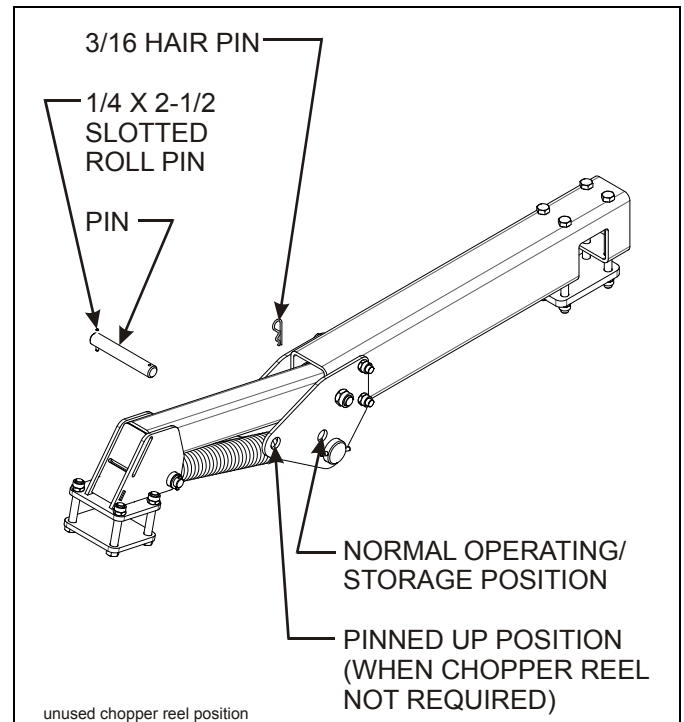


Figure 3-29: Unused Chopper Reel Position

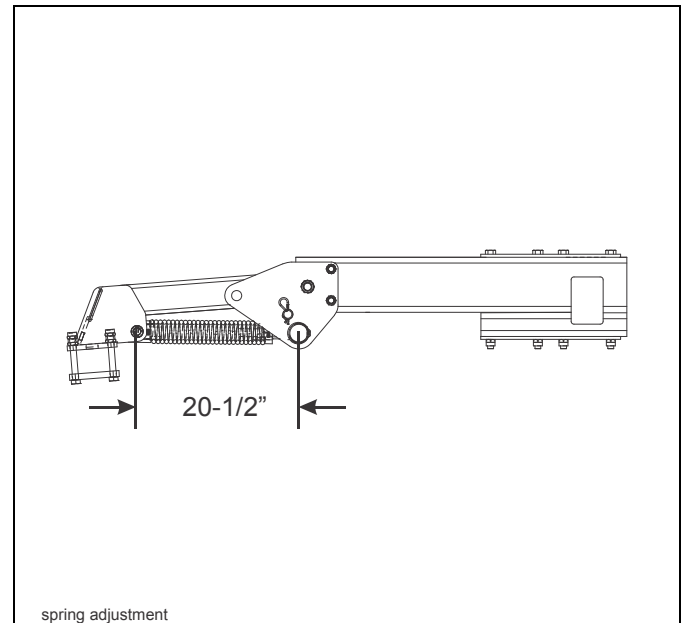


Figure 3-30: Spring Adjustment

ASSEMBLY INSTRUCTIONS

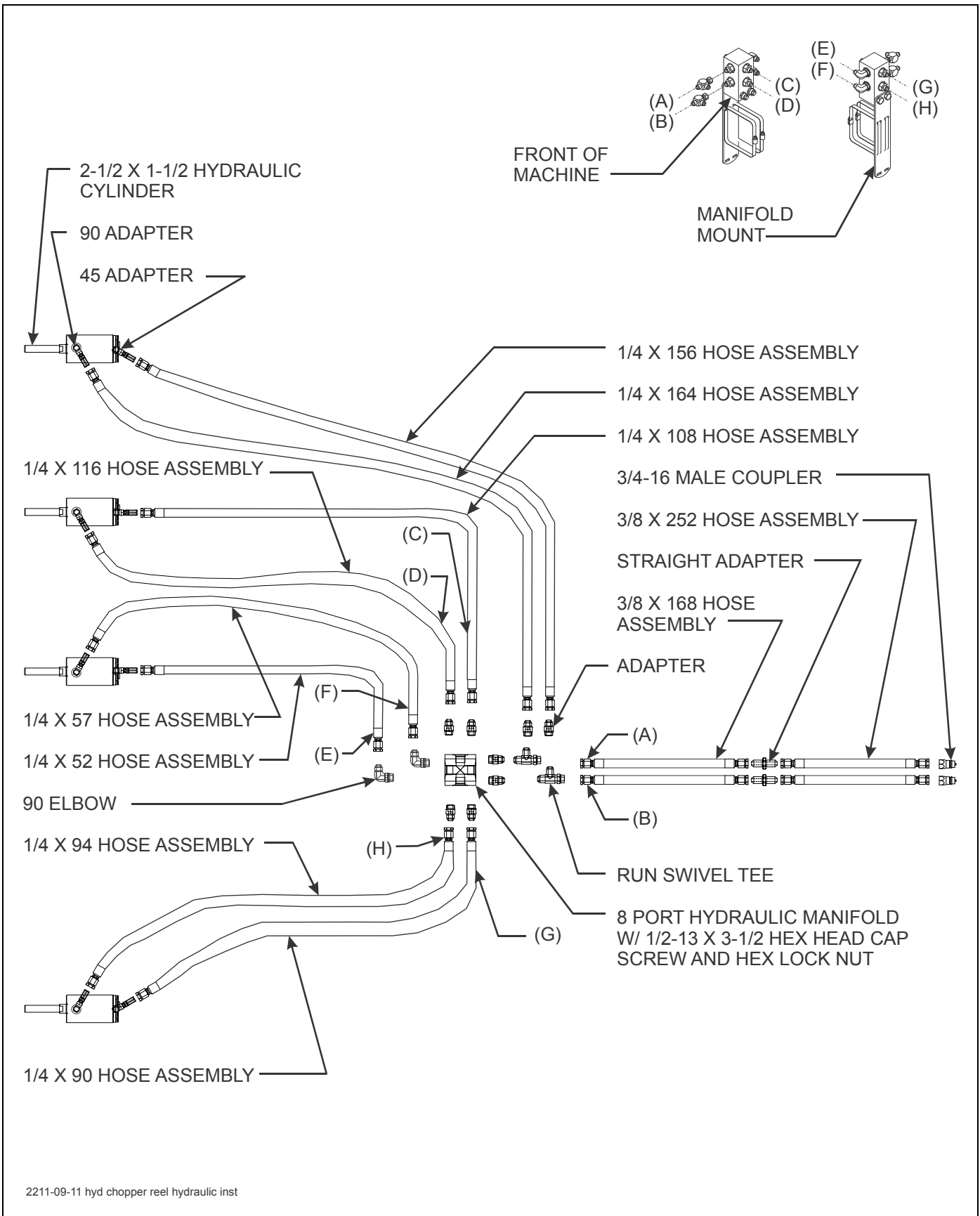


Figure 3-31: 2211-09 & -11 Chopper Reel Hydraulic Installation (Option)

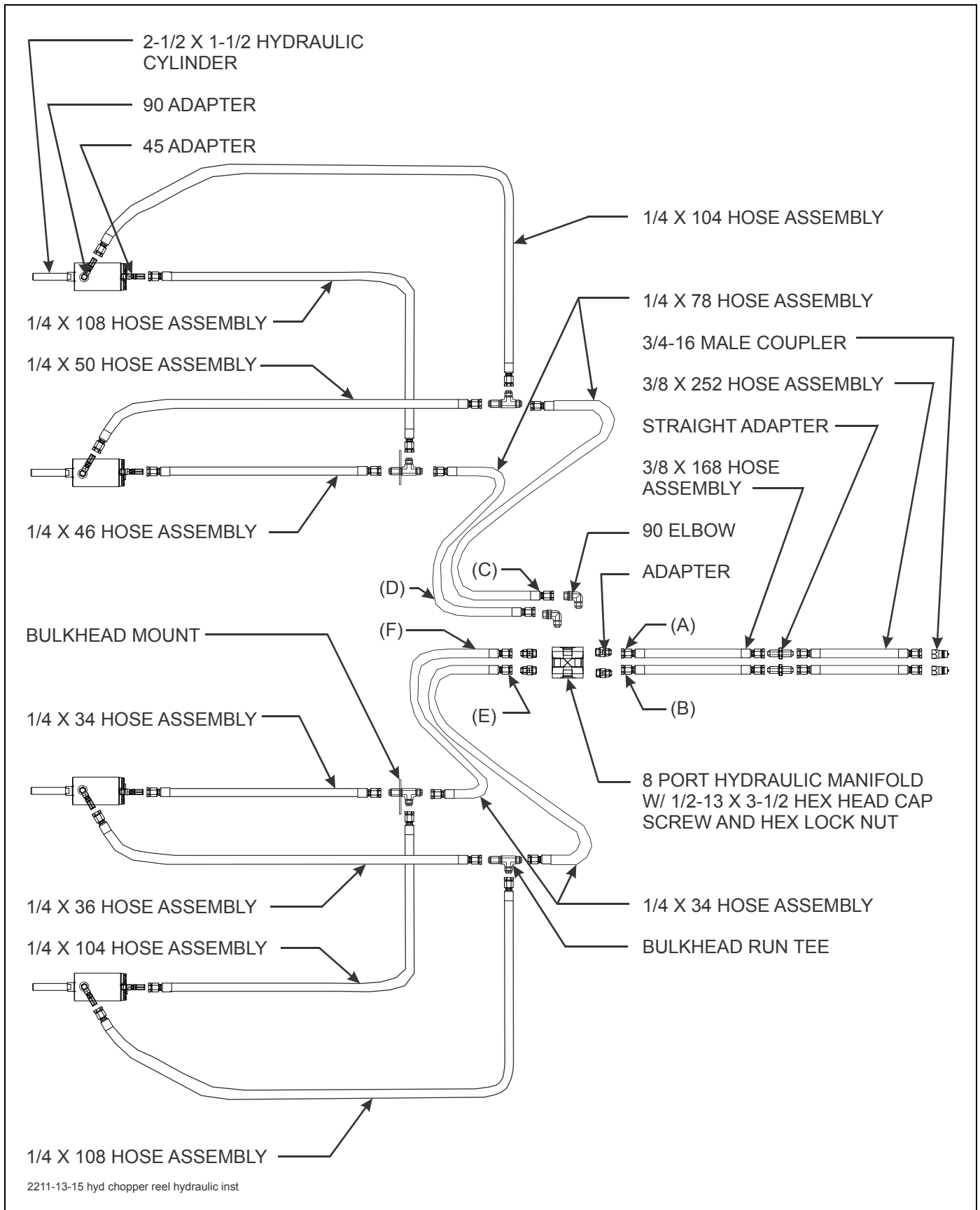


Figure 3-32: 2211-13 & -15 Chopper Reel Hydraulic Installation (Option)

ASSEMBLY INSTRUCTIONS

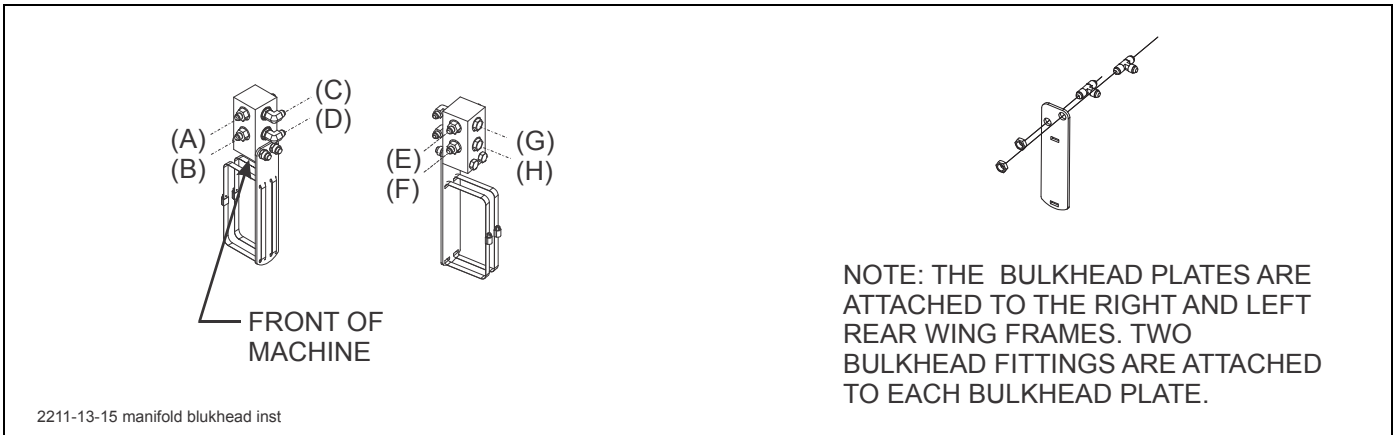


Figure 3-33: Chopper Reel Hydraulic Manifold and Bulkhead Installation (Option)

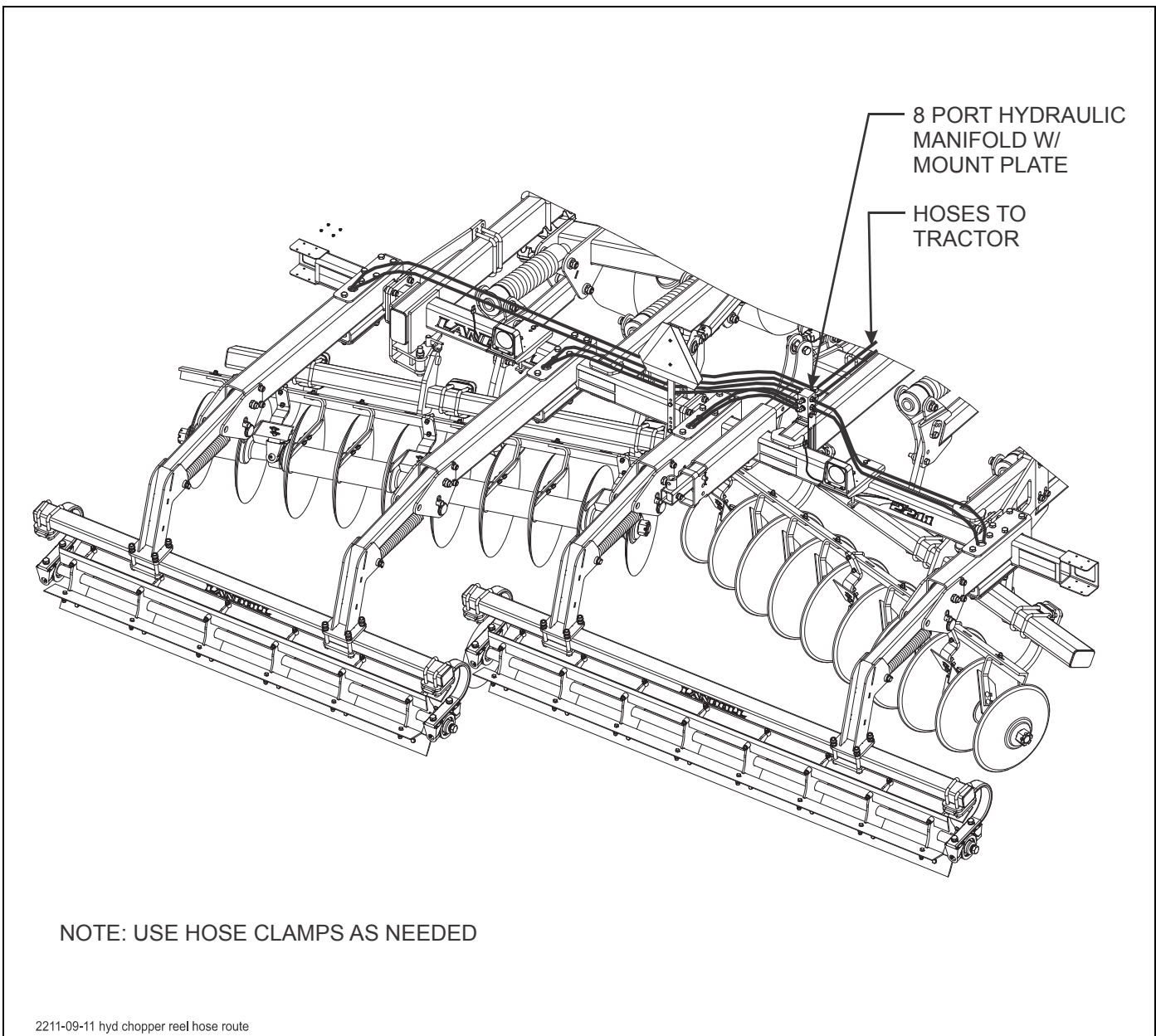
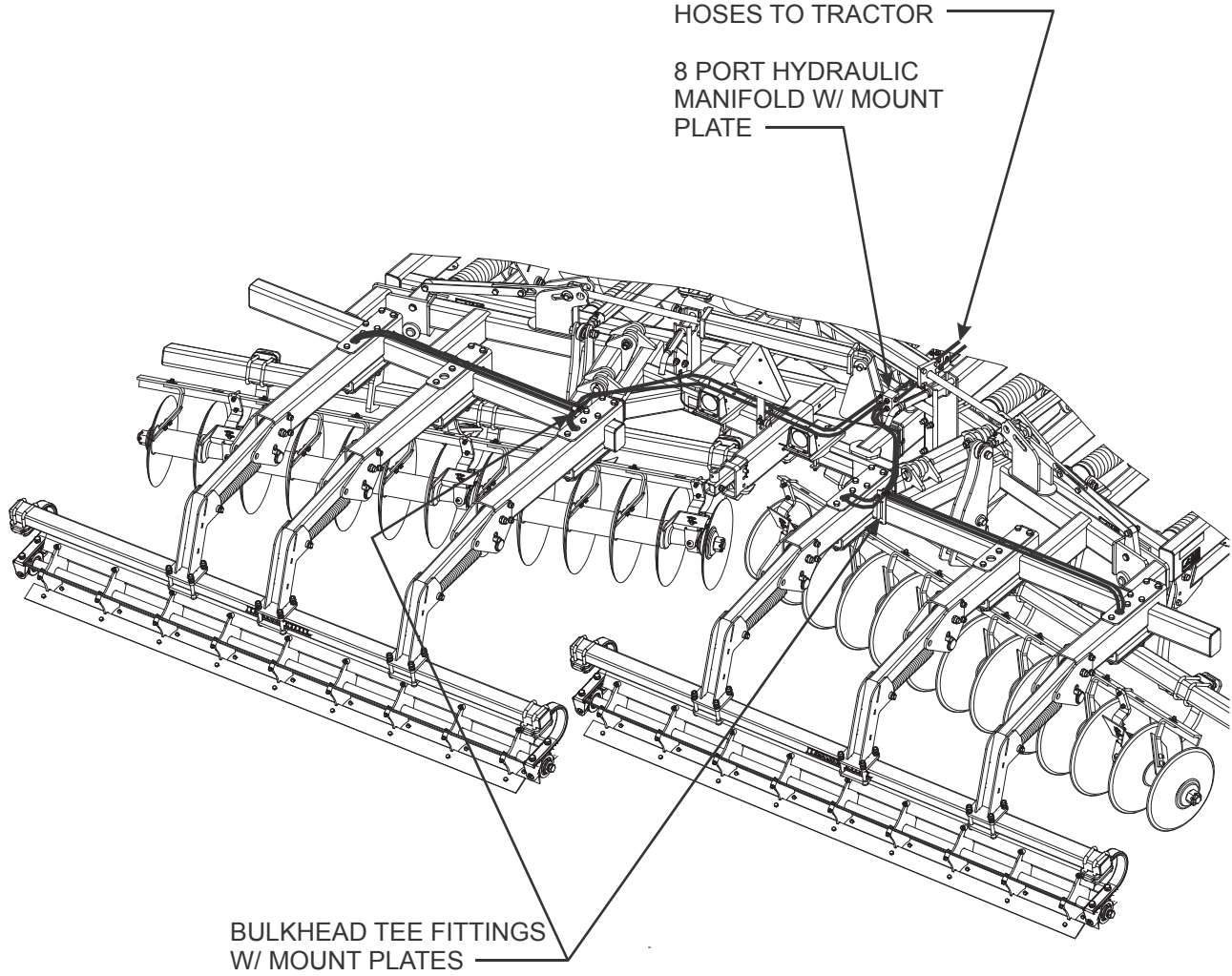


Figure 3-34: 2211-09 and 2211-11 Hose Route Installation



NOTE: USE HOSE CLAMPS AS NEEDED

2211-13-15 hyd chopper reel hose route

Figure 3-35: 2211-13 and 2211-15 Hose Route Installation

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.

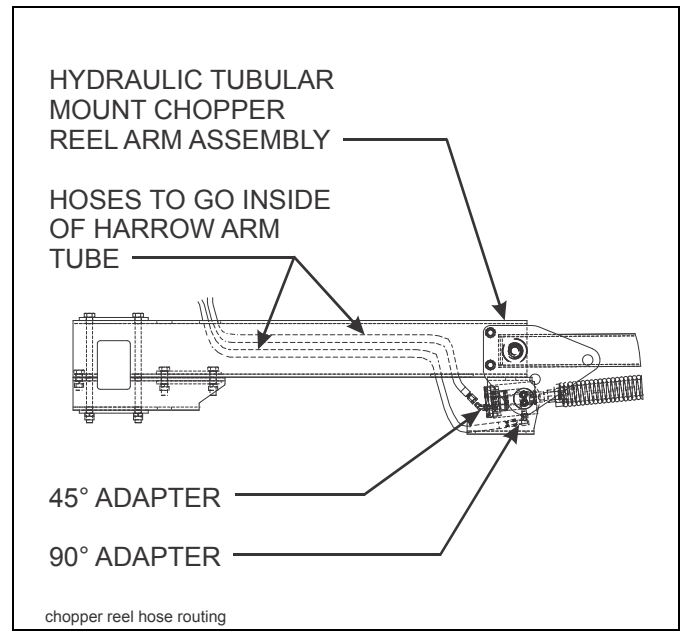


Figure 3-36: Hose Routing Inside Chopper Reel Arm

Notes:

Operation and Maintenance



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.

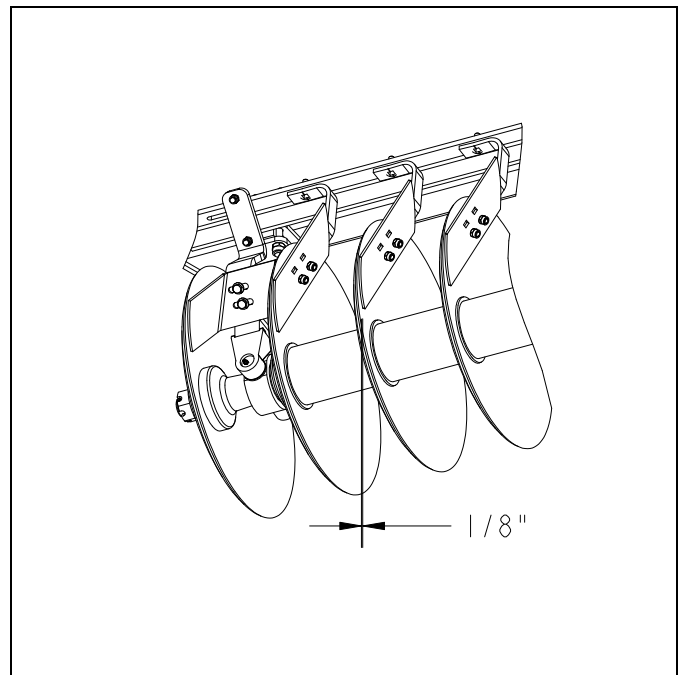


Figure 4-1: Disc Scraper Adjustment

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.

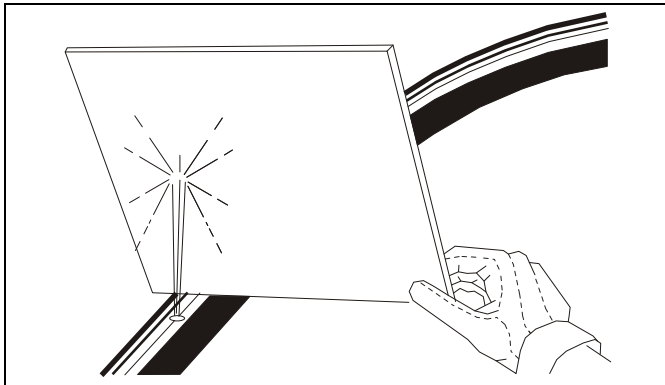


Figure 4-2: Hydraulic Leak Detection

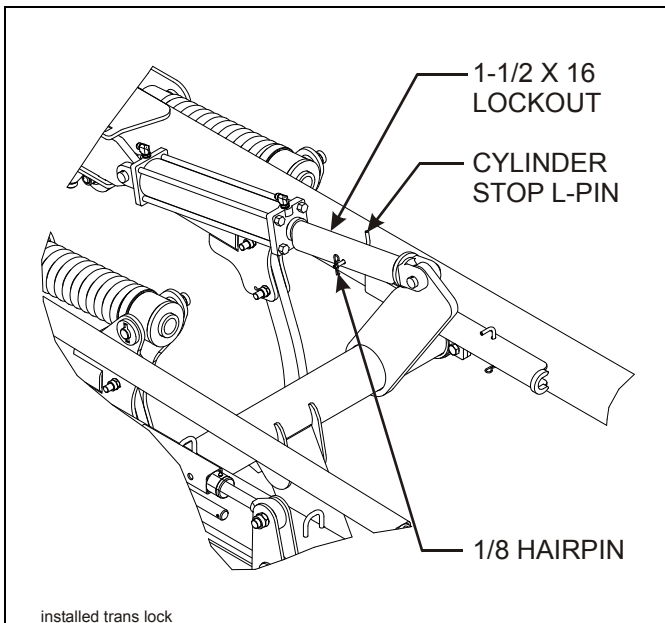


Figure 4-3: Installed Transport Locks

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.

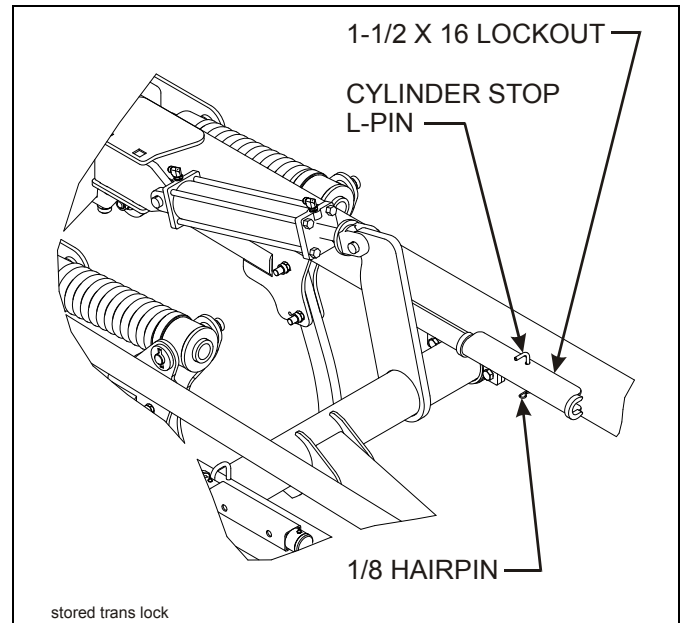


Figure 4-4: Stored Transport Locks

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.

- 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.

- 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.
- 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.
- 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.

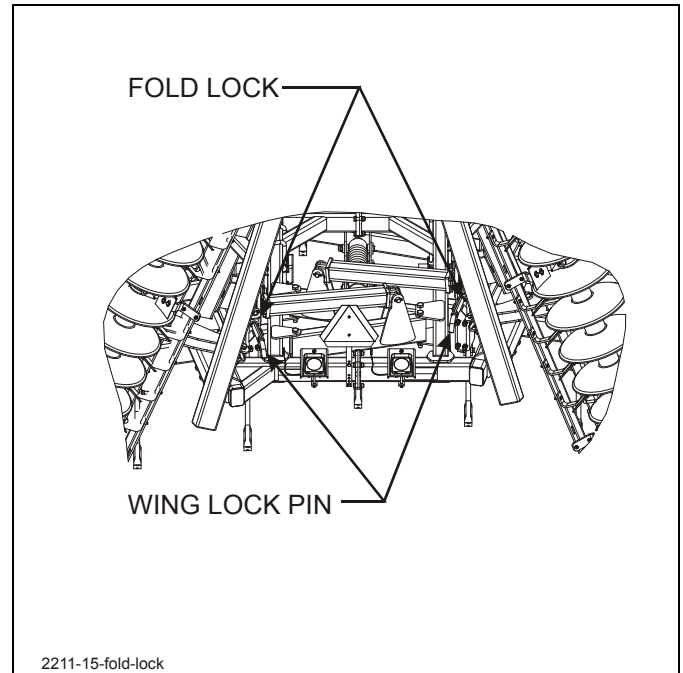


Figure 4-5: Position in Folded Position

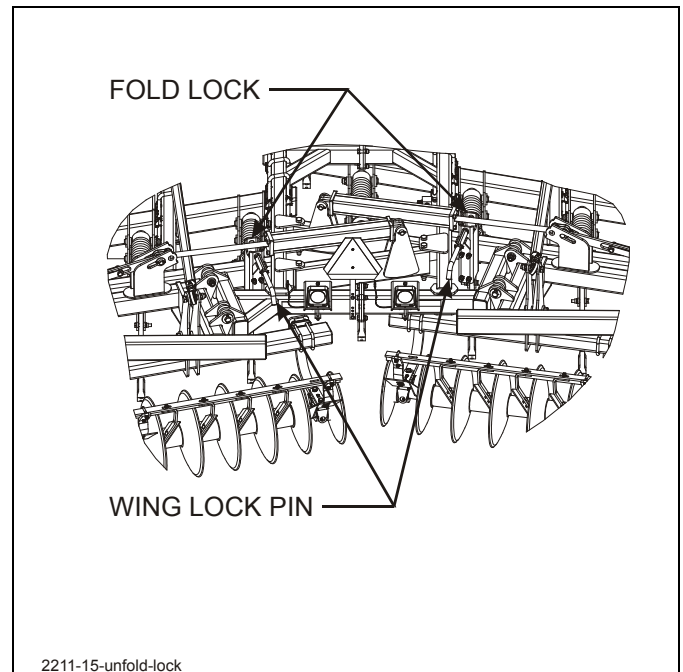


Figure 4-6: Position in Unfolded Position

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.**)

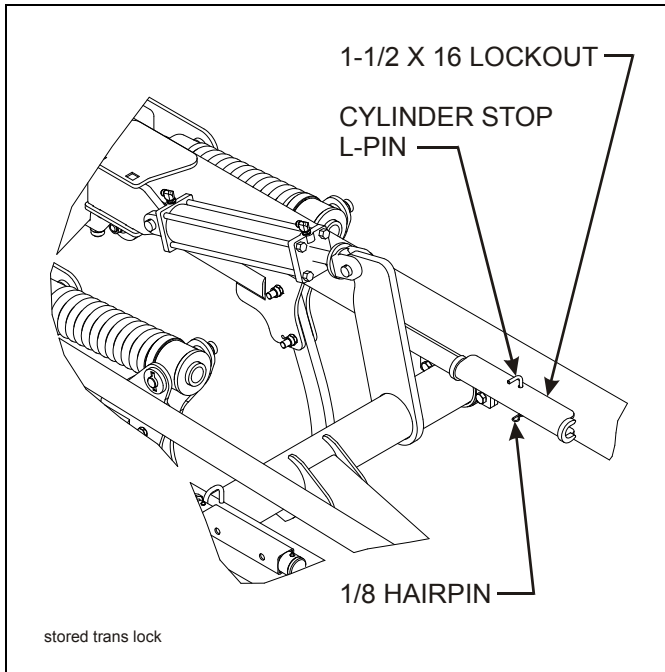


Figure 4-7: Stored Transport Locks

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.

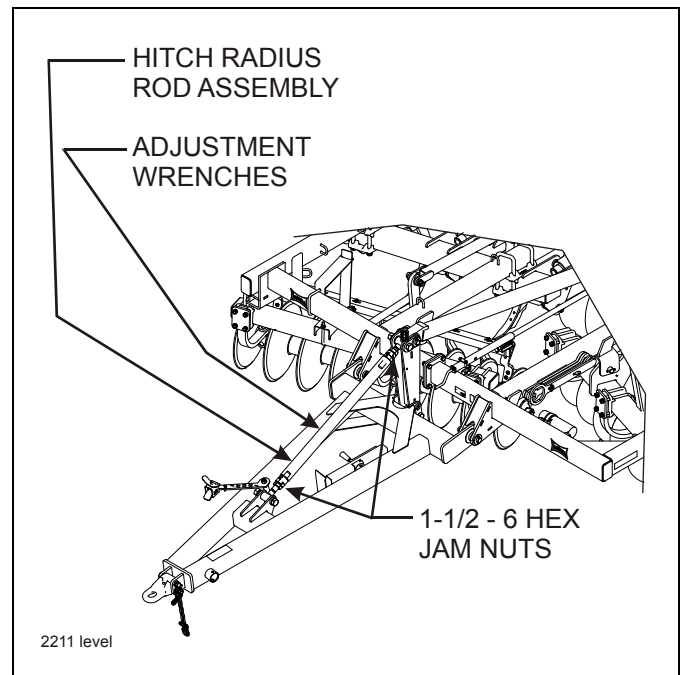


Figure 4-8: Radius Rod Leveling Adjustment

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.

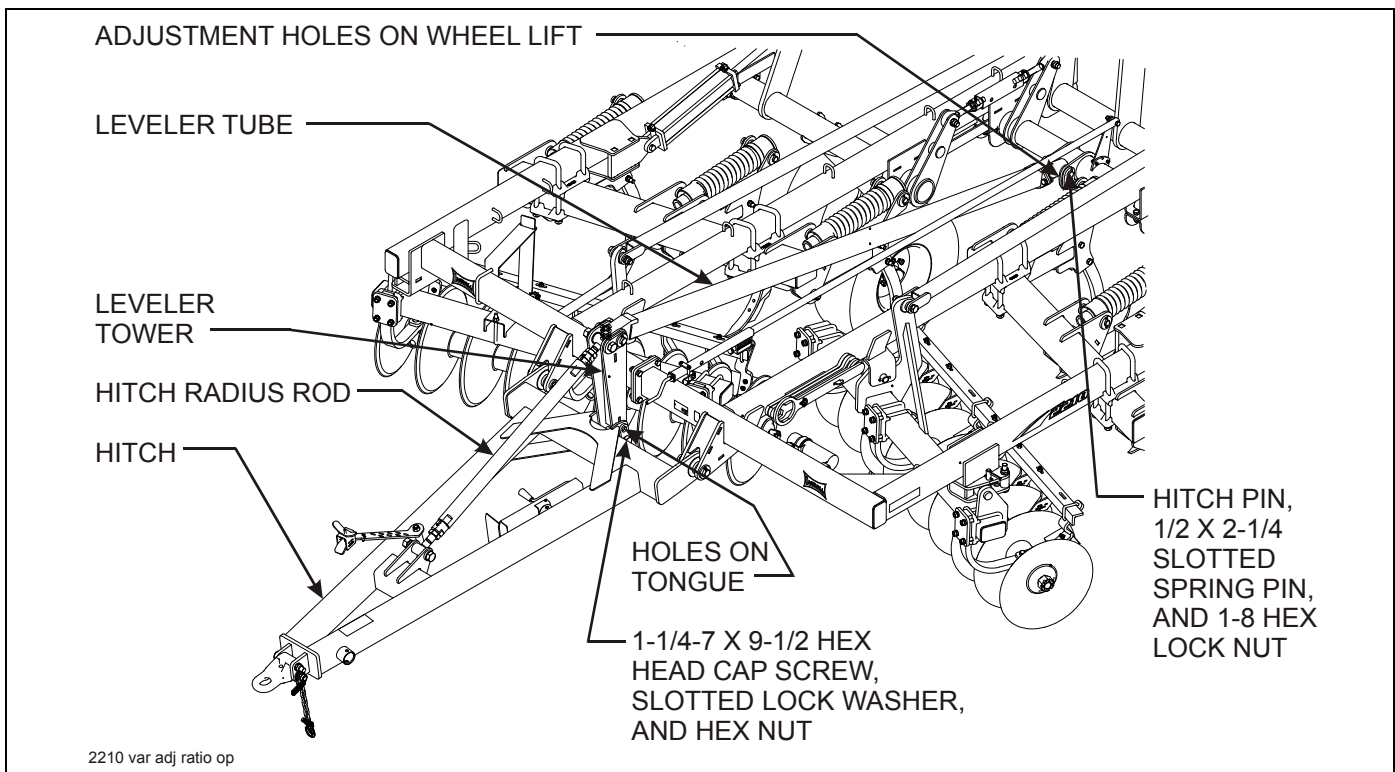


Figure 4-9: Variable Ratio Leveler Adjustment

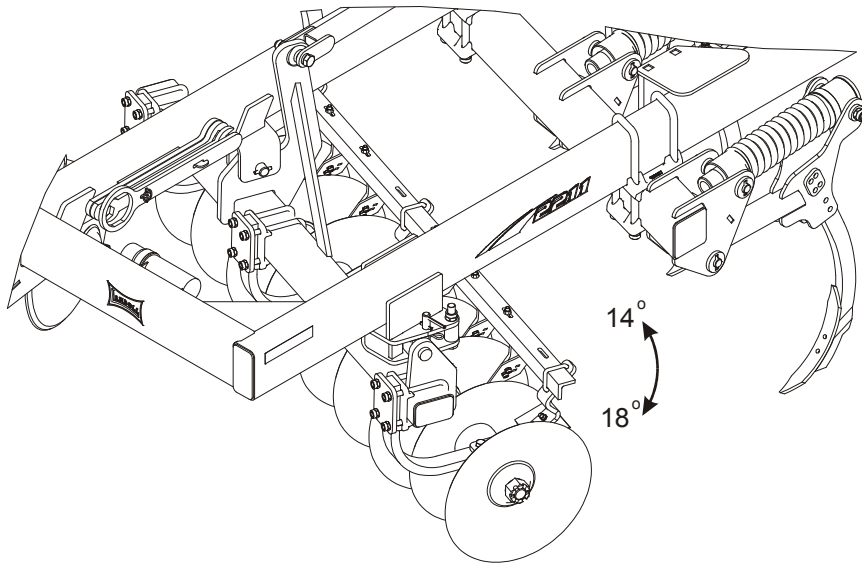
Disc Blades

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.

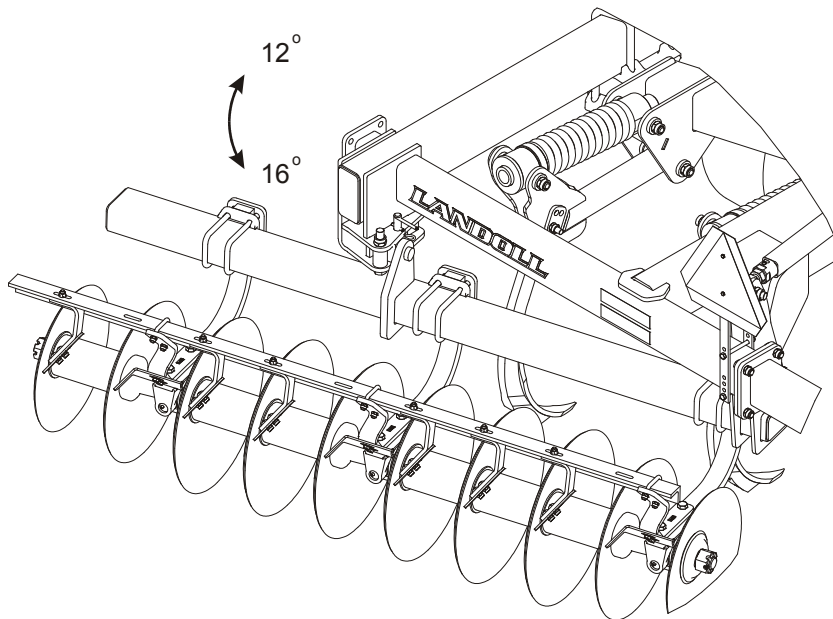


DANGER

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.



FRONT GANGS



REAR GANGS

2211 disc gang mounting hardware op

Figure 4-10: Disc Gang Angle Settings

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.

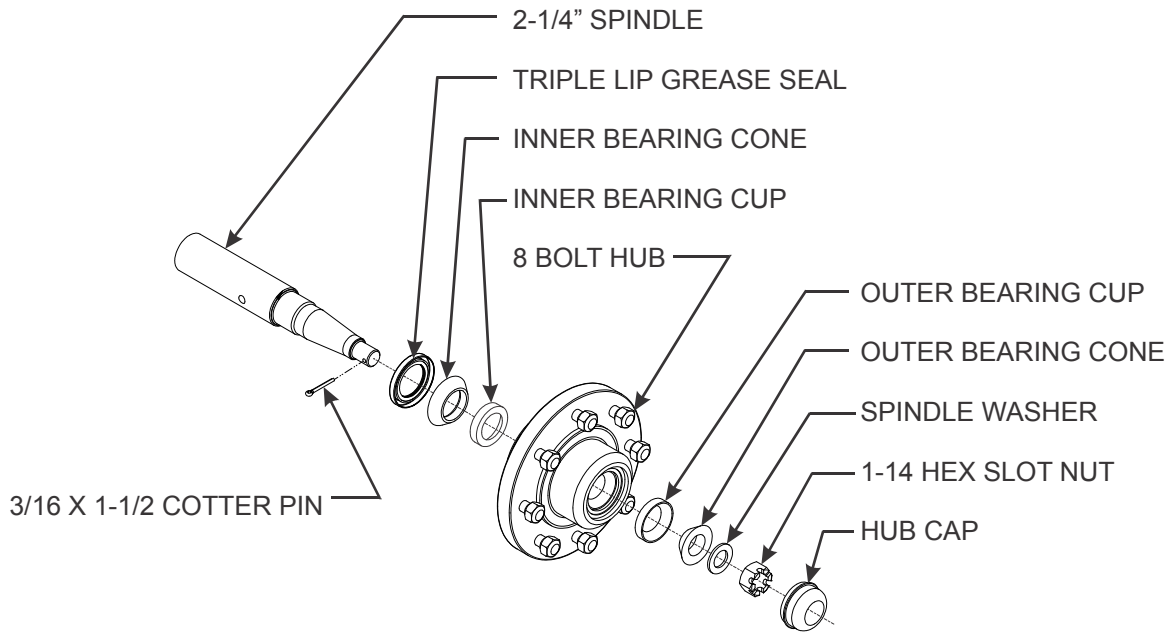
3. For most conditions the rear gang depth should be the same or shallower than the front gang. To adjust rear gang depth, extend radius rod to increase depth or retract radius rod to decrease depth.

IMPORTANT

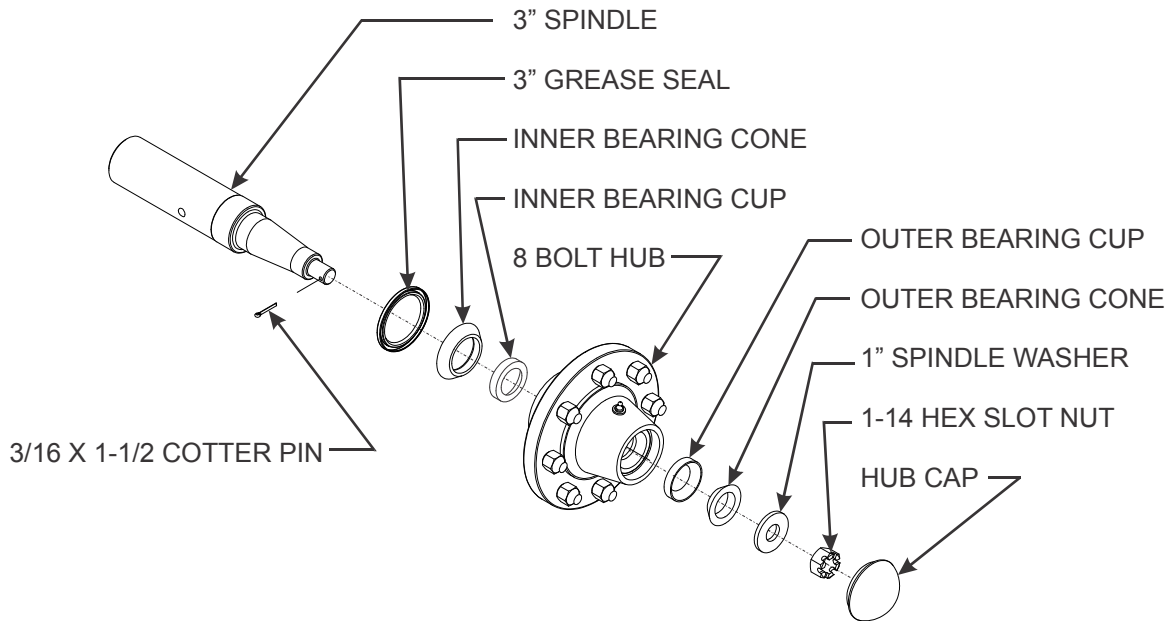
After adjustments are made to rear gangs, check both sides to be sure they are the same depth. This can be done by measuring from the frame down to the top of the blades of each gang.

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.**)



2211-09 & -11 MODELS



2211-13 & -15 MODELS

wheel bearing maintenance

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.

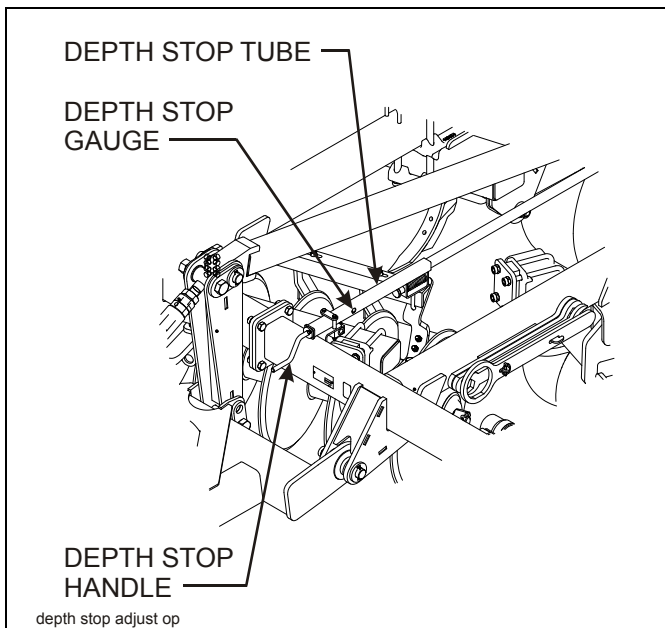


Figure 4-12: Depth Stop Adjustment (Manual)

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.

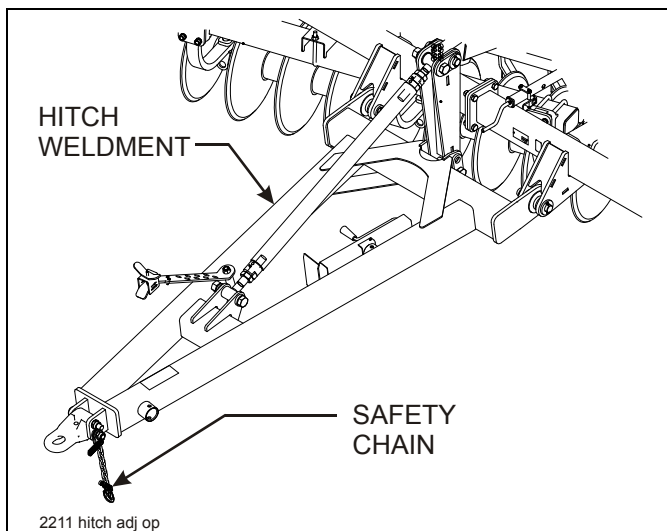


Figure 4-13: Hitch and Safety Chain

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.

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.
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.

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.)



WARNING

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

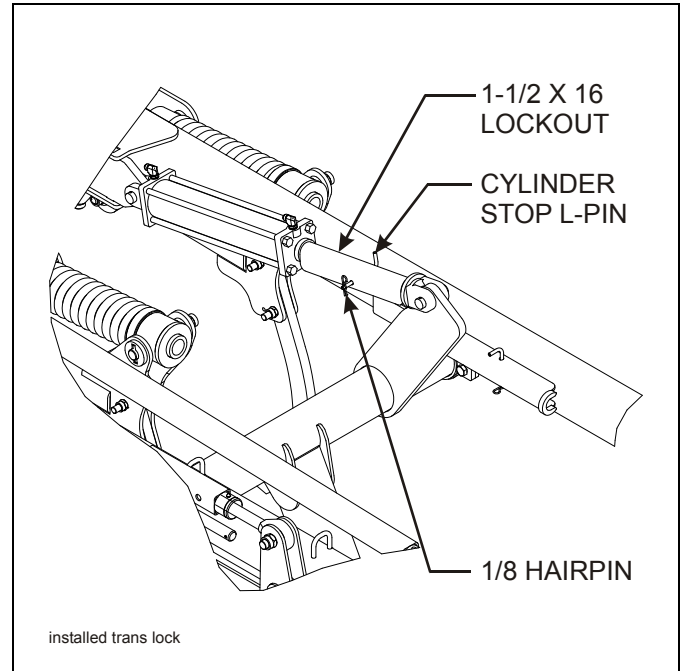


Figure 4-14: Installed Transport Locks

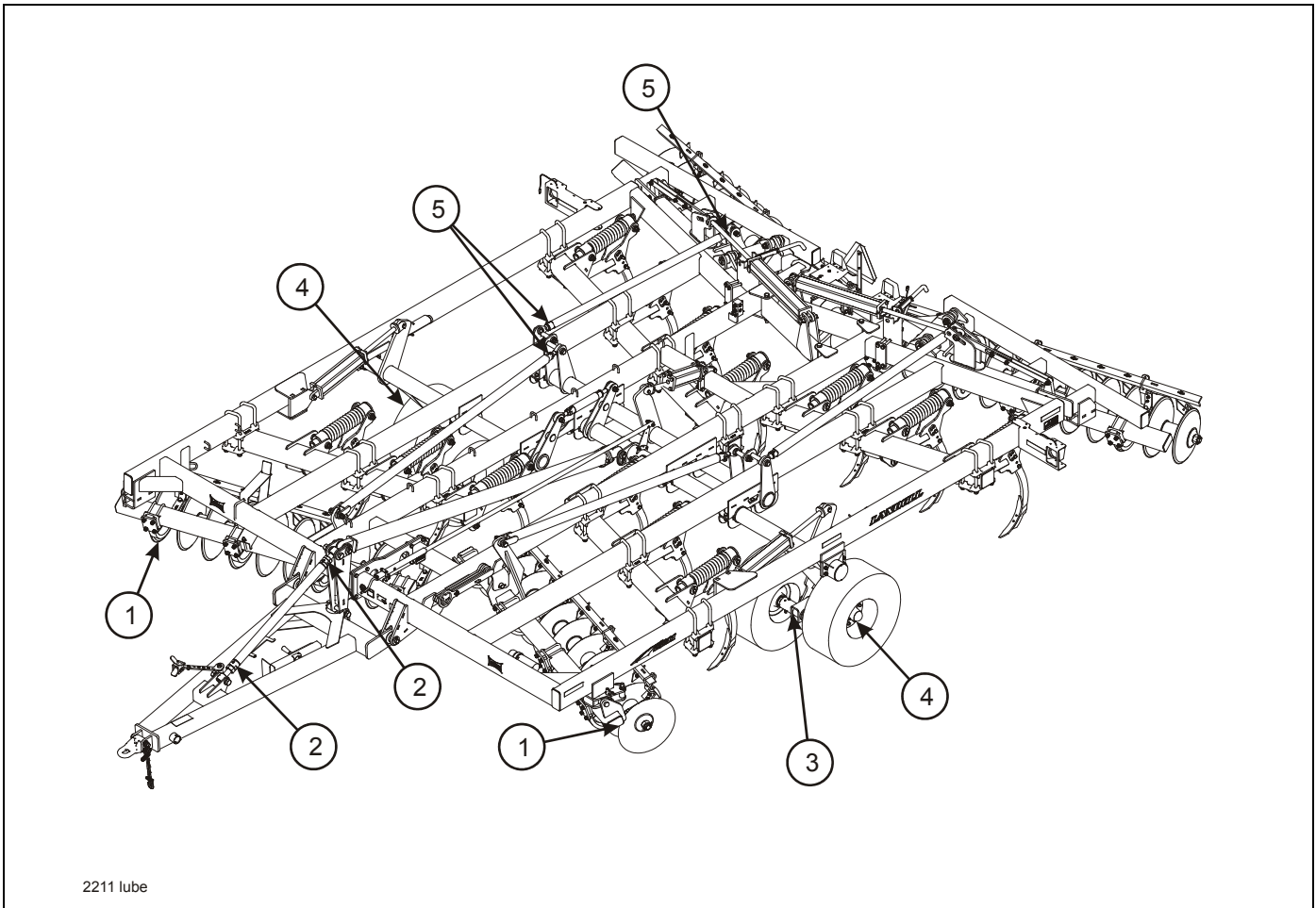


Figure 4-15: Lubrication Schedule

LUBRICATION TABLE			
ITEM	DESCRIPTION	NO. OF LUBE POINTS	INTERVAL (Hours unless stated)
1	Disc Gang Bearings	1 each	10
2	Radius Rod	2	50
3	Walking Tandem Hubs	1 each	10
4	Wheel Hubs	1 each	50
5	Gang Depth Adjustment Rods	6	50

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.

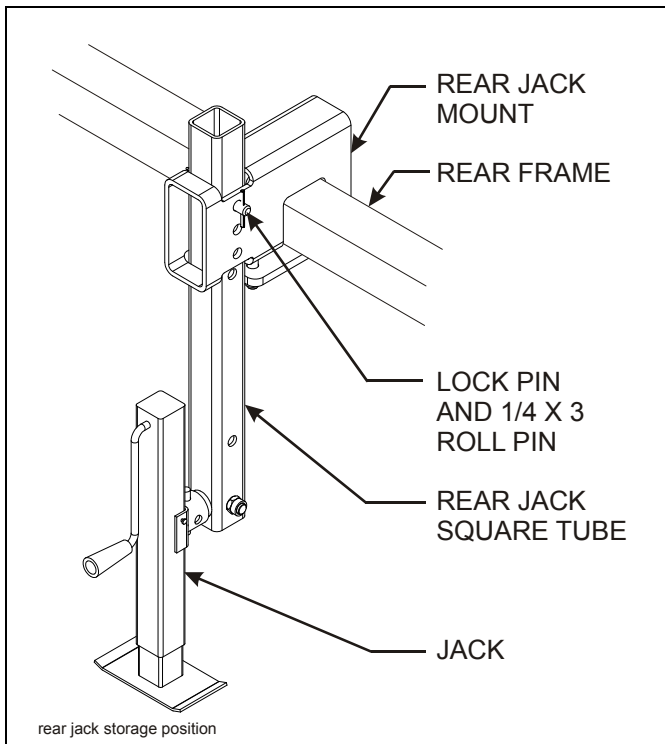


Figure 4-16: Rear Jack Transport Position

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.**)

Notes

Troubleshooting Guide

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.

PROBLEM	PROBABLE CAUSE	SOLUTION
UNIT NOT PULLING EVEN	Disc gangs uneven depth	Adjust depth/rephase disc gang cylinders (See “Hydraulic Disc Gang Lift System” on page 4-6.)
UNEVEN DEPTH	Unit not level when under power in the field	Level unit front to rear (See “Leveling (Front-to-Rear)” on page 4-7.)
	Excessive disc gang depth or down pressure	Reduce disc depth.
	Tire pressure too low	Check inflation.
	Unit not level front to rear	Adjust unit to be level.
UNIT SIDE DRAFTS OR MOVES SIDE TO SIDE	Lift wheels not carrying enough weight	Adjust depth stop and raise implement.
	Unit not level front to rear	Adjust unit to be level.
SHANKS PLUGGING WITH RESIDUE	Unit not level	Level machine (See “Leveling (Front-to-Rear)” on page 4-7.)
	Discs not cutting residue	Adjust disc depth or raise shanks to allow more gang depth.
SHANKS NOT PENETRATING	Unit not level	Level unit front to rear (See “Leveling (Front-to-Rear)” on page 4-7.)
	Excessive disc depth	Reduce depth
	Points worn	Install new points.
WHEEL BEARING FAILURE	Triple-lip seals not installed correctly	Install seals with the lips pointing outward away from the hub.
HYDRAULIC - DISC GANG LIFT CYLINDER NOT FULLY EXTENDING	Hoses not properly connected	Check hose routing
HYDRAULIC - ENTIRE UNIT SETTLING	Depth stop valve not working	Repair valve

TROUBLESHOOTING GUIDE

PROBLEM	PROBABLE CAUSE	SOLUTION
DISC GANG PLUGGING	Operating depth too deep	Raise unit.
	Conditions too wet	Wait until conditions more favorable.
DISC GANG WILL NOT TURN OR PUSHES SOIL	Depth set too deep for loose or wet conditions	Raise implement or wait until conditions are more favorable.
	Gang bearing failure	Replace bearing
DISC BLADES LOOSE AND/OR SHEARING ROLL PIN	Gang not tightened properly	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.
WINGS FLOATING/BOUNCING IN FIELD	Wing latch not hooked	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. .

Notes:



Intertek

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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