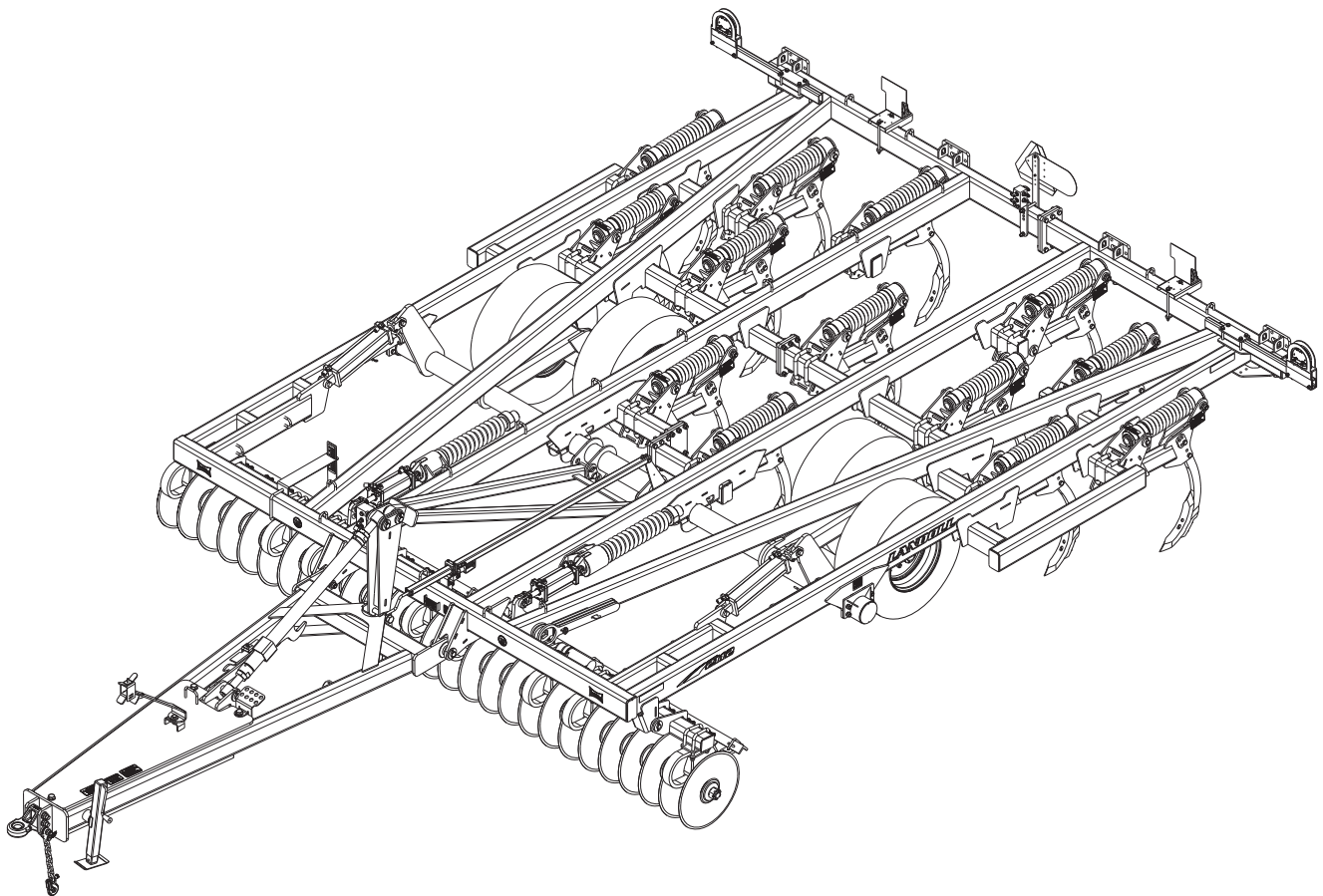




Model 2112 Coulter Chisel Operator's Manual



LANDOLL COMPANY, LLC

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Manuals for the 2112 CC	
MANUAL NUMBER	MANUAL NAME
F-1102	2112 CC Operator's Manual
F-1103	2112 CC Parts Manual

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Introduction and Safety Information

Introduction

The Landoll Model 2112 CC 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 and understanding the safety statements. |
| CHAPTER 2 | Gives product specifications for the equipment. 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 2112 CC. 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. Gives practical advice for the care and maintenance of your Landoll equipment. Drawings in this section locate adjustment points on the equipment. |

IF YOU HAVE ANY QUESTIONS CONTACT:

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OR

FAX # (888) 527-3909

- | | |
|---------------------|--|
| CHAPTER 5 | Is a troubleshooting guide to aid in diagnosing and solving problems with the equipment. |
| PARTS MANUAL | 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 COMPANY, LLC
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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!

NOTE

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

NOTICE

Special notice - read and thoroughly understand



CAUTION

Caution means serious equipment or other property damage can occur if 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.



DANGER

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

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 2112 CC.

Decal Safety

1. Examine safety decals and be sure you have the correct safety decals for the implement.
2. Keep these signs clean so they can be observed readily. It is important to keep these decals cleaned more frequently than the implement. Wash with soap and water or a cleaning solution as required.
3. Replace decals that become damaged or lost. Also, be sure that any new implement components installed during repair include decals which are assigned to them by the manufacturer.
4. When applying decals to the implement, be sure to clean the surface to remove any dirt or residue. Where possible, sign placement should protect the sign from abrasion, damage, or obstruction from mud, dirt, oil etc.



DANGER

- Do not allow anyone to ride on the tractor or implement. Riders could be struck by foreign objects or thrown from the implement.
- Never allow children to operate equipment.
- Keep bystanders away from implement during operation.

Transporting Safety

1. Thoroughly read and understand all operating procedures contained in this manual before attempting to transport this implement.
2. **It is the responsibility of the operator to understand and comply with all federal, state, and local requirements before transporting the coultter chisel.**
3. When transporting the implement on road or highway, use adequate warning symbols, reflectors, lights, SIS, and slow moving vehicle signs as required. Verify that all symbols and lights are clearly visible and functioning before transporting. Transport during daylight hours whenever possible. Slow moving tractors and implements can create a hazard when driven on public roads and can be difficult to see especially at night.
4. Do not tow an implement that when fully loaded, that weighs more than 1.5 times the weight of the towing vehicle. Never tow the implement with a motor vehicle. Tow the implement only with a properly ballasted tractor.
5. Use a locking-style hitch pin that properly fits the tractor drawbar and the implement hitch. Lock the tractor drawbar in the center position to prevent loss of steering control.

6. Attach the safety chain to the tractor recommended drawbar support. Provide only enough slack in the chain for turning. Do not attach the safety chain to an intermediate support. Safety chain must have rating greater than the gross weight of the towed implement(s). Replace the safety chain if it is worn or damaged in any way.
7. Verify that all hydraulic hoses and electrical wiring between the tractor and implement are safely routed to avoid damage.
8. Check implement tire pressure for correct inflation. Verify that lug nuts are properly torqued before transporting.
9. Install all transport locks and pins before transporting.
10. Never allow riders on the implement.
11. **Maximum transport speed for the implement is 20 mph, regardless of the tractor capabilities.**
Excessive speed may result in loss of control of the tractor and implement, reduced braking, or failure of the implement tires and/or structure. Slow down when road surface conditions are poor or rough, or when driving on inclines. Reduce speed when turning, on curves and slopes, to avoid tipping. Equipment altered other than the place of manufacture, may further reduce the maximum transport speed.
12. Avoid overhead power lines. Serious injury or death can result. Electrocutation can occur without direct contact. Know the transport height and width of the implement before transporting. Attachments can increase the height and width of the implement.

Attaching, Detaching, and Storage

1. Do not stand between the tractor and implement when attaching or detaching implement unless both are not moving.
2. Block implement so it will not roll when unhitched from the tractor.
3. Store in an area where children normally do not play.

Maintenance Safety

1. Understand the procedure before doing the work. Use proper tools and equipment.
2. Make sure all moving parts have stopped.
3. Do not make adjustments or lubricate implement while it is in motion.
4. Block the implement so it will not roll when working on or under it to prevent injury.
5. Install hydraulic cylinder lockouts, or lower equipment to the ground before servicing.

High Pressure Fluid Safety

1. Escaping fluid under pressure can be nearly invisible and have enough force to penetrate the skin causing serious injury. Use a piece of cardboard, rather than hands, to search for suspected leaks.
2. Any fluid injected into the skin must be surgically removed within a few hours or gangrene may result.
3. Avoid the hazard by relieving pressure before disconnecting hydraulic lines.

Protective Equipment

1. Wear protective clothing and equipment.
2. Wear clothing and equipment appropriate for the job. Avoid loose fitting clothing.



3. Because prolonged exposure to loud noise can cause hearing impairment or hearing loss, wear suitable hearing protection, such as earmuffs or earplugs.

Chemical Safety

1. Agricultural chemicals can be dangerous. Improper use can seriously injure persons, animals, plants, soil and property.
2. Read chemical manufacture's instructions and store or dispose of unused chemicals as specified.
3. Handle chemicals with care and avoid inhaling smoke from any type of chemical fire.
4. Store or dispose of unused chemicals as specified by the chemical manufacturer.

Prepare for Emergencies

1. Keep a First Aid Kit and Fire Extinguisher handy.
2. Keep emergency numbers for doctor, ambulance, hospital and fire department near the phone.

Tire Safety

1. Tire changing can be dangerous and should be performed by trained personnel using correct tools and equipment.
2. When inflating tires, use a clip-on chuck and extension hose long enough to allow you to stand to one side, not in front of or over the tire assembly. Use a safety cage if available.
3. When removing and installing wheels use wheel-handling equipment adequate for the weight involved.

Safety Chain

1. Use a chain with a strength rating equal to or greater than the gross weight of towed machinery, which is 10,100 pounds minimum in accordance with ASAE S338.2 specifications. If two or more implements are pulled in tandem, a larger chain may be required. Chain capacity must be greater than the TOTAL weight of all towed implements.
2. Additional safety chain should be used between each implement.
3. Attach the chain to the tractor drawbar support or specified anchor location. Allow only enough slack in the chain to permit turning. The distance from hitch pin to attachment point or intermediate support point should not exceed 9 inches.
4. Replace the chain if any links or end fittings are broken, stretched or damaged.
5. Do not use a safety chain for towing.

Standard Specifications

Introduction

This manual is compiled as a guide for owners and operators of the 2112 CC. Read it carefully so as to be able to follow the suggestions made. Please take time to understand the proper maintenance schedule and SAFE operation of your equipment.

In the event that a new and inexperienced operator is placed in charge of running the equipment, they should read and understand, that part of the manual for proper maintenance and SAFE operation, and to be trained in regard by an experienced operator.

Owner Assistance

If customer service or repairs are needed, contact your Icon dealer. They have trained personnel, parts and service equipment specially designed for Icon products. Your machine's parts should only be replaced with Icon parts. Have the Serial Number and complete Model Number available [See Figure 2-1](#) when ordering parts from your Icon dealer.

Warranty Registration

Be certain to register the Coulter Chisel Online registration at www.landoll.com within 10 days of purchase or lease, in order to be on file at Landoll and eligible for Warranty.

Take time to read and understand the Warranty for this product, [See Figure 2-2](#) and [See Figure 2-3](#).

Landoll reserves the right to make changes and/or add improvements to it's products at any time without obligation to previously manufactured equipment.

Please take time to complete the following information for your personal reference, should you need to contact your Dealer with questions or parts needs.

MODEL _____

SERIAL # _____

DATE OF PURCHASE _____

DEALER NAME _____

We at Landoll wish to thank you for purchasing our product. We have spent considerable time and effort to research, design, test and develop this machine and are confident it will serve you in the use for which it was designed.



Figure 2-1: ID Plate



LANDOLL TILLAGE PRODUCT THREE YEAR LIMITED WARRANTY

Landoll Company, LLC warrants each new serial numbered Whole Good Tillage product, when properly assembled, adjusted, serviced, and normally operated, to be free from defects in materials and workmanship for a period of three (3) years, unless otherwise noted, from the date of delivery. Date of delivery shall be the date the Dealer places the product in the possession of the original retail purchaser, and must be confirmed by the Dealer submitting a properly completed Landoll Company, LLC Warranty Registration Form to the Landoll Company, LLC Warranty Department. Warranty starts the day the product is rented or leased. This limited warranty shall be transferable until the expiration date.

Landoll Company, LLC shall repair, or at its option, replace any part(s) of the product determined, by Landoll Company, LLC, to be defective. Landoll Company, LLC may request the return of part(s), freight prepaid via a carrier approved by the Landoll Warranty Staff, to Landoll Company, LLC for further evaluation. If the part is determined to be defective, Landoll Company, LLC will refund the freight charges incurred in returning the defective part(s).

This limited warranty requires pre-authorization by the Landoll Company, LLC Warranty Staff of any warranty related utilization of components or labor, and is subject to specific exclusions and does not apply to any product which has been: 1) subjected to or operated in a manner which, at any time, have exceeded the product design limits; 2) repaired or altered outside our factory in any way so as, in the judgment of Landoll Company, LLC, to affect its stability or reliability; 3) subject to misuse, negligence, accident, or has been operated in a manner expressly prohibited in the instructions; or not operated in accordance with practices approved by Landoll Company, LLC. Operating the product in soils containing rocks, stumps or obstructions may void the warranty in its entirety. Excessive acres, consistent with non-seasonal very large farming operations, and, non-agricultural activities, may further limit the terms of this warranty. The sole obligation of Landoll Company, LLC under this warranty shall be limited to repairing or replacing, at its option, part(s) which shall be identified to Landoll Company, LLC by way of a pre-authorized Landoll Company, LLC Warranty Claim Form. Warranty, expressed or implied, will be denied on any product not properly registered with the Landoll Company, LLC Warranty Department within ten (10) days of the first retail sale. As stated above, Landoll Company, LLC Warranty Staff will identify components listed on a Warranty Claim required to be returned for further analysis. All parts returned to Landoll Company, LLC must be shipped with a Return Materials Authorization (RMA) provided by the Landoll Company, LLC Warranty Staff. Defective components must be returned by the purchaser to Landoll Company, LLC with transportation and freight charges prepaid within thirty (30) days after receipt of the RMA. The examination conducted by Landoll Company, LLC of returned parts shall disclose to its satisfaction the extent the component may be defective.

All parts and labor warranty MUST be pre-authorized by Landoll Company, LLC Warranty Staff. Failure to do so may result in no warranty payment of any kind. Labor will be reimbursed in accordance with published shop rates pre-approved by the Landoll Company, LLC Warranty Staff. Time authorized for specific work will be limited, where appropriate, to the hours listed in the Landoll Company, LLC authorized Labor Rate Guide.

...continued on following page.

Figure 2-2: Landoll Tillage Product Warranty (1 of 2)

LANDOLL TILLAGE PRODUCT THREE YEAR LIMITED WARRANTY

...continued from previous page.

USER'S OBLIGATION:

1. Read the Operator's Manual.
2. Understand the safe and correct operating procedures pertaining to the operation of the product.
3. Lubricate and maintain the product according to the maintenance schedule in the Operator's Manual.
4. Inspect machine and have parts repaired or replaced when continued use of the product would cause damage or excessive wear to other parts.
5. Contact the Landoll Company, LLC Dealer for repair or replacement of defective parts. Mileage incurred by the Landoll Company, LLC Dealer is the customer's responsibility.

This 3-Year Limited Warranty SHALL NOT APPLY TO: (See Warranty Procedure Manual for details.)

1. Ground Engaging Tools.
2. Vendor Warranty Only Parts.

WARRANTY LABOR:

1. Considered during the first year of warranty only.
2. During the second and third year:
 - Warranty labor is not covered. Customer is responsible for removing, replacing and returning the defective part(s) to the Landoll Dealer

THIS WARRANTY IS EXPRESSIVELY IN LIEU OF ALL OTHER WARRANTIES OF MATERIAL, WORKMANSHIP DESIGN, APPLICATION OR OTHERWISE WITH RESPECT TO ANY EQUIPMENT, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, AND LANDOLL COMPANY, LLC SHALL NOT BE LIABLE FOR SPECIAL OR CONSEQUENTIAL DAMAGES OF ANY KIND ON ACCOUNT OF ANY LANDOLL PRODUCT. NO EMPLOYEE OR REPRESENTATIVE IS AUTHORIZED TO CHANGE THIS WARRANTY, VERBALLY OR IN WRITING, OR GRANT ANY OTHER WARRANTY. LANDOLL COMPANY, LLC, WHOSE POLICY IS ONE OF CONTINUOUS IMPROVEMENT, RESERVES THE RIGHT TO MAKE CHANGES WITHOUT OBLIGATION TO MODIFY PREVIOUSLY PRODUCED EQUIPMENT.

This warranty does not expand, enlarge upon or alter in any way, the warranties provided by the original manufacturers and suppliers of component parts and accessories. This warranty excludes such parts or accessories which are not defective, but may wear out and have to be replaced during the warranty period, including, but not limited to, light bulbs, paint, and the like. (Tire Warranties are expressly excluded from Landoll Company, LLC warranty herein.) Purchaser is expected to pay all repairs or replacement costs, in connection with this Agreement, including sales and other taxes immediately upon completion of work performed.

LIMITATION OF LIABILITY: Landoll Company, LLC shall not be liable to purchaser for any incidental or consequential damages suffered by the purchaser, including, but not limited to, any commercially reasonable charges, expenses or commissions incurred in connection with effecting cover or any other reasonable expense incident to the delay or other breach of warranty by Landoll Company, LLC, loss of anticipated profits, transportation expenses due to repairs, non-operation or increased expense of operation costs of purchased or replaced equipment, claim of customers, cost of money, any loss of use of capital or revenue, equipment rental, service trips, or for any special damage or loss of any nature arising at any time or from any cause whatsoever.

LIMITATION OF REMEDY: In the event of Landoll Company, LLC failure to repair the product subject to the warranty contained herein, the purchaser's sole and exclusive remedy against Landoll Company, LLC shall be for the repair or replacement of any defective part or parts of the product subject to work or repair within the time period and manner set forth herein. This exclusive remedy shall not be deemed to have failed of its essential purpose so long as Landoll Company, LLC is willing and able to repair or replace defective parts in the prescribed manner.

Figure 2-3: Landoll Tillage Product Warranty (2 of 2)

General Torque Specifications

LANDOLL FASTENER TORQUE SPECIFICATIONS (Rev. 23/04)			
This chart provides general torque specifications for Standard Nuts and Caps Screws (as received condition) that are not called out on processes or drawings. This DOES NOT apply if special lubrication such as graphite moly-disulfide or other extreme pressure lubricants are used. Add 33% to the listed torque specification if the fastener is dry (solvent cleaned). Cap screw grades are indicated by markings on the head, these vary among manufacturers. Thick Nuts must be used on grade 8 cap screws.			
SAE TORQUE SPECIFICATIONS (FOOT-POUNDS) [] Indicates specifications for Prevailing Torque Nuts.			
UNC Size	 Grade 2	 Grade 5	 Grade 8
1/4 - 20	4 [5]	6 [7]	9 [11]
5/16 - 18	8 [10]	13 [16]	18 [22]
3/8 - 16	15 [19]	23 [29]	35 [43]
7/16 - 14	24 [30]	35 [43]	55 [62]
1/2 - 13	35 [43]	55 [62]	80 [100]
9/16 - 12	55 [62]	80 [100]	110 [137]
5/8 - 11	75 [94]	110 [137]	170 [212]
3/4 - 10	130 [162]	200 [250]	280 [350]
7/8 - 9	125 [156]	320 [400]	460 [575]
1 - 8	190 [237]	408 [506]	680 [850]
1-1/8 - 7	270 [337]	600 [750]	960 [1200]
1-1/4 - 7	380 [475]	840 [1050]	1426 [1782]
1-3/8 - 6	490 [612]	1100 [1375]	1780 [2225]
1-1/2 - 6	650 [812]	1460 [1825]	2360 [2950]
See back side for SAE UNF and Metric torques. Form No. F-257-0322			

SAE TORQUE SPECIFICATIONS (FOOT POUNDS) [] Indicates specifications for Prevailing Torque Nuts.			
UNF Size	 Grade 2	 Grade 5	 Grade 8
1/4 - 28	5 [6]	7 [9]	10 [12]
5/16 - 24	9 [11]	14 [17]	20 [25]
3/8 - 24	17 [21]	25 [31]	35 [44]
7/16 - 20	27 [34]	40 [50]	60 [75]
1/2 - 20	40 [50]	65 [81]	90 [122]
9/16 - 18	60 [75]	90 [112]	130 [162]
5/8 - 18	85 [106]	130 [162]	180 [225]
3/4 - 16	150 [188]	220 [275]	320 [400]
7/8 - 14	140 [175]	360 [450]	500 [625]
1 - 14	210 [263]	540 [675]	760 [950]
1-1/8 - 12	300 [375]	660 [825]	1080 [1350]
1-1/4 - 12	420 [525]	920 [1150]	1500 [1875]
1-3/8 - 12	560 [700]	1260 [1575]	2010 [2512]
1-1/2 - 12	730 [912]	1640 [2050]	2660 [3325]

METRIC TORQUE SPECIFICATIONS This chart provides torque specification for phosphate coated, Rockwell "C" 38-45 Metric Coarse Thread Class 10.9 Fasteners, Class 10.0 Nuts and Harden Flat Washers. [] Indicates specifications for Prevailing Torque Nuts.		
MM Size	Newton - Meters	Foot-Pounds
6	10 [14]	7 [10]
7	16 [22]	12 [16]
8	23 [32]	17 [24]
10	46 [60]	34 [47]
12	80 [101]	60 [75]
14	125 [155]	90 [115]
16	200 [240]	150 [180]
18	275 [330]	205 [245]
20	385 [450]	290 [335]
24	670 [775]	500 [625]
27	980 [1105]	730 [825]
30	1330 [1470]	990 [1090]
33	1790 [1950]	1730 [1870]
36	2325 [2515]	1730 [1870]
39	3010 [3210]	2240 [2380]

See front side for SAE UNC and notes.

Figure 2-4: General Torque Specifications

Hydraulic Fitting Torque Specifications

LANDOLL HYDRAULIC FITTING TORQUE SPECIFICATIONS (REV. 23/04) AEROQUIP BRAND FITTINGS 37° JIC; ORS & ORB	LANDOLL HYDRAULIC FITTING TORQUE SPECIFICATIONS (REV. 23/04) GATES BRAND FITTINGS 37° JIC; ORS & ORB	LANDOLL HYDRAULIC FITTING TORQUE SPECIFICATIONS (REV. 23/04) PARKER BRAND FITTINGS 37° JIC; ORS & ORB																																																																																																																																																
This chart provides torque specifications for Plated Carbon Steel and Stainless Steel Fittings (as received condition) that are not called out on processes or drawings. This DOES NOT apply if special lubrication such as graphite moly-disulfide or other extreme pressure lubricants are used. Minus 65% from the listed torque specification for Brass Fittings.	This chart provides torque specifications for Plated Carbon Steel and Stainless Steel Fittings (as received condition) that are not called out on processes or drawings. This DOES NOT apply if special lubrication such as graphite moly-disulfide or other extreme pressure lubricants are used. Minus 65% from the listed torque specification for Brass Fittings.	This chart provides torque specifications for Plated Carbon Steel and Stainless Steel Fittings (as received condition) that are not called out on processes or drawings. This DOES NOT apply if special lubrication such as graphite moly-disulfide or other extreme pressure lubricants are used. Minus 65% from the listed torque specification for Brass Fittings.																																																																																																																																																
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Figure 2-5: Hydraulic Fitting Torque Specifications

Model Specifications

2112 Coulter Chisel W/Auto Reset Shanks

Model Number	2112-9	2112-11	2112-13	2112-15
Working Width	11'-3"	13'-9"	16'-10"	18'-9"
Transport Width	11'-9"	14'-4"	16'-10"	19'-4"
Transport Height	N/A	N/A	N/A	N/A
Number of Blades	19	23	27	31
Number of Bearings	4	6	6	8
Estimated Weight	15,860 lbs.	16,710 lbs.	18,200 lbs.	19,050 lbs.
NOTE: Specifications Are Subject To Change Without Prior Notification				

2112 Coulter Chisel W/Rigid Shanks

Model Number	2112-9	2112-11	2112-13	2112-15
Working Width	11'-3"	13'-9"	16'-10"	18'-9"
Transport Width	11'-9"	14'-4"	16'-10"	19'-4"
Transport Height	N/A	N/A	N/A	N/A
Number of Blades	19	23	27	31
Number of Bearings	4	6	6	8
Estimated Weight	14,114 lbs.	14,576 lbs.	15,678 lbs.	16,140 lbs.
NOTE: Specifications Are Subject To Change Without Prior Notification				

Tire Inflation

Tire Size	Tire Manufacturer	Ply/Load Rating	Inflation Pressure (Psi) (Max.)
340/65 R 18	BKT	Load Index 153A8/B - 8050 lbs. @ 30 mph	58 psi
VF 410/50 R16.5	BKT	Load Index 153A8/B - 8,050 lbs. @ 30 mph	73 psi
380/55 R16.5	BKT	Load Index 150A8/B - 7,400 lbs. @ 30 mph	74 psi

Specific Bolt Torques

Lug Bolts & Nuts	Torque (FT. LBS.)
Disc Gang Shafts	1,200 Ft./Lbs.
5/8-18 Lug Bolts & Nuts (Heavy Duty Disc)	85-100 Ft./Lbs.

Table provided for general use.

[illegible]

Auto Reset Shank Placement

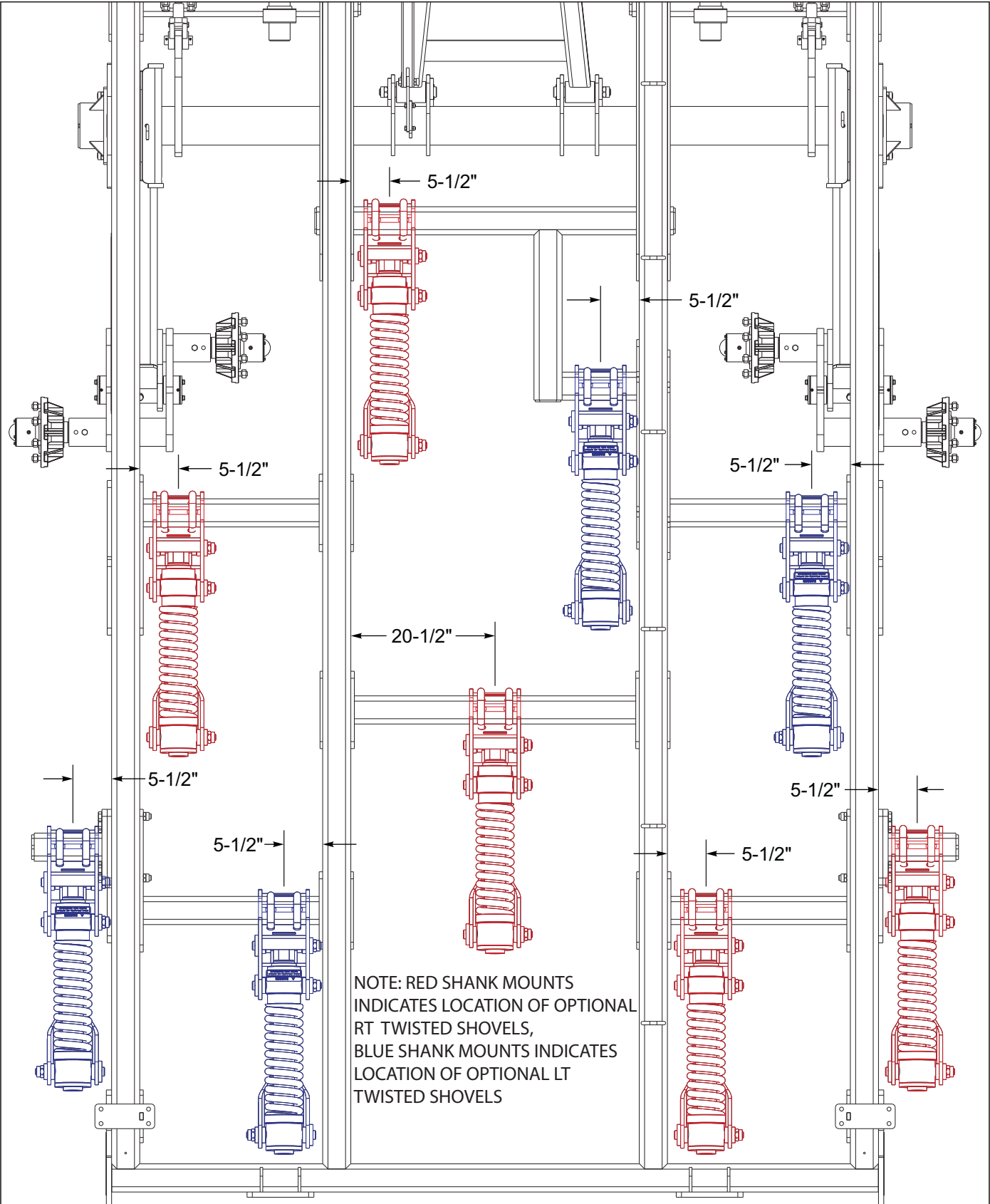


Figure 2-6: Auto Reset Shank Placement 2112-09

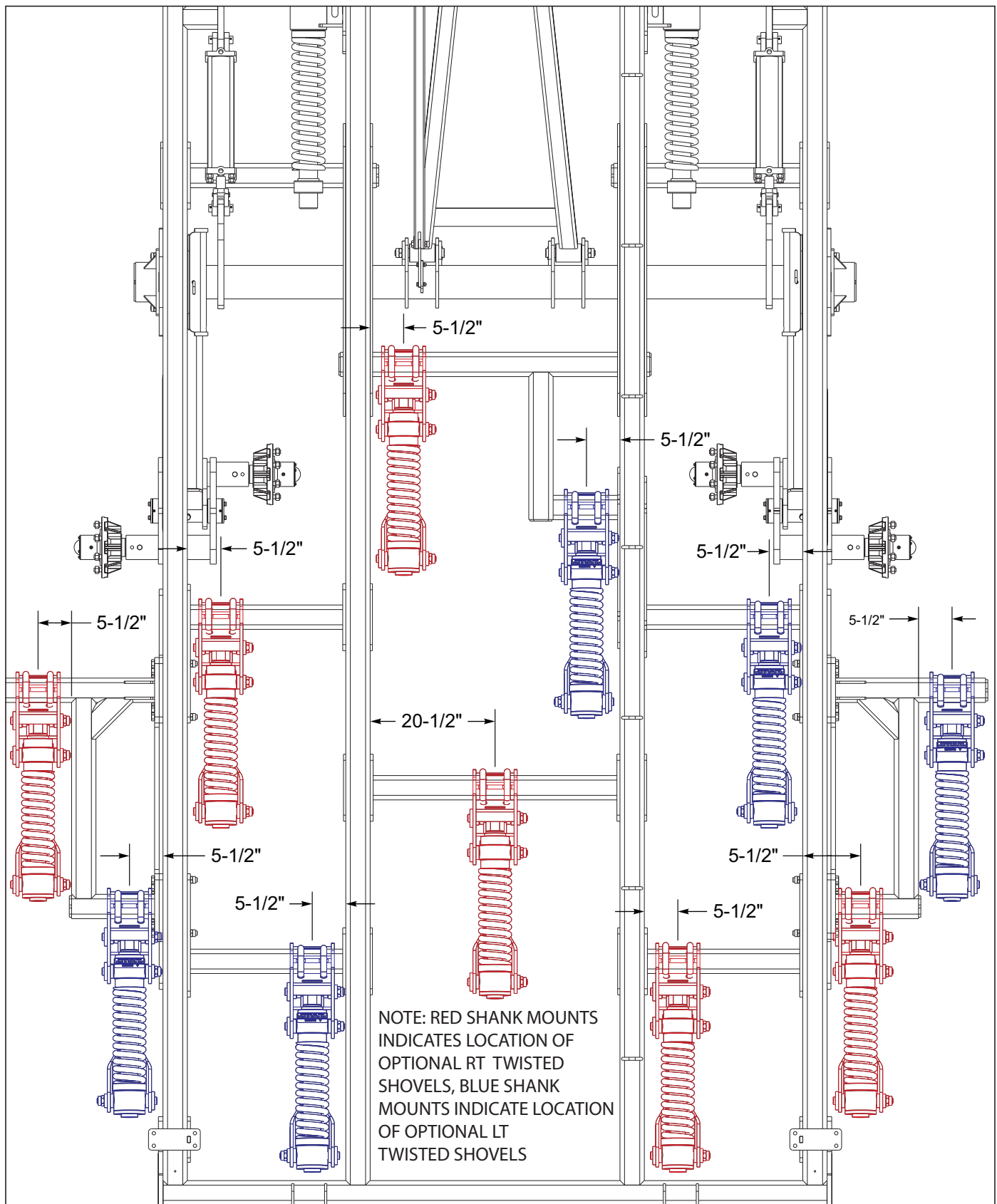


Figure 2-7: Auto Reset Shank Placement 2112-11



NOTE: RED SHANK MOUNTS INDICATES
LOCATION OF OPTIONAL RT TWISTED SHOVELS,
BLUE SHANK MOUNTS INDICATE LOCATION
OF OPTIONAL LT TWISTED SHOVELS

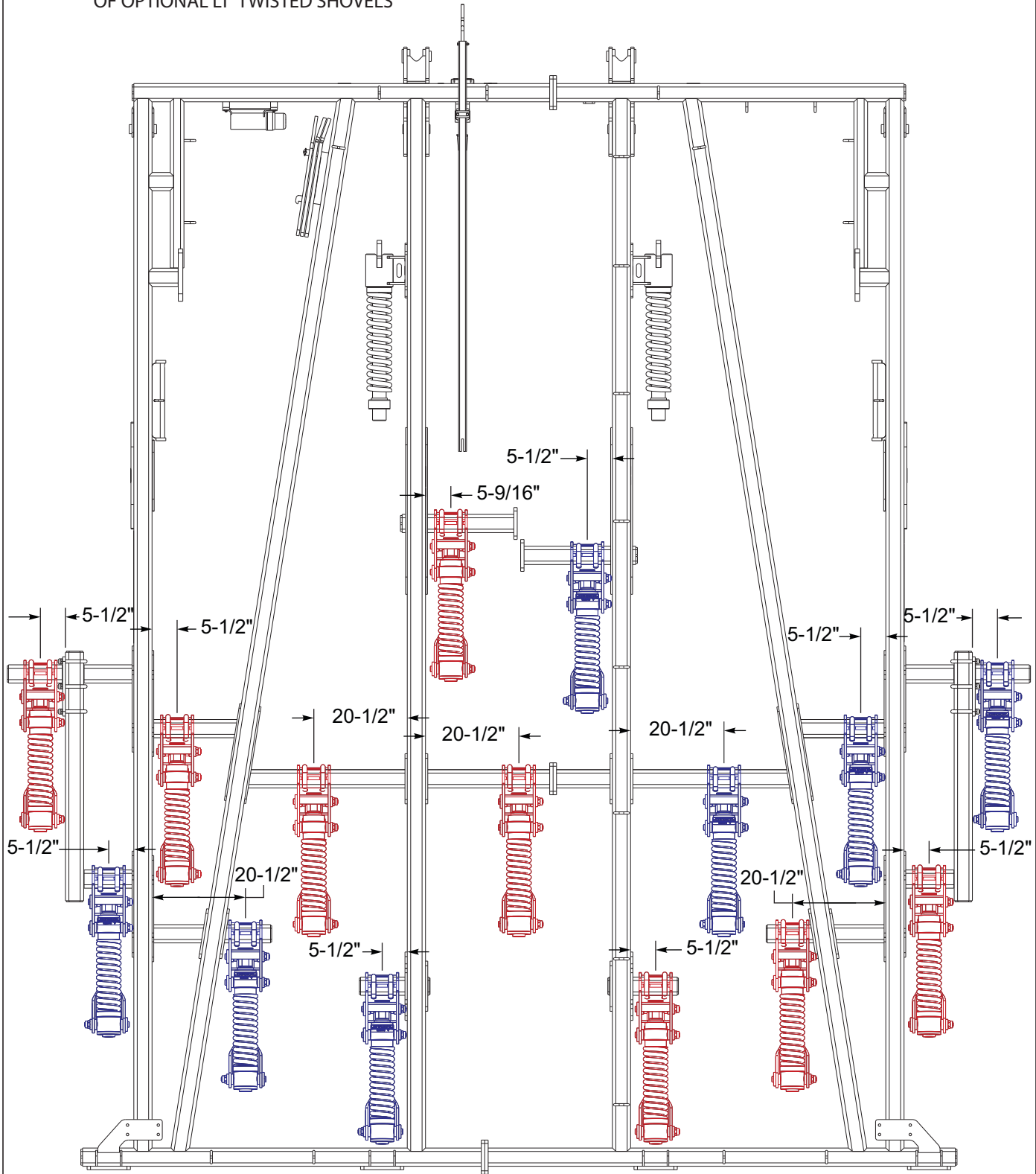


Figure 2-9: Auto Reset Shank Placement 2112-15

Rigid Shank Placement

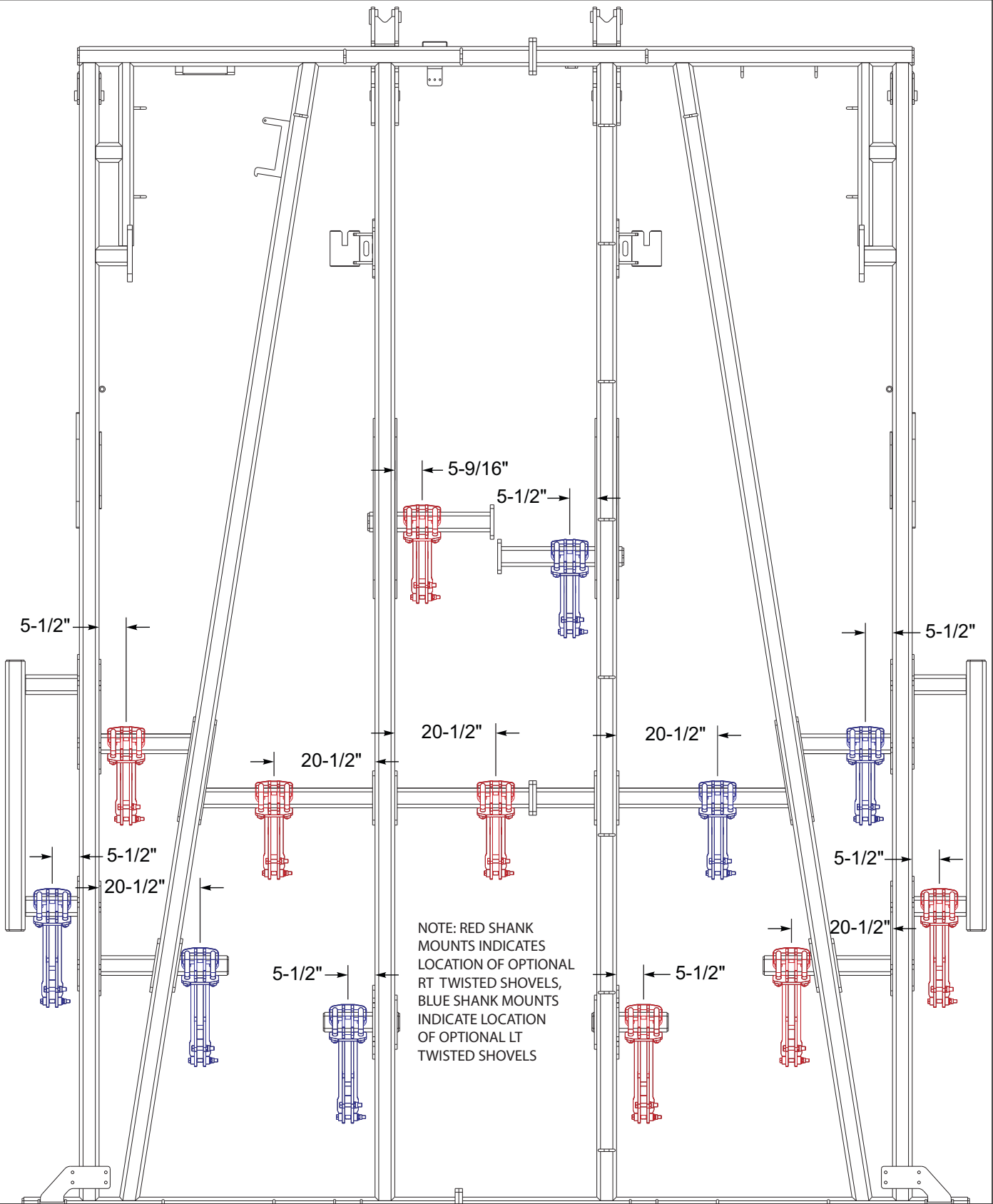


Figure 2-10: Rigid Shank Placement 2112-13

NOTE: RED SHANK MOUNTS INDICATES
LOCATION OF OPTIONAL RT TWISTED SHOVELS,
BLUE SHANK MOUNTS INDICATE LOCATION
OF OPTIONAL LT TWISTED SHOVELS

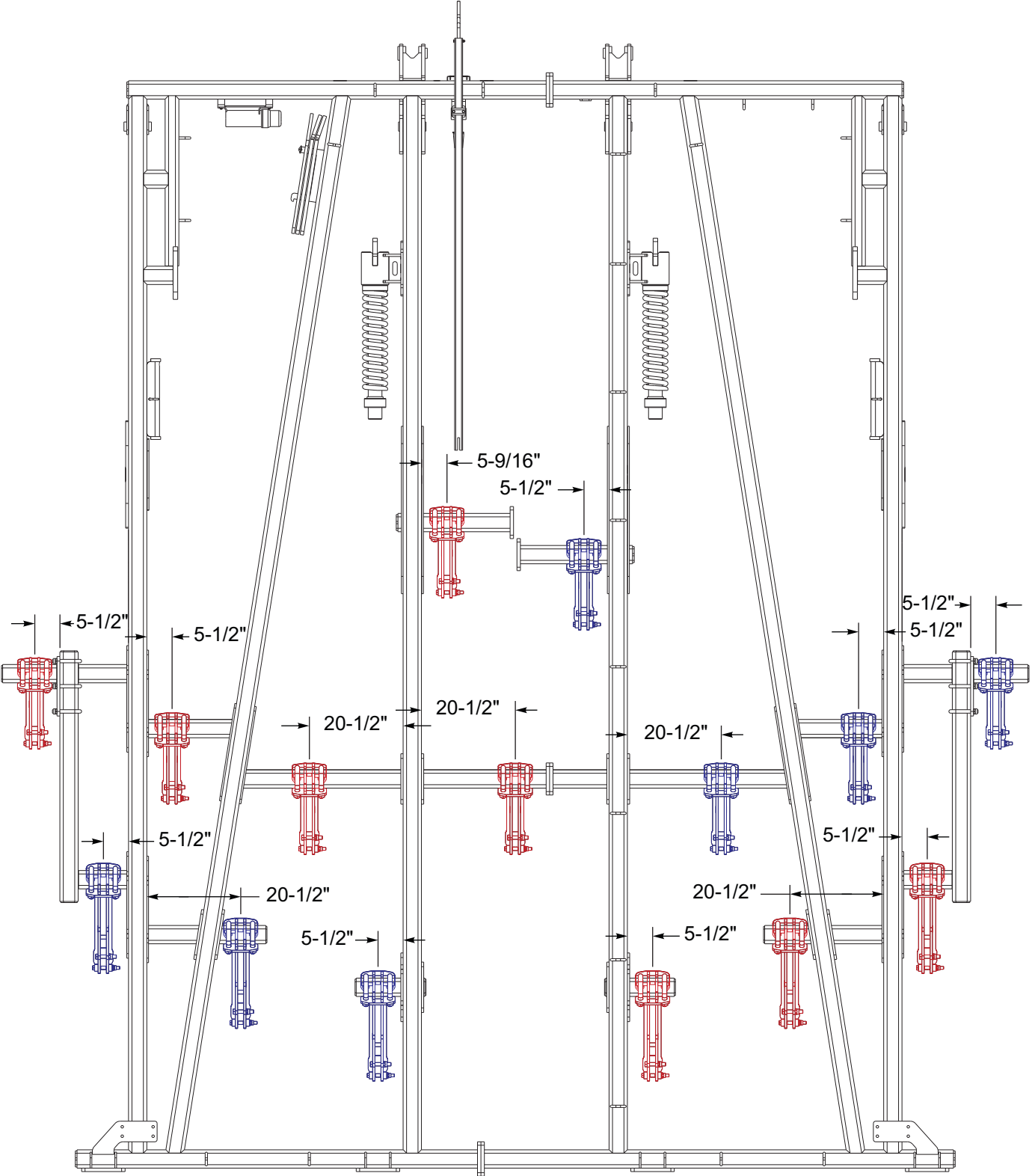


Figure 2-11: Rigid Shank Placement 2112-15

Std 3BCT/Chopper Placement

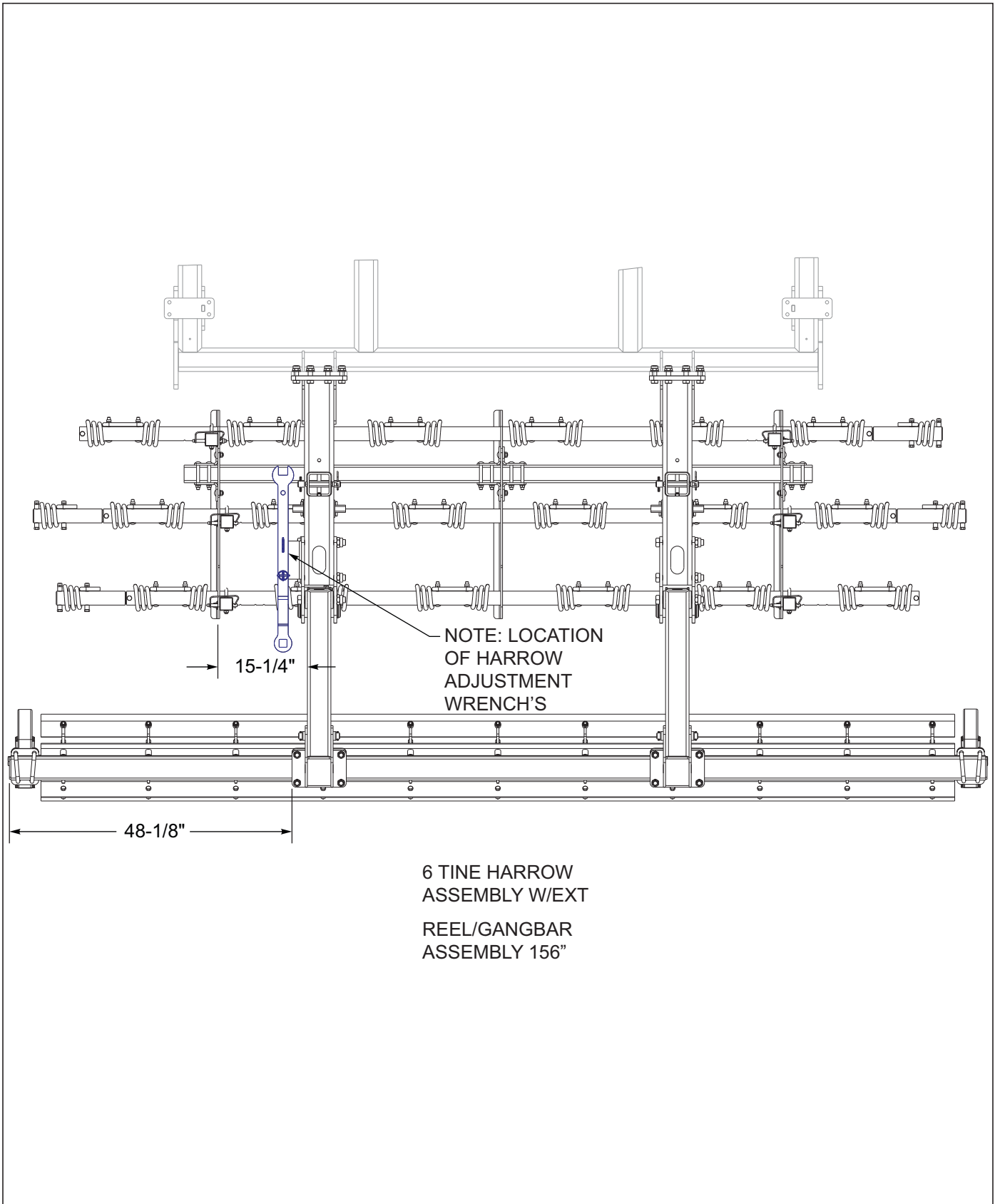


Figure 2-12: Std 3BCT/Chopper Placement 2112-09

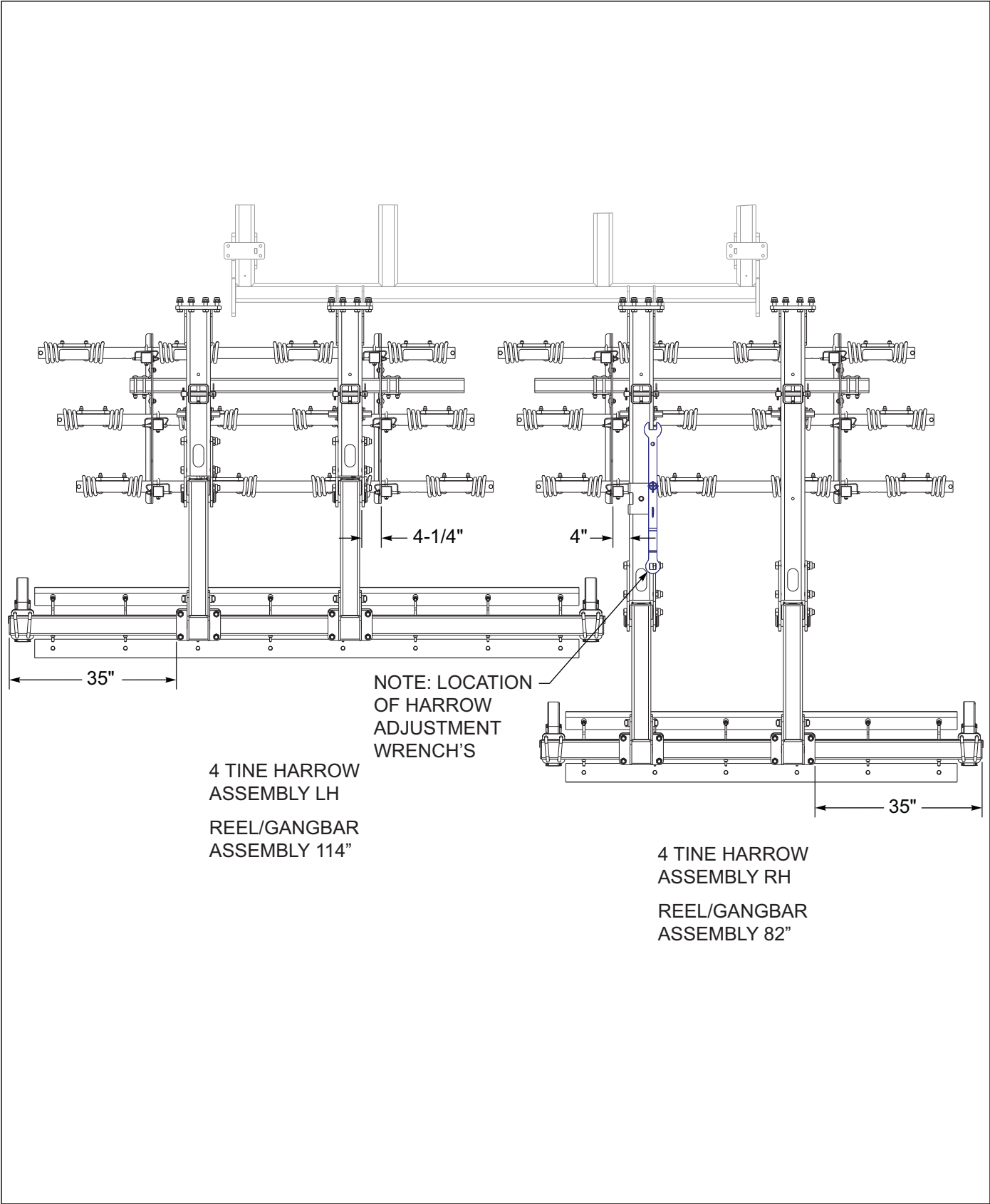


Figure 2-13: Std 3BCT/Chopper Placement 2112-11

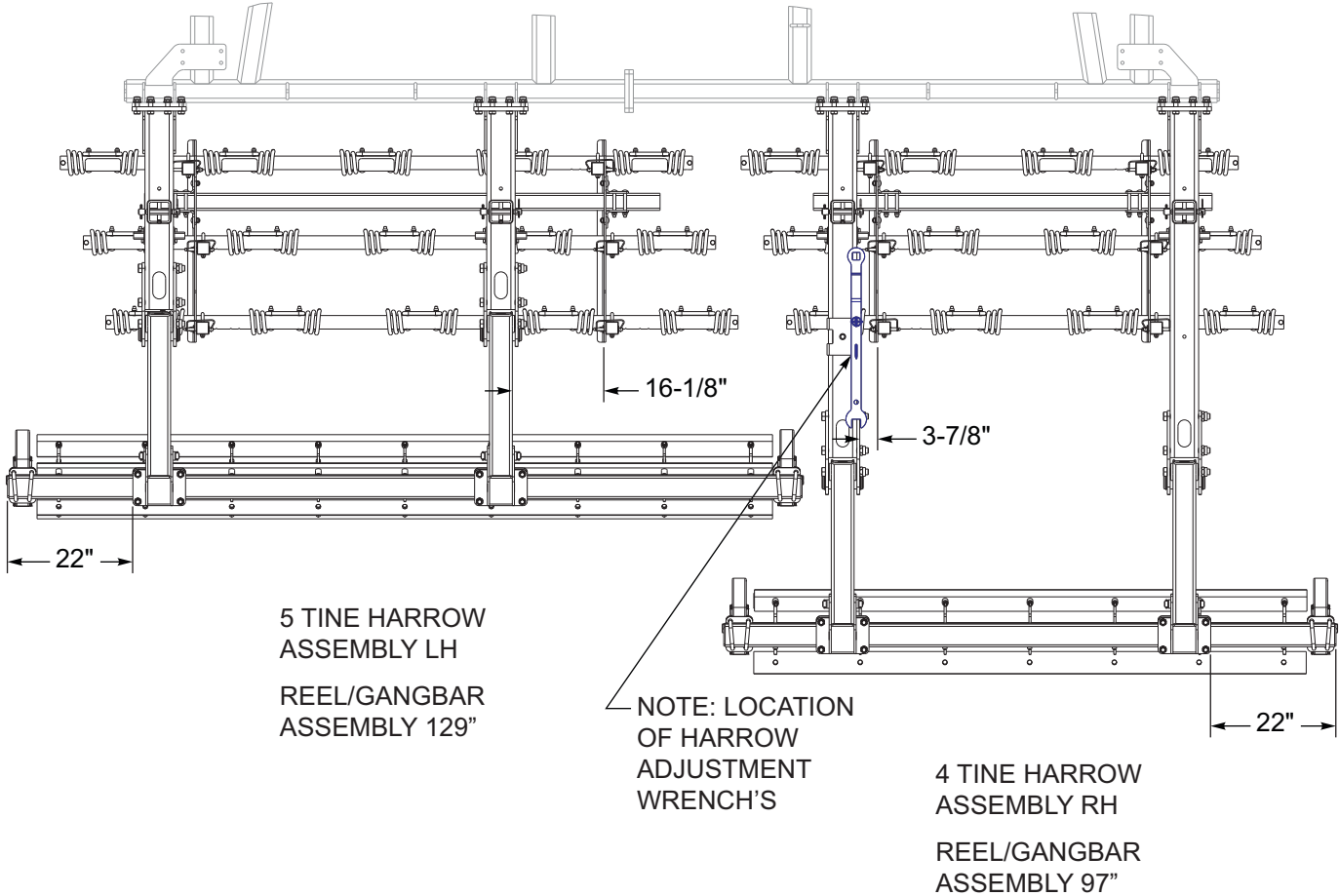


Figure 2-14: Std 3BCT/Chopper Placement 2112-13

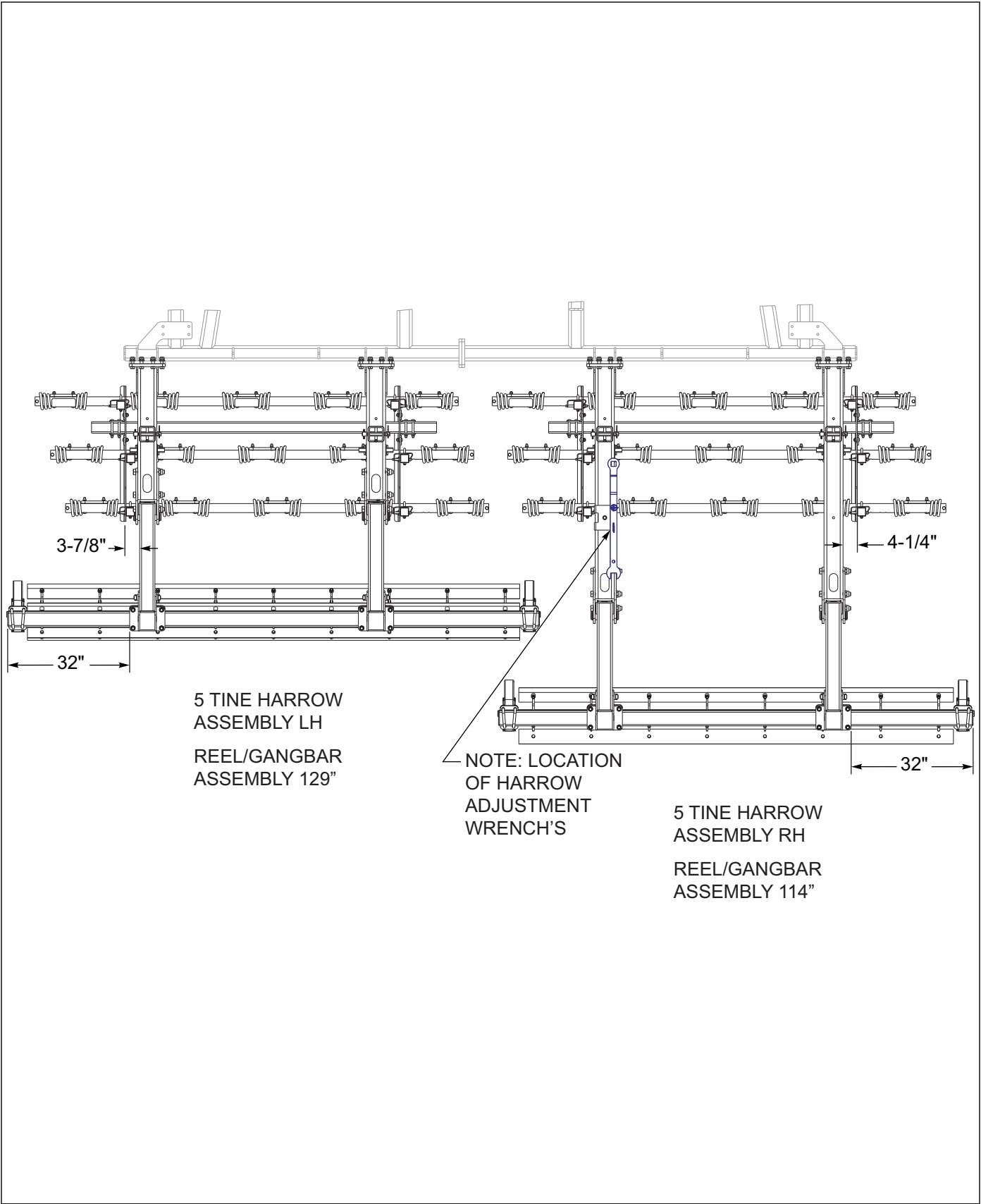


Figure 2-15: Std 3BCT/Chopper Placement 2112-15

Hyd 3BCT/Chopper Placement

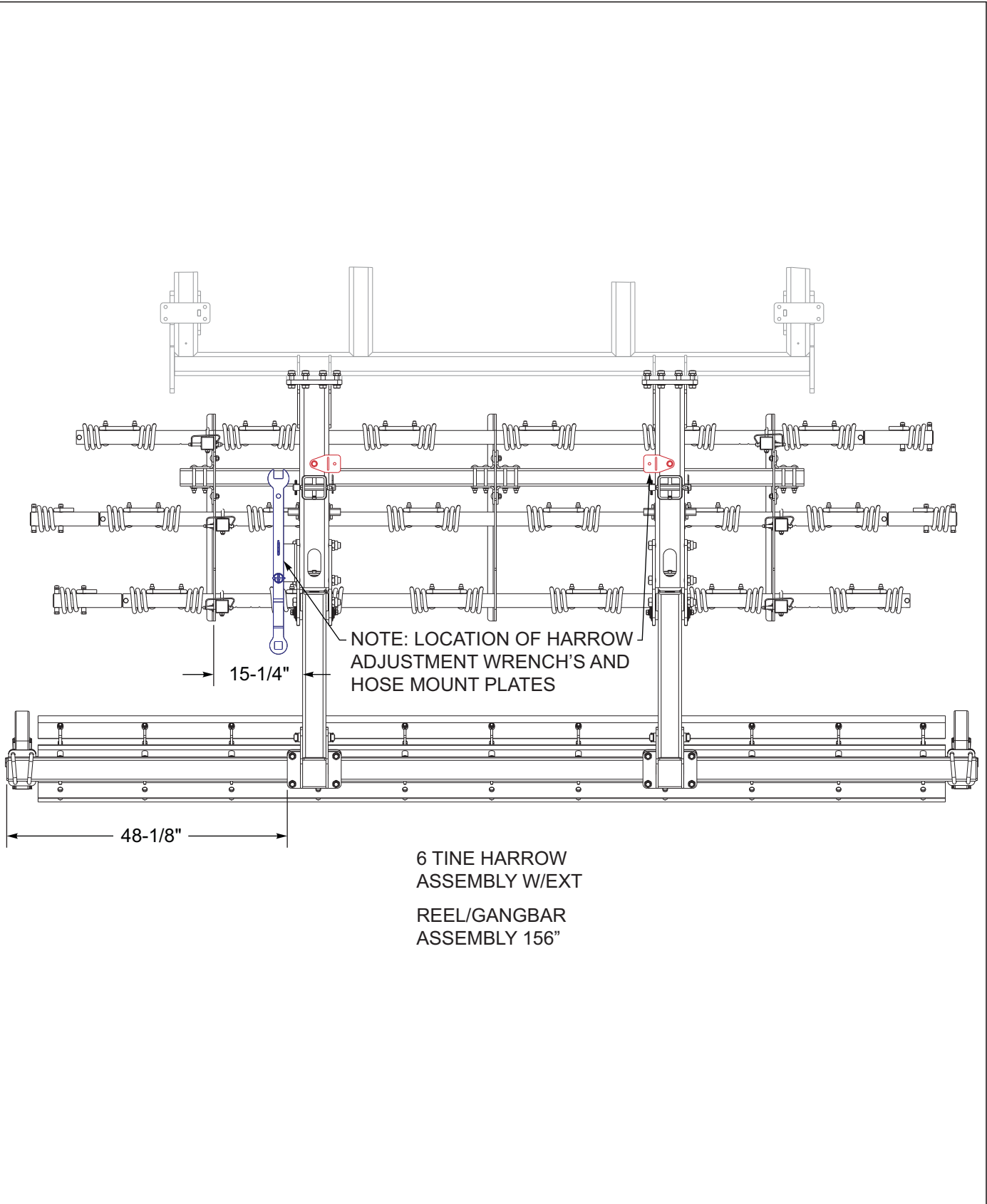


Figure 2-16: Hyd 3BCT/Chopper Placement 2112-09

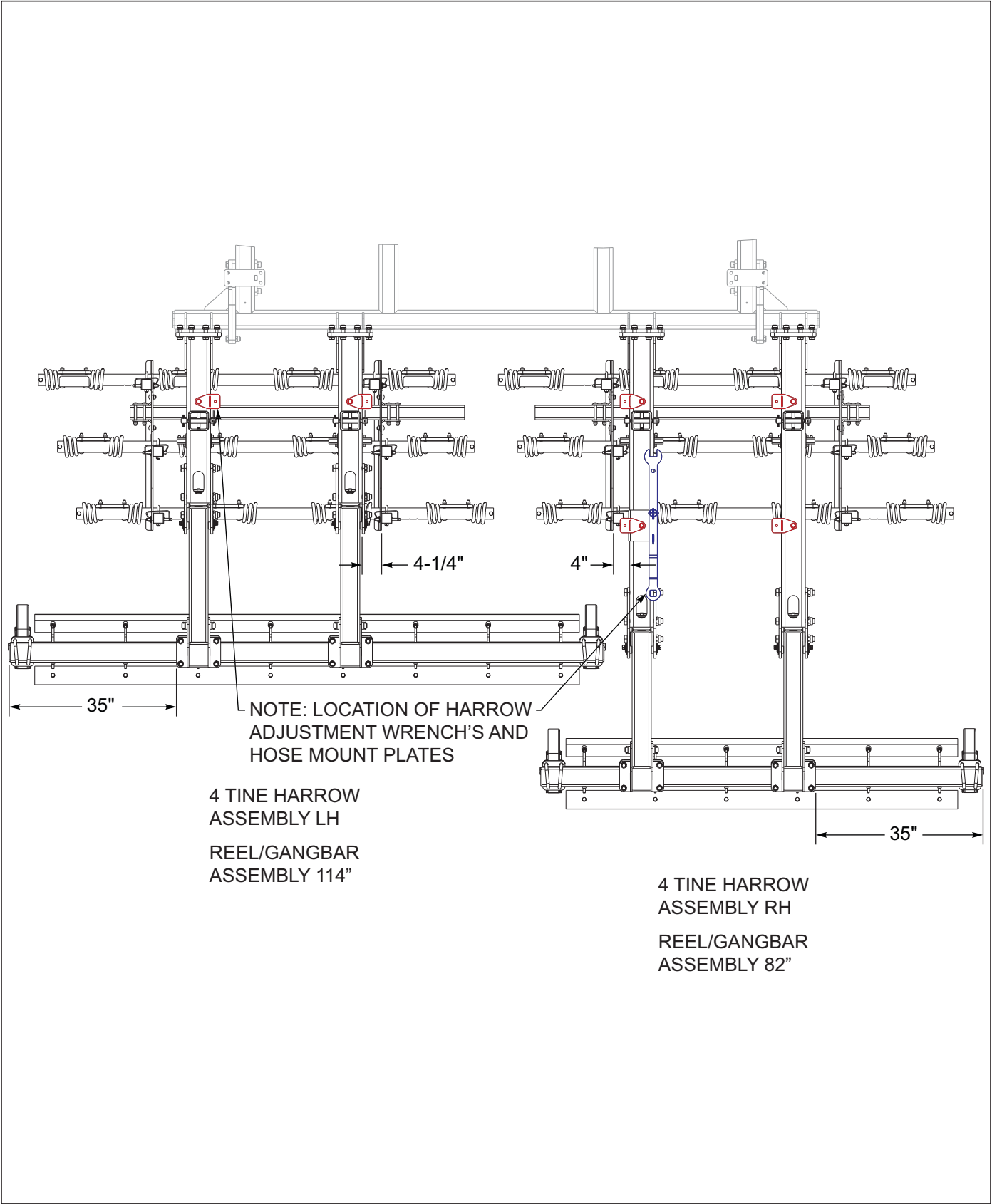


Figure 2-17: Hyd 3BCT/Chopper Placement 2112-11

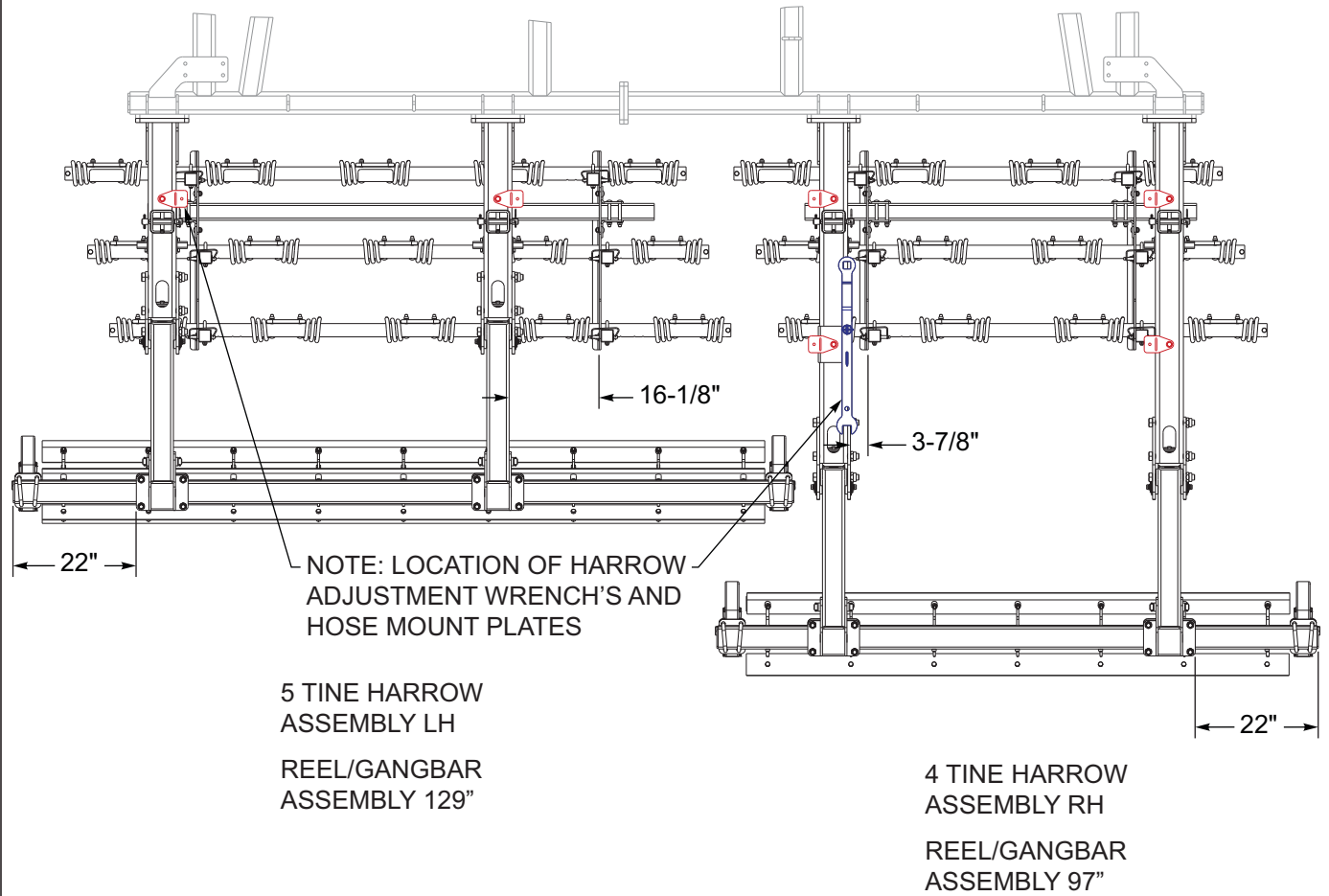


Figure 2-18: Hyd 3BCT/Chopper Placement 2112-13

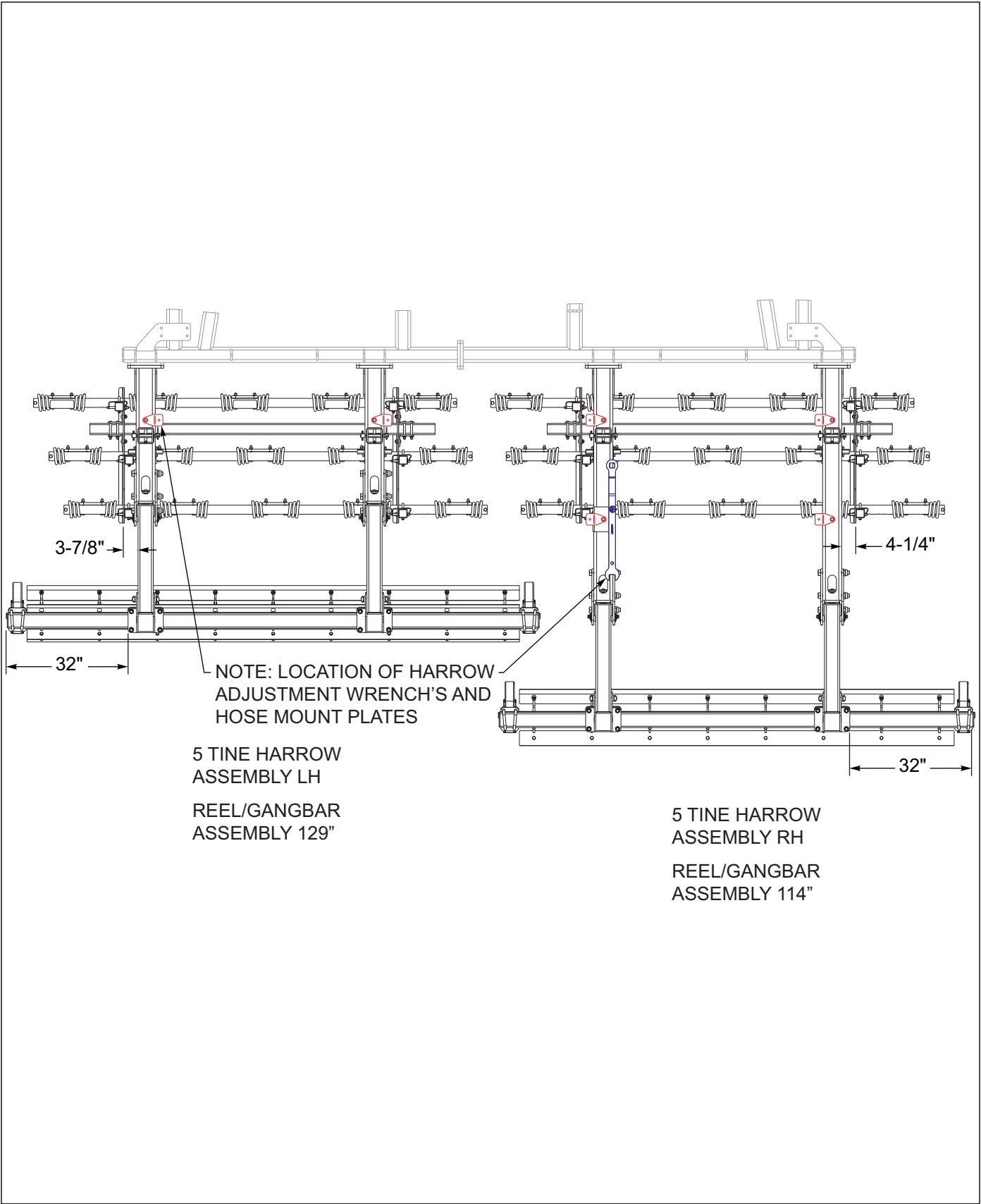


Figure 2-19: Hyd 3BCT/Chopper Placement 2112-15

Std Chopper Reel Placement

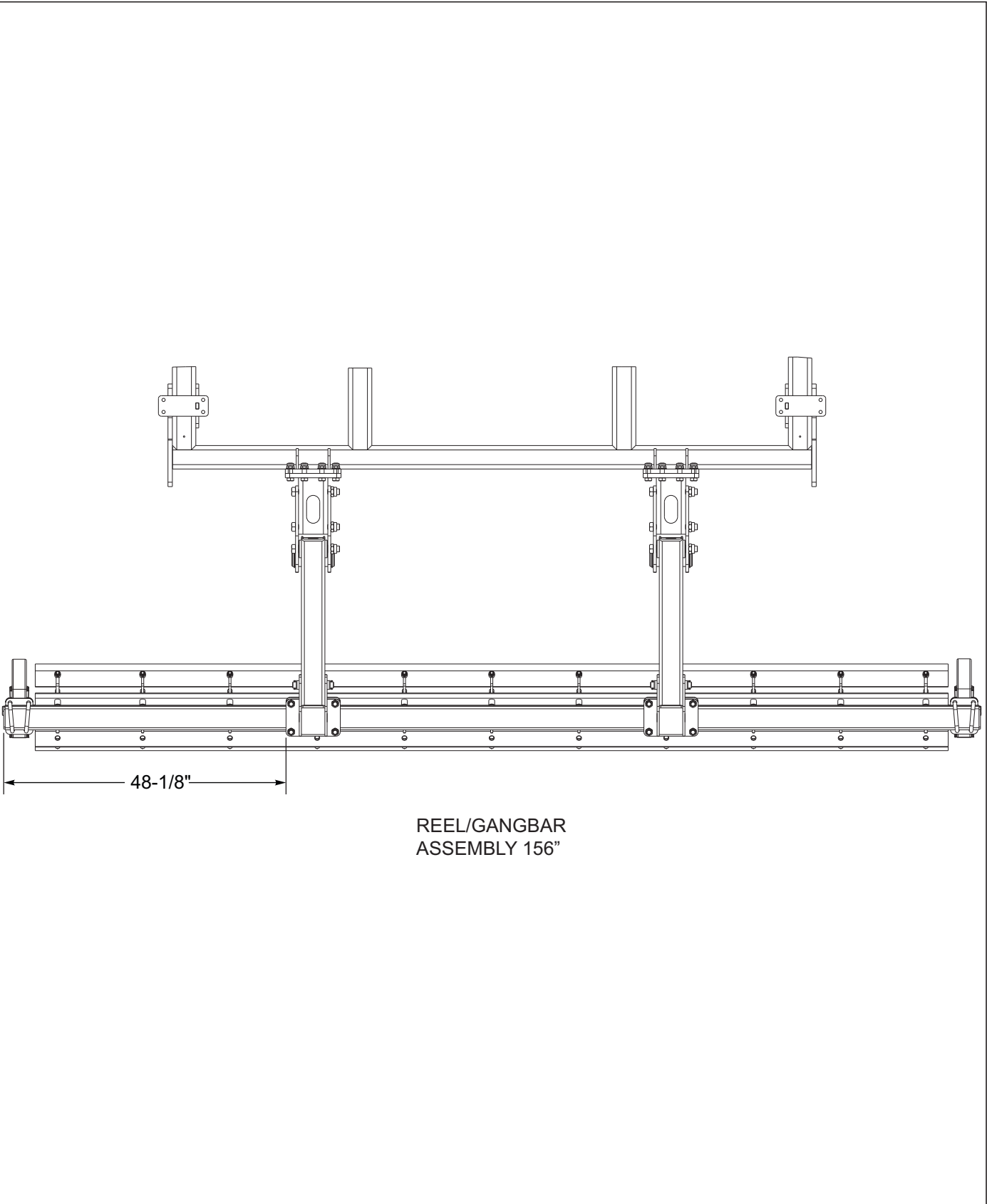


Figure 2-20: Std Chopper Reel Placement 2112-09

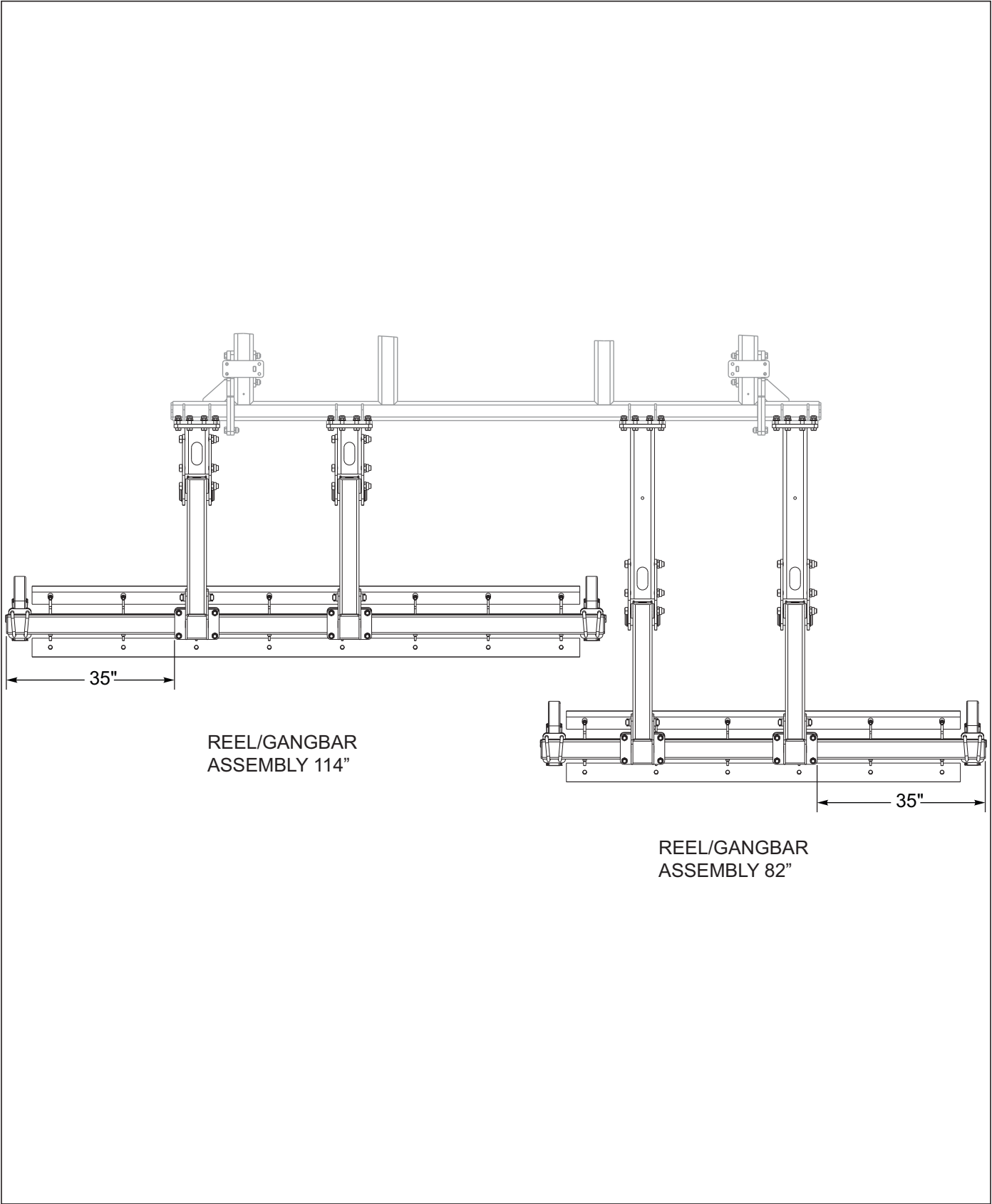


Figure 2-21: Std Chopper Reel Placement 2112-11

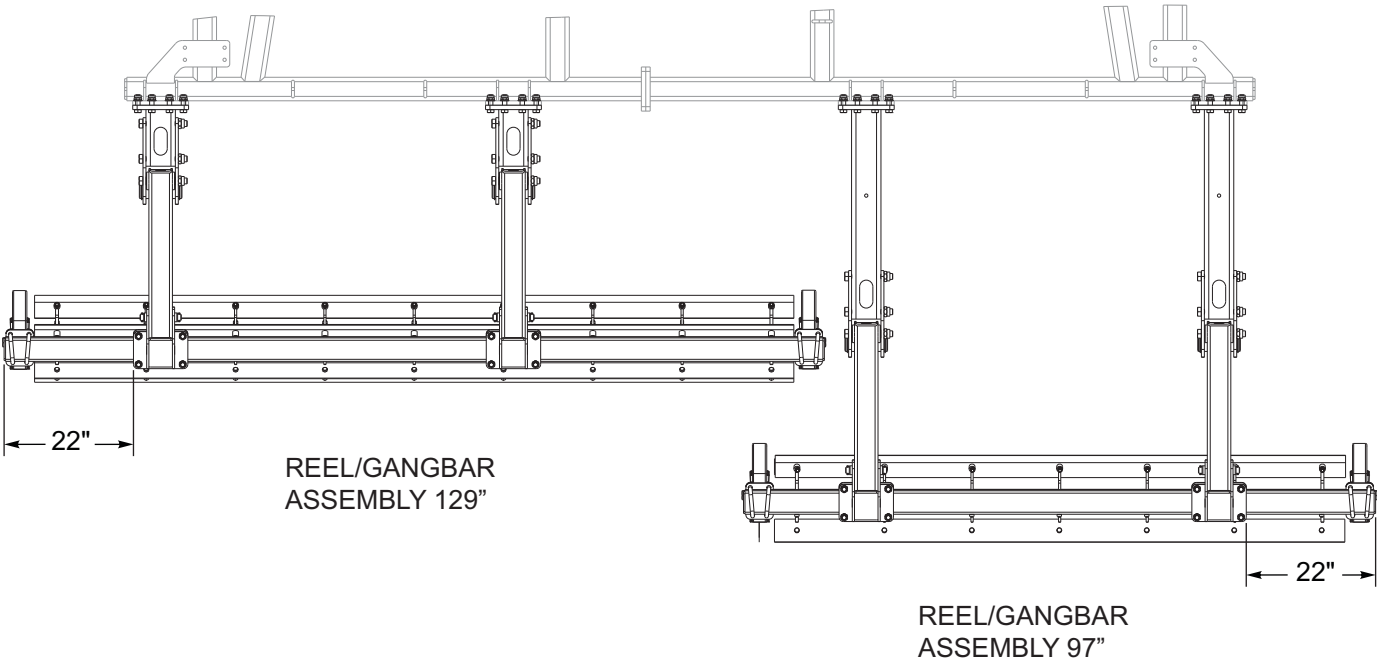


Figure 2-22: Std Chopper Reel Placement 2112-13

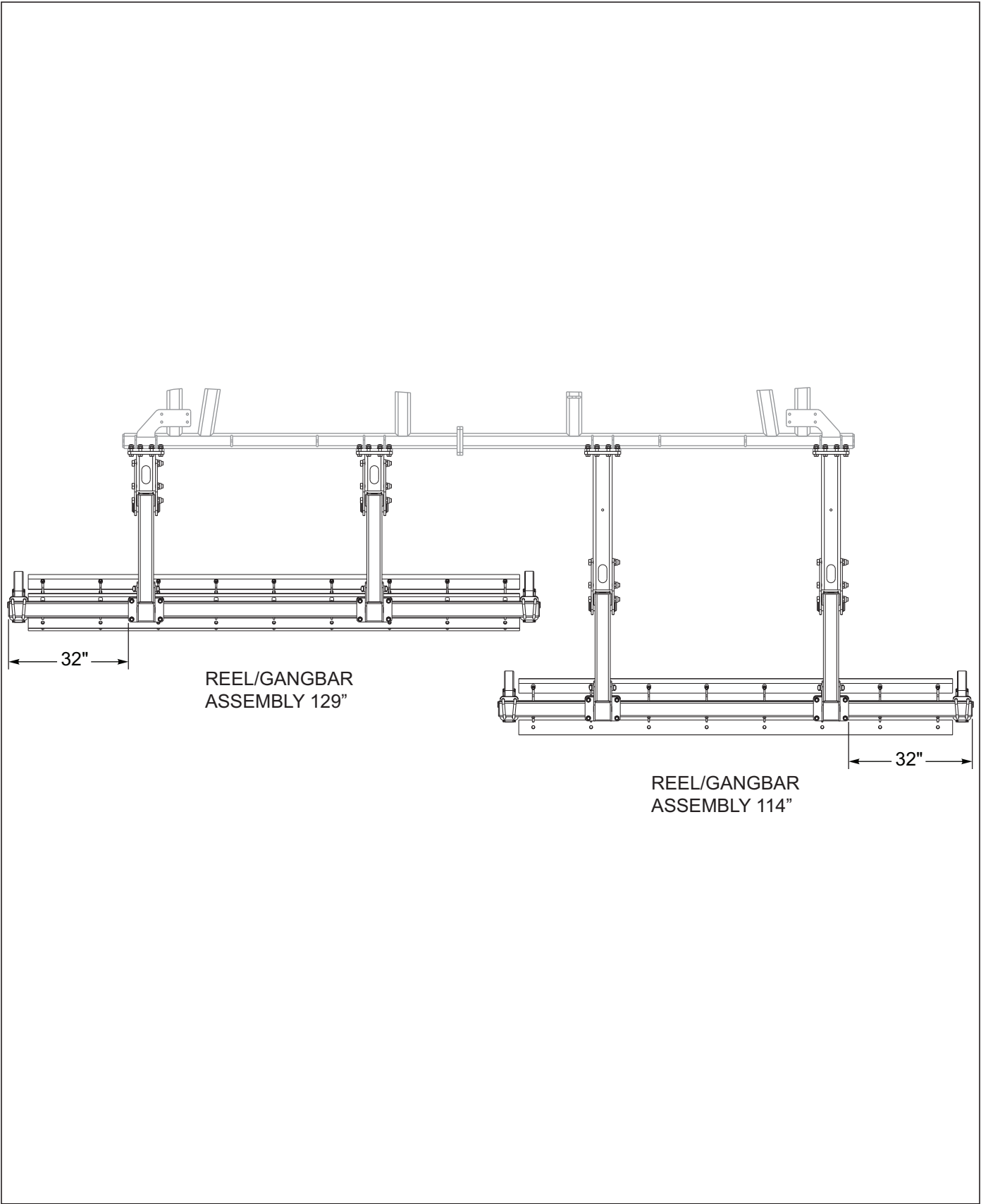


Figure 2-23: Std Chopper Reel Placement 2112-15

Hyd Chopper Reel Placement

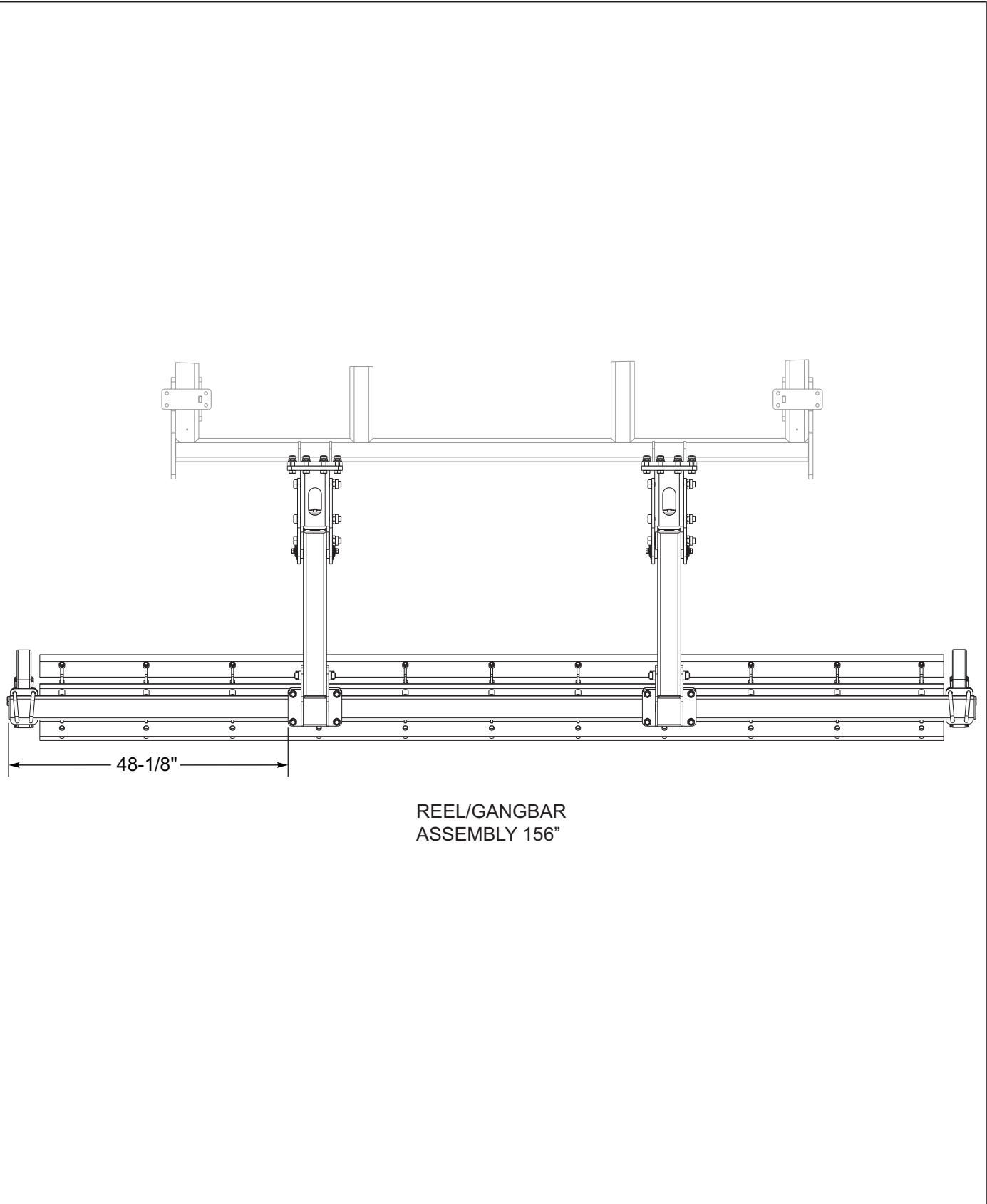


Figure 2-24: Hyd Chopper Reel Placement 2112-09

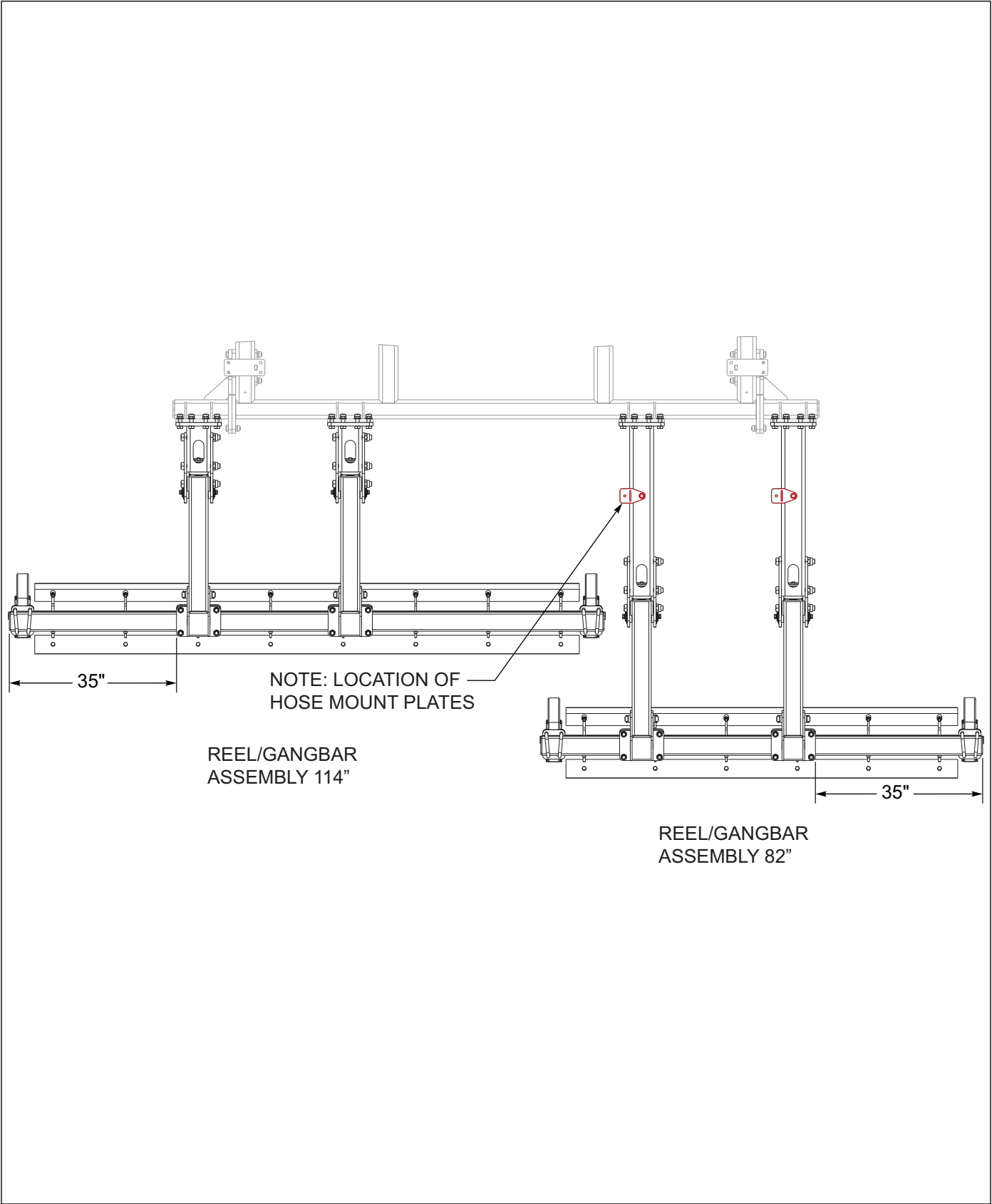


Figure 2-25: Hyd Chopper Reel Placement 2112-11

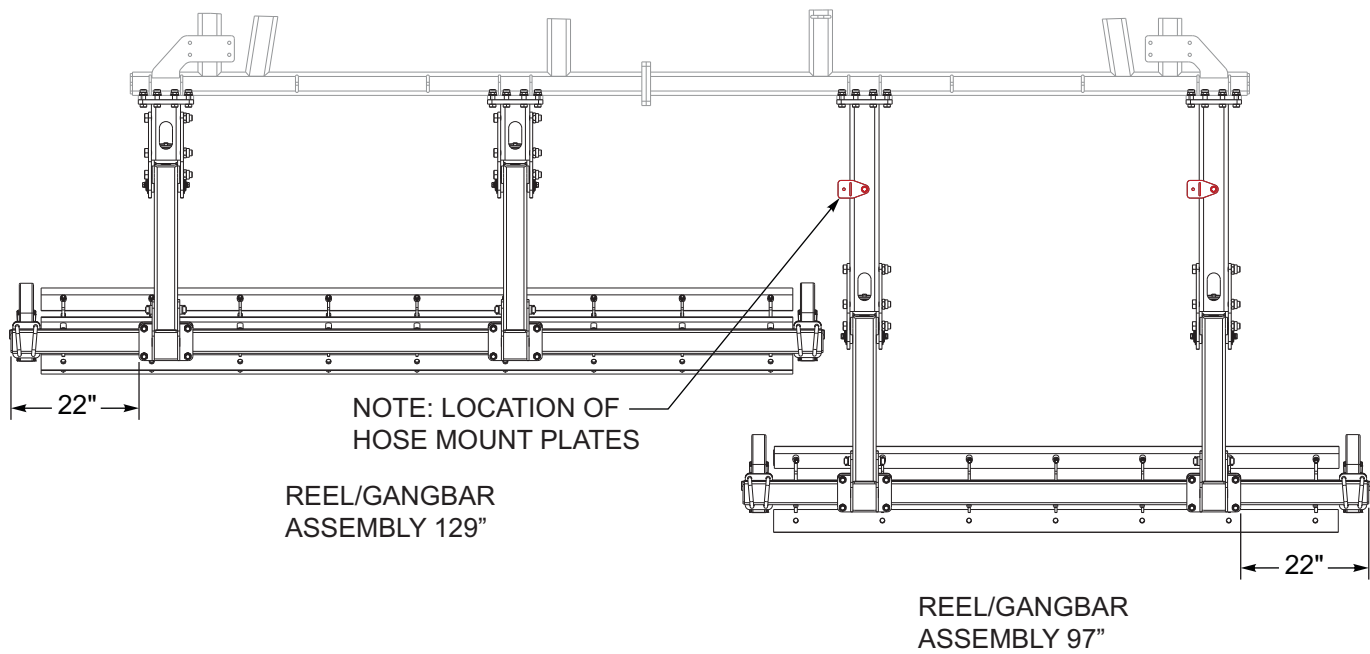


Figure 2-26: Hyd Chopper Reel Placement 2112-13

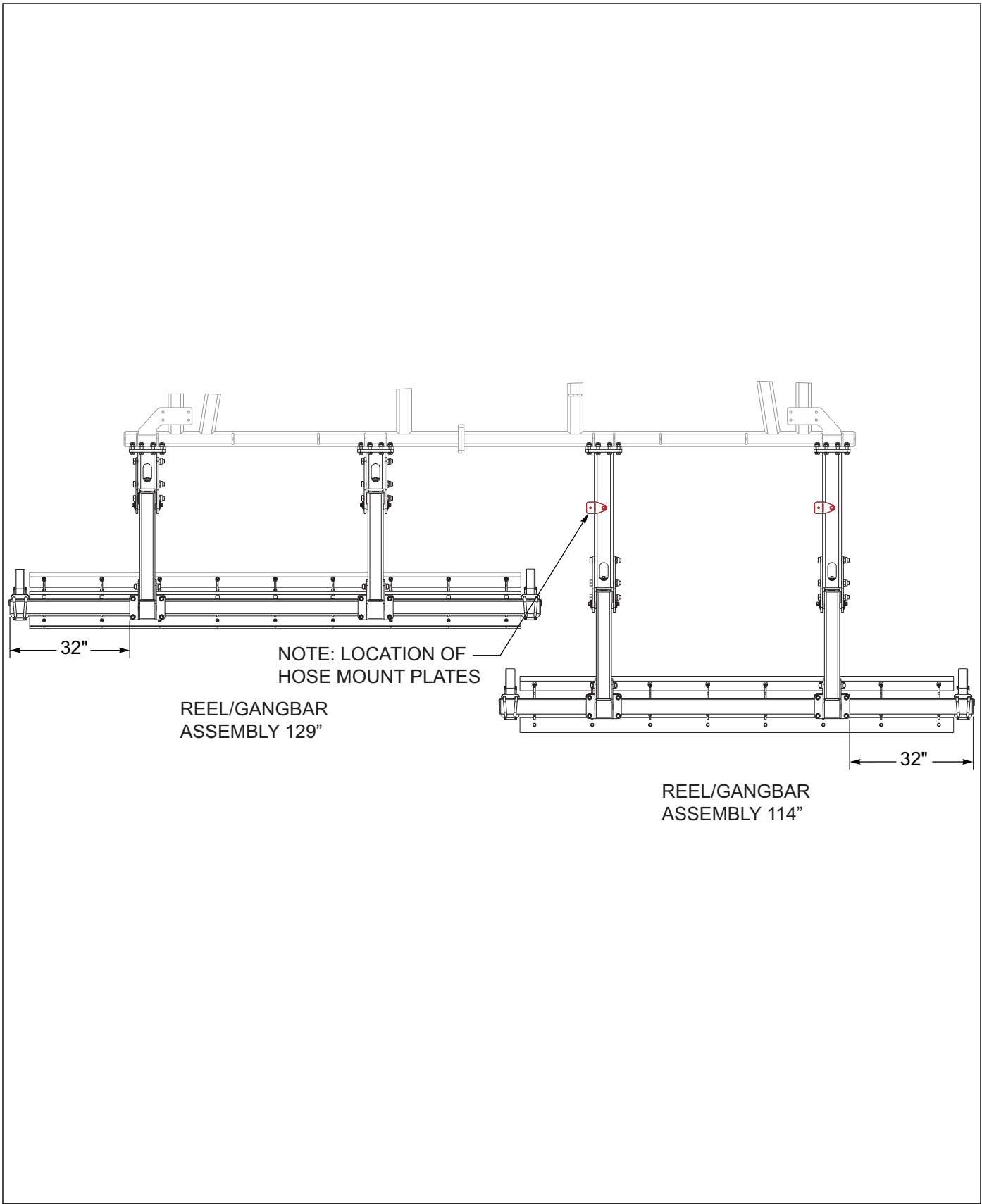


Figure 2-27: Hyd Chopper Reel Placement 2112-15

Hyd Disc Lev/Reel Placement

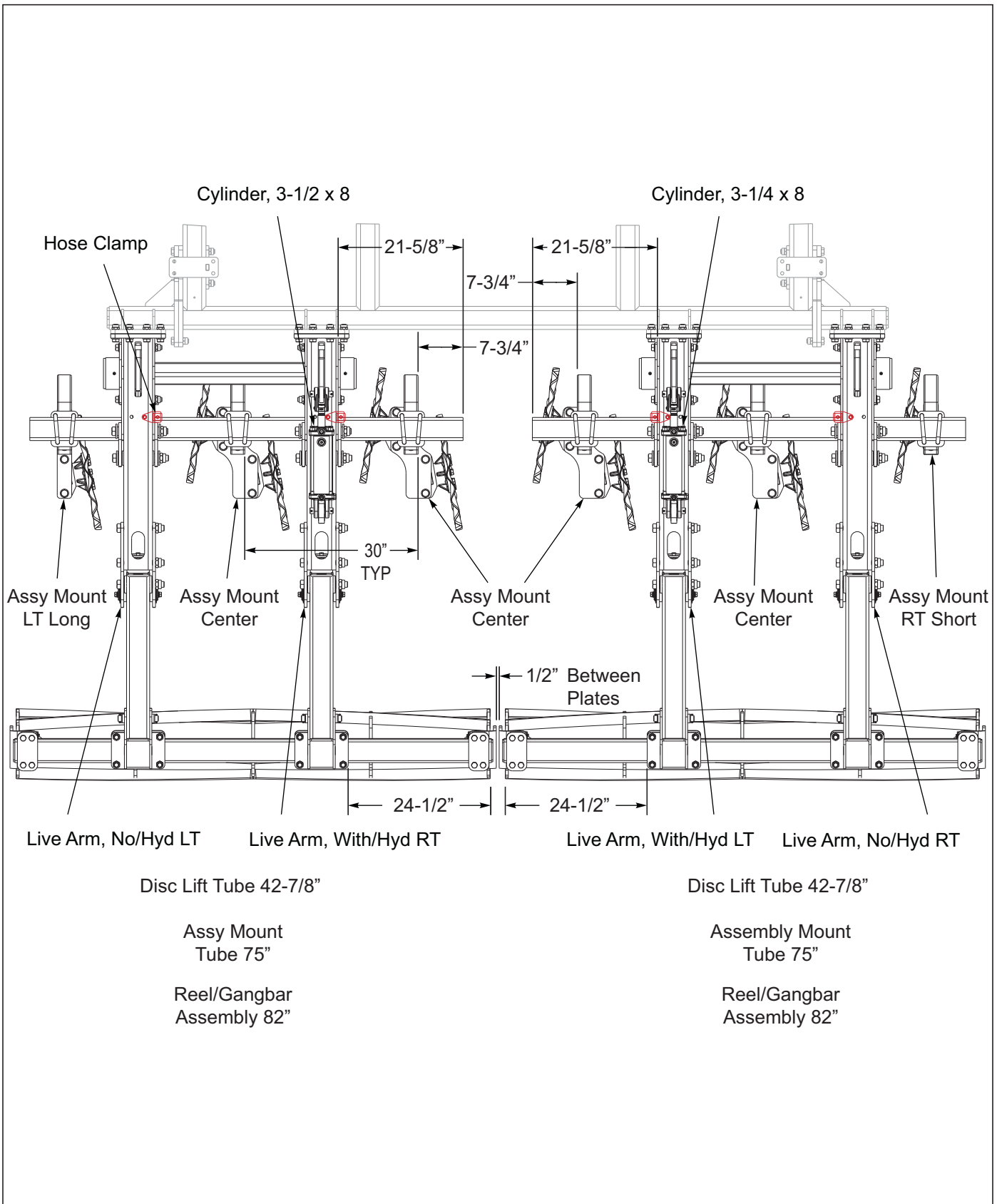


Figure 2-28: Hyd Disc/Reel Placement 2112-09

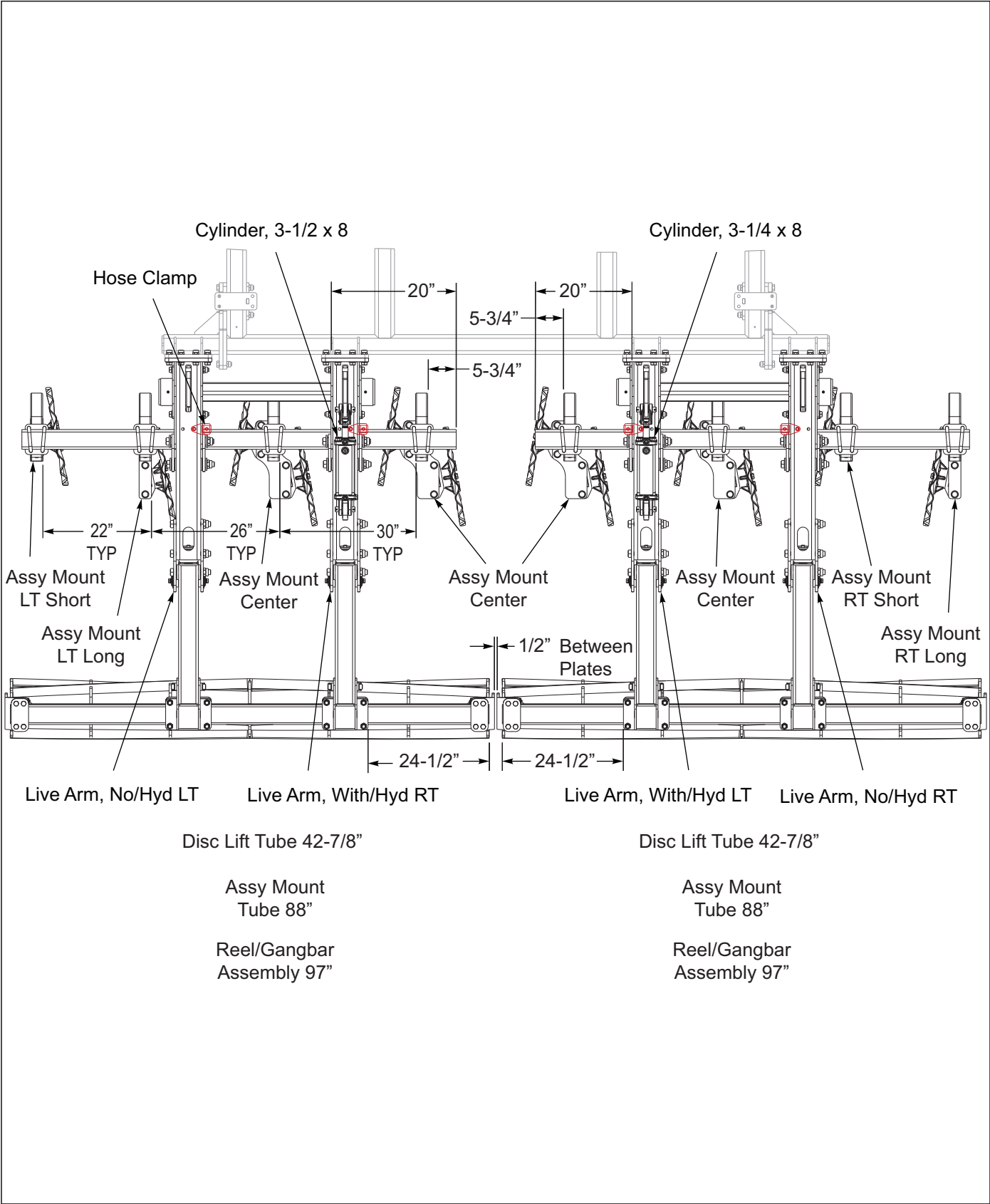


Figure 2-29: Hyd Disc/Reel Placement 2112-11

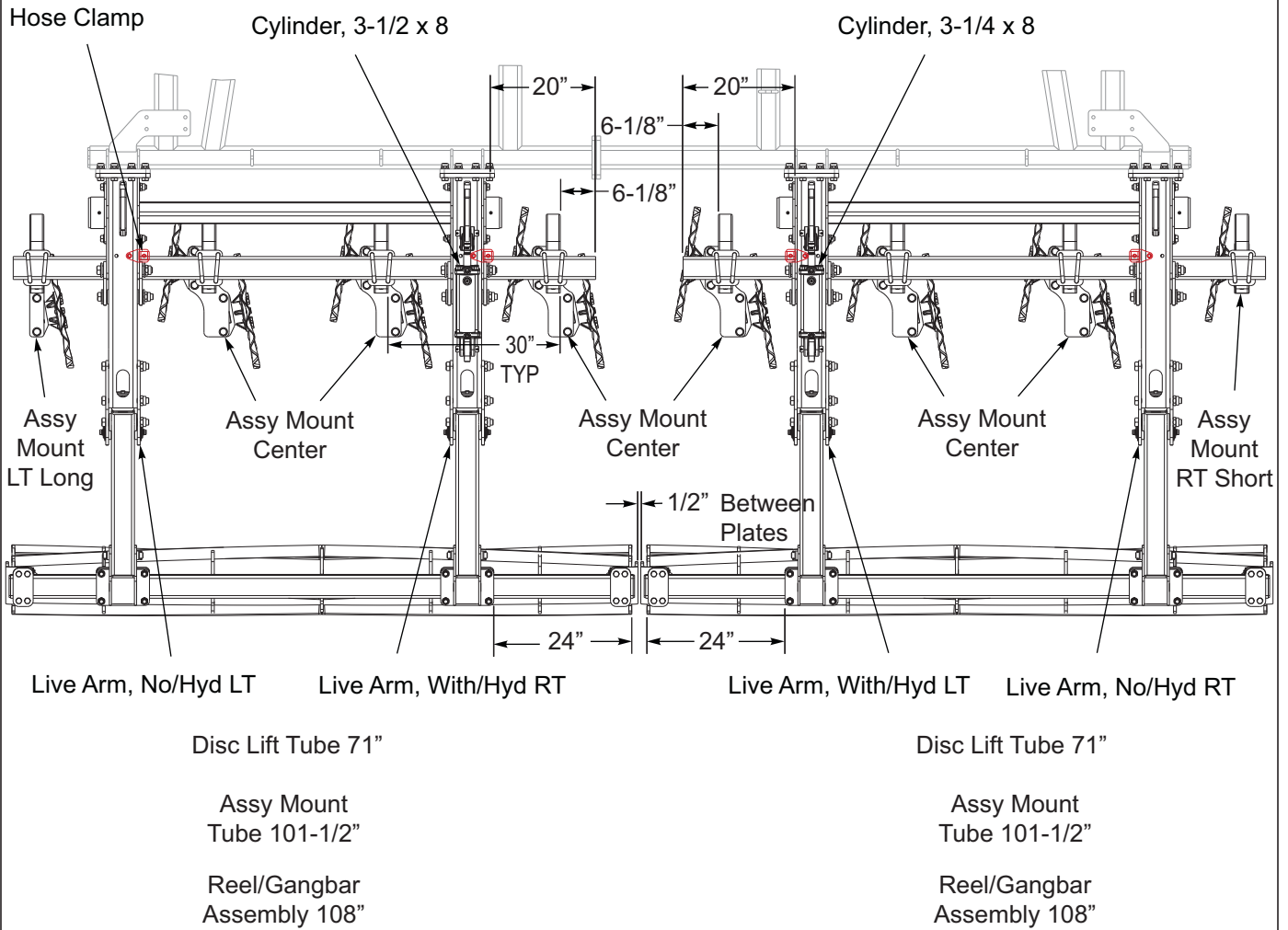


Figure 2-30: Hyd Disc/Reel Placement 2112-13

2-33

STANDARD SPECIFICATIONS

Table provided for general use.

[illegible]

Assembly Instructions

It is very important that your new 2112 Coulter Chisel 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 **See Figure 2-4**.



DANGER

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



WARNING

Do not attempt to lift heavy parts (such as the frame, coulter 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.

Center Frame Assembly 2112-09-11



WARNING

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

IMPORTANT

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

1. Place center frame assembly on stands approximately 36" high. The assembly area should be a large level area of sufficient size to accommodate the Coulter Chisel when fully assembled.
2. Remove any shank assemblies or extensions that may have been turned around or mounted inside the frame for shipping, and reposition, [See Figures 2-6](#) through [See Figures 2-11](#) in "STANDARD SPECIFICATION" section for shank placement.
3. Install the 340/65 R18 tire/wheel assemblies to all hub/spindle assemblies using 5/8 wheel nuts, [See Figures 3-2](#). Torque to 85-100 ft/lbs.

NOTE

The valve stems will face outwards.

4. Install the 2112 front manifold assembly on 2 hole plate on front of center frame tube using 1/2 x 4 bolt and 1/2 lock nut.

5. Attach smv mount, manifold mount to rear tube of center frame with 5/8 x 6 bolts and 5/8 lock nuts.
6. Install the smv, SIS decal bracket to smv mount with 1/4 x 1 bolts and 1/4 lock nuts. Install the SIS 20mph decal in location shown [See Figures 3-1](#).

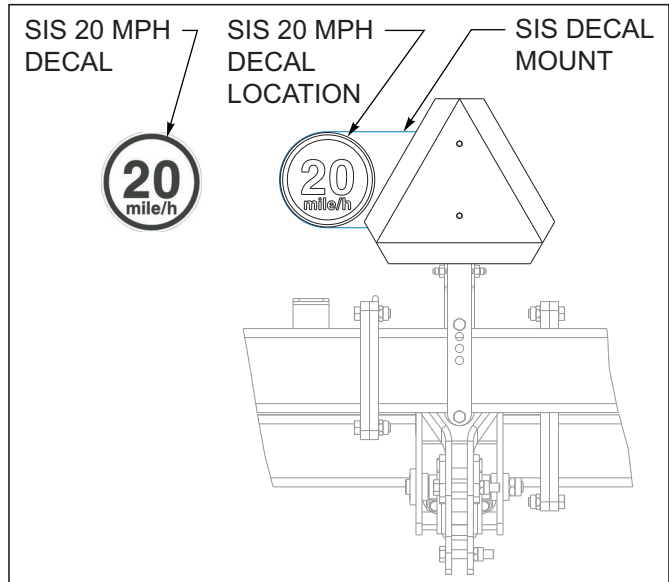


Figure 3-1: SIS 20mph Decal Installation

7. Install the 8 port manifold assembly for optional hydraulic reel attachment on manifold mount using 1/2 x 3-1/2 bolts and 1/2 lock nuts.

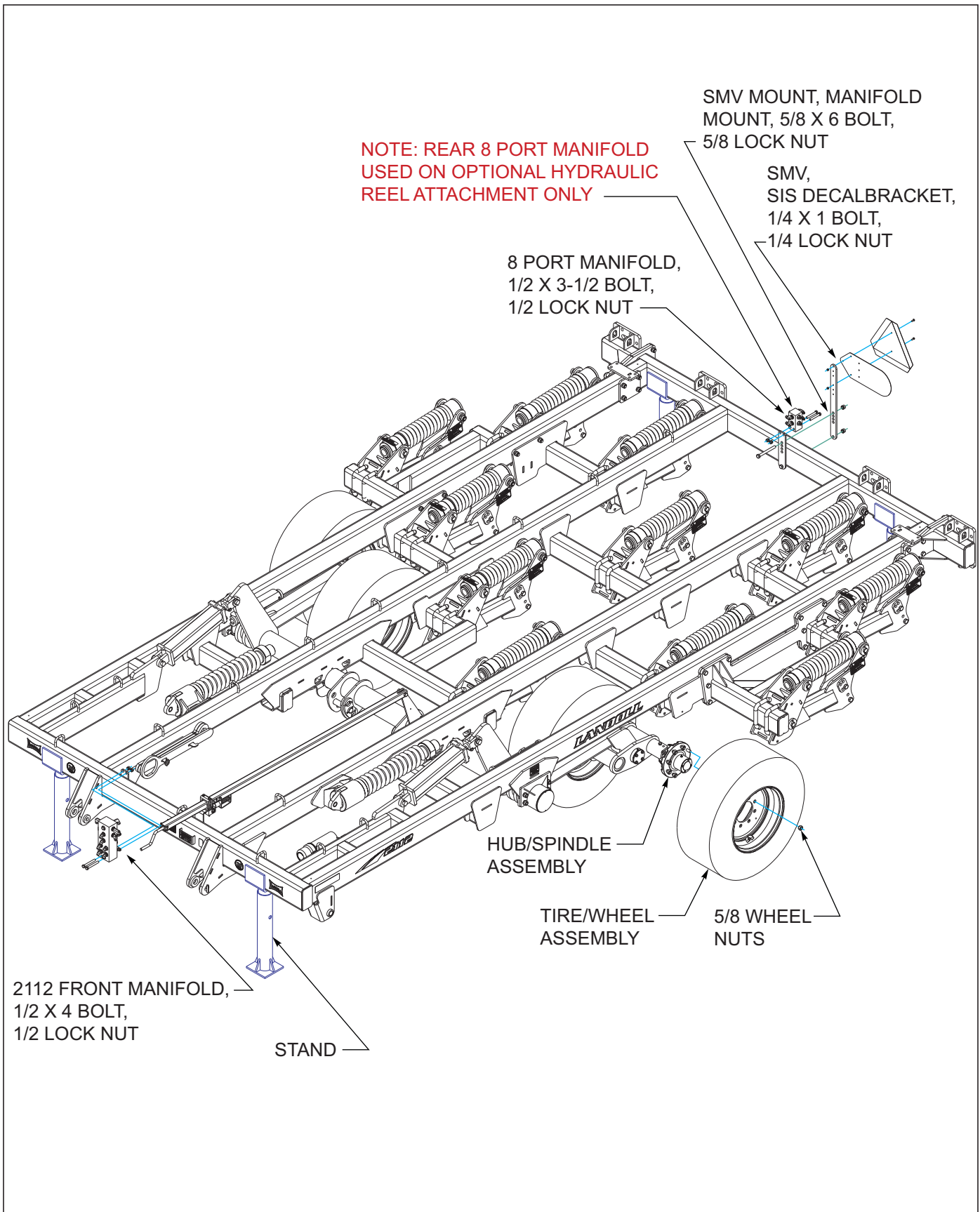


Figure 3-2: Center Frame Assembly 2112-09-11

Center Frame Assembly 2112-13-15



WARNING

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

IMPORTANT

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

1. Bolt the two center frame halves together using 3/4 x 2-1/2 bolts and 3/4 locknuts [See Figure 3-4](#).
2. Place center frame assembly on stands approximately 36" high. The assembly area should be a large level area of sufficient size to accommodate the Coulter Chisel when fully assembled.
3. Remove any shank assemblies or extensions that may have been turned around or mounted inside the frame for shipping, and reposition, [See Figures 2-4 through 2-13](#) in "STANDARD SPECIFICATION" section for shank placement.
4. Install the 2112 front manifold assembly on 2 hole plate on front of center frame tube using 1/2 x 4 bolt and 1/2 lock nut.
5. Attach smv mount, manifold mount to rear tube of center frame with 5/8 x 6 bolts and 5/8 lock nuts.
6. Install the smv, SIS decal bracket to smv mount with 1/4 x 1 bolts and 1/4 lock nuts. Install the SIS 20mph decal in location shown [See Figures 3-1](#).
7. Install the 8 port manifold assembly for optional hydraulic reel attachment on manifold mount using 1/2 x 3-1/2 bolts and 1/2 lock nuts.

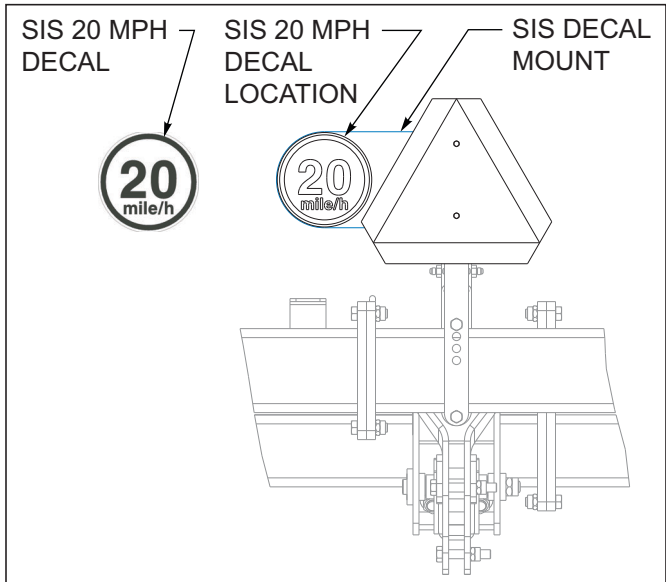


Figure 3-3: SIS 20mph Decal Installation

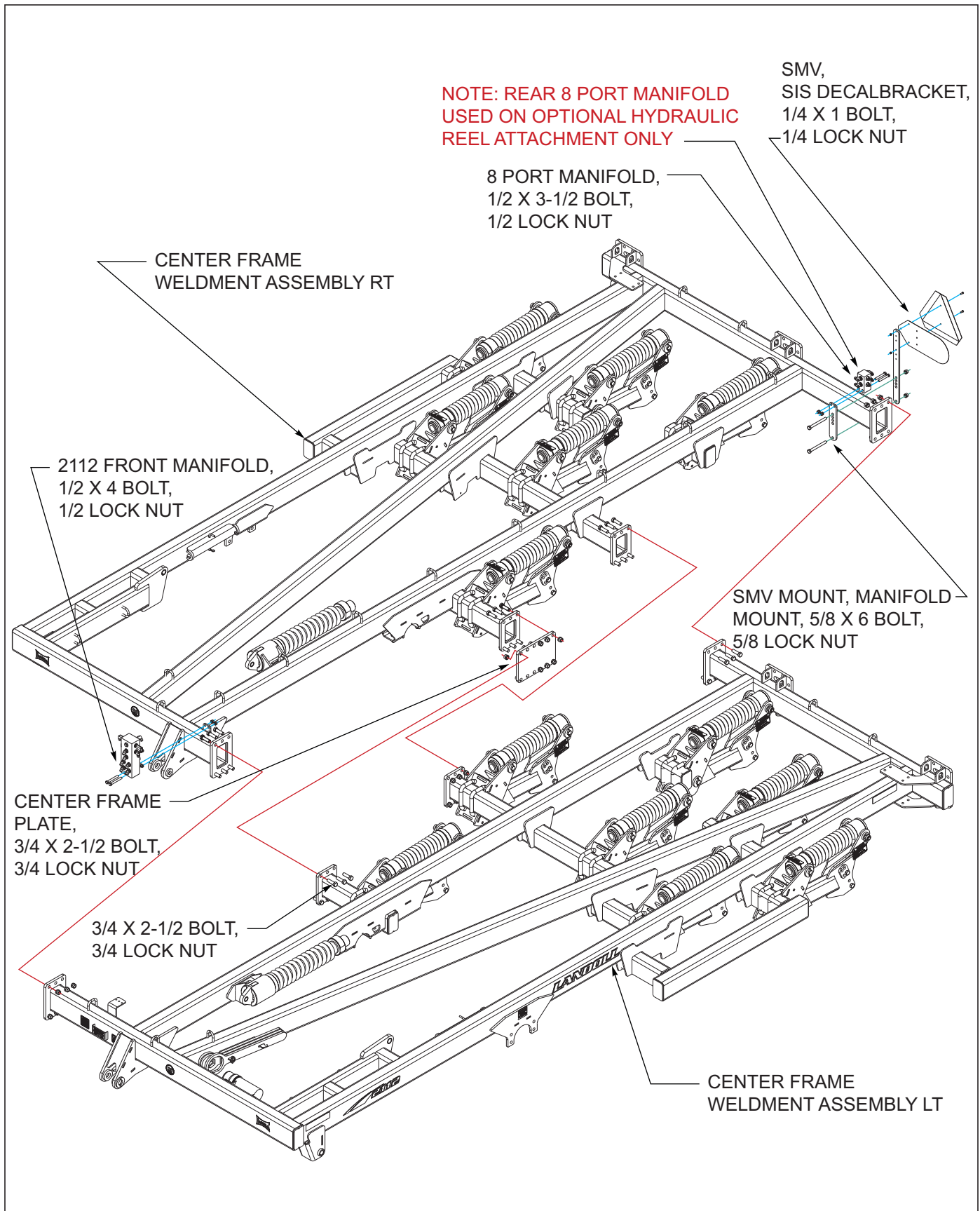


Figure 3-4: Center Frame Assembly 2112-13-15

Center Frame Lift Assembly 2112-13-15



WARNING

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

IMPORTANT

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

1. Bolt the two center frame halves together using 3/4 x 2-1/2 bolts and 3/4 locknuts [See Figure 3-4](#).
2. Place center frame assembly on stands approximately 36" high. The assembly area should be a large level area of sufficient size to accommodate the Coulter Chisel when fully assembled.
3. Remove any shank assemblies or extensions that may have been turned around or mounted inside the frame for shipping, and reposition, [See Figures 2-4 through See Figures 2-13](#) in "STANDARD SPECIFICATION" section for shank placement.
4. Install a UHMW bearing between both inner bearing locators around the center lift assembly [See Figure 3-6](#).
5. Insert a UHMW bearing into each bearing cap and install the cap and bearing over the end of center lift assembly.
6. Install the depth stop plate, 3/8 x 1-1/4 bolts and 3/8 lock nuts.
7. Raise the center lift assembly into the center frame and attach each end of the bearing lift caps to the center frame with 3/4 x 2 bolts and 3/4 lock nuts
8. Install the two inner lift bearing mounts with 3/4 x 2 bolts and 3/4 lock nuts.

NOTE

Make sure the center lift will rotate freely in the center frame after it is assembled.

9. Install the 4 x 16 lift cylinders, base end to ears on frame and rod end to center lift weldment assembly as shown [See Figure 3-6](#) with cylinder pins provided. Install with ports facing upwards.
10. All hubs/spindle come already assembled from the factory.
11. Install the 340/65 R18 tire/wheel assemblies to all hub/spindle assemblies using 5/8 wheel nuts, [See Figures 3-6](#). Torque to 85-100 ft/lbs.

NOTE

The valve stems will face outwards.

12. Attach the rear of the depth stop assembly using a 5/8 x 2-1/2 bolt and 5/8 lock nut.
13. Attach the front of depth stop assembly with slide pad between top side of bracket on rear side of front center frame tube and under depth stop assembly. the limit valves goes on bottom side of bracket with plunger towards rear of machine. Secure with depth stop guide on top side, 5/16 x 5-1/2 bolts and 5/16 lock nuts.
14. Install the 2112 front manifold assembly on 2 hole plate on front of center frame tube using 1/2 x 4 bolt and 1/2 lock nut.
15. Attach smv mount, manifold mount to rear tube of center frame with 5/8 x 6 bolts and 5/8 lock nuts.
16. Install the smv, SIS decal bracket to smv mount with 1/4 x 1 bolts and 1/4 lock nuts. Install the SIS 20mph decal in location shown [See Figures 3-1](#).

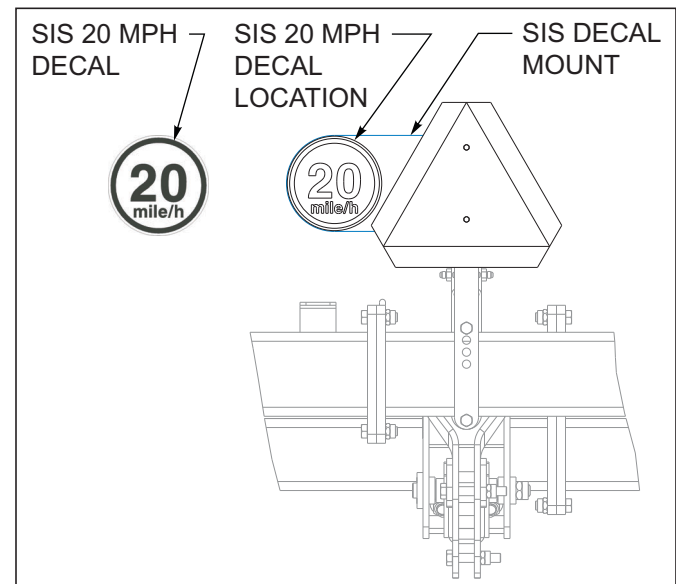


Figure 3-5: SIS 20mph Decal Installation

17. Install the 8 port manifold assembly for optional hydraulic reel attachment on manifold mount using 1/2 x 3-1/2 bolts and 1/2 lock nuts.

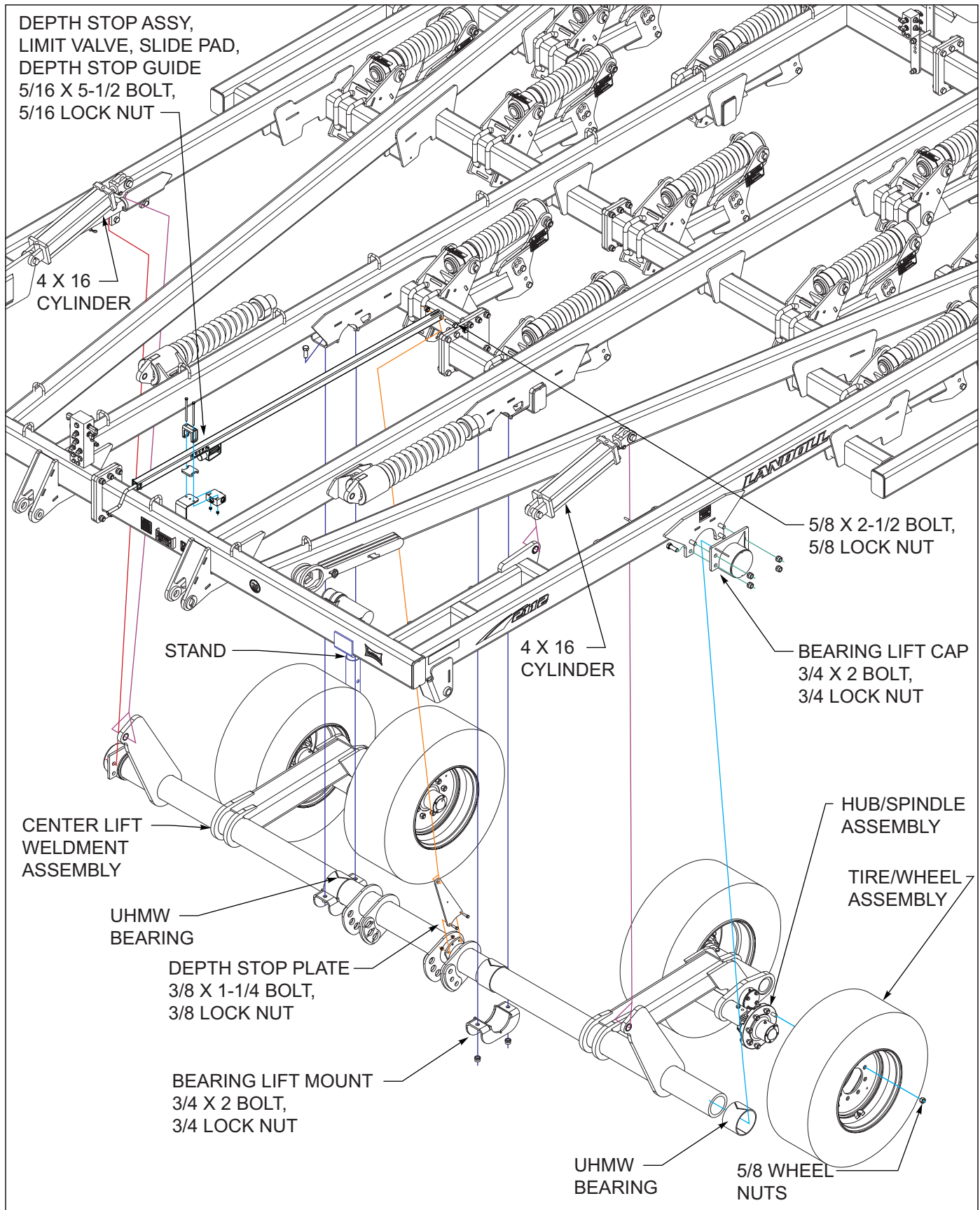


Figure 3-6: Center Frame Lift Assembly 2112-13-15

Hitch Installation

1. Attach the hitch assembly to the front of the center frame using hitch pins, 1" lock nuts, and 1/2 x 2-1/4 groove pins [See Figures 3-7](#).

NOTE

Hitch is weighted, use a sufficient device for lifting and installing hitch assembly.

2. Move the jack to the forward mounting tube and rotate to parking position to support the front of the hitch.
3. Attach the hose clamps, 3-8 x 3-1/2 bolt, 3/8 flat washer and 3/8 lock nut to plate on rear of hitch.
4. Remove the 1 x 11 bolt from hitch assembly and install the hose storage plate in position shown [See Figures 3-7](#), re-install the 1 x 11 bolt, 1 flat washer and 1 lock nut.

5. Install the hose holder bracket to the front of the hitch assembly with 3/4 x 2 bolt, 3/4 flat washer and 3/4 lock nut.
6. Install the stor-a-way to the hose holder bracket with 1/4 x 1 bolts and 1/4 lock nuts.
7. Attach the hose clamp long, wing nut and 3/8 x 5 all thread bolt. Install the 3/8 x 5 all thread bolt and thread on 3/8 nut to secure bolt to hose holder bracket.

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.

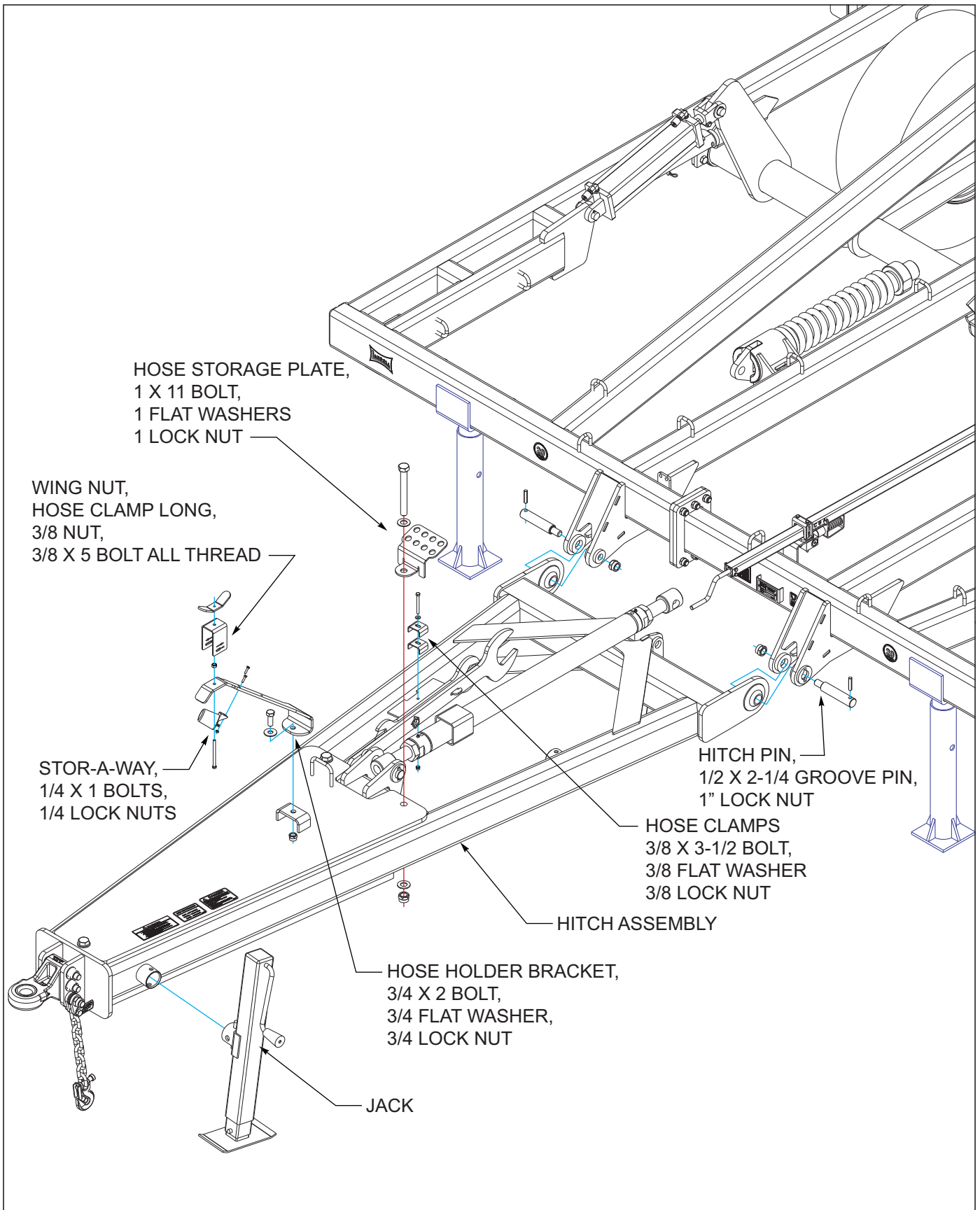


Figure 3-7: Hitch Assembly

Hitch Leveling Installation

1. Connect narrow end of the leveler tower to the top hole on rear of the hitch assembly using 1-1/4-7 x 9-1/2 hex head cap screw, slotted lock washer, and hex nut [See Figure 3-8](#).
2. Connect rear of leveler tube weldment to the middle holes of center lift assembly using hitch pins, 1 lock nuts, and 1/2 x 2-1/4 groove pins.
3. Connect front of leveler tube weldment to the rear hole of leveler tower using hitch pin, 1 lock nuts and 1/2 x 2-1/4 groove pin.
4. Attach the rear of the radius assembly to the front hole of the leveler tower using hitch pin, 1 lock nut and 1/2 x 2-1/4 groove pin.

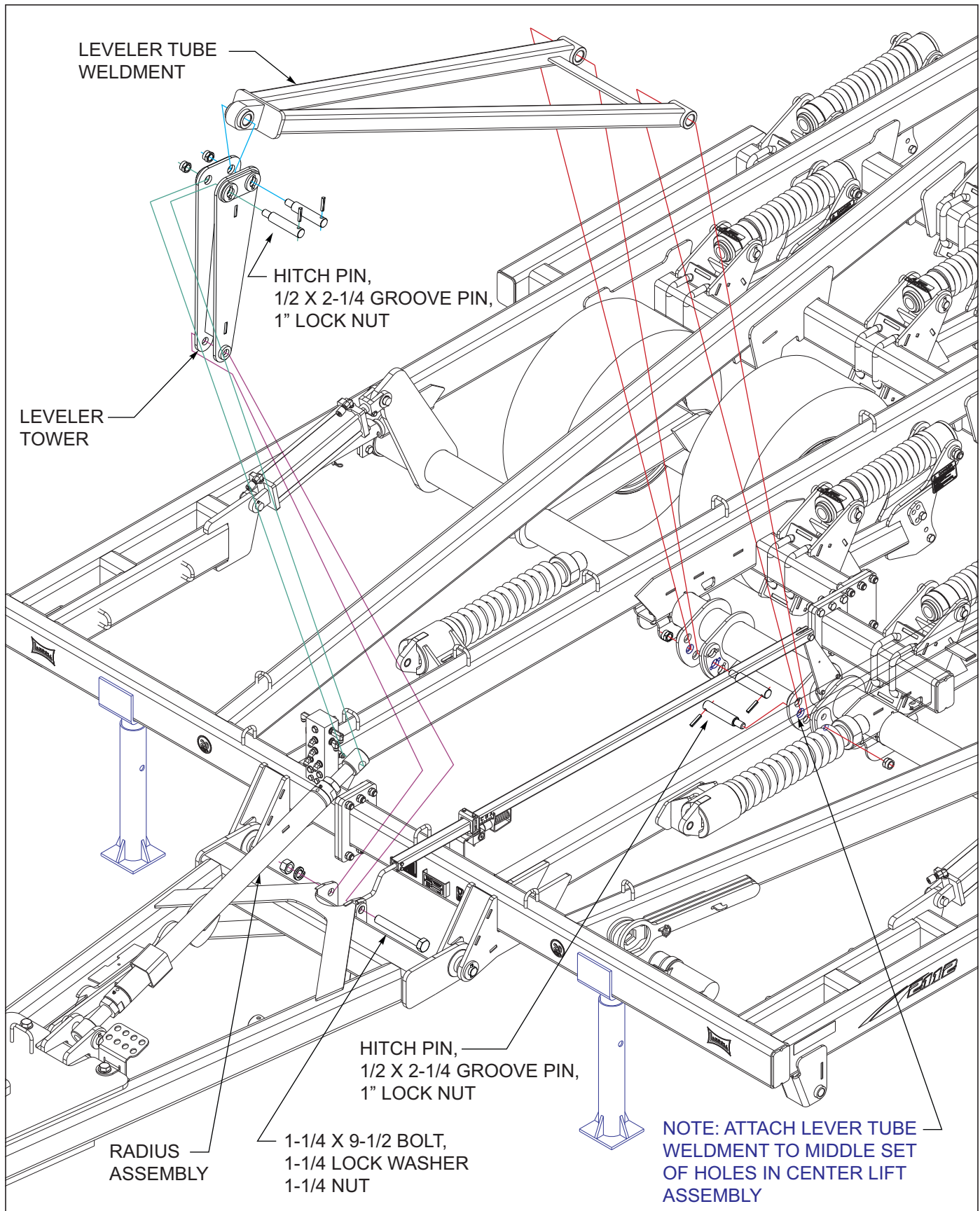


Figure 3-8: Hitch Leveling Assembly

Coulter Gang Installation



DANGER

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

1. Attach the coulter gang assemblies to the center frame using coulter pivot pin, 1 lock nut, and 1/2 x 2-1/4 groove pin [See Figure 3-9](#) and [See Figure 3-10](#) for gang assembly placement.
2. Attach the base end of the 3-3/4 x 8 cylinder to the coulter spring assembly attached to the left center frame weldment using the clevis pins and roll pins provided with cylinder.
3. Attach the base end of the 4 x 8 cylinder to the coulter spring assembly attached to the right center frame weldment using the clevis pins and roll pins provided with cylinder.
4. Connect the rod ends of each cylinder to the gang bar cylinder anchor plate using the clevis pins and roll pins provided with cylinder.
5. The hydraulics may be installed see [“Hydraulic Installation” on page 3-20](#).

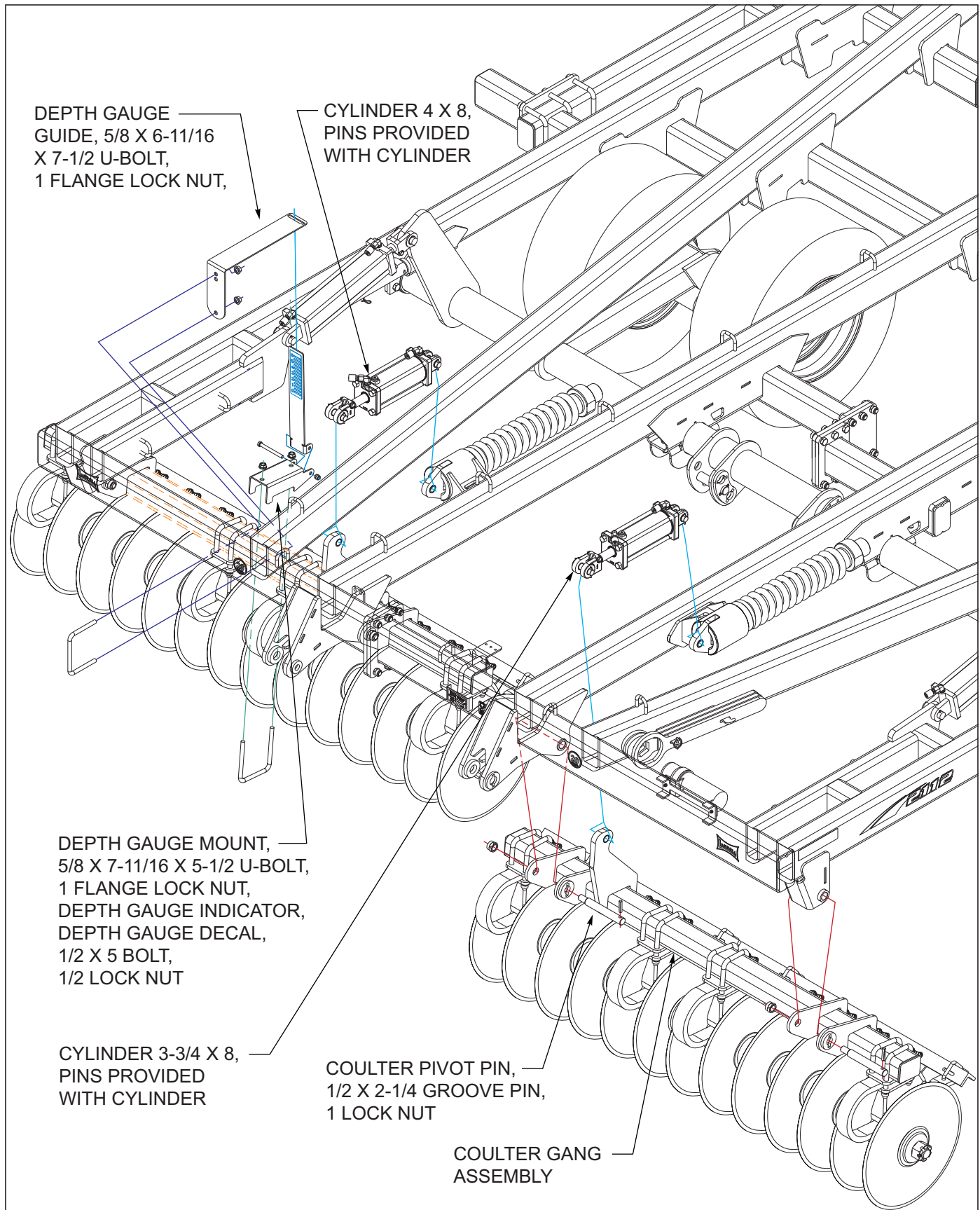


Figure 3-9: Coulters Gang Installation

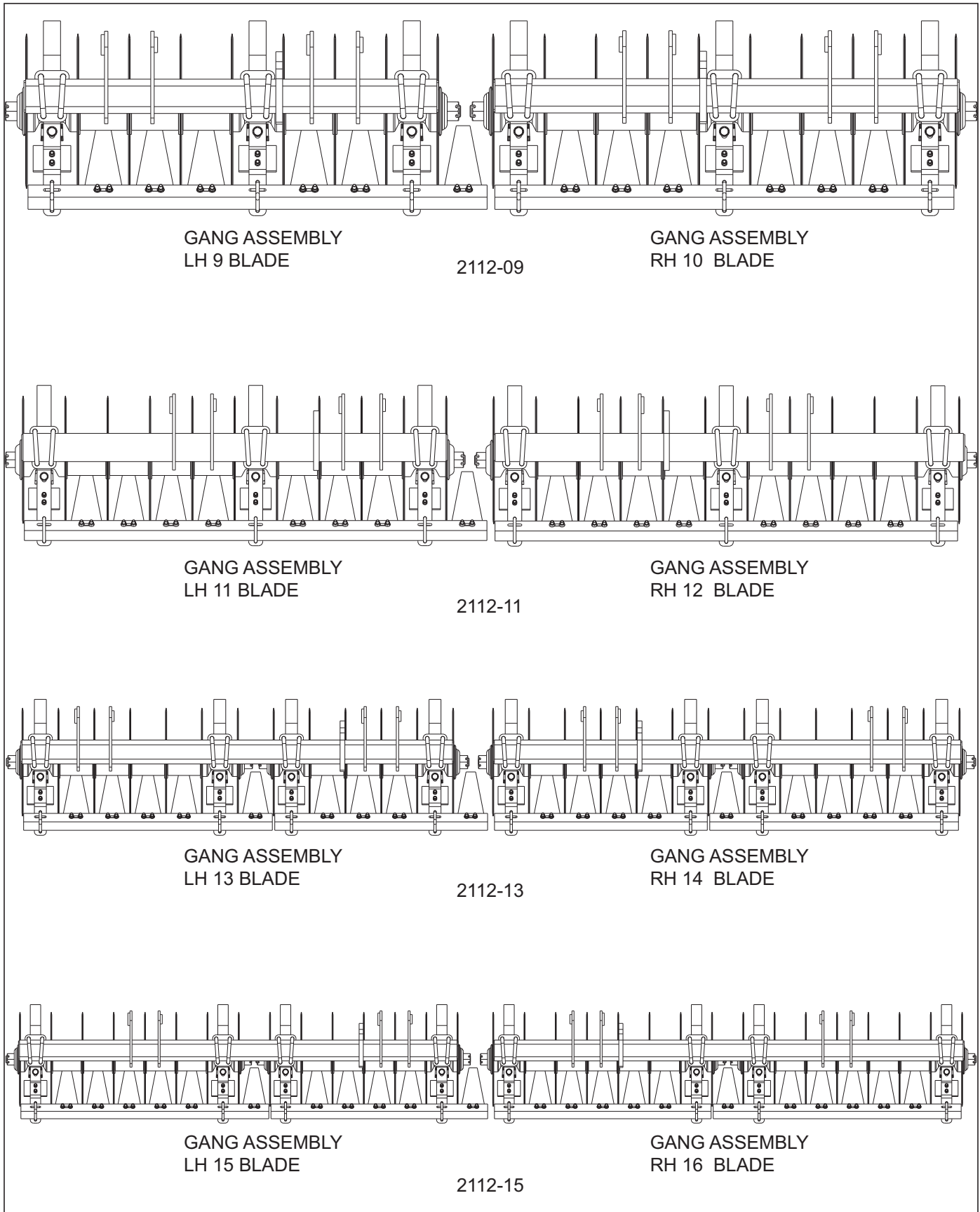


Figure 3-10: Coulters Gang Placement

Auto Reset Shank Installation

1. Attach each shank to each auto reset clamp assembly using 3/4 x 4 bolt, lock nut in bottom hole and 3/4 x 5 bolt, lock nut in top hole [See Figures 3-11](#).

NOTE

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

2. Install the 2" cast flat point onto shanks with 1/2 x 3-3/4 bolts, 1/2 hd flat washers and 1/2 heavy nuts.
3. Install the 2" cast point onto shanks with 1/2 x 3-1/4 bolts, 1/2 hd flat washers and 1/2 heavy nuts.
4. Connect TW RH & LH shovels to each shank using 1/2 x 3 plow bolts, 1/2 hd flat washers and 1/2 heavy nuts, [See Figures 2-6](#) through [2-11](#) for proper locations of right hand and left hand shovels.

IMPORTANT

Right and left twisted shovels are determined by direction of dirt flow when facing the direction of travel.

NOTE

The center twisted shovel may be replaced with a straight point.

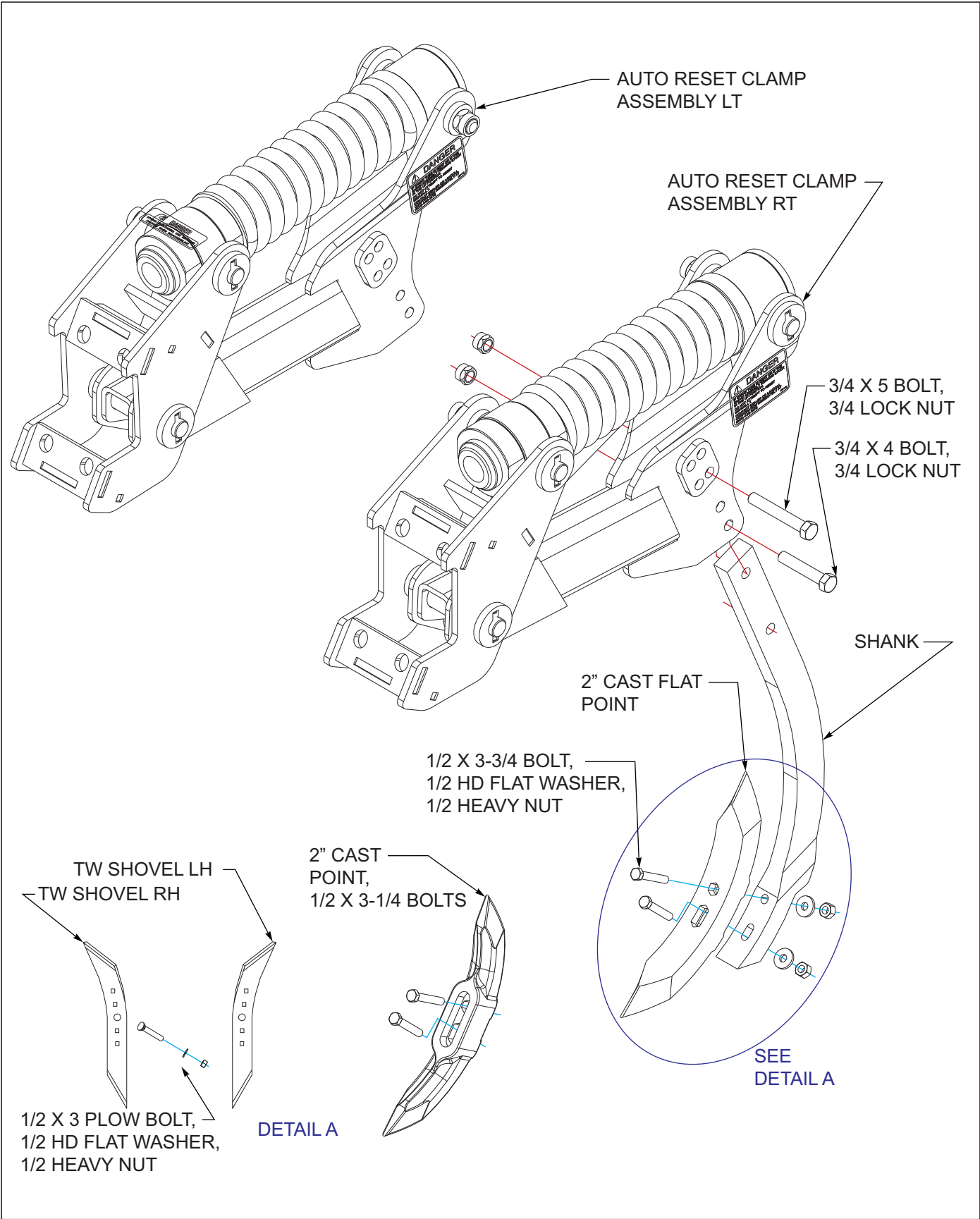


Figure 3-11: Auto Reset Shank and Shovel Installation

Rigid Shear Bolt Clamp Shank Installation

1. Attach shank to each 8" or 12" offset shear bolt clamp assembly using 3/4 x 4 bolts and lock nuts in top hole, use 5/8 x 5-1/2 bolt, three 5/8 x 3/4 x 1-1/4 bushings, two 5/8 flat washers and 5/8 lock nuts *See Figures 3-12.*
2. Install the 2" cast flat point onto shanks with 1/2 x 3-3/4 bolts, 1/2 hd flat washers and 1/2 heavy nuts.
3. Install the 2" cast point onto shanks with 1/2 x 3-1/4 bolts, 1/2 hd flat washers and 1/2 heavy nuts.
4. Connect TW RH & LH shovels to each shank using 1/2 x 3 plow bolts, 1/2 hd flat washers and 1/2 heavy nuts, *See Figures 2-6 through 2-11* for proper locations of right hand and left hand shovels.

IMPORTANT

Right and left twisted shovels are determined by direction of dirt flow when facing the direction of travel.

NOTE

The center twisted shovel may be replaced with a straight point.

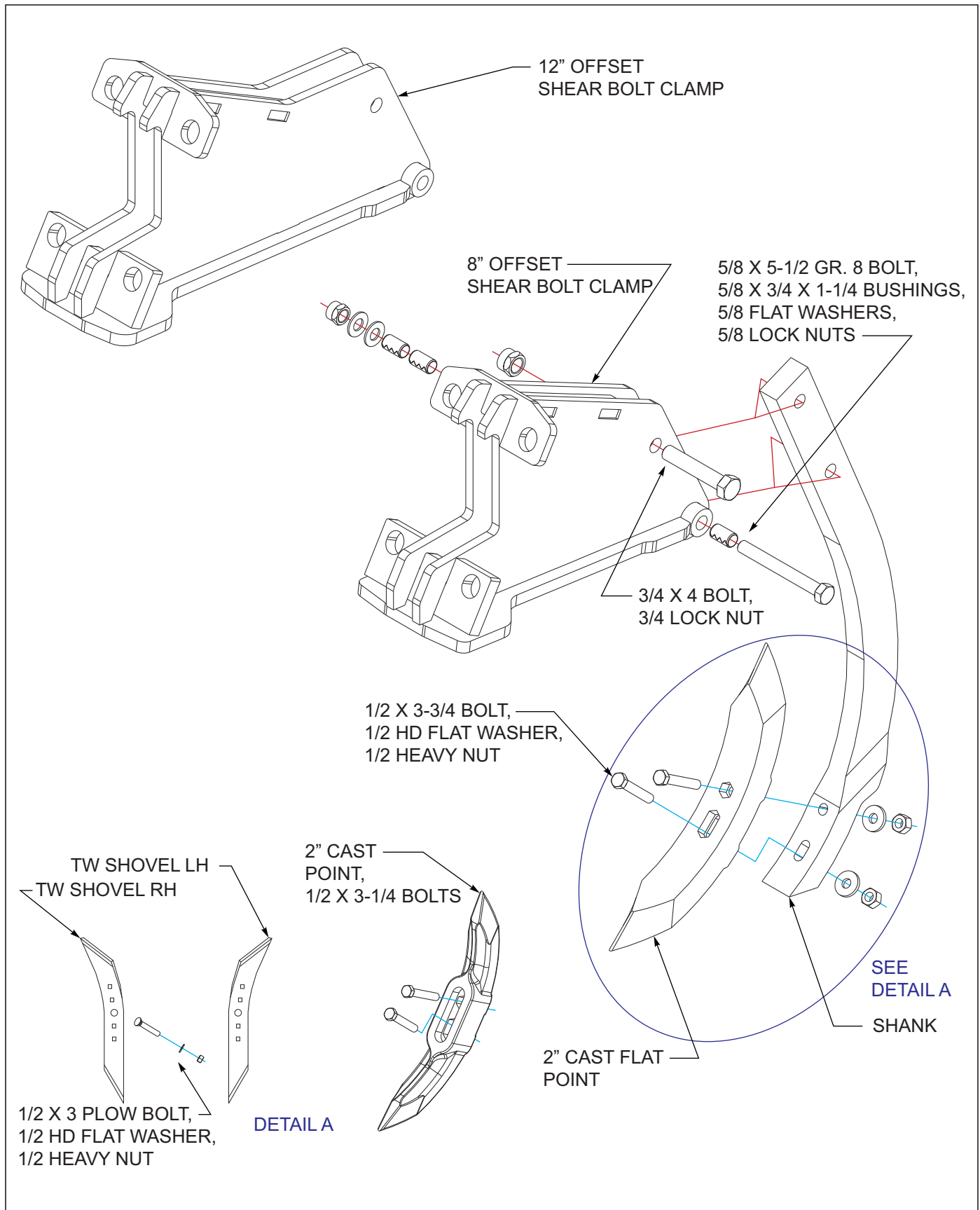


Figure 3-12: Rigid Shear Shank and Shovel Installation

Hydraulic Installation

1. *See Figures 3-13* through *See Figures 3-14* for lift hydraulic installation.
2. *See Figures 3-15* through *See Figures 3-16* for coulter hydraulic installation.

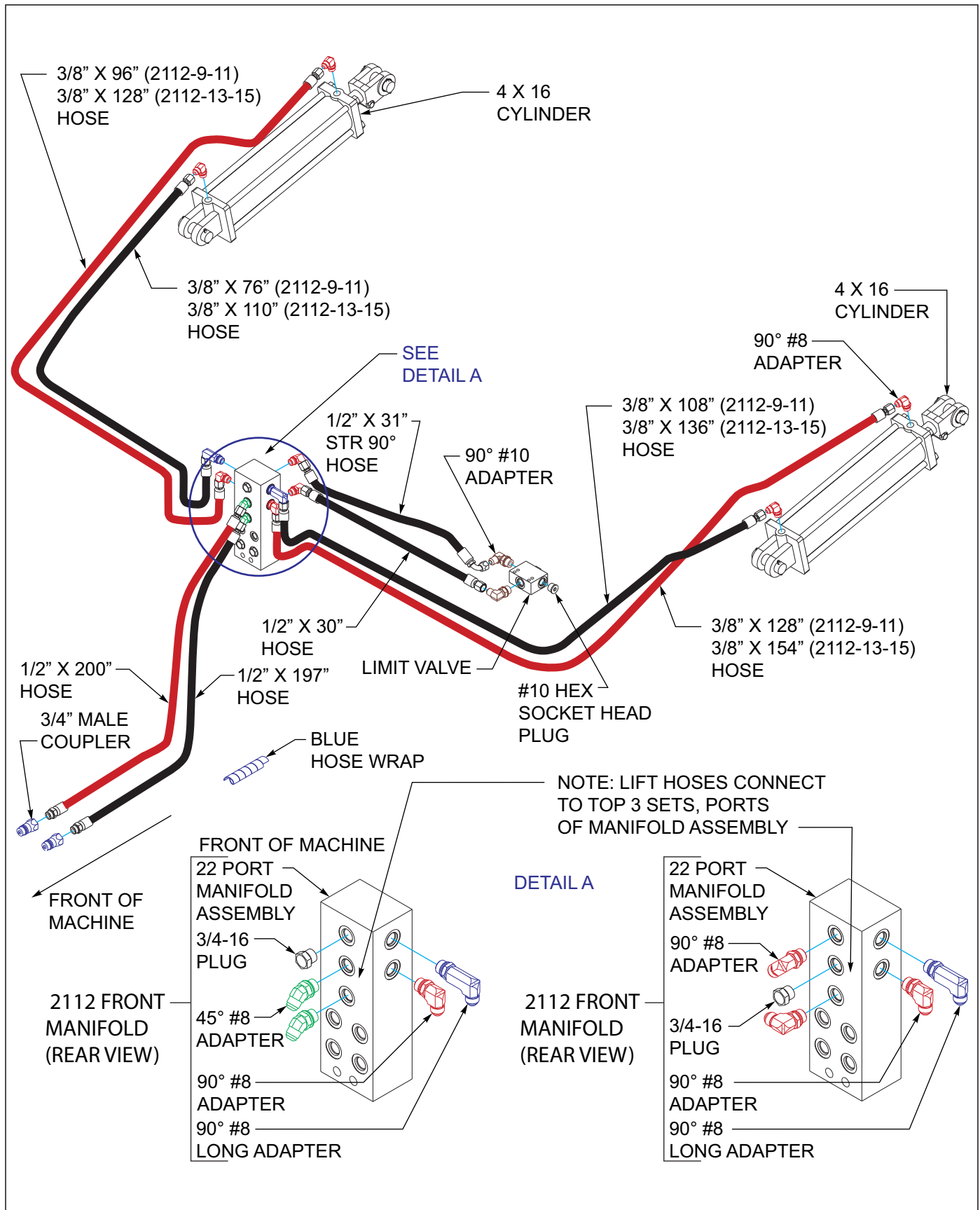


Figure 3-13: Lift Hydraulic Installation

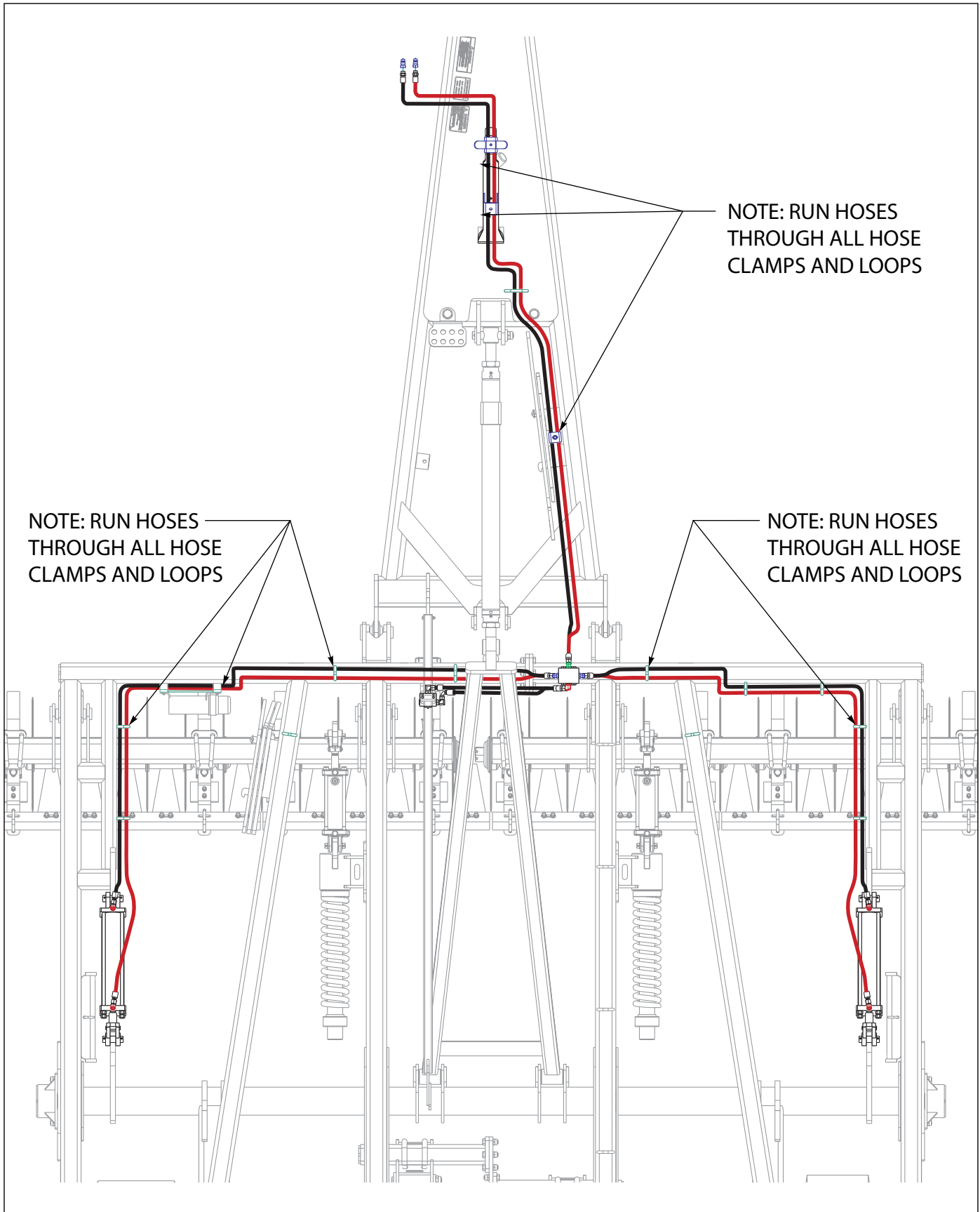


Figure 3-14: Lift Hydraulic Layout

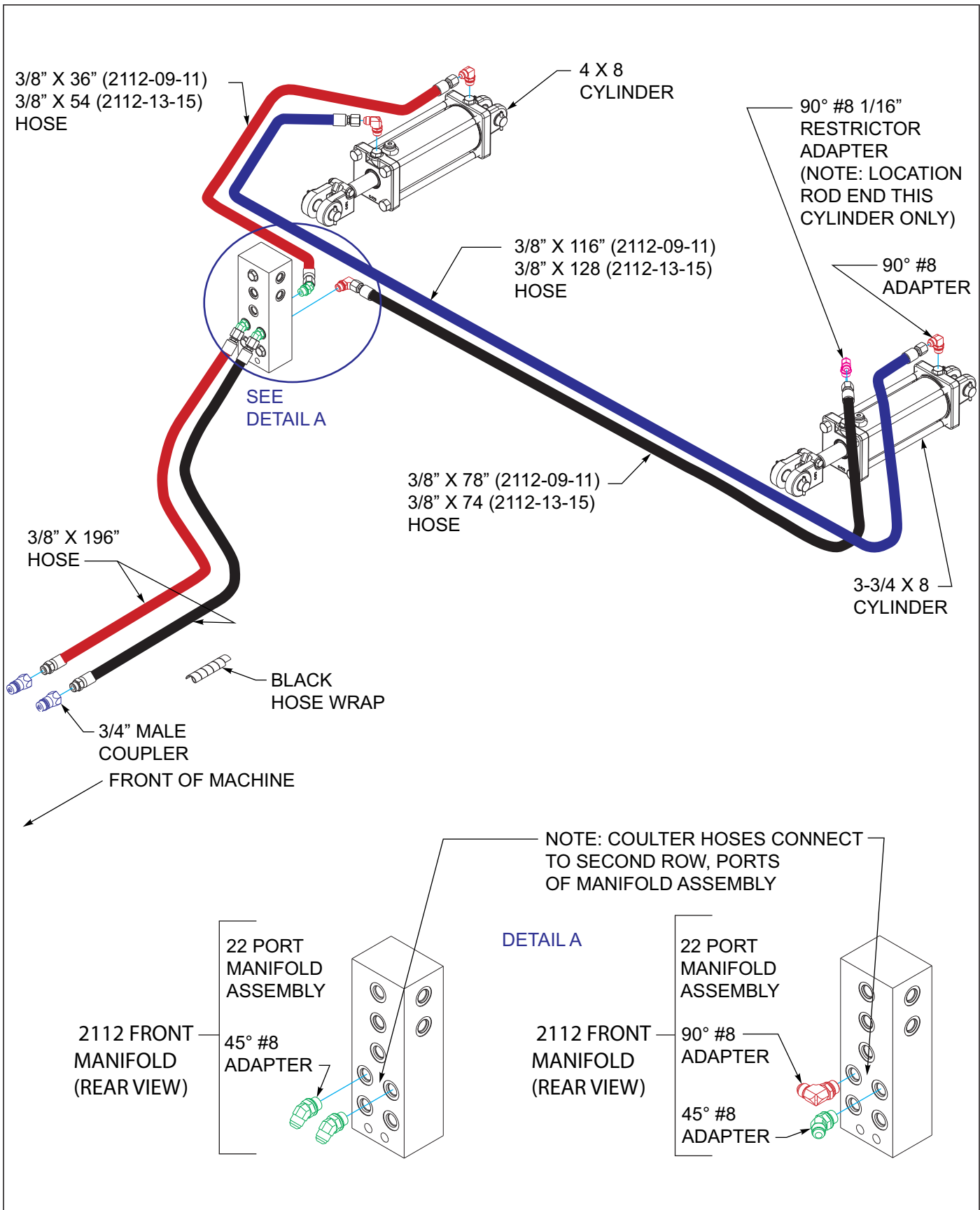


Figure 3-15: Coulter Gang Hydraulic Installation

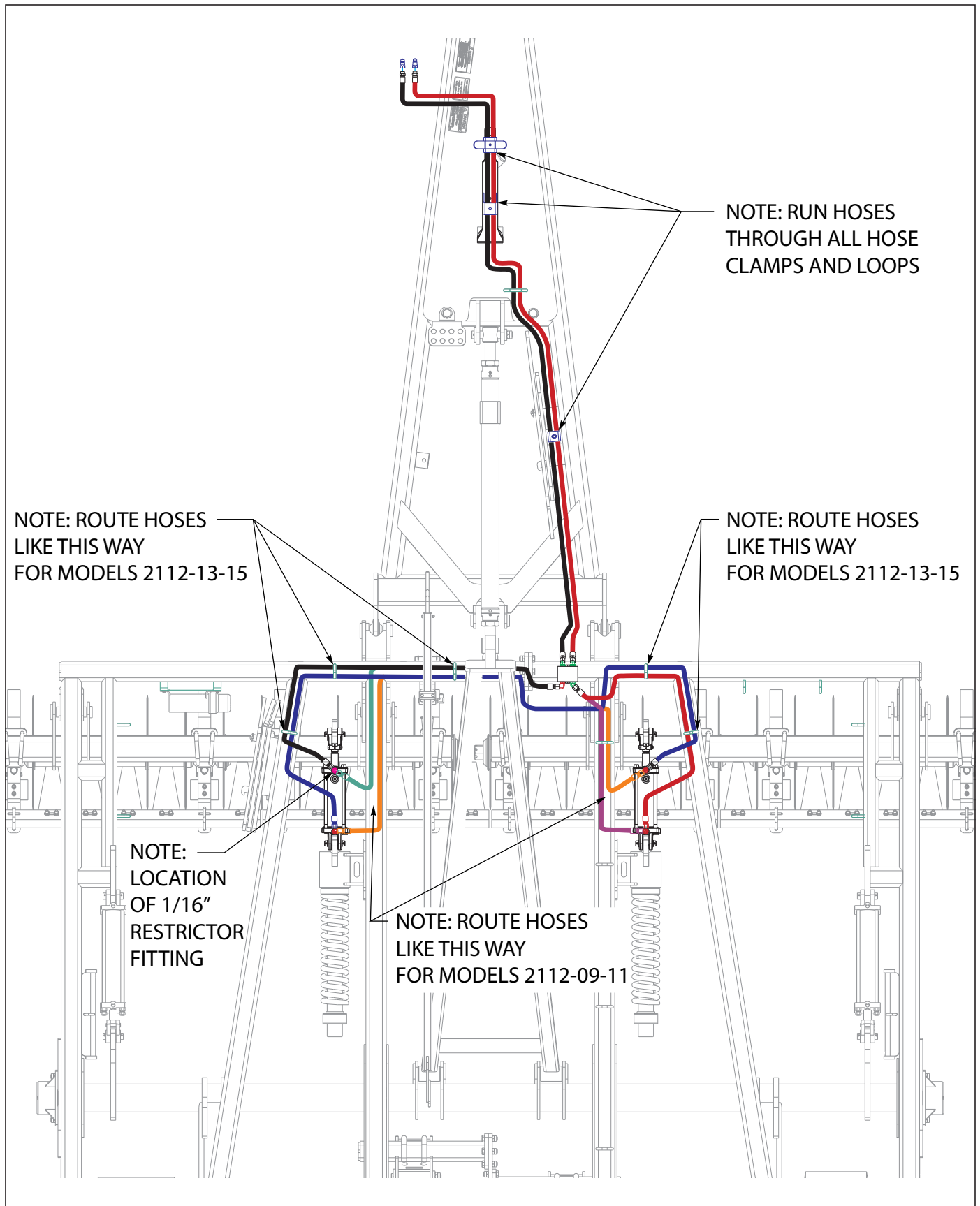


Figure 3-16: Coulter Gang Hydraulic Layout

ASSEMBLY INSTRUCTIONS

Table provided for general use.

[illegible]

7-PIN CONN.	4-PIN TOWER	CIRCUIT	WIRE COLOR
1	D	GROUND	WHITE 
2	–	WORK LAMPS	BLACK 
3	B	LEFT FLASHING & TURN	YELLOW 
4	–	STOP LAMPS	RED 
5	A	RIGHT FLASHING & TURN	GREEN 
6	C	TAIL LAMPS	BROWN 
7	–	SWITCHED POWER (12 V)	BLUE 

MAIN WARNING LIGHT HARNESS - WIRING CHART

(NOTE: The Color Of The Wire Jacket Does Not Necessarily Match The Color Of The 7 Pin Connector)

	RIGHT AMBER	RIGHT RED		LEFT RED	LEFT AMBER
	2-PIN TOWER	3-PIN TOWER	6-PIN SHROUD	3-PIN TOWER	2-PIN TOWER
 BLACK LEFT TURN			A	C	
 WHITE GROUND	A	A	B	A	A
 BROWN TAIL LIGHT		B	C	B	
 YELLOW LEFT TURN			D		B
 GREEN RIGHT TURN	B		E		
 RED RIGHT TURN		C	F		

REAR WARNING LIGHT HARNESS - WIRING CHART

Figure 3-17: LED Light Harness Wire Designations

LED Light Installation

NOTE

Refer to [See Figure 3-19](#) for light bracket and wiring harnesses placement.

1. Attach LH and RH light bracket assemblies, light mounts, light mount plates to center frame using 1/2 x 4-1/2 bolts, 1/2 flat washers and 1/2 lock nuts [See Figure 3-18](#).
2. Attach ag flasher control module to bottom of right tail light mount with 1/4 x 1-1/2 bolts, 1/4 lock nuts.
3. Attach left and right side red ag lamp, reflector mounts to frame assembly, mount bracket using 1/2 x 10 bolts, 1/2 flat washers, 1/2 lock nuts.
4. Attach the ag red single LED lamps to tail light mounts using 1/4 x 1-1/2 bolts, 1/4 lock nuts.

IMPORTANT

Make sure lights are positioned for maximum visibility from the rear [See Figures 3-19](#).

5. Install the rear harness to the rear tube of frame [See Figures 3-18](#). Connect the 3 pin ends to the red warning lights, 2 pin ends to the amber warning lights and connect the 6 pin connector to the ag flasher control module. [See Figure See Figures 3-17](#) for LED harness wire designations.
6. Route main harness through all hose clamps/hose loops from hitch to the rear of center frame, connect the 4 pin end to the ag flasher control module.
7. Insure that the harnesses are clear of any moving parts and secure the harnesses with tie wraps provided.
8. Two 34" harnesses are provided if needed for main harness to reach from flasher control module to the tractor [See Figures 3-18](#).
9. Install the stor-away holder to hose holder on hitch with 1/4-20 x 3/4 hex head cap screws and hex lock nuts [See Figures 3-7](#).

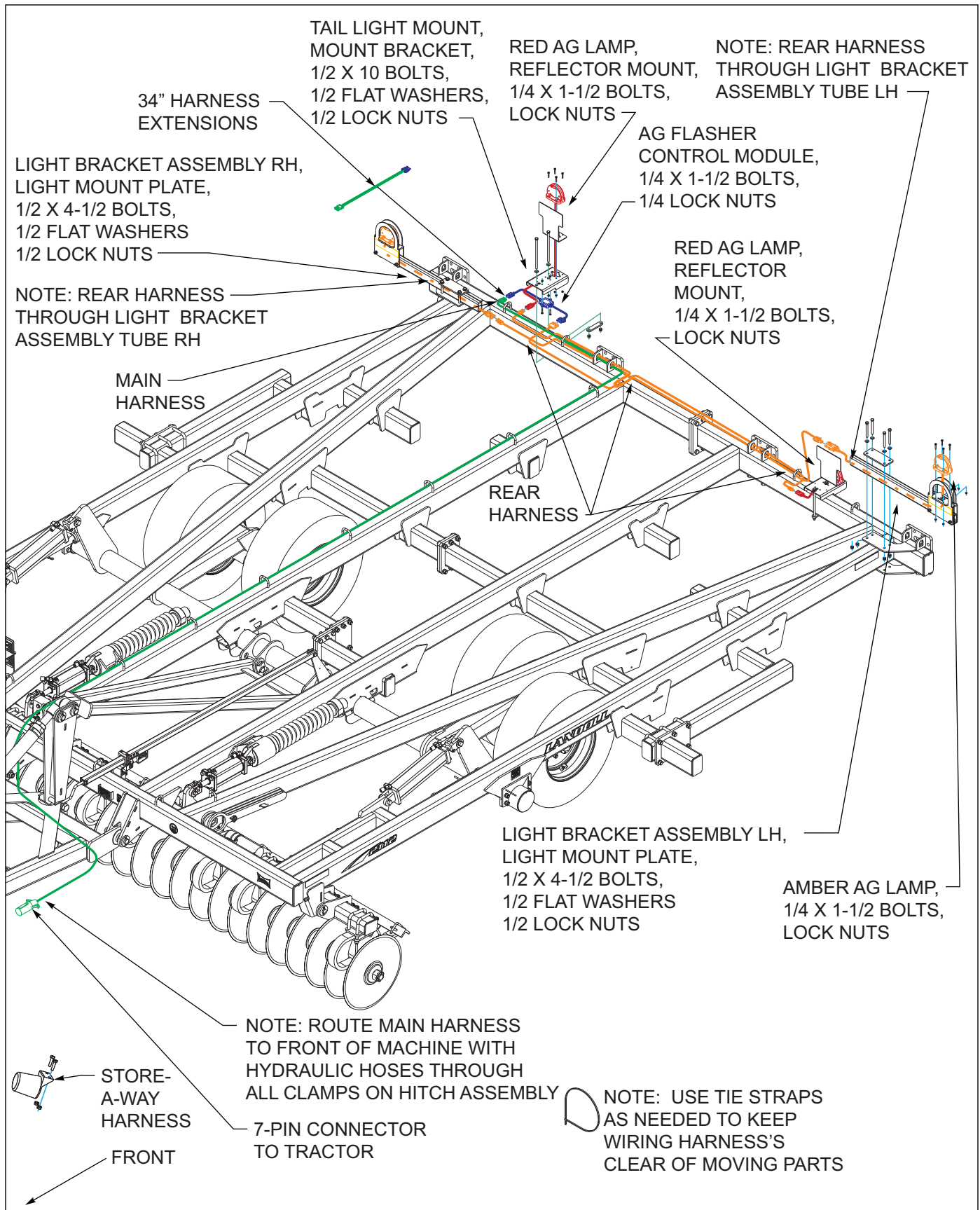


Figure 3-18: LED Light Installation

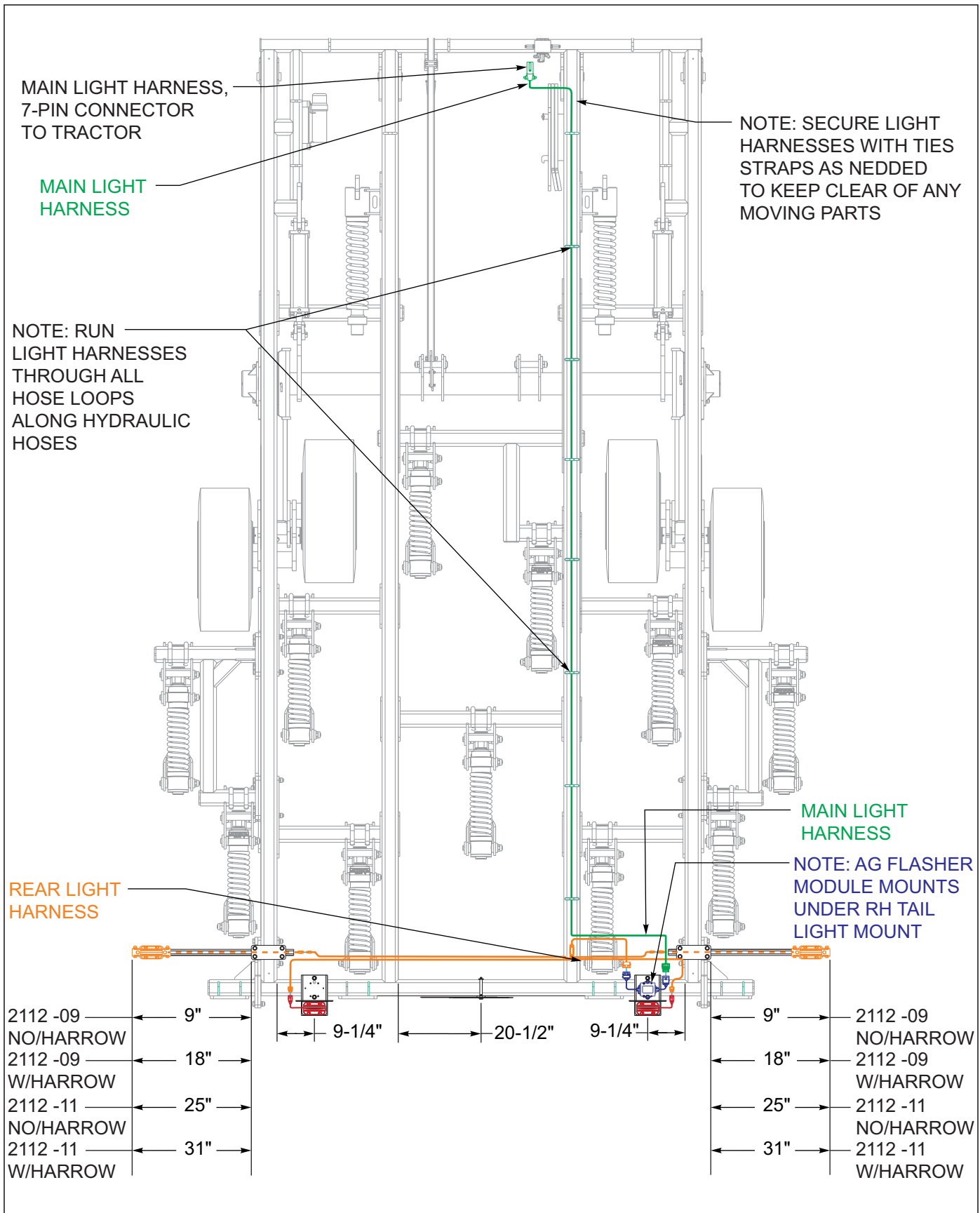


Figure 3-19: LED Light Layout 2112-09-11

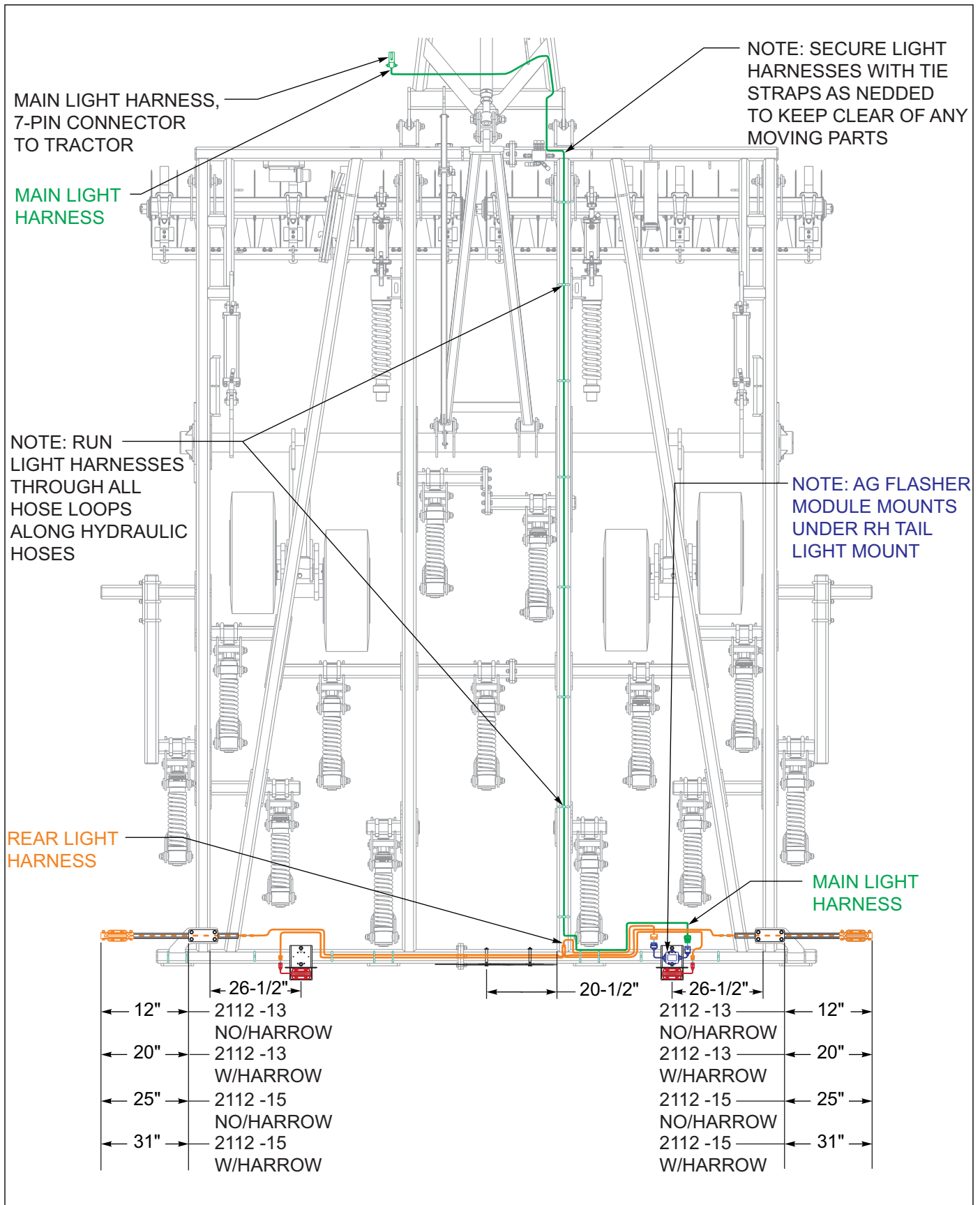


Figure 3-20: LED Light Layout 2112-13-15

3BCT/Chopper Reel Installation (Option)

NOTE

Refer to [See Figures 2-14 through See Figures 2-23](#) for Standard 3BCT/Chopper Reel Placement.

Refer to [See Figures 2-24 through See Figures 2-33](#) for Hydraulic 3BCT/Chopper Reel Placement.

1. Model 2111-11, attach the harrow extension LT and RT to plates on end of frame with 3/4 x 7 bolts, 3/4 x 2-1/2 bolts and 3/4 lock nuts [See Figures 3-23](#).
2. Attach the combo harrow mount arm long assemblies on rear of center frame, RT side, and short arm assemblies, LT side, to plates on rear of center frame, with 3/4 x 2-1/2 bolts, 3/4 flat washers, 3/4 lock nuts [See Figures 3-23](#).
3. Remove the 5/8 x 3-11/16 x 6-3/8 u-bolts, 5/8 flange lock nuts, harrow stiffner plates from harrow adjustment tubes.
4. Attach the harrow tine assemblies, secure with the u-bolts, harrow stiffner plates, nuts that were just removed as shown [See Figures 3-23](#).
5. Remove the 3/4 x 5-1/2 bolts, 3/4 lock nuts, gangbar mount plates from harrow mount arms.
6. Attach the reel assemblies, secure with the gangbar mount plates, 3/4 x 5-1/2 bolts, 3/4 lock nuts, that were just removed as shown [See Figures 3-23](#).
7. Model 2112-09, remove the 1 x 7-1/2 bolts and 1 lock nuts. Attach the wrench mount with 1 x 7-1/2 bolt and 1" lock nut to the combo harrow mount arm. [See Figures 3-19](#) or [See Figures 3-20](#) for proper location of the wrench mount.
8. Models 2112-11-13-15 attach the wrench mount with the 1/2 x 8-1/2 bolts, 1/2 flat washer, 1/2 lock nuts to the combo harrow mount arm [See Figures 3-23](#). [See Figures 3-26](#) for proper location of the wrench mount.
9. On hydraulic 3BCT/Chopper Reel option, install the hose mount plate with the 1/2 x 8-1/2 bolt, 1/2 flat washer, 1/2 lock nut, the hose clamp attaches with 3/8 x 1-1/2 bolt, 3/8 flat washer, 3/8 lock nut [See Figures 3-23](#). [See Figures 3-27](#) for proper location of the wrench mount.
10. On hydraulic 3BDT/Chopper Reel option, install the 8 port manifold to manifold mount with 1/2 x 3-1/2 bolts, 1/2 lock nuts as shown [See Figures 3-21](#).

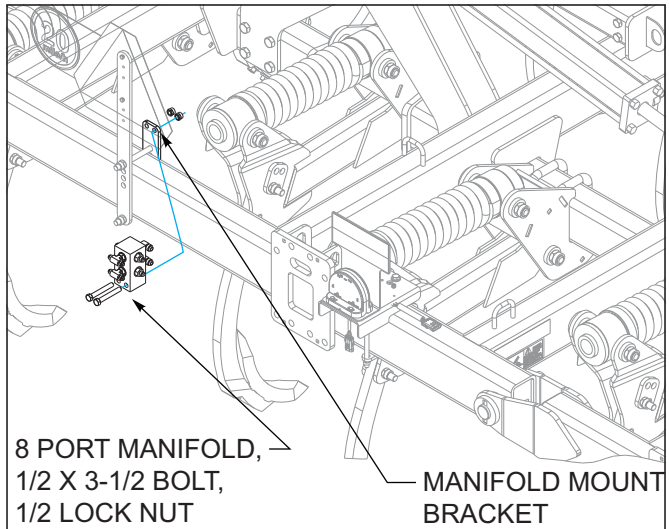


Figure 3-21: 8 Port Manifold Installation

11. On hydraulic 3BDT/Chopper Reel option, attach hoses down through the slotted holes of combo harrow mount arm to cylinders as shown [See Figures 3-22](#). Route hoses from base end of cylinder to top set of holes of 8 port manifold, rod end to bottom holes of manifold.

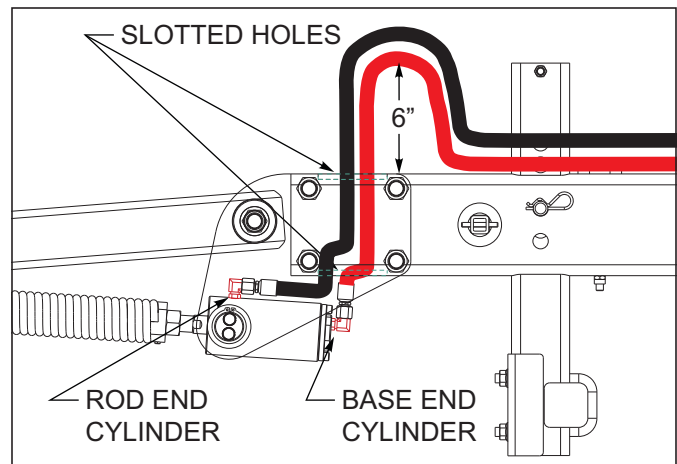


Figure 3-22: Hose to Cylinder Installation

12. On hydraulic 3BCT/Chopper Reel option, [See Figures 3-24 through See Figures 3-27](#) for proper hydraulic installation.

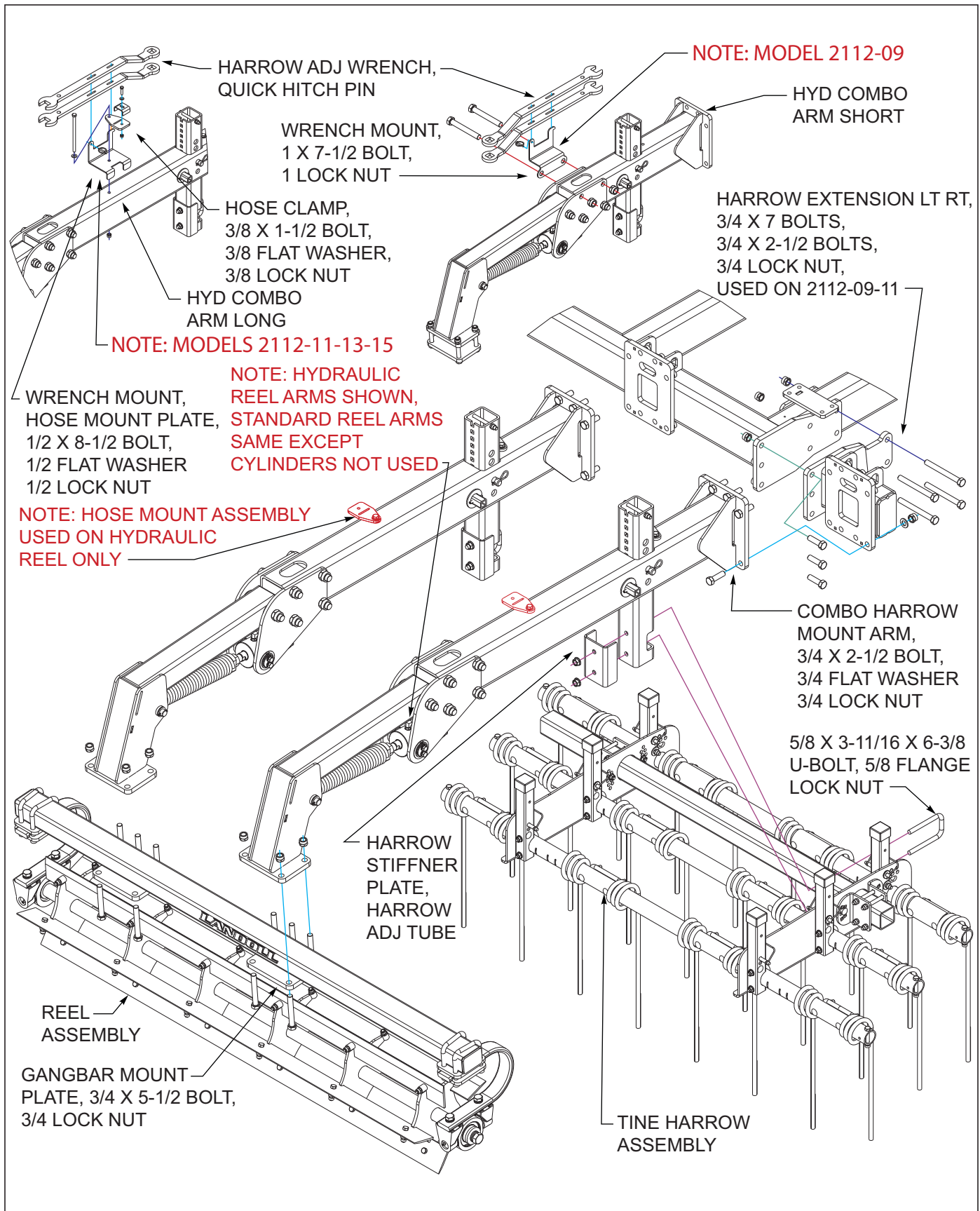


Figure 3-23: Standard or Hydraulic 3BCT/Chopper Installation (Option)

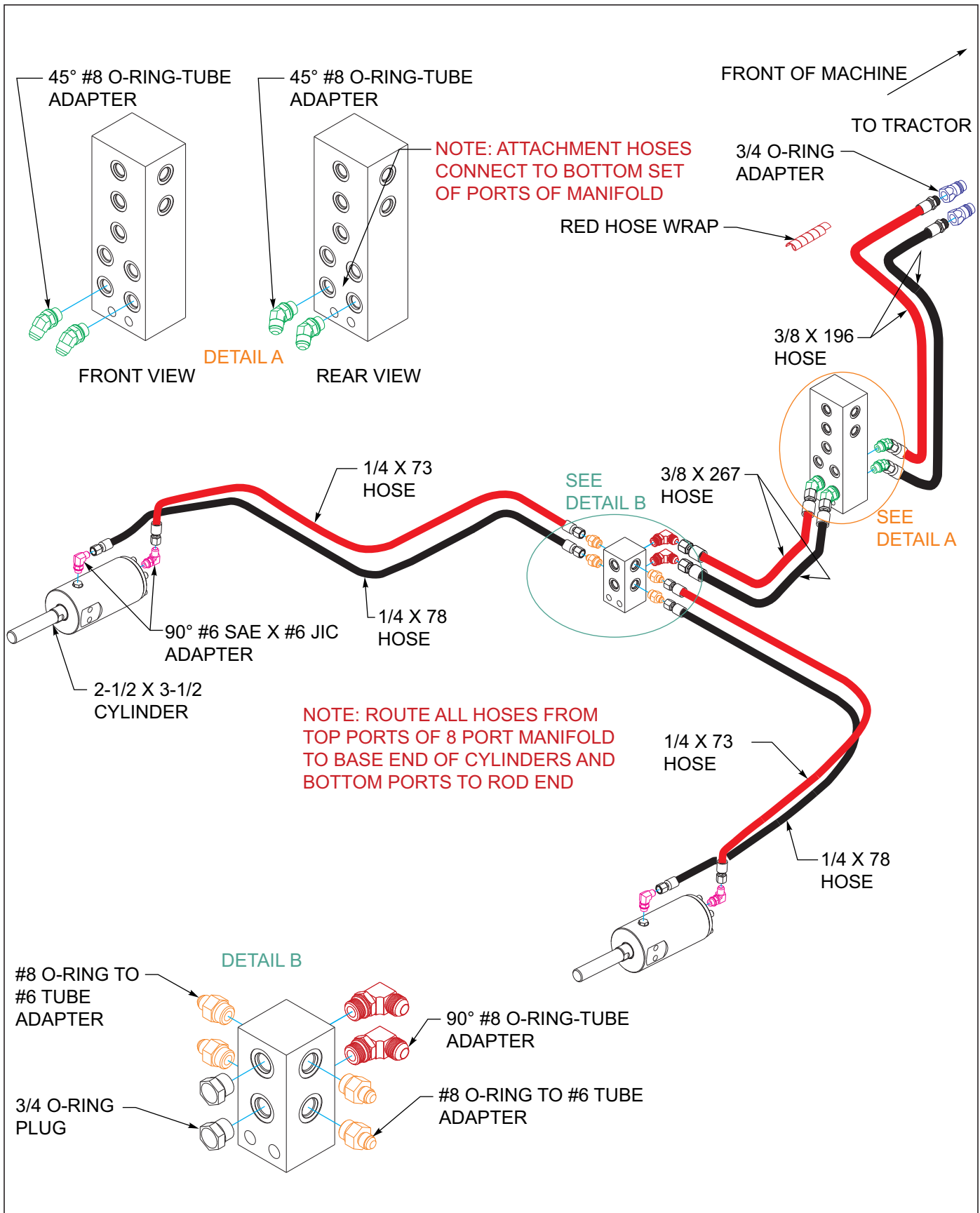


Figure 3-24: 3BCT/Chopper Hydraulic Installation 2112-09

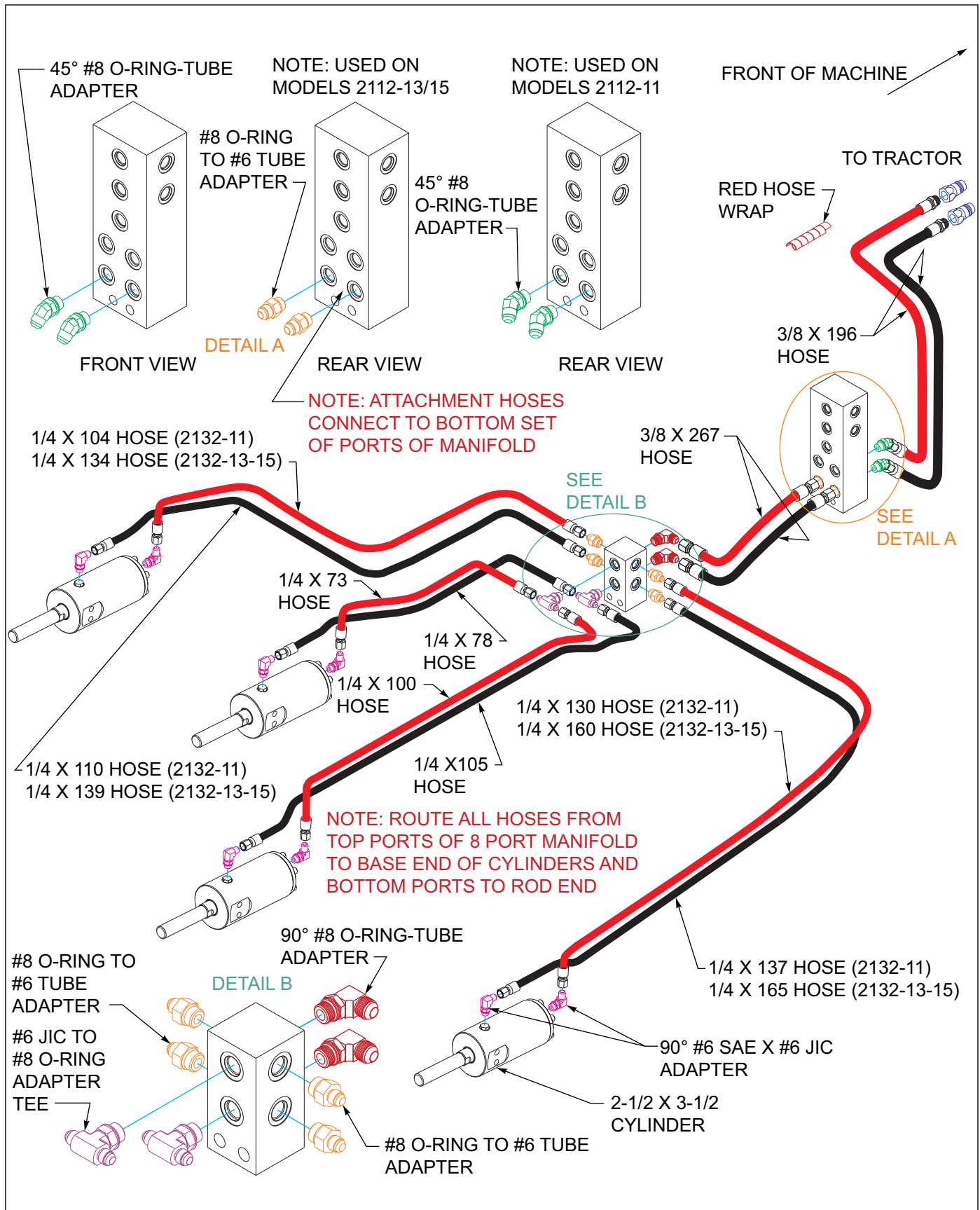


Figure 3-25: 3BCT/Chopper Hydraulic Installation 2112-11-13-15

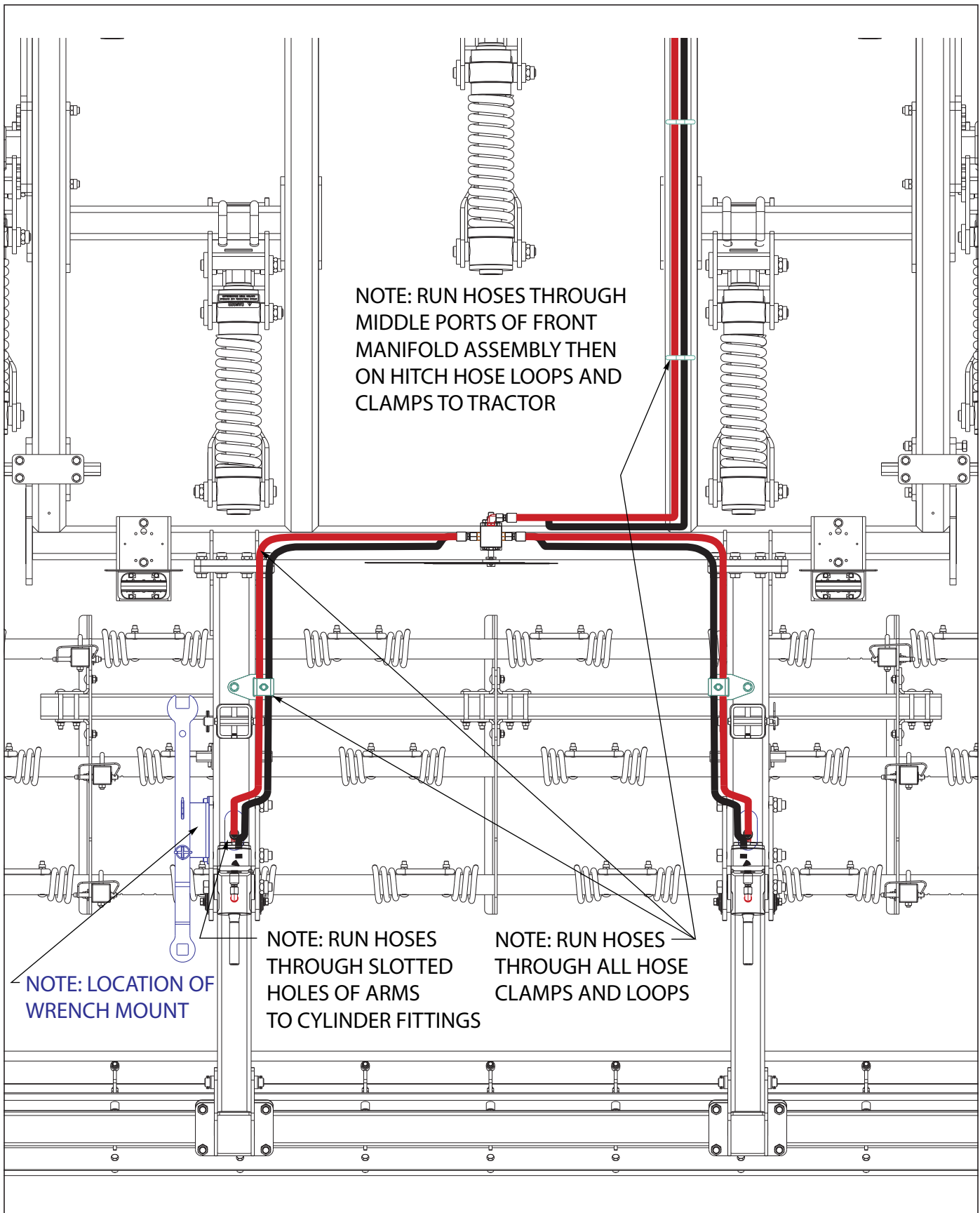


Figure 3-26: 3BCT/Chopper Hydraulic Layout 2112-09

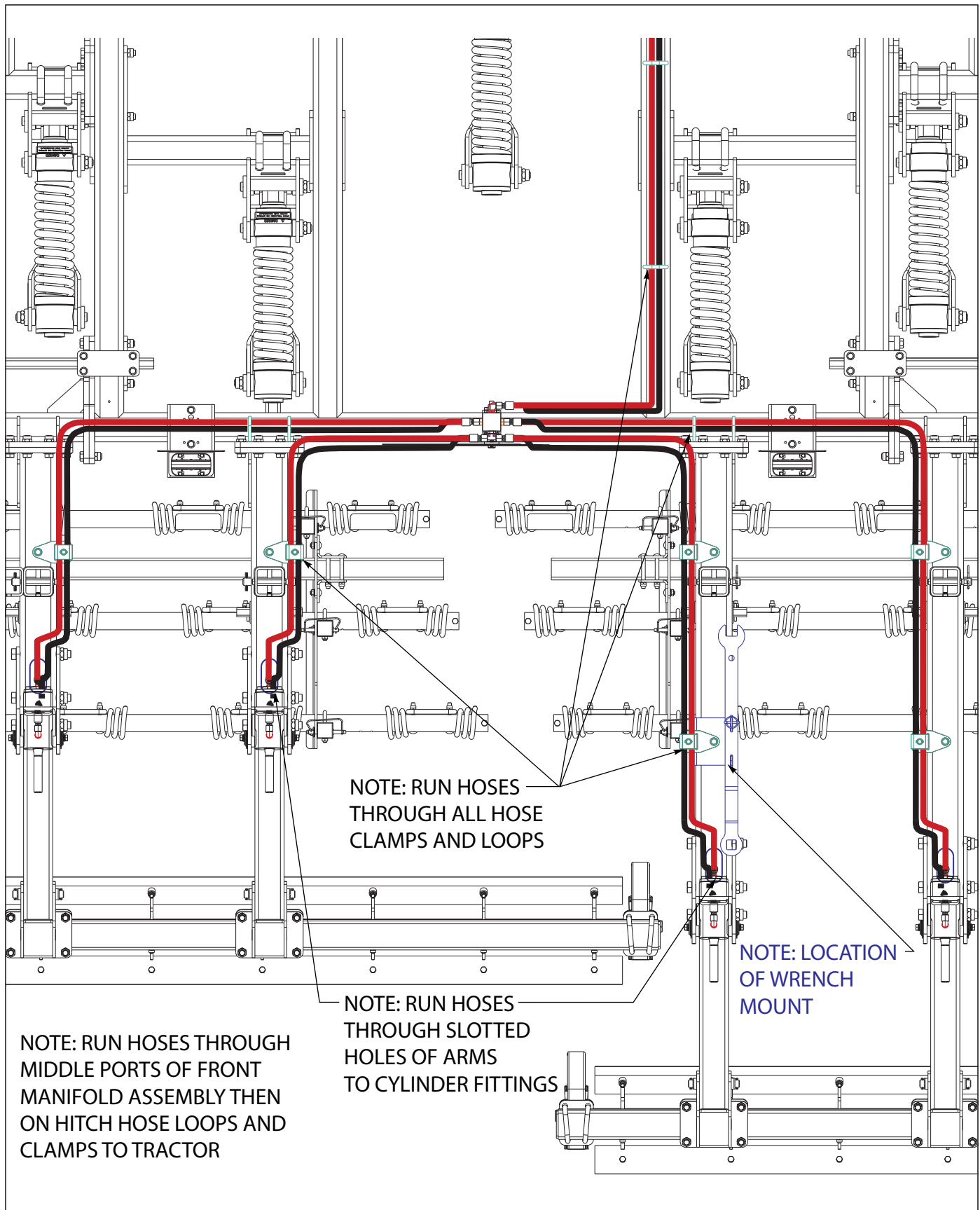


Figure 3-27: 3BCT/Chopper Hydraulic Layout 2112-11-13-15

Chopper Reel Installation (Option)

NOTE

Refer to [See Figures 2-34 through See Figures 2-43](#) for Standard Chopper Reel Placement.

Refer to [See Figures 2-46 through See Figures 2-53](#) for Hydraulic Chopper Reel Placement.

1. Models 2112-11, attach the harrow extension LT and RT to plates on end of frame with 3/4 x 7 bolts, 3/4 x 2-1/2 bolts and 3/4 lock nuts [See Figures 3-23](#).
2. Attach the chopper arm long assemblies on rear of center frame, RT side, and short arm assemblies, LT side, to plates on rear of center frame with 3/4 x 2-1/2 bolts, 3/4 lock nuts [See Figures 3-29](#).
3. Remove the 3/4 x 5-1/2 bolts, 3/4 lock nuts, gangbar mount plates from harrow mount arms.
4. Attach the reel assemblies, secure with the u-bolts, gangbar mount plates, nuts that were just removed as shown [See Figures 3-23](#).
5. On hydraulic Chopper Reel option, install the hose mount plate with the 1/2 x 8-1/2 bolt, 1/2 flat washer, 1/2 lock nut, the hose clamp attaches with 3/8 x 1-1/2 bolt, 3/8 flat washer, 3/8 lock nut.

6. On hydraulic Chopper Reel option, install the 8 port manifold to manifold mount with 1/2 x 3-1/2 bolts, 1/2 lock nuts as shown [See Figures 3-28](#).

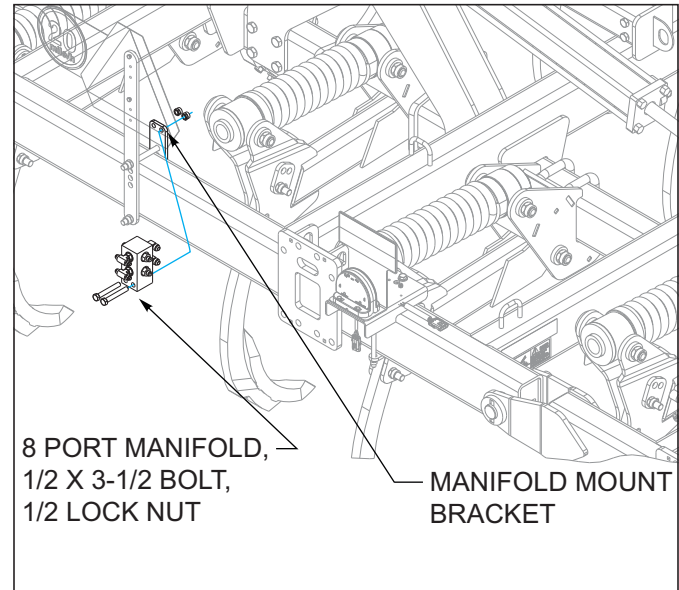


Figure 3-28: 8 Port Manifold Installation

7. On hydraulic Chopper Reel option, [See Figures 3-30 through See Figures 3-33](#) for proper hydraulic installation.

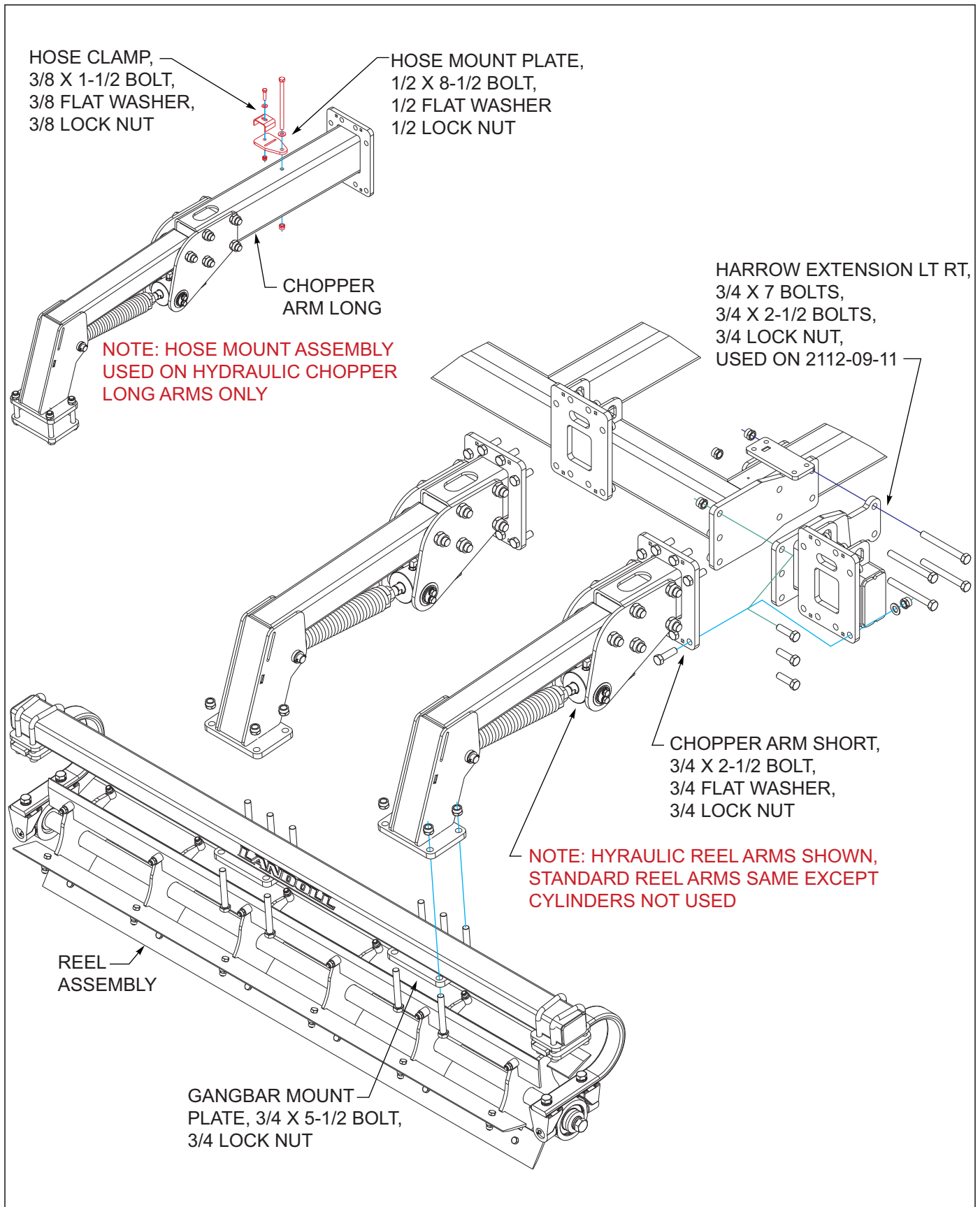


Figure 3-29: Standard or Hydraulic Chopper Installation (Option)

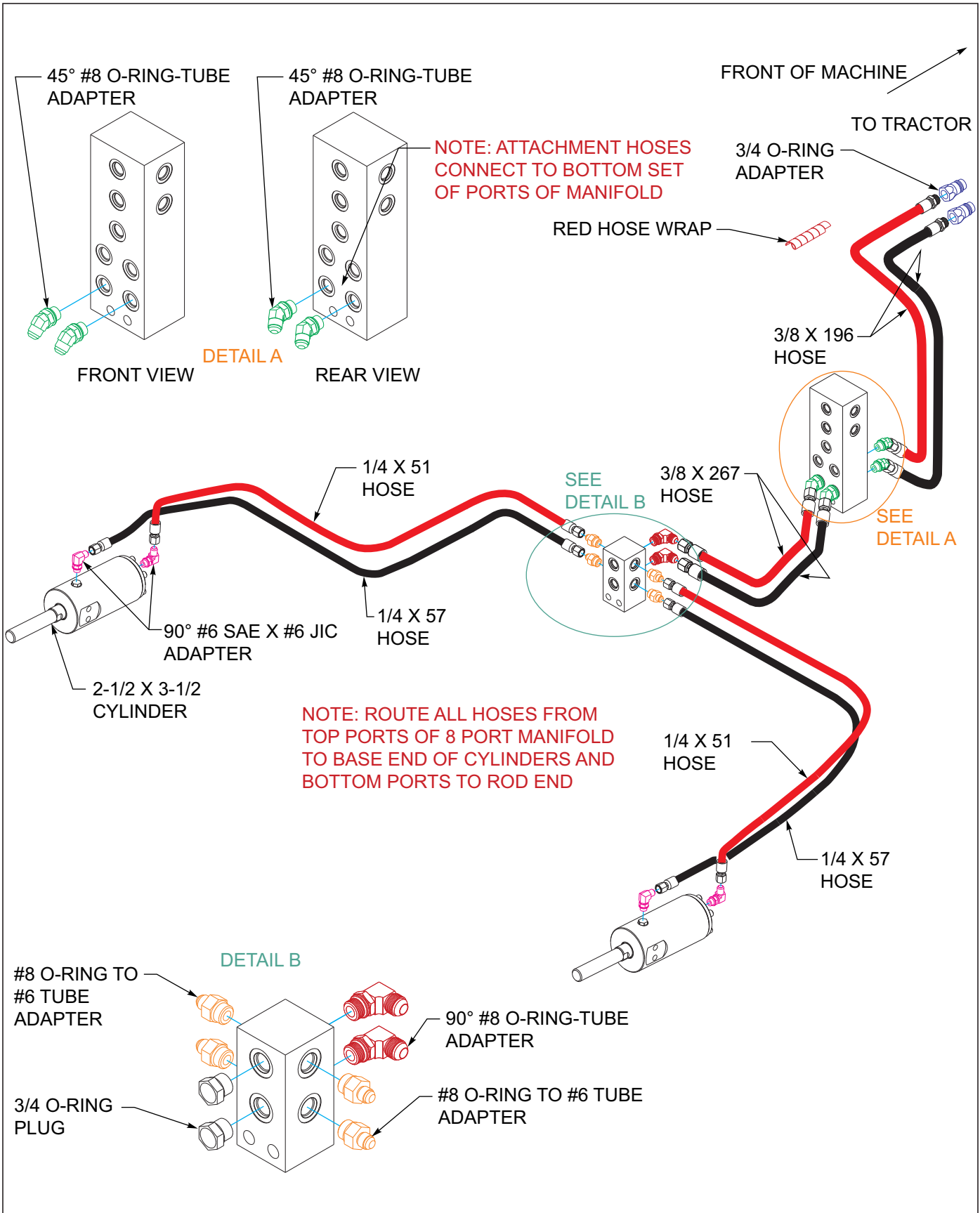


Figure 3-30: Chopper Hydraulic Installation 2112-09

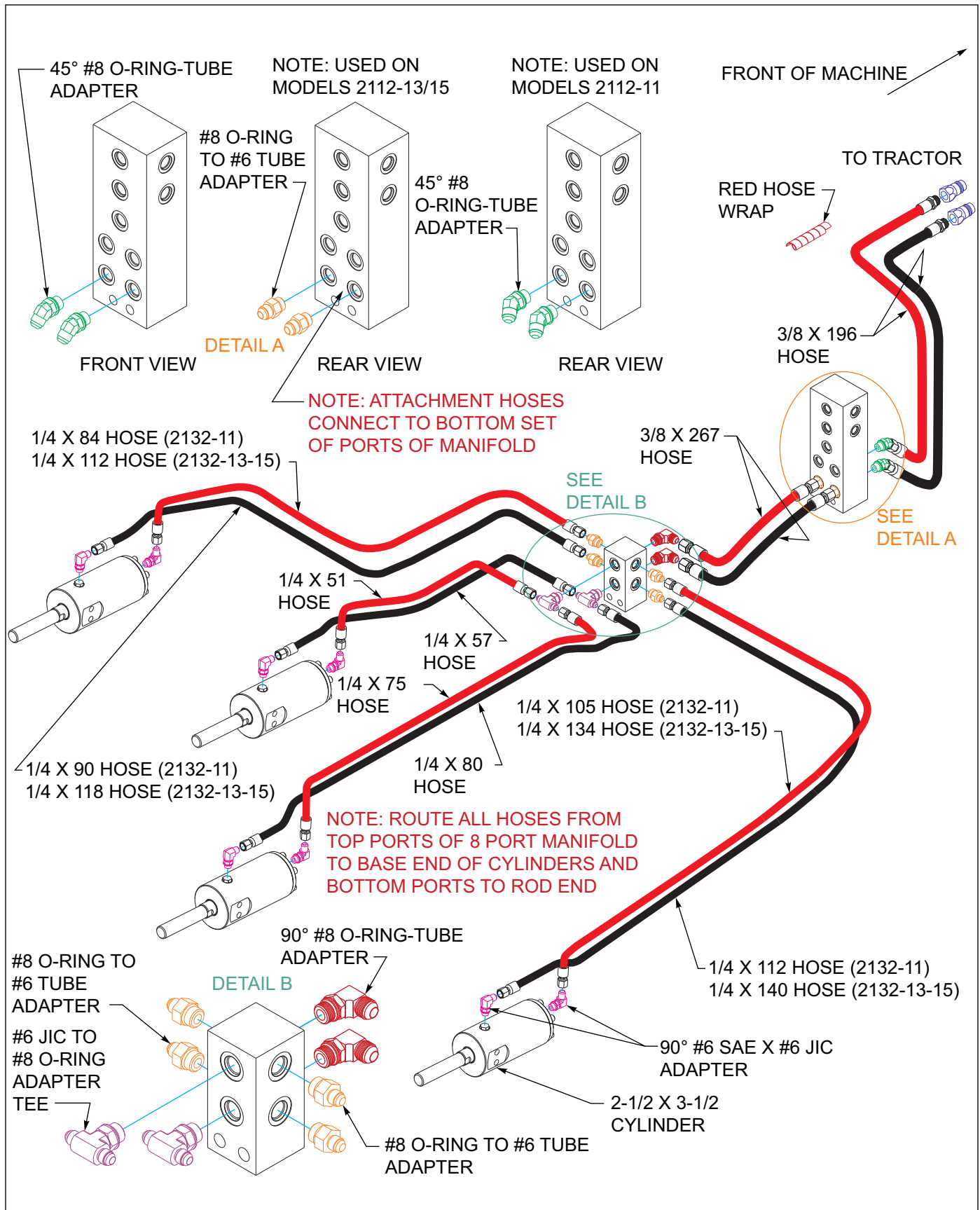


Figure 3-31: Chopper Hydraulic Installation 2112-11-13-15

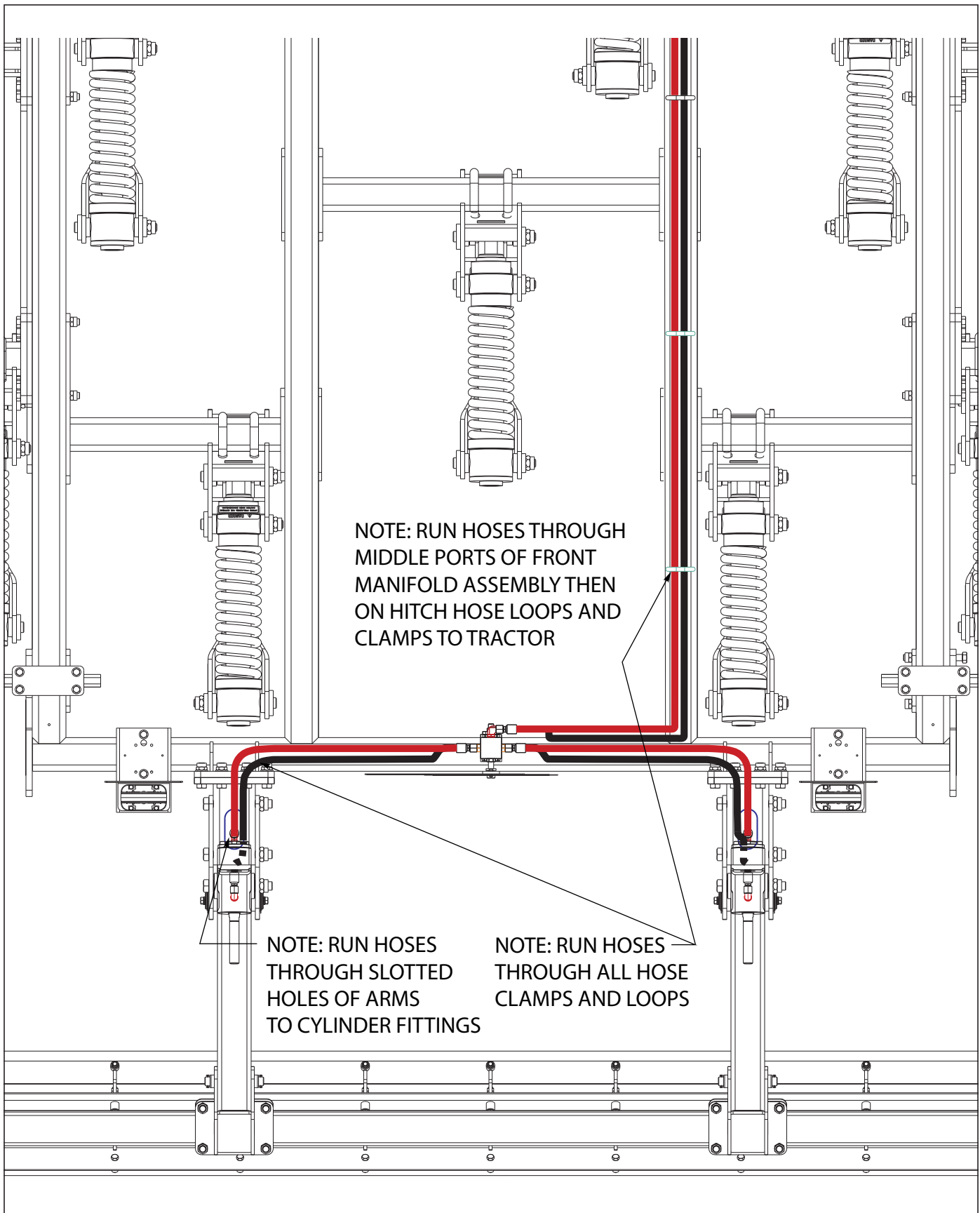


Figure 3-32: Chopper Hydraulic Layout 2112-09

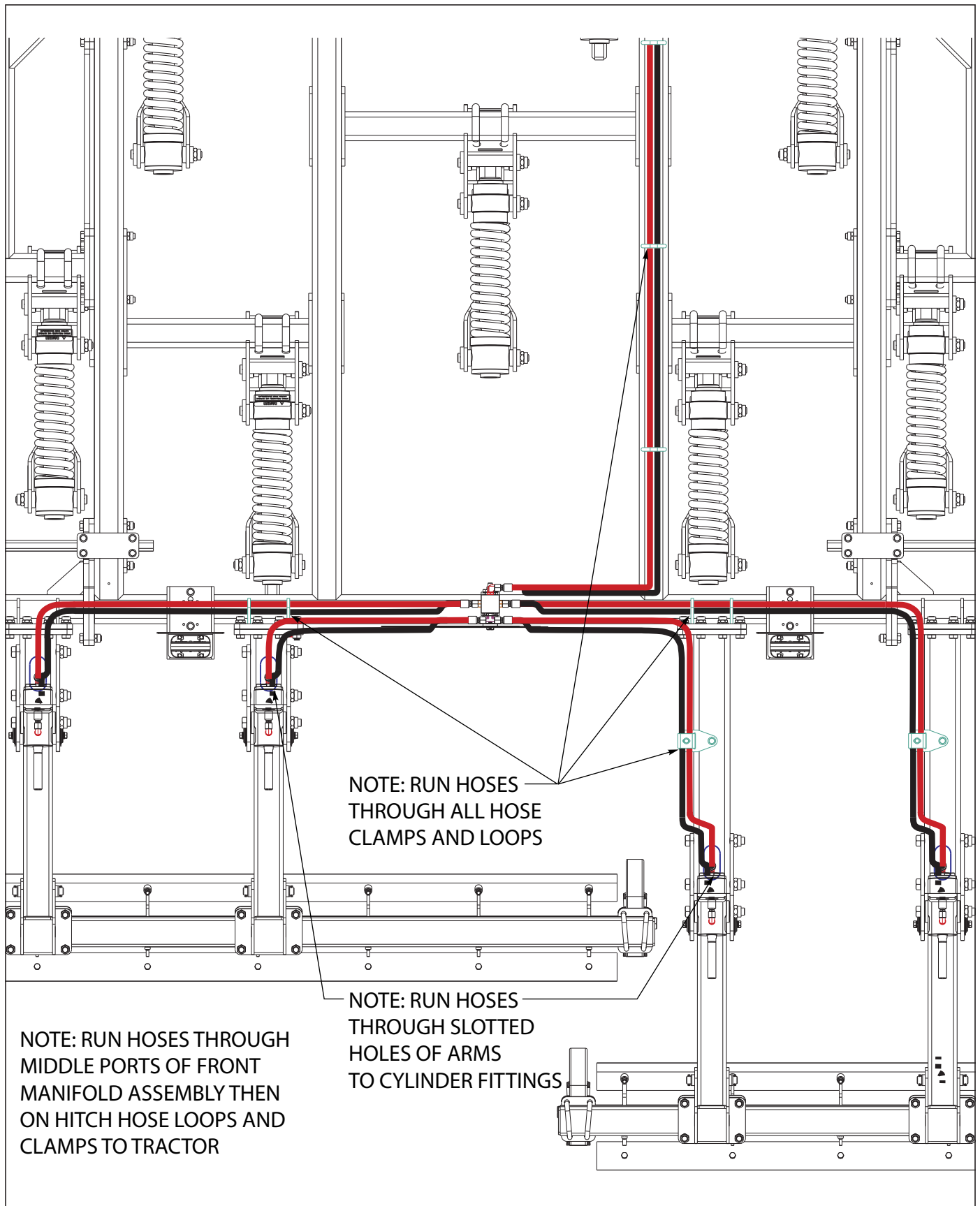


Figure 3-33: Chopper Hydraulic Layout 2112-11-13-15

Hyd Disc Lev/Reel Installation (Option)

NOTE

Refer to [See Figure 2-28 through See Figure 2-31](#) for Disc Lev/Reel Placement.

The arm assemblies will be pre-assembled from factory and need attached to rear of frame. The disc mount assemblies and flat reels will be pre-assembled from factory and will attached to arm assemblies and disc tubes.

1. Starting at the rear of the center frame, attach the LT live arm assembly to left and right side using 3/4 x 2-1/2 bolts, 3/4N flat washers and 3/4 lock nuts. [See Figure 3-39](#) and [See Figure 2-28 through See Figure 2-31](#) for arm placement.
2. Install the disc tubes, aligning the square tube with the square hole in the cylinder anchor to the arm assembly that is mounted.
3. Attach the opposite side arm assemblies, aligning the disc lift tube to the square hole in the cylinder anchor using 3/4 x 2-1/2 bolts, 3/4N flat washers and 3/4 lock nuts.
4. Slide a bearing over the end of the disc leveler lift tube. Secure bearing with a bearing cap, 3/4 x 7-1/2 bolts, 3/4 flat washers and 3/4 lock nuts [See Figure 3-34](#).

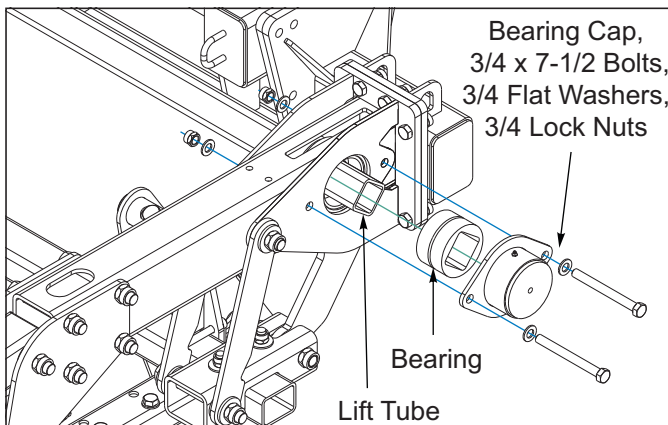


Figure 3-34: Bearing Cap Installation

5. Attach the disc tubes to arm assemblies with 3/4 x 4-13/16 x 5-3/4 u-bolts, 3/4 flat washers and 3/4 lock nuts.
6. Attach the disc mount assemblies to bottom side of disc tubes with 5/8 x 4-11/16 x 5-3/4 u-bolts and 5/8 lock nuts.

7. Remove the gang bar mount plates from the rear of the arm assemblies. Attach the reel/ganbar assemblies, secure with the gang bar mount plates, 3/4 x 5 bolts and 3/4 lock nuts that were just removed as shown.
8. Attach the valve mount plate to front tube of center frame using 5/8 x 7-11/16 x 5-1/2 u-bolt and 5/8 lock nuts [See Figure 3-35](#).
9. Install the pressure reducing valve to top of mount plate with 3/8 x 2-1/2 bolts and 3/8 lock nuts.

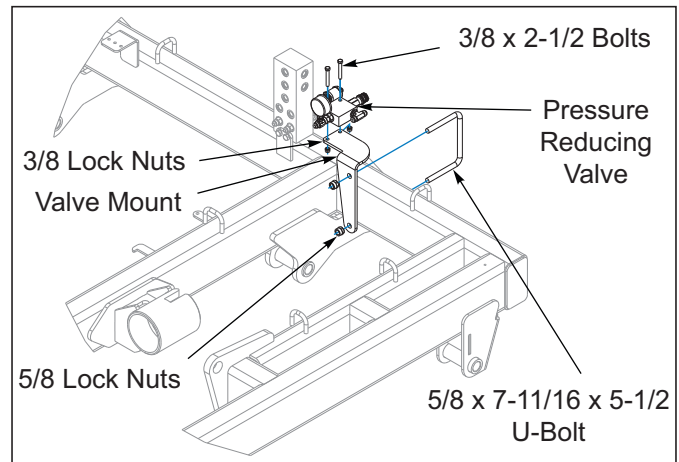


Figure 3-35: Pressure Reducing Valve Installation

10. Attach the 16 port manifold to rear tube of center frame using 1/2 x 3-1/2 bolt and 1/2 lock nuts [See Figure 3-36](#).

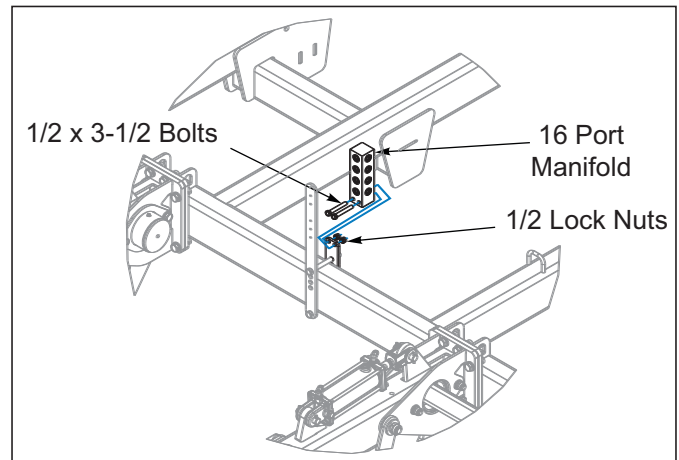


Figure 3-36: 16 Port Manifold Installation

11. Attach the hose mount plate to arm assemblies using 1/2 x 8-1/2 bolt, 1/2 flat washer and 1/2 lock nut [See Figure 3-37](#).
12. Attach the hose clamp to hose mount plate using 3/8 x 1-1/2 bolt, 3/8 flat washer and 3/8 lock nut.

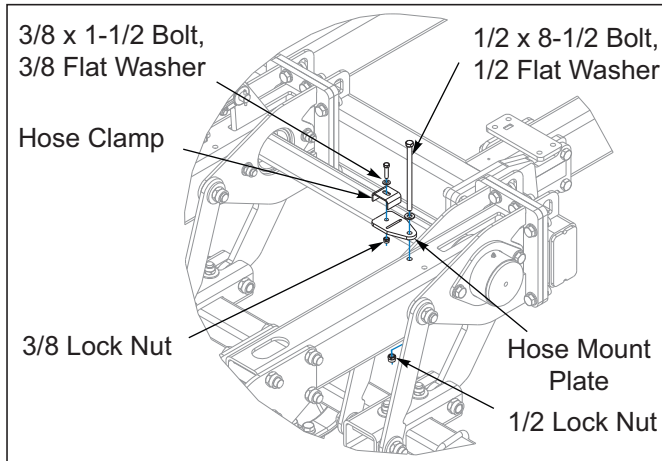


Figure 3-37: Hose Clamp Installation

13. Attach hoses down through the slotted holes of arm assemblies to cylinders as shown [See Figure 3-38](#). The reel base end of cylinder hose hooks to 2nd bottom ports of 16 port manifold. Rod end hose of cylinder hooks to bottom side ports of 16 port manifold [See Figure 3-40](#)

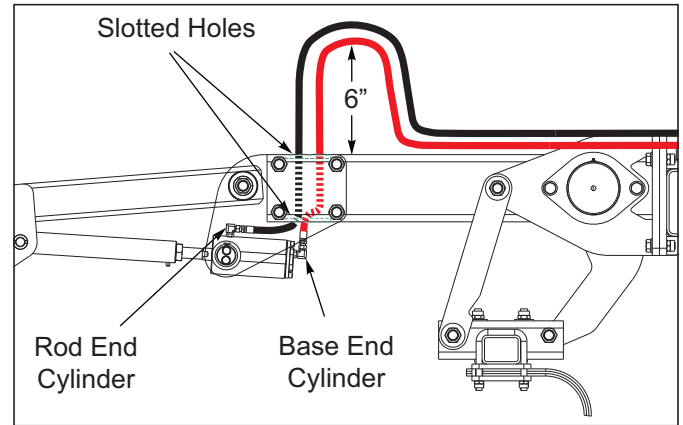


Figure 3-38: Hose To Cylinder Installation

14. Install fittings to pressure reducing valve and manifolds as shown [See Figure 3-39](#).
15. Route hoses as shown [See Figure 3-40](#) and [See Figure 3-41](#).

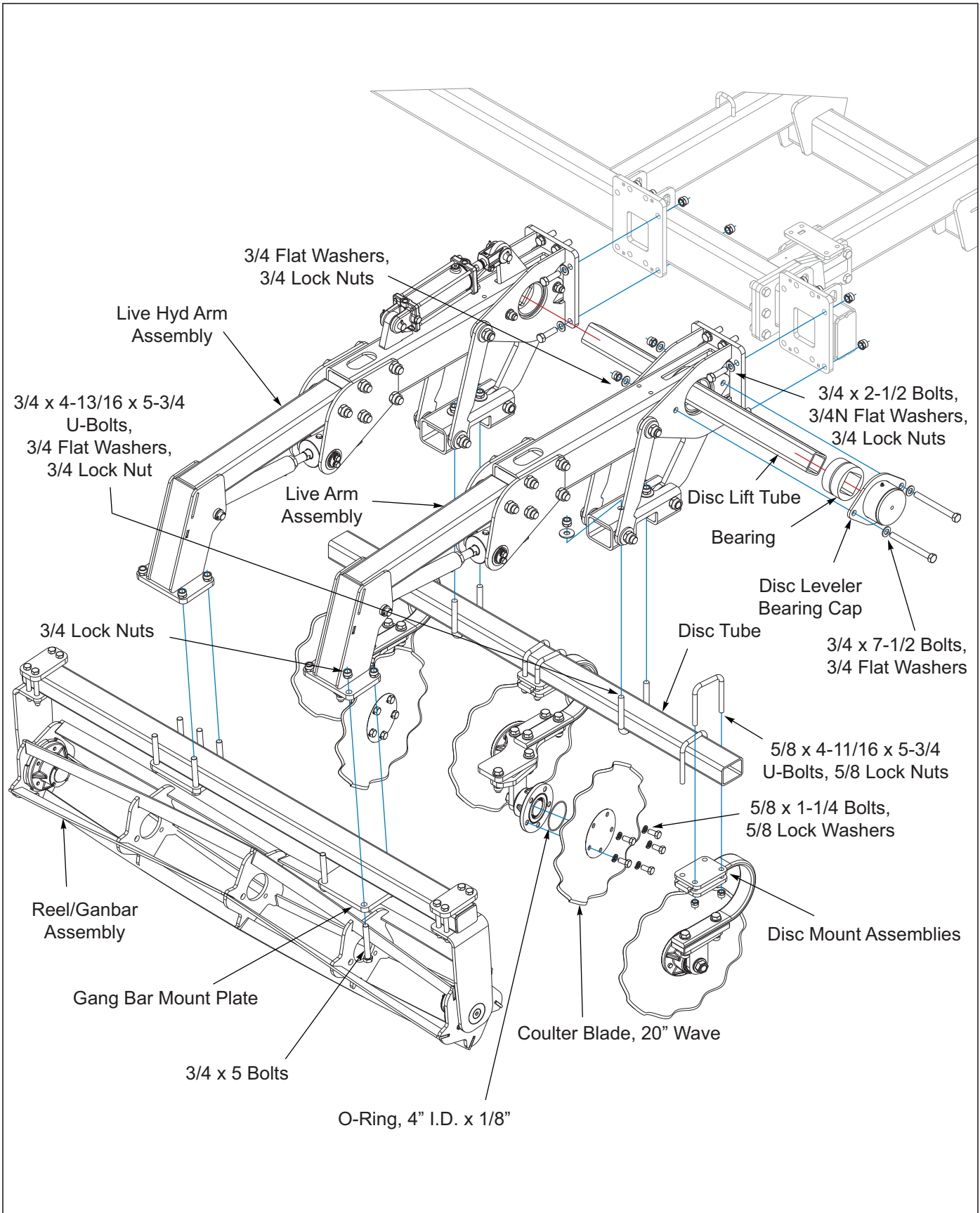


Figure 3-39: Disc Lev/Hyd Installation

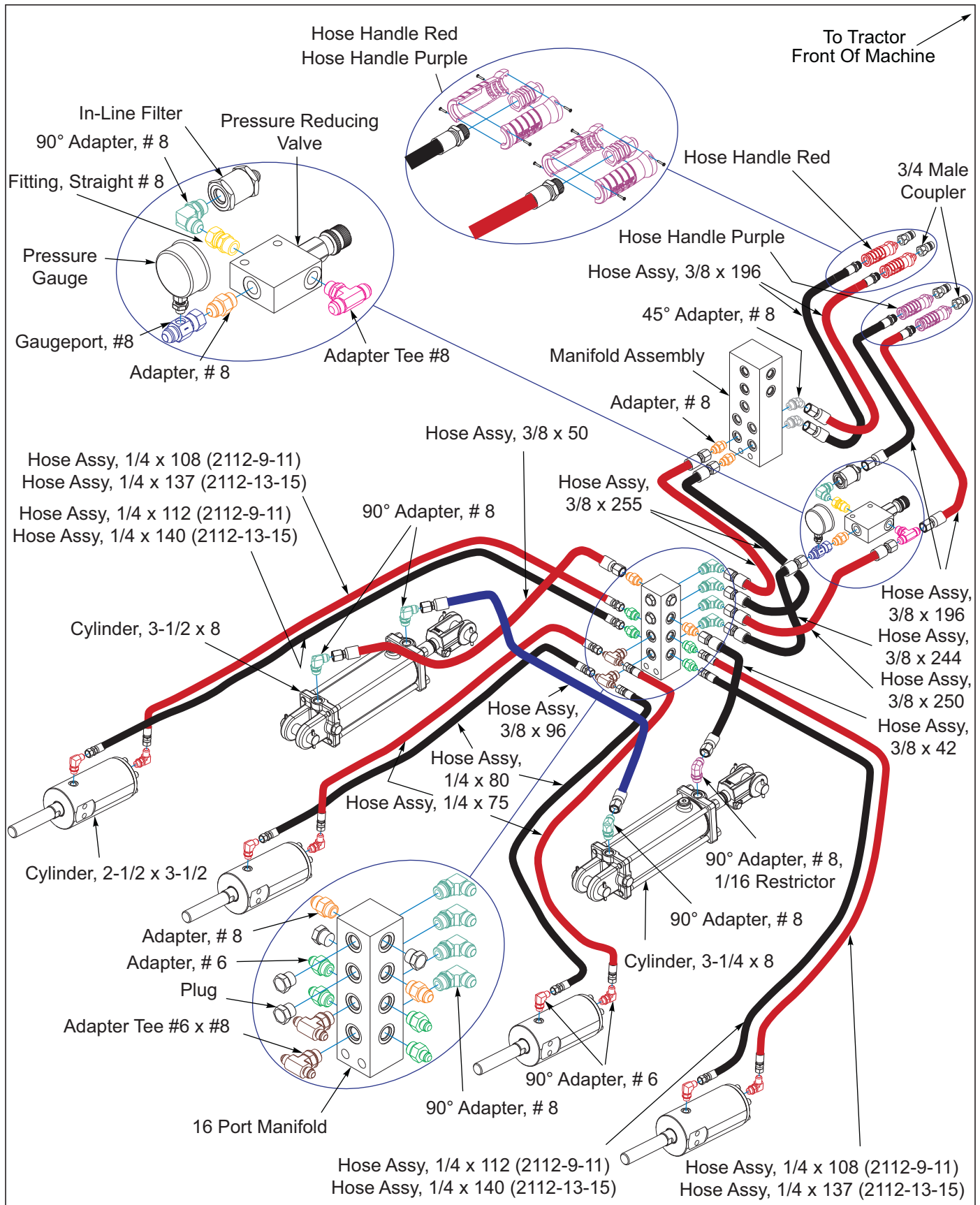


Figure 3-40: Disc Lev/Hyd Hydraulic Installation

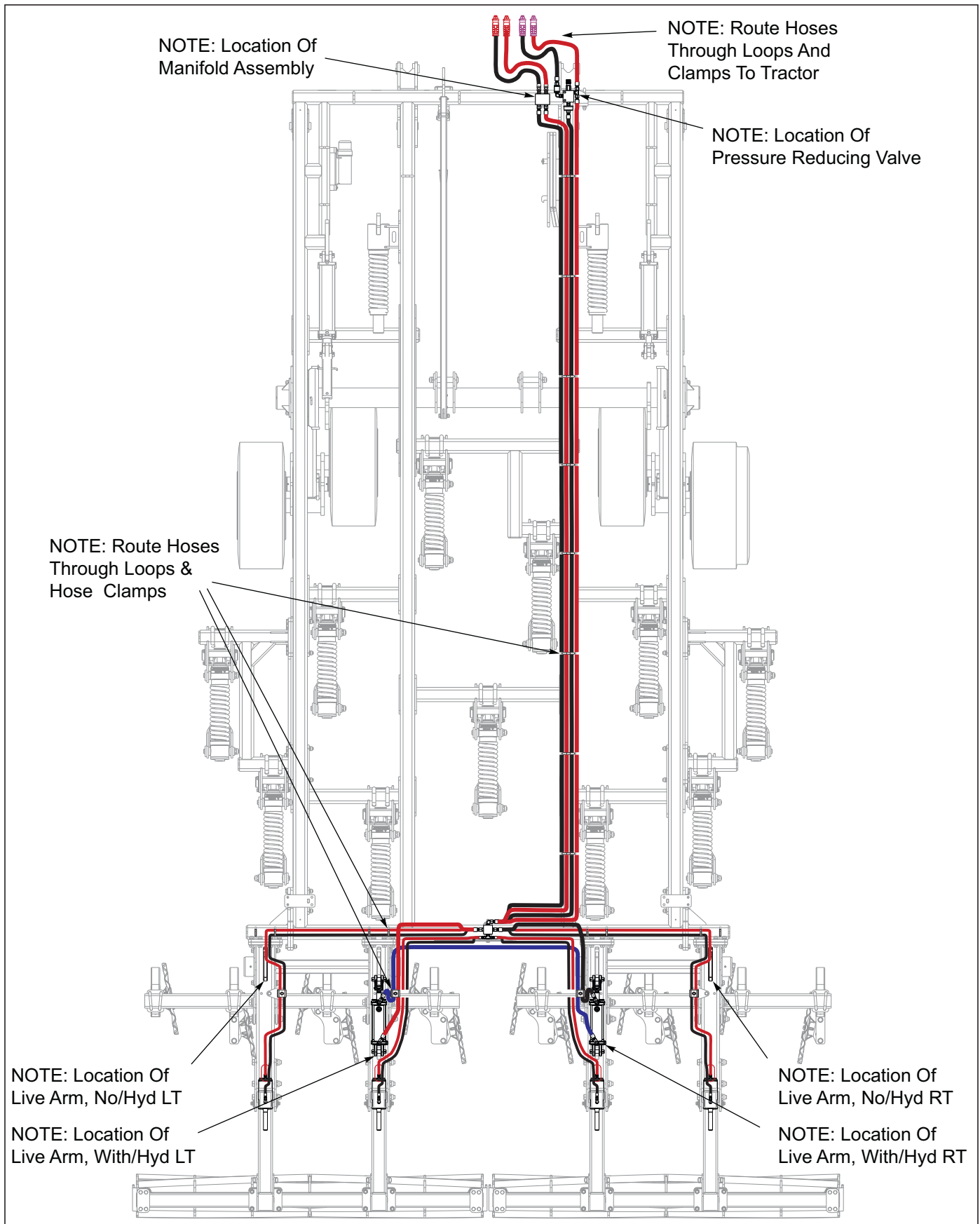


Figure 3-41: Disc Lev/Hyd Hydraulic Layout

Rear Tow Hitch Installation

A rear tow hitch assembly is available for use on the rear of the Coulter Chisel.

1. Attach hitch mount weldments to top side of rear center frame tube, hitch plates below center frame tube with 3/4 x 9-1/2 bolts and 3/4 lock nuts *See Figures 3-42.*
2. Leave all hardware loose until rear tow hitch is completely assembled.
3. Attach tow hitch clamp plates to inside of center frame inner tubes, hitch plates outside of center frame inner tubes with 3/4 x 10 bolts and 3/4 lock nuts.
4. Install hitch tube weldments on top of hitch mount weldments, secure with 5/8 x 4-11/16 x 10-3/4 u-bolts, 5/8 lock nuts and front of hitch tube weldments with clamp plates, 3/4 x 6-1/2 bolts, 3/4 lock nuts,
5. Attach rear hitch weldment to rear of hitch tube weldments using 3/4 x 2-1/2 bolts and 3/4 lock nuts *See Figures 3-43.*
6. Attach hyd hitch mount to top side of rear hitch weldment, hitch assembly to bottom side, secure with 3/4 x 6-1/2 bolts and 3/4 lock nuts.
7. Mount 3/4 o-ring couplers, couplers mount, to back side of hyd hitch mount, using 3/8 x 1 bolts, 3/8 lock nuts. Slide coupler dust plugs over front side of 3/4 o-ring couplers.
8. The rear jack tube may be slid into hitch jack mount and secured with the wing lock pin, 1/4 x 3 roll pin and 3/16 dia hair pin as shown. Attach the jack mount tube to the rear jack tube with a 3/4-10 x 4bolts and 3/4 lock nut.
9. Tighten all hardware once rear tow hitch assembly is adjusted appropriately.
10. Route hydraulic hose assemblies on right side of hitch, through tube and follow hose loops to front as shown *See Figures 3-44.* Connect one end of the hyd mount assembly and the other end to the union fittings. Connect the couplers to the hose assembly. Attach the other end of the hoses to the union fittings as shown.
11. Route the hoses assemblies through all hose loops and clamps along with other hose to front of hitch.
12. Route the tandem adapter harness through right rear tow hitch tube and attach the connector between the ag flasher module and the main warning lights harness.

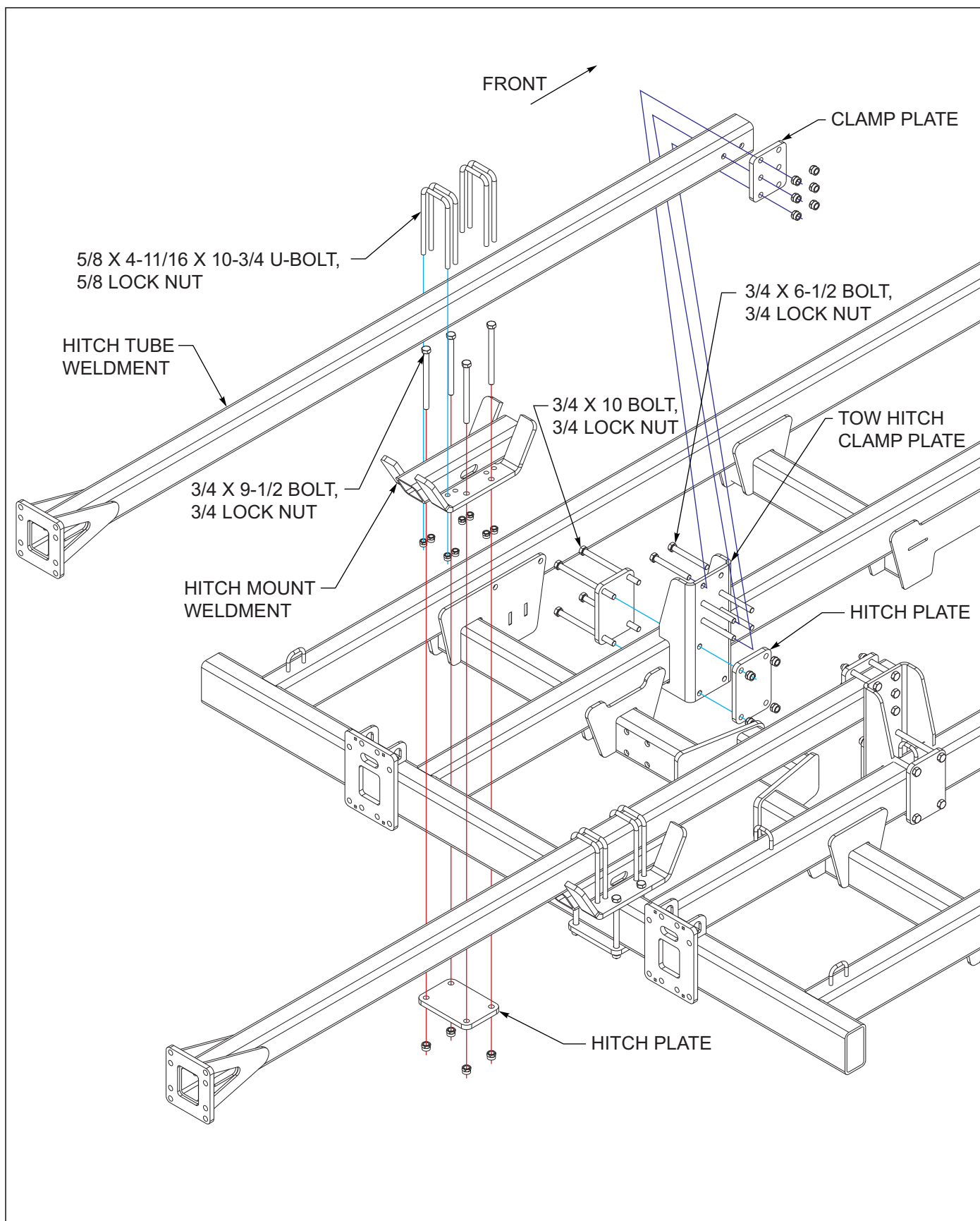


Figure 3-42: Rear Tow Hitch Installation (1 of 2)

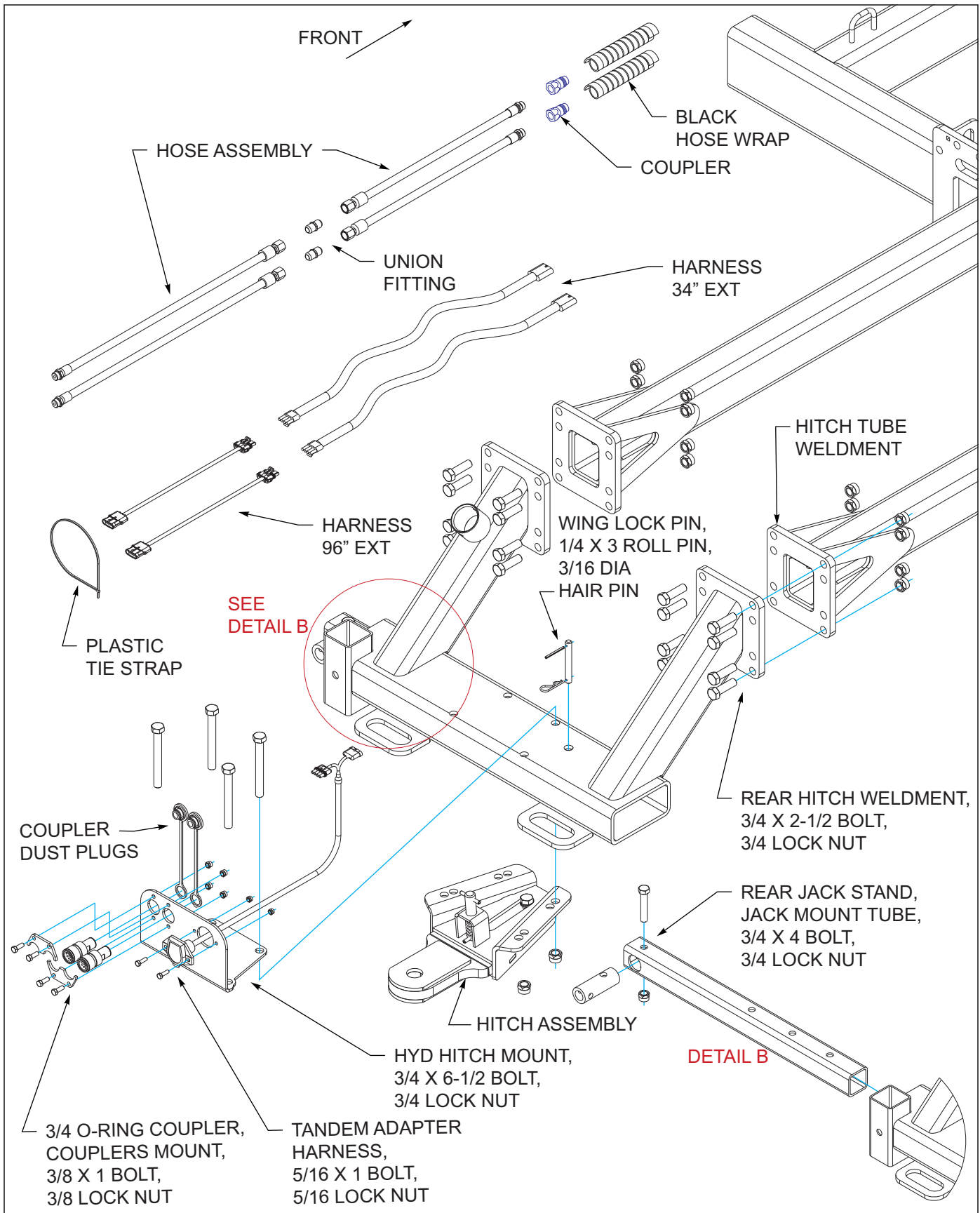


Figure 3-43: Rear Tow Hitch Installation (2 of 2)

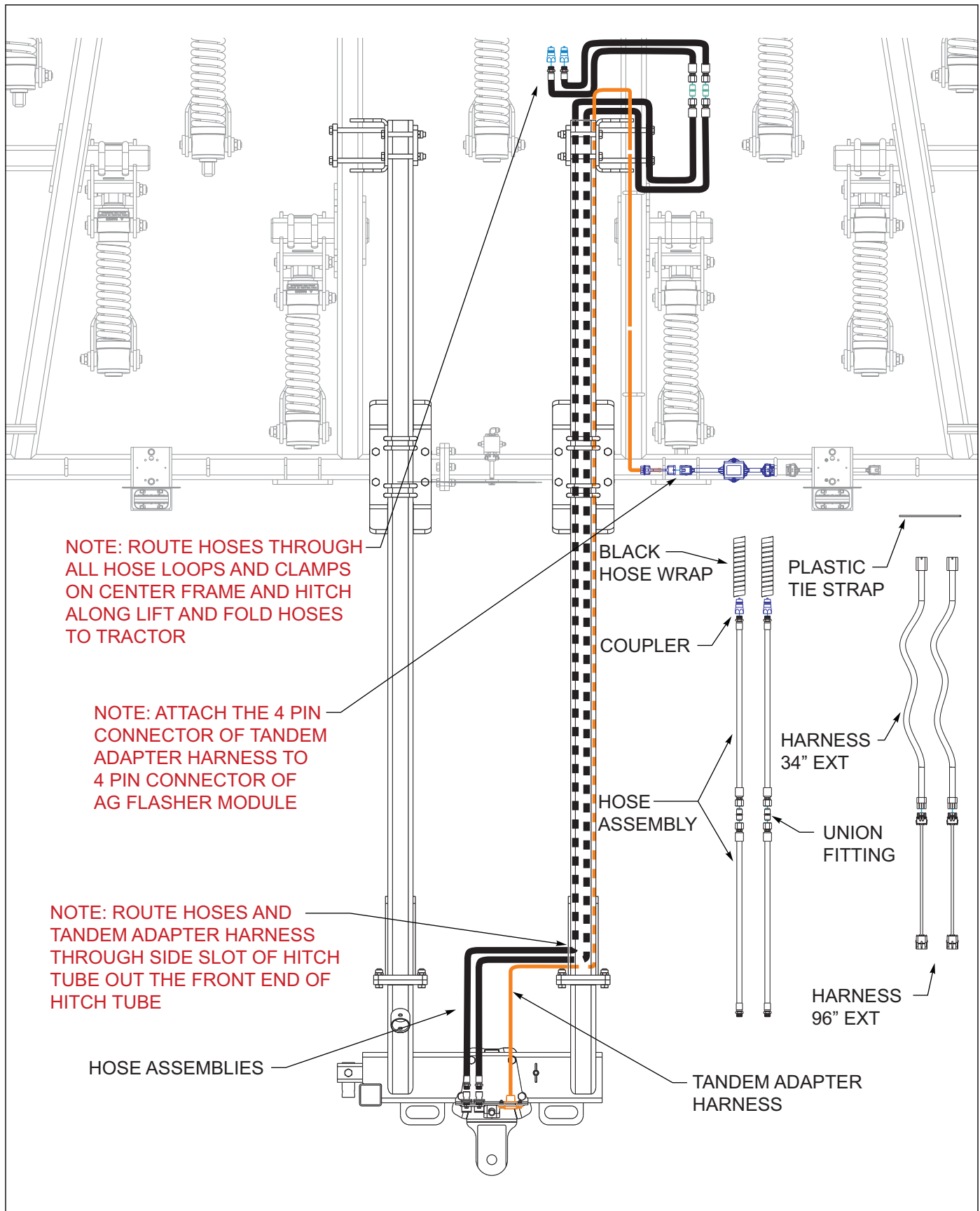


Figure 3-44: Rear Tow Hitch Layout

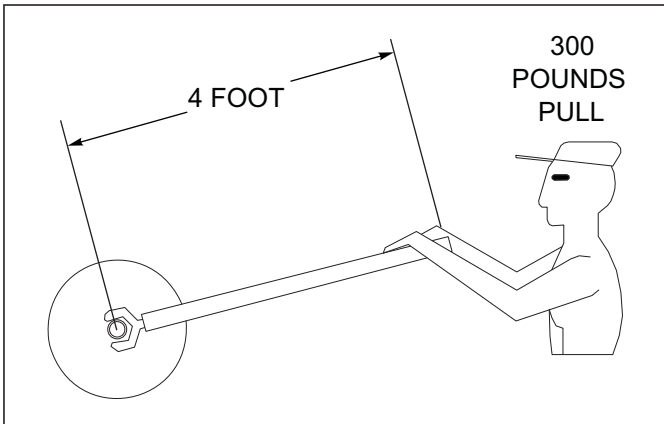


Figure 3-45: 1,200 Foot-Pounds of Torque

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 2 x 16 transport lockouts on both 4 x 16 cylinders on the center frame.
3. Connect lights to the tractor and verify operation.
4. Check tires for proper inflation
5. Level the Wing Coulter Chisel from front to rear as described in *"Leveling (Front-to-Rear)" on page 4-5*.
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 1,250 foot-pounds of torque (*See Figure 3-45*)

7. Rotate each coulter gang to verify that each gang rotates freely. Adjust any scrapers that may have shifted during shipment or assembly.
8. Lubricate the Wing Coulter Chisel at all locations as described in *"Lubrication Maintenance" on page 4-11*.
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 Coulter Chisel.

ASSEMBLY INSTRUCTIONS

Table provided for general use.

[illegible]

Operation and Maintenance



DANGER

Never allow anyone to ride on the 2112 coulter chisel 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

Coulter blades are extremely sharp. Exercise extreme care when working on or near coulter blades. Do not allow coulters to roll over or fall onto any body part. Do not allow wrenches to slip when working near coulter blades. Never push wrenches toward coulter blades. Do not climb over machine above coulter blades. Failure to stay clear of coulter 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 2112 Coulter Chisel 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.

Before attaching the Coulter Chisel, 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.

Coulter Chisel Preparation

1. Prior to operating the 2112 Coulter Chisel, 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. Lubricate the machine as shown in *"Lubrication Maintenance" on page 4-11* and *"Lubrication Table" on page 4-12*.

Attaching to the Tractor

1. Align the tractor drawbar with the machine. Raise or lower the Coulter Chisel ring hitch, as needed, using the swivel jack. Attach the unit with proper size hitch pin.
2. Always place the swivel jack on the interior mount before setting the machine in motion.
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.

Hydraulic Lift System



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 4-1](#). Keep all components (cylinders, hoses, fittings, etc.) in good repair.

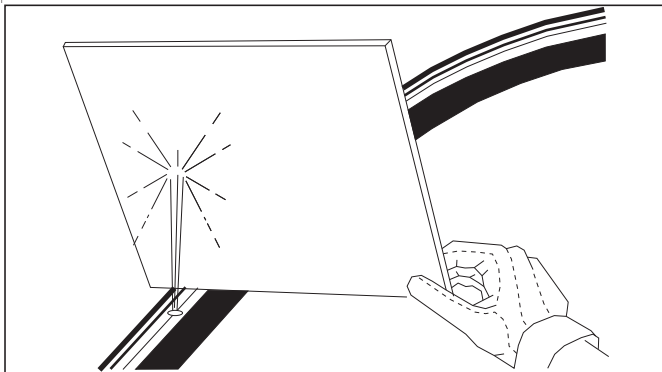


Figure 4-1: Hydraulic Leak Detection

1. The hydraulic system is not filled with oil and should be purged of air before transporting and field operations. Carefully hitch the Coulter Chisel 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, and continue to hold the hydraulic lever until all lift cylinders are fully extended. With all cylinders fully extended remove the 2 X 16 transport lockouts [See Figure 4-2](#). Store transport lockouts as shown [See Figure 4-2](#). Lower and raise the unit to verify that all 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.

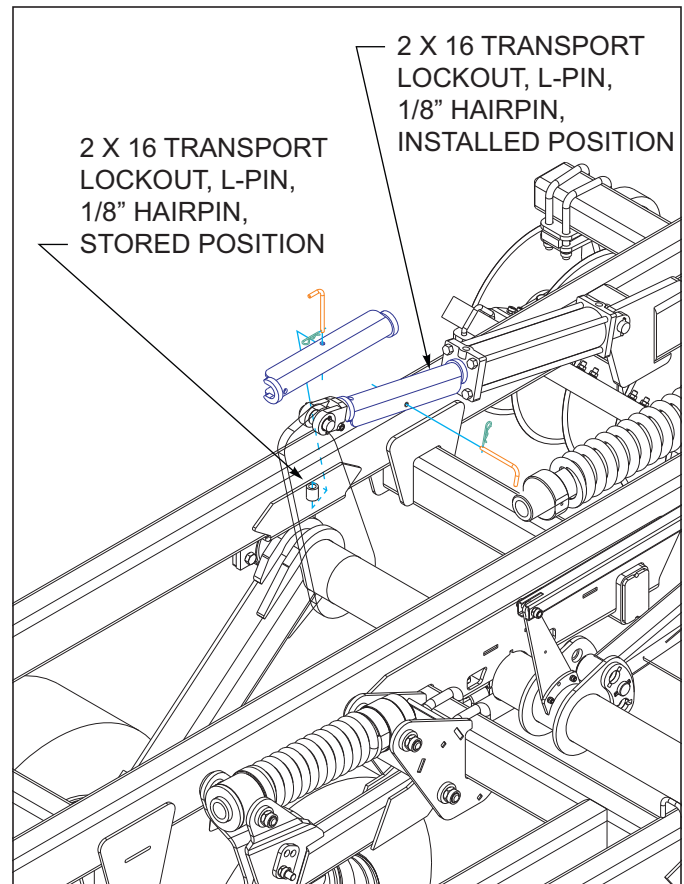


Figure 4-2: Transport Locks

Hydraulic Coulter Gang Lift System

The rephasing coulter gang lift system must be purged of air before beginning field operation. To insure that all air is purged from the system, the gang cylinders are mounted in a vertical position with the base end of each cylinder mounted on the gang bar.

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 the coulter gang cylinders and hold the tractor lever to allow oil to bypass and fill each coulter gang cylinder.

IMPORTANT

When initially filling the cylinders with oil or after extended periods of storage, hold the tractor valve approximately 1 minute. If the coulter chisel has recently been used, hold the tractor valve approximately 10 seconds.

4. Raise and lower the coulter gangs making sure the cylinders actuate simultaneously throughout the stroke.
5. If the coulter gang cylinders are not in unison, continue holding and cycling the cylinders to purge any remaining air.
6. This rephasing process may need to be repeated periodically during operation to assure even penetration of coulter gangs. **DO NOT** loosen any hydraulic fittings.

IMPORTANT

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

NOTE

Some tractor models have a bypass built into the hydraulic outlets. It may be necessary to reverse the coulter gang lift hoses if the rephasing cylinders extend during field operation.

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 Wing Coulter Chisel 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 (on both left and right sides). Store the transport locks on the retainers above the main lift *See Figures 4-3.*

Leveling (Front-to-Rear)

1. The leveling feature on the 2112 Coulter Chisel is used to keep the machine mostly 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 in field position. 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 *See Figure 4-3.* To raise the front of the Coulter Chisel, lengthen the radius rod assembly. To lower the front of the Coulter Chisel, shorten the radius rod assembly. After adjusting, re-tighten jam nuts at each end. Adjustments should be made in small increments.

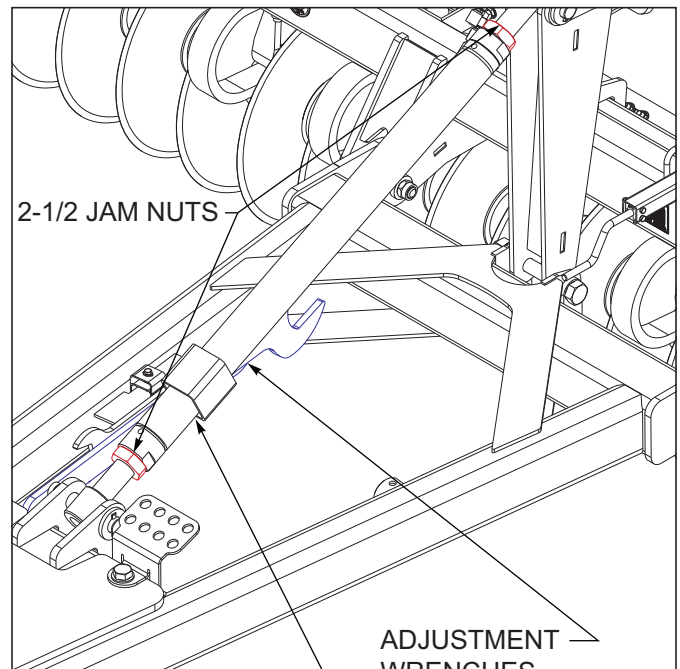


Figure 4-3: Radius Rod Leveling Adjustment

Variable Ratio Adjustment

The leveler is equipped with a variable ratio adjustment. Connect the leveler tube assembly to the middle hole in the center wheel lift for normal operation [See Figures 4-4](#). This will cause the rear of the machine to raise higher than the front increasing transport height. The lower hole on the center lift provides an increased leveler ratio, which will cause the Coulter Chisel to become more level in transport. The lower hole should be used when a rear tow hitch is needed to reduce the height of the rear tow hitch during transport. The upper hole on lift provide less leveler ratio, which will cause the rear of the machine to raise higher than the center hole. Further increase the rear height.

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 assembly, until the load is removed from the leveler tower.
3. To adjust the leveler tube weldment at the center wheel lift, remove the hitch pin, 1" lock nut.
4. Reinstall the hitch pin, 1" lock nut in the leveler tube assembly to the center lift in the desired position.

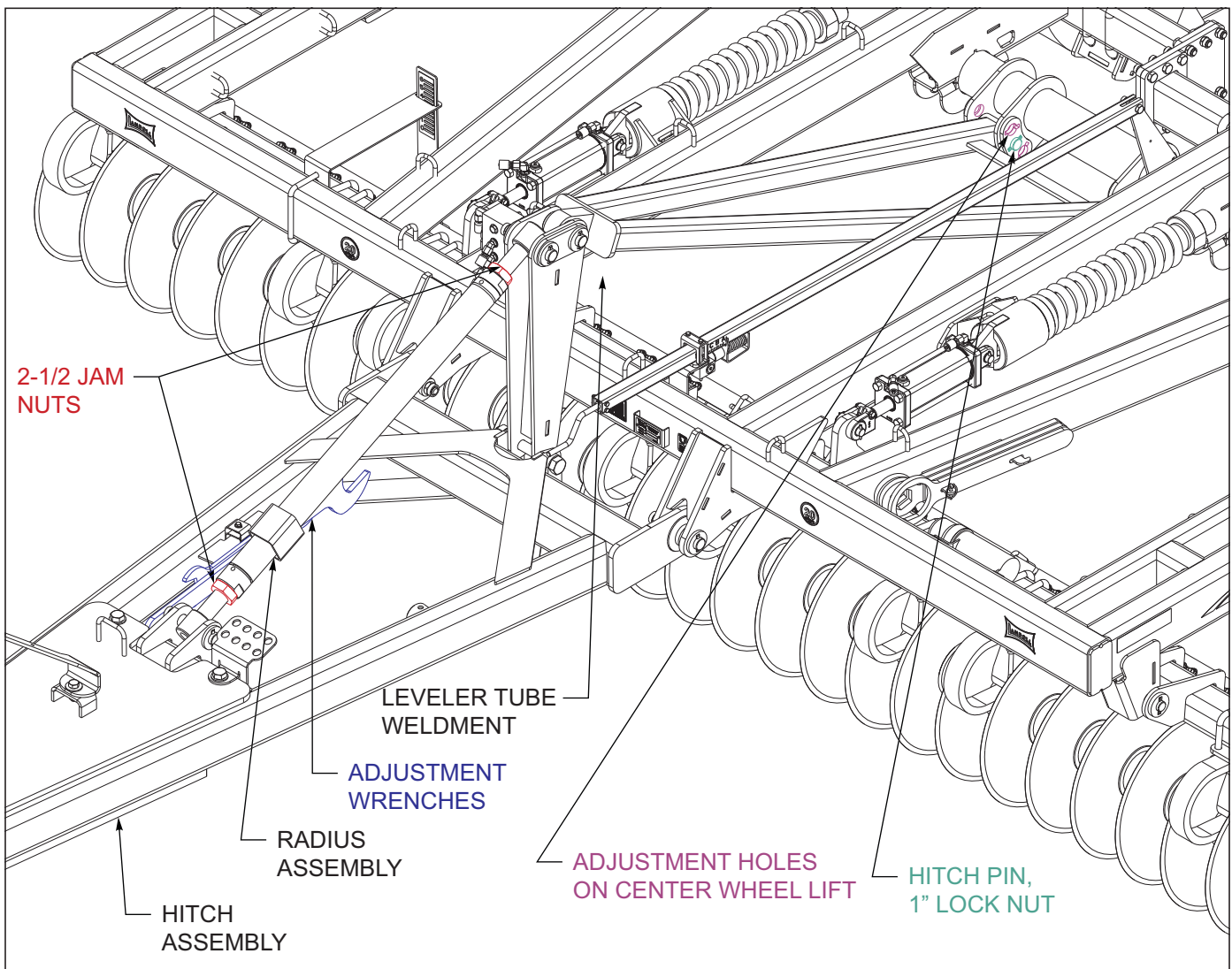


Figure 4-4: Variable Ratio Leveler Adjustment

Coulter Blades

1. The 2112 Coulter Chisel is equipped with 22" coulter blades.
2. The 22" diameter blades are flat with a thickness of 4 ga (.256") and are standard for the 2131 Wing Coulter Chisel.
3. Sharpening – In some cases there is a desire to sharpen coulter blades for improved cutting. There are several people who roll-sharpen coulter blades. Most coulter 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. Coulter 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 coulter blades, check with local dealers for reputable experienced sharpeners that will stand behind their work.



DANGER

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

Depth Stop Adjustment

The operating depth of the 2112 Coulter Chisel 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 (counter-clockwise) to increase operating depth [See Figure 4-5](#). Turn the handle out (clockwise) to decrease operating depth. One turn will equal approximately 1/8" adjustment in depth. Arrows on the front will also show this.
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.

IMPORTANT

For maximum operating depth, the lift wheels must be in contact with the ground and carry some of the machine weight. Raising the lift wheels off the ground permits uncontrolled depth and does not allow the leveler to function properly.

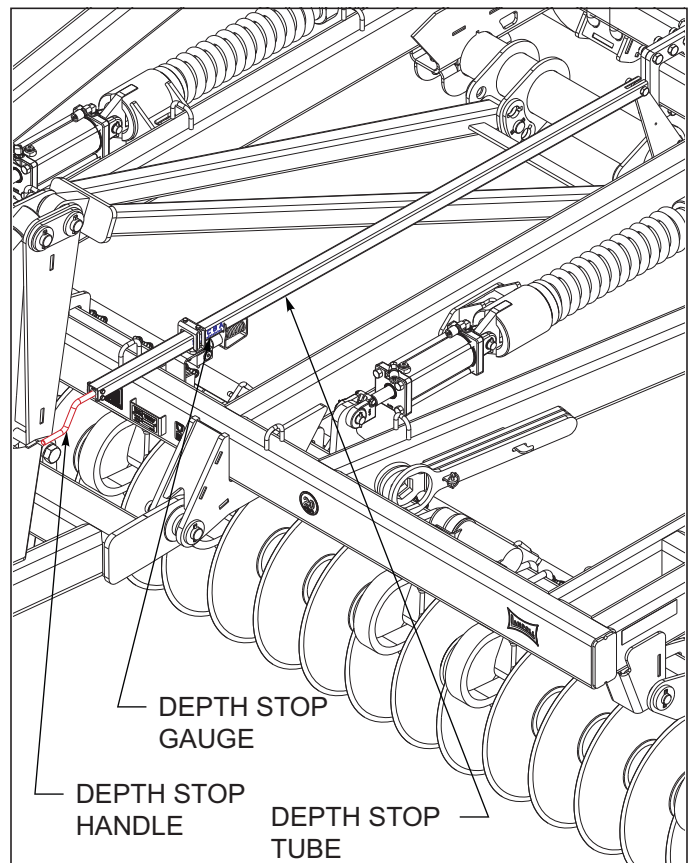


Figure 4-5: Depth Stop Adjustment

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

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, lower the implement to the ground and 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 Coulter Gang Lift System” on page 4-4](#) on how to purge the hydraulic systems.

Transport

1. Check and follow all federal, state, and local requirements before transporting the Coulter Chisel.
2. The 2112 Coulter Chisel should be transported only by 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. See [Figure 4-6](#). 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 4-6](#). 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.

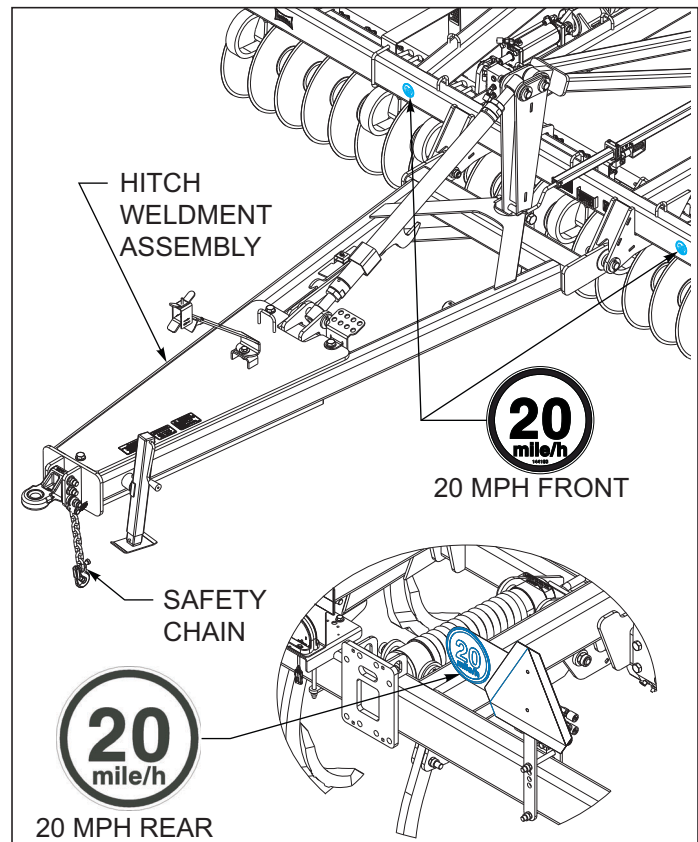


Figure 4-6: Hitch, Speed Identification Symbol, and Safety Chain

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 such as leveling harrows can increase the transport dimensions of the implement. Use caution when transporting near bridges and power lines.



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 4-7.*



WARNING

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

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.

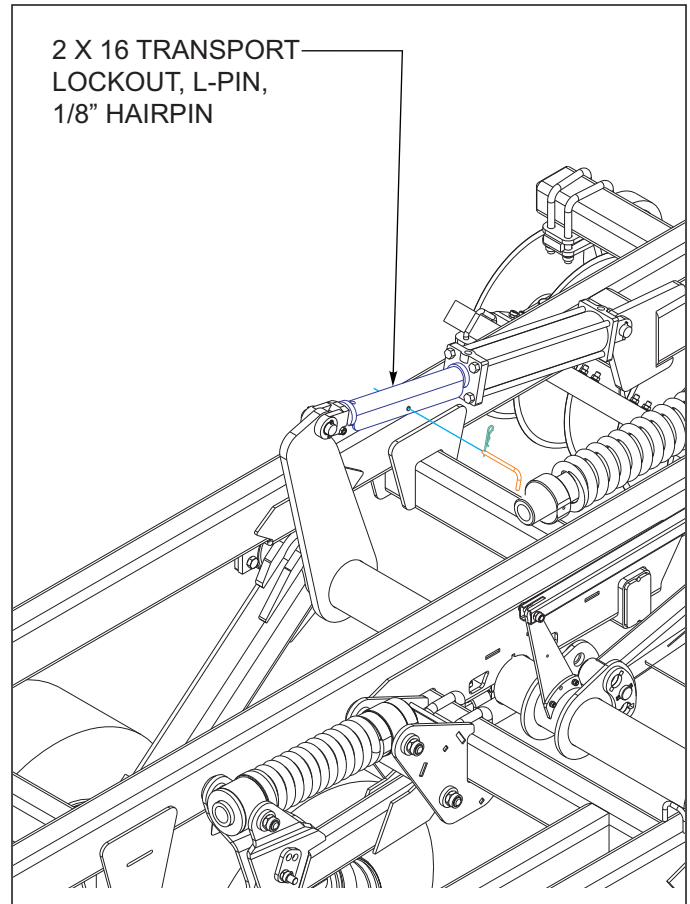


Figure 4-7: Installed Transport Locks

Wheel Bearing Maintenance – Non Triple-Lip

Transport tires use a self-contained seal with multiple lips. The seal fits tight on both the spindle and wheel hub. The seal when properly installed will rotate internally and freely. This seal will also allow grease to pass when lubricating the hub.

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 sufficiently to lift the tire clear of the ground.
2. Remove the tire.
3. Remove the dust cap, gasket, cotter pin, slotted nut, and washer.
4. Remove the hub assembly from the spindle. 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. Install the inner bearing into the hub and install the grease seal. Use a driver to install the seal, to avoid damaging the outer edge of the seal. Drive the seal squarely into the hub to avoid any seal distortion.
7. Slide the hub, bearing, and seal onto a clean spindle.
8. Install the outer bearing, washer, and slotted nut.
9. Tighten the slotted nut while rotating the hub until there is a slight resistance to hub rotation. Then back the slotted nut off one notch, until the hub rotates freely without end play. A new seal will have some resistance, making the hub turn a little harder than usual.
10. Install the cotter pin, dust cap and gasket. Do not over-tighten the dust cap screws causing the gasket to come out [See Figures 4-8](#).

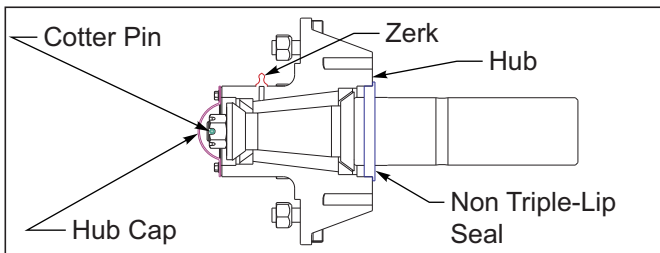


Figure 4-8: Non-Triple Lip-Seal

Wheel Bearing Maintenance -- Triple-Lip

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.
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 triple-lip 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 triple-lip 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 [See Figures 4-9](#).

11. Install a new cotter pin and replace the hub cap. [See Figures 4-9](#).

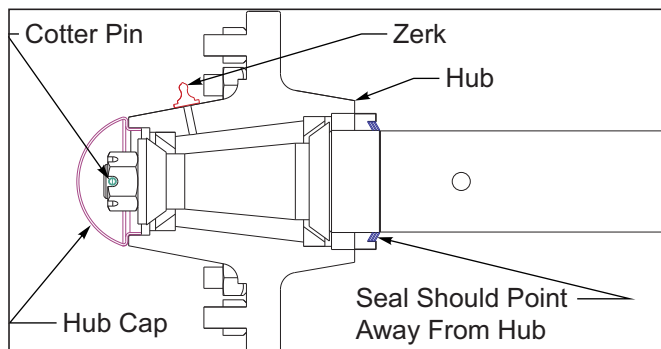


Figure 4-9: Triple Lip-Seal

Lubrication Maintenance

1. **Table 4-1** specifies the lubrication points and intervals on the 2112 Coulter Chisel. 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 4-10**.
2. When lubricating the Coulter Chisel, 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. Coulter 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 Coulter Chisel is equipped with maintenance-free bearings in the lifts and leveler. These areas require no lubrication.

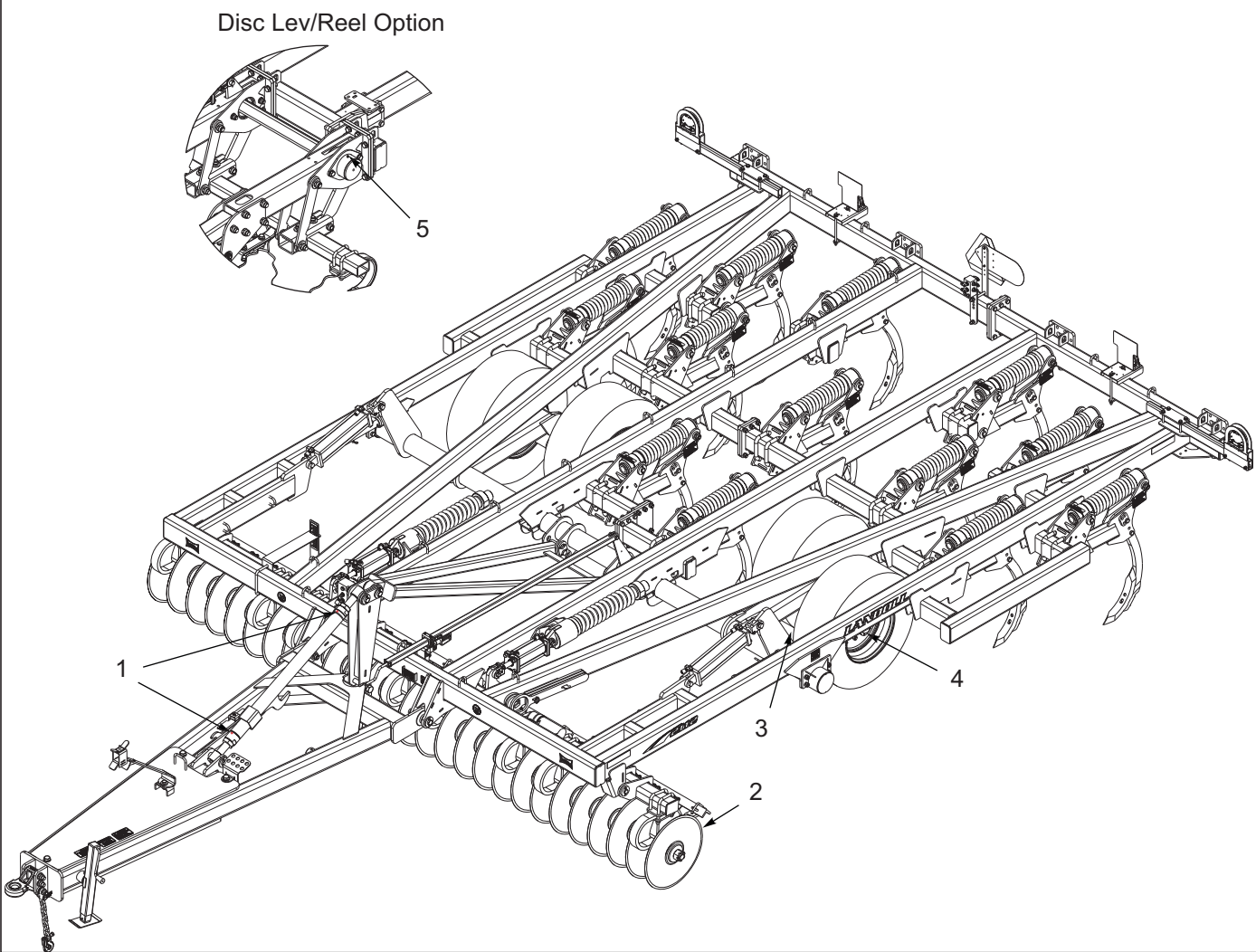


Figure 4-10: Lubrication Schedule

LUBRICATION TABLE			
ITEM	DESCRIPTION	NO. OF LUBE POINTS	INTERVAL (Hours Unless Stated)
1	Radius Rod	2	50
2	Coultter Gang Bearings	1 each	10
3	Walking Tandem Hubs	4 each	50
4	Wheel Hubs	1 each	50
5	Disc Lev/Reel Option	1 each	Anually

Table 4-1: Lubrication Table

Table provided for general use.

NOTES:

3BCT/Chopper Reel Adjustments

1. The optional 3BCT/ chopper reel attachment consists of a tine harrow and reel assembly that operate independently from each other.
2. The reel assemblies may have either a standard spring assembly arm or spring assembly/ hydraulic arm option.



WARNING

Know and verify actual implement height and width before transporting. Attachments may increase the overall height and width of the implement. Use caution when transporting near power lines. Electrocution can occur without direct contact.

3. The coil tine harrow should run level with the coulter chisel frame. If this needs adjusted, remove the 1/2 x 1-1/4 rd head sq neck screws and rotate tine assembly to level, re-install screws and nuts. When operating the coil tine harrow, a more vertical tine tooth angle will make the harrow more aggressive. A lower/flatter tine angle will make the harrow less aggressive but will handle more residue and wetter conditions. To change the tine angle, raise the harrow off the ground. Remove the harrow pin from both angle adjustment tubes per tine gang bar tube [See Figures 4-11](#). Rotate the angle adjustment tubes forward (less aggressive) or rearward (more aggressive) and reinstall both spring clip pins. Repeat the tine adjustment for each tine gang bar tube and harrow section. Each row can be adjusted as needed, all threeerows do not need to be set at the same tine angle.

4. To adjust the height of the tine harrow assemblies remove the 3/16 dia pin, 1 x 7-5/16 pins. Remove the harrow height adjustment wrenches from RT center frame arm and turn the harrow height adj handle tube to raise or lower the tine harrow assemblies. In certain conditions, it may work better to leave the tine angle more aggressive, and raise the tine harrow.

NOTE

Coil tine sections are heavy. Do not place feet under tines while adjusting. Adjustments can be made on the side of a section, and then doing the other side. This will keep one pin always installed to prevent it from falling uncontrolled.

5. Re-install the 1 x 7-5/16 pins, 3/16 dia pins through aligned holes of harrow arm assemblies.
6. Reels are set to 21-1/2" from Landoll. To adjust the standard reel height, loosen the locking hex nut against the threaded spring end [See Figure 4-11](#). The hydraulic reel can be raised as needed to prevent plugging.

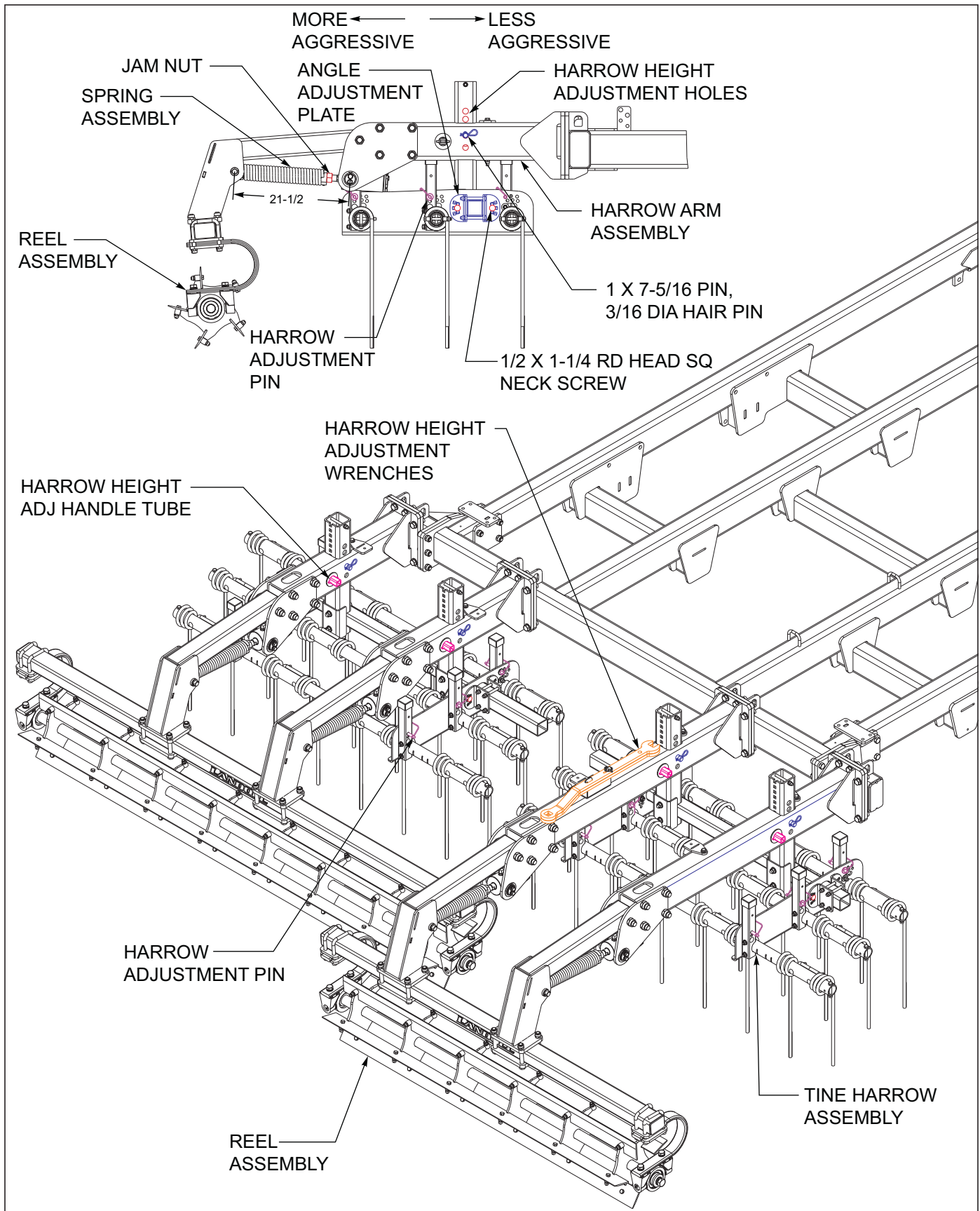


Figure 4-11: 3BCT-Chopper Reel Adjustments

Chopper Reel Adjustments

1. The optional chopper reel attachment consists of a reel assembly that operate independently from each other.
2. The reel assemblies may have either a standard spring assembly arm or spring assembly/ hydraulic arm option.
3. Reels are set to 21-1/2" from Landoll. To adjust the reel height, loosen the locking hex nut against the threaded spring end [See Figures 4-12](#).
4. Raise or lower the reel by turning the head of the spring bolt, and then re-tighten the locking nut against the spring end.



WARNING

Know and verify actual implement height and width before transporting. Attachments may increase the overall height and width of the implement. Use caution when transporting near power lines. Electrocution can occur without direct contact.

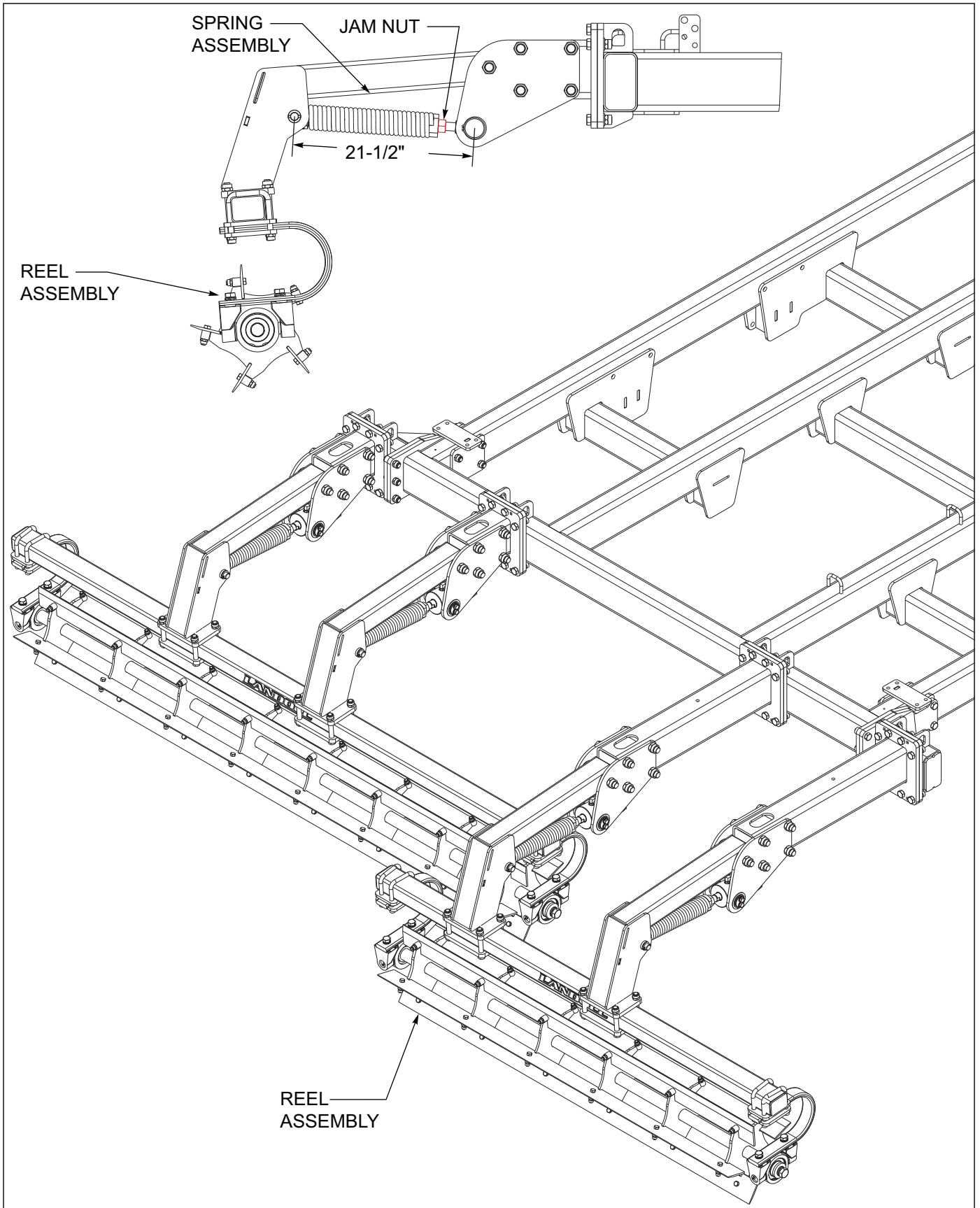


Figure 4-12: Chopper Reel Adjustments

Hyd Disc Lev/Reel Adjustments

1. The optional Disc Leveler/Hydraulic Flat Reel attachment consists of independent wavy disc assemblies that are meant to cover the shank track with soil and then a reel assembly that firms up the soil .
2. The Disc leveler assemblies are independent of the reels allow them to be adjusted to the operator's preference. The hydraulic reels are equipped to operate with a continuous hydraulic oil flow and will rise for obstructions or uneven terrain.



WARNING

Know and verify actual implement height and width before transporting. Attachments may increase the overall height and width of the implement. Use caution when transporting near power lines. Electrocution can occur without direct contact.

3. When starting out it is recommended to have the disc leveler assemblies raised completely up. Once the machine's depth is obtained, then start lowering the wavy discs until the desired finish is achieved.
4. For starting with the hydraulic reels, adjust the flow for the reel circuit from 10% to 15% of full flow from the tractor monitor. If this does not allow the reels to rise soon enough it may have to be turned up a little more. Turn on the remote starting the continuous flow of oil through the reel circuit. The pressure reducing valve comes preset at 200 psi, and it has a range from 100 psi to 400 psi. Do not run the pressure any higher than necessary to leave the desired finish. Turning the knob clockwise will increase the pressure and counterclockwise will reduce the pressure. This adjustment can be made while the oil is flowing, allowing the gauge to move showing pressure.

NOTE

It may take raising the reels up and down a few times to purge the air out.

IMPORTANT

RUN HYDRAULIC REEL CIRCUIT IN CONTINUOUS FLOW OR FLOAT TO PREVENT DAMAGE TO REELS FROM NOT BEING ABLE TO MOVE.

NOTE

THE WAVY DISCS ARE NOT MEANT TO BE RUN DEEP CREATING TRENCHES, THEY ARE ONLY INTENDED TO BE A FINISHING TOOL.

5. Each bearing mount RT and LT can be adjusted to 3 different angle settings to allow more or less soil movement [See Figure 4-13](#). To adjust them, loosen the front 3/4 x 3 bolt, and remove the rear 3/4 x 3 bolt to rotate the mount either direction. The discs are in the middle position when shipped from the factory. Ground speed and depth will both change how the finish looks, they will have to be adjusted accordingly.

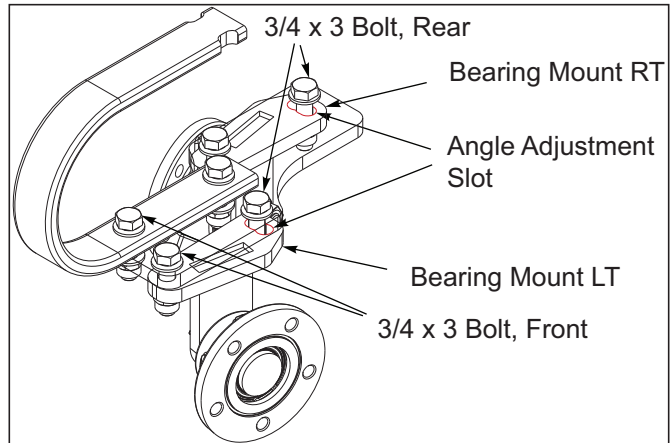


Figure 4-13: Individual Disc Angle Adjustment

1. Cylinder stops have been provided to maintain depth position for the disc leveler. With the cylinder stops installed, the leveler will still be able to fully raise for transport. [See Figure 4-15](#) for the cylinders to place the cylinder stops on.

IMPORTANT

Cylinder stops only need to go on the 3-1/2 x 8 cylinder.

6. Periodically fully raise the disc leveler and rephase the cylinders to keep them in unison.
7. The reel assembly cylinder and link are set at 21-1/2" [See Figure 4-14](#). This measurement should not need adjusted. The reels can be hydraulically raised if needed to prevent plugging in adverse conditions.
8. Both the individual disc blades and the reel bearings are maintenance free.

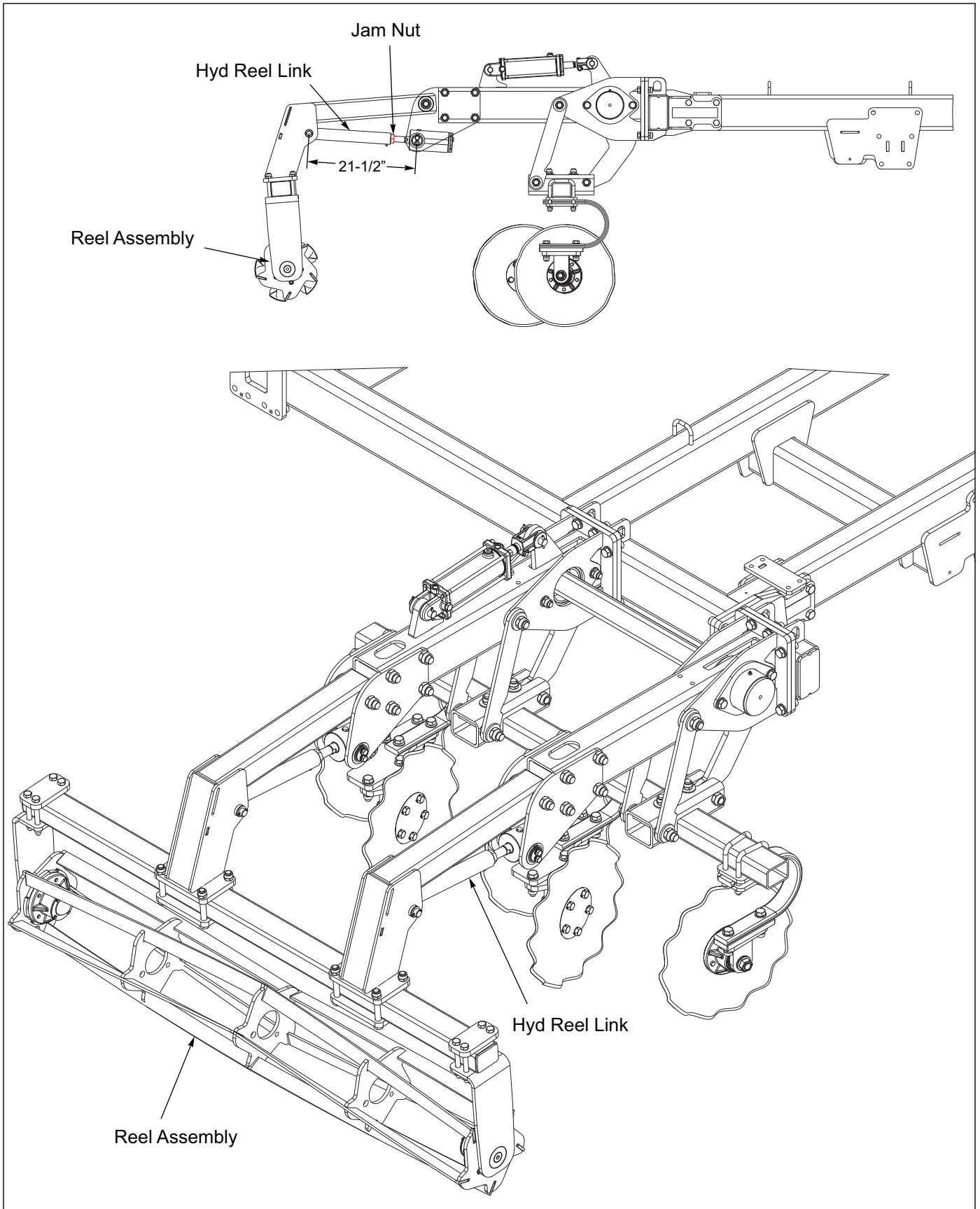


Figure 4-14: Hyd Disc Lev/Reel Adjustments

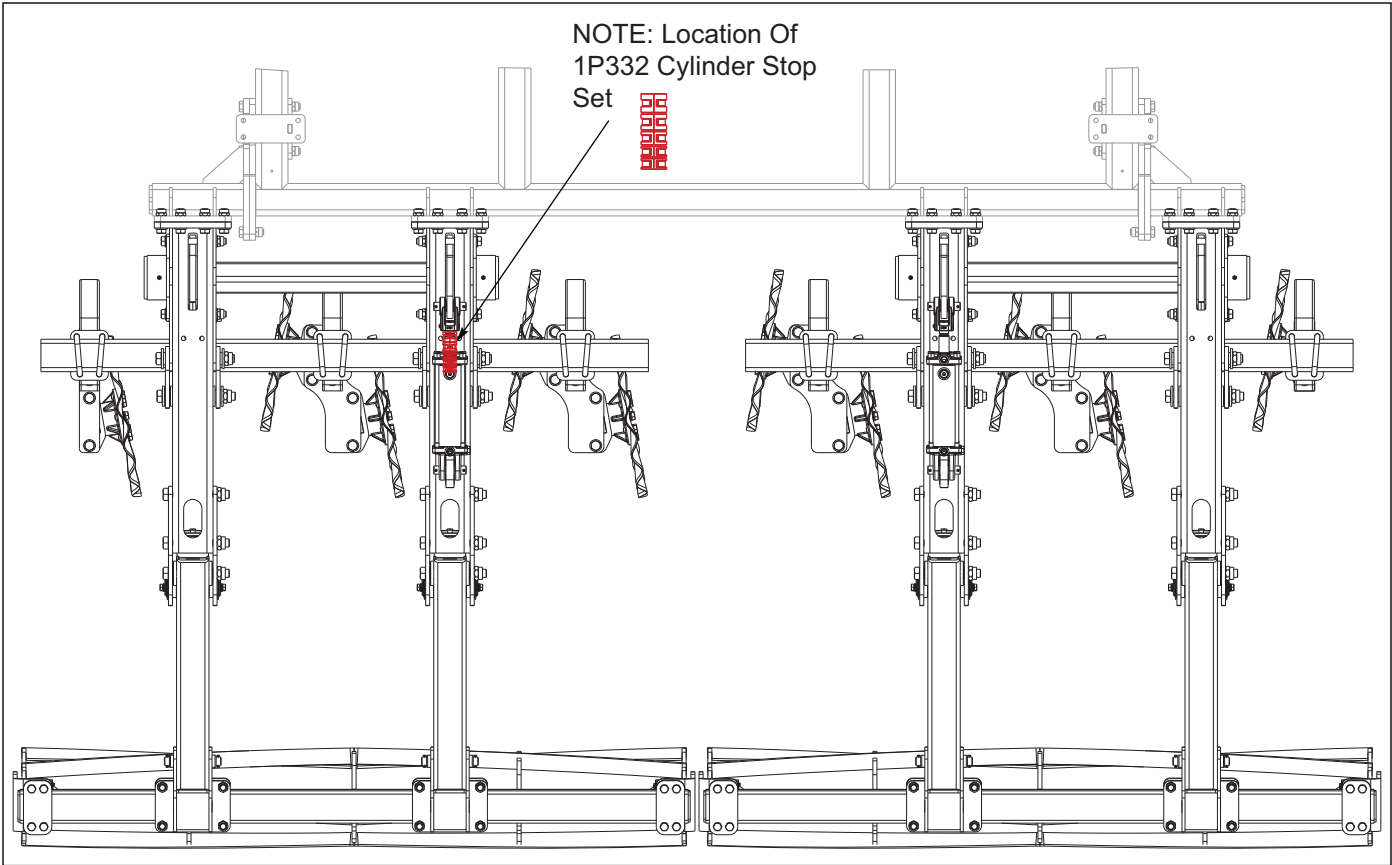


Figure 4-15: Hyd Disc Lev/Reel Cylinder Stop Location

Replacing The Disc Hub Bearing

1. The replacement hub and bearing assembly is available as a pre-assembled assembly, Landoll 210880 for your convenience. Should you choose, the wear parts are also available in a kit to re-build the disc hub. Landoll kit 219945 includes the essential wear parts to rebuild a disc hub in the field **See Figure 4-16**. When rebuilding disc hubs in the field it is highly recommended that you obtain a die, Landoll 218733, to assist in the proper assembly of the components in the hub assembly. Landoll Corporation will not accept responsibility for, or warranty hub assemblies re-built in the field.
2. Clean the O-Ring groove and the surfaces between the hub face and the correlating disc surface. Failure to clean the surfaces mentioned above, can cause the disc blade to loosen and cause water to infiltrate the bearing area.
3. Always replace the 1-8 flanged top lock nut, (Landoll Part No. 174732.) when repairing or replacing the hub assembly.
4. Always torque the flange lock nut to approximately 200-250 foot pounds of torque.

NOTE

Table provided for general use. Inadequate torquing of the disc hub (<120 ft/lb.) flanged top lock nut will cause premature bearing failure. Over torquing can also lead to premature bearing failure.

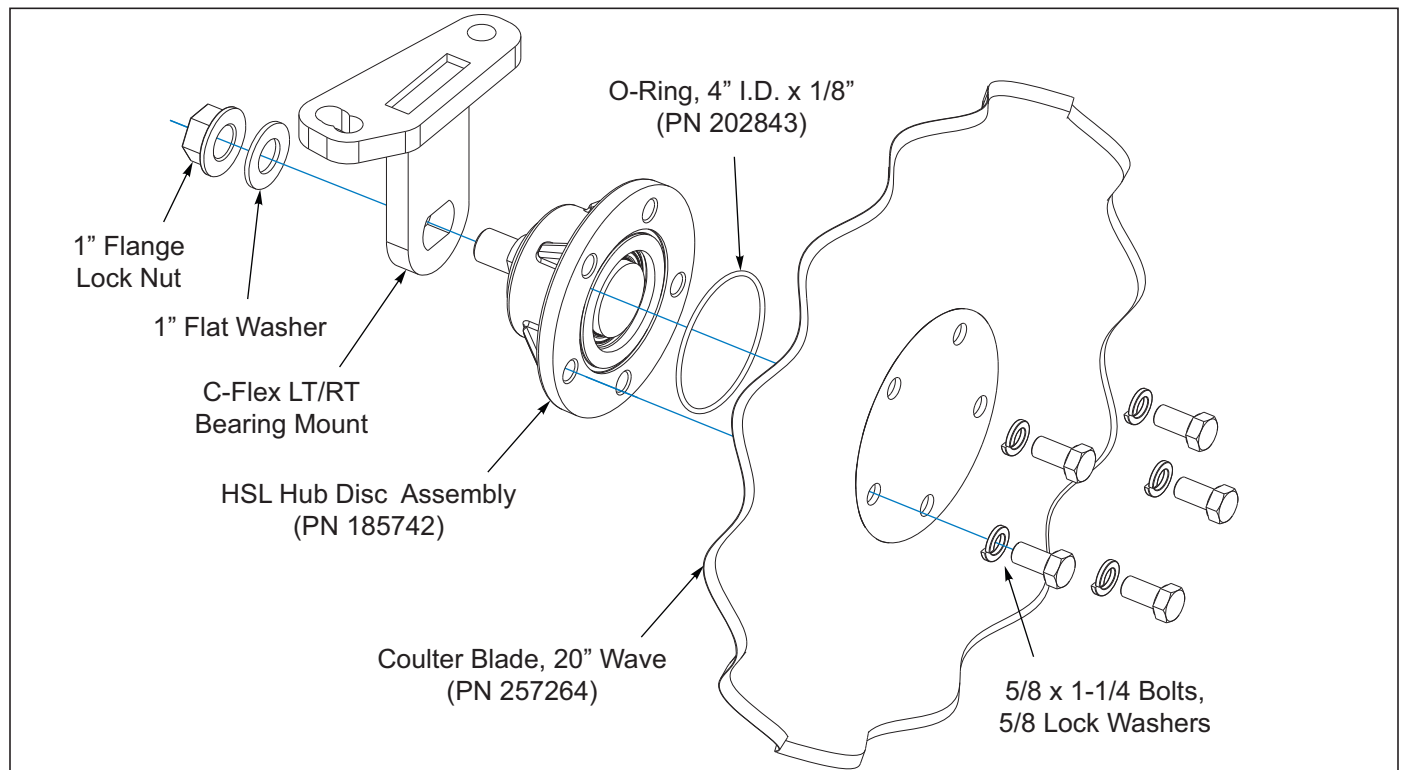


Figure 4-16: Hyd Disc Lev/Reel Disc Hub Bearing

Storage

1. The service life of the 2112 Coulter Chisel 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 coulters.
 - 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 Schedule” on page 4-12.***
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.

Troubleshooting Guide

PROBLEM	PROBABLE CAUSE	SOLUTION
UNIT NOT PULLING EVEN	Coulter gangs uneven depth	Adjust depth/rephase coulter gang cylinders (<i>See “Hydraulic Coulter Gang Lift System” on page 4-6.</i>)
UNEVEN DEPTH	Unit not level when under power in the field	Level unit front to rear (<i>See “Leveling (Front-to-Rear)” on page 4-7.</i>)
	Excessive coulter gang depth or down pressure	Reduce coulter depth.
	Tire pressure too low	Check inflation.
	Unit not level front to rear	Adjust unit to be level (<i>See “Leveling (Front-to-Rear)” on page 4-7.</i>)
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 (<i>See “Leveling (Front-to-Rear)” on page 4-7.</i>)
	Coulters not cutting residue	Adjust coulter depth
	Twisted shovels throwing soil wrong direction	Install shovels (<i>See Figures 2-1 thru 2-16.</i>)
SHANKS NOT PENETRATING	Unit not level	Level unit front to rear (<i>See “Leveling (Front-to-Rear)” on page 4-7.</i>)
	Excessive coulter 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 - COULTER LIFT CYLINDERS NOT FULLY EXTENDING	Lift cylinders not in phase	Fully extend cylinders and hold hydraulic lever until all cylinders are fully extended.
	Cylinders not installed in proper series	Wing cylinders are smaller diameter than center cylinders. Reinstall cylinders properly.
	Hoses not properly connected	Check hose routing
HYDRAULIC - ENTIRE UNIT SETTLING	Depth stop valve not working	Repair valve
COULTER GANG PLUGGING	Operating depth too deep	Raise unit.
	Conditions too wet	Wait until conditions more favorable.
COULTER 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
COULTER 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.

TROUBLESHOOTING GUIDE

Table provided for general use.

[illegible]

Document Control Revision Log:

Date	Form #	Improvement(s): Description and Comments
05/13/2021	F-1102	New Manual
06/22/2021	F-1102-0621	Initial Release
07/28/2021	F-1102-0721	Updated tire/wheel assembly
08/21/2026	F-1102-2608	Added Disc Lev/Reel attachment option



intertek

Equipment from Landoll Company, LLC is built to
exacting standards ensured by ISO 9001 registration at
all Landoll manufacturing facilities.

Model 2112 Coulter Chisel Operator's Manual

Re-Order Part Number F-1102

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