



**THREE POINT HITCH
ROTARY HARROW
RH-9222**

**OPERATORS MANUAL
& PART LIST**

QUICK START GUIDE

HYDRAULIC CONNECTIONS TO TRACTOR

YELLOW – Wing lift/lower

RED – Tine angle adjust

UNFOLD TO FIELD POSITION

- Find a location that is as level as possible.
- Ensure that the 3-Point hitch is fully raised.
- Carefully lower the harrow wings to horizontal orientation (**YELLOW** hydraulic remote). Ensure that both wing cylinders are fully extended.
- Remove the lock pins from the harrow section pivots to allow the individual sections to pivot and follow the ground.
- Slowly drive the tractor ahead, while lowering the 3-Point hitch the rest of the way down.
- Set the 3-Point hitch lower level limit so that the harrow section carriers are approximately 40° from being fully horizontal.

NOTE:

- **IMPORTANT:** Do not lower the harrow wings fully down to the ground without driving ahead simultaneously. Damage to your rotary harrow sections could result.
- Check the level of main frame relative to the tractor. Adjust using upper link to level the main frame and ensure all sections are engaging the ground evenly across the width of the unit.
- Ensure all harrow section chains are tight. Tighten chains using the tools provided on the main frame of the unit if necessary.

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SECTION 1

INTRODUCTION

Original Instructions

Thank you for making the decision to purchase a RITE WAY product!

We are pleased to welcome you as an owner of a product from **RITE WAY MFG.** This machinery is the culmination of years of agricultural and engineering experience and has been designed to deliver you with many years of successful operation service.

For the most efficient operation of your **RH-9222** we have provided this owner's manual. In this manual we have included proper maintenance and functional procedures to offer maximum longevity for your new equipment. Before operating we urge a careful study of this manual to provide a thorough understanding of your new **RH-9222**. We also recommend that you take care of this manual so it will be available for future reference. Should your manual become lost or destroyed a new copy can be obtained from your **Rite Way Manufacturing** dealer. We will also be happy to answer any questions you might have concerning the use or care of this product.

Product Description

The **RH-9222** is a vertical tillage tool designed to provide varying degrees of soil disturbance to prepare a seedbed on minimum-till land, cut through trash and remove small weeds, and level the soil ahead of seeding operations. The non-driven harrow sections provide impressive soil mixing to a depth of up to 1.5" (38 mm) across a wide range of soil types. The **RH-9222** can also be used post-harvest in lighter soil conditions to mix seeds with soil promoting germination that can be killed due to winter conditions, or chemical treatment.

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MANUAL INFORMATION

Unit Model Number	RH-9222
Manual Revision Number	1.1
Manual Revision Date	November 9, 2020
Manual Serial Number Range	20-0926 to Current

The area below is provided for the owner / end-user to make notes regarding the equipment.

Owner / Equipment Information

Serial Number of Unit	
Date of Purchase	
Dealer Name	
Dealer Address	
Dealer Phone Number	
Salesman Name	
Salesman Phone Number	
Notes	

PRE-DELIVERY INSPECTION

GENERAL

- Remove wrapping and wash unit, removing all road debris. (Road salt, mud, snow, etc.)
- Inspect paint, decals and general appearance of unit.
- Verify that the owners manual is in the manual storage tube.
- Verify 'SLOW MOVING VEHICLE' sign (SMV) is on unit . (If applicable)
- Verify that jacks are with the unit and function properly.
- Check wheel bolts for proper torque. (If applicable)
- Check for proper tire pressure (PSI). (If applicable)
- Verify that the wheel hubs are lubricated. (If applicable)
- Verify that locking pins and / or ram locks are in place.
- Lubricate all components as per operators manual recommendation.
- Check that all bolts and fasteners are at the proper torque specifications.

(NOTE: All cap screws that have lock nuts joining moving pieces should not be tightened completely, they must allow movement. i.e. Spring pressure kits, rock shaft connector, draft arm, etc.

- Check sprocket alignment and chain tension. (If applicable)
- Check locking collars and set screws for proper tension. (If applicable)
- Verify operation of lights. (If applicable)
- Verify the unit moves 'IN' and 'OUT' of transport without any binding.
- Verify that tires are tracking properly when in transport mode. (If applicable)

HYDRAULICS

- Insure that all hydraulic hoses and lines are routed properly and secured.
- Verify that all hydraulic fittings / hoses are secure and there are no oil leaks.
- Inspect all cylinders for leakage and the cylinder shaft for rust, pits, or scratches.
- Verify operation of all hydraulic functions - Cycle hydraulic cylinders to remove air from the system.

DELIVERY

- Verify that 'The customer is aware of warning decals and proper jack placement for transport.'
- Verify that 'The customer is aware of proper operation and transportation of the unit'.
- Verify that 'The customer has received an operators manual'.
- Explain all maintenance and service intervals to the customer (From operators manual).
- Advise the customer of grease zerks locations and maintenance schedules.
- Level the unit per operators manual and instruct the customer on the proper procedures.
- Verify that the center harrow section has been rotated to working position.
- Level the unit per operators manual and instruct the customer on the proper procedures.

Pre-delivery Inspection Completed By (Sign Below)

Pre-delivery Inspection Confirmed By (Sign Below)

SPECIFICATIONS

GENERAL INFORMATION

- 25° to 40° Hydraulic Tine Angling From Tractor Cab
- 3/4" x 18" interlocking tines in one 6.5 ft and two 11ft. sections
- Quick-tension adjustment tine sections
- Class II and Class III Three-Point Hitch Compatibility

MAIN FRAME

- 8" x 8" x 1/4" Wall Center Frame Tube
- Integrated 3-Point hitch connection

HYDRAULIC SYSTEM

- Standard unit requires - 2 Hydraulic Banks.
- Heavy duty hydraulic cylinders.

Technical Information	9222
<i>Working Width*</i>	22' (6.7 m) @ 40° 26' (7.9 m) @ 25°
<i># of Sections</i>	3
<i>Transport Length</i>	12'6" (3.8 m)
<i>Transport Width</i>	9'9" (2.98 m)
<i>Transport Height</i>	9'7" (2.92 m)
<i>Weight</i>	3,300 lb (1,497 kg)
<i>Required Power</i>	125 hp
<i>Ideal Speed</i>	10-14mph (16-23 km/h)

*Working width of machine is measured at noted harrow gang angle.

SERVICE & WARRANTY POLICY

Rite Way Manufacturing Co. Ltd. (hereafter referred to as Rite Way) warrants each new machine to be free from defects in materials and workmanship for a period of one (1) year from date of purchase under normal agricultural use and service. In addition, Rite Way will supply at no charge, (F.O.B Rite Way Factory) any part that has failed within the 2nd year. Rite Way's obligation under this warranty is limited to the repair or replacement of any defective parts of the equipment at its own discretion.

Any alterations, modifications or additions done to a finished product will **void this warranty** unless prior written permission from Rite Way is obtained.

Items that are not manufactured by Rite Way are covered by the warranty of the supplier of these items. We will therefore extend, without assuming any responsibility, any warranty given to us by our suppliers.

This warranty shall not apply to any machine, that in the company's judgment has been subjected to misuse, negligence or accident. In no event shall the owner be entitled to recover costs for incidental, special or consequential damages such as, but not limited to; Loss of crop, loss of profit or revenue, other commercial losses, inconvenience or rental costs.

This warranty shall not apply unless Rite Way or its designated dealer is promptly notified of claimed defects and the allegedly defective part is held for inspection.

Repair parts purchased for machines 'Out of Warranty', are warranted to be free from defects in material and workmanship under normal use and service for a period of ninety (90) days from the date of delivery to the customer.

The warranty shall only become valid when delivery notification for warranty is received by Rite Way within 20 days of the completion of sale.

OWNER'S / USERS OBLIGATION: It is the responsibility of the user to read the Operators Manual and understand the safe and correct operating procedures as it pertains to the operation of the product, and to lubricate and maintain the product according to the maintenance schedule in the Manual.

The user is responsible for inspecting the machine, and for having parts repaired or replaced when continued use of the product could cause damage or excessive wear to any other parts. It is the user's responsibility to deliver their machine to a Rite Way dealer for service or replacement of defective parts which are covered by the standard warranty.

Rite Way **will not** be held responsible for charges such as transportation, fuel, lodging when a dealer / dealer representative travels to a customer location for warranty or inspection.

SERVICE & WARRANTY CLAIM PROCEDURE

1. All claims must be handled through a dealer / distributor. All claims must be submitted on a properly completed claim form within 30 days of the date of repair.
2. A warranty registration claim form must be on file at Rite Way Mfg. to validate a warranty claim.
3. Defective parts are to be held at the dealer / distributor's place of business until the warranty claim form has been processed. Rite Way will advise when parts can be released.
4. Parts that require inspection by Rite Way personnel must be accompanied by a Return Goods Form number, and must be sent by pre-paid freight. Rite Way will refund pre-paid freight charges on any items determined to be defective.
5. Rite Way will not assume responsibility for repairs or expenses incurred without authorization. Warranty labour in excess of \$150.00 must be authorized before such work is performed and photographs before and after repairs are required.
6. Warranty labour is to be claimed on the warranty claim form, only if the warranty labour was performed by the dealer. Travel time is not covered by warranty and should not be included. Rite Way reserves the right to adjust or allocate labour times and values based on its experience.
7. It is the responsibility of the dealer to ensure that the warranty registration forms are properly completed and returned to Rite Way Mfg., Imperial, SK.

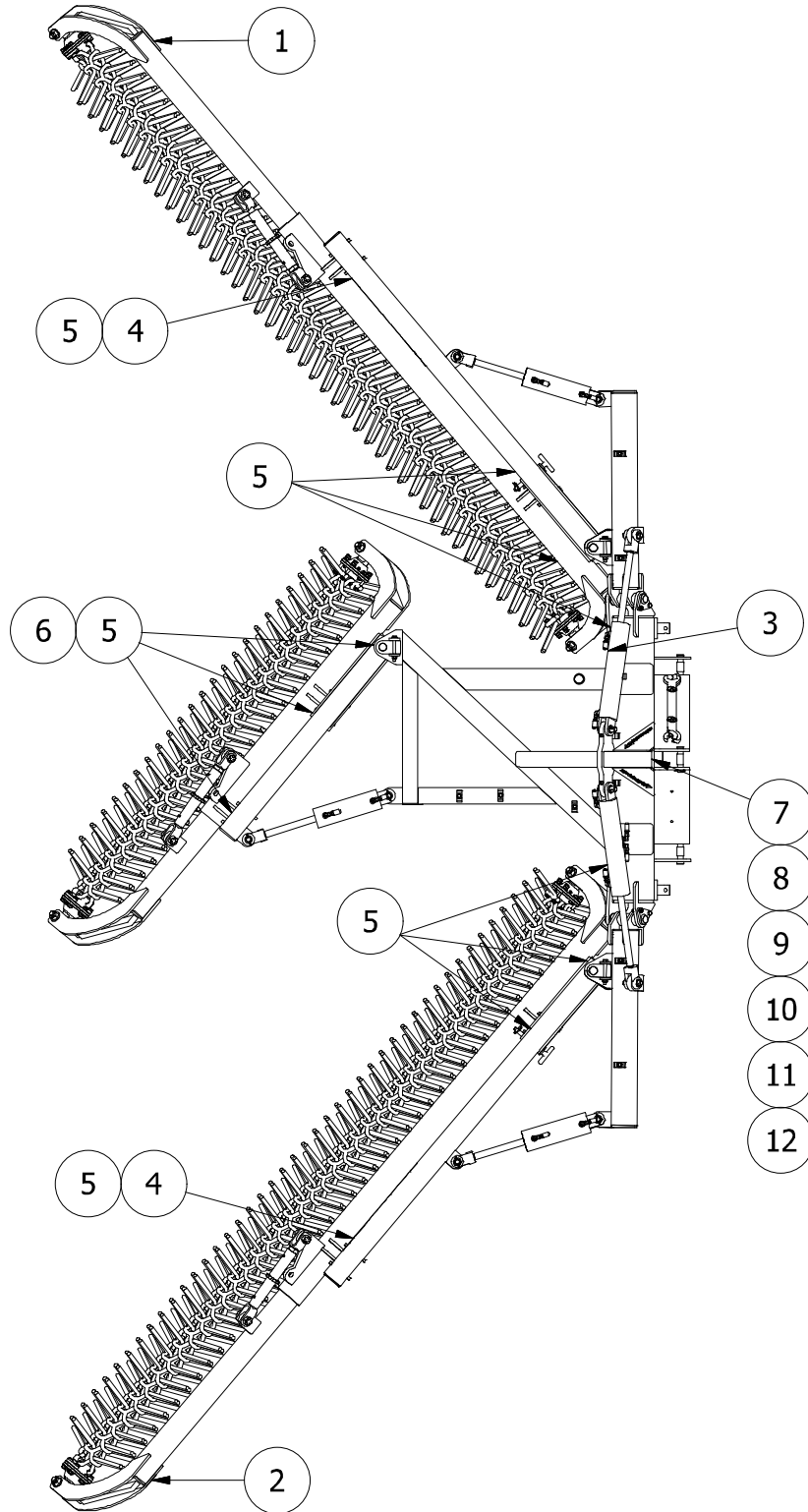
SAFETY RECCOMENDATIONS

1. Read manual thoroughly before operating machine.
2. Study all warning decals on implement.
3. Most accidents occur because of neglect or carelessness.
4. Do not allow riders on the tractor or implement during operation.
5. Do not allow children on or near the machine.
6. Connect the implement hitch to the tractor before operating the hydraulic system.
NOTE: Be aware of any hydraulic leaks.
7. Always throttle the tractor down and use caution when connecting the implement to the tractor hitch.
NOTE: Never stand between the tractor and implement.
8. Lower the hitch jack onto firm ground and chock the tires when un-hooking implement from tractor.
NOTE: Ensure the unit is on level ground prior to un-hooking tractor.
9. Exercise extra caution when working on hillsides or near ditches.
10. Maximum speed while transporting the **RH-9222** is 25 mph (40 km/h).
11. Ensure that the **RH-9222** frame is lowered to the ground before doing any work on machine.
12. Do not work on this machine when hydraulic system is under pressure.
13. Observe all laws and regulations when transporting unit on public roads.
14. Do not transport this machine on public roads unless all safety & maintenance checks have been completed.

This machine will provide years of trouble-free & safe operation IF all maintenance and safety instructions are followed.

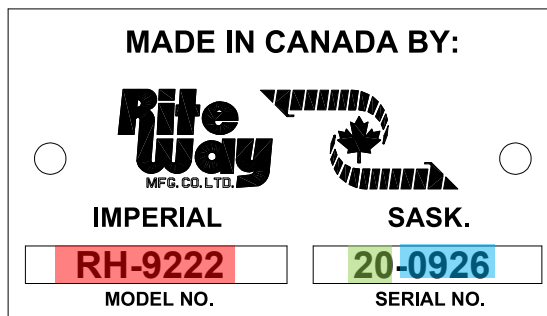
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DECAL LOCATIONS



DECAL LOCATIONS

ITEM #	PART #	DESCRIPTION	QTY
1	060-0022	<i>Red Reflector (3 x 2)</i>	2
2	060-0009	<i>Amber Reflector (3 x 2)</i>	2
3	060-0034	<i>RiteWay Serial Number Plate</i>	1
4	060-0066	<i>Rite Way Mfg. (Medium Decal)</i>	2
5	060-0046	<i>Grease Every 8 Hours</i>	11
6	060-0108	<i>www.ritewaymfg.com - (1" x 20")</i>	1
7	060-0011	<i>Caution - Escaping Fluid Hazard...</i>	1
8	060-0038	<i>Attention - Ensure That All Cylinders Are Retracted...</i>	1
9	060-0028	<i>Warning - Lower or Block Elevated Components</i>	1
10	060-0050	<i>Warning - Tine Angling Cylinders...</i>	1
11	060-0061	<i>Hydraulic - Hose Application</i>	1
12	060-0128	<i>RH-9200 - (3" x 11")</i>	2



UNIT SERIES
MODEL YEAR
UNIT NUMBER

MAINTANENCE

GENERAL

- Check harrow tine tension before use. Ensure that long sections do not sag more than 1.5" (38 mm).

EVERY 8 HOURS (DAILY)

- Grease all pins and knuckles. (See decals locations)
- Grease harrow chain bearings.

EVERY 100 HOURS (MONTHLY)

- Visually inspect hydraulic hoses & fittings for leaks or damage.

ANNUALLY

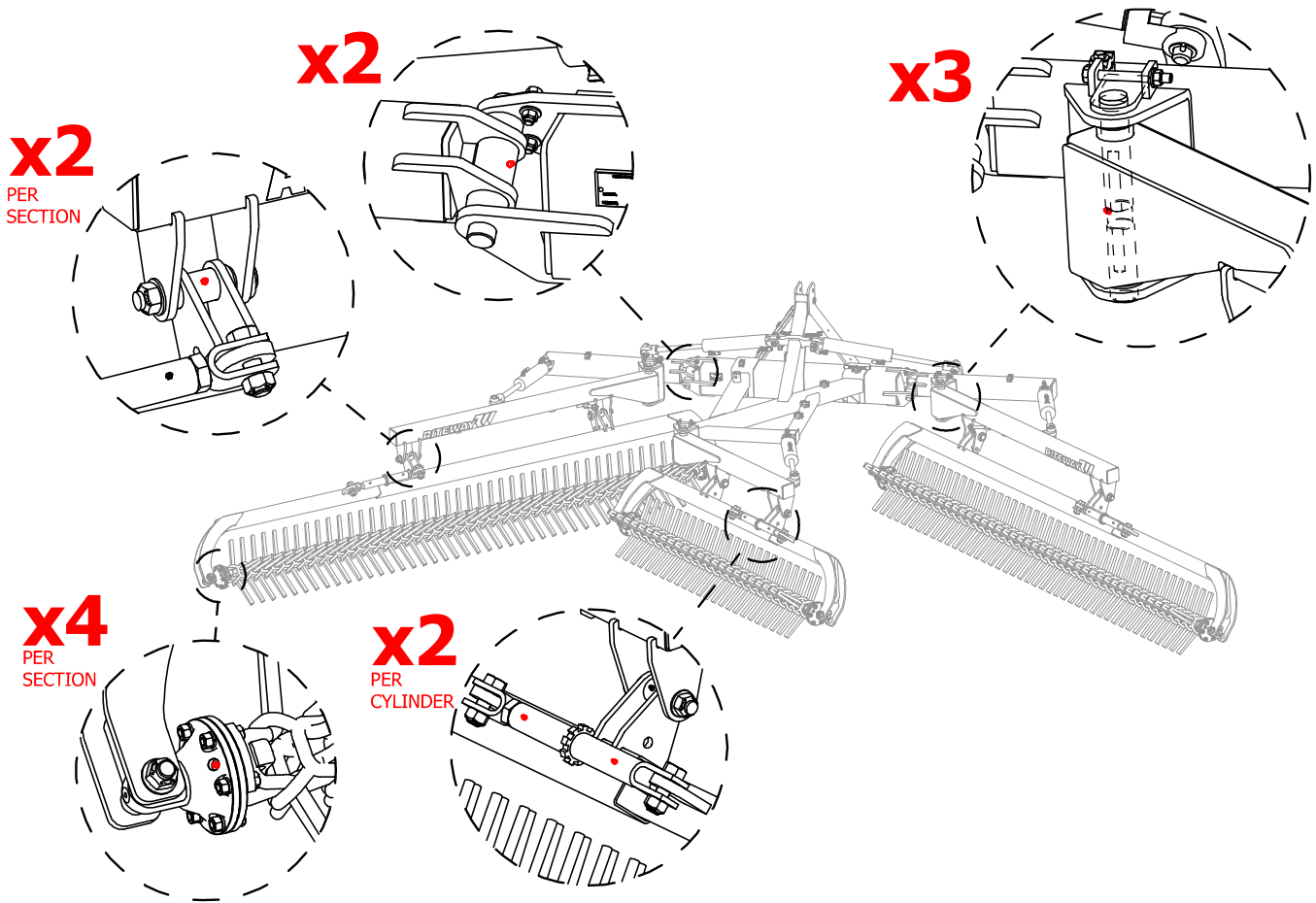
- Visually inspect unit for loose, worn or damaged components.

STORAGE

- Coat any exposed cylinder shafts with thick oil or grease.
- Ensure that parking jacks are situated on firm ground. Failure to do so may cause the hitch unit to tip over during storage.
- Lock all applicable safety pins into place.

NOTE: All fasteners with locknuts that are used to join moving pieces should not be tightened completely to allow for movement.

MAINTENANCE – GREASE LOCATIONS



OPERATING INSTRUCTIONS

GENERAL INFORMATION

- Always choose a level area when folding the unit in or out of transport mode.
- Lubricate all pins and bearings regularly to prevent premature failure.
- Clean hydraulic hose ends prior to coupling with tractor hydraulic system.
- The **RH-9222** requires two sets of hydraulic remotes to operate the machine:

RED – Remote 1 – Tine angle adjust

YELLOW – Remote 2 – Wing lift/lower

CAUTION

- Always choose a level area when folding unit either to or from transport position.
- Lubricate all pins, axles and bearings regularly to prevent premature failure of components.

LEVELLING

With unit in field position and tine sections set to maximum aggression (40° angle) adjust the top link of the 3-Point hitch to ensure even contact of the harrow sections across the width of the unit. After each adjustment of the top link, drive forward at working field speed (10 to 14 mph or 16 to 23 kph) to ensure even penetration of the sections and smooth field finish. If ridges appear between section overlaps, adjust the upper link to correct the issue.

- If the trailing edge of the section is digging deeper than the leading edge, shorten the upper link.
- If the leading edge of the section is digging deeper than the trailing edge, lengthen the upper link.

OPERATING INSTRUCTIONS

TRACTOR HOOK-UP

- Move the tractor into position where the pins can be installed to connect the 3-Point hitch linkages to the harrow frame. Adjust the 3-Point hitch height to connect the harrow to the tractor.
- Remove the support jack and stow it on the main frame supplied jack stub.
- Hook up the three hydraulic circuits to your tractor remote.

Recommended Hydraulic Connections:

RED – Remote 1 – Tine angle adjust

YELLOW – Remote 2 – Wing lift/lower

TRACTOR DISCONNECTING

- Park the tractor on level ground and lower the wings into working position (**YELLOW** hydraulic remote) with the 3-Point hitch fully raised.
- Retract the tine section angle adjust cylinders (**RED** hydraulic remote) to the least aggressive, widest working width position of the harrow unit.
- Exit the tractor and install the transport lock pins into each of the three harrow section pivot locations (fig. 1) if the pins are not already installed in the locked position.
- Slowly lower the harrow using the 3-Point hitch control so that the three harrow sections rest on the ground and the 3-Point hitch links are not bearing weight.
- Install the storage jack on the stub at the front of the harrow mainframe and crank the handle to extend the jack and support the front of the unit so that the 3-Point connecting pins can be removed.
- Drive the tractor forward slowly out of the way.

- Reinstall the 3-Point hitch pins on the mainframe of the harrow for storage.

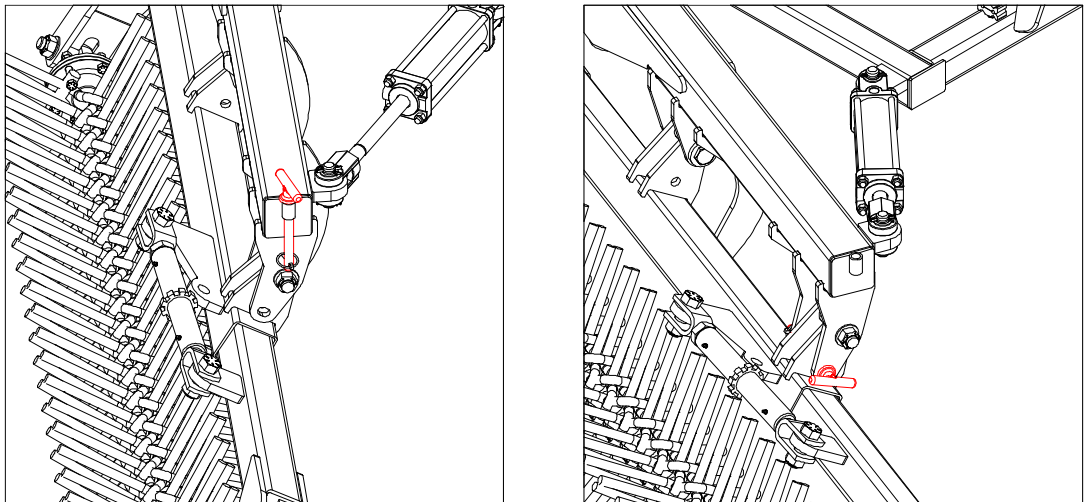


FIGURE 1 : Transport lock pins

OPERATING INSTRUCTIONS

TRANSPORT TO FIELD POSITION

1. Ensure harrow is properly attached to the 3-Point hitch per previous instructions and all hydraulic hoses are firmly attached to the tractor hydraulic remotes.
2. Upon entering the field, park the tractor on level ground with a clear radius of 30' (9.2 m) to allow for wings to fold down and not make contact with any obstacles.
3. Ensure that the 3-Point hitch is fully raised prior to extending the wing lift/lower cylinders (**YELLOW** hydraulic remote) to bring the two wings to a level position parallel to the main beam on the main frame.
4. Exit the tractor to remove the transport lock pins from each of the three harrow section pivot locations (fig. 2). Store the lock pins in the provided holders on the end of each lift arm (fig. 1).
5. Slowly lower the unit using the 3-Point hitch control while slowly driving the harrow forward to engage the harrow sections with the ground.

NOTE:

- Do not lower the harrow wings fully down to the ground without driving ahead simultaneously. Damage to your rotary harrow sections could result.
- Check the level of sections per the previous instructions. Adjust unit level as required.
- Ensure all harrow chains are tight. Tighten chains using the tools provided on the main frame if necessary.

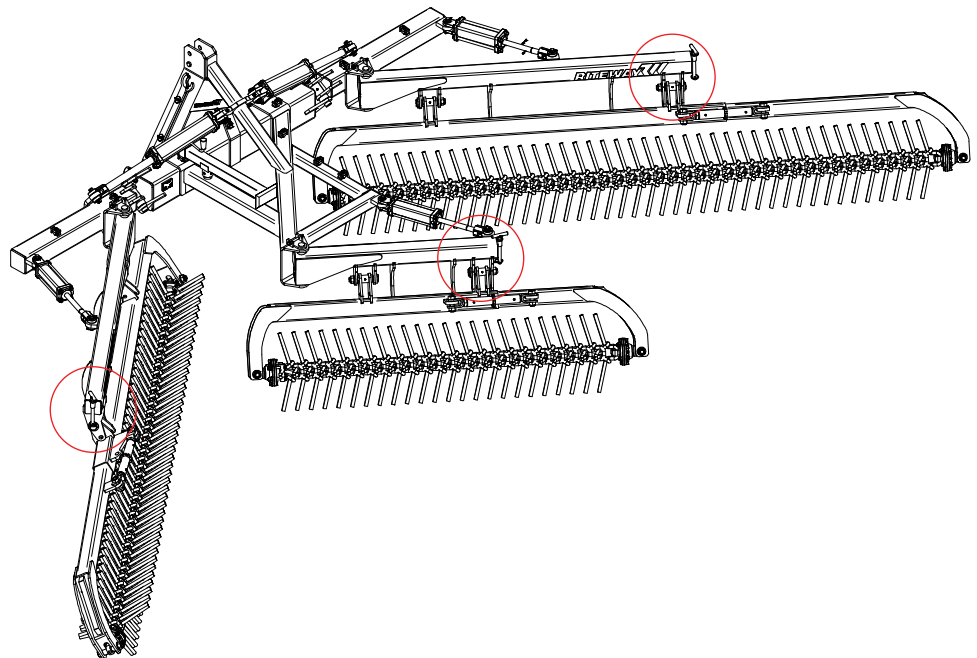


FIGURE 2 : Transport lock pin locations

OPERATING INSTRUCTIONS

FIELD TO TRANSPORT POSITION

1. Stop the tractor on level ground, set parking brake, and raise the 3-Point hitch to it's highest position.
2. Retract the tine section angle adjust cylinders (**RED** hydraulic remote) to the least aggressive, widest working width position of the harrow unit.
3. Exit the tractor to install the transport lock pins in each of the three harrow section pivot locations (fig. 2).
4. Ensure there are no overhead obstructions or hazards, then retract wing lift cylinders (**YELLOW** hydraulic remote) to bring the wings to the fully raised vertical/swept back position (fig. 3).

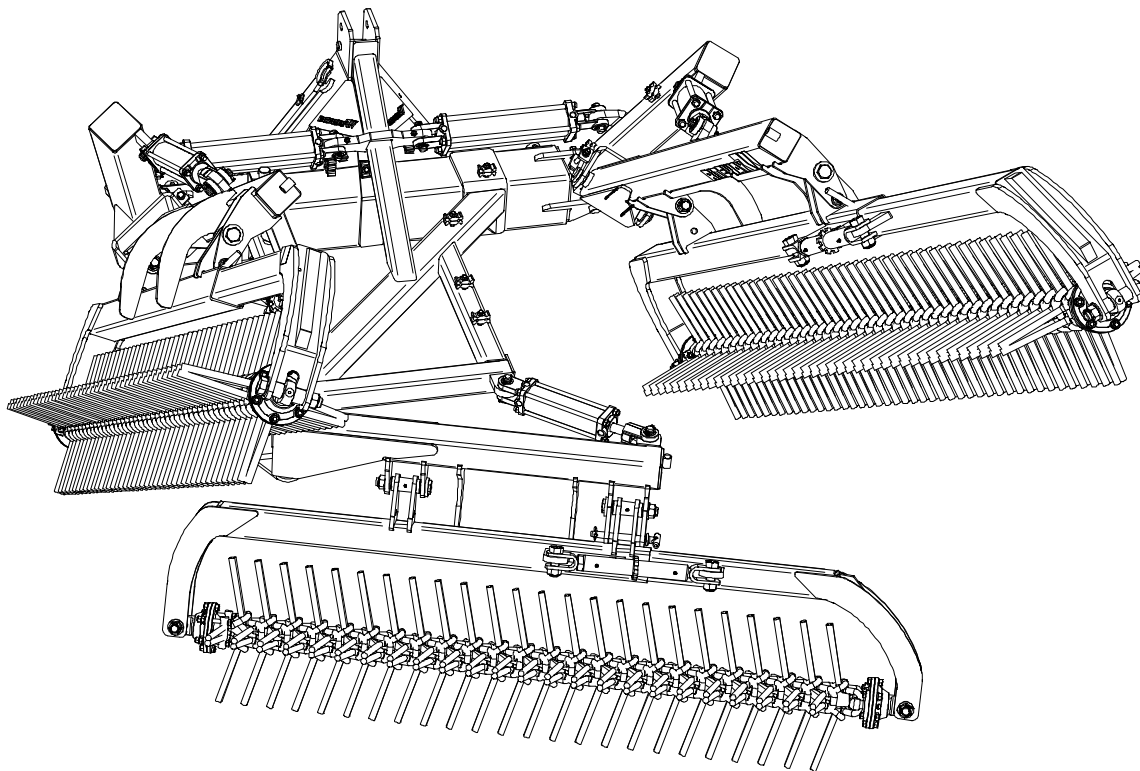


FIGURE 3: Transport position

OPERATING INSTRUCTIONS

ROTARY HARROW CHAIN TENSION

1. Harrow chains will loosen during operation as the harrow tines wear and become worked in. Check chain tension periodically, especially in the first 40 hours of operation.
2. If chains are no longer tight, and have a center sag distance more than 1" for the short section or 1.5" for the long sections, the chain sections will need to be tightened.
3. Remove the chain adjustment tools from their mount (fig. 4).
4. Loosen the lock nut on the harrow chain turnbuckle and turn the turnbuckle body to tighten by engaging the cogs with the enclosed end of the tool.
5. Once harrow chain is tight, tighten the lock nut and replace tools in their mount.
6. If the overall length of the turnbuckle exceeds 27" from bolt eye center-to-center the turnbuckle will need to be shortened to allow it to be repositioned onto the shorter lug hole location, hole B, so that it is oriented as shown (fig. 5).
7. The tightening procedure listed in steps 2 through 5 above can be repeated as necessary.
8. If the turnbuckle has been repositioned and it's overall length exceeds the 27" specification listed in step 6 above again, it is recommended to remove 2 pairs of harrow tines (4 teeth total) from the chain and adjust the turnbuckle length to restart the tension adjustment process again. It may be necessary to relocate the turnbuckle back to hole A (fig 5) after removing tines.

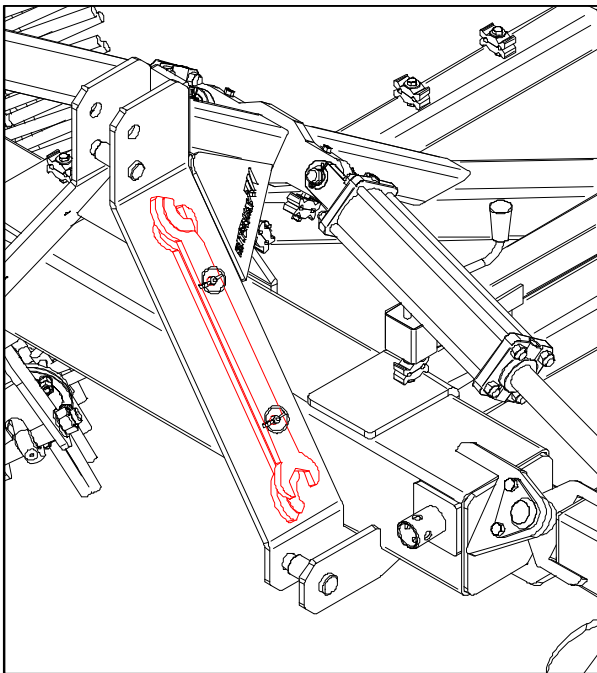


FIGURE 3: Tools in mount

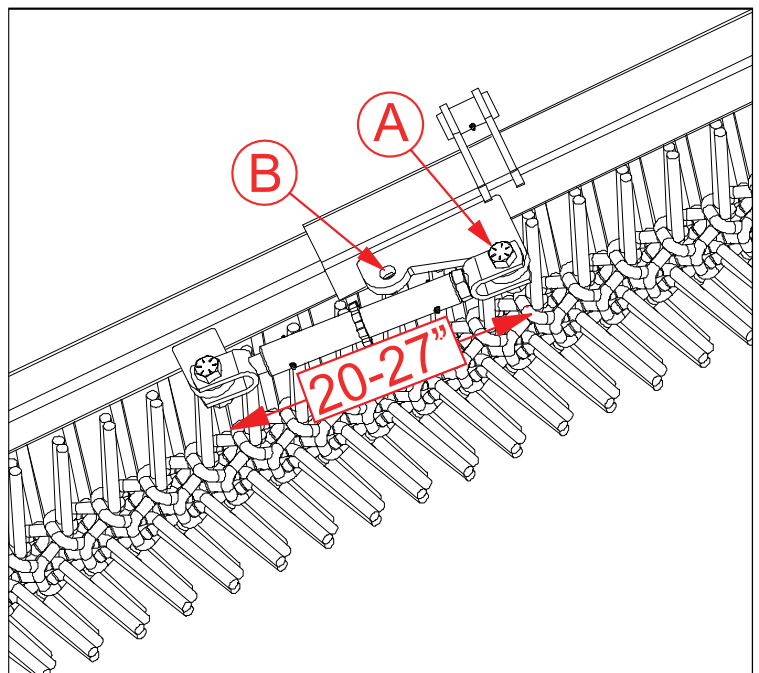


FIGURE 4: Turnbuckle

OPERATING INSTRUCTIONS

ROTARY HARROW OPERATION

- Rotary harrow section angle of aggression can be adjusted from 25° to 40° by activating the **RED** hydraulic remote.
- The rotary harrow sections do the best job when pulled at a speed of 10-14MPH. Do not exceed 16MPH in working conditions.
- Do not turn too sharp in field conditions with harrow sections engaged with the ground. If sharp turns are required, lift the unit with the 3-Point hitch control to reduce stress on inner wing harrow section and lift arm.

25° to 30° Angle (Cylinders retracted):

- Figure 6
- Up-root weeds—chemical free
- Dry out wet spots in the field

30° to 35° Angle (Cylinders mid-way):

- Knock down and break up heavy field residue
- Level small ridges and prepare an even seedbed

40° Angle (Cylinders extended):

- Figure 7
- Level mole hills
- Smooth out rough fields
- Remove roots from the soil
- Rejuvenate pasture and hay fields

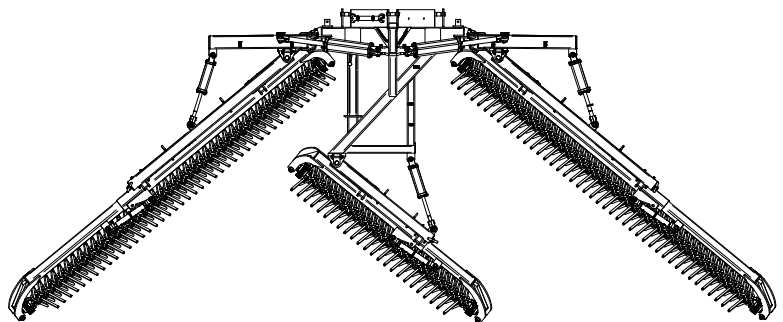


FIGURE 5: 25° to 30° Angle

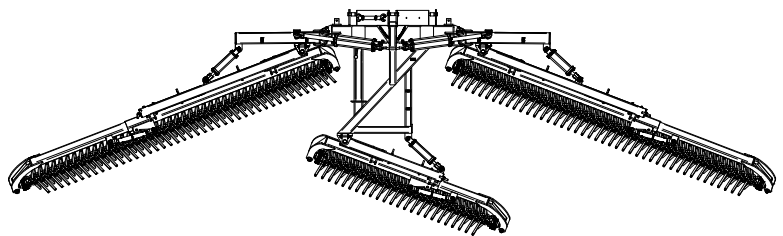
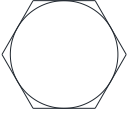
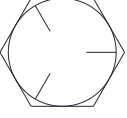
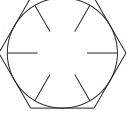


FIGURE 6: 40° Angle

FASTENER GRADE CHART

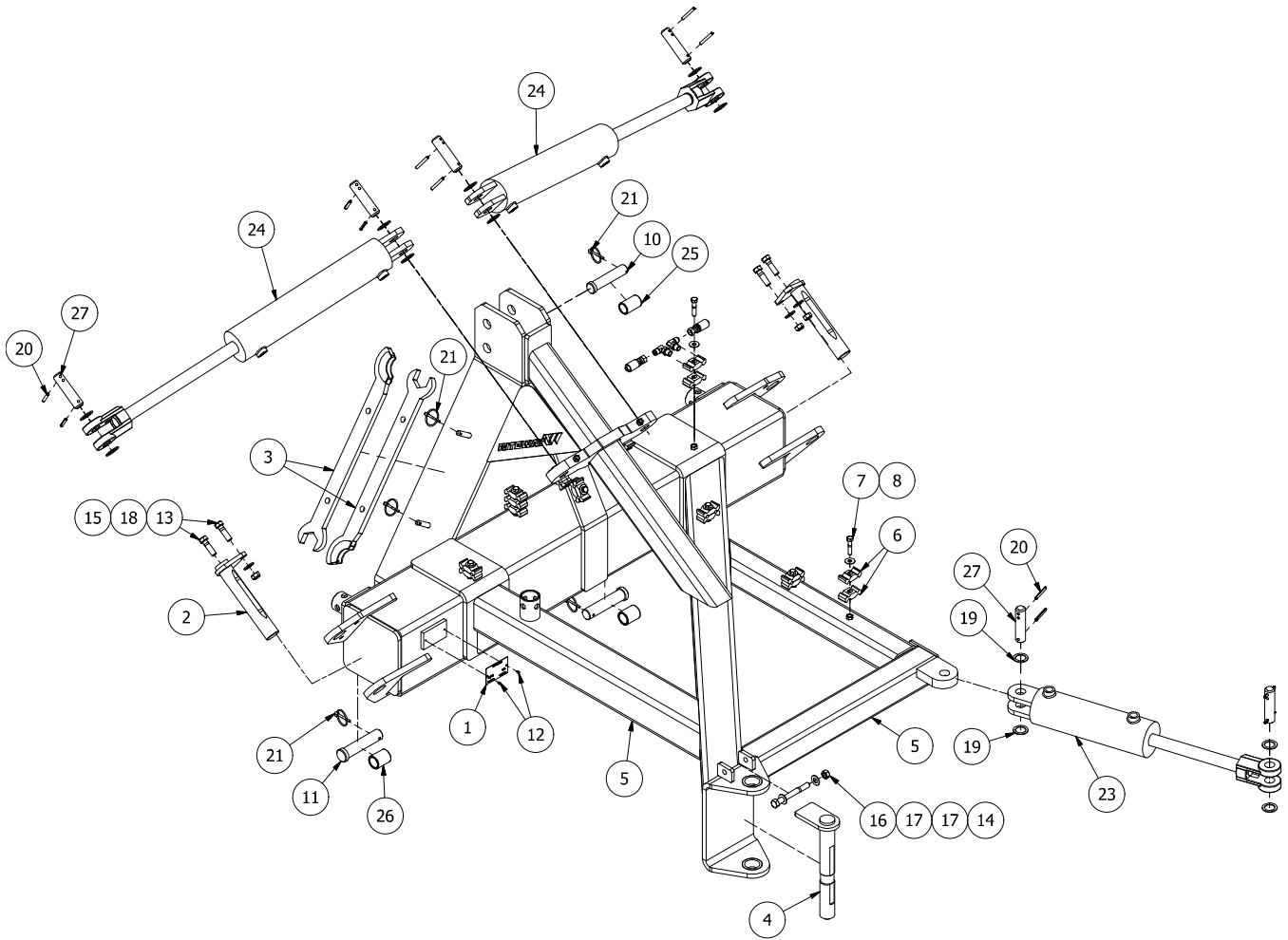
Specification	Material	Size Range (inches)	Min. Proof Strength (psi)	Min. Tensile Strength (psi)	Min. Yield Strength (psi)	Grade Identification Marking
Grade 2	Low or Medium Carbon Steel	1/4 to 3/4 7/8 to 1-1/2	55,000 33,000	74,000 60,000	57,000 36,000	
Grade 5	Medium Carbon Steel: Quenched and Tempered	1/4 to 1 1-1/8 to 1-1/2	85,000 74,000	120,000 105,000	92,000 81,000	
Grade 8	Medium Carbon Alloy Steel: Quenched and Tempered	1/4 to 1-1/2	120,000	150,000	130,000	

FASTENER TORQUE CHART

Nominal Thread Size	Grade 2		Grade 5		Grade 8	
	Clamping Load	Tightening Torque	Clamping Load	Tightening Torque	Clamping Load	Tightening Torque
Coarse Thread						
1/4-20	1,300 lbs	65 in-lbs	2,000 lbs	100 in-lbs	2,850 lbs	143 in-lbs
5/16-18	2,150 lbs	134 in-lbs	3,350 lbs	210 in-lbs	4,700 lbs	305 in-lbs
3/8-16	3,200 lbs	20 ft-lbs	4,950 lbs	31 ft-lbs	6,950 lbs	44 ft-lbs
7/16-14	4,400 lbs	30 ft-lbs	6,800 lbs	50 ft-lbs	9,600 lbs	70 ft-lbs
1/2-13	5,850 lbs	49 ft-lbs	9,050 lbs	75 ft-lbs	12,800 lbs	107 ft-lbs
9/16-12	7,500 lbs	70 ft-lbs	11,600 lbs	109 ft-lbs	16,400 lbs	154 ft-lbs
5/8-11	9,300 lbs	97 ft-lbs	14,500 lbs	151 ft-lbs	20,300 lbs	211 ft-lbs
3/4-10	13,800 lbs	173 ft-lbs	21,300 lbs	266 ft-lbs	30,100 lbs	376 ft-lbs
7/8-9	11,425 lbs	166 ft-lbs	29,435 lbs	430 ft-lbs	41,550 lbs	606 ft-lbs
1-8	15,000 lbs	250 ft-lbs	38,600 lbs	640 ft-lbs	54,540 lbs	900 ft-lbs
Fine Thread						
1/4-28	1,500 lbs	75 in-lbs	2,300 lbs	115 in-lbs	3,250 lbs	163 in-lbs
5/16-24	2,400 lbs	150 in-lbs	3,700 lbs	230 in-lbs	5,200 lbs	325 in-lbs
3/8-24	3,600 lbs	23 ft-lbs	5,600 lbs	35 ft-lbs	7,900 lbs	50 ft-lbs
7/16-20	4,900 lbs	36 ft-lbs	7,550 lbs	55 ft-lbs	10,700 lbs	78 ft-lbs
1/2-20	6,600 lbs	55 ft-lbs	10,200 lbs	85 ft-lbs	14,400 lbs	120 ft-lbs
9/16-18	8,400 lbs	79 ft-lbs	13,000 lbs	112 ft-lbs	18,300 lbs	172 ft-lbs
5/8-18	10,600 lbs	110 ft-lbs	16,300 lbs	170 ft-lbs	23,000 lbs	240 ft-lbs
3/4-16	15,400 lbs	193 ft-lbs	23,800 lbs	298 ft-lbs	33,600 lbs	420 ft-lbs
7/8-14	12,610 lbs	184 ft-lbs	32,480 lbs	473 ft-lbs	45,855 lbs	668 ft-lbs

SECTION 2

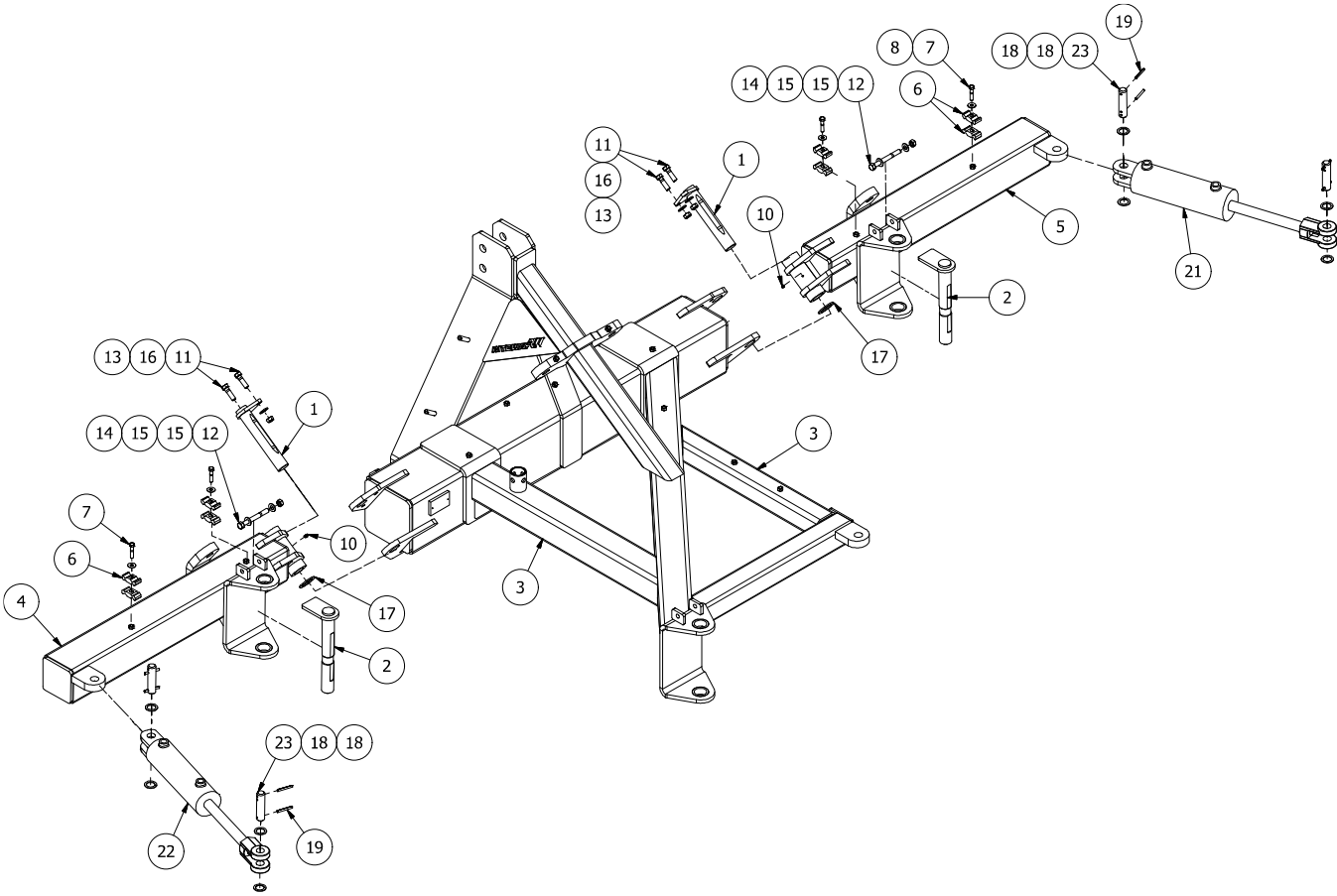
PARTS DETAILS – CENTER FRAME



PARTS DETAILS – CENTER FRAME

ITEM #	PART #	DESCRIPTION
1	060-0034	SERIAL PLATE
2	105-0078	PIN WELDMENT, COMMON, BOLT TOP, YZP
3	105-0776	ROTARY HARROW WRENCH WELDMENT
4	105-1079	1-1/2 X 12" LG PIVOT MOUNT PIN
5	105-1266	3PT MOUNT CENTER FRAME
6	413-0008	HYDRAULIC CLAMP, 2 LINE, BLACK PLASTIC
7	526-0615	BOLT, 3/8-16 UNC - 1.75, GR.5, YELLOW ZINC PLATED
8	550-5206	WASHER, FLAT, 3/8, SAE, GR.5, YZP
10	422-0028	1" UPPER LINK PIN, 4-3/16" USABLE LG
11	422-0029	1-1/8" LOWER LIFT ARM PIN, 4-3/8" USABLE LG
12	510-0001	1/8 RIVET X 1/8 X 1/4
13	526-0814	BOLT, 1/2-13 UNC - 1.75, GR.5, YELLOW ZINC PLATED
14	526-0836	BOLT, 1/2-13 UNC - 4.5, GR.5, YELLOW ZINC PLATED
15	526-6105	NUT, STOVER LOCK, 1/2-13 UNC, GR.5, YELLOW ZINC PLATED
16	526-6105	NUT, STOVER LOCK, 1/2-13 UNC, GR.5, YELLOW ZINC PLATED
17	550-5308	WASHER, FLAT, 1/2" - SAE, GR.5, YELLOW ZINC PLATED
18	550-5309	WASHER, FLAT, 9/16" - SAE, GR.5, YELLOW ZINC PLATED
19	554-1055	MACHINERY WASHER, INCH, YELLOW ZINC PLATED
20	556-1621	1/4 X 2 ROLL PIN, PLTD.
21	559-1501	LYNCH PIN, 3/16" x 1-9/16"
23	030-5737	3" X 8" REPHASING HYDRAULIC CYLINDER – ORB
24	030-5981	3-1/2" X 14" HYDRAULIC CYLINDER – ORB
25	825-0309	CAT3 to CAT2 TOP LINK BUSHING, 1-1/4"OD, 1"ID, 2"LG
26	825-0310	CAT3 to CAT2 LIFT ARM BUSHING, 1-7/16"OD, 1-1/8"ID, 1-3/4"LG
27	827-0258	PIN, TINE ANGLE CYLINDER, BLIND/ROD END COMMON, ZP

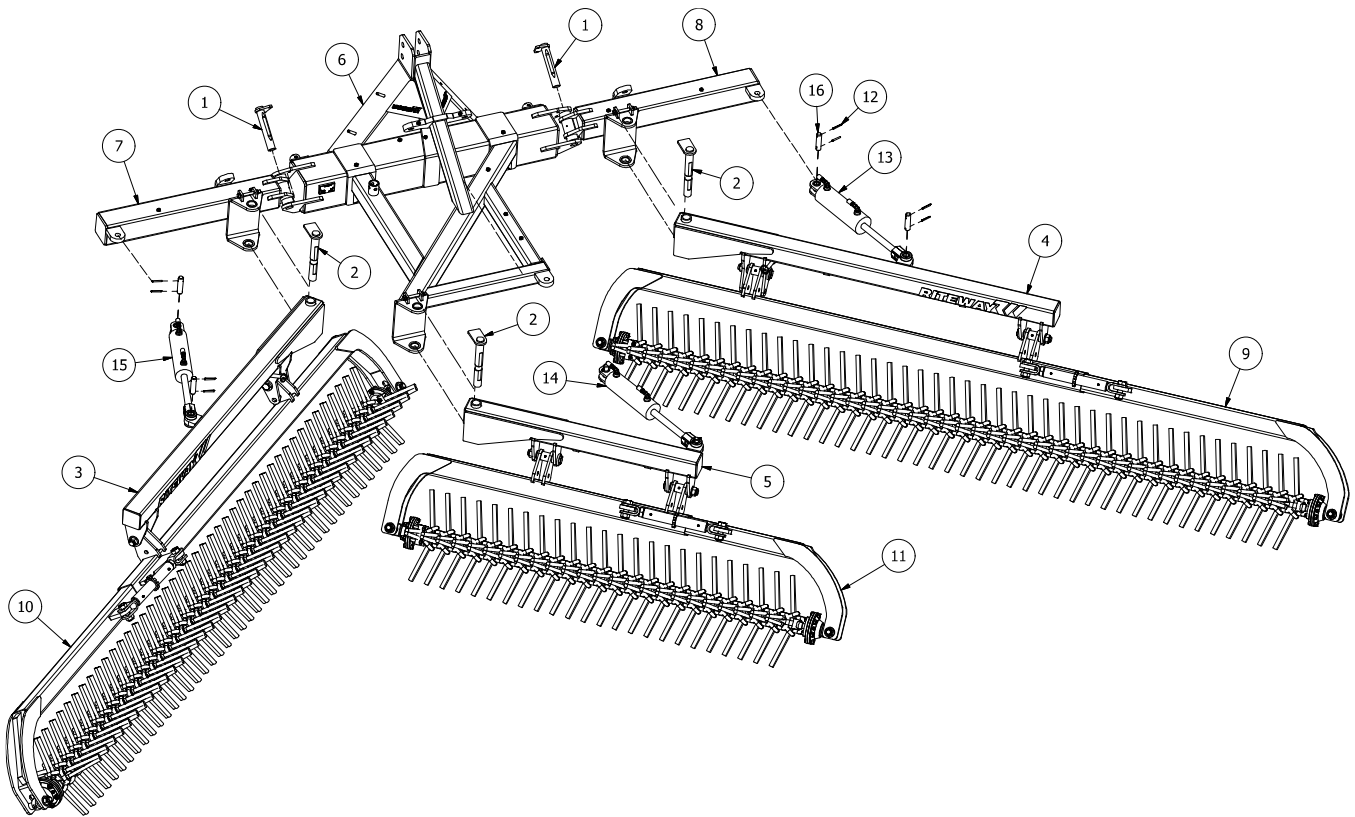
PARTS DETAILS – WINGS



PARTS DETAILS – WINGS

ITEM #	PART #	DESCRIPTION
1	105-0078	PIN WELDMENT, COMMON, BOLT TOP, YZP
2	105-1079	1-1/2 X 12" LG PIVOT MOUNT PIN
3	105-1266	3PT MOUNT CENTER FRAME
4	105-1267	LHS WING WELDMENT
5	105-1268	RHS WING WELDMENT
6	413-0008	HYDRAULIC CLAMP, 2 LINE, BLACK PLASTIC
7	526-0615	BOLT, 3/8-16 UNC - 1.75, GR.5, YELLOW ZINC PLATED
8	550-5206	WASHER, FLAT, SAE, GR.5, YZP
10	419-0004	GREASE ZERK, 1/4"NF - STRAIGHT
11	526-0814	BOLT, 1/2-13 UNC - 1.75, GR.5, YELLOW ZINC PLATED
12	526-0836	BOLT, 1/2-13 UNC - 4.5, GR.5, YELLOW ZINC PLATED
13	526-6105	NUT, STOVER LOCK, 1/2-13 UNC, GR.5, YELLOW ZINC PLATED
14	526-6105	NUT, STOVER LOCK, 1/2-13 UNC, GR.5, YELLOW ZINC PLATED
15	550-5308	WASHER, FLAT, 1/2" - SAE, GR.5, YELLOW ZINC PLATED
16	550-5309	WASHER, FLAT, 9/16" - SAE, GR.5, YELLOW ZINC PLATED
17	550-5320	MACHINERY WASHER, INCH, YELLOW ZINC PLATED
18	554-1055	MACHINERY WASHER, INCH, YELLOW ZINC PLATED
19	556-1621	1/4 X 2 ROLL PIN, PLTD.
21	030-5737	3-1/4" X 8" REPHASING HYDRAULIC CYLINDER – ORB
22	030-5735	2-3/4" X 8" REPHASING HYDRAULIC CYLINDER – ORB
23	827-0258	PIN, TINE ANGLE CYLINDER, BLIND/ROD END COMMON, ZP

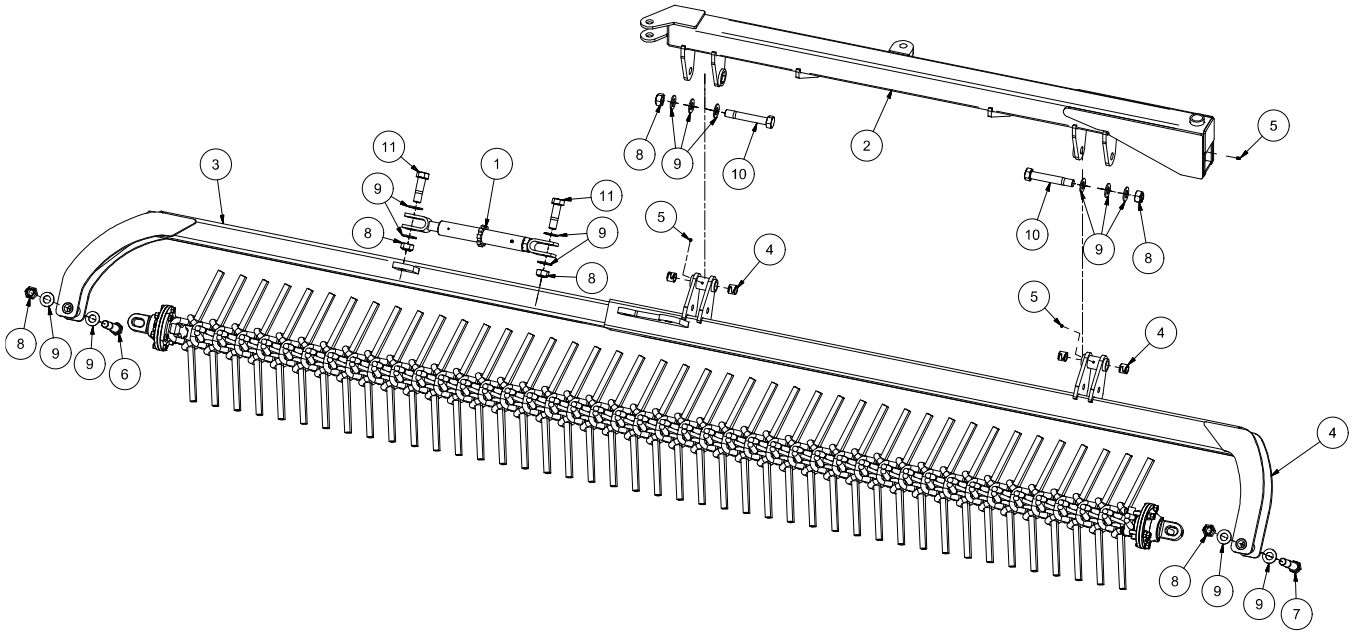
PARTS DETAILS – LIFT ARMS & SECTIONS



PARTS DETAILS – LIFT ARMS & SECTIONS

ITEM #	PART #	DESCRIPTION
1	105-0078	PIN WELDMENT, COMMON, BOLT TOP, YZP
2	105-1079	1-1/2 X 12" LG PIVOT MOUNT PIN
3	105-1263	LIFT ARM, LHS, STRENGTHENED
4	105-1264	LIFT ARM, RHS, STRENGTHENED
5	105-1265	LIFT ARM, CENTER, STRENGTHENED
6	105-1266	3PT MOUNT CENTER FRAME
7	105-1267	LHS WING WELDMENT
8	105-1268	RHS WING WELDMENT
9	160-0693	RHS 3PH RH GANG ASSEMBLY
10	160-0694	LHS 3PH RH GANG ASSEMBLY
11	160-0695	CENTER 3PH RH, SHORT GANG ASSEMBLY
12	556-1621	1/4 X 2 ROLL PIN, PLTD.
13	030-5737	3-1/4" X 8" REPHASING HYDRAULIC CYLINDER – ORB
14	030-5736	3" X 8" REPHASING HYDRAULIC CYLINDER – ORB
15	030-5735	2-3/4" X 8" REPHASING HYDRAULIC CYLINDER – ORB
16	827-0258	PIN, TINE ANGLE CYLINDER, BLIND/ROD END COMMON, ZP

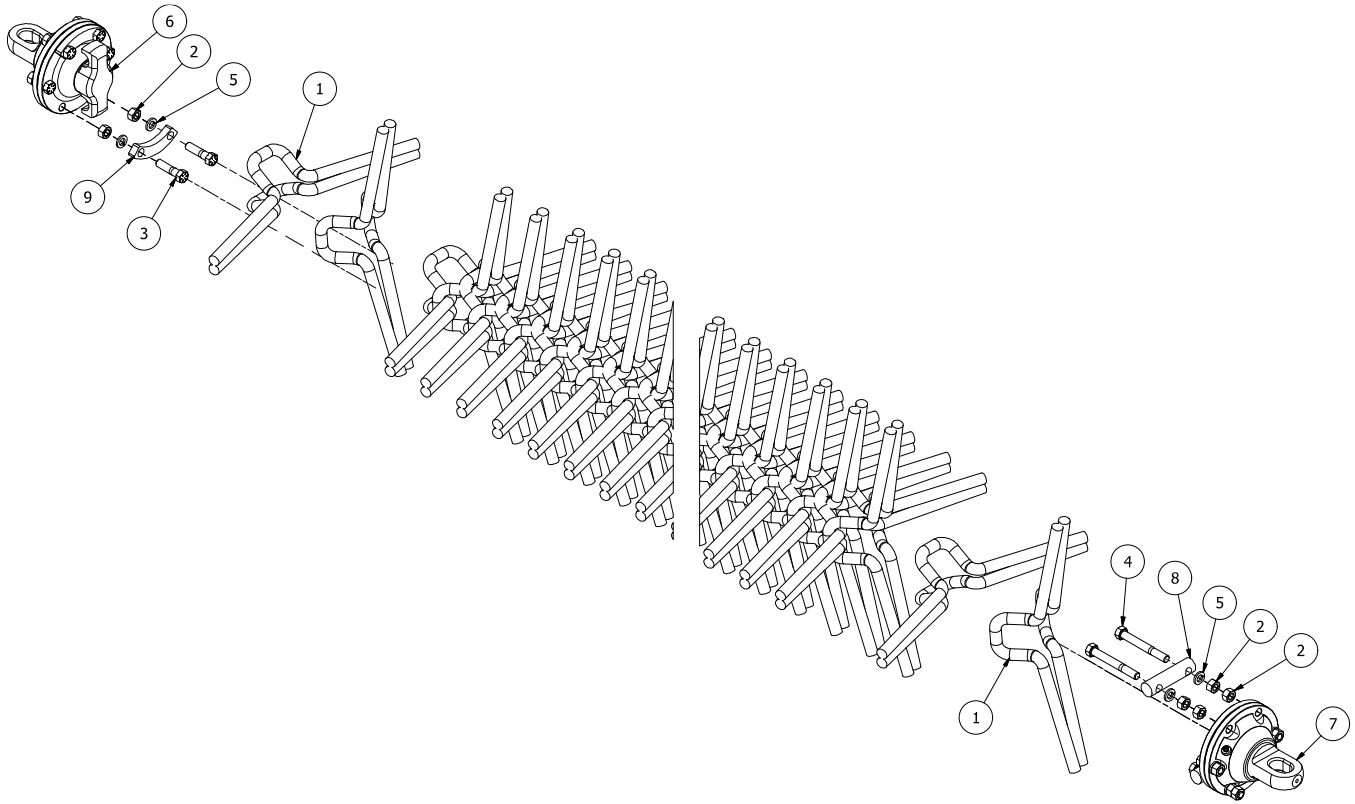
PARTS DETAILS – LIFT ARM & SECTION



ITEM #	PART #	DESCRIPTION
1	030-8000	RACHET JACK ASSEMBLY /w HANDLE REMOVED
2*	105-1147	ROTARY HARROW LIFT ARM, LHS
2*	105-1148	ROTARY HARROW LIFT ARM, RHS
2*	105-1265	ROTARY HARROW LIFT ARM, LHS, SHORT
3*	105-1081	RH-9200 155"LG GANG, INNER ARM, LHS
3*	105-1084	RH-9200 155"LG GANG, INNER ARM, RHS
3*	105-1273	RH-9200 155"LG GANG, INNER ARM, LHS, SHORT
4*	105-1082	RH-9200 155" LG GANG, OUTER ARM, LHS
4*	105-1085	RH-9200 155" LG GANG, OUTER ARM, RHS
4*	105-1272	RH-9200 155"LG GANG, OUTER ARM, LHS, SHORT
5	419-0004	GREASE ZERK, 1/4"NF - STRAIGHT
6	526-1648	BOLT, 1-8 UNC - 6, GR.5, YELLOW ZINC PLATED
7	526-1652	BOLT, 1-8 UNC - 6.5, GR.5, ZINC PLATED
8	526-6109	NUT, STOVER LOCK, 1-8 UNC, GR.5, YELLOW ZINC PLATED
9	550-5316	WASHER, FLAT, 1" - SAE, GR.5, YELLOW ZINC PLATED
10	827-0244	BOLT, 1-8 UNC, GR.5, 7.5" LG - CUT TO 6.5" LG
11	827-0259	BOLT, 1-8 UNC, GR.5, 4.5" LG - CUT TO 3.5" LG

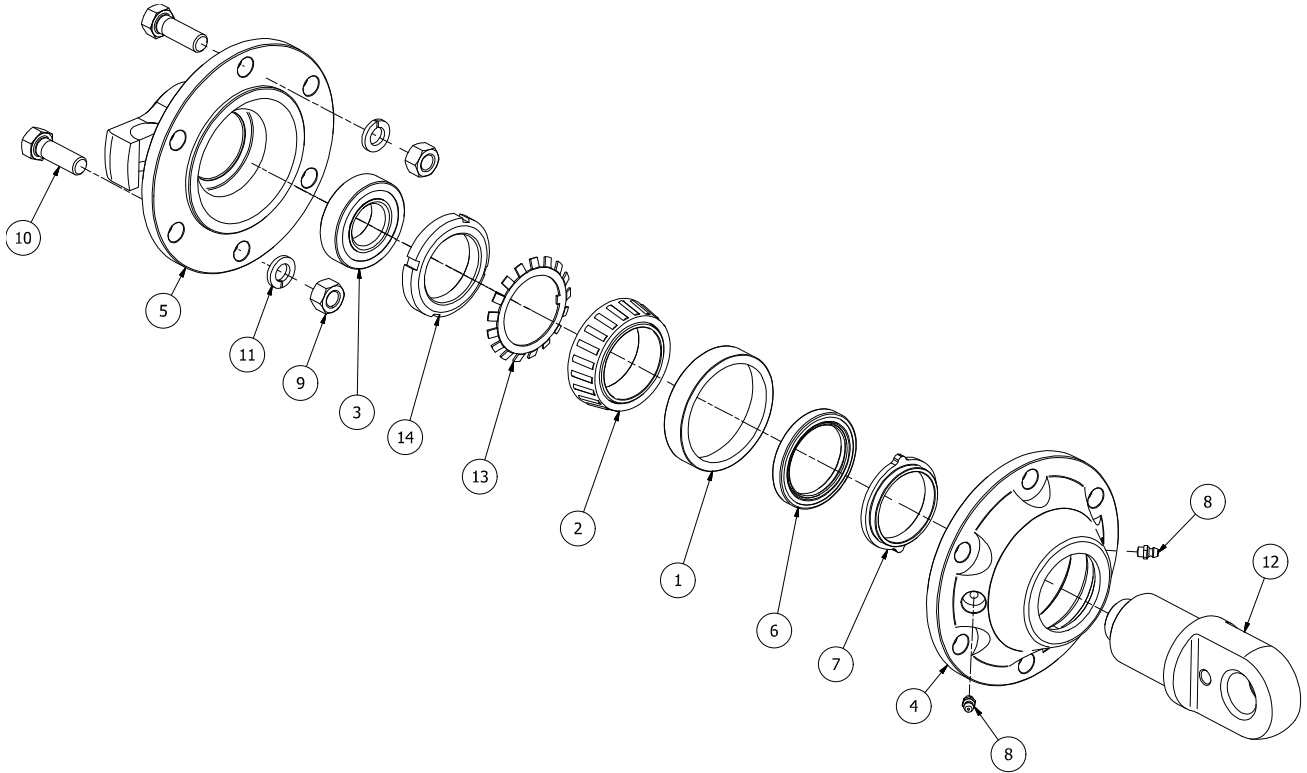
PARTS DETAILS – TINE SECTION

NOTE: 404-0041 and 404-0042 Left and Right Tines are to be ordered in pairs (even numbers)



ITEM #	PART #	DESCRIPTION
	160-0710	HARROW TINE ASSEMBLY, L&R TINES
1*	404-0041	RH-9200 TINE, RIGHT
1*	404-0042	RH-9200 TINE, LEFT
2	526-6208	NUT, STD, 1/2-13 UNC, GR.5, YELLOW ZINC PLATED
3	530-0744	BOLT, 1/2-13 UNC - 2, GR.8, YELLOW ZINC PLATED
4	530-0754	BOLT, 1/2-13 UNC - 4, GR.8, YELLOW ZINC PLATED
5	551-5008	WASHER, SPRING, 1/2, GR.5, YELLOW ZINC PLATED
6	680-1019	HARROW TINE GANG, MACHINED BEARING, HOOK
7	680-1020	HARROW TINE GANG, MACHINED BEARING, FLAT
8	827-0183	HARROW, BEARING, TINE HOLDER ROD
9	839-1786	ROTARY HARROW HOOK BEARING TINE RETAINER

PARTS DETAILS – TINE BEARING

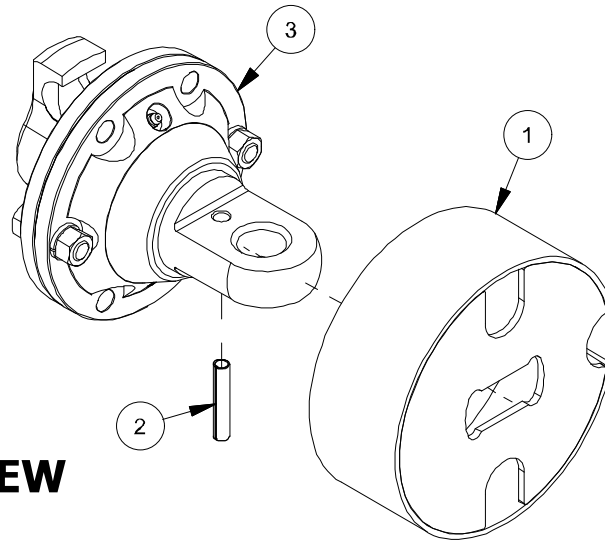


ITEM #	PART #	DESCRIPTION
1	201-6020	ROLLER BEARING, OUTER RACE 3.2283" OD
2	290-6017	ROLLER BEARING, INNER RACE 1.98" ID
3	293-7023	BEARING - ROLLER BALL 2.4409" OD and 1.1811" ID
4	294-0014	FRONT BEARING HOUSING
5*	680-1076	REAR BEARING HOUSING, W/ HOOK (shown)
5*	294-0016	REAR BEARING HOUSING
6	295-6021	INNER DUST SHEILD
7	295-6022	OUTER DUST SHEILD
8	419-0004	GREASE ZERK, 1/4"NF - STRAIGHT
9	526-6208	NUT, STD, 1/2-13 UNC, GR.5, YELLOW ZINC PLATED
10	530-0740	BOLT, 1/2-13 UNC - 1.5, GR.8, YELLOW ZINC PLATED
11	551-5008	WASHER, SPRING, 1/2, GR.5, YELLOW ZINC PLATED
12	680-1080	PULL SPINDLE
13	680-1078	BEARING LOCK WASHER - MB10
14	680-1079	BEARING LOCK NUT- KM10
	680-1019	HARROW TINE GANG, BEARING ASSEMBLY, HOOK
	680-1020	HARROW TINE GANG, BEARING ASSEMBLY, FLAT

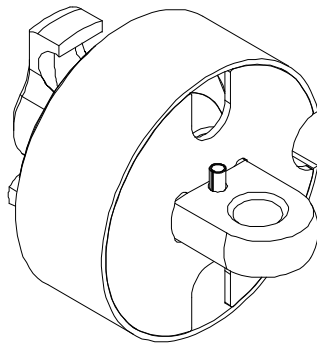
PARTS DETAILS – TINE BEARING

NOTE: Bearing guard 105-1319 is used only on older rotary harrows. These harrows can be identified by their lack of roll pin hole on the bolted lug of the bearing. Furthermore, on the older bearing the hole the bolt passes through on the lug is a slot.

EXPLODED VIEW

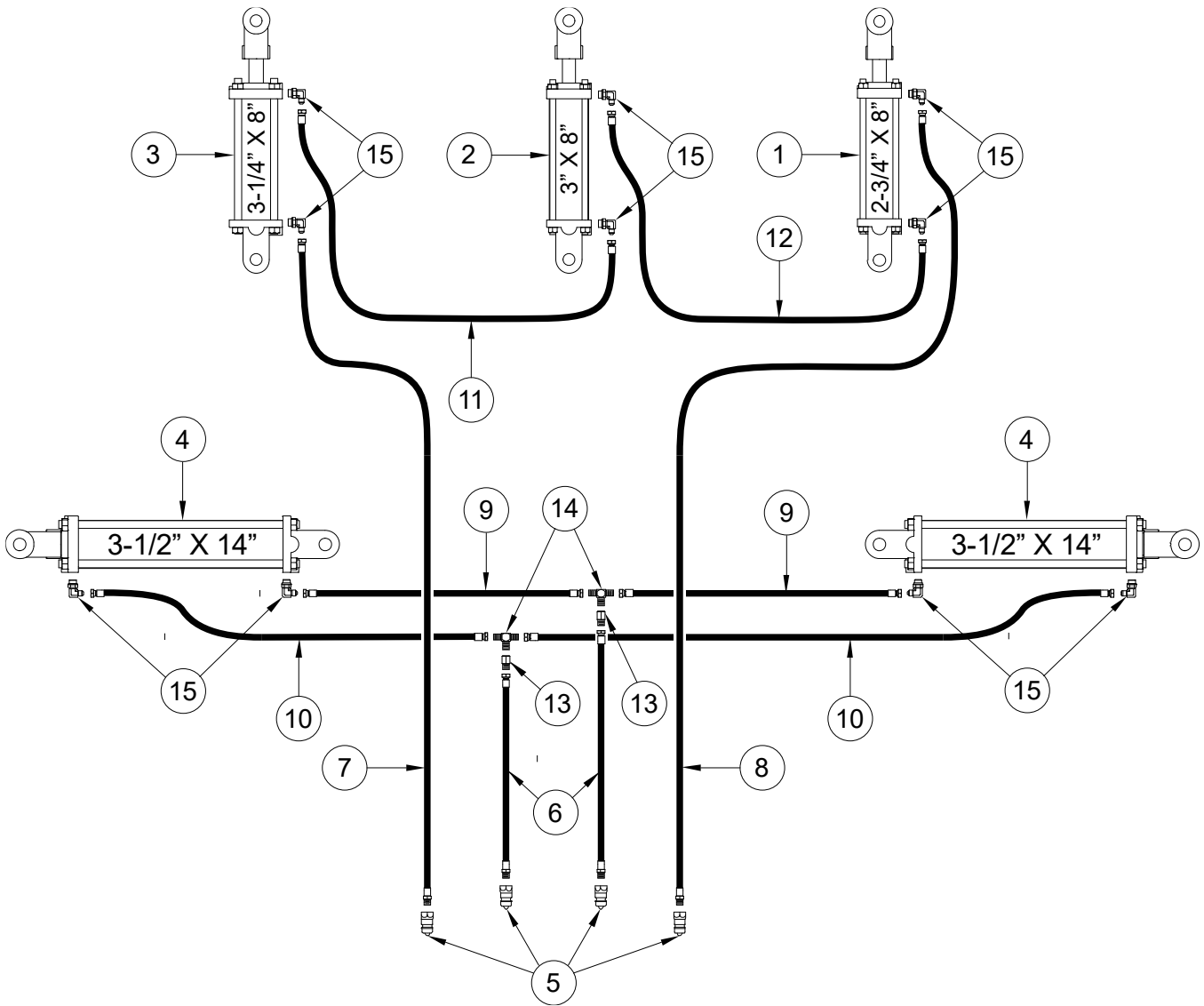


ASSEMBLED VIEW



ITEM #	PART #	DESCRIPTION
1*	105-1318	TRASH GUARD, TINE GANG, RH-9200
1*	105-1319	TRASH GUARD, TINE GANG, RH-9200, RETROFIT
2	556-5607	3/8 X 2 ROLL PIN, PLTD.
3*	680-1019	HARROW TINE GANG, BEARING ASSEMBLY, HOOK
3*	680-1020	HARROW TINE GANG, BEARING ASSEMBLY, FLAT

PARTS DETAILS – HYDRAULICS



PARTS DETAILS – HYDRAULICS

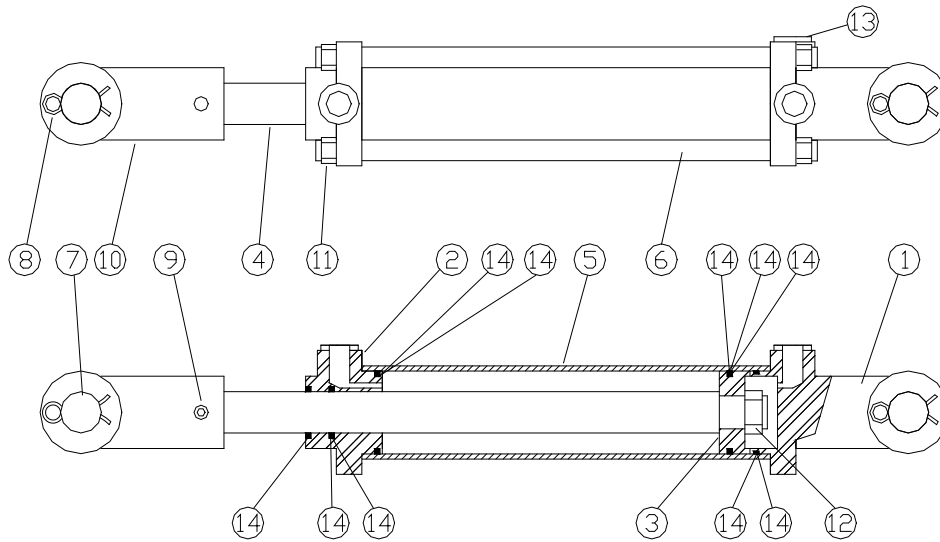
ITEM #	PART #	DESCRIPTION
1	030-5935	2-3/4" X 8" REPHASING HYDRAULIC CYLINDER – ORB
2	030-5936	3" X 8" REPHASING HYDRAULIC CYLINDER – ORB
3	030-5937	3-1/4" X 8" REPHASING HYDRAULIC CYLINDER – ORB
4	030-5981	3-1/2" X 14" HYDRAULIC CYLINDER – ORB
5	308-0001	PIONEER COUPLING
6	313-6553	3/8" JIC SW F X 1/2" NPT M HYDRAULIC HOSE - 53"
7	313-6533	3/8" JIC SW F X 1/2" NPT M HYDRAULIC HOSE - 133"
8	313-6547	3/8" JIC SW F X 1/2" NPT M HYDRAULIC HOSE - 147"
9	313-7923	3/8" JIC SW F X 3/8" JIC SW F HYDRAULIC HOSE - 23"
10	313-7928	3/8" JIC SW F X 3/8" JIC SW F HYDRAULIC HOSE - 28"
11	330-0136	3/8" JIC SW F X 3/8" JIC SW F HYDRAULIC HOSE - 136"
12	330-0157	3/8" JIC SW F X 3/8" JIC SW F HYDRAULIC HOSE - 157"
13	317-5680	3/8" JIC F X 3/8" JIC M RESTRICTOR 3/64"
14	318-5704	HYDRAULIC TEE - 3/8" JIC M (X2 RUN & BRANCH)
15	319-5706	1/2" ORB M X 3/8" JIC MALE – ELBOW

PARTS DETAIL – CYLINDERS

MONARCH 3" X 8" BP (30TP08-125)

MONARCH PART NUMBER 639523

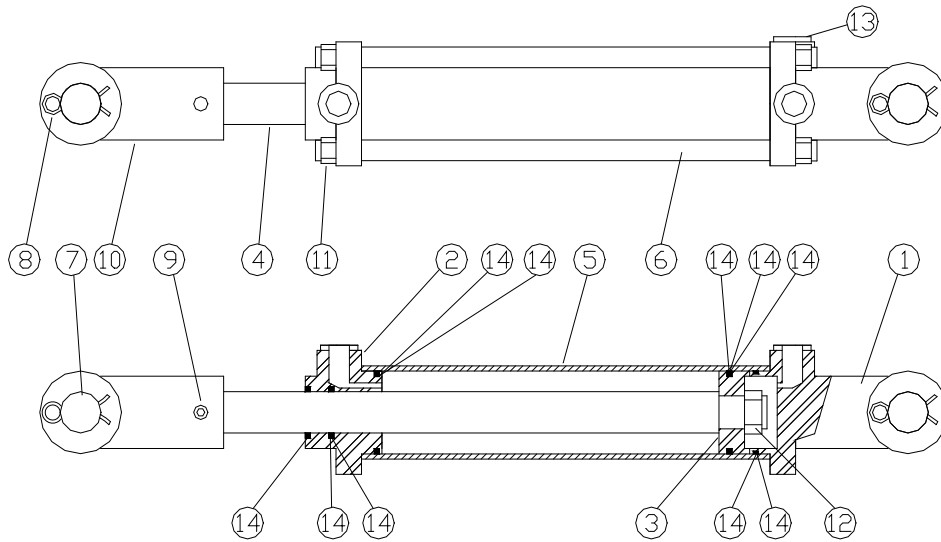
RITE WAY PART NUMBER 030-5736



ITEM #	PART #	DESCRIPTION
1	492675	Clevis Cap 3" ORB
2	492670	Rod Cap 3" x 1-1/4" ORB
3	494719	Piston *R1 * 3" WPTR
4	492700	Rod 1-1/4" Dia. ASAE 8
5	464265	Tube Weld 3" x 8" TP
6	492278	Tie Rod 1/2" x 8"
7	469528	Pin 1" Dia For Cotter
8	135995	Cotter Pin 3/16" x 1-1/2" Hammerlock
9	148390	SC SCKT Set 3/8" UNC x 1/2" KNUR
10	492652	Rod Clevis 1-1/4"
11	128250	Nut Hex 1/2" UNC
12	130560	Nut Hex 1"-14 Gr.A Uunitorque
13	186562	Plug 3/4"-16 UNF SOC HD STR-THD
14	639558	Seal Kit 3" x 1-1/4"

PARTS DETAIL – CYLINDERS

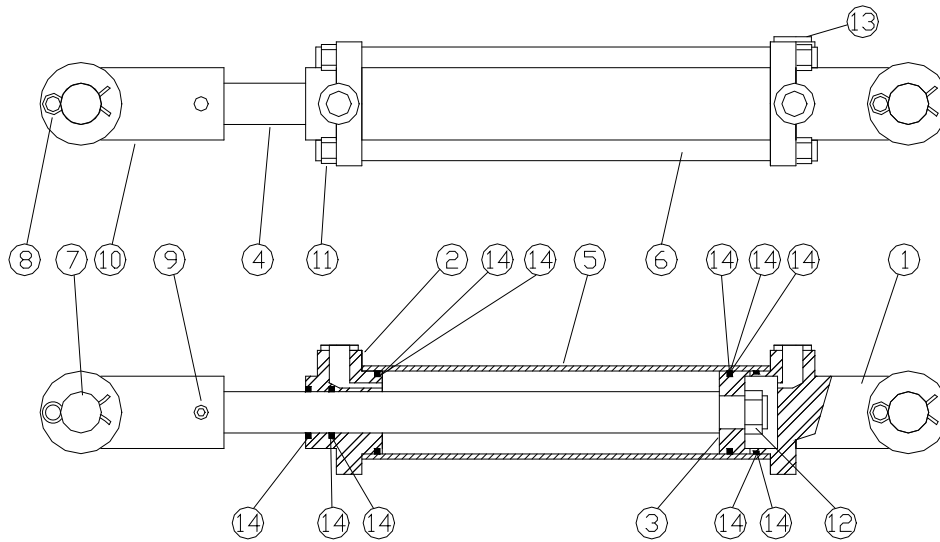
MONARCH 3-1/4" X 8" BP (32TP08-125)
MONARCH PART NUMBER 639524
RITE WAY PART NUMBER 030-5737



ITEM #	PART #	DESCRIPTION
1	492662	Clevis Cap 3-1/4" ORB
2	492664	Rod Cap 3-1/4" x 1-1/4" ORB
3	494737	Piston 3-1/4" TP
4	492700	Rod 1-1/4" Dia. ASAE 8
5	464266	Tube Weld 3-1/4" x 8" TP
6	492338	Tie Rod 5/8" x 8"
7	469528	Pin 1" Dia. For Cotter
8	135995	Cotter Pin 3/16" x 1-1/2" Hammerlock
9	148390	SC SCKT Set 3/8" UNC x 1/2" KNUR
10	492652	Rod Clevis 1-1/4"
11	128271	Nut Hex 5/8" UNF Grade 5
12	130560	Nut Hex 1"-14 Gr.A Uitorque
13	186562	Plug 3/4"-16 UNF SOC HD STR-THD
14	639560	Seal Kit 3-1/4" x 1-1/4"

PARTS DETAIL – CYLINDERS

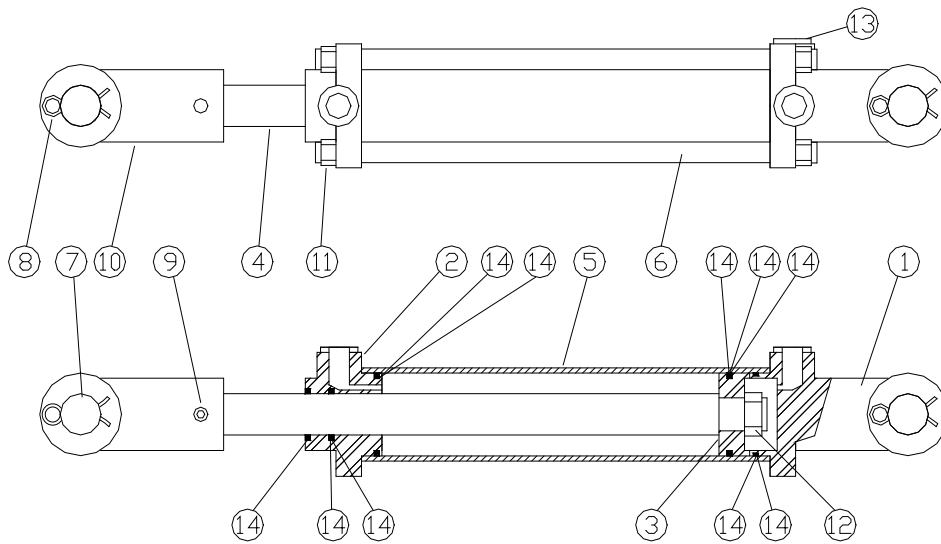
MONARCH 3-1/2" X 8" BP (35TP08-125)
MONARCH PART NUMBER 639962
RITE WAY PART NUMBER 030-5738



ITEM #	PART #	DESCRIPTION
1	492676	Clevis Cap 3-1/2" ORB
2	492677	Rod Cap 3-1/2" x 1-1/4" ORB
3	494738	Piston 3-1/2" TH/TP
4	492700	Rod 1-1/4" Dia. ASAE 8
5	464267	Tube Weld 3-1/2" x 8" TP
6	492338	Tie Rod 5/8" x 8"
7	469528	Pin 1" Dia. For Cotter
8	135995	Cotter Pin 3/16" x 1-1/2" Hammerlock
9	148390	SC SCKT Set 3/8" UNC x 1/2" KNUR
10	492652	Rod Clevis 1-1/4"
11	128271	Nut Hex 5/8" UNF
12	130560	Nut Hex 1"-14 Gr.A Uitorque
13	186562	Plug 3/4"-16 UNF SOC HD STR-THD
14	639561	Seal Kit 3-1/2" x 1-1/4"

PARTS DETAIL – CYLINDERS

MONARCH 3-1/2" X 14"
MONARCH PART NUMBER 671626
RITE WAY PART NUMBER 030-5981



ITEM #	PART #	DESCRIPTION
1	492676	Clevis Cap 3-1/2 - 3/4" NF ORB @ 90°
2	492381	Rod Cap 3-1/2 - 3/4" ORB, 1-3/43" ID
3	292518	Piston 3-1/2 x 1 - TL / TC
4	194897	Seal Hallite 605 Rod Ø1-3/4" x
5	491804	Cylinder Tube 3.5 - 14
6	492344	Tie Rod 5/8 - 14", NF, Gr.5, - TL / TC
7	134953	Cylinder Pin Ø1" x 3.37 for HP / COT
8	135995	Cotter Pin, 3/16" x 1-1/2" Hammer Lock, Pltd.
9	148390	Socket Set Screw, 3/8" UNC x 1/2" KNUR
10	492652	Rod Clevis 1-1/4" ID x 1"
11	128271	5/8" Hex Nut, NC, Gr.5, Black
12	130560	Piston Hex Nut 1-1/4" ID, Gr.B
13	186562	Port Plug 3/4", NF Socket Head c/with O-Ring
14	649219	Seal Kit, RK 35L-175 Lion Hyd. Rep. Kit