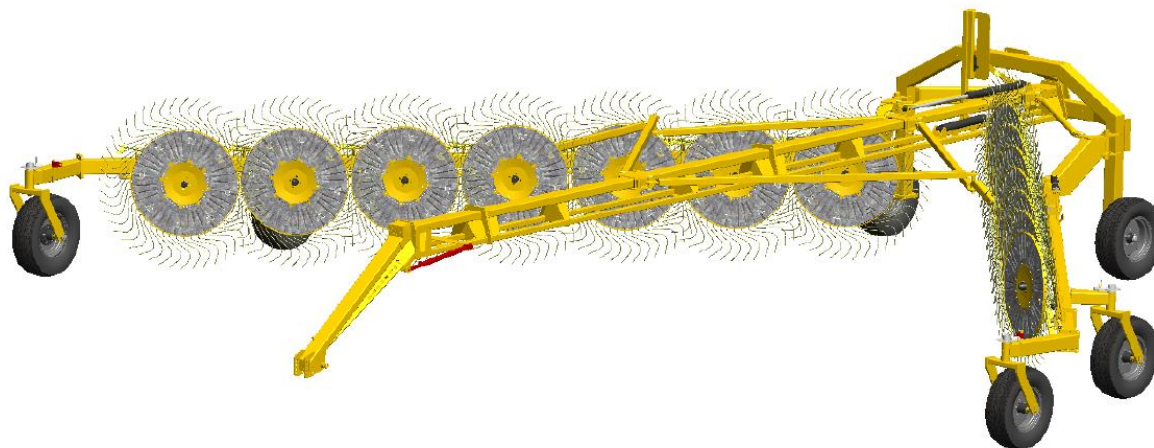




**BRIDGEVIEW MFG. INC.**



## **BALE KING VR581** *Hay Rake*

### *Operator's & Parts Manual*

Last Updated: January 13, 2021

**Bridgeview Manufacturing Inc.**

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*Bridgeview Manufacturing Inc.*



**Your Authorized Dealer**

**Your Serial Number**

The Serial Number is located on the front of the hitch beam behind the manual holder.

	<div data-bbox="808 1507 1300 1612"><b>! WARNING</b></div> <div data-bbox="813 1633 1305 1885"><p><b>Failure to read and understand operator's manual &amp; all safety signs could result in serious injury. Manual must remain with machine.</b></p></div>
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# 1 INTRODUCTION

Thank you for purchasing your new **Bale King hay rake** from Bridgeview Manufacturing. With the proper operation and service as outlined in this manual, this rake will provide years of trouble-free operation.

The VR581 hay rake is a 12-wheel, V-style rake specially suited for windrowed hay. An optional 14-wheel extension kit is available, if more coverage is desired.

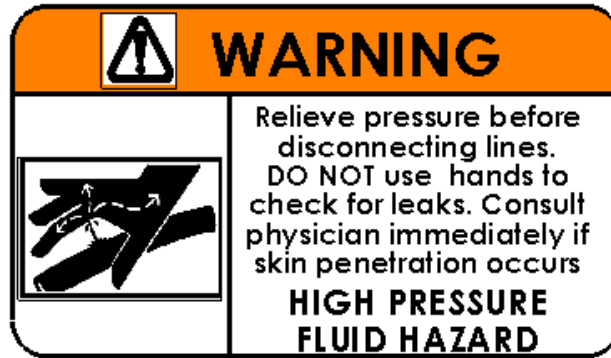
The rear windrow width is hydraulically adjustable for ease of use. The patented width compensation system ensures maximum raking width, no matter what the windrow width is set at.

This is a complete safety, operation, and parts manual for the Bale King hay rake. This manual covers in detail how to safely and effectively use the rake and these steps should be followed to ensure safety and the longevity of the machine. The parts section covers all of the parts you may need to order in case of accident or breakdown.

## 1.1 *Safety Precautions*

**The following safety precautions MUST be followed to ensure the safe operation of the Bale King hay rake.**

- This trailed machine was designed and intended for on-farm use only. **Tow at speeds not exceeding 20 miles/hour** (32 km/h). Slow down for hills, curves, rough area, and in advance of braking to prevent loss of control and possible injury or death.
- Read and follow the **Highway Transport** section before towing on public roads.
- **Always** turn off tractor and ensure parking brake is applied before leaving the operating platform.
- **Stand clear** of the rake while in operation.
- **Do not** stand near or inside the rake during opening or closing. Ensure that there is enough room to open the rake in an area before doing so.
- **Beware** of pinch points at all articulating joints.



**WARNING:** Pressurized hydraulic fluid can cause serious injury

- When working with hydraulic equipment, eye and hand protection should be worn.
- Do not test for leaks with bare hands.
- Relieve hydraulic pressure before removing a hose or fitting.
- Never work under components raised by hydraulic equipment unless supported externally.

## **1.2 Transportation**

When transporting the Bale King hay rake on public roads, there are a number of safety precautions that must be taken to ensure safety to everyone on the road.

### **1.2.1 Weights and Dimensions**

- The tow vehicle must be suitable for the weight being towed
- Check with local authorities regarding transport on public roads. Follow all applicable laws and regulations.
- Be aware of your size and weight. Adjust your driving accordingly.

	<b>VR581-12W</b>	<b>VR581-14W</b>
Transport Width	10'-3" *	13'
Transport Height	7'-7"	
Transport Length	33'-4'"	36-8"
Transport Weight (Gross)	4200 lb	4600 lb
Transport Weight (Tongue)	550 lb	

**\*NOTE: Width is increased to 13' if side caster wheel is installed.**



### 1.2.2 Speed

Tow Vehicle Weight	Max Speed
7500 lb and Under	32 km/h (20 mph)
Over 7500 lb	40 km/h (25 mph)

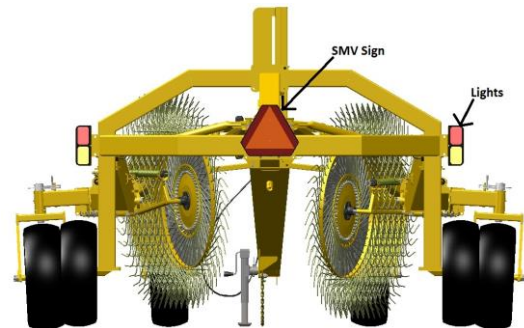
- The rake features implement tires and hubs and is not suitable for high speed travel.
- The rake does not have brakes
- Slow down further for rough conditions, turns, and steep declines
- Ensure that the caster wheels brakes are applied to prevent excessive wobbling
- Failure to heed these warnings may result in loss of control or death.

### 1.2.3 Safety Chain & Jack

- ALWAYS ensure that the safety chain is properly attached to the towing vehicle. There should be enough slack that the trailer can turn freely, but not so much that the chain drags on the ground. The chain is rated for 11,000 lb.
- The jack should be stored on the underside of the gooseneck hitch to avoid damage.

### 1.2.4 Lights and Marking

- Tow vehicle must have a 7-pin round trailer plug
- Plug in lights and check for proper function and visibility (flashing amber lights, red tail lights and brake lights).
- If towing with a pickup, an adapter will be required to plug into the trailer plug. When braking, both amber lights should activate. Tail lights should always be on.
- Ensure that the supplied SMV (Slow Moving Vehicle) sign is clearly visible from the rear
- Ensure that the reflective markers are cleaned, and visible from all sides



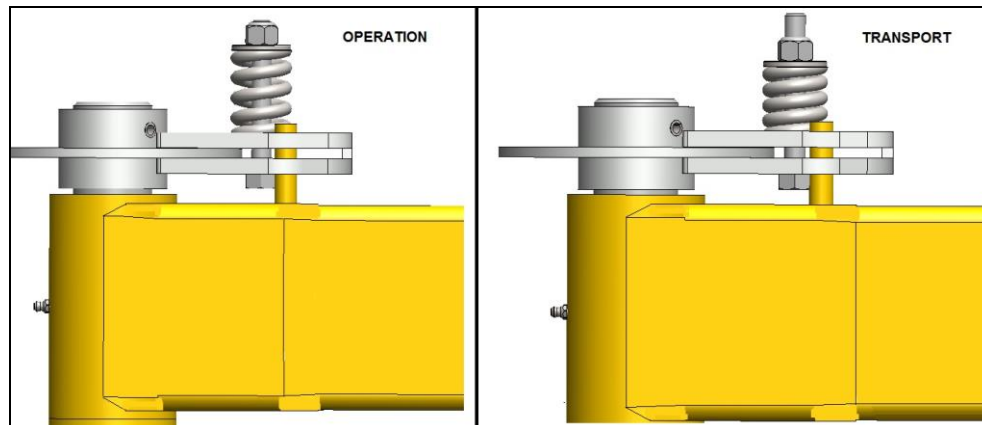


### 1.2.5 Wheels & Casters

- Check tire pressure and wheel nut torque of all wheels regularly.

<b>Tire Pressure</b>	35 psi	<b>Wheel Torque</b>	90 ft-lb
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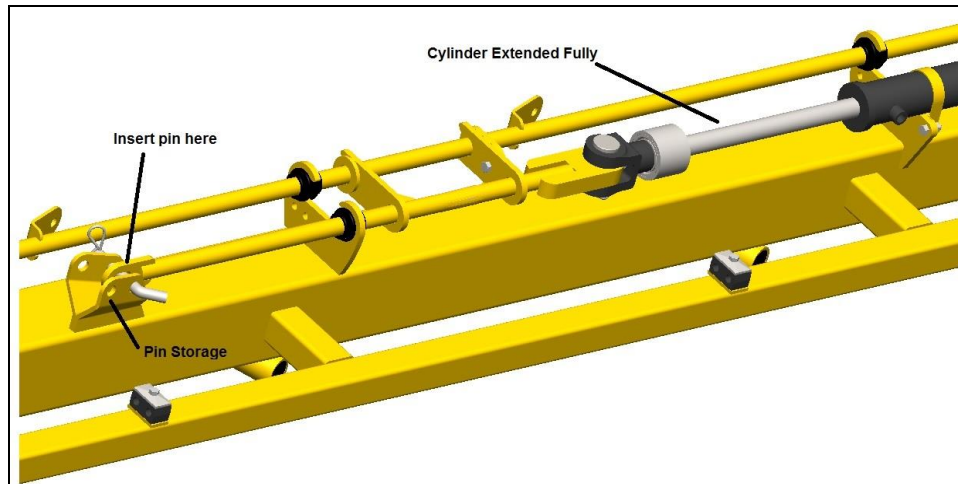
- If transporting long distances, periodically check the tires and hubs for high temperatures. If heating up, you must slow down.
- Drive straight forward several feet until all caster wheels are aligned with the direction of travel (angled rearwards).
- Tighten the brake springs so there is about 1/16" between the coils. This will prevent the casters from whipping.
- If the casters begin to whip, first SLOW DOWN. Do not exceed 20 mph (32 km/h). If this does not help, tighten the brakes further until the problem no longer occurs.



**IMPORTANT: Ensure that the spring is loosened back off before operation or the rake will be very difficult to turn or back up.**

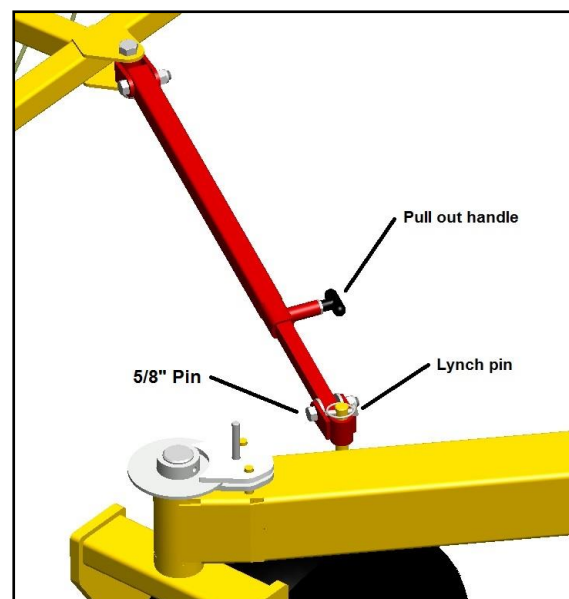
### 1.2.6 Rake Wheel Safety Locks

- The lift rods (located on the left and right boom arms) should be locked in place to keep the rake wheels from touching the ground during transport.
- To insert the safety locks, raise the rake wheels to their highest position, then insert the pin as shown. Make sure that this is done for both lift rods. Store the pin in other hole when not required.



### 1.2.7 Transport Safety Locks

- Close the rake into its folded position.
  - First ensure that the rear opening is in the transport position (the indicator needle at the bottom line).
  - Next close the boom arms until the front caster wheels are brought in near the hitch.
- Swing the transport locks out from under the gooseneck hitch, and connect to the pivot on the front caster.
- Pull out the self-locking pin (black handle) to lengthen or shorten as required. Secure with the 5/8" pin and lynch pin.
- Finally, adjust the boom width so that the self-locking pin snaps into place. Ensure that both sides are locked.







## 2 FEATURES AND OPERATION

### 2.1 Hydraulics

There are three sets of hydraulic hoses to connect to the tractor. Each hose has a coloured marker to identify its function. They should be connected at best convenience for the tractor's controls. Note that the hoses are paired by colour and the following table shows the operation when pushing oil into the hose with the longer marker.

An optional diverter kit is available to allow the rake to run using only two sets of hoses. The open/close and rear windrow width functions can then be toggled using a cab-mounted control box.

Hose Marker	Standard 3-Remote	Optional 2-Remote	
Control Box	-	MAIN	REAR WIDTH
Long Red	Open rake	Open rake	Increase windrow width
Long Yellow	Lift rake wheels	Lift rake wheels	
Long Blue	Increase windrow width	-	

VR581	Diverter Kit	26357
-------	--------------	-------

### 2.2 Field Operation

The MAXIMUM recommended raking speed is 8 mph (13 km/h), depending on field conditions. Rougher land and heavier hay require slower operation. This will prevent damage to the rake tines and premature wear.

For faster operating conditions, rake wheel spring pressure can be increased to prevent excess bouncing of the tines. Under normal conditions, the rake wheel pressure should be approximately 15 lb.

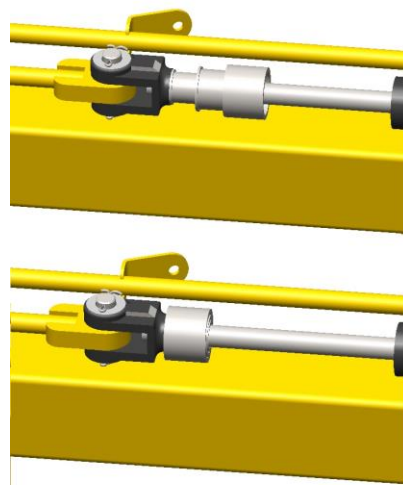


## 2.3 Adjustments

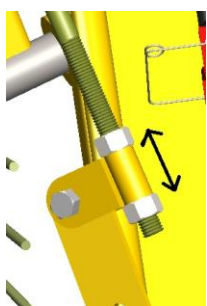
Optimum rake performance is achieved when the rake wheels are lightly scratching the ground. This is controlled by the springs on each individual wheel. If the spring tension is set too heavy, premature rake tine damage could occur. Also, dirt and rocks could be picked up and mixed in with the hay. If spring tension is too light, the hay will not be properly picked up. If the tension in the spring arms needs to be adjusted, the stoppers on the lift cylinders can be adjusted (see next page).

### 2.3.1 Lift Cylinder Stoppers

The lift cylinders are located near the back of each individual boom arm. When the cylinder is retracted, the rake wheels touch the ground. The 3-stage nut located on the cylinder shaft can be turned to adjust the cylinder stroke. If the rake wheel pressure is too high, increase the length of the nut. Adjust one boom at a time (using the transport lock on others), find the desired wheel weight with hydraulics, then turn the nut until it bottoms out on the cylinder. Lastly, spin the jam rings up against the nut to keep it from turning.



### 2.3.2 Individual Spring Adjusters

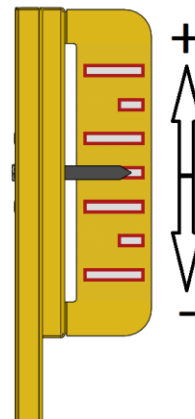


If the spring tension for only one wheel needs to be finely adjusted, then the adjustment can be done on the individual spring. There are two nuts near the end of the spring (see left) that allow the spring to be loosened or tightened. This should be done only in the case that one wheel is significantly different weight than the others. Excess threads beyond the nut **MUST** be trimmed to avoid bottoming out.



### 2.3.3 Windrow Width Adjustment

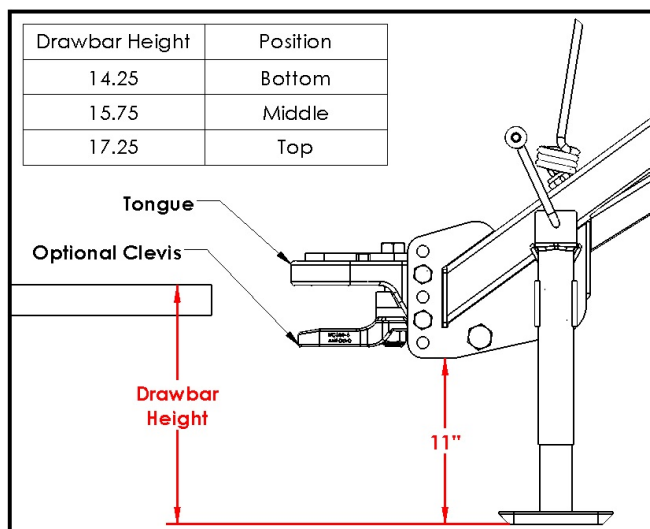
The rear opening of the Bale King hay rake is adjustable using the windrow width adjustment cylinder. It must be in the narrow position to be able to transport on the highway. Widening the rear opening will space the wheels farther apart, creating a wider windrow. Pulling the rear opening closer together will create a tighter swath. This allows the operator to adjust the width of the windrow to suit field conditions and to accommodate different sized balers.



An indicator is provided to show you how wide the rear end is set. This will allow you to consistently set the machine to your desired windrow width. The needle moves up to indicate a wider windrow, while the bottom position indicates transport width.

### 2.3.4 Implement Tongue

The adjustable hitch on the Bale King hay rake features a single cast tongue with optional clevis insert. This allows for use with tractors equipped with a hammer strap, or a single drawbar. It also allows the machine to move independently over rough terrain without bending the draw pin.



Make sure that the hitch height is adjusted to match your tractor's particular drawbar height. The hitch beam should sit level when connected to the tractor.

DO NOT install the clevis insert if the tractor also has a hammer strap. This could cause the hitch pin to bend or break.

<b>S/N 3296 &amp; down</b>	Clevis Hitch Insert	25540
<b>S/N 3297 &amp; up</b>	Clevis Hitch Insert	29786



**IMPORTANT:** For maximum turning radius, ensure that the tractor's drawbar is in its most extended position.

If the pin still does not stick out past the tires, a drawbar extension may be required.

## **2.4 Optional Rubber Mounted Tine (RMT) Rake Wheel**

The Bale King hay rake can be outfitted with optional rubber mounted tine rake wheels. These wheels provide better performance under tough raking conditions by getting under the thatch more aggressively and breaking up the loose material. This is especially useful on hay that has been rained on heavily with lots of regrowth.



These wheels are a direct replacement to the standard wheels, and can be replaced at any time (in any quantity).

<b>Model</b>		<b>Kit #</b>
<b>VR581</b>	RMT Rake Wheel - Left	*
<b>VR581</b>	RMT Rake Wheel - Right	*

\* Consult factory





## 2.5 Optional 14-Wheel Extension Kit

The Bale King hay rake can be outfitted with an extension kit to add 1 rake wheel to each side, allowing the rake to cover a wider area. This kit can be purchased from Bridgeview Manufacturing or a registered dealer, and can be installed in a short amount of time.

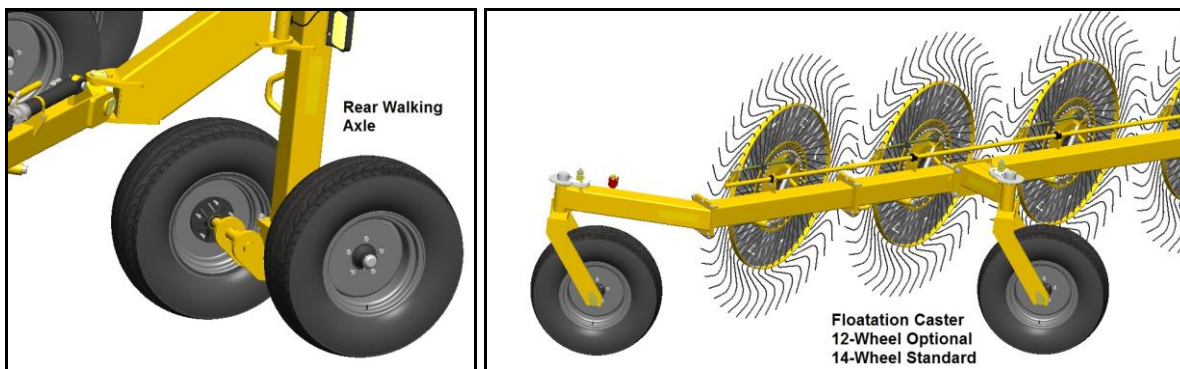
Model		Kit #
VR581	12- to 14-wheel Extension Kit	22034
VR581	Hitch Extension Kit	22191
VR581	Boom Caster Wheel Kit	22195

This package will allow for approximately 4 ft of additional coverage. All 3 kits are required.

## 2.6 Optional Tire Kits

The Bale King hay rake can be outfitted with additional tires to provide a better ride over rough land. An additional caster wheel can be added to the side of the boom for floatation over small ruts (such as irrigation pivots). This kit is standard on a 14-wheel rake. Additionally, the single rear axle can be upgraded to a tandem walking axle.

These kits can be purchased from Bridgeview Manufacturing or a registered dealer, and can be installed in a short amount of time.



Model		Kit #
VR581	Rear Walking Axle Upgrade Kit	22193
VR581	Floatation Caster Wheel Kit *	22195

\* This package will increase the transport width by approximately 32”.



## 2.7 Trouble-Shooting Guide

Problem	Possible Cause	Remedy
Rake plugging at rear end	Windrow width too narrow	Increase windrow width (indicator needle moves upward)
	Too much material	Close rake booms slightly to catch less material
Missing hay	Tine pressure too light	Increase spring pressure
Rake wheels not turning	Tine pressure too light	Increase spring pressure
	Wheel angle too shallow	Close rake booms slightly
A single wheel not turning	Tine pressure too light	Adjust individual spring pressure
	Hub or arm not greased	Grease full machine
Rake tines breaking excessively	Tine pressure too heavy	Decrease spring pressure
	Too fast or rough ground	Slow down
	Tires low	Check tire pressure
Caster wheels wobbling during transportation	Caster brakes not tightened	Tighten caster brakes (loosen for operation)
	Driving too fast	Slow down
Lights not functioning properly	Loose plug connectors	Check plug connectors (one at each light, one under center of rear frame)
	Wrong tractor connector	Make sure tractor and trailer use the same connector

## 2.8 Specifications

Operation		12 Wheel	14 Wheel
	Raking Width	28 ft	32 ft
	Windrow Width	4 ft - 6.5 ft	
	Rake Wheel	62" Diameter, 48 Tines	
<b>Transport</b>			
	Width	10'-3"	13'
	Height	7'-7"	
	Length	33'-4"	36'-8"
	Weight (Total)	4200 lb	4600 lb
	Weight (Tongue)	550 lb	
<b>Tires</b>			
	Size	9.5L-15SL, 8 ply	
	Pressure	35 psi	
	Wheel Nut Torque	90 ft-lb	



### 3 MAINTENANCE & LUBRICATION

General maintenance of your Bale King hay rake should be done on a regular basis. This includes checking all bolts to ensure they are tight, ensuring all joints are properly greased, and that all moving parts are functioning correctly.

Before the raking season, a full inspection of the rake should be done, ensuring that the wheel hubs are tight and fully greased, any broken tines replaced, and no hydraulic leaks are present.

#### 3.1 *Wheels and Tires*

Maintaining proper tire pressure will help to alleviate puncture problems on rough terrain. Check tires for wear and tear on a regular basis.

Tire Size	9.5L-15SL, 8-ply
Tire Pressure	35 psi
Wheel Bolt Torque	90 ft-lb

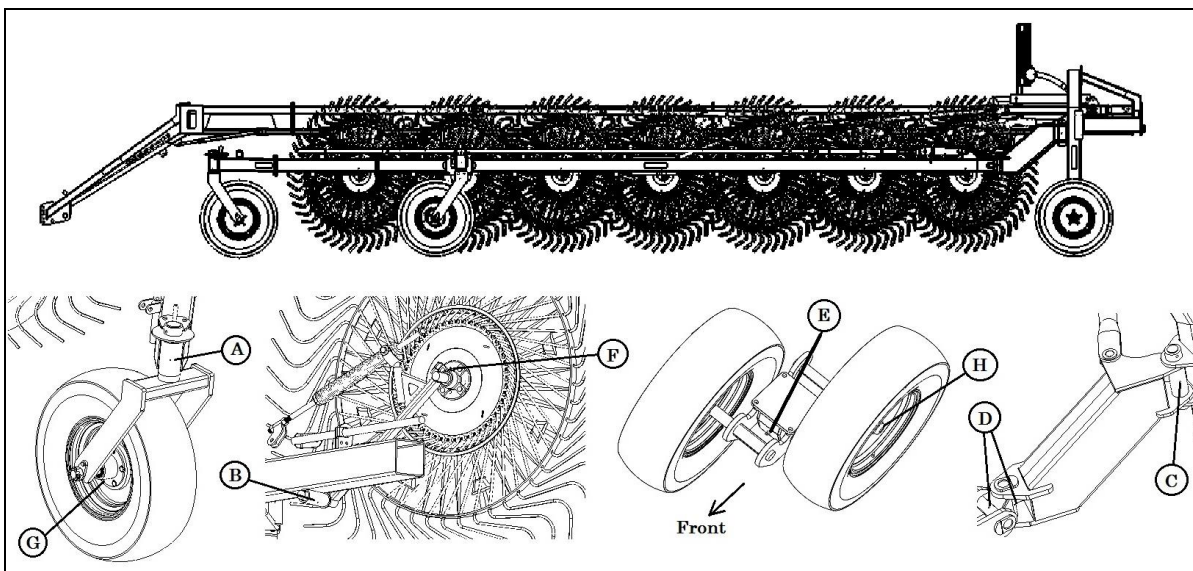
Warranty does not cover damaged rims and hubs due to loose wheel bolts. **Ensure that the wheel bolt torque is checked after the first hour of use.** Tire warranty is covered by the tire manufacturer. See your local tire dealer for service and replacement.



## 3.2 Greasing

The VR581 hay rake is fitted with a number of grease zerks. It is important that these locations are continuously lubricated.

	Location	QTY 12 Wheel	QTY 14 Wheel	Timeline
<b>A</b>	Caster Pivot	2	4	10 hr
<b>B</b>	Rake Arm Pivot	12	14	
<b>C</b>	Boom Arm Pivot	2	2	
<b>D</b>	Knuckle Pivot	4	4	
<b>E</b>	Walking Axle Pivot	2	2	
<b>F</b>	Rake Wheel Hub	12	14	
<b>G</b>	Caster Wheel Hub	2	4	200 hours or seasonal
<b>H</b>	Rear Wheel Hub	2	2	



**NOTE:** For ease of greasing, all zerks are accessed from the outside of the rake. The rake should be either fully closed or fully open (including rear width) for best access to fittings (C) and (D).



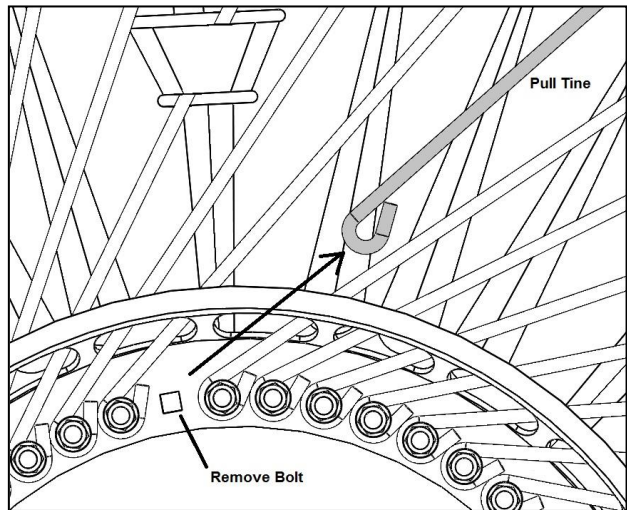


### 3.3 Tine Replacement

#### Standard Wheels:

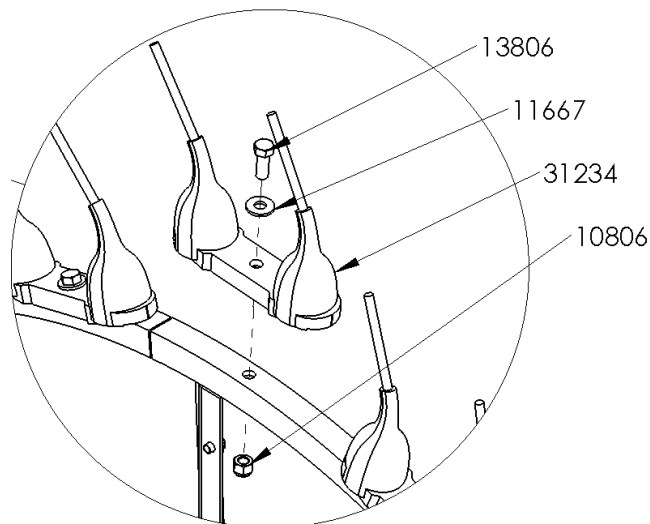
Occasionally during operation, a rake wheel tine will break. The following procedure can be used to replace a tine without removing the rake wheel from the machine.

- Remove the corresponding bolt for the broken tine.
- Pull the tine out of the center disk.
- Pull the tine out of the wind guard tab (if necessary).
- Slide the tine out of the hole in the outer ring by pushing it inwards and rotating.
- Insert the replacement tine in the opposite way from removal.
- Reinsert bolt and tighten.
- TINE PART #16092



#### RMT Wheels

Rubber mounted tines are replaced in pairs without any further disassembly required.



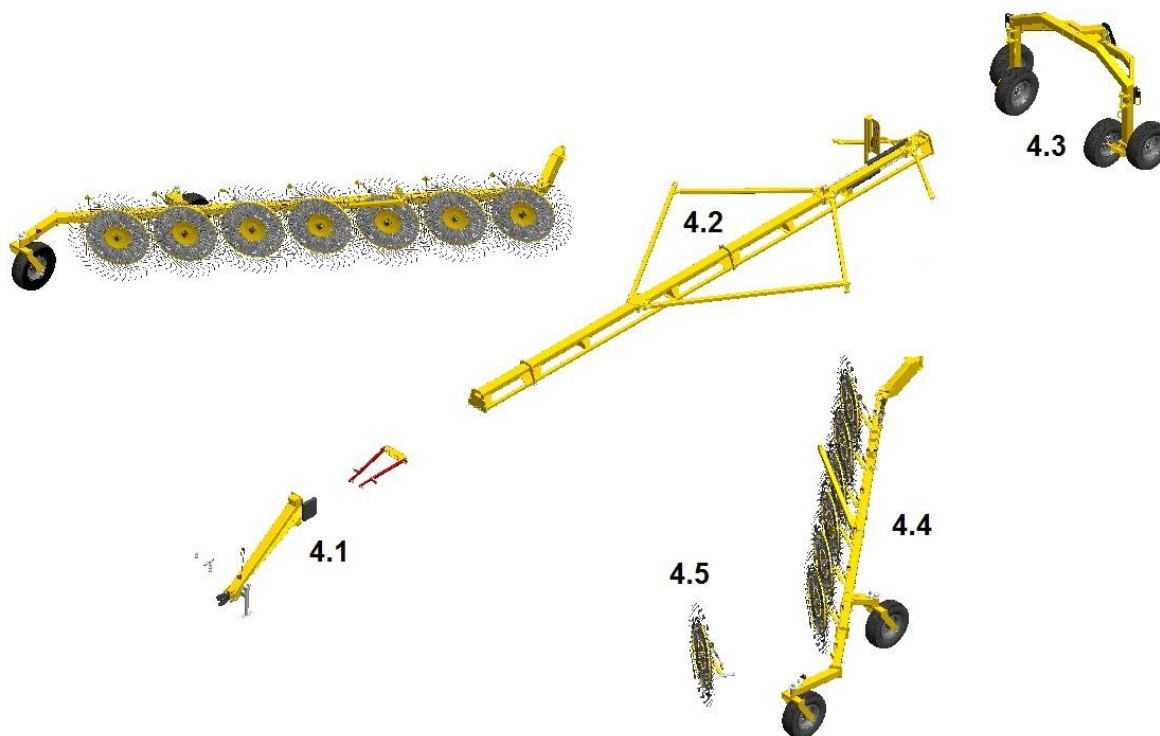


## 4 PARTS BOOK

The following diagrams show the part numbers for ordering any damaged parts on a VR581. Make sure to use the correct diagram for the desired model.

Quantities are listed as shown, and some components are optional. The total quantities will vary depending on model and size. The diagrams should be referenced to find the part number, and order quantities should be based on what is required, not necessarily by the quantity on the table.

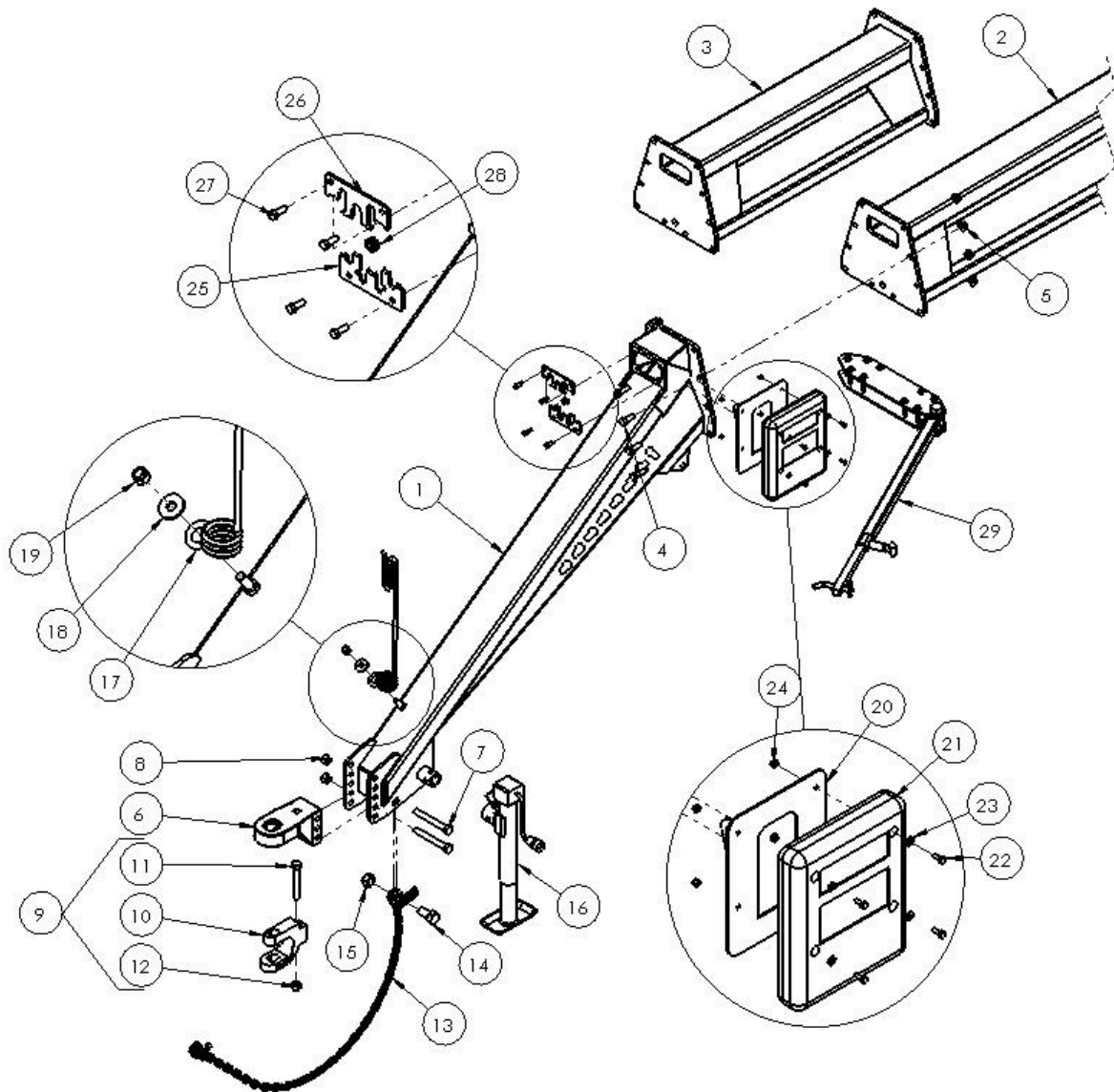
Left and right as used in the parts book is as viewed from the rear of the rake looking in the direction of travel.



Parts Book Sections	
Section	Description
4.1	Gooseneck
4.2	Hitch Beams and Scissor
4.3	Rear Frame
4.4	Boom Arms
4.5	Rake Wheel Assembly
4.6	Decals
4.7	Hydraulics
4.8	Electrical



## 4.1 Gooseneck Assembly





4.1 Gooseneck Assembly							
	Description	ID #	QTY		Description	ID #	QTY
1	Gooseneck	25563	1	16	Jack, 5000 lb Sidewind	18034	1
2	Front Hitch Beam 581	22232	(1)	17	Spring Hose Holder	18080	1
3	Hitch Beam Extension *	22192	1	18	Flat Washer, 5/8"	21390	1
4	Bolt, 5/8 x 1-3/4"	12379	10	19	Nut, 5/8" Nylon Lock	10364	1
5	Nut, 5/8" Serrated Flange	11614	10	20	Operator Manual Bracket	23294	1
6	Hitch Tongue	#	1	21	Operator Manual Box	22409	1
7	Bolt, 3/4 x 5-3/4"	10802	2	22	Bolt, 1/4 x 3/4"	11809	4
8	Nut, 3/4" Stover Lock	11823	2	23	Flat Washer, 1/4"	11666	4
9	Hitch Clevis Option	#	1	24	Nut, 1/4" Nylon Lock	11664	4
10	Hitch Clevis			25	Hydraulic Bulkhead Plate 1	26371	1
11	Hitch Clevis Bolt			26	Hydraulic Bulkhead Plate 2	26372	1
12	Hitch Clevis Nut			27	Bolt, 3/8 x 1"	13806	4
13	Safety Chain	21715	1	28	Grommet	21428	1
14	Bolt, 1 x 2"	18992	1	29	Transport Lock Assembly	-	1
15	Nut, 1" Stover Lock	21746	1				

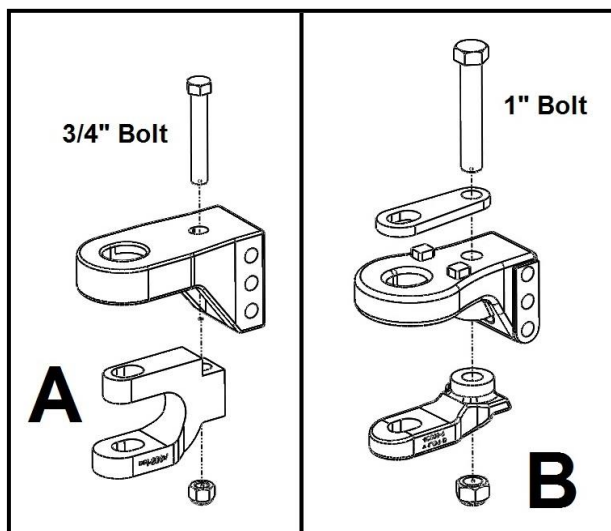
\* NOTE: 14 wheel only

# NOTE: See below for more information

The exact hitch tongue/clevis required depends on what is currently installed on your machine. There are 2 different versions. Select the correct version before ordering parts.

\* NOTE: Includes (10)(11)(12)

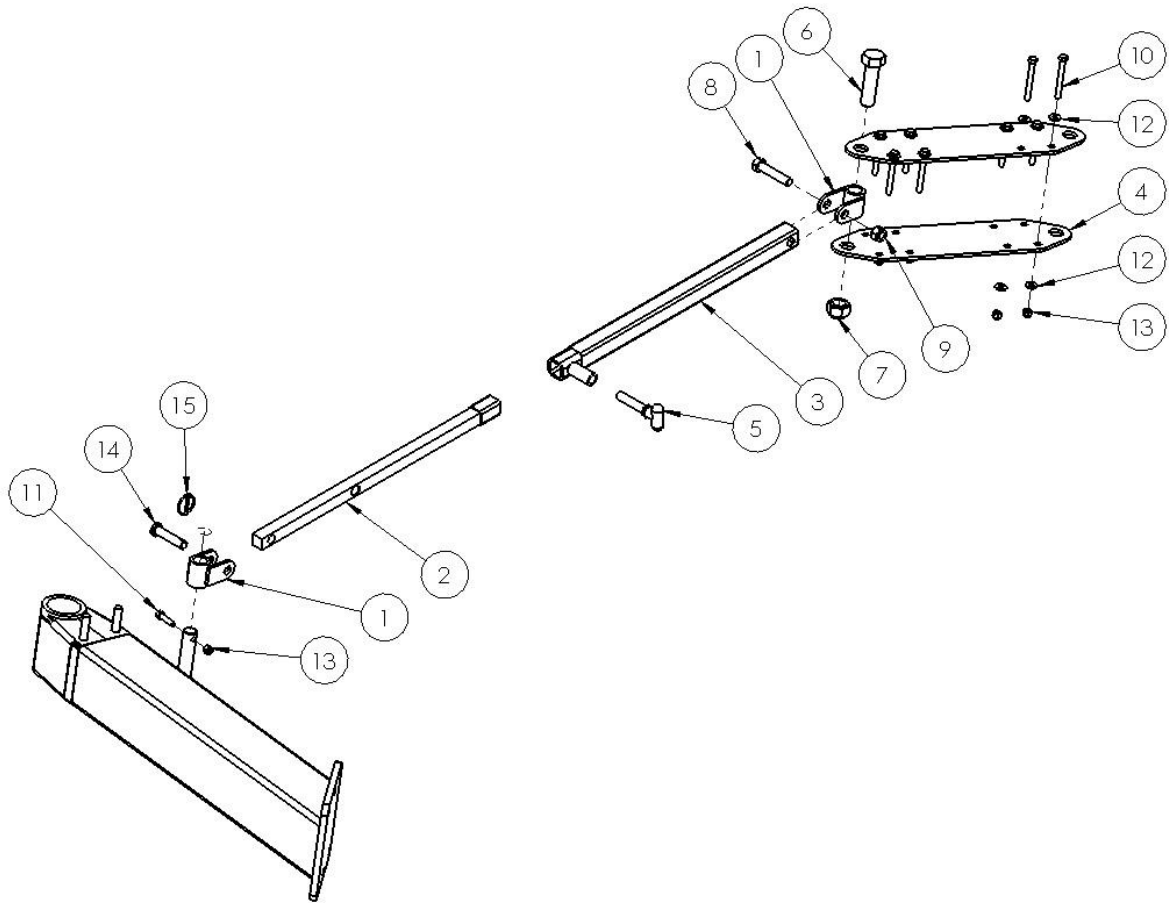
NSS = Not Sold Separately



	Description	A	B
6	Hitch Tongue	22440	29785
9	Hitch Clevis Option *	25540	29786
10	Hitch Clevis	22441	NSS
11	Hitch Clevis Bolt	26406	NSS
12	Hitch Clevis Nut	11823	NSS



#### 4.1.1 Transport Lock



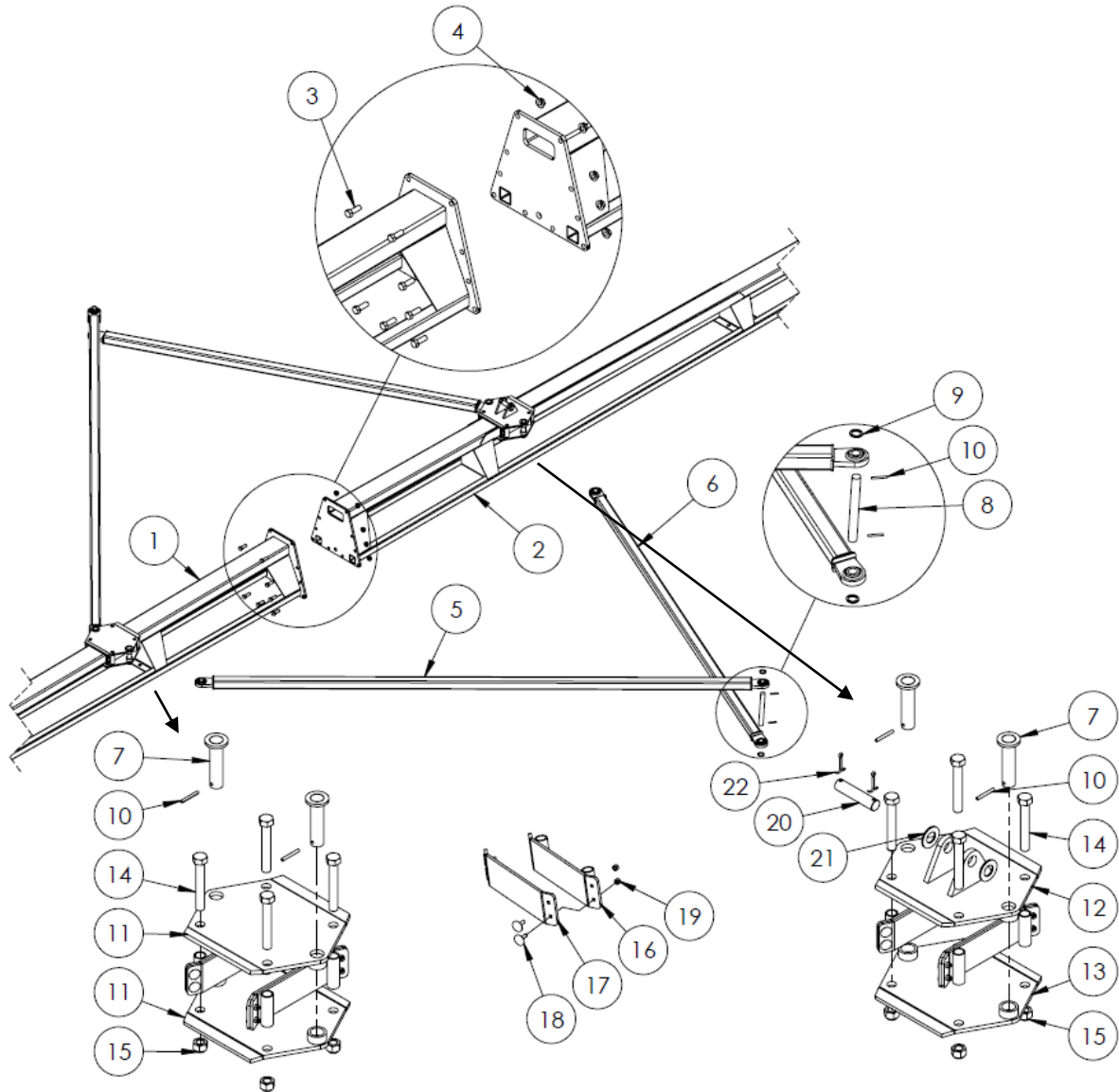
Right arm not shown

4.1.1 Transport Lock Assembly							
	Description	ID #	QTY		Description	ID #	QTY
1	Transport Lock Knuckle	25645	2	9	Nut, 5/8" Nylon Lock	10364	1
2	Transport Lock Bar	25648	1	10	Bolt, 3/8 x 3-1/4"	23325	8
3	Transport Lock Tube	25649	1	11	Bolt, 3/8 x 1-1/2"	11660	1
4	Transport Lock Bracket	26369	2	12	Flat Washer, 3/8"	11667	16
5	Tee-Handle Pin	21246	1	13	Nut, 3/8" Nylon Lock	10806	9
6	Bolt, 1 x 3-1/2"	25663	1	14	Clevis Pin, 5/8 x 2-3/4"	21829	1
7	Nut, 1" Stover Lock	21746	1	15	Lynch Pin, 3/16 x 1-1/4"	13233	1
8	Bolt, 5/8 x 3"	20907	1				



## 4.2 Hitch Beam & Scissor Assembly

### 4.2.1 Scissor Components Front





#### 4.2.1 Scissor Components Front

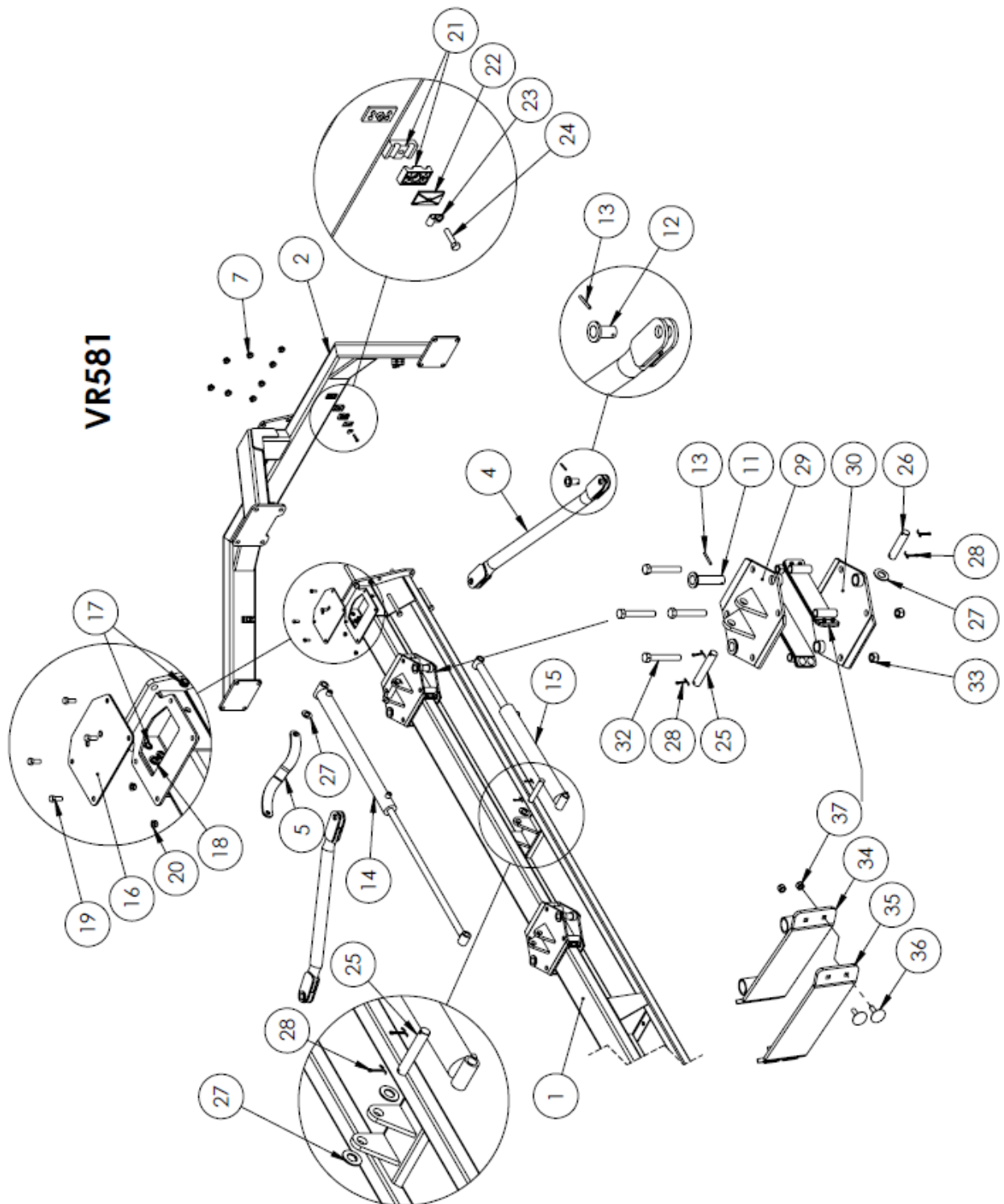
##### VR581

	Description	ID #	QTY		Description	ID #	QTY
1	Front Hitch Beam	22232	1	12	Slider Plate Middle Top	22241	1
2	Rear Hitch Beam	26359	1	13	Slider Plate Middle Bottom	22242	1
3	Bolt, 5/8 x 1-3/4"	21392	10	14	Bolt, 3/4 x 5"	17826	8
4	Nut, 5/8" Serrated Flange	11614	10	15	Nut, 3/4" Stover Lock	11823	8
5	Front Scissor Linkage	22235	2	16	Slider Side Plate	22246	4
6	Rear Scissor Linkage	22236	2	17	Plastic Slider	18011	1
7	Pin, 1-1/8 x 4" Usable	22244	4	18	Elevator Bolt, 1/4 x 1"	17970	4
8	Pin, 1-1/8 x 8-1/2"	26449	2	19	Nut, 1/4" Nylon Lock	11664	4
9	Flat Washer, 1-1/8"	26450	4	20	Pin, 1 x 3-3/4" Usable	20788	1
10	Roll Pin, 1/4 x 2"	15872	8	21	Flat Washer, 1"	14472	2
11	Slider Plate Front	22242	2	22	Cotter Pin, 3/16 x 1-1/2"	10072	2





#### 4.2.2 Scissor Components Rear VR581



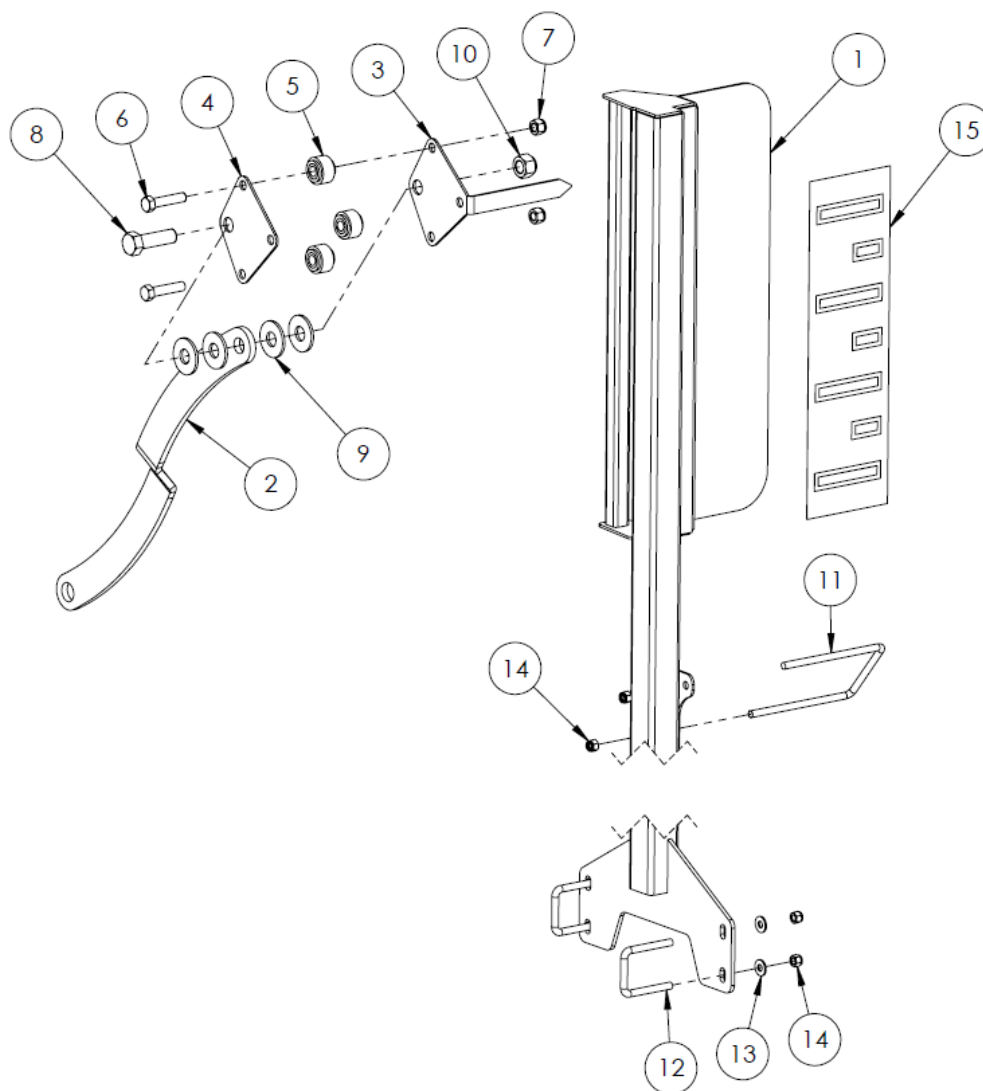




4.2.2 Scissor Components Rear							
VR581							
	Description	ID #	QTY		Description	ID #	QTY
1	Rear Hitch Beam	26359	1	19	Bolt, 3/8 x 1"	13806	4
2	Rear Frame Connector	25562	1	20	Nut, 3/8" Serrated Flange	10271	4
3	-	-	-	21	Hose Clamp	28585	8
4	Width Adj. Linkage	22239	2	22	Hose Clamp Top	22182	4
5	Width Ind. Linkage	24673	1	23	Wire Clip	13629	4
6	Bolt, 5/8 x 5"	21392	8	24	Bolt, 5/16 x 1-3/8"	22183	4
7	Nut, 5/8" Serrated Flange	11614	8	25	Pin, 1 x 5" Usable	26430	2
8	-	-	-	26	Pin, 1 x 3-3/4" Usable	20788	1
9	-	-	-	27	Flat Washer, 1"	14472	5
10	-	-	-	28	Cotter Pin, 3/16 x 1-1/2"	10072	6
11	Pin, 1-1/8 x 4" Usable	22244	2	29	Slider Plate Rear Top	22459	1
12	Pin, 1-1/8 x 1-5/8" Usable	26442	2	30	Slider Plate Rear Bottom	22241	1
13	Roll Pin, 1/4 x 2"	15872	4	31	-	-	-
14	Hyd. Cylinder, 2.5 x 30" Seal Kit	16301	1	32	Bolt, 3/4 x 5"	17826	4
		16396		33	Nut, 3/4" Stover Lock	11823	4
15	Hyd. Cylinder, 2.5 x 20" Seal Kit	17328	1	34	Slider Side Plate	22246	4
		16396		35	Plastic Slider	18011	1
16	Bulkhead Cover Plate	22234	1	36	Elevator Bolt, 1/4 x 1"	17970	4
17	Grommet	21428	2	37	Nut, 1/4" Nylon Lock	11664	4
18	Lock Washer, 9/16"	23369	4				



### 4.2.3 Width Indicator

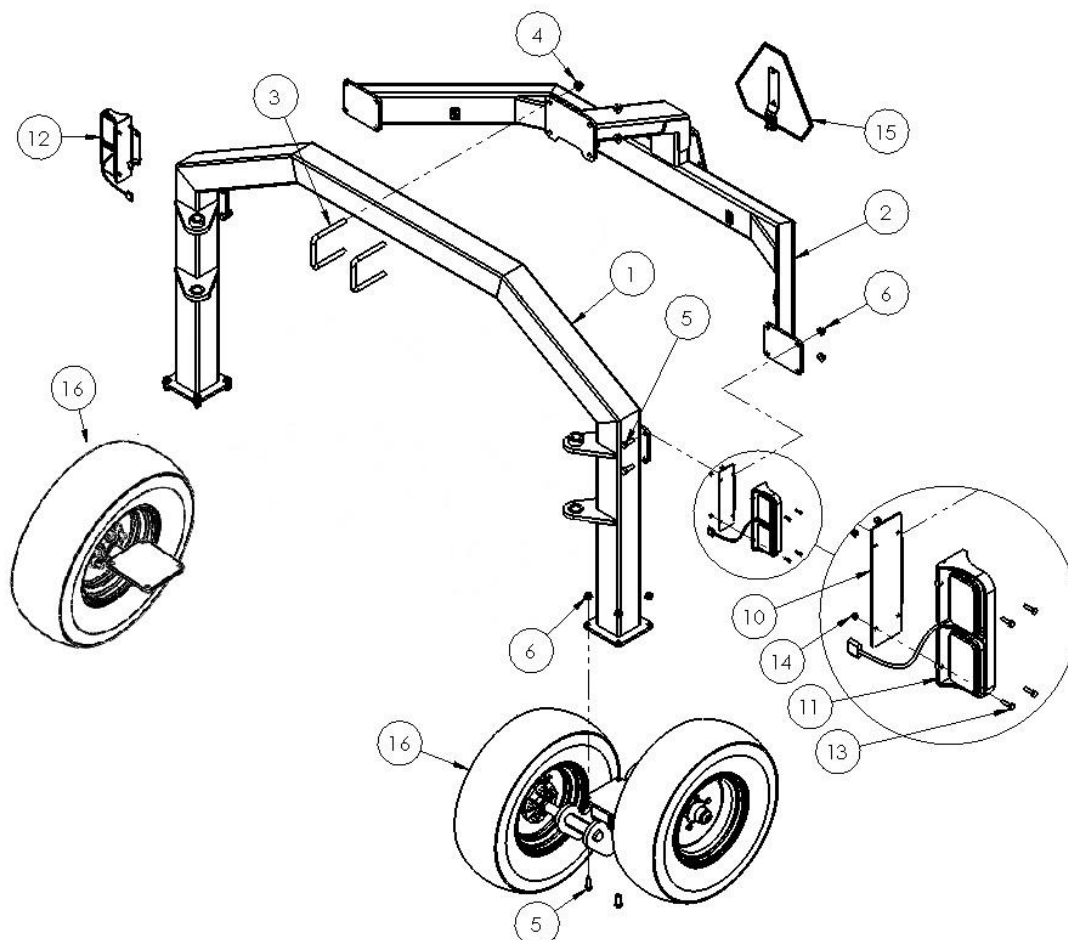


4.2.2 Width Indicator							
	Description	ID #	QTY		Description	ID #	QTY
1	Width Indicator Bracket	23222	1	8	Bolt, 3/4 x 2-1/2"	14470	1
2	Width Indicator Linkage	24673	1	9	Flat Washer, 3/4"	13717	4
3	Width Indicator Needle	32025 23049#	1	10	Nut, 3/4" Stover Lock	11823	1
4	W.I. Roller Plate	32027 23064#	1	11	U-Bolt, 3/8 x 4 x 7"	23013	1
5	W.I. Roller	11637	3	12	U-Bolt, 3/8 x 2 x 3"	21459	2
6	Bolt, 1/2 x 2-1/4"	11820	3	13	Flat Washer, 3/8"	11667	4
7	Nut, 1/2" Nylon Lock	10241	3	14	Nut, 3/8" Nylon Lock	10806	6
				15	Width Indicator Decal	23011	1

# S/N VR3373 & below. If a longer needle is desired, both parts 3 & 4 must be replaced.



### 4.3 Rear Frame Assembly

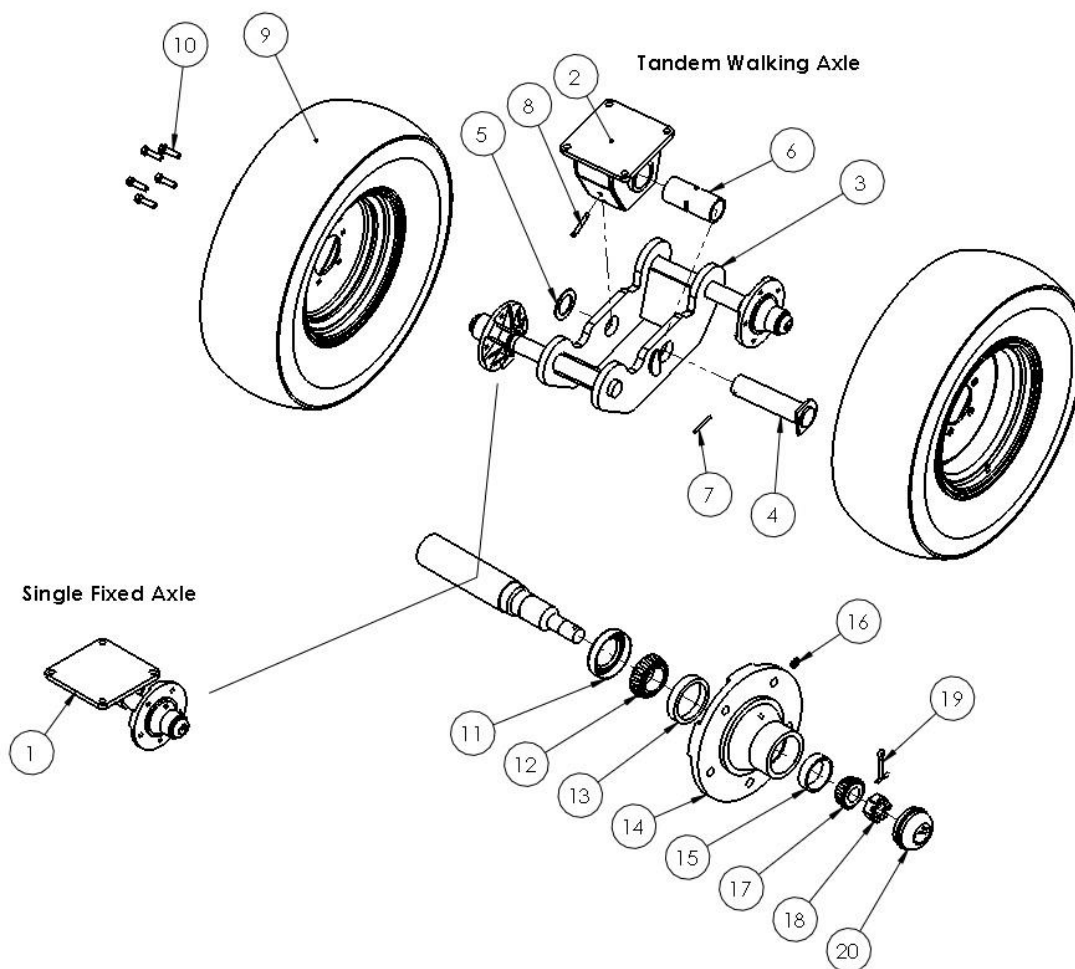


4.3 Rear Frame Assembly							
	Description	ID #	QTY		Description	ID #	QTY
1	Rear Frame 581	22247	1	10	Light Bracket	23101	2
2	Rear Frame Connector	25562	1	11	Left Light - 4-pin - 3-pin #	31087 22968	1
3	U-bolt, 3/4 x 5 x 6"	16091	2	12	Right Light - 4-pin - 3-pin #	31088 22969	1
4	Nut, 3/4" Serrated Flange	16076	4	13	Bolt, 1/4 x 1"	11810	8
5	Bolt, 5/8 x 1-3/4"	12379	16	14	Nut, 1/4" Nylon Lock	11664	8
6	Nut, 5/8" Serrated Flange	11614	16	15	SMV Sign	-	1
7	-	-	-	16	Rear Axle	-	1
8	-	-	-				
9	Nut, 3/8" Serrated Flange	10271	10				

# S/N VR3406 & below. Check if the connector plug has 3-pins or 4-pins. 4-pin lights have brake functionality.



### 4.3.1 Rear Axle



4.3.1 Rear Axle Assembly							
	Description	ID #	QTY		Description	ID #	QTY
1	Single Axle Mount	22250	1	10	Wheel Bolt	16307	5
2	Walking Axle Mount	23137	1	11	Seal	16306	1
3	Walking Axle Left	23138	1	12	Inner Bearing Cone	10082	1
	Walking Axle Right	23139	(1)	13	Inner Bearing Cup	10083	1
4	Walking Axle Pivot Pin	23112	1	14	Rear Wheel Hub *	16724	1
5	Walking Axle Washer	26447	1	15	Outer Bearing Cup	16304	1
6	Walking Axle Bushing	21150	1	16	Grease Zerk	16364	1
7	Roll Pin, 1/4 x 2-1/2"	10293	1	17	Outer Bearing Cone	16305	1
8	Grease Zerk	23356	1	18	Castle Nut	16358	1
9	Tire, 9.5L-15 8 ply	#	1	19	Cotter Pin	11669	1
	Rim, 15 x 6, 5/5.5	18425	1	20	Dust Cap	16308	1

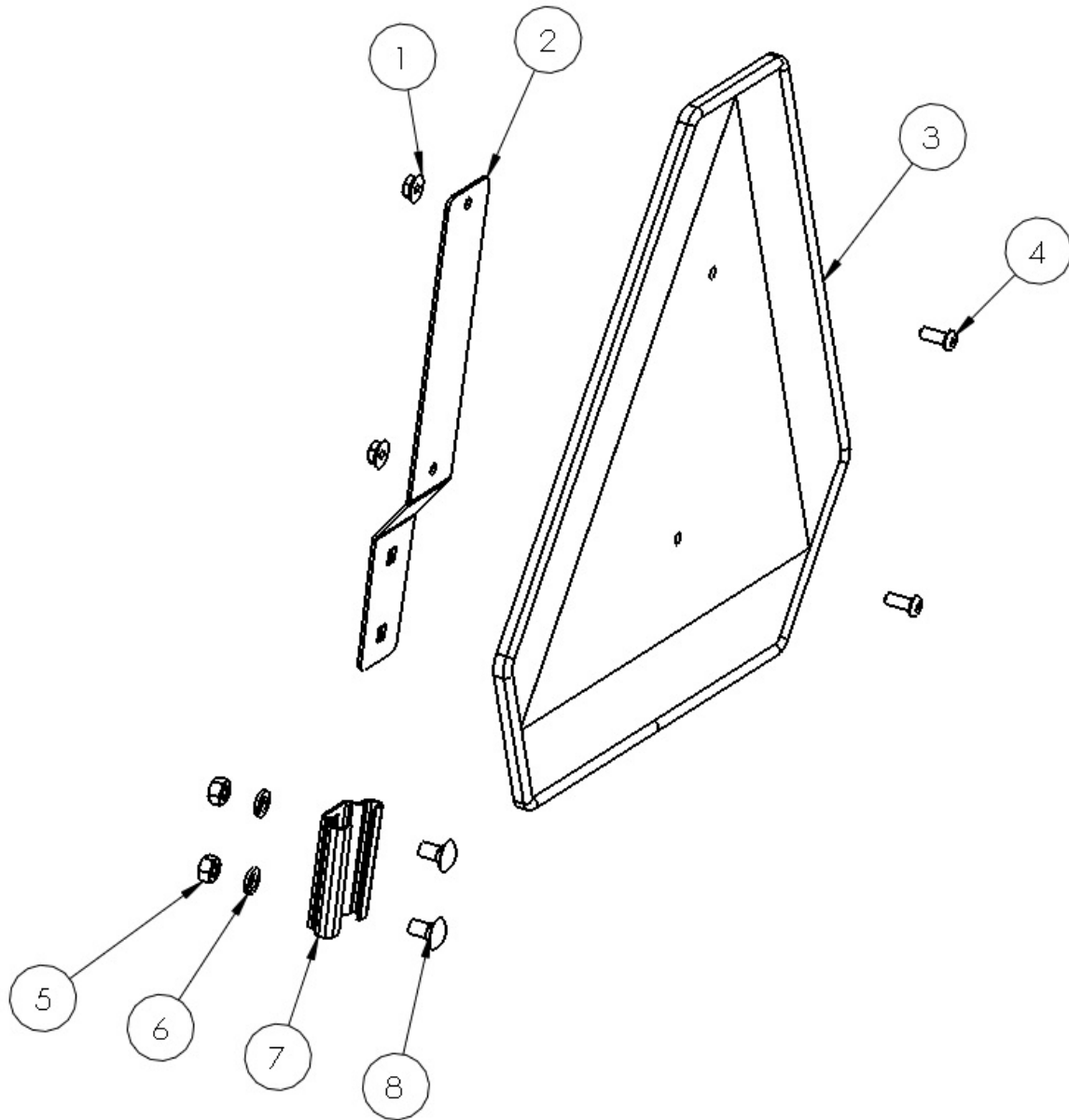
\* NOTE: Hub (14) comes with grease zerk (16) and bearing cups (13,15) installed

# NOTE: See your local tire dealership for replacement or repairs

Quantities are per assembly as shown. Left side shown.



#### 4.3.2 Slow Moving Vehicle (SMV) Sign Kit



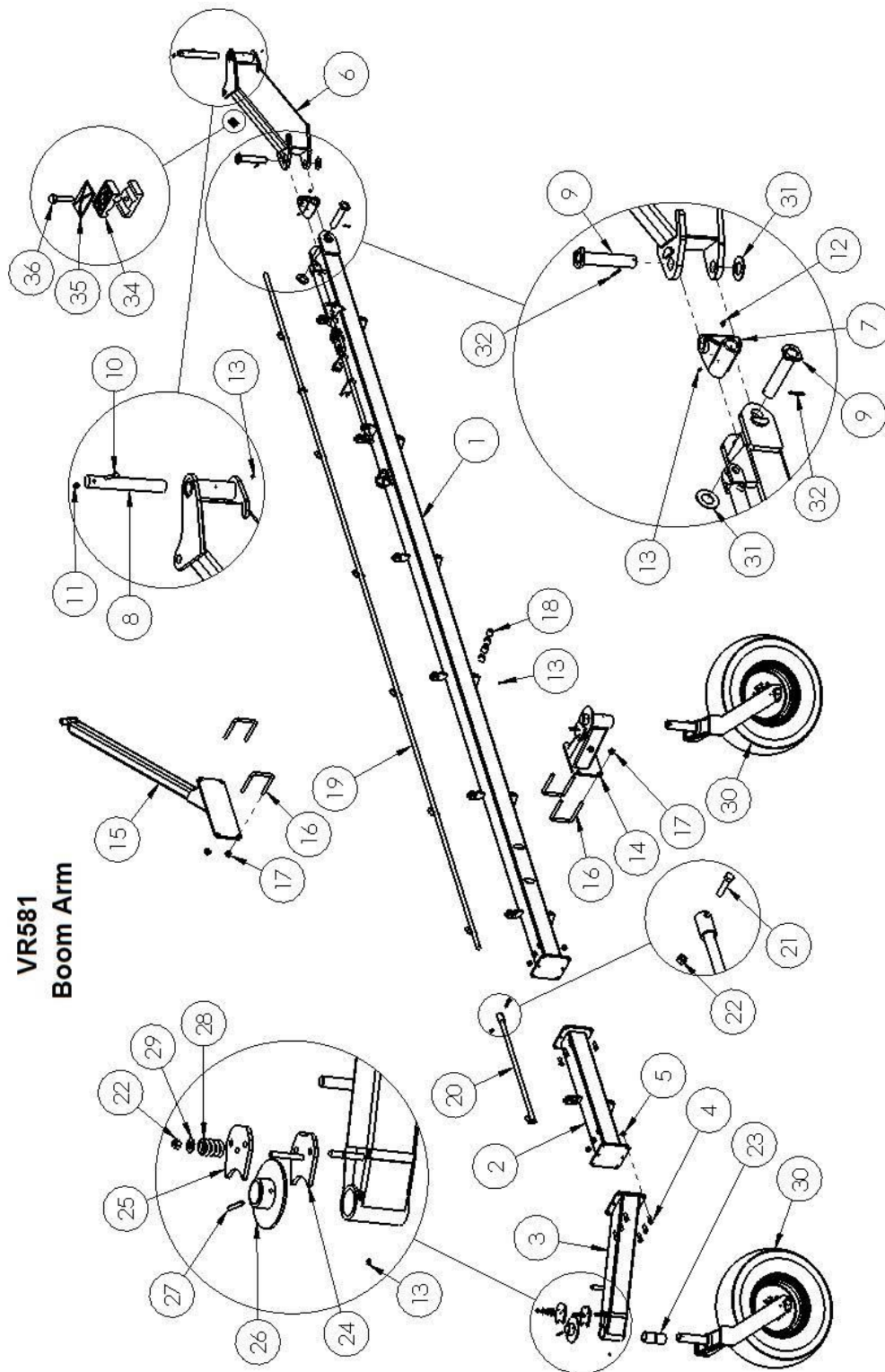
4.3.1 SMV Sign Assembly							
	Description	ID #	QTY		Description	ID #	QTY
	Complete Kit	22411	1	5	Nut, 5/16"	*	2
1	Nut, 1/4" Serrated Flange	*	2	6	Lock Washer, 5/16"	*	2
2	Sign Mounting Bracket	*	1	7	Tapered Mounting Bracket	*	1
3	Plastic Sign	*	1	8	Carriage Bolt, 5/16 x 5/8"	*	2
4	Screw, 1/4 x 5/8"	*	2				

**\* NOTE: Individual parts not sold separately. Not all parts in kit are used.**



## 4.4 Boom Arm Assembly

### 4.4.1 Boom Arm Assembly



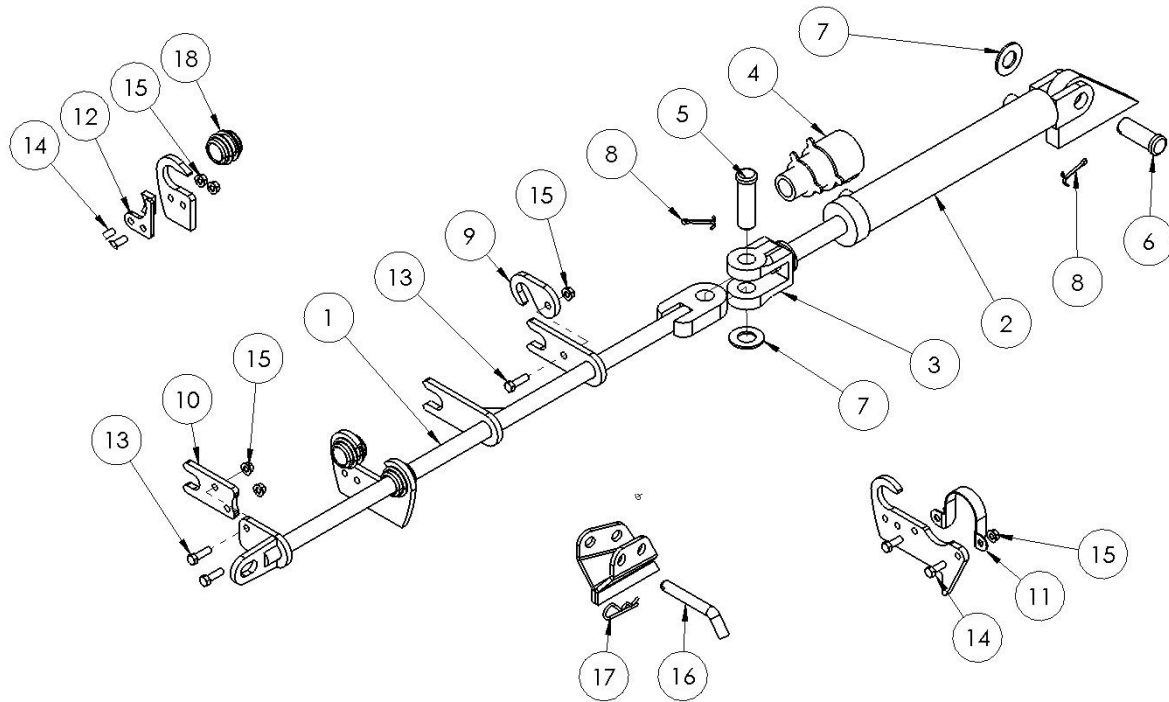


4.4.1 Boom Arm Assembly							
	Description	ID #	QTY		Description	ID #	QTY
1	Boom Arm 581 Left	26362	1	16	U-Bolt, 3/4 x 5 x 6"	16091	4
	Boom Arm 581 Right	26363		17	Nut, 3/4" Serrated Flange	16076	8
2	Boom 581 Ext. Left	22268	1	18	Rake Arm Bushing	16096	56
	Boom 581 Ext. Right	22267		19	Lift Rod 581	26951	1
3	Front Caster Support LT	25575	1	20	Lift Rod 581 Extension	22269	1
	Front Caster Support RT	25574		21	Bolt, 1/2 x 2-1/4"	11820	1
4	Bolt, 5/8 x 1-3/4"	12379	12	22	Nut, 1/2" Stover Lock	14393	2
5	Nut, 5/8" Serrated Flange	11614	12	23	Caster Bushing	21150	1
6	Box Pivot 581 Left	26361	1	24	Brake Pad Bottom	16138	1
	Box Pivot 581 Right	26360		25	Brake Pad Top	16137	1
7	Knuckle 581 Left	23096	1	26	Brake Disk	17330	1
	Knuckle 581 Right	22253		27	Roll Pin, 3/8 x 2-3/4"	16039	1
8	Box Pivot Pin	26448	1	28	Brake Spring	16093	1
9	Knuckle Pin	26441	2	29	Brake Spring Washer	16322	1
10	Bolt, 3/8 x 3"	13770	1	30	Caster Wheel Assembly	-	2
11	Nut, 3/8" Nylon Lock	10806	1	31	Flat Washer, 1-1/2"	20434	2
12	Grease Zerk 45 Deg.	20888	1	32	Roll Pin, 1/4 x 2-1/2"	10293	2
13	Grease Zerk	16364	10	33	-	-	
14	Side Caster Support 581	24502	1	34	Hose Clamp	28585	2
15	Riser Arm 581 Left	22237	1	35	Hose Clamp Top	22182	1
	Riser Arm 581 Right	22238		36	Bolt, 5/16 x 1-3/8"	22183	1





#### 4.4.2 Lift Rod Details



4.4.3 Lift Rod Details							
	Description	ID #	QTY		Description	ID #	QTY
1	Lift Rod Push Bar	26368	1	9	Lift Rod Lock	23098	1
2	2" Lift Rod Cylinder Seal Kit *	26379	1	10	Lift Rod Spacer	26601	1
		26641		11	Cylinder Clamp	26373	1
3	Cylinder Clevis		1	12	Lift Rod Bushing Lock	22257	1
4	Stroke Adjuster Nut @ Large Jam Nut Small Jam Nut	26459	1	13	Bolt, 3/8 x 1-1/4"	10253	3
		28670		14	Bolt, 3/8 x 1"	13806	4
		28671		15	Nut, 3/8" Serrated Flange	10271	5
5	Pin, 1 x 2-7/8" Usable	28844	1	16	Lock Pin, 5/8 x 3-1/2" #	16339	1
6	Pin, 1 x 2-1/4" Usable	28843	2	17	Hairpin	16363	1
7	Flat Washer, 1"	14472	2	18	Lift Rod Bushing	16099	1
8	Cotter Pin, 3/16 x 1-1/2"	10072	2				

\* NOTE: Comes with clevis (3) and nut (4)

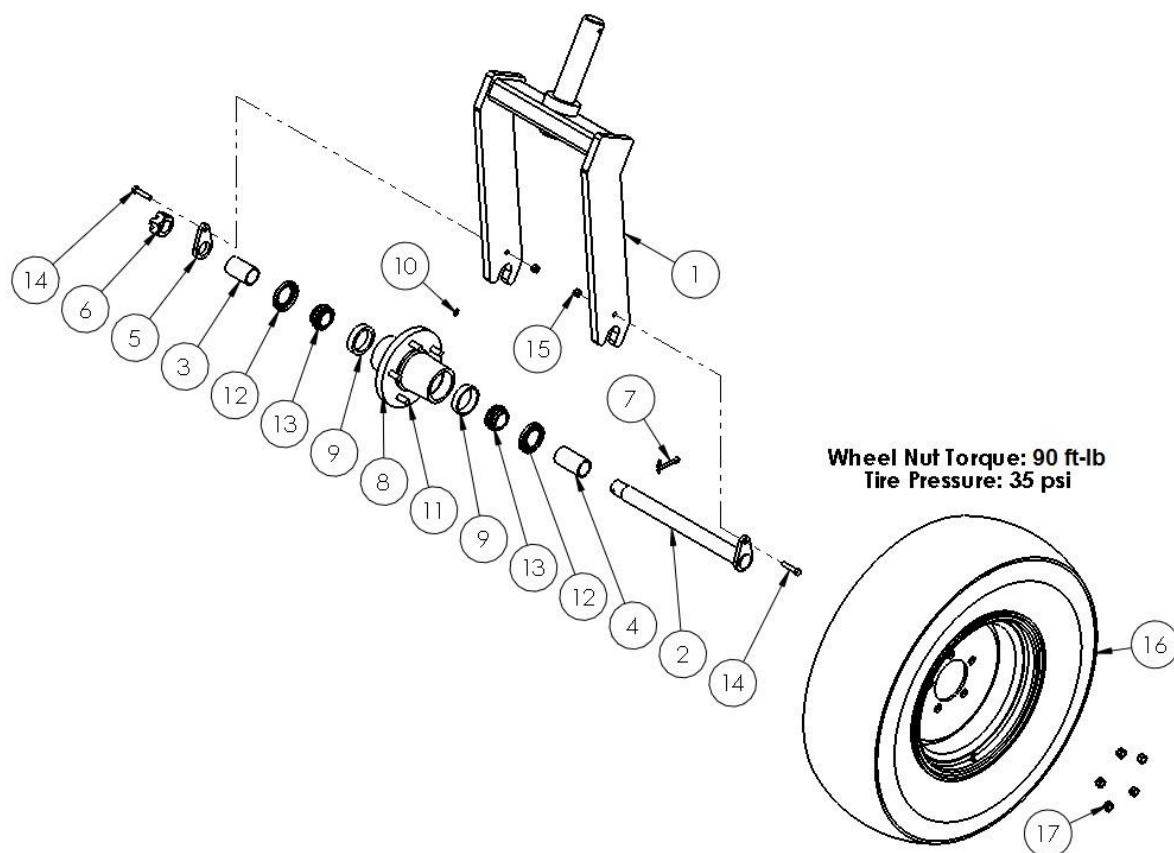
@ NOTE: Comes with jam nuts

# NOTE: Comes with hairpin





#### 4.4.3 Caster Wheel and Hub



4.4.4 Caster Wheel and Hub							
	Description	ID #	QTY		Description	ID #	QTY
1	Caster Fork	22270	1	10	Grease Zerk	16364	1
2	Caster Axle	26443	1	11	Stud	16391	5
3	Caster Spacer, 2-9/16"	22271	1	12	Seal	16297	2
4	Caster Spacer, 2-15/16"	22272	1	13	Bearing Cone	16296	2
5	Caster Teardrop	26477	1	14	Bolt, 3/8 x 1-3/4"	16040	2
6	Castle Nut	16299	1	15	Nut, 3/8" Nylon Lock	10806	2
7	Cotter Pin	10580	1	16	Tire, 9.5L-15 8 ply	#	1
8	Caster Wheel Hub *	18819	1		Rim, 15 x 6, 5/5.5	18425	1
9	Bearing Cup	16295	2	17	Wheel Nut	16356	5

\* NOTE: Hub (8) comes with wheel studs (11), grease zerk (10), and bearing cups (9) installed

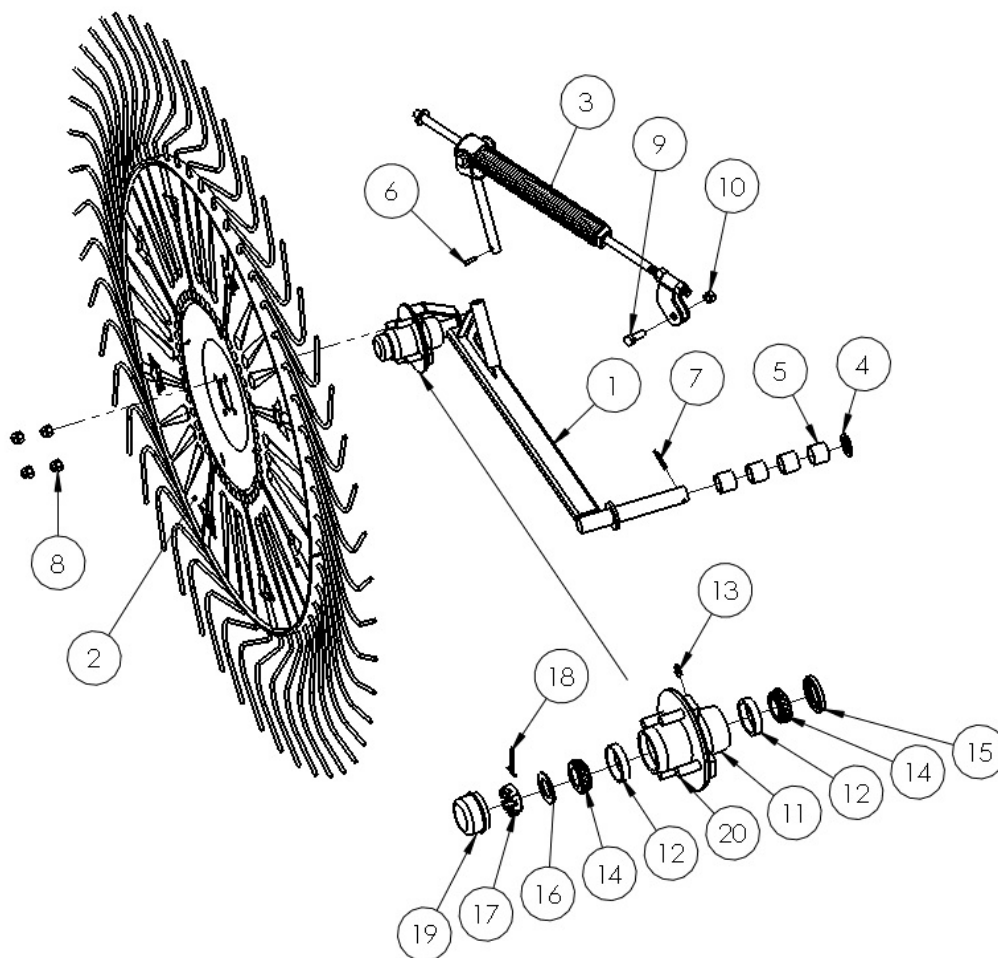
# NOTE: See local tire dealership for replacement or repairs

Quantities are per assembly as shown. Left side shown. For right side, install fork opposite direction.

Wheel nuts installed with cone IN, air valve same side as wheel nuts.



## 4.5 Rake Wheel and Arm



4.5 Rake Wheel and Arm							
	Description	ID #	QTY		Description	ID #	QTY
1	Rake Wheel Arm Left	25651	1	11	Rake Wheel Hub *	16413	1
	Rake Wheel Arm Right	25650		12	Bearing Cup	16081	2
2	Rake Wheel Assembly	-	1	13	Grease Zerk	16364	1
3	Spring Assembly	-	1		Grease Zerk, 45° *RMT	20888	1
4	Rake Arm Pivot Washer	16650	1	14	Bearing	16082	2
5	Rake Arm Pivot Bushing	16096	4	15	Seal	16083	1
6	Roll Pin, 1/4 x 1-1/4"	16021	1	16	Washer	16088	1
7	Roll Pin, 1/4 x 2"	15872	1	17	Castle Nut	16087	1
8	Rake Wheel Nut	16085	4	18	Cotter Pin	30658	1
9	Bolt, 1/2 x 1-1/2"	10174	1	19	Dust Cap	16084	1
10	Nut, 1/2" Stover Lock	14393	1	20	Stud	16391	4

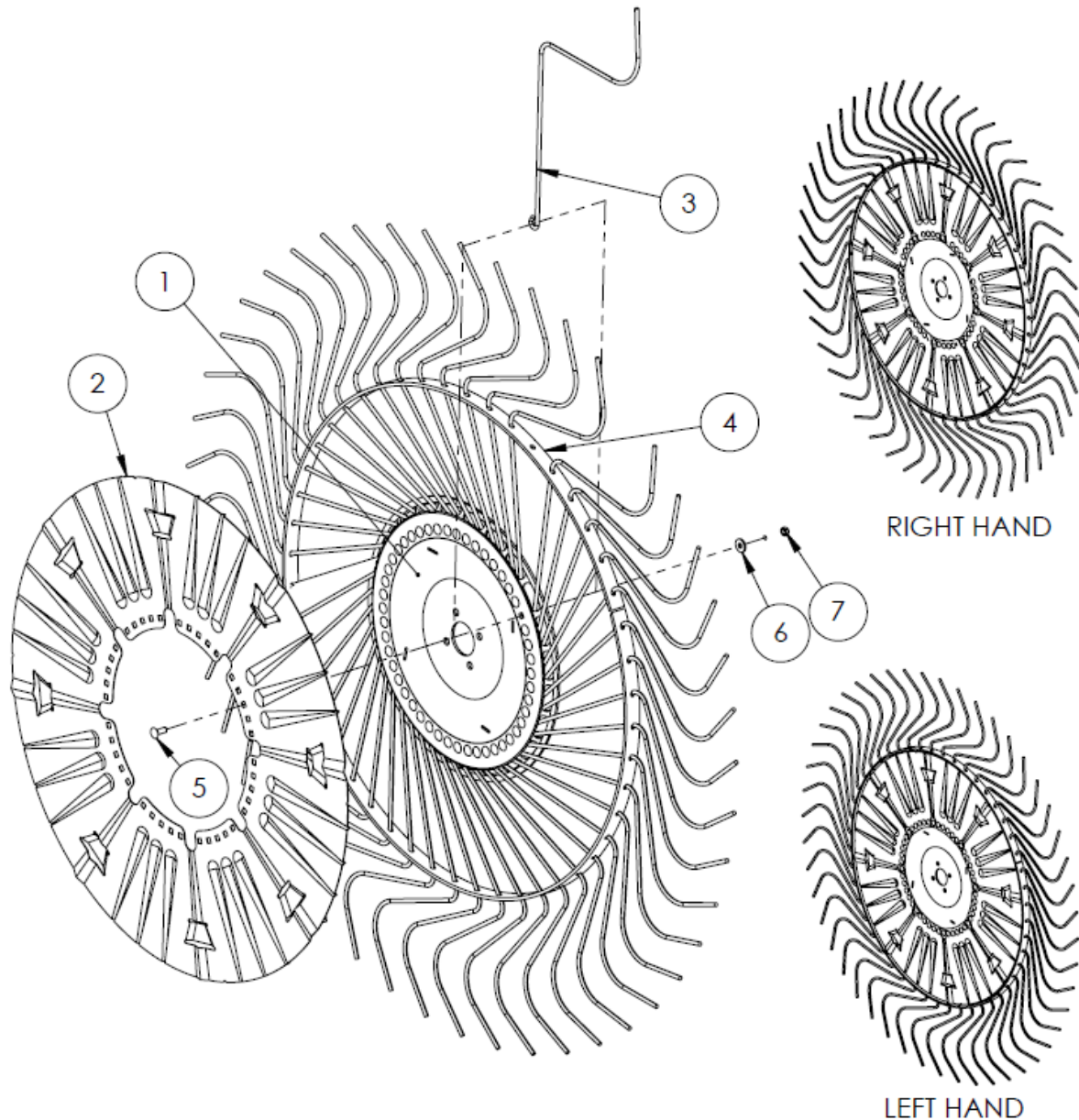
\* NOTE: Hub (11) comes with wheel studs (20), grease zerk (13), and bearing cups (12) installed.

Quantities are per assembly as shown. Left side shown.

Torque wheel nuts to 90 ft-lb



#### 4.5.1 Rake Wheel Assembly (Standard Tine)



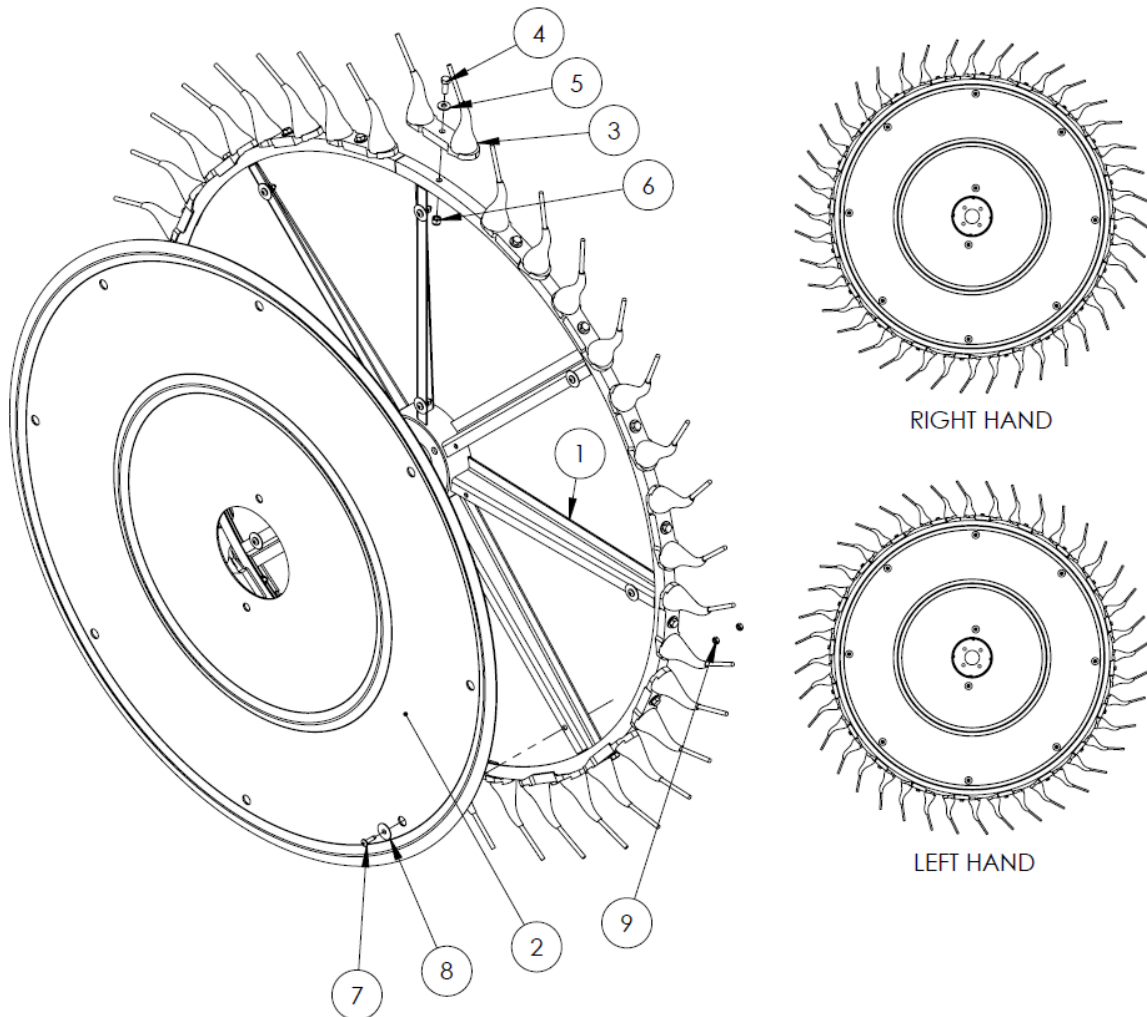
4.5.1 Rake Wheel Assembly (Standard Tine)							
	Description	ID #	QTY		Description	ID #	QTY
1	Complete Left Wheel	*	1	3	Rake Tine	16092	48
	Complete Right Wheel	*		4	Outer Ring	22055	1
	Center Disk Left	22053		5	Carriage Bolt, 3/8 x 1"	15718	48
	Center Disk Right	22731		6	Washer, 3/8" Heavy #	33189	48
2	Wind Guard	22054	1	7	Nut, 3/8" Stover #	17586	48

**NOTE:** Left hand shown. Quantities are for each wheel.

# S/N VR3407 & below uses flange nut #17844 without a washer. If desired, this can be replaced with washer #33189 and nut #17586



#### 4.5.2 Rake Wheel Assembly (Rubber Mounted Tine)



4.5.2 Rake Wheel Assembly (Rubber Mounted Tine)							
	Description	ID #	QTY		Description	ID #	QTY
	Complete Left Wheel			5	Washer, 3/8" Flat	11667	20
	Complete Right Wheel			6	Nut, 3/8" Nylon Lock	10806	20
1	RMT Wheel Frame	31291	1	7	Bolt, 1/4 x 1" Truss-Head	32146	10
2	Wind Guard	32106	1	8	Washer, 5/16" Fender	32148	10
3	RMT Tine	31234	20	9	Nut, 1/4"	12904	20
4	Bolt, 3/8 x 1"	13806	20				

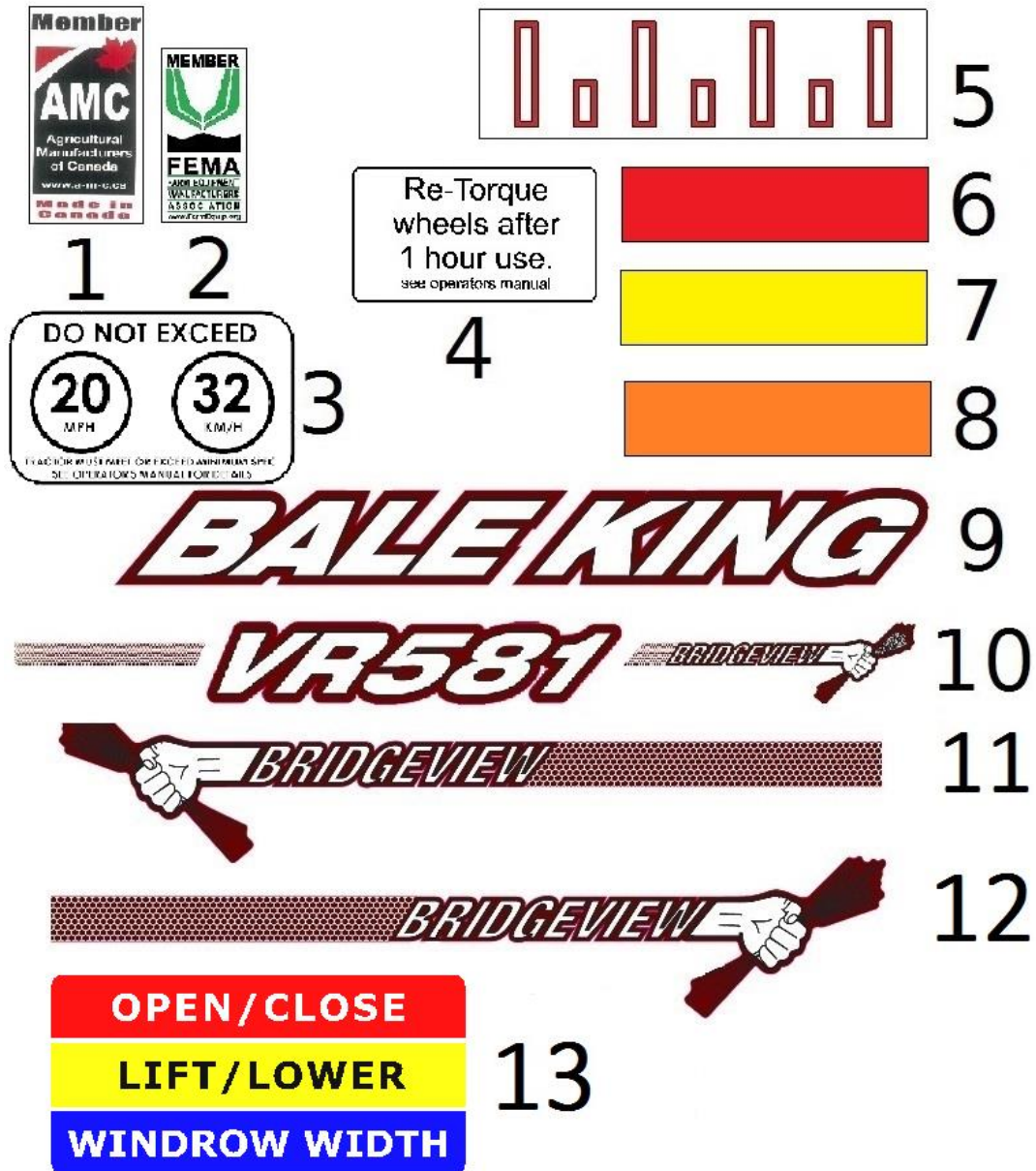
**NOTE:** Left hand shown. Quantities are for each wheel.







## 4.6 Decals

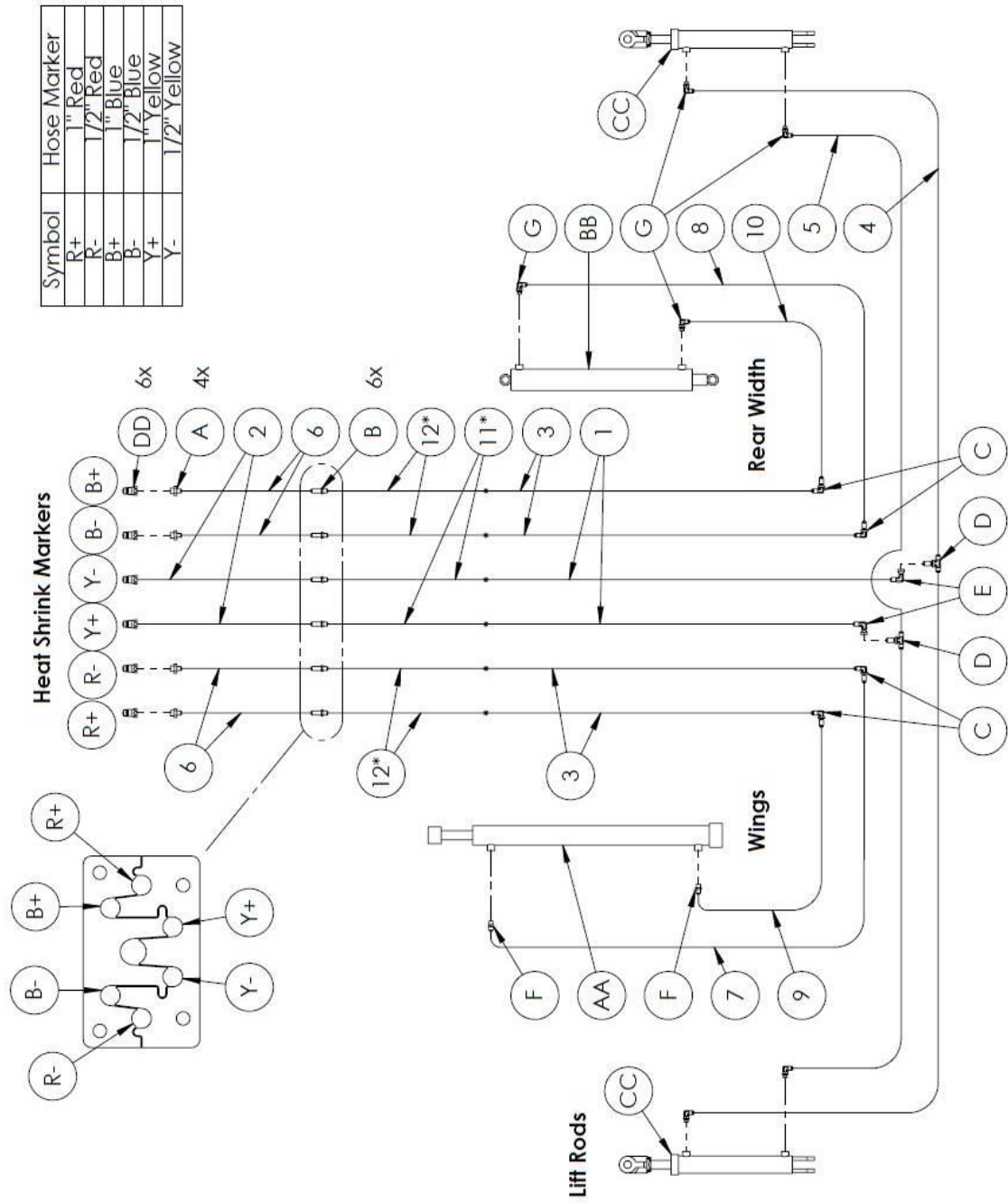


4.6 Decals							
	Description	ID #	QTY		Description	ID #	QTY
1	PIMA/AMC	12239	1	8	Orange Reflector	28386	2
2	FEMA	25347	1	9	"BALE KING"	22162	2
3	Speed / Transport Lock	33159	1	10	"VR581"	26353	2
4	Wheel Torque Reminder	28385	4	11	"Bridgeview" Left	24554	1
5	Width Indicator	23011	1	12	"Bridgeview" Right	24552	1
6	Red Reflector	28383	6	13	Hyd. Functions – 3 Remote	33147	1
7	Amber Reflector	28384	10		Hyd. Functions – 2 Remote	33146	



## 4.7 Hydraulic Components

**VR581 Hydraulic Schematic**



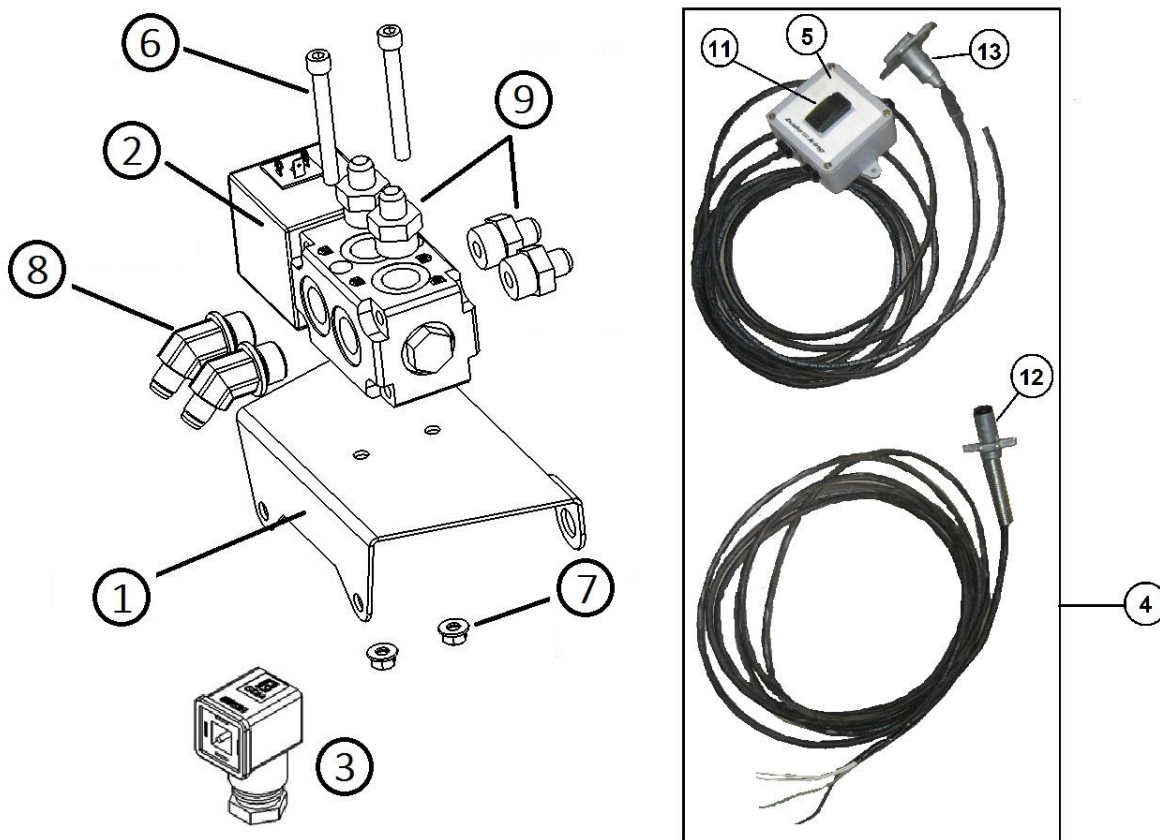


4.7 Hydraulic Components			
VR581			
	Description	ID #	QTY
AA	Hydraulic Cylinder, 2-1/2 x 30"	16301	1
	Seal Kit	16396	
BB	Hydraulic Cylinder, 2-1/2 x 20"	17328	1
	Seal Kit	16396	
CC	Hydraulic Cylinder, 2" x 9"	26379	2
	Seal Kit	26641	
	Clevis		
	Stroke Limit Nut	26459	
DD	Pioneer Tip, 8FB	17379	6
<i>Hydraulic Adaptor Kit</i>			
A	8MB-6MJ	11740	4
B	6MJBH	11767	6
C	6MJBH90 Install 9/16" lock washer inside bulkhead as spacer	10187 23369	4
D	6MJBHL-6MJT	10188	2
E	6MJ-6FJX90	12162	2
F	6MB-6MJ	10162	2
G	6MB-6MJ90	10201	6
<i>Hydraulic Hose Kit</i>			
1	3/8 x 336" OAL, 6FJX-6FJX		2
2	3/8 x 120" OAL, 6FJX-8MB		2
3	1/4 x 336" OAL, 6FJX-6FJX		4
4	1/4 x 141" OAL, 6FJX-6FJX		2
5	1/4 x 127" OAL, 6FJX-6FJX		2
6	1/4 x 120" OAL, 6FJX-6FJX		4
7	1/4 x 79" OAL, 6FJX-6FJX90		1
8	1/4 x 76" OAL, 6FJX-6FJX		1
9	1/4 x 47" OAL, 6FJX-6FJX90		1
10	1/4 x 54" OAL, 6FJX-6FJX		1
<i>Extension Kit * 14 wheel Only *</i>			
11	3/8 x 40" OAL, 6FJX-6MJ	26457	2
12	1/4 x 40" OAL, 6FJX-6MJ	21374	4
<i>Diverter Kit (26357)</i>			
13	1/4" x 26" OAL, 6FJX-6FJX90	26460	4
H	10MB-6MJ	11739	4
J	10MB-6MJ45	22722	2





### 4.7.1 Diverter Valve Kit

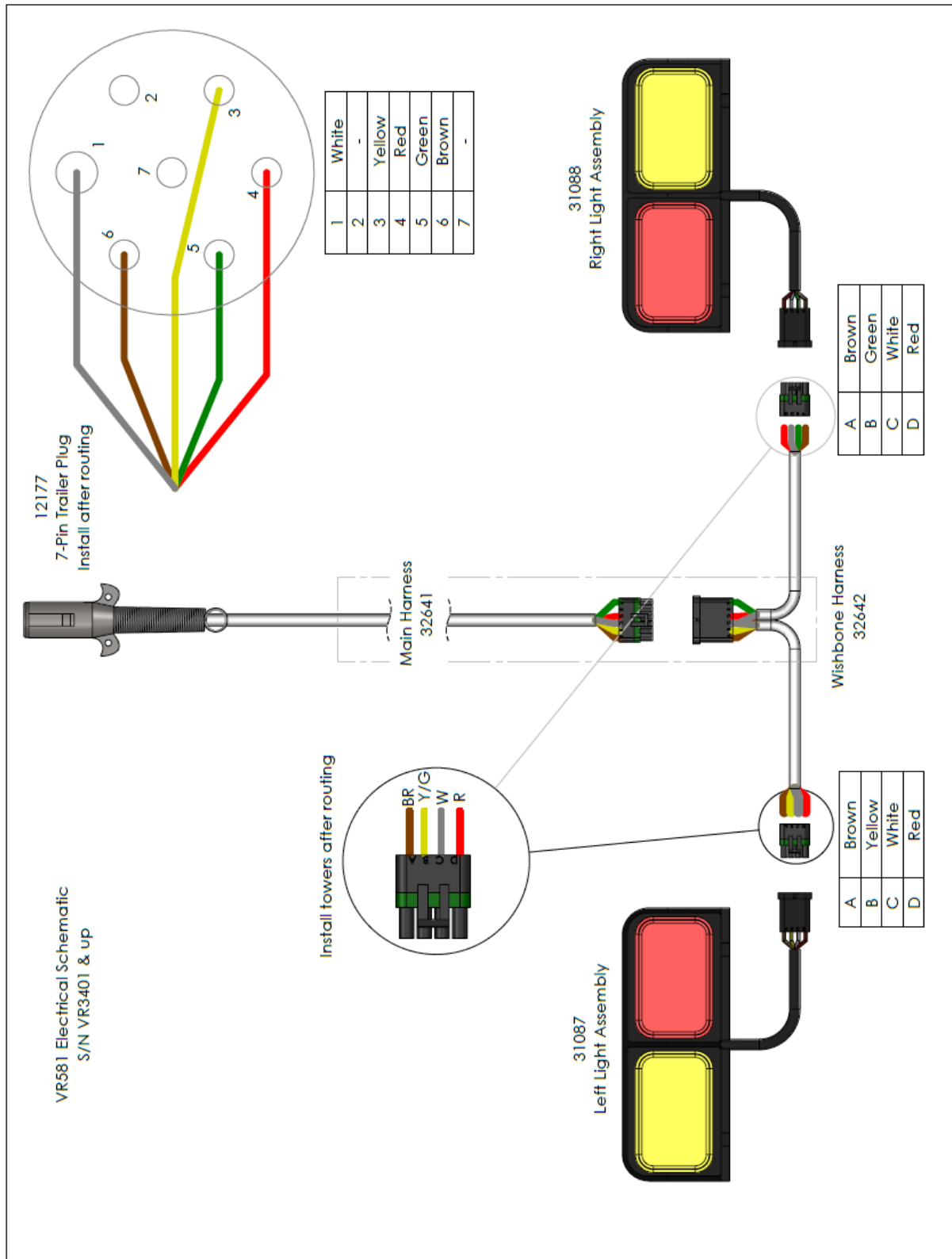


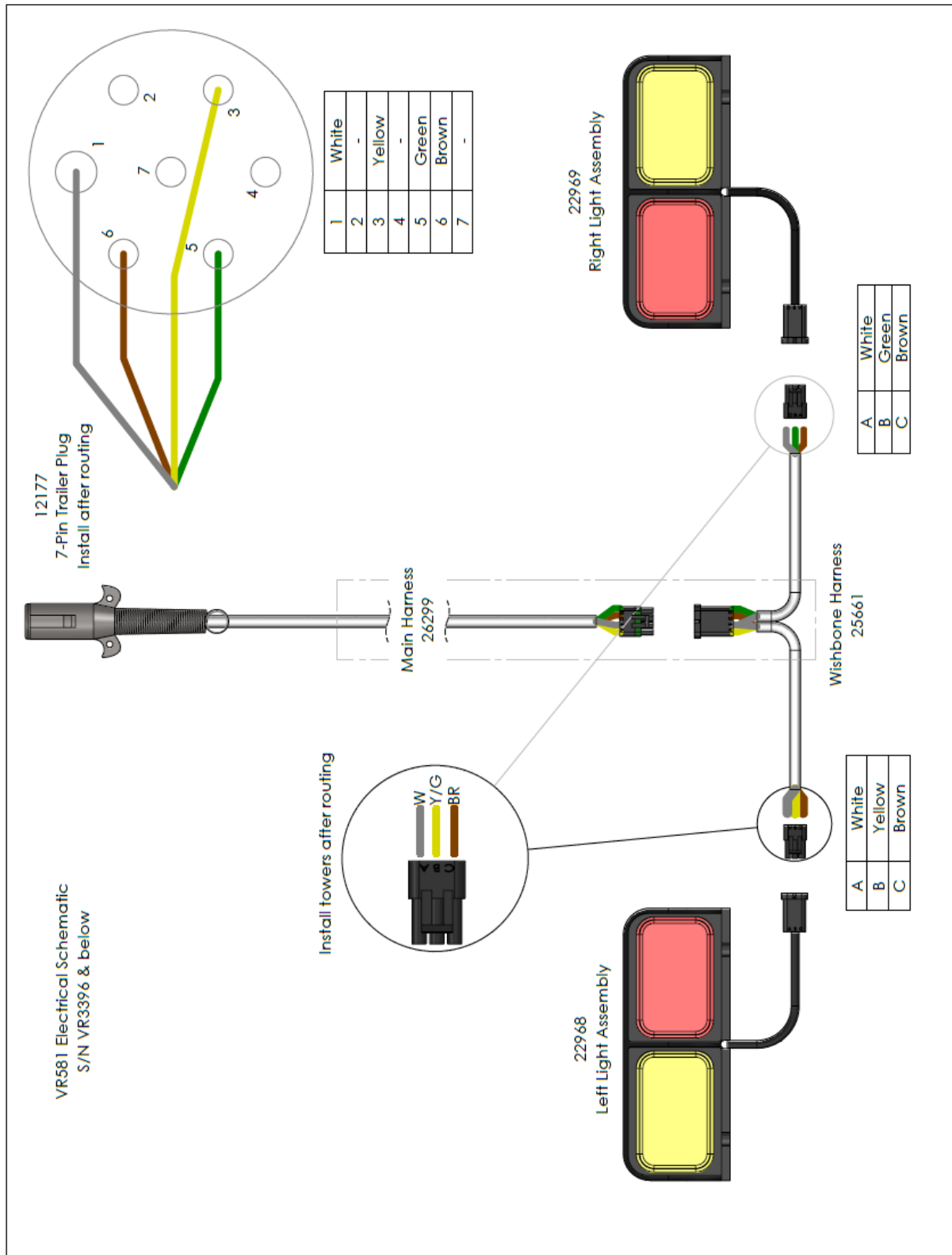
4.7.1 Diverter Valve Kit							
	Description	ID #	QTY		Description	ID #	QTY
-	Complete Kit	26357	-	8	Fitting, 10MB-6MJ45	22722	2
1	Diverter Valve Bracket	26358	1	9	Fitting, 10MB-6MJ	11739	4
2	Diverter Valve	11743	1	10	Hose, 1/4" x 26" OAL, 6FJX-6FJX90	26460	4
3	Diverter Valve Plug	13657	1				
4	Control Box w/ Harness	30942	1	11	Control Box Switch	13561	*
5	Rake Control Box Decal	23296	1	12	4-pin Trailer Plug	24691	*
6	5/16 x 3" Socket Head	11783	2	13	4-pin Tractor Plug	24690	*
7	5/16" Serrated Flange Nut	11814	2				

\*NOTE: Control box (4) comes everything needed to connect between the tractor and valve EXCEPT plug (3).



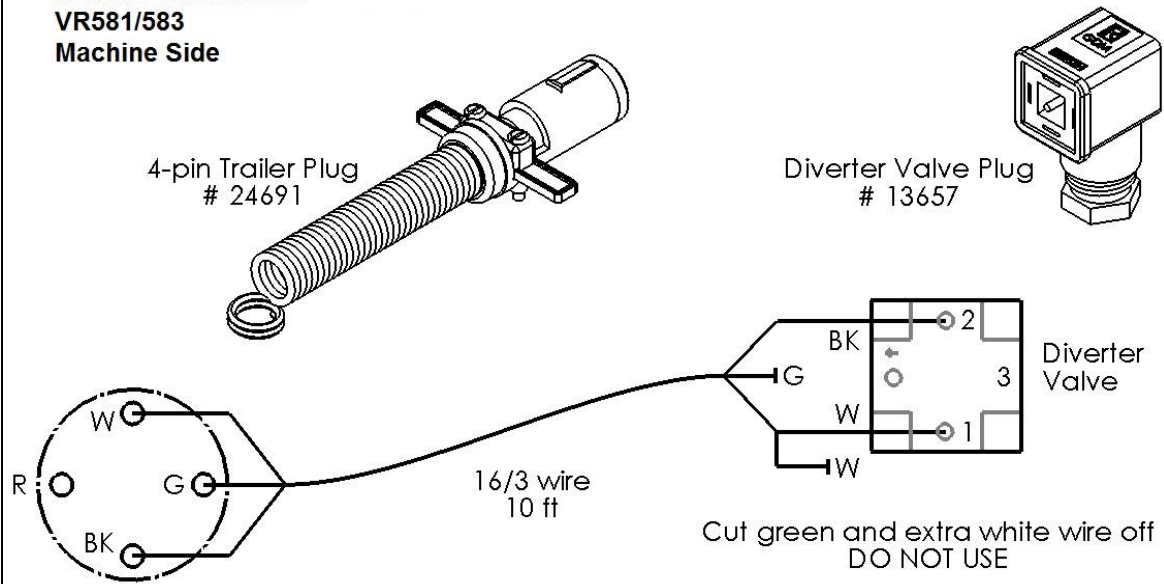
## 4.8 Electrical Components







**Diverter Control Box  
VR581/583  
Machine Side**



**Hay Rake VR581/583  
Diverter Valve Electrical  
Tractor Side**

