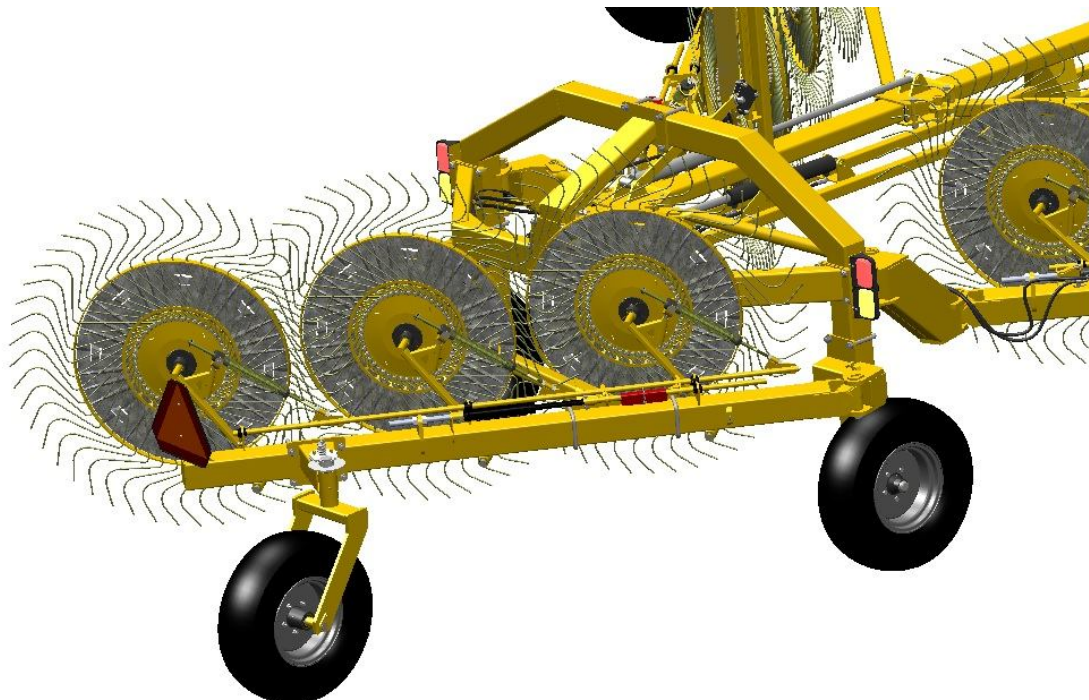




# **BRIDGEVIEW**



## **Rear Kicker Wheel Option For VR481 & VR482 Hay Rakes**

### **OPERATOR & PARTS MANUAL**

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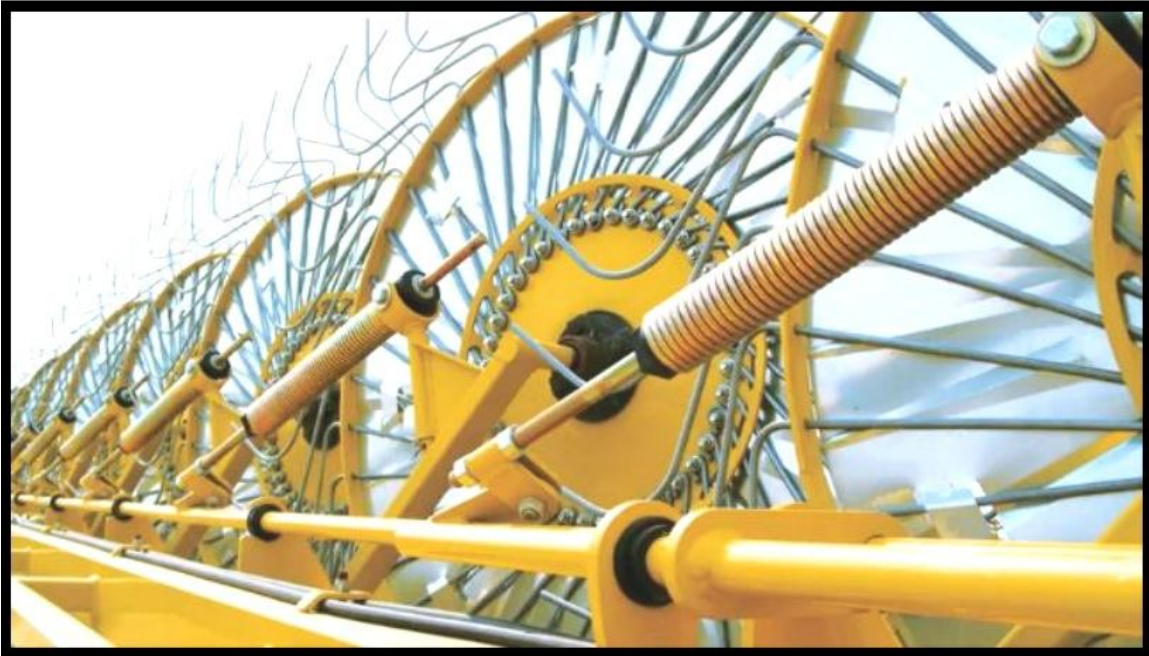
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## 1.0 Introduction

Thank you for purchasing a rear kicker wheel kit for your **Bridgeview Bale King Hay Rake**. This optional attachment will allow for full coverage of the raking area, allowing the operator to flip every last acre of hay.

This is a complete assembly, safety, operation, and parts manual for the Rear Kicker Wheel Kit. The manual covers in detail how to safely and effectively set up the rake and these steps should be followed to ensure safety and longevity of your machine. The parts manual covers all the parts you may need to order in case of accident or breakdown. Please read through this manual before beginning assembly.



*\*Please note that some parts and assemblies may not be exactly as shown\**

## 2.0 Safety and Operation

### 2.1 Safety Precautions

The following safety precautions **MUST** be followed to ensure the safe operation of the rear kicker wheel kit:

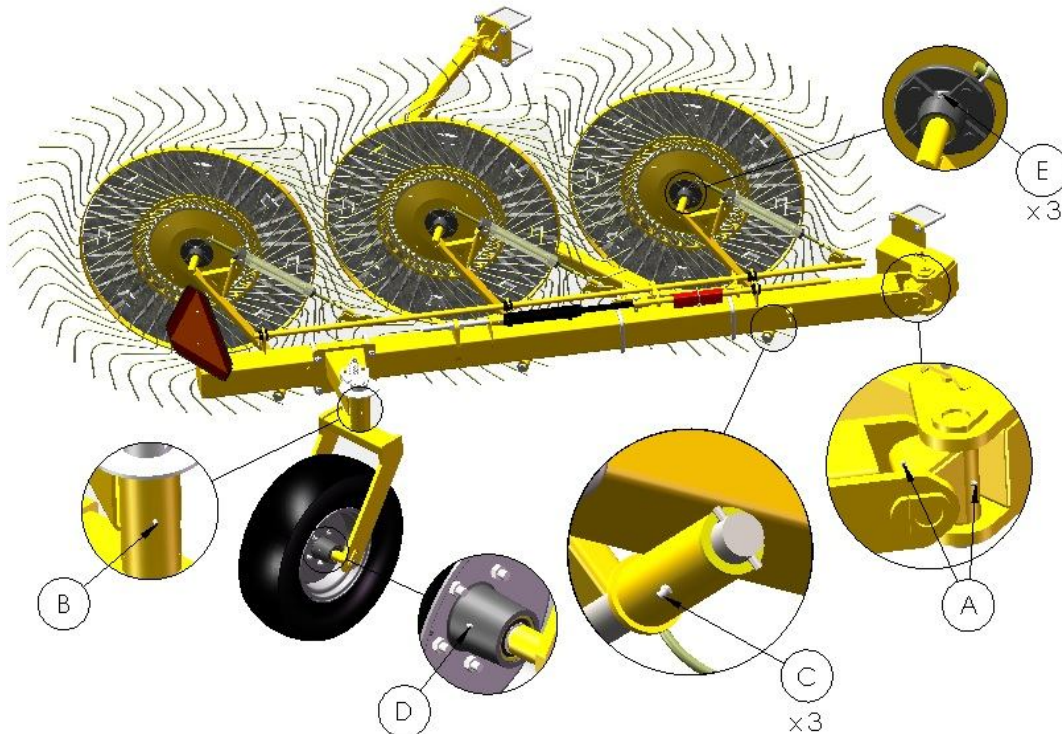
1. This trailed machine was designed and intended for on-farm use only.  
**Tow at speeds not to exceed 20 MPH.** Slow down for hills, curves, rough areas, and in advance of braking to prevent loss of control and possible injury or death.
2. **Always** turn off the tractor when leaving the operating platform.
3. **Always** read and follow the Highway Transport section before towing the hay rake on the highway.
4. Unless operating tractor, **stand clear** of the rake when in operation.
5. **Do not** stand inside the rake while it is being opened or closed.
6. Always ensure that the Slow Moving Vehicle (SMV) sign and the lights are visible from the rear.

## 2.2 Machine Maintenance & Lubrication

General maintenance of the rear kicker wheel kit should be done on a regular basis. This includes checking all bolts to ensure they are tight, making sure all grease zerks are accepting grease and ensuring that all moving parts are functioning correctly.

The rear kicker wheel kit is equipped with a number of grease zerks. It is important that these locations are lubricated according to the following maintenance schedule:

	<b>Location</b>	<b>QTY</b>	<b>Timeline</b>
<b>A</b>	Knuckle Joint	2	10 hours
<b>B</b>	Caster Pivot	1	
<b>C</b>	Wheel Arms	3	
<b>D</b>	Caster Wheel Hub	1	200 hours or seasonally
<b>E</b>	Rake Wheel Hub	3	



**NOTE:** For ease of greasing, all zerks are accessed from the outside. Fitting "C" is accessed from the bottom of the main arms.

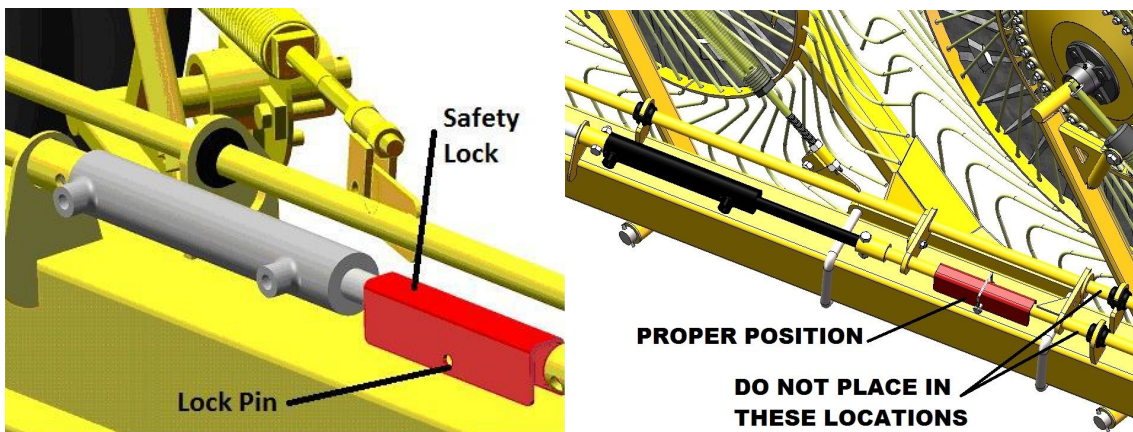
## 2.3 Wheel & Tire Information

The proper tire pressure for the Bale King Hay Rake is **35 psi**. Proper tire inflation will help alleviate a puncture problem when pulling and operating the machine in rough terrain. The optimum tire size is 9.5L-15, 8 Ply on a 5-bolt, 5.5" pattern rim.

- **NOTE:** Check and tighten wheel bolts on a regular basis to ensure that bolts are tightened to **90 ft-lbs**.
- Warranty **does not** cover damaged rims and hubs due to loose wheel bolts.
- Tire warranty is covered by the tire manufacturer.

## 2.4 Cylinder Safety Locks

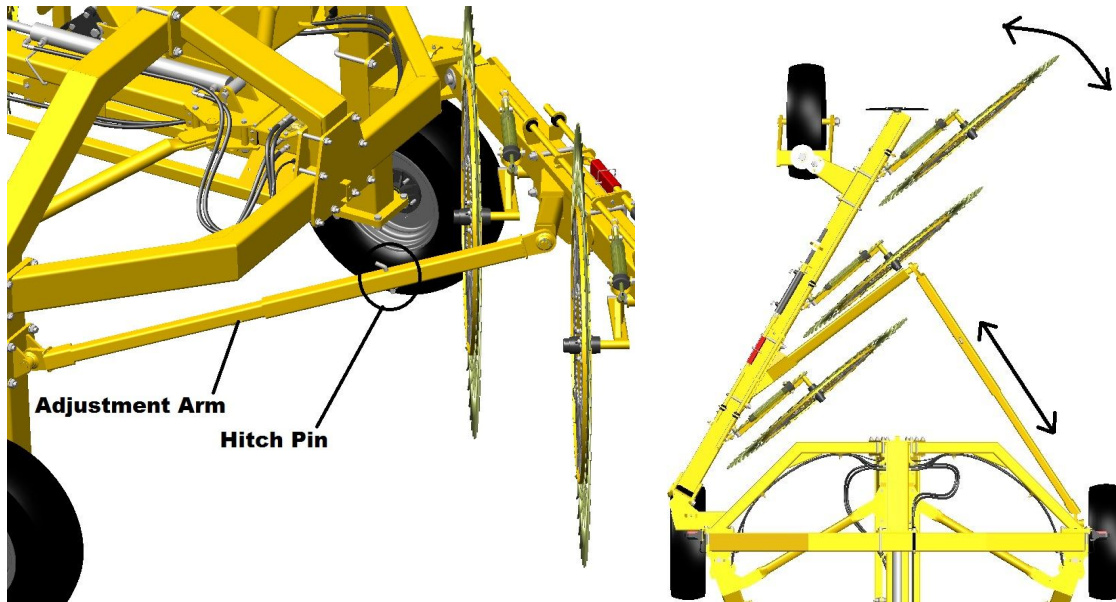
The rear kicker wheel kit comes with a safety lock which will prevent the rake wheels from lowering to the ground during transport. This is accomplished by removing the red channel from its home position, and setting it overtop of the outstretched hydraulic cylinder. Insert the safety pin to lock it in place.



**NOTE:** There are two locations which the safety lock CANNOT be placed in when not in use. They are marked by decals. Place the safety lock in the position shown.

## 2.5 Kicker Wheel Adjustment

There are 5 adjustment settings for the width/angle of the rear kicker wheel. These can be changed by removing the hitch pin in the adjustment arm, and changing the holes.

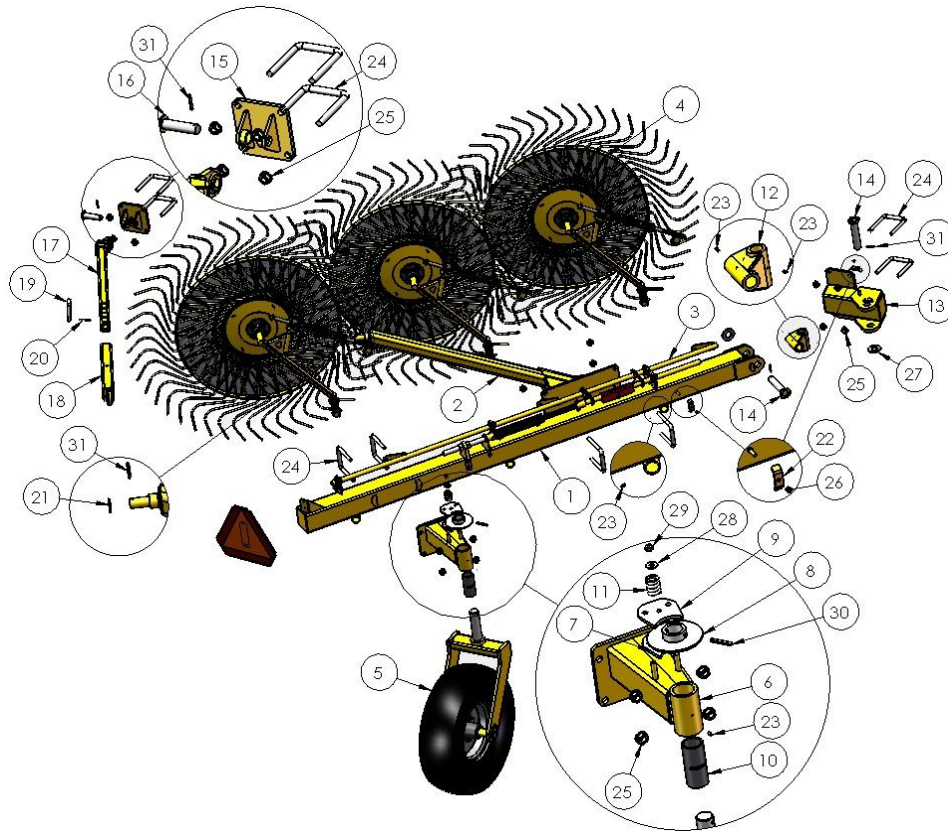


The shorter the adjustment arm, the shallower the wheel angle. This will cover more area, and move the windrow further to the left side. The longer the adjustment arm, the less the kicker wheel will have an effect on the windrow.

## 3.0 Parts Diagrams and Part Numbers

NOTE: Left & right as used in this manual are from the rear of the machine facing forward.

### 3.1 Rake Arm Assembly

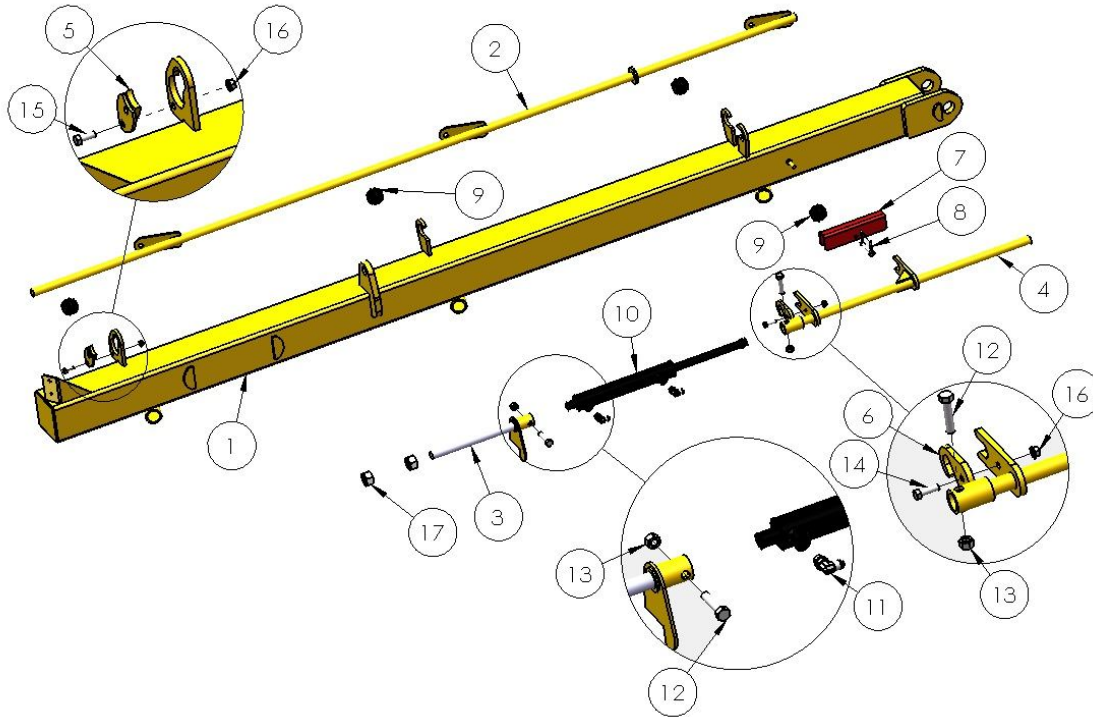


#	Name	Part #	QTY	#	Name	Part #	QTY
1	Rake Arm - Rear Kicker	24282	1	17	Adjustment Arm - Lower	24287	1
2	Riser Arm - Rear Kicker	24283	1	18	Adjustment Arm - Upper	24288	1
3	Lift Rod Assembly	See Section 3.2	1	19	Hitch Pin, 5/8 x 3" *	16339	1
4	Rake Wheel Assembly	See Section 3.5	3	20	Hairpin, 5/32" x 2-15/16"	16363	1
5	Caster Wheel Assembly	See Section 3.3	1	21	Washer, Scissor Arm	21384	1
6	Bolt-on Caster Mount	22196	1	22	Hydraulic Hose Clamp	22249	1
7	Caster Brake Plate	16137	1	23	Grease Zerk	16364	6
8	Brake Disk, 2 Inch	17330	1	24	U-Bolt, 3/4 x 5 x 5"	16091	8
9	Caster Damper Plate	16183	1	25	Nut, 3/4" Serrated Flange	10283	16
10	Caster Pivot Bushing	21150	3	26	Nut, 3/8" Nylon Lock	10271	2
11	Brake Spring	16093	1	27	Washer, 1-1/2" Flat	20434	2
12	Knuckle - Left	23096	1	28	Washer, 1/2" Flat	11668	1
13	Pivot Arm - Rear Kicker	24284	1	29	Nut, 1/2" Stover Lock	14393	1
14	Pin, 1-1/2 x 7-5/16"	22254	2	30	Roll Pin, 3/8 x 2-3/4"	16039	1
15	Adjustment Arm Pivot	24285	1	31	Roll Pin, 1/4 x 2"	15872	4
16	Pin, 1-1/8" x 4" Usable	22244	1				

\* NOTE: Hitch pin comes with a hairpin



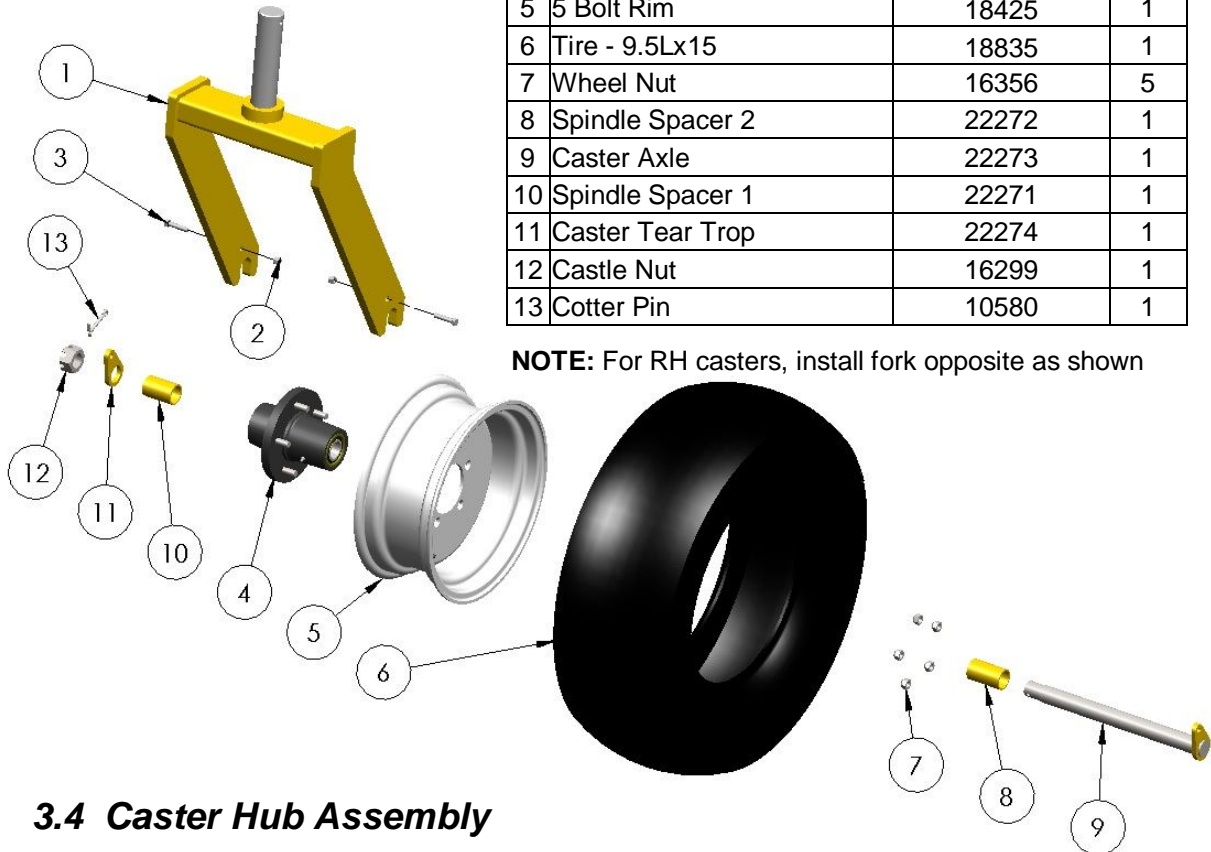
### 3.2 Lift Rod Assembly



#	Name	Part #	QTY	#	Name	Part #	QTY
1	Main Boom - Rear Kicker	24282	1	10	Hyd. Cylinder, 1-1/2 x 8"	See Section 3.8	1
2	Lift Rod - Rear Kicker	24286	1	11	Hyd. Fitting, 6MB-6MJ90	10201	1
3	Lift Arm Adjuster - Right	22260	1	12	Bolt, 1/2 x 2-1/4"	11820	2
4	Lift Rod - Outer	23117	1	13	Nut, 1/2" Stover Lock	14393	2
5	Lift Rod Lock - Rear	22262	1	14	Bolt, 3/8 x 1-1/4"	10253	1
6	Lift Rod Fork Lock	22248	1	15	Bolt, 3/8 x 1"	13806	1
7	Cylinder Safety Lock	23120	1	16	Nut, 3/8" Serrated Flange	10271	2
8	Quick Pin, 3/8 x 2"	12050		17	Nut, 1"	12946	2
9	Lift Rod Bushing	16099					

### 3.3 Caster Wheel Assembly

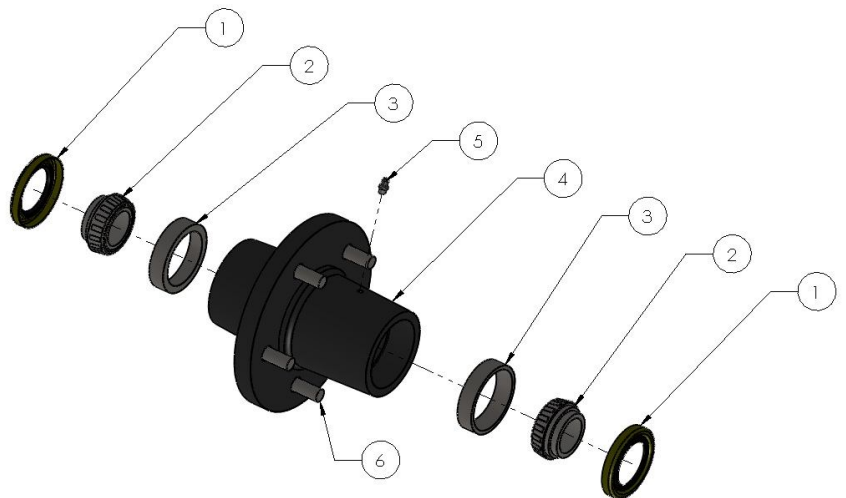
#	Name	Part #	QTY
1	Caster Fork	22270	1
2	Bolt, 3/8 x 1-3/4"	16040	2
3	Nut, 3/8" Nylon Lock	10271	2
4	Caster Hub Assembly	See Section 3.4	1
5	5 Bolt Rim	18425	1
6	Tire - 9.5Lx15	18835	1 </td
7	Wheel Nut	16356	5
8	Spindle Spacer 2	22272	1
9	Caster Axle	22273	1
10	Spindle Spacer 1	22271	1
11	Caster Tear Trop	22274	1
12	Castle Nut	16299	1
13	Cotter Pin	10580	1



**NOTE:** For RH casters, install fork opposite as shown

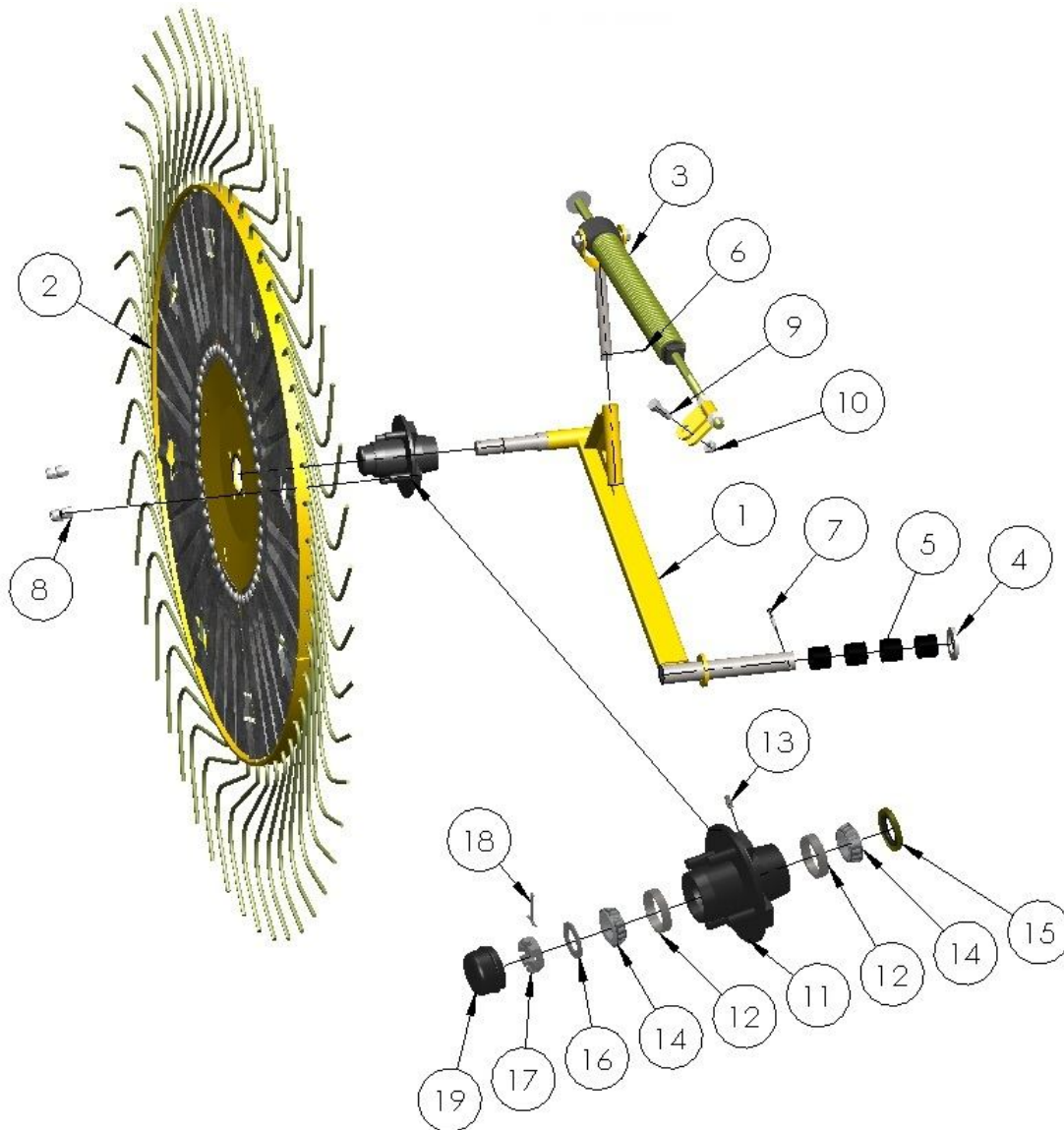
### 3.4 Caster Hub Assembly

#	Name	Part #	QTY
1	Oil Seal	16297	2
2	Bearing Cone	16296	2
3	Bearing Cup	16295	2
4	Caster Hub*	16294	1
5	Grease Zerk	16364	1
6	Wheel Stud	16391	1



**\*NOTE:** Hub comes with wheel studs, grease zerk, and bearing cups installed

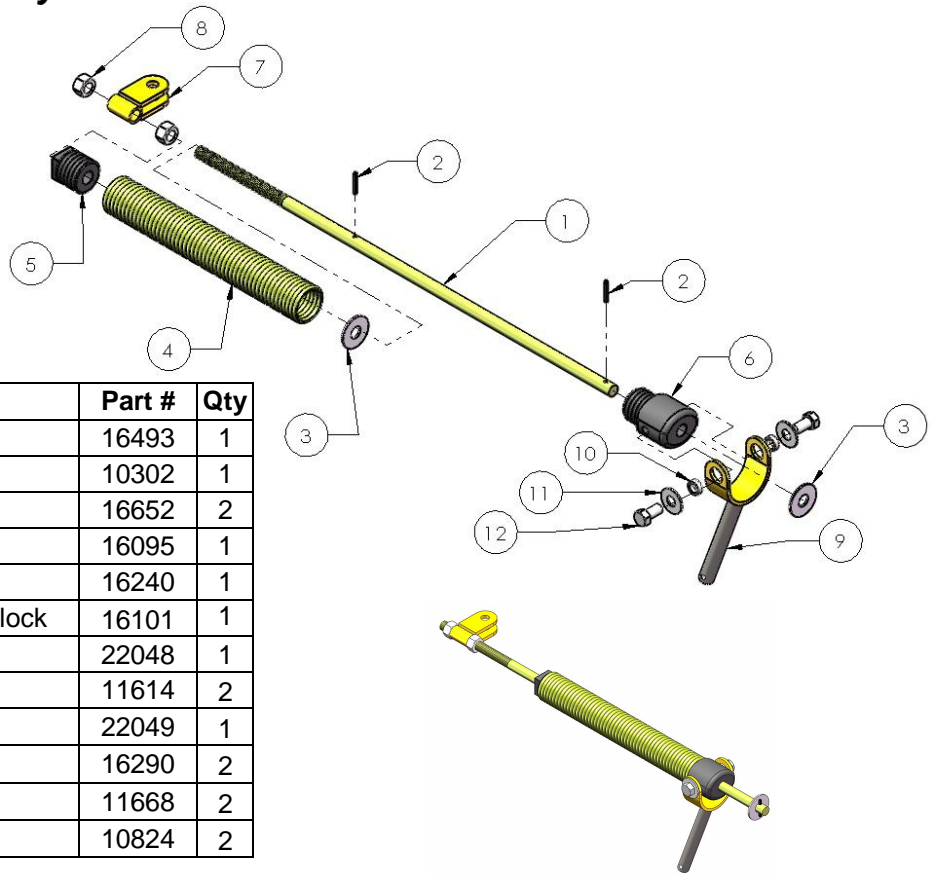
### 3.5 Right Rake Wheel Assembly



#	Name	Part #	QTY	#	Name	Part #	QTY
1	Rake Wheel Arm, Right	22276	1	11	Rake Wheel Hub *	16413	1
2	Rake Wheel	See Section 3.7	1	12	Bearing Cup	16081	2
3	Spring Assembly	See Section 3.6	1	13	Grease Zerk	16364	1
4	Rake Arm Washer	16650	1	14	Cone Bearing	16082	2
5	Rake Arm Pivot Bushing	16096	4	15	Oil 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	16089	1
9	Bolt, 1/2 x 1-1/2"	14461	1	19	Dust Cap	16084	1
10	Nut, 1/2" Stover Lock	14393	1				

**\*NOTE:** Hub comes with wheel studs, grease zerk, and bearing cups installed

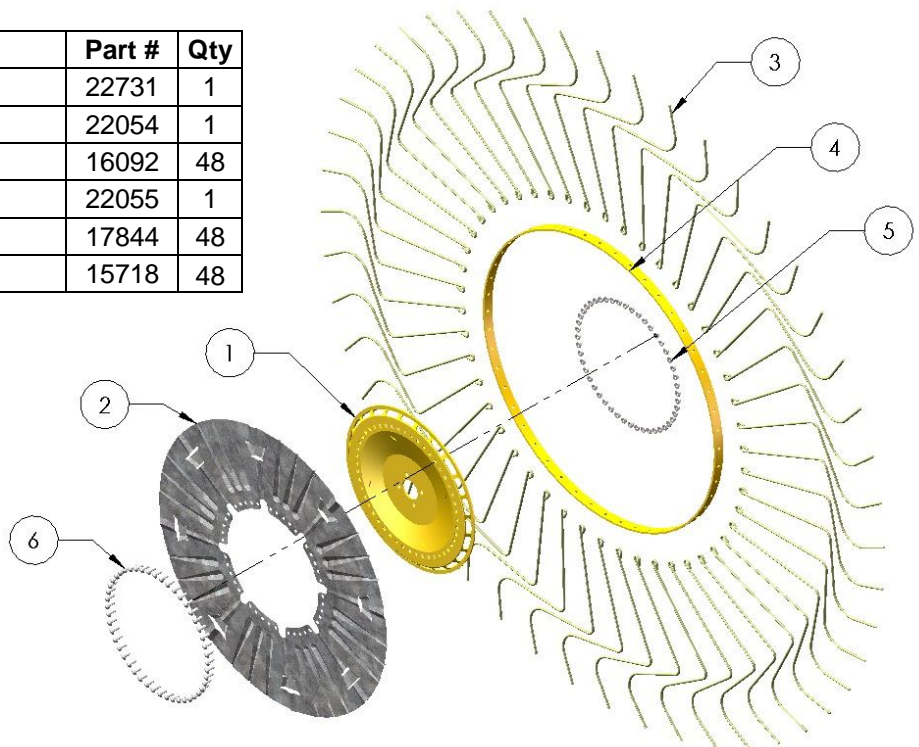
### 3.6 Spring Assembly



#	Name	Part #	Qty
1	Spring Slide Rod	16493	1
2	Roll Pin, 3/16 x 1-1/4"	10302	1
3	Washer, 5/8" Flat	16652	2
4	Spring	16095	1
5	Spring Retainer Block	16240	1
6	Spring Retainer Pivot Block	16101	1
7	Spring Clevis	22048	1
8	Nut, 5/8" Hex	11614	2
9	Spring Yoke	22049	1
10	Spring Yoke Bushing	16290	2
11	Washer, 1/2" Flat	11668	2
12	Bolt, 1/2 x 1"	10824	2

### 3.7 Rake Wheel

#	Name	Part #	Qty
1	Center Disk, Right	22731	1
2	Wind Guard	22054	1
3	Tine	16092	48
4	Outer Ring	22055	1
5	Nut, 3/8" Stover Flange	17844	48
6	Bolt, 3/8 x 1" Carriage	15718	48



### 3.8 Hydraulic Cylinders

1-1/2" x 8" x 1" Rod

Complete Cylinder - 17442

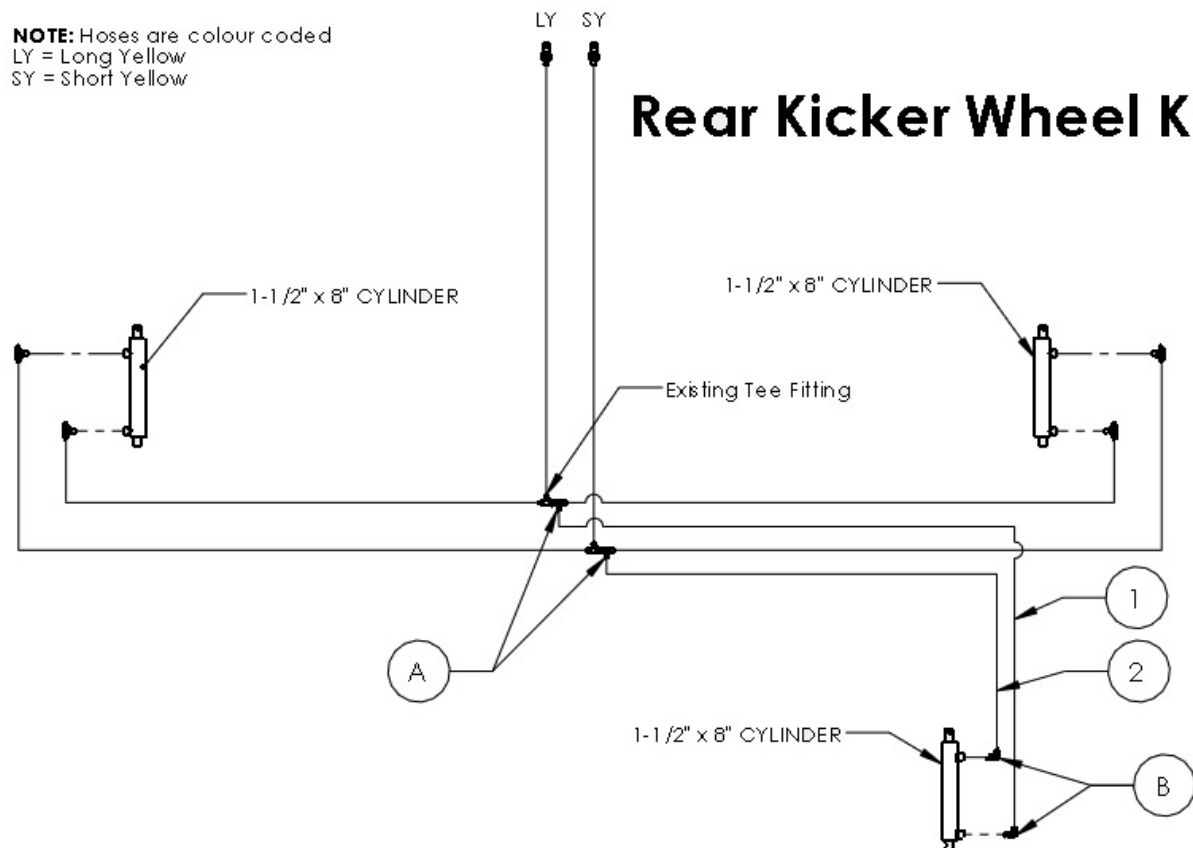
Cylinder Rod - 17614

Cylinder Seal Kit - 17613



### 3.9 Hydraulic Schematic

**NOTE:** Hoses are colour coded  
LY = Long Yellow  
SY = Short Yellow



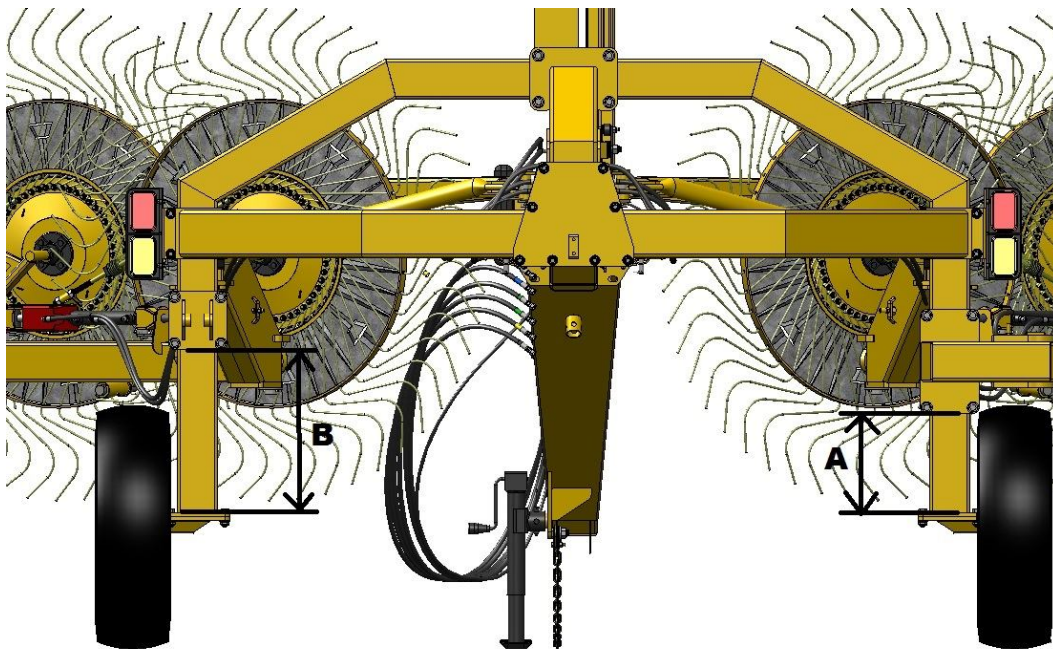
HOSE	HOSE DIA METER	OVERALL LENGTH	BULKHEAD END	END 2
1	1/4"	165"	6FJX	6FJX 90
2	1/4"	155"	6FJX	6FJX 90

FITTING	DESCRIPTION	QTY
A	6FJXR-6MJT	2
B	6MB-6MJ90	2

## 4.0 Assembly and Installation

### 4.1 Install Pivot Mounts

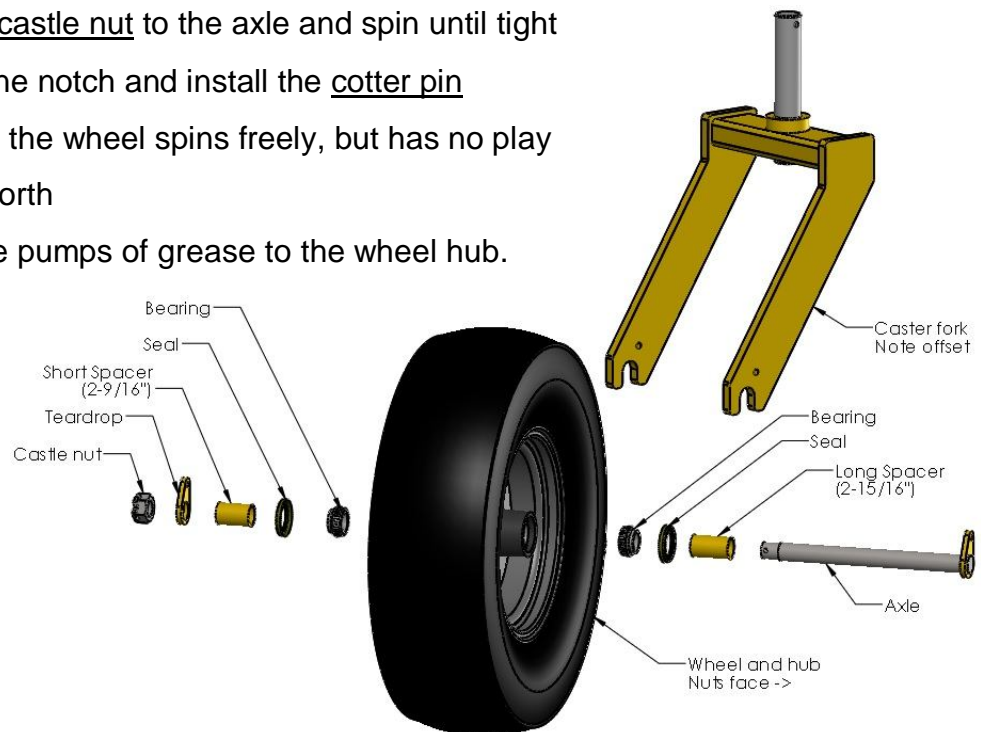
- Using two  $\frac{3}{4}$ " u-bolts and four serrated flange (SF) nuts, bolt the **Kicker Pivot Arm** to the right frame upright  $13\text{-}\frac{1}{8}$ " from the wheel flange as shown.
- Using two  $\frac{3}{4}$ " u-bolts and four SF nuts, both the **Adjustment Arm Pivot** to the left frame upright  $20\text{-}\frac{7}{8}$ " from the wheel flange as shown.



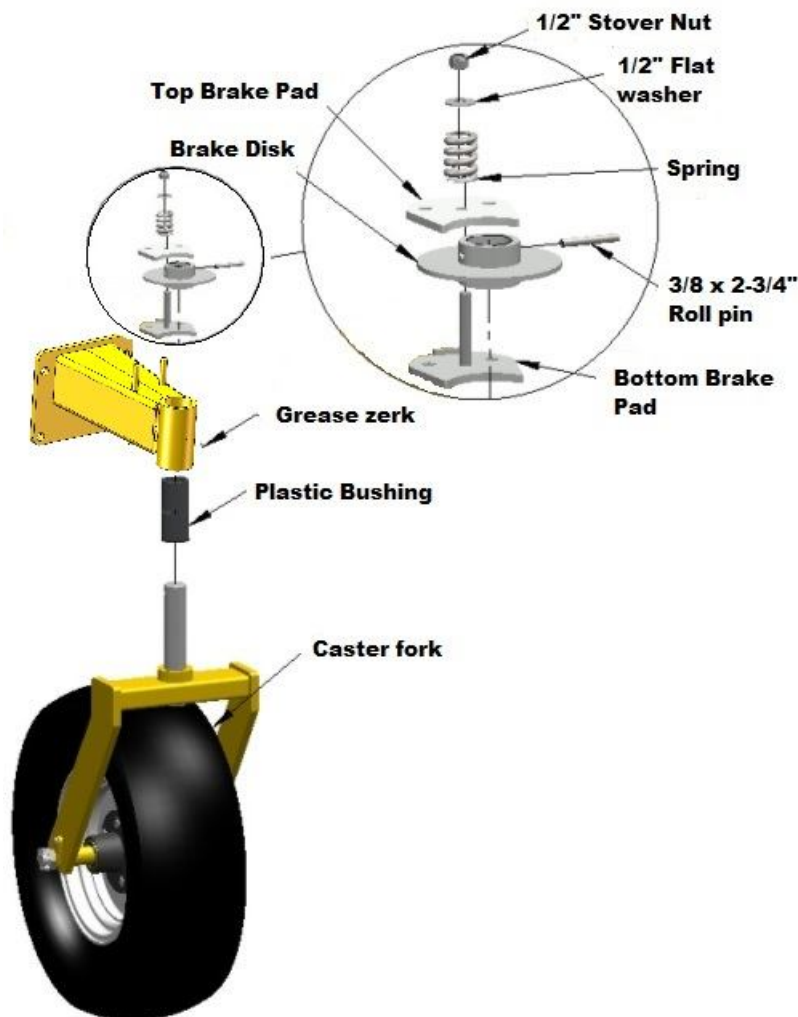
<b>A</b>	$13\text{-}\frac{1}{8}$ "
<b>B</b>	$20\text{-}\frac{7}{8}$ "

## 4.2 Assemble Caster Wheel

- Assemble the hub:
  - Fill the housing with grease
  - Pack the two bearings with grease and install at each end of the housing
  - Lightly tap the seals into each end of the housing
- Bolt the **caster hub** to the **wheel** using five wheel nuts (*tapered end against rim*). Make sure the valve stem is on the same side as the nuts. *Torque to 90 ft-lb.*
- Install the axle and spacers as shown. **DO NOT TIGHTEN.**
  - Slide the **large spacer** onto the axle
  - Install the axle into the hub from the wheel nut side
  - Slide the **small spacer** onto the axle
- Install the **caster fork** over the wheels with the axle in the slot on the bottom. Make sure that the offset the same as shown above.
  - Bolt the axle to the caster fork with a 3/8 x 1-3/4" bolt and nylon lock nut
  - Slide the **teardrop** onto the opposite end of the axle and secure with a 3/8 x 1-3/4" bolt and nylon lock nut.
- Tighten the assembly:
  - Install the castle nut to the axle and spin until tight
  - Back off one notch and install the cotter pin
  - Make sure the wheel spins freely, but has no play back and forth
- Apply 10 more pumps of grease to the wheel hub.



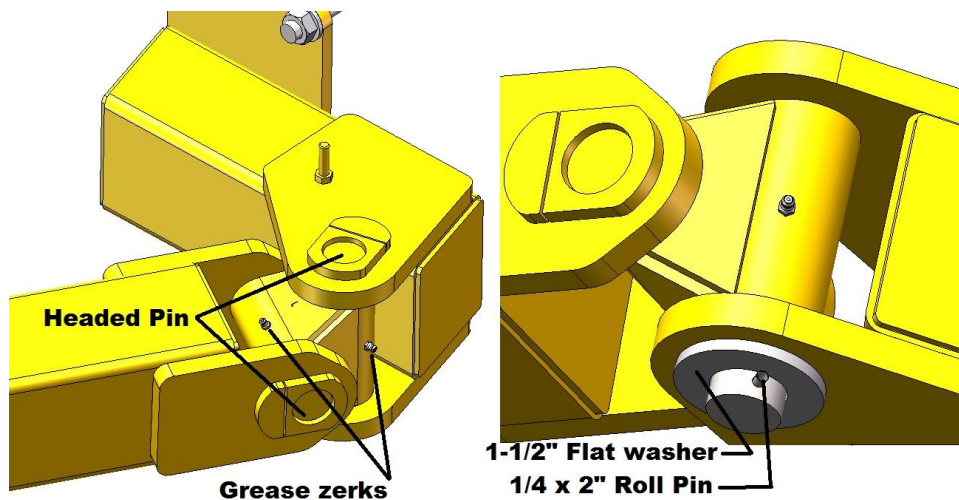
- Install the **plastic bushing** and the **grease zerk** to the **caster pivot**
- Insert the caster fork into the bushing (use a light coat of grease on the bushing for easier installation)
- Install the brakes:
  - Install the **bottom brake pad** (with welded bolts) over the dowels on the caster pivot
  - Install the **brake disk** to the caster fork and secure with a 3/8" x 2-3/4" roll pin
  - Install the **top brake pad** over the dowels on the caster pivot
  - Install the **brake spring** to the welded bolt, and fasten using a 1/2" flat washer and stover lock nut.



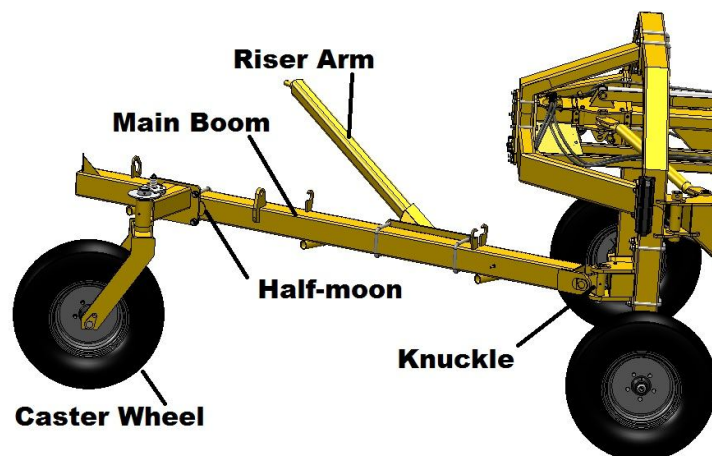


### 4.3 Install Main Boom

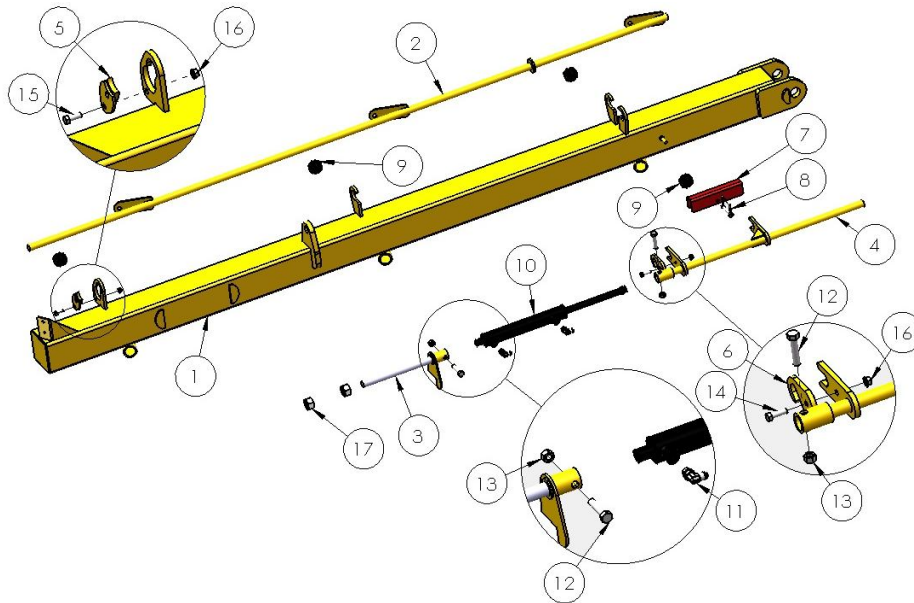
- Install two **grease zerks** into the knuckle
- Install the **knuckle** onto the **kicker pivot bar**. Make sure the grease zerks are orientated as shown. Secure with a **headed pin**, 1-1/2" washer and 1/4 x 2" roll pin.
- Install the **main boom** to the knuckle and fasten with a **headed pin**, 1-1/2" washer and 1/4 x 2" roll pin.



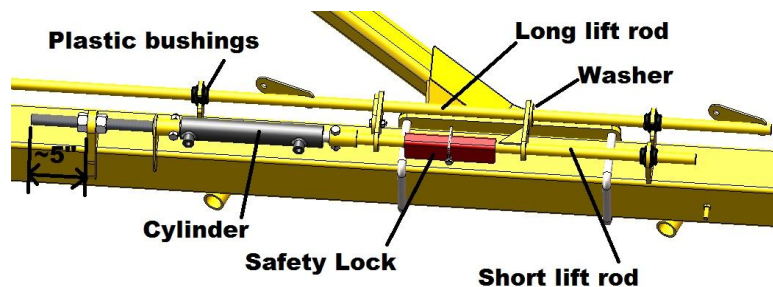
- Install the assembled **caster wheel** between the half-moons on the main arm and secure with two 3/4" u-bolts and four SF nuts.
- Install the **riser arm** between the other set of half-moons on the main arm and secure with two 3/4" u-bolts and four SF nuts.



## 4.4 Install Lift Rods

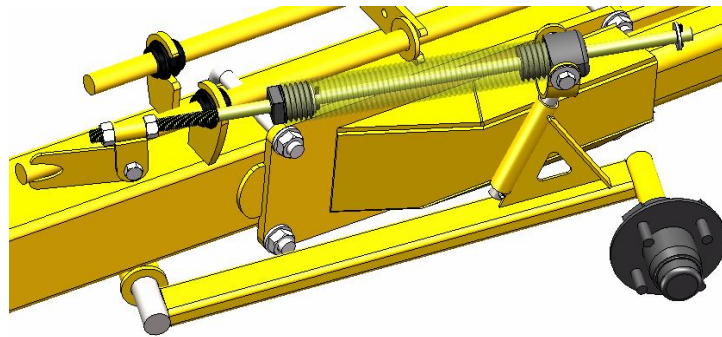


- Slide the **plastic bushings** (9) over the **lift rods** (2) and (4).
- Push the long lift rod into place in its holding brackets.
- Lock the main lift rod in place with the **lock** (5) 3/8 x 1" bolt (15) and nylon lock nut (16).
- Slide the short lift rod into place so that the forks catch the long lift rod behind the washer.
- Install the **threaded rod adjuster** (3) into the bracket and jam a 1" nut (17) on both sides. Adjust so that *about 5"* is sticking out behind the bracket
- Install the **hydraulic cylinder** (10) with **90 degree fittings** (11). Secure at both ends with a 1/2 x 2-1/4" bolt (12) and nylon lock nut (13)
- Tie the two lift rods together with the **hook** (6). Secure with a 3/8 x 1-1/4" bolt (14) and nylon lock nut (16).
- Place the **safety lock** (7) loosely in place on the short lift rod and secure with the 3/8" quick pin (8).

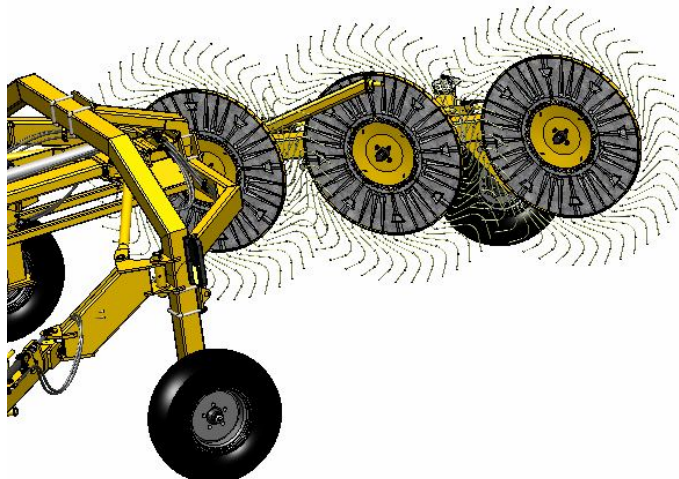


## 4.5 Install Rake Wheels

- Insert four **plastic bushings** and a **grease zerk** into each pivot pipe (underside of the main boom)
- Install the **rake wheel arms** to the inside of the main arm by sliding through the pivot pipe and securing with a 1-1/4" flat washer and a 1/4 x 2" roll pin.
- Slide the **spring yoke** rod through the pipe on the rake wheel arm and secure with a 1/4 x 1-1/4" roll pin.
- Connect the **spring clevis** to the lift rod tab using a 1/2 x 1-1/2" bolt and stover lock nut

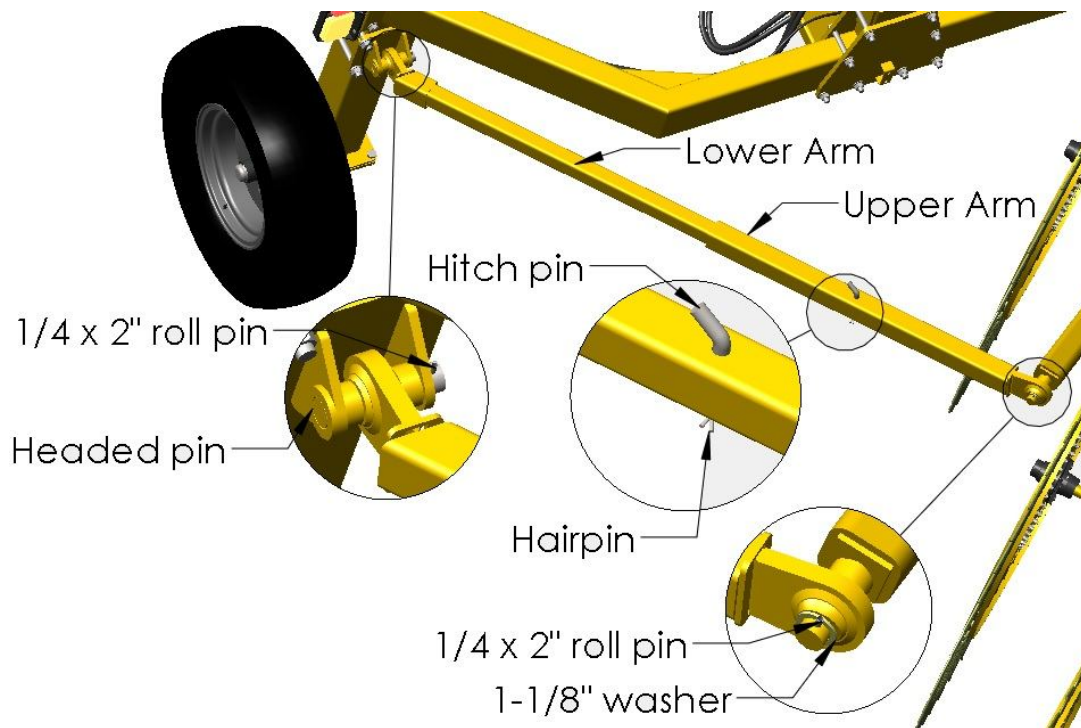


- Install a rake wheel to the hub using four wheel nuts. The wheels are mounted with the wind guard facing the front of the rake, and the tines on top facing the center of the machine. All three are right rake wheels and should match the ones on the right side of the machine. *NOTE: The nuts should be installed with the tapered edge facing out. Torque to 90 ft-lb.*
- Repeat for the 2 other wheels



#### 4.6 Install adjustment arm

- Install **upper adjustment arm** to the riser arm using a 1-1/8" washer and a 1/4 x 2" roll pin. Note the direction of the angle.
- Install **lower adjustment arm** to the frame pivot using a **headed pin** and a 1/4 x 2" roll pin. Note the direction of the angle.
- Slide the lower arm inside the upper arm until two holes line up. Fasten using a **hitch pin** and hairpin.

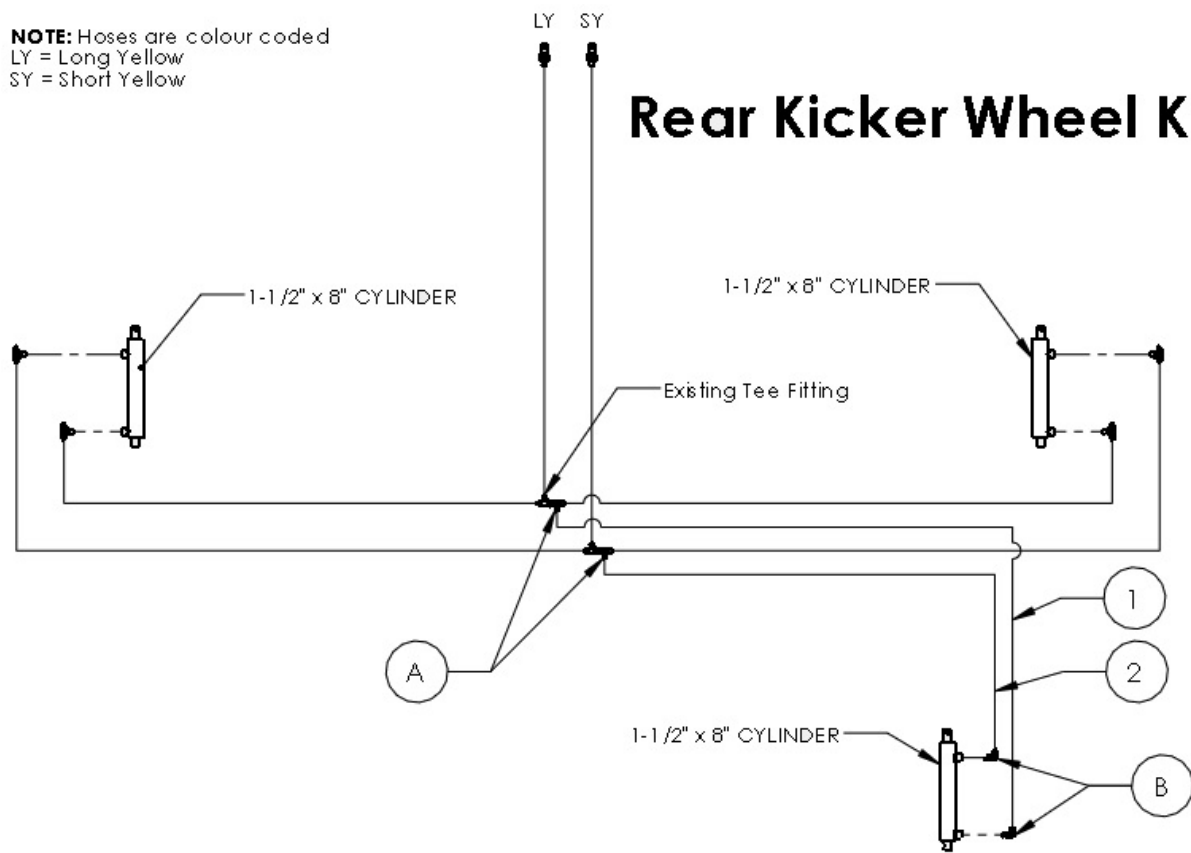


#### 4.7 Route hydraulic hoses

- Completely depressurize the hydraulic system before starting.
- Undo the right hoses from the tee fittings at the rear bulkhead of the hay rake. Add a second tee fitting to each of these.
- Reconnect the original hoses back to their original location (but to the new tee).

- Determine which hose goes to the base of the lift cylinder, then route the longer supplied hose to that tee fitting, alongside the other hoses, then to the base cylinder of the kicker wheel kit.
- Route the other hose from the ram to the other tee fitting.
- Make sure all fittings are tight, then test and check for leaks. All of the wheels on the machine should move in the same direction.
- 

**NOTE:** Hoses are colour coded  
LY = Long Yellow  
SY = Short Yellow

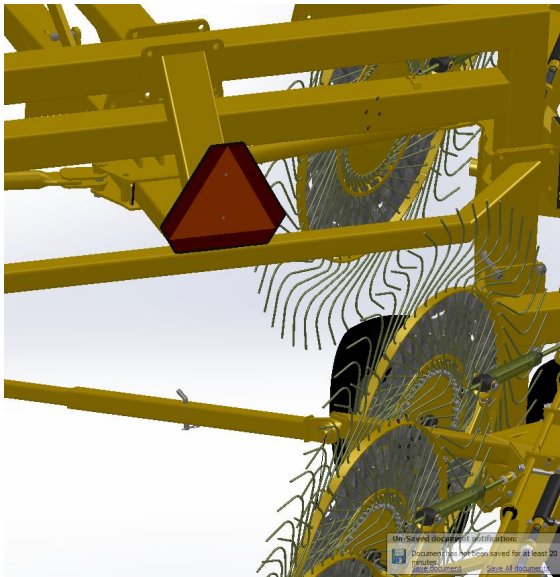


HOSE	HOSE DIAMETER	OVERALL LENGTH	BULKHEAD END	END 2
1	1/4"	165"	6FJX	6FJX 90
2	1/4"	155"	6FJX	6FJX 90

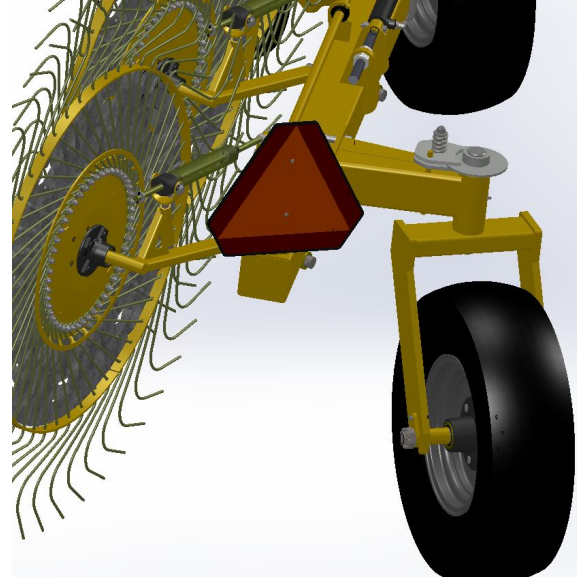
FITTING	DESCRIPTION	QTY
A	6FJXR-6MJT	2
B	6MB-6MJ90	2

### 4.8 Install Slow Moving Vehicle (SMV) Sign

Remove the SMV sign from the back of the hay rake frame, and reinstall it on the bracket on the rear end of the kicker boom arm using the removed hardware.



Remove from here



Reinstall here