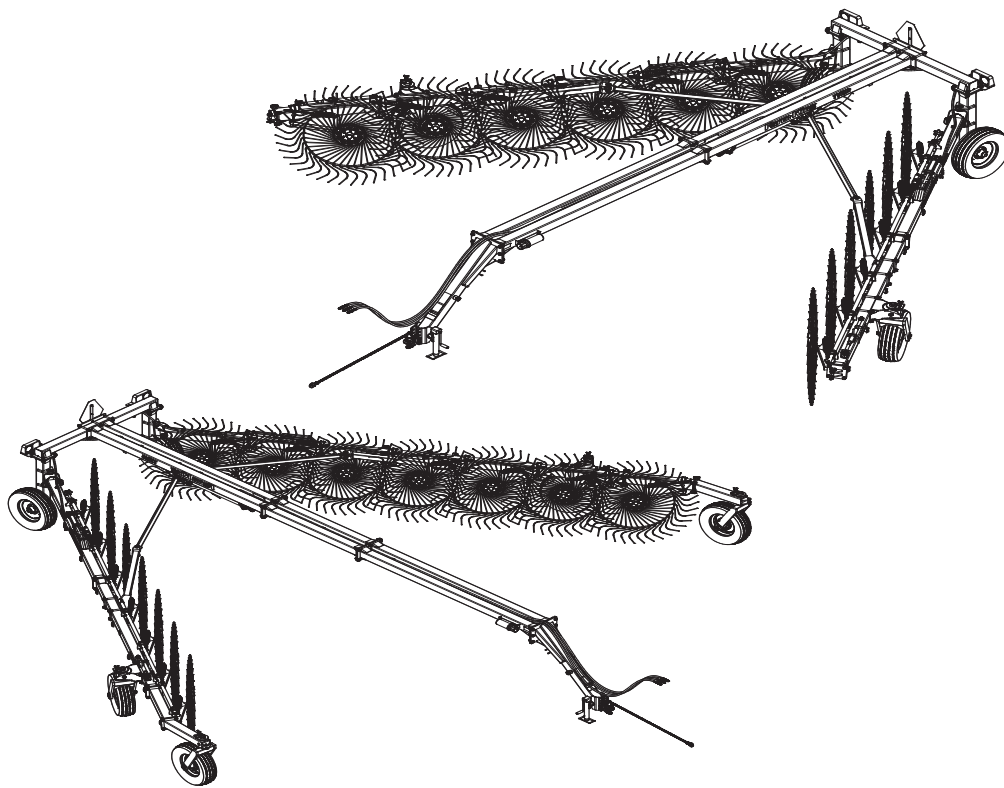


# Farm King

## OPERATOR AND PARTS MANUAL

### Trailing V-Rake

Model TVR12 & TVR14 - Series I



**This manual applies to the following serial number range:**

**TVR12:** TVR125000001 to TVR1250000037

**TVR14:** TVR145000001 to TVR1450140086

Model Year: 2023 to June 2026

*After this date the assembly procedures remain the same, however some  
part numbers will change.*

# Table Of Contents

**Manufacturer's Statement:** For technical reasons, Buhler Industries Inc. reserves the right to modify machinery design and specifications provided herein without any preliminary notice. Information provided herein is of descriptive nature. Performance quality may depend on soil fertility, applied agricultural techniques, weather conditions, and other factors.

|                                              |    |
|----------------------------------------------|----|
| Warranty Registration Form.....              | 5  |
| Introduction.....                            | 7  |
| Owner's Information.....                     | 9  |
| Equipment Identification.....                | 10 |
| Safety.....                                  | 11 |
| Safety Instructions.....                     | 13 |
| Fire Prevention.....                         | 16 |
| Equipment and Safety Decals.....             | 18 |
| Safety Sign-Off Form.....                    | 21 |
| Assembly.....                                | 23 |
| Component Unloading And Identification.....  | 25 |
| Main Frame.....                              | 26 |
| Hitch.....                                   | 27 |
| Rear Frame.....                              | 27 |
| Wing Closure Arms & Hydraulic Cylinder ..... | 30 |
| Rear Axle Wheels.....                        | 31 |
| Support Wheels.....                          | 32 |
| Lift Tubes.....                              | 34 |
| Rake Arms & Wheels.....                      | 37 |
| Hydraulic Hose Routing & Components.....     | 40 |
| Operation.....                               | 43 |
| Pre - Operation Checklist.....               | 45 |
| Entering The Operator's Position.....        | 45 |
| Leaving The Operator's Position.....         | 45 |
| Tractor Requirements.....                    | 45 |
| Connecting To Tractor.....                   | 47 |
| Connecting Hydraulic Hoses.....              | 47 |
| Work Configuration .....                     | 48 |
| Field Operation.....                         | 50 |
| Adjustments.....                             | 52 |
| Transport Configuration.....                 | 53 |

|                                              |     |
|----------------------------------------------|-----|
| Maintenance.....                             | 55  |
| Service Schedule Chart.....                  | 57  |
| Lubrication.....                             | 59  |
| Rake Wheels.....                             | 61  |
| Storage And Return To Service.....           | 63  |
| Decal Installation.....                      | 63  |
| Parts Identification.....                    | 65  |
| Support Wheel Yoke.....                      | 67  |
| Support Wheel.....                           | 68  |
| Support Wheel Hub.....                       | 68  |
| Rear Axle.....                               | 70  |
| Rear Axle Wheel Hub.....                     | 70  |
| Frame - TVR12.....                           | 72  |
| Frame - TVR14.....                           | 74  |
| Lift Arms - TVR12.....                       | 78  |
| Lift Arms - TVR14.....                       | 80  |
| Rake Wheel Arm Assembly.....                 | 82  |
| Rake Wheel.....                              | 84  |
| Frame Underside.....                         | 86  |
| Hitch.....                                   | 88  |
| Hydraulic Cylinders & Hoses.....             | 90  |
| Frame Shims 12.....                          | 92  |
| Frame Shims 14.....                          | 93  |
| Specifications And Shipping Kit Numbers..... | 98  |
| Specifications.....                          | 100 |
| Shipping Kit And Bundle Numbers.....         | 100 |
| Hardware Torque Values.....                  | 101 |
| Warranty.....                                | 104 |
| Farm King Base Limited Warranty.....         | 106 |

## Warranty Registration Form

**This form must be filled out by the dealer and signed by both the dealer and the customer at the time of delivery.**

|                    |               |                    |               |
|--------------------|---------------|--------------------|---------------|
| Customer Name:     |               | Dealer Name:       |               |
| Customer Address:  |               | Dealer Address:    |               |
| City:              | Prov / State: | City:              | Prov / State: |
| Postal / Zip Code: | Phone:        | Postal / Zip Code: | Phone:        |

|                  |                |                |
|------------------|----------------|----------------|
| Equipment Model: | Serial Number: | Delivery Date: |
|------------------|----------------|----------------|

I have thoroughly instructed the buyer on the above described equipment which review included the Operator and Parts Manual content, equipment care, adjustments, safe operation and applicable warranty policy.

### Dealer Inspection Report

|                          |                                           |
|--------------------------|-------------------------------------------|
| <input type="checkbox"/> | Rake wheels raise and lower               |
| <input type="checkbox"/> | Adjust windrow width                      |
| <input type="checkbox"/> | Fasteners tightened                       |
| <input type="checkbox"/> | Grease points lubricated                  |
| <input type="checkbox"/> | Check wheel bolt torque and tire pressure |
| <input type="checkbox"/> | Rake tines properly oriented              |
| <input type="checkbox"/> | Check hydraulic hoses                     |

### Safety

|                          |                                          |
|--------------------------|------------------------------------------|
| <input type="checkbox"/> | Safety chain on hitch                    |
| <input type="checkbox"/> | Decals installed                         |
| <input type="checkbox"/> | Guards and shields installed             |
| <input type="checkbox"/> | Lights and reflectors installed          |
| <input type="checkbox"/> | Review operating and safety instructions |

|       |                        |
|-------|------------------------|
| Date: | Dealer Rep. Signature: |
|-------|------------------------|

The above equipment and Operator And Parts Manual have been received by me and I have been thoroughly instructed as to care, adjustments, safe operation and applicable warranty policy.

|       |                             |
|-------|-----------------------------|
| Date: | Customer / Owner Signature: |
|-------|-----------------------------|

**Remove this Warranty Registration Form from the Operator And Parts Manual. Make two copies of the form. Send original Warranty Registration Form to Farm King. Give one copy to the customer and the dealer will keep one copy.**

# Farm King



# Introduction

This Operator And Parts Manual was written to give the owner / operator instructions on the safe operation, maintenance and part identification of the Farm King equipment. READ AND UNDERSTAND THIS OPERATOR AND PARTS MANUAL BEFORE OPERATING YOUR FARM KING EQUIPMENT. If you have any questions, see your Farm King dealer. This manual may illustrate options and accessories not installed on your Farm King equipment.

|                               |   |
|-------------------------------|---|
| Owner’s Information .....     | 7 |
| Serial Number Location.....   | 7 |
| Equipment Identification..... | 8 |

# Farm King



## Owner's Information

Thank you for your decision to purchase a Farm King Trailing V-Rake. To ensure maximum performance of your equipment, it is mandatory that you thoroughly study the Operator And Parts Manual and follow the recommendations. Proper operation and maintenance are essential to maximize equipment life and prevent personal injury.

Operate and maintain this equipment in a safe manner and in accordance with all applicable local, state, and federal codes, regulations and / or laws. Follow all on-product labeling and instructions.

Make sure that all personnel have read this Operator And Parts Manual and thoroughly understand safe and correct operating, installation and maintenance procedures.

Farm King is continually working to improve its products. Farm King reserves the right to make any improvements or changes as deemed practical and possible without incurring any responsibility or obligation to make any changes or additions to equipment sold previously.

Although great care has been taken to ensure the accuracy of this publication, Farm King makes no warranty or guarantee of any kind, written or expressed, implied or otherwise with regard to the information contained within this manual. Farm King assumes no responsibility for any errors that may appear in this manual and shall not be liable under any circumstances for incidental, consequential or punitive damages in connection with, or arising from the use of this manual.

Keep this manual available for frequent reference. All new operators or owners must review the manual before using the equipment and annually thereafter. Contact your Farm King Dealer if you need assistance, information, or additional copies of the manual.

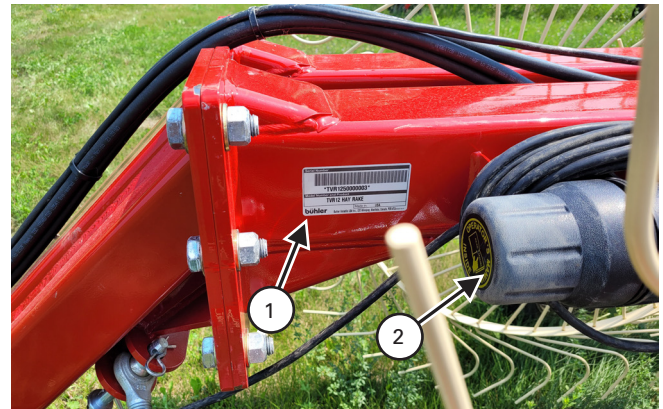
Visit our website at **[www.farm-king.com](http://www.farm-king.com)** for a complete list of dealers in your area.

The directions left, right, front and rear, as mentioned throughout this manual, are as viewed by the operator sitting in the tractor seat while towing the implement.

## Serial Number Location

Please enter the model and serial number in the space provided for easy reference.

Figure 1



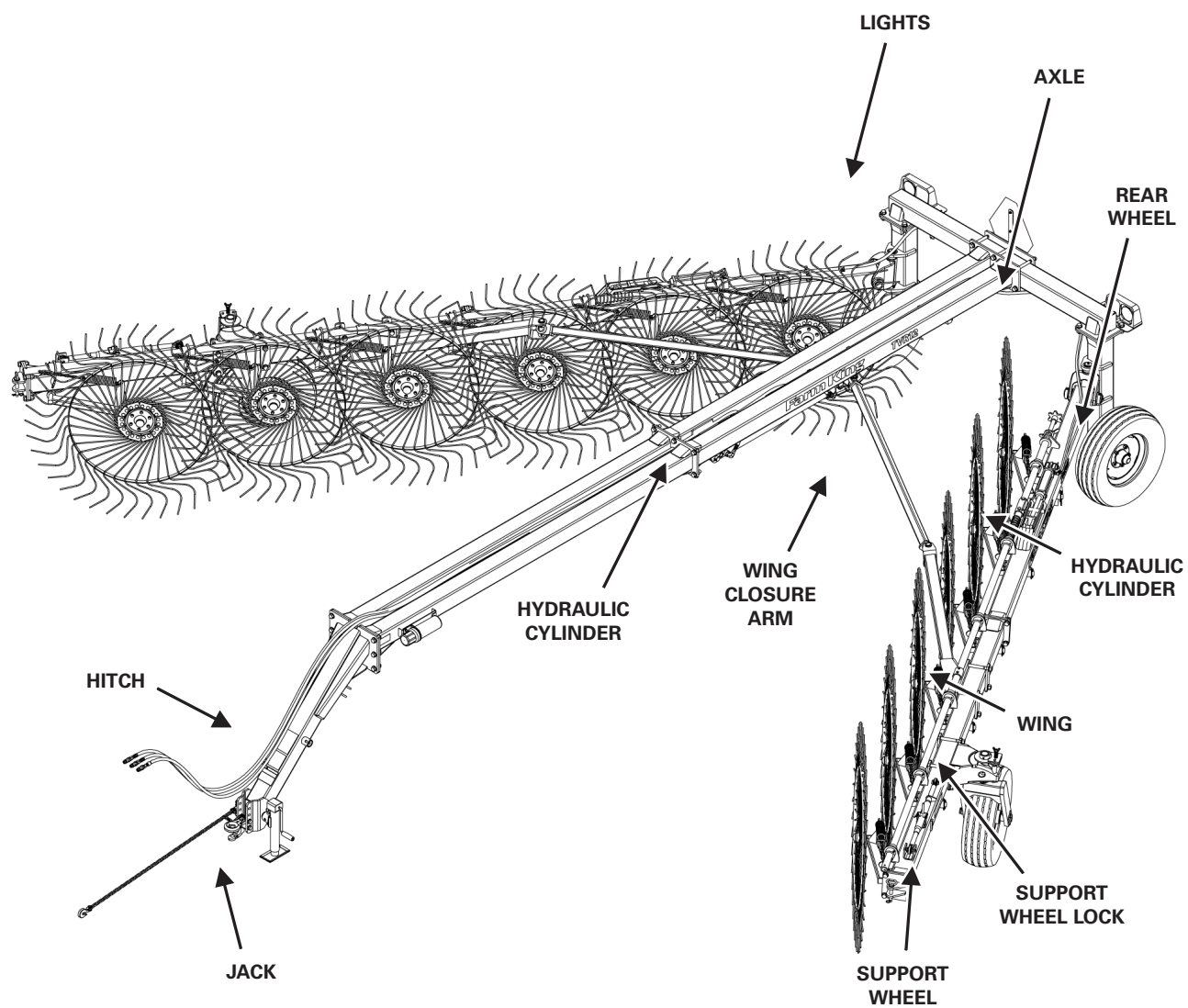
**Model Number:** \_\_\_\_\_

**Serial Number:** \_\_\_\_\_

The serial number plate (Item 1) and manual canister (Item 2) is located on the front of the center frame **[Figure 1]**.

Always use your serial number when requesting information or when ordering parts.

## Equipment Identification



Safety

Safety Instructions.....11

    Guidelines.....11

    Use Safety Rules.....12

    Machine Requirements And Capabilities.....12

    Transport Safety.....13

Fire Prevention.....14

    Maintenance.....14

    Operation.....14

    Starting.....14

    Electrical.....14

    Hydraulic System.....14

    Fueling.....14

    Welding And Grinding.....15

    Fire Extinguishers.....15

Equipment and Safety Decals.....16

Safety Sign-Off Form.....19

# Farm King



## Safety Instructions

### Guidelines



#### Safety Alert Symbol

This symbol with a warning statement means: "Warning, be alert! Your safety is involved!" Carefully read the message that follows.



### CAUTION

The signal word CAUTION on the machine and in the manuals indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.



### DANGER

The signal word DANGER on the machine and in the manuals indicates a hazardous situation which, if not avoided, will result in death or serious injury.



### WARNING

The signal word WARNING on the machine and in the manuals indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



### IMPORTANT

This notice identifies procedures which must be followed to avoid damage to the machine.



### WARNING

**Operators must have instructions before operating the machine. Untrained operators can cause injury or death.**

For an operator to be qualified, he or she must not use drugs or alcohol which impair alertness or coordination while working. An operator who is taking prescription drugs must get medical advice to determine if he or she can safely operate a machine and the equipment.

Understand the written instructions, rules and regulations:

- The written instructions from Farm King include the Warranty Registration, Dealer Inspection Report, Operator And Parts Manual and machine signs (decals).
- Check the rules and regulations at your location. The rules may include an employer's work safety requirements. Regulations may apply to local driving requirements or use of a Slow Moving Vehicle (SMV) emblem. Regulations may identify a hazard such as a utility line.

Have Training with Actual Operation:

- Operator training must consist of a demonstration and verbal instruction. This training is given by the machine owner prior to operation.
- The new operator must start in an area without bystanders and use all the controls until he or she can operate the machine safely under all conditions of the work area. Always fasten seat belt before operating.

Know the Work Conditions:

- Clear working area of all bystanders, especially small children and all obstacles that might be hooked or snagged, causing injury or damage.
- Know the location of any overhead or underground power lines. Call local utilities and have all underground power lines marked prior to operation.
- Wear tight fitting clothing. Always wear safety glasses when doing maintenance or service.

## Use Safety Rules

- Read and follow instructions in this manual and the tractor's Operators Manual before operating.
- Under no circumstances should young children be allowed to work with this equipment.
- This equipment is dangerous to children and persons unfamiliar with its operation.
- Check for overhead and / or underground lines before operating equipment (if applicable).
- In addition to the design and configuration of equipment, hazard control and accident prevention are dependent upon the awareness, concern, prudence and proper training of personnel involved in the operation, transport, maintenance and storage of equipment.
- Check that the equipment is securely fastened to the tractor / towing vehicle.
- Make sure all the machine controls are in the NEUTRAL position before starting the machine.
- Operate the equipment only from the operator's position.
- Operate the equipment according to the Operator And Parts Manual.
- When learning to operate the equipment, do it at a slow rate in an area clear of bystanders, especially small children.
- DO NOT permit personnel to be in the work area when operating the equipment.
- The equipment must be used ONLY on approved tractors / transport vehicles.
- DO NOT modify the equipment in any way. Unauthorized modification may impair the function and / or safety and could affect the life of the equipment.
- Stop tractor engine, place all controls in neutral, set park brake, remove ignition key and wait for all moving parts to stop before servicing, adjusting, repairing, unplugging or filling.
- DO NOT make any adjustments or repairs on the equipment while the machine is running.
- Keep shields and guards in place. Replace if damaged.
- Keep hands, feet, hair and clothing away from all moving parts.

## Machine Requirements And Capabilities

- Fasten seat belt securely. If equipped with a folding Roll-Over Protective Structure (ROPS), only fasten seat belt when ROPS is up and locked. DO NOT wear seat belt if ROPS is down.
- Stop the machine and engage the parking brake. Install blocks in front of and behind the rear tires of the machine. Install blocks underneath and support the equipment securely before working under raised equipment.
- Keep bystanders clear of moving parts and the work area. Keep children away.
- Use increased caution on slopes and near banks and ditches to prevent overturn.
- Make certain that the Slow Moving Vehicle (SMV) emblem is installed so that it is visible and legible. When transporting the equipment, use the flashing warning lights (if equipped) and follow all local regulations.
- Before leaving the operator's position:
  1. Always park on a flat level surface
  2. Place all controls in neutral
  3. Engage the parking brake
  4. Stop engine
  5. Wait for all moving parts to stop
- Carry passengers only in designated seating areas. Never allow riders on the machine or equipment. Falling off can result in serious injury or death.
- Start the equipment only when properly seated in the operator's seat. Starting a machine in gear can result in serious injury or death.
- Operate the machine and equipment from the operator's position only.
- The parking brake must be engaged before leaving the operator's seat. Roll away can occur because the transmission may not prevent machine movement.

## **Transport Safety**

- Do not exceed 20 mph (32 kph). Reduce speed on rough roads and surfaces.
- Comply with state and local laws governing highway safety and movement of machinery on public roads.
- The use of flashing amber lights is acceptable in most localities. However, some localities prohibit their use.
- Local laws should be checked for all highway lighting and marking requirements.
- Always yield to oncoming traffic in all situations and move to the side of the road so any following traffic may pass.
- Always enter curves or drive up or down hills at a low speed and at a gradual steering angle.
- Never allow riders on either tractor or equipment.
- Keep tractor / towing vehicle in a lower gear at all times when traveling down steep grades.
- Maintain proper brake settings at all times (if equipped).

## Fire Prevention



### Maintenance

- The machine and some equipment have components that are at high temperatures under normal operating conditions. The primary source of high temperatures is the engine and exhaust system. The electrical system, if damaged or incorrectly maintained, can be a source of arcs or sparks.
- Flammable debris (leaves, straw, etc.) must be removed regularly. If flammable debris is allowed to accumulate, it can cause a fire hazard. Clean often to avoid this accumulation. Flammable debris in the engine compartment is a potential fire hazard. The operator's area, engine compartment and engine cooling system must be inspected every day and cleaned if necessary to prevent fire hazards and overheating.
- All fuels, most lubricants and some coolant mixtures are flammable. Flammable fluids that are leaking or spilled onto hot surfaces or onto electrical components can cause a fire.

### Operation

- The Farm King machine must be in good operating condition before use.
- Check all of the items listed on the service schedule under the 8 hour column before operation (see Maintenance section).
- Do not use the machine where exhaust, arcs, sparks or hot components can contact flammable material, explosive dust or gases.

### Starting

- Do not use ether or starting fluids on any engine that has glow plugs. These starting aids can cause explosion and injure you or bystanders.
- Use the procedure in the tractor's operator's manual for connecting the battery and for jump starting.

## Electrical



- Check all electrical wiring and connections for damage. Keep the battery terminals clean and tight. Repair or replace any damaged part or wires that are loose or frayed.
- Battery gas can explode and cause serious injury. Do not jump start or charge a frozen or damaged battery. Keep any open flames or sparks away from batteries. Do not smoke in battery charging area.

## Hydraulic System

- Check hydraulic tubes, hoses and fittings for damage and leakage. Never use open flame or bare skin to check for leaks. Hydraulic tubes and hoses must be properly routed and have adequate support and secure clamps. Tighten or replace any parts that show leakage.
- Always clean fluid spills. Do not use gasoline or diesel fuel for cleaning parts. Use commercial nonflammable solvents.

## Fueling



- Stop the engine and let it cool before adding fuel. No smoking! Do not refuel a machine near open flames or sparks. Fill the fuel tank outdoors.

## **Welding And Grinding**

- Always clean the machine and equipment, disconnect the battery, and disconnect the wiring from the machine controls before welding. Cover rubber hoses, battery and all other flammable parts. Keep a fire extinguisher near the machine when welding.
- Have good ventilation when grinding or welding painted parts. Wear dust mask when grinding painted parts. Toxic dust or gas can be produced.
- Dust generated from repairing nonmetallic parts such as hoods, fenders or covers can be flammable or explosive. Repair such components in a well ventilated area away from open flames or sparks.

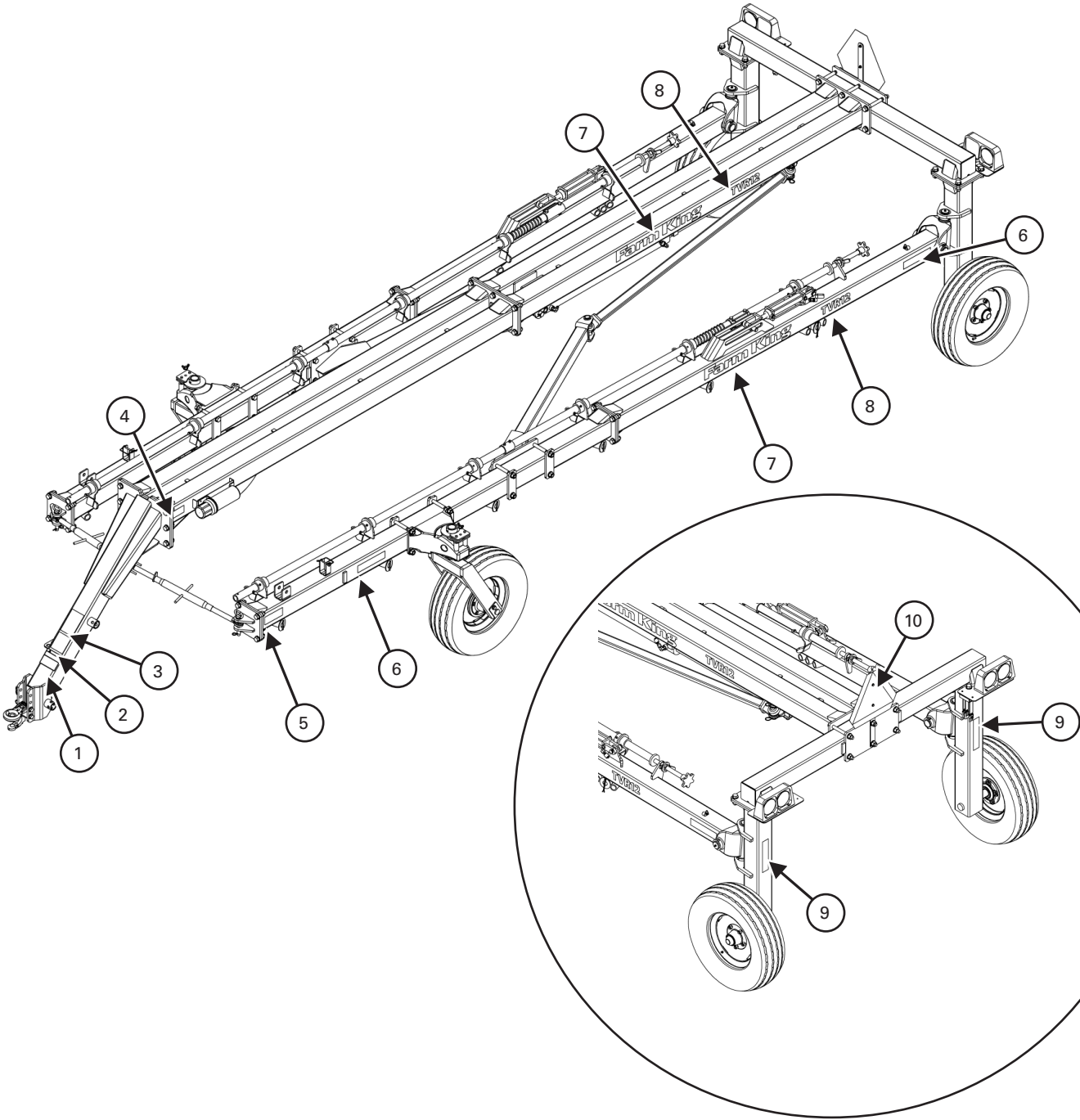
## **Fire Extinguishers**



- Know where fire extinguishers and first aid kits are located and how to use them. Inspect the fire extinguisher and service the fire extinguisher regularly. Obey the recommendations on the instructions plate.

Equipment and Safety Decals

Figure 2

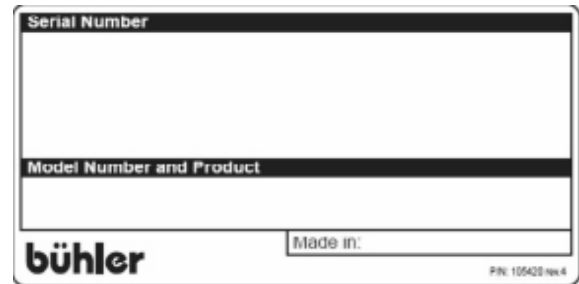


## Decal Identification [Figure 2]

918280 DECAL-WARNING HIGH PRESSURE FLUID  
(Item 1)



105420 DECAL-REFERENCE PLATE BUHLER S/N  
(Item 4)



821084 DECAL-SIDE CRUSH HAZARD (Item 5)



820426 DECAL-WARNING TRANSPORT (Item 2)



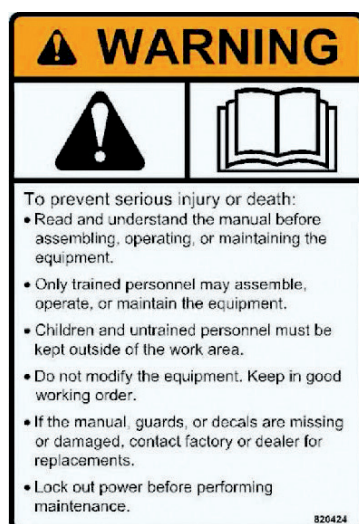
967055 DECAL-REFLECTIVE 2 X 9 AMBER (Item 6)



821279 DECAL-FARMKING 4.21 X 28.76 WHITE  
(Item 7)



820424 DECAL-WARNING READ MANUAL (Item 3)



821280 DECAL-TVR12 WHITE (Item 8)



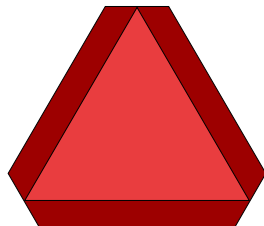
821282 DECAL-TVR14 WHITE (Item 8)



967053 DECAL-REFLECTIVE 2 X 9 RED (Item 9)



967066 SLOW MOVING VEHICLE SIGN (Item 10)



Safety Sign-Off Form



WARNING

Instructions are necessary before operating or servicing equipment. Read and understand the Operator And Parts Manual and safety signs (decals) on equipment. Follow warnings and instructions in the manuals when making repairs, adjustments or servicing. Check for correct function after adjustments, repairs or service. Untrained operators and failure to follow instructions can cause injury or death.

Farm King follows the general Safety Standards specified by the American Society of Agricultural and Biological Engineers (ASABE) and the Occupational Safety and Health Administration (OSHA). Anyone who will be operating and / or maintaining the equipment must read and clearly understand ALL Safety, Operating and Maintenance information presented in this manual.

Annually review this information before the season start-up and make these periodic reviews of SAFETY and OPERATION a standard practice for all of your equipment. An untrained operator is unqualified to operate this machine.

The following sign-off sheet is provided for your record and to show that all personnel who will be working with the equipment have read and understand the information in this Operator And Parts Manual and have been instructed in the operation of the equipment.

| SIGN-OFF SHEET |                      |                      |
|----------------|----------------------|----------------------|
| Date           | Employee's Signature | Employer's Signature |
|                |                      |                      |
|                |                      |                      |
|                |                      |                      |
|                |                      |                      |
|                |                      |                      |
|                |                      |                      |
|                |                      |                      |
|                |                      |                      |
|                |                      |                      |
|                |                      |                      |

# Farm King



## Assembly

|                                              |    |
|----------------------------------------------|----|
| Component Unloading And Identification.....  | 25 |
| Main Frame.....                              | 26 |
| TV R12 Models.....                           | 26 |
| TV R14 Models.....                           | 26 |
| Hitch.....                                   | 27 |
| Rear Frame.....                              | 27 |
| Wing Closure Arms & Hydraulic Cylinder ..... | 30 |
| Rear Axle Wheels.....                        | 31 |
| Support Wheels.....                          | 32 |
| Lift Tubes.....                              | 34 |
| TV R12 Models.....                           | 35 |
| TV R14 Models.....                           | 36 |
| Rake Arms & Wheels.....                      | 37 |
| Hydraulic Hose Routing & Components.....     | 40 |

# Farm King



## Component Unloading And Identification



### WARNING



#### AVOID INJURY OR DEATH

Keep fingers and hands out of pinch points when assembling the equipment.



### WARNING



DO NOT permit bystanders to be in the work area when unloading and assembling components.

DO NOT work under suspended parts.

Keep away from moving parts.

Always use lifting devices / vehicles, chains or straps of adequate size and strength when unloading and assembling components.

Unload the crate(s) and components on a flat level area of adequate size to assemble the equipment.



### IMPORTANT

Unload crate(s) and other components carefully to prevent damage to any of the components.

**NOTE:** If any components are damaged, missing or replacement parts are required, contact your Farm King Dealer.

Assemble the equipment in the following order on a flat and level surface:

1. Frame
2. Wings
3. Wheels

Using the packing list, locate and place all components and hardware in one area. Count the individual components and verify that you have received the correct number of components to fully assemble the equipment.



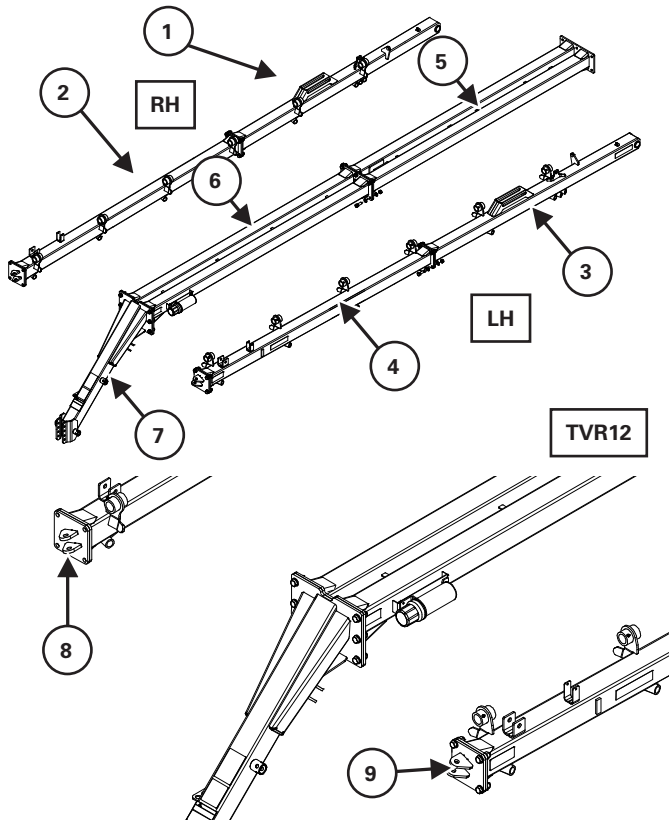
### IMPORTANT

The directions front, left, right, and rear are viewed as the operator sitting in the operator's seat with the equipment hitched to the tractor.

## Main Frame

### TVR12 Models

Figure 3



Assemble the wing frame components. Attach each connection using four 3/4" x 2-1/4" hex bolts, eight 3/4" flat washers (both sides), and four 3/4" lock nuts [Figure 3]:

- RH rear wing (Item 1), RH forward wing (Item 2), RH clevis plate (Item 8)
- LH rear wing (Item 3), LH forward wing (Item 4), LH clevis plate (Item 9)

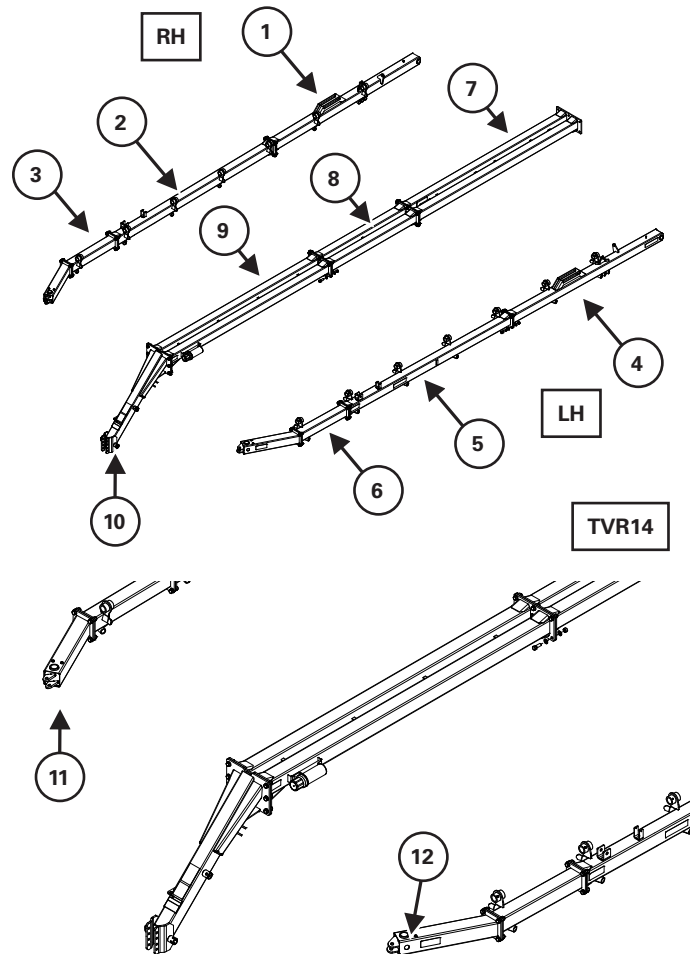
**NOTE: The clevis plates (Item 8, 9) must angle UP towards the hitch.**

Assemble the center frame components. Attach each connection using six 3/4" x 2-1/4" hex bolts, twelve 3/4" flat washers (both sides), and six 3/4" lock nuts [Figure 3]:

- Rear center frame (Item 5), forward center frame (Item 6), and hitch frame (Item 7)

### TVR14 Models

Figure 4



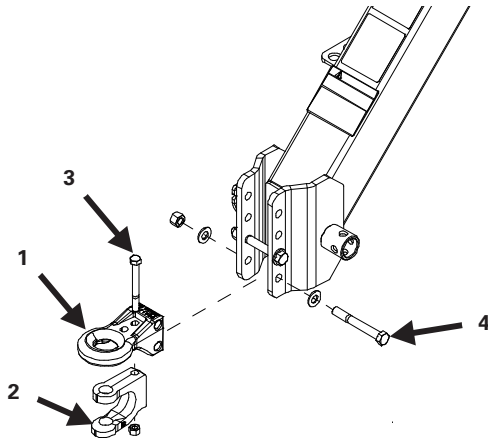
Assemble the wing frame components. Attach each connection using four 3/4" x 2-1/4" hex bolts, eight 3/4" flat washers (both sides), and four 3/4" lock nuts [Figure 4]:

- RH rear wing (Item 1), RH forward wing (Item 2), RH wing extension (Item 3), RH clevis plate (Item 11)
- LH rear wing (Item 4), LH forward wing (Item 5), LH wing extension (Item 6), LH clevis plate (Item 12)

**NOTE: The clevis plates (Item 11, 12) must angle UP towards the hitch.**

## Hitch

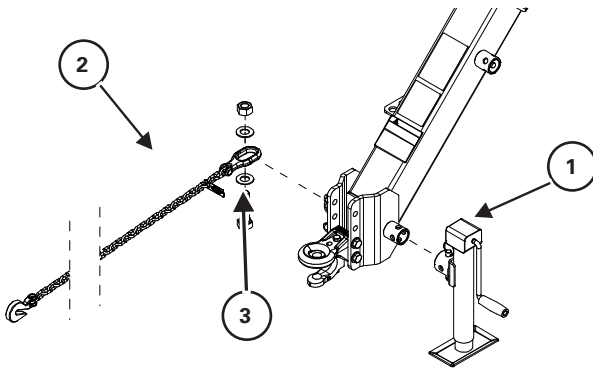
**Figure 6**



Attach the hitch base (Item 1) to the hitch clevis (Item 2) using one 1/2" x 4-1/2" hex bolt (Item 3) and 1/2" lock nut [Figure 6].

Attach the hitch assembly to the frame using two 5/8" x 5" hex bolts (Item 4), four 5/8" flat washers, and two 5/8" lock nuts [Figure 6].

**Figure 7**

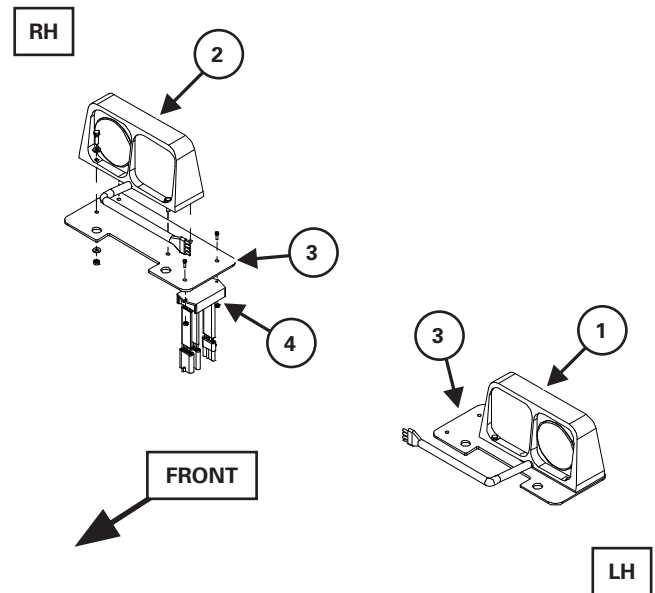


Attach the jack (Item 1) to the hitch mount using a retaining pin [Figure 7].

Attach the safety chain (Item 2) to the hitch mount using one 1" x 4" hex bolt (Item 3), two 1" flat washers, and one 1" lock nut [Figure 7].

## Rear Frame

**Figure 8**



Position the LH (Item 1) and RH (Item 2) lights on top of the mounting plates (Item 3) [Figure 8].

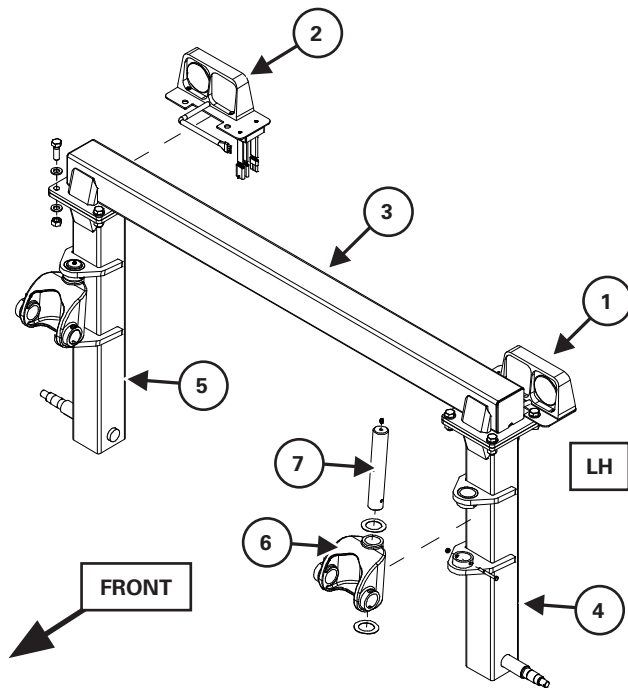
Position the indented portion of the mounting plates facing forward.

Position the harness of each light facing forward.

Position the red lens of each light on the outside of the mounting plates.

Attach each light using four 1/4" x 1" hex bolts, eight 1/4" flat washers, and four 1/4" lock nuts.

Attach the light module (Item 4) to the underside of the RH mounting plate using two #8-32 x 0.75" flat head machine screws and two 0.136" nylon lock nuts [Figure 8].

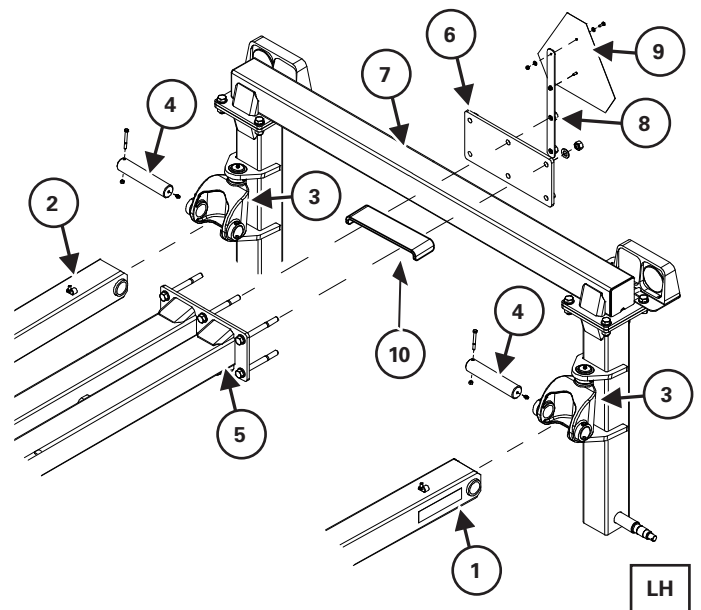
**Figure 9**


Position the mounting plates of the LH (Item 1) and RH (Item 2) light assemblies on top of the brackets of the rear axle (Item 3) **[Figure 9]**.

Position the brackets of the LH (Item 4) and RH (Item 5) axle supports beneath the brackets of the rear axle (Item 3) **[Figure 9]**.

Attach each axle support and light bracket to the rear axle using four 3/4" x 2-1/4" hex bolts, eight 3/4" flat washers (both sides), and four 3/4" lock nuts.

Position the wing pivots (Item 6) to the LH and RH axle support mounts. Slide one joint pin (Item 7) and shims through the mounts and pivot. Attach the pin to the mount using one 5/16" x 3" hex bolt and 5/16" lock nut **[Figure 9]**.

**Figure 10**


Position the LH (Item 1) and RH (Item 2) wing frames within the pivots (Item 3). Slide one joint pin (Item 4) through each pivot and wing frame. Attach the pin to the pivot using one 5/16" x 3" hex bolt and 5/16" lock nut **[Figure 10]**.

Position the end bracket (Item 5) of the center frame and end plate (Item 6) on either side of the rear axle (Item 7) **[Figure 10]**.

Align the six holes of the bracket and plate. Place six 3/4" x 7-1/2" hex bolts through the holes.

Align the holes of one 16" link (Item 8) to the two center bolts **[Figure 10]**.

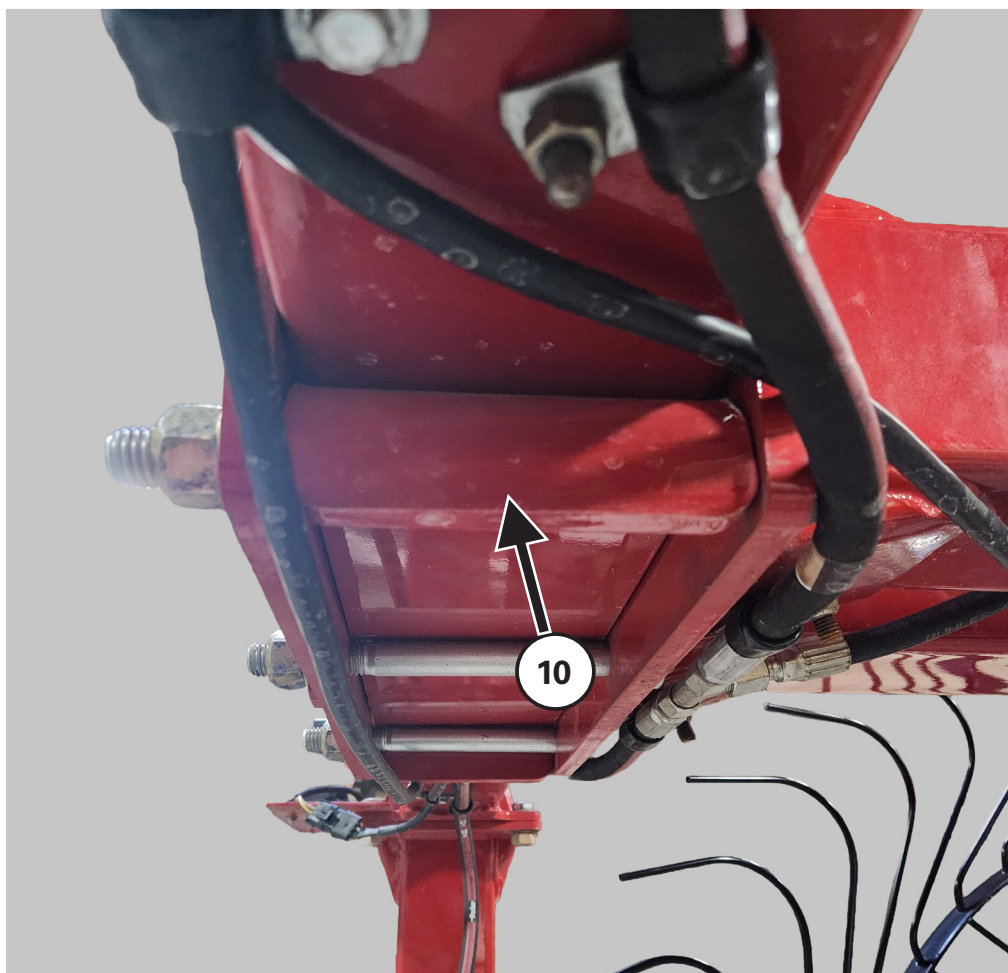
Check that the center frame is centered on the axle.

Attach the six 3/4" x 7-1/2" hex bolts using twelve 3/4" flat washers (both sides), and six 3/4" lock nuts.

Attach one SMV sign (Item 9) to the 16" link using two 1/4" x 3/4" hex bolts, four 1/4" flat washers, and two 1/4" lock nuts **[Figure 10]**.

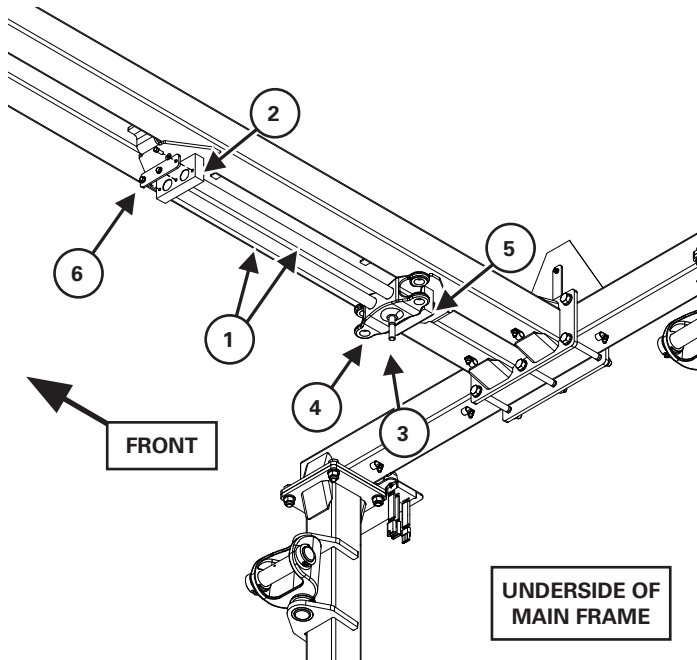
Position the support plate (Item 10) above the six 3/4" x 7-1/2" hex bolts and below the center cross frame (Item 7) **[Figure 10]** SEE BELOW FOR FINAL ASSEMBLY.

Align the holes of the support plate with the bolts passing through the end bracket (Item 5) and end plate (Item 6). Ensure the plate sits flat between the bolt heads and the cross frame before tightening the hardware.



## Wing Closure Arms & Hydraulic Cylinder

Figure 11



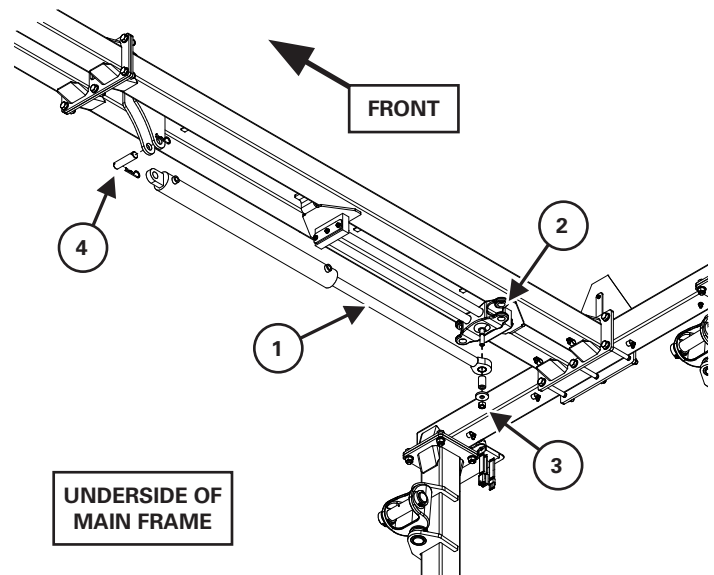
Pass two tubes (Item 1) through the forward mount (Item 2) on the underside of the main frame [Figure 11].

Thread one 3/4" x 7" hex bolt (Item 3) through the slide link (Item 4). Align the slide link with the two tubes [Figure 11].

Pass the tubes through the slide link and into the rear mount (Item 5) [Figure 11].

Position two cover plates (Item 6) over both the underside mounts to secure the tubes. Attach each plate using three 3/8" x 1" hex bolts and three 3/8" flat washers [Figure 11].

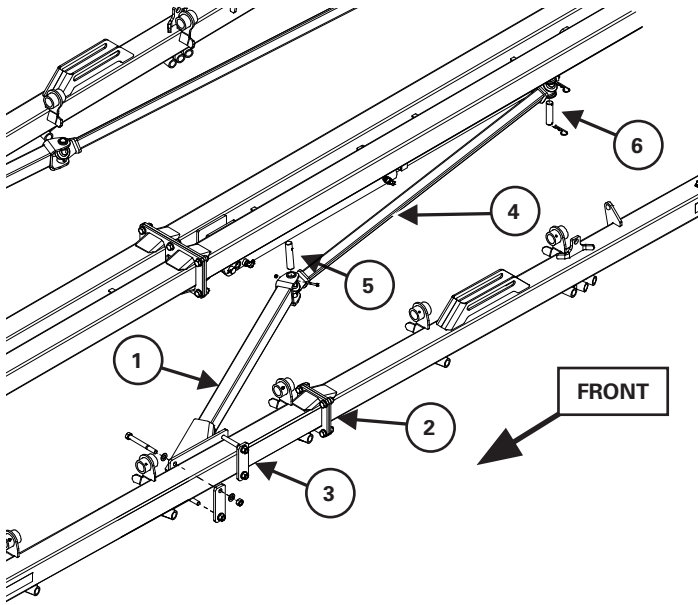
Figure 12



Attach the rod end of the 3" x 36-1/2" cylinder (Item 1) to the 7" bolt of the slide link (Item 2) using one 1-1/4" OD x 2" bushing, one 3/4" flat washer, and one 3/4" lock nut (Item 3) [Figure 12].

Attach the barrel end of the cylinder to the forward mount using one 1-1/4" x 4-3/4" pin (Item 4) and two clips [Figure 12].

**Figure 13**



Position the LH closure arm (Item 1) on the LH wing, forward of the brackets (Item 2) **[Figure 13]**.

Attach the LH closure arm (Item 1) to the LH wing using two plates (Item 3), four 3/4" x 7-1/2" hex bolts, eight 3/4" flat washers, and four 3/4" lock nuts **[Figure 13]**.

Do not tighten hardware.

Attach one wing link (Item 4) to the LH closure arm using one 1-1/4" x 5-1/2" pin (Item 5), one 5/16" x 2-1/4" hex bolt, and one 5/16" lock nut **[Figure 13]**.

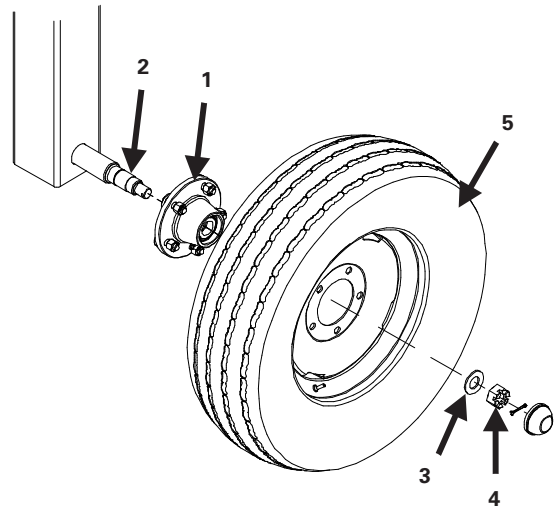
Attach the wing link to the slide link using one 1-1/4" x 4-3/4" pin (Item 6) and two clips **[Figure 13]**.

Tighten hardware.

Repeat to install RH closure arm and wing link.

## Rear Axle Wheels

**Figure 14**



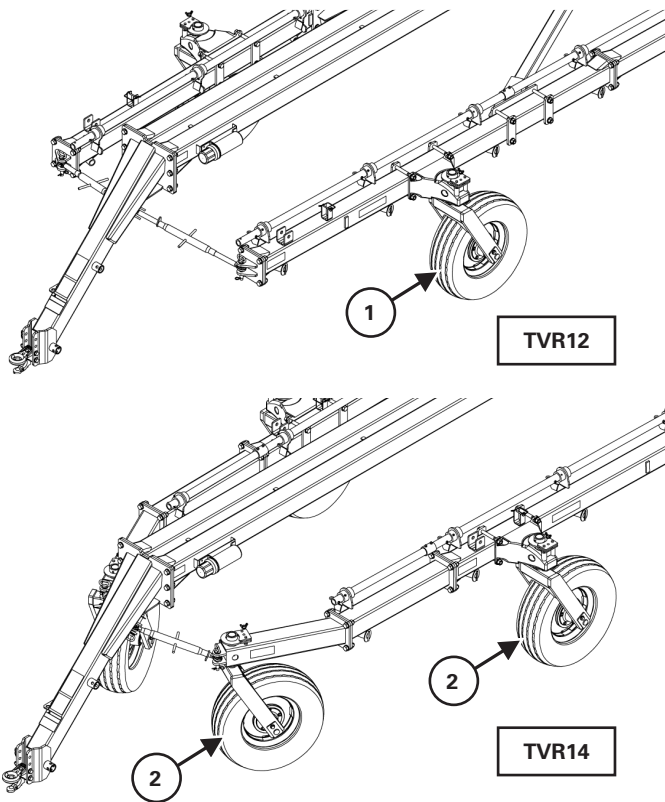
*Note: Hubs should come assembled to axles and packed with grease, this procedure is as needed.* Position the wheel hub (Item 1) on the rear spindle (Item 2). Place one 7/8" flat washer (Item 3) on the spindle. Thread one 7/8" slotted nut (Item 4) onto the spindle and secure the nut with one 1/8" x 1-1/2" cotter pin. Install the dust cap to the spindle **[Figure 14]**.

Place the wheel (Item 5) on the hub and align the holes with the studs. Attach wheel using five wheel nuts **[Figure 14]**.

Repeat to install both LH and RH wheels.

## Support Wheels

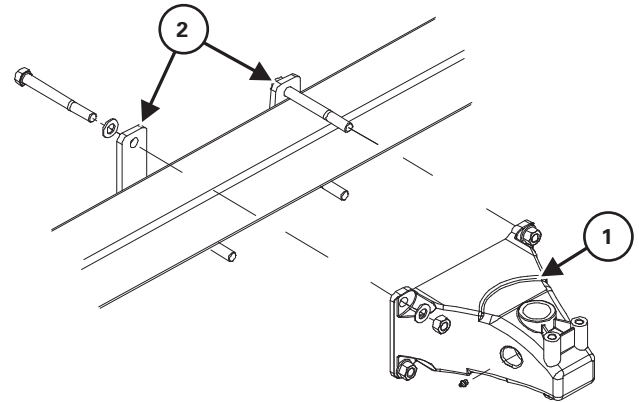
Figure 15



Support wheels are installed to the wing frames depending on model **[Figure 15]**:

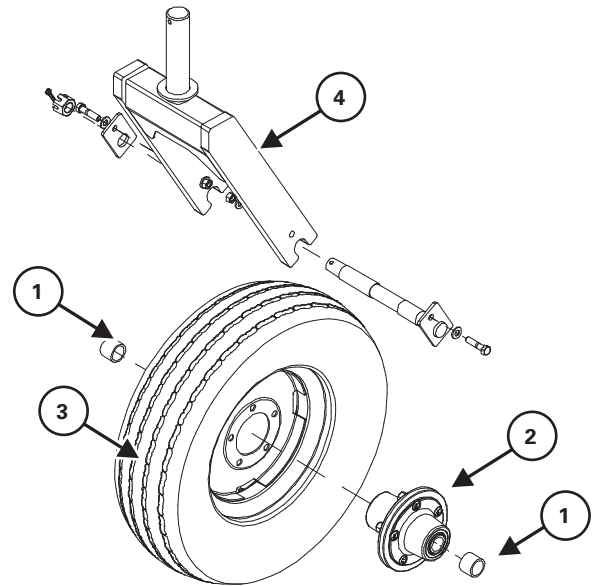
- TVR12, two support wheels (Item 1)
- TVR14 , four support wheels (Item 2)

Figure 16



Position the wheel mount (Item 1) on the wing frame. Attach the mount with two plates (Item 2), four 3/4" x 7-1/2" hex bolts, eight 3/4" flat washers, and four 3/4" lock nuts **[Figure 16]**.

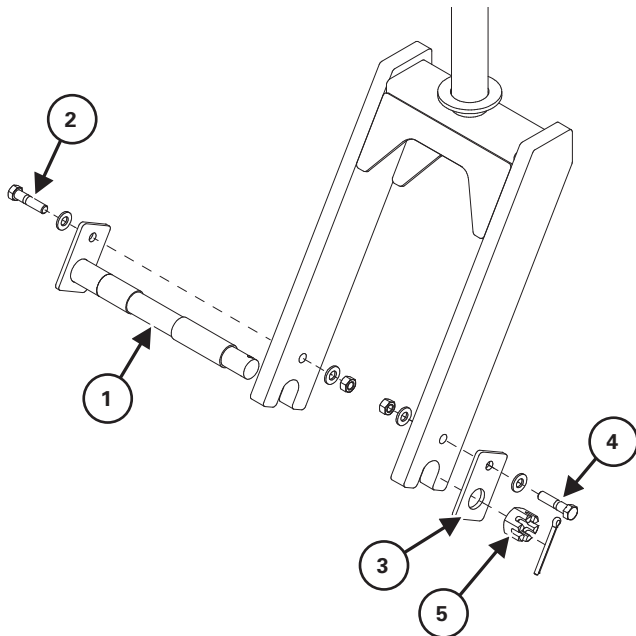
Figure 17



Place two bushings (Item 1) on either end of the wheel HAC520-6 hub (Item 2). Place the hub within the wheel assembly (Item 3). Attach the hub using five wheel nuts **[Figure 17]**.

Position the wheel yoke (Item 4) over the wheel and hub assembly **[Figure 17]**.

**Figure 18**

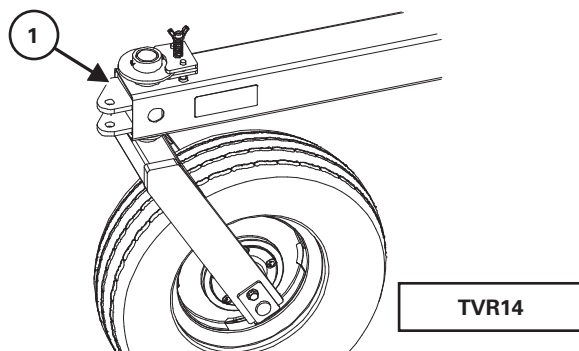


Pass the support wheel axle (Item 1) through the hub, bushings, and yoke. Attach the axle to the yoke using one 1/2"-13NC x 2.125" hex bolt (Item 2), two 1/2" flat washers, and one 1/2" lock nut [Figure 18].

Attach one retaining plate (Item 3) to the opposite side of the yoke using one 1/2"-13NC x 2.125" hex bolt (Item 4), two 1/2" flat washers, and one 1/2" lock nut [Figure 18].

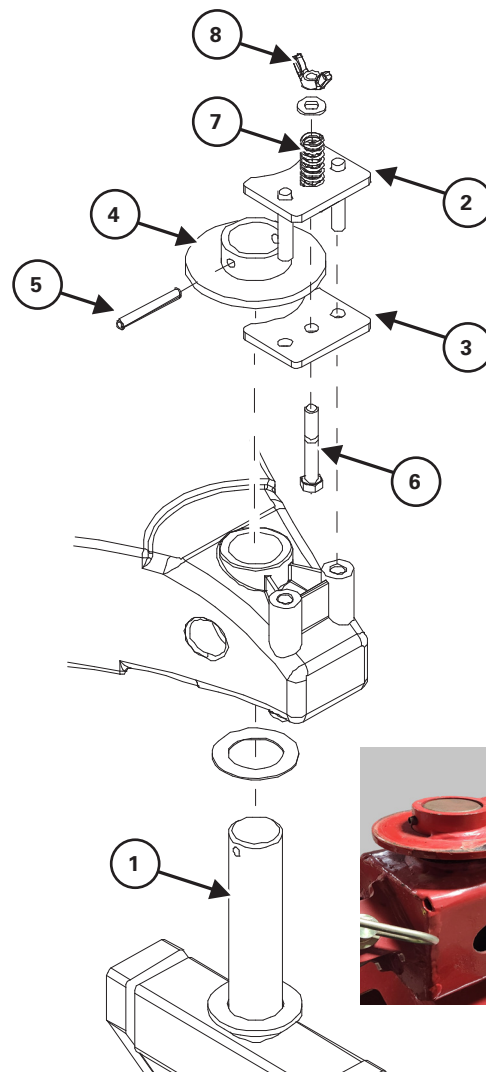
Attach one 1" slotted nut (Item 5) to the axle. Secure the nut with a cotter pin [Figure 18].

**Figure 19**



The support wheels at the ends of wing frames are attached directly through the frame (Item 1) [Figure 19].

**Figure 20**



Place one shim on the yoke stem (Item 1) of the wheel assembly [Figure 20].

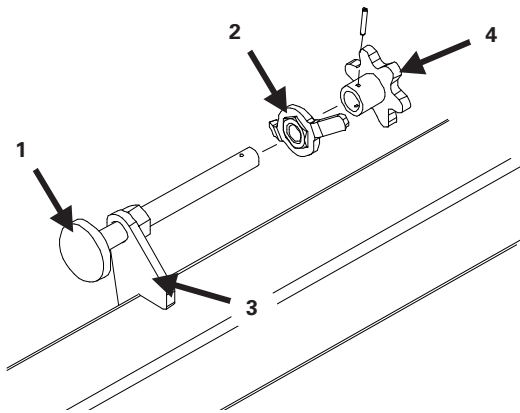
Position the yoke stem through the mount. Assemble the upper brake pad (Item 2), lower brake pad (Item 3), and disc (Item 4) on the yoke stem and mount [Figure 20].

Attach the break disc with one spring pin (Item 5) through the yoke stem [Figure 20].

Attach the break pads with one 1/2" x 3-1/4" hex bolt (Item 6), one compression spring (Item 7), one 1/2" flat washer, and one 1/2" wing nut (Item 8) [Figure 20].

## Lift Tubes

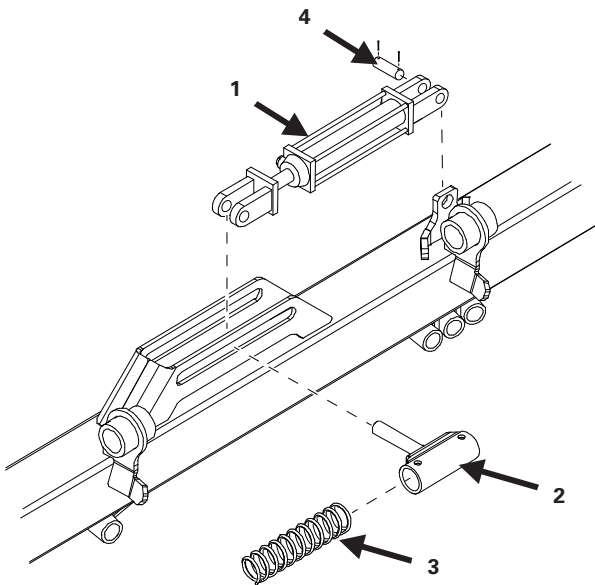
**Figure 21**



Install the tube stop (Item 1) and wing nut (Item 2) to wing mount (Item 3) **[Figure 21]**.

Install one handle (Item 4) and pin to the stop **[Figure 21]**.

**Figure 22**



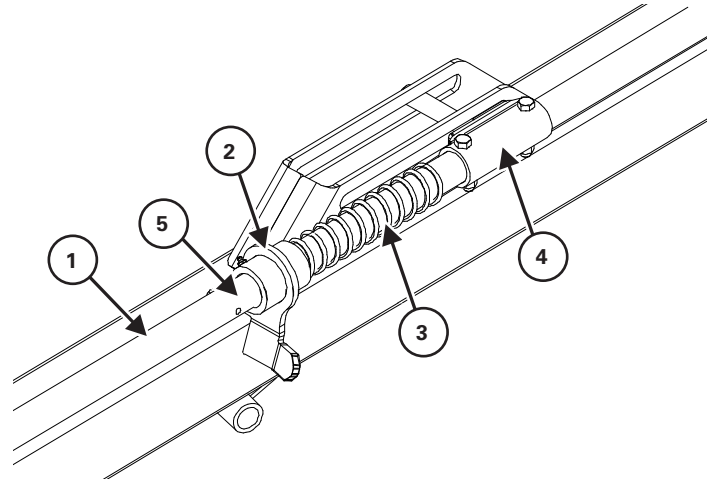
Before sliding the lift tubes through the mounts, position the hydraulic cylinder (Item 1), pin connector (Item 2), and compression spring (Item 3) to the wing mount **[Figure 22]**.

Attach the barrel end of the cylinder to wing mount using one clevis pin (Item 4) and two clips **[Figure 22]**.

Attach the pin connector (Item 4) to the lift tube using two 1/2" x 3" hex bolts and two 1/2" lock nuts **[Figure 23]**.

The pin hole (Item 5) of the lift tube should be just ahead of the wing mount (Item 2) **[Figure 23]**.

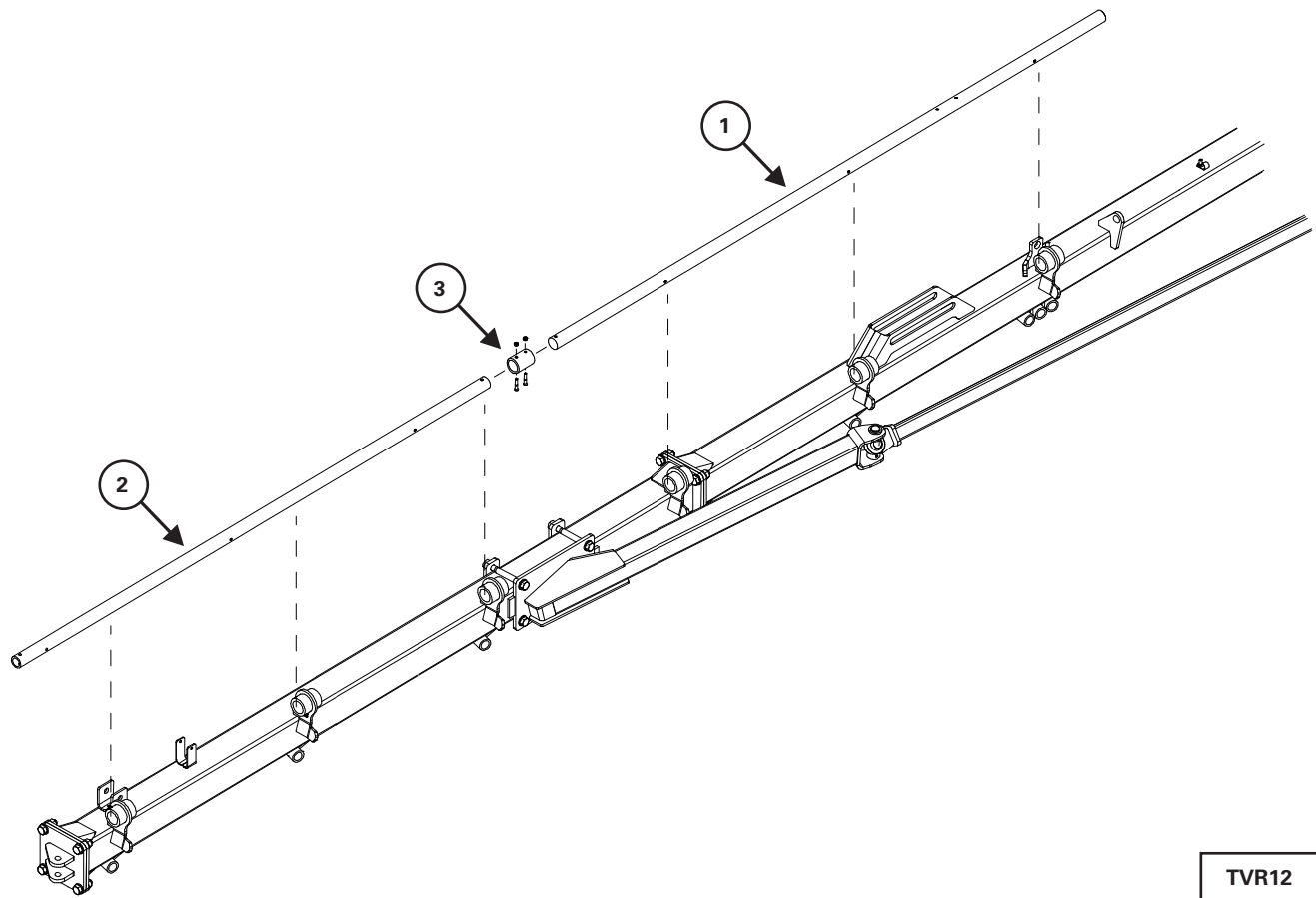
**Figure 23**



When lift tubes are installed, pass the tube (Item 1) through the wing mount (Item 2), compression spring (Item 3), and pin connector (Item 4) **[Figure 23]**.

## TVR12 Models

Figure 24

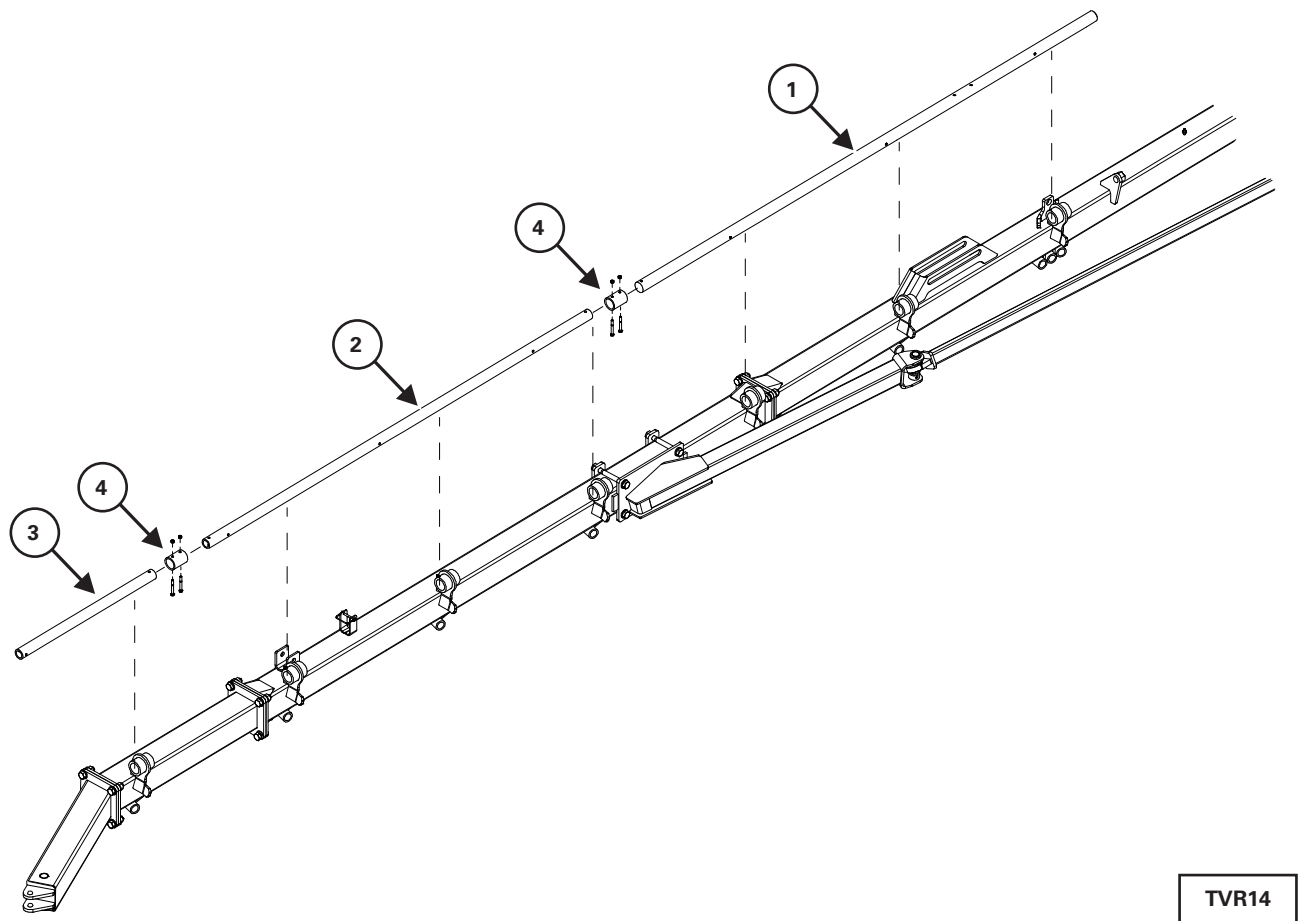


Slide the lift tubes through the mounts on the wings **[Figure 24]**:

- Rear lift tube (Item 1)
- Forward lift tube (Item 2)

Attach the lift tubes using one connector (Item 3), two 5/16" x 2-3/4" hex bolts, and two 5/16" lock nuts **[Figure 24]**.

**NOTE:** Install bolts up from the bottom.

**TVR14 Models****Figure 25**

Slide the lift tubes through the mounts on the wings **[Figure 25]**:

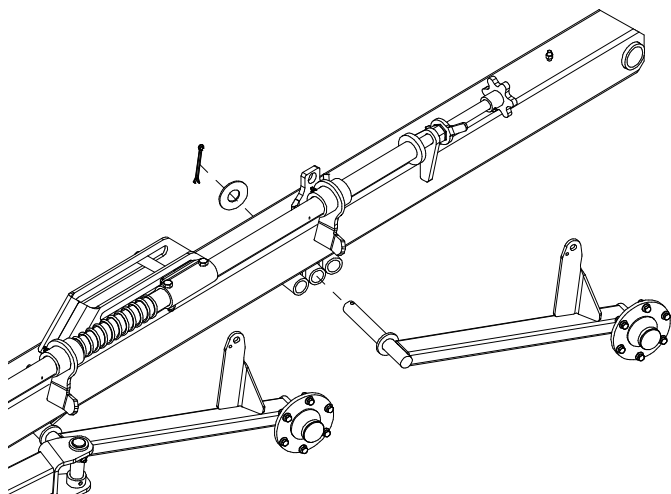
- Rear lift tube (Item 1)
- Forward lift tube (Item 2)
- Lift tube extension (Item 3)

Attach the lift tubes using one connector (Item 4), two 5/16" x 2-3/4" hex bolts, and two 5/16" lock nuts **[Figure 25]**.

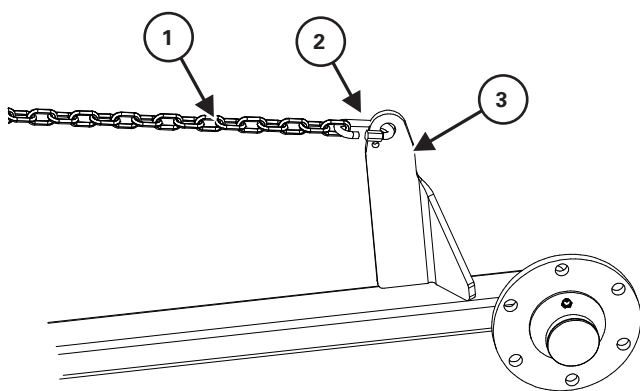
**NOTE:** Install bolts up from the bottom.

## Rake Arms & Wheels

Figure 27

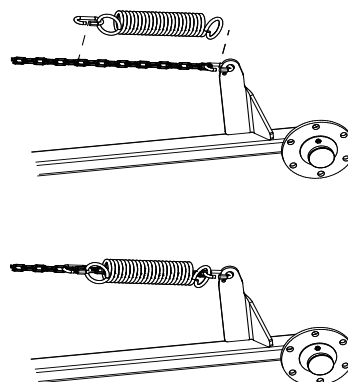


Install one rake arm (Item 1) to the wing mount using one 1-1/4" ID x 18 GA narrow rim washer (Item 2) and cotter pin [Figure 27].



Attach chain (Item 1) and quick link (Item 2) to the top hole of the rake arm bracket (Item 3) [Figure 28].

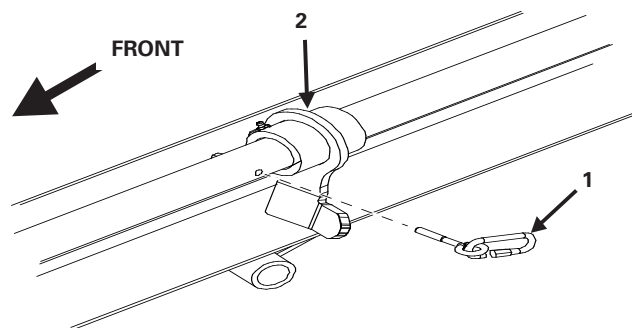
Figure 29



Attach spring (Item 1) to the quick link (Item 2) attached to the bracket [Figure 29].

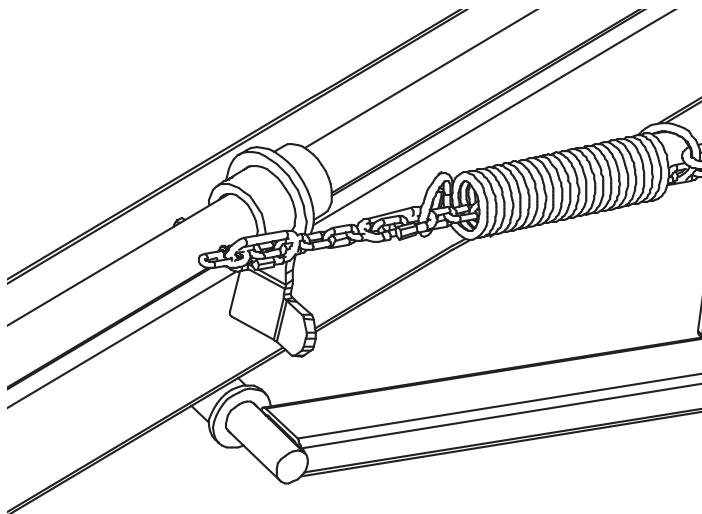
Attach the opposite end of the spring to the chain using one quick link (Item 3) [Figure 29].

Figure 30



Install one 0.313" x 2" eye bolt and quick link (Item 1) to the pre-drilled hole before the tube mount (Item 2) [Figure 30]

Figure 31



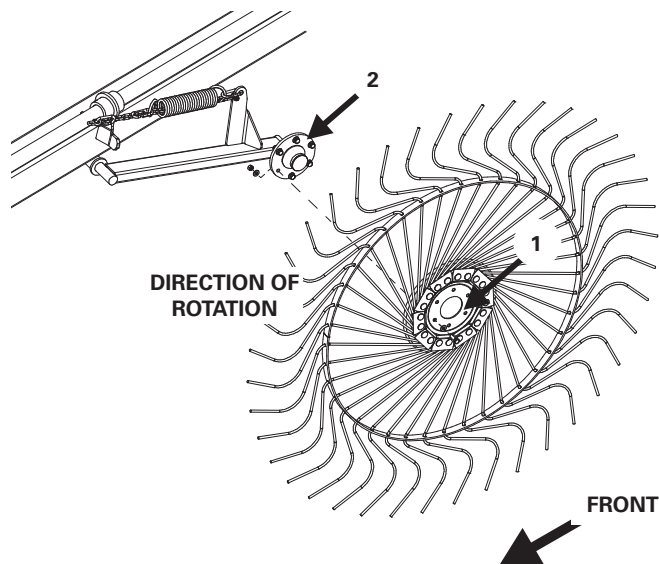
Install the chain to the quick link (Item 1). Install the rake arm to the mount (Item 2) [Figure 31].

Install the riser kit in a vertical orientation. Do not install the riser horizontally. Position the riser so the mounting hole aligns with the frame bracket. Insert the eye-bolt through the riser and spacer, ensuring the spacer is placed between the riser and the mounting surface. Secure the assembly according to the specified hardware and tighten properly [Figure 31A].

Figure 31 A



Figure 32



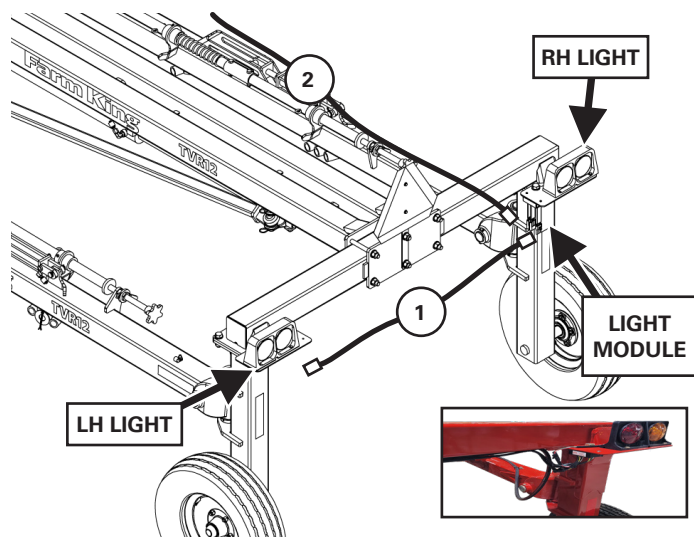
Attach one rake wheel (Item 1) to the hub (Item 2) using six 3/8" x 1-1/4" hex bolts, twelve 3/8" flat washers, and six 3/8" lock nuts [Figure 32].

**The rake tines must angle away from the direction of travel.**

Repeat assembly to install all rake arms and wheels.

## Wire Routing

**Figure 33**

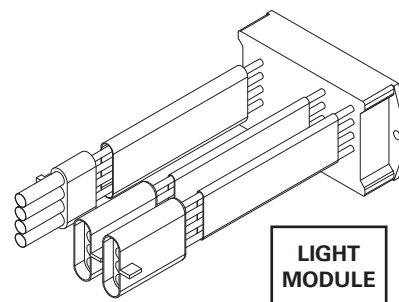


Route the 62" wire harness (Item 1) between the LH and RH rear lights [Figure 33].

Attach the 62" wire harness to the LH light connector.

Route the 52' wire harness (Item 2) from the hitch to the light module [Figure 33].

**Figure 34**



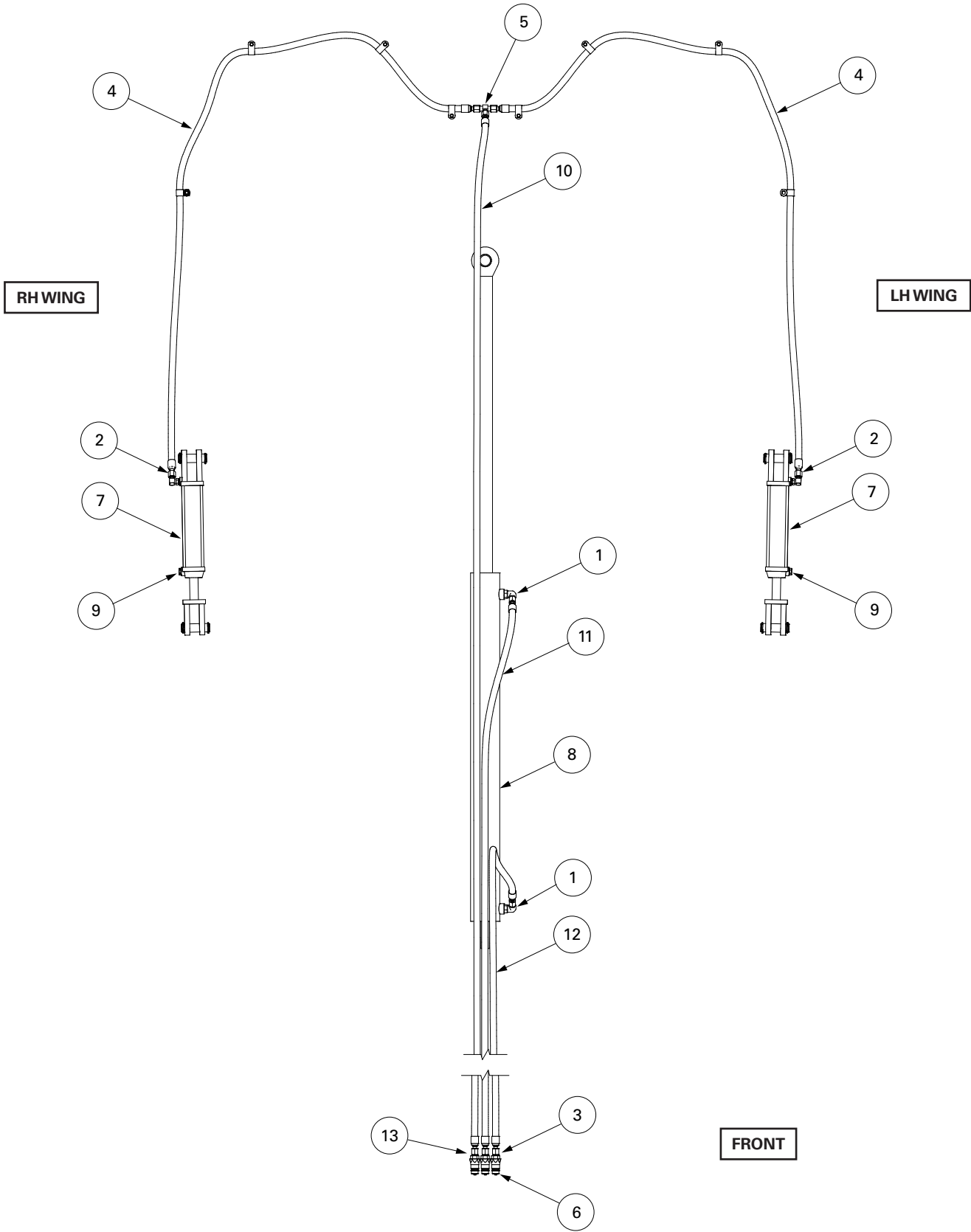
Attach the 62" wire harness (from the LH light) to the light module female connector (Item 1) [Figure 34].

Attach the RH light connector to the light module female connector (Item 2) [Figure 34].

Attach the 52' wire harness to the male connector (Item 3) [Figure 34].

*Note the following wire colors:* Green= RH Flash, Yellow= LH Flash, White=Ground, Black=LH Power, RH Power, Brown=Tail Running Lights

# Hydraulic Hose Routing & Components



## *Refer to Previous Page for Schematic*

*Do not connect wing link bars to slide carriage before assembly*

Install main fold cylinder (Item 8), attach barrel end of cylinder first, then by means of lifting device, or assistant, lift rod end up to slide carrier for wings. Note it maybe necessary to open ports on cylinder and extend the rod. Attach 90 degree fittings (Item 1), leave loose till hose is installed.

Install wheel lift cylinders to mount points on both left and right wings (Item 7).

Using thread sealing tape, attach breather fittings (Item 9) and 90 degree fittings (Item 2), be sure to have 90 degree fittings facing the rear of unit (wing pivots).

Run main supply hoses, (Items 10,11,12) down center frame. Install tee fitting (Item 6) to Item 10. Connect Item 11 to the rod end of the cylinder, connect Item 12 to barrel end of cylinder. Tighten 90 degree fittings so they do not allow the hoses to sag down.

*Be sure to leave sufficient length to connect hoses to tractor.*

Connect Item 4 from wheel lift cylinders to Tee fitting on the end of Item 10. Ensure routing does not interfere with wing hinge point.

Using supplied P clamps, clamp hoses to frame using P clamps and hardware, leaving enough slack for full folding action of wings.

Secure hoses and tee fitting to upper cross frame ensuring little slack is left hanging to catch crop material.



Assemble HYD tip to fitting, (Item 3&6), assemble to Items 10 through 12. For the wheel lift circuit add oriface (Item 13) for speed control. It is recommended fold hoses be marked extend and retract, with the wheel lift line marked separately.

Store assembled hose ends in holder on hitch until needed for operation.

| ITEM | PART NUMBER | DESCRIPTION                                         | QTY. |
|------|-------------|-----------------------------------------------------|------|
| 1    | 811916      | ELBOW-8MORB X -6MJIC 90DEG                          | 2    |
| 2    | 811944      | ELBOW 90 3/8MNPT X 9/16 MJIC                        | 2    |
| 3    | 812107      | ADAPTER STR 3/4MORB X 9/16MJIC                      | 3    |
| 4    | 812176      | HOSE 3/8 X 96 9/16 SWFJIC X 3                       | 2    |
| 5    | 812313      | TEE RUN 9/16 MJIC X 9/16 MJIC                       | 1    |
| 6    | 812841      | MALE TIP 0.50 BODY 0.75 ORB                         | 3    |
| 7    | 914022      | CYLINDER-2" BORE X 8" STROKE                        | 2    |
| 8    | 820855      | CYLINDER - 3.0 X 34.50 BALL END                     | 8    |
| 9    | 821151      | BREATHER - 3/8 NPT MALE STEEL                       | 2    |
| 10   | 821298      | HOSE - 0.375 X 335L -06 SWFJIC X -06 SWFJIC - TVR12 | 1    |
|      | 821295      | HOSE - 0.375 X 410L -06 SWFJIC X -06 SWFJIC - TVR14 | 1    |
| 11   | 821299      | HOSE - 0.375 X 310L -06 SWFJIC X -06 SWFJIC - TVR12 | 1    |
|      | 821296      | HOSE - 0.375 X 375L -06 SWFJIC X -06 SWFJIC - TVR14 | 1    |
| 12   | 821300      | HOSE - 0.375 X 270L -06 SWFJIC X -06 SWFJIC - TVR12 | 1    |
|      | 821298      | HOSE - 0.375 X 335L -06 SWFJIC X -06 SWFJIC - TVR14 | 1    |
| 13   | SX017992    | ORIFACE -6 FJICTO -6 MJIC .06 HOLE                  | 1    |

# Farm King



**Operation**

Pre - Operation Checklist.....45

Entering The Operator’s Position.....45

Leaving The Operator’s Position.....45

Tractor Requirements.....45

Connecting To Tractor.....46

Connecting Hydraulic Hoses.....47

Work Configuration .....48

Field Operation.....50

Adjustments.....52

    Windrow Width.....52

    Rake Wheel Height.....52

    Leveling.....52

Transport Configuration.....53

# Farm King



## Pre - Operation Checklist

Before operating the V-Rake for the first time and each time thereafter, check the following items:

1. Lubricate the equipment per the schedule outline in the Maintenance Section.
2. Check the hitch for damaged, loose or missing parts. Repair as needed before operation.
3. Make sure that all guards and shields are in place, secured and functioning as designed.
4. Check condition of all hydraulic components for leaks. Repair as required.



### HIGH PRESSURE FLUID HAZARD

Leaking fluids under pressure can enter the skin and cause serious injury or death. Immediate medical attention is required. Wear goggles. Use cardboard to check for leaks.

**Note:** Do not operate with hydraulic leaks.

1. Check that all electrical connections are tight.
2. Check the tines. Remove any twine, wire or other material that has become entangled.

## Entering The Operator's Position

Enter the operator's position, start the engine, and release the parking brake.



**Follow the instructions in your tractor's operation manual for the correct procedure.**

## Leaving The Operator's Position

Always perform the following steps when leaving the operator's position:

### AVOID INJURY OR DEATH

Before you leave the operator's position:

- Always park on a flat level surface
- Place all controls in NEUTRAL
- Engage the park brake
- Stop the engine and remove the key
- Wait for all moving parts to stop

## Tractor Requirements

The V-Rake requires a tractor with 40 HP and two pairs of remote outlets.

Adjust the tractor's drawbar in / out, until the center of the hitch pin hole is 16" from the end of the tractor's PTO shaft.

See your tractor's owner's manual for correct adjustment procedures.

## Connecting To Tractor

Always inspect the tractor's drawbar and equipment hitch before connecting. See the tractor's owner's manual.

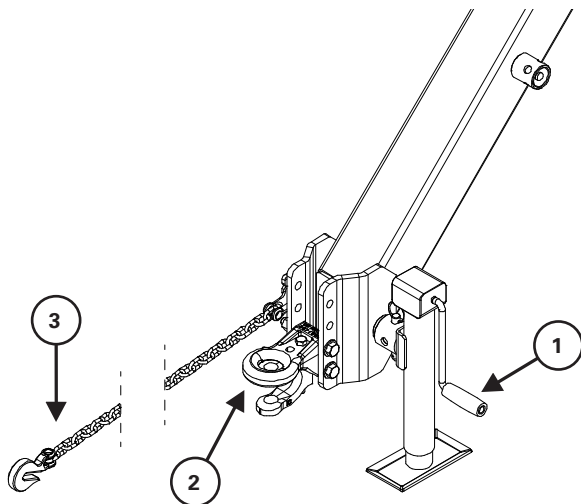
Verify that the tractor's drawbar is adjusted correctly for use with the equipment.

Enter the operator's position and move the tractor into position in front of the equipment.

Move the tractor backwards, aligning the drawbar with the equipment hitch.

Leave the operator's position.

**Figure 35**



Turn the jack handle (Item 1) to raise or lower the equipment hitch. Align the tractor and equipment hitch pin holes. Remove any attached hitch pins [Figure 35].

Enter the Operator's Position. Move the tractor backwards, aligning the drawbar hitch pin hole with the equipment hitch pin hole (Item 2). Stop the tractor and leave the Operator's Position [Figure 35].

Install the hitch pin and retaining pin to securely fasten the equipment hitch to the tractor drawbar [Figure 35].

Attach the safety chain (Item 3) [Figure 35].



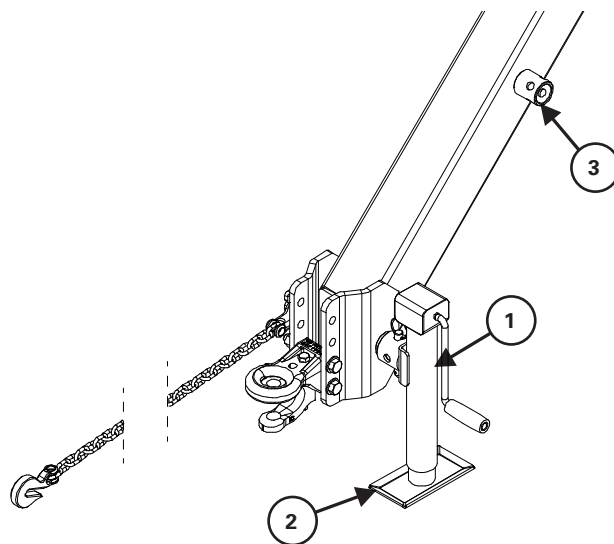
### AVOID INJURY OR DEATH

**Before moving the tractor, look in all directions and make sure no bystanders, especially small children are in the work area.**

**Do not allow anyone between the tractor and the equipment when backing up to the equipment for connecting.**

**Keep fingers and hands out of pinch points when connecting and disconnecting equipment.**

**Figure 36**



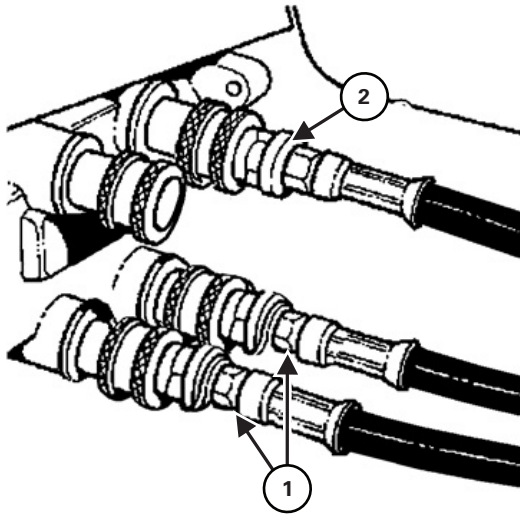
Remove the jack pin and retaining pin from the support jack (Item 1). Turn the handle and raise the jack support stand (Item 2) off the ground [Figure 36].

Move the jack to the storage position (Item 3) on the frame and reinstall jack pin and retaining pin [Figure 36].

## Connecting Hydraulic Hoses

V-Rakes are equipped with a hydraulic system to raise the rake wheels and extend the wings.

Figure 37



Push the male couplers into female couplers on the tractor until they are fully engaged and locked [Figure 37].

1. Extend / retract wings
2. Raise / lower rake wheels

**Note:** Make sure the quick couplers are fully engaged. If the quick couplers do not fully engage, check to see that the couplers are the same size and type.



## IMPORTANT

Contain and dispose of any oil leakage in an environmentally safe manner.

Thoroughly clean the quick couplers before making connections. Dirt can quickly damage the system.

Release pressure and pull the male couplers out to disconnect.



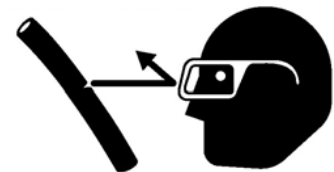
## WARNING

### AVOID BURNS

Hydraulic fluid, tubes, fittings and quick couplers can get hot when running equipment. Be careful when connecting and disconnecting quick couplers.



## WARNING



### HIGH PRESSURE FLUID HAZARD

To prevent serious injury or death from high pressure fluid:

- Relieve pressure on system before repairing or adjusting.
- Wear proper hand and eye protection when searching for leaks. Use wood or cardboard instead of hands.
- Keep all components in good repair.

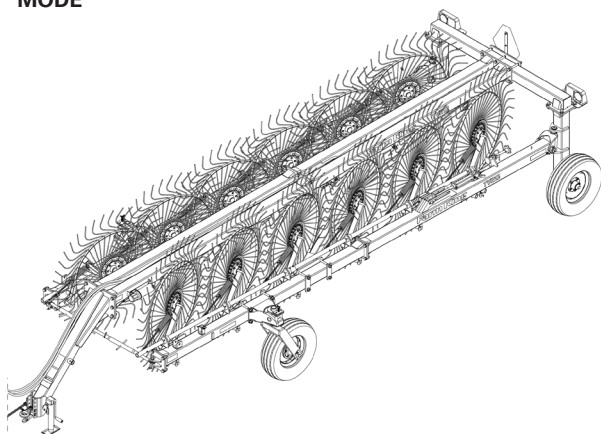
## Work Configuration

Transport the equipment to the area of work (see **“Transport Configuration”** in Operation section).

Always comply with federal, state, local and provincial laws regarding the transport of farm equipment on public roadways.

**Figure 38**

**TRANSPORT  
MODE**



The equipment must be configured from Transport Mode into Work Mode for proper field operation [Figure 38].

Remove all transport locks from the equipment.

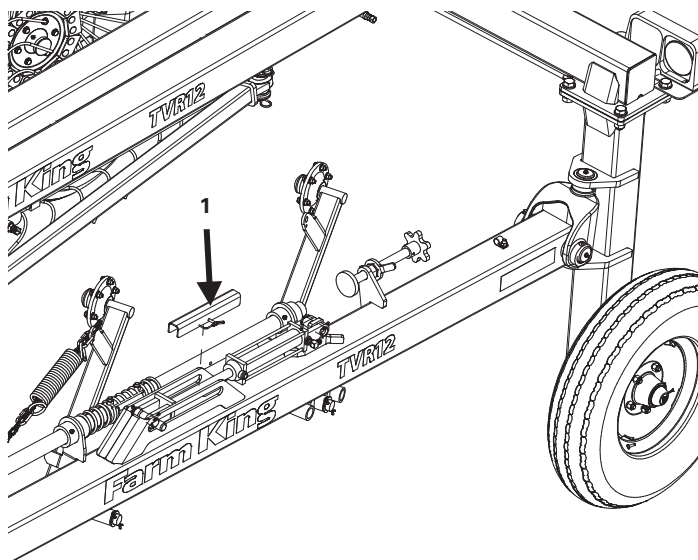


# WARNING

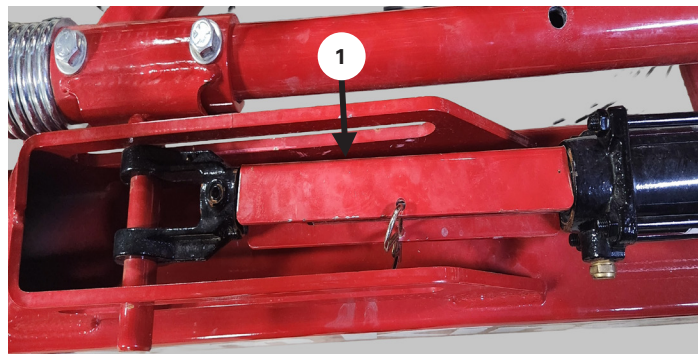
## AVOID INJURY OR DEATH

Before unlocking the wings, look in all directions and make sure no bystanders, especially small children, are in the work area.

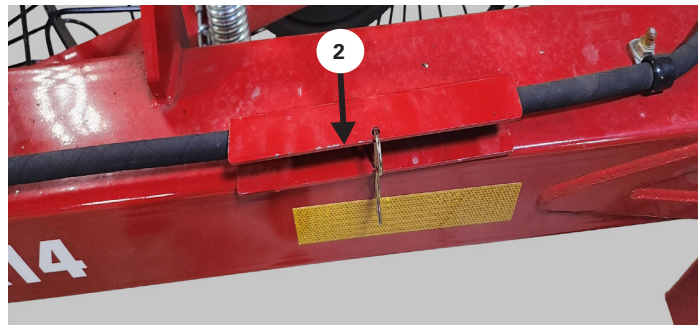
**Figure 39**



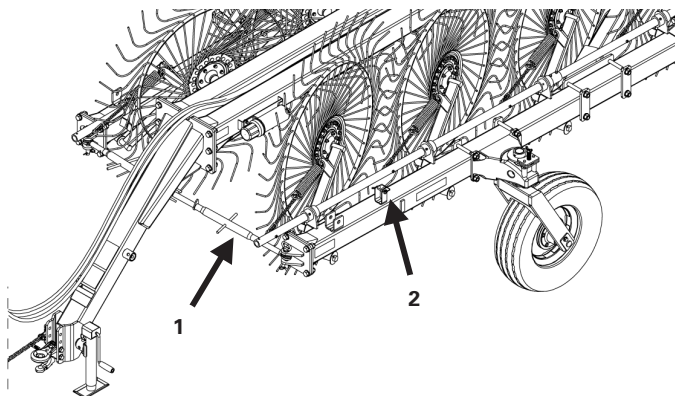
Remove the transport locks (Item 1) from the rake lift cylinders [Figure 39].



After removing the transport locks (Item 1) from the rake lift cylinders and completing setup, store the transport locks on the side of the machine. Place the transport lock brace over the hydraulic hose on the side frame and secure it using the R-clip (Item 2). Ensure the brace is properly retained to prevent loss during operation.

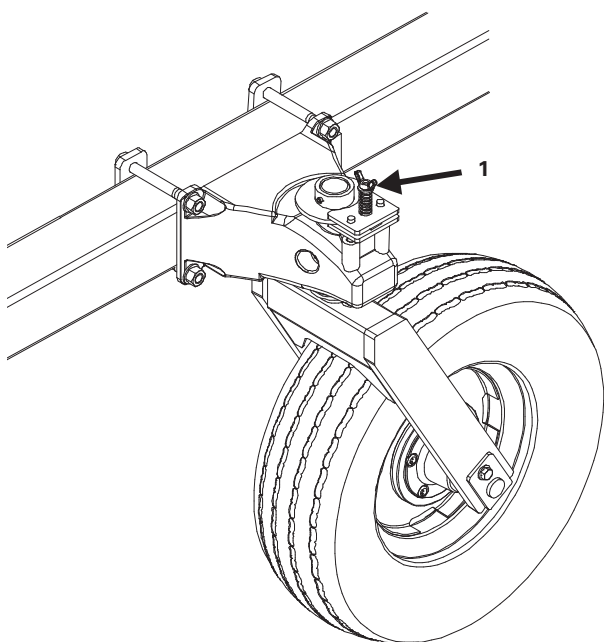


**Figure 40**



Remove the tie rods (Item 1) connecting the hitch and wings. Store the tie rods on the brackets (Item 2) on the wings during operation **[Figure 40]**.

**Figure 41**

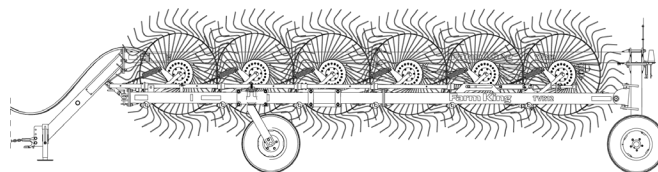
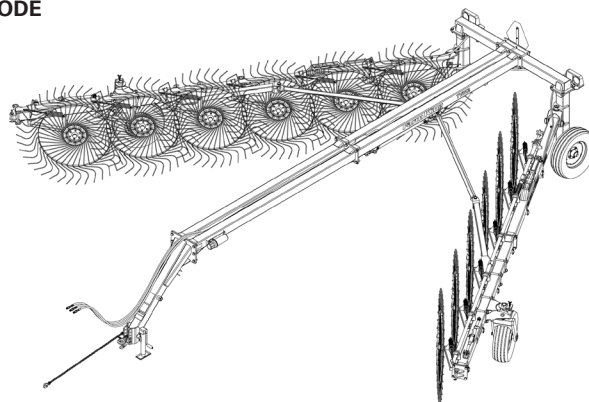


Back off the nut (Item 1) to loosen the brake discs on the front pivot wheels. The pivot wheels should be able to rotate freely **[Figure 41]**.

Do not remove nut entirely.

**Figure 42**

**WORK  
MODE**



Configure the rake into Work Mode. Act on the hydraulic controls **[Figure 42]**:

- Fully extend the rake wings
- Lower the rake wheels



**IMPORTANT**

**Rake wheels must be fully raised off the ground before extending or retracting wings.**

## Field Operation

Make sure the tractor is properly connected to the equipment. See **“Connecting To Tractor”** in Operation Section.

Enter the operator’s position. See **“Entering The Operator’s Position”** in the Operation Section.

Configure the V-Rake into Work Mode.

1. Extend the rake wings
2. Lower the rake wheels



### IMPORTANT

**Rake wheels must be fully raised off the ground before extending or retracting wings.**

When starting work, operate the V-Rake for a short distance and check the result.



### IMPORTANT

**Operate at a maximum speed of 9 mph (14 kph).**

Leave the operator’s position. See **“Leaving The Operator’s Position”** in the Operation Section.

Make adjustments as desired. See **“Adjustments”** in the Operation Section:

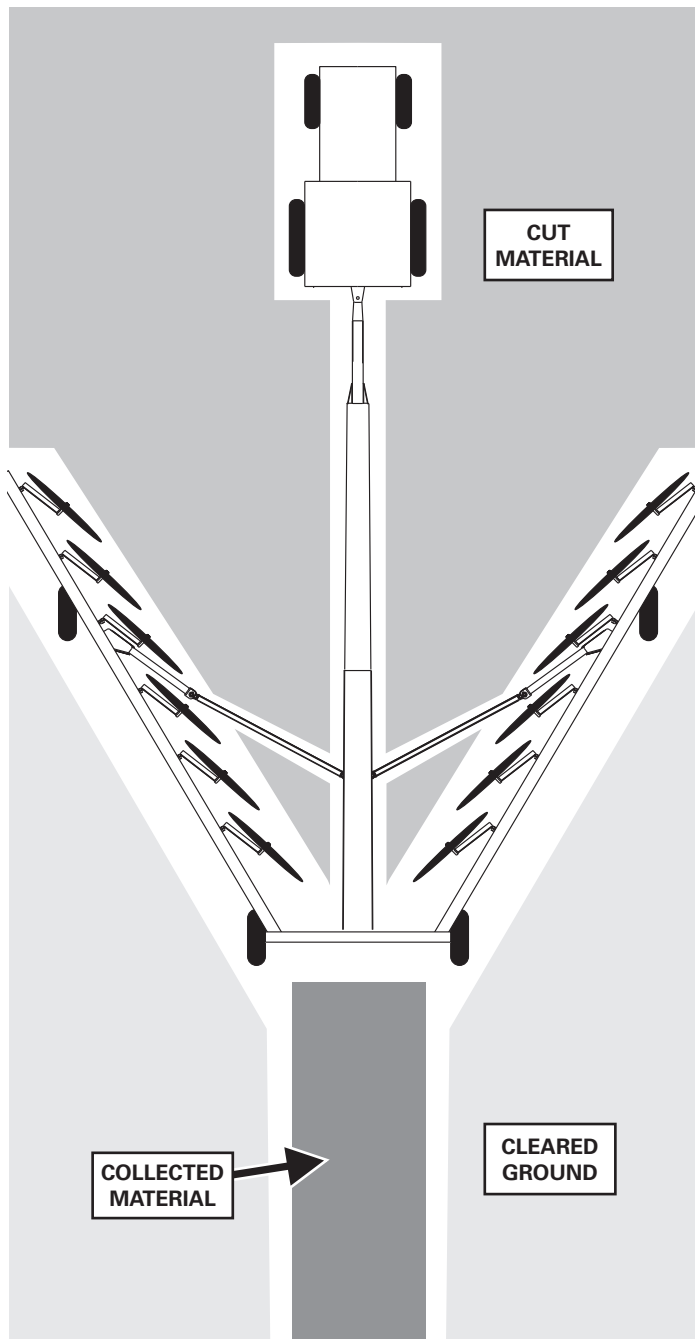
- Make adjustments for the desired windrow width
- Verify that the rake is operating parallel to the ground



### CAUTION

- Read operator and parts manual before operating the implement.
- Do not permit riders.
- Keep all guards and shields in place.
- Keep hands, feet, clothing and hair away from moving parts.
- Stop engine, set brake, remove key and wait for all moving parts to stop before servicing, adjusting, repairing and unplugging.
- Remove bystanders, especially children, before starting or while operating.
- Review safety instructions annually.

Figure 43



The tractor and V-Rake must travel in a straight path while collecting material.

Before the end of the field, raise the rake wheels.



## IMPORTANT

**Rake wheels must be fully raised off the ground before extending or retracting wings.**

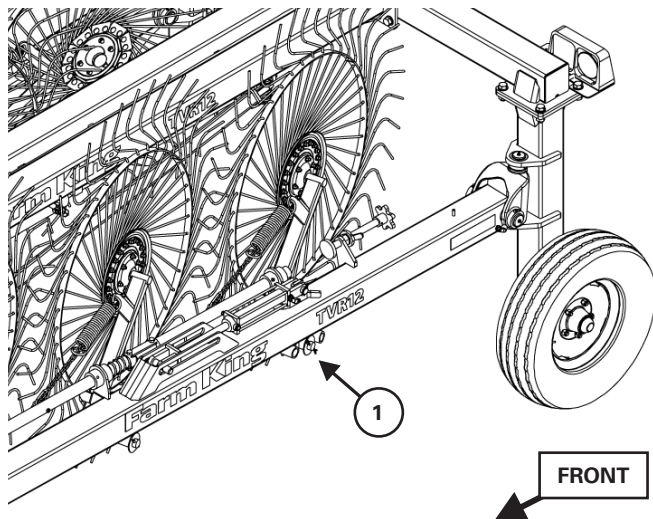
Once the tractor has made a turn lower the rake wheels to continue work.

The rake wheels rotate and collect material as the V-Rake is pulled. Material is collected into a single swath behind the center of the rake [Figure 43].

## Adjustments

### Windrow Width

Figure 44

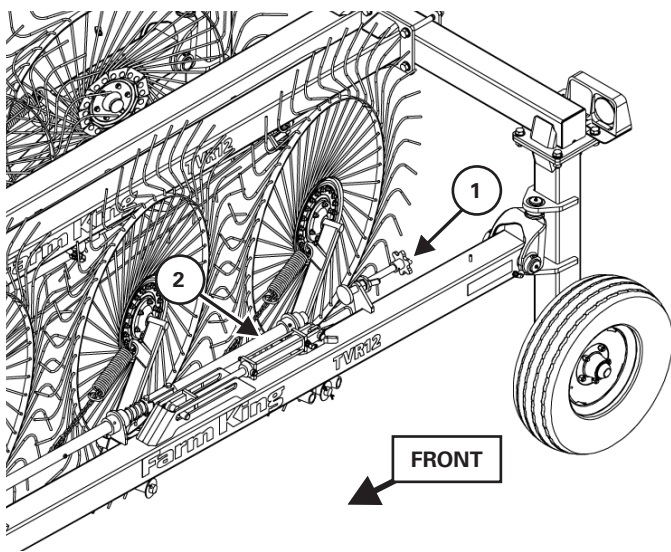


Adjust the windrow width by changing the rear rake wheel mounts (Item 1) [Figure 44]:

- Increase width by using the forward mounts
- Decrease width by using the rear mounts

### Rake Wheel Height

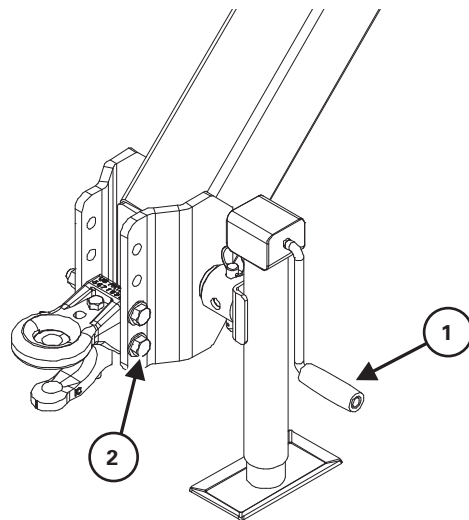
Figure 45



Adjust the rake wheel height by turning in / out the stop (Item 1) at the end of the lifting rod (Item 2). Secure with jam nut [Figure 45].

### Leveling

Figure 46



Connect the V-Rake to tractor.

Lower the jack (Item 1) until the entire weight of the hitch is supported [Figure 46].



## IMPORTANT

Use adequate supports as required before loosening the clevis mounting bolts.

Remove the clevis mounting bolts (Item 2) and nuts [Figure 46].

Raise or lower the jack until the V-Rake frame is parallel with the ground. Reinstall the mounting bolts and nuts.

Tighten bolts to correct torque.

## Transport Configuration

Always comply with federal, state, local and provincial laws regarding the transport of farm equipment on public roadways.

Verify that the tractor / tow vehicle is approved for transporting the equipment and that the equipment is securely attached to the tractor / tow vehicle and configured into Transport Mode.

Verify safety chain is installed and properly connected before transporting equipment.

Verify that the SMV (Slow Moving Vehicle) emblem, all lights and reflectors are clean and visible.



**WARNING**

### AVOID INJURY OR DEATH

Keep bystanders away.

Do not allow riders.



**IMPORTANT**

Never exceed 20 mph (32 kph) during road travel.

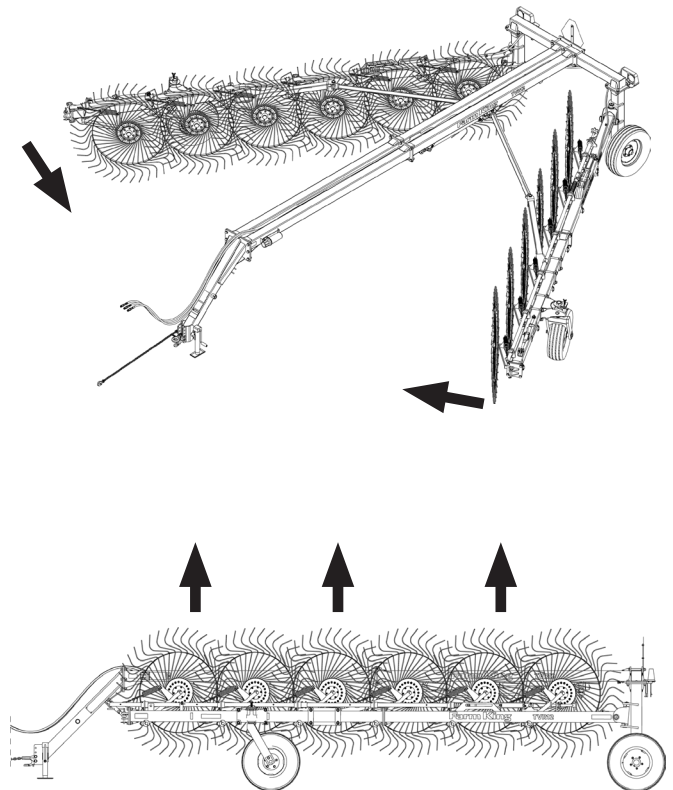


**WARNING**

Use of an unapproved hitch or tractor / tow vehicle can result in loss of control, leading to serious injury or death.

Tractor / tow vehicle and hitch must have the rated capacity to tow equipment.

Figure 47



The equipment must be configured from Work Mode into Transport Mode for proper road transportation [Figure 47].

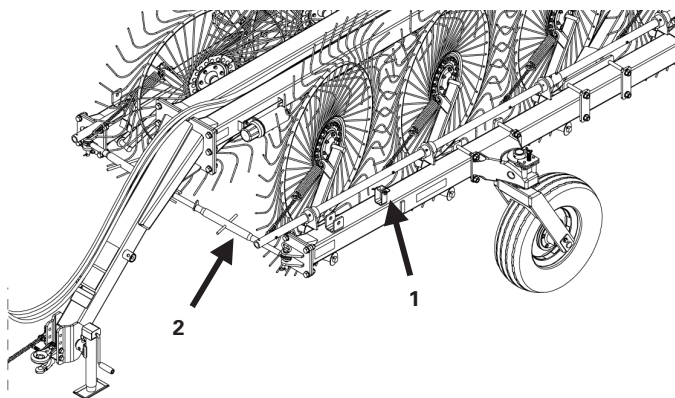
Act on the hydraulic controls:

- Fully raise the rake wheels
- Fully close the wings

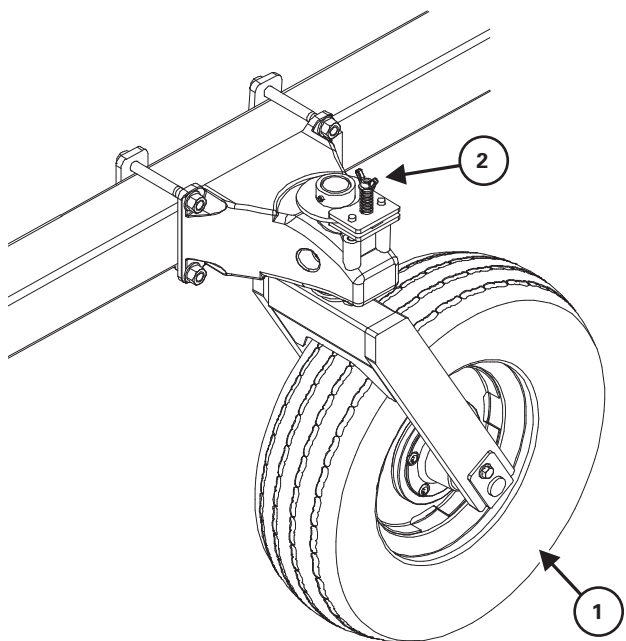


**IMPORTANT**

Rake wheels must be fully raised off the ground before extending or retracting wings.

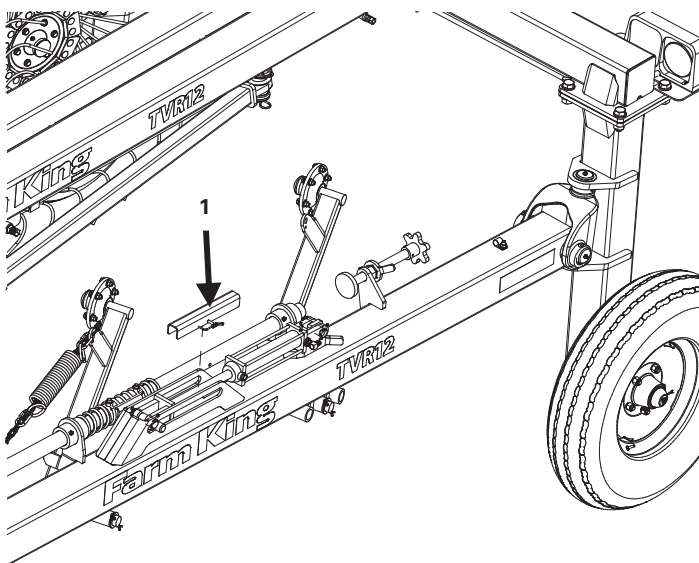
**Figure 48**

Remove the tie rods from the storage brackets (Item 1) on the wings. Install the tie rods (Item 2) to secure the wings to the hitch **[Figure 48]**.

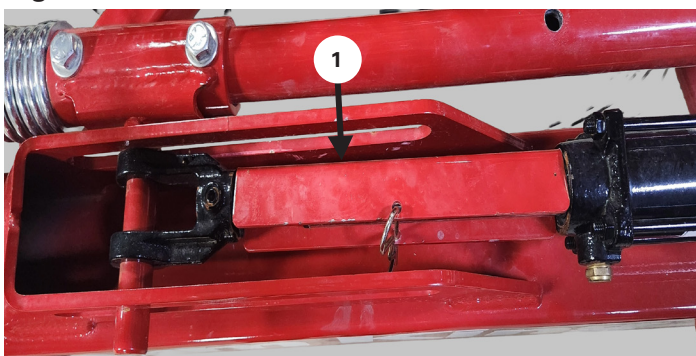
**Figure 49**

Position the pivot wheels (Item 1) in the direction of travel. Tighten the nut (Item 2) and brake discs **[Figure 49]**.

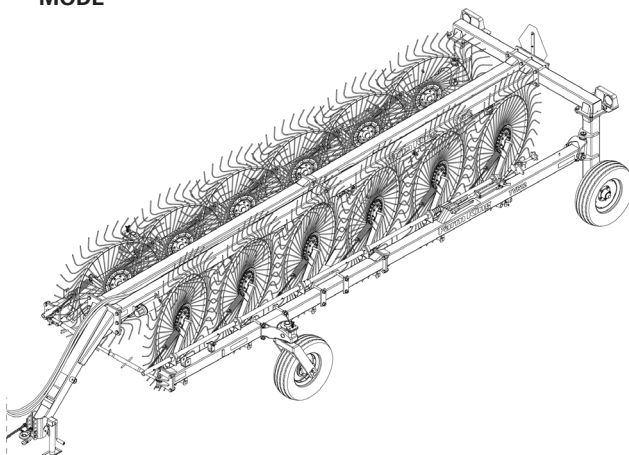
The pivot wheels should remain stationary during road travel.

**Figure 50**

Install the transport locks (Item 1) to the rake lift cylinders **[Figure 50]**.

**Figure 51**

**TRANSPORT  
MODE**



The equipment is ready for road travel **[Figure 51]**.

# Maintenance

|                                    |    |
|------------------------------------|----|
| Service Schedule Chart.....        | 57 |
| Troubleshooting .....              | 58 |
| Lubrication.....                   | 59 |
| Recommendations.....               | 59 |
| Locations.....                     | 59 |
| Rake Wheels.....                   | 61 |
| Rake Wheels /Tines.....            | 61 |
| Chain / Spring.....                | 61 |
| Storage And Return To Service..... | 63 |
| Storage.....                       | 63 |
| Return To Service.....             | 63 |
| Decal Installation.....            | 63 |

# Farm King



## Service Schedule Chart



# WARNING

Instructions are necessary before operating or servicing equipment. Read and understand the Operator And Parts Manual and safety signs (decals) on equipment. Follow warnings and instructions in the manuals when making repairs, adjustments or servicing. Check for correct function after adjustments, repairs or service. Untrained operators and failure to follow instructions can cause injury or death.

**Note:** If a problem is encountered that is difficult to solve, even after having read through this troubleshooting section, please call your local distributor, dealer or factory. Before you call, please have this Operator And Parts Manual and the serial number of your machine at hand.

Maintenance work must be done at regular intervals. Failure to do so will result in excessive wear and early failures. The service schedule is a guide for correct maintenance of the equipment.

| #                                           | DESCRIPTION                            | SERVICE PROCEDURES |       |      |        |       |
|---------------------------------------------|----------------------------------------|--------------------|-------|------|--------|-------|
|                                             |                                        | CHECK              | CLEAN | LUBE | CHANGE | COVER |
| Daily Maintenance (or every 8 hours of use) |                                        |                    |       |      |        |       |
| 1                                           | Tire Pressure                          | ✓                  |       |      |        |       |
| 2                                           | Wheel Bolt Torque                      | ✓                  |       |      |        |       |
| 3                                           | Hydraulic Cylinders / Hoses / Fittings | ✓                  |       |      |        |       |
| 4                                           | Wing Pivots                            | ✓                  |       | ✓    |        |       |
| 5                                           | Rake Wheel Hubs                        | ✓                  |       | ✓    |        |       |
| 6                                           | Rake Arm Pivots                        | ✓                  |       | ✓    |        |       |
| 7                                           | Rear Wheel Hubs                        | ✓                  |       | ✓    |        |       |
| 8                                           | Pivot Wheel Hubs / Forks               | ✓                  |       | ✓    |        |       |
| 9                                           | Lift Bar Collars                       | ✓                  |       | ✓    |        |       |
| Annually (or every 500 hours of use)        |                                        |                    |       |      |        |       |
| 10                                          | Entire Machine                         | ✓                  | ✓     |      |        |       |

## Troubleshooting Chart

| Problem                                       | Cause                                       | Service Procedure                                                            |
|-----------------------------------------------|---------------------------------------------|------------------------------------------------------------------------------|
| Hydraulic functions not operating.            | Hydraulic oil level low.                    | Check hydraulic oil level. Fill hydraulic oil as needed.                     |
|                                               | Damaged hydraulic hose or loose connection. | Check all hoses and connections. Repair or replace as needed.                |
|                                               | Transport locks left in                     | Remove transport locks and check operation                                   |
| Hydraulic functions operating intermittently. | Air in hydraulic system.                    | Purge air from hydraulic system, check for loose hoses                       |
| Hydraulic cylinders not holding position.     | Worn hydraulic seals in cylinders.          | Check for external leaks, replace seals.                                     |
|                                               | Loose hose                                  | Tighten hoses, check operation                                               |
| Leaving crop behind                           | Wheel down-pressure insufficient            | Lift chain binding, check lift chain routing                                 |
|                                               |                                             | Chain is set too tight, add links till down-force is sufficient              |
|                                               |                                             | Wheels having different down pressure settings, ensure all wheels are equal  |
|                                               | Damaged rake wheel(s)                       | Inspect wheels for bent/broken teeth, repair/replace.                        |
| Digging in / excessive down force             | Wheel down-pressure excessive               | Lift chain set too loose, remove links until sufficient pressure is achieved |
|                                               |                                             | Broken lift assist spring or lift chain, inspect and replace parts.          |
|                                               | Tire pressure insufficient                  | Check and adjust tire pressure                                               |

## Lubrication

### Recommendations

Always use a good quality multi-purpose / lithium base grease when lubricating the equipment.

- Always use a hand-held grease gun.
- Clean fitting before greasing, to avoid injecting dirt and grit.
- Replace and repair broken fittings immediately.
- If fittings will not take grease, remove and clean thoroughly. Replace fitting if necessary.



### AVOID INJURY OR DEATH

Stop engine, set brake, remove ignition key, and wait for all moving parts to stop before servicing, adjusting, repairing, or unplugging.

Support the equipment with blocks or safety stands before working beneath it.

Follow good shop practices:

- Keep service area clean and dry
- Be sure electrical outlets and tools are properly grounded
- Use adequate light for the job

Use only tools, jacks, and hoists of sufficient capacity for the job.

Replace and secure all shields removed during servicing before operating.

Use heavy leather gloves to handle sharp objects.

Check hydraulics regularly for leaks. Use cardboard to look for leaks, and use hand and eye protection.

Relieve pressure on hydraulic system before repairing or adjusting.

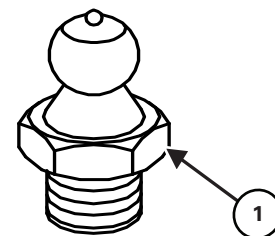
## Locations



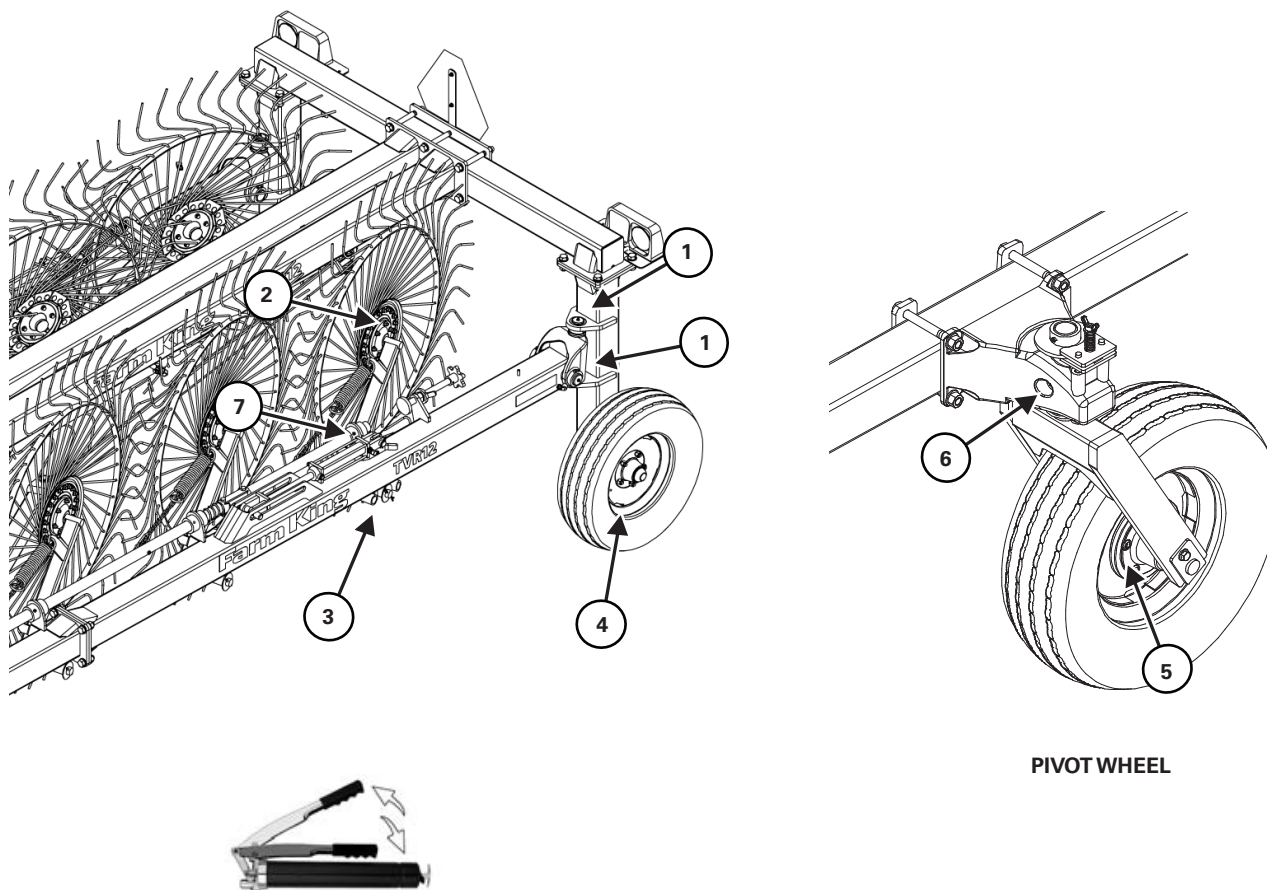
## IMPORTANT

**Fluid such as engine oil, hydraulic fluid, coolants, grease, etc. must be disposed of in an environmentally safe manner. Some regulations require that certain spills and leaks on the ground must be cleaned in a specific manner. See local, state and federal regulations for the correct disposal.**

Figure 50



Lubrication points (Item 1) [Figure 50].

**Figure 51**

Apply two to three pumps of grease to all lubrication points. Repeat for multiple locations of each component **[Figure 51]**:

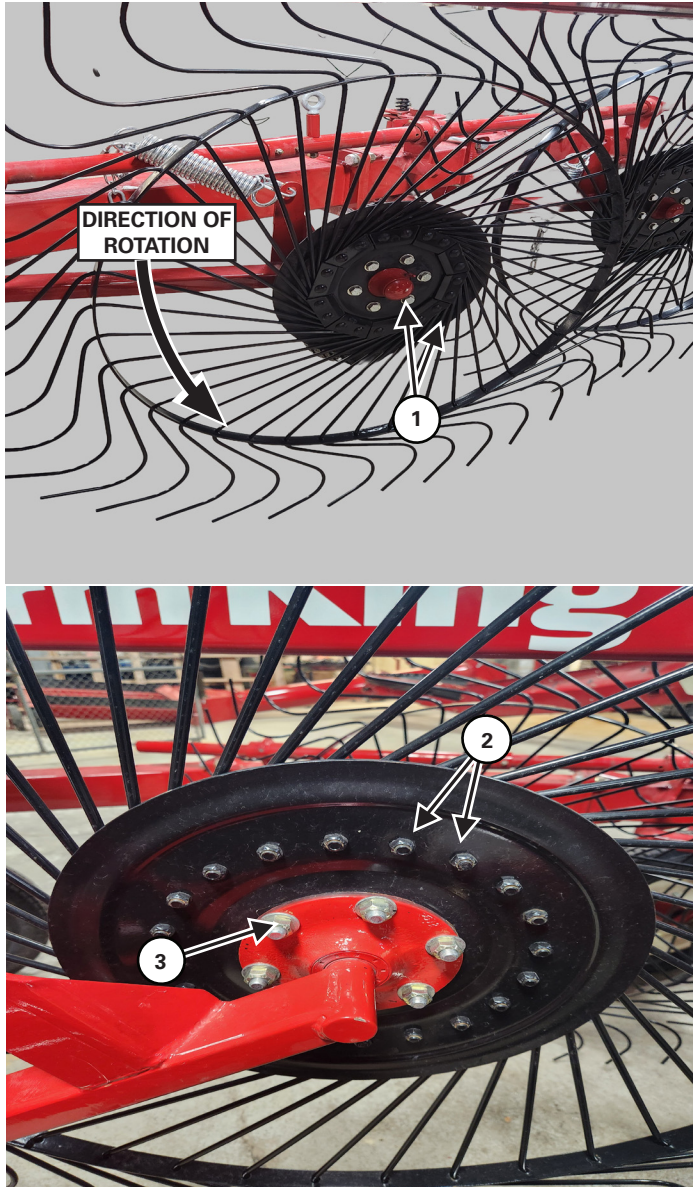
- Wing Pivots (Item 1)
- Rake Wheel Hubs (Item 2)
- Rake Arm Pivots (Item 3)
- Rear Wheel Hubs (Item 4)
- Pivot Wheel Hubs (Item 5)
- Pivot Wheel Forks (Item 6)
- Lift Bar Collars (Item 7)

## Rake Wheels

### Rake Wheels / Tines

Periodically check all rake tines for wear or damage.

**Figure 52**



*Rake Wheels*

Remove the 3/8" x 1-1/4" hex bolts (Item 1), 3/8" flat washers, and 3/8" lock nuts from the rake wheel. Replace the rake wheel [Figure 52].

### *Rake Tines*

Find the retaining plate that secures the tine to be removed. Remove the two carriage bolts (Item 2) and lock nuts (Item 3) from the retaining plate. Replace the tine [Figure 52].



## IMPORTANT

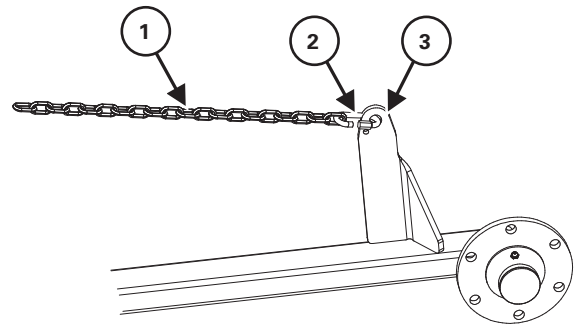
Take note of tine orientation in regards to direction of rotation when replacing rake wheels or tines.

Tines angle away from the direction of rotation.

### Chain / Spring

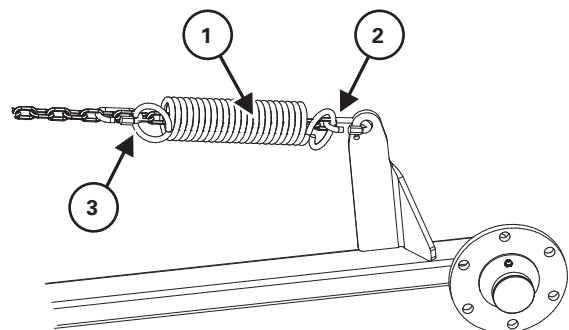
Periodically check all chain links and springs for wear or damage.

**Figure 53**

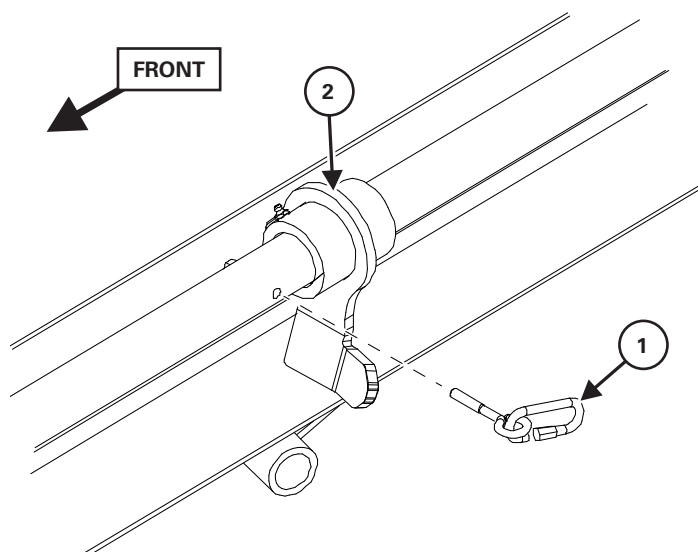


Attach chain (Item 1) and quick link (Item 2) to the top hole of the rake arm bracket (Item 3) [Figure 53].

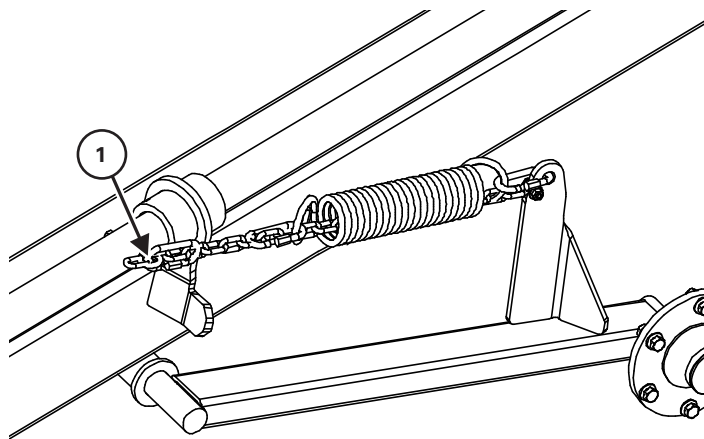
**Figure 54**



Attach spring (Item 1) to the quick link (Item 2) attached to the bracket. Attach the opposite end of the spring to the chain using one quick link (Item 3) [Figure 54].

**Figure 55**

Install one 0.313" x 2" eye bolt and quick link (Item 1) to the pre-drilled hole before the tube mount (Item 2) [Figure 55].

**Figure 56**

Install the chain to the quick link (Item 1) [Figure 56].

## Storage And Return To Service

### Storage

Sometimes it may be necessary to store the equipment for an extended period of time. Below is a list of items to perform before storage.



## IMPORTANT

**DO NOT** permit children to play on or around the stored machine.

- Thoroughly wash the machine with a pressure washer or water hose to remove all dirt, mud, debris or residue.
- Lubricate all bushings to remove any water residue from washing.
- Remove any material that has become entangled around any moving part.
- Place hydraulic hoses or electrical connector (if applicable) in the storage brackets.
- Inspect the hitch and all welds on the equipment for wear and damage.
- Check for loose hardware, missing guards, rake tines, or damaged parts.
- Check for damaged or missing safety signs (decals). Replace if necessary.
- Replace worn or damaged parts.
- Touch up all paint nicks and scratches to prevent rusting.
- Place the equipment in a dry protected shelter.

**Note:** If a dry protected shelter is not available, cover with a waterproof tarp and tie down securely.

- Place the equipment flat on the ground.
- Support the jack / frame with planks if required.

### Return To Service

After the equipment has been in storage, it is necessary to follow a list of items to return the equipment to service.

- Be sure all shields and guards are in place.
- Lubricate the equipment.
- Connect to a tractor and operate equipment, verify all functions operate correctly.
- Repair as needed.

### Decal Installation



## IMPORTANT

**When replacing safety signs (decals), the temperature must be above 10° C (50° F).**

- Remove all portions of the damaged safety sign (decal).
- Thoroughly clean the area with adhesive remover and glass cleaner. Remove all adhesive residue.
- Allow the area to dry completely before installing the new safety sign (decal).
- Position the safety sign (decal) in the correct location.
- Remove a small portion of the backing paper on the safety sign (decal).
- Press on the safety sign (decal) where the backing paper has been removed.
- Slowly remove the remaining backing paper, pressing on the safety sign (decal) as the backing paper is removed.
- Using the backing paper, pressing firmly, move the backing paper over the entire safety sign (decal) area.

**Note:** Small air pockets can be pierced with a pin and smoothed out using the piece of the backing paper.

# Farm King



## Parts Identification

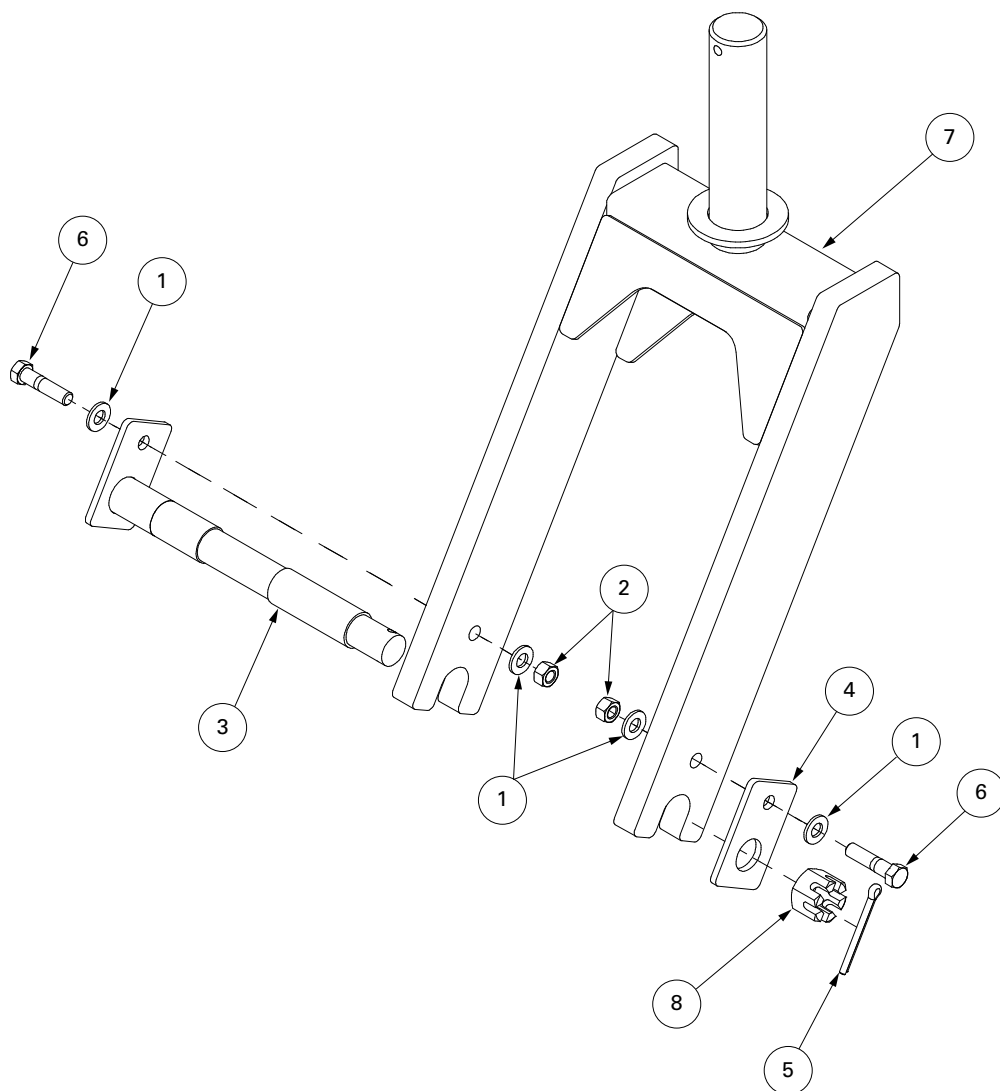
Always give your dealer the Model, Color and Serial Number of your machine to assist them in ordering and obtaining the correct parts. Use the exploded view and tabular listing of the area of interest to exactly identify the required part.

|                                      |    |
|--------------------------------------|----|
| Support Wheel Yoke.....              | 67 |
| Support Wheel.....                   | 68 |
| Support Wheel Hub.....               | 68 |
| Rear Axle.....                       | 70 |
| Axle Wheel Hub.....                  | 70 |
| Frame - TVR12.....                   | 72 |
| Frame - TVR14.....                   | 74 |
| Rake Wheels & Lift Arms - TVR12..... | 78 |
| Rake Wheels & Lift Arms - TVR14..... | 80 |
| Rake Wheel Arm Assembly.....         | 82 |
| Rake Wheels.....                     | 84 |
| Frame Underside.....                 | 86 |
| Hitch.....                           | 88 |
| Hydraulic Cylinders & Hoses.....     | 90 |

# Farm King

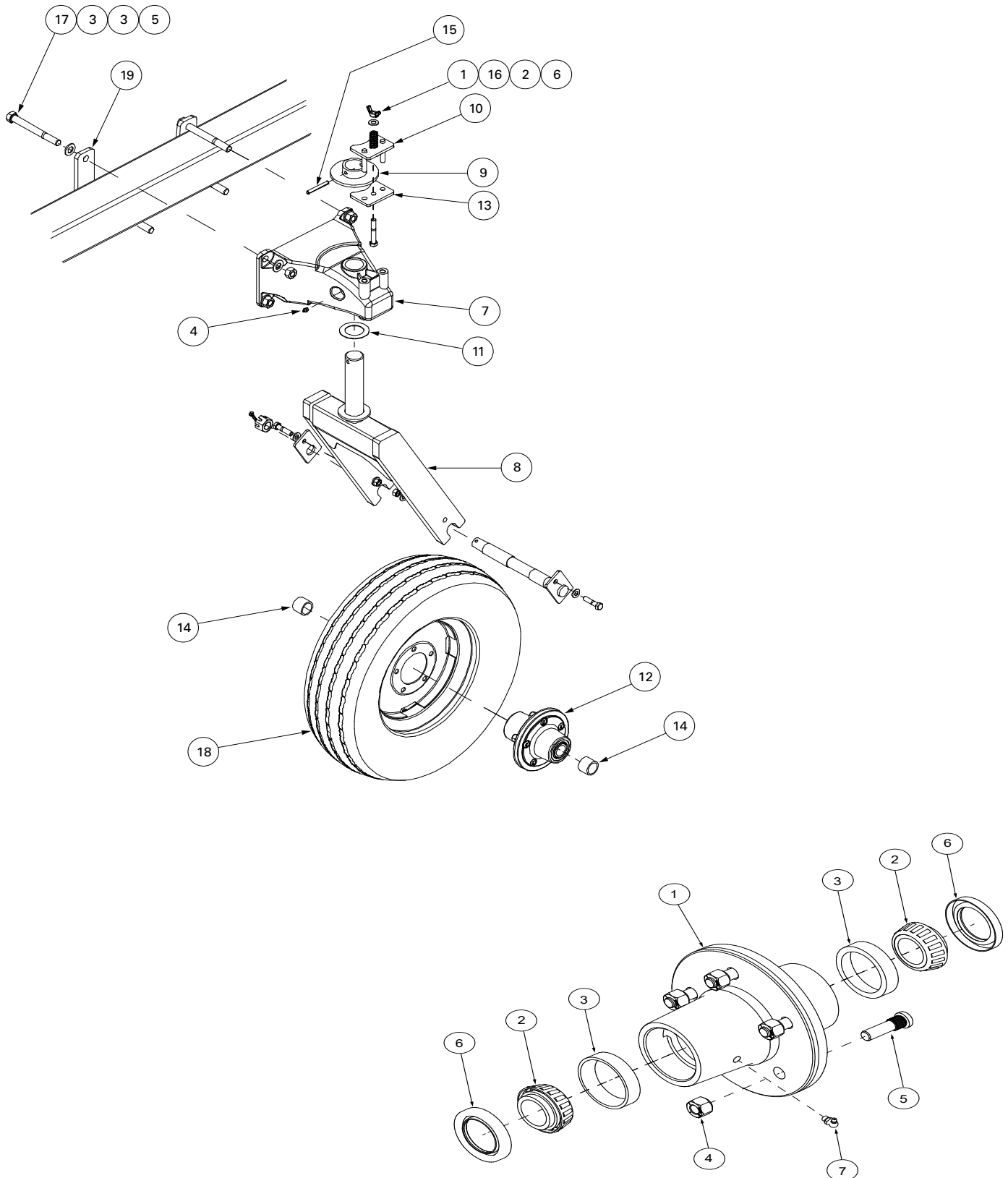


## Support Wheel Yoke



| ITEM | PART NUMBER | DESCRIPTION                      | QTY. |
|------|-------------|----------------------------------|------|
| 1    | 84048       | 1/2" SAE FLAT WASHER (PL)        | 4    |
| 2    | 812364      | 1/2" LOCK NUT (PL)               | 2    |
| 3    | 820704      | WELDMENT - SUPPORT WHEEL AXLE    | 1    |
| 4    | 821128      | PLATE - AXLE RETAINER            | 1    |
| 5    | 821129      | PIN COTTER 0.25 X 2.75 PL        | 1    |
| 6    | 821130      | BOLT HEX 0.50-13NC X 2.125 GR5PL | 2    |
| 7    | 821302      | WELDMENT - WHEEL YOKE            | 1    |
| 8    | 967217      | SLOTTED HEX NUT 1.0 NF           | 1    |

## Support Wheel and Hub

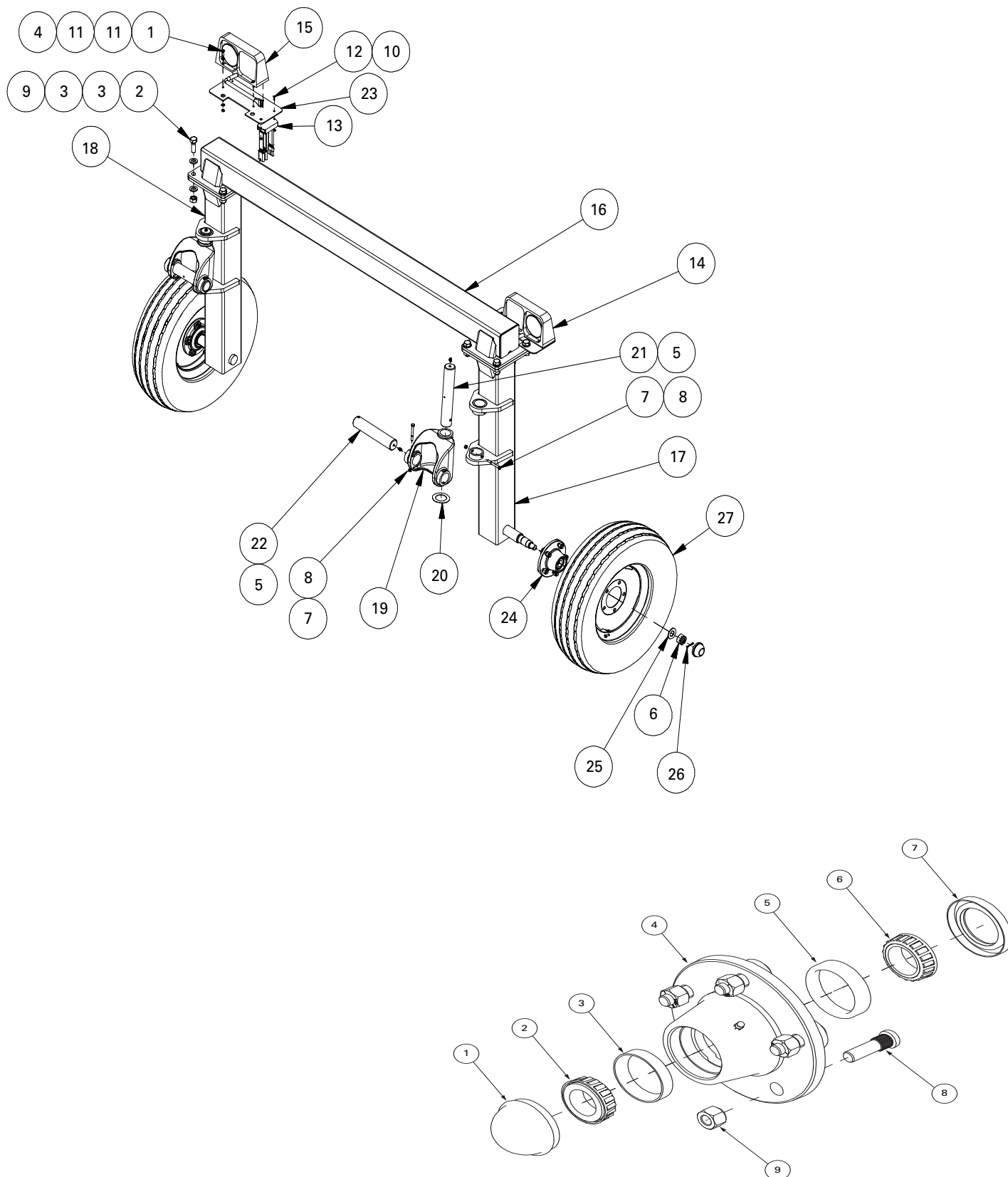


| ITEM | PART NUMBER | DESCRIPTION                                 | QTY. |
|------|-------------|---------------------------------------------|------|
| 1    | 81628       | 1/2" X 3 1/4" HEX BOLT (PL)                 | 1    |
| 2    | 84048       | 1/2" SAE FLAT WASHER (PL)                   | 1    |
| 3    | 84050       | 3/4" S.A.E. FLAT WASHER (PL)                | 8    |
| 4    | 84583       | SCREW IN GREASE FITTING                     | 1    |
| 5    | 812365      | 3/4" LOCK NUT (PL)                          | 4    |
| 6    | 813228      | 0.50" WING NUT                              | 1    |
| 7    | 820661      | CASTING - SUPPORT WHEEL MOUNT               | 1    |
| 8    | 820701      | WELDMENT - SUPPORT WHEEL YOKE               | 1    |
| 9    | 820762      | WELDMENT - BRAKE DISC                       | 1    |
| 10   | 820765      | WELDMENT- BRAKE PAD TOP                     | 1    |
| 11   | 820766      | SHIM - 3.25"OD X 2.06"ID X 16GA             | 1    |
| 12   | 820876      | HUB - HAC520-6                              | 1    |
| 13   | 821073      | WELDMENT - BRAKE PAD LOWER                  | 1    |
| 14   | 821110      | BUSHING - 1.406 ID X 1.75 OD X 1.35L        | 2    |
| 15   | 821148      | PIN - SPRING 0.375 DIA X 3.0 L              | 1    |
| 16   | 821259      | SPRING - COMPRESSION 2IN X 0.635            | 1    |
| 17   | 811746      | HEX BOLT-3/4 X 7-1/2" (PL)                  | 4    |
| 18   | F2508       | ASSEMBLY - WHEEL ST205-75R15 MOUNTED 15X5X5 | 1    |
| 19   | 820749      | PLATE- WING ATTACHMENT                      | 2    |

## Support Wheel Hub

| ITEM | PART NUMBER | DESCRIPTION            | QTY. |
|------|-------------|------------------------|------|
| 1    | 821103      | HUB - HA520-6 BARE     | 1    |
| 2    | 821104      | BEARING - HA520-6 CONE | 2    |
| 3    | 821105      | BEARING - HA520-6 CUP  | 2    |
| 4    | 821106      | WHEEL STUD NUT - WB25  | 5    |
| 5    | 919309      | WHEEL BOLT - WB16      | 5    |
| 6    | 967707      | OIL SEAL - SE13        | 2    |
| 7    | SX018105    | ZERK; 1/8" NPT, 90 DEG | 1    |

## Rear Axle and Wheel Hub

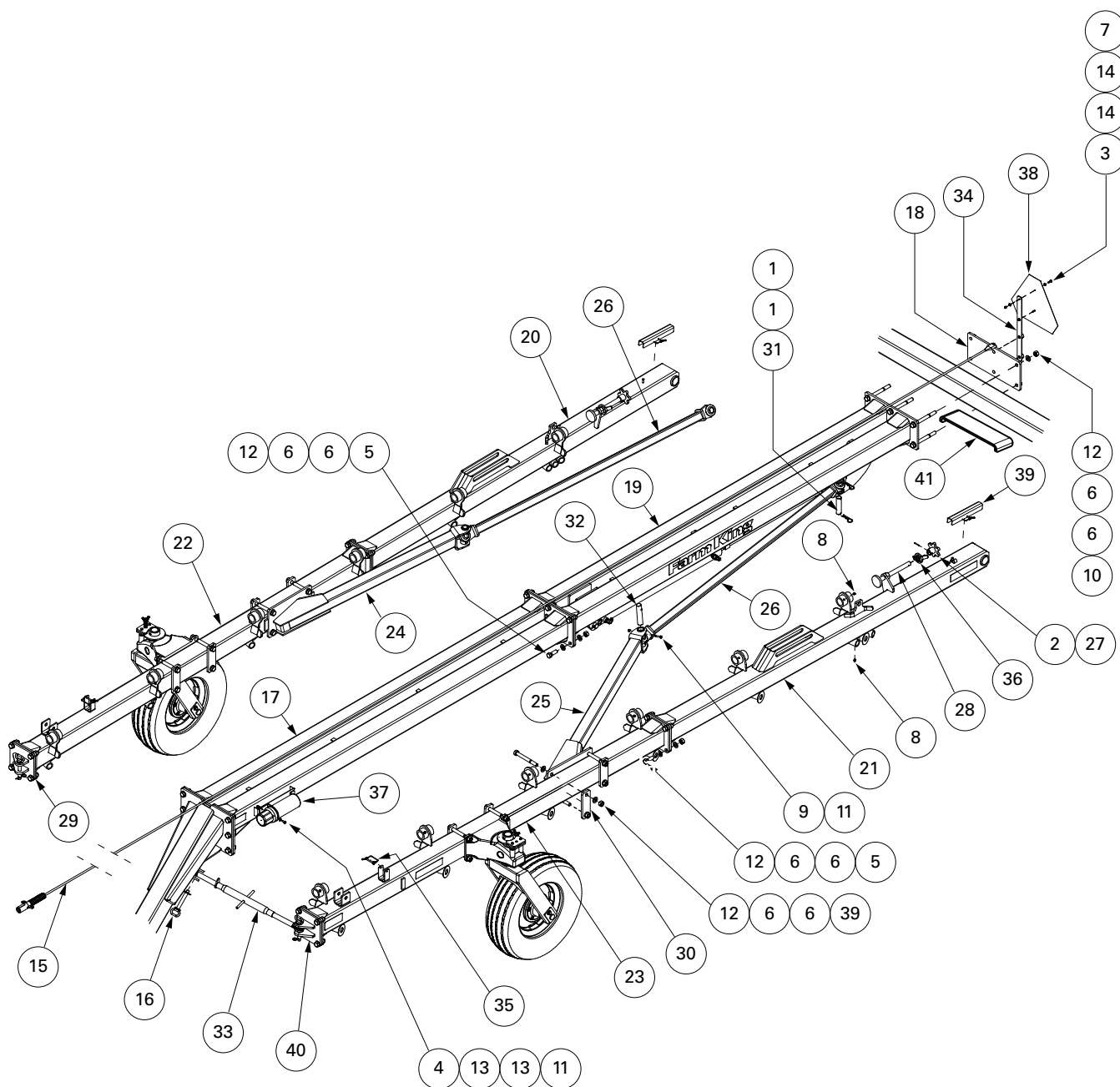


| ITEM | PART NUMBER | DESCRIPTION                                 | QTY. |
|------|-------------|---------------------------------------------|------|
| 1    | 81527       | 1/4" X 1" HEX BOLT (PL)                     | 8    |
| 2    | 81684       | 3/4" X 2 1/4" HEX BOLT (PL)                 | 8    |
| 3    | 84050       | 3/4" S.A.E. FLAT WASHER (PL)                | 16   |
| 4    | 84498       | 1/4" LOCK NUT (PL)                          | 8    |
| 5    | 84583       | SCREW IN GREASE FITTING                     | 4    |
| 6    | 810010      | NUT-SLOTTED 7/8 UNF (BR)                    | 2    |
| 7    | 810582      | 5/16" X 3" HEX BOLT (PL)                    | 4    |
| 8    | 812362      | 5/16" LOCK NUT (PL)                         | 4    |
| 9    | 812365      | 3/4" LOCK NUT (PL)                          | 8    |
| 10   | 812537      | NUT LOCK (NYLON) 0.136 NC GRB PL            | 2    |
| 11   | 812624      | 1/4" FLAT WASHER PL                         | 16   |
| 12   | 813958      | SCREW MACH #8-32 X 0.75 FLATHD              | 2    |
| 13   | 814193      | ENHANCED AG LIGHTING MODULE                 | 1    |
| 14   | 814195      | LAMP-AG/DUAL/RH/4-WAY WP                    | 1    |
| 15   | 814196      | LAMP-AG/DUAL/LH/4-WAY WP                    | 1    |
| 16   | 941771      | WELDMENT - CROSS FRAME                      | 1    |
| 17   | 942427      | WELDMENT - AXLE LH                          | 1    |
| 18   | 942431      | WELDMENT - AXLE RH                          | 1    |
| 19   | 820660      | CASTING - WING PIVOT                        | 2    |
| 20   | 820766      | SHIM - 3.25"OD X 2.06"ID X 16GA             | 4    |
| 21   | 820773      | PIN - RAKE JOINT VERT                       | 2    |
| 22   | 820774      | PIN - RAKE JOINT HORZ                       | 2    |
| 23   | 820884      | PLATE - LIGHT MOUNT                         | 2    |
| 24   | 915679      | HUB-HA517                                   | 2    |
| 25   | 967713      | 7/8" SAE FLAT WASHER (BR)                   | 2    |
| 26   | 9812486     | 1/8" X 1 1/2" COTTER PIN (BR)               | 2    |
| 27   | F2508       | ASSEMBLY - WHEEL ST205-75R15 MOUNTED 15X5X5 | 2    |

## Axle Wheel Hub

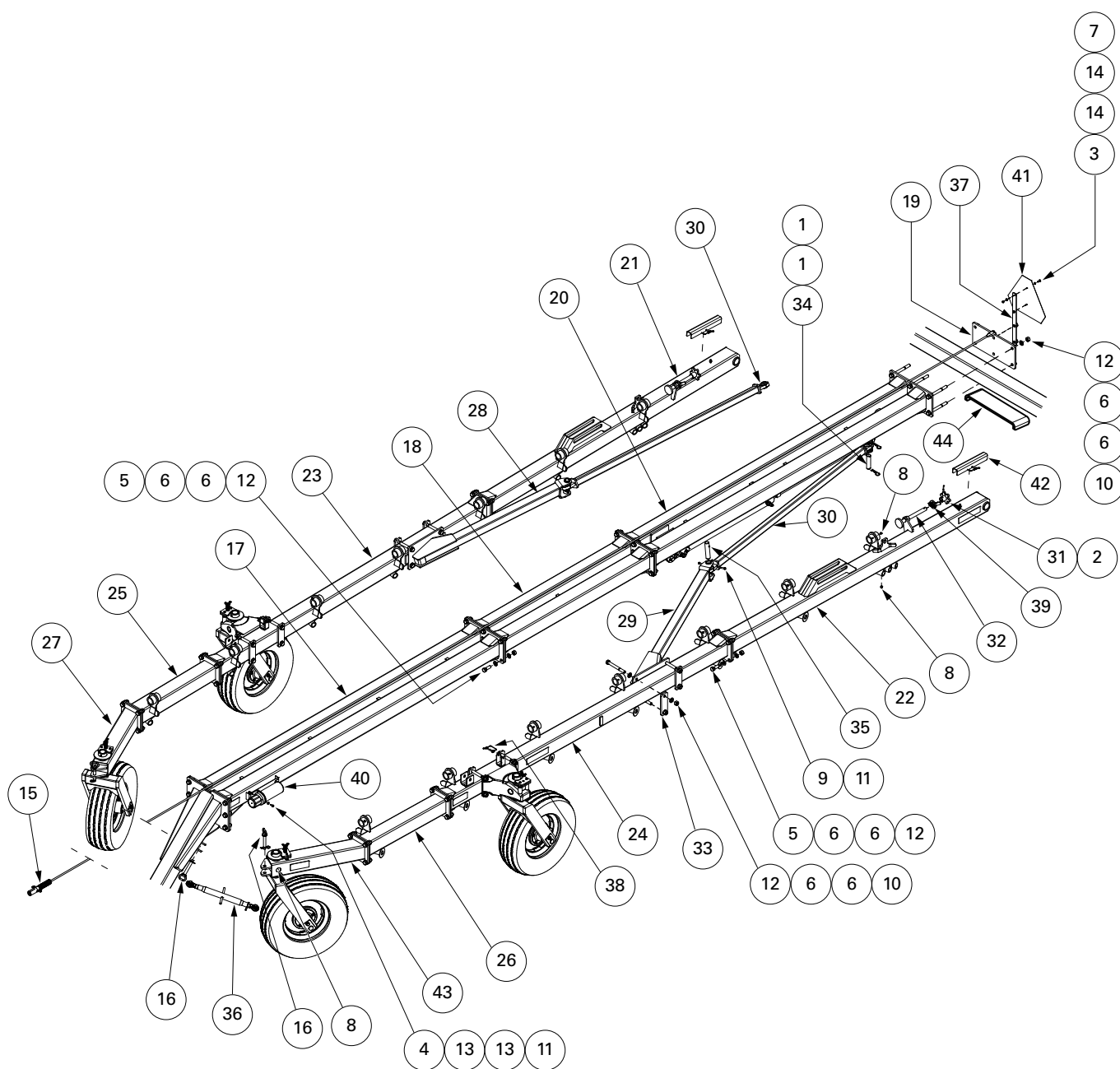
| ITEM | PART NUMBER | DESCRIPTION  | QTY. |
|------|-------------|--------------|------|
| 1    | 967716      | DUST CAP     | 1    |
| 2    | 967712      | BEARING CONE | 1    |
| 3    | 967711      | BEARING CUP  | 1    |
| 4    | 919312      | HUB BARE     | 1    |
| 5    | 968412      | BEARING CUP  | 1    |
| 6    | 967208      | BEARING CONE | 1    |
| 7    | 967707      | OIL SEAL     | 1    |
| 8    | 919309      | WHEEL BOLT   | 5    |
| 9    | 915665      | WHEEL NUT    | 5    |

## Frame - TVR12



| ITEM | PART NUMBER | DESCRIPTION                         | QTY. |
|------|-------------|-------------------------------------|------|
| 1    | 12779       | #9 HAIR PIN CLIP (PL)               | 4    |
| 2    | 81215       | SPRING PIN 0.188DIA X 1.50LG        | 2    |
| 3    | 81525       | 1/4" X 3/4" HEX BOLT (PL)           | 2    |
| 4    | 81549       | 5/16" X 3/4" HEX BOLT (PL)          | 3    |
| 5    | 81684       | 3/4" X 2 1/4" HEX BOLT (PL)         | 28   |
| 6    | 84050       | 3/4" S.A.E. FLAT WASHER (PL)        | 84   |
| 7    | 84498       | 1/4" LOCK NUT (PL)                  | 2    |
| 8    | 84583       | SCREW IN GREASE FITTING             | 28   |
| 9    | 811688      | BOLT-5/16" X 2 1/4" (PL) GR.5       | 2    |
| 10   | 811746      | 3/4" X 7.5" HEX BOLT                | 22   |
| 11   | 812362      | 5/16" LOCK NUT (PL)                 | 5    |
| 12   | 812365      | 3/4" LOCK NUT (PL)                  | 50   |
| 13   | 812623      | WASHER - 5/16" SAE FLAT (PL)        | 6    |
| 14   | 812624      | 1/4" FLAT WASHER PL                 | 4    |
| 15   | 814198      | MAIN HARNESS 52' LONG 7 PIN PLUG    | 1    |
| 16   | 816131      | 3/4" DIA. X 4.25" LG CLEV PIN       | 4    |
| 17   | 820619      | WELDMENT - FORWARD MAIN FRAME       | 1    |
| 18   | 821763      | PLATE - CROSS BAR BOLT              | 1    |
| 19   | 942464      | WELDMENT - REAR MAIN FRAME          | 1    |
| 20   | 942422      | WELDMENT - REAR WING RH             | 1    |
| 21   | 942425      | WELDMENT - REAR WING LH             | 1    |
| 22   | 820658      | WELDMENT - FORWARD WING RH          | 1    |
| 23   | 820659      | WELDMENT - FORWARD WING LH          | 1    |
| 24   | 820680      | WELDMENT - CLOSURE ARM RH           | 1    |
| 25   | 820681      | WELDMENT - CLOSURE ARM LH           | 1    |
| 26   | 820685      | WELDMENT - WING LINK                | 2    |
| 27   | 820737      | WELDMENT - STOP HANDLE              | 2    |
| 28   | 820738      | WELDMENT - RAKE HEIGHT STOP         | 2    |
| 29   | 820748      | WELDMENT - LOCK CLEVIS RH           | 1    |
| 30   | 820749      | PLATE- WING ATTACHMENT              | 4    |
| 31   | 820879      | PIN - 1.25 DIA X 4.75               | 2    |
| 32   | 820880      | PIN - 1.25 DIA X 5.5                | 2    |
| 33   | 820881      | LINK - 16"L X 0.75" PINS ADJUSTABLE | 2    |
| 34   | 821764      | PLATE - SMV MOUNT                   | 1    |
| 35   | 821139      | PIN - 0.25"DIA X 2.50L WIRE LOCK    | 4    |
| 36   | 821192      | WELDMENT - 1" WING NUT              | 2    |
| 37   | 909277      | MANUAL HOLDER 3 1/2" X 12"          | 1    |
| 38   | 967066      | SLOW MOVING VEHICLE SIGN            | 1    |
| 39   | 821627      | PLATE - LIFT CYL LOCK               | 2    |
| 40   | 821701      | WELDMENT - LOCK CLEVIS LH           | 1    |
| 41   | 946223      | REINFORCEMENT PLATE                 | 1    |

## Frame - TVR14



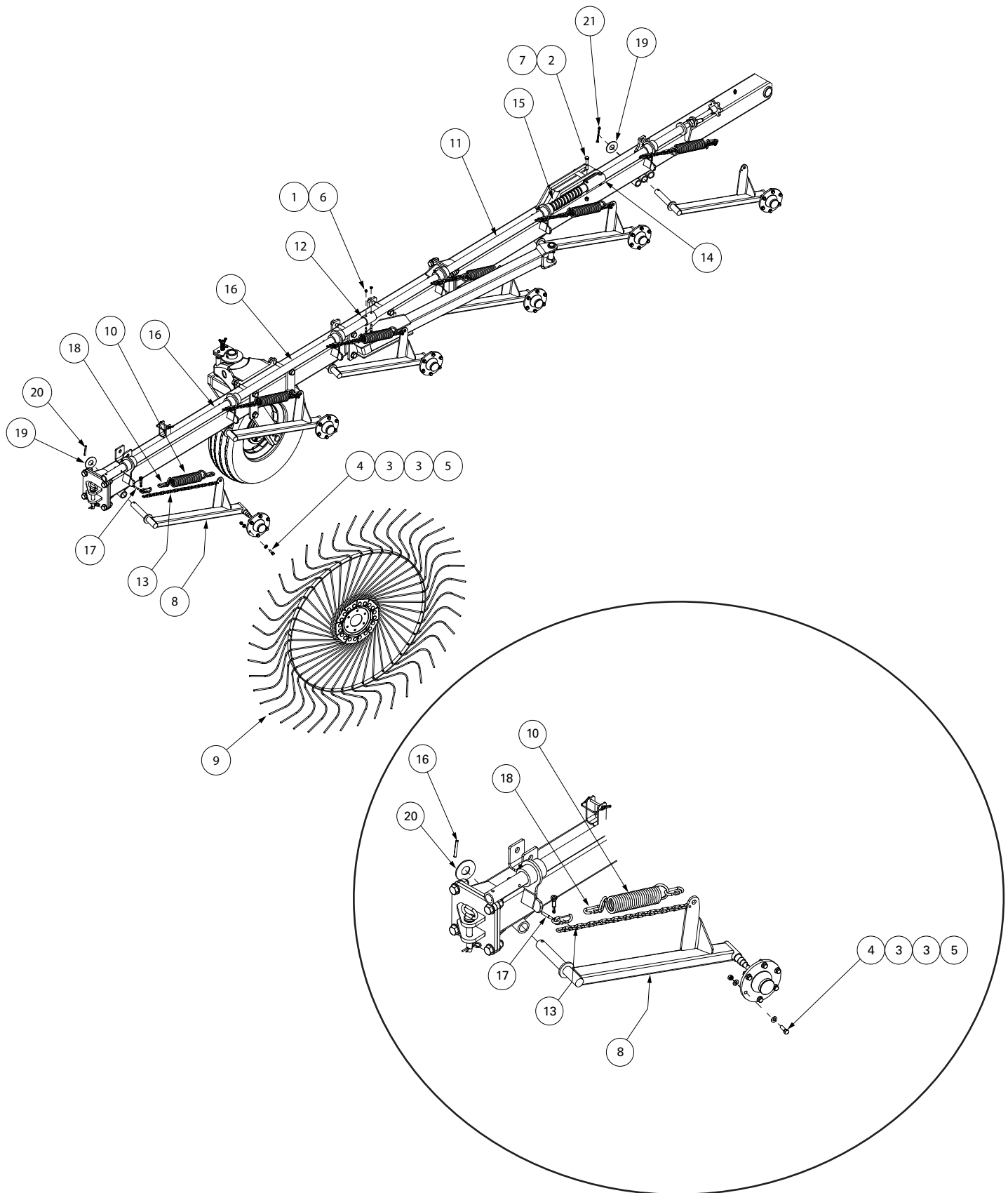
| ITEM | PART NUMBER | DESCRIPTION                         | QTY. |
|------|-------------|-------------------------------------|------|
| 1    | 12779       | #9 HAIR PIN <b>CLIP</b> (PL)        | 4    |
| 2    | 81215       | SPRING PIN 0.188DIA X 1.50LG        | 2    |
| 3    | 81525       | 1/4" X 3/4" HEX BOLT (PL)           | 2    |
| 4    | 81549       | 5/16" X 3/4" HEX BOLT (PL)          | 3    |
| 5    | 81684       | 3/4" X 2 1/4" HEX BOLT (PL)         | 42   |
| 6    | 84050       | 3/4" S.A.E. FLAT WASHER (PL)        | 112  |
| 7    | 84498       | 1/4" LOCK NUT (PL)                  | 2    |
| 8    | 84583       | SCREW IN GREASE FITTING             | 34   |
| 9    | 811688      | BOLT-5/16" X 2 1/4" (PL) GR.5       | 2    |
| 10   | 811746      | 3/4" X 7.5" HEX BOLT                | 22   |
| 11   | 812362      | 5/16" LOCK NUT (PL)                 | 5    |
| 12   | 812365      | 3/4" LOCK NUT (PL)                  | 64   |
| 13   | 812623      | WASHER - 5/16" SAE FLAT (PL)        | 6    |
| 14   | 812624      | 1/4" FLAT WASHER PL                 | 4    |
| 15   | 814198      | MAIN HARNESS 52' LONG 7 PIN PLUG    | 1    |
| 16   | 816131      | 3/4" DIA. X 4.25" LG CLEV PIN       | 4    |
| 17   | 820619      | WELDMENT - FORWARD MAIN FRAME       | 1    |
| 18   | 820621      | WELDMENT - FRAME EXTENSION          | 1    |
| 19   | 821763      | PLATE - CROSS BAR BOLT              | 1    |
| 20   | 942464      | WELDMENT - REAR MAIN FRAME          | 1    |
| 21   | 942422      | WELDMENT - REAR WING RH             | 1    |
| 22   | 942425      | WELDMENT - REAR WING LH             | 1    |
| 23   | 820658      | WELDMENT - FORWARD WING RH          | 1    |
| 24   | 820659      | WELDMENT - FORWARD WING LH          | 1    |
| 25   | 820665      | WELDMENT - 14 EXTENSION RH          | 1    |
| 26   | 820666      | WELDMENT - 14 EXTENSION LH          | 1    |
| 27   | 942435      | WELDMENT - WING END W/WHEEL RH      | 1    |
| 28   | 820680      | WELDMENT - CLOSURE ARM RH           | 1    |
| 29   | 820681      | WELDMENT - CLOSURE ARM LH           | 1    |
| 30   | 820685      | WELDMENT - WING LINK                | 2    |
| 31   | 820737      | WELDMENT - STOP HANDLE              | 2    |
| 32   | 820738      | WELDMENT - RAKE HEIGHT STOP         | 2    |
| 33   | 820749      | PLATE- WING ATTACHMENT              | 4    |
| 34   | 820879      | PIN - 1.25 DIA X 4.75               | 2    |
| 35   | 820880      | PIN - 1.25 DIA X 5.5                | 2    |
| 36   | 820881      | LINK - 16"L X 0.75" PINS ADJUSTABLE | 2    |
| 37   | 821764      | PLATE - SMV MOUNT                   | 1    |
| 38   | 821139      | PIN - 0.25"DIA X 2.50L WIRE LOCK    | 4    |
| 39   | 821192      | WELDMENT - 1" WING NUT              | 2    |
| 40   | 909277      | MANUAL HOLDER 3 1/2" X 12"          | 1    |

| ITEM | PART NUMBER | DESCRIPTION                    | QTY. |
|------|-------------|--------------------------------|------|
| 41   | 967066      | SLOW MOVING VEHICLE SIGN       | 1    |
| 42   | 821627      | PLATE - LIFT CYL LOCK          | 2    |
| 43   | 942432      | WELDMENT - WING END W/WHEEL LH | 1    |
| 44   | 946223      | REINFORCEMENT PLATE            | 1    |

# Farm King



## Lift Arms - TVR12

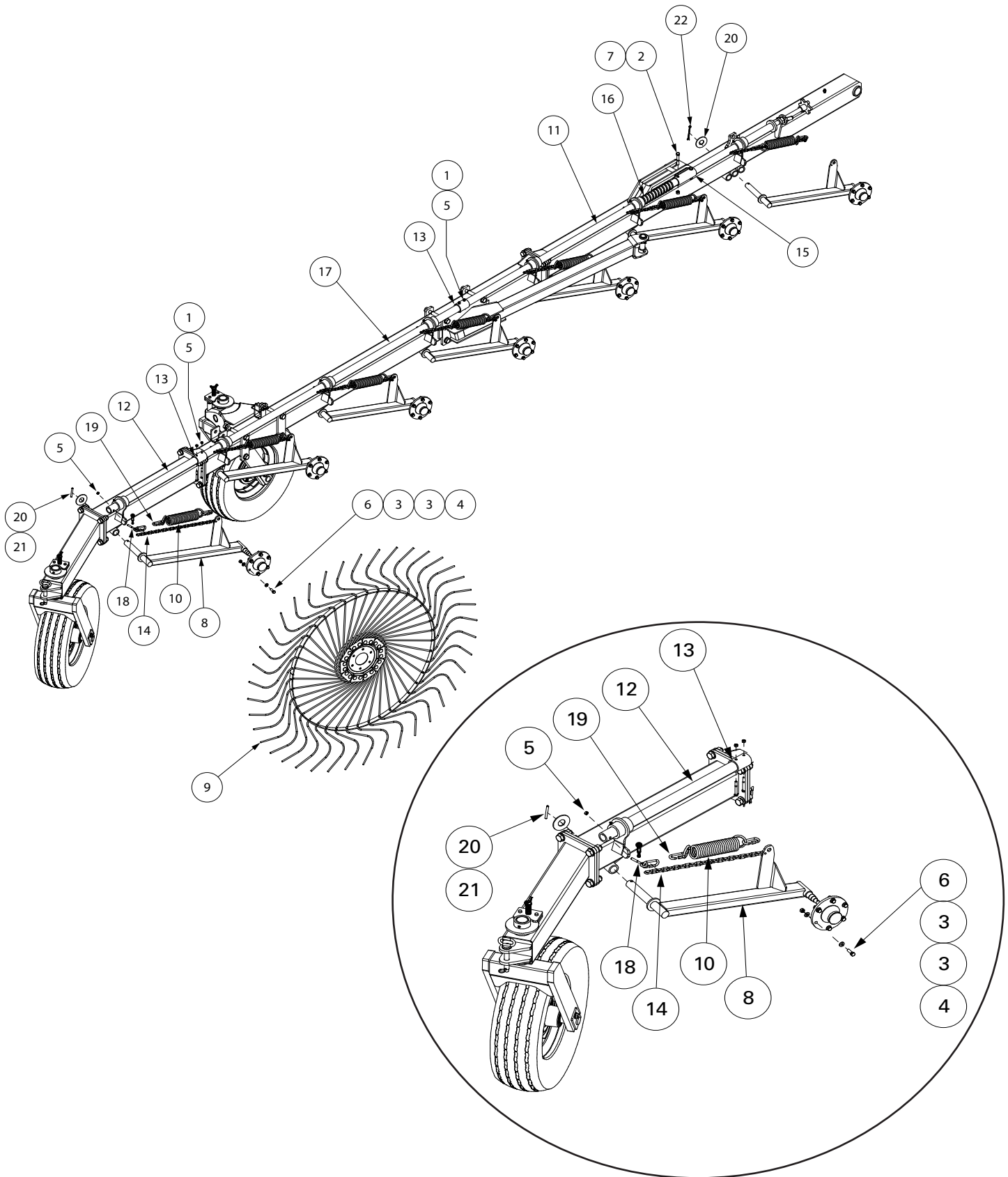


| ITEM | PART NUMBER | DESCRIPTION                              | QTY. |
|------|-------------|------------------------------------------|------|
| 1    | 81558       | 5/16" X 2 3/4" HEX BOLT GR5 (PL)         | 4    |
| 2    | 81627       | 1/2" X 3" HEX BOLT (PL)                  | 4    |
| 3    | 84039       | WASHER - 3/8" SAE FLAT (PL)              | 144  |
| 4    | 86171       | 3/8" X 1 1/4" HEX BOLT (PL)              | 72   |
| 5    | 812363      | 3/8" LOCK NUT (PL)                       | 72   |
| 6    | 812362      | 5/16" LOCK NUT (PL)                      | 4    |
| 7    | 812364      | 1/2" LOCK NUT (PL)                       | 4    |
| 8    | 821350      | ASSEMBLY - WHEEL ARM RH                  | 6    |
|      | 821351      | ASSEMBLY - WHEEL ARM LH                  | 6    |
| 9    | 820705      | ASSEMBLY - 60IN WHEEL RH                 | 6    |
|      | 820706      | ASSEMBLY - 60IN WHEEL LH                 | 6    |
| 10   | 820715      | SPRING - EXTENSION 10.5 L X .25T 65LB/IN | 12   |
| 11   | 820739      | TUBE - WHEEL LIFT REAR                   | 2    |
| 12   | 820741      | TUBE - WHEEL LIFT CONNECTOR              | 2    |
| 13   | 820743      | CHAIN - RAKE WHEEL                       | 12   |
| 14   | 820753      | WELDMENT-WHEEL CYL PIN                   | 2    |
| 15   | 820754      | SPRING - COMPRESSION 10"L X .25"T        | 2    |
| 16   | 821113      | TUBE - WHEEL LIFT FRONT                  | 2    |
| 17   | 949651      | SPACER - TUBE                            | 12   |
|      | 949652      | EYEBOLT – 1/2-13 THREAD x 4.5" SHANK     | 12   |
|      | 949672      | QUICK LINK – 5/16" WIDE JAW              | 12   |
|      | 812364      | NUT – HEX, GR5 (ZT), 1/2-13              | 12   |
| 18   | 821117      | LINK - QUICK 0.281T X 2.0L X .968W       | 36   |
| 19   | 967110      | 1.25ID X 18GA NARROW RIM WASHER          | 12   |
| 20   | 9812428     | SPRING PIN 0.313 DIA X 2.50 (PL)         | 10   |
| 21   | 9812436     | 1/4" X 2 1/2" COTTER PIN (PL)            | 2    |

\*All production units were shipped with Part Number 821927.

Upgrade kit: 949651, 949652, 949672, 812364 (Quantity: 12)

## Lift Arms - TVR14

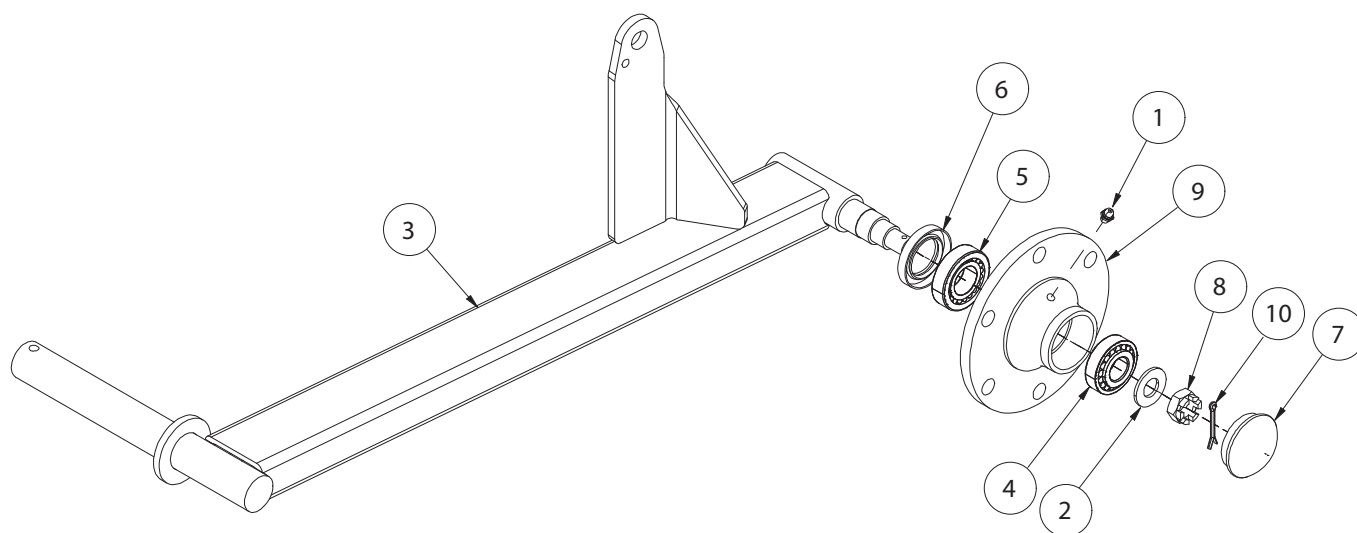


| ITEM | PART NUMBER | DESCRIPTION                              | QTY. |
|------|-------------|------------------------------------------|------|
| 1    | 81558       | 5/16" X 2 3/4" HEX BOLT GR5 (PL)         | 8    |
| 2    | 81627       | 1/2" X 3" HEX BOLT (PL)                  | 4    |
| 3    | 84039       | WASHER - 3/8" SAE FLAT (PL)              | 168  |
| 4    | 86171       | 3/8" X 1 1/4" HEX BOLT (PL)              | 84   |
| 5    | 812362      | 5/16" LOCK NUT (PL)                      | 10   |
| 6    | 812363      | 3/8" LOCK NUT (PL)                       | 84   |
| 7    | 812364      | 1/2" LOCK NUT (PL)                       | 4    |
| 8    | 821351      | ASSEMBLY - WHEEL ARM LH                  | 7    |
|      | 821350      | ASSEMBLY - WHEEL ARM RH                  | 7    |
| 9    | 820706      | ASSEMBLY - 60IN WHEEL LH                 | 7    |
|      | 820705      | ASSEMBLY - 60IN WHEEL RH                 | 7    |
| 10   | 820715      | SPRING - EXTENSION 10.5 L X .25T 65LB/IN | 14   |
| 11   | 820739      | TUBE - WHEEL LIFT REAR                   | 2    |
| 12   | 820740      | TUBE - WHEEL LIFT EXTENSION              | 2    |
| 13   | 820741      | TUBE - WHEEL LIFT CONNECTOR              | 4    |
| 14   | 820743      | CHAIN - RAKE WHEEL                       | 14   |
| 15   | 820753      | WELDMENT- WHEEL CYL PIN                  | 2    |
| 16   | 820754      | SPRING - COMPRESSION 10"L X .25"T        | 2    |
| 17   | 821113      | TUBE - WHEEL LIFT FRONT                  | 2    |
| 18   | 949651      | SPACER - TUBE                            | 14   |
|      | 949652      | EYEBOLT – 1/2-13 THREAD x 4.5" SHANK     | 14   |
|      | 949672      | QUICK LINK – 5/16" WIDE JAW              | 14   |
|      | 812364      | NUT – HEX, GR5 (ZT), 1/2-13              | 14   |
| 19   | 821117      | LINK - QUICK 0.281T X 2.0L X .968W       | 42   |
| 20   | 967110      | 1.25ID X 18GA NARROW RIM WASHER          | 14   |
| 21   | 9812428     | SPRING PIN 0.313 DIA X 2.50 (PL)         | 12   |
| 22   | 9812436     | 1/4" X 2 1/2" COTTER PIN (PL)            | 2    |

\*All production units were shipped with Part Number 821927.

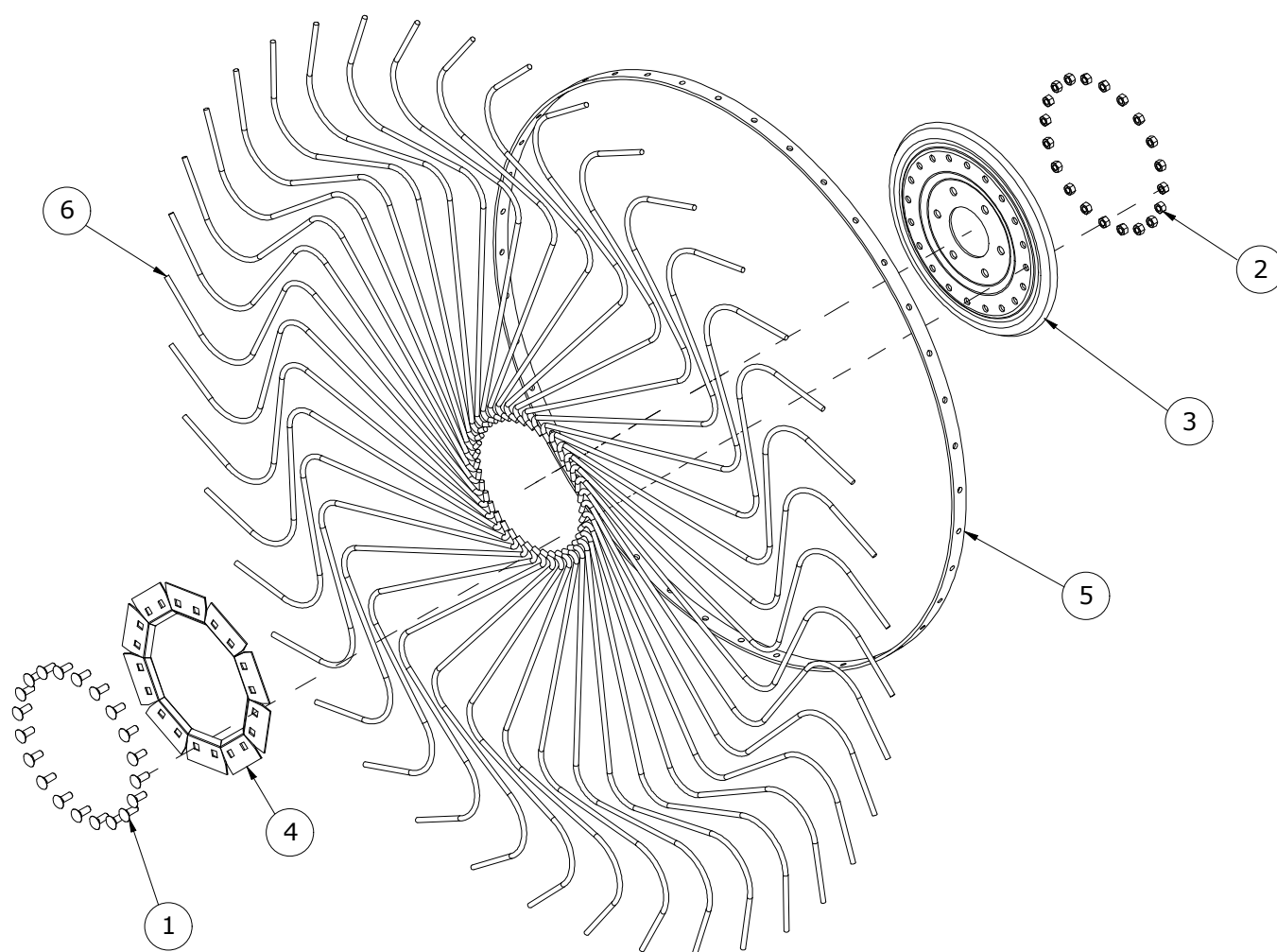
Upgrade kit: 949651, 949652, 949672, 812364 (Quantity: 14)

## Rake Wheel Arm Assembly



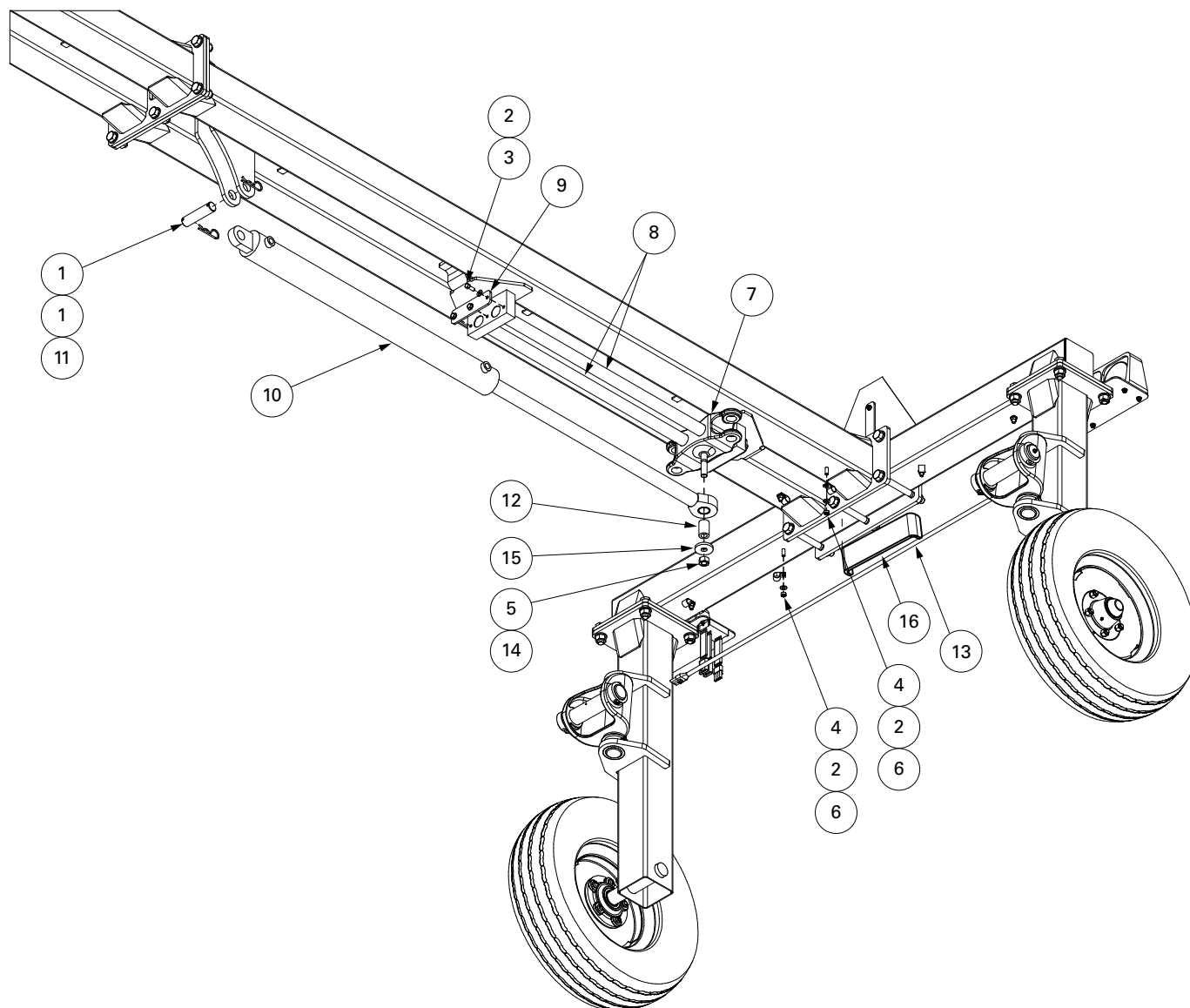
| ITEM | PART NUMBER | DESCRIPTION                     | QTY. |
|------|-------------|---------------------------------|------|
|      | 821350      | Rake Wheel Arm Assembly - RH    | AR   |
|      | 821351      | Rake Wheel Arm Assembly - LH    | AR   |
| 1    | 84062       | GREASE FITTING 0.250NF STRAIGHT | 1    |
| 2    | 812639      | WASHER 0.625 SAE FLAT BS PL     | 1    |
| 3    | 820694      | WELDMENT - WHEEL ARM RH         | 1    |
|      | 820695      | WELDMENT - WHEEL ARM LH         | 1    |
| 4    | 820717      | BEARING - TAPERED ROLLER 30204  | 1    |
| 5    | 820718      | BEARING - TAPERED ROLLER 30205  | 1    |
| 6    | 820986      | SEAL - LIP 52X32X8              | 1    |
| 7    | 820987      | CAP - 47MM DUST                 | 1    |
| 8    | 821131      | NUT SLOT 0.625-18NF             | 1    |
| 9    | 821301      | HUB - 6 BOLT RAKE BARE          | 1    |
| 10   | 9812486     | 1/8" X 1 1/2" COTTER PIN (BR)   | 1    |

## Rake Wheels



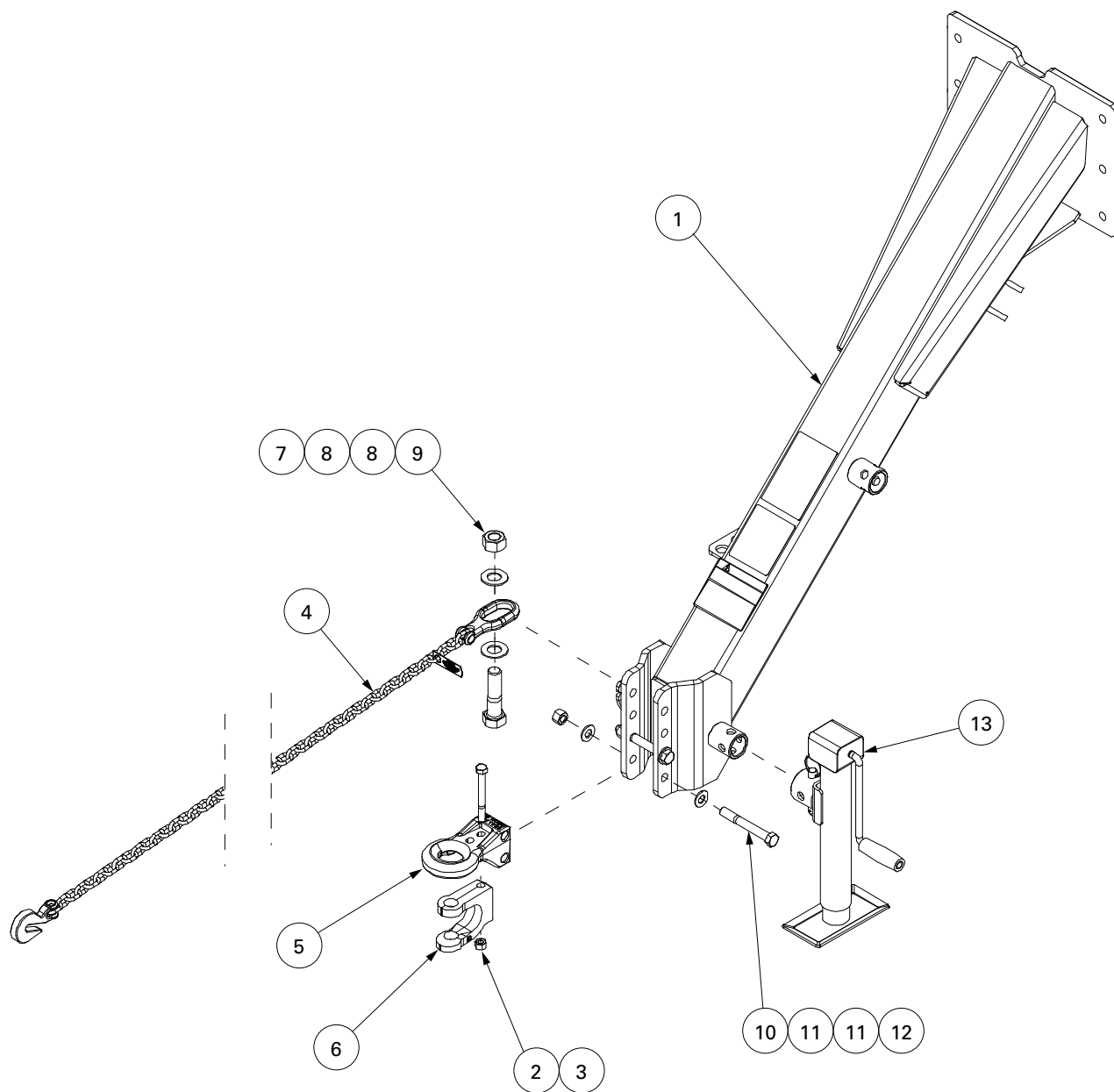
| ITEM | PART NUMBER | DESCRIPTION                  | QTY. |
|------|-------------|------------------------------|------|
|      | 821705      | 60" Wheel Assembly - RH      | AR   |
|      | 821706      | 60" Wheel Assembly - LH      | AR   |
| 1    | 81914       | 3/8" X 1" CARRIAGE BOLT (PL) | 20   |
| 2    | 812363      | 3/8" LOCK NUT (PL)           | 20   |
| 3    | 820709      | FLANGE - RAKE WHEEL CENTER   | 1    |
| 4    | 820710      | PLATE - RAKE TINE FASTENER   | 10   |
| 5    | 820711      | RING - 60IN WHEEL OUTER      | 1    |
| 6    | 820713      | TINE - 60IN RAKE WHEEL 7.5MM | 40   |

## TVR 12 & 14 - Frame Underside



| ITEM | PART NUMBER | DESCRIPTION                     | QTY. |
|------|-------------|---------------------------------|------|
| 1    | 12779       | #9 HAIR PIN CLIP (PL)           | 2    |
| 2    | 84039       | WASHER - 3/8" SAE FLAT (PL)     | 14   |
| 3    | 86170       | 3/8" X 1" HEX BOLT (PL)         | 6    |
| 4    | 812363      | 3/8" LOCK NUT (PL)              | 2    |
| 5    | 812365      | 3/4" LOCK NUT (PL)              | 1    |
| 6    | 815250      | P-CLAMP FOR 3/4 OD, .406 HOLE   | 8    |
| 7    | 820686      | CASTING - WING LINK MOUNT       | 1    |
| 8    | 820744      | BAR - SPREAD SLIDE              | 2    |
| 9    | 820795      | PLATE - SLIDE ROD KEEPER        | 2    |
| 10   | 820855      | CYLINDER - 3.0 X 34.50 BALL END | 1    |
| 11   | 820879      | PIN - 1.25 DIA X 4.75           | 1    |
| 12   | 821080      | BUSHING - 1.25OD X .764ID X 2   | 1    |
| 13   | 821246      | HARNESS - CROSS 4 PIN WP 62"L   | 1    |
| 14   | 967222      | HEX BOLT-3/4 X 7" (PL)          | 1    |
| 15   | 86508429    | WASHER 0.750X2.250X0.310 GR5 PL | 1    |
| 16   | 946223      | REINFORCEMENT PLATE             | 1    |

## TVR 12 & 14 - Hitch

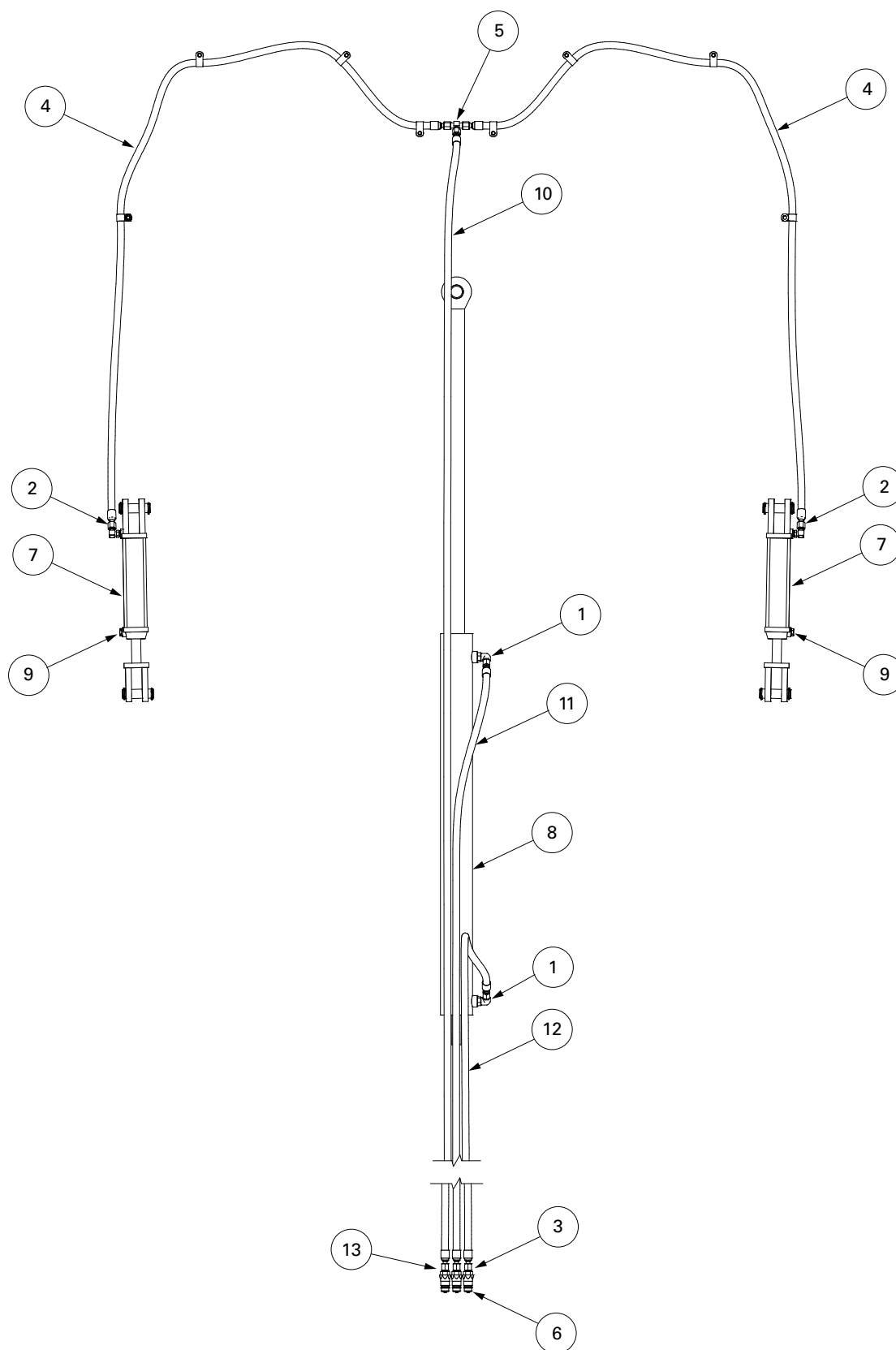


| ITEM | PART NUMBER | DESCRIPTION                   | QTY. |
|------|-------------|-------------------------------|------|
| 1    | 820614      | WELDMENT - HITCH *            | 1    |
| 2    | 812364      | 1/2" LOCK NUT (PL)            | 1    |
| 3    | 811691      | 1/2" X 4 1/2" HEX BOLT (PL)   | 1    |
| 4    | 910287      | HOOK & SAFETY CHAIN ASSEMBLY  | 1    |
| 5    | 905040      | HITCH BASE                    | 1    |
| 6    | 905041      | CLEVIS BOLT-ON                | 1    |
| 7    | 967228      | BOLT HEX 1.000NC X 4.00 GR5PL | 1    |
| 8    | 84522       | 1" ID SAE FLAT WASHER (PL)    | 2    |
| 9    | 967148      | 1" LOCK NUT (PL)              | 1    |
| 10   | 81673       | 5/8" X 5" HEX BOLT GR.5 (PL)  | 2    |
| 11   | 812639      | WASHER 0.625 SAE FLAT BS PL   | 4    |
| 12   | 812482      | 5/8" LOCK NUT (PL)            | 2    |
| 13   | 921284      | JACK-5000 LB CAP, SIDE CRANK  | 1    |

*\* Note: The illustration shows the hitch configuration used on 2025 MY and earlier units.*

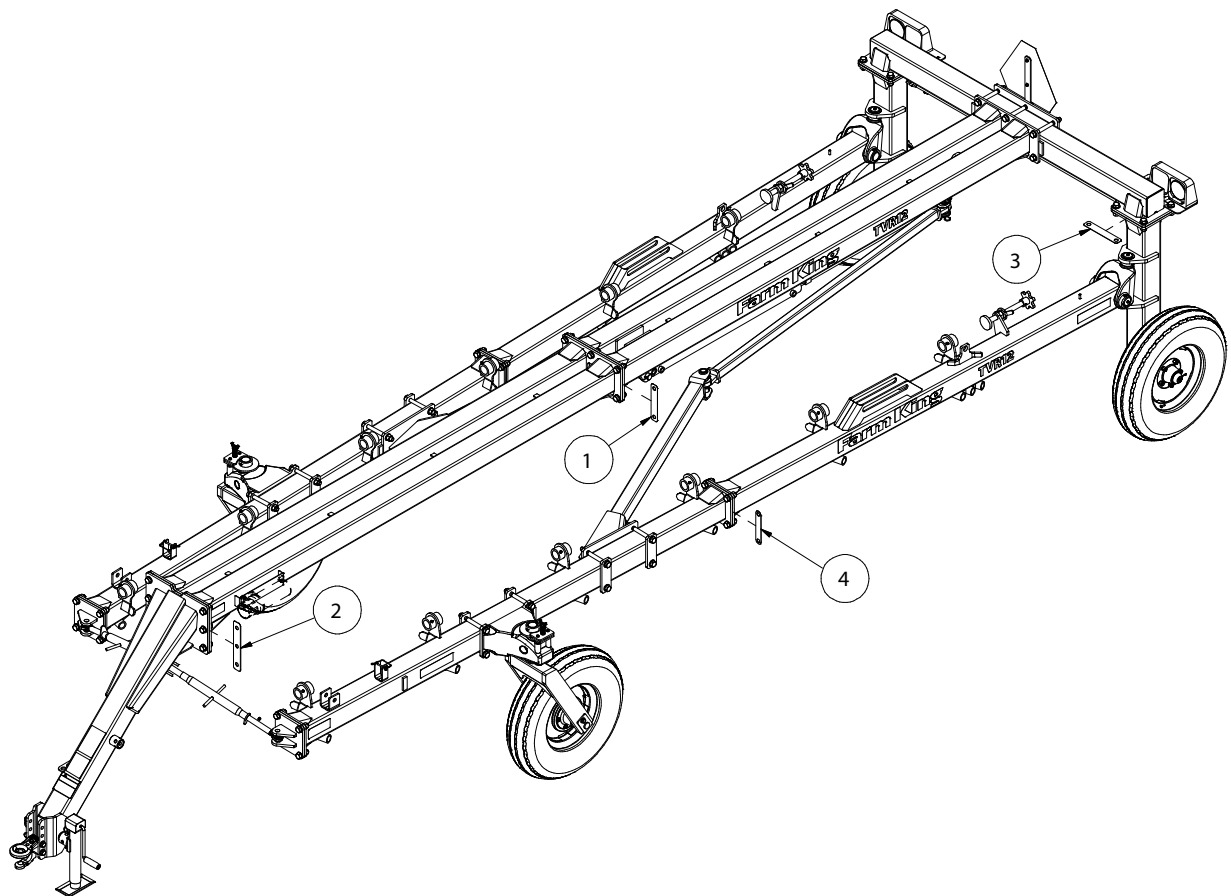
*Units manufactured in 2026 MY and after will feature an updated design, including a revised storage location for the jack.*

## Hydraulic Cylinders & Hoses



| ITEM | PART NUMBER | DESCRIPTION                                        | QTY. |
|------|-------------|----------------------------------------------------|------|
| 1    | 811916      | ELBOW-8MORB X -6MJIC 90DEG                         | 2    |
| 2    | 811944      | ELBOW 90 3/8MNPT X 9/16 MJIC                       | 2    |
| 3    | 812107      | ADAPTOR STR 3/4MORB X 9/16MJI                      | 3    |
| 4    | 812176      | HOSE 3/8 X 96 9/16 SWFJIC X 3                      | 2    |
| 5    | 812313      | TEE RUN 9/16 MJIC X 9/16 MJIC                      | 1    |
| 6    | 812841      | MALE TIP 0.50 BODY 0.75 ORB                        | 3    |
| 7    | 914022      | CYLINDER-2" BORE X 8" STROKE                       | 2    |
|      | EZ639572    | CYLINDER SEAL KIT                                  | AR   |
| 8    | 820855      | CYLINDER - 3.0 X 34.50 BALL END                    | 1    |
|      | 821574      | CYLINDER SEAL KIT                                  | AR   |
|      | 948807      | SPACERTUBE 2.38 X 1.76 X 2.0L                      | AR   |
| 9    | 821151      | BREATHER - 3/8 NPT MALE STEEL                      | 2    |
| 10   | 821298      | HOSE - 0.375 X 335L -06 SWFJIC X -06 SWFJIC -TVR12 | 1    |
|      | 821295      | HOSE - 0.375 X 410L -06 SWFJIC X -06 SWFJIC -TVR14 | 1    |
| 11   | 821299      | HOSE - 0.375 X 310L -06 SWFJIC X -06 SWFJIC -TVR12 | 1    |
|      | 821296      | HOSE - 0.375 X 375L -06 SWFJIC X -06 SWFJIC -TVR14 | 1    |
| 12   | 821300      | HOSE - 0.375 X 270L -06 SWFJIC X -06 SWFJIC -TVR12 | 1    |
|      | 821298      | HOSE - 0.375 X 335L -06 SWFJIC X -06 SWFJIC -TVR14 | 1    |
| 13   | SX017992    | ORIFACE -6 FJICTO -6 MJIC .06 HOLE                 | 1    |

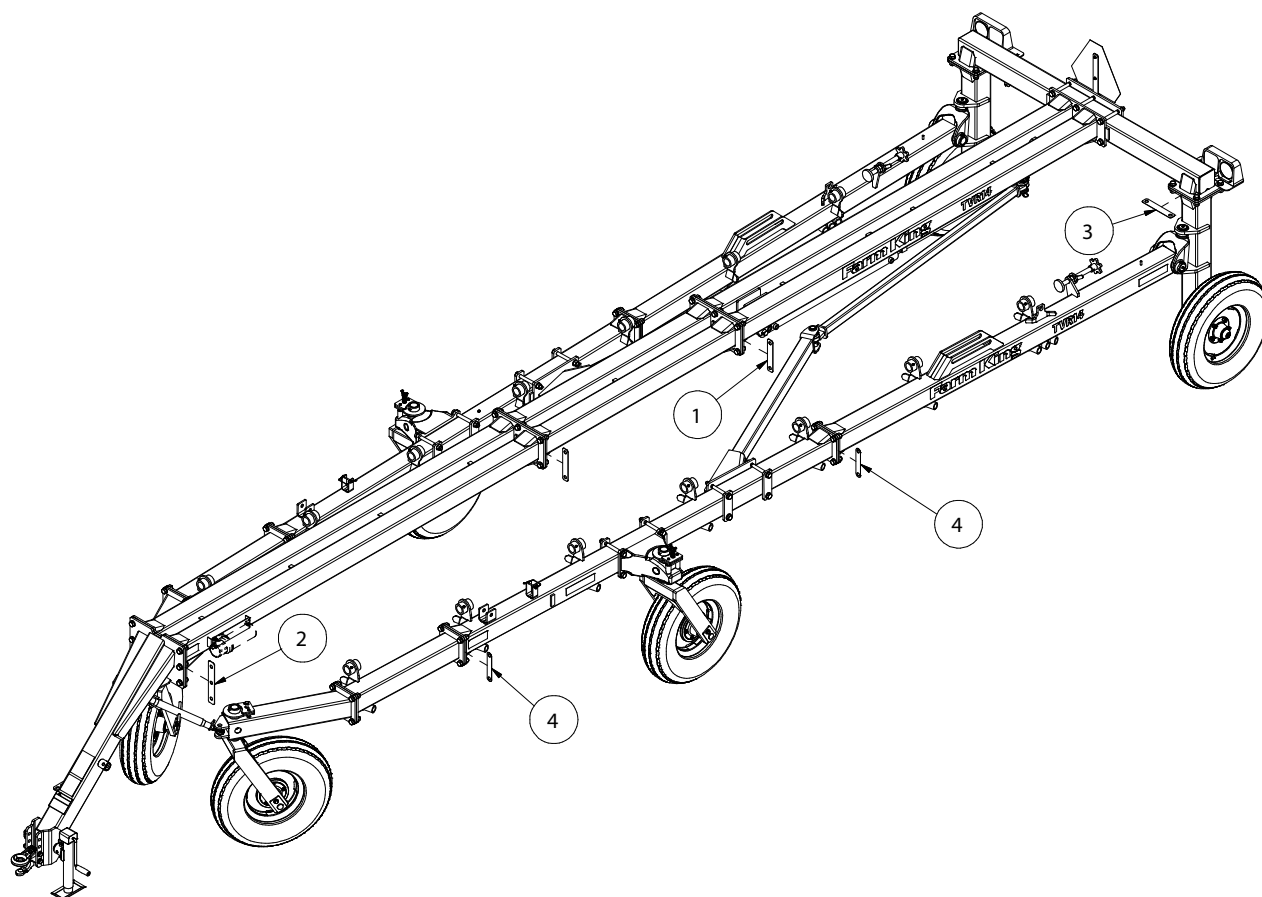
## Frame Shims - TVR12



| ITEM | PART NUMBER | DESCRIPTION       | QTY. |
|------|-------------|-------------------|------|
| 1    | 821626      | SHIM - MAIN FRAME | 2    |
| 2    | 821628      | SHIM - HITCH BOLT | 2    |
| 3    | 821630      | SHIM - AXLE BOLT  | 4    |
| 4    | 821629      | SHIM - WING BOLT  | 4    |

Note: Shims are to be installed only as required. They are intended for use in correcting warped flanges or misaligned frame components. Do not use shims unless necessary for proper alignment.

## Frame Shims - TVR14



| ITEM | PART NUMBER | DESCRIPTION       | QTY. |
|------|-------------|-------------------|------|
| 1    | 821626      | SHIM - MAIN FRAME | 4    |
| 2    | 821628      | SHIM - HITCH BOLT | 2    |
| 3    | 821630      | SHIM - AXLE BOLT  | 4    |
| 4    | 821629      | SHIM - WING BOLT  | 8    |

Note: Shims are to be installed only as required. They are intended for use in correcting warped flanges or misaligned frame components. Do not use shims unless necessary for proper alignment.

# Farm King



Specifications And Shipping Kit Numbers

Specifications.....95

Shipping Kit And Bundle Numbers.....95

Hardware Torque Values.....96

    Metric Chart.....96

    Imperial Chart.....97

# Farm King



## Specifications

| MODEL           | TVR12                           | TVR14     |
|-----------------|---------------------------------|-----------|
| Rake Wheels     | 12                              | 14        |
| Working Width   | 329"                            | 377"      |
| Transport Width | 100"                            |           |
| Length          | 299"                            | 363"      |
| Rake Wheel Size | 60"                             |           |
| Tine Size       | 7.5 mm                          |           |
| Tires           | ST205 - 75R15 W/ 15 X 5 X 5 RIM |           |
| Windrow Width   | 36", 43", 51"                   |           |
| HP Requirements | 40 HP                           |           |
| Weight          | 3450 LBS.                       | 4175 LBS. |

**Note:** Dimensions are approximate measurements.

## Shipping Kit And Bundle Numbers

The following is a list of Kit Numbers for this product and the Bundle Numbers, Descriptions, and Quantities for each Kit.

| Qty.                                     | Bundle | Description              |
|------------------------------------------|--------|--------------------------|
| TVR12 Trailing V-Rake, 12-Wheel, Bi-Fold |        |                          |
| 1                                        | F2494  | Main Frame & Wings Crate |
| 1                                        | F2494B | Rake Wheels and Arms     |
| TVR14 Trailing V-Rake, 14-Wheel, Bi-Fold |        |                          |
| 1                                        | F2495  | Main Frame & Wings Crate |
| 1                                        | F2495B | Rake Wheels and Arms     |

# Hardware Torque Values

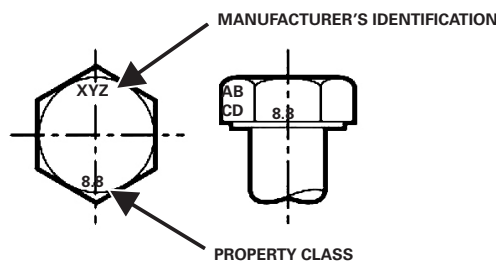
## Metric Chart

**NOTE: Do not use the values listed in the charts if a different torque value or tightening procedure is specified in this manual for a specific application. Torque values listed are for general use only.**

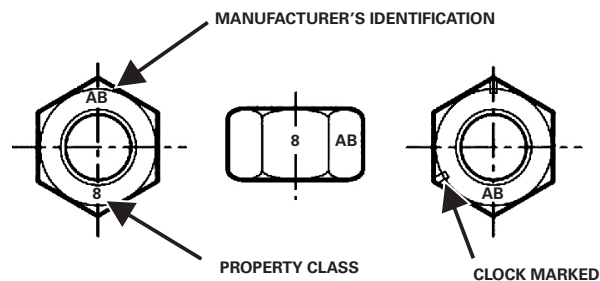
Use the following charts to determine the correct torque when checking, adjusting or replacing hardware. **Torque values are listed in newton-meters (inch\* or foot pounds) for normal assembly applications.**

| Nominal Size                                      | Class 5.8 |                 | Class 8.8 |                 | Class 10.9 |                 | Lock nuts            |
|---------------------------------------------------|-----------|-----------------|-----------|-----------------|------------|-----------------|----------------------|
|                                                   | Unplated  | Plated W / ZnCr | Unplated  | Plated W / ZnCr | Unplated   | Plated W / ZnCr | CL.8 W/ CL. 8.8 Bolt |
| M4                                                | 1.7 (15*) | 2.2 (19*)       | 2.6 (23*) | 3.4 (30*)       | 3.7 (33*)  | 4.8 (42*)       | 1.8 (16*)            |
| M6                                                | 5.8 (51*) | 7.6 (67*)       | 8.9 (79*) | 12 (102*)       | 13 (115*)  | 17 (150*)       | 6.3 (56*)            |
| M8                                                | 14 (124*) | 18 (159*)       | 22 (195*) | 28 (248*)       | 31 (274*)  | 40 (354*)       | 15 (133*)            |
| M10                                               | 28 (21)   | 36 (27)         | 43 (32)   | 56 (41)         | 61 (45)    | 79 (58)         | 30 (22)              |
| M12                                               | 49 (36)   | 63 (46)         | 75 (55)   | 97 (72)         | 107 (79)   | 138 (102)       | 53 (39)              |
| M16                                               | 121 (89)  | 158 (117)       | 186 (137) | 240 (177)       | 266 (196)  | 344 (254)       | 131 (97)             |
| M20                                               | 237 (175) | 307 (226)       | 375 (277) | 485 (358)       | 519 (383)  | 671 (495)       | 265 (195)            |
| M24                                               | 411 (303) | 531 (392)       | 648 (478) | 839 (619)       | 897 (662)  | 1160 (855)      | 458 (338)            |
| NOTE: Torque values shown with * are inch pounds. |           |                 |           |                 |            |                 |                      |

## Identification of Hex Cap Screws and Carriage Bolts - Classes 5 and up



## Identification of Hex Nuts and Lock Nuts - Classes 5 and up



## Hardware Torque Values (Cont'd)

### Imperial Chart

**NOTE: Do not use the values listed in the charts if a different torque value or tightening procedure is specified in this manual for a specific application. Torque values listed are for general use only.**

Use the following charts to determine the correct torque when checking, adjusting or replacing hardware. **Torque values are listed in newton-meters (inch\* or foot pounds) for normal assembly applications.**

| Nominal Size | SAE Grade 5               |                       | SAE Grade 8               |                       | LOCK NUTS                 |                       |                      |                      |
|--------------|---------------------------|-----------------------|---------------------------|-----------------------|---------------------------|-----------------------|----------------------|----------------------|
|              | Unplated or Plated Silver | Plated W / ZnCr Gold" | Unplated or Plated Silver | Plated W / ZnCr Gold" | Unplated or Plated Silver | Plated W / ZnCr Gold" | Grade W / Gr. 5 Bolt | Grade W / Gr. 8 Bolt |
| 1/4          | 6.2 (55*)                 | 8.1 (72*)             | 9.7 (86*)                 | 12.6 (112*)           | 13.6 (121*)               | 17.7 (157*)           | 6.9 (61*)            | 9.8 (86*)            |
| 5/16         | 13 (115*)                 | 17 (149*)             | 20 (178*)                 | 26 (229*)             | 28 (250*)                 | 37 (324*)             | 14 (125*)            | 20 (176*)            |
| 3/8          | 23 (17)                   | 30 (22)               | 35 (26)                   | 46 (34)               | 50 (37)                   | 65 (48)               | 26 (19)              | 35 (26)              |
| 7/16         | 37 (27)                   | 47 (35)               | 57 (42)                   | 73 (54)               | 80 (59)                   | 104 (77)              | 41 (30)              | 57 (42)              |
| 1/2          | 57 (42)                   | 73 (54)               | 87 (64)                   | 113 (83)              | 123 (91)                  | 159 (117)             | 61 (45)              | 88 (64)              |
| 9/16         | 81 (60)                   | 104 (77)              | 125 (92)                  | 163 (120)             | 176 (130)                 | 229 (169)             | 88 (65)              | 125 (92)             |
| 5/8          | 112 (83)                  | 145 (107)             | 174 (128)                 | 224 (165)             | 244 (180)                 | 316 (233)             | 122 (90)             | 172 (127)            |
| 3/4          | 198 (146)                 | 256 (189)             | 306 (226)                 | 397 (293)             | 432 (319)                 | 560 (413)             | 217 (160)            | 306 (226)            |
| 7/8          | 193 (142)                 | 248 (183)             | 495 (365)                 | 641 (473)             | 698 (515)                 | 904 (667)             | 350 (258)            | 494 (364)            |
| 1            | 289 (213)                 | 373 (275)             | 742 (547)                 | 960 (708)             | 1048 (773)                | 1356 (1000)           | 523 (386)            | 739 (545)            |

**NOTE: Torque values shown with \* are inch pounds.**

### Identification of Hex Cap Screws and Carriage Bolts



GRADE 2 SAE BOLT



GRADE 5 SAE BOLTS



GRADE 8 SAE BOLTS



GRADE 2 SAE NUTS

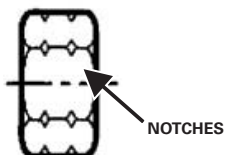


GRADE 5 SAE HEX NUTS

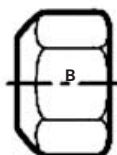


GRADE 8 SAE HEX NUTS

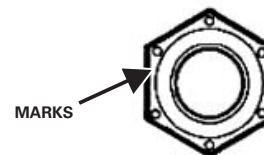
### Identification of Hex Nuts and Lock Nuts



GRADE IDENTIFICATION  
GRADE A: NO NOTCHES  
GRADE B: ONE CIRCUMFERENTIAL NOTCH  
GRADE C: TWO CIRCUMFERENTIAL NOTCHES



GRADE IDENTIFICATION  
GRADE A: NO MARK  
GRADE B: LETTER B  
GRADE C: LETTER C



GRADE IDENTIFICATION  
GRADE A: NO MARKS  
GRADE B: THREE MARKS  
GRADE C: SIX MARKS  
MARKS NEED NOT BE LOCATED AT CORNERS

# Farm King



Warranty

Farm King Base Limited Warranty.....101

    Repair Parts Limited Warranty.....101

    What Is Not Covered.....101

    Authorized Dealer And Labor Costs.....101

    Warranty Requirements.....102

    EXCLUSIVE EFFECT OF WARRANTY AND LIMITATION OF LIABILITY.....102

# Farm King



## **Farm King Base Limited Warranty**

Farm King provides this warranty only to original retail purchasers of its products. Farm King warrants to such purchasers that all Farm King manufactured parts and components used and serviced as provided for in the Operator's Manual shall be free from defects in materials and workmanship for a period following delivery to the original retail purchaser of one (1) year. This limited warranty applies only to those parts and components manufactured by Farm King. Parts and components manufactured by others are subject to their manufacturer's warranties, if any.

Farm King will fulfill this limited warranty by, at its option, repairing or replacing any covered part that is defective or is the result of improper workmanship, provided that the part is returned to Farm King within thirty (30) days of the date that such defect or improper workmanship is, or should have been, discovered. Parts must be returned through the selling representative and the buyer must prepay transportation charges.

Farm King will not be responsible for repairs or replacements that are necessitated, in whole or part, by the use of parts not manufactured by or obtained from Farm King. Under no circumstances are component parts warranted against normal wear and tear. There is no warranty on product pump seals, product pump bearings, rubber product hoses, pressure gauges, or other components that require replacement as part of normal maintenance.

### **Repair Parts Limited Warranty**

Farm King warrants genuine Farm King replacement parts purchased after the expiration of the Farm King Limited Warranty, and used and serviced as provided for in the Operator's Manual, to be free from defects in materials or workmanship for a period of thirty (30) days from the invoice date for the parts. Farm King will fulfill this limited warranty by, at its option, repairing or replacing any covered part that is defective or is the result of improper workmanship, provided that the part is returned to Farm King within thirty (30) days of the date that such defect or improper workmanship is, or should have been, discovered. Such parts must be shipped to the Farm King factory at the purchaser's expense.

### **What Is Not Covered**

Under no circumstances does this limited warranty cover any components or parts that have been subject to the following: negligence; alteration or modification not approved by Farm King; misuse; improper storage; lack of reasonable and proper maintenance, service, or repair; normal wear; damage from failure to follow operating instructions; accident; and/or repairs that have been made with parts other than those manufactured, supplied, and or authorized by Farm King.

### **Authorized Dealer And Labor Costs**

Repairs eligible for labor under this limited warranty must be made by Farm King or an authorized Farm King dealer. Farm King retains the exclusive discretion to determine whether it will pay labor costs for warranty repairs or replacements, and the amount of such costs that it will pay and the time in which the repairs will be made. If Farm King determines that it will pay labor costs for warranty work, it will do so by issuing a credit to the dealer's or distributor's account. Farm King will not approve or pay invoices sent for repairs that Farm King has not previously approved. Warranty service does not extend the original term of this limited warranty.

## **Warranty Requirements**

To be covered by warranty, each new product must be registered with Farm King within thirty (30) days of delivery to original retail purchaser. If the customer decides to purchase replacement components before the warranty disposition of such components is determined, Farm King will bill the customer for such components and then credit the replacement invoice for those components later determined to be covered by this limited warranty. Any such replacement components that are determined not to be covered by this limited warranty will be subject to the terms of the invoice and shall be paid for by the purchaser.

## **EXCLUSIVE EFFECT OF WARRANTY AND LIMITATION OF LIABILITY**

TO THE EXTENT PERMITTED BY LAW, FARM KING DISCLAIMS ANY WARRANTIES, REPRESENTATIONS, OR PROMISES, EXPRESS OR IMPLIED, AS TO THE QUALITY, PERFORMANCE, OR FREEDOM FROM DEFECT OF THE COMPONENTS AND PARTS COVERED BY THIS WARRANTY AND NOT SPECIFICALLY PROVIDED FOR HEREIN.

TO THE EXTENT PERMITTED BY LAW, FARM KING DISCLAIMS ANY IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ON ITS PRODUCTS COVERED HEREIN, AND DISCLAIMS ANY RELIANCE BY THE PURCHASER ON FARM KING'S SKILL OR JUDGMENT TO SELECT OR FURNISH GOODS FOR ANY PARTICULAR PURPOSE. THE PURCHASER'S ONLY AND EXCLUSIVE REMEDIES IN CONNECTION WITH THE BREACH OR PERFORMANCE OF ANY WARRANTY ON FARM KING'S PRODUCTS ARE THOSE SET FORTH HEREIN. IN NO EVENT SHALL FARM KING BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES (INCLUDING, BY WAY OF EXAMPLE ONLY AND NOT LIMITATION, LOSS OF CROPS, LOSS OF PROFITS OR REVENUE, OTHER COMMERCIAL LOSSES, INCONVENIENCE, OR COST OF REPLACEMENT OF RENTAL EQUIPMENT). IN NO EVENT SHALL FARM KING'S CONTRACT OR WARRANTY LIABILITY EXCEED THE PURCHASE PRICE OF THE PRODUCT. (Note that some states do not allow limitations on how long an implied warranty lasts or the exclusion or limitation of incidental or consequential damages, so the above limitations and exclusion may not apply to you.) This warranty gives you specific legal rights and you may also have other rights, which vary from state to state.

Farm King neither assumes nor authorizes any person or entity, including its selling representatives, to assume any other obligations or liability in connections with the sale of covered equipment, or to make any other warranties, representations, or promises, express or implied, as to the quality, performance, or freedom from defect of the components and parts covered herein. No one is authorized to alter, modify, or enlarge this limited warranty, or its exclusions, limitations and reservations.

Corrections of defects and improper workmanship in the manner, and for the applicable time periods, provided for herein shall constitute fulfillment of all responsibilities of Farm King to the purchaser, and Farm King shall not be liable in negligence, contract, or on any other basis with respect to the subject equipment.

This limited warranty is subject to any existing conditions of supply which may directly affect Farm King's ability to obtain materials or manufacturer replacement parts.

Buhler Industries Inc. reserves the right to make improvements in design or changes in specifications to its products at anytime, without incurring any obligation to owners of units previously sold.

# Farm King



[www.farm-king.com](http://www.farm-king.com)

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