PROAG ENGINEERED BY MORRIS

OPERATOR'S MANUAL

BALE TITAN

RXR

K68500-04

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Section 1: Safety

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SAFETY-ALERT SYMBOL

Watch for this symbol. It identifies potential hazards to health or personal safety. It means:

ATTENTION - BE ALERT.
YOUR SAFETY IS INVOLVED.

Familiarize yourself with the location of all decals. Read them carefully to understand the safe operation of your machine.

Signal Words

The words **DANGER, WARNING** or **CAUTION** are used with the safety alert symbol. Learn to recognize the safety alerts, and follow the recommended precautions and safe practices.

Three words are used in conjunction with the safety-alert symbol:

DANGER	**Indicates an imminently hazardous situation that, if not avoided, will cause DEATH OR VERY SERIOUS INJURY.**
WARNING	**Indicates a potentially hazardous situation that, if not avoided, could cause DEATH OR SERIOUS INJURY.**
CAUTION	**Indicates a potentially hazardous situation that, if not avoided, may cause a MINOR OR MODERATE INJURY.**

Replace any **DANGER, WARNING, CAUTION** or instructional decal that is not readable or is missing. The location and part number of these decals is identified later in this section of the manual.

The words **Important** and **Note** are not related to personal safety but are used to give additional information and tips for operating or servicing this equipment.

IMPORTANT: Identifies special instructions or procedures which, if not strictly observed could result in damage to, or destruction of the machine, process or its surroundings.

NOTE: Indicates points of particular interest for more efficient and convenient repair or operation.

General Equipment Safety

⚠ SAFETY. . . YOU CAN LIVE WITH IT!

General Equipment Safety Guidelines

Safety of the operator is one of the main concerns in designing and developing a new piece of equipment. Designers and manufacturers build in as many safety features as possible. However, every year many accidents occur which could have been avoided by a few seconds of thought and a more careful approach to handling equipment. You, the operator, can avoid many accidents by observing the following precautions presented in this section. To avoid personal injury, study the following precautions and insist those working with you, or for you, follow them.

- Replace any **CAUTION, WARNING, DANGER** or instruction safety decal that is not readable or is missing. Location of such decals is indicated in this booklet.
- Do not attempt to operate this equipment under the influence of drugs or alcohol.
- Review the safety instructions with all users annually.
- This equipment is dangerous to children and persons unfamiliar with its operation. The operator should be a responsible adult familiar with farm machinery and trained in the equipment's operations. **Do not allow persons to operate or assemble this unit until they have read this manual and have developed a thorough understanding of the safety precautions and of how the machine works.**
- To prevent injury or death, use a tractor equipped with a Roll Over Protective System (ROPS).
- Do not paint over, remove or deface any safety signs or warning decals on your equipment. Observe all safety signs and practice the instructions on them.
- Never exceed the limits of a piece of machinery. If its ability to do a job, or to do so safely, is in question **- DON'T TRY IT.**

Lighting and Marking

- It is the responsibility of the operator to know the lighting and marking requirements of the local highway authorities and to install and maintain any additional equipment to provide compliance with the regulations. Aftermarket lighting kits are often available from your dealer.
- This machine is equipped with lighting, marking, and signs in compliance with standards published by the American Society of Agricultural Engineers for Slow Moving Agricultural Implements on Public Roadways.

Wheels and Tires

Tire Safety

- Failure to follow proper procedures when mounting a tire on a wheel or rim can produce an explosion which may result in serious injury or death.
- Do not attempt to mount a tire unless you have the proper equipment and experience.
- Inflating or servicing tires can be dangerous. Only trained personnel should be called to service and/or mount tires.
- Only install tires and wheels with appropriate capacity to meet or exceed the anticipated weight to be placed on the equipment.

DON'T FORGET! *Your best assurance against accidents is a careful and responsible* operator. If there is any portion of this manual or function you do not understand, contact your local authorized dealer or the manufacturer.

Brake Safety

Brakes are Important! Brakes are an option on this machine. If your machine is equipped with brakes, please observe the following guidelines regarding operation, maintenance, and adjustment.

- Follow all connection procedures under "Hooking Up for the First Time" in Section 5 of this manual. For the brakes to operate properly, they must be connected properly.
- Be sure all the brakes are adjusted properly, following the procedures outlined under "Air Brake Maintenance" in Section 6 of this manual. If the brakes are not adjusted properly, they will not operate properly.
- Use caution whenever operating this machine. Even though brakes are available for use, this machine can still be driven too quickly for the conditions. Always allow plenty of time to slow down for emergency situations.
- Test the brakes before operation.
- Applying the brakes to lockup will cause the stacker to slide and behave erratically. Avoid this situation.

Bale Titan Operation Safety

Before Operating

- Carefully study and understand this manual.
- Install and test the control box to indicate when the hitch is offset.
- Do not wear loose-fitting clothing which may catch in moving parts.
- Always wear protective clothing and foot wear.
- It is recommended that suitable protective hearing and eye protection be worn.
- The operator may come in contact with certain materials which may require specific safety equipment, relative to the handling of such materials (examples: extremely dusty molds, fungus, bulk fertilizers, etc.)
- Keep wheel lug nuts or bolts tightened to specified torque.
- Ensure that the tires are inflated to the recommended pressure.
- Give the unit a visual inspection for any loose bolts, worn parts or cracked welds, and make necessary repairs. Follow the maintenance safety instructions included in this manual.
- Be sure that there are no tools lying on or in the equipment.
- Do not use the unit until you are sure that the operating area is clear, especially of people and animals.
- Because it is possible that this equipment may be used in dry areas or in the presence of combustibles, special precautions should be taken to prevent fires and fire fighting equipment should be readily available.
- Don’t hurry the learning process or take the unit for granted. Ease into it and become familiar with your new equipment.
- Practice operation of your equipment and its attachment. Completely familiarize yourself and other operators with its operation before using.
- Make sure that the brakes are evenly adjusted.
- Use a tractor equipped with a Roll Over Protective System (ROPS) and fasten your seat belt prior to starting the engine.
- Move tractor wheels to the widest recommended settings to increase stability.
- Securely attach to towing unit. Use the plates, bolts and nuts provided with the machine.
- Do not allow anyone to stand between the hitch and the towing vehicle when backing up to the equipment.

Bale Titan Operation Safety - Continued

During Operation

- **SAFETY CHAIN:** If the Bale Runner is going to be transported on a public highway, the safety chain should be connected. Always follow state and local regulations regarding a safety chain and auxiliary lighting when towing farm equipment on a public highway. Only a safety chain (not an elastic or nylon/plastic tow strap) should be used to retain the connection between the towing and towed machines in the event of separation of the primary attaching system.
- Install the safety chain by crossing the chains under the hitch and secure to the draw bar cage, hitch or bumper frame.
- Beware of bystanders, **particularly children!** Always look around to make sure that it is safe to start the engine of the towing vehicle or move the unit. This is particularly important with high noise levels and quiet cabs, as you may not hear people shouting.
- **NO PASSENGERS ALLOWED:** Do not carry passengers anywhere on or in the tractor or equipment.
- The tops of the bed and loader are extremely slippery, do not climb, stand, or crawl on them.
- Keep bystanders at least twenty-five feet away from an operating machine or stacked hay. This allows bystanders time to get away from a falling stack or away from a moving machine. The operator is a very busy person and it is easy to miss seeing an observer while operating the Bale Runner.
- Keep hands and clothing clear of moving parts.
- Do not clean, lubricate or adjust your equipment while it is moving.
- When halting operation, even for a short period of time, set the tractor's or towing vehicle's brakes, disengage the PTO, shut off the engine and remove ignition key.
- Be especially observant of the operating area and terrain - watch for holes, rocks or other hidden hazards. Always inspect the area prior to operation.
- **DO NOT** operate near the edge of drop-offs or banks.
- **DO NOT** operate on steep slopes as overturn may result.
- Operate up and down (not across) intermediate slopes. Avoid sudden starts and stops.
- Pick the flattest possible route when transporting across fields. Avoid the edges of ditches or gullies and steep hillsides.
- Always return the hitch to the in-line position whenever moving from the stack to the bales or the bales to the stack.
- Be extra careful when working on inclines.
- Periodically clear the equipment of brush, twigs or other materials to prevent buildup of dry combustible materials.
- Maneuver the tractor or towing vehicle at safe speeds.
- Avoid overhead wires or other obstacles. Contact with overhead lines could cause serious injury or death.
- Avoid loose fill, rocks and holes; they can be dangerous for equipment operation or movement.
- Allow for unit length when making turns.
- Do not walk or work under raised components or attachments unless securely positioned and blocked.
- Keep all bystanders, pets and livestock clear of the work area.

Bale Titan Operation Safety - Continued

During Operation - Continued

- Operate the towing vehicle from the operator's seat only.
- Never stand alongside of unit with engine running or attempt to start engine and/or operate machine while standing alongside the unit.
- Never leave running equipment attachments unattended.
- As a precaution, always recheck the hardware on equipment following every 100 hours of operation. Correct all problems. Follow the maintenance safety procedures.

After Operation (Storage)

- Following operation, or when unhitching, stop the tractor or towing vehicle, set the brakes, disengage the PTO and all power drives, shut off the engine and remove the ignition key.
- Store the unit in an area away from human activity.
- Do not park equipment where it will be exposed to livestock for long periods of time. Equipment damage and livestock injury could result.
- The tops of the bed and loader are extremely slippery, do not climb, stand, or crawl on them.
- Do not permit children to play on or around the stored unit.
- Make sure all parked machines are on a hard, level surface and engage all safety devices.
- Wheel chocks may be needed to prevent unit from rolling.

Transport Safety

Highway and Transportation Safety

CAUTION: Exceeding speeds of 20 mph (30 km/h) is not legal or safe on public roads. DO NOT exceed 20 mph (30 km/h) with this machine.

WARNING: This machine is over width. Use extreme caution transporting on public roadways and through narrow areas.

- Adopt safe driving practices. . .
- Keep the brake pedals latched together at all times. **NEVER USE INDEPENDENT BRAKING WITH MACHINE IN TOW AS LOSS OF CONTROL AND /OR UPSET OF UNIT CAN RESULT.**
- Always drive at a safe speed relative to local conditions and ensure that your speed is low enough for an emergency stop to be safe and secure.
- Reduce speed prior to turns to avoid the risk of overturning.
- Avoid sudden uphill turns on steep slopes.
- Always keep the tractor or towing vehicle in gear to provide engine braking when going downhill. Do not coast.
- Do not drink and drive!
- Comply with local laws governing highway safety and movement of farm machinery on public roads.
- Be sure stock lights as well as accessory lights are connected and operating properly.
- Use approved accessory lighting, flags and necessary warning devices to protect operators of other vehicles on the highway during daylight and night time transport. Various safety lights and devices are available from your dealer.
- 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.
- When driving the tractor and equipment on the road or highway under 20 mph (30 km/h) at night or during the day, use flashing amber warning lights and a slow moving vehicle (SMV) identification emblem.
- Be sure stock lights as well as accessory lights are connected and operating properly.
- Plan your route to avoid heavy traffic.
- Be a safe courteous driver. Always yield to oncoming traffic in all situations, including narrow bridges, intersections, etc.
- Watch for obstructions overhead and to the side while transporting.
- Always operate equipment in a position to provide maximum visibility at all times. Make allowances for increased length, width and weight of the equipment when making turns, stopping the unit, etc.

Maintenance Safety

Performing Maintenance

- Good maintenance is your responsibility. Poor maintenance is an invitation for trouble.
- Make sure there is plenty of ventilation. Never operate the engine of the towing vehicle in a closed building. The exhaust fumes may cause asphyxiation.
- Before working on this machine, stop the towing vehicle, set the brakes, disengage the PTO and all power drives, **shut off the engine and remove the ignition keys**.
- Be sure the bed is supported by a block positioned between the bed rest and the loader.
- Be certain all moving parts on attachments have come to a complete stop before attempting to perform maintenance.
- **Always** use a safety support and block the wheels. Never use a jack to support the machine.
- Always use the proper tools or equipment for the job at hand. Use extreme caution when making adjustments.
- A torque chart is provided in Section 6 of this manual for reference when tightening bolts and nuts.
- Never use your hands to locate a hydraulic leak on attachments. Use a piece of cardboard or wood. Hydraulic fluid escaping under pressure can penetrate the skin.
- When disconnecting hydraulic lines, shut off hydraulic supply and relieve all hydraulic pressure (see Maintenance Section 6 for instructions).
- Openings in the skin and minor cuts are susceptible to infection from hydraulic fluid. If injured by escaping hydraulic fluid, see a doctor at once. Without immediate medical treatment, serious infection, gangrene and allergic reactions can occur.
- Replace **all shields** and guards after servicing and before moving.
- After servicing, be sure all tools, parts and service equipment are removed.
- Do not allow grease or oil to build up on any step or platform.
- Never replace hex bolts with less than grade eight bolts unless otherwise specified. Refer to bolt torque chart for head identification marking.
- Where replacement parts are necessary for periodic maintenance and servicing, genuine factory replacement parts must be used to restore your equipment to original specifications. The manufacturer will not claim responsibility for use of unapproved parts and/or accessories and other damages as a result of their use.
- If equipment has been altered in any way from original design, the manufacturer does not accept any liability for injury or warranty.
- A fire extinguisher and first aid kit should be kept readily accessible while performing maintenance on this equipment.

Safety Signs

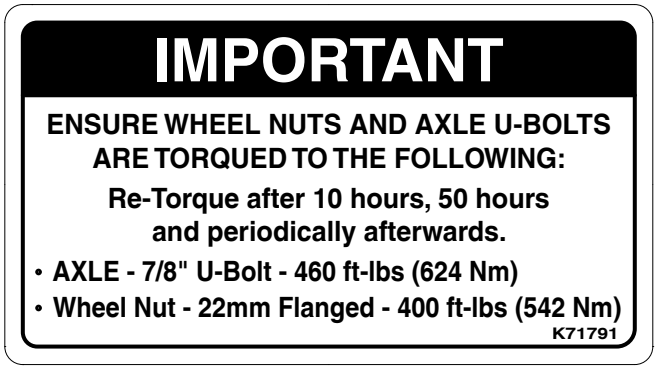
Safety Decals

- Keep safety decals and signs clean and legible at all times.
- Replace safety decals and signs that are missing or have become illegible.
- Parts that have been replaced that once displayed a safety sign should have the sign replaced as well.
- Safety decals or signs are available from your distributor, dealer parts department, or the manufacturer.

How to install a new decal

1. Be sure that the installation area is clean and dry.
2. Decide on the exact position before you remove the backing paper.
3. Remove the smallest portion of the split backing paper.
4. Align the decal over the specified area and carefully press the small portion with the exposed sticky backing in place.
5. Slowly peel back the remaining paper and carefully smooth the remaining portion of the decal in place.
6. Small air pockets can be pierced with a pin and smoothed out using the decal backing paper.

To determine missing decals, or to locate proper locations for replacements refer to the "Decal Location Guide" later in this section.



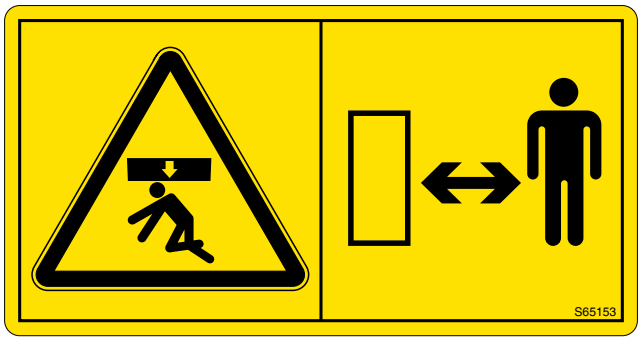
Part# K71791 - Wheel and Axle Torque Decal
Location: On frame next to suspension and on wheel rims

Safety Signs - Continued

Danger: Crushing Hazard

To prevent death or serious injury:

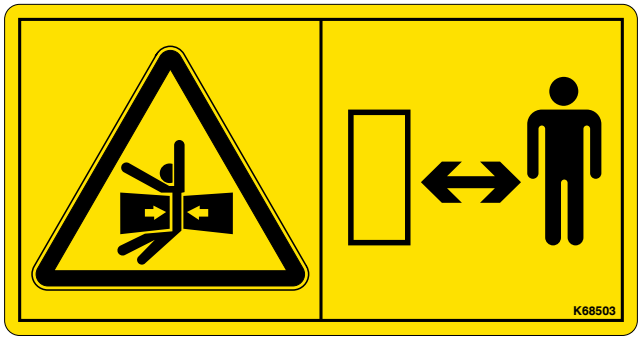
- Stand Clear of machine and stack to avoid being struck by falling bale.
- Stand Clear of machine when being raised, lowered or in elevated state.
- Always install all Lockup devices provided when loader or bed are in elevated position.
- Ensure Cylinders are completely filled with hydraulic fluid to avoid unexpected movement.



Warning: Crushing Hazard

To prevent serious injury or death:

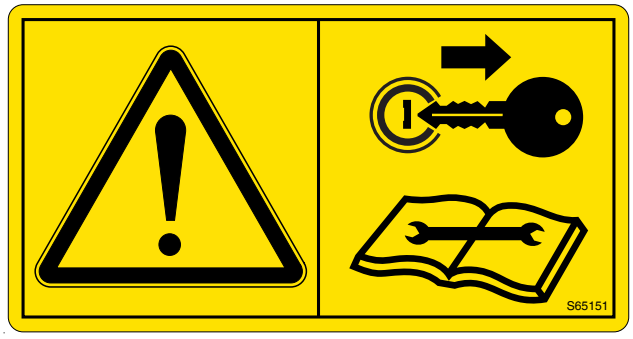
- Stand Clear - of loader when being raised, lowered or in elevated state.
- Always rest loader on hitch before working on loader.
- Shut tractor off and remove key before servicing or adjusting loader.



Warning: Before Servicing

To prevent serious injury or death:

- Stop the tractor and remove key, read the service specifications at the back of this manual.
- Use lock-out tags/procedures as required to prevent unanticipated machine operation.
- Do not operate with guard removed.
- Failure to comply could result in death or serious injury



Familiarize yourself with the location of all decals. Read them carefully to understand the safe operation of your machine.

Safety Signs - Continued

Warning: No Riders

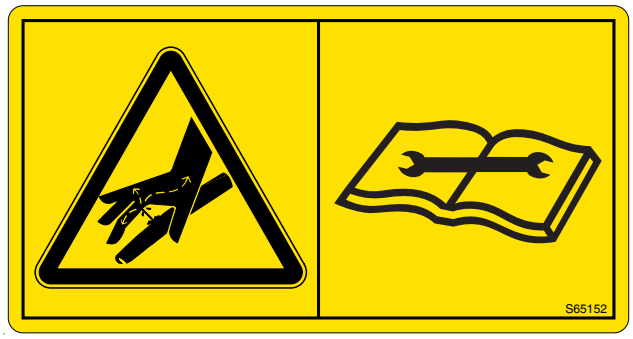
To prevent serious injury or death:

- Keep off while machine is moving or mechanism is running.

Warning: HIGH-PRESSURE FLUID HAZARD

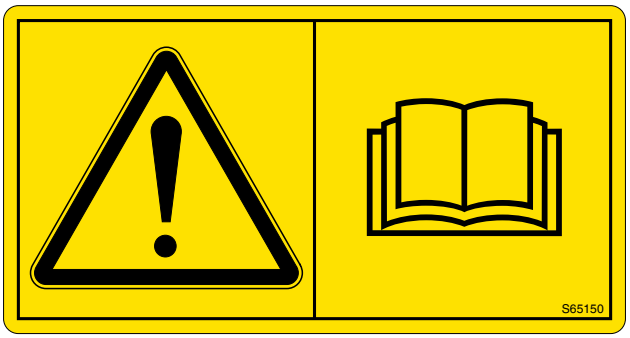
To prevent serious injury or death:

- Relieve pressure on hydraulic system before servicing or disconnecting hoses.
- Wear proper hand and eye protection when searching for leaks. Use wood or cardboard instead of hands.
- Keep all components in good repair.
- Refer to tractor and implement Operator's Manuals service specifications.
- Use lock-out tags/procedures as required to prevent unanticipated machine operation.



Caution: Avoid injury!

Read and follow the instructions in this manual. Failure to comply could result in minor or moderate injury



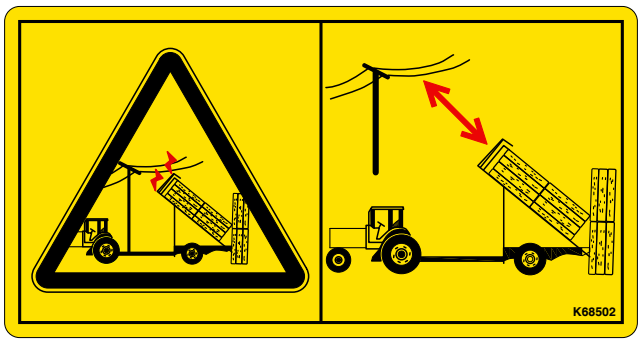
Familiarize yourself with the location of all decals. Read them carefully to understand the safe operation of your machine.

Safety Signs - Continued

Danger: Electrocution Hazard

To prevent serious injury or death:

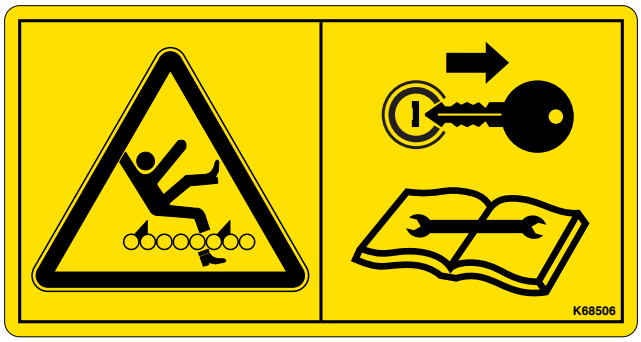
- Stay away from overhead power lines when transporting or raising stacker. This machine is not grounded. Electrocution can occur without direct contact.



Warning: Drag Chain Hazard

To prevent serious injury or death:

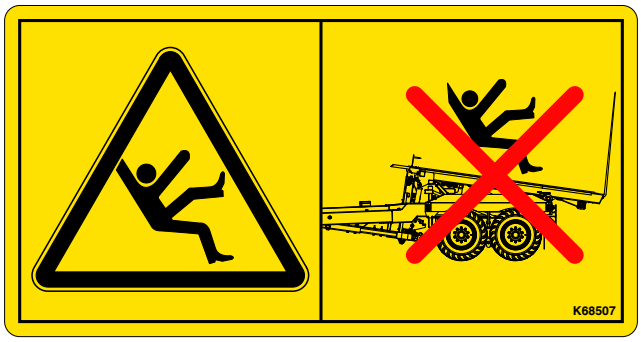
- Stop all controls and engine, remove ignition key, secure all mechanisms before servicing.
- Keep away from drag chain during operation.



Caution: Slippery Surface

To avoid injury:

- Do not stand or walk on machine.



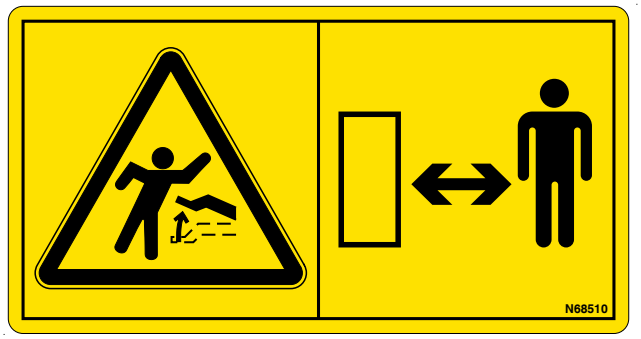
Familiarize yourself with the location of all decals. Read them carefully to understand the safe operation of your machine.

Safety Signs

Danger: Hitch Hazard

To prevent serious injury or death:

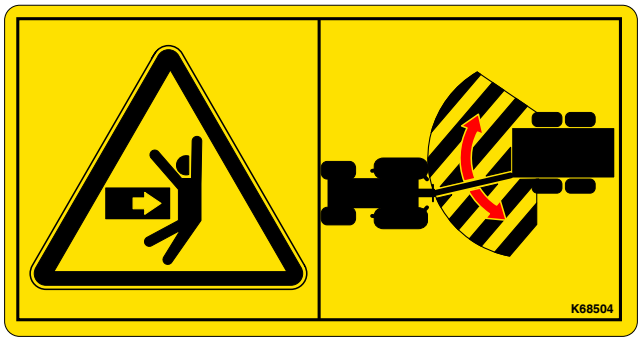
- Unload all bales before disconnecting from tractor.
- Move bed and loader to lowest position before disconnecting hydraulic hoses and hitch.



Danger: Offset Machine

To prevent serious injury or death:

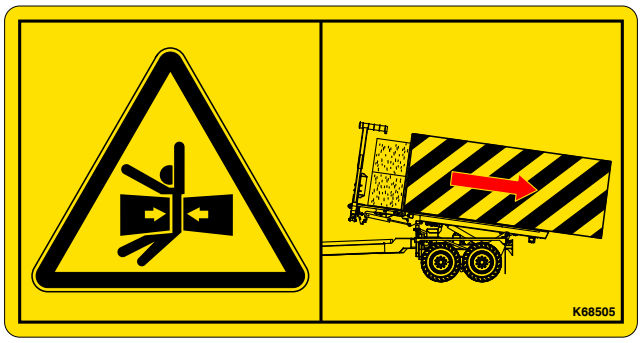
- Keep people clear of machine while in motion.
- Warn people not to approach from the RIGHT side.
- Machine can start moving automatically without warning.



Danger: Move Automatically Without Warning

To prevent serious injury or death:

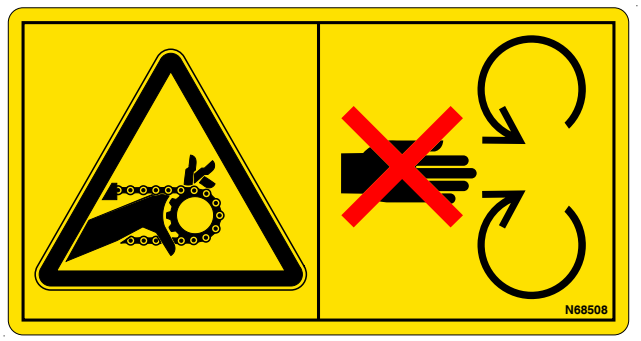
- Stop all controls and engine, remove ignition key.
- Turn electrical power off on control box.
- Secure the position of all mechanisms before servicing or adjusting.



Danger: Rotating Part Hazard

To prevent serious injury or death:

- Keep hand, feet, hair and clothing away from moving parts.
- Disconnect and lockout power source before adjusting or servicing.
- Sprockets and chains can start moving automatically without warning.



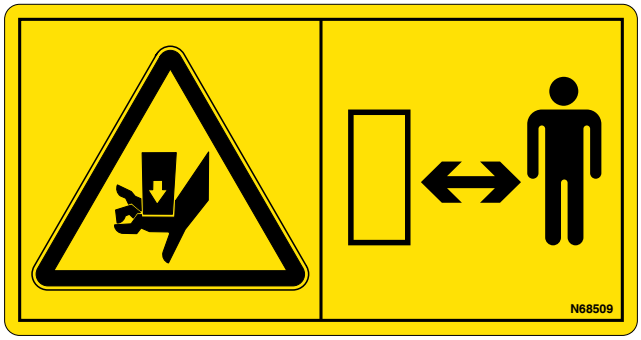
Familiarize yourself with the location of all decals. Read them carefully to understand the safe operation of your machine.

Safety Signs - Continued

Warning: Crushing Hazard

To prevent serious injury or death:

- Stand Clear - of loader when being raised, lowered or in elevated state.
- Always rest loader on hitch before working on loader.
- Shut tractor off and remove key before servicing or adjusting loader.



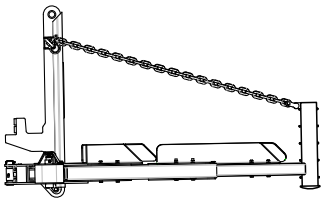
IMPORTANT

ENSURE WHEEL NUTS AND AXLE U-BOLTS ARE TORQUED TO THE FOLLOWING:

Re-Torque after 10 hours, 50 hours and periodically afterwards.

- **AXLE - 7/8" U-Bolt - 460 ft-lbs (624 Nm)**
- **Wheel Nut - 22mm Flanged - 400 ft-lbs (542 Nm)**

K71791



IMPORTANT

KEEP CHAINS TIGHT

Failure to Tension Alignment Arm Chains could cause Machine Failure and Void Warranty.

See Maintenance Section of Operators Manual.

K72257

:

⚠ WARNING

SAFETY ALERT! (1) FOLLOW ALL TORQUE REQUIREMENTS. (2) DO NOT USE ANY COMPONENT WITH VISIBLY WORN OR DAMAGED THREADS. FAILURE TO FOLLOW THESE SAFETY ALERTS CAN LEAD TO LOSS OF VEHICLE CONTROL, PROPERTY DAMAGE, SERIOUS PERSONAL INJURY OR DEATH.

Hutchens Suspension Torque Requirements
9600-9700 Series (Decal Part Number 16086-01 Rev. J)

After an initial break in period, approximately 1000 miles, and at least every 4 months periodically thereafter, ALL bolts and nuts should be checked to insure that recommended torque values are being maintained.

Oiled torque values listed are for new fasteners with lubricated threads. It is recommended that new installations be performed with oiled fasteners. For dry threads which have been in service, use the higher torque values which are noted below.

	OILED	DRY
1 1/8-7 (9600 / 9700 Rocker Bolt)	590 lb-ft	790 lb-ft
1-14 or 1-8 (9700 Radius Rod Bolt)	540 lb-ft	720 lb-ft
7/8-14 (Axle U-Bolts & 9600 Radius Rod Bolt)	350 lb-ft	470 lb-ft
3/4-16 (Axle U-Bolts)	310 lb-ft	420 lb-ft
5/8-18 (Radius Rod Clamp Bolt)	130 lb-ft	170 lb-ft
5/8-18 (Spring Retainer Bolt)	35 lb-ft	50 lb-ft

HUTCO Hutchens Industries — Hutchens Industries, Inc., P.O. Box 1427, Springfield, Missouri 65801-1427 Toll Free 1 (800) 654-8824

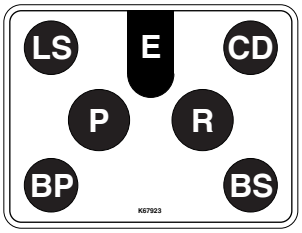
Part# 10774 Warning Torque Requirement Decal
Location: On frame next to suspension

Familiarize yourself with the location of all decals. Read them carefully to understand the safe operation of your machine.

Safety Signs - Continued

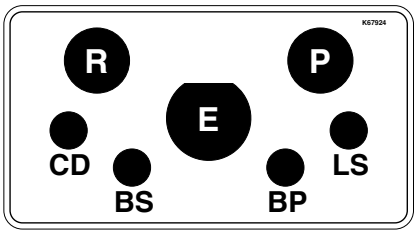
Part # K53626 - ProAG Logo Decal
Location: Both Sides of Hitch.

Part # K69049 - Bale Titan RXR Decal
Location: Both Sides of Hitch.



LS - Load Sense
P - Pressure
R - Return
CD - Case Drain
BP - Brake Pressure
BS - Brake Supply
(Air Brakes only)
E - Electrical

Part # K67923 - Hydraulic Line Identification Decal
Location: Top Front of Hitch.



Part # K67924 - Hydraulic Line Identification Decal
Location: Right Side Rear of Hitch.

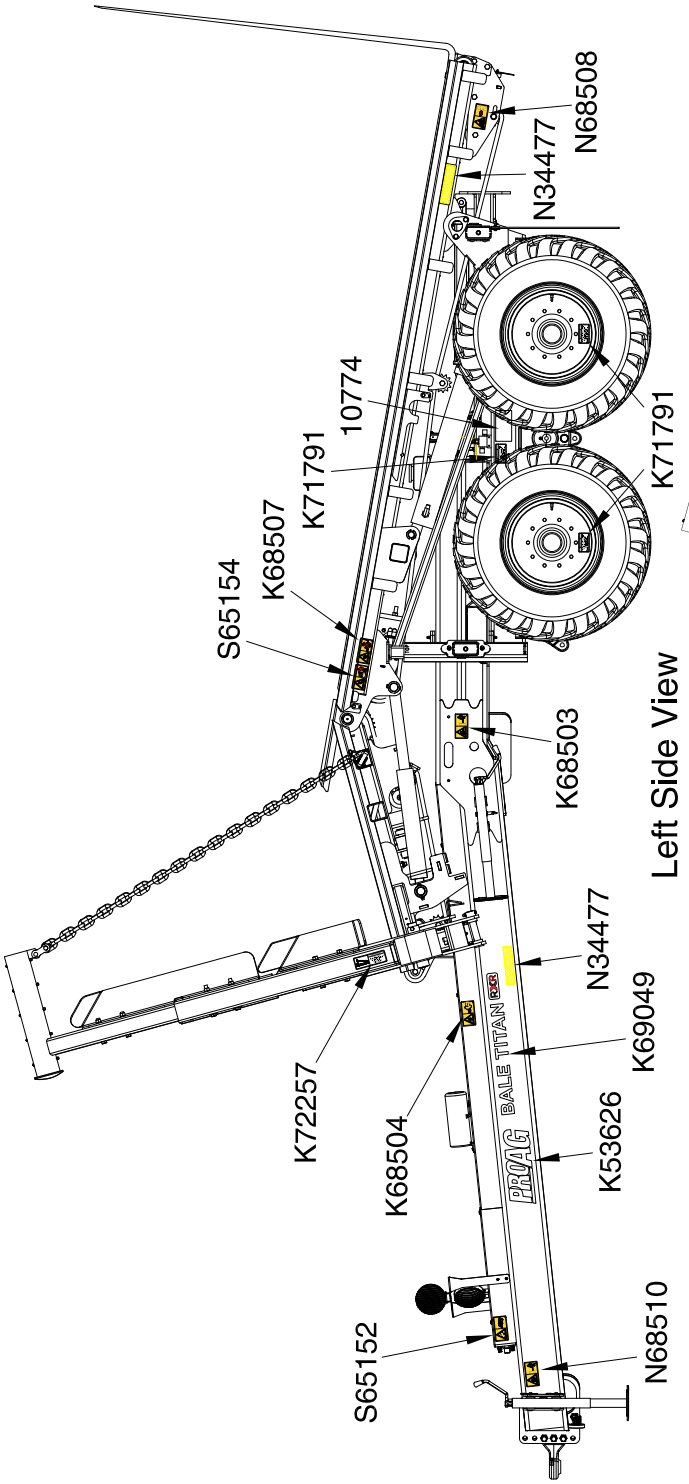
Part # K67921

Part # K67922

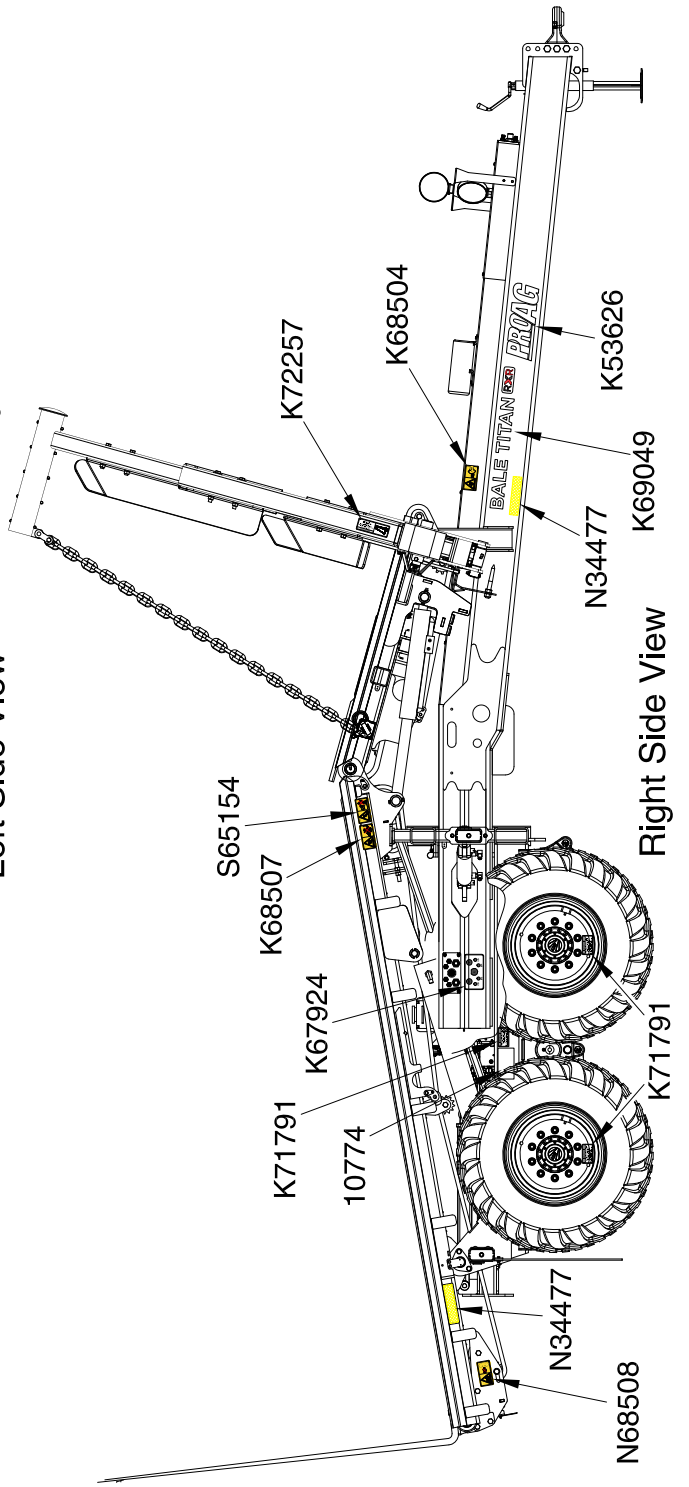
- Hydraulic Line Identification Decal
Location: Front and Rear of Bed.

Familiarize yourself with the location of all decals. Read them carefully to understand the safe operation of your machine.

Decal Location Guide



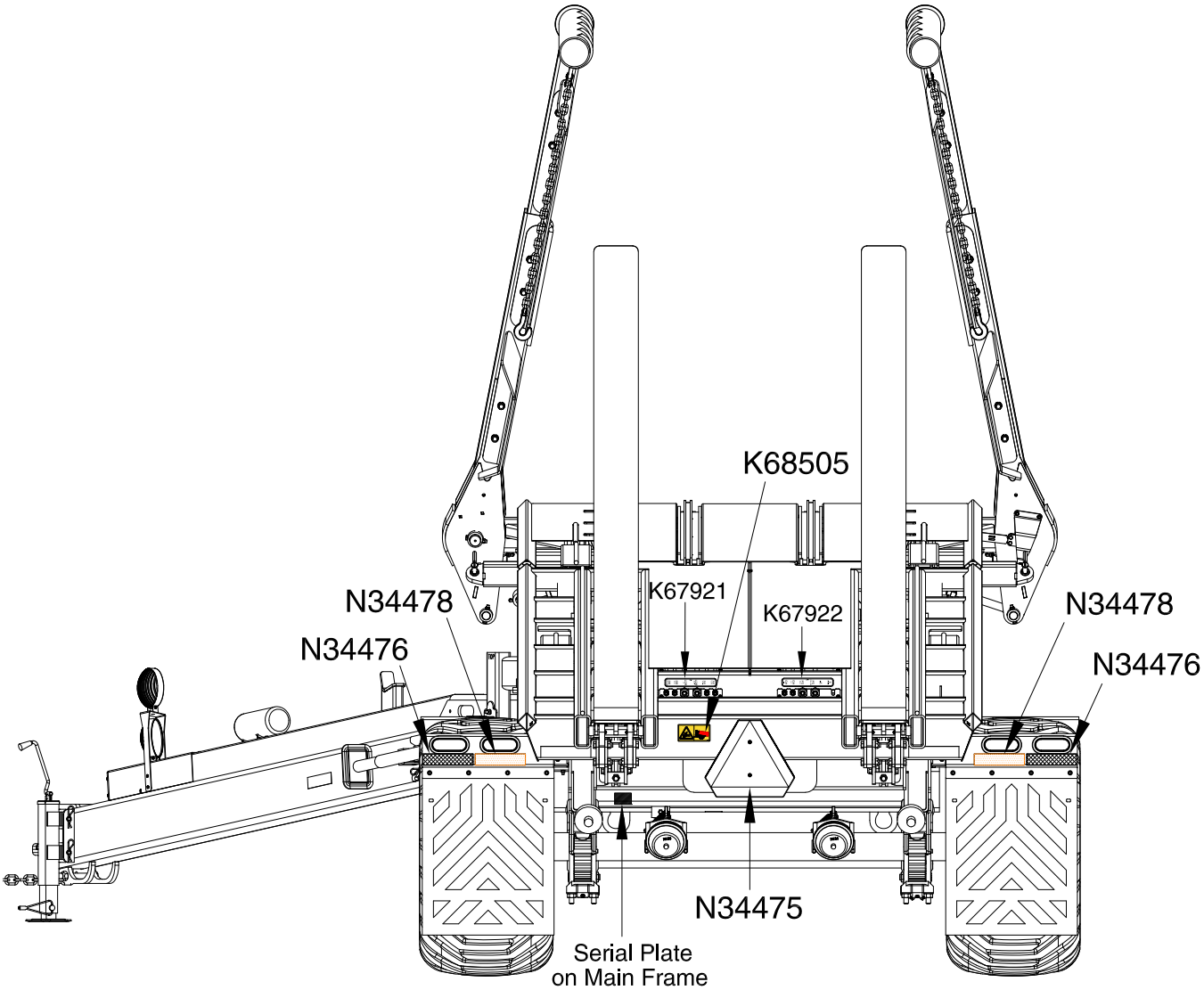
Left Side View



Right Side View

Decal Location Guide - Continued

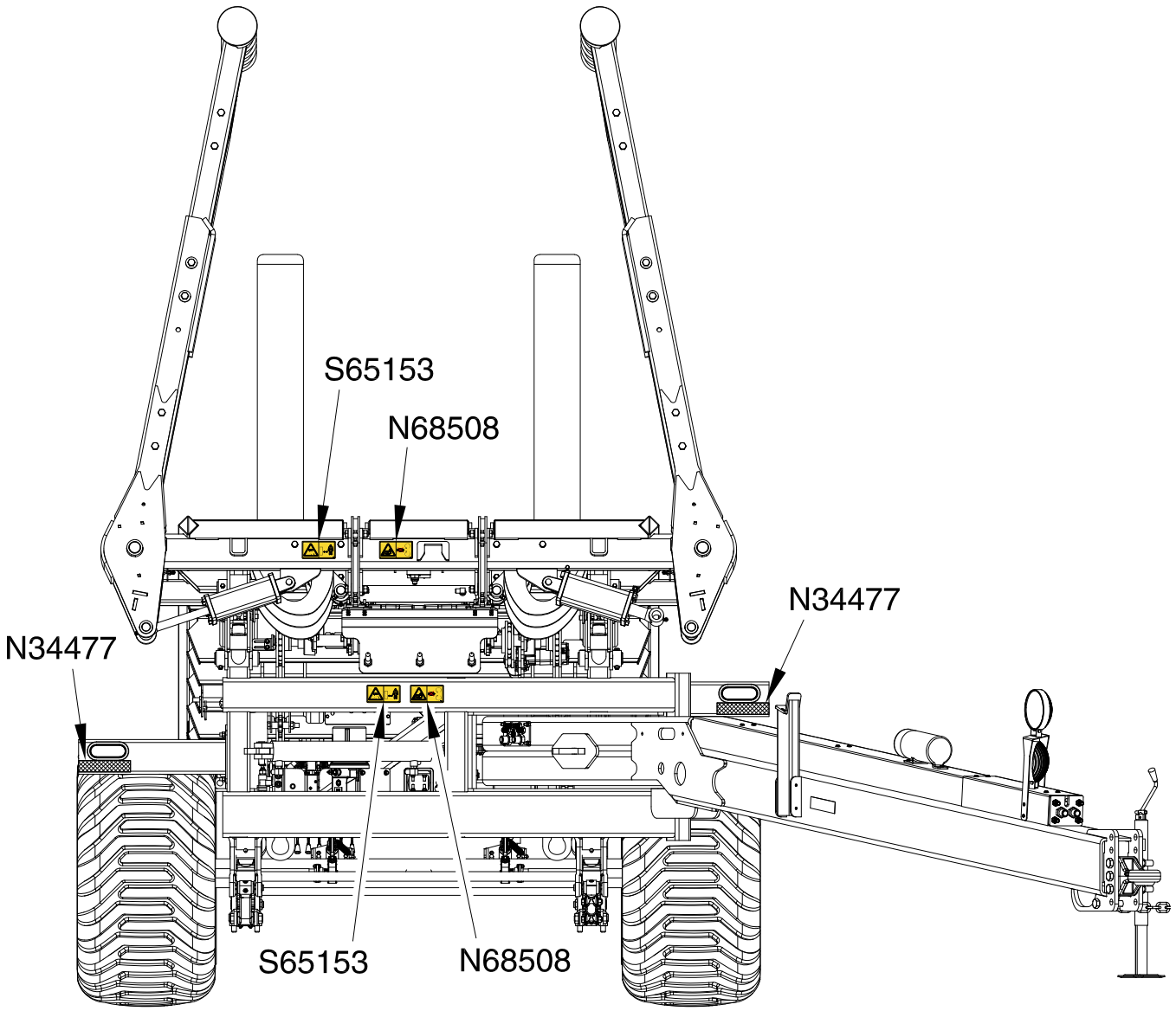
Rear View



Rear View

Decal Location Guide - Continued

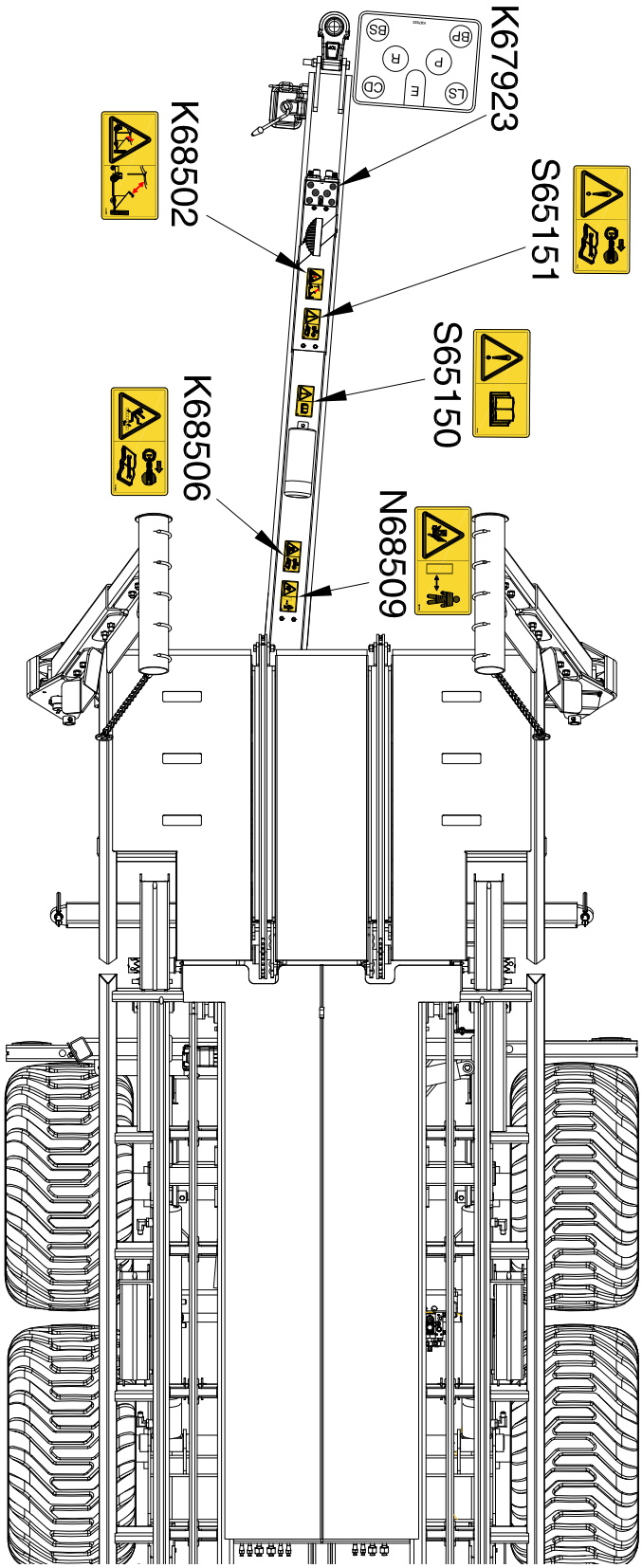
Front View



Front View

Decal Location Guide - Continued

Top View



Section 2: Specifications

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- Hydraulic Requirements....2-2
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Specifications

Machine Specifications

Bale TITAN RXR

Maximum lift capacity of the loader ..... 5,000 lbs (2268 kg)
Maximum payload ..... 24,000 lbs (10886 kg)
Road-siding capacity ..... 100 plus bales per hour
Stacker weight - without weight kit..... 15,100 lbs (6849 kg)
- with weight kit ..... 16,300 lbs (7394 kg)
Maximum Gross Vehicle Weight - without weight kit..... 39,100 lbs (17735 kg)
- with weight kit ..... 40,300 lbs (18280 kg)
Tongue weight empty..... 1,300 lbs (590 kg)
Tongue weight loaded..... 2,500 lbs (1134 kg)

Tractor Requirements

HP requirements..... 200 HP(150 kW) minimum
Minimum tractor weight w/o brakes ..... 27,000 lbs (12247 kg)
Transmission..... IVT, CVT, Power-Shift

Hydraulic Requirements

External drain port
Pressure and return ports
Minimum requirements
- Hydraulic pressure - Minimum ..... 2,500 psi (17,237 kPa)
- Hydraulic flow - Minimum..... 25 gpm (95 l/m)
- Recommended ..... 35 gpm (133 l/m)
- Hydraulic connection..... Power Beyond

Tire Specifications

Tire size ..... 600/50R-22.5 16 ply
Minimum tire pressure - Max speed 20 mph (32 km/h) ..... 38 psi (262 kPa)
Recommended tire pressure - Max speed 25 mph (40 km/h) ..... 42 psi (290 kPa)

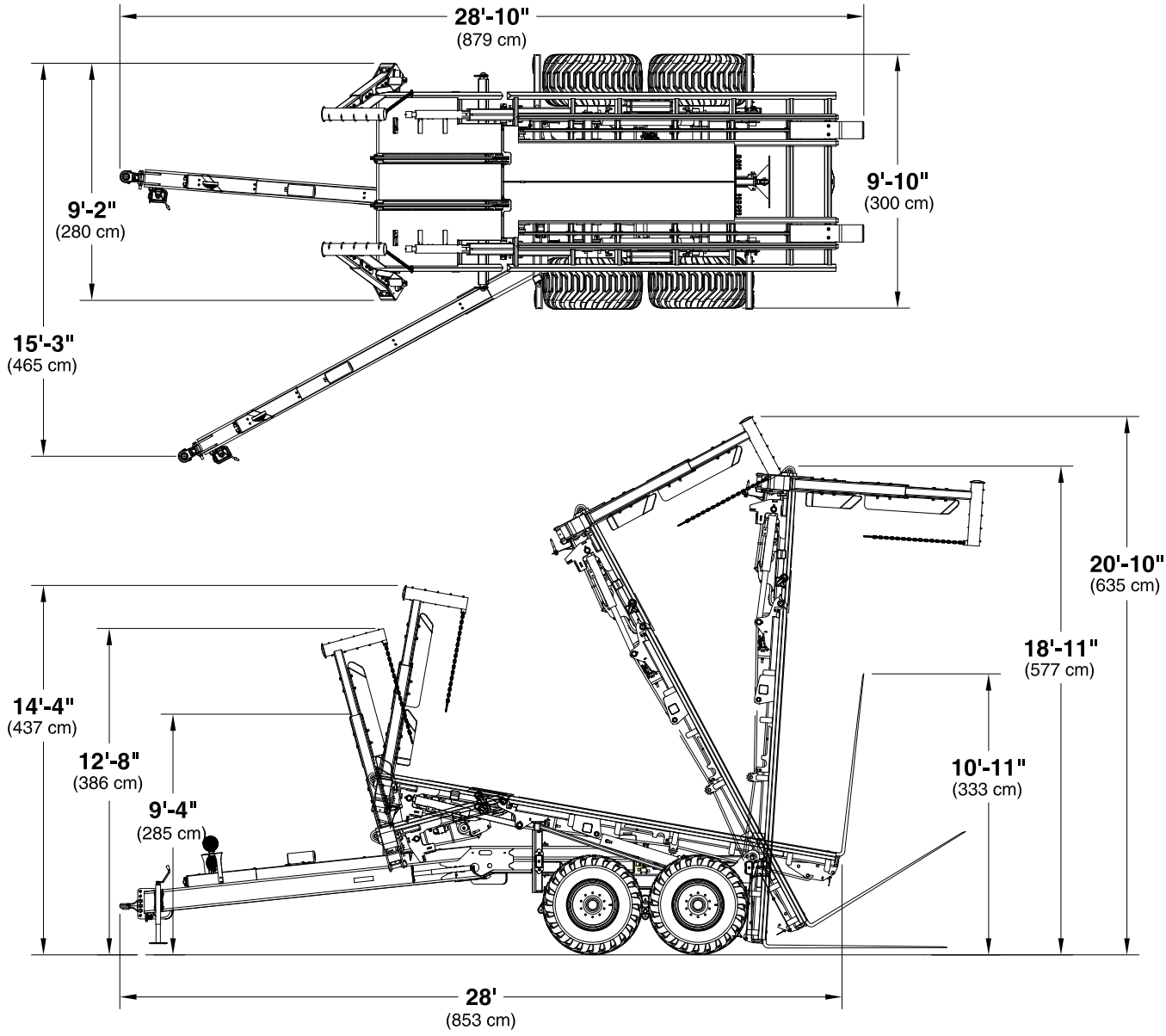
Bale Size

Minimum Bale Length..... 6 1/2 ft (200 cm)
Maximum Bale Length..... 8 1/2 ft (260 cm)
21 Pack Bundled Bales..... 12 Bundles Per Load (252 Small Square Bales)

Lubricants

Hydraulic oil ..... High quality that meets or exceeds tractor specifications
Axle hub grease..... Lithium based grease (NLGI #2)
Grease..... Lithium based grease (NLGI #2)

Bale Titan RXR Dimensions



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Section 3: Checklist

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SAFETY-ALERT SYMBOL

Watch for this symbol. It identifies potential hazards to health or personal safety. It points out safety precautions. It means:

ATTENTION - BE ALERT.

Your safety is involved.

Manuals

Note: Pre-Delivery Inspection Form must be completed and submitted to Morris Industries within 30 days of delivery date.

Warranty Void if Not Registered

Pre-Operation Checklist

Please read the Operator's Manual carefully and become a "SAFE" operator.

Adopt a good lubrication and maintenance program.

TAKE SAFETY SERIOUSLY.

DO NOT TAKE NEEDLESS CHANCES!!

Before operating the Bale Titan RXR check the following items:

Pre-Operation Check

____ **Lug nuts** - Check that all lug nuts are present and torqued to the appropriate specification.

____ **Pin retaining bolts** - Check for any missing or loose bolts or pins, replace or tighten as necessary.

____ **Hydraulic hoses** - Inspect all hydraulic hoses and replace any worn hoses. *Remember:* Use a piece of cardboard or wood to look for leaks, replace leaky hoses.

____ **Jack** - Check that the jack has been raised to its hightest position and that the extension leg has been fully retracted.

____ **Loader Rest** - If traveling, check that the Loader is securely resting on the rest located on the Hitch.

____ **Lighting** - Make sure the lighting is hooked up and functioning properly.

____ **Tire Pressure** - Check tire pressure to make sure it is within the specified range given on page 3 in the Machine Specifications section.

____ **Hitch Connection** - Check the Draw Pin that connects the stacker to the tractor drawbar. Ensure pin is secured with a retaing pin.

____ **Breakaway Device** - Make sure the hitch safety chain is connected.

____ **Brakes** - Check to see that the brake system is hooked up and functioning properly if so equipped.

OWNER REFERENCE

Model: _____

Serial No: _____

Dealer: _____

Town: _____ State: _____

Phone: _____

OWNER/OPERATOR: _____

Date: _____

Notes

Section 4: Introduction

Section Contents

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Introduction

This Operator's Manual has been carefully prepared to provide the necessary information regarding the operation and adjustments, so that you may obtain maximum service and satisfaction from your new ProAG Bale TITAN RXR.

To protect your investment, study your manual before starting or operating in the field. Learn how to operate and service your Bale TITAN RXR correctly, failure to do so could result in personal injury or equipment damage.

If you should find that you require information not covered in this manual, contact your local ProAG Dealer. The Dealer will be glad to answer any questions that may arise regarding the operation of your ProAG Bale TITAN RXR.

ProAG Dealers are kept informed on the best methods of servicing and are equipped to provide prompt, efficient service if needed.

Occasionally, your Bale TITAN RXR may require replacement parts. Your Dealer will be able to supply you with the necessary replacement parts required. If the Dealer does not have the necessary part, the ProAG Factory will promptly supply the Dealer with it.

Your ProAG Bale TITAN RXR is designed to give satisfaction even under difficult conditions. A small amount of time and effort spent in protecting it against rust, wear and replacing worn parts will increase the life and trade-in value.

Keep this book handy for ready reference at all times. It is the policy of ProAG to improve its products whenever it is possible to do so. The Company reserves the right to make changes or add improvements at any time without incurring any obligation to make such changes on machines sold previously.

Section 5: Operation

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CAUTION

BE ALERT

SAFETY FIRST

REFER TO SECTION 1 AND REVIEW ALL SAFETY RECOMMENDATIONS.

Tractor

Tires

- Proper ballast and tire pressure are required when pulling heavy implements.
- Consult your tractor operator's manual and follow all recommended procedures.

Hydraulics

- Wipe all hydraulic fittings and couplers with a clean cloth to avoid contaminating the system.
- Check that the hydraulic reservoir is filled to the proper level.

Drawbar

- Center and pin in a fixed position for easier hitching and greater stability.

Warning

Do not permit smoking, sparks or an open flame where combustible fuels are being used. Keep the work area well ventilated.

Warning

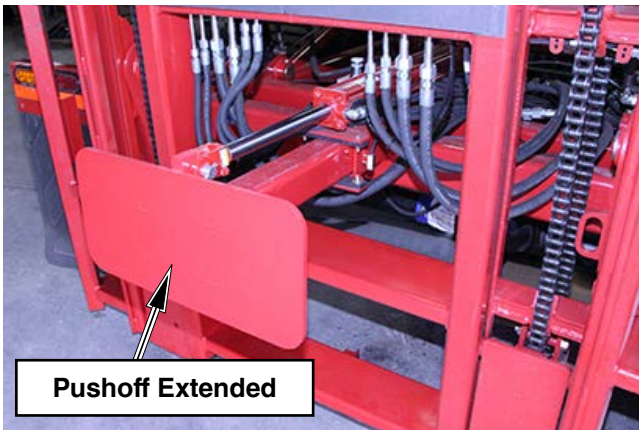
Do not search for high-pressure hydraulic leaks without hand and face protection. A tiny, almost invisible leak can penetrate skin, thereby requiring immediate medical attention.

Machine Conventions

"Pushoff Retracted" The pushoff is retracted into the pushoff tube.

"Pushoff Extended" The pushoff is extended from the pushoff tube and penetrates through the hole in the rear of the bed. The bed must be fully raised before the pushoff tube can be extended, otherwise component collision is possible.

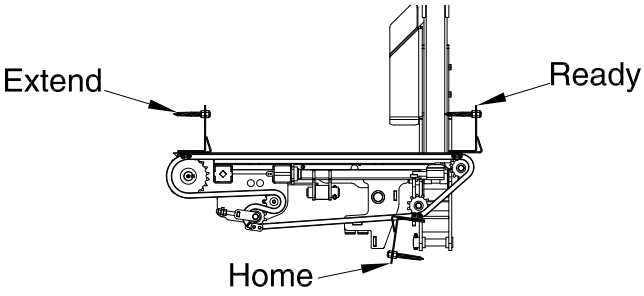
***Do Not Lower Bed with Pushoff extended.**



"Power Slider Home" The power slider is fully returned underneath the loader.

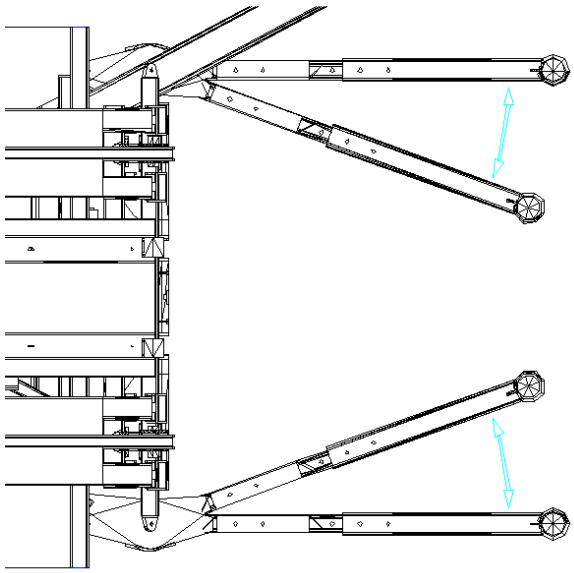
"Power Slide Ready" The power slide has come up to or near the base of the bales ready to move the bales on to the bed of the machine.

"Power Slide Extend" The most rearward position the power slide will extend to while pushing the bales on to the bed of the machine. When setting this position, be sure the Power Slide does not touch the bed.



"Alignment Arms Open" The alignment arms are open when the portion of the alignment arms that are closest to the tractor are at their widest position.

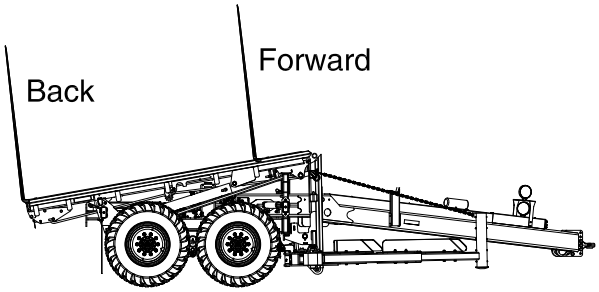
"Alignment Arms Closed" The alignment arms are closed when the portion of the alignment arms that are closest to the tractor are at their narrowest position.



"Grab Hooks In" The grab hooks are in when they are engaged, or grabbing the bale through the front of the loader.

Note: When pushing bales from the loader to the bed, if the grab hooks are in they may be damaged. Make sure the grab hooks are out when pushing bales onto the bed.

"Grab Hooks Out" The grab hooks are out when they are disengaged back behind the loader, or have released the bale.

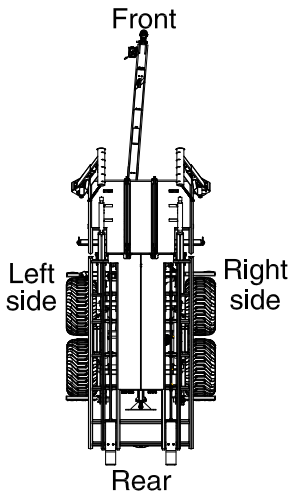


"Rolling Rack Forward" Positions the Rolling Rack fully forward. The Rolling Rack must be fully forward when starting to pick bales.

"Rolling Rack Back" Positions the Rolling Rack fully rearward.

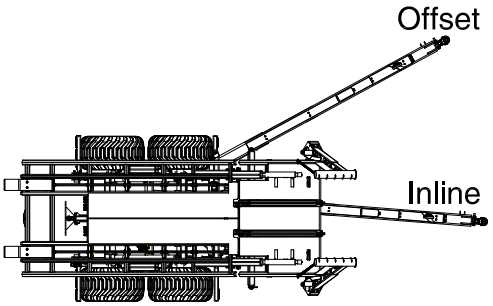
Machine Conventions

Bale TITAN RXR Directional Conventions



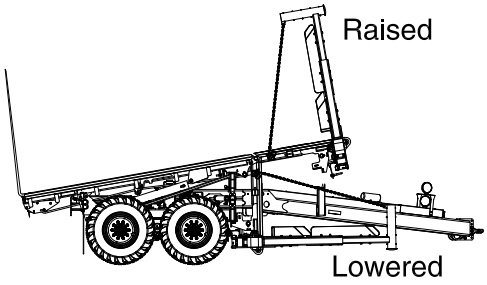
"Right and Left" The right and left side of the Bale TITAN RXR is your right or left when standing behind the Bale TITAN RXR and looking toward the front of the machine.

"Front and Rear" The front is the high end of the bed. The rear of the Bale TITAN RXR is the low end of the bed.



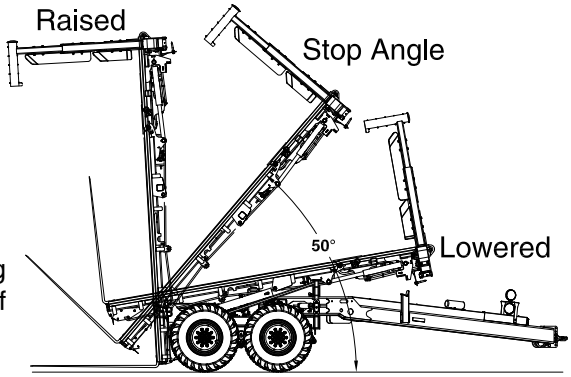
"Offset" The machine configuration when the Hitch is maneuvered to allow machine to pick up bales. The end of the Hitch is to the left of the left side tire.

"Inline" The machine configuration when the end of the Hitch is centered between the wheels of the Bale TITAN RXR.



"Raise the Loader" Move the Loader into the raised position.

"Lower the Loader" Move the Loader to rest in the lowered position.



"Raise the Bed" Move the Bed into the raised position.

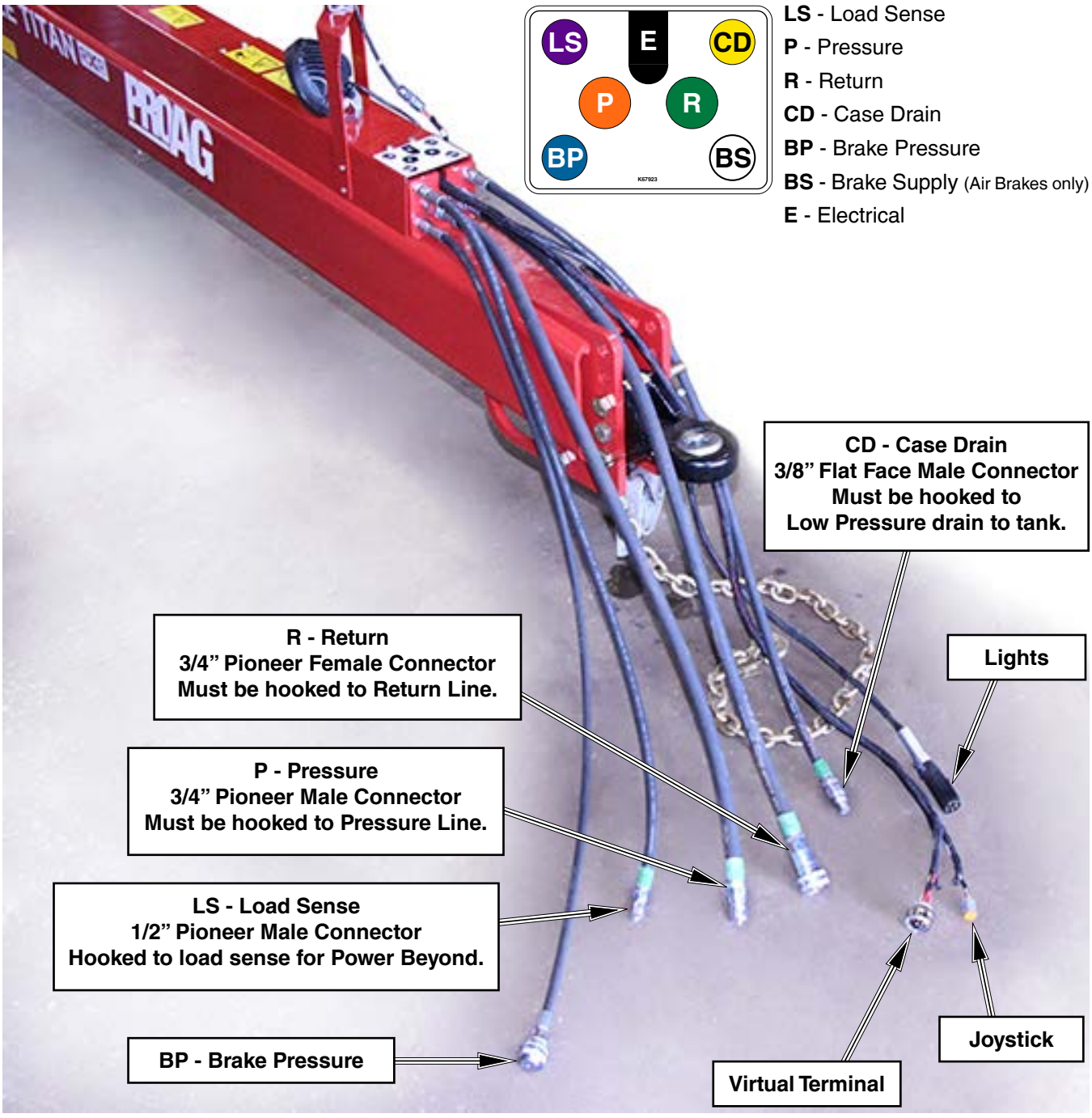
"Lower the Bed" Move the Bed into the lowered position.

"Bed Stop Angle" The Bed stops at the pre-set angle during stacking. Do not exceed a bed stop angel of 65 degrees.

Hydraulic System Configuration

Tractor Connection

Recommended to connect to Power Beyond.



Verify correct porting and drain plug fitting on tractor.

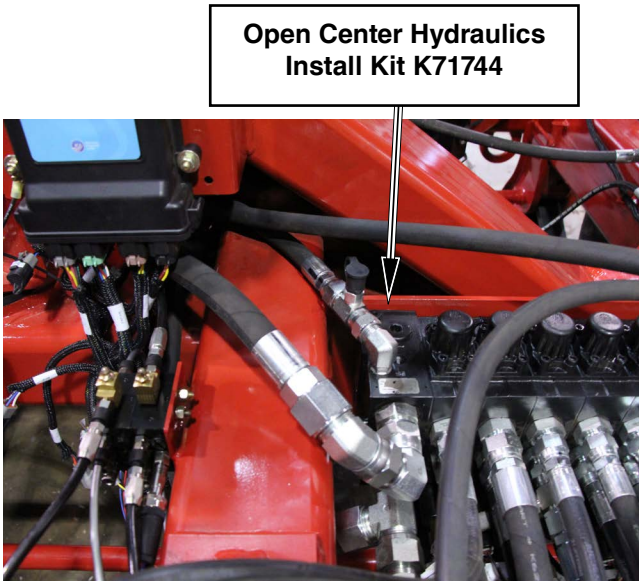
Note: Some tractor manufactures require Load Sense Drain Ports to be plugged for proper power beyond operation. Please consult your tractor manufacture.

Hydraulic System Configuration - Continued

The Hydac LX-6 block is factory set up for closed center variable displacement pumps from the factory.

If the Bale Titan is going to be connected to a tractor with an open center fixed pump the inlet block of the Hydac LX-6 will need to have kit K71744 installed in it.

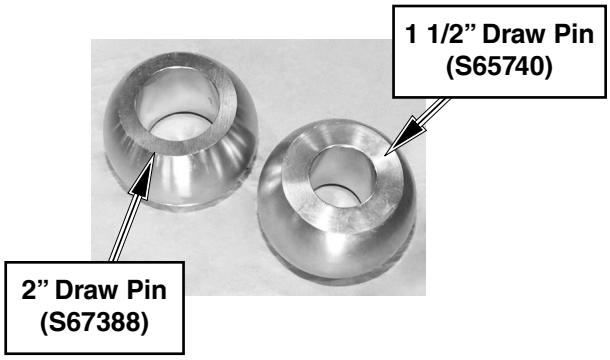
Please consult the tractor manufacturer for more details on which style of hydraulic pump it is built with.



Hooking Up for the First Time

Use the following outline as a checklist to ensure the Bale TITAN RXR is properly set up for use.

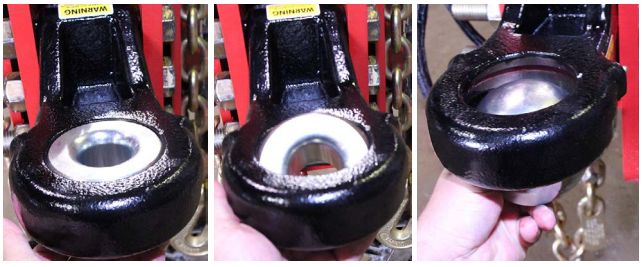
- Fits with tractor hammer strap.
- The Bale TITAN RXR comes with a 1 1/2” draw pin insert (S65740). If the tractor is equipped with a 2” draw pin a 2” insert replacement can be installed (S67388).



- To remove the insert rotate it 90 degrees parallel to the direction of pull and it will drop out of the bottom.
- Reverse process to install insert.

Warning

Remember to turn off hydraulic system and tractor and remove the key from ignition before working on the Bale TITAN RXR.



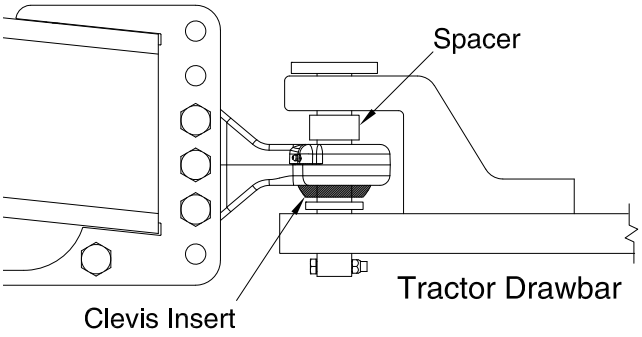
Hooking Up for the First Time - Continued

Step 1: Attach Bale TITAN RXR to Tractor

- Line up the Ball Hitch on the machine with the tractor draw bar.

WARNING: Do not allow anyone to stand between the tractor and the stacker while backing the tractor to the machine hitch.

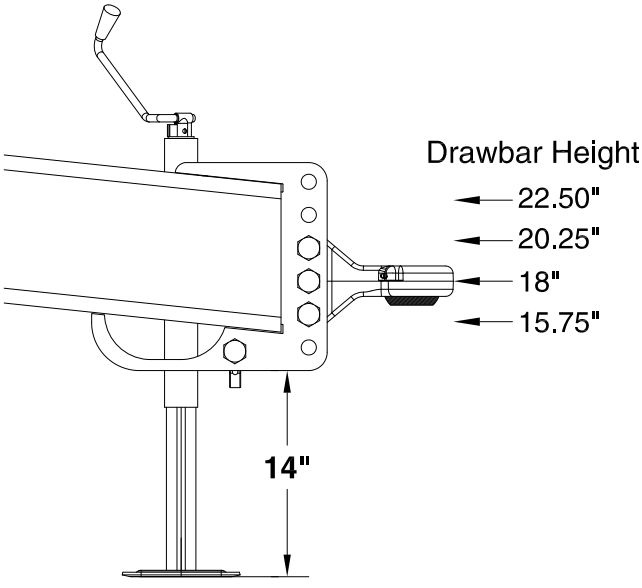
- Secure the machine to the tractor with the factory tractor pin. Secure pin with a locking pin if available. Refer to tractor manual for correct procedure in securing draw pin.



Note: Spacers should be added above the clevis and the hammer strap to remove free play of the hitch. See "Hitch" in Parts Section for K71814 Hammer Strap Spacer Kit.

Note: The spacers must not exceed the diameter of the flat surface of the clevis insert to allow free movement of clevis.

- Adjust hitch clevis so there is a minimum of 14 inches of ground clearance to the hitch plate.
- For drawbars between tongue heights always place tongue in the next lowest position.



Hooking Up for the First Time - Continued

Step 1: Attach Bale TITAN RXR to Tractor - Continued

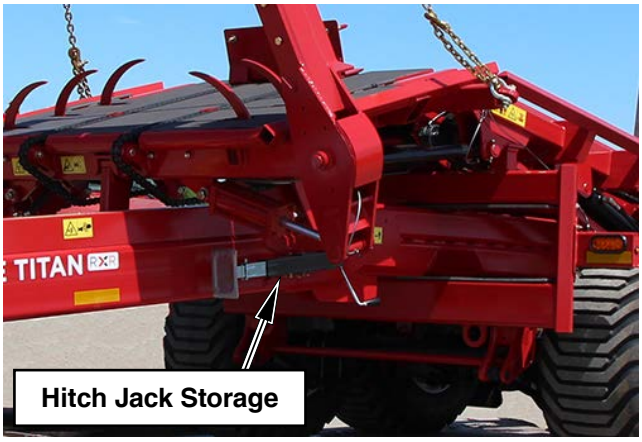
CAUTION: Operating Bale TITAN RXR without Safety Chain connected to tractor can be hazardous. Always attach Safety Chain to tractor.

- Secure Hitch Safety Chain to tractor or tractor draw bar. ***Note:*** Chain should be loose enough to allow tractor to turn without allowing chain to drag on the ground.
- Connect the trailer light cable to the tractor and test the system to be sure the lights are operating properly.
- Read the “Brake Maintenance” section to adjust the brakes properly if the machine is so equipped.

DANGER: Improperly set up brakes can cause loss of control of the stacker and towing unit. Be sure to adjust brakes according to the procedures described in this manual.

CAUTION: Operating Bale TITAN RXR without brakes and lights connected to the tractor can be hazardous. Always attach the electrical cables to the tractor.

- Lift jack to its highest position, then remove pins and place in storage position.



Hitch Jack Storage

Step 2: Controller Connection

- Place the multifunction grip in the cab (preferably to the right of the driver). The grip must be mounted in a safe place out of harm’s way and the weather.
- Route the multifunction grip cable from the cab to an area near the hitch.
- Plug the multifunction grip cable into the control cable on the stacker.
- Connect the ISO cable from the stacker to the ISO connector on the tractor. OR:

  If equipped with Optional Raven Monitor, mount the Monitor in the cab (preferably to the right of the driver). The monitor must be mounted in a safe place out of harm’s way and the weather. Route the connecting cable from the cab to an area near the hitch connecting stacker control cable. Connect the power cable from the monitor to the auxiliary power connector in the tractor.
- The controls should now be functional and the warning message will turn on when the power is switched on and the hitch is not in the inline position.

CAUTION: DO NOT operate machine without the Controller installed and fully operational.

Hooking Up for the First Time - Continued

Step 3: Connect Hydraulics

CAUTION: Be sure the hydraulic system is off and all moving parts are at their lowest position before working on the hydraulic system. Also, turn off tractor, place in park, and remove key.

CAUTION: Refer to diagram on page 5-6 before hooking up hydraulics. Make sure hydraulic lines are hooked up properly to avoid component damage.

- First connect 3/4" female connector (non-pressure line) to tank or return. (**R** - Return)
- Connect 3/4" male connector (Pressure line) to pressure line. (**P** - Pressure)
- Connect 3/8" flat face male connector (drain line) to tank or return. (**CD** - Case Drain)
- Connect 1/2" male connector (sense line) to load sense of tractor. (**LS** - Load Sense)
- Check the hydraulic oil level in the tractor.

DANGER: Keep bystanders away from moving parts

Step 4: Lubricate Stacker

WARNING: Before working on this machine, stop the towing vehicle, set the brakes, disengage the PTO and all power drives, shut off the engine and remove the ignition keys.

- Use the "Lubrication Points" in Section 6 and grease all pivots on the machine by manually cycling lube system 3 times to ensure all lube points are greased. Note: Hitch clevis has two grease points.
- Check the grease in the axle hubs and brake components. See the "Lubrication Points" in Section 6 for recommendations.

Getting Started

The first thing the operator needs to do is to turn on electrical and hydraulic power to the stacker.

- The ignition switch on the tractor will turn the electrical system on. (See Tractor Manual for details)
  Or the power switch on the optional Raven CR7 monitor box if so equipped will turn the electrical system on.
- Hydraulic power will be on when the tractor is running if the stacker is connected to the power beyond system of the tractor.

WARNING: Always pressurize the system the correct way. Reversing the pressure and return lines could cause damage to hydraulic components.

After hydraulic and electrical power has been established; When the system powers up the operator must find the ProAG softkey on their terminal. This could be in different locations depending on the terminal. The ProAG object pool will be displayed in the Universal Terminal or Virtual Terminal section of the display terminal. The stacker will initially start at the Home screen and will not function until either Automatic or Manual mode is chosen.

Pre-Operation Checklist

Before operating Bale TITAN RXR check the following items:

Pre-Operation Check

☐	**Lug nuts**	Check that all lug nuts are present and torqued to the appropriate torque rating. M22 - 400 lb. ft. (542 Nm)
☐	**Suspension bolts**	Check for any missing or loose bolts or U-bolts, replace or tighten as necessary.
☐	**Pin retaining bolts**	Check for any missing or loose bolts or pins, replace or tighten as necessary.
☐	**Hydraulic hoses**	Inspect all hydraulic hoses and replace any worn hoses. *Remember:* Use a piece of cardboard or wood to look for leaks, replace leaky hoses.
☐	**Hitch Jack**	Check that the hitch jack has been placed in its storage position.
☐	**Tire Pressure**	Check tire pressure to make sure it is within the specified range given in the “Machine Specifications” Section 2.
☐	**Hitch Connection**	Check the Draw Pin that connects the stacker to the tractor drawbar. Ensure pin is secured with a retaing pin.
☐	**Drawbar**	Check drawbar and hammer strap for any missing or loose bolts or pins, replace or tighten as necessary.
☐	**Breakaway Device**	Make sure the hitch safety chain is connected.
☐	**Lighting**	Make sure the lighting is hooked up and functioning properly.
☐	**Brakes**	Check to see that the brake system is hooked up and functioning properly if so equipped.

Configuring Alignment Arms and Bed Extensions

Set the postion of the alignment arms and bed extensions to match the type of bale being stacked.

Bales Size	Stack Size	Stacker Configuration
Freeman 3x4 38”x46” On strings	5 high x 2 deep	**Long Alignment Arms** Engage Bed Extensions
NH 595 3x4 35”x47” On strings	6 high x 2 deep	**Long Alignment Arms** Engage Bed Extensions
Hesston 4900 - 4x4 51”x48” On or off strings	4 high x 2 deep	**Long Alignment Arms** Store Bed Extensions
Hesston 4755 - 3x3 35”x32” On or off strings	6 high x 3 deep	Shorten Length of Alignment Arms Engage Bed Extensions
Bale Bandit 35”x54” On strings	4 high x 3 deep	**Long Alignment Arms** Store Bed Extensions
Bale Baron 35”x54” On strings	4 high x 3 deep	**Long Alignment Arms** Store Bed Extensions

Note: Other manufacturer’s balers create the same size bales - these were used for illustration purposes only.
To pick bales “Off String” is is recommended to use a bale turner on the baler.

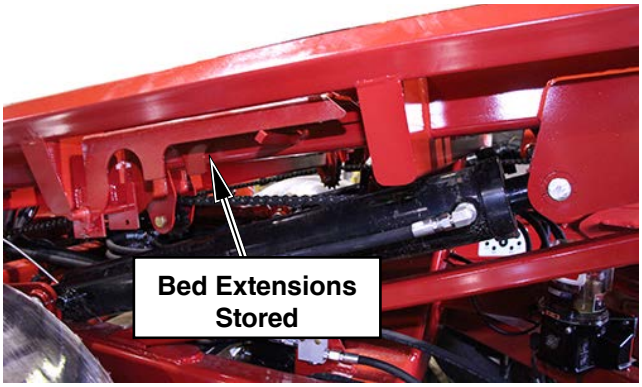
Adjusting Alignment Arms

To adjust the alignment arms, remove the alignment arm adjustment bolts and slide the arms to their next position. Reinsert the bolts and torque to 270 ft. lbs.

Adjust Alignment Arm Chains - see page 6-8

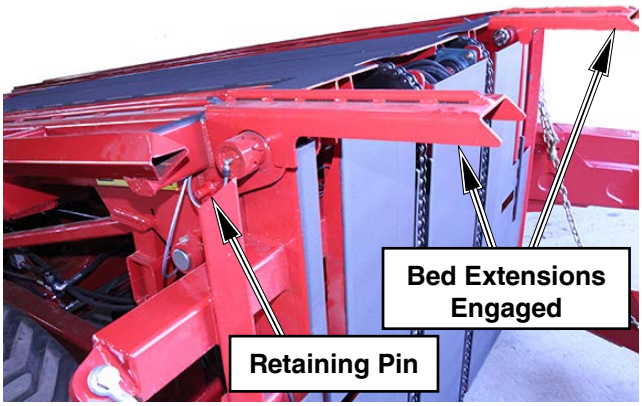
Adjusting Bed Extensions

With the hitch offset and the loader lowered all the way, remove the pins from the bed extensions located above tires on the bed. Place the bed extensions forward postion over top of the loader pivot pin. Reinsert the retaining pins to secure the bed extensions in place. Secure retaining pins with hair pins.



Replacing Forks on Bed

- Remove the fork retaining bolt and retaining block from the back of the bed.
- Raise the bed to the fully raised position.
- Lift fork at heal to remove. **(Warning: Forks are heavy, use caution)**.
- Reverse above procedure to install new fork. Torque retaining bolt to 270 ft. lbs.



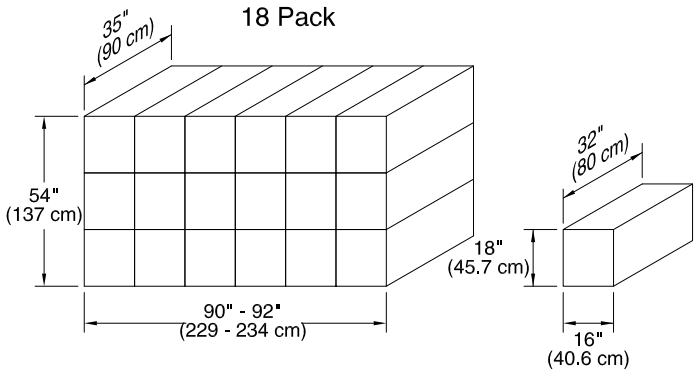
Configuring - Continued

Bundle Packages

The ProAg Bale TITAN RXR can handle bale bundles produced by the Bale Baron, Bale Bandit, and other manufactures of the below dimensions:

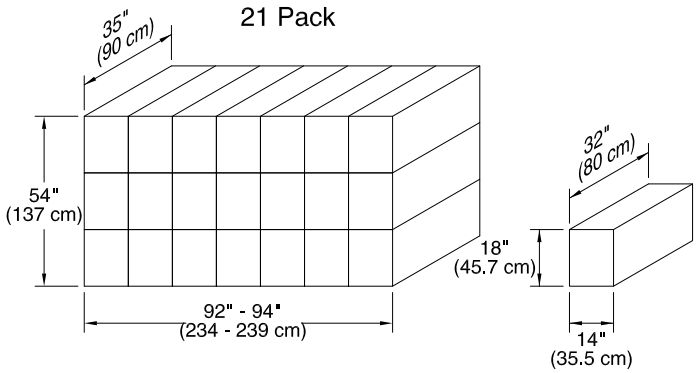
18 Pack

Height:	54” (4.5’)
Width:	35” (about 3’)
Length:	90” - 92” (little over a 7.5’ bale)



21 Pack

Height:	54” (4.5’)
Width:	35” (about 3’)
Length:	92” - 94” (about 8’ bale)

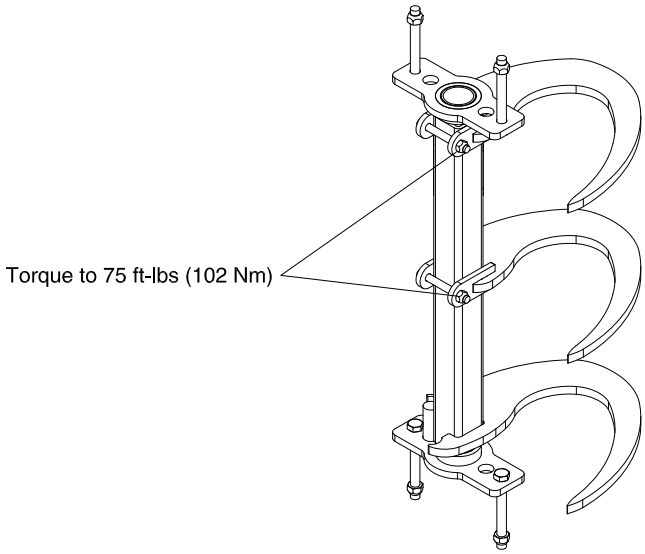


The Bale TITAN RXR can handle bale bundles from 6.5’ to 8’ long when picked from the wide side. The Bale TITAN RXR will pick & stack 12 Bundles per load stacking them 4 high x 3 deep.

Grab Hooks - Bolt-On version

For initial break-in of hooks check after the first 5 loads, 25 loads and periodically afterwards.

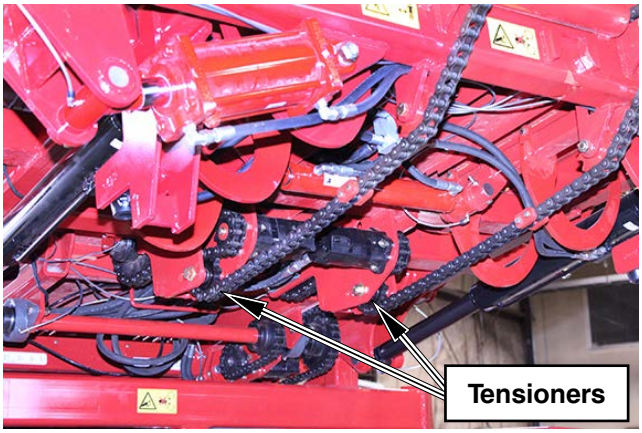
Torque 1/2” bolts to 75 ft-lbs (102 Nm).



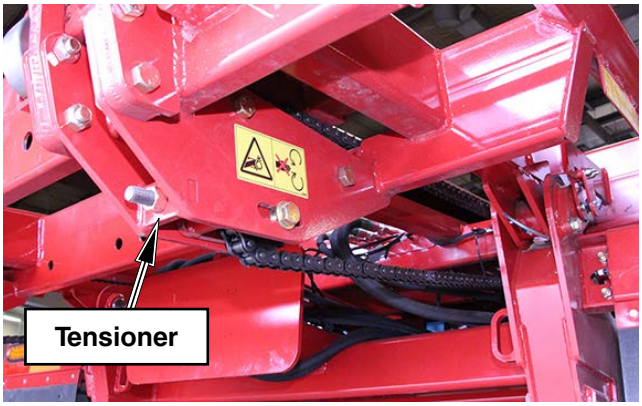
Chain Tension Adjustments

Warning: When making adjustments on the Bale TITAN RXR, always stop the towing vehicle, set the parking break, disengage the PTO and all power drives, shut off the engine and remove the ignition keys.

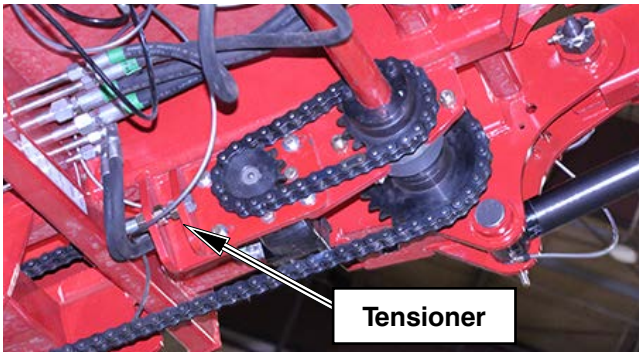
- If the power slider chains are jumping teeth or appear to be over tightened, then the power slider chain tension may need to be adjusted.
- The **Power Slider Chain Tension** (Approximately 3/4"of slack in the middle of the lower side of the chain with Power Slide moved to top of Loader.) Re-tighten all bolts and torque to specs. (Page 6-20)
- The **Rolling Rack Chain Tensioners** (Approximately 3/4"of slack in the middle of the slack side of the chain.) Re-tighten all bolts and torque to specs. (Page 6-20)
- Adjusting the **Rolling Rack Motor Chain Tension** First loosen the four (4) bolts holding the motor mount to the bed. Then adjust the threaded rod until the appropriate amount of tension is achieved in the chain. (Approximately 1/2"of slack in the middle of the slack side of the chain.) Re-tighten all bolts and torque to specs. (Page 6-20)



Power Slider Chain Tension



Rolling Rack Motor



Rolling Rack Motor

Setting Alignment Arm Pressure

- When the stacker picks up a bale in automatic mode, the arms will squeeze until the hydraulic pressure in the cylinder exceeds the set-point. The arms then stop squeezing, and the loader starts raising. There are two pressure set-points for the stacker. The 1st Squeeze Pressure is used for the first bale picked up, and the 2nd Squeeze Pressure is used for the next one. In the case of 3 x 3 bales, there is a 3rd Squeeze Pressure used for the third bale. If the alignment arms don't appear to be squeezing the bales tight enough or the bales are slipping through the alignment arms, the pressure probably needs to be increased. If the alignment arms appear to be squeezing the bales too tight and the bales are bowing in the middle, the pressure probably needs to be decreased.
- The **Alignment Arm Pressure** can be adjusted from the Calibration Menu or Quick Access Menu (QAM) from the Auto Screen. See **Calibration Menu:** *Example: Changing the Squeeze Pressures* for details.

Power Slide Pressure Adjustment

The Bale Titan RXR is equipped with a proportional pressure reducing valve to control the amount of pressure that the Power Slide exerts on the bales. This valve allows the operator to increase or decrease the amount of pressure the Power Slide places on the bales through the monitor.

Setting the Power Slide Cut-Off Pressure

The Power Slide Cut-Off Pressure can be set in two ways through the Calibration Menu or through the Quick Access Menu (QAM).

To adjust through the Calibration Menu, enter the calibration menu from the home screen using the soft keys on the right-hand side of the monitor. Browse to find the Power Slide menu and browse down to find and enter the Power Slide cut off pressure. Select the pressure value on the screen and a number pad should appear. Type in the desired pressure and press enter to set.

To adjust through the QAM in auto mode, select the QAM on the right hand side of the screen. The QAM will appear. Browse down to find the Power Slide Cut-Off pressure and select the pressure value. A number pad will appear, and the desired pressure can be entered. Once the desired pressure is set, close the QAM on the right side of the screen and picking in Automatic Mode can be continued.

REMEMBER: The maximum amount of pressure that the Power Slide places on the bales is limited by the Power Slide Cut-Off Pressure and by the tractor stand-by pressure. When the Cut-Off Pressure exceeds tractor stand by pressure, increasing the Power Slide Cut-Off Pressure will not further increase the Power Slide Pressure.

Gathering Bales

Approaching Bales

Bales are picked up on their 8 foot side. The easiest way to pick up bales is by driving the Bale TITAN RXR perpendicular to the path of the baler.

Before arriving at a bale offset the hitch and lower the loader all the way down until it is perpendicular to the ground.

Note: The Bale TITAN RXR will need to be configured for each type of bales picked. See the configuration chart under "Configuring Alignment Arms and Bed Extensions".

Note: For the correct bale count on the monitor, adjust the number of bales loaded through the Quick Access Menu. This is done in the QAM by adjusting the "Bales Loaded" This is important to keep this at the right value.

Rotating Bales

The Auto Align system will allow the operator to approach the bale from almost any direction. When approaching a bale "end-on" the bale may be rotated, or spun, by:

- Closing the alignment arms slightly and bumping the end of the bale with the right alignment arm.
- Drive ahead slowly while opening the alignment arms.
- The bale will rotate into the loader as the stacker continues to move ahead.

Quarter Turning Bales

To quarter turn a bale on the ground:

- Squeeze the alignmentarms together and raise the loader until the ends of the alignment arms will contact the bale about halfway up the side
- Drive forward slowly
- When the alignment arms contact the bale, continue driving forward while raising the loader.
- Back up a few feet to lower the loader and retrieve the bale.

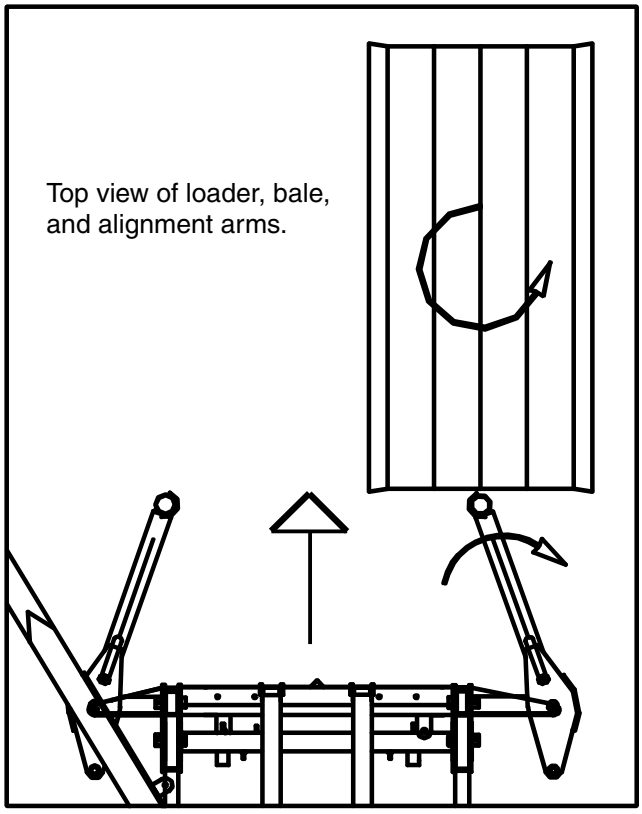
Note: Quarter turning a is very time consuming and is not recommended for a large number of bales in a row.

Repositioning Bales

If bales are located in a corner or tight place, the alignment arms can be used to grab a bale and reposition it in a better working location.

WARNING: Keep bystanders at least twenty-five feet away from an operating machine or stacked hay.

WARNING: Avoid rocks rough terrain, steep slopes, banks and drop offs when possible. Always maneuver tractor at safe speeds.



Rotating bales

Gathering Bales - Continued

Stair Stepping Bales

If bales continue to topple (Top bale Falls backward) while using the Power Slide to move the bales off the Loader and onto the Bed, “Stair Stepping Bales can be done to alleviate this. The Stair Step Mode can be turned on in the (Quick Access Menu) or in the Configuration Menu.

Stair Step Mode will cause the loader to lower to the “Stepped Pick Position” instead of the fully down position when picking the second bale with the loader in Automatic mode.

Setting the “Stepped Pick Position”

The stepped pick position can be set in one of two ways. The initial setting needs to completed through the calibration menu; fine adjustment can be done through the Quick Access menu. (QAM)

To complete the initial set up, place the machine on level ground with the bed down and the hitch offset. In the monitor enter the calibration menu, find loader menu, and finally the Loader stepped position menu.

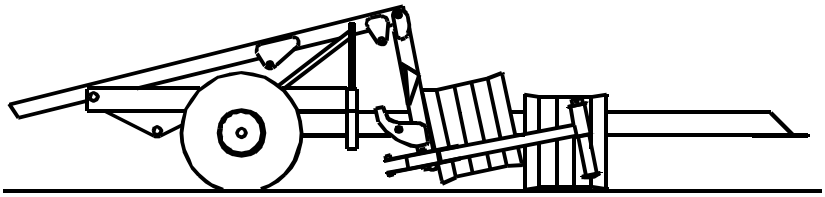
Using the A and B blue buttons, lower the loader to a position that places the ends of the alignment arms 6 to 12 inches off the ground. Once you are satisfied with the position use button C, the top orange button to finalize this position. The monitor should display a successful message to confirm it has been set.

To fine tune the step position, enter auto mode and enter the QAM using the soft key buttons on the right-hand side of the screen. In the QAM find the “Stepped Pick Mode”, select the box to the right of it and a check mark should appear in the box symbolizing that the “Stepped Pick Mode is activated. Close the QAM using the QAM soft key on the right side of the screen.

Place the picker in the picking mode by pushing the Load Reset button and pulling the trigger. Once the picker is in the Picking State, either pick a bale or hold the close arm button and pull the trigger to initiate the first bale picked sequence. The picker should now be at the ready to pick state, holding the Load Rest/ Arm Open button, pull the trigger. This will cause the loader to lower to the “Stepped Pick Position”.

Now you can reopen the QAM Browse down the QAM to find the “Stepped Pick Position”. Select the angle value to the right and a number keypad should appear. Type the desired angle in and press the enter key to finalize, this will cause the loader to travel to the new entered position. ****CAUTION: Machine will move!**** This step can be repeated until the desired height is reached. Remember, a larger angle will cause the loader to raise and a lower value will cause the loader to lower, and zero is fully down.

When a desired angle is reached, use the QAM button on the right-hand side of the screen to close the QAM and picking can be resumed.



Stair-stepping ½ Ton Bales

Building Stacks

CAUTION: Return stacker to the "in-line" position when moving between bales in field and stack. This reduces the chance of running over anybody or anything in the field.

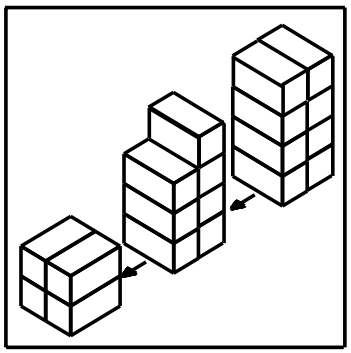
Starting Stacks

1. Choose a level area, with enough room to maneuver a tractor and Bale TITAN RXR even after the stack is finished.

Important: If completely level ground is not available, then build your stack uphill (front of tractor and Bale TITAN RXR facing uphill).

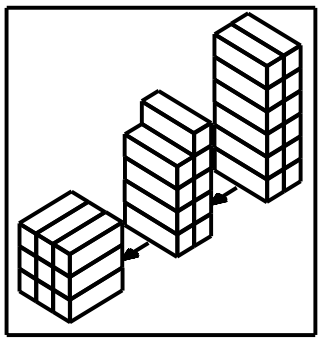
2. Begin stack by building a "backstop". The proper backstop should be built to withstand backing into the stack every time a load is delivered. We recommend the following back stop configurations:

1 Ton Squares: A 2 bale by 2 bale square set at one end, perpendicular to the length of the bales in the stack. The first load in the stack should be only 7 bales.



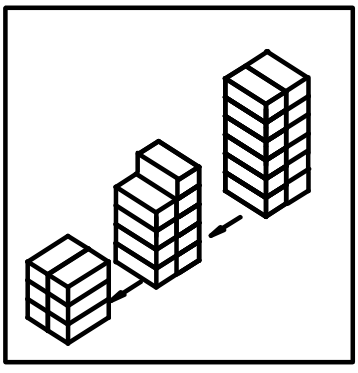
1 Ton Backstop

1/2 Ton Squares: A 3 bale by 3 bale square set at one end, perpendicular to the length of the bales in the stack. The first load in the rest of the stack should only be 2 bales by 4 bales, with one extra in the fifth tier.



1/2Ton Backstop

3 X 4 Bales: A 2 bale by 3 bale stack set at one end, perpendicular to the length of the bales in the stack. The first load in the stack should be 9 bales, and the rest should be 12 bales.



3X4 Backstop

Stacking Bales

Note: The bales should be stacked on level ground. When stacking on a slight incline, stack with the tractor facing uphill. Stacking downhill or on a slight side incline will make it difficult to build good stacks.

- For better visibility while building stacks, offset the hitch until the center of the tractor is inline with the edge of the stacker.

Note: Do not exceed a bed angel of 65 degrees. If the hitch is moved when the bed is too high it will damage the hitch bottom plastic slide. This is when the weight of the bed has gone over center so that it is resting on the bottom plastic instead of the top plastic.

- When backing up to the stack, minor adjustments using the hitch control will help guide the stacker back more precisely.
- Raise the bed so it is almost vertical, but the weight of the bales is still clearly against the bed. (Between 70 and 80 degrees)
- Back up until the corner of the bottom bale on the Bale TITAN RXR comes into contact with the back stop.
- Continue to raise the bed and back up until the load is vertical.

Important: It is critical that the first load into the stack is vertical. To avoid the stack tipping over, DO NOT ALLOW THE BED TO GO PAST VERTICAL ON THE FIRST LOAD.

- Release the alignment arms from the stack.
- Extend pushoff while slowly moving stacker forward.
- Lower the bed after the forks are out from under the stack.

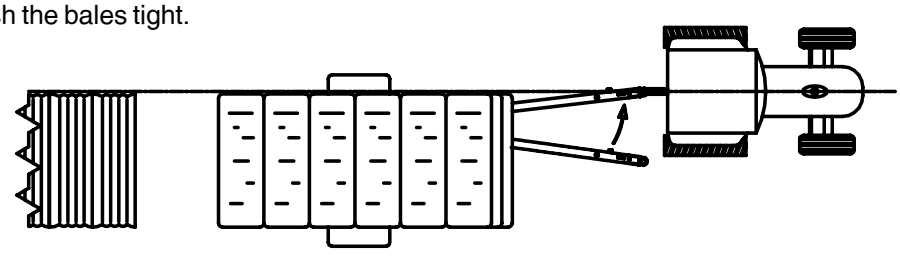
Tightening the Stack

If the stack is not tight enough after the bed has been raised all the way up:

- Pull the stacker ahead about three feet
- Back the stacker into the load to push the bales tight.

CAUTION: Avoid overhead wires to prevent serious injury or death. Electrocution can occur without direct contact.

CAUTION: Keep bystanders at least twenty-five feet away from an operating machine or stacked hay.



Lining up the center of the tractor with the edge of the stack

Stacking Bales - Continued

Stacking a Full Load With No Back-Stop

This practice is not recommended, as part of the stack may fall over during this procedure.

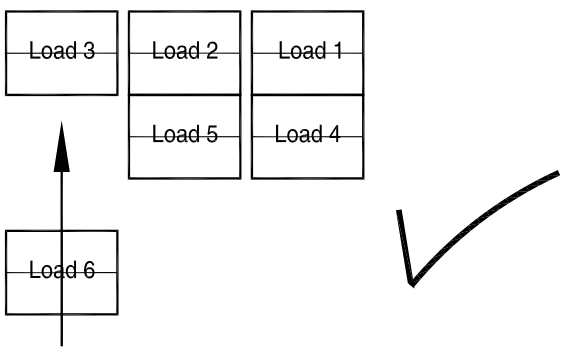
- When stacking a full load with no back stop or existing stack,
- Raise the bed to a 60 - 70 degree angle.
- Open the alignment arms and Lower the loader *slightly*.
- Squeeze the alignment arms and raise the loader again to compress the bales between the alignment arms and forks.
- Very carefully proceed to unload normally. Be aware without a proper backstop part of the stack may fall over during this procedure.

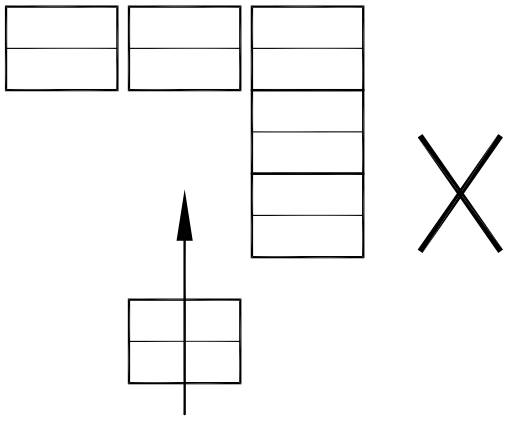
⚠ Warning

Stand Clear, part of the stack may fall over during this procedure without a proper backstop.

Stacking Side-By-Side

- Create a single row in each stack starting from right to left.
- Add second row from right to left.
- Continue this procedure until stack is completed.





Transporting Bale TITAN RXR

WARNING: Attach safety chain to Bale TITAN RXR and Tractor before moving on highway.

CAUTION: Exceeding speeds of 20 mph (32 km/h) is not legal or safe on public roads. DO NOT exceed 20 mph (32 km/h) with this machine.

WARNING: Use Loader Rest to lock hitch in the in-line position before transporting Bale TITAN RXR on public roads. This will secure hitch in case of accidental activation or failure of hitch cylinder.

REMEMBER: When transporting any piece of oversized equipment:

- Be familiar with local laws by contacting local authorities before transporting Bale TITAN RXR on public roads. Obey all regulations as they pertain to the Bale TITAN RXR. The specifications at the front of the manual contain most of the information that may be needed.
- This machine is equipped with lighting, markings, and signs in compliance with standards published by the American Society of Agricultural Engineers for Slow Moving Agricultural Implements on Public Roadways.
- Use flags, warning lights and slow moving vehicle signs as they are needed. Flag-persons may be required by local authorities and may be helpful even if they aren't required.
- Always remember the extra width of the Bale TITAN RXR. The widest part of the Bale TITAN RXR is approximately 9 feet 10 inches (300 cm) wide.
- Drive carefully at an appropriate speed for the size and weight of the Bale TITAN RXR. Allow for the extra length of the trailer when making corners. Reduce speed when navigating corners to prevent overturning machine. Link brakes to prevent loss of control during panic braking.
- Plan route to avoid heavy traffic. Drive in a courteous manner.
- Never drink and drive!

Note: Before transporting on public roadways. Press the stop button to exit auto mode to prevent unwanted or accidental movement of the machine. Only transport the machine in the home screen.

Operation of Controls

Joystick Button Layout

Buttons A through F will vary in purpose for the different functions, but button G, H, and I will remain as Emergency Stop, Automatic Pause, and Automatic proceed respectively. Emergency Stop, G, will stop the functionality of the machine in all modes and return the machine to the home screen. Automatic Pause button pauses the automatic routine, the routine can be resumed by pressing Automatic Pause button again. Trigger I the automatic proceed button initiates the automatic sequence when pressed in conjunction with the desired function button, buttons A through F.

Note: A function button along with the trigger must be pressed together to step to the next sequence.

Quick Access Menu (QAM)

The Quick Access Menu allows you to adjust the parameters seen in the following chart without leaving Auto Mode. The following parameters can be set using numeric number pad and an on/off toggle.

Quick Access Menu:	
Parameter	**Setting**
Bales Loaded:	Number Pad
Hillside Mode:	On/Off
Stepped Pick Mode:	On/Off
Accumulator Mode:	On/Off
Loader Stepped Angle:	Number Pad
Power Slide Pressure:	Number Pad
Squeeze Pressure 1:	Number Pad
Squeeze Pressure 2:	Number Pad
Squeeze Pressure 3:	Number Pad
Bed Up Stop Angle	Number Pad

Configuration Menu

The configuration Menu is accessible from the main home screen. It allows the user to configure the different items seen in Table 2.

Configuration Menu:	
Parameter	**Setting**
Bales Loaded:	Number Pad
Bales Stacked:	Number Pad
Timer Reset:	Reset Button
Bale Mode:	Drop Menu
Hillside Mode:	On/Off
Stepped Pick Mode:	On/Off
Accumulator Mode:	On/Off

Information Menu

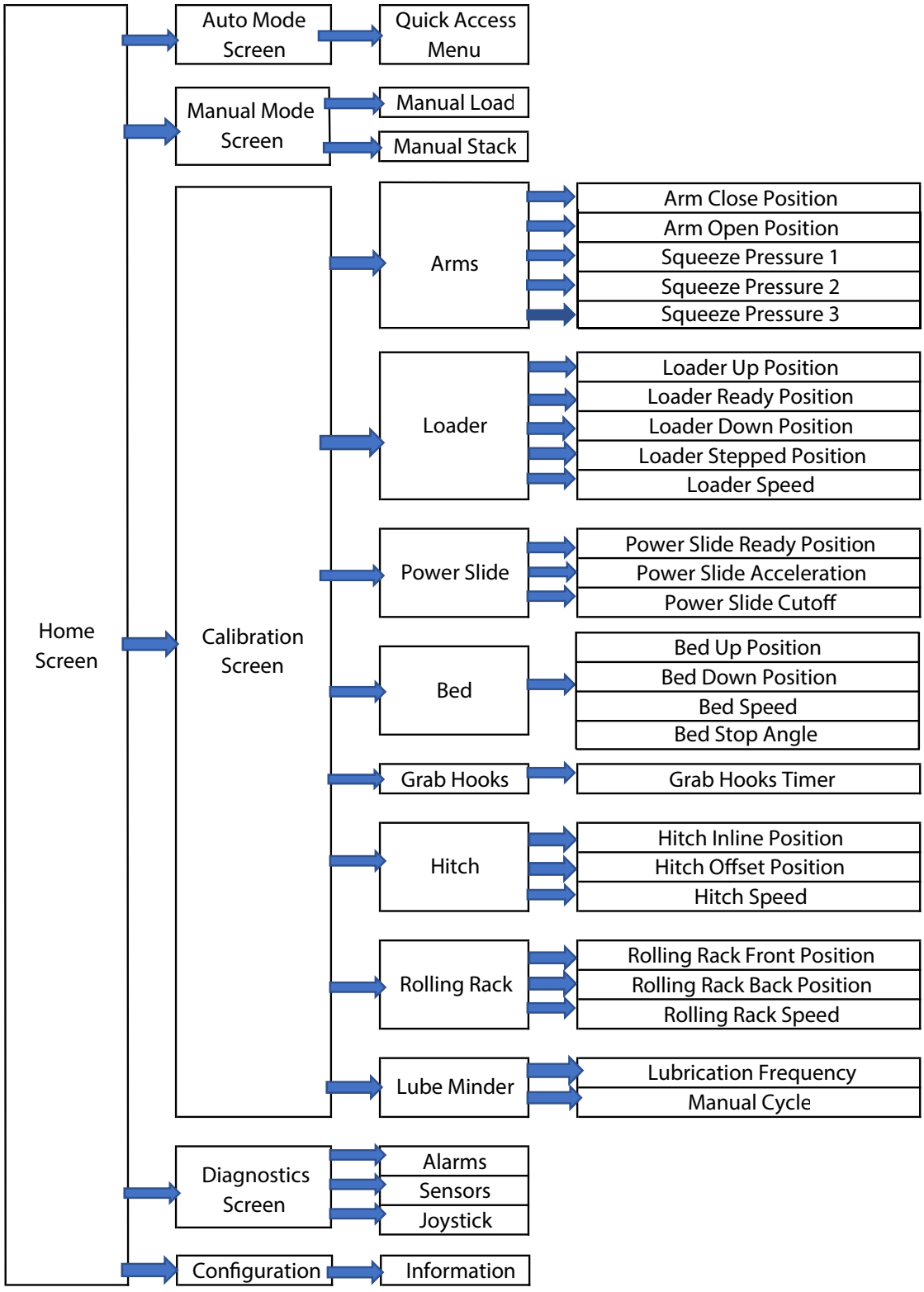
The information menu contains basic vital information of the machine. It contains the following seen in the chart below. These parameters will not be able to be reset by the end user.

Information Menu
Machine Hours:
Total Bales Picked:
Master Controller Software Version:
Slave Controller Software Version:

Operation of Controls - Continued

Monitor Screen Map

Below is a map of the different screens available on the ProAG Bale Titan RXR:



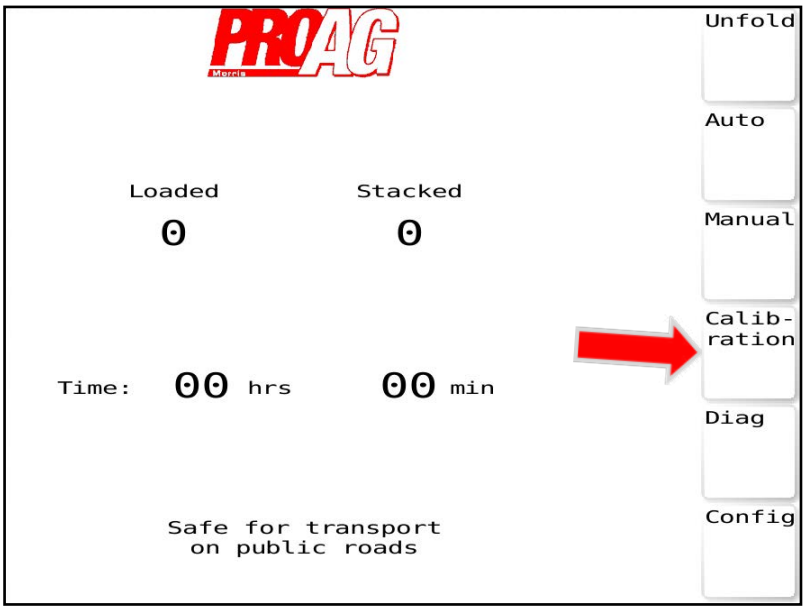
Operation of Controls - Continued

ProAG Titan Calibration

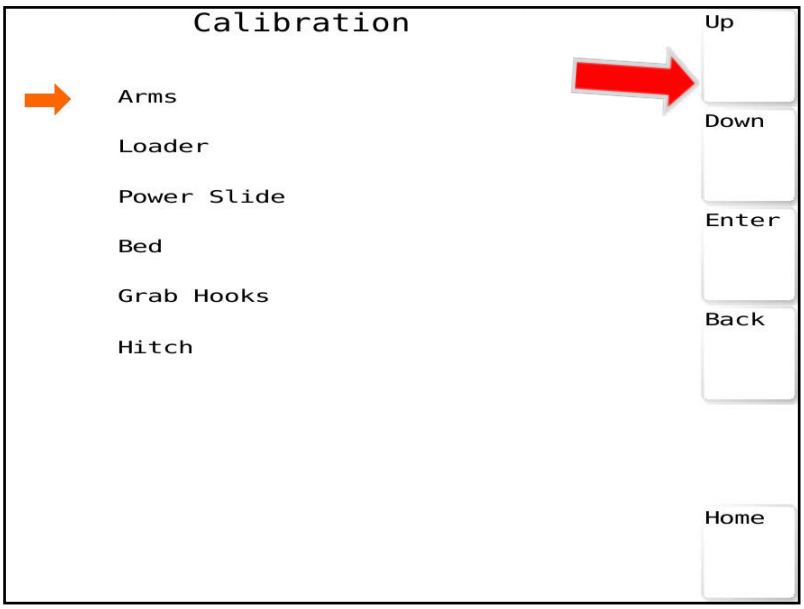
Purpose: The purpose of this document is how to perform proper calibration of the different functions of the ProAG Titan bale stacker.

1. From the Home screen you must first select “Calibration”

Warning: All Machine collision safeties are disabled in Calibration mode.



2. Use “UP or Down” to select the desired function to calibrate and then push “Enter”



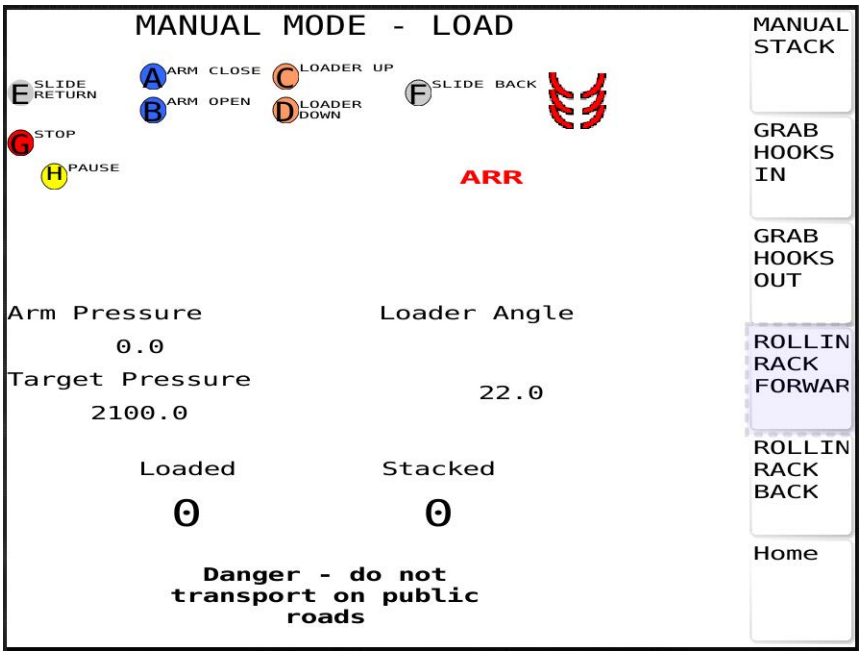
3. To calibrate alignment arms select “Arms” and then push “Enter”. Now select either “Arms close position” or “Arms open position” and push “Enter”. Once a selection has been made use the A & B Blue Buttons on the joystick to drive the function in the desired position. Button C (top orange button) will save the position.

Operation of Controls - Continued

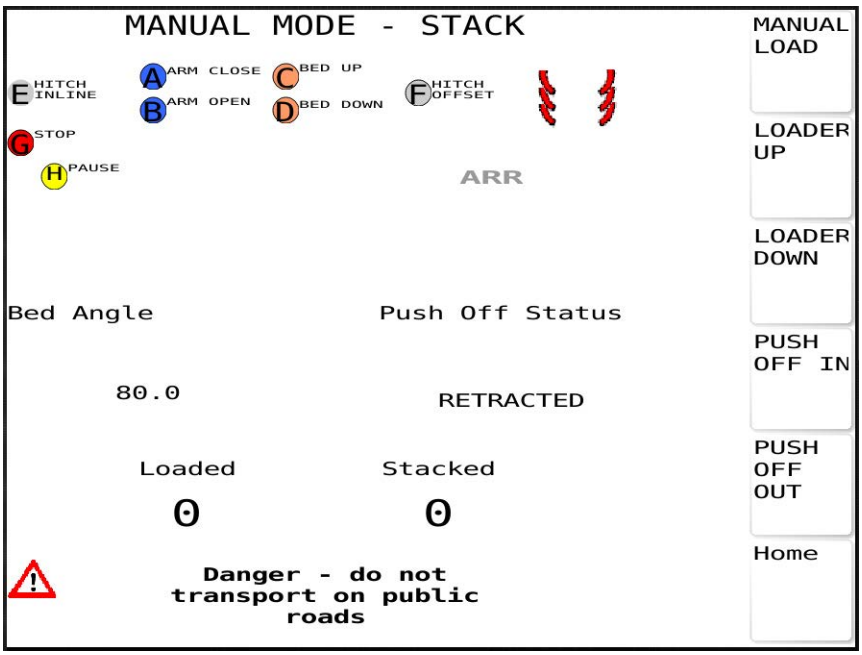
Manual Mode Layout

In Manual Mode all functions of the picker will be able to be controlled manually. The function control has been laid out below and will be broken up into two screens; Manual Load and Manual Stack screen. The Manual Load Screen will contain all functions required to manually pick or load bales. The Manual Stack screen will contain all the functions needed to stack bales. Below are the button/ screen layouts for the two modes.

Manual Load Screen:

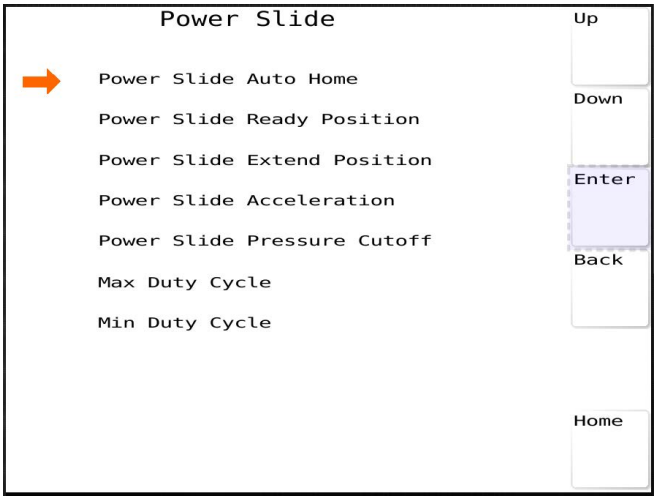


Manual Stack Screen



Resetting Power Slide

Each time the machine is restarted, the power slide must be homed in order for the computer to know its location and function correctly. In automatic mode, the Power Slide will automatically home itself the first time the Load Reset button is pushed. This is evident by the slow speed of the Power Slide moving on the return cycle. In order to operate the picker in manual mode, the power slide will need to be homed through the calibration menu.

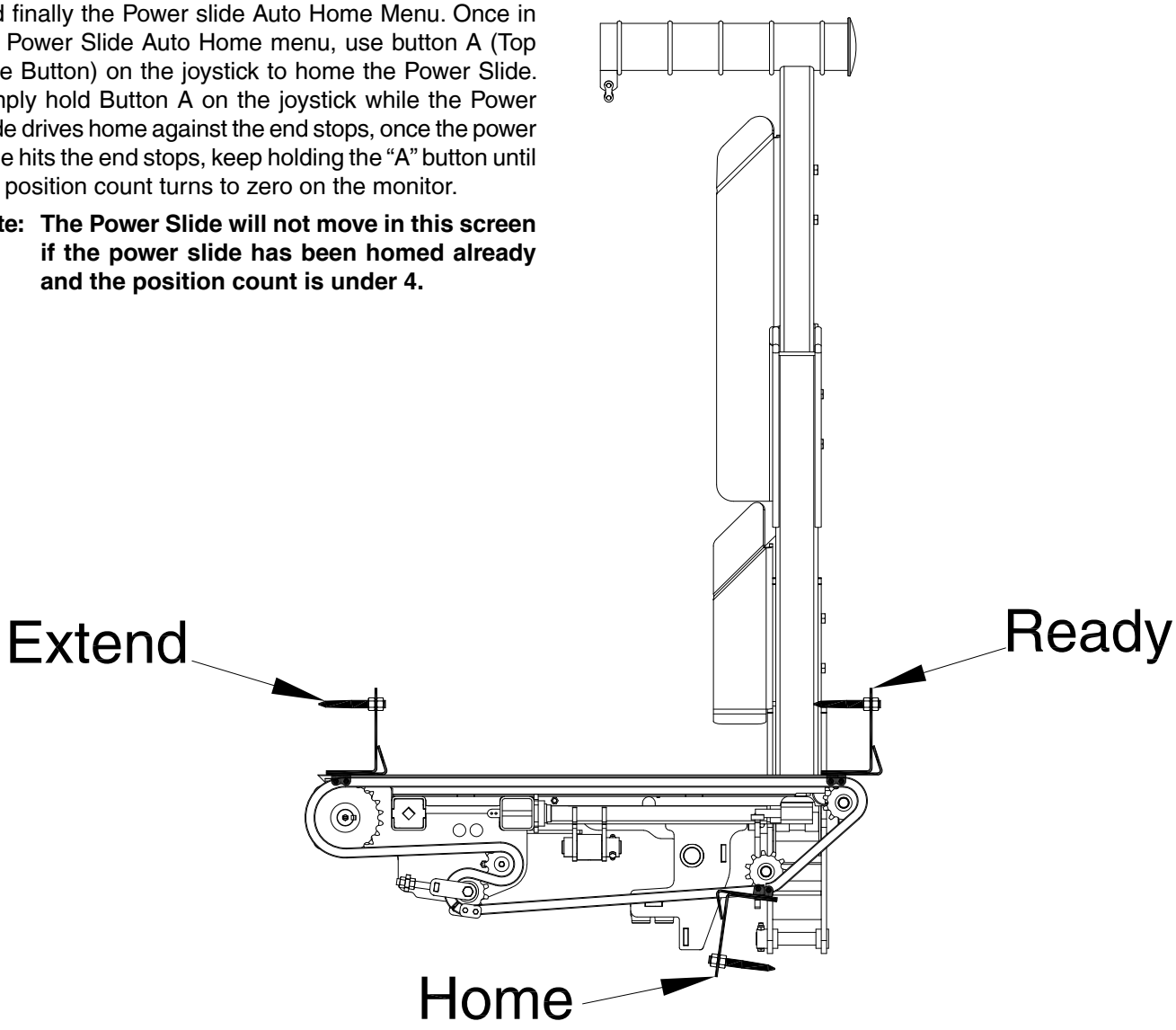


Homing the Power Slide

Note: The Power Slide should be homed before setting the Power Slide Ready and Power Slide Extend Positions.

To home the power slide, position the machine with the loader fully up. Enter the calibration menu from the Home Screen, browse to the Power Slide Menu and finally the Power slide Auto Home Menu. Once in the Power Slide Auto Home menu, use button A (Top Blue Button) on the joystick to home the Power Slide. Simply hold Button A on the joystick while the Power Slide drives home against the end stops, once the power slide hits the end stops, keep holding the “A” button until the position count turns to zero on the monitor.

Note: The Power Slide will not move in this screen if the power slide has been homed already and the position count is under 4.



Grab Hooks

The Grab Hooks are set up on a Timer in manual mode, this means that the operator simply needs to touch the grab hooks in or out button to get them to cycle in or out respectively. If the Grab Hooks do not fully engage or disengage when the button is pressed, the grab hook timer can be increased in the calibration menu.

Note: The Grab Hooks can also be cycled in and out using the joystick trigger.

Setting the Grab Hook Timer

If the Grab Hooks are not fully engaging or disengaging or there is a large pause in automatic mode after the grab hooks are pulled, the Grab Hook Timer should be adjusted. To adjust the Grab Hook Time, enter the calibration menu and browse to the grab hook menu, and then to the grab hook timer menu. Once in the Grab hook menu, select the time box and a number pad will appear, enter the time you would like program to drive the grab hook valve and press enter to set.

Note: Factory Default time is 1.5s, for tractor larger flow hydraulic pumps this time may be able to be reduced.

Rolling Rack

Pressing the Rolling rack forward button will cause the Active Rolling Rack (A.R.R.) to become enabled. This will be evident by the illumination of the ARR letters on the monitor screen. When the ARR is activated, hydraulic oil is sent to the Rolling rack to maintain pressure on the rolling rack and loaded bales. On an empty bed, the operator will see the Rolling rack forks proceed to the front of the machine.

Note: When picking in manual mode, the ARR should be kept active at all times. The operator will need to reactivate the ARR each time they enter manual mode. This is done be pressing the Rolling Rack Forward button.

The ARR can be deactivated in three ways:

- Pressing the STOP BUTTON and proceeding the home screen
- Pressing the Rolling Rack Back Button
- Raising the Bed.

Safety: Always return the monitor to the HOME SCREEN before leaving the Operators Seat!

Manual Load

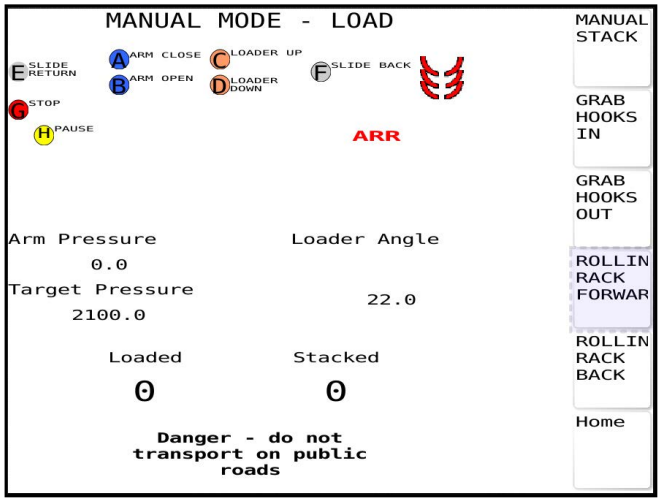
When the Manual Load screen is displayed, the operator can perform the following functions pressing the corresponding button on the monitor or on the joystick as indicated on the screen.

Functions will only operate when the user is pressing the corresponding button.

When the user releases the button, the function will stop.

Note: There is no sequencing in manual mode. When the user releases the button, the function will stop with exception of the Rolling Rack and the Grab Hooks.

Note: Crash avoidance is built into the monitor programming to aid operator in avoiding damage. If a function is selected that could potentially harm the machine, the monitor will disregard the command and a warning screen will be displayed. See "Trouble Shooting" for more information.



The functions on the Manual Load screen are those typically needed to pick bales up off the field:

Arms Close - Squeezes the alignment arms shut.

Arms Open - Opens the alignment arms.

Loader Up - Raises the loader.

Loader Down - Lowers the loader.

Slide Back - Pushes bales back down the bed.

Slide Return - Returns the slider to its home position.

Hooks In - Engages the grab hooks.

Hooks Out - Releases the grab hooks.

Rolling Rack Forward - Moves rolling rack forward and engages active rolling rack.

Rolling Rack Back - Moves rolling rack back and disengages active rolling rack.

From this screen the user can get to two other screens:

Home Screen Pressing the Home button

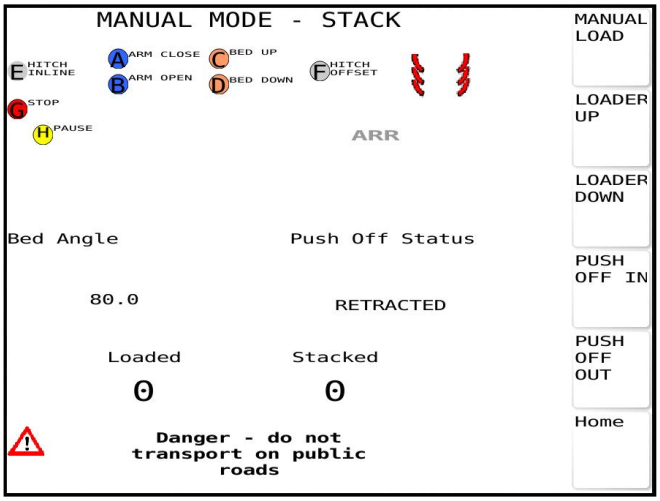
Manual Stack press Manual Stack soft key.

Manual Stack

When the Manual Stack screen is displayed, the operator can perform the following functions pressing the corresponding button on the monitor or on the joystick as indicated on the screen.

Functions will only operate when the user is pressing the corresponding button. When the user releases the button, the function will stop. There is no sequencing in manual mode.

Note: Crash avoidance is built into the monitor programming to aid operator in avoiding damage. If a function is selected that could potentially harm the machine, the monitor will disregard the command and a warning screen will be displayed. See "Trouble Shooting" for more information.



The functions on the Manual Stack screen are those used for stacking a full load of bales:

Arms Close - Squeezes the alignment arms shut.

Arms Open - Opens the alignment arms.

Bed Up - Raises the bed.

Bed Down - Lowers the bed

Loader Up - Raises the loader.

Loader Down - Lowers the loader.

Hitch Inline - Moves the hitch inline.

Hitch Offset - Moves the hitch offset.

Push-Off In - Retracts the pushoff.

Push-Off Out - Extends the pushoff.

From this screen the user can get to two other screens:

Home Screen Pressing the Home button

Manual Load press Manual Load soft key.

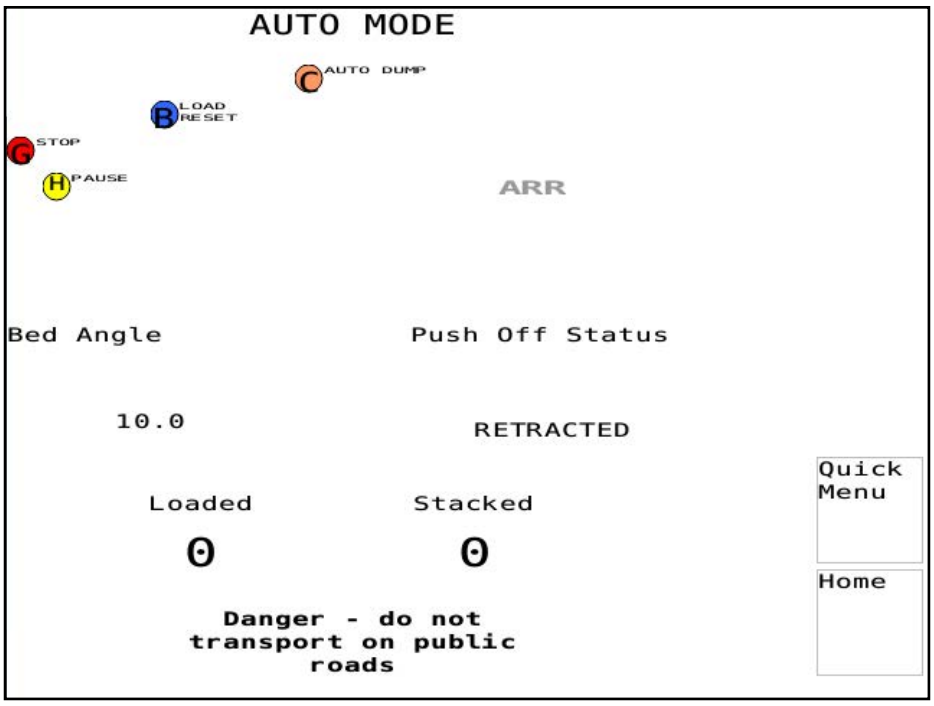
Automatic Mode

The ProAg Bale Titan is equipped with an Auto Mode. The Auto Mode combines Manual functions with automatic functions to complete bale picking and stacking sequences with less input from the operator. The function of each joystick button is indicatedon the screen.

Some buttons will initiate a sequence of events when pushed inconjunction with trigger. Functions will continue to operate after the user has released the joystick buttons.

⚠ Danger

Keep all persons clear of machine while operating. There are several functions this machine performs automatically. Unexpected movements can cause serious injury or death.



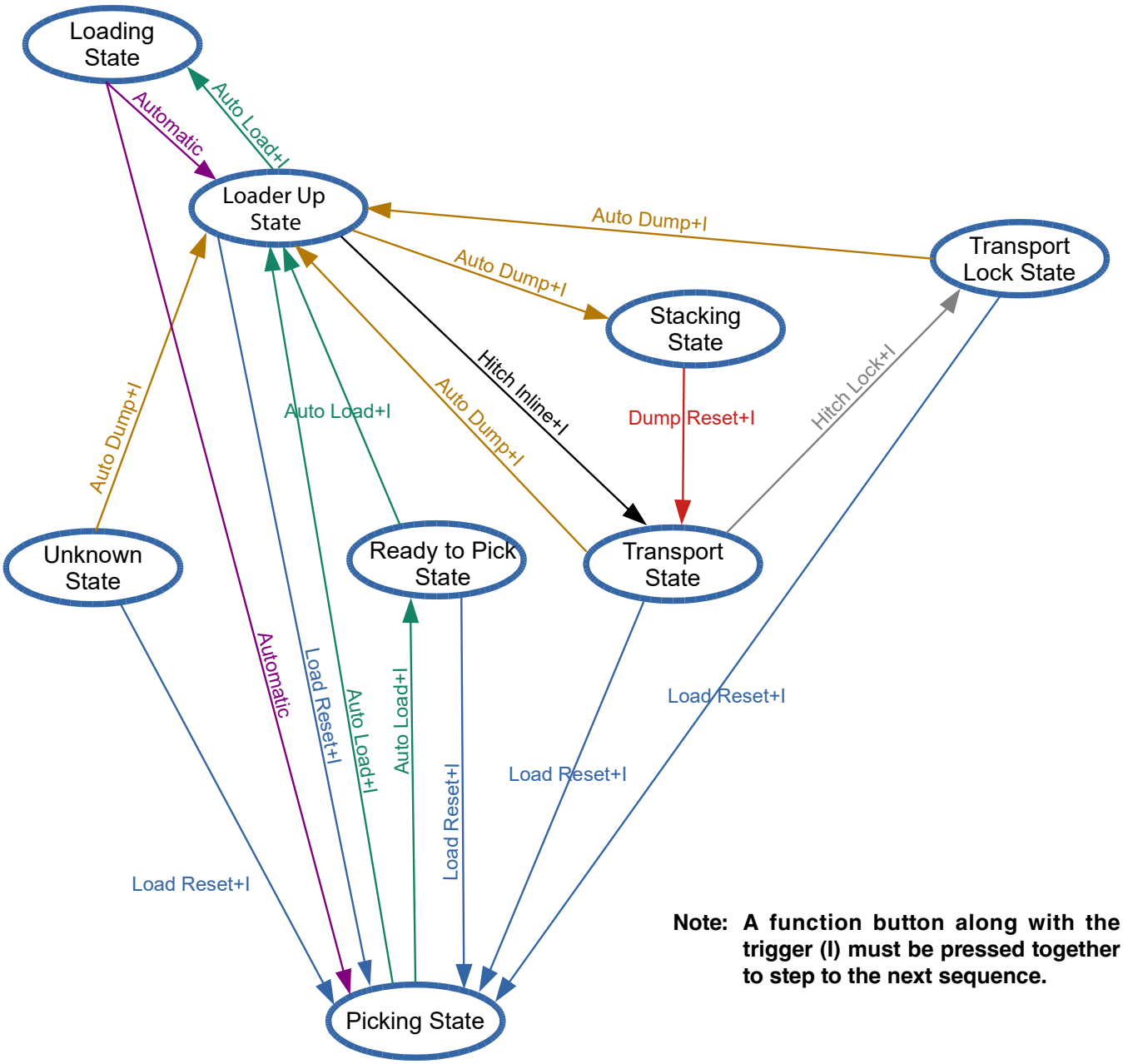
Note: Crash avoidance is built into the monitor programming to aid operator in avoiding damage. If a function is selected, by the operator or as part of a sequence, that could potentially harm the machine, the monitor will disregard the command. See "Trouble Shooting" for more information.

Automatic Mode - Continued

Operation

Auto Mode is accessible from the Home screen of the monitor using the soft keys on the right side of the screen labelled Auto Mode. Once the operator enters Auto Mode the machine will be in an “Unknown State”, using the chart below, the operator can choose different buttons depending on what they would like to do. If bales are currently loaded on the machine, the operator will be prompted if they would like to enable the Active Rolling Rack to help hold the bales.

Caution: Enabling the ARR could cause the Rolling Rack and Bales to move.



Note: A function button along with the trigger (I) must be pressed together to step to the next sequence.

Automatic Mode - Continued

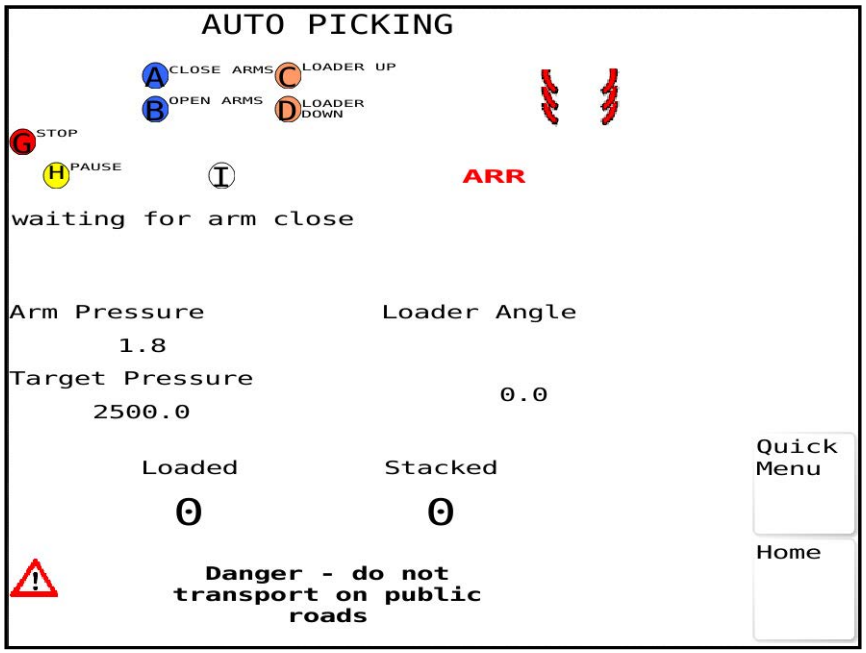
Picking Mode

From the Unknown State, the operator can enter the picking mode. By selecting Load Reset button (Button A) and the Trigger (Button I) the machine will automatically prepare itself for picking leaving the machine in the Picking State.

For example if Load Reset is initiated from the Transport Lock state, the machine will first raise the loader off the hitch, home and reset the Power Slide, offset the hitch, lower the loader, retract the grab hooks and drive the rolling rack to the front of the machine and initiate the Active Rolling Rack.

Picking First Bale

Once this sequence is complete the operator will have control of the arms and loader to manually grab or rotate the bale. Note: Joystick buttons labelled on screen and seen below.



Once the operator is certain that the bale is captured correctly, closing the arms and pulling the trigger will cause the arms to continue closing until squeeze pressure 1 is reached. The machine will automatically raise the loader to the ready to pick position and apply the grab hooks. Once this is complete the operator will have manual control of the arms and loader to aid in getting the second bale ready to pick.

Automatic Mode - Continued

Picking Mode - Continued

Picking the Second Bale (3x3 and bale bundles only)

When the operator is ready to pick the 2nd bale, the operator can use the joystick "Arms Open" button and pull the trigger. This will cause the machine to open the arms as long as the button is pressed and automatically lower the loader to the fully down position. Once the operator captures the bale, simply pull the trigger as they are closing the arms and the machine to automatically close the arms on the bales until squeeze pressure 2 is reached. Once this is complete, the machine will automatically raise the loader to the ready to pick height and conclude the automatic routine.

Picking the Second Bale (Third Bale 3x3 and Bale Bundles)

Once in the vicinity of the 2nd bale, the operator can select the arms open button and the trigger. This will cause the machine to open the arms while the button is held and automatically lower the loader to the down position.

Note: If the stepped pick mode is selected, the loader will lower to the Stepped Pick Position instead of fully down. At this time if needed, the operator can fine tune the step picked height through the Quick Access Menu. In the Quick Access Menu, simply select the Stepped Pick Angle, type in the desired angle and the machine will automatically drive to the desired position. This can be done repeatedly if needed.

Once the second bale is captured, the operator simply presses the Closed Arms buttons and pulls the trigger. This will cause the machine to drive the arms shut until squeeze pressure 2 (squeeze pressure 3 in 3x3 mode) is reached, once this is reached, the machine will automatically raise the loader fully, pull the grab hooks and drive the Power Slide to the Ready position. If Hillside mode is not selected, the machine will drive the alignment arms to the released position, drive the bales to the bed of the machine with the Power Slide and return the Power Slide home. If this is bales #11 and 12 in 3x4 mode (16,17, and 18 in 3x3 mode and 7 and 8 in 4x4 mode) the machine will stop there, close the alignment arms on the stack and leave the machine in the loader up state. If not, the loader will be fully lowered and machine will be placed back into the picking configuration ready to pick the next set of bales.

If Hillside mode is selected, the operator will need to press "Auto Load" and pull the trigger when the machine has been placed on level ground to complete this routine.

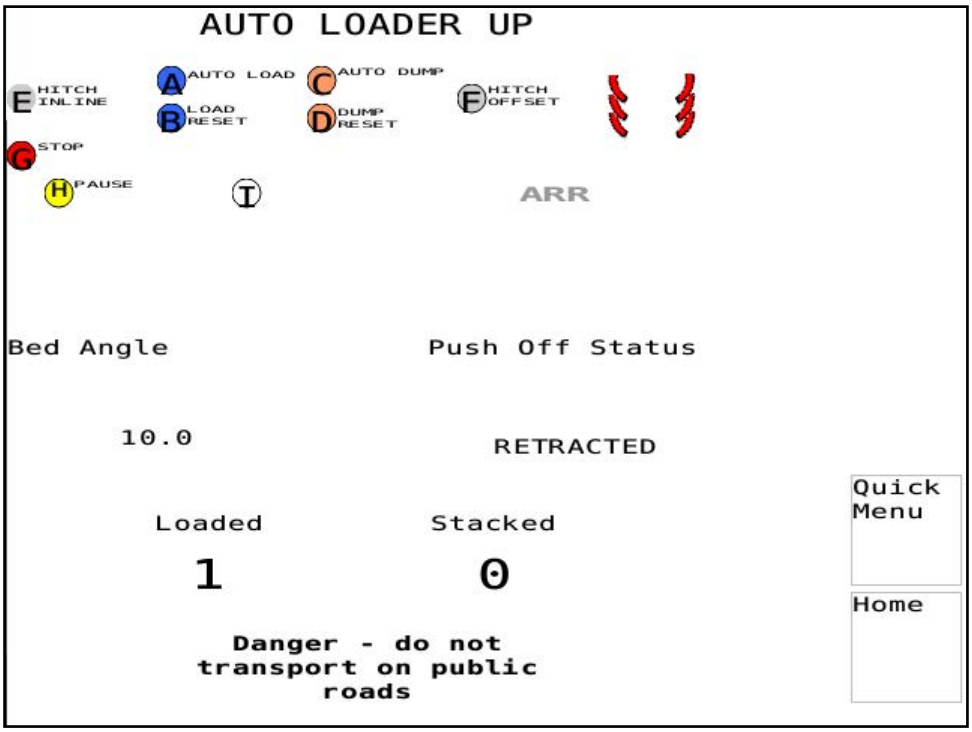
Automatic Mode - Continued

Loader Up State

If the operator chooses to enter the Loader up state from the “Unknown State” by pressing the “Auto Dump” button (Button C), the machine will transform to the loader up state. Depending how the machine was left prior to entering Auto Mode, functions that the machine does to transition into this state will vary.

For example, if the Auto Dump button is pressed and the machine is in the Transport lock state, the machine will raise the loader and leave the machine in this position. The power slide, rolling rack, hitch, and grab hooks will not be affected.

From the Loader Up State the Picking, Transport, Loading, and Stacking State can all be reached.



Note: In the loader up state, the operator has manual control of the hitch to allow maneuvering around obstacles in the field. The Hitch can be swung inline and offset using the Hitch Inline and Hitch Offset buttons (Button E and F respectively).

Automatic Mode - Continued

Loading State

The Loading State is used to move the bales off the loader to the bed of the machine. This state can be used when finishing up a field or creating a back stop.

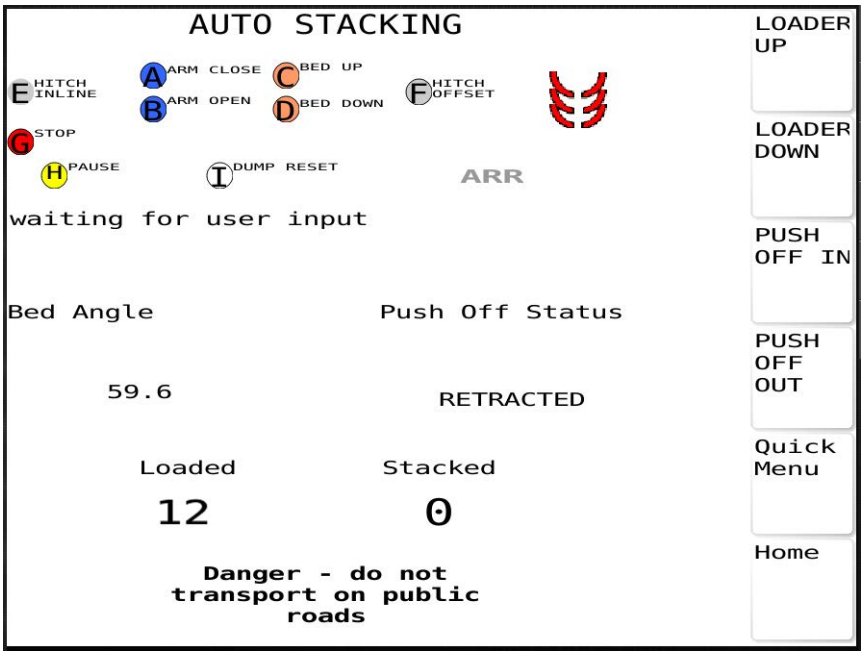
If the machine enters to Loader up state from the Picking state, press the Auto Load button and the trigger and the machine will complete the Loading Routine. This routine is started by bring the Power Slide to the ready position, pulling the grab hooks, opening the arms to the released position. The routine will continue by driving the power slide to the extend position pushing the bales off the loader and onto the bed. It will then return the power slide to the home position and leave the picker in the loader up state.

Stacking State

The Stacking State can be reached from the Loader Up State. Once the machine is in the Loader Up State, press the Auto Dump button (Button C) and pull the trigger. This will cause the machine to start raising the bed to the Bed Stop Angle.

Note: While the bed is automatically raising, the operator can control the position of the hitch using buttons E and F.

Note: While the machine is at the Bed Stop Angle, the operator can fine tune the Bed Stop Angle through the Quick Access Menu. In the Quick Access Menu, simply select the Bed Stop Angle, type in the desired angle and the machine will automatically drive to the desired position. This can be done repeatedly if needed. Do not exceed a bed stop angel of 65 degrees.



Once the machine is at the Bed Stop Angle, the operator can take complete control of the machine manually. The buttons for the different sequences can be seen in the screen layout above. All functions are press and hold, release to stop.

Note: The Push off will only be able to be extended once the bed is high enough that the push off will clear the bed cross members.

Automatic Mode - Continued

Dump Reset

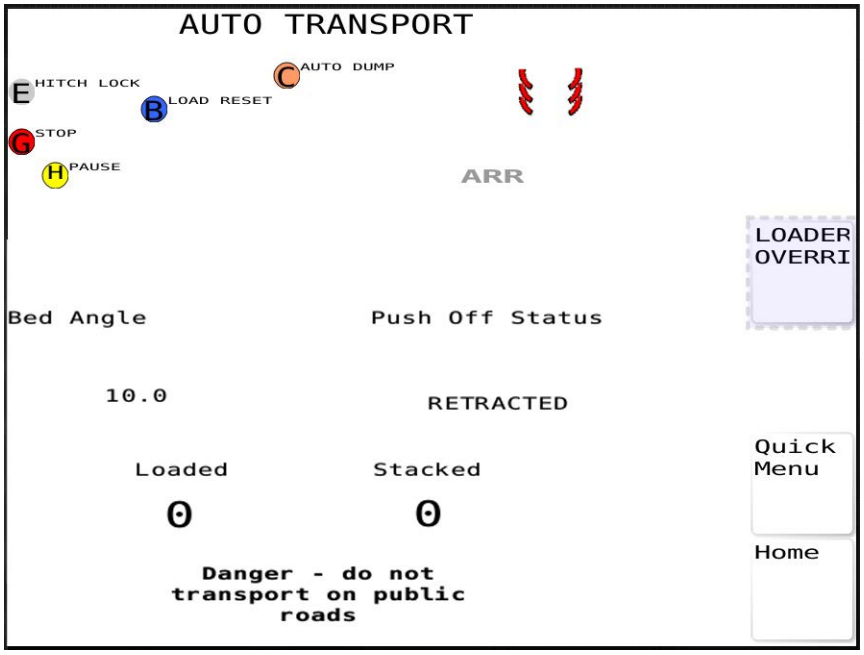
When the stacker is brought clear of the stack, push the bed down button and pull the trigger.

Note: This can be done with the push off extended, collision stops will prevent the machine from lowering the bed into the push off.

Pushing the bed down button and pulling the trigger will engage the Dump Reset sequence. In this sequence, the machine will first retract the push off if needed and start to lower the bed. When the machine gets to the bed mid point, it will raise the loader if needed and inline the hitch. After completing this, the machine will continue to lower the bed. When the bed is fully down, the machine will fully close the alignment arms leaving the machine in the Loader Up State.

Transport State

The Transport Sate can be reached from the Loader up state. When in the Loader Up State, simply press the Hitch inline button and pull the trigger. This will start the transport mode. When transitioning into transport mode, the machine will simultaneously inline the hitch and close the alignment arms. Once complete if the bales loaded count is equal to zero, the machine will drive the rolling rack to the rear of the machine completing the routine.

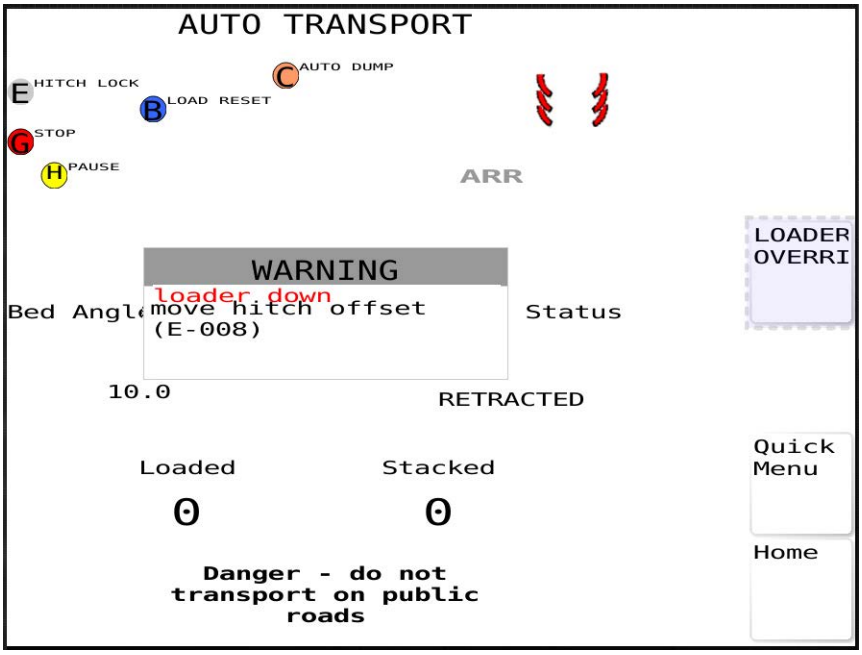


Automatic Mode - Continued

Transport Lock

The Transport Lock state is used for storing the machine and transporting an empty machine down a public road. Transport Lock is only accessible through the Transport State. To engage the transport lock mode, press and **hold** the Hitch Inline Button and the trigger. The machine will cycle the power slide on top of the Loader to the extended position. Once the Power Slide is at this position, a safety warning will appear on the screen this must be overridden. Overriding the collision safety is done by continuing to hold the Hitch Inline button, the Trigger and pressing the "OVERRIDE" button on the screen. This will cause the loader to start lowering at the minimum duty cycle of the loader function. Keep holding the three buttons until the loader lowers onto the loader stand on the hitch of the machine. Releasing any of the three buttons will cause this to stop.

Note: The machine WILL NOT STOP automatically when the loader touches the hitch. This needs to be done by the operator.

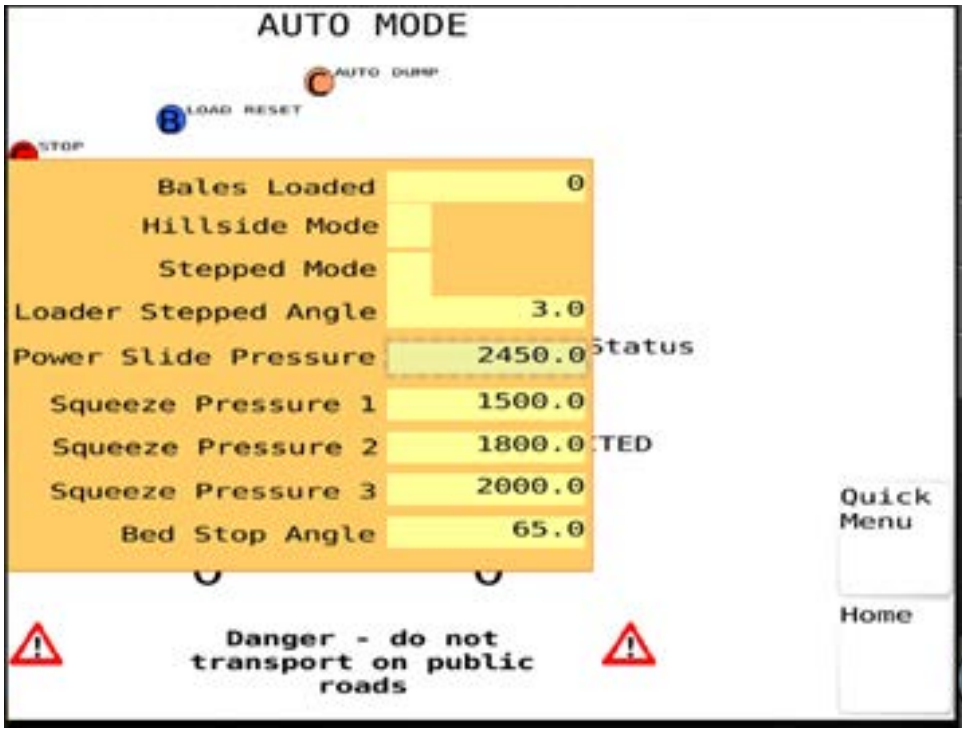


Note: Before transporting on public roadways. Press the stop button to exit auto mode to prevent unwanted or accidental movement of the machine. Only transport the machine in the home screen.

Automatic Mode - Continued

Quick Menu (QM)

The Quick Menu is accessible from any of the Screens in Auto Mode. Press the Quick Menu from soft keys on the right-hand side of the screen to open the menu and again to close the menu.



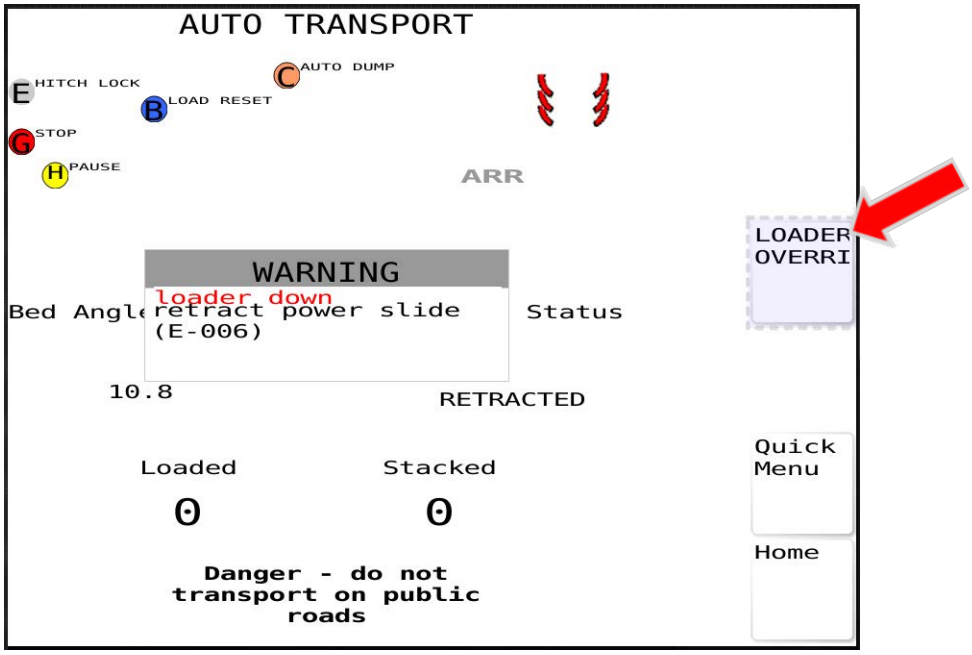
In the Quick Menu, features like Hillside Mode and Stepped Pick Mode can be enabled by selecting the check box to the right of the corresponding title. The rest of the features like Bales Loaded and Power Slide Pressure can be adjusted by selecting the box to the right of the corresponding tittle. When selected a number pad will come up and an adjustment can be made. The quick access menu can be accessed anytime in Auto Mode and auto mode can continue to run with the menu open. Select the Quick Menu button on the righthand side again to close.

Error Messages

All error messages on screen will be displayed with an error number in the bottom right hand corner. A list of these error message, definitions and probable causes/fixes for these messages can be seen in “Error List and common Remedies” in the Trouble Shooting Section.

Offset Hitch Error:

Note: This error message will be the only one with a soft key displayed in it. The override function will be grayed out unless the hitch is fully inline. This function will be used while transitioning into the Transport Lock State.



Lube Minder Programing

The Lube Minder runs automatically for a set number of cycles based on a bale counter in automatic mode. The user will be able to adjust the frequency that the Lube Minder cycles through the Calibration Screen under a tab labelled Lube Minder. The frequency of the Lube Minder will be determined by the number of bales that are loaded on the machine and will run automatically once that number of bales is loaded. The frequency of this operation will be adjustable from 24-960 bales through a drop-down menu in the Lube Minder Calibration screen. The duration of the cycle is hard set at 4 cycles and will be based off of the number of pulses received back from the proximity switch on the primary distribution block of the Lube Minder. The system takes approximately 30 seconds to cycle the primary block and trip the proximity switch once. An overridable alarm will trip to inform the user if a cycle of the proximity switch is not seen within 2.5 minutes of run time. At this point the Lube Minder will be shut down and attempt to cycle at the next bale count.

Lube Minder Manual Cycle

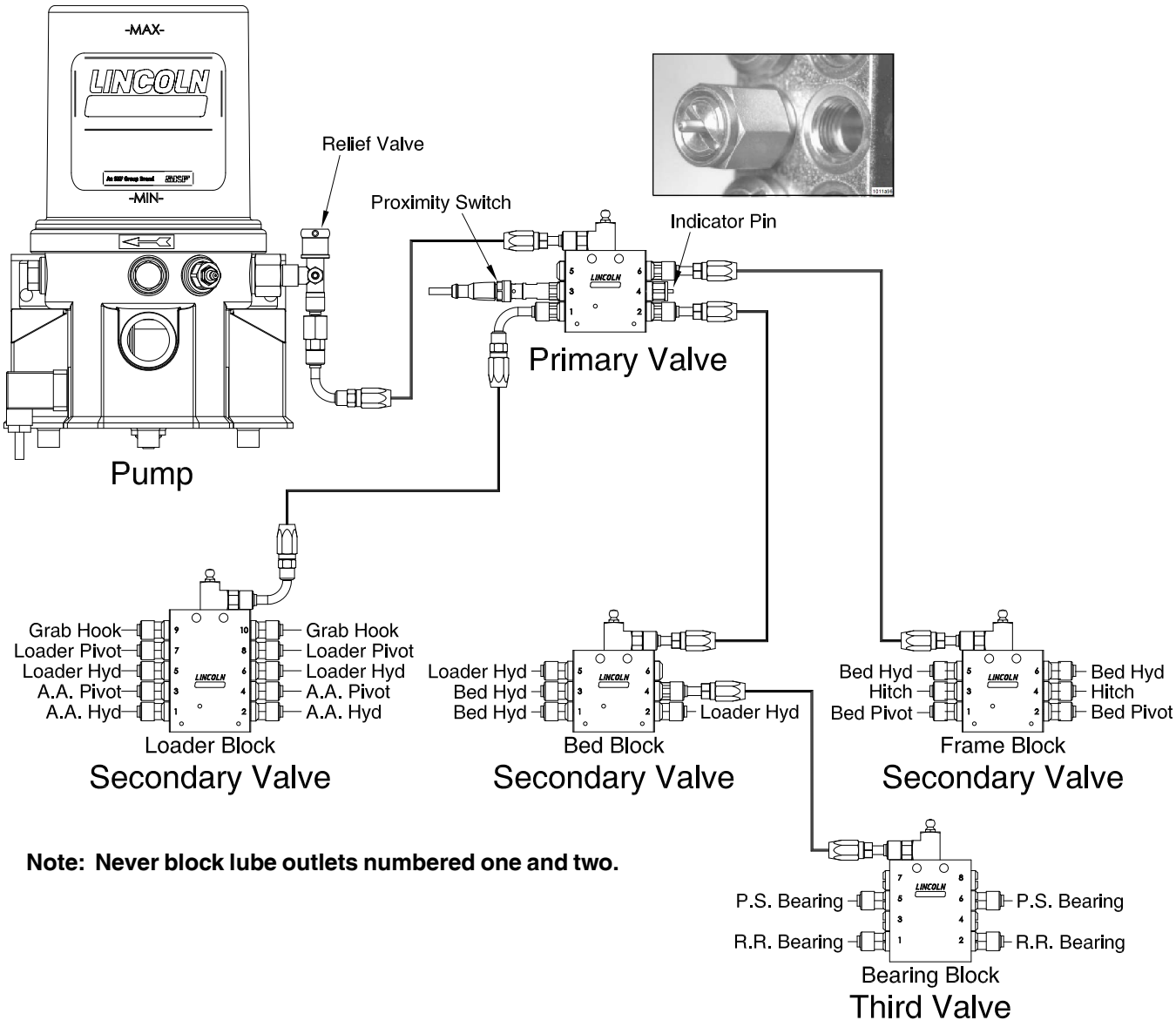
Lube Minder Manual cycle will allow the operator to select “Manual Cycle” in the Calibration Menu. A manual cycle will force the greaser to complete one cycle as described above. Selecting Manual cycle in the calibration menu will reset to bale counter to zero.

Lincoln Quicklub System

System Operation

The key components of the Quicklub system are:

1. Pump controlled by Lube Minder programming.
2. Divider valve network consisting of a Primary Valve with a Cycle Indicator Pin, Secondary Valves and a Third Valve.
3. A lubrication event is initiated by actuating the pump via the monitor programming based on a preset “pause time” or time between lubrication events.
4. The Pump dispenses lubricant to the primary divider valve.
5. The Primary Valve distributes the lubricant to the secondary valves.
6. The Secondary Valves distribute and dispense lubricant to the lubrication points and to the Bearing Block.
7. Lubricant flow through the divider valves actuates the Cycle Indicator Pin for a visual inspection of proper operation. The pump will run for the preset number of cycles.
8. The controller now begins countdown for the next lubrication event.



Note: Never block lube outlets numbered one and two.

Lincoln Quicklub System - Continued

Divider Valve Operation

At the heart of the Quicklub System is the metering valve or progressive distributor block, designed to positively meter the input of lubricant (up to NLGI #2 greases) out to the connected number of lubrication points irrespective of distance and back pressure. The inlet passageway is connected to all piston chambers at all times with only one piston free to move at any one time.

- With all pistons at the far right, lubricant from the inlet flows against the right end of piston A (fig. 1).
- Lubricant flow shifts piston A from right to left, dispensing piston A output through connecting passages to outlet 2. Piston A shift directs flow against right side of piston B (fig. 2).
- Lubricant flow shifts piston B from right to left, dispensing piston B output through valve ports of piston A and through outlet 7 (fig. 3).
- Lubricant flow shifts piston C from right to left dispensing piston C output through valve ports of piston B and through outlet 5.
- Piston C shift directs lubricant flow against right side of piston D (not illus.)
- Lubricant flow shifts piston D from right to left, dispensing piston D output through valve ports of piston C and through outlet 3.
- Piston D shift directs lubricant through connecting passage to the left side of piston A (fig. 4).
- Lubricant flow against left side of piston A begins the second half cycle which shifts pistons from left to right, dispensing lubricant through outlets 1, 8, 6 and 4 of the divider valve.

Figure 1

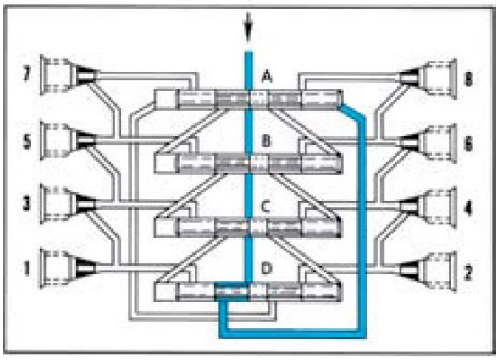


Figure 2

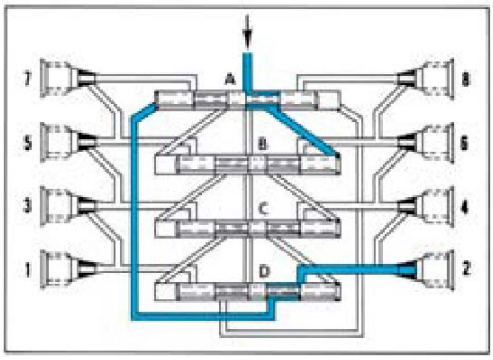


Figure 3

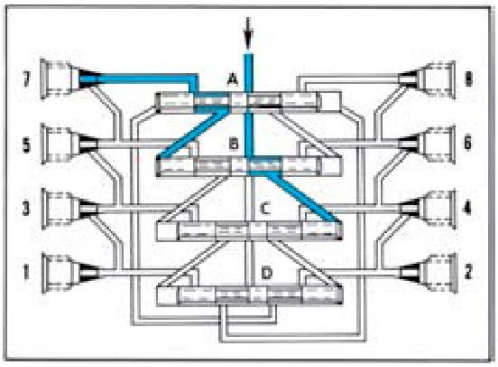
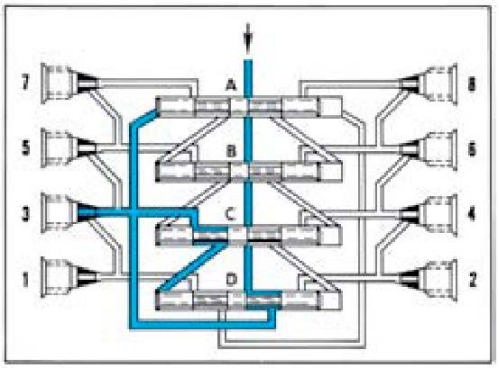


Figure 4



Lincoln Quicklub System - Continued

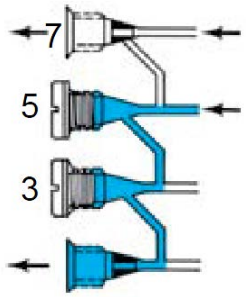
Cross-porting (Divider Valve)

Installing a closure plug in one or more outlets may combine outputs from adjacent outlets. Lubricant from a plugged outlet is redirected to the next adjacent outlet in descending numerical order.

Note: Outlets 1 and 2 must not be plugged since they have no cross-port passage to the next adjacent outlet.

In figure 5 outlets 5 and 3 are cross-ported and directed through outlet 1. In this example, outlet 1 will dispense three times as much lubricant as outlet 7. The tube ferrules in outlets 1 and 7 block the cross-port passage so that lubricant flow is directed through the outlets.

Figure 5



- Use a quality lithium based grease (up to NLGI #2) in the Quicklub System.

Note: Moly based grease is not recommended for use in the Quicklub system. If moly based greases are used plugging and failure of the Quicklub could occur.

Here is a list of Lincoln Videos explaining the operation and servicing of the system:

Lincoln Automatic Lubrication for Agriculture Equipment
https://www.youtube.com/watch?v=uoxBAL7eUOE

Quicklub Push
https://www.youtube.com/watch?v=68uLgOsQCTY

Lincoln SSV Divider Valves - How do they work?
https://www.youtube.com/watch?v=8UwNENN36vY

Lincoln Industrial ALS pump filling options
https://www.youtube.com/watch?v=yOBC8REjwNE

P203 Pumping element - Troubleshoot and replacement procedure
https://www.youtube.com/watch?v=-8lE96yKzEo

Lincoln SSV Divider Valves - Fittings and Accessories
https://www.youtube.com/watch?v=noLySw3Ghh0

Section 6: Maintenance

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CAUTION

BE ALERT

SAFETY FIRST

REFER TO SECTION 1 AND REVIEW ALL SAFETY RECOMMENDATIONS.

General

This section deals with two goals, maximum life and dependable operation. Adopt a regular maintenance and lubrication program. Care and sufficient lubrication is the best insurance against delays.

Safety

- Always shut off the tractor and remove key before dismounting.
- Guard against hydraulic high pressure leaks with hand and face protection.
- Never work under the implement unless it is in the down position or securely blocked in place. Do not depend on the hydraulic system to support the frame.

Warning

Securely support any machine elements that must be raised for service work.

Caution

Keep service area clean and dry. Wet or oily floors are slippery.

Tighten Bolts

- Before operating the unit.
- After the first two hours of operation.
- Check tightness periodically thereafter.
- Use Bolt Torque Chart on page 6-16 for correct values on various bolts.
- Note dashes on hex heads to determine correct grade.

Note: DO NOT use the values in the Bolt Torque Chart if a different torque value or tightening procedure is given for a specific application.

- Fasteners should be replaced with the same or higher grade. If higher grade is used, only tighten to the strength of the original.

Tires

- Inspect tires and wheels daily for tread wear, side wall abrasions, damaged rims or missing lug bolts and nuts. Replace if necessary.
- Tighten the M22 wheel bolts to 400 lb-ft (542 Nm)
- Check tire pressure daily, when tires are cold. Tire pressures for specific tires are listed in the “Machine Specification” section at the front of this manual.
- Correct tire pressure is important.
- Do not inflate tire above the recommended pressure.

⚠ Warning

Re-torque all wheel lug nuts after first 10 hours of operation, 50 hours of operation. Check periodically afterwards.

⚠ Caution

Tire replacement should be done by trained personnel using the proper equipment.

Preventative Maintenance

Before operating your Bale TITAN RXR carefully inspect the entire machine, and its components for any sign of excessive wear or weakness. Always follow the Daily Maintenance, General Maintenance, and Year End Maintenance Checklists to allow for early detection of possible hazards.

WARNING: Always wear eye protection and proper protective clothing while performing maintenance on the Bale TITAN RXR. Protective clothing includes but is not limited to; heavy pants and shirt, steel toed boots, and gloves.

WARNING: When working with hydraulic fluid you should wear rubber gloves to prevent oil from getting in cuts and scratches in your skin and causing infections or allergic reactions.

Hydraulic System Preventative Maintenance

DANGER: Remember to turn off hydraulic system and tractor and remove key from ignition before servicing the Bale TITAN RXR. The Bed and Loader should be lowered to their lowest position or securely blocked in position.

- Maintain tractor hydraulic system and fluid according to manufacturers specifications. Always use a good quality hydraulic fluid.
- Check the fluid level in the tractor with the bed and loader cylinders retracted.

WARNING: Hydraulic fluid escaping under pressure can easily penetrate skin. Openings in the skin and minor cuts are susceptible to infection from hydraulic fluid. If injured by escaping hydraulic fluid, see a doctor at once. Without immediate medical treatment, serious infection and allergic reaction can occur.

- Check for chaffing or kinking of the hydraulic hoses, these are a source of leaks in hoses.
- Check hoses and cylinders for leaks and repair as necessary. *Remember* that hydraulic fluid escaping under pressure can penetrate human skin. Use a piece of cardboard or wood to look for a suspected high pressure leak.
- Replace all hoses or hydraulic components that show any sign of wear, cracks,leaking, etc.

Hydraulic Pressure Relief

IMPORTANT! RELIEVING HYDRAULIC PRESSURE FROM LINES

Repairs to hoses and cylinders will usually require disconnecting a fitting connection. Fittings should not be disconnected until the pressure in the hydraulic circuit has been relieved. Follow this procedure to relieve pressure in the hydraulic lines.

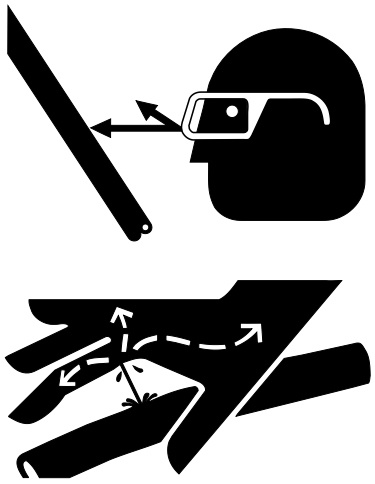
WARNING: Hydraulic fluid escaping under pressure can easily penetrate skin. Openings in the skin and minor cuts are susceptible to infection from hydraulic fluid. If injured by escaping hydraulic fluid, see a doctor at once. Without immediate medical treatment, serious infection and allergic reaction can occur.

WARNING: Always wear eye protection and proper protective clothing while performing maintenance on the Bale TITAN RXR. Protective clothing includes but is not limited to; heavy pants and shirt, steel toed boots, and gloves.

WARNING: When working with hydraulic fluid you should wear rubber gloves to prevent oil from getting in cuts and scratches in your skin and causing infections or allergic reactions.

WARNING: Be sure the loader is resting on the hitch or lowered to its lowest position. When the fluid is released from the system it will allow any part to lower uncontrollably to its lowest position.

1. Park the tractor and Bale TITAN RXR on level ground, place the transmission in park, set the parking brake, turn off the tractor, and remove the key. When the tractor is off, move each of the hydraulic levers forward and back approximately four times.
2. Uncouple the hoses from the tractor. Slowly unscrew the male hydraulic tips on the ends of the stacker hydraulic hoses, turning them 1/8th of a turn at a time watching for oil to start leaking out.
3. Use a bucket to catch leaking hydraulic fluid.
4. Crack the hydraulic lines to the loader cylinders as they can have oil under pressure caught by the load check valve.
5. Crack the hydraulic lines to the hitch cylinder as it can have oil under pressure caught by the line lock valve.



Warning

HIGH-PRESSURE FLUID HAZARD

To prevent serious injury or death:

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

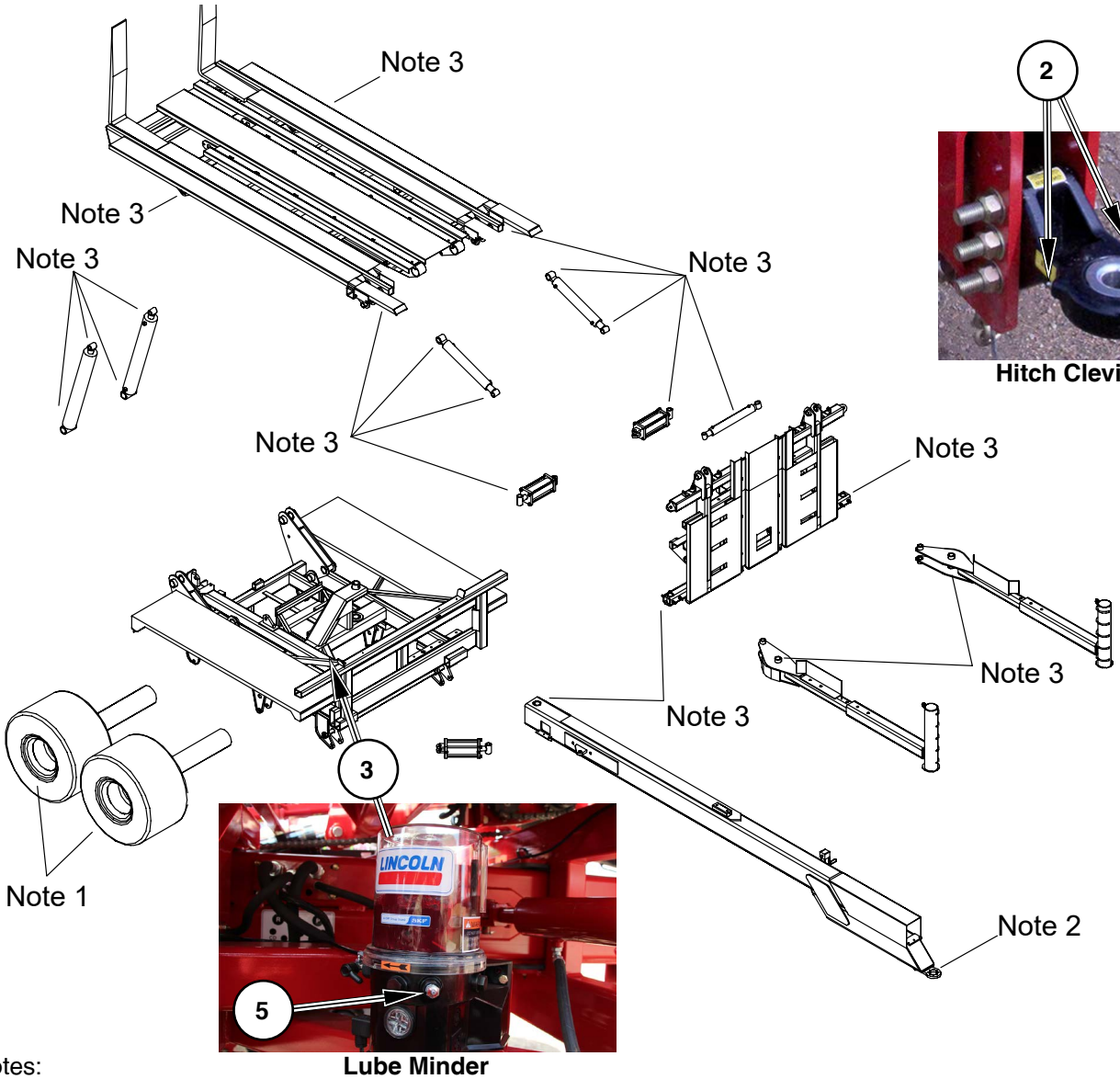
Daily Maintenance

WARNING: Torque all wheel lug nuts after the first 10 hours of use, 50 hours of use and periodically afterwards.

Daily Check

☐ **Lubricate**	Lubricate all grease points with a good grade of all-purpose **lithium based grease**.. See “Lubrication” section for location of grease zerks.
☐ **Hitch Connection**	Check the Draw Pin that connects the stacker to the tractor drawbar. Ensure pin is secured with a retaining pin. Check drawbar and hammer strap for any missing or loose bolts or pins, replace or tighten as necessary.
☐ **Inspect Pins**	Check to make sure all pins and bolts are secure in their proper places. Inspect the pivot pins for wear and replace as necessary.
☐ **Inspect Plastic**	Check all plastic wear plates for wear or breakage. See section in general maintenance.
☐ **Inspect Hydraulics**	Inspect all hydraulic hoses, fittings, and couplings for signs of wear and fix as necessary. Check hydraulic fluid in tractor and general hydraulic system as outlined above.
☐ **Clean**	Keep the Bale TITAN RXR clean and free from mud and dirt, especially around hydraulic cylinder rods and moving parts.
☐ **Axle Bearings**	Grease every 50 hours.
☐ **Wheel Lug Nuts**	Examine the wheel lug nuts making sure all are tight and none are missing. M22 - 400 lb-ft (542 Nm)
☐ **Tire Air Pressure**	Check air pressure in tires. Tire pressures for specific tires are listed in the “Machine Specification” section at the front of this manual.
☐ **Wiring Harness**	Make sure wires are not rubbing on sharp metal objects etc.
☐ **Lighting**	Check to be sure all lights (brake, turn and clearance) are intact and functioning properly.
☐ **Brakes**	Check brakes for adjustment periodically.
☐ **Sensors**	Wipe off dust and metal from all ferrous metal sensors. Check that sensors are not loose. Use thread lock on magnetic headed bolts.

Lubrication Points



Hitch Clevis

Lube Minder

Notes:

1. Change grease in hub bearings every 3000 hours with a good grade of **lithium based grease** (NLGI #2). See "Wheel Bearing Adjustment" for more details.
2. 10 hour grease points.
3. Lube Minder - adjustable between 24 - 960 bales
4. Grab hooks have no grease zerks. See grab hook assembly for location of plastic bushings.
5. Fill Quicklub system with good quality lithium based grease (NLGI #2) **Note: Moly based grease is not recommended for use in the Quicklub system. If moly based greases are used plugging and failure of the Quicklub could occur.**

Lubricants

Hydraulic oil.....High quality that meets or exceeds tractor specifications

Grease.....Use a good grade of **lithium based grease** (NLGI #2)

Bale slide surface ..... Dry film graphite lubricant (Slip-Plate®)

General Maintenance

General Check

- Lug nuts should be tightened to 400 lb-ft (542 Nm)
- Bolts in axle suspension system should be tightened to the values on decal 10774 shown below.

Important: Check suspension components and torque U-Bolts and Bolts to specifications as follows after first 10 hours of use, 50 hours of use and periodically afterwards.

⚠WARNING

FOLLOW ALL TORQUE REQUIREMENTS. FAILURE TO PROPERLY TORQUE FASTENERS COULD LEAD TO LOSS OF VEHICLE CONTROL AND RESULT IN SERIOUS INJURY OR DEATH

Install all new fasteners with clean lubricated threads using Lubricated/Coated torque values below. Coated fasteners are considered lubricated. For fasteners that have been in service, use Dry torque values. Check all fasteners regularly to maintain proper torque levels.

Size	Application	Lubricated/Coated	Dry
1 1/8"	Rocker Bolts	590-708 lb-ft	790-948 lb-ft
1"	9700 Radius Rod Bolts	540-648 lb-ft	720-864 lb-ft
7/8"	U-Bolts and 9600 Radius Rod Bolts	350-420 lb-ft	470-564 lb-ft
3/4"	U-Bolts	310-340 lb-ft	420-460 lb-ft
5/8"	Radius Rod Clamp Bolts	130-156 lb-ft	170-204 lb-ft
5/8"	Spring Retainer Bolts	35-42 lb-ft	50-60 lb-ft
5/8"	Pin Cage Bolts	180-216 lb-ft	240-288 lb-ft
1/2"	Hold Down Clip Bolts	65-78 lb-ft	85-102 lb-ft

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Toll Free 1-800-654-8824

9700/9600 Suspensions and Sliders
Decal P/N 16086-01 Rev K

- Alignment Arm Chains should be kept tight to prevent cracking of the Loader. Check the chain tightness by visually inspecting the chains when the Loader is fully raised. The chains should have little or no slack.

To tighten Alignment Arm Chains

1. Lower loader fully.
2. Jack up the ends of the Alignment Arms and block them in place. This should create the most slack in the chain.
3. Release the safety latch and unhook the grab hook. Determine the link that would eliminate the most slack in the chain.
4. Remove the double clevis pin in the end of the chain, hook the grab hook on the desired link, and re-lock the safety latch.
5. Re-install the pin on the double clevis on the end of the chain through the pad eye on the Alignment Arm.

- Check all plastic wear surfaces used in the machine. These parts are located at the Hitch pivot point, between the Hitch and the Frame, at the Alignment Arm pivots, and in the Grab Hook pivots.
- Periodically check all bolts. Use grade eight bolts for replacements. A torque chart is provided on page 6-16.

Cylinder Repair

The diagnosis and repair of the hydraulic cylinders on the Bale TITAN RXR should only be attempted by a qualified service technician familiar with this type of repair.

Brake Maintenance

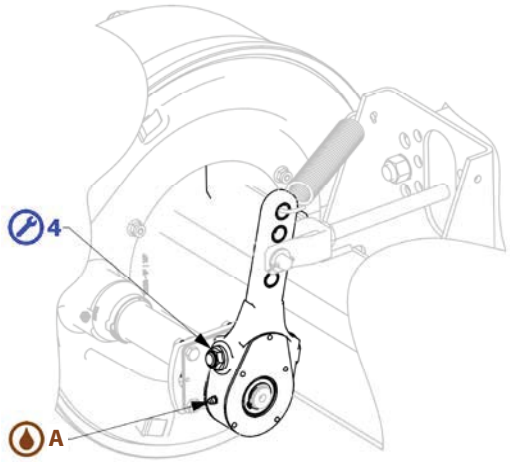
4. Brake lever stroke check and any adjustments

Every 500 working hours (or every 8500km travelled).

Make sure the brake cylinder rods do not exceed, with full brake,

1.5748” - 1.7716” (40 mm - 45 mm)

Stroke must be adjusted using the register screw indicated in the illustration, rotating it with a wrench until it stops at the brake block contact with the drum. The register screw has a jack, thus from the end stroke position, loosen the register screw about 2 clicks and make sure the stroke corresponds to the instruction when adjusted.

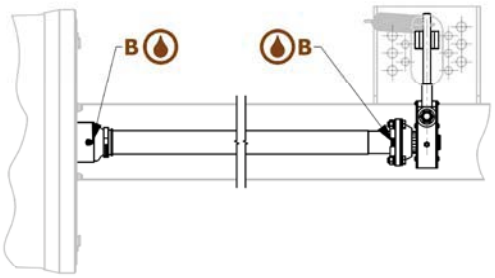


A. Lubrication.

Every 500 working hours (or every 8500km travelled).

Lubricate the registration mechanism with ADR Lithogrease 3 grease through the grease point indicated in the illustration.

Repeat the operation even after each vehicle wash with high pressure equipment.



B. Brake cam support lubrication.

Every 500 working hours (or every 8500 km travelled) and before starting after a long period of disuse.

Lubricate the points indicated in the illustration with lithium based grease. Lubricate the supports so that new grease leaks from the housings.

Grease and oil penetration in the brake is not admitted.

Repeat the operation after each vehicle wash with high pressure equipment.

Brake Maintenance - Continued

FF2 Full Function Valve Fitting General Installation Guidelines

1. Dependent on sealant type, the basic guidelines for FF2 pipe fitting installation is finger tight, plus one or two turns **maximum**. Sealant is the variable with the greatest effect on fitting installation. Characteristics of different sealants are as follows:

   Teflon Pipe Sealant

   Teflon pipe sealant acts as a lubricant. Fittings go in farther with the same torque. They may not have to go a full turn past finger tight to seal.

   Fittings Without Sealant

   Fittings without sealant will seal adequately in plastic ports. They arrive at finger tight in less turns than lubricated fittings. Unlike lubricated fittings, fittings without sealant require more turns past finger tight to achieve a seal, typically one or two turns.

   Fittings With Dry Sealant

   Fittings with dry sealant become finger tight in less turns than fittings without sealant. The dry sealant increases the fitting size so it starts tightening sooner. As the fitting is wrench tightened the sealant compresses, Having variable effects on turns required to seal. Sealing still requires one to two turns past finger tight, but more attentions must be paid to fitting torque.

2. Start fittings straight to prevent crossed threads. Fittings should be started by hand for at least one turn before use of wrenches.
3. Dry sealant must be applied properly. If dry sealant is applied to the first thread of a fitting, it will be hard to start the fitting straight.
4. Any pipe fitting or sealant can be used in the installation of the FF2 Full Function Valve. The consistent use of one type of sealant will help you install fittings successfully.
5. The use of teflon tape on a regular basis is not recommended. Bits of tape break off during installation.
6. When the last thread or hex of a fitting is flush with the surface, the fitting has been installed past the point required to seal. **Do not install the fitting farther!**

Max Torque (in-lbs)

1/4”NPTF - 120

3/8”NPTF - 180

Wheel Bearing Adjustment

After the first 200 hours or after the first season.

Afterwards every 1500 hours.

Make sure the wheel bearings do not rock.

This check is performed by lifting the axle with a jack until the wheel is off the ground and rotates freely.

Note: Ensure to block unit securely.

Insert a lever between the ground and tire and force the wheel up to find any gaps.

Bearing gap adjustment:

- Remove the flanged hub cap removing the 6 screws.
- Remove the elastic stop pin on the rack nut.
- Tighten the rack nut while simultaneously rotating the wheel until the hub is slightly braked.
- Rotate the rack nut until a slot with the hole on the spindle is found and insert the elastic pin. Make sure the hub rotates manually with modest resistance.
- Top up with a good grade of **lithium based grease** (NLGI #2) on the visual part of the bearing and reassemble the hub cap being careful that its seal gasket is integral. If damaged, replace the gasket with an ADR original spare part.
- Reassemble the hub cap and tighten the 6 screws.

Electrical Maintenance

Electrical components on the Bale TITAN RXR do not need regular maintenance unless wires or cable are worn or broken. This section briefly outlines the function of the electrical systems and gives some basic guidelines for maintenance and repair.

Basic Maintenance and Notes

- Always check the wires for wear from rubbing on different components. When wear is detected, move the wires or shield them.
- When troubleshooting, always check the wires for good connections.
- Use the Electrical Diagrams to rebuild wires if needed.

Year End Maintenance

Storage

- Park Bale TITAN RXR on level ground.
- Place Hitch in the “in-line” position.
- Set Loader on the Hitch Lock.
- Relieve pressure in lines to prevent “thermal” lock.

WARNING: Keep children away from the stored Bale TITAN RXR. Many of the surfaces on the machine are slippery and injuries may result from climbing on or around machine.

CAUTION: Keep livestock away from machine so they will not injure themselves or damage the machine.

Preventative Maintenance

- Touch up any scratches or flaking paint.
- Manually cycle lube system 3 times to ensure all lube points are greased. This can be done from the Calibration menu.
- Cover tires to prevent sun damage.

CAUTION: Direct sunlight will cause tires and hoses to deteriorate more quickly.

WARNING

FOLLOW ALL TORQUE REQUIREMENTS. FAILURE TO PROPERLY TORQUE FASTENERS COULD LEAD TO LOSS OF VEHICLE CONTROL AND RESULT IN SERIOUS INJURY OR DEATH

Install all new fasteners with clean lubricated threads using Lubricated/Coated torque values below. Coated fasteners are considered lubricated. For fasteners that have been in service, use Dry torque values. Check all fasteners regularly to maintain proper torque levels.

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1”	9700 Radius Rod Bolts	540-648 lb-ft	720-864 lb-ft
7/8”	U-Bolts and 9600 Radius Rod Bolts	350-420 lb-ft	470-564 lb-ft
3/4”	U-Bolts	310-340 lb-ft	420-460 lb-ft
5/8”	Radius Rod Clamp Bolts	130-156 lb-ft	170-204 lb-ft
5/8”	Spring Retainer Bolts	35-42 lb-ft	50-60 lb-ft
5/8”	Pin Cage Bolts	180-216 lb-ft	240-288 lb-ft
1/2”	Hold Down Clip Bolts	65-78 lb-ft	85-102 lb-ft

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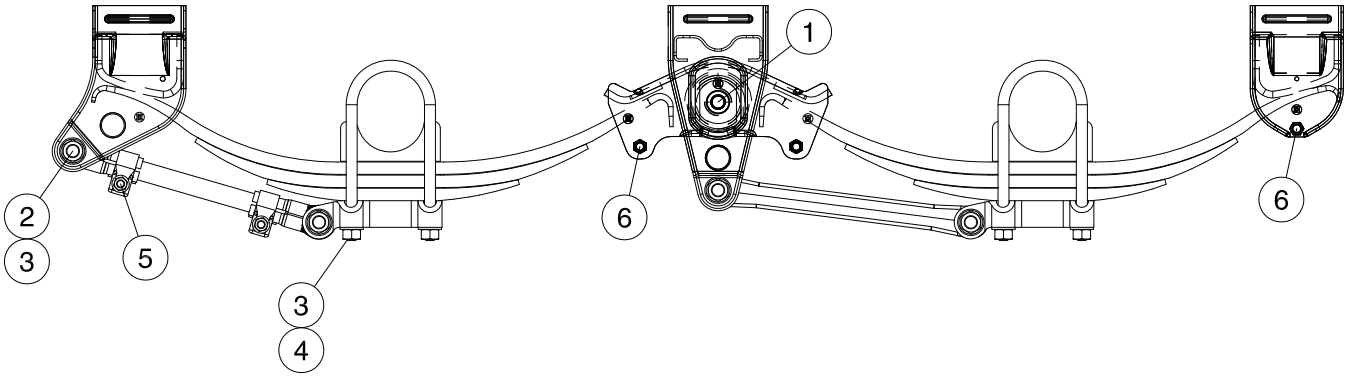
Suspension Maintenance

The Bale TITAN RXR uses a Hutchens Industries trailer suspension similar to below.

For detailed information visit Hutchens website resource centre at www.hutchensindustries.com.

Suspension used is H-9700 underslung with 49” centers and 6 1/2” spring seat height with 5” round axles.

Important: Check suspension components and torque U-Bolts and Bolts to specifications as follows after first 10 hours of use, 50 hours of use and periodically afterwards.

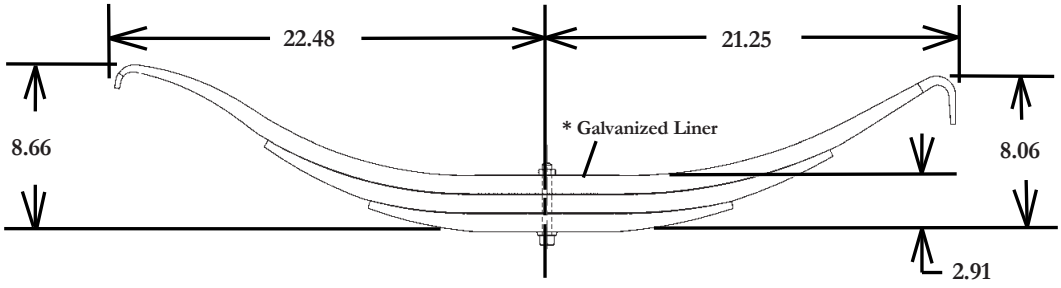


Torque Specifications

Item No.	Fastener	Oiled	Dry
1	1 1/8-7 (9600/9700 Rocker Bolt)	590 Lb-Ft	790 Lb-Ft
2	1-14 (9700 Radius Rod Bolt)	540 Lb-Ft	720 Lb-Ft
3	7/8-14 (Axle U-Bolt & 9600 Radius Rod Bolt)	350 Lb-Ft	470 Lb-Ft
4	3/4-16 (Axle U-Bolt)	310 Lb-Ft	420 Lb-Ft
5	5/8-18 (Radius Rod Clamp Bolt)	130 Lb-Ft	170 Lb-Ft
6	5/8-18 (Spring Retainer Bolt)	35 Lb-Ft	50 Lb-Ft

K68400 - 365-00 Spring Leaf Pack - High Arch, 3 Leaf

49” Axle Center All Positions. Hook to Rear.



Suspension Maintenance - Continued

Check suspension components and torque bolts to specifications as follows after first 10 hours of use, 50 hours of use and periodically afterwards.

Axle U-Bolt Installation

To ensure the proper installation of all U-Bolt connections assembled in production, the following practices will be observed. (This applies to U-Bolts that are installed in groups of two (four legs/nuts) to attach axles to the springs.)

Note: Always install one of the supplied washers directly under each nut.

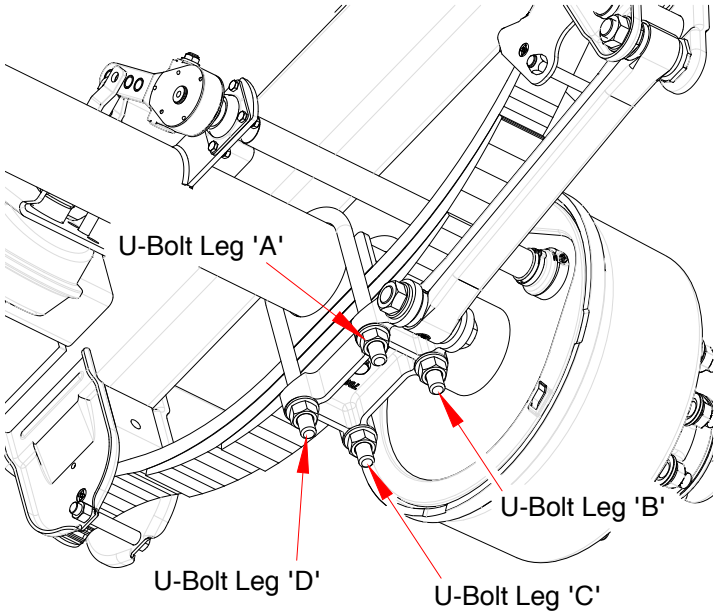
1. All U-Bolts should be installed with **lubricated threads**. If the threads appear dry or if uniform lubrication cannot be detected the male threads will be lightly coated with Bostik® **Never-Seez** Regular Grade (preferred) or medium weight oil. (Note: Some U-bolts are purchased with a black ProtecTorque® coating. Consult the engineering drawings for information specific to each part number. U-Bolts with this coating should be considered lubricated without the addition of a secondary coating.)
2. Using the installation tool of choice the tooling will be calibrated when applicable and the nuts will be progressively tightened. If using a manual torque wrench to tighten the fastener move the tool with slow smooth movements until the wrench indicates the desired torque level. The four (4) nuts of the U-Bolt will be tightened incrementally using a minimum of three passes in a diagonal “X” pattern as shown below until the prescribed lubricated torque specification for the fastener is obtained. Consult the applicable decal or drawing for the proper torque requirements and to develop an approximate torque for the progressive steps of the installation.

7/8 U-Bolts are Grade 5. **Lubricate the threads with never-seez** and torque the 7/8 nuts to 350-420 lb-ft (see torque sequence below). Run the Bale Titan for one day, then retorque them. That takes up any stretch in the U-bolt. **DO NOT** trust the torque settings on an impact. Use a torque wrench. Use the tightening pattern below.

Pass 1: 33% of final torque - torque to 132 ft lbs

Pass 2: 66% of final torque - torque to 264 ft lbs

Pass 3: 100% of final torque - torque to 400 ft lbs



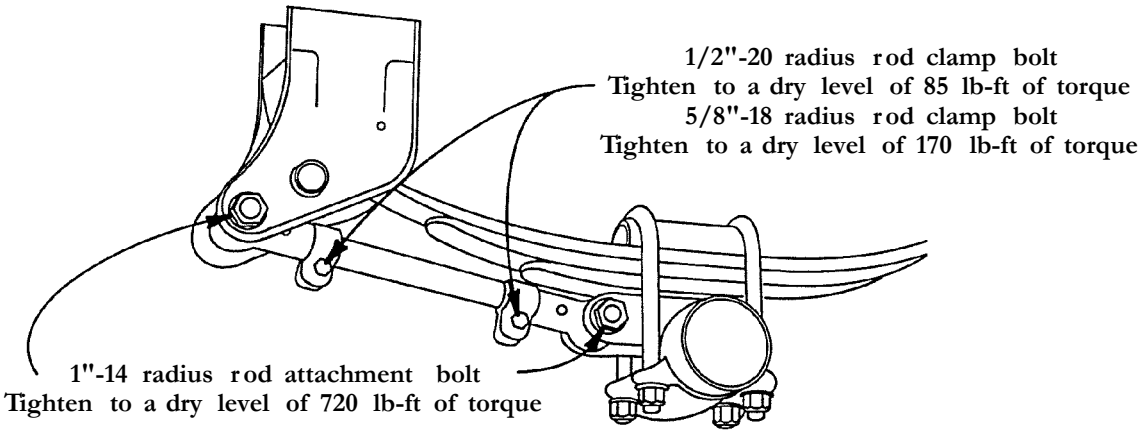
U-Bolt Torque Sequence				
	First Leg	Second Leg	Third Leg	Fourth Leg
Pass 1: 33% of final torque - torque to 132 ft lbs	A	C	D	B
Pass 2: 66% of final torque - torque to 264 ft lbs	C	A	B	D
Pass 3: 100% of final torque - torque to 400 ft lbs	B	D	C	A

Suspension Maintenance - Continued

Radius Rods

2a. The 1" – 14 radius rod attachment bolts at the hangers and spring seats should be tightened to a dry level of 720 lb-ft of torque on both the adjustable and non-adjustable radius rods. See Figure 2.

Fig. 2



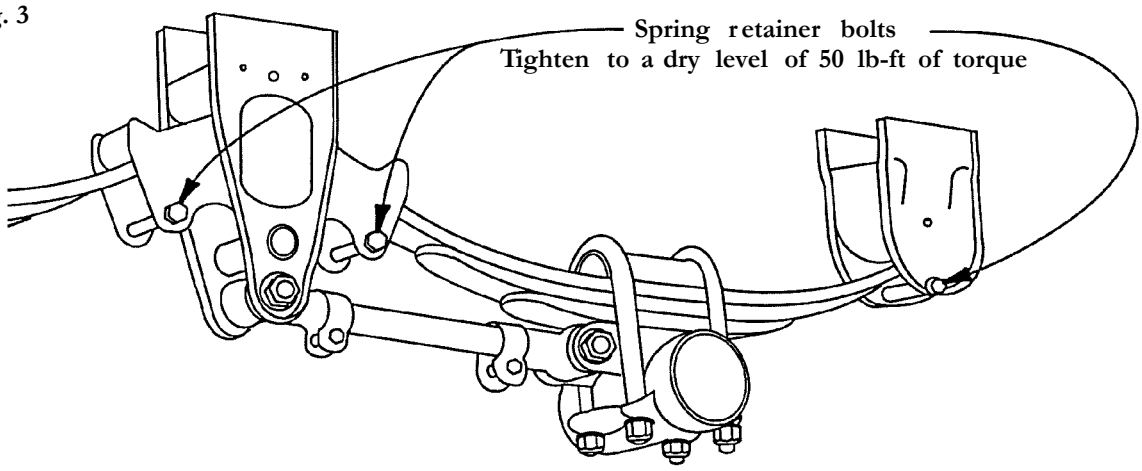
Loose operation of this bolt can result in wear requiring that new components be installed to avoid structural damage. During your visual inspection, if you observe any visible wear or loosening in the bushing, it is imperative that you immediately replace the radius rod bushing and bolt. Failure to replace these components will result in damage to the hanger, spring seat, and/or radius rod.

2b. Next check the 1/2" – 20 radius rod clamp bolt, which should be tightened to a dry level of 85 lb-ft of torque. The 5/8" – 18 radius rod clamp bolt should be tightened to a dry level of 170 lb-ft of torque. See Figure 2. If the clamp bolt has not been properly maintained, then wear between the radius rod screw and the eye end may be observed. If so, then the entire radius rod must be replaced. Simply retightening or replacing the clamp bolt will not correct the problem.

Hangers

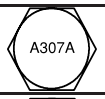
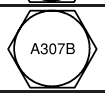
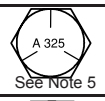
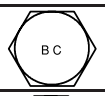
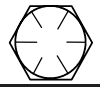
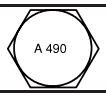
3. Check all of the spring retainer bolts found in the rockers and rear hangers. A dry value of 50 lb-ft of torque should be maintained on all of these bolts. See Figure 3.

Fig. 3



Loose fasteners that are allowed to operate for any period of time will result in irreversible suspension damage and possible loss of vehicle control. **Retightening a worn fastener will not correct a situation created by loose operation!**

Mechanical Specifications for Externally Threaded Fasteners with Grade Markings

Specification	Material	Size Range (in.)	Min. Proof Strength (psi)	Min. Tensile Strength (psi)	Core Hardness Rockwell Min.	Core Hardness Rockwell Max.	Min. Yield Strength (psi)	Grade Identification Marking
SAE J429-Grade 1	Low or medium carbon steel	1/4 - 1 1/2	33,000	60,000	B70	B100	36,000	
SAE J429-Grade 2		1/4 - 3/4 7/8 - 1 1/2	55,000 33,000	74,000 60,000	B80 B70	B100 B100	57,000 36,000	
ASTM A307-Grade A	Low or medium carbon steel	1/4 - 4		60,000	B69 See Note 1	B100		
ASTM A307-Grade B	Low or medium carbon steel	1/4 - 4		60,000(min) 100,000(max)	B69 See Note 1	B95		
SAE J429-Grade 5 ASTM A449-Type1	Medium carbon steel: quenched & tempered	1/4 - 1 1 1/8 - 1 1/2	85,000 74,000	120,000 105,000	C25 C19	C34 C30	92,000 81,000	
ASTM A449-Type 1 See Note 2		1 3/4 - 3	55,000	90,000			58,000	
ASTM A325-Type 1	Medium carbon steel: quenched & tempered	1/2 - 1" 1 1/8 - 1 1/2	85,000 74,000	120,000 105,000	C25 C19 See Note 3	C34 C30	92,000 81,000	 See Note 5
ASTM A354 Grade BC	Medium carbon alloy steel: quenched & tempered	1/4 - 2 1/2 2 1/2 - 4	105,000 95,000	125,000 115,000	C26 C22 See Note 2	C36 C33	109,000 99,000	
ASTM A354 Grade BD	Medium carbon alloy steel: quenched & tempered	1/4 - 2 1/2 2 1/2 - 4	120,000 105,000	150,000 140,000	C33 C31 See Note 2	C39 C39	130,000 115,000	 See Note 4
SAE J429-Grade 8	Medium carbon alloy steel: quenched & tempered	1/4 - 1 1/2	120,000	150,000	C33	C39	130,000	
SAE J429-Grade 8.2	Low carbon boron steel: quenched & tempered	1/4 - 1	120,000	150,000	C33	C39	130,000	
ASTM A490-Type 1	Medium carbon alloy steel: quenched & tempered	1/2 - 1 1/2	120,000	150,000(min) 170,000(max)	C33 See Note 3	C38	130,000	
ASTM A574 Socket Head Cap Screw	Low alloy steel: quenched & tempered	#0 - 1/2 over 1/2 - 2	140,000 135,000	180,000 170,000	C39 C37	C45 C45	162,000 153,000	

Note 1: No minimum hardness is required on bolts and studs 3 x diameter and longer.
Note 2: Bolts less than 3 diameter in length and studs less than 4 diameter in length shall have hardness values not less than minimum and not more than maximum. This hardness testing is the only mechanical testing requirement for these bolts and studs.
Note 3: Bolts less than 3 x diameter are subject only to maximum/minimum hardness testing.
Note 4: ASTM A354-Grade BD with diameters ¼" thru 2 ½" shall be marked with six radial lines and, in addition may be marked with the grade symbol "BD." BD shall be marked on bolts over 2 ½" in diameter.
Note 5: Bolts shall be marked "A325." Additionally, the bolts may be marked with 3 radial 120 degrees apart (as shown).

Torque-Tension Relationships for SAE J429 Grade Bolts

Nominal Thread Size	SAE J429 Grade 2			SAE J429 Grade 5			SAE J429 Grade 8		
	Clamp Load (lbs)	Tightening Torque K = .15	Tightening Torque K = .20	Clamp Load (lbs)	Tightening Torque K = .15	Tightening Torque K = .20	Clamp Load (lbs)	Tightening Torque K = .15	Tightening Torque K = .20
Unified Coarse Thread Series									
1/4-20	1,300	49 in-lbs	65 in-lbs	2,000	75 in-lbs	100 in-lbs	2,850	107 in-lbs	143 in-lbs
5/16-18	2,150	101	134	3,350	157	210	4700	220	305
3/8-16	3,200	15 ft-lbs	20 ft-lbs	4,950	23 ft-lbs	31 ft-lbs	6,950	32.5 ft-lbs	44 ft-lbs
7/16-14	4,400	24	30	6,800	37	50	9,600	53	70
1/2-13	5,850	36.5	49	9,050	57	75	12,800	80	107
9/16-12	7,500	53	70	11,600	82	109	16,400	115	154
5/8-11	9,300	73	97	14,500	113	151	20,300	159	211
3/4-10	13,800	129	173	21,300	200	266	30,100	282	376
7/8-9	11,425	125	166	29,435	321	430	41,550	454	606
1-8	15,000	187.5	250	38,600	482.5	640	54,540	680	900
Unified Fine Thread Series									
1/4-28	1,500	55 in-lbs	75 in-lbs	2,300	85 in-lbs	115 in-lbs	3,250	120 in-lbs	163 in-lbs
5/16-24	2,400	112	150	3,700	173	230	5,200	245	325
3/8-24	3,600	17 ft-lbs	22.5 ft-lbs	5,600	26 ft-lbs	35 ft-lbs	7,900	37 ft-lbs	50 ft-lbs
7/16-20	4,900	27	36	7,550	42	55	10,700	59	78
1/2-20	6,600	41	55	10,200	64	85	14,400	90	120
9/16-18	8,400	59	79	13,000	92	122	18,300	129	172
5/8-18	10,600	83	110	16,300	128	170	23,000	180	240
3/4-16	15,400	144	193	23,800	223	298	33,600	315	420
7/8-14	12,610	138	184	32,480	355	473	45,855	500	668
1-12	16,410	205	273	42,270	528	704	59,670	745	995

Clamp load estimated as 75% of proof load for specified bolts.
Torque values for ¼ and 5/16 inch series are in inch-pounds. All other torque values are in foot-pounds.
Torque values calculated from formula T = KDF where: K=0.15 for "lubricated" conditions K=0.20 for "dry" conditions

Section 7: Storage

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Cylinder Shaft Protection 7-3
Removing from Storage.....7-3

Preparing for Storage

- To insure longer life and satisfactory operation, store the machine in a shed.
- If building storage is impossible, store away from areas of main activity on level, firm, dry ground.
- Lock Hitch in the “in-line” position by lowering the loader on the hitch.
- Relieve pressure in lines to prevent “thermal” lock.
- Clean machine thoroughly.
- Inspect all parts for wear or damage.
- **Avoid delays** - if parts are required, order at the end of the season.
- Manually cycle lube system 3 times to ensure all lube points are greased. (Refer to Maintenance Section).
- Tighten all bolts to proper specifications (Refer to Maintenance Section).
- Cover tires with canvas to protect them from the elements when stored outside.
- Coat exposed cylinder shafts **(Refer to Cylinder Shaft Protection).**
- Touch up any scratches or flaking paint.

Note: Direct sunlight will cause tires and hoses to deteriorate more quickly.

⚠ Warning

Do not allow children to play on or around the machine.

⚠ Caution

Keep livestock away from machine so they will not injure themselves or damage the machine.

Cylinder Shaft Protection

The steps summarized below should be followed when protecting chrome plated shafting on equipment:

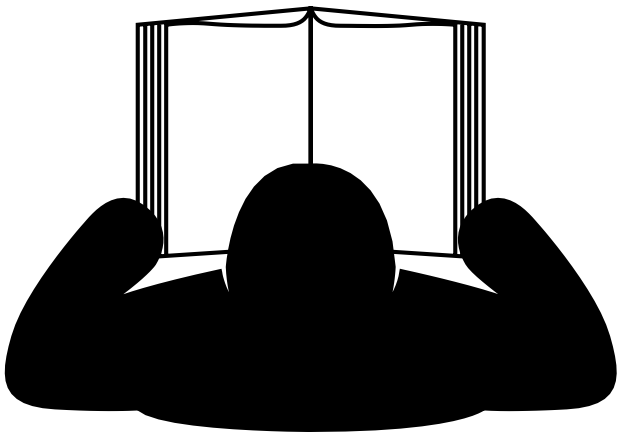
- Position the equipment as it will be stored, and identify all the exposed portions of the chrome plated shafts.
- Clean dirt and dust from the exposed portions of the shaft using a dry cloth or a cloth which has been dampened with an appropriate solvent.
- Prepare a mixture of 60% oil-based rust inhibitor and 40% Kerosene. Apply a thin coating of this mixture to the exposed surfaces of the chrome plated shaft. No. 1 fuel oil may be substituted for Kerosene. A cloth dipped in the mixture can be used to apply the coating.
- Inspect the shaft surfaces after six months and apply additional corrosion preventative mixture.
- If the equipment is to be moved and then stored again for an extended period of time, the steps above should be repeated for all shafts that were stroked during the move.
- **Before retracting the cylinders the protective coating should be removed.** This will prevent fine sand and dirt that has accumulated in the coating, from damaging the shaft seal. **Under no circumstances should sandpaper or other abrasive material be used to clean the surfaces.** Plastic or copper wool in combination with an appropriate solvent will remove most of the dirt.

⚠ Caution

Dirt in the hydraulic system could damage O-rings, causing leakage, pressure loss and total system failure.

Removing from Storage

- Review Operator's Manual.
- Check tire pressure (Refer to Tire Pressure List).
- Clean machine thoroughly. Remove coating from exposed cylinder shafts **(Refer to Cylinder Shaft Protection).**
- Manually cycle lube system 3 times to ensure all lube points are greased. (Refer to Lubricating Section).
- Tighten all bolts to proper specifications (Refer to Bolt Torque Chart).



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Section 8: Troubleshooting

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CAUTION

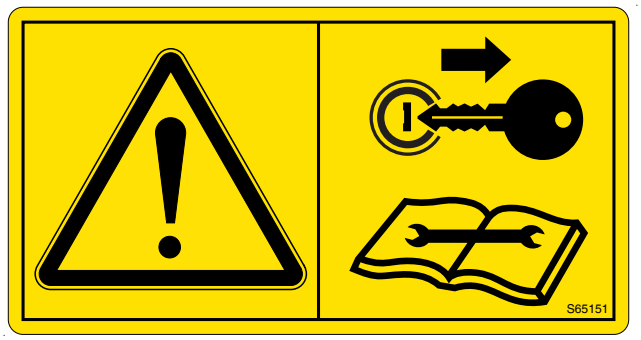
BE ALERT

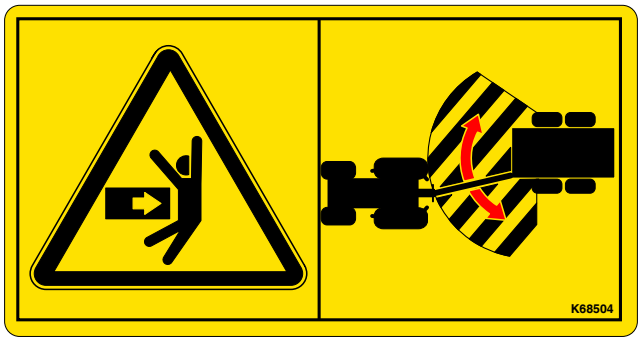
SAFETY FIRST

REFER TO SECTION 1 AND REVIEW ALL SAFETY RECOMMENDATIONS.

Safety

- Always shut off the tractor and remove key before dismounting.
- Guard against hydraulic high pressure leaks with hand and face protection.
- Never work under the implement unless it is in the down position or securely blocked in place. Do not depend on the hydraulic system to support the frame.



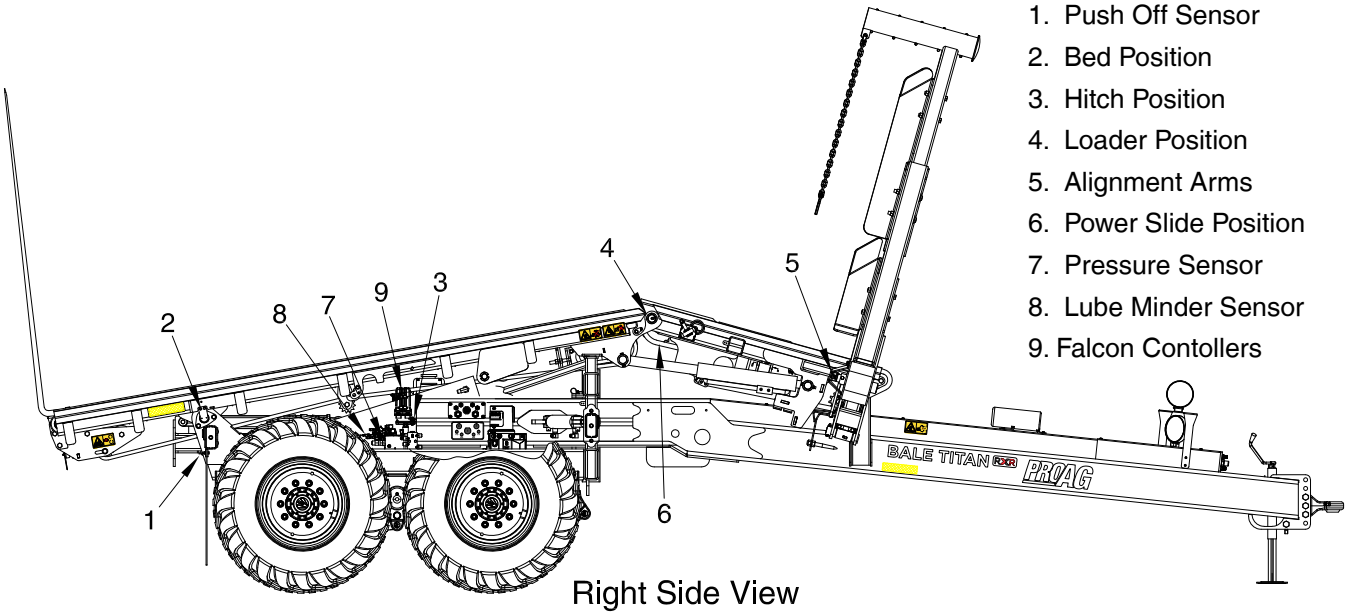


Bale TITAN RXR Control System

The Bale Titan RXR is operating using the ISO VT terminal and 9 button joystick in the cab of the tractor. Most factory installed ISO VTs are compatible with the Bale Titan software, however a Raven CR7 stand alone kit is available for customers if they need.

Two Falcon controllers on the main frame of the machine control the functions of the machine, receive user inputs from the joystick and screen along with data from the various sensors and transmit out signals to populate various screens on the monitor. The location of the Falcon controllers is illustrated in the figure below.

There are 9 sensors on the Bale TITAN RXR: one ferrous metal sensor, five angular position sensors , two pressure sensors, and one proximity sensor. This manual will refer to each of the sensors by name. Use the following diagram to locate each sensor:



Right Side View

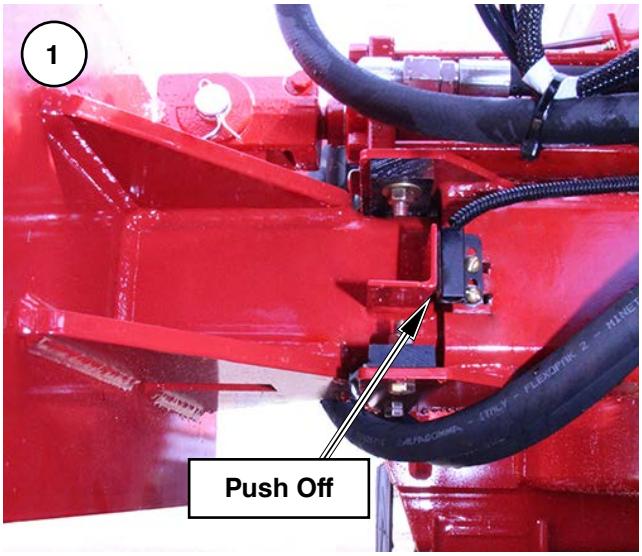
1. Push Off Sensor
2. Bed Position
3. Hitch Position
4. Loader Position
5. Alignment Arms
6. Power Slide Position
7. Pressure Sensor
8. Lube Minder Sensor
9. Falcon Contollers

Important: Insufficient gap may allow the sensor to contact moving parts and be destroyed.

Ferrous Metal Sensor (Push Off Sensor)

The Push Off sensor is located at point 1 indicated above. The Push Off sensor reads either retracted of extended. The status of the Push Off sensor can be found in the diagnostic screen of the monitor. The sensor should read extended when the Push Off is extended any distance and retracted when the Push Off is retracted.

The sensor can be tested using any ferrous piece of metal such as a washer or jack knife. Covering the sensor should change the Push Off status to retracted and uncovering it should change the status to extended.



Bale TITAN RXR Control System - Continued

Push Off Sensor - Continued

Common causes for the Push Off sensor to not function properly include:

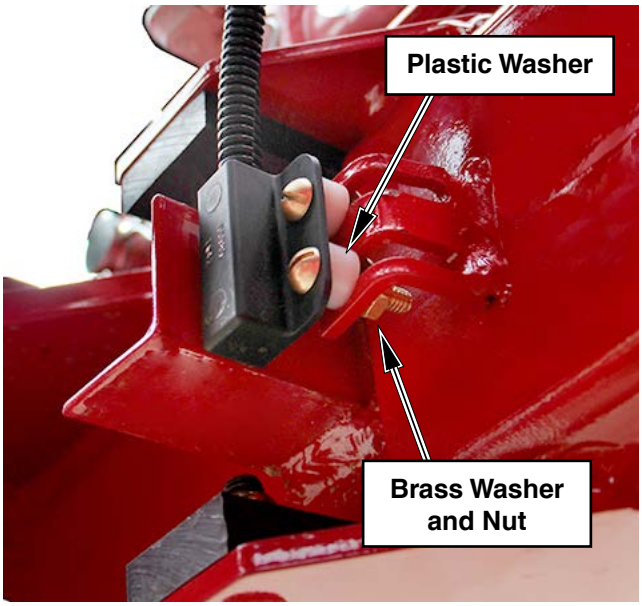
- Incorrect sensor gap: The gap between the sensor and the metal meant to activate it should be between 1/8 and 1/4 of an inch. If the gap is too large, the sensor will not return to retracted status.

Important: Insufficient gap may allow the sensor to contact moving parts and be destroyed.

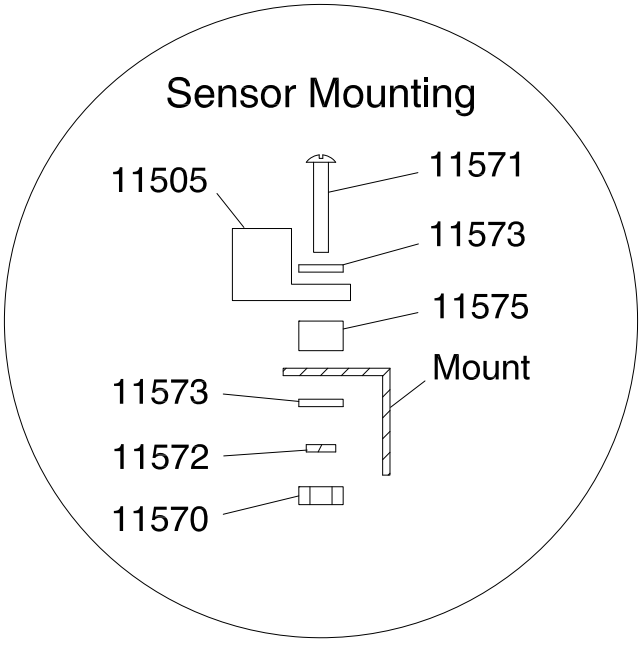
- Debris on sensor: Small metallic particles can build up on the sensor causing it to give an incorrect reading. If metal filings are building up on the sensor, determine the cause of the filings and rectify the problem. If the machine is being operated in an area with volcanic ash, such as the Pacific North West, it may be necessary to regularly clean the sensors of debris.
- Sensor failure: To check the operation of a sensor, unplug the sensor and use an ohmmeter to test the continuity between the two wires. There should be no continuity when the switch is free. There should be no resistance when the switch is placed on a piece of steel. If the state of the sensor does not change, it has failed and should be replaced.

Important: The Ferrous Sensor is installed using brass nuts and bolts and plastic washers. If the sensor is not assembled as shown, it may not work properly.

- Wire Harness Failure: To test the wire harness, unplug the sensor. If the computer still shows “Retracted”, there is a short in the harness. Next, use a short piece of wire to short between the two pins of the plug. If the sensor still reads “Extended”, there is a break in one of the wires. See “Harness Schematics” for more information.



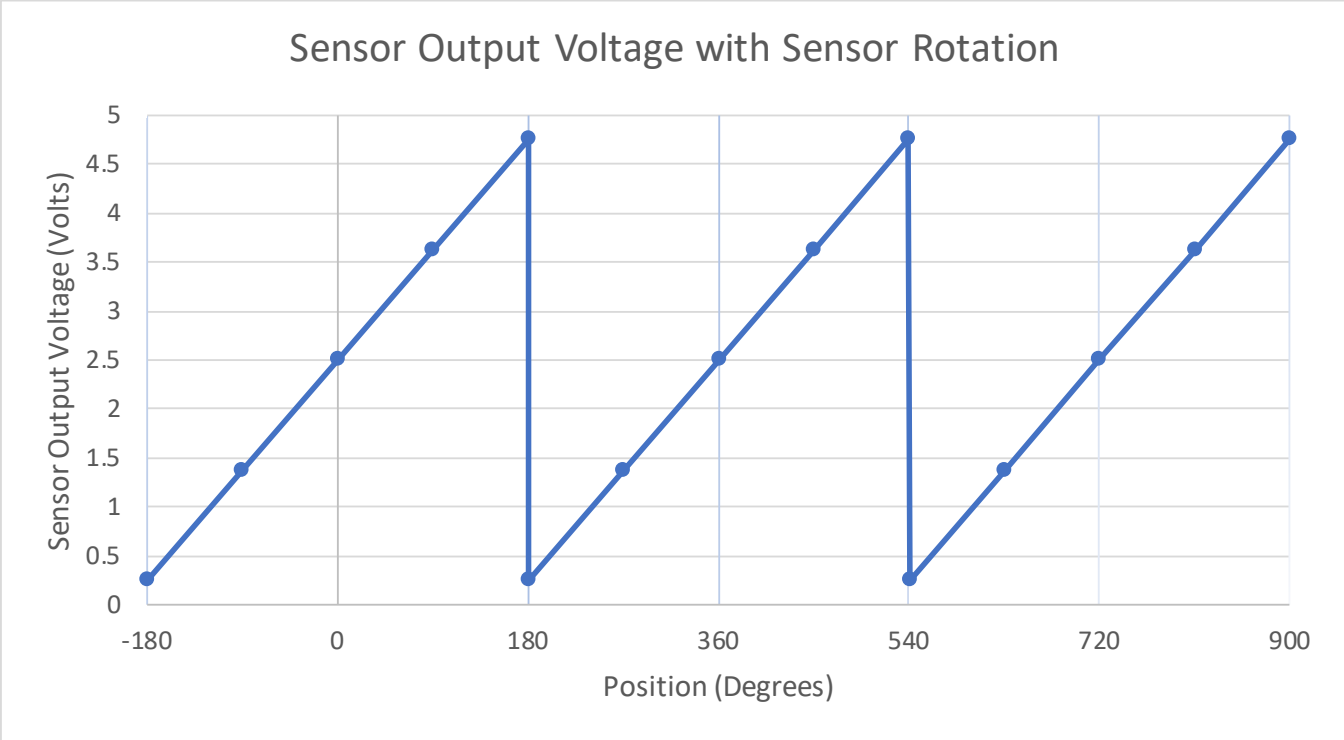
Ferrous Metal Sensor Mounting

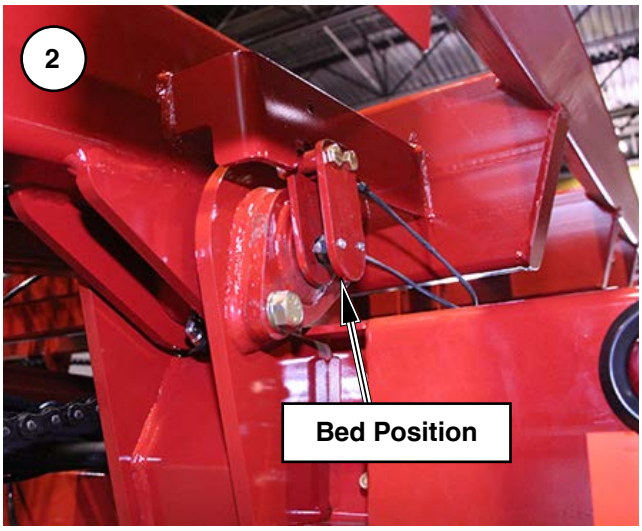


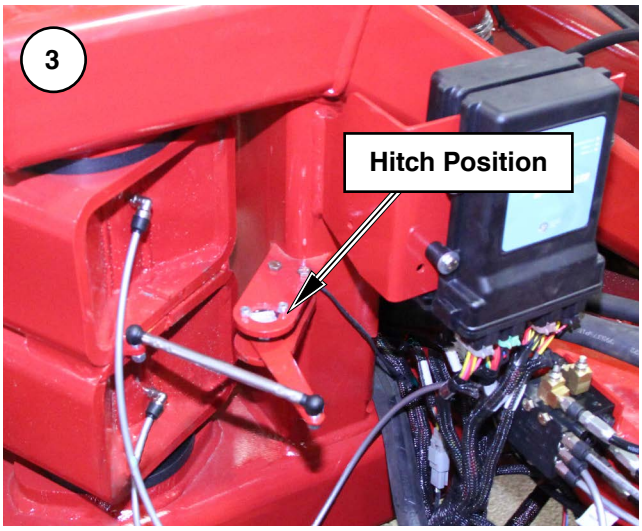
Bale TITAN RXR Control System - Continued

Angular Position Sensors

The Angular Position Sensors used on the Bale Titan use a bolt with a magnetic head to determine the position of the various components of the machine. The sensor is a contactless sensor that outputs a voltage based on where the north and south poles of the magnet are. As the bolt rotates in front of the sensor, the sensing voltage will either increase or decrease as it rotates. On a multi turn application such as the Power Slide, the sensing voltage will rise to the supply voltage and immediate drop off to zero voltage making a saw tooth wave seen in the chart below.

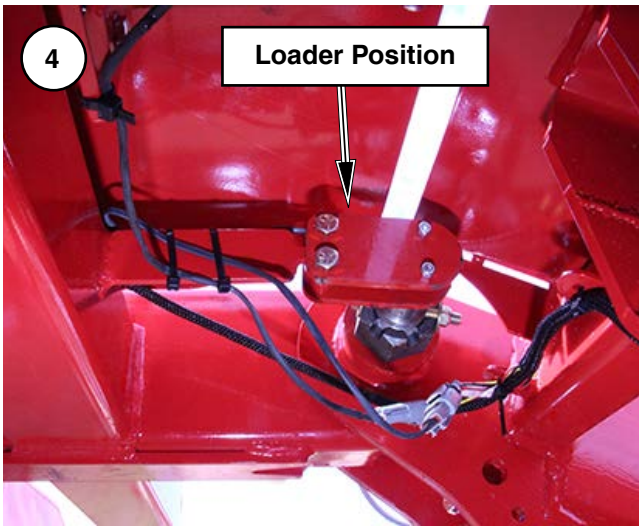


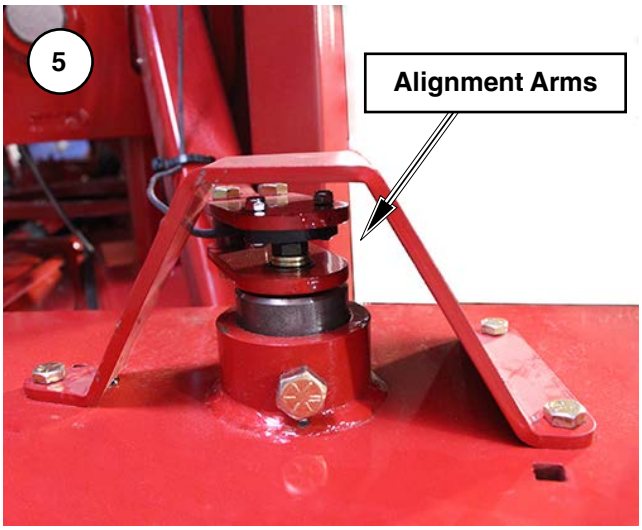


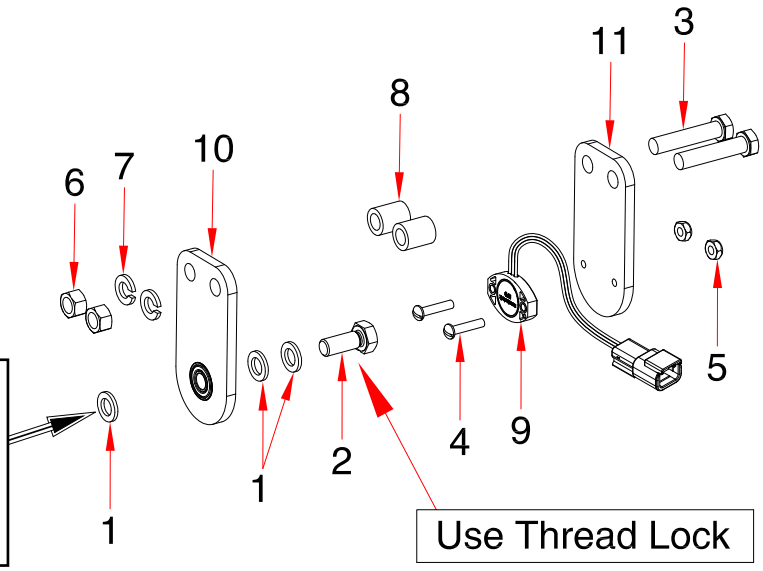


Bale TITAN RXR Control System - Continued

Angular Position Sensors - Continued







Note:
Be sure that one shim washer is always left between end of the pin and the bearing. Failing to have a washer here could result in the sensor bolt coming loose.

Item	Part No.	Description	Qty
1	W-542	Flatwasher - 13/32 ID x 11/16 OD x 12 Ga	3
2	K67331	Hex Bolt - 3/8 x 1 Lg - Stainless with Magnetic Head	1
3	W-619	Hex Bolt - 3/8 x 1 3/4 Lg	2
4	K72059	Machine Screw #8-32 UNC x 1 Lg	2
5	N16304	Locknut #8-32 UNC	2
6	W-514	Hex Nut - 3/8	2
7	W-523	Lockwasher - 3/8	2
8	N32079	Bushing - 0.385 ID x 5/8 OD x 3/4 Lg	2
9	K67298	Sensor - Angular Position	1
10	K69719	Sensor Bearing Plate Assembly - (Includes Bearing)	1
11	K68646	Sensor Mount	1

Bale TITAN RXR Control System - Continued

Angular Position Sensors - Continued

Trouble Shooting Sensor Malfunctions

Initial diagnostic testing of the Angular Position Sensors can be done from the cab of the tractor. If a sensor is suspect of not working, enter calibration mode and enter one of the position settings for that function. If it is safe to do, cycle that function back and forth and verify if the angular display moves smoothly and consistently. If jumping is seen or sporadic changes in the angular position value likely there is an issue with that sensor.

Warning: Shut off tractor and remove key before servicing or adjusting loader. If working on the Loader, Alignment Arm, or Power Slide sensor ensure that the loader is rested on the hitch of the bale picker or fully in the down position.

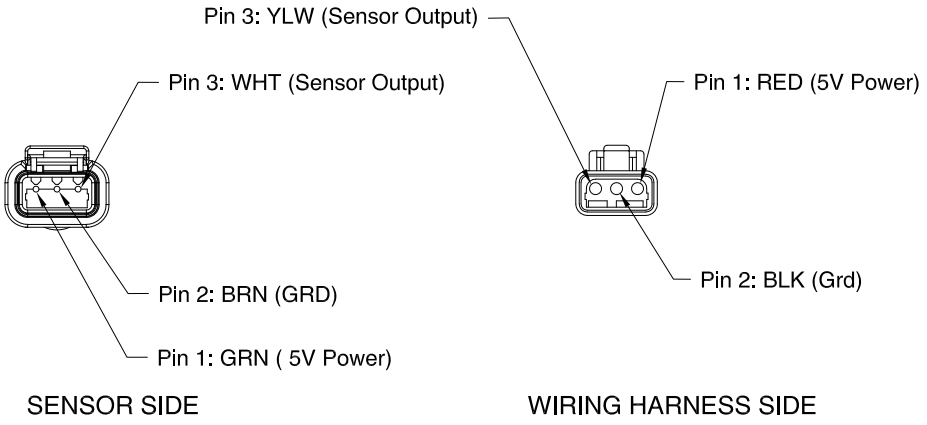
Once it is determined that a sensor is not giving a smooth consistent reading, check the condition of the sensor mount. Make sure the sensor mount, bolt and bearing are tight and free to move check that there is no binding or collisions in the sensors range of motion. Make sure the connecting linkages are tight and related bushings in the joint are not excessively worn. Any free play in the bushings can cause erratic sensor readings.

Next check the gap and alignment of the sensor. The gap between the bolt head and the sensor should not exceed 1/8-inch (3.2mm) gap. If the sensor gap is too great the sensor will display -180 degrees on power up. The alignment of the sensor to the bolt should not exceed 1/8-inch (3.2mm). If either of these values exceed the above recommendations, adjust the sensor using the procedure below. After adjusting the sensor, verify if this has alleviated the issues seen in the calibration mode. After adjusting the sensor, it will be necessary to recalibrate all positions of the affected sensor.

Note: Better alignment of the sensor increases the sensor accuracy and reduces its inherent error.

If no change in the sensor value is seen in calibration mode as the function is moved and the gap and alignment of the sensor appear correct, the problem may lie in the electrical wiring. Follow the below procedure to trouble shoot the electrical system:

First check that the sensor is getting a good ground and power using a multimeter. See illustration below for the correct pins for ground and power on the wiring harness side. If power and ground are not present, a broken wire in the connector is likely present.



Next step would be to check the sensor output. The sensor output can be checked by carefully removing pin 3 from the sensor harness. Plug the sensor back in and measure the voltage between the removed white wire and a know ground; this voltage should be between 0.25 and 4.75 volts. If it can be safely done, reposition the machine in several positions and check the voltage at each of these positions, the voltage should change as the sensor moves. If no voltage is present replace the sensor. If voltage is present and changing as the sensor moves likely there is a broken wire in the harness. Consult the wiring diagram to determine which wire maybe giving the fault.

Bale TITAN RXR Control System - Continued

Angular Position Sensors - Continued

Adjusting Angular Position Sensor Gap and Alignment

In order for the angular sensors to properly function, the gap between the magnetic head bolt and the sensor must not exceed 1/8-inch. The gap on all functions except the power slide can be adjusted with the following procedure.

- Shut off tractor and remove key before servicing or adjusting loader. If working on the Loader, Alignment Arm, or Power Slide sensor please ensure that the loader is rested on the hitch of the bale picker or fully in the down position.
- Loosen and remove bolts #4 in photo on page 8-6.
- Loosen and remove magnetic head bolt #3 careful not to loose or misplace shim washers #1.

Note: Make sure Bearing (2) does not move at all in Bracket (11) and that the bearing rotates freely and is not binding or sticking.

- To bring the sensor closer to the magnetic bolt, simply take shim washers from the back side of bearing plate and place them on the magnetic bolt head side. Move one washer at a time. Inspect pivot bearing condition at this time. Replace if necessary.

Note: Be sure that one shim washer is always left between end of the pin and the bearing. Failing to have a washer here could result in the sensor bolt coming loose.

- Reinstall and tighten magnetic head bolt to 3.75ft-lbs. (5 Nm) use Thread Lock.

Note: Top surface of magnet is sealed for corrosion protection - not to be damaged.

- Reinstall bolts #4.
- Center sensor over magnetic bolt using the edges of plates #11 and #12 as a guide. Tighten bolts #4.
- Verify the gap between the sensor and the magnetic head bolt is less than 1/8-inch.
- Recalibrate all positions of the adjusted sensor.

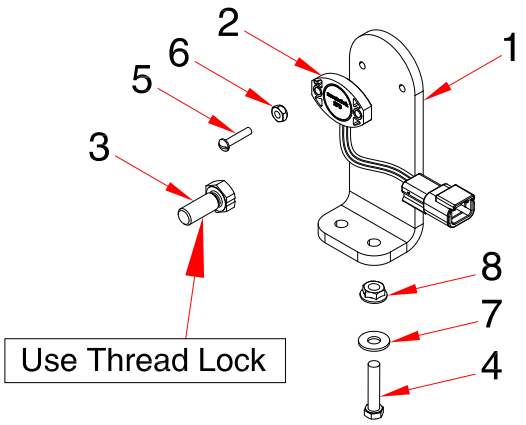
Bale TITAN RXR Control System - Continued

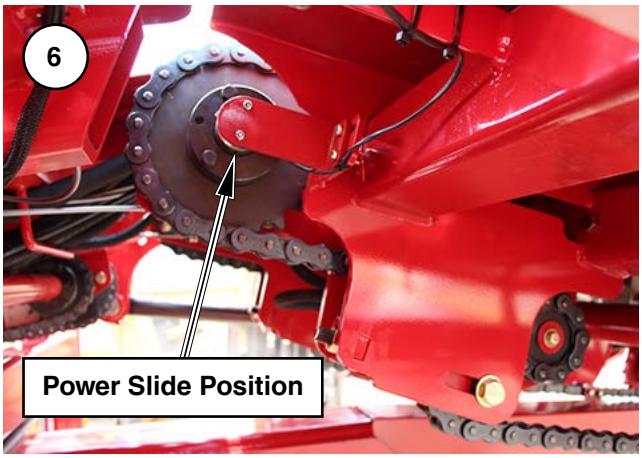
Angular Position Sensors - Continued

Adjusting the Power Slide Position Sensor Gap and Alignment

The power slide sensor can be adjusted to ensure that the gap between the magnetic head bolt and the sensor do not exceed 1/8-inch with the following procedure:

- Shut off tractor and remove key before servicing or adjusting loader. While working on the Power Slide sensor please ensure that the loader is rested on the hitch of the bale picker.
- Loosen the Power Slide Sensor mounting bracket bolts #4 in the figure below and slide the sensor toward the magnetic bolt until the gap is less than 1/8-inch.





Item	Part No.	Description	Qty
1	K67364	Sensor Mount	1
2	K67298	Sensor - Angular Position	1
3	K67331	Hex Bolt - 3/8 x 1 Lg - Stainless with Magnetic Head	1
4	W-1552	Hex Bolt - 1/4 x 1 Lg	2
5	**K72059**	Machine Screw #8-32 UNC x 1 Lg	2
6	N16304	Locknut #8-32 UNC	2
7	S-1198	Flatwasher - 5/16	2
8	D-5277	Locknut - 1/4 Flange	2

- While loose, verify that the sensor is centered over the magnetic head bolt. Add or remove shim washers #7 as necessary to accomplish this.
- Ensure the gap between the sensor and the magnetic bolt is maintained and retighten the Power Slide Sensor mounting bracket bolts #4.

Note: Power Slide positions should not need to be recalibrated after this procedure, but would not have negative consequences if completed.

Bale TITAN RXR Control System - Continued

Pressure Sensors

The pressure sensors on the Bale TITAN RXR measure the squeeze pressure of the Alignment Arms and the Power Level of the Power Slide. To view what pressure the monitor is reading go to the diagnostic screen or the calibration screen for the corresponding function. The units of measurement are pounds per square inch (psi).

Trouble shooting Pressure Sensor Malfunction.
The initial testing of a Pressure Sensor can be done from the cab of the tractor.

Power Slide
To diagnose a malfunctioning pressure transducer on the Power Slide complete the following procedure:

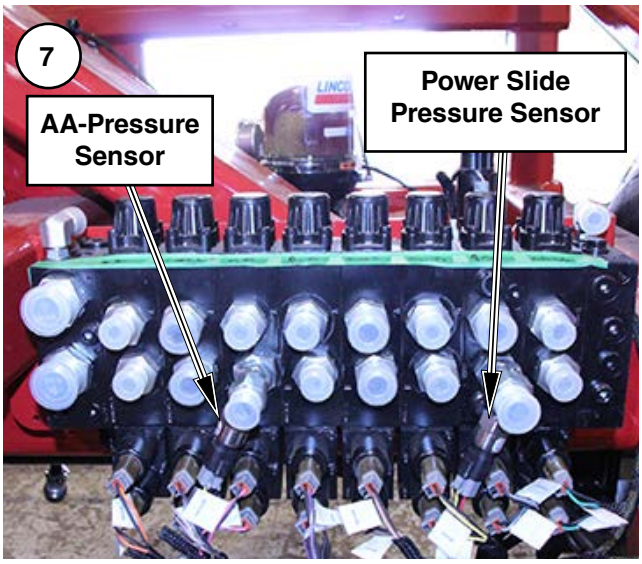
- Secure a set of bales on the loader of the machine with the loader in the up position.
- Check that the Power Slide Cut off Pressure is set to a pressure greater that 2000psi in the calibration menu or the Quick Menu.
- Enter the calibration menu and an find the Power Slide Extend Position.
- In the calibration menu for the Power Slide Extend Position use the A and B buttons on the joystick to drive the Power Slide against the bales. Power Slide Pressure should be displayed on the screen and should increase when ran against the bales.

Alignment Arms
To diagnose a malfunctioning pressure transducer on the Alignment Arms complete the following Procedure:

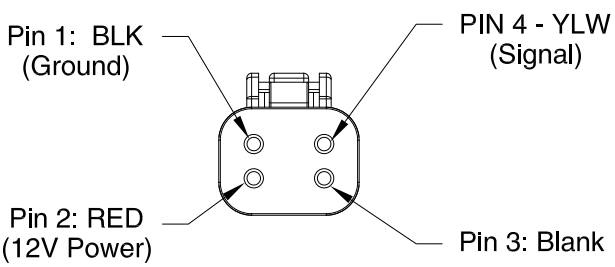
- Enter Manual Mode.
- On the screen locate the Alignment Arm Pressure.
- Using the buttons A and B (arms open and close) close the Alignment Arms on a set of bales. As the arms close the pressure displayed on the screen should increase.

If the above procedures do not result in seeing a change in the pressure reading of the pressure transducer. A short or broken wire may be present in the wiring harness. Before changing the pressure transducer, be sure to check if power and ground are coming to the appropriate pins in the adjacent figure.

If power and ground appear to be present to the sensor, switch the sensors between the Alignment Arms and the Power Slide. If the problematic behavior follows the sensor it is likely a defective sensor.



Hoses removed for clarity

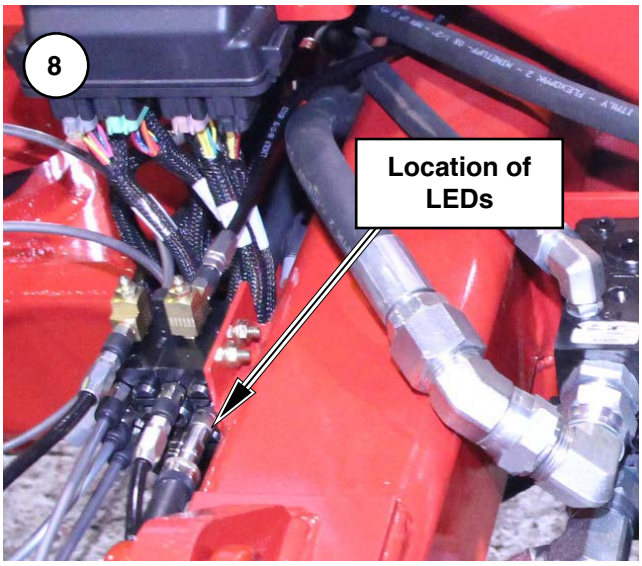


WIRING HARNESS SIDE

Bale TITAN RXR Control System - Continued

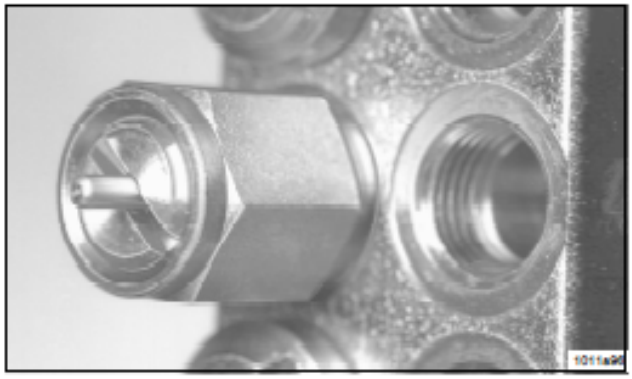
Lube System Proximity Sensor

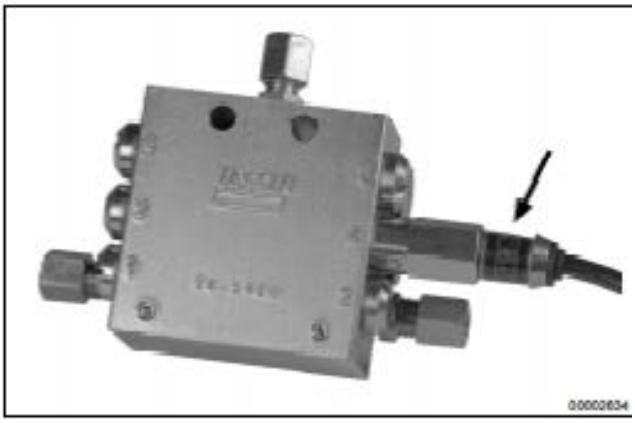
The lube system is equipped with a proximity sensor that functions similar to that of the push off sensor. The lube sensor is located as marked by number 8 in figure on page 8-3. It is located on the primary lube block as seen in the photo below.



It is actuated by the movement of the grease pin inside the primary block. When the lube system is actuated, the pins within each grease block cycle in sequence. When the pin in line with the sensor is shifted away from the sensor, the sensor will read open, when the pin shifts towards the sensor, the sensor will read closed. The location of this pin can be verified by checking the location of the indicator pin on the opposite side of the primary block. If the indicator pin is exposed, then the sensor should read open. If the indicator pin is retracted, the sensor should read closed.

The sensor has a series of orange LED lights around the outside of the body of the sensor. When the indicator pin is retracted and the sensor is reading closed, the sensor LEDs will illuminate. When the indicator pin is exposed and the sensor is reading open, the LEDs will not be illuminated. The sensor can be tested by removing it from the grease block. When the sensor is removed from the grease block there is a flat face on the end of the sensor. Placing this sensor near a metal object should make the sensor LEDs illuminate. If the LEDs do not illuminate the sensor or wiring may be faulty.



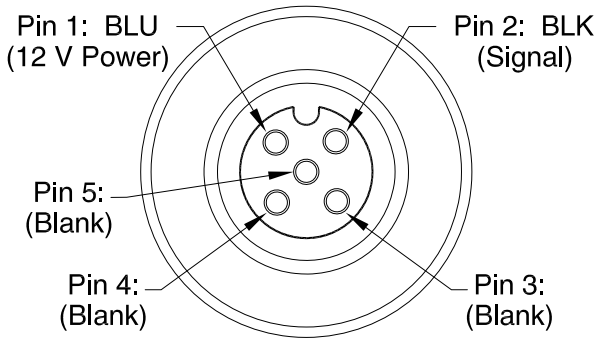


Bale TITAN RXR Control System - Continued

Lube System Proximity Sensor - Continued

If the LEDs on the sensor do not illuminate with a piece of ferrous metal placed in front of the sensing side, verify that sensor is getting power using a multimeter. Pin 1 on the Lube Active Sensor plug should have 12V signal coming to it. If no power is present a broken wire in the harness is likely.

If 12 V power is present, verify continuity between Pin 2 of the Lube Active Sensor Plug and Master Falcon M-FLCN-B pin 1 connector. If no continuity is found between these two pins, a broken wire is likely present in the harness. If continuity is found between these two pins, the sensor is likely at fault.



WIRING HARNESS SIDE

Falcon Controller

The Bale Titan is controlled with two Falcon ECUs. Both ECUs have three LEDs that indicate their status as follows.

- The **Top LED** needs to be green to indicate it is getting power and the program is running.

  LED_OPERATING_STATUS SOLID GREEN - turned on when application starts running

- The **Second LED** should be flashing green and red to indicate it is transmitting and receiving. It may stay on green or red for extended periods as well.

  * LED_STATUS_1 RED - CAN_BUS_1 transmit

  * LED_STATUS_1 GREEN - CAN_BUS_1 receive

- The **Third LED** works similar to the first. The Slave ECU should not have the lowest LED illuminated since it is not connected to CAN 2.

  * LED_STATUS_2 RED - CAN_BUS_2 transmit

  * LED_STATUS_2 GREEN - CAN_BUS_2 receive

Note: Can 2 is only used for communication with the joystick. The third LED should be blinking green when in communication with joystick. This can be used to verify that the joystick is communicating with the master controller.

Bale TITAN RXR Control System - Continued

Crash Avoidance

There are several positions where the Bale TITAN RXR is able to crash into itself causing severe damage. To prevent this, Crash Avoidance is built into the computer programming. Before the computer signals part of the stacker to move, it checks the sensors to ensure it is safe to do so. If the sensors indicate there is the potential for a crash to occur, the stacker will not move. When a crash avoidance warning is activated, the stacker will display a warning indicating why it will not move.

Note: Some functions will stop when a sensor indicates the mechanism is moved to its limit. This is not part of the Crash Avoidance.

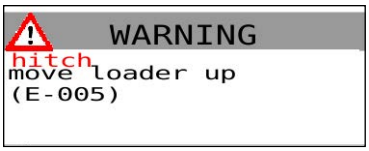
Warning: All Crash Avoidance are disabled in Calibration mode.

The following functions have crash avoidance built in:

Hitch Inline / Hitch Offset

If the loader is down, moving the hitch inline would cause it to crash into it. Also, if the loader has been lowered onto the hitch, moving the hitch offset could cause damage. For this reason, either the loader must be fully raised, or the bed must be raised above the mid-position for the hitch to move inline or offset.

- The following Warning screen will display in the Manual Stack screen if the Crash Avoidance has been activated:
- The operator must fully raise the loader for the hitch to move.
- If the operator wishes to lower the loader while stacking bales, the bed must be raised above the mid-position before lowering the loader.



Lower Loader

If the hitch is not fully offset, moving the loader down could cause serious damage. Also, if the bed is not completely down, (but not above the mid-position) lowering the loader could cause a collision. In all screens, either the hitch must be fully offset, or the bed must be above the mid-position for the loader to lower.

There is however one exception to this crash avoidance. The loader can be lowered to rest on the hitch during the transport lock mode. This allows the hitch to be locked into location and not move during transport. To complete this maneuver, the crash avoidance must be over ridden. This is done by pressing and holding the “OVERRIDE” button.

- The following screen Warning screen will be displayed in either of the Manual screens if the Crash Avoidance has been activated:

To lower the loader, the operator must either:

- Raise the bed above the mid-position, or
- Lower the bed so it is completely down,

And / Or

- Move the hitch so it is completely offset.
- Use the transport Lock mode described in the Operation Section of the manual.

Bale TITAN RXR Control System - Continued

Crash Avoidance - Continued

Raise Bed / Lower Bed

If the loader down, raising or lowering the bed could cause the loader to crash into the hitch or main frame. Also, if the pushoff is extended, raising or lowering the bed could serious damage to the pushoff.

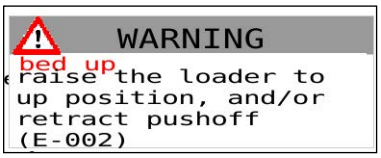
- The following screen Warning screen will be displayed if the Crash Avoidance has been activated:

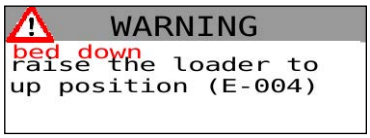
To raise or lower the bed, the operator must either:

- Retract the pushoff completely

And / Or

- Raise the loader completely.





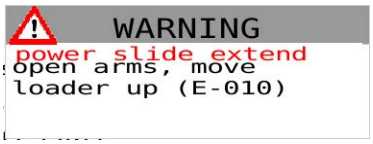
Power Slide Back / Power Slide Return

If the loader down, moving the power slide could cause it to dig into the ground. The loader must be fully raised to move the power slide

- The following screen Warning screen will be displayed if the Crash Avoidance has been activated:

To operate the power slide:

- Raise the loader completely.



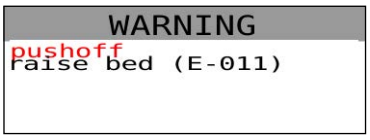
Push Off Out

If the bed is raised greater than 85 degrees, extending the Push Off could cause a collision.

- The following screen Warning screen will be displayed if the Crash Avoidance has been activated:

To operate the Push Off:

- Raise the bed to an angle greater than 85 degrees.



Linclon Quicklub Troubleshooting

Locating Blockage in Lincoln Quicklub Systems

Description

The Bale Titan RXR is equipped with a Lincoln Progressive Lube system. This means that all lube points get the specific amount of lubricant they are designed for and all lube point must take grease. If any portion of this system (a divider valve, line fitting or any bearing) does not freely accept and pass its portion of the lubricant a blockage has occurred. This blockage will cause a higher than normal pumping pressure to be developed by the pump. Depending on the application or system design, this blockage with its resultant high pump pressure will usually cause a complete loss of lubricant flow into the total system and no bearing will be receiving lubricant.

The loss of lubricant flow due to a blockage will be evident in two ways: through a monitor alarm and the system relief pressure. If a block occurs and the monitor does not see a change in status from the Lube System Proximity Sensor within 1.5 minutes of starting a lube system cycle, the monitor will throw a visual and audible alarm on the monitor. This will cause the lube cycle to shut down and it will also stop any on going sequences at the time of the alarm. The program will continue to run after this and the cycle will attempt to run again at its designated run time. If it runs for another 1.5 minutes it will repeat the alarm and shut down the lube system.

Another sign of a blockage is the presence of grease coming out of the pressure relief valve located at the outlet to the pump. If grease is seen coming out of the relief valve while the pump is running, it is likely that blockage has occurred.

Divider Valve

A Quicklub divider valve is a proportioning device consisting of three to five pistons. A primary divider valve is the first divider valve downstream from the lube pump. A secondary divider valve is any divider valve receiving lubricant from the primary divider valve. This machine is also equipped with a bearing block; it receives lubricant from the secondary bed block located on the underside of the bed of the machine.

Outlets

Each outlet on a Quicklub divider valve dispenses .012 in^3 per cycle. If an outlet has a plug installed, the lubricant will be diverted to the next outlet down allowing proper proportioning of lubricant to all lubrication points.

Important: Never block lube outlets numbered one and two.

Locating Blockage

If a blockage exists in a Quicklub lubrication system it is caused by one of the following reasons:

(1) Crushed transmission line in the System.

(2) Blocked outlet in the system.

(3) Improperly drilled fitting in the system.

(4) Blocked divider valve in the system.

All servicing and disassembling should be carried out under the cleanest conditions possible. A blockage in a Quicklub system will be indicated by the fault alarm in the monitor and by the pump element relief valve, exhausting lubricant to atmosphere. Before proceeding as outlined, make a visual inspection of the system and check for crushed lines or improper divider valve installation. Verify that each divider valve outlet required to discharge lubricant can do so and that no plugs have been installed in outlets one and two of any valve.

Use Filtered Lubricant Only.

Linclon Quicklub Troubleshooting - Continued

Note: Dirt and foreign material are the worst enemies of any lubricating system.

Procedure

1. Use a manual pump with a gauge. Fill the pump with clean, filtered lubricant common to the system. Connect the manual pump into the inlet of the primary divider valve and slowly operate pump. If system will not cycle freely below 1,500 PSI, see Step 2.
2. With pressure on the primary as outlined in step 1, remove one at a time each supply line (if the supply lines cannot be removed, remove outlet fittings starting from the bottom and working towards the valve inlet) and attempt to operate manual pump after each line is removed. Do not exceed 2,000 PSI. If pressure drops and primary cycles freely after a line is removed, then blockage is downstream in the area that is being served from that outlet. See Step 3. If all feed lines are removed and primary will not cycle, blockage is in this divider valve. **Note:** When a feed line of a blocked area is removed a small shot of trapped lubricant will usually surge out of this outlet as the inlet pressure on the divider valve drops. If testing in Step 2 indicates a blockage in the primary divider valve, this divider valve must be replaced.
3. Testing accomplished in Step 2 has indicated the blockage is downstream of the primary divider valve. Reinstall the feed line into the primary valve and proceed to downstream secondary divider valve and repeat step 2 on the secondary valve. If lubricant can be discharged freely through the secondary valve, the blockage is in the supply line between the primary and the secondary valve.
4. If high pressure exists on one of the secondary outlets, blockage has been located. Look for crushed line, tight bearing, improperly drilled fittings and/or lube inlet port. Correct as necessary.

Contamination

If dirt, foreign material or any other form of contamination is found as the source of the blockage, clearing the blockage will only temporarily solve contamination blockage problems. The source of the contamination must be eliminated for satisfactory service. The reservoir must be inspected and cleaned if necessary. The reservoir filling method should be reviewed to eliminate any chance of foreign material entering the reservoir during filling. All lubricating systems require filtered lubricant.

Grease Separation Blockage

If a hard wax or soap like material is found in the valve outlets, grease separation is occurring. This means that the oil is being squeezed from the grease at normal system operating pressure and the grease thickener is being deposited in the divider valve. Cleaning the divider valve will usually result in only temporarily solving the problem. Consult your lubricant supplier for recommendations on alternate lubricants and your local Lincoln Distributor to verify compatibility with centralized lubricating systems.

Lincoln Quicklub Troubleshooting - Continued

Symptom	Probable Cause	Solution
1. Pump will not operate.	Not receiving voltage.	Check electrical supply. Check the electrical supply to the pump. If the pump receives no current, trace to the electrical source and repair. Verify electrical continuity between Lube SYS PWR Pin 1 and M-FLCN-A Pin 11.
	Blocked pump cam.	Replace the pump motor if no blockage is identified.
2. The pump motor is running but there is no grease being discharged.	Air pocket at pump element inlet.	Disconnect the main delivery hose from the pump outlet. Run the pump until solid grease (No bubbles) flows from the outlet. If solid grease does not discharge after 20 minutes of operation, the pump inlet is blocked with a contaminant. Note: Depending on operating temperatures and types of grease, it may require 10 minutes to achieve full volume at the outlet.
	Blocked Pump inlet.	Remove the pump element from the pump body and inspect the suction inlet port for foreign particles. Remove any particles found. Reassemble the pump and element and cycle the pump. If the pump element does not discharge grease, replace the pump element.
3. Pump was operated with an empty reservoir.	No grease	Fill the reservoir to the “Max” level. Disconnect the main delivery hose from the pump and watch grease flow until solid grease (not air bubbles) is discharged. Reconnect the main delivery hose to the pump outlet.
4. Grease is discharged at the relief valve.	Blockage in the metering valves, hose, tube or connected component.	Switch the pump on and loosen each outlet in the primary valve one at a time. The blocked outlet will start discharging grease and the indicator pin will index. Retighten all of the outlets on the primary valve. Trace the hose that discharged grease to its secondary valve. Repeat the process of loosening each outlet one at a time until the blocked feed line is detected. Retighten all outlets. Repair the component blockage if found. If a metering valve is creating the blockage, replace the metering valve.
5. Indicator pin on the primary valve does not move.	Refer to #4.	Refer to #4.
6. Lube point not receiving grease.	Hose or tubing is cut or has chaffed through.	Replace the complete hose or tube. Or: If Tube is broken, cut tube at break and repair using tube union (Lincoln part number 244058). If Hose is broken, cut ends at the break and install new reusable hose ends (Lincoln part number 246002) and screw into 1/8” NPT female connector (Lincoln part number 67063).

Checking Valve Solenoids

To check the valve solenoids, use the following procedure.

Important: Only use Calibration screens when diagnosing problems with the valve.

1. If possible, raise the loader and offset the hitch to help reduce the risk of a crash. If it is not possible, take note of the loader and hitch position and how far each may be moved before a crash will occur.
2. Turn off the tractor
3. Swap the electrical plug of the non-working valve with an adjacent valve that is known to work.
   - Look for any obvious signs of damage to the electrical harness or hydraulic hoses.
   - Select a function that is free to move in both directions. It may be necessary to either unplug certain sensors, or use a metal washer to fool certain sensors to get the function to operate in both directions.
4. Start the tractor and engage hydraulics.
5. Use the correct calibration screen to try to move the non-working valve with the buttons for the known working valve.

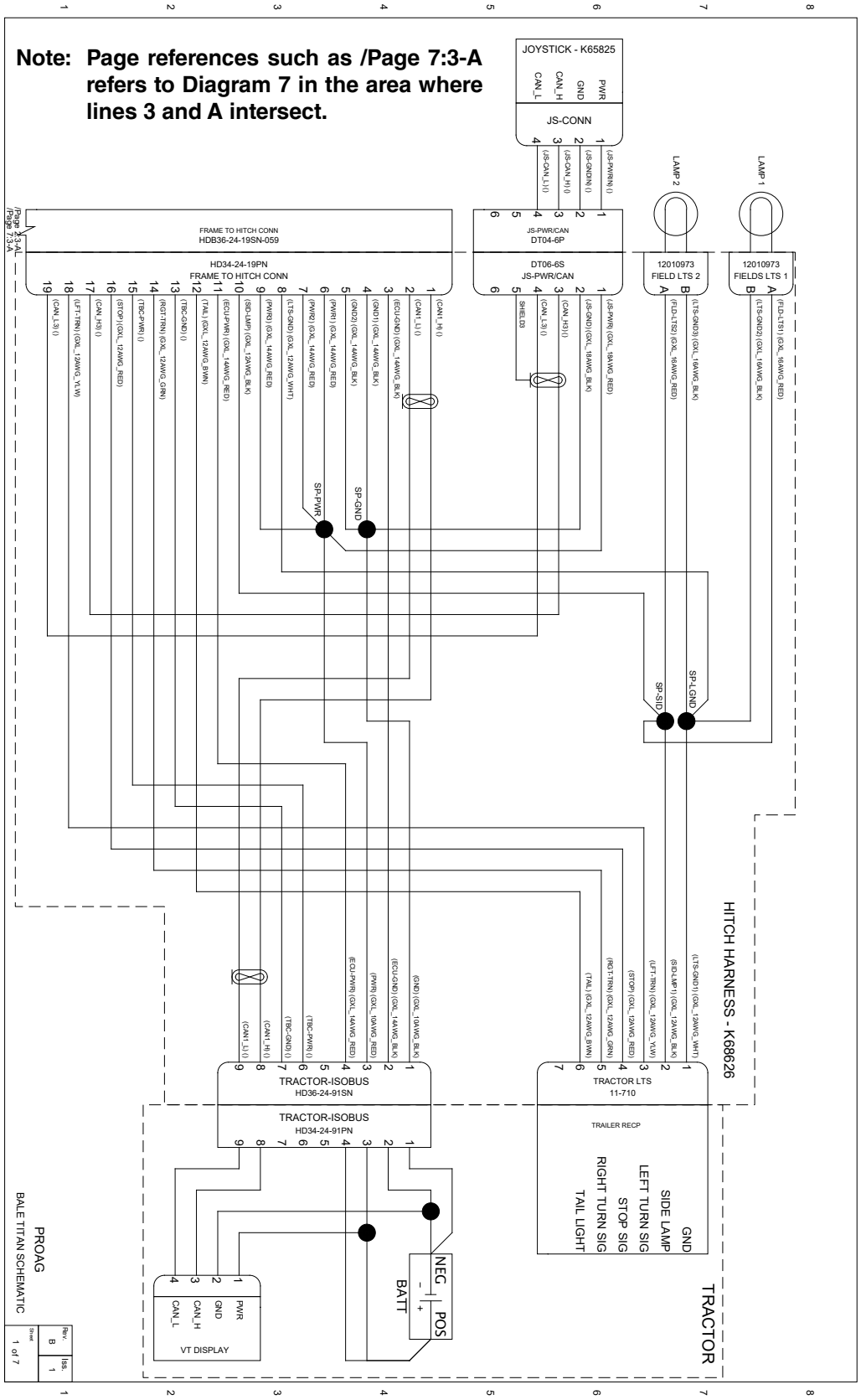
Warning: Use extreme care when moving the machine. The crash avoidance is disabled in this procedure.

- If there is power going to the valve and it still does not operate properly, service the hydraulic valve.
- If the valve operates normally: try operating the known working valve with the buttons for the non-working valve.
- If the known-working valve does not operate, check the electrical harness for broken wires or shorts.

Harness Schematics

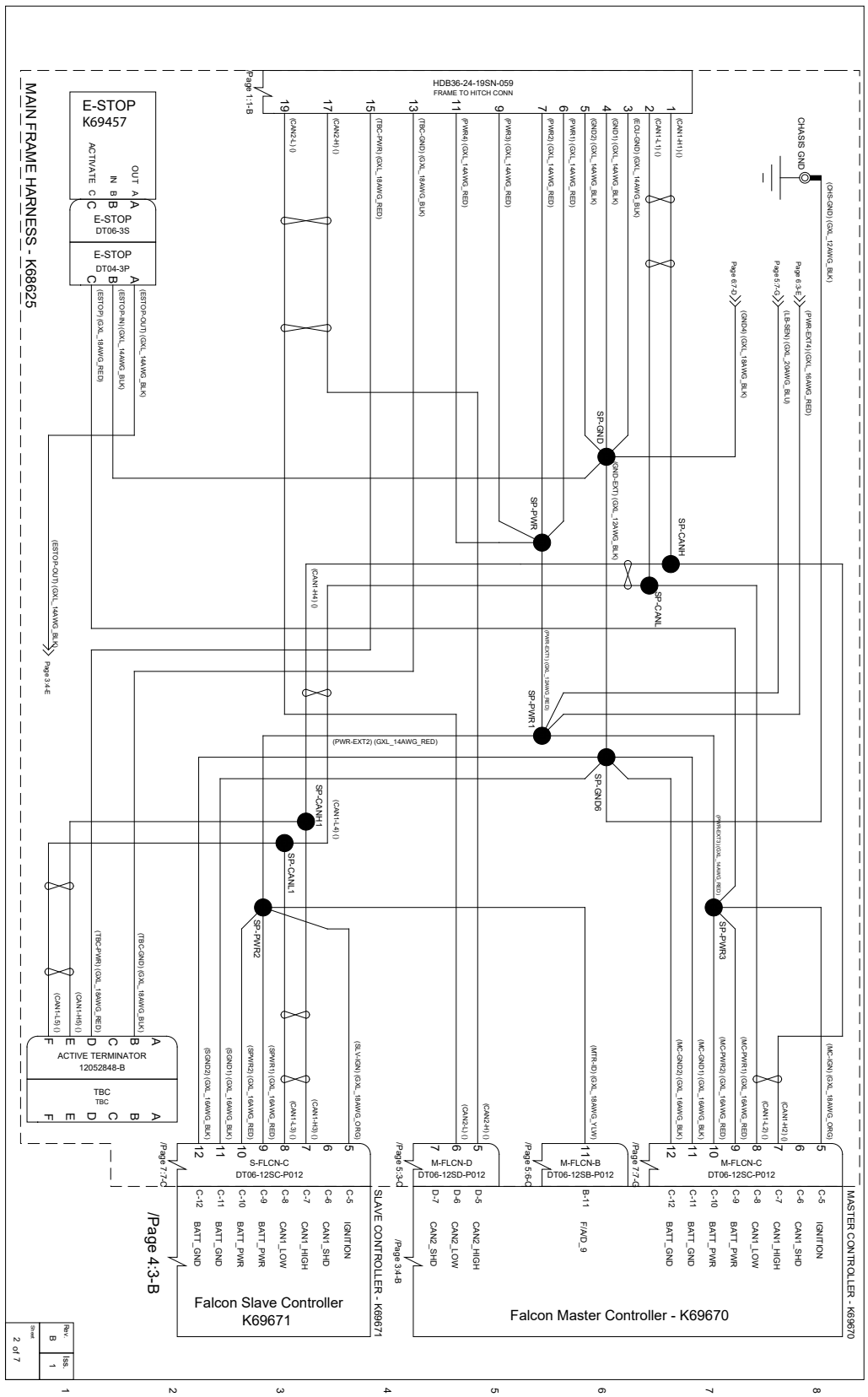
Diagram - 1

Includes:
Hitch Harness
and
Tractor Schematic



Harness Schematics - Continued

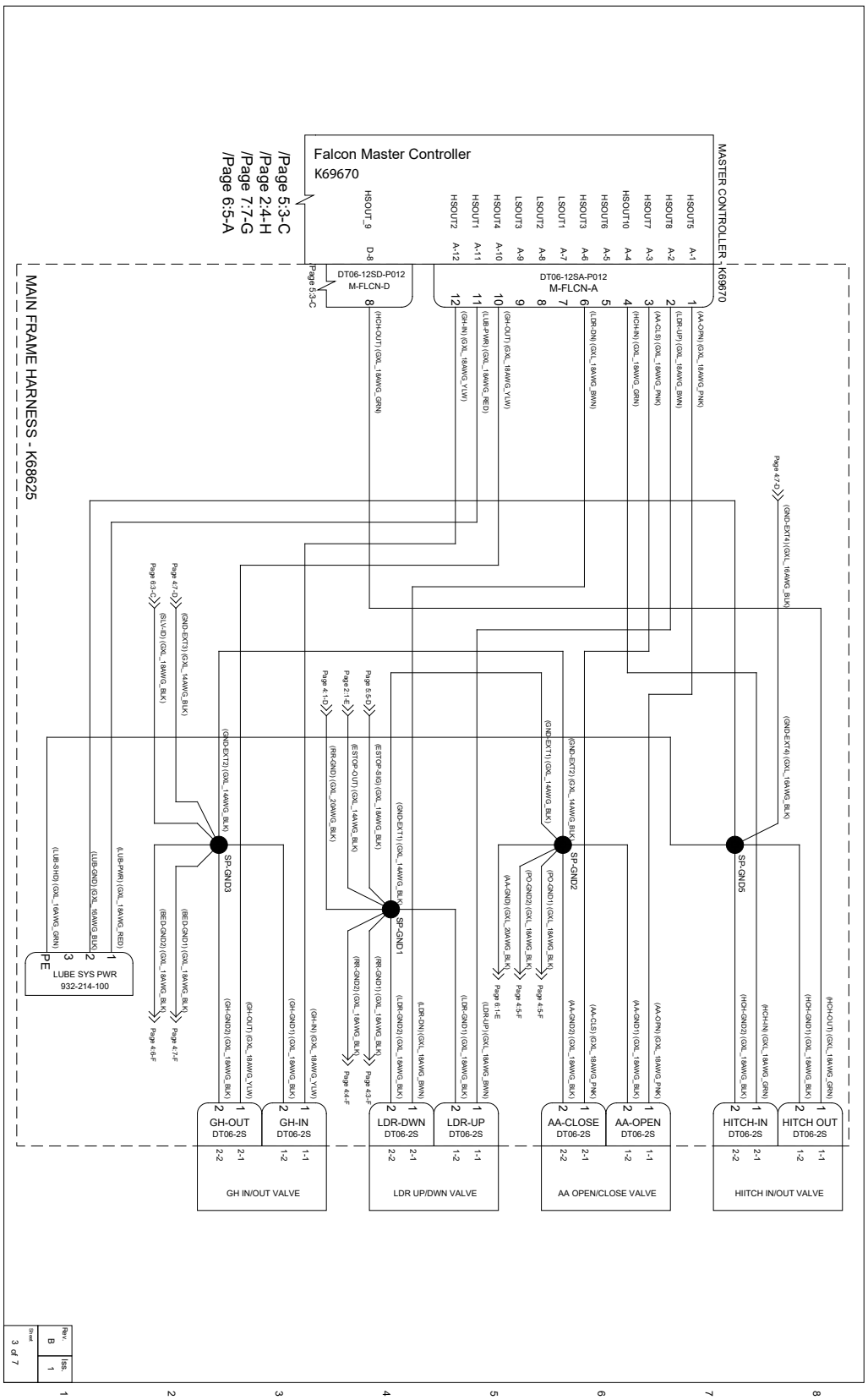
Diagram - 2



Note: Page references such as /Page 4:3-B refers to Diagram 4 in the area where lines 3 and B intersect.

Harness Schematics - Continued

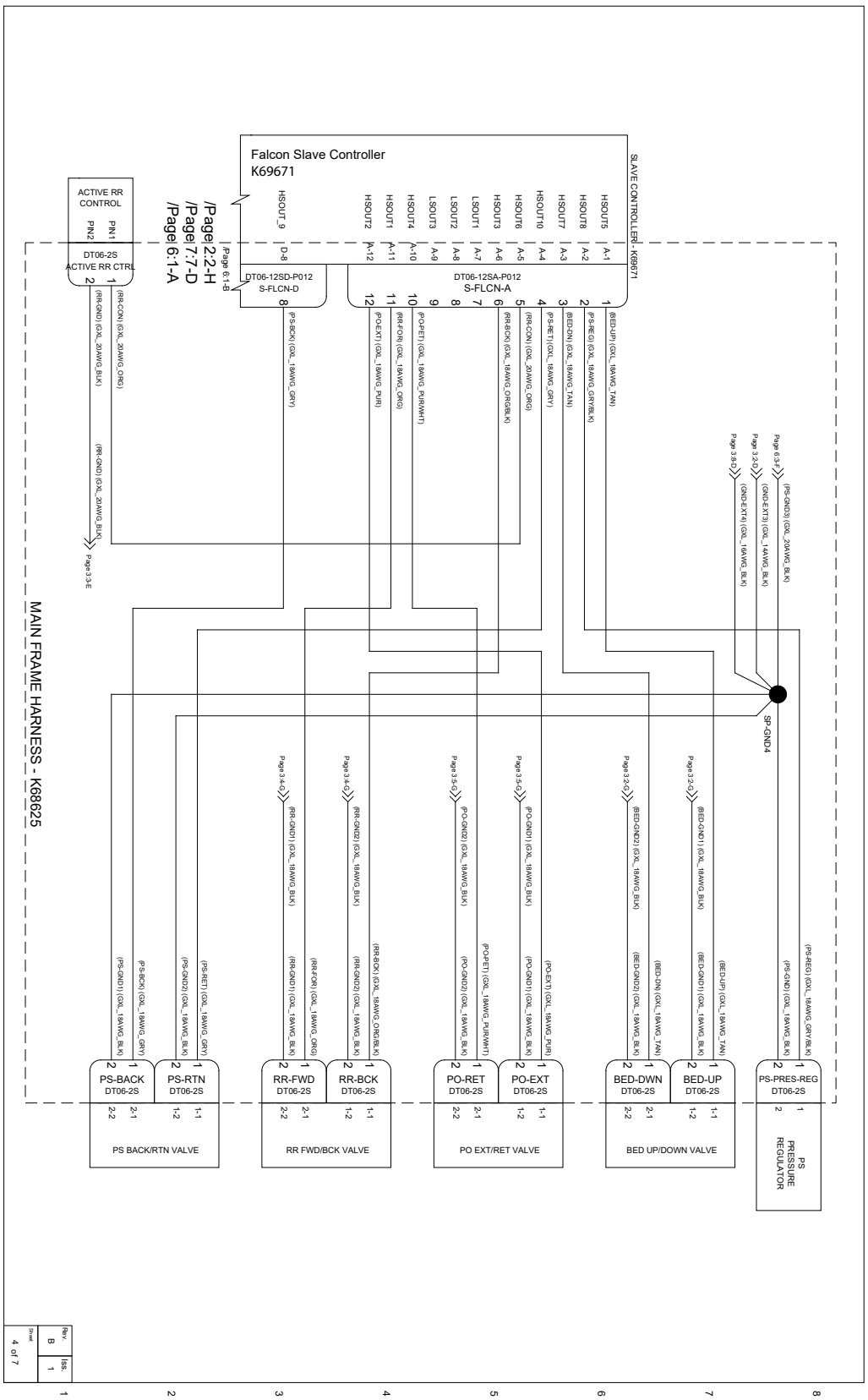
Diagram - 3



Note: Page references such as /Page 5:3-C refers to Diagram 5 in the area where lines 3 and C intersect.

Harness Schematics - Continued

Diagram - 4

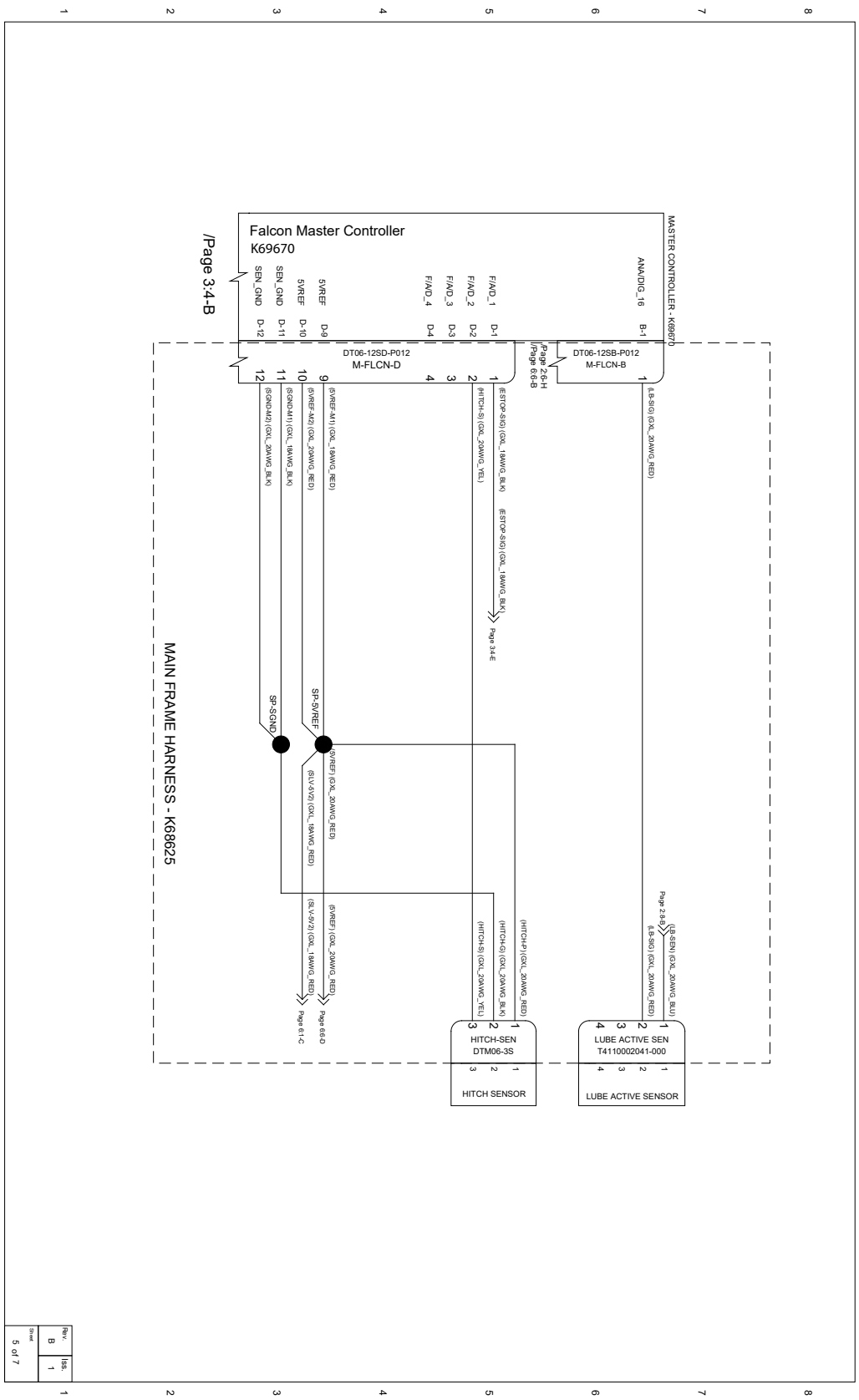


Note: Page references such as /Page 2:2-H refers to Diagram 2 in the area where lines 2 and H intersect.

Harness Schematics - Continued

Diagram - 5

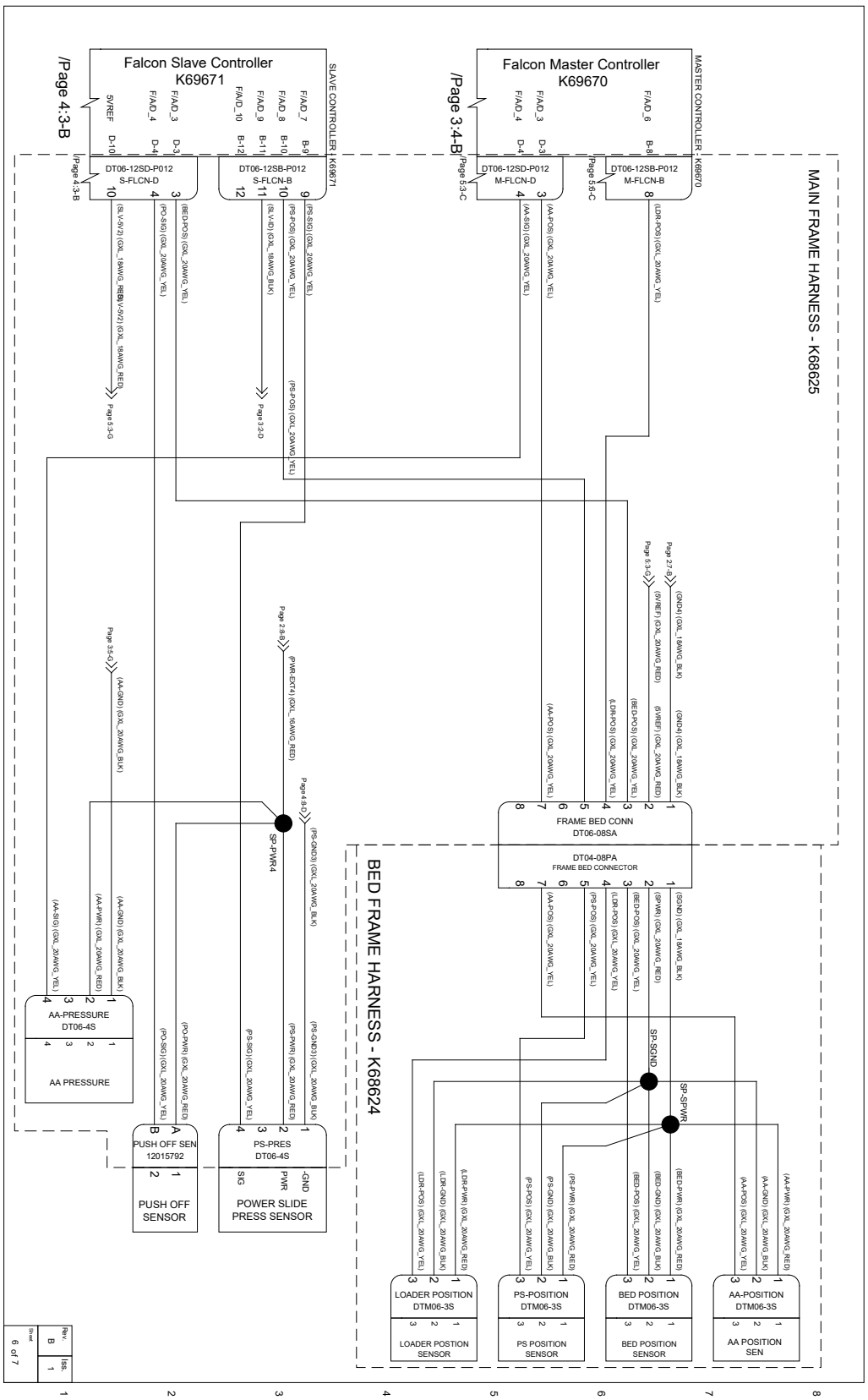
Note: Page references such as /Page 3:4-B refers to Diagram 3 in the area where lines 4 and B intersect.



Harness Schematics - Continued

Diagram - 6

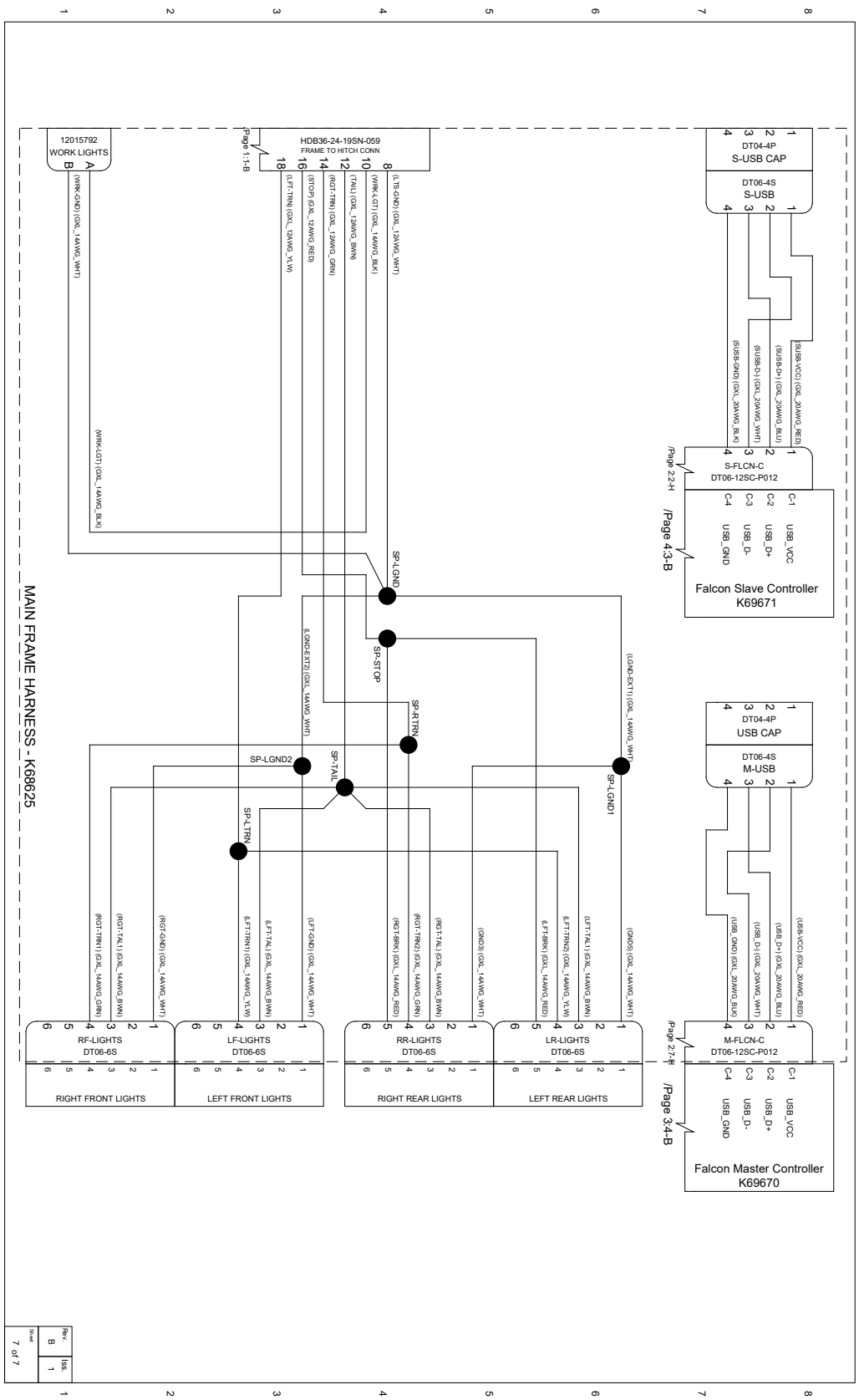
Includes:
Bed Frame Harness



Note: Page references such as /Page 4:3-B refers to Diagram 4 in the area where lines 3 and B intersect.

Harness Schematics - Continued

Diagram - 7



Note: Page references such as /Page 2:2-H refers to Diagram 2 in the area where lines 2 and H intersect.

Troubleshooting Summary

The following is a list of actions the Bale TITAN RXR can perform, and a list of possible problems that may prevent them from operating.

Problem	Cause	Correction
Arms won't Open	Crash Avoidance	None
	Check valve solenoid	Use procedure described in "Checking Valve Solenoids" to check the operation of the valve.
	Faulty Position Sensor	See Troubleshooting Angular Position Sensors Section
Arms won't Close	Check Squeeze Pressure	Use "Dianostic - Sensors" menu to view the pressure sensor reading. Ensure it is lower than the "1st Squeeze Pressure".
	Squeeze pressure too Low	Verify squeeze pressures are not set too low. Note: Squeeze pressure two is used during manual mode.
	Check valve solenoid	Use procedure described in "Checking Valve Solenoids" to check the operation of the valve.
	Faulty Pressure Transducer	See Pressure transducer section
	Faulty Position Sensor	See Troubleshooting Angular Position Sensors Section
Loader won't Raise	Crash Avoidance	None
	Faulty Position Sensor	See Troubleshooting Angular Position Sensors Section
	Check valve solenoid	Use procedure described in "Checking Valve Solenoids" to check the operation of the valve.

Problem	Cause	Correction
Loader won't Lower	Crash Avoidance	Recalibrate Bed up and down position
		Recalibrate Hitch Offset Position
		Faulty Hitch Position Sensor. See section on troubleshooting angular position sensors
		Faulty Bed Position Sensor. See section on troubleshooting angular position sensors
		Faulty Power Slide Position Sensor. See section on troubleshooting angular position sensors
	Faulty Position Sensor	See Troubleshooting Angular Position Sensors Section
	Power Slide not homed.	Home the Power Slide
		Reset the Power Slide home Position
		Faulty Power Slide Position Sensor. See section on troubleshooting angular position sensors
	Check valve solenoid	Use procedure described in "Checking Valve Solenoids" to check the operation of the valve.
Loader will not lower into Transport Lock State.	Minimum duty cycle of loader valve set too low.	Increase minimum duty cycle of loader. Note: make this change slowly 2 to 5 % at a step. Minimum duty cycle should not exceed 40%
Grab Hooks Engage/ Release	Grab hook timer set to Zero	Set the valve of grab hook timer to approximately 1.5 seconds in the calibration menu. See section on setting grab hook timer.
	Check operating mode	Manual mode: Use the soft keys in "Manual Pick" screen to ensure check if the grab hooks work. If the grab hooks do not work in manual mode, check the valve solenoid.
	Check valve solenoid	Use procedure described in "Checking Valve Solenoids" to check the operation of the valve.

Problem	Cause	Correction
Bed Up / Down	Crash Avoidance	Check the Diagnostic screen to check that the push off sensor reads retracted.
		Recalibrate the loader up position.
		Faulty Loader Position Sensor. See section on troubleshooting angular position sensors
	Faulty Position Sensor	See Troubleshooting Angular Position Sensors Section
	Check valve solenoid	Use procedure described in “Checking Valve Solenoids” to check the operation of the valve.
Push Off Out/In	Crash Avoidance	Faulty Bed Position Sensor. See section on troubleshooting angular position sensors.
		Recalibrate Bed up and down positions.
		Push Off In: None
	Check valve solenoid	Use procedure described in “Checking Valve Solenoids” to check the operation of the valve.
Hitch Inline/Offset	Loader not fully raised	Raise Loader.
	Crash Avoidance	Recalibrate the loader up position.
		Faulty Loader Position Sensor. See section on troubleshooting angular position sensors.
		Recalibrate Bed up and down positions.
		Faulty Bed Position Sensor. See section on troubleshooting angular position sensors
	Check valve solenoid	Use procedure described in “Checking Valve Solenoids” to check the operation of the valve.

Problem	Cause	Correction
Power Slide Back/Return	Crash Avoidance	Loader needs to be fully raised in order for Power Slide to cycle.
		Faulty Loader Position Sensor. See section on troubleshooting angular position sensors.
		Recalibrate the loader up position.
	Power Slide not homed correctly.	Home power slide.
	Faulty Position Sensor	See Troubleshooting Angular Position Sensors Section.
	Power Slide cut off pressure too Low	Verify Power Slide cut off pressure is not set too low. Set to 2000 psi for dianostic testing.
	Check valve solenoid	Use procedure described in “Checking Valve Solenoids” to check the operation of the valve.
Rolling Rack Forks will not move back	Active Rolling Rack not activated	Activate Active Rolling Rack. In manual mode press rolling rack forward button.
	Check Valve Solenoid on Active rolling rack block and main hydraulic stack valve.	Use procedure “Checking Valve Solenoids”
	Pressure reducing valve set too high.	Turn Active Rolling Rack pressure down.
	Obstruction in bed rails	Clean bed rails.
Rolling Rack Runs away with bales loaded	Too low of Active Rolling Rack Pressure.	Increase active rolling rack pressure.
Rolling Rack moves to back of machine when active rolling rack is engaged.	Hydraulic lines connected backwards.	Reverse hydraulic lines at back of bed and reverse electrical connector on rolling rack section of main hydraulic block.
Rolling Rack will not move to front of machine.	Obstruction in bed rails	Clean bed rails.
	Check Valve Solenoid on main hydraulic stack valve.	Use procedure “Checking Valve Solenoids”
	Too low of Active Rolling Rack Pressure.	Increase active rolling rack pressure.
	Rack chains too tight.	Reset Rolling Rack chain tension as described in “Chain Tension Adjustment”

Problem	Cause	Correction
Rolling Rack Chains coming out of time	Rolling rack chains too loose	Retention rolling rack chains.
	Faulty idler bearing.	Check idler bearings for failure, replace if necessary.
Functions Operate too Fast/ Slow	Maximum duty cycle too high/low	Adjust maximum duty cycle for function. Recalibrate the loader up position.
Hydraulic functions slow/ sluggish or not responding.	Poor Load Sense Signal.	Verify Load Sense line is connected.
		Install Load Sense Amplifier Kit.
		Verify correct porting and drain plug fitting on tractor. **Note: Some tractor manufactures require Load Sense Drain Ports to be plugged for proper power beyond operation. Please consult your tractor manufacture.**
Lube system does not cycle.	Bale count frequency set too high	Lower lubrication Frequency number in calibration screen.
	Picking in manual mode.	Lube system does not trigger in Manual Mode. Cycle lube system through calibration menu.
Lube System Error appears:	System blockage.	See Locating blockage portion of manual.
	Lube pump empty.	Refill pump.
Alignment arms Drag on ground excessively	Alignment Arm chains too Loose.	Retention alignment arm chain.
	Stacker hitch too low.	Place hitch in next lower position.
Lower hitch Plastic deforming/ tearing	Swinging hitch with load raised too high	Position hitch prior to raising load excessively high.
Bales toppling backward while moving onto bed	Terrain	Shift bales on level terrain
		Use Hillside Option.
	Excessive bed angle	Place hitch in next higher position.
		Use step pick mode.

Error List and Common Remedies

E-0XX Series

E-0XX Series errors are indiciative of a crash condition. This can happen in auto or manual mode.

E-001 "retract power slide"
The alignment arms will not close until the power slide is retracted to it's home position. Home the power slide.

E-002 "raise the loader to up position, and/or retract pushoff"
The bed will not raise further until the loader is in the up position and the pushoff is retracted. Adjust the loader to the 'loader up' position, and ensure that the pushoff is retracted.

E-003 "retract the pushoff"
The bed will not lower until the pushoff is retracted. Retract the pushoff.

E-004 "raise the loader to up position"
The bed will not lower until the loader is in the 'up' position. Adjust the loader to the 'loader up' position.

E-005 "move loader up"
The hitch will not move if the loader is below it's "up" position and the bed is below the midpoint. Ensure that the loader is at it's "up" position and/or the bed is above it's midpont position.

E-006 'retract power slide'
The loader will not move down until the power slide is in the homed position. Home the power slide.

E-007 "move bed down, or above midpoint"
The loader will not move down until the bed is either in the down position, or above the bed midpoint position. Adjust the loader to satisfy this criteria.

E-008 "move hitch offset"
The loader will not move down until the hitch is offset. Adjust the hitch to the offset position. If in transport lock mode, an "override" softkey will allow you to bypass this error.

E-009 "move loader above midpoint"
The power slide will not home until the loader above the midpoint position. Adjust the loader above it's midpoint.

E-010 "open arms, move loader up"
The power slide will not extend until the alignment arms are opened at the 'release' position or beyond. Adjust the alignment arms to be at the 'release' position, or wider.
Additionally, the powerslide will not move if the loader is not above it's midpoint. Ensure that the loader is above it's midpoint.

E-011 "raise bed"
The push off will not extend until the bed is raised to the 'up' position. Raise the bed to the 'bed up' position.

E-012 "lower bed"
The rolling rack will not operate unless the bed is in the 'down' position. Adjust the bed to the 'bed down' position.

E-1XX series

These are operational alarms that can appear on the alarm diagnostics screen, and are also present in the debug logs. These can happen in any operational mode.

E-101 "VT Communication Alarm"
The master controller is having difficulty communicating with the Virtual Terminal. Ensure that they are on the same ISOBus network.

E-102 "Joystick Communication Alarm"
The master controller is not receiving messages from the joystick. Ensure that the joystick is functional and on the same ISOBus network.

Error List and Common Remedies - Continued

E-103 "Slave Controller Communication Alarm"
The master controller is not receiving messages from the slave controller. Ensure that the slave controller is functional and on the same ISOBus network.

E-104 "Hitch Sensor Open Circuit"
The hitch angle sensor is not connected properly. Ensure that the wire harness to the hitch angle sensor is in working order.

E-105 "Hitch Sensor Out of Range"
The hitch angle sensor is providing a value out of it's designed range. Ensure that the hitch angle sensor is operational, and connected properly.

E-106 "Arm Angle Sensor Open Circuit"
The arm angle sensor is not connected properly. Ensure that the wire harness to the hitch angle sensor is in working order.

E-107 "Arm Angle Sensor Out of Range"
The alignment arm angle sensor is providing a value out of it's designed range. Ensure that the alignment arm angle sensor is operational, and connected properly.

E-108 "Arm Pressure Sensor Open Circuit"
The alignment arm pressure sensor is not connected properly. Ensure that the wire harness to the alignment arm pressure sensor is in working order.

E-109 "Arm Pressure Sensor Out of Range"
The alignment arm pressure sensor is providing a value out of it's designed range. Ensure that the alignment arm pressure sensor is operational, and connected properly.

E-110 "Loader Sensor Open Circuit Fault"
The loader angle sensor is not connected properly. Ensure that the wire harness to the loader angle sensor is in working order.

E-111 "Loader Sensor Out of Range Fault"
The loader angle sensor is providing a value out of it's designed range. Ensure that the loader angle sensor is operational, and connected properly.

E-112 "Grab Hooks Engage Output Open Fault"
The grab hook engage output does not appear to be driving an electrical load. Ensure that the grab hook engage coil and associated harnessing is operational.

E-113 "Grab Hooks Release Output Open Fault"
The grab hook release output does not appear to be driving an electrical load. Ensure that the grab hook release coil and associated harnessing is operational.

E-114 "Arms Open Output Open Fault"
The alignment arm open output does not appear to be driving an electrical load. Ensure that the alignment arm open coil and associated harnessing is operational.

E-115 "Arms Close Output Open Fault"
The alignment arm close output does not appear to be driving an electrical load. Ensure that the alignment arm close coil and associated harnessing is operational.

E-116 "Loader Up Output Open Fault"
The loader up output does not appear to be driving an electrical load. Ensure that the loader up coil and associated harnessing is operational.

E-117 "Loader Down Output Open Fault"
The loader down output does not appear to be driving an electrical load. Ensure that the loader down coil and associated harnessing is operational.

Error List and Common Remedies - Continued

E-118 "Hitch Inline Output Open Fault"
The hitch inline output does not appear to be driving an electrical load. Ensure that the hitch inline coil and associated harnessing is operational.

E-119 "Grab Hooks Engage Output Short Fault"
The grab hook engage output appears to be driving an electrical short. Ensure that the grab hook engage coil and associated harnessing is operational.
E-120 "Grab Hooks Release Output Short Fault"
The grab hook release output appears to be driving an electrical short. Ensure that the grab hook release coil and associated harnessing is operational.

E-121 "Arms Open Output Short Fault"
The alignment arm open output appears to be driving an electrical short. Ensure that the alignment arm open coil and associated harnessing is operational.

E-122 "Arms Close Output Short Fault"
The alignment arm close output appears to be driving an electrical short. Ensure that the alignment arm close coil and associated harnessing is operational.

E-123 "Loader Up Output Short Fault"
The loader up output appears to be driving an electrical short. Ensure that the loader up coil and associated harnessing is operational.

E-124 "Loader Down Output Short Fault"
The loader down output appears to be driving an electrical short. Ensure that the loader down coil and associated harnessing is operational.

E-125 "Hitch Inline Output Short Fault"
The hitch inline output appears to be driving an electrical short. Ensure that the hitch inline coil and associated harnessing is operational.

E-126 "Master Sensor Reference Voltage Fault"
The master controller sensor reference voltage is reading an incorrect voltage. Ensure that there is not a short on the master controller sensor reference voltage connection. It should measure 5.00 volts DC.

E-127 "Bed Angle Sensor Open Circuit"
The bed angle sensor is not connected properly. Ensure that the wire harness to the bed angle sensor is in working order.

E-128 "Bed Angle Sensor Out of Range"
The bed angle sensor is providing a value out of it's designed range. Ensure that the bed angle sensor is operational, and connected properly.

E-129 "Rolling Rack Forward Output Open Fault"
The rolling rack forward output does not appear to be driving an electrical load. Ensure that the rolling rack forward coil and associated harnessing is operational.

E-130 "Rolling Rack Back Output Open Fault"
The rolling rack back output does not appear to be driving an electrical load. Ensure that the rolling rack back coil and associated harnessing is operational.

E-131 "Push-Off Extend Output Open Fault"
The push-off extend output does not appear to be driving an electrical load. Ensure that the push-off extend coil and associated harnessing is operational.

E-132 "Push-Off Retract Output Open Fault"
The push-off retract output does not appear to be driving an electrical load. Ensure that the push-off retract coil and associated harnessing is operational.

Error List and Common Remedies - Continued

E-133 "Bed Up Output Open Fault"
The bed up output does not appear to be driving an electrical load. Ensure that the bed up coil and associated harnessing is operational.

E-134 "Bed Down Open Fault"
The bed down output does not appear to be driving an electrical load. Ensure that the bed down coil and associated harnessing is operational.

E-135 "Hitch Offset Output Open Fault"
The hitch offset output does not appear to be driving an electrical load. Ensure that the hitch offset coil and associated harnessing is operational.

E-136 "Power Slide Extend Output Open Fault"
The power slide extend output does not appear to be driving an electrical load. Ensure that the power slide extend coil and associated harnessing is operational.

E-137 "Power Slide Retract Output Open Fault"
The power slide retract output does not appear to be driving an electrical load. Ensure that the power slide retract coil and associated harnessing is operational.

E-138 "Rolling Rack Forward Output Short Fault"
The rolling rack forward output does not appear to be driving an electrical load. Ensure that the rolling rack forward coil and associated harnessing is operational.

E-139 "Rolling Rack Back Output Short Fault"
The rolling rack back output appears to be driving an electrical short. Ensure that the rolling rack back coil and associated harnessing is operational.

E-140 "Push-Off Extend Output Short Fault"
The push-off extend output appears to be driving an electrical short. Ensure that the push-off extend coil and associated harnessing is operational.

E-141 "Push-Off Retract Output Short Fault"
The push-off retract output appears to be driving an electrical short. Ensure that the push-off retract coil and associated harnessing is operational.

E-142 "Bed Up Output Short Fault"
The bed up output appears to be driving an electrical short. Ensure that the bed up coil and associated harnessing is operational.

E-143 "Bed Down Short Fault"
The bed down output appears to be driving an electrical short. Ensure that the bed down coil and associated harnessing is operational.

E-144 "Hitch Offset Output Short Fault"
The hitch offset output appears to be driving an electrical short. Ensure that the hitch offset coil and associated harnessing is operational.

E-145 "Power Slide Extend Output Short Fault"
The power slide extend output appears to be driving an electrical short. Ensure that the power slide extend coil and associated harnessing is operational.

E-146 "Power Slide Retract Output Short Fault"
The power slide retract output appears to be driving an electrical short. Ensure that the power slide retract coil and associated harnessing is operational.

E-147 "Slave Sensor Reference Voltage Fault"
The slave controller sensor reference voltage is reading an incorrect voltage. Ensure that there is not a short on the slave controller sensor reference voltage connection. It should measure 5.00 volts DC.

Error List and Common Remedies - Continued

E-148 "Power Slide Pressure Sensor Open Circuit"
The power slide pressure sensor is not connected properly. Ensure that the wire harness to the power slide pressure sensor is in working order.

E-149 "Power Slide Pressure Sensor Out of Range"
The power slide pressure sensor is providing a value out of it's designed range. Ensure that the power slide pressure sensor is operational, and connected properly.

E-150 "Power Slide Pressure Reduction Output Short Fault"
The power slide pressure reduction output appears to be driving an electrical short. Ensure that the power slide pressure reduction coil and associated harnessing is operational.

E-151 "Power Slide Pressure Reduction Output Open Fault"
The power slide pressure reduction output does not appear to be driving an electrical load. Ensure that the power slide pressure reduction coil and associated harnessing is operational.

E-152 "Power Slide Pressure Deficiency Fault"
The ambient hydraulic pressure of the power slide appears to be low. Ensure that the power slide has adequate hydraulic pressure.

E-153 "Incorrect slave version"
The master and slave controller versions are not matched. Ensure that the master and slave controllers have the same firmware version. The versions can be checked under Home > Configuration > Info

E-154 "Lube Minder Timeout"
The lube minder did not provide any proximity switch pulses during it's last operating run. Ensure that the lube minder has sufficient lubricant, and/or the proximity switch and associated harnessing is in working order.

Notes

Section 9:
Parts Breakdown

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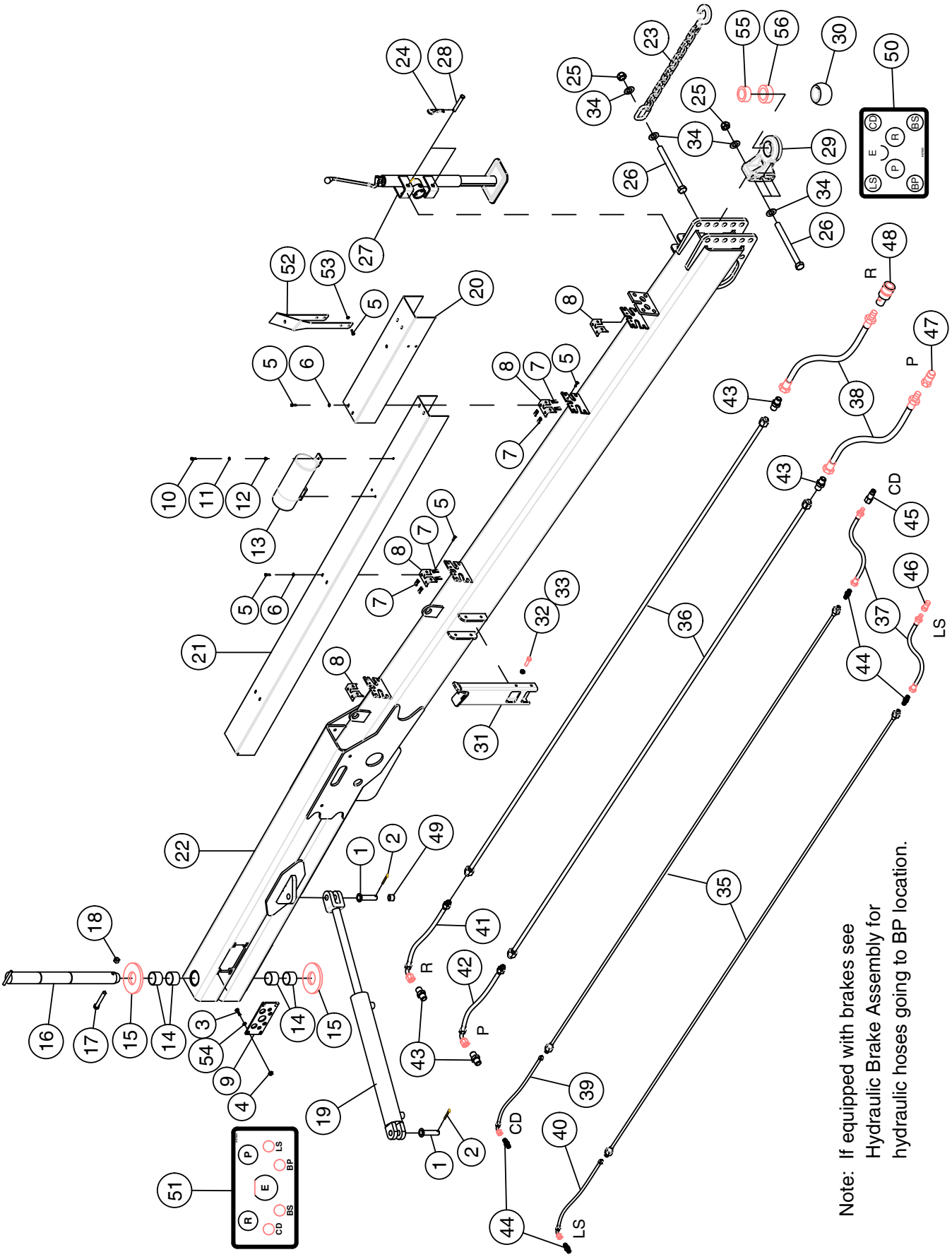
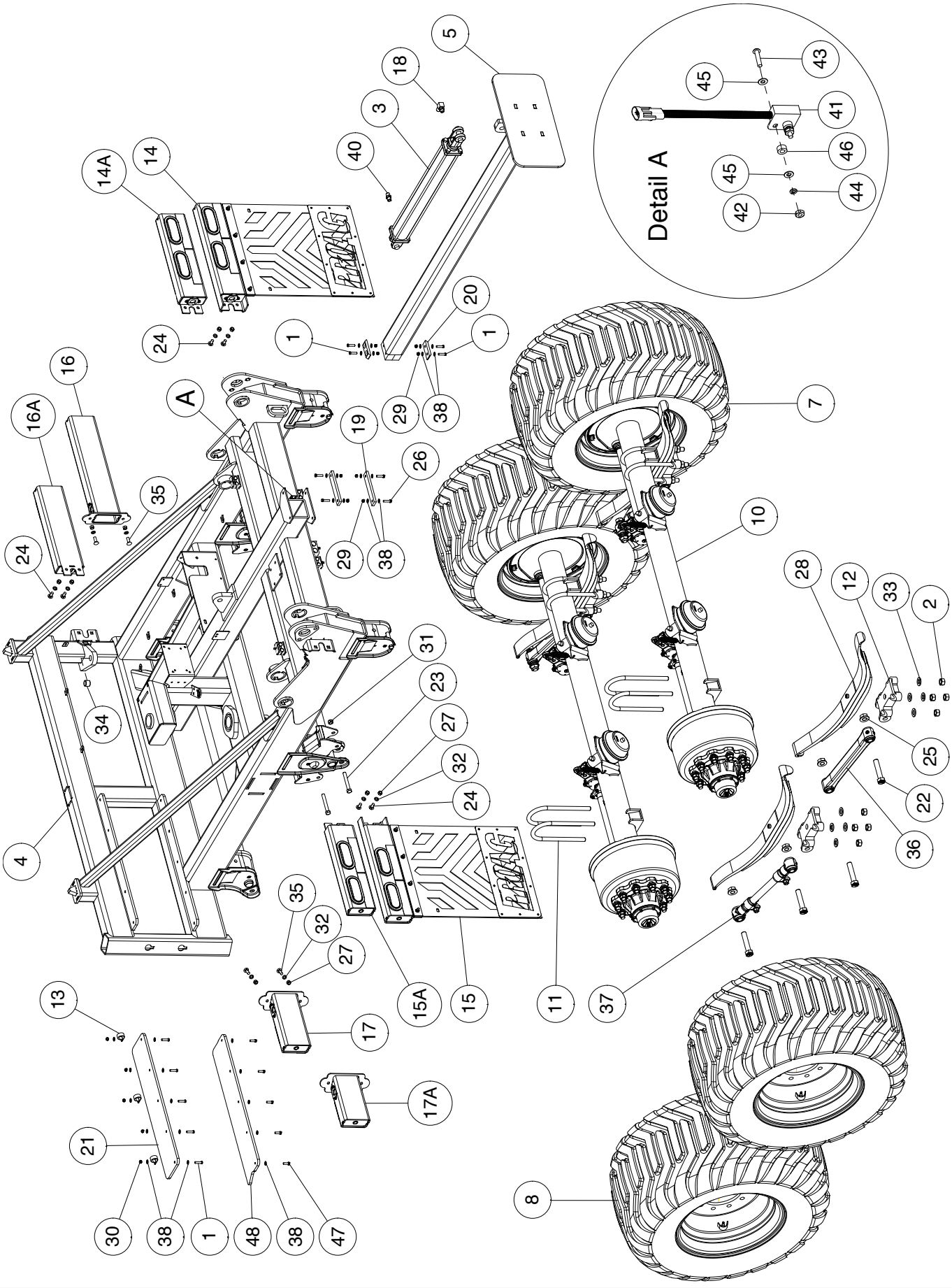

Note: If equipped with brakes see Hydraulic Brake Assembly for hydraulic hoses going to BP location.
R
P
CD
LS
E
BS
BP

Hitch

Item	Part No.	Description	Qty
1	C-1429	Cylinder Pin - 1 x 3 3/8 ULg	2
2	W-535	Cotter Pin - 1/4 x 1 1/2	2
3	D-5261	Carriage Head Bolt - 3/8 x 1 1/2 Lg	4
4	D-5279	Lock Nut - 3/8 Flange	3
5	W-1552	Hex Bolt - 1/4 x 1 Lg . . . (4 required to mount K64108)	20
6	N40748	Flatwasher - 1/4	8
7	K67799	J-Nut - 1/4	16
8	K62134	Bracket - Line Locking	4
9	K62138	Plate - Hydraulic Input	1
10	F-1767	Hex Bolt - 5/16 x 3/4 Lg	3
11	W-513	Hex Nut - 5/16	3
12	W-522	Lockwasher - 5/16	3
13	K67870	Holder - Manual	1
14	K67053	Bushing - 2.750 OD X 2.500 ID X 1.75 Lg	4
15	**10352**	Washer - Hitch Pivot - 2 1/2 ID x 6 OD x 1/2 Thick	**2**
16	**K62870**	**Pin - Hitch Pivot - 2 1/2 OD x 28 1/2 Lg**	**1**
17	**K25798**	**Hex Bolt - 1/2 x 4 Lg**	**1**
18	**F-3405**	**Locknut - 1/2 Unitorque**	**1**
19	10449	Hitch Cylinder	1
20	**K62124**	**Front Cover**	**1**
21	**K62128**	**Rear Cover**	**1**
22	**K62140**	**Hitch**	**1**
23	**C18761**	**Safety Chain - 40,000 Lb**	**1**
24	W-131	Hairpin - #9	2
25	**D-5274**	**Locknut - 1 Unitorque**	**4**
26	**S39487**	**Bolt - 1 x 8 Lg GR 8**	**4**
27	**H59985**	**Top Wind Jack - 7000 Lb**	**1**
28	H10462	Pin - 0.621 Dia x 3 5/8 UL	2
29	S66236	Clevis - CAT 4 (1 1/2 Pin Diameter Draw Pin) (Includes item 30) - Standard	**1**
29A	**K62145**	**Clevis - CAT 4 (2 Pin Diameter Draw Pin) (Includes item 30A) - Optional**	
30	S65740	Clevis Insert - CAT 4 - (1 1/2 Diameter Draw Pin)	
30A	S67388	Clevis Insert - CAT 4 - (2 Diameter Draw Pin)	
31	**K67894**	**Loader Rest**	**1**
32	**W-187**	**Bolt - 3/8 x 1 1/4 Lg**	**4**
33	M-3388	Locknut - 3/8 Unitorque	**4**
34	D-5498	Washer - 1-1/16 ID x 2 OD x 11 Ga	8
35	**K62753**	**Oil Line - 1/2 x 128 Lg -** 3/4-16 (**#08) FJIC ends**	**2**
36	**K62754**	**Oil Line - 1 x 129 Lg -1 5/16-12 (#16) FJIC ends**	**2**
37	K62920	Hyd Hose - 1/2 x 60 Lg - 3/4-16 (#08) FJIC x 3/4-16 (#08) MORB	2
38	K62921	Hyd Hose - 3/4 x 60 Lg - 1 5/16-12 (#16) FJIC x 1 1/16-12 (#12) MORB	2
39	K62902	Hyd Hose - 1/2 x 72 Lg - 3/4-16 (#08) MJIC x 3/4-16 (#08) FJIC 45 Deg	1
40	K69185	Hyd Hose - 1/2 x 66 1/2 Lg - 3/4-16 (#08) MJIC x 3/4-16 (#08) FJIC 45 Deg	1
41	K62908	Hyd Hose - 3/4 x 70 1/2 Lg - 1 5/16-12 (#16) MJIC x 1 5/16-12 (#16) FJIC 45 Deg	1
42	**K69187**	**Hyd Hose - 3/4 x 67 Lg - 1 5/16-12 (#16) MJIC x 1 5/16-12 (#16) FJIC 45 Deg**	**1**
43	**K62131**	**Bulk Head Union - 1 5/16-12 (#16) MJIC**	**2**
44	**K62123**	**Bulk Head Union - 3/4-16 (#08) MJIC**	**2**
45	K50834	3/8 Flat Face Tip - 3/4-16 FORB	1
46	N34443	1/2 Male Pioneer Tip - 3/4-16 FORB	1
47	N37914	3/4 Male Tip - 1 1/16-12 FORB	2
48	N37915	3/4 Female Coupler - 1 1/16-12 FORB	2
49	K24004	Bushing - Spring Tension - 1 ID x 1 1/4 OD x 1 Lg	1
50	K67923	Decal - Hydraulic Identification - Hitch Front	1
51	K67924	Decal - Hydraulic Identification - Hitch Back	1
52	K64108	Light Bracket	1
53	D-5277	Locknut - 1/4 Flange	4
54	K73262	Push Nut - 3/8	4
	K71814	**Hammer Strap Spacer Kit** (Includes items 54 and 55)	
55	A71815	Spacer - 1.625 ID x 2 3/8 OD x 1 3/16 Lg	1
56	A71816	Spacer - 2.063 ID x 2 1/2 OD x 1 3/16 Lg	1
		If equipped with brakes see Hydraulic Brake Assembly for additional Hyd Hoses.	

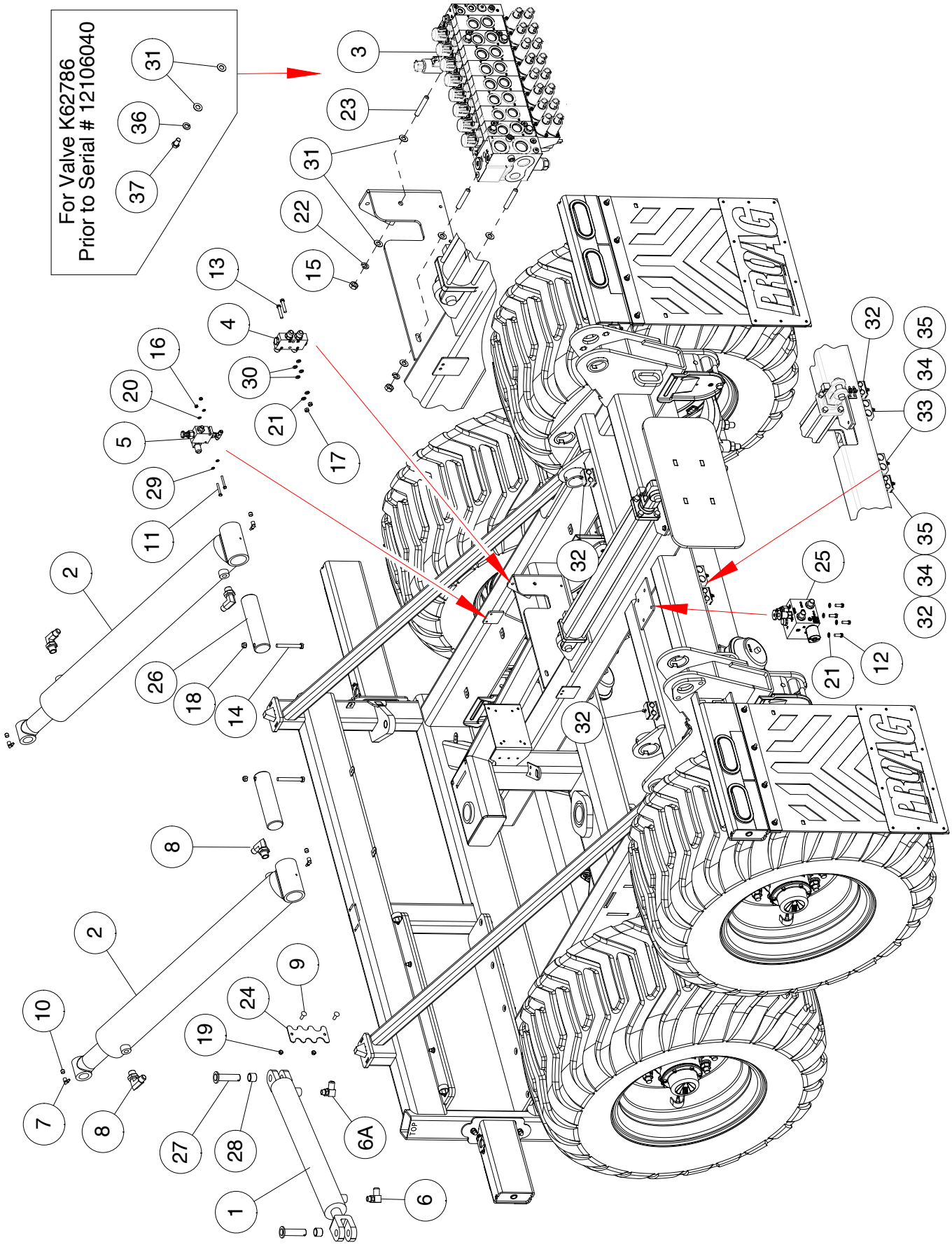
Frame Assembly - Stage 1



Frame Assembly - Stage 1

Item	Part No.	Description	Qty
1	10075	Hex Socket Cap Screw - 3/8 x 1 1/2 Lg	**9**
2	12013	Hex Nut - 7/8-14 UNF	16
3	12168	Hydraulic Cylinder - 3 x 14 Stroke	1
4	K62150	Main Frame Weldment	1
5	K62441	Push Out	1
6	K62870	Pin - Hitch Pivot	1
7	**S68660**	**Tire/Rim Assembly - Bi-Directional** - From Serial # 12106041	**2**
	K65090	Tire/Rim Assembly - Left - Prior to Serial # 12106040	2
8	**S68660**	**Tire/Rim Assembly - Bi-Directional** - From Serial # 12106041	**2**
	K65091	Tire/Rim Assembly - Right - Prior to Serial # 12106040	2
9	K65695	Pin - Bed Pin - 2 1/2 Dia x 6 1/4 UL	2
10	K68298	Axle - Braking	2
	K68297	Axle - Non Braking - Not Shown	
11	K68389	U-Bolt - 7/8-14 UNF x 5 x 12 3/4 UL	8
12	K68394	Plate - Bottom Axle Attachement	4
13	K68405	Bracket - Wiring Harness	3
14	K69164	Light Bracekt Assembly with Mud Flap - Right Rear	1
14A	**K71770**	**Short Light Bracekt Assembly no Mud Flap - Right Rear**	
15	K69165	Light Bracket Assembly with Mud Flap - Left Rear	1
15A	**K71771**	**Short Light Bracket Assembly no Mud Flap - Left Rear**	
16	K69166	Light Bracket Assembly - Right Front - To Serial # 12006025	1
16A	**K71772**	**Light Bracket Assembly - Right Front - From Serial # 12006026**	
17	K69167	Light Bracket Assembly - Left Front - To Serial # 12006025	1
17A	**K71773**	**Light Bracket Assembly - Left Front - From Serial # 12006026**	
18	C24585	90 Elbow - 7/8-14 MJIC x 3/4-16 MORB	1
19	11469	Push Off Tube Plastic	2
20	11470	Push Off Plastic	2
21	**K62925**	**Plastic Slide - Top**	**1**
22	K68403	Hex Bolt - 1 x 5 Lg	8
23	K68412	Hex Bolt - 5/8-18 UNF x 4 1/2 Lg	4
24	T-5266	Carriage Bolt - 1/2 x 1 1/4 Lg	4
25	K68404	Locknut - 1 Flange	8
26	W-477	Hex Bolt - 3/8 x 1 1/2 Lg	4
27	W-516	Hex Nut - 1/2	8
28	K68400	Leaf Spring Pack	4
29	10229	Locknut - 3/8 Nylon Insert	8
30	M-3388	Locknut - 3/8 Unitorque	**5**
31	K-5703	Locknut - 5/8 Unitorque	4
32	W-525	Lockwasher - 1/2	8
33	12011	Washer - 15/16 ID x 1 3/4 OD	16
34	K24004	Bushing - Spring Tension - 1 ID x 1 1/4 OD x 1 Lg	1
35	H-4584	Carriage Bolt - 1/2 x 1 1/2	4
36	K68401	Torque Arm - Non Adjustable	2
37	K68402	Torque Arm - Adjustable	2
38	D-5489	Washer - 13/32 ID x 13/16 OD x 16 Ga	**26**
39	C-1429	Pin - 1 x 3 3/8 UL	2
40	C14840	Connector - 7/8-14 MJIC (#10) x 3/4-16 MORB (#08)	1
41	11505	Sensor - Ferrous Metal	1
42	11570	Hex Nut #12 - Brass	2
43	11571	Machine Screw #12 - 24 x 1 Lg - Brass	2
44	11572	Lockwasher #12 - 0.216 ID - Brass	2
45	11573	Flat Washer #12 - 0.25 ID x 0.562 OD - Brass	4
46	11575	Nylon Spacer - 1/4 ID x 1/2 OD x 1/4Lg	2
47	**K58949**	**Hex Bolt - 3/8 x 1 Lg GR8**	**5**
48	**K71787**	**Steel Slide - Bottom - From Serial # 12006026**	**1**
	K62925	**Plastic Slide** - To Serial # 12006025	**1**

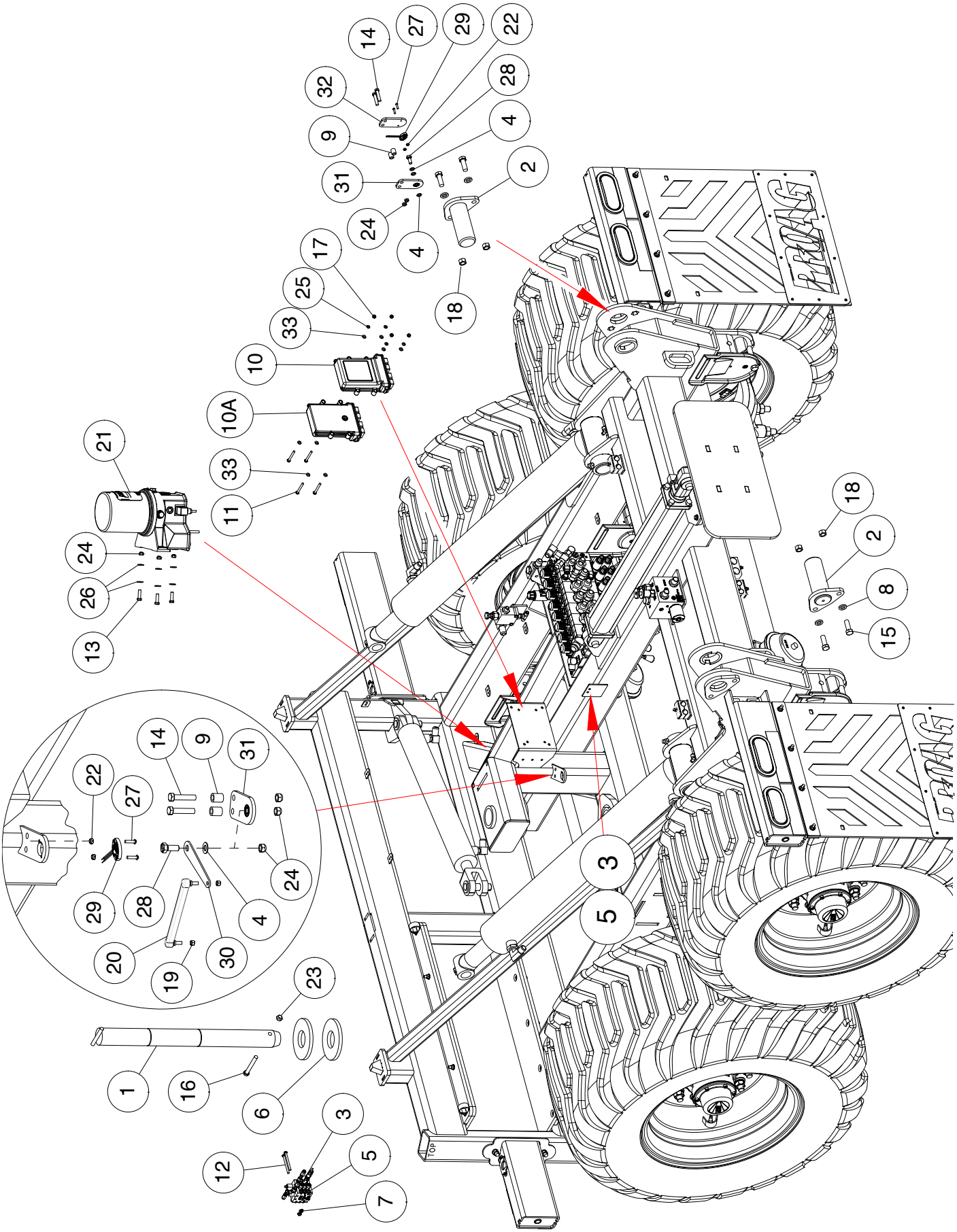
Frame Assembly - Stage 2



Frame Assembly - Stage 2

Item	Part No.	Description	Qty
1	10449	Hitch Cylinder - 3 1/2 x 18 x 1 3/4 Dia shaft - 08 ORB	1
2	K71792	Bed Cylinder - 5 x 36 x 2 1/2 Dia shaft - 12 ORB	2
3	K72230	Valve Block - Main Hydraulic - M10 mount holes - From Serial # 12106041	1
	K62786	Valve Block - Main Hydraulic - 7/16-20 UNF mount holes - Prior to Serial # 12106040	1
4	K68627	Valve Block - Dual Direction Pilot Check	1
5	S42307	Pressure Reducing Valve - Hydraulic Brakes	1
6	10180	90 Elbow - 3/4-16 (#08) MJIC x 3/4-16 (#08) MORB	1
6A	C24585	90 Elbow - 7/8-14 (#10) MJIC x 3/4-16 (#08) MORB	1
7	K68637	Lincoln - 90 Degree Swivel W/ 1/4-28 Thread	4
8	N34644	90 Elbow - 3/4-16 (#08) MJIC x 1 1/16-12 (#12) MORB	4
9	D-5260	Carriage Bolt - 3/8 x 1 1/4 Lg	2
10	K68641	Dust Boot	4
11	W-1540	Hex Bolt - 1/4 x 2 Lg	2
12	W-475	Hex Bolt - 3/8 x 1 Lg	4
13	W-478	Hex Bolt - 3/8 x 2 Lg	2
14	K25798	Hex Bolt - 1/2 x 4 Lg	2
15	11586	Nut - 10 mm - For Valve Block K72230	3
16	W-512	Hex Nut - 1/4	2
17	W-514	Hex Nut - 3/8	2
18	F-3405	Locknut - 1/2 Unitorque	3
19	D-5279	Locknut - 3/8 Flange	2
20	W-521	Lockwasher - 1/4	2
21	W-523	Lockwasher - 3/8	6
22	11588	Lockwasher - 10 mm - For Valve Block K72230	3
23	11587	Set Screw - M10 - 1.5 x 60 mm - For Valve Block K72230	3
24	K64045	Bracket - Hose Holder	1
25	K68300	Valve Block - Counter Balance - Rolling Rack	1
26	K62869	Pin - 2 1/2 Dia x 9 3/8 Lg	2
27	C-1429	Pin - 1 x 3 3/8 UL	2
28	K24004	Bushing - Spring Tension - 1 ID x 1 1/4 OD x 1 Lg (Located in hitch and frame lug)	2
29	S-1198	Flatwasher - 1/4	2
30	D-5489	Flatwasher - 13/32 ID x 13/16 OD x 16 Ga	8
31	S-1201	Flatwasher - 15/32 ID x 59/64 OD x 16 Ga	7
32	11740	Plastic Hose Clamp Assembly - 13/16”	4
33	K73235	Plastic Hose Clamp Assembly - 3/4” (10949)	2
34	10811	Set Screw - 5/16 x 2-1/2 Lg	6
35	D-5272	Locknut - 5/16 Nylon Insert (10231)	6
36	W-524	Lockwasher - 7/16 - For Valve Block K62786	3
37	K69334	Hex Bolt - 7/16-20 UNF x 1 Lg - For Valve Block K62786	3

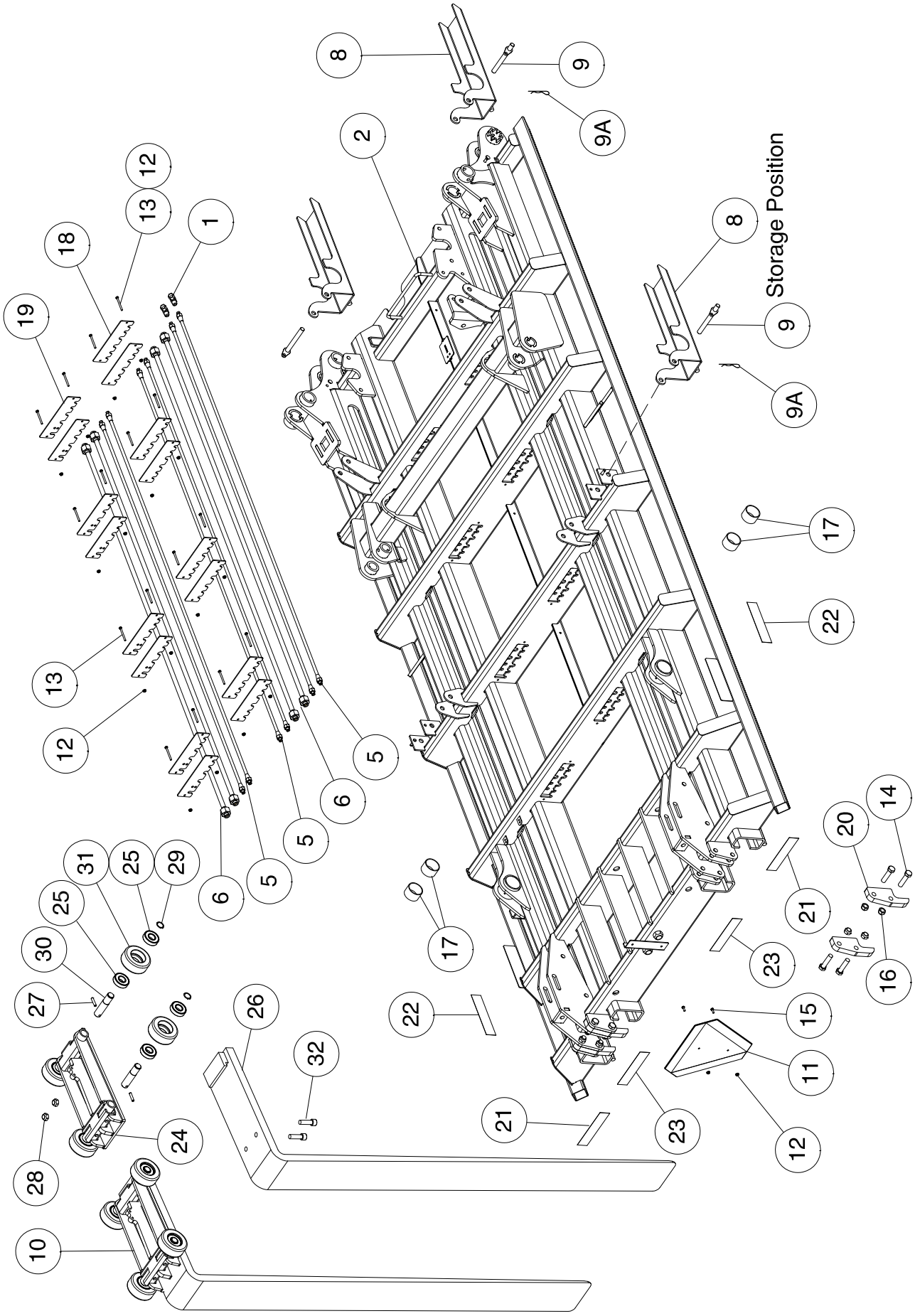
Frame Assembly - Stage 3



Frame Assembly - Stage 3

Item	Part No.	Description	Qty
1	K62870	Pin - Hitch Pivot	1
2	K65695	Pin - Bed Pin - 2 1/2 Dia x 6 1/4 UL	2
3	K67725	Primary Valve - Lincoln Quick Lube - 6 Port Divider W/ Check (619-27122-1)	1
4	W-542	Flatwasher - 13/32 ID x 11/16 OD x 12 Ga	3
5	K67941	Lincoln Quick Lube - 6 Port Divider Block (619-27121)	1
6	10352	Washer - Hitch Pivot - 2 1/2 ID x 6 OD x 1/2 Thick	2
7	D-5277	Locknut - 1/4 Flange	2
8	W-793	Flatwasher - 5/8 ID x 1 1/8 OD x 3/16	4
9	N32079	Bushing - 0.385 ID x 5/8 OD x 3/4 Lg	4
10	K69670	Falcon Controller - Master	1
10A	K69671	Falcon Controller - Slave	1
11	S45280	Hex Bolt - 1/4 x 2 1/4 Lg	4
12	H-4696	Hex Bolt - 1/4 x 3 1/4 Lg	2
13	W-477	Hex Bolt - 3/8 x 1 1/2 Lg	3
14	W-619	Hex Bolt - 3/8 x 1 3/4 Lg	4
15	W-498	Hex Bolt - 5/8 x 1 3/4 Lg	4
16	K25798	Hex Bolt - 1/2 x 4 Lg	3
17	W-512	Hex Nut - 1/4	6
18	W-517	Hex Nut - 5/8	4
19	K69668	Locknut - M6-1.0 Nylon Insert	2
20	K62760	Linkage - Dual Ball End - 152mm Center to Center	1
21	K67054	Lincoln Pump	1
22	N16304	Locknut #8-32 UNC	4
23	F-3405	Locknut - 1/2 Unitorque	4
24	M-3388	Locknut - 3/8 Unitorque	15
25	W-521	Lockwasher - 1/4	6
26	W-538	Flatwasher - 7/16 ID x 1 OD x 14 Ga	6
27	K72059	Machine Screw #8-32 UNC x 1 Lg	4
28	K67331	Hex Bolt - 3/8 x 1 Lg - Stainless with Magnetic Head	2
29	K67298	Sensor - Angular Position	2
30	K65184	Sensor Arm - 4 Center to Center	1
31	K69719	Sensor Bearing Plate Assembly - (Includes Bearing)	2
32	K68646	Sensor Mount	1
33	S-1198	Flatwasher - 5/16 ID x 3/4 OD x 1/16 Thick	8

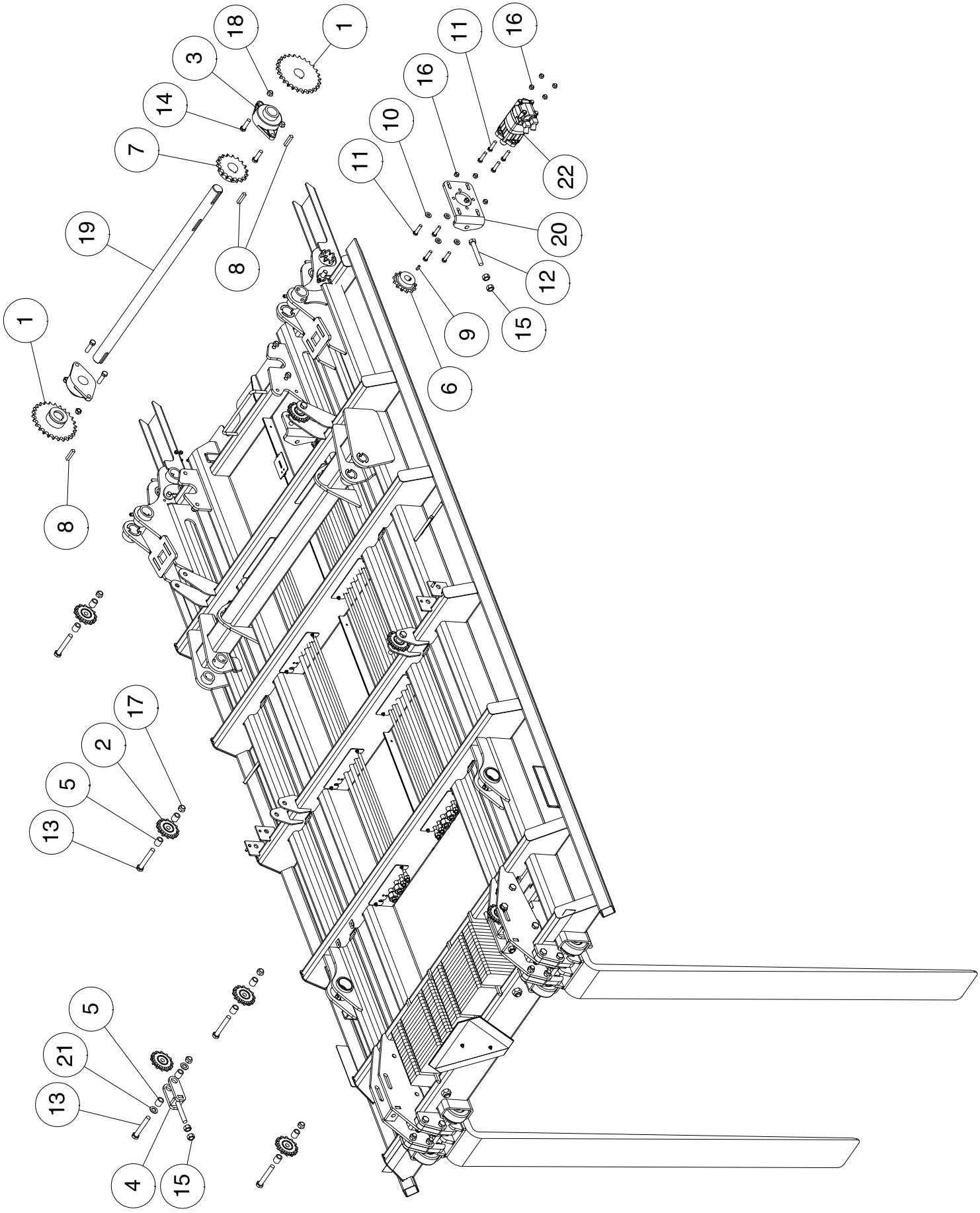
Bed Assembly - Stage 1



Bed Assembly - Stage 1

Item	Part No.	Description	Qty
1	11358	90 Elbow - 3/4-16 (#08) MJIC x 3/4-16 (#08) FJIC	2
2	K62100	Bed Weldment	1
3	K62175	Pin - Left Loader Pivot	1
4	K62652	Chain Tensioner	2
5	K62751	Oil Line - 1/2 x 84 Lg - 3/4-16 (#08) FJIC ends	6
6	K62752	Oil Line - 3/4 x 84 Lg - 1 1/16-12 (#12) FJIC ends	4
7	K62910	Pin - Right Loader Pivot	1
8	K67600	Bed Extension	2
9	K67610	Extension Pin - 3/4 Dia x 6 1/2 UL	2
9A	D17315	Hair Pin - #7	2
10	K68960	Rolling Rack Cart Assembly - See below for details	2
11	N34475	SMV Sign	1
12	D-5277	Lock Nut - 1/4 Flange	18
13	N32237	Hex Bolt - 1/4 x 2 3/4 Lg	16
14	N49653	Hex Bolt - 3/4 x 3 Lg GR 8	8
15	W-469	Hex Head 1/4 x 3/4 Lg	2
16	D-5273	Locknut - 3/4 Unitorque	8
17	K67053	Q2 Bushing - 2.50 ID x 2.75 OD x 1.75 Lg	4
18	K62677	Plate - Hydraulic Oil Line Holder	8
19	K62678	Plate - Hydraulic Oil Line Holder, Lube Lines and Wiring	8
20	K64622	Lug - Rolling Rack Stop	4
21	N34476	Reflector - Red	2
22	N34477	Reflector - Yellow	2
23	N34478	Reflector - Orange	2
		Rolling Rack Cart Assembly - Quantities given per assembly	
24	K72085	Rolling Rack Cart	1
25	K67720	Bearing	8
26	K62101	Forklift Tooth - 8 x 84	1
27	P1314876	Spiral Pin - 3/8 x 2 3/4 Lg	4
28	D-5273	Locknut - 3/4 Unitorque	2
29	K68411	Snap Ring - External 1-3/16	4
30	K64625	Shaft - Roller Axle	4
31	K62105	Wheel - Rolling Rack - 5 Dia	4
32	K62687	Socket Head Cap Screw - 3/4 x 2 1/2	2

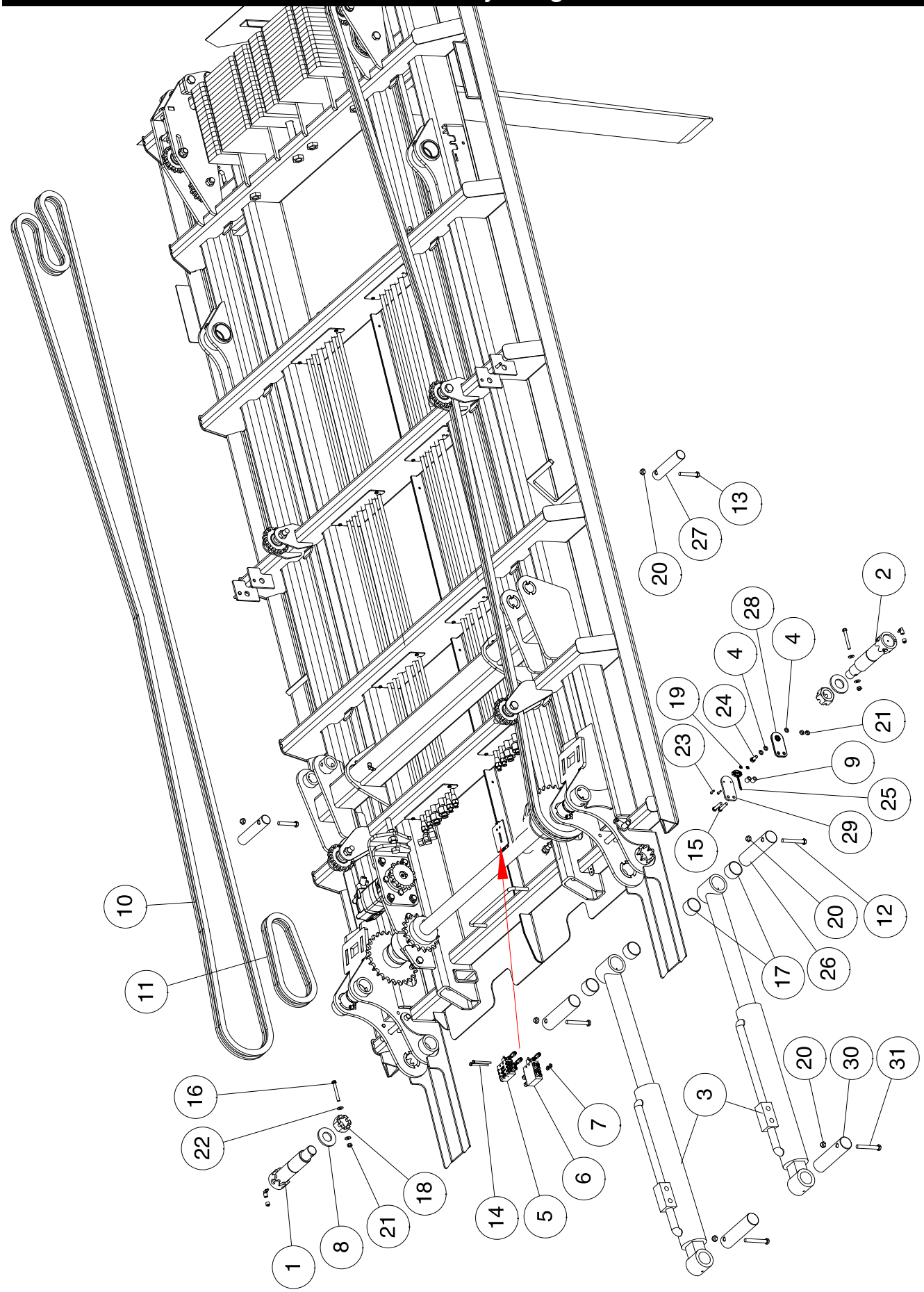
Bed Assembly - Stage 2



Bed Assembly - Stage 2

Item	Part No.	Description	Qty
1	12236	Sprocket - 26 Tooth - 80 chain	2
2	K53447	Idler Sprocket - 12 Tooth - 80 chain	**10**
3	K62114	Flanged Bearing	2
4	K62652	Chain Tensioner	2
5	S39648	Bushing - 0.765 ID x 1 1/8 OD x 1 3/16 Lg	**20**
6	K62750	Drive Sprocket - 13 Tooth - 80 chain	1
7	K62906	Sprocket - 18 Tooth - 80 chain	1
8	12254	Key - 1/2 x 2 1/2 Lg	3
9	K72340	Key - 5/16 x 5/16 x 1 1/4 Lg	1
10	S-751	Flatwasher - 17/32 ID x 1 1/8 OD x 3/16	4
11	W-488	Hex Bolt - 1/2 x 2 Lg	8
12	K62378	Hex Bolt - 3/4 x 5 Lg	1
13	S-1191	Hex Bolt - 3/4 x 5 Lg	**10**
14	W-500	Hex Bolt - 5/8 x 2 1/4 Lg	4
15	W-518	Hex Nut - 3/4	6
16	F-3405	Locknut - 1/2 Unitorque	8
17	D-5273	Locknut - 3/4 Unitorque	**18**
18	K-5703	Locknut - 5/8 Unitorque	4
	C17295	Locknut - 5/8 Nylon Insert	4
19	K62773	Drive Shaft - Rolling Rack - 2 Dia x 49 Lg	1
20	K62160	Motor Mount - Rolling Rack	1
21	W-476	Flatwasher - 3/4	4
22	K62154	Hydraulic Motor - 245cc **(Seal Kit K69331)**	1
	K71782	Hydraulic Motor - 383cc (Seal Kit K69331) - **Discontinued use K62154**	

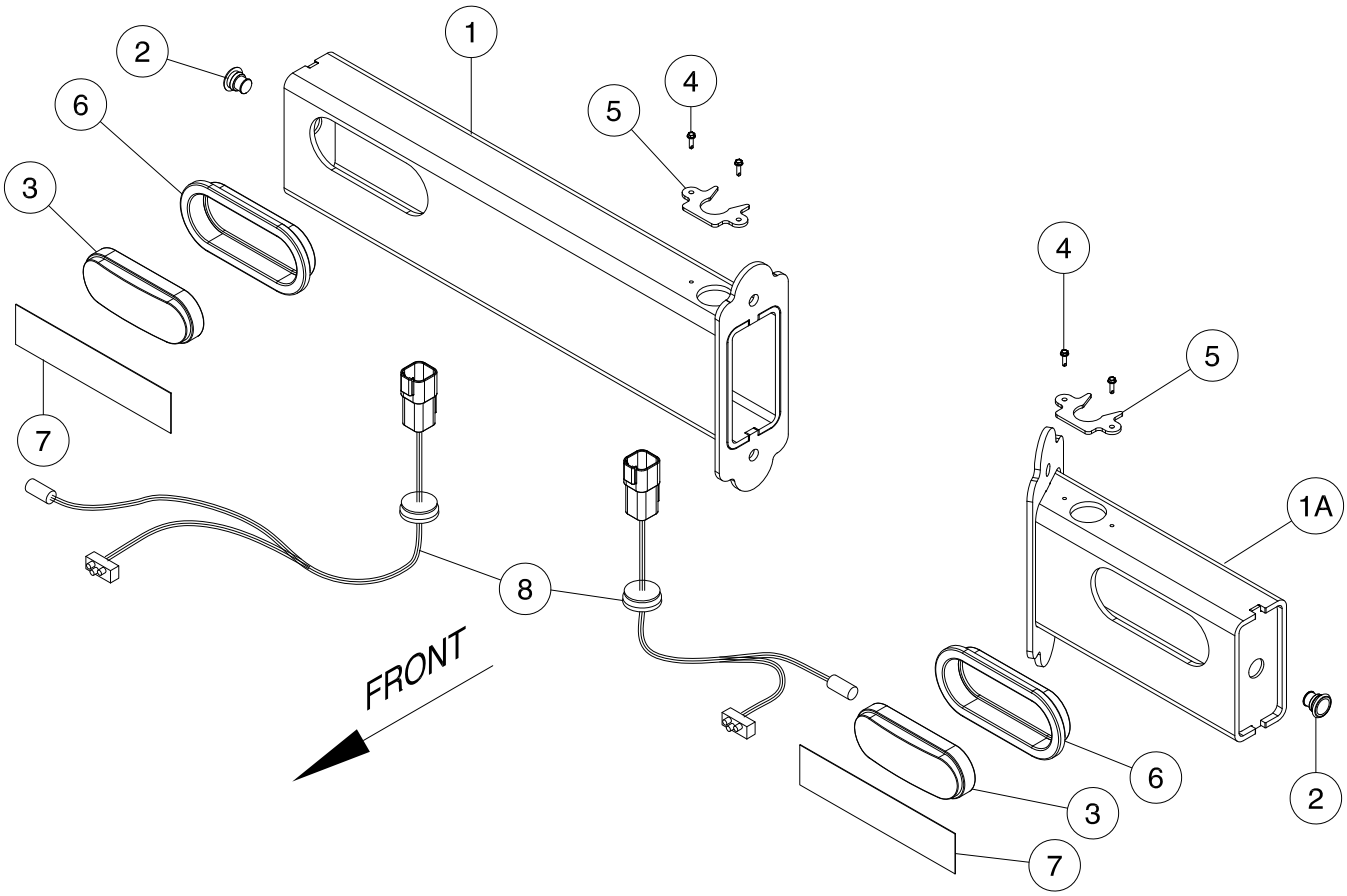
Bed Assembly - Stage 3



Bed Assembly - Stage 3

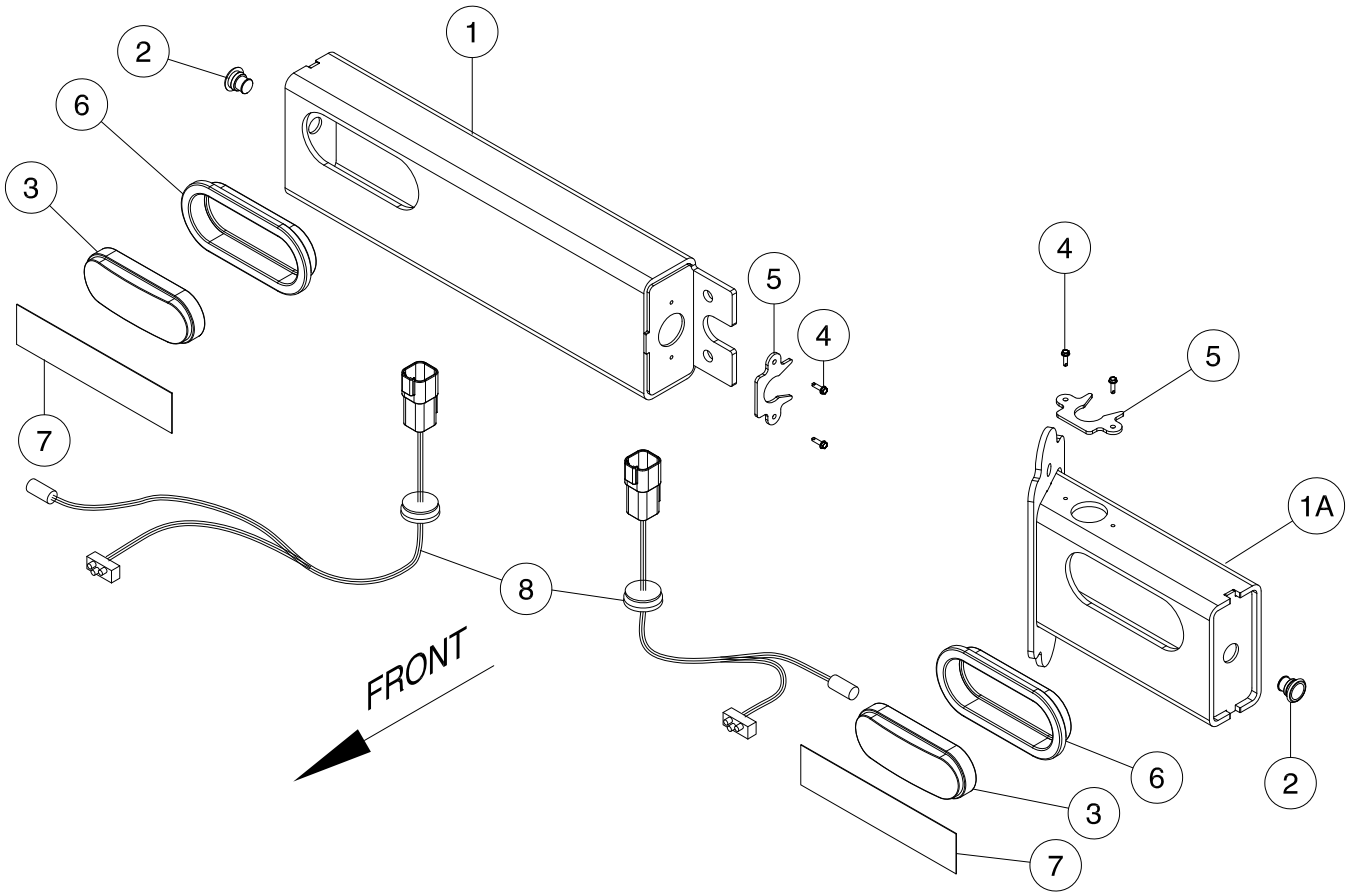
Item	Part No.	Description	Qty
1	K62175	Pin - Left Loader Pivot	1
2	K62910	Pin - Right Loader Pivot - Sensor Mount	1
3	K67300	Loader Cylinder - 3 1/2 x 20 x 2 1/2 Dia shaft - 08 ORB.	2
4	W-542	Flatwasher - 3/8	3
5	K67941	Lincoln Quick Lube - 6 Port Divider Block (619-27121)	1
6	K67726	Lincoln Quick Lube - 8 Port Divider Block (619-26396-2)	1
7	D-5277	Locknut - 1/4 Flange	20
8	A58726	Washer - 1 17/32 ID x 3 OD x 1/4 Thick	2
9	N32079	Bushing - 0.385 ID x 5/8 OD x 3/4 Lg	2
10	K62675	Chain - HD 80 - 315 Lg including connector link K73229 on each end	2
11	K67886	Chain - HD 80 - 34 Lg including connector link K73229	1
12	W-494	Hex Bolt - 1/2 x 3 3/4 Lg	2
13	W-492	Hex Bolt - 1/2 x 3 Lg	2
14	H-4696	Hex Bolt - 1/4 x 3 1/4 Lg	2
15	W-619	Hex Bolt - 3/8 x 1 3/4 Lg	2
16	W-1854	Hex Bolt - 3/8 x 3 Lg	2
17	K62377	Q2 Bushing - 2.001 ID x 2.250 OD x 1.625 Lg	4
18	N21728	Hex Slotted Nut - 1 1/2-12 UNF	2
19	**N16304**	**Locknut #8-32 UNC**	**2**
20	F-3405	Locknut - 1/2 Unitorque	12
21	M-3388	Locknut - 3/8 Unitorque	4
22	W-538	Flatwasher - 7/16 ID x 1 OD x 14 Ga	4
23	**K72059**	**Machine Screw #8-32 UNC x 1 Lg**	**2**
24	K67331	Hex Bolt - 3/8 x 1 Lg - Stainless with Magnetic Head	1
25	K67298	Sensor - Angular Position	1
26	K62777	Pin - 2 Dia x 7 3/4 Lg - Loader/Bed	2
27	K67648	Pin - 1 1/2 Dia x 7 Lg - Grab Hook	2
28	K69719	Sensor Bearing Plate Assembly - (Includes Bearing)	1
29	K68646	Sensor Mount - Hitch	1
30	K67649	Pin - 2 Dia x 7 Lg - Loader	2
31	W-493	Hex Bolt - 1/2 x 3 1/2 Lg	2

Front Light Bracket Assembly - To Serial # 12006025



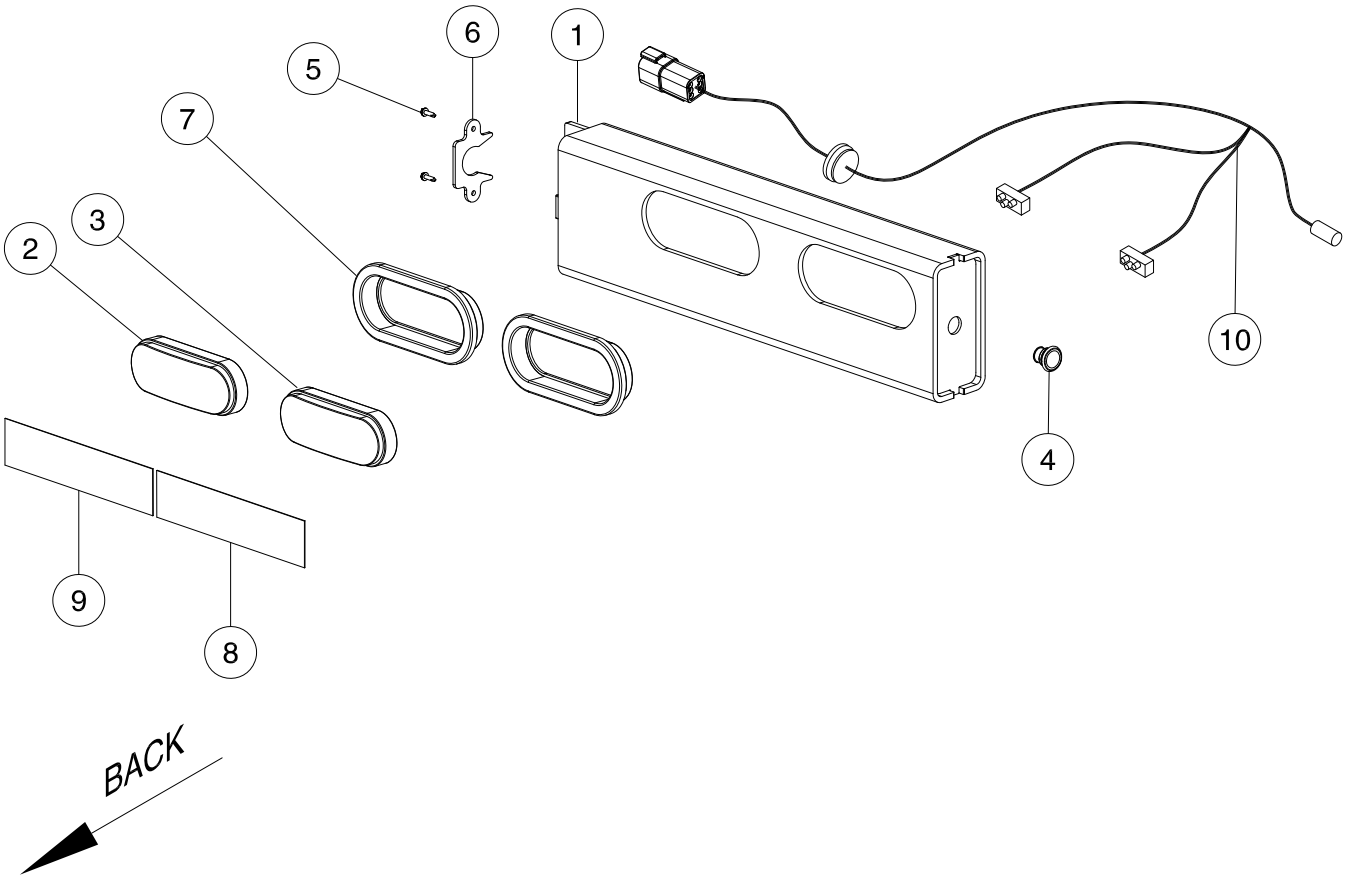
Item	Part No.	Description	Qty
1	K64115	Light Bracket Front - Right (24 Lg)	1
1A	K64114	Light Bracket Front - Left (11 15/16 Lg)	1
2	K67642	Button Light - Amber	1
3	K67644	Light Amber	1
4	K69169	Machine Screw - #8 Stainless Steel	2
5	K68302	Locking Plate - Light Harness	1
6	K68538	Grommet	1
7	N34477	Reflector - Yellow	1
8	K67997	Wiring Harness	1
	K69166	Light Bracket Assembly - Right (includes items 1, 2 - 8)	
	K69167	Light Bracket Assembly - Left (includes items 1A, 2 - 8)	

Front Light Bracket Assembly - From Serial # 12006026



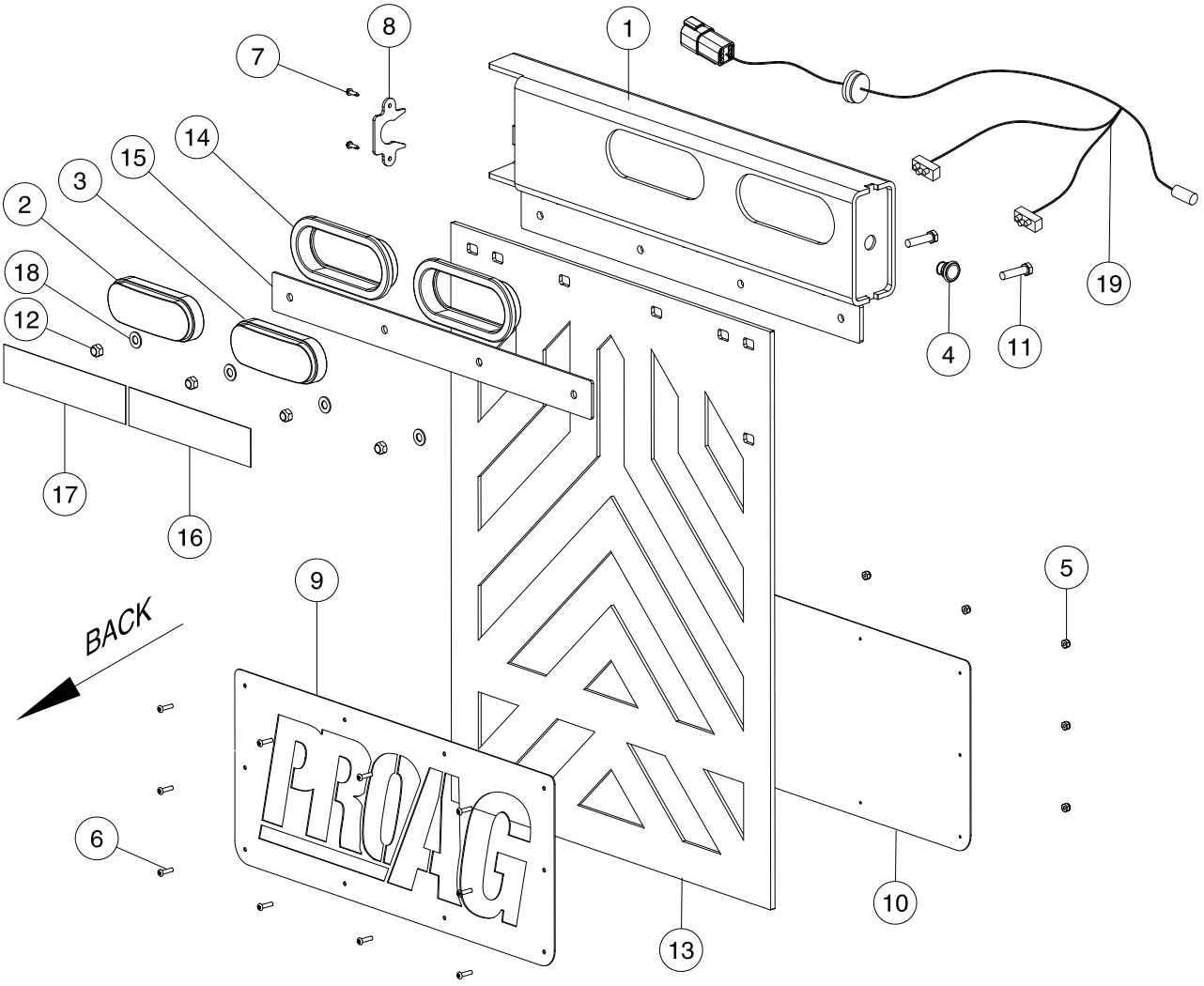
Item	Part No.	Description	Qty
1	K71776	Light Bracket Front - Right (23 1/4 Lg)	1
1A	K71777	Light Bracket Front - Left (11 11/16 Lg)	1
2	K67642	Button Light - Amber	1
3	K67644	Light Amber	1
4	K69169	Machine Screw - #8 Stainless Steel	2
5	K68302	Locking Plate - Light Harness	1
6	K68538	Grommet	1
7	N34477	Reflector - Yellow	1
8	K67997	Wiring Harness	1
	K71772	Light Bracket Assembly - Right (includes items 1, 2 - 8)	
	K71773	Light Bracket Assembly - Left (includes items 1A, 2 - 8)	

Rear Light Bracket Assembly - No Mud Flaps



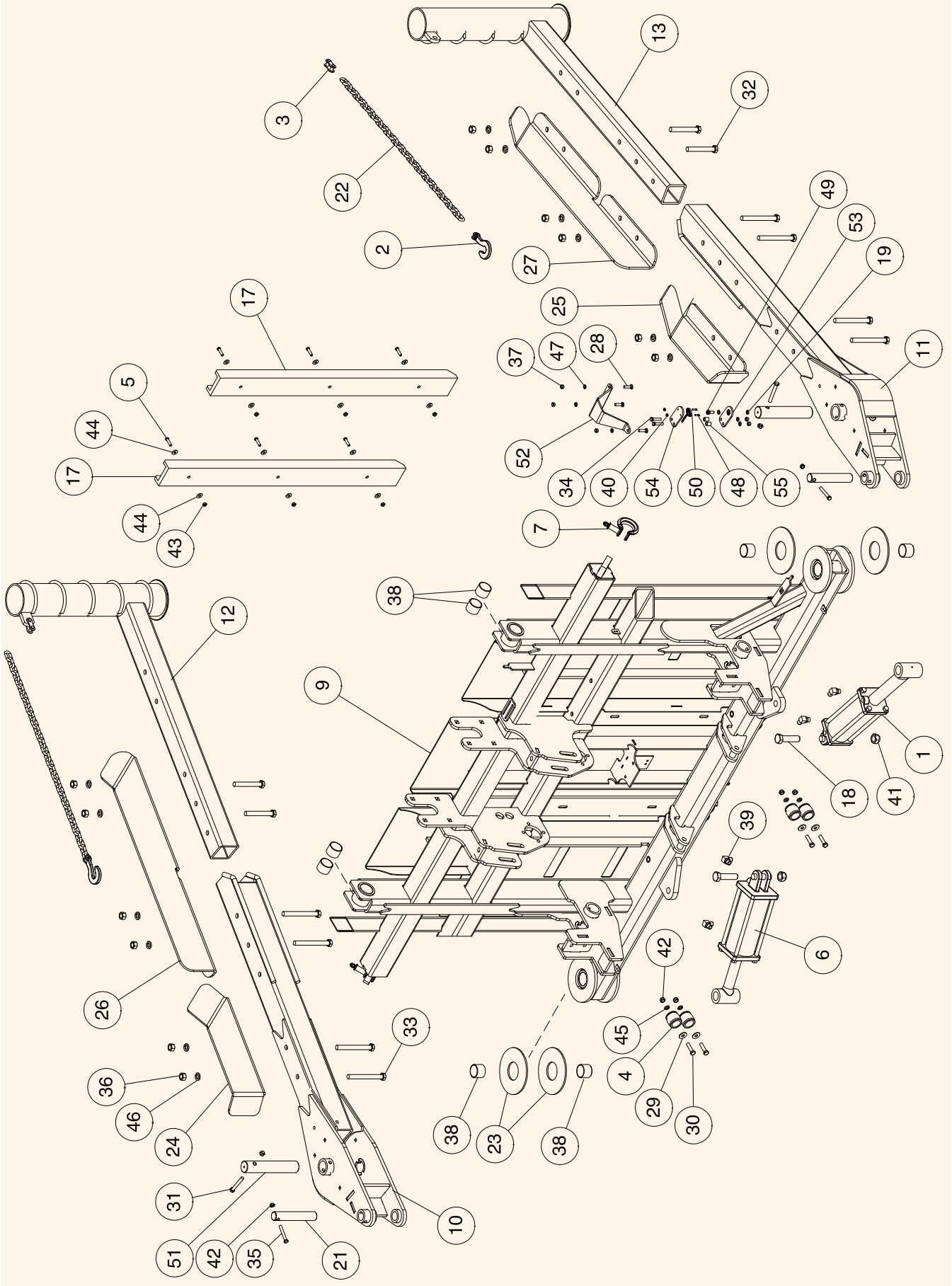
Item	Part No.	Description	Qty
1	K71774	Light Module - Right (24 Lg)	1
1A	K71775	Light Module - Left (24 Lg) - Not Shown	1
2	K67643	Light - Red	1
3	K67644	Light - Amber	1
4	K68854	Button Light - Red	1
5	K69169	Machine Screw - #8 Stainless	2
6	K68302	Plate - Harness Lock	1
7	K68538	Grommet	2
8	N34476	Reflector - Red	1
9	N34478	Reflector - Orange	1
10	K67996	Wiring Harness	1
	K71770	Light Bracket Assembly - Right (includes items 1, 2 - 19)	
	K71771	Light Bracket Assembly - Left (includes items 1A, 2 - 19)	

Rear Light Bracket Assembly - With Mud Flaps



Item	Part No.	Description	Qty
1	K64032	Light Module - Right (26 1/4 Lg)	1
1A	K64022	Light Module - Left (26 1/4 Lg) - Not Shown	1
2	K67643	Light - Red	1
3	K67644	Light - Amber	1
4	K68854	Button Light - Red	1
5	K69170	Locknut - #10 Nylon Insert	10
6	K69168	Socket Cap Screw - #10 x 3/4 Lg	10
7	K69169	Machine Screw - #8 Stainless	2
8	K68302	Plate - Harness Lock	1
9	K68652	Mud Flap Plate - ProAG	1
10	K68653	Mud Flap Plate - Back	1
11	W-477	Hex Bolt - 3/8 x 1 1/2 Lg	4
12	10229	Locknut - 3/8 Nylon Insert	4
13	11589	Mud Flap	1
14	K68538	Grommet	2
15	A67400	Mount - Mud Flap (11429)	1
16	N34476	Reflector - Red	1
17	N34478	Reflector - Orange	1
18	D-5489	Flat Washer - 13/32 ID x 13/16 OD x 16 Ga	4
19	K67996	Wiring Harness	1
	K69164	Light Bracket Assembly - Right (includes items 1, 2 - 19)	
	K69165	Light Bracket Assembly - Left (includes items 1A, 2 - 19)	

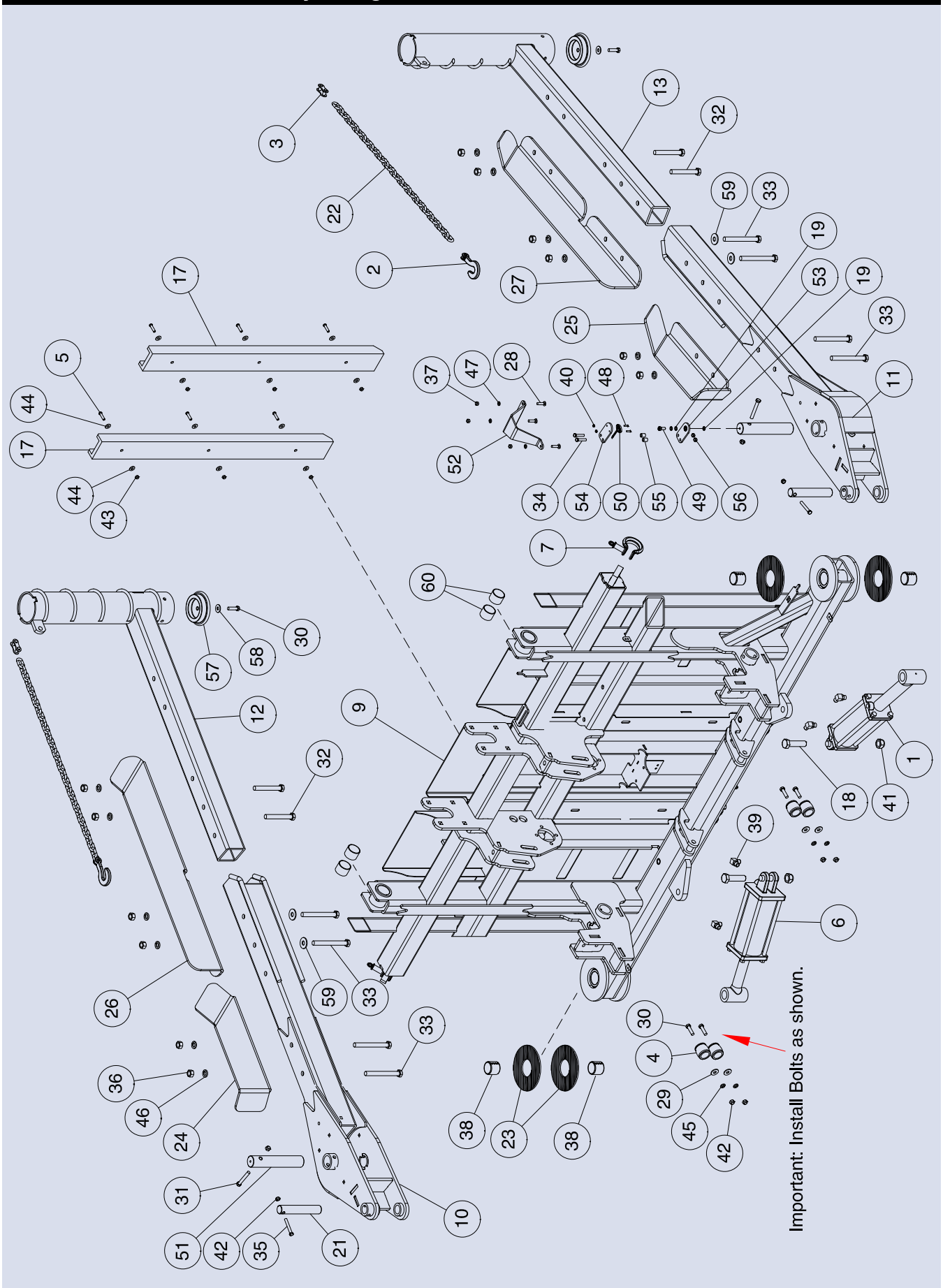
Loader Assembly - Stage 1 - To Serial # 12006025



Loader Assembly - Stage 1 - To Serial # 12006025

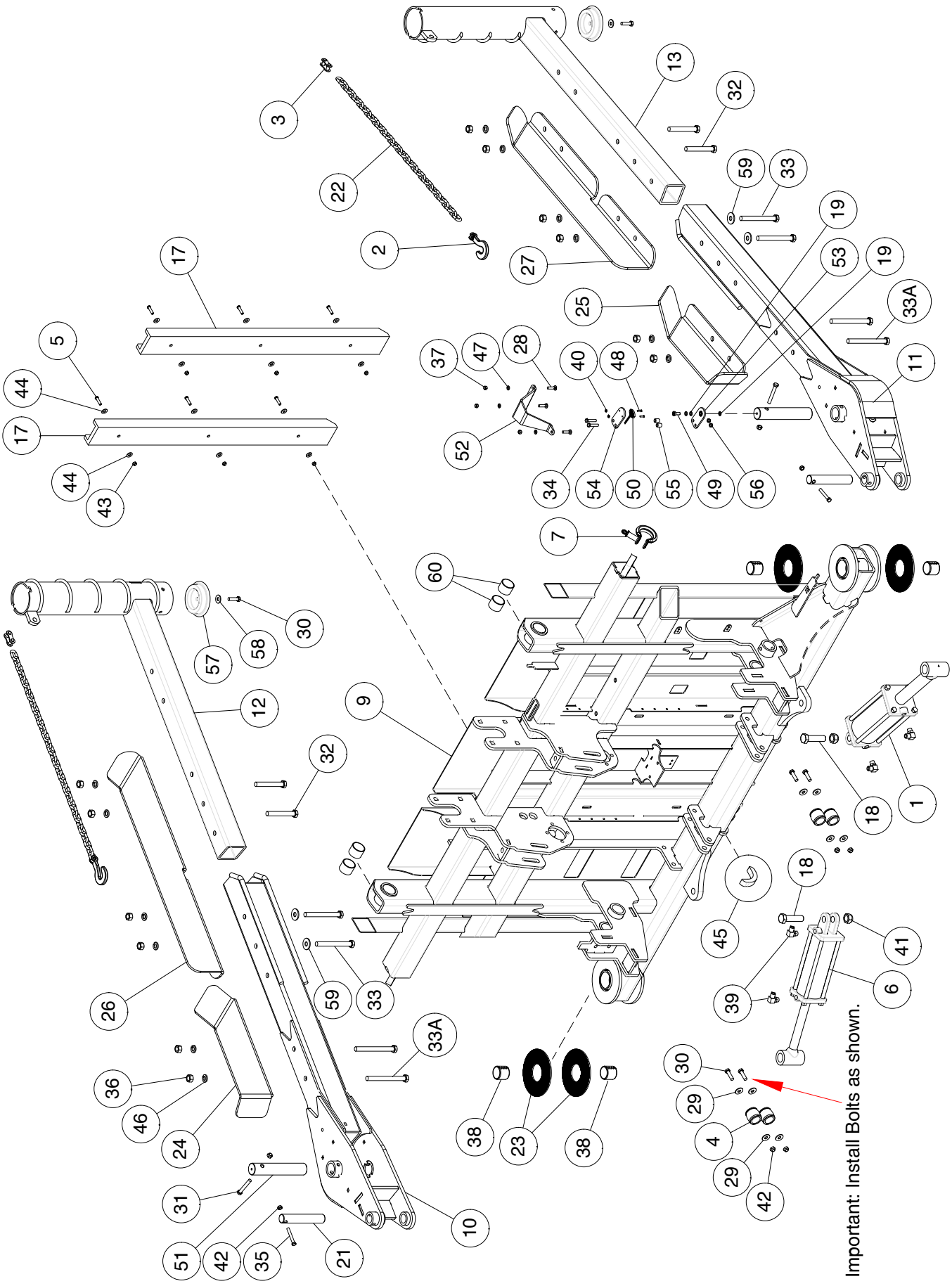
Item	Part No.	Description	Qty
1	10439	RT AA Cylinder - 4 1/2 x 8 x 2 Dia shaft - 08 ORB (AW-0027)	1
2	10662	Grab Hook - 3/8 Chain	2
3	10677	Twin Clevis	2
4	11678	Frame Bumper	4
5	10075	Hex Cap Screw - 3/8 x 1 1/2 Lg	6
6	10440	LT AA Cylinder - 4 x 8 x 1 3/8 Dia shaft - 08 ORB (AW-0028)	1
7	10827	Shackle Pin - 3/4	2
8	K50112	Bale Spike	3
9	K62125	Loader Weldment	1
10	K62180	Alignment Arm Stub - Left	1
11	K62183	Alignment Arm Stub - Right	1
12	K62191	Alignment Arm End - Left	1
13	K62367	Alignment Arm End - Right	1
14	K62652	Chain Tensioner	2
15	K62959	Power Slide Weldment	1
16	K64608	Grab Hook Pre Weld	4
17	K62662	Loader Slider Plastic	2
18	K69182	Hex Bolt - 1 x 3 3/4 Lg (Special cut bolt length)	2
19	W-542	Flatwasher - 13/32 ID x 11/16 OD x 12 Ga	2
20	A21596	Bushing - 0.760 ID x 1 OD x 1 1/2 Lg	4
21	K64014	Pin - 1 1/2 Dia x 8 1/2 Lg	2
22	10369	Chain - 3/8 x 8 Ft Lg	2
23	C18662	Wear Plate - 3 1/8 ID x 8 OD x 1/4 thick	4
24	K47303	Squeeze Plate - Alignment Arm - Left	1
25	K47304	Squeeze Plate - Alignment Arm - Right	1
26	K67288	Loader Arm Plate - Right	1
27	K67289	Loader Arm Plate - Left	1
28	D-5261	Carriage Bolt - 3/8 x 1 1/2 Lg	3
29	W-539	Flatwasher - 17/32 ID x 1 3/8 OD x 7/64 thick	4
30	10604	Hex Bolt - 1/2 x 2 Lg (W-488)	4
31	W-493	Hex Bolt - 1/2 x 3 1/2 Lg	2
32	C-3919	Hex Bolt - 3/4 x 5 1/2 Lg	4
33	S32590	Hex Bolt - 3/4 x 7 Lg Gr8	8
34	W-619	Hex Bolt - 3/8 x 1 3/4 Lg	2
35	W-492	Hex Bolt - 1/2 x 3 Lg	2
36	W-518	Hex Nut - 3/4	12
37	W-514	Hex Nut - 3/8	5
38	K62377	Q2 Bushing - 2 ID x 2 1/4 OD x 1 5/8 Lg	8
39	10180	90 Elbow - 3/4-16 (#08) MJIC x 3/4-16 (#08) MORB	4
40	N16304	Locknut #8-32 UNC	2
41	D-5274	Locknut - 1 Unitorque	2
42	F-3405	Locknut - 1/2 Unitorque	8
43	10229	Locknut - 3/8 Nylon Insert	6
44	W-538	Flatwasher - 7/16 ID x 1 OD x 14 Ga	12
45	W-525	Lockwasher - 1/2	4
46	W-527	Lockwasher - 3/4	12
47	W-523	Lockwasher - 3/8	5
48	K72059	Machine Screw #8-32 UNC x 1 Lg	2
49	K67331	Hex Bolt - 3/8 x 1 Lg - Stainless with Magnetic Head	1
50	K67298	Sensor - Angular Position	1
51	K62380	Pin - 2 Dia x 10 3/4 Lg	2
52	K67291	Sensor Guard	1
53	K69719	Sensor Bearing Plate Assembly - (Includes Bearing)	1
54	K68646	Sensor Mount - Hitch	1
55	N32079	Bushing - 0.385 ID x 5/8 OD x 3/4 Lg	2

Loader Assembly - Stage 1 - From Serial # 12006026 to 12106040



Loader Assembly - Stage 1 - From Serial # 12006026 to 12106040			
Item	**Part No.**	**Description**	**Qty**
1	10439	RT AA Cylinder - 4 1/2 x 8 x 2 Dia shaft - 08 ORB (AW-0027)	1
2	10662	Grab Hook - 3/8 Chain	2
3	10677	Twin Clevis	2
4	11678	Frame Bumper	4
5	10075	Hex Cap Screw - 3/8 x 1 1/2 Lg	6
6	10440	LT AA Cylinder - 4 x 8 x 1 3/8 Dia shaft - 08 ORB (AW-0028)	1
7	10827	Shackle Pin - 3/4	2
8	K50112	Bale Spike	3
9	**K71803**	**Loader Weldment**	**1**
10	**K71806**	**Alignment Arm Stub - Left**	**1**
11	**K71805**	**Alignment Arm Stub - Right**	**1**
12	**K71783**	**Alignment Arm End - Left**	**1**
13	**K71784**	**Alignment Arm End - Right**	**1**
14	K62652	Chain Tensioner	2
15	K62959	Power Slide Weldment	1
16	K64608	Grab Hook Pre Weld	4
17	K62662	Loader Slider Plastic	2
18	K69182	Hex Bolt - 1 x 3 3/4 Lg (Special cut bolt length)	2
19	W-542	Flatwasher - 13/32 ID x 11/16 OD x 12 Ga	3
20	A21596	Bushing - 0.760 ID x 1 OD x 1 1/2 Lg	4
21	K64014	Pin - 1 1/2 Dia x 8 1/2 Lg	2
22	10369	Chain - 3/8 x 8 Ft Lg	2
23	**K71797**	**Wear Plate - 3 1/2 ID x 8 OD x 1/4 thick**	**4**
24	K47303	Squeeze Plate - Alignment Arm - Left	1
25	K47304	Squeeze Plate - Alignment Arm - Right	1
26	K67288	Loader Arm Plate - Right	1
27	K67289	Loader Arm Plate - Left	1
28	D-5261	Carriage Bolt - 3/8 x 1 1/2 Lg	3
29	W-539	Flatwasher - 17/32 ID x 1 3/8 OD x 7/64 thick	4
30	**W-488**	**Hex Bolt - 1/2 x 2 Lg (10604)**	**6**
31	**W-495**	**Hex Bolt - 1/2 x 4 Lg**	**2**
32	C-3919	Hex Bolt - 3/4 x 5 1/2 Lg	4
33	S32590	Hex Bolt - 3/4 x 7 Lg Gr8	8
34	W-619	Hex Bolt - 3/8 x 1 3/4 Lg	2
35	W-492	Hex Bolt - 1/2 x 3 Lg	2
36	W-518	Hex Nut - 3/4	12
37	W-514	Hex Nut - 3/8	5
38	**K71807**	**Bushing Connex - 2 1/2 ID x 2 3/4 OD x 1 3/4 Lg**	**4**
39	10180	90 Elbow - 3/4-16 (#08) MJIC x 3/4-16 (#08) MORB	4
40	N16304	Locknut #8-32 UNC	2
41	D-5274	Locknut - 1 Unitorque	2
42	F-3405	Locknut - 1/2 Unitorque	8
43	10229	Locknut - 3/8 Nylon Insert (M-3388)	6
44	W-538	Flatwasher - 7/16 ID x 1 OD x 14 Ga	12
45	W-525	Lockwasher - 1/2	4
46	W-527	Lockwasher - 3/4	12
47	W-523	Lockwasher - 3/8	5
48	K72059	Machine Screw #8-32 UNC x 1 Lg	2
49	K67331	Hex Bolt - 3/8 x 1 Lg - Stainless with Magnetic Head	1
50	K67298	Sensor - Angular Position	1
51	**K71796**	**Pin - 2 1/2 Dia x 10 3/4 Lg**	**2**
52	K67291	Sensor Guard	1
53	K69719	Sensor Bearing Plate Assembly - (Includes Bearing)	1
54	K68646	Sensor Mount - Hitch	1
55	N32079	Bushing - 0.385 ID x 5/8 OD x 3/4 Lg	2
56	**M-3388**	Locknut - 3/8 Unitorque	2
57	**K67860**	**Poly Skid Plate**	**2**
58	**S-766**	**Flatwasher - 1/2 ID x 1 1/14 OD x 13 Ga**	**2**
59	**W-541**	**Flatwasher - 13/16 ID x 2 OD x 10Ga**	**4**
60	K62377	Q2 Bushing - 2 ID x 2 1/4 OD x 1 5/8 Lg	4

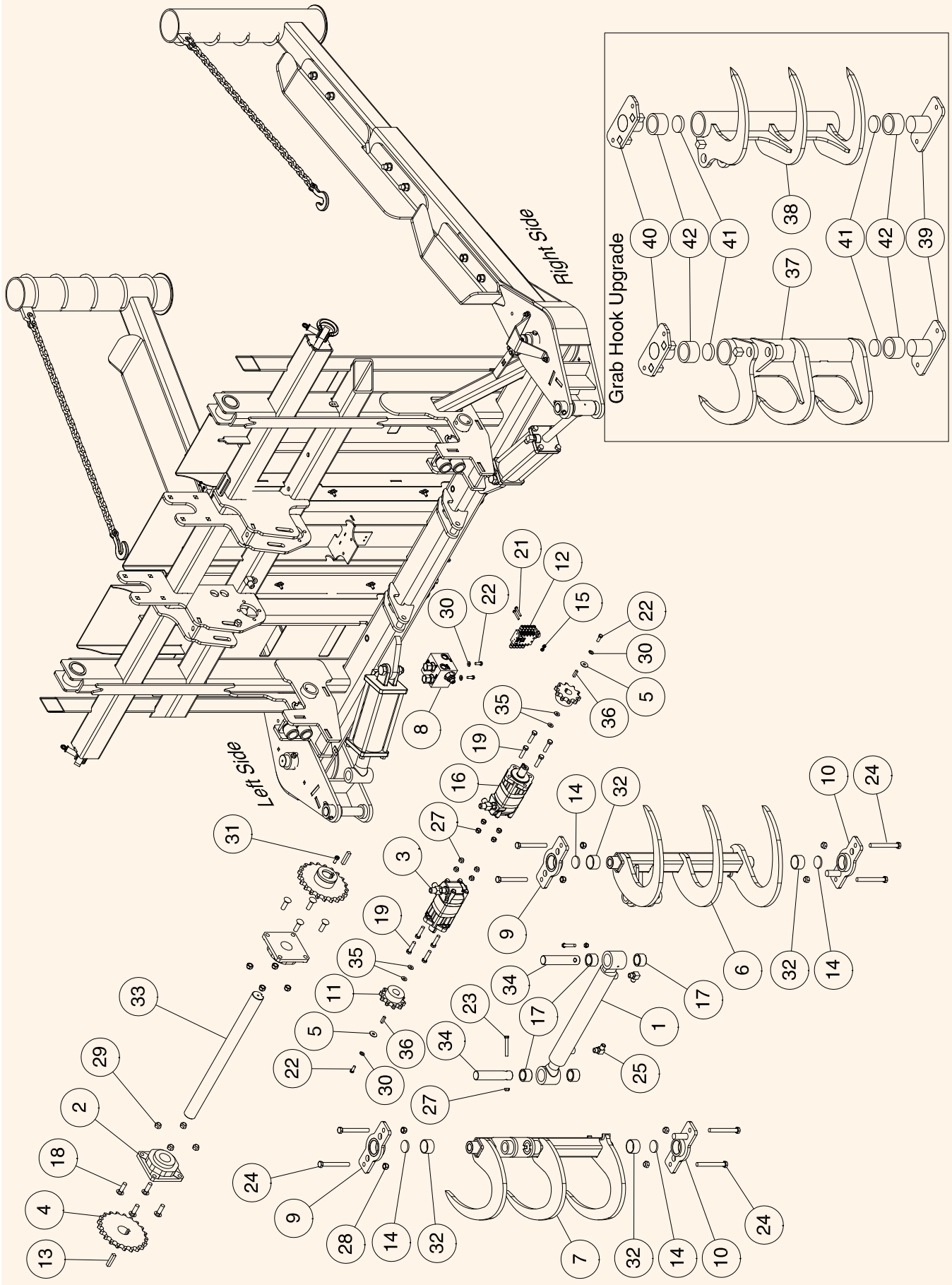
Loader Assembly - Stage 1 - From Serial # 12106041



Loader Assembly - Stage 1 - From Serial # 12106041

Item	Part No.	Description	Qty
1	10439	RT AA Cylinder - 4 1/2 x 8 x 2 Dia shaft - 08 ORB (AW-0027)	1
2	10662	Grab Hook - 3/8 Chain	2
3	10677	Twin Clevis	2
4	11678	Frame Bumper	4
5	10075	Hex Cap Screw - 3/8 x 1 1/2 Lg	6
6	10440	LT AA Cylinder - 4 x 8 x 1 3/8 Dia shaft - 08 ORB (AW-0028)	1
7	10827	Shackle Pin - 3/4	2
8	K50112	Bale Spike	3
9	**K72250**	**Loader Weldment**	**1**
10	**K71806**	**Alignment Arm Stub - Left**	**1**
11	**K71805**	**Alignment Arm Stub - Right**	**1**
12	**K71783**	**Alignment Arm End - Left**	**1**
13	**K71784**	**Alignment Arm End - Right**	**1**
14	K62652	Chain Tensioner	2
15	K62959	Power Slide Weldment	1
16	K64608	Grab Hook Pre Weld	4
17	K62662	Loader Slider Plastic	2
18	K69182	Hex Bolt - 1 x 3 3/4 Lg (Special cut bolt length)	2
19	W-542	Flatwasher - 13/32 ID x 11/16 OD x 12 Ga	3
20	A21596	Bushing - 0.760 ID x 1 OD x 1 1/2 Lg	4
21	K64014	Pin - 1 1/2 Dia x 8 1/2 Lg	2
22	10369	Chain - 3/8 x 8 Ft Lg	2
23	**K71797**	**Wear Plate - 3 1/2 ID x 8 OD x 1/4 thick**	**4**
24	K47303	Squeeze Plate - Alignment Arm - Left	1
25	K47304	Squeeze Plate - Alignment Arm - Right	1
26	K67288	Loader Arm Plate - Right	1
27	K67289	Loader Arm Plate - Left	1
28	D-5261	Carriage Bolt - 3/8 x 1 1/2 Lg	3
29	W-539	Flatwasher - 17/32 ID x 1 3/8 OD x 7/64 thick	8
30	**W-488**	**Hex Bolt - 1/2 x 2 Lg (10604)**	**6**
31	**W-495**	**Hex Bolt - 1/2 x 4 Lg**	**2**
32	C-3919	Hex Bolt - 3/4 x 5 1/2 Lg	4
33	S32590	Hex Bolt - 3/4 x 7 Lg Gr8	4
33A	C-4709	Hex Bolt - 3/4 x 7 1/2 Lg	4
34	W-619	Hex Bolt - 3/8 x 1 3/4 Lg	2
35	W-492	Hex Bolt - 1/2 x 3 Lg	2
36	W-518	Hex Nut - 3/4	12
37	W-514	Hex Nut - 3/8	5
38	**K71807**	**Bushing Connex - 2 1/2 ID x 2 3/4 OD x 1 3/4 Lg**	**4**
39	10180	90 Elbow - 3/4-16 (#08) MJIC x 3/4-16 (#08) MORB	4
40	N16304	Locknut #8-32 UNC	2
41	D-5274	Locknut - 1 Unitorque	2
42	F-3405	Locknut - 1/2 Unitorque	8
43	10229	Locknut - 3/8 Nylon Insert (M-3388)	6
44	W-538	Flatwasher - 7/16 ID x 1 OD x 14 Ga	12
45	A72247	Weld-On Chain Guide	2
46	W-527	Lockwasher - 3/4	12
47	W-523	Lockwasher - 3/8	3
48	K72059	Machine Screw #8-32 UNC x 1 Lg	2
49	K67331	Hex Bolt - 3/8 x 1 Lg - Stainless with Magnetic Head	1
50	K67298	Sensor - Angular Position	1
51	**K71796**	**Pin - 2 1/2 Dia x 10 3/4 Lg**	**2**
52	K67291	Sensor Guard	1
53	K69719	Sensor Bearing Plate Assembly - (Includes Bearing)	1
54	K68646	Sensor Mount - Hitch	1
55	N32079	Bushing - 0.385 ID x 5/8 OD x 3/4 Lg	2
56	**M-3388**	Locknut - 3/8 Unitorque	2
57	**K67860**	**Poly Skid Plate**	**2**
58	**S-766**	**Flatwasher - 1/2 ID x 1 1/14 OD x 13 Ga**	**2**
59	**W-541**	**Flatwasher - 13/16 ID x 2 OD x 10Ga**	**4**
60	K62377	Q2 Bushing - 2 ID x 2 1/4 OD x 1 5/8 Lg	4

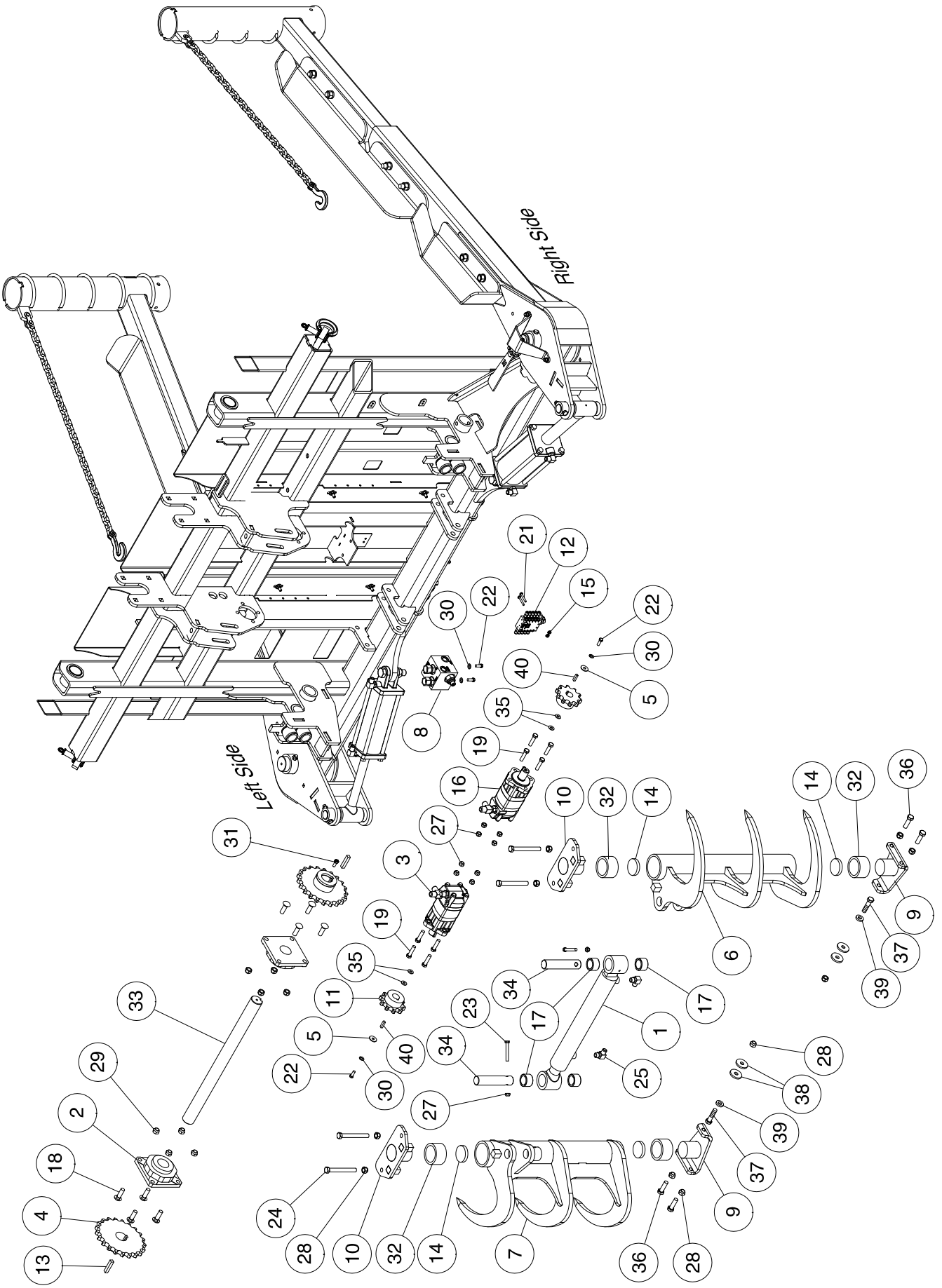
Loader Assembly - Stage 2 - To Serial # 12106040



Loader Assembly - Stage 2 - To Serial # 12106040

Item	Part No.	Description	Qty
1	12166	Grab Hook Cylinder - 2 1/2 x 16 x 1 3/4 Dia shaft - 08 ORB	1
2	12237	Flange Bearing - 4 Bolt.	2
3	H18746	Tee - Swivel - (2) 7/8-14 MJIC x (1) 7/8-14 FJIC (MMF).	2
4	K53405	Sprocket - 21 Tooth - 100 chain	2
5	W14504	Washer - 13/32 ID x 1 3/4 OD x 10 Ga	2
6	K69701	Grab Hook Welded - Right	1
7	K69700	Grab Hook Welded - Left	1
8	K65822	Valve Block - Counter Balance	1
9	K66022	Lower Grab Hook Mount	2
10	K66041	Upper Grab Hook Mount	2
11	K68542	Sprocket - 10 Tooth - 100 chain Retain to motor shaft with W14504 washer, W-523 Lockwasher and W-475 Bolt	2
12	K67727	Lincoln Quick Lube - 10 Port Divider (619-26844-1)	1
13	12254	Keystock - 1/2 x 2 1/2 Lg	2
14	K65047	Thrust Washer - 2 Dia x 1/4 Thick	4
15	D-5277	Locknut - 1/4 Flange	2
16	K62154	Hydraulic Motor - 245cc (Seal Kit K69331)	2
17	K69183	Brass Bushing - 1.514 ID x 2.035 OD x 1 1/4 Lg	4
18	T-5268	Carriage Bolt - 5/8 x 2 Lg	8
19	W-488	Hex Bolt - 1/2 x 2 Lg	8
20	W-495	Hex Bolt - 1/2 x 4 Lg	4
21	C-1471	Hex Bolt - 1/4 x 1 3/4 Lg	2
22	W-475	Hex Bolt - 3/8 x 1 Lg	4
23	W-492	Hex Bolt - 1/2 x 3 Lg	4
24	10065	Hex Bolt - 5/8 x 5 1/2 - Grade 8	8
25	10180	90 Elbow - 3/4-16 (#08) MJIC x 3/4-16 (#08) MORB	2
26	C26701	Locknut - 1/2 Nylon Insert	4
27	F-3405	Locknut - 1/2 Unitorque	18
28	C17295	Locknut - 5/8 Nylon Insert	8
29	S-1197	Locknut - 5/8 Unitorque	8
30	W-523	Lockwasher - 3/8	4
31	K67331	Hex Bolt - 3/8 x 1 Lg - Stainless with Magnetic Head	1
32	K65104	Q2 Bushing - 2 ID x 2 1/4 OD x 1 1/4 Lg	4
33	K62666	Shaft - 2" Dia x 28 Lg	1
34	K67648	Pin - 1 1/2 Dia x 7 Lg - Grab Hook	2
35	W-538	Flatwasher - 7/16 ID x 1 OD x 14 Ga	4
36	K72340	Key - 5/16 x 5/16 x 1 1/4 Lg	2
	K72155	**Grab Hook Upgrade - To Serial # 12106040 (Includes Items Below)**	
37	**K72146**	**Grab Hook - Right**	**1**
38	**K72147**	**Grab Hook - Left**	**1**
39	**K72144**	**Mount - Lower - Includes item 42**	**2**
40	**K72142**	**Mount - Upper - Includes item 42**	**2**
41	**10355**	**Thrust Washer - 2 3/4 Dia x 1/2 Thick**	**4**
42	**K42396**	**Bushing - 2 3/4 ID x 3 1/2 OD x 2 Lg**	**4**

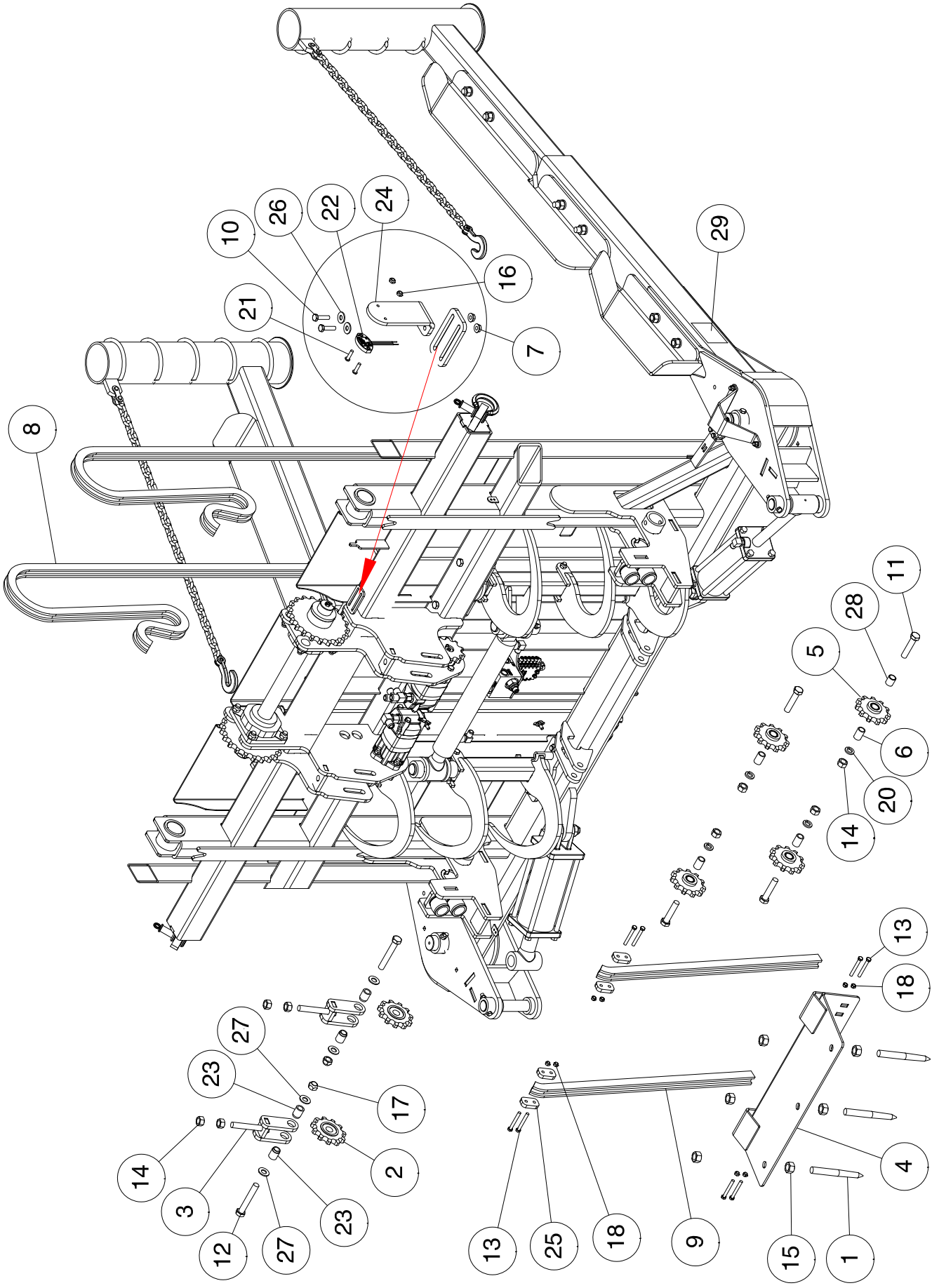
Loader Assembly - Stage 2 - From Serial # 12106041



Loader Assembly - Stage 2 - From Serial # 12106041

Item	Part No.	Description	Qty
1	12166	Grab Hook Cylinder - 2 1/2 x 16 x 1 3/4 Dia shaft - 08 ORB	1
2	12237	Flange Bearing - 4 Bolt.	2
3	**H18746**	**Tee - Swivel - (2) 7/8-14 MJIC x (1) 7/8-14 FJIC (MMF)**	**2**
4	K53405	Sprocket - 21 Tooth - 100 chain	2
5	**W14504**	**Washer - 13/32 ID x 1 3/4 OD x 10 Ga**	**2**
6	**K72146**	**Grab Hook - Right**	**1**
7	**K72147**	**Grab Hook - Left**	**1**
8	K65822	Valve Block - Counter Balance	1
9	**K72245**	**Mount - Lower - Includes item 32**	**2**
10	**K72142**	**Mount - Upper - Includes item 32**	**2**
11	K68542	Sprocket - 10 Tooth - 100 chain Retain to motor shaft with W14504 washer, W-523 Lockwasher and W-475 Bolt	2
12	K67727	Lincoln Quick Lube - 10 Port Divider (619-26844-1)	1
13	12254	Keystock - 1/2 x 2 1/2 Lg	2
14	**10355**	**Thrust Washer - 2 3/4 Dia x 1/2 Thick**	**4**
15	D-5277	Locknut - 1/4 Flange	2
16	K62154	Hydraulic Motor - 245cc **(Seal Kit K69331)**	2
17	K69183	Brass Bushing - 1.514 ID x 2.035 OD x 1 1/4 Lg	4
18	T-5268	Carriage Bolt - 5/8 x 2 Lg	8
19	W-488	Hex Bolt - 1/2 x 2 Lg	8
20	W-495	Hex Bolt - 1/2 x 4 Lg	4
21	C-1471	Hex Bolt - 1/4 x 1 3/4 Lg	2
22	**W-475**	**Hex Bolt - 3/8 x 1 Lg**	**4**
23	**W-492**	**Hex Bolt - 1/2 x 3 Lg**	**4**
24	10065	Hex Bolt - 5/8 x 5 1/2 - Grade 8	4
25	**10180**	**90 Elbow - 3/4-16 (#08) MJIC x 3/4-16 (#08) MORB**	**2**
26	C26701	Locknut - 1/2 Nylon Insert	4
27	**F-3405**	**Locknut - 1/2 Unitorque**	**18**
28	C17295	Locknut - 5/8 Nylon Insert	10
29	S-1197	Locknut - 5/8 Unitorque	8
30	**W-523**	**Lockwasher - 3/8**	**4**
31	K67331	Hex Bolt - 3/8 x 1 Lg - Stainless with Magnetic Head	1
32	**K42396**	**Bushing - 2 3/4 ID x 3 1/2 OD x 2 Lg**	**4**
33	K62666	Shaft - 2" Dia x 28 Lg	1
34	K67648	Pin - 1 1/2 Dia x 7 Lg - Grab Hook	2
35	W-538	Flatwasher - 7/16 ID x 1 OD x 14 Ga	4
36	**W-499**	**Hex Bolt - 5/8 x 2 Lg**	**4**
37	**W-501**	**Hex Bolt - 5/8 x 2 1/2 Lg**	**2**
38	**N58636**	**Washer - 5/8 ID x 2 OD x 1/4 Thick**	**4**
39	**W-793**	**Flatwasher - 5/8 ID x 1 1/8 OD x 3/16**	**2**
40	K72340	Key - 5/16 x 5/16 x 1 1/4 Lg	2

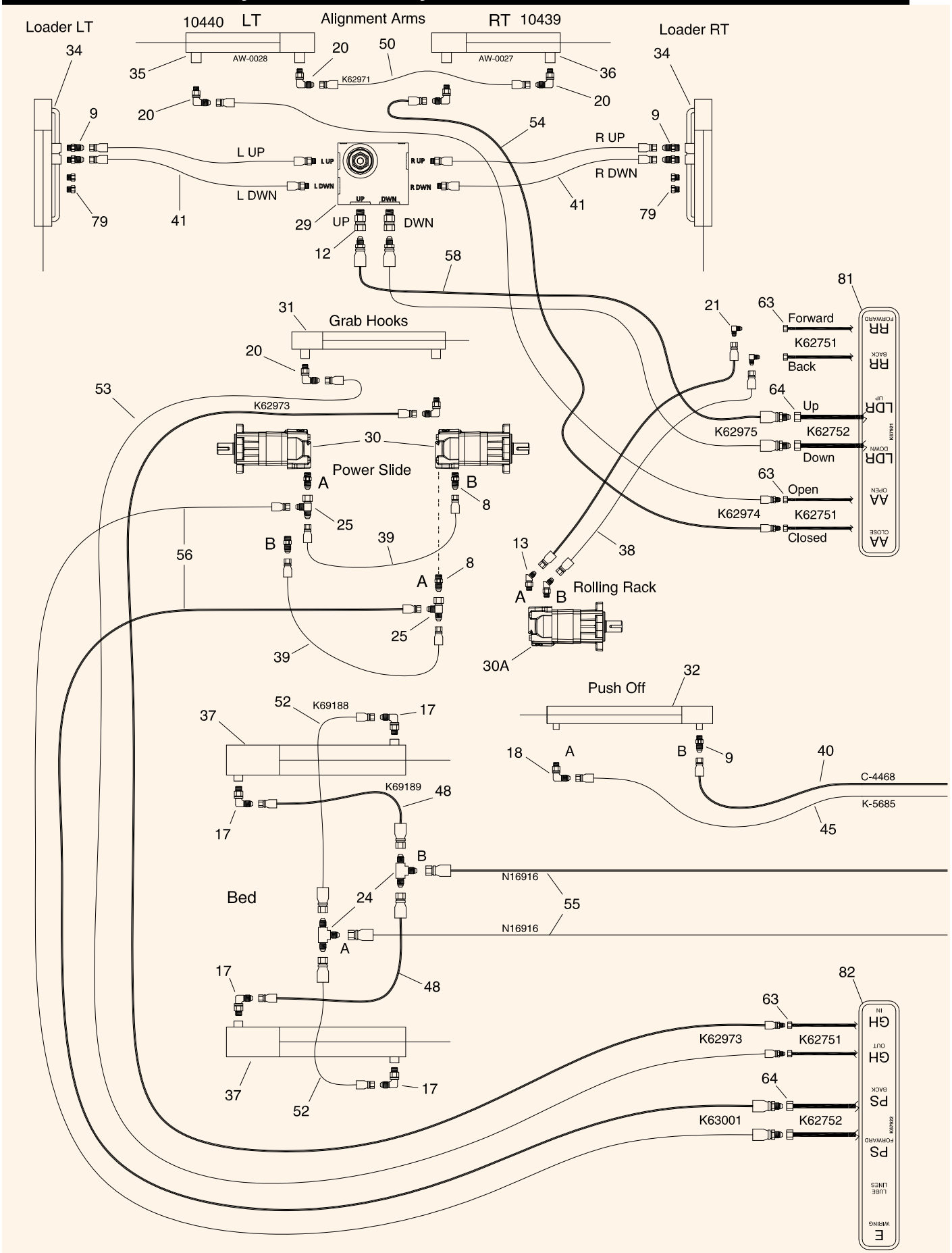
Loader Assembly - Stage 3



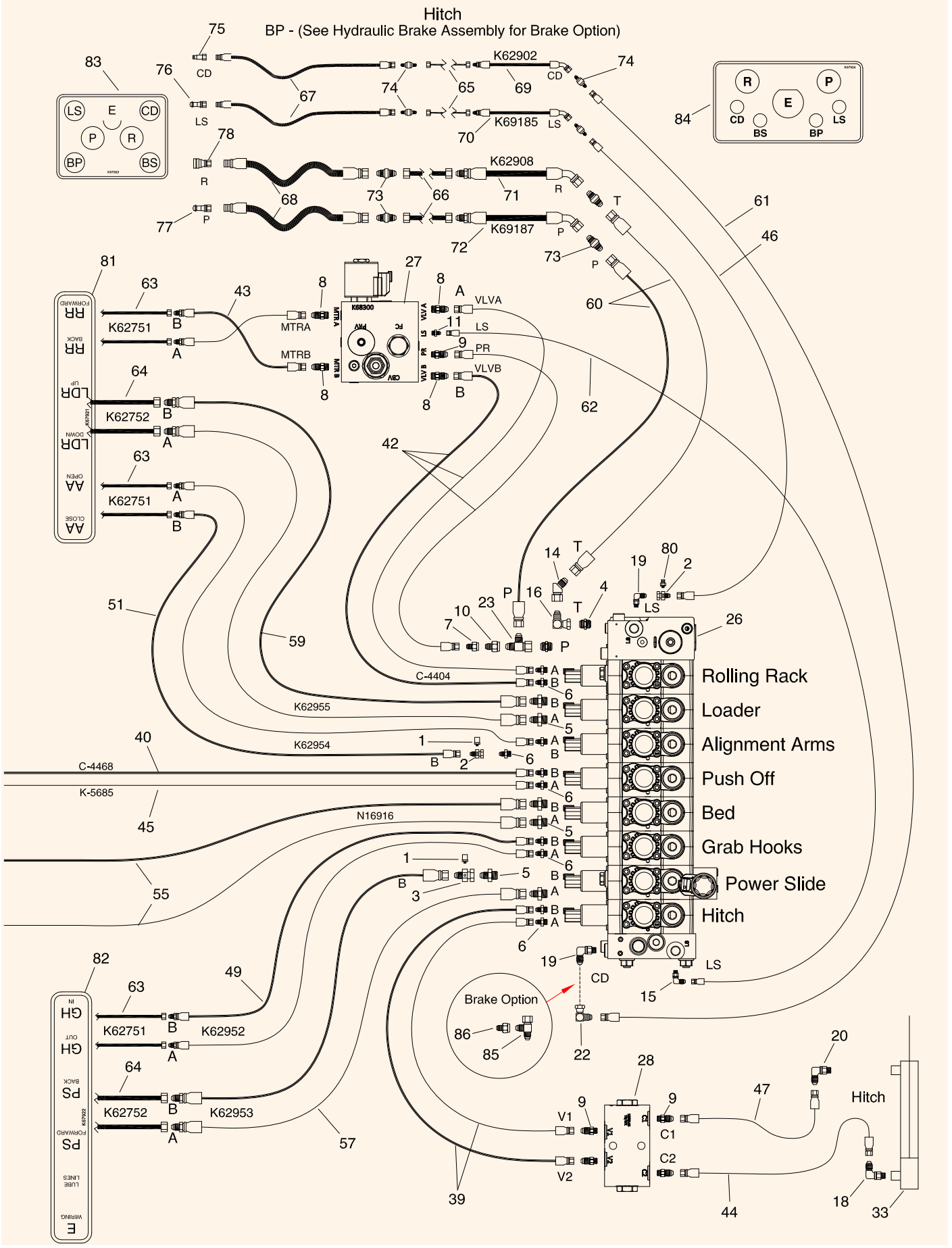
Loader Assembly - Stage 3

Item	Part No.	Description	Qty
1	K50112	Bale Spike	3
2	K53404	Sprocket - 11 Tooth - 100 Chain	2
3	K62652	Chain Tensioner	2
4	K62959	Power Slide	1
5	K66050	Idler Sproket - 100 Chain (Includes Item 28)	4
6	A21596	Bushing - 0.760 ID x 1 OD x 1 1/2 Lg	4
7	D-5277	Locknut - 1/4 Flange	4
8	K68543	Chain - 100H - 99 Links (123 3/4 Lg) (Note: Both ends to end on inner link)	2
9	K68544	Chain - 100H - 29 Links (36 1/4 Lg) (Note: Both ends to end on inner link)	2
10	W-1552	Hex Bolt - 1/4 x 1 Lg	2
11	11576	Hex Bolt - 3/4 x 3 1/2 Lg Gr. 8	4
12	S-1191	Hex Bolt - 3/4 x 5 Lg	2
13	K53407	Hex Bolt - 3/8 x Lg Gr. 8	8
14	W-518	Hex Nut - 3/4	20
15	W-519	Hex Nut - 7/8	6
16	N16304	Locknut #8-32 UNC	4
17	D-5273	Locknut - 3/4 Unitorque	2
18	M-3388	Locknut - 3/8 Unitorque	8
19	W-525	Lockwasher - 1/2	4
20	W-527	Lockwasher - 3/4	16
21	K72059	Machine Screw #8-32 UNC x 1 Lg	4
22	K67298	Sensor - Angular Position	2
23	K68541	Spacer Reducer - 1.125 OD to 0.990 OD x 0.765 ID x 1 3/8 Lg	4
24	K67364	Sensor Bracket	1
25	K68539	Back Stop - Power Slide	4
26	S-1198	Washer - 5/16 ID x 3/4 OD x 1/16 Thick	2
27	W-476	Flatwasher - 3/4	4
28	K62436	Q2 Bushing - 1.00 ID x 1.25 OD x 1 7/16 Lg	4
29	K72257	Decal - IMPORTANT - Alignment Arm Chain Adjustment	2
30	S65153	Danger: Hitch Hazard (Not Shown)	1
31	N68508	Danger: Rotating Part Hazard (Not Shown)	1

Hydraulic Assembly - To Serial # BT12306074



Hydraulic Assembly - To Serial # BT12306074

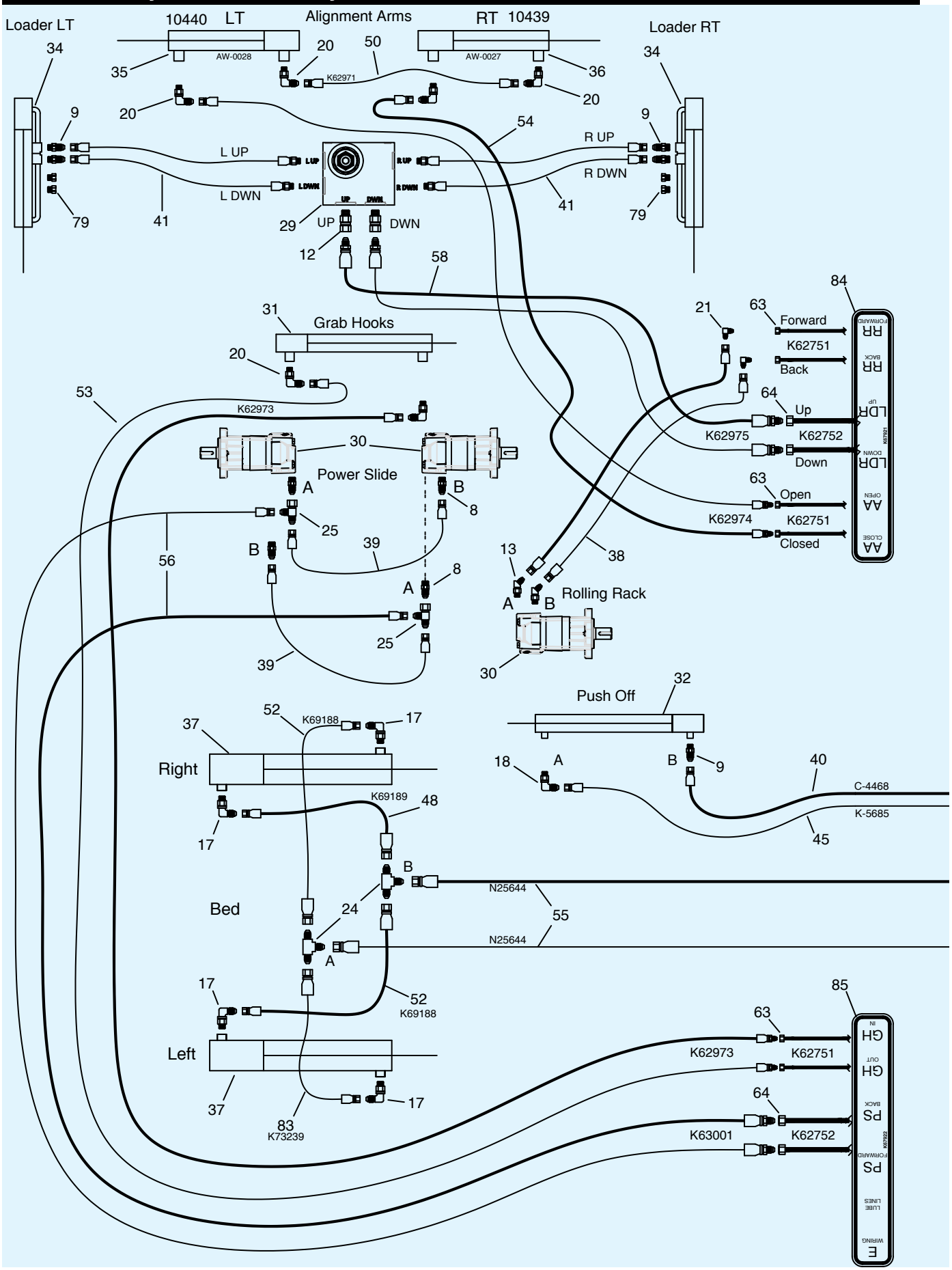


Hydraulic Assembly - To Serial # BT12306074			
Item	**Part No.**	**Description**	**Qty**
1	K62977	Pressure Transducer	2
2	K62978	Tee - Gauge Port - 7/8-14 (#10) MJIC x 7/8-14 (#10) FJIC x 7/16-20 (#4) FORB	2
3	K62979	Tee - Gauge Port - 1 1/16-12 (#12) MJIC x 1 1/16-12 (#12) FJIC x 7/16-20 (#4) FORB	1
4	N58621	Connector - 1 5/16-12 MJIC (#16) x 1 5/16-12 MORB (#16)	2
5	N15990	Connector 1 1/16-12 MJIC (#12) x 1 1/16-12 MORB (#12)	6
6	N47903	Connector - 7/8-14 MJIC (#10) x 1 1/16-12 MORB (#12)	10
7	N19337	Connector - 7/8-14 MJIC (#10) x 1 1/16-12 FJIC (#12)	1
8	N34505	Connector - 7/8-14 MJIC (#10) x 7/8-14 MORB (#10)	8
9	C14840	Connector - 7/8-14 MJIC (#10) x 3/4-16 MORB (#08)	10
10	N19338	Connector - 1 1/16-12 MJIC (#12) x 1 5/16-12 FJIC (#16)	1
11	N29358	Connector - 9/16-18 MJIC x 9/16-18 MORB	1
12	N37849	Connector - 1 1/16-12 (#12) FJIC x 1 1/16-12 (#12) MORB	2
13	N51990	45 Elbow - 3/4 MJIC x 7/8 MORB	2
14	N36382	45 Elbow - Swivel - 1 5/16-12 FJIC x 1 5/16-12 MJIC	1
15	N16143	90 Elbow - 9/16-18 MJIC x 9/16-18 MORB	1
16	N58171	90 Elbow - 1 5/16-12 MJIC (#16) x 1 5/16-12 FJIC (#16)	1
17	N34644	90 Elbow - 3/4-16 MJIC x 1 1/16-12 MORB	4
18	C24585	90 Elbow - 7/8-14 MJIC x 3/4-16 MORB	3
19	S39505	90 Elbow - 7/8-14 MJIC x 9/16-18 MORB	2
20	10180	90 Elbow - 3/4-16 (#08) MJIC x 3/4-16 (#08) MORB	7
21	11358	90 Elbow - 3/4-16 (#08) MJIC x 3/4-16 (#08) FJIC	2
22	K-5806	90 Elbow - Swivel - 7/8-14 MJIC x 7/8-14 FJIC	1
23	N19336	Tee - Swivel - (1) 1 5/16-12 FJIC x (2) 1 5/16-12 MJIC (M-M-F)	1
24	N19549	Tee - (3) 1 1/16-12 MJIC (11368)	2
25	H18746	Tee - Swivel - (2) 7/8-14 MJIC x (1) 7/8-14 FJIC (MMF)	2
26	K62786	Valve Block - Main Hydraulic	1
27	K68300	Valve Block - Counter Balance - Rolling Rack	1
28	K68627	Valve Block - Dual Direction Pilot Check	1
29	K65822	Valve Block - Counter Balance	1
30	K62154	Hydraulic Motor - 245 cc (Seal Kit K69331)	2
30A	K71782	Hydraulic Motor - 393 cc (Seal Kit K69331) - **Discontinued use K62154**	
31	12166	Grab Hook Cylinder - 2 1/2 x 16 x 1 3/4 Dia shaft - 08 ORB	1
32	12168	Pushoff Cylinder - 3 x 30 x 1 1/2 Dia shaft - 08 ORB	1
33	10449	Hitch Cylinder - 3 1/2 x 18 x 1 3/4 Dia shaft - 08 ORB	1
34	K67300	Loader Cylinder - 3 1/2 x 20 x 2 1/2 Dia shaft - 08 ORB	2
35	10440	LT AA Cylinder - 4 x 8 x 1 3/8 Dia shaft - 08 ORB (AW-0028)	1
36	10439	RT AA Cylinder - 4 1/2 x 8 x 2 Dia shaft - 08 ORB (AW-0027)	1
37	**K72258**	**Bed Cylinder - 5 x 36 x 2 1/2 Dia shaft - 12 ORB - From Serial # 12106041**	**2**
	K71792	Bed Cylinder - 5 x 36 x 2 1/2 Dia shaft - 12 ORB - To Serial # 12106040	
38	K62972	Hyd Hose - 1/2 x 20 Lg - 3/4-16 (#08) FJIC x 3/4-16 (#08) MJIC	2
39	C-4383	Hyd Hose - 1/2 x 20 Lg - 7/8-14 FJIC swivel ends	4
40	C-4468	Hyd Hose - 1/2 x 24 Lg - 7/8-14 FJIC swivel ends	1
41	K62976	Hyd Hose - 1/2 x 34 Lg - 7/8-14 (#10) FJIC x 7/8-14 (#10) MORB	4
42	C-4404	Hyd Hose - 1/2 x 36 Lg - 7/8-14 FJIC swivel ends	3
43	K62956	Hyd Hose - 1/2 x 36 Lg - 3/4-16 (#08) MJIC x 7/8-14 (#10) FJIC	2
44	C26344	Hyd Hose - 1/2 x 42 Lg - 7/8-14 FJIC swivel ends	1
45	K-5685	Hyd Hose - 1/2 x 48 Lg - 7/8-14 FJIC swivel ends	1
46	C15309	Hyd Hose - 1/2 x 48 Lg - 3/4-16 FJIC x 7/8-14 FJIC	1
47	K62951	Hyd Hose - 1/2 x 54 Lg - 7/8-14 (#10) FJIC x 3/4-16 (#08) FJIC	1
48	K69189	Hyd Hose - 1/2 x 60 Lg - 3/4-16 (#08) FJIC x 1 1/16-12 (#12) FJIC	2
49	K62952	Hyd Hose - 1/2 x 64 Lg - 3/4-16 (#08) MJIC x 7/8-14 (#10) FJIC	2
50	K62971	Hyd Hose - 1/2 x 64 Lg - 3/4-16 (#08) FJIC	1
51	K62954	Hyd Hose - 1/2 x 72 Lg w/ 3/4-16 (#08) MJIC x 7/8-14 (#10) FJIC	2
52	K69188	Hyd Hose - 1/2 x 75 Lg - 3/4-16 (#08) FJIC x 1 1/16-12 (#12) FJIC	2
53	K62973	Hyd Hose - 1/2 x 78 Lg - 3/4-16 (#08) FJIC x 3/4-16 (#08) MJIC	2

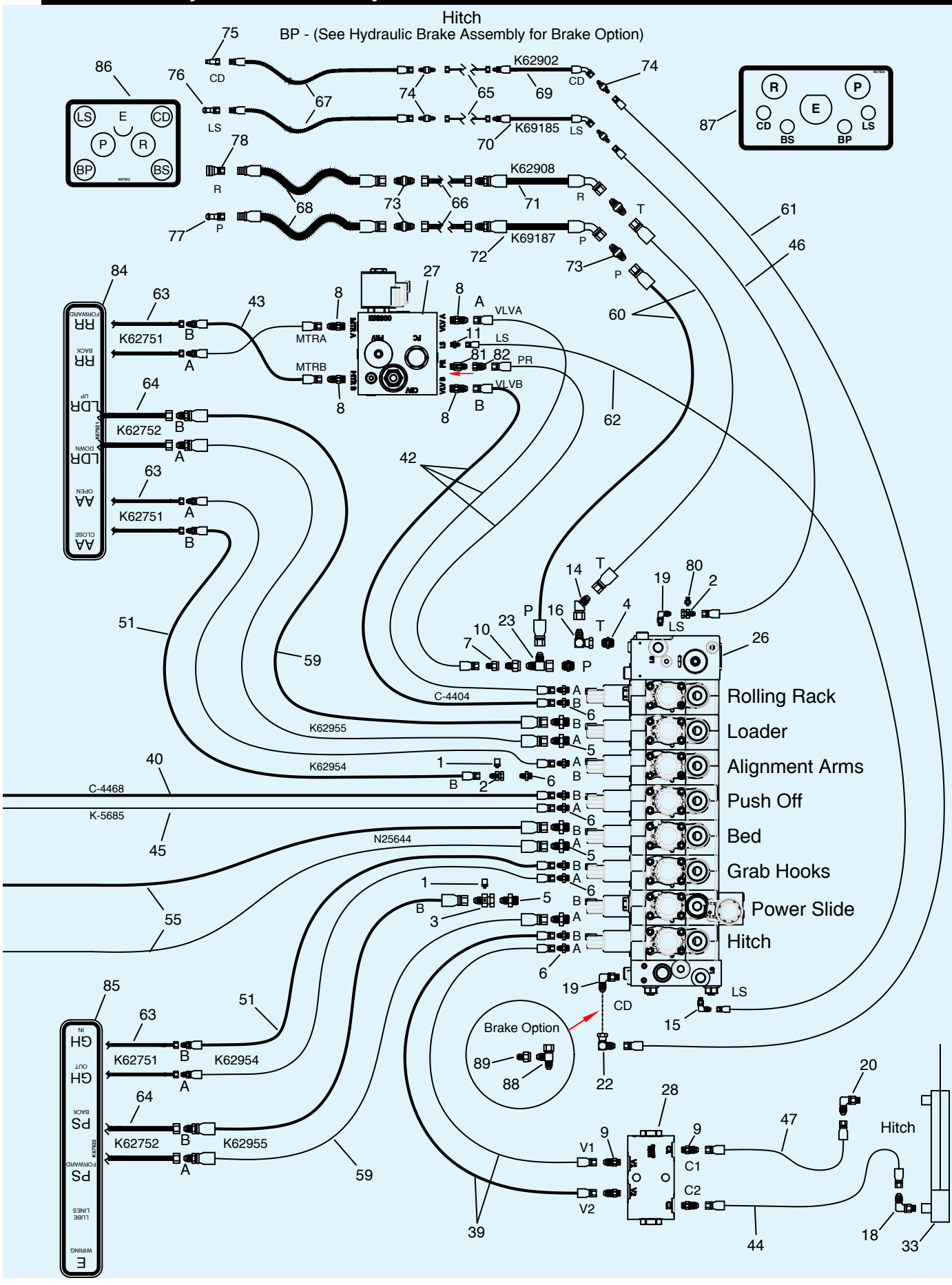
Hydraulic Assembly - To Serial # BT12306074

Item	Part No.	Description	Qty
54	K62974	Hyd Hose - 1/2 x 130 Lg - 3/4-16 (#08) FJIC x 3/4-16 (#08) MJIC	2
55	N16916	Hyd Hose - 3/4 x 22 Lg - 1 1/16-12 (#12) FJIC	2
56	K63001	Hyd Hose - 3/4 x 56 Lg w/ 7/8-14 (#10) FJIC x 1 1/16-12 (#12) MJIC	2
57	K62953	Hyd Hose - 3/4 x 64 Lg - 1 1/16-12 (#12) MJIC x 1 1/16-12 (#12) FJIC	2
58	K62975	Hyd Hose - 3/4 x 70 Lg - 1 1/16-12 (#12) MJIC x 1 1/16-12 (#12) MJIC	2
59	K62955	Hyd Hose - 3/4 x 78 Lg - 1 1/16-12 (#12) MJIC x 1 1/16-12 (#12) FJIC	2
60	K62922	Hydraulic Hose - 3/4 x 54 - 1 5/16 FJIC x 1 5/16 FJIC	2
61	K62903	Hydraulic Hose - 1/2 x 60 - 7/8 FJIC x 3/4 FJIC	1
62	S44353	Hyd Hose - 3/8 x 48 Lg - 9/16-18 (#06) FJIC Ends	1
63	K62751	Oil Line - 1/2 x 84 Lg - 3/4-16 (#08) FJIC ends	6
64	K62752	Oil Line - 3/4 x 84 Lg - 1 1/16-12 (#12) FJIC ends	4
65	K62753	Oil Line - 1/2 x 128 Lg - 3/4-16 (#08) FJIC ends	2
66	K62754	Oil Line - 1 x 129 Lg -1 5/16-12 (#16) FJIC ends	2
67	K62920	Hyd Hose - 1/2 x 72 Lg - 3/4-16 (#08) FJIC x 3/4-16 (#08) MORB	2
68	K62921	Hyd Hose - 3/4 x 72 Lg - 1 5/16-12 (#16) FJIC x 1 1/16-12 (#12) MORB	2
69	K62902	Hyd Hose - 1/2 x 72 Lg - 3/4-16 (#08) MJIC x 3/4-16 (#08) FJIC 45 Deg	1
70	K69185	Hyd Hose - 1/2 x 66 1/2 Lg - 3/4-16 (#08) MJIC x 3/4-16 (#08) FJIC 45 Deg	1
71	K62908	Hyd Hose - 3/4 x 70 1/2 Lg - 1 5/16-12 (#16) MJIC x 1 5/16-12 (#16) FJIC 45 Deg	1
72	K69187	Hyd Hose - 3/4 x 67 Lg - 1 5/16-12 (#16) MJIC x 1 5/16-12 (#16) FJIC 45 Deg	1
73	K62131	Bulk Head Union - 1 5/16-12 (#16) MJIC	2
74	K62123	Bulk Head Union - 3/4-16 (#08) MJIC	2
75	K50834	3/8 Flat Face Tip - 3/4-16 FORB	1
76	N34443	1/2 Male Pioneer Tip - 3/4-16 FORB	1
77	N37914	3/4 Male Tip - 1 1/16-12 FORB	2
78	N37915	3/4 Female Coupler - 1 1/16-12 FORB	2
79	C28505	Plug - 3/4-16 (#08) MORB	4
80	N64583	Coupler - Test Port - 7/16-20 (#4) MORB	1
81	K67921	Decal - Hydraulic Identification - Loader Bed	2
82	K67922	Decal - Hydraulic Identification - Loader Bed	2
83	K67923	Decal - Hydraulic Identification - Hitch Front	1
84	K67924	Decal - Hydraulic Identification - Hitch Back	1
		See Hydraulic Brake Assembly for following items: (if equipped with brakes)	
85	H18746	Tee - (2) 7/8-14 MJIC x (1) 7/8-14 FJIC - (M-M-F) - Swivel	1
86	F10389	Connector - 9/16-18 (#06) MJIC x 7/8-14 (#10) FJIC	1
	K62753	Oil Line - 1/2 x 128 Lg - 3/4-16 (#08) FJIC ends	1
	K69086	Hyd Hose - 3/8 x 72 Lg w/ M18 x 1.5 Male DIN x 9/16-18 FJIC	1
	K69186	Hyd Hose - 1/2 x 68 1/2 Lg - 3/4-16 (#08) MJIC x 3/4-16 (#08) FJIC 45 Deg	1
	K62123	Bulk Head Union - 3/4-16 (#08) MJIC	2
	K50954	Brake Coupler - Female - 08 (1/2 inch) M18 x 1.5 Thread	1
	K51052	Bonded Seal - 18mm Male DIN (9500-18mm)	1

Hydraulic Assembly - From Serial # BT12306075 to BT12406096



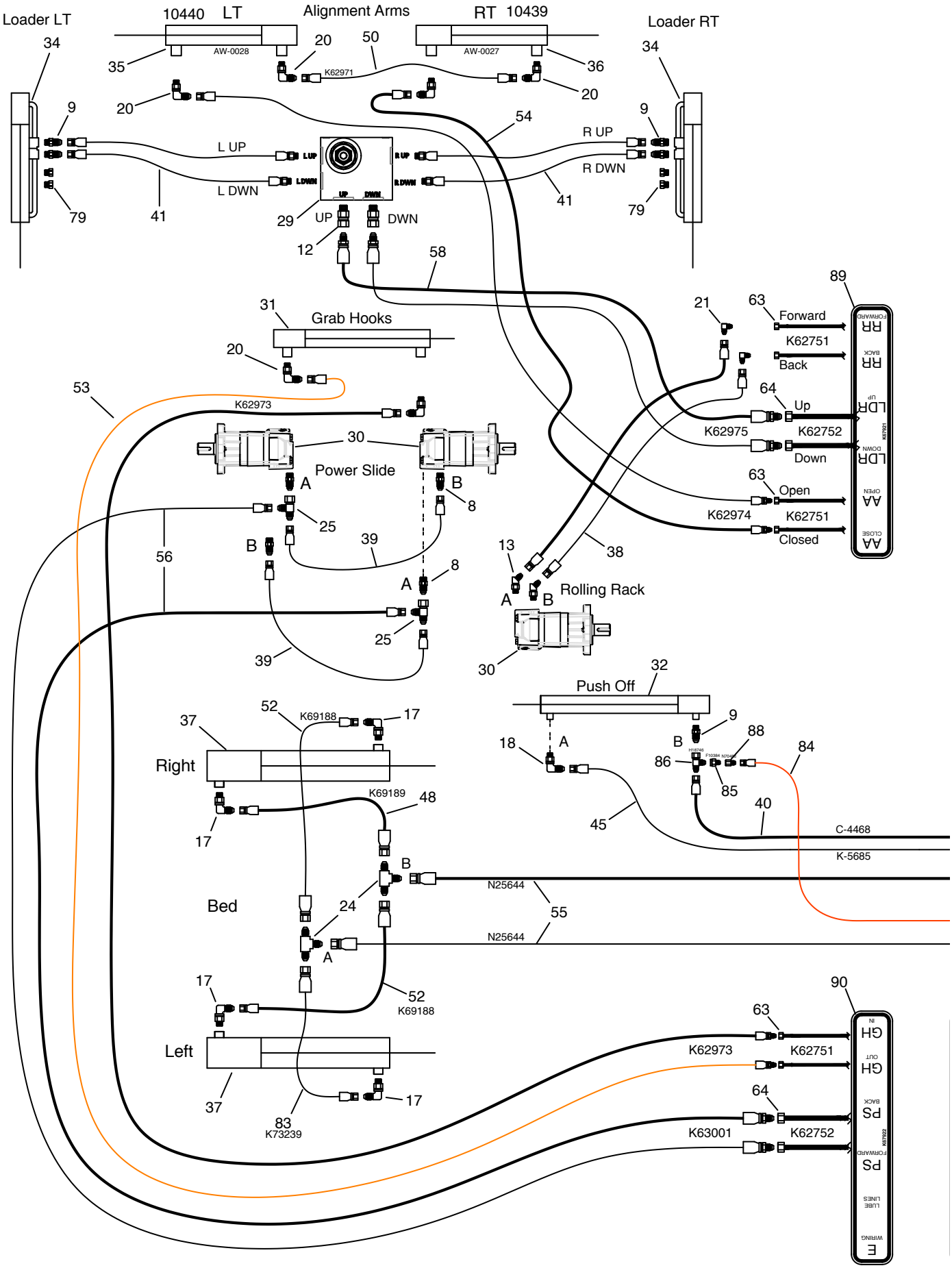
Hydraulic Assembly - From Serial # BT12306075 to BT12406096



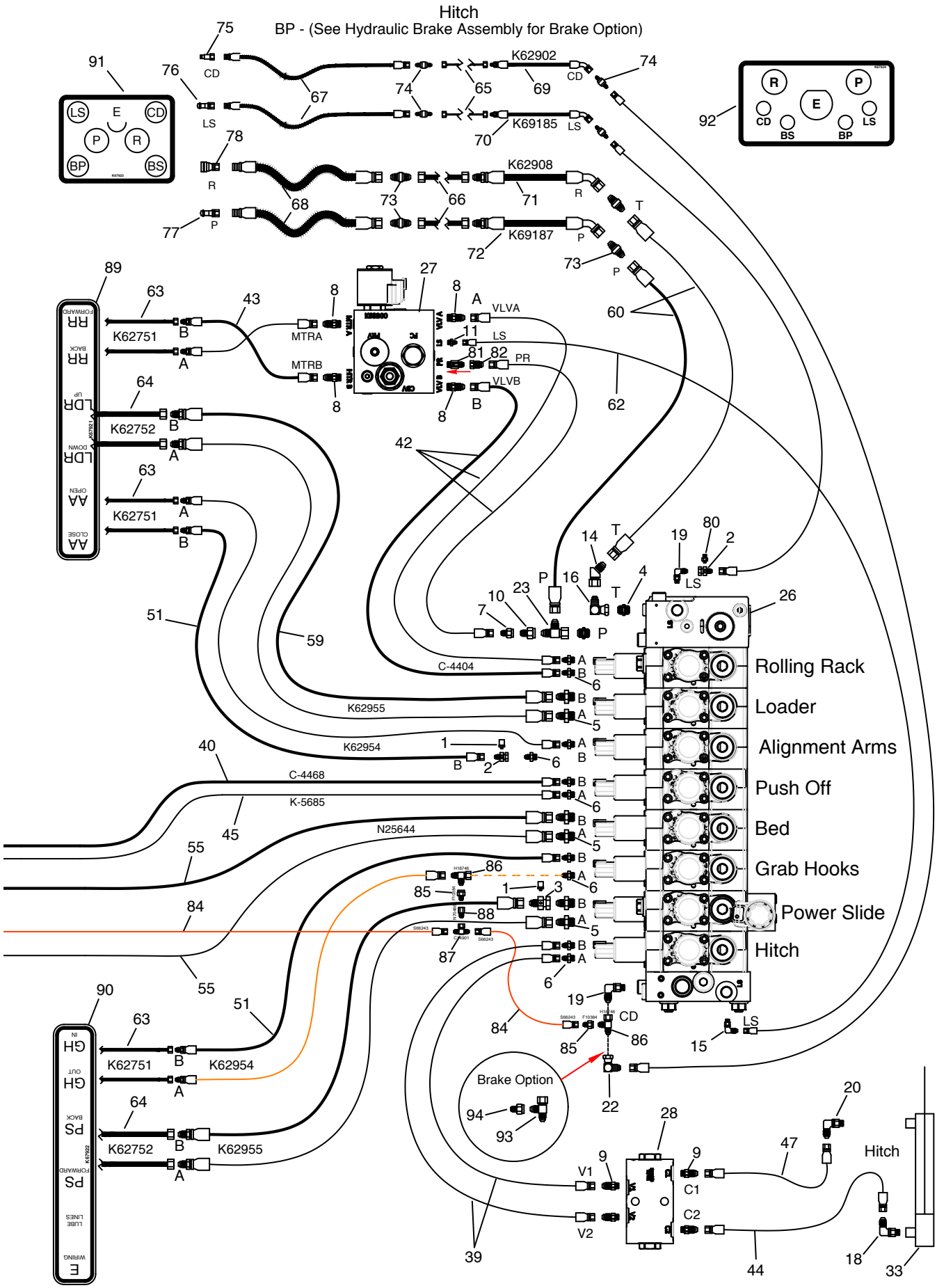
Hydraulic Assembly - From Serial # BT12306075 to BT12406096			
Item	**Part No.**	**Description**	**Qty**
1	K62977	Pressure Transducer	2
2	K62978	Tee - Gauge Port - 7/8-14 (#10) MJIC x 7/8-14 (#10) FJIC x 7/16-20 (#4) FORB	2
3	K62979	Tee - Gauge Port - 1 1/16-12 (#12) MJIC x 1 1/16-12 (#12) FJIC x 7/16-20 (#4) FORB	1
4	N58621	Connector - 1 5/16-12 MJIC (#16) x 1 5/16-12 MORB (#16)	2
5	N15990	Connector 1 1/16-12 MJIC (#12) x 1 1/16-12 MORB (#12)	6
6	N47903	Connector - 7/8-14 MJIC (#10) x 1 1/16-12 MORB (#12)	10
7	N19337	Connector - 7/8-14 MJIC (#10) x 1 1/16-12 FJIC (#12)	1
8	N34505	Connector - 7/8-14 MJIC (#10) x 7/8-14 MORB (#10)	8
9	C14840	Connector - 7/8-14 MJIC (#10) x 3/4-16 MORB (#08)	9
10	N19338	Connector - 1 1/16-12 MJIC (#12) x 1 5/16-12 FJIC (#16)	1
11	N29358	Connector - 9/16-18 MJIC x 9/16-18 MORB	1
12	N37849	Connector - 1 1/16-12 (#12) FJIC x 1 1/16-12 (#12) MORB	2
13	N51990	45 Elbow - 3/4 MJIC x 7/8 MORB	2
14	N36382	45 Elbow - Swivel - 1 5/16-12 FJIC x 1 5/16-12 MJIC	1
15	N16143	90 Elbow - 9/16-18 MJIC x 9/16-18 MORB	1
16	N58171	90 Elbow - 1 5/16-12 MJIC (#16) x 1 5/16-12 FJIC (#16)	1
17	N34644	90 Elbow - 3/4-16 MJIC x 1 1/16-12 MORB	4
18	C24585	90 Elbow - 7/8-14 MJIC x 3/4-16 MORB	3
19	S39505	90 Elbow - 7/8-14 MJIC x 9/16-18 MORB	2
20	C15317	90 Elbow - 3/4-16 (#08) MJIC x 3/4-16 (#08) MORB	7
21	11358	90 Elbow - 3/4-16 (#08) MJIC x 3/4-16 (#08) FJIC	2
22	K-5806	90 Elbow - Swivel - 7/8-14 MJIC x 7/8-14 FJIC	1
23	N19336	Tee - Swivel - (1) 1 5/16-12 FJIC x (2) 1 5/16-12 MJIC (M-M-F)	1
24	N19549	Tee - (3) 1 1/16-12 MJIC (11368)	2
25	H18746	Tee - Swivel - (2) 7/8-14 MJIC x (1) 7/8-14 FJIC (MMF)	2
26	K62786	Valve Block - Main Hydraulic	1
27	K68300	Valve Block - Counter Balance - Rolling Rack	1
28	K68627	Valve Block - Dual Direction Pilot Check	1
29	K65822	Valve Block - Counter Balance	1
30	K62154	Hydraulic Motor - 245 cc (Seal Kit K69331)	2
31	12166	Grab Hook Cylinder - 2 1/2 x 16 x 1 3/4 Dia shaft - 08 ORB	1
32	12168	Pushoff Cylinder - 3 x 30 x 1 1/2 Dia shaft - 08 ORB	1
33	10449	Hitch Cylinder - 3 1/2 x 18 x 1 3/4 Dia shaft - 08 ORB	1
34	K67300	Loader Cylinder - 3 1/2 x 20 x 2 1/2 Dia shaft - 08 ORB	2
35	10440	LT AA Cylinder - 4 x 8 x 1 3/8 Dia shaft - 08 ORB (AW-0028)	1
36	10439	RT AA Cylinder - 4 1/2 x 8 x 2 Dia shaft - 08 ORB (AW-0027)	1
37	K72258	Bed Cylinder - 5 x 36 x 2 1/2 Dia shaft - 12 ORB	2
38	K62972	Hyd Hose - 1/2 x 20 Lg - 3/4-16 (#08) FJIC x 3/4-16 (#08) MJIC	2
39	C-4383	Hyd Hose - 1/2 x 20 Lg - 7/8-14 FJIC swivel ends	4
40	C-4468	Hyd Hose - 1/2 x 24 Lg - 7/8-14 FJIC swivel ends	1
41	K62976	Hyd Hose - 1/2 x 34 Lg - 7/8-14 (#10) FJIC x 7/8-14 (#10) MORB	4
42	C-4404	Hyd Hose - 1/2 x 36 Lg - 7/8-14 FJIC swivel ends	3
43	K62956	Hyd Hose - 1/2 x 36 Lg - 3/4-16 (#08) MJIC x 7/8-14 (#10) FJIC	2
44	C26344	Hyd Hose - 1/2 x 42 Lg - 7/8-14 FJIC swivel ends	1
45	K-5685	Hyd Hose - 1/2 x 48 Lg - 7/8-14 FJIC swivel ends	1
46	C15309	Hyd Hose - 1/2 x 48 Lg - 3/4-16 FJIC x 7/8-14 FJIC	1
47	K62951	Hyd Hose - 1/2 x 54 Lg - 7/8-14 (#10) FJIC x 3/4-16 (#08) FJIC	1
48	K69189	Hyd Hose - 1/2 x 60 Lg - 3/4-16 (#08) FJIC x 1 1/16-12 (#12) FJIC	1
49	* * * * *		
50	K62971	Hyd Hose - 1/2 x 64 Lg - 3/4-16 (#08) FJIC	1
51	K62954	Hyd Hose - 1/2 x 72 Lg w/ 3/4-16 (#08) MJIC x 7/8-14 (#10) FJIC	4
52	K69188	Hyd Hose - 1/2 x 75 Lg - 3/4-16 (#08) FJIC x 1 1/16-12 (#12) FJIC	2
53	K62973	Hyd Hose - 1/2 x 78 Lg - 3/4-16 (#08) FJIC x 3/4-16 (#08) MJIC	2
54	K62974	Hyd Hose - 1/2 x 130 Lg - 3/4-16 (#08) FJIC x 3/4-16 (#08) MJIC	2
55	N25644	Hyd Hose - 3/4 x 35 Lg - 1 1/16-12 (#12) FJIC	2
56	K63001	Hyd Hose - 3/4 x 56 Lg w/ 7/8-14 (#10) FJIC x 1 1/16-12 (#12) MJIC	2
57	* * * * *		
58	K62975	Hyd Hose - 3/4 x 70 Lg - 1 1/16-12 (#12) MJIC x 1 1/16-12 (#12) MJIC	2
59	K62955	Hyd Hose - 3/4 x 78 Lg - 1 1/16-12 (#12) MJIC x 1 1/16-12 (#12) FJIC	4
60	K62922	Hydraulic Hose - 3/4 x 54 - 1 5/16 FJIC x 1 5/16 FJIC	2

Hydraulic Assembly - From Serial # BT12306075 to BT12406096			
Item	**Part No.**	**Description**	**Qty**
61	K62903	Hydraulic Hose - 1/2 x 60 - 7/8 FJIC x 3/4 FJIC	1
62	S44353	Hyd Hose - 3/8 x 48 Lg - 9/16-18 (#06) FJIC Ends	1
63	K62751	Oil Line - 1/2 x 84 Lg - 3/4-16 (#08) FJIC ends	6
64	K62752	Oil Line - 3/4 x 84 Lg - 1 1/16-12 (#12) FJIC ends	4
65	K62753	Oil Line - 1/2 x 128 Lg - 3/4-16 (#08) FJIC ends	2
66	K62754	Oil Line - 1 x 129 Lg -1 5/16-12 (#16) FJIC ends	2
67	K62920	Hyd Hose - 1/2 x 72 Lg - 3/4-16 (#08) FJIC x 3/4-16 (#08) MORB	2
68	K62921	Hyd Hose - 3/4 x 72 Lg - 1 5/16-12 (#16) FJIC x 1 1/16-12 (#12) MORB	2
69	K62902	Hyd Hose - 1/2 x 72 Lg - 3/4-16 (#08) MJIC x 3/4-16 (#08) FJIC 45 Deg	1
70	K69185	Hyd Hose - 1/2 x 66 1/2 Lg - 3/4-16 (#08) MJIC x 3/4-16 (#08) FJIC 45 Deg	1
71	K62908	Hyd Hose - 3/4 x 70 1/2 Lg - 1 5/16-12 (#16) MJIC x 1 5/16-12 (#16) FJIC 45 Deg	1
72	K69187	Hyd Hose - 3/4 x 67 Lg - 1 5/16-12 (#16) MJIC x 1 5/16-12 (#16) FJIC 45 Deg	1
73	K62131	Bulk Head Union - 1 5/16-12 (#16) MJIC	2
74	K62123	Bulk Head Union - 3/4-16 (#08) MJIC	2
75	K50834	3/8 Flat Face Tip - 3/4-16 FORB	1
76	N34443	1/2 Male Pioneer Tip - 3/4-16 FORB	1
77	N37914	3/4 Male Tip - 1 1/16-12 FORB	2
78	N37915	3/4 Female Coupler - 1 1/16-12 FORB	2
79	C28505	Plug - 3/4-16 (#08) MORB	4
80	N64583	Coupler - Test Port - 7/16-20 (#4) MORB	1
81	10854	Check Valve - 3/4-16 MORB (#08) x 3/4-16 MJIC (#08)	1
82	C15839	Connector - 3/4-16 FJIC (#08) x 7/8-14 MJIC (#10)	1
83	K73239	Hyd Hose - 1/2 x 96 Lg - 3/4-16 (#08) FJIC x 1 1/16-12 (#12) FJIC - Left Cylinder	1
84	K67921	Decal - Hydraulic Identification - Loader Bed	2
85	K67922	Decal - Hydraulic Identification - Loader Bed	2
86	K67923	Decal - Hydraulic Identification - Hitch Front	1
87	K67924	Decal - Hydraulic Identification - Hitch Back	1
		See Hydraulic Brake Assembly for following items: (if equipped with brakes)	
88	H18746	Tee - (2) 7/8-14 MJIC x (1) 7/8-14 FJIC - (M-M-F) - Swivel	1
89	F10384	Connector - 9/16-18 (#06) MJIC x 7/8-14 (#10) FJIC	1
	K62753	Oil Line - 1/2 x 128 Lg - 3/4-16 (#08) FJIC ends	1
	K69086	Hyd Hose - 3/8 x 72 Lg w/ M18 x 1.5 Male DIN x 9/16-18 FJIC	1
	K69186	Hyd Hose - 1/2 x 68 1/2 Lg - 3/4-16 (#08) MJIC x 3/4-16 (#08) FJIC 45 Deg	1
	K62123	Bulk Head Union - 3/4-16 (#08) MJIC	2
	K50954	Brake Coupler - Female - 08 (1/2 inch) M18 x 1.5 Thread	1
	K51052	Bonded Seal - 18mm Male DIN (9500-18mm)	1
	K73285	ARR Check Valve Kit - Includes Items 81 and 82	
	K73545	KIT - Push Off & Grab Hooks Hydraulic Bleed Down - Includes Items 84 - 88	

Hydraulic Assembly - From Serial # BT12406096



Hydraulic Assembly - From Serial # BT12406096



Hydraulic Assembly - From Serial # BT12406096			
Item	**Part No.**	**Description**	**Qty**
1	K62977	Pressure Transducer	2
2	K62978	Tee - Gauge Port - 7/8-14 (#10) MJIC x 7/8-14 (#10) FJIC x 7/16-20 (#4) FORB	2
3	K62979	Tee - Gauge Port - 1 1/16-12 (#12) MJIC x 1 1/16-12 (#12) FJIC x 7/16-20 (#4) FORB	1
4	N58621	Connector - 1 5/16-12 MJIC (#16) x 1 5/16-12 MORB (#16)	2
5	N15990	Connector 1 1/16-12 MJIC (#12) x 1 1/16-12 MORB (#12)	6
6	N47903	Connector - 7/8-14 MJIC (#10) x 1 1/16-12 MORB (#12)	10
7	N19337	Connector - 7/8-14 MJIC (#10) x 1 1/16-12 FJIC (#12)	1
8	N34505	Connector - 7/8-14 MJIC (#10) x 7/8-14 MORB (#10)	8
9	C14840	Connector - 7/8-14 MJIC (#10) x 3/4-16 MORB (#08)	9
10	N19338	Connector - 1 1/16-12 MJIC (#12) x 1 5/16-12 FJIC (#16)	1
11	N29358	Connector - 9/16-18 MJIC x 9/16-18 MORB	1
12	N37849	Connector - 1 1/16-12 (#12) FJIC x 1 1/16-12 (#12) MORB	2
13	N51990	45 Elbow - 3/4 MJIC x 7/8 MORB	2
14	N36382	45 Elbow - Swivel - 1 5/16-12 FJIC x 1 5/16-12 MJIC	1
15	N16143	90 Elbow - 9/16-18 MJIC x 9/16-18 MORB	1
16	N58171	90 Elbow - 1 5/16-12 MJIC (#16) x 1 5/16-12 FJIC (#16)	1
17	N34644	90 Elbow - 3/4-16 MJIC x 1 1/16-12 MORB	4
18	C24585	90 Elbow - 7/8-14 MJIC x 3/4-16 MORB	3
19	S39505	90 Elbow - 7/8-14 MJIC x 9/16-18 MORB	2
20	C15317	90 Elbow - 3/4-16 (#08) MJIC x 3/4-16 (#08) MORB	7
21	11358	90 Elbow - 3/4-16 (#08) MJIC x 3/4-16 (#08) FJIC	2
22	K-5806	90 Elbow - Swivel - 7/8-14 MJIC x 7/8-14 FJIC	1
23	N19336	Tee - Swivel - (1) 1 5/16-12 FJIC x (2) 1 5/16-12 MJIC (M-M-F)	1
24	N19549	Tee - (3) 1 1/16-12 MJIC (11368)	2
25	H18746	Tee - Swivel - (2) 7/8-14 MJIC x (1) 7/8-14 FJIC (MMF)	2
26	K62786	Valve Block - Main Hydraulic	1
27	K68300	Valve Block - Counter Balance - Rolling Rack	1
28	K68627	Valve Block - Dual Direction Pilot Check	1
29	K65822	Valve Block - Counter Balance	1
30	K62154	Hydraulic Motor - 245 cc (Seal Kit K69331)	2
31	12166	Grab Hook Cylinder - 2 1/2 x 16 x 1 3/4 Dia shaft - 08 ORB	1
32	12168	Pushoff Cylinder - 3 x 30 x 1 1/2 Dia shaft - 08 ORB	1
33	10449	Hitch Cylinder - 3 1/2 x 18 x 1 3/4 Dia shaft - 08 ORB	1
34	K67300	Loader Cylinder - 3 1/2 x 20 x 2 1/2 Dia shaft - 08 ORB	2
35	10440	LT AA Cylinder - 4 x 8 x 1 3/8 Dia shaft - 08 ORB (AW-0028)	1
36	10439	RT AA Cylinder - 4 1/2 x 8 x 2 Dia shaft - 08 ORB (AW-0027)	1
37	K72258	Bed Cylinder - 5 x 36 x 2 1/2 Dia shaft - 12 ORB	2
38	K62972	Hyd Hose - 1/2 x 20 Lg - 3/4-16 (#08) FJIC x 3/4-16 (#08) MJIC	2
39	C-4383	Hyd Hose - 1/2 x 20 Lg - 7/8-14 FJIC swivel ends	4
40	C-4468	Hyd Hose - 1/2 x 24 Lg - 7/8-14 FJIC swivel ends	1
41	K62976	Hyd Hose - 1/2 x 34 Lg - 7/8-14 (#10) FJIC x 7/8-14 (#10) MORB	4
42	C-4404	Hyd Hose - 1/2 x 36 Lg - 7/8-14 FJIC swivel ends	3
43	K62956	Hyd Hose - 1/2 x 36 Lg - 3/4-16 (#08) MJIC x 7/8-14 (#10) FJIC	2
44	C26344	Hyd Hose - 1/2 x 42 Lg - 7/8-14 FJIC swivel ends	1
45	K-5685	Hyd Hose - 1/2 x 48 Lg - 7/8-14 FJIC swivel ends	1
46	C15309	Hyd Hose - 1/2 x 48 Lg - 3/4-16 FJIC x 7/8-14 FJIC	1
47	K62951	Hyd Hose - 1/2 x 54 Lg - 7/8-14 (#10) FJIC x 3/4-16 (#08) FJIC	1
48	K69189	Hyd Hose - 1/2 x 60 Lg - 3/4-16 (#08) FJIC x 1 1/16-12 (#12) FJIC	1
49	* * * * *		
50	K62971	Hyd Hose - 1/2 x 64 Lg - 3/4-16 (#08) FJIC	1
51	K62954	Hyd Hose - 1/2 x 72 Lg w/ 3/4-16 (#08) MJIC x 7/8-14 (#10) FJIC	4
52	K69188	Hyd Hose - 1/2 x 75 Lg - 3/4-16 (#08) FJIC x 1 1/16-12 (#12) FJIC	2
53	K62973	Hyd Hose - 1/2 x 78 Lg - 3/4-16 (#08) FJIC x 3/4-16 (#08) MJIC	2
54	K62974	Hyd Hose - 1/2 x 130 Lg - 3/4-16 (#08) FJIC x 3/4-16 (#08) MJIC	2
55	N25644	Hyd Hose - 3/4 x 35 Lg - 1 1/16-12 (#12) FJIC	2
56	K63001	Hyd Hose - 3/4 x 56 Lg w/ 7/8-14 (#10) FJIC x 1 1/16-12 (#12) MJIC	2
57	* * * * *		
58	K62975	Hyd Hose - 3/4 x 70 Lg - 1 1/16-12 (#12) MJIC x 1 1/16-12 (#12) MJIC	2
59	K62955	Hyd Hose - 3/4 x 78 Lg - 1 1/16-12 (#12) MJIC x 1 1/16-12 (#12) FJIC	4
60	K62922	Hydraulic Hose - 3/4 x 54 - 1 5/16 FJIC x 1 5/16 FJIC	2

Hydraulic Assembly - From Serial # BT12406096

Item	Part No.	Description	Qty
61	K62903	Hydraulic Hose - 1/2 x 60 - 7/8 FJIC x 3/4 FJIC	1
62	S44353	Hyd Hose - 3/8 x 48 Lg - 9/16-18 (#06) FJIC Ends	1
63	K62751	Oil Line - 1/2 x 84 Lg - 3/4-16 (#08) FJIC ends	6
64	K62752	Oil Line - 3/4 x 84 Lg - 1 1/16-12 (#12) FJIC ends	4
65	K62753	Oil Line - 1/2 x 128 Lg - 3/4-16 (#08) FJIC ends	2
66	K62754	Oil Line - 1 x 129 Lg -1 5/16-12 (#16) FJIC ends	2
67	K62920	Hyd Hose - 1/2 x 72 Lg - 3/4-16 (#08) FJIC x 3/4-16 (#08) MORB	2
68	K62921	Hyd Hose - 3/4 x 72 Lg - 1 5/16-12 (#16) FJIC x 1 1/16-12 (#12) MORB	2
69	K62902	Hyd Hose - 1/2 x 72 Lg - 3/4-16 (#08) MJIC x 3/4-16 (#08) FJIC 45 Deg	1
70	K69185	Hyd Hose - 1/2 x 66 1/2 Lg - 3/4-16 (#08) MJIC x 3/4-16 (#08) FJIC 45 Deg	1
71	K62908	Hyd Hose - 3/4 x 70 1/2 Lg - 1 5/16-12 (#16) MJIC x 1 5/16-12 (#16) FJIC 45 Deg	1
72	K69187	Hyd Hose - 3/4 x 67 Lg - 1 5/16-12 (#16) MJIC x 1 5/16-12 (#16) FJIC 45 Deg	1
73	K62131	Bulk Head Union - 1 5/16-12 (#16) MJIC	2
74	K62123	Bulk Head Union - 3/4-16 (#08) MJIC	2
75	K50834	3/8 Flat Face Tip - 3/4-16 FORB	1
76	N34443	1/2 Male Pioneer Tip - 3/4-16 FORB	1
77	N37914	3/4 Male Tip - 1 1/16-12 FORB	2
78	N37915	3/4 Female Coupler - 1 1/16-12 FORB	2
79	C28505	Plug - 3/4-16 (#08) MORB	4
80	N64583	Coupler - Test Port - 7/16-20 (#4) MORB	1
81	10854	Check Valve - 3/4-16 MORB (#08) x 3/4-16 MJIC (#08)	1
82	C15839	Connector - 3/4-16 FJIC (#08) x 7/8-14 MJIC (#10)	1
83	K73239	Hyd Hose - 1/2 x 96 Lg - 3/4-16 (#08) FJIC x 1 1/16-12 (#12) FJIC - Left Cylinder	1
84	S66243	Hyd Hose - 1/4 x 22 Lg - #6 9/16-18 FJIC Ends (High Flex)	2
85	F10384	Connector - 9/16-18 (#06) MJIC x 7/8-14 (#10) FJIC	3
86	H18746	Tee - (2) 7/8-14 MJIC x (1) 7/8-14 FJIC - (M-M-F) - Swivel	3
87	C14901	Tee - (2) 9/16-18 MJIC x (1) 9/16-18 FJIC (MFM)	1
88	N70486	Restrictor - .031" Orifice - (1) 9/16-18 MJIC X (1) 9/16-18 FJIC	1
89	K67921	Decal - Hydraulic Identification - Loader Bed	2
90	K67922	Decal - Hydraulic Identification - Loader Bed	2
91	K67923	Decal - Hydraulic Identification - Hitch Front	1
92	K67924	Decal - Hydraulic Identification - Hitch Back	1
		See Hydraulic Brake Assembly for following items: (if equipped with brakes)	
93	H18746	Tee - (2) 7/8-14 MJIC x (1) 7/8-14 FJIC - (M-M-F) - Swivel	1
94	F10384	Connector - 9/16-18 (#06) MJIC x 7/8-14 (#10) FJIC	1
	K62753	Oil Line - 1/2 x 128 Lg - 3/4-16 (#08) FJIC ends	1
	K69086	Hyd Hose - 3/8 x 72 Lg w/ M18 x 1.5 Male DIN x 9/16-18 FJIC	1
	K69186	Hyd Hose - 1/2 x 68 1/2 Lg - 3/4-16 (#08) MJIC x 3/4-16 (#08) FJIC 45 Deg	1
	K62123	Bulk Head Union - 3/4-16 (#08) MJIC	2
	K50954	Brake Coupler - Female - 08 (1/2 inch) M18 x 1.5 Thread	1
	K51052	Bonded Seal - 18mm Male DIN (9500-18mm)	1
	K73285	ARR Check Valve Kit - Includes Items 81 and 82	
	K73545	KIT - Push Off & Grab Hooks Hydraulic Bleed Down - Includes Items 84 - 88	

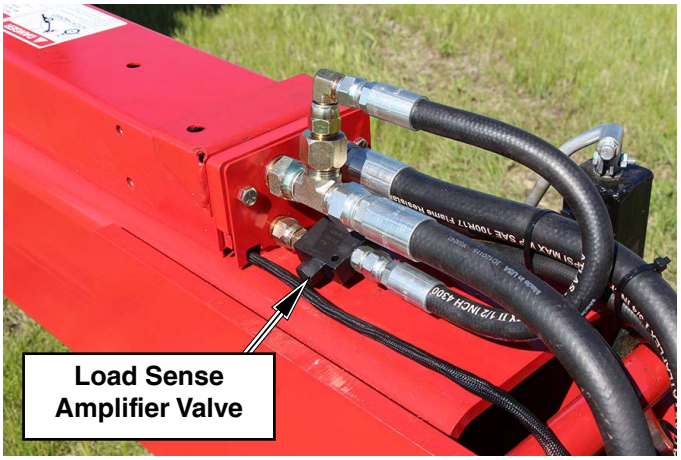
Load Sense Amplifier Kit

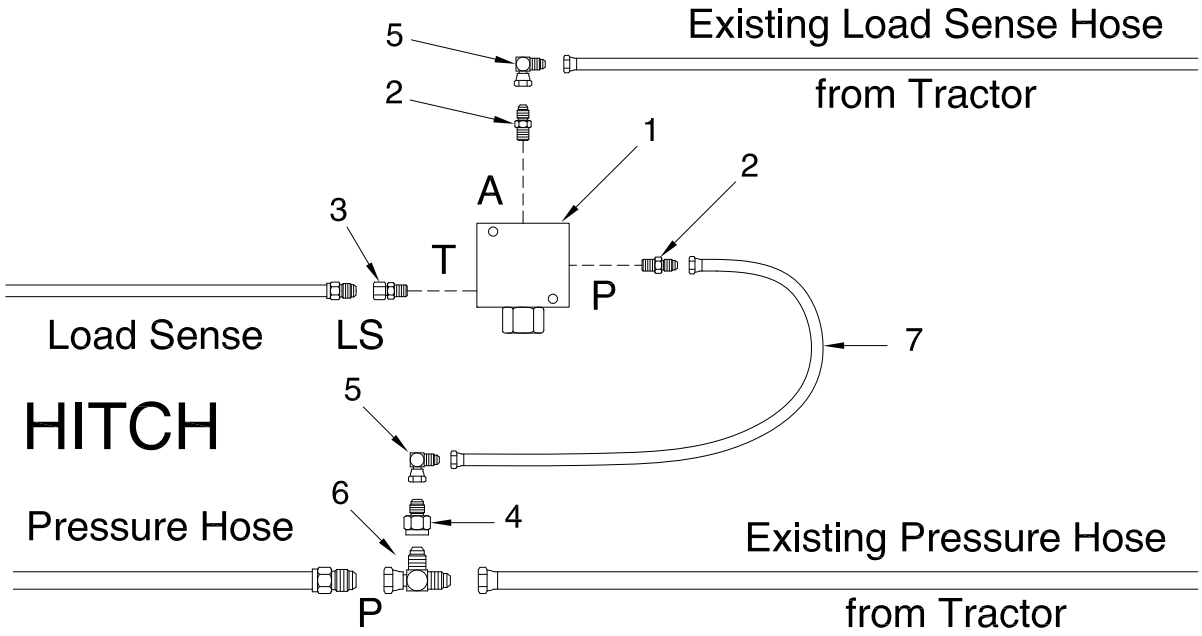
Some tractor models require a stronger hydraulic signal to activate their load sense hydraulics.

One sign of such a tractor is a slow response time when operating the Joystick Controller.

To eliminate the lag in tractor's hydraulic response time, Morris has introduced a Load Sense Amplifier Kit to improve tractor load sense response time.

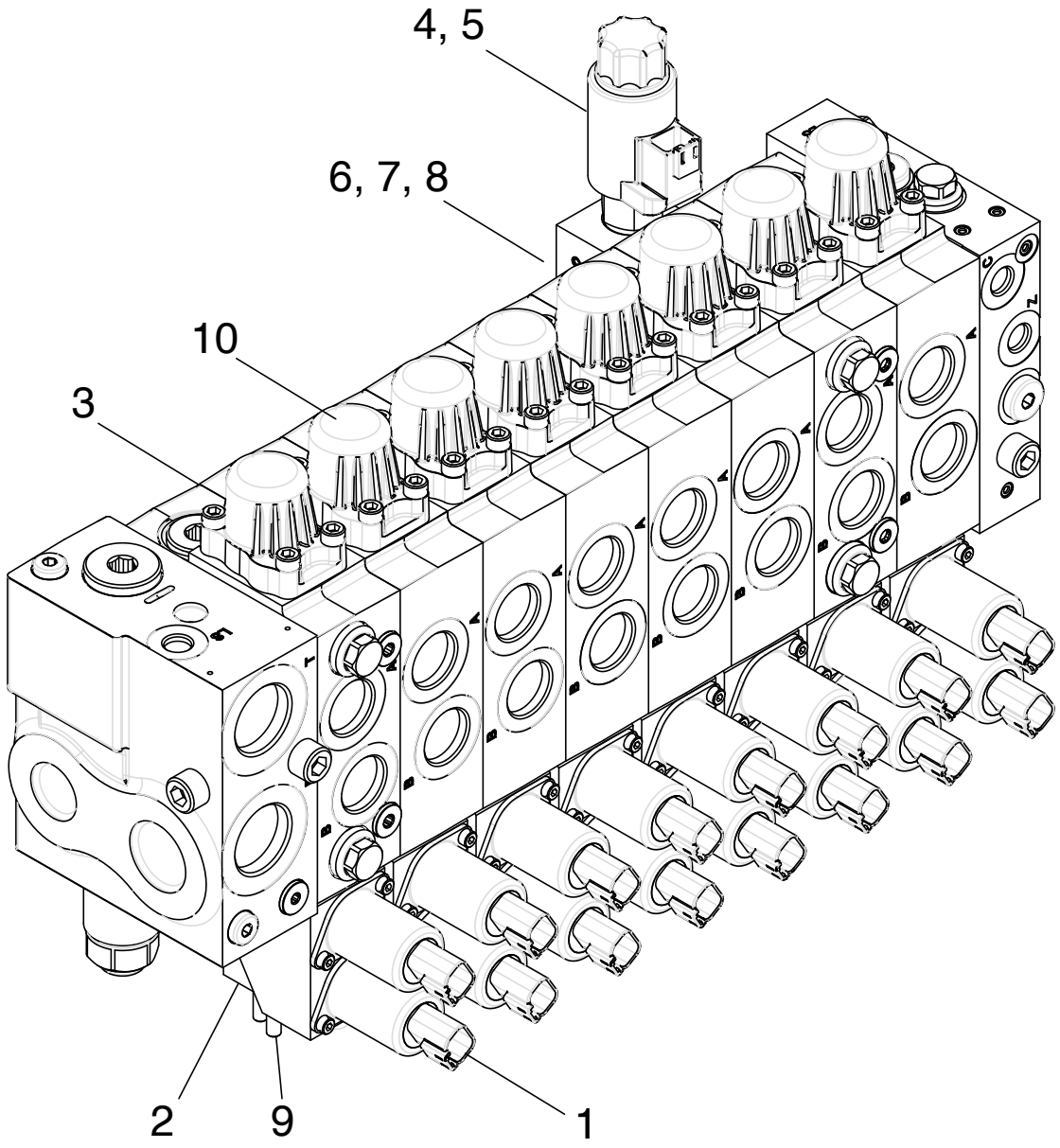
Contact Morris' Parts Department for pricing and availability of the Load Sense Amplifier Kit part number K71750.





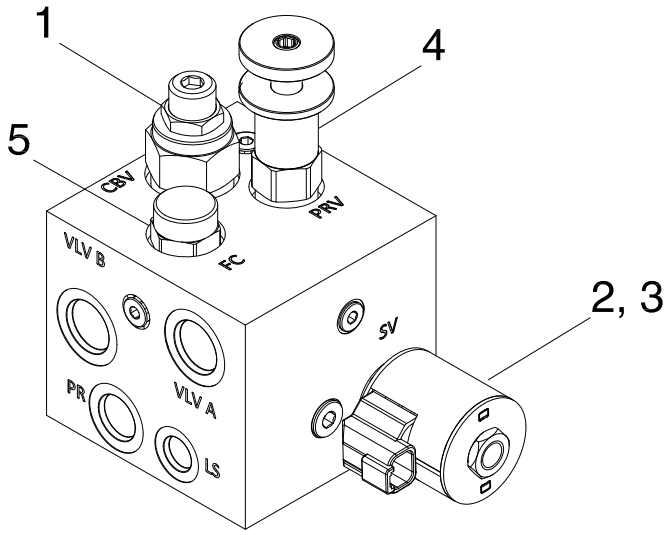
Item	Part No.	Description	Qty
1	K58420	Load Sense Amplifier Valve	1
2	K58419	Connector - 04 Male BSPP x 08 Male JIC	2
3	K59071	Connector - 04 Male BSPP x 08 Female JIC	1
4	K71749	Connector - 16 FJIC x 08 MJIC	1
5	11358	90 Elbow - Swivel - 08 MJIC x 08 FJIC	2
6	N19336	Tee - Swivel - (1) 16 FJIC x (2) 16 MJIC	1
7	K58418	Hyd Hose - 1/2 x 18 Lg - 08 FJIC	1
	K71750	Kit - Load Sense Amplifier (Includes above items)	

Hydac Valve - K72230 and K62786



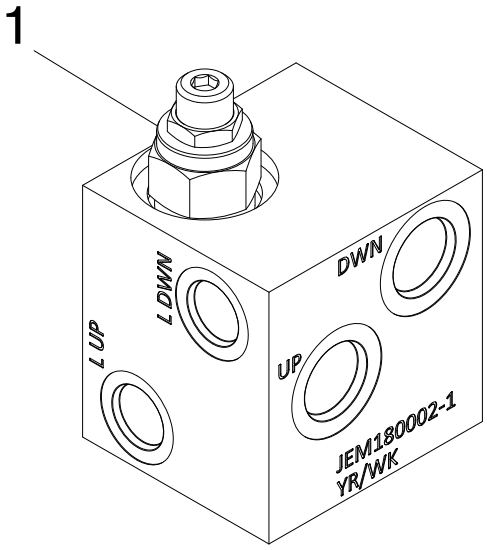
Item	Part No.	Description	Qty
1	K72131	Solenoid 12V Deutsch - HYDAC - 2903343 (2 Per Valve)	16
2	K72132	Solenoid Seal Kit - HYDAC - 3863197 (2 Per Valve)	16
3	K72133	Section Seal Kit - HYDAC - 3745219 (1 Per Valve)	9
4	K72134	Pressure Control Valve - HYDAC - 3135454	1
5	K72135	Coil - HYDAC - 3179990	1
6	K72136	LS Shuttle - Port Resolver - HYDAC - 3768494	8
7	K72137	LS Shuttle - Section resolver - HYDAC - 3768605	8
8	K72138	LS Shuttle - Ball - HYDAC - 6074019	8
9	K72347	Kit - Stroke Limiter - HYDAC - 4464018	8
10	K72952	Kit - Spring Cap with Seal - 4263822 (1 Per Valve Section)	8
	K72230	Valve Block - Main Hydraulic - M10 mount holes - From Serial # 12106041	
	K62786	Valve Block - Main Hydraulic - 7/16-20 UNF mount holes - Prior to Serial # 12106040	
	K71744	Kit - Open Center Hydraulic Conversion	

Rolling Rack Valve - K68300



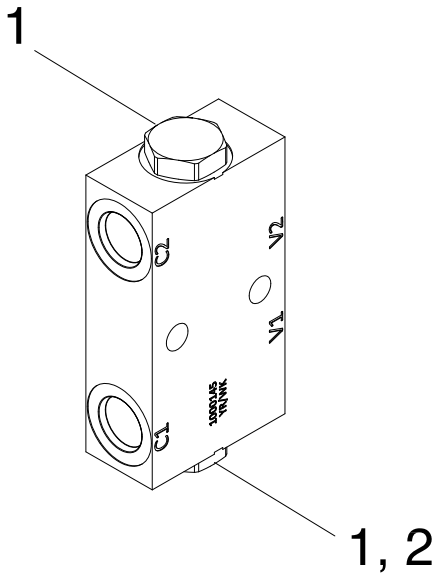
Item	Part No.	Description	Qty
1	K72124	Counter Balance Valve Cartridge - CBPA-12-N-S-O-30/30	1
2	K72125	E-Coil 12 VDC - 4303712	1
3	K72126	Solenoid Valve - Spool-Type 2 Way - SV10-24-0-N-00	1
4	K72127	Pressure Relief Valve - PR10-36B-0-N-15/5	1
5	K72128	Flow Regulator - 3 GPM - FR10-20F-0-N-3.0	1

Counter Balance Valve - K65822



Item	Part No.	Description	Qty
1	K72124	Counter Balance Valve Cartridge - CBPA-12-N-S-O-30/30	

Pilot Check Valve - K68627



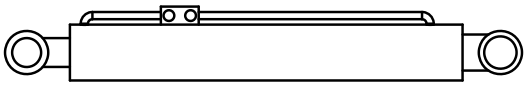
Item	Part No.	Description	Qty
1	K72129	Check Valve - CV10-20-0-N-70	2
2	K72130	Pilot Piston - 7013300	1

Name: Bed Cyl
Type: Welded
Bore X Stroke: 5" x 36"
Packing Kit # PMCK-AW-0024

Part # K71792 - To Serial # 12106040
Length: 48 3/4"

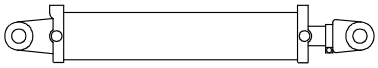
Name: Bed Cyl
Type: Welded
Bore X Stroke: 5" x 36"
Packing Kit # **K72259**

Part # K72258 - From Serial # 12106041
Length: 48 3/4"



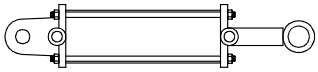
Name: Loader Cyl
Type: Welded
Bore X Stroke: 3 1/2" x 20"
Packing Kit # K72958
Rod End Journal Bushing # K62377

Part # K67300
Length: 32 7/8"



Name: K Hitch Cyl
Type: Welded
Bore X Stroke: 3.5" x 18"
Packing Kit # PMCK-AU-0478
Clevis - Screw On - K49746

Part # 10449
Length: 34 7/8"



Name: Left Alnmt Cyl
Type: Tie-Rod
Bore X Stroke: 4" x 8"
Packing Kit # PMCK-AW-0028

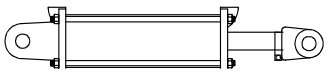
Part # 10440
Length: 19 5/8"

Name: Right Alnmt Cyl
Type: Tie-Rod
Bore X Stroke: 4.5" x 8"
Packing Kit # PMCK-AW-0027

Part # 10439
Length: 19 5/8"

Name: Grab Hook Cyl
Type: Welded
Bore X Stroke: 2 1/2" x 16"
Packing Kit # PMCK-AR-707
Bushing # K69183 Quantity 4

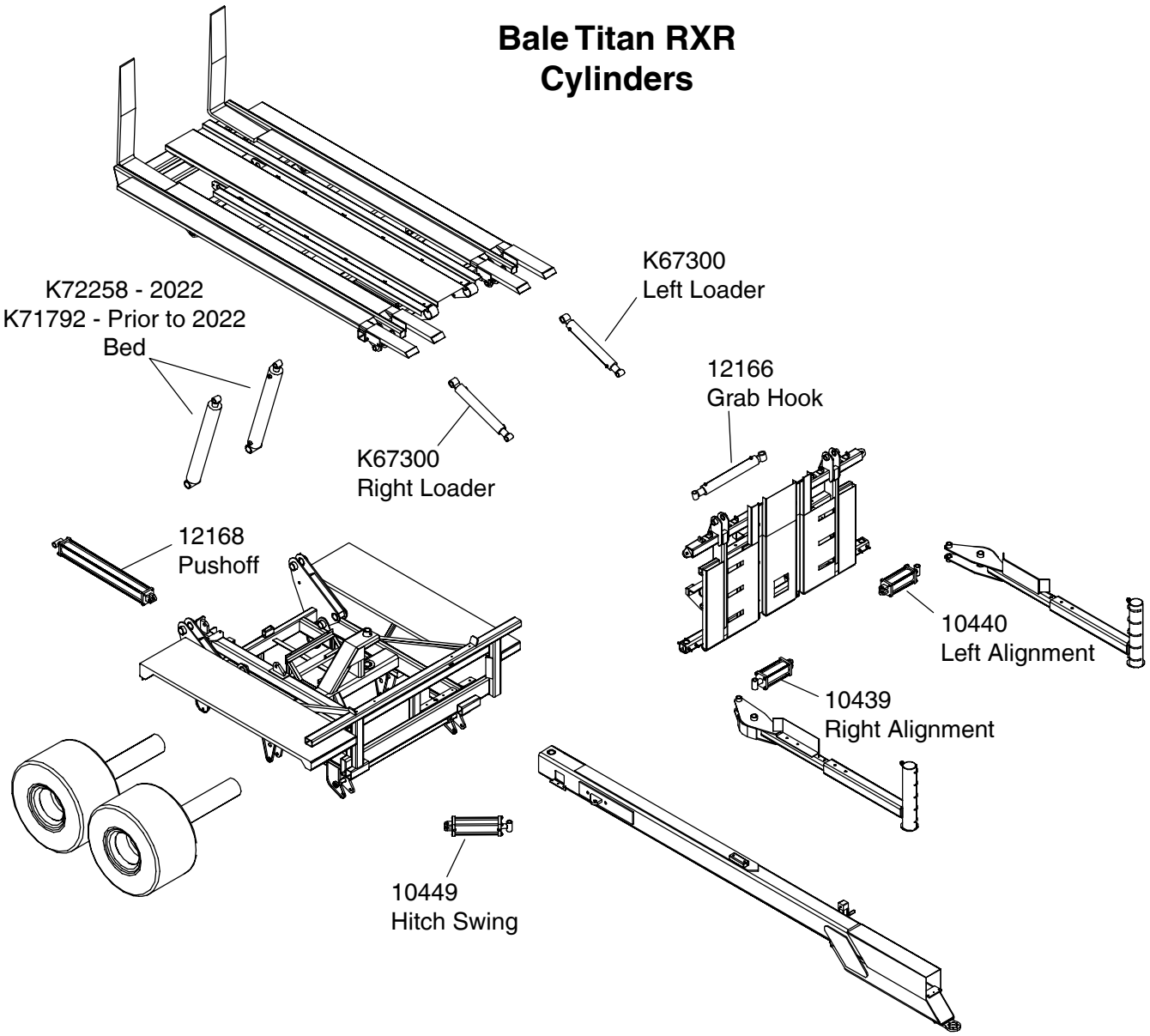
Part # 12166
Length: 26 3/4"



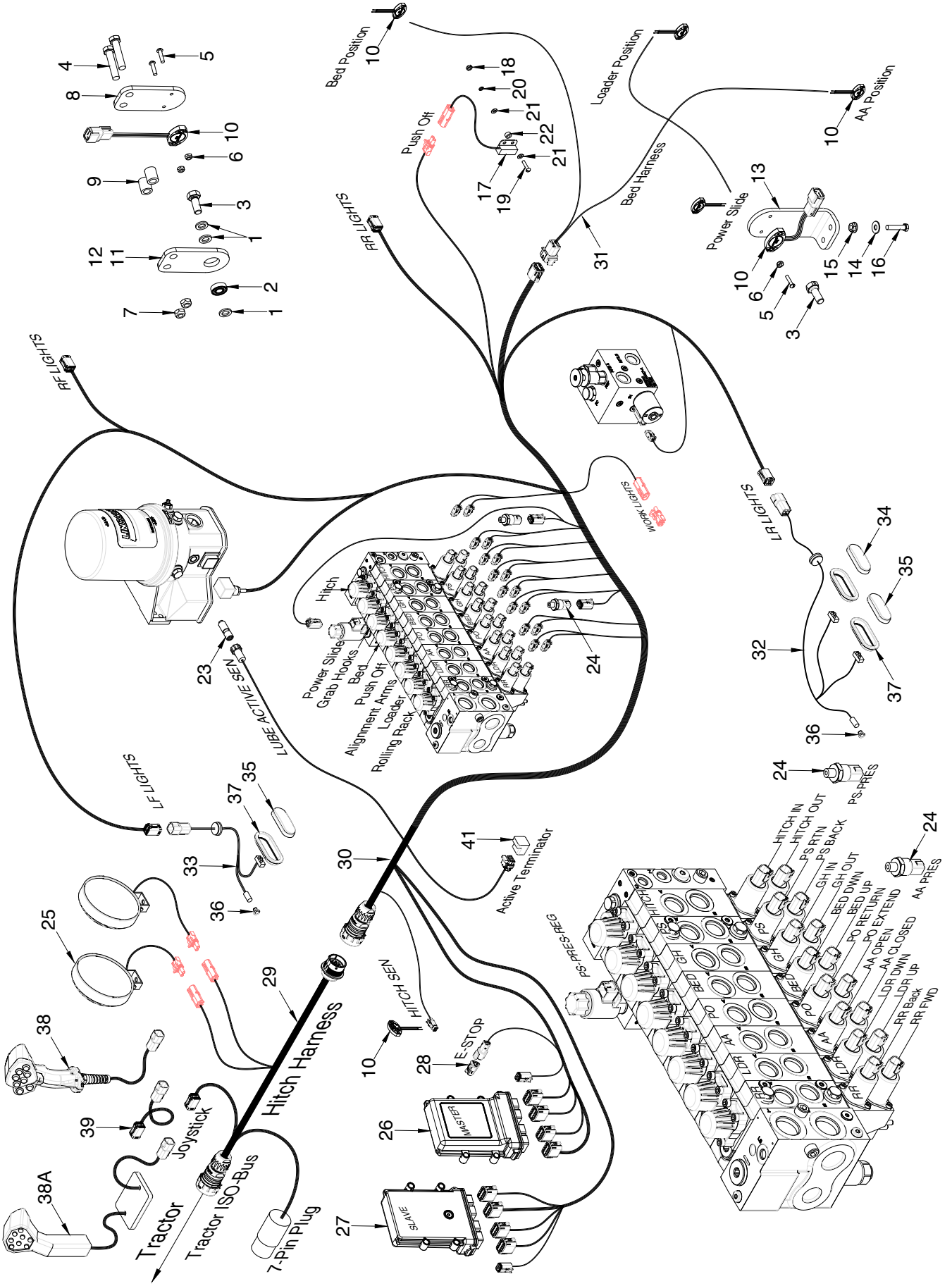
Name: Pushoff Cyl
Type: Tie-Rod
Bore X Stroke: 3" x 30"
Packing Kit # PMCK-BD-0575

Part # 12168
Length: 40 1/4"

Bale Titan RXR Cylinders



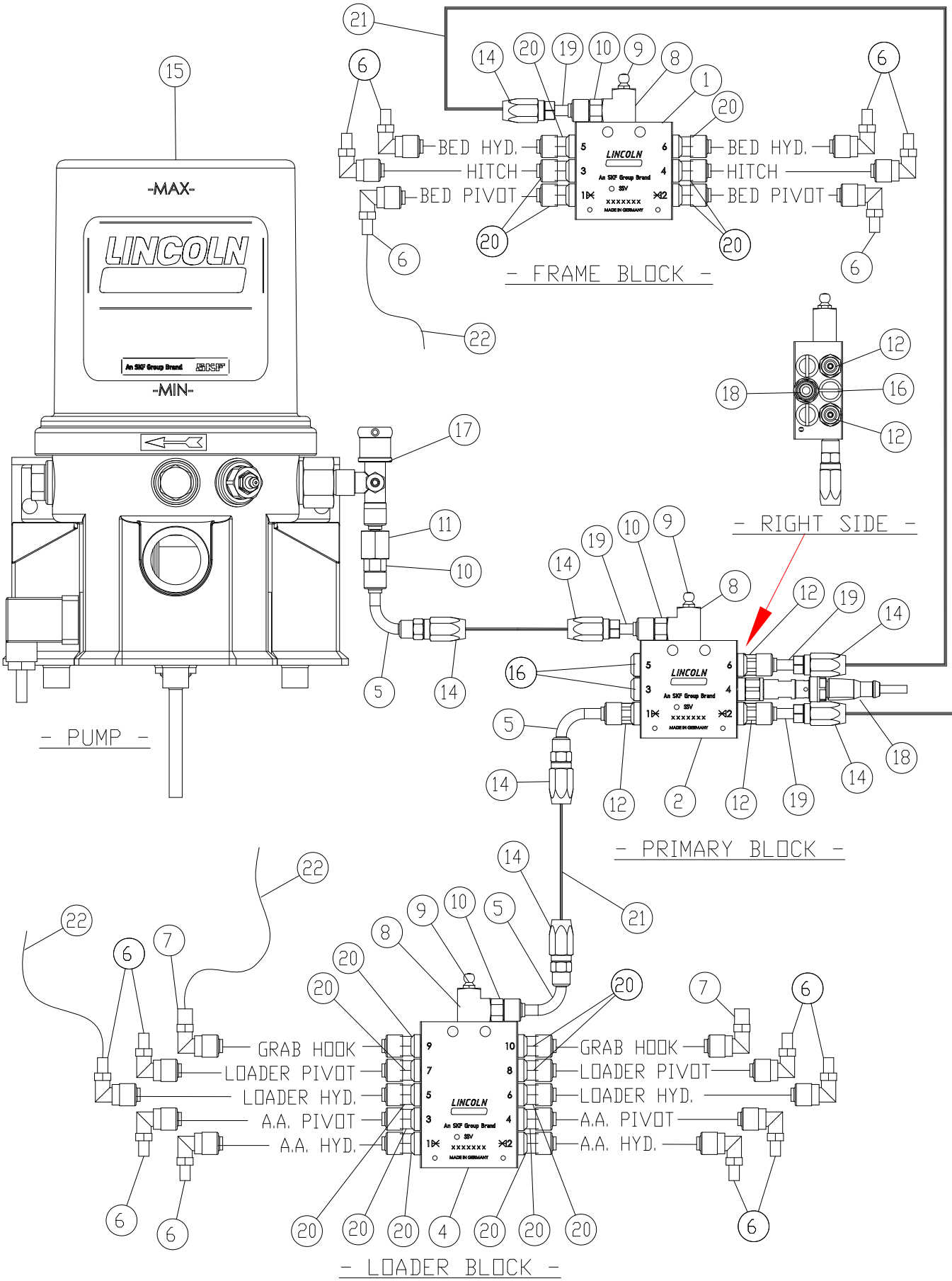
Electrical Control Assembly



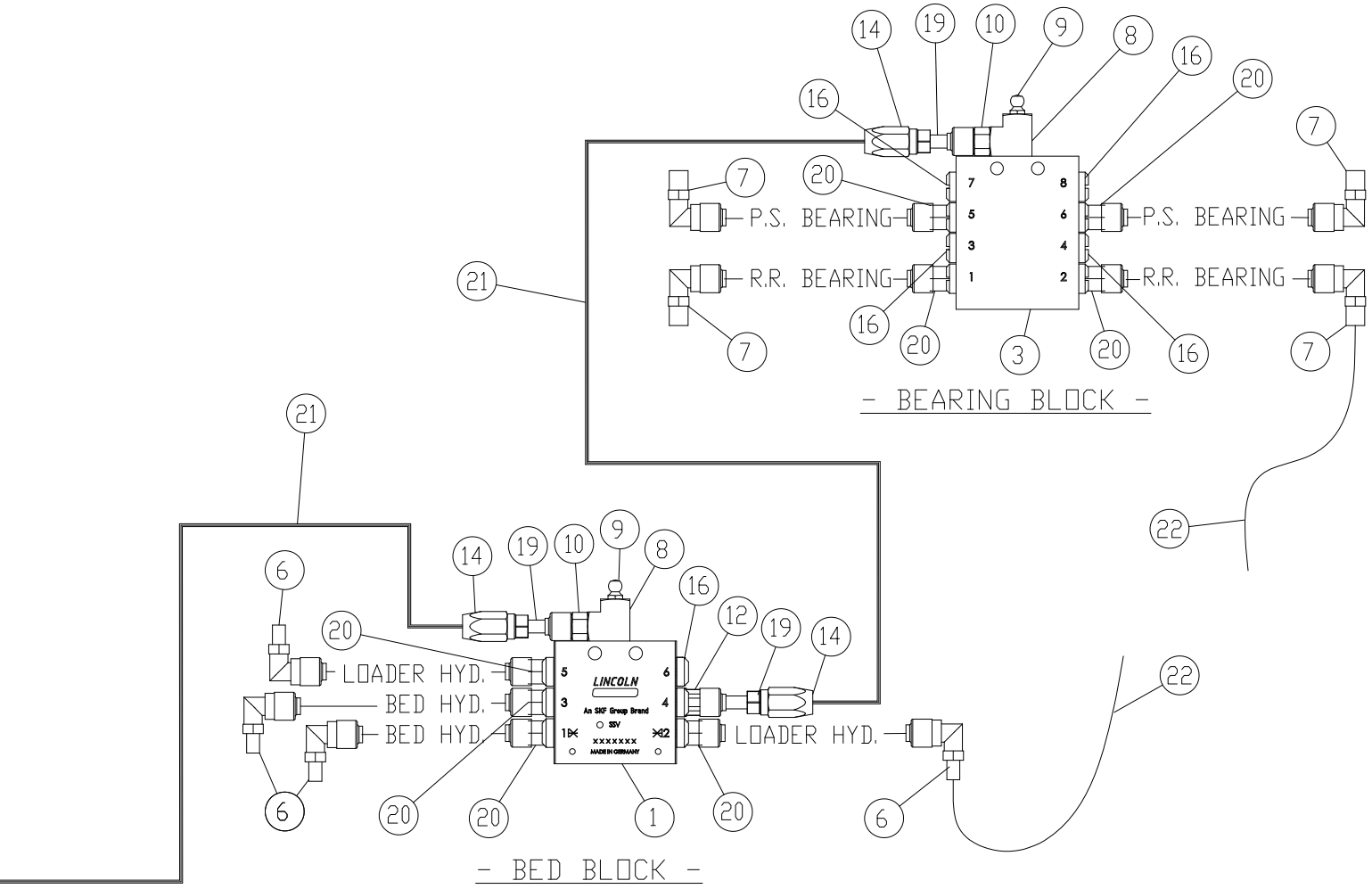
Electrical Control Assembly

Item	Part No.	Description	Qty
		Quantities given per sensor	
1	W-542	Flatwasher - 13/32 ID x 11/16 OD x 12 Ga	3
2	* * * * *	Bearing - sold only mounted to Bracket (11) to ensure correct fit	
3	K67331	Hex Bolt - 3/8 x 1 Lg - Stainless with Magnetic Head	1
4	W-619	Hex Bolt - 3/8 x 1 3/4 Lg	2
5	**K72059**	**Machine Screw - #8-32 UNC x 1 Lg**	**2**
6	N16304	Locknut - #8-32 UNC	2
7	M-3388	Locknut - 3/8	2
8	K68646	Sensor Mount	1
9	N32079	Bushing - 0.385 ID x 5/8 OD x 3/4 Lg	2
10	K67298	Sensor - Angular Position (5 sensors per machine)	1
11	* * * * *	Sensor Bolt Bracket - sold only mounted to Bearing (2) to ensure correct fit	1
12	K69719	Sensor Bearing Plate Assembly - (Includes items 2 and 11)	
		Below Quantities per machine	
13	K67364	Sensor Mount - Power Slide	1
14	S-1198	Flatwasher - 5/16	2
15	D-5277	Locknut - 1/4 Flange . . . (4 required to mount K64108)	2
16	W-1552	Hex Bolt - 1/4 x 1 Lg . . . (4 required to mount K64108)	2
17	**11505**	**Sensor - Ferrous Metal** (1 sensor per machine)	**1**
18	**11570**	**Hex Nut #12 - Brass**	**2**
19	**11571**	**Machine Screw #12 - 24 x 1 Lg - Brass**	**2**
20	**11572**	**Lockwasher #12 - 0.216 ID - Brass**	**2**
21	**11573**	**Flat Washer #12 - 0.25 ID x 0.562 OD - Brass**	**4**
22	**11575**	**Nylon Spacer - 1/4 ID x 1/2 OD x 1/4 Lg**	**2**
23	K68654	Sensor - Proximity Switch (1 sensor per machine)	1
24	K62977	Pressure Transducer	2
25	N50367	Lights - Optional	2
26	K69670	Falcon Controller - Master	1
27	K69671	Falcon Controller - Slave	1
28	K69457	E-Stop Bridge	1
29	K73276	Harness - Hitch (Replaces K68626)	1
30	K73275	Harness - Main Frame (Replaces K68625)	1
31	K73274	Harness - Bed (Replaces K68624)	1
32	K67996	Harness Light Bar - Rear (See Light Bracket Assembly 1-17)	2
33	K67997	Harness Light Bar - Front (See Light Bracket Assembly 1-16)	2
34	K67643	Light - Red	2
35	K67644	Light - Amber	4
36	K68854	Button Light - Red	4
37	K68538	Grommet	6
38	K65825	Joystick - 8 Button and Trigger - To Serial # 12006025	1
38A	**K69471**	**Joystick - 8 Button CAN BUS - From Serial # 12006026**	
39	K72157	Harness Extension - Joystick - 6 ft Lg	1
40	K64108	Bracket - Light Mount (Not Shown) - See Hitch page 1-2	1
41	N53054	Active Terminator	1
	N69103	Raven CR7 Display Kit - Optional when not using Tractor ISO plug (Not Shown) The Kit includes the following items: N69100 Raven CR-7 Display with mount (117-2295-005UN) N69101 Raven CR-7 ISO VT ONLY CABLE (115-7300-092) N69102 Raven CR-7 ISO / POWER CABLE WITH IBBC (115-7300-021)	

Greaser Kit - K68310

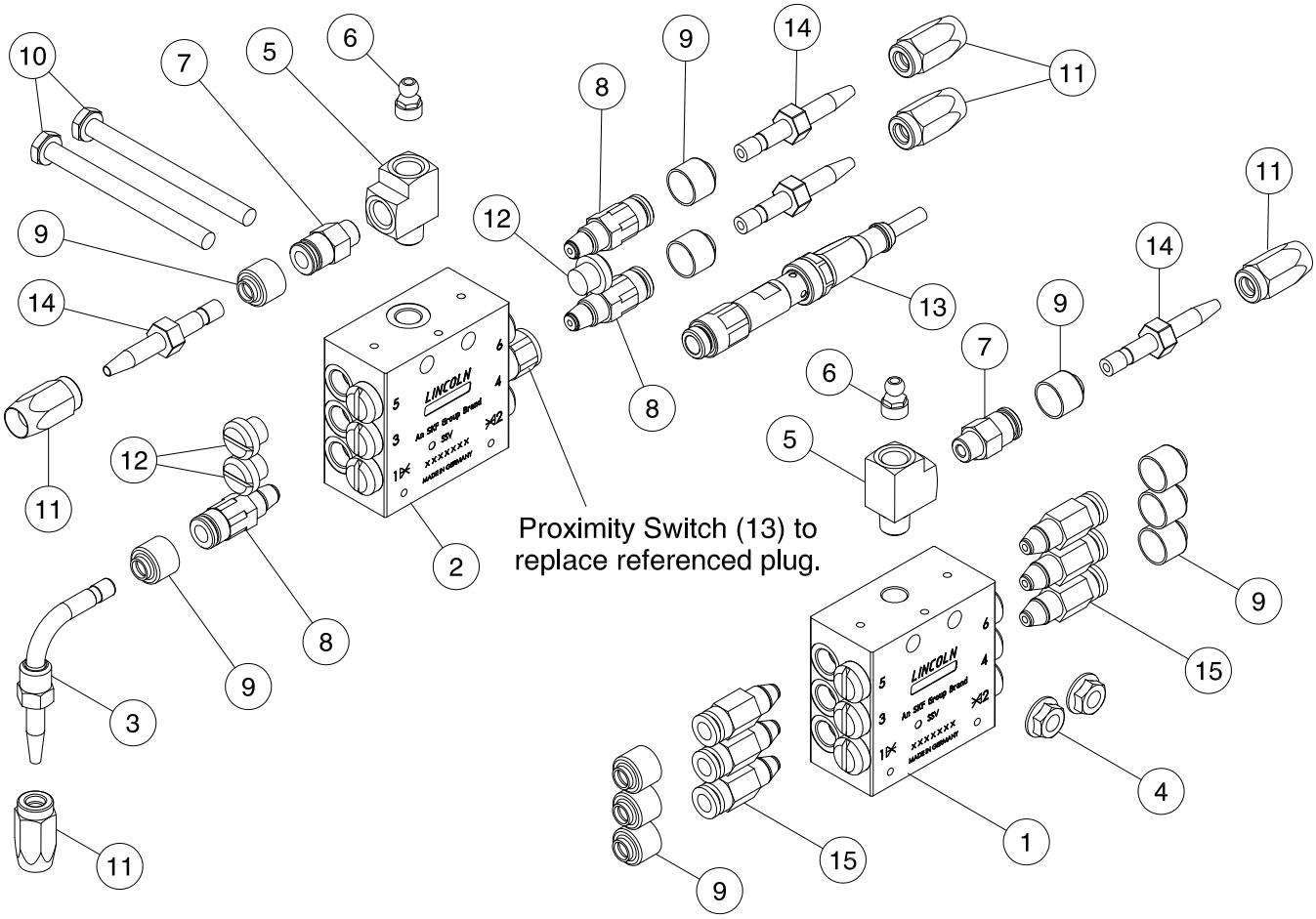


Greaser Kit - K68310



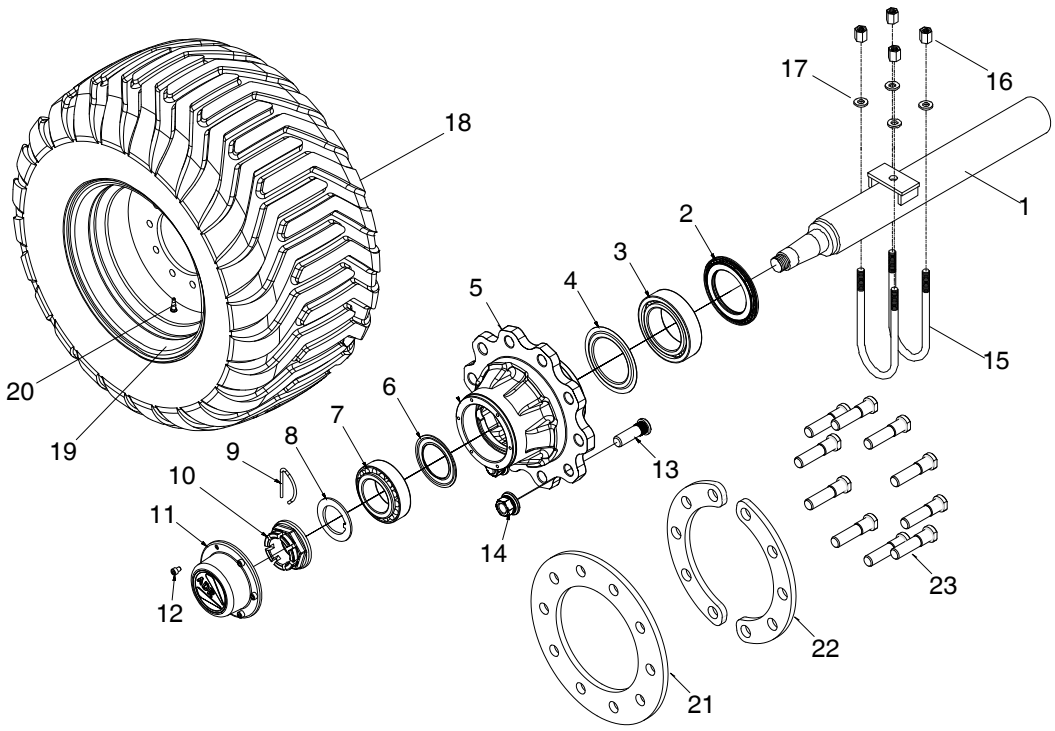
Item	Part No.	Description	Qty
1	K67941	6 Port Divider	2
2	K67725	6 Port Divider W/ Check	1
3	K67726	8 Port Divider	1
4	K67727	10 Port Divider	1
5	K68703	90 Degree High Pressure Barb	3
6	K68637	90 Degree Swivel W/ 1/4 28 Thread	18
7	K68707	90 Degree Swivel W/ 1/8 NPT	6
8	K68706	1/8 FNPT x 1/8 FNPT x 1/8 MNPT Tee	5
9	C-304	1/8 MNPT Straight Grease Fitting	5
10	K68702	1/8 MNPT x Quick Link Inlet	6
11	K68651	1/8 NPT x Quick Link Adapter	1
12	K68701	1/8 NPT x Quick Link W/ Check	4
13	K68641	Dust Boot	59
14	K68705	High Pressure Threaded Sleeve	10
15	K67054	Lincoln Pump	1
16	K68708	Outlet Plug	8
17	K68647	Pressure Relief	1
18	K68654	Sensor - Proximity Switch	1
19	K68704	Straight High Pressure Barb	7
20	K68638	Straight Outlet W/ 1/8 NPT	24
21	K69709	High Pressure Lubrication Line (Black) - 1/8 ID x 40 ft	
22	K69710	Low Pressure Lubrication Line (Grey) - 1/4 OD x 50 ft	

Greaser - Primary Valve Detail



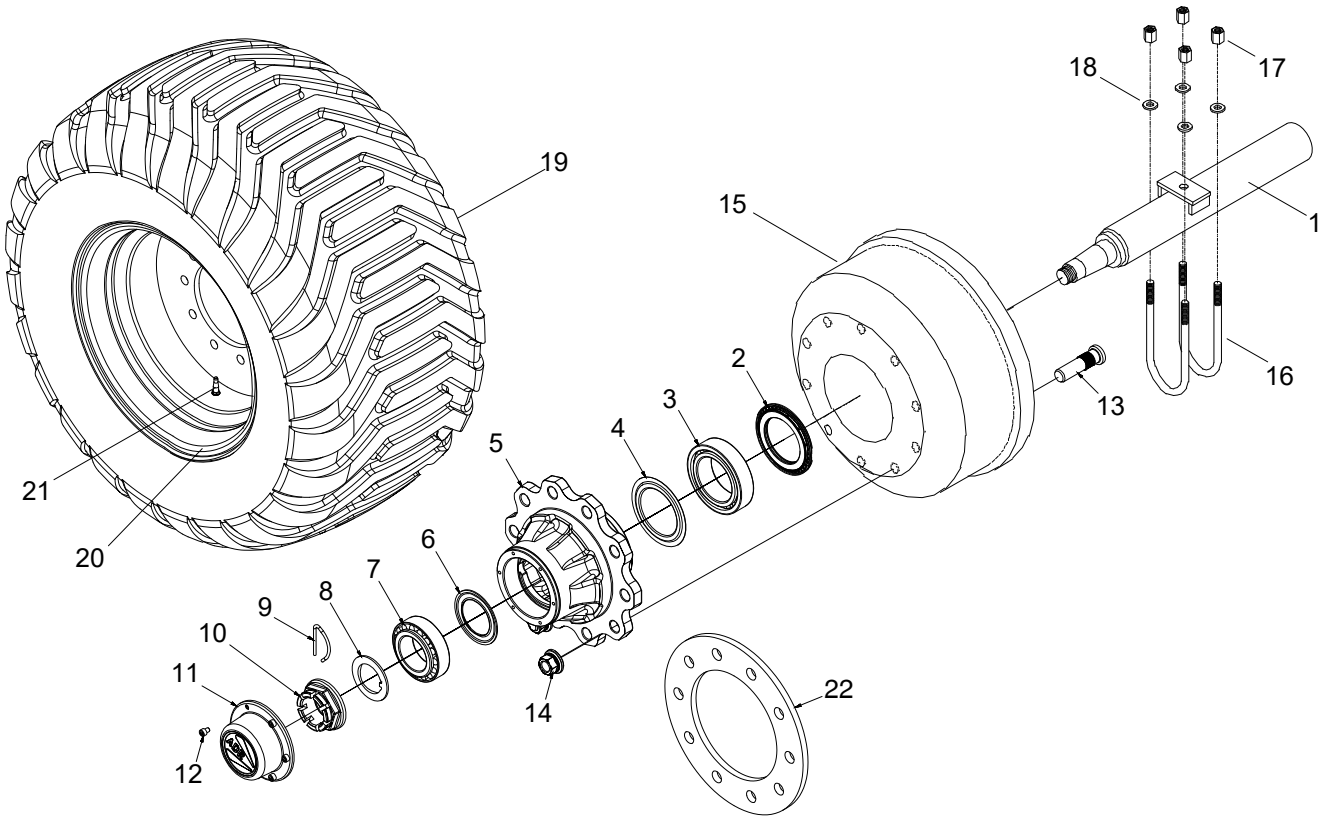
Item	Part No.	Description	Qty
1	K67941	6 Port Divider	1
2	K67725	6 Port Divider W/ Check	1
3	K68703	90 Degree High Pressure Barb	1
4	D-5277	Locknut - 1/4 Flanged	2
5	K68706	1/8 FNPT x 1/8 FNPT x 1/8 MNPT Tee	2
6	C-304	1/8 MNPT Straight Grease Fitting	2
7	K68702	1/8 MNPT x Quick Link Inlet	2
8	K68701	1/8 NPT x Quick Link W/ Check	3
9	K68641	Dust Boot	11
10	H-4696	Hex Bolt - 1/4 x 3 1/4 Lg	2
11	K68705	High Pressure Threaded Sleeve	5
12	K68708	Outlet Plug	3
13	K68654	Proximity Switch	1
14	K68704	Straight High Pressure Barb	4
15	K68638	Straight Outlet W/ 1/8 NPT	6

Non Brake Hub Assembly



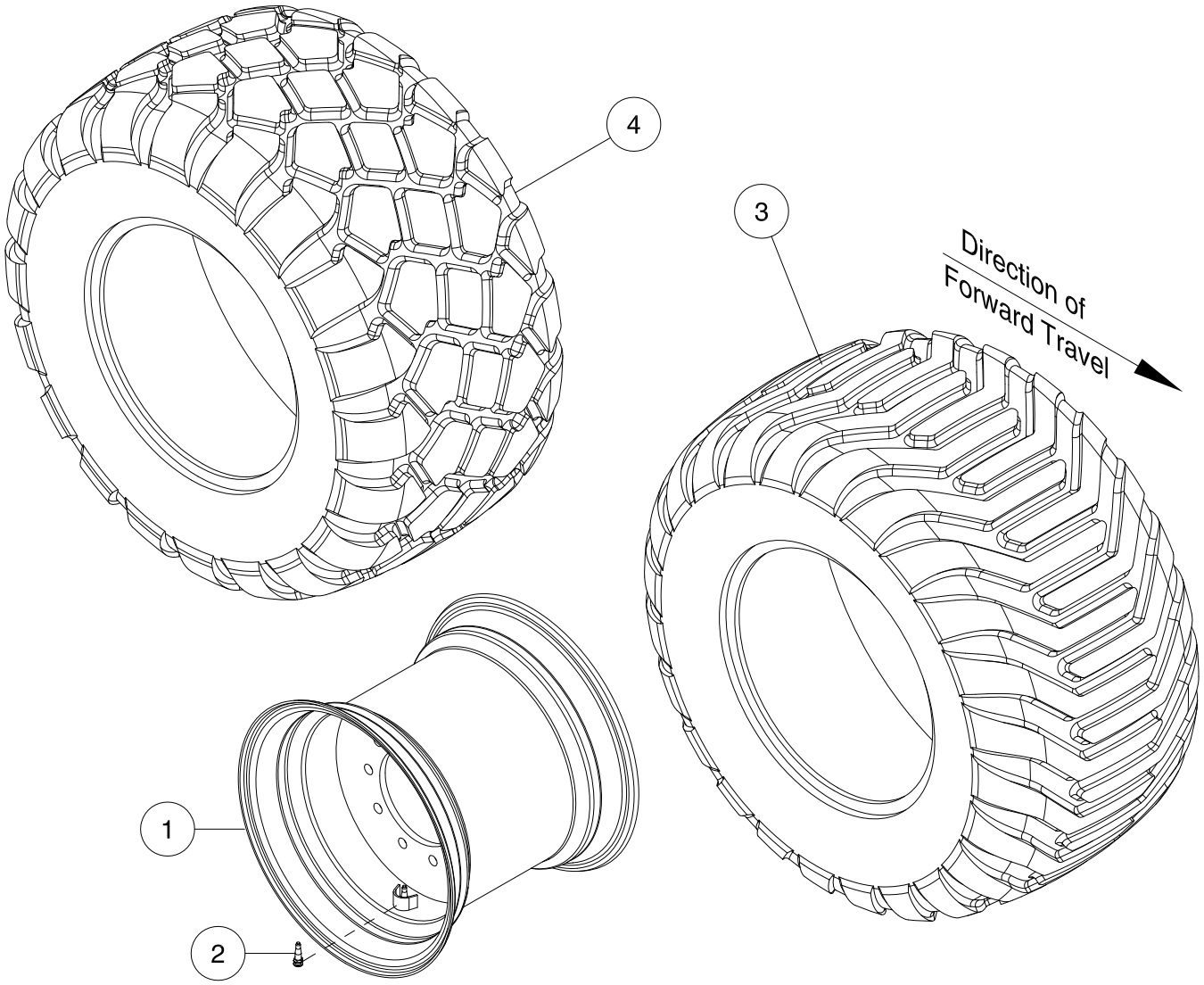
Item	Part No.	Description	Qty
		* Quantities Listed Are For One Axle	
1	K68297	ADR Axle Assembly - (Includes Items 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13 & 14)	1
	K73293	Axle without hubs - Non Braking	
2	K65166	Grease Seal (5441402) - **Only available in Kit K72856**	2
3	K65167	Inside Bearing (59133018) - **Only available in Kit K72855 (1 per Kit)**	2
4	K65168	NILOS for Bearing K65167 (5511402) - **Only available in Kit K72856 (1 per Kit)**	2
5	K65169	Hub - H10 (61LZUA002)	2
6	K65170	NILOS Grease Seal (5531092) - **Only available in Kit K72856 (1 per Kit)**	2
7	K65171	Outside Bearing (59133114) - **Only available in Kit K72855 (1 per Kit)**	2
8	K65172	Lock Washer for M58 (57B5801) - **Only available in Kit K72857 (1 per Kit)**	2
9	K65173	Spring Pin for M58 (58212) - **Only available in Kit K72857 (1 per Kit)**	2
10	K65174	Crown Nut - M58 x 1.50 WR80 H38 (57558B1) - **Only available in Kit K72857 (1 per Kit)**	2
11	K65175	Cap with Gasket (56112518)	2
12	K65176	Socket Head Screw (96308A0101)	12
13	K65177	Wheel Stud - M22 x 1.50 L077 (57122B2) GR 10.9 x 71 mm Lg	20
14	K65178	Flange Wheel Nut - M22 x 1.5 WR32 - GR 10 (26mm Height) (57322B3)	20
15	K68389	U-Bolt - 7/8 x 12 3/4 - 5 Round	4
16	12013	Nut - U-Bolt	8
17	12011	Washer - U-Bolt	8
18	**S68655**	**Tire - 600/50-22.5 - Radial Bi-Direct - MAXAM FLOTXTRA - From Serial # 12106041**	**2**
	K56777	**Tire - 600/50 - 22.5 - Bias Ply (TVS EUROGRIP)** - Prior to Serial # 12106040	
19	S64947	Rim - 20 x 22.5 - 10 Bolt	2
20	N13968	Valve Stem - TR618A	2
21	K73385	Spacer - 1/2 Wheel	2
22	K73537	Spacer - Wheel Stud	4
23	K72582	Wheel Stud - M22 x 1.50 L102 (57122B16) GR 10.9 x 93 mm Lg	20
	K72855	**Bearing Kit - (Includes Items 3 and 7) Per Hub Assembly**	
	K72856	**Seal Kit - (Includes Items 2, 4 and 6) Per Hub Assembly**	
	K72857	**Crown Nut Kit - (Includes Items 8, 9 and 10) Per Hub Assembly**	
	S68660	**Tire/Rim Assembly - Bi-Directional** - From Serial # 12106041	
	K65090	Tire and Rim Assembly - **Left** (Shown above) - Prior to Serial # 12106040	
	K65091	Tire and Rim Assembly - **Right** (Not Shown) - Prior to Serial # 12106040	
	K73543	Kit - Wheel Spacer - No Brake - (Includes Items 21 - 23)	
	K74395	Kit - Dust Cap - (Includes Items 11 and 12)	

Brake Hub Assembly



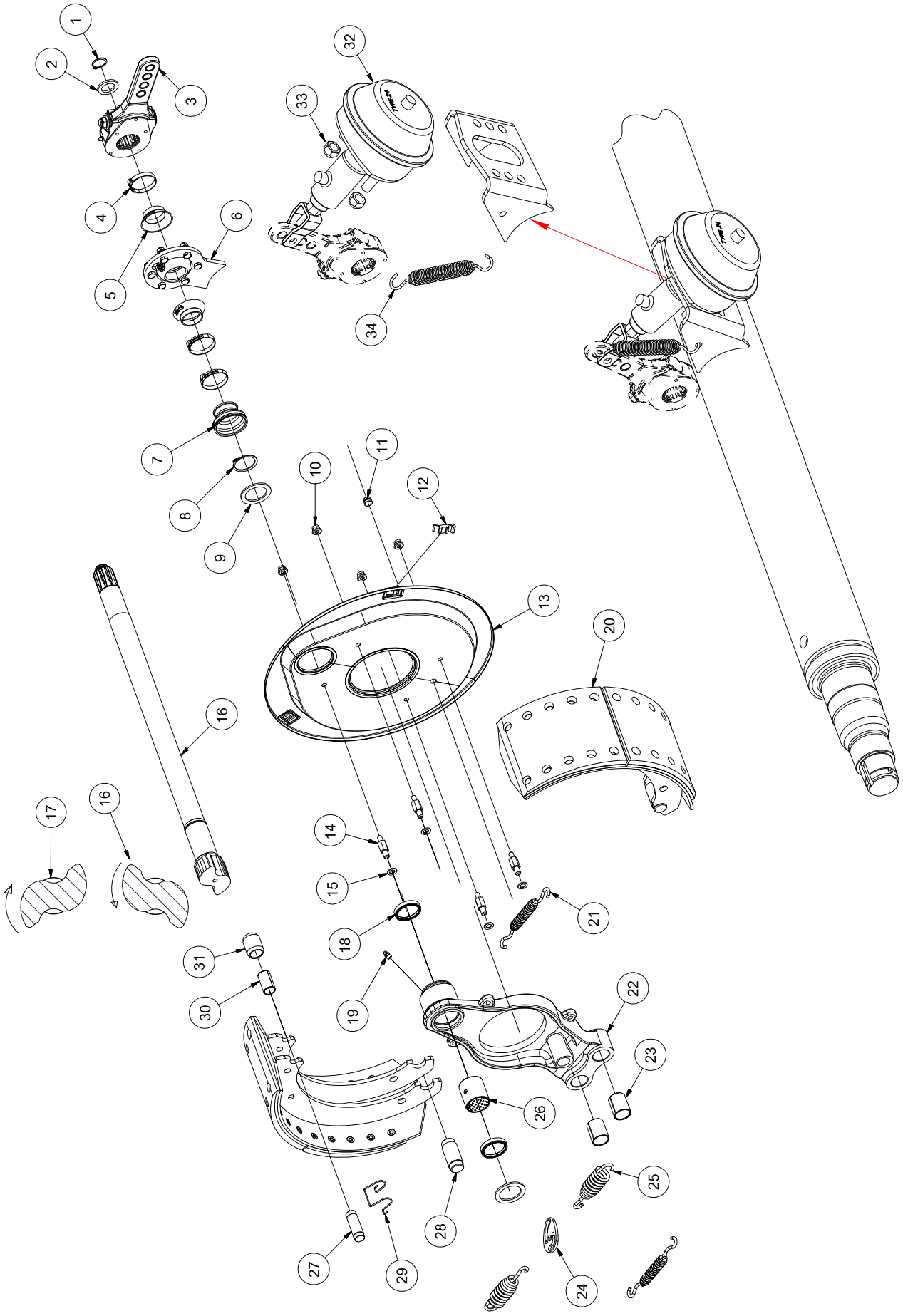
Item	Part No.	Description	Qty
		* Quantities Listed Are For One Axle	
1	K68298	ADR Axle Brake Assembly - (Includes Items 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13 & 14).....	1
2	K65166	Grease Seal (5441402) - **Only available in Kit K72856**.....	2
3	K65167	Inside Bearing (59133018) - **Only available in Kit K72855 (1 per Kit)**.....	2
4	K65168	NILOS for Bearing K65167 (5511402) - **Only available in Kit K72856 (1 per Kit)**.....	2
5	K65169	Hub - H10 (61LZUA002)	2
6	K65170	NILOS Grease Seal (5531092) - **Only available in Kit K72856 (1 per Kit)**	2
7	K65171	Outside Bearing (59133114) - **Only available in Kit K72855 (1 per Kit)**	2
8	K65172	Lock Washer for M58 (57B5801) - **Only available in Kit K72857 (1 per Kit)**.....	2
9	K65173	Spring Pin for M58 (58212) - **Only available in Kit K72857 (1 per Kit)**.....	2
10	K65174	Crown Nut - M58 x 1.50 WR80 H38 (57558B1) - **Only available in Kit K72857 (1 per Kit)** .	2
11	K65175	Cap with Gasket (56112518)	2
12	K65176	Socket Head Screw (96308A0101).....	12
13	K72582	Wheel Stud - M22 x 1.50 L102 (57122B16) GR 10.9 x 93 mm Lg.....	20
14	K65178	Flange Wheel Nut - M22 x 1.5 WR32 - GR 10 (26mm Hight) (57322B3)	20
15	K72350	Brake Drum (66LVA1005)	2
16	K68389	U-Bolt - 7/8 x 12 3/4 - 5 Round	4
17	12013	Nut - U-Bolt	8
18	12011	Washer - U-Bolt.....	8
19	**S68655**	**Tire - 600/50-22.5 - Radial Bi-Direct - MAXAM FLOTXTRA - From Serial # 12106041**	**2**
	K56777	**Tire - 600/50 - 22.5 - Bias Ply (TVS EUROGRIP)** - Prior to Serial # 12106040	
20	S64947	Rim - 20 x 22.5 - 10 Bolt	2
21	N13968	Valve Stem - TR618A	2
22	K73385	Spacer - 1/2 Wheel	2
	K72855	**Bearing Kit - (Includes Items 3 and 7) Per Hub Assembly**	
	K72856	**Seal Kit - (Includes Items 2, 4 and 6) Per Hub Assembly**	
	K72857	**Crown Nut Kit - (Includes Items 8, 9 and 10) Per Hub Assembly**	
	S68660	**Tire/Rim Assembly - Bi-Directional - From Serial # 12106041**	
	K65090	Tire and Rim Assembly - **Left** (Shown above) - Prior to Serial # 12106040	
	K65091	Tire and Rim Assembly - **Right** (Not Shown) - Prior to Serial # 12106040	
	K73544	Kit - Wheel Spacer - Braking - (Includes Item 22)	

Tire and Rim Assembly



Item	Part No.	Description	Qty
1	S64947	Rim - 20 x 22.5 - 10 Bolt	1
2	N13968	Valve Stem - TR618A	1
3	**K56777**	**Tire - 600/50 - 22.5 - Bias Ply (TVS EUROGRIP)** - Prior to Serial # 12106040**.....**	**1**
4	**S68655**	**Tire - 600/50-22.5 - Radial Bi-Direct - MAXAM FLOTXTRA - From Serial # 12106041**	**1**
	K65090	Tire and Rim Assembly - **Left** (Shown above) (Items 1 to 3) - Prior to Serial # 12106040	
	K65091	Tire and Rim Assembly - **Right** (Not Shown) (Items 1 to 3) - Prior to Serial # 12106040	
	S68660	**Tire/Rim Assembly - Bi-Directional** (Items 1, 2 and 4) **- From Serial # 12106041**	

Slack Adjustment Assembly



Slack Adjustment Assembly

Item	Part No.	Description	Qty
		* Quantities Listed Are Per Axle Assembly	
1	K72351	Snap Ring - Shaft - SEEGER D025 DIN471 - (58508)	2
2	K72352	Washer - M26 - (9812601)	2
3	K72353	Slack Adjuster - (7621603)	2
4	K72354	Hose Clamp for Rubber Caps Brake 4218S 4220S - (98E01)	6
5	K72355	Cap Rubber - Long Cam Shaft - 42 Diameter - (56A10)	4
6	K72356	Support Bearing - Round Cam Shaft 4218S 4220S - (74404510)	2
7	K72357	Outside Bearing - (53A09)	2
8	K72358	Snap Ring - Cam Retainer - SEEGER D042 DIN471 - (58514)	2
9	K72359	Washer - Cam Shim - 412E 4218E - (73G01)	4
10	K72361	Locknut - M08 x 1.25 - (97708A1)	8
11	K72362	Fairlead Rubber - D15 - (73A01)	2
12	K72363	Grommet Rubber - Dust Shield - (53801801)	4
13	K72364	Dust Shield - 4218E 4220E - (743XCR221)	2
14	K72365	Dust Shield Spacer - 4218E - (57708A1)	8
15	K72366	Washer - M10 - (9811002)	8
16	K72367	Cam Shaft - Left - (75Q4063008)	1
17	K72368	Cam Shaft - Right - (75P4063008)	1
18	K72369	Seal - Cam Shaft - (5490501)	4
19	K72371	Grease Fitting - M08 x 1.25 - Straight - (98608A1)	2
20	K72375	Brake Shoe - (732XC03)	4
21	K72372	Spring - Brake Shoe - (738129)	4
22	K72370	Spyder - 42-40 R127 Round - (742YCR223)	2
23	K72373	Bushing - Rear Spyder - (771008)	4
24	K72374	Spring Extender - (736XC02)	2
25	K72376	Spring - Brake Shoe - (738128)	4
26	K72377	Bushing - Outer Cam - (771007	2
27	K72378	Pin - Cam Roller - (83302003)	4
28	K72379	Pin - Rear Brake Shoe - (83502801)	4
29	K72383	Spring - Cam Roller Retainer - (738127)	4
30	K72381	Bushing MU-B P2023 L40 - (771006)	4
31	K72382	Roller - Brake Cam - (737VC01)	4
32	K72360	Brake Actuator - (81503)	2
33	K72384	Nut - M16 x 1.5	4
34	K65187	Spring - Brake Return	2
	K72380	Brake Shoe Rebuild Kit - (9RE0082) - (Includes 2 of items 20, 21, 23, 25 and 1 of item 24) (4 per Machine required)	

Suspension Assembly

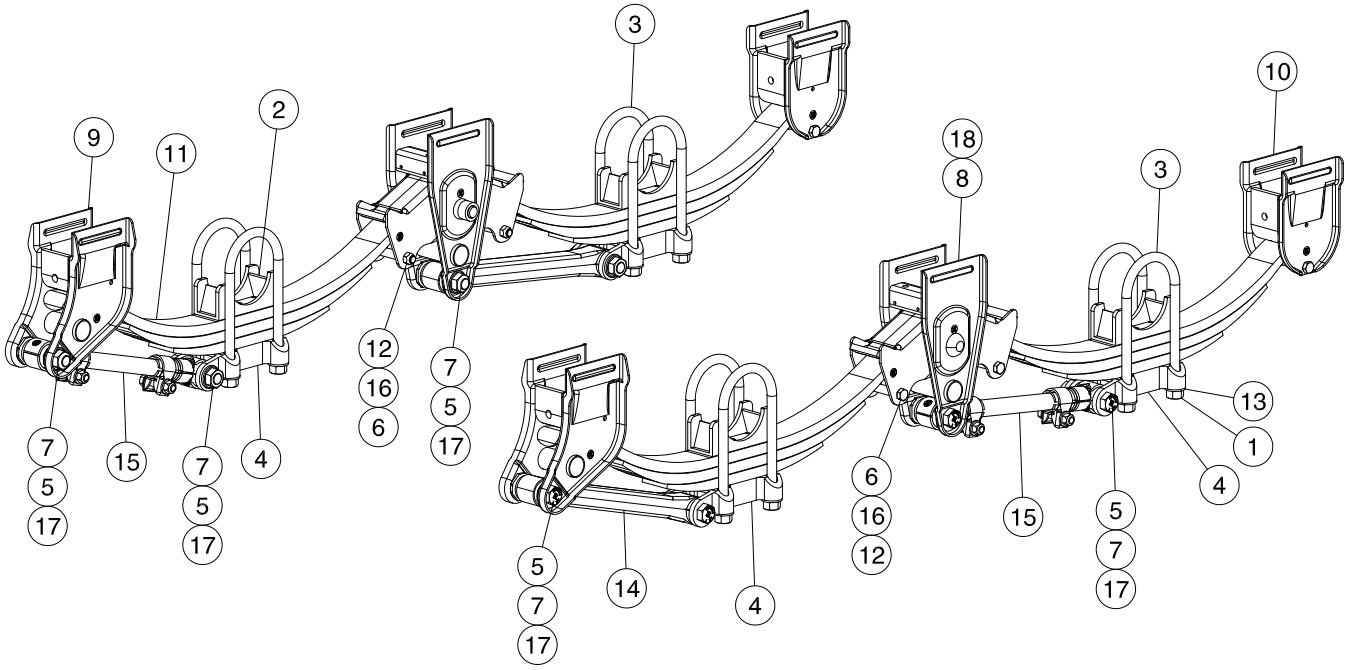
The Titan uses a Hutchens Industries trailer suspension similar to below.

For detailed information visit Hutchens website resource centre at www.hutchensindustries.com.

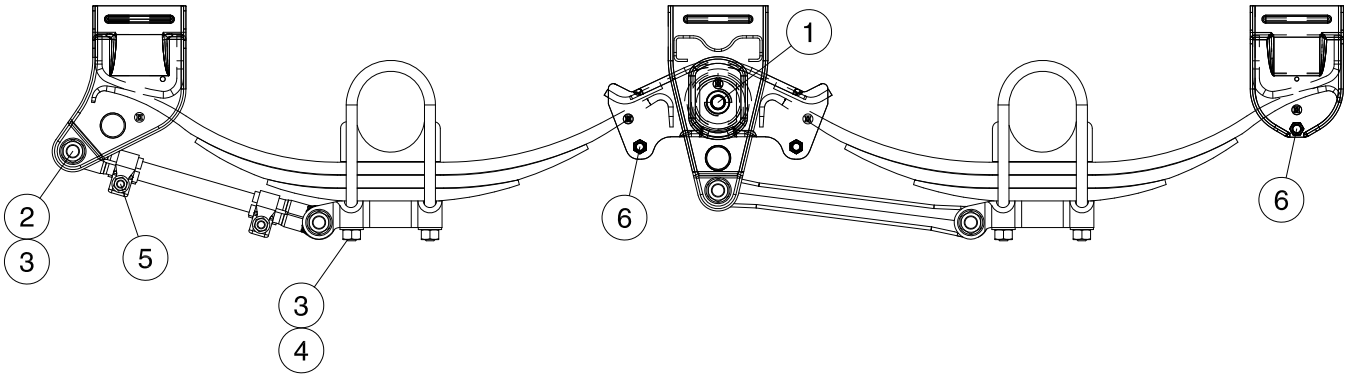
Suspension used is H-9700 underslung with 49” centers and 6 1/2” spring seat height with 5” round axles.

Parts available through PROAG dealers are as follows: also shown in **Frame Assembly - Stage 1**

All other suspension parts order through a qualified truck trailer shop.



Item	Part No.	Description	Qty
1	12013	Hex Nut - 7/8-14 UNF	16
2	A68296	Perch - Axle Mount - 3/4 high	4
3	K68389	U-Bolt - 7/8-14 UNF x 5 x 12 3/4 UL	8
4	K68394	Plate - Bottom Axle Attachement	4
5	K68403	Hex Bolt - 1 x 5.00 Lg	8
6	K74407	Hex Bolt - 5/8-11 UNC x 4.375 Lg - Current	6
	K68412	Hex Bolt - 5/8-18 UNF x 4.50 Lg - Prior to 2023	
7	K68404	Locknut - 1 Flange	8
8	A68392	Hanger - Center	2
9	A68391	Hanger - Front	2
10	A68393	Hanger - Rear	2
11	K68400	Leaf Spring Pack	4
12	S-1197	Locknut - 5/8-11 UNC - Current	6
	K-5703	Locknut - 5/8-18 UNF Unitorque - Prior to 2023	
13	12011	Washer - 15/16 ID x 1 3/4 OD	16
14	K68401	Torque Arm - Non Adjustable (K72348 - Bushing)	2
15	K68402	Torque Arm - Adjustable	2
16	K68413	Tube - Shackle Spacer	4
17	K72348	Bushing - Radius Rod	8
18	K72349	Bushing - Rocker	2

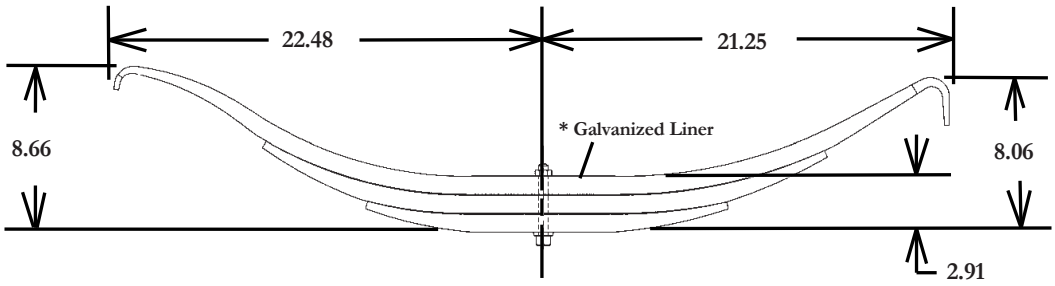


Torque Specifications

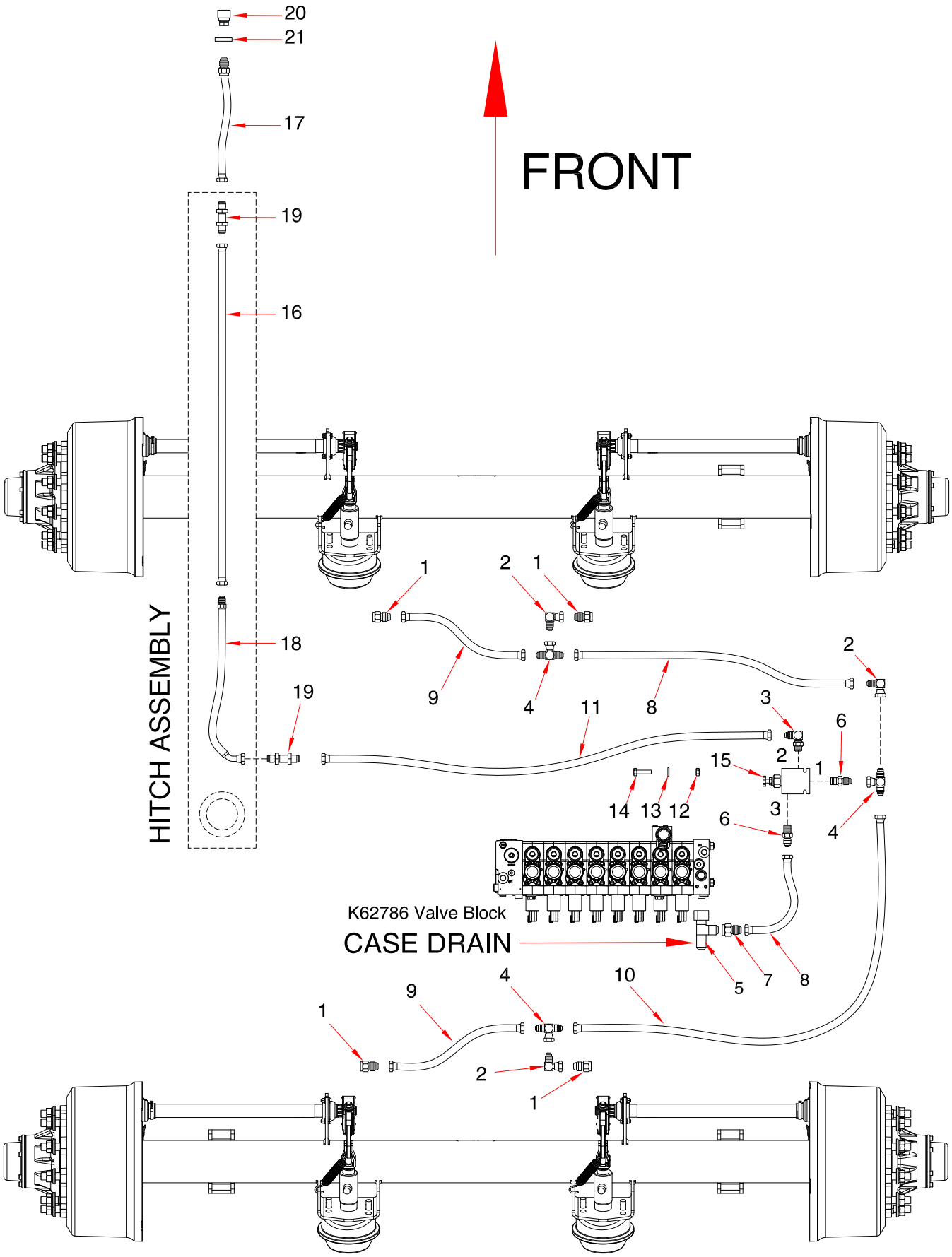
Item No.	Fastener	Oiled	Dry
1	1 1/8-7 (9600/9700 Rocker Bolt)	590 Lb-Ft	790 Lb-Ft
2	1-14 (9700 Radius Rod Bolt)	540 Lb-Ft	720 Lb-Ft
3	7/8-14 (Axle U-Bolt & 9600 Radius Rod Bolt)	350 Lb-Ft	470 Lb-Ft
4	3/4-16 (Axle U-Bolt)	310 Lb-Ft	420 Lb-Ft
5	5/8-18 (Radius Rod Clamp Bolt)	130 Lb-Ft	170 Lb-Ft
6	5/8-18 (Spring Retainer Bolt)	35 Lb-Ft	50 Lb-Ft

K68400 - 365-00 Spring Leaf Pack - High Arch, 3 Leaf

49” Axle Center All Positions. Hook to Rear.



Hydraulic Brake Assembly

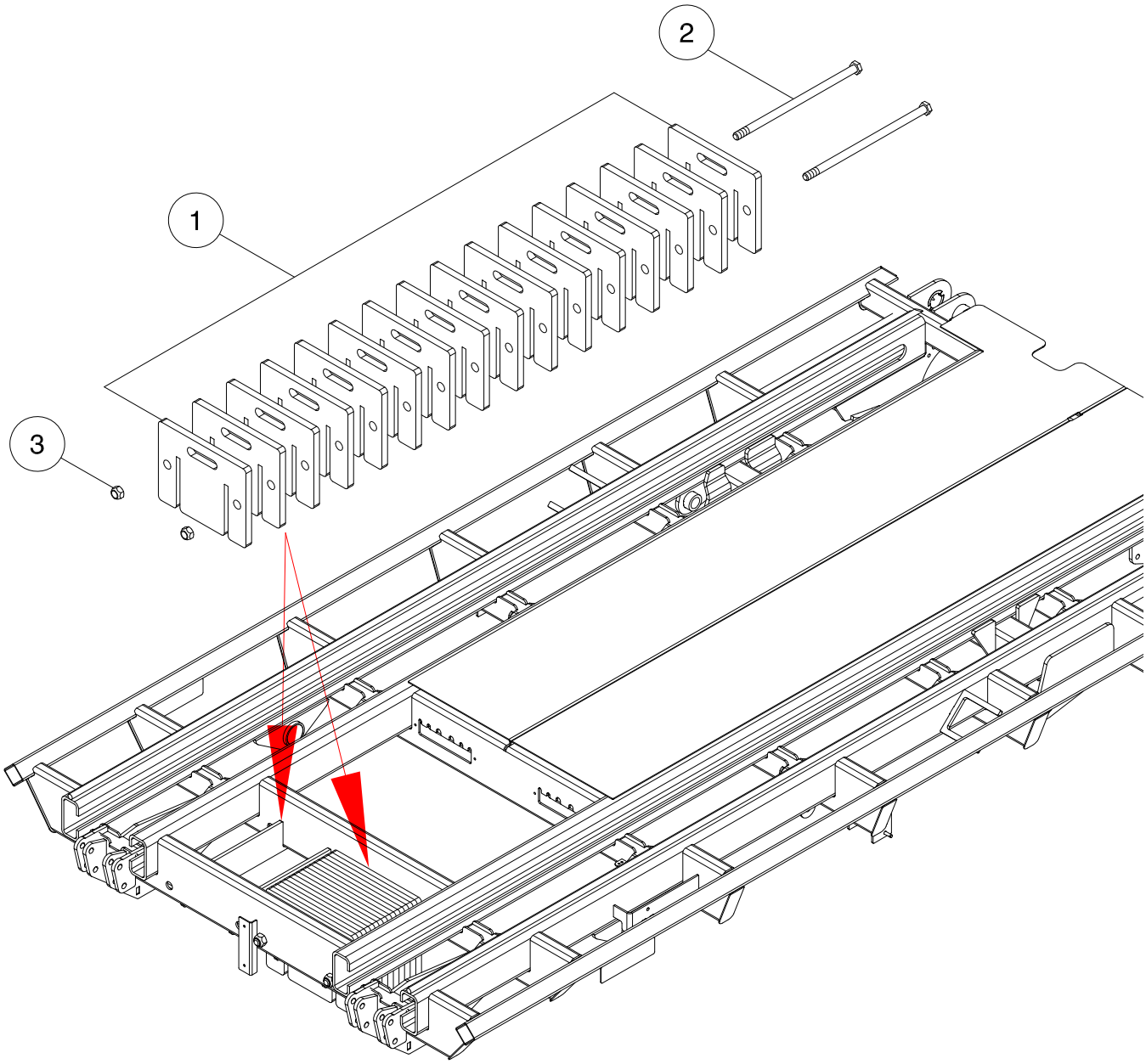


Hydraulic Brake Assembly

Item	Part No.	Description	Qty
1	K50963	Connector - 3/8 MJIC x 3/8 Female BSPP	4
2	S29967	Elbow - 90 - 9/16-18 MJIC x 9/16-18 FJIC swivel	3
3	C24585	Elbow - 90 - 7/8-14 MJIC x 3/4-16 MORB swivel	1
4	C14901	Tee - (2)9/16-18 MJIC x (1)9/16-18 FJIC - (M-F-M) - Swivel	3
5	H18746	Tee - (2) 7/8-14 MJIC x (1) 7/8-14 FJIC - (M-M-F) - Swivel	1
6	C15348	Connector - 9/16-18 MJIC x 3/4-16 MORB	2
7	F10384	Connector - 9/16-18 (#06) MJIC x 7/8-14 (#10) FJIC	1
8	C-4552	Hyd Hose - 1/4 x 24 Lg w/9/16-18 FJIC	2
9	K50993	Hyd Hose - 1/4 x 28 Lg w/ 9/16-18 FJIC swivel ends	2
10	C16652	Hyd Hose - 1/4 x 60 Lg w/9/16-18 FJIC Swivel Ends	1
11	K62951	Hyd Hose - 1/2 x 54 Lg w/7/8-14 (#10) FJIC x 3/4-16 (#08) FJIC	1
12	N42510	Locknut - 1/4 Centre Lock	2
13	S-1198	Washer - 5/16 ID x 3/4 OD x 1/16 Thick	2
14	W-1540	Hex Bolt - 1/4 x 2 Lg	2
15	S42307	Pressure Reducing Valve	1
		Hitch Assembly	
16	K62753	Oil Line - 1/2 x 128 Lg - 3/4-16 (#08) FJIC ends	1
17	K69086	Hyd Hose - 3/8 x 72 Lg w/ M18 x 1.5 Male DIN x 9/16-18 FJIC	1
18	K69186	Hyd Hose - 1/2 x 68 1/2 Lg - 3/4-16 (#08) MJIC x 3/4-16 (#08) FJIC 45 Deg	1
19	K62123	Bulk Head Union - 3/4-16 (#08) MJIC	2
20	K50954	Brake Coupler - Female - 08 (1/2 inch) M18 x 1.5 Thread	1
21	K51052	Bonded Seal - 18mm Male DIN (9500-18mm)	1

Weight Kit

Note: Install bolts from top side as illustrated to prevent interference with push-off.



Item	Part No.	Description	Qty
1	K71833	Weight - 3/4" Thick	32
2	K69344	Bolt - 1 x 21 1/8 Lg	4
3	D-5274	Locknut - 1 Unitorque	4
	K71834	Weight Kit - Adds an additional 8 weights to unit.	

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