PROAG

Morris

OPERATOR'S MANUAL

Auto Align Bale Skoop
Models HD4SR and 12SR

K34987-04A

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Section 1: Safety

Section Contents

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 manual. 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 it 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*.

Bale Skoop Operation Safety

Before Operating

- Carefully study and understand this manual.
- Install the safety warning light to indicate when the hitch is offset.
- Do not wear loose-fitting clothing which may catch in moving parts.
- Always wear protective clothing and substantial shoes.
- It is recommended that suitable protective hearing and sight protectors (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 it’s attachment. Completely familiarize yourself and other operators with its operation before using.
- **Make sure that the brakes are evenly adjusted (if equipped with brakes).**
- Use a tractor equipped with a Roll Over Protective System (ROPS) and fasten your seat belt prior to starting the engine.
- The manufacturer does not recommend usage of a tractor with ROPS removed.
- 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 Skoop Operation Safety - Continued

During Operation

- **SAFETY CHAIN:** If the Bale Skoop 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 Skoop.
- Keep hands and clothing clear of moving parts.
- Do not clean, lubricate or adjust your equipment while it is moving.
- When halting operation, even periodically, 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 hazard. 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 Skoop 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 of 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 (32 km/h) is not legal or safe on public roads. DO NOT exceed 20 mph (32 km/h) with this machine.

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

WARNING: Use Hitch Safety Pin to lock hitch in the in-line position before transporting Bale Skoop on public roads. This will secure hitch in case of accidental activation or failure of hitch cylinder.

- 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 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 (32 km/h) at night or during the day, use flashing amber warning lights and a slow moving vehicle (SMV) identification emblem.
- 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 key**.
- Be sure the bed is lowered against the bed rest and the loader is resting on the hitch or in its lowered position.
- 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 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 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.

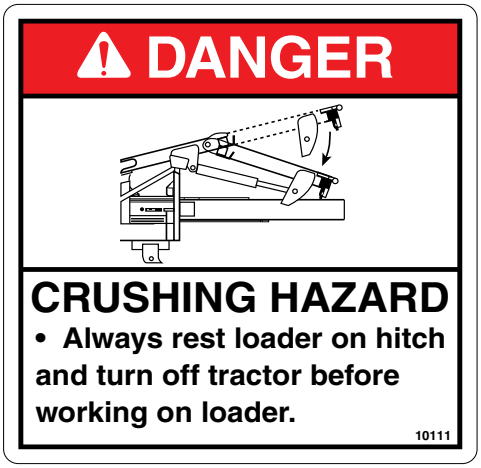
How to install a new decal

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 of replacements refer to the "Decal Location Guide" later in this section.

Part # 10110 – Danger Falling Bale Hazard

Location: Both sides of bed.



Part # 10111 Danger Crushing Hazard

Location: Left side of bed.

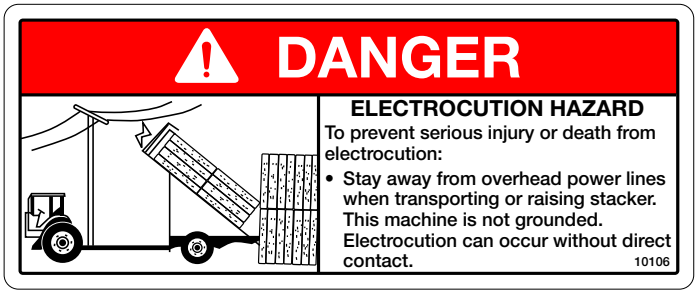
Safety Signs - Continued

Part # 10119 – Danger Hitch Hazard

Location: Top of hitch.

Part # 10108 - Danger Pinch Injury
Location: Both sides of bed.

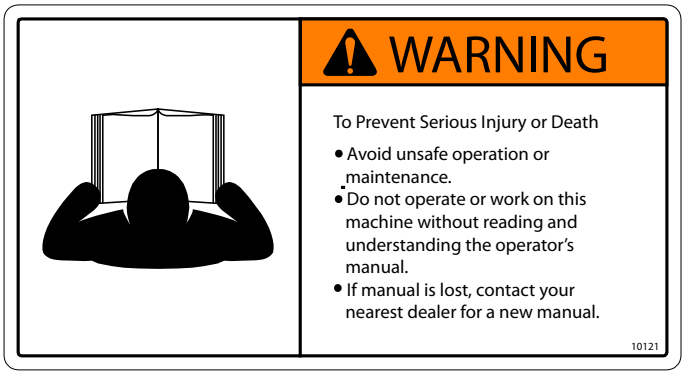
Part # 10109 - Danger Offset Machine
Location: Right side of bed.



Part # 10106 - Danger Electrocution Hazard
Location: On warning light box.

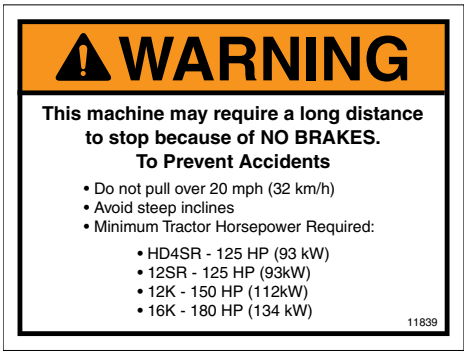
Familiarize yourself with the location of all decals. Read them carefully to understand the safe operation of your machine.

Safety Signs - Continued



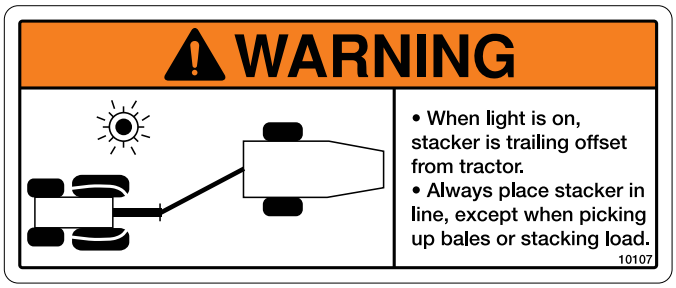
Part # 10121 – Warning To Prevent Serious Injury

Location: Top of hitch.



Part # 11839 - Warning No Brakes

Location: Top of hitch.

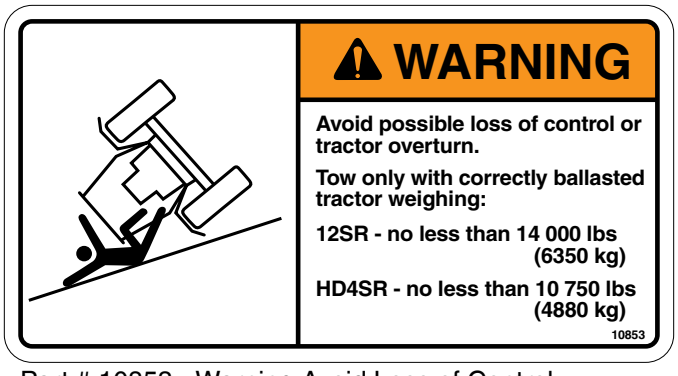


Part # 10107 - Warning Offset Machine

Location: On warning light box.

Part # 10120 - Warning High Pressure Fluid

Location: Top of hitch.



Part # 10853 - Warning Avoid Loss of Control

Location: Top of hitch.

Part # 10123 - Warning Hitch Safety Pin

Location: Front of frame above hitch.

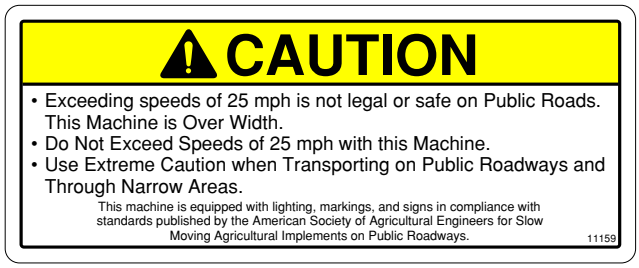
Familiarize yourself with the location of all decals. Read them carefully to understand the safe operation of your machine.

Safety Signs - Continued

Part # 10122 – Caution Read Op Manual

Location: Top of hitch.

Part # 10112 - Caution Slippery Surface
Location: Both sides of bed.

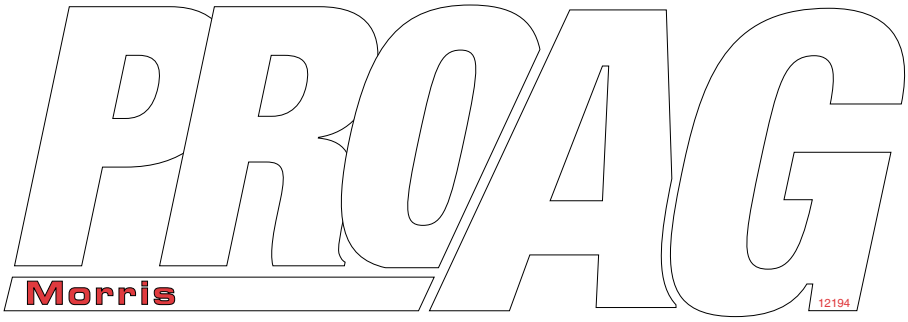


Part # 11159 - Caution Speed
Location: On warning light box.

Part # 10195 - Notice
Location: Left side of hitch.

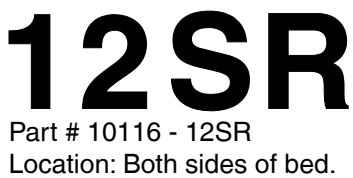
Familiarize yourself with the location of all decals. Read them carefully to understand the safe operation of your machine.

Safety Signs - Continued



Part # 12194 - ProAG Logo Decal
Location: Rear sides of bed.

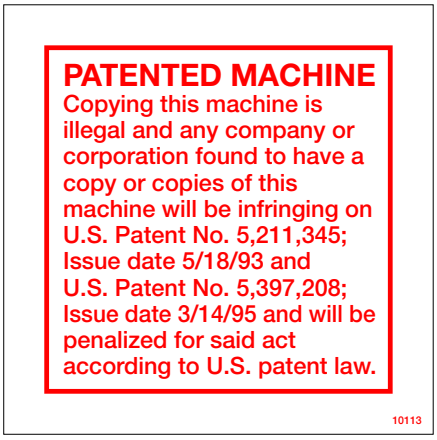
Part # 12195 - Replacement Manual
Location: On frame by op manual box



Part # 10116 - 12SR
Location: Both sides of bed.

Part # 10117 - HD4SR
Location: Both sides of bed.

Part # 10115 - Auto Align Bale Skoop
Location: Both sides of bed.

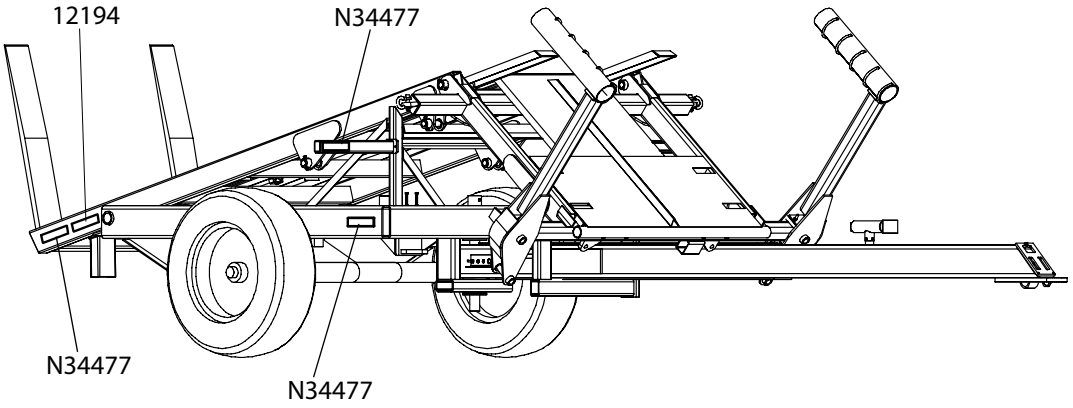


Part # 10113 - Patented Machine
Location: Both sides of bed.

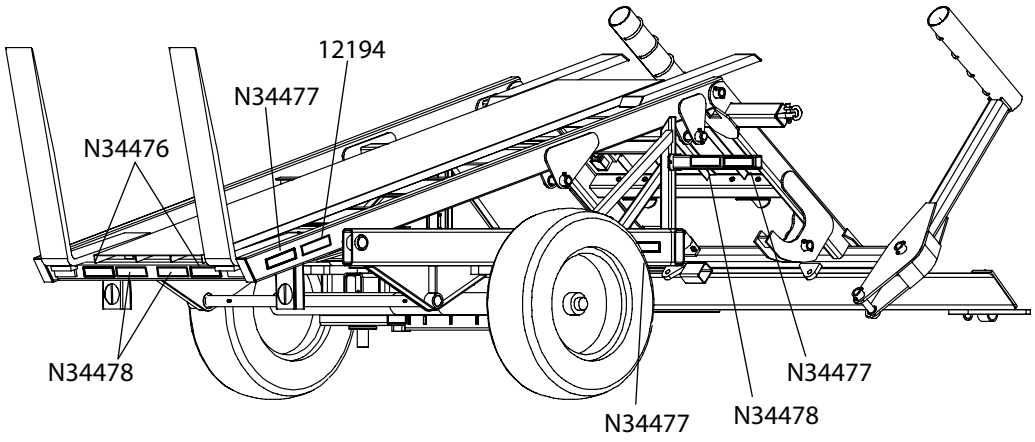
Familiarize yourself with the location of all decals. Read them carefully to understand the safe operation of your machine.

Safety Signs - Continued

Reflector Location Guide

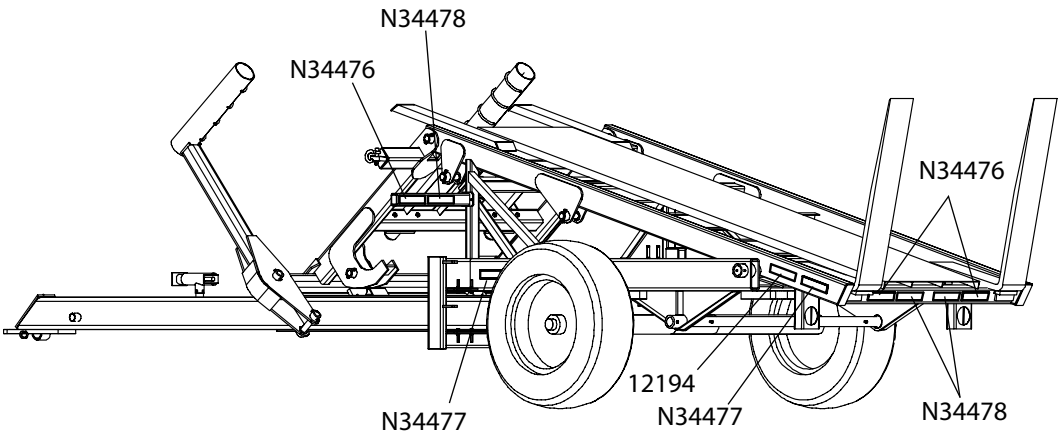


N34476 - RED REFLECTOR TAPE 2x 9
N34477 - YELLOW REFLECTOR TAPE 2 x 9
N34478 - ORANGE REFLECTOR TAPE 2x 9
12194 - PROAG DECAL

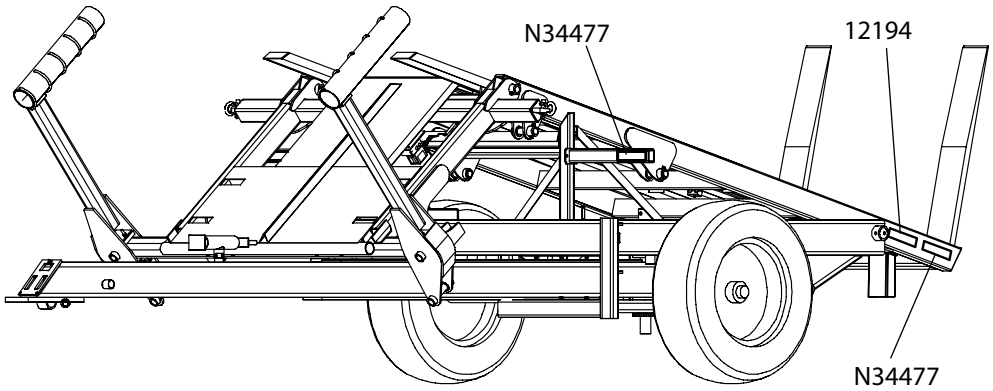


Safety Signs - Continued

Reflector Location Guide - Continued

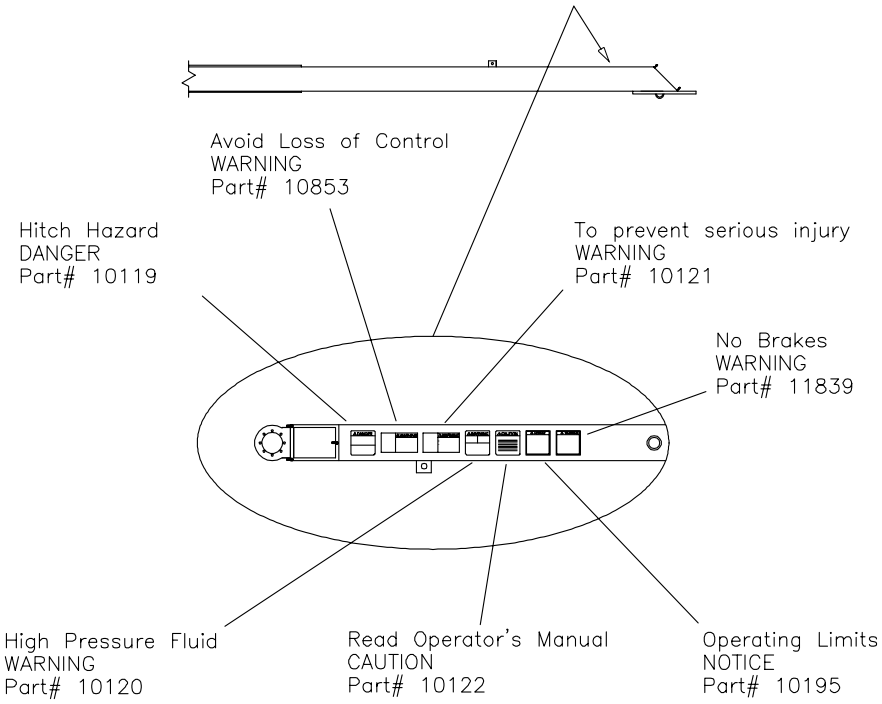


N34476 - RED REFLECTOR TAPE 2x 9
N34477 - YELLOW REFLECTOR TAPE 2 x 9
N34478 - ORANGE REFLECTOR TAPE 2x 9
12194 - PROAG DECAL

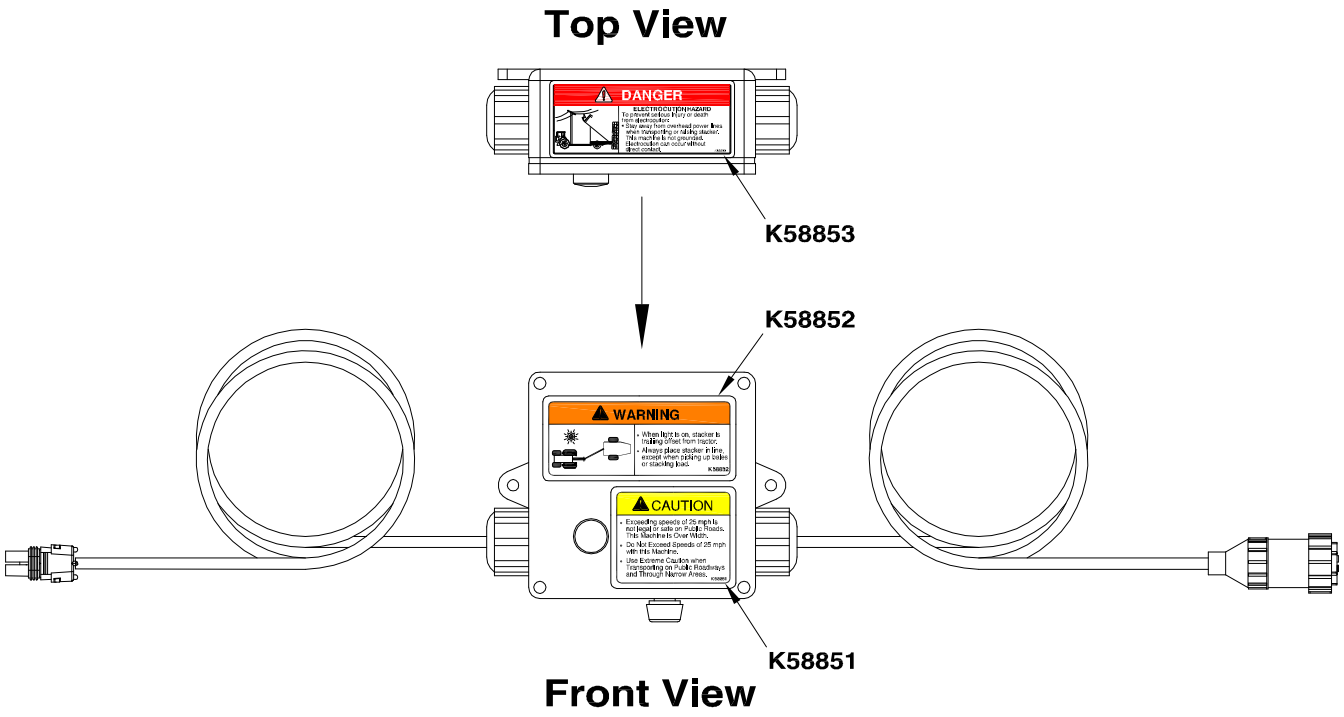


Safety Signs - Continued

Decal Location Guide

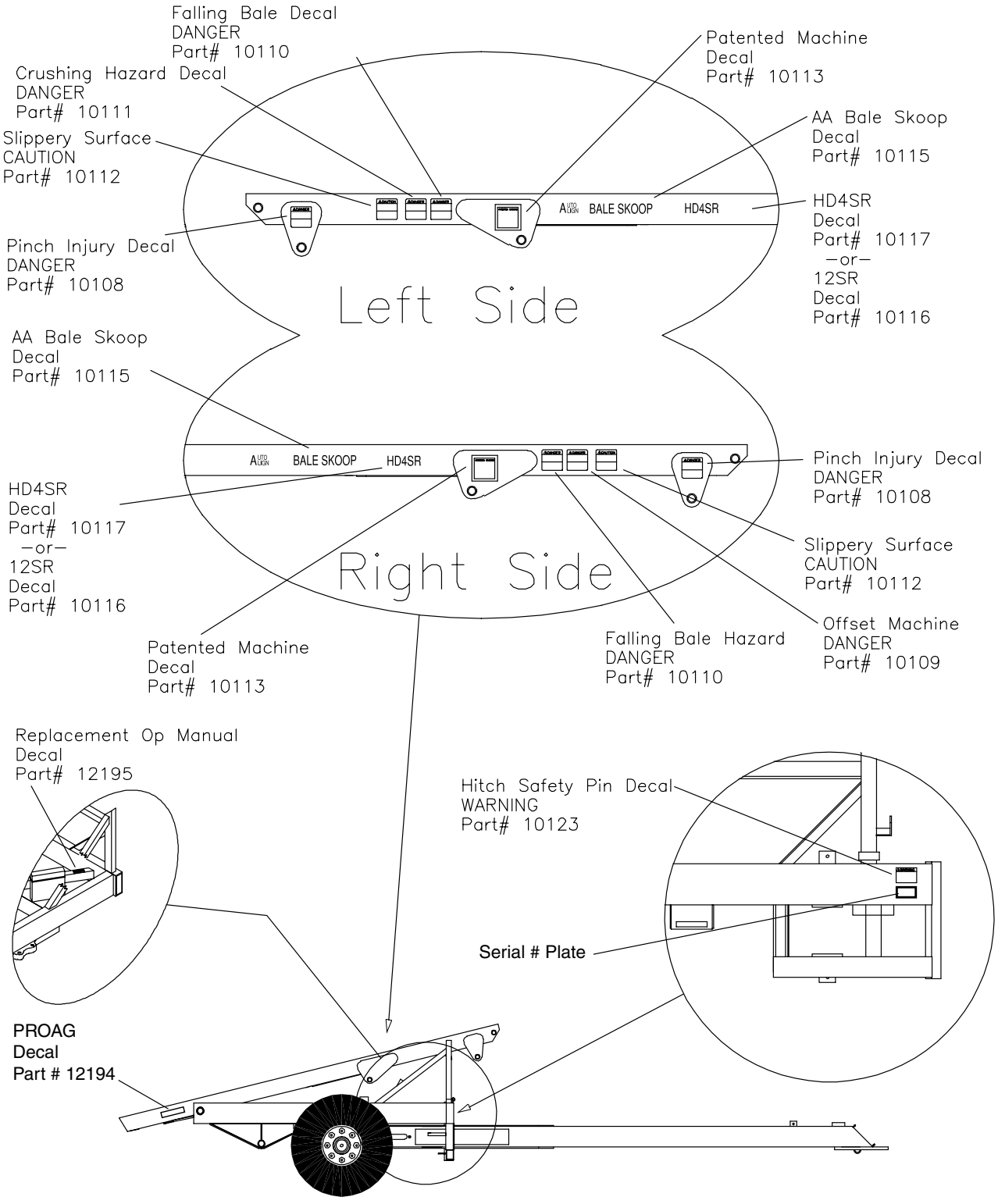


Warning Light Box - 10417



Safety Signs - Continued

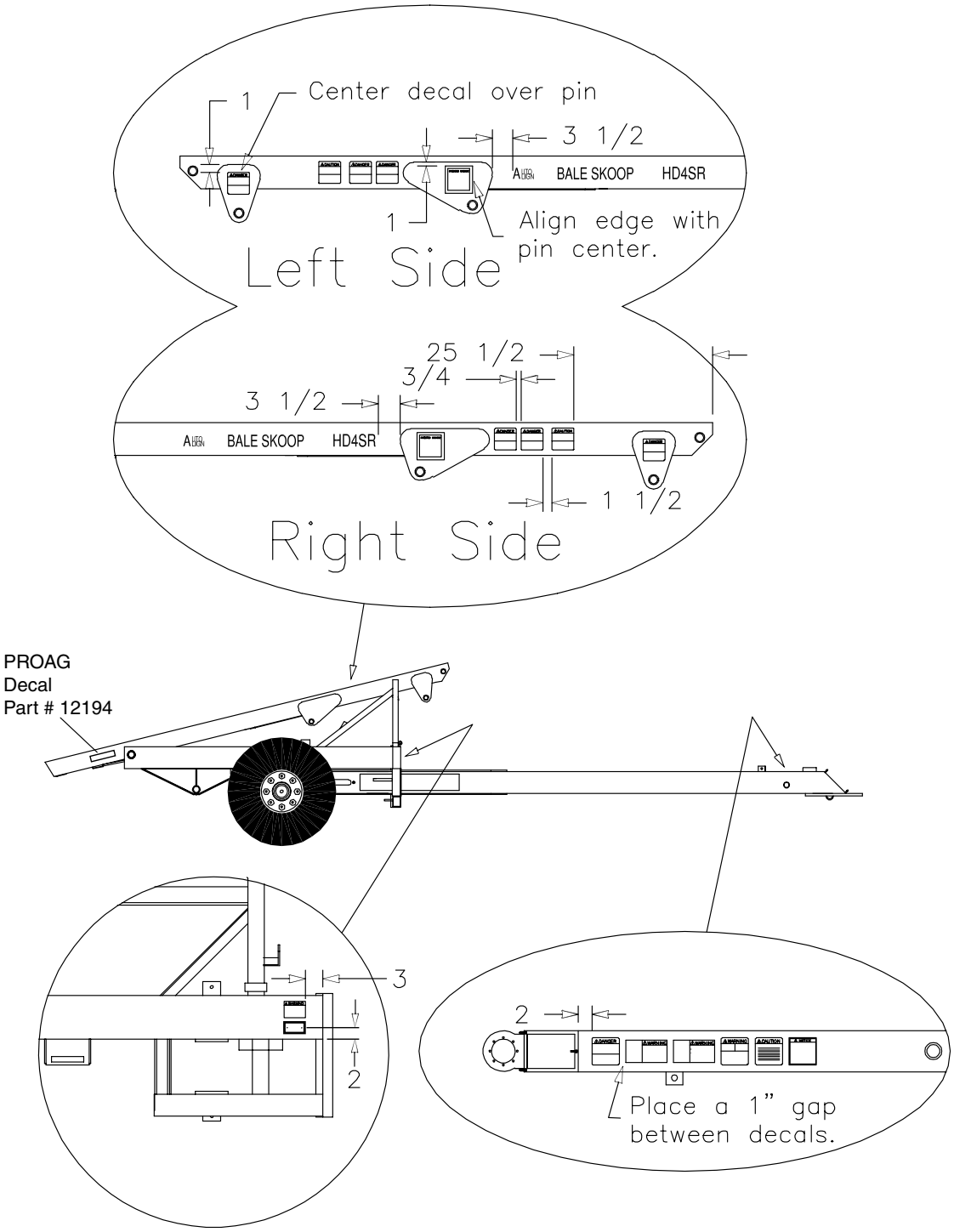
Decal Location Guide - Continued



Note:
1. Some parts are not shown for clarity.

Safety Signs - Continued

Decal Location Guide - Continued



Notes:
1. Dimension tolerance is ±1/2".
2. Some parts are not shown for clarity.
3. If the decal looks centered, it is, unless otherwise specified.

Notes

Section 2: Specifications

Section Contents

Specifications

Machine Specifications

HD4SR

Maximum lift capacity of the loader ..... 3,000 lbs (1361 kg)
Maximum Gross Vehicle Weight ..... 15,000 lbs (6800 kg)
Road-siding capacity in tons/hour ..... 30-50 (27 t/h-45 t/h)
Tires ..... Implement, Dual Truck or High Floatation
Stacker weight ..... 6,600 lbs (2990 kg)
Tongue weight empty ..... 800 lbs (363 kg)
Tongue weight loaded ..... 1,300 lbs (590 kg)
Tongue weight stacking ..... -4,000 lbs (-1814 kg)

12SR

Maximum lift capacity of the loader ..... 3,000 lbs (1361 kg)
Maximum Gross Vehicle Weight ..... 22,000 lbs (9980 kg)
Road-siding capacity in tons/hour ..... 30-50 (27 t/h-45 t/h)
Tires ..... Dual Truck or High Floatation
Stacker weight ..... 7,500 lbs (3400 kg)
Tongue weight empty ..... 800 lbs (363 kg)
Tongue weight loaded 1,300 lbs (590 kg)
Tongue weight stacking ..... -6,700 lbs (-3039 kg)

Noise Emissions

(With reference to ISO 11204 and EN 1553 - Annex D)
Continuous A-weighted sound pressure (L_{Aeq}) ..... 83.7 dB
Peak C-weighted sound pressure (L_{Cpk}) ..... 112.6 dB

Tractor Requirements

HP requirements ..... 125HP (93 kW) minimum
Tractor weight - HD4SR (min) ..... 10,750 lbs (4880 kg)
Tractor weight - 12SR (min) ..... 14,000 lbs (6350 kg)
Hydraulic pressure ..... 2,200 psi (15.2 MPa)
Hydraulic flow ..... 20 Gpm (1.26 L/s)
Hydraulic controls ..... 3 remotes (2 with double selector valve)

Tire Specifications

Implement tire size ..... 21.5 x 16.1 14ply
Maximum implement tire pressure ..... 44 psi (303 kPa)
Minimum implement tire pressure ..... 32 psi (221 kPa)
Recommended implement tire pressure ..... 40 psi (276 kPa)
Truck tire size 11R-24.5
Maximum truck tire pressure ..... 105 psi (724 kPa)
Minimum truck tire pressure ..... 70 psi (483 kPa)
Recommended truck tire pressure ..... 75 psi (517 kPa)
High flotation tire size ..... Alliance 600/55-22.5 or TVS Eurogrip 600/50-22.5 - 16-Ply
Maximum flotation tire pressure ..... 45 psi (310 kPa)
Minimum flotation tire pressure ..... 38 psi (262 kPa)
Recommended flotation tire pressure ..... 40 psi (276 kPa)

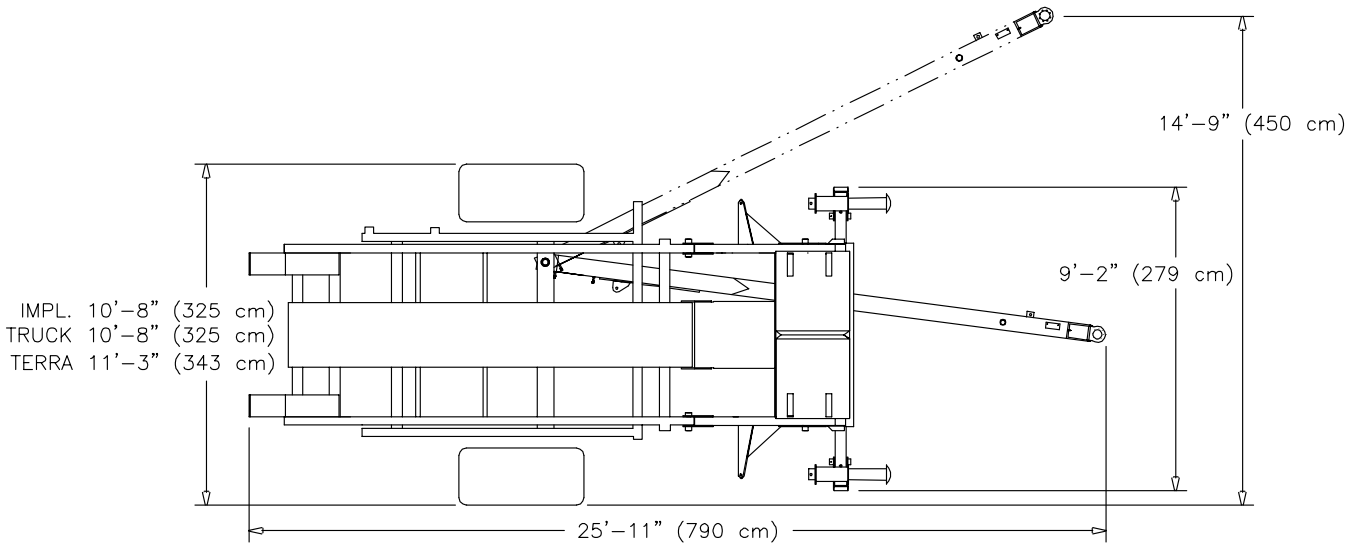
Bale Size

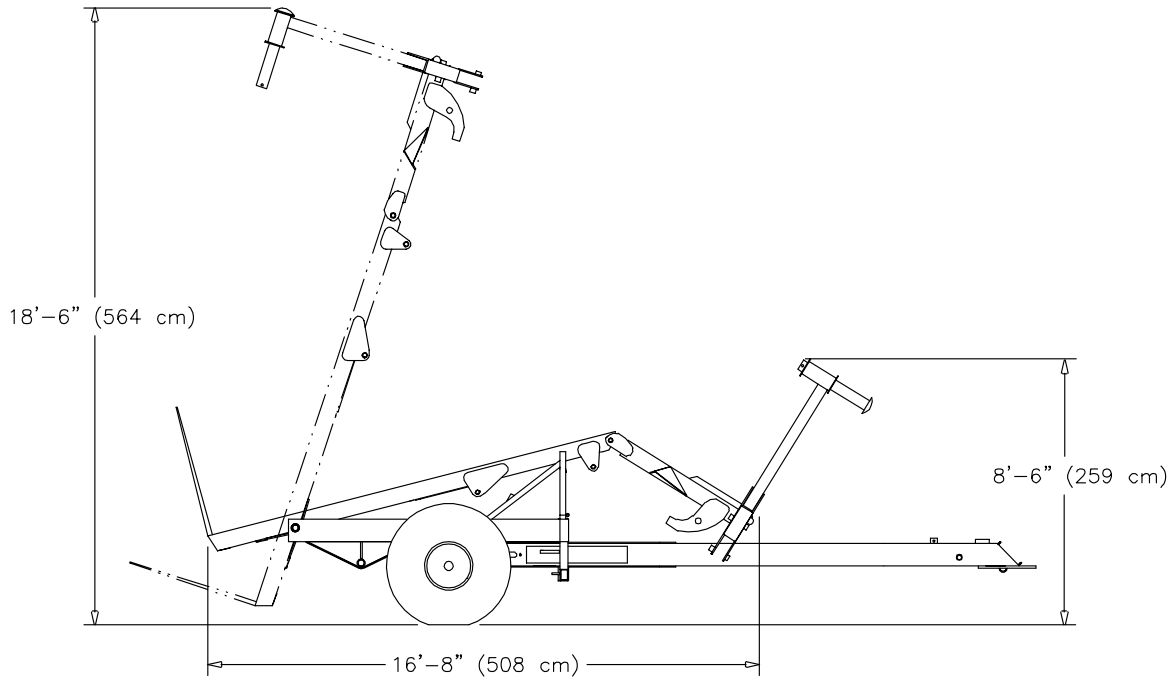
Minimum Bale Length ..... 6 1/2 ft (198 cm)
Maximum Bale Length ..... 8 1/2 ft (259 cm)

Lubricants

Hydraulic oil ..... High quality that meets or exceeds tractor specifications
Axle hub oil ..... 80-90 gear lube
Grease ..... Non clay based
Bale slide surface ..... Dry film graphite lubricant (Slip-Plate®)

Bale Skoop Dimensions





Notes

Section 3: Checklist

Section Contents

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.

Before operating Bale Skoop 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 and look for leaks, replace leaky hoses.

____ **Jack** - Check that jack has been moved to the upper jack stud on TOP of the hitch.

____ **Hitch Safety Pin** - If traveling, check that the Hitch Safety Pin is securely in place. If gathering or stacking, check that the Hitch Safety Pin has been removed.

____ **Warning Light** - Check that the Warning Light functions properly.

____ **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 2-2 in the Machine Specifications section.

____ **Hitch Connection** - Check the bolt system that connects the stacker to the tractor drawbar. A loose connection will wear faster and possibly uncouple.

OWNER REFERENCE

Model: _____

Serial No: _____

Dealer: _____

Town: _____ State: _____

Phone: _____

OWNER/OPERATOR: _____

Date: _____

TAKE SAFETY SERIOUSLY.

DO NOT TAKE NEEDLESS CHANCES!!

Notes

Section 4: Introduction

Section Contents

Introduction

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

To protect your investment, study your manual before starting or operating in the field. Learn how to operate and service your Auto Align Bale Skoop 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 Auto Align Bale Skoop.

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

Occasionally, your Auto Align Bale Skoop 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 Auto Align Bale Skoop 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.

Shown: HD4SR

Shown: 12SR

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

Section Contents

Section Contents

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

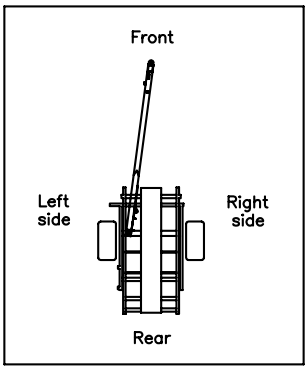
Do not permit smoking, sparks or an open flame where combustible fuels are being used. Keep the work area well ventilated.

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.

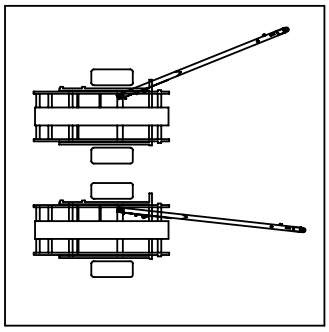
Machine Conventions

Auto Align Bale Runner Directional Conventions



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

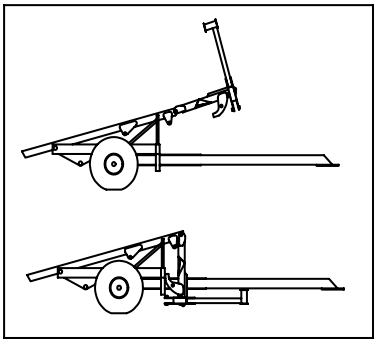
"Front and Rear" The front is the high end of the bed. The rear of the Bale Runner is the low end of the bed.



Hitch Offset — Hitch Inline

"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.

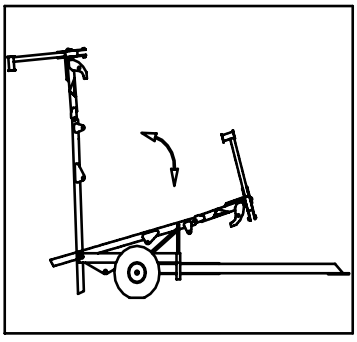
"Inline" The machine configuration when the end of the hitch is centered between the wheels of the Bale Runner.



Loader Raised — Loader Lowered

"Raise the Loader" Move the hydraulic control to move, or physically lift the loader into the raised position.

"Lower the Loader" Move the hydraulic control to move, or allow loader to rest in the lowered position.



Bed Raised - Bed Lowerd

"Raise the Bed" Move the hydraulic control to move the bed into the raised position.

"Lower the Bed" Move the hydraulic control to move the bed into the lowered position.

Hooking Up for the First Time

Use the following outline as a checklist to ensure your Auto Align Bale Skoop is properly set up for use.

WARNING: Remember to turn off hydraulic system and tractor and remove key from ignition before working on the Bale Skoop.

Warning

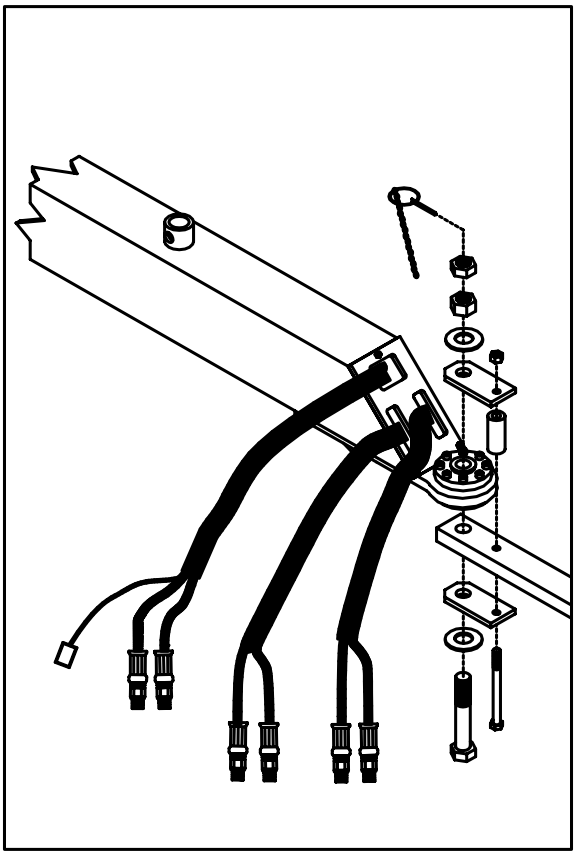
Remember to turn off hydraulic system and tractor and remove key from ignition before working on the Bale Skoop.

Parts Needed

1	Hitch Bolt	1 1/4” x 9” special
2	Hitch Washer	1 1/4” flat washer
1	Hitch Nut	1 1/4” plain
1	Hitch Jam Nut	1 1/4” special
1	Hitch Spacer Bolt	5/8” x 8”
1	Hitch Spacer	3/4” ID x 3 9/16” tube
2	Hitch Plates	1/2” x 3” x 6 3/8”
1	Spacer Bolt	Nut 5/8” Nylock
1	Bolt Safety Pin	3/16” Snaplock Pin
1	Warning Light Box	Special
6	Male Hydraulic Connections*	
7	Gallons of Hydraulic Fluid*	Approximate Amount
	* Supplied By Dealer or Customer	

Attach Bale Skoop to Tractor

- Attach male hydraulic connector* to hitch hydraulic hoses using thread sealer.
- Line up the ball hitch on the machine with the tractor draw bar. Secure the machine to the tractor with the 1 1/4” x 9” bolt threaded up through (1)-1 1/4” flat washer, lower hitch plate, tractor draw bar, ball, the upper hitch plate, (1)-1 1/4” flat washer, 1 1/4” nut, 1 1/4” jam nut, and insert bolt safety pin through eyelet in bolt.
- Secure the hitch plates into position with the (1)-5/8” x 8” bolt, (1)-3/4” ID x 3 9/16” tubing, and (1)-5/8” nylock nut.



Hooking Up for the First Time - Continued

Connect Safety Chain

CAUTION: Operating Bale Skoop 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.
- Remove jack from the side of the hitch by removing the retaining pin. Re-secure it to the top of the hitch.

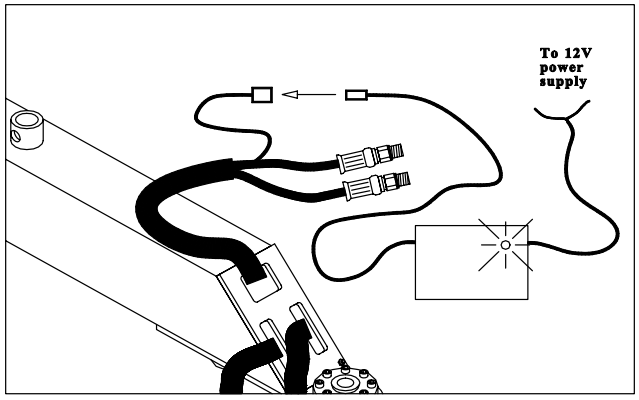
Hooking Up Warning Light Assembly

CAUTION: DO NOT operate machine without the Warning Light Assembly installed and operational.

CAUTION: Use care when working with electricity. Disconnect battery of tractor before attempting to connect Warning Light Assembly.

- Run the connecting lead of the Warning Light Assembly from the cab of the tractor to the front of the hitch.
- Connect to the Micro-switch wire.
- Connect the positive and negative leads to an appropriate 12V power source.

Note: Be sure to ground properly to prevent electrocution.



Lubricate Joints

WARNING: Be sure the loader is resting on the hitch or in its lowest position while greasing machine.

- Grease all joints using all-purpose, non-clay based grease as shown in the “Maintenance and Adjustment” section of the Owner/Operator’s Manual.

Hooking Up for the First Time - Continued

Prime Hydraulic System

CAUTION: Check hydraulic fluid frequently while priming system.

- Connect hydraulic hoses to tractor as paired. (See Chart Below) Remove hitch safety pin and store in pin holder.
- Be sure to use a good quality oil that meets or exceeds the specifications from the tractor's manufacturer.

Loader Circuit		Hitch Cylinder		Bed Cylinder	
Lever 1		Lever 2		Lever 3	
GREEN	**RED**	**YELLOW**	**WHITE**	**BLUE**	**BLACK**

- Raise the loader completely and offset the hitch. With the hitch completely offset, cycle the loader circuit. Remember that the alignment arms, loader Cylinders and grab hooks are all on this circuit. Cycle until the loader and all its functions operate smoothly. The operation of controls on the following page will be helpful.

WARNING: Keep the hitch in the OFFSET position while cycling the loader. Severe damage may occur if components collide.

- Check the hydraulic oil level in the tractor.
- Leave the loader in the **Raised** position, and cycle the hitch until it operates smoothly.
- Check the hydraulic oil level in the tractor.
- After priming the hitch, cycle the bed until fluid has completely filled the system.
- When the bed is raised, and the Bale Skoop is parked on level ground, be sure the forks on the back of the bed set down firmly on the ground. If they don't you will need to raise the hitch by turning over the drawbar on the tractor.
- Lower the bed and the loader and check the hydraulic oil level in the tractor.

Pre-Operation Checklist

Before operating Bale Skoop check the following items:

Pre-Operation Check

☐	**Lug nuts**	Check that all lug nuts are present and torqued to the appropriate foot/lbs.
☐	**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 jack has been moved to the upper jack stud on TOP of the hitch.
☐	**Hitch Safety Pin**	If traveling, check that the Hitch Safety Pin is securely in place. If gathering or stacking, check that the Hitch Safety Pin has been removed.
☐	**Warning Light**	Check that the Warning Light functions properly.
☐	**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 2-2 in the “Machine Specifications” section.
☐	**Hitch Connection**	Check the bolt system that connects the stacker to the tractor drawbar. A loose connection will wear faster and possibly uncouple.

Operation of Controls

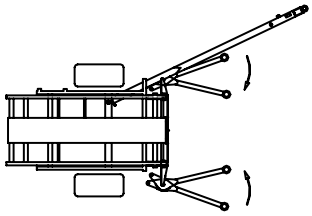
Setting up the Lever Controls

Although you may have your preference of tractor lever control setup, the typical lever *configuration is* "*forward is for lowering*"*, and* "*back is for lifting*"*. If this is not your* standard be aware that the lever operation instructions below represent this configuration.

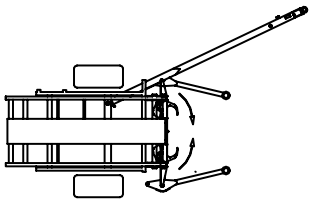
Hydraulic Sequencing and Lever Operation

Lever 1 Controls Alignment Arms, Loader and Grab Hooks (12SR).

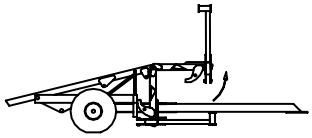
UP SEQUENCE



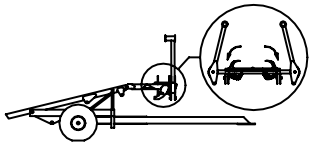
1
Alignment Arms Squeeze Bale



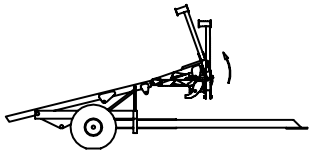
2
Grab Hooks Engage Bale



3
Loader Raises to Level Position

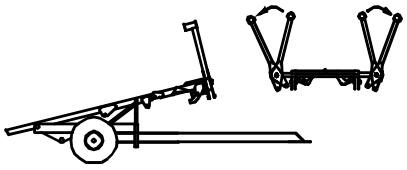


4
Grab Hooks Disengage Bale

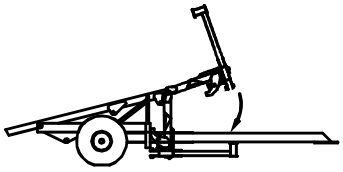


5
Loader Raises to Full Height

DOWN SEQUENCE

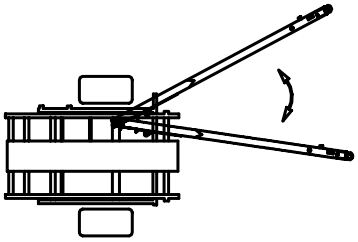


1A
Alignment Arms Open

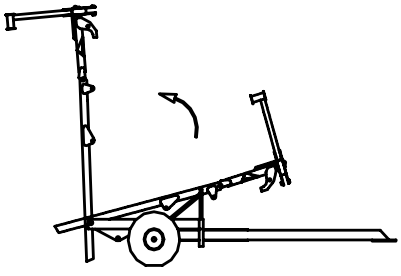


2A
Loader Lowers to ground

Lever 2 Controls Hitch offset motion.



Lever 3 Elevates Bed.



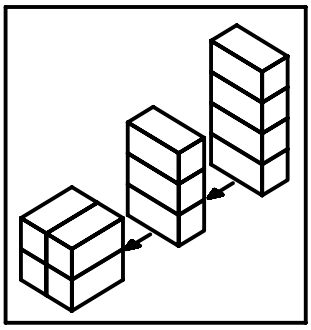
Building Stacks

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

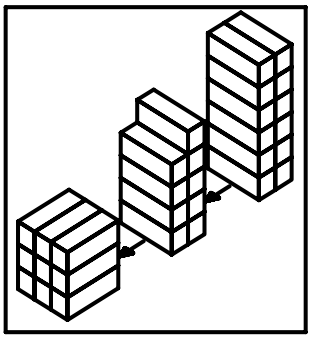
1. Choose a level area, with enough room to maneuver a tractor and Bale Skoop even after the stack is finished. *Note:* If completely level ground is not available, then build your stack uphill (front of tractor and Bale Skoop facing uphill).
2. Begin stack by building a "backstop". The proper backstop 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 3 bales tall.



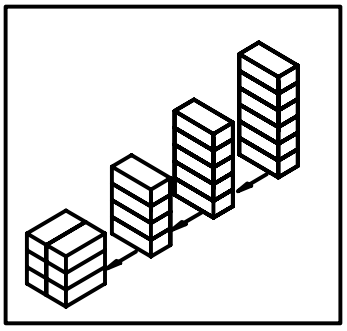
1 Ton Backstop

½ 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.



½ Ton 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 4 bales high, the second 5 bales high, and the rest should be 6 bales high.



3X4 Backstop

Stacking

1. After the last bale(s) is/are picked up, raise the loader all the way up. This squeezes the load between the forklift teeth and the alignment arms making a compact load.
2. Position the tractor and Bale Skoop in front of the backstop.
3. Raise the bed to 70 or 80 degrees (so it is almost vertical, but the weight of the bales is still clearly against the bed).
4. Back up until the corner of the bottom bale on the Bale Skoop comes into contact with the back stop.
5. 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.
6. Lower the loader to release the alignment arms from the stack.
7. Pull forward slowly, lower the bed all the way, and go and retrieve another load.

Note: Be sure the loader is raised enough not to hit the hitch when the bed is lowered all the way.

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.

Gathering Bales

Approaching Bales

1. The easiest way to pick up bales is by driving the Bale Skoop perpendicular to the path of the baler.
2. Before arriving at a bale “offset” the hitch and lower the loader all the way down until it is perpendicular to the ground.
3. Bales are picked up on their 8 foot side.
4. The Auto Align system will allow the operator to approach the bale from almost any direction.

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.

Gathering Bales - Continued

Loading Bales

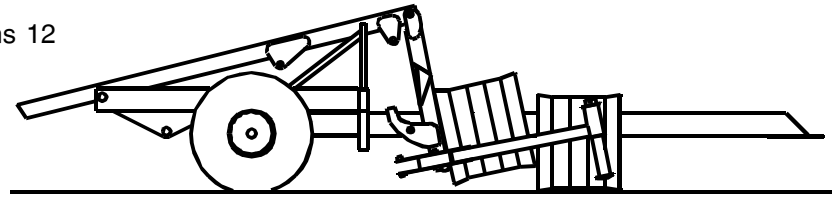
1. When the bale is between the alignment arms and against the loader raise the loader. The alignment arms will automatically squeeze the bale and then the loader will raise.

CAUTION: The first bale or pair of bales that is loaded onto the bed of the Bale Skoop makes it very front heavy. Caution must be exercised when the Bale Skoop is in this position.

If operating a 12SR model Auto Align Bale Skoop

2. When the loader is raised, the alignment arms will squeeze the bale, and the grab hooks will come from behind the loader to hold the first bale.
3. The alignment arms can then be opened to retrieve the next bale.

Note: Keep the end of the alignment arms 12 to 14 inches (30 - 35 cm)off the ground in order to pick up the second bale slightly lower (6-15 inches(15 - 35 cm)) than the first. This stair-step will help allow the bale to slide back without tipping over.



Stair-stepping ½ Ton Bales

Note: Keep alignment arms on the first bale closed until you get to the second bale.

4. Properly adjusted grab hooks will automatically disengage when the loader is raised to a horizontal position.

Operating all models of Auto Align Bale Skoops

5. Raise the loader until it is all the way up. Begin to lower the loader and the alignment arms will open allowing the bales to slide to the rear of the bed.
6. Repeat as many times as desired, or until the load is complete (HD4SR full load is 4 bales (with 4x4 bales), 12SR full load is 12 bales (with 3x3 bales), with 3 x 4 bales, the full load for both machines is 6 bales). *Note:* After the last bale(s) is/are picked up, the loader should not be lowered.
7. Move hitch into the “inline” position before traveling to the stacking area.

Transporting Bale Skoop

WARNING: Attach safety chain to Bale Skoop 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 Hitch Safety Pin to lock hitch in the in-line position before transporting Bale Skoop 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 Skoop on public roads. Obey all regulations as they pertain to the Bale Skoop. 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 Skoop. The wheels on the Bale Skoop are approximately 10 feet 8 inches (325.1 cm) wide with the implement tires, 10 feet 8 inches (325.1 cm) wide with the truck tires, and 11 feet 3 (342.9 cm) inches wide with the high flotation Terra tires.
- Drive carefully at an appropriate speed for the size and weight of the Bale Skoop. 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!

Tips and Techniques

It takes some time, generally about a week, for an operator to get used to the controls, the movements, and the capabilities of the Auto Align Bale Skoop.

Rotating Bales

- If approaching the bale “end-on” is desired, 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. When contact is made, open the arms to push the end to the right causing the bale to rotate into the loader.

Quarter Turning Bales

- To quarter turn a bale on the ground raise the loader until the alignment arms squeeze together. With the ends of the alignment arms positioned about halfway up the side of the bale, move forward, while raising the loader.

Note: Quarter turning with a Bale Skoop is very time consuming and is not recommended for a larger number of bales in a row.

- To quarter turn a bale with a 12SR model Bale Skoop grab the first bale before attempting to quarter turn the second bale.

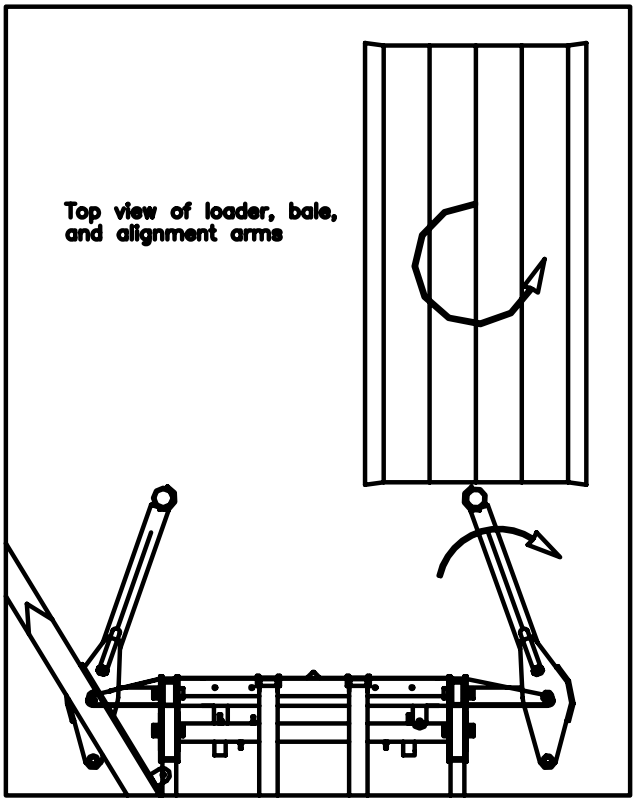
Note: Make sure the feet on the slider pipes of the 12SR grab under the edge of the bale, otherwise they may catch a string.

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.

Tipping or Rolling Bales

- If the bales do not have enough stair-step the bales might roll when traveling down the bed. If you have to fix the amount of stair-step after picking two bales into the loader just raise the loader a few inches (4”-15” (10 - 38 cm)), then open the alignment arms so the second bale can slide down in front of the first. Raise the loader again and the alignment arms will re-squeeze the bale.

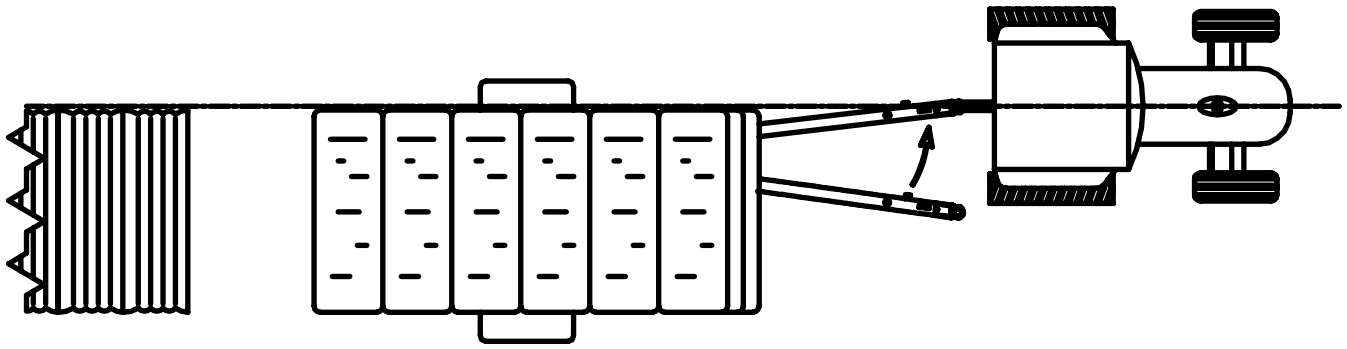


Tips and Techniques - Continued

- If the loader has been lifted too far and the grab hooks have disengaged without enough stair-step between the bales it is possible to get the bales to slide on the bed. Most of the time if the bales are rolling it is because they catch at the hinge between the bed and the loader. Raise the loader until it is exactly in-line with the bed and open the alignment arms.. (Sometimes with wet bales this is the only way to get the bales to slide.)

Stacking

- For better visibility while building stacks, center the tractor against the edge of the stack, with the hitch slightly offset; it is much easier to see what you are doing. . . stacks turn out straighter too!



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

- Fine tune your stack by making minor adjustments in your steering with the hitch control.
- 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.
- If the stack is not tight enough, raise the bed all the way up, pull the tractor and Bale Skoop forward three feet, and back into the stack to push the bales tight.

Tips and Techniques - Continued

Stacking bales of different sizes

Bales Size	HD4SR Stack Size	4SR Changes Needed	12SR Stack Size	12SR Changes Needed
Freeman 3x4 38"x46" **(4)** On strings	5 high x 1 deep	**(1)** Standard configuration	5 high x 1 deep	**(5)** Remove bed extensions **(2)** Disable grab hooks
NH 595 3x4 35"x47" **(4)** On strings	6 high x 1 deep	**(5)** Add bed extensions	6 high x 1 deep	**(2)** Disable grab hooks
Hesston 4900 51"x48" **(4)** On or off strings	4 high x 1 deep	**(1)** Standard configuration	4 high x 1 deep	**(5)** Remove bed extensions **(2)** Disable grab hooks **(3)** Watch alignment arms
Hesston 4755 35"x32" **(4)** On strings	6 high x 1 deep	☎ Call ProAG Designs	6 high x 2 deep	**(1)** Standard configuration
D1000/D800 24"x36" **(4)** Off strings	N/A	N/A	5 high x 2 deep	**(5)** Remove bed extensions **(3)** Watch alignment arms

Note: Other manufacturer's balers create the same size bales - these were used for illustration purposes only.

Table Key:

(1) Standard Configuration

The way the machine is normally set up.

(2) Disable Grab Hooks

Turn Valve #5 on the manifold valve in two turns.

(3) Watch Alignment Arms

The alignment arms are longer than the bales and will contact the stack if they are not opened up before the bed is raised to its maximum height.

(4) On/Off Strings

The bales come out of the baler "On Strings". If you want to pick up the bales "Off Strings" you must have a turner for your baler.

(5) Remove/Add Bed Extensions

With the hitch offset and the loader in its lowest position, remove the pin from the bottom of the bed extension and lift the extension off the machine. Turn the bed extension 180 degrees so that the front of the extension is facing the other direction, place the extension back on the machine, and reinsert the pin.

Section 6: Maintenance

Section Contents

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 6-13 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 wheel bolts - refer to Bolt Torque Chart.
- 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

After the first 100 hours of use, re-torque all wheel lug nuts.

⚠ Caution

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

Preventative Maintenance

Before operating your Bale Skoop 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 Skoop. 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 keys from ignition before servicing the Bale Skoop. 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**

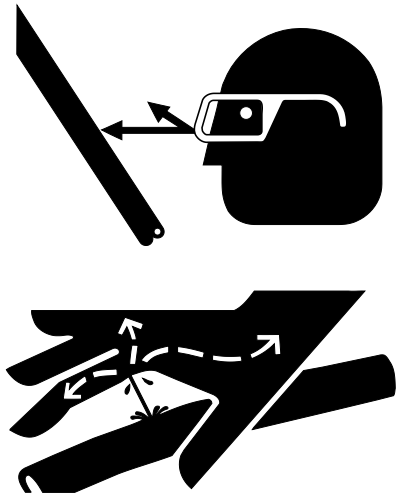
Repairs to hoses and cylinders will usually require disconnecting a fitting connection. Fittings should not be disconnected until the pressure in the hydraulic circuit has been relieved. Follow this procedure to relieve pressure in the hydraulic lines.

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 Skoop. 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.

1. Be sure bed is resting on its rest and loader is resting on the hitch or in its lowest position.
2. Park the tractor and Bale Skoop 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.
3. Uncouple the hoses from the tractor. Slowly unscrew the male hydraulic tips on the ends of the stacker hydraulic hoses, turning them 1/8 th of a turn at a time watching for oil to start leaking out.
4. Use a bucket to catch leaking hydraulic fluid.
5. Crack the hydraulic lines to the loader cylinders as they can have oil under pressure caught by the load check 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: After the first 100 hours of use, re-torque all wheel lug nuts.

Daily Check

☐	**Lubricate**	Lubricate all grease points with all-purpose, non-clay based grease. See “Lubrication” section for location of grease zerks.
☐	**Hitch Connection**	Check the bolt system that connects the stacker to the tractor drawbar. A loose connection will wear faster and possibly uncouple.
☐	**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 Skoop clean and free from mud and dirt, especially around hydraulic cylinder rods and moving parts.
☐	**Axle Bearings**	Check the oil level in the axle hubs and fill with 80-90 gear lube as necessary.
☐	**Wheel Lug Nuts**	Examine the wheel lug nuts making sure all are tight and none are missing.
☐	**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.

General Maintenance

General Check

- Lug nuts should be tightened to 450-500 ft-lbs.
- Axle U-bolts should be tightened to 628 ft-lbs. This amount of torque will crush the threads so the U-bolts cannot be re-used.
- 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. Jack up the ends of the alignment arms and block them in place. This should create the most slack in the chain.
2. Release the safety latch and unhook the grab hook. Determine the link that would eliminate the most slack in the chain.
3. 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.
4. 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 (if 12SR model).
- Periodically check all bolts. Use grade eight bolts for replacements. A torque chart is provided on page 6-12.

Cylinder Repair

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

Bed Extensions

The bed extensions are used to hold the fifth tier in a load, depending on the dimensions of the bales being stacked. Refer to the chart on page 5-16 to determine if your application requires the use of bed extensions. The bed extensions can easily be removed, turned around, and re-pinned to the bed if it is desired to stack a different sized bale.

Electrical Maintenance

Electrical components on the SR Bale Skoop 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.

Warning Box System

This is a simple system used to warn the operator that the hitch is not in the in-line position. It consists of a micro switch mounted on the frame of the stacker, a wire that runs the length of the hitch, and a box with a light which is mounted in the cab.

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 trouble shooting, always check the wires for good connections.
- Use the Electrical Diagrams to rebuild wires if needed.

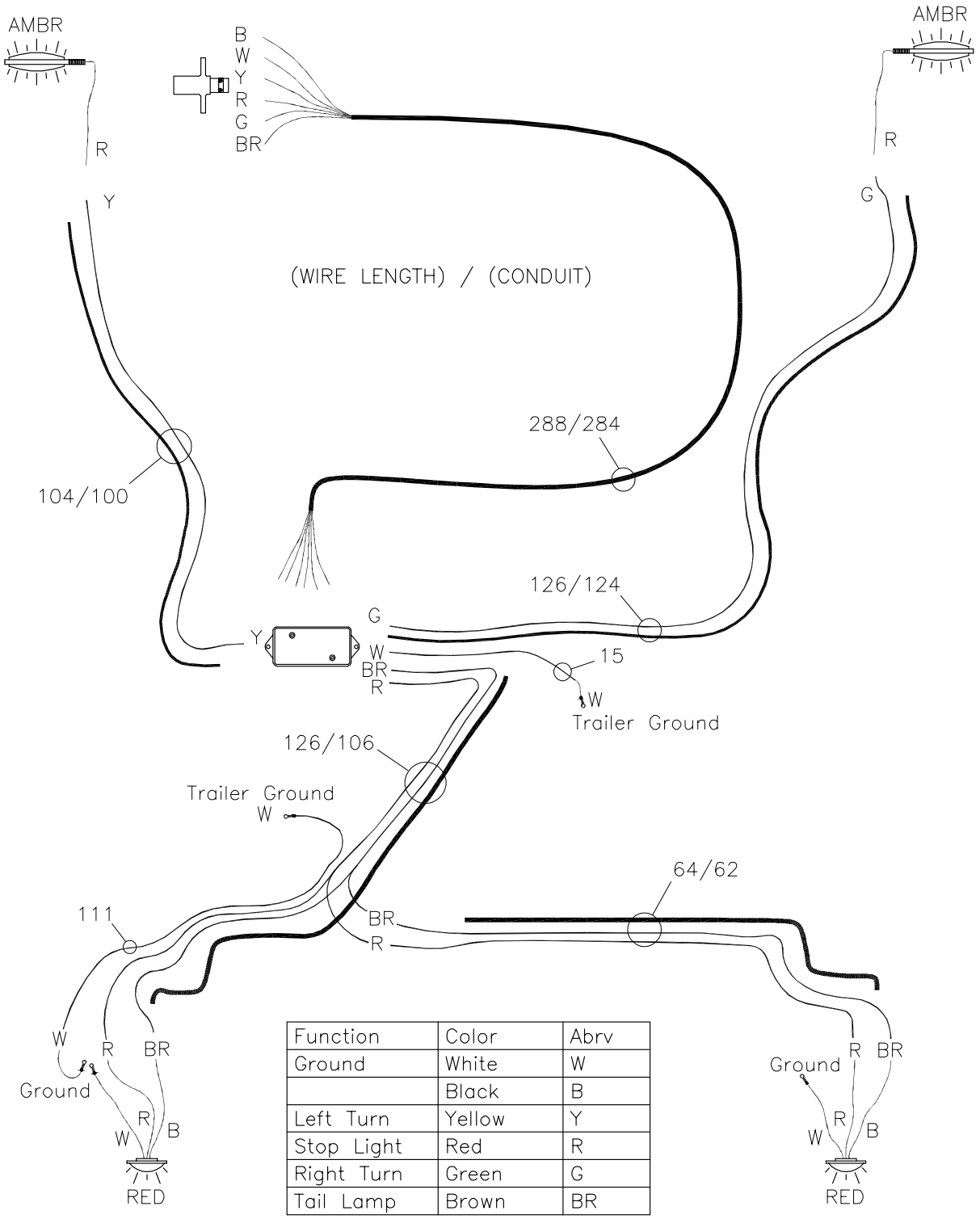
Wheel Bearing Adjustment

Wheel Bearing Adjustment Procedure (Double Nut Arrangement)

1. Prior to installing any wheel-end fasteners, make sure the spindle area is free of dirt and debris. As well, make sure all nuts and washers are free of dirt. Clean mating surfaces are important for proper wheel-end assembly.
2. After properly installing the bearing cones and wheel-end seal onto the spindle, and the wheel-end is slid onto the spindle, tighten the inner spindle nut with a torque wrench to 150-200 ft. lbs. to set the bearings and wheel-end. **CAUTION: DO NOT USE AN AIR IMPACT WRENCH TO TIGHTEN THIS NUT!**
3. Loosen this inner nut to allow the brake drum to rotate freely. Backing off one (1) full turn is recommended.
4. Re-tighten the inner spindle nut to 50 ft. lbs. by hand using a torque wrench to position the bearings for final adjustment. **CAUTION: DO NOT USE AN AIR IMPACT WRENCH TO TIGHTEN THIS NUT!**
5. Back the inner spindle nut off 1/4 turn.
6. Install the retaining fastener or fasteners onto the spindle according to the fastener used. If washers are used, be sure they are facing in the right direction and are clean. Make sure any washers with dowels fit properly into the mating holes.
7. Install the outer spindle nut. Using a torque wrench, tighten this nut to 250-300 ft. lbs. Resulting end play should be .001” - .005”.

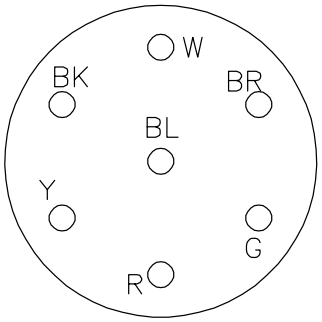
Note: If end play is not .001” - .005”, disassemble and repeat this procedure.

Electrical Diagrams

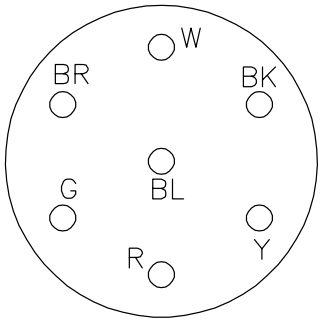


Function	Color	Abrv
Ground	White	W
	Black	B
Left Turn	Yellow	Y
Stop Light	Red	R
Right Turn	Green	G
Tail Lamp	Brown	BR

Electrical Diagrams - Continued

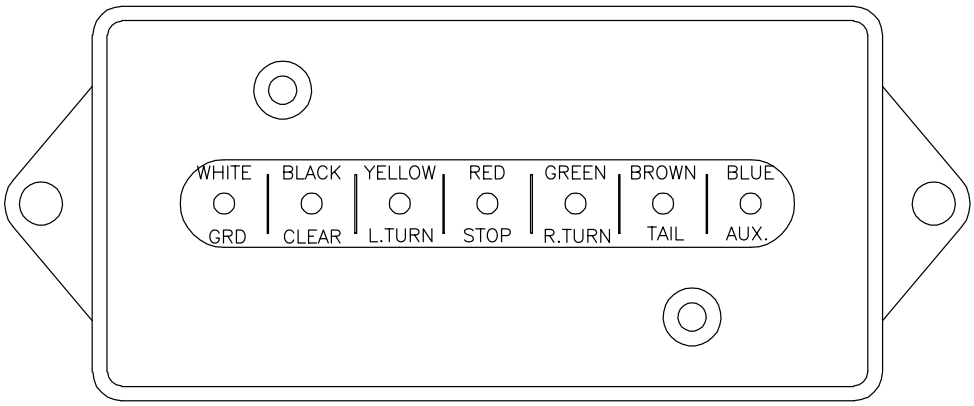


7 Pole Socket Markings

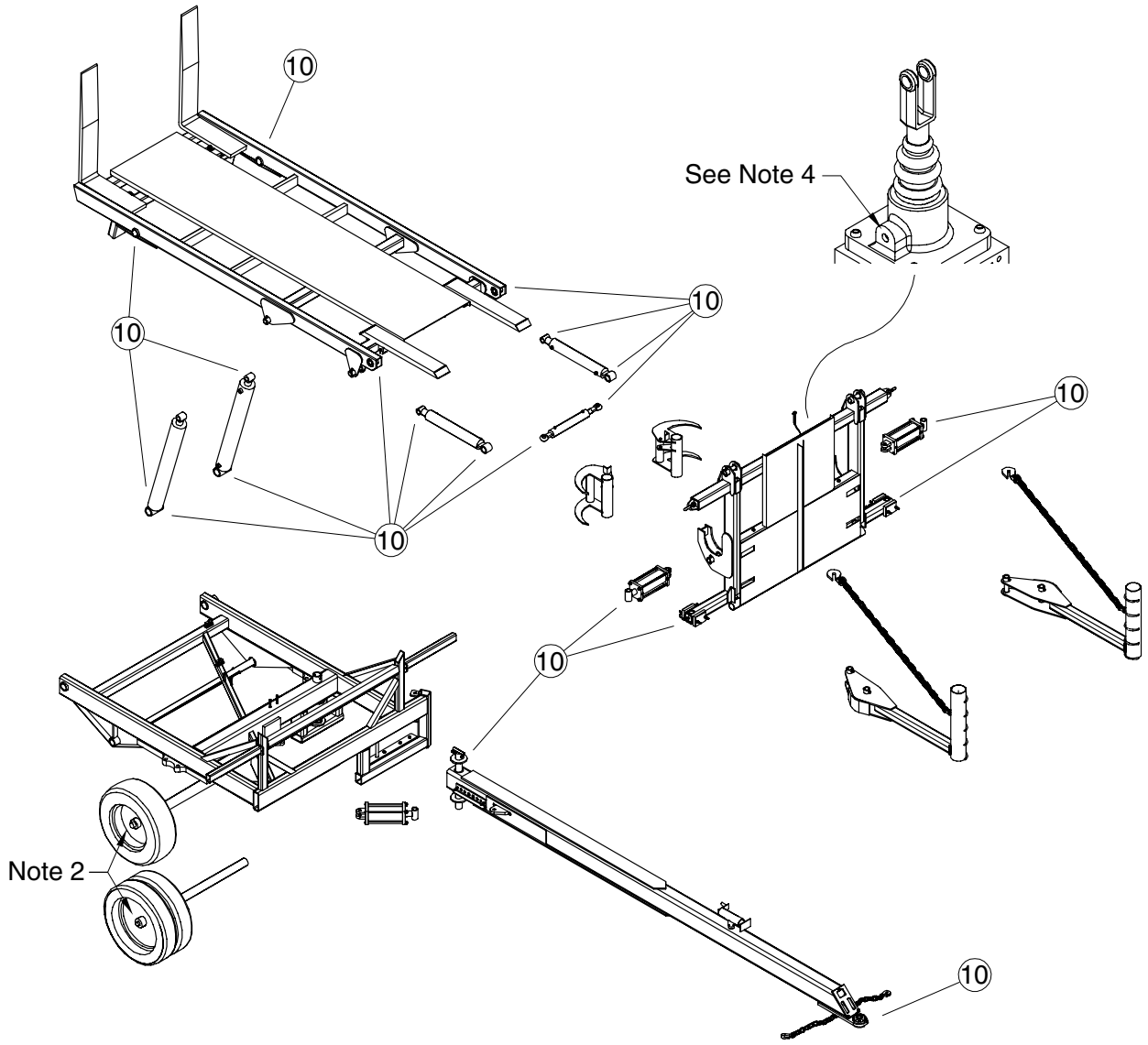


7 Pole Plug Markings

Function	Color	Abrv
Ground	White	W
	Black	B
Left Turn	Yellow	Y
Stop Light	Red	R
Right Turn	Green	G
Tail Lamp	Brown	BR



Lubrication Points



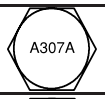
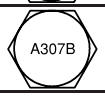
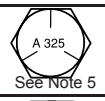
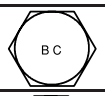
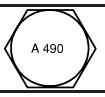
Notes:

1. Alignment arm pivots and main hitch pin have remote grease hoses.
2. Make sure hubs have oil and the plug is in the hub caps. Changing bearings is dificult and requires large size tools.
3. Grab hooks have no grease zerks. See grab hook assembly for location of plastic bushings.
4. Lubricate Dynex Valve monthly with oil (90W, 10W30, etc.) through plug in spool cap.
5. (10) = 10 hour grease point.

Lubricants

Hydraulic oil ..... High quality that meets or exceeds tractor specifications
Axle hub oil ..... 80-90 gear lube
Grease ..... Non clay based
Bale slide surface ..... Dry film graphite lubricant (Slip-Plate®)

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

Year End Maintenance

Storage

- Park Bale Skoop on level ground.
- Lock hitch in the “in-line” position with hitch safety pin.
- Set loader on the hitch.
- Relieve pressure in lines to prevent “thermal” lock.

WARNING: Keep children away from the stored Bale Skoop. 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

- Paint bed with a graphite impregnated paint (Slip Plate®) to keep it from rusting.
- Touch up any scratches or flaking paint.
- Grease all zerks with an all-purpose, non-clay based grease. The non-clay based grease should help eliminate the plugging of grease zerks.
- Cover tires to prevent sun damage.

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

Notes

Section 7: Storage

Section Contents

Preparing for Storage

- To insure longer life and satisfactory operation, store the implement 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 with hitch safety pin.
- Set 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.
- Lubricate grease fittings. (Refer to Maintenance Section).
- Tighten all bolts to proper specifications (Refer to Maintenance Section).
- For a safer storage, lower the implement into field position and release the hydraulic pressure.
- Level implement using hitch jack and block up.
- Relieve pressure from hydraulic system.
- Raise frames, block up and relieve weight from the tires.
- Cover tires with canvas to protect them from the elements when stored outside.
- Coat exposed cylinder shafts **(Refer to Cylinder Shaft Protection).**
- Paint bed with a graphite impregnated paint (Slip Plate®) to keep it from rusting.
- 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:

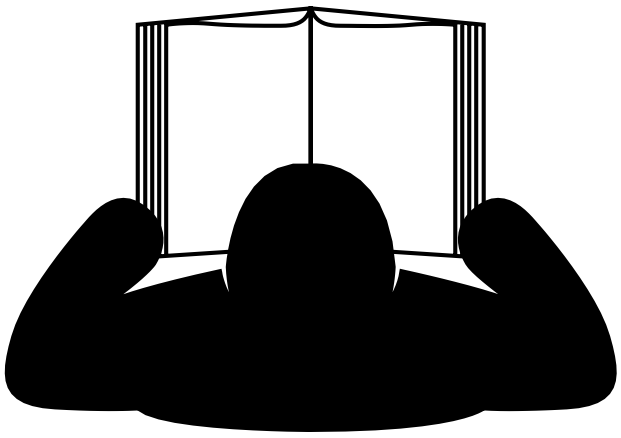
- Position the equipment as it will be stored, and identify all the exposed portions of the chrome plated shafts.
- Clean dirt and dust from the exposed portions of the shaft using a dry cloth or a cloth which has been dampened with an appropriate solvent.
- Prepare a mixture of 60% oil-based rust inhibitor 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).**
- Lubricate grease fittings (Refer to Lubricating Section).
- Tighten all bolts to proper specifications (Refer to Bolt Torque Chart).



Notes

Section 8: Troubleshooting

Section Contents

Troubleshooting Guide

Hydraulic System Overview

The movement of the loader on the Auto Align Bale Skoop is controlled by the Manifold Valve located under the Bed. The Manifold consists of 5 pressure relief valves which are set to open when the fluid pressure against them reaches a designated pressure. These internal pressure relief valves are adjustable, allowing for fine-tuning of the hydraulically actuated sequence of motions of the loader.

Troubleshooting the Hydraulics

The hydraulic systems for the Bale Skoop are fairly simple. Most problems are rooted either in mis-adjusted pressure relief valve(s) in the manifold, or switched hoses entering the manifold.

When troubleshooting hydraulic problems always start with hose routing. Use the Hydraulic Hose Routing diagram in the “Parts Breakdown” section to confirm the proper hose routing.

If hoses are properly routed, adjusting the pressure relief valves in the manifold should resolve the problem.

Use the Troubleshooting Chart on the next page to correlate the problem with a potential solution.

Valves and Valve Functions

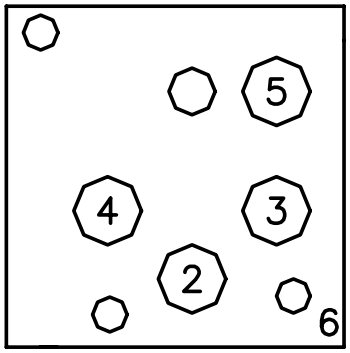
Valve 2. Plug.

Valve 3. Sequence check valve causes the alignment arms to close first and then the loader to raise.

Valve 4. Counter balance valve which holds the loader up while the alignment arms open.

Valve 5. Sequence valve which allows the alignment arms to close first before the grab hooks engage.

Valve 6. Check valve which causes the oil to flow in the right direction.



Manifold Valve

12SR Models Only

Grab Hook Valve

4-Way valve used to direct the flow of oil to the grab hook cylinder.

Hydraulic Troubleshooting Chart

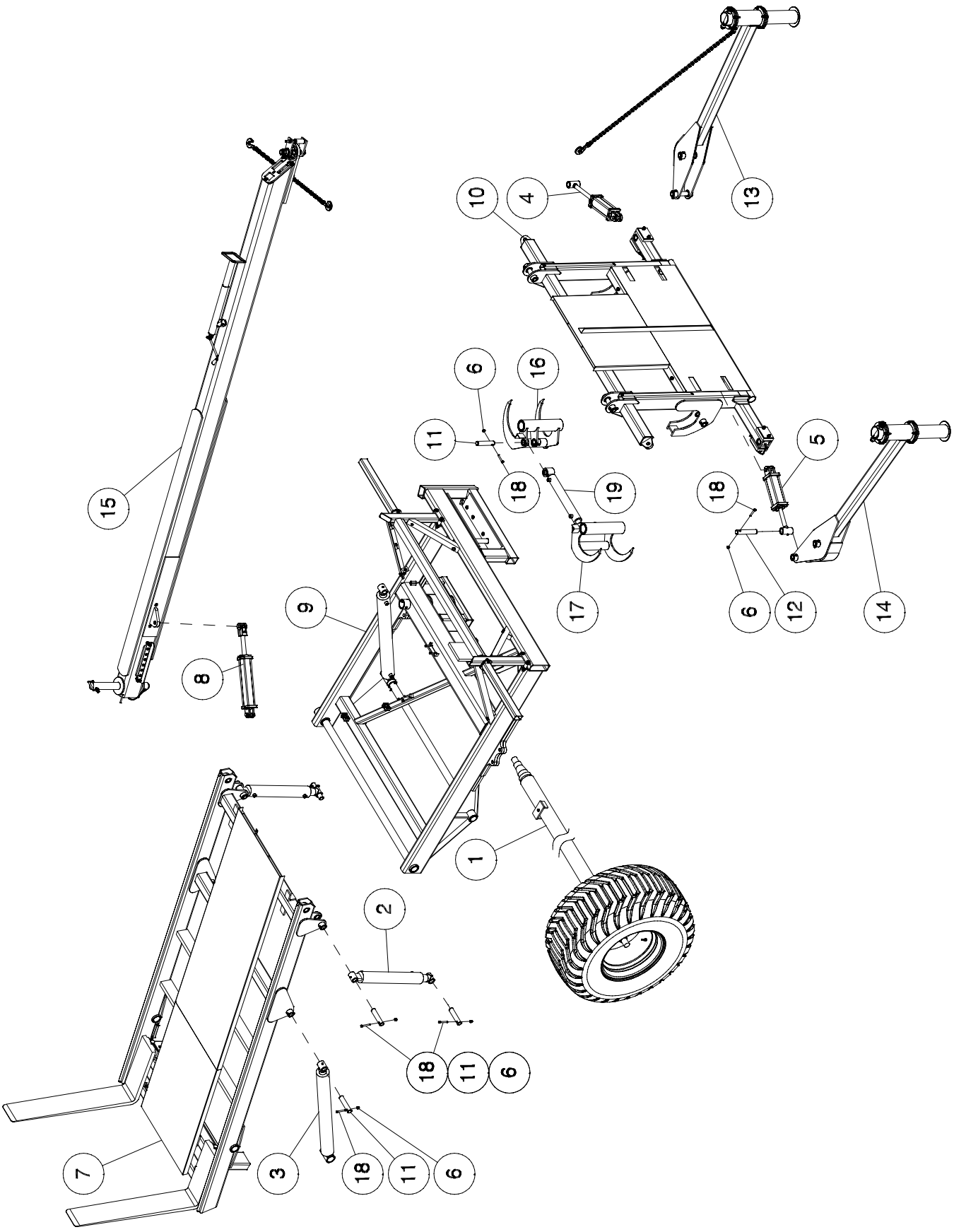
Symptom	Problem	Solution
Loader will not raise	Valve #3 is set too high	Turn adjustment screw OUT on valve #3
Loader raises slow	Valve #3 is set too high Tractor hydraulic flow or pressure is slow or low	Turn adjustment screw OUT on valve #3 Contact tractor manufacturer or dealer
Loader lowers when alignment arms are opening	Valve #4 is set too low	Turn adjustment screw OUT on valve #4
Loader lowers before alignment arm open	Valve #4 is set too low	Turn adjustment screw OUT on valve #4
Loader will not lower	Valve #4 set too high	Turn adjustment screw IN on valve #4
Loader lowers slow	Valve #4 set too high	Turn adjustment screw IN on valve #4
Alignment Arms do not center bales, or squeeze bales tight	Valve #3 set too low	Turn adjustment screw IN on valve #3
Alignment Arms open as loader raises, and close as loader lowers	Wrong hose routing	Check hose routing against diagram
Grab Hooks push bale away from loader	Valve #3 set too low Valve #5 set too low	Turn adjustment screw IN on valve #3 Turn adjustment screw IN on valve #5
Grab Hooks will not engage	Wrong hose routing Spool on 4-Way Valve is not retracting Valve #5 set too high	Check hose routing against diagram Check 4-Way Valve assembly for kinks in spring or cable when loader is lowered Turn adjustment screw OUT on valve #5
Grab Hooks will not disengage	Spool on 4-Way Valve is not being extended Hoses are connected wrong Valve #5 set too high	Check 4-Way Valve assembly and pull spring and cable hook-up for failure or malfunction Switch 4-Way Valve hoses at Manifold. Turn adjustment screw OUT on valve #5
Grab Hooks engage before alignment arms	Valve #5 set too low	Turn adjustment screw IN on valve #5
Grab Hooks engage when loader raises, and retract when loader lowers	Wrong hose routing	Check hoses routing against diagram

✱ If you continue to have problems please contact an authorized ProAG dealer.

Notes

Section 9:
Parts Breakdown

Section Contents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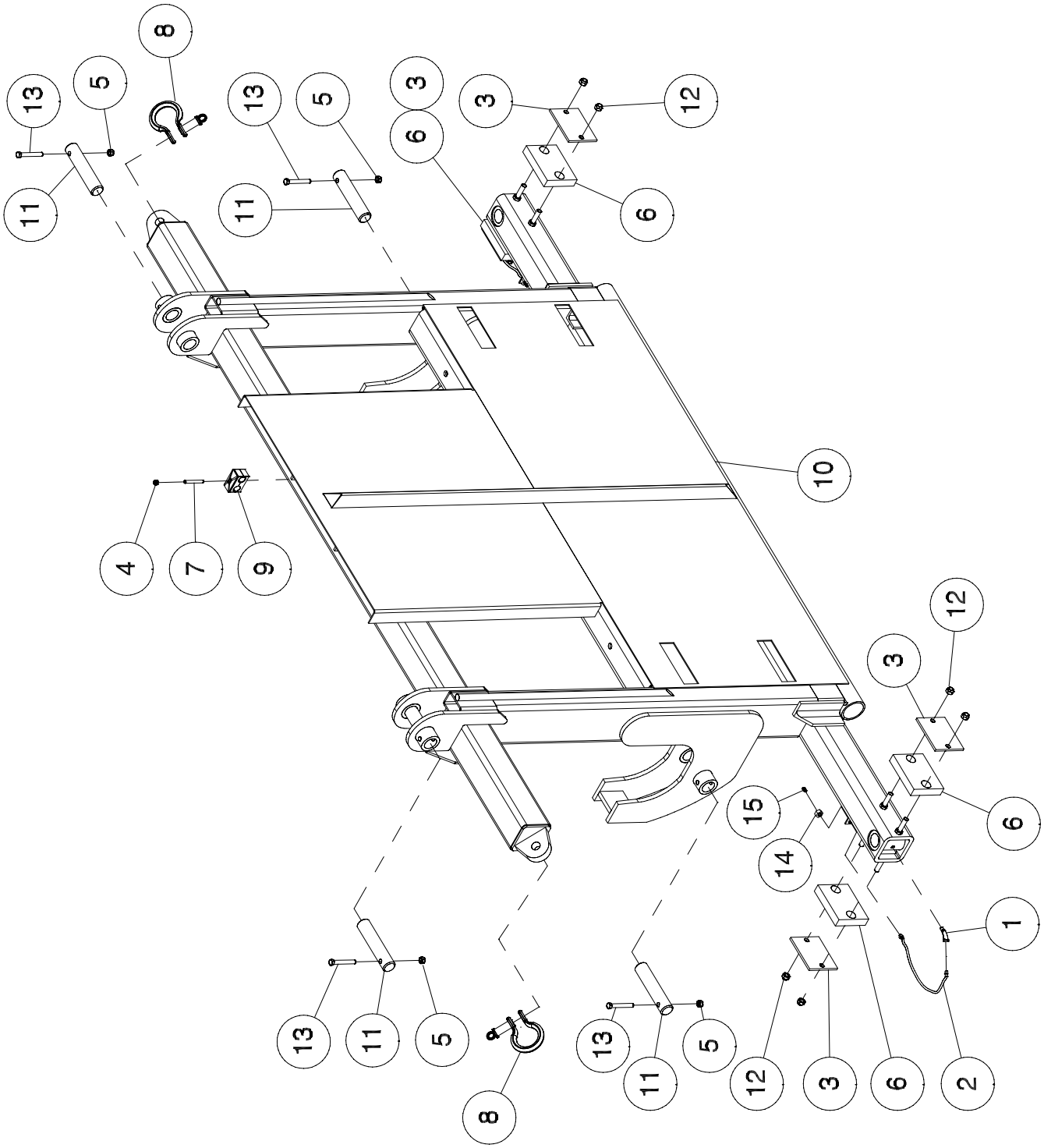
Bale Skoop Final Assembly

Item	Part No.	Description	Qty
1	10410	Terra Axle Assembly	1
	10385	Truck Axle Assembly	1
2	10032	Loader Cylinder - 3 1/2 x 20 Stroke	2
3	10033	Bed Cylinder - 4 x 36 Stroke	2
4	10034	LH Alignment Cylinder - 3 1/4 x 8 Stroke	1
5	10035	RH Alignment Cylinder - 12SR - 3 1/2 x 8 Stroke	1
6	10302	Nylon Insert Locknut - 7/16	14
7	12290	Bed	1
	*10048	SR Model Bed	1
8	12302	Hitch Cylinder - 3 x 14 Stroke	1
9	12474	Main Frame	1
	*10131	Main Frame	1
10	K44274	Loader - HD4SR	1
	12494	Loader - 12SR	1
	*10214	Basic Loader Assembly	1
11	12519	Pin - Bed Cylinder - 1 1/2 Dia x 6 UL	10
	*10256	Pin - Bed Cylinder - 1 7/16 Dia x 7 UL	
12	12520	Pin - Alignment Arm - 1 1/2 Dia x 7 1/4 UL	4
13	12525	LH Medium Alignment Arm Assembly - 12SR	1
	*10405	LH Medium Alignment Arm Assembly - 12SR	1
	12527	LH Short Alignment Arm - HD4SR	1
	*10406	LH Short Alignment Arm - HD4SR	1
14	12526	RH Medium Alignment Arm Assembly - 12SR	1
	*10404	RH Medium Alignment Arm Assembly - 12SR	1
	12528	RH Short Alignment Arm - HD4SR	1
	*10011	RH Short Alignment Arm - HD4SR	1
15	K42480	Hitch Beam Assembly	1
	*10393	Hitch Assembly	1
16	12532	Grab Hook - Left - 12SR	1
17	12533	Grab Hook - Right - 12SR	1
18	10847	Hex Bolt - 7/16 x 3 Lg GR8	14
19	K42468	Cylinder Assembly W/Bushings - 2 1/2 x 16 Stroke	1
	12166	Grab Hook Cylinder 03 - 12SR	1
	12039	Grommet - Inserts Into Light Bar (Not Shown)	2
	10248	Slip Coat	1
	W-4647	Red Paint	1
	10359	Warning Light Assembly	1
	K34987	Operators Manual - HD4SR and 12SR	1
	K34990	Assembly Manual - HD4SR and 12SR	1

* Prior to serial # SR12060881 for the 12SR & SR40600866 for the HD4SR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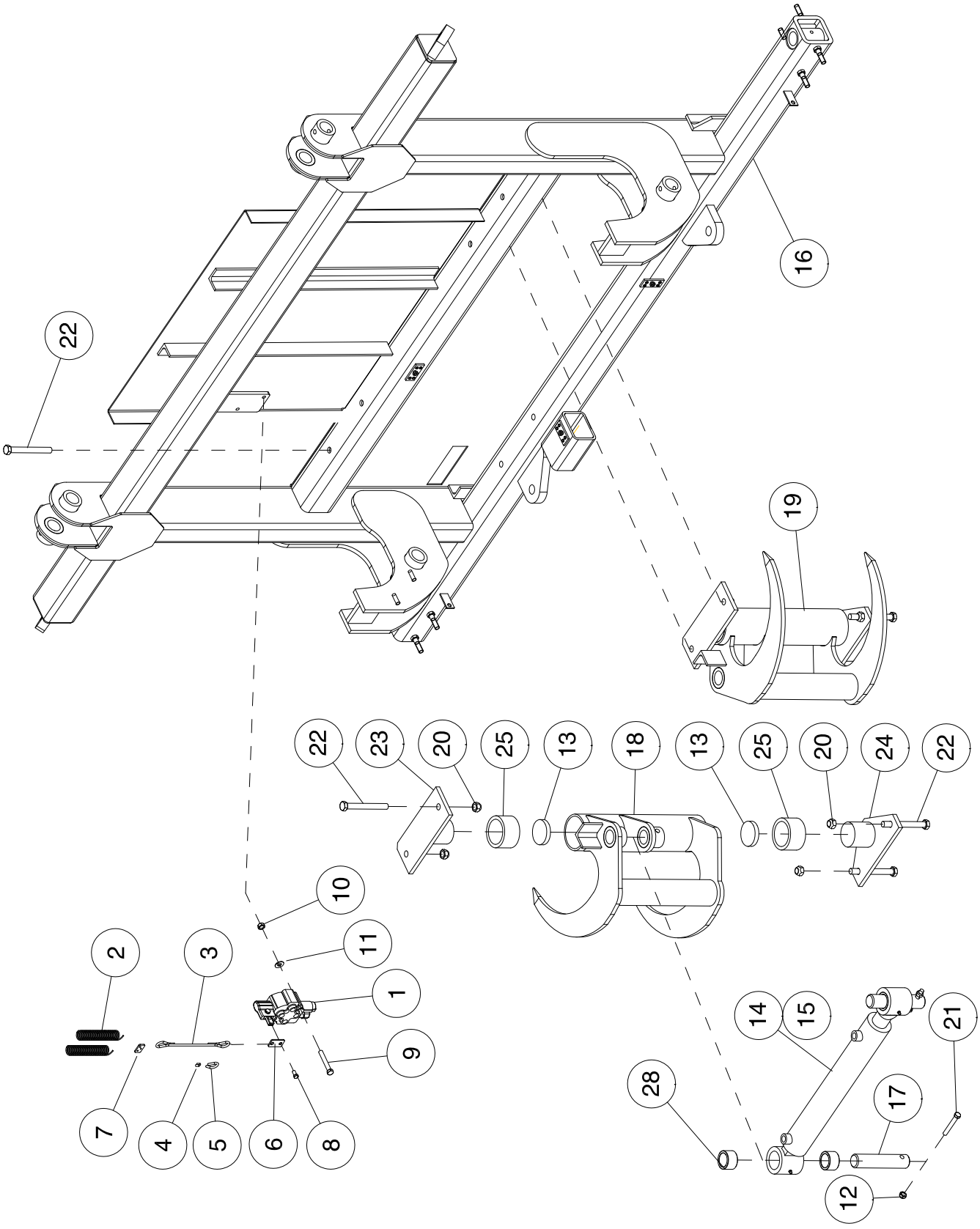
Loader Assembly

Item	Part No.	Description	Qty
1	10173	Street Grease Elbow - NPTF 45	2
2	10183	Remote Grease Hose - 1/8 x 12 Lg	2
3	10104	Plate - Alignment Slider	4
4	10231	Locknut - 5/16 Nylon Insert	3
5	10302	Locknut - 7/16 Nylon Insert	4
6	10351	Slider - Alignment Arm	4
7	10811	Set Screw - 5/16 x 2 1/2 Lg	3
8	10827	Round Pin Shackle - 3/4	2
9	11740	Plastic Hose Clamps - 13/16	3
10	K44274	Loader - HD4SR (Not Shown)	1
	12494	Loader - 12SR	1
	*10193	Loader	1
11	12519	Pin - Bed Cylinder - 1 1/2 x 7	4
	*10256	Pin - 1 7/16 x 7	4
12	F-3405	Locknut - 1/2 Nylon Insert	8
13	10847	Hex Bolt - 7/16 x 3 Lg GR8	4
14	10227	3/8 - Grease Hose Jam Nut	2
15	S-752	Grease Fitting - 1/4	2

* Prior To Serial # SR12060881 For The 12SR & SR40600866 For The HD4SR

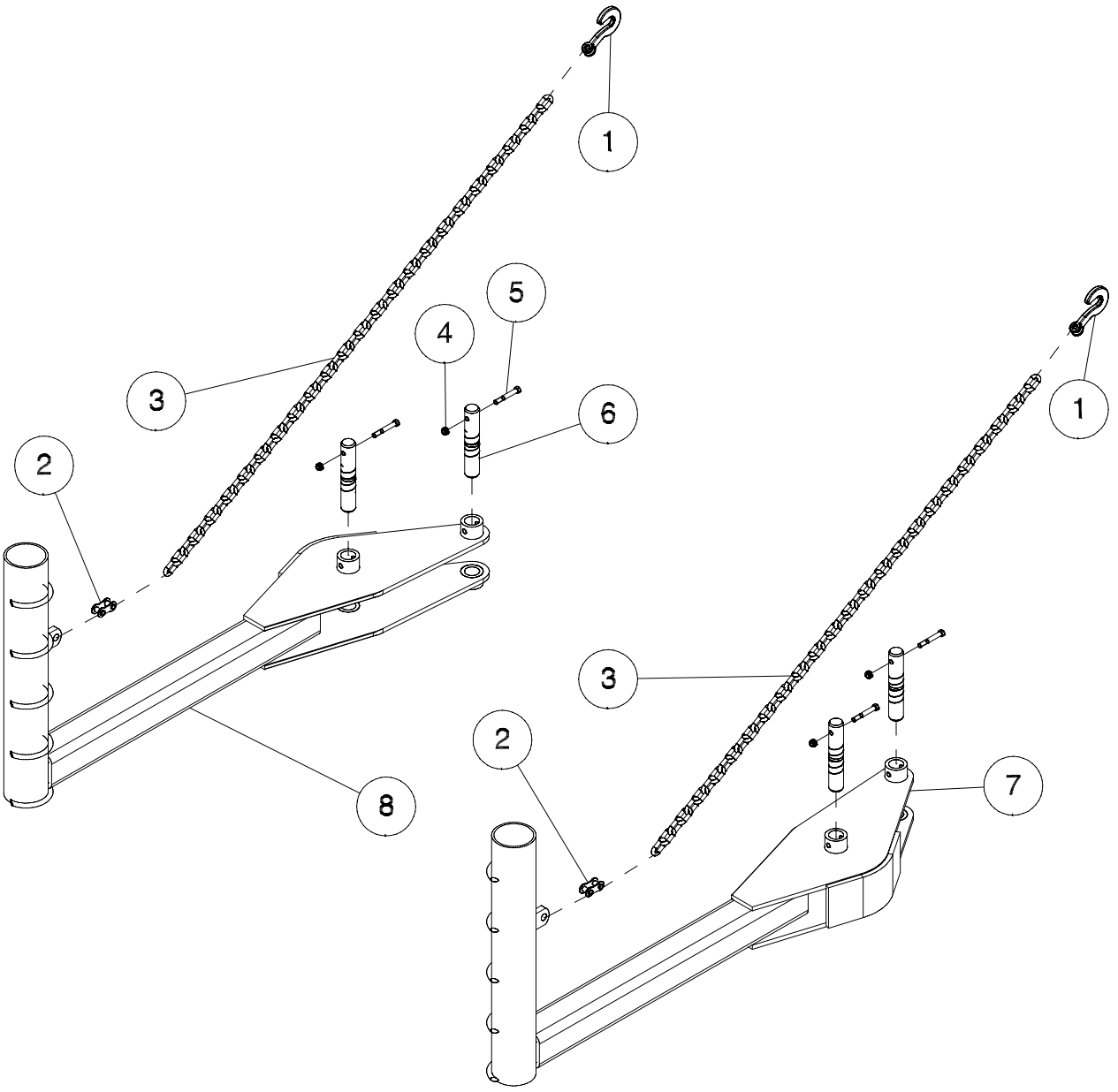
For Serial Number - SR12143100 and Up



12SR - Grab Hook Assembly - 2014 to Present

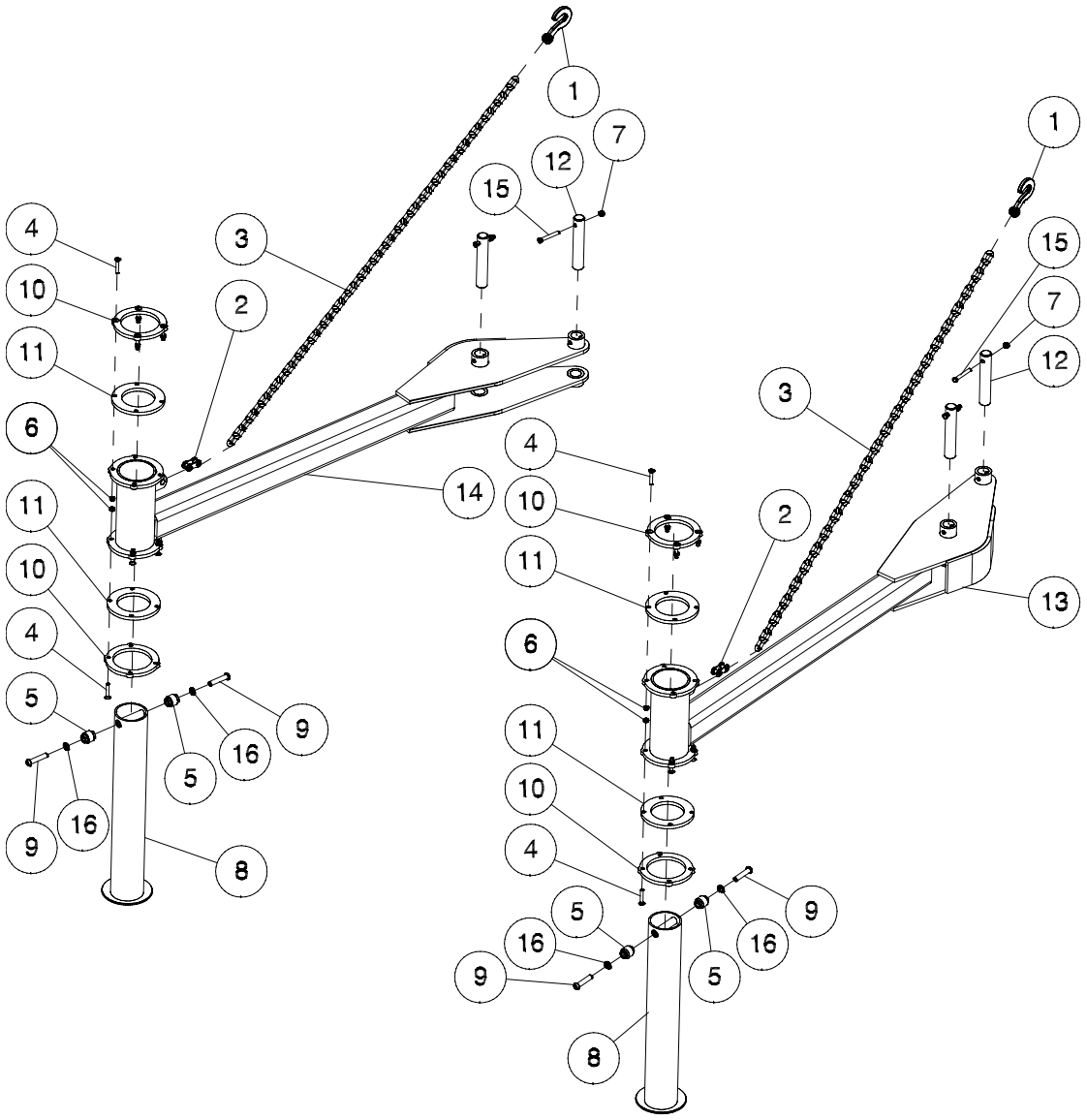
Item	Part No.	Description	Qty
1	K53973	Directional Valve	1
2	10845	Spring - 3/4 x 5 3/4	2
3	K53993	Pull Cable	1
4	K42389	Oval Sleeve - 0.062 Diameter	4
5	K42390	Thimble	2
6	K53980	Plate - Valve Link	1
7	K53987	Plate - Spring Link	1
8	K53981	Hex Bolt - M8 x 25 mm Lg	1
9	S-1302	Hex Bolt - 5/16 x 2 1/2 Lg	2
10	W-513	Hex Nut - 5/16	2
11	W-522	Lockwasher - 5/16	2
12	10302	Locknut - 7/16 Nylon Insert	2
13	10355	Grab Hook Thrust Bearing	4
14	12166	Hydraulic Cylinder - 2 1/2 x 16 Stroke	1
15	K42468	Cylinder Assembly W/Bushings - 2 1/2 x 16 Stroke	1
16	12494	Loader - 12SR	1
17	12519	Pin - Bed Cylinder - 1 1/2 x 7	2
18	12532	LH Grab Hook	1
19	12533	RH Grab Hook	1
20	10230	Locknut - 5/8 Nylon Insert	8
21	D-5251	Hex Bolt - 7/16 x 3 Lg	2
22	10065	Hex Bolt - 5/8 x 5 1/2 Lg GR8	8
23	K42393	Upper Grab Hook Pivot	2
24	K42394	Lower Grab Hook Pivot	2
25	K42396	Grab Hook Bushing	4
26	K44008	Bushing - Cylinder Pivot	4

HD4SR - Short Alignment Arm Assembly

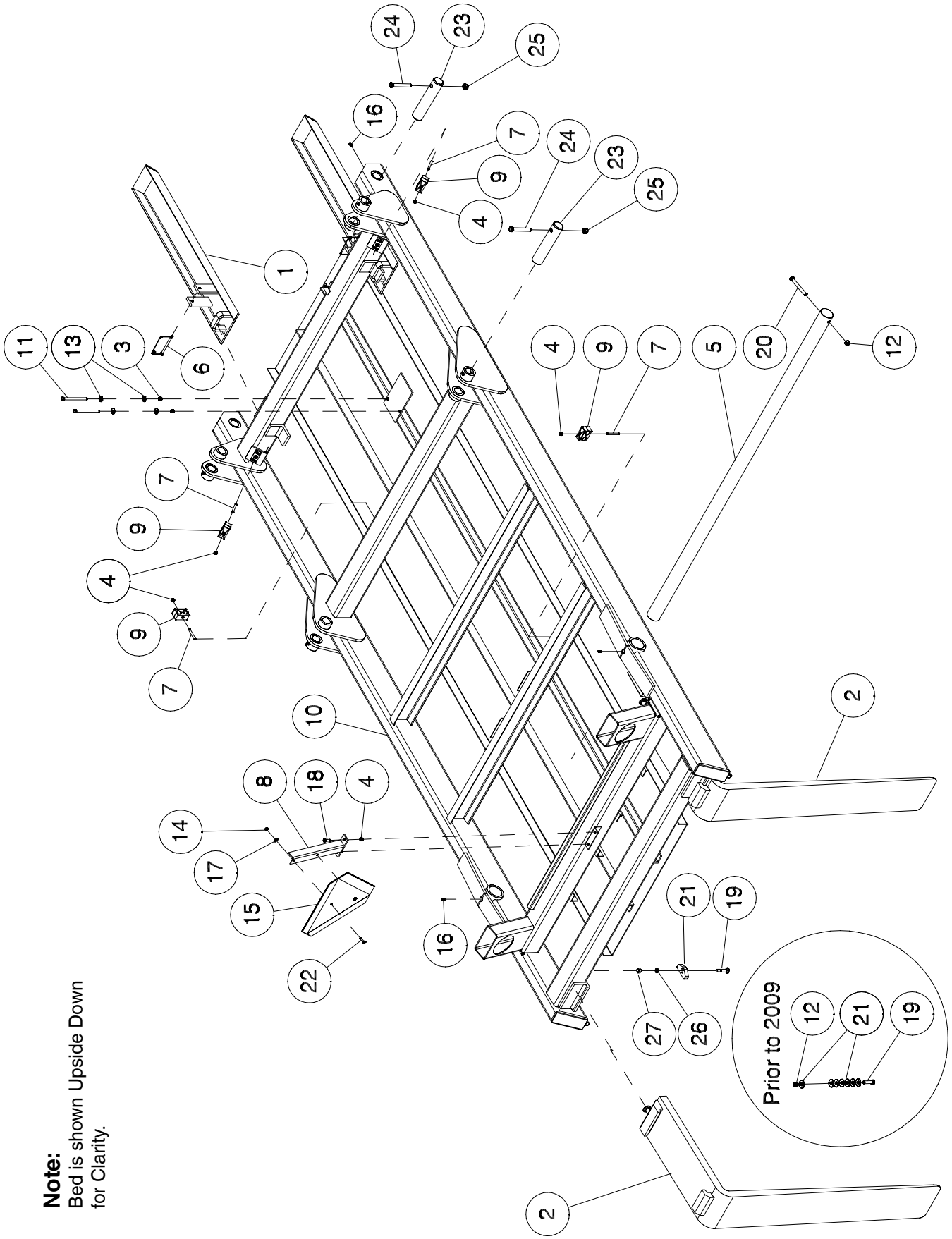


Item	Part No.	Description	Qty
1	10662	3/8 Chain Locking Grab Hook	2
2	10677	7/16 - 1/2 Twin Clevis	2
3	10750	Chain - 75 Lg - Grade 70 (Includes Item 1)	2
4	10302	Locknut - 7/16 Nylon Insert	4
5	D-5251	Hex Bolt - 7/16 x 3	4
6	12520	Pin - 1 1/2 x 8 1/4	4
	*10257	Pin - 1 7/16 x 8 1/4	4
7	12527	LH Short Alignment Arm	1
	*10406	LH Short Alignment Arm	1
8	12528	RH Short Alignment Arm	1
	*10011	RH Short Alignment Arm	1
		* Prior To Serial # SR40600866 For The HD4SR	

HD12SR
12SR - Medium Alignment Arm Assembly



Item	Part No.	Description	Qty
1	10662	Chain Locking Grab Hook - 3/8	2
2	10677	Twin Clevis - 7/16 x 1/2	2
3	10750	Chain - 75 Lg - Grade 70 (Includes Item 1)	2
4	10074	Cap Screw - 3/8 x 2 1/4	16
5	10076	Rubber Roller Bushing - 5/8 x 2	4
6	10229	Nylon Insert Locknut - 3/8	16
7	10302	Nylon Insert Locknut - 7/16	4
8	10400	Foot Slider	2
9	10835	BH Cap Screw - 5/8 x 3	4
10	10841	Bearing Plate 99	4
11	10846	Foot Slider Bearing 99	4
12	12520	Pin - 1 1/2 x 8 1/4	4
	*10257	Pin - 1 7/16 x 8 1/4	4
13	12525	LH Medium Alignment Arm	1
	*10220	LH Medium Alignment Arm	1
14	12526	RH Medium Alignment Arm	1
	*10399	RH Medium Alignment Arm	1
15	10847	Hex Bolt - 7/16 x 3 Lg GR8	4
16	W-526	Lockwasher - 5/8	4
		* Prior To Serial # SR12060881 For The 12SR	



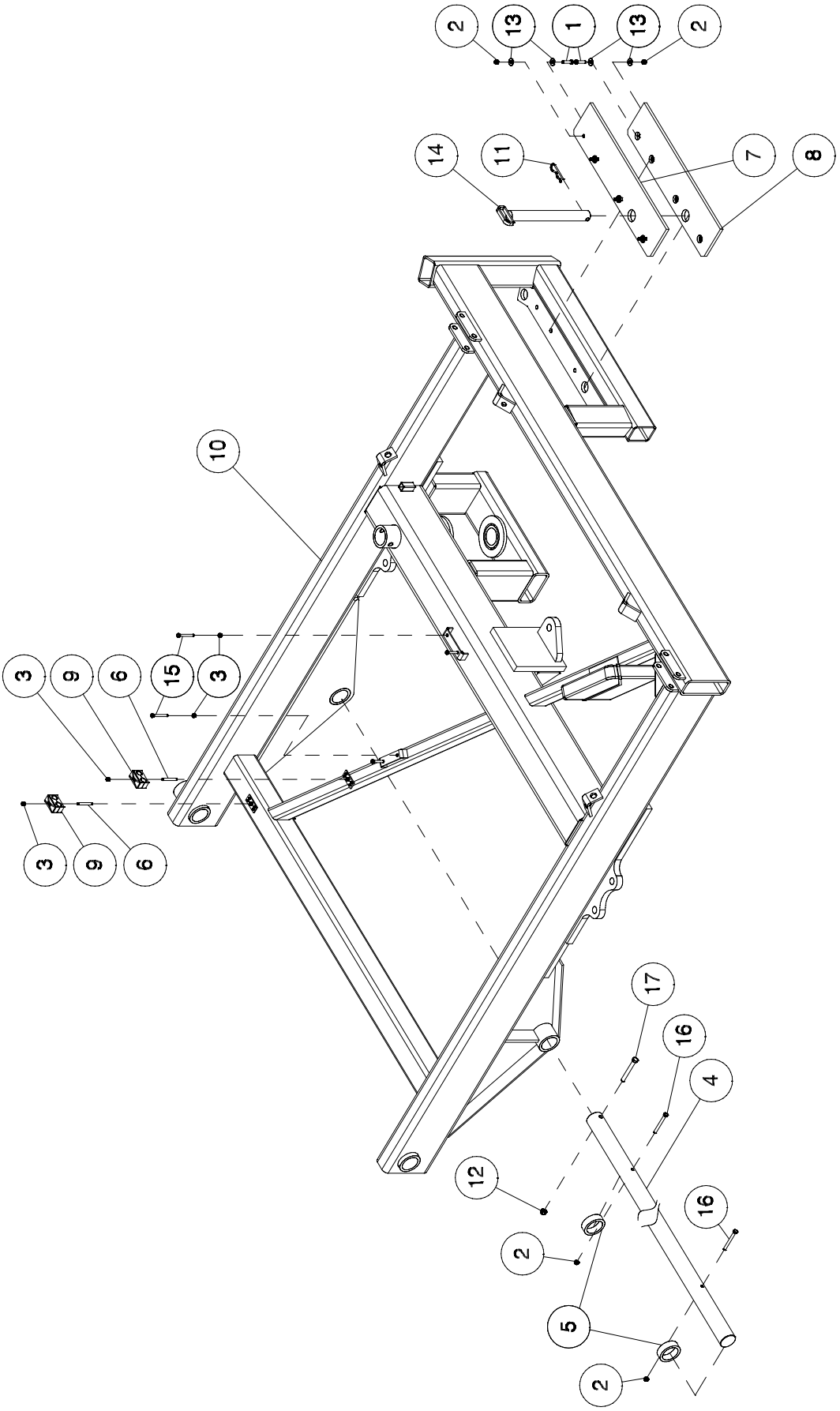
Note:
Bed is shown Upside Down for Clarity.

Bed Assembly

Item	Part No.	Description	Qty
1	10130	Bed Extensions Painted	2
2	10163	Forklift Tooth - 8 x 48	2
3	10229	Locknut - 3/8 Nylon Insert	2
4	10231	Locknut - 5/16 Nylon Insert	6
5	10260	Bed Pivot Shaft	1
6	10414	Snap Lock Pins - 5/16 x 4 UL	2
7	10811	Set Screw - 5/16 x 2 1/2 Lg	4
8	11132	Bracket - SMV Sign	1
9	11740	Plastic Hose Clamp - 13/16	4
10	12290	SR Model Bed Weldment	1
	*10048	SR Model Bed Weldment	1
11	10063	Hex Bolt - 3/8 x 5 Lg GR8	2
12	F-3405	Locknut - 1/2 Nylon Insert	3
13	W-538	Washer - 13/32 ID x 1 OD x 16 Ga	4
14	10233	Locknut - 1/4 Nylon Insert	2
15	N34475	Slow Moving Vehicle Emblem	1
16	S-752	Grease Zerk - 1/4 Straight	4
17	S-1198	Washer - 5/16 ID x 3/4 OD x 0.065	2
18	W-471	Hex Bolt - 5/16 x 1 Lg	2
19	C33957	Bolt Carriage Head - 3/4 x 3 Lg - 2009	2
	10070	Hex Bolt - 1/2 x 1 3/4 Lg GR8 - Prior to 2009	2
20	K25798	Hex Bolt - 1/2 x 4 Lg GR8	1
21	K45683	Fork Retainer Block - 2009	2
	W-539	Flatwasher - 1/2 - Prior to 2009	14
22	W-1552	Hex Bolt - 1/4 x 1 Lg	2
23	12519	Pin - Bed Cylinder - 1 1/2 x 7	4
	*10256	Pin - 1 7/16 x 7	4
24	D-5251	Hex Bolt - 7/16 x 3 Lg	4
25	10302	Locknut - 7/16 Nylon Insert	4
26	W-527	Lockwasher - 3/4	2
27	W-518	Hex Nut - 3/4 GR5	2

* Prior to serial # SR12060881 for the 12SR & SR40600866 for the HD4SR

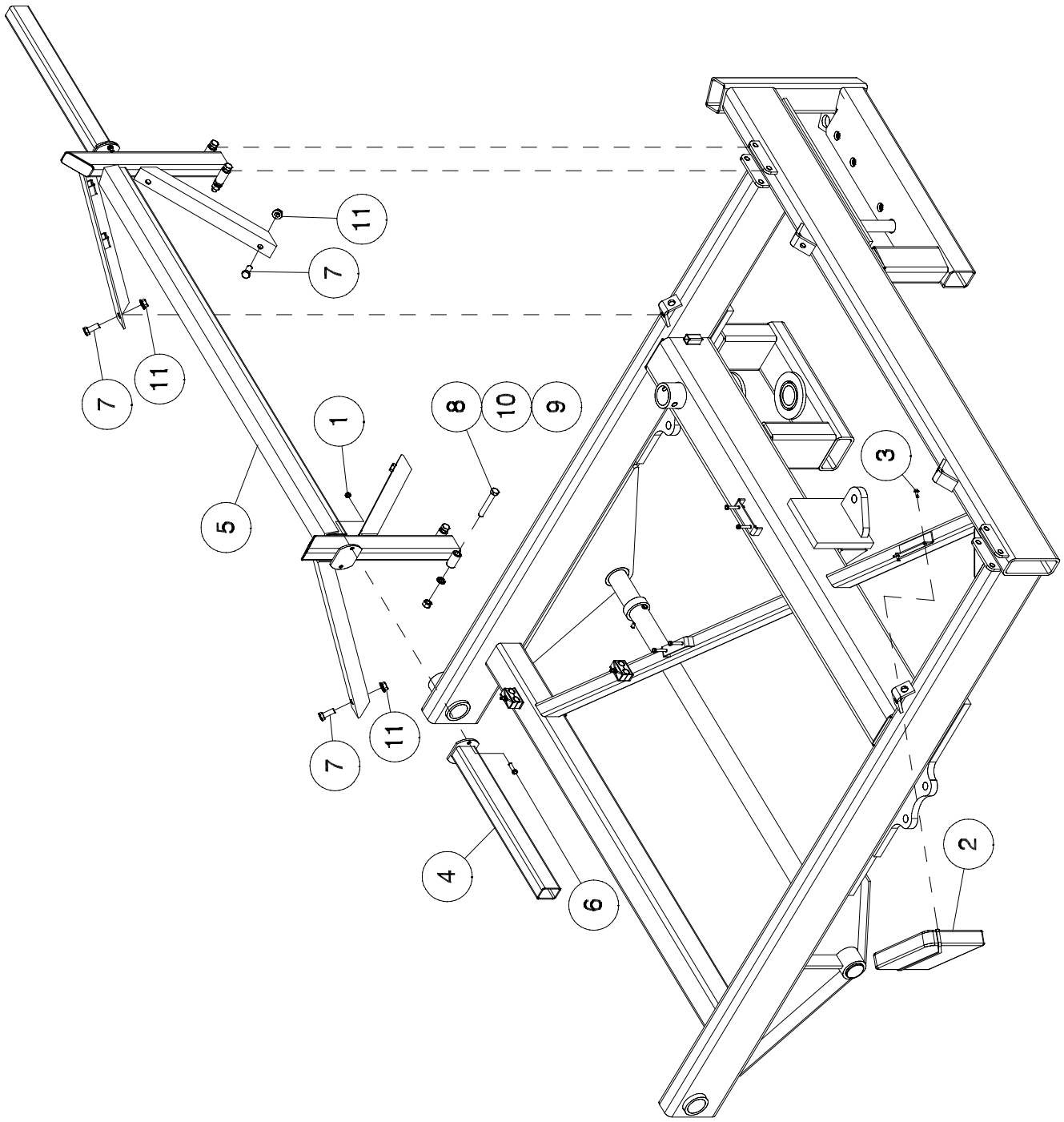
HD4SR and 12SR
Frame Assembly



Frame Assembly

Item	Part No.	Description	Qty
1	W-477	Bolt Hex Head - 3/8 x 1 /12 Lg	8
	*10075	3/8 x 1 1/2 GR 8 Low Allen Head Cap Screw	8
2	10229	Nylon Insert Locknut - 3/8	10
3	10231	Nylon Insert Locknut - 5/16	6
4	10258	Hoist Shaft	1
5	10308	Hoist Spacer - 3 1/4 OD x .375W	2
6	10811	Set Screw - 5/16 x 2 1/2 Lg	2
7	11123	Slider Pad - Upper	1
8	11124	Slider Pad - Lower	1
9	11740	Plastic Hose Clamp Assembly	2
10	12474	Main Frame	1
	*10131	Main Frame Weldment	1
11	BW-11	Hairpin - 3/16	1
12	F-3405	Locknut - 1/2 Nylon Insert	2
13	W-538	Washer - 13/32 ID x 1 OD x 16 Ga	16
14	K42477	Hitch Safety Pin - 1 1/2 x 13 1/2 UL	1
	*10415	Hitch Safety Pin	1
15	S-1302	Hex Bolt - 5/16 x 2 1/2 Lg	4
16	10813	Hex Bolt - 3/8 x 3 1/2 Lg GR8	2
17	K25798	Hex Bolt - 1/2 x 4 Lg GR8	2

* Prior To Serial # SR12060881 For The 12SR & SR40600866 For The HD4SR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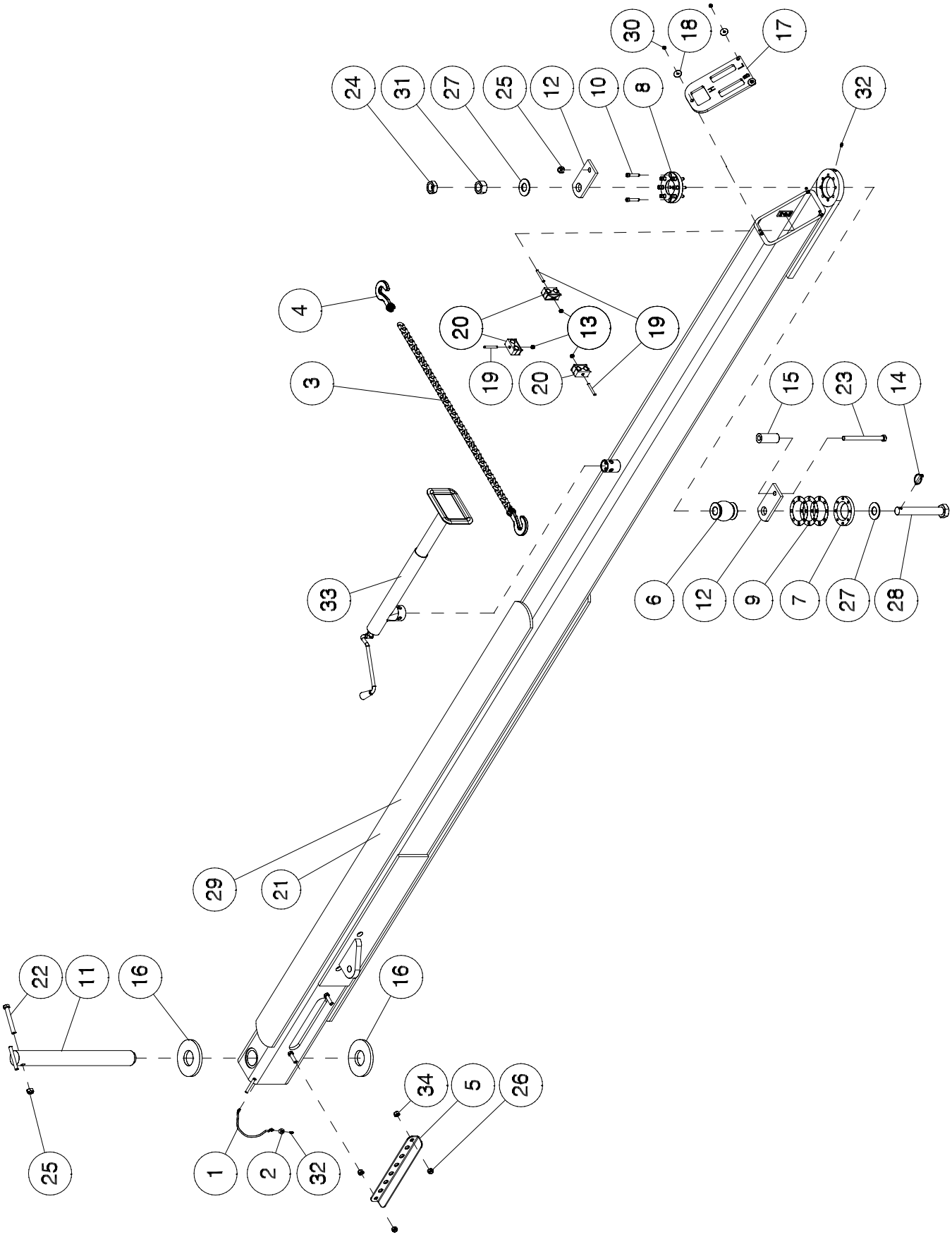
Bed Rest

Item	Part No.	Description	Qty
1	10229	Locknut - 3/8 Nylon Insert	14
2	10295	Manual Box	1
3	10297	Screw - 1/4 - 20 x 3/4	2
4	11129	Light Bar	2
5	K42475	Frame - Bed Rest	1
6	W-477	Hex Bolt - 3/8 x 1 1/2 Lg	4
7	W-497	Hex Bolt - 5/8 x 1 1/2 Lg	4
8	W-504	Hex Bolt - 5/8 x 4 Lg	4
9	W-517	Hex Nut - 5/8	4
10	W-526	Lockwasher - 5/8	4
11	W14434	Locknut - 5/8 Flange	4

HD4SR and 12SR
Hitch Assembly

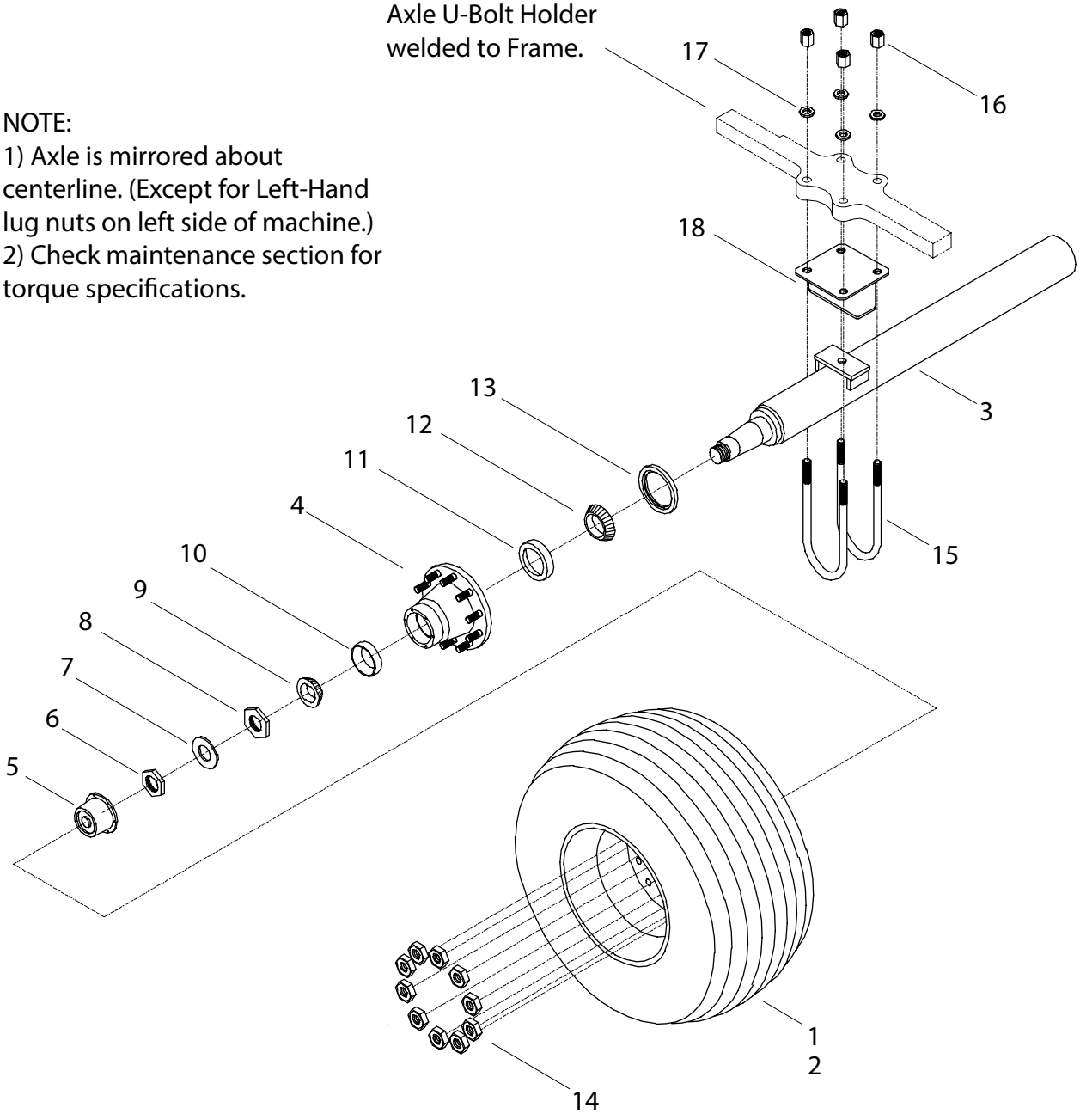


Hitch Assembly

Item	Part No.	Description	Qty
1	10183	Remote Grease Hose - 1/8 x 12	1
2	10227	Grease Hose Jam Nut - 3/8	1
3	10369	Chain - 3/8 x 8 Foot	1
4	10662	3/8 Chain Locking Grab Hook	2
5	10025	Hitch Hose Manifold	1
	*10019	Hitch Hose Manifold	1
6	10049	Hitch Ball	1
7	10050	Ring Hitch Lower	1
8	10051	Ring Hitch Upper	1
9	10052	Ball Hitch Shim	3
10	10069	Allen Head Cap Screw Plain - 3/8 x 2 GR 8	8
11	10129	Pin - Hitch Pivot	1
12	10142	Plate - Draw Bar Hitch	2
13	10231	Locknut - 5/16 Nylon Insert	3
14	10247	Klik Pin W/Chain & Cotter Pin	1
15	10313	Spacer Bushing - 1 1/2 OD x .375W	1
16	10352	Washer - Hitch Pivot	2
17	10354	End Cap - Hitch	1
18	10364	Washer - 9/32 ID x 1 1/4 OD x 16Ga	3
19	10811	Set Screw - 5/16 x 2 1/2 Lg	3
20	11740	Plastic Hose Clamp Assembly	3
21	12529	Hitch Beam	1
	*10199	SR Hitch Painted	1
22	10816	Hex Bolt - 5/8 x 5 Lg GR8	1
23	10066	Hex Bolt - 5/8 x 8 Lg GR8	1
24	C15768	Hex Jam Nut - 1 1/4	1
25	10230	Locknut - 5/8 Nylon Insert	2
26	F-3405	Locknut - 1/2 Nylon Insert	2
27	10682	Washer - 1 5/16 ID x 2 3/4 OD x 8 Ga	2
28	K42469	Hitch Bolt - 1 1/4 x 9 Lg	1
29	K42480	Assembly - Hitch Beam W/Ball Clevis	1
30	10233	Locknut - 1/4 Nylon Insert	3
31	P61D20	Hex Nut - 1 1/4	1
32	S-752	Straight Grease Zerk - 1/4	2
33	S39391	Top Wind Jack - 2000 Lb	1
	10200	SR Jack	1
34	W-516	Hex Nut - 1/2	2

* Prior To Serial # SR12060881 For The 12SR & SR40600866 For The HD4SR

HD4SR - Standard Equipment



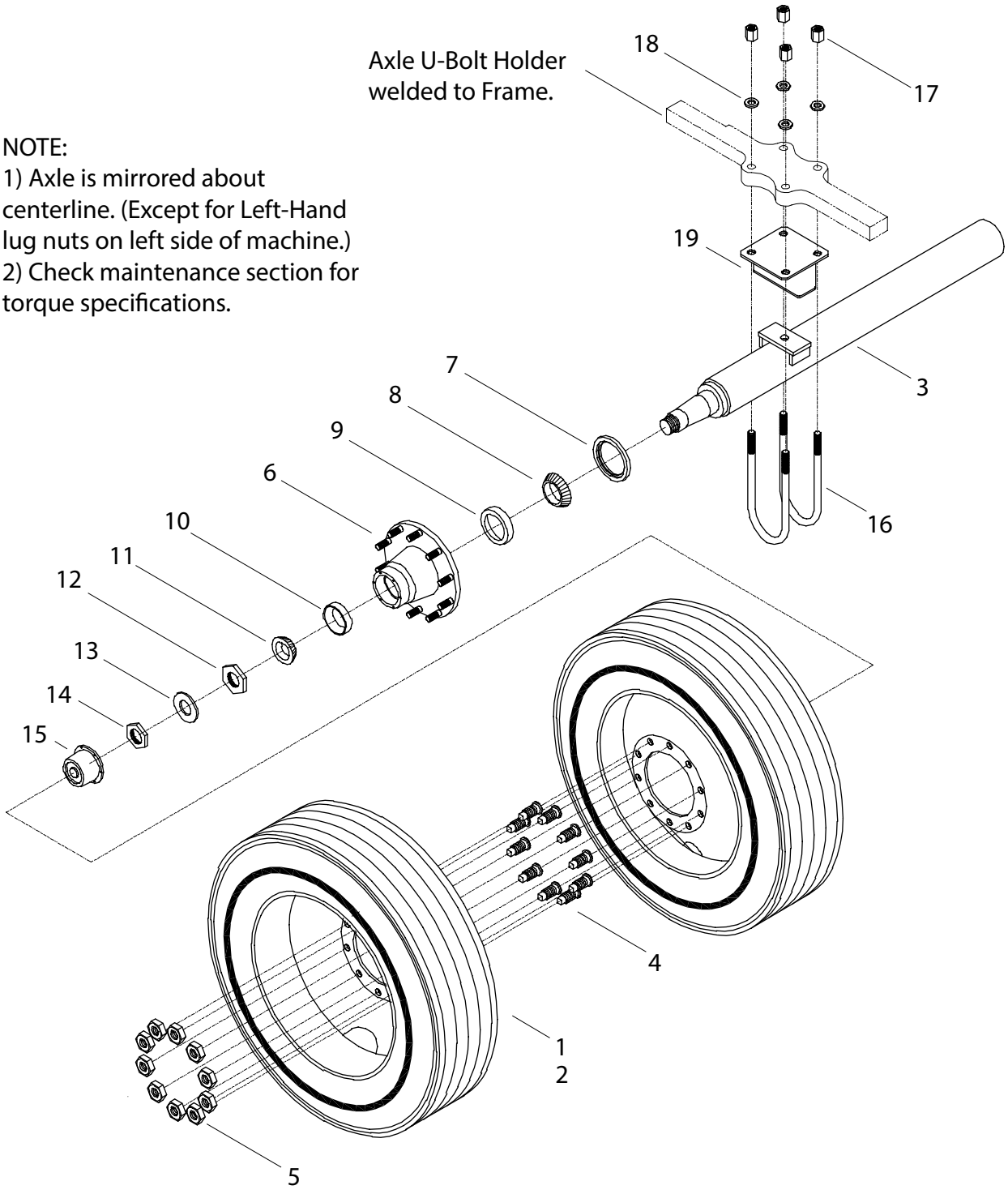
NOTE:
1) Axle is mirrored about centerline. (Except for Left-Hand lug nuts on left side of machine.)
2) Check maintenance section for torque specifications.

Implement Tire and Axle Assembly - Prior to 2015

Item	Part No.	Description	Qty
1	10365	Implement Wheel	2
2	10005	21.5x16.1 18Ply I-1 Ribbed Implement Tire	2
3	10408	Standard Axle Beam - 106 Lg (Includes Items 4, 5, 6, 7, 8, 9, 10, 11, 12 & 13)	1
4	10039	LH 10-Bolt - 8.75 Hub	1
	10783	RH 10-Bolt - 8.75 Hub	1
5	11677	Hub Oil Cap	2
6	10785	Outside Spindle Nut	2
7	10786	Spindle Washer	2
8	10787	Inside Spindle Nut	2
9	10788	Outside Cone Bearing	2
10	10789	Outside Bearing Race	2
11	10790	Inside Bearing Race	2
12	10791	Inside Cone Bearing	2
13	10792	Oil Seal	2
14	10047	RH Single Lug Nut	10
	10046	LH Single Lug Nut	10
15	10077	7/8” x 12” - 5” Round U-Bolt - Plain	4
16	10234	7/8” Heavy Duty High Plain Nut	8
17	10041	7/8” Heavy Duty Washer	8
18	11137	4” Riser Block Painted	2

* Quantities Listed Are For One Machine

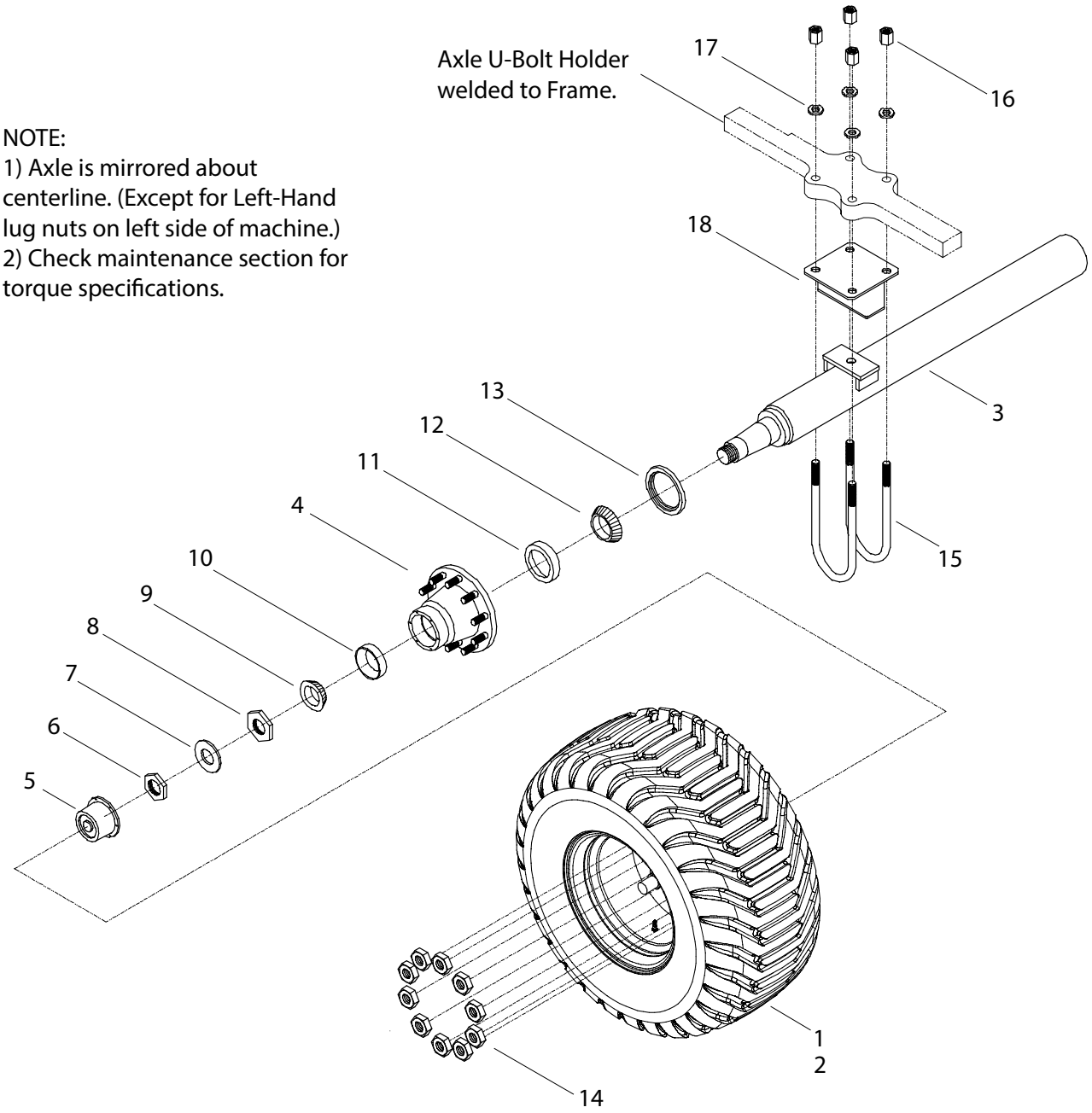
HD4SR - Optional Equipment
12SR - Optional Equipment



Truck Tire and Axle Assembly - Prior to 2015

Item	Part No.	Description	Qty
1	10316	11R-24.5 14-Ply Truck Tire	4
2	10366	SR 24.5 Truck Wheel	4
3	10409	Standard Axle Beam - 105 Lg (Includes Items 6, 7, 8, 9, 10, 11, 12, 13, 14 & 15)	1
4	10043	RH Dual Lug Nut Inner	10
	10042	LH Dual Lug Nut Inner	10
5	10045	RH Dual Lug Nut Outer	10
	10044	LH Dual Lug Nut Outer	10
6	10793	RH 10-Bolt - 11.25 Hub	1
	10794	LH 10-Bolt - 11.25 Hub	1
7	10792	Oil Seal	2
8	10791	Inside Cone Bearing	2
9	10790	Inside Bearing Race	2
10	10789	Outside Bearing Race	2
11	10788	Outside Cone Bearing	2
12	10787	Inside Spindle Nut	2
13	10786	Spindle Washer	2
14	10785	Outside Spindle Nut	2
15	11677	Hub Oil Cap	2
16	10077	7/8 x 12 - 5 Round U-Bolt	4
17	10234	7/8 Heavy Duty High Plain Nut	8
18	10041	7/8 Heavy Duty Washer	8
19	10383	Riser Block - 2 inches High	2
		* Quantities Listed Are For One Machine	

12SR - Standard Equipment
HD4SR - Optional Equipment



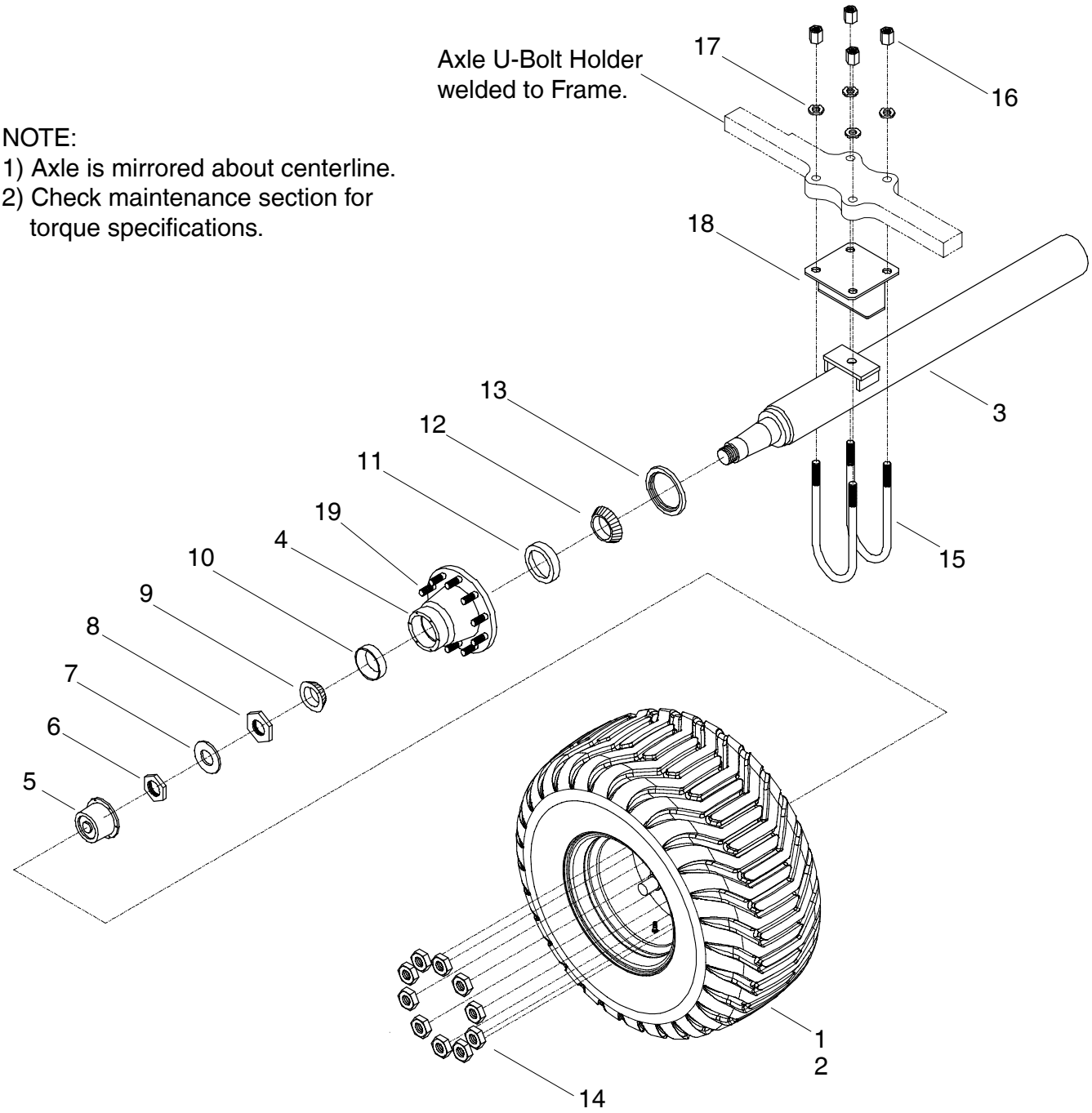
NOTE:
1) Axle is mirrored about centerline. (Except for Left-Hand lug nuts on left side of machine.)
2) Check maintenance section for torque specifications.

Terra Tire and Axle Assembly - Prior to 2015

Item	Part No.	Description	Qty
1	10367	Rim - 20 x 22.5 - 10 Bolt	2
	W-3328	Valve Stem (Not Shown)	
2	10006	600/55-22.5 - 16-Ply Terra Tire	2
3	10409	Standard Axle Beam - 105 Lg (Includes Items 4, 5, 6, 7, 8, 9, 10, 11, 12 & 13)	1
4	10794	LH 10-Bolt - 11.25 Hub	1
	10793	RH 10-Bolt - 11.25 Hub	1
5	11677	Hub Oil Cap	2
6	10785	Outside Spindle Nut	2
7	10786	Spindle Washer	2
8	10787	Inside Spindle Nut	2
9	10788	Outside Cone Bearing	2
10	10789	Outside Bearing Race	2
11	10790	Inside Bearing Race	2
12	10791	Inside Cone Bearing	2
13	10792	Oil Seal	2
14	10047	RH Single Lug Nut	10
	10046	LH Single Lug Nut	10
15	10077	7/8 x 12 - 5 Round U-Bolt - Plain	4
16	10234	7/8 Heavy Duty High Plain Nut	8
17	10041	7/8 Heavy Duty Washer	8
18	10383	Riser Block - 2 inches High	2

* Quantities Listed Are For One Machine

12SR - Standard Equipment - from serial number SR12153114 and on.
HD4SR - Standard Equipment - from SR4151368 to SR4151372 and from serial number SR4151376 and on.

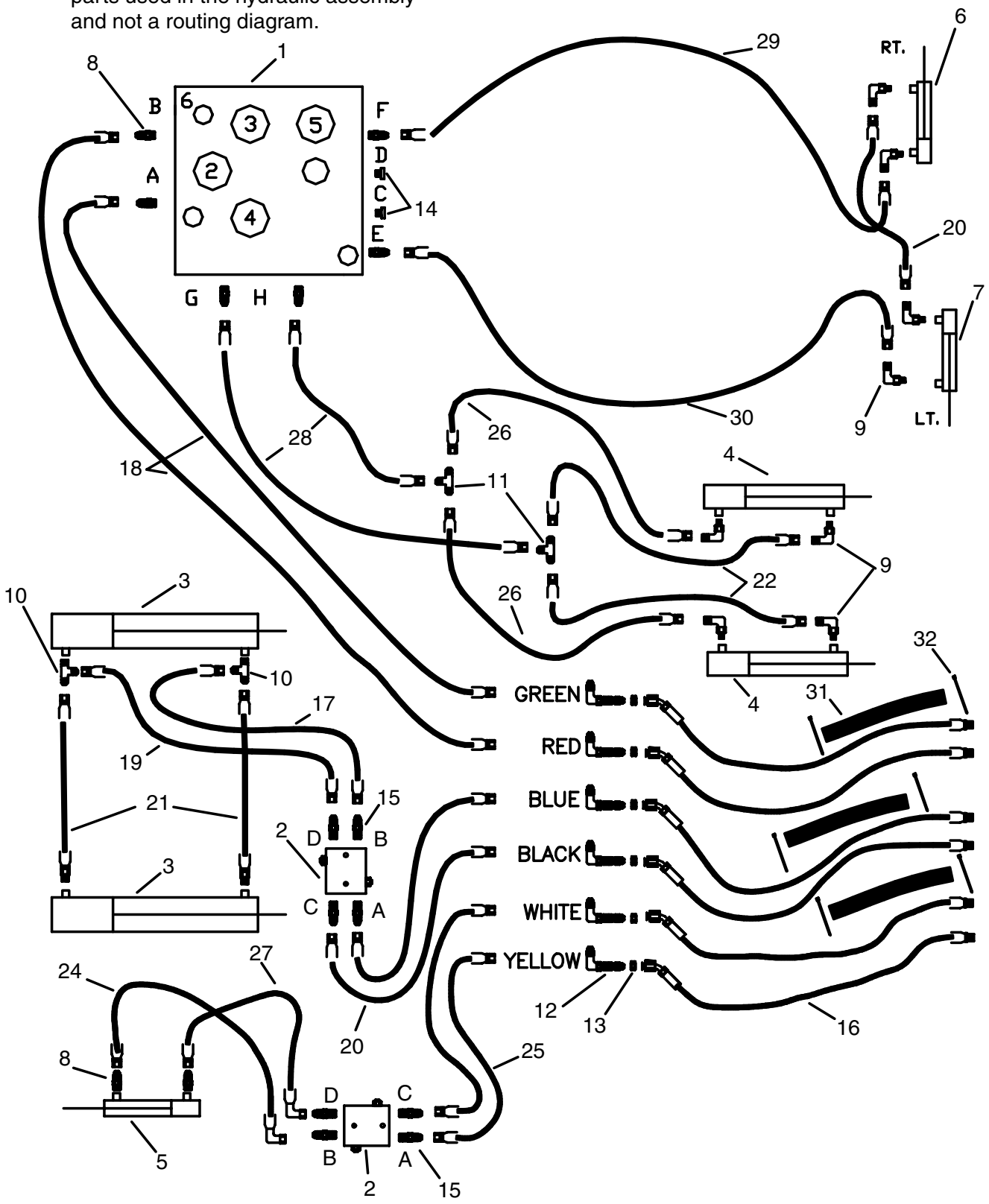


Terra Tire and Axle Assembly - 2015 to Present

Item	Part No.	Description	Qty
1	**K56776**	**Rim - 20 x 22.5 - 10 Bolt**	**2**
	W-3328	Valve Stem (Not Shown)	
2	**K56777**	**Tire - 600/50-22.5 - 16-Ply - TVS Eurogrip**	**2**
3	10409	Standard Axle Beam - 105 Lg (Includes Items 4, 5, 6, 7, 8, 9, 10, 11, 12 & 13)	1
4	**10793**	**RH 10-Bolt - 11.25 Hub (Includes wheel studs)**	**2**
5	11677	Hub Oil Cap	2
6	10785	Outside Spindle Nut	2
7	10786	Spindle Washer	2
8	10787	Inside Spindle Nut	2
9	10788	Outside Cone Bearing	2
10	10789	Outside Bearing Race	2
11	10790	Inside Bearing Race	2
12	10791	Inside Cone Bearing	2
13	10792	Oil Seal	2
14	**10047**	**RH Single Lug Nut**	**20**
15	10077	7/8 x 12 - 5 Round U-Bolt - Plain	4
16	10234	7/8 Heavy Duty High Plain Nut	8
17	10041	7/8 Heavy Duty Washer	8
18	**11137**	**Riser Block - 4 inches High**	**2**
19	**12100**	**RH Wheel Stud - 3/4 x 2-5/8 Lg (Vendor #s WEBB 198510 or EUCLID E4968R)**	**20**

* Quantities Listed Are For One Machine

Note: This is a representation of the parts used in the hydraulic assembly and not a routing diagram.

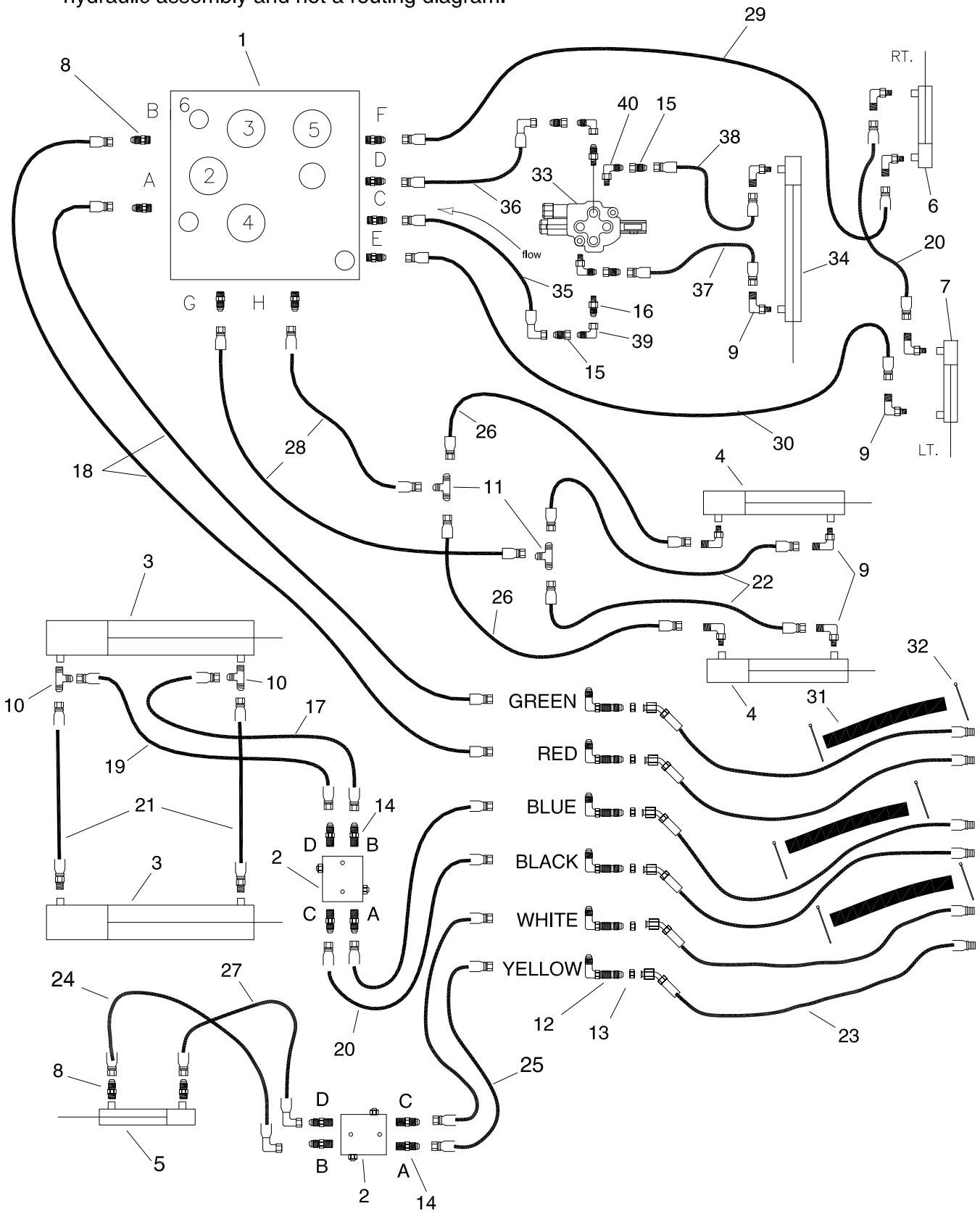


HD4SR Hydraulic Hose Schematic

Item	Part No.	Description	Qty
1	K56756	Manifold Valve	1
	K44257	Manifold Block - D3403C SI	
	K44258	Cavity Plug - #XBOA-XXN - **PORT 2**	
	K44259	Sequence Valve - #SCEA-LAN - **PORT 3**	
	K44260	Counterbalance Valve-#CBEA-LHN - **PORT 4**	
	K44261	Sequence Valve - #RSFC-LAN - **PORT 5**	
	K44262	Check Valve - #CXCD-XZN - **PORT 6**	
2	11723	Cushion Valve - 2000 PSI	2
3	10033	Bed Cylinder	2
4	10032	Loader Cylinder	2
5	12302	Hitch Cylinder	1
6	10035	RH Alignment Cylinder	1
7	10034	LH Alignment Cylinder	1
8	10178	08 JIC To 08 ORB Straight Port Adapter (C15330)	8
9	10180	90 Degree Elbow ORB Adapter	8
10	10187	08 ORB To 08 JIC To 08 JIC Run Tee	2
11	10186	08 JIC To 08 JIC To 08 JIC Union Tee	2
12	10181	08 90 Degree Bulkhead Fitting	6
13	10171	08 Bulkhead Fitting Jam Nut	6
14	10174	08 ORB Port Plug	2
15	10177	08 JIC To 12 ORB Straight Male Adapter	8
16	10168	Hose - 1/2 x 252 Lg - #8 3/4-16 FJIC 45 Degree Swivel x 1/2-14 MNPT	6
17	10083	Hose - 1/2 x 102 Lg - #8 3/4-16 FJIC Swivel	1
18	10086	Hose - 1/2 x 201 Lg - #8 3/4-16 FJIC Swivel	2
19	10675	Hose - 1/2 x 85 Lg - #8 3/4-16 FJIC Swivel	1
20	10865	Hose - 1/2 x 61 Lg - #8 3/4-16 FJIC Swivel	3
21	10085	Hose - 1/2 x 57 Lg - #8 3/4-16 FJIC Swivel x #8 3/4-16 MORB	2
22	10866	Hose - 1/2 x 80 Lg - #8 3/4-16 FJIC Swivel	2
23	* * * * *		
24	10081	Hose - 1/2 x 42 Lg - #8 3/4-16 FJIC Swivel x #8 3/4-16 FJIC 90 Degree Swivel	1
25	10329	Hose - 1/2 x 40 Lg - #8 3/4-16 FJIC Swivel	2
26	10868	Hose - 1/2 x 88 Lg - #8 3/4-16 FJIC Swivel	2
27	10691	Hose - 1/2 x 36 Lg - #8 3/4-16 FJIC Swivel x #8 3/4-16 FJIC 90 Degree Swivel	1
28	10869	Hose - 1/2 x 17 Lg - #8 3/4-16 FJIC Swivel	2
29	10890	Hose - 1/2 x 111 Lg - #8 3/4-16 FJIC Swivel	1
30	10879	Hose - 1/2 x 114 Lg - #8 3/4-16 FJIC Swivel	1
31	10185	Hose Sheathing - 3 ft	3
32	10080	Tie Strap - 11 Lg	6
33	C-817	Male Tip - 1/2 FNPT (Not Shown)	6

For Serial Number - SR12153114 and Up

Note: This is a representation of the parts used in the hydraulic assembly and not a routing diagram.

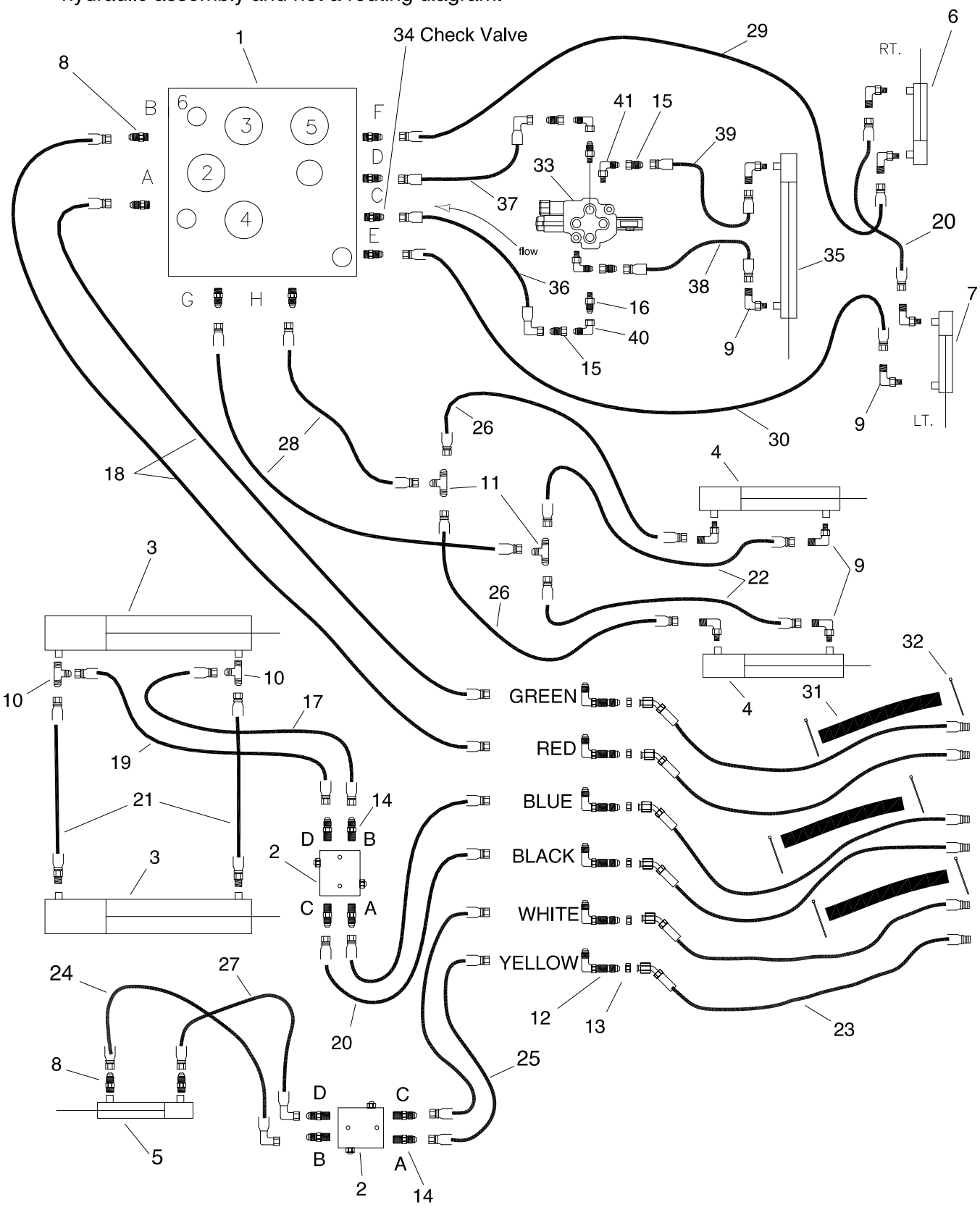


12SR Hydraulic Hose Schematic - 2015 to Present

Item	Part No.	Description	Qty
1	K56756	Manifold Valve	1
	K44257	Manifold Block - D3403C SI	
	K44258	Cavity Plug - #XBOA-XXN - **PORT 2**	
	K44259	Sequence Valve - #SCEA-LAN - **PORT 3**	
	K44260	Counterbalance Valve-#CBEA-LHN - **PORT 4**	
	K44261	Sequence Valve - #RSFC-LAN - **PORT 5**	
	K44262	Check Valve - #CXCD-XZN - **PORT 6**	
2	11723	Cushion Valve - 2000 PSI	2
3	10033	Bed Cylinder	2
4	10032	Loader Cylinder	2
5	12302	Hitch Cylinder 2004	1
6	10035	RH Alignment Cylinder	1
7	10034	LH Alignment Cylinder	1
8	10178	Connector - 08 MJIC To 08 MORB - (C15330)	10
9	10180	90 Degree Elbow - 08 MJIC To 08 MORB (C15317)	10
10	**10187**	**Tee - 08 MORB To 08 MJIC To 08 MJIC**	**2**
11	10186	Tee - 08 MJIC To 08 MJIC To 08 MJIC (D10819)	2
12	10181	90 Degree Bulkhead Fitting - 08	6
13	10171	Bulkhead Fitting Jam Nut - 08	6
14	10177	Connector - 08 MJIC To 12 MORB	8
15	N37876	Connector - 3/4-16 (#08) MJIC x 9/16-18 (#06) FJIC	4
16	N29358	Connector - 9/16-18 (#06) MJIC x 9/16-18 (#06) MORB	2
17	10083	Hose - 1/2 x 102 Lg - #8 3/4-16 FJIC Swivel	1
18	10086	Hose - 1/2 x 201 Lg - #8 3/4-16 FJIC Swivel	2
19	10675	Hose - 1/2 x 85 Lg - #8 3/4-16 FJIC Swivel	1
20	10865	Hose - 1/2 x 61 Lg - #8 3/4-16 FJIC Swivel	3
21	10085	Hose - 1/2 x 57 Lg - #8 3/4-16 FJIC Swivel x #8 3/4-16 MORB	2
22	10866	Hose - 1/2 x 80 Lg - #8 3/4-16 FJIC Swivel	2
23	10168	Hose - 1/2 x 252 Lg - #8 3/4-16 FJIC 45 Degree Swivel x 1/2-14 MNPT	6
24	10081	Hose - 1/2 x 42 Lg - #8 3/4-16 FJIC Swivel x #8 3/4-16 FJIC 90 Degree Swivel	1
25	10329	Hose - 1/2 x 40 Lg - #8 3/4-16 FJIC Swivel	2
26	10868	Hose - 1/2 x 88 Lg - #8 3/4-16 FJIC Swivel	2
27	10691	Hose - 1/2 x 36 Lg - #8 3/4-16 FJIC Swivel x #8 3/4-16 FJIC 90 Degree Swivel	1
28	10869	Hose - 1/2 x 17 Lg - #8 3/4-16 FJIC Swivel	2
29	10890	Hose - 1/2 x 111 Lg - #8 3/4-16 FJIC Swivel	1
30	10879	Hose - 1/2 x 114 Lg - #8 3/4-16 FJIC Swivel	1
31	10185	Hose Sheathing - 3 ft	3
32	10080	Zip-Tie - 11 Lg	6
33	K53973	Directional Control Valve - Grab Hook	1
34	12166	Grab Hook Cylinder 03	1
35	10874	Hose - 1/2 x 48 Lg - #8 3/4-16 FJIC Swivel x #8 3/4-16 FJIC 90 Degree Swivel	1
36	12244	Hose - 1/2 x 51 Lg - #8 3/4-16 FJIC Swivel x #8 3/4-16 FJIC 90 Degree Swivel	1
37	10863	Hose - 1/2 x 35 Lg - #8 3/4-16 FJIC Swivel	1
38	10329	Hose - 1/2 x 40 Lg - #8 3/4-16 FJIC Swivel	1
39	S29967	90 Elbow - Swivel - 9/16-18 (#06) FJIC x 9/16-18 (#06) MJIC	2
40	N16143	90 Elbow - 9/16-18 (#06) MJIC x 9/16-18 (#06) MORB	2
41	C-817	Male Tip - 1/2 FNPT (Not Shown)	6

For Serial Number - SR12143100 to SR12153113

Note: This is a representation of the parts used in the hydraulic assembly and not a routing diagram.

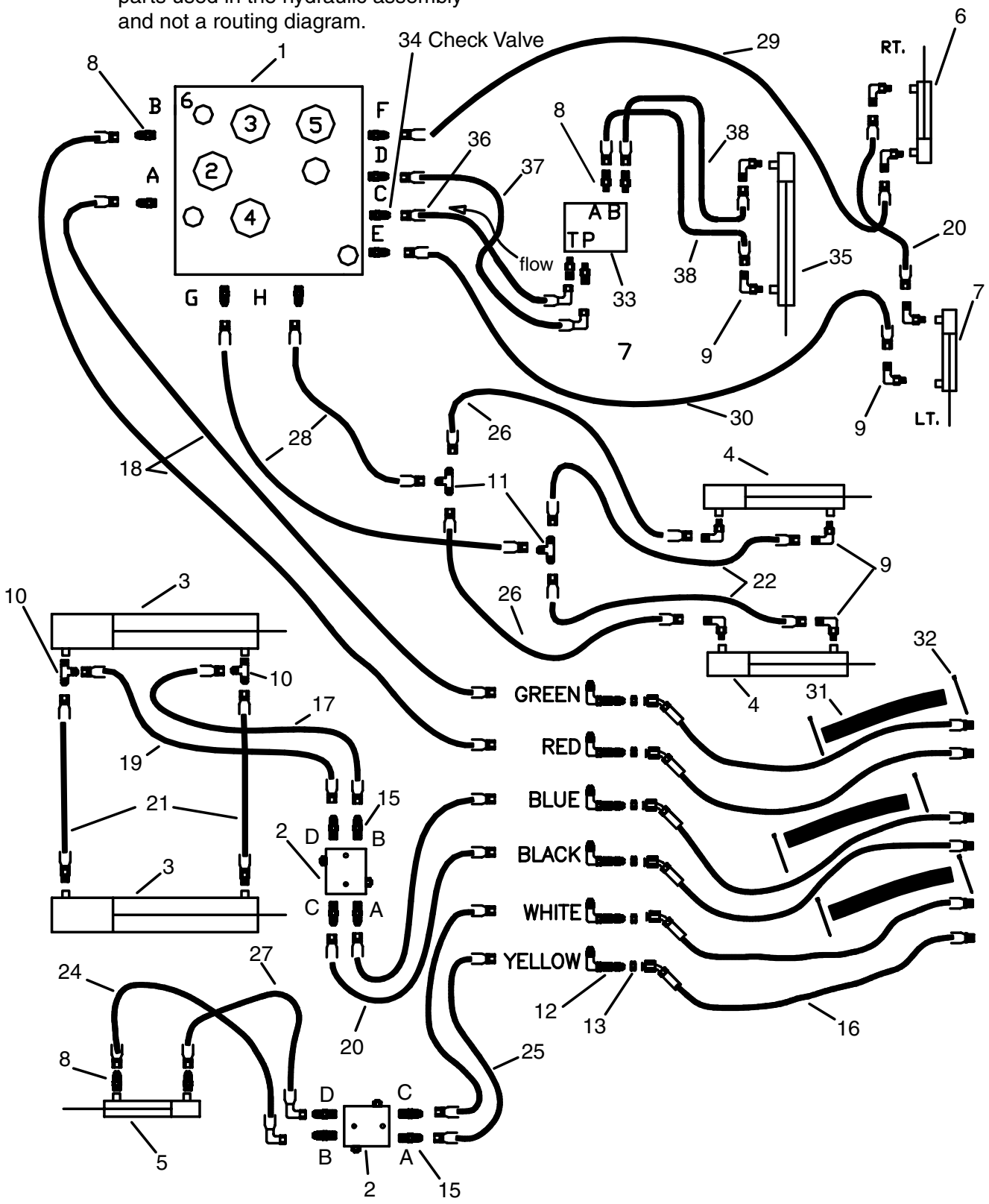


12SR Hydraulic Hose Schematic - - 2014 to 2015

Item	Part No.	Description	Qty
1	10222	Manifold Valve	1
	K44257	Manifold Block - D3403C SI	
	K44258	Cavity Plug - #XBOA-XXN - **PORT 2**	
	K44259	Sequence Valve - #SCEA-LAN - **PORT 3**	
	K44260	Counterbalance Valve-#CBEA-LHN - **PORT 4**	
	K44261	Sequence Valve - #RSFC-LAN - **PORT 5**	
	K44262	Check Valve - #CXCD-XZN - **PORT 6**	
2	11723	Cushion Valve - 2000 PSI	2
3	10033	Bed Cylinder	2
4	10032	Loader Cylinder	2
5	12302	Hitch Cylinder 2004	1
6	10035	RH Alignment Cylinder	1
7	10034	LH Alignment Cylinder	1
8	**10178**	**08 JIC To 08 ORB Straight Port Adapter** (C15330)	**8**
9	10180	90 Degree Elbow ORB Adapter	10
10	10187	08 ORB To 08 JIC To 08 JIC Run Tee	2
11	10186	08 JIC To 08 JIC To 08 JIC Union Tee	2
12	10181	08 90 Degree Bulkhead Fitting	6
13	10171	08 Bulkhead Fitting Jam Nut	6
14	10177	08 JIC To 12 ORB Straight Male Adapter	8
15	**N37876**	**Connector - 3/4-16 (#08) MJIC x 9/16-18 (#06) FJIC**	**4**
16	**N29358**	**Connector - 9/16-18 (#06) MJIC x 9/16-18 (#06) MORB**	**2**
17	10083	Hose - 1/2 x 102 Lg - #8 3/4-16 FJIC Swivel	1
18	10086	Hose - 1/2 x 201 Lg - #8 3/4-16 FJIC Swivel	2
19	10675	Hose - 1/2 x 85 Lg - #8 3/4-16 FJIC Swivel	1
20	10865	Hose - 1/2 x 61 Lg - #8 3/4-16 FJIC Swivel	3
21	10085	Hose - 1/2 x 57 Lg - #8 3/4-16 FJIC Swivel x #8 3/4-16 MORB	2
22	10866	Hose - 1/2 x 80 Lg - #8 3/4-16 FJIC Swivel	2
23	10168	Hose - 1/2 x 252 Lg - #8 3/4-16 FJIC 45 Degree Swivel x 1/2-14 MNPT	6
24	10081	Hose - 1/2 x 42 Lg - #8 3/4-16 FJIC Swivel x #8 3/4-16 FJIC 90 Degree Swivel	1
25	10329	Hose - 1/2 x 40 Lg - #8 3/4-16 FJIC Swivel	2
26	10868	Hose - 1/2 x 88 Lg - #8 3/4-16 FJIC Swivel	2
27	10691	Hose - 1/2 x 36 Lg - #8 3/4-16 FJIC Swivel x #8 3/4-16 FJIC 90 Degree Swivel	1
28	10869	Hose - 1/2 x 17 Lg - #8 3/4-16 FJIC Swivel	2
29	10890	Hose - 1/2 x 111 Lg - #8 3/4-16 FJIC Swivel	1
30	10879	Hose - 1/2 x 114 Lg - #8 3/4-16 FJIC Swivel	1
31	10185	Hose Sheathing - 3 ft	3
32	10080	Zip-Tie - 11 Lg	6
33	**K53973**	**Directional Control Valve - Grab Hook**	**1**
34	10854	Check Valve Adapter 5 PSI	1
35	12166	Grab Hook Cylinder 03	1
36	10874	Hose - 1/2 x 48 Lg - #8 3/4-16 FJIC Swivel x #8 3/4-16 FJIC 90 Degree Swivel	1
37	12244	Hose - 1/2 x 51 Lg - #8 3/4-16 FJIC Swivel x #8 3/4-16 FJIC 90 Degree Swivel	1
38	10863	Hose - 1/2 x 35 Lg - #8 3/4-16 FJIC Swivel	2
39	C-817	Male Tip - 1/2 FNPT (Not Shown)	6
40	**S29967**	**90 Elbow - Swivel - 9/16-18 (#06) FJIC x 9/16-18 (#06) MJIC**	**2**
41	**N16143**	**90 Elbow - 9/16-18 (#06) MJIC x 9/16-18 (#06) MORB**	**2**

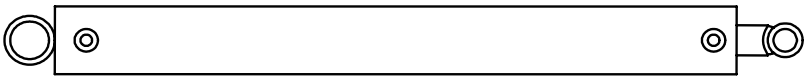
For Serial Numbers - Prior to SR12143105

Note: This is a representation of the parts used in the hydraulic assembly and not a routing diagram.

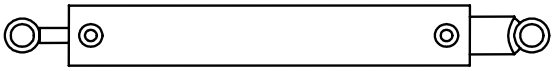


12SR Hydraulic Hose Schematic - 2004 to 2014

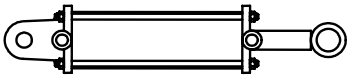
Item	Part No.	Description	Qty
1	10222	Manifold Valve	1
	K44257	Manifold Block - D3403C SI	
	K44258	Cavity Plug - #XBOA-XXN - **PORT 2**	
	K44259	Sequence Valve - #SCEA-LAN - **PORT 3**	
	K44260	Counterbalance Valve-#CBEA-LHN - **PORT 4**	
	K44261	Sequence Valve - #RSFC-LAN - **PORT 5**	
	K44262	Check Valve - #CXCD-XZN - **PORT 6**	
2	11723	Cushion Valve - 2000 PSI	2
3	10033	Bed Cylinder	2
4	10032	Loader Cylinder	2
5	12302	Hitch Cylinder 2004	1
6	10035	RH Alignment Cylinder	1
7	10034	LH Alignment Cylinder	1
8	10178	08 JIC To 08 ORB Straight Port Adapter (C15330)	12
9	10180	90 Degree Elbow ORB Adapter	10
10	10187	08 ORB To 08 JIC To 08 JIC Run Tee	2
11	10186	08 JIC To 08 JIC To 08 JIC Union Tee	2
12	10181	08 90 Degree Bulkhead Fitting	6
13	10171	08 Bulkhead Fitting Jam Nut	6
14	* * * * *		
15	10177	08 JIC To 12 ORB Straight Male Adapter	8
16	10168	Hose - 1/2 x 252 Lg - #8 3/4-16 FJIC 45 Degree Swivel x 1/2-14 MNPT	6
17	10083	Hose - 1/2 x 102 Lg - #8 3/4-16 FJIC Swivel	1
18	10086	Hose - 1/2 x 201 Lg - #8 3/4-16 FJIC Swivel	2
19	10675	Hose - 1/2 x 85 Lg - #8 3/4-16 FJIC Swivel	1
20	10865	Hose - 1/2 x 61 Lg - #8 3/4-16 FJIC Swivel	3
21	10085	Hose - 1/2 x 57 Lg - #8 3/4-16 FJIC Swivel x #8 3/4-16 MORB	2
22	10866	Hose - 1/2 x 80 Lg - #8 3/4-16 FJIC Swivel	2
23	* * * * *		
24	10081	Hose - 1/2 x 42 Lg - #8 3/4-16 FJIC Swivel x #8 3/4-16 FJIC 90 Degree Swivel	1
25	10329	Hose - 1/2 x 40 Lg - #8 3/4-16 FJIC Swivel	2
26	10868	Hose - 1/2 x 88 Lg - #8 3/4-16 FJIC Swivel	2
27	10691	Hose - 1/2 x 36 Lg - #8 3/4-16 FJIC Swivel x #8 3/4-16 FJIC 90 Degree Swivel	1
28	10869	Hose - 1/2 x 17 Lg - #8 3/4-16 FJIC Swivel	2
29	10890	Hose - 1/2 x 111 Lg - #8 3/4-16 FJIC Swivel	1
30	10879	Hose - 1/2 x 114 Lg - #8 3/4-16 FJIC Swivel	1
31	10185	Hose Sheathing - 3 ft	3
32	10080	Zip-Tie - 11 Lg	6
33	10397	Grab Hook Valve	1
34	10854	Check Valve Adapter 5 PSI	1
35	12166	Grab Hook Cylinder 03	1
36	10874	Hose - 1/2 x 48 Lg - #8 3/4-16 FJIC Swivel x #8 3/4-16 FJIC 90 Degree Swivel	1
37	12244	Hose - 1/2 x 51 Lg - #8 3/4-16 FJIC Swivel x #8 3/4-16 FJIC 90 Degree Swivel	1
38	10863	Hose - 1/2 x 35 Lg - #8 3/4-16 FJIC Swivel	2
39	C-817	Male Tip - 1/2 FNPT (Not Shown)	6



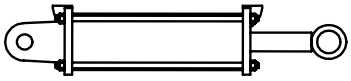
Name: Bed Cylinder — Part # 10033
Type: Welded — Length: 48 3/4"
Bore X Stroke: 4" X 36"
Packing Kit # PMCK-AR-704
Seal Kit # 10990



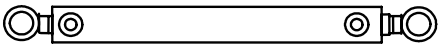
Name: Loader Cylinder — Part # 10032
Type: Welded — Length: 32 7/8"
Bore X Stroke: 3 1/2 " X 20"
Packing Kit # PMCK-AR-703
Seal Kit # 10989



Name: Left Algnmnt Cyl. — Part # 10034
Type: Tie-Rod — Length: 19 5/8"
Bore X Stroke: 3 1/4 " X 8"
Packing Kit # PMCK-AR-705
Seal Kit # 10991

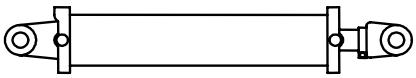


Name: Right Algnmnt Cyl. — Part # 10035
Type: Tie-Rod — Length: 19 5/8"
Bore X Stroke: 3 1/2 " X 8"
Packing Kit # PMCK-AR-706
Seal Kit # 10992



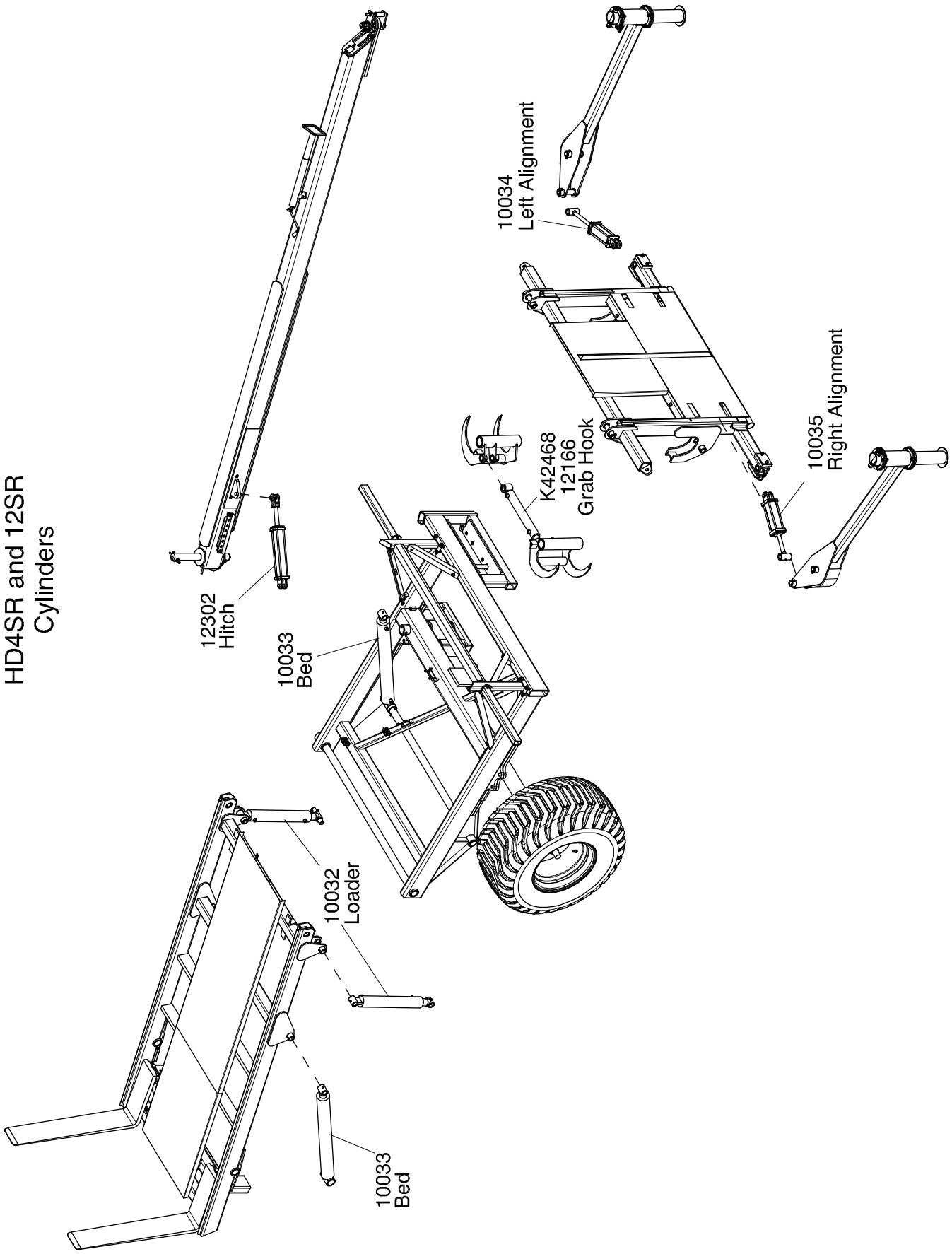
Name: Grab Hook Cyl.
Type: Welded
Bore X Stroke: 2 1/2 " X 16"
Packing Kit # PMCK-AR-707
Seal Kit # 10993

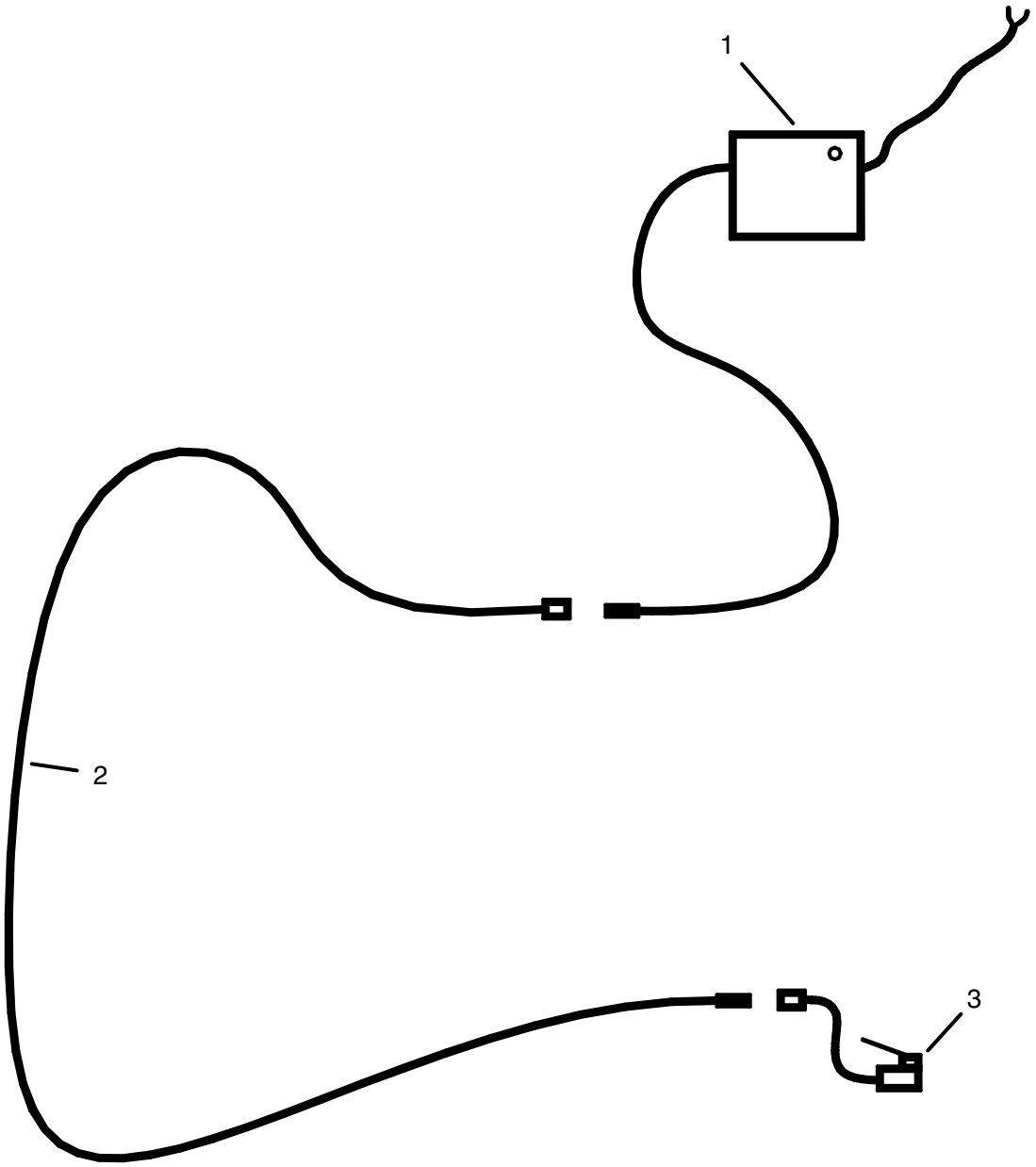
Part # 12166 - 2002 to present
Part # 10036 - 2001
Part # 10032 - 1998 to 2000
Length: 26 3/4"



Name: Hitch Cylinder
Type: Tie-Rod
Bore X Stroke: 3 " X 14"
Packing Kit # 12459 / PMCK-SAE-9200 (HD4SR)
Seal Kit # 10988

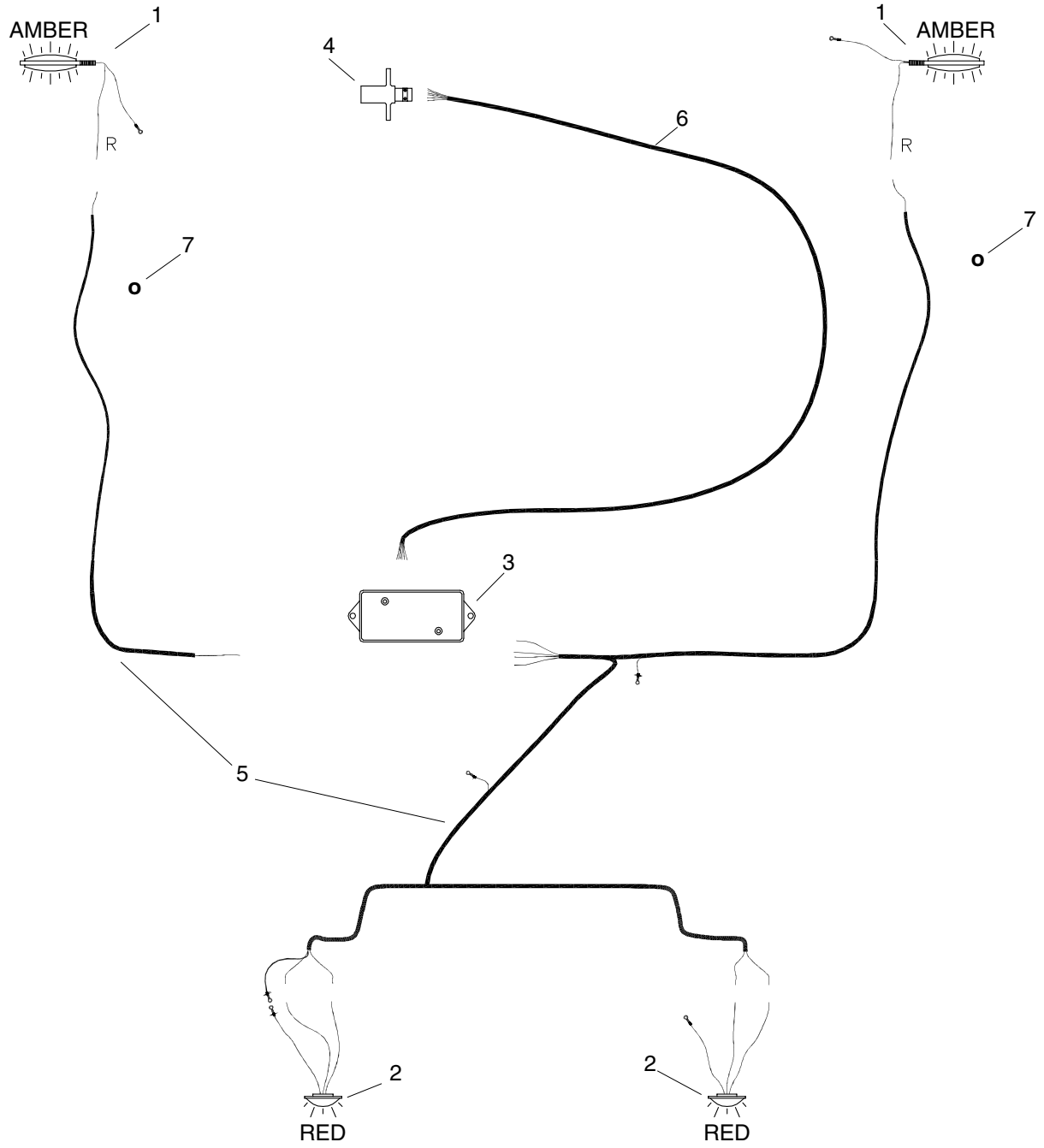
Part # 12302 - 2004 to present
Part # 10271 - 1998 to 2003
Length: 24 1/4"


HD4SR and 12SR
Cylinders
12302
Hitch
10033
Bed
10034
Left Alignment
K42468
12166
Grab Hook
10035
Right Alignment
10032
Loader
10033
Bed



Item	Part No.	Description	Qty
1	K58936	Warning Light Complete - 2015 to Present	1
	10417	Warning Light Complete - Prior to 2015	
2	K58934	Micro Wire - 24 ft Lg - 2015 to Present	1
	10778	Micro Wire - 24 ft Lg - Prior to 2015	
3	K58933	Offset Micro Switch - 2015 to Present	1
	10777	Offset Micro Switch - Prior to 2015	
	K58908	Fuse - 1/10A 250V Fast Acting	

HD4SR and 12SR
Electrical Assembly



Item	Part No.	Description	Qty
1	11155	2 Way Amber Lights	2
2	10930	Recessed Red Lights	2
3	10897	7 Wire Junction Box	1
4	C32690	7 Pole Plug Connector	1
5	11545	SR Wiring Harness	1
6	10896	Hitch Wire Harness - 324 Lg (Includes item 4)	1
7	12039	Grommet	2

Notes

Index

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Printed in Canada

June 2015