NEW LEADER®

MODEL TR1000 TRAILER FOR JOHN DEERE DRY NUTRIENT APPLICATOR

THIS MANUAL TO ACCOMPANY EQUIPMENT AT ALL TIMES. READ MANUAL IN ITS ENTIRETY AND FULLY UNDERSTAND EQUIPMENT BEFORE INSTALLING, MAINTAINING OR USE.

UNIT SERIAL NUMBER _____

MANUAL NUMBER: 309337-C

EFFECTIVE 11/2015

Hi-Way NEW LEADER®

Highway Equipment Company

Building the best since 1939.

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INSERT CURRENT NEW LEADER WARRANTY

PREFACE

PLEASE ! ALWAYS THINK SAFETY FIRST !!

The purpose of this manual is to familiarize the person (or persons) using this unit with the information necessary to properly install, operate, and maintain this system. The safety instructions indicated by the safety alert symbol in the following pages supersede the general safety rules. These instructions cannot replace the following: the fundamental knowledge that must be possessed by the installer or operator, the knowledge of a qualified person, or the clear thinking necessary to install and operate this equipment. Since the life of any machine depends largely upon the care it is given, we suggest that this manual be read thoroughly and referred to frequently. If for any reason you do not understand the instructions, please call your authorized dealer or our Product Sales and Support Department at 1-888-363-8006.

It has been our experience that by following these installation instructions, and by observing the operation of the spreader, you will have sufficient understanding of the machine enabling you to troubleshoot and correct all normal problems that you may encounter. Again, we urge you to call your authorized dealer or our Product Sales and Support Department if you find the unit is not operating properly, or if you are having trouble with repairs, installation, or removal of this unit.

We urge you to protect your investment by using genuine HECO parts and our authorized dealers for all work other than routine care and adjustments.

Highway Equipment Company reserves the right to make alterations or modifications to this equipment at any time. The manufacturer shall not be obligated to make such changes to machines already in the field.

This Safety Section should be read thoroughly and referred to frequently.

ACCIDENTS HURT !!!

ACCIDENTS COST !!!

ACCIDENTS CAN BE AVOIDED !!!

TAKE NOTE! THIS SAFETY ALERT SYMBOL FOUND THROUGHOUT THIS MANUAL IS USED TO CALL YOUR ATTENTION TO INSTRUCTIONS INVOLVING YOUR PERSONAL SAFETY AND THAT OF OTHERS. FAILURE TO FOLLOW THESE INSTRUCTIONS CAN RESULT IN INJURY OR DEATH.

In this manual and on the safety signs placed on the unit, the words “DANGER,” “WARNING,” “CAUTION,” and “NOTICE” are used to indicate the following:

DANGER	Indicates an imminently hazardous situation that, if not avoided, WILL result in death or serious injury. This signal word is to be limited to the most extreme situations and typically for machine components that, for functional purposes, cannot be guarded.
WARNING	Indicates a potentially hazardous situation that, if not avoided, COULD result in death or serious injury, and includes hazards that are exposed when guards are removed. It may also be used to alert against unsafe practices.
CAUTION	Indicates a potentially hazardous situation that, if not avoided, MAY result in minor or moderate injury. It may also be used to alert against unsafe practices.
NOTICE!	Is used for informational purposes in areas which may involve damage or deterioration to equipment but generally would not involve the potential for personal injury.
NOTE:	Provides additional information to simplify a procedure or clarify a process.

The need for safety cannot be stressed strongly enough in this manual. At Highway Equipment Company, we urge you to make safety your top priority when operating any equipment. We firmly advise that anyone allowed to operate this machine be thoroughly trained and tested, to prove they understand the fundamentals of safe operation.

The following guidelines are intended to cover general usage and to assist you in avoiding accidents. There will be times when you will run into situations that are not covered in this section. At those times the best standard to use is common sense. If, at any time, you have a question concerning these guidelines, please call your authorized dealer or our factory at (319) 363-8281.

MAINTENANCE INSTRUCTIONS

1. Keep safety decals and signs clean and legible at all times.

2. Replace safety decals and signs that are missing or have become illegible.

3. Replaced parts that displayed a safety sign should also display the current sign.

4. Safety decals or signs are available from your dealer's Parts Department or our Cedar Rapids factory.

INSTALLATION INSTRUCTIONS

1. Clean Surface
   Wash the installation surface with a synthetic, free-rinsing detergent. Avoid washing the surface with a soap containing creams or lotion. Allow to dry.

2. Position Safety Decal
   Decide on the exact position before application. Application marks may be made on the top or side edge of the substrate with a lead pencil, marking pen, or small pieces of masking tape. NOTE: Do not use chalk line, china marker, or grease pencil. Safety decals will not adhere to these.

3. Remove the Liner
   A small bend at the corner or edge will cause the liner to separate from the decal. Pull the liner away in a continuous motion at a 180-degree angle. If the liner is scored, bend at score and remove.

4. Apply Safety Decal
   a. Tack decal in place with thumb pressure in upper corners.
   b. Using firm initial squeegee pressure, begin at the center of the decal and work outward in all directions with overlapping strokes. NOTE: Keep squeegee blade even—nicked edges will leave application bubbles.
   c. Pull up tack points before squeegeeing over them to avoid wrinkles.

5. Remove Pre-mask
   If safety decal has a pre-mask cover remove it at this time by pulling it away from the decal at a 180 degree angle. NOTE: It is important that the pre-mask covering is removed before the decal is exposed to sunlight to avoid the pre-mask from permanently adhering to the decal.

6. Remove Air Pockets
   Inspect the decal in the flat areas for bubbles. To eliminate the bubbles, puncture the decal at one end of the bubble with a pin (never a razor blade) and press out entrapped air with thumb moving toward the puncture.

7. Re-Squeegee All Edges.

SAFETY

⚠ CAUTION

DO NOT EXCEED GOVERNMENT WEIGHT RESTRICTIONS

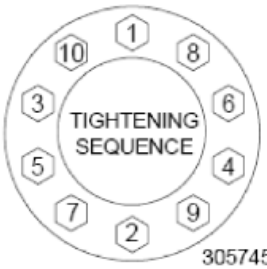
Consult federal, state and local laws to ensure the gross weight on any one axle of a vehicle, or of a combination of vehicles, operated on the highways, does not exceed government weight restrictions.

305298-R

NOTICE

Repeat the following procedure on 22 mm wheel studs each time wheel is replaced:

1. Snug each wheel bolt to 68 N-m (50 lb-ft).
2. Torque each wheel bolt to 610-678 N-m (450-500 lb-ft).
3. Retorque after 10 hours of operation.



305745-C

⚠ CAUTION

TOWING REQUIREMENTS

Tow only with tractors equipped with CAT III/IV hitch and brakes. Towing with light or medium duty trucks may result in loss of control, causing damage or injury.

309329-A

⚠ CAUTION

TIPPING HAZARD

To Avoid Injury or Machine Damage:

Make sure material is not concentrated at the rear of the machine before unhitching. Material at the rear of the machine may cause the trailer hitch to tip upward.

305289-A

⚠ CAUTION

BRAKING SYSTEM REQUIREMENTS

Per ANSI/ASAE S365.8 MAY2007:

Do not tow equipment that has brakes
- at speeds over 32 mph (50km/h); or
- at speeds above that recommended by the manufacturer; or
- that, when fully loaded, has a weight more than 4.5 times the weight of the towing unit.

Do not tow equipment that does not have brakes
- at speeds over 20 mph (32km/h); or
- at speeds above that recommended by the manufacturer; or
- that, when fully loaded, has a weight over 3300 lbs (1496kg) and more than 1.5 times the weight of the towing unit.

Consult federal, state and local laws to ensure all weight restrictions are observed.

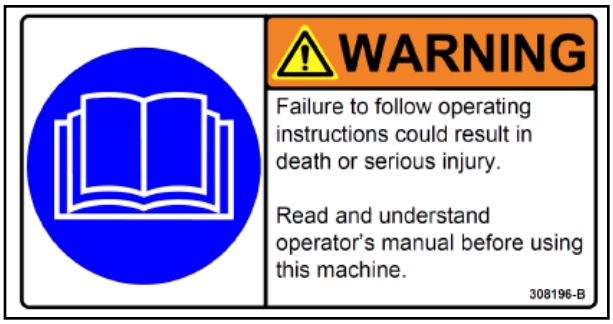
305281-B

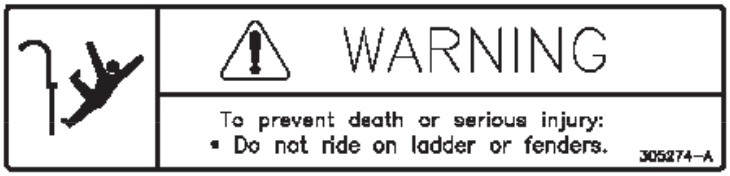
NO STEP

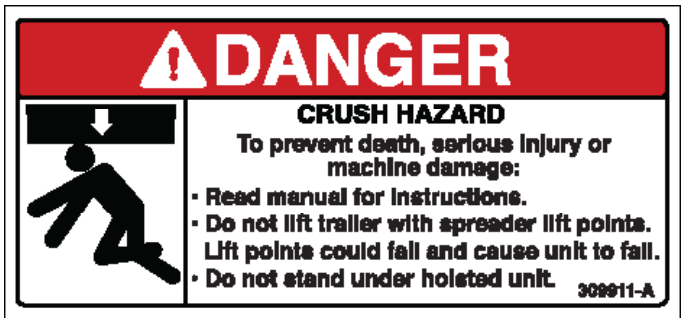
39017-D

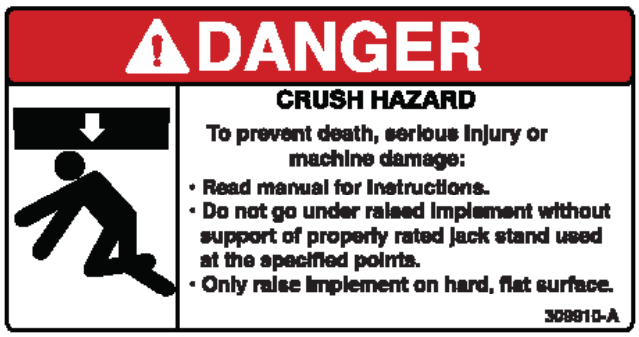
DO NOT RIDE

305272-A


WARNING
Failure to follow operating instructions could result in death or serious injury.
Read and understand operator's manual before using this machine.
308196-B


WARNING
To prevent death or serious injury:
• Do not ride on ladder or fenders.
305274-A


DANGER
CRUSH HAZARD
To prevent death, serious injury or machine damage:
• Read manual for instructions.
• Do not lift trailer with spreader lift points. Lift points could fail and cause unit to fall.
• Do not stand under hoisted unit.
309911-A


DANGER
CRUSH HAZARD
To prevent death, serious injury or machine damage:
• Read manual for instructions.
• Do not go under raised implement without support of properly rated jack stand used at the specified points.
• Only raise implement on hard, flat surface.
309910-A

SAFETY

1. Before attempting to operate this unit, read and be sure you understand the operation and maintenance manual. Locate all controls and determine the use of each. Know what you are doing!

2. When leaving the unit unattended for any reason, be sure to:
   a. Take power take-off out of gear.
   b. Shut off conveyor and spinner drives.
   c. Shut off vehicle engine and unit engine (if so equipped).
   d. Place transmission of the vehicle in "neutral" or "park".
   e. Set parking brake firmly.
   f. Lock ignition and take keys with you.
   g. Lock vehicle cab.
   h. If on steep grade, block wheels.

   These actions are recommended to avoid unauthorized use, runaway, vandalism, theft and unexpected operation during start-up.

3. Do not read, eat, talk on a mobile phone or take your attention away while operating the unit. Operating is a full-time job.

4. Stay out of the spreader. If it's necessary to enter the spreader, return to the shop, empty body, turn off all power, set vehicle brakes, lock engine starting switch and remove keys before entering. Tag all controls to prohibit operation. Tags should be placed, and later removed, only by person working in the body.

5. Guards and covers are provided to help avoid injury. Stop all machinery before removing them. Replace guards and covers before starting spreader operation.

6. Stay clear of any moving members, such as shafts, couplings and universal joints. Make adjustments in small steps, shutting down all motions for each adjustment.

7. Before starting unit, be sure everyone is clear and out of the way.

8. Do not climb on unit. Use the inspection ladder or a portable ladder to view the unit. Be careful in getting on and off the ladder, especially in wet, icy, snowy or muddy conditions. Clean mud, snow or ice from steps and footwear.

9. Do not allow anyone to ride on any part of unit for any reason.

10. Keep away from spinners while they are turning:
    a. Serious injury can occur if spinners touch you.
    b. Rocks, scrap metal or other material can be thrown off the spinner violently. Stay out of discharge area.
    c. Make sure discharge area is clear before spreading.

11. Inspect spinner fins, spinner frame mounting and spinner fin nuts and screws every day. Look for missing fasteners, looseness, wear and cracks. Replace immediately if required. Use only new SAE grade 5 or grade 8 screws and new self-locking nuts.

12. Inspect all bolts, screws, fasteners, keys, chain drives, body mountings and other attachments periodically. Replace any missing or damaged parts with proper specification items. Tighten all bolts, nuts and screws to specified torques according to the torque chart in this manual.

13. Shut off engine before filling fuel and oil tanks. Do not allow overflow. Wipe up all spills. Do not smoke. Stay away from open flame. FIRE HAZARD!

14. Starting fluids and sprays are extremely flammable. Don't smoke. Stay away from flame or heat!

15. All vehicles should be equipped with a serviceable fire extinguisher of 5 BC rating or larger.

16. Hydraulic system and oil can get hot enough to cause burns. DO NOT work on system that is hot. Wait until oil has cooled. If an accident occurs, seek immediate medical assistance.

17. Wear eye protection while working around or on unit.
18. Read, understand and follow instructions and precautions given by the manufacturer or supplier of materials to be spread. Improper selection, application, use or handling may be hazardous to people, animals, plants, crops or other property.

CAUTION If spreader is used to transport chemicals, check with your chemical supplier regarding DOT (Department of Transportation) requirements.

19. Cover all loads that can spill or blow away. Do not spread dusty materials where dust may create

pollution or a traffic visibility problem.

20. Turn slowly and be careful when traveling on rough surfaces and side slopes, especially with a loaded spreader. Load may shift causing unit to tip.

21. Read and understand the precautionary decals on the spreader. Replace any that become defaced, damaged, lost or painted over. Replacement decals can be ordered from your dealer's parts department or from Highway Equipment Company by calling (319) 363-8281.

SAFETY

1. Maintenance includes all lubrication, inspection, adjustments (other than operational control adjustments such as feedgate openings, conveyor speed, etc.) part replacement, repairs and such upkeep tasks as cleaning and painting.

2. When performing any maintenance work, wear proper protective equipment—always wear eye protection—safety shoes can help save your toes—gloves will help protect your hands against cuts, bruises, abrasions and from minor burns—a hard hat is better than a sore head!

3. Use proper tools for the job required. Use of improper tools (such as a screwdriver instead of a pry bar, a pair of pliers instead of a wrench, a wrench instead of a hammer) not only can damage the equipment being worked on, but can lead to serious injuries. USE THE PROPER TOOLS.

4. Before attempting any maintenance work (including lubrication), shut off power completely. DO NOT WORK ON RUNNING MACHINERY!

5. When guards and covers are removed for any maintenance, be sure that such guards are reinstalled before unit is put back into operation.

6. Check all screws, bolts and nuts for proper torques before placing equipment back in service. Refer to torque chart in this manual.

7. Some parts and assemblies are quite heavy. Before attempting to unfasten any heavy part or assembly, arrange to support it by means of a hoist, by blocking or by use of an adequate arrangement to prevent it from falling, tipping, swinging or moving in any manner which may damage it or injure someone. Always use lifting device that is properly rated to lift the equipment. Do not lift loaded spreader. NEVER LIFT EQUIPMENT OVER PEOPLE.

8. If repairs require use of a torch or electric welder, be sure that all flammable and combustible materials are removed. Fuel or oil reservoirs must be emptied, steam cleaned and filled with water before attempting to cut or weld them. DO NOT weld or flame cut on any tank containing oil, gasoline or their fumes or other flammable material, or any container whose contents or previous contents are unknown.

9. Keep a fully charged fire extinguisher readily available at all times. It should be a Type ABC or a Type BC unit.

10. Cleaning solvents should be used with care. Petroleum based solvents are flammable and present a fire hazard. Don't use gasoline. All solvents must be used with adequate ventilation, as their vapors should not be inhaled.

11. When batteries are being charged or discharged, they generate hydrogen and oxygen gases. This combination of gases is highly explosive. DO NOT SMOKE around batteries—STAY AWAY FROM FLAME—don't check batteries by shorting terminals as the spark could cause an explosion. Connect and disconnect battery charger leads only when charger is "off". Be very careful with "jumper" cables.

12. Batteries contain strong sulfuric acid—handle with care. If acid gets on you, flush it off with large amounts of water. If it gets in your eyes, flush it out with plenty of water immediately and get medical help.

13. Hydraulic fluid under high pressure leaking from a pin hole are dangerous as they can penetrate the skin as though injected with a hypodermic needle. Such liquids have a poisonous effect and can cause serious wounds. To avoid hazard, relieve pressure before disconnecting hydraulic lines or performing work on system. Any fluid injected into the skin must be treated within a few hours as gangrene may result. Get medical assistance immediately if such a wound occurs. To check for such leaks, use a piece of cardboard or wood instead of your hand. Make sure all hydraulic fluid connections are tight and all hydraulic hoses and lines are in good condition before applying pressure to system. Wear protective gloves and safety glasses or goggles when working with hydraulic systems.

14. The fine spray from a small hydraulic oil leak can be highly explosive—DO NOT SMOKE—STAY AWAY FROM FLAME OR SPARKS.

1. The selection of the vehicle on which a spreader body is to be mounted has important safety aspects. To avoid overloading:
   a. Do not mount spreader on a chassis which, when fully loaded with material to be spread, will exceed either the Gross Axle Weight Rating (GAWR) or the Gross Vehicle Weight Rating (GVWR) for the chassis.
   b. Do install the spreader only on a vehicle with cab-to-axle dimension recommended for the spreader body length shown.

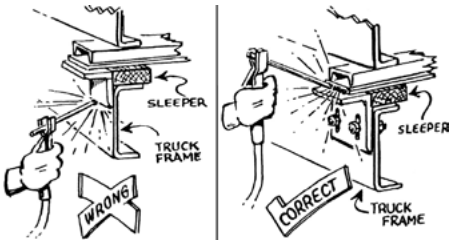
2. Follow mounting instructions in the Installation section of this manual. If mounting conditions require deviation from these instructions refer to factory.

3. When making the installation, be sure that the lighting meets Federal Motor Vehicle Safety Standard (FMVSS) No. 108, ASABE S279 and all applicable local and state regulations.

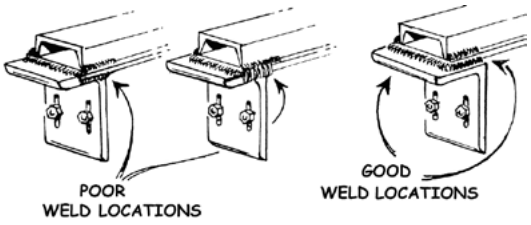
4. When selecting a PTO to drive hydraulic pump, do not use a higher percent speed drive than indicated in the Installation section of this manual. Too high a percent PTO will drive pump at excessive speed, which can ruin the pump, but more importantly, will overheat the hydraulic oil system and increase the possibility of fire.

5. When truck frame must be shortened, cut off only the portion that extends behind rear shackle in accordance with the truck manufacturer's recommendations. If a torch is used to make the cut, all necessary precautions should be taken to prevent fire. Cuts should not be made near fuel tanks and hydraulic oil reservoirs, fuel, brake, electric or hydraulic lines and such lines should be protected from flame, sparks or molten metal. Tires should be removed if there is any chance of their being struck by flame, sparks or molten metal. Have a fire extinguisher handy.

6. Do not weld on vehicle frame as such welding can lead to fatigue cracking and must be avoided. When drilling holes in frame member, drill only through the vertical web portions do not put holes in top or bottom flanges. Refer to truck manufacturer's recommendations.



7. Be sure that welds between mounting bars and sill or between mounting angles and spreader cross sills are sound, full fillet welds. Center mounting angles so that good fillet welds can be made on three sides—and edge bead weld is not a satisfactory weld for this service. Use 309 rod/wire for carbon steel and 409 steel. On 304 stainless steel bodies use SAE grade 5 bolts—welding is recommended if type 308 welding rod is available.



8. Install controls so that they are located of convenient use. Position them so that they do not interfere with any vehicle control and that they do not interfere with driver or passenger or with access to or exit from the vehicle.

9. Check for vehicle visibility, especially toward the rear. Reposition or add mirrors so that adequate rearward visibility is maintained.

10. Add Caution, Warning, Danger and Instruction decals as required. Peel off any label masking which has not been removed.

11. Install all guards as required.

12. Check installation completely to be sure all fasteners are secure and that nothing has been left undone.

The TR1000 is a single axle trailer built to support specific John Deere dry nutrient applicators. The trailer will support 300 cubic feet boxes for fertilizer spreading or 200 cubic feet boxes for small rates of lime spreading. The TR1000 is also compatible with MultAppliers used with these spreaders.

When a TR1000 is combined to a John Deere dry nutrient applicator, the implement becomes a trailed hopper type granular spreader designed to be towed by medium to large agricultural tractors equipped with CAT 3 or 4 hitches and hydraulic brakes. Hydraulic power for the spreader is supplied by the towing vehicle via a set of included hoses. The TR1000 can be provided as a complete packaged implement from the factory or as a trailer only for field installation to an existing spreader.

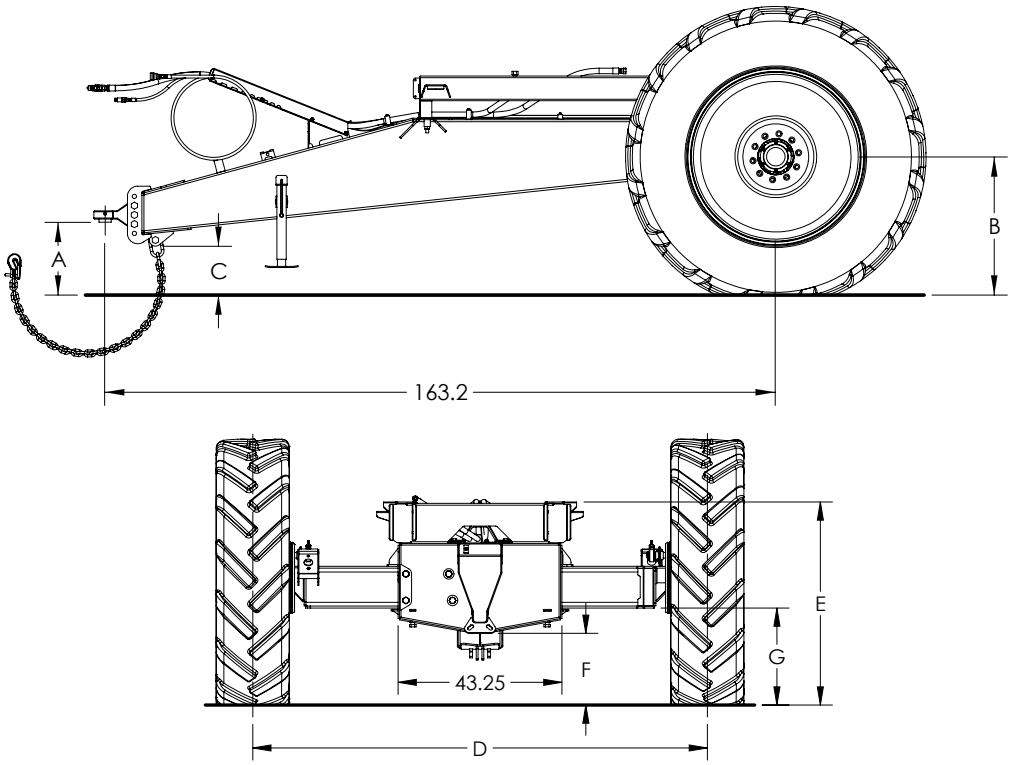
The TR1000 is provided with three tire options, two options for row crop (380/90R46 and 480/80R42) and one high flotation option (710/70R38). The axle is adjustable to tread widths of 80 to 120 inches, depending upon the equipped spreader box and wheel/tire combination. The TR1000 is equipped with hydraulic brakes.

Operation of the dry nutrient applicator is intended to be through a dealer supplied controller.

Since the trailer will have occasional public roadway use, the DOT compliant lighting standard on the John Deere dry nutrient applicator is used with the addition of reflective markings and SIS signs supplied with the TR1000.

The TR1000 is not intended to support any type of equipment other than specific John Deere dry nutrient applicators. For TR1000 compatibility questions, please contact your New Leader dealer.

This manual is intended to be used with manuals provided with the dry nutrient applicator. Please contact your New Leader dealer if spreader manuals are missing.



TR1000

DIMENSIONS

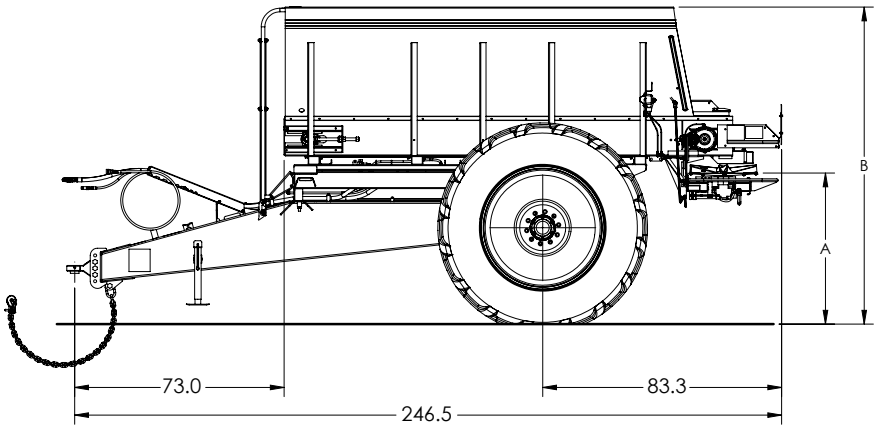
TIRE & WHEEL GROUP	A HITCH TO GROUND* inches (cm)	B AXLE CL TO GROUND* inches (cm)	C SAFETY CHAIN LUG TO GROUND* inches (cm)	D AXLE TRACK** inches (cm) 2" INCREMENTS	E MTG SURFACE TO GROUND* inches (cm)	F BOTTOM OF AXLE CARRIER TO GROUND* inches (cm)	G BOTTOM OF AXLE TO GROUND* inches (cm)
480/80R42	15.5 (39.4) 17.7 (50) 20 (50.8)	33.6 (85.3)	11.9 (30.2)	80-120	53.6 (136.1)	18.9 (48)	25.6 (65)
380/90R46	15.9 (40.4) 18.1 (46) 20.4 (51.8)	34 (86.4)	12.3 (31.2)	80-120	54 (137.2)	19.3 (49)	26 (66)
710/70R38	16.7 (42.4) 18.8 (47.6) 21.2 (53.8)	34.8 (83.4)	13.1 (33.3)	90-120	54.8 (139.2)	21.1 (53.6)	26.8 (68.1)

**Add 2" to minimum track width for trailers equipped with NL200/NL300 spreader boxes.
*Dimensions based on loaded tire radius.

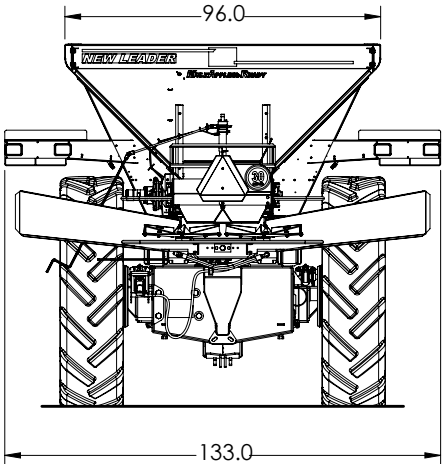
WEIGHTS

TIRE & WHEEL GROUP	GROSS AXLE WEIGHT TRAILER pounds (kg)	HITCH LOAD pounds (kg)	TOTAL TRAILER WEIGHT pounds (kg)	MAX GROSS AXLE WEIGHT @ 30 MPH** pounds (kg)	MAX GROSS AXLE WEIGHT @ 20 MPH** pounds (kg)	MAX GROSS AXLE WEIGHT @ 10 MPH** pounds (kg)
480/80R42	4820 (2186)	440 (200)	4860 (2204)	21,000 (9525)	22,470 (10,192)	25,000 (11,340)
380/90R46	4840 (2195)	440 (200)	4480 (2032)	22,400 (10,160)	23,960 (10,868)	25,000 (11,340)
710/70R38	5380 (2440	440 (200)	5420 (2458)	23,400 (10,614)	25,000 (11,340)	25,000 (11,340)

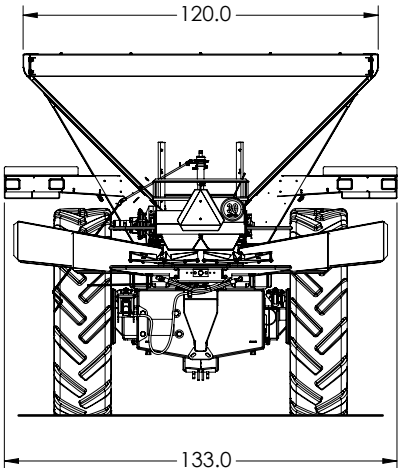
** Rating based on max allowable tire pressure for OEM specified tire.



TR1000 WITH DRY NUTRIENT APPLICATOR



TR1000 WITH L3220G4/NL200



TR1000 WITH L3030G4/NL300

TR1000 WITH L3220G4/NL200

TIRE & WHEEL GROUP	A SPINNER TO GROUND* inches (cm)	B TOP OF SPREADER BODY TO GROUND* inches (cm)	STRUCK CAPACITY cu. yd (cu. ft)	GROSS AXLE WEIGHT pounds (kg)	HITCH LOAD WEIGHT pounds (kg)	TOTAL TRAILER WEIGHT pounds (kg)
480/80R42	52.6 (133.6)	110.5 (280.7)	7.38 (199)	7960 (3611)	540 (245)	8500 (3856)
380/90R46	53 (134.6)	110.9 (281.7)		7980 (3620)	540 (245)	8520 (3865)
710/70R38	53.8 (136.7)	111.7 (283.7)		8520 (3865)	540 (245)	9060 (4110)

TR1000 WITH L3030G4/NL300

TIRE & WHEEL GROUP	A SPINNER TO GROUND* inches (cm)	B TOP OF SPREADER BODY TO GROUND* inches (cm)	STRUCK CAPACITY cu. yd (cu. ft)	GROSS AXLE WEIGHT pounds (kg)	HITCH LOAD WEIGHT pounds (kg)	TOTAL TRAILER WEIGHT pounds (kg)
480/80R42	52.6 (133.6)	122.5 (311.2)	11.06 (298.6)	8060 (3656)	540 (245)	8600 (3901)
380/90R46	53 (134.6)	122.9 (312.2)		8080 (3665)	540 (245)	8620 (3910)
710/70R38	53.8 (136.7)	123.7 (314.2)		8620 (3910)	540 (245)	9160 (4155)

*Dimensions based on loaded tire radius

HYDRAULIC REQUIREMENTS

- Low pressure drop, high flow SCV capable of being set at a flow rate of 29 GPM and pressures up to 2900 PSI.
- Low pressure drop motor return port.
- Zero pressure case drain port.
- Equipped with hydraulic trailer brake system.

Quick couplers to interface with the TR1000 and meet requirements are listed in the following table:

	TRACTOR SIDE USER SUPPLIED		**TRAILER SIDE** SUPPLIED WITH TRAILER	
FUNCTION	**DESCRIPTION**	**COUPLER**	**DESCRIPTION**	**COUPLER**
SPREADER PRESSURE	TRACTOR HIGH FLOW SCV	ISO 5675 1/2” BODY FEMALE	ISO 5675 1/2” BODY MALE	3/4” 100R12 PRESSURE LINE
SPREADER RETURN	MOTOR RETURN ON TRACTOR VALVE BLOCK	ISO 7241/1 SERIES A 3/4” BODY FEMALE	IS 7241/1 SERIES A 3/4” BODY MALE	3/4” 100R2 RETURN LINE
SPREADER CASE DRAIN	ZERO PRESSURE CASE DRAIN ON TRACTOR VALVE BLOCK	ISO 16028 3/8” BODY FEMALE	ISO 16028 3/8” BODY MALE	3/8” CB CASE DRAIN LINE
TRAILER BRAKES	HYDRAULIC BRAKE SUPPLY ON TRACTOR	ISO 5676 3/8” BODY MALE	ISO 5676 3/8” BODY FEMALE	3/8” 100R1 BRAKE LINE

ELECTRICAL REQUIREMENTS

- Standard 7-pin connection for operation of lights.
- Controller and customer supplied cabling to drive dry nutrient applicator.

HITCH

- Category 3 or 4 drawbar. The TR1000 is supplied with hitch inserts to match 1.5” or 2” pin.

The TR1000 trailer is shipped from the factory in two basic configurations. The TR1000 can be provided with a factory installed dry nutrient applicator that is equivalent to a current available John Deere specification. All decals, lights, reflectors, SIS symbols, inspection ladders, hydraulic connections, etc. are completed by trained factory personnel. The TR1000 can also be shipped as a bareback unit ready for dealer field installation of the dry nutrient applicator.

This section should be read and understood completely prior to installation or use. Please refer to the John Deere dry nutrient applicator manual for additional information regarding spreader setup and other details.

WARNING	Field installation requires addition of safety decals, lights, reflectors, SIS symbols, inspection ladder, etc. to make implement compliant with standards. Failure to follow instructions provided in this manual could result in serious injury or damage to implement.

GENERAL INSTALLATION SEQUENCE

1. Mount spreader to trailer.
2. Connect hydraulics and harnesses.
3. Add decals and other markings.
4. Install inspection ladder.

INSTALLING SPREADER BODY

NOTICE!	If trailer shipped without spreader, remove inspection ladder from trailer before mounting spreader.

MOUNTING SPREADER BODY

Mounts and hardware for mounting a spreader to a TR1000 are the same as those used with a chassis mount dry nutrient applicator. These mounts are provided with new dry nutrient applicators or are reused when a dry nutrient applicator is moved from a chassis mount to a TR1000.

DANGER	Do not lift spreader mounted to trailer using spreader lift points. Lift points may fail and spreader may fall causing death, serious injury or damage to spreader.

WARNING	Block wheels of TR1000 trailer before mounting spreader body. Mount and remove spreader from trailer on a level, firm surface. Mounting or storing implement on uneven or soft surface could cause implement to tip causing death, serious injury or damage to spreader.

WARNING	Use only lifting devices that meet or exceed OSHA standard 1910.184. Never lift equipment over people. Never lift spreader with material in the body. Loads may shift or fall if improperly supported, causing injury or damage to spreader.

NOTICE!	Lift spreader with John Deere lifting device to prevent damage to the spreader.

Position trailer with adequate room around the spreader. Make sure endgate or MultApplier insert is securely installed.

*Continue to page 20 for specific instructions on installing a L3220 or L3030 spreader box.
*Continue to page 23 for specific instructions on installing a NL200 or NL300 spreader box.

1. Attach John Deere lifting device (see John Deere for part number and instructions) to each corner lift hook inside spreader as shown in Figure 1.

Assembled:	A
With MultApplier	39” (99.1cm)
With endgate	43” (109.2cm)

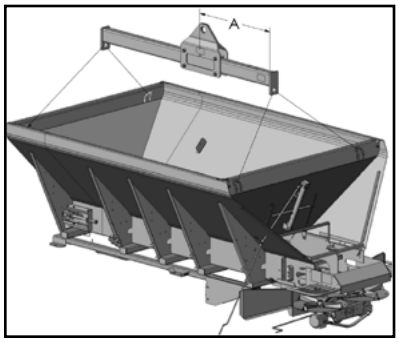


Figure 1 - Lift Spreader

2. Install rubber mounts at front of trailer (Figure 2). Position spreader with mounts located directly over trailer mounts.

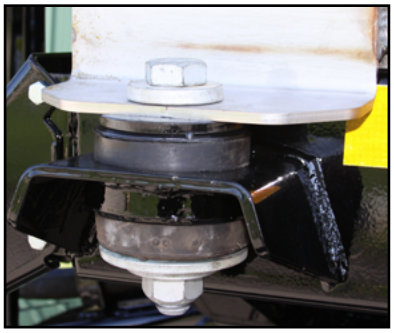


Figure 2 – Rubber Mounts

3. Secure spreader to trailer by loosely installing mounting hardware, starting at the rear and moving forward. Add shims to rear mount between box and trailer. Tighten mounting hardware as specified under the corresponding mounts (Figure 3a-c).

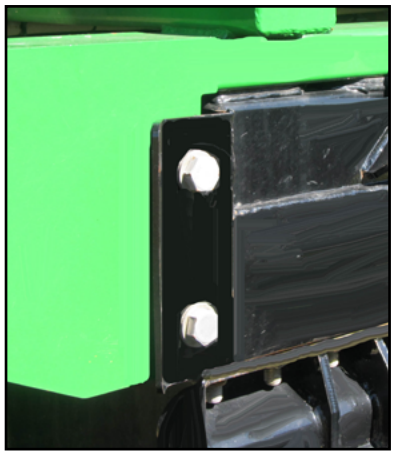


Figure 3a – Rear Mounts (1st)
315 ft-lb (425 nm) torque

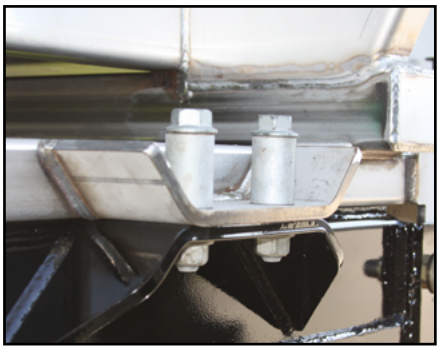


Figure 3b – Center Mounts (2nd)
234 ft-lb (315 nm) torque

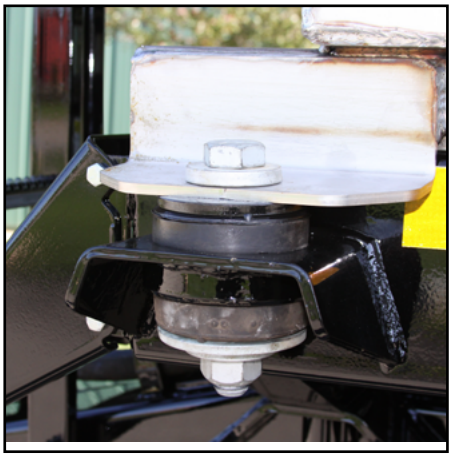


Figure 3c – Front Mounts (3rd)
330 ft-lb (450 nm) torque

HYDRAULIC CONNECTIONS

Use plastic tie straps as needed to support hoses so they will not snag field debris or contact moving parts. Do not stretch hoses tight.

1. Remove enable valve and fittings after the 90° fitting (Figure 4).

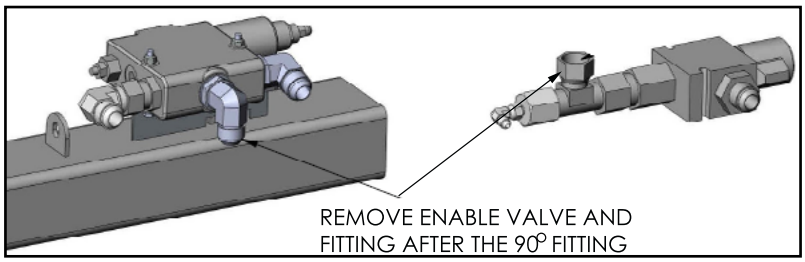


Figure 4 - Disconnect Enable Valve and Fittings

2. Connect pressure hose grouping and return hose grouping (Figure 5).

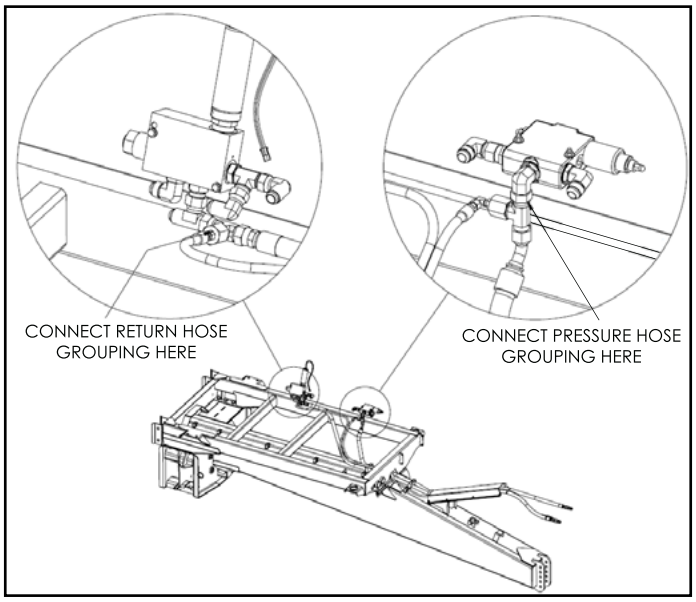


Figure 5 - Connect groupings

3. Disconnect case drain from conveyor motor and cap fitting (Figure 6).

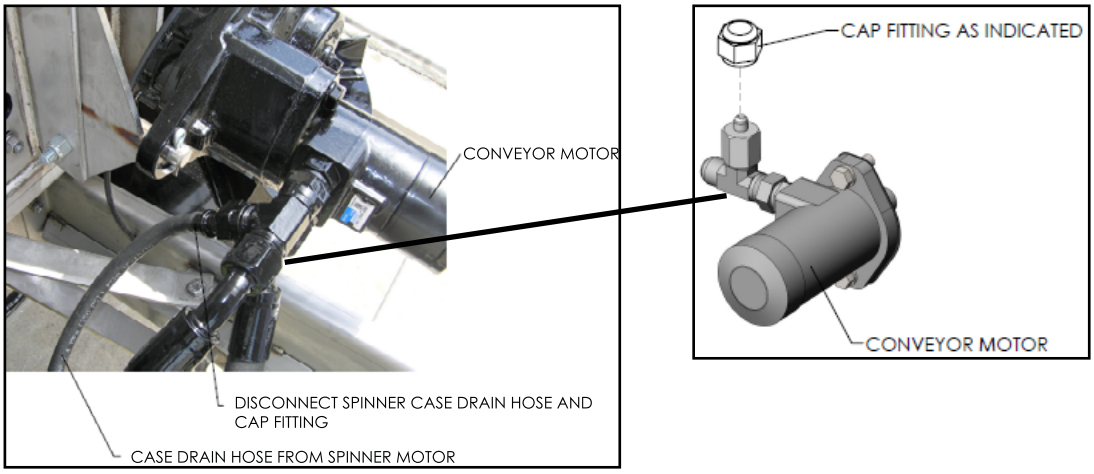


Figure 6 - Disconnect Case Drain

4. Connect newly removed case drain hose to trailer case drain hose (Figure 7). Refer to *Hydraulic Torques Chart* for torque requirements.

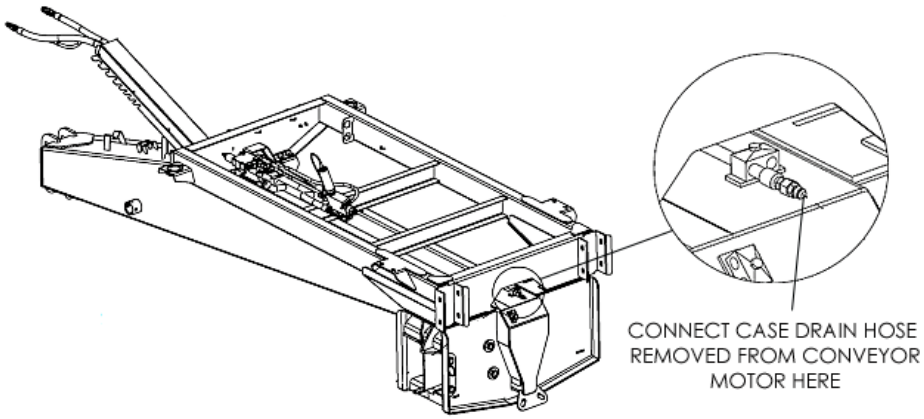


Figure 7 - Connect to Trailer

NOTE: Save removed hydraulic components for possible re-installation to chassis.

ELECTRICAL CONNECTIONS

1. Connect electrical connectors at bulkhead as shown in Figure 8a.
   NOTE: For spreader boxes prior to S/N 133172 use adapter harness (Figure 8b).

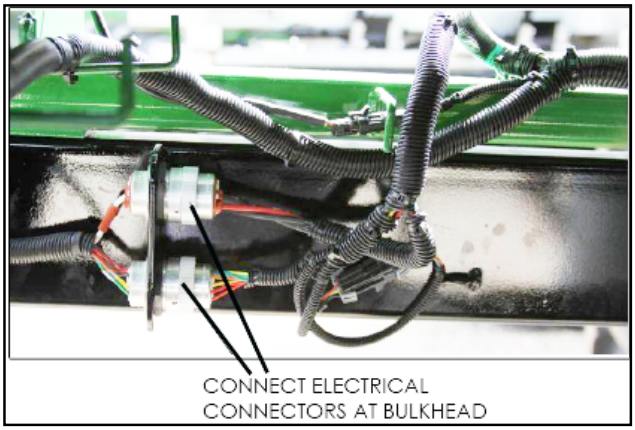


Figure 8a - Electrical Connection

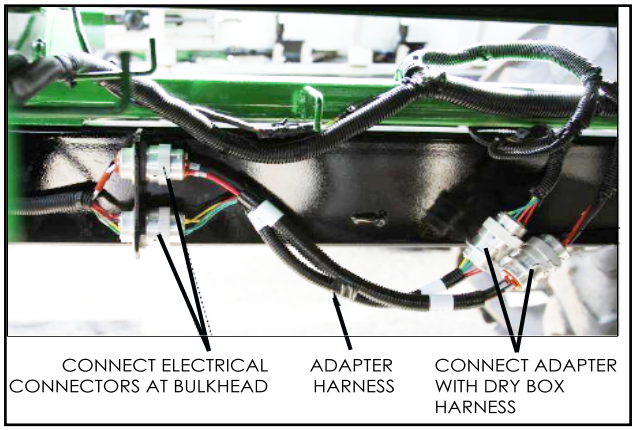


Figure 8b - Boxes prior to S/N 133172

Continue to page 26 for decal instructions.

1. Attach John Deere lifting device (see John Deere for part number and instructions) to each corner lift hook inside spreader as shown in Figure 9.

Assembled:	A
With MultApplier	39” (99.1cm)
With endgate	43” (109.2cm)

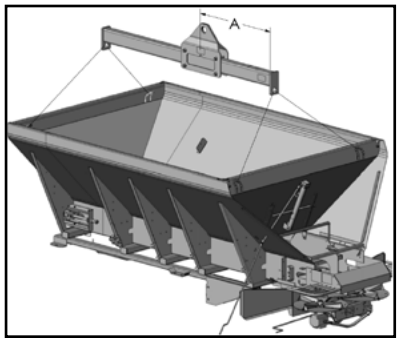


Figure 9 - Lift Spreader

2. If Spacer Plates are attached to dry box, remove prior to installing dry box on trailer (Figure 10).

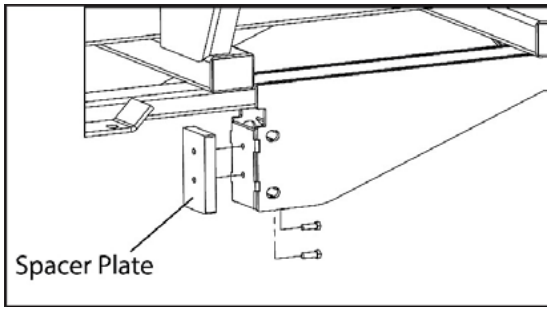


Figure 10 - Spacer Plates

3. Install rubber mounts at front of trailer (Figure 11). Position spreader with mounts located directly over trailer mounts.

Figure 11 - Rubber Mounts

4. Secure spreader to trailer by loosely installing mounting hardware, starting at the rear and moving forward. Add shims to rear mount between box and trailer. Tighten mounting hardware as specified under the corresponding mounts (Figure 12a-c).

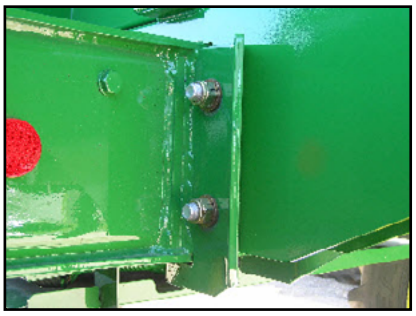


Figure 12a – Rear Mounts (1st) 315 ft-lb (425 nm) torque

Figure 12b – Center Mounts (2nd) 315 ft-lb (425 nm) torque

Figure 12c – Front Mounts (3rd) 315 ft-lb (425 nm) torque

HYDRAULIC CONNECTIONS

Use plastic tie straps as needed to support hoses so they will not snag field debris or contact moving parts. Do not stretch hoses tight.

1. Remove enable valve and fittings after the 90° fitting (Figure 13).

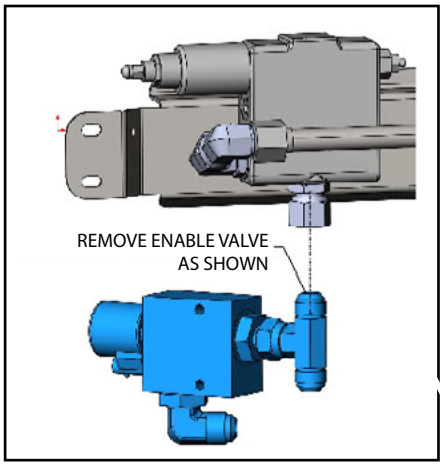


Figure 13 - Disconnect Enable Valve and Fittings

2. Connect pressure hose grouping and return hose grouping (Figure 14).

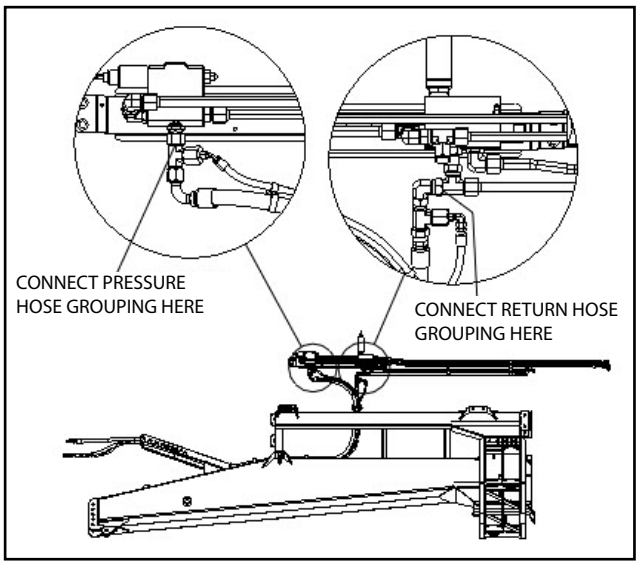


Figure14 - Connect groupings

3. Disconnect case drain from conveyor motor and cap fitting (Figures 15a & 15b).

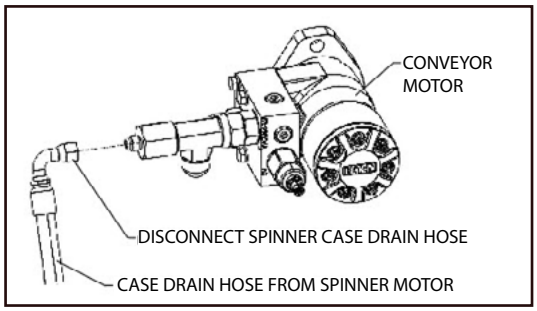


Figure 15a - Case Drain Hose Removal

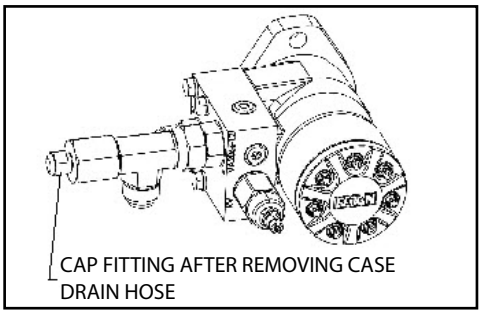


Figure 15b - Cap Fitting

4. Connect newly removed case drain hose to trailer case drain hose (Figure 16). Refer to *Hydraulic Torques Chart* for torque requirements.

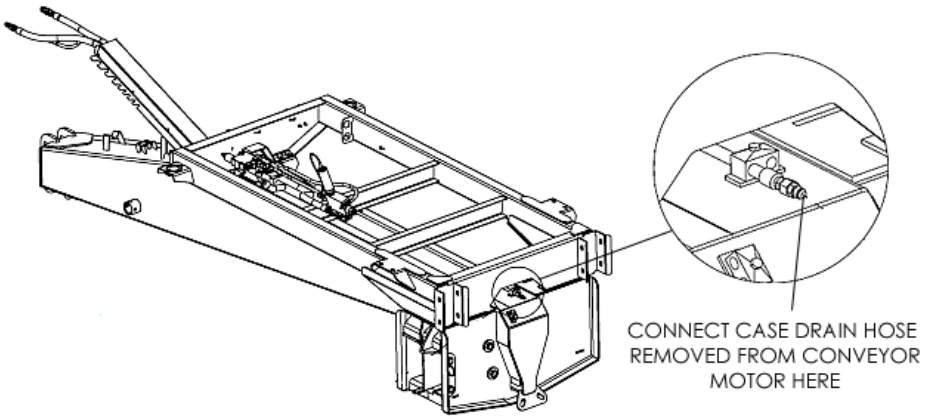


Figure 16 - Connect to Trailer

NOTE: Save removed hydraulic components for possible re-installation to chassis.

ELECTRICAL CONNECTIONS

1. Connect electrical connectors at bulkhead as shown in Figure 17.

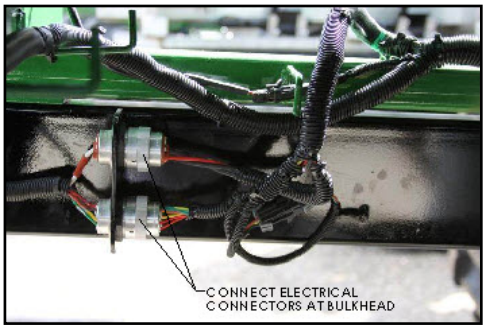


Figure 17 - Electrical Connection

DECALS

1. Remove all John Deere related decals from spreader, shown in Figure 18.

L3030G4/NL300 **L3220G4/NL200**

Figure 18 - Remove John Deere Decals

2. Install SIS decals and reflective tape (Figure 19a & 19b).
   NOTE: If dry nutrient applicator does not have SMV bracket, position SIS decal in upper right corner of endgate as shown in Figure 19a (Rear).

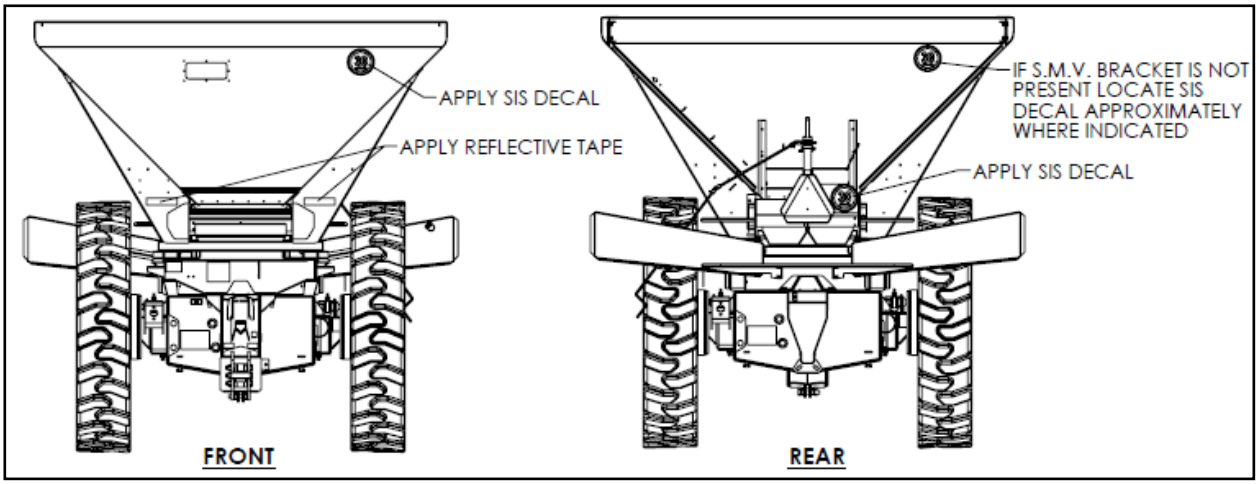


Figure 19a - Spreader Front and Rear

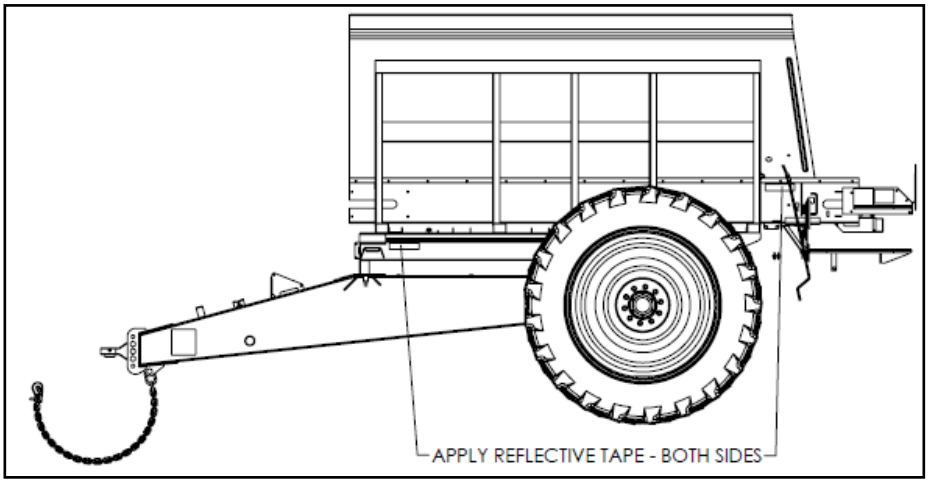


Figure 19b - Spreader Sides

INSPECTION LADDER INSTALLATION

If installing a dry nutrient applicator equipped with electric tarp, the tarp must be converted to a manual system before installing inspection ladder. Contact your John Deere dealer to obtain the required conversion kit.

1. Drill two (2) .406 inch (13/32") diameter holes for upper bracket in the positions shown in Figure 20. The midpoint between the two holes aligns with the midpoint between the two brackets on the subframe.

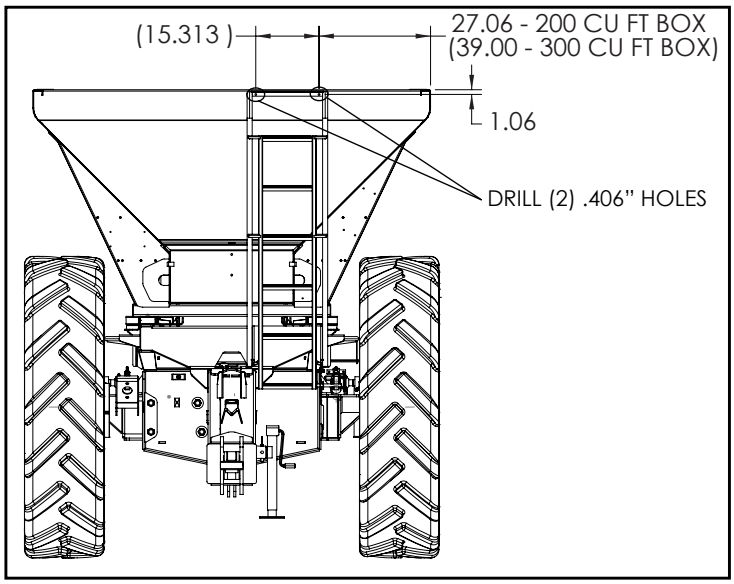


Figure 20 - Secure Upper Bracket

2. Loosely mount lower mounting bracket to existing tabs on subframe using hardware provided (Figure 21a). Box size determines lower bracket position, as shown in Figure 21b:
   a. Mount bracket for 200 cu ft box in low position.
   b. Mount bracket for 300 cu ft box in inverted position (inspection ladder in high position).

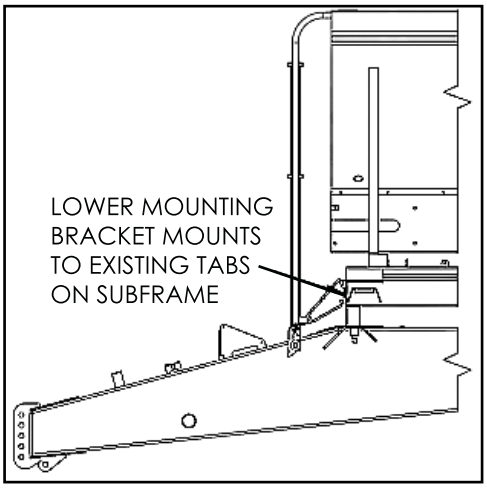


Figure 21a- Mount Lower Bracket to Subframe Tabs

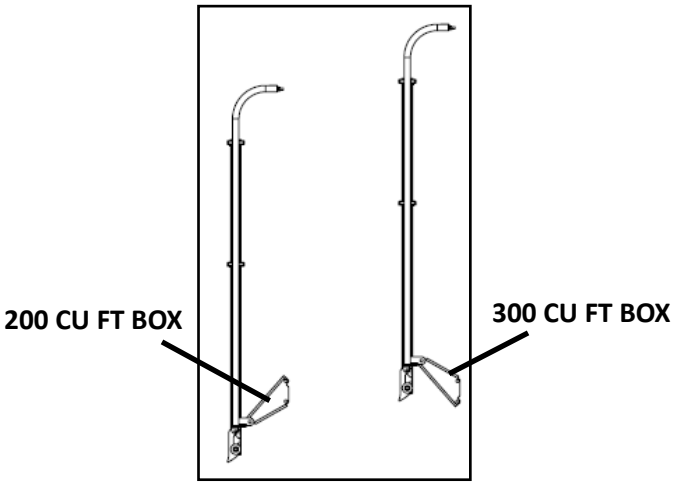


Figure 21b - Lower Mounting Bracket Position

3. Secure inspection ladder to top of endgate with hardware provided.
4. Tighten lower bracket hardware.
5. Recheck torque on all hardware. Refer to *Standard Torques National Coarse (NC) Cap Screws Chart* for proper hardware torques.

NOTICE!	Remove inspection ladder from spreader before removing spreader from trailer.

NOTICE!	Make sure all connection points are clean and inspect for wear and damage. All areas must be free of debris and dirt to ensure a secure connection.

HITCH AND SAFETY CHAIN

WARNING	Make sure area is clear between the tractor and implement when backing up to implement.

NOTICE!	The TR1000 hitch is compatible with CAT 3 & 4 hitches. The TR1000 is provided with hitch inserts for 1-1/2 and 2 inch pins. Select correct pin and insert for chosen tractor.

1. Align height of TR1000 hitch to tractor drawbar using the implement jack.
2. Back up tractor completely to line up hitches and drop pin in place.
3. Raise jack completely, remove pin securing jack to side of trailer tongue and move jack to storage position on top of tongue. Secure jack in place with pin (Figure 22).
4. Attach safety chain to tractor. Use tractor drawbar chain guides if available and route chain per tractor instructions. Keep just enough slack for turning. Make sure safety chain clasp is secure in locked position (Figure 23).
5. Perform lubrication on all hitch components. See *Lubrication & Maintenance Chart* for information.

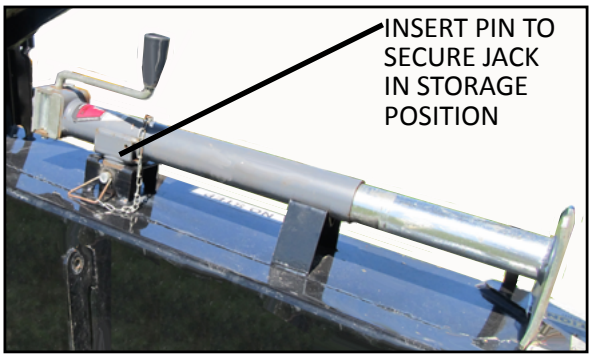


Figure 22 - Stored Jack

Figure 23 - Safety Chain

To remove implement from tractor, follow steps 1 through 4 in reverse order.

BRAKES

CAUTION	Operation of the towed implement requires a hydraulic trailer brake function. Contact your tractor dealer for more information.

The TR1000 is equipped with hydraulic brakes. The TR1000 is supplied with an ISO 5676 3/8" body female connector. See the tractor requirement section for mating connector.

1. Connect brake hose to appropriate brake port.

DRY NUTRIENT APPLICATOR HYDRAULICS

CAUTION	Improper connection to tractor can cause damage to both tractor and implement. Tractor hydraulic options will vary. Verify connections referred to in this section with tractor dealer.

The system requires three separate connections: pressure supply via a high flow SCV capable of 28 GPM and 2900 PSI; low pressure drop motor return; and a zero pressure case drain. Connector types supplied with the TR1000 are noted in the *Tractor Requirements* section of this manual.

CAUTION	Always connect the TR1000 hydraulic hoses in the following sequence: case drain, motor return, pressure supply. Always disconnect the hydraulic hoses in the reverse sequence: pressure supply, motor return, case drain.

NOTICE!	Always run the return line through a low pressure motor return port. Always check tractor case drain filter, if provided, to reduce back pressure.

NOTICE!	Route all hoses and wiring through hose housing (Figure 15). Avoid entanglement of hoses and wiring with the hitch or tongue. Damage to equipment can occur if hoses and wires are not routed correctly. Watch for sharp edges on hose housing.

When connecting implement to tractor, connect hoses in following order:

- Case drain
- Motor return
- Pressure supply

When disconnecting implement from tractor, disconnect hoses in following order:

- Pressure supply
- Motor return
- Case drain

Make sure all hoses and wires run through the hose support. When implement is not connected to tractor, store hoses and wires in hooks provided on side of housing as shown in Figure 24.

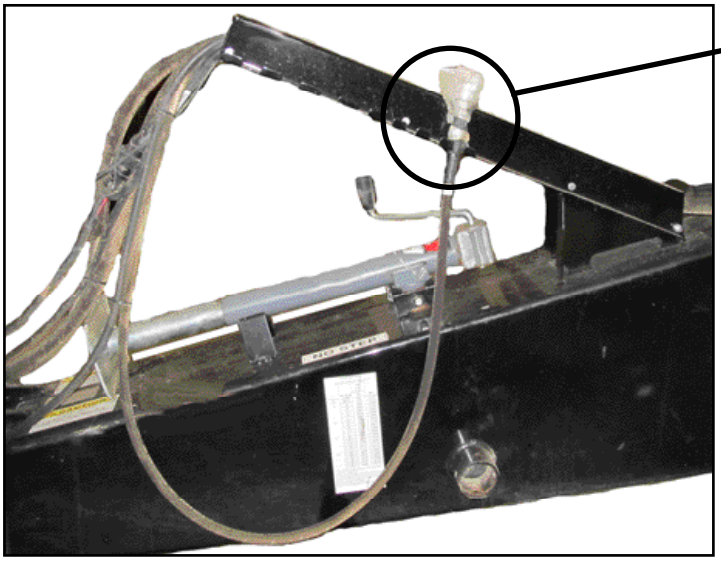


Figure 24- Hose & Wire Housing

ELECTRICAL CONNECTIONS

WARNING	Always turn on lights and safety warnings to provide adequate visibility while in transit on public roads. Failure to do so could result in serious injury or damage to implement.

NOTICE!	Turn tractor power off before installing electrical connections.

1. Connect the 7 pin connector into the connector at the rear of the tractor.
2. Check all functions for brakes, lights, flashers, marker lights, etc. for proper operations.

For all other controller connections and auxiliary components like cameras, consult with the equipment dealer and product manual.

LIGHTS, CAMERAS, SIGNALS, ETC.

WARNING	Always check mirrors, test cameras, backup alarms, etc. before operating implement. Failure to do so could result in serious injury or damage to implement.

Use all available aids to enhance rearward visibility and provide warning when backing including, but not limited to, mirrors, cameras, and backup alarms. Contact your tractor dealer for information.

DRY RUN

WARNING	Make sure cameras, backup alarms, mirrors and lights are functioning properly before driving implement. Make sure the area behind the trailer is clear of obstructions and personnel. Turning or backing may result in limited visibility. Check blind spots. Back and/or turn cautiously. Failure to do so could result in death, serious injury or damage to implement.

WARNING	Maintain reasonable speeds. Consider rough terrain including obstacles such as terraces, ditches, and approaching angles. Know the limits of hitch angles. Failure to do so could result in tipping of implement, jack-knifing, spillage or loss of material and other damages to the implement and/or tractor, resulting in serious injury or death.

Backing & Turning Tips

NOTICE!	Turning and backing at sharp angles could cause tractor and implement to jack-knife or tip.

Maximum Hitch Angles

CAUTION	When driving across rough terrain, take care not to exceed this angle or damage may occur to implement. The manufacturer will not be liable for damage to implement due to improper usage.

The TR1000 is equipped with an articulating hitch that minimizes slop between the implement and tractor. This hitch movement is limited to 17° laterally and fore and aft.

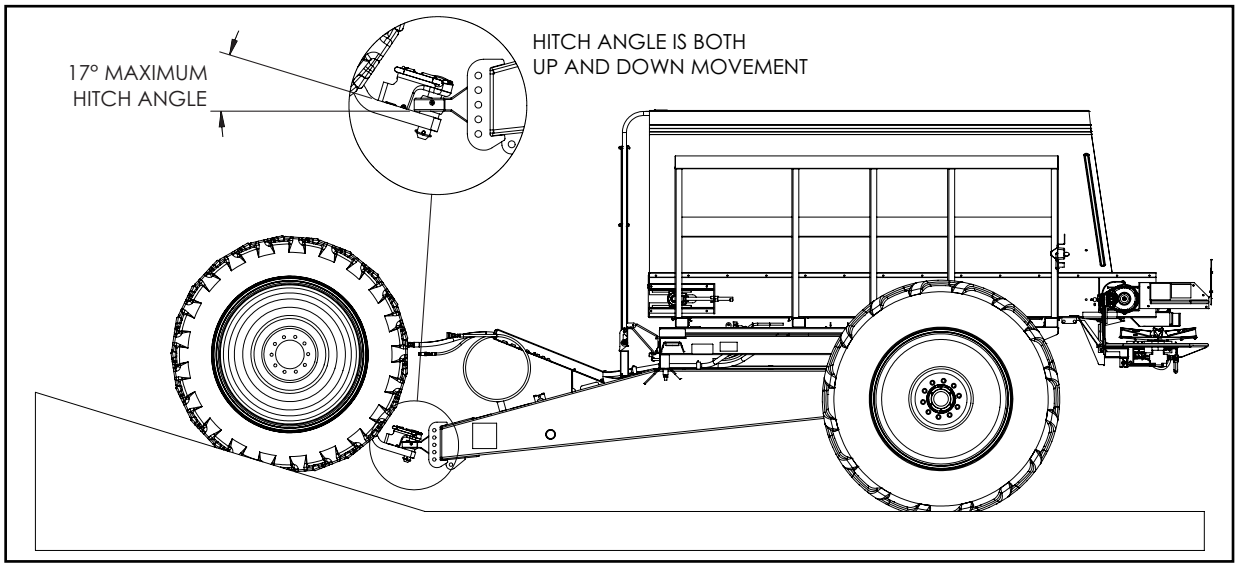


Figure 25 - Maximum Hitch Angles

WARNING Read and understand all tractor, dry nutrient applicator, controller and TR1000 manuals and perform all instructions in the *Installation* and *Tractor Hook-Up* sections of this manual before attempting initial start-up. Failure to properly set-up implement could result in serious injury or machine damage.

WARNING Stand clear of moving machinery. Entanglement with moving parts could result in serious injury.

NOTE: Do not load spreader with material.

1. Refer to tractor operations manual for preparation requirements.
2. Prepare implement per *Installation* and *Tractor Hook-Up* sections.
3. Check entire spreader to make sure all fasteners are in place and properly tightened per *Standard Torques National Coarse (NC) Cap Screws Chart* in this manual.
4. Make sure implement is lubricated per *Lubrication & Maintenance Chart*.
5. Make sure no other persons are in vicinity of implement.
6. Check for adequate vehicle visibility from the cab to the rear of the implement. Add mirrors, camera or other aides as needed. See *Tractor Hook-Up* section.
7. Make sure no loose parts are in spreader or on conveyor or spinner.
8. Make sure all guards are in place and hardware is tightened.
9. Open feedgate until it is completely clear of conveyor.
10. Check tractor hydraulic oil level.
11. Set throttle so engine runs at an idle. Engage hydraulic flow to spreader. Allow pump to run and circulate oil for several minutes. Increase warm-up time in cold weather. When oil is warm, set throttle to operating condition.
12. Set spinner speed to 300 RPM. Spinner should run at slow speed. Allow to run until operation is smooth and all air has been purged.
13. Set spinner speed to 0 RPM.
14. Refer to the controller for the correct setting to operate the conveyor in manual mode. Run conveyor at 25 RPM until it operates smoothly.
15. Set the SCV flow to 28 GPM by using the spinner speed as a flow meter. Use the following procedure:
    a. Set controller target to 1100 RPM.
    b. If spinner speed feedback at 1100 RPM decrease the flow to the SCV until speed drops below target. At that point, increase the SCV flow until the spinner speed just hits the 1100 RPM target.
    c. If spinner speed feedback is initially below 1100 RPM, increase the flow from the SCV gradually until the spinner just reaches 1100 RPM.

WARNING DO NOT check leaks with hands while system is operating as high pressure oil leaks can be dangerous! If skin is pierced with hydraulic fluid at high pressure seek immediate medical attention as fluid injected into the skin could cause gangrene if left untreated. Relieve pressure before disconnecting hydraulic lines or working system. Make sure all hydraulic fluid connections are tight and all hydraulic hoses and lines are in good condition before applying pressure to the system. Wear protective gloves and safety glasses or goggles when working with hydraulic systems.

WARNING DO NOT check for leaks adjacent to moving parts while system is operating as there may be danger of entanglement!

16. Shut down the system and check all connections in the dry nutrient applicator hydraulic system to make sure there are no leaks.
17. Check hydraulic oil reservoir and refill if necessary.
18. Make sure brakes are adjusted and operate properly.
19. Check tire pressure to match recommended section.
20. Spreader is now ready for field testing.

DRY RUN FIELD TEST

The purpose of an initial dry run field test is to verify general operating functions of the TR1000 with dry nutrient applicator and your control system. Read and understand this manual, the dry nutrient applicator manual, and controller manual in their entirety before performing the initial dry run field testing.

⚠	**DANGER**	Take proper safety precautions when observing conveyor and spinner speed while vehicle is in motion! These may include use of suitable mirrors clamped to permit observation by a safely seated observer, following the spreader in another vehicle at a safe distance, or other suitable means. Do not stand in body or on any part of spreader as there is danger of falling off the vehicle or into moving parts! Use great care in performing this test!

1. Field test over any suitable course which allows implement to be pulled at speeds to be used while spreading.
2. Make sure the TR1000 and dry nutrient applicator have been properly serviced and all connections to the tractor are properly made.
   NOTE: DO NOT load the spreader for this dry run.

3. Make sure all guards are in place and hardware is tightened.
4. Set spinner speed to run at 500 RPM per controller manufacturer's instructions.
5. Start tractor engine and activate your in-cab control system. Run the tractor at idle long enough to warm the hydraulic oil. The spinners should operate at moderate speed and the conveyor should not move.
6. Verify the flow setting of the SCV per the *Initial Start-Up* section if needed.
7. Refer to the controller operation manual for conveyor operation instructions. Set program to operational mode and, with tractor at operating RPM, begin forward travel. Move conveyor switch to "ON." Conveyor should start immediately and vary directly with tractor ground speed. Spinner speed should remain constant at the target speed.
8. Test brakes.

OPERATING INSTRUCTIONS

Read and understand this manual, the dry nutrient applicator manual, and controller manual in their entirety before attempting to broadcast material.

1. Make sure spreader has been properly serviced and is in good operating condition. Field test spreader prior to first use, prior to each spreading season's use, and following overhaul or repair work, to verify that all components and systems are functioning properly. See *Dry Run Field Test* section.
2. Fill body with material to be spread.
3. Drive to location where spreading is to be done.
4. Turn on electric in-cab control system and set program to desired values.
5. Set spinner speed for material being applied to give spread width desired. Refer to "G4 Spread Pattern" tab insert.
6. Adjust spinner assembly position to give spread pattern desired.
7. Set rear feedgate opening to obtain yield desired. Measure actual material depth. Turn feedgate handle to adjust feedgate opening.

WARNING	Do not climb on spreader. Use a portable ladder to view the feedgate. Be careful in getting on and off the ladder, especially in wet, icy, snowy or muddy conditions. Clean mud, snow or ice from steps and footwear.

8. Fill spreader hydraulic tank and lubricate per *Lubrication & Maintenance Chart*.
9. Start tractor engine and activate your in-cab control system. Run the tractor at idle long enough to warm the hydraulic oil. The spinners should operate at moderate speed and the conveyor should not move.

WARNING	Drive only at speeds which permit good control of tractor implement combination. Loss of control could cause injury.

10. Set throttle to full operating speed. Verify the flow setting of the SCV per the *Initial Start-Up* section if needed.
11. Drive at speeds that allow full hydraulic power to the TR1000 and dry nutrient applicator.

TIRE PRESSURE AND TRANSPORT SPEEDS

	**DANGER**	Never exceed PSI recommended by tire manufacturer. Only trained personnel should mount tires. Explosion of tire/rim/wheel due to improper mounting could cause serious injury or death.

	**DANGER**	Drive at a reasonable and safe speed according to weather, field and road conditions. Follow tire manufacturer's instructions. Loss of tractor or implement control could cause serious injury or death.

NOTICE!	Consult federal, state and local weight laws to ensure government weight, speed, and road restrictions are not exceeded.

Tire pressure, equipment load capability, and speeds are all interrelated. The table below is valid for properly maintained original equipment tires and rims with no damage.

TRAILER TIRE MAXIMUM AXLE LOAD[2]

380/90R46			480/80R42			710/70R38		
Tire Pressure (PSI)	Road Speed (MPH)	Gross Axle Weight Rating[1] (LBS)	Tire Pressure (PSI)	Road Speed (MPH)	Gross Axle Weight Rating[1] (LBS)	Tire Pressure (PSI)	Road Speed (MPH)	Gross Axle Weight Rating[1] (LBS)
46	30	17,100	29	30	16,500	15	30	17,100
	20	18,290		20	17,650		20	18,290
	15	18,980		15	18,310		15	18,980
	10	22,910		10	22,110		10	22,910
	0	22,910		0	22,110		0	22,910
58	30	19,300	35	30	17,600	17	30	19,300
	20	20,650		20	18,830		20	20,650
	15	21,420		15	19,530		15	21,420
	10	25,000		10	23,580		10	25,000
	0	25,000		0	23,580		0	25,000
64	30	21,000	41	30	19,300	20	30	21,400
	20	22,470		20	20,650		20	22,890
	15	23,310		15	21,420		15	23,750
	10	25,000		10	25,000		10	25,000
	0	25,000		0	25,000		0	25,000
68	30	22,400	46	30	21,000	23	30	23,400
	20	23,960		20	22,470		20	25,000
	15	24,860		15	23,310		15	25,000
	10	25,000		10	25,000		10	25,000
	0	25,000		0	25,000		0	25,000

1) Consult federal, state and local laws to ensure the gross weight on any one axle or combination of axles, operated on highways, does not exceed government weight restrictions.
2) This chart is applicable for OEM tires and rims.

309326-B

AXLE TRACK ADJUSTMENT

Depending on wheel/tire and dry nutrient applicator combination, the TR1000 axles can be adjusted to achieve track widths of 80 to 120 inches in 2 inch increments. Read and understand this section of the manual before attempting to make adjustments.

DANGER	Never place any part of your body under a machine supported by a jack designed for lifting. Always use support stands of proper load rating according to manufacturer's instructions. Always support the machine at the proper specified points. Always support the machine with stands in pairs. Always work on a hard, flat surface. Never use damaged stands. Stand could fail and spreader may fall causing serious injury, death or damage to spreader.

DANGER	Do not lift trailer or trailer with spreader using lifting device when adjusting axles. Do not lift spreader mounted to trailer using spreader lift points. Lift points may fail and spreader may fall causing serious injury, death or damage to spreader.

WARNING	Do not climb, stand or ride on axles. Falling from machine could result in serious injury or death.

WARNING	Never adjust axles without emptying the dry nutrient applicator.

FINDING DESIRED TRACK WIDTH

Setting the axles to the desired track width can be accomplished by noting the placement of the axle track position bolt located on the tail of the axle, opposite the wheel end.

To determine the location of the axle track position bolt complete the following equation:

(desired axle track [distance from wheel center to wheel center]/ 2) - 40 inches.

The result is the distance in inches to the new axle track position bolt location from the outside hole. Both sides should be adjusted equally.

For example, if the desired track width is 102 inches:

(102/2) - 40 = 11 inches (Figure 17).

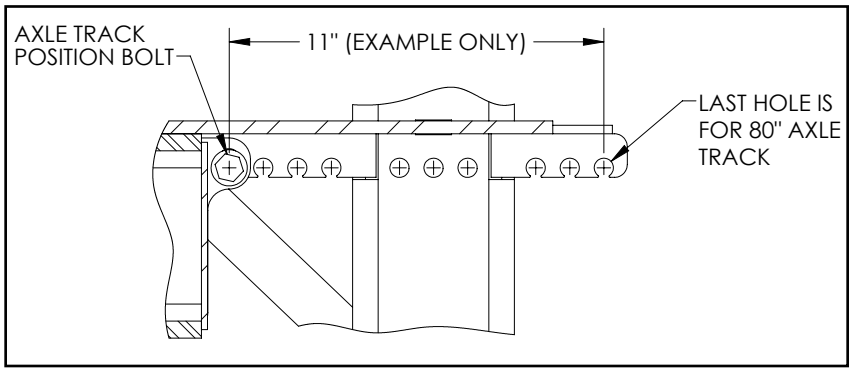


Figure 26 - Axle Track Position Bolt

ADJUSTING AXLES (Figure 27)

1. Loosen all hardware on both axles:
   - Loosen all jam nuts.
   - Back off axle jack bolts approximately 1/16 inch (1/2 turn).
   - Back off side movement limiter bolts approximately 1/4 inch (2 turns).
   - Loosen and remove axle track position bolts.

2. On hard flat surface, raise rear of machine until wheels clear ground and place jack stand supports under each lower channel.
   NOTE: Jack stands must be capable of supporting 6 tons each minimum.

3. Using appropriate sling or forklift, raise wheel to take weight off axle. Slide axle in or out to desired track position (see instructions above for determining axle track position) and align axle track position bolt in appropriate locating hole in carrier. Loosely assemble hardware to hold axle position.
4. Tighten four side movement limiter bolts and then loosen each by 1/2 turn.
5. Repeat steps 3 through 4 for other axle.
6. Remove jack stands and set wheels on ground with weight of machine on axles.
7. On one axle, torque axle jack bolt to 50 ft-lbs. Tighten jam nut.
8. Torque four side movement limiter bolts to 50 ft-lbs each. Tighten jam nuts.
9. Torque axle track position bolt to 25 ft-lbs.
10. Complete steps 7 through 9 for other axle.

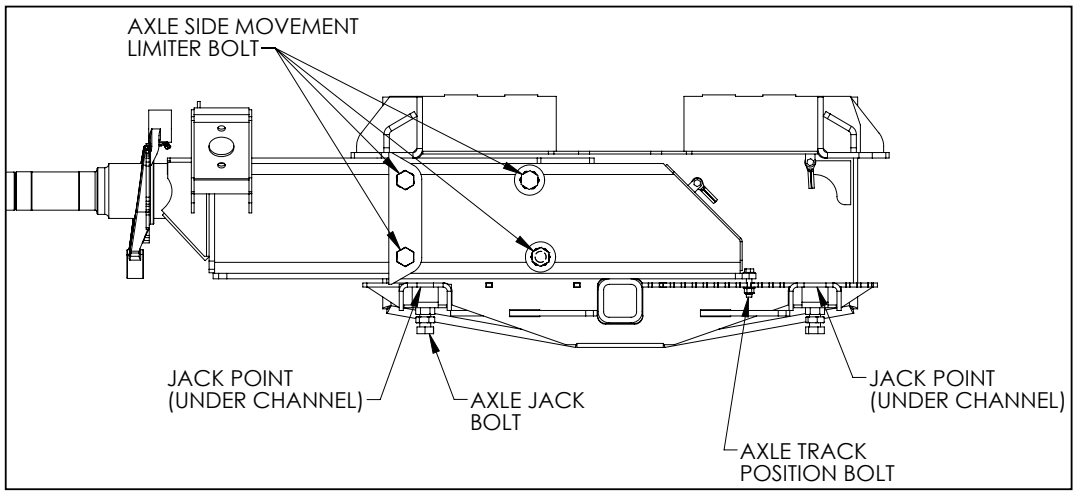


Figure 27 - Axle Adjustment
(Only one axle shown; outside plate axle carrier assembly removed for clarity)

INSPECTION LADDER

WARNING Do not ride on ladder. Falling from machine could result in serious injury or death.

Always place the inspection ladder in the storage position while in transit.

Securing Inspection ladder (Figure 28)
1. Using handle bar, raise bottom section of inspection ladder up until handle bar is even with latch.
2. Allow latch to fall into place. Lower inspection ladder into latch hook.

Lower inspection ladder
1. Using handle bar, lift ladder and rotate latch up and away from handle bar.
2. Carefully lower inspection ladder to fully extended position.

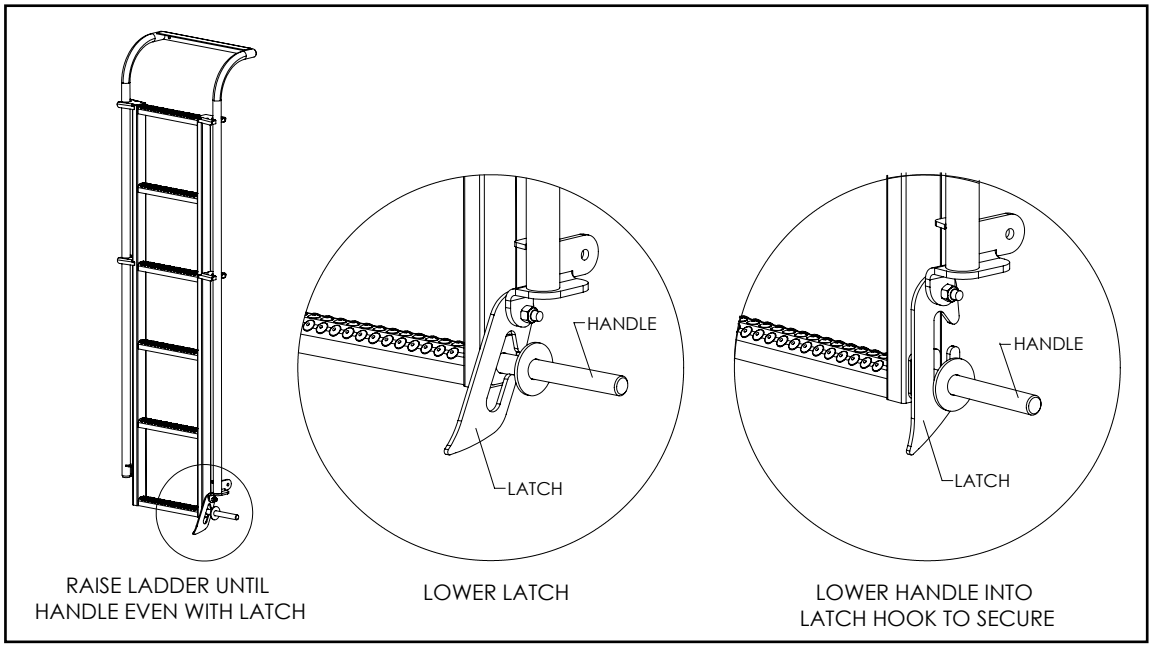


Figure 28 - Securing Inspection Ladder

DISLODGING UNIT

NOTICE! Do not tow at tie down rings. Do not attempt to pull unit free from the rear as machine may tip.

If the implement becomes stuck, empty spreader and disconnect from tractor. Hook appropriate chain to the hitch of the trailer and dislodge by pulling generally forward.

JACK

The jack supplied with the TR1000 is designed to store on top of the trailer tongue when connected to a tractor. When not connected to a tractor or when storing the TR1000, place jack in position on trailer tongue's left side to support the trailer. Securing jack in both positions is by a simple pin.

CAUTION	Spreader box must be empty before installing jack to support unit. Jack is not load rated to support loaded spreader and trailer. Jack could fail and implement could fall, causing damage to implement and possible injury.

CAUTION	Only use jack on hard, flat surface. Use wheel chocks on all wheels when storing trailer. Otherwise, trailer could move or tongue could fall and cause damage or injury.

NOTICE!	Always install and secure implement jack before removing from tractor.

1. Insert jack into holder on left side of trailer tongue and insert pin securing jack to side of trailer tongue (Figure 29).
2. Lower jack completely.

When jack not in use, store in holder on top of trailer tongue under hose & wire housing (Figure 30).

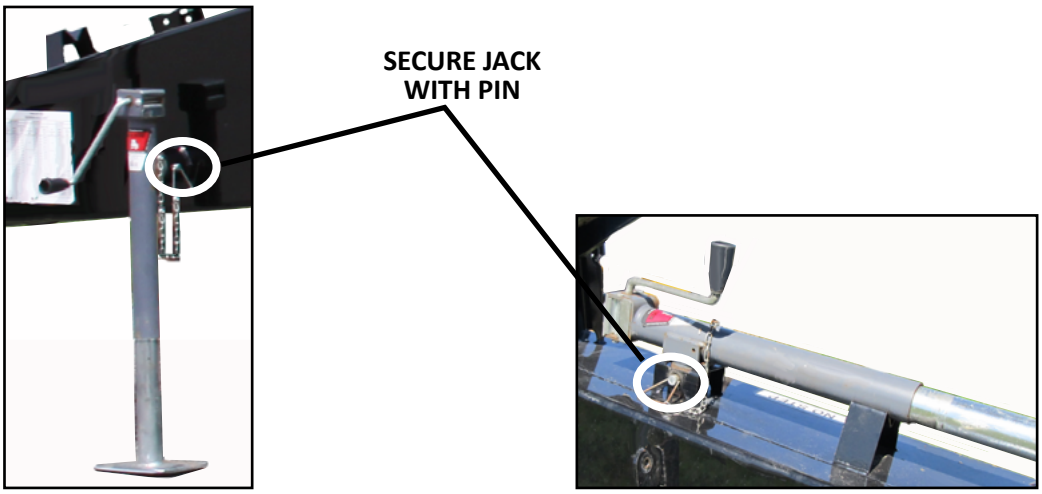


Figure 29 - Installed Jack

Figure 30 - Stored Jack

See *Tractor Hook-Up* section for instructions on connecting and removing implement from tractor.

PREVENTATIVE MAINTENANCE PAYS!

The handling and spreading of commercial fertilizers is a most severe operation with respect to metal corrosion. Establish a frequent, periodic preventative maintenance program to prevent rapid damage to spreading equipment. Proper cleaning, lubrication and maintenance will give you longer life, more satisfactory service and more economical use of your equipment.

WARNING	Shut off all power and allow all moving parts to come to rest before performing any maintenance operation. Entanglement with moving parts could cause serious injury.

WARNING!	Perform maintenance on level surface with wheels blocked. Block the wheels prior to unhitching or any maintenance of the TR1000. Uncontrolled movement of the trailer could cause death or serious injury.

SPREADER HOPPER & MULTAPPLIER

Refer to spreader hopper and MultApplier Operations Manual for lubrication and maintenance instructions.

BRAKES

Using sight window on drums' dust shields, adjust brakes, tighten slack adjuster until brake pads touch brake drums, then back off 1/4 turn.

Brake noise and/or sluggish brake response may indicate air in the brake line. To correct this problem perform the bleeding procedure listed below.

WARNING	Wear proper hand and eye protection when searching for leaks. Use wood or cardboard instead of hands. Hydraulic fluid under high pressure leaking from a pin hole is dangerous as it can penetrate the skin as though injected. Death or serious injury could occur.

CAUTION	Hydraulic fluid will squirt around hose fittings. High pressure leaks are very dangerous.

Bleeding Procedure:

1. Attach supply line to tractor.
2. Press brake pedal (or operate pump) to charge system.
3. Loosen bleeder plug on a single ram 1/2 turn.
4. Apply brakes to evacuate air from system.
5. After air has been removed, tighten bleeder plug.
6. Repeat steps 2 through 4 for each ram.
7. After 5 minutes, break the line at the highest point (Figure 31).
8. Apply brakes to evacuate air from system.
9. After air has been removed, tighten fittings.

NOTICE!	Fittings must be tightened under hydraulic pressure or air may be drawn back into system.

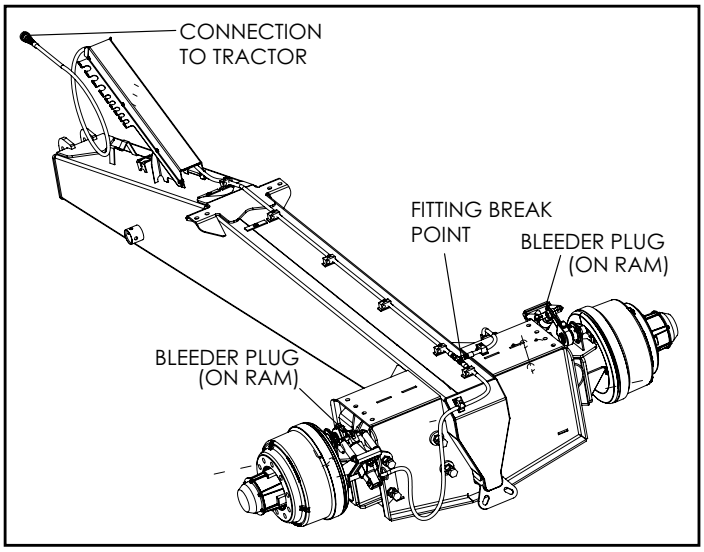


Figure 31 - Bleed Brakes

10. Apply brakes and check for leaks. Make sure all rams are fully extended while applying brakes. The ram and slack adjuster will be 90 degrees to each other (Figure 32). The ram should extend approximately 1-1/2 inch (38mm) to 1-3/4 inch (44mm).
11. If brakes chatter or rams do not fully extend, repeat steps 3 through 10.
12. When process complete and pressure is removed (brakes not applied), rams must be fully retracted.

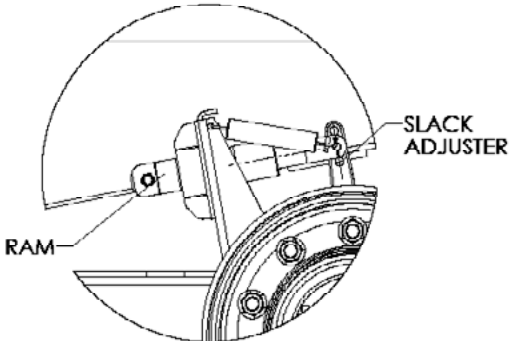


Figure 32 - 90° Ram & Slack Adjuster

TIRES

Pressure and Load

NOTICE!	Inspect tires and wheels daily for wear and/or loose hardware.

WARNING	Service of tires and rims can be dangerous. Follow all safety rules. Only specialized personnel should mount tires. Use proper equipment and procedures. Damaged tires can explode causing injury. Falling and/or rolling tires may cause injury.

DANGER	Never rework, weld, heat or braze the rim of a tire/wheel/rim assembly. Explosion of tire/rim/wheel assembly due to welding rim without first removing tire could cause serious injury or death.

WARNING	Do not over or under inflate tires. DO NOT stand in front of or over tires when inflating. If necessary, use a clip-on air chuck and extension hose. Over-inflating can cause tire to explode, causing serious injury. Always inflate tire/rim assembly with an OSHA approved cage or restraining device. Tire and rim diameters should always match.

Always maintain correct tire pressure. Set tire pressure per chart in *Tire Pressures and Transport Speeds* section.

Check tires frequently during extreme temperature swings.

See tire manufacturer for additional information.

RIMS/LUG NUTS

Wheel Replacement

CAUTION	Retorque wheel studs after 10 hours of operation.

Perform the following steps:

1. Make sure brakes are not engaged.
2. Check that all parts are free of dirt and grease. Make sure all parts are free of damage. The hub or drum mounting face must be cleaned and kept flat.
3. Position the brake drum on the pilots' raised step, seated fully against the hub.
4. Clean the wheel's center hole as necessary so it will fit easily on the hub pilots.
5. Apply two drops of oil between the nuts and flange and two drops to the last 2 or 3 threads at the end of each stud. Lightly lubricate the pilots on the hub to ease wheel installation and removal.

NOTICE!	DO NOT get lubricant on the mounting face of the drum or wheel. This will cause hardware to loosen prematurely.

6. Position hub with one pilot at 12 o'clock position. Place wheel onto hub carefully so as not to damage stud threads. Make sure wheel is fully seated against drum.
7. Install hardened spacer and nuts, finger-tight, at 12 o'clock and 6 o'clock positions. Rotate wheel 180° and make sure wheel is fully seated against drum. Repeat as needed. Install spacers and nuts finger-tight on remaining studs.
8. Tighten nuts to 50 ft-lb (67.8 N-m) following a crisscross sequence as shown in Figure 33.
9. After the wheel is installed, inspect the seating of the wheels on all four pilots and turn the wheel checking for irregularity of the wheel assembly. This will ensure the wheel is seated on the pilots and flat against the drum.
10. Tighten all nuts to 450-500 ft-lb (610.2-678 N-m) using the crisscross sequence as shown in Figure 24.
11. Repeat torque sequence until all nuts are consistent to 450-500 ft-lb (610.2-678 N-m).

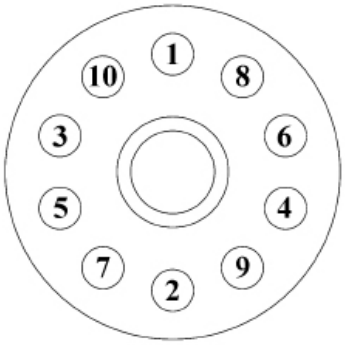


Figure 33 - Nut Tightening

ALL GREASE POINTS

See *Lubrication and Maintenance Chart* section.

STORAGE

WARNING	Never store implement with material in spreader. Implement could tip and crush or strike someone causing serious injury or even death.

General
1. Inspect and lube per maintenance instructions.
2. Empty any material from spreader.
3. Pressure wash
4. Store indoors on a hard, level surface, with blocked tires to prevent movement.

CLEAN UP

NOTICE!	High pressure wash can inject water and/or fertilizer into control components, causing damage. Use caution when cleaning these areas.

Thoroughly wash implement every two to three days during the operating season to maintain minimal maintenance operation. Hose implement down under pressure to free all sticky and frozen material.

It is important the implement be thoroughly cleaned at the end of each operating season. All lubrication and maintenance instructions should be closely followed. Repaint worn spots to prevent formation of rust.

FASTENERS

Tighten all fasteners to recommended torques after first week of operation and annually thereafter per the *Standard Torques National Coarse (NC) Cap Screws Chart* in this manual or as specified. If loose fasteners are found at anytime, tighten to recommended torque. Replace any lost or damaged fasteners or other parts immediately.

NOTICE!	The lubricant distributor and/or supplier is to be held responsible for results obtained from their products. Procure lubricants from distributors and/or suppliers of unquestioned integrity, supplying known and tested products. Do not jeopardize your equipment with inferior lubricants. No specific brands of oil are recommended. Use only products qualified under the following oil viscosity specifications and classification recommended by reputable oil companies.

HYDRAULIC SYSTEM

Use premium quality lubricants with 100-200 SUS or 20-43 cSt viscosity at operating temperatures. The hydraulic fluid's specifications in the table below are for normal operating conditions. Extreme environments or dirty conditions may require the use of different oils. Consult your tractor manual for maintenance of system..

Ideal Oil Operating Temperature	115-158°F (46-70 C°)
Recommended Premium Lubricant	Multi-Purpose Agriculture Hydraulic & Transmission Oil
Lubricant Specifications Viscosity Index Viscosity at 40°C, cSt Viscosity at 100°C, cSt	 Greater than 130 Less than 68 Greater than 9
Acceptable Fluid Sample	John Deere Hy-Gard® J20C

GREASE GUN LUBRICANT

Use a grease with the following properties:

Soap Type - Lithium Complex or Equivalent
Additives - Corrosion & Oxidation Inhibitors, EP Optional
Base Oil - Solvent Refined Petroleum Oil
Consistency - NLGI No. 2 or No. 1

WHEEL BEARING GREASE

Wheel bearing grease will last as long as the wheel bearings are intact and not replaced. If the wheel bearings need to be replaced use the approved synthetic grease Chevron Delo, product code: 235253.

LUBRICATION AND MAINTENANCE CHART

Refer to spreader hopper Operations Manual for lubrication and hydraulic oil specifications.

The trailer should be regularly lubricated with the lubricants recommended in this manual in accordance with the following chart (Figure 34):

LOCATION	PLACES	METHOD	FREQUENCY
Hitch (a)	1	Grease Gun	Weekly
Slack Adjuster (b)	2	Grease Gun	Weekly
S-Cam Bushing (c)	4	Grease Gun	Weekly
Hub (d)	2	Synthetic "Semi Fluid" Long Life Grease	If hub is removed for servicing.

NOTE: Unusual conditions, such as excessive dust, temperature extremes or excessive moisture may require more frequent lubrication of specific parts.

*See Lubricant and Hydraulic Oil Specifications for types of lubricants and oil to be used.

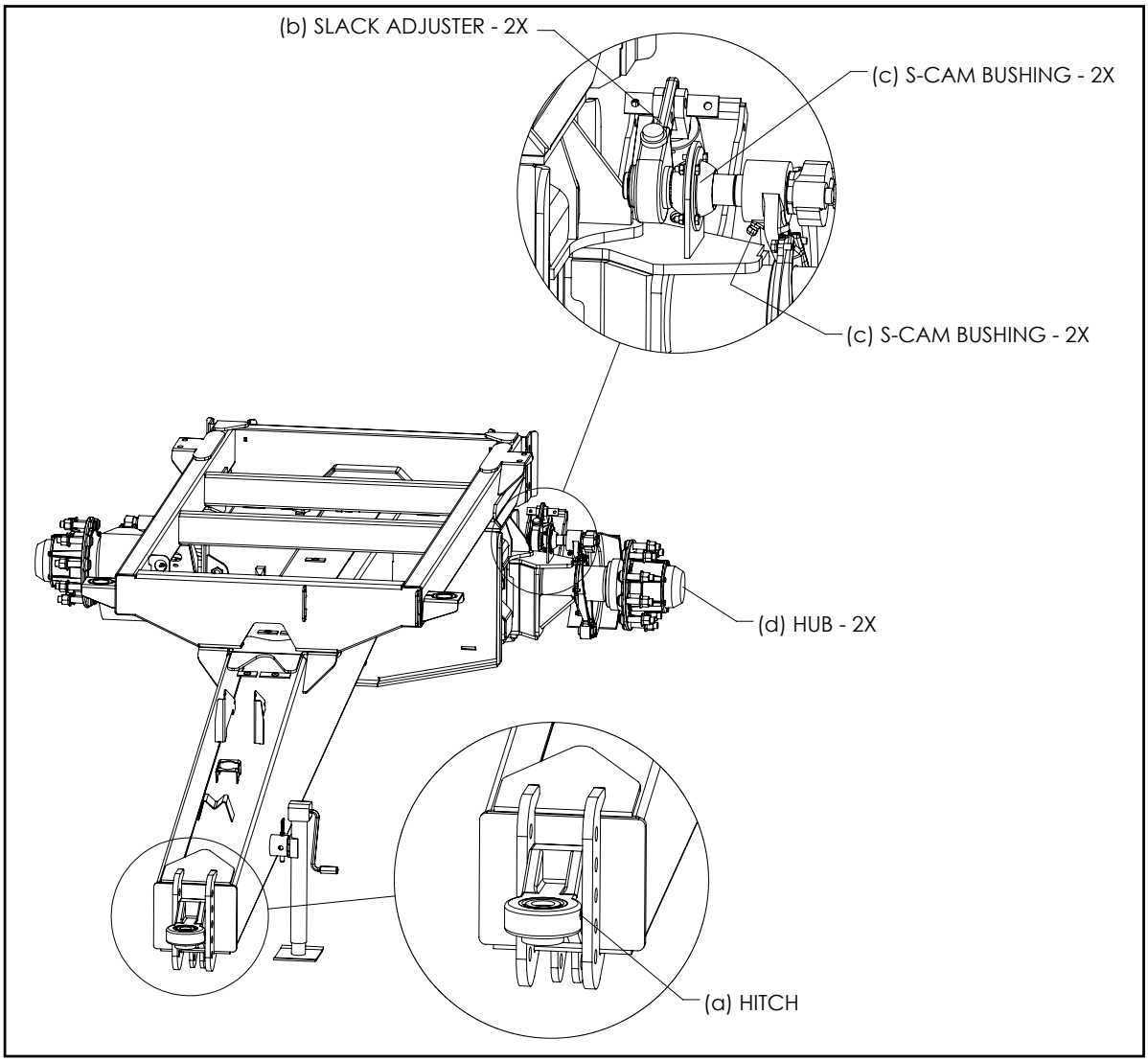


Figure 34 - Lubrication Points
NOTE: Brake drum, dust shield, and brake shoe removed for clarity

Before contacting your authorized dealer or our Product Sales and Support Department for service assistance, make sure you have all related product serial numbers. Serial numbers are marked on the serial tag attached to all Highway Equipment products.

SERIAL TAG LOCATIONS

- TR1000 Front end of trailer tongue above hitch (Figure 35)
- Spreader Front left side of spreader above oiler (Figure 36)
- MultApplier Bottom left of rear endgate (Figure 37)

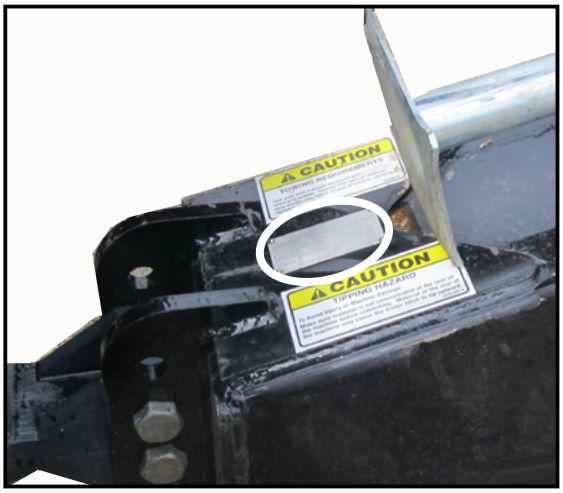
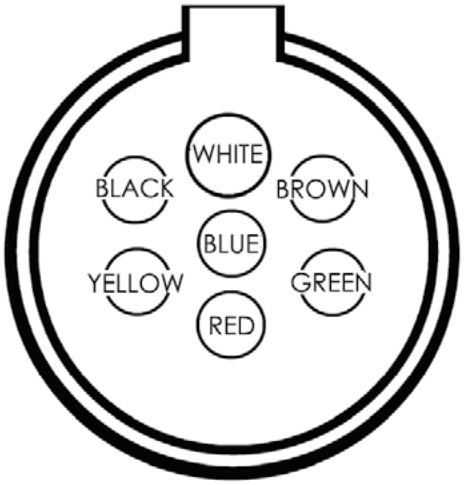


Figure 35 - TR1000 Serial Tag

Figure 36 - Spreader Serial Tag

Figure 37 - MultApplier Serial Tag

ELECTRICAL CONTROLLER



WIRING CODE

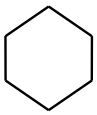
- White Wire (Ground)
- Black Wire (Not Used)
- Yellow Wire (LH Flash Warning & Turn Light)
- Red Wire (Stop Lights)
- Green Wire (RH Flash Warning & Turn Light)
- Brown Wire (Tail Lights)

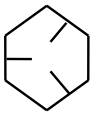
TROUBLESHOOTING

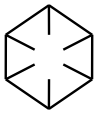
ISSUE	SOLUTION
No hydraulic functions	Check for proper connections to tractor
	Check that enable valve is removed
	Check SCV settings for proper direction and flow
	Refer to spreader manual
Spinner cannot achieve speed	Check SCV flow settings
	Refer to spreader manual
Unit cannot achieve rates	Exceeding tractor hydraulic capabilities
	Refer to spreader manual
	Refer to controller manual for proper setup
Lights are not functioning	Check connections at tractor and at bulkhead
Brakes are not functioning	Check connections at tractor
	Check adjustment
	Refer to tractor manual for proper setup of trailer brake port

STANDARD TORQUES NATIONAL COARSE (NC) CAPSCREW GRADES

CAP SCREW GRADE IDENTIFICATION - MARKINGS ON HEAD

SAE GRADE 2  NO MARKINGS

SAE GRADE 5  THREE MARKS - 120 DEGREES APART

SAE GRADE 8  SIX MARKS - 60 DEGREES APART

USE GRADE 2 TORQUES FOR STAINLESS STEEL FASTENERS AND CARRIAGE BOLTS.

	TORQUE - FOOT-POUNDS					
CAP SCREW SIZE	GRADE 2		GRADE 5		GRADE 8	
	DRY	LUBE	DRY	LUBE	DRY	LUBE
1/4”	5	4	8	6	12	9
5/16”	11	8	17	13	25	18
3/8”	20	15	30	23	45	35
7/16”	30	24	50	35	70	55
1/2”	50	35	75	55	110	80
9/16”	65	50	110	80	150	110
5/8”	90	70	150	110	220	170
3/4”	100	120	260	200	380	280
7/8”	140	110	400	300	600	460
1”	220	160	580	440	900	650

Hi-Way NEW LEADER
Highway Equipment Company
Building the best since 1939.

Order from the AUTHORIZED DEALER in your area.

1. Always give the pertinent model and serial number.
2. Give part name, part number and the quantity required.
3. Give the correct address to where the parts are to be shipped, and the carrier if there is a preference.

Unless claims for shortages or errors are made immediately upon receipt of goods they will not be considered. Any part returns should be directed through the dealer from which they were purchased.

When broken goods are received, a full description of the damage should be made by the carrier agent on the freight bill. If this description is insisted upon, full damage can always be collected from the transportation company.

No responsibility is assumed for delay or damage to merchandise while in transit. Our responsibility ceases upon delivery of shipment to the transportation company from whom a receipt is received showing that shipment was in good condition when delivered to them, therefore, claims (if any) should be filed with the transportation company and not with Highway Equipment Company.

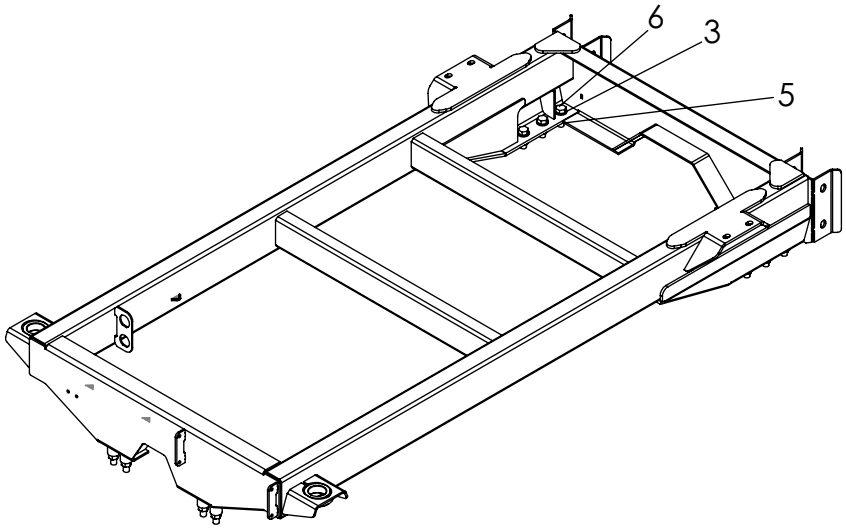
If your claims are not being handled (by the transportation company) to your satisfaction, please call the Parts Manager at Highway Equipment Company (319-363-8281) for assistance.

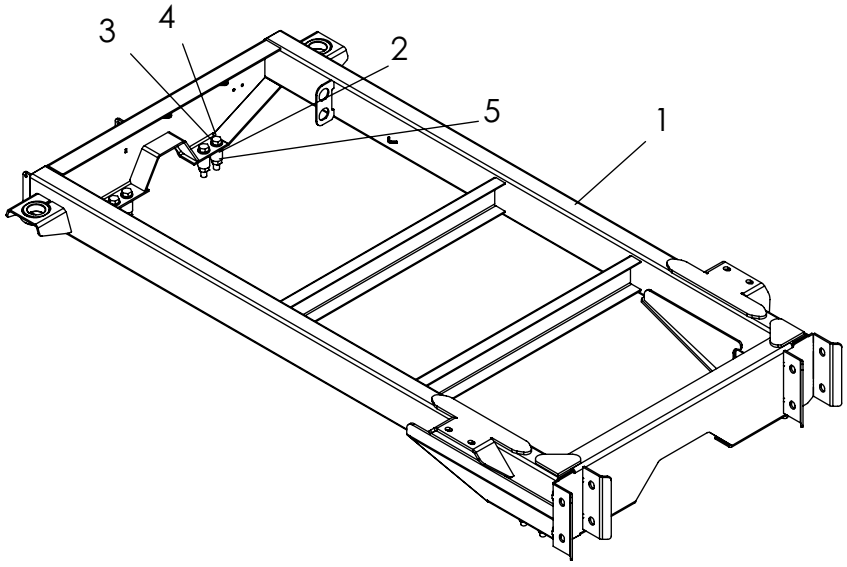
In the parts list the following symbols and abbreviations stand for:

* - Not Shown
AR – As Required
CS – Carbon Steel
SS – Stainless Steel

The parts listed under the different steel types (CS, 409 SS and 304 SS) are for that type of spreader and do not necessarily mean the part is made of that type of steel.

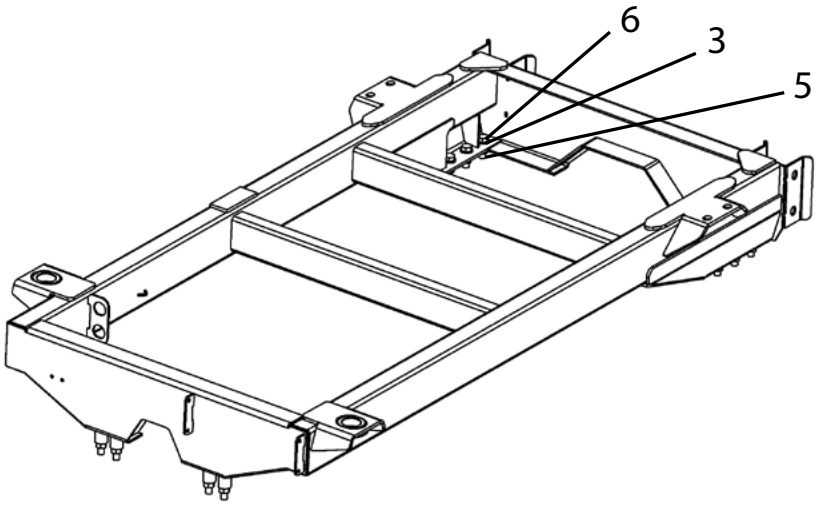
SUBFRAME - L3220/L3030

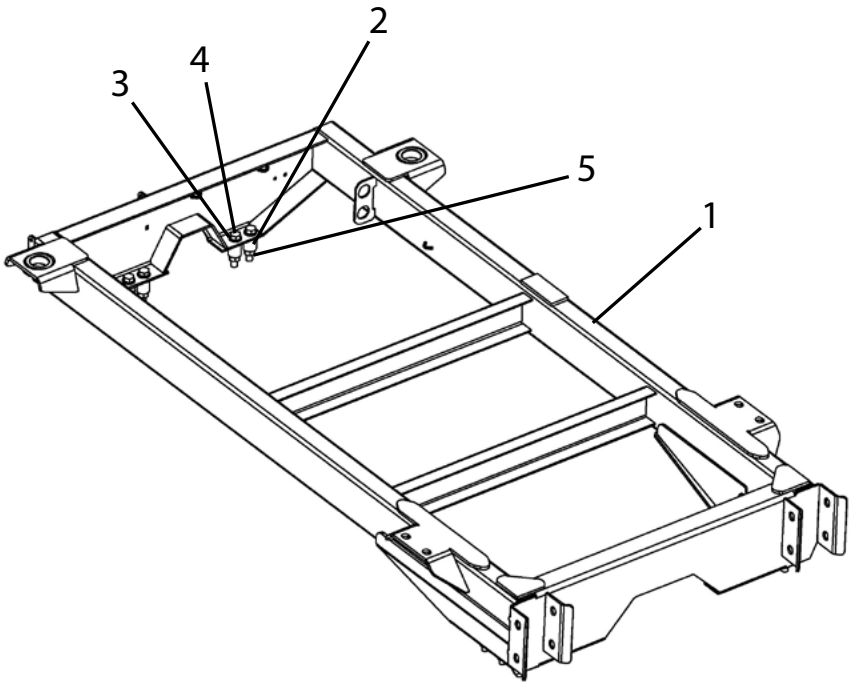




ITEM	PART NO.	DESCRIPTION	QTY
1	309177	Subframe - John Deere 4900	1
2	305795	Spacer - Bolt	4
3	34579	Washer - Flat 3/4 hardened	10
4	303692	Cap Screw - 3/4-10NC x 4 GR8	4
5	97015	Nut - Hex 3/4-10NC GR8	10
6	89536	Cap Screw - 3/4-10NC x 2-1/4 GR8	6

SUBFRAME - NL200/NL300





ITEM	PART NO.	DESCRIPTION	QTY
1	310201	Subframe - John Deere 4 Series	1
2	305795	Spacer - Bolt	4
3	34579	Washer - Flat 3/4 hardened	10
4	303692	Cap Screw - 3/4-10NC x 4 GR8	4
5	97015	Nut - Hex 3/4-10NC GR8	10
6	89536	Cap Screw - 3/4-10NC x 2-1/4 GR8	6

NOTES

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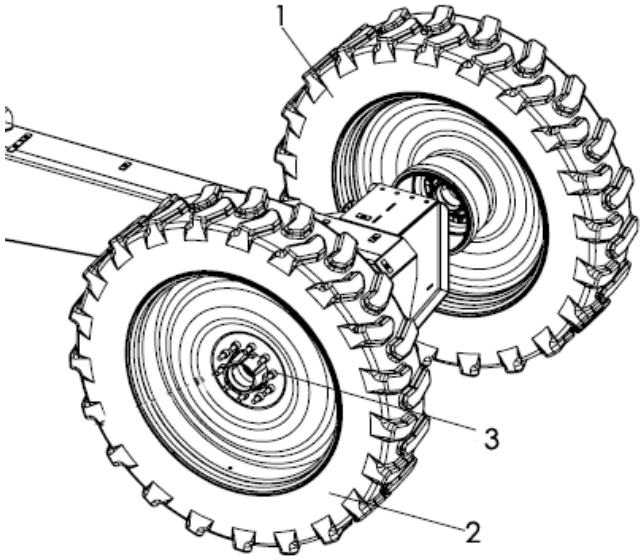
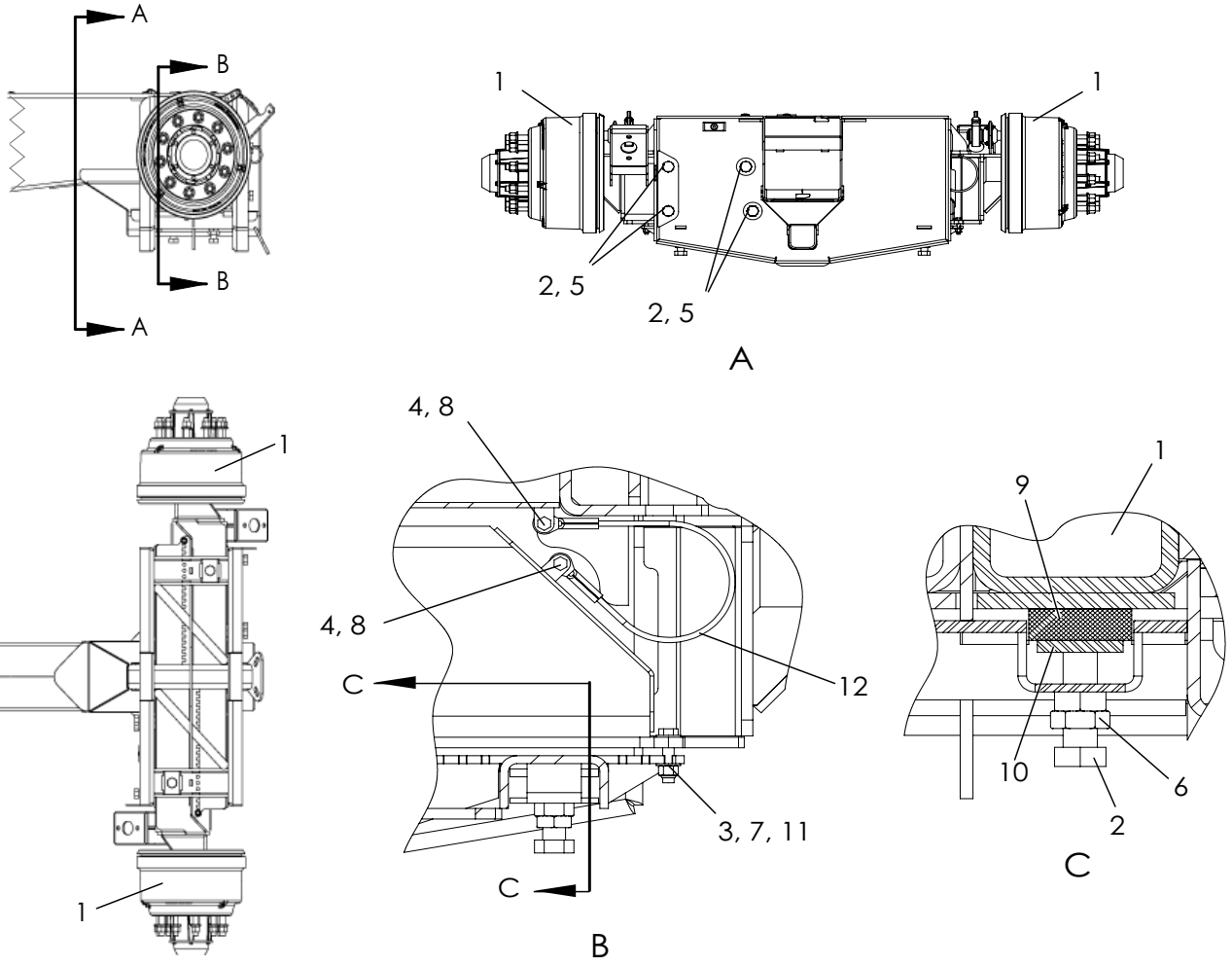
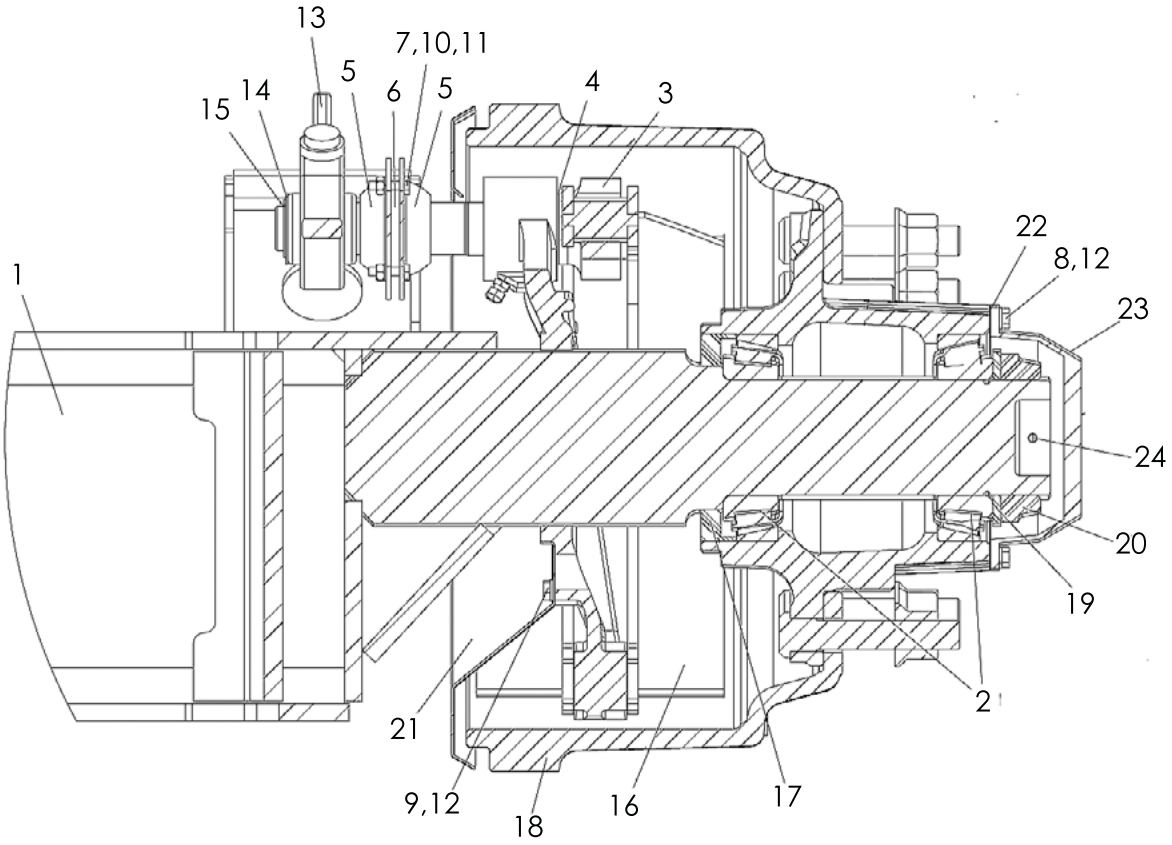


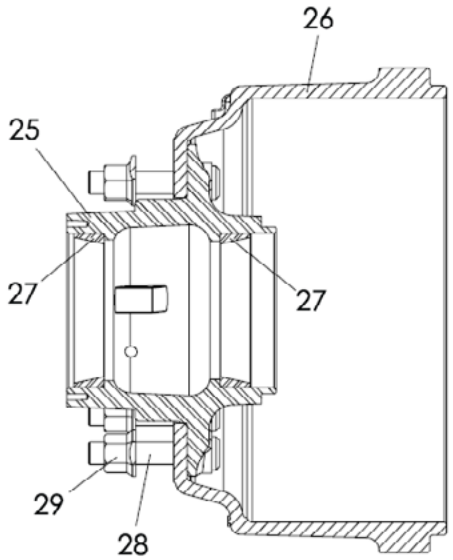
ITEM	PART NO.	DESCRIPTION	QTY
1	309289-AA	Tire - Assy Mounted 380/90R46	1
	309287	Wheel	1
	309285	Tire	1
	309290-AA	Tire - Assy Mounted 480/80R42	1
	309288	Wheel	1
	309286	Tire	1
	309325-AA	Tire - Assy Mounted 710/70R38	1
	309323	Wheel	1
	309324	Tire	1
2	309289-AB	Tire - Assy Mounted 380/90R46	1
	309287	Wheel	1
	309285	Tire	1
	309290-AB	Tire - Assy Mounted 480/80R42	1
	309288	Wheel	1
	309286	Tire	1
	309325-AB	Tire - Assy Mounted 710/70R38	1
	309323	Wheel	1
	309324	Tire	1
3	309291	Wheel - Install Group	1
	305794	Spacer - Wheel Bolt	20



ITEM	PART NO.	DESCRIPTION	QTY
1	309226	Axle/Hub - Assy, see *Axle/Hub Assembly* page	2
2	43080-X2	Cap Screw - 1-8NC x 3 GR8	10
3	20132-X1	Cap Screw - 1/2-13NC x 2-1/4 GR8	2
4	20068	Cap Screw - 3/8-16NC x 1-1/4	4
5	20651	Nut - Hex 1-8NC	8
6	309218	Nut - Jam 1-8NC	2
7	20680	Nut - Lock 1/2-13NC	2
8	20678	Nut - Lock 3/8-16NC	4
9	309313	Block - 3 x 3.875 x 1” UHMW	2
10	309314	Plate - 2.5 x 3.875” 304	2
11	20261	Washer - Flat 1/2 SAE	4
12	309309	Lanyard - 20.25” eyelet coated	2

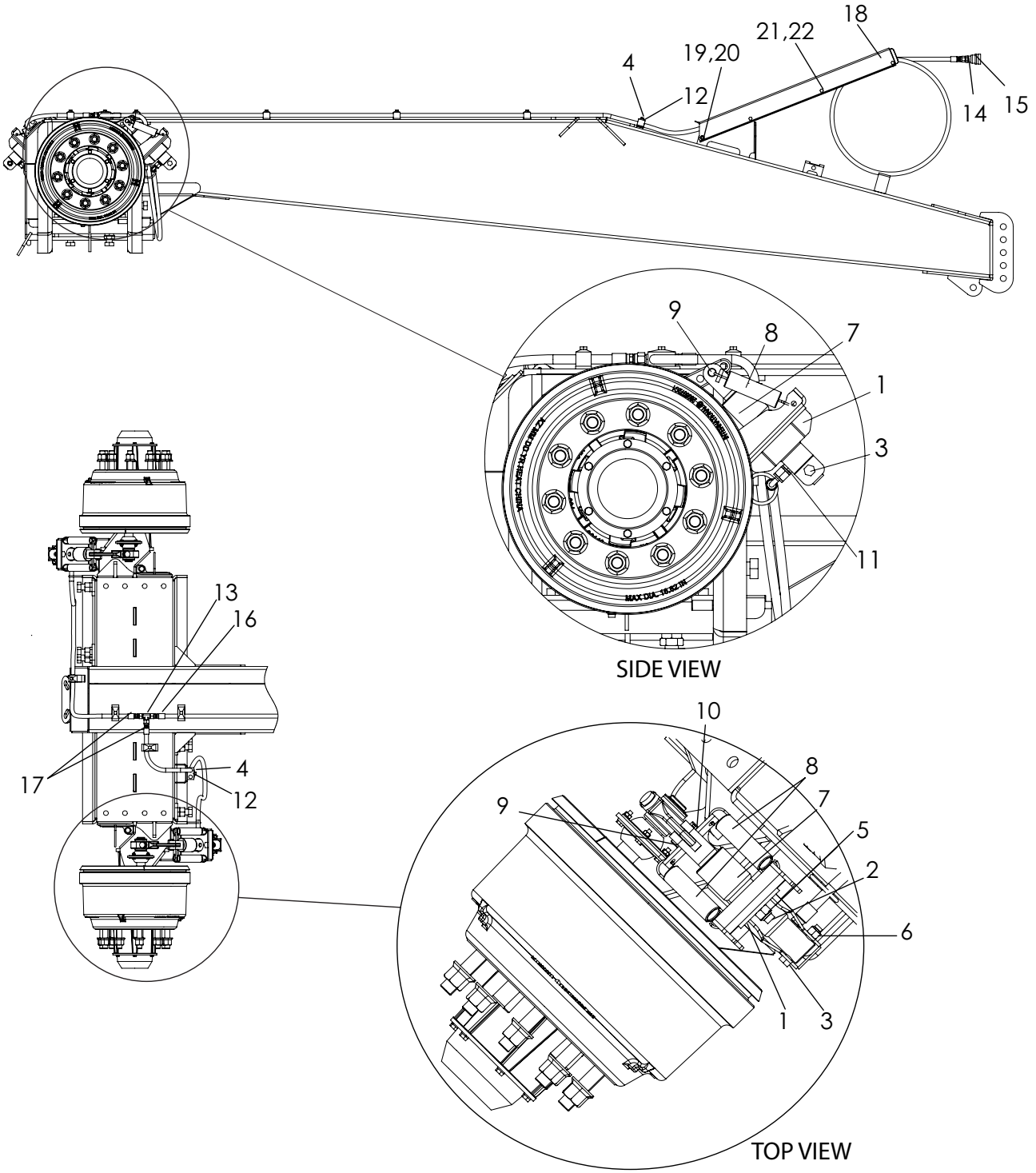
AXLE/HUB ASSEMBLY





AXLE/HUB ASSEMBLY CONTINUED

ITEM	PART NO.	DESCRIPTION	QTY
1	309150	Axle - Wldmt	1
2	309210	Bearing Cone	2
3	309209	Camshaft - LH	1
4	304978	Spacer - Cam 1-1/2	1
5	304932	Cover - Cam Bushing	2
6	304987	Bushing - Cam	1
7	20005	Cap Screw - 1/4-20NC x 1	4
8	20036	Cap Screw - 5/16-18NC x 1	6
9	20034	Cap Screw - 5/16-18NC x 3/4	6
10	20642	Nut - Hex 1/4-20NC	4
11	20710	Washer - Lock 1/4	4
12	20711	Washer - Lock 5/16	12
13	304935	Slack Adjuster	1
14	304980	Spacer - Cam 1-1/4	1
15	304982	Ring - Snap External 1-1/4	1
16	304928	Brake Shoe - Assy	1
17	309215	Seal - Grease	1
18	309214	Hub - Assy, Includes 25-29	1
19	309211	Washer - Spindle 3-1/2 x 7/32	1
20	309212	Nut - Spindle	1
21	304984	Dust Shield	1
22	304986	Gasket - Hub Cap	1
23	309217	Cap - Hub Black	1
24	20832	Pin - Cotter 1/4 x 1-1/2	1
25	309214-AA	Hub - Wheel	1
26	309214-AB	Drum - Brake	1
27	309214-AE	Bearing - Cup	2
28	304926-AC	Stud	10
29	304926-AD	Nut - Flange	10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SIDE VIEW
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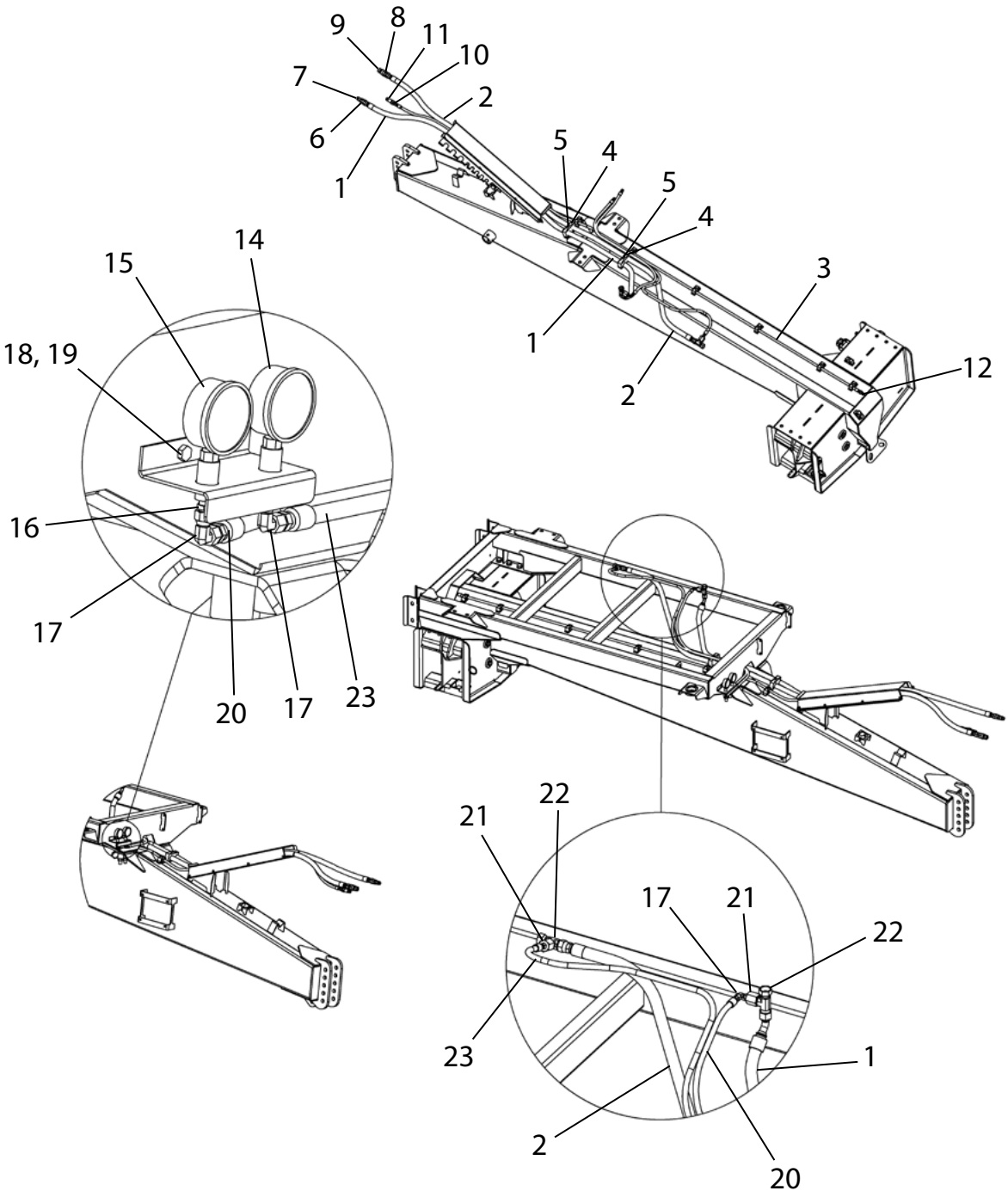
TOP VIEW

ITEM	PART NO.	DESCRIPTION	QTY
1	305369	Mount - Wldmt Ram Brake	2
2	20175	Cap Screw - 5/8-11NC x 1-1/2	4
3	20135	Cap Screw - 1/2-13NC x 3	2
4	20038	Cap Screw - 5/16-18NC x 1-1/2	9
5	20682	Nut - Lock 5/8-11NC	4
6	20680	Nut - Lock 1/2-13NC	2
7	305358	Cylinder - Ram 1-1/2 x 3	2
8	305359	Spring - Extension	4
9	21028	Pin - Clevis 1/2 x 1-3/4	2
10	20817	Pin - Cotter 1/8 x 1	2
11	34809	Fitting - 8-6 070120	2
12	305410	Clamp - Tubing Twin 5/8”	9
13	86419	Fitting - 8-8-8 070401	1
14	306050	Fitting - 8-18 x 1.5 070187	1
15	305416	Coupling - Disconnect ISO 5676	1
16	309252	Hose - Assy .375 x 216 100R1	1
17	309253	Hose - Assy .375 x 64 100R1	2
18	309321	Channel - Hose Guide	1
19	20678	Nut - Lock 3/8-16NC	2
20	20065	Cap Screw - 3/8-16NC x 3/4	2
21	20052	Cap Screw - 5/16-18NC x 5	3
22	20677	Nut - Lock 5/16-18NC	3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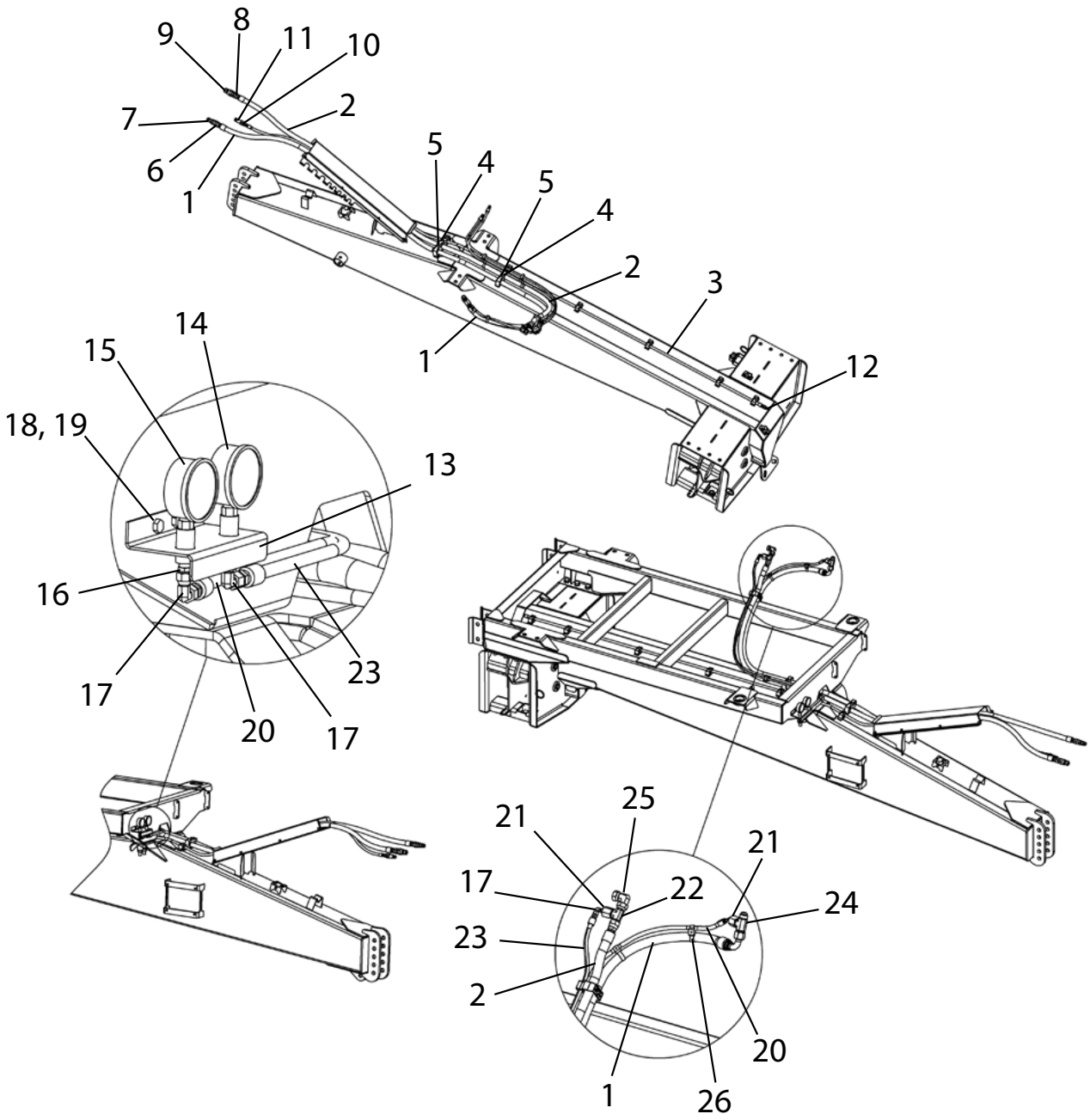
HOSE GROUP - L3220/L3030 CONTINUED

ITEM	PART NO.	DESCRIPTION	QTY
1	309255	Hose - Assy .75 x 164 100R12	1
2	77840	Hose - Assy .75 x 187 100R2	1
3	309297	Hose - Assy .375 x 308 CB	1
4	305928	Clamp - Tubing Twin 1.25”	2
5	20042	Cap Screw - 5/16-18NC x 2-1/2	2
6	34811	Fitting - 12-8 070120	1
7	305262	Nipple - QD 1/2” AG ISO 5675	1
8	305263	Valve - Check	1
9	309294	Disconnect - Quick .75 Male ISO 7241/SERIES A	1
10	84246	Fitting - 6-8 070120	1
11	309295	Disconnect - Quick .375 Male ISO 16028	1
12	309298	Fitting - 6-6 070101	1
13	304948	Bracket - Wldmt Gauge	1
14	28389	Gauge - Hydraulic	1
15	76044	Gauge - Hydraulic 5000PSI	1
16	29765	Fitting - 4-4 070102	2
17	34868	Fitting - 4-4 070221	3
18	20036	Cap Screw - 5/16-18NC x 1	2
19	20677	Nut - Lock 5/16-18NC	2
20	307128	Hose - Assy .25 100R1 x 80	1
21	56353	Fitting - 12-4 070123	2
22	29781	Tee - Swivel Nut	2
23	304951	Hose - Assy .25 x 100 100R1	1

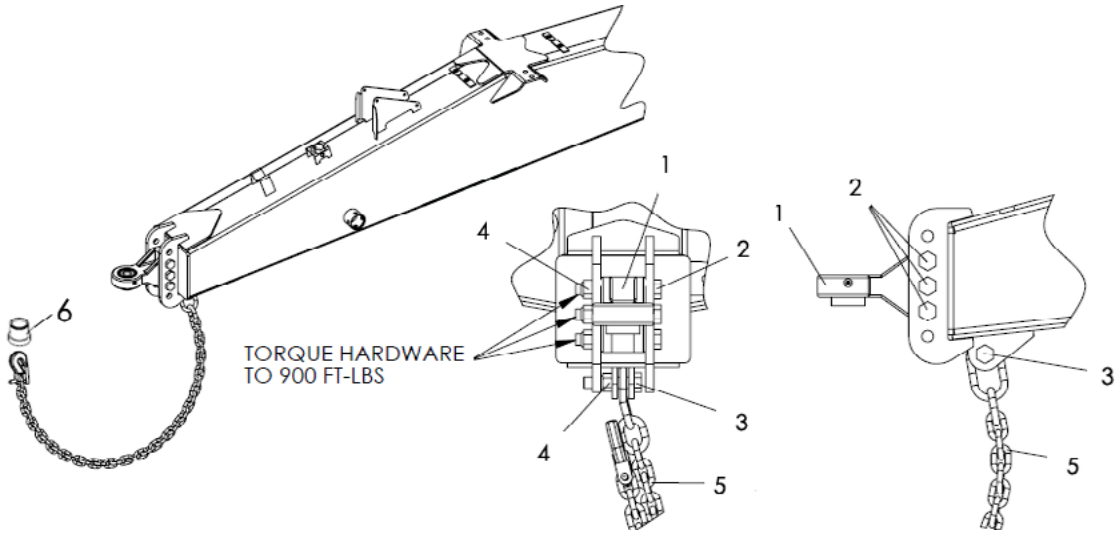
HOSE GROUP - NL200/NL300



ITEM	PART NO.	DESCRIPTION	QTY
1	312566	Hose - Assy .75 x 200 100R12	1
2	77840	Hose - Assy .75 x 187 100R2	1
3	309297	Hose - Assy .375 x 308 CB	1
4	305928	Clamp - Tubing Twin 1.25”	2
5	20042	Cap Screw - 5/16-18NC x 2-1/2	2
6	34811	Fitting - 12-8 070120	1
7	305262	Nipple - QD 1/2” AG ISO 5675	1
8	305263	Valve - Check	1
9	309294	Disconnect - Quick .75 Male ISO 7241/SERIES A	1
10	84246	Fitting - 6-8 070120	1
11	309295	Disconnect - Quick .375 Male ISO 16028	1
12	309298	Fitting - 6-6 070101	1
13	304948	Bracket - Wldmt Gauge	1
14	28389	Gauge - Hydraulic	1
15	76044	Gauge - Hydraulic 5000PSI	1
16	29765	Fitting - 4-4 070102	2
17	34868	Fitting - 4-4 070221	3
18	20036	Cap Screw - 5/16-18NC x 1	2
19	20677	Nut - Lock 5/16-18NC	2
20	312569	Hose - Assy .25 100R1 x 90	1
21	56353	Fitting - 12-4 070123	2
22	29781	Tee - Swivel Nut	1
23	312568	Hose - Assy .25 x 70 100R1	1
24	29792	Fitting - 12-12-12 070401	1
25	34709	Fitting - 12-12 070221	1
26	310648	Tie - Dual Clamp	AR

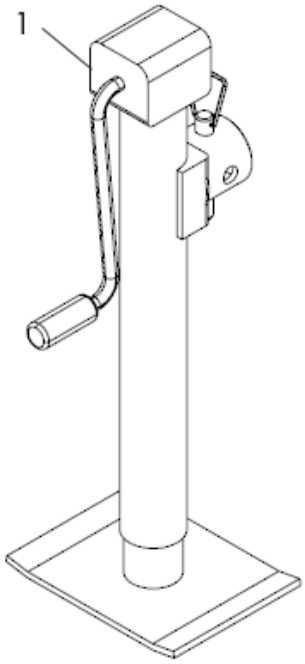
*AR = As Required

HITCH GROUP



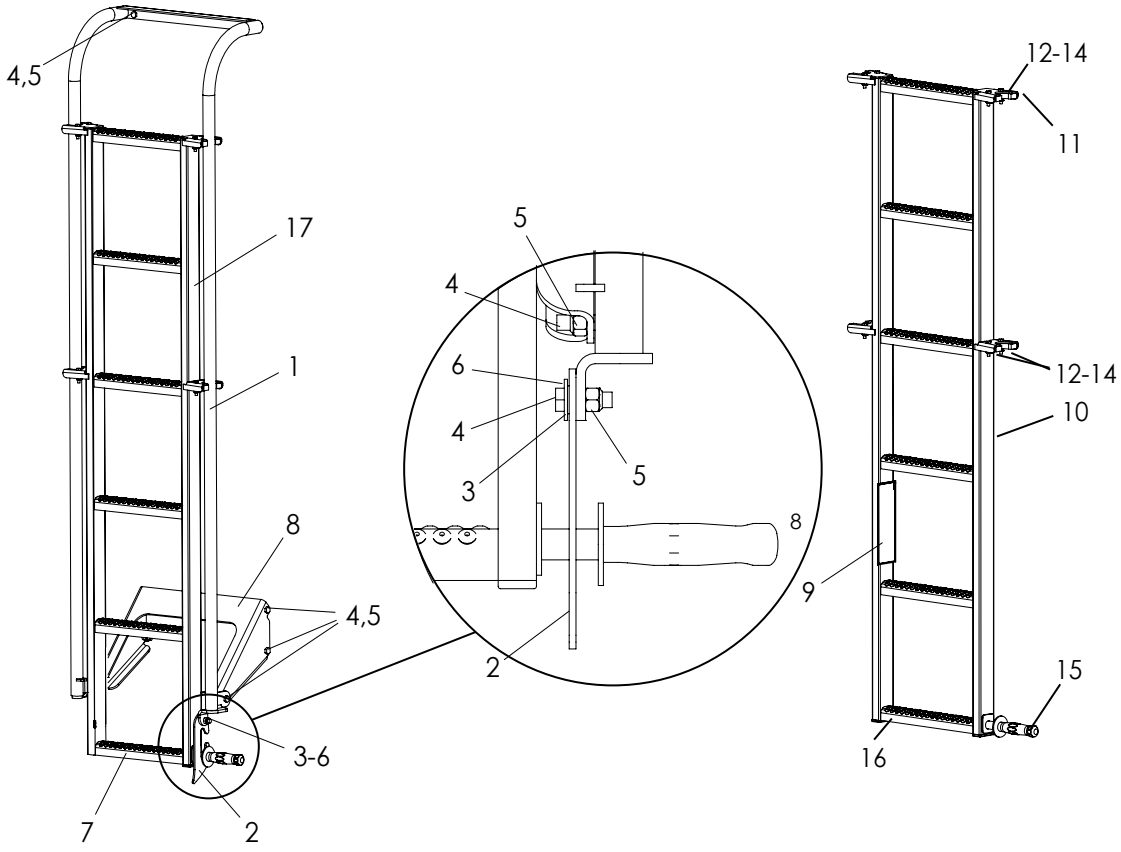
ITEM	PART NO.	DESCRIPTION	QTY
1	309240	Hitch - Bull-Pull w/ 1-1/2” Adapter	1
2	89545	Cap Screw - 1-8NC x 7 GR8	3
3	305702	Cap Screw - 1-8NC x 4-1/2 GR8	1
4	20685	Nut - Lock 1-8NC	4
5	305194	Chain - Safety 40K	1
6	307072	Adapter - 2” Draw Pin Bull-Pull	1

JACK

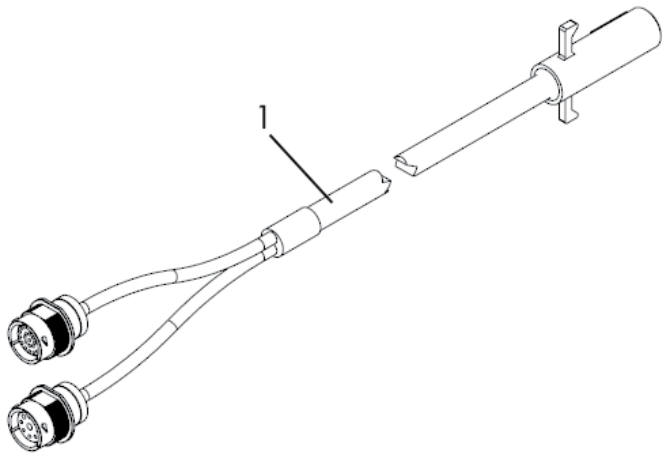


ITEM	PART NO.	DESCRIPTION	QTY
1	309239	Jack	1

INSPECTION LADDER

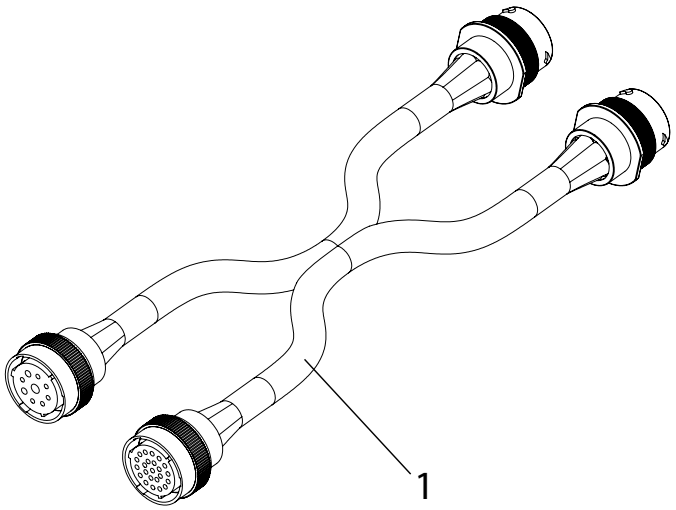


ITEM	PART NO.	DESCRIPTION	QTY
1	310176	Rails - Wldmt Slider	1
2	310188	Latch	1
3	310189	Pipe 304	1
4	20068	Cap Screw - 3/8-16NC x 1-1/4	9
5	20678	Nut - Lock 3/8-16NC	9
6	20693	Washer - Flat 3/8	1
7	310195	Ladder - Assy, includes 9-16	1
8	310190	Bracket - Ladder Mounting	1
9	305274	Decal - Falling Hazard	1
10	310175	Ladder - Wldmt	1
11	310194	Slider Bushing	4
12	20006	Cap Screw - 1/4-20NC x 1-1/4	8
13	20691	Washer - Flat 1/4	8
14	20676	Nut - Lock 1/4-20NC	8
15	310193	Handle - Grip	1
16	310192	Plug - Cap	2



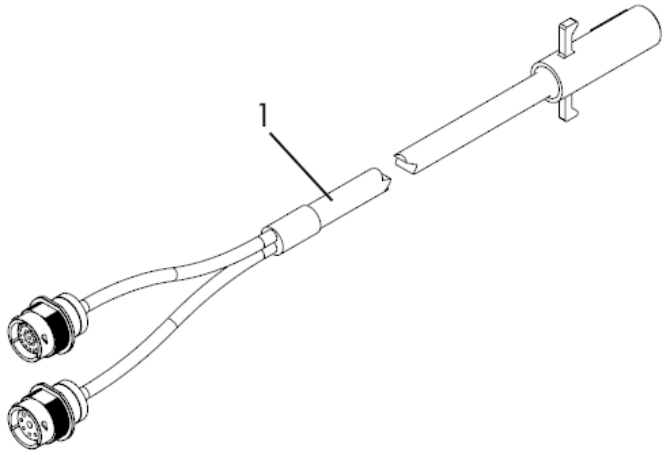
ITEM	PART NO.	DESCRIPTION	QTY
1	309331	Light Harness	1

ADAPTER HARNESS - L3220/L3030

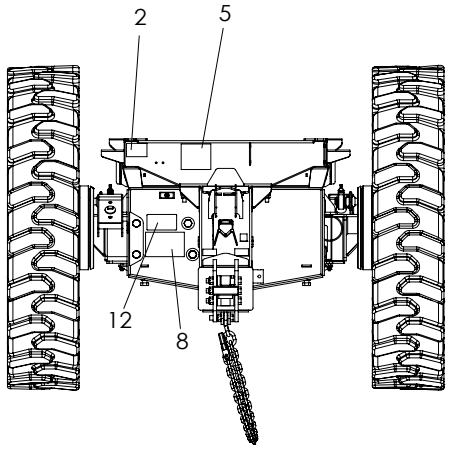


ITEM	PART NO.	DESCRIPTION	QTY
1	308829	Adapter Harness - 4940 Box to 4930 Chassis	1

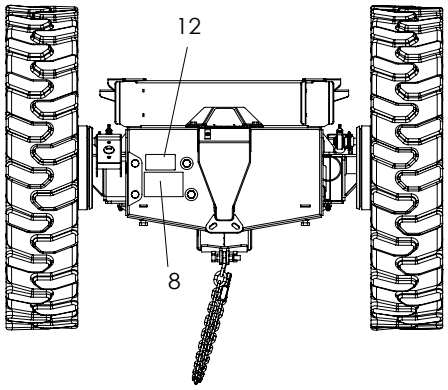
LIGHT HARNESS - NL200/NL300



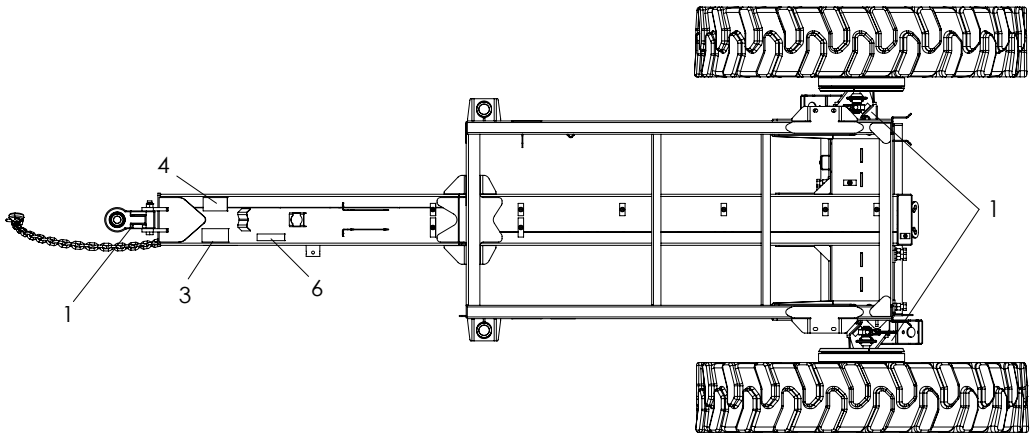
ITEM	PART NO.	DESCRIPTION	QTY
1	312560	Light Harness	1

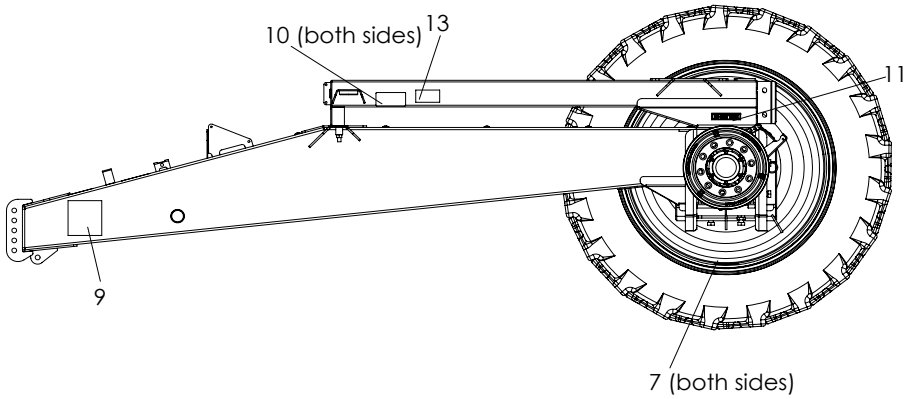


FRONT



REAR

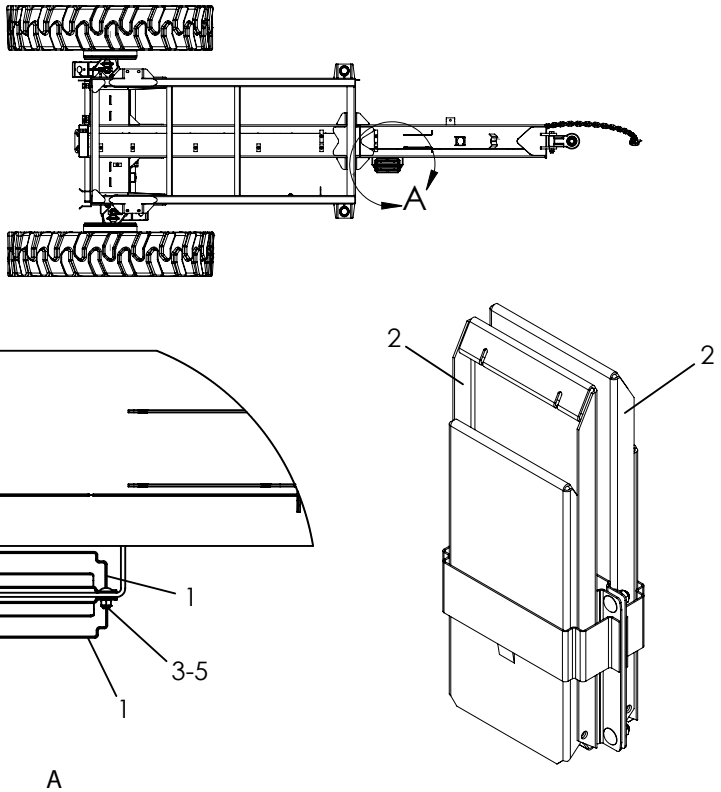




DECALS CONTINUED

ITEM	PART NO.	DESCRIPTION	QTY
1	305239	Decal - Grease	3
2	305298	Decal - Weight Restrictions	1
3	305289	Decal - Caution Tipping	1
4	309329	Decal - Caution Tow Requirements	1
5	305281	Decal - Caution Braking	1
6	39017	Decal - No Step	1
7	305745	Decal - Notice Tightening	2
8	309283	Decal - Axle Track Adjustment	2
9	309326	Decal - Trailer Tire Speed 380, 480, 710	1
10	309911	Decal - Crush Hazard	2
11	305272	Decal - Do Not Ride	2
12	309910	Decal - Crush Hazard	2
13	308196	Decal - Read Manual	1

See *Inspection Ladder* parts list for more decals



A

ITEM	PART NO.	DESCRIPTION	QTY
1	310199	Holder - Wheel Chock	2
2	310198	Chock - Wheel	2
3	20318	Bolt - Carriage 3/8-16NC x 1	4
4	20693	Washer - Flat 3/8	4
5	20678	Nut - Lock 3/8-16NC	4