NEW LEADER®

MODEL NL450C

The NL450C includes the L5034G4 & the TR3000.

L5034G4 SERIAL NUMBER _____
TR3000 SERIAL NUMBER _____

MANUAL NUMBER: 307306-C

EFFECTIVE 11/2015

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

1330 76TH AVE SW
CEDAR RAPIDS, IA 52404-7052
PHONE (319) 363-8281 | FAX (319) 286-3350
www.highwayequipment.com

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INSERT CURRENT NEW LEADER WARRANTY

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 or 319-363-8281.

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 1-888-363-8006 or (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 decal 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.

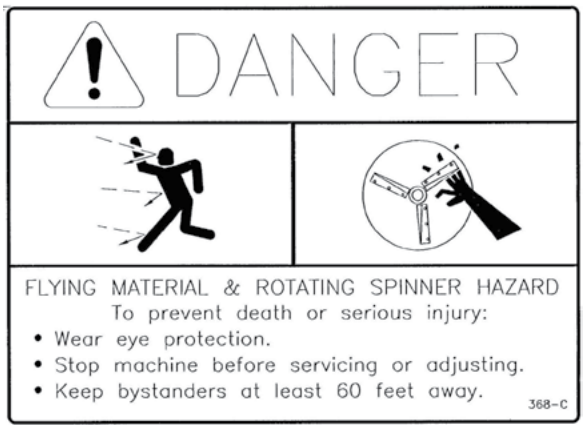
4. Apply Safety Decal
   a. Tack decal in place with thumb pressure in upper corners.
   b. Using firm initial squeegee pressure, begin at the center of the decal and work outward in all directions with overlapping strokes. NOTE: Keep squeegee blade even—nicked edges will leave application bubbles.
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

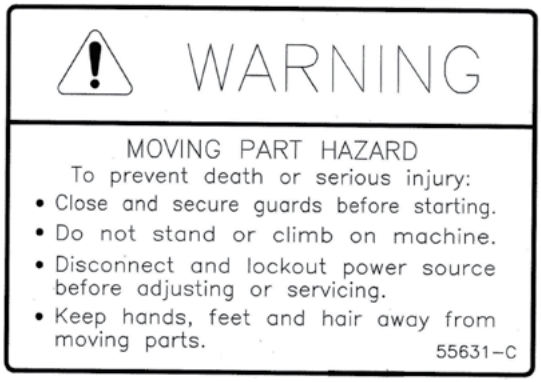
5. Remove Pre-mask
   If safety decal has a pre-mask cover remove it at this time by pulling it away from the decal at a 180 degree angle. NOTE: It is important that the pre-mask covering is removed before the decal is exposed to sunlight to avoid the pre-mask from permanently adhering to the decal.

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.

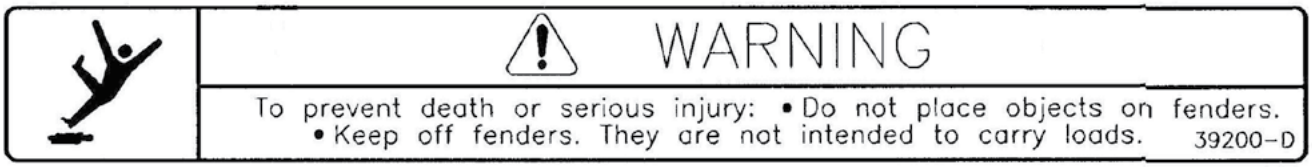
DANGER
MOVING PART HAZARD
To prevent death or serious injury:
• Stay out of box while conveyor is moving.
• Disconnect and lockout power source before adjusting or servicing.
• Do not ride on spreader.
364–C


DANGER
FLYING MATERIAL & ROTATING SPINNER HAZARD
To prevent death or serious injury:
• Wear eye protection.
• Stop machine before servicing or adjusting.
• Keep bystanders at least 60 feet away.
368–C


WARNING
MOVING PART HAZARD
To prevent death or serious injury:
• Close and secure guards before starting.
• Do not stand or climb on machine.
• Disconnect and lockout power source before adjusting or servicing.
• Keep hands, feet and hair away from moving parts.
55631–C

WARNING
FALLING HAZARD
To prevent death, serious injury or machine damage:
• Do not stand or climb on guard.
55630–D

WARNING
HIGH PRESSURE FLUID HAZARD
To prevent death or serious injury:
• Relieve pressure on system before repairing, adjusting, or disconnecting.
• Keep all lines, fittings and couplers tight and free of leaks.
• Wear proper hand and eye protection when searching for leaks. Use wood or cardboard instead of hands.
• Do not use hydraulic lines for hand holds or steps.
• Components may be hot.
39138–C


WARNING
To prevent death or serious injury: • Do not place objects on fenders.
• Keep off fenders. They are not intended to carry loads.
39200–D

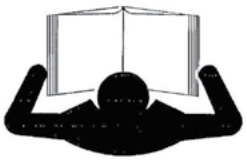
⚠ CAUTION

HAZARDOUS MATERIALS
To avoid injury or machine damage:

- Materials to be spread can be dangerous.
- Improper selection, application, use or handling may be a hazard to persons, animals, crops or other property.
- Follow instructions and precautions given by the material manufacturer.

321–C

⚠ CAUTION



TO AVOID INJURY OR MACHINE DAMAGE:

- Do not operate or work on this machine without reading and understanding the operators manual.
- Keep hands, feet, hair and clothing away from moving parts.
- Do not allow riders on machine.
- Avoid unsafe operation or maintenance.
- Disengage power takeoff and shut off engine before removing guards, servicing or unclogging machine.
- Keep unauthorized people away from machine.
- Keep all guards in place when machine is in use.
- If manual is missing, contact dealer for replacement.

150034–C

NOTICE

	No Cooler	With Cooler
Ideal Operating Temp.	140 - 190˚F	115 - 158˚F
Recommended Lubricant	SAE 15W-40	Multi-Purpose Ag Hydraulic Oil
Lubricant Specifications:		
Viscosity Index	>130	>130
Viscosity at 40˚C, cst	<115	<68
Viscosity at 100˚C, cst	>14	>9

304284-B

NOTICE

Change filter element.

After the first 50 hrs.
and every 250 hrs. Thereafter

39378–F

NOTICE

Keep valve open while pump is running.

8664–D

NOTICE

Spinner assembly and material flow divider have NOT been adjusted at the factory. Before assembling unit, read and follow assembly instructions in the operation and maintenance manual for this unit.

Before spreading material, spread pattern tests must be conducted to properly adjust the spread pattern. Refer to the "How to Check Your Spread Pattern" manual for adjustment instructions. A spread pattern test kit is available from your New Leader dealer.

Wind, humidity, rain and other adverse weather conditions can affect spread pattern, resulting in uneven crop growth and loss of yield.

THE MANUFACTURER OF THIS SPREADER WILL NOT BE LIABLE FOR MISAPPLIED MATERIAL DUE TO AN IMPROPERLY ADJUSTED SPREADER OR ADVERSE WEATHER CONDITIONS.

It is recommended that spread pattern tests be conducted prior to each spreading season, after any spreader maintenance, and periodically during the spreading season. Spread pattern tests must be conducted whenever a new product is to be applied.

71526–F

⚠ 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-B

⚠ 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

⚠ 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

TOWING REQUIREMENTS

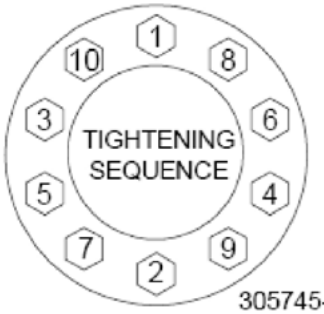
Tow only with tractors equipped with ISO 24347 hitch and brakes. Towing with light or medium duty trucks may result in loss of control, causing damage or injury.

305288-B

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

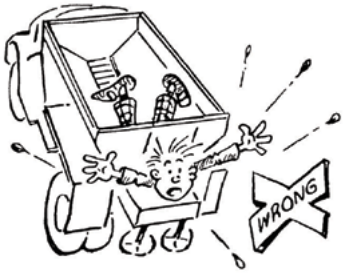
1. Before attempting to operate this unit, read and be sure you understand the operation and maintenance manual. Locate all controls and determine the use of each. Know what you are doing!

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.

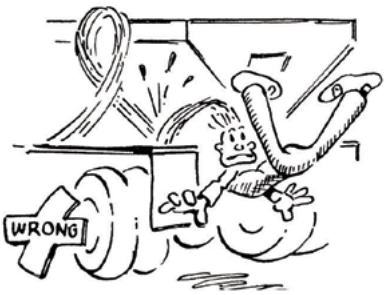


5. Guards and covers are provided to help avoid injury. Stop all machinery before removing them. Replace guards and covers before starting spreader operation.

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.

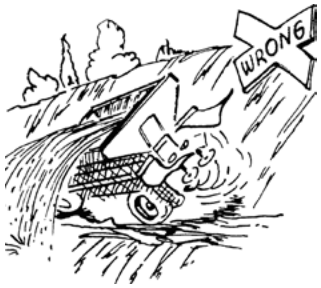
16. Hydraulic system and oil can get hot enough to cause burns. DO NOT work on system that is hot. Wait until oil has cooled. If an accident occurs, seek immediate medical assistance..

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.

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

2. 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.

3. 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.

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

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

6. Install all guards as required.

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

NOTES:

The Model NL450C is a L5034G4 spreader mounted on the TR3000 trailer. It is intended for spreading feedlot composted manure, waste water sludge, industrial waste, paper mill waste, compost, marl, poultry litter and fly ash.

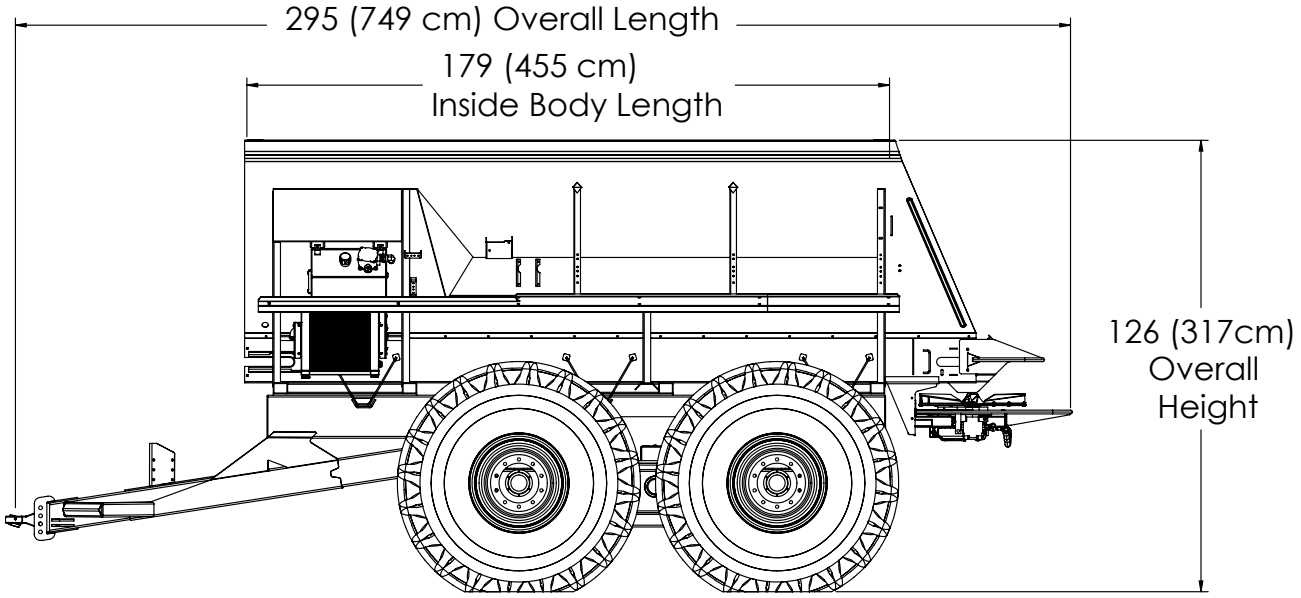
The TR3000 is designed for attachment to specially equipped tractors. It's equipped with brakes and floatation tires on a walking beam suspension.

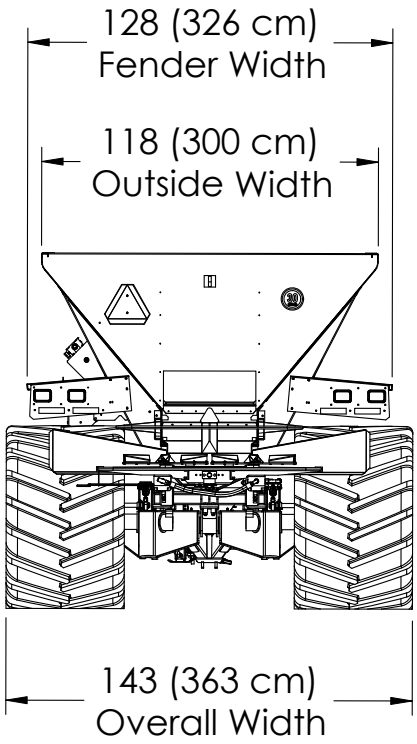
The spreader is powered hydraulically and provides independent variable speed control for the spinner and full automatic ground speed control for the conveyor by means of a motorized valve with shaft sensor. Tandem gear type hydraulic pump provides the power to drive the spinner by means of a tractor PTO. The conveyor chain is driven by the tractor hydraulics.

The 34" wide (86 cm) conveyor runs the full length of the hopper bottom to deliver material to the spinners through a hydraulically adjustable metering gate at the rear of the hopper body. A feedgate sight gauge allows monitoring of the feedgate opening from the cab. The conveyor is driven by two orbital type hydraulic motors mounted to a 6 to 1 ratio spur gear case. Two conveyor options are available: pintle type chain joined by cross bars every third link (#1) or every other link (#2).

The distributor spinner assembly has two 30" (76 cm) diameter discs. Each disc has the option of four to six formed and heat treated fins that are adjustable to radial angle. The spinner is fully adjustable by means of a rotating handle.

This product is intended for commercial use only.





Struck Capacity Cu Yd (Cu M) Cu Ft	Spreader Weight Approx. Pounds (kilograms)As Shipped	
16.8 (12.8) 453	Spreader	6400 (2903)
	Trailer	14,600 (6623)

HYDRAULIC REQUIREMENTS

Spinner (Provided by Tractor Pump)

PUMP TYPE	PTO Driven Gear Pump
PTO SPEED	1000 RPM
PRESSURE	2500 PSI (172 bar) Continuous; 3100 PSI (214 bar) Intermittent
FLOW	40 GPM (151 LPM)
FILTRATION	Return line filter, 10 Micron
RESERVOIR	40 gallon (151 liters)
COOLER	Thermostatically Controlled at 114°F (46 C°)
RELIEF VALVE	3100 PSI (214 bar) at pump or control valve

Conveyor (Provided by Tractor)

PRESSURE	2900 PSI (242 bar)
FLOW REQUIREMENTS	27 GPM (102 LPM)
RELIEF VALVE	3100 PSI (214 bar)

Feedgate (Provided by Tractor)

PRESSURE	1000 PSI (69 bar)
FLOW REQUIREMENTS	4 GPM (15 LPM)
RELIEF VALVE	1000 PSI (69 bar)

IMPLEMENT PREPARATION AND CONNECTION

WARNING	Make sure area is clear between the tractor and implement when backing up to implement.
WARNING	DO NOT wear loose clothing. Keep hands and other body parts away from connecting parts of tractor and implement. Entanglement could cause serious injury.
WARNING	DO NOT stand on PTO, PTO driveline, tongue, or draw bar. Falling could cause death or serious injury.
WARNING	DO NOT use intermediate support as attaching point.
NOTICE!	Make sure safety chain is stored safely when not in use.
NOTICE!	Inspect the cleanliness of connecting parts. All areas must be free of debris and dirt to ensure a secure connection.

Adjust Implement Hitch

Factory installs implement hitch in lower two holes of hitch holder. Dealer/customer must adjust hitch position to match tractor drawbar. Figure 1 shows correct hitch position for the JD 9430 and JD 8530.* When hitch is in correct position, tighten grade 8 bolts to torque per "Standard Torques National Coarse (NC) Capscrews" chart in this manual or 850-900 ft-lbs dry.

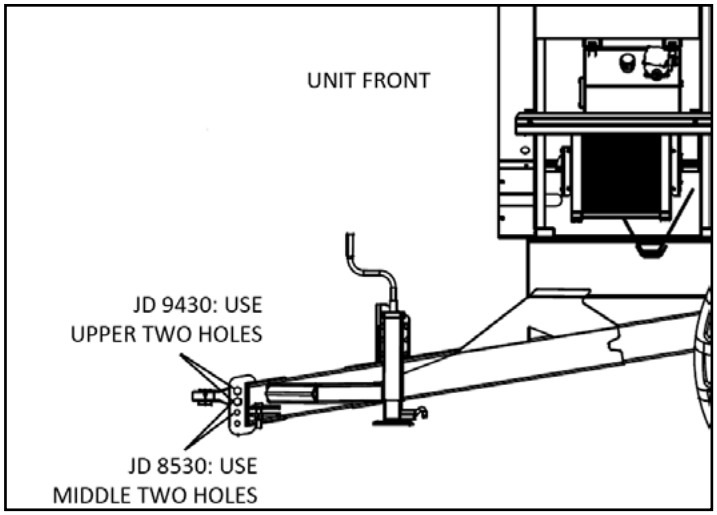


Figure 1

* Hitch position may be different if not using recommended John Deere tires.

Connect Implement

1. Check visible wear and make sure hitch and draw pin are clear of debris and dirt.
2. Raise hitch by turning the jack handle to extend the jack.
3. Pull out draw pin on tractor hitch. (Figure 1)
4. Back up tractor and align holes on implement hitch and hitch on tongue of implement. (Figure 2)
5. Insert draw pin through implement hitch and tractor drawbar. Insert hitch pin and lock to secure. (Figure 3)
6. Lower handle on draw pin into locking position. Insert securing pin through hole at bottom of draw pin and lock. (Figure 4)
7. Lube implement hitch.
8. Retract jack to storage position.

Figure 1

Figure 2

Figure 3

Figure 4

9. Attach safety chain.
   a. On left side of hitch, loop safety chain through tractor intermediate support. (Figure 5)
   a. On left side of hitch, loop safety chain around tractor drawbar. (Figure 6)
   b. Hook on chain. (Figure 7) Allow only adequate slack for articulation.
   c. Slide clasp on safety chain to secure locked position. (Figure 8) Excess chain will hang between tractor and implement. (Figure 9)
   NOTE: Replace safety chain if one of more links are damaged, deformed or damaged.

Figure 5

Figure 6

Figure 7

Figure 8

Figure 9

10. Attach PTO driveline to tractor PTO.
    a. Inspect, clean and lube PTO and PTO driveline.
    b. Inspect all shields, make sure they are in proper working order.
    c. Lift tractor's PTO cover.
    d. Slide PTO driveline coupler onto tractor PTO and lock into place on driveline groove. (Figure 10-12)
    e. Place tractor cover back in lowered position.
    f. Attach PTO driveline shield chain to tractor.

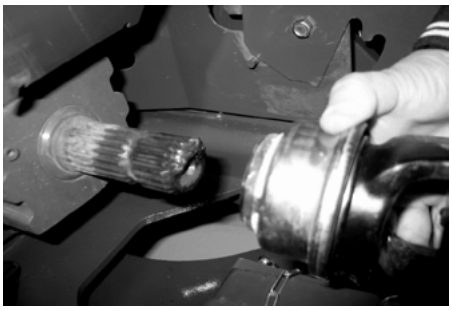


Figure 10

Figure 11

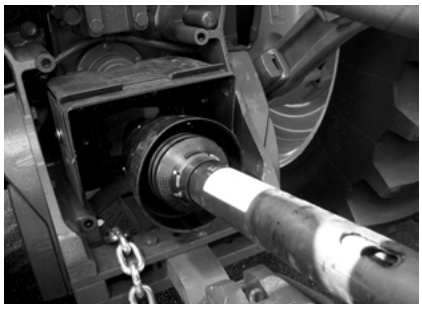


Figure 12

NOTICE!	Route all hoses and wiring through hose support (Figure 13). Avoid entanglement of hoses and wiring with the PTO driveline, hitch, or tongue. Damage to equipment can occur if hoses and wires are not routed correctly.

7. Make sure all hoses and wires run through the hose support to remain clear of PTO driveline. If needed, add additional clamps. (Figure 13)

Figure 13

INSTALLATION

SPINNER INSTALLATION

See *L5034G4 Spread Pattern Installation Instructions* at **www.highwayequipment.com**, then Support, then Operators Manuals, then Fertilizer Spreader Manuals.

SPINNER SENSOR

The spinner sensor must be mounted under the right-hand spinner disc in holes provided. Rotate disc so one of the cap screws is directly above the sensor. Position sensor 1/8-inch (.32 cm) or less below cap screw and tighten sensor hardware. If the distance between the sensor and spinner cap screw is more than 1/8 inch (.32 cm), the sensor may not get a good RPM reading. See *Spinner Sensor* parts list for illustration.

FILLING HYDRAULIC SYSTEM

NOTICE!	DO NOT attempt to run pump without first filling hydraulic oil reservoir and opening suction line gate valve, or pump may be ruined.

Fill reservoir with hydraulic oil as specified in the *Lubrication & Maintenance* section of this manual. Be sure oil is clean, free from dirt, water and other contaminants.

LUBRICATION

Lubricate all points requiring lubrication per *Lubrication & Maintenance Chart* in this manual.

Become familiar with the *General Operating Procedures* section before preforming the initial field testing. The following procedure is a guide:

1. Field test over any suitable course which allows implement to be pulled at speeds to be used while spreading.
2. Make sure unit has been properly serviced. Check hydraulic oil reservoir and refill to maintain level around mid-point of sight gauge, and verify gate valve under reservoir is fully open. Do not load spreader.
3. Make sure all guards are in place and hardware is tightened.
4. Set spinner speed to run at 500 RPM.

	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 on fenders, 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!

5. Start tractor engine. Turn electronic in-cab control system “on”. Engage PTO driveline and allow to run at idle long enough to bring hydraulic oil up to operating temperature. Spinners should revolve at moderate speed and the conveyor should not move.
6. Refer to control’s operation manual for conveyor operating instructions. Set program to operational mode and begin forward travel. Move conveyor switch to ‘‘on’’ position. Conveyor should start immediately when vehicle moves and should continue to run at speeds which should vary directly with the vehicle’s speed; the conveyor should speed up as tractor speed increases and slow down as tractor speed decreases. Spinner speed should remain constant when engine speed maintains PTO at 1000 RPM.

The following procedure is a guide:

1. Make sure unit has been properly serviced and is in good operating condition. Field test unit 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 *Field Testing* section.
2. Fill body with material to be spread.
3. Drive to location where spreading is to be done.
4. Check and perform the following to maintain proper PTO driveline working order.
   a. The PTO driveline must be cleaned and lubed every time PTO driveline is attached to tractor.
   b. Make sure PTO shields are in proper working order.
   c. Check for loose, damaged, or missing hardware.
   d. Repair and replace parts as needed.
5. Turn on electric in-cab control system and set program to desired values.
6. Set spinner speed for material being applied to give spread width desired. See *L5034G4 Spread Pattern* section in this manual.
7. Adjust spinner assembly position to give spread pattern desired. See *L5034G4 Spread Pattern* section in this manual.
8. Open feedgate to maximum opening.

WARNING Do not climb on unit. 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.

9. Fill hydraulic tank and lubricate per *Lubrication & Maintenance Chart*.
10. Make sure valve on hydraulic reservoir is fully opened. Start tractor engine. Turn electronic in-cab control system "on". Engage PTO driveline and allow to run at idle long enough to bring hydraulic oil up to operating temperature. Spinners should revolve at moderate speed and the conveyor should not move.
11. Set throttle to full PTO operation speed (1000 RPM) to maintain performance of spreader. Refer to tractor's operators' manual for proper use of PTO driveline.

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

12. Drive at speeds that allow PTO driveline to turn at 1000 RPM.

1. Make sure unit has been properly serviced and is in good operating condition. Field test unit 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 *Field Testing* section.
2. Fill body with material to be spread.
3. Drive to location where spreading is to be done.
4. Adjust spinner speed for material being applied to give spread width desired. See *L5034G4 Spread Pattern* section in this manual.
5. Adjust spinner to give spread pattern desired. See *L5034G4 Spread Pattern* section in this manual.
6. Set feedgate opening to maximum opening.
7. Make sure shut-off valve on hydraulic reservoir is fully opened.
8. Turn on power to controller and set program to desired values.
9. Engage pump drive PTO driveline.

CAUTION Drive only at speeds which permit good control of vehicle!

10. Drive at speeds that allow engine to turn at proper RPM.

NOTE: New Leader suggests the use of an infinitely variable transmission to automatically maintain the ideal operating engine speed which allows adequate hydraulic oil delivery from pump.

NOTICE!	CHANGE THE HYDRAULIC OIL FILTER AFTER THE FIRST WEEK (OR NOT MORE THAN 50 HOURS) OF OPERATION ON A UNIT.

TIRE PRESSURE AND TRANSPORT SPEEDS

TRAILER TIRE ROAD SPEED TABLE[3]			
Tire Pressure (PSI)	Max Road Speed (MPH)	Max Gross Combined Axle Loads[2]	Max Payload[1] (LBS)
20	30	35200	19600
	25	37300	22000
	20	39400	24400
	15	42900	28300
	10	46400	32200
	5	53000	35000
	0	53000	35000
25	30	39600	24600
	25	41900	27200
	20	44300	29900
	15	48300	34300
	10	52200	35000
	5	53000	35000
	0	53000	35000
30	30	44000	29500
	25	46600	32400
	20	49200	35000
	15	53000	35000
	10	53000	35000
	5	53000	35000
	0	53000	35000

Proper air pressure achieves maximum tire performance. The following table should be used as a guide.

WARNING Drive at a reasonable and safe speed according to weather, field and road conditions. 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.

1. Maximum payload assumes evenly distributed product in a single bin.
2. 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.
3. This chart is applicable for OEM tires and rims.

REAR PULLING LUGS

NOTICE!	Do not pull implement sideways—always pull straight. Always disconnect tractor from implement before using rear lugs. Otherwise, damage to implement may occur.

NOTICE!	Failure to raise jack before pulling stuck implement will destroy jack.

If the implement gets stuck, attempt to dislodge the implement by powering the tractor. If that is unsuccessful: empty spreader; shut off tractor power; lower jack, disconnect tractor and all connections; hook appropriate chain to left and right hand rear pulling lugs (Figure 14); fasten chains to tractor; raise jack; and engage tractor to dislodge implement.

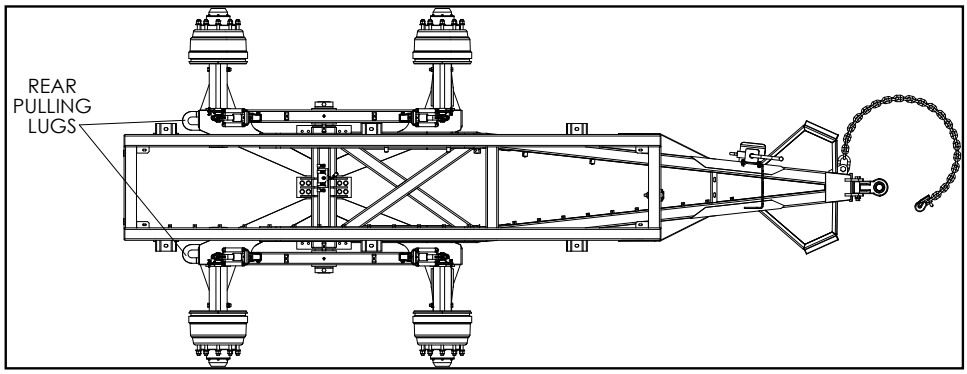


Figure 14 - Rear Pulling Lugs

IMPLEMENT MANEUVERING

WARNING	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 the 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, bottoming of suspension, 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 will cause the tractor and implement to jack-knife. DO NOT exceed maximum turning angle of 60°.

Maximum Hitch Angles & Walking Beam Travel

CAUTION DO NOT bottom out suspension. Damage may occur to implement. The manufacturer will not be liable for damage to implement due to improper usage.

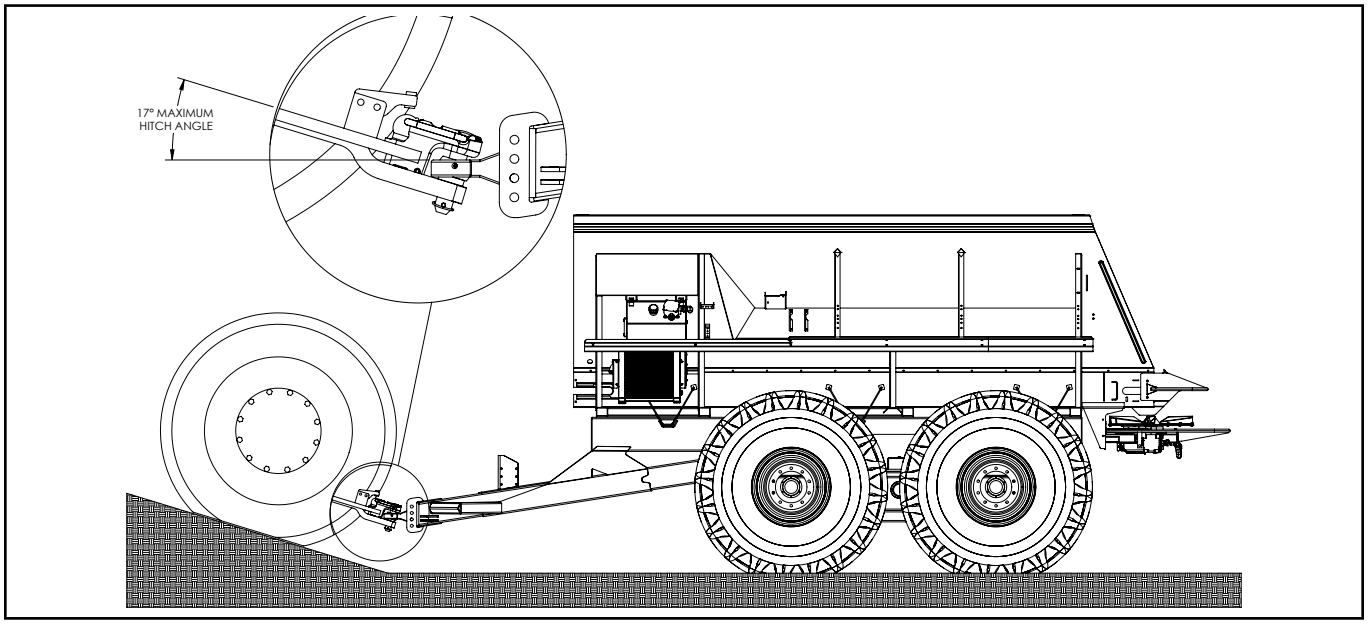


Figure 15 - Maximum Hitch Angles

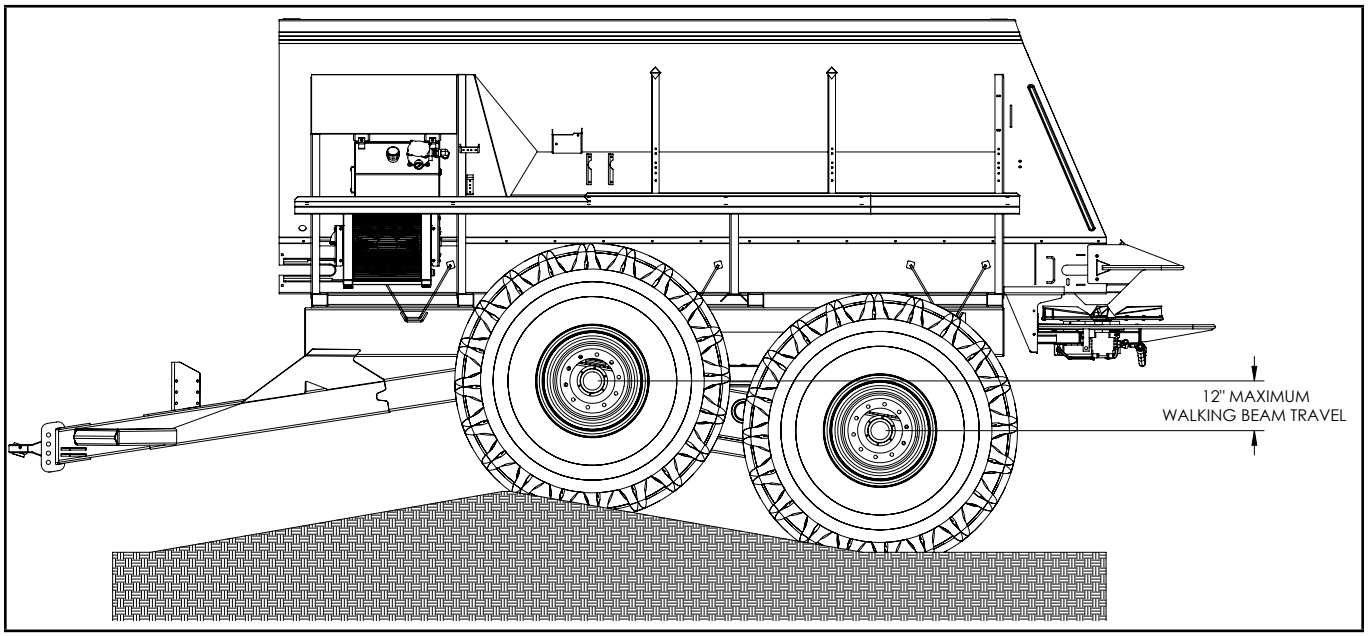


Figure 16 - Walking Beam Travel

PREVENTATIVE MAINTENANCE PAYS!

The handling and spreading of compost 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.

SPREADER - L5034G4

HYDRAULIC SYSTEM

Proper oil in the hydraulic system is one of the most important factors for satisfactory operation. Utmost cleanliness in handling the oil cannot be stressed enough. Keep hydraulic oil in original closed containers, clean top of container before opening and pouring, and handle in extremely clean measures and funnels.

Refer to *Lubricant and Hydraulic Oil Specifications* section for selection of the proper hydraulic fluid for use in the hydraulic system.

Service Schedule

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!

1. Check hydraulic oil daily by means of sight gauge on reservoir. Add oil as necessary to maintain level around mid-point of sight gauge. Periodically inspect hoses and fittings for leaks.

NOTICE! 2. Change hydraulic oil filter after first week (or not more than 50 hours) of operation on a unit.

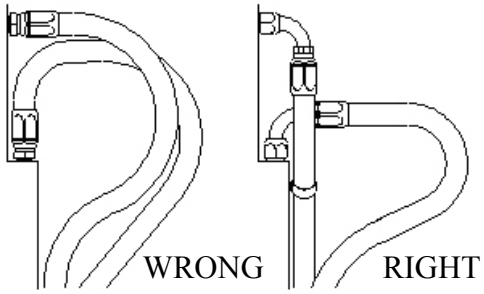
3. After first filter change, replace filter when indicator reaches Red Zone.
4. Drain reservoir through drain plug (not through suction outlet), flush, and refill and change filter element annually. Oil and filter should also be changed whenever oil shows any signs of breaking down under continued high-pressure operation. Discoloration of oil is one sign of breakdown.

CONVEYOR GEAR CASE

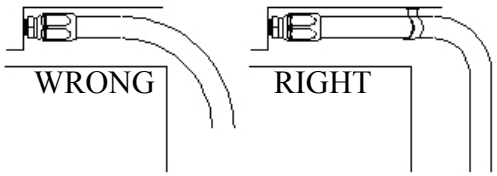
Drain oil in a new unit after first two weeks (or not more than 100 hours) of operation, and flush gear case thoroughly with light oil. Refer to *Lubricant and Hydraulic Oil Specifications* section for proper grade oil. Refill gear case with 1-1/2 pints (.70 liters) of recommended lubricant. After initial change, oil should be changed every 2,000 hours of operation or annually, whichever occurs first.

Check gear case oil level monthly.

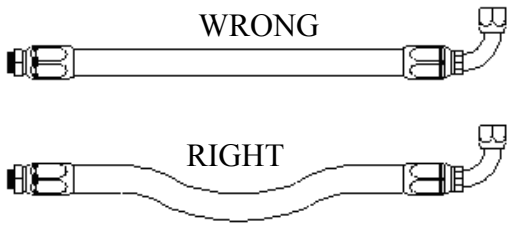
HOSE ROUTING



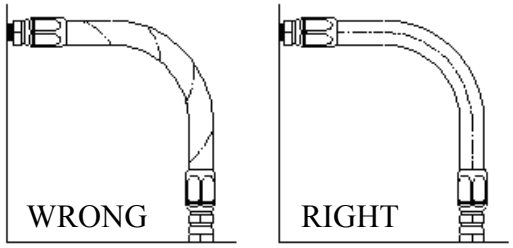
1. Use elbows and adapters in the installation to relieve strain on the assembly, and to provide easier and neater installations that are accessible for inspection and maintenance. Remember that metal end fittings cannot be considered as part of the flexible portion of the assembly.



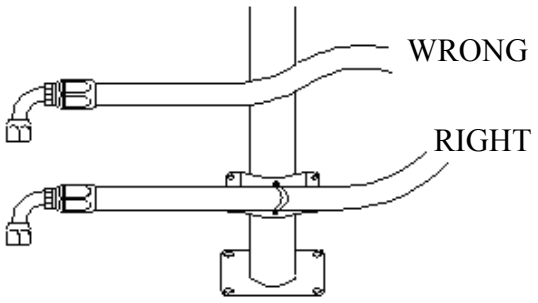
2. Install hose runs to avoid rubbing or abrasion. Clamps are often needed to support long runs of hose or to keep hose away from moving parts. It is important that the clamps be of the correct size. A clamp that is too large will allow the hose to move in the clamp causing abrasion at this point.



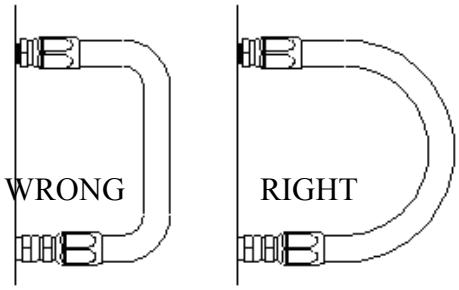
3. In straight hose installations allow enough slack in the hose line to provide for changes in length that will occur when pressure is applied. This change in length can be from +2% to -4%.



4. Do not twist hose during installation. This can be determined by the printed layline on the hose. Pressure applied to a twisted hose can cause hose failure or loosening of the connections.



5. Keep hose away from hot parts. High ambient temperature will shorten hose life. If you cannot route it away from the heat source, insulate it.



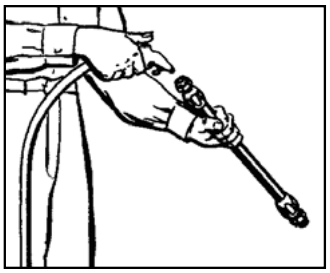
6. Keep the bend radii of the hose as large as possible to avoid hose collapsing and restriction of flow. Follow catalog specs on minimum bend radii.

(Used with the permission of The Weatherhead Company.)

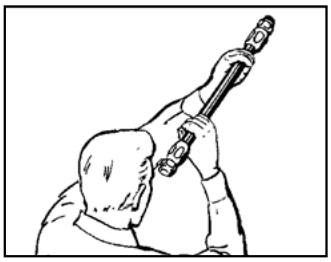
HYDRAULIC HOSE

Hose assemblies in operation should be inspected frequently for leakage, kinking, abrasion, corrosion or other signs of wear or damage. Worn or damaged hose assemblies should be replaced immediately.

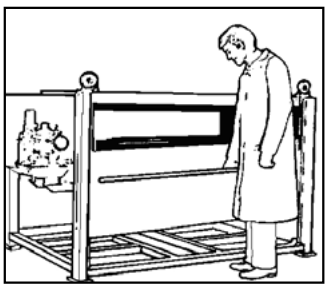
WARNING Testing should be conducted in approved test stands with adequate guards to protect the operator.



Clean
Clean assembly by blowing out with clean compressed air. Assemblies may be rinsed out with mineral spirits if the tube stock is compatible with oil, otherwise hot water at 150°F (65.5° C) maximum may be used.



Inspect
Examine hose assembly internally for cut or bulged tube, obstructions, and cleanliness. For segment style fittings, be sure that the hose butts up against the nipple shoulder; band and retaining ring are properly set and tight, and segments are properly spaced. Check for proper gap between nut and socket or hex and socket. Nuts should swivel freely. Check the layline of the hose to be sure the assembly is not twisted. Cap the ends of the hose with plastic covers to keep clean.



Test
The hose assembly should be hydrostatically tested at twice the recommended working pressure of the hose.
Test pressure should be held for not more than one minute and not less than 30 seconds. When test pressure is reached, visually inspect hose assembly for: 1. Any leaks or signs of weakness. 2. Any movement of the hose fitting in relation to the hose. Any of these defects are cause for rejection.

Storage and Handling

Hose should be stored in a dark, dry atmosphere away from electrical equipment, and the temperature should not exceed 90° F (32° C).

CONVEYOR CHAIN

WARNING 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.

Hose down unit and remove any material build-up on sprockets and under chain.

NOTICE!	The conveyor will move away from the bottom panel if material accumulates under the conveyor or on the sprockets. The more material that accumulates, the closer the chain will come to the chain shields. If the conveyor should catch a chain shield, it could permanently damage the conveyor, the chain shields or the unit. Do not remove material while conveyor or spinner is running!

Lubrication

Make sure unit is clean and completely dry. Lubricate conveyor chain at the end of each day of usage using a mixture of 75% diesel fuel and 25% SAE 10 oil. Shut down spinner and run conveyor at 20 RPM for two full revolutions to lubricate chain. After each unit washing, allow to dry, then lubricate.

Before filling the unit with spreading material, activate the controller or power switch to run the pump oiler. Bleed all air from the lines and adjust the two spray nozzles (Figure 17) so that the oil mixture sprays vertical onto the sprockets and chain.

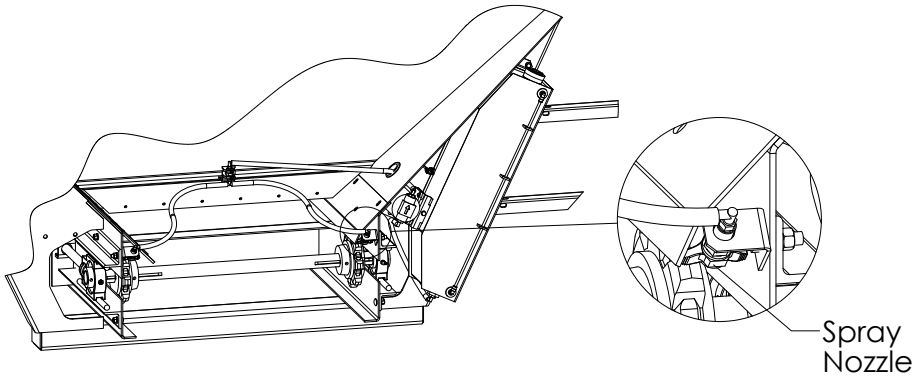


Figure 17 - Spray Nozzle

Tension

Proper chain tension is also a factor in chain and sprocket life (Figure 18). Measure from rear of unit forward to achieve proper chain tension. Make sure chain is tensioned equally on both sides. This adjustment is made on each side of the unit at the idler bearings.

Chain Tension to be Measured from Rear of Sill.

Proper Tension:

L5034G4 main conveyor
36” to 40”
(91 cm - 102 cm)

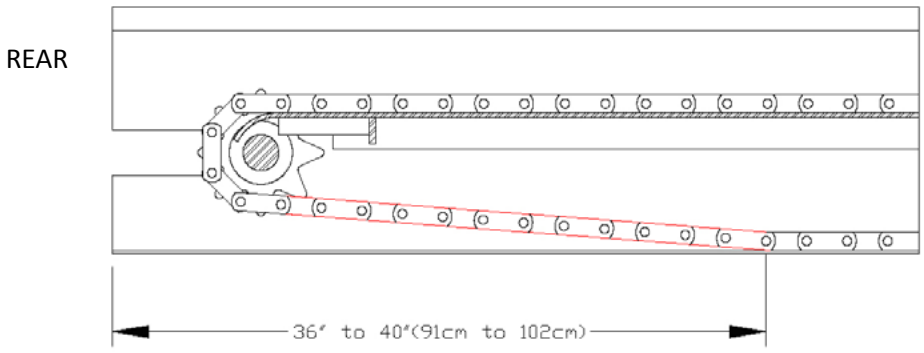


Figure 18 - Adjusting Chain Tension

Conveyor chains that are too tight will tend to stretch, causing excess sprocket wear and eventually breakage. Excess slack presents the possibility of chain catching on sub-frame parts. Bent or distorted chain bars will cause damage as well. Straighten or replace bent or distorted chain bars immediately.

SPINNER SENSOR

NOTICE!	Do not use stainless steel hardware for sensor readings. Using stainless steel hardware may cause improper sensor RPM readings.

The spinner sensor must be mounted under the right-hand spinner disc in holes provided. Rotate disc so one of the cap screws is directly above the sensor. Position sensor 1/8 inch (3 mm) or less below cap screw and tighten sensor hardware. If the distance between the sensor and spinner cap screw is more than 1/8 inch (3 mm), the sensor may not get a good RPM reading. Rotate disc by hand to ensure no contact. See *Spinner Sensor* parts list for illustration.

LUBRICATION OF BEARINGS

Grease in a bearing acts to prevent excessive wear of parts, protects ball races, and balls from corrosion and aids in preventing excessive heat within the bearing. It is very important the grease maintain its proper consistency during operation. It must not be fluid and it must not channel.

Make sure all fittings are thoroughly cleaned before grease is injected. Points to be lubricated by means of a grease gun have standard grease fittings.

Lubricate bearings by pumping grease slowly until it forms a slight bead around the seals. This bead indicates adequate lubrication and also provides additional protection against the entrance of dirt.

CLEAN UP

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

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

It is important the unit 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 Torque 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.

Check torque on body mounting, hitch, wheels and suspension hardware every week. Tighten front and center mount hardware so springs are compressed from 3.5" (9 cm) - 3.75" (9.5 cm) (Figure 19A). Tighten each back mount hardware to 80-90 ft-lb (108.5-122 N-m). (Figure 19B)

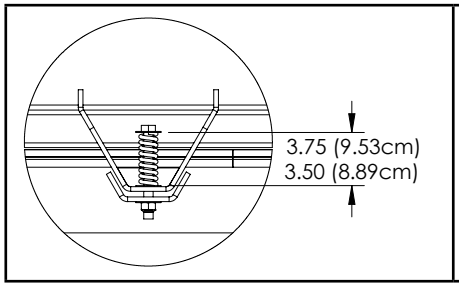


Figure 19A - Spring Compression

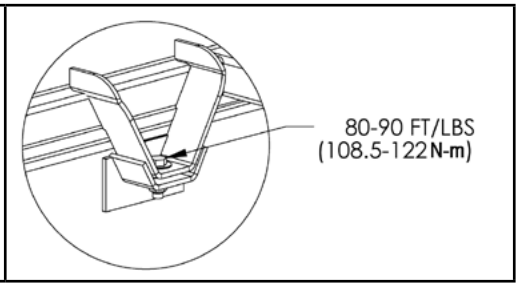


Figure 19B - Bolt Torque on Rear Mount

TRAILER - TR3000

BRAKES

⚠	**WARNING!**	Perform maintenance on level surface with wheels blocked. There is no parking brake on the TR3000. Block the wheels prior to unhitching or any maintenance of the TR3000. Uncontrolled movement of the trailer could cause death or serious injury.

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.

Bleeding Procedure:

1. Attach brake supply line to tractor.
2. Actuate brake pedal to apply pressure to brake circuit.

⚠	**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 through injected. Death or serious injury could occur.

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

3. Loosen bleeder screw on top of ram. Bleed air from ram.
4. Tighten bleeder screw.
5. Repeat steps 2-4 until no air is expelled.
6. Complete steps 2-5 for all four rams.
7. Apply brakes and check for leaks. Make sure all rams are fully extended while applying braking force to brake drums. If done correctly, the ram and slack adjuster will be at 90° to each other (Figure 20). The ram should extend approximately 1 1/2 inch (38 mm) to 1 3/4 inch (44 mm).
8. If brakes chatter or rams do not fully extend repeat steps 2-7.
9. When complete, rams must be fully retracted.

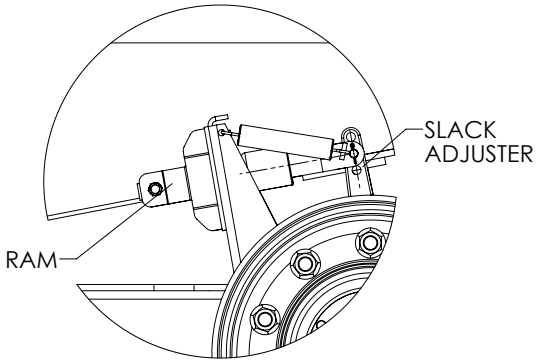


Figure 20 - 20° Ram & Slack Adjuster

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.

WARNING	Do not over 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 at 20 PSI (1.5 bar) to minimize ground compaction. See *General Operating Procedures* section.

Check tires frequently during extreme temperatures.

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 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
8. finger-tight on remaining studs.
9. Tighten nuts to 50 ft-lb (67.8 N-m) following a crisscross sequence as shown in Figure 22.
10. 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.

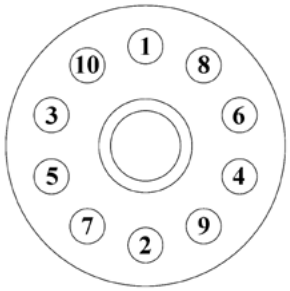


Figure 21 - Nut Tightening

11. Tighten all nuts to 450-500 ft-lb (610.2-678 N-m) using the crisscross sequence as shown in Figure 32.
12. Repeat torque sequence until all nuts are consistent to 450-500 ft-lb (610.2-678 N-m).

PTO DRIVELINE LUBE AND ALL GREASE POINTS

See *Lubrication and Maintenance Chart* section.

STORAGE

General

1. Inspect and lube per maintenance instructions.
2. Empty any material from unit.

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

3. Pressure wash
4. Store indoors on a hard, level surface, with blocked tires to prevent movement.

PTO DRIVELINE

Place PTO driveline in storage position, as shown in Figure 22, and secure with pin when implement is not in use.

Figure 22 - PTO Driveline Storage Position

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 unquestionable 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 New Leader dealer or the Product Support Department at Highway Equipment Company for systems operating outside normal conditions.

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**

GEAR CASE LUBRICANT

Ambient Temperature	Gear Oil	Oil Requirements
40-100 F° (4-38 C°)	SAE 90 EP	MIL-L2105 B multi-purpose gear lubricating oil requirements (API Service GL4)
< 40 F° (4 C°)	SAE 80 EP	
>100 F° (38 C°)	SAE 140 EP	

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

CHAIN OILER MIXTURE

Use a mixture of 75% No. 1 or No. 2 diesel fuel or kerosene mixed with 25% SAE 10 engine oil.

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.

The spreader should be regularly lubricated with the lubricants recommended in this manual in accordance with the following chart:

SPREADER			
LOCATION	PLACES	METHOD	FREQUENCY
1. PTO Driveline (Figure 23)			
a. Inner/Outer Tube Profile	1	Grease Gun 6-10 pumps	Every 8 Hours of Operation
b. Nylon Bearing Ring	2	Grease Gun 2-3 pumps	
c. *Grease PTO Spline	1	Hand Grease	See above or each time tractor & PTO driveline attached.
d. Tractor Yoke (Cross & Bearing)	1	Grease Gun 5-6 pumps or until purge	Every 8 Hours of Operation
e. **CV Yoke (Cross & Bearing)	2	Grease Gun 30 pumps	
f. Pump Yoke (Cross & Bearing)	1	Grease Gun 5-6 pumps or until purge	
g. Shield	2	Grease Gun 2-3 pumps on each	
* - Not Shown ** - Also feeds ball cavity.			
Hydraulic System (Figure 24)			
2. Reservoir	1	Oil	Check Daily. Change Annually
3. Filter	1	Check daily; Change when indicated (Red)	
Conveyor			
4. Dragshaft Bearings (Figure 25)	2	Grease Gun	Weekly
5. Idler Shaft Bearings (Figure 26)	2	Grease Gun	Weekly
6. Take-Up Screws (Figure 26)	2	Hand Grease	Weekly
7. Chain Oiler (Figure 27)	1	Oil Mixture	Daily, After Use
8. Gear Case (Figure 28)	1	Gear Oil	Check Monthly; Change Annually
Jack Assembly (Figure 29)			
9. Gears	1	Grease Gun	Annually
10. Tubes	1	Grease Gun	Weekly
Spinner (Figure 29)			
11. Shaft	2	Grease Gun	Weekly
12. Jack	2	Grease Gun	Weekly

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.

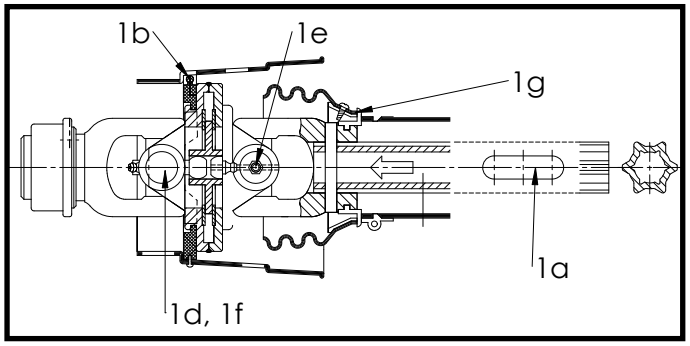


Figure 23- PTO Driveline - Slip Yoke & Universal Joint

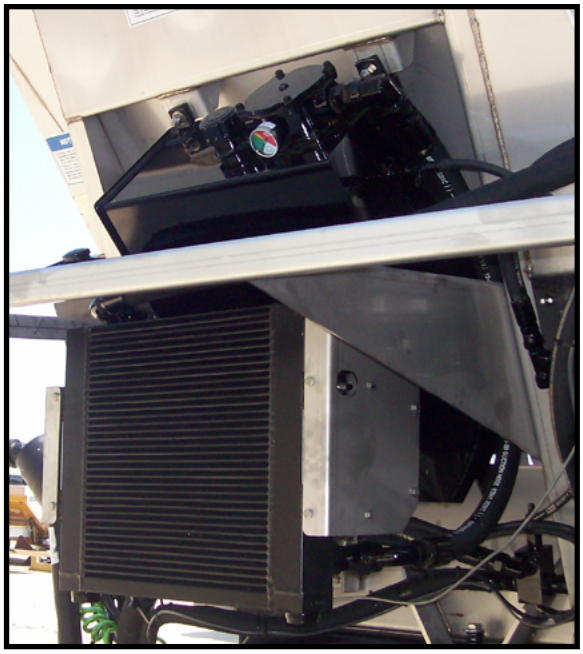


Figure 24 - Hydraulic System - Reservoir, Cooler & Filter

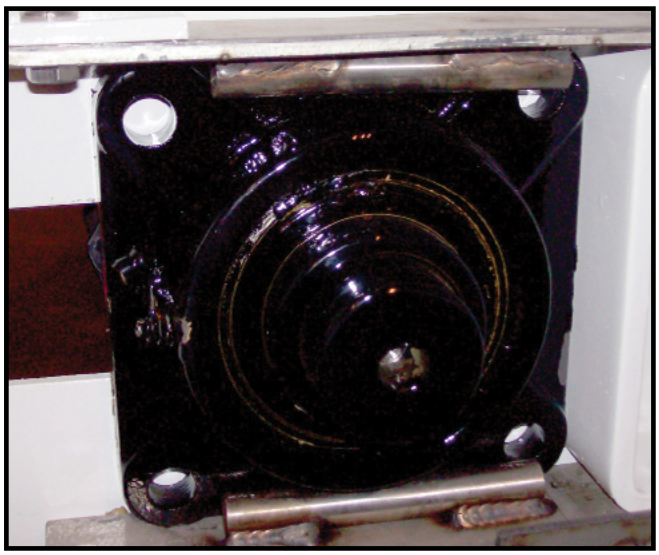


Figure 25 - Conveyor - Dragshaft Bearings

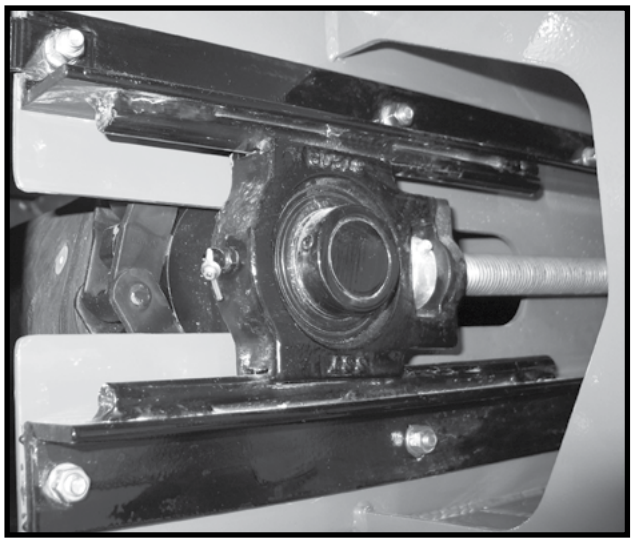


Figure 26 - Conveyor - Idler Shaft Bearings & Take-Up Screws

Figure 27 - Conveyor - Chain Oiler

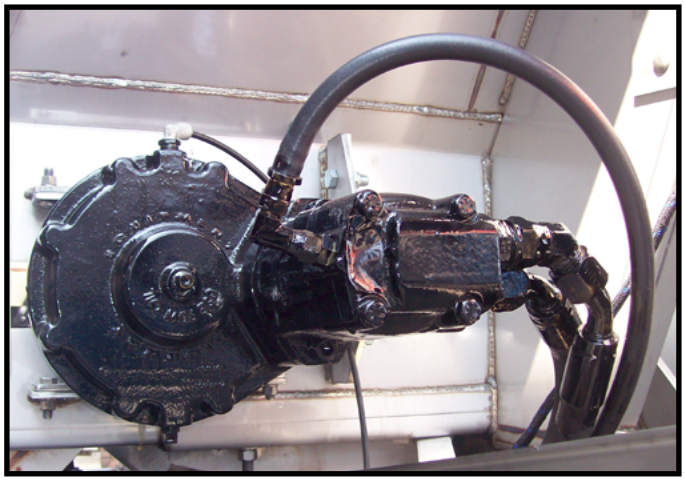


Figure 28 - Conveyor - Gear Case

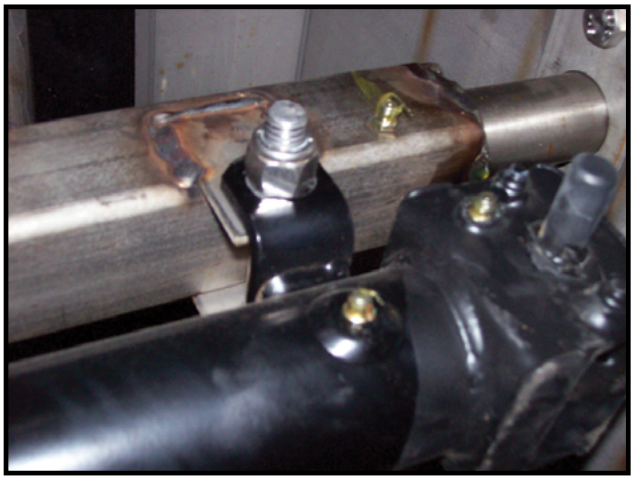


Figure 29 - Spinner - Grease Zerks - Shaft & Jack

TRAILER - TR3000			
LOCATION	PLACES	METHOD	FREQUENCY
13. Implement Hitch (Figure 30)	2	Grease Gun	Weekly
14. Walking Beam Pivots (Figure 31)	4	Grease Gun	Weekly
15. Trailer Jack (Figure 32)	1	Grease Gun	Weekly
16. S-Cam Bushings (Figure 33)	4	Grease Gun	Weekly
17. Ratchet Slack Adjusters (Figure 34)	4	Grease Gun	Weekly
18. Hangers (Figure 35)	3	Grease Gun	Weekly
19. Spindle Bushings (Figure 36)	4	Grease Gun	Weekly
20. Hub (Figure 37)	4	Replace synthetic "Semi-Fluid" Long Life Grease. Replace 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 30 - Implement Hitch

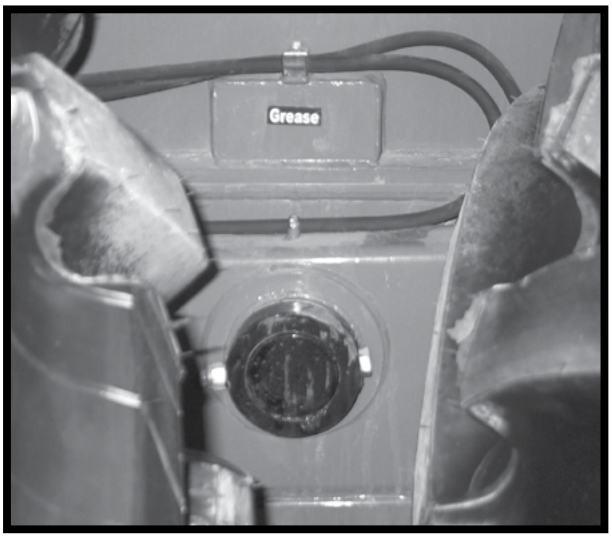


Figure 31- LH & RH Walking Beam Pivots

Figure 32 - Trailer Jack

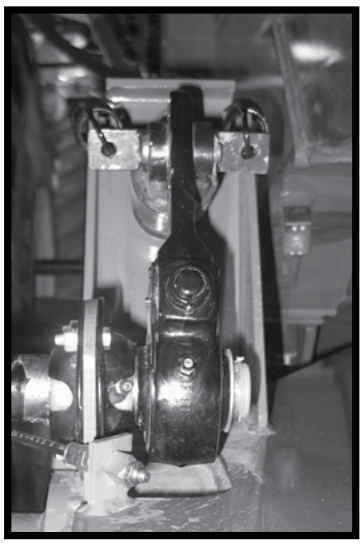


Figure 33 - S-Cam Bushing & Ratchet Slack Adjusters

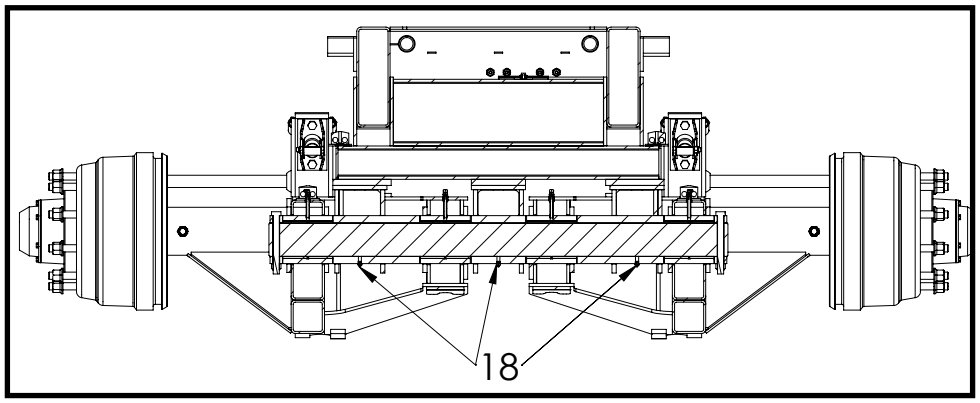


Figure 34 - Hangers

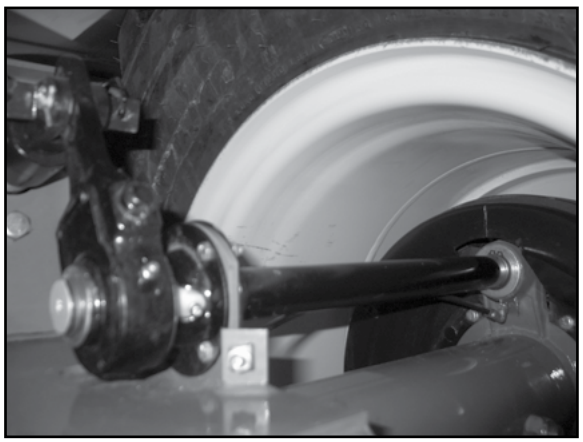


Figure 35 - Spindle Bushings

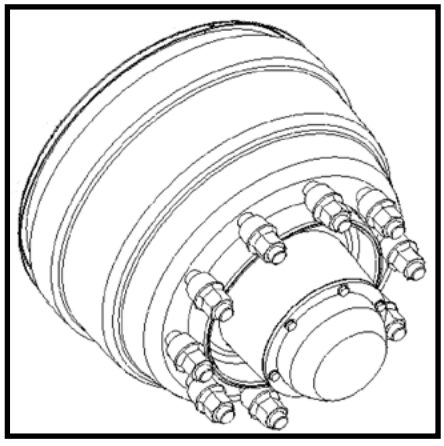
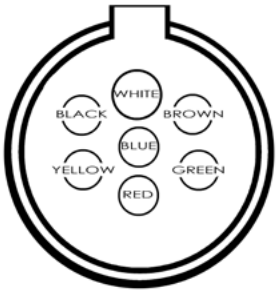


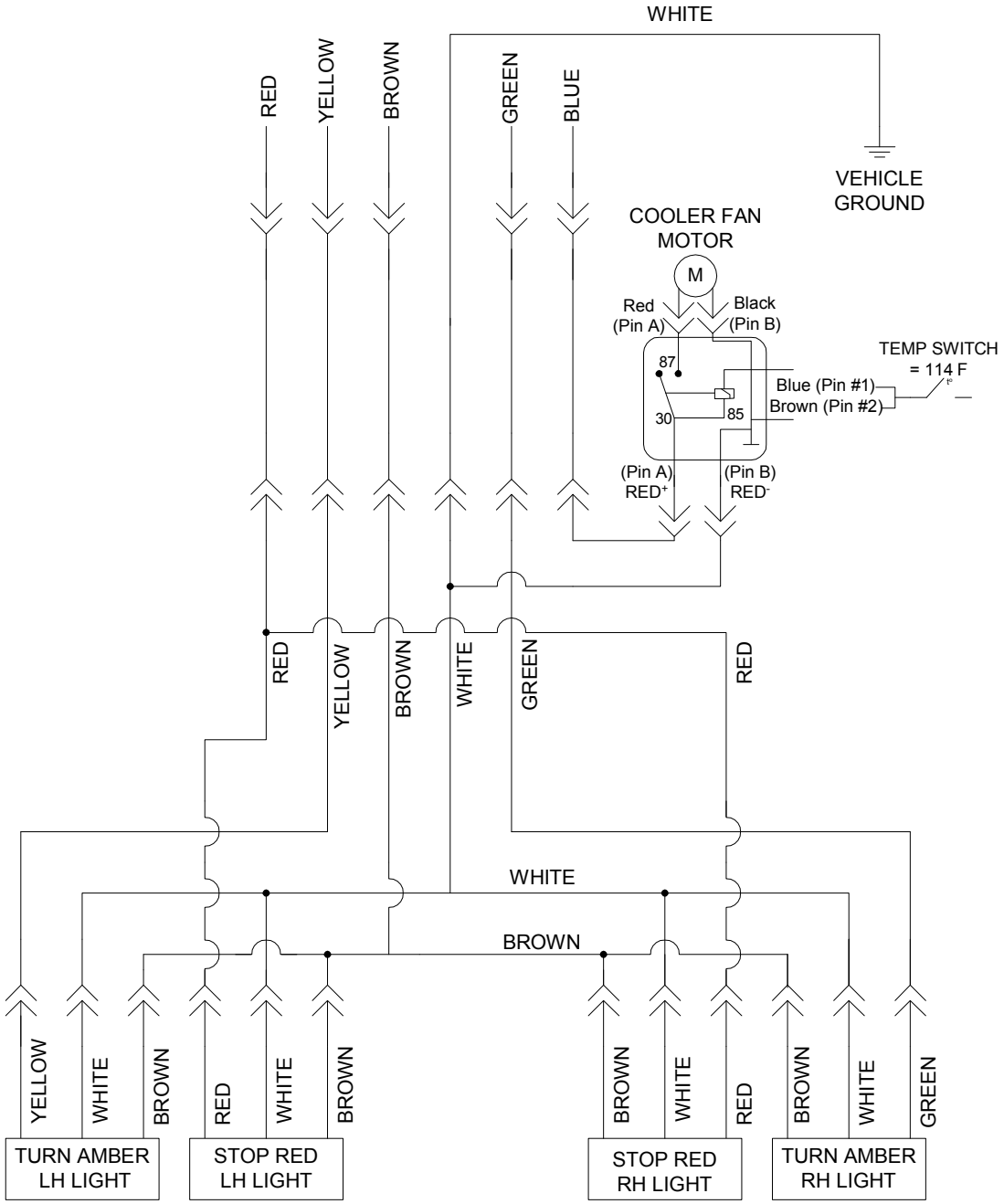
Figure 36 - Hub

ELECTRICAL SCHEMATIC - 12 VOLT DC

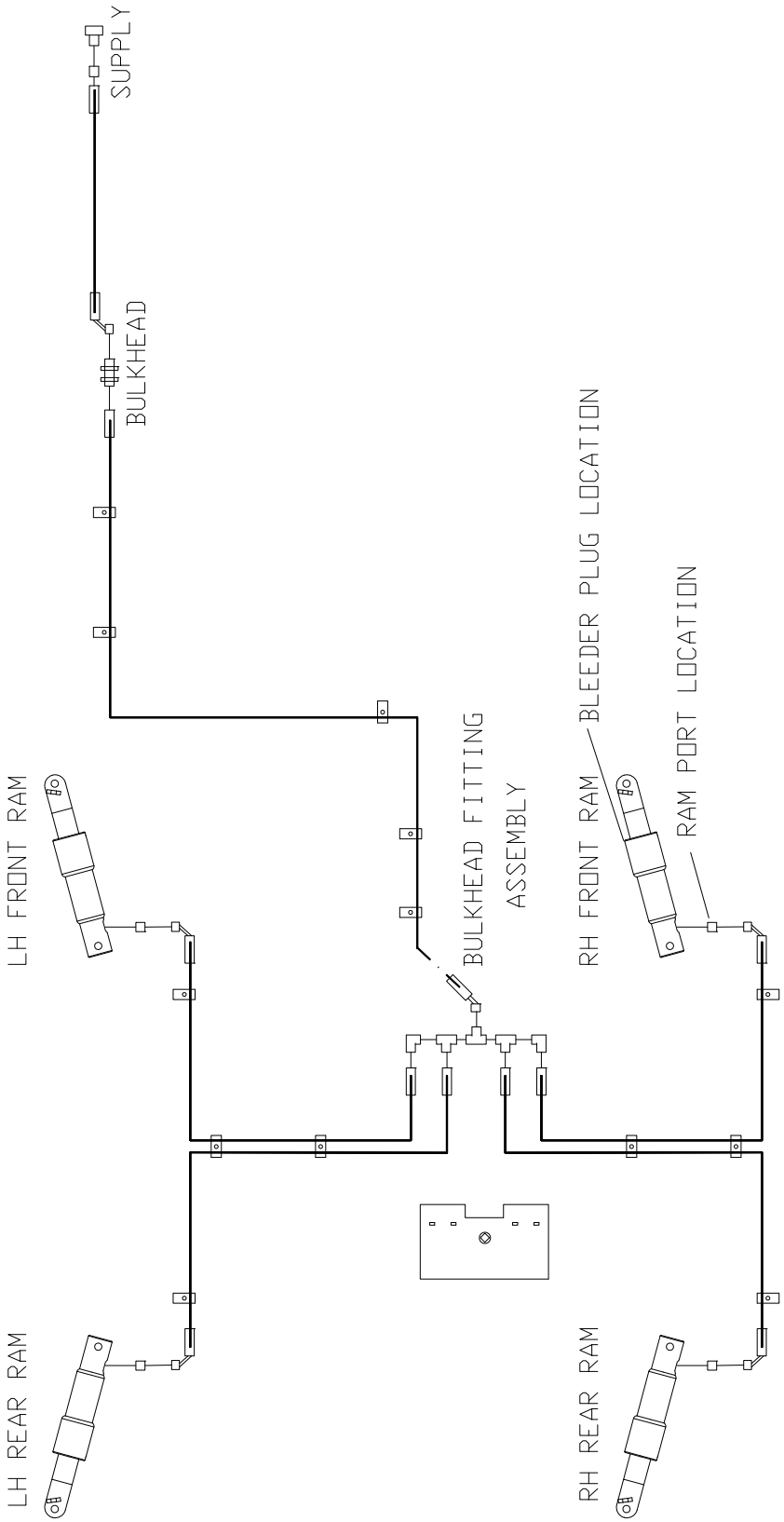


WIRING CODE

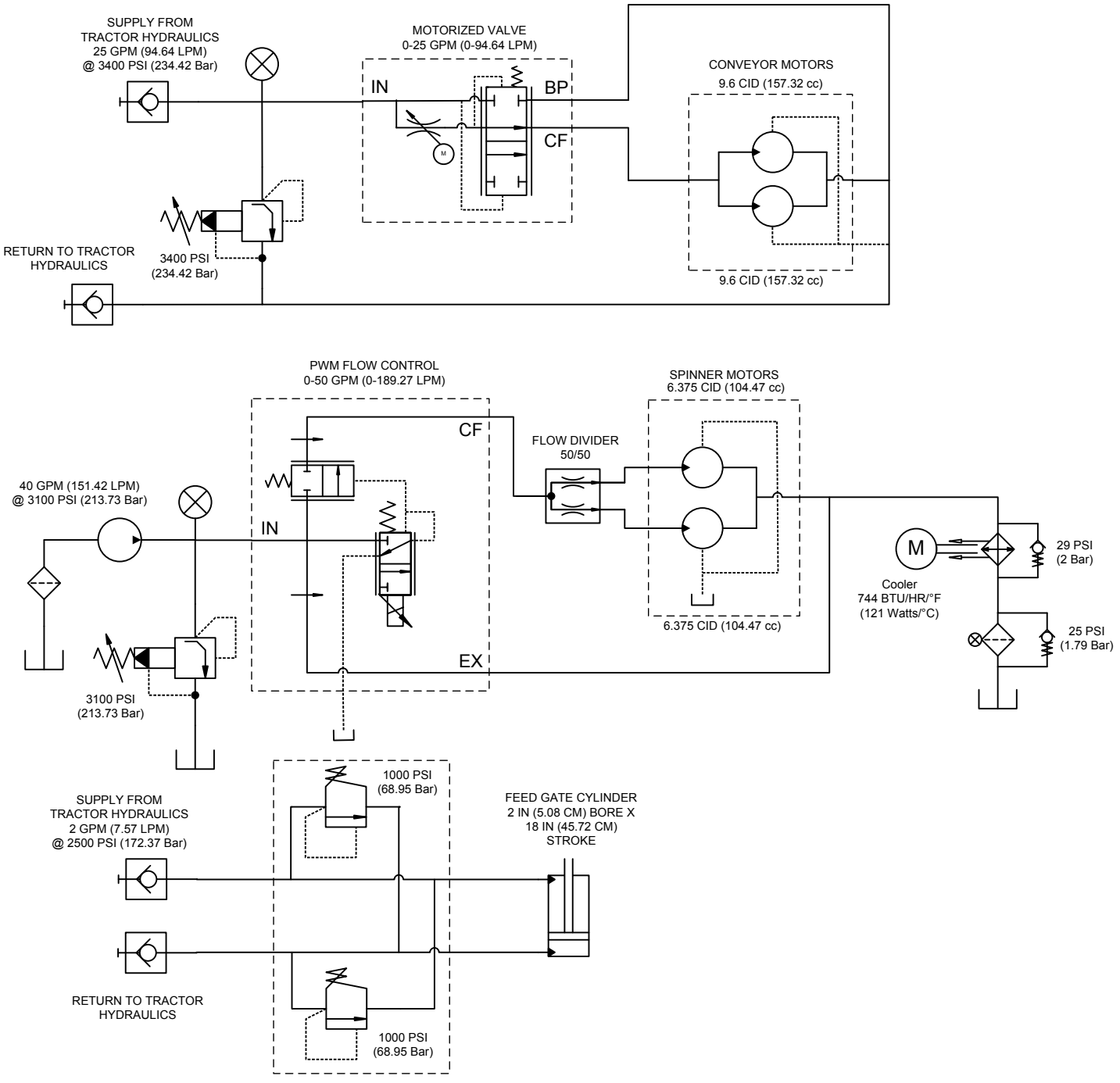
- 12GA White Wire (Ground)
- Black Wire (Not Used)
- 12GA Yellow Wire (LH Flash Warning & Turn Light)
- 12GA Red Wire (Stop Lights)
- 12GA Green Wire (RH Flash Warning & Turn Light)
- 12GA Brown Wire (Tail Lights)
- 12GA Blue Wire (Oil Cooler)



BRAKES SCHEMATIC



HYDRAULICS SCHEMATIC



L5034G4 CONVEYOR SELECTION CHART

This chart is to help determine which conveyor is best for specific applications. Find the closest description of the type of material to be spread.*

- X indicates the preferred conveyor.
- O indicates a suitable alternative conveyor.
- NR indicates the conveyor and/or spreader is not recommended for the specified application.

The density provided was used to make the conveyor recommendation. If the density of the material to be spread is outside of those in the table, contact your New Leader dealer for the best conveyor for your application.

Product (density)	#1 Chain	#2 Chain
Poultry Litter (16-54 lbs/ft3)	X	O
Waste Sludge (40-65 lbs/ft3)	X	O
Paper Pulp (approx. 42 lbs/ft3)	X	O
Compost Cattle Manure (36-65 lbs/ft3)	O	X
Gin Trash (35-50 lbs/ft3)	X	O
Fly Ash** (38-45 lbs/ft3)	NR	X
Gypsum** (65-80 lbs/ft3)	NR	NR
Lime** (80-100 lbs/ft2)	NR	NR
Sulfur** (80-100 lbs/ft3)	NR	NR
Fertilizer - Not Recommended	NR	NR

* - A #3 conveyor is not recommended for use with material that is greater than 25% moisture content. Wet material can slip on a #3 conveyor and may not flow to the feed gate.

** - Trial and error is necessary to determine the spreader's maximum capacity for each material so as not to exceed the system pressures of the hydraulic system and stall the conveyor.

NOTE: Field experience has shown that payload capacity can be increased with the use of chain shields in some applications.

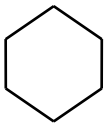
- Symptom: Spinner motors do not turn when spinner control valve is in running position. See reasons 1, 2, 3, 4, 5, 7 & 21.
- Symptom: Spinners turn but conveyor does not run in manual mode. See reasons 6, 8, 9, 10 & 21.
- Symptom: Console in operation mode, but the conveyor does not move when the machine moves. See reasons 6, 8, 9, 10 & 21.
- Symptom: Spinner speed does not stay constant. See reasons 4, 5, 11, 13, 21 & 22.
- Symptom: Hydraulic oil overheats (200° F (93 C°) or hotter). See reasons 1, 4, 6, 15, 16, 17 & 18.
- Symptom: Conveyor does not run with cab control "on", PTO driveline engaged and tractor driving forward. See reasons 20 & 21.
- Symptom: Conveyor runs erratic. See reasons 19 & 21.
- Symptom: Conveyor runs when control switch in cab is in "Off" position. See reason 14.
- Symptom: Conveyor starts to run when PTO driveline is engaged. See reasons 12 & 21.
- Symptom: Hydraulic system pulsates. See reason 20 & 22.
- Symptom: Spinners run with cab control in "Off" position. See reason 23.
- Symptom: Controller application or programming. Refer to the control manual's Troubleshooting section.
- Symptom: Undesirable spread pattern. See *G4 Spread Pattern* section at the back of this manual.
- Symptom: Brakes are sluggish or noisy. See "Brakes" in *Lubrication & Maintenance* section.
- Symptom: Lights are not functioning. See "Electrical Schematic" in *Troubleshooting* Section.
- Symptom: Light flashes and buzzer sounds intermittently. Conveyor runs in jerks. See reasons 19 & 21.

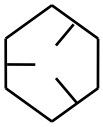
Reason:	**Correction:**
1. Hydraulic oil level low.	Add hydraulic oil as necessary to maintain level around mid-point of sight gauge.
2. Shut Off valve on oil reservoir not open.	Open valve fully by turning counter clockwise until it stops.
3. Hydraulic Pump is not rotating.	a. Pump is disengaged. Shift into engagement. b. Drive line has failed. Repair or replace. c. Key in pump shaft has failed. Replace key. d. U-joint pin or key has failed. Replace pin or key.
4. In line relief valve set too low.	In line relief valve pressure should be 3100 PSI (214 bar). If unit is not equipped with a pressure gauge, install one at main relief valve. Disconnect pressure line from main relief valve and reconnect to flow meter and load valve. Open load valve fully and run tractor engine at field operating speed with pump engaged. Slowly close load valve until pressure reaches 3100 PSI (214 bar). If this pressure cannot be reached, adjust relief valve until gauge reads 3100 PSI (214 bar). **CAUTION: Do not set pressure above 3100 PSI (214 bar).**

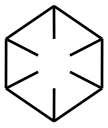
Reason:	Correction:
5. Worn pump.	With flow meter arranged to check relief valve setting, open load valve fully. Read flow rate with engine running at field operating speed. Close load valve until pressure reads 2000 PSI (1378 bar). Flow rate should not decrease more than ten percent. If flow loss is greater, replace pump.
6. Conveyor relief valve open to return line.	Using relief valve testing adapter and flow meter, test valve for opening pressure. If not 3100 PSI (214 bar), replace relief valve.
7. Jammed or frozen spinner motors.	Free up. If not possible, replace as required.
8. Jammed or frozen conveyor.	Free up conveyor.
9. Jammed or frozen conveyor hydraulic motor.	Replace motor.
10. Conveyor hydraulic motor shaft key sheared.	Replace key.
11. Pump speed is not adequate to provide sufficient flow to maintain spinner speed.	Increase engine speed.
12. Involves conveyor control valve timing.	Adjust timing of servo valve so conveyor will stop when valve is in the off position.
13. Defective spinner control valve.	Check connections on PWM spinner valve. Manually override PWM valve and test. If machine functions properly, replace or flush debris from small PWM cartridge.
14. Conveyor switch is on and controller is picking up speed input.	Turn conveyor switch off. Verify speed reading on monitor. If displaying speed, see # 20.
15. Excessive oil is being pumped.	Set tractor hydraulics to proper flow.
16. Worn motor (spinner or conveyor).	Motor heats up at an excessive rate (check for this heating when system is cold). Replace motor.
17. Improper or deteriorated hydraulic oil.	Replace hydraulic oil with proper specification oil and replace filter.
18. Pinched or obstructed hose, hydraulic line or fitting.	Clear obstruction or replace part. Straighten kinked hoses.
19. Driving too fast for application rate.	Shift tractor transmission to a lower gear. Will not normally occur if within maximum application rates.
20. Defective radar/GPS Antenna.	Check speed on console. Repair or replace radar/GPS Antenna
21. Involves the controller.	Refer to control manual.
22. Tractor PTO is not adequate to maintain proper PTO speed.	Adjust engine speed to maintain proper PTO RPM.
23. Cab control is for conveyor only. Spinners run anytime vehicle engine is running, PTO driveline is engaged and spinner control valve is in a running position.	None required. This is a normal condition. To stop spinners, set spinner control valve at “0” position, disconnect PTO driveline, or shut off vehicle engine.

STANDARD TORQUES NATIONAL COARSE (NC) CAPSCREWS

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.

CAP SCREW SIZE	TORQUE - FOOT-POUNDS					
	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

Figure 37 - TR3000 Serial Tag

Figure 38 - L5034G4 Serial Tag

NOTES

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.

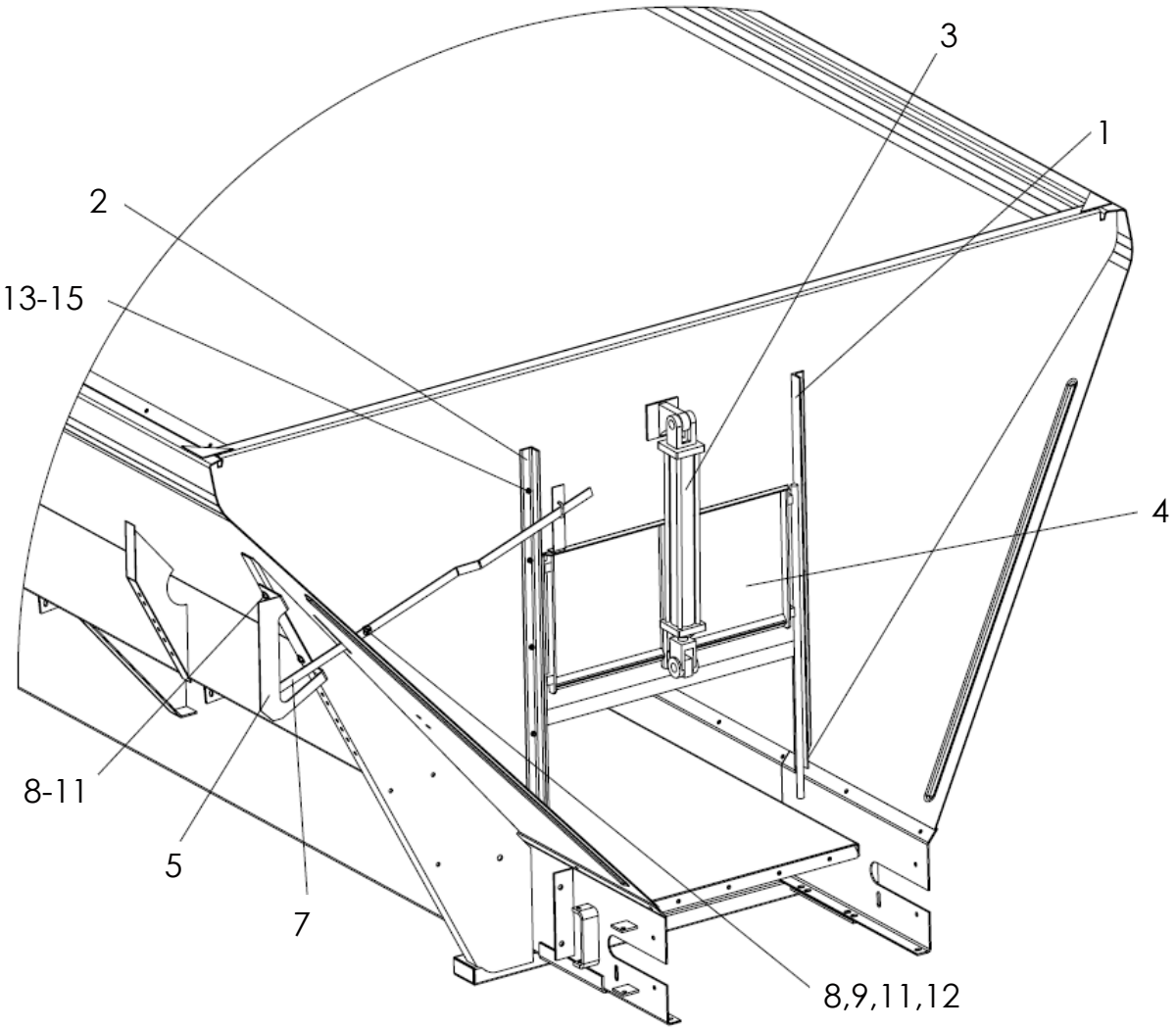
No responsibility is assumed for delay or damage to merchandise while in transit. Our responsibility ceases upon delivery of shipment to the transportation company from whom a receipt is received showing that shipment was in good condition when delivered to them, therefore, claims (if any) should be 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

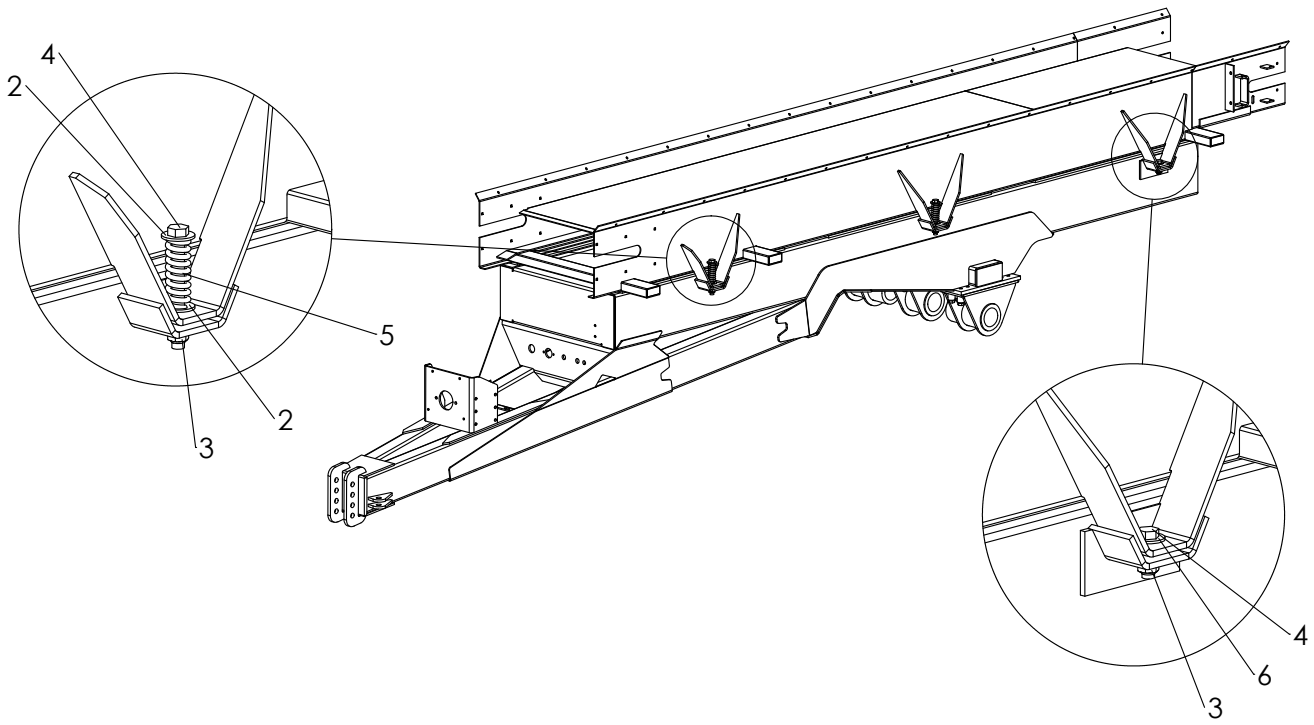
The parts listed under the different steel types (CS, 409 SS and 304 SS) are for that type of unit and do not necessarily mean the part is made of that type of steel.


3
1
2
13-15
4
8-11
5
7
8,9,11,12

ITEM	PART NO.		DESCRIPTION	QTY
	CS	SS		
1	70286	70286-X1	Slide – Weldment Feedgate RH	1
2	70288	70288-X1	Slide – Weldment Feedgate LH	1
3	55377	55377	Cylinder – Hydraulic	1
4	305473	303298	Feedgate – Weldment 34” #2	1
5	303379	303325	Bracket – Indicator	1
6	*55395	*55395	Decal – Indicator	1
7	303324	303323	Indicator – Feedgate	1
8	20068	36399	Cap Screw – 3/8-16 x 1-1/4	3
9	20693	36425	Washer – Flat 3/8	6
10	20712	36420	Washer – Lock 3/8	2
11	20644	36414	Nut – Hex 3/8-16	3
12	20678	72054	Nut – Lock 3/8-16	1
13	20003	36393	Cap Screw – 1/4-20 x 3/4	11
14	20710	36418	Washer – Lock 1/4	11
15	20642	36412	Nut – Hex 1/4-20	11

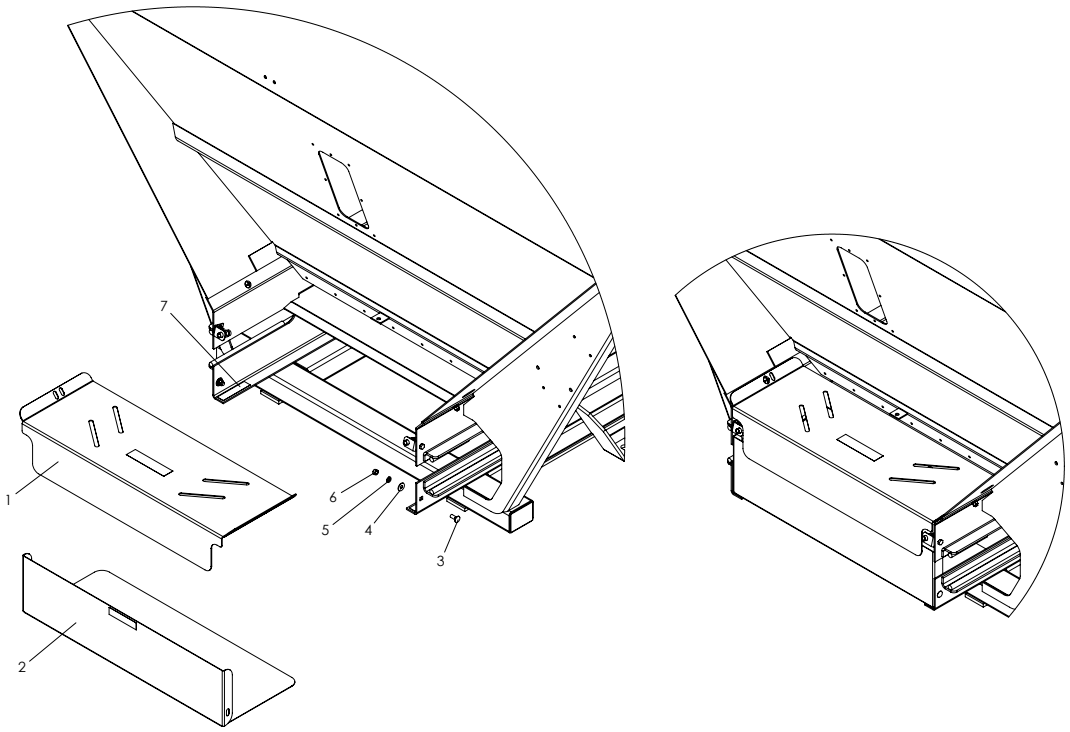
* - Not Shown

MOUNTING ANGLE

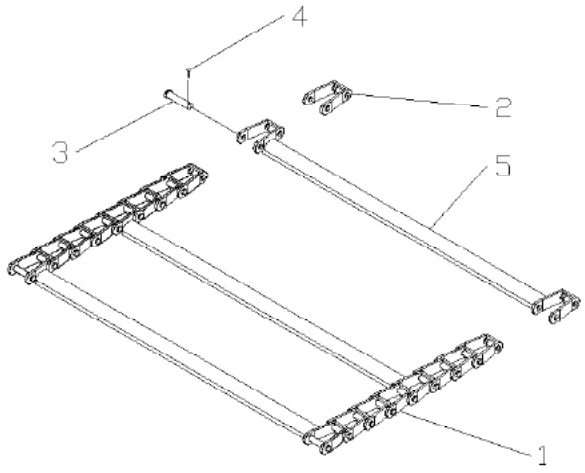


ITEM	PART NO.	DESCRIPTION	QTY
1	20209	Cap Screw - 3/4-10NC x 3	2
2	20698	Washer - Flat 3/4	12
3	20683	Nut - Lock 3/4-10NC	6
4	58560	Cap Screw - 3/4-10NC x 7	4
5	305220	Spring - Compression	4
6	310487	Washer - Flat 25/32 SS	4

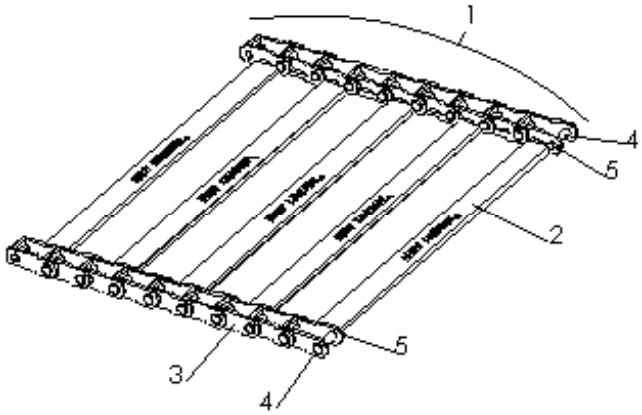
CONVEYOR COVER



ITEM	PART NO.	DESCRIPTION	QTY
1	308379	Guard - Front Top	1
2	308380	Guard - Front Bottom	1
3	36408	Bolt - Carriage, 3/8-16NC x 1 SS	2
4	36425	Washer - Flat 3/8 SS	2
5	36420	Washer - Lock 3/8 SS	2
6	36414	Nut - Hex 3/8-16NC SS	2
7	308191	Decal - Guard is Missing	3



#1 – Cross bars every 3rd link

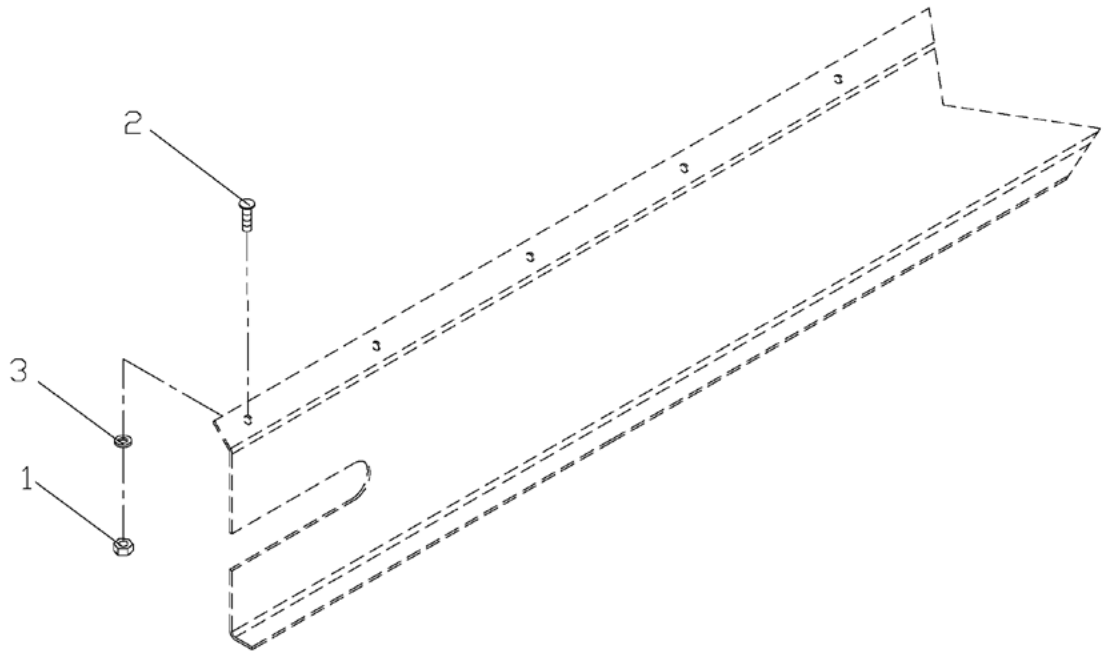


#2 – Cross bars every other link

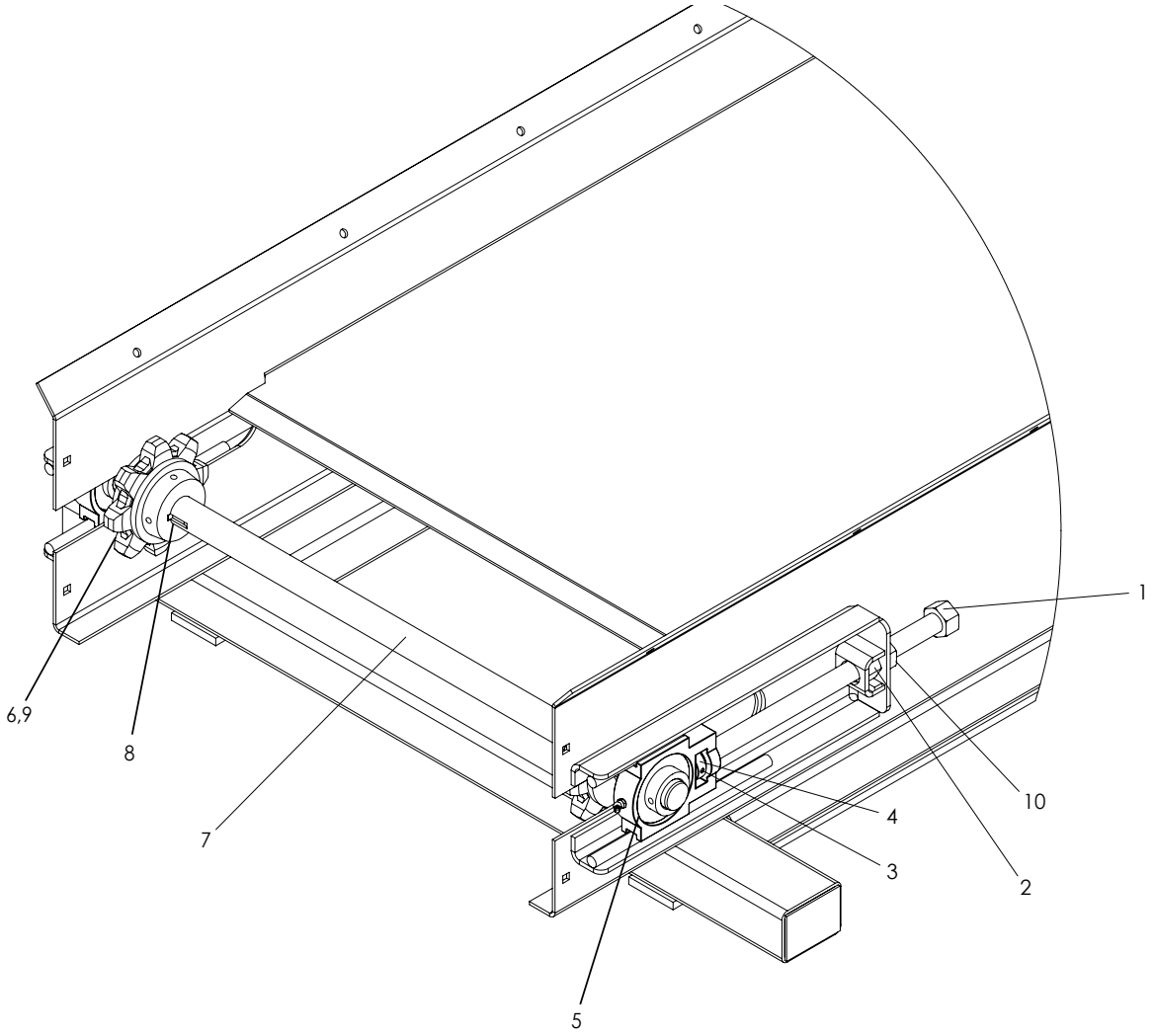
ITEM	PART NO.	DESCRIPTION	QTY
1	304465-AD	#2 Chain - Assembly	1
	305774-AD	#1 Pintle Chain	1
2	310292	Crossbar Weldment	AR
	310293	Cross Bar Weldment	AR
3	90284	Chain - Link	2
4	36697	Pin – Pintle Chain	8
5	20817	Pin – Cotter	8

AR - As Required

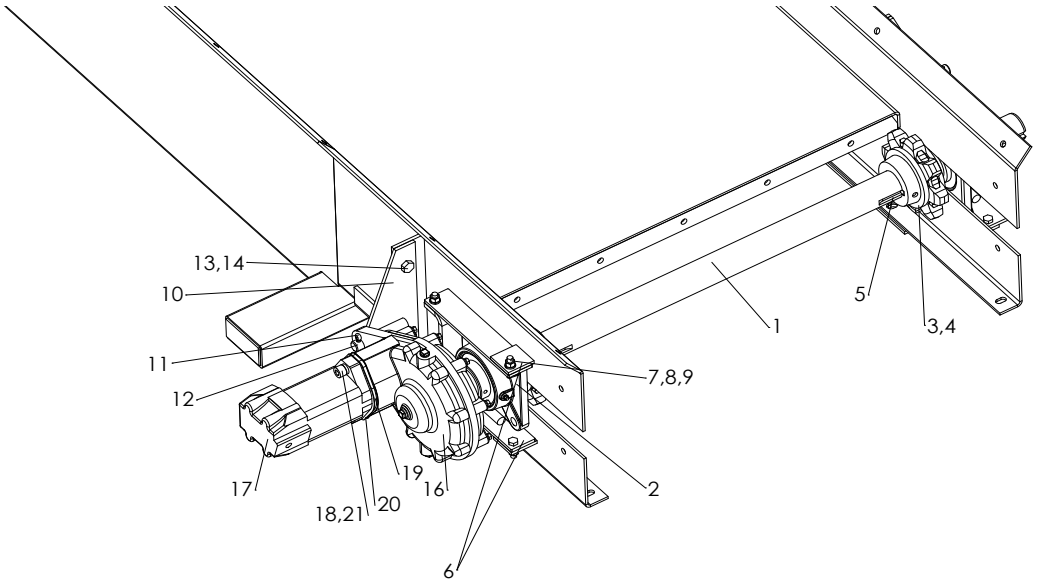
CHAIN SHIELD HARDWARE



ITEM	PART NO.	DESCRIPTION	QTY
	305450-AD	Chain Shield	
1	36414	Nut – Hex 3/8	34
2	71829	Bolt – Carriage 3/8 x 1	34
3	36420	Washer – Lock 3/8	34



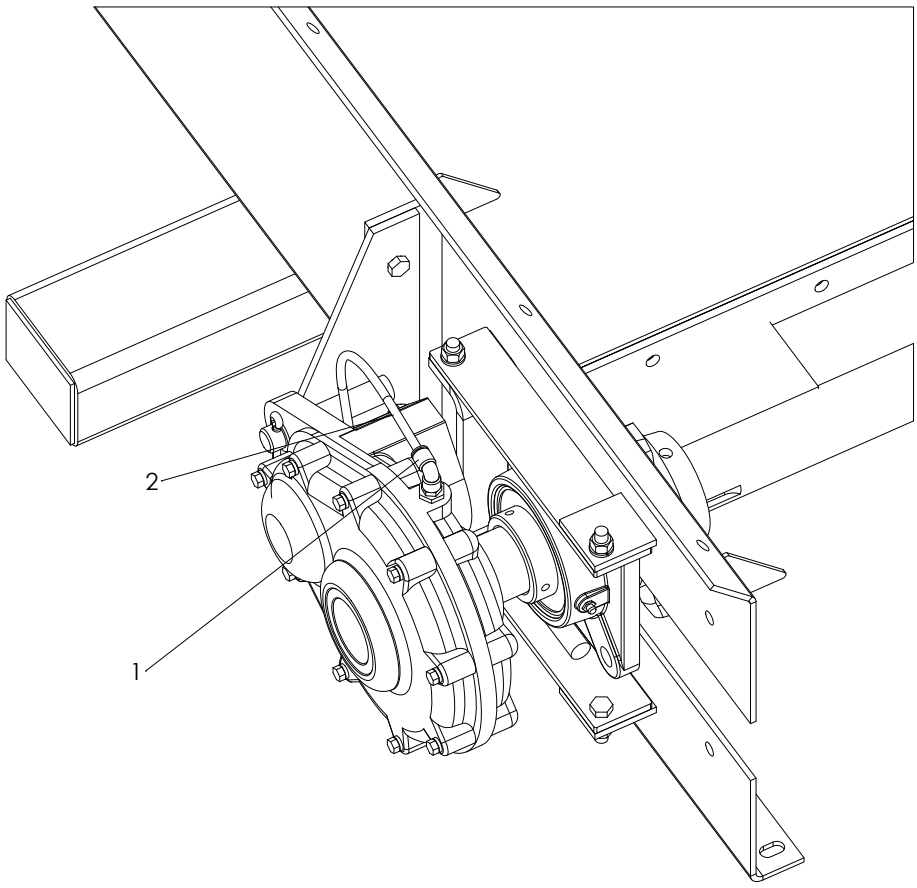
ITEM	PART NO.		DESCRIPTION	QTY
	CS	SS		
1	36508	36508	Screw - Weldment Adjusting SS	2
2	39110	39110	Nut Weldment	2
3	20925	20925	Pin – Roll 1/4 x 1 1/2	2
4	30725	30725	Collar – Set 1”	2
5	22511	22511	Bearing – Take-up	2
6	97051	97051	Sprocket – Idler	2
7	310640	310640	Shaft – Idler	1
8	2135	2135	Key – Square 5/16 x 2 1/2	2
9	20735	20735	Screw - Set 1/4-20 x 1/4	1
10	36509	36509	Nut – Hex 1-8NC SS	2



ITEM	PART NO.		DESCRIPTION	QTY
	CS	SS		
1	303304	303304	Shaft – Drive	1
2	6465	6465	Bearing	2
3	88276	88276	Sprocket	2
4	20748	20748	Screw – Set 3/8-16 x 3/8	4
5	6131	6131	Key – Square 3/8 x 1 1/2	2
6	82882	82885	Guide – Bearing	4
7	20068	36399	Cap Screw - 3/8 x 1 1/4	8
8	20712	36420	Washer – Lock 3/8	8
9	20644	36414	Nut – Hex 3/8	8
10	82550	82552	Mount – Torque Arm LH	1
11	20833	20833	Pin – Cotter 1/4 x 1 1/2	2
12	2716	2716	Washer – Flat 3/4	2
13	20128	20128	Cap Screw - 1/2 x 1 1/4	4
14	20680	20680	Nut – Lock 1/2	4
15	*82549	*82551	Mount – Torque Arm RH	1
16	36671	36671	Gear Case – 6:1	2
17	56270	56270	Motor – Hydraulic 2000 Series 9.6 CID	2
18	305098	305098	Cap Screw - Sockethead 1/4-13NC x 1-3/4	4
19	34650	34650	Spacer – Motor	2
20	74524	74524	Gasket	4
21	30227	30227	Washer - Lock Sockethead 1/2	4
22	*29753	*29753	Fitting - 12-10 070120	4
23	*311172	*311172	V-Ring Seal	2

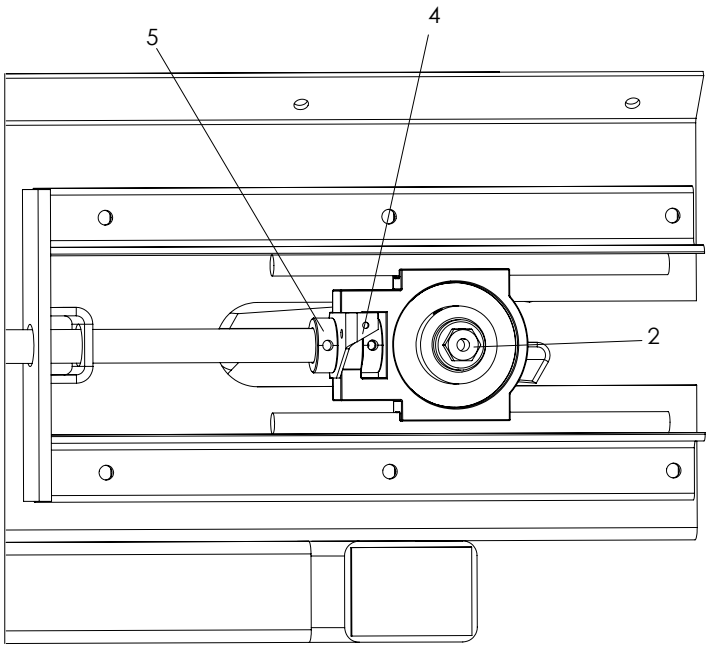
* - Not Shown

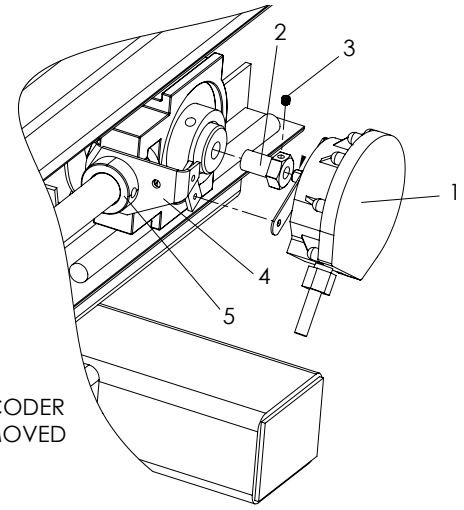
BREATHER TUBE - GEAR CASE



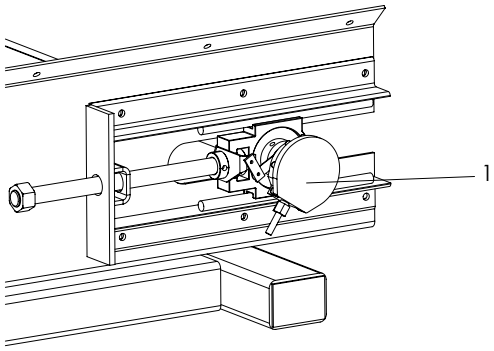
ITEM	PART NO.	DESCRIPTION	QTY
1	306891	Fitting - 4-2 630202K	1
2	9005-0-7761	Tubing - 1/4 OD Air Brake Black	1.5 ft

ENCODER

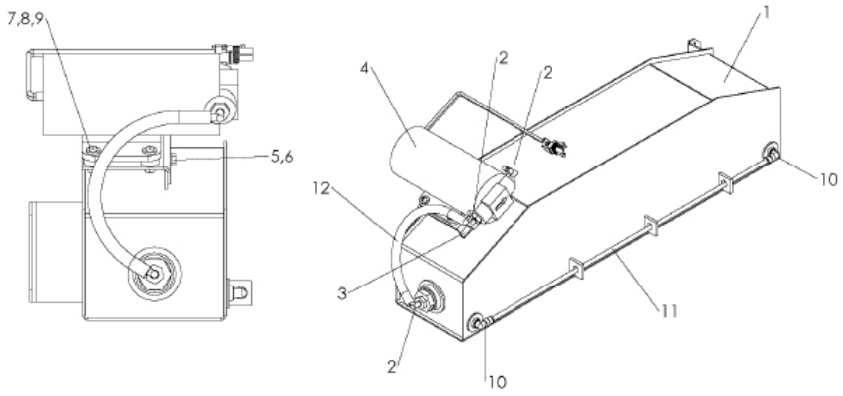




ENCODER
REMOVED



ITEM	PART NO.	DESCRIPTION	QTY
1	303994	Encoder – 180 with Hardware	1
2	310601	Coupler - Rate Sensor SS	1
3	310603	Screw - Set 1/4-20NC x 1/4 SS	1
4	81949	Bracket - Sensor, Idler Mount	1
5	2696	Collar - Set 1”	1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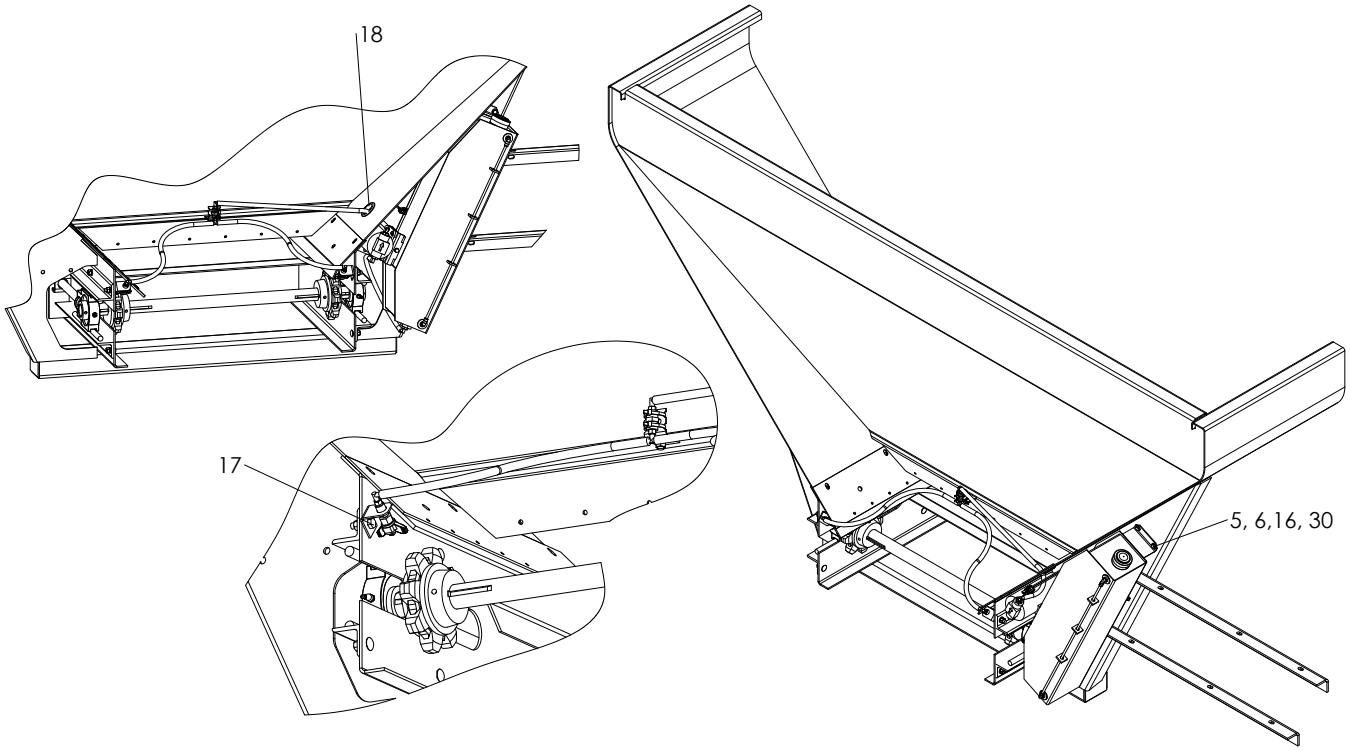
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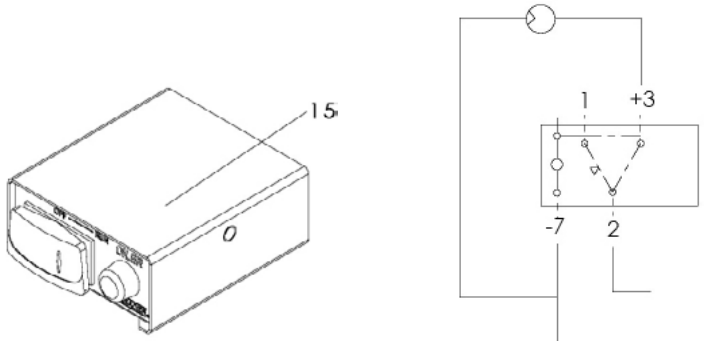
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-7
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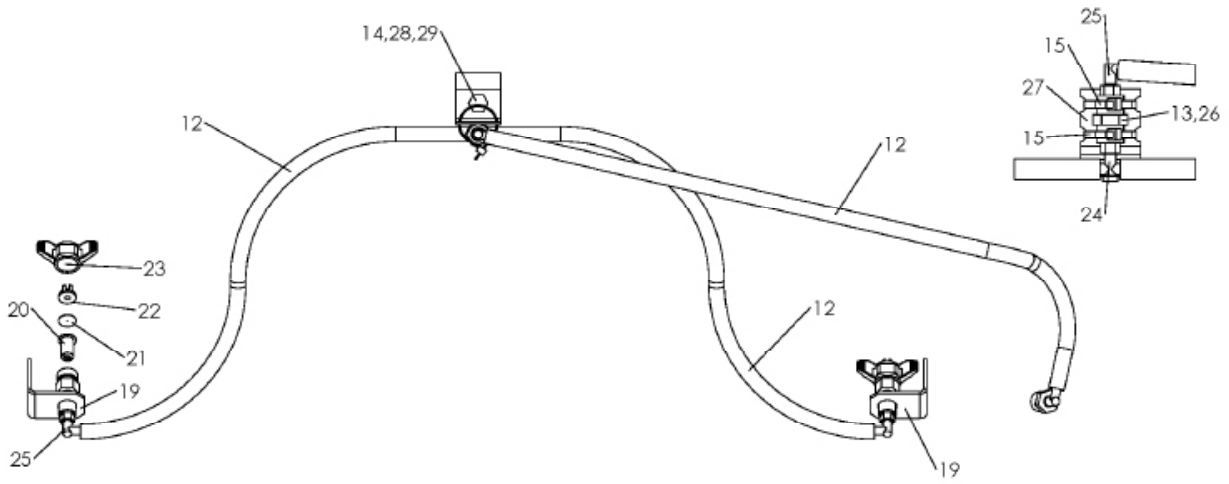
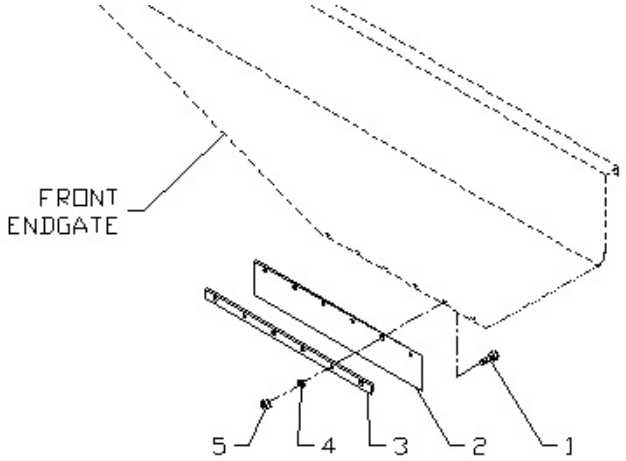


ITEM	PART NO.	DESCRIPTION	QTY
	306066	Tank - Assembly, Includes 1-13	
1	305754	Tank – Weldment	1
2	306657	Elbow	3
3	304409	Mount - Pump	1
4	304390	Pump - Assembly with Connector	1
	304834	Pump - Diagram 1.1 GPM 30 PSI	1
	303730-AB	Connector - FEM Socket Sealed	1
	303730-CC	Terminal - FEM Sealed (Sleeve)	2
	303730-EB	Seal - Cable Lt Gray	2
5	36393	Cap Screw - 1/4 x 3/4 SS	5
6	36418	Washer - Lock 1/4 SS	5
7	44454	Screw - Sockethead #10-24NC x 1 SS	4
8	171052	Washer - Flat #10 SS	8
9	56355	Nut - Lock #10-24NC SS	4
10	301337	Fitting - 90 Male 1/8 NPT	2
11	306437	Tubing - Clear	2.063 ft
12	26544	Hose - Low Pressure 1/4 ID x 8	AR
13	*306670	Tape - Thread Seal w/PTFE Yellow Gas Line	AR
14	36414	Nut - Hex 3/8 SS	1
15	304391	Panel – Assembly Oiler Control	1
	99676	Fuse – 10AMP Fast Acting	1
16	36412	Nut - Hex 1/4 SS	4
17	36399	Cap Screw - 3/8 x 1-1/4 SS	2
18	21653	Grommet - Rubber	1

ITEM	PART NO.	DESCRIPTION	QTY
19	306649	Nozzle - Mount Assembly	2
	304839	Angle - Weldment Nozzle Mount	1
	306650	Body - Male Nozzle Brass	1
20	306651	Strainer - Check Valve	2
21	306652	Plate - Orifice SS	2
22	306654	Nozzle - Even Flat Spray SS	2
23	306653	Cap - Nozzle	2
24	306655	Tee - Black	1
25	306656	Elbow - Black	3
26	306678	Coupling - Polypropylene	1
27	306804	Bracket - Coupling	1
28	36293	Cap Screw - 3/8 x 3/4 SS	1
29	36420	Washer - Lock 3/8 SS	1
30	36423	Washer - Flat 1/4 SS	4
31	*307318	Harness - Oiler Extension 17’	1

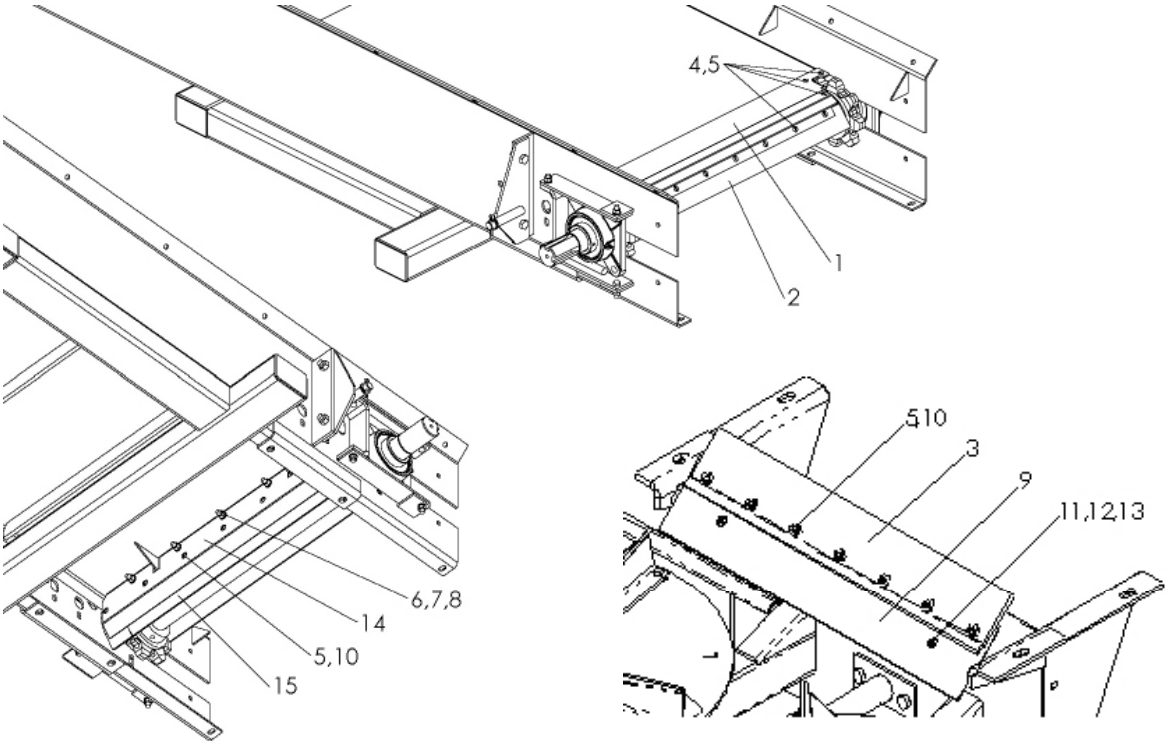
* - Not Shown AR - As Required

WIPER FRONT



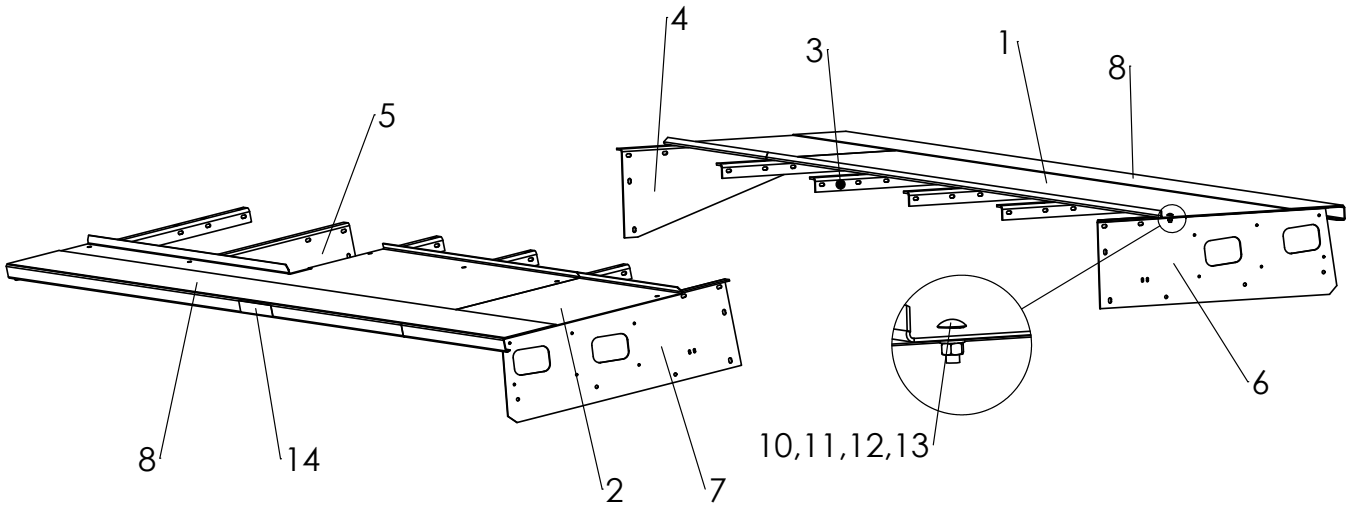
ITEM	PART NO.	DESCRIPTION	QTY
1	36393	Screw – Machine 1/4 x 3/4	7
2	303314	Wiper – Belt	1
3	303315	Retainer – Belt	1
4	36418	Washer – Lock 1/4	7
5	36412	Nut – Hex 1/4	7

REAR WIPER - #2 & #3 CONVEYORS



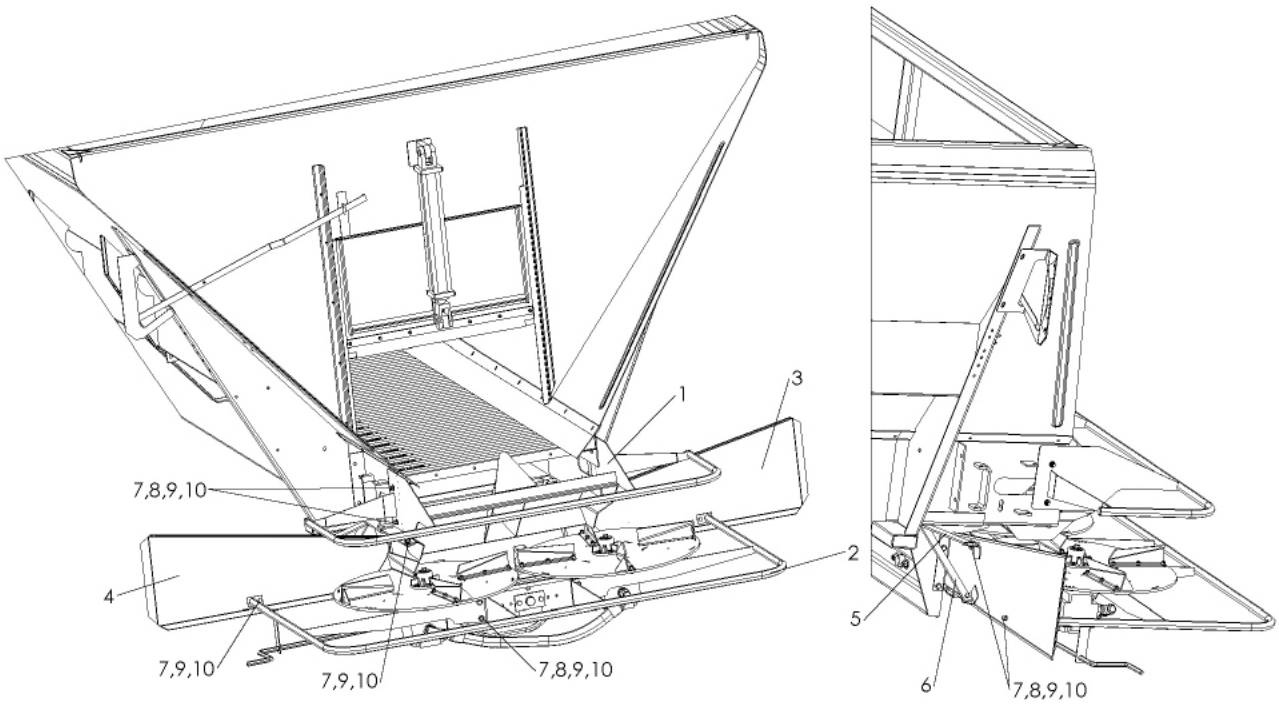
ITEM	PART NO.		DESCRIPTION	QTY
	CS	SS		
	304441	304442	Wiper – Assembly Rear	
1	303312	305329	Lip – Weldment Rear	1
2	303306	305329	Wiper – 34” Rear Lip	1
3	304446	304446	Belt – Rear Wiper	1
4	20617	56400	Screw – Flat Head 1/4 x 1/2	13
5	88931	88931	Nut – Tee 1/4	31
6	20068	36399	Cap Screw – 3/8 x 1	5
7	20712	36420	Washer – Lock 3/8	5
8	20644	36414	Nut – Hex 3/8	5
9	304447	304447	Plate – Wiper Belt	1
10	56258	56258	Screw – Truss Head 1/4 x 1/2	31
11	32446	32446	Screw – Truss Head 1/4 x 3/4	2
12	36418	36418	Washer – Lock 1/4	2
13	36412	36412	Nut – Hex 1/4	2
14	304444	304445	Mount – 34” Internal Wiper	1
15	304443	304443	Rubber – 34” Internal Wiper	1

FENDERS



ITEM	PART NO.		DESCRIPTION	QTY
	CS	SS		
1	83074	83086	Fender – RH	1
2	83077	83089	Fender – LH	1
3	83021	96969	Angle – Mounting	8
4	83017	96965	Formed Angle – RH	1
5	83018	96966	Formed Angle – LH	1
6	306365-X1	306365-X2	Support - Fender RH	1
7	306366-X1	306366-X2	Support - Fender LH	1
8	21699	21699	Material – Non-Skid, 8” Wide Length	AR(2)
9	*305276	*305276	Angle - Decal Mount	2
10	20693	36425	Washer – Flat 3/8	52
11	20712	36420	Washer – Lock 3/8	52
12	20644	36414	Nut – Hex 3/8	52
13	20318	36408	Bolt – Carriage 3/8 x 1	52
14	39200	39200	Decal - Keep Off	2

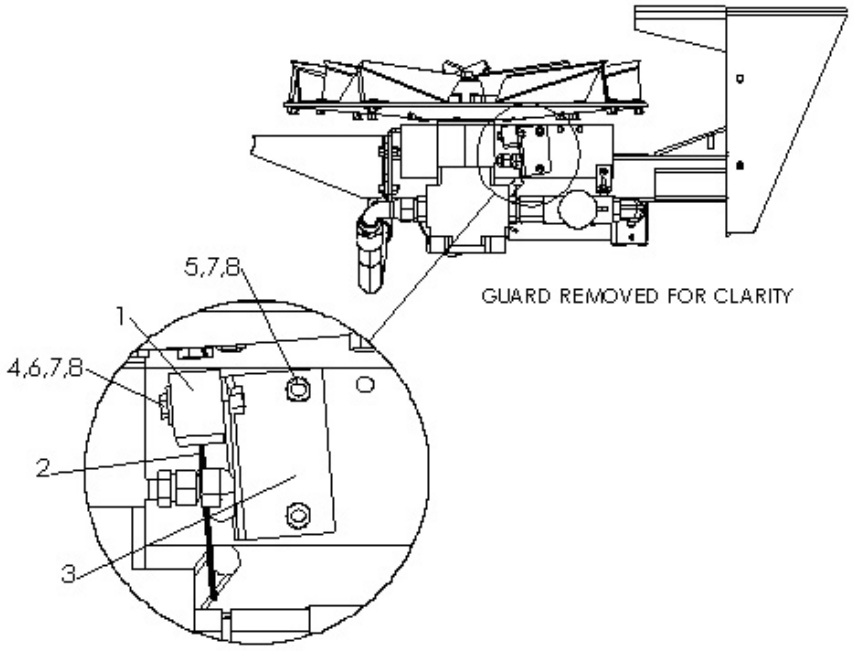
* - Not Shown



WARNING Guards are intended to reduce hazard of entanglement with machinery and injury. All guards must be installed per this drawing before spreader is put into operation.

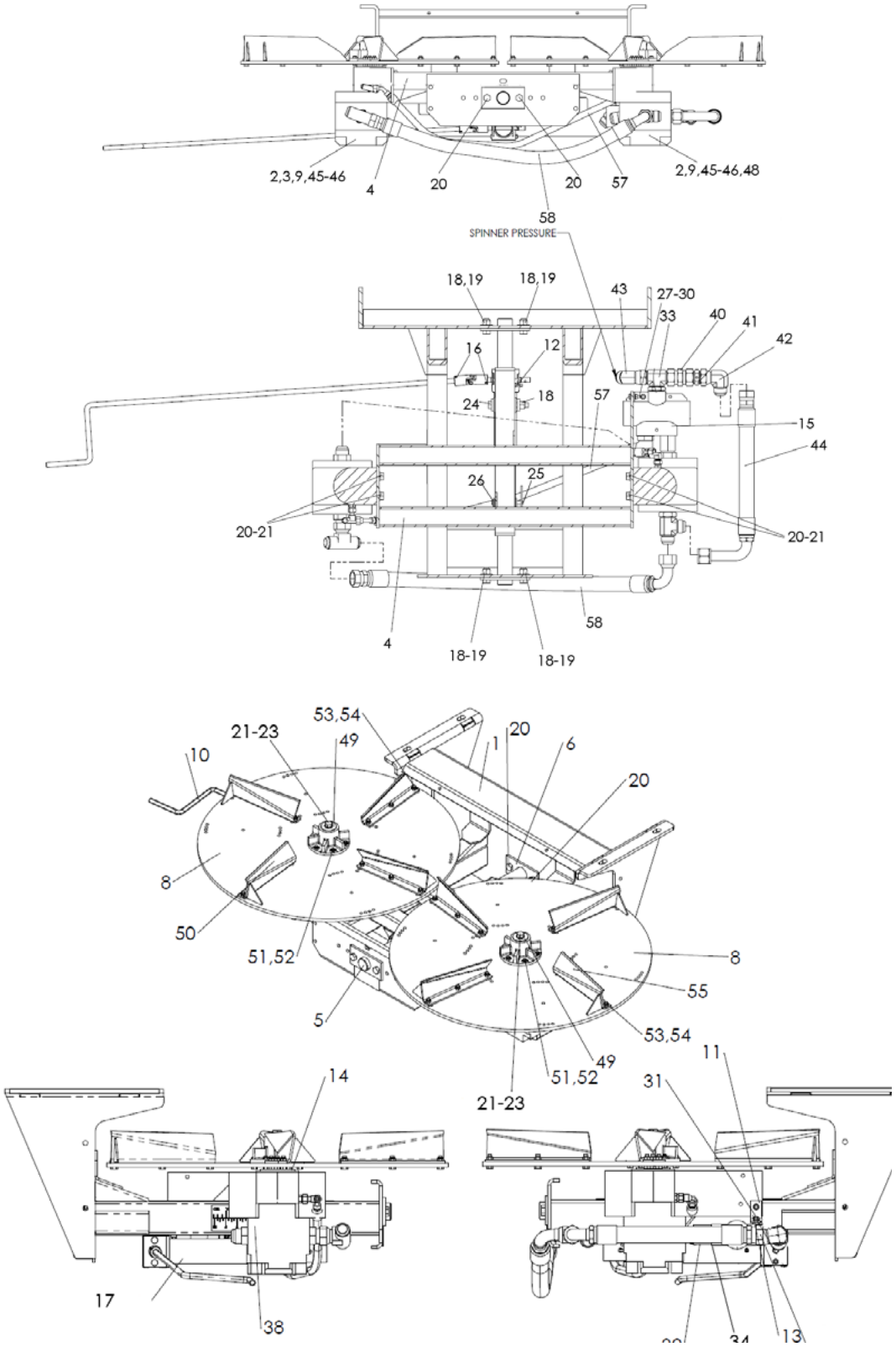
ITEM	PART NO.	DESCRIPTION	QTY
1	305309	Divider – Weldment w/Guard 34”	1
2	304913	Guard – Weldment 30” Spinner 304	1
3	305320	Shield – Weldment RH 304	1
4	305321	Shield – Weldment LH 304	1
5	87068	Bracket – Shield 304	2
6	305040	Bar – Stiffener Lower 304	2
7	36398	Cap Screw – 3/8 x 1 SS	22
8	36425	Washer – Flat 3/8 SS	20
9	36420	Washer – Lock 3/8 SS	22
10	36414	Nut – Hex 3/8 SS	20

SPINNER SENSOR



ITEM	PART NO.	DESCRIPTION	QTY
	97310	Sensor – Kit Spinner	
1	89011	Sensor – Assembly	1
2	89009	Cable – Sensor Extension	1
3	86672	Bracket	1
4	42448	Cap Screw – 1/4 x 1-1/2 SS	2
5	36393	Cap Screw – 1/4 x 3/4 SS	2
6	36423	Washer – Flat 1/4 SS	3
7	36418	Washer – Lock 1/4 SS	6
8	36412	Nut – Hex 1/4 SS	6
9	* 89011	Sensor Assembly - Block	1
	*88862	Sensor - Assembly	1
	*88864	Block - Sensor	1

* - Not Shown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SPINNER PRESSURE
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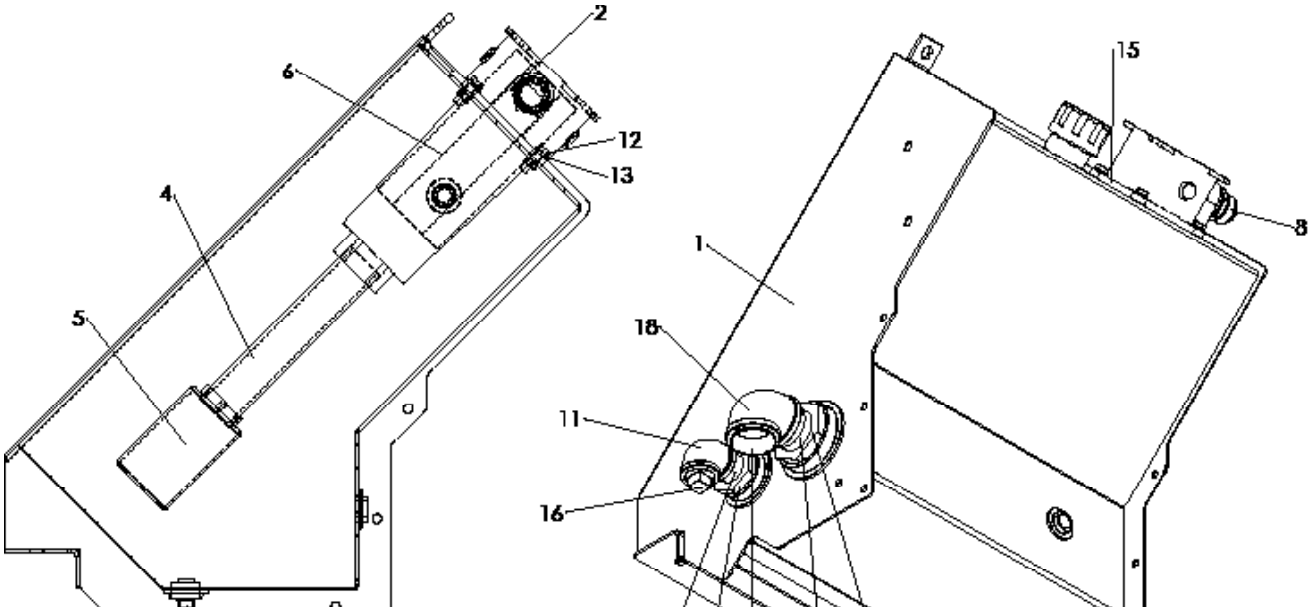
ITEM	PART NO.	DESCRIPTION	QTY
	304895	34" Fan Assembly, Includes 1-59	1
	304899	34" Fan – LH Assembly, Includes Items 8, 49-54	1
	304900	34" Fan – RH Assembly, Includes Items 8, 50-55	1
1	304911	Plate – Weldment Back	1
2	305945	Motor – Hydraulic	2
3	29825	Tee - Swivel Nut	1
4	304897	Mount – Weldment 30" Disc	1
5	304898	Shaft – Weldment 30" Disc 304	1
6	87023	Plate – Mounting Shaft	1
7	85002	U-Joint	1
8	304894	Disc – LH & RH Spinner 30"	2
9	29836	Adapter - Tee Branch	1
10	14382	Handle – Jack Feedgate	1
11	87025	Angle – Mounting Valve	1
12	6072	Zerk – Grease	2
13	76825	Hinge - Pipe	1
14	305571	Washer – Rubber	2
15	71781	Valve – 50/50 Flow Divider	1
	56369	Spool - Compensating	
16	20918	Pin – Roll	2
17	87170	Jack – Coated Assembly	1
18	39016	Nut – Lock 1/2	5
19	36426	Washer – Flat 1/2	4
20	36402	Cap Screw 1/2-13 NC x 1-1/4	14
21	36422	Washer – Lock 1/2	10
22	56397	Washer – Flat	2
23	36402	Cap Screw – 1/2-13 NC x 1/1-4 SS	2
24	80798	Cap Screw – 1/2-13 x 3-3/4	1
25	36429	Pin – Hair	1
26	6547	Pin – Clevis	1
27	36412	Nut – Hex 1/4-20 NC x 1	2
28	36418	Washer – Lock 1/4 SS	2
29	36423	Washer – Flat 1/4 SS	1
30	36395	Cap Screw – 1/4-20 NC x 1 SS	1
31	41669	Cap Screw – 1/4-20 NC 1-3/4	1
32	34810	Fitting - 16-16 NS	1
33	34750	Fitting – 16-16-16 070429	1
34	29840	Adapter – Elbow	1

ITEM	PART NO.	DESCRIPTION	QTY
35	*36422	Washer – Lock 1/2 SS	4
36	*36416	Nut – Hex 1/2-13NC SS	4
37	304906	Hose Assembly	1
38	87110	Decal – Scale	1
39	98319	Decal - Patent	1
40	302449	Fitting – 16-16 S1040-38 Non Standard	1
41	302160-AB	Valve – Check 1"	1
42	29807	Fitting – 16-16 070221	1
43	29806	Fitting – 16-16 070321	1
44	56103-X1	Hose – Assembly 100R2	1
45	29803	Adapter	3
46	34763	Adapter - Pipe	2
47	34816	Elbow – Hydraulic Fitting	1
48	305758	Fitting – 16-16-16 070428	1
49	10877	Hub – Weldment	2
50	307265	Fin – LH Weldment	4
51	20005	Cap Screw – 1/4-20 x 1	12
52	20676	Nut – Lock 1/4-20	12
53	20036-X1	Cap Screw – 5/16-18NC x 1	24
54	20677	Nut – Lock 5/16-18	24
55	307266	Fin – RH Weldment	4
56	*36426	Washer – Flat 1/2 SS	4
57	304907	Hose - Assembly	1
58	304905	Hose - Assembly 100R2	1
59	*36940	Bolt - Carriage 1/2-13 NC x 2 SS	4
60	*36426	Washer - Flat 1/2 SS	4

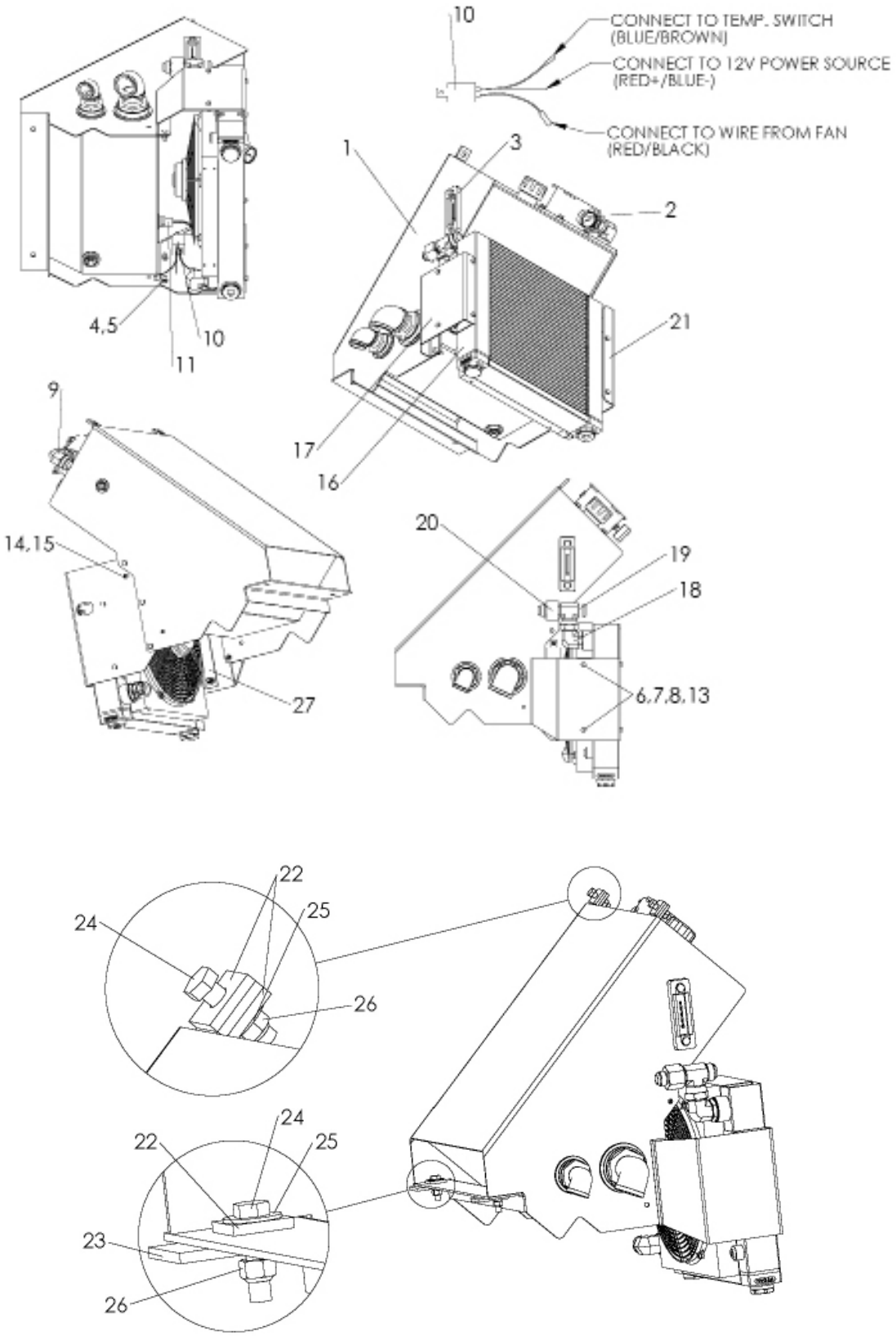
* - Not Shown - Used to attach spinner to sills.

PARTS LIST



ITEM	PART NO.	DESCRIPTION	QTY
	305054	Hydraulic Tank Assembly	
1	305050	Tank – Hydraulic Weldment	1
2	88838	Filter – Return	1
	306772	O-Ring - Cover Filter	1
	306773	O-Ring - Housing Filter	1
	306789	Tetreseal - Filter Assembly	1
	305066	Element - Filter Cellulose Media	1
3	305063	Strainer – 2 NPT	1
4	305058	Pipe – 1.5 SCH40 10	1
5	305057	Diffuser – Tank	1
6	305066	Filter – Element	1
7	305062	Strainer – 1-1/4 NPT	1
8	29768	Fitting – 20-20 070102	1
9	305061	Plug – Magnetic 1 NPT	1
10	6028	Nipple - Close 1-1/4 NPT	1
11	6011	Elbow 90° 2 NPT	1
12	20068	Cap Screw – 3/8-16 x 1-1/4	4
13	20712	Washer – Lock 3/8	4
14	22324	Nipple - Close 2 NPT STD	1
15	*306186	Gasket Maker - Silicone	AR
16	23703	Adapter - Elbow 90° 2 NPT	1
17	6035	Plug - Pipe 1-1/4 NPT	1
18	*306301	Plug - Tapered 2 NPT	1

* - Not Shown


10
CONNECT TO TEMP. SWITCH (BLUE/BROWN)
CONNECT TO 12V POWER SOURCE (RED+/BLUE-)
CONNECT TO WIRE FROM FAN (RED/BLACK)
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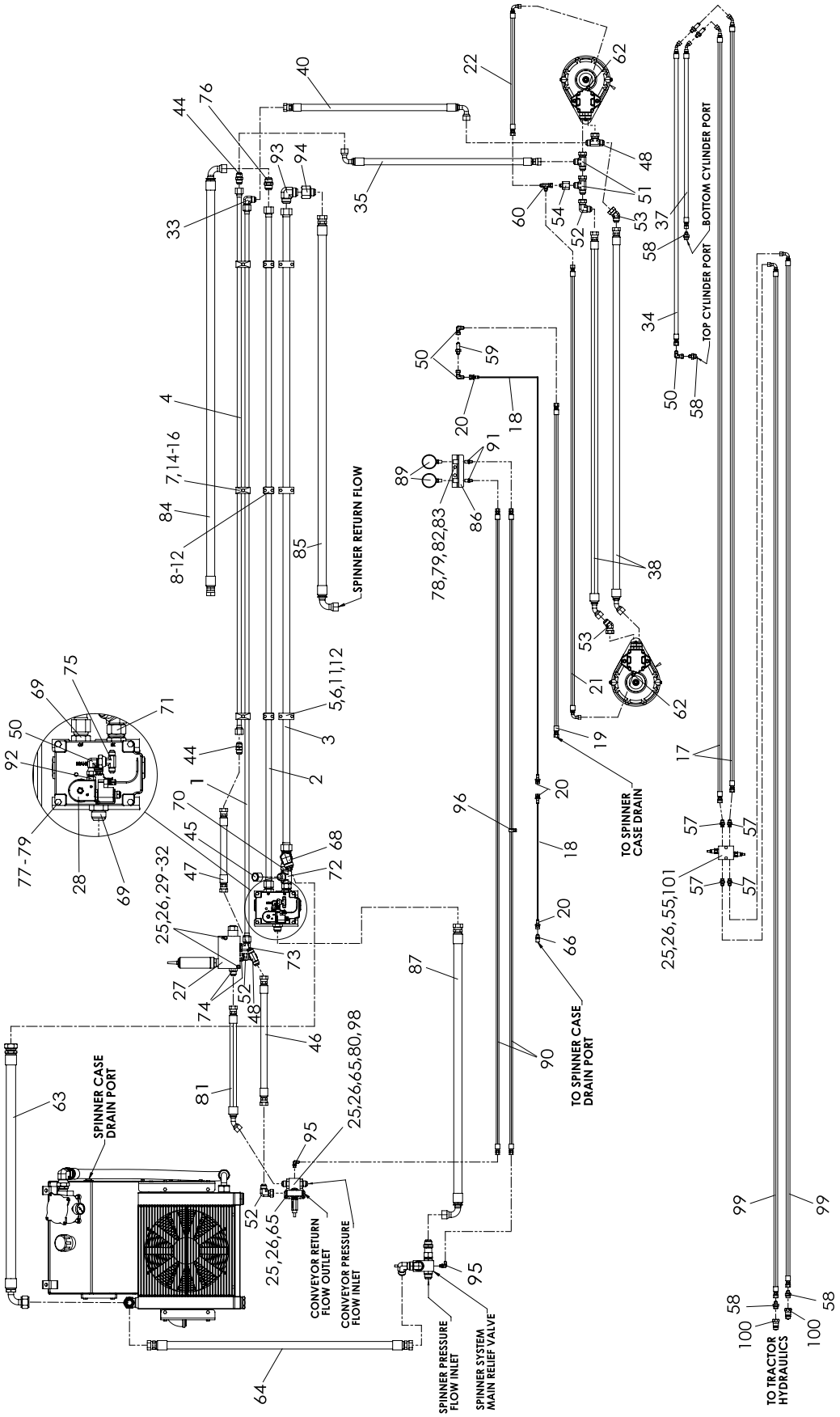
ITEM	PART NO.	DESCRIPTION	QTY
1	305054	Hydraulic Tank Assembly	1
2	43534	Indicator – Service	1
3	38575	Gauge – Sight & Temperature	1
4	36398	Cap Screw – 3/8-16NC x 1 SS	5
5	72054	Nut – Lock 3/8 SS	5
6	36424	Washer – Flat 5/16	8
7	34580	Cap Screw – 5/16 x 1	8
8	36413	Nut – Hex 5/16-18NC SS	8
9	98568	Fitting – 20-20 070221	1
10	96750-X1	Relay – 12VDC 40A	1
11	305074	Switch – Temperature 114°	1
12	*98662	Hose – 1-1/4 2CB x 48	1
13	36419	Washer – Lock 5/16 SS	8
14	56258	Screw – Truss Head 1/4-20 x 1/2 SS	1
15	42034	Nut – Lock 1/4-20 SS	1
16	305767	Cooler – Assembly	1
	305767-AA	Core - Cooler	1
	305767-AB	Fan - Assy Cooler	1
	305767-AC	Housing - Cooler	1
17	305761	Bracket – Cooler LH	1
18	96916	Fitting – 20-20 070220	2
19	56267	Fitting – 20-20 070433	1
20	34819	Fitting – 20-16 070123	1
21	305760	Bracket – Cooler RH	1
22	39159	Belt – Spacer	6
23	39158	Belt – Flex Mount	2
24	36403	Cap Screw – 1/2-13 x 2 SS	4
25	36426	Washer – Flat 1/2 SS	6
26	39016	Nut – Lock 1/2-13NC SS	4
27	306447	Bracket – Cooler Mount	2
28	*303730-AB	Connector - Female Sealed Tower	1
29	*303730-CC	Terminal - Female Sealed (Sleeve)	2
30	*303730-EC	Seal - Cable (Green)	2

* - Not Shown

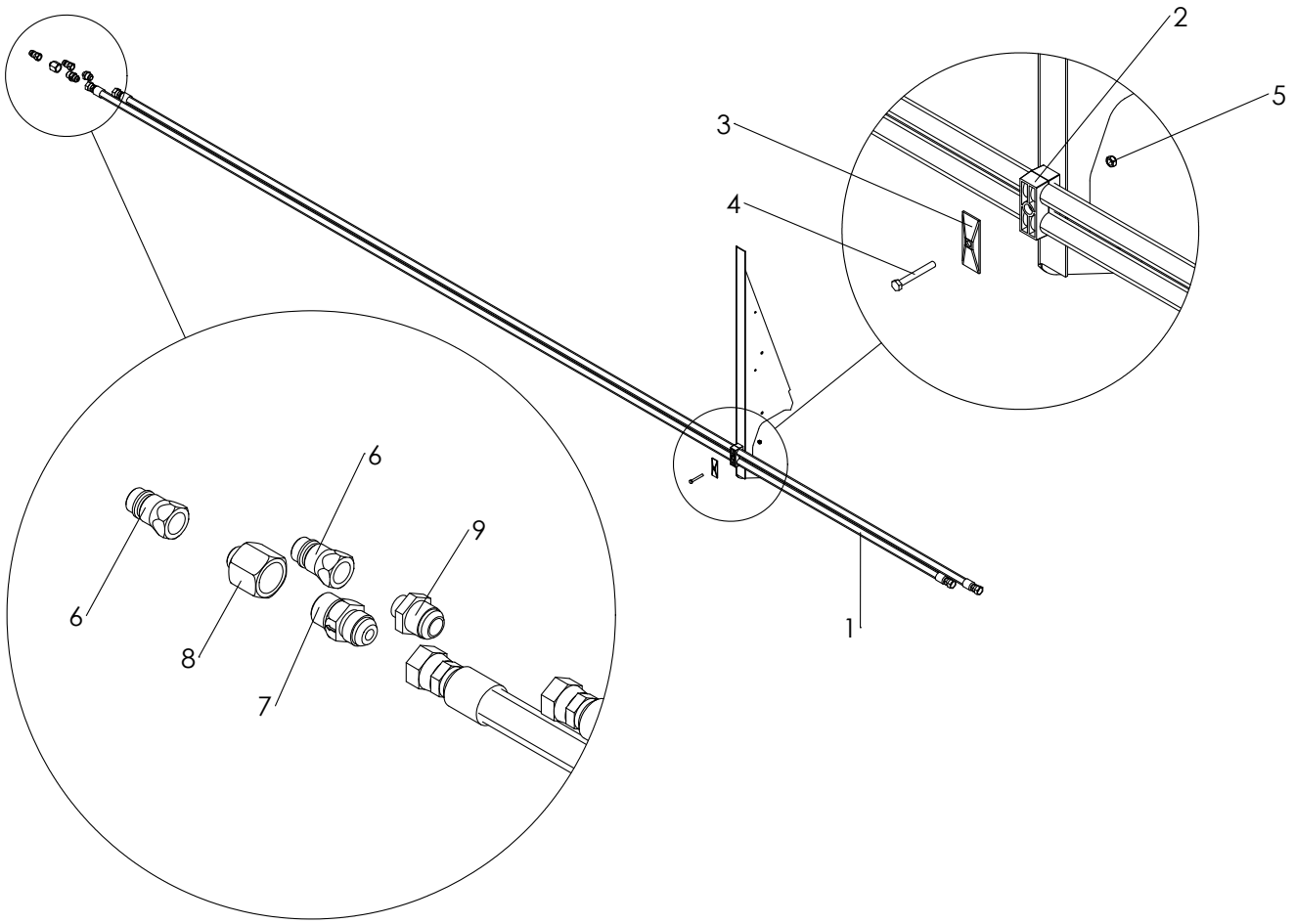

SPINNER RETURN FLOW
TOP CYLINDER PORT
BOTTOM CYLINDER PORT
TO SPINNER CASE DRAIN
TO SPINNER CASE DRAIN PORT
SPINNER CASE DRAIN PORT
CONVEYOR RETURN FLOW OUTLET
CONVEYOR PRESSURE FLOW INLET
SPINNER PRESSURE FLOW INLET
SPINNER SYSTEM MAIN RELIEF VALVE
TO TRACTOR HYDRAULICS

ITEM	PART NO.	DESCRIPTION	QTY
1	305504-AD	Tube – Assembly 16’	1
2	98119	Tube – Assembly 16’	1
3	305502-AD	Tube – Assembly 16’	1
4	304231	Tube - Assembly 16’	1
5	96925	Plate – Top 1-1/4 Tube	3
6	96926	Clamp – Pair 1-1/4 Tube	3
7	75036	Clamp - Pair 3/4 Tube	3
8	86557	Clamp – Pair 1 Tube	3
9	86556	Plate – Top 1 Tube	3
10	34865	Cap Screw – 1/4 x 2-1/4	6
11	36412	Nut – Hex 1/4-20NC	16
12	36418	Washer – Lock 1/4 SS	16
13	36396	Cap Screw – 1/4 x 3 SS	6
14	71830	Cap Screw - 5/16-18NC 2-1/2 SS	3
15	36413	Nut - Hex 5/16-18NC SS	3
16	36419	Washer - Lock 5/16 SS	3
17	305528	Hose – Assembly 16’	1
18	34195	Hose - Drain Line 3/8 x 270	14
19	96338-X1	Hose - Drain Line 3/8 x 61-19/32	1
20	34761	FItting - Socketless 3/8 x 9/16 JIC	4
21	97315	Hose - Assy 3/8 x 7’ 100R1	1
22	305531	Hose - Assy 3/8 x 2’ 100R1	1
25	36412	Nut - Hex 1/4 - 20NC SS	10
26	36418	Washer - Lock 1/4 SS	12
27	306278	Valve - Assy Control 25 GPM SFP	1
28	38576-X4	Valve – PWM	1
	38576-AH	Seal Kit	
29	302097	Washer – Step	2
30	302098	Washer – Step	2
31	56396	Cap Screw – 1/4-20 x 3-1/4	2
32	36423	Washer – Flat 1/4 SS	4
33	29785	Fitting – 12-12 070201	1
34	305521	Hose - Assembly 3/8 x 48-3/4 100R1	1
35	88315	Hose – Assembly 3/4 x 3’ 100R12	1
37	304907-X1	Hose - Assembly 3/8 x 31 100R1	1
38	305752	Hose – Assembly 3/4 x 71-1/2 100R12	2
40	98710-X2	Hose – Assembly 3/4 x 33-1/2 100R12	1
44	29817	Fitting – 12-12 070101	2

ITEM	PART NO.	DESCRIPTION	QTY
45	29802	Fitting - 16 070112	1
46	56132	Hose Assembly - 3/4 x 2' 100R2	1
47	58960	Hose Assembly - 3/4 x 15-1/2 100R2	1
48	29809	Fitting – 12-12-12 070433	2
50	34816	Fitting - 6-6 070221	4
51	29781	Fitting - 12-12-12 070432	2
52	34709	Fitting - 12-12 070221	3
53	29782	Fitting - 12-12 070321	2
54	56407	Fitting - 12-6 070123	1
55	310452	Valve - Cross Relief 1000 PSI	1
57	29824	Fitting - 6-6 070120	4
58	84246	Fitting - 6-8 070120	4
59	305514	Fitting - 6-6 070601	3
60	98724	Fitting - 6-6-6 070432	1
62	34757	Fitting - 6-4 070120	2
63	98662-X1	Hose Assembly - Return 1-1/4 x 73	1
64	82377-X2	Hose Assembly - Return 1 x 48-5/8	1
65	36393	Cap Screw - 1/4-20 x 3/4 SS	4
66	29766	Fitting - 6-6 070102	1
68	98568	Fitting - 20-20 070123	1
69	29803	Fitting – 16-16 070120	2
70	96909	Tee – Run	1
71	34810	Fitting – 16-16 S1040-30 Non Standard	1
72	96912	Tee – Union	1
73	29847	Fitting – 12-12 070220	1
74	29789	Fitting – 12-12 07120	2
75	29825	Fitting – 6-6-6 070433	1
76	34719	Fitting – 16-16 070101	1
77	42794	Cap Screw – 5/16 x 3-3/4 SS	4
78	36413	Nut – Hex 5/16-18NC	6
79	36419	Washer – Lock 5/16	6
80	310459	Valve - Assembly, Relief 3400 PSI	1
81	310458	Hose Assembly - 3/4 x 23 100R12	1
82	34580	Cap Screw - 5/16-18NC x 1 SS	2
83	36424	Washer - Flat 5/16 SS	2
84	56441	Hose Assembly 1 x 86 100R12	1
85	95958	Hose Assembly 1 x 72.7 100R2	1
86	304948	Bracket - Weldment Gauge	1

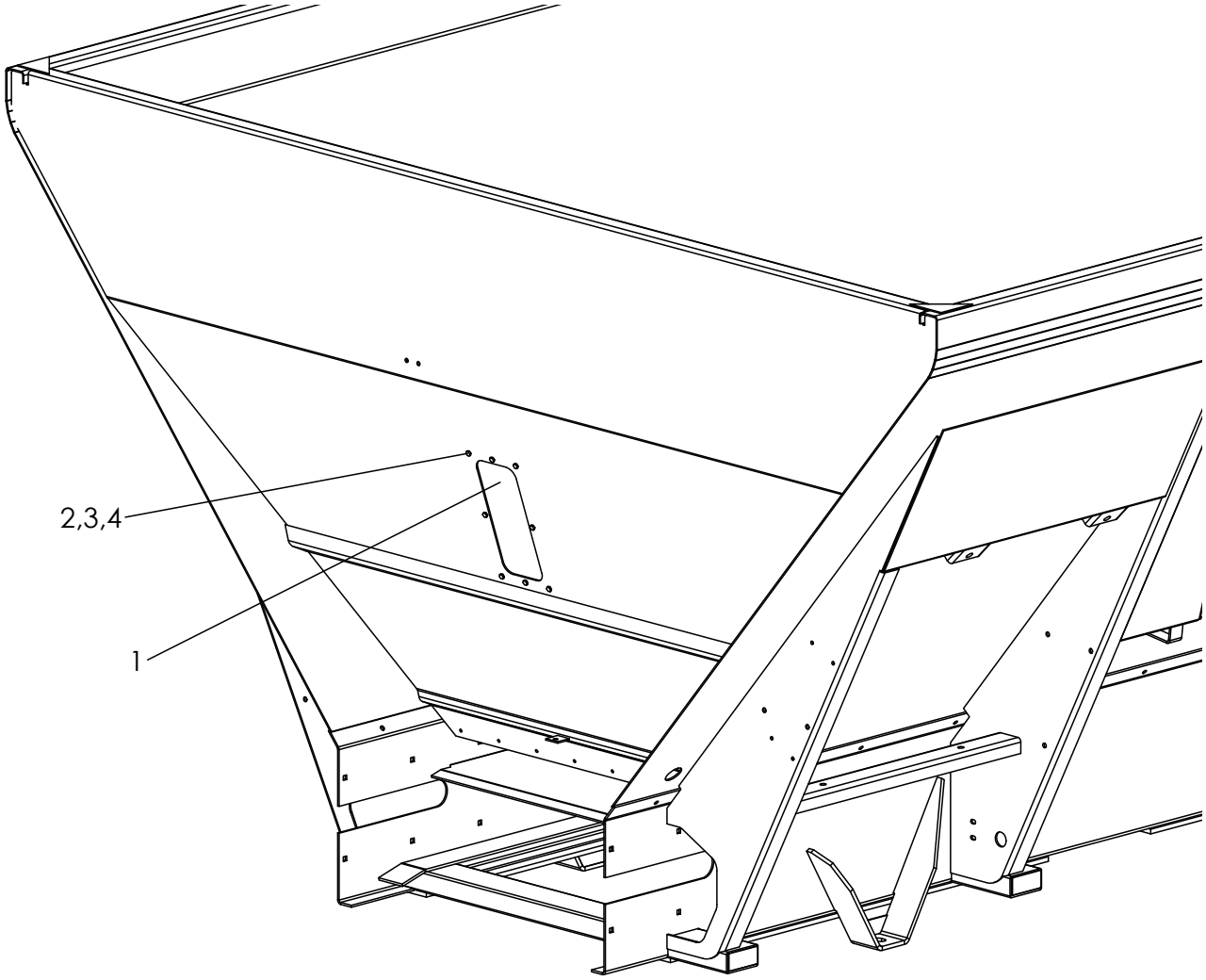
ITEM	PART NO.	DESCRIPTION	QTY
87	305524	Hose Assembly - 1” x 50” 100R12	1
88	*96906	Sleeve - Abrasive	4
89	76044	Gauge - Hydraulic 5000 PSI	2
90	306796	Hose Assembly - 1/4 x 120” 100R2	2
91	29765	Fitting - 4-4 070102	2
92	34757	Fitting - 6-4 070120	1
93	56279	Fitting - 20-20 070201	1
94	34819	Fitting - 20-16 070123	1
95	29795	Fitting - 4-4 070220	2
96	26562	Clamp - Tubing	1
98	310451	Plate - Valve	1
99	310457	Hose - Assembly 3/8 x 192 100R1	2
100	305262	Nipple - QD 1/2 AG, 8 ORB	2
101	41669	Cap Screw - 1/4-20NC x 1-3/4 SS	2

* - Not Shown



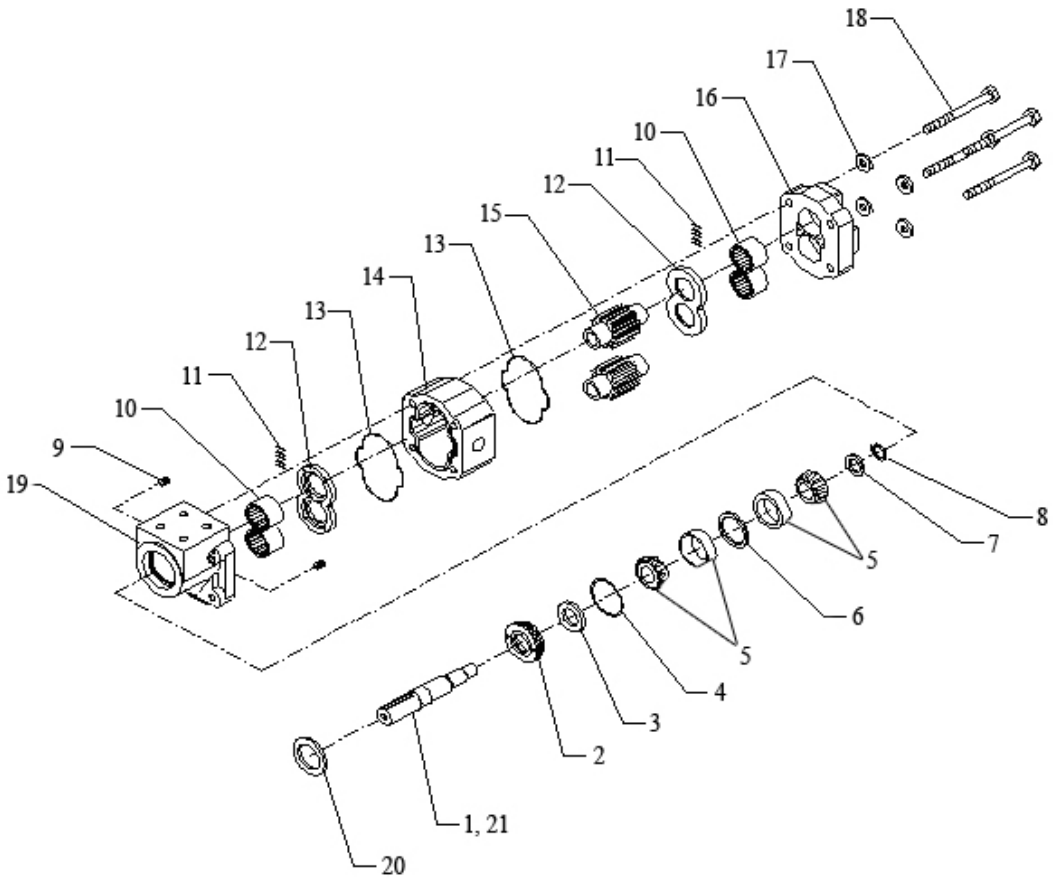
ITEM	PART NO.	DESCRIPTION	QTY
1	307316	Hose Assembly - 3/4 100R2 x 192	2
2	305266	Clamp - Hose	1
3	305267	Plate - Cover, Hose Clamp	1
4	71830	Cap Screw - 5/16-18NC x 2-1/2 SS	1
5	42221	Nut - Lock 5/16-18NC SS	1
6	305262	Nipple - QD 1/2	1
7	305263	Valve - Check	1
8	309294	Adapter - Connector	1
9	34811	Adapter - Connector	1

SIGHT WINDOW



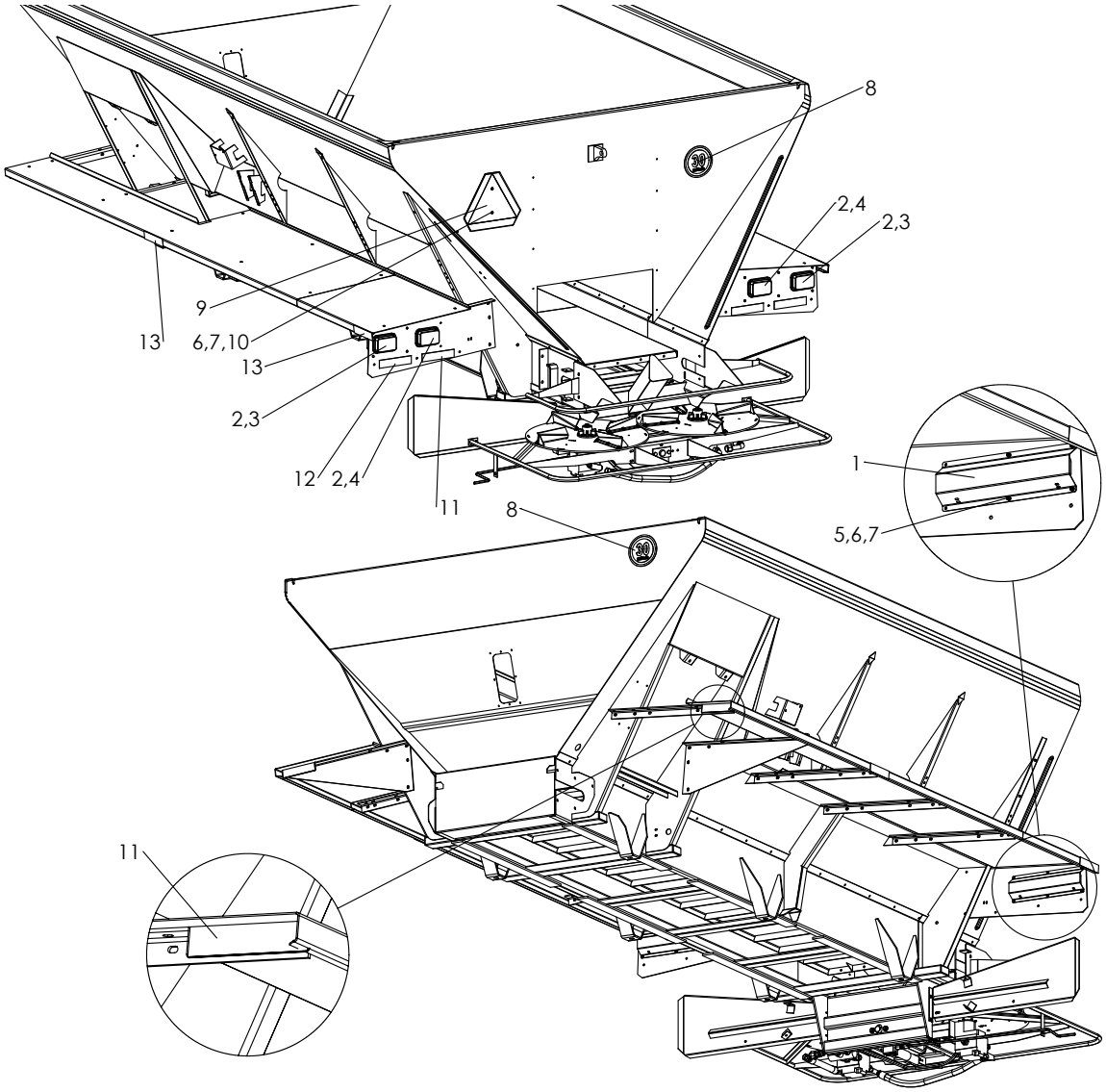
ITEM	PART NO.	DESCRIPTION	QTY
1	302686	Window - Sight 5 x 12	1
2	42034	Nut - Lock 1/4 SS	8
3	36395	Cap Screw - 1/4-20 x 1 SS	8
4	36423	Washer - Flat 1/4 SS	8

SPINNER MOTOR



ITEM	PART NO.	DESCRIPTION	QTY
	305945	Motor - Hydraulic	
	306093	Shaft – Assy Output, Includes: 1-8,20,21	
	72548	Kit - Seal, Includes 3,4 & 20	
	305824	Retainer – Assy w/Seals, Includes 1,3-5	
1	306088	Shaft – Output	1
2	306091	Ring – Retainer	1
3	71980	Seal	1
4	28494	O-Ring	1
5	28491	Bearing – Tapered Roller Assembly	2
6	28454	Spacer	1
7	306092	Washer – Lock	1
8	306089	Nut – Lock	1
9	58797	Plug	1
10	23806	Bearing	4
11	23819	Seals - Pocket (Makes 12 Seals)	1
12	23818	Plate	2
13	23820	Gasket	2
14	34665	Housing	1
15	23826	Gear Set	1
16	23812	Cover - Port End	1
17	NA	Washer	4
18	20192	Cap Screw	4
19	306087	Cover - Shaft End	1
20	33809	Seal - Excluder	1
21	24458	Key	1
22	*306090	Sleeve – Speedi	1
	* 30723	Tool – Wrench, Spinner	
	* 24536	Tool – Seal Driver	
	* 23940	Tool – Seal Sleeve	

* - Not Shown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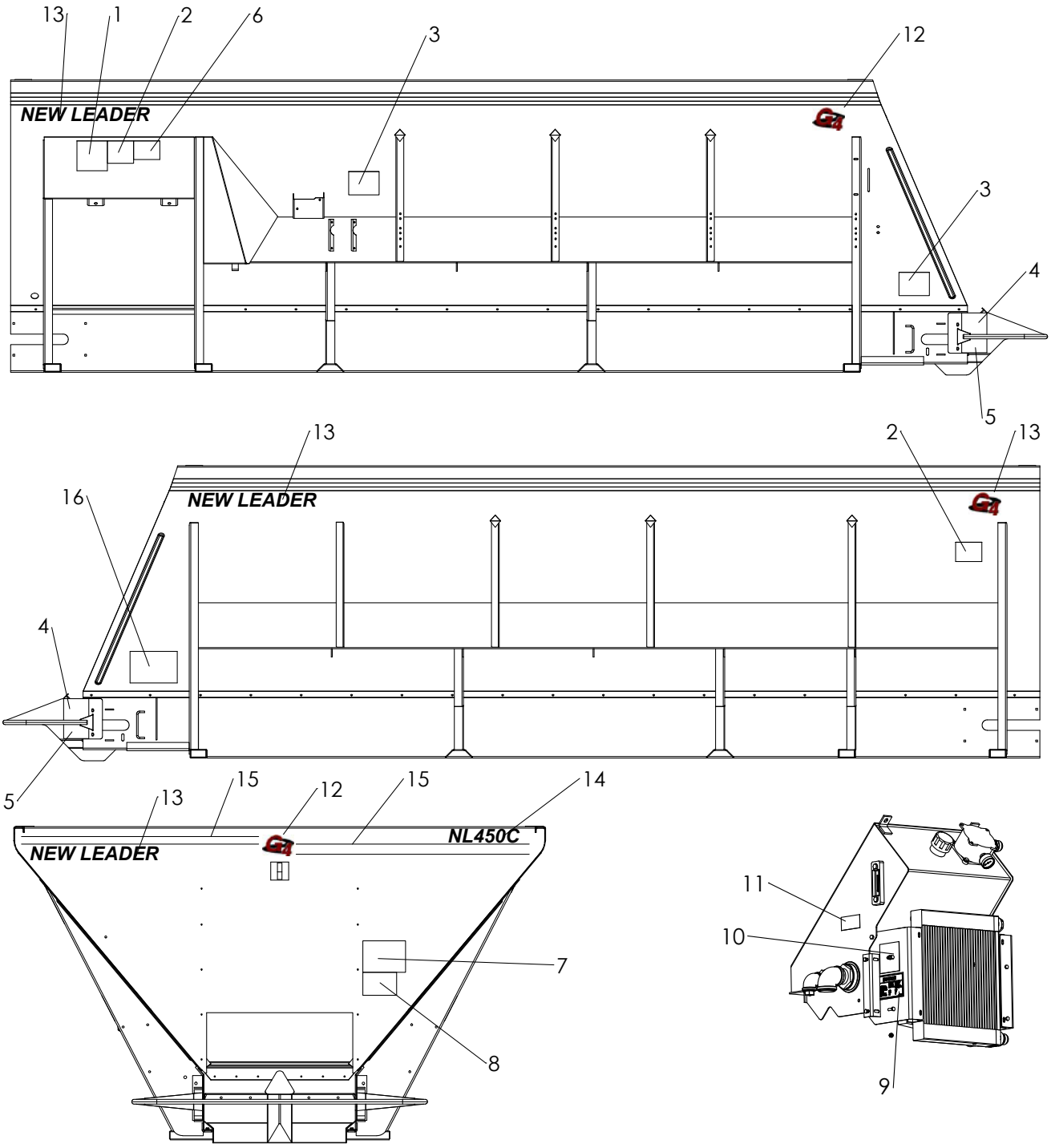
LIGHTS CONTINUED

ITEM	PART NO.	DESCRIPTION	QTY
	305186	Kit - Reflective Farm Implement, Includes 11-13	1
1	305213	Guard - Tail Light 304	2
2	304704	Grommet - Super 45	4
3	304715	Light - Super 45 Amber	2
4	300150	Light STT Red	2
5	36393	Cap Screw - 1/4-20NC x 3/4 SS	10
6	36418	Washer - Lock 1/4 SS	12
7	36412	Nut - Hex 1/4-20NC SS	12
8	305273	Decal - 30 MPH	2
9	305229	Sign - S.M.V.	1
10	32446	Screw - Truss Head 1/4-20NC x 3/4 SS	2
11	306430	Orange - Flourescent 2” x 9”	2
12	306431	Red - Reflective 2” x 25’	1.5
13	306432	Yellow - Reflective 2” x 25’	4.5
14	*305414-AB	Harness - LH Lights TR-3000	1
15	*305414-AC	Harness - RH Lights TR-3000	1

* - Not Shown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NEW LEADER
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NL450C
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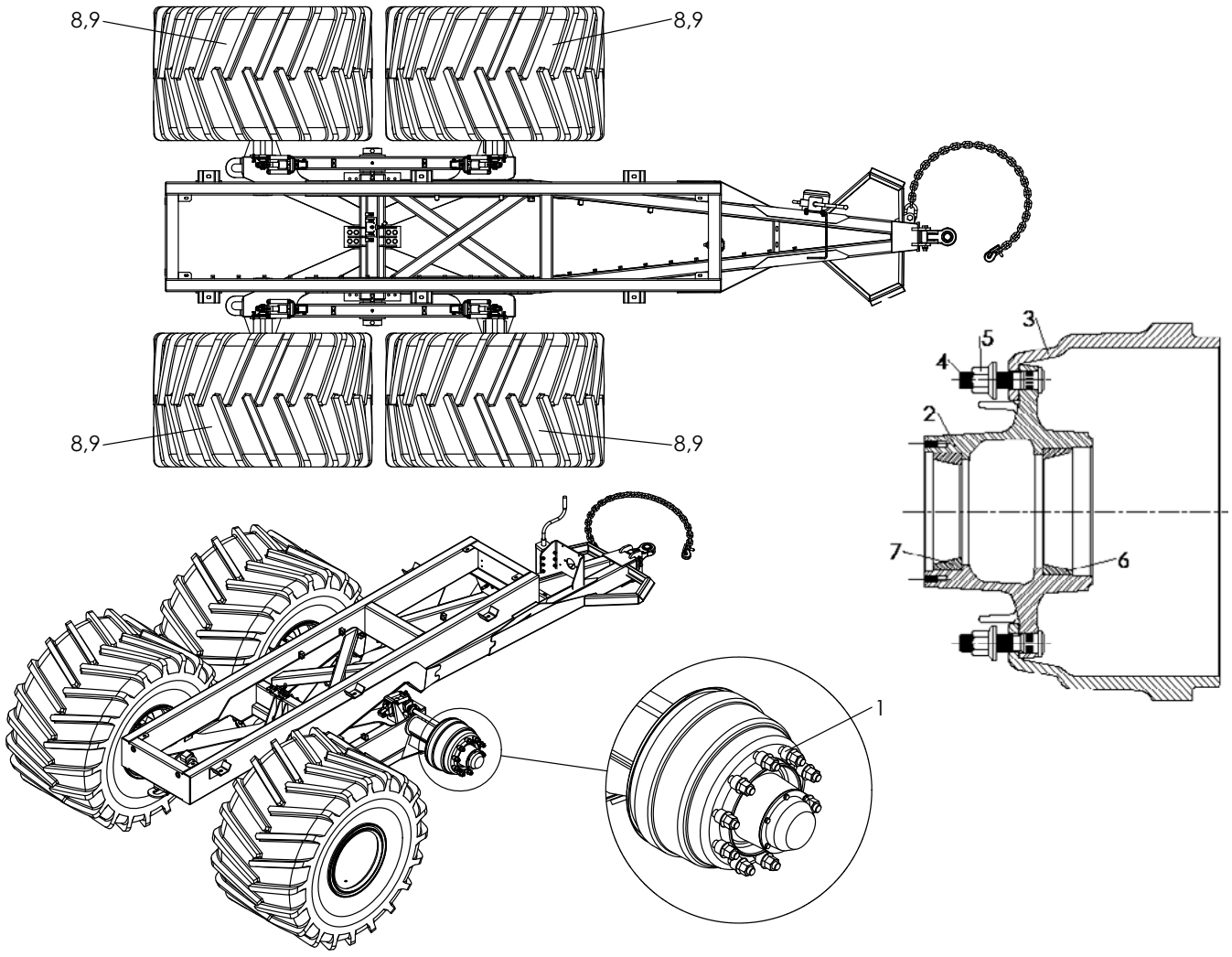
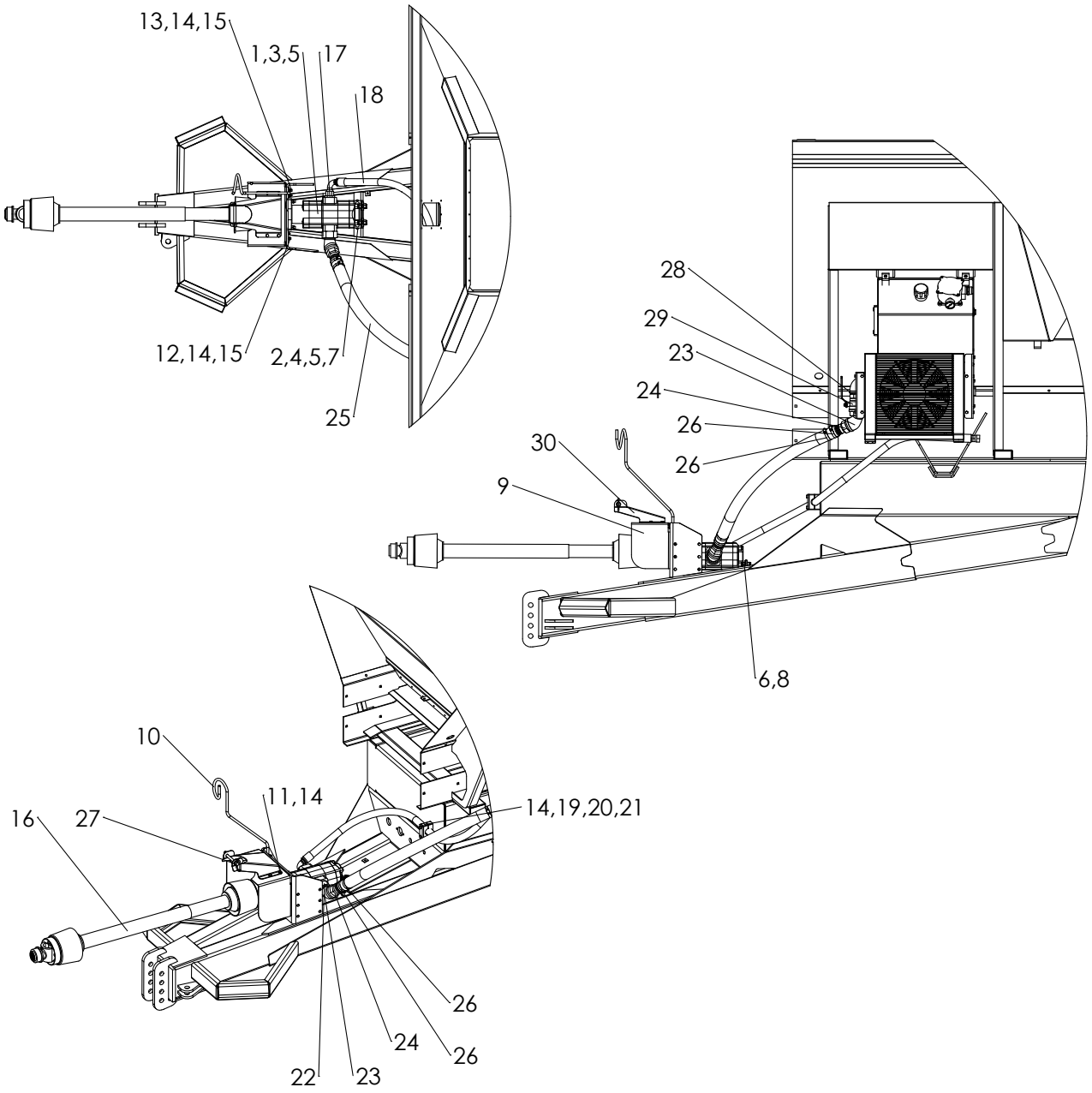
ITEM	PART NO.	DESCRIPTION	QTY
1	150034	Caution - Operation & Maintenance	1
2	364	Danger - Moving Part	2
3	39138	Warning - High Pressure Fluid	2
4	55630	Warning - Falling Hazard	2
5	55631	Warning - Moving Part Hazard	2
6	321	Caution - Hazardous Material	1
7	368	Flying Material	1
8	71526	Spread Pattern	1
9	304264	Notice - Cooler	1
10	39378	Change Filter Element	1
11	8664	Notice - Keep Valve Open	1
12	87122	G4 Black/Red	3
13	87164	New Leader Black	3
14	307263	NL450C Black	1
15	87162	3/4 Striping Black	9
16	21476	Decal - Important Conveyor Chain Life	1

* - Not Shown

See *Conveyor Cover*, *34" Hydraulic Fans, Lights* and *Fender* parts pages for additional decals.



ITEM	PART NO.	DESCRIPTION	QTY
	304926	Hub - Assembly	
1	305794	Spacer - Wheel Bolt	40
2	304926-AA	Hub - Wheel	1
3	304926-AB	Drum - Brake	1
4	304926-AC	Stud	10
5	304926-AD	Nut - Flange Swivel	10
6	304926-AE	Bearing - Cup Inner	1
7	304926-AF	Bearing - Cup Outer	1
8	307280	Wheel - 25 x 36 White	4
9	304929	Tire - Float 66 x 43-25	4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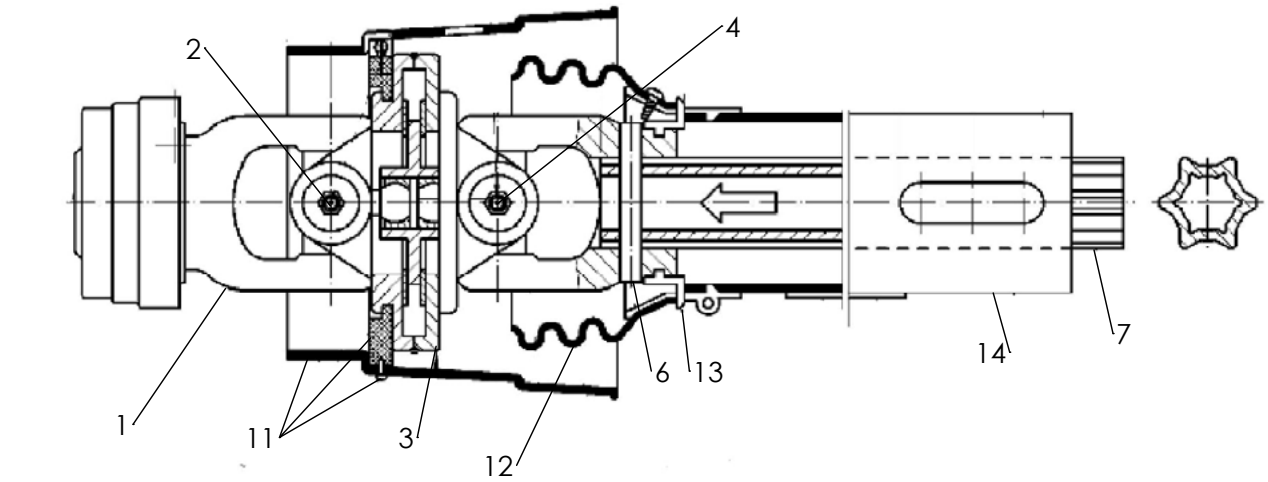
ITEM	PART NO.	DESCRIPTION	QTY
1	304921	Hydraulic Pump	1
	304921-AZ	Pump - Service Kit	1
2	305173	Support - Pump	1
3	20131	Cap Screw - 1/2-13 x 2	2
4	20128	Cap Screw - 1/2-13NC x 1-1/4	2
5	20680	Nut - Lock 1/2-13NC	4
6	20682	Nut - Lock 5/8-11NC	4
7	20695	Washer - Flat 1/2	2
8	20697	Washer - Flat 5/8	4
9	307300	Guard - PTO	1
10	305197	Support - Hose	1
11	20067	Cap Screw - 3/5-16NC x 1	4
12	20068	Cap Screw - 3/8-16 x 1-1/4	2
13	20069	Cap Screw - 3/8-16NC x 1-1/2	2
14	20678	Nut - Lock 3/5-16NC	10
15	20693	Washer - Flat 3/8	4
16	307294	Driveline - CV *(See Driveline Parts Page)*	1
17	34845	Adapter	1
18	307305	Hose - 1 x 37-1/2 100R12	1
19	305255	Clamp - Hose 1-1/2	1
20	305257	Plate - Cover Clamp	1
21	20077	Cap Screw - 3/8-16 x 3-1/2	2
22	305261	Adapter - 2-1/2 SAE x 2 NPT	1
23	305241	Elbow - 2 NPT 45°	2
24	29811	End - Hose 2 NPT x 2	2
25	306435	Hose - 2 100R2 45”	1
26	22380	Clamp - Hose	4
27	305228	Pin - Hitch 1/2 x 4	1
28	22324	Nipple - Close 2” NPT STD	1
29	305060	Valve - Ball 2” NPT	1
30	307302	Retainer - PTO	1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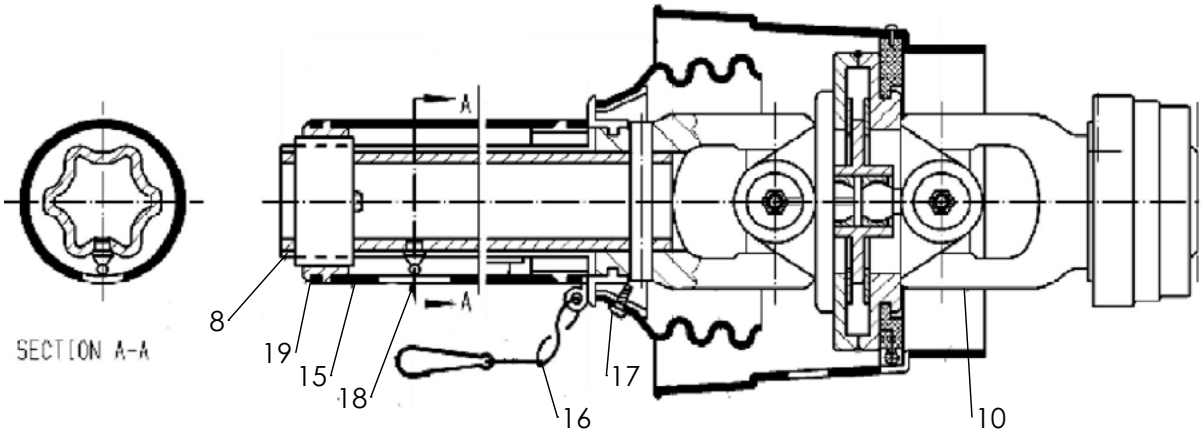
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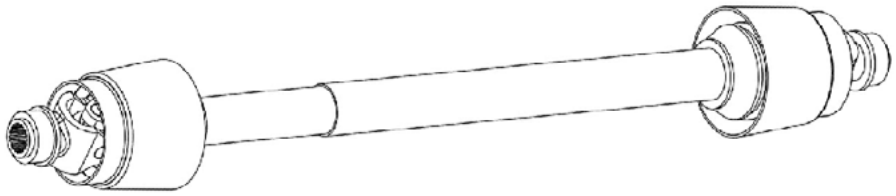
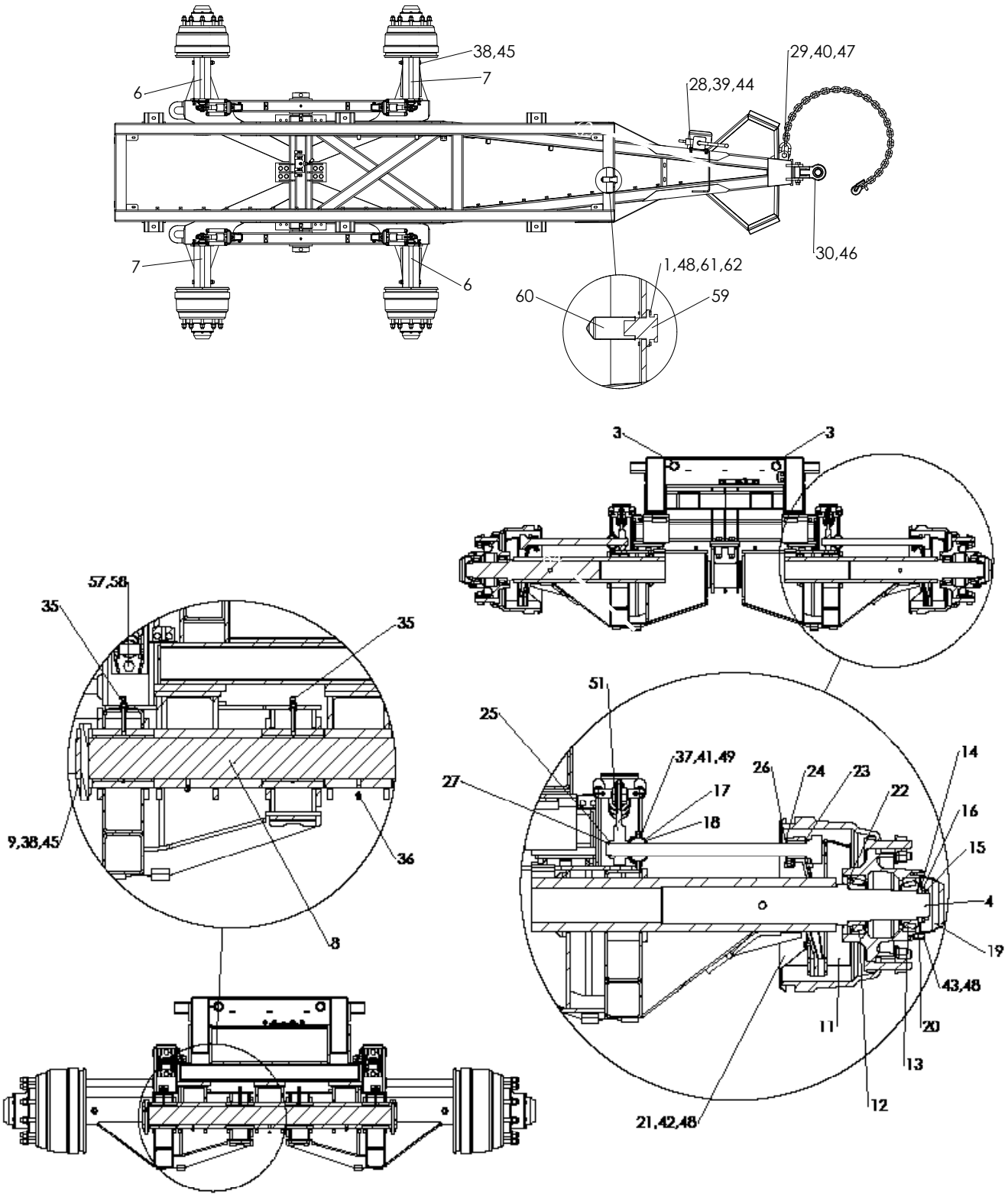


ITEM	PART NO.	DESCRIPTION	QTY
1	307294-AA	Yoke	1
2	307294-AB	Kit - Cross & Bearing	2
3	307294-AC	Yoke - Double	2
4	307294-AD	Kit - Cross & Bearing	2
5	*307294-AX	Kit - Collar *(In Item 10)*	1
6	307294-AF	Pin - Spring	2
7	307294-AG	Profile - Inner	1
8	307294-AH	Profile & Sleeve	1
9	*307294-AW	Kit - Collar *(In Item 1)*	1
10	307294-AJ	Yoke	1
11	307294-AK	Assembly - CV Guard & Bearing	2
12	307294-AL	Cone - Guard	2
13	307294-AM	Ring - Bearing	2
14	307294-AN	Tube - Guard Outer	1
15	307294-AO	Tube - Guard Inner	1
16	307294-AP	Chain - Restraint	1
17	307294-AQ	Screw *(In Items 11-12)*	8
18	307294-AT	Zerk (Item 8)	1
19	307294-AU	Bearing - Support	1

* - Not Shown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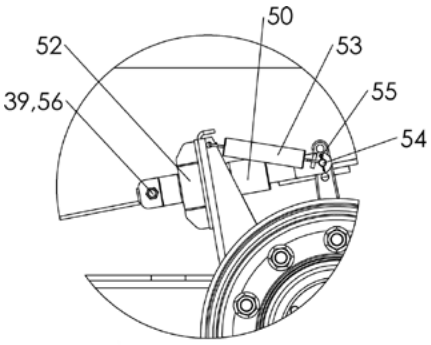
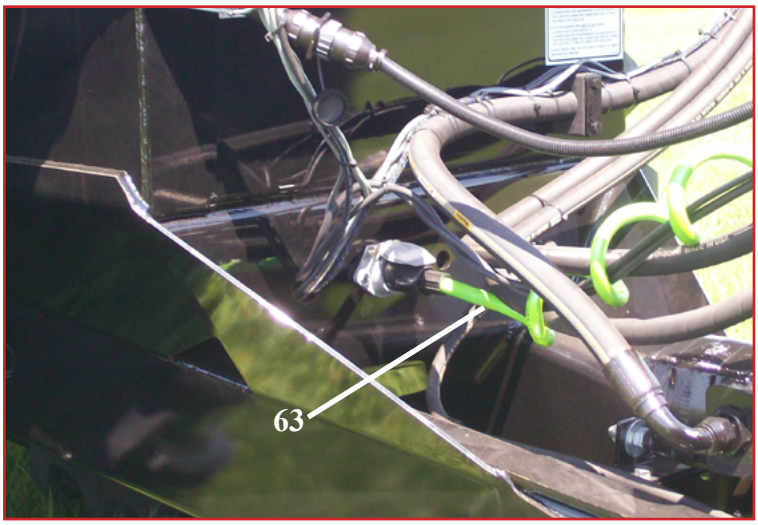
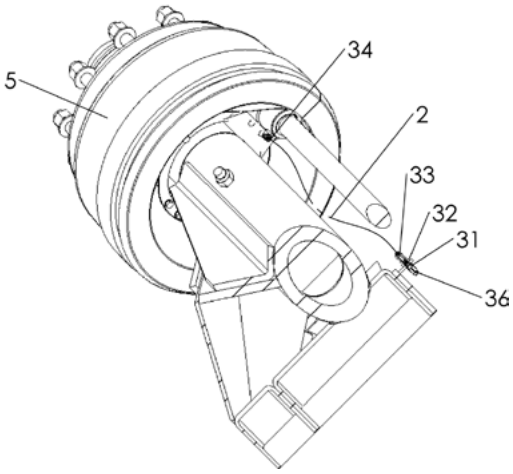




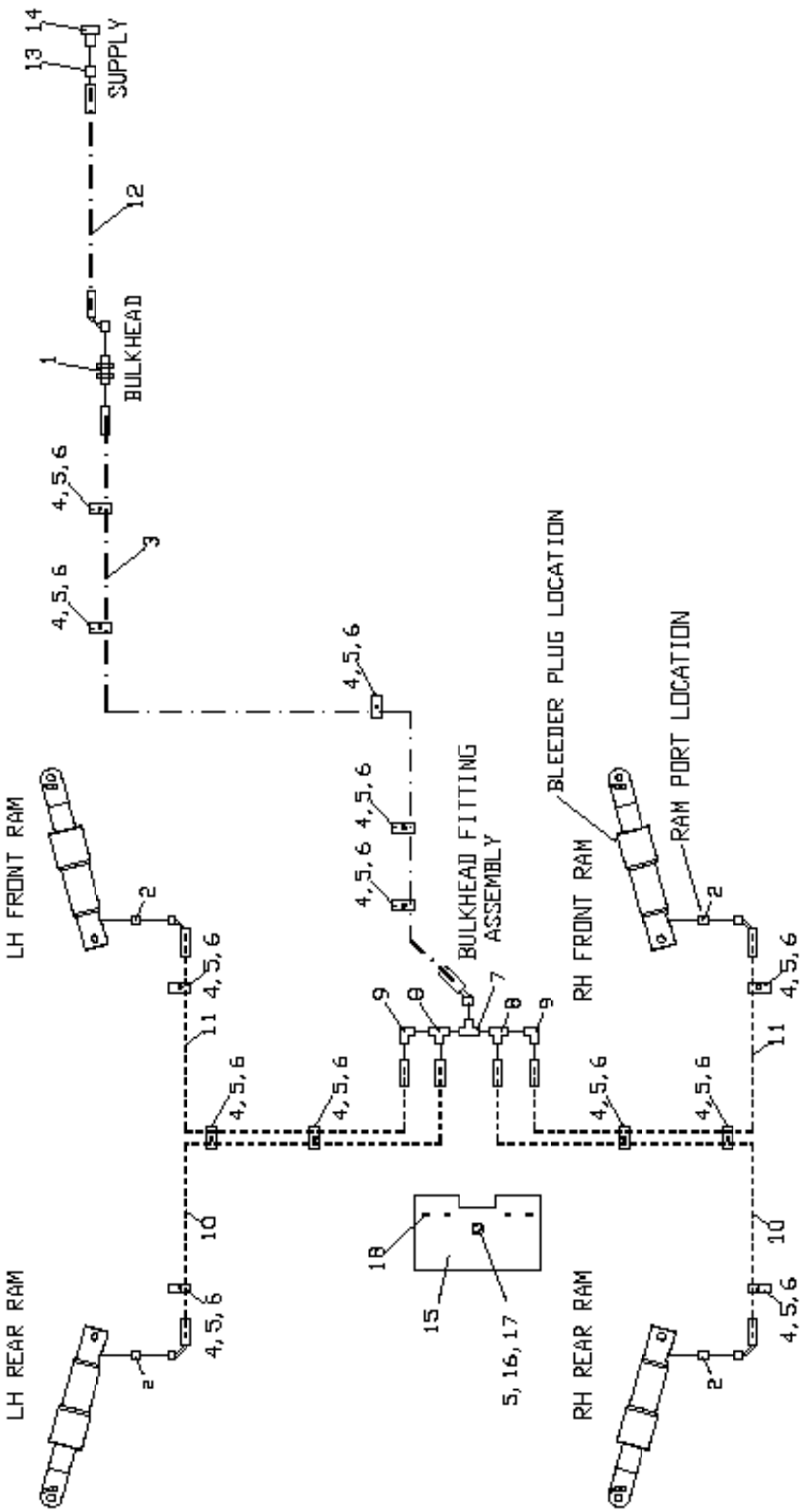


ITEM	PART NO.	DESCRIPTION	QTY
1	20643	Nut - Hex 5/16-18NC	2
2	301338	Tube - 1/4 72”	1
3	21655	Grommet - Rubber 1-1/2	2
4	304925	Spindle	4
5	304926	Hub - Assembly	4
		See Wheels & Tires section for Hub Assembly parts.	
6	304933	Cam - Shaft LH	2
7	304934	Cam - Shaft RH	2
8	309350	Shaft - Pivot	1
9	304991	Retainer - Pivot	2
10	*305237	Grease - Synthetic SF	2.5 ga
11	304928	Brake Shoe - Assembly	4

ITEM	PART NO.	DESCRIPTION	QTY
	304928-AA	Brake - Shoe	8
	304928-AB	Roller	8
	304928-AC	Retainer - Roller	8
	304928-AD	Pin - Anchor	8
	304928-AE	Retainer - Spring Return	8
	304928-AF	Spring - Return	4
	304928-AG	Retainer - Spring	8
12	304936	Bearing - Cone 759	4
13	304937	Bearing - Cone 740	4
14	304938	Nut - Spindle Inner	4
15	304939	Nut - Spinner Outer	4
16	304940	Washer - Spindle	4
17	304932	Cover - Cam	8
18	304987	Bushing - Cam	4
19	307283	Cap - Hub White	4
20	304986	Gasket - Hub Cap	4
21	304984	Shield - Dust	4
22	304989	Seal - Grease	4
23	304978	Spacer - Cam	4
24	304979	Washer - 1-1/2	4
25	304980	Washer - 1-1/4	4
26	304981	Ring - Snap 1-1/2	4
27	304982	Ring - Snap 1-1/4	4
28	305678	Jack - Weldment	1
29	305420	Chain - Safety	1
30	309240	Hitch - Implement	1
31	301332	Connector - Bulkhead	4
32	301333	Nut - Lock, Connector	4
33	301334	Fitting - Straight Male	4
34	301336	Fitting - 90 Male Swivel	4
35	6071	Zerk - Grease	8
36	6069	Zerk - Grease	3
37	20642	Nut - Hex 1/4-20NC	16
38	20683	Nut - Lock 3/4-10NC	6
39	20680	Nut - Lock 1/2-13NC	10
40	20685	Nut - Lock 1-8NC	4
41	20005	Cap Screw - 1/4-20 x 1	16
42	20034	Cap Screw - 5/16-18NC x 3/4	24

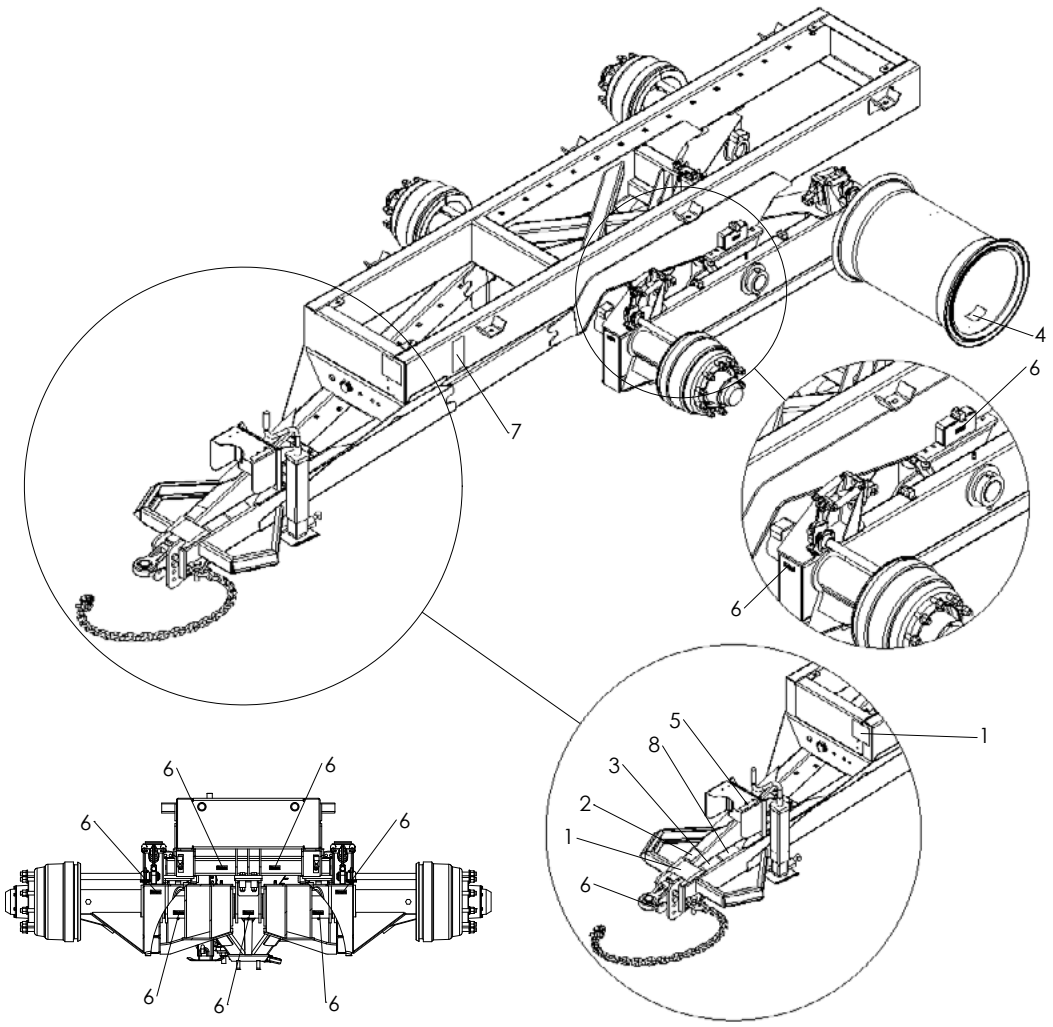
ITEM	PART NO.	DESCRIPTION	QTY
43	20036	Cap Screw - 5/16-18NC x 1	24
44	20129	Cap Screw - 1/2-13NC x 1-1/2	6
45	58560	Cap Screw - 3/4-10 x 7	6
46	89545	Cap Screw - 1NC x 7	3
47	305702	Cap Screw - 1-8NC x 4-1/2	1
48	20711	Washer - Lock 5/16	50
49	20710	Washer - Lock 1/4	16
50	305358	Cylinder - Ram 1-1/2 x 3	4
51	304935	Slack - Adjuster	4
52	305369	Mount - Weldment Ram Brake	4
53	305359	Spring - Ext	8
54	21028	Pin - Clevis	4
55	20817	Pin - Cotter	4
56	20135	Cap Screw - 1/2-13 x 3	4
57	20175	Cap Screw - 5/8-11 x 1-1/2	8
58	20682	Nut - Lock 5/8-11NC	8
59	9011-0-7102	Receptacle	1
60	9011-0-7103	Boot - Receptacle	1
61	20037	Cap Screw - 5/16-18 x 1-1/4	2
62	20692	Washer - Flat 5/16	2
63	9011-0-7104	Cord - Connector HD	1
64	*305414-AD	Harness - Main Light	1
65	*309353	Walking Beam - Weldment LH	1
66	*309354	Walking Beam - Weldment RH	1
67	*309351	Bushing - 4-1/2 x 4 x 6	4
68	*306671	Cap - Plastic	4
69	*307072	Adapter - 2” Draw Pin	1
70	*306059	Control - Bundle TR3000	1
71	*89009	Cable - Sensor Extension 27’	1
72	*310206	Harness - PWM Extension 3’	1

* - Not Shown


SUPPLY
BULKHEAD
BULKHEAD FITTING ASSEMBLY
BLEEDER PLUG LOCATION
RAM PORT LOCATION
LH FRONT RAM
RH FRONT RAM
LH REAR RAM
RH REAR RAM
1
2
3
4,5,6
5,16,17
7
8
9
10
11
12
13
14
15
18

BRAKE LINES CONTINUED

ITEM	PART NO.	DESCRIPTION	QTY
1	34839	Fitting - 8-8 070601	1
2	34809	Fitting - 8-6 070120	4
3	305408	Hose - Assembly 3/8 100R1 x 124	1
4	305410	Clamp - Tubing	13
5	20711	Washer - Lock 3/8	14
6	20038	Cap Screw - 5/16-18 x 1-1/2	13
7	86419	Fitting - 8-8-8 070401	1
8	34804	Fitting - 8-8-8 070432	2
9	34803	Fitting - 8-8 070221	2
10	305409	Hose - Assembly 3/8 100R1 x 96	2
11	306049	Hose - Assembly 3/8 100R1 x 84	2
12	307304	Hose - Assembly 3/8 100R1 x 132	1
13	306050	Fitting - 8-18 x 1-1/2 070187	1
14	305416	Coupling - Disconnect	1
15	306058	Bracket - Fitting Bulkhead	1
16	20692	Washer - Flat 5/16	1
17	20032	Cap Screw - 5/16-18 x 1/2	1
18	----	Cylinder - Ram, See Hydraulic Brakes for part number	



ITEM	PART NO.	DESCRIPTION	QTY
1	305281	Decal - Caution Braking	2
2	305288	Decal - Caution Tow	1
3	305289	Decal - Caution Tipping	1
4	305745	Decal - Imp. Tightening	4
5	39017	Decal - No Step	1
6	305239	Decal - Grease	13
7	305275	Decal - Trailer Tire Speed	2
8	305298	Decal - Weight Restrictions	1
9	*58631	Plate - Group Serial	
	*37285	Plate - Serial	1
	*6276	Screw - Drive #4 x 1/4	4

* - Not Shown