

NEW LEADER[®]

MODEL L2000G4

UNIT SERIAL NUMBER _____

MANUAL NUMBER: 307467-A

EFFECTIVE 04/2011



Highway Equipment Company

Building the best since 1939.

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Insert Current New Leader Warranty

PREFACE

PLEASE ! ALWAYS THINK SAFETY FIRST !!

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

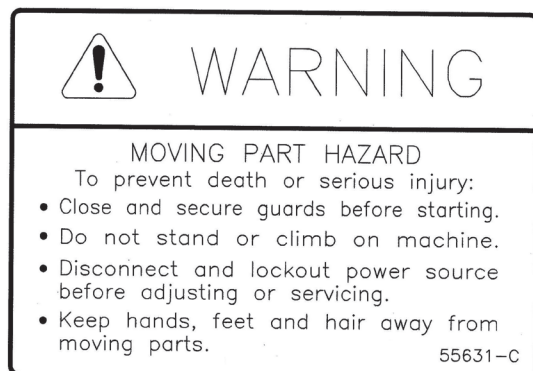
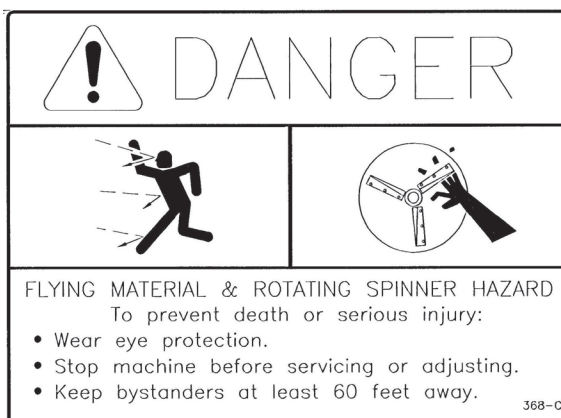
MAINTENANCE INSTRUCTIONS

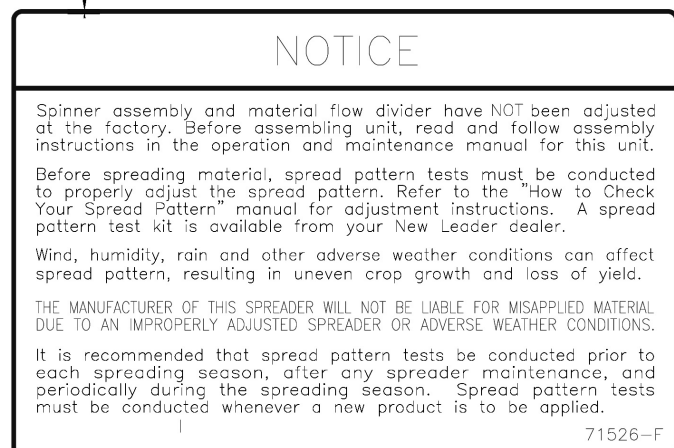
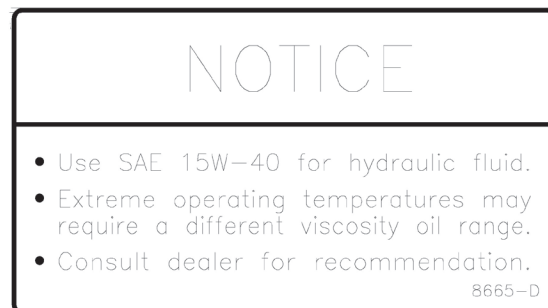
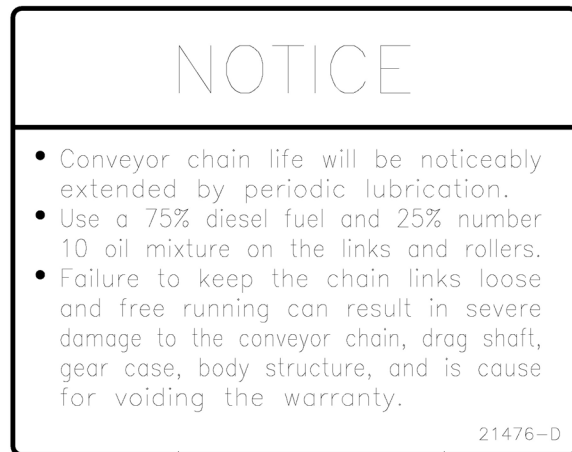
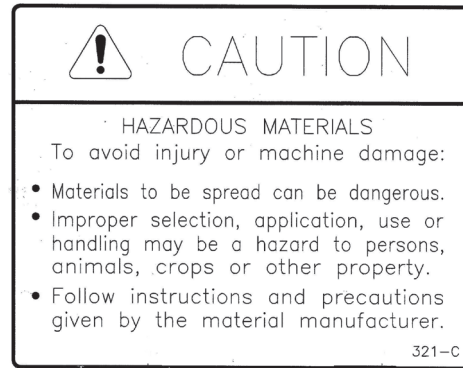
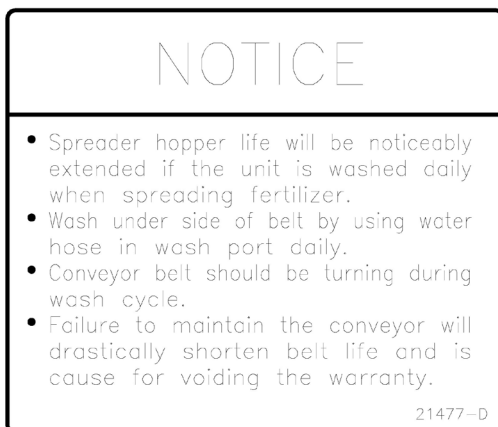
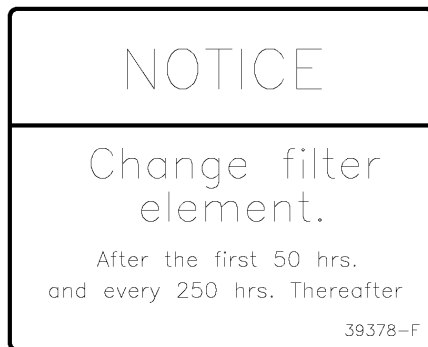
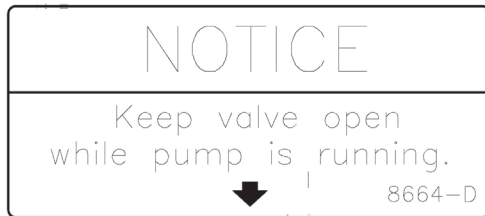
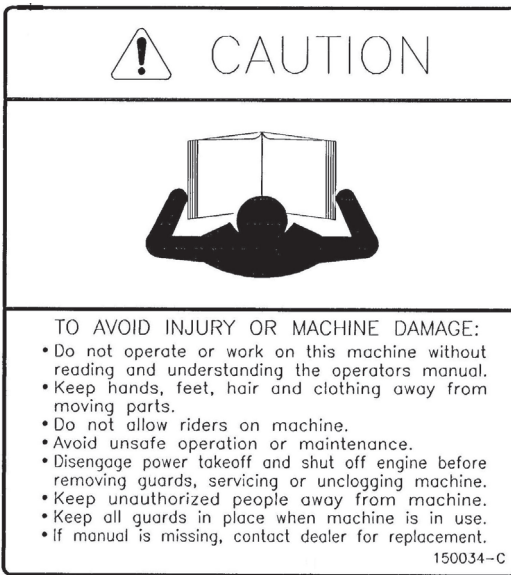
1. Keep safety decals and signs clean and legible at all times.
2. Replace safety decals and signs that are missing or have become illegible.
3. Replaced parts that displayed a safety sign should also display the current sign.
4. Safety decals or signs are available from your dealer's Parts Department 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 substrate with a lead pencil, marking pen, or small pieces of masking tape. NOTE: Do not use chalk line, china marker, or grease pencil. Safety decals will not adhere to these.
3. Remove the Liner
A small bend at the corner or edge will cause the liner to separate from the decal. Pull the liner away in a continuous motion at a 180-degree angle. If the liner is scored, bend at score and remove.
4. Apply Safety Decal
 - a. Tack decal in place with thumb pressure in upper corners.
 - b. Using firm initial squeegee pressure, begin at the center of the decal and work outward in all directions with overlapping strokes. NOTE: Keep squeegee blade even—nicked edges will leave application bubbles.
 - c. Pull up tack points before squeegeeing over them to avoid wrinkles.
5. Remove Pre-mask
If safety decal has a pre-mask cover remove it at this time by pulling it away from the decal at a 180 degree angle. NOTE: It is important that the pre-mask covering is removed before the decal is exposed to sunlight to avoid the pre-mask from permanently adhering to the decal.
6. Remove Air Pockets
Inspect the decal in the flat areas for bubbles. To eliminate the bubbles, puncture the decal at one end of the bubble with a pin (never a razor blade) and press out entrapped air with thumb moving toward the puncture.
7. Re-Squeegee All Edges.

SAFETY DECALS





- 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!

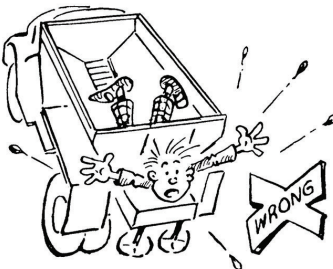


- When leaving the unit unattended for any reason, be sure to:
 - Take power take-off out of gear.
 - Shut off conveyor and spinner drives.
 - Shut off vehicle engine and unit engine (if so equipped).
 - Place transmission of the vehicle in "neutral" or "park".
 - Set parking brake firmly.
 - Lock ignition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

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

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

- 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.



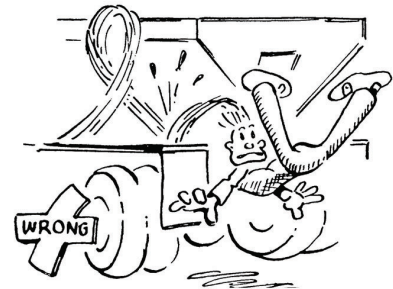
- Guards and covers are provided to help avoid injury. Stop all machinery before removing them. Replace guards and covers before starting spreader operation.

- 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.

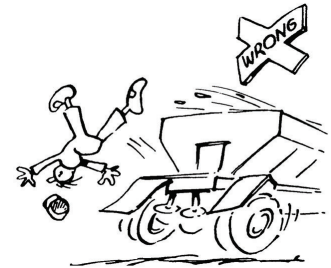


- Before starting unit, be sure everyone is clear and out of the way.

- 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.



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



- Keep away from spinners while they are turning:
 - Serious injury can occur if spinners touch you.
 - Rocks, scrap metal or other material can be thrown off the spinner violently. Stay out of discharge area.
 - 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.



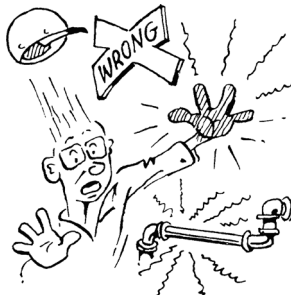
13. Shut off engine before filling fuel and oil tanks. Do not allow overflow. Wipe up all spills. Do not smoke. Stay away from open flame. FIRE HAZARD!



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. Before working on the system, wait until oil has cooled.

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.



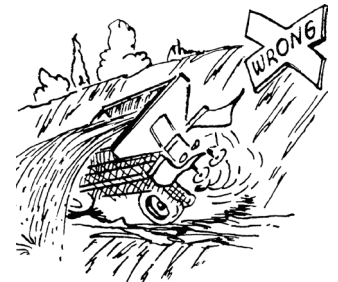
CAUTION

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 1-888-363-8006 or (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.



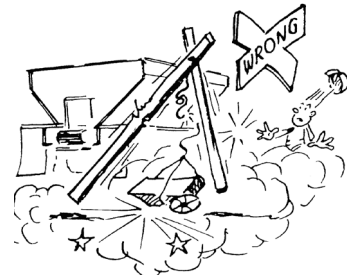
2. When performing any maintenance work, wear proper protective equipment—always wear eye protection—safety shoes can help save your toes—gloves will help protect your hands against cuts, bruises, abrasions and from minor burns—a hard hat is better than a sore head!

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.

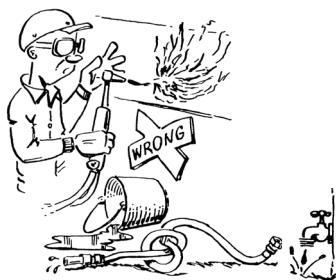
13. Hydraulic fluid under high pressure leaking from a pin hole are dangerous as they can penetrate the skin as though injected with a hypodermic needle. Such liquids have a poisonous effect and can cause serious wounds. Get medical assistance if such a wound occurs. To check for such leaks, use a piece of cardboard or wood instead of your hand. The fine spray from a small hydraulic oil leak can be highly explosive—DO NOT SMOKE—STAY AWAY FROM FLAME OR SPARKS.



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



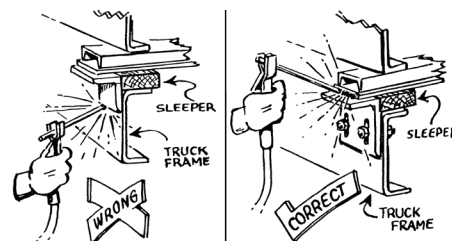
2. Follow mounting instructions in the Installation section of this manual. If mounting conditions require deviation from these instructions refer to factory.
3. When making the installation, be sure that the lighting meets Federal Motor Vehicle Safety Standard (FMVSS) No. 108, ASABE S279 and all applicable local and state regulations.
4. When selecting a PTO to drive hydraulic pump, do not use a higher percent speed drive than indicated in the Installation section of this manual. Too high a percent PTO will drive pump at excessive speed, which can ruin the pump, but more importantly, will overheat the hydraulic oil system and increase the possibility of fire.



5. When truck frame must be shortened, cut off only the portion that extends behind rear shackle in accordance with the truck manufacturer's recommendations. If a torch is used to make

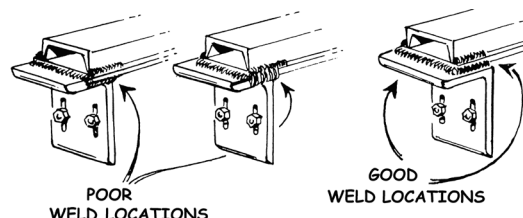
the cut, all necessary precautions should be taken to prevent fire. Cuts should not be made near fuel tanks and hydraulic oil reservoirs, fuel, brake, electric or hydraulic lines and such lines should be protected from flame, sparks or molten metal. Tires should be removed if there is any chance of their being struck by flame, sparks or molten metal. Have a fire extinguisher handy.

6. Do not weld on vehicle frame as such welding can lead to fatigue cracking and must be avoided.



When drilling holes in frame member, drill only through the vertical web portions do not put holes in top or bottom flanges. Refer to truck manufacturer's recommendations.

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



8. Install controls so that they are located of convenient use. Position them so that they do not interfere with any vehicle control and that they do not interfere with driver or passenger or with access to or exit from the vehicle.
9. Check for vehicle visibility, especially toward the rear. Reposition or add mirrors so that adequate rearward visibility is maintained.
10. Add Caution, Warning, Danger and Instruction decals as required. Peel off any label masking which has not been removed.
11. Install all guards as required.
12. Check installation completely to be sure all fasteners are secure and that nothing has been left undone.

Refer to www.highwayequipment.com for installation instructions. Once on the website, click New Leader, then Support, then Operator's Manuals, then Fertilizer Spread Manuals, then New Leader Installation Instructions.

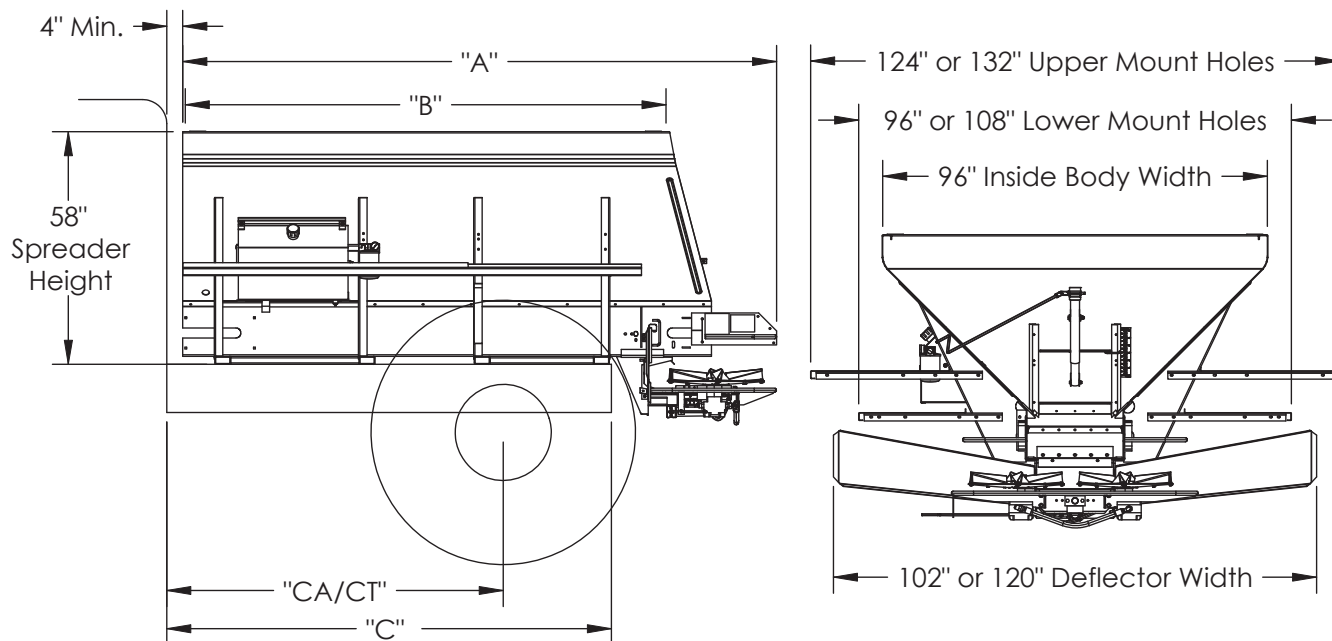
The Model L2000G4 is a hopper-type spreader intended for spreading free-flowing granular agricultural materials, such as chemical fertilizers, agricultural limestone and gypsum. It is intended for truck chassis or flotation vehicle mounting. It also may be incorporated into a towed trailer unit.

The unit is powered hydraulically and provides independent variable speed control for the spinner. The conveyor has full automatic ground speed coordinated control by means of a motorized valve with shaft sensor. The hydraulic pump, which provides the hydraulic power, is a gear-type pump that is driven by means of a transmission PTO.

The conveyor runs the full length of the hopper bottom to deliver material to the spinners through an adjustable metering gate at the rear of the hopper body. It is driven by an orbital type hydraulic motor integrally mounted to a 6 to 1 ratio spur gear box. The conveyor is available with either a number five straight belt or a number four belt-over-chain.

The distributor spinner assembly has two 24 inch (610mm) diameter dished discs. Each disc has four formed and heat treated fins. Each fin's angle can be adjusted. The spinner is fully adjustable by means of a rotating handle or electric stroke actuator.

This product is intended for commercial use only.



Dimensions				
Body Length	Overall A	Inside B	Frame C	Cab to Axle or Cab to Tandem CA/CT*
10' (3.05m)	148" (376cm)	120" (305cm)	111" (282cm)	84" (213cm) CA
11' (3.35m)	160" (406cm)	132" (335cm)	123" (312cm)	84" (213cm) CA
12' (3.66m)	172" (437cm)	144" (366cm)	135" (343cm)	102" (259cm) CA
13' (3.96m)	184" (467cm)	156" (396cm)	147" (373cm)	102-108" (259-274cm) CT

* - Please consult federal, state, and local weight laws and chassis manufacturer's ratings to ensure neither government weight restrictions nor GVWR and GAWR's are exceeded. Tire and tandem axle size may require mounting modification of optional mud flaps.

Capacities-Struck - Cubic Yards (Meters ³) Cubic Feet		
Body Length	Standard	Spreader Weight Approx. Pounds - As Shipped
10' (3.05m)	7.07 (5.41) 191	3745 lbs.
11' (3.35m)	7.83 (5.99) 211	3815 lbs.
12' (3.66m)	8.58 (6.56) 231	3885 lbs.
13' (3.96m)	9.33 (7.13) 252	3920 lbs.



WARNING Stand clear of moving machinery.

NOTE: Do not load spreader with material.

1. Check over entire unit to be sure all fasteners are in place and properly tightened per *Standard Torques National Coarse (NC) Cap Screws Fastener Torque Chart* section in this manual.
2. Make sure no other persons are in vicinity of truck or spreader.
3. Make sure no loose parts are in unit or on conveyor or spinner.
4. Open feedgate until it is completely clear of conveyor.
5. Check oil level in hydraulic reservoir; fill as necessary. Refer to *Lubricant Specification* section of this manual for proper oil. Completely open gate valve under reservoir.
6. Set throttle so engine runs at about 1000RPM. Engage PTO driving pump. Allow pump to run and circulate oil for several minutes. Increase warm-up time in cold weather.
7. Manual spinner control valve: Move to position "3".
PWM spinner control valve: Run at 300 RPM.
Spinner should run at slow speed. Allow to run until it is operating smoothly and all air has been purged.
8. Manual spinner control valve: Move to position "0".
PWM spinner control valve: Run at 0 RPM.
9. Place control in manual mode (see control manual) and run conveyor until it's operating smoothly.
10. Manual spinner control valve: Move to position "5".
PWM spinner control valve: Run at 500 RPM.
Allow both spinner and conveyor to run. Shut down system.



WARNING

DO NOT check leaks with hands while system is operating as high pressure oil leaks can be dangerous! DO NOT check for leaks adjacent to moving parts while system is operating as there may be danger of entanglement!

11. Check all connections in hydraulic system to make sure there are no leaks.
12. Check hydraulic oil reservoir and refill to maintain level around mid-point of sight gauge.
Unit is now ready for field testing.

The following procedure is a guide:

1. Field test over any suitable course which allows vehicle to be driven at speeds to be used while spreading.
2. Make sure unit has been properly serviced, that oil reservoir is full and gate valve under reservoir is fully open. Do not load spreader.
3. Manual spinner control valve: Set to position "7".
PWM spinner control valve: Run at 700 RPM.

**WARNING**

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!

4. Turn control to "on" position. Engage PTO and allow to run at fast idle long enough to bring hydraulic oil up to operating temperature. Spinners should revolve at moderate speed. Conveyor should not move.
5. Set program in control console 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 vary directly with the vehicles field speed; the conveyor should speed up as truck speed increases and slow down as truck speed reduces. Spinner speed should remain constant when engine speed is above minimum operating range.

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 control valve for material being applied to give spread width desired. See *G4 Spread Pattern* section.
5. Adjust spinner to give spread pattern desired. See *G4 Spread Pattern* section.
6. Set feedgate opening to obtain yield desired. Measure actual material depth.
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.



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

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

Higher transmission gears may be used with speeds to 30 MPH. If lower speeds must be used, shift transmission into lower gears so engine speed can be maintained to allow 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.

*Visit www.newleadervip.com for interactive tools to calculate yield, proper feedgate opening, conveyor revolutions per minute, and mph to maximize the performance of your spreader.

PREVENTATIVE MAINTENANCE PAYS!

The handling and spreading of commercial fertilizers is a most severe operation with respect to metal corrosion. Unless a frequent, periodic preventative maintenance program is established, rapid damage to spreading equipment can occur. 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.

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 of the manual for selection of the proper hydraulic fluid for use in the hydraulic system.

Service Schedule

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.

**WARNING**

DO NOT check leaks with hands while system is operating as high pressure leaks are very dangerous! DO NOT check for leaks adjacent to moving parts while system is operating as there may be danger of entanglement!

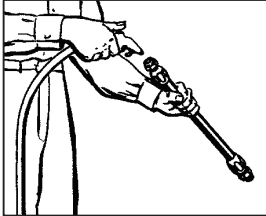
2. Change hydraulic oil filter after first week (or not more than 50 hours) of operation on a unit.
3. After first filter change, replace filter when indicator reaches Red Zone.
4. Drain reservoir through drain plug (not through suction outlet), flush, and refill and change filter element annually. Oil 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.

HYDRAULIC HOSE

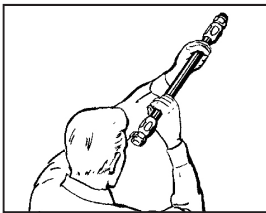
Hose assemblies in operation should be inspected frequently for leakage, kinking, abrasion, corrosion or other signs of wear or damage. Worn or damaged hose assemblies should be replaced immediately.

**WARNING**

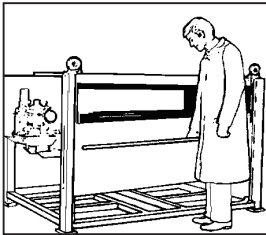
Testing should be conducted in approved test stands with adequate guards to protect the operator.

**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 (66° 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).

BIN SENSOR**WARNING**

Stay out of the spreader. Do not climb on spreader. Use a portable ladder to inspect, clean and maintain the bin sensor from outside the spreader. Failure to do so could result in injury from falling.

NOTICE!

Wipe sensor clean periodically to prevent accumulation of product. Avoid wet material as it may stick to sensor. If material sticks to sensor it won't warn user when bin is low.

Clean sensor with long handled brush or hose from outside of spreader. Do not aim high pressure sprayer directly at sensor—it could damage the components.

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!

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 so that the oil mixture sprays vertical onto the sprockets and chain.

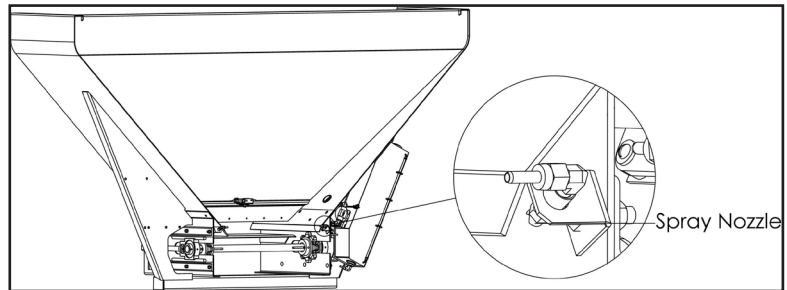


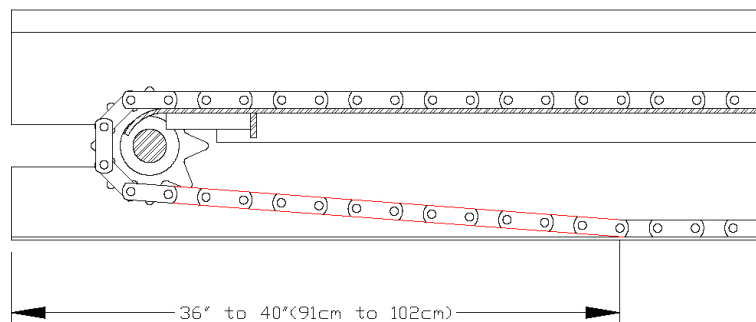
Figure 1 - Spray Nozzle

Tension

Proper chain tension is also a factor in chain and sprocket life (Figure 2). 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:
36" to 40"
(91cm - 102cm)



Main Conveyor

Figure 2 - 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. It also causes fertilizer leakage with chain conveyors.

#4 CONVEYOR BELT

Standard belt for the #4 chain is moderate oil resistant that is impervious to moisture, weathering, or normal action which can be used with chemical impregnated fertilizer or oil based additives.

- Inspect belt fastener occasionally for wear or “raveling” of belt grip area.
- Make sure belt connecting pin is positioned correctly as shown in Figure 3.

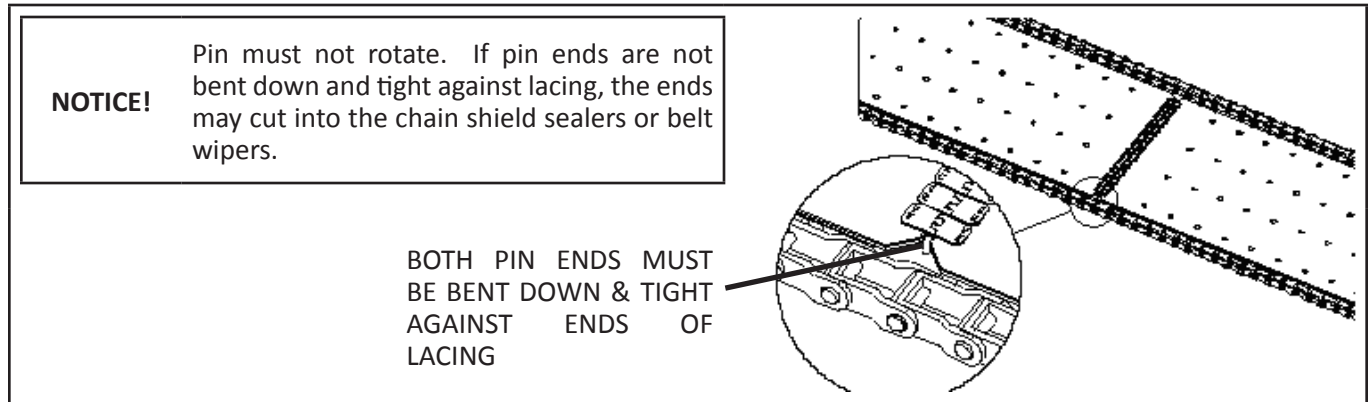


Figure 3 - Conveyor Belt Pin Installation

#5 CONVEYOR BELT

Maintenance

The conveyor belt should be checked daily for proper tension and tracking. See “Adjustment” under *Lubrication & Maintenance* section.

Do not be alarmed as sides of belt wear unless belt is out of track. The belt will continue to operate satisfactorily with up to 1” (25.4mm) total worn from the sides. Inspect belt lacing frequently for wear or “raveling” of belt grip area and loosening hardware. Retighten loose nuts and peen end of lacing screw into slot of nut as required.

Adjustment

1. TENSION
Belt tension should be just tight enough to prevent slippage—no tighter. If the “flats” on the conveyor drive pulley are visible through the belt, tension is high enough.
2. TRACKING
Empty spreader to check tracking by doing the following:
 - A. Make sure truck engine is shut off and move spinner control valve to “0” position. Start truck engine and engage pump drive PTO. Spinners should not turn. If they do, correct the problem before proceeding.

**WARNING**

Do not work near rotating spinners. Severe injury can result from contact with moving parts.

B. Run truck engine, place controller in manual mode (see control manufacturer's manual) and run conveyor at slow speed. Gradually increase speed until tracking is visual.

**CAUTION**

Use great care to avoid entanglement with any moving parts.

A properly adjusted belt will either remain in a steady position centered on the pulley or more often will "wander" back and forth 1/4 to 1/2 inch (6mm to 13mm) across the pulley, but remain generally centered. The conveyor belt sides should not curl or scuff.

Improper tracking is usually due to three basic causes. These problems and their respective solutions follow:

PROBLEM 1: (Figure 4)

Belt tracks to one side, contacts side of conveyor. Contact is more severe at the front and may not quite touch at the rear.

SOLUTION:

Tighten idler bearing at side in contact with belt. Make this adjustment one turn at a time. Operate conveyor 10 to 15 minutes at a high speed to allow belt to react to the adjustment. Repeat if necessary.

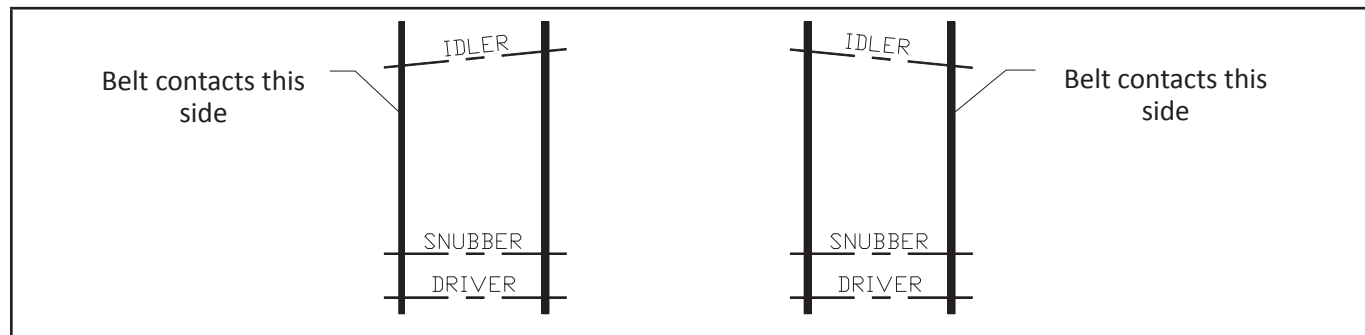


Figure 4

PROBLEM 2: (Figure 5)

Belt contacts one side at front and contacts other side at rear.

SOLUTION:

If adjusting as in Problem 1 does not remedy the situation, adjustment of the drive pulley is necessary. Mark the position of the adjustment screw (RH side) on the side of the unit. Determine which illustration shows the problem to figure out which direction the drive shaft should be moved. Loosen the adjustment screw to move the shaft forward; tighten the screw to move the shaft rearward.

NOTE: The illustration is exaggerated. Only move the adjustment screw 1/4 turn at a time after loosening the bolts holding the bearing. Usually, 1/64 to 1/32 inch (.4mm to .8mm) adjustment is all that is necessary. Retighten bearing. Operate conveyor for 10 to 15 minutes at a high speed to allow belt to react to adjustment. The problem should change to Problem 1. Adjust as in Problem 1 to track belt properly.

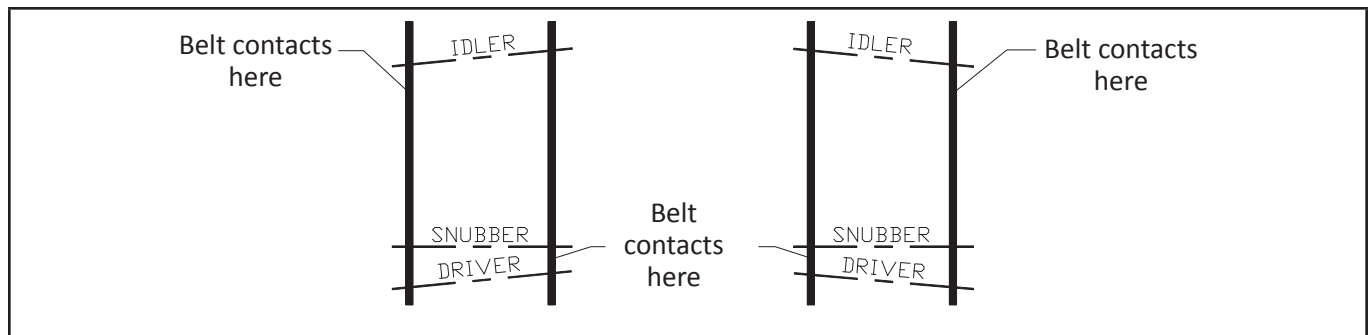


Figure 5

PROBLEM 3: (Figure 6)

Belt contacts side as in Problem 1, but contacts more heavily at a point approximately three feet from rear.

SOLUTION:

Realign snubber pulley. Note the point or side of contact from the illustration. This side of the snubber is too low.

NOTE: This pulley moves up and down ONLY.

Loosen belt and raise or lower as necessary. Loosen the two bolts holding the snubber bearing on the side to be adjusted after marking the old position. Move approximately 1/16 inch (1.6mm) at a time and retighten. Retighten belt the exact number of turns previously loosened. Operate conveyor 10 to 15 minutes to allow belt to react to adjustment. Refer to Problem 1 and readjust. If readjustment does not compensate, repeat.

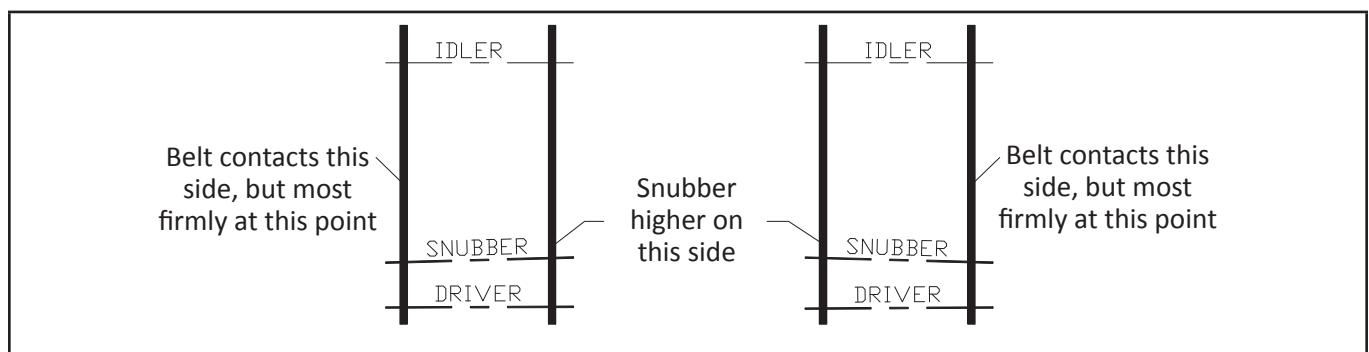


Figure 6

If, after continued adjustment, the belt does not track properly, check the following:

1. Check for twisted spreader body. Shims must be placed between spreader cross tubes and the mounting surface to eliminate any twist in the body structure.
2. Check for crowned Idler Pulley by placing a straight edge on the pulley. If properly crowned, the straight edge will contact the center pulley leaving 1/16 inch (1.6mm) gap between the straight edge and both pulley ends. Replace the pulley if crown is not present.
3. Check for lacing squareness by removing the belt. This should be done as a last resort. If the lacing is not square to the belt ends, contact your dealer for service.
4. Sight down the body under the belt shields. The only point which should come close to or slightly contact the belt, is the lowest point on the shield. If the belt contacts the shield firmly at any other point, tracking will be impossible and you should see your dealer immediately. Only your dealer can correct the situation.

Shield

The belt shields along each side of the belt inside the unit should be just contacting the belt when the belt is properly adjusted and the unit is empty (Figure 7). If a shield has clearance along its length, it can be moved down until it just contacts the belt by loosening the fastener bolts, allowing the shield to slide downward and tightening the bolts. If the shield is tending to cut into the belt along its full length, loosening the bolts and raising the shield until it just contacts the belt will correct the problem.

If the shield cuts the belt at one or more points or if it gaps at one or more points, it should be replaced.

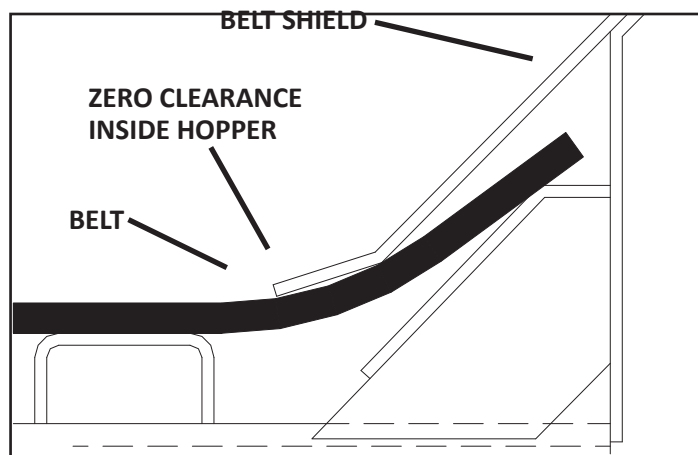


Figure 7 - #5 Bottom

NOTICE! Don't lubricate the #5 belt. Use of lubricants will cause the belt to deteriorate and fail prematurely.

Removal & Replacement

Tools and Equipment Required (NOTE: Two people MUST be used for this procedure.):

1. 1 1/2" Hex Wrench
2. 25 to 30 Feet (762cm – 915cm) of 1/4" (6mm) to 3/8" (10mm) Rope.
3. 3 or 4 Pieces of 2" x 4" (5cm x 10cm) Lumber about 3 Feet (1m) Long.
4. 10 Feet (304cm) of 14 or 16 Gauge Soft Iron Wire.

Parts Required: See Parts Pages.

Procedure:

1. Set spinner control valve at "0" position to stop spinners.
2. Remove both belt shields, clean thoroughly and repaint.
3. Adjust processor to Manual operation. Select a slow Manual Speed so tracking is visual.
4. Move the front idler adjustment bolts to extreme rear position.
5. Shut down spreader. Pull out splice pin to separate belt splice.
6. Insert pin into one side of belt splice. Attach a winch to the belt splice and remove belt.

NOTE: If the splice pin cannot be removed, cut belt and remove belt by hand.

NEW LEADER

7. Using any suitable tool, remove any caked material from the drive pulley, snubber pulley, idler pulley and from inside the frame channels. Clean and repaint as required.
8. Thread OLD splice pin through one end of new belt splice. Connect wire to pin about 1/4" (6.4mm) in from each side of the belt, forming a loop.
9. Thread the rope along the top of the belt channel, around the front idler pulley, over the snubber pulley, and under the drive pulley.



CAUTION Make sure power is shut off before performing threading operation.

10. Tie end of rope under drive pulley to wire loop. Wrap other end of rope once around drive pulley and out to rear.
11. Start conveyor drive so drive pulley turns slowly. One person should pull on rope while other feeds belt into unit from rear. Pull new belt under drive pulley, over snubber pulley, along frame channels, around front idler pulley and back to drive pulley.



CAUTION Use extreme care to avoid entanglement! Someone must stay at controls to stop conveyor instantly if required.



CAUTION Use extreme care to avoid entanglement! Stand well back from drive pulley.

12. Shut off all power and insert lumber under belt to support its weight as shown in Figure 8.
13. Insert a plastic tube in each splice and across the full width of the belt and pull the two ends together at the center of the rear face of the drive pulley.
14. Insert the splice pin (flexible, plastic covered).
15. Snug the belt up by tightening the idler pulley.
16. Tighten the belt until the edge of the belt is approximately 2" (51mm) above the lower edge of the sill lower flange on each side. Remove lumber.
17. Adjust for proper tracking as outlined in the *Belt Conveyor Adjustment* section of this manual.

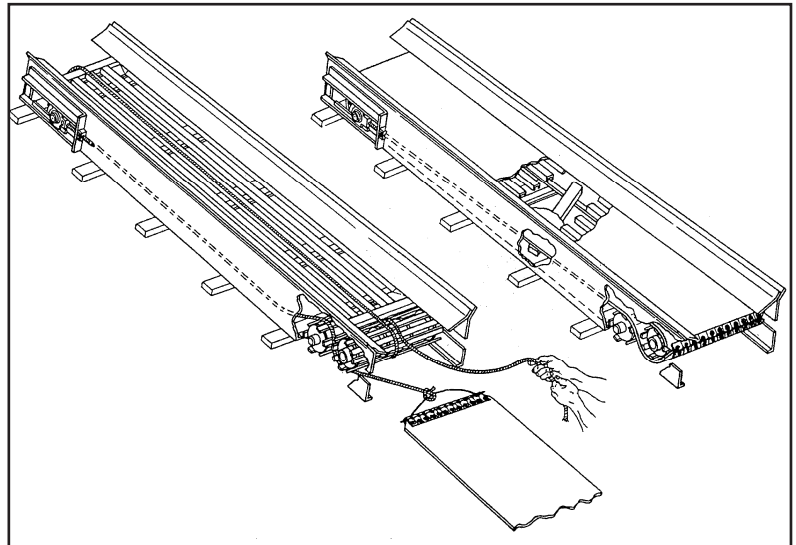


Figure 8 – #5 Belt Installation

CONVEYOR GEAR CASE

Oil in a new unit should be drained after first two weeks (or not more than 100 hours) of operation and gear case should be thoroughly flushed with light oil. Refer to *Lubricant and Hydraulics Oil Specifications* section for proper grade oil. Refill gear case with one pint (.47 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.

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 maintains 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 fertilizer into control components, causing damage. Use caution when cleaning these areas.
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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 screw fasteners to recommended torque's after first week of operation and annually thereafter. If loose fasteners are found at any time, tighten to the recommended torque. Replace any lost or damaged fasteners or other parts immediately. Check body mounting hardware every week.

HYDRAULIC SYSTEM**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.

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	140 - 190° F (56.1-76.2° C)
Recommended Premium Lubricant	Automotive Engine Oil
Lubricant Specifications: Viscosity Index Viscosity at 40°C, cst Viscosity at 100°C, cst	Greater than 130 Less than 115 Greater than 14
Acceptable Fluid Example	Valvoline All-Fleet Plus° SAE 15W-40

GEAR CASE LUBRICANT

Lubricate these assemblies with non-corrosive type SAE 90 E.P. (extreme pressure) gear oil conforming to MIL-L2105 B multi-purpose gear lubricating oil requirements (API Service GL 4) with ambient temperatures from 40° to 100° F (4.5 to 38° C). Ambient temperatures below 40° F (4.5° C). require SAE 80 E.P. lubricant; above 100° F (38° C) use SAE 140 E.P. grade oil.

GREASE GUN LUBRICANT

Use a waterproof ball and roller bearing lithium base lubricant with a minimum melting point of 300° F (149° C). This lubricant should have a viscosity which assures easy handling in the pressure gun at prevailing atmospheric temperatures. The grease should conform to NLGI No. 2 consistency.

CHAIN OILER LUBRICANT

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

NOTICE! Don't lubricate the #5 belt. Use of lubricants will cause the belt to deteriorate and fail prematurely.

**WARNING**

Shut off all power and allow all moving parts to come to a rest before performing any maintenance operation.

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

<u>LOCATION</u>	<u>PLACES</u>	<u>METHOD</u>	<u>FREQUENCY</u>
Conveyor - #4 Conveyor			
Bearings	4	Grease Gun	Weekly
Idler Adjusting Screws	2	Hand Grease	Weekly
Chain	2 Strands	Spray Oil	Daily
Chain Oiler (If so equipped)	1	Oil Mixture	Daily
Conveyor - #5 Conveyor			
Bearings	6	Grease Gun	Weekly
Idler Adjusting Screws	2	Hand Grease	Weekly
Conveyor			
Gear Case	1	Gear Box Oil	Check Monthly, Change Annually
Feedgate Jack Assembly			
Gears	1	Hand Grease	Annually
Tube	1	Grease Gun	Monthly
Spinner			
Grease Zerk – Jack & Shaft	4	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.

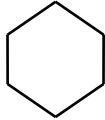
- Symptom: Spinner motors do not turn when spinner control valve is in running position. See reasons 1, 2, 3, 4, 5, 7, 8 & 9.
- Symptom: Spinners turn but conveyor does not run in manual mode. See reasons 6, 8, 9, 10 & 22.
- Symptom: Console in operation mode, but the conveyor does not move when the machine moves. See reasons 6, 8, 9, 10 & 22.
- Symptom: Spinner speed does not stay constant. See reasons 4, 5, 11, 12 & 13.
- Symptom: Spinners run with cab control in "Off" position. See reason 14.
- Symptom: Hydraulic oil overheats (200° F (93.33° C). or hotter). See reasons 1, 4, 6, 15, 16, 17 & 18.
- Symptom: Light flashes and buzzer sounds intermittently. Conveyor runs in jerks. See reasons 19 & 22.
- Symptom: Conveyor does not run with cab control "On", PTO engaged and vehicle driving forward. See reasons 20 & 22.
- Symptom: Conveyor runs when control switch in cab is in "Off" position. See reasons 15 & 21.
- Symptom: Conveyor starts to run when PTO is engaged. See reasons 15, 20, 21 & 22.
- 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.

<u>Reason:</u>	<u>Correction:</u>
1. Hydraulic oil level low.	Add hydraulic oil to reservoir 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.	1. PTO is disengaged. Shift into engagement. 2. Drive line has failed. Repair or replace. 3. Key in pump shaft has failed. Replace key. 4. 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 truck 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).
5. Worn pump.	With flow meter arranged to check relief valve setting above, open load valve fully. Read flow rate with truck engine running at field operating speed. Close load valve until pressure reads 2000 PSI (138 bar). Flow rate should not decrease more than ten percent. If flow loss is greater, replace pump.

Reason:	Correction:
6. Conveyor relief valve open to return line.	Using relief valve testing adapter and flow meter, test valve for opening pressure. If not 2000 PSI (138 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. Insufficient hydraulic oil flow at normal driving speeds.	Check PTO-Pump matching. If insufficient flow results, install higher percent PTO or use larger pump (Special).
13. Defective spinner control valve.	Replace valve metering spool spring. If no improvement, replace spinner control valve.
14. Cab control is for conveyor only—spinners run anytime vehicle engine is running, PTO 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 "O" position, disconnect PTO, or shut off vehicle engine.
15. Excessive oil is being pumped.	<ol style="list-style-type: none"> 1. PTO percentage too high. Change PTO to smaller percentage or use smaller pump. 2. Pump is too large. Do not exceed 25 GPM (95 LPM) pumping rate. Change to smaller pump or use smaller percentage PTO. 3. Pressure drop in control valve is sufficient to run lightly loaded conveyor motor. Shut off pump drive by disengaging PTO shaft.
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 truck transmission to a lower gear. Will not normally occur if within maximum application rates.
20. Defective radar.	Check speed on console. Repair or replace radar as required.
21. Control processor's power is in "Off" position.	Turn on control processor.
22. Involves the controller.	Refer to control manual.

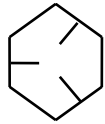
CAP SCREW GRADE IDENTIFICATION - MARKINGS ON HEAD

SAE GRADE 2



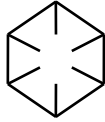
NO MARKINGS

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

NOTES:

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NOTES



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.

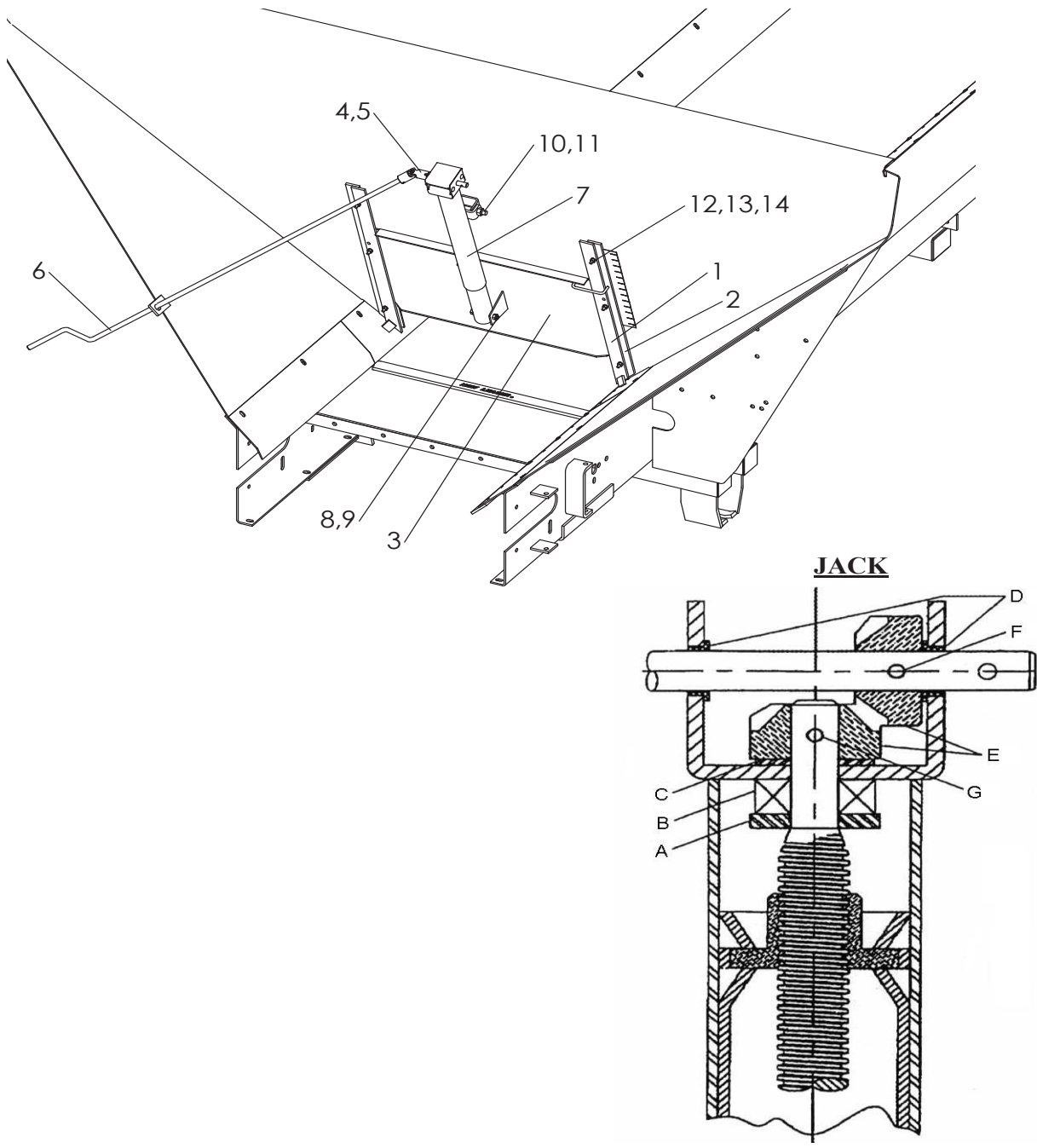
If your claims are not being handled (by the transportation company) to your satisfaction, please call the Parts Manager at Highway Equipment Company (1-888-363-8006 or 319-363-8281) for assistance.

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

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

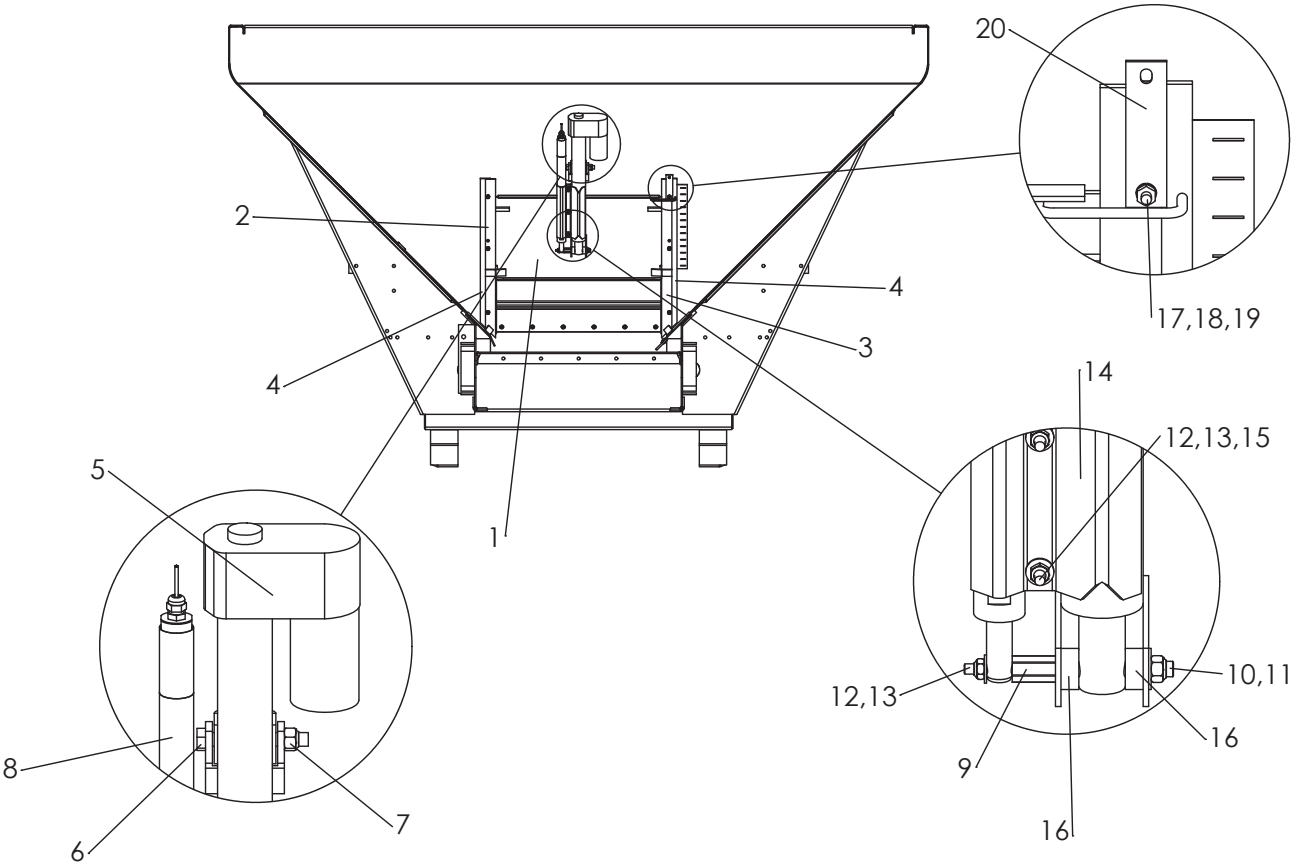
The parts listed under the different steel types (CS, 409 SS and 304 SS) are for that type of unit and do not necessarily mean the part is made of that type of steel.

FEEDGATE & JACK



FEEDGATE & JACK CONTINUED

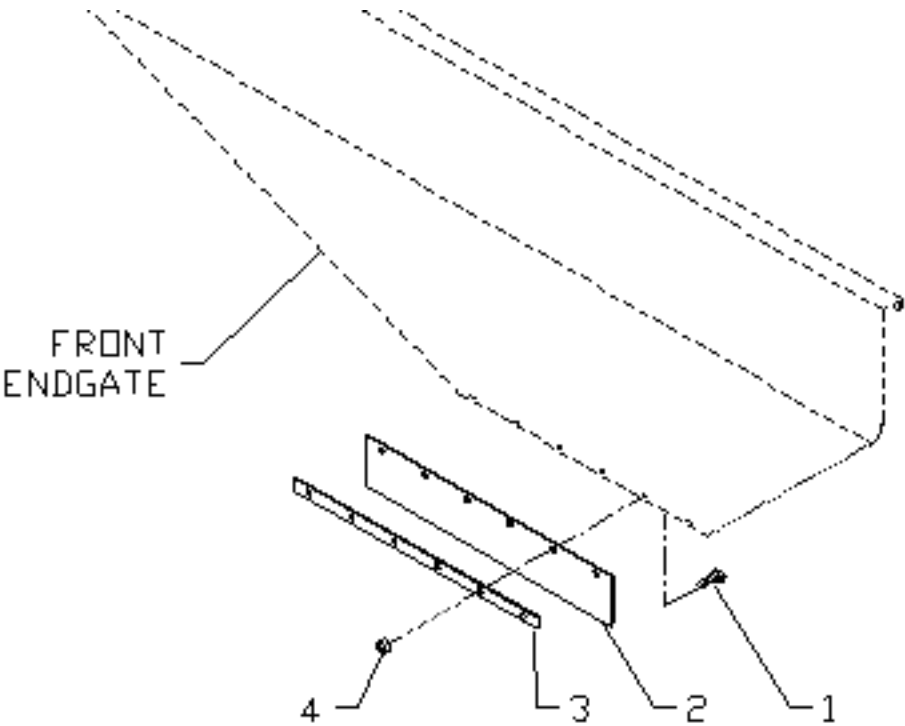
<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
1	36384	Slide – Feedgate	1
2	36385	Guide – Feedgate	2
3	98509	Feedgate – Weldment 409	1
	303937-AB	Feedgate - Weldment 304	1
4	85002	U-Joint	1
5	20918	Pin – Roll	2
6	307476	Handle	1
7	40704	Jack	1
A	84210	Washer – Thrust	1
B	84211	Bearing – Thrust	1
C	84212	Washer	1
D	84213	Bushing	2
E	84214	Gear – Miter	2
F	84215	Pin – Groove	1
G	84216	Pin – Roll	1
8	36296	Cap Screw – 3/8 x 2 3/4	1
9	72054	Nut – Lock 3/8	1
10	80798	Cap Screw – 1/2 x 3 3/4	1
11	39016	Nut – Hex 1/2	1
12	40750	Cap Screw – 1/4 x 1 1/4	6
13	36418	Washer – Lock 1/4	6
14	36412	Nut – Hex 1/4	6



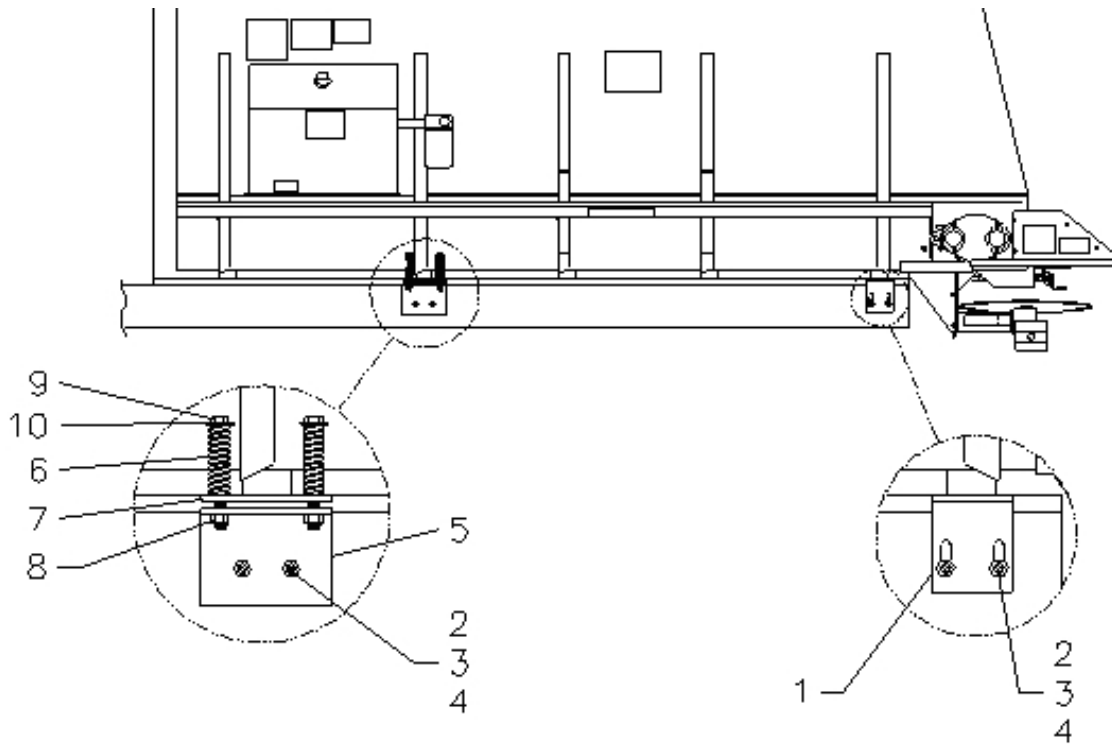
FEEDGATE WITH ACTUATOR CONTINUED

<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
1	303937-AB	Feedgate – Weldment Actuator 24” 304	1
2	302792-AA	Slide – Feedgate Stop LH	1
3	302792-AB	Guide – Feedgate RH	1
4	36385	Bar - Feedgate Guide 304	2
5	302767	Actuator - Electric 14” Stroke	1
6	80798	Cap Screw - 1/2-13 x 3-3/4 SS	1
7	39016	Nut - Lock 1/2	1
8	302791	Sensor - Assembly 10”	1
9	302769	Pin - Feedgate Sensor	1
10	36425	Washer - Flat 3/8 SS	1
11	72054	Nut - Lock 3/8 SS	1
12	42034	Nut - Lock 1/4-20 SS	4
13	36423	Washer - Flat 1/4 SS	7
14	303940	Clamp - Long 304	2
15	42448	Cap Screw - 1/4-20 x 1-1/2 SS	3
16	303941	Spacer - Actuator Mount 304	2
17	40750	Cap Screw - 1/4-20 x 1-1/4 SS	6
18	36418	Washer - Lock 1/4 SS	6
19	36412	Nut - Hex 1/4-20NC SS	6
20	304512	Mount - Feedgate Cables 304	1

FRONT WIPER

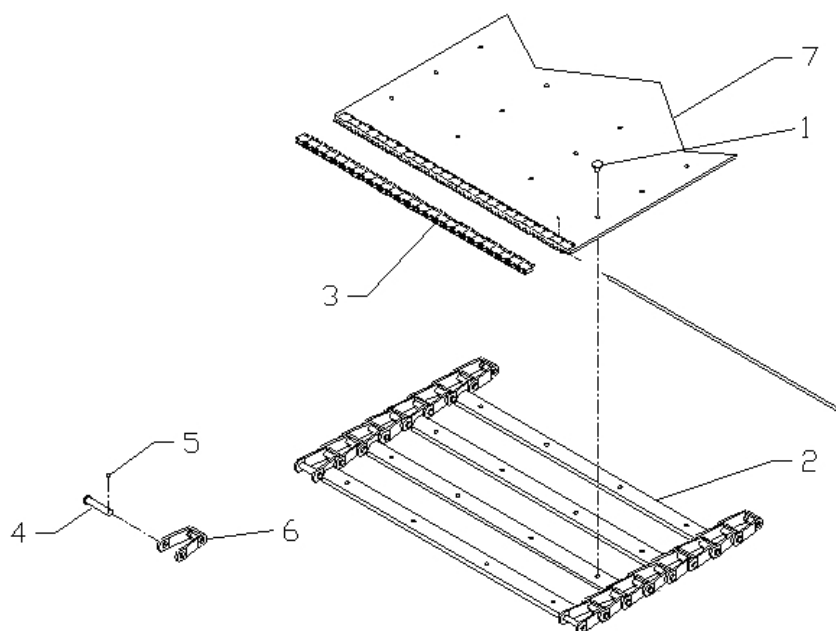


<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
1	32446	Screw – Machine 1/4 x 3/4	5
2	39426	Wiper – Belt	1
3	54230	Retainer – Belt	1
4	36412	Nut – Hex 1/4	5



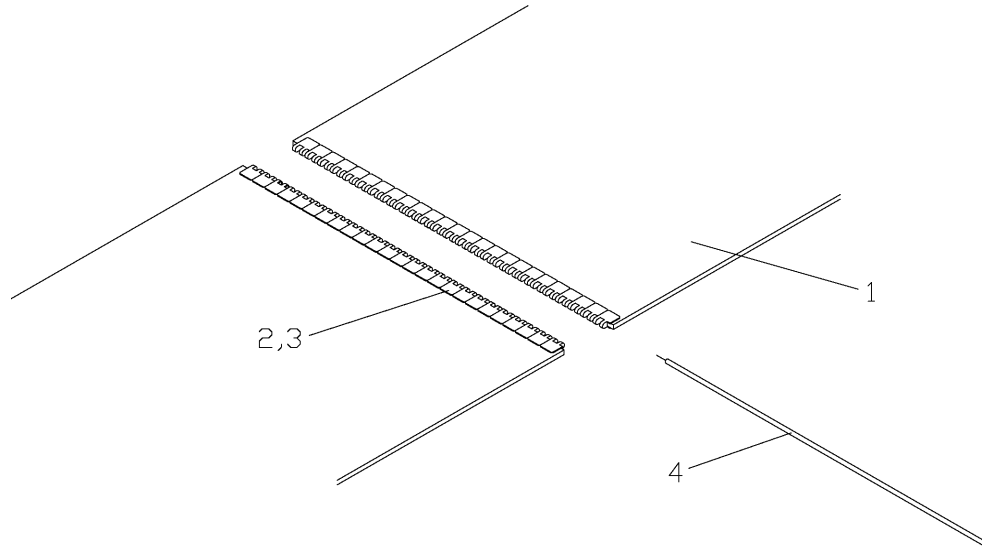
ITEM	PART NO.	DESCRIPTION	QTY
	305579-AA	Mounting - Kit	
1	31856	Angle - Mounting	4
2	20131	Cap Screw - 1/2 x 2	12
3	20695	Washer – Flat 1/2	12
4	20680	Nut - Lock 1/2	12
5	81847	Angle - Mounting	2
6	81000	Spring	4
7	81848	Mounting - Bar	2
8	41762	Nut – Lock 5/8	4
9	20195	Cap Screw - 5/8 x 6 1/2	4
10	20697	Washer – Flat 5/8	4

#4 BELT-OVER-PINTLE CHAIN CONVEYOR



ITEM	PART NO.	DESCRIPTION	QTY
1	305613-AC	10' Unit	1
	305613-AD	11' Unit	1
	305613-AE	12' Unit	1
	305613-AG	13' Unit	1
2	--	Crossbar – Weldment	AR
3	73317-X1	Kit – Splicer	1
		Lacing Strips 23"	2
		Pin - Connecting	1
		Staples	AR
4	36697	Pin – Pintle Chain	AR
5	20817	Pin – Cotter	AR
6	36699	Link – Pintle Chain	AR
7	56377	Belt – Conveyor (per foot)	AR
8	305646	Screw - #4BOC 1/4 x 9/16 torx Flat Head	AR

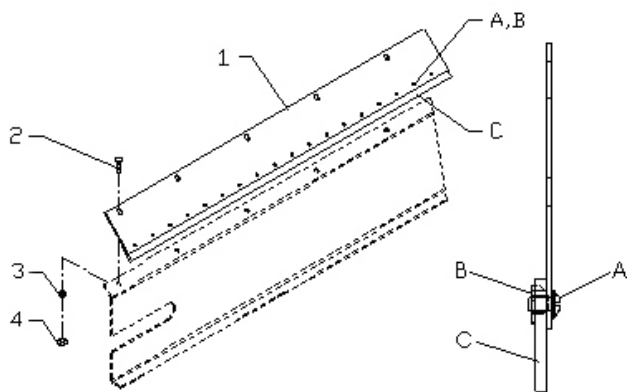
AR - As Required



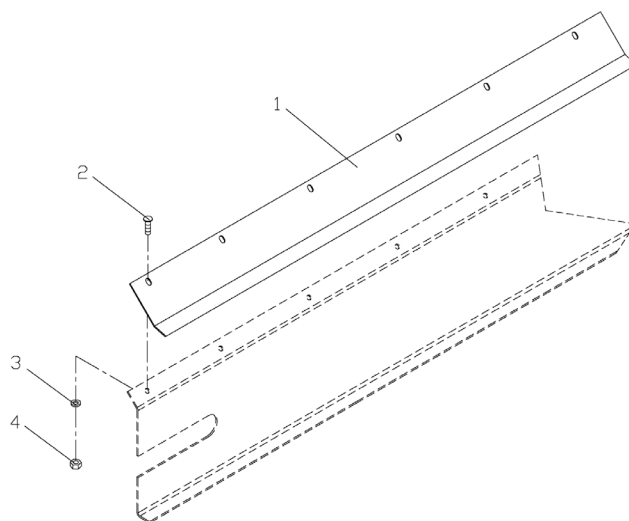
<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
	305307-AC	Conveyor - Assembly #5 10' Unit	1
	305307-AD	Conveyor - Assembly #5 11' Unit	1
	305307-AE	Conveyor - Assembly #5 12' Unit	1
	305307-AG	Conveyor - Assembly #5 13' Unit	1
1	305300-AC	Belt - Conveyor 10' Unit	1
	305300-AD	Belt - Conveyor 11' Unit	1
	305300-AE	Belt - Conveyor 12' Unit	1
	305300-AG	Belt - Conveyor 13' Unit	1
	33884	Tape - Belt (per foot)	AR
2	53992	Fastener - Assembly 1-Bolt	4
	53993	Fastener - Assembly 2-Bolt	2
	53994	Fastener - Assembly 3-Bolt	4
3	39604-23	Tube - Plastic	2
4	39603	Pin - Hinge	1

AR - As Required

CHAIN SHIELDS



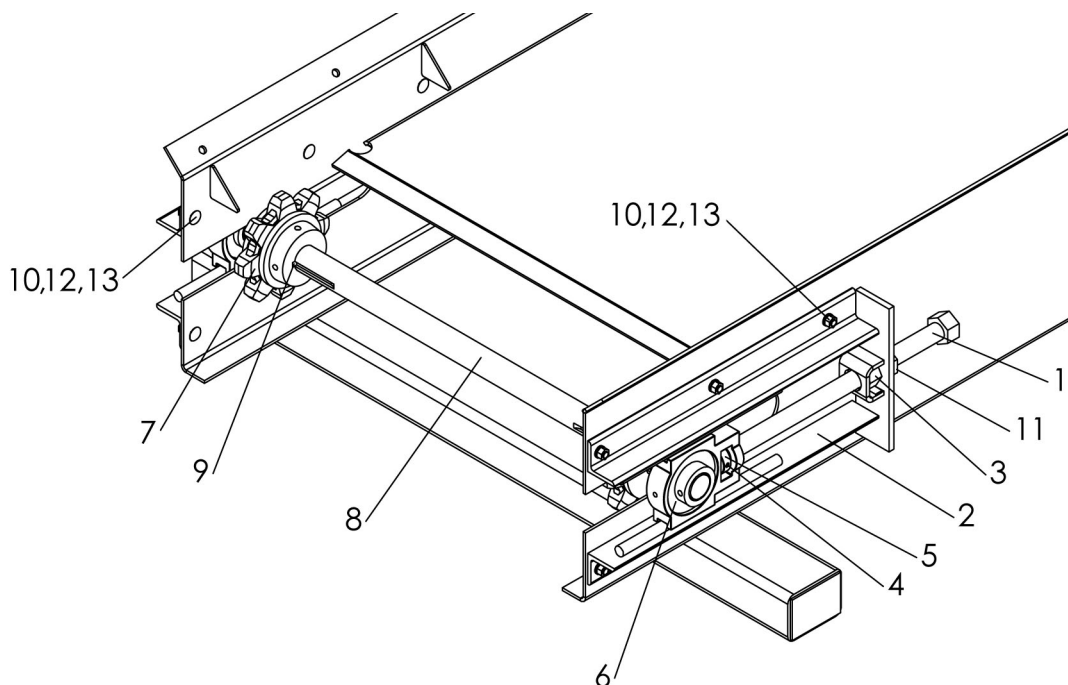
#4



#5

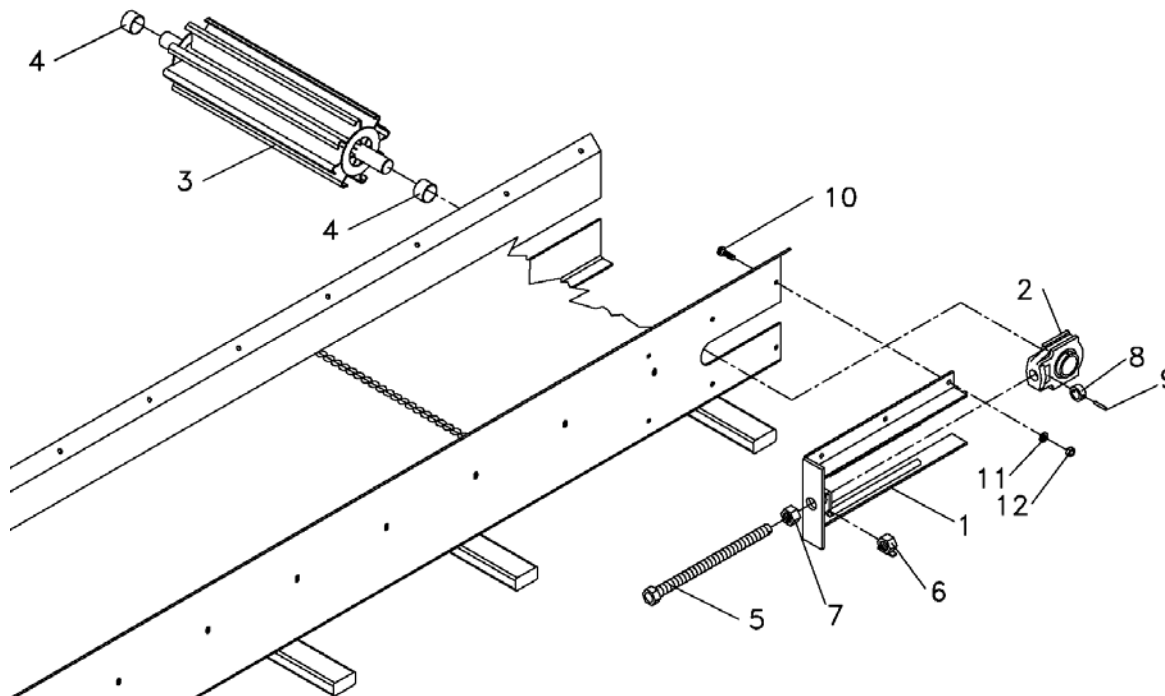
ITEM	PART NO.		DESCRIPTION	QTY
	#4	#5		
1			Chain Shield – #2 304	
	97851	97747-AC	10' Unit	2
	97852	97747-AD	11' Unit	2
	97853	97749-AA	12' Unit	2
	97854	97749-AB	13' Unit	2
			Chain Shield – #2 409	
	97833	97730-AC	10' Unit	2
	97834	97730-AD	11' Unit	2
	97835	97732-AA	12' Unit	2
	97836	97732-AB	13' Unit	2
A	56258	--	Screw – Truss Head 1/4 x 1/2	AR
B	88931	--	Nut – Tee 1/4 x 1/4	AR
C	305975	--	Sealer - Belt, #4 BOC Shield (Specify Unit Length)	AR
3	71829	71829	Bolt – Carriage 3/8 x 1	AR
4	36420	36420	Washer – Lock 3/8	AR
5	36414	36414	Nut – Hex 3/8	AR

AR - As Required



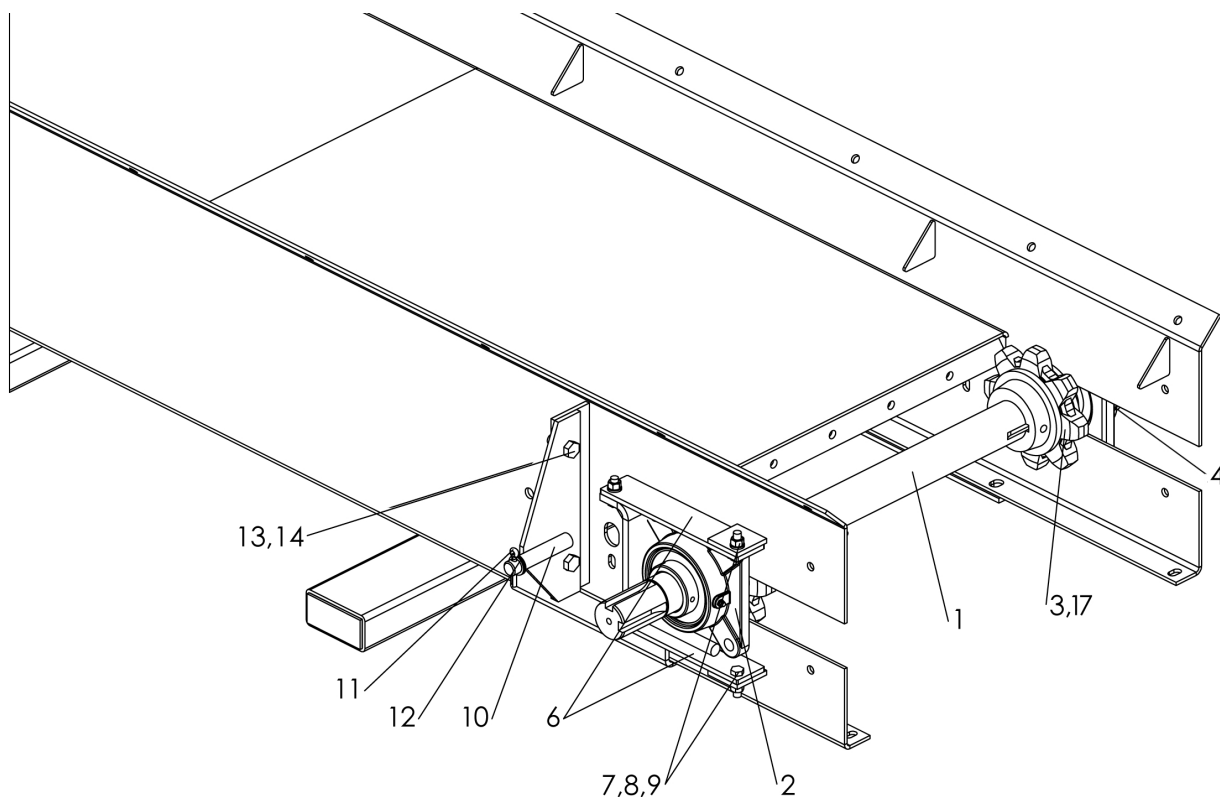
<u>ITEM</u>	<u>PART NO.</u>		<u>DESCRIPTION</u>	<u>QTY</u>
	<u>409</u>	<u>304</u>		
	97100	307473	Idler - Group 24" #4	
1	36508	36508	Take Up Bolt	2
2	7895	79321	Take-up Weldment	2
3	39110	39110	Nut Weldment	2
4	20925	20925	Pin – Roll 1/4 x 1 1/2	2
5	30725	30725	Collar – Set 1"	2
6	22511	22511	Bearing – Take-up	2
	6070	6070	Zerk - Grease .125 45°	2
7	97051	97051	Sprocket – Idler	2
8	48279	48279	Shaft – Idler	1
9	2135	2135	Key – Square 5/16 x 2 1/2	2
10	36414	36414	Nut – Hex 3/8	12
11	36509	36509	Nut – Hex 1-8NC	2
12	36408	36408	Bolt – Carriage 3/8 x 1	12
13	36420	36420	Washer – Lock 3/8	12

#5 CONVEYOR IDLER



ITEM	PART NO.		DESCRIPTION	QTY
	<u>409</u>	<u>304</u>		
	307472	307471	Idler – Group 24" #5	
1	7895	79321	Take-up – Weldment	2
2	22511	22511	Bearing – Take-up	2
3	81968	81976	Pulley - Weldment Idler	1
4	81345	81345	Spacer – Pipe Idler Pulley	2
5	36508	36508	Tightener – Chain Weldment	2
6	39110	39110	Nut Weldment	2
7	36509	36509	Nut – Hex 1-8NC SS	2
8	30725	30725	Collar – Set 1"	2
9	20925	20925	Pin – Roll 1/4 x 1-1/2	2
10	36409	36409	Bolt – Carriage 3/8 x 1-1/4 SS	12
11	36420	36420	Washer – Lock 3/8 SS	12
12	36414	36414	Nut – Hex 3/8 SS	12
13	*20737	*20737	Screw - Set 1/4-20NC x 1/2	1

* - Not Shown

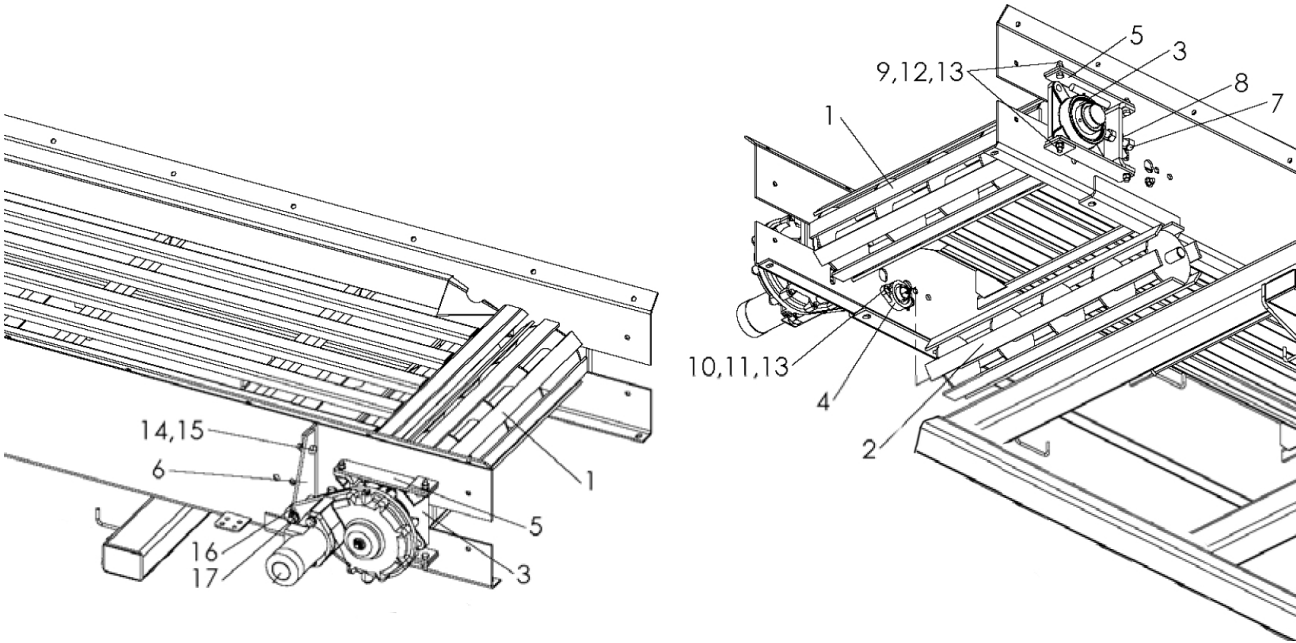


ITEM	PART NO.	DESCRIPTION	QTY
	98087-AD	Drive - 24" Assembly LH SS with Sensor Mount	
1	77899	Shaft – Drive	1
2	6465	Bearing	2
3	88276	Sprocket	2
4	20743	Screw – Set 5/16 x 3/8	1
5	6131	Key – Square 3/8 x 1 1/2	2
6	82885	Guide – Bearing	4
7	36399	Cap Screw - 3/8 x 1 1/4	8
8	36420	Washer – Lock 3/8	8
9	36414	Nut – Hex 3/8	8
10	82552	Bracket – Torque Arm LH	1
11	20833	Pin – Cotter 1/4 x 1 1/2	1
12	2716	Washer – Flat 3/4	2
13	20128	Cap Screw - 1/2 x 1 1/4	2
14	20680	Nut – Lock 1/2	2
15	*37010	Key – Square 1/2 x 1 1/2	2
16	*57301	Gear Case Assembly – see Gear Case Assembly page	1
17	20748	Screw - Set 3/8-16 x 3/8	4

* - Not Shown

NEW LEADER

Please Give Part No., Description
& Unit Serial No.

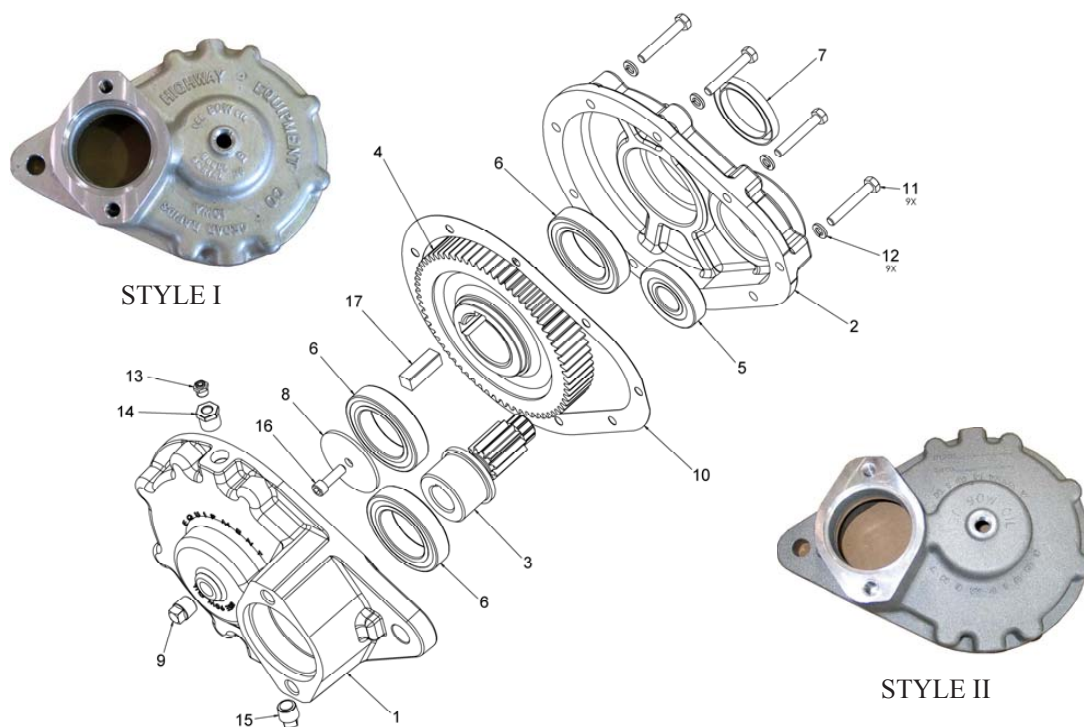


#5 CONVEYOR DRIVE CONTINUED

<u>ITEM</u>		<u>DESCRIPTION</u>	<u>QTY</u>
	81356	Drive – Assembly #5	
1	43793	Drive – Weldment Pulley	1
2	36366	Snubber – Weldment Pulley	1
3	6465	Bearing	2
4	32468	Bearing – Assembly	2
	22563	Bearing	2
	34798	Fitting – Zerk	2
	6071	Zerk – Grease 1/8 NPT 90°	2
5	82885	Guide – Weldment Bearing	4
6	82552	Bracket – Torque Arm LH	1
7	81354	Screw – Weldment Set 5/8	1
8	36417	Nut – Hex 5/8 SS	1
9	36399	Cap Screw – 3/8-16 x 1-1/4 SS	8
10	71772	Screw – Button Head 3/8-16 x 1-1/4	4
11	36425	Washer – Flat 3/8 SS	4
12	36420	Washer – Lock 3/8 SS	8
13	36414	Nut – Hex 3/8 SS	12
14	20128	Cap Screw – 1/2-13 x 1-1/4	2
15	20680	Nut – Lock 1/2-13	2
16	20833	Pin – Cotter 1/4 x 1-1/2	1
17	2716	Washer – Machine 1 O.D. x 3/4 I.D.	2
18	*57301	Gear Case Assembly – see Gear Case Assembly page	1

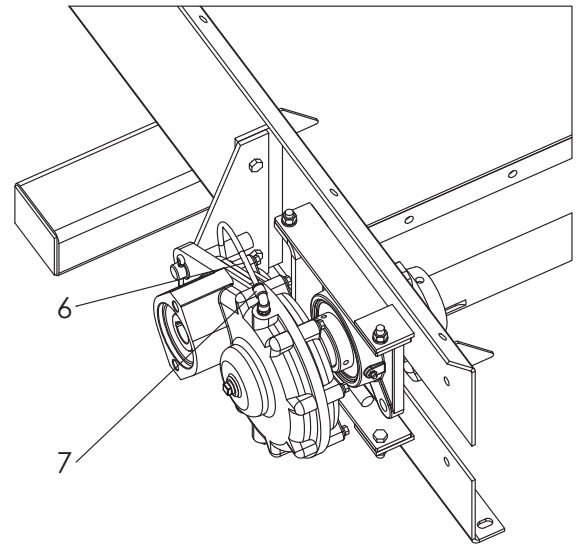
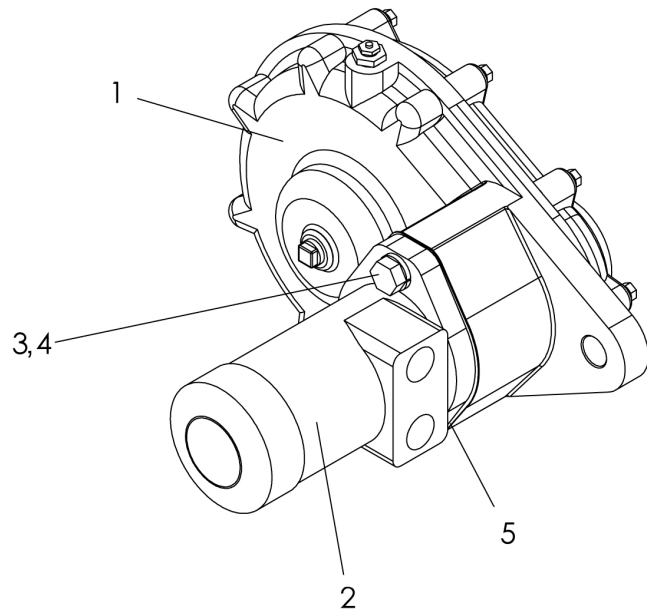
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GEAR CASE

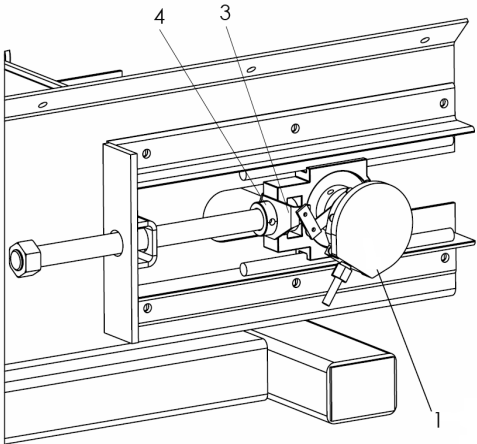


ITEM	PART NO.		DESCRIPTION	QTY
	36671		Gear Case – Single Pinion	
	Style I	Style II		
	304269-AA	304269-AB	Parts – Service, Includes 1–17	
1	37001	304559	Housing – Outboard	1
2	37002	304560	Housing – Inboard	1
3	37003	304561	Gear – Pinion 11 Tooth	2
4	38981	304562	Gear – Driven 67 Tooth	1
5	37007	37007	Bearing	2
6	37008	37008	Bearing	4
7	37006	37006	Seal – Oil	1
8	38979	38979	Washer – Flat 2-1/2 x 11/32	2
9	6031	6031	Plug – Pipe	1
10	37005	304563	Gasket – Housing	1
11	20040	20040	Cap Screw – 5/16NC x 2	10
12	20711	20711	Washer – Lock 5/16	10
13	2564	2564	Cap – Breather	1
14	27465	27465	Bushing – Pipe 1/8 x 3/8	1
15	21490	21490	Plug – Pipe Magnetic	1
16	38980	38980	Screw – Allen Head 5/16-18 x 1	1
17	37010	37010	Key – 1/2 x 1/2 x 1-1/2	2

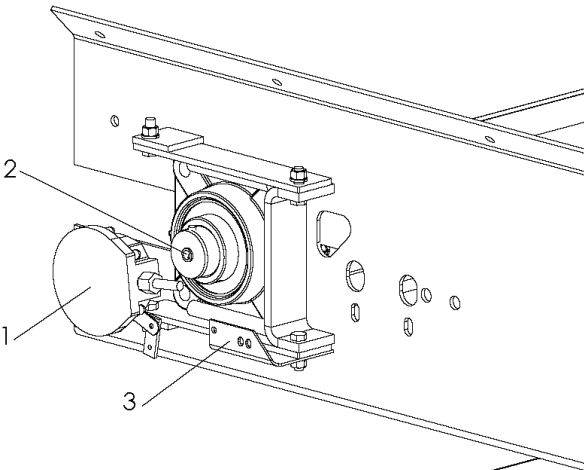
NEW LEADER



<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
	57301	Gear Case - Assembly, Includes 1-5	
	306890	Tube - Group Breather Gear Case, Includes 6-7	
1	36671	Gear Case – Single	1
2	38897	Motor – Hydraulic, 1-1/2"	1
3	20129	Cap Screw – 1/2 x 1-1/2	2
4	20714	Washer – Lock 1/2	2
5	74524	Gasket – Motor Flange	2
6	306891	Fitting - 4-2 630202K	1
7	9005-0-7761	Tubing - 1/4 OD Air Brake Black	ft 1.5

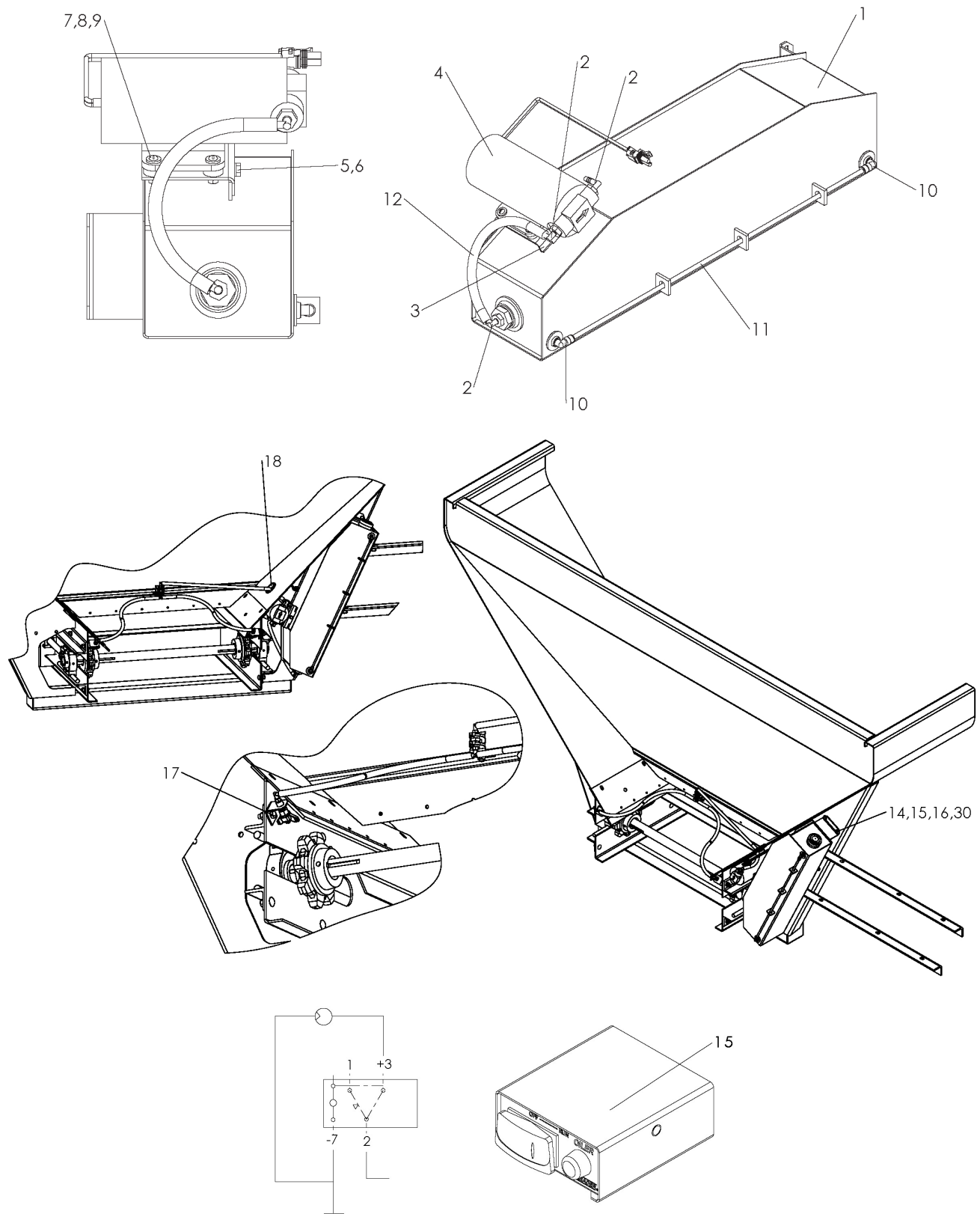


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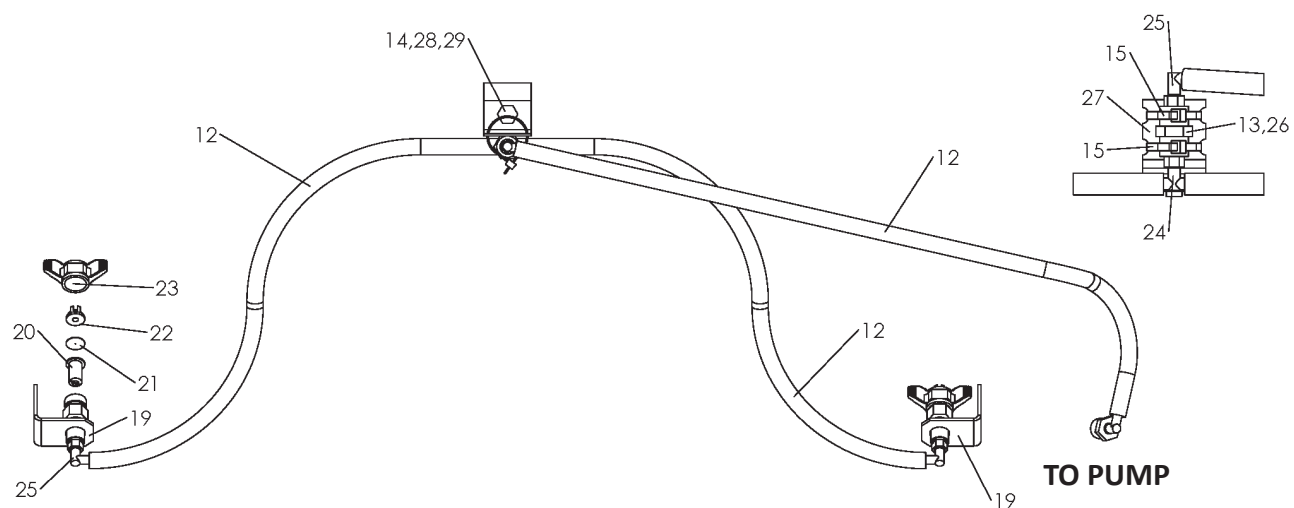
#4

<u>ITEM</u>	<u>PART NO.</u>		<u>DESCRIPTION</u>	<u>QTY</u>
	<u>#4</u>	<u>#5</u>		
	97341	304787	Mount - Kit Encoder, Includes 2-3	
1	304056	304056	Encoder - 360 Count DJ with 12" Cable	1
	303994	303994	Encoder - 180 Count DJ with 18" Cable	1
2	56263	56263	Sleeve - Rate Sensor	1
3	304946	81949	Bracket - Sensor, Idler Mount	1
4	--	2696	Collar - Set 1"	1



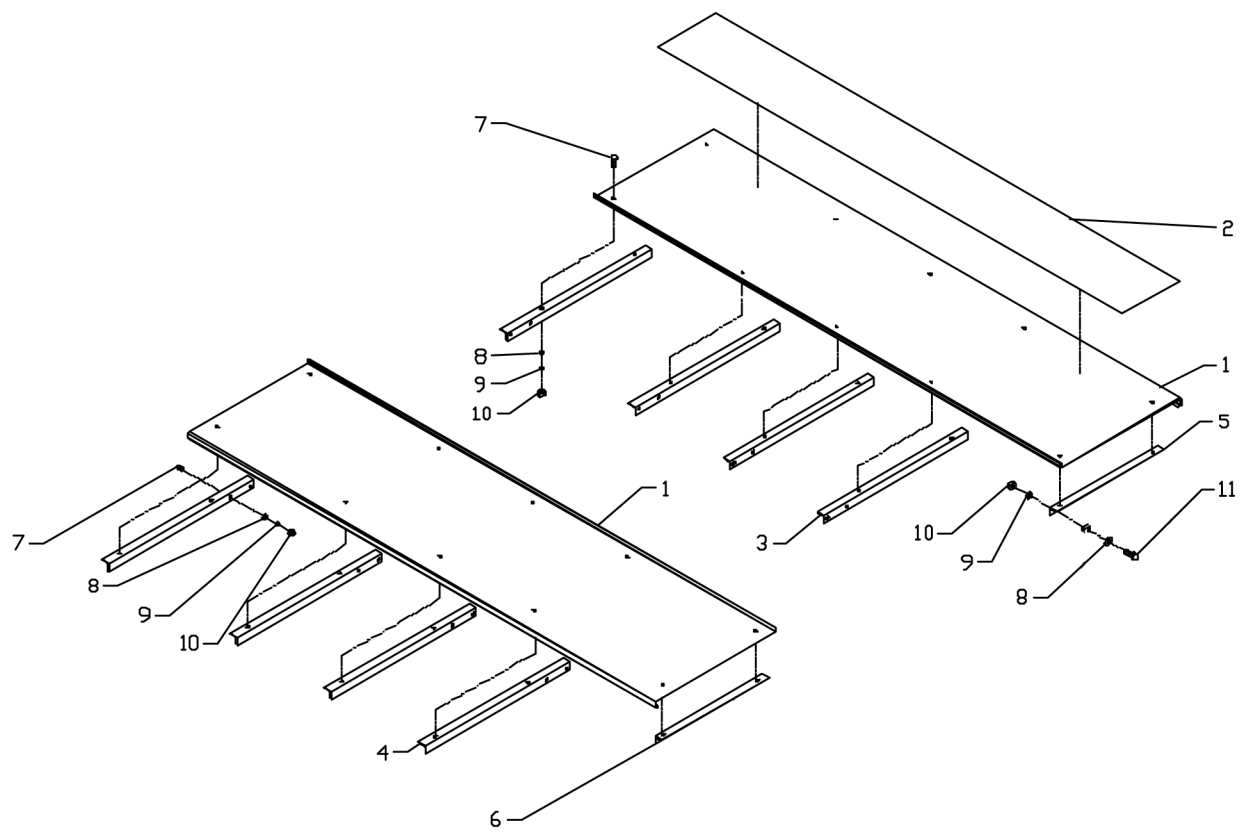
Please Give Part No., Description
& Unit Serial No.

NEW LEADER



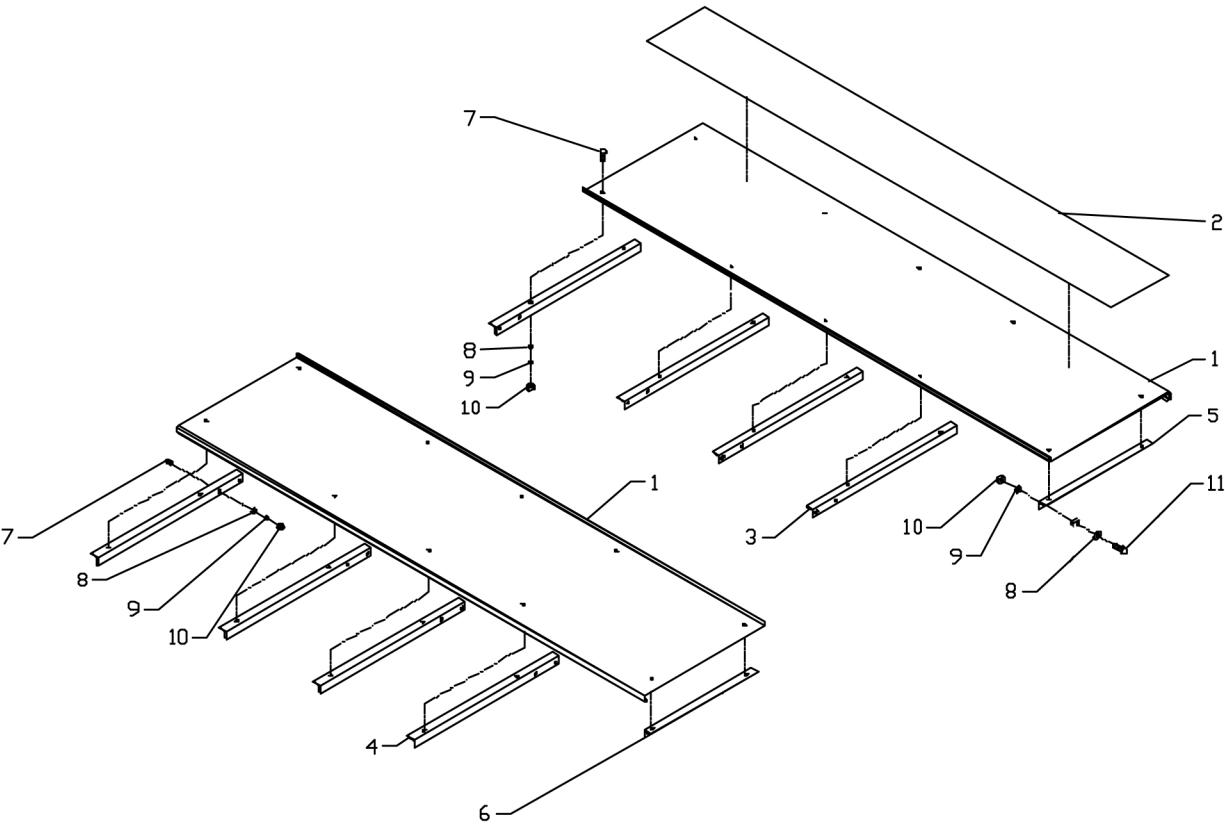
<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
	306061	Tank – Assembly, Includes 1-13	
1	304398	Tank – Weldment	1
2	306657	Elbow	3
3	304409	Mount – Pump	1
4	304390	Pump – Assembly with Connector	1
5	36393	Cap Screw – 1/4 x 3/4 SS	5
6	36418	Washer – Lock 1/4 SS	5
7	20574	Screw – Round Head #10 x 1	4
8	171052	Washer – Flat #10 SS	8
9	47295	Nut – Hex #10 SS	4
10	301337	Fitting – 90 Male 1/8 NPT	2
11	306437	Tubing – Clear	ft AR
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	34129	Grommet – Rubber	1
19	306649	Nozzle – Mount Assembly	2
	304839	Angle – Weldment Nozzle Mount	2
	306650	Body – Male Nozzle Brass	2
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

* - Not Shown



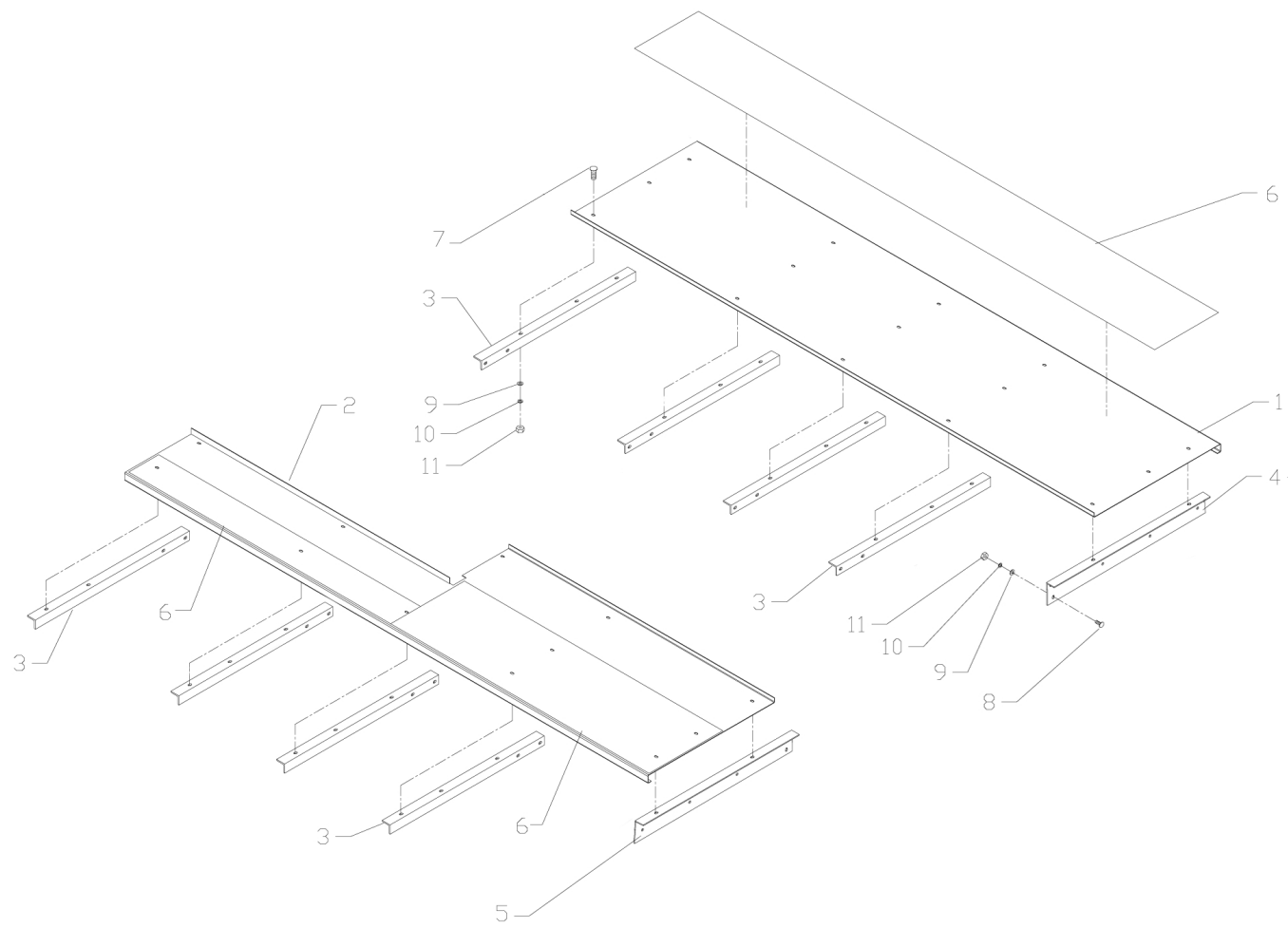
FENDERS - TRUCK TIRES 96" CONTINUED

<u>ITEM</u>	<u>PART NO.</u>		<u>DESCRIPTION</u>	<u>QTY</u>
	<u>409</u>	<u>304</u>		
1	81441	81464	Fender – 10' Unit	2
	81442	81465	Fender – 11' Unit	2
	81443	81466	Fender – 12' Unit	2
	81444	81467	Fender – 13' Unit	2
2	21699	21699	Material – Non-Skid, 8" Wide	Inches AR
3	98070	98070	Angle – Fender	AR
4	98071	98071	Angle - Fender	AR
5	71900	71872	Bracket – Mudflap RH	1
6	71901	71873	Bracket – Mudflap LH	1
7	36408	36408	Bolt – Carriage 3/8 x 1	AR
8	36425	36425	Washer – Flat 3/8	AR
9	36420	36420	Washer – Lock 3/8	AR
10	36414	36414	Nut – Hex 3/8	AR
11	36398	36398	Bolt – Carriage 3/8 x 1	4
AR - As Required				



<u>ITEM</u>	<u>PART NO.</u>		<u>DESCRIPTION</u>	<u>QTY</u>
	<u>409</u>	<u>304</u>		
1	81512	81535	Fender – 10' Unit	2
	81513	81536	Fender – 11' Unit	2
	81514	81537	Fender – 12' Unit	2
	81515	81538	Fender – 13' Unit	2
2	21699	21699	Material – Non-Skid, 8" Wide	Inches AR
3	83021-X4	83021-X4	Angle – Fender	AR
4	81499-X1	81499-X1	Angle - Fender	AR
5	71990	71960	Bracket – Mudflap RH	1
6	71991	71961	Bracket – Mudflap LH	1
7	36408	36408	Bolt – Carriage 3/8 x 1	AR
8	36425	36425	Washer – Flat 3/8	AR
9	36420	36420	Washer – Lock 3/8	AR
10	36414	36414	Nut – Hex 3/8	AR
11	36398	36398	Bolt – Carriage 3/8 x 1	4

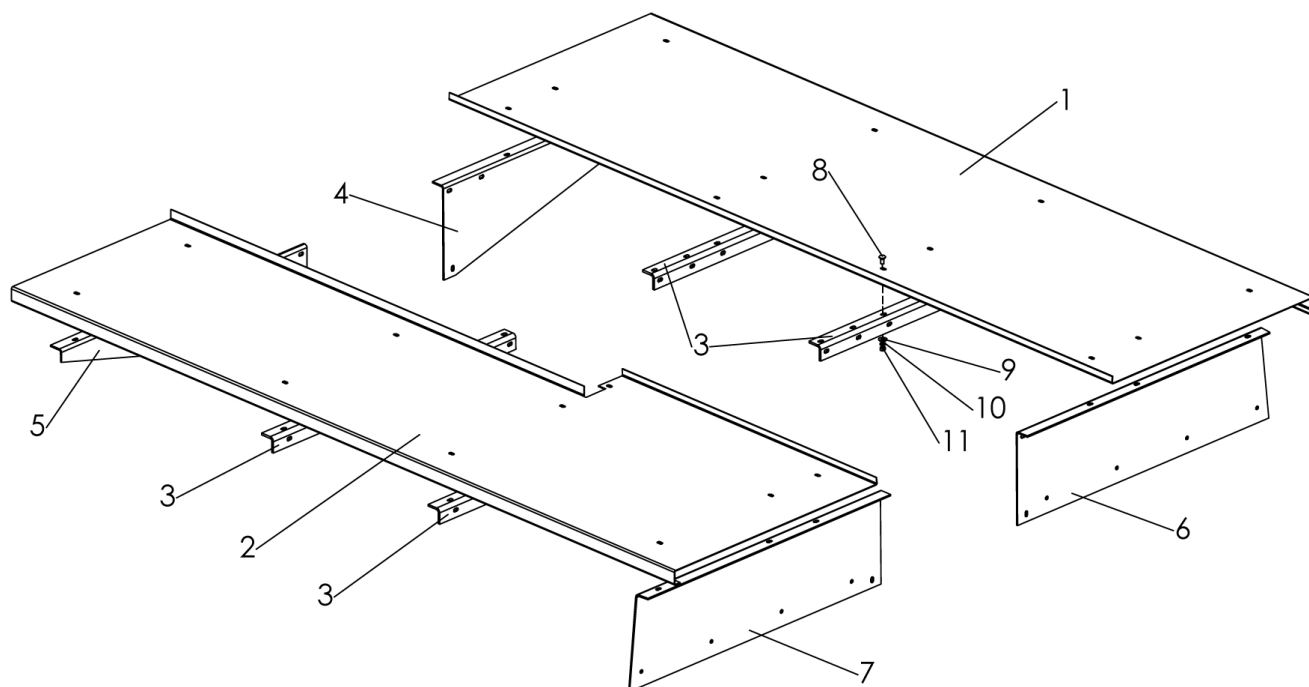
AR - As Required



<u>ITEM</u>	<u>PART NO.</u>		<u>DESCRIPTION</u>	<u>QTY</u>
	<u>409</u>	<u>304</u>		
1	81582	81606	Fender – RH 10' Unit	1
	81583	81607	Fender – RH 11' Unit	1
	81584	81608	Fender – RH 12' Unit	1
	81585	81609	Fender – RH 13' Unit	1
2	81720	81742	Fender – LH 10' Unit	1
	81721	81743	Fender – LH 11' Unit	1
	81722	81744	Fender – LH 12' Unit	1
	81723	81745	Fender – LH 13' Unit	1
3	81569-X2	81569-X2	Angle – Fender	AR
4	81597	81621	Bracket - Mudflap RH	1
5	81598	81622	Bracket - Mudflap LH	1
6	21699	21699	Material – Non-Skid, 8" Wide Inches	AR
7	36408	36408	Bolt – Carriage 3/8 x 1	AR
8	36398	39398	Bolt – Carriage 3/8 x 1	4
9	36425	36425	Washer – Flat 3/8	AR
10	36420	36420	Washer – Lock 3/8	AR
11	36414	36414	Nut – Hex 3/8	AR

AR - As Required

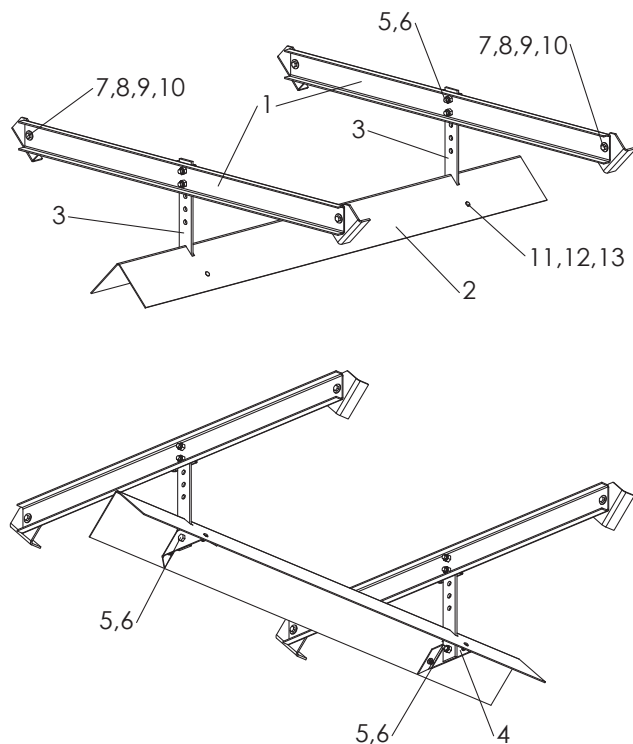
FENDERS - SUPER FLOATATION TIRES 132"



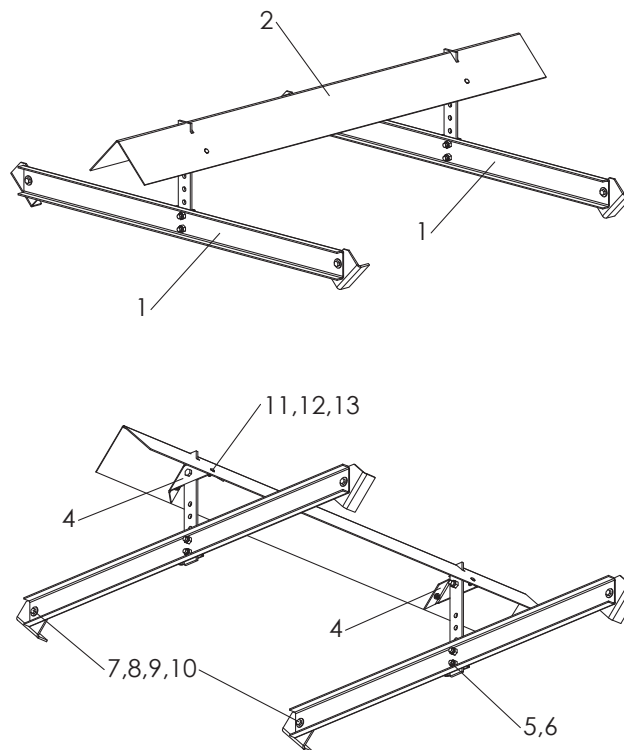
<u>ITEM</u>	<u>PART NO.</u>		<u>DESCRIPTION</u>	<u>QTY</u>
	<u>409</u>	<u>304</u>		
1	87237	81606-X1	Fender – RH 10' Unit	1
	81583-X1	81607-X1	Fender – RH 11' Unit	1
	81584-X1	81608-X1	Fender – RH 12' Unit	1
	81585-X1	81609-X1	Fender – RH 13' Unit	1
2	87238	81742-X1	Fender – LH 10' Unit	1
	81721-X1	81743-X1	Fender – LH 11' Unit	1
	81722-X1	81744-X1	Fender – LH 12' Unit	1
	81723-X1	81745-X1	Fender – LH 13' Unit	1
3	98075	98075	Angle – Mounting	AR
4	83252-X6	83252-X6	Bracket - Fender Front RH	1
5	83253-X7	83253-X7	Bracket - Fender Front LH	1
6	98079	98079	Bracket - Fender & Mudflap RH	1
7	98080	98080	Bracket - Fender & Mudflap LH	1
8	36408	36408	Bolt – Carriage 3/8 x 1	AR
9	36425	36425	Washer – Flat 3/8	AR
10	36420	36420	Washer – Lock 3/8	AR
11	36414	36414	Nut – Hex 3/8	AR
12	*21699	*21699	Material – Non-Skid, 8" Wide Inches	AR

* - Not Shown AR - As Required

NEW LEADER



STANDARD ASSEMBLY

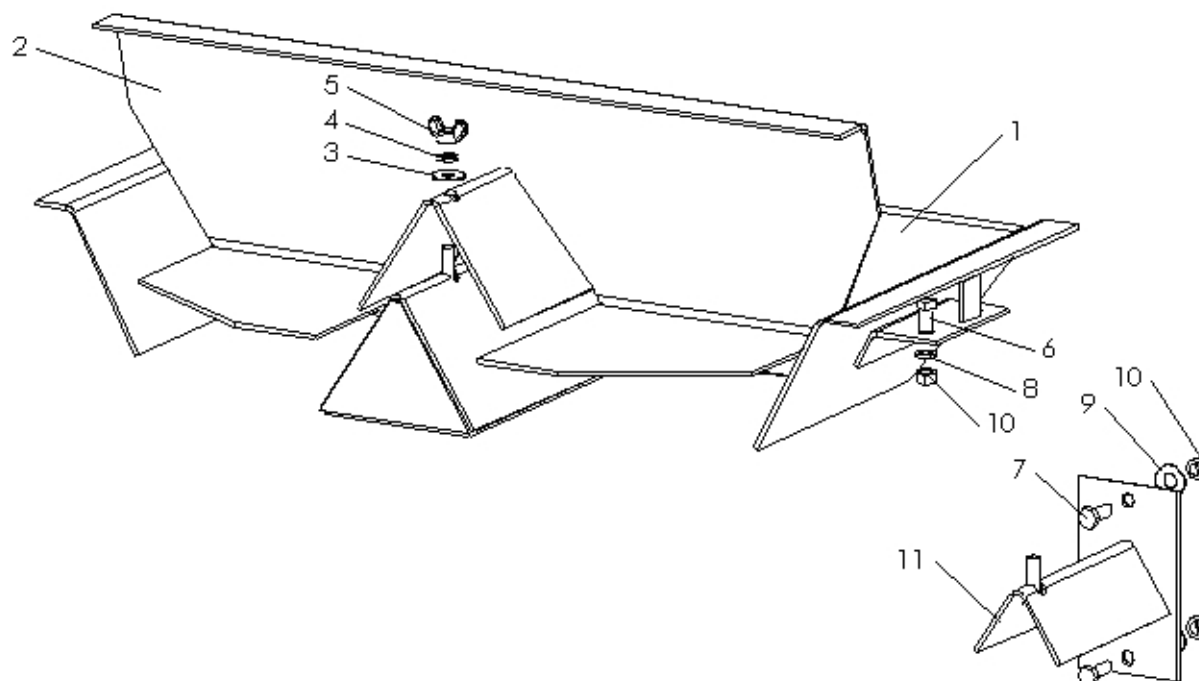


HIGH YIELD ASSEMBLY

ITEM	PART NO.		DESCRIPTION	QTY
	<u>409</u>	<u>304</u>		
1	81262	81263	Hanger - V Weldment	AR
2	82617	82621	Inverted V - 5' (10' Units)	1
	82618	82622	Inverted V - 7' (11' - 12' Units)	1
	82619	82623	Inverted V - 9' (13' Units)	1
3	302369	302369	Bar - Adjusting	AR
4	302371	302371	Bracket - V Bolt-on	AR
5	58800	58800	Cap Screw - 5/8 x 1-3/4	AR
6	41762	41762	Nut - Lock 5/8	AR
7	36402	36402	Cap Screw - 1/2 x 1-1/4	AR
8	36426	36426	Washer - Flat 1/2	AR
9	36422	36422	Washer - Lock 1/2	AR
10	36416	36416	Nut - Hex 1/2	AR
11	42639	42639	Bolt - Carriage 5/16 x 1	AR
12	36424	36424	Washer - Flat 5/16	AR
13	42221	42221	Nut - Lock 5/16	AR

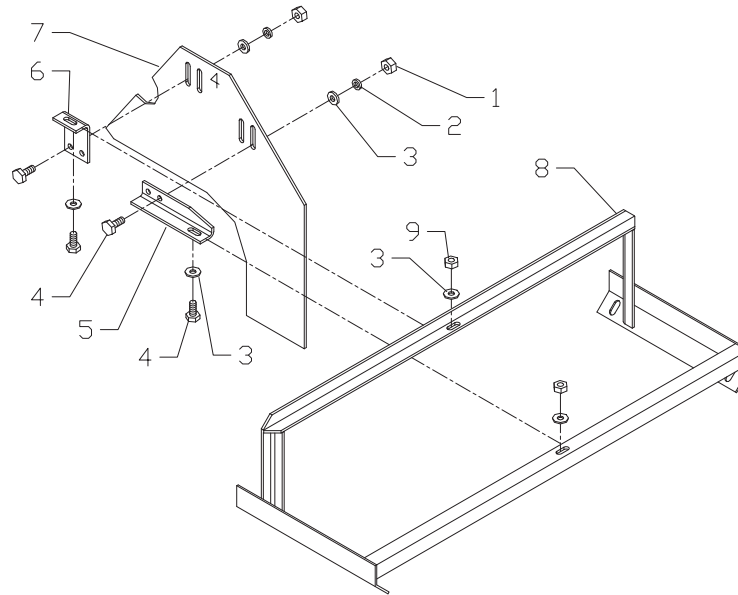
AR - As Required

MATERIAL DIVIDER



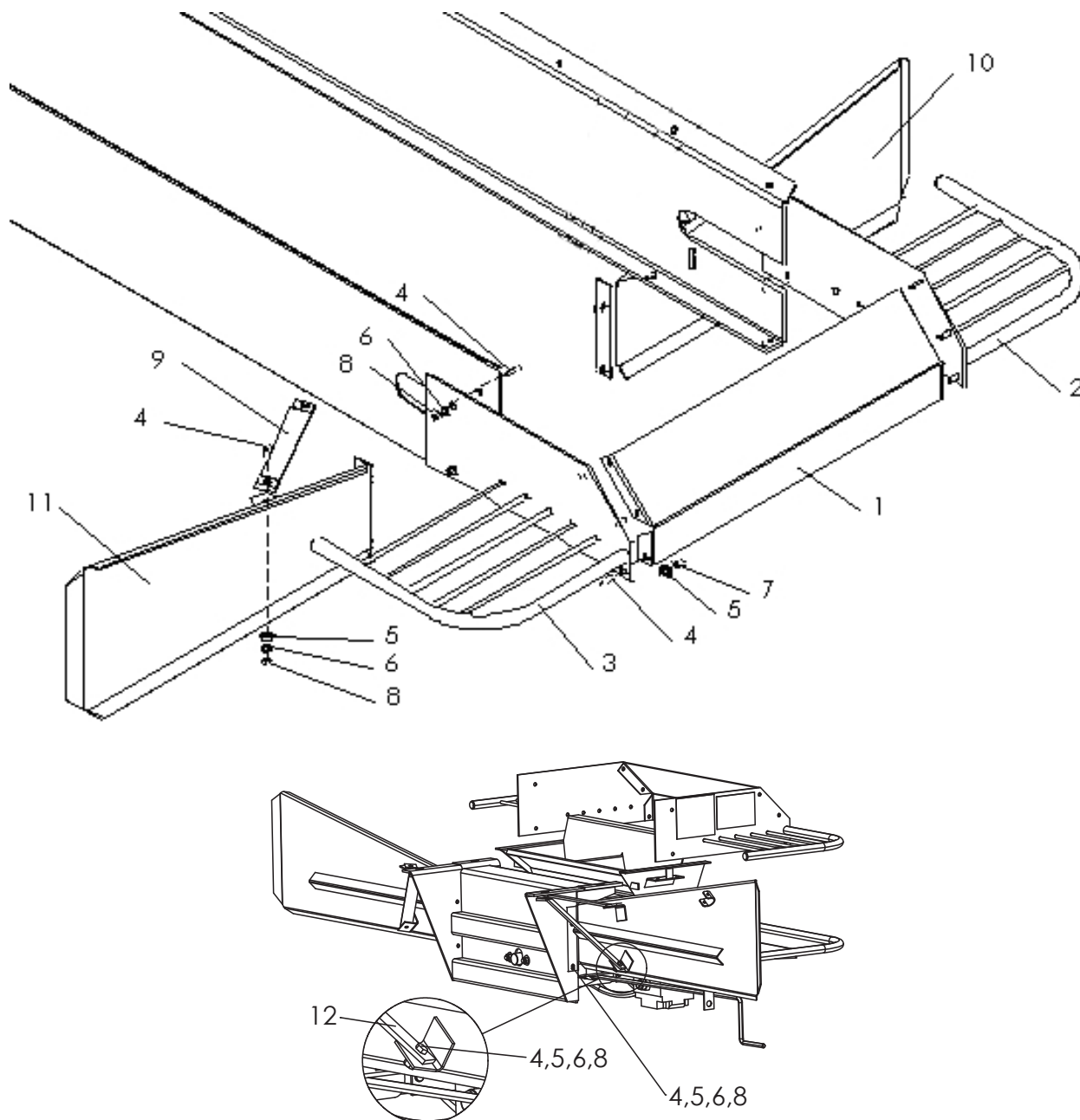
<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
	87107	Divider – Material Assembly	
1	87037	Divider – Weldment	1
2	87045	Deflector – Rear Weldment	1
3	36425	Washer – Flat 3/8 SS	1
4	36420	Washer – Lock 3/8 SS	1
5	20673	Nut – Wing 3/8	1
6	36293	Cap Screw – 3/8 x 3/4	2
7	36398	Cap Screw – 3/8 x 1	2
8	36420	Washer – Lock 3/8	2
9	36425	Washer – Flat 3/8	2
10	36414	Nut – Hex 3/8	4
11	87381	Mount – Divider Weldment	1

Mount Item 11 on truck to hold Item 2 when not in use.



<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
1	36413	Nut – Hex 5/16 SS	4
2	36419	Washer – Lock 5/16 SS	4
3	36424	Washer – Flat 5/16 SS	8
4	34580	Cap Screw – 5/16 x 1 SS	6
5	56879	Bracket – Clamp	1
6	56880	Angle – Clamp	1
7	82288	Panel – Divider #4	1
	56878	Panel - Divider #5	1
8	56926	Bracket – Support Weldment	1
9	42221	Nut – Lock 5/16	2

SPINNER GUARD & SHIELDS

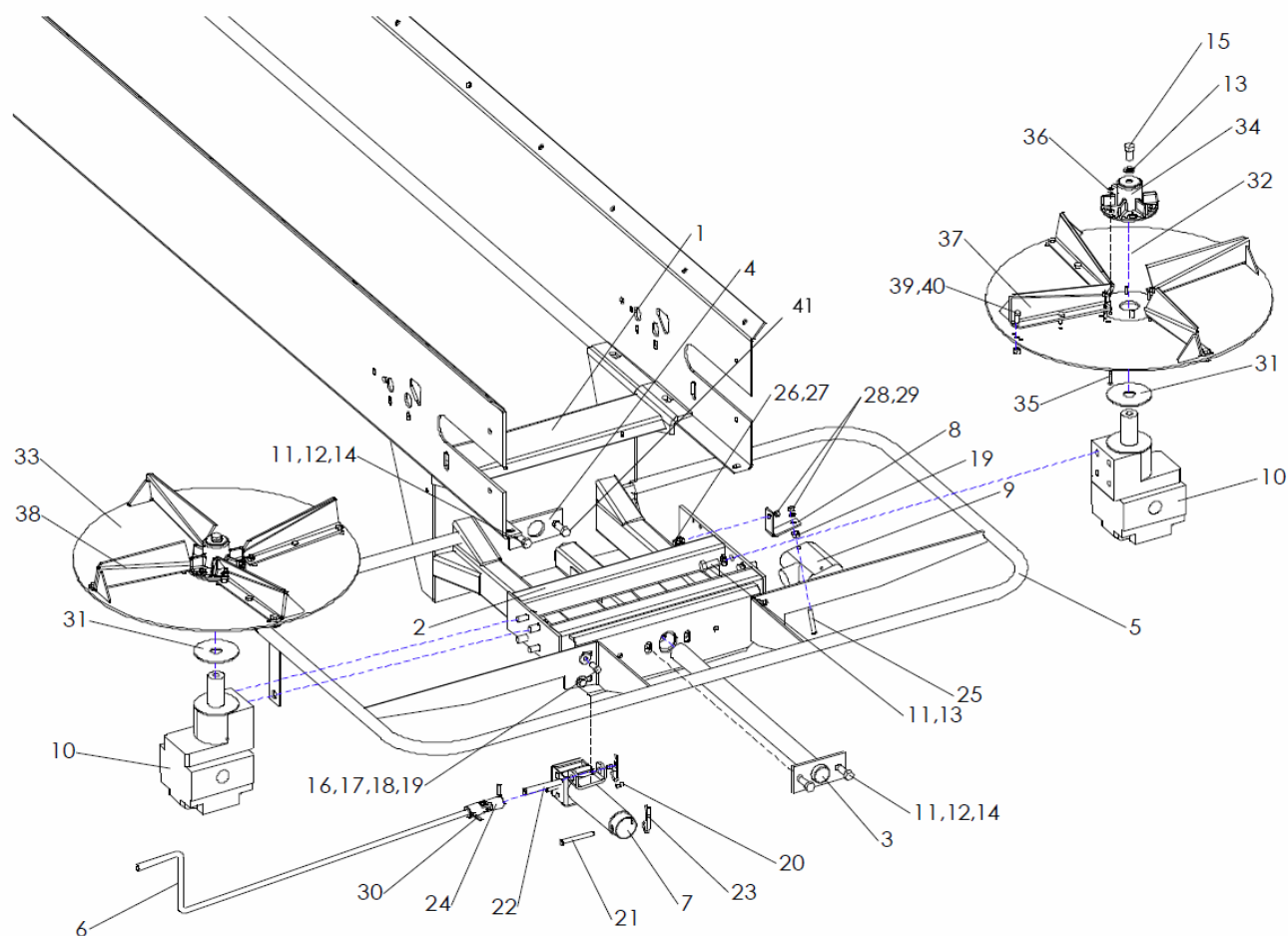
**WARNING**

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.

SPINNER GUARD & SHIELDS CONTINUED

<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
1	87026-X1	Guard – Center Section Weldment	1
2	87027-X1	Guard – RH Weldment	1
3	87031-X1	Guard – LH Weldment	2
4	36398	Cap Screw - 3/8 x 1	AR
5	36425	Washer – Flat 3/8	AR
6	36420	Washer – Lock 3/8	AR
7	72054	Nut – Lock 3/8	6
8	36414	Nut – Hex 3/8	AR
9	87068	Bar – Stiffener	2
10	305043	Shield – RH Weldment 102"	1
	305075	Shield – RH Weldment 120"	1
11	305044	Shield – LH Weldment 102"	1
	305076	Shield – LH Weldment 120"	1
12	305040	Bar - Stiffener Lower 304, 120" Shields	2

AR - As Required



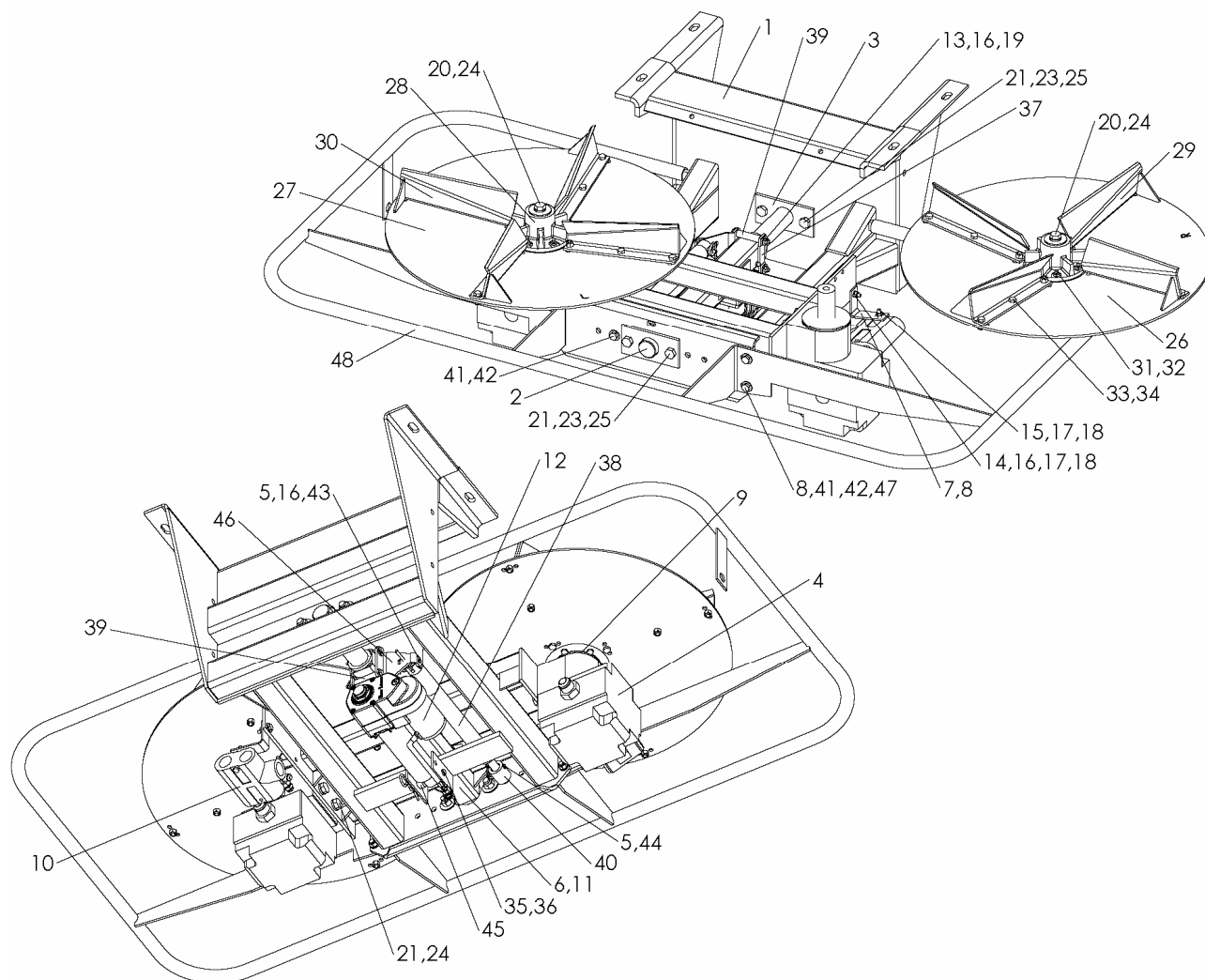
ITEM	PART NO.	DESCRIPTION	QTY
	87093	24" Hydraulic Fan Assembly	
	307397	24" Hydraulic Fan Assembly	
1	87069	Plate – Back 304	1
2	87082	Mount – Motor Weldment	1
3	87021	Shaft – Support Weldment	1
4	87023	Plate – Shaft Mount	1
5	87032-X1	Guard – Spinner Weldment	1
6	307477	Handle - 304	1
7	87170	Jack – Coated Assy	1
8	87053	Angle – Valve Mount	1
9	43510	Valve – Flow Divider	1
10	305944	Motor – Spinner Style II	2
11	36402	Cap Screw - 1/2 x 1-1/4	12
12	36426	Washer – Flat 1/2	4
13	36422	Washer – Lock 1/2	10

24" HYDRAULIC FANS CONTINUED

ITEM	PART NO.	DESCRIPTION	QTY
14	39016	Nut – Lock 1/2	5
15	36401	Cap Screw - 1/2 x 1	2
16	36398	Cap Screw - 3/8 x 1	4
17	36425	Washer – Flat 3/8	4
18	36420	Washer – Lock 3/8	4
19	36414	Nut – Hex 3/8	5
20	6072	Zerk – Grease	2
21	6547	Pin – Clevis	1
22	80798	Cap Screw – 1/2 x 3-3/4	1
23	36429	Pin – Hair	1
24	85002	U-Joint	1
25	34865	Cap Screw – 1/4 x 2 1/4	1
26	36395	Cap Screw – 1/4 x 1	1
27	36423	Washer – Flat 1/4	1
28	36418	Washer – Lock 1/4	2
29	36412	Nut – Hex 1/4	2
30	20918	Pin – Roll	2
31	305571	Washer – Rubber	2
32	27056-X4	Disc – Distributor RH	1
	87105-X2	Disc – Distributor RH	1
	87105	Disc – Distributor RH	1
33	27056-X5	Disc – Distributor LH	1
	87106-X2	Disc – Distributor LH	1
	87106	Disc – Distributor LH	1
34	10877	Hub	2
35	20004	Cap Screw - 1/4 x 7/8	12
36	20676	Nut - Lock 1/4	12
37	25870	Fin - RH Weldment	4
38	25871	Fin – LH Weldment	4
39	20034	Cap Screw – 5/16 x 3/4	24
40	20677	Nut – Lock 5/16	24
41	36402	Cap Screw - 1/2 x 1 1/4	12
42	*36416	Nut – Hex 1/2	4
43	*36940	Bolt – Carriage 1/2 x 2	4
44	*36426	Washer – Flat 1/2	4
45	*36422	Washer – Lock 1/2	4
46	*56397-X1	Washer	2

* - Not Shown – 42 through 45 used to attach spinner to sills; 46 between motor shaft and hub plate.

24" HYDRAULIC FANS WITH ACTUATOR



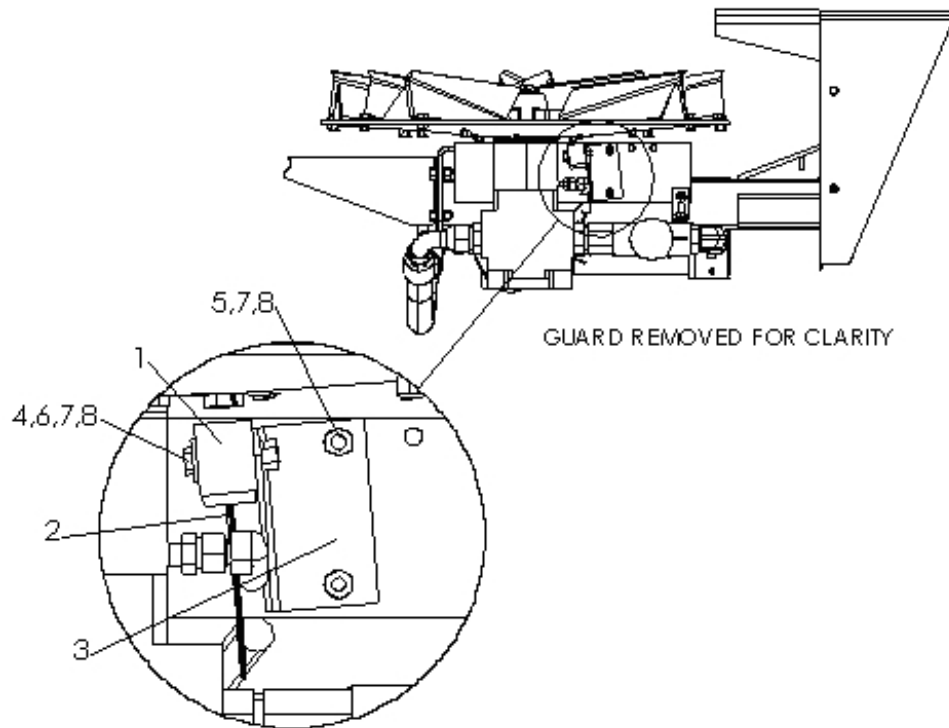
24" HYDRAULIC FANS WITH ACTUATOR CONTINUED

<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
	303936	24" Hydraulic Fan Assembly	
	307398	24" Hydraulic Fan Assembly	
1	87069	Plate – Back 304	1
2	87021	Shaft – Support Weldment	1
3	87023	Plate – Shaft Mount	1
4	305944	Motor – Spinner Style II	2
5	41779	Pin – Hair 1-7/16 x .073	2
6	87082	Mount – Motor Weldment	1
7	87053	Angle – Valve Mount	1
8	36414	Nut – Hex 3/8	5
9	305571	Washer – Rubber	2
10	43510	Valve – Flow Divider	1
11	6072	Zerk – Grease	2
12	302216	Actuator – Electric 5" Stroke	1
13	36396	Cap Screw – 1/4-20 x 3	2
14	36395	Cap Screw – 1/4 x 1	1
15	34865	Cap Screw – 1/4 x 2 1/4	1
16	36423	Washer – Flat 1/4	7
17	36418	Washer – Lock 1/4	2
18	36412	Nut – Hex 1/4	2
19	42034	Nut – Lock 1/4-20	2
20	36401	Cap Screw – 1/2 x 1	2
21	36402	Cap Screw – 1/2 x 1 1/4	12
22	*80798	Cap Screw – 1/2 x 3-3/4	1
23	36426	Washer – Flat 1/2	4
24	36422	Washer – Lock 1/2	10
25	39016	Nut – Lock 1/2	5
26	27056-X4	Disc – Distributor RH	1
	87105-X2	Disc – Distributor RH	1
27	27056-X5	Disc – Distributor LH	1
	87106-X2	Disc – Distributor LH	1
28	10877	Hub	2
29	25870	Fin – RH Weldment	4
30	25871	Fin – LH Weldment	4
31	20004	Cap Screw – 1/4 x 7/8	12
32	20676	Nut – Lock 1/4	12
33	20034	Cap Screw – 5/16-18 x 3/4	24

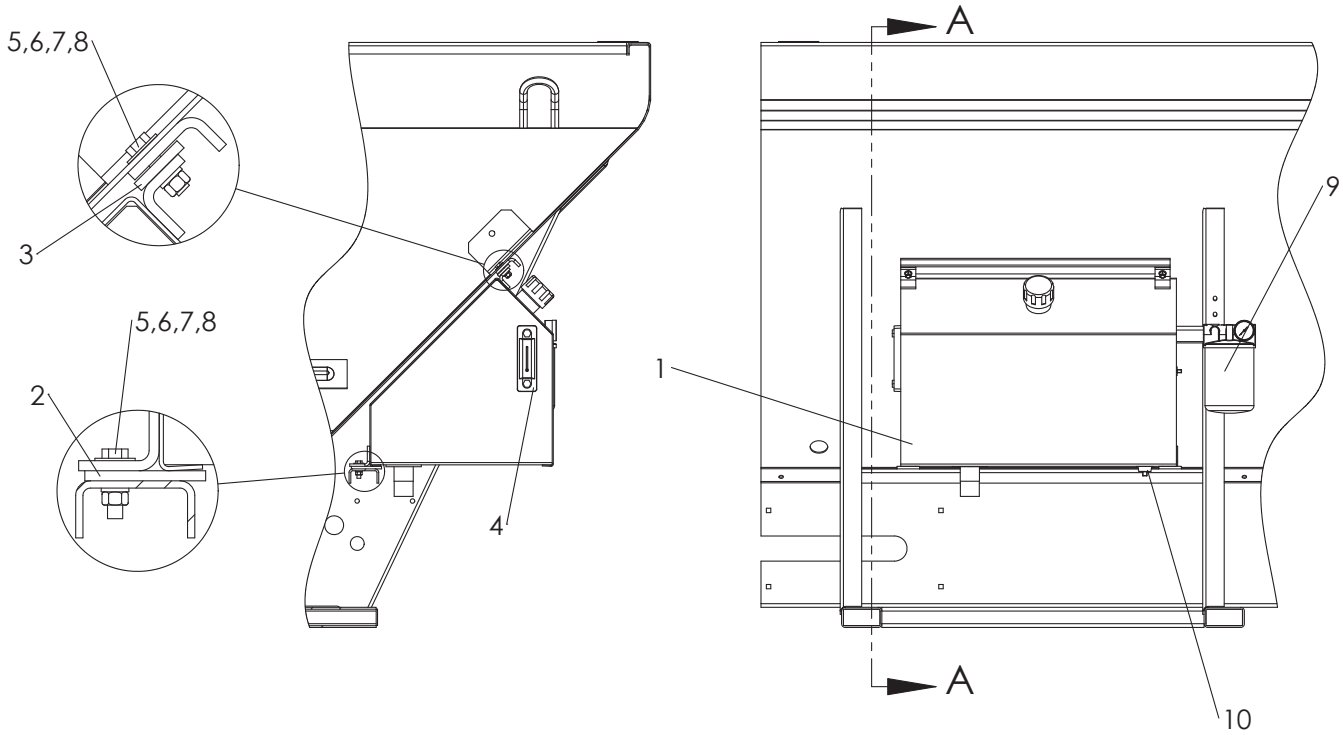
24" HYDRAULIC FANS WITH ACTUATOR CONTINUED

<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
34	20677	Nut – Lock 5/16	24
35	6547	Pin – Clevis 3/8 x 3	1
36	36429	Pin – Hair 2-9/16 x .148	1
37	302772	Plate – Washer	1
38	302751	Sensor – Assembly 5"	1
39	302771	Pipe – 1/4 Sch80 x 2	2
40	302768	Mount – Sensor Rod	1
41	36398	Cap Screw – 3/8 x 1	5
42	36425	Washer – Flat 3/8	5
43	302778	Pin – Clevis 1/4 x 1-3/4	1
44	* 98476	Pin – Clevis 1/4 x 1-1/2	1
45	303941	Spacer – Actuator Mount	2
46	302775	Clevis – Weldment Sensor Mount	1
47	36420	Washer – Lock 3/8	4
48	87032-X1	Guard – Spinner Weldment SS	1
49	* 36940	Bolt – Carriage 1/2 x 2	4
50	* 36426	Washer – Flat 1/2	4
51	* 36422	Washer – Lock 1/2	4
52	* 36416	Nut – Hex 1/2	4
53	*56397-X1	Washer - .56 x 1.13 14 GA	2

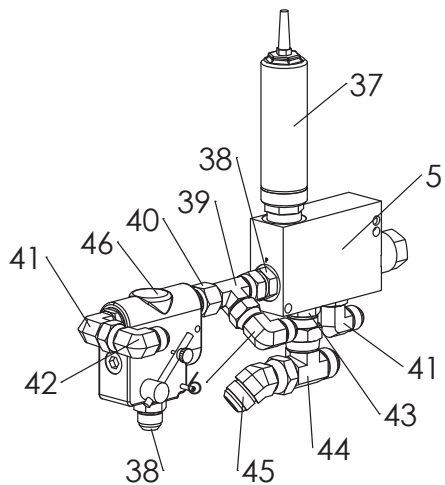
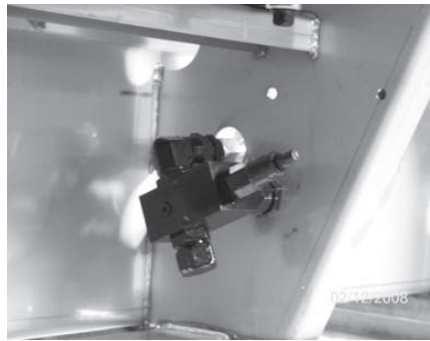
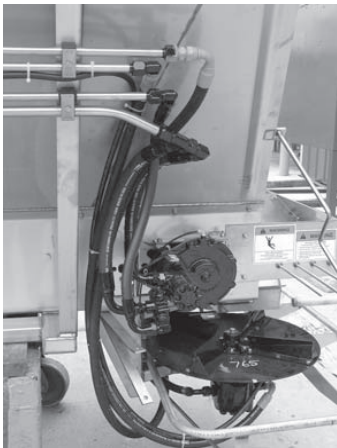
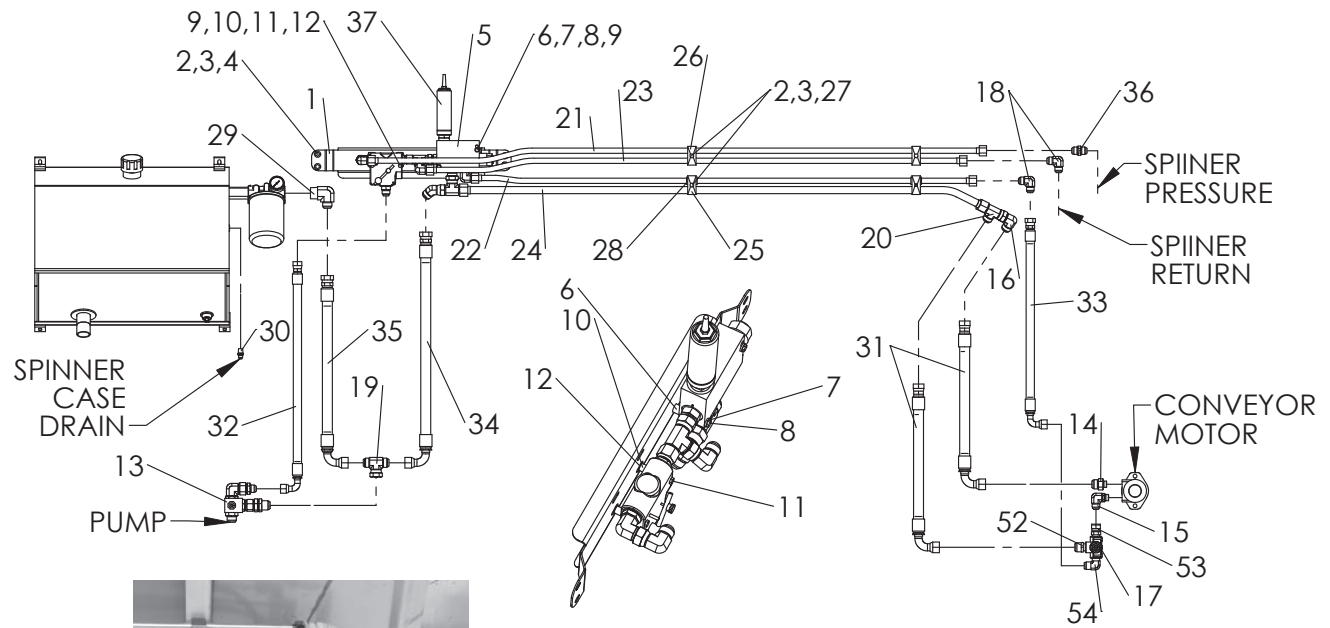
* - Not Shown – 49 through 52 used to attach spinner to sills. 53 between motor shaft and hub plate.



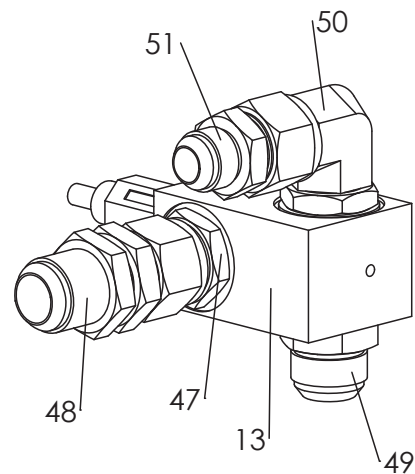
<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
	97310	Sensor – Kit Spinner	
1	89011	Sensor – Assembly	1
2	89009	Cable – Sensor Extension	1
3	86672	Bracket	1
4	42448	Cap Screw – 1/4 x 1-1/2 SS	2
5	36393	Cap Screw – 1/4 x 3/4 SS	2
6	36423	Washer – Flat 1/4 SS	3
7	36418	Washer – Lock 1/4 SS	6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



ITEM	PART NO.	DESCRIPTION	QTY
	86468	Tank - Assembly 23 Gallon, Includes 1, 9, 10	
	86468-X1	Tank - Assembly 23 Gallon, Includes 1, 9, 10	
1	86464	Tank – Weldment 23 Gallon CS	1
	86464-X1	Tank - Weldment 23 Gallon 304	1
2	39158	Mount - Flex Belt	2
3	39159	Belt – Flex Mount	2
4	38575	Gauge Assembly - Sight & Temp	1
5	34858	Cap Screw - 3/8 x 1 1/2 SS	4
6	36420	Washer - Lock 3/8 SS	4
7	36425	Washer – Flat 3/8 SS	4
8	36414	Nut – Hex 3/8 SS	4
9	39845	Filter - Assembly with Indicator	1
	43531	Filter - Element	1
	43532	Seal - Filter	1
	43534	Indicator	1
10	6033	Plug – Pipe 3/4	1



Manual Valve



Relief Valve

HYDRAULICS CONTINUED

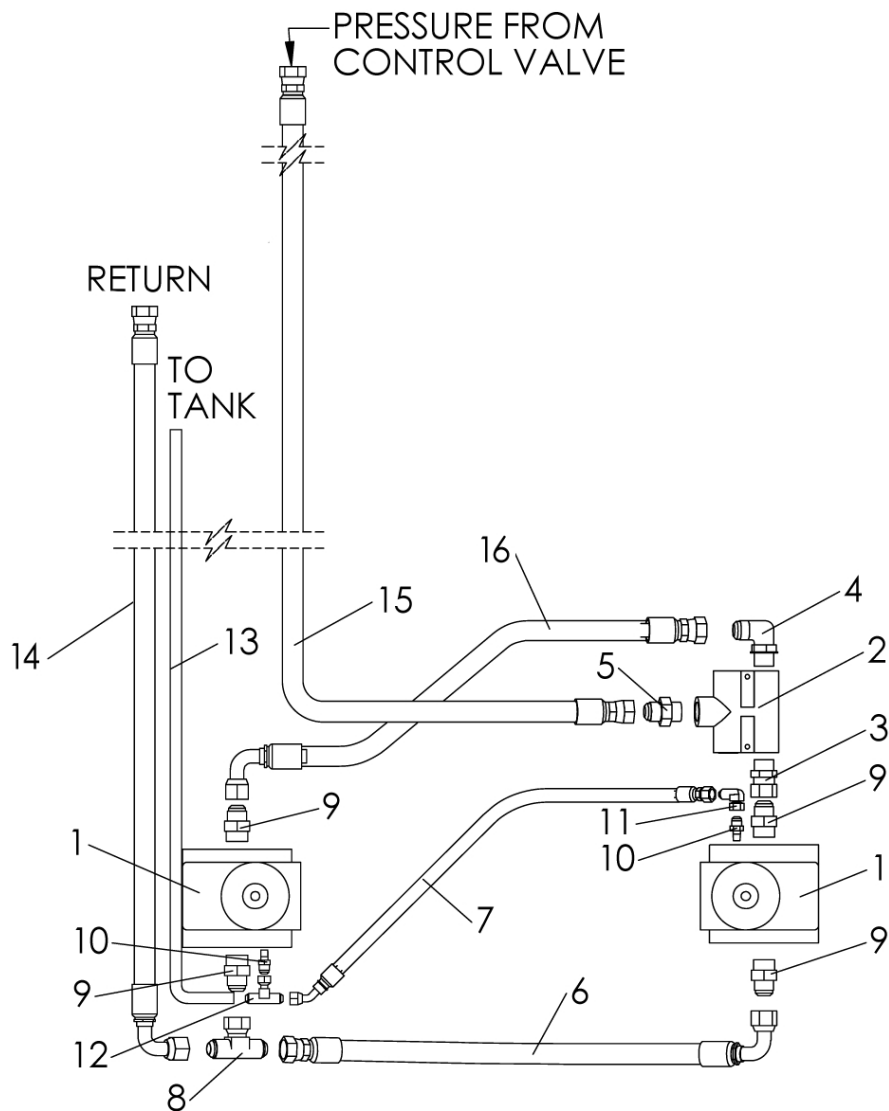
<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
1	307400	Bracket - 10' 304	1
	307401	Bracket - Valve 11' 304	1
	307402	Bracket - Valve 12' 304	1
	307403	Bracket - Valve 13' 304	1
2	34580	Cap Screw - 5/16-18NC x 1 SS	AR
3	36424	Washer - Flat 5/16	AR
4	42221	Nut - Lock 5/16-18NC SS	AR
5	306274	Manifold - 5-25 GPM SFP	1
6	302098	Washer - Step 1/4ID x 25/64OD x 1/2	2
7	302097	Washer - Step 1/4ID x 25/64OD x 1/8	2
8	56396	Cap Screw - 1/4-20NC x 3-1/4 SS	2
9	42034	Nut - Lock 1/4-20NC SS	4
10	70341-X1	Pipe - Spacer 1/2	2
11	36396	Cap Screw - 1/4-20NC x 3 SS	2
12	36423	Washer - Flat 1/4 SS	4
13	98109	Valve - Relief Soft Start	1
14	29778	Fitting - 16-10 070120	1
15	29773	Fitting - 12-10 070220	1
16	29783	Fitting - 16-16 070201	1
17	75037	Valve - Relief	1
18	29785	Fitting - 12-12 070201	2
19	29836	Fitting - 16-16-16 070433	1
20	29850	Fitting - 16-16-16 070432	1
21	305026-AE	Tube - 3/4 x 62 304	1
	305026-AA	Tube - 3/4 x 74 304	1
	305026-AB	Tube - 3/4 x 86 304	1
	305026-AC	Tube - 3/4 x 98 304	1
22	305027-AE	Tube - 3/4 x 46 304	1
	305027-AA	Tube - 3/4 x 58 304	1
	305027-AB	Tube - 3/4 x 70 304	1
	305027-AC	Tube - 3/4 x 82 304	1
23	305028-AE	Tube - 3/4 x 51 304	1
	305028-AA	Tube - 3/4 x 63 304	1
	305028-AB	Tube - 3/4 x 72 304	1
	305028-AC	Tube - 3/4 x 85 304	1
24	300702	Tube - 1 x 49 304	1
	302407	Tube - 1 x 61 304	1

NEW LEADER

<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
	302408	Tube - 1 x 72 304	1
	302410	Tube - 1 x 85 304	1
25	300033	Clamp - Tubing Twin 1"	AR
26	75036	Clamp - Tubing Twin 3/4	AR
27	71830	Cap Screw - 5/16-18 x 2-1/2 SS	AR
28	305073	Bushing - Rubber Hose	AR
29	29794	Fitting - 16-20 070202	1
30	29766	Fitting - 6-6 070102	1
31	98666	Hose Assembly - Return 1 x 23	2
32	54773	Hose Assembly - 3/4 100R2 x 32	1
33	71473	Hose Assembly - 3/4 100R2 x 29	1
34	85260	Hose Assembly - Return 1 x 32-1/2	1
35	82578	Hose Assembly - Return 1 x 26-3/8	1
36	29817	Fitting - 12-12 070101	1
37	306278	Valve - Flow Control 25 GPM SFP	1
38	29789	Fitting - 12-12 070120	2
39	29781	Fitting - 12-12-12 070432	1
40	29788	Fitting - 12-12 S1040-30 Non Standard	1
41	29847	Fitting - 12-12 070220	2
42	34709	Fitting - 12-12 070221	2
43	305407	Fitting - 16-12 Special STR.	1
44	29836	Fitting - 16-16-16 070433	1
45	29806	Fitting - 16-16 070321	1
46	32485-X1	Valve - Control	1
	56289	Coil	1
	56290	Cartridge	1
	*32485	Valve - Control	1
47	34810	Fitting - 16-16 S1040 -30 Non Standard	1
48	34747	Fitting - 16-16 070601	1
49	29803	Fitting - 16-16 070120	1
50	304819	Fitting - 16-16 Non Standard 90	1
51	29837	Fitting - 16-12 070101	1
52	29757	Adapter	1
53	34826	Adapter	1
54	29764	Adapter - Elbow 90°	1
55	*307399	Pigtail - 3-Pin Metripack to Flying Lead (optional)	AR

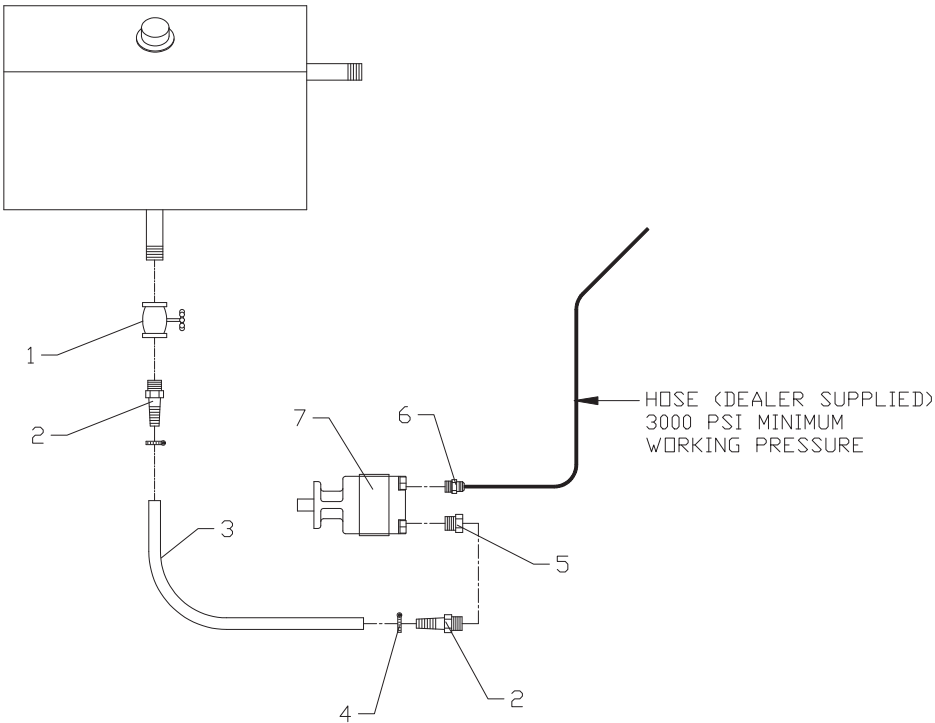
* - Not Shown AR- As Required

TWIN SPINNER HYDRAULICS

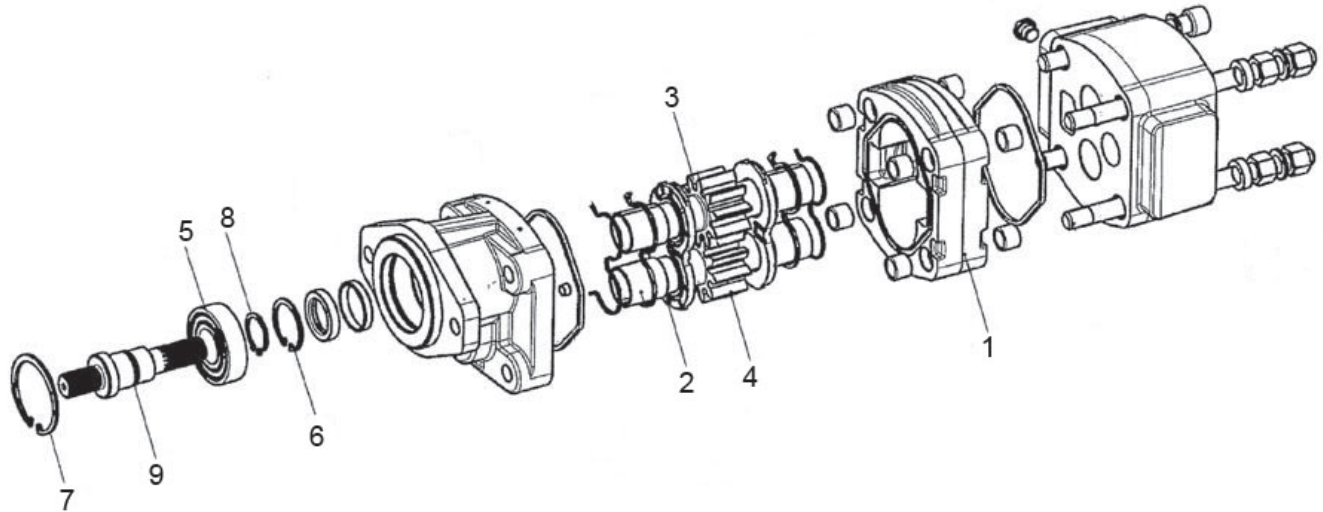


TWIN SPINNER HYDRAULICS CONTINUED

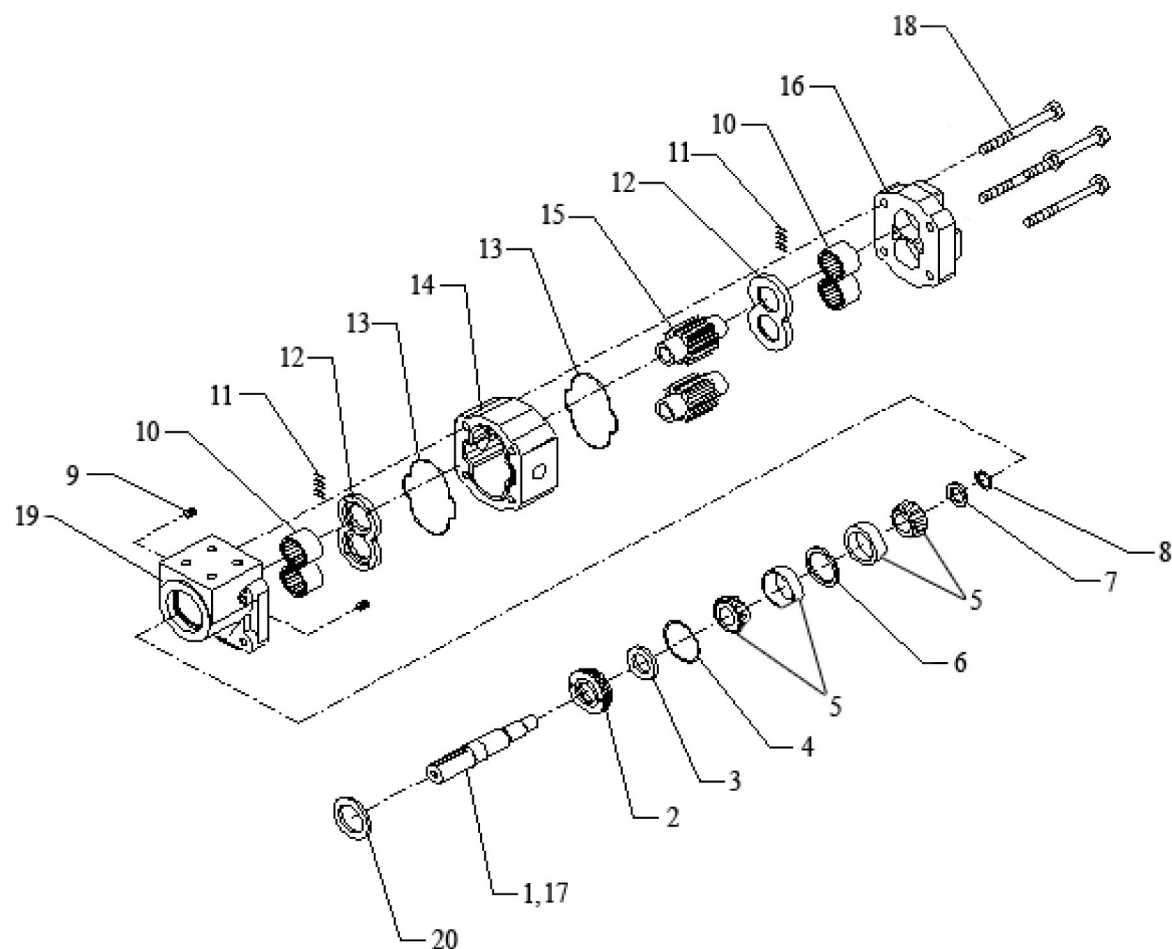
<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
1	305944	Motor - Spinner	2
	306090	Speedi-Sleeve	1
	306429	Speedi-Tool	1
2	43510	Valve - Flow Divider	1
	56368	Spool - Compensating	1
3	29788	Adapter	1
4	29847	Adapter - 90° Elbow	1
5	29789	Adapter	1
6	87049	Hose Assembly	1
7	87112	Hose Assembly	1
8	29809	Adapter - Tee	1
9	34717	Adapter - Connector	4
10	34763	Adapter	2
11	34816	Adapter - 90° Elbow	1
12	29825	Adapter - Tee	1
13	82977	Hose – Drain Line 10'	1
	82978	Hose – Drain Line 11'	1
	82979	Hose – Drain Line 12'	1
	82980	Hose – Drain Line 13'	1
14	87166	Hose – Return Assembly	1
15	98713	Hose – Pressure Assembly	1
16	98108	Hose - Assembly 3/4 x 27-1/2 100R12	



ITEM	PART NO.	DESCRIPTION	QTY
1	21409	Valve - Gate	1
2	31680	End - Hose	2
3	21878-108	Hose - Direct Mount Pump 1.5 Dia 100R4 Suction	1
4	6288	Clamp	4
5	29780	Bushing	1
6	34845	Adapter	1
7	86664	Pump - 3.85 CID	1
	86665	Pump - 4.38 CID	1
	86664-AH	Seal Kit - Pump	1

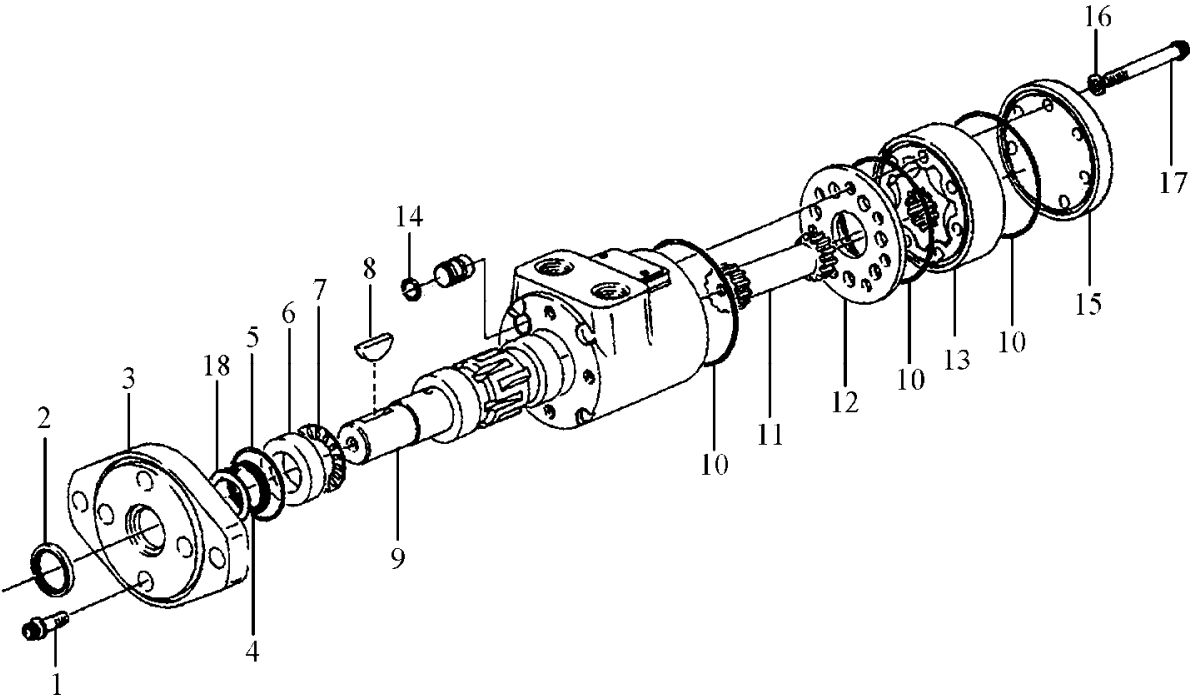


<u>ITEM</u>	<u>PART NO.</u>		<u>DESCRIPTION</u>	<u>QTY</u>
	86664	86665	Pump - Hydraulic	1
1	86664-AD	86665-AC	Body - Gear Housing	1
2	86664-AC	86665-AE	Plates - Thrust	2
3	86664-AA	86665-AA	Gear - Drive	1
4	86664-AB	86665-AB	Gear - Driven	1
5	86664-AK	86665-AK	Bearing - Ball Input Shaft	1
6	86664-AL	86664-AL	Ring - 45	1
7	86664-AJ	86664-AJ	Ring - 70	1
8	86664-AG	86664-AG	Ring - 32	1
9	86664-AF	86664-AF	Shaft - Support HD	1



<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
	306093	Shaft Assembly - Output Includes: 1-8, 19, 20	1
	72548	Kit - Seal, Includes: 3, 4, 19	1
	305824	Retainer - Assembly, Includes 2-4, 19, 23	
	305944	Motor - Hydraulic	1
1	306088	Shaft - Output	1
2	306091	Ring - Retainer	2
3	71980	Seal	1
4	28494	O-Ring	1
5	28491	Bearing - Tapered Roller Assembly	1
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	28498	Housing	1
15	23822	Gear Set	1
16	23812	Cover - Port End	1
17	24458	Key	1
18	20187	Cap Screw	4
19	306087	Cover - Shaft End	1
20	33809	Seal - Excluder	1
22	*306429	Tool - Speedi	1
23	*30723	Tool - Wrench Spinner	1
24	*24536	Tool - Seal Driver	1
25	*23940	Tool - Seal Sleeve	1

* - Not Shown

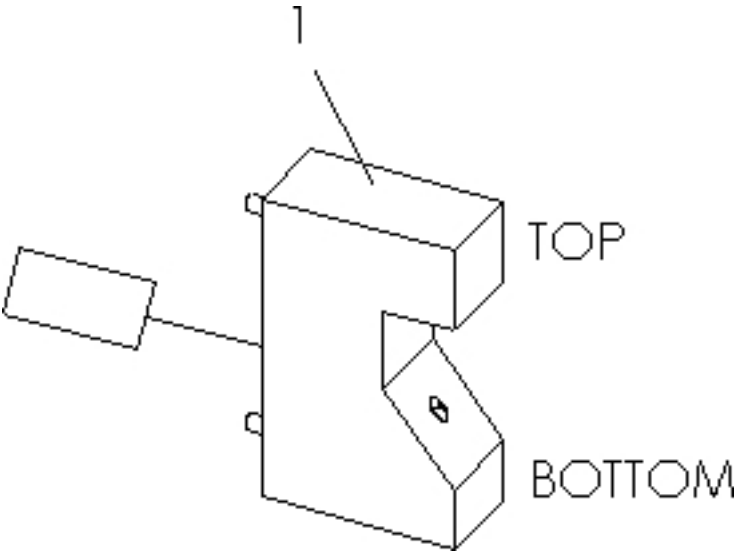


CONVEYOR MOTOR CONTINUED

<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
	38897	Motor – Hydraulic, 1-1/2" Standard	
1	30665	Cap Screw	4
2	73471	Seal	1
	73555	Flange – Mounting, Used on Standard	1
4	73473	Seal	1
5	73474	Seal – O-Ring	1
6	37385	Race – Bearing	1
7	37401	Bearing – Thrust Needle	1
8	3065	Key	1
9	37386	Shaft – Output Keyed	1
10	73480	Seal – O-Ring	1
11	83014	Drive	1
12	37388	Plate – Spacer	1
13	73553	Gerotor – 1-1/2"	1
14	22068	Seal – O-Ring	1
15	37400	Cap - End	1
16	37381	Washer - Seal	7
17	16937	Cap Screw – 1-1/2" Motor	7
18	73472	Washer - Back-up	1
19	* 73477	Seal – O-Ring	1
	39137	Kit - Seal, Includes Items 2,4,5,10,16,18 & 19	

* - Not Shown

BIN SENSOR



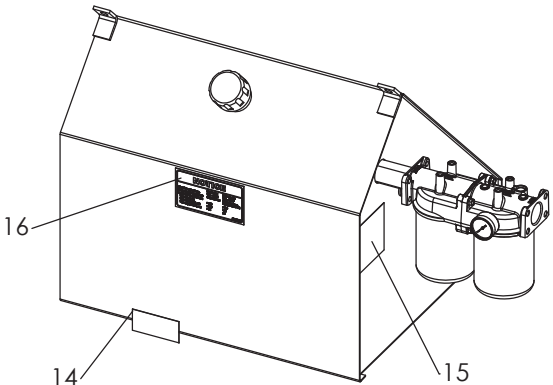
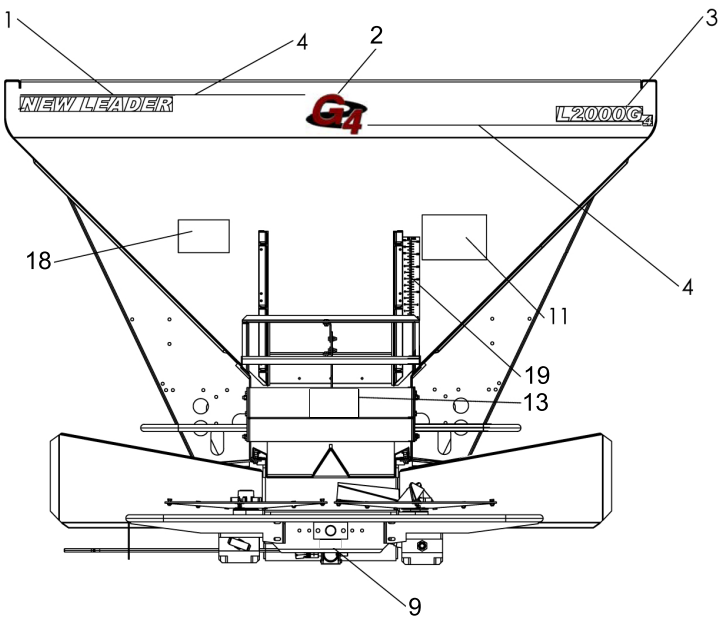
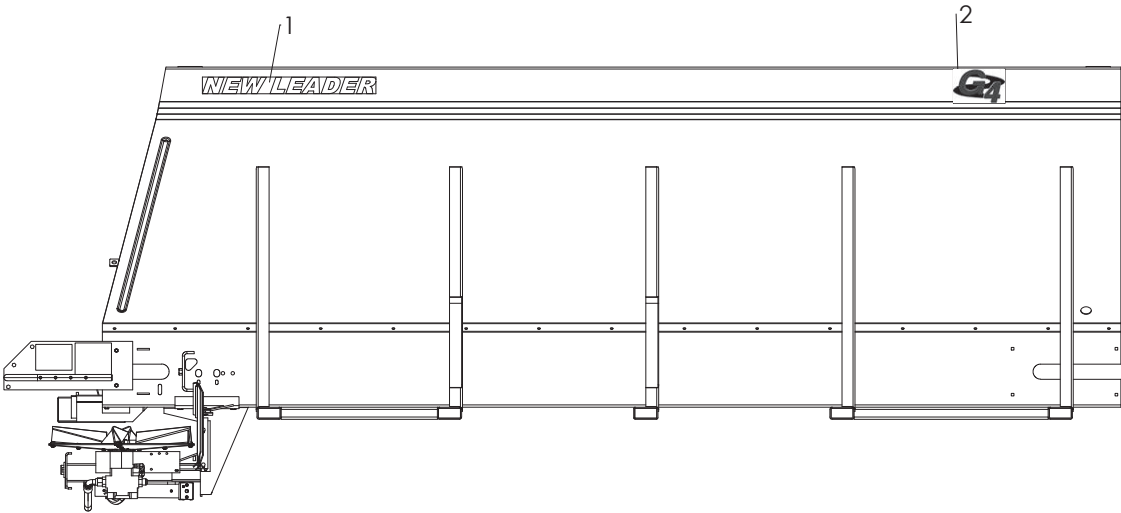
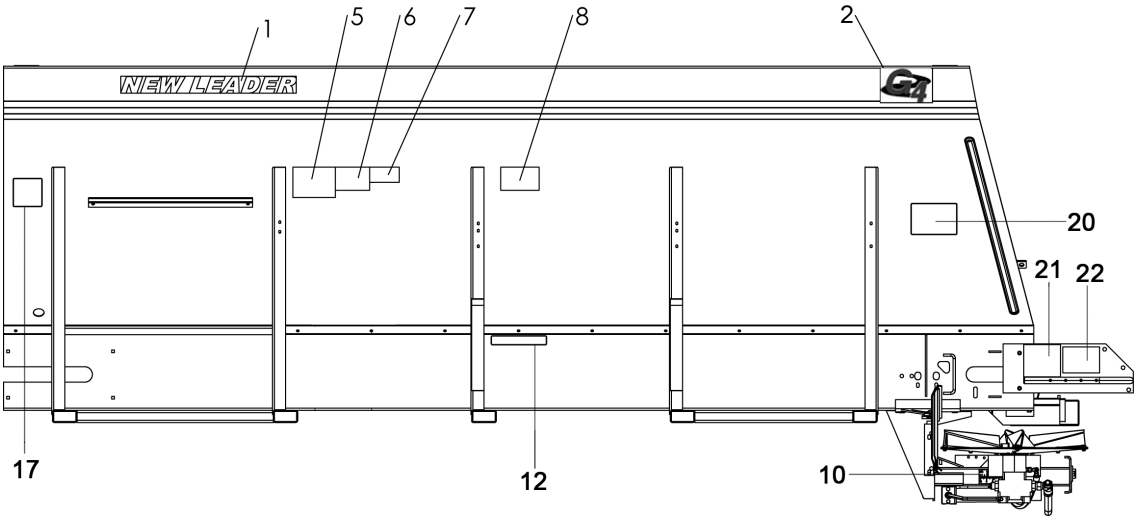
<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
	98788-AA	Sensor Kit - Bin Level Single, Includes 1 & 2	
	98788-AB	Sensor Kit - Bin Level Dual, Includes 1,2,4 & 5	
	304687-AB	Sensor Kit - Bin Level 102', Includes 1,3,4 & 5	
1	98787-AB	Lead - 18" Bin Level Sensor	AR
2	*98787-AD	Cable - 27' Bin Level Sensor	AR
3	*307130	Cable - Jumper 102"	AR
4	*307124	Mount - Sensor 304	AR
5	*36393	Cap Screw - 1/4-20NC x 3/4 SS	AR
* - Not Shown			

PRESSURE GAUGE KIT

<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
1	*56114	Hose Assembly - 1/4 100R2 x 318	1
2	*34718	Adapter - Connector	1
3	*56505	End- Hose Reusable	1
4	*76044	Gauge - Hydraulic 5000PSI w/Snubber	1
5	*304948	Bracket - Weldment Gauge	1
6	*34580	Cap Screw - 5/16-18NC x 1 SS	2
7	*36424	Washer - Flat 5/16 SS	2
8	*36419	Washer - Lock 5/16 SS	2
9	*36413	Nut - Hex 5/16-18NC SS	2

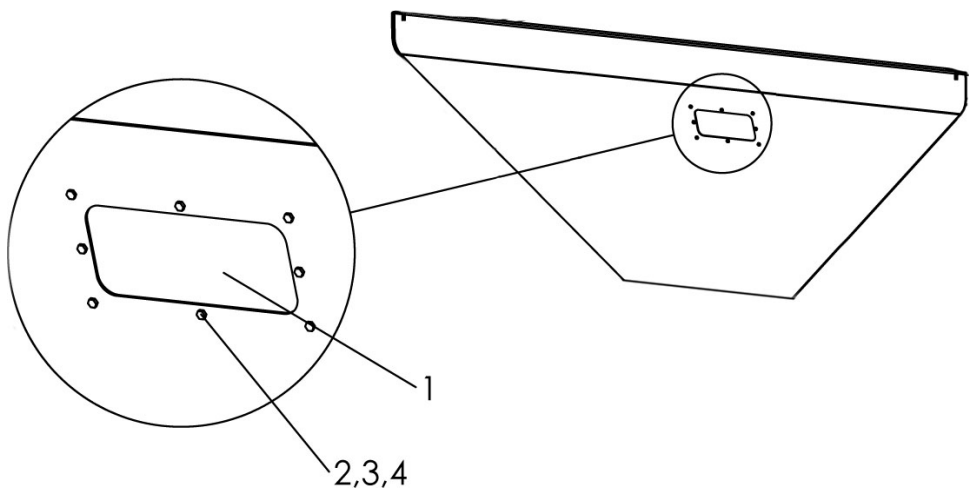
* - Not Shown

DECALS



DECALS CONTINUED

<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
1	87164	Decal – New Leader, Black	3
2	87129	Decal - G4 Black/White	3
	87122	Decal - G4 Black/Red	3
3	307457	L2000G4 Black	1
4	87162	Decal – Striping Black	ft AR
5	150034	Decal – Caution, Improper Operation	1
6	364	Decal – Warning, Stay Out of Box	2
7	321	Decal - Caution, Material to be Spread	1
8	39138	Decal – Warning, Hot Components	1
9	98319	Decal - Patent	1
10	87110	Decal - Scale	1
11	368	Decal – Flying Material	1
12	39200	Decal – Fender Capacity	2
13	87109	Decal - New Leader G4 Series	1
14	8664	Decal - Keep Valve Open	1
15	39378	Decal - Change Filter Element	1
16	8665	Decal - Hydraulic Oil Only	1
17	21476	Decal - Notice Conveyor Chain	1
18	71526	Decal – Notice, Adjust Spinner	1
19	23769	Decal - Feedgate Slide Scale	1
20	21477	Decal - Notice Spreader Hopper	1
21	55630	Decal - Warning, No Step	2
22	55631	Decal - Warning, Guard for Protection	2



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