

NEW LEADER®

MODEL 7020

UNIT SERIAL NUMBER _____

MANUAL NUMBER: 302045-D

EFFECTIVE 09/2010



Highway Equipment Company

Building the best since 1939.

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Insert Current
Hi-Way 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 (319) 363-8281 or 1-800-363-8006.

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

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

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

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

ACCIDENTS HURT !!!

ACCIDENTS COST !!!

ACCIDENTS CAN BE AVOIDED !!!



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

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



DANGER

Indicates an imminently hazardous situation that, if not avoided, WILL result in death or serious injury. This signal word is to be limited to the most extreme situations and typically for machine components that, for functional purposes, cannot be guarded.



WARNING

Indicates a potentially hazardous situation that, if not avoided, COULD result in death or serious injury, and includes hazards that are exposed when guards are removed. It may also be used to alert against unsafe practices.



CAUTION

Indicates a potentially hazardous situation that, if not avoided, MAY result in minor or moderate injury. It may also be used to alert against unsafe practices.

NOTICE!

Is used for informational purposes in areas which may involve damage or deterioration to equipment but generally would not involve the potential for personal injury.

NOTE:

Provides additional information to simplify a procedure or clarify a process.

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

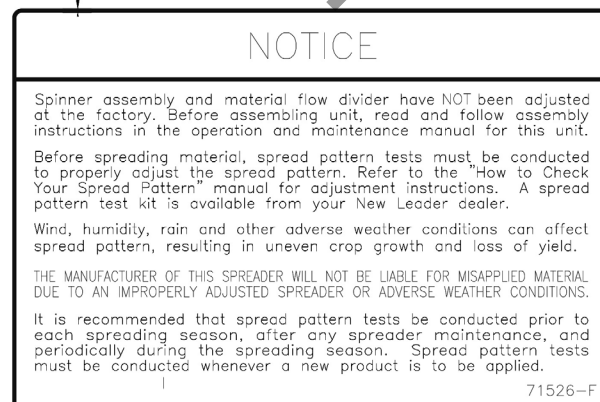
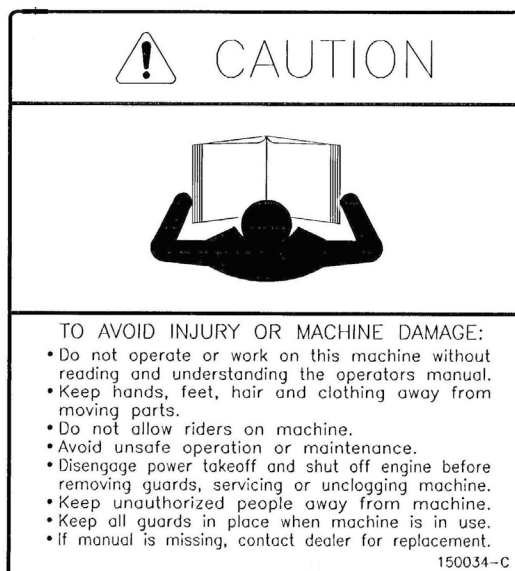
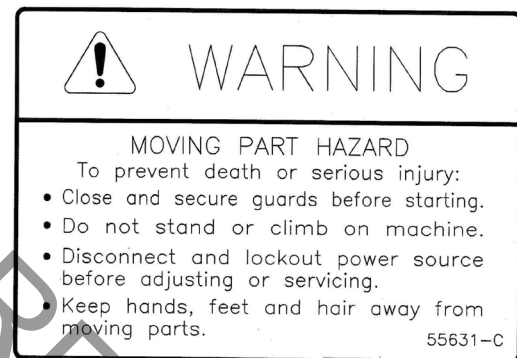
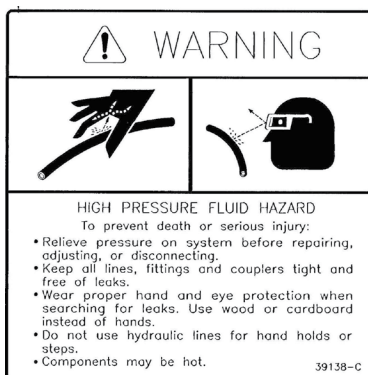
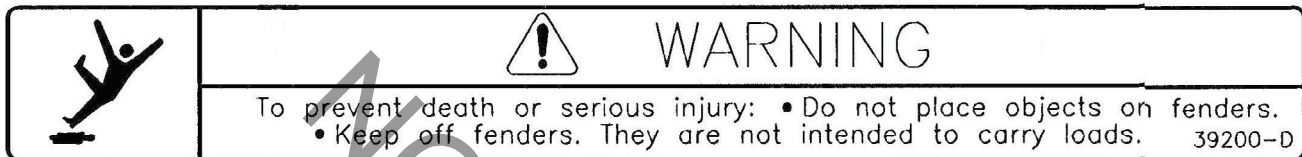
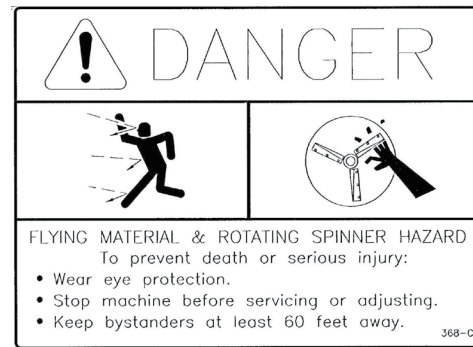
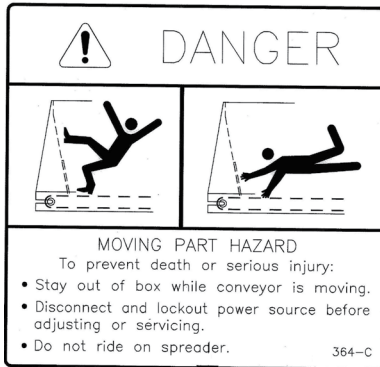
The following guidelines are intended to cover general usage and to assist you in avoiding accidents. There will be times when you will run into situations that are not covered in this section. At those times the best standard to use is common sense. If, at any time, you have a question concerning these guidelines, please call your authorized dealer or our factory at (319) 363-8281 or 1-800-363-8006.

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.

**NEW LEADER**

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

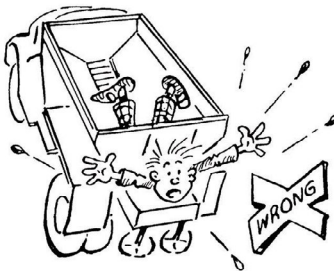


2. When leaving the unit unattended for any reason, be sure to:
 - a. Take power take-off out of gear.
 - b. Shut off conveyor and spinner drives.
 - c. Shut off vehicle engine and unit engine (if so equipped).
 - d. Place transmission of the vehicle in "neutral" or "park".
 - e. Set parking brake firmly.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

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

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

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



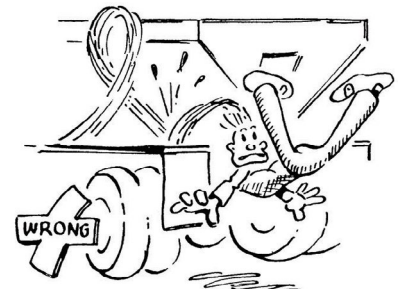
5. Guards and covers are provided to help avoid injury. Stop all machinery before removing them. Replace guards and covers before starting spreader operation.

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



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

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



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



10. Keep away from spinners while they are turning:

- a. Serious injury can occur if spinners touch you.

- b. Rocks, scrap metal or other material can be thrown off the spinner violently. Stay out of discharge area.

- c. Make sure discharge area is clear before spreading.



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

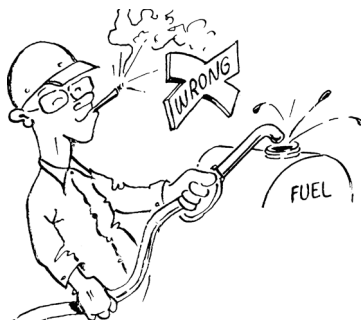
12. Inspect all bolts, screws, fasteners, keys, chain drives, body mountings and other attachments periodically. Replace any missing or damaged parts with proper specification items. Tighten all bolts, nuts and screws to specified torques according to the torque chart in this manual.



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



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



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



16. Hydraulic system and oil can get hot enough to cause burns. 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.

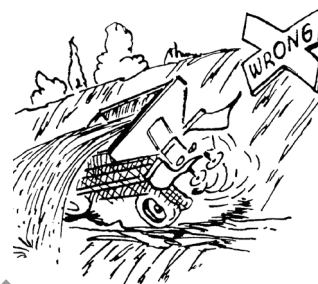
**CAUTION**

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 (319) 363-8281 or 1-800-363-8006.

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.

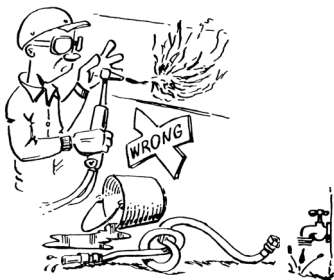
13. Hydraulic fluid under high pressure leaking from a pin hole are dangerous as they can penetrate the skin as though injected with a hypodermic needle. Such liquids have a poisonous effect and can cause serious wounds. Get medical assistance if such a wound occurs. To check for such leaks, use a piece 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.



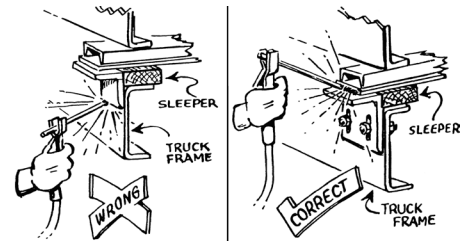
2. Follow mounting instructions in the Installation section of this manual. If mounting conditions require deviation from these instructions refer to factory.
3. When making the installation, be sure that the lighting meets Federal Motor Vehicle Safety Standard (FMVSS) No. 108, ASABE S279 and all applicable 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

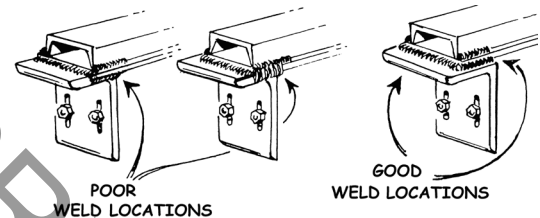
the cut, all necessary precautions should be taken to prevent fire. Cuts should not be made near fuel tanks and hydraulic oil reservoirs, fuel, brake, electric or hydraulic lines and such lines should be protected from flame, sparks or molten metal. Tires should be removed if there is any chance of their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

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SAFETY

NON-CURRENT

The 7020 is a hopper-type spreader designed for spreading bulky materials, such as lime, gypsum, chicken litter, dry feedlot manure, marl, paper mill sludge, packing house refuse, etc. It is intended for truck chassis vehicle mounting.

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

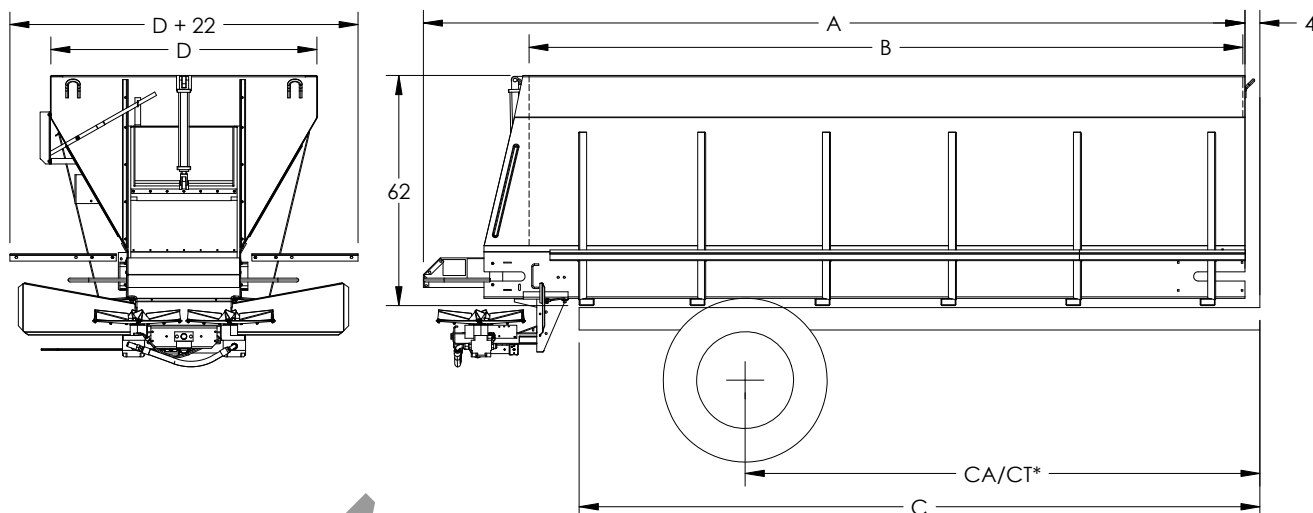
The conveyor runs the full length of the hopper bottom to deliver material to the spinner through an adjustable hydraulically operated gate at the rear of the hopper body. The conveyor is driven by two orbital type hydraulic motors mounted to a 6 to 1 ratio spur gear case. There are a variety of pintle-type chain conveyors for different applications: a #1 chain conveyor with cross bars every fourth link, a #2 with cross bars every other link, a #3 with cross bars every link or a #4 belt-over-chain conveyor, for better conveyor sealing when hauling wetter materials.

The distributor spinner assembly has two 24 inch diameter dished discs. Each disc has four formed and heat-treated fins that are adjustable to radial angle. The spinner is fully adjustable by means of a rotating handle.

The optional agitators are used to break down high moisture product or coarse material with bridging characteristics.

This product is intended for commercial use only.

NON-CURRENT



	A	B	C	D	E		
BODY LENGTH (feet)	OVERALL LENGTH (inches)	INSIDE LENGTH (inches)	FRAME LENGTH (inches)	INSIDE WIDTH (inches)	SPREADER HEIGHT (inches)	STRUCK CAPACITY [cu. ft. (cu. yds.)]	SPREADER WEIGHT (approx. pounds)
10	148	120	111	71.4	61.8	181 (6.7)	3130
				96	75.8	274 (10.2)	3600
11	160	132	123	71.4	61.8	200 (7.4)	3330
				96	75.8	303 (11.2)	3810
12	172	144	135	71.4	61.8	214 (8.0)	3500
				96	75.8	331 (12.3)	4030
13	184	156	147	71.4	61.8	238 (8.8)	3670
				96	75.8	359 (13.3)	4210
14	196	168	159	71.4	61.8	257 (9.5)	3865
				96	75.8	388 (14.4)	4465
15	208	180	171	71.4	61.8	275 (10.2)	4035
				96	75.8	416 (15.4)	4650
16	220	192	183	71.4	61.8	294 (10.9)	4200
				96	75.8	444 (16.5)	4835
18	244	216	207	71.4	61.8	332 (12.3)	4570
				96	75.8	501 (18.6)	5275

*** NOTICE!**

Consult federal, state and local weight laws and chassis manufacturer's ratings to determine Cab to Axle (CA)/Cab to Tandem (CT) measurement. Make sure government weight restrictions, GVWR and GAWRs are not exceeded.

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



WARNING Stand clear of moving machinery.

NOTE: Do not load spreader with material.

1. Check entire unit to make sure all fasteners are in place and properly tightened per *Standard Torques National Coarse (NC) Capscrews* section in this manual.
2. Make sure all guards are in place.
3. Disengage transmission PTO driving pump.
4. Make sure no other persons are in vicinity of truck or spreader.
5. Make sure no loose parts are in unit or on conveyor or spinner.
6. Check oil level in reservoir; fill as necessary. Refer to *Lubricant & Hydraulic Oil Specifications* section of this manual for proper oil. Completely open gate valve under reservoir.
7. Set throttle so engine runs at about 1000 RPM. Engage PTO driving pump. Allow pump to run and circulate oil for several minutes. Increase warm-up time in cold weather.
8. Raise and lower feedgate cylinder at least twice in order to purge air. After purging, raise feedgate until it is completely clear of conveyor.
9. Move spinner control valve to position "3". Spinner should run at slow speed. Allow to run until it is operating smoothly and all air has been purged.
10. Move spinner control to position "0".
11. Place controller in manual mode (see control manufacturer's manual) and run conveyor until it's operating smoothly.
12. Move spinner control valve to position "5" and 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!

13. Check all connections in hydraulic system to make sure there are no leaks.
14. 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 "5".

**DANGER**

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

4. Start truck engine. 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 and the conveyor should not move.
5. Set program to operational mode and begin forward travel. Move conveyor switch to "on" position. Conveyor should start immediately when vehicle moves and should continue to run at speeds which should vary directly with the vehicles road 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. Using Spread Rate graphs in controller manual, set feedgate opening to obtain yield desired.
7. If truck has a two-spread rear axle place it into "Low" range.
8. Make sure shut-off valve on hydraulic reservoir is fully opened.
9. Start truck engine.
10. Turn on power to controller and set program to desired values.
11. Engage pump drive PTO.



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

12. 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 that engine speed can be maintained to allow adequate hydraulic oil delivery from pump.

NOTICE!

CHANGE HYDRAULIC OIL FILTER AFTER 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.

AGITATORS

NOTICE!

Transporting product can cause loads to compact, which may cause increased hydraulic startup pressures. Conveyor must be running before agitators are used to break down product or damage to unit may occur.

Break down bridging product by first running the conveyor to dispense product through the endgate. If product stops dispensing, activate lower agitator to break down suspended product. If product stops dispensing with both the conveyor and lower agitator operating, activate upper agitator to break down the remaining product.

SYSTEM OPERATING PARAMETERS

(at full throttle)	Load	Pressure (psi)	Flow (GPM)
No Conveyor/No Agitators	None	120	24
Conveyor/No Agitators	None	400	24
Conveyor/1 Agitator	None	600	24
Conveyor/2 Agitators	None	800	24
Conveyor/2 Agitators	Max	1500 (relief)	20 - 24

NOTE: The system operating parameters listed above are to be used only as a general guideline. Environmental conditions, such as temperature, altitude, etc., will affect the pressure and flow of the hydraulics. Specific operating parameters are best determined by trial and experience.

PREVENTATIVE MAINTENANCE PAYS!

A frequent, periodic preventative maintenance program should be established to prevent rapid damage to spreading equipment. Proper cleaning, lubrication and maintenance will provide longer life, more satisfactory service and more economical use of the equipment.

**WARNING**

Shut off all power before performing any maintenance operation. Otherwise, you could be injured.

**WARNING**

Turn off all power, set vehicle brakes, lock engine starting switch and remove keys before getting into dump body. Tag all controls to prohibit operation. Tags should be placed, and later removed, only by the person working in the body.

HYDRAULIC SYSTEM

The use of 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 the hydraulic oil in original closed containers, clean top of container before opening and pouring, and handle in extremely clean measures and funnels.

Refer to the *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 the hydraulic oil daily by means of dipstick. Add oil if required. Periodically inspect the hoses and fittings for leaks.

NOTICE!

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

3. After first filter change, replace filter when indicator reaches Danger Zone.
4. The reservoir should be drained through drain plug (not through suction outlet), flushed, and refilled annually, or the oil should be changed if it shows any signs of breaking down under continued high-pressure operation. Discoloration of oil is one sign of breakdown.

AGITATOR GEAR CASE

Disassemble gear case once a year. Wash all parts in clean solvent. Refill with recommended lubricant.

CONVEYOR GEAR CASE

The oil in a new unit should be drained at the end of the first two weeks (or not more than 100 hours) of operation and the case should be thoroughly flushed with light oil. Refer to the Lubrication Specifications section for the proper grade oil. Refill 50:1 gear case with two and a half (2 1/2) pints (1.18 liters) of recommended lubricant. Refill 6:1 gear case with one pint (.47 liters) of recommended lubricant. After the initial change, the oil should be changed ever 2,000 hours of operation or annually, whichever occurs first.

Check the level in the gear case weekly.

CONVEYOR CHAIN**DANGER**

When conveyor is running, stay out of the body. Stay clear of all moving parts. Entanglement of clothes, any part of your body or anything you have in your hands can cause serious injury. Do not use a bar, rod or hammer on conveyor while it is moving--if it gets caught it could cause injury. With the spinner shut down and the conveyor running slowly, spray the mixture of oil between the links of the chain by spraying through openings at the rear end of sill or from front outside body when access clearance is adequate. Do this at least once a week and after each time the machine is washed down. Allow to become dry before lubricating.

Hose down the machine and remove any material build-up on the sprockets or under the chain. If material is allowed to build up, the chain may ride up and damage the chain or body.

NOTE: If material builds up under the chain, the chain will ride on the material instead of the bottom panel. The more material allowed to build, the closer the chain will come to the chain shields. If the chain should catch a chain shield, it could permanently distort the chain, the chain shields or the body. In the same manner, if material is allowed to build up on the sprockets, the chain will have a larger diameter to follow. The more material allowed to build up, the closer the chain will run to the chain shields, until damage has occurred. Do not remove material while conveyor or spinner is running.

Lubricate the conveyor chain at least once a week. Use a mixture of 75% diesel fuel and 25% SAE 10 oil in a pressurized hand spray gun. Spray oil mixture between links of chain through openings provided at rear end of sill or from front outside body when clearance is adequate. After each washing, allow to dry, then lubricate.

If a chain oiler is used, fill the oiler reservoir daily with a mixture of 75% diesel fuel and 25% SAE 10 oil. Before each filling of the spreader with material to be spread, open petcock and run the conveyor until the full length of chain has been oiled, then shut petcock.

Proper chain tension is also a factor in chain and sprocket life. The proper chain tension is illustrated in Figure 1. Be sure the chain is tensioned equally on both sides. This adjustment is made on each side of the unit at the idler bearings.

Figure 1 - Chain Tension to be Measured from Rear of Sill - Proper Tension 36" to 40" (91.4 to 101.6 cm).

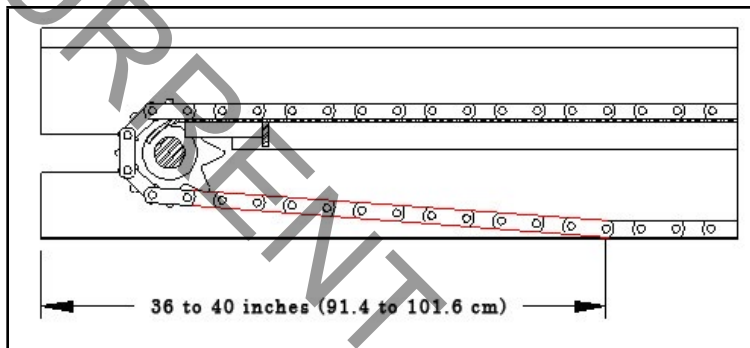


Figure 1 - Adjusting Chain Tension

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

CONVEYOR BELT MAINTENANCE

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 2.

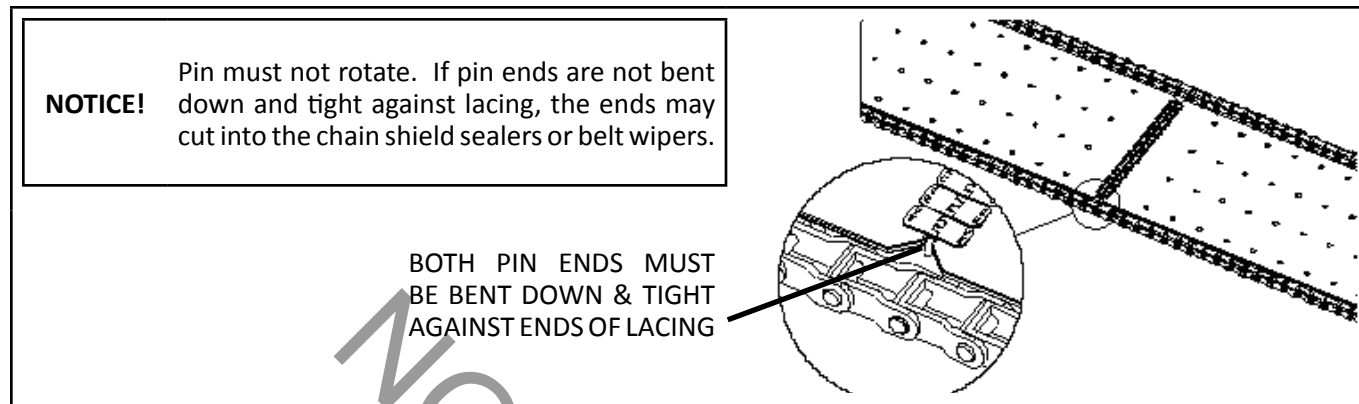


Figure 2 - Conveyor Belt Pin Installation

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.

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

Pump grease slowly into bearings 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

For maintaining minimum maintenance operation, this equipment should be thoroughly washed every two (2) to three (3) days during the operating season. Hose the unit down under pressure to free all sticky and frozen material.

It is important that the machine be thoroughly cleaned at the end of each operating season. All lubrication and maintenance instructions should be closely followed. For longer life, repaint worn spots to prevent formation of rust.

FASTENERS

Tighten all screw fasteners to recommended torques after the first week of operation and annually thereafter. If loose fasteners are found at any time, tighten to the recommended torques. Replace any lost or damaged fasteners or other parts immediately upon finding such damage or loss. Check body mounting bolts every week.

NOTICE!

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

HYDRAULIC SYSTEM

The recommended lubricant to use is an automotive engine oil SAE 15W-40 for diesel engine service. The normal system operating temperature range, with 15W-40 oil, is between 140° and 180° F. Extreme operating temperatures may require a different viscosity oil range. If the temperature rises above 180° there may be defective components in the system causing excessive heat. Consult your dealer or the Product Support Department at Highway Equipment Company for additional information.

GEAR CASE LUBRICANT

Worm (50:1) gear cases are factory equipped with synthetic oil for best performance at high loads.

Lubricate 6:1 gear case assemblies with non-corrosive type SAE 90 EP (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. Ambient temperatures below 40° F. require SAE 80 EP lubricant; above 100° F. use SAE 140 EP grade oil.

Lubricate the gear cases with multi-purpose gear lubricating oil conforming to MIL-L2105 B according to the chart below:

Part	Refill Quantity	40° to 120° F	Below 40° F
50:1 Gear Case - Agitator	2.5 pints (1.18 liters)	SAE 85W 140	SAE 88W 90
6:1 Gear Case - Conveyor Drive	1.5 pint (.71 liters)	SAE 80 or 90W	SAE 80 or 90W

PRESSURE GUN LUBRICANT

Use a ball and roller bearing lithium base lubricant with a minimum melting point of 300° F. This lubricant should have a viscosity which assures easy handling in the pressure gun at prevailing atmospheric temperatures. The lubricant must be waterproof. 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.

**WARNING**

Shut off all power and allow all moving parts to come to 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:

LOCATION	PLACES	METHOD	FREQUENCY
Hydraulic Pump Drive			
Transmission PTO - Slip Yoke	1	Grease Gun	Weekly
Transmission PTO - Universal Joint	2	Grease Gun	Monthly
Reservoir	1	Check Daily; Change Annually	
Filter	1	Check Daily; Change when indicator is red	
Conveyor			
Drive Shaft Bearings	2	Grease Gun	Weekly
Idler Shaft Sprockets	2	Grease Gun	Daily
Idler Adjusting	2	Hand Grease	Weekly
Chain	2 Strands	Spray Oil	Daily
Chain Oiler (If so equipped)	1	Oil Mixture	Daily
Gear Case	1	Gear Box Oil	Check Monthly, Change Annually
Feedgate			
Jack Assembly - Gears	1	Hand Grease	Annually
Jack Assembly - Tubes	1	Grease Gun	Monthly
Agitator			
Gear Case	1	Synthetic Oil	Check Monthly
Bearings	4 or 6	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.

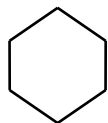
- Symptom: Spinner motors do not turn when spinner control valve is in running position or conveyor does not run when function knob . See reasons 1, 2, 3, 4, 5, 7, 8 & 9.
- Symptom: Spinners turn but conveyor does not run in manual mode. See reasons 6, 8, 9, 10 & 22.
- Symptom: Console in operation mode, 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 (213.7 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 (213.7 bar). If this pressure cannot be reached, adjust relief valve until gauge reads 3100 PSI (213.7 bar). CAUTION: Do not set pressure above 3100 PSI (213.7 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 (137.9 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 (137.9 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 40 GPM (151.4 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.

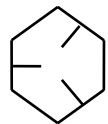
CAP SCREW GRADE IDENTIFICATION - MARKINGS ON HEAD

SAE GRADE 2



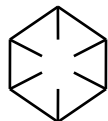
NO MARKINGS

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

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NON-CURRENT

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.

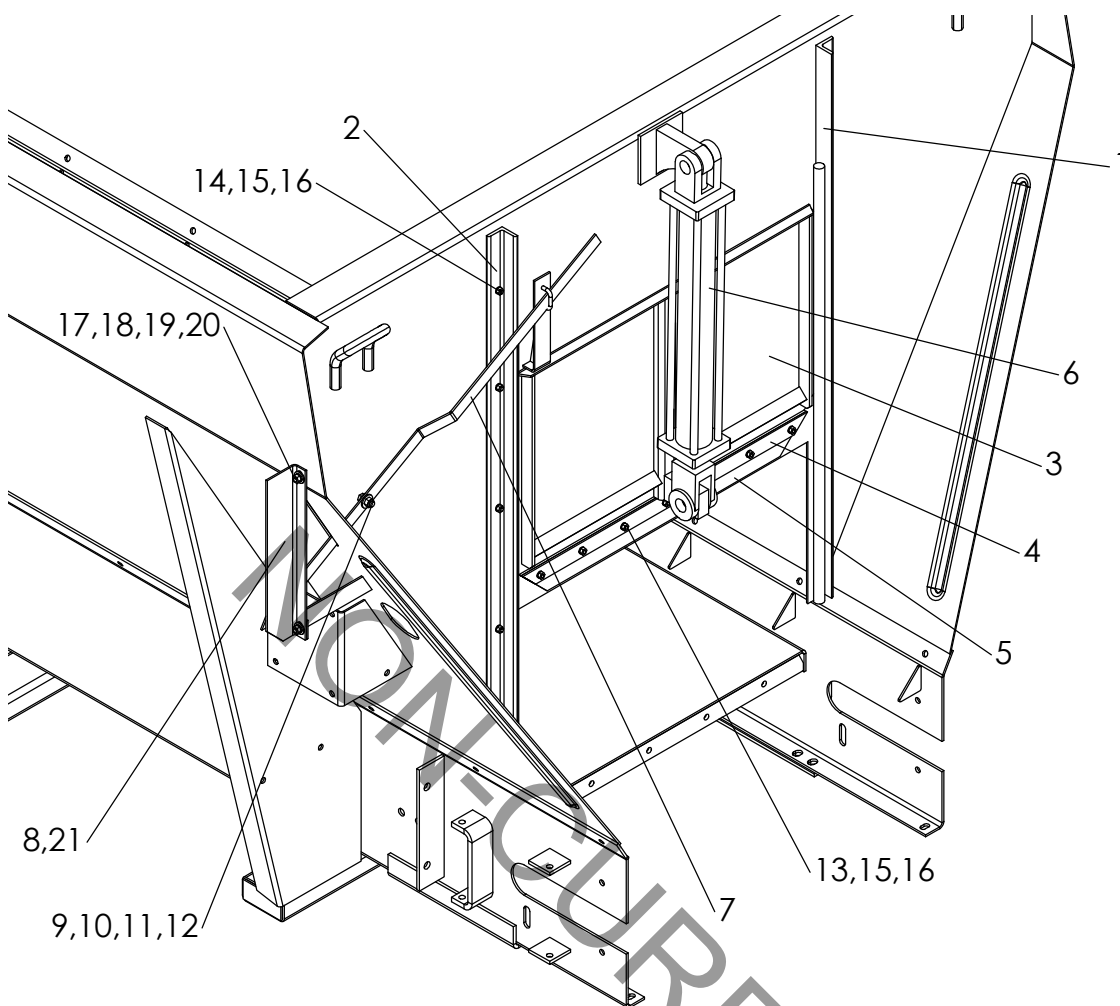
No responsibility is assumed for delay or damage to merchandise while in transit. Our responsibility ceases upon delivery of shipment to the transportation company from whom a receipt is received showing that shipment was in good condition when delivered to them, therefore, claims (if any) should be 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 (319-363-8281) for assistance.

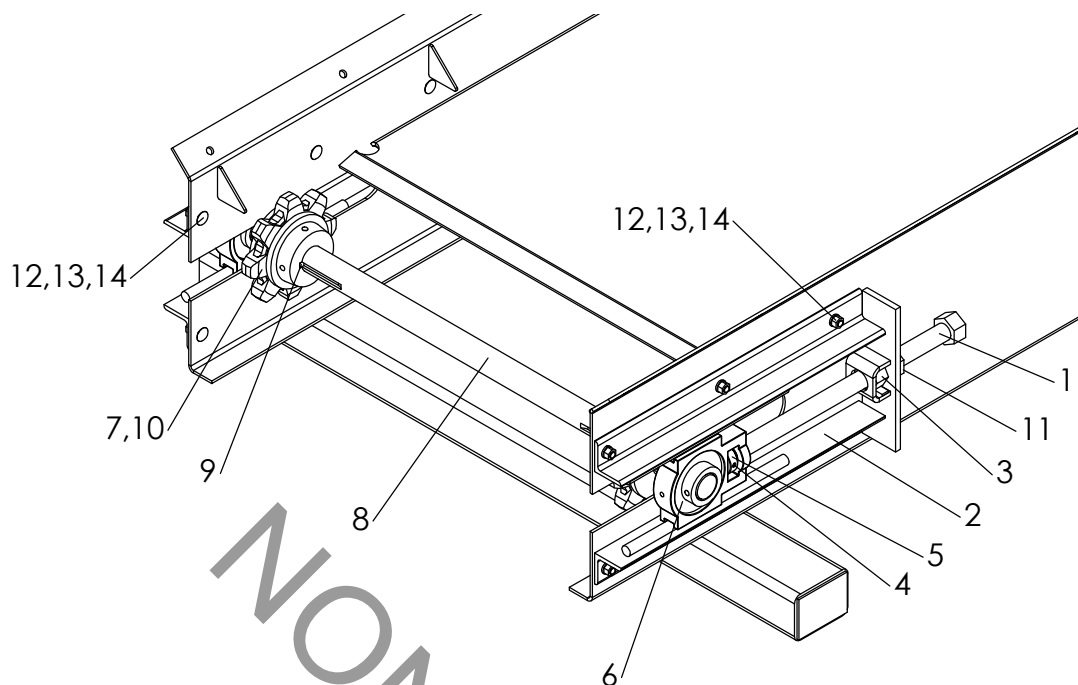
In the parts list the following symbols and abbreviations stand for:

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

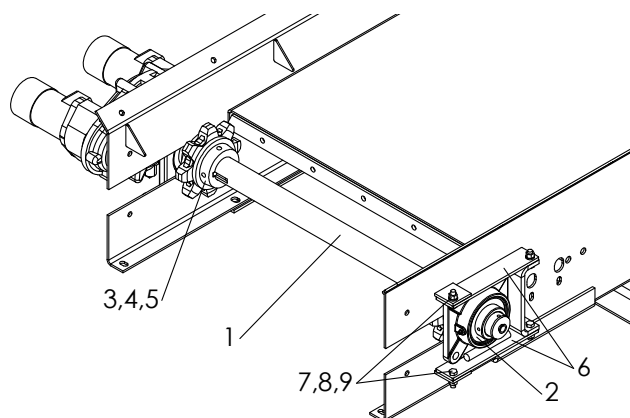
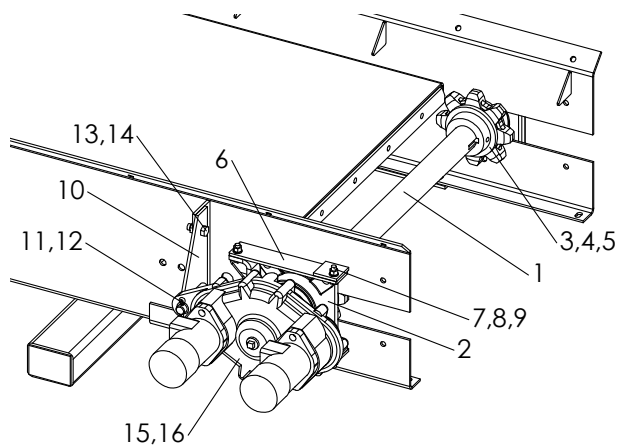
The parts listed under the different steel types (CS, 409 SS and 304 SS) are for that type of unit and do not necessarily mean the part is made of that type of steel.



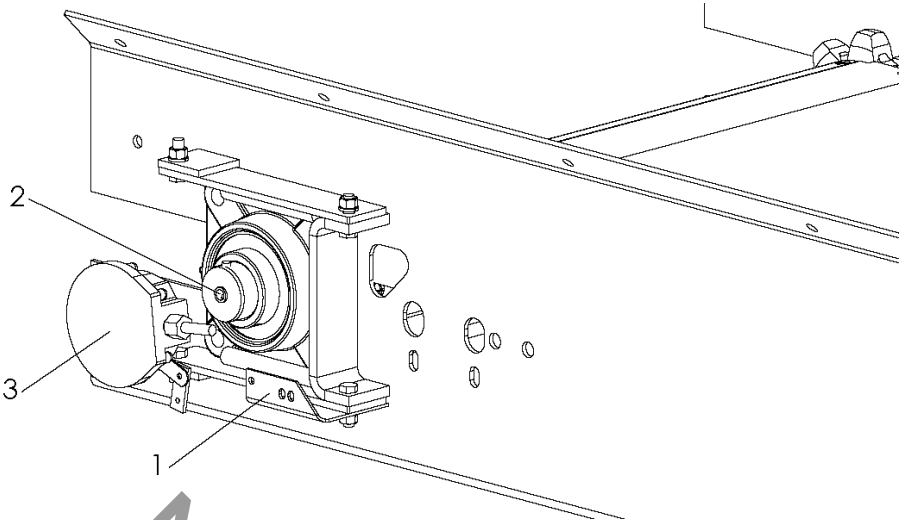
ITEM	PART NO.		DESCRIPTION	QTY
	CS	SS		
	302038	302039	Feedgate – Assembly without Chain Shields (Includes Items 5, 6, 18 - 21)	
	302040	302041	Feedgate – Assembly with Chain Shields (Includes Items 5, 6, 18 - 21)	
1	70286	70286-X1	Slide – RH Weldment without Chain Shields	1
	70287	70287-X1	Slide – RH Weldment with Chain Shields	1
2	70288	70288-X1	Slide – LH Weldment without Chain Shields	1
	70289	70289-X1	Slide – LH Weldment with Chain Shields	1
3	302034	302035	Feedgate – Weldment without Chain Shields	1
	302036	302037	Feedgate – Weldment with Chain Shields	1
4	13449	13449-X1	Retainer – Wiper without Chain Shields	1
	70300	70300-X1	Retainer – Wiper with Chain Shields	1
5	42449	42449	Wiper – Belt without Chain Shields	1
	70301	70301	Wiper – Belt with Chain Shields	1
6	55377	55377	Cylinder – Hydraulic	1
7	301478	302044	Indicator – Feedgate	1
8	55394	55394-X2	Bracket – Scale	1
9	20068	36399	Cap Screw – 3/8 x 1 1/4	1
10	20644	36414	Nut – Hex 3/8	1
11	20693	36425	Washer – Flat 3/8	2
12	20678	72054	Nut – Lock 3/8	1
13	20621	47268	Screw – Flat Head 1/4 x 3/4	7
14	20003	36393	Cap Screw – 1/4 x 3/4	10
15	20710	36418	Washer – Lock 1/4	17
16	20642	36412	Nut – Hex 1/4	17
17	20033	56858	Cap Screw – 5/16 x 5/8	2
18	20692	36424	Washer – Flat 5/16	2
19	20711	36419	Washer – Lock 5/16	2
20	20643	36413	Nut – Hex 5/16	2
21	55395	55395	Decal – Indicator	1



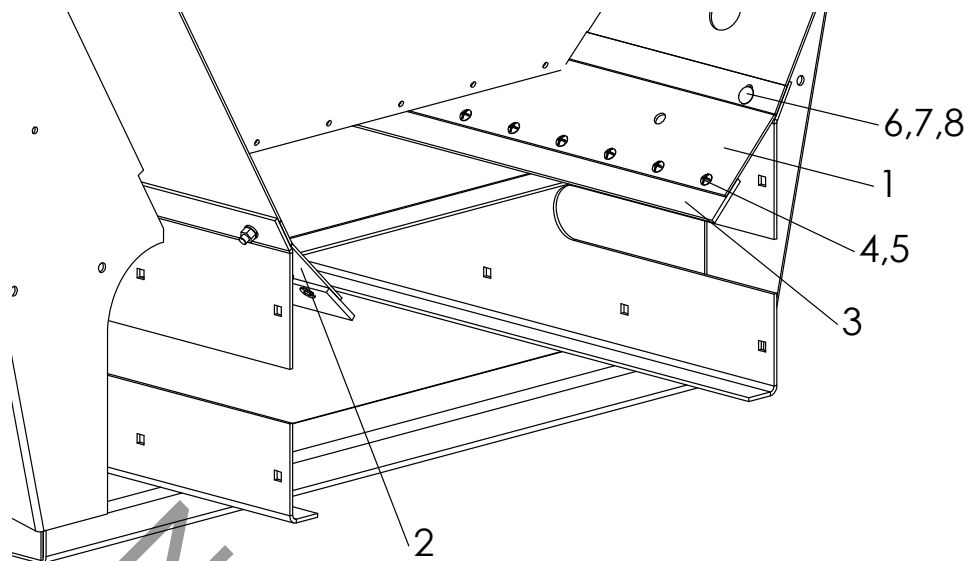
ITEM	PART NO.		DESCRIPTION	QTY
	CS	SS		
1	36508	36508	Tightener – Chain Weldment	2
2	7895	7895	Take-up Weldment	2
3	39110	39110	Nut Weldment	2
4	20925	20925	Pin – Roll 1/4 x 1 1/2	2
5	30725	30725	Collar – Set 1"	2
6	22511	22511	Bearing – Take-up	2
7	97051	97051	Sprocket – Idler	2
8	82799	82799	Shaft – Idler	1
9	2135	2135	Key – Square 5/16 x 2 1/2	2
10	20743	20743	Screw – Set 5/16 x 3/8	4
11	36509	36509	Nut – Hex 1-8NC SS	2
12	20318	36408	Bolt – Carriage 3/8 x 1	12
13	20712	36420	Washer – Lock 3/8	12
14	20644	36414	Nut – Hex 3/8	12



ITEM	PART NO.		DESCRIPTION	QTY
	CS	SS		
1	86999	86999	Shaft – Drive	1
2	6465	6465	Bearing	2
3	88276	88276	Sprocket	2
4	20743	20743	Screw – Set 5/16 x 3/8	4
5	6131	6131	Key – Square 3/8 x 1 1/2	2
6	82882	82885	Guide – Bearing	4
7	20068	36399	Cap Screw - 3/8 x 1 1/4	8
8	20712	36420	Washer – Lock 3/8	8
9	20644	36414	Nut – Hex 3/8	8
10	82550	82552	Bracket – Torque Arm LH	1
11	20833	20833	Pin – Cotter 1/4 x 1 1/2	1
12	2716	2716	Washer – Flat 3/4	2
13	20128	20128	Cap Screw - 1/2 x 1 1/4	2
14	20680	20680	Nut – Lock 1/2	2
15	37010	37010	Key – Square 1/2 x 1 1/2	2
16			Gear Case Assembly – Refer to “Control Hydraulics”	

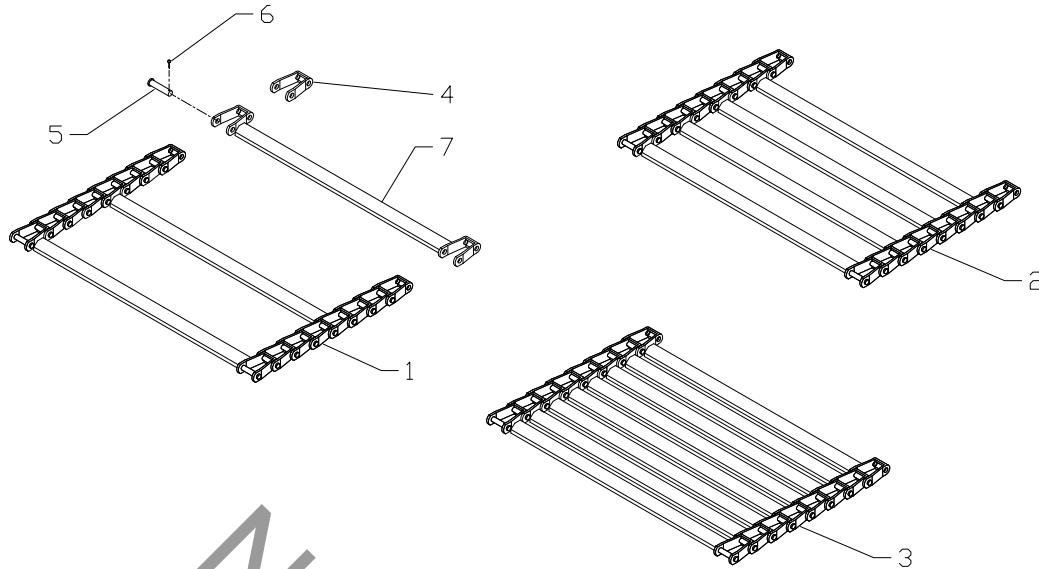


<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
1	304946	Bracket – DJ Rate Sensor	1
2	56263	Sleeve – Rate Sensor	1
3	303994	Encoder – 180 DJ with Hardware	1
	304056	Encoder – 360 DJ with Hardware	1



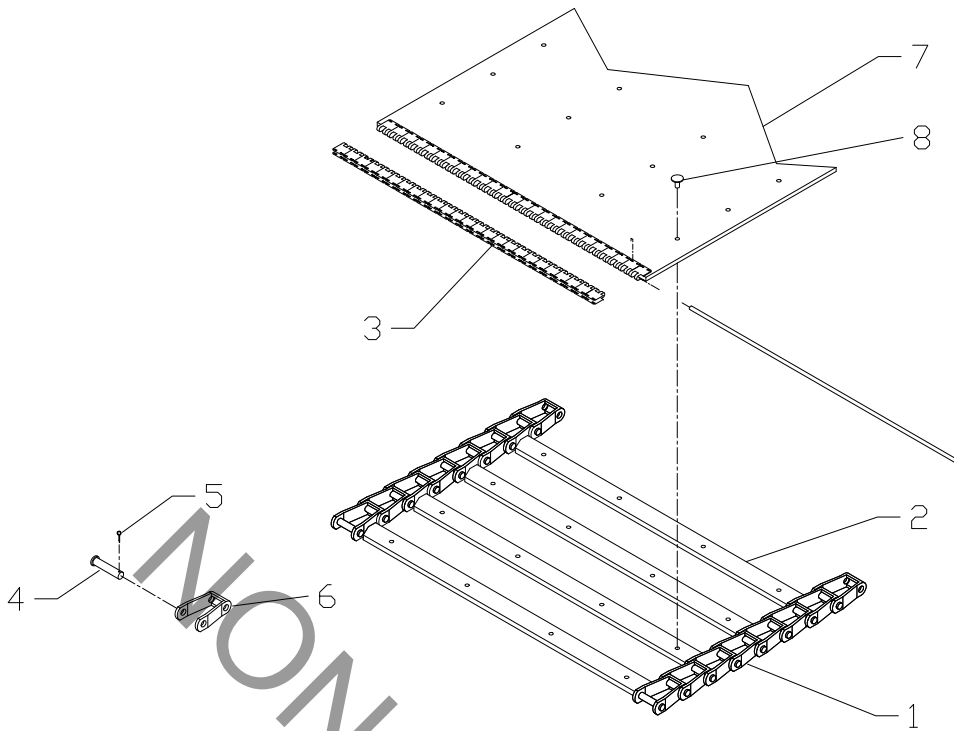
ITEM	PART NO.		DESCRIPTION	QTY
	CS	SS		
1			Shield – Chain Assembly RH #4 for:	
	301486-AC	302086-AC	12' Unit	1
	301486-AD	302086-AD	13' Unit	1
	301486-AE	302086-AE	14' Unit	1
	301486-AF	302086-AF	15' Unit	1
	301486-AG	302086-AG	16' Unit	1
	301486-AI	302086-AI	18' Unit	1
2			Shield – Chain Assembly LH #4 for:	
	301487-AC	302087-AC	12' Unit	1
	301487-AD	302087-AD	13' Unit	1
	301487-AE	302087-AE	14' Unit	1
	301487-AF	302087-AF	15' Unit	1
	301487-AG	302087-AG	16' Unit	1
	301487-AI	302087-AI	18' Unit	1
3	7687	7687	Belt – Sealer, Specify Length	AR
4	20624	56258	Screw – Truss Head 1/4 x 1/2	AR
5	88931	88931	Nut – Tee 1/4	AR
6	20318	36408	Bolt – Carriage 3/8 x 1	AR
7	20712	36420	Washer – Lock 3/8	AR
8	20644	36414	Nut – Hex 3/8	AR

AR - As Required



ITEM	PART NO.	DESCRIPTION	QTY
1	301523	#1 Pintle Chain – 10' Unit	1
	302064	#1 Pintle Chain – 12' Unit	1
	302065	#1 Pintle Chain – 13' Unit	1
	302066	#1 Pintle Chain – 14' Unit	1
	302067	#1 Pintle Chain – 15' Unit	1
	302068	#1 Pintle Chain – 16' Unit	1
	302069	#1 Pintle Chain – 18' Unit	1
	302076	#2 Pintle Chain – 18' Unit	1
2	97081	#2 Pintle Chain – 12' Unit	1
	97083	#2 Pintle Chain – 13' Unit	1
	97084	#2 Pintle Chain – 14' Unit	1
	97085	#2 Pintle Chain – 15' Unit	1
	97086	#2 Pintle Chain – 16' Unit	1
	97089	#3 Pintle Chain – 12' Unit	1
	97091	#3 Pintle Chain – 13' Unit	1
3	97092	#3 Pintle Chain – 14' Unit	1
	97093	#3 Pintle Chain – 15' Unit	1
	97094	#3 Pintle Chain – 16' Unit	1
	302077	#3 Pintle Chain – 18' Unit	1
4	36699	Link – Pintle	AR
5	36697	Pin – Chain	AR
6	20817	Pin – Cotter	AR
7	55772	Cross Bar Weldment	AR

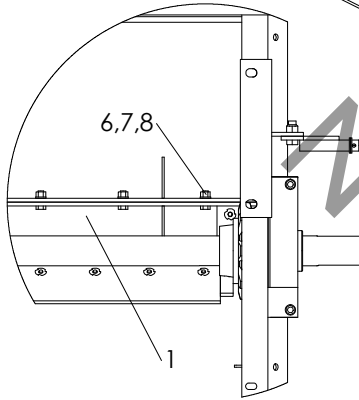
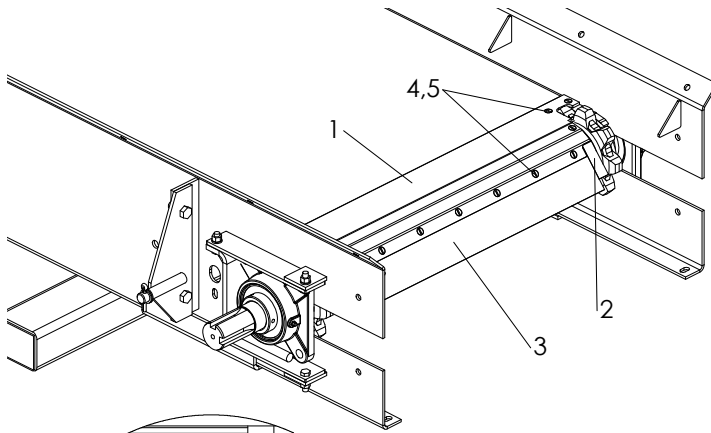
AR - As Required



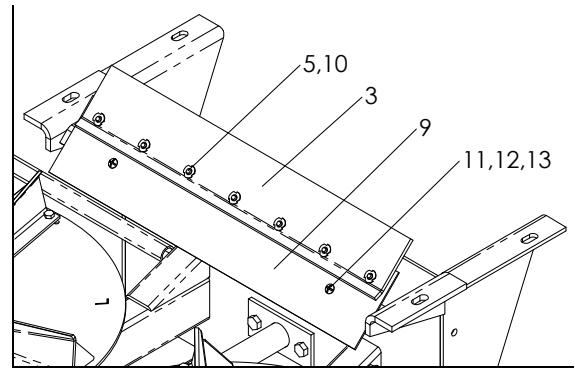
ITEM	PART NO.	DESCRIPTION	QTY
1	305615-AC	#4 Belt-Over-Chain – 12' Unit	1
	305615-AD	#4 Belt-Over-Chain – 13' Unit	1
	305615-AE	#4 Belt-Over-Chain – 14' Unit	1
	305615-AF	#4 Belt-Over-Chain – 15' Unit	1
	305615-AG	#4 Belt-Over-Chain – 16' Unit	1
	305615-AI	#4 Belt-Over-Chain – 18' Unit	1
2	88861	Crossbar – Weldment with Rivet Holes	AR
3	73317	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	18027	Belt – Conveyor (Specify Unit Length)	AR
8	6245	Rivet	AR

AR - As Required

REAR WIPER - #1, #2 & #3 CONVEYORS

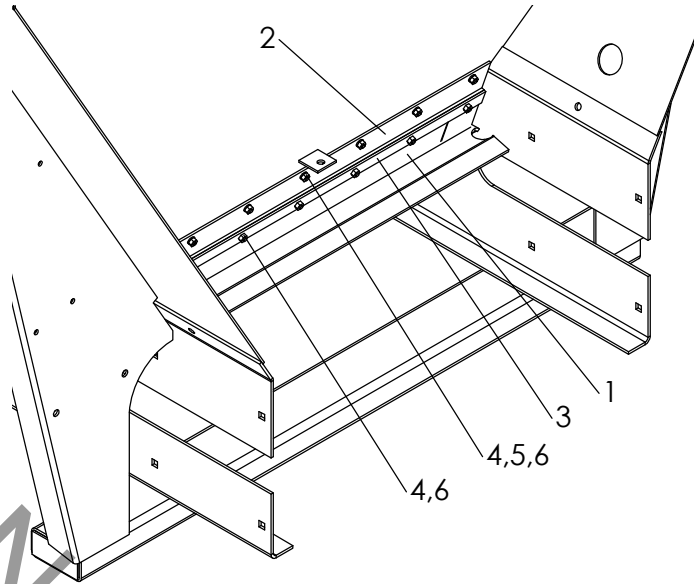


BOTTOM VIEW DETAIL



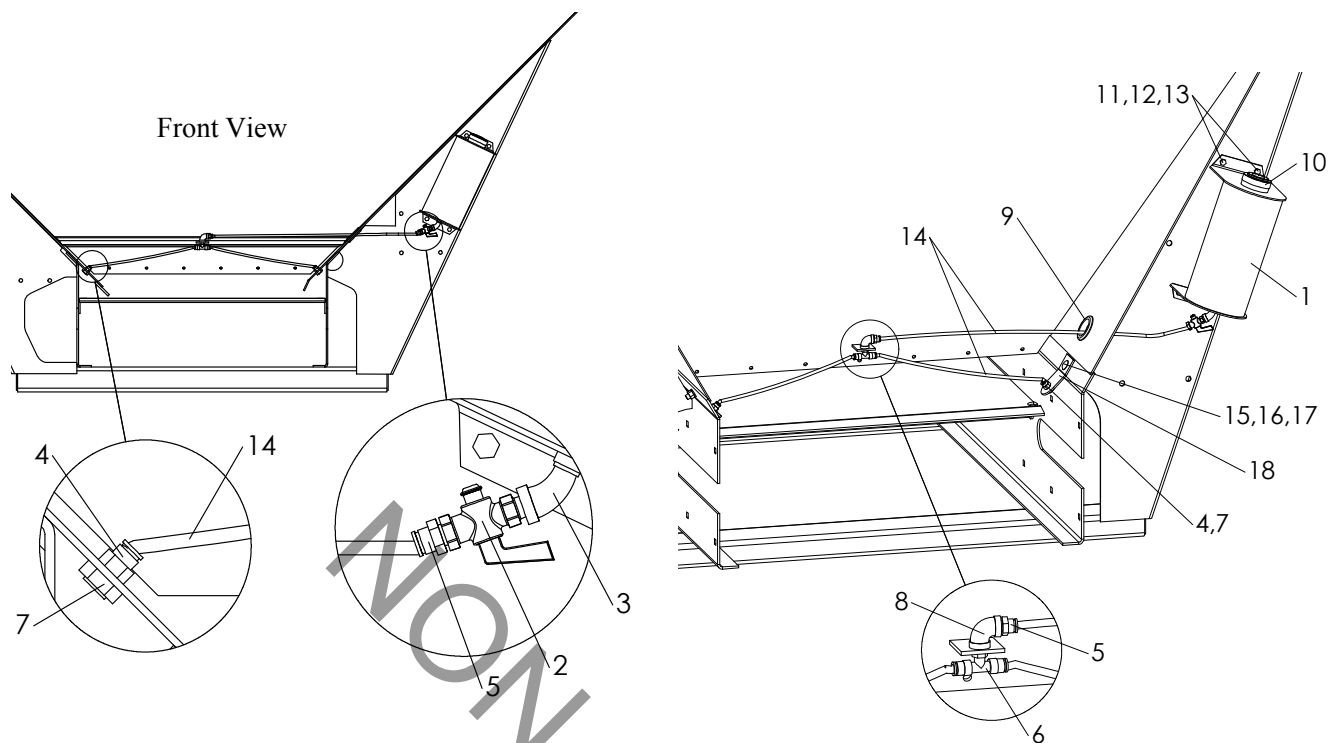
ITEM	PART NO.		DESCRIPTION	QTY
	CS	SS		
	98085	98086	Rear Lip Group	
	96744	96744	Rear Wiper Group	
1	98028	98030	Lip – Weldment Rear	1
2	98000	98000	Sealer – Sprocket	2
3	27243	27243	Wiper – Belt, Rear	2
4	20617	56400	Screw – Flat Head 1/4 x 1/2	13
5	88931	88931	Nut – Tee 1/4	20
9	20067	36398	Cap Screw – 3/8 x 1	5
7	20712	36420	Washer – Lock 3/8	5
8	20644	36414	Nut – Hex 3/8	5
9	96746	96746	Plate – Wiper Belt	1
10	56258	56258	Screw – Truss Head 1/4 x 1/2	7
11	32446	32446	Screw – Truss Head 1/4 x 3/4	2
12	36418	36418	Washer – Lock 1/4	2
13	36412	36412	Nut – Hex 1/4	2

NEW LEADER



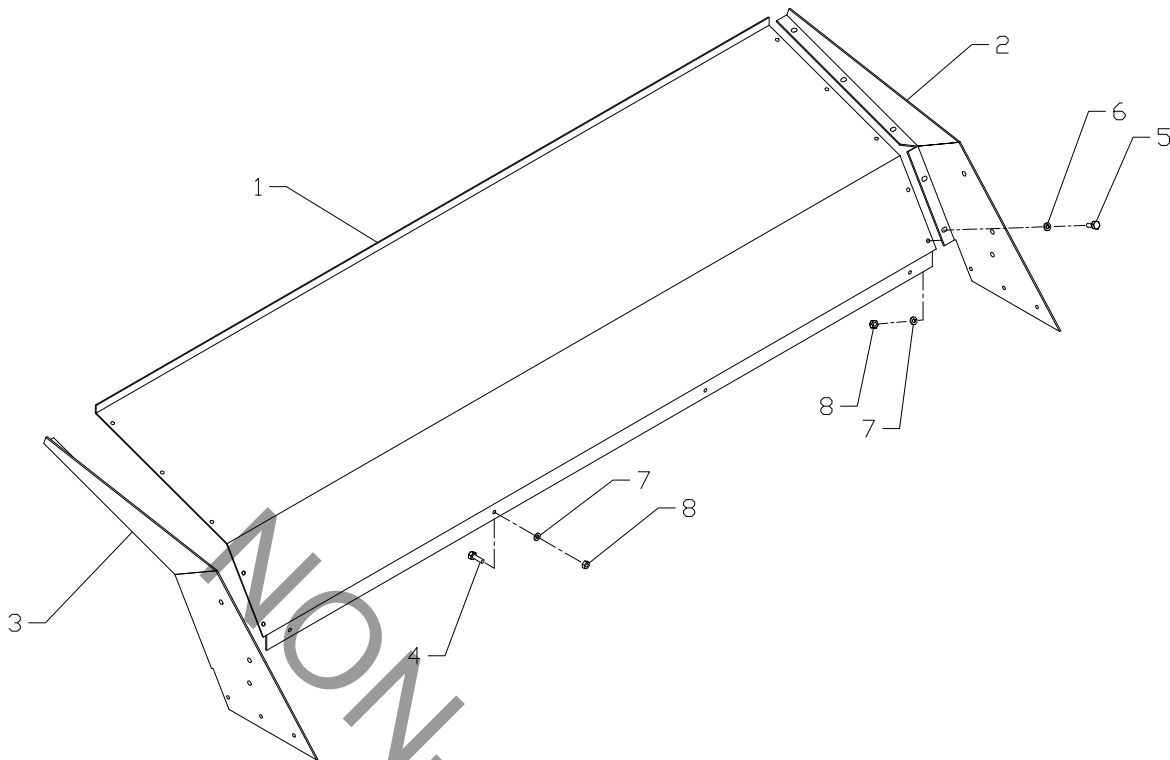
<u>ITEM</u>	<u>PART NO.</u>		<u>DESCRIPTION</u>	<u>QTY</u>
	CS	SS		
1	70243	70243	Belt – Front Wiper #1, 2 or 3 Conveyor	1
	* 301492	301492	Belt – Front Wiper #4 Conveyor	1
2	70242	70242-X1	Extension – Endgate #1, 2 or 3 Conveyor	1
	* 301490	302090	Extension – Endgate #4 Conveyor	1
3	70234	70234-X1	Retainer – Belt #1,2 or 3 Conveyor	1
	* 301491	301491	Retainer – Belt #4 Conveyor	1
4	20003	36393	Cap Screw – 1/4 x 3/4	14
5	20710	36418	Washer – Lock 1/4	7
6	20642	36412	Nut – Hex 1/4	14

* - Not Shown

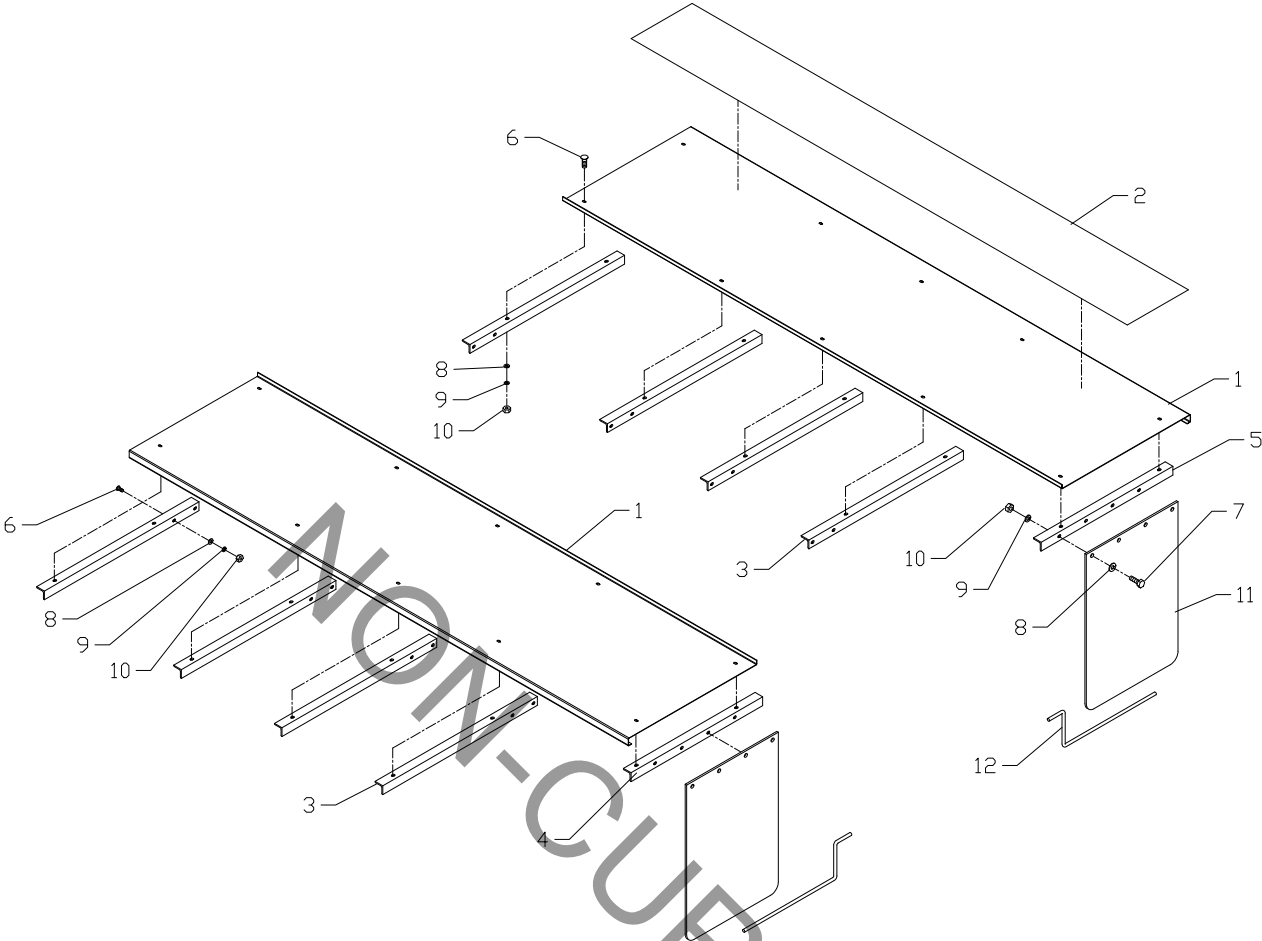


ITEM	PART NO.	DESCRIPTION	QTY
	98052	Oiler – Assembly	
1	98051	Tank – Weldment Oiler	1
2	82917	Valve – Shut-off	1
3	21990	Elbow – Street 45°	1
4	97802	Connector – Male	2
5	97806	Connector – Male	2
6	97801	Tee – Male Branch Swivel	1
7	97803	Nut – Lock Brass 1/4	2
8	6006	Elbow – 90°	1
9	34129	Grommet – Rubber	1
10	21980	Cap – Vented	1
11	36393	Cap Screw – 1/4 x 3/4 SS	4
12	36418	Washer – Lock 1/4 SS	4
13	36412	Nut – Hex – 1/4 SS	4
14	82920	Tubing – 1/4	AR
15	36408	Cap Screw – 3/8 x 1 SS	2
16	36420	Washer – Lock 3/8 SS	2
17	36414	Nut – Hex – 3/8 SS	2
18	301480	Bracket – Oiler Drip	2

AR - As Required

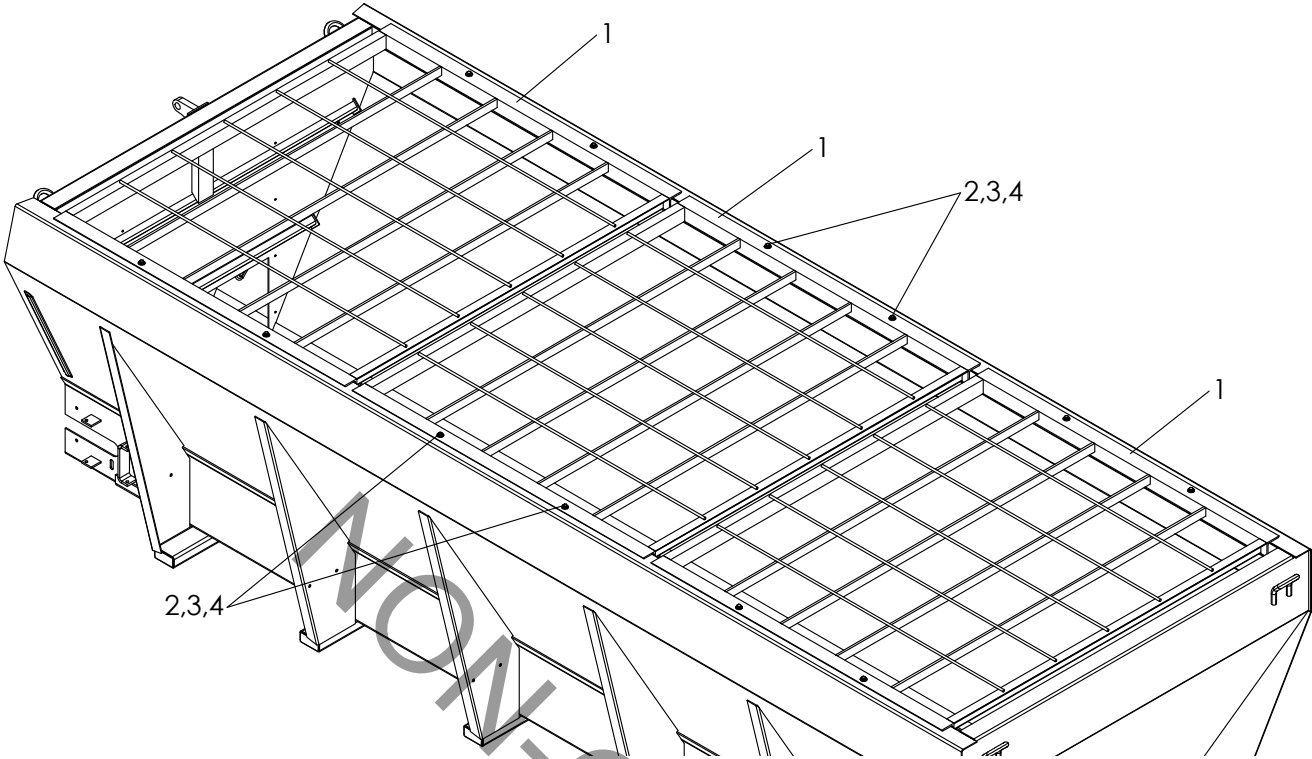


<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
	70389	Cab Shield Assembly – 63" Cab Height	
	70390	Cab Shield Assembly – 69" Cab Height	
1	70391	Panel – Shield 63" Cab Height	1
	70392	Panel – Shield 69" Cab Height	1
2	31788	Support – RH Weldment 63" Cab Height	1
	39813	Support – RH Weldment 69" Cab Height	1
3	31789	Support – LH Weldment 63" Cab Height	1
	39815	Support – LH Weldment 69" Cab Height	1
4	20079	Cap Screw – 3/8 x 4	10
5	20067	Cap Screw – 3/8 x 1	8
6	20693	Washer – Flat 3/8	8
7	20712	Washer – Lock 3/8	18
8	20644	Nut – Hex 3/8	18



ITEM	PART NO.		DESCRIPTION	QTY
	CS	SS		
	46564	55324	Mudflaps Assembly, Includes 7-12	
1	81418	81466	Fender – 12' Units	1
	81419	81467	Fender – 13' Units	1
	81420	81468	Fender – 14' Units	1
	81421	81469	Fender – 15' Units	1
	81422	81470	Fender – 16' Units	1
	302004	302005	Fender – 18' Units	1
2	21699	21699	Material – Non-Skid 8" Wide, in Inches	AR
3	46445	98070	Angle – Mounting	AR
4	46434	71872	Bracket – Mudflap Mounting RH	1
5	46435	71873	Bracket – Mudflap Mounting LH	1
6	20318	36408	Bolt – Carriage 3/8 x 1	AR
7	20067	36398	Cap Screw – 3/8 x 1	12
8	20693	36425	Washer – Flat 3/8	AR
9	20712	36420	Washer – Lock 3/8	AR
10	20644	36414	Nut – Hex 3/8	AR
11	7793	7793	Mudflap – NEW LEADER	2
	21770	21770	Mudflap – Hi-Way	2
12	36844	36844	Rod – Mudflap	2

AR - As Required

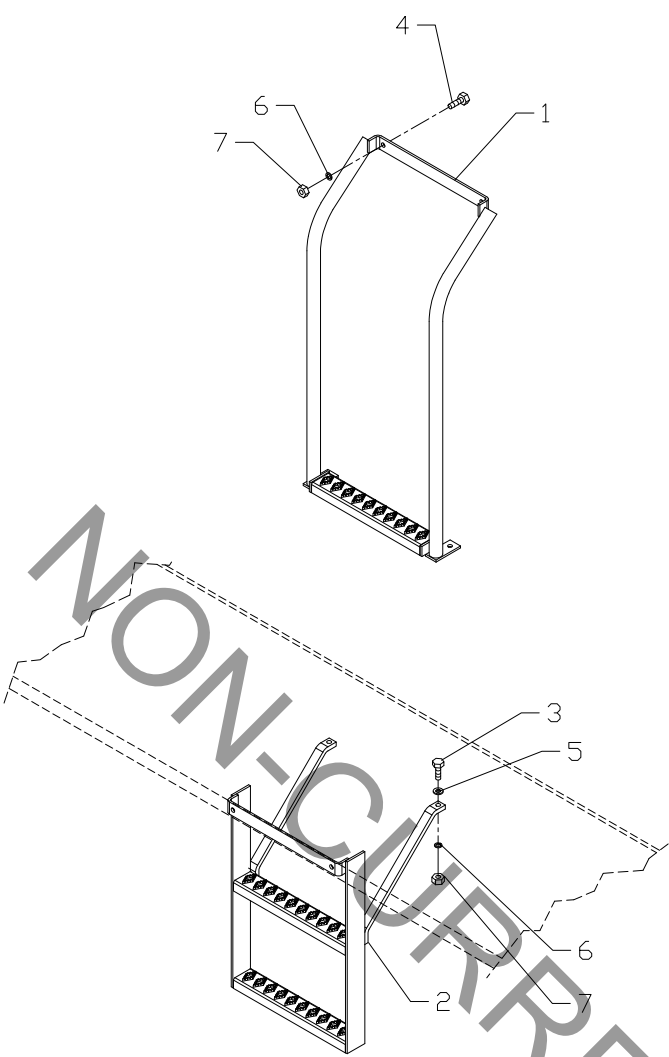


	FRONT	CENTER	REAR
12' Unit	5'	--	6'
13' Unit	6'	--	6'
14' Unit	4'	5'	4'
15' Unit	5'	4'	5'
16' Unit	5'	5'	5'
18' Unit	6'	5'	6'

<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
	302017	Screen – Kit 12' x 71"	
	302018	Screen – Kit 12' x 96"	
	79121-X1	Screen – Kit 13' x 71"	
	79121	Screen – Kit 13' x 96"	
	79122-X2	Screen – Kit 14' x 71"	
	79122	Screen – Kit 14' x 96"	
	32019	Screen – Kit 15' x 71"	
	79123	Screen – Kit 15' x 96"	
	79124-X1	Screen – Kit 16' x 71"	
	79124	Screen – Kit 16' x 96"	
	302020	Screen – Kit 18' x 71"	
	79126	Screen – Kit 18' x 96"	
1	79127-X2	Screen – Weldment 4' x 71"	AR
	79127	Screen – Weldment 4' x 96"	AR
	79128-X2	Screen – Weldment 5' x 71"	AR
	79128	Screen – Weldment 5' x 96"	AR
	79129-X2	Screen – Weldment 6' x 71"	AR
	79129	Screen – Weldment 6' x 96"	AR
2	20913	Screw – Self Tapping 3/8 x 3/4	AR
3	20712	Washer – Lock 3/8	AR
4	20693	Washer – Flat 3/8	AR

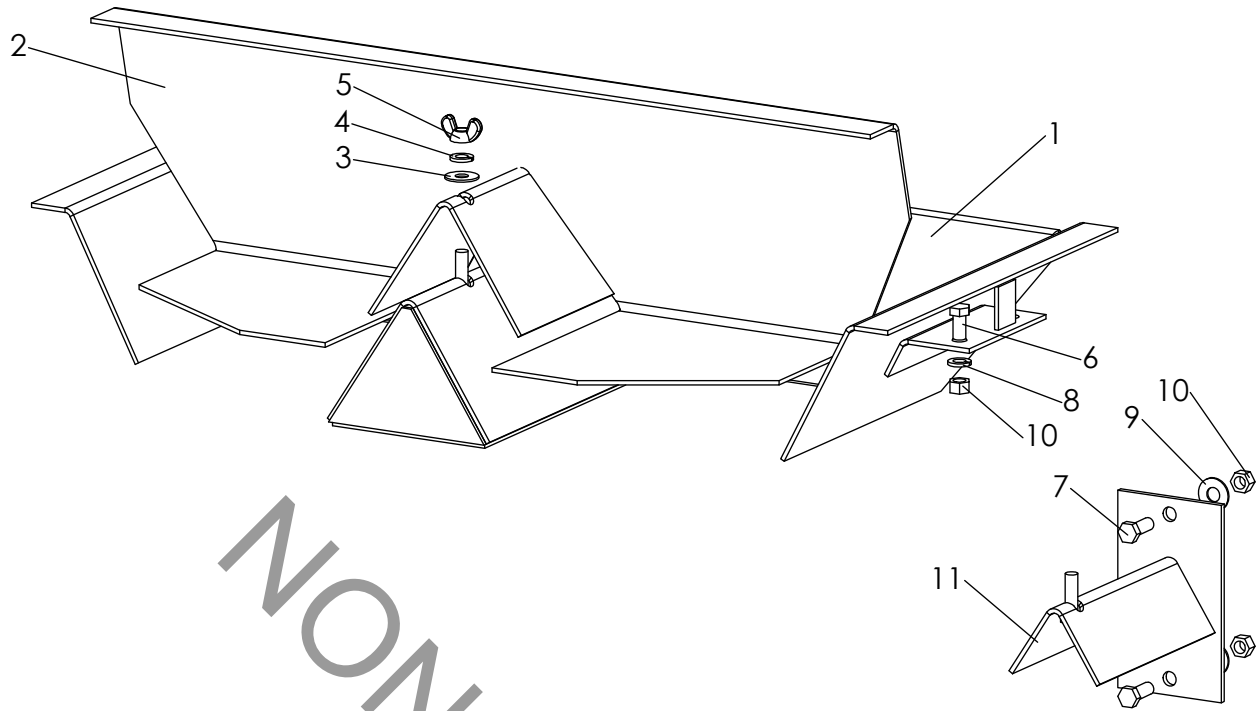
AR - As Required

LADDER



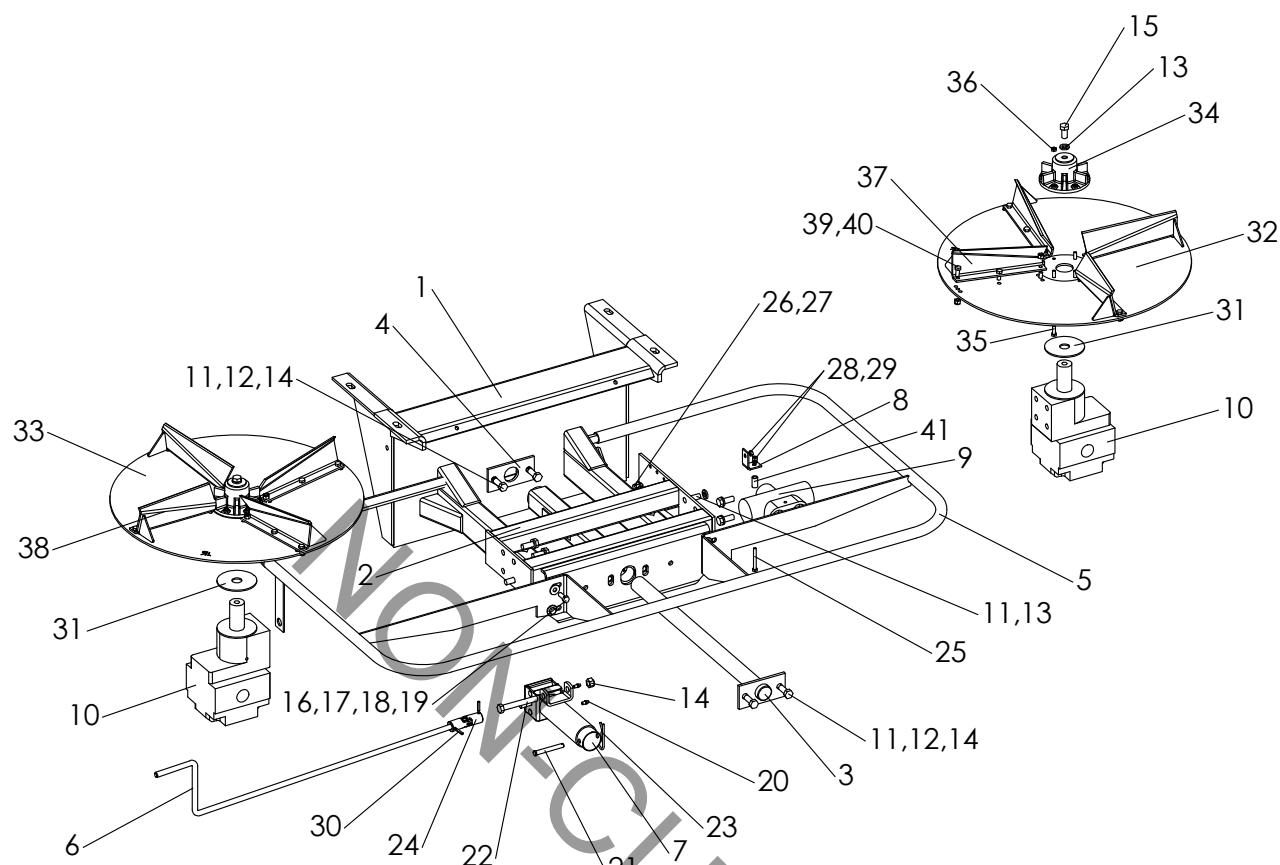
<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
	70385	Ladder Group	
1	72798	Ladder – Upper	1
2	72797	Ladder – Lower	1
	46459	Hardware Group, Includes Items 3–7	1
3	20069	Cap Screw – 3/8 x 1 1/2	2
4	20068	Cap Screw – 3/8 x 1 1/4	6
5	20693	Washer – Flat 3/8	4
6	20712	Washer – Lock 3/8	8
7	20644	Nut – Hex 3/8	8

PARTS LIST



<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
	87108	Divider – Material Assembly	
1	87054	Divider – Weldment	1
2	87064	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.

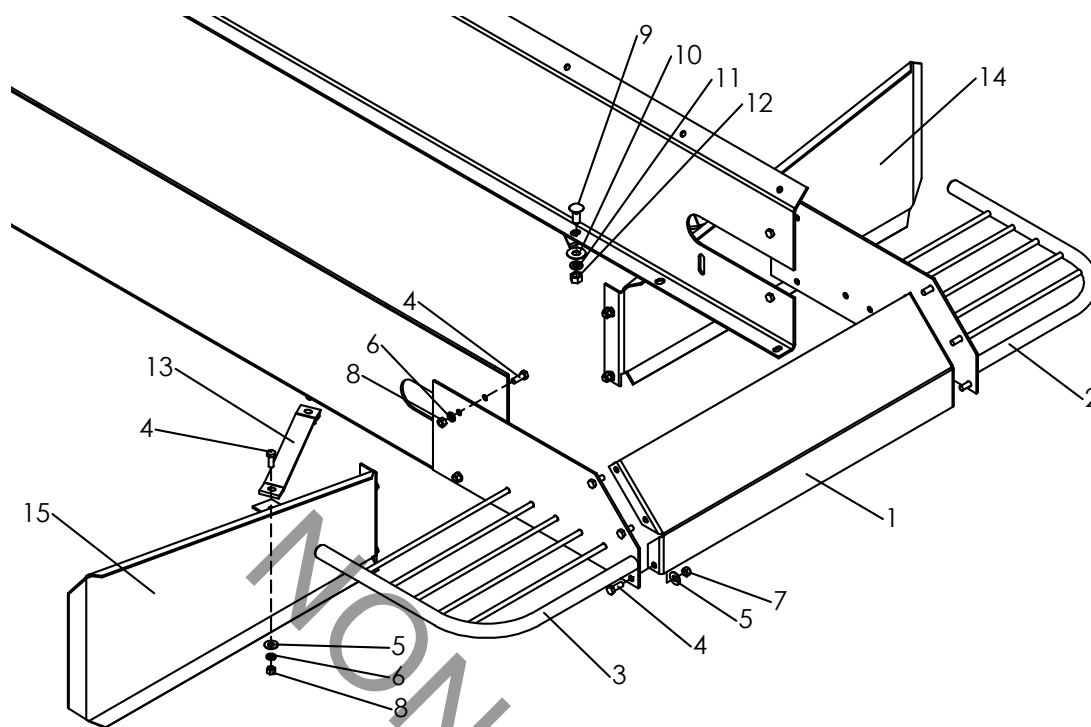


ITEM	PART NO.		DESCRIPTION	QTY
	CS	SS		
	87096	87095	24" Hydraulic Fan Assembly NOTE: Assembly does not include guards.	
	87106	87106	Fan – LH Assembly, Includes Items 33-40	
	87105	87105	Fan – RH Assembly, Includes Items 32 & 34-40	
1	87051	87090	Plate – Back	1
2	87013	87082	Mount – Motor Weldment	1
3	87021	87021	Shaft – Support Weldment	1
4	87065	87023	Plate – Shaft Mount	1
5	87032	87032-X1	Guard – Spinner Weldment	1
6	87024	87024	Handle	1
7	87170	87170	Jack – Coated Assy	1
8	87025	87025	Angle – Valve Mount	1
9	71781	71781	Valve – Flow Divider	1

ITEM	PART NO.		DESCRIPTION	QTY
10	305950	305950	Motor – Hydraulic	2
11	20128	36402	Cap Screw – 1/2 x 1 1/4	12
12	20695	36426	Washer – Flat 1/2	4
13	20714	36422	Washer – Lock 1/2	10
14	20680	39016	Nut – Lock 1/2	5
15	20127	36401	Cap Screw – 1/2 x 1	2
16	20067	36398	Cap Screw – 3/8 x 1	4
17	20693	36425	Washer – Flat 3/8	4
18	20712	36420	Washer – Lock 3/8	4
19	20644	36414	Nut – Hex 3/8	4
20	6072	6072	Zerk – Grease	4
21	6547	6547	Pin – Clevis	1
22	20138	80798	Cap Screw – 1/2 x 3-3/4	1
23	40576	40576	Pin – Hair	2
24	85002	85002	U-Joint	1
25	20010	34865	Cap Screw – 1/4 x 2 1/4	1
26	20005	36395	Cap Screw – 1/4 x 1	1
27	20691	36423	Washer – Flat 1/4	1
28	20710	36418	Washer – Lock 1/4	2
29	20642	36412	Nut – Hex 1/4	2
30	20918	20918	Pin – Roll	2
31	72294	72294	Washer – Rubber	2
32	27056-X4	27056-X4	Disc – Distributor RH	1
33	27056-X5	27056-X5	Disc – Distributor LH	1
34	10877	10877	Hub	2
35	20004	20004	Cap Screw – 1/4 x 7/8	12
36	20676	20676	Nut – Lock 1/4	12
37	25870	25870-X1	Fin – RH Weldment	4
38	25871	25871-X1	Fin – LH Weldment	4
39	20034	20034	Cap Screw – 5/16 x 3/4	24
40	20677	20677	Nut – Lock 5/16	24
41	6461	76825	Spacer	1
42	* 36940	36940	Bolt – Carriage 1/2 x 2	4
43	* 36426	36426	Washer – Flat 1/2	4
44	* 36422	36422	Washer – Lock 1/2	4
45	* 36416	36416	Nut – Hex 1/2	4

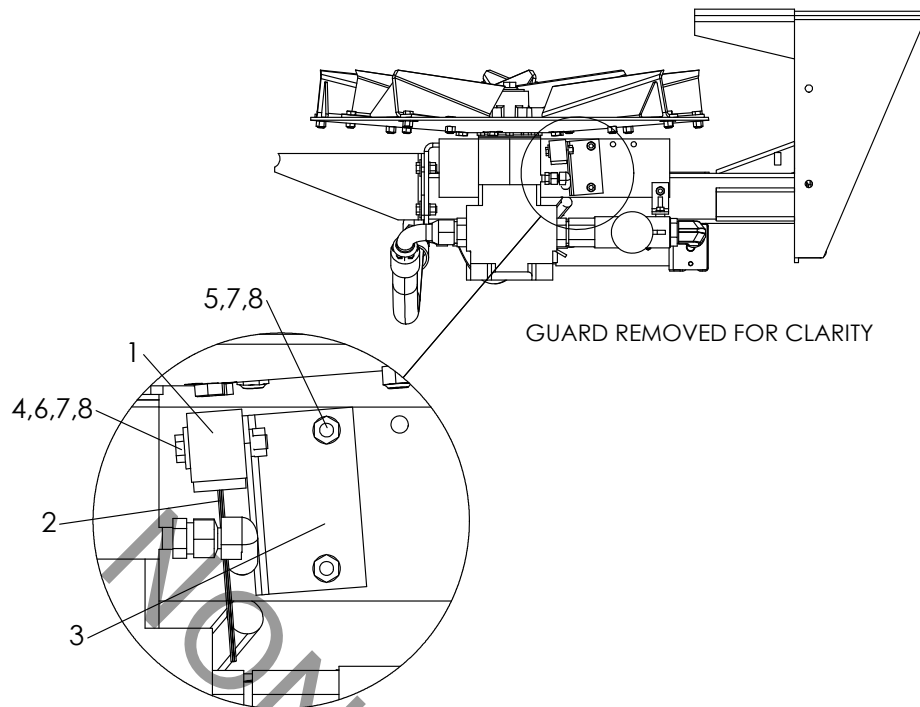
* - Not Shown - Used to attach spinner to sills.

SPINNER GUARD & SHIELDS

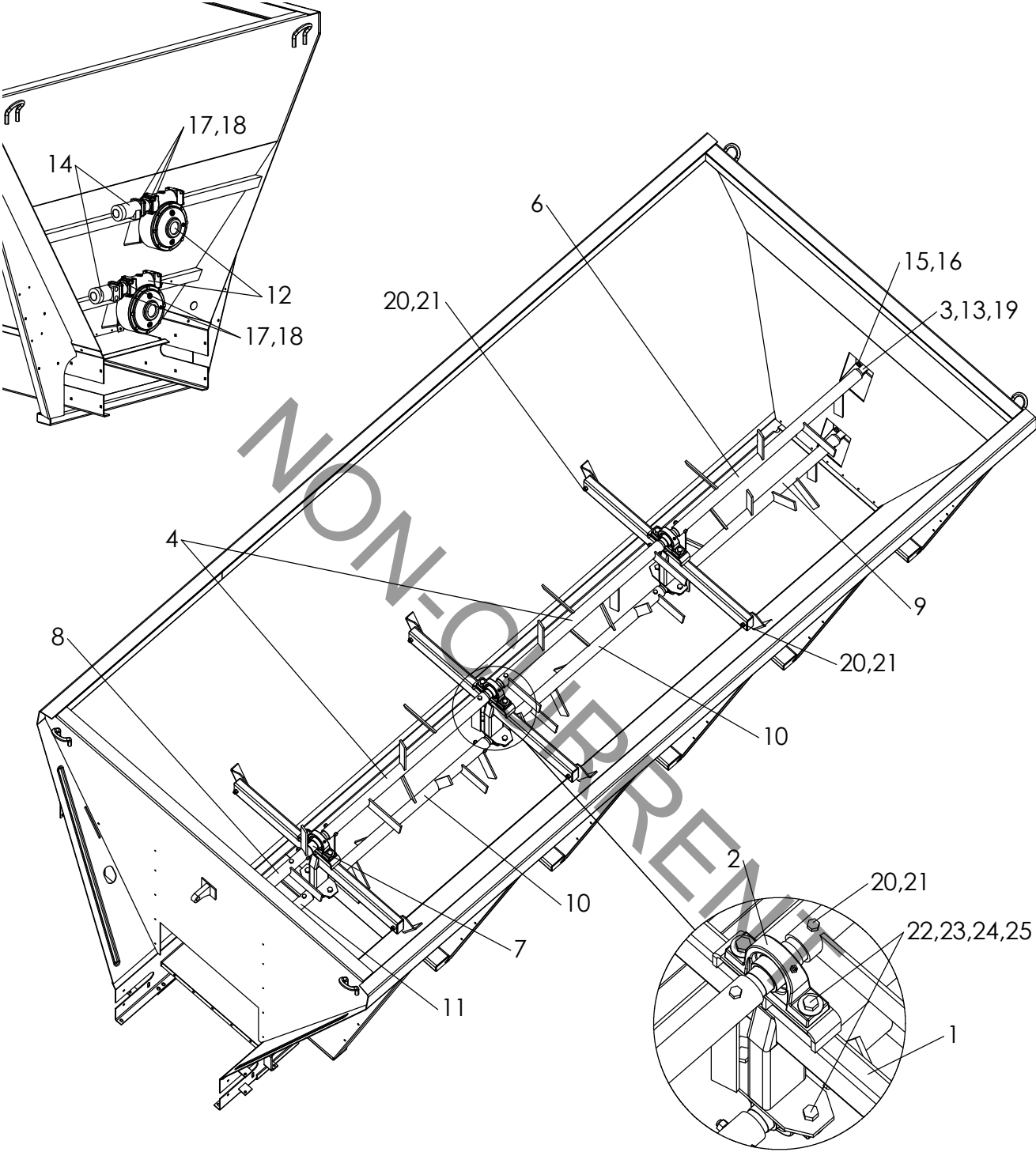
**WARNING**

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.

ITEM	PART NO.		DESCRIPTION	QTY
	CS	SS		
1	87066	87066-X1	Guard – Center Section Weldment	1
2	87027	87027-X1	Guard – RH Weldment	1
3	87031	87031-X1	Guard – LH Weldment	2
4	36398	36398	Cap Screw – 3/8 x 1	16
5	36425	36425	Washer – Flat 3/8	12
6	36420	36420	Washer – Lock 3/8	10
7	72054	72054	Nut – Lock 3/8	6
8	36414	36414	Nut – Hex 3/8	10
9	36940	36940	Bolt – Carriage 1/2	2
10	36426	36426	Washer – Flat 1/2	2
11	36422	36422	Washer – Lock 1/2	2
12	36416	36416	Nut – Hex 1/2	2
13	87067	87068	Bar – Stiffener	2
14	82960	82964	Shield – RH Weldment	1
15	82961	82965	Shield – LH Weldment	1



<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	2
7	36418	Washer – Lock 1/4 SS	4
8	36412	Nut – Hex 1/4 SS	4

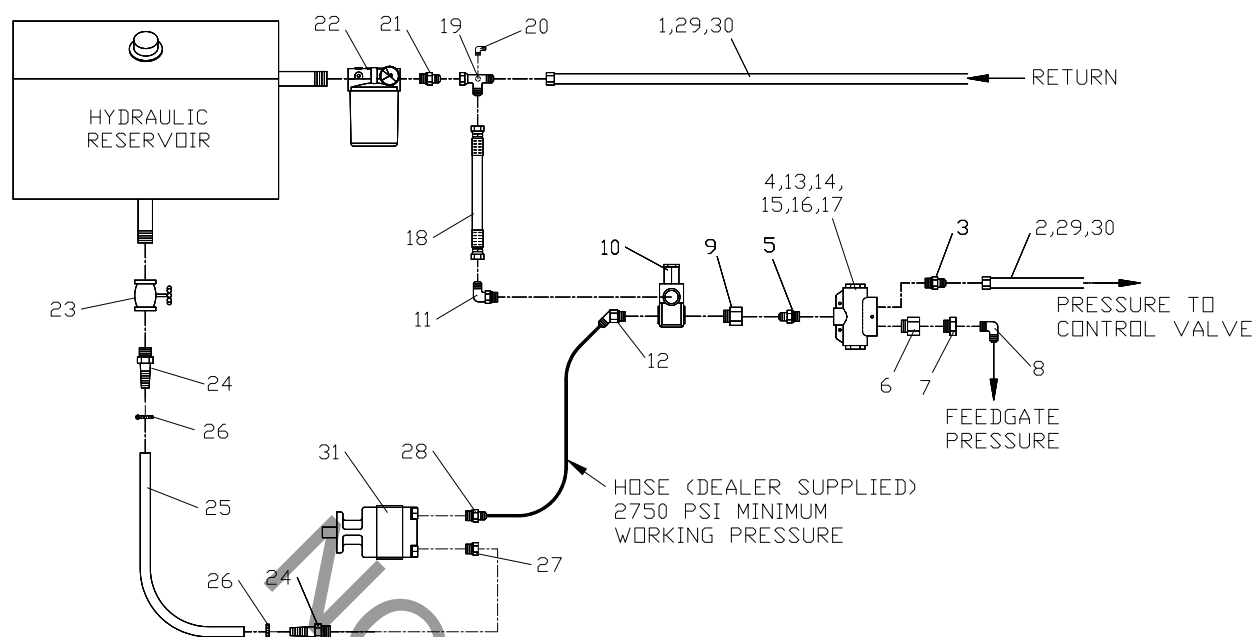


PARTS LIST

AGITATORS CONTINUED

<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
	302028	Agitator – Assembly Double 12'	
	302029	Agitator – Assembly Double 13'	
	302030	Agitator – Assembly Double 14'	
	302031	Agitator – Assembly Double 15'	
	302032	Agitator – Assembly Double 16'	
	302033	Agitator – Assembly Double 18'	
1	77921-X1	Hanger – Agitator Weldment	AR
2	73715	Bearing – Pillow Block	AR
3	77816	Shaft – Drive	2
4	77829	Agitator – Weldment Top Middle	AR
5	73977	Shaft – Connecting	AR
6	302021	Agitator – Weldment Top Front	1
7	73984	Shaft – End	2
8	77832	Agitator – Weldment Top Rear	1
9	77817	Agitator – Weldment Bottom Front	1
10	73978	Agitator – Weldment Bottom Middle	AR
11	73985	Agitator – Weldment Bottom Rear	1
12	70926	Gear Case – Assembly 50:1	2
13	21433	Key – Square 3/8 x 3/8 x 2	2
14	70927	Motor – Hydraulic 1/2 4-Bolt Flange	2
15	20127	Cap Screw – 1/2 x 1	8
16	20714	Washer – Lock 1/2	8
17	20064	Cap Screw – 3/8 x 1	8
18	20712	Washer – Lock 3/8	8
19	6168	Key – Square	2
20	20135	Cap Screw – 1/2 x 3	10
21	20680	Nut – Lock 1/2	10
22	20177	Cap Screw – 5/8 x 2	AR
23	20697	Washer – Flat 5/8	AR
24	20716	Washer – Lock 5/8	AR
25	20648	Nut – Hex 5/8	AR
26	36987	Clamp – Insulated	AR
27	72071	Screw – Self Drilling	AR
28	6000	Coupling – Pipe	AR
29	34734	Adapter – Elbow 90°	AR
30	77834	Hose – Assembly 1/4 x 28 Upper	AR
31	77835	Hose – Assembly 1/4 x 39-1/2 Lower	AR

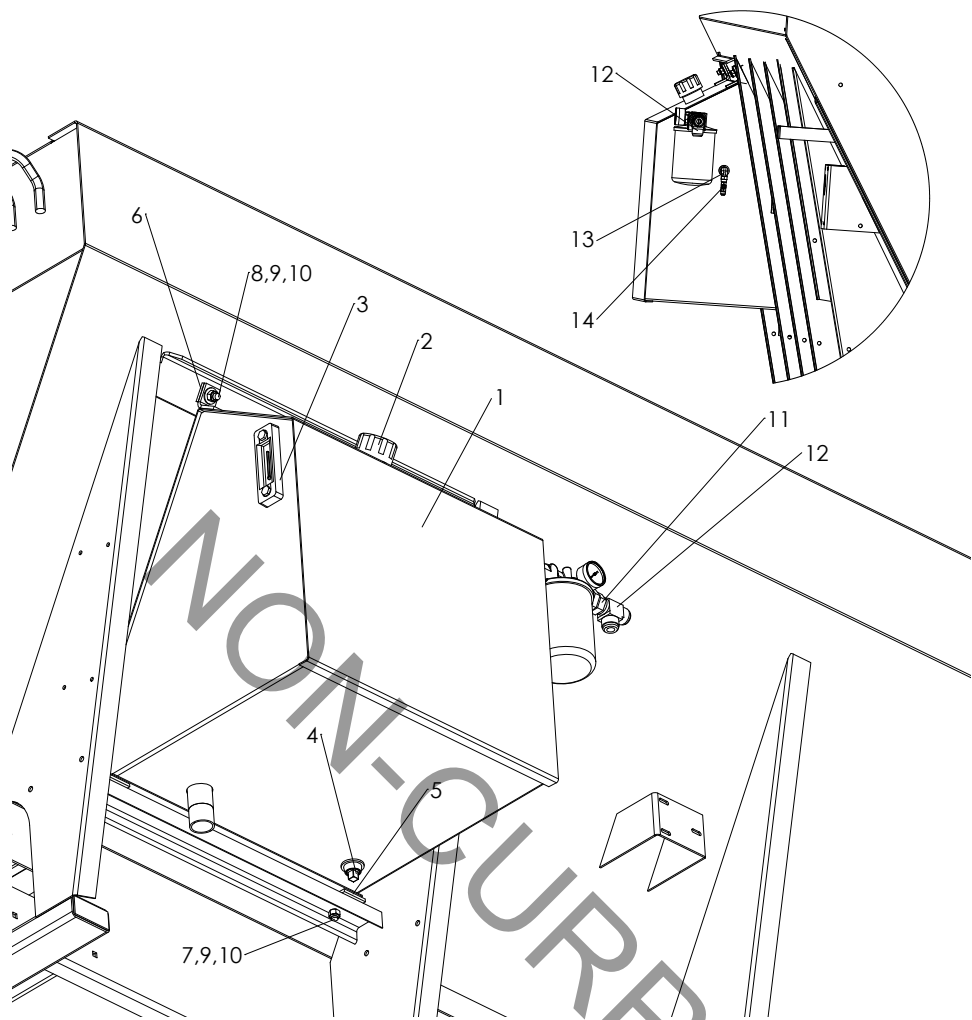
AR - As Required



<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
1	82500	Tube Assembly – 10’ Unit	1
	43540	Tube Assembly – 12’ Unit	1
	43541	Tube Assembly – 13’ Unit	1
	43542	Tube Assembly – 14’ Unit	1
	46532	Tube Assembly – 15’ Unit	1
	46533	Tube Assembly – 16’ Unit	1
	46533-X8	Tube Assembly – 18’ Unit	1
	82500	Tube Assembly – 12’ Unit with Agitators	1
	43539	Tube Assembly – 13’ Unit with Agitators	1
	43540	Tube Assembly – 14’ Unit with Agitators	1
	43541	Tube Assembly – 15’ Unit with Agitators	1
	43542	Tube Assembly – 16’ Unit with Agitators	1
	46533	Tube Assembly – 18’ Unit with Agitators	1
	2	84743	Tube Assembly – 10’ Unit
84745		Tube Assembly – 12’ Unit	1
84746		Tube Assembly – 13’ Unit	1
84747		Tube Assembly – 14’ Unit	1
84748		Tube Assembly – 15’ Unit	1
84749		Tube Assembly – 16’ Unit	1

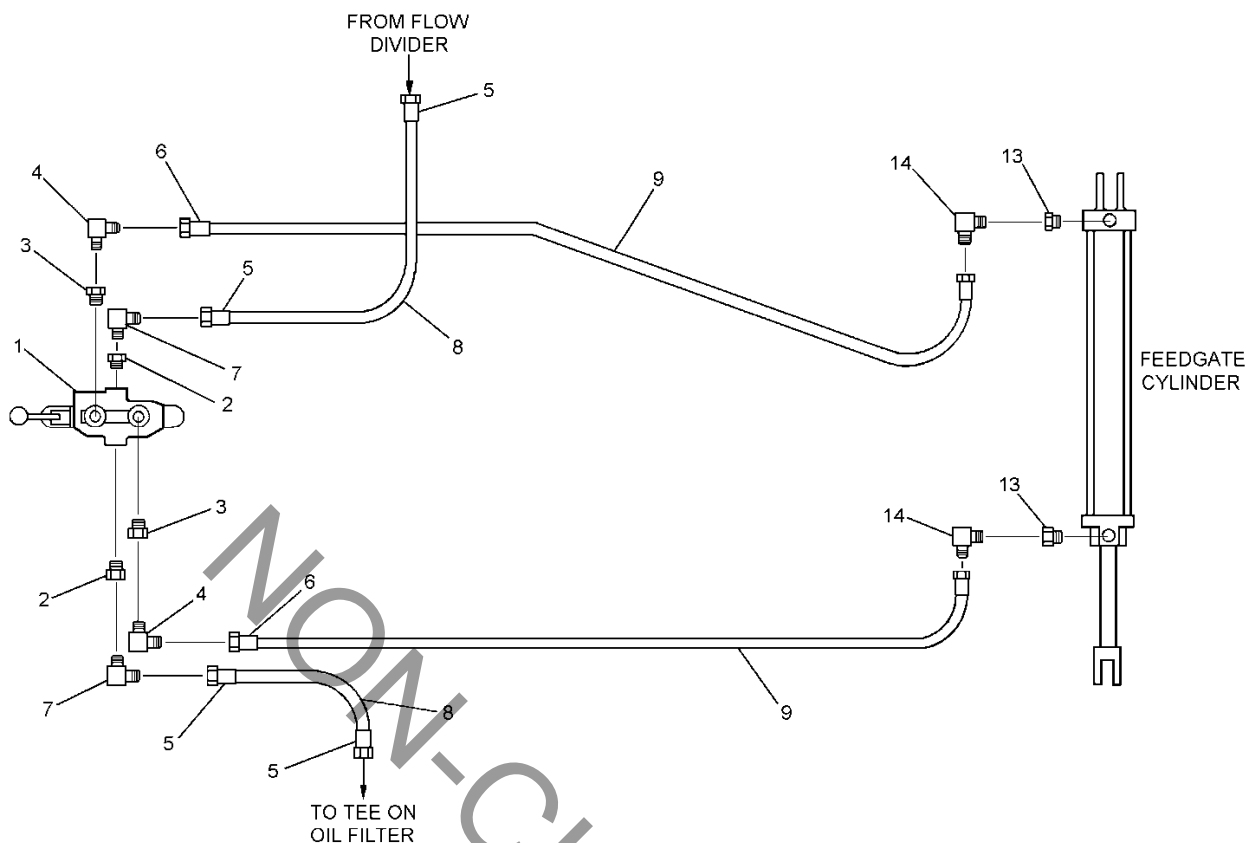
ITEM	PART NO.	DESCRIPTION	QTY
	84749-X2	Tube Assembly – 18' Unit	1
3	29751	Adapter	1
4	70336	Valve – Flow Divider	1
5	29803	Adapter – Connector	1
6	21505	Adapter – Bushing	1
7	22212	Bushing – Pipe	1
8	34779	Adapter – Elbow 90°	1
9	34810	Adapter – Connector	1
10	96174	Valve – Relief Soft Start	1
11	29840	Adapter – Elbow 90°	1
12	34726	Adapter – 45°	1
13	36396	Cap Screw – 1/4 x 3	1
14	34865	Cap Screw – 1/4 x 2-1/4	2
15	70341-X1	Pipe - Spacer	1
16	70340-X1	Pipe - Spacer	2
17	42034	Nut – Lock 1/4	3
18	79553	Hose – Assembly 1 x 36	1
19	29850	Tee – Swivel Nut	1
20	34752	Adapter – Elbow 90°	1
21	34724	Adapter – Connector	1
22	39845	Filter – Hydraulic	1
	43530	Filter	1
	43534	Indicator – Service	1
	6029	Plug – Pipe	1
23	21409	Valve – Gate	1
24	31680	End – Hose	2
25	21878-108	Hose (Use with Direct Mount Pump)	1
	21878-72	Hose (Use with Driveline Pump)	1
26	6288	Clamp – Hose	2
27	29780	Adapter – Bushing	1
28	34845	Adapter – Connector	1
29	72977	Clamp – 2-Bolt 1" Tube	AR
30	72071	Screw – Self Tapping	AR
31	86664	Pump – 3.85 CID Driveline	1
	86665	Pump – 4.38 CID Driveline	1
	86664-AH	Seal Kit – Pump	1

AR - As Required



ITEM	PART NO.	DESCRIPTION	QTY
1	301503	Tank – Weldment 40 Gallon, Includes Item 2	1
2	96747	Cap – Filler	1
3	38575	Gauge – Assembly Sight & Temperature	1
4	6033	Plug – Pipe 3/4	1
5	39158	Belt – Flex Mount	2
6	39159	Belt – Flex Mount	2
7	36539	Cap Screw – 1/2 x 1-1/2	2
8	71832	Cap Screw – 1/2 x 1-3/4	2
9	36426	Washer – Flat 1/2	4
10	39016	Nut – Lock 1/2	4
11	*34779	Adapter - Elbow	1

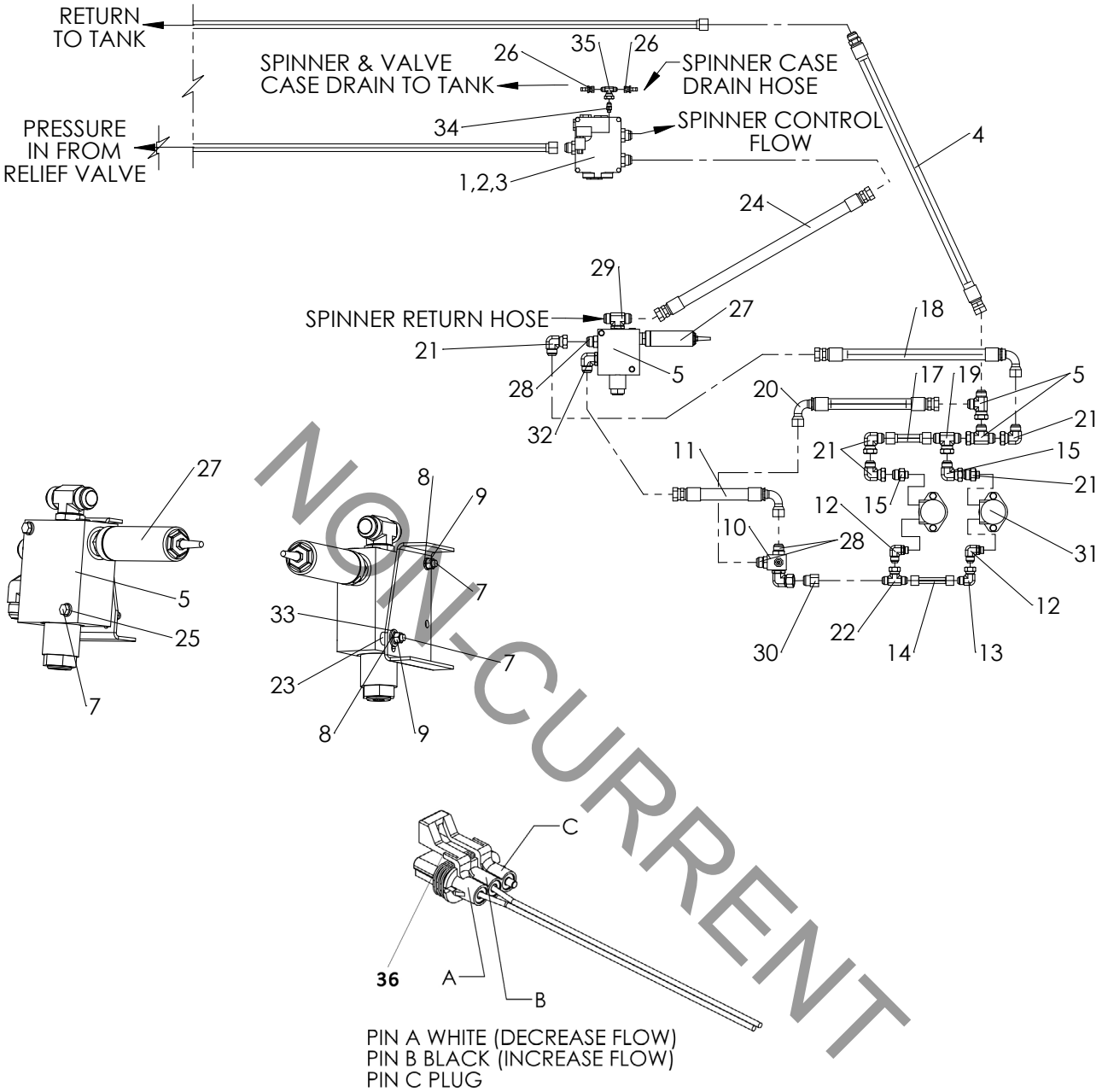
* - Not Shown



ITEM	PART NO.	DESCRIPTION	QTY
1	37960	Valve – Control	1
2	22212	Bushing – Pipe	2
3	6419	Bushing – Pipe	2
4	34732	Adapter – Elbow 90°	2
5	56467	End – Hose	4
6	56466	End – Hose	2
7	34779	Adapter – Elbow 90°	2
8	56452-300	Hose	1
9	302015	Hose	1
10	* 78747	Clamp – Conduit	AR
11	* 72071	Screw – Self Tapping 1/4 x 3/4	AR
12	* 1729	Wrap – Tie 11.5"	AR
13	84246	Adapter – Connector	2
14	34816	Adapter – Elbow 90°	2

* - Not Shown AR - As Required

HYDRAULICS

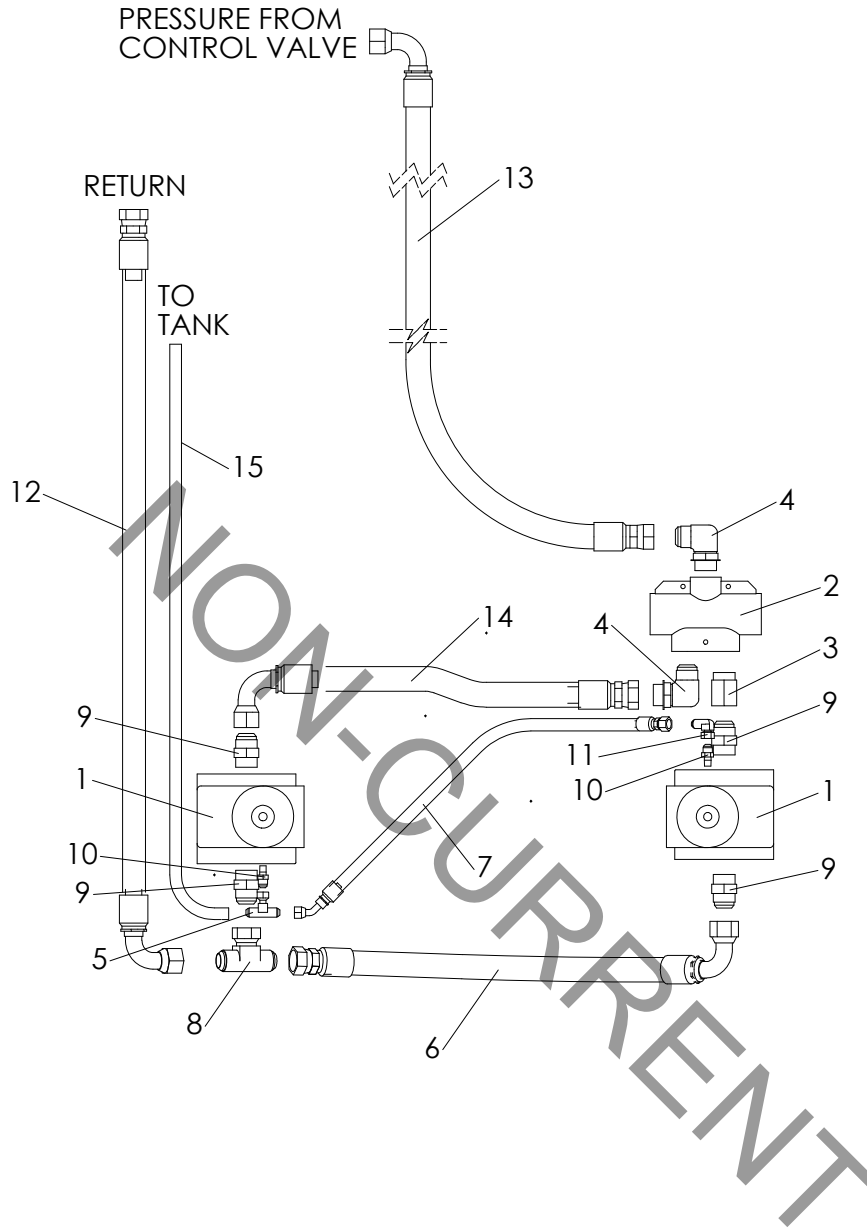


ITEM	PART NO.	DESCRIPTION	QTY
1	38576	Valve – Control	1
	38576-X4	Valve - Control PWM	1
2	42794	Cap Screw – 5/16 x 3-3/4	4
3	42221	Nut – Lock 5/16	4
4	81340	Hose – Return	1
5	29850	Adapter – Tee	2
6	306271	Manifold - 40 GPM	1

HYDRAULICS CONTINUED

ITEM	PART NO.	DESCRIPTION	QTY
7	34860	Cap Screw – 3/8-16NC x 4	2
8	36420	Washer – Lock 3/8 SS	2
9	36414	Nut – Hex 3/8-16NC SS	2
10	304818	Valve – Relief	1
11	82577	Hose Assembly	1
12	29773	Adapter – 90°	2
13	34709	Adapter – Elbow 90°	1
14	80886	Tube – Assembly	1
15	29778	Adapter	2
16	34712	Adapter – Connector	1
17	80888	Tube – Assembly	1
18	82578	Hose – Return	1
19	29836	Adapter – Tee Branch	1
20	56444	Hose – Return	1
21	29807	Adapter – 90°	6
22	29809	Adapter – Tee	1
23	302100	Washer – Step	2
24	56128	Hose – Assembly	1
25	302099	Washer – Step	2
26	34761	Fitting – Socketless	1
27	306272	Valve - Flow Control 40 GPM	1
28	29803	Adapter	8
29	34750	Fitting - 16-16-16 070429	1
30	304819	Adapter – Elbow 90°	1
31	57304	Gear Case Assembly – 1.5" Motors	1
	37985	Gear Case – Assembly Dual Pinion	1
	38897	Motor – Hydraulic 1.5"	2
	20128	Cap Screw 1/2 x 1-1/4	4
	20714	Washer – Lock 1/2	4
32	29840	Fitting - 16-16 070220	1
33	36425	Washer - Flat 3/8	1
34	34757	Fitting - 6-6-6 070120	1
35	29825	Fitting - 6-6-6 070433	1
36	307399	Cable - Pigtail	AR

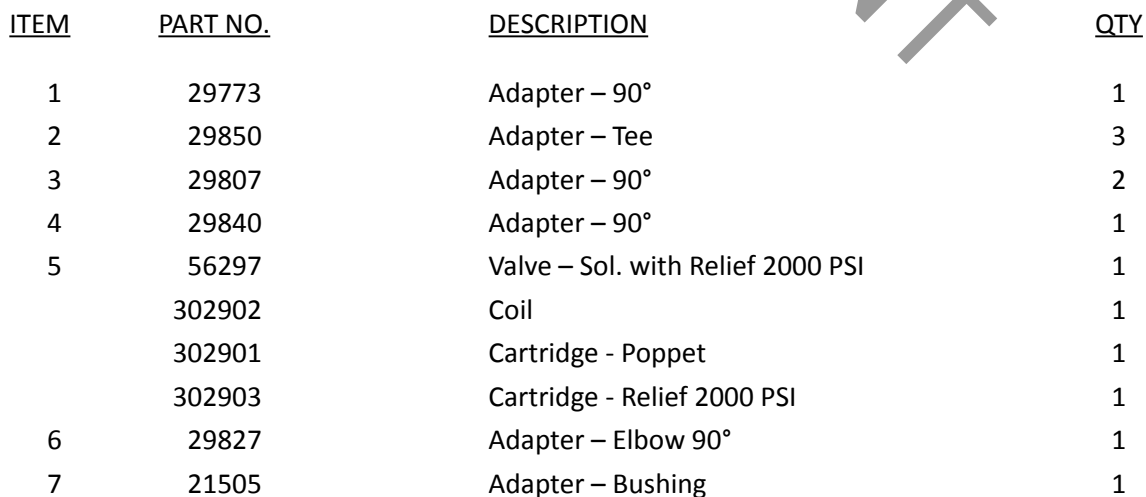
Items 26, 34 & 35 only included with PWM Valve Hydraulics. AR - As Required



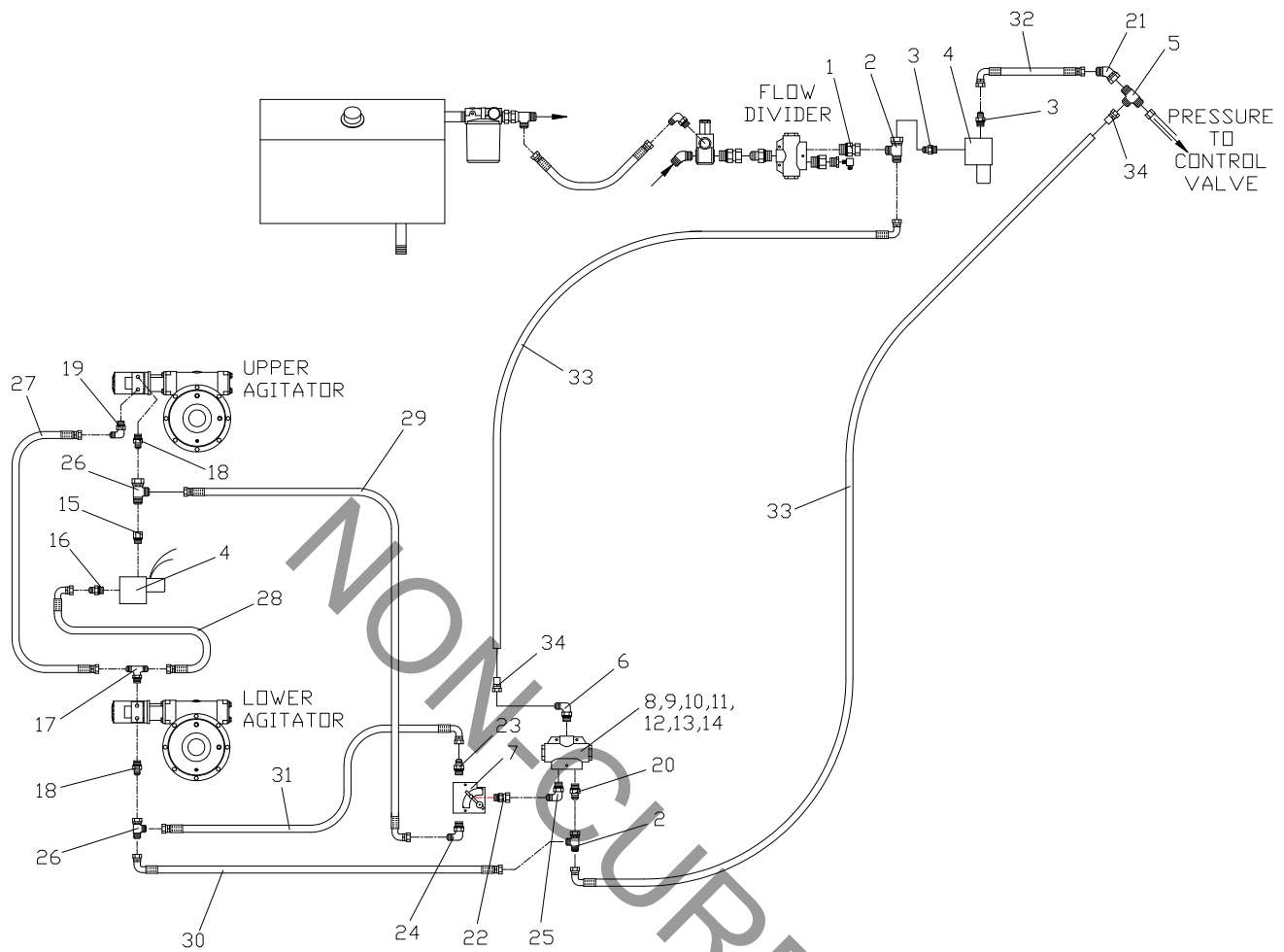
PARTS LIST

TWIN SPINNER HYDRAULICS CONTINUED

<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
1	305950	Motor – Spinner	2
2	71781	Valve – Flow Divider	1
3	34810	Adapter	1
4	29840	Adapter – 90°	2
5	29825	Tee – Swivel Nut	1
6	87111	Hose Assembly	1
7	87112	Hose Assembly	1
8	29836	Tee – Swivel Nut	1
9	29803	Adapter	4
10	34763	Adapter	2
11	34816	Adapter – 90°	1
12	87113	Hose – Return Assembly	1
13	98102	Hose – Pressure Assembly	1
14	98101	Hose – Assembly 1 x 26-1/2	1
15	83598	Hose – Drain Line, 10' Unit	1
	83600	Hose – Drain Line, 12' Unit	1
	83601	Hose – Drain Line, 13' Unit	1
	83602	Hose – Drain Line, 14' Unit	1
	83603	Hose – Drain Line, 15' Unit	1
	83604	Hose – Drain Line, 16' Unit	1
	83604-X2	Hose – Drain Line, 18' Unit	1

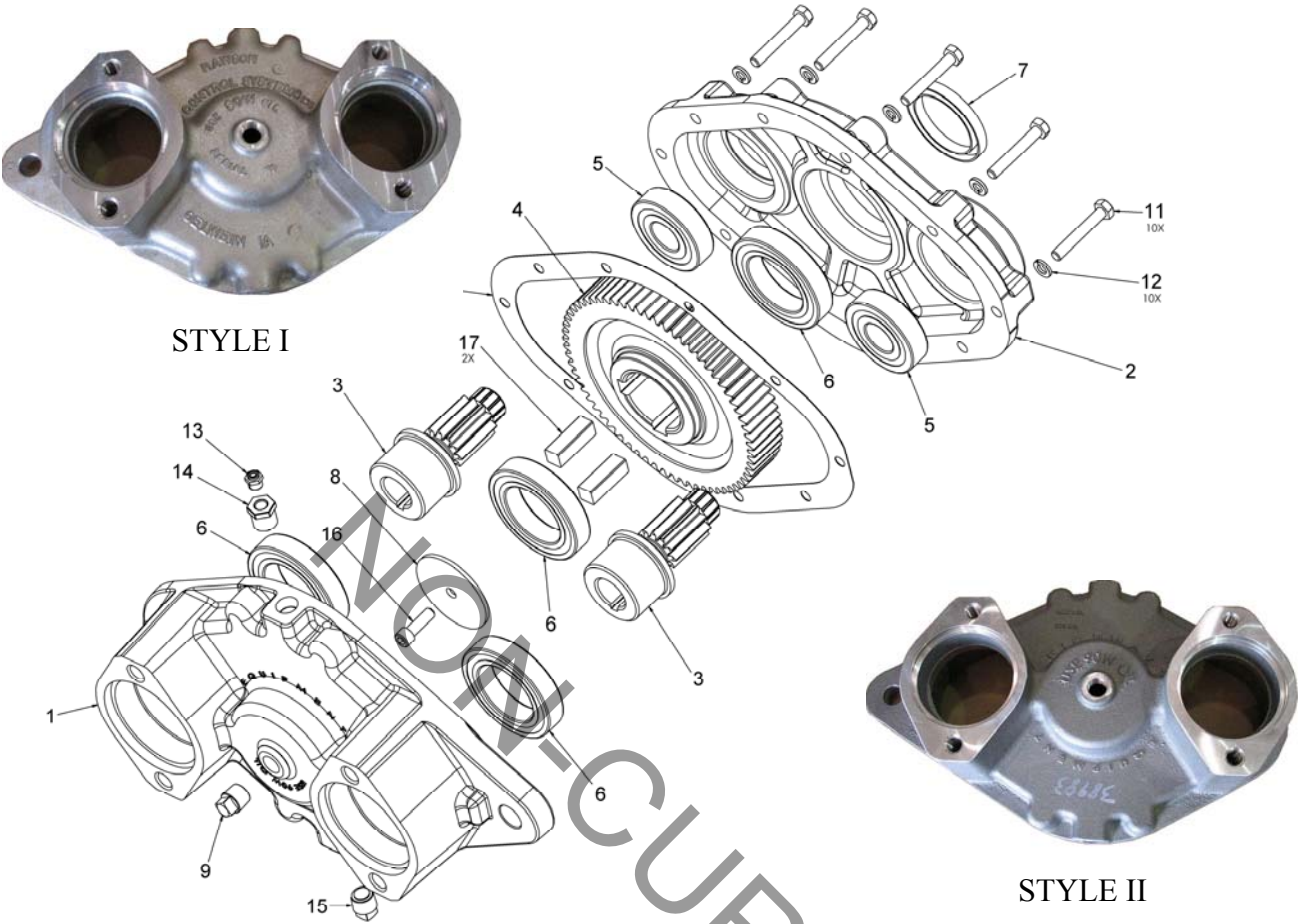


<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
8	29809	Adapter – Tee	2
9	80886	Tube – Assembly	1
10	80888	Tube – Assembly	1
11	29778	Adapter	2
12	38576	Valve – Control	2
13	29803	Adapter	4
14	82376	Hose – Return	1
15	82528	Hose – Return	1
16	56107	Hose Assembly	1
17	82512	Hose – Return	1
18	29836	Adapter – Branch Tee	1
19	42794	Cap Screw – 5/16 x 3-3/4	6
20	42221	Nut – Lock 5/16	7
21	36424	Washer – Flat 5/16	2
22	80942	Bracket – Valve Weldment	1
23	56858	Cap Screw – 5/16 x 3/4	1
24	34732	Adapter – Elbow 90°	1
25	34855	Adapter – Cap	1
26	31142	Adapter – Elbow 90° Tapped	1
27	29835	Adapter	1
28	22017	Adapter	1
29	16363	Nipple – Close	1
30	34716	Adapter – Swivel	1
31	57304	Gear Case Assembly – 1.5" Motors	1
	37985	Gear Case – Assembly Dual Pinion	1
	38897	Motor – Hydraulic 1.5"	2
	20128	Cap Screw 1/2 x 1-1/4	4
	20714	Washer – Lock 1/2	4
	74524	Gasket – Motor Flange	2



ITEM	PART NO.	DESCRIPTION	QTY
1	34810	Adapter – Coupling	1
2	29850	Adapter – Tee	2
3	29757	Adapter – Connector	2
4	33712	Valve – Dump	2
5	34711	Adapter – Tee	1
6	29840	Adapter – Elbow 90°	1
7	32485	Valve – Flow Control	1
8	71781	Valve – Flow Divider	1
9	85278	Bracket – Valve Mount	1
10	6461	Pipe – Spacer	2
11	20012	Cap Screw – 1/4-20 NC x 2 3/4	1
12	20010	Cap Screw – 1/4 -20 NC x 2 1/2	2
13	20691	Washer – Flat 1/4	3
14	20676	Nut – Lock 1/4-20 NC	3
15	34826	Adapter – Coupling	1
16	29752	Adapter – Connector	1
17	29777	Adapter – Run Tee	1
18	29753	Adapter – Connector	2
19	29773	Adapter – Elbow 90°	1
20	29803	Adapter – Connector	1
21	29806	Adapter – Elbow 45°	1
22	29788	Adapter – Connector	1
23	29789	Adapter – Connector	1
24	29847	Adapter – Elbow 90°	1
25	29829	Adapter – Elbow 90°	1
26	29781	Adapter – Run Tee	2
27	77848	Hose - .75 x 34.375	1
28	77849	Hose - .75 x 54.5	1
29	58952	Hose - .75 x 40	1
30	84720	Hose – 1 x 30.625	1
31	54773	Hose – 1 x 32	1
32	56110	Hose – 1 x 17	1
33	29679	Hose – 1 x 120	2
34	56555	Fitting – Hose End	2
35	* 74581	Clamp – Hose	2
36	* 72071	Screw – Self Tapping	4

* - Not Shown



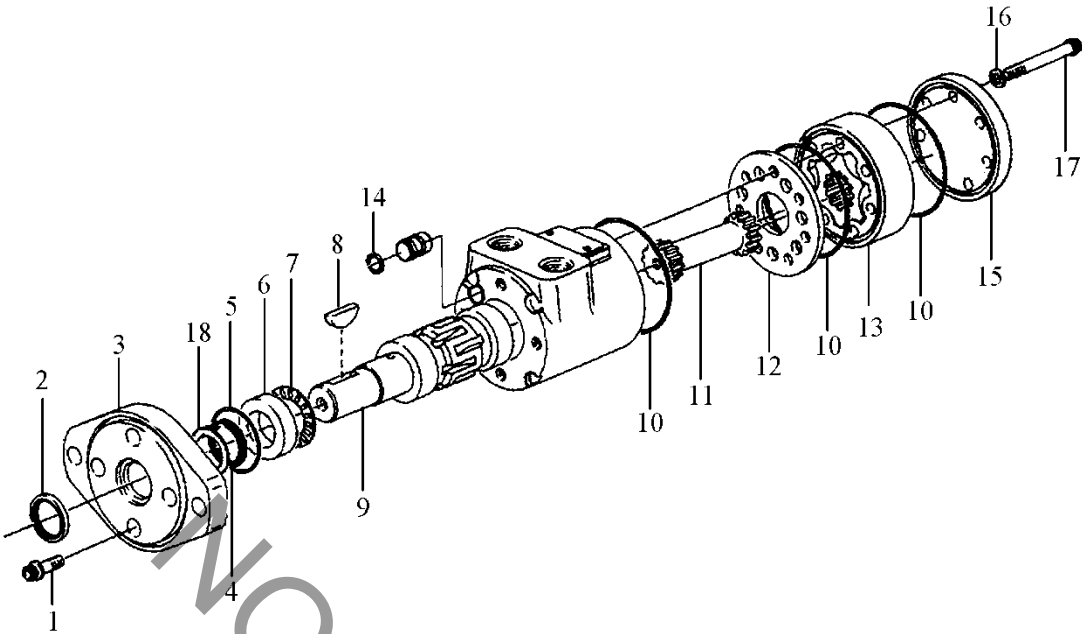
STYLE I

STYLE II

PARTS LIST

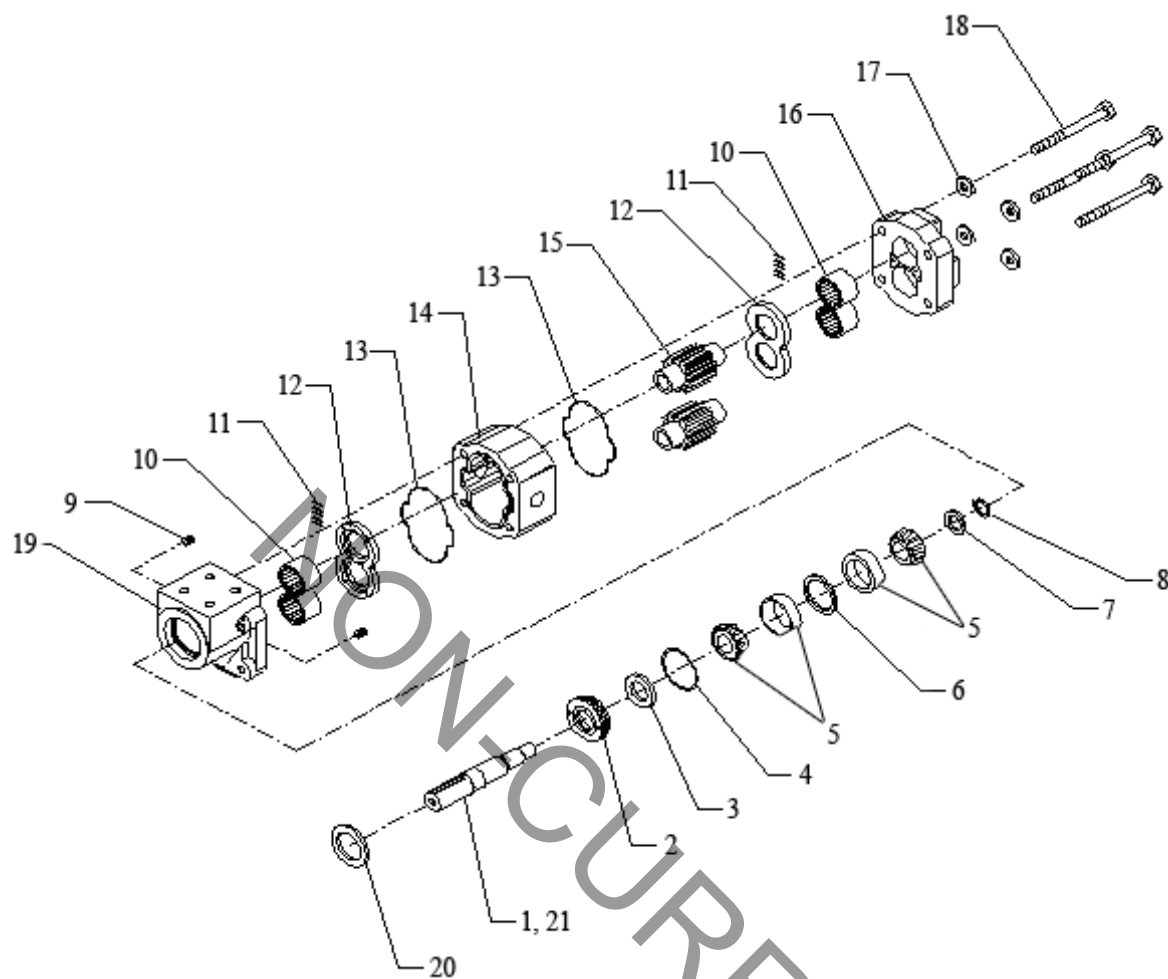
GEAR CASE - DUAL PINION CONTINUED

<u>ITEM</u>	<u>PART NO.</u>		<u>DESCRIPTION</u>	<u>QTY</u>
	37985		Gear Case – Assembly Dual Pinion	
	Style I	Style II		
	304268-AA	304268-AB	Parts – Service, Includes 1–17	
1	38983	304557	Housing – Outboard	1
2	38982	304558	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	38978	304564	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



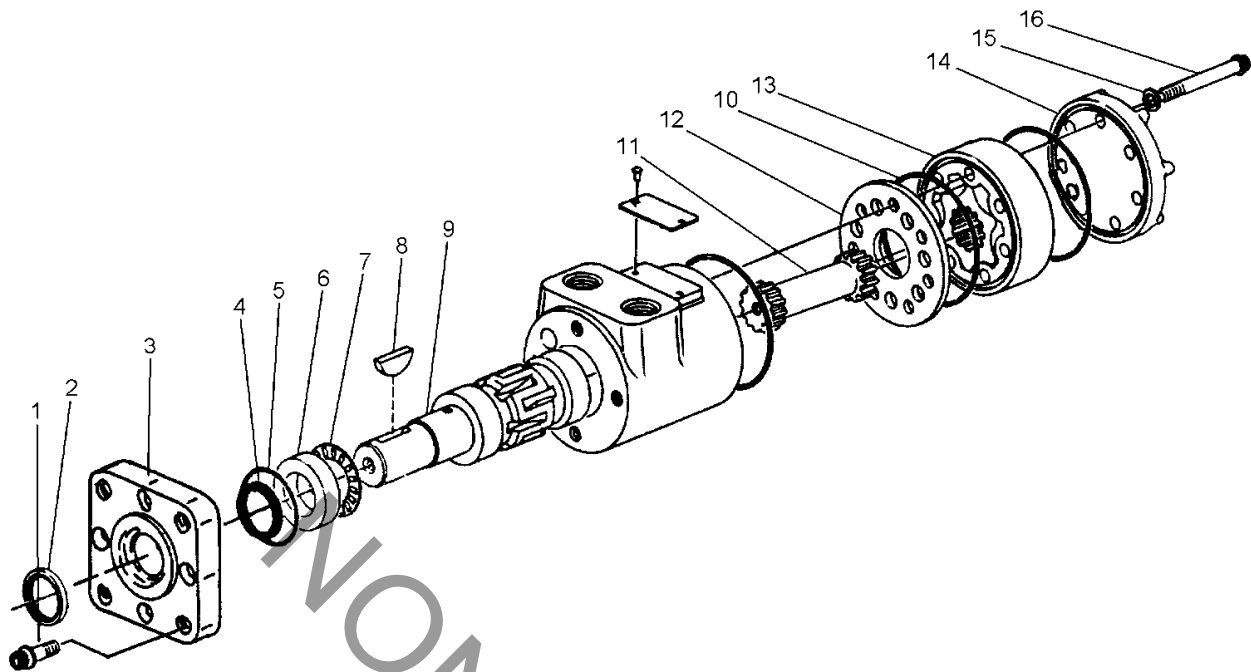
PARTS LIST

<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
	82459	Motor – Hydraulic 1.25	
	82462	Motor – Hydraulic 1.25 Modified	
	38897	Motor – Hydraulic 1.5	
	46395	Motor – Hydraulic 1.5 Modified	
1	30665	Cap Screw	4
2	73471	Seal	1
3	73555	Flange – Mounting (Used on 82459 & 38897)	1
	73556	Flange – Mounting (Used on 82462)	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	3
11	83014	Drive	1
12	37388	Plate – Spacer	1
13	83015	Gerotor – 1.25	1
	73553	Gerotor – 1.5	1
14	22068	Seal – O-Ring	1
15	37400	Cap – End	1
16	37381	Washer – Seal	7
17	83016	Cap Screw (Used on 82459 & 82462)	7
	16937	Cap Screw (Used on 38897)	7
18	73472	Washer – Back-up	1
	39137	Seal Kit, Includes Items 2,4,5,10,15 & 18	



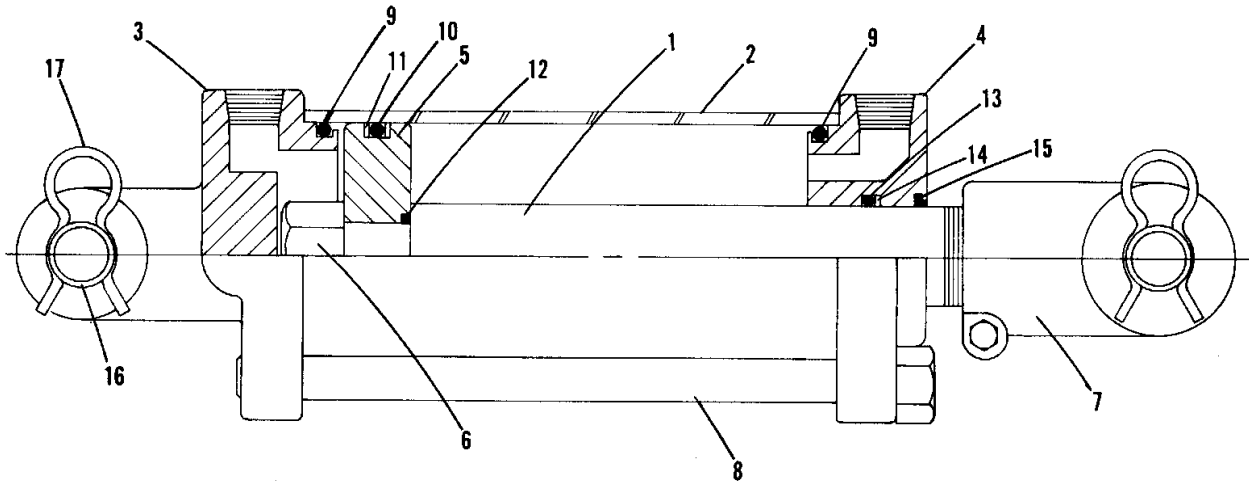
<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
	306093	Shaft Assembly - Output Includes: 1-8, 20, 21	
	72548	Kit - Seal, Includes: 3, 4, 20	
	305950	Motor - Hydraulic	
1	306088	Shaft - Output	1
2	306091	Ring - Retainer	1
3	71980	Seal	1
4	28494	"O" Ring	1
5	28491	Bearing - Tapered Roller Assembly	2
	41014	Cone - Bearing	1
6	41013	Cup - Bearing	1
7	28454	Spacer	1
8	306092	Washer - Lock	1
9	306089	Nut - Lock	1
10	58797	Plug	1
11	23806	Bearing	4
12	23819	Seals - Pocket (Makes 12 Seals)	1
13	23818	Plate	2
14	23820	Gasket	2
15	41954	Housing	1
16	23824	Gear Set	1
17	23812	Cover - Port End	1
18	N/A	Washer	4
19	20190	Cap Screw	4
20	306087	Cover - Shaft End	1
21	33809	Seal - Excluder	1
22	24458	Key	1
23	*30723	Tool - Wrench Spinner	1
24	*24536	Tool - Seal Driver	1
25	*23940	Tool - Seal Sleeve	1
	*306429	Tool - Speedi	1

* - Not Shown



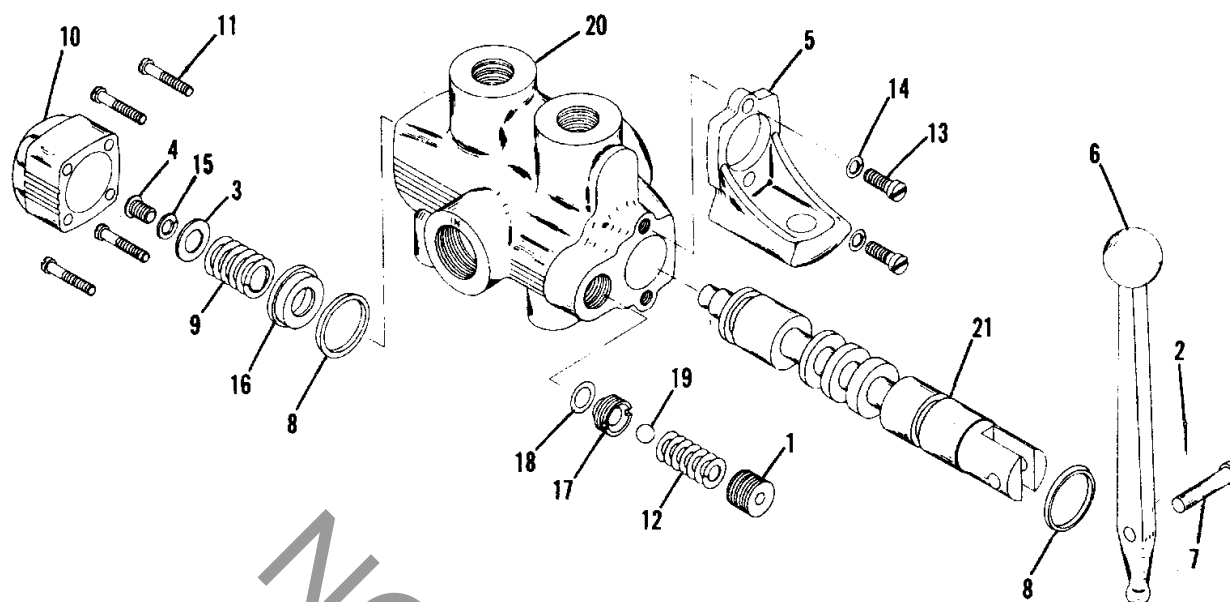
ITEM	PART NO.	DESCRIPTION	QTY
	70927	Motor – Hydraulic	
1	30665	Cap Screw	4
2	37382	Seal	1
3	37383	Flange – Mounting	1
4	37378	Seal	1
5	37379	Seal – O-Ring	1
6	37385	Bearing – Spacer	1
7	37401	Bearing – Thrust Needle	1
8	3065	Key – Woodruff	1
9	37386	Shaft – Output	1
10	37380	Seal – O-Ring	3
11	16945	Drive	1
12	37388	Plate – Spacer	1
13	37391	Gerotor	1
14	37400	Cap – End	1
15	37381	Washer – Seal	7
16	16933	Cap Screw	7
17	* 22068	Seal – O-Ring	1
	37352	Seal Kit, Includes Items 2, 4, 5, 10, 15, 17	

* - Not Shown



ITEM	PART NO.	DESCRIPTION	QTY
	55377	Cylinder – Hydraulic Assembly	
1	58767	Rod – Piston	1
2	58768	Tube	1
3	58769	Butt	1
4	58770	Gland	1
5	58771	Piston	1
6	58772	Nut – Lock	1
7	58773	Clevis Assembly	1
8	58774	Rod – Tie	4
9	58775	O-Ring	2
10	58776	O-Ring	1
11	58777	Washer	2
12	58778	O-Ring	1
13	58779	O-Ring	1
14	58780	Washer	1
15	58781	Wiper	1
16	58782	Pin – Clevis	2
17	58783	Clip – Hairpin	4

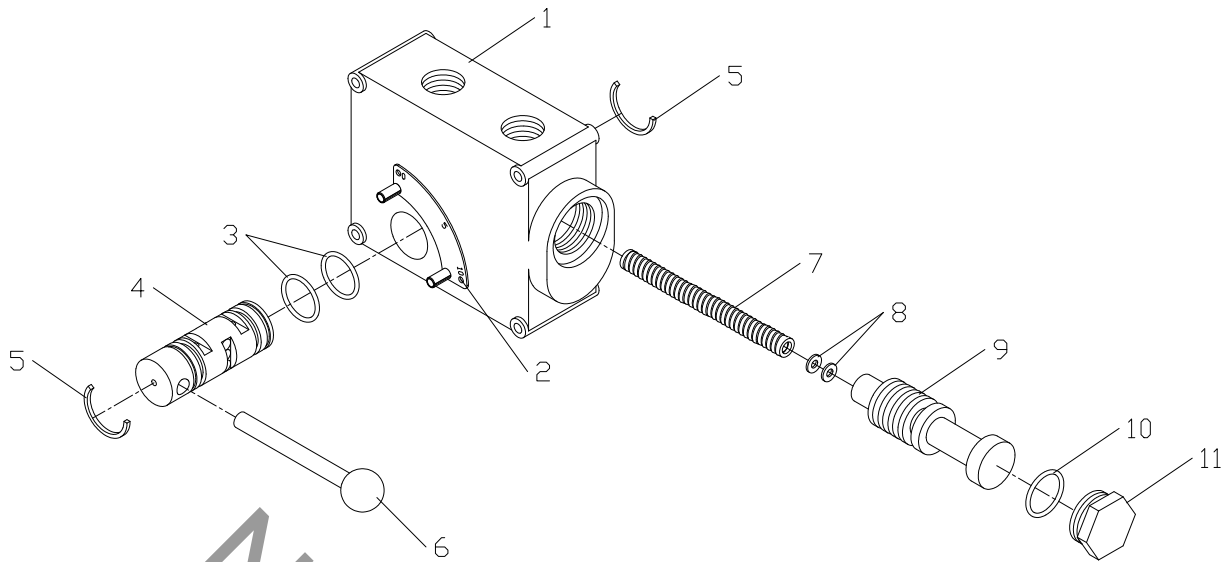
FEEDGATE VALVE



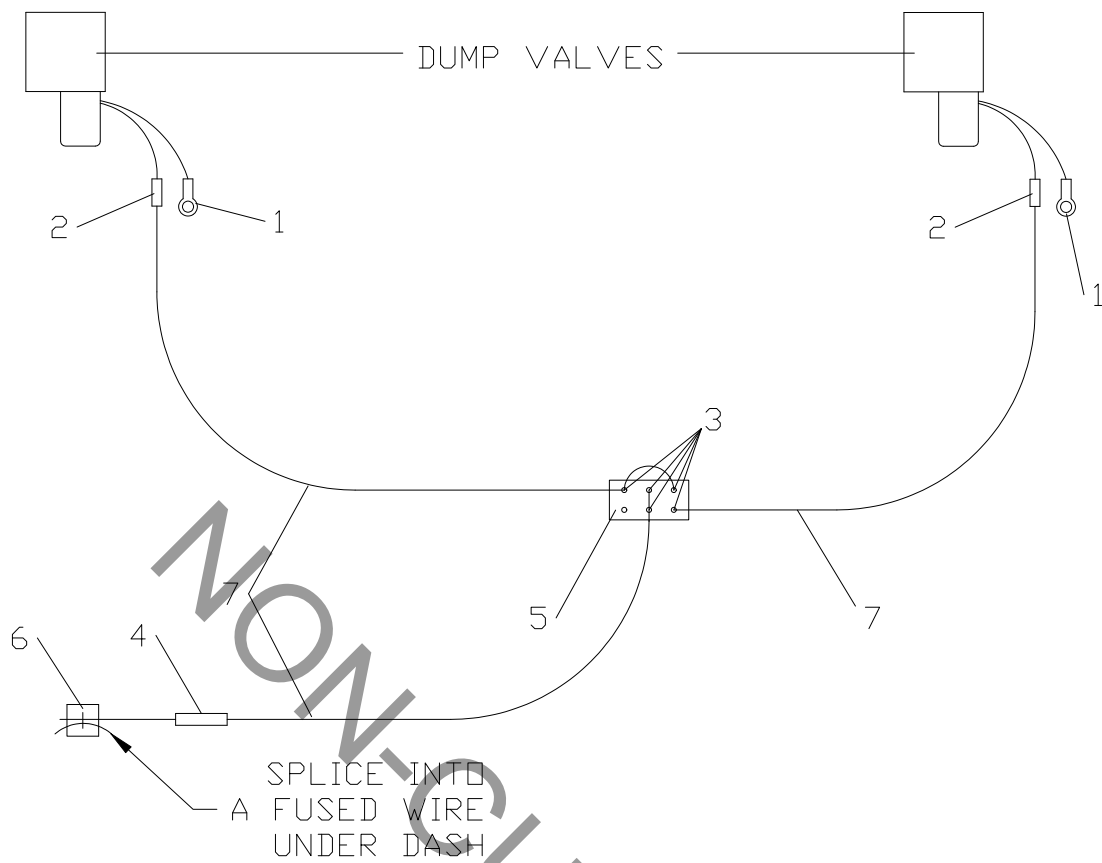
<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
	37960	Valve – Feedgate Assembly	
1	58751	Plug	1
2	57189	Pin – Cotter	1
3	58752	Washer – Spring	1
4	57200	Screw – Button Head	1
5	58753	Bracket – Handle	1
6	58754	Handle	1
7	57191	Pin – Clevis	1
8	58755	Seal – U-Cup	2
9	58756	Spring – Centering	1
10	58757	Bonnet	1
11	58758	Cap Screw	4
12	58759	Spring – Relief	1
13	58760	Cap Screw	2
14	58761	Washer – Lock	2
15	58762	Washer – Lock	1
16	58763	Collar	1
17	58764	Seat – Relief	1
18	58765	O-Ring	1
19	58766	Ball	1
20	NS	Housing	
21	NS	Spool	

NS - Not Serviced Separately

NEW LEADER

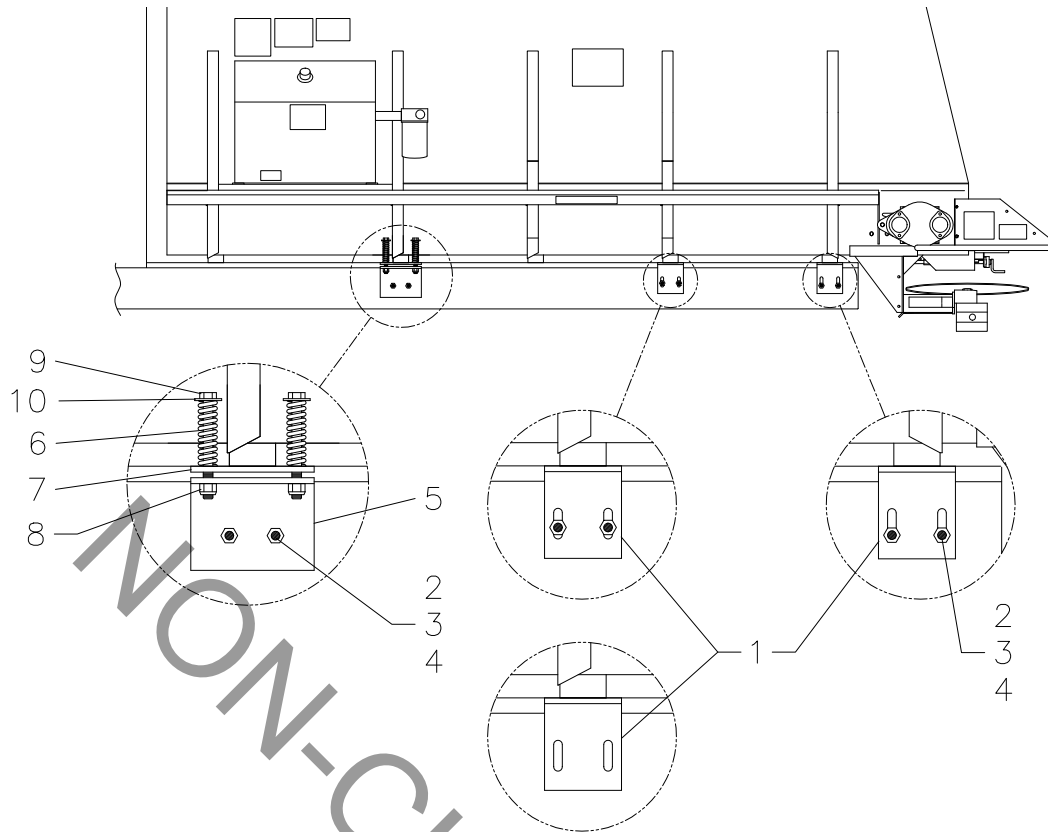


<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
1	38576	Valve – Flow Control	1
2	43116	Scale	1
3	29887	O-Ring	2
4	53962	Spool – Rotary	1
5	53963	Ring – Snap	2
6	53961	Handle – Spool	1
7	53960	Spring	1
8	90696	Shim	2
9	90697	Spool	1
10	90698	O-Ring	1
11	90699	Plug	2

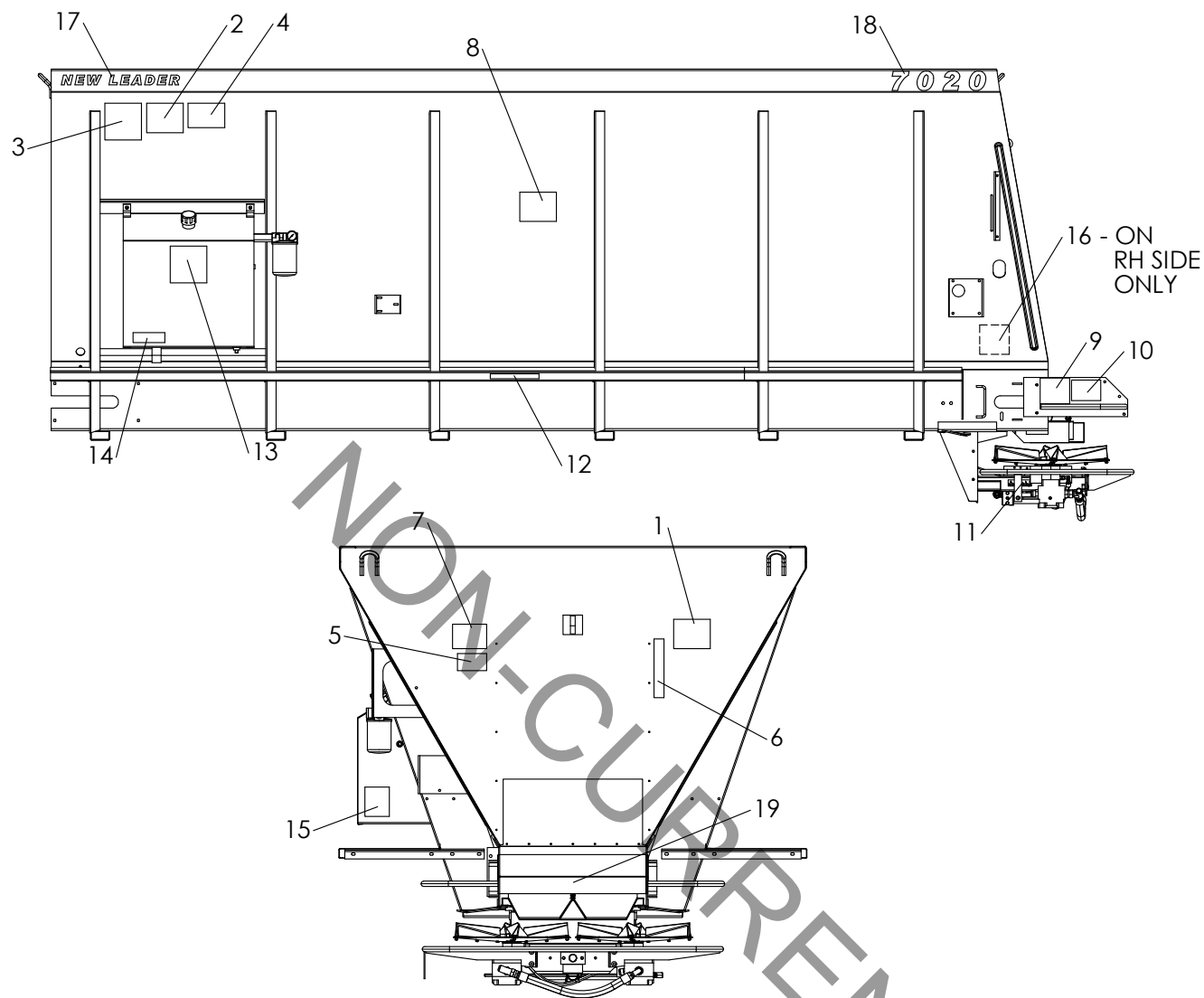


ITEM	PART NO.	DESCRIPTION	QTY
1	12079	Terminal – Ring	2
2	6549	Terminal – Butt	2
3	6485	Terminal – Forked	5
4	39952	Fuse – Inline 4 Amp	1
5	77858	Switch – Toggle	1
6	12374	Terminal – Splicer	1
7	21960-384	Wire – Black, 16 Ga.	1

PARTS LIST



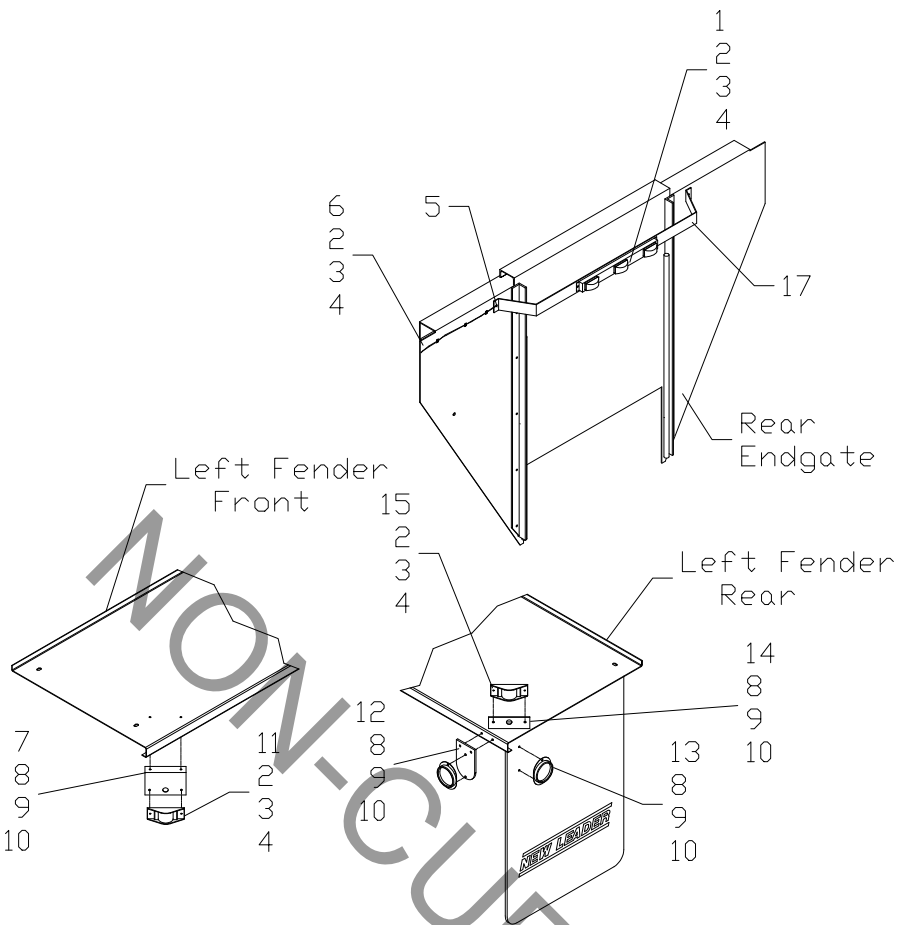
ITEM	PART NO.	DESCRIPTION	QTY
1	31856	Angle – Mounting	4
2	20131	Cap Screw – 1/2 x 2	12
3	20695	Washer – Flat 1/2	12
4	20680	Washer – Flat 1/2	12
5	81847	Angle – Mounting	2
6	81000	Spring	4
7	81848	Mounting – Bar	2
8	41762	Nut – Lock 5/8	4
9	20195	Cap Screw – 5/8 x 6 1/2	4
10	20697	Washer – Flat 5/8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



PARTS LIST

ITEM	PART NO.	DESCRIPTION	QTY
1	368	Decal – Flying Material	1
2	364	Decal – Warning, Stay Out of Box	2
3	150034	Decal – Caution, Improper Operation	1
4	321	Decal – Caution, Material to be Spread	1
5	6541	Decal – Oil Lube Chart	1
6	23769	Decal – Feedgate Slide Scale	1
7	71526	Decal – Notice, Adjust Spinner	1
8	39138	Decal – Warning, Hot Components	1
9	55630	Decal – Warning, No Step	2
10	55631	Decal – Warning, Guard for Your Protection	2
11	87110	Decal – Scale Spinner	1
12	39200	Decal – Fender Capacity	2
13	8665	Decal – Caution, Hydraulic Oil Only	1
14	8664	Decal – Caution, Keep Valve Open	1
15	39378	Decal – Filter	1
16	21476	Decal – Important, Conveyor Chain Life	1
17	58937	Decal – New Leader, White	2
	58938	Decal – New Leader, Red	2
	84762	Decal – New Leader, Black	2
	* 39870	Decal – Hi-Way	2
18	84758	Decal – 7020, White	2
	84759	Decal – 7020, Red	2
	84760	Decal – 7020, New Leader Black	2
	84761	Decal – 7020, Hi-Way Black	2
19	87109	Decal – G4	1
20	* 98319	Decal – Patent	1
21	* 96451	Decal – Synco-Matic Mark V	1
	* 31736	Paint – Touch-Up, New Leader Red	AR
	* 80800	Paint – Touch-Up, White	AR
	* 31737	Paint – Touch-Up, Hi-Way Yellow	AR
	* 31741	Paint – Touch-Up, Hi-Way Orange	AR
	* 42453	Paint – Touch-Up Black	AR
	* 80799	Paint – Touch-Up Clear	AR

* - Not Shown AR - As Required



LIGHTS & REFLECTORS CONTINUED

<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
1	6114	Cluster – Lamp Red	1
2	20572	Screw – Machine 3/16 x 3/4	AR
3	20709	Washer – Lock 3/16	AR
4	20642	Nut – Hex 1/4	AR
5	21986	Grommet – Rubber	10
6	6198	Clip – Wire	21
7	38611	Bracket – Lamp Front (Use with Fenders)	2
8	20003	Cap Screw – 1/4 x 3/4	AR
9	20710	Washer – Lock 1/4	12
10	20641	Nut – Hex 3/16	AR
11	6108	Clearance Lamp – Amber, Use with Fenders	2
	21623	Clearance Lamp – Amber, Use without Fenders	2
12	3824	Belt – Reflector, Use with Fenders	4
13	6107	Reflector – Red	4
14	3775	Bracket – Lamp Rear, Use with Fenders	2
15	6110	Clearance Lamp – Red, Use with Fenders	2
	21622	Clearance Lamp – Red, Use without Fenders	4
16	21580	Wire – Electric 14 Ga. Black in Inches	AR
17	57329	Bracket – Lamp	1
* - Not Shown	AR - As Required		