



## MODEL DO-AL

UNIT SERIAL NUMBER \_\_\_\_\_

MANUAL NUMBER: 38000-L

EFFECTIVE 10/2013



**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 1-888-363-8006.

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

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

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

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

ACCIDENTS HURT !!!

ACCIDENTS COST !!!

ACCIDENTS CAN BE AVOIDED !!!



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

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



**DANGER**

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



**WARNING**

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



**CAUTION**

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

**NOTICE!**

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

**NOTE:**

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

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



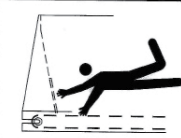
The following guidelines are intended to cover general usage and to assist you in avoiding accidents. There will be times when you will run into situations that are not covered in this section. At those times the best standard to use is common sense. If, at any time, you have a question concerning these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


**MAINTENANCE INSTRUCTIONS**

1. Keep safety decals and signs clean and legible at all times.
2. Replace safety decals and signs that are missing or have become illegible.
3. Replaced parts that displayed a safety sign should also display the current sign.
4. Safety decals or signs are available from your dealer's Parts Department or our Cedar Rapids factory.



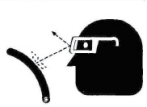
**INSTALLATION INSTRUCTIONS**



1. Clean Surface  
Wash the installation surface with a synthetic, free-rinsing detergent. Avoid washing the surface with a soap containing creams or lotion. Allow to dry.
2. Position Safety Decal  
Decide on the exact position before application. Application marks may be made on the top or side edge of the substrate with a lead pencil, marking pen, or small pieces of masking tape. NOTE: Do not use chalk line, china marker, or grease pencil. Safety decals will not adhere to these.
3. Remove the Liner  
A small bend at the corner or edge will cause the liner to separate from the decal. Pull the liner away in a continuous motion at a 180-degree angle. If the liner is scored, bend at score and remove.
4. Apply Safety Decal
  - a. Tack decal in place with thumb pressure in upper corners.
  - b. Using firm initial squeegee pressure, begin at the center of the decal and work outward in all directions with overlapping strokes. NOTE: Keep squeegee blade even—nicked edges will leave application bubbles.
  - c. Pull up tack points before squeegeeing over them to avoid wrinkles.
5. Remove Pre-mask  
If safety decal has a pre-mask cover remove it at this time by pulling it away from the decal at a 180 degree angle. NOTE: It is important that the pre-mask covering is removed before the decal is exposed to sunlight to avoid the pre-mask from permanently adhering to the decal.
6. Remove Air Pockets  
Inspect the decal in the flat areas for bubbles. To eliminate the bubbles, puncture the decal at one end of the bubble with a pin (never a razor blade) and press out entrapped air with thumb moving toward the puncture.
7. Re-Squeegee All Edges.



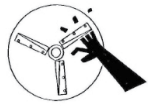
 <span style="font-size: 24pt; font-weight: bold;">DANGER</span>	
	
<p style="text-align: center;"><b>MOVING PART HAZARD</b> To prevent death or serious injury:</p> <ul style="list-style-type: none"> <li>• Stay out of box while conveyor is moving.</li> <li>• Disconnect and lockout power source before adjusting or servicing.</li> <li>• Do not ride on spreader.</li> </ul> <p style="text-align: right; font-size: 8pt;">364-C</p>	



 <span style="font-size: 24pt; font-weight: bold;">CAUTION</span>	
<p><b>HAZARDOUS MATERIALS</b> To avoid injury or machine damage:</p> <ul style="list-style-type: none"> <li>• Materials to be spread can be dangerous.</li> <li>• Improper selection, application, use or handling may be a hazard to persons, animals, crops or other property.</li> <li>• Follow instructions and precautions given by the material manufacturer.</li> </ul> <p style="text-align: right; font-size: 8pt;">321-C</p>	

 <span style="font-size: 24pt; font-weight: bold;">WARNING</span>	
	
<p style="text-align: center;"><b>FALLING HAZARD</b> To prevent death, serious injury or machine damage:</p> <ul style="list-style-type: none"> <li>• Do not stand or climb on guard.</li> </ul> <p style="text-align: right; font-size: 8pt;">55630-D</p>	

 <span style="font-size: 24pt; font-weight: bold;">WARNING</span>	
	
<p style="text-align: center;"><b>HIGH PRESSURE FLUID HAZARD</b> To prevent death or serious injury:</p> <ul style="list-style-type: none"> <li>• Relieve pressure on system before repairing, adjusting, or disconnecting.</li> <li>• Keep all lines, fittings and couplers tight and free of leaks.</li> <li>• Wear proper hand and eye protection when searching for leaks. Use wood or cardboard instead of hands.</li> <li>• Do not use hydraulic lines for hand holds or steps.</li> <li>• Components may be hot.</li> </ul> <p style="text-align: right; font-size: 8pt;">39138-C</p>	

	 <span style="font-size: 24pt; font-weight: bold;">WARNING</span>
<p style="text-align: center;">To prevent death or serious injury:</p> <ul style="list-style-type: none"> <li>• Do not place objects on fenders.</li> <li>• Keep off fenders. They are not intended to carry loads.</li> </ul> <p style="text-align: right; font-size: 8pt;">39200-D</p>	

 <span style="font-size: 24pt; font-weight: bold;">DANGER</span>	
	
<p style="text-align: center;"><b>FLYING MATERIAL &amp; ROTATING SPINNER HAZARD</b> To prevent death or serious injury:</p> <ul style="list-style-type: none"> <li>• Wear eye protection.</li> <li>• Stop machine before servicing or adjusting.</li> <li>• Keep bystanders at least 60 feet away.</li> </ul> <p style="text-align: right; font-size: 8pt;">368-C</p>	

 <span style="font-size: 24pt; font-weight: bold;">CAUTION</span>	
	
<p style="text-align: center;"><b>TO AVOID INJURY OR MACHINE DAMAGE:</b></p> <ul style="list-style-type: none"> <li>• Do not operate or work on this machine without reading and understanding the operators manual.</li> <li>• Keep hands, feet, hair and clothing away from moving parts.</li> <li>• Do not allow riders on machine.</li> <li>• Avoid unsafe operation or maintenance.</li> <li>• Disengage power takeoff and shut off engine before removing guards, servicing or unclogging machine.</li> <li>• Keep unauthorized people away from machine.</li> <li>• Keep all guards in place when machine is in use.</li> <li>• If manual is missing, contact dealer for replacement.</li> </ul> <p style="text-align: right; font-size: 8pt;">150034-C</p>	



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



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

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

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

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



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

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



7. Before starting unit, be sure everyone is clear and out of the way.
8. Do not climb on unit. Use the inspection ladder or a portable ladder to view the unit. Be careful in getting on and off the ladder, especially in wet, icy, snowy or muddy conditions. Clean mud, snow or ice from steps and footwear.



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



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



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

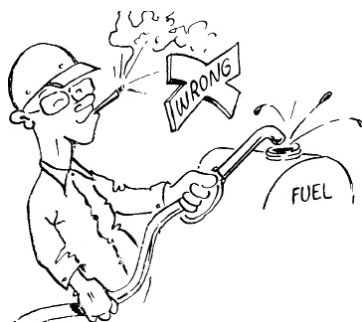
12. Inspect all bolts, screws, fasteners, keys, chain drives, body mountings and other attachments periodically. Replace any missing or damaged parts with proper specification items. Tighten all bolts, nuts and screws to specified torques according to the torque chart in this manual.



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



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




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

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



17. Wear eye protection while working around or on unit.

18. Read, understand and follow instructions and precautions given by the manufacturer or supplier of materials to be spread. Improper selection, application, use or handling may be hazardous to people, animals, plants, crops or other property.

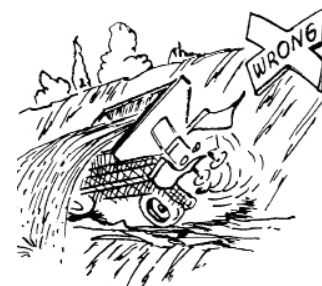
	<p><b>CAUTION</b> If spreader is used to transport chemicals, check with your chemical supplier regarding DOT (Department of Transportation) requirements.</p>
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19. Cover all loads that can spill or blow away. Do



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.

- 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.



- 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!

- 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.**



- Before attempting any maintenance work (including lubrication), shut off power completely. **DO NOT WORK ON RUNNING MACHINERY!**
- When guards and covers are removed for any maintenance, be sure that such guards are reinstalled before unit is put back into operation.
- Check all screws, bolts and nuts for proper torques before placing equipment back in service. Refer to torque chart in this manual.

- 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.**



- 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.



- Keep a fully charged fire extinguisher readily available at all times. It should be a Type ABC or a Type BC unit.
- Cleaning solvents should be used with care. Petroleum based solvents are flammable and present a fire hazard. Don't use gasoline. All solvents must be used with adequate ventilation, as their vapors should not be inhaled.

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



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

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

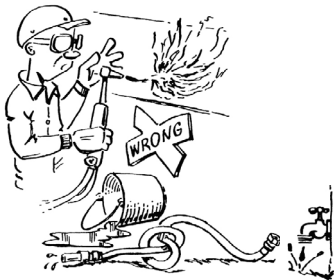


14. The fine spray from a small hydraulic oil leak can be highly explosive—DO NOT SMOKE—STAY AWAY FROM FLAME OR SPARKS.

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



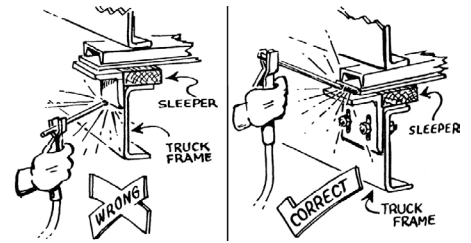
2. Follow mounting instructions in the Installation section of this manual. If mounting conditions require deviation from these instructions refer to factory.
3. When making the installation, be sure that the lighting meets Federal Motor Vehicle Safety Standard (FMVSS) No. 108, ASABE S279 and all applicable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



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

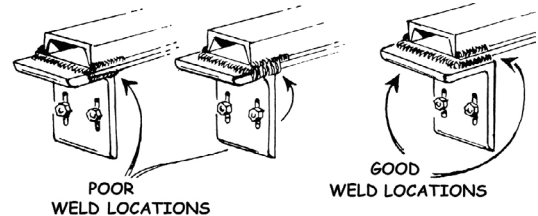
the cut, all necessary precautions should be taken to prevent fire. Cuts should not be made near fuel tanks and hydraulic oil reservoirs, fuel, brake, electric or hydraulic lines and such lines should be protected from flame, sparks or molten metal. Tires should be removed if there is any chance of their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

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



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

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



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



The Do-Al is an all hydraulic, rear dump, truck chassis mounted spreader body. The unit can be used for dumping crushed rock, hot mix, etc., directly into a paver hopper or spreading material with the spinner-sand and chips in seal coating, ag-lime, dried sludge, litter, manure, marl, gypsum for agriculture and salt, sand, cinders, calcium chloride, etc., for ice control.

The unit is powered hydraulically to provide independent variable speed control for both the spinner and conveyor. The control valve in the cab can be adjusted to provide positive speed control of the spinner from 0 to 700 RPM. The valve also provides control of the conveyor from 0 to 24 drag shaft RPM in the low speed side and 0 to 48 drag shaft RPM in the high speed side. The cab control valve has an On-Off control for spot spreading or shut down, and has a built in relief valve for system protection.

The control valve for selecting the high speed or low speed range of the conveyor system is located on the front of the spreader directly behind the driver's side of the cab. With the lever in the forward position, the conveyor is in the low range. This side is normally used when spreading salt, sand, etc., for ice control. Moving the lever rearward shifts the conveyor into the high range, which is normally used for pit dumping material or spreading high application rates.

To spread material with the 24" (61 cm) spinner, an adjustable "metering" feedgate is provided in the swinging endgate for even controlled delivery by the 34" (86 cm) conveyor to the spinner. Adjustable baffles and internal deflectors provide complete control of material spread.

To use the unit for pit dumping, windrowing or charging a paver hopper, the spinner can be swung to the right or left or removed entirely.

NOTE: When the spinner is not mounted, the cab control knob should be turned off and the pressure line to the spinner motor must be connected directly into the return line by means of the quick disconnect fittings provided.

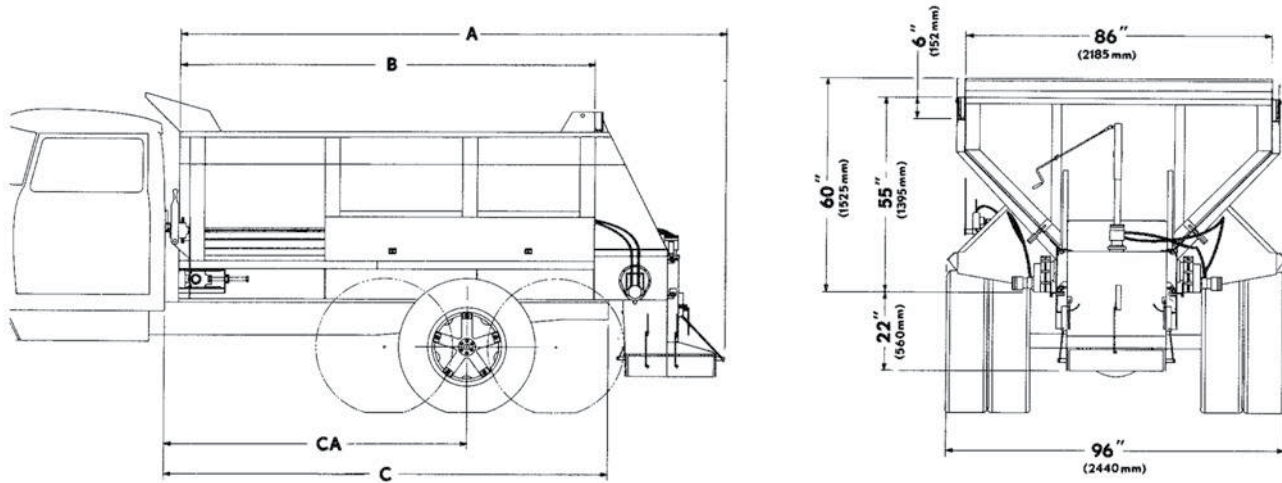
The swinging endgate is released by a lever located on the front of the spreader adjacent to the two-speed conveyor control valve.

The optional Do-Al Elevator is an all hydraulic conveying system, which is mounted on a Do-Al spreader body in place of the standard spinner assembly. This unit can be used to convey a wide range of materials, from crushed rock and hot mix for paver hopper nursing; salt, sand and cinders for ice control; to ag-lime, dried sludge, litter, manure, marl and gypsum for agricultural needs.

Since the unit is hydraulic and the controls are located in a central area, one man can operate all functions of the elevator. From one position elevator conveyor, elevator height and spreader conveyor controls are accessible.

NOTE: The use of the elevator on the Do-Al Spreader requires the rear conveyor control option on the spreader for start/stop operation of the spreader conveyor.

The elevator can be raised up to 25° or lowered a maximum of -15° by use of the hydraulic winch. Five lateral stop-lock positions from center, left or right of center 45° to left or right of center 90° are available. Specially designed transition chutes allow conveying to take place at any one of the five lateral positions. The unique storage ability of the elevator allows storage for travel to and from job sites without removal of the unit.



GENERAL DIMENSIONS					
SPREADER LENGTH	A	B	C	BASIC CA	SPREADER WEIGHT
9'	12'3"	9'	112" min.	84"	4200 (1910 kg)
10'	13'3"	10'	124" min.	84" & 102"	4500 (2040 kg)
12'	15'3"	12'	148" min.	102" & 108"	4800 (2180 kg)
14'	17'3"	14'	172" min.	120"	5100 (2315 kg)

STRUCK CAPACITIES			
SPREADER LENGTH	STANDARD	W/ 6" SIDE BOARDS	W/ 6" TO 12" SIDE BOARDS
9'	5.7 cy (4.3 m3)	7 cy (5.4 m3)	7.5 cy (5.7 m3)
10'	6.5 cy (4.8 m3)	7.7 cy (5.9 m3)	8.3 cy (6.4 m3)
12'	7.6 cy (5.8 m3)	9.2 cy (7 m3)	10 cy (7.8 m3)
14'	9 cy (6.9 m3)	10.8 cy (8.3 m3)	11.7 cy (8.9 m3)

DIMENSIONS & CAPACITIES



Refer to [www.highwayequipment.com](http://www.highwayequipment.com) for installation instructions. Once on website, click Hi-Way, then Support, then Operator's Manuals, then No Hoist Dump Bodies, then Do-AL Installation Instructions.

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. Disengage PTO driving pump.
3. Make sure On-Off control in cab is in the Off position.
4. Check to see that no loose parts are in body, on conveyor or on spinner. Be sure to remove any loose pieces.
5. Open feedgate until completely clear of conveyor.
6. Fill hydraulic reservoir with oil. Refer to *Lubricant Specifications* section of this manual for proper oil. Open gate valve under reservoir fully (rotate counterclockwise to open).
7. If crankshaft PTO transmission has been installed, be sure transmission has proper amount of lubricant.
8. Start truck engine and set throttle so engine runs at about 1000 RPM. Engage PTO driving pump. Allow pump to run and circulate oil for several minutes. In cold weather, increase warm-up time.
9. Place cab On-Off control knob in On position and move spinner control knob to position #3. Let unit run until air expelled from circuit and spinner is running smoothly. Turn spinner knob to Off position.
10. Open conveyor control valve to position #3. Allow conveyor to run until operating smoothly and all air purged from system.
11. Move spinner and control knob to position #5 and allow both spinner and conveyor to run. Shut down system.



**WARNING** Stay clear of moving machinery.

12. Check all connections in hydraulic system for any leaks.



**DANGER**

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



**WARNING**

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

13. Check hydraulic oil reservoir and refill as necessary. Unit is now ready for road testing.

**DO-AL****Inspect Unit**

Before operating unit, perform walk-around inspection to ensure spreader is in good working order.

1. Inspect unit for damage and verify all essential parts in place, all fasteners are tight and all guards are in place.
2. Check all controls to be sure they are operating satisfactorily.
3. If spreading material not already in spreader, partially load unit.
  - Verify swinging endgate closed and latched before loading spreader. Lever on spreader front releases endgate.
  - Close feedgate before loading spreader and when traveling to spreading location.
  - Open feedgate before starting to spread.
4. With On-Off control in Off position, engage pump drive and allow oil to circulate until warm. This may be done while traveling to loading or starting point. Warm-up is important, especially in colder weather.

NOTE: Disengage PTO when spreader is not in use for long periods of time or when moving to and from the job after initial warm-up.

**Spinner, Baffle and Deflector Adjustment****WARNING**

When adjusting spinner speed, flow deflector and baffle adjustments turn On-Off control to Off position to stop spinner and conveyor. Failure to stop spinner and conveyor can result in bodily injury from spinner and/or discharging material.

**NOTICE**

Use of high spinner speeds and attempting to control spread width by means of external baffles will increase wear and tear on parts, will degrade materials being spread by causing unnecessary particle break-up and will waste material. High spinner speeds can also create excessive damage to vehicle finishes through uncontrolled throw and bounce of materials.

Spinner spread, spinner height, flow deflector settings, baffle positions as well as material granular size, density and moisture affect spread width. Thus, testing and experience are required to achieve proper settings.

1. Adjust spinner speed to lowest rate required to obtain desired spread width with selected material.
2. To increase spread to one side, raise exterior baffle and interior flow deflector on side of spread increase and lower interior flow deflector on opposite side.

**Conveyor Operation**

1. Adjust high/low conveyor speed control mounted on spreader front. Push lever in for high speed operation and pull lever out for low speed operation.
2. If equipped, set On-Off solenoid (dump) valve and control switch mounted on right rear corner of body to desired position. Switch starts or stops conveyor to aid in unloading material from the body when dumping.

Refer to the "Theoretical Spread Rate Charts" in this manual for various conveyor settings.

**DO-AL ELEVATOR ATTACHMENT - 6', 8' AND 14' UNITS****DANGER**

Do not place any portion of your body, nor allow anyone to get beneath the elevator while lowering, operating, or raising the elevator. If the elevator is lowered inadvertently, severe injury or death may result.

THINK SAFETY: KEEP UNAUTHORIZED PERSONNEL AWAY FROM EQUIPMENT. WEAR PROPER SAFETY ATTIRE: HARD HAT, SAFETY GLASSES, AND SAFETY SHOES. DO NOT WEAR LOOSE FITTING CLOTHING. READ AND FOLLOW OPERATING INSTRUCTIONS BELOW.

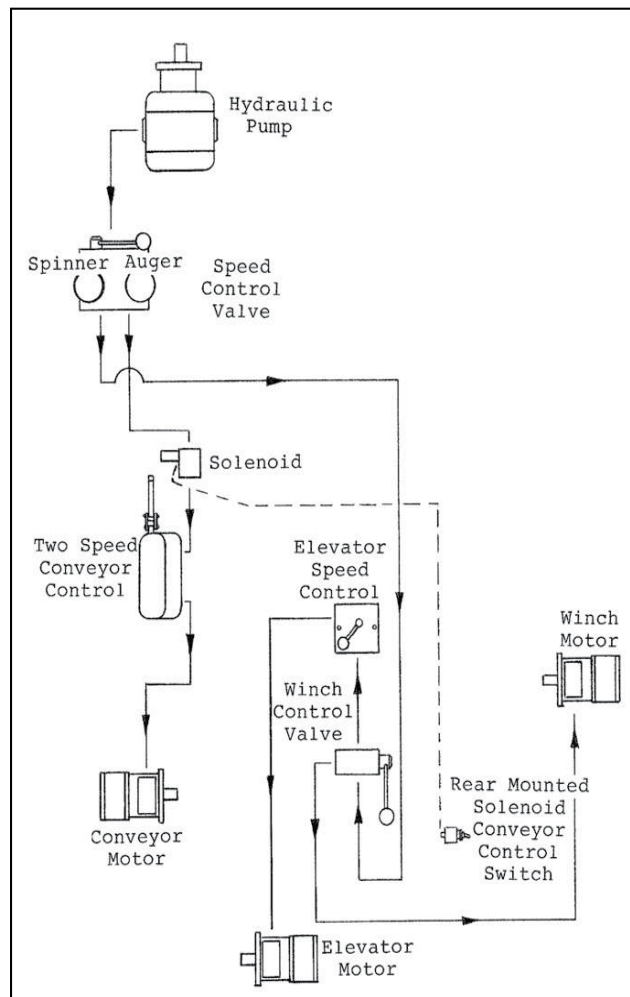
**Inspect Unit**

Before operating unit, perform walk-around inspection to ensure spreader is in good working order.

- Inspect winch cable. Replace cable if frayed.
- Inspect for hydraulic leaks. Repair leaks as necessary.
- Verify Do-Al endgate secured in CLOSED position.

During inspection, set the following controls to indicated position:

1. Place elevator speed control, located at right rear of body, in vertical (Off) position.
2. Place electric solenoid switch, located at right rear of body, in Off position.
3. Place two-speed conveyor control, located at left front of body, in desired position—forward for low speed, rearward for high speed.

Elevator Operation

**Figure 1 - Elevator Schematic Control Diagram**

Refer to elevator control schematic (Figure 1).

1. Place Do-Al speed control valve Off-On lever, located in the cab, in Up (Off) position.
2. Place spinner control on Do-Al speed control valve in full Open (#11) position. This circuit feeds elevator hydraulics.
3. Place auger speed control at desired rate. This circuit controls the Do-Al conveyor hydraulics. A higher number indicates a faster conveyor speed.
4. Start truck engine, depress clutch and engage PTO.
5. Place mounted Do-Al speed control valve lever in Down (On) position.

**DANGER**

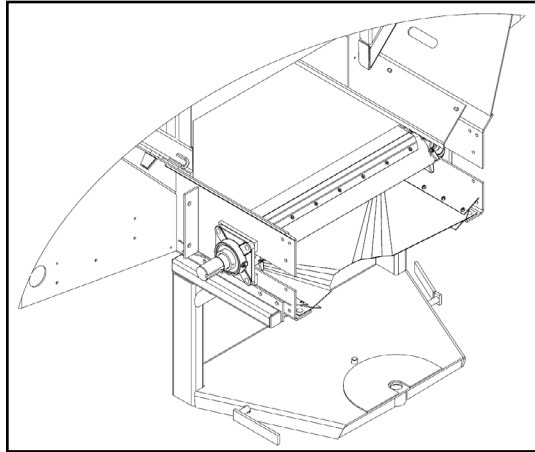
Do Not place any portion of your body, nor allow anyone to get beneath the elevator while lowering, operating, or raising the elevator. If the elevator is lowered inadvertently, severe injury or death may result.

6. Disconnect safety chain at rear of body by releasing load binder. **DO NOT STAND BEHIND ELEVATOR WHEN SAFETY CHAIN HAS BEEN RELEASED.**
7. Once certain there is **NO SLACK** in winch cable, pull rope to release elevator latch hook.

8. Power elevator down to ground using elevator winch control at right rear of body.

NOTE: On 14' elevator models, rearmost section must be moved rearward by hand to ensure full extension of elevator.

9. Once elevator firmly on ground, engage two latch weldment levers and tighten two 1/2" machine bolts on latch weldment posts to secure articulated joint.



**Figure 2 - Installed Transition Chute**

10. Install transition chute assembly, part #37952, on spreader sills in a location where the rear of the chute is flush with the rear of the sills (Figure 2). Secure with two (2) 3/8" x 1" carriage bolts and wing nuts. (See *Elevator Transition Parts List*).
11. Raise elevator to working elevation.
12. Release detent pin by actuating detent lever (up on left-hand side, down on right-hand side). Index elevator to desired detent position. Only operate elevator in detent positions.
13. Start elevator belt. To adjust for speed, rotate elevator speed control clockwise.
14. Check for proper belt tracking. Adjust head pulley take-up as necessary. Refer to *Do-Al Installation Instructions* for pulley operation instructions.

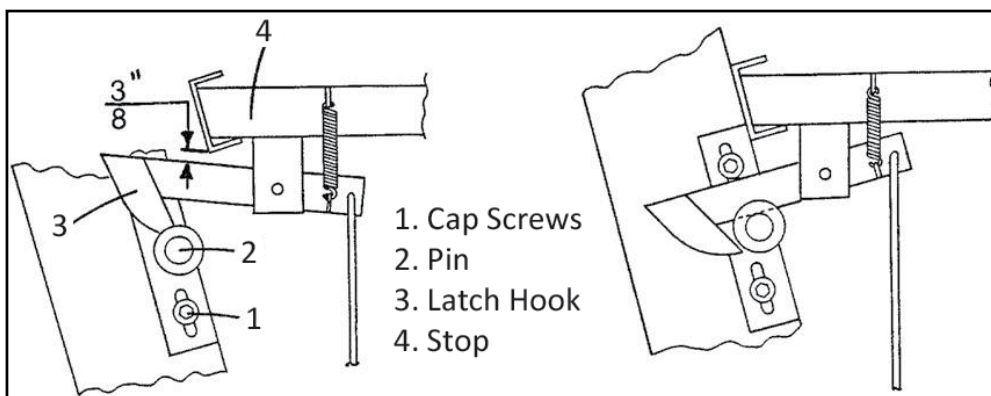
**NOTICE!** Outer edge of conveyor belt must be suspended by winch or center will lower and ride on conveyor bottom causing damage to unit.

15. Open or adjust Do-Al feedgate.
16. Start Do-Al conveyor by switching the right rear mounted electric solenoid switch to On.
17. To stop, first stop the Do-Al conveyor by switching the right-hand electric solenoid switch to Off.
18. When all material has cleared, stop elevator by rotating elevator control lever to vertical position.
19. To raise elevator to transport position, it is necessary to first remove the transition chute assembly. Store transition chute inside tool box.
20. On 14' models only, lower elevator to ground and release the two latch weldments before raising elevator to transport position.
21. Raise the elevator to transport position. Ensure that the latch hook properly engages latch pin. **DO NOT INTENTIONALLY POWER THE ELEVATOR INTO THE STOPS.** Light contact is all that is necessary.
22. Secure safety chain with load binders. **DO NOT SUBSTITUTE CHAIN WITH OTHER DEVICE TO SECURE ELEVATOR.**



**CAUTION**

Transition chute assembly must be removed before elevator can be raised to transport position.

**ADJUSTING THE ELEVATOR SAFETY LATCH****Figure 3 - Latch Adjustment**

The spring-loaded latch engages a pin to hold elevator in raised position. The safety chain must be fastened in addition to the latch before transporting unit.

1. Raise the elevator and allow latch hook to ride up on pin as shown in Figure 3.
2. Adjust the pin until the latch hook is  $3/8$ " (.95 cm) from the stop.
3. Raise the elevator until it contacts the stops. There should be clearance between latch hook and support tube when latch hook engaged.

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

**Service Schedule****NOTICE!**

Change the hydraulic oil filter after the first week (or not more than 50 hours) or operation on a new unit.

1. Check hydraulic oil level daily. Add oil if required. Periodically inspect hoses and fittings for leaks.
2. After first filter change, replace filter when indicator reaches the Red Zone.
3. Drain reservoir through drain plug (not through suction outlet), flush, and refill annually.
4. Change oil if it shows any signs of breaking down under continued high-pressure operation. Discoloration of oil is one sign of breakdown.

**CONVEYOR GEAR CASE**

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 case should be thoroughly flushed with light oil. Refer to *Lubricant Specifications* section for proper grade oil. Refill gear case with recommended lubricant. After initial change, oil should be changed every 2,000 hours of operation or annually, whichever occurs first. Check oil level monthly and fill as necessary.

**ELEVATOR GEAR CASE**

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

**CONVEYOR CHAIN****CAUTION**

When conveyor is running, stay out of spreader 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 be very dangerous.

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!

Lubricate conveyor chain at least once every week and after each day of usage using a mixture of 75% diesel fuel and 25% SAE 10 oil in a pressurized hand spray can.

With spinner shut down and conveyor running slowly, spray mixture of oil between links of chain by spraying through openings at rear ends of sill, or from front outside body when access clearance adequate. After each spreader washing, allow to dry, then lubricate.

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

Tension

Proper chain tension is also a factor in chain and sprocket life (Figure 4). Be sure the chain is tensioned equally on both sides. This adjustment is made on each side of the spreader at idler bearings.

Chain Tension to be Measured from Rear of Sill - Proper Tension 36" to 40".

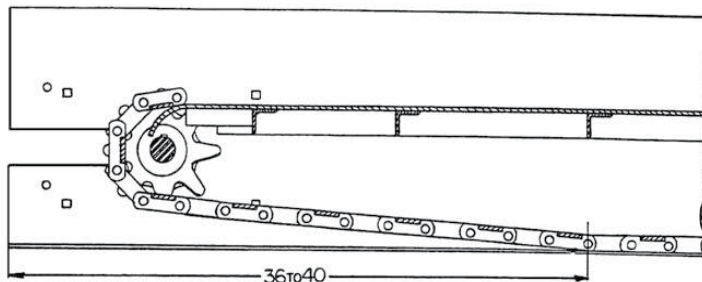


Figure 4 - Adjusting Chain Tension

Conveyor chains that are too tight will tend to stretch, causing excess sprocket wear and eventually breakage. Excess slack presents the possibility of 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**

The standard belt for the #4 chain and the belt discharge elevator has a nylon fabric that is impervious to moisture, weathering, or normal chemical action except oil. The optional high-temperature belting is highly recommended where an asphalt mix is going to be run through the spreader. Inspect the belt fastener occasionally for wear or "raveling" of the belt grip area.



**HIGH-TEMPERATURE BELTING**

**NOTICE!** Do not operate conveyor outside of operating temperature range, this will reduce the life of the belt, by causing premature cracking.

In order to achieve maximum life out of the high-temperature belting, the following recommendations should be followed:

1. Keep belt free from build-up of asphalt or other material.
2. Spray belt often with oil to assure flexibility of rubber.
3. Hot asphalt mix should be kept below 300°F.
4. Do not let hot asphalt mix remain on belt any longer than necessary. Keep belt running as much as possible to allow a cooling cycle on the belt.

In normal use, a properly cared for belt will first experience cracking of the belt cover. This is normal for a belt of this type in an asphalt environment and does not indicate a failing belt. Eventually, the belt cover will begin to harden and chunks of the cover begin falling off, exposing the carcass. When this happens, replace belt.


BELT PART NUMBER	OPERATING TEMPERATURE
37161	-30°F - 212°F
38285	-30°F - 350°F

**DISCHARGE ELEVATOR BELTING**

The conveyor belt should be checked daily for proper tension and tracking. A conveyor belt that is tracking properly runs in the center of the trough, without curling or scuffing the ends.

**Elevator Belt Adjustment**

1. TENSION: Belt tension should be just tight enough to prevent slippage, no tighter. Generally speaking, if the “flats” on the conveyor drive pulley are visible through the belt, tension is high enough.
2. TRACKING: To check tracking, be sure spreader is empty. Then take the following steps:
  - a. With truck engine shut off, move conveyor control knob to “O” position. Place conveyor control valve switch to “Off” position. Start truck engine and engage pump drive PTO. Place cab control valve handle to “On” position. Conveyor should not run. Move spinner (elevator) control knob to a position that will allow the belt to run at maximum speed.
  - b. Place elevator in operating position. Be sure it is in a position that allows easy observation of belt tracking. Start elevator belt and allow it to run at maximum speed.

 **CAUTION** As belt is running, exercise great care to avoid entanglement with any moving part.

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 across the pulley, but remain generally centered. If belt does not track properly, see adjustment instructions below.

PROBLEM: (Figure 5)

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

SOLUTION:

Tighten idler bearing at the side in contact with the belt. Move this adjustment one (1) turn at a time. Operate conveyor 10 to 15 minutes at a high speed to allow the belt to react to the adjustment. Repeat if necessary.

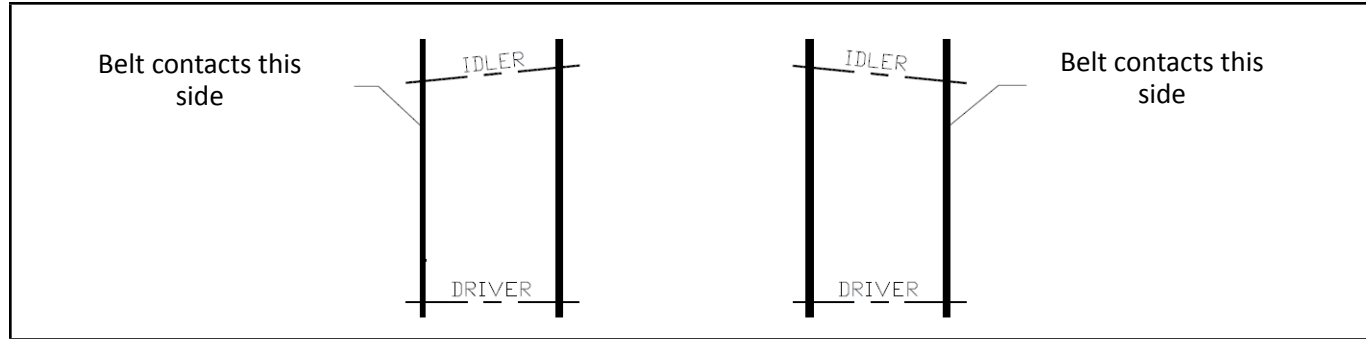


Figure 5

### 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.

### FASTENERS

Tighten all screw fasteners to recommended torques after first week of operation and annually thereafter. If loose fasteners are found at anytime, tighten to recommended torque. Replace any lost or damaged fasteners or other parts immediately. Check body mounting hardware every week.

### CLEAN UP

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

Thoroughly wash unit every two to three days during 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.

**INSTALLING CABLE CLIPS AND THIMBLE****CAUTION**

When loads are placed on a cable it will stretch and shrink in diameter. The shrinkage will loosen the clips and may allow the cable to slip through the clips. Periodically re-tighten the clip and nuts to the specified torque.

**CAUTION**

If the cable breaks, the elevator could fall causing injury or component damage. Regularly inspect the cable. If worn or damaged, replace it.

Two cable clips and one thimble are required to attach the dead end of winch cable to anchor shackle on auxiliary elevator (Figure 6). A single clip is used to fasten live end of the cable to winch drum.

1. At the dead end, turn back 4 3/4" (12.1 cm) of cable over the thimble.
2. Install first clip as close as possible to thimble. Install second clip about 2" (5.08 cm) from end of turned back portion of cable.
3. Tighten clip nuts to 15 ft-lbs. torque.

NOTE: Always install wire rope clips with U-bolt portion of clip over turned back portion of cable.

4. At winch drum end, use U-bolt portion of clip to fasten cable to inside of winch drum. One inch (1") of cable should protrude past clip.

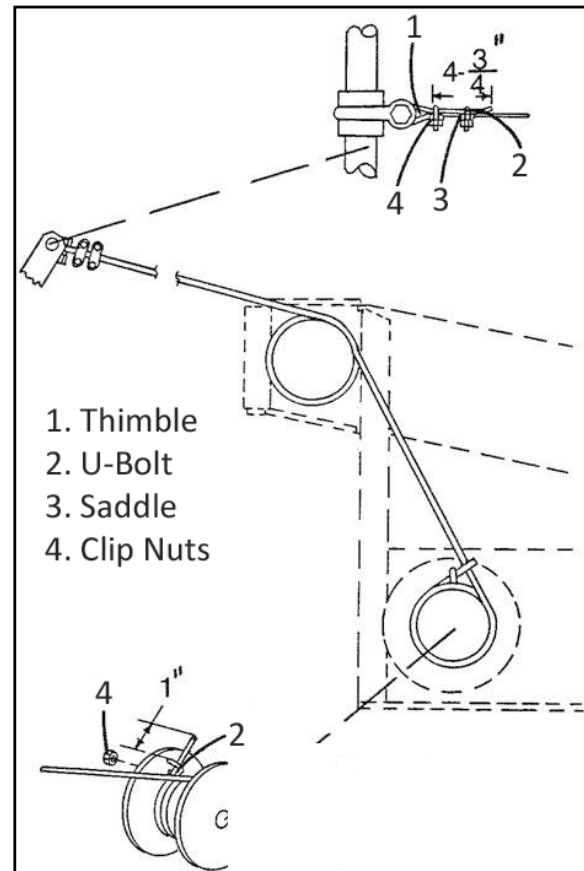


Figure 6 - Cable Clips and Thimble

**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 with 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 classifications, recommended by reputable oil companies.

**SYSTEM OPERATING PARAMETERS**

Maximum pressure: 2500 PSI

Flow: 35 – 40 GPM

**HYDRAULIC SYSTEM**

The following are recommended procedures for selecting the proper hydraulic fluid for use in the hydraulic system. Select a major brand industrial PREMIUM QUALITY (anti-wear type) hydraulic oil to provide viscosity between 100–200 SSU at operating temperature. Premium hydraulic oils with viscosity indexes of 95 or above will provide the following temperature ranges:

INDUSTRY IDENTIFICATION / SAE VISCOSITY GRADE	OPERATING TEMPERATURE	VISCOSITY
150 SSU	122° F / 84° F (50° C / 29° C)	100 SSU / 200 SSU
225 SSU	140° F / 107° F (60° C / 42° C)	100 SSU / 200 SSU
300 SSU	150° F / 116° F (66° C / 47° C)	100 SSU / 200 SSU
450 SSU	165° F / 130° F (74° C / 54.5° C)	100 SSU / 200 SSU
600 SSU	182° F / 145° F (83° C / 63° C)	100 SSU / 200 SSU
10W-30	130° F / 100° F (54.5° C / 38° C)	100 SSU / 200 SSU
10W-40	190° F / 140° F (88° C / 60° C)	100 SSU / 200 SSU

If necessary, automotive oil can be used. Use multi-viscosity oils of SC rating, providing between 100 and 200 SSU at operating temperature. These will provide proper viscosity over a wide range.

Consult your Hi-Way dealer for systems operating outside normal conditions.

**PRESSURE GUN LUBRICANT**

Use a ball and roller-bearing lithium base lubricant with a minimum melting point of 300°F. This lubricant must be waterproof and 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

LUBRICATION & MAINTENANCE



**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 (4.5° to 49° C)	Below 40° F (4.5° C)
Gear Case - Elevator	.75 pints (.35 liters)	SAE 85W 140	SAE 88W 90
Gear Case - Conveyor	1 pint (.47 liters)	SAE 80 or 90W	SAE 80 or 90W

**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.

**LUBRICATION CHART**



**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:

<u>LOCATION</u>	<u>PLACES</u>	<u>METHOD</u>	<u>FREQUENCY</u>
<b>Pump Drive</b>			
Transmission PTO - Slip Yoke	1	Grease	Weekly
Transmission PTO - U-Joint	2	Grease Gun	Monthly
Crankshaft PTO - Sliding Spline	1	Grease Gun	Weekly
Crankshaft PTO - U-Joint	2	Grease Gun	Monthly
Crankshaft PTO - Pipe Plug on Cast Mounting Plate	1	Oil	Annually
<b>Hydraulic System</b>			
Reservoir	1		Check Daily; Change Annually
Filter	1		Check Daily; Change Annually
Dual Control Valve - Hex Valve Stem	2	Hand Grease	Annually
Auto. Dual Control - Hex Valve Stem	2	Hand Grease	Annually
Auto. Dual Control - Control Gears	2	Hand Grease	Annually
Auto. Dual Control - Speedometer "T" Drive Adapter	1	Hand Grease	Annually
<b>Conveyor</b>			
Dragshaft Bearings	2	Grease Gun	Weekly
Idler Adjuster	2	Hand Grease	Weekly
Chain	2 Strands	Spray Oil	Weekly
Chain Oiler (if equipped)	1	Oil	Daily
Gear Case	1	Gear Box Oil	Check monthly; Change annually.
<b>Feedgate</b>			
Jack Assembly - Gears	1	Hand Grease	Annually
Tube	1	Grease Gun	Annually
<b>Spinner</b>			
Drive Shaft - Bearings	2	Grease Gun	Weekly
Drive Shaft - Flex Coupling	1	Hand Grease	Monthly

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.

LUBRICATION CHART

**BELT DISCHARGE ELEVATOR LUBRICATION CHART**



**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:

<u>LOCATION</u>	<u>PLACES</u>	<u>METHOD</u>	<u>FREQUENCY</u>
<b>Conveyor</b>			
Drive Pulley Bearings	2	Grease Gun	Weekly
Idler Pulley Bearings	2	Grease Gun	Weekly
<b>Winch</b>			
Rollers	2	Grease Gun	Weekly
Drum Pulley	1	Hand Grease	Weekly
Gear Case	1	Synthetic Oil	Check Monthly; Change Annually
Cable - Winch to Elevator	1	Spray Oil	Monthly
<b>Pivot Base</b>			
Bearing Plate	1	Hand Grease	Monthly
Locking Mechanism	1	Hand Grease	Monthly

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.

**THEORETICAL DELIVERY CHARTS**

IN CUBIC FEET/MILE/INCH OF GATE OPENING  
 1 1/4" (225 cm<sup>3</sup>/13.7 in<sup>3</sup>R) CONVEYOR MOTOR (9', 10' and 12' UNITS)

VALVE POSITION IN CAB	MPH 15		MPH 20		MPH 25		MPH 30		MPH 35		MPH 40	
	LO	HI	LO	HI	LO	HI	LO	HI	LO	HI	LO	HI
1	4.76	9.51	3.57	7.13	2.85	5.71	2.38	4.76	2.04	4.08	1.78	3.57
2	9.51	19.02	7.13	14.27	5.71	11.41	4.76	9.51	4.08	8.15	3.57	7.13
3	14.27	28.53	10.70	21.40	8.56	17.12	7.13	14.27	6.11	12.23	5.35	10.70
4	18.71	37.43	14.04	28.07	11.23	22.46	9.36	18.71	8.02	16.04	7.02	14.04
5	22.70	45.41	17.03	34.05	13.62	27.24	11.35	22.70	9.73	19.46	8.51	17.03
6	26.08	52.16	19.56	39.12	15.65	31.29	13.04	26.08	11.18	22.35	9.78	19.56
7	29.45	58.91	22.09	44.18	17.67	35.34	14.73	29.45	12.62	25.25	11.04	22.09
8	32.21	64.43	24.16	48.32	19.33	38.66	16.11	32.21	13.81	27.61	12.08	24.16
9	35.28	70.56	26.46	52.92	21.17	42.34	17.64	35.28	15.12	30.24	13.23	26.46
10	37.12	74.25	27.84	55.68	22.27	44.55	18.56	37.12	15.91	31.82	13.92	27.84
11	38.66	77.31	28.99	57.99	23.19	46.39	19.33	38.66	16.57	33.13	15.4	28.99

IN CUBIC FEET/MILE/INCH OF GATE OPENING  
 1 1/2" (299 cm<sup>e</sup>/18.2 in<sup>3</sup>/R) CONVEYOR MOTOR (14' UNIT)

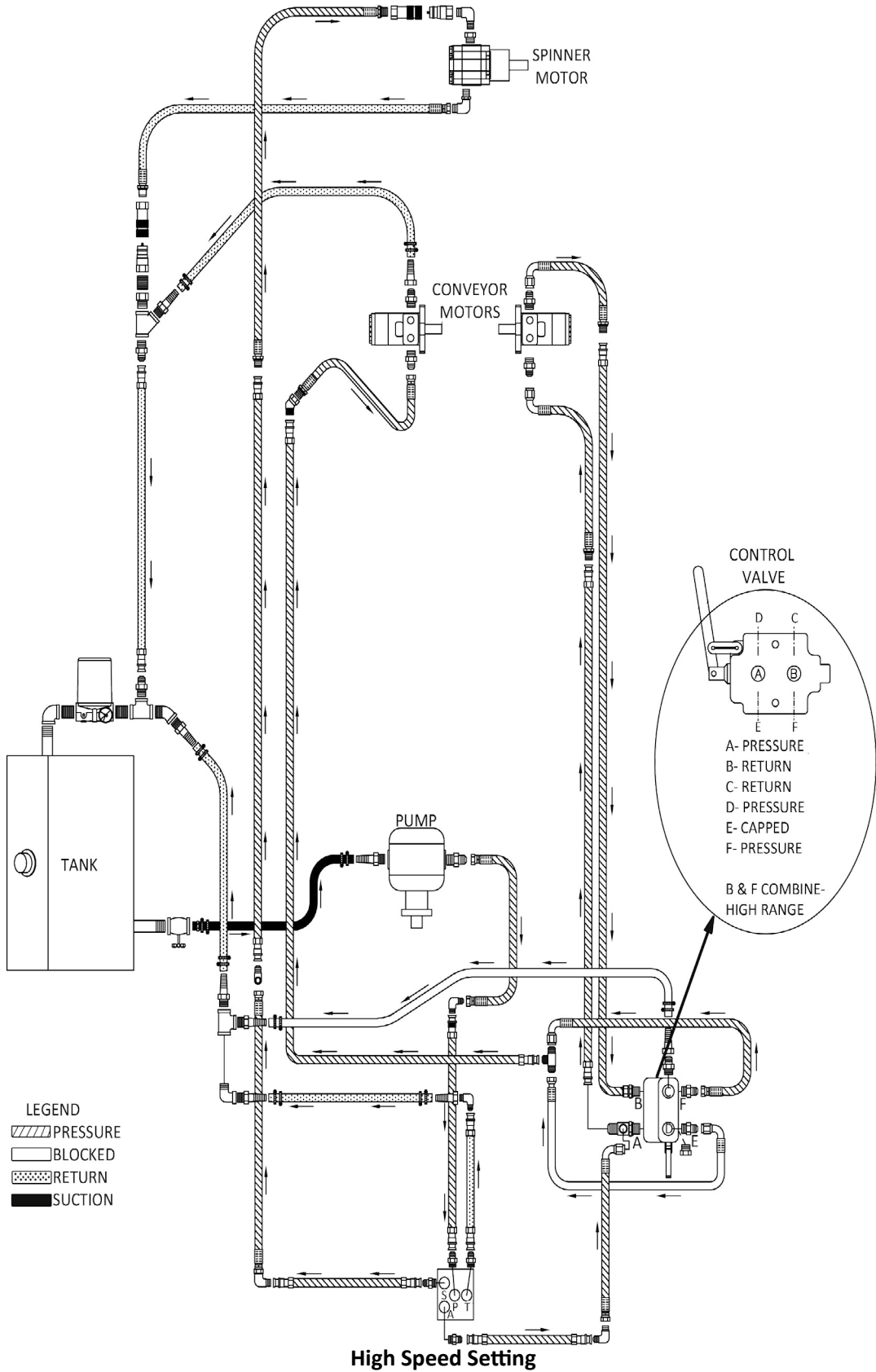
VALVE POSITION IN CAB	MPH 15		MPH 20		MPH 25		MPH 30		MPH 35		MPH 40	
	LO	HI	LO	HI	LO	HI	LO	HI	LO	HI	LO	HI
1	3.96	7.93	2.97	5.94	2.38	4.76	1.98	3.96	1.70	3.40	1.49	2.97
2	7.93	15.85	5.94	11.89	4.76	9.51	3.96	7.93	3.40	6.79	2.97	5.94
3	11.89	23.78	8.92	17.83	7.13	14.27	5.94	11.89	5.10	10.10	4.46	8.92
4	15.60	31.19	11.70	23.39	9.36	18.71	7.80	15.60	6.68	13.37	5.85	11.70
5	18.92	37.84	14.19	28.38	11.35	22.70	9.46	18.92	8.11	16.22	7.09	14.19
6	21.73	43.46	16.30	32.60	13.04	26.08	10.87	21.73	9.31	18.63	8.15	16.30
7	24.54	49.09	18.41	36.82	14.73	29.45	12.27	24.54	10.52	21.04	9.20	18.41
8	26.85	53.69	20.13	40.27	16.11	21.21	13.42	26.85	11.51	23.01	10.07	20.13
9	29.40	58.80	22.05	44.10	17.64	35.28	14.70	29.40	12.60	25.20	11.03	22.05
10	30.94	61.87	23.20	46.40	18.56	37.12	15.47	30.94	13.26	26.52	11.60	23.20
11	32.21	64.43	24.16	48.32	19.33	38.66	16.11	32.21	13.81	27.61	12.08	24.16

TROUBLESHOOTING

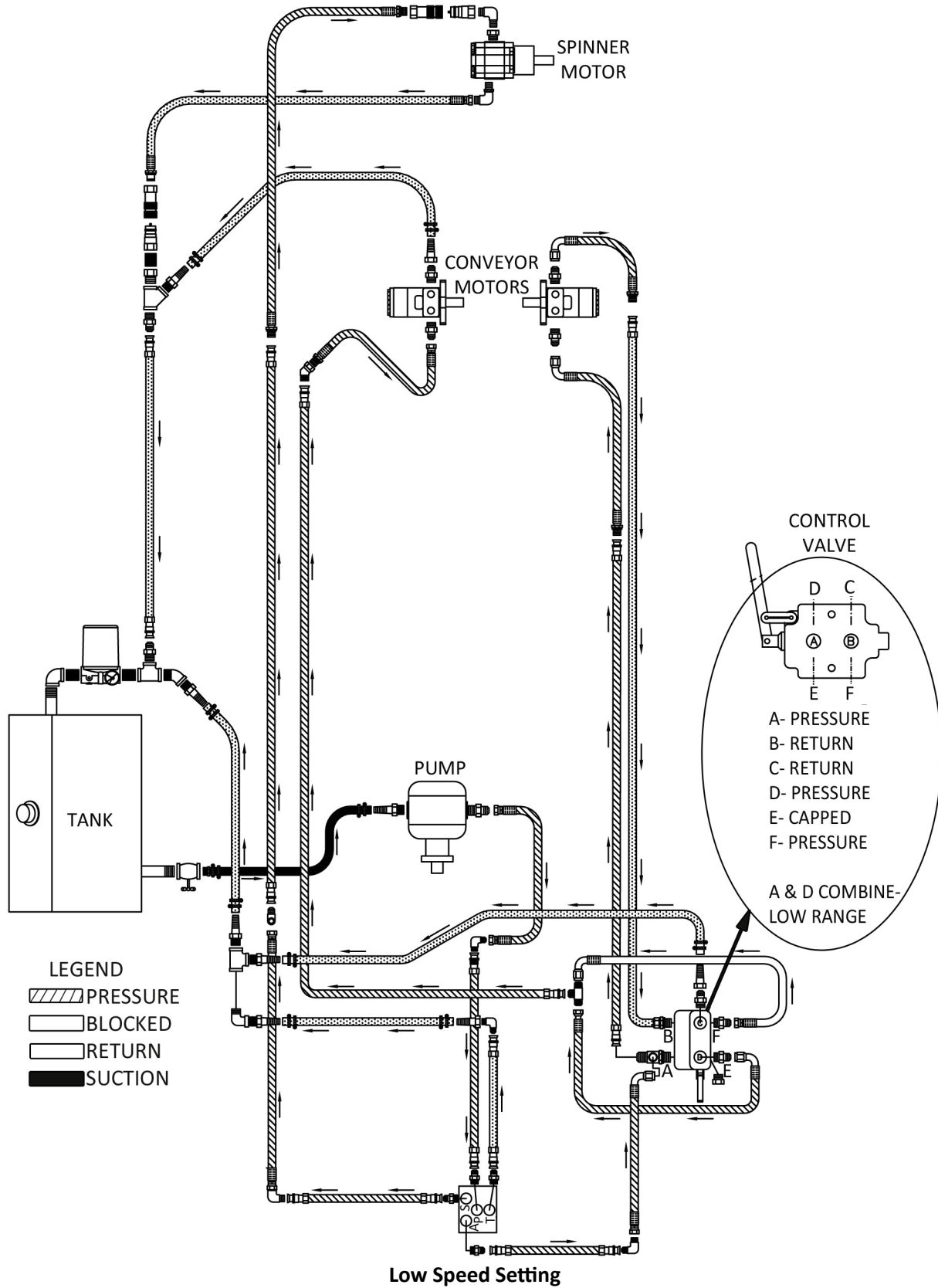




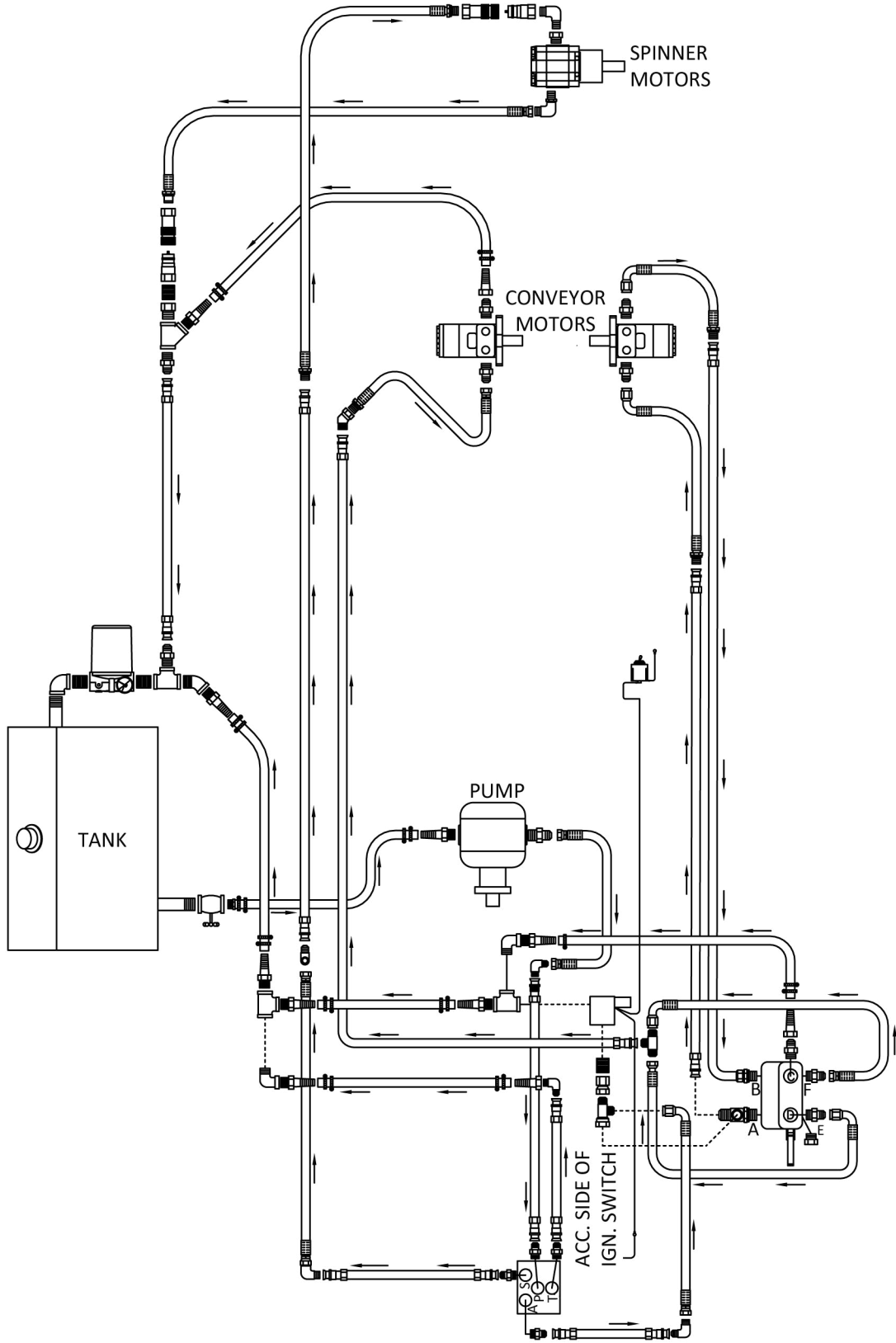
TROUBLESHOOTING



TROUBLESHOOTING

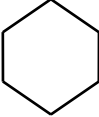
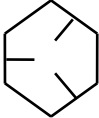
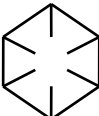


TROUBLESHOOTING



Hydraulics with Dump Valve

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

ORDERING PARTS



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**Highway Equipment Company**

*Building the best since 1939.*

Order from the **AUTHORIZED DEALER** in your area.

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

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

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

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

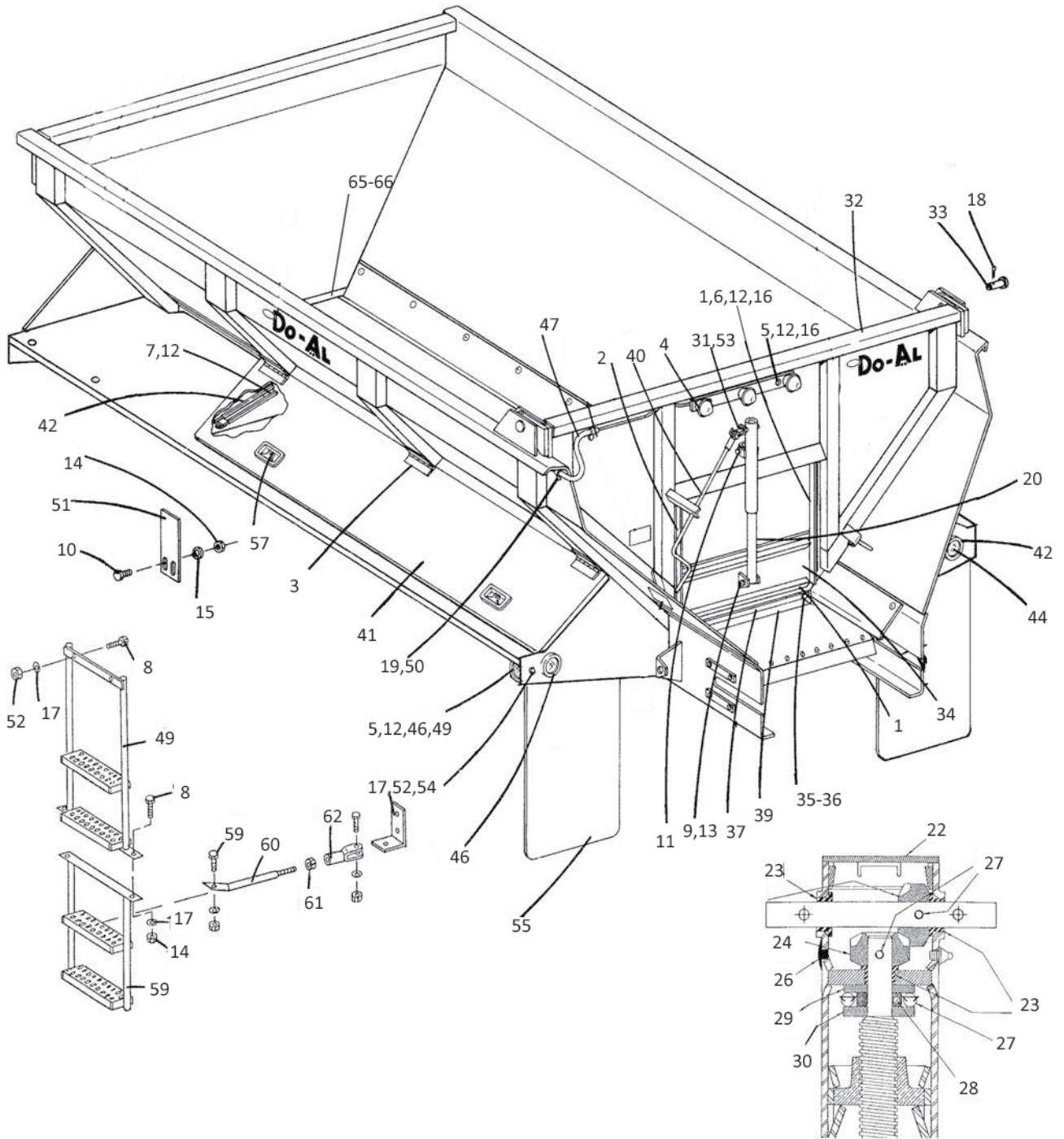
If your claims are not being handled (by the transportation company) to your satisfaction, please call the Parts Manager at Highway Equipment Company (319-363-8281) for assistance.

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

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

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





ITEM	PART NO.	DESCRIPTION	QTY
1	2884	Slide – Feedgate, LH	1
2	2885	Slide – Feedgate, RH	1
3	3276	Hinge 9' & 10' Units	6
	3276	Hinge 12' & 14' Units	8
4	6114	Lamp – Cluster, Red	1
5	20002	Screw – Machine, 1/4 x 5/8	6

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



6	20005	Cap Screw – 1/4 x 1 1/4	6
7	20003	Cap Screw – 1/4 x 3/4 9',10' & 12' Units	16
	20003	Cap Screw – 1/4 x 3/4 14' Unit	32
8	20068	Cap Screw – 3/8 x 1	6
9	20074	Cap Screw – 3/8 x 2 3/4	1
10	20131	Cap Screw – 1/2 x 2 9',10' & 12' Units	8
	20131	Cap Screw – 1/2 x 2 14' Units	12
11	20135	Cap Screw – 1/2 x 3	1
12	20642	Nut – Hex, 1/4 9',10' & 12' Units	28
	20642	Nut – Hex, 1/4 14' Unit	44
13	20678	Nut – Hex, 3/8	1
14	20680	Nut – Hex, 1/2 9',10' & 12' Units	9
	20680	Nut – Hex, 1/2 14' Unit	13
15	20706	Washer – Lock, 1/2 9',10' & 12' Units	8
	20706	Washer – Lock, 1/2 14' Unit	12
16	20710	Washer – Lock, 1/4 9',10' & 12' Units	28
	20710	Washer – Lock, 1/4 14' Unit	44
17	20712	Washer – Lock, 3/8	14
18	20824	Pin - Cotter	2
19	20908	Screw – Self Drilling, 1/4 x 3/4	2
20	40735	Jack Assembly	1
	40734	Repair Kit – Jack Assy, Includes Items 22-32, 56	1
21	* 40707	Cap – Tube, Lower	1
22	40708	Cap – Tube, Upper	1
23	40709	Bearing – Flange	3
24	40710	Gear – Bevel	2
25	40725	Pin - Roll	1
26	40726	Grommet	1
27	40727	Bearing	1
28	40731	Spacer	1
29	40732	Thrust Washer	1
30	40733	Support Washer	1
31	40705	U-Joint	1
32	36708	Endgate – Rear Weldment	1
33	36719	Pin	2
34	36720	Feedgate Assembly, Includes Items 38-42	1
35	20619	Screw – Machine, 1/4 x 3/4	7
36	20676	Nut – Lock, 1/4	7
37	36634	Retainer – Seal	1

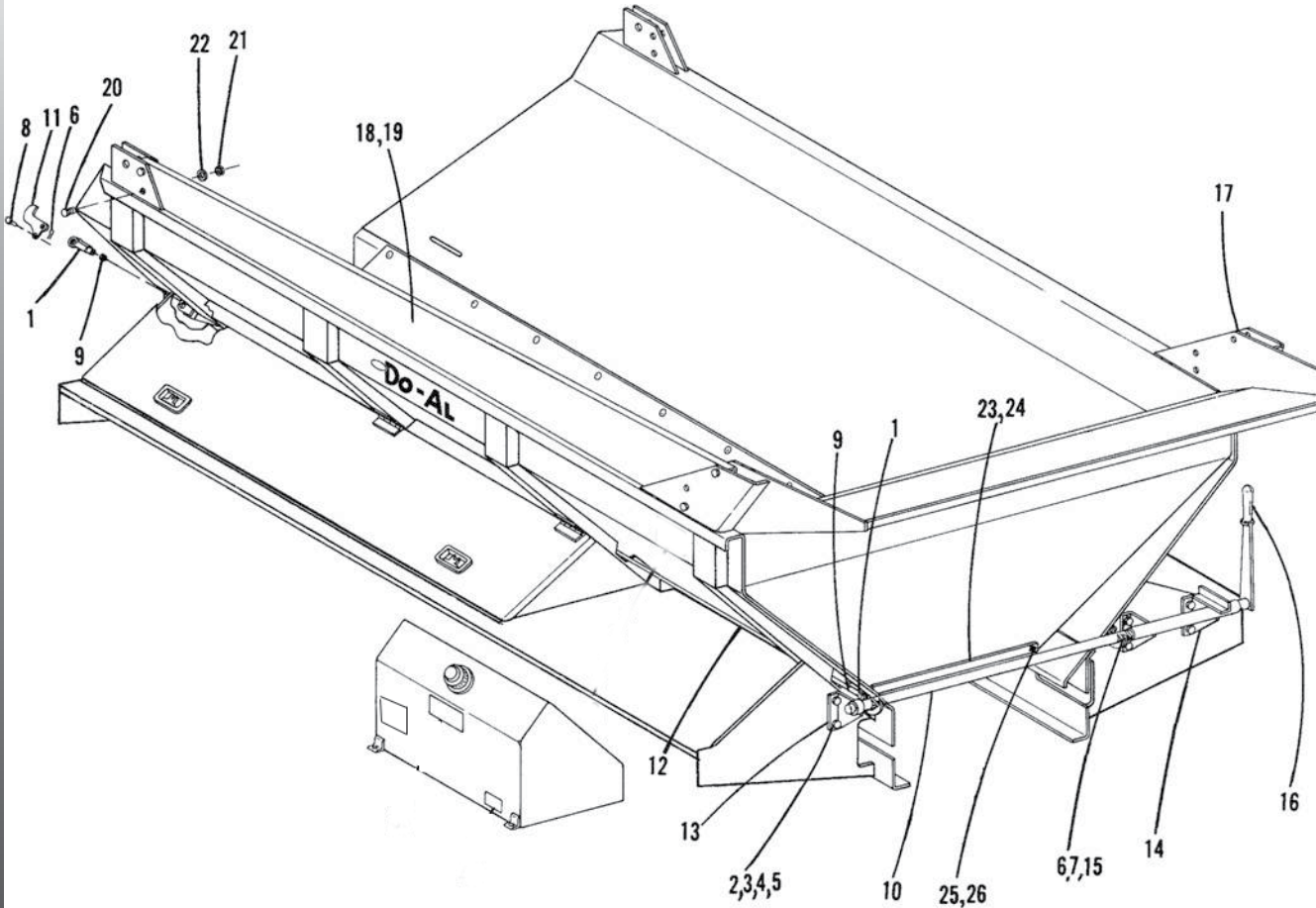


## BODY REAR CONTINUED

38	36724	Belt – Sealer	1
39	36721	Feedgate Weldment	1
40	36725	Handle	1
41	37726	Cover Weldment, 9' Unit	2
	37125	Cover Weldment, 10' Unit	2
	37126	Cover Weldment, 12' Unit	4
	37127	Cover Weldment, 14' Unit	4
42	37128	Support – Cover, 9', 10' & 12' Units	4
	37128	Support – Cover, 14' Unit	8
43	36858	Lamp – Red Assembly, Includes Items 47-49	1
44	36860	Lamp & Reflector – Red	1
45	* 36862	Plug & Pig Tail	1
46	36863	Grommet	1
47	36865	Spring	1
48	36868	Bracket – Light	2
49	58881	Ladder – Upper Weldment	1
	58880	Kit – Ladder, Two-piece	
50	36987	Clamp	2
51	36806	Bar – Mounting	AR
52	20644	Nut – Hex, 3/8	14
53	20986	Pin – Roll	2
54	20068	Cap Screw – 3/8 x 1 1/4	8
55	7794	Mudflap – Hi-Way	2
56	* 36844	Rod – Mudflap	2
57	36821	Latch – Cover	AR
58	58885	Ladder – Lower Weldment	1
59	20130	Cap Screw – 1/2 x 1 3/4	2
	20695	Washer – Lock, 1/2	2
	20680	Nut – Hex, 1/2	2
60	58890	Support – Ladder Weldment	1
61	21084	Nut – Jam, 1/2	1
62	9342	Yoke – Female	1
63	58889	Angle – Mounting Support	1
64	* 58904	Angle – Conversion (Mounts two-piece ladder on earlier units)	1
65	36633	Sealer – Belt	1
66	36634	Retainer – Sealer	1

\* - Not Shown AR - As Required

BODY FRONT



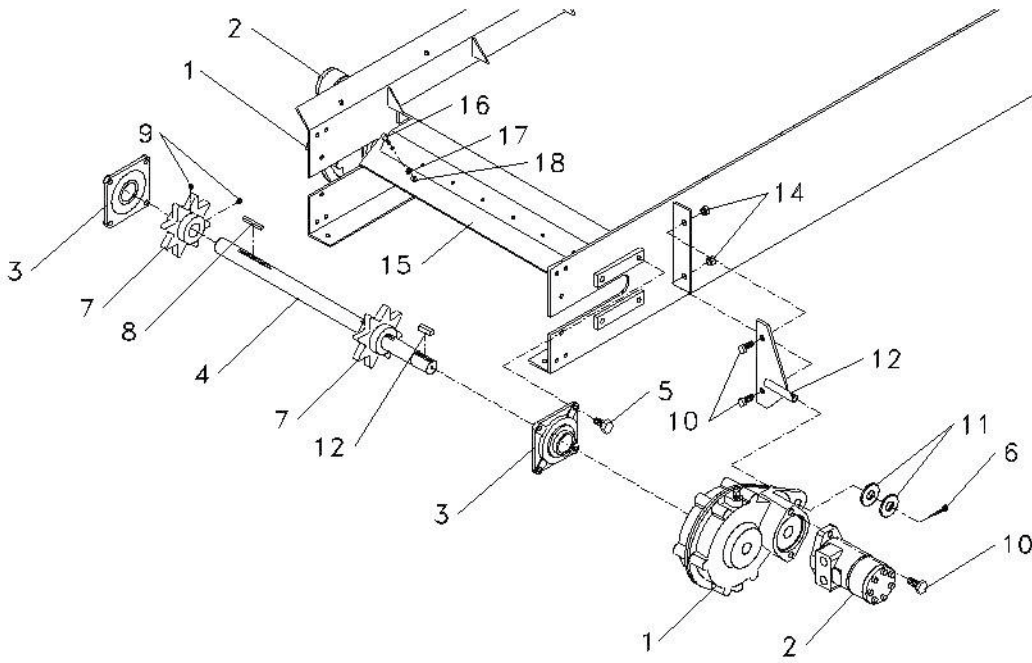
ITEM	PART NO.	DESCRIPTION	QTY
1	9342	Yoke	4
2	20067	Cap Screw – 3/8 x 1	6
3	20644	Nut – Hex, 3/8	AR
4	20693	Washer – Flat, 3/8	AR
5	20712	Washer – Lock, 3/8	AR
6	20821	Pin – Cotter	8
7	21027	Pin – Cotter	6
8	21028	Pin – Cotter	2
9	21084	Nut – Jam, 1/2	4
10	36727	Lever Weldment	1
11	36736	Hook – Endgate	2
12	36738	Rod – Control, 9’ Unit	2
	36739	Rod – Control, 10’ Unit	2
	36741	Rod – Control, 12’ Unit	2
	36743	Rod – Control, 14’ Unit	2
13	36745	Support Weldment	1

PARTS LIST



## BODY FRONT CONTINUED

14	36748	Support Weldment	1
15	36819	Link	2
16	36899	Handle	1
17	37442	Protector – Cab, 1/4 (52"-56" Cab Height)	1
	37105	Protector – Cab, 1/2 (58"-62" Cab Height)	1
	37106	Protector – Cab, 1/2 (64"-70" Cab Height)	1
18	38232	Side Board – 6" Steel, 9' Unit	2
	38233	Side Board – 6" Wood, 9' Unit	2
	36955	Side Board – 6" Steel, 10' Unit	2
	36949	Side Board – 6" Wood, 10' Unit	2
	36956	Side Board – 6" Steel, 12' Unit	2
	36950	Side Board – 6" Wood, 12' Unit	2
	36957	Side Board – 6" Steel, 14' Unit	2
	36951	Side Board – 6" Wood, 14' Unit	2
19	38243	Side Board – 6" x 12" Steel, RH 9' Unit	1
	38244	Side Board – 6" x 12" Steel, LH 9' Unit	1
	38245	Side Board – 6" x 12" Wood, 9' Unit	2
	36958	Side Board – 6" x 12" Steel, RH 10' Unit	1
	36959	Side Board – 6" x 12" Steel, LH 10' Unit	1
	36952	Side Board – 6" x 12" Wood, 10' Unit	2
	36960	Side Board – 6" x 12" Steel, RH 12' Unit	1
	36961	Side Board – 6" x 12" Steel, LH 12' Unit	1
	36953	Side Board – 6" x 12" Wood, 12' Unit	2
	36962	Side Board – 6" x 12" Steel, RH 14' Unit	1
	36963	Side Board – 6" x 12" Steel, LH 14' Unit	1
	36954	Side Board – 6" x 12" Wood, 14' Unit	2
20	20127	Cap Screw – 1/2 x 1	8
	20135	Cap Screw – 1/2 x 3 (Use with Wood Side Boards)	8
21	20646	Nut – Hex, 1/2	8
	20680	Nut – Lock, 1/2 (Use with Wood Side Boards)	8
22	20695	Washer – 1/2 (Used with Steel Side Boards Only)	8
23	36633	Belt – Sealer	1
24	36634	Retainer – Sealer	1
25	20586	Screw – Machine, 1/4 x 1 1/4	7
26	20676	Nut – Lock 1/4	7



ITEM	PART NO.	DESCRIPTION	QTY
1	36671	Gear Case - Conveyor	2
2	37404	Motor – Conveyor 9', 10', 12' Units	2
	37405	Motor – Conveyor 14' Unit	2
3	6465	Bearing – Flange	2
4	36677	Shaft – Drive	1
5	20174	Cap Screw – 5/8 x 1 1/4	8
6	20833	Pin – Cotter	2
7	27275	Sprocket – Drive	2
8	6131	Key – Square, 3/8 x 2 1/2	2
9	20748	Screw – Set	2
10	20128	Cap Screw – 1/2 x 1 1/4	8
11	2716	Washer	4
12	37010	Key – Square	2
13	82562	Torque Arm – LH Weldment	1
	*82561	Torque Arm – RH Weldment	1
14	20680	Nut – Lock, 1/2	4
15	36662	Belt – Wiper, Rear	1
16	20621	Screw – Machine, 1/4 x 1	7
17	21423	Washer	7
18	20642	Nut – Hex, 1/4	7
19	* 29868	“O” Ring	2

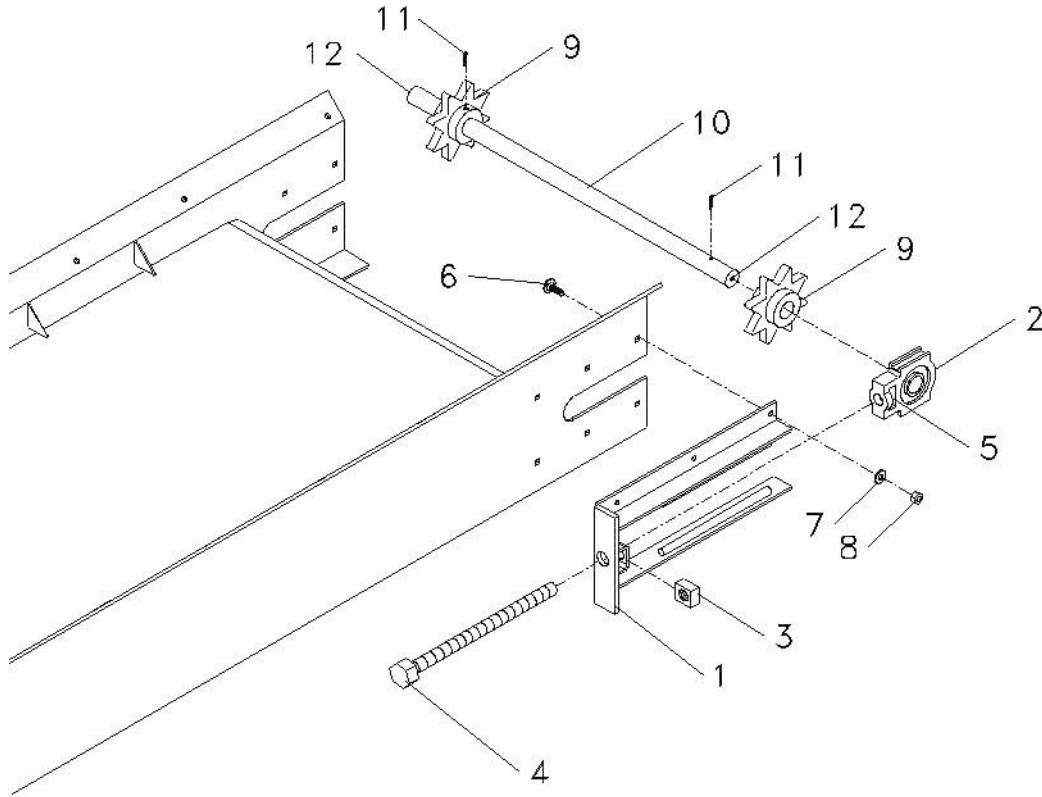
PARTS LIST

**CONVEYOR DRIVE CONTINUED**

<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
	303044	Support – Hydraulic Base	1
15	27141	Belt – Wiper	1
16	20005	Cap Screw – 1/4 x 1	5
17	21423-X1	Washer – Flat 1/4 SS	5
18	20642	Nut – Hex 1/4	5
19	22563	Bearing – Flange	1
20	20037	Cap Screw – 5/16 x 1 1/4	2
21	20692	Washer – Flat 5/16	2
22	20711	Washer – Lock 5/16	2
23	20643	Nut – Hex 5/16	2
24	20127	Cap Screw – 1/2 x 1	4
25	20714	Washer – Lock 1/2	4
26	20319	Bolt – Carriage 3/8 x 1 1/4	4
27	20712	Washer – Lock 3/8	12
28	20644	Nut – Hex 3/8	12
29	20067	Cap Screw – 3/8 x 1	4
30	20693	Washer – Flat 3/8	4
31	20318	Bolt – Carriage 3/8 x 1	2
32	301410	Support – Weldment Hood Hook	1

\* - Not Shown

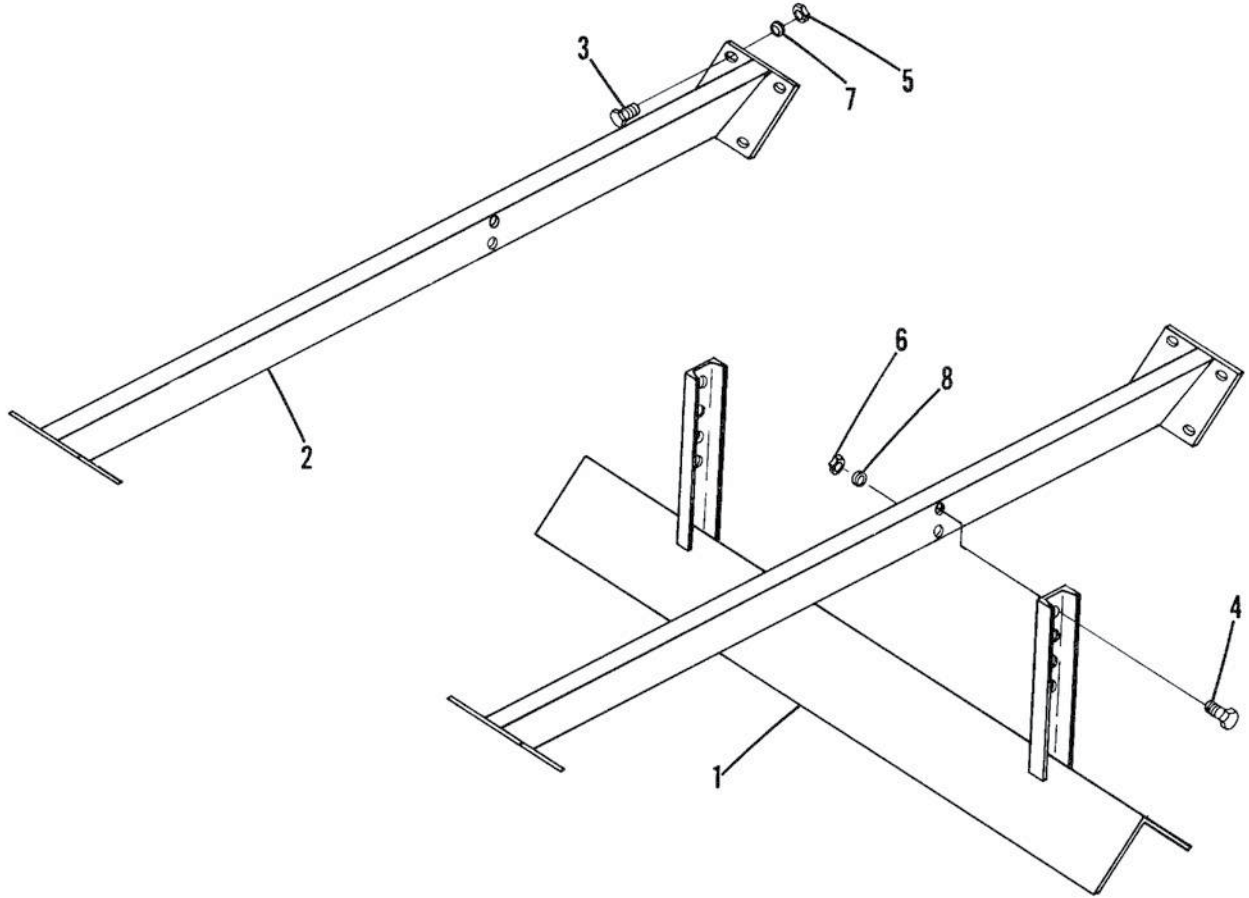




<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
	36680	Take-up – RH Assembly, Includes Items 1-5	1
	36818	Take-up – LH Assembly, Includes Items 1-5	1
1	36681	Bracket – RH	1
	36692	Bracket – LH	1
2	36687	Bushing	2
3	36688	Nut – Square	2
4	36689	Bolt – Take-up	2
5	20781	Screw – Set	2
6	20319	Bolt – Carriage, 3/8 1 1/4	12
7	20712	Washer – Lock, 3/8	12
8	20644	Nut – Hex, 3/8	12
9	36693	Sprocket – Idler	2
10	36694	Shaft – Idler	1
11	20836	Pin – Cotter	2
12	6071	Fitting – Grease	2

PARTS LIST

INVERTED 'V'

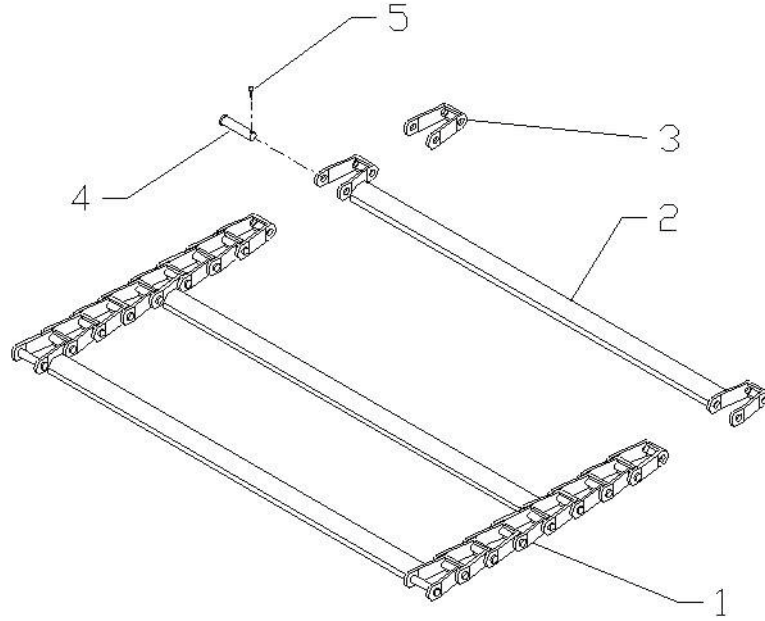


<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
	37147	Inverted "V" Assembly Group	
1	37148	Inverted "V" Weldment	1
2	37149	Hanger Weldment	2
3	20067	Cap Screw – 3/8 x 1	16
4	20128	Cap Screw – 1/2 x 1 1/4	4
5	20644	Nut – Hex, 3/8	16
6	20646	Nut – Hex, 1/2	4
7	20712	Washer – Lock, 3/8	16
8	20714	Washer – Lock, 1/2	4

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



#1 PINTLE CHAIN CONVEYOR



<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
1	36541	Chain – Conveyor, #1 Pintle Assembly 9’ Unit	1
	36542	Chain – Conveyor, #1 Pintle Assembly 10’ Unit	1
	36544	Chain – Conveyor, #1 Pintle Assembly 12’ Unit	1
	36546	Chain – Conveyor, #1 Pintle Assembly 14’ Unit	1
	90351	Chain – Conveyor Weldment	AR
	90352	Chain – Conveyor Weldment	AR
	90353	Chain – Conveyor Weldment	AR
	90354	Chain – Conveyor Weldment	AR
	90355	Chain – Conveyor Weldment	AR
2	37025	Cross Bar Weldment	AR
3	36699	Link	AR
4	36697	Pin	AR
5	20817	Pin – Cotter	AR
11	20836	Pin – Cotter	2
12	6071	Fitting – Grease	2

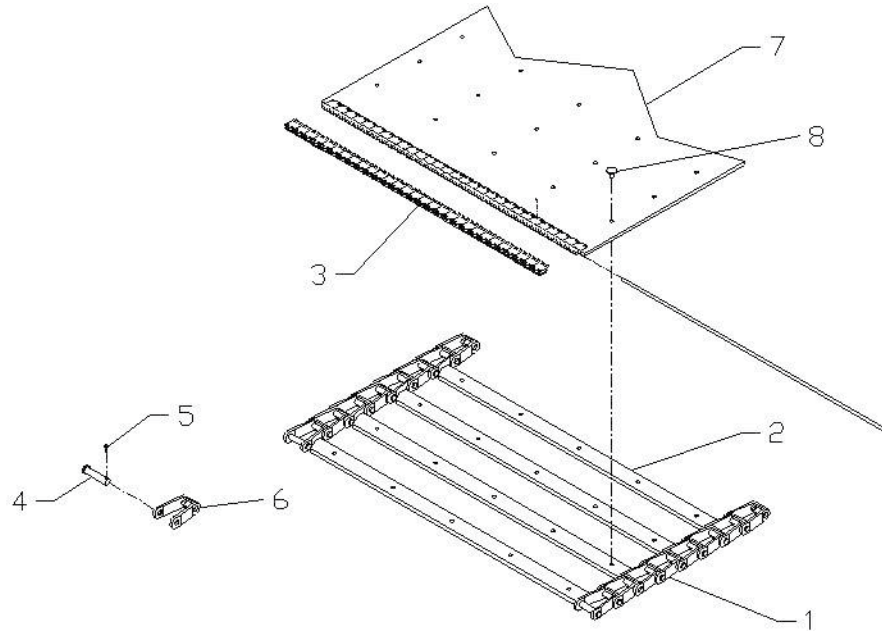
AR - As Required

PARTS LIST





#4 BELT-OVER-CHAIN CONVEYOR



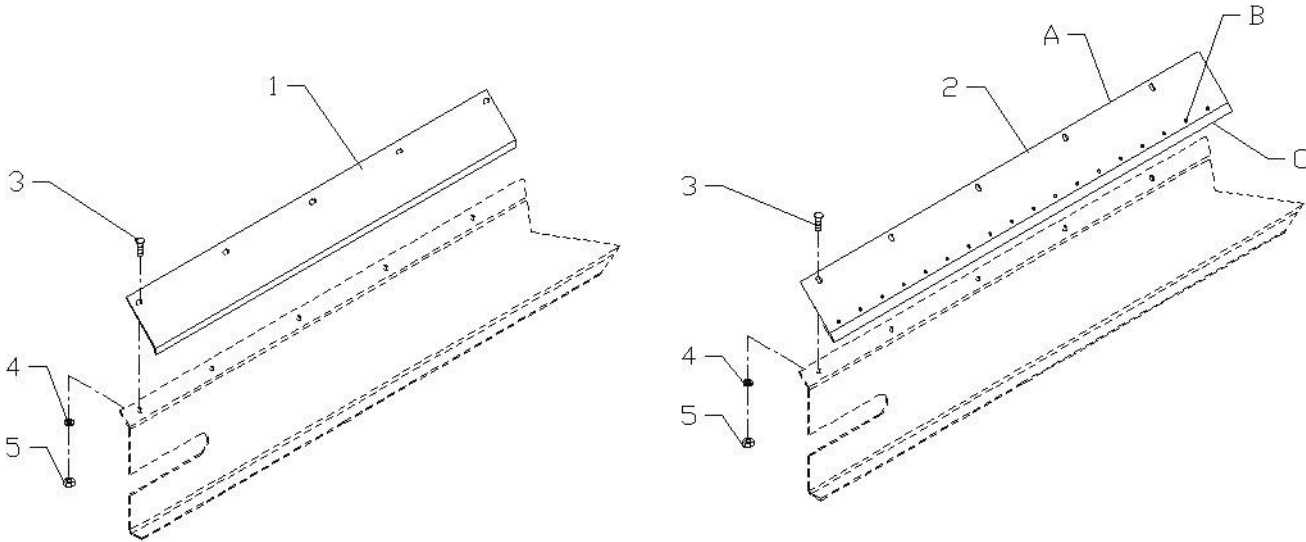
<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
	308681	Chain – #4 Conveyor Assembly, 9’ Unit	1
	308682	Chain – #4 Conveyor Assembly, 10’ Unit	1
	308683	Chain – #4 Conveyor Assembly, 12’ Unit	1
	308684	Chain – #4 Conveyor Assembly, 14’ Unit	1
	308685	Chain – Hi-Temp #4 Conveyor Assy, 9’ Unit	1
	308686	Chain – Hi-Temp #4 Conveyor Assy, 10’ Unit	1
	308687	Chain – Hi-Temp #4 Conveyor Assy, 12’ Unit	1
	308688	Chain – Hi-Temp #4 Conveyor Assy, 14’ Unit	1
1	90283	Chain – Assy 40 Links	AR
	90284	Chain – Assy 44 Links	AR
	90286	Chain – Assy 50 Links	AR
	90287	Chain – Assy 60 Links	AR
	90288	Chain – Assy 62 Links	AR
2	308532	Cross Bar Weldment with Rivet Holes	AR
3	73319	Lacing	1
4	36697	Pin – Pintle Chain	AR
5	20817	Pin – Cotter	AR
6	36699	Link – Pintle Chain	AR
7	37161	Belt – Conveyor (Specify Body Length)	AR
	38285	Belt – Hi-Temp Conveyor (Specify Body Length)	AR
8	308533	Screw	AR

AR - As Required

NOTE: Do Not operate High-Temperature Belt below -10° F. High-Temperature Belt is Heat and Oil Resistant for Hot Asphalt.

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





<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
1		Chain Shield Assembly - #1 Chain For:	
	37719	9' Unit RH	1
	37720	9' Unit LH	1
	36704	10' Unit RH	1
	36705	10' Unit LH	1
	36706	12' Unit	2
	36707	14' Unit	2
2		Chain Shield Assembly - #4 BOC For:	
	38291	9' Unit RH	1
	38294	9' Unit LH	1
	37165	10' Unit RH	1
	38296	10' Unit LH	1
	37166	12' Unit	2
	37167	14' Unit	2
		Chain Shield Assembly – Hi-Temp #4 BOC For:	
	38343	9' Unit RH	1
	38344	9' Unit LH	1
	38345	10' Unit RH	1
	38346	10' Unit LH	1
	38347	12' Unit	2
	38348	14' Unit	2
A		Shield – Chain Weldment for:	
	38292	9' Unit	1
	37168	10' Unit	1

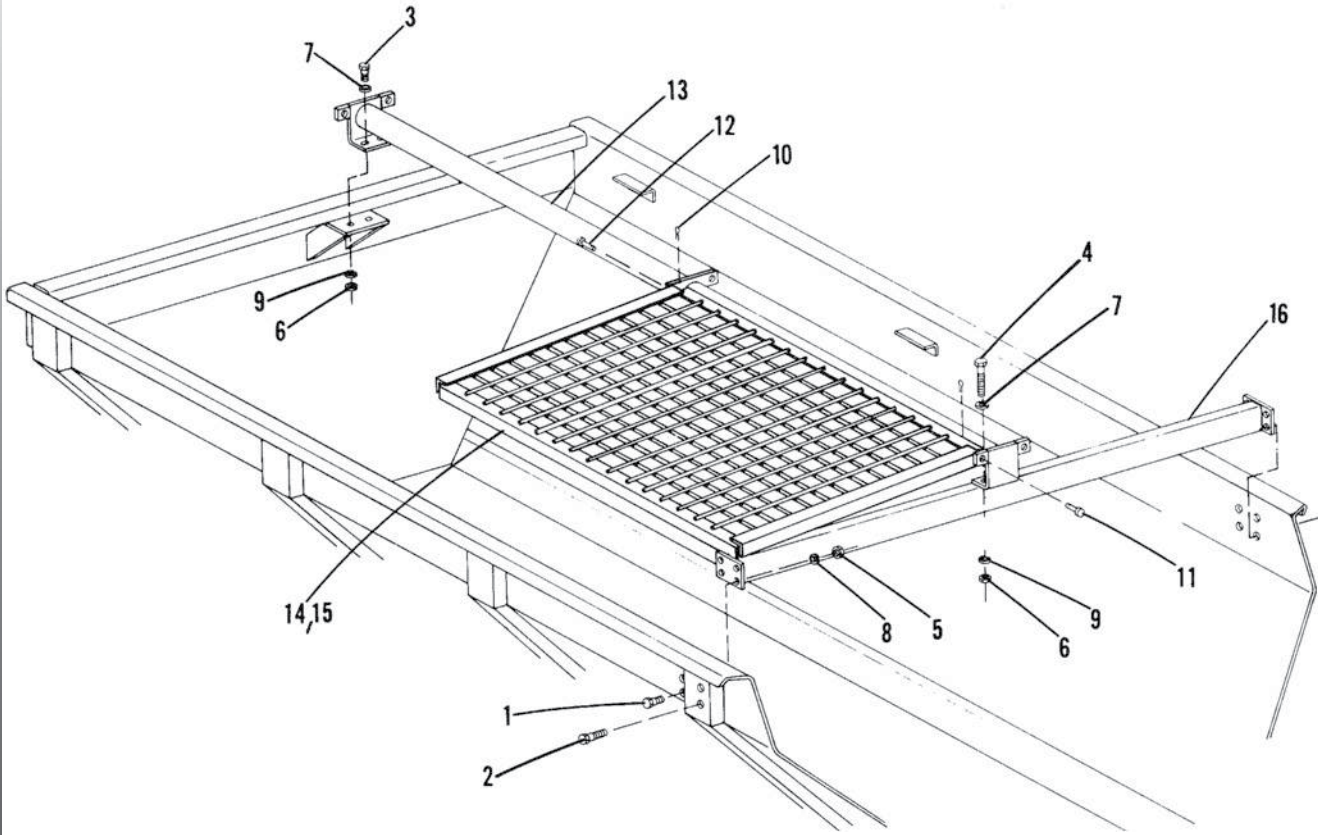
PARTS LIST



**CHAIN SHIELDS CONTINUED**

	37169	12' Unit	1
	37170	14' Unit	1
B	6244	Rivet – #4 BOC Shield	AR
	6245	Rivet – Hi-Temp #4 BOC Shield	AR
C		Sealer – Belt for:	
	7687-126	9' Unit	1
	7687-138	10' Unit	1
	7687-161	12' Unit	1
	7687-185	14' Unit	1
		Sealer – Hi-Temp Belt for:	
	38349-126	9' Unit	1
	38349-138	10' Unit	1
	38349-161	12' Unit	1
	38349-185	14' Unit	1
3	20318	Bolt – Carriage, 3/8 x 1	AR
4	20712	Washer – Lock, 3/8	AR
5	20644	Nut – Hex, 3/8	AR



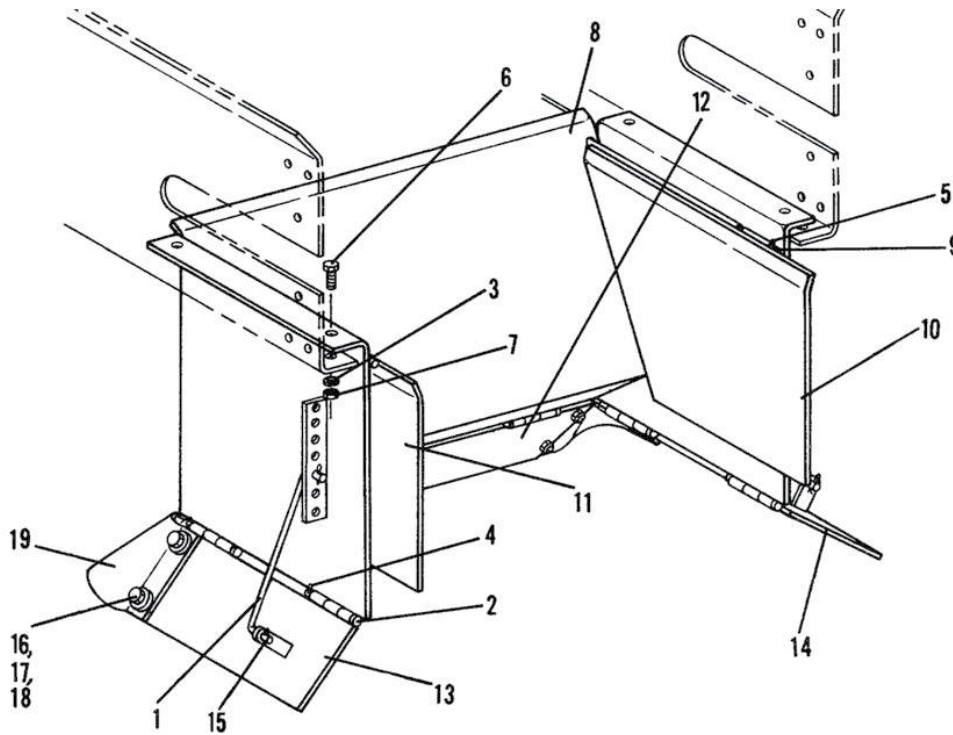


**SCREENS CONTINUED**

<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
	53946	Screen Assembly Group – 9’ Unit	
	53947	Screen Assembly Group – 10’ Unit	
	53948	Screen Assembly Group – 12’ Unit	
	53949	Screen Assembly Group – 14’ Unit	
1	20067	Cap Screw – 3/8 x 1	AR
2	20076	Cap Screw – 3/8 x 3 1/4	AR
3	20130	Cap Screw – 1/2 x 1 3/4	2
4	20145	Cap Screw – 1/2 x 5 1/2	AR
5	20644	Nut – Hex, 3/8	AR
6	20646	Nut – Hex, 1/2	AR
7	20695	Washer – Flat, 1/2	AR
8	20712	Washer – Lock, 3/8	AR
9	20714	Washer – Lock, 1/2	AR
10	20822	Pin – Cotter	AR
11	24827	Pin - Clevis	4
12	24828	Pin - Clevis	AR
13	37740	Pipe – Screen Weldment, 9’ Unit	1
	36920	Pipe – Screen Weldment, 10’ Unit	1
	36934	Pipe – Screen Weldment, 12’ Unit	1
	36938	Pipe – Screen Weldment, 14’ Unit	1
14	56626	Screen Weldment	AR
15	56625	Screen Weldment	AR
16	36928	Support – Screen Weldment	AR



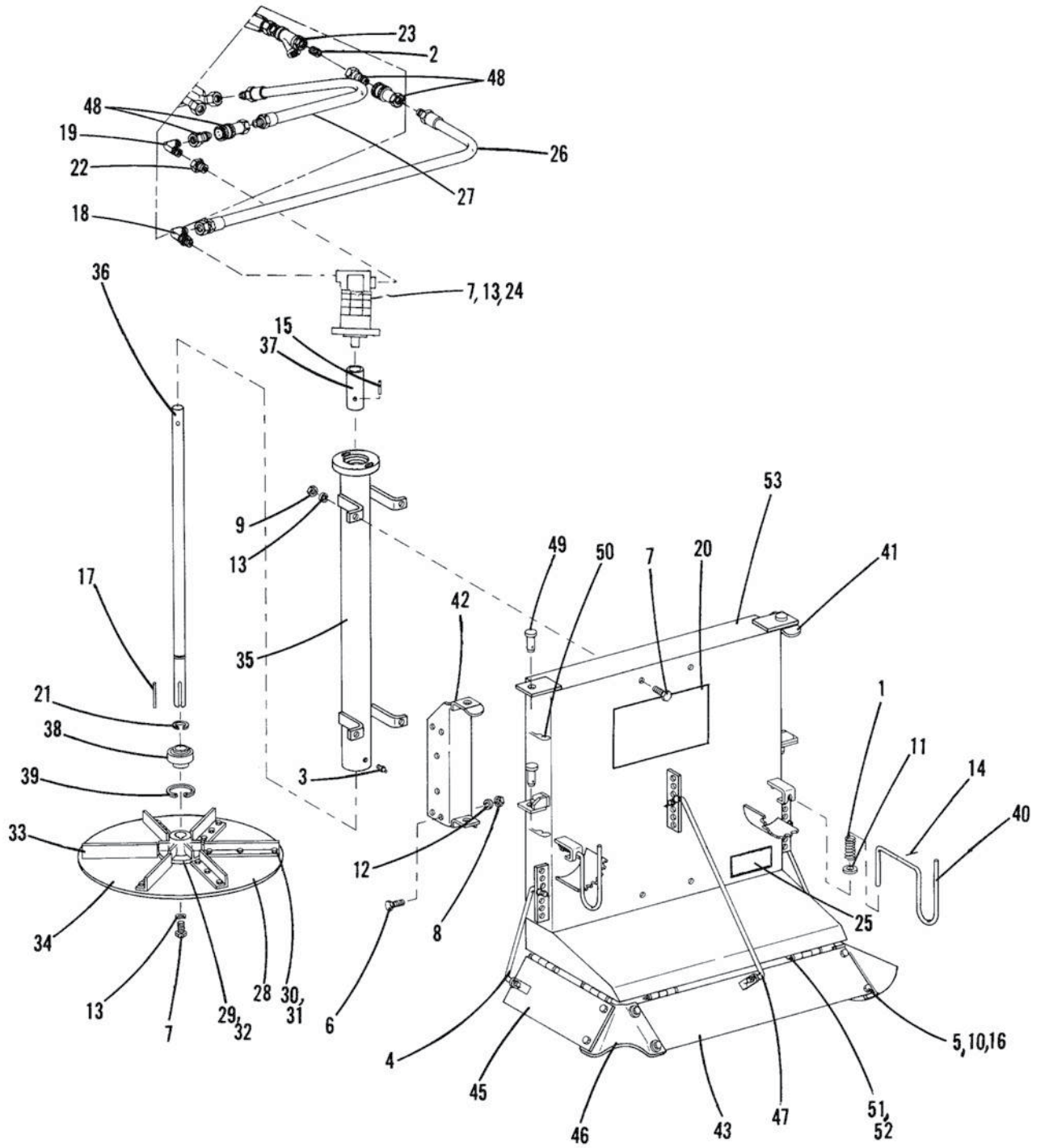
**CHUTE**



<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
	71821	Chute Assembly Group	
1	17640	Rod – Control	3
2	17770	Pin – Shear	6
3	20712	Washer – Lock, 3/8	4
4	20811	Pin – Cotter	6
5	20817	Pin – Cotter	4
6	36399	Cap Screw – 3/8 x 1 1/4 SS	4
7	36414	Nut – Hex, 3/8 SS	4
8	36773	Chute Weldment	1
9	36783	Rod – Hinge	2
10	36784	Baffle – Inside, RH	1
11	36787	Baffle – Inside, LH	1
12	36789	Baffle – End Weldment	1
13	36793	Baffle – Rear Side Weldment	1
14	36791	Baffle – Front Side Weldment	1
15	40576	Pin – Hair	6
16	20004	Cap Screw – 1/4 x 7/8	8
17	20676	Nut – Hex, 1/4	8
18	21423	Washer – 1/4	8
19	36794	Belt – Deflector	2

PARTS LIST





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



## SPINNER CONTINUED

<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
	71820	Spinner Assembly, Includes the following except hoses and fittings:	
1	3126	Spring	2
2	6026	Nipple	1
3	6072	Zerk – Grease	1
4	17640	Rod – Control	2
5	20004	Cap Screw – 1/4 x 7/8	8
6	20068	Cap Screw – 3/8 x 1 1/4	12
7	20128	Cap Screw – 1/2 x 1 1/4	5
8	20644	Nut – Hex, 3/8	12
9	20646	Nut – Hex, 1/2	4
10	20676	Nut – Hex, 1/4	8
11	20694	Washer – Flat, 7/16	2
12	20712	Washer – Lock, 3/8	12
13	20714	Washer – Lock, 1/2	5
14	20907	Pin – Roll	2
15	20951	Pin – Roll	1
16	21423	Washer	8
17	21445	Key	1
18	29847	Adapter – Elbow, 90°	1
19	34748	Adapter – Elbow, 90°	1
20	368	Decal – Warning	1
21	22621	Ring – Snap	1
22	22021	Adapter	1
23	22208	Bushing	1
24	32752	Motor – Spinner	1
25	318	Decal – Warning, No Step	1
26	56138	Hose Assembly	1
27	56139	Hose Assembly	1
28	36751	Fan Assembly, Includes Items 29-34	1
29	14353	Hub	1
30	20035	Cap Screw – 5/16 x 7/8	18
31	20677	Nut – Lock, 5/16	18
32	20873	Rivet	6
33	36752	Fin	6
34	36918	Disc	1
38	36770	Bearing – Spinner	1
39	36771	Ring – Snap	1

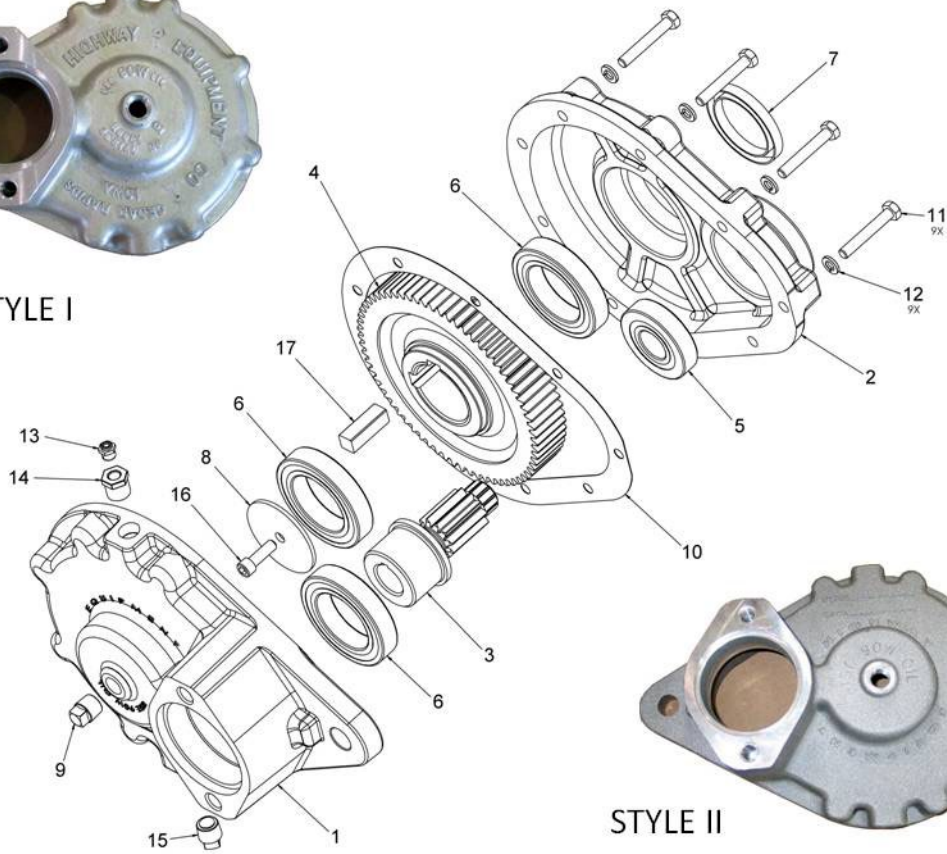


40	36772	Handle – Baffle Control	2
41	36778	Hinge – RH	1
42	36782	Hinge – LH	1
43	36789	Baffle – End	1
44	* 36793	Baffle – Side	1
45	36791	Baffle – Side	1
46	36794	Belt – Deflector	2
47	36796	Rod – Control	1
48	39905	Quick Disconnect – ¾ Male	2
	39906	Quick Disconnect – ¾ Female	2
49	36867	Pin	4
50	40576	Pin – Hair	10
51	20811	Pin – Cotter	6
52	17770	Pin – Shear	6
53	36754	Frame – Distributor Weldment	1
54	89701	Capscrew – 1/2-13NC x 1-1/4	2
55	30227	Washer – Lock Socket HD 1/2	2

\* - Not Shown



STYLE I



STYLE II

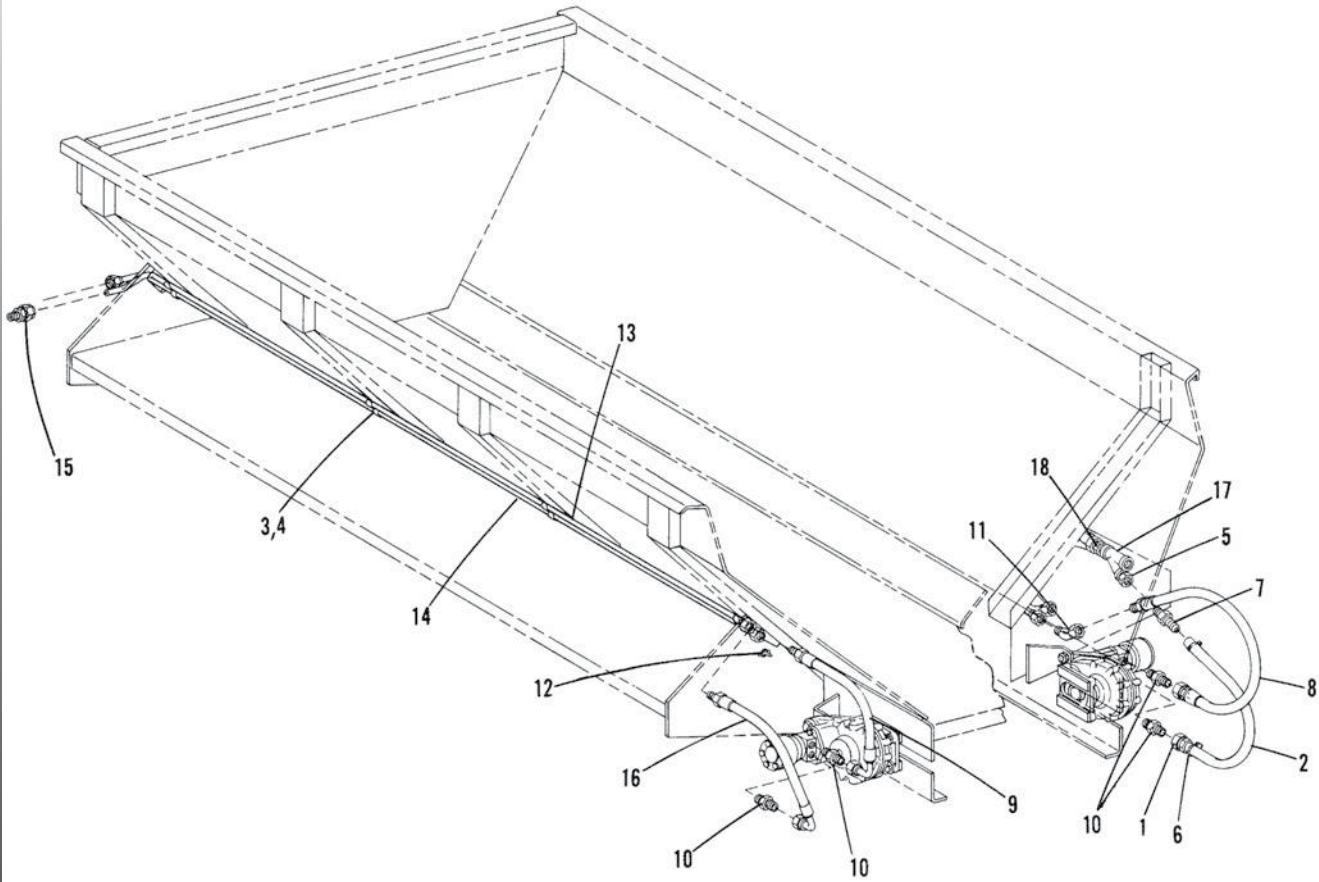


**GEAR CASE CONTINUED**

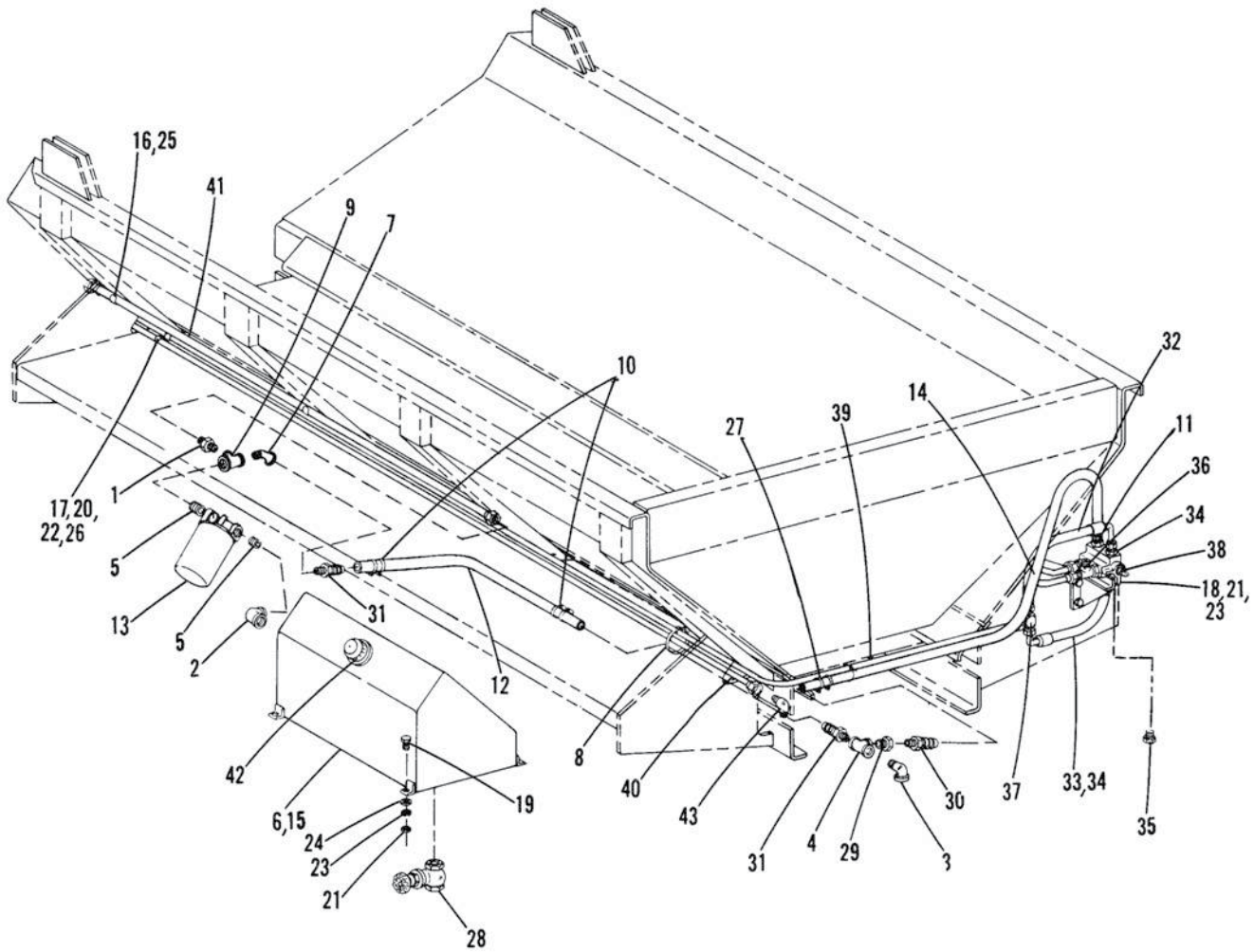
<u>ITEM</u>	<u>PART NO.</u>		<u>DESCRIPTION</u>	<u>QTY</u>
	36671		Gear Case - ASsembly Single Pinion	
	Style I	Style II		
	304269-AA	304269-AB	Parts – Service, Includes 1–17	
1	37001	304559	Housing – Outboard	1
2	37002	304560	Housing – Inboard	1
3	37003	304561	Gear – Pinion 11 Tooth	2
4	38981	304562	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 x1-1/2	2

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





<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
1	11424	Fitting – Hose End	1
2	16529-28	Hose	1
3	20908	Screw – Self Drilling	AR
4	21993	Clamp	AR
5	22208	Bushing – Reducer	1
6	22381	Clamp – Hose	2
7	22425	Fitting – Hose End	1
8	29614	Hose Assembly	1
9	29639	Hose Assembly	1
10	29753	Adapter	4
11	29782	Adapter – Elbow, 45°	1
12	36816	Switch – Toggle (Use with Electric Dump Valve)	1
13	37729	Tube Assembly, 9' Unit	1
	36822	Tube Assembly, 10' Unit	1
	36823	Tube Assembly, 12' Unit	1
	36824	Tube Assembly, 14' Unit	1
14	37730	Tube Assembly, 9' Unit	1
	36825	Tube Assembly, 10' Unit	1
	36826	Tube Assembly, 12' Unit	1
	36827	Tube Assembly, 14' Unit	1
15	29793	Adapter – Connector, 1 1/16	1
16	29637	Hose Assembly	1
17	22221	Tee – Pipe	1
18	29751	Adapter	1



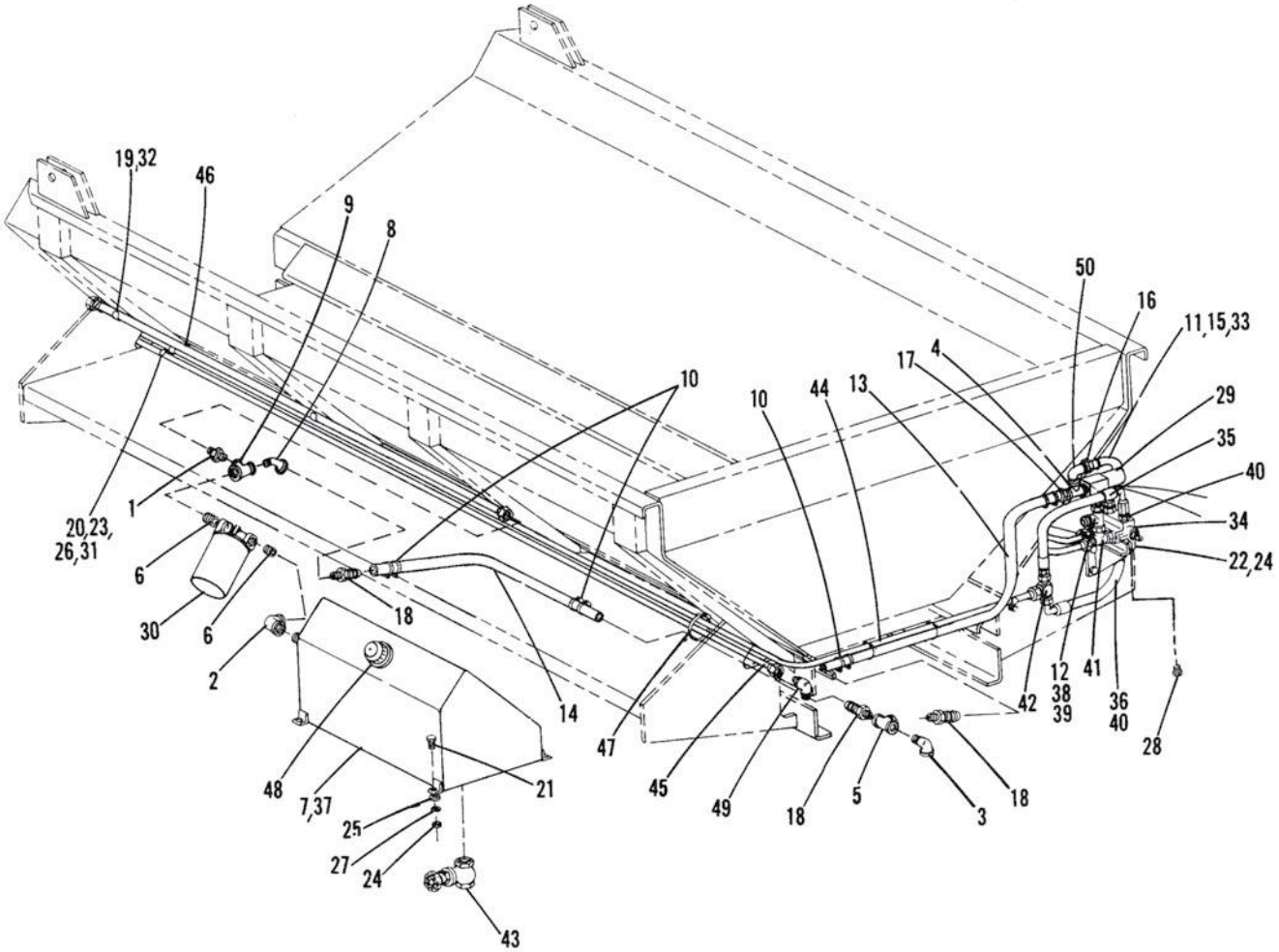
PARTS LIST

ITEM	PART NO.	DESCRIPTION	QTY
1	29751	Adapter	1
2	6011	Adapter – Elbow, 90°	1
3	6016	Elbow – Street, 90°	1
4	6021	Tee	1
5	6028	Adapter	2
6	6033	Plug – Pipe	1
7	16504	Adapter	1
8	6288	Clamp – Hose	1
9	6318	Tee – Reducing	1
10	6335	Clamp – Hose	4
11	11424	Fitting – Hose End	1
12	16521-43	Hose	1
13	39845	Filter Assembly (Page 75)	1

**HYDRAULICS RH SIDE AND FRONT CONTINUED**

14	16529-78	Hose	1
15	36848	Tank – Hydraulic, Includes Item 42	1
16	20908	Screw – Self Drilling	AR
17	20003	Cap Screw – 1/4 x 3/4	AR
18	20074	Cap Screw – 3/8 x 2 3/4	1
19	20068	Cap Screw – 3/8 x 1 1/4	4
20	20642	Nut – Hex, 1/4	AR
21	20644	Nut – Hex, 3/8	6
22	20710	Washer – Lock, 1/4	AR
23	20712	Washer – Lock, 3/8	6
24	20693	Washer – Flat, 3/8	4
25	21993	Clamp	AR
26	21994	Clamp	AR
27	22381	Clamp – Hose	4
28	22155	Valve – Gate	1
29	22208	Bushing – Reducer	1
30	22425	Fitting – Hose End	1
31	22426	Fitting – Hose End	2
32	29638	Hose Assembly	1
33	29640	Hose Assembly	1
34	29789	Adapter	3
35	29790	Plug	1
36	29791	Adapter	1
37	29792	Adapter	1
38	36831	Valve Selector	1
39	37731	Tube Assembly, 9’ Unit	1
	36828	Tube Assembly, 10’ Unit	1
	36829	Tube Assembly, 12’ Unit	1
	36830	Tube Assembly, 14’ Unit	1
40	37732	Tube Assembly, 9’ Unit	1
	36832	Tube Assembly, 10’ Unit	1
	36833	Tube Assembly, 12’ Unit	1
	36834	Tube Assembly, 14’ Unit	1
41	53934	Tube Assembly, 9’ Unit	1
	53935	Tube Assembly, 10’ Unit	1
	53936	Tube Assembly, 12’ Unit	1
	53937	Tube Assembly, 14’ Unit	1
41	31212	Cap Assembly	1
42	29785	Adapter – Elbow, 90°	1





PARTS LIST

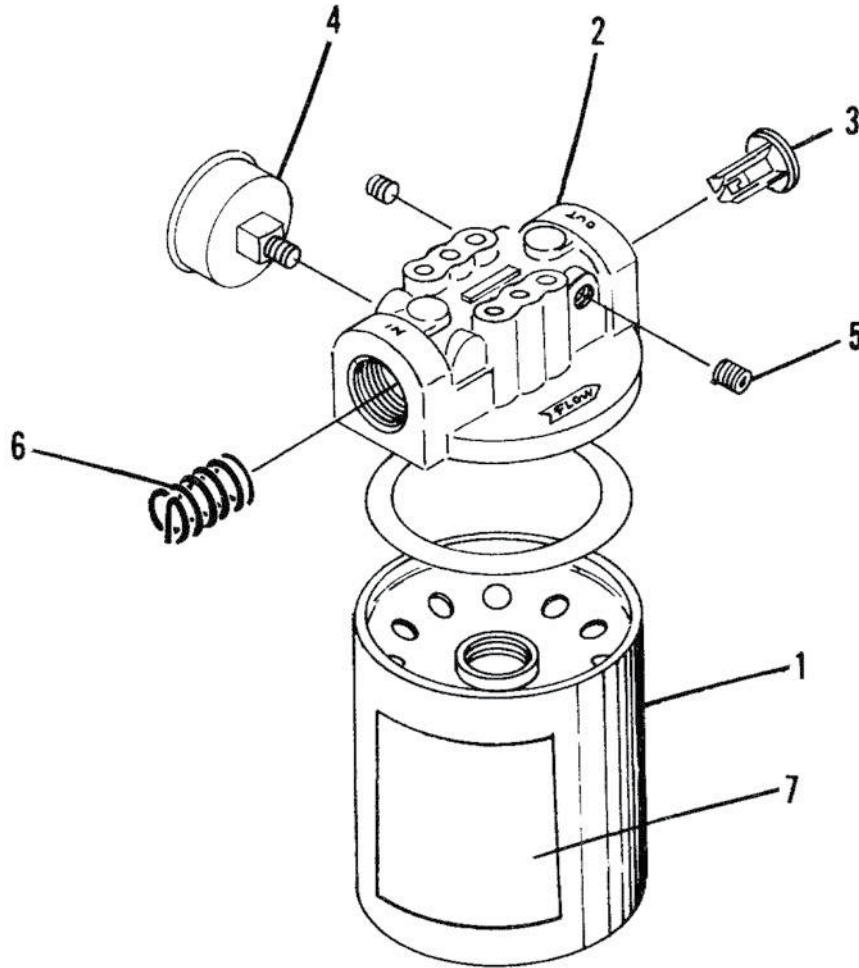




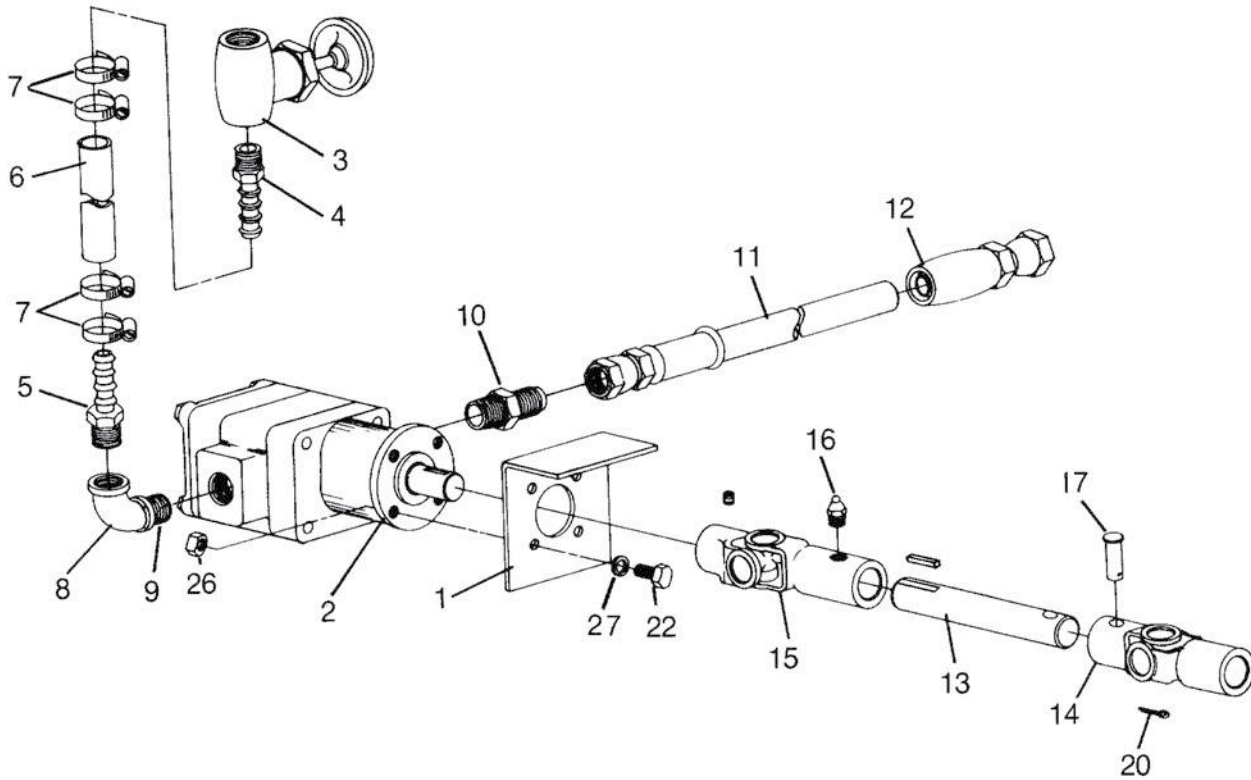
<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
1	29751	Adapter	1
2	6011	Adapter – Elbow, 90°	1
3	6016	Elbow – Street, 90°	1
4	6020	Tee	1
5	6021	Tee	1
6	6028	Nipple – Close	2
7	6033	Plug – Pipe	1
8	16504	Elbow – 45°	1
9	6318	Tee – Reducing	1
10	6335	Clamp – Hose	8
11	11424	Fitting – Hose End	1
12	16362	Nipple	1
13	16521-67	Hose	1
14	16521-43	Hose	1
15	16529-10	Hose	1
16	22425	Fitting – Hose End	1
17	16556	Fitting – Hose End	1
18	22426	Fitting – Hose End	1
19	20908	Screw – Self Drilling	AR
20	20003	Cap Screw – 1/4 x 3/4	AR
21	20068	Cap Screw – 3/8 x 1 1/4	4
22	20074	Cap Screw – 3/8 x 2 3/4	1
23	20642	Nut – Hex, 1/4	AR
24	20644	Nut – Hex, 3/8	6
25	20693	Washer – Flat, 3/8	4
26	20710	Washer – Lock, 1/4	AR
27	20712	Washer – Lock, 3/8	6
28	29790	Adapter – Plug	1
29	33712	Valve – Electric Dump	1
30	39845	Filter – Hydraulic (Page 75)	1
31	21993	Clamp	AR
32	21994	Clamp	AR
33	22381	Clamp – Hose	4
34	36831	Valve Selector	1
35	29638	Hose Assembly	1
36	29640	Hose Assembly	1
37	36848	Tank – Hydraulic, Includes Item 48	1

38	29781	Adapter – Run Tee	1
39	29787	Adapter	1
40	29789	Adapter	3
41	29791	Tee – Run	1
42	29792	Tee	1
43	22155	Valve – Gate	1
44	37731	Tube Assembly, 9' Unit	1
	36828	Tube Assembly, 10' Unit	1
	36829	Tube Assembly, 12' Unit	1
	36830	Tube Assembly, 14' Unit	1
45	37732	Tube Assembly, 9' Unit	1
	36832	Tube Assembly, 10' Unit	1
	36833	Tube Assembly, 12' Unit	1
	36834	Tube Assembly, 14' Unit	1
46	53934	Tube Assembly, 9' Unit	1
	53935	Tube Assembly, 10' Unit	1
	53936	Tube Assembly, 12' Unit	1
	53937	Tube Assembly, 14' Unit	1
47	6288	Clamp	1
48	31212	Cap Assembly	1
49	29785	Adapter – Elbow, 90°	1
50	6015	Elbow – Street	1

**HYDRAULIC FILTER WITH INDICATOR**



<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
	39845	Filter – Hydraulic with Indicator	
1	43530	Filter – Element Kit	1
2	NSS	Head Casting	1
3	43533	Relief Valve Poppet	1
4	43534	Indicator	1
5	6029	Pipe – Plug	1
6	43492	Spring – Relief Valve	1
7	39379	Decal	1



ITEM	PART NO.	DESCRIPTION	QTY
1	13850	Bracket – Pump Weldment	1
2	22393	Pump – 1 1/4" Assembly (Page 80)	1
	22394	Pump – 1 1/2" Assembly	1
	22395	Pump – 1 3/4" Assembly	1
	22396	Pump – 2" Assembly	1
	22397	Pump – 2 1/4" Assembly	1
	22398	Pump – 2 1/2" Assembly	1
3	22155	Valve – Gate	1
4	24502	Nipple – Hose End	1
5	24502	Nipple – Hose End	1
6	21878-72	Hose – Suction, 1 1/2" Dia.	1
7	6288	Clamp – Hose	4
8	6011	Elbow – Pipe, 90°	1
9	6027	Nipple – Pipe, Close (Use w/ 22393 & 22394)	1
	6028	Nipple – Pipe, Close (Use w/ 22395–22397)	1
10	29751	Adapter – Connector (Use w/ 22393 & 22394)	1
	34724	Adapter – Connector (Use w/ 22395–22397)	1

PARTS LIST

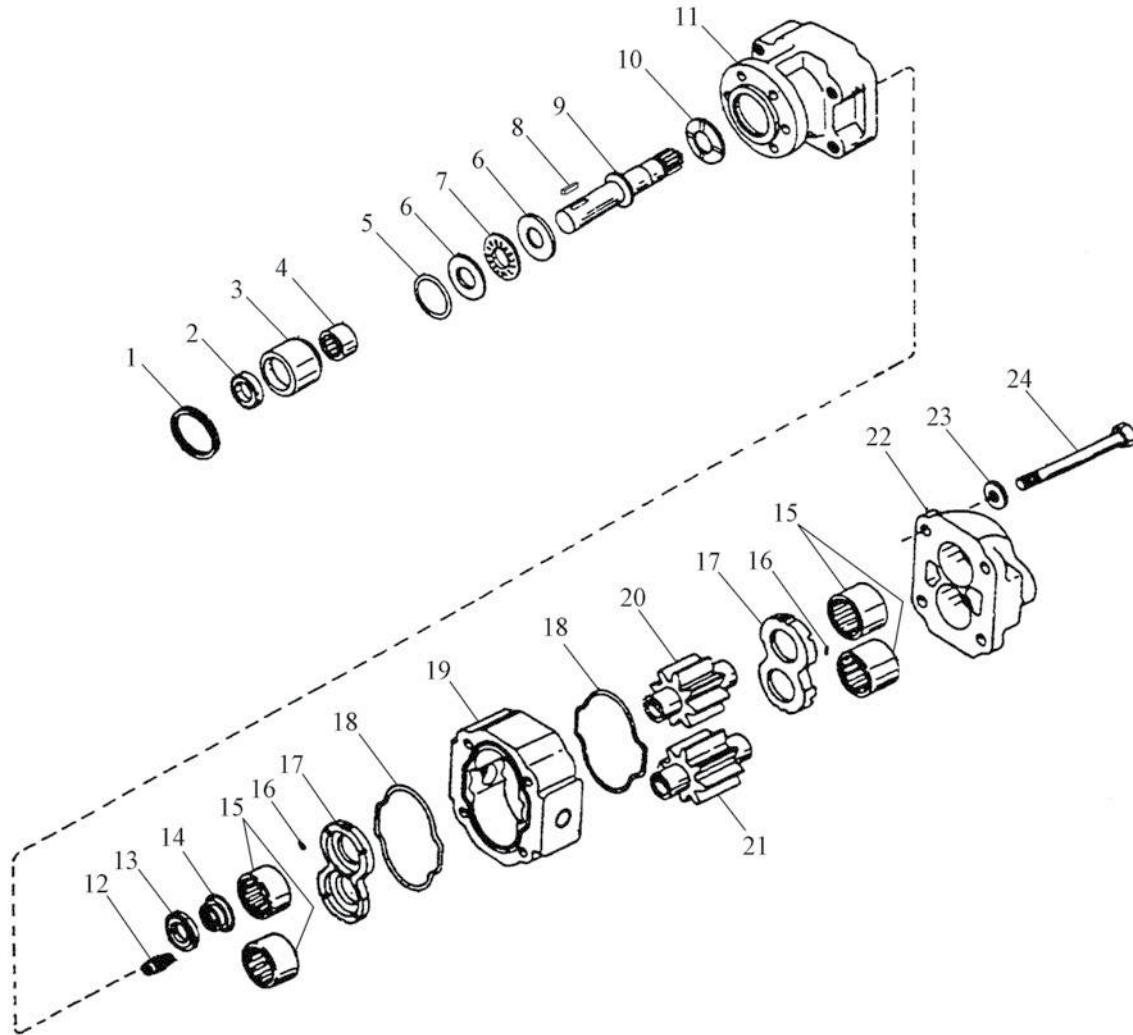
11	29610	Hose Assembly	1
12	56509	Fitting – Hose End	1
13	17932	Shaft – Drive	1
14	7210	U-Joint	1
15	5649	U-Joint	1
	* 22206	Bushing	1
	11756	Hardware – Pump Group	
16	6069	Zerk – Grease	1
17	6122	Pin – Shear	1
18	* 20644	Nut – Hex	4
19	* 20712	Washer – Lock	4
20	20817	Pin – Cotter	1
21	* 20069	Cap Screw	4
22	20129	Cap Screw	4
23	* 2211	Key – Square	1
24	* 2776	Key – Square	1
25	20748	Screw – Set	2
26	20646	Nut – Hex	4
27	20714	Washer – Lock	4



**CRANKSHAFT PTO CONTINUED**

<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
	36845	Crankshaft PTO Group	
1	6011	Adapter – Elbow, 90°	2
2	6028	Nipple	2
3	6288	Clamp – Hose	4
4	21495	Driveline – Spicer Assembly, Includes Items A-D	1
A	21459	Ring – Snap	4
B	21496	Driveline – Unwelded	1
C	21497	Yoke – Flange	1
D	21498	Yoke – End	1
5	37032	Driveline – Mechanics Assembly, Includes Items A Qty 2, D-H	1
E	37033	Slip Joint Assembly	1
F	37034	Stub Shaft – Slip	1
G	37035	Tube & Welded Yoke Weldment	1
H	37036	Spider & Bearing Assembly	1
6	21803	Pump Drive Assembly	1
7	21878-180	Hose – Suction	1
8	24502	Fitting – Hose End	2
9	29794	Adapter – Elbow, 90°	1
10	29610	Hose Assembly	1
11	56509	Fitting – Hose End	1
12	31230	Pump – 1 1/4" Assembly (Page 82)	1
	31231	Pump – 1 1/2" Assembly	1
	30168	Pump – 1 3/4" Assembly	1
	31232	Pump – 2" Assembly	1
	36847	Pump – 2 1/4" Assembly	1
	31233	Pump – 2 1/2" Assembly	1
13	20128	Cap Screw – 1/2 x 1 1/4	2





<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
	22393	Pump – Gear, 1 1/4"	
	22394	Pump – Gear, 1 1/2"	
	22395	Pump – Gear, 1 3/4"	
	22396	Pump – Gear, 2"	
	22397	Pump – Gear, 2 1/4"	
	22398	Pump – Gear, 2 1/2"	
1	22630	Ring – Snap	1
2	23804	Seal – Double Lip	1
3	23811	Collar	1
4	23803	Bearing – Roller	1
5	23802	"O" Ring	1
6	23809	Thrust Bearing Race	1

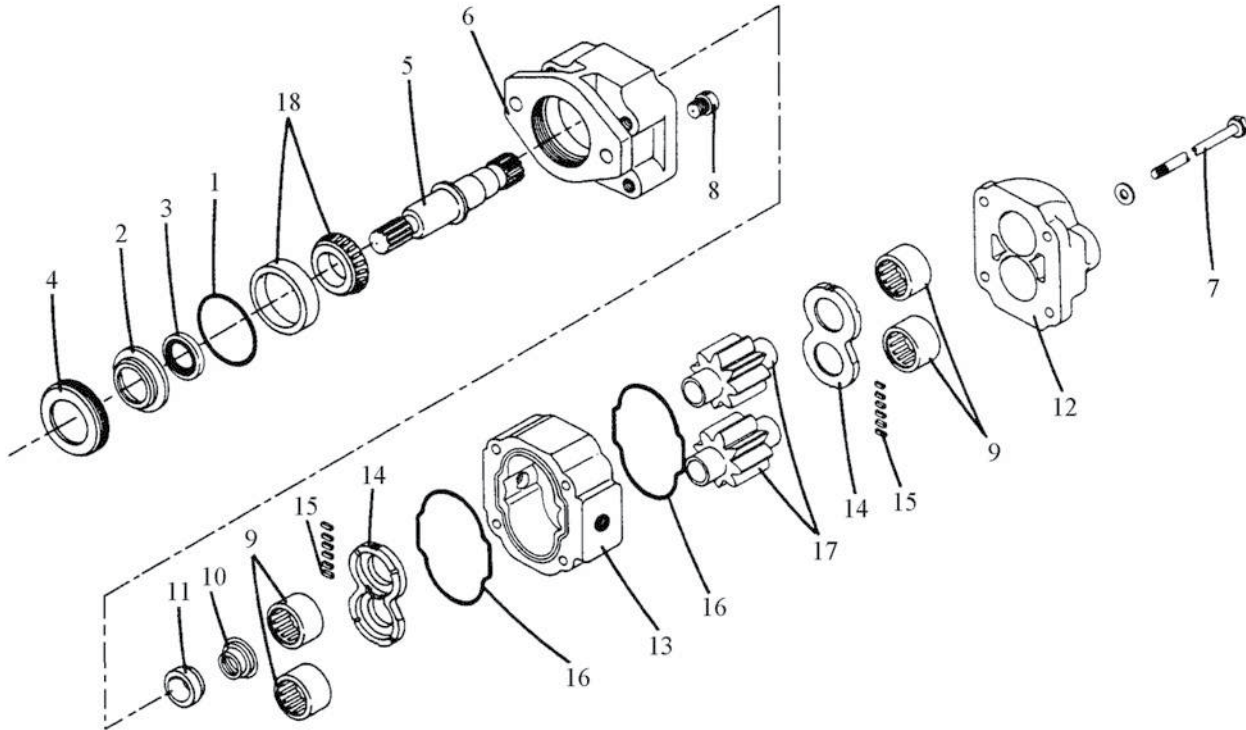
PARTS LIST



**PUMP CONTINUED**

7	23810	Thrust Bearing	1
8	23809	Thrust Bearing Race	1
9	23821	Shaft – Drive	1
10	23827	Washer – Thrust	1
11	23801	Cover – End, Shaft	1
12	23805	Check Assembly	2
13	23808	Bushing – Shaft	1
14	23807	Spring	1
15	23806	Bearing – Roller	4
16	23819	Seal – Pocket (Makes 12 Seals)	1
17	23818	Plate – Thrust	2
18	23820	Gasket	2
19	23813	Housing – Gear, 1 1/4"	1
	23814	Housing – Gear, 1 1/2"	1
	30039	Housing – Gear, 1 3/4"	1
	23815	Housing – Gear, 2"	1
	23816	Housing – Gear, 2 1/4"	1
	23817	Housing – Gear, 2 1/2"	1
20		Gear – Drive, Comes as Set with Item 21	1
21		Gear – Driven	1
	23822	Gear Set – 1 1/4"	1
	23823	Gear Set – 1 1/2"	1
	30040	Gear Set – 1 3/4"	1
	23824	Gear Set – 2"	1
	23825	Gear Set – 2 1/4"	1
	23826	Gear Set – 2 1/2"	1
22	23812	Cover – End, Port	1
23		Washer	1
24	20187	Cap Screw for 1 1/4" Pump	4
	20188	Cap Screw for 1 1/2" Pump	4
	20189	Cap Screw for 1 3/4" Pump	4
	20190	Cap Screw for 2" Pump	4
	20191	Cap Screw for 2 1/4" Pump	4
	20192	Cap Screw for 2 1/2" Pump	4
	27490	Seal Kit, Includes Items 1,2,5,7,8,13,16 & 18	
	27491	Shaft & Seal Kit, Includes 27490 & Items 4 & 9	



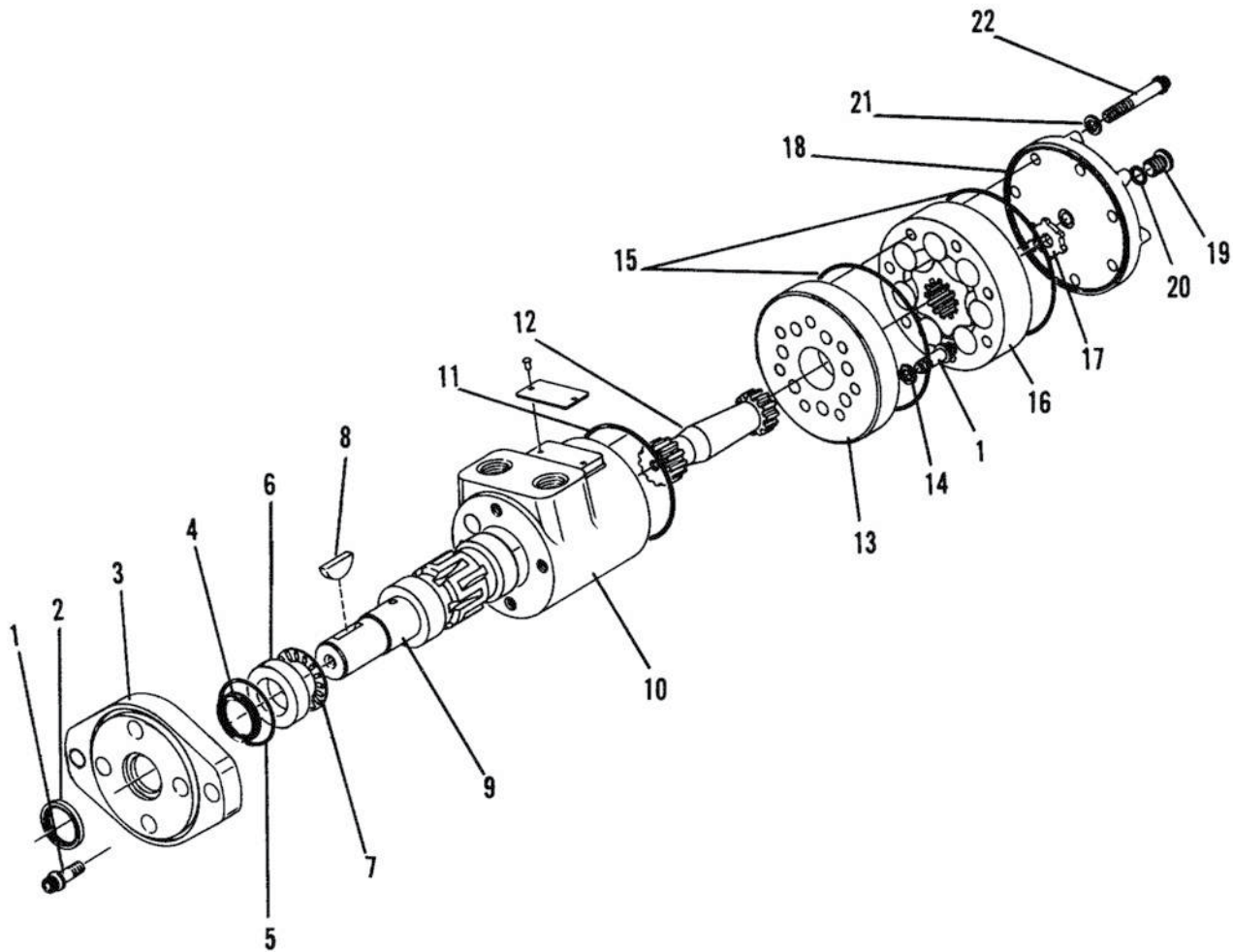


<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
	31230	Pump – Gear, 1 1/4"	
	31231	Pump – Gear, 1 1/2"	
	30168	Pump – Gear, 1 3/4"	
	31232	Pump – Gear, 2"	
	36847	Pump – Gear, 2 1/4"	
	31233	Pump – Gear, 2 1/2"	
1	11760	"O" Ring	1
2	11761	Retainer – Seal	1
3	11762	Seal – Double Lip	1
4	11763	Ring – Retainer	1
5	11764	Shaft – Drive	1
6	13149	Cover – End, Shaft	1
7	20187	Cap Screw for 1 1/4" Pump	4
	20188	Cap Screw for 1 1/2" Pump	4
	20189	Cap Screw for 1 3/4" Pump	4
	20190	Cap Screw for 2" Pump	4
	20191	Cap Screw for 2 1/4" Pump	4
	20192	Cap Screw for 2 1/2" Pump	4

PARTS LIST

## PUMP CRANKSHAFT PTO CONTINUED

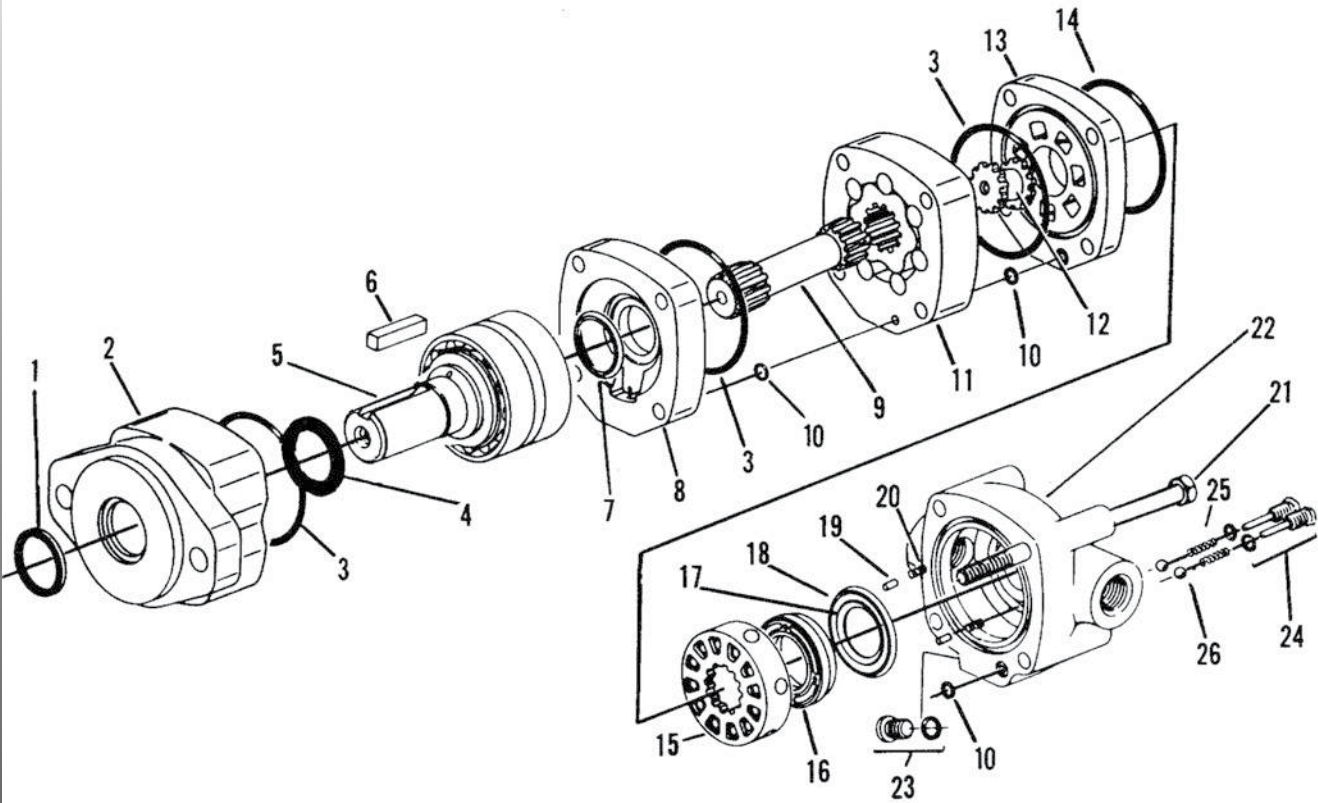
8	23805	Check Assembly	2
9	23806	Roller Bearing	4
10	23807	Spring	1
11	23808	Bushing – Shaft	1
12	23812	Cover – End, Port	1
13	23813	Housing – Gear, 1 1/4"	1
	23814	Housing – Gear, 1 1/2"	1
	30039	Housing – Gear, 1 3/4"	1
	23815	Housing – Gear, 2"	1
	23816	Housing – Gear, 2 1/4"	1
	23817	Housing – Gear, 2 1/2"	1
14	23818	Plate – Thrust	2
15	23819	Seal – Pocket (Makes 12 Seals)	1
16	23820	Gasket	2
17		Gear – Drive & Driven, Comes as Matched Set:	1
	23822	Gear Set – 1 1/4"	1
	23823	Gear Set – 1 1/2"	1
	30040	Gear Set – 1 3/4"	1
	23824	Gear Set – 2"	1
	23825	Gear Set – 2 1/4"	1
	23826	Gear Set – 2 1/2"	1
18	28491	Bearing – Tapered Roller	1
	13048	Seal Kit, Includes Items 2,3,15,16	



**HYDRAULIC MOTOR - CONVEYOR CONTINUED**

<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
	32752	Motor – Hydraulic, Conveyor 1 1/4, Includes Items 1–15, 18–21 and Part Numbers 37419,37396 & 16934	
1	53816	Motor – Hydraulic, Conveyor 1 1/2, Includes Items 1–15, 18–21 and Part Numbers 37420,37423 & 37428	1
1	30665	Cap Screw	11
2	37382	Seal – Oil	1
3	37384	Flange – Mounting	1
4	37378	Seal	1
5	37379	Seal – “O” Ring	1
6	37385	Bearing – Thrust	1
7	37401	Bearing – Needle, Thrust	1
8	3065	Key – Woodruff	1
9	37386	Shaft – Keyed, Output	1
10	37411	Housing	1
11	37380	Seal – “O” Ring	1
12	37414	Shaft – Drive	1
13	37415	Plate – Spacer	1
14	37416	Washer – Lock	11
15	37409	Seal – “O” Ring	2
16	37419	Geroler – 1 1/4	1
	37420	Geroler – 1 1/2	1
17	37396	Spacer – 1 1/4	1
	37423	Spacer – 1 1/2	1
18	37425	Cap – End, Cover	1
19	29832	Plug, Includes Item 20	1
20	37410	“O” Ring	1
21	37381	Washer – Seal	7
22	16934	Cap Screw – 1 1/4	7
	37428	Cap Screw – 1 1/2	7
	37408	Seal Kit, Includes Items 2,4,5,11,15,20,21	

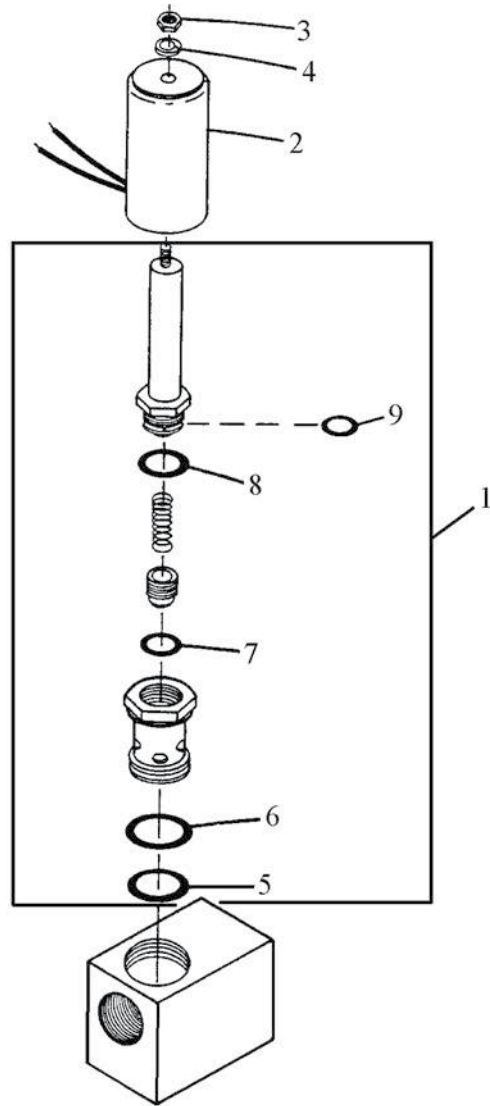




## HYDRAULIC MOTOR - SPINNER CONTINUED

<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
	32752	Motor – Hydraulic, Spinner	
1	53816	Seal – Dust	1
2	53817	Housing – Bearing	1
3	53818	Seal – “O” Ring	3
4	53819	Seal – Shaft	1
5	53844	Shaft & Bearing Kit	1
6	53845	Key – Square	1
7	53821	Seal – Shaft Face	1
8	53822	Plate – Wear	1
9	53846	Drive	1
10	53824	Seal – “O” Ring	3
11	53847	Geroler	1
12	53826	Drive – Valve	1
13	53827	Plate – Valve	1
14	53828	Seal	1
15	53829	Valve	1
16	53830	Plate – Balance	1
17	53831	Seal – Face, Inner	1
18	53832	Seal – Face, Outer	1
19	53833	Pin	2
20	53834	Spring	2
21	53848	Bolt	4
22	53836	Housing – Valve Assembly, Includes Items 23–26	1
23	53838	Plug Assembly	1
A	NSS	Plug	1
B	53842	“O” Ring	1
24	53839	Check Plug Assembly	2
A	NSS	Plug	1
B	53843	“O” Ring	1
25	53840	Spring	2
26	53841	Ball – Steel	2
	39348	Rear Seal Kit, Includes Items 3,10,14,17,18	
	39349	Shaft & Seal Kit, Includes Items 1,3,4,7,23B,24B	

**DUMP VALVE SOLENOID**



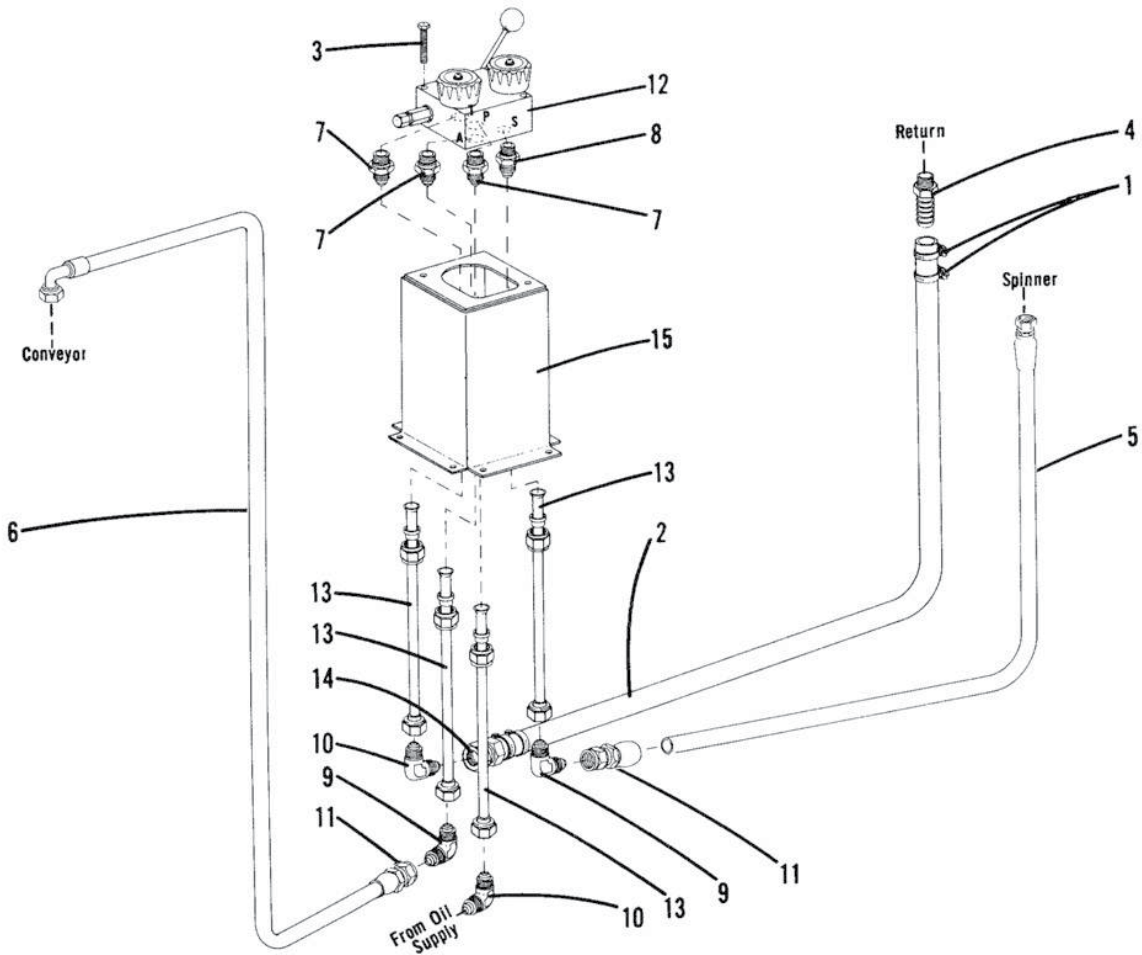
<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
	33712	Dump Valve – Solenoid	
1	NSS	Cartridge Assembly, Includes Items 5–9	1
2	1922	Coil	1
3	20642	Nut – Hex	1
4	20710	Washer – Lock	1
5	29892	“O” Ring	1
6	29893	“O” Ring	1
7	29891	“O” Ring	1
8	30648	“O” Ring	1
9	29894	“O” Ring	1

PARTS LIST





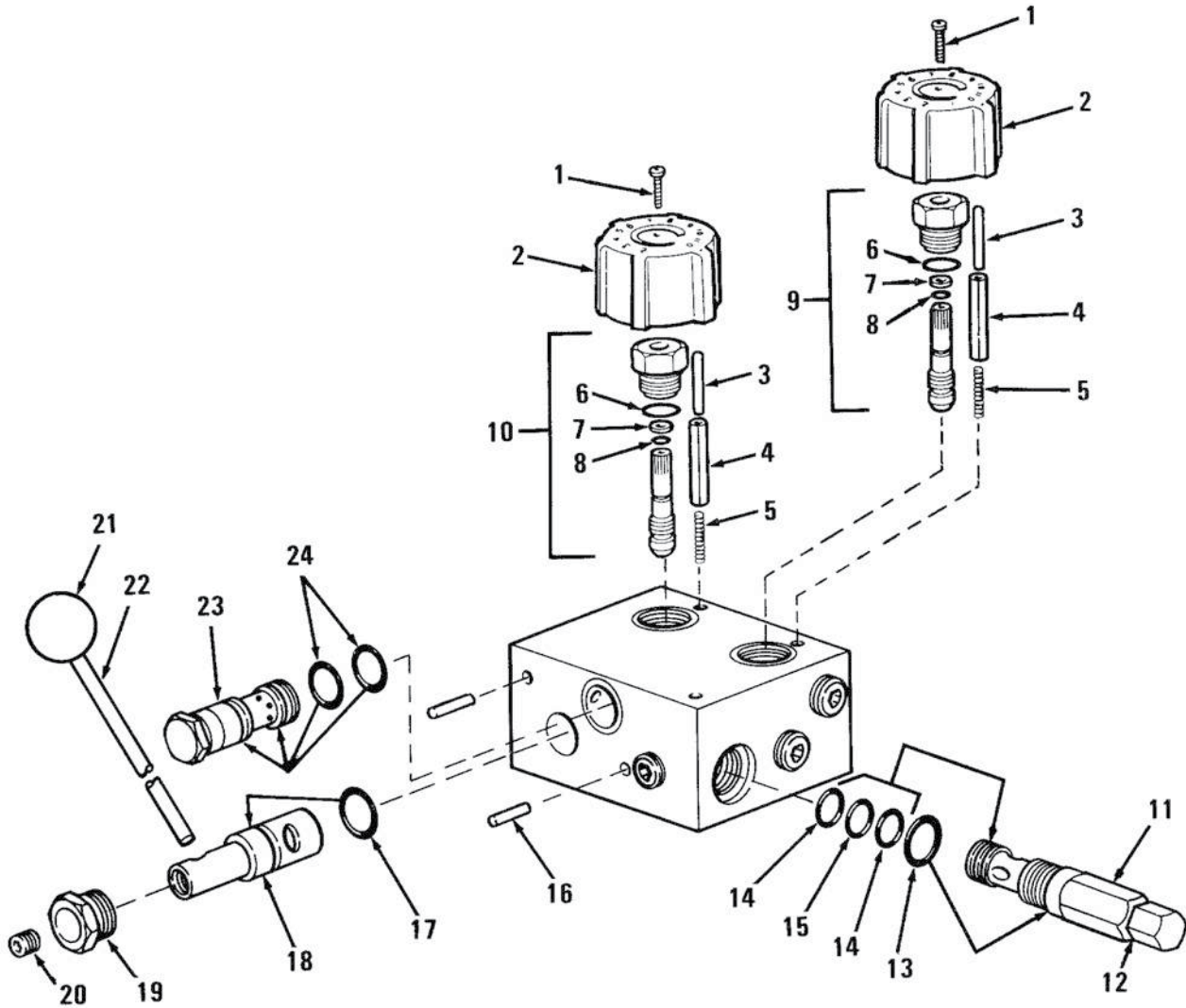
**CONTROL VALVE GROUP**



ITEM	PART NO.	DESCRIPTION	QTY
1	6335	Clamp – Hose	4
2	16521-72	Hose – Bypass	1
3	20013	Cap Screw – 1 /4 x 3	2
4	22426	Nipple – Hose End	1
5	29611	Hose Assembly	1
6	29636	Hose Assembly	1
7	29752	Adapter – Connector	3
8	29784	Adapter – Connector	1
9	29785	Adapter – Elbow, 90°	2
10	29786	Adapter – Elbow, Reducing 90°	2
11	56508	End – Hose	2
12	34145	Valve – Control	1
13	36800	Tube Assembly	4
14	36802	End – Hose	1
15	36803	Support – Valve Weldment	1

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

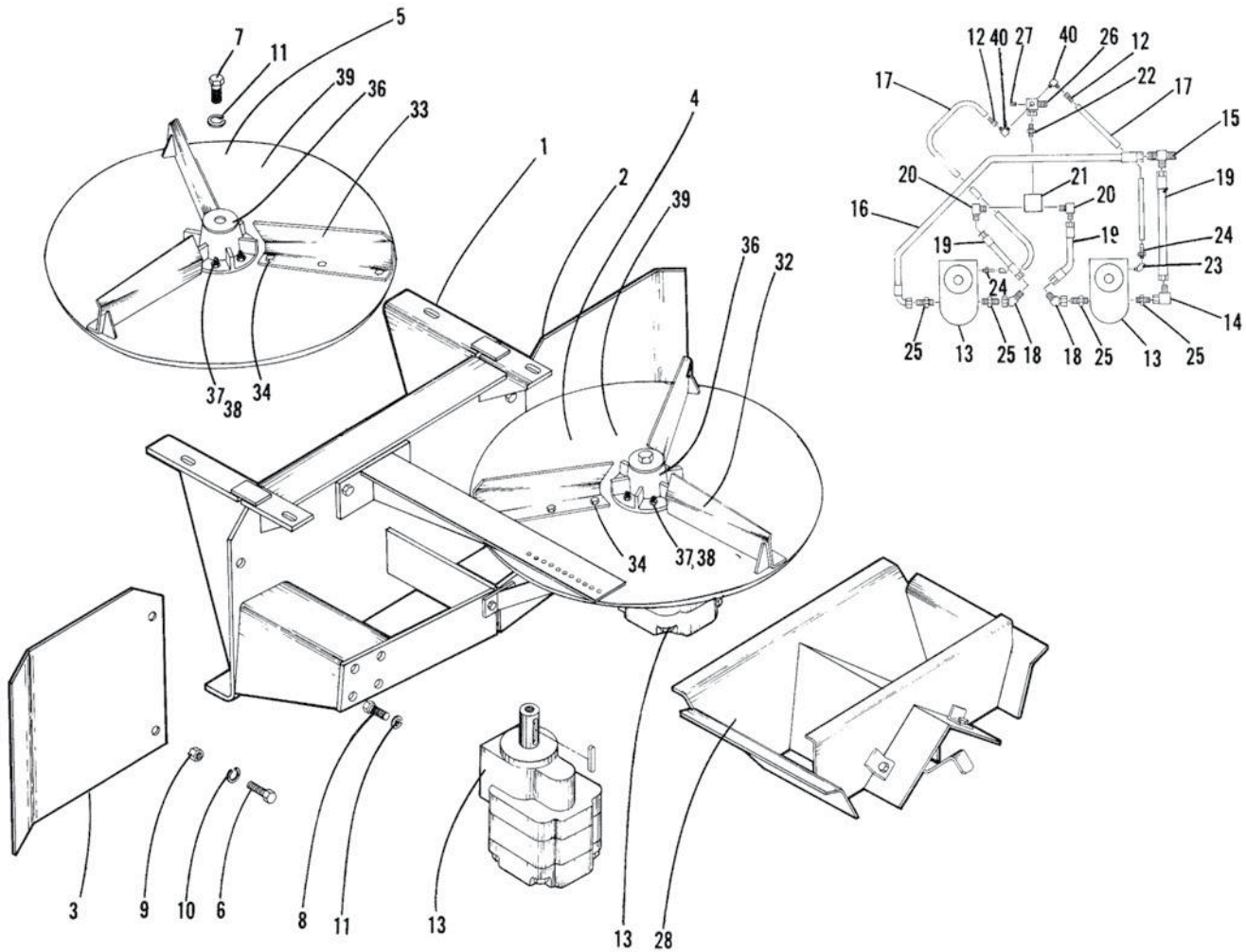




**CONTROL VALVE - NEW STYLE CONTINUED**

<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
	34145	Valve – Control	
1	72590	Screw	2
2	72591	Knob – Hand	2
3	72592	Pin – Dowel	2
4	72593	Pin – Roll	2
5	72594	Spring	2
6	NSS	“O” Ring – Viton	2
7	NSS	Back-up – Teflon	2
8	NSS	“O” Ring – Viton	2
9	72595	Auger Adjust Assembly	1
10	72596	Spinner Adjust Assembly	1
11	37431	Cartridge – Relief	1
12	NSS	Gasket	1
13	NSS	“O” Ring – Viton	1
14	NSS	Back-up – Teflon	2
15	NSS	“O” Ring – Viton	1
16	20918	Pin – Roll	2
17	NSS	“O” Ring – Dump Stem	1
18	NSS	Stem	1
19	NSS	Plug	1
20	20748	Screw – Set	1
21	34148	Knob – Hand	1
22	34147	Lever	1
23	16960	By-pass Assembly	1
24	NSS	“O” Ring – Viton	2
	34142	On-Off Valve Assembly, Includes Items 17-22	
	72597	Kit – Seal, Includes Items 6-8,12-15,17,24	





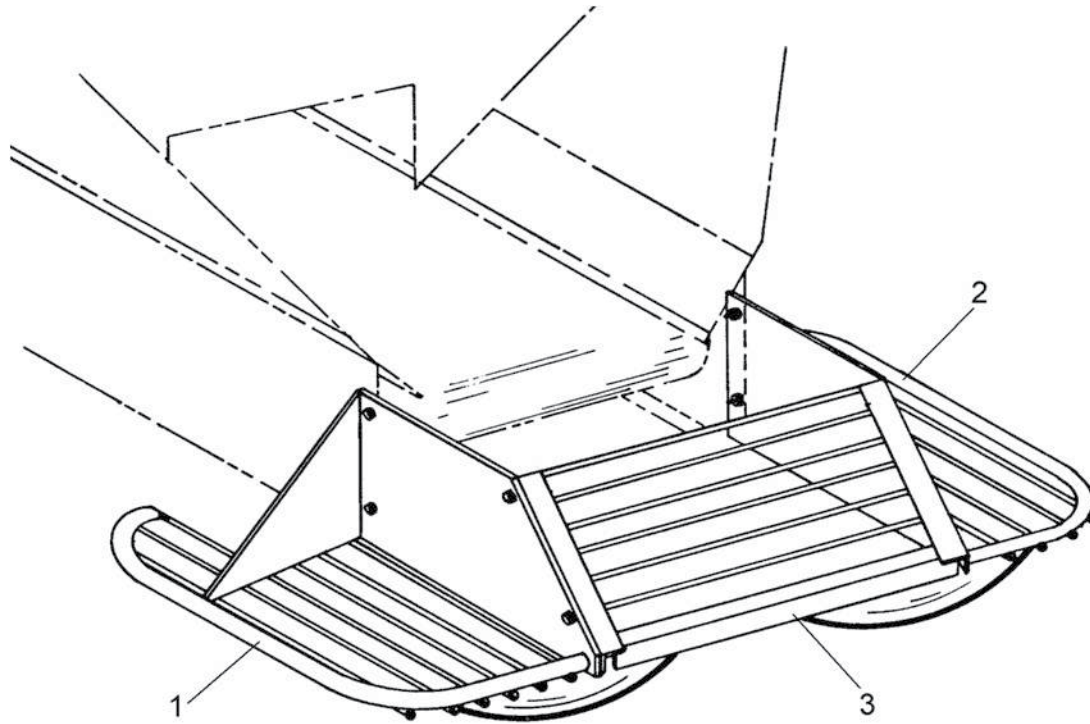
PARTS LIST

ITEM	PART NO.	DESCRIPTION	QTY
1	44204	Frame – Distributor Weldment	1
2	44208	Extension – Shield, RH	1
3	44209	Extension – Shield, LH	1
4	14372	Fan – RH Assembly, Includes Items 32, 34-39	1
5	14373	Fan – LH Assembly, Includes Items 33-39	1
6	20036	Cap Screw	4
7	20127	Cap Screw	2
8	20129	Cap Screw	8
9	20643	Nut – Hex	4
10	20711	Washer – Lock	4
9	37386	Shaft – Keyed, Output	1
10	37411	Housing	1
11	20714	Washer – Lock	10

## 24" TWIN SPINNERS CONTINUED

12	34761	Fitting – Hose End	2
13	305944	Motor – Hydraulic	2
14	34709	Adapter – Elbow, 90°	1
15	29769	Adapter – Tee, Run	1
16	29641	Hose Assembly	1
17	34195-29	Hose – Drain Line	2
18	29782	Adapter – Elbow, 45°	2
19	29667	Hose Assembly	3
20	29764	Adapter – Elbow, 45°	2
21	43510	Valve – Flow Integrator	1
22	29750	Adapter – Connector	1
23	6013	Elbow – Street, 90°	1
24	34760	Fitting – Socketless	2
25	34717	Adapter – Connector	4
26	34728	Adapter – Elbow, 90°	1
27	6030	Plug – Pipe	1
28	44205	Flow Divider Assembly	1
29	* 56143	Hose Assembly (Return)	1
30	* 56142	Hose Assembly (Supply)	1
31	* 39905	Quick Disconnect – 3/4 Male	2
	39906	Quick Disconnect – 3/4 Female	2
32	25870	Fin – RH Weldment	3
33	25871	Fin – LH Weldment	3
34	21431	Cap Screw – 5/16	9
35	* 20677	Nut – Lock, 5/16	9
36	10877	Hub	2
37	20008	Cap Screw – 1/4	12
38	20676	Nut – Lock, 1/4	12
39	27056	Disc – Distributor	2
40	34752	Adapter – Elbow, 90°	2
41	* 6026	Nipple – Close	1

**SPINNER GUARD**

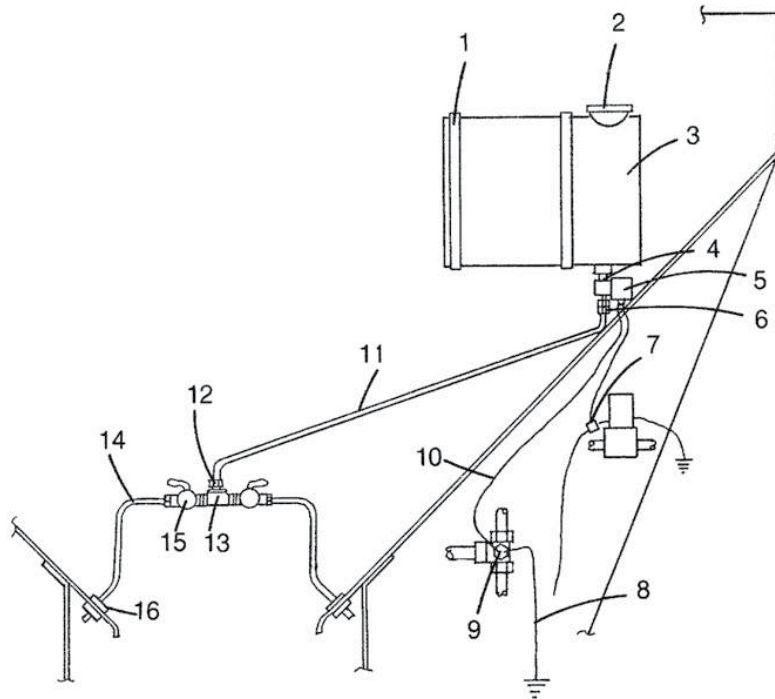


<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
	70107	Guard – Spinner Kit	
1	47328	Guard – LH Weldment	1
2	55218	Guard – RH Weldment	1
3	70108	Guard – Center Weldment	1
4	20067	Cap Screw – 3/8 x 1	8
5	20644	Nut – Hex, 3/8	8
6	20712	Washer – Lock, 3/8	8

NOTE – Guards shows are intended to reduce hazard of entanglement with machinery and injury. All guards MUST be installed per these drawings BEFORE spreader is put into operation.

**PARTS LIST**

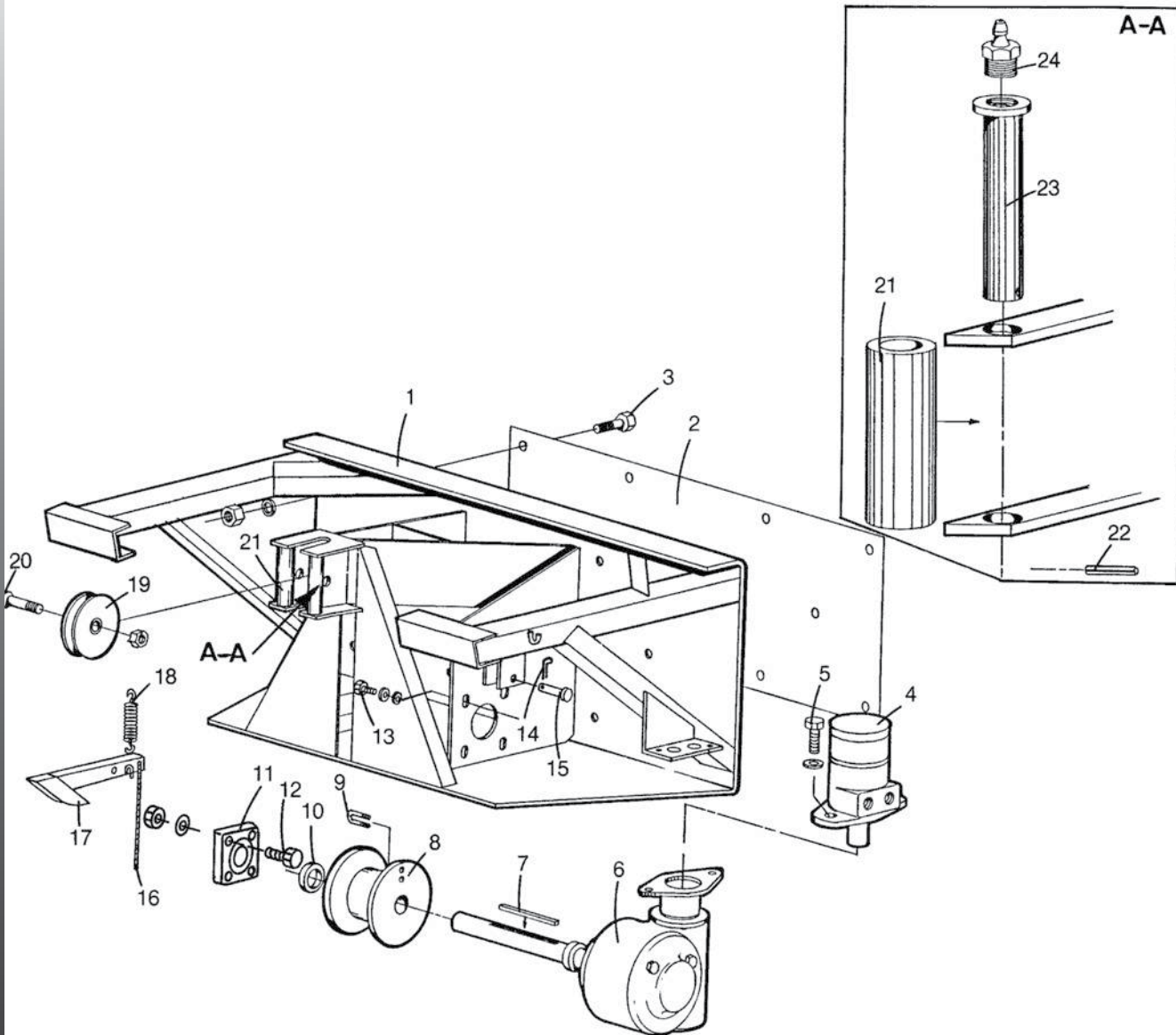
**CHAIN OILER**



<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
	37038	Automatic Chain Oiler	
1	3838	Bracket Weldment	2
2	21980	Cap – Tank	1
3	3156	Tank – Oiler	1
4	6023	Nipple – Close	1
5	21836	Valve – Shut Off	1
6	22417	Connector – Male	1
7	12374	Connector – Tap	1
8	6484	Terminal	1
	21580-24	Wire – 14 Ga.	1
9	37037	Switch – Pressure	1
	6488	Plug – Splicer	2
	12373	Splice – Connector	1
10	6549	Splice	1
	21580-24	Wire – 14 Ga.	
11	6081-38	Tube – Copper	1
12	22417	Connector – Male	1
13	24895	Tee Weldment	1
14	6081-17	Tube – Copper	2
15	21982	Valve – Shut Off	2
16	21983	Grommet – Rubber	2

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



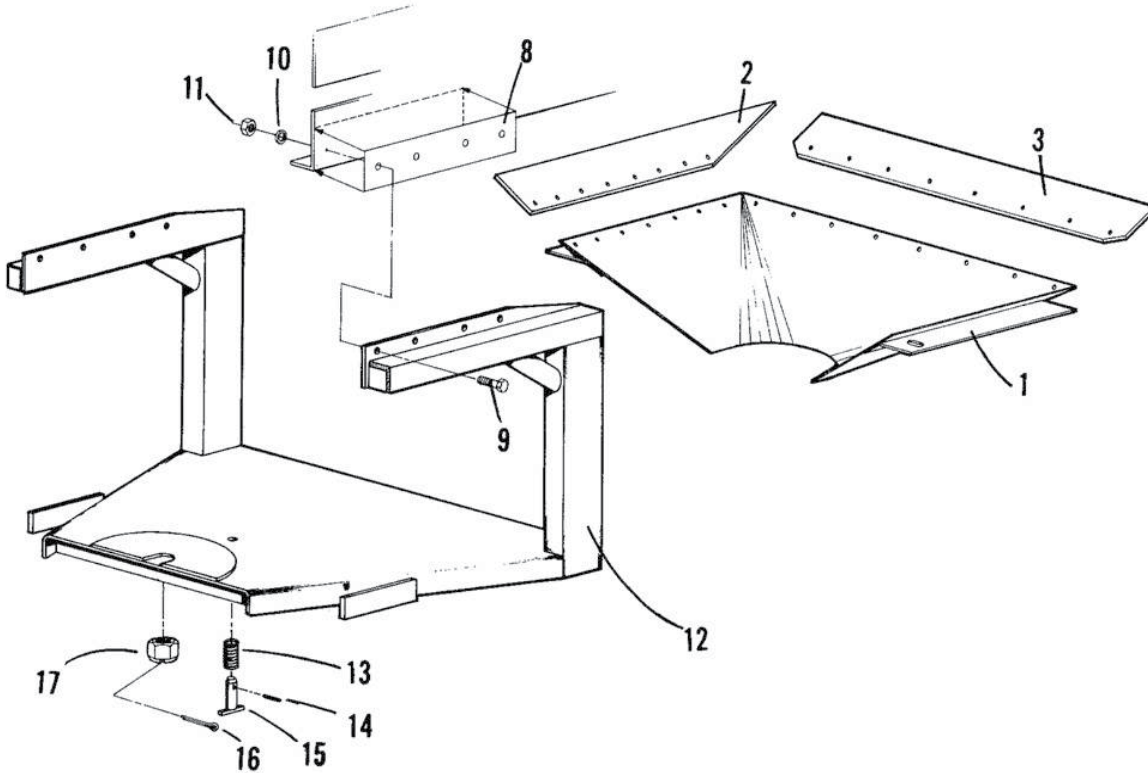


ITEM	PART NO.	DESCRIPTION	QTY
	37831	Winch Assembly	
1	37832	Mount – Winch Weldment	1
2	37984	Template – Drill	1
3	20128	Cap Screw – 1/2 x 1 1/4	10
	20714	Washer – Lock, 1/2	10
	20646	Nut – Hex, 1/2	10
4	37340	Motor – Hydraulic	1
5	20127	Cap Screw – 1/2 x 1	2
	20714	Washer – Lock, 1/2	2

PARTS LIST



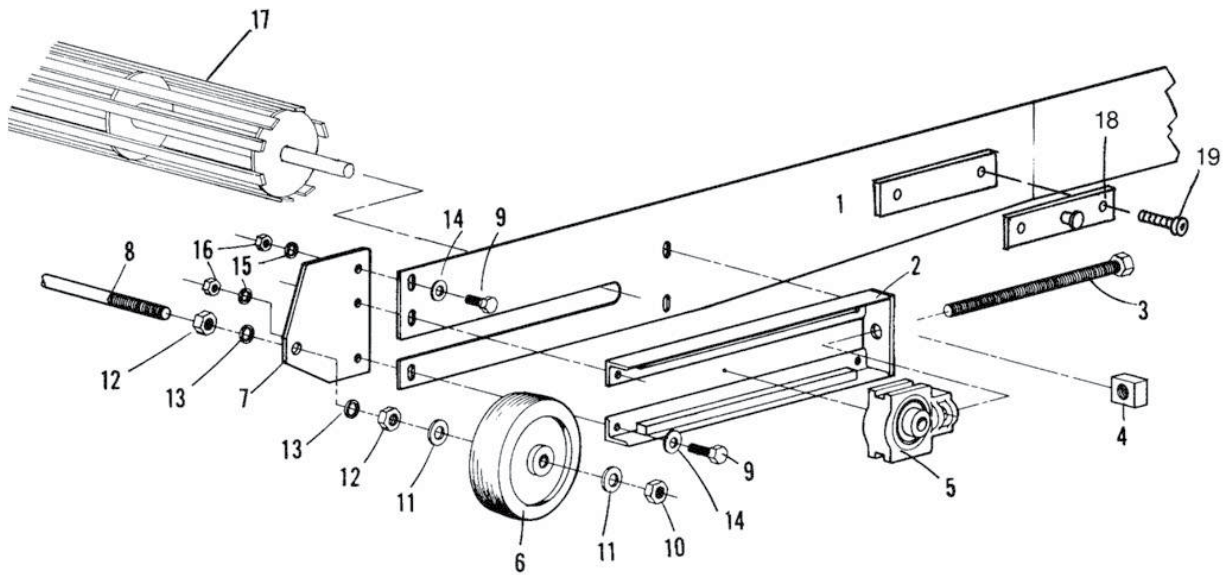
6	58616	Gear Case Assembly	1
7	6168	Key	1
8	44308	Drum – Winch	1
9	6311	Clip – Cable	3
10	6165	Collar – Set	2
11	6693	Bearing	1
12	20129	Cap Screw – 1/2 x 1 1/2	4
	20714	Washer – Lock, 1/2	4
	20646	Nut – Hex, 1/2	4
13	20127	Cap Screw – 1/2 x 1	4
	20714	Washer – Lock, 1/2	4
	20695	Washer – Flat, 1/2	4
14	20822	Cotter	1
15	24827	Pin – Clevis	1
16	41699-24	Rope	1
17	72708	Arm Weldment	1
18	34639	Spring	1
19	37849	Pulley Assembly	1
20	20179	Cap Screw – 5/8 x 2 1/2	1
	20682	Nut – Lock, 5/8	1
21	38663	Roller	2
22	20916	Pin – Roll	2
23	38662	Pin – Roller	2
24	6069	Fitting – Grease	2
25	* 21643	Thimble – Cable	1
26	* 23763-168	Cable – 1/4"	1
27	* 34080	Binder – Load	1
28	* 6166-72	Chain	1
29	* 16528-32	Hose	1
30	39024	Decal – Danger	2



ITEM	PART NO.	DESCRIPTION	QTY
	37952	Elevator Transition Assembly, Includes Items 1-7	
1	37953	Transition Weldment	1
2	37957	Seal – Transition Side	2
3	37958	Seal – Transition Back	1
4	* 20624	Screw – Machine, 1/4 x 1/2	17
5	* 20642	Nut – Hex, 1/4	17
6	* 20318	Bolt – Carriage, 3/8 x 1	2
7	* 6127	Nut – Wing, 3/8	2
8	37983	Template – Drill	2
9	20128	Cap Screw – 1/2 x 1 1/4	8
10	20714	Washer – Lock, 1/2	8
11	20646	Nut – Hex, 1/2	8
12	37924	Pivot Base Assembly, Includes Items 13-15	1
13	37943	Spring	1
14	20927	Pin – Roll	1
15	37941	Pin Weldment	1
16	20844	Pin – Cotter	1
17	37920	Nut – Slotted, 1 1/2	1

PARTS LIST

ELEVATOR TAKE-UP

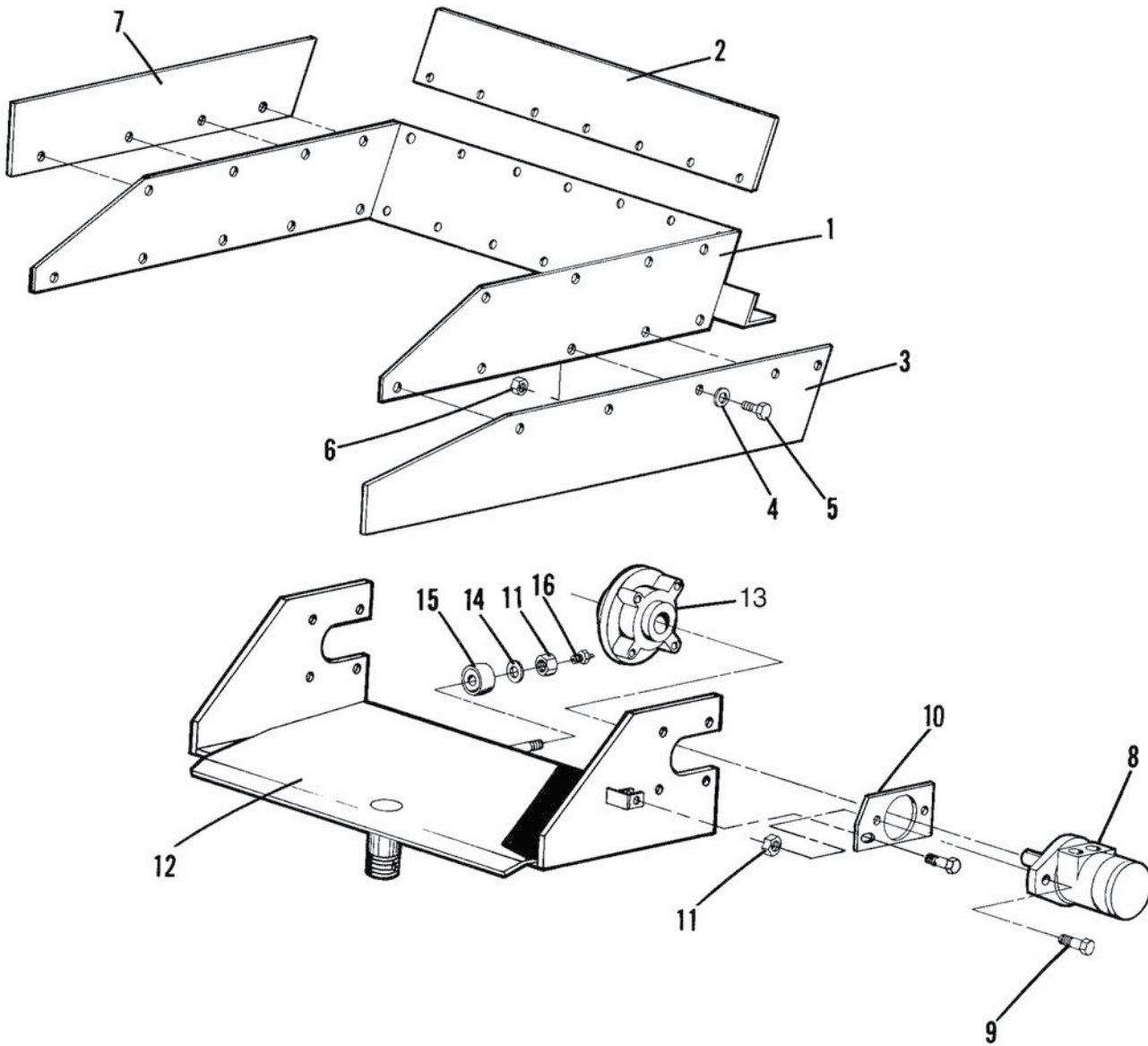


ITEM	PART NO.	DESCRIPTION	QTY
1	37882	Conveyor Front – 14’ Weldment	1
	37858	Conveyor Rear – 14’ Weldment	1
	37967	Conveyor – 8’ Weldment	
	37976	Conveyor – 6’ Weldment	
2	37902	Frame – Idler Weldment	2
3	36689	Bolt – Take-up Weldment	2
4	36688	Nut – Lock, 3/4	2
5	37914	Bearing – Take-up	2
6	37919	Wheel – 8” Assembly	2
7	37917	Plate – Mount	2
8	37918	Axle – Wheel	1
9	20068	Cap Screw – 3/8 x 1 1/4	10
10	20682	Nut – Lock, 5/8	2
11	20697	Washer – Flat, 5/8	4
12	20648	Nut – Hex, 5/8	4
13	20716	Washer – Lock, 5/8	4
14	20693	Washer – Flat, 3/8	10
15	20712	Washer – Lock, 3/8	10
16	20644	Nut – Hex, 3/8	10
17	37897	Pulley – Idler Weldment	1
18	72714	Latch Weldment	1
19	41621	Screw – Allen	2
	20695	Washer – Flat, 1/2	2
20	*306864	Shim - Bearing	2

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





PARTS LIST

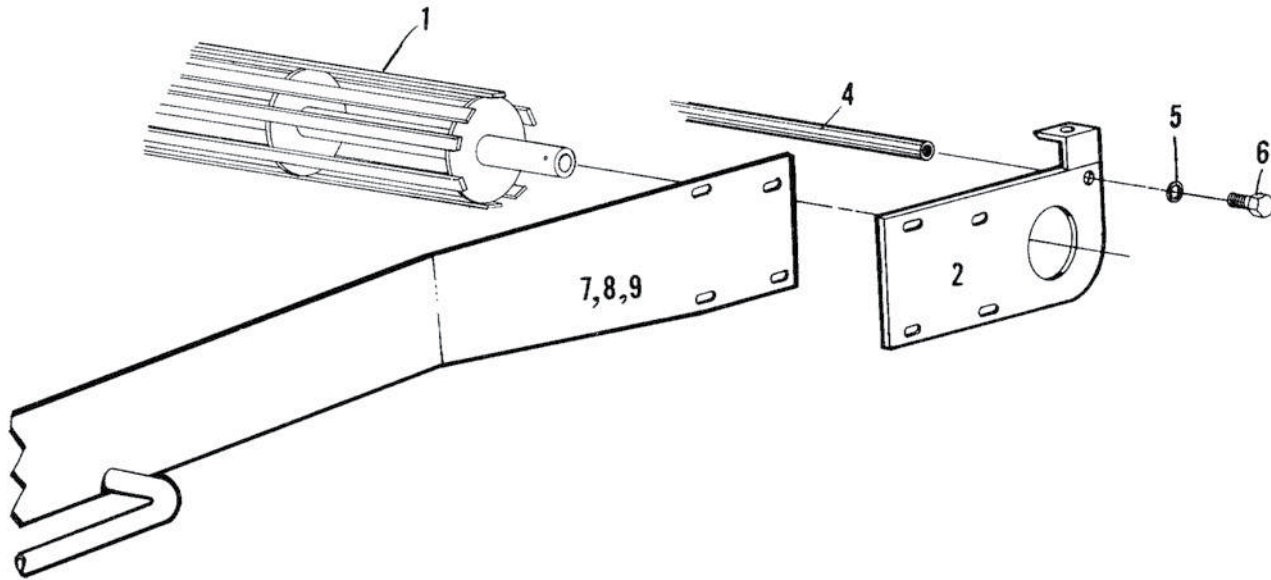


**ELEVATOR CHUTE, PIVOT  
& HYDRAULIC MOTOR CONTINUED**

<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
	37944	Chute Assembly, Includes Items 1-7	
1	37945	Chute Weldment	1
2	37949	Belt – Sealer, Back Panel	2
3	37950	Belt – Sealer, Lower Side Panel	2
4	21423	Washer	32
5	20583	Screw – Round Head, 1/4 x 3/4	32
6	20642	Nut – Hex, 1/4	32
7	37951	Belt – Sealer, Upper Side Panel	2
8	37346	Motor – Hydraulic	1
9	20128	Cap Screw – 1/2 x 1 1/4	2
10	54949	Mount – Motor	1
11	20680	Nut – Lock, 1/2	2
12	37907	Pivot Weldment	1
13	37877	Bearing – Drive Pulley	2
14	20695	Washer – Flat, 1/2	1
15	37922	Bearing - Camrol	1
16	6073	Fitting – Grease, 3/16	1
17	* 28950	Pin – Roll	1
18	* 20128	Cap Screw – 1/2 x 1 1/4	10
19	* 20714	Washer – Lock, 1/2	8
18	72714	Latch Weldment	1
19	41621	Screw – Allen	2
	20695	Washer – Flat, 1/2	2



CONVEYOR DRIVE PULLEY



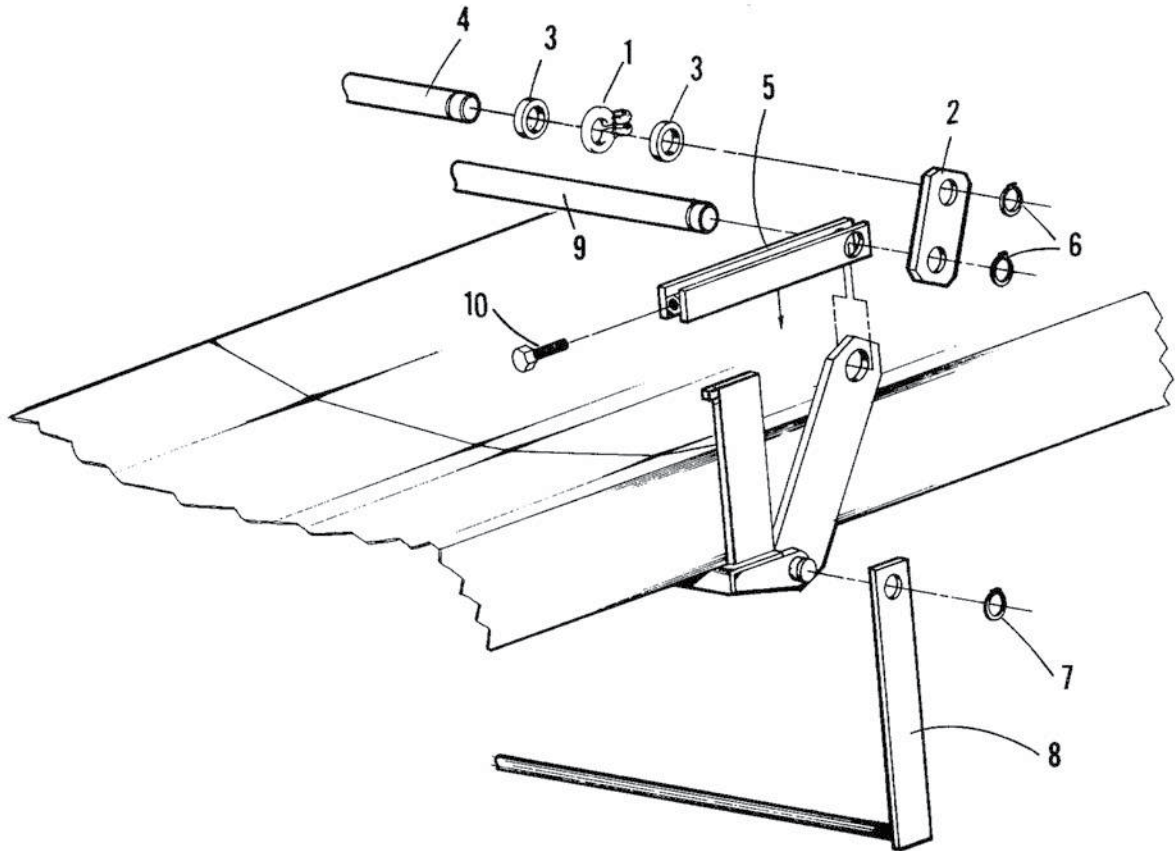
ITEM	PART NO.	DESCRIPTION	QTY
1	37871	Drive Pulley Weldment	1
2	37869	Plate – RH Bearing Weldment	1
3	* 37868	Plate – LH Bearing Weldment	1
4	37915	Rod – Spacer	1
5	20712	Washer – Lock, 3/8	2
6	20067	Cap Screw – 3/8 x 1	2
7	37858	Conveyor – Rear Weldment, 14’ Unit	1
8	37967	Conveyor Weldment, 8’ Unit	1
9	37976	Conveyor Weldment, 6’ Unit	1
10	* 20068	Cap Screw – 3/8 x 1 1/4	8
11	* 20644	Nut – Hex, 3/8	8
12	* 20693	Washer – Flat, 3/8	8
13	* 20712	Washer – Lock, 3/8	8
14	* 37867	Belt – Conveyor Assembly, 14’ Unit	1
	* 37972	Belt – Conveyor Assembly, 8’ Unit	1
	* 37981	Belt – Conveyor Assembly, 6’ Unit	1
15	* 38149	Belt – Hi-Temp Conveyor Assembly, 14’ Unit	1
	* 38209	Belt – Hi-Temp Conveyor Assembly, 8’ Unit	1
	* 38208	Belt – Hi-Temp Conveyor Assembly, 6’ Unit	1
16	* 38670	Tie-Down Group, 14’ Unit Only	1

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PARTS LIST



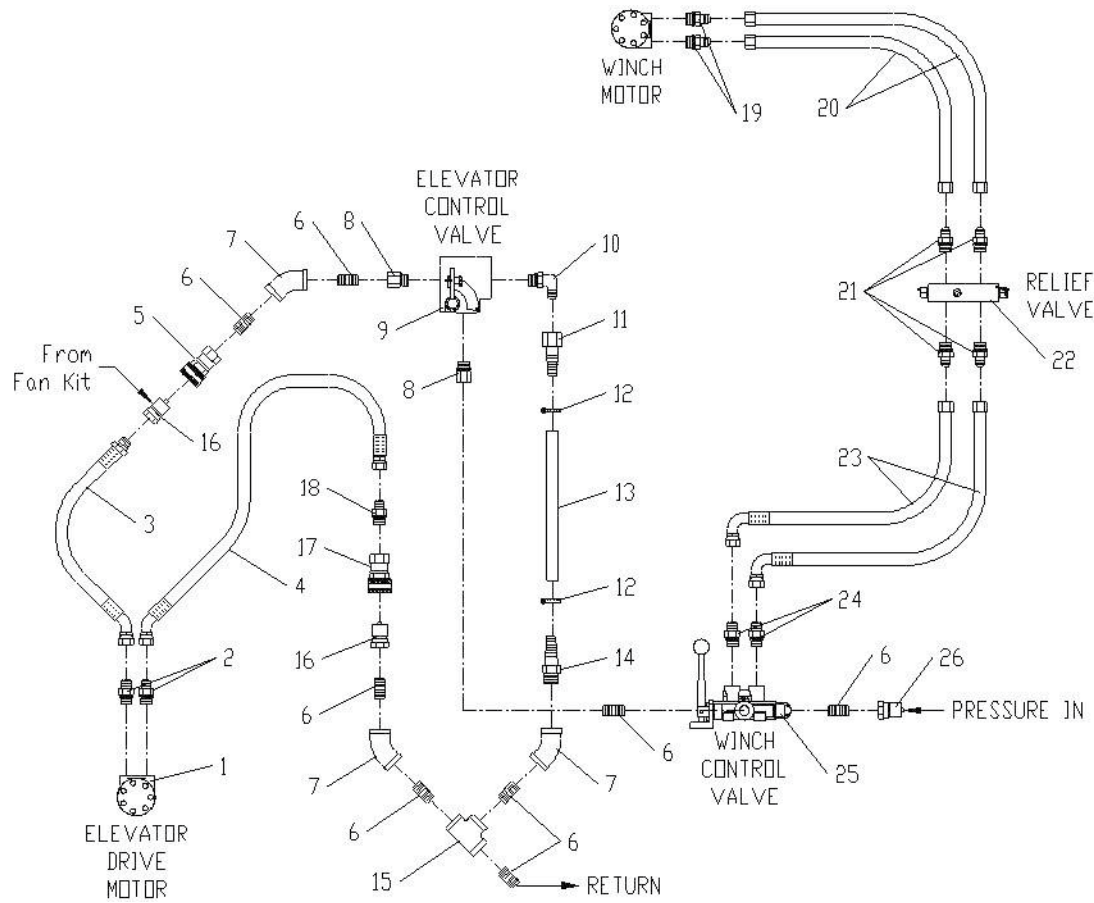
**HINGE - 14' UNIT**



<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
1	37963	Shackle - Anchor	1
2	37896	Ear - Pivot Pin	4
3	6165	Collar - Set, 1 1/4	2
4	37878	Rod - Support	1
5	37892	Latch - Conveyor Weldment	2
6	22621	Ring - Snap, 1 1/4	4
7	6089	Ring - Snap, 1	2
8	37879	Hanger Weldment	1
9	37895	Pin - Hinge, Latch	1
10	20131	Cap Screw - 1/2 x 2	2

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





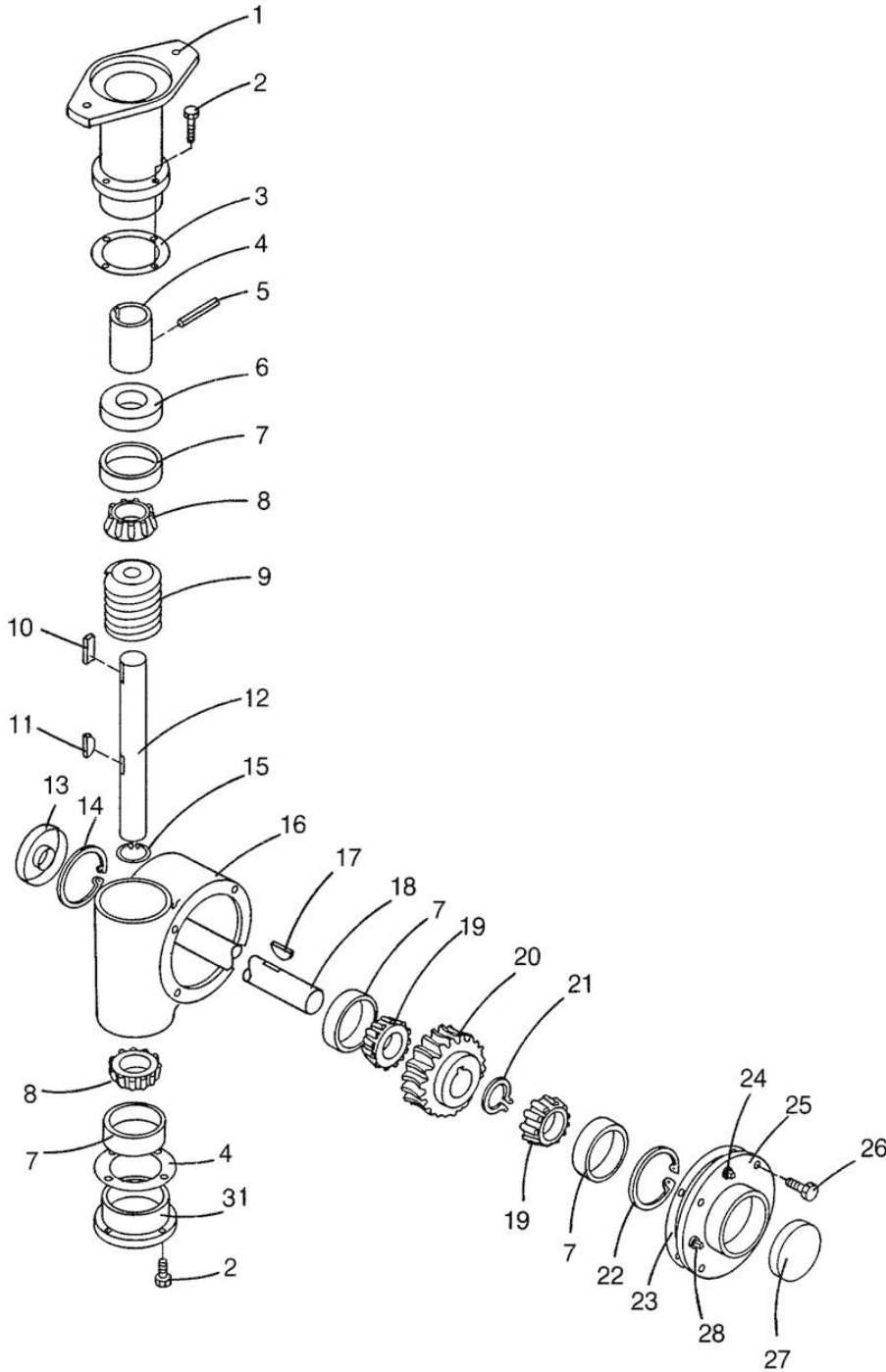
PARTS LIST





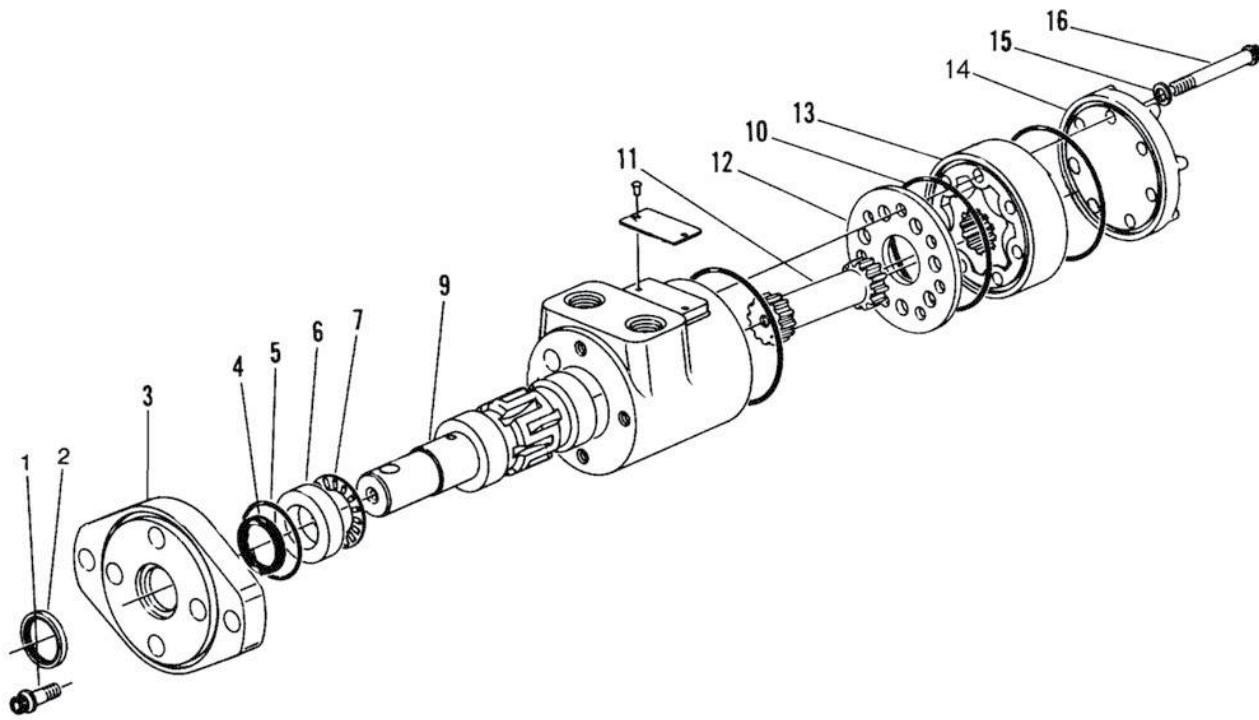
## ELEVATOR HYDRAULICS CONTINUED

<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
1	37346	Motor – Hydraulic	1
2	29753	Adapter	2
3	29664	Hose Assembly	1
4	56148	Hose Assembly	1
5	39906	Disconnect – Quick, Female	1
6	16362	Nipple – Pipe	8
7	16274	Elbow – Pipe	3
8	22021	Adapter – Bushing	2
9	32485	Valve – Control	1
	20073	Cap Screw – 3/8 x 2 1/2	2
	20712	Washer – Lock, 3/8	2
	20644	Nut – Hex, 3/8	2
10	29847	Adapter	1
11	11424	End – Hose	1
12	22381	Clamp – Hose	2
13	16529-6	Hose – Return	1
14	22425	End – Hose	1
15	16356	Tee	1
16	39905	Disconnect – Quick, Male	2
17	39906	Disconnect – Quick, Female	1
18	29752	Adapter	1
19	29753	Adapter	2
20	58960	Hose Assembly	1
21	29789	Adapter	4
22	39394	Valve – Relief	1
	20072	Cap Screw – 3/8 x 2 1/4	2
	20712	Washer – Lock, 3/8	2
	20644	Nut – Hex, 3/8	2
23	29665	Hose Assembly	2
24	29784	Adapter	2
25	37960	Valve – Control	1
	20005	Cap Screw – 1/4 x 1	4
	20691	Washer – Flat, 1/4	4
	20710	Washer – Lock, 1/4	4
	20642	Nut – Hex, 1/4	4
26	39905	Disconnect – Quick, Male	1



## ELEVATOR GEAR CASE CONTINUED

<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
	58616	Gear Case Assembly	
1	72567	Adapter	1
2	20066	Cap Screw	8
3	58989	Gasket	2
4	71105	Coupling	1
5	58986	Pin – Roll	1
6	71458	Seal	1
7	24225	Cup – Bearing	4
8	22840	Cone – Bearing	2
9	22894	Worm	1
10	34995	Key – Square	1
11	24234	Key – Woodruff	1
12	71456	Shaft – Input	1
13	22831	Seal	1
14	24832	Ring – Snap	1
15	22833	Ring – Snap	1
16	72565	Housing	1
17	22798	Key – Woodruff	1
18	37854	Shaft - Output	1
19	22840	Bearing – Cone	2
20	22893	Worm Gear	1
21	24231	Ring – Snap	1
22	22932	Ring – Snap	1
23	22834	Gasket	1
24	8621	Plug – Vent	1
25	72566	Cover	1
26	20065	Cap Screw	4
27	22839	Cap	1
28	6031	Plug – Level Check	1
29	* 6293	Plug – Drain	1
30	* 22835	Shim	AR
31	70454	Cap – End	1

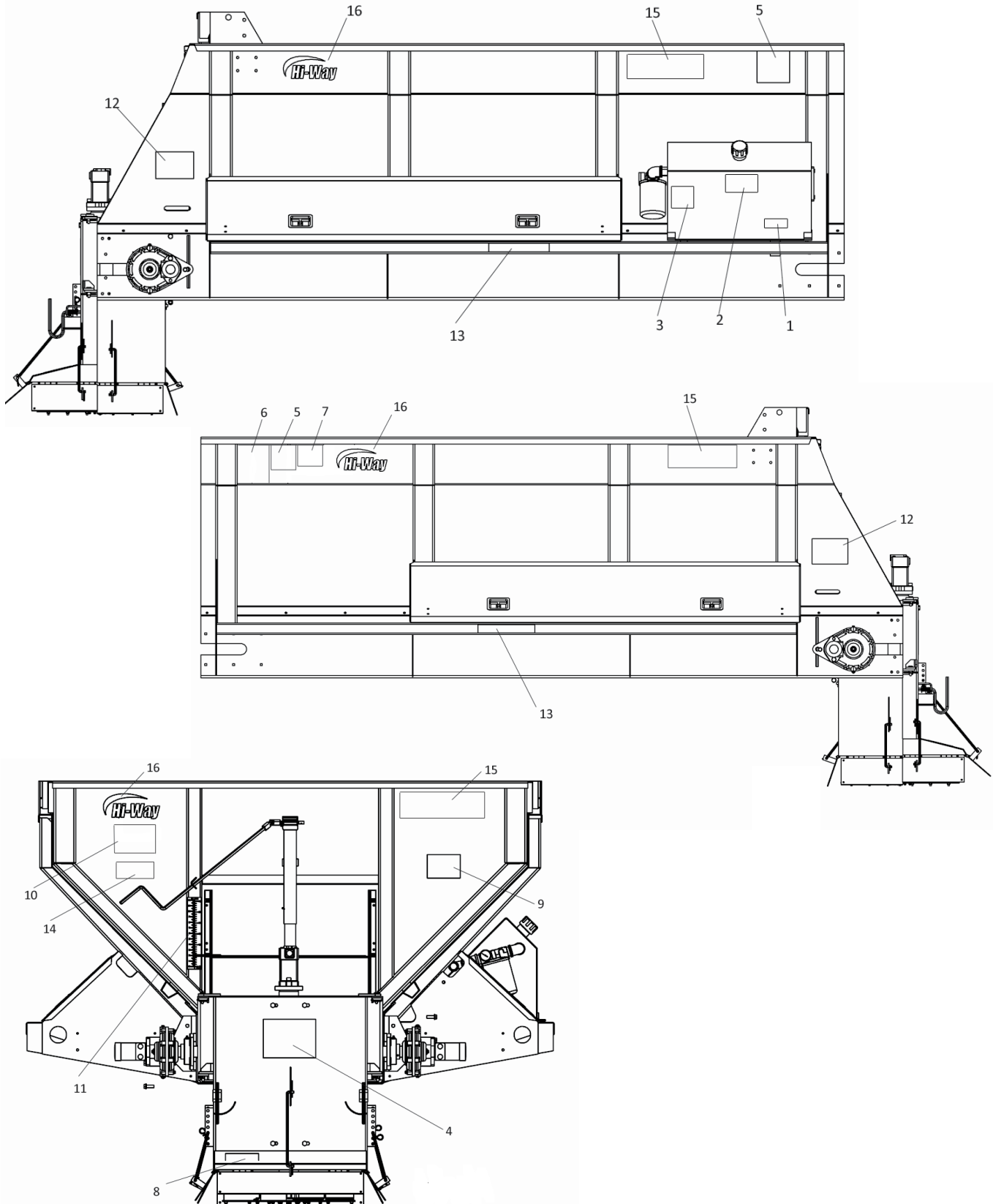


**ELEVATOR HYDRAULIC MOTOR CONTINUED**

<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
	37340	Motor – Hydraulic, 7/8" (Key-way Shaft)	
	37346	Motor – Hydraulic, 7/8" (Pin-hole Shaft)	
1	30665	Cap Screw	4
2	37382	Seal	1
3	37384	Flange – Mounting	1
4	37378	Seal	1
5	37379	Seal – "O" Ring	1
6	37385	Spacer – Bearing	1
7	37401	Bearing – Thrust Needle	1
8	* 22068	Seal – "O" Ring	1
9	37387	Shaft – Output, 3/8" Pin Hole	1
	37386	Shaft – Output, Key-way	1
10	37380	Seal – "O" Ring	3
11	19646	Drive	1
12	37388	Plate – Spacer	1
13	37392	Gerotor	1
14	37400	Cap – End	1
15	37381	Washer – Seal	7
16	16394	Cap Screw	7

\* - Not Shown





PARTS LIST



## DECALS CONTINUED

<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
1	8664	Decal - Important Keep Valve Open	1
2	8665	Decal - Important Hydraulic Oil Only	1
3	39378	Decal - Change Filter Element	1
4	368	Decal - Flying Material	1
5	364	Decal - Danger Moving Part	2
6	150034	Decal - Caution Operation &. Maint.	1
7	321	Decal - Caution Hazardous Material	1
8	55630	Decal - Warning Falling Hazard	1
9	366	Decal - Warning Moving Part Hazard	1
10	21476	Decal - Important Conveyor Chain Life	1
11	23769	Decal - Ruler	1
12	39138	Decal - Warning High Pressure Fluid	2
13	39200	Decal - Warning Slipping Hazard	2
14	79985	Decal - Notice Heat Resistant Belt	1
15	1733	Decal - "Do-Al"	3
16	39870	Decal - Hiway Large (Black)	3
17	*79985	Decal - Notice Heat Resistant Belt (Elevator)	1