

HI-WAY

GENERAL MANUAL FOR MODEL

MP



SAFETY GUIDELINES
INSTALLATION
OPERATION
MAINTENANCE
TROUBLESHOOTING
PARTS LIST

This machine may have been built with SPECIAL FEATURES. When ordering parts, furnish SERIAL NUMBER listed below.

SERIAL _____

DEALER _____

IMPORTANT: READ THE SAFETY GUIDELINES AND ALL INSTRUCTIONS CAREFULLY BEFORE OPERATING

HIGHWAY EQUIPMENT COMPANY - HI-WAY DIVISION
1330 76TH AVE SW, CEDAR RAPIDS, IOWA 52404-7052
PH. (319) 363-8281 www.highwayequipment.com FAX (319) 632-3081

NON-CURRENT



MP

UNIT SERIAL NUMBER _____

MANUAL NUMBER: 99552-B

EFFECTIVE 1/2004

NON-CURRENT

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BUILDING THE BEST SINCE 1939

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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. 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 Cedar Rapids, Iowa, Product Support Department at (319) 363-8281.

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

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 !!!



SAFETY



TAKE NOTE! THIS SAFETY ALERT SYMBOL FOUND THROUGHOUT THE OPERATION 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 “IMPORTANT” 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 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.

IMPORTANT!

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

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 question concerning these guidelines, please call your authorized dealer or our factory at (319) 363-8281.

SAFETY**AVOID ACCIDENTS**

Most accidents, whether they occur in industry, on the farm, at home, or on the highway, are caused by the failure of some individual to follow simple and fundamental safety rules or precautions. For this reason, most accidents can be prevented by recognizing the real cause and doing something about it before the accident occurs.

Regardless of the care used in the design and construction of any type of equipment, there are many conditions that cannot be completely safeguarded against without interfering with reasonable accessibility and efficient operation.

A CAREFUL OPERATOR IS THE BEST INSURANCE AGAINST AN ACCIDENT. THE COMPLETE OBSERVANCE OF ONE SIMPLE RULE WOULD PREVENT MANY THOUSAND SERIOUS INJURIES EACH YEAR. THAT RULE IS:

NEVER ATTEMPT TO CLEAN, OIL OR ADJUST A MACHINE WHILE IT IS IN MOTION.

NATIONAL SAFETY COUNCIL

**CAUTION**

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

SAFETY DECALS

MAINTENANCE INSTRUCTIONS

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

INSTALLATION INSTRUCTIONS

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

SAFETY DECALS CONTINUED

⚠ DANGER



FLYING MATERIAL & ROTATING SPINNER HAZARD
To prevent death or serious injury:

- Wear eye protection.
- Stop machine before servicing or adjusting.
- Keep bystanders at least 60 feet away.

83649

⚠ DANGER



MOVING PART HAZARD
To prevent death or serious injury:

- Stay out of box while conveyor is moving.
- Disconnect and lockout power source before adjusting or servicing.
- Do not ride on spreader.

364-C

⚠ DANGER



EXPLOSION HAZARD
To prevent death or serious injury:

- Do not smoke while refueling.
- Keep smoking material, sparks and open flames away.

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⚠ WARNING

MOVING PART HAZARD
To prevent death or serious injury:

- Close and secure guards before starting.
- Do not stand or climb on machine.
- Disconnect and lockout power source before adjusting or servicing.
- Keep hands, feet and hair away from moving parts.

55631

⚠ WARNING




FALLING HAZARD
To prevent death, serious injury or machine damage:

- Do not stand or climb on guard.

55630

⚠ WARNING



HIGH PRESSURE FLUID HAZARD
To prevent death or serious injury:

- Relieve pressure on system before repairing, adjusting, or disconnecting.
- Keep all lines, fittings and couplers tight and free of leaks.
- Wear proper hand and eye protection when searching for leaks. Use wood or cardboard instead of hands.
- Do not use hydraulic lines for hand holds or steps.
- Components may be hot.

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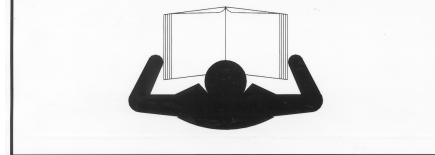
⚠ CAUTION

HAZARDOUS MATERIALS
To avoid injury or machine damage:

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

321-C

⚠ CAUTION



TO AVOID INJURY OR MACHINE DAMAGE:

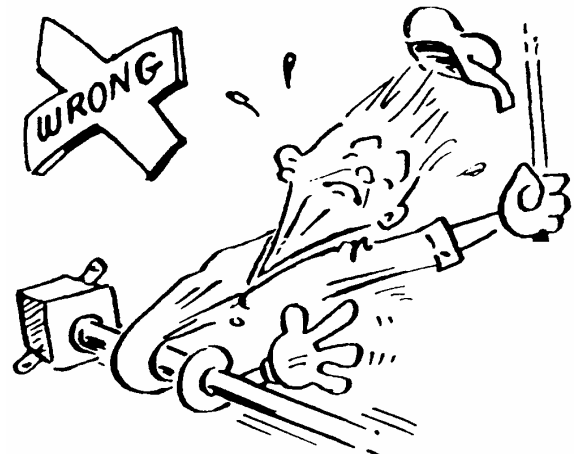
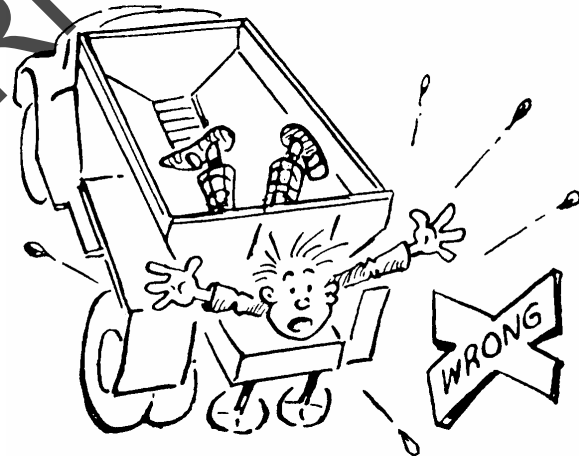
- Do not operate or work on this machine without reading and understanding the operators manual.
- Keep hands, feet, hair and clothing away from moving parts.
- Do not allow riders on machine.
- Avoid unsafe operation or maintenance.
- Disengage power takeoff and shut off engine before removing guards,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

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GENERAL SAFETY RULES Operation Section

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.

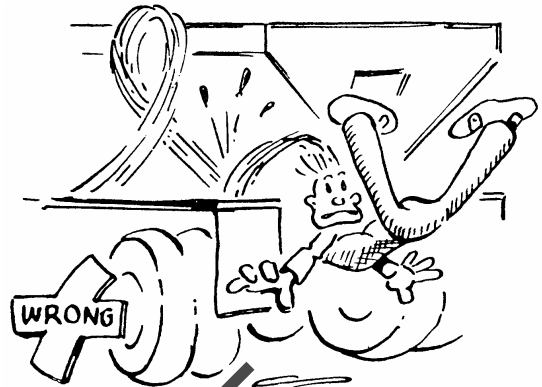
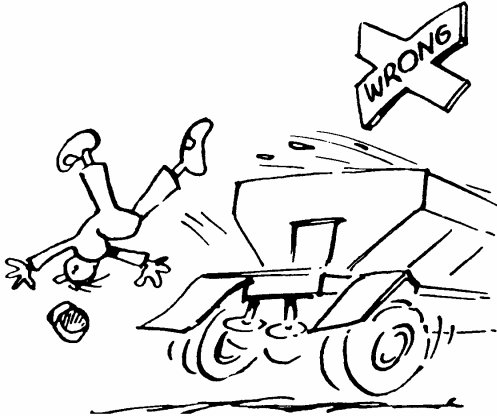
These actions are recommended to avoid unauthorized use, runaway, vandalism, theft and unexpected operation during start-up.
3. Do not read, eat, talk on a mobile phone or take your attention away while operating the unit. Operating is a full-time job.
4. Stay out of the body while conveyor is operating. If it is necessary to get into the body for any reason, be sure all power is shut off, vehicle brakes are set, and the engine starting switch is locked and keys removed. All controls should be tagged to prohibit operation and tags should be placed and later removed only by the person who was 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.



GENERAL SAFETY RULES

Operation Section

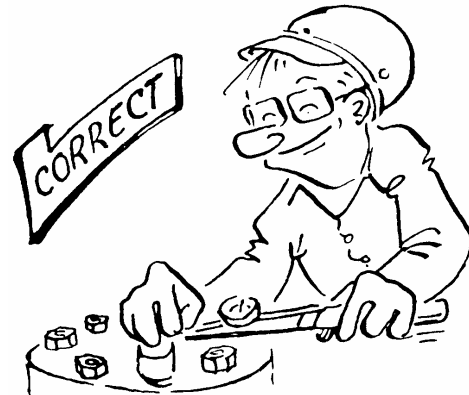
8. Be careful in getting on and off this unit, especially in wet, icy, snowy or muddy conditions. Clean mud, snow or ice from steps and footwear.
9. Do not allow anyone to ride on any part of unit for any reason.



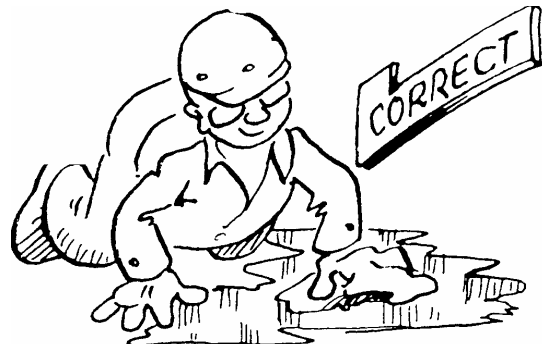
10. Keep away from spinners while they are turning:
 - a. Serious injury can occur if spinners touch you.
 - b. Rocks, scrap metal or other material can be thrown off the spinner violently. Stay out of discharge area.



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.



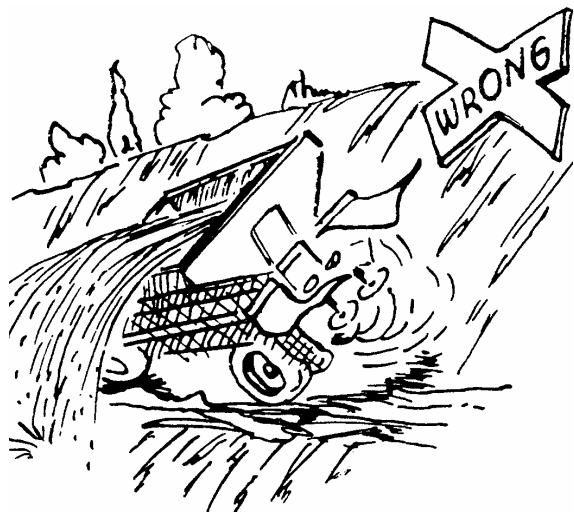
12. Inspect all bolts, screws, fasteners, keys, chain drives, body mountings and other attachments periodically. Replace any missing or damaged parts with proper specification items. Tighten all bolts, nuts and screws to specified torques according to the torque chart in this manual.



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!**

GENERAL SAFETY RULES Operation Section

14. Starting fluids and sprays are extremely flammable. Don't smoke. Stay away from flame or heat!
15. All vehicles should be equipped with a serviceable fire extinguisher of 5 BC rating or larger.
16. Hydraulic system and oil can get hot enough to cause burns. Before working on the system, wait until oil has cooled.
17. Wear eye protection while working around or on unit.
18. Read, understand and follow instructions and precautions given by the manufacturer or supplier of materials to be spread. Improper selection, application, use or handling may be hazardous to people, animals, plants, crops or other property.
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.

GENERAL SAFETY RULES
Operation Section

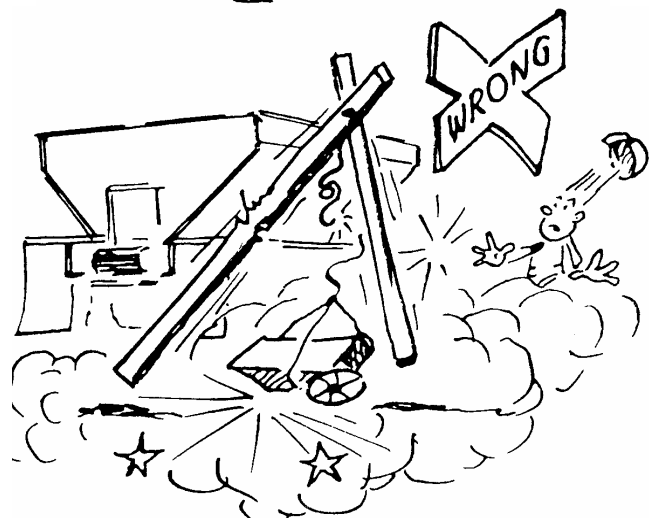
21. When using metering device, shut off spinner before placing box on hook or when removing it. Handle box with care to avoid injury.

22. 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 equipment dealer or from Highway Equipment Company by calling (319) 363-8281.

NON-CURRENT

GENERAL SAFETY RULES Maintenance Section

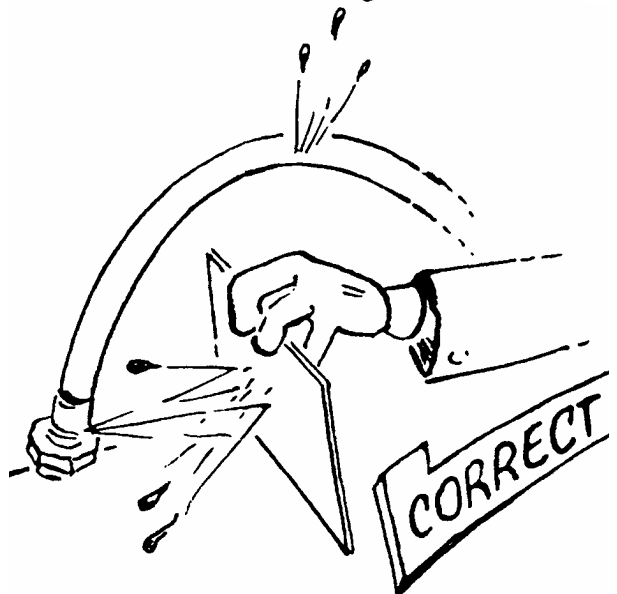
1. Maintenance includes all lubrication, inspection, adjustments (other than operational control adjustments such as feedgate openings, conveyor speed, etc.) part replacement, repairs and such upkeep tasks as cleaning and painting.
2. When performing any maintenance work, wear proper protective equipment—always wear eye protection—safety shoes can help save your toes—gloves will help protect your hands against cuts, bruises, abrasions and from minor burns—a hard hat is better than a sore head!
3. Use proper tools for the job required. Use of improper tools (such as a screwdriver instead of a pry bar, a pair of pliers instead of a wrench, a wrench instead of a hammer) not only can damage the equipment being worked on, but can lead to serious injuries. **USE THE PROPER TOOLS.**
4. Before attempting any maintenance work (including lubrication), shut off power completely. **DO NOT WORK ON RUNNING MACHINERY!**
5. When guards and covers are removed for any maintenance, be sure that such guards are reinstalled before unit is put back into operation.
6. Check all screws, bolts and nuts for proper torques before placing equipment back in service. Refer to torque chart in this manual.
7. Some parts and assemblies are quite heavy. Before attempting to unfasten any heavy part or assembly, arrange to support it by means of a hoist, by blocking or by use of an adequate arrangement to prevent it from falling, tipping, swinging or moving in any manner which may damage it or injure someone. Always use lifting device that is properly rated to lift the equipment. Do not lift loaded spreader. **NEVER LIFT EQUIPMENT OVER PEOPLE.**



GENERAL SAFETY RULES

Maintenance Section

8. If repairs require use of a torch or electric welder, be sure that all flammable and combustible materials are removed. Fuel or oil reservoirs must be emptied, steam cleaned and filled with water before attempting to cut or weld them. **DO NOT** weld or flame cut on any tank containing oil, gasoline or their fumes or other flammable material, or any container whose contents or previous contents are unknown.
9. Keep a fully charged fire extinguisher readily available at all times. It should be a Type ABC or a Type BC unit.
10. Cleaning solvents should be used with care. Petroleum based solvents are flammable and present a fire hazard. Don't use gasoline. All solvents must be used with adequate ventilation, as their vapors should not be inhaled.
11. When batteries are being charged or discharged, they generate hydrogen and oxygen gases. This combination of gases is highly explosive. **DO NOT SMOKE** around batteries—**STAY AWAY FROM FLAME**—don't check batteries by shorting terminals as the spark could cause an explosion. Connect and disconnect battery charger leads only when charger is "off". Be very careful with "jumper" cables.
12. Batteries contain strong sulfuric acid—handle with care. If acid gets on you, flush it off with large amounts of water. If it gets in your eyes, flush it out with plenty of water immediately and get medical help.
13. Hydraulic fluid under high pressure leaking from a pin hole are dangerous as they can penetrate the skin as though injected with a hypodermic needle. Such liquids have a poisonous effect and can cause serious wounds. Get medical assistance if such a wound occurs. To check for such leaks, use a piece of cardboard or wood instead of your hand. The fine spray from a small hydraulic oil leak can be highly explosive—**DO NOT SMOKE—STAY AWAY FROM FLAME OR SPARKS.**

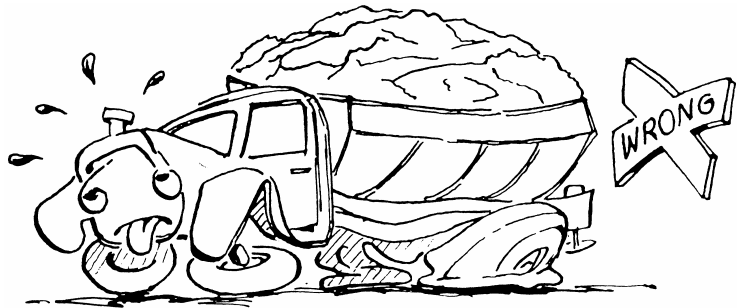


GENERAL SAFETY RULES

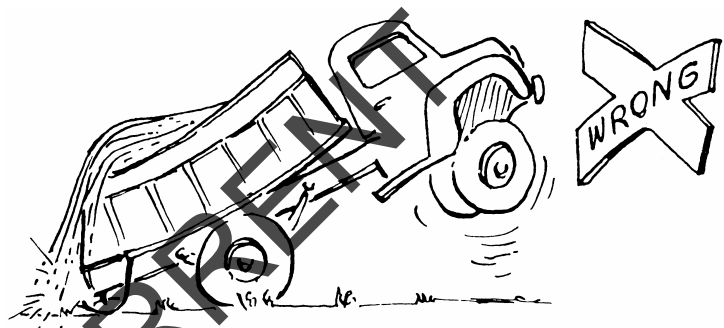
Installation Section

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.

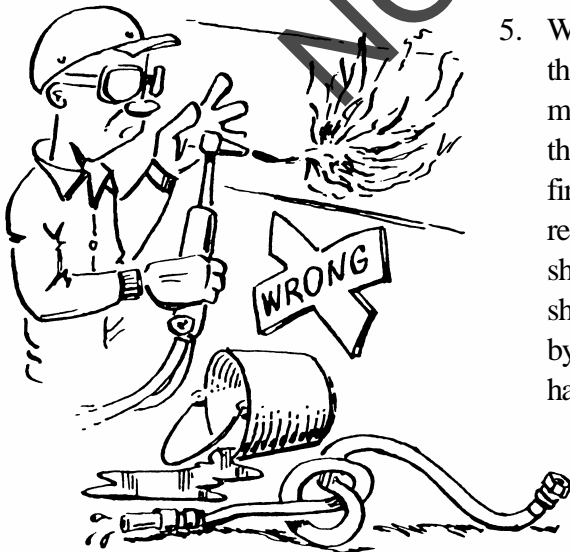


2. Follow mounting instructions in the Installation section of this manual. If mounting conditions require deviation from these instructions refer to factory.



3. When making the installation, be sure that the lighting meets Federal Motor Vehicle Safety Standard (FMVSS) No. 108 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 the Truck-PTO-Pump Match Graph indicates in the Installation section of this manual. Too high a percent PTO will drive pump at excessive speed, which can ruin the pump, but more importantly, will overheat the hydraulic oil system and increase the possibility of fire.



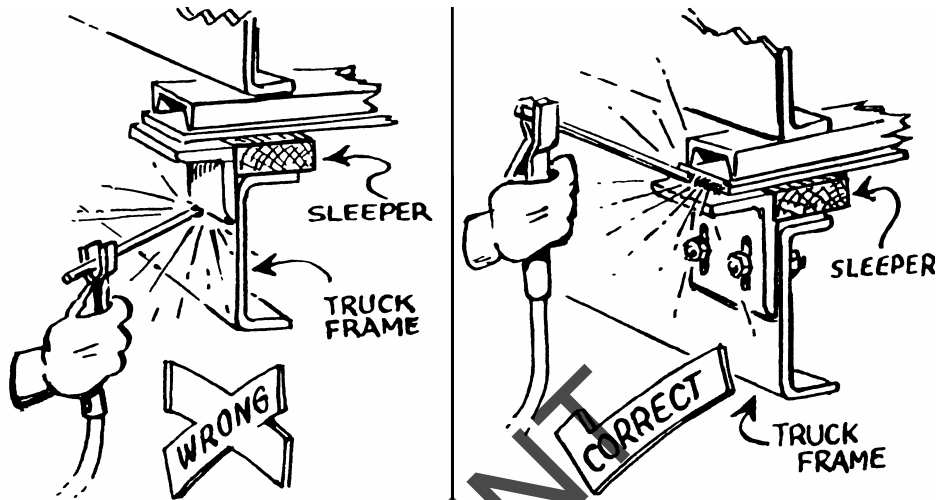
5. When truck frame must be shortened, cut off only the portion that extends behind rear shackle in accordance with the truck manufacturer's recommendations. If a torch is used to make the cut, all necessary precautions should be taken to prevent fire. Cuts should not be made near fuel tanks and hydraulic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



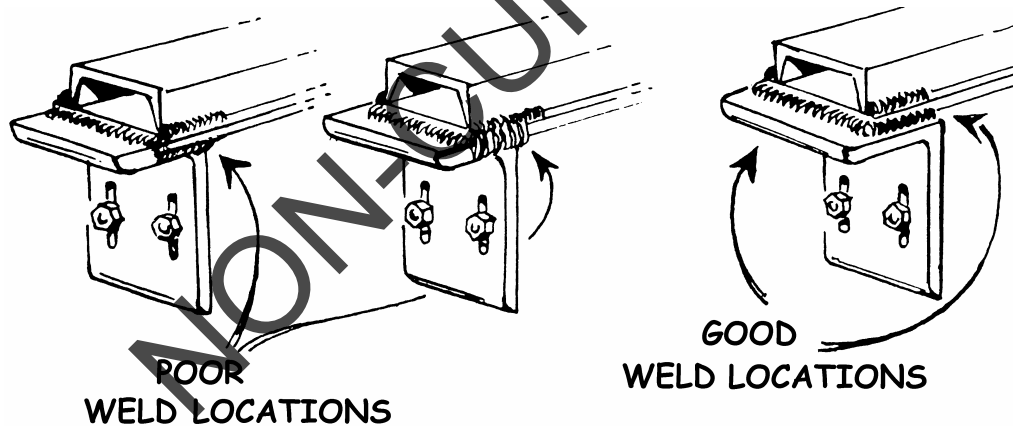
GENERAL SAFETY RULES

Installation Section

- 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.



- 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 dry, E6013 or E7018 rod for normal steels. On stainless steel bodies use SAE grade 5 bolts—welding is recommended if type 308 welding rod is available.



- 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.
- Check for vehicle visibility, especially toward the rear. Reposition or add mirrors so that adequate rearward visibility is maintained.
- Add Caution, Warning, Danger and Instruction decals as required. Peel off any label masking which has not been removed.
- Install all guards as required.
- Check installation completely to be sure all fasteners are secure and that nothing has been left undone.

NON-CURRENT

GENERAL DESCRIPTION

The MP is a hopper-type spreader intended for spreading abrasives and/or chemical for the control of snow or ice. It is available in 6', 7', 8', 9' and 10' lengths. The unit can be mounted into a pick-up or flat bed truck.

A choice of 10 HP, 10.5 HP or 11 HP engines or single or dual hydraulic motors power the MP. The engine driven units are intended for use in temperatures of 40° or below. The hydraulic driven units can be operated in any temperature.

The engine or a hydraulic motor drives a 20:1 worm gear case. The conveyor is driven from the output shaft of the worm gear. The spinner is driven from the input shaft on engine and single hydraulic driven units. On dual hydraulic units, a second hydraulic motor drives the spinner. Variable speed control on engine driven units is obtained by the use of an electric throttle controlled from the cab. On hydraulic driven units, variable speed is obtained by the use of a control valve.

The conveyor runs the full length of the hopper bottom to deliver material through an adjustable feedgate to the spinner.

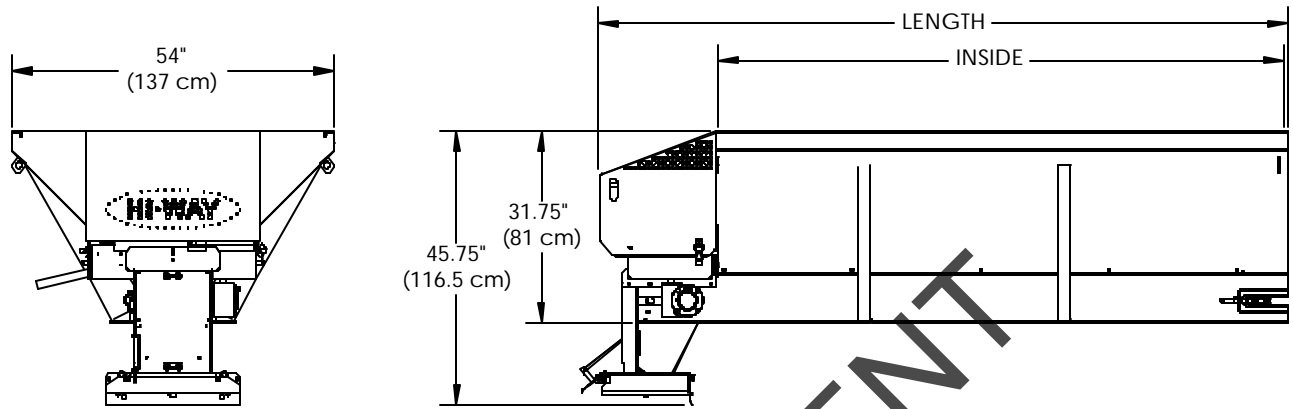
The spinner hopper has three external baffles for adjusting the spread to the desired pattern and one fixed baffle to protect the truck chassis.

An optional Screen-N-Store™ prevents over-sized material from entering spreader. During the off-season the screen converts into an easy-to-assemble storage stand.

This product is intended for commercial use only.

NON-CURRENT

DIMENSIONS



Standard spinner shown. The unit height with the extended spinner hopper is 57.75 inches (146.5 cm).

INSIDE BODY LENGTH feet (cm)	INSIDE BODY WIDTH inches (cm)	HEIGHT inches (cm)	LENGTH inches (cm)	WEIGHT (EMPTY) pounds (kg)	CAPACITY - HEAPED cu. yd. (cu. m.)
6 (183.0)	54 (137)	31.75 (80.6)	91.5 (232.0)	812 (368.3)	1.7 (1.30)
7 (213.5)	54 (137)	31.75 (80.6)	103.5 (262.5)	890 (403.7)	1.9 (1.45)
8 (244.0)	54 (137)	31.75 (80.6)	115.5 (293.0)	950 (430.9)	2.1 (1.60)
9 (274.5)	54 (137)	31.75 (80.6)	127.5 (323.5)	1010 (458.1)	2.3 (1.75)
10 (305.0)	54 (137)	31.75 (80.6)	139.5 (354.0)	1105 (501.2)	2.5 (1.90)

INSTALLATION INSTRUCTIONS

The MP is shipped assembled, except for the following parts, which are packed loose:

Spinner Hopper & Chain	Inverted "V" (optional)	Pump (optional)
Mounting Ratchets	Tarp (optional)	Reservoir (optional)
Control Panel	Side Extensions (optional)	Hoses (optional)
Lights (optional)	Battery (optional)	Touch-up Paint
	Hardware for all of the above	

Unpack and inspect the unit and all loose parts for any damage that might have occurred in shipping. If any is found, or any shortages noted, notify your dealer immediately.

Recommended sequence of installation for both engine & hydraulic-driven units is as follows:

1. MP Mounting
2. Spinner
3. Optional parts
4. Control Panel & Wiring

Installation of hydraulic-driven units also includes the following:

5. Mounting of Pump & Pump Drive
6. Cab Controls
7. Hydraulics
8. Fill hydraulic Tank & Lubricate

A lifting device with a 2000-pound minimum lifting capacity is needed to mount the spreader. Standard tools are required for installation and maintenance.

ENGINE

An engine manual is supplied with each engine-driven unit. Read this manual carefully and completely before operating your unit.

INSTALLATION INSTRUCTIONS CONTINUED**MOUNTING OF MP****CAUTION**

Never lift equipment over people. Never attempt to lift the unit with material in the spreader body. Use only lifting devices rated for 2000 pounds or more. Loads may shift or fall if improperly supported, causing injury.

**Figure 1 – 4-Point Lift**

Remove the tailgate from the pick-up or dump body. Fasten a four-point lifting device with a 2000-pound minimum lifting capacity to the hooks as shown in Figure 1 to hoist the empty spreader body into the truck bed. Center the unit from side to side and move it as far forward as possible. Be sure to leave clearance for the spinner hopper. Once the spreader body is positioned from front to back, place wood blocks between the front of the spreader and the front of the truck bed.

Using the four ratchet straps provided in the mounting kit, secure the spreader to the truck body.

If this is not possible, clamp the spreader to the stake pockets in front and the tailgate corner posts in the rear.

**CAUTION**

Be sure the spreader is securely anchored and will not shift or slide out of truck body. Periodically check the mounting straps and hardware to make sure they are secure. Retighten as required.

INSTALLATION INSTRUCTIONS CONTINUED

INVERTED "V" INSTALLATION

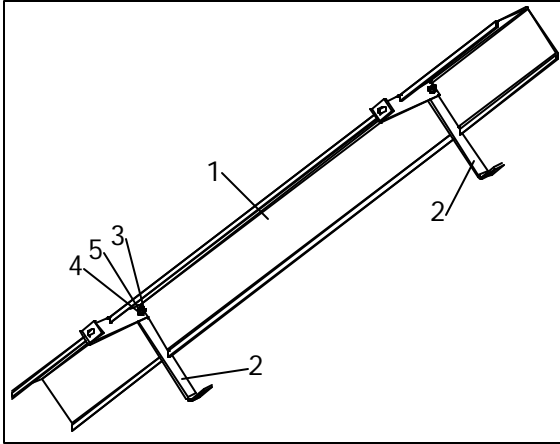


Figure 2 – Inverted "V" Assembly

Parts needed:

<u>Item</u>	<u>Description</u>	<u>Qty</u>
1	Inverted "V"	1
2	Support	4
3	3/8 x 1 Cap Screw	2
4	3/8 Lock Washer	2
5	3/8 Hex Nut	2
6	Chain Shield Hardware	

Remove screens from the unit.

Slide Supports (2) into Inverted "V" (1) slots as shown in Figure 2. Attach with hardware provided (3, 4 & 5).

Remove four chain shield bolts (6). Position Inverted "V" as shown in Figure 3, with Support (2) slots over chain shield holes. Attach Supports (2) to spreader using chain shield hardware (6).

Reinstall screens according to "Screen Installation" under *Installation Instructions*.

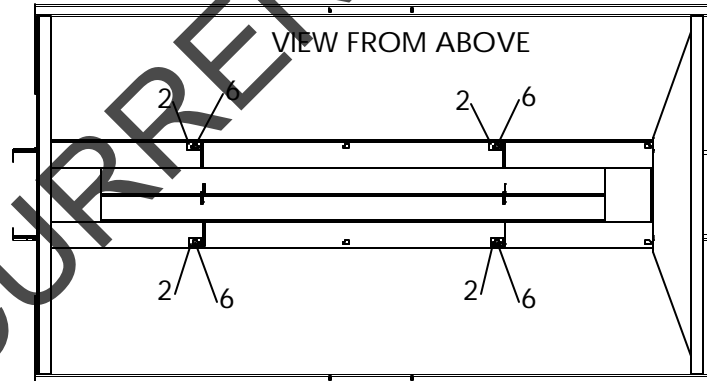


Figure 3 – Inverted "V" Installation

INSTALLATION INSTRUCTIONS CONTINUED

SPINNER INSTALLATION

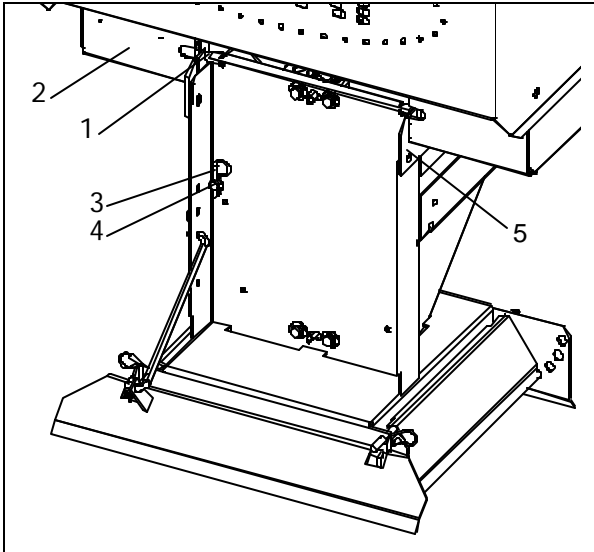


Figure 4 – Spinner Installation

Parts needed:

Description	Qty
Spinner Assembly	1
Hair Pins (Shipped on 1)	2
Drive Chain	1

Remove the rear engine guard from the engine mount and set aside. Remove hairpins (3).

Figure 4 – Slide upper pin (1) on each side of spinner assembly into slots on engine mount (2). If the unit has a single hydraulic drive, the sprocket will need to be moved approximately one inch from the top of the spinner shaft so it's in line with the other sprocket. Install spinner drive chain on sprockets and tension

according to "Chain Tension" instructions below. Make sure pin (4) on each sill is sticking through the spinner hopper. Secure with hairpins (3) previously removed. Replace rear engine guard.

The spinner should be about 18" above the ground. If it is significantly higher, use the optional 12" extended hopper to obtain a desired spread pattern. In addition to the above procedure, the extended spinner hopper must be bolted to the engine mount (5) using the hardware provided.

CHAIN TENSION

Check chain tension using a straight edge. Chain movement at center of one side of the chain should be 5/16" as shown in Figure 5.

Spinner drive chain tension is adjusted by loosening the bearing mounting screws on the back of the spinner and moving the bearings. Moving the bearings left tightens chain tension; right loosens chain tension. Tighten the mounting screws to maintain adjustment.

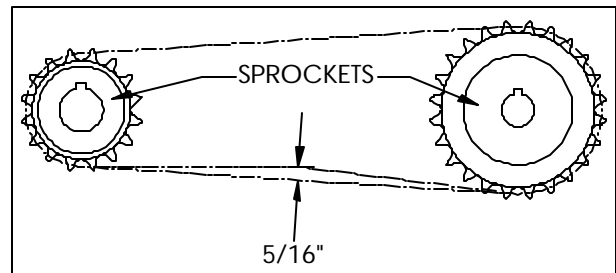


Figure 5 – Adjusting Chain Tension

Drive chain tension is adjusted by loosening the engine mounting bolts and moving the engine on its base. Tighten the mounting screws to maintain adjustment.

IMPORTANT!

Loose drive chain will cause shock loads, resulting in damage or failure of related components. Over-tightening of drive-chain causes excessive wear and heat, greatly reducing chain and sprocket life and may cause damage to other components.

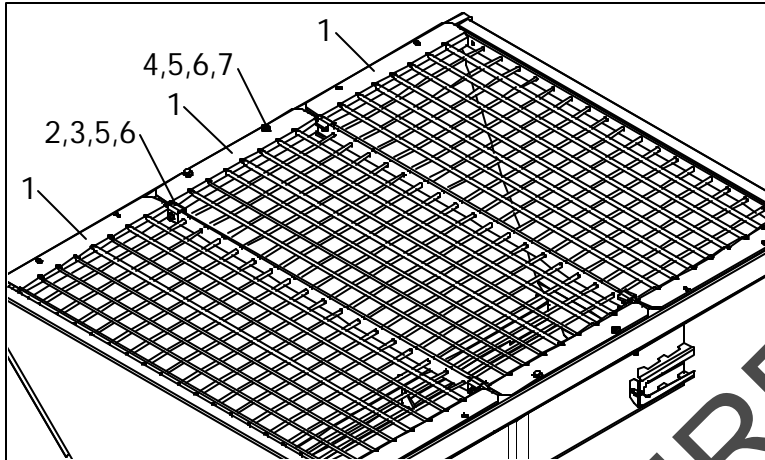
See "Drive Chains" under *Lubrication and Maintenance* for lubrication instructions. Lubricate both drive chains accordingly.

INSTALLATION INSTRUCTIONS CONTINUED

SCREEN INSTALLATION

The light-duty and heavyduty screens are one piece, placed on the unit as shown in Figure 6. No hardware is required, but make sure the screen angles are tight against the side sheets.

Screen-N-Store™



Parts needed:

<u>Item</u>	<u>Description</u>	<u>Qty</u>
1	Screen Section	AR
2	Hook	4
3	3/8 x 1 1/4 Carriage Bolt	4
4	3/8 x 1 Cap Screw	AR
5	3/8 Lock Washer	AR
6	3/8 Hex Nut	AR
7	3/8 Flat Washer	AR

Figure 6 – Screen Installation

The optional Screen-N-Store™ consists of multiple sections. Install according to the following:

<u>UNIT</u>	<u>FRONT</u>	<u>MIDDLE</u>	<u>REAR</u>
6'	2'	2'	2'
7'	2'	2'	3'
8'	3'	2'	3'
9'	3'	2'	3'
10'	3'	2' Qty 2	3'

6' through 9' Units – Middle Section

Figure 6 – Place middle screen section on spreader and align slots with holes in side sheets. Attach using four cap screws, flat washers, lock washers and hex nuts (4,5,6,7).

10' Units – Middle Section

Attach one of the middle screen sections to the side sheets using four cap screws, flat washers, lock washers and hex nuts (4,5,6,7). Bolt the second middle screen section to the first using remaining hardware (4,5,6).

All Units – Front & Rear Sections

Position two hooks (2) with the open side out on each of the side screen sections using bolts, lock washers and hex nuts (3,5,6). Hook the front and rear screen sections (1) to the middle screen section(s).

INSTALLATION INSTRUCTIONS CONTINUED

CONTROL PANEL INSTALLATION

When selecting a location for the control panel, there are a number of items to consider:

1. Select a suitable location in the cab to mount the control panel, where it is easily accessed and viewed by the operator without obstructing normal driving view.
2. Check for clearance with the seat in all positions.
3. Check the transmission gear shift in all gears for clearance with the control panel.
4. If there are any other controls, such as parking brake or plow and wing controls, check for clearance.
5. Under the cab check for interference with transmission, exhaust pipe and transmission gear linkages.
6. Check to see that control panel location does not interfere with entering or leaving cab.
7. Route the cable through the cab wall to an easily accessible location at the rear of the truck body, within reach of the MP connector.



CAUTION

All holes in truck cab floor or firewall for control wires, hoses or cables are to be grommetted, plugged and sealed to prevent entrance of engine fumes, dust, dirt and noise.

8. Attach the connector mounting bracket to the truck and feed the cable through the center hole.
 9. If necessary, trim cable to appropriate length. Assemble the connector as shown in Figure 7 and mount connector on bracket.
 10. Attach the black wire of the two-conductor cable to a switched circuit and the white wire to a ground.
- NOTE: Disconnect vehicle battery prior to making any electrical connections.

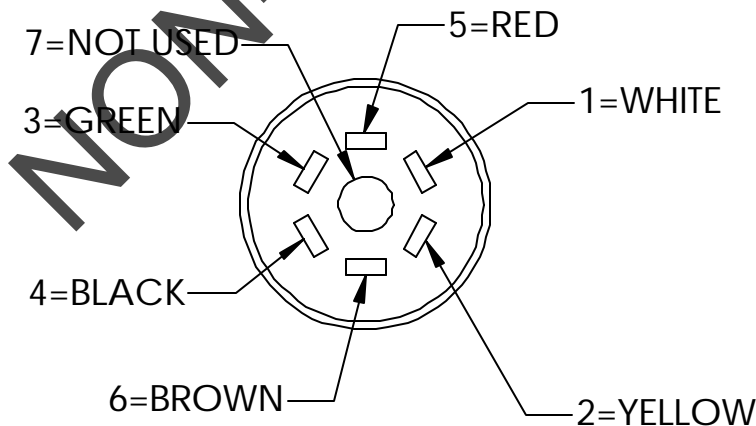


Figure 7 – Wire Connections

INSTALLATION INSTRUCTIONS CONTINUED

HYDRAULIC PUMP INSTALLATION

Transmission PTO Drive

A mounting bracket for the hydraulic pump is shipped with the spreader when the unit is ordered with the PTO pump option . It may be necessary to modify the bracket to fit your truck since many variable factors, such as PTO make and model, muffler position, transmission make and model, etc., affect mounting position. **DO NOT WELD THE BRACKET TO THE TRUCK FRAME.** To do so may void the truck manufacturer's warranty.

Determine the rotation of the power take-off. **THE PUMP IS NOT BI-ROTATIONAL.** The pump furnished requires an engine-wise rotation PTO (counterclockwise looking at PTO shaft). Determine which port of the pump is the pressure port and which is the suction port. Mark the ports "P" and "S" with chalk on the housing. Failure to follow the above instructions will result in seal and pump damage upon start-up.

IMPORTANT! For automatic transmissions, use direct mount PTO pump combinations only. Contact factory for recommendations. standard pump, shaft and u-joint drive combinations are not warranted for use with automatic transmissions.

Position the mounting brackets so the pump drive shaft will be as straight as possible. In no case should the angle at any universal joint exceed 15°. The pump and PTO shafts should be parallel. (Figure 8)

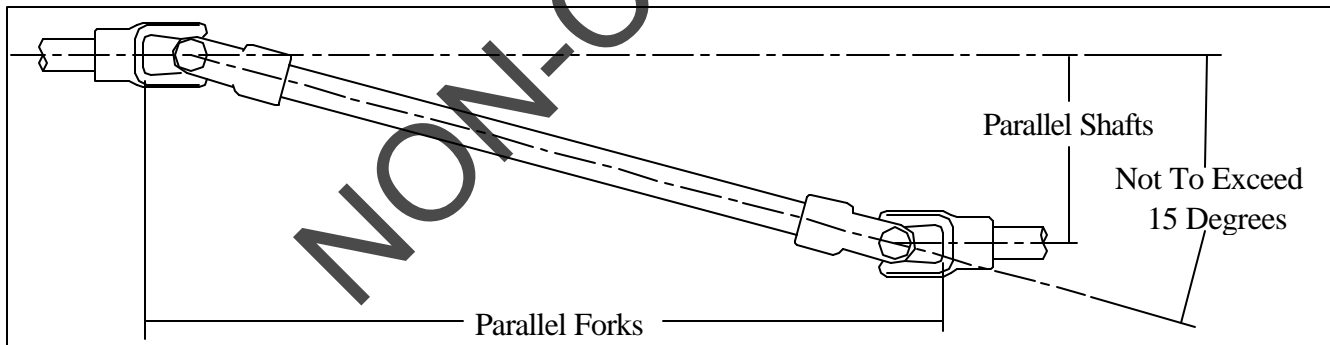


Figure 8 - Timing of Universal Joints

INSTALLATION INSTRUCTIONS CONTINUED

HYDRAULIC PUMP DRIVE SHAFT INSTALLATION

The pump drive shaft may be too long for some installations. It may be cut and re-drilled as necessary. When re-drilling the shaft make sure the universal joints will be properly “timed” as shown in Figure 8. The input and output shafts must be parallel. The u-joint forks on the shaft connecting the two u-joints must be parallel to each other.

U-joints must be used in pairs. Connecting angles must be equal and not over 15°. Install the slip joint at the end of the pump drive shaft. Failure to install the slip joint will result in bearing failure in the pump, PTO or both.

CAB CONTROL VALVE INSTALLATION

When selecting a location for the cab control, there are a number of items to consider:

1. Select a suitable location for the operator to adjust the control and to turn it On and Off.
2. Check for clearance with the seat in all positions.
3. Check the transmission gear shift in all gears for clearance with the valve and with the valve lever in the On and Off positions.
4. If there are any other controls, such as parking brake or plow and wing controls, check for clearance.
5. Under the cab, check for interference with transmission, etc.
6. Check to see that control valve location does not interfere with entering or leaving the cab.

**CAUTION**

All holes in the truck cab walls, floor and firewall for control wires, hoses and cables are to be grommetted, plugged and sealed to prevent entrance of engine fumes, dust, dirt, water and noise.

INSTALLATION INSTRUCTIONS CONTINUED

HYDRAULIC HOSE INSTALLATION

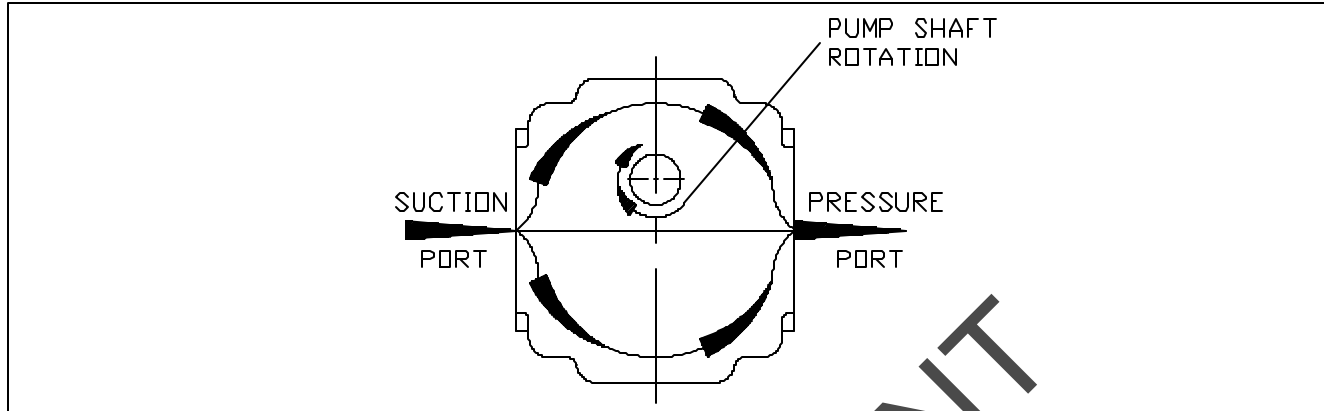


Figure 9 - Hydraulic Pump

Determine the pressure port of the pump. Install the pressure hose into this port. Connect the suction hose to the opposite port and to the tank outlet on the reservoir. Use plastic tie straps to support hoses so they will not catch on field obstructions, contact the muffler or touch any moving parts.

Use thread sealer on all fittings, except o-ring and JIC adapters, o-ring valves and motors, etc. When using thread sealer, do not put it on the first three threads of the fitting. Too much on the fitting or on the first three threads will force it into the oil stream where it could damage the system.



CAUTION

If a threaded connection is tightened too tightly, the fitting or housing into which the fitting is placed could be distorted and an unstoppable leak could occur.

Assemble the system as shown in the *Hydraulics* parts list. Place the hose clamps as needed to keep hoses away from hot or moving parts. Do not let hoses hang so low as to be snagged. Do not stretch hoses tight.

The Hydraulic Hoses supplied are as follows:

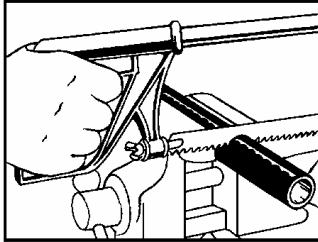
Pressure Line - Two wire braid hose, one end fitting crimped on, the other end fitting to be field installed after cutting hose to length. See assembly instructions on the following page.

Suction Line - Single spiral wire reinforced to be cut to length. Fittings to be assembled with double hose clamp.

All Return Lines - Double cotton braid to be cut to length as necessary. Fittings to be assembled with single hose clamps.

INSTALLATION INSTRUCTIONS CONTINUED

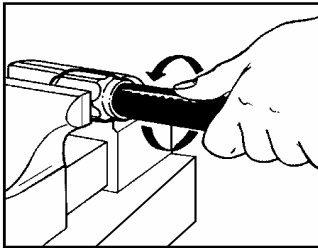
REUSABLE NON-SKIVE TYPE ENDS



Step 1

Cut hose to length required using a fine tooth hacksaw or cut-off machine.

Clean hose bore.

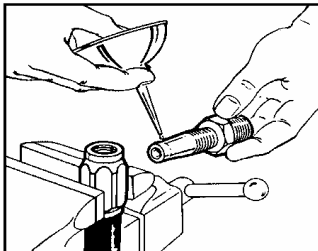


Step 2

Liberalily lubricate hose cover with Aeroquip hose assembly lube.

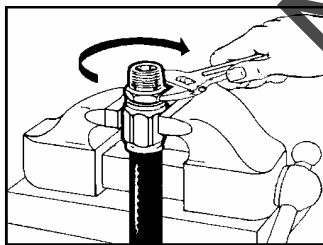
Place socket in vise and turn hose into socket counterclockwise until it bottoms.

When assembling long lengths of hose, it may be preferred to put hose in the vise just tight enough to prevent from turning, and screw socket onto the hose counterclockwise until it bottoms.



Step 3

Liberalily lubricate nipple threads and inside of hose with heavy weight oil.



Step 4

Screw nipple clockwise into socket and hose.

Leave 1/32" to 1/16" clearance between nipple hex and socket.

Disassemble in reverse order.

Used with permission of the Aeroquip Company



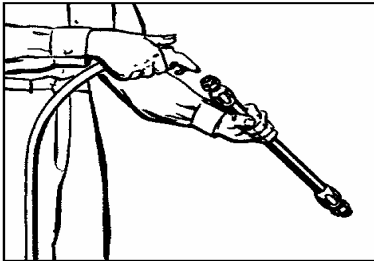
WARNING

Do not use one manufacturer's hose with another manufacturer's fittings! Such use will void any warranty and may cause premature burst or leak of hydraulic fluids! Such bursting or leaking may cause severe injury and/or fire!

INSTALLATION INSTRUCTIONS CONTINUED

HYDRAULIC HOSE MAINTENANCE

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



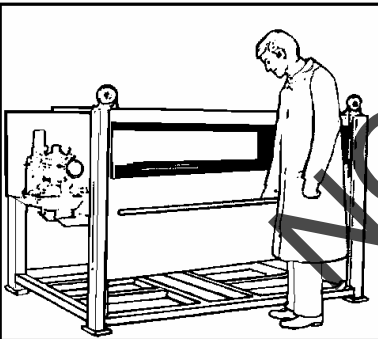
Clean

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



Inspect

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



Test

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



WARNING

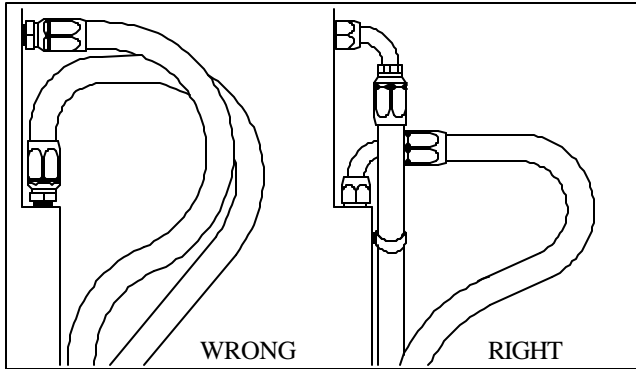
To prevent serious personal injury, testing should be conducted in approved test stands with adequate guards to protect the operator.

STORAGE AND HANDLING

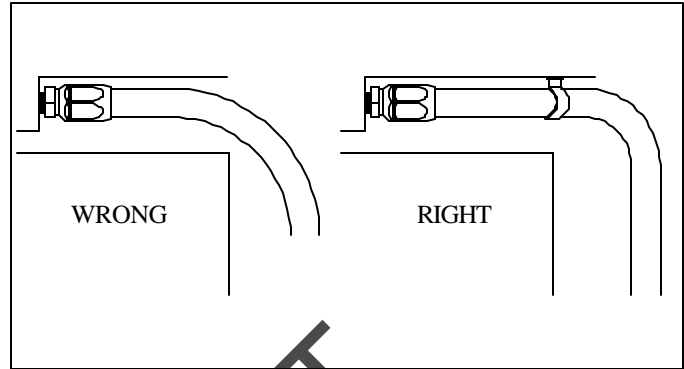
Hose should be stored in a dark, dry atmosphere away from electrical equipment, and the temperature should not exceed 90° F.

INSTALLATION INSTRUCTIONS CONTINUED

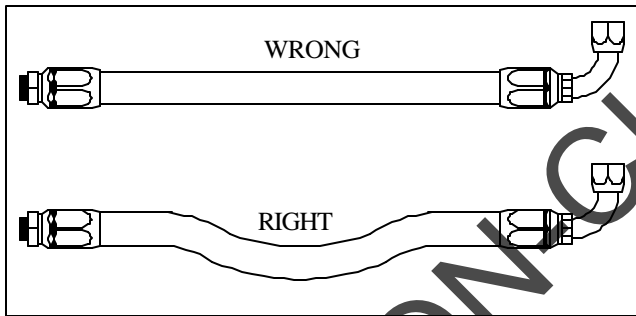
INSTALLATION GUIDE



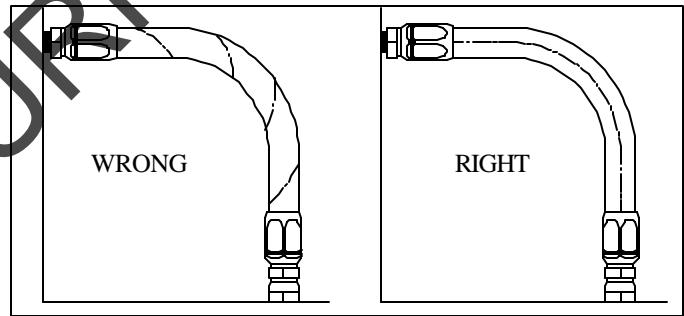
1. Use elbows and adapters in the installation to relieve strain on the assembly, and to provide easier and neater installations that are accessible for inspection and maintenance. Remember that metal end fittings cannot be considered as part of the flexible portion of the assembly.



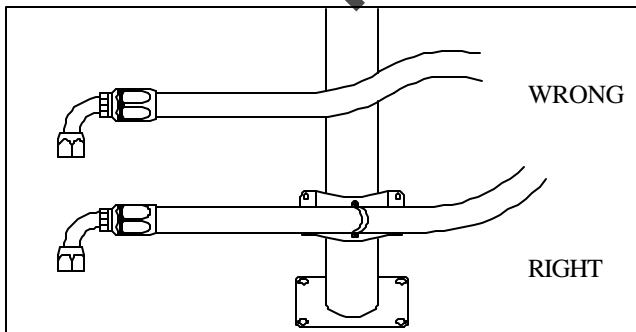
2. Install hose runs to avoid rubbing or abrasion. Clamps are often needed to support long runs of hose or to keep hose away from moving parts. It is important that the clamps be of the correct size. A clamp that is too large will allow the hose to move in the clamp causing abrasion at this point.



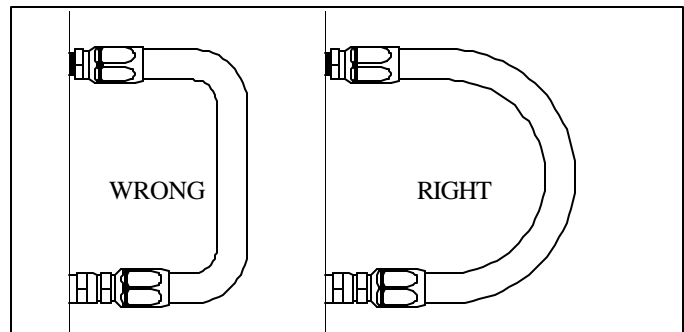
3. In straight hose installations allow enough slack in the hose line to provide for changes in length that will occur when pressure is applied. This change in length can be from +2% to -4%.



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



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



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

(Used with the permission of The Weatherhead Company.)

INSTALLATION INSTRUCTIONS CONTINUED

FILLING THE HYDRAULIC SYSTEM

IMPORTANT!

Do not attempt to run pump without first filling hydraulic reservoir with oil and opening suction line gate valve or the pump may be ruined.

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

Lubricate all points requiring lubrication per the Lubrication Chart in this manual.

CHECKING INSTALLATION

See Initial Start-Up Procedure.

Check the gear case to establish whether it's a Style I (Figure 10) or Style II (Figure 11). Check the oil level. Refer to "Conveyor Gear Case" section under *Lubrication and Maintenance* for specifications.

IMPORTANT!

REMOVE SHIPPING PLUG AND INSTALL VENT PLUG IN ITS PLACE ON GEAR CASE STYLE I BEFORE OPERATING UNIT.

NOTE: Style I does not have a pull plug.

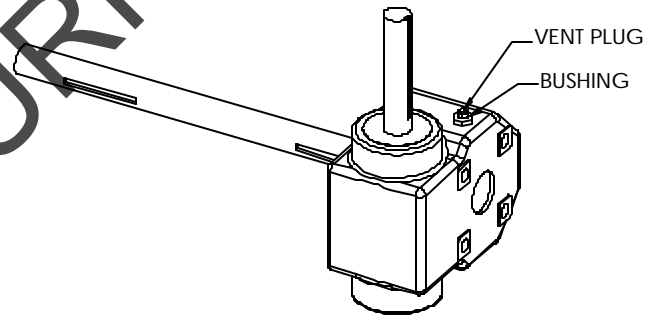


Figure 10 – Style I Gear Case

IMPORTANT!

REMOVE SHIPPING PULL PLUG FROM GEAR CASE STYLE II VENT PLUG BEFORE OPERATING UNIT. FAILURE TO DO SO WILL CAUSE EXCESSIVE PRESSURE IN GEAR CASE AND POSSIBLE SEAL FAILURE.

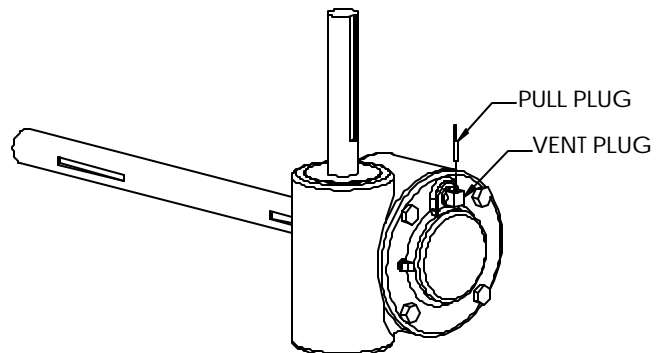


Figure 11 – Style II Gear Case

INITIAL START-UP

Check over entire unit to be sure all fasteners are in place and properly tightened per Torque Chart in this manual.

Prior to testing the unit, check the position of the On-Off control in the cab. It should be in the Off position. Do not load the hopper.

1. Make sure no other persons are in the vicinity of the truck or spreader.
2. Make sure that no loose parts or other material is in the hopper body, spinner hopper or on the spinner disc.
3. Open the feedgate until it is completely clear of conveyor.

AUXILIARY ENGINE DRIVEN UNITS

4. Check the oil level in the auxiliary engine crankcase. Add oil if necessary. See lubricant specifications later in this manual or the engine manufacturer's manual.
5. Be sure all bearings, shafts and gear case are properly lubricated.
6. Check for proper alignment between conveyor and spinner sprockets and between engine and conveyor sprockets. Make sure sprocket and sprocket assembly set screws are properly tightened. Check to see if chain tension is correct. Refer to "Chain Tension" in *Installation Instructions* if adjustment is necessary.



WARNING

Stay clear of moving machinery.

7. Check fuel level. Open fuel shut-off valve if so equipped. Refer to engine manufacturer's manual.
8. Start auxiliary engine and allow it to warm up at idle speed. Actuate electric clutch switch.
9. Bring auxiliary engine up to speed. Conveyor and spinner should operate smoothly at normal operating speeds.



DANGER

Stay clear of the spinner when it is operating. Contact with a moving spinner can cause serious injury.

INITIAL START-UP CONTINUED

HYDRAULIC DRIVEN UNITS

4. Fill the hydraulic reservoir with oil. Refer to *Lubricant and Hydraulic Oil Specifications* section later in this manual for the proper oil. Open gate valve fully (rotate counterclockwise to open).
5. Make sure all bearings, shafts and gear case are properly lubricated.
6. Check for proper alignment between spinner sprockets. Then check to be sure sprocket set screws are tightened sufficiently.
7. Start engine. Engage PTO or actuate electric clutch switch (if applicable). Let engine run at about 1000 RPM for a few minutes, allowing oil to circulate through the pump and back to the reservoir. In cold weather allow greater warm-up time.
8. Move hydraulic control valve to position 3. Conveyor and spinner should run at low speed. Allow to run until they operate smoothly to indicate air has been purged from the system.



DANGER

Stay clear of spinner when it is operating. Contact with a moving spinner can cause severe injury.

9. Bring engine speed up (about 3000 RPM) and move hydraulic control valve to position 5. Run a few minutes to be sure unit runs smoothly. Shut down the system. When all parts have come to a rest, check all hydraulic system connections for leaks.



CAUTION

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

10. Check hydraulic oil level. Add oil as necessary. When you remove the fill cap, oil should be visible in the bottom of the strainer basket. Unit is now ready for road testing.



WARNING

Shut down engine before servicing unit. When making adjustments to the engine that requires it to be running, remove the drive chain before performing the service.



CAUTION

Be careful where you spread materials. Avoid operating near or around personnel.

GENERAL OPERATING PROCEDURES



CAUTION

Be sure all fasteners are tight to avoid spreader coming loose.

Inspect spreader before use to make sure it's not damaged, all essential parts are in place, all fasteners are tight and guards are in place. Check controls to be sure they are operating satisfactorily.



CAUTION

Never attempt to lift the unit with material in the spreader body. Lifting chains/slings or lift hook may fail causing the unit to fall.

CHAIN TENSION

Check both the drive chain to the spinner and the main drive chain for proper tension. See "Chain Tension" section in the *Installation Instructions* to adjust tension.

CONTROL PANEL

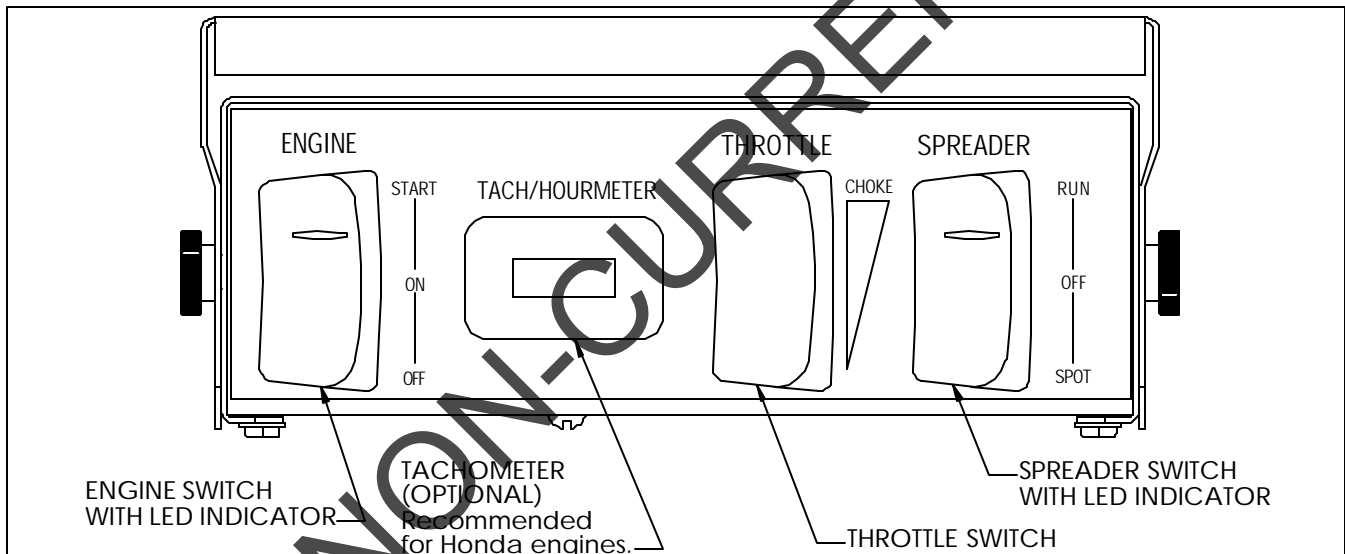


Figure 12 – Control Panel

Engine switch – Starts and stops engine.

Throttle switch – Controls engine speed. Push top of switch for 5 to 10 seconds to choke.
Back off from Choke to run RPM.

Spreader switch – Controls conveyor and spinner function.

Run – Push for continuous spreading.

Off – Turns both conveyor and spinner off.

Spot – Spreads only while being pushed, for "spot" spreading.

Tachometer (optional) – Displays RPM of engine while engine is running.

– Displays engine run time in hours when engine is off.

IMPORTANT!

Do not run engine in choke.

GENERAL OPERATING PROCEDURES CONTINUED

AUXILIARY ENGINE DRIVEN UNITS

IMPORTANT!

The engine driven units are intended for use in temperatures of 40° or below. Operating in temperatures over 40° will overheat the engine.

Engine Preparation

Release the two rubber hooks holding the engine hood and swing the hood back and down. Check the crankcase. Refer to engine manufacturer's manual for the proper amount and grade of oil. Fill crankcase as required.

Fill the fuel tank according to engine manual. Make sure the fuel shut-off valve is open if so equipped.



CAUTION!

Never fill the tank with the engine running. Avoid spilling gasoline on a hot engine. This could cause an explosion and serious injury. Do not smoke while handling gasoline.

Starting the Engine

Increase throttle position all the way to maximum. Press the engine switch to the start position. The engine should start within 15 seconds. **UNDER NO CIRCUMSTANCES OPERATE THE STARTER FOR A PERIOD OF OVER 25 SECONDS.** Should the engine not start, **WAIT 1 - 2 MINUTES BEFORE ENGAGING THE STARTER AGAIN.** Start the engine. After engine is running, release engine switch to on position and lower throttle until engine runs smooth.

NOTE: The auxiliary engine alternator keeps the battery charged. Numerous starts with very short engine run times, may not keep the battery fully charged.

Carburetor Adjustments

Carburetors are adjusted at the factory and normally do not need adjustment unless they have been disassembled. If adjustment is necessary, refer to engine manufacturer's manual.

GENERAL OPERATING PROCEDURES CONTINUED**HYDRAULIC DRIVEN UNITS****System Operating Parameters**

Operating pressure: 900 – 1200 PSI
Relief at: 1500 PSI
Flow, Single: 8.25 GPM
Flow, Dual: 12 GPM

Read the following before operating the spreader. Fill the hydraulic oil tank with hydraulic oil.

IMPORTANT!

Be sure that shutoff valve at bottom of tank is fully opened by turning handle counterclockwise until it stops.

Check for proper rotation of the conveyor and spinner shaft. The conveyor should move towards the rear. The spinner should rotate clockwise when viewed from the top. If the unit runs backwards, the hydraulic system is assembled incorrectly. Shut the unit down and determine why. Correct the problem before further operation. Refill the tank after the unit has been running long enough to circulate oil through all the lines.

NON-CURRENT

GENERAL OPERATING PROCEDURES CONTINUED

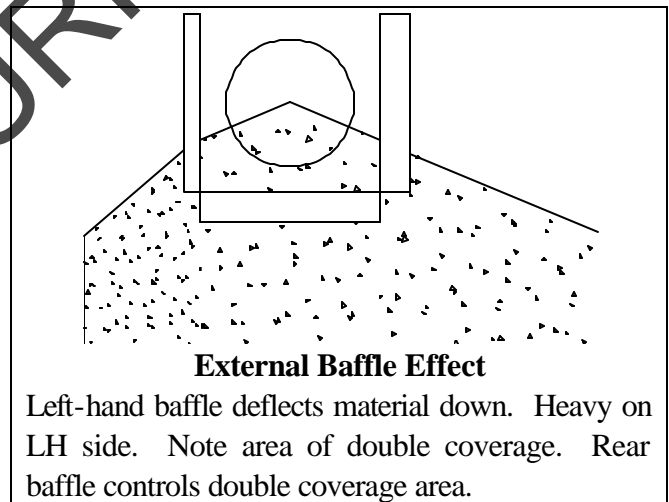
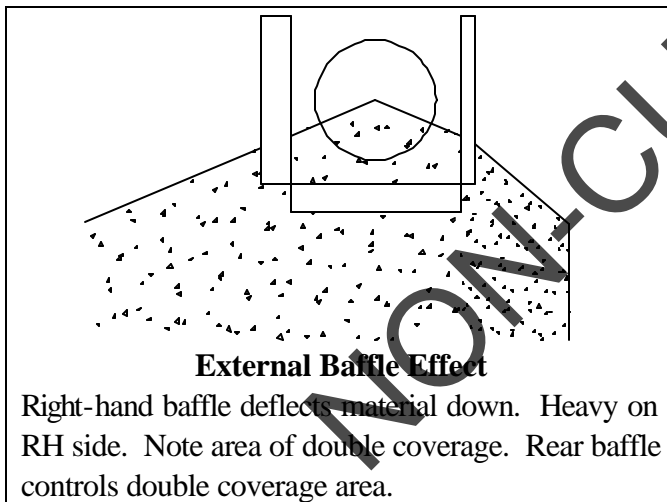
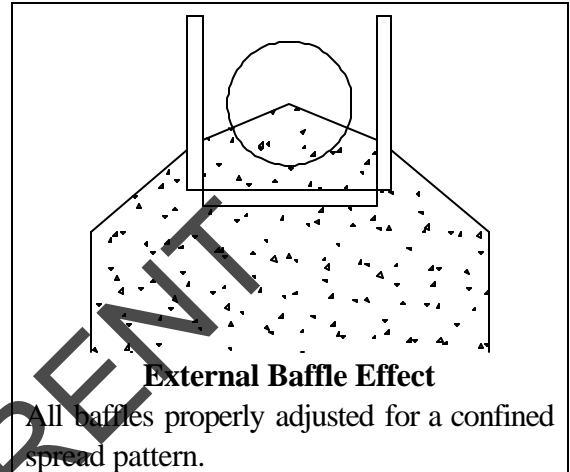
SPREAD PATTERN ADJUSTMENT

Partially fill the body with material and start the engine. Before spreading some preliminary adjustments are necessary to give an even spread pattern.

The spread pattern is adjusted by using the baffles. The adjustment of these baffles depends on the pattern desired.

First, decide what type of pattern you desire. Do you want the pattern to be to the right, to the left, or centered? Do you want a full pattern or a confined one? Do you have to protect people and property from the direct throw of material?

Should you wish a centered pattern for intersections and still protect people and property, you need to use all baffles on the hopper.



LUBRICATION AND MAINTENANCE



WARNING

Shut off all power and allow all moving parts to come to rest before performing any maintenance operation. Otherwise, you could be injured.

HYDRAULIC SYSTEM

The hydraulic reservoir has a capacity of 12 gallons. The use of proper oil in the hydraulic system is one of the most important factors for satisfactory operation. Utmost cleanliness in handling the oil cannot be stressed enough. Keep the hydraulic oil in original closed containers, clean top of container before opening and pouring and handle in extremely clean measures and funnels.

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

Service Schedule

1. Check the hydraulic oil level daily. Fill oil to bottom of the strainer basket when required. Periodically inspect the hoses and fittings for leaks.

IMPORTANT!

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

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

ENGINE MAINTENANCE

Refer to engine maintenance instructions furnished by engine manufacturer.

CARBURETOR ADJUSTMENTS

Carburetors do not normally need adjustment unless they have been disassembled. Refer to engine manufacturer's manual if adjustment is necessary.

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.

Bearings should be lubricated by pumping grease in slowly until a slight bead forms around the seals. This bead indicates adequate lubrication and also provides additional protection against the entrance of dirt.

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



LUBRICATION AND MAINTENANCE CONTINUED

GEAR CASE

The gear case is to be filled with SAE 90 gear oil up to level plug or 3/4 pint. Gear oil to conform to MIL-L2015B multi-purpose gear lubricating oil requirements.

CLEAN UP

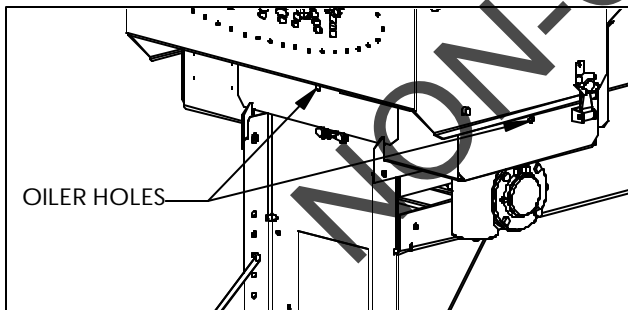
For maintaining a minimum maintenance operation, this equipment should be thoroughly washed every two or three days during the operating season. Hose the unit down under pressure to free all sticky and frozen material.

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

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 torques. Replace any lost or damaged fasteners or other parts immediately upon finding such damage or loss.

DRIVE CHAINS



Lubricate the drive chains daily during the operating season. Place oil spray nozzle through oiler holes (Figure 13) located on the right-hand and rear guards and spray chain.

Figure 13 – Drive Chain Oiler Holes

Twice a year remove drive chains. Soak the chain in a solvent to remove all old or contaminated oil. Check the chain at this time for any frozen links. Soak the chain in SAE 10 oil. Soak the chain until, when flexed, no bubbles appear on the chain. Reinstall the chains. Tension chain according to “Chain Tension” section in *Installation Instructions*.



CAUTION

Make sure truck engine is shut down when working on the drive chain. Disconnect MP battery before working on drive chains or any drive components. If the drive chain moves, you could be injured.

LUBRICATION AND MAINTENANCE CONTINUED

CONVEYOR CHAIN

Hose down the machine and remove any material build-up on the sprockets or beneath the chain. If material is allowed to build up, the chain may ride up and damage the body. If material builds up under the chain, the chain will ride on the material instead of the bottom panel. The more material allowed to build up, the closer the chain will come to the chain shields. If the chain should catch a chain shield, it could permanently distort the chain, the chain shields or the hopper body. In the same manner, if material is allowed to build up on the sprockets, the chain will have a larger diameter to follow. The more material allowed to build up, the closer the chain will run to the chain shields, until damage has occurred. **DO NOT REMOVE MATERIAL WHILE CONVEYOR OR SPINNER IS RUNNING.**

The conveyor chain should be lubricated at least every week. Use a mixture of 75% fuel oil and 25% SAE 10 oil in a pressurized hand spray can.



CAUTION

When conveyor is running, stay out of hopper 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 you may be injured.

With the conveyor running slowly, spray the mixture of oil between the links of the chain by spraying from front outside body when access clearance is adequate. Do this at least once a week and after each time the machine is washed. Allow to dry before lubricating.

Proper chain tension is also a factor in chain and sprocket life. The proper tension is illustrated in Figure 14. Be sure the chain is tensioned equally on both sides. The adjustment is made on each side of the unit at the idler bearings.

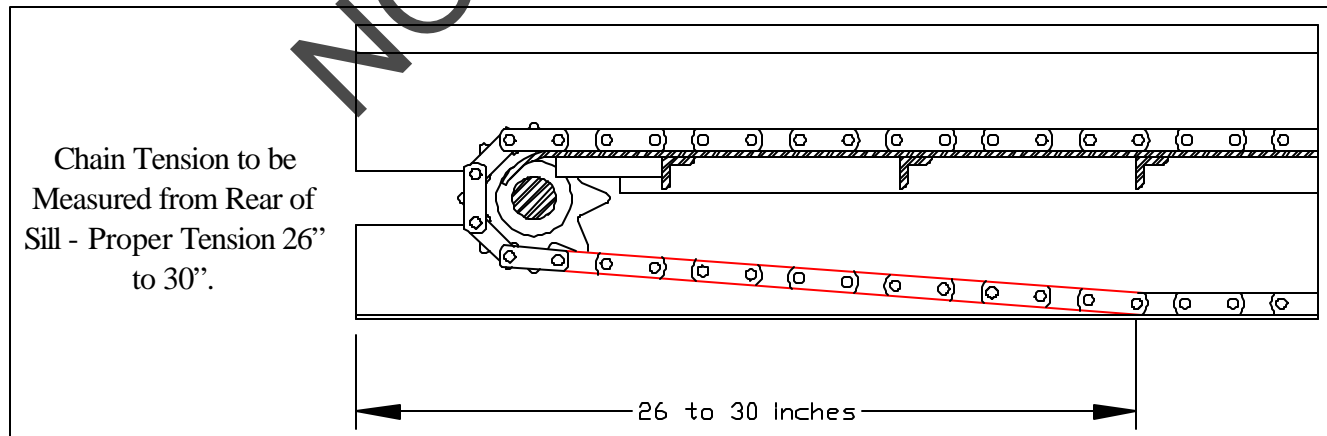


Figure 14 - Adjusting Conveyor Chain Tension

LUBRICATION AND MAINTENANCE CONTINUED

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

REPLACEMENT OF CONVEYOR

Check drive and idler sprockets for wear and replace if necessary.

Removal

Remove spreader from vehicle. Take spinner assembly off unit. Rotate conveyor so that “master link pins”, attached with cotter pins, can be accessed at rear of spreader. Loosen idler screws on both sides. Remove cotter pins and “master link pins” at rear of unit. Take chain off rear sprockets and pull chain from front of unit.

Installation

Remove “master link pins” from the new chain. Lay the new chain at the front of the unit with the chain bars up/Hi-WAY down and the barrel end (Figure 15) of the master link facing the unit. (Installation is easier if you can place the chain on something that is level with the bottom.) Insert the chain between the bottom panel and the cross angles with the barrel end first. Slide the remaining half on top of the bottom panel with the open end (Figure 15) of the master link first. Push the chain along the bottom panel until the master link reaches the rear of the unit so the ends meet at rear of unit. Make sure the chain is positioned on all the sprockets. Install the “master link pins” previously removed—you may have to rotate the sprockets by hand to align the link’s pin holes.

Tension the chain by tightening the idler screws. Reinstall spinner assembly according to “Spinner Installation” section and install the spreader according to “Mounting of MP” section, both in the *Installation Instructions*. Be sure to lubricate the idler bearings and chain before operation.

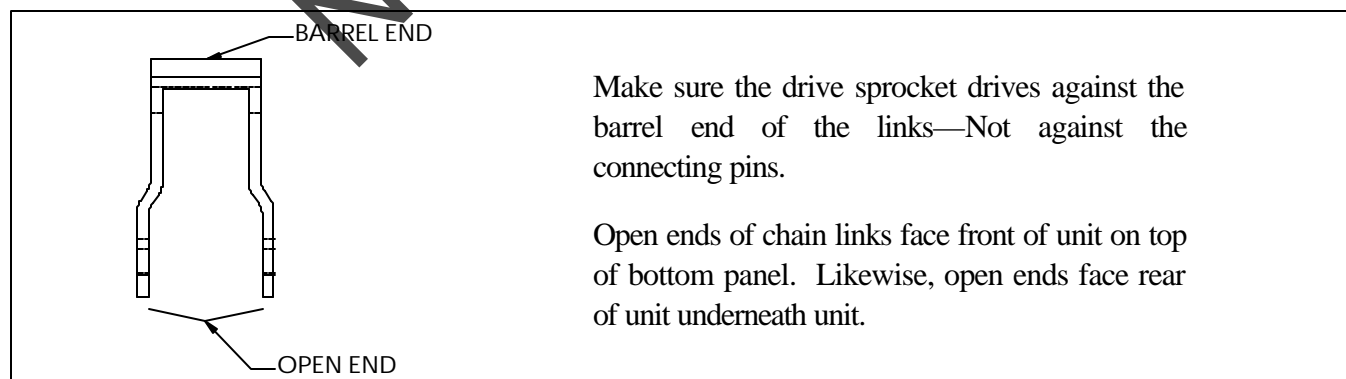


Figure 15 – Chain Link

LUBRICATION AND MAINTENANCE CONTINUED

REMOVAL & STORAGE

1. Remove all material from spreader body.
2. Disconnect control panel loom from the spreader at quick disconnects.
3. On hydraulic driven units, disconnect hydraulics at two quick disconnects, located near spinner motor and hydraulic tank. Use dust plugs on quick disconnects to protect hydraulic system.
4. Drain oil from crankcase while engine is still warm and refill according to engine manual.
5. Drain the fuel lines, carburetor, fuel pump and tank to prevent sediment.
6. Remove spark plugs and add a tablespoon of engine oil into each spark plug hole. Install plugs, but do not connect plug leads.
7. Crank engine two or three revolutions.
8. Clean or replace the air and fuel filters as required.
9. Disconnect and remove the battery and store it in a cool, dry place.
10. Remove ratchet straps.
11. Using a suitable four-point lifting device, lift the empty spreader out of the truck body.



CAUTION

Never lift equipment over people. Never attempt to lift the unit with material in the spreader body. Use only lifting devices rated for 2000 pounds or more. Loads may shift or fall if improperly supported, causing injury.

12. Store the MP on the optional Screen-N-Store™.

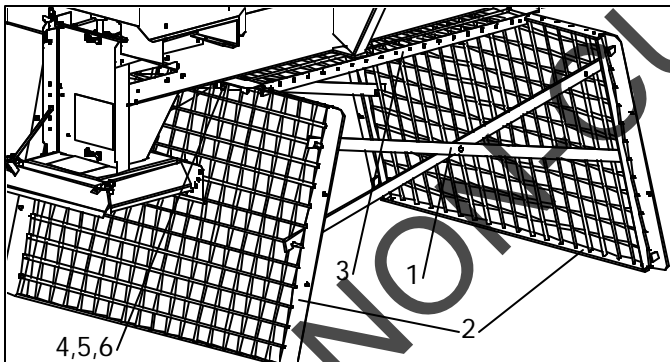


Figure 16 – Screen-N-Store

Parts needed:

<u>Item</u>	<u>Description</u>	<u>Qty</u>
1	Cross-Support Assy	1
2	Screen Section (same size)	2
3	Screen Section	1
4	3/8 x 1 Cap Screw	4
5	3/8 Lock Washer	4
6	3/8 Hex Nut	4

Place one screen section (3) upside down on level ground. Center another screen section (2) on end of first screen. Angle top inward until it lowers into slot and tab. Push screen outward until it wedges in place. (The screen is self-supporting if installed correctly.)

Repeat on other end. Flip screen assembly over and hook cross-support assemblies (1) over second and seventh rods of screens as shown in Figure 16. (Note holes in cross-supports go in upper position.)

Place assembled Screen-N-Store™ on hard, level surface. If unit is 6' or 7' with extended hopper, place stand on 6 x 6 runners to provide adequate spinner clearance. Position the spreader over the Screen-N-Store™ and lower slowly, lining up the holes in the top screen with the holes in the bottom of the unit. Attach with hardware (4,5 & 6) provided. Hook tie-downs from screen to unit for added stability.

Before putting the MP in storage, completely clean the unit. Repaint any worn spots with touch-up paint to prevent the formation of rust. Covering the entire unit with a heavy tarp is recommended. For engine storage information and start-up procedure, refer to the engine manual.

LUBRICANT AND HYDRAULIC OIL SPECIFICATIONS

IMPORTANT!

The lubricant distributor and/or supplier is to be held responsible for the results obtained from their products. Procure lubricants from distributors and/or suppliers 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 and recommended by reputable oil companies.

ENGINE

Refer to engine manufacturer's manual for oil recommendations.

HYDRAULIC SYSTEM

The following are the 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 VISCOSITY GRADE	OPERATING TEMPERATURE	VISCOSITY
150 SSU	122° F / 84° F	100 SSU / 200 SSU
225 SSU	140° F / 107° F	100 SSU / 200 SSU
300 SSU	150° F / 116° F	100 SSU / 200 SSU
450 SSU	165° F / 130° F	100 SSU / 200 SSU
600 SSU	182° F / 145° F	100 SSU / 200 SSU

If, because of necessity or convenience, it is desirable to use an automotive oil, multi-viscosity oils of SC rating (formerly MS Quality), which will provide between 100 and 200 SSU at operating temperature, can be used. These will provide proper viscosity over a wide range. For example:

SAE VISCOSITY GRADE	OPERATING TEMPERATURE	VISCOSITY
10W-30	130° F / 100° F	100 SSU / 200 SSU
10W-40	190° F / 140° F	100 SSU / 200 SSU

The above recommendations cover the normal system operating temperatures. For system temperatures above or below those shown in the chart above, contact the Product Support Department of Highway Equipment Company. For additional information contact your Highway Equipment Company dealer.

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 have a viscosity that assures easy handling in the pressure gun at prevailing atmospheric temperatures. The grease should conform to NLGI No. 2 consistency.



LUBRICATION CHART

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>
Engine			
Refer to engine manufacturer's manual.			
Hydraulic Pump Drive			
Transmission PTO - Slip Joint	1	Grease	Weekly
Transmission PTO - U-Joint	2	Grease Gun	Monthly
Hydraulic System			
Reservoir	1	Check Daily; Change Annually	
Filter	1	Check Daily; Change when indicator is red	
Drive Chains			
Main Drive Chain - Engine to Gear Case	1	Spray Oil	Daily
Spinner Drive Chain - Gear Case to Spinner	1	Spray Oil	Daily
Conveyor			
Drive Shaft Bearings	2	Grease Gun	Weekly
Idler Shaft Bearings	2	Grease Gun	Daily
Idler Adjuster	2	Hand Grease	Weekly
Chain	2 Strands	Spray Oil	Weekly
Gear Case	1	Fill Through Vent Plug	Check monthly; Change annually.
Spinner			
Shaft Bearings	2	Grease Gun	Weekly

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

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

TROUBLESHOOTING

ENGINE DRIVEN UNITS

Refer to engine manufacturer's manual for troubleshooting procedures.

HYDRAULIC DRIVEN UNITS

SYMPTOM

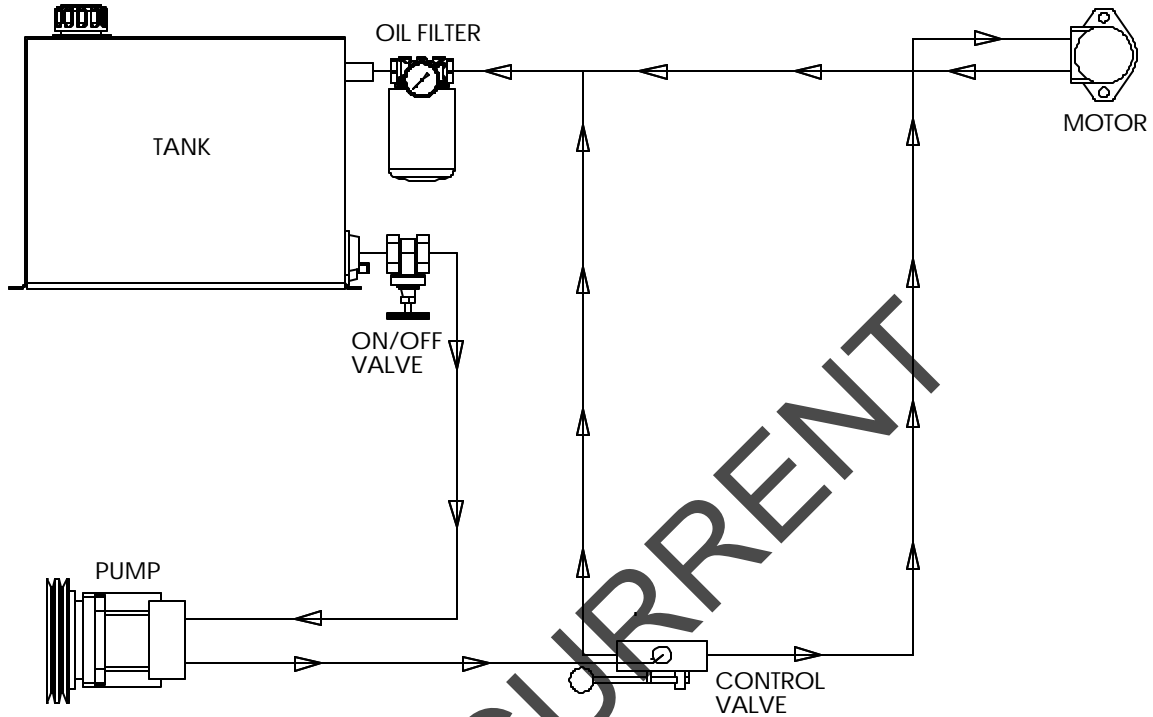
REMEDY

1. Unit speed does not increase with the dial setting.	A. Increase truck engine speed. B. Check condition of pump. C. Check for adequate PTO percent.
2. Unit stalls under load.	Check circuit pressure. 900 - 1200 PSI maximum with relief valve dumping at 1500 PSI.
3. Unit speed fluctuates momentarily when main control is first turned on.	A. Cold oil. Wait until oil has warmed up. B. Change to lighter weight oil.
4. Pump blows seals at start-up.	Pump installed backwards, replace seals and reverse pump in driveline. (Note arrow on pump.)

NON-CURRENT

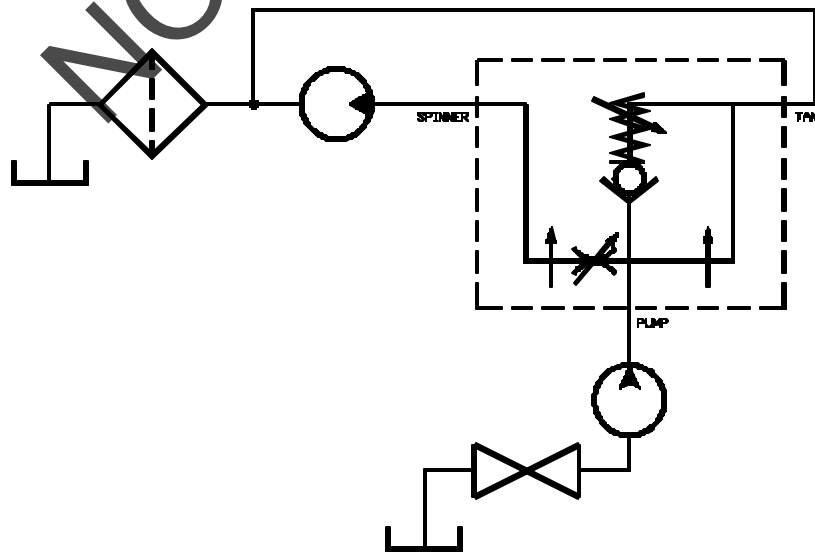
TROUBLESHOOTING CONTINUED

SINGLE HYDRAULICS FLOW DIAGRAM



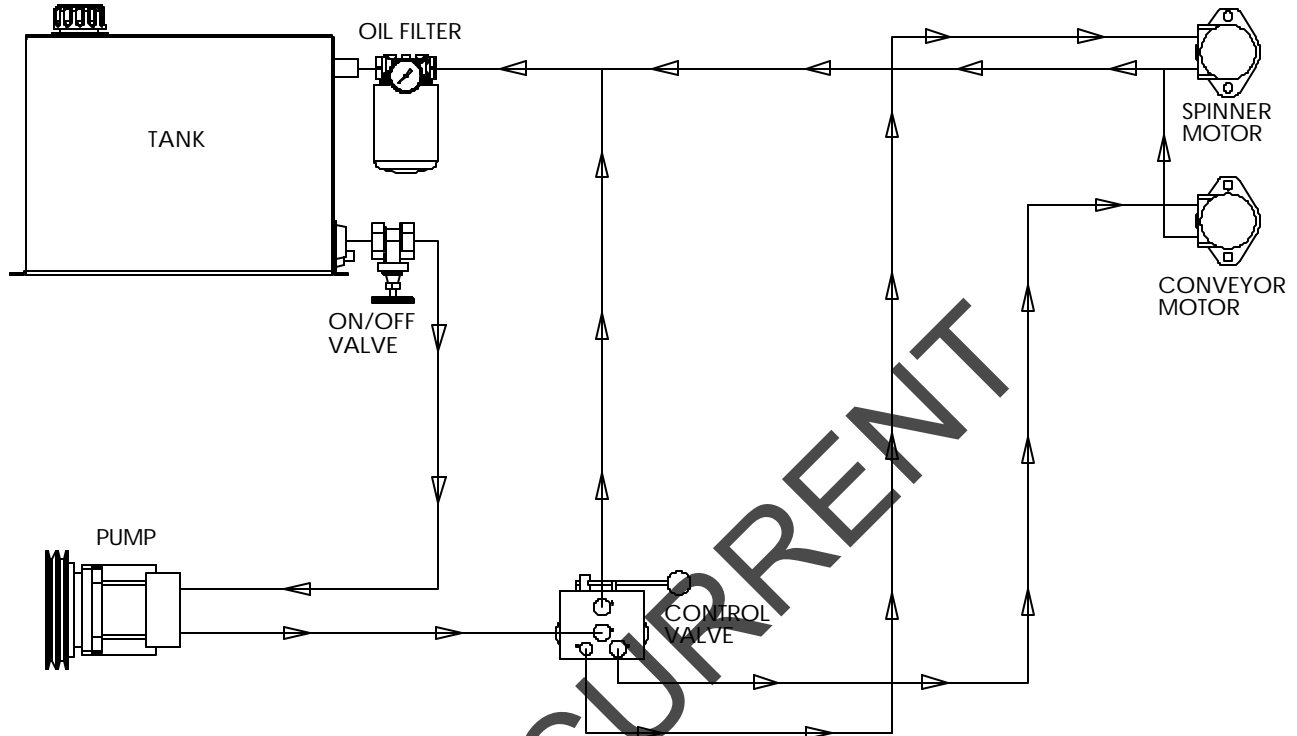
Operating pressure: 900 – 1200 PSI
 Relief at: 1500 PSI
 Flow, Single: 8.25 GPM

SINGLE HYDRAULICS SCHEMATIC



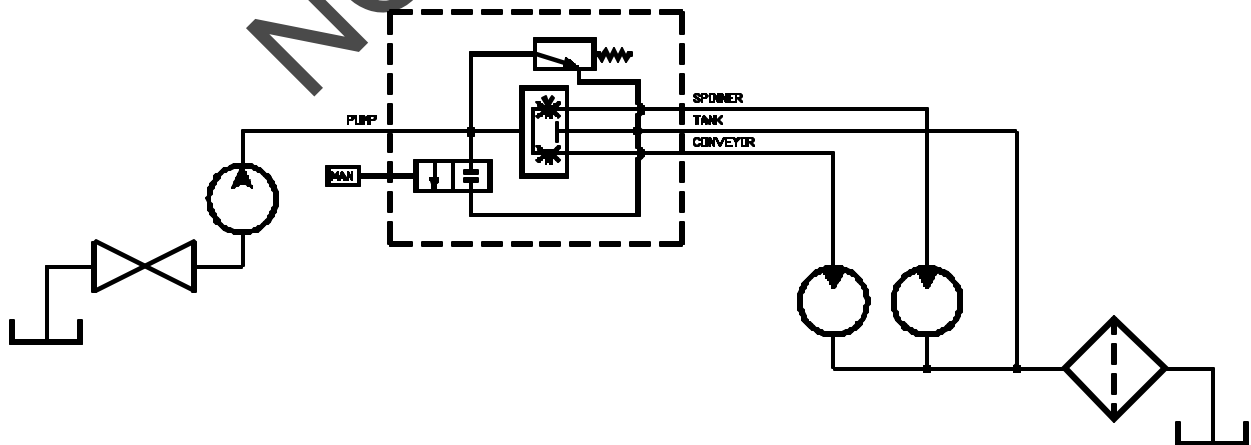
TROUBLESHOOTING CONTINUED

DUAL HYDRAULICS FLOW DIAGRAM



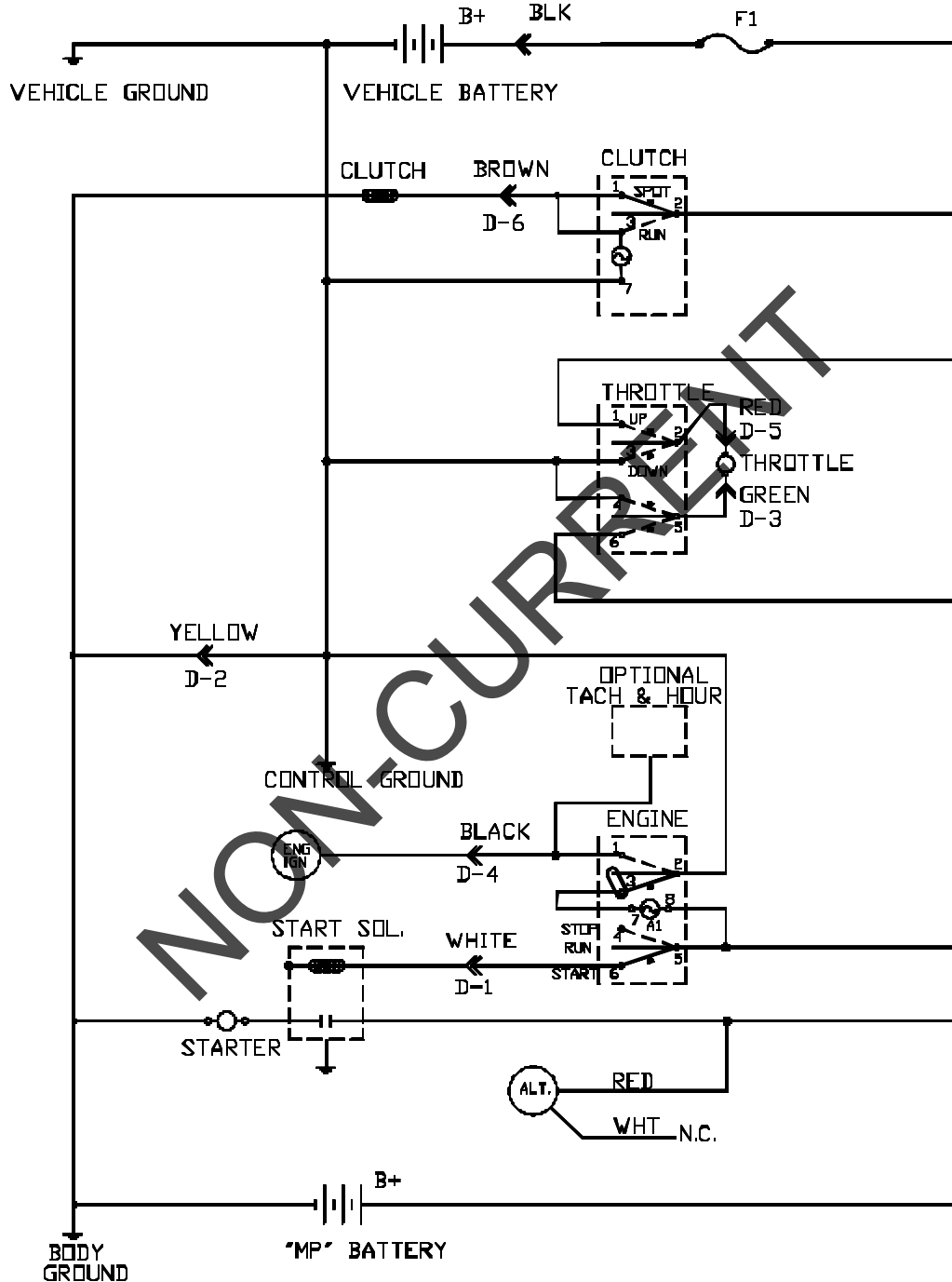
Operating pressure: 900 – 1200 PSI
 Relief at: 1500 PSI
 Flow, Dual: 12 GPM

DUAL HYDRAULICS SCHEMATIC



TROUBLESHOOTING CONTINUED

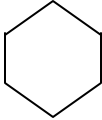
WIRING SCHEMATIC



Attach black wire of two-conductor cable to a switched circuit and white wire to a ground.
 NOTE: Disconnect vehicle battery prior to making any electrical connections.

STANDARD TORQUES NATIONAL COARSE (NC) CAP SCREWS

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

INSTRUCTIONS FOR ORDERING PARTS



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 street 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.

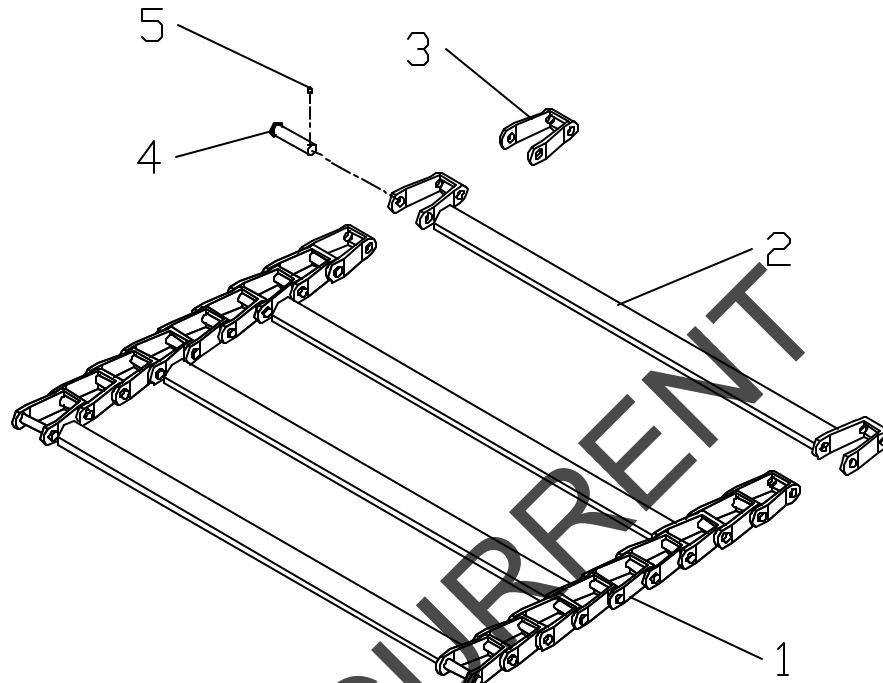
When broken goods are received, a full description of the damage should be made by the carrier agent on the freight bill. If this description is insisted upon, full damage can always be collected from the transportation company.

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.



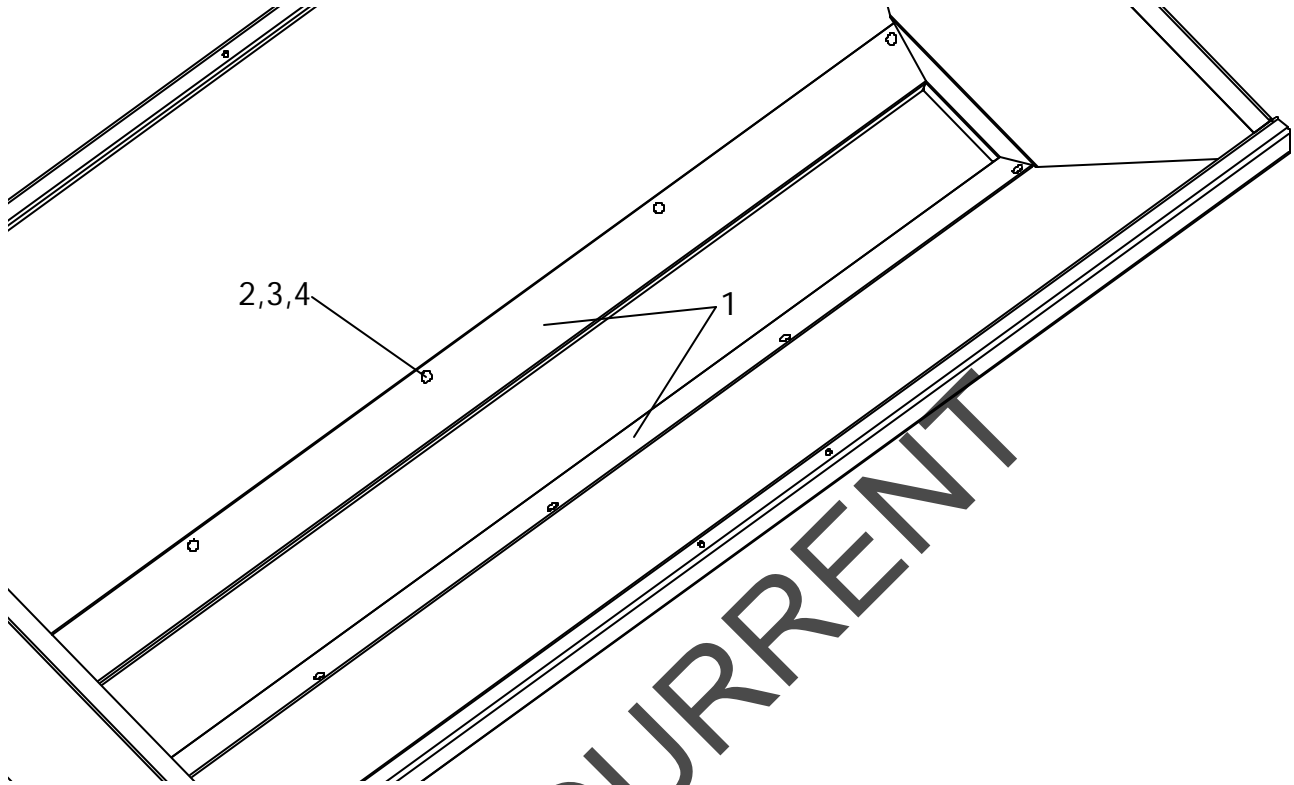
CONVEYOR CHAIN



<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
1	26613	Chain – Conveyor Assembly, 6’ Unit	1
	26614	Chain – Conveyor Assembly, 7’ Unit	1
	34066	Chain – Conveyor Assembly, 8’ Unit	1
	99785	Chain – Conveyor Assembly, 9’ Unit	1
	34066-X2	Chain – Conveyor Assembly, 10’ Unit	1
2	26700	Bar – Chain Weldment	AR
3	26701	Link – Chain	AR
4	26702	Pin – Chain	AR
5	20811	Pin – Cotter	AR

AR – As Required

CHAIN SHIELDS



<u>ITEM</u>	<u>PART NO.</u>			<u>DESCRIPTION</u>	<u>QTY</u>
	CS	409 SS	304 SS		
	99895	99897	99896	Shield – Chain Group 6’ Unit	
	99898	99900	99899	Shield – Chain Group 7’ Unit	
	99569	99901	99657	Shield – Chain Group 8’ Unit	
	99902	99904	99903	Shield – Chain Group 9’ Unit	
	99669	99906	99905	Shield – Chain Group 10’ Unit	
1	99819	99821	99820	Shield – Chain 6’ Unit	2
	99822	99824	99823	Shield – Chain 7’ Unit	2
	99425	99825	99600	Shield – Chain 8’ Unit	2
	99826	99828	99827	Shield – Chain 9’ Unit	2
	99589	99829	99601	Shield – Chain 10’ Unit	2
2	20318	36408	36408	Bolt – Carriage 3/8 x 1	AR
3	20712	36420	36420	Washer – Lock 3/8	AR
4	20644	36414	36414	Nut – Hex 3/8	AR

CS – Carbon Steel

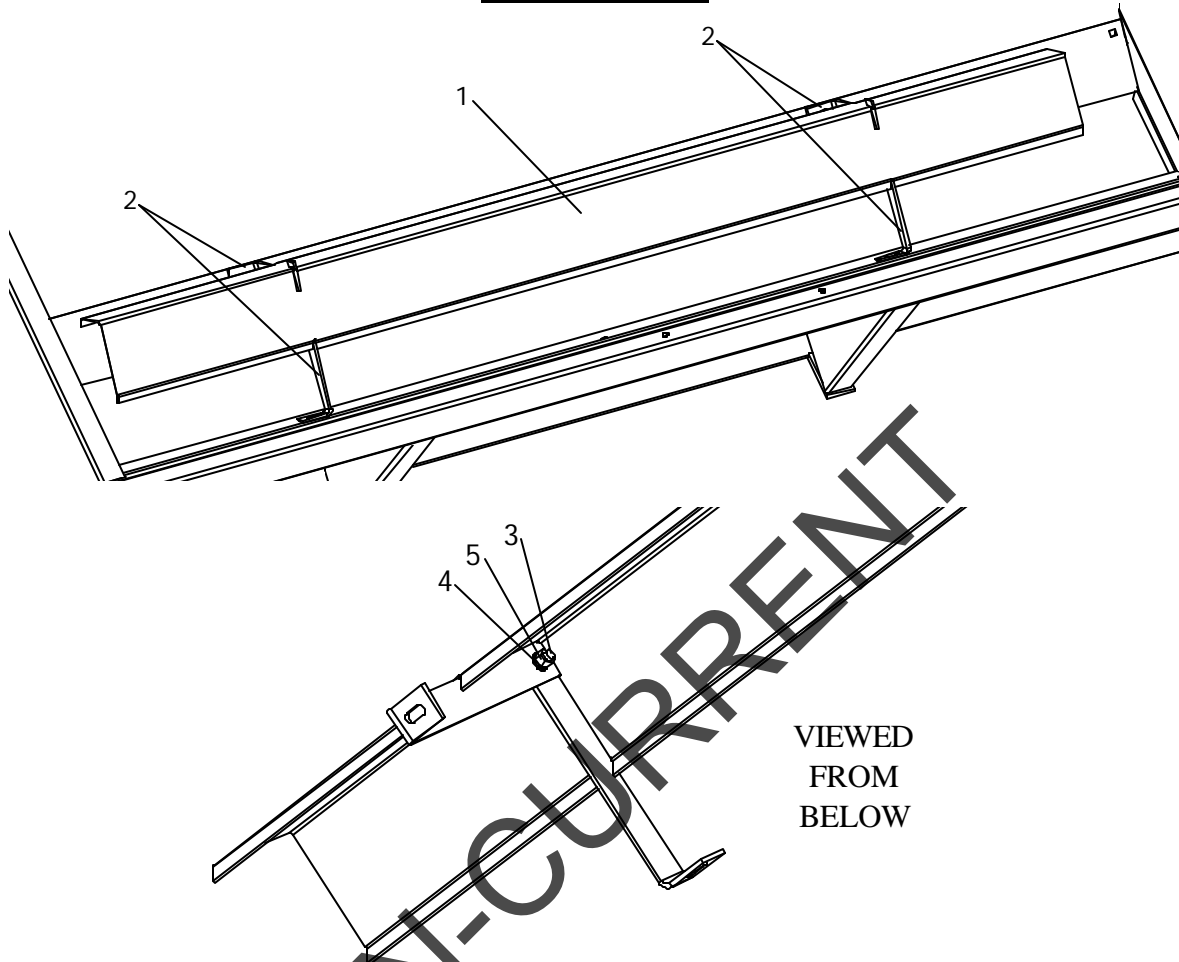
SS – Stainless Steel

AR – As Required



Please Give Part No., Description and Unit Serial No. 99552-B

INVERTED "V"



VIEWED
FROM
BELOW

<u>ITEM</u>	<u>PART NO.</u>			<u>DESCRIPTION</u>	<u>QTY</u>
	CS	409 SS	304 SS		
	99909	99911	99910	"V" – Inverted Assembly, 6' Unit	
	99912	99914	99913	"V" – Inverted Assembly, 7' Unit	
	99570	99915	99658	"V" – Inverted Assembly, 8' Unit	
	99916	99918	99917	"V" – Inverted Assembly, 9' Unit	
	99670	99920	99919	"V" – Inverted Assembly, 10' Unit	
1	99830	99832	99831	"V" – Inverted for 6' Unit	1
	99833	99835	99834	"V" – Inverted for 7' Unit	1
	99536	99836	99596	"V" – Inverted for 8' Unit	1
	99837	99839	99838	"V" – Inverted for 9' Unit	1
	99587	99840	99597	"V" – Inverted for 10' Unit	1
2	99537	99921	99642	Support – "V"	4
3	20067	36398	36398	Cap Screw – 3/8 x 1	2
4	20712	36420	36420	Washer – Lock 3/8	2
5	20644	36414	36414	Nut – Hex 3/8	2

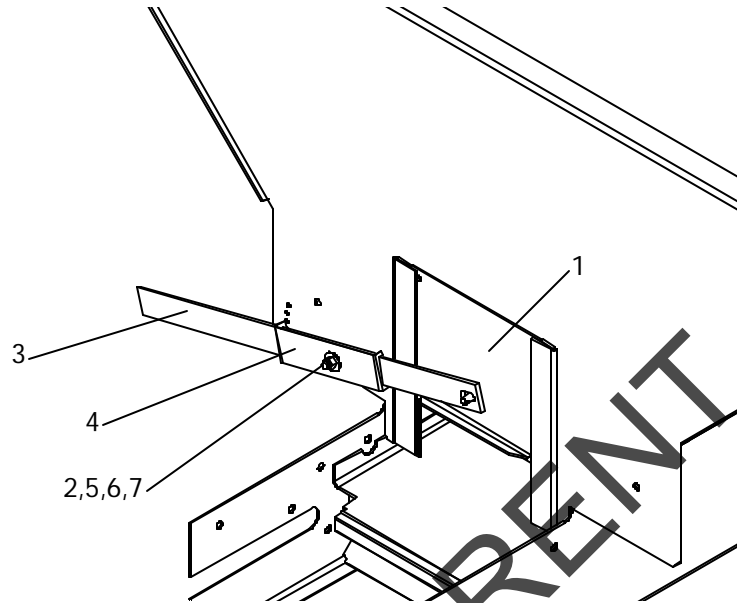
CS – Carbon Steel SS – Stainless Steel

Note: Use hardware from chain shields to install "V".



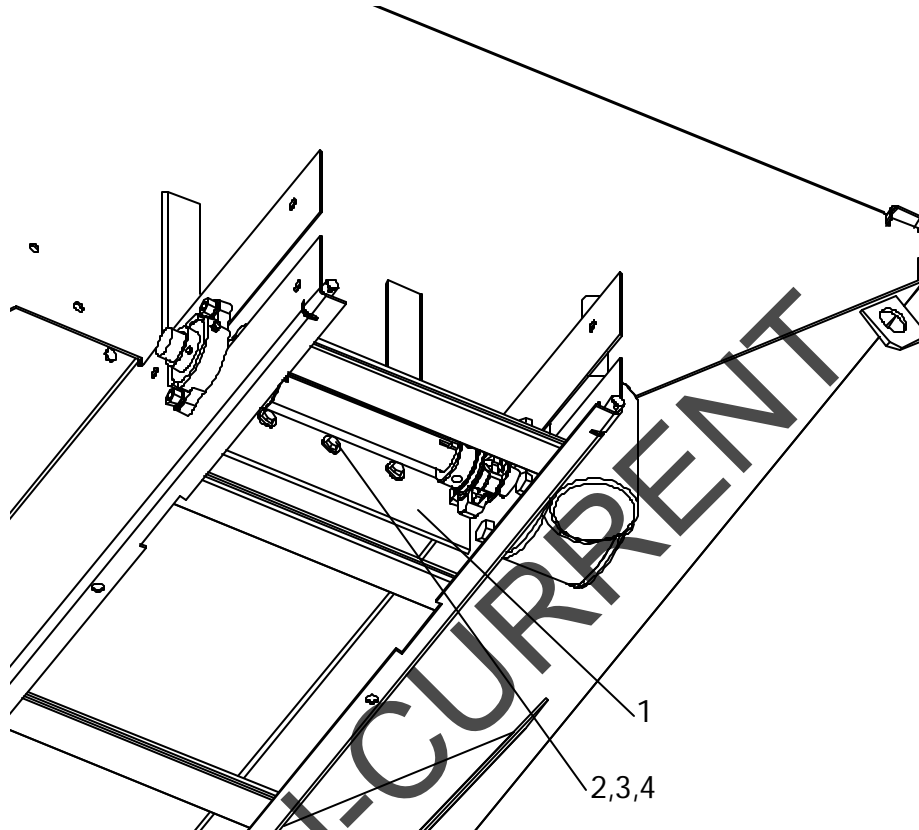
Please Give Part No., Description and Unit Serial No. 99552-B

FEEDGATE



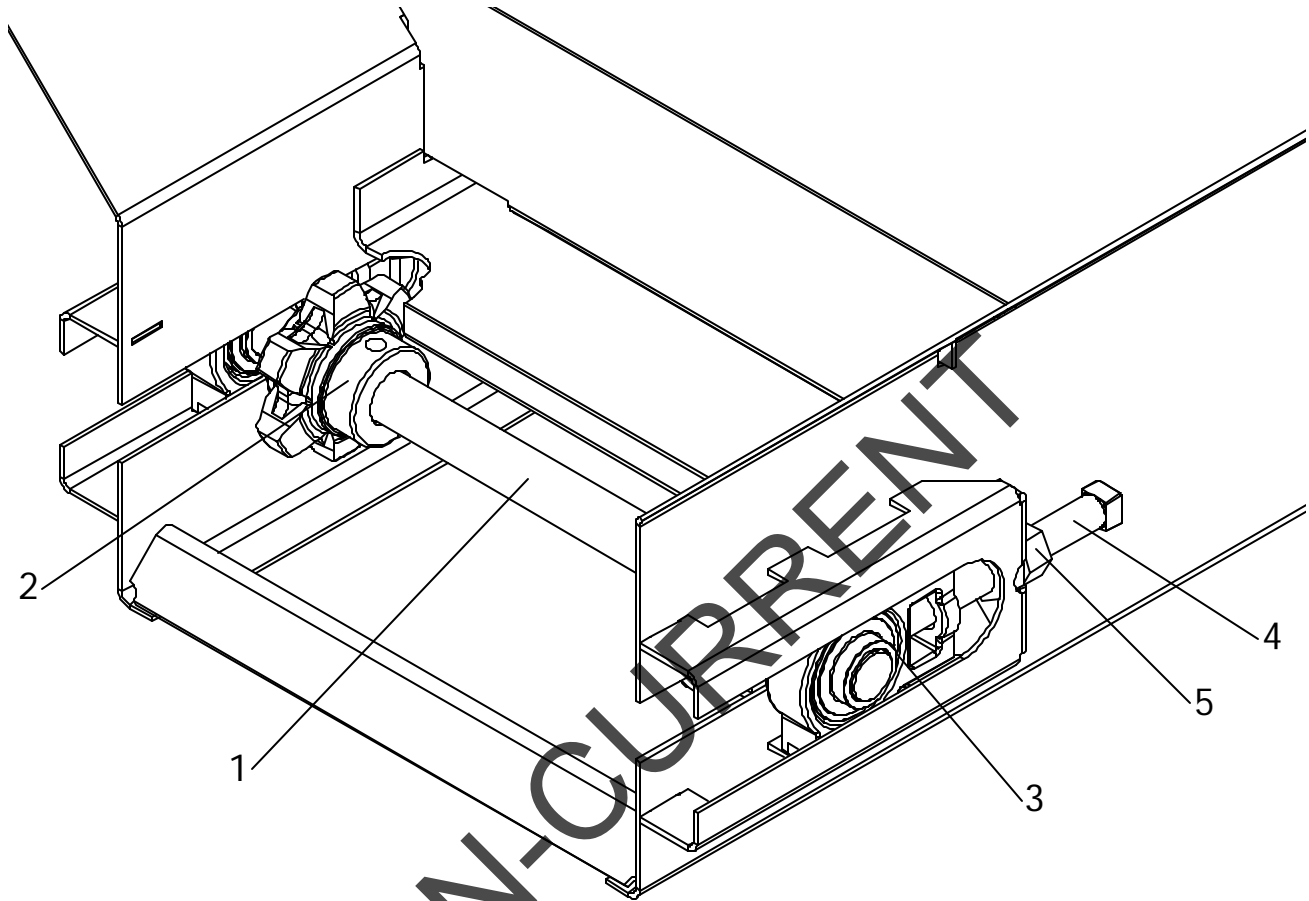
<u>ITEM</u>	<u>PART NO.</u>			<u>DESCRIPTION</u>	<u>QTY</u>
	CS	409 SS	304 SS		
	99438	99889	99555	Feedgate Assembly	
1	99442	99888	99649	Feedgate Weldment	1
2	96154	96154	96154	Spacer – Handle, After SO 115269	1
	99647	99647	99647	Spacer – Handle, Prior to SO 115269	1
3	96153	96153	96153	Handle – Feedgate, After SO 115269	1
	99436	99436	99436	Handle – Feedgate, Prior to SO 115269	1
4	96155	96155	96155	Spring – Handle, After SO 115269	1
	99732	99732	99732	Spring – Handle, Prior to SO 115269	1
5	20069	34858	34858	Cap Screw – 3/8 x 1 1/2	1
6	36425	36425	36425	Washer – Flat 3/8	2
7	20678	72054	72054	Nut – Lock 3/8	1
CS – Carbon Steel		SS – Stainless Steel			

CONVEYOR WIPER



<u>ITEM</u>	<u>PART NO.</u>		<u>DESCRIPTION</u>	<u>QTY</u>
	CS	304/409 SS		
1	27141	27141	Belt – Wiper	1
2	20005	36395	Cap Screw – 1/4 x 1	5
3	20691	36423	Washer – Flat 1/4	5
4	20642	36412	Nut – Hex 1/4	5

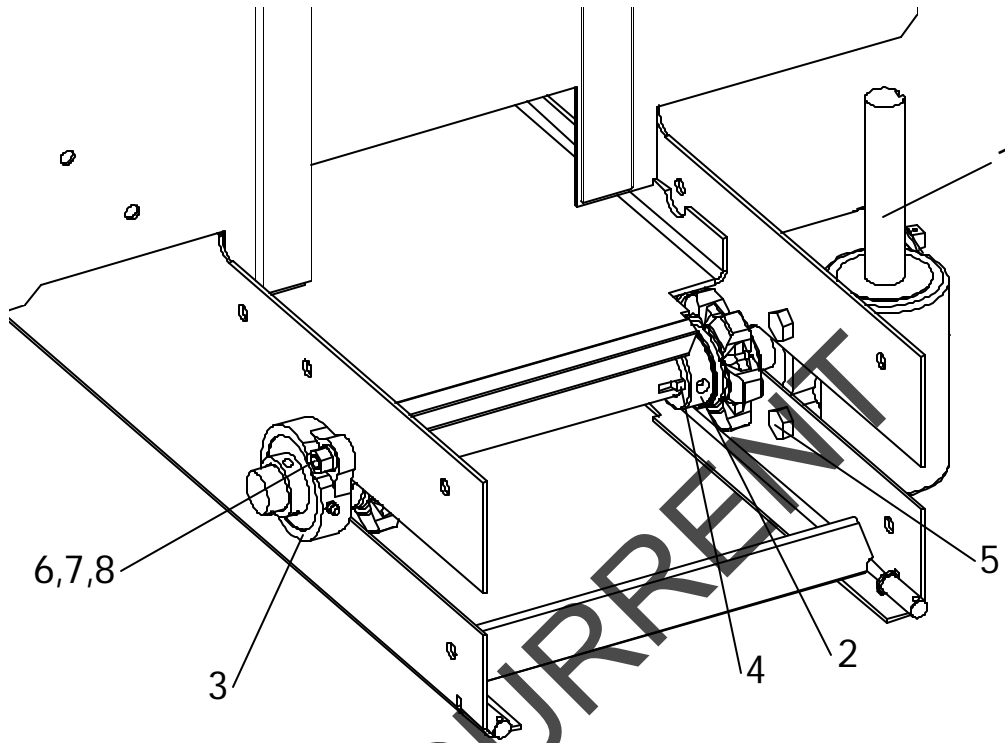
CONVEYOR IDLER



<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
	CS 304/409 SS		
	99439 99656	Idler – Conveyor Assembly	
	99666 99666	Idler – Shaft Assembly, Includes Items 1-3	
1	99416 99416	Shaft – Idler	2
2	99413 99413	Sprocket – Idler	2
3	99415 99415	Bearing	2
4	21398 77074	Screw – 5/8 Take-up	2
5	20648 36417	Nut – Hex 5/8	2

CS – Carbon Steel SS – Stainless Steel

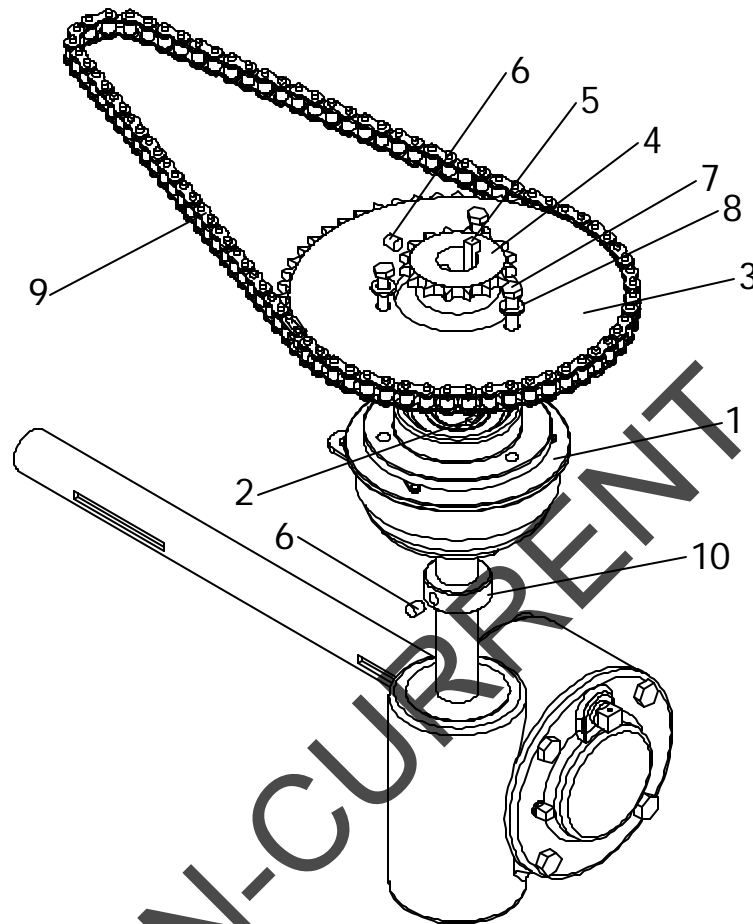
CONVEYOR DRIVE



<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
	CS 304/409 SS		
	99432 99663	Drive – Conveyor Assembly	
	99667 99667	Drive – Assembly, Includes Items 1-4	
1	99408 99408	Gear Case	1
2	99414 99414	Sprocket – Drive	2
3	22568 22568	Bearing	2
4	2152 2152	Key – Square	2
5	20127 36401	Cap Screw – 1/2 x 1	3
6	20068 36399	Cap Screw – 3/8 x 1 1/4	2
7	20712 36420	Washer – Lock 3/8	2
8	20644 36414	Nut – Hex 3/8	2

CS – Carbon Steel SS – Stainless Steel

CLUTCH



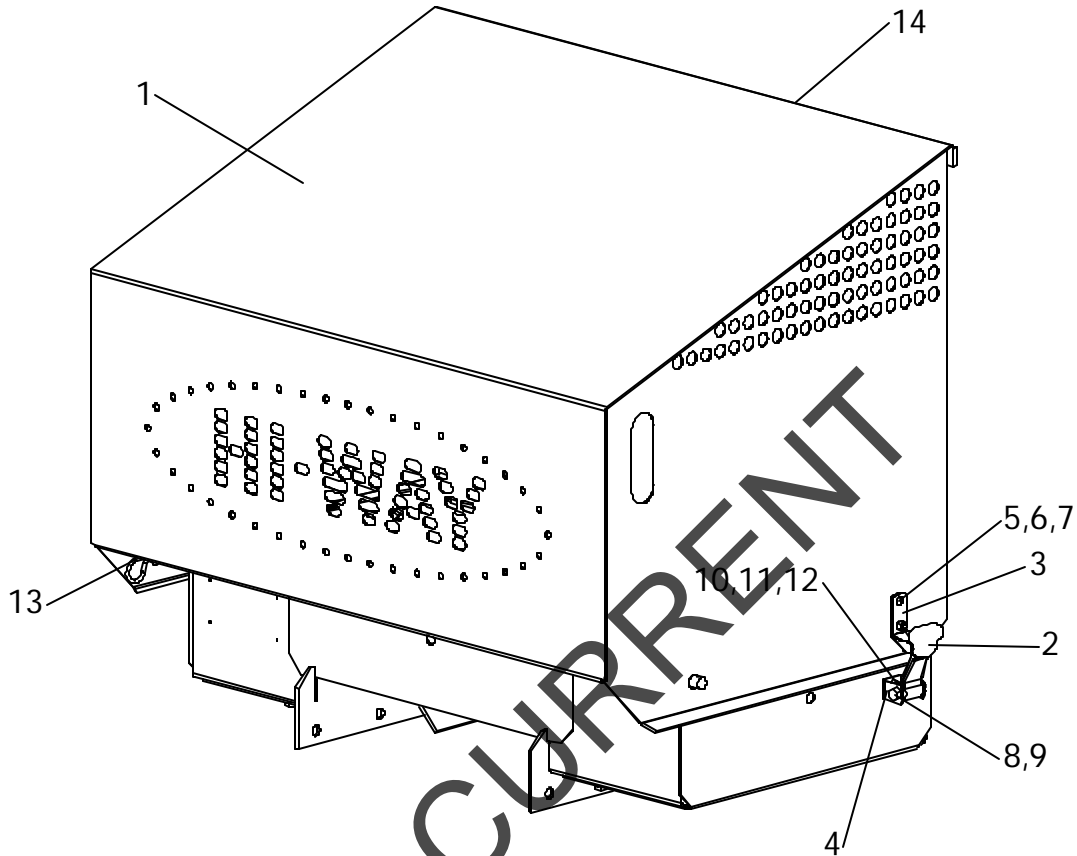
<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
	99687	Clutch Assembly	
1	79695	Clutch – Electric Assembly	1
2	82466	Key	1
3	11775	Sprocket – Clutch	1
4	26810	Sprocket – 16 Tooth	1
5	2211	Key – Square	1
6	20748	Screw – Set	2
7	20033	Cap Screw – 5/16 x 5/8	3
8	20711	Washer – Lock 5/16	3
9	99533	Chain Assembly	1
	23744	Chain – Roller (Length)	AR
	23745	Link – Connecting	1
10	2696	Collar	1

AR – As Required



Please Give Part No., Description and Unit Serial No. 99552-B

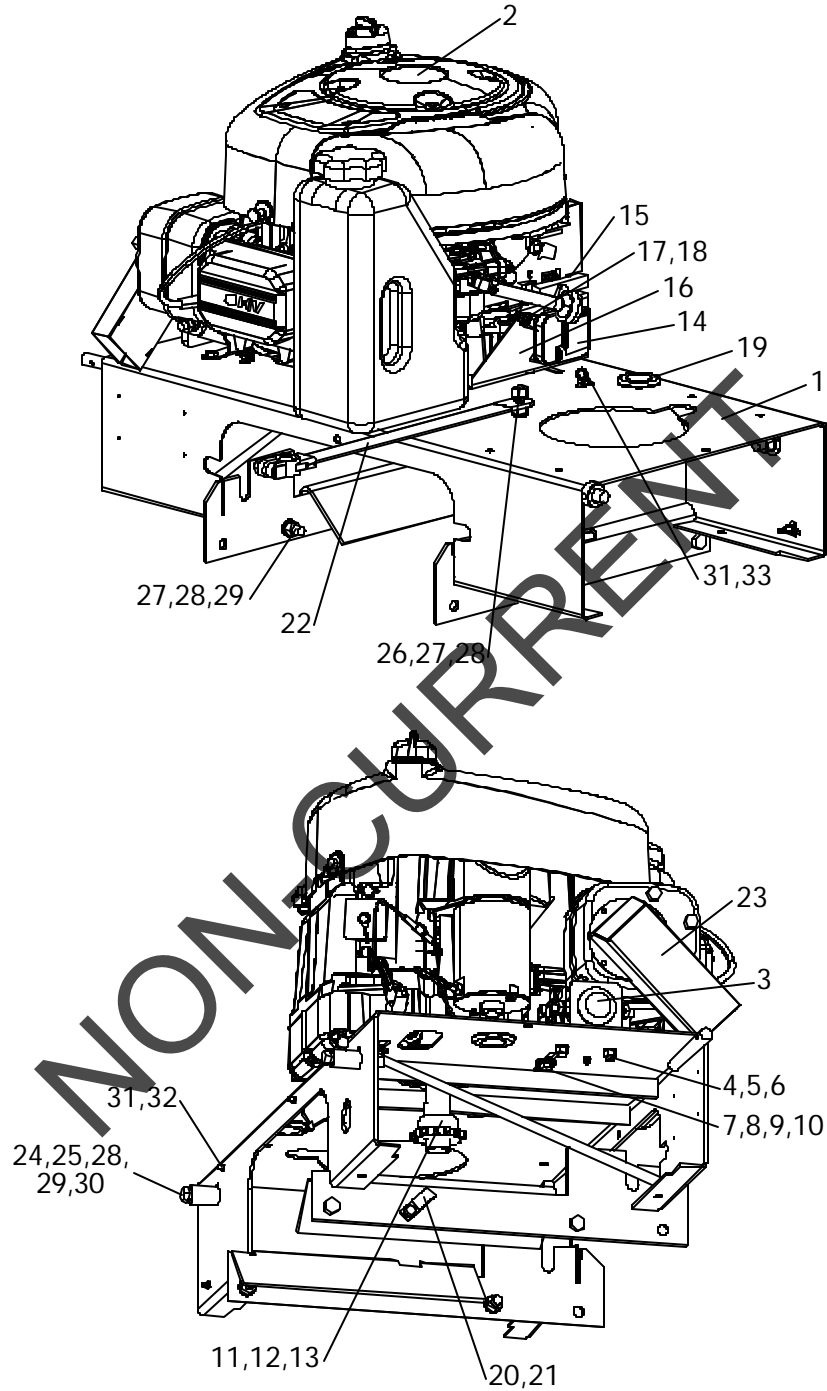
ENGINE HOOD



<u>ITEM</u>	<u>PART NO.</u>			<u>DESCRIPTION</u>	<u>QTY</u>
	CS	409 SS	304 SS		
	99583	96004	99862	Hood – Engine Assembly	
1	99728	96003	99729	Hood Weldment	1
2	73343	73343	73343	Hook – Rubber	2
3	57086	57086	57086	Bracket – Hood	2
4	73344	73344	73344	Bracket – Anchor	2
5	20570	44452	44452	Screw – Round Head #10 x 1/2	4
6	20709	44451	44451	Washer – Lock #10	4
7	20641	47295	47295	Nut – Hex #10	4
8	20007	40750	40750	Cap Screw – 1/4 x 1 1/4	2
9	20676	42034	42034	Nut – Lock 1/4	2
10	20033	56858	56858	Cap Screw – 5/16 x 5/8	2
11	20711	36419	36419	Washer – Lock 5/16	2
12	20643	36413	36413	Nut – Hex 5/16	2
13	36429	36429	36429	Pin – Hair	1
14	84281	84281	84281	Strip – Rubber	1

CS – Carbon Steel SS – Stainless Steel

ENGINE DRIVE – 9 HP BRIGGS & STRATTON



<u>ITEM</u>	<u>PART NO.</u>			<u>DESCRIPTION</u>	<u>QTY</u>
	CS	409 SS	304 SS		
	301246	301247	301248	Engine Assembly – 9 HP B&S	
1	99567	96019	99651	Mount – Engine Weldment	1

ENGINE DRIVE – 9 HP B&S CONTINUED

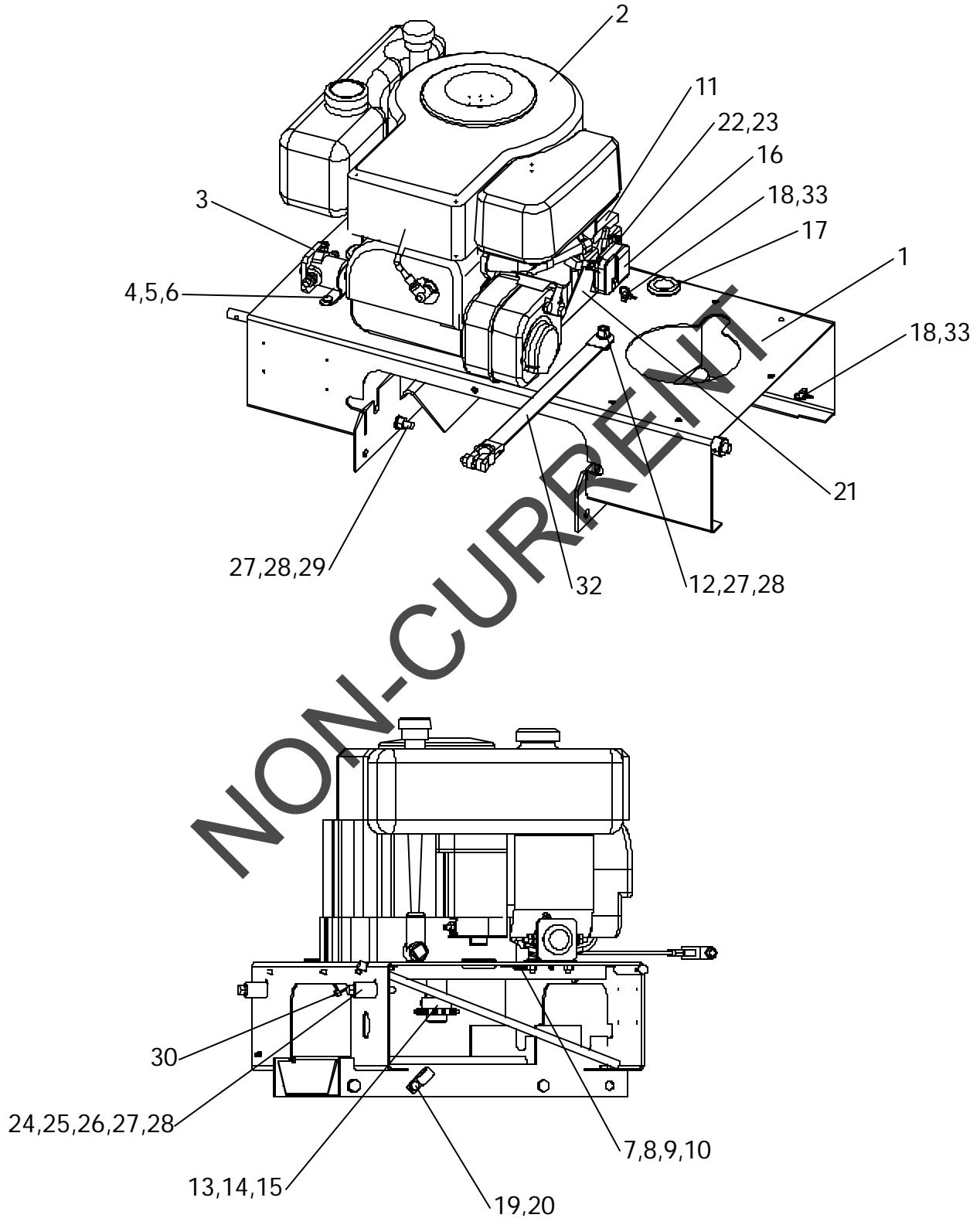
<u>ITEM</u>	<u>PART NO.</u>			<u>DESCRIPTION</u>	<u>QTY</u>
	CS	409 SS	304 SS		
2	301242	301242	301242	Engine – 9 HP B&S	1
3	18101	18101	18101	Solenoid	1
4	20002	36393	36393	Cap Screw – 1/4 x 5/8	2
5	20710	36418	36418	Washer – Lock 1/4	2
6	20642	36412	36412	Nut – Hex 1/4	2
7	20038	36397	36397	Cap Screw – 5/16 x 1 1/2	4
8	20692	36424	36424	Washer – Flat 5/16	4
9	20711	36419	36419	Washer – Lock 5/16	4
10	20643	36413	36413	Nut – Hex 5/16	2
11	26688	26688	26688	Sprocket	1
12	2212	2212	2212	Key	1
13	20735	20735	20735	Screw – Set	2
14	47444	47444	47444	Throttle – Electric	1
15	47447	47447	47447	Block – Throttle	1
16	99746	99746	99746	Bracket – Throttle 10.5 HP	1
17	47254	47254	47254	Screw – Round Head #8 x .75	3
18	45168	45168	45168	Nut – Lock #8	3
19	24812	24812	24812	Grommet	2
20	36987	36987	36987	Clamp	1
21	72071	72071	72071	Screw – Self Tapping	1
22	6203	6203	6203	Strap – Ground	1
23	97703-X1	97703-X1	97703-X1	Exhaust – Weldment Formed	1
24	20072	71828	71828	Cap Screw – 3/8 x 2 1/4	2
25	99572	99572	99572	Spacer	2
26	20068	36399	36399	Cap Screw – 3/8 x 1 1/4	1
27	20067	36398	36398	Cap Screw – 3/8 x 1	4
28	20712	26420	26420	Washer – Lock 3/8	8
29	20644	36414	36414	Nut – Hex 3/8	8
30	20693	36425	36425	Washer – Flat 3/8	2
31	99675	99675	99675	Base – Wire Tie	6
32	99674	99674	99674	Tie – Wire	2
33	1602	1602	1602	Tie – Wire	4
34	* 26990	26990	26990	Cable Assembly – Solenoid to Starter	1
35	* 31572	31572	31572	Terminal – Ring	1
36	* 6488	6488	6488	Connector – Wire Male	1
37	* 6549	6549	6549	Connector – Butt Splice	1
38	* 99723	99723	99723	Harness – Engine	1

CS – Carbon Steel SS – Stainless Steel * - Not Shown



Please Give Part No., Description and Unit Serial No. 99552-B

ENGINE DRIVE – 10.5 HP BRIGGS & STRATTON



ENGINE DRIVE – 10.5 HP B&S CONTINUED

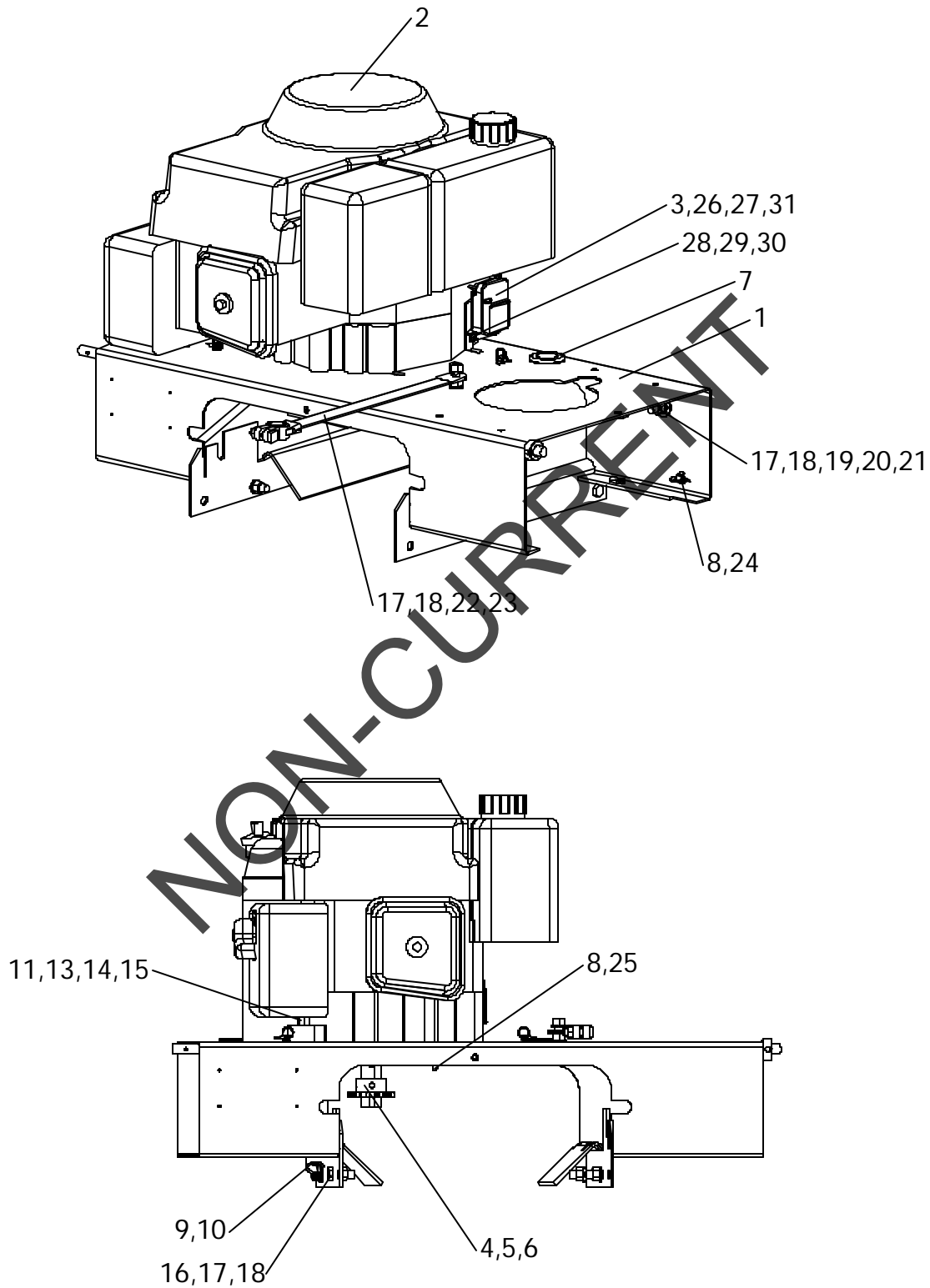
<u>ITEM</u>	<u>PART NO.</u>			<u>DESCRIPTION</u>	<u>QTY</u>
	CS	409 SS	304 SS		
	99681	96022	99689	Engine Assembly – 10.5 HP B&S	
1	99567	96019	99651	Mount – Engine Weldment	1
2	85009	85009	85009	Engine – 10.5 HP B&S	1
3	18101	18101	18101	Solenoid	1
4	20002	36393	36393	Cap Screw – 1/4 x 5/8	2
5	20710	36418	36418	Washer – Lock 1/4	2
6	20642	36412	36412	Nut – Hex 1/4	2
7	20038	36397	36397	Cap Screw – 5/16 x 1 1/2	4
8	20692	36424	36424	Washer – Flat 5/16	4
9	20711	36419	36419	Washer – Lock 5/16	4
10	20643	36413	36413	Nut – Hex 5/16	2
11	47447	47447	47447	Block – Throttle	1
12	20068	36399	36399	Cap Screw – 3/8 x 1 1/4	1
13	26688	26688	26688	Sprocket	1
14	2212	2212	2212	Key	1
15	20735	20735	20735	Screw – Set	2
16	47444	47444	47444	Throttle – Electric	1
17	24812	24812	24812	Grommet	2
18	99675	99675	99675	Base – Wire Tie	6
19	36987	36987	36987	Clamp	1
20	72071	72071	72071	Screw – Self Tapping	1
21	99746	99746	99746	Bracket – Throttle 10.5 HP	1
22	47254	47254	47254	Screw – Round Head #8 x .75	3
23	45168	45168	45168	Nut – Lock #8	3
24	20072	71828	71828	Cap Screw – 3/8 x 2 1/4	2
25	99572	99572	99572	Spacer	2
26	20693	36425	36425	Washer – Flat 3/8	2
27	20644	36414	36414	Nut – Hex 3/8	8
28	20712	26420	26420	Washer – Lock 3/8	8
29	20067	36398	36398	Cap Screw – 3/8 x 1	4
30	99674	99674	99674	Wire – Tie	2
31	* 99723	99723	99723	Harness – Engine	1
32	6203	6203	6203	Strap – Ground	1
33	1602	1602	1602	Wire – Tie	4
34	* 26990	26990	26990	Cable Assembly – Solenoid to Starter	1
35	* 6488	6488	6488	Connector – Kill Wire	1

CS – Carbon Steel SS – Stainless Steel * - Not Shown



Please Give Part No., Description and Unit Serial No. 99552-B

ENGINE DRIVE - 11 HP HONDA



ENGINE DRIVE – 11 HP HONDA CONTINUED

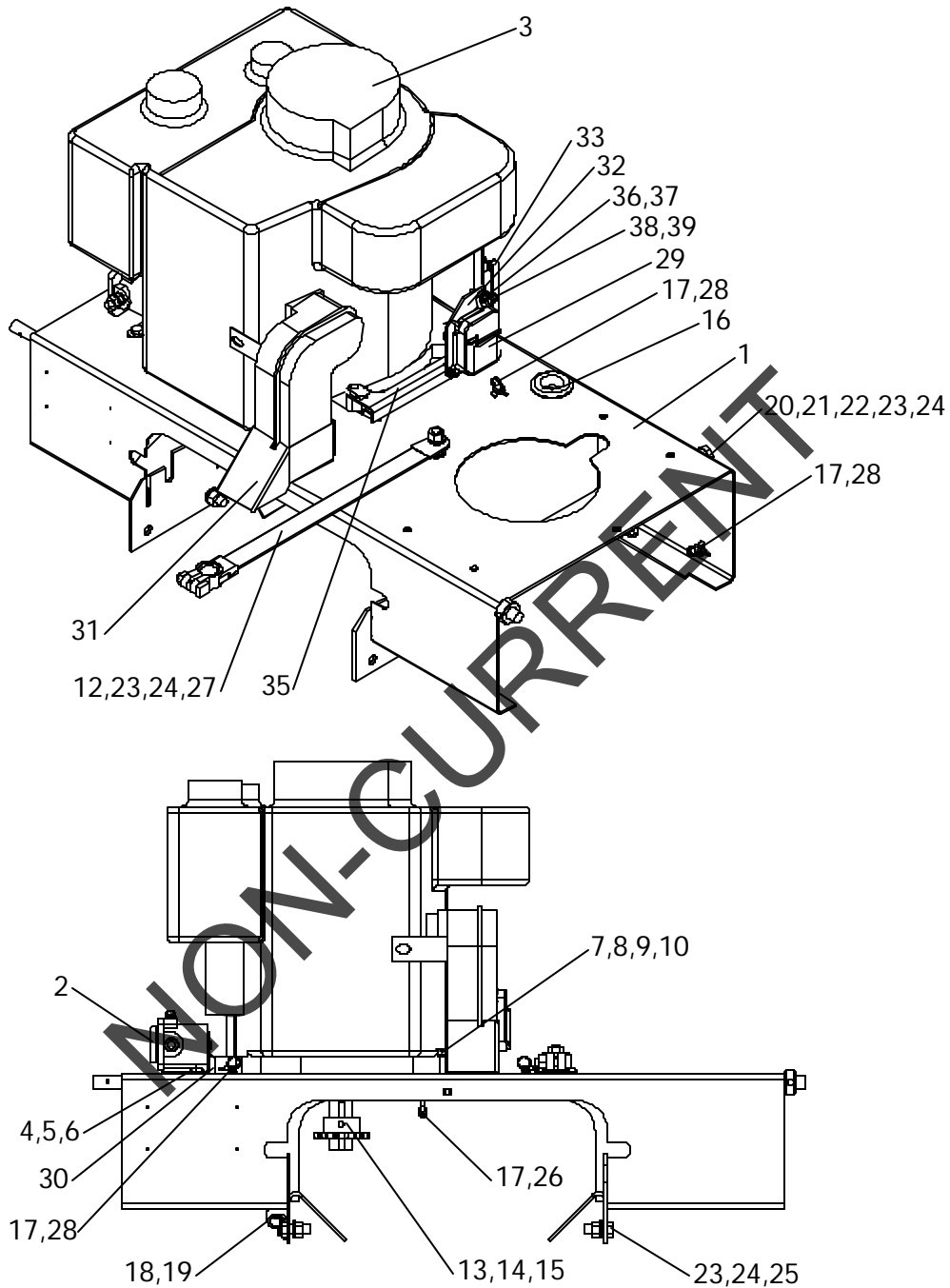
<u>ITEM</u>	<u>PART NO.</u>			<u>DESCRIPTION</u>	<u>QTY</u>
	CS	409 SS	304 SS		
	99682	96023	99690	Engine Assembly – 11 HP Honda	
1	99567	96019	99651	Mount – Engine Weldment	1
2	99407	99407	99407	Engine – 11 HP Honda	1
3	47444	47444	47444	Throttle – Electric	1
4	26688	26688	26688	Sprocket	1
5	2212	2212	2212	Key	1
6	20735	20735	20735	Screw – Set	2
7	24812	24812	24812	Grommet	2
8	99675	99675	99675	Base – Wire Tie	6
9	36987	36987	36987	Clamp	1
10	72071	72071	72071	Screw – Self Tapping	1
11	20038	36397	36397	Cap Screw – 5/16 x 1 1/2	2
12	* 221154	221154	221154	Cap Screw – 5/16 x 3/4 (engine mount)	2
13	20711	36419	36419	Washer – Lock 5/16	4
14	20692	36424	36424	Washer – Flat 5/16	4
15	20643	36413	36413	Nut – Hex 5/16	2
16	20067	36398	36398	Cap Screw – 3/8 x 1	4
17	20712	36420	36420	Washer – Lock 3/8	8
18	20644	36414	36414	Nut – Hex 3/8	8
19	20072	71828	71828	Cap Screw – 3/8 x 2 1/4	2
20	99572	99572	99572	Spacer	2
21	20693	36425	36425	Washer – Flat 3/8	2
22	20068	36399	36399	Cap Screw – 3/8 x 1 1/4	1
23	6203	6203	6203	Strap – Ground	1
24	1602	1602	1602	Wire – Tie	4
25	99674	99674	99674	Wire – Tie	2
26	88511	88511	88511	Bracket – Throttle	1
27	99574	99574	99574	Linkage – Throttle	1
28	47254	47254	47254	Screw – Round Head #8 x 1 3/4	3
29	45168	45168	45168	Nut – Lock #8	3
30	99679	99679	99679	Retainer	1
31	99678	99678	99678	Screw – Pan Head #5 x 12	1
32	* 99724	99724	99724	Harness – Engine Assy	1
33	* 99716	99716	99716	Wire Assembly – Charger	1
34	* 96243	96243	96243	Spring – Choke	1

CS – Carbon Steel SS – Stainless Steel * - Not Shown



Please Give Part No., Description and Unit Serial No. 99552-B

ENGINE DRIVE - 10 HP TECUMSEH



<u>ITEM</u>	<u>PART NO.</u>			<u>DESCRIPTION</u>	<u>QTY</u>
	CS	409 SS	304 SS		
	99883	96029	99886	Engine Assembly - 10 HP Tecumseh	
1	99567	96019	99651	Mount - Engine Weldment	1
2	18101	18101	18101	Switch - Magnetic	1
3	99884	99884	99884	Engine 10 HP Tecumseh	1

ENGINE DRIVE – 10 HP TECUMSEH CONTINUED

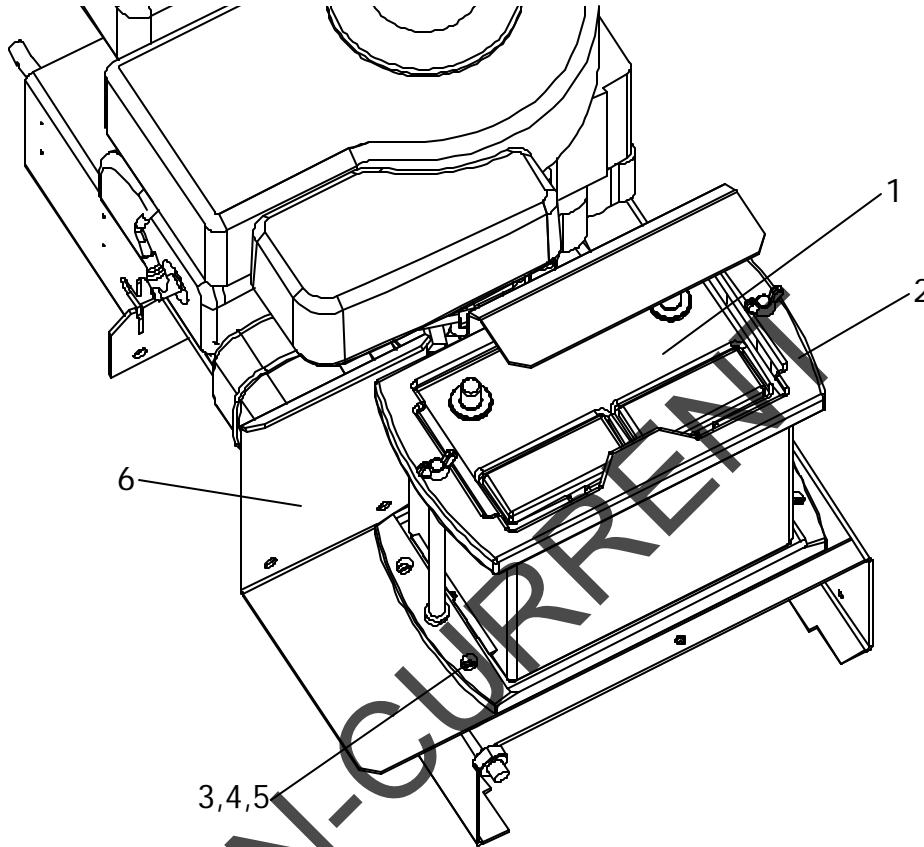
<u>ITEM</u>		<u>PART NO.</u>		<u>DESCRIPTION</u>	<u>QTY</u>
	CS	409 SS	304 SS		
4	20002	36393	36393	Cap Screw – 1/4 x 5/8	2
5	20710	36418	36418	Washer – Lock 1/4	2
6	20642	36412	36412	Nut – Hex 1/4	2
7	20038	36397	36397	Cap Screw – 5/16 x 1 1/2	4
8	20692	36424	36424	Washer – Flat 5/16	4
9	20711	36419	36419	Washer – Lock 5/16	4
10	20643	36413	36413	Nut – Hex 5/16	2
11	* 26990	26990	26990	Cable Assembly – Solenoid to Starter	1
12	20068	36399	36399	Cap Screw – 3/8 x 1 1/4	1
13	26688	26688	26688	Sprocket	1
14	2212	2212	2212	Key	1
15	20735	20735	20735	Screw – Set 1/4	2
16	24812	24812	24812	Grommet	2
17	99675	99675	99675	Base – Wire Tie	6
18	36987	36987	36987	Clamp	1
19	72071	72071	72071	Screw – Self Tapping	1
20	20072	71828	71828	Cap Screw – 3/8 x 2 1/4	2
21	99572	99572	99572	Spacer	2
22	20693	36425	36425	Washer – Flat 3/8	2
23	20644	36414	36414	Nut – Hex 3/8	8
24	20712	36420	36420	Washer – Lock 3/8	8
25	20067	36398	36398	Cap Screw 3/8 x 1	4
26	99674	99674	99674	Tie – Wire	2
27	6203	6203	6203	Strap – Ground	1
28	1602	1602	1602	Tie – Wire	4
29	47444	47444	47444	Throttle – Electric	1
30	6013	6013	6013	Adapter – Elbow	1
31	99843	99843	99843	Muffler Weldment	1
32	99768	99768	99768	Bracket – Throttle	1
33	99769	99769	99769	Linkage – Throttle	1
34	* 99679	99679	99679	Retainer (Holds Item 33 on Item 29)	1
35	96057	96057	96057	Bracket – Engine Nut	1
36	47254	47254	47254	Screw – Machine #8 x 3/4	3
37	45168	45168	45168	Nut – Lock #8	3
38	44451	44451	44451	Washer – Lock #10	1
39	99908	99908	99908	Screw – Machine #10x 1/2	1
40	* 99885	99885	99885	Harness – Engine Assembly	1

CS – Carbon Steel SS – Stainless Steel * - Not Shown



Please Give Part No., Description and Unit Serial No. 99552-B

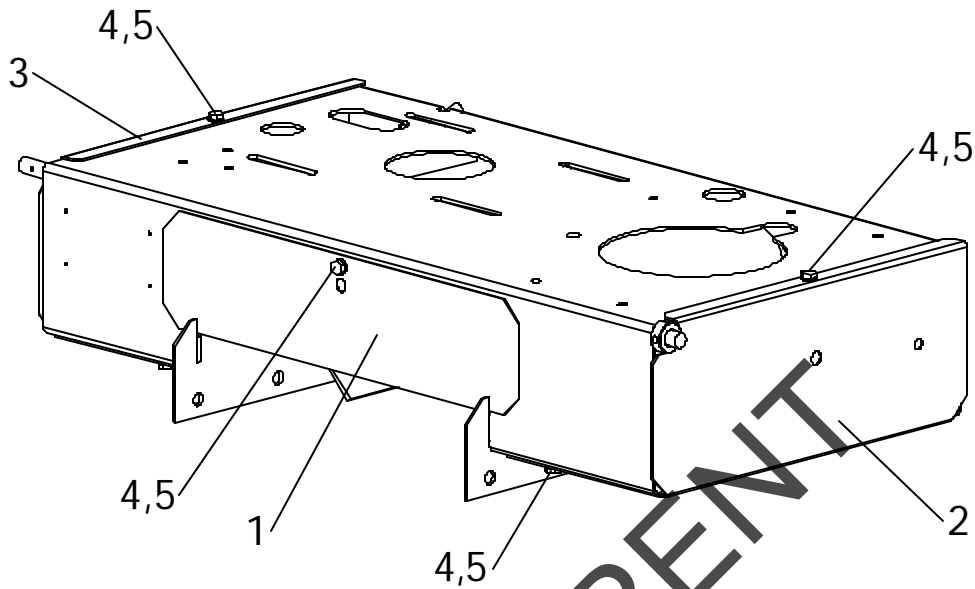
BATTERY



NON-CURRENT

<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
1	6399	Battery	1
2	99584	Hold Down – Battery	1
3	20583	Screw – Button Head 1/4 x 3/4	4
4	20710	Washer – Lock 1/4	4
5	20642	Nut – Hex 1/4	4
6	99727	Shield – Battery	1

GUARD – ENGINE/HYDRAULIC DRIVE



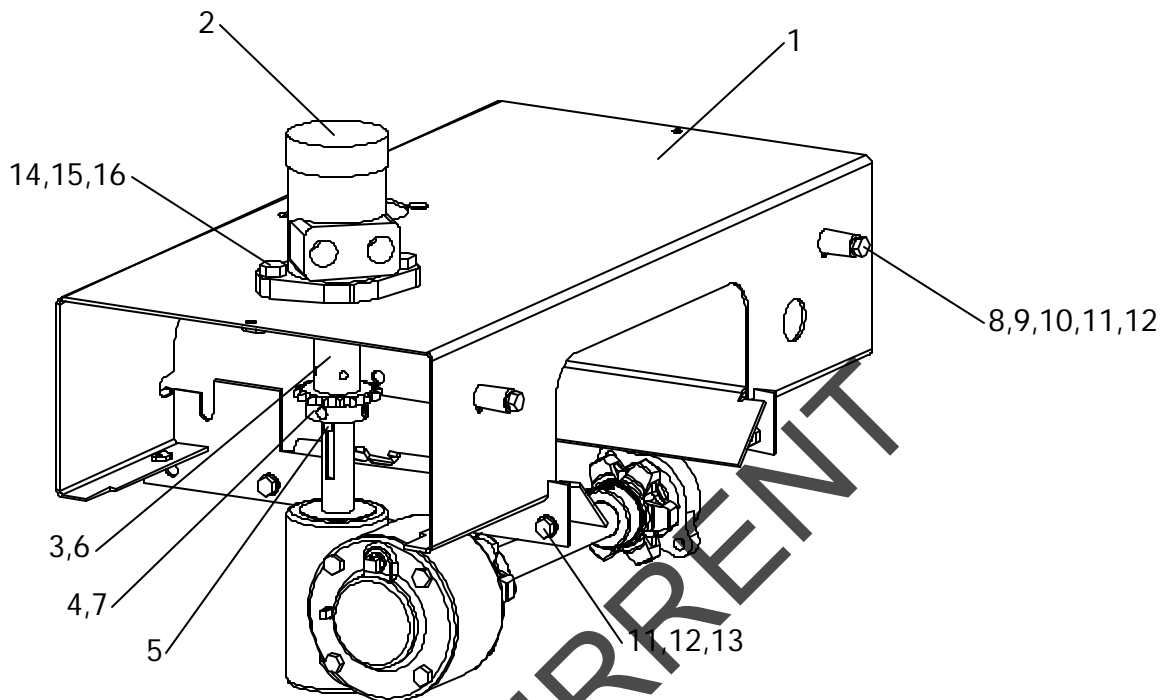
<u>ITEM</u>	<u>PART NO.</u>			<u>DESCRIPTION</u>	<u>QTY</u>
	CS	409 SS	304 SS		
	99578	96008	99659	Guard – Engine Assembly	
	* 99702	96014	96015	Guard – Single Hydraulic Assembly	
	* 99579	96011	99660	Guard – Dual Hydraulic Assembly	
1	99497	96005	99636	Guard – Rear Engine & Dual Hydraulic	1
	* 99703	96012	96013	Guard – Rear Single Hydraulic	1
2	99498	96006	99637	Guard – RH Engine	1
	* 99513	96009	99639	Guard – RH Hydraulic	1
3	99499	96007	99638	Guard – LH Engine	1
	* 99514	96010	99640	Guard – LH Hydraulic	1
4	20003	36393	36393	Cap Screw – 1/4 x 3/4	7
5	20710	36418	36418	Washer – Lock 1/4	7

CS – Carbon Steel

SS – Stainless Steel

* - Not Shown

HYDRAULIC DRIVE – SINGLE



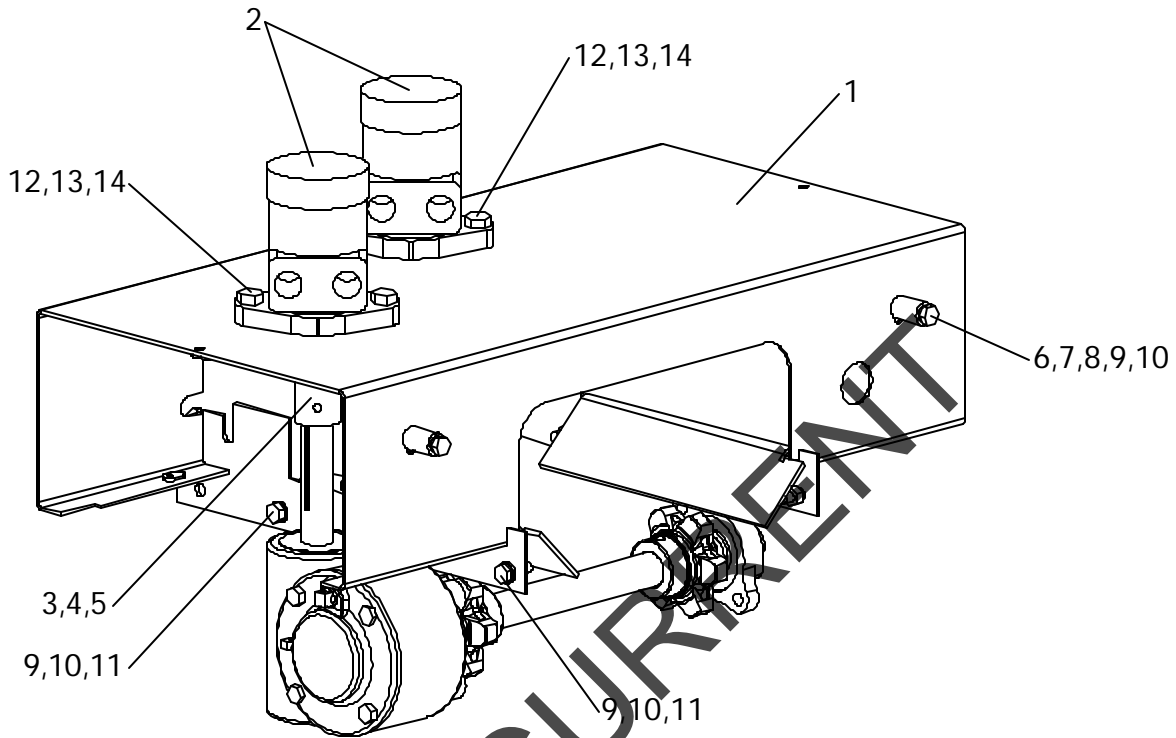
<u>ITEM</u>	<u>PART NO.</u>			<u>DESCRIPTION</u>	<u>QTY</u>
	CS	409 SS	304 SS		
	99700	96024	96025	Hydraulic Drive – Single Assembly	
1	88339	88340	88341	Mount – Hydraulic Weldment	1
2	37339	37339	37339	Motor – Hydraulic	1
3	11431	11431	11431	Coupling – Motor	1
4	26810	26810	26810	Sprocket	1
5	2211	2211	2211	Key	2
6	20735	20735	20735	Screw – Set	4
7	20748	20748	20748	Screw – Set	2
8	99572	99572	99572	Spacer – Engine Mount	2
9	20072	71828	71828	Cap Screw – 3/8 x 2 1/4	2
10	20693	36425	36425	Washer – Flat 3/8	2
11	20712	36420	36420	Washer – Lock 3/8	6
12	20644	36414	36414	Nut – Hex 3/8	6
13	20067	36398	36398	Cap Screw – 3/8 x 1	4
14	20129	36539	36539	Cap Screw – 1/2 x 1 1/2	2
15	20714	36422	36422	Washer – Lock 1/2	2
16	20646	36416	36416	Nut – Hex 1/2	2

CS – Carbon Steel SS – Stainless Steel



Please Give Part No., Description and Unit Serial No. 99552-B

HYDRAULIC DRIVE – DUAL



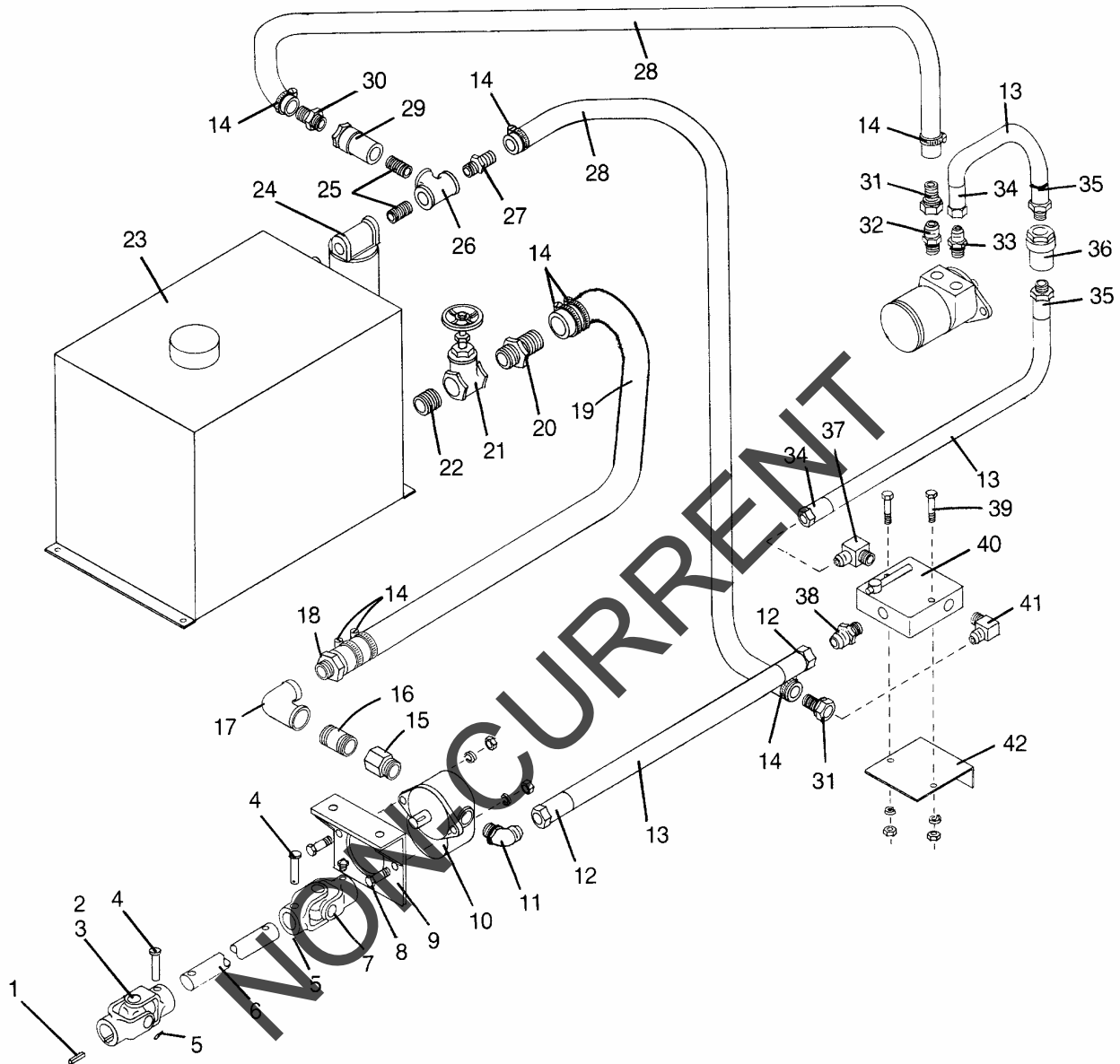
<u>ITEM</u>	<u>PART NO.</u>			<u>DESCRIPTION</u>	<u>QTY</u>
	CS	409 SS	304 SS		
	99701	96026	96027	Hydraulic Drive – Dual Assembly	
1	88339	88340	88341	Mount – Hydraulic Weldment	1
2	37339	37339	37339	Motor – Hydraulic	2
3	11431	11431	11431	Coupling – Motor	1
4	2211	2211	2211	Key	1
5	20735	20735	20735	Screw – Set	4
6	99572	99572	99572	Spacer – Engine Mount	2
7	20072	71828	71828	Cap Screw – 3/8 x 2 1/4	2
8	20693	36425	36425	Washer – Flat 3/8	2
9	20712	36420	36420	Washer – Lock 3/8	6
10	20644	36414	36414	Nut – Hex 3/8	6
11	20067	36398	36398	Cap Screw – 3/8 x 1	4
12	20129	36539	36539	Cap Screw – 1/2 x 1 1/2	4
13	20714	36422	36422	Washer – Lock 1/2	4
14	20646	36416	36416	Nut – Hex 1/2	4

CS – Carbon Steel SS – Stainless Steel



Please Give Part No., Description and Unit Serial No. 99552-B

HYDRAULICS – SINGLE, PTO DRIVEN PUMP



<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
1	2211	Key – Square, 1/4 x 1	1
2	20748	Screw – Set	2
3	5649	U-Joint	1
4	6122	Pin – Shear	1
5	20817	Pin – Cotter	1
6	17932	Shaft – Drive	1
7	2655	U-Joint	1
	6069	Zerk – Grease	1
8	20069	Cap Screw – 3/8 x 1 1/2	4
	20712	Washer – Lock, 3/8	4
	20644	Nut – Hex, 3/8	4



Please Give Part No., Description and Unit Serial No. 99552-B

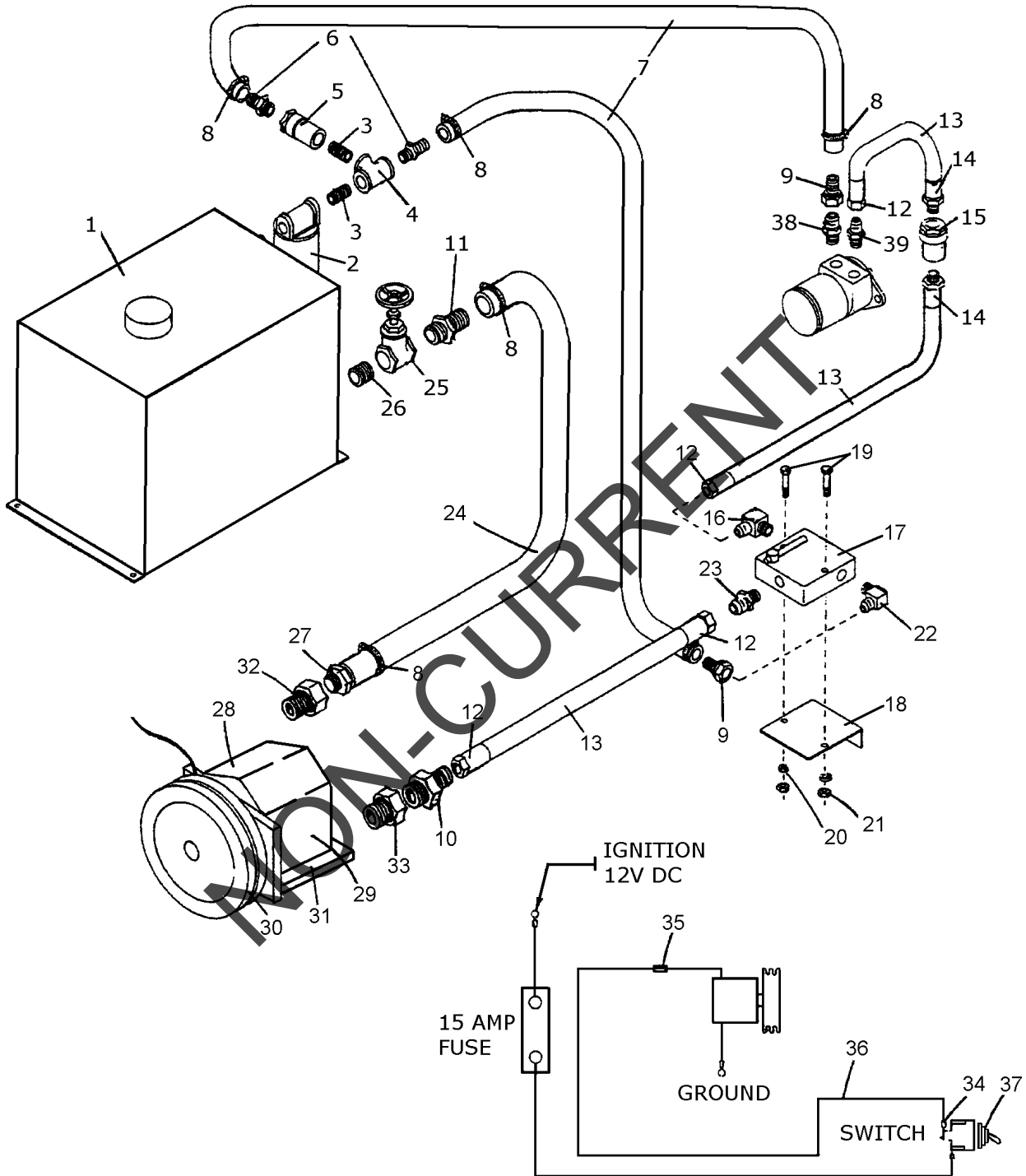
HYDRAULICS – SINGLE, PTO DRIVEN PUMP CONTINUED

<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
9	22337	Mount – Pump Weldment	1
	20129	Cap Screw – 1/2 x 1 1/2	4
	20714	Washer – Lock 1/2	4
	20646	Nut – Hex 1/2	4
10	11427	Pump – Hydraulic Assembly	1
	2776	Key	1
11	29772	Adapter	1
12	31598	End – Hose	4
13	56453-360	Hose – Hydraulic	1
14	6335	Clamp – Hose	4
15	14378	Adapter	1
16	6026	Nipple – Close	3
17	42233	Elbow – Reducing	1
18	16572	Insert – Hose	1
19	23184-240	Hose – Suction	1
20	16582	End – Hose	1
21	22155	Valve – Gate	1
22	34777	Nipple	1
23	11436	Tank – Hydraulic Weldment	1
	6033	Plug – Pipe	1
	21850	Cap – Filler Assembly	1
24	30743	Filter – Hydraulic Assembly	1
25	22381	Clamp	2
26	6020	Tee – Pipe	1
27	22425	End – Hose	2
28	16529-300	Hose – Hydraulic	1
29	39904	Disconnect – Quick, 3/4”	1
30	6069	Zerk – Grease	1
31	11424	End – Hose	2
32	29753	Adapter	1
33	29771	Adapter	1
34	2776	Key – Square, 1/4 x 4	1
35	31599	End – Hose	2
36	40006	Disconnect – Quick, 1/2”	1
37	30759	Elbow – Male	1
38	29767	Adapter	1
39	20011	Cap Screw – 1/4 x 2	2
	20710	Washer – Lock, 1/4	2
	20642	Nut – Hex, 1/4	2
40	30745	Valve – Control	1
41	34722	Adapter – Elbow	1
42	30862	Bracket – Valve Mount	1

NON-CURRENT



HYDRAULICS – SINGLE, ELECTRIC CLUTCH PUMP



ITEM	PART NO.	DESCRIPTION	QTY
1	11436	Tank – Hydraulic Assembly	1
	6033	Plug – Pipe	1
	21850	Cap – Filler Assembly	1

HYDRAULICS – SINGLE, ELECTRIC CLUTCH PUMP CONTINUED

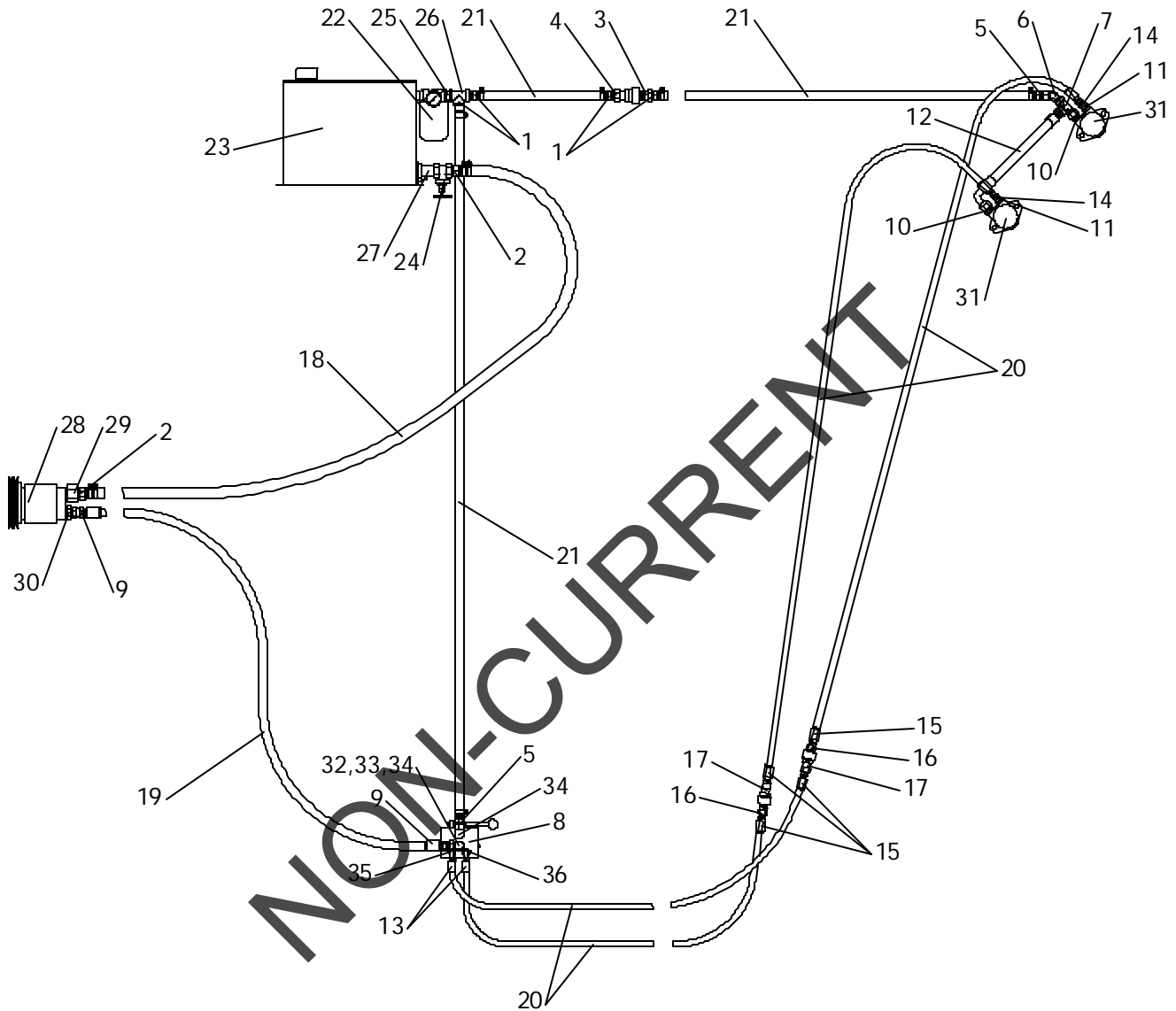
<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
2	30743	Filter – Hydraulic	1
3	6026	Nipple – Close	2
4	6020	Tee	1
5	39904	Quick Disconnect	1
6	22425	Nipple – Hose	2
7	16529-300	Hose – Return	1
8	6335	Clamp – Hose	4
9	11424	End – Hose	2
10	29808	Adapter	1
11	16582	End – Hose	1
12	31598	End – Hose, Reusable	4
13	56453-360	Hose	1
14	31599	End – Hose, Reusable	2
15	40006	Quick Disconnect	1
16	30759	Adapter	1
17	30745	Valve – Control	1
18	30862	Bracket – Valve Mounting	1
19	20011	Cap Screw, 1/4 x 2	2
20	20710	Washer – Lock, 1/4	2
21	20642	Nut – Hex, 1/4	2
22	34722	Adapter	1
23	29767	Adapter	1
24	23184-240	Hose – Suction	1
25	22155	Valve – Gate	1
26	34777	Nipple	1
27	16572	Insert – Hose	1
28	34568	Pump – Hydraulic Assy, Includes Items 29-31	1
29	34576	Pump – Hydraulic	1
30	34570	Clutch – Electric Assembly	1
31	34571	Bracket – Mounting	1
32	22017	Adapter	1
33	22021	Adapter	1
34	21679	Terminal	1
35	6549	Connector	1
36	21580-240	Wire – Electric	1
37	21681	Switch	1
38	29753	Adapter	1
39	29771	Adapter	1
40	* 22381	Clamp	AR

* - Not Shown AR – As Required



Please Give Part No., Description and Unit Serial No. 99552-B

HYDRAULICS – DUAL, ELECTRIC CLUTCH PUMP



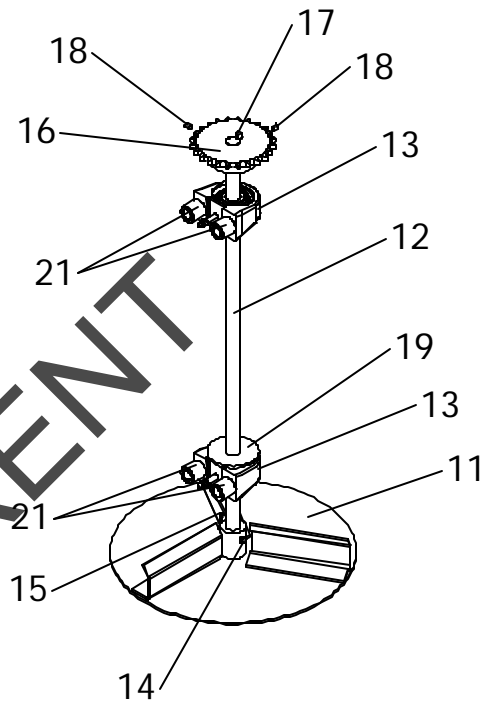
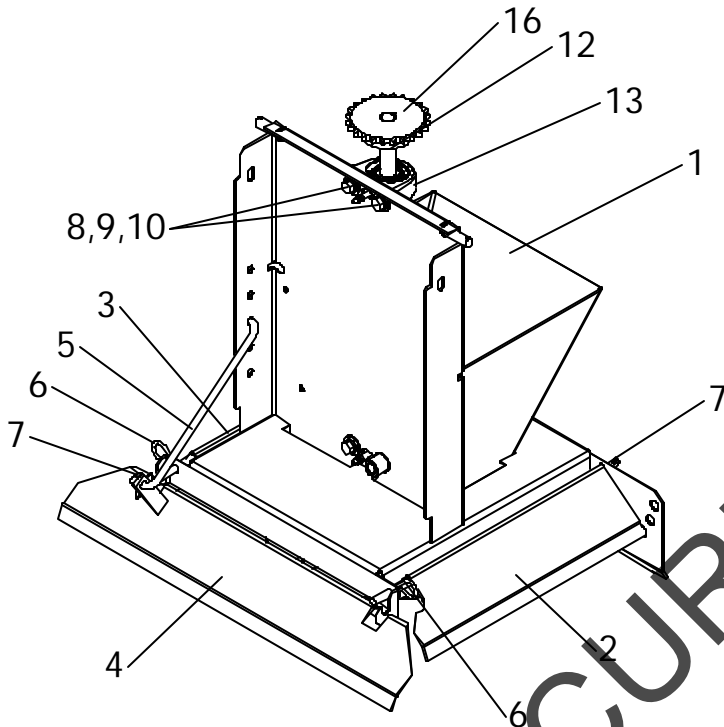
<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
1	22425	End – Hose	4
2	16582	End – Hose	2
3	39905	Disconnect – Quick Male	1
4	39906	Disconnect – Quick Female	1
5	11424	End – Hose	2

HYDRAULICS – DUAL, ELECTRIC CLUTCH PUMP CONTINUED

<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
6	29782	Adapter – Elbow 45	1
7	29781	Tee – Swivel Nut	1
8	34144	Valve – Control	1
9	56508	Fitting – Hose Reusable	2
10	29753	Adapter – Connector	2
11	29771	Adapter – Connector	2
12	99384	Hose Assembly	1
13	56485	End – Hose 90	2
14	31598	Fitting – Hose Reusable	2
15	31599	Fitting – Hose Reusable	4
16	40008	Disconnect – Quick Male	2
17	40009	Disconnect – Quick Female	2
18	23184	Hose (By Length)	AR
	* 6335	Clamp – Hose	AR
19	56459	Hose (By Length)	AR
20	56453	Hose (By Length)	AR
21	16529	Hose (By Length)	AR
	* 22381	Clamp – Hose	AR
22	30743	Filter – Oil	1
23	11436	Tank – Hydraulic	1
	* 87349	Cap – Filler	1
	* 6033	Plug – Pipe	1
24	22155	Valve – Gate	1
25	6026	Nipple – Pipe	1
26	6020	Tee – Pipe	1
27	34777	Nipple – Pipe	1
28	34569	Pump – Electric Clutch	1
29	22018	Bushing	1
30	29835	Adapter – Connector	1
31	37339	Motor – Hydraulic	2
32	16362	Nipple – Pipe	1
33	16276	Coupling	1
34	29764	Adapter – Elbow 90	2
35	29808	Adapter – Connector	1
36	29767	Adapter – Connector	1

* - Not Shown AR – As Required

SPINNER HOPPER



PARTS INSIDE SPINNER CHUTE

NON-CURRENT

SPINNER HOPPER CONTINUED

<u>ITEM</u>	<u>PART NO.</u>			<u>DESCRIPTION</u>	<u>QTY</u>
	CS	409 SS	304 SS		
	99443	99849	99603	Spinner Assy, Engine & Single Hyd. Drive	
	99856	99858	99857	Spinner Assy, Poly Engine & Single Hyd. Drive	
	99699	99851	99850	Spinner Assy, Dual Hydraulic Drive	
	99862	99864	99863	Spinner Assy, Poly Dual Hydraulic Drive	
1	96050	96052	96051	Chute – Spinner Weldment	1
2	99448	99869	99614	Baffle – RH Weldment	1
3	99451	99870	99617	Baffle – LH Weldment	1
4	99453	99871	99619	Baffle – Rear Weldment	1
5	99475	99475	99631	Rod – Control	1
6	40576	36429	36429	Pin – Hair	5
7	20822	36427	36427	Pin – Cotter	3
8	20070	20258	20258	Cap Screw – 3/8 x 1 3/4	4
9	20693	36425	36425	Washer – Flat 3/8	4
10	20712	36420	36420	Washer – Lock 3/8	4
11	26888	26888	26888	Disc – Spinner Weldment	1
	77920	77920	77920	Disc – Spinner Polyurethane	1
12	99457	99457	99457	Shaft – Spinner	1
13	99420	99420	99420	Bearing	2
14	6299	6299	6299	Pin – Clevis, Steel Disc	1
	21027	99671	99671	Pin – Clevis, Poly Disc	1
15	20811	20811	20811	Pin – Cotter, Steel Disc	1
	20822	36427	36427	Pin – Cotter, Poly Disc	1
16	23742	23742	23742	Sprocket – 24 Tooth, Engine Drive	1
*	11431-X1	11431-X1	11431-X1	Coupling – Hydraulic Drive	1
17	6134	6134	6134	Key – Square	1
18	20735	20735	20735	Screw – Set 1/4 x 1/4	AR
19	96066	96066	96066	Washer – Rubber	1
20	* 88345	88345	88345	Chain Assembly	1
	23744	23744	23744	Chain – Roller (Length)	AR
	23745	23745	23745	Link – Connecting	1
21	29919-AA	29919-AA	29919-AA	Chain – Roller, Spacer	4

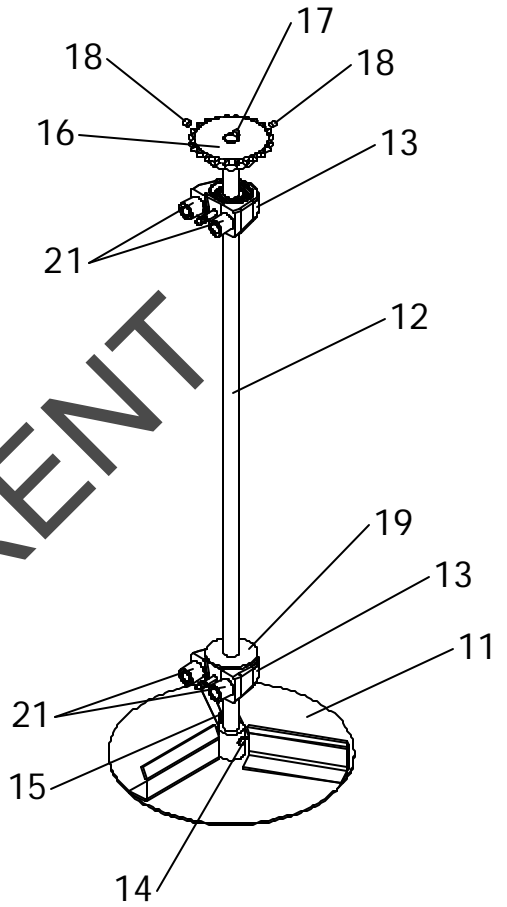
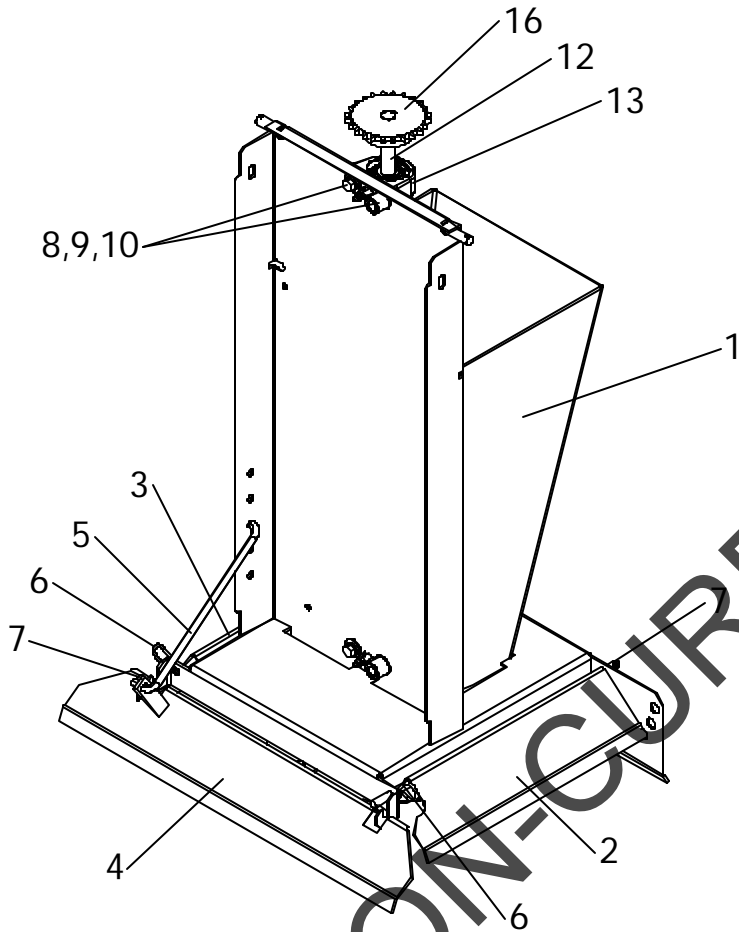
CS – Carbon Steel

SS – Stainless Steel

* - Not Shown

AR – As Required

EXTENDED SPINNER HOPPER



PARTS INSIDE SPINNER CHUTE

EXTENDED SPINNER HOPPER CONTINUED

<u>ITEM</u>	<u>PART NO.</u>			<u>DESCRIPTION</u>	<u>QTY</u>
	CS	409 SS	304 SS		
	99709	99852	99715	Spinner Assembly, Engine Drive	
	99859	99861	99860	Spinner Assembly, Poly Engine Drive	
	99853	99855	99854	Spinner Assembly, Hydraulic Drive	
	99865	99867	99866	Spinner Assembly, Poly Hydraulic Drive	
1	96053	96055	96054	Chute – Spinner Weldment	1
2	99448	99869	99614	Baffle – RH Weldment	1
3	99451	99870	99617	Baffle – LH Weldment	1
4	99453	99871	99619	Baffle – Rear Weldment	1
5	99475	99475	99631	Rod – Control	1
6	40576	36429	36429	Pin – Hair	5
7	20822	36427	36427	Pin – Cotter	3
8	20070	20258	20258	Cap Screw – 3/8 x 1 1/2	4
9	20693	36425	36425	Washer – Flat 3/8	4
10	20712	36420	36420	Washer – Lock 3/8	4
11	26888	26888	26888	Disc – Spinner Weldment	1
	77920	77920	77920	Disc – Spinner Polyurethane	1
12	99711	99711	99711	Shaft – Spinner	1
13	99420	99420	99420	Bearing	2
14	6299	6299	6299	Pin – Clevis, Steel disc	1
	21027	99671	99671	Pin – Clevis, Poly disc	1
15	20811	20811	20811	Pin – Cotter, Steel disc	1
	20822	36427	36427	Pin – Cotter, Poly disc	1
16	23742	23742	23742	Sprocket – 24 Tooth, Engine Drive	1
*	11431-X1	11431-X1	11431-X1	Coupling – Hydraulic Drive	1
17	6134	6134	6134	Key – Square	1
18	20735	20735	20735	Screw – Set 1/4 x 1/4	AR
19	96066	96066	96066	Washer – Rubber	1
20	* 88345	88345	88345	Chain Assembly	1
	23744	23744	23744	Chain – Roller (Length)	AR
	23745	23745	23745	Link – Connecting	1
21	29919-AA	29919-AA	29919-AA	Chain – Roller, Spacer	4

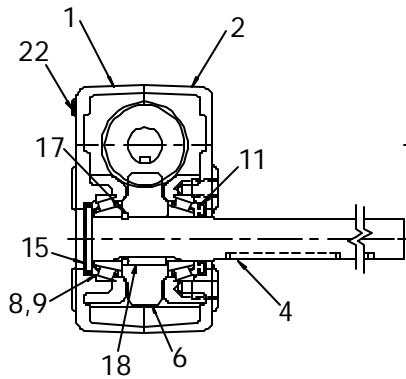
CS – Carbon Steel

SS – Stainless Steel

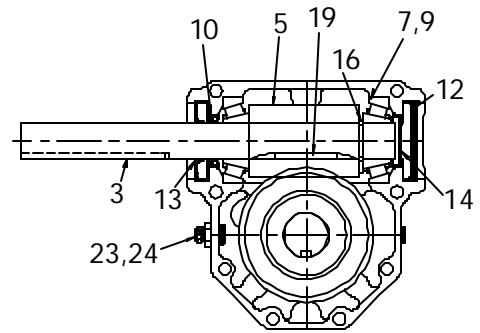
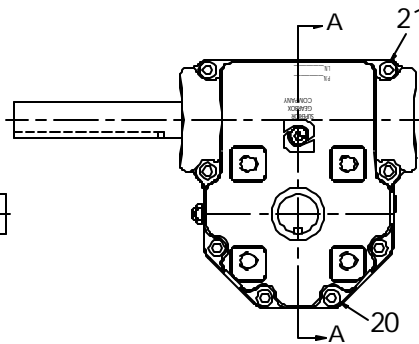
* - Not Shown

AR – As Required

GEAR CASE – STYLE I



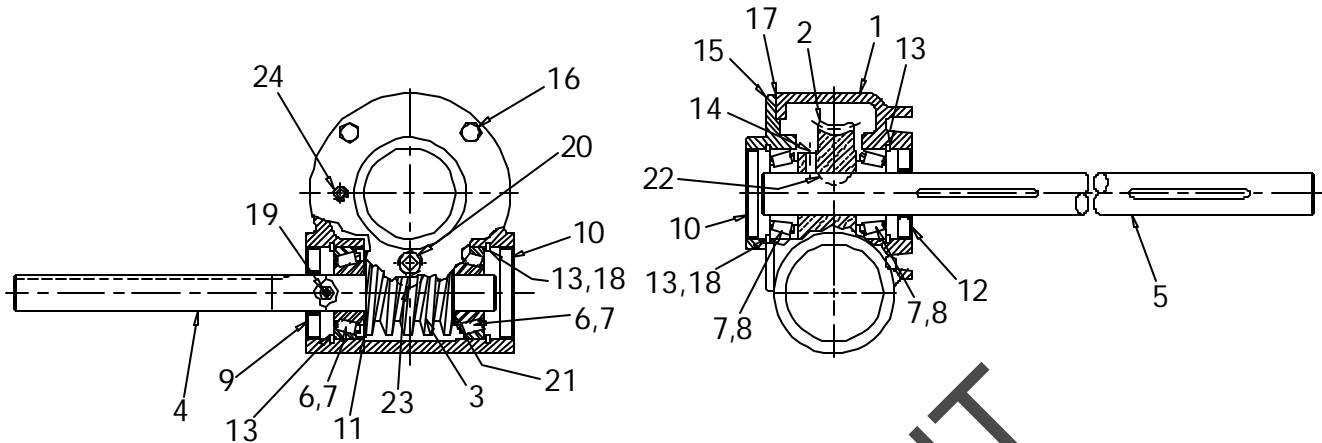
SECTION A-A



SECTION

<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
	99408	Gear Case – Conveyor	
	86144	Gear Case – Style I Service Parts	
1	96123	Casting	1
2	96124	Casting	1
3	96125	Shaft – Input	1
4	96126	Shaft – Output	1
5	96127	Gear – Worm	1
6	96128	Gear – Worm	1
7	24230	Bearing – Cone	2
8	96129	Bearing – Cone	2
9	24225	Bearing – Cup	4
10	96130	Seal	1
11	96131	Seal	1
12	96132	Cap – End	1
13	96133	Seal	1
14	96134	Cap – End	1
15	96135	Cap – End	1
16	96136	Ring – Retaining	1
17	96137	Ring – Retaining	1
18	96138	Key – Output	1
19	96139	Key – Input	1
20	96140	Cap Screw – Socket Head	4
21	96141	Cap Screw – Socket Head	4
22	96142	Plug	3
23	96143	Plug – Vent	1
24	6065	Bushing – Vent	1

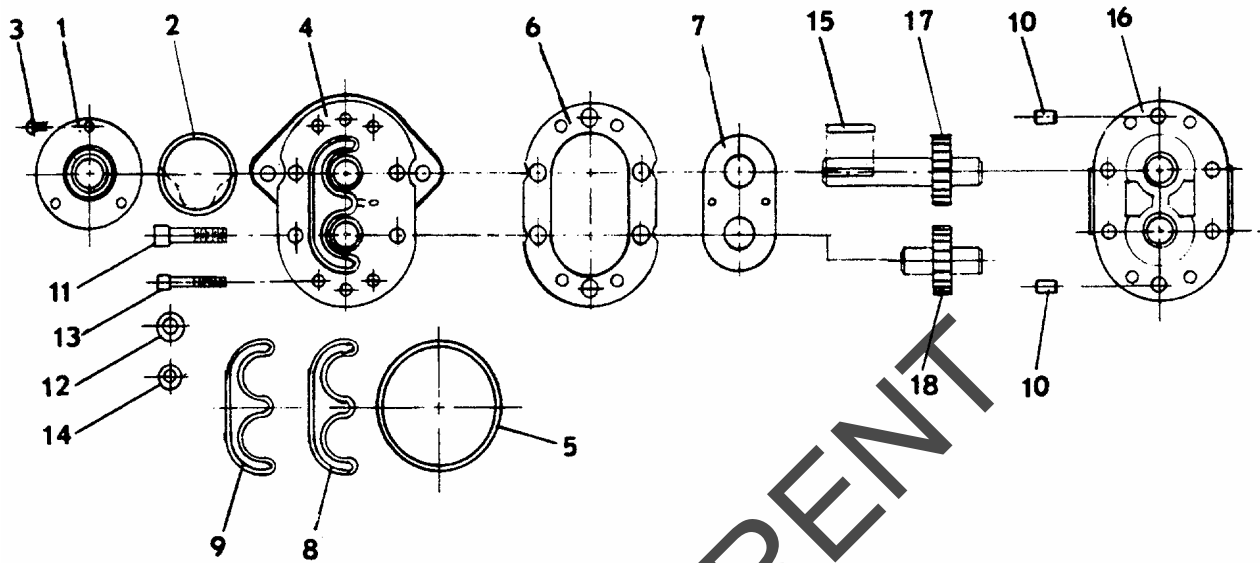
GEAR CASE – STYLE II



<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
	99408	Gear Case – Conveyor	
	96145	Gear Case – Style II Service Parts	
1	27119	Housing	1
2	27172	Gear – Bronze	1
3	26809	Gear – Worm	1
4	96120	Shaft – Input	1
5	96121	Shaft – Output	1
6	24230	Bearing – Cone	2
7	24225	Bearing – Cup	4
8	27170	Bearing – Cone	2
9	24232	Seal	1
10	22839	Cap	2
11	96122	Shield	1
12	27171	Seal	1
13	22832	Ring – Snap	4
14	22837	Screw – Set	1
15	22824	Cover	1
16	20065	Cap Screw – 3/8 x 3/4	4
17	22834	Gasket – Cover	1
18	22835	Shim	4
19	6072	Zerk – Grease	1
20	6031	Plug	1
21	22833	Ring – Snap	1
22	22798	Key – Woodruff	1
23	24234	Key – Woodruff	1
24	8621	Plug – Vent	1
25	* 96119	Plug	1

* – Not Shown AR – As Required

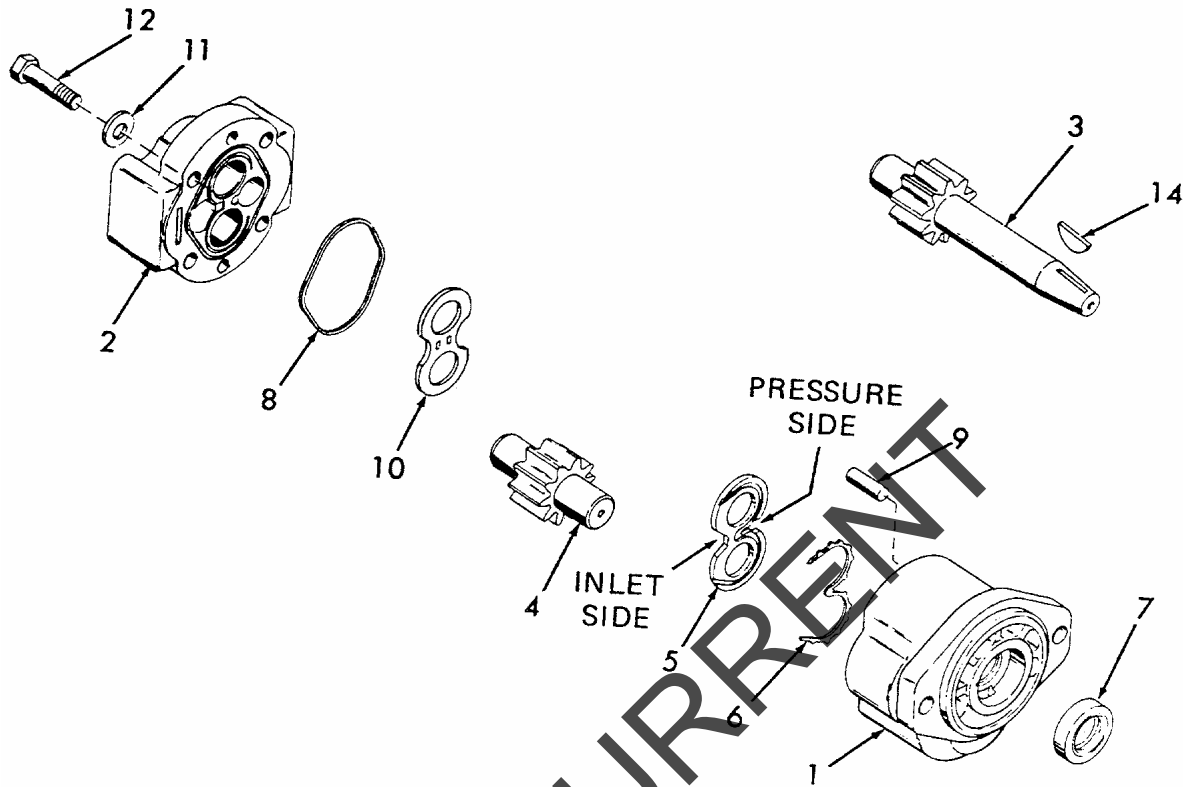
PUMP - PTO



<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
	11427	Hydraulic Pump Assembly, Includes Items 1 - 18	
1	NSS	Seal Plate Assembly	1
2	NSS	O-Ring	1
3	NSS	Screw	3
4	11448	RH Rotation Assembly	1
5	NSS	Ring - Sealing	1
6	29365	Plate - Retaining	1
7	NSS	Plate - Wear	1
8	NSS	Seal - Load	1
9	NSS	Seal - Pre-Load	1
10	29366	Pin - Dowel	2
11	29367	Screw - Socket Head	4
12	NSS	Washer	4
13	29368	Screw - Socket Head	4
14	NSS	Washer	4
15	NSS	Key - Drive Shaft	1
16	29369	Assembly - Cover	1
17	29370	Drive Shaft and Gear	1
18	29371	Idler Shaft and Gear	1

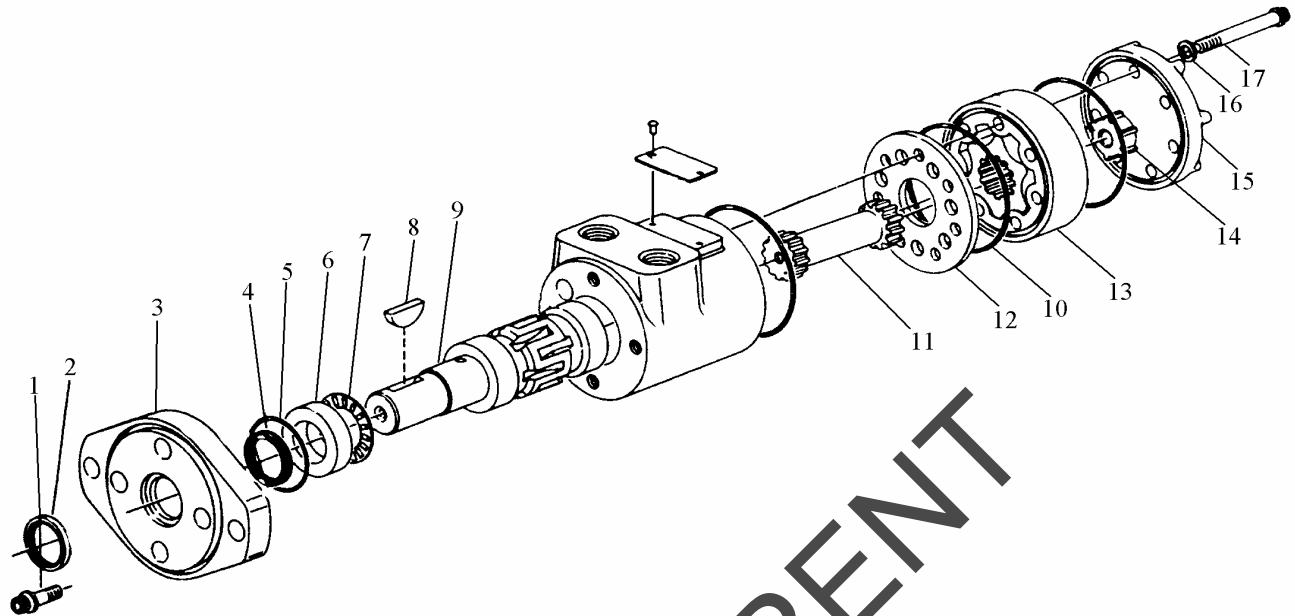
NSS - Not Serviced Separately, included in Repair Kit #29363

PUMP – ELECTRIC CLUTCH



<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
	34576	Pump Electric Clutch Assembly – Single Hydraulics	
	34577	Pump Electric Clutch Assembly – Dual Hydraulics	
1	34548	Body – Pump Assembly, Single	1
	34546	Body – Pump Assembly, Dual	1
2	34549	Cover with Rear Ports Assembly	1
3	34552	Gear – Drive, Tapered Shaft, Single	1
	34564	Gear – Drive, Tapered Shaft, Dual	1
4	34567	Gear – Driven, Single	1
	34566	Gear – Driven, Dual	1
5	34554	Plate – Wear	1
6	34555	Seal – Pressure Loading	1
7	34556	Seal – Shaft	1
8	34557	Ring – Square Cut	1
9	34558	Pin – Dowel	1
10	34559	Plate – Thrust	1
11	34560	Washer	4
12	34561	Cap Screw – Hex Head	4
13	34562	Key – Woodruff	1
	34563	Kit – Seal, Includes Items 6 – 8	

MOTOR - HYDRAULIC



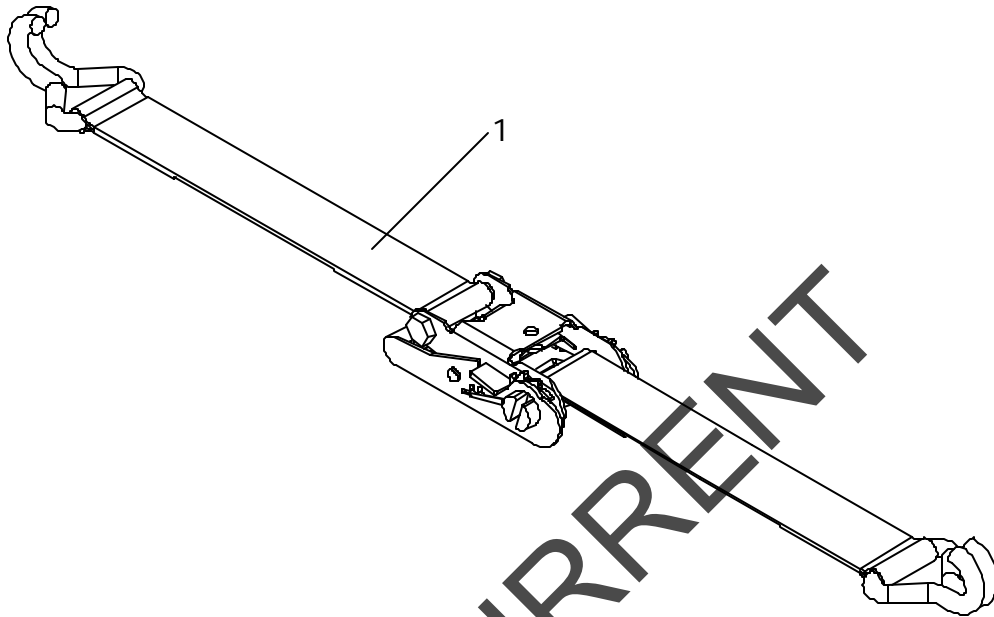
<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
	007	009	
	37339	Motor - Hydraulic	
1	30665	Cap Screw - 5/16 x 7/8	4
2	37382	Seal	1
3	37384	73546 Flange - Mounting	1
4	37378	73473 Seal	1
5	37379	Seal - "O" Ring	1
6	37385	Bearing - Spacer	1
7	37401	Bearing - Thrust Needle	1
8	3065	Key - Woodruff	1
9	37386	Shaft - Output, Keyed	1
10	37380	"O" Ring	3
11	16945	Drive	1
12	37388	Plate - Spacer	1
13	37389	Gerotor	1
14	37399	Spacer	1
15	37400	Cap - End	1
16	37381	Seal	7
17	16931	Cap Screw	7
18	*22068	73477 "O" Ring	1
19		73472 Washer - Backup	1
	37352	39137 Kit - Seal, Includes Items 2, 4, 5, 10, 16	

* - Not Shown



Please Give Part No., Description and Unit Serial No. 99552-B

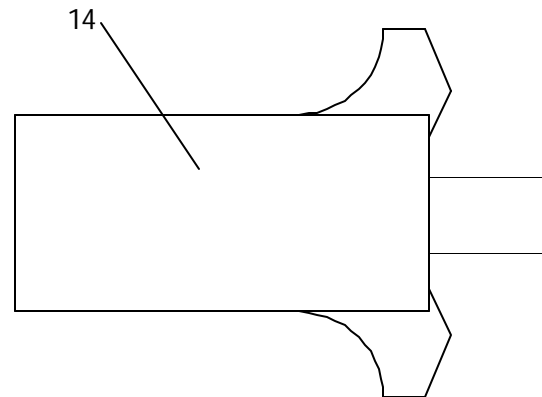
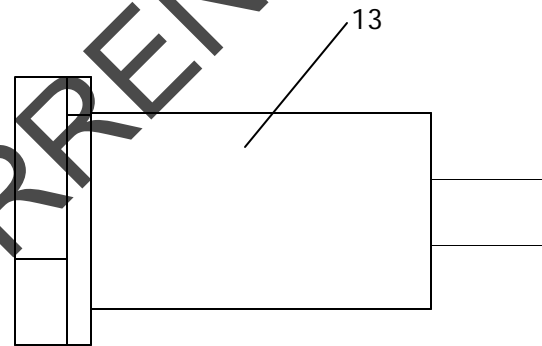
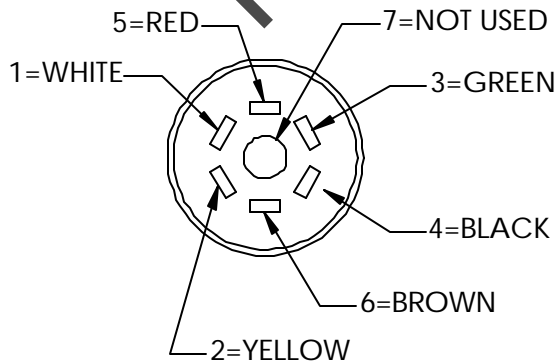
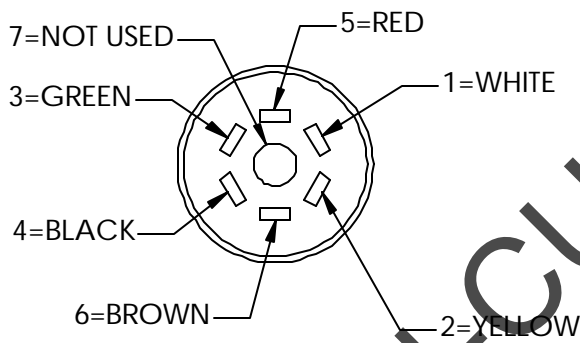
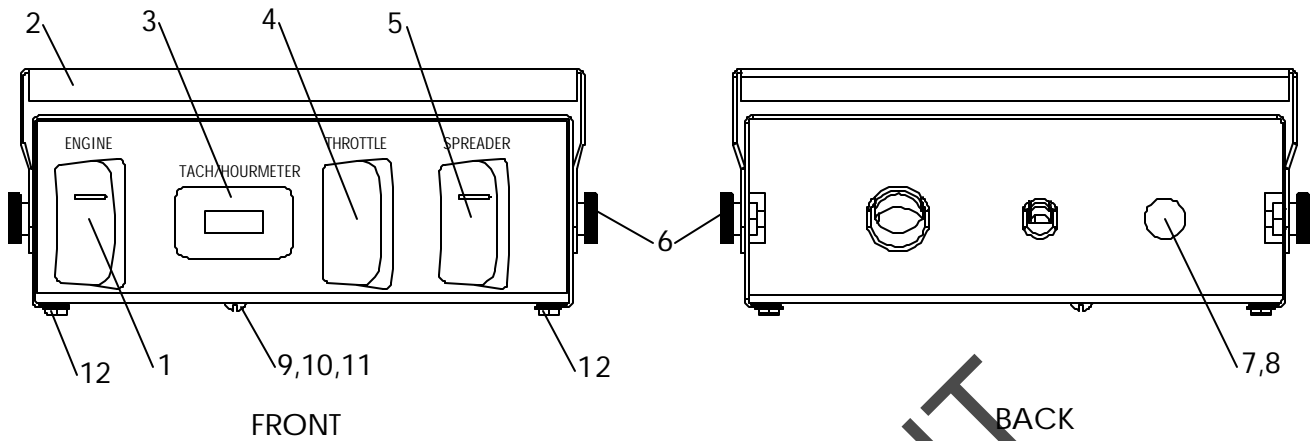
MOUNTING KIT



NON-CURRENT

<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
1	99417	Strap – Ratchet	4

CONTROL PANEL & CONNECTORS



NON-CURRENT

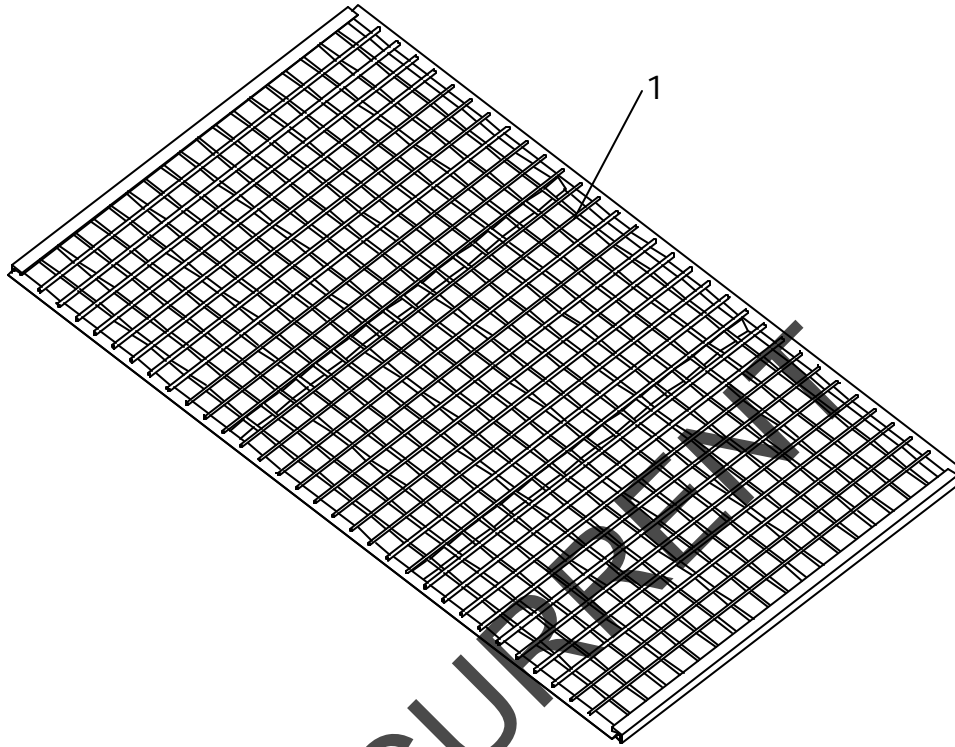
CONTROL PANEL & CONNECTORS CONTINUED

<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
	99509	Control Panel – Rear w/o Tachometer	
	* 99510	Control Panel – Rear w/ Tachometer	
1	99495	Switch – Rocker	1
2	99487	Bracket – Mount	1
3	99508	Tachometer & Hourmeter – Optional	1
4	99494	Switch – Rocker	1
5	99493	Switch – Rocker	1
6	99507	Knob Assembly	2
7	99492	Holder – Fuse	1
8	99676	Fuse – 10 Amp	1
9	20570	Screw – Round Head	1
10	20641	Nut – Hex #10	2
11	99677	Washer – Star	2
12	87340	Screw – Self Tapping	2
13	99562	Connector – 7 Way, Control Panel	1
14	99561	Connector – 7 Way, Engine	1

* - Not Shown

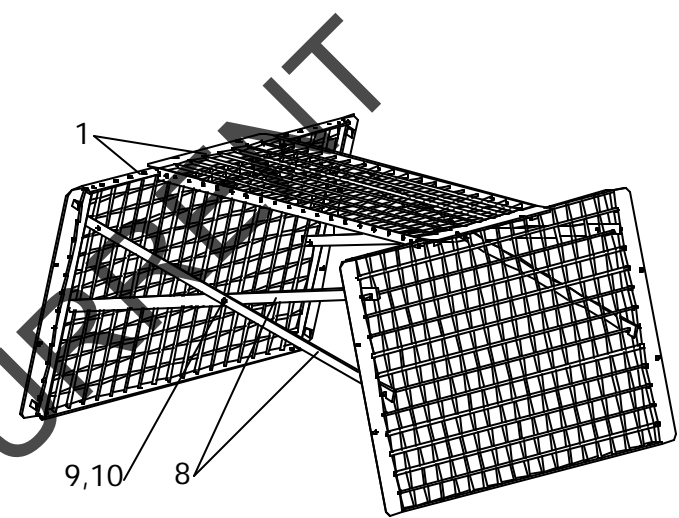
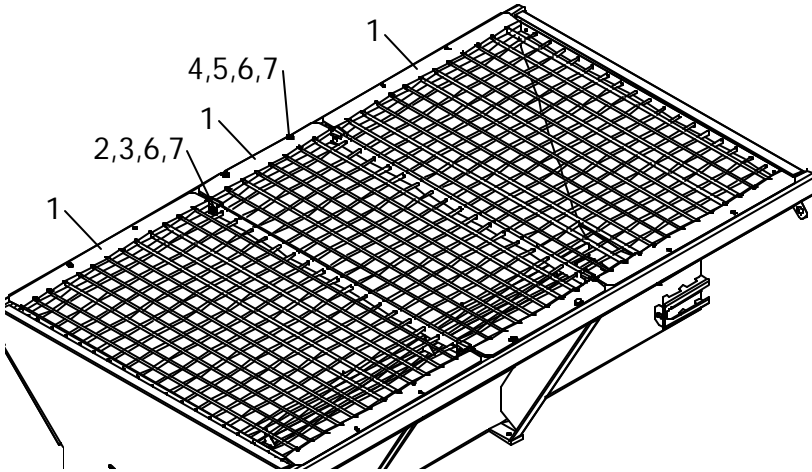
NON-CURRENT

SCREENS



<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
1	26925	Screen – Assembly 6’ Unit	1
	26926	Screen – Assembly 7’ Unit	1
	34070	Screen – Assembly 8’ Unit	1
	99923	Screen – Assembly HD 6’ Unit	1
	99924	Screen – Assembly HD 7’ Unit	1
	99925	Screen – Assembly HD 8’ Unit	1
	99926	Screen – Assembly HD 9’ Unit	1
	99927	Screen – Assembly HD 10’ Unit	1

SCREEN-N-STORE™



UNIT	FRONT	MIDDLE	REAR
6'	2'	2'	2'
7'	2'	2'	3'
8'	3'	2'	3'
9'	3'	3'	3'
10'	3'	2' Qty 2	3'

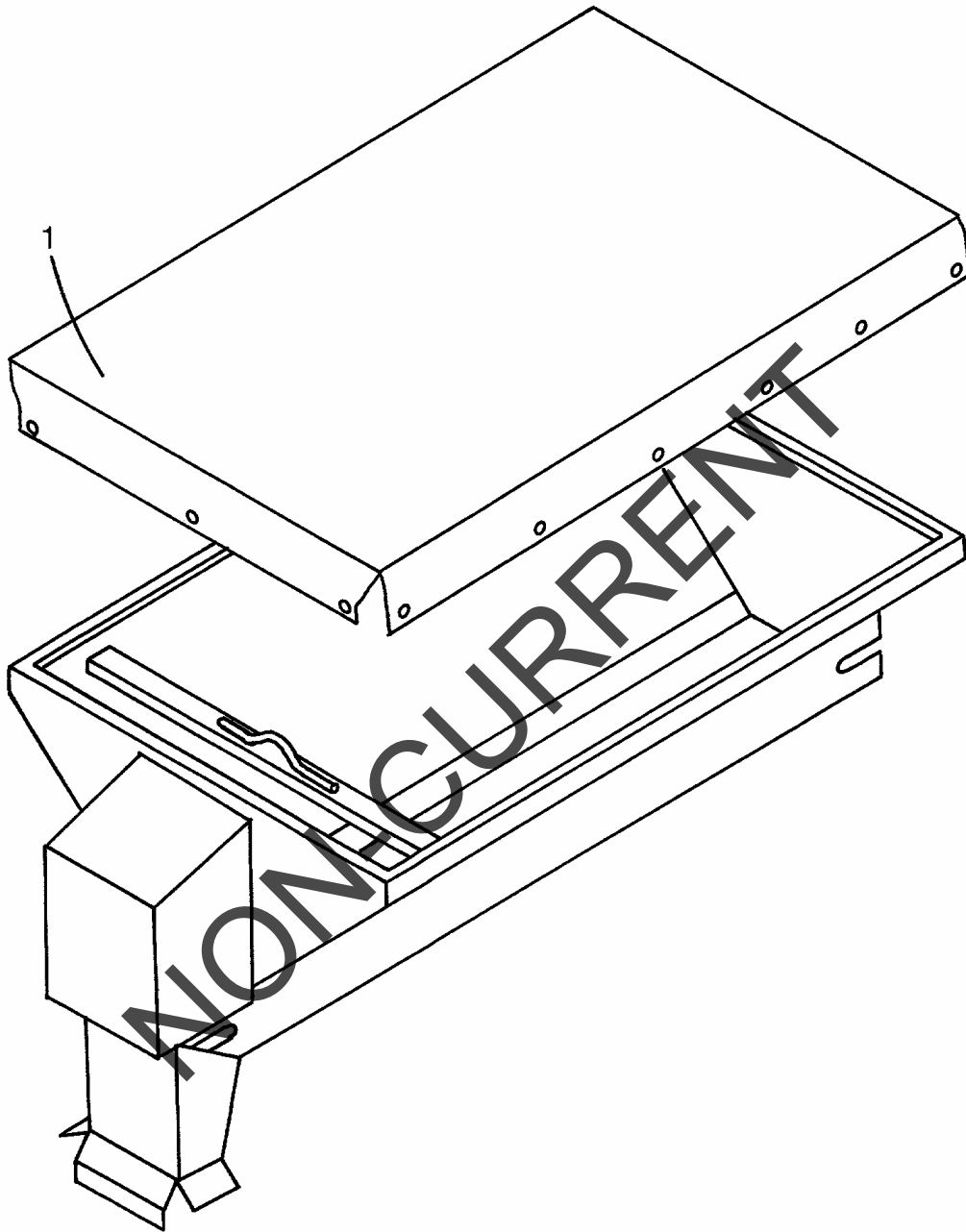
ITEM	PART NO.	DESCRIPTION	QTY
	96031	Screen Assembly 6' Unit	
	96032	Screen Assembly 7' Unit	
	99694	Screen Assembly 8' Unit	
	96033	Screen Assembly 9' Unit	
	99696	Screen Assembly 10' Unit	
	99697	Support Kit (2 required for storage)	2
1	99515	Screen – 3' Weldment	AR
	99521	Screen – 2' Weldment	AR
2	96058	Hook	4
3	20318	Bolt – Carriage 3/8 x 1 1/4	4
4	20067	Cap Screw – 3/8 x 1	AR
5	20693	Washer – Flat 3/8	AR
6	20712	Washer – Lock 3/8	AR
7	20644	Nut – Hex 3/8	AR
8	99575	Bracket – Stand	4
9	20068	Cap Screw – 3/8 x 1 1/4	2
10	20678	Nut – Lock 3/8	2

AR – As Required



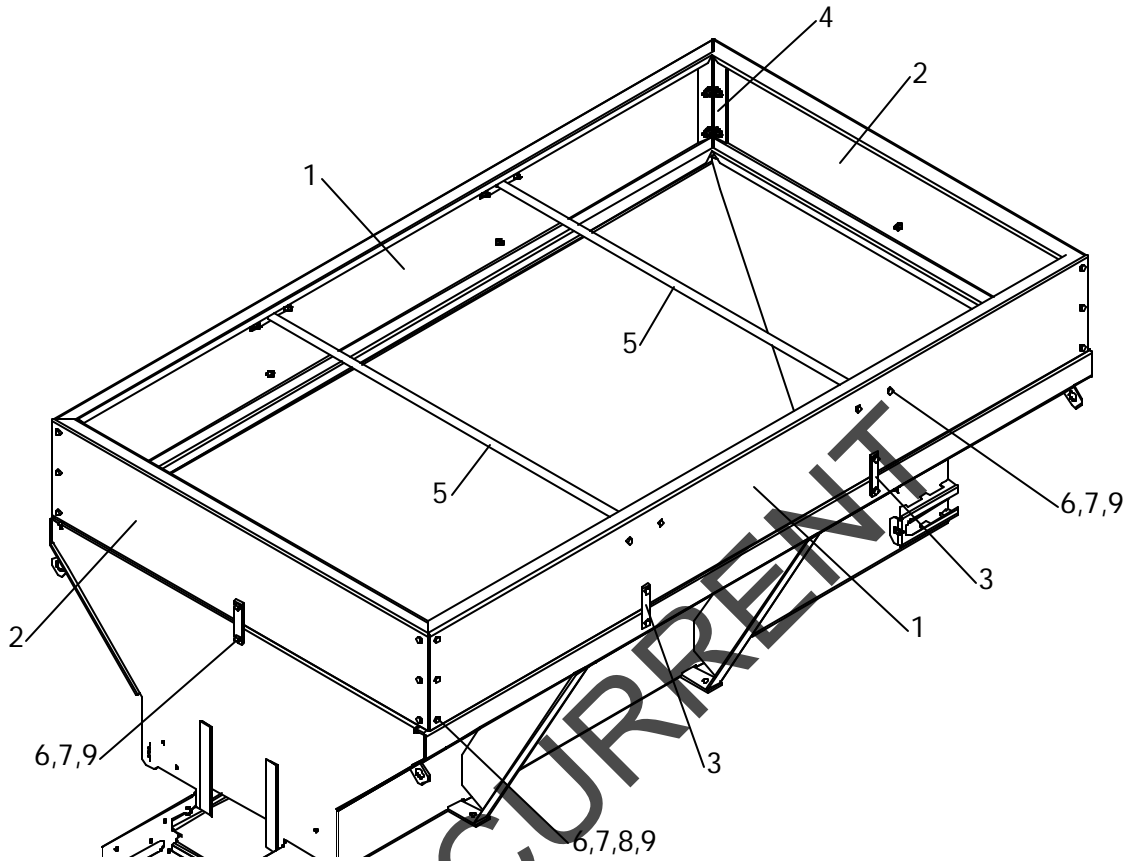
Please Give Part No., Description and Unit Serial No. 99552-B

TARP



<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
1	26978	Tarp – 6' Unit	1
	26979	Tarp – 7' Unit	1
	34076	Tarp – 8' Unit	1
	99891	Tarp – 9' Unit	1
	99892	Tarp – 10' Unit	1

SIDE EXTENSIONS



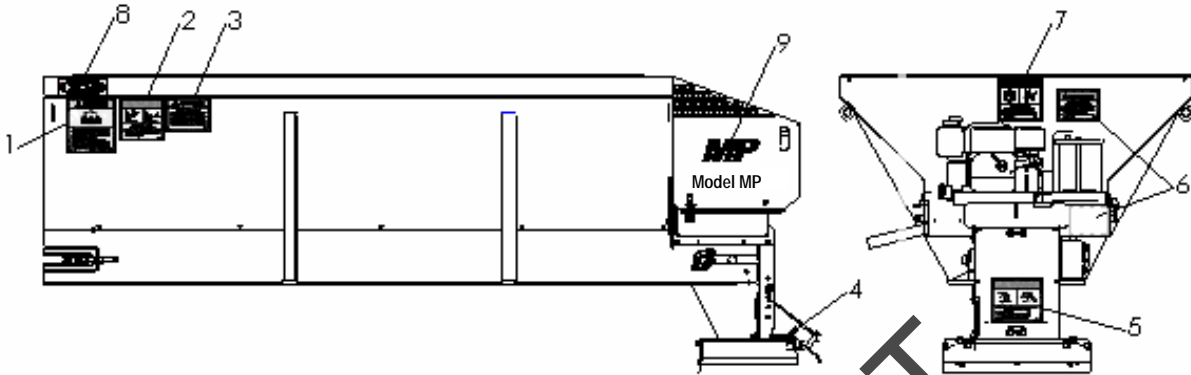
ITEM	PART NO.	DESCRIPTION	QTY
	CS 409 SS 304 SS		
	-- 77247 77246	12" Side Ext. - 6' Unit Group	
	26939 77245 77244	12" Side Ext. - 7' Unit Group	
	34073 77243 77242	12" Side Ext. - 8' Unit Group	
1	-- 77254 77251	Extension - Side 6' Unit	2
	26946 77255 77252	Extension - Side 7' Unit	2
	34074 77090 77089	Extension - Side 8' Unit	2
2	26949 77095 77094	End - Extension	2
3	26950 77096 77096	Strap - Side Extensions	6
4	26952 77098 77097	Brace - Side Extensions	4
5	26947 77091 77091	Brace - Tie Weldment	2
6	20065 34858 34858	Cap Screw - 3/8 x 1 1/2	AR
7	20712 36420 36420	Washer - Lock, 3/8	AR
8	20693 36425 36425	Washer - Flat, 3/8	AR
9	20644 36414 36414	Nut - Hex, 3/8	AR
10	20067 36398 36398	Cap Screw - 3/8 x 1	AR

CS - Carbon Steel SS - Stainless Steel AR - As Required



Please Give Part No., Description and Unit Serial No. 99552-B

DECALS & LIGHTS



DECALS

<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
	71386	Decal – Safety Group, Includes Items 1 – 6 (1)	
	99721	Decal – Engine Group, Includes Items 6 (1) – 7	
	82297	Decal – Hydraulic Group, Includes Items 10 – 12	
1	150034	Decal – Caution, Improper Operation	1
2	364	Decal – Warning, Stay Out of Box	2
3	321	Decal – Caution, Material to be Spread	1
4	55630	Decal – Falling Hazard	1
5	83649	Decal – Warning, Flying Material	1
6	55631	Decal – Warning,, Guard for Protection	2
7	363	Decal – Warning, Fire Hazard	1
8	83628	Decal – Hi-Way	2
9	98638	Decal – MP	2
10	* 39138	Decal – Warning, High Pressure Fluid (Unit Rear)	1
11	* 8664	Decal – Caution, Keep Valve Open (Reservoir)	1
12	* 8665	Decal – Caution, Hydraulic Oil Only (Reservoir)	1
13	* 39378	Decal – Oil Filter (Reservoir Side)	1

LIGHTS (OPTIONAL)

* 18738	Light – Warning	1
* 79881	Light – Warning Amber	1

* - Not Shown