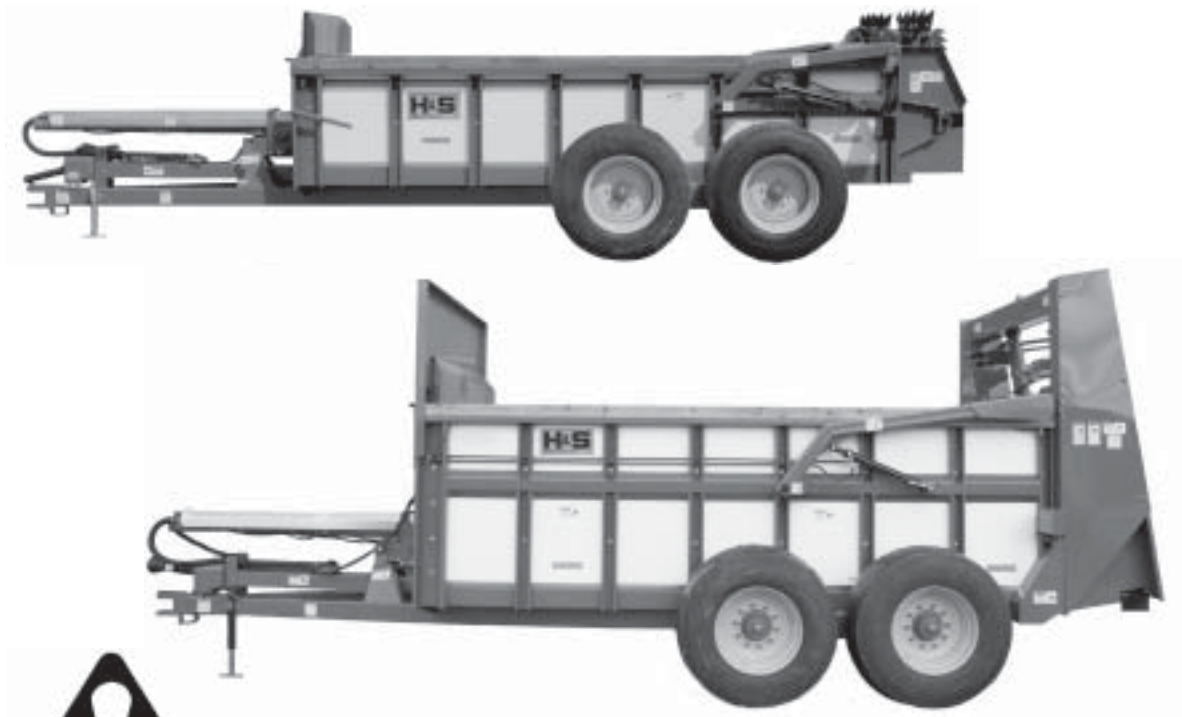


# H&S

## HP SPREADERS



### **WARNING**

READ AND UNDERSTAND THIS MANUAL  
BEFORE OPERATING THIS EQUIPMENT

UNSAFE OPERATION OR MAINTENANCE OF THIS EQUIPMENT CAN RESULT IN  
SERIOUS INJURY OR DEATH

## **OPERATOR'S MANUAL AND PARTS LIST**

HSMFG0609

*Manufactured By*  
**H&S MANUFACTURING CO., INC.**

P.O. BOX 768 (715) 387-3414 FAX (715) 384-5463  
MARSHFIELD, WISCONSIN 54449

# H & S

## HP425 & HP550 HYDRAULIC PUSH SPREADERS

### PARTS AND OPERATOR'S MANUAL

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# WARRANTY

## H & S WARRANTY

H & S Manufacturing Co., Inc. ("H & S") warrants this product to be free from defect in material and workmanship. Except as noted below, this warranty term is twelve (12) months from the date of delivery of the product to the original purchaser by an authorized H & S dealer. Under this warranty, H & S will repair or replace, at its option, any covered part which is found to be defective in material or workmanship during the applicable warranty term. In no case will the covered repair cost of a part or parts exceed the replacement cost of that part. Warranty service must be performed by H & S or a dealer authorized by H & S to sell and/or service the product involved, which will use only new or remanufactured parts or components furnished by H & S. This warranty includes approved parts and labor to fix the product but does not include, and the purchaser is responsible for, any service call and/or transportation of the product to and from the dealer's place of business, for any premium charged for overtime labor requested by the purchaser, and for any service work not directly related to any defect covered under this warranty. This warranty includes only those components of the product manufactured by H & S. Warranty for any component not manufactured by H & S including, but not limited to, engines, batteries, tires, rims, hydraulic motors, pumps, etc. are covered by the warranty, if any, provided separately by their respective manufacturers.

This warranty in all its parts, is extended solely to the original purchaser of the product, is terminated upon any subsequent transfer or sale from or by the original purchaser and extends no third party benefits or rights whatsoever.

The warranty term for any product used in any commercial, custom, for hire or rental application, is limited to six (6) months from the date of delivery of the product to the original purchaser by an authorized H & S dealer.

Polybonded (polyethylene and plywood) panels utilized in H & S Manure Spreaders are warranted, to the original purchaser, to not wear through and the polyethylene overlay to not tear free of the plywood for the functional life of the spreader. This specific warranty on polybonded panels includes only replacement of any defective panel part without any allowance for labor beyond the terms of the general warranty (12 or 6 months), and is further limited to manure spreaders used to spread normal agricultural manure.

This warranty does not include: (1) Any product that has been altered or modified in ways not approved by H & S; (2) Depreciation or damage caused by normal wear, misuse, improper or insufficient maintenance, improper operation, accident or failure to follow the product Operator's Manual recommendations and product decal recommendations; (3) Normal maintenance parts and service; (4) Repairs made with parts other than those available from H & S or performed by anyone other than H & S or a dealer authorized by H & S to sell and/or service the product involved.

To secure warranty service the purchaser must report the product defect to a dealer authorized by H & S to sell and/or service the product involved within the applicable warranty term together with evidence of the warranty start date and make the product available to that dealer within a reasonable period of time.

**THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE OF THIS WARRANTY. H & S and the companies affiliated with it makes no warranties, representations, or promises, express or implied, as to the performance or freedom from defect of its products other than those set forth above and NO IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS OR FITNESS FOR A PARTICULAR PURPOSE IS MADE. IN NO EVENT WILL THE DEALER, H&S OR ANY COMPANY AFFILIATED WITH H&S BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES. The ONLY REMEDY the purchaser has in connection with the breach of performance of any warranty on H & S products are those set forth above.**

The selling dealer has no authority to make any representation or promise on behalf of H & S, or to modify the terms or limitations of this warranty in any way.

204

## WARRANTY REGISTRATION

Date of Purchase \_\_\_\_\_

Purchaser \_\_\_\_\_ Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Product \_\_\_\_\_ Model# \_\_\_\_\_ Serial# \_\_\_\_\_

Dealer \_\_\_\_\_ Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

\_\_\_\_\_  
Signature of Original Buyer

FILL OUT AND MAIL IMMEDIATELY TO MAKE WARRANTY EFFECTIVE



**IMPORTANT!**

Tear on dotted line, provide the information requested on the card. The H&S Warranty is valid **“only”** after this card is received and recorded at H&S Mfg. Co. Mail at once. No postage is required in the U.S.A.



NO POSTAGE  
NECESSARY  
IF MAILED  
IN THE  
UNITED STATES

**BUSINESS REPLY MAIL**  
FIRST CLASS MAIL Permit No. 195 Marshfield, WI 54449

POSTAGE WILL BE PAID BY ADDRESSEE

H&S Manufacturing Co., Inc.  
PO Box 768  
Marshfield WI 54449-9963



(Remove Dealers File Copy At Perforation)

**AFTER COMPLETION, DEALER SHOULD REMOVE AND RETAIN FOR RECORDS**

**H&S  
DEALER PRE-DELIVERY CHECK LIST**

After the Manure Spreader has been completely set-up, check to be certain it is in correct running order before delivering to the customer. The following is a list of points to inspect. Check off each item as you have made the proper adjustments and found the item operating satisfactorily.

- PTO shields turn freely.
- All Shields and Guards are in place and fastened.
- All grease fittings have been lubricated and gearbox filled to proper level - See lubrication guide in this manual.
- All mechanisms are operating trouble free.
- All roller chains are at proper tension.
- All bolts and fasteners are tight.
- All decals are in place and legible.

_____	_____
(Dealer's Name)	Model Number
	_____
	Serial Number
_____	_____
(Signature of Pre-Delivery Inspector)	(Inspection Date)

**DEALER DELIVERY CHECK LIST**

This check list that follows is an important reminder of valuable information that should be passed on to the customer at the time this Manure Spreader is delivered.

Check off each item as you explain it to the customer.

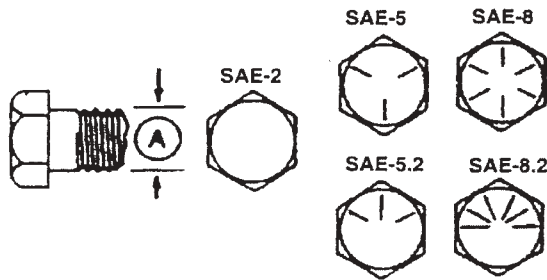
This delivery check list, when properly filled out and signed assures the customer that the Pre-delivery service was satisfactorily performed.

- Explain to the customer that the pre-delivery inspection was made.
- Explain to the customer all the safety precautions they must exercise when operating this unit.
- Explain recommended loads for different types of materials.
- Explain to customer that regular lubrication is required for proper operation and long life of machine. Show customer the lubrication section of Owner's Manual.
- Give the customer Owner's Manual and make sure he reads and understands all operating and service instructions.
- Record Serial Number on page 23 of this Manual.

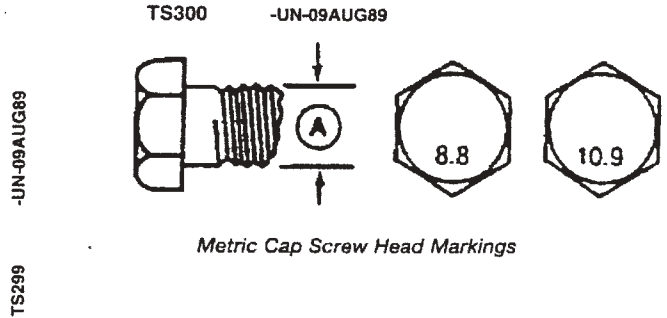
Date Delivered _____	Dealer's Name _____
	By _____
	_____
	Signature of Original Buyer



# CAP SCREW TORQUE VALUES



Inch Cap Screw Head Markings



Metric Cap Screw Head Markings

## INCH CAP SCREW TORQUE VALUES

Bolt Diameter (A)	Wrench Size	Cap Screw Grade					
		SAE 2		SAE 5		SAE 8	
		N-m	lb.-ft	N-m	lb.-ft	N-m	lb.-ft
1/4"	7/16"	7	(5)	11	(8)	16	(12)
5/16"	1/2"	14	(10)	23	(17)	33	(24)
3/8"	9/16"	24	(18)	41	(30)	54	(40)
7/16"	5/8"	41	(30)	68	(50)	95	(70)
1/2"	3/4"	61	(45)	102	(75)	142	(105)
9/16"	13/16"	88	(65)	142	(105)	203	(150)
5/8"	15/16"	122	(90)	197	(145)	278	(205)
3/4"	1-1/8"	217	(160)	353	(260)	495	(365)
7/8"	1-5/16"	224	(165)	563	(415)	800	(590)
1"	1-1/2"	332	(245)	848	(625)	1193	(880)
1-1/4"	1-7/8"	665	(490)	1492	(1100)	2393	(1765)

## METRIC CAP SCREW TORQUE VALUES

Bolt Diameter (A)	Wrench Size	Markings on Cap Screw Heads			
		8.8		10.9	
		N-m	lb.-ft	N-m	lb.-ft
5 mm	8 mm	6	(4.5)	9	(6.5)
6 mm	10 mm	10	(7.5)	15	(11)
8 mm	13 mm	25	(18)	35	(26)
10 mm	16 mm	50	(37)	75	(55)
12 mm	18 mm	85	(63)	130	(97)
16 mm	24 mm	215	(159)	315	(232)
20 mm	30 mm	435	(321)	620	(457)
24 mm	36 mm	750	(553)	1070	(789)
30 mm	46 mm	1495	(1103)	2130	(1571)



**CAUTION:** Use only metric tools on metric hardware. Other tools may not fit properly. They may slip and cause injury.

DO NOT use these values if a different torque value tightening procedure is listed for a specific application. Torque values listed are for general use only. Check tightness of cap screws periodically.

Shear bolts are designed to fail under predetermined loads. Always replace shear bolts with identical grade. Fasteners should be replaced with the same or higher grade. If higher grade fasteners are used, these should only be tightened to the strength of the original.

Make sure fastener threads are clean and you properly start thread engagement. This will prevent them from failing when tightening.

Tighten plastic insert or crimped steel-type lock nuts to approximately 50 percent of amount shown in chart. Tighten toothed or serrated-type lock nuts to full torque value.







**BE  
ALERT!**

**YOUR SAFETY  
IS INVOLVED.**

**THIS SYMBOL IS USED THROUGHOUT THIS BOOK WHENEVER YOUR PERSONAL SAFETY IS INVOLVED. TAKE TIME TO BE CAREFUL. REMEMBER: THE CAREFUL OPERATOR IS THE BEST OPERATOR. MOST ACCIDENTS ARE CAUSED BY HUMAN ERROR. CERTAIN PRECAUTIONS MUST BE OBSERVED TO PREVENT THE POSSIBILITY OF INJURY OR DAMAGE.**

**TRACTORS**

This operator's manual uses the term "Tractor" when identifying the power or the towing source.

**H & S MANUFACTURING CO. INC.**

## RECOGNIZE SAFETY INFORMATION

This is the safety-alert symbol. When you see this symbol on your machine or in this manual, be alert to the potential for personal injury.

Follow recommended precautions and safe operating practices.



## UNDERSTAND SIGNAL WORDS

A signal word- DANGER, WARNING, or CAUTION - is used with the safety-alert symbol. DANGER identifies the most serious hazards.

Safety signs with signal word DANGER or WARNING are typically near specific hazards.

General precautions are listed on CAUTION safety signs.



**WARNING**



**CAUTION**



## FOLLOW SAFETY INSTRUCTIONS

Carefully read all safety messages in this manual, and all safety signs on your machine. Follow all recommended precautions and safe operating procedures.

Keep signs in good condition. Immediately replace any missing or damaged signs.

## TRACTORS

This operators manual uses the term “Tractor” when identifying the power or the towing source.



# WARNING

### TO PREVENT SERIOUS INJURY OR DEATH

BEFORE YOU ATTEMPT TO OPERATE THIS EQUIPMENT, READ AND STUDY THE FOLLOWING INFORMATION. IN ADDITION, MAKE SURE THAT EVERY INDIVIDUAL WHO OPERATES OR WORKS WITH THIS EQUIPMENT, WHETHER FAMILY MEMBER OR EMPLOYEE, IS FAMILIAR WITH THESE SAFETY PRECAUTIONS.

KNOW HOW TO STOP UNLOADING MECHANISM BEFORE STARTING IT.

If the machine becomes clogged, disengage the PTO. Stop the tractor engine, remove ignition key, and allow all mechanisms to stop before cleaning or working on the machine.  
Never allow riders in or on the machine.

**DO NOT** get off the tractor while the spreader is in operation.

**DO NOT** attempt to perform maintenance or repair with tractor running and PTO and hydraulic hoses hooked up.

**DO NOT** step up on machine at any time.

**NEVER** manually feed material into the beaters.

**DO NOT** allow minors to operate or be near the machine.

**DO NOT ALLOW PERSONNEL OTHER THAN THE QUALIFIED OPERATOR NEAR THE MACHINE.**

Before starting tractor, be sure PTO shields turn freely and PTO is securely locked to tractor.

**DO NOT** clean, adjust, or lubricate the machine when any part is in operation.

Keep hands, feet, and clothing away from beaters when they are revolving.

Loose or floppy clothing should not be worn by the operator.

Be sure the machine is clear of people, tools, and other objects before engaging PTO.

**DO NOT** step over power take off shaft. Stay clear of PTO at all times.

**NEVER** start manure spreader until all guards and safety shields are secured in place.

**NEVER** operate spreader with a PTO speed Greater Than Recommended PTO RPM.

Stay clear of Hydraulic Lines. They may be under extreme pressure or heat.

H&S always takes the operator and his safety into consideration and guards exposed moving parts for his protection. However, some areas cannot be guarded or shielded in order to assure proper operation. In addition, the operators manual and decals on the machine itself warn you of further danger and should be read and observed closely.

**Study The Above Safety Rules**

**ATTENTION - BE ALERT - YOUR SAFETY IS INVOLVED**



**⚠ WARNING**

**DO NOT OPERATE THIS EQUIPMENT IF THIS DECAL IS EXPOSED. REPLACE SAFETY SHIELDS.**

1494A



**⚠ WARNING**

**DO NOT GO NEAR LEAKS**

- High pressure oil easily punctures skin causing serious injury, gangrene or death.
- If injured, seek emergency medical help. Immediate surgery is required to remove oil.
- Do not use finger or skin to check for leaks.
- Lower load or relieve hydraulic pressure before loosening fittings.

11599

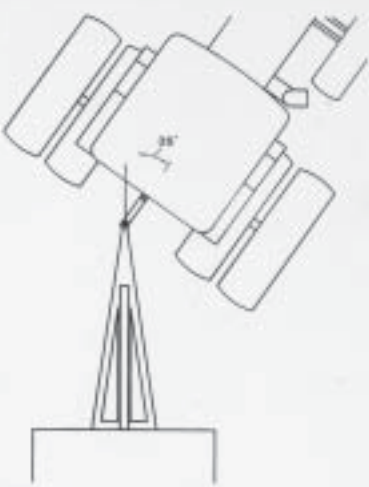


**⚠ WARNING**

**DO NOT REMOVE SHIELDS**

**ROTATING PARTS INSIDE**

12794



**⚠ CAUTION**

**HYDRA PUSH DRIVELINE 35° MAXIMUM WORKING ANGLE**

NEVER TURN GREATER THAN 35° IN OPERATION OR 45° IN NON-OPERATION; EXCEEDING THESE ANGLES WILL BEND DRIVELINE

WATCH CAREFULLY WHEN BACKING UP

NOTE: SHUTTING OFF THE PTO WHEN TURNING WILL EXTEND THE LIFE OF THE DRIVELINE

PTO TO HITCH PIN LENGTH:

- 540 RPM - 14"
- 1-3/8" 1000 RPM - 16"
- 1-3/4" 1000 RPM - 20"

FAILURE TO HEED WILL VOID WARRANTY

80268

**⚠ DANGER**



**ROTATING DRIVELINE CONTACT CAN CAUSE DEATH KEEP AWAY!**

DO NOT OPERATE WITHOUT-

- ALL DRIVELINE, TRACTOR AND EQUIPMENT SHIELDS IN PLACE.
- DRIVELINES SECURELY ATTACHED AT BOTH ENDS.
- DRIVELINE SHIELDS THAT TURN FREELY ON DRIVELINE.

1494L

**⚠ WARNING**

**DO NOT OPERATE THIS EQUIPMENT IF THIS DECAL IS EXPOSED. REPLACE SAFETY SHIELDS.**

32597A

**⚠ WARNING**

**HELP AVOID INJURY**

- READ & UNDERSTAND THE OPERATORS MANUAL PROVIDED WITH THIS MACHINE. IF MISPLACED CALL YOUR LOCAL JOHN DEERE DEALER WITH MODEL AND SERIAL NUMBER.
- UNDERSTAND ALL SAFETY WARNINGS AND FUNCTION OF CONTROLS.
- KEEP SAFETY DEVICES IN PLACE AND WORKING.
- KEEP YOURSELF AND OTHERS WELL CLEAR OF MOVING PARTS.
- DISCONNECT ALL POWER BEFORE SERVICING OR CLEANING THIS MACHINE.
- DO NOT EXCEED 20 MPH

FRONT



**⚠ WARNING**

**DO NOT REMOVE SHIELDS**  
**MOVING PARTS INSIDE**

1494B

**⚠ DANGER**



**NEVER ALLOW RIDERS ON THIS MACHINE**

9194B

**⚠ WARNING**



**DO NOT REMOVE SHIELDS**  
**MOVING PARTS INSIDE**

1494K

**⚠ DANGER**



**NO STEP-STAY CLEAR**

9194A

**⚠ DANGER**



**STAY CLEAR OF END GATE ARMS**

111593C

**⚠ WARNING**



**DO NOT CLEAN OR WORK ON THIS MACHINE WITHOUT FIRST DISENGAGING POWER AND SHUTTING OFF TRACTOR ENGINE.**

1494J



**⚠ DANGER**

**STAY CLEAR OF BEATER IF TRACTOR OR PTO IS RUNNING**  
**BEATER SHUT OFF COULD ACCIDENTALLY BE ENGAGED**

**FAILURE TO HEED THIS WARNING MAY RESULT IN PERSONAL INJURY OR DEATH**  
**KEEP CLOTHING, YOURSELF AND OTHERS WELL CLEAR**

111593A



**⚠ DANGER**

STAY CLEAR WHEN  
MANURE SPREADER  
IS OPERATING

FAILURE TO HEED THIS  
WARNING MAY RESULT IN  
PERSONAL INJURY OR DEATH

KEEP CLOTHING, YOURSELF  
AND OTHERS WELL CLEAR.

1906D



**⚠ WARNING**

STAY CLEAR  
MOVING PARTS  
BEHIND THIS  
AREA

1906E



**⚠ WARNING**

DO NOT OPERATE  
THIS EQUIPMENT  
IF THIS DECAL IS  
EXPOSED.  
REPLACE SAFETY  
SHIELDS.

71494A



**⚠ DANGER**

**KEEP OUT**  
DISENGAGE ALL POWER AND  
SHUT OFF TRACTOR ENGINE  
BEFORE ATTEMPTING TO  
ENTER OR CLEAN SPREADER

FAILURE TO HEED THIS  
WARNING MAY RESULT IN  
PERSONAL INJURY OR DEATH

1906F



**⚠ WARNING**

DO NOT OPERATE THIS EQUIPMENT IF THIS  
DECAL IS EXPOSED. REPLACE SAFETY  
SHIELDS. FAILURE TO HEED MAY RESULT  
IN SERIOUS INJURY OR DEATH.

51901

**⚠ WARNING**



STAY  
CLEAR OF  
END GATE  
ARMS

123002

**⚠ WARNING**



STAY  
CLEAR

1906C

**⚠ WARNING**



**CRUSHING HAZARD**  
TO PREVENT SERIOUS INJURY OR DEATH:  
KEEP HANDS AND BODY OUT OF HITCH  
AREA WHEN ATTACHING TOWING VEHICLE.  
KEEP BODY CLEAR OF CRUSH POINT  
BETWEEN TOWING VEHICLE AND LOAD.  
KEEP FEET AND LEGS CLEAR FROM UNDER  
TONGUE AREA IN CASE OF POSSIBLE JACK  
FAILURE.

82902

**ATTENTION**

TRACTOR THREE POINT HITCH ARMS  
SHOULD BE REMOVED OR POSITIONED  
SO THEY CANNOT COME IN CONTACT  
WITH SPREADER, FAILURE TO HEED  
WILL CAUSE DAMAGE TO SPREADER  
AND VOID WARRANTY.

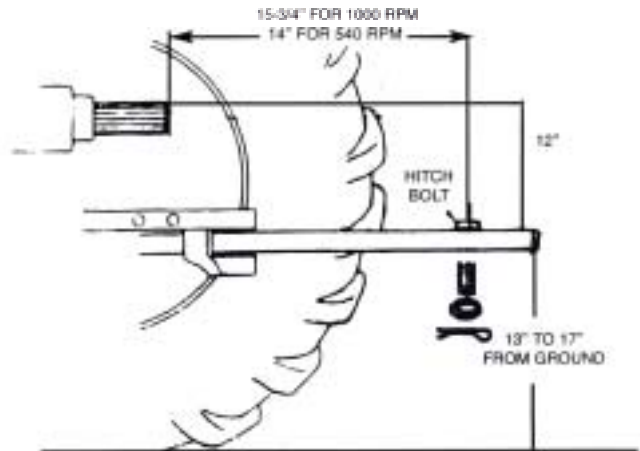
71706

# OPERATION

1. Check for proper assembly and adjustment and make sure that all bolts are tightened. Securely retighten after a few hours of operation, as bolts can loosen up on new machinery. Check wheel bolts upon delivery and periodically thereafter. Wheel bolts should be tightened at 100 ft/lbs. of torque on HP425 and 300 ft/lbs. of torque on HP550
2. Check the tires and inflate to the recommended pressure (385/65R-22.5 and 425/65R-22.5 tires to 85 psi.).
3. Adjust the tractor hitch and attach the spreader to the tractor as described in the following sections.
4. Attach hydraulic hoses to double acting valves on tractor.
5. Lubricate the machine completely and check the oil level of the gearbox.
6. Before operation, run machine slowly to make sure that the spreader is operating and lubricated properly.

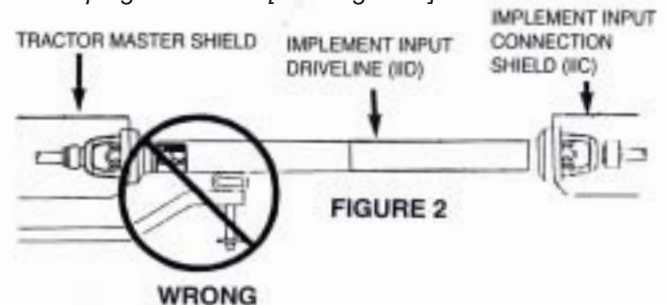
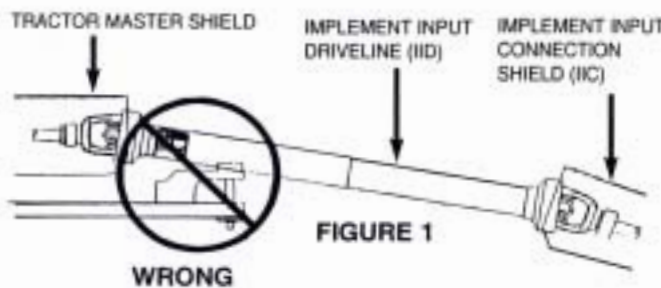
## TRACTOR HITCH

The hitch of the spreader is designed for a standardized tractor hitch. Adjust the drawbar so that it is 13 to 17 inches above the ground. Extend or shorten it so that the horizontal distance from the end of the tractor power takeoff shaft to the center of the hitch pin hole is 14 inches for 540 PTO and 15-3/4" for 1000 PTO as shown in drawing. An improperly located hitch point may cause damage to the universal joints of the power takeoff. Secure the drawbar so that the hitch pin hole is directly below the power drive line.



*If this implement is attached to a tractor with a clevis hitch (hammer-strap) style drawbar, the hammer-strap must be removed to prevent damage to the IID guarding and the IID telescoping members. [See Figure 1]*

*If this implement is attached to a tractor with an offset in the drawbar, be certain it is in the down position to prevent damage to the IID guarding and the IID telescoping members. [See Figure 2]*



## ATTACHING TO THE TRACTOR

1. Fasten the spreader hitch to the drawbar with a **hitch pin with a safety locking device**. Use 2" diameter hitch pin to pull spreader.
2. Remove the weight from the jack (jack is not to be used when spreader is loaded). Remove jack from pipe mount and place on convenient storage mount located on the side of the left push frame brace. This allows protection of jack from tractor tires during turns.
3. **ATTENTION:** Remove tractor quick coupler (If equipped). Tractor three point arms should be removed or positioned so they cannot come in contact with spreader. **Failure to heed will cause damage to spreader and Void Warranty.**
4. Connect hydraulic hoses which operate the spreader hydraulic push gate from the spreader to a double acting valve on the tractor.
5. Connect hydraulic hoses which operate the hydraulic endgate to another double acting valve on the tractor.

Slide spring loaded locking collar on PTO yoke rearward, and slide it onto the tractor PTO shaft. Release spring loaded collar. Be sure the pins fall into the groove of the tractor PTO shaft and collar snaps forward into locking position. **CAUTION:** Do not use a steel hammer to aid in joining PTO parts.

# OPERATION *(Continued)*

## SERVICING

Be certain to disconnect all sources of power before servicing. Keep pant cuffs and loose clothing away from all chains and drives as well as the other moving parts. Keep off the equipment when in use, and keep all shields in place. Do not attempt to clean, grease or lubricate while the machine is running. Never allow riders in or on the machine.

**When transporting on the highway, connect power cord from tractor to spreader (if equipped). Make sure lights are functioning properly. Regularly clean the reflective tape at the rear of the spreader. There is a holder provided for your SMV sign.**

## LOADING

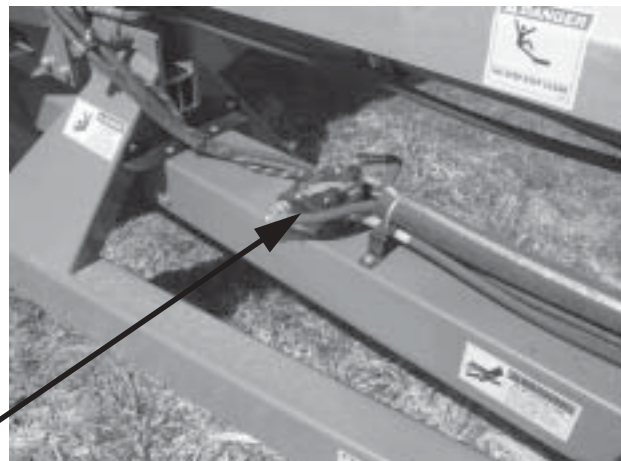
In freezing weather, make certain that hydraulic tailgate is not frozen to the sides or on the floor of the spreader. Make sure the push gate is not frozen to the spreader floor or any lumps of manure are frozen to the floor.

Begin loading the spreader at the front end and work toward the rear until loading is completed. Loading this way permits the material to be spread uniformly. Loading front to rear is particularly important when the spreader is loaded by a mechanical loader because this type of load requires more power to spread than other loads.

When hauling extremely heavy materials with a large portion of dirt, it may be necessary to reduce the load size to prevent excessive shear bolt breakage. Never dump material onto the beater. Do not use extra sideboards. Do not overload spreader. Overloading decreases spreading effectiveness. Do not load more than 15 inches above the beater.

## SPREADING

1. Engage tractor PTO slowly. Beater is always in the engaged position, therefore, engaging tractor PTO will automatically start the beaters.
2. Raise the hydraulic endgate by engaging the tractor hydraulics. **Note: Hydraulic endgate MUST BE RAISED COMPLETELY prior to engaging hydraulic pushgate.**
3. Engage tractor hydraulics to operate spreader push gate.
4. Control the speed of the spreader push gate by rotating the lever on the flow control valve (A), located on the PTO shield near the front of the spreader. If the tractor is equipped with in cab flow control the lever on the flow control valve can be put in the full flow position and the spreader push gate can be controlled with the in cab control.
5. When the spreader is empty disengage the tractor PTO (which will stop the beater). Engage tractor hydraulics to return the spreader push gate. When spreader push gate is **completely retracted** engage tractor hydraulics to close hydraulic endgate.





# ADJUSTMENTS

**FAILURE TO FOLLOW THE RECOMMENDED ADJUSTMENTS WILL VOID WARRANTY**

## PRIMARY & SECOND BEATER DRIVE CHAINS

Both beater drive chains can be adjusted by loosening bolts (A) and sliding poly tensioners toward the chain until 1/2" of deflection can be obtained on the opposite side (B). Retighten bolts (A) when deflection is obtained.

**NOTE:** PERIODICALLY LUBRICATE ALL ROLLER CHAINS WITH A LIGHT MACHINE OIL.



Shields Removed for Clarity

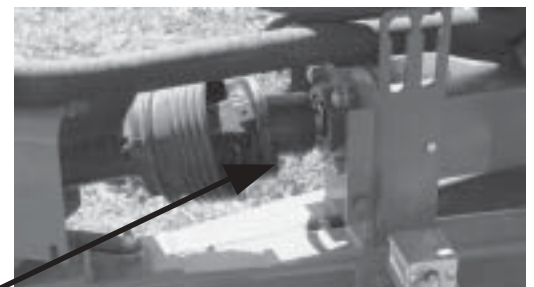
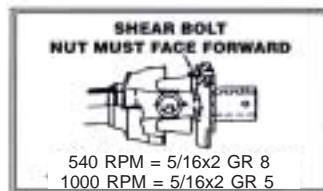
**BE SURE ALL SHIELDS ARE SECURED INTO PLACE PRIOR TO RE-STARTING MACHINE.**

## ADJUSTING WHEEL HUBS

To adjust wheel hubs, tighten the castellated nut on the spindle to the point where there is no end-play and a slight drag on the bearings. Replace the cotter key with a new one of the correct size.

## SHEAR BOLT

Both beaters at the rear of the spreader are protected by one shear bolt located in the PTO at the front of the spreader. Four spare shear bolts are provided. Shearing of bolts is normally due to large frozen chunks of manure, foreign objects (rocks, chunks of wood etc.) in the manure, running spreader push gate too fast when unloading long straw and pen-packed material, or STARTING SPREADER PTO TOO QUICKLY WITH HIGH TRACTOR RPM'S. Always determine the reason for shearing bolt and eliminate the problem before replacing shear bolt. Always use proper H&S shear bolt (540 RPM 42N98 5/16"-18 x 2" GR. 8 bolt, D81 5/16"-18 lock nut) or (1000 RPM 42N97 5/16"-18 x 2" GR. 5 bolt, D81 5/16"-18 lock nut).



Shear Bolt

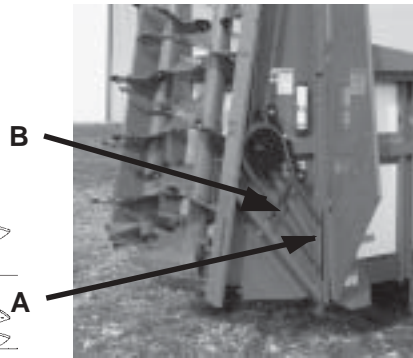
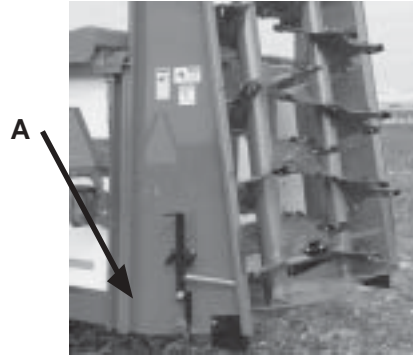
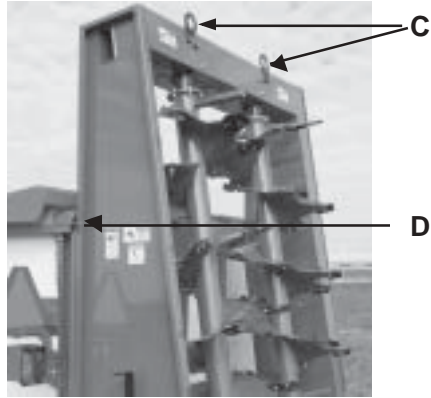


Spare Shear Bolts

# VERTICAL BEATERS

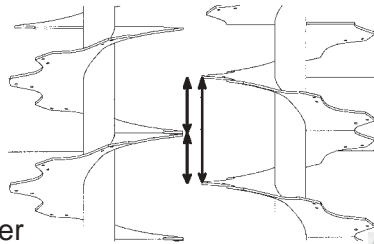
## BEATER REMOVAL

The beater attachment can easily be removed for various reasons such as manure stock piling. Remove bolts, nuts and lockwashers (A). Remove connector link on chain (B). Strip chain from sprockets. Set bolts and chain aside. Securely attach a lifting chain to lifting eyes at the top of the beater assembly (C). Lift beater assembly gently until alignment pegs are clear of the alignment holes (D).



## TIMING OF BEATERS

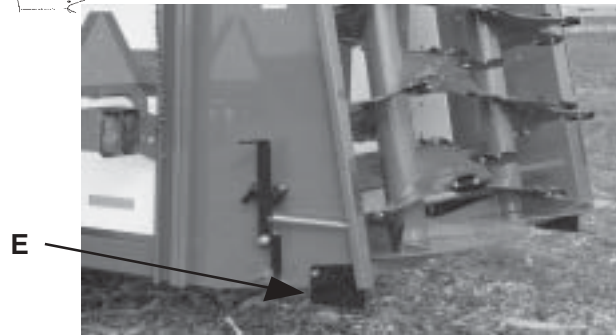
Beaters must be timed so flighting of opposite beater is about half-way between beater being timed. To time beaters, remove top shield and remove chain coupling so beater can be turned to proper position. Re-connect chain and re-install shield.



Shields Removed for Clairty

## BEATER STORAGE

After the beater assembly has been removed make sure the legs (Part # HGV10) are securely bolted in place (E). **The beater assembly must be stored on a flat level concrete surface.**



## CLEAN OUT PAN

The clean out pan should be used at the end of each day or between each load during freezing weather. To trip the pan pull forward on lever (F). The pan (G) will drop and allow manure build up to fall to the ground. Note: The endgate should be completely raised and the push gate fully extended (All the way to the rear of the spreader). To reset the clean out pan lift up on handle (H).



F

H

G

# LUBRICATION GUIDE

The operator should become familiar with all lubrication points and establish a systematic routine to ensure complete and quick lubrication of the machine.

## GREASE FITTINGS

There are numerous grease fittings on the spreader. If these are lubricated properly and often enough, it will prolong the life of the spreader. (Grease every 20 hours, **also before and after power washing.**) Make certain that the grease fittings are free of paint and dirt, force a high-quality grease into them until the grease comes out around the shaft on the sleeve-type bearings. On the sealed ball bearings, grease should be added slowly until a slight bead forms at the seals indicating the correct amount of lubricant. Wipe off excess grease to prevent the accumulation of chaff and grit around the bearings.

## GREASE ZERK LOCATION

- A. (3) PTO Shaft
- B. (2) Front Drive Shaft Bearings.
- C. (1) Gear Box Output Shaft
- D. (4) Each Beater End
- E. (2) Endgate Pivot Points
- F. (2) Over Running Clutch (Rear Half of PTO)
- G. (2) Each Axle Pivot (Remote Zerk)
- H. (4) Each Wheel Hub
- I. (2) Each Lower Beater Bearing
- J. (1) Gearbox Drive Shaft



A F B  
Shields Removed for Clarity



H E G H D

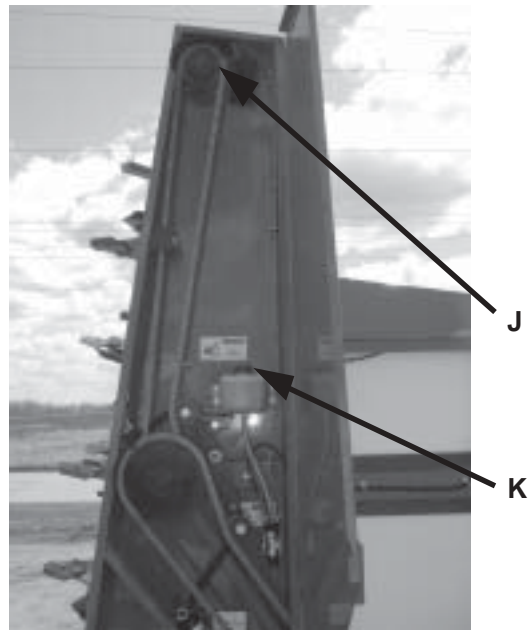


C (Behind Shield) H G E H



D D  
Shields Removed for Clarity

# LUBRICATION GUIDE (CONTINUED)



Shields Removed for Clairty

<b>⚠ WARNING</b>	
	<b>DO NOT CLEAN OR WORK ON THIS MACHINE WITHOUT FIRST DISENGAGING POWER AND SHUTTING OFF TRACTOR ENGINE.</b>

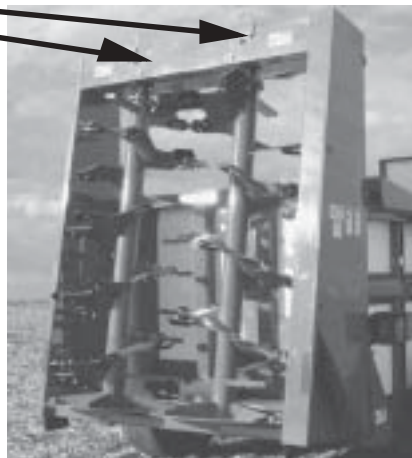
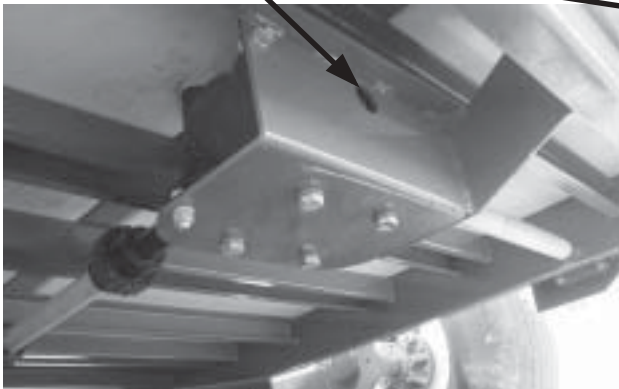
## CHAIN OILER

The Vertical Beater attachment is equipped with a chain oiler. The oiler will place a prescribed amount of oil to the drive chains every time the hydraulic endgate is raised. Warm weather the oiler should be filled with a #30 oil and cold weather #10 oil. The reservoir (K) is located behind the shield at the right rear of the spreader. Maintain oil level no less than 1/4 tank.

## GEARBOX

Before using your new machine, check the oil in the beater drive gearbox or gearboxes (Vertical Beaters). Keep the gearbox filled to the oil plug on the side of the gearbox as shown with Mobilube SHC 75W90 (or equivalent) gear lube.

### CHECK PLUG



(Gearbox is located underneath rear of spreader)

# LUBRICATION GUIDE (CONTINUED)

## DRIVE CHAINS

The drive chains are lubricated by a automatic chain oiler. This will extend the life of the drive chains. Keep chains aligned with sprockets, this will also lengthen the life of the sprockets and drive chains.



**PTO ASSEMBLY-** Care must be taken to keep the male and female driving elements well lubricated and free sliding. Failure to observe this precaution will result in excessive pressure being required to collapse or extend the assembly while subject to operating torque. This excessive force may damage or displace the main shaft bearings. **DO NOT** lubricate the shield surfaces. The shield surfaces must be kept dry, as dirt accumulation on them will quickly cause these units to bind and not rotate. Care should also be taken to be certain that the rotating integral shields are not dented or damaged, as this also will result in excessive force being applied against the jackshaft. Damaged shields also cause obvious difficulties when installing the assembly. If at any time the shields do not turn freely, they should be checked to determine the cause, and repaired or cleaned. To avoid damage to the main drive bearings, avoid turning sharp corners while PTO is running. Start and Stop PTO slowly to avoid damage to the drive line.



## BEATER

When replacing beater paddles (Horizontal Beater Assembly), the sharp edges of the teeth must lead in the direction of beater travel. On the right half of the beater the teeth must point to the right side of the spreader. On the left half of the beater the teeth must point to the left side of the spreader. Always use H&S special grade 5 bolts, washers, and nuts when replacing tips. Use H&S part number R10 (1/2" special bolt), R35 (1/2" lock washer), R11 (1/2" special nut), torque to 60 foot lbs.

**When transporting on the highway, connect power cord from tractor to spreader (if equipped). Make sure lights are functioning properly. Regularly clean the reflective tape at the rear of the spreader. There is a holder provided for your SMV sign.**

# DECAL LOCATION

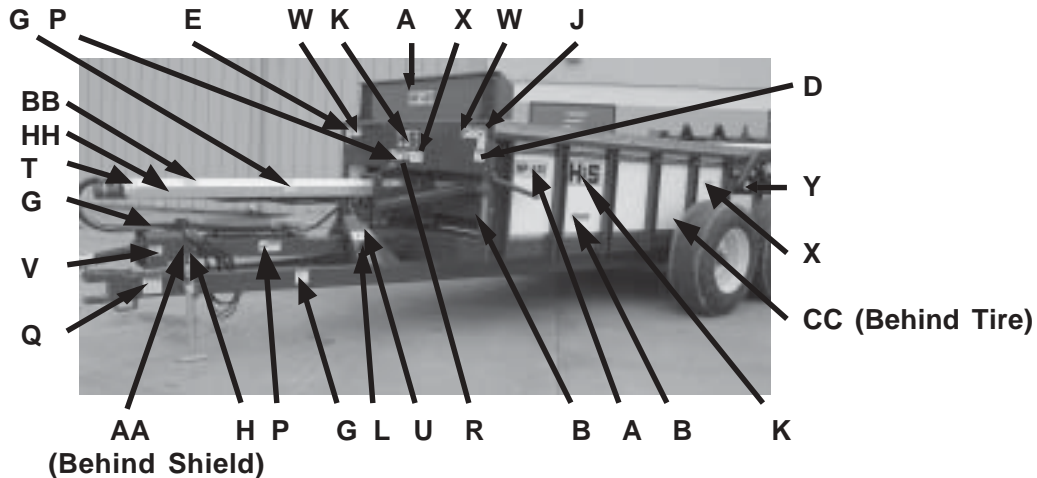
Your H&S Manure Spreader was manufactured with operator safety in mind. Located on the manure spreader are various decals to aid in operation, and warn of danger or caution areas. Pay close attention to all decals on your Manure Spreader.



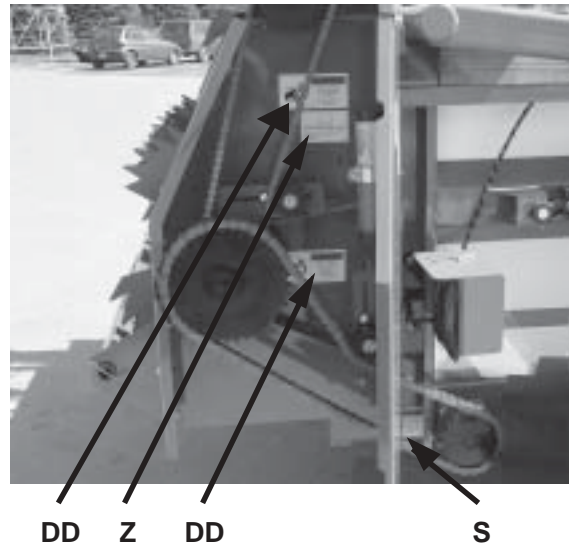
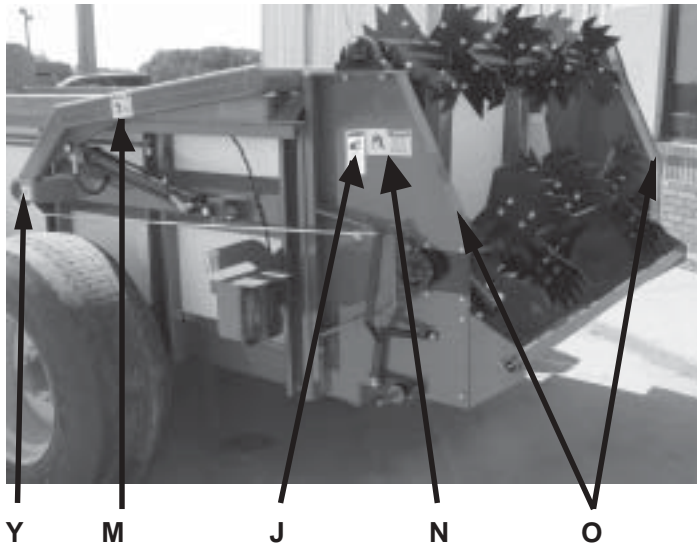
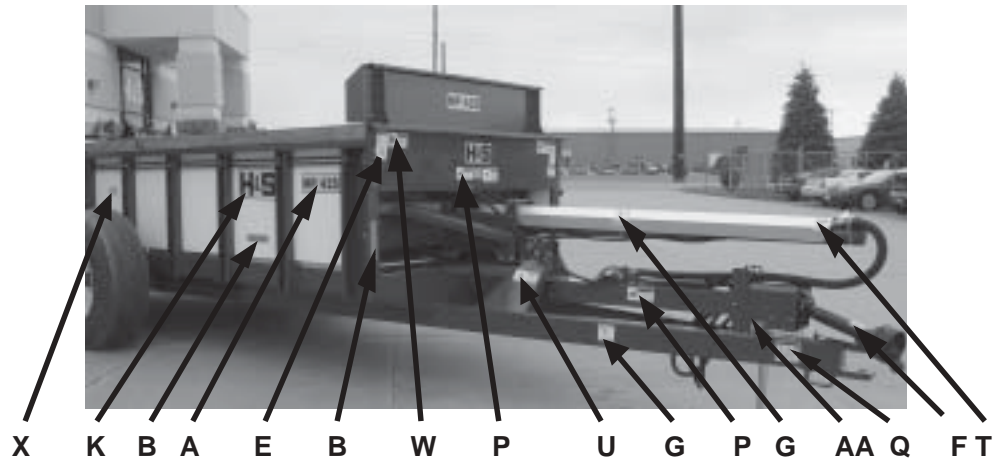
**DO NOT REMOVE ANY OF THESE DECALS. IF DECALS ARE LOST, DAMAGED, OR IF MANURE SPREADER IS REPAINTED, REPLACE DECALS. REMEMBER: DECALS ARE FOR YOUR PROTECTION AND INFORMATION.**

Listed below are the decals on your Manure Spreader. These decals may be ordered individually by part number or by ordering a complete set.

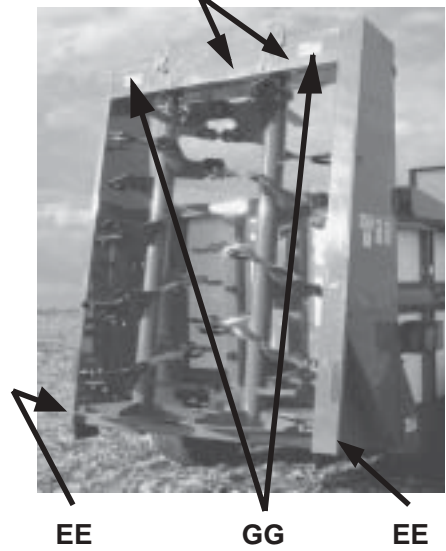
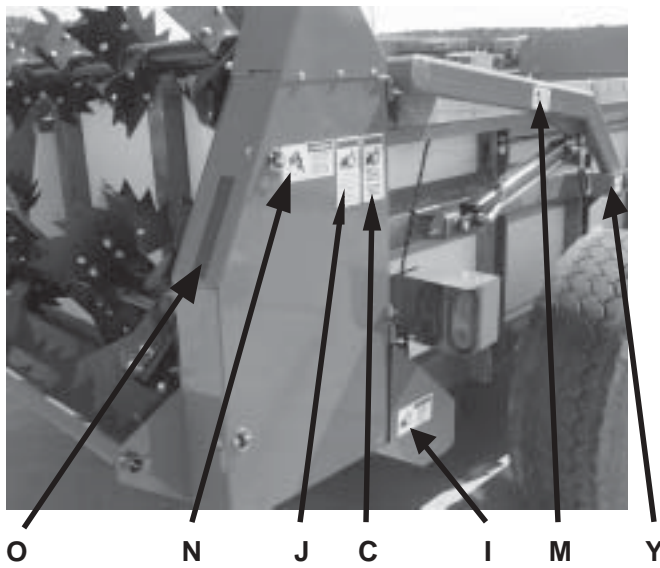
ITEM	PART NO.	DESCRIPTION	ITEM	PART NO.	DESCRIPTION
A		(3) Model HP425 Decals (3) Model HP550 Decals	EE.	93020	(2) Grease Fitting
B	2X9AMBER	(6) Amber Reflector	FF.	71494A	(2) Warning - Do Not Remove Shields
C	1494K	(1) Warning - Do Not Remove Shields	GG.	12794	(2) Warning - Do Not Operate
D	72203A	Warning - Help Avoid Injury	HH.	82508	Caution - Driveline Angle...
E	9194B	Danger - Never Allow Riders			
F	1494L	Danger - Rotating Driveline			
G	9194A	(5) Danger - No Step			
H		Serial Number			
I	1494B	Warning - Do Not Remove Shields			
J	1494J	(3) Warning - Do Not Clean or Work			
K	B17	(3) H&S Decal			
L	71188B	Jack Storage Position			
M	111593C	(2) Warning - Stay Clear of Endgate			
N	111593A	(2) Danger - Stay Clear of Beater			
O	2X9RED	(2) Red Reflectors			
P	11599	(3) Warning - Stay Clear of Leaks			
Q	82602	(2) Warning - Crushing Hazard			
R	H&S404	Patent Number			
S.	32597A	Warning - Do Not Operate			
T.	1906C	(2) Warning - Stay Clear			
U.	1906D	(2) Danger - Stay Clear			
V.	12306	Shear Bolt			
W.	1906E	(2) Warning - Stay Clear			
X.	1906F	Danger - Keep Out (3) HP425 (5) HP550			
Y.	123002	(2) Warning - Stay Clear of Endgate			
Z.	93366	Keep Operators Manual Here			
AA.	51606	Warning - Do Not Operate			
BB.	71706	Attention - Tractor 3pt Hitch			
CC.	3494A	(2) Remote Grease Fitting			
DD.	1494A	(2) Warning - Do Not Operate			
	72006-HP425	Complete Set of Decals for HP425			
	72006-HP550	Complete Set of Decals for HP550			



# DECAL LOCATION (CONTINUED)



Shields Removed for Clarity  
FF (Behind Shield)



# TROUBLE SHOOTING



**WARNING**

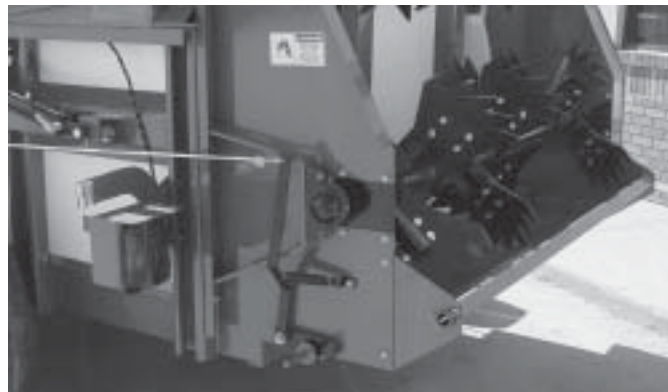
**MAKE SURE THAT THE TRACTOR IS SHUT OFF AND THE SPREADER CAN NOT MOVE BEFORE SERVICING THE MANURE SPREADER. MAINTENANCE AND REPAIR SERVICE WORK TO BE PERFORMED BY A QUALIFIED SERVICE PERSON ONLY.**

<u>TROUBLE...</u>	<u>POSSIBLE CAUSE...</u>	<u>POSSIBLE REMEDY...</u>
Beater Will Not Run	Tractor PTO Not Turning	Engage Tractor PTO
	PTO Shaft Shear Bolt Sheared	Replace PTO Shaft Shear Bolt (See Page #15)
	Primary Beater Drive Chain Off, Broken or Missing	Replace or Repair Primary Beater Drive Chain (See Page #15)
	Key Sheared or Missing on Beater Drive or Driven Sprocket	Replace Sheared or Missing Key
Top Beater Does Not Turn	Secondary Beater Drive Chain Off, Broken or Missing	Replace or Repair Secondary Beater Drive Chain (See Page #15)
Push Gate Will Not Move	Tractor Hydraulics Not Engaged	Engage Tractor Hydraulics
	Flow Control Valve Turned Off	Reset Flow Control Valve (See Page #14)
	Low Tractor Hydraulic Flow or Pressure	Have Servicing Dealer Check Tractor Flow And Pressure
	Hydraulic Couplers Not Coupled To Tractor Properly	Couple Hoses To Tractor (See Page #13)
	Spreader Is Over Loaded	Reduce Load

## OPTIONAL EQUIPMENT

**REAR PAN**

The rear pan shown to the right is optional equipment on the HP425 & HP550 spreader. The rear pan option allows for a even spread when light applications are needed.



**TRANSPORT LIGHTING**

The transport light package is optional on the HP425 spreader. The optional transport light package helps provide additional safety with daily road travel.

**When transporting on the highway, connect power cord from tractor to spreader (if equipped). Make sure lights are functioning properly. Regularly clean the reflective tape at the rear of the spreader. There is a holder provided for your SMV sign.**



# INSTRUCTIONS FOR ORDERING PARTS

All service parts should be ordered through your authorized H&S dealer. He will be able to give you faster service if you will provide them with the following:

1. Model & Serial Number - Both can be located on the side of the center bearing post above jack mount.
2. All references to left or right apply to the machine as viewed from the rear.
3. Parts should not be ordered from illustration only. Please order complete part number.
4. If your dealer has to order parts - give shipping instructions:

VIA truck - large pieces (please specify local truck lines)

VIA United Parcel Service (include full address)

H&S MFG. CO. INC.	
MARSHFIELD, WIS.	
MOD. NO.	<input type="text"/>
SER. NO.	<input type="text"/>
DESCR.	<input type="text"/>

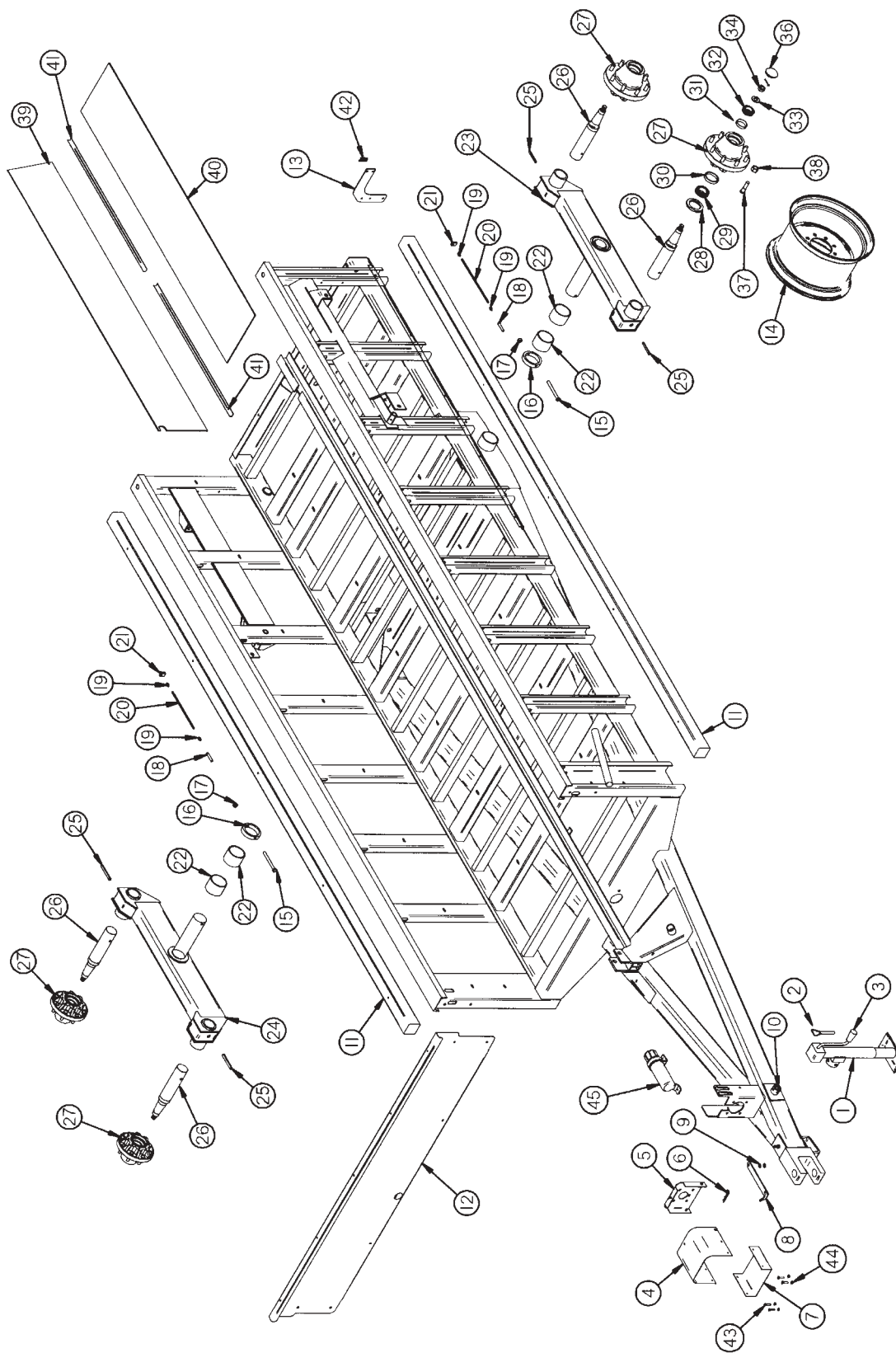
PLEASE RECORD NUMBERS FOR YOUR UNIT FOR QUICK REFERENCE

## ABOUT IMPROVEMENTS

H&S IS CONTINUALLY STRIVING TO IMPROVE IT'S PRODUCTS

We must therefore, reserve the right to make improvements or changes whenever it becomes practical to do so, without incurring any obligation to make changes or additions to the equipment previously sold.

FIGURE 1

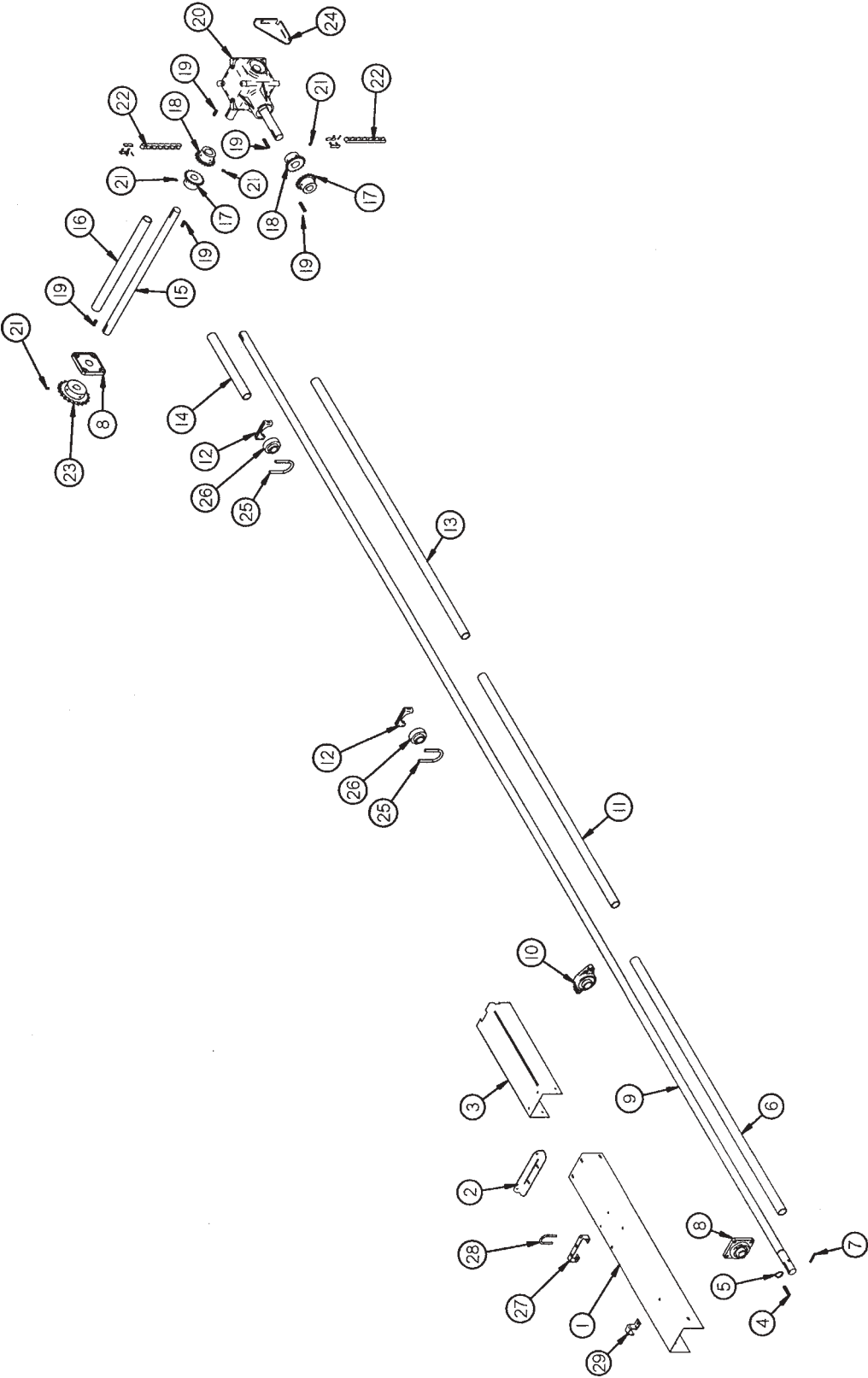


**FIGURE 1**  
**H&S HP425 & HP550 SPREADERS**  
**FRAME ASSEMBLY**

ITEM	HP425	HP550	DESCRIPTION
1.	27N14	"	Jack
2.	12N13	"	Jack Pin & Chain
3.	12N12	"	Jack Handle
4.	16SV329	"	PTO Shield
5.	42N1	"	Shield Mount
6.	X97	"	Hair Pin
7.	16SV327	"	PTO Shield Bottom
8.	42N2	"	PTO Holder
9.	42N3	"	Spring
10.	12N14	"	Jack Mount
11.	42N4	"	Wood Rail
12.	42N5	55N1	Front Panel
13.	42N43	"	SMV Bracket
14.	16SV89	-	Wheel 13.5 x 22.5 (8 Bolt)
*	-	60N15	Wheel 13.5 x 22.5 (10 Bolt)
*	42N138	-	Tire (385 x 22.5 Truck)
*	-	16SV88	Tire (425 x 22.5 Truck)
15.	BFR405	-	1/2" x 5-1/2" Bolt GR. 5
*	-	16SV77	1/2" x 6" Bolt GR. 5
16.	45N35	16SV214	Collar For Axle
17.	9S17	"	1/2" Lock Nut
18.	45N57	"	Grease Line Adapter
19.	S47	"	Grease Fitting
20.	42N41	"	Grease Line
21.	16V9	"	Grease Bracket
22.	45N36	16SV75	Bushing For Tandem Axle
23.	42N6	55N2	Tandem Axle Left
24.	42N7	55N3	Tandem Axle Right
25.	31N4	"	Roll Pin
26.	33SV40	66N15	Spindle
27.	33SV45	60N8	Hub
28.	33SV42	60N5	Seal
29.	33SV43	60N7	Inner Bearing
30.	33SV44	60N6	Inner Race
31.	RG169	60N10	Outer Race
32.	RG170	60N9	Outer Bearing
33.	33SV95	60N2	Washer
34.	RG17	60N3	Spindle Nut
35.	33SV46	60N4	Cotter Pin
36.	RG171	60N11	Hub Cap
37.	33SV41	60N13	Stud
38.	RG72	60N14	Lug Nut
39.	42N8	55N4	Side Poly Right
*	42N9	55N5	Side Poly Left
40.	42N10	"	Floor Poly Right
*	42N11	"	Floor Poly Left
41.	42N12	"	Poly Side Angle
42.	F97	"	SMV Holder
43.	42N97	"	5/16" x 2" Shear Bolt GR.5 (1000 RPM)
*	42N98	-	5/16" x 2" Shear Bolt GR. 8 (540 RPM)
44.	D81	"	Lock Nut
45.	S522	"	Manual Holder

**NOTE: \* (MEANS NOT SHOWN)**  
**- (MEANS NOT USED ON THIS MODEL)**

FIGURE 2



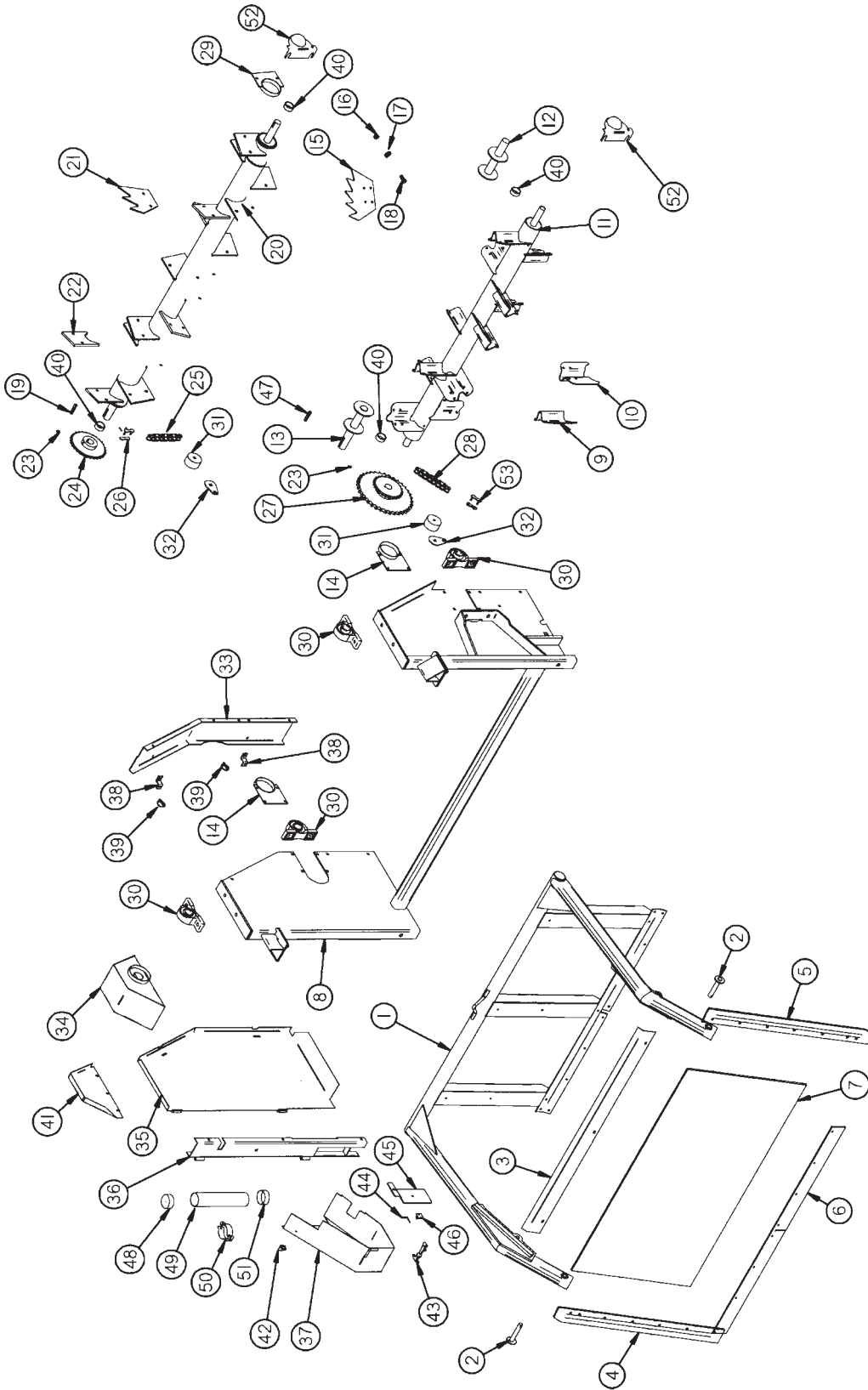
**FIGURE 2**  
**H&S HP425 & HP550 SPREADERS**  
**BEATER DRIVE TRAIN**

<b>ITEM</b>	<b>HP425</b>	<b>HP550</b>	<b>DESCRIPTION</b>
1.	42N13	"	Input Shaft Shield
2.	42N14	"	Input Shield Angle
3.	42N15	"	Input Shield Back
4.	S138	"	3/8" x 2-3/8" Key
5.	12V62	"	Snap Ring
6.	42N16	"	Input PVC Shield
7.	16SV379	"	3/8" x 2-1/2" Roll Pin
8.	12V67	"	Bearing
9.	42N17	"	Input Shaft
10.	42N18	"	Bearing
11.	42N19	"	Drive Shaft Center PVC Shield
12.	42N137	"	Bearing Saddle
13.	42N20	"	Drive Shaft Middle PVC Shield
14.	42N21	"	Drive Shaft Back PVC Shield
15.	42N22	"	Cross Shaft
16.	42N23	"	Cross Shaft PVC Shield
17.	42N24	"	Sprocket 50-B-20 1-1/2" Bore
18.	42N25	"	Sprocket 50-B-20 1-3/4" Bore
19.	PB136	"	3/8" x 2" Key
20.	42N26	"	Gearbox
21.	G83	"	Set Screw
22.	HGV124	"	Connector Chain #50 x 20 Pitches
23.	12V104	"	20 T Sprocket
24.	42N49	"	Gearbox Gusset
25.	42N99	"	3/8" U-Bolt
26.	42N100	"	Bearing
27.	42N101	"	Hose Holder
28.	42N102	"	5/16" x 2" ID U-Bolt
29.	HE14	-	Small Pipe Bracket

**NOTE: " (MEANS SAME AS PREVIOUS PART NO.)**

**- (MEANS NOT USED ON THIS MODEL)**

FIGURE 3

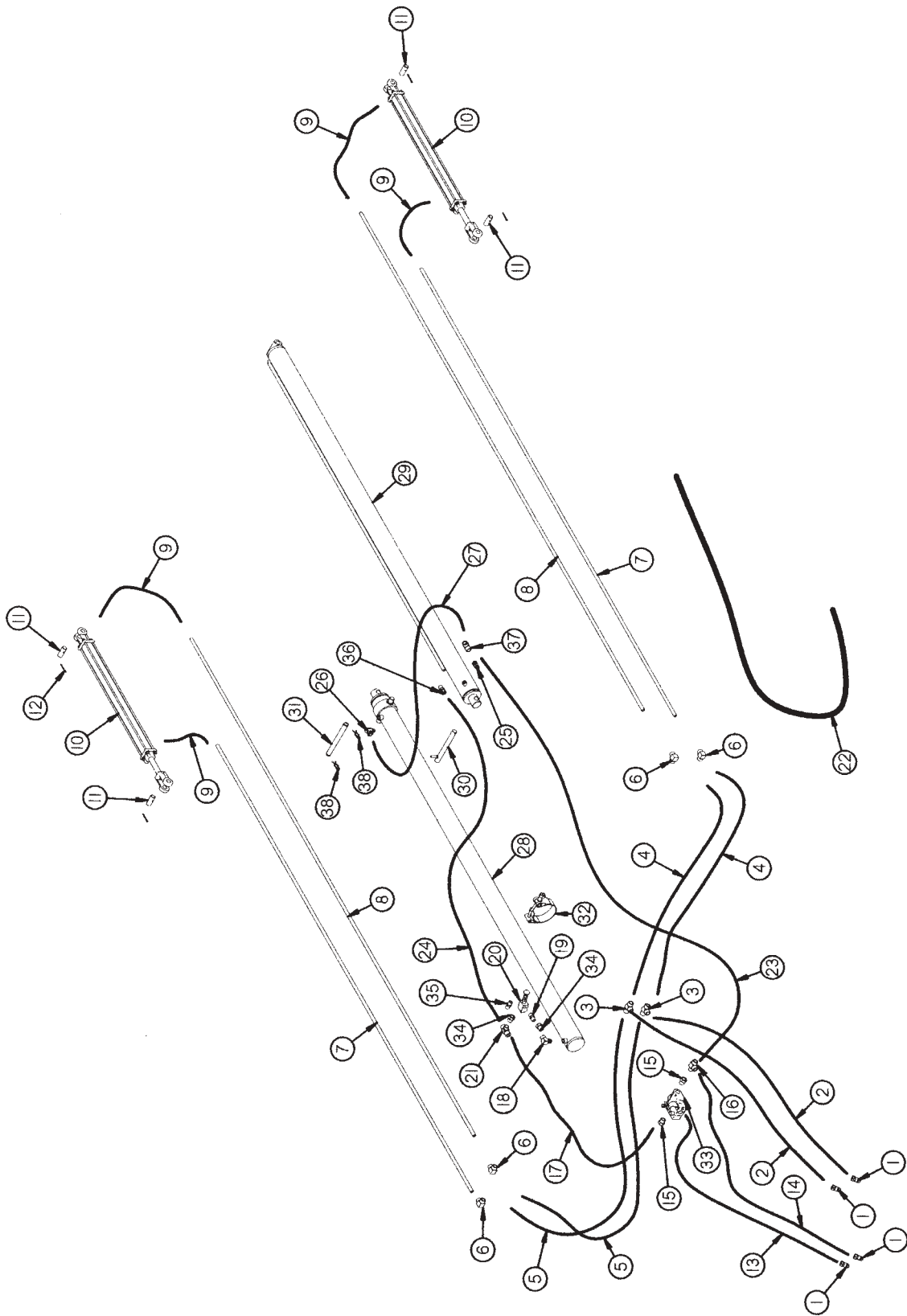


**FIGURE 3**  
**H&S HP425 & HP550 SPREADERS**  
**ENDGATE & BEATER**

ITEM	HP425	HP550	DESCRIPTION
1.	42N28	55N9	Endgate
2.	42N29	55N10	Hinge Pin
3.	42N30	55N11	Endgate Poly Holdown
4.	42N31	55N12	Endgate Rubber Right
5.	42N32	55N13	Endgate Rubber Left
6.	42N33	55N14	Endgate Rubber
7.	42N34	55N15	Endgate Poly
8.	42N35	55N16	Beater Panel
9.	42N36	"	Blade Holder Right
10.	42N37	"	Blade Holder Left
11.	42N38	"	Beater
12.	56N69	"	Beater Stub Shaft
13.	42N39	"	Beater Drive Shaft
14.	42N40	"	Beater Slot Filler
15.	23N277	"	Beater Blade
16.	R11	"	1/2" Lock Nut
17.	R35	"	Lock Washer
18.	R10	"	1/2" x 1-1/4" Beater Blade Bolt GR. 5
19.	S436	-	3/8" x 1-1/2" Key
*	-	PB136	3/8" x 2" Key
20.	42N42	42N38	Second Beater
21.	45N27	23N277	Second Beater Blade
22.	42N147	-	Blade Holder
*	-	42N36	Blade Holder Right
*	-	42N37	Blade Holder Left
23.	G83	"	3/8" Set Screw
24.	42N44	-	Second Beater Sprocket 60-B-30
*	-	16SV213	Second Beater Sprocket 80-B-23
25.	42N45	-	Second Beater Chain #60 x 98 Pitches
*	-	55N17	Second Beater Chain #80 x 82 Pitches
26.	F157	D39	Connector Link
27.	42N46	-	Beater Sprocket #80, 20T To #60, 25T (540 RPM)
*	-	55N19	Beater Sprocket #80, 36T To #80, 20T (1000 RPM)
*	42N47	-	Beater Sprocket #80, 36T To #60, 25T (1000 RPM)
28.	16SV34	-	Beater Chain #80 x 79 Pitches (540 RPM)
*	42N48	"	Beater Chain #80 x 88 Pitches (1000 RPM)
29.	-	55N18	Second Beater Slot Filler
30.	16SV72	"	Pillow Block Bearing
31.	42N50	"	Poly Chain Tightener
32.	42N51	"	Tightener Stop
33.	42N52	55N20	Main Panel Right End
34.	42N53	-	Second Beater Anti-Wrap
35.	42N54	55N21	Rear Shield
36.	42N55	55N22	Shield Filler
37.	42N56	"	Cross Shaft Shield
38.	F69	"	Shield Bracket
39.	F56	"	Clip Pin
40.	42N103	"	Beater Spacer
41.	42N104	-	Second Beater Shield
42.	X193	"	Latch Catch Bracket
43.	X192	"	Latch (Rubber)
44.	X195	"	Pin
45.	42N105	"	Back Stake Filler
46.	X194	"	Latch Mounting Bracket
47.	42N141	"	3/8" x 2-1/4" Key
48.	S414	"	Cap
49.	S415	"	Manual Holder Tube
50.	S416	"	Manual Holder Clamp
51.	S418	"	Cap w/Hole
52.	42N142	-	Stub Shaft Shield
53.	F157	"	#80 Connector Link

NOTE: \* (MEANS NOT SHOWN)  
- (MEANS NOT USED ON THIS MODEL)  
" (MEANS SAME AS PREVIOUS PART NO.)

FIGURE 4





**FIGURE 4**  
**H&S HP425 & HP550 SPREADERS**  
**HYDRAULICS**

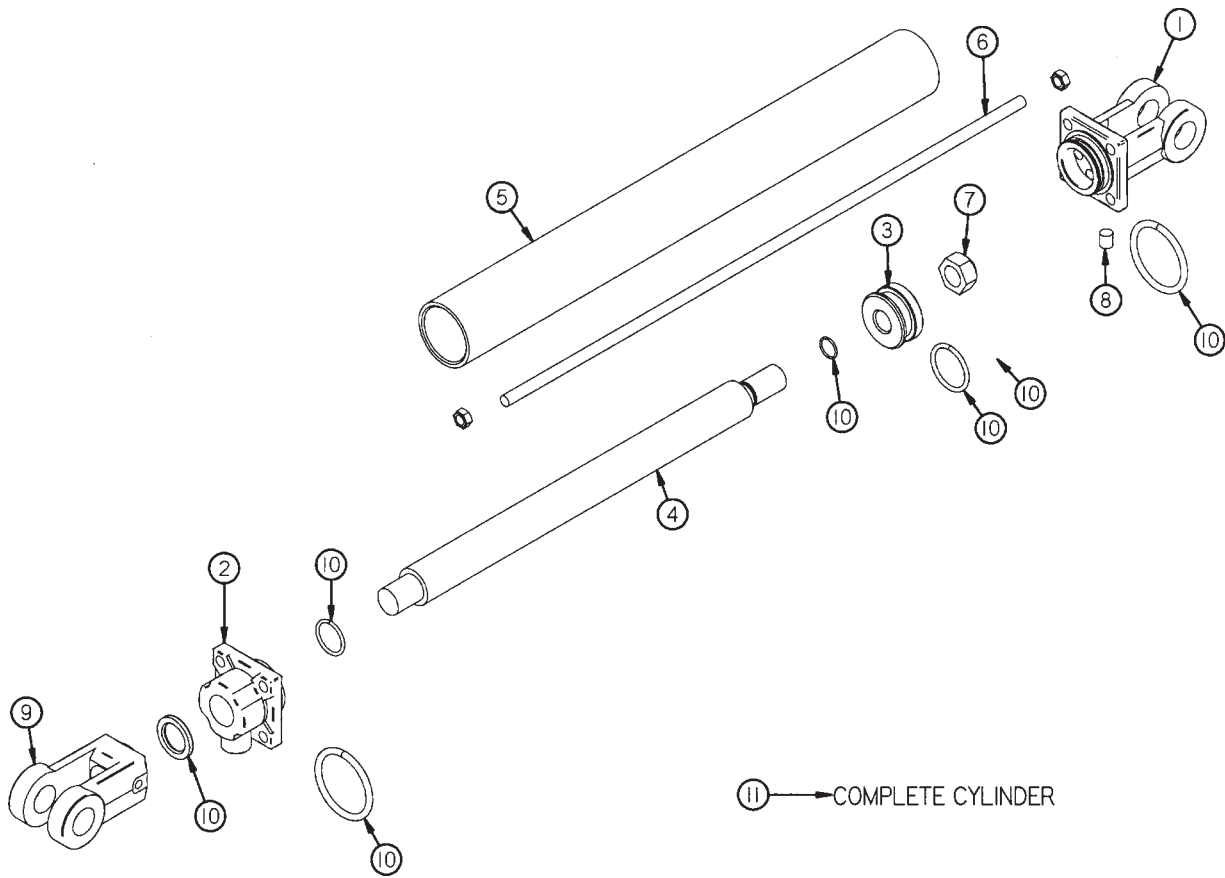
ITEM	HP425	HP550	DESCRIPTION
1.	DWM205	"	Quick Coupler Male
2.	12SV25	-	Hydraulic Hose 3/8" x 145" (1/2"MPX x 3/8"MPX)
*	-	55N82	Hydraulic Hose 3/8" x 155" (1/2"MP x 3/8"MP)
3.	BFR74	"	3/8" Tee
4.	46N40	"	Hydraulic Hose 3/8" x 46" (3/8"MPX x 3/8"MP)
5.	BFR287	"	Hydraulic Hose 3/8" x 36" (3/8"MPX x 3/8"MP)
6.	HE59	"	3/8" Elbow
7.	42N59	55N23	End Gate Hydraulic Line Short
8.	42N60	55N24	End Gate Hydraulic Line Long
9.	12V19	"	Hydraulic Hose 3/8" x 24" (3/8"FP x 3/8"MPX)
10.	45N45	"	Hydraulic Cylinder (2" x 20")
11.	56N141	"	Cylinder Pin
12.	23N108	"	7/32" x 2" Cotter Pin
13.	42N61	-	Hydraulic Hose 3/8" x 93" (1/2"MP x 1/2"MP)
*	-	55N6	Hydraulic Hose 1/2" x 93" (1/2"MP x 1/2"MP)
14.	42N62	-	Hydraulic Hose 3/8" x 95" (3/8"MP x 1/2"MP)
*	-	55N7	Hydraulic Hose 1/2" x 95" (1/2"MP x 1/2"MP)
15.	JB82	-	1/2" x 3/8" Bushiing
16.	23N116	-	3/8" Service Tee
*	-	LW96	1/2" Service Tee
17.	42N63	-	Hydraulic Hose 3/8" x 82" (3/8"MPX x 3/8"MPX 90°)
*	-	55N8	Hydraulic Hose 1/2" x 82" (1/2"MPX x 1/2"MPX 90°)
18.	23N234	-	3/8" Street Elbow
*	-	HE58	1/2" Street Elbow
19.	16SV351	"	3/8" Nipple Nut
20.	16SV339	"	Sequence Valve
21.	WM146	-	3/8" Male, Female Tee
*	-	DF8	1/2" Tee
22.	42N64	"	Hose Shield (1-1/2"ID x 73")
23.	42N65	-	Hydraulic Hose 3/8" x 158" (3/8"MPX 90° x 3/8"MPX)
*	-	55N29	Hydraulic Hose 1/2" x 158" (1/2"MPX 90° x 1/2"MPX)
24.	42N66	-	Hydraulic Hose 3/8" x 76" (3/8"MP x 3/8"MP)
*	-	55N30	Hydraulic Hose 1/2" x 76" (1/2"MP x 1/2"MP)
25.	42N67	-	3/8" Union Adapter 45°
*	-	55N65	1/2" Union Adapter 45°
26.	DWM110	-	3/8" Union Adapter 90°
*	-	HE58	1/2" Street Elbow
27.	42N68	-	Hydraulic Hose 3/8"x20-1/2" (3/8"MP x 3/8"MPX 90°)
*	-	16SV143	Hydraulic Hose 1/2" x 19" (1/2"MP x 1/2"MPX)
28.	42N69	-	Hydraulic Cylinder 3-1/2" x 90" Gimbal Mount
*	-	55N32	Hydraulic Cylinder 4-1/2" x 90" Gimbal Mount
29.	42N70	-	Hydraulic Cylinder 3-1/2" x 90" Trunnion Mount
*	-	55N33	Hydraulic Cylinder 4-1/2" x 90" Trunnion Mount
30.	42N71	55N34	Cylinder Pin
31.	42N72	55N35	Pusher Cylinder Pin
32.	12V70	-	Hose Clamp SAE#88
*	-	55N66	Hose Clamp SAE#104
33.	42N73	"	Flow Control
34.	-	JB82	1/2" To 3/8" Bushing
35.	-	16SV351	3/8" Nipple Nut
36.	DWM233	-	3/8" Union Adapter
*	-	55N70	1/2" Union Adapter
37.	23N116	-	3/8" Service Tee
*	-	WM139	1/2" Male-Female Tee
38.	T144	"	Cylinder Clip Pin

**NOTE: \* (MEANS NOT SHOWN)**

**- (MEANS NOT USED ON THIS MODEL)**

**" (MEANS SAME AS PREVIOUS PART NO.)**

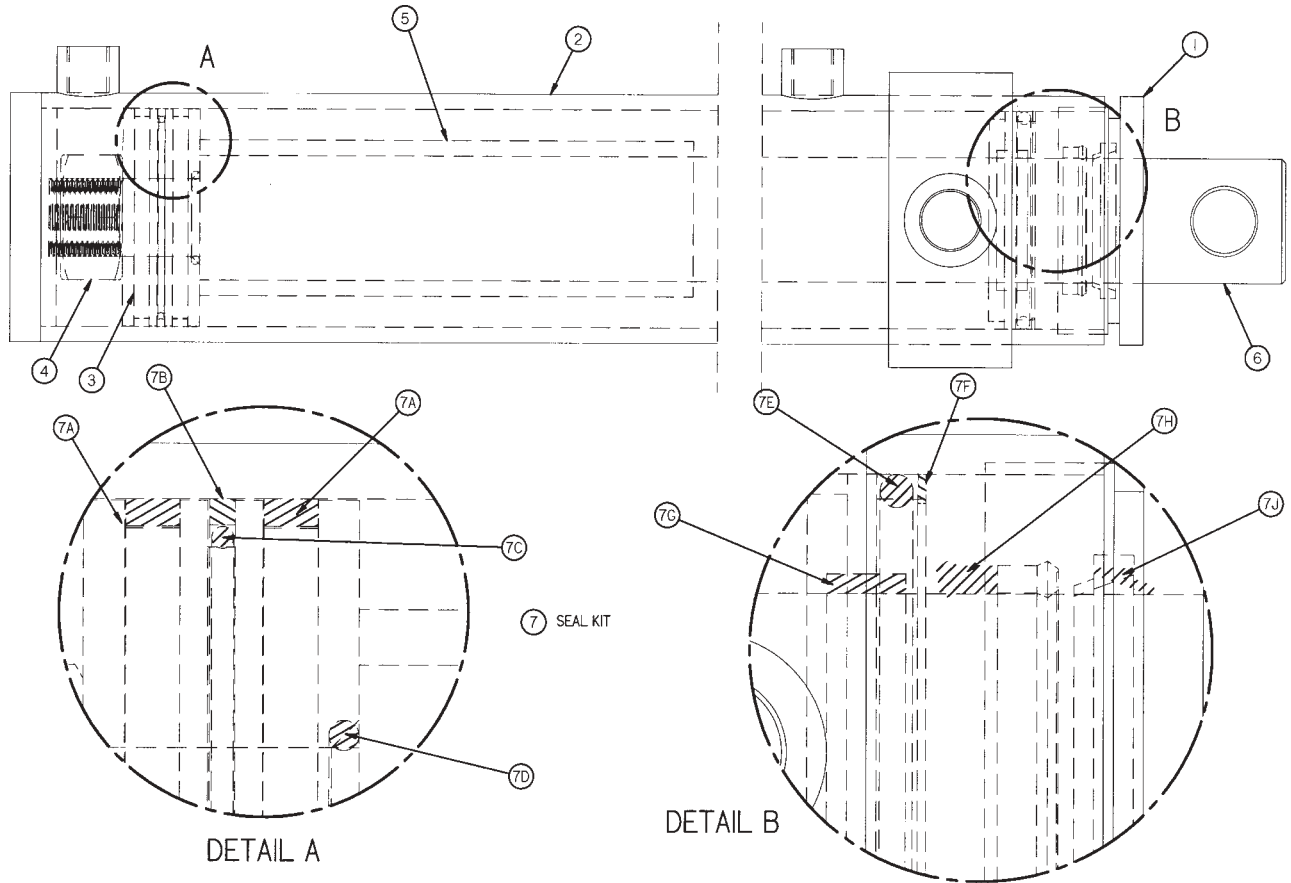
**FIGURE 5**



**FIGURE 5  
H&S HP425 & HP550 SPREADERS  
HYDRAULIC END GATE CYLINDER**

<b>ITEM</b>	<b>HP425</b>	<b>HP550</b>	<b>DESCRIPTION</b>
1.	23N142A	"	Clevis Cap
2.	23N143A	"	Rod Cap
3.	23N144	"	Piston
4.	45N42	"	Rod
5.	45N43	"	Cylinder Tube
6.	45N44	"	Tie Rod
7.	23N148	"	Piston Nut
8.	23N149	"	Plug
9.	23N150A	"	Rod Clevis
10.	23N151	"	Seal Kit
11	45N45	"	Hydraulic Cylinder

**FIGURE 6**



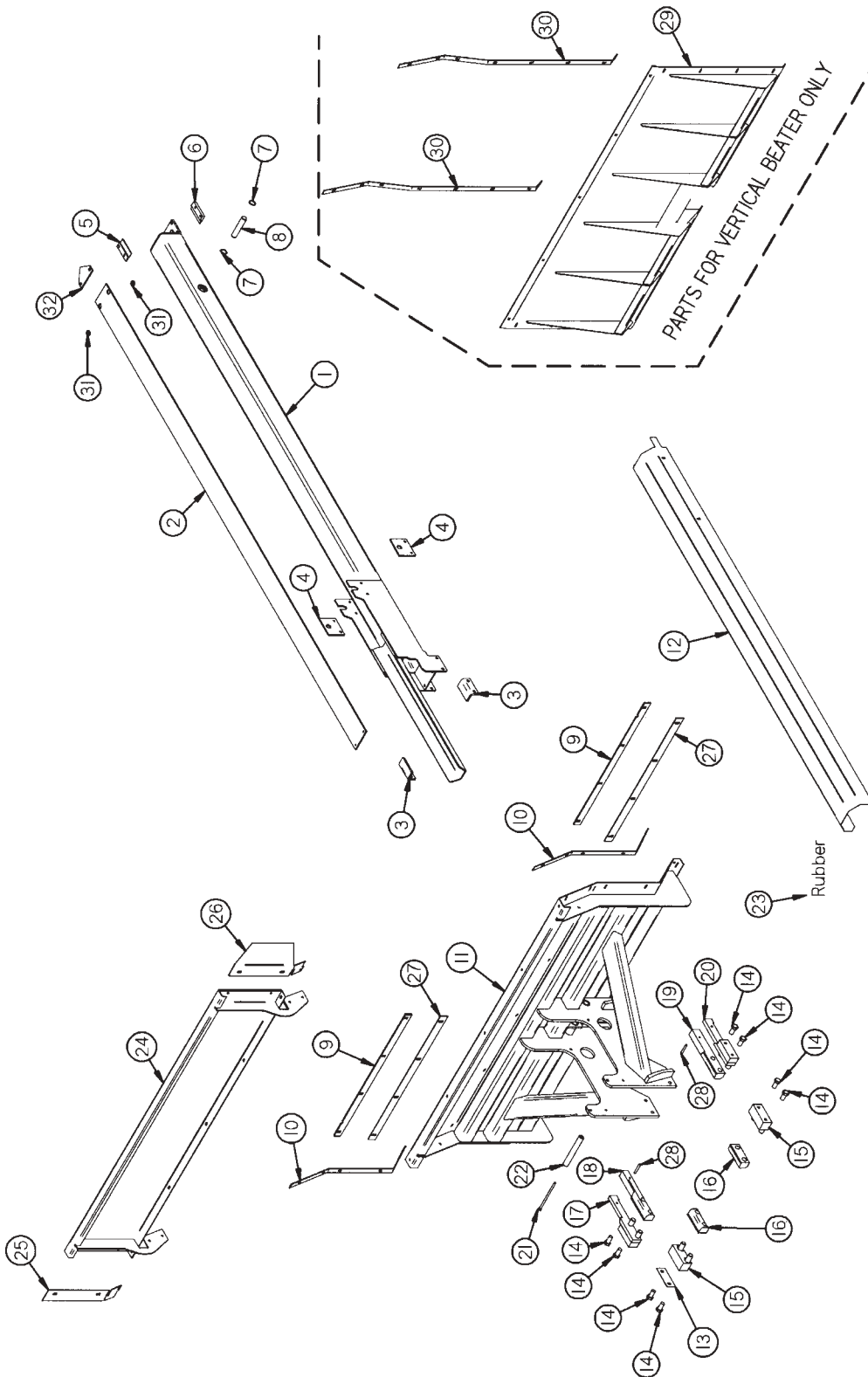
**FIGURE 6  
H&S HP425 & HP550 SPREADERS  
HYDRAULIC PUSHER CYLINDER**

ITEM	HP425	HP550	DESCRIPTION
1.	42N106	55N36	Internal Head
2.	42N107	55N37	Barrel Assembly (Top Cylinder)
*	42N108	55N38	Barrel Assembly (Bottom Cylinder)
3.	42N109	55N39	Piston
4.	42N110	55N40	Lock Nut
5.	42N111	55N41	Spacer
6.	42N112	55N42	Rod
7.	42N113	55N43	Seal Kit
7A.	"	"	Wear Ring
7B.	"	"	Poly Hone
7C.	"	"	O-Ring
7D.	"	"	O-Ring
7E.	"	"	O-Ring
7F.	"	"	Back-up Ring
7G.	"	"	Wear Ring
7H.	"	"	Loaded U-Cup
7J.	"	"	Rod Wiper
*	42N69	55N32	Complete Cylinder (Top)
*	42N70	55N33	Complete Cylinder (Bottom)

**NOTE: \* (MEANS NOT SHOWN)**

**" (PART NOT SOLD SEPRATELY ONLY COMPLETE KIT)**

FIGURE 7

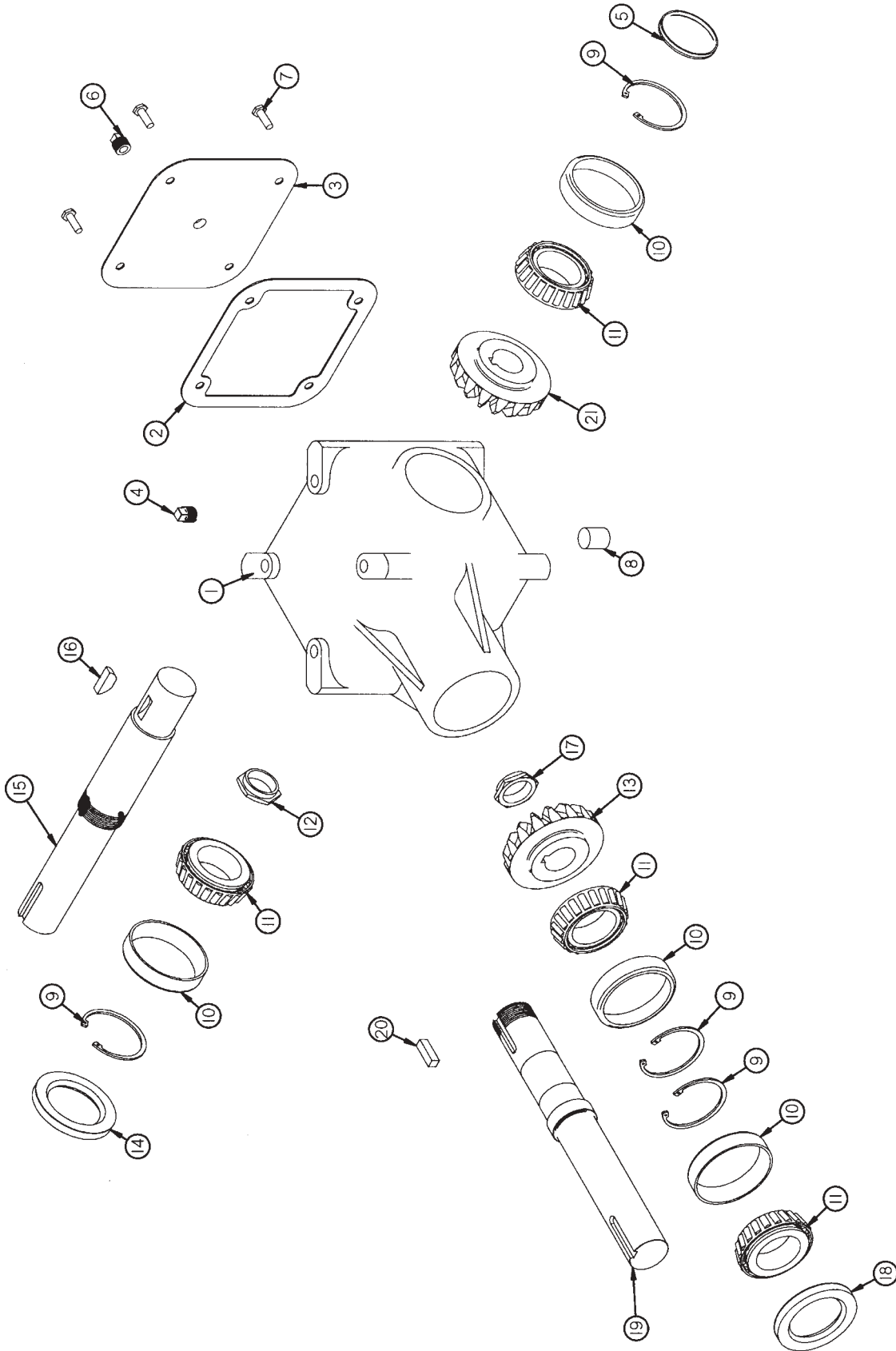


**FIGURE 7**  
**H&S HP425 & HP550 SPREADERS**  
**PUSHER**

<b>ITEM</b>	<b>HP425</b>	<b>HP550</b>	<b>DESCRIPTION</b>
1.	42N74	55N44	Moveable Floor Tube
2.	42N75	55N45	Pusher Tubing Slide
3.	42N76	55N46	Pusher Tube Front Guide
4.	42N77	55N47	Cylinder Retainer
5.	42N78	55N48	End Cap Clamp Right
6.	42N79	55N49	End Cap Clamp Left
7.	3G21	-	1" Snap Ring
*	-	F73	1-1/4" Snap Ring
8.	42N80	55N50	Rear Cylinder Pin
9.	42N81	55N81	Pusher Wiper
10.	42N82	55N25	Pusher Rubber Strap (Horizontal Beater Only)
11.	42N83	55N26	Pusher
12.	42N84	55N51	Cylinder Shield
13.	42N114	-	Pusher Shim (As Required)
14.	50N183	"	5/8" x 1-1/4" Bolt GR. 5
15.	42N85	55N52	Poly Block Spacer
16.	42N86	55N53	Pusher Poly Slide
17.	42N87	55N54	Poly Block Spacer Right
18.	42N88	55N55	Pusher Poly Slide Right
19.	42N89	55N56	Pusher Poly Slide Left
20.	42N90	55N57	Poly Block Spacer Left
21.	A7	-	1/2" x 9-1/2" Bolt GR. 5
*	-	55N58	1/2" x 10-1/2" Bolt GR. 5
22.	42N91	55N59	Pusher Spacer
23.	42N92	55N27	Pusher Rubber Left
*	42N93	55N28	Pusher Rubber Right
24.	42N94	"	Pusher Extension
25.	42N95	"	Extension Wing Right
26.	42N96	"	Extension Wing Left
27.	42N139	55N83	Pusher Bottom Rubber
28.	42N140	16SV379	3/8" Expansion Pin
29.	HGV115	HGV113	Flat Pusher Face
30.	HGV116	HGV114	Flat Pusher Seal Strap
31.	42N150	"	Poly Spacer
32.	42N151	55N86	Scraper

**NOTE: \* (MEANS NOT SHOWN)**  
**- (MEANS NOT USED ON THIS MODEL)**

FIGURE 8



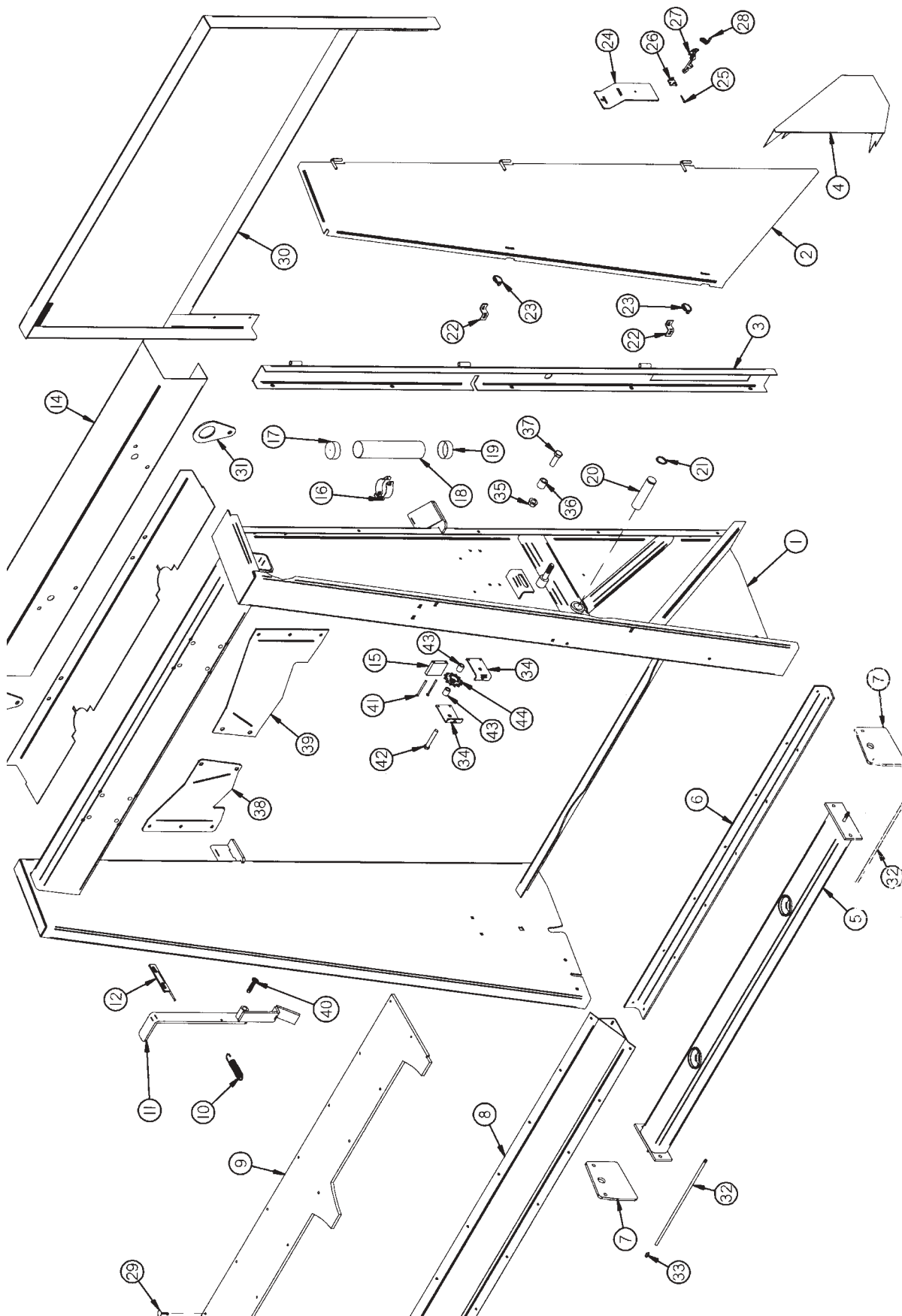
**FIGURE 8  
H&S HP425 & HP550 SPREADERS  
BEATER GEAR BOX**

<b>ITEM</b>	<b>HP425</b>	<b>HP550</b>	<b>DESCRIPTION</b>
1.	G125	"	Housing
2.	G138	"	Gasket
3.	G126	"	Cover
4.	G144	"	3/8" Vent Plug
5.	G140	"	Cap
6.	G65	"	3/8" Plug - NPT
7.	G56	"	5/16" x 5/8" Cap Screw
8.	G145	"	3/8" Plug
9.	G130	"	Snap Ring
10.	G128	"	Bearing Cup #25520
11.	G129	"	Bearing #25581
12.	G132	"	Stake Nut
13.	G142	"	Bevel Gear 22 Teeth
14.	G136	"	Seal - Output
15.	42N57	"	Output Shaft
16.	G61	"	"E" 1210 Woodruff Key
17.	G133	"	Stake Nut
18.	G137	"	Seal - Input
19.	42N58	"	Input Shaft
20.	G139	"	3/8" x 1-1/2" Hardened Key
21.	G127	"	Bevel Gear 33 Teeth
*	42N26	"	Complete Gear Box

**NOTE \* (MEANS NOT SHOWN)**

**- (MEANS SAME AS PREVIOUS PART NO.)**

FIGURE 9

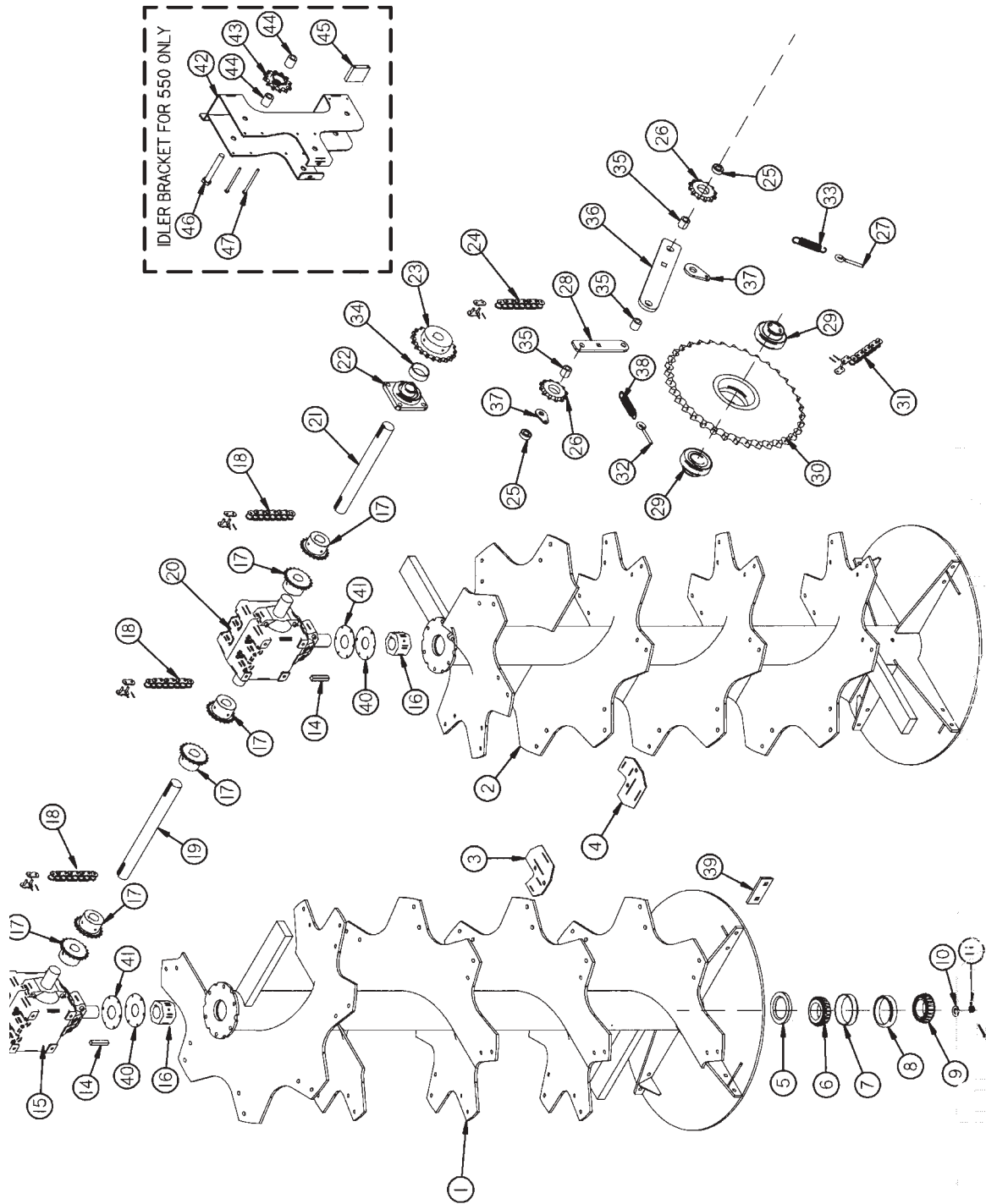




**FIGURE 9**  
**H&S HP425VB & HP550VB SPREADERS**  
**VERTICAL BEATERS FRAME ASSEMBLY**

<u>ITEM</u>	<u>HP425VB</u>	<u>HP550VB</u>	<u>DESCRIPTION</u>
1.	HGV54	HGV55	Frame
2.	HGV3	HGV4	Rear Shield
3.	HGV5	HGV6	Shield Filler
4.	HGV7	"	Cross Shaft Shield
5.	HGV8	"	Beater Bottom Mount
6.	HGV9	"	Pan Hinge
7.	HGV10	"	Leg
8.	HGV11	"	Pan Bottom
9.	HGV12	"	Pan
10.	K103	"	Spring
11.	HGV13	"	Pan Handle
12.	HGV14	"	Pan Handle Stop
13.	HGV56	"	Gearbox Bottom Shield (Superior)
*	HGV15	"	Gearbox Bottom Shield (Durst)
14.	HGV57	"	Gearbox Top Shield (Superior)
*	HGV16	"	Gearbox Top Shield (Durst)
15.	HGV109	--	Chain Poly Block
16.	S416	"	Manual Holder Clamp
17.	S414	"	Cap
18.	S415	"	Manual Holder Tube
19.	S418	"	Cap w/Hole
20.	HGV18	"	Sprocket Idler Shaft
21.	12V62	"	Snap Ring
22.	F69	"	Shield Bracket
23.	F56	"	Clip Pin
24.	42N105	"	Back Stake Filler
25.	X195	"	Pin
26.	X194	"	Latch Mounting Bracket
27.	X192	"	Latch (Rubber)
28.	X193	"	Latch Catch Bracket
29.	HGV48	"	5/16" x 1-1/2" Step Bolt
30.	HGV49	"	Stone Guard
31.	HGV50	"	Lifting Eye
32.	HGV51	"	Grease Line
33.	HGV52	"	Grease Fitting
34.	HGV100	--	Idler Bracket
35.	16SV64	"	3/4" Flange Nut
36.	16SV44	"	Tightener Spacer
37.	HE8	"	3/4" x 2-1/4" Bolt GR.5
38.	-	HGV107	Main Panel Brace Left
39.	-	HGV106	Main Panel Brace Right
40.	HGV108	"	Latch Pivot Bolt (3/4" X 3-1/2" Carriage Gr. 5)
41.	G70	--	5/16" X 4-1/2" Gr. 5 Bolt
42.	HD87	--	3/4" X 5" Gr. 5 Bolt
43.	HGV111	--	Sprocket Spacer
44.	16SV328	--	Sprocket 80-C-12 w//Bearing
*	HGV117	--	Complete Idler Assembly

FIGURE 10

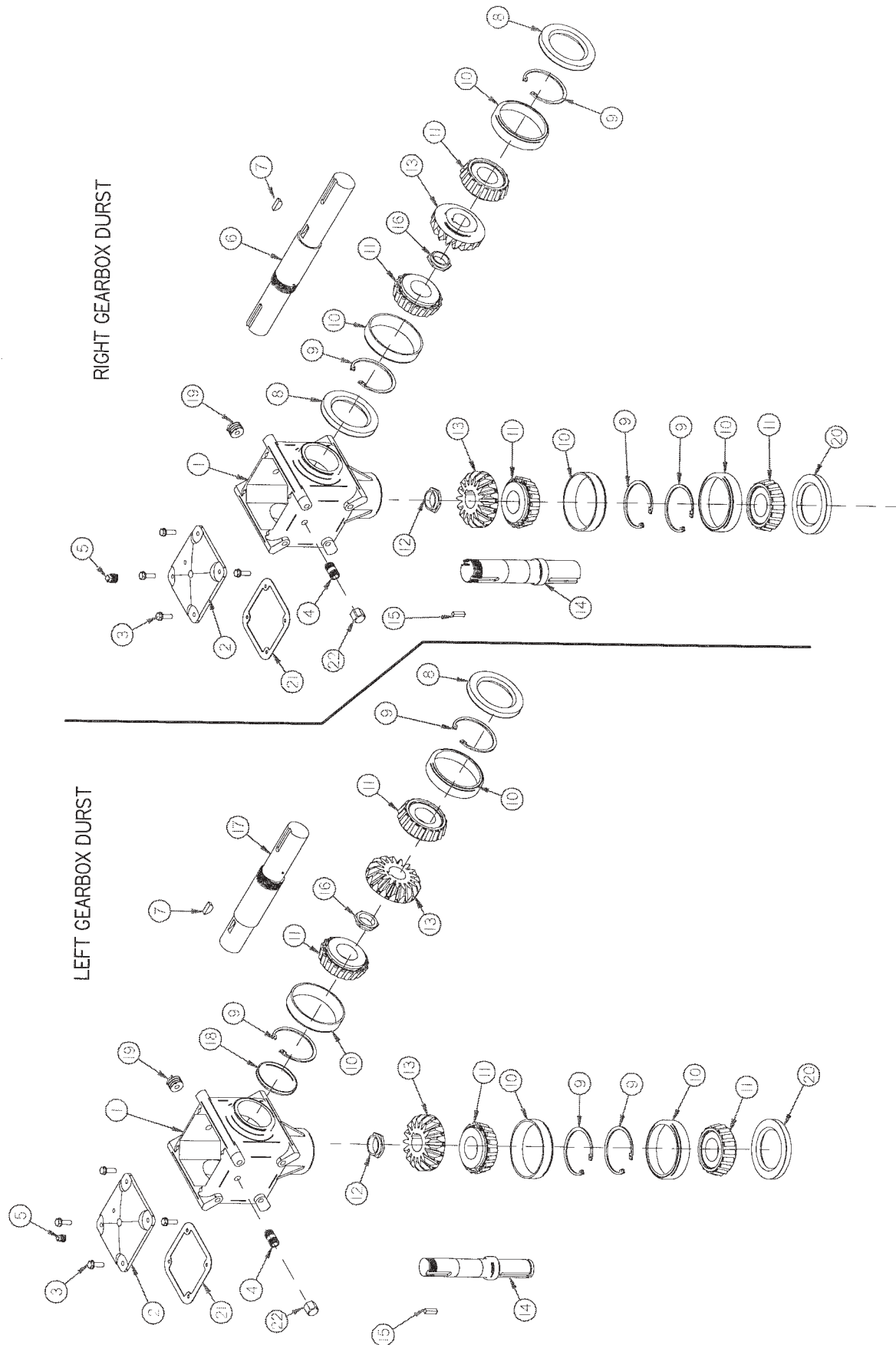


**FIGURE 10**  
**H&S HP425VB & HP550VB SPREADERS**  
**VERTICAL BEATERS DRIVE TRAIN**

ITEM	HP425VB	HP550VB	DESCRIPTION
1.	HGV118	HGV119	Beater Left Hand
2.	HGV120	HGV121	Beater Right Hand
3.	HGV122	"	Beater Blade Left
4.	HGV123	"	Beater Blade Right
5.	HGV27	"	Seal
6.	B5	"	Bearing Cone
7.	B5A	"	Bearing Cup
8.	3G18	"	Bearing Cup
9.	3G7	"	Bearing Cone
10.	BFR63	"	Washer
11.	BFR64	"	Nut
12.	BFR65	"	Cotter Pin
13.	17G144	"	Hub Cap
14.	S38	"	3/8" x 2-3/8" Square Key
15.	HGV58	"	Gearbox Left (Superior)
*	HGV28	"	Gearbox Left (Durst)
16.	26VB37	"	Gearbox Connector
17.	42N25	"	Sprocket 50-B-20 1-3/4" Bore
18.	HGV124	"	Connector Chain #50 x 20 Pitches
*	D118	"	Connector Link #50
19.	HGV59	"	Gearbox Cross Shaft (Superior)
*	HGV31	"	Gearbox Cross Shaft (Durst)
20.	HGV60	"	Gearbox Right (Superior)
*	HGV32	"	Gearbox Right (Durst)
21.	HGV61	"	Gearbox Drive Shaft (Superior)
*	HGV33	"	Gearbox Drive Shaft (Durst)
22.	HGV41	"	Bearing
23.	HGV25	"	Sprocket 80-B-20 1-3/4" Bore
24.	--	HGV125	Gearbox Chain #80 x 138 Pitches
*	HGV35	-	Gearbox Chain #80 x 97 Pitches
*	F157	"	Connector Link #80
25.	12V52	"	Bearing
26.	12V77	"	Idler Sprocket w/Bearing (80-A-12)
27.	BFR374	"	I-Bolt 3/8" x 3"
28.	HGV36	"	Beater Tightener
29.	42N100	"	Bearing
30.	-	HGV37	Sprocket 80-A-36 to 80-A-20
*	HGV38	-	Sprocket 80-A-20 to 80-A-20
31.	-	HGV127	Drive Chain #80 x 117 Pitches
*	HGV40	-	Drive Chain #80 x 109 Pitches
*	F157	"	Connector Link #80
32.	HGV46	"	I-Bolt 5/16" x 1"
33.	10R14	"	Spring
34.	HGV30	"	Spacer
35.	HGV43	"	Spacer
36.	HGV42	"	Tightener
37.	56N160	"	Spring Holder
38.	ST36	"	Spring
39.	26VB57	"	Fan Blade
40.	HGV129	"	Beater Rubber Seal
41.	HGV130	"	Beater Seal Cap
42.	--	HGV131	Idler Bracket
43.	--	16SV328	Sprocket 80-C-12 W/Bearing
44.	--	HGV111	Sprocket Spacer
45.	--	HV109	Chain Poly Block
46.	--	HD87	3/4" X 5" Gr. 5 Bolt
47.	--	G70	5/46" X 4-1/2" Br. 5 Bolt

**NOTE: \* (MEANS NOT SHOWN)**  
**" (MEANS SAME AS PREVIOUS MODEL)**  
**- (MEANS NOT USED ON THIS MODEL)**

FIGURE 11

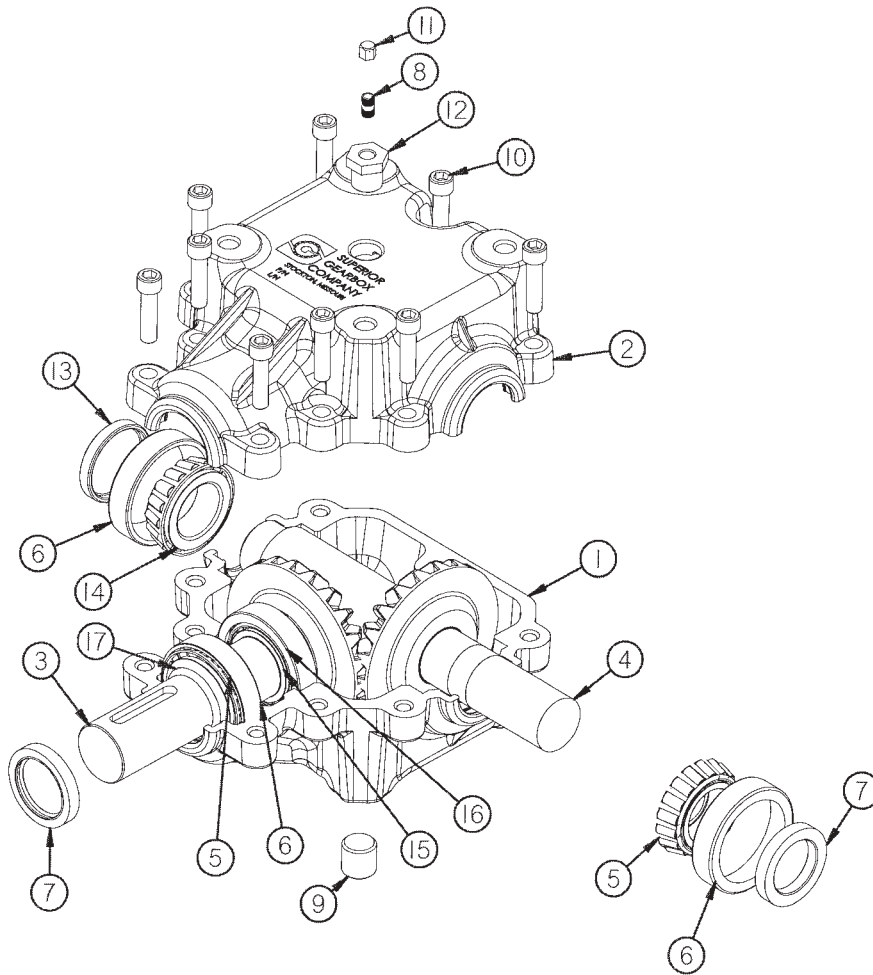


**FIGURE 11**  
**H&S HP425VB & HP550VB SPREADERS**  
**VERTICAL BEATERS BEVEL GEARBOX**

<b>ITEM</b>	<b>HP425VB</b>	<b>HP550VB</b>	<b>DESCRIPTION</b>
1.	G125	“	Gearbox Housing
2.	G126	“	Cover
3.	G56	“	Capscrew
4.	23N288	“	Close Nipple
5.	G65	“	Plug 3/8” NPT
6.	HGV26	“	Input Shaft
7.	G61	“	Woodruff Key (Hard “E” 1210)
8.	G136	“	Seal
9.	G130	“	Snap Ring
*	G141	“	Shim
10.	G128	“	Bearing Cup #14276
11.	G129	“	Bearing Cone #14137A
12.	G133	“	Stake Nut 1-3/4”
13.	G147	“	Bevel Gear
14.	HGV44	“	Output Shaft
15.	G139	“	Key 3/8” Square x 1-3/8” Hardened
16.	G132	“	Stake Nut 2”
17.	HGV45	“	Input Shaft
18.	G140	“	Cap
19.	LW298	“	Plug 3/8” -18 NPTF
20.	G136	“	Seal
21.	G138	“	Gasket
*	HGV28	“	Gearbox Left Complete (Durst)
*	HGV32	“	Gearbox Right Complete (Durst)

**NOTE: \* (MEANS SOT SHOWN)**  
**“ (MEANS SAME AS PREVIOUS MODEL)**

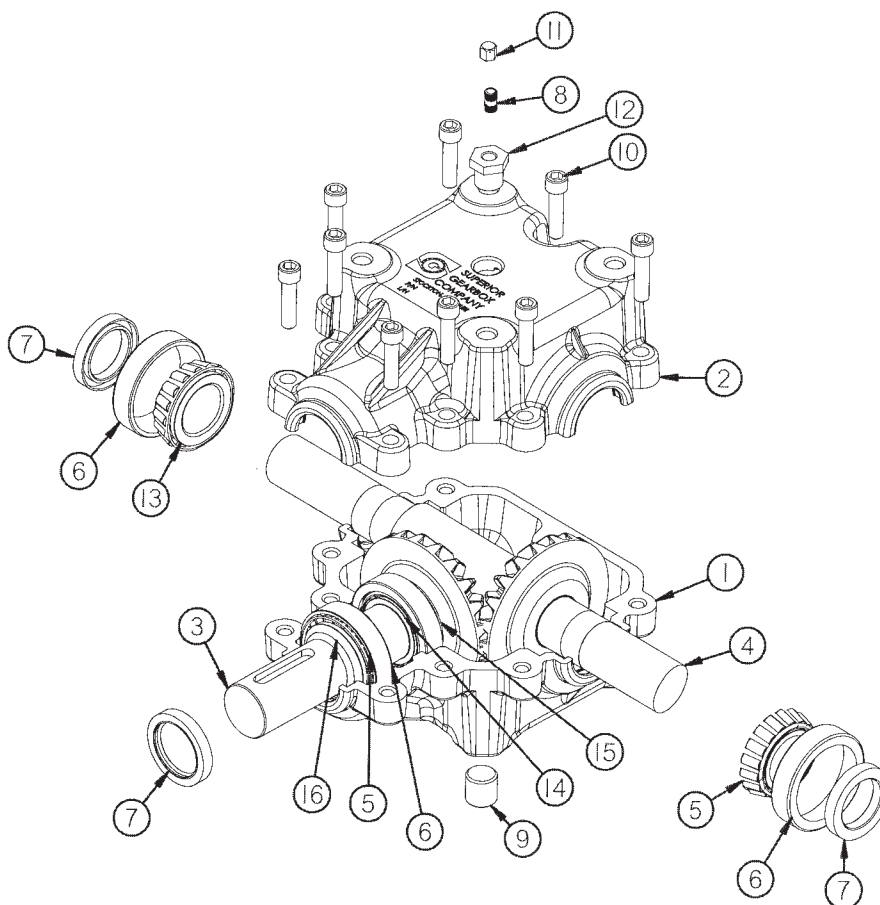
**FIGURE 12**



**Figure 12  
SUPERIOR GEARBOX LEFT**

<b>ITEM</b>	<b>425</b>	<b>550</b>	<b>DESCRIPTION</b>
1.	HGV88	"	Bottom Housing
2.	HGV89	"	Top Housing
3.	HGV90	"	Output Shaft
4.	HGV105	"	Input Shaft
5.	HGV91	"	Bearing Cone (625581)
6.	HGV92	"	Bearing Cup (625520)
7.	HGV93	"	Seal (617285)
8.	23N288	"	3/8" Nipple
9.	HGV95	"	Plug (1/2-14 NPT)
10.	HGV96	"	Gearbox Bolt (3/8-16 X 2-1/4")
11.	17G58	"	Vent
12.	JB82	"	Bushing (1/2 NPT - To - 3/8NPT)
13.	HGV99	"	Cap
14.	HGV94	"	Bearing Cone (625580)
15.	HGV97	"	Bearing Cone (603782)
16.	HGV112	"	Bearing Cup (603720)
17.	HGV98	"	Retaining Ring (603493)
*	HGV58	"	Complete Gearbox Left

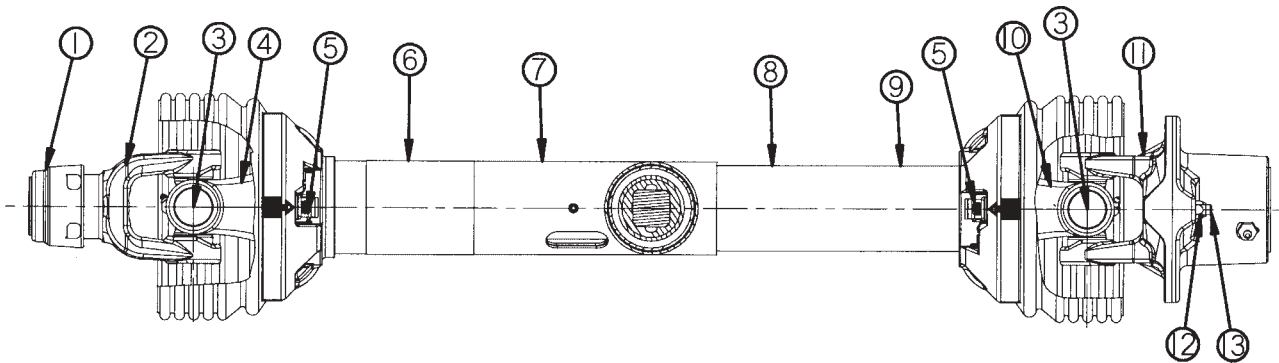
**FIGURE 13**



**FIGURE 13  
SUPERIOR GEARBOX RIGHT**

<b>ITEM</b>	<b>425</b>	<b>550</b>	<b>DESCRIPTION</b>
1.	HGV88	"	Bottom Housing
2.	HGV89	"	Top Housing
3.	HGV90	"	Output Shaft
4.	HGV101	"	Input Shaft
5.	HGV91	"	Bearing Cone (625581)
6.	HGV92	"	Bearing Cup (625520)
7.	HGV93	"	Seal (617285)
8.	23N288	"	3/8" Nipple
9.	HGV95	"	Plug (1/2-14 NPT)
10.	HGV96	"	Gearbox Bolt (3/8-16 X 2-1/4")
11.	17G58	"	Vent
12.	JB82	"	Bushing (1/2 NPT -To -3/8 NPT)
13.	HGV94	"	Bearing Cone (625580)
14.	HGV97	"	Bearing Cone (603782)
15.	HGV112	"	Bearing Cup (603720)
16.	HGV98	"	Retaining Ring (603493)
*	HGV60	"	Complete Gearbox Right

**FIGURE 14**



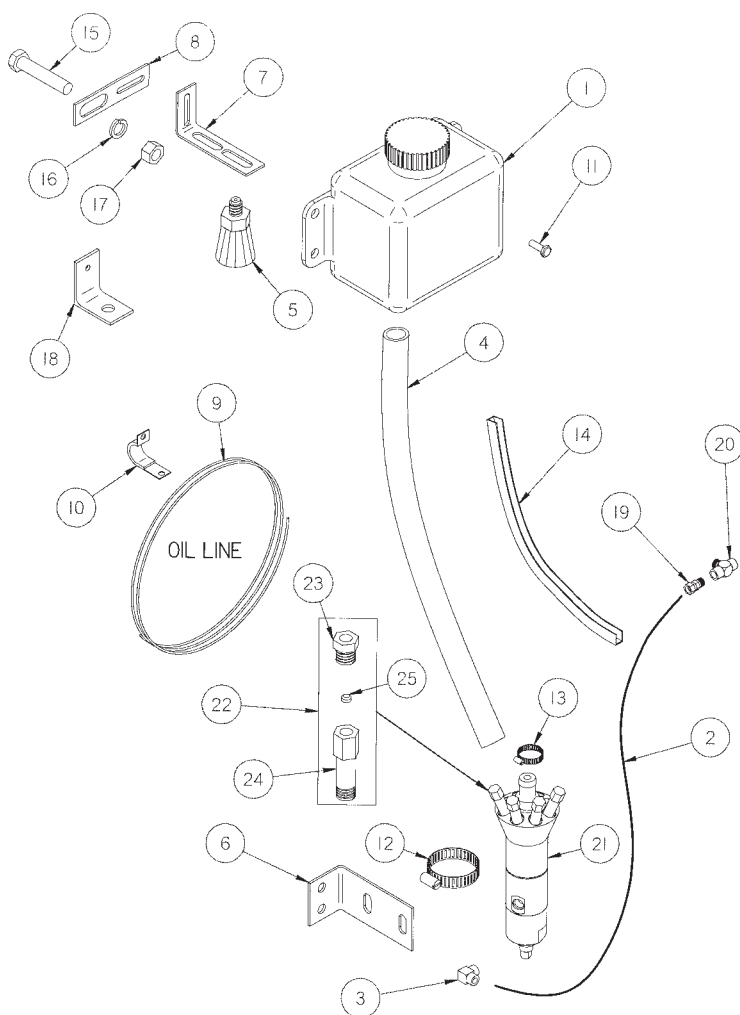
**FIGURE 14  
H&S HP425 & HP550 SPREADERS  
PTO & OVERRUNNING CLUTCH**

ITEM	540 RPM	1000 RPM 1-3/8"	1000 RPM 1-3/4"	DESCRIPTION
1.	16SV274	"	16SV275	Auto-Lock Repair Kit
2.	42N115	55N68	55N69	Auto-Lock Yoke Assembly
3.	16SV179	"	"	35R Cross Bearing Kit
4.	42N116	"	"	Yoke Shaft
5.	16SV181	"	"	Nylon Repair Kit
6.	16SV283	"	"	Safety Sign
7.	42N117	"	"	Outer Guard
8.	42N118	"	"	Inner Guard
9.	16SV286	"	"	Safety Sign
10.	42N119	"	"	Yoke, Tube & Slip Sleeve
11.	42N120	"	"	OR Ball Shear Assembly
12.	16SV193	"	"	5/16"-18 Lock Nut
13.	42N121	-	-	5/16"-18 x 2" Bolt GR. 8 (540 RPM)
*	-	55N71	"	5/16"-18 x 2" Bolt GR. 5 (1000 RPM)
*	42N122	55N72	55N73	Joint & Shaft Half Assembly w/Guard
*	42N123	55N74	55N75	Joint & Shaft Half Assembly
*	42N124	55N76	"	Joint & Tube Half Assembly w/Guard
*	42N125	55N77	"	Joint & Tube Half Assembly
*	42N126	55N78	55N79	Complete PTO
*	S204	"	"	PTO Safety Manual

**NOTE: \* (MEANS NOT SHOWN)  
- (MEANS NOT USED ON THIS MODEL)  
" (MEANS SAME AS PREVIOUS PART NO.)**



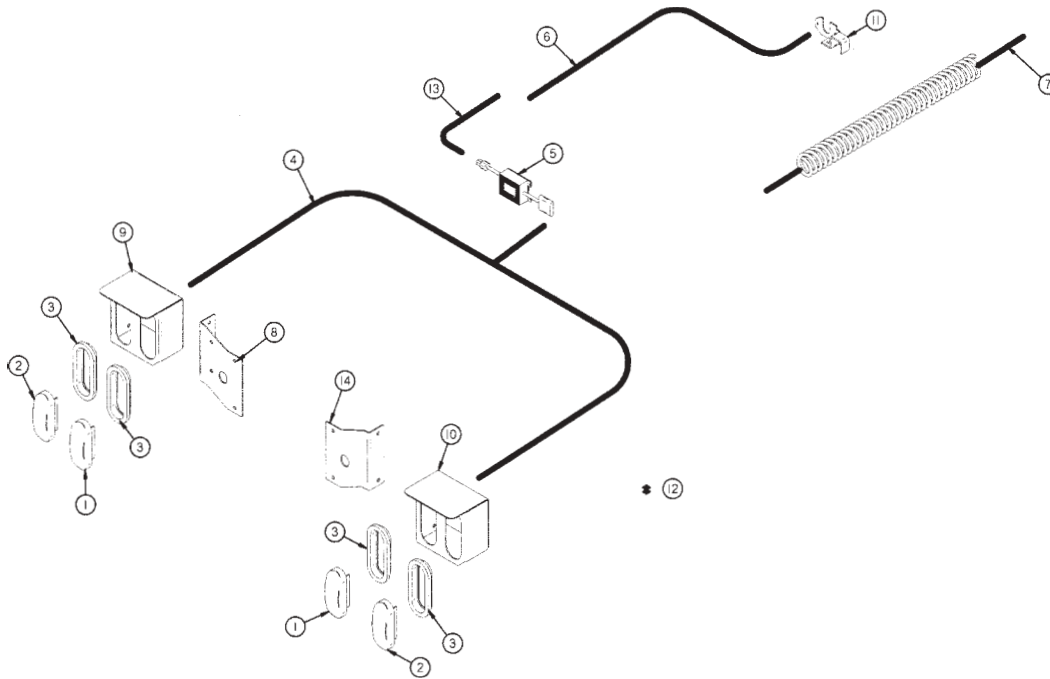
**FIGURE 15**



**FIGURE 15  
H&S HP425 & HP550 SPREADERS  
CHAIN OILER**

ITEM	PART#	DESCRIPTION	ITEM	PART#	DESCRIPTION
1.	HGV63	Reservoir	14.	HGV77	Edging 12"
2.	HGV64	Hydraulic Hose 1/4" x 80"	*	HGV78	Large Tube Holder
3.	HGV65	O-Ring/JIC Elbow	15.	HGV79	9/16" x 2-1/2" Bolt GR. 5
4.	HGV66	Filler Hose	16.	HGV80	9/16" Lockwasher
5.	HGV67	Brush	17.	HGV81	9/16" Nut
6.	HGV68	Pump Mount Bracket	18.	ST33	Angle
7.	HGV69	Brush Bracket	19.	BFR120	3/8" Union Adapter
8.	HGV70	Bracket Mount	20.	WM146	Male-Female Pipe Tee
9.	HGV71	Oiler Tube 5/32" (50')	21.	HGV82	Complete Pump
10.	HGV72	Small Tube Holder	*	HGV83	Pump Repair Kit
11.	HGV73	3/16" x 3/8" Tap Tight	22.	HGV84	Manifold Assembly (Complete)
12.	HGV74	2" Hose Clamp	23.	HGV85	Sleeve Nut
13.	HGV75	1" Hose Clamp	24.	HGV86	Standoff
*	HGV76	Medium Tube Holder	25.	HGV87	Ferrule
<b>NOTE:</b>		<b>* (MEANS NOT SHOWN)</b>	*	HGV62	Complete Oiler Kit

**FIGURE 16**

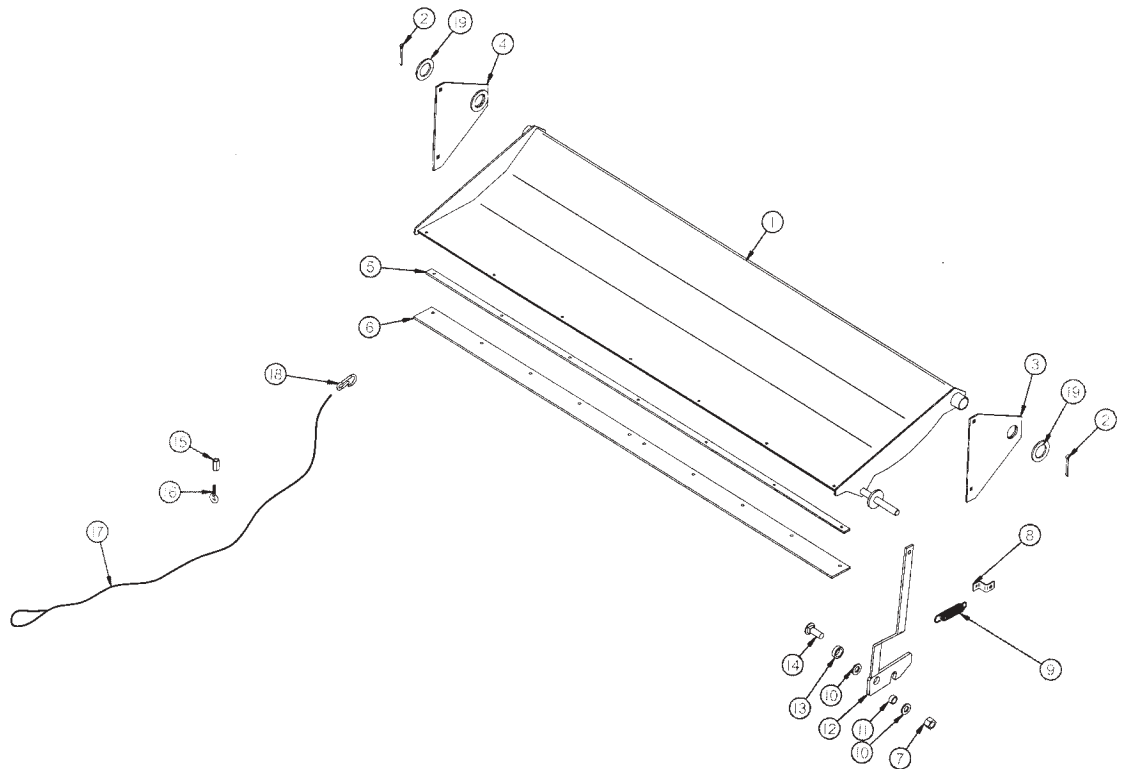


**FIGURE 16  
H&S HP425 & HP550 SPRADERS  
OPTIONAL LIGHTING**

ITEM	HP425	HP550	DESCRIPTION
1.	S310	"	Red Tail Light
2.	S309	"	Yellow Hazard Light
3.	S308	"	Rubber Light Mount
4.	56N155	"	Tail Light Loom
5.	S441	"	Light Module
6.	56N154	"	Flasher Module Loom
7.	S317	"	Tractor Cord
8.	55N60	"	Light Bracket Mount Left
9.	55N61	"	Light Bracket Left
10.	55N62	"	Light Bracket Right
11.	55N63	"	Light Plug Bracket
12.	55N64	"	Metal Cushioned Cable Clamps
13.	BFR666	"	Extension Light Harness
14.	55N80	"	Light Bracket Mount Right

**NOTE: " (MEANS SAME AS PREVIOUS PART NO.)**

**FIGURE 17**



**FIGURE 17  
H&S HP425 & HP550 SPREADERS  
OPTIONAL REAR PAN**

ITEM	HP425	HP550	DESCRIPTION
1.	42N127	"	Pan
2.	R70	"	3/16" x 2" Cotter Pin
3.	42N128	"	Pan Plate Left
4.	42N129	"	Pan Plate Right
5.	42N130	"	Pan Strap
6.	42N131	"	Rubber
7.	HE7	"	3/4" Lock Nut
8.	F69	"	Bracket
9.	ST36	"	Spring
10.	T73	"	Washer
11.	42N132	"	Latch Bushing
12.	42N133	"	Latch
13.	42N134	"	Latch Spacer
14.	42N135	"	3/4" x 2-1/2" Carriage Bolt GR. 5
15.	23N212	"	3/8" Long Nut
16.	23N213	"	3/8" x 1" I-Bolt
17.	42N136	"	Rope (18')
18.	BFR295	"	Snap Hook
19.	56N170	"	Pan Washer

**NOTE: " (MEANS SAME AS PREVIOUS PART NO.)**



# H&S HP425 & HP550 SPREADERS

Your H & S spreader has been manufactured of the finest quality materials and components. The performance you get from your machine is largely dependent upon how well you read and understand this manual and apply this knowledge. There is a right and a wrong way to do everything. Please do not assume that you know how to operate and maintain your spreader before reading this manual carefully. Keep this manual available for ready reference.

## SPECIFICATIONS

	<u>HP425</u>	<u>HP550</u>	<u>HP425VB</u>	<u>HP550VB</u>
Capacity (Old Rating) . . . . .	425 Bu. . . . .	550 Bu. . . . .	425 Bu. . . . .	550 Bu.
Capacity Cu. Ft. Struck Level. . . . .	270. . . . .	430. . . . .	270. . . . .	430
Side Loading Height. . . . .	61-1/4" . . . . .	81" . . . . .	61-1/4" . . . . .	81"
Overall Height Top of 2nd Beater or Vertical. . . . .	74-3/4" . . . . .	86-3/4" . . . . .	N/A. . . . .	121-1/2"
Height-Top of Hyd. Endgate w/o Hook. . . . .	65" . . . . .	85-1/2" . . . . .	65" . . . . .	85-1/2"
Height-Top of Screen (Vertical Beater Only). . . . .	N/A . . . . .	N/A . . . . .	N/A . . . . .	117"
Inside Width. . . . .	72" . . . . .	72" . . . . .	72" . . . . .	72"
Inside Length. . . . .	16' . . . . .	16' . . . . .	16' . . . . .	16'
Inside Depth. . . . .	34" . . . . .	53" . . . . .	34" . . . . .	53"
Overall Width w/Tires. . . . .	10'2" . . . . .	10'2" . . . . .	10'2" . . . . .	10'2"
Overall Length. . . . .	26'5" . . . . .	26'5" . . . . .	27'5" . . . . .	27'5"
Lower Horizontal Beater Diameter. . . . .	29" . . . . .	29" . . . . .	N/A. . . . .	N/A
Upper Horizontal Beater Diameter. . . . .	20" . . . . .	29" . . . . .	N/A. . . . .	N/A
Vertical Beater Diameter. . . . .	N/A. . . . .	N/A. . . . .	34" . . . . .	34"
Hydraulic Push Unload Rate @ 15 GPM. . . . .	31 Sec. . . . .	52 Sec. . . . .	31 Sec. . . . .	52 Sec.
Hydraulic Push Cylinder Diameter. . . . .	3-1/2" . . . . .	4-1/2" . . . . .	3-1/2" . . . . .	4-1/2"
Spindle Size. . . . .	3" . . . . .	3" . . . . .	3" . . . . .	3"
Hubs. . . . .	8 Bolt. . . . .	10 Bolt. . . . .	8 Bolt. . . . .	10 Bolt
Tire Size. . . . .	385 x 22.5. . . . .	425 x 22.5. . . . .	385 x 22.5. . . . .	425 x 22.5
Wood Side Rails. . . . .	Standard. . . . .	Standard. . . . .	Standard. . . . .	Standard
Standard PTO. . . . .	540 RPM. . . . .	1000 RPM. . . . .	540 RPM. . . . .	1000 RPM
Optional PTO. . . . .	1000 RPM. . . . .	1-3/4" 1000. . . . .	1000 RPM. . . . .	1-3/4" 1000
Hydraulic Endgate. . . . .	Standard. . . . .	Standard. . . . .	Standard. . . . .	Standard
Semi Liquid Rear Pan. . . . .	Optional. . . . .	Optional. . . . .	Standard. . . . .	Standard
Weight. . . . .	7000#. . . . .	9680#. . . . .	N/A. . . . .	11,000# Approx

Note:

Determine right and left side of spreader by viewing it from the rear. If instructions or parts lists call for hardened bolts see page 6 to identify.

## H&S MANUFACTURING CO. INC.



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RIPLEY, NY 14775

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