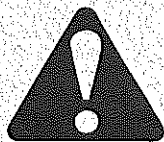
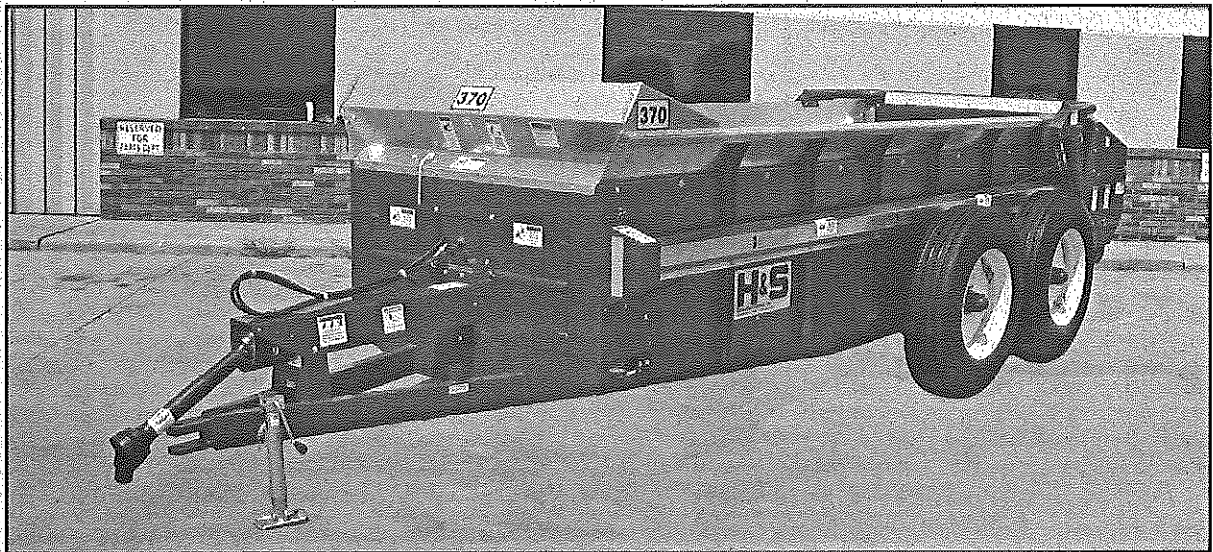


H&S

TWO SPEED

Heavy Duty Manure Spreader



WARNING

READ AND UNDERSTAND THIS MANUAL
BEFORE OPERATING THIS EQUIPMENT.

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

MODELS 310, 370 & 430 PARTS & OPERATOR'S INSTRUCTIONS

9-8-2004

Manufactured By

H&S MANUFACTURING CO., INC.

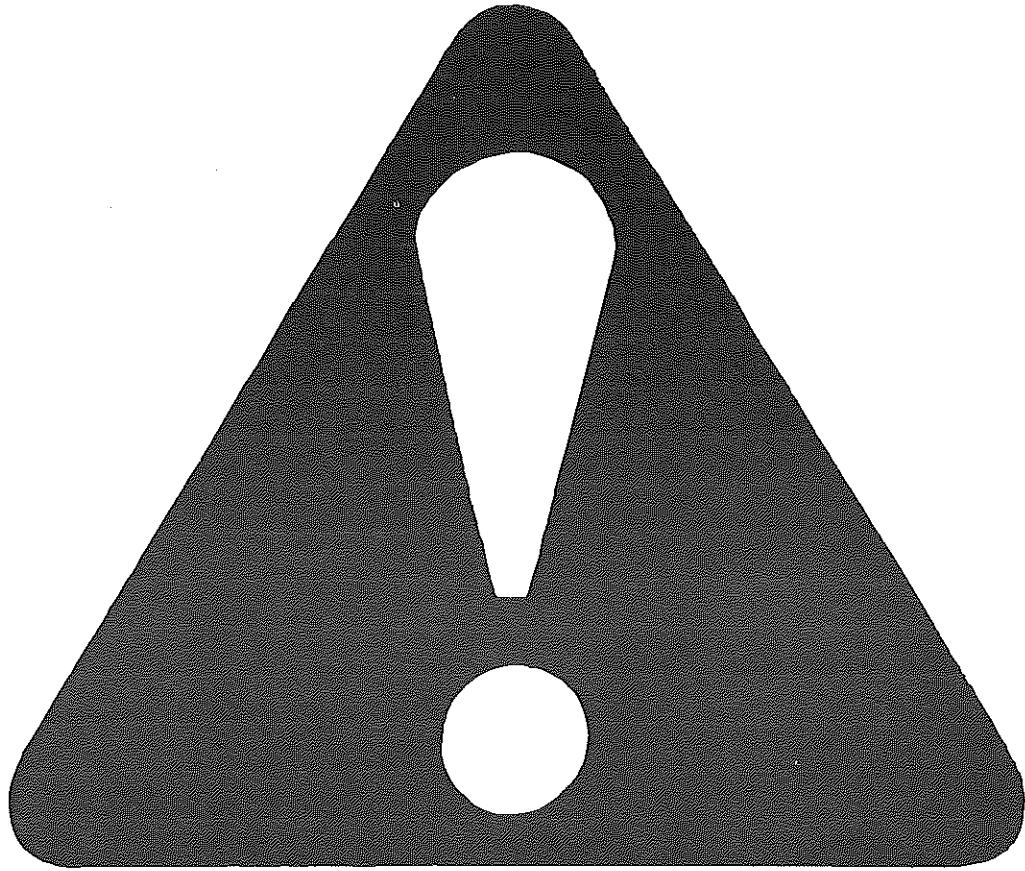
P.O. BOX 768 • (715) 387-3414 FAX (715) 384-5463

MARSHFIELD, WISCONSIN 54449

H&S MODELS 310, 370 & 430 SPREADERS PARTS AND OPERATOR'S MANUAL

CONTENTS

Warranty & Warranty Registration Card	1-2
Dealer Pre-Delivery & Delivery Checklist	3
Be Alert Symbol	5
Explanation of Safety Signs	6
Danger - Warning Signs	7-8
Warning - Owner Must Read and Understand	9
Operation - Attaching to Tractor - Loading	10-11
Spreading - Adjustments - Shear Bolts	11-12-13
Apron Speed - Beater Control	13
Lubrication Guide - Grease Zerk Location	14-15
Optional Equipment	16-17
Beater Paddles - Wheel Hub Adjustment	17
Instructions for Ordering Parts - About Improvements	18
Service Notes	19
Decal Location & Identification	20-21
Figure 1 - Beater & Pan Assembly - Description	22-23
Figure 2 - Spindle, Hub & Box Parts - Description	24-25
Figure 3 - Front Shield & Drive Assembly - Description	26-27
Figure 4 - Back Shields & Drive Assembly - Description	28-29
Figure 5 - Hydraulic Tailgate Assembly - Description	30-31
Figure 6 - Apron Chain Assembly - Description	32
Figure 7 - Optional Hydraulic Drive Assembly - Description	33
Figure 8 - Worm Gearbox - Description	34-35
Figure 9 - Bevel Gearbox - Assembly	36-37
Figure 10 - Hydraulic Cylinder - Description	38
Figure 11 - PTO Assembly - Description	39
Figure 12 - Optional 2nd Beater Assembly - Description	40
Figure 13 - Optional Electric / Hyd. Kit - Description	41
Service Notes	42
SPECIFICATIONS	INSIDE BACK COVER



**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

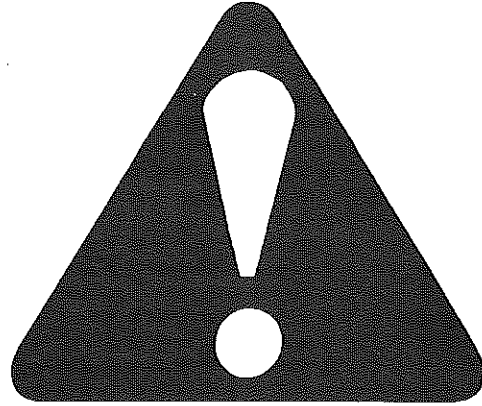
This operator's manual uses the term "Tractor" when identifying the power source.

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

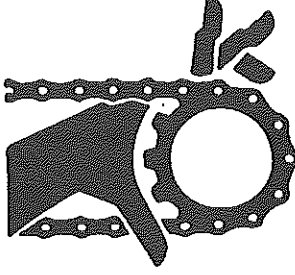


CAUTION

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.

	⚠ WARNING
	<p>DO NOT OPERATE THIS EQUIPMENT IF THIS DECAL IS EXPOSED. REPLACE SAFETY SHIELDS.</p>

1404A


⚠ DANGER

<p>ROTATING DRIVELINE CONTACT CAN CAUSE DEATH KEEP AWAY!</p> <p>DO NOT OPERATE WITHOUT-</p> <ul style="list-style-type: none"> • ALL DRIVELINE, TRACTOR AND EQUIPMENT SHIELDS IN PLACE. • DRIVELINES SECURELY ATTACHED AT BOTH ENDS. • DRIVELINE SHIELDS THAT TURN FREELY ON DRIVELINE.

1494L

	⚠ WARNING
	<p>DO NOT GO NEAR LEAKS</p> <ul style="list-style-type: none"> • 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
	<p>DO NOT REMOVE SHIELDS</p> <p>ROTATING PARTS INSIDE</p>

12704

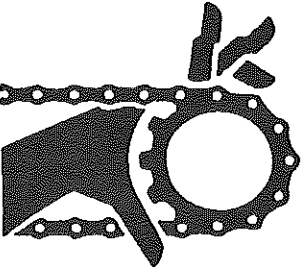
⚠ WARNING

<p>DO NOT REMOVE SHIELDS</p> <p>MOVING PARTS INSIDE</p>

1494K

	⚠ WARNING
	<p>DO NOT OPERATE THIS EQUIPMENT IF THIS DECAL IS EXPOSED. REPLACE SAFETY SHIELDS.</p>

71494A



! WARNING

DO NOT REMOVE SHIELDS

MOVING PARTS INSIDE

1494B

! DANGER



! DANGER



NO STEP-STAY CLEAR

9194A

! 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.

82602

NEVER ALLOW RIDERS ON THIS MACHINE

9194B

! DANGER



STAY CLEAR OF END GATE ARMS

111593C

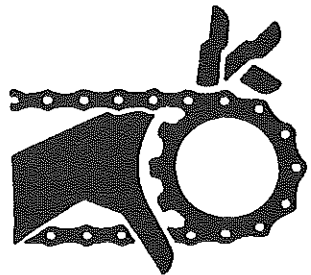

! WARNING

HELP AVOID INJURY

- READ & UNDERSTAND THE OPERATORS MANUAL PROVIDED WITH THIS MACHINE. IF MISPLACED CALL H & S MANUFACTURING AT 715-387-3414 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

72203A

! WARNING

! 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

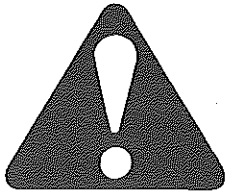
KEEP CLOTHING, YOURSELF AND OTHERS WELL CLEAR

111593A

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

1494J

H&S MODELS 310, 370 & 430 MANURE SPREADERS



W A R N I N G

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 power takeoff, stop the tractor engine 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 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.

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

H&S Mfg. Co. 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

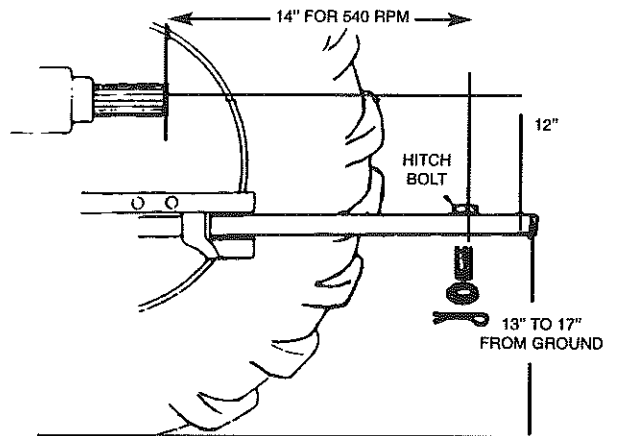
ATTENTION - BE ALERT - YOUR SAFETY IS INVOLVED

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 85-95 ft./lbs. of torque.
2. Check the tires and inflate to the recommended pressure (295/75R 22.5 tires to 55 pounds, 16.5 x 16.1 tires to 36 pounds).
3. Adjust the tractor hitch and attach the spreader to the tractor as described in the following sections.
4. Attach the speed control/beater engage and disengage rope to a convenient point on the tractor.
5. Lubricate the machine completely and check the oil level of both gearboxes.
6. Before operation, run machine slowly to make sure that the spreader is operating and lubricated properly.

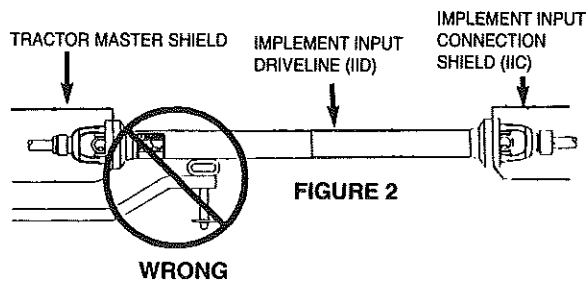
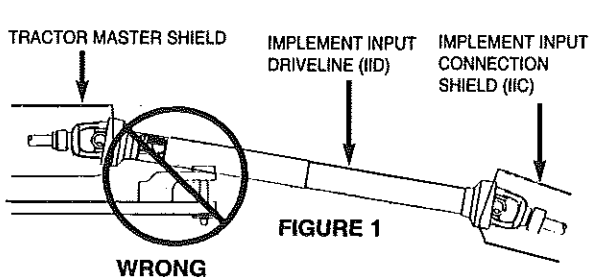
TRACTOR HITCH

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, 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 1" 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 top of left hitch channel. This allow protection of jack from tractor tires during turns.
 3. 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.
- Be certain to disconnect all sources of power before servicing. Keep pant cuffs and other loose clothing away from all chain and gear drives as well as the other moving parts. Keep off the equipment when in use, and keep all safety shields in place. Do not attempt to clean, grease or lubricate while the machine is running. Never allow riders in or on the machine.

LOADING

In freezing weather, make certain that hydraulic tailgate (if equipped with one) is not frozen to the sides or on the floor of the spreader. Make sure the apron chain 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 material 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.

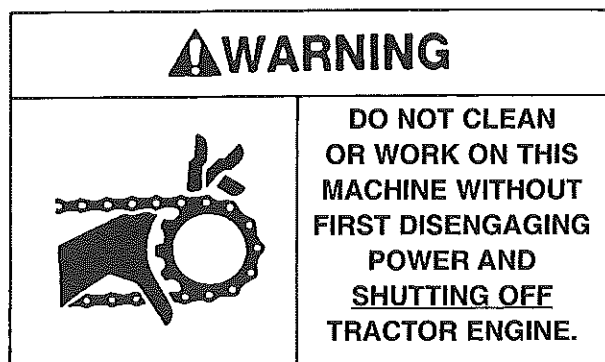
SPREADING

NOTE: Two speed drive mechanism and beater engage/disengage are controlled by one rope leading to the tractor.

1. When ready to unload, make sure beater is in the engaged position and low speed indicator is visible through low speed hole in front panel of spreader.
2. Raise the hydraulic endgate (if equipped with one).
3. Engage the tractor PTO shaft slowly.
4. Increased apron speed, if desired, can be accomplished by steadily pulling on the control rope until it stops. Speed select indicator should now be visible through the high speed hole. Beater will continue to operate and apron speed will be increased.
5. When the spreader is almost empty, the bed can be cleaned by shifting into clean out position. Apply a steady pull on the control rope until it stops and speed indicator is visible in the clean out hole. In this position, the beater will stop and the apron will continue to operate at the same speed as in high speed position, thus saving unnecessary driving.
6. When spreader is empty, shut off tractor PTO. Pull control rope until speed select indicator snaps into low speed. This will re-engage beater for the next load. DO NOT SHIFT FROM CLEAN OUT TO LOW SPEED WITH THE TRACTOR PTO RUNNING.
7. Do not operate the spreader with a PTO speed greater than 540 RPM's unless necessary sprocket changes have been made.

SPREADING (IF EQUIPPED WITH OPTIONAL HYDRAULIC DRIVE)

1. Engage tractor PTO shaft slowly. Beater is always in the engaged position, therefore, engaging tractor PTO will automatically start beater.



2. Raise the hydraulic tailgate (if equipped with one).
3. Open hydraulic valve on tractor connected to speed control valve on spreader.
4. Control speed of apron by turning speed control handle clockwise to increase speed, counter-clockwise to decrease speed.
5. When spreader is almost empty, the bed can be cleaned out by disengaging tractor PTO (which will stop beater), and increasing apron speed by turning control handle clockwise, thus saving unnecessary driving time.

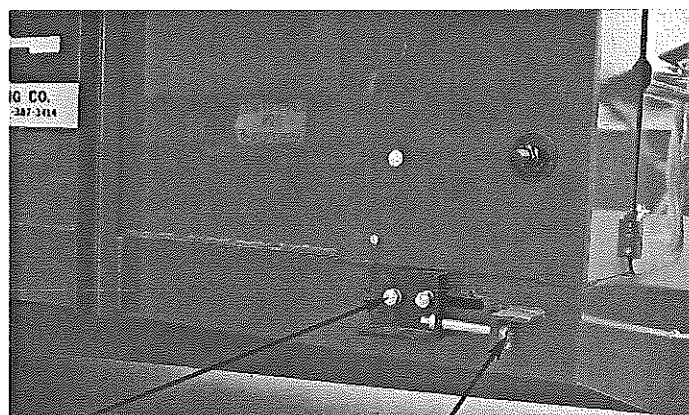
ADJUSTMENTS

FAILURE TO FOLLOW THE RECOMMENDED ADJUSTMENTS WILL VOID WARRANTY.

APRON

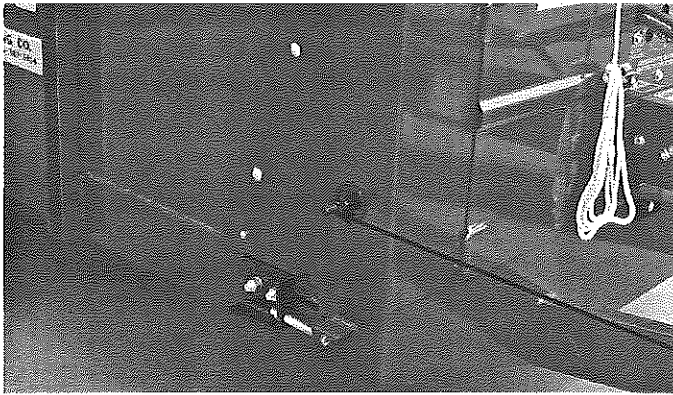
1. Adjust the apron by loosening the mounting bolts on the chain slides on the outside of the frame. Mounting bolts shown in the drawing.
2. Tighten the adjusting bolts until the apron chain clears the underside of the axle by 1 inch.

NOTE: Tighten the adjusting bolts (on each front corner) equally on each side so that the apron slats run parallel with the ends of the bed. The apron will be damaged if the machine is operated with one end of the apron slats running ahead of the opposite end. Do not tighten the apron chains excessively.



MOUNTING BOLTS

ADJUSTING BOLT



DRIVE CHAIN

To adjust front drive chain, turn nut on adjusting rod (located at the right hand front side of spreader) clockwise. There should be 1/2" deflection at the center of the drive chain. Over tightening or too loose of a chain will result in excessive wear on the bearing, chain and sprockets.

TIGHTENER BOLT

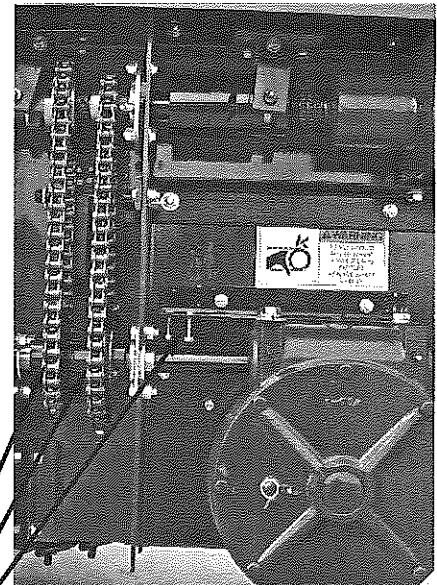
APRON WORM DRIVE CHAIN

The apron worm drive chains are kept tight with a spring type tightener that does not require adjustment. However, periodic inspection should be made to check for wear.

SHEAR BOLTS (Apron Drive)

The worm gearbox and apron are protected by two shear bolts. One on the driven high speed sprocket (A) and one on the low speed sprocket (B). Two spare shear bolts are provided (C). Shearing of these bolts is normally due to the apron being frozen fast to the floor, or catching on frozen "chunks". Occasionally the shear bolts will shear due to the spreader being overloaded. Always determine the cause of failure, and eliminate the cause before replacing the shear bolt, using H&S part number 23N223.

NOTE: Normal apron speeds at 540 RPM are: low speed - 4-1/2 fpm, high speed and clean out position - 8-1/2 fpm. If the apron is not moving at these speeds, especially in high or clean out, check and replace the high speed shear bolt (A). **Failure to do so will result in serious damage to the sprocket and shaft.**

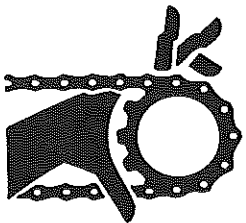


SHEAR BOLTS
REPLACEMENT SHEAR BOLTS

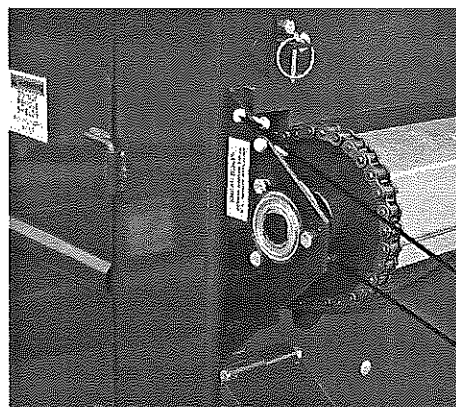
A
B
C

Shields Removed for Clarity

⚠ WARNING



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



Shields Removed for Clarity

SHEAR BOLTS (Main Drive)

The beater and apron drive are protected by one shear bolt. Two spare shear bolts are provided. Shearing of the bolts is normally due to foreign objects in the manure or **starting the spreader PTO too quickly** with high tractor RPM's. Always use H&S shear bolts, part number D31, when replacing shear bolts.

SPARE SHEAR BOLTS

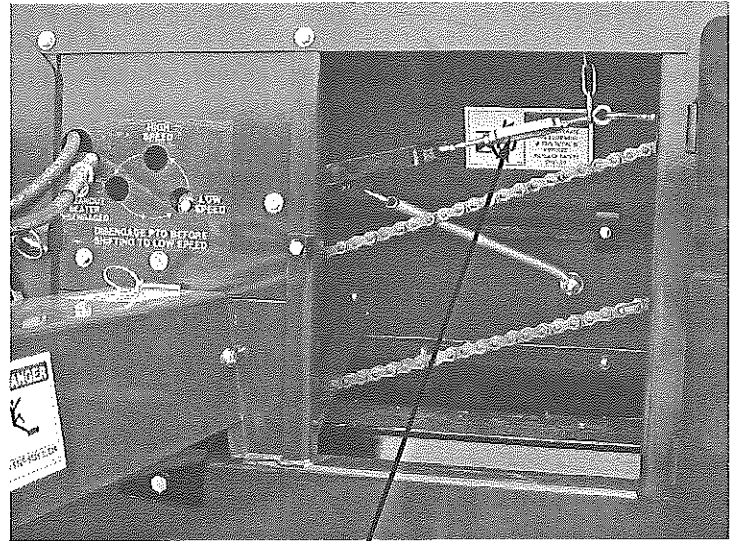
SHEAR BOLT

APRON SPEED AND BEATER CONTROL

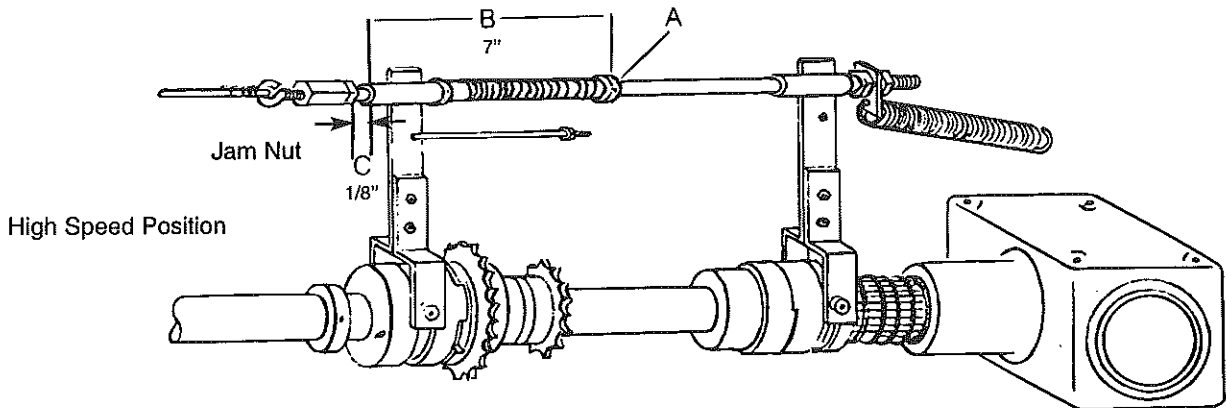
One cable controls both the beater clutch and two speed clutch. To compensate for wear or stretching of this cable, adjust the turnbuckle behind shield at the front of the spreader.

TWO SPEED CLUTCH

If clutch control yoke becomes worn, it may be necessary to adjust the high speed clutch so it engages and disengages completely. Adjustment to compensate for this wear is made by sliding spring stop (A) on control rod closer to the clutch engaging lever. Initial adjustment should be made as follows: Distance (B) between spring stop and jam nut is seven (7) inches. Distance (C) between jam nut and shifting rod bracket is one-eighth (1/8) inches. This distance may be achieved by adjusting the turnbuckle at front of spreader.

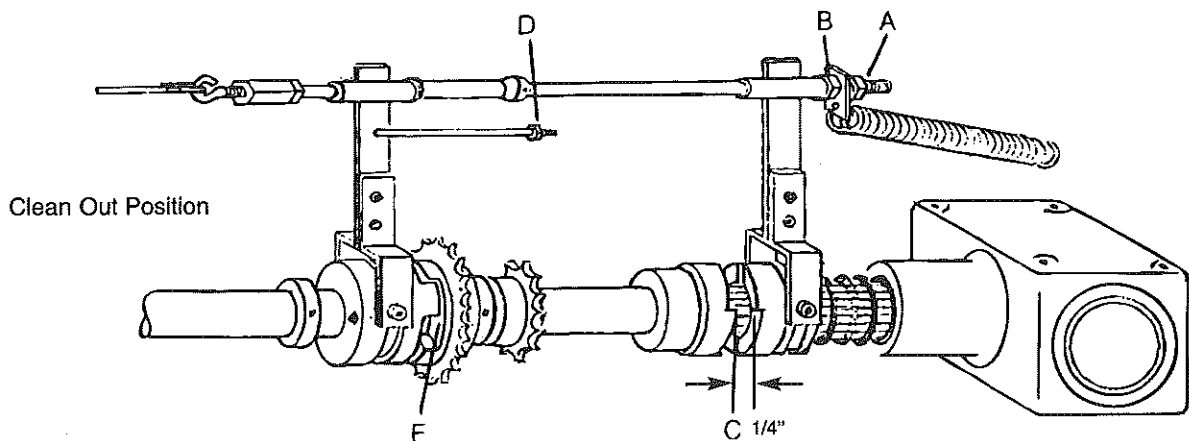


TURNBUCKLE
Shields Removed for Clarity



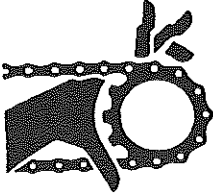
BEATER CLUTCH ADJUSTMENT

It may be necessary to compensate for wear in the beater clutch and clutch control yoke. When properly adjusted the moveable jaw clutch should have one-quarter (1/4) inch (distance C) between clutches when disengaged. To adjust, loosen jam nut (A) holding spring bracket. With beater disengaged (clean out position), tighten nut (B) against shifter lever bracket until the proper distance between clutch jaws is reached. Overtightening will cause beater not to fully engage and cause excess tension on cable. Tighten lock nut (D) so there is one thirty-second (1/32) inch clearance between clutch jaws (E).



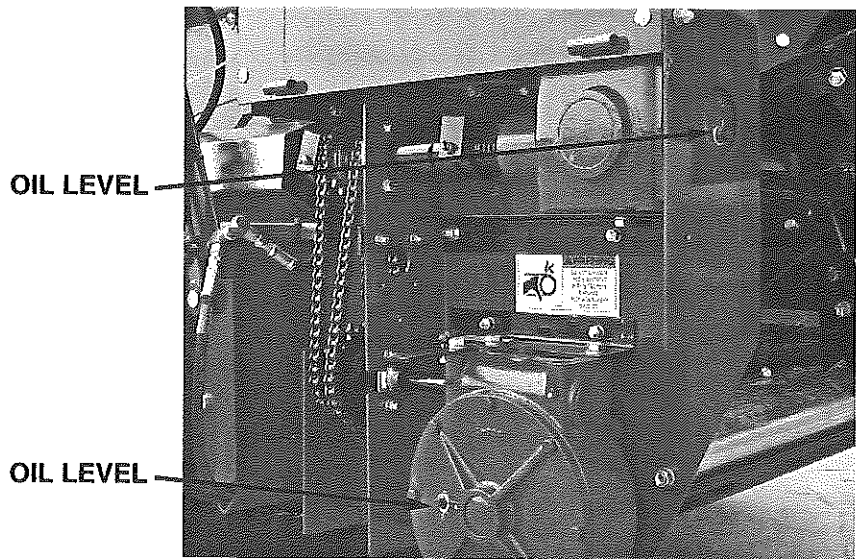
LUBRICATION GUIDE

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

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

GEARBOX – Before using your new machine, check the oil in the main apron drive and beater drive gearbox. Keep the gearbox filled to the oil plug on the side of the gearbox as shown with #80 or #90 gear lube.

DRIVE CHAINS – Lubricate the drive chains with a light machine oil. Keep chains aligned with sprockets, this will lengthen the life of the sprockets and chain. Lubricate chains often.



Shields Removed for Clarity

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 jackshaft 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 train.

⚠ DANGER	
	
<p>ROTATING DRIVELINE CONTACT CAN CAUSE DEATH KEEP AWAY! DO NOT OPERATE WITHOUT-</p>	
<ul style="list-style-type: none"> • ALL DRIVELINE, TRACTOR AND EQUIPMENT SHIELDS IN PLACE. • DRIVELINES SECURELY ATTACHED AT BOTH ENDS. • DRIVELINE SHIELDS THAT TURN FREELY ON DRIVELINE. 	

LUBRICATION GUIDE (Continued)

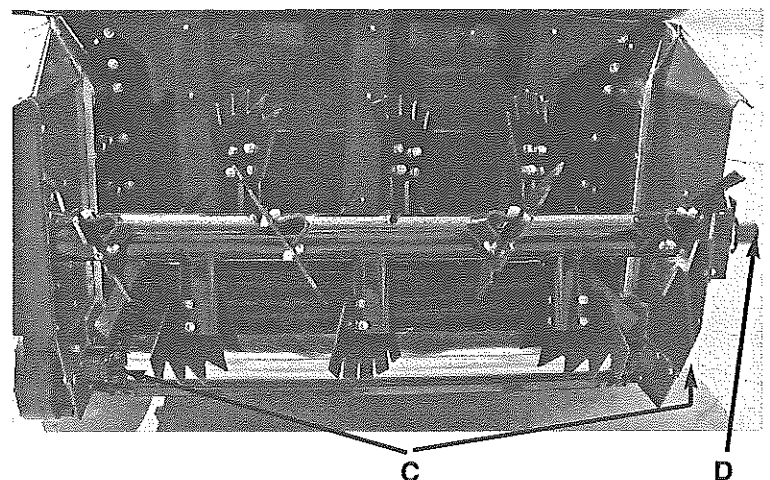
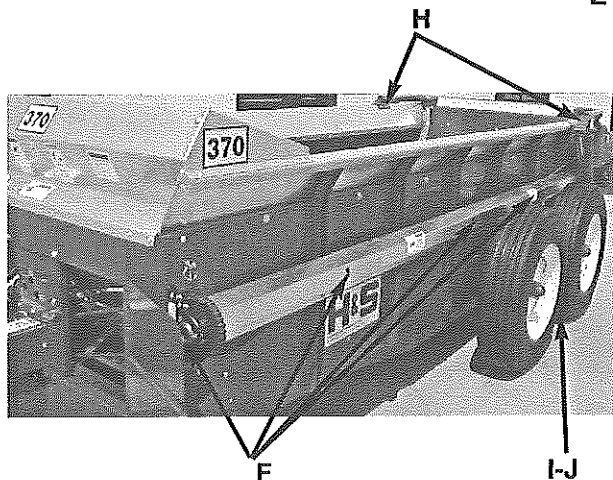
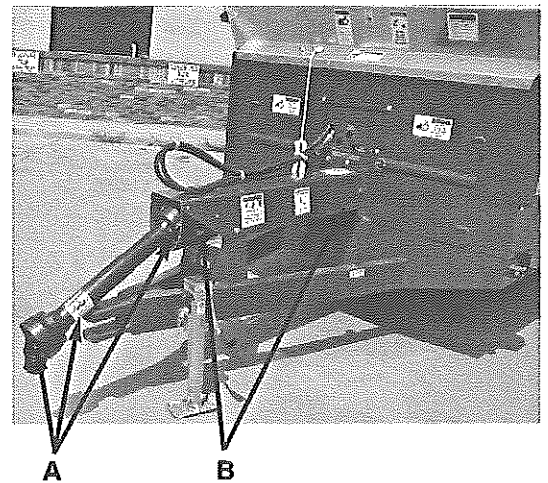
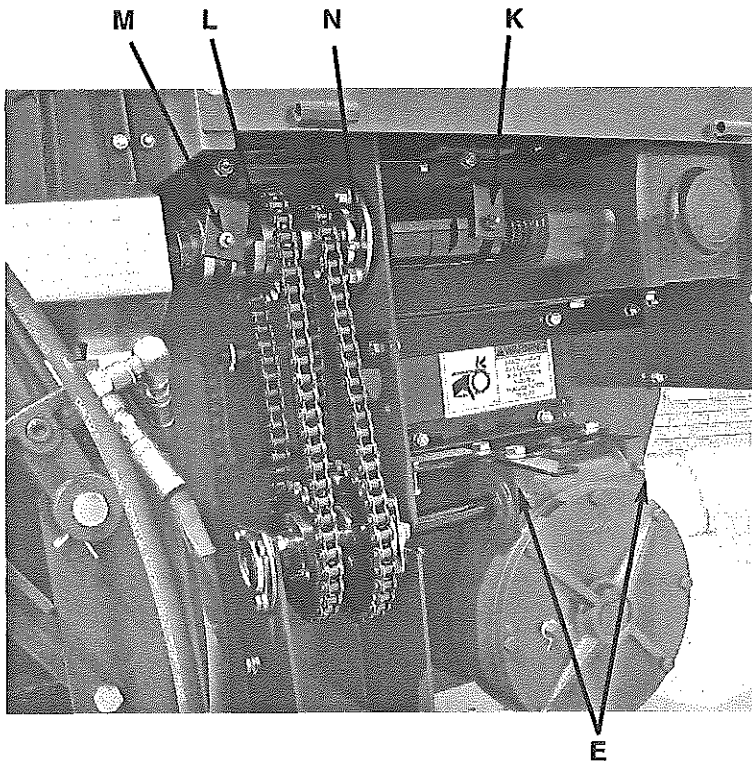
GREASE ZERK LOCATION

- A. (3) PTO Shaft
- B. (2) Front Jack shaft
- C. (2) Drive Shaft
- D. (1) Beater
- E. (2) Worm Drive Gearbox
- F. (5) Side Shaft (Model 370 & 430)
- G. (4) Side Shaft (Model 310)

- H. (2) Tailgate Arms (if equipped with hydraulic endgate)
- I. (2) Axle Pivot (Model 310 only)
- J. (4) Axle Pivot (Model 370 & 430)
- K. (1) Beater Clutch Control Yoke
- L. (1) Two Speed Clutch Control Yoke
- M. Two Speed Clutch Throwout
- N. Rear Support Bearing

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 storage 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.

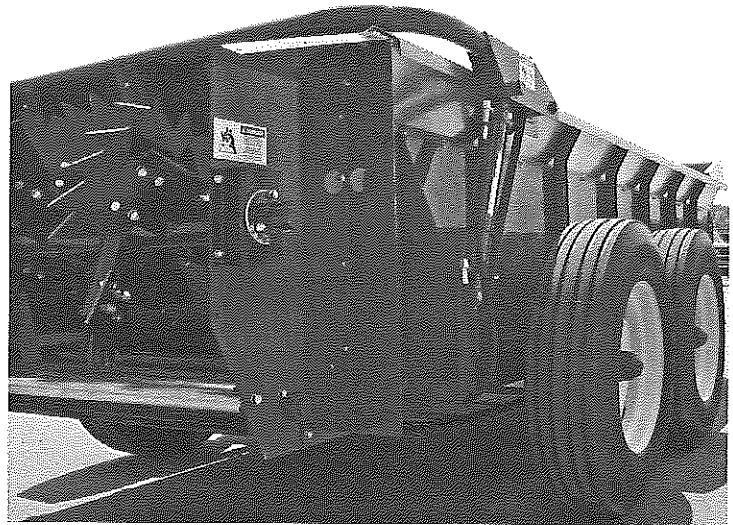


OPTIONAL EQUIPMENT

	<p>⚠ WARNING</p> <p>DO NOT GO NEAR LEAKS</p> <ul style="list-style-type: none">• 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.
---	---

DOUBLE CYLINDER

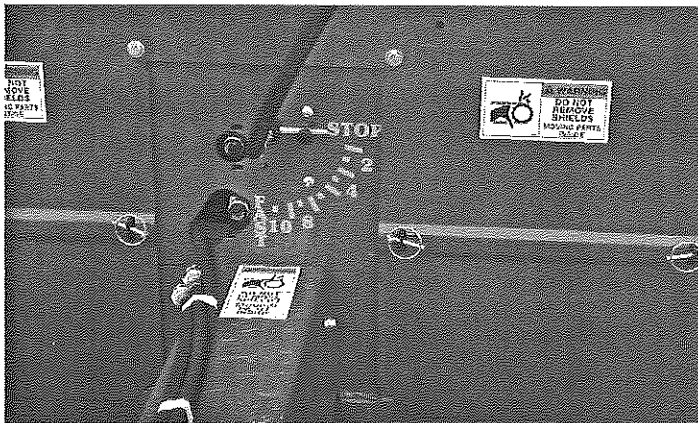
H&S Model 310 manure spreader is equipped with brackets to accept an optional second cylinder to raise and lower the hydraulic endgate. Optional cylinder is located on right hand side of spreader. Optional kit includes cylinder, brace, hoses, and connectors to attach to existing cylinder.



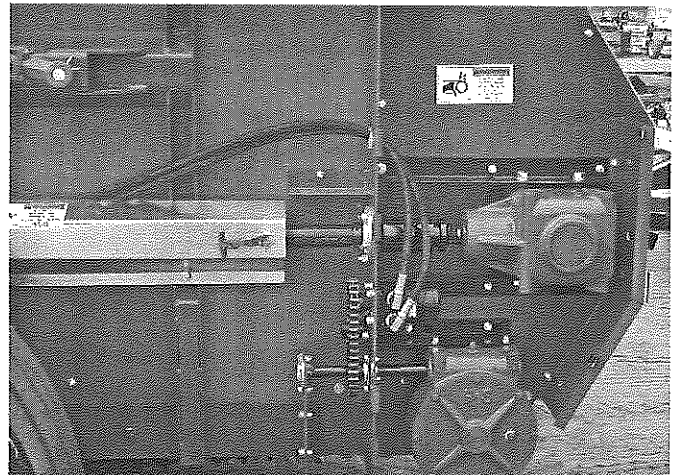
NOTE: DOUBLE CYLINDER FOR HYDRAULIC ENDGATE IS STANDARD EQUIPMENT FOR MODELS 370 & 430.

HYDRAULIC DRIVE

An optional hydraulic drive unit is available to convert Models 310, 370 and 430 from two speed to variable speed hydraulic drive. Hydraulic drive may be used as a two or four hose tractor hook-up.

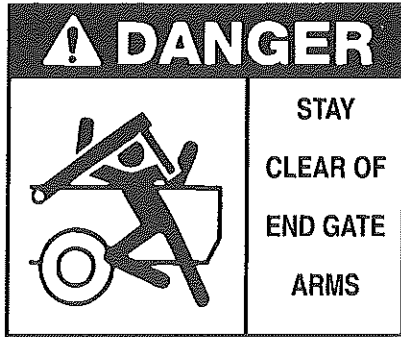


Front Control Panel



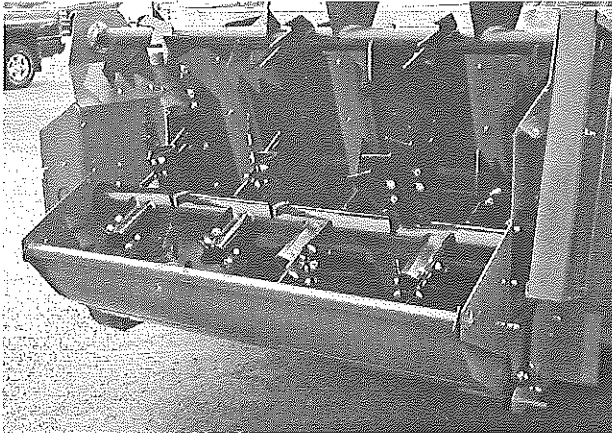
**Hydraulic Motor
(Shield Removed for Clarity)**

OPTIONAL EQUIPMENT (Continued)



REAR PAN/SEMI-LIQUID HYDRAULIC ENDGATE

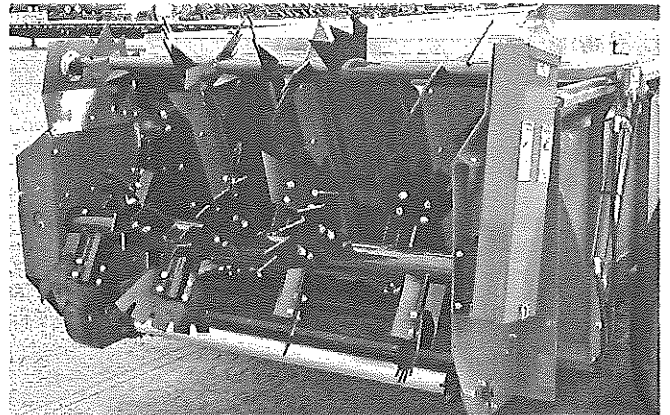
The rear pan shown below is optional equipment on Models 310, 370 & 430. Semi-liquid hydraulic endgate (pictured below right) is standard equipment on Models 310, 370 & 430. Rear pan and hydraulic endgate may be used together on all three Models.



REAR PAN



HYDRAULIC ENDGATE



UPPER BEATER

Optional upper beater available on all three models will provide more uniform spreading in heaped and heavily matted material. Upper beater may be used with hydraulic endgate.

BEATER PADDLES

When replacing beater paddles, 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 paddles. Use H&S part number R10-1/2" special bolt, R35 lock washer, R11-1/2" special nut, torque to 60 foot lbs.

When transporting on the highway, regularly clean the reflective tape at the rear of the spreader. There is a holder provided for your SMV sign.

ADJUSTING WHEEL HUBS

To adjust the 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.

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 him with the following:

1. Model & Serial Number - Both can be located on the front center bearing post below the PTO shaft.
2. All reference to left or right apply to the machine as viewed from the rear.
3. Parts should not be ordered from illustration only. Please order by 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 ITS' 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.

- SERVICE NOTES -

Handwritten notes area consisting of multiple horizontal lines for text entry.

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 the 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.

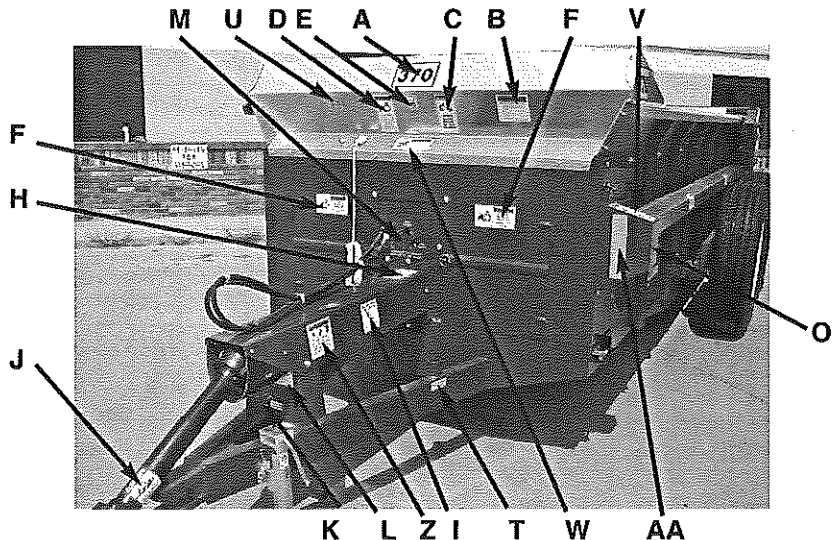
Listed below are the decals on your Manure Spreader. These decals may be ordered individually by part number or by ordering a complete set.

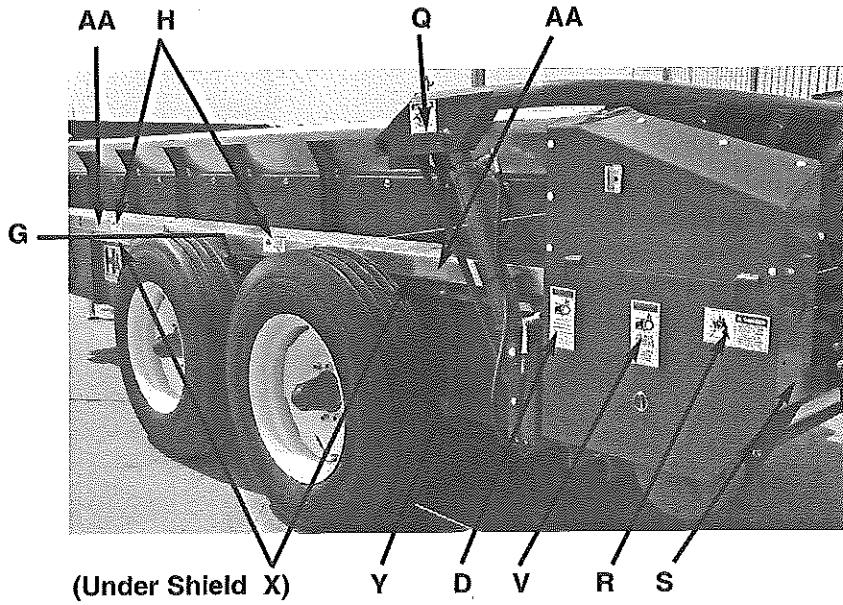
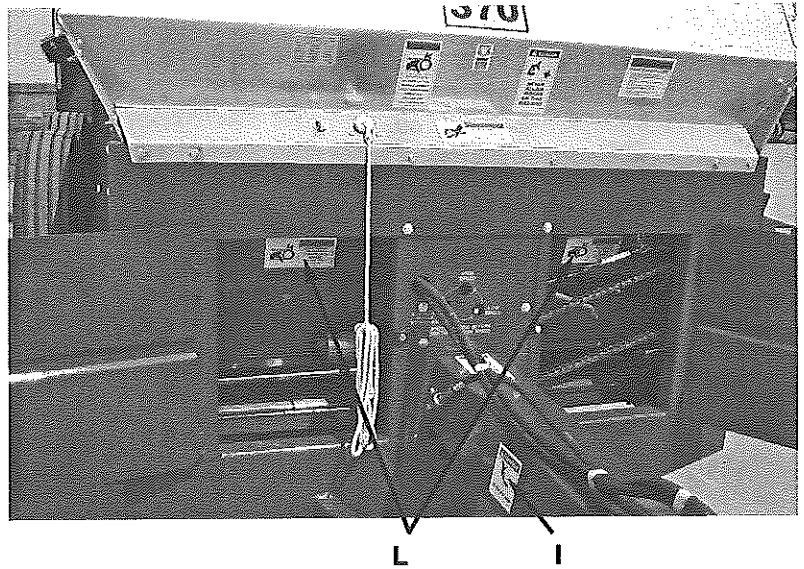
ITEM	PART NO.	DESCRIPTION
A	10186E	(3) Model 310
	4887A	(3) Model 370
	82090	(3) Model 430
AA		(5) Amber Reflector
B	72203A	Warning - Help Avoid Injury
C	9194B	Danger - Never Allow Riders
D	1494J	(2) Warning - Do Not Clean or Work
E	FEMA	
F	1494B	(2) Warning - Do Not Remove Shields
G	093020	(2) Grease
H	12794	(3) Warning - Do Not Remove Shields
I	9194A	Danger - No Step
J	Weasler	Danger - Rotating Driveline (H&S Decal 1494L)
K		Serial Number
L	1494A	(4) Warning - Do Not Operate
M	71188H	Beater/Apron Control
N		H&S Metal Sign (12"x24")
O		H&S Metal Sign (9"x18")
P	112-11176	(2) Shear Bolts
Q	111593C	(2) Danger - Stay Clear of Endgate Arms
R	111593A	(2) Danger - Stay Clear of Beater
S		(2) Red Reflector
T	71188B	Jack Storage Position
U	H&S	Patent Numbers
V	1494K	(2) Warning - Do Not Remove Shields
W	11599	Warning - Stay Clear of Leaks
X	71494A	(3) Warning - Do Not Operate
Y	3494A	(2) Remote Grease - Axle Pivot
Z	82602	Warning - Crushing Hazard
	72903-310	Complete Set of Decals - Model 310
	72903-370	Complete Set of Decals - Model 370
	72903-430	Complete Set of Decals - Model 430

Paint - H & S Red

- ZX21
- ZX22
- ZX23

Gallon
Quart
Pint





Some Shields removed for decal identification. Make sure all shields are in place before operating spreader.

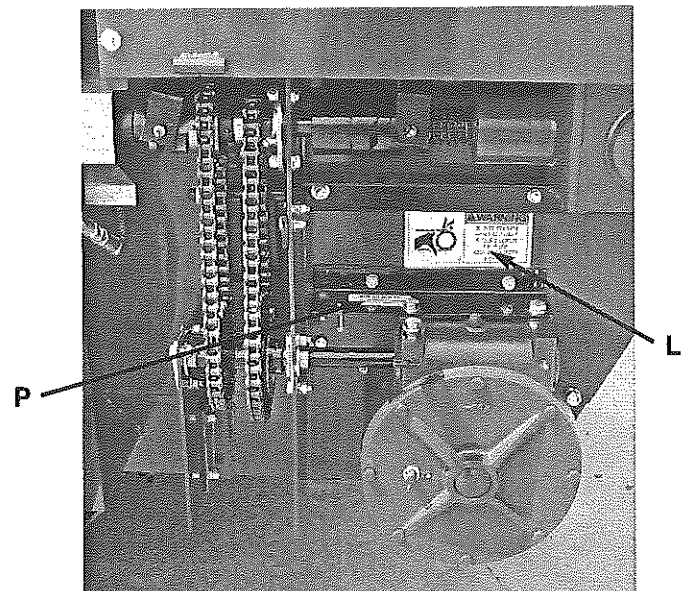
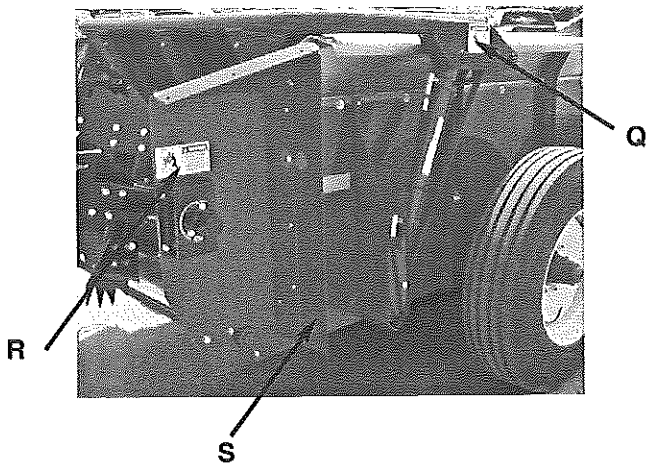


FIGURE 1

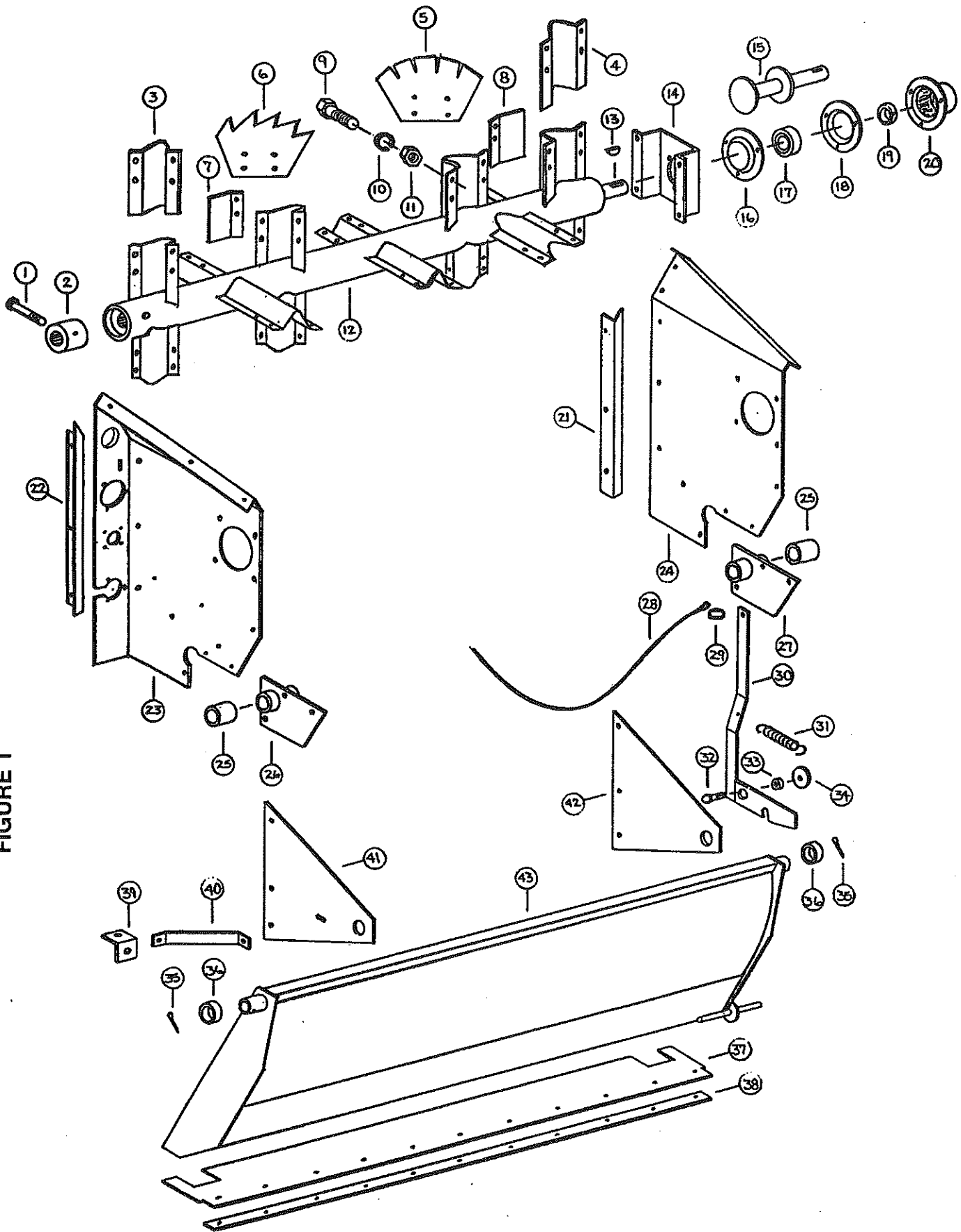


FIGURE 1
H&S MODELS 310, 370 & 430
BEATER AND PAN ASSEMBLY
SPREADER MODEL & PART NO.

ITEM	310	370	430	DESCRIPTION
1.	23N1	"	"	5/16" x 5" GR.5 Bolt
2.	23N2	"	"	Splined Beater Insert
3.	23N3	"	"	Beater Blade Holder LH
4.	23N4	"	"	Beater Blade Holder RH
5.	23N276	"	"	Beater Blade - Hardened
6.	23N277	"	"	Beater Blade - Hardened
7.	23N7	"	"	Beater Blade Wiper LH
8.	23N8	"	"	Beater Blade Wiper RH
9.	R10	"	"	1/2" x 1-1/4" Bolt GR.5
10.	R35	"	"	1/2" Lock Washer
11.	R11	"	"	1/2" Lock Nut
12.	23N9	"	"	Beater
13.	5B9	"	"	3/8" x 1-1/4" Woodruff Key
14.	23N10	"	"	Beater Shaft Support
15.	23N11	"	"	Beater Stub Shaft
16.	F116	"	"	Bearing Flange (Heavy Duty)
17.	F115	"	"	Bearing (Grease Type)
18.	F114A	"	"	Bearing Flange w/Zerk 45°
19.	F16	"	"	Lock Collar
20.	23N12	"	"	Bearing Flange Guard
21.	23N13	37N1	37N1	RH Side Poly Hold down
22.	23N14	37N2	37N2	LH Side Poly Hold down
23.	23N175	37N50	37N50	LH Main Panel
24.	23N16	37N4	37N4	RH Main Panel
25.	23N17	"	"	Drive Shaft Bushing
26.	37N78	"	"	Drive Shaft Bracket LH
27.	23N19	"	"	Drive Shaft Bracket RH
28.	31N1	37N5	37N5	Pan Trip Rope
29.	R31	"	"	Clip
30.	23N21	"	"	Pan Trip Lever
31.	R27	"	"	Spring
32.	23N22	"	"	1/2" x 1-1/2" Carriage Bolt
33.	23N23	"	"	Trip Lever Spacer
34.	A34	"	"	1/2" Flat Washer
35.	R70	"	"	Cotter Pin
36.	F112	"	"	Spacer
37.	23N24	"	"	Pan Rubber Flap
38.	23N25	"	"	Pan Strap
39.	23N26	"	"	Pan Brace Angle
40.	23N27	"	"	Pan Support Brace
41.	23N28	"	"	LH Pan Support
42.	23N29	"	"	RH Pan Support
43.	23N30	"	"	Pan

NOTE: "(SAME PART NO. AS MODEL 310)

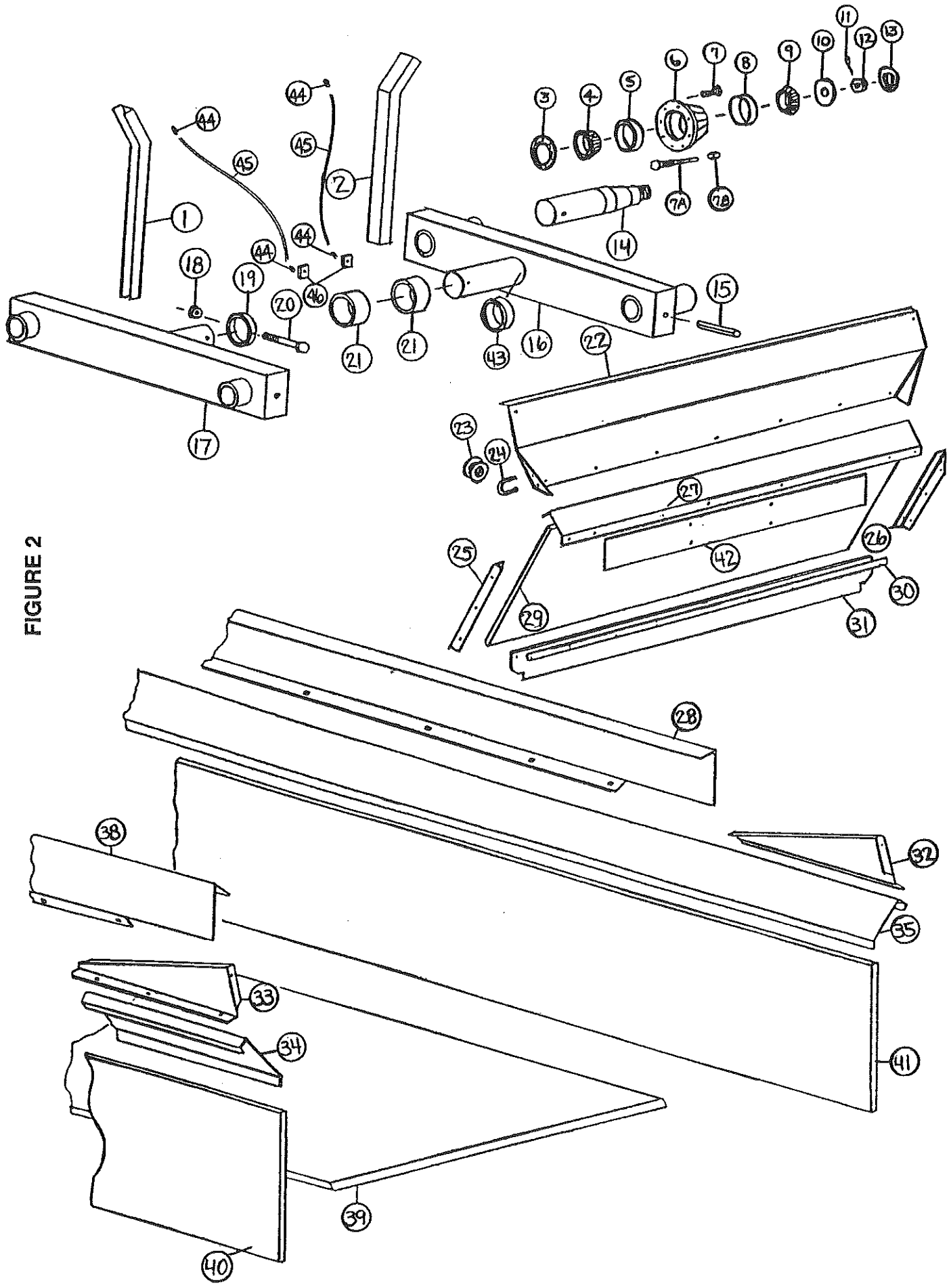


FIGURE 2

FIGURE 2
H&S MODELS 310, 370 & 430
SPINDLE, HUB AND BOX PARTS
SPREADER MODEL & PART NO.

ITEM	310	370	430	DESCRIPTION
1.	23N31	37N6	37N6	RH Side Stake
2.	23N32	37N7	37N7	LH Side Stake
3.	B8	B90	B90	Seal
4.	B7	B91	B91	Inner Bearing
5.	B7A	B91A	B91A	Inner Race
6.	B6	26G4	26G4	Hub - 2003 & Previous
*	-	26G4A	26G4A	Hub - 2004 to Present
7.	B32	-	-	Hub Bolt
7A.	-	26G5	26G5	Stud Bolt 9/16" - 2003 & Previous
*	-	26G5A	26G5A	Stud Bolt 5/8" - 2004 to Present
7B.	-	26G6	26G6	Lug Nut 9/16" - 2003 & Previous
*	-	26G6A	26G6A	Lug Nut 5/8" - 2004 to Present
8.	B5A	B94A	B94A	Outer Race
9.	B5	B94	B94	Outer Bearing
10.	B4	"	"	Washer
11.	B31	"	"	Cotter Pin
12.	B3	"	"	Nut
13.	B2	"	"	Hub Cap
14.	31N2	37N8	-	Spindle
Not Shown	31N48	16SV203	"	Spindle for 14 x 16.1 Wheel
15.	31N4	"	"	Roll Pin 1/2" x 4"
16.	31N5	37N10	37N10	Tandem Beam LH
17.	31N6	37N11	37N11	Tandem Beam RH
18.	9S17	"	"	1/2" Lock Nut
19.	B60	"	"	Ring
20.	B61	"	"	1/2" x 5" Bolt GR.5
21.	B58	"	"	Bushing for Tandem Axle
22.	23N34	"	"	Front Flare
23.	F33	"	"	Rope Guide
24.	F32	"	"	U-Bolt
25.	23N35	37N12	37N12	RH Gate Angle
26.	23N36	37N13	37N13	LH Gate Angle
27.	23N176	"	"	Front Flare Support
28.	-	-	43N1	Side Extension LH
29.	23N270	37N65	37N65	Front Gate Plywood with Poly
30.	23N40	"	"	Strap for Rubber
31.	23N41	"	"	Front Gate Rubber
32.	23N42	"	"	Splash Guard Side LH
33.	23N43	"	"	Splash Guard Side RH
34.	31N24	37N16	43N3	RH Side Flare
35.	31N25	37N17	43N4	LH Side Flare
38.	-	-	43N2	Side Extension RH
39.	31N49	37N81	37N81	Poly Floor
40.	31N31	37N67	37N67	RH Side Plywood with Poly
41.	31N32	37N68	37N68	LH Side Plywood with Poly
42.	-	37N51	37N51	Front Panel
43.	-	B111	B111	Outer Bushing for Tandem Axle
44.	S47	"	"	Grease Line Fitting
45.	31N43	"	"	Grease Line
46.	16V9	"	"	Grease Line Bracket
Not Shown	12V36	"	"	Wheel 14 x 16.1
Not Shown	23N54	"	"	Tire 16.5 x 16.1
Not Shown	23N179A	"	-	Wheel 8 x 22.5 - Tubeless
Not Shown	23N180	"	-	Tire 10.00 x 22.5
Not Shown	31N26	37N52	37N52	Complete Frame

NOTE: "(SAME PART NO. AS MODEL 310) - (PART IS NOT USED ON THIS MODEL)

FIGURE 3

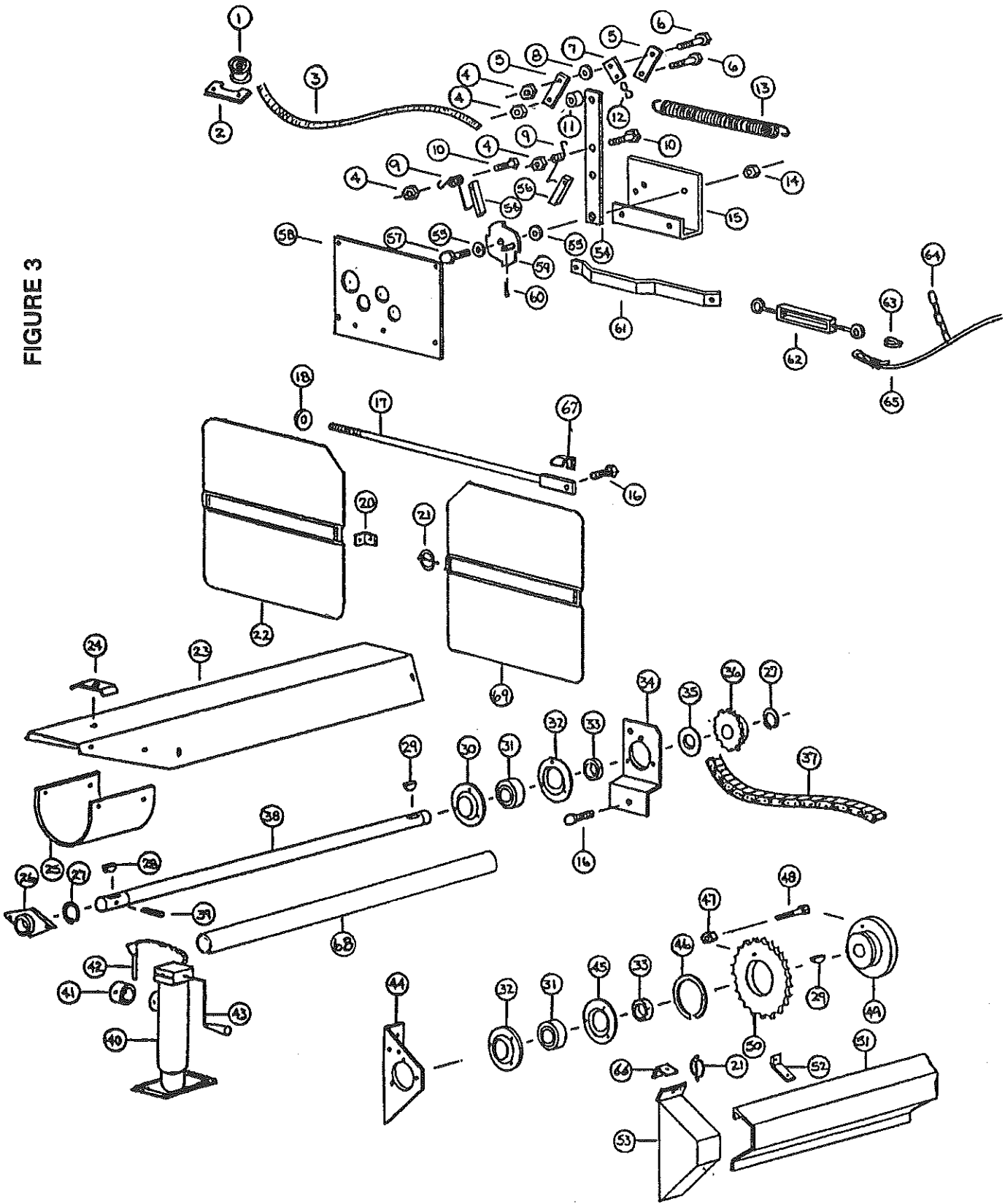


FIGURE 3
H&S MODELS 310, 370 & 430
FRONT SHIELD AND DRIVE ASSEMBLY
SPREADER MODEL & PART NO.

ITEM	310	370	430	DESCRIPTION	ITEM	310	370	430	DESCRIPTION
1.	F33	"	"	Cable Guide	*	12N9	"	"	Jack Gear Repair Kit
2.	23N182	"	"	Bracket	41.	12N14	"	"	Jack Mount
3.	23N183	"	"	Rope	42.	12N13	"	"	Jack Pin
4.	K93	"	"	3/8" Lock Nut	43.	12N12	"	"	Handle
5.	23N184	"	"	Bracket	44.	23N74	"	"	Bearing Plate
6.	B67	"	"	3/8" x 1-1/4" Bolt	45.	F114A	"	"	Flange
7.	23N185	"	"	Spring Bracket	46.	23N189	"	"	Snap Ring
8.	X67	"	"	3/8" Flat Washer	47.	D81	"	"	Lock Nut
9.	23N186	"	"	Dog Spring	48.	D31	"	"	Shear Bolt
10.	A15	"	"	3/8" x 1" Bolt	49.	23N190	"	"	Shear Hub
11.	D107	"	"	Spacer	50.	23N191	"	"	30T Sprocket
12.	X79	"	"	S-Hook	51.	31N17	37N27	37N27	Side Shield
13.	23N187	"	"	Spring	52.	23N79	"	"	Bracket
14.	R29	"	"	Nut	53.	23N80	"	"	Shield
15.	23N188	"	"	Shifter Bracket	54.	23N192	"	"	Front Shifter Arm
16.	R10	"	"	Bolt	55.	K68	"	"	Washer
17.	23N63	"	"	Tightener Rod	56.	23N193	"	"	Dog
18.	F129	"	"	Washer	57.	23N194	"	"	Bolt
20.	F92	"	"	Shield Bracket	58.	23N195	"	"	Shifter Panel
21.	F56	"	"	Clip Pin	59.	23N196	"	"	Speed Selector
22.	23N305	"	"	Front Shield	60.	X43	"	"	Cotter Pin
23.	23N66	"	"	Shield	61.	23N197	"	"	Shifter Arm
24.	23N67	"	"	Tailgate Hose Bracket	62.	F84	"	"	Turnbuckle
*	HE42	"	"	Hydraulic Drive Bracket	63.	F44	"	"	Cable Loop
25.	F54	"	"	Shield	64.	23N198	37N64	37N64	Cable Chain
26.	12N29	"	"	Bearing	65.	31N27	37N53	37N53	Cable
27.	F73	"	"	Snap Ring	66.	23N242	F92	F92	Shield Bracket
28.	5B10	"	"	1/4" x 1" Key	67.	23N278	"	"	Spacer
29.	5B9	"	"	3/8" x 1-1/4" Key	68.	37N74	"	"	Front Shaft Guard
30.	F114	"	"	Flange w/Zerk	69.	23N306	"	"	Front Shield LH
31.	F115	"	"	Bearing (Grease Type)					
32.	F14	"	"	Bearing Flange					
33.	F16	"	"	Lock Collar					
34.	23N68	"	"	Front Adjustment Plate					
35.	23N69	"	"	Spacer					
36.	23N70	"	"	25T Sprocket					
*	37N72	"	"	16T Sprocket (Optional 1,000 RPM)					
37.	23N71	"	"	#60 Roller Chain 122 Pitches					
38.	23N72	"	"	Front Shaft					
39.	F26	"	"	5/16" x 2-1/4" Roll Pin					
40.	27N14	"	"	Jack					

NOTE: " (SAME PART NO. AS MODEL 310)

* (MEANS NOT SHOWN)

FIGURE 4

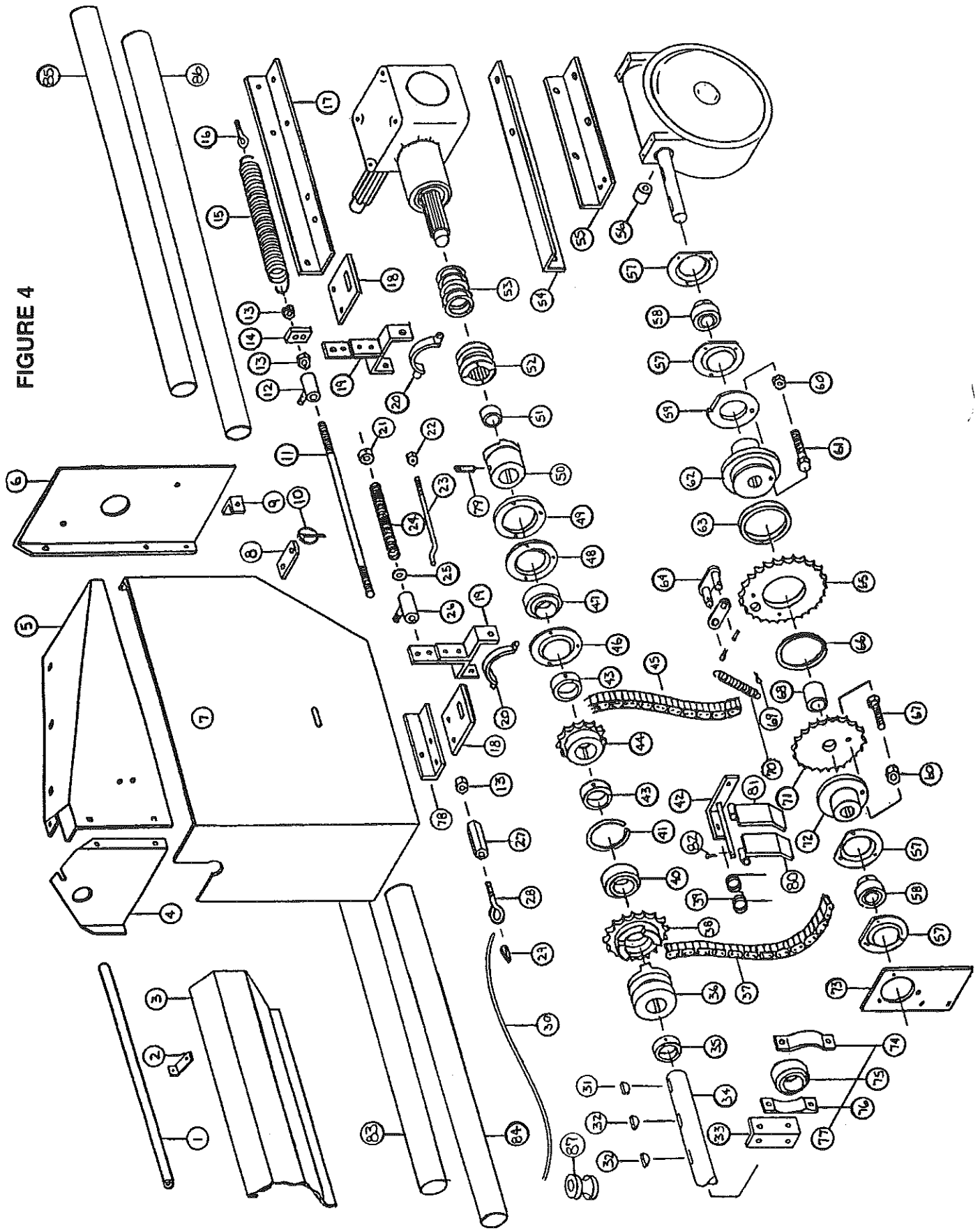


FIGURE 4
H&S MODELS 310, 370 & 430
BACK SHIELDS AND DRIVE ASSEMBLY
SPREADER MODEL & PART NO.

ITEM	310	370	430	DESCRIPTION	ITEM	310	370	430	DESCRIPTION
1.	23N200	"	"	Cable Guard	47.	F115	"	"	Bearing
2.	23N79	"	"	Side Shield Bracket	48.	F14	"	"	Flange
3.	31N28	37N54	37N54	Side Shield	49.	23N174	"	"	Flange Spacer
4.	23N201	37N55	37N55	Shield	50.	23N241	"	"	Clutch
5.	23N202	37N56	37N56	Back Shield Top	51.	D68	"	"	Bronze Bushing
6.	23N203	37N57	37N57	Back Shield	52.	23N90	"	"	Clutch
7.	23N204	"	"	Cover	53.	23N89	"	"	Spring
8.	23N96	"	"	Shield Bracket	54.	23N88	"	"	Bottom Angle
9.	-	F92	F92	Angle	55.	23N95	"	"	Worm Box Holder
10.	F56	"	"	Clip Pin	56.	23N94	"	"	Spacer
11.	23N205	"	"	Clutch Rod	57.	X85	"	"	Flange
12.	23N206	"	"	Shifting Rod Bracket	58.	23N221	"	"	Bearing
13.	K60	"	"	3/8" Nut					w/Setscrews
14.	23N207	"	"	Spring Bracket	59.	23N222	"	"	Shear Plate
15.	K103	"	"	Spring	60.	D65	"	"	Lock Nut
16.	K79	"	"	I-Bolt	61.	23N223	"	"	Shear Bolt
17.	23N85	"	"	Top Angle	62.	23N224	"	"	Shear Hub
18.	23N86	"	"	Shifter Bracket	63.	23N225	"	"	Bronze Ring
19.	D57	"	"	Shifter Lever	64.	F157	"	"	Connector Link
20.	23N208	"	"	Yoke w/Zerk					w/Pins
21.	23N209	"	"	Collar	65.	23N226	"	"	30T Sprocket
22.	D65	"	"	Lock Nut	66.	23N227	"	"	Snap Ring
23.	23N210	"	"	Shifting Rod	67.	23N223	"	"	Shear Bolt
24.	23N211	"	"	Spring	68.	23N228	"	"	Spacer
25.	X67	"	"	Washer	69.	X43	"	"	Cotter Pin
26.	23N206	"	"	Rod Bracket	70.	23N229	"	"	Dog Spring
27.	23N212	"	"	Coupling Nut	71.	D64	"	"	25T Sprocket
28.	23N213	"	"	I-Bolt	72.	D63	"	"	Shear Hub
29.	F44	"	"	Cable Loop	73.	23N230	"	"	Bearing Panel
30.	31N27	37N53	37N53	Cable	74.	12N34	"	"	Bearing Cover
31.	5B9	"	"	3/8" x 1-1/4" Woodruff	75.	12N33	"	"	Bearing
				Key	76.	12N35	"	"	Holder
32.	5B10	"	"	1/4" x 1" Woodruff	77.	12N36	"	"	Bearing
				Key	78.	23N239	"	"	Shifter Support
33.	23N97	"	"	Side Bearing Bracket	79.	23N240	"	"	Setscrew
34.	31N29	37N58	37N58	Side Shaft	80.	31N34	"	"	LH Tightener Bar
35.	F6	"	"	Collar	81.	31N35	"	"	RH Tightener Bar
36.	23N215	"	"	Clutch Throw-Out	82.	X43	"	"	Cotter Pin
37.	23N93	"	"	#50 Chain 60	*	X60	"	"	#50 Offset
				Pitches	*	X61	"	"	#50 Conn.
38.	23N216	"	"	Clutch Sprocket	*	31N38	"	"	Chain Tightener Assembly
39.	31N33	"	"	Spring Tightener	83.	31N44	37N76	"	#2 Side Shaft Guard
40.	23N218	"	"	Bearing	84.	31N45	37N75	"	#1 Side Shaft Guard
41.	3G19	"	"	Snap Ring	85.	-	37N76	"	#4 Side Shaft Guard
42.	31N36	"	"	Tightener Bracket	86.	31N46	37N77	"	#3 Side Shaft Guard
43.	F16	"	"	Lock Collar	87.	F33	"	"	Cable Guide
44.	10R11	"	"	13T Sprocket					
45.	23N220	"	"	#50 Chain 59					
				Pitches					
46.	F114A	"	"	Flange					

NOTE: "(SAME PART NO. AS MODEL 310)
 - (PART IS NOT USED ON THIS MODEL)
 * (MEANS NOT SHOWN)

FIGURE 5

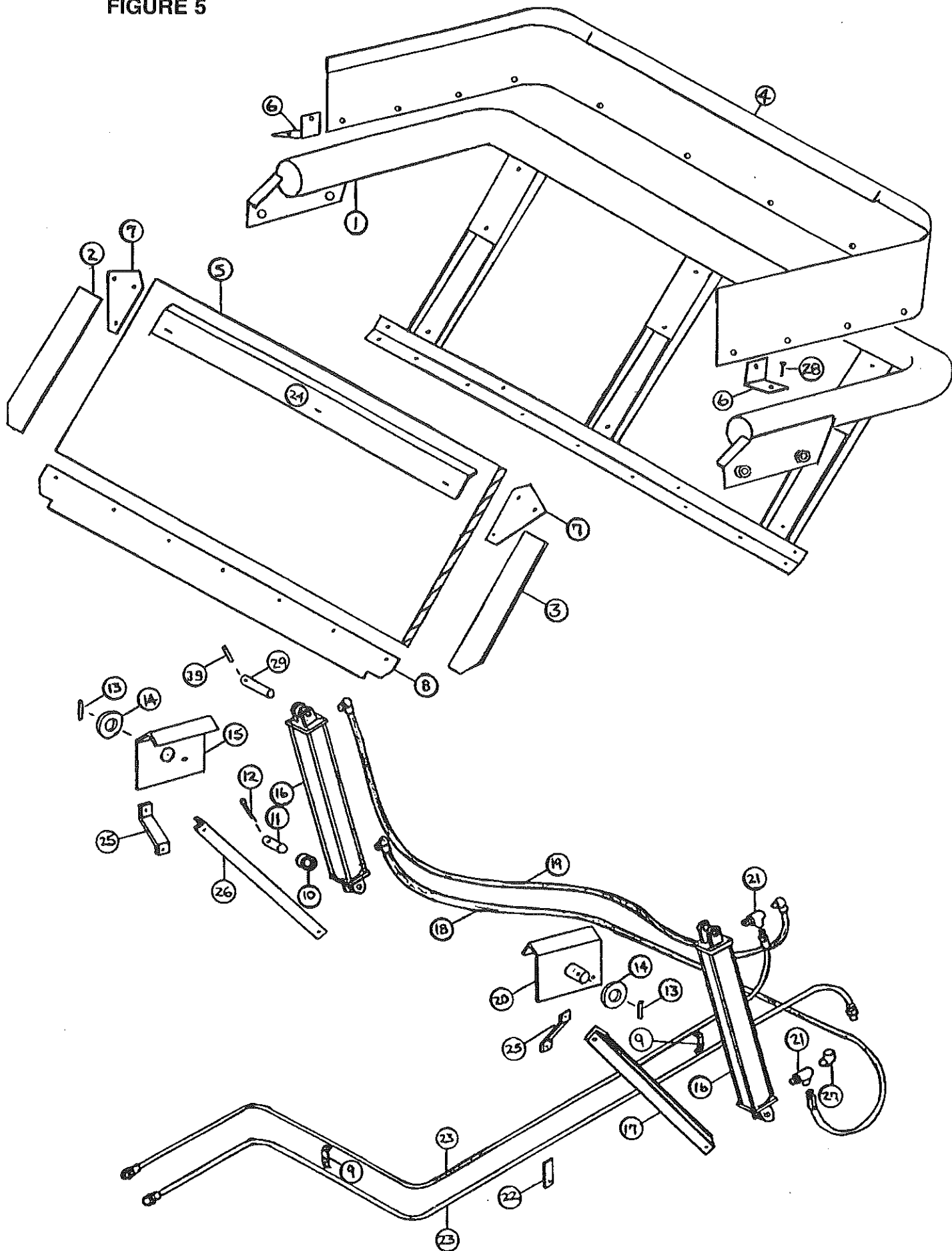


FIGURE 5
H & S MODELS 310, 370 & 430
HYDRAULIC TAILGATE ASSEMBLY
SPREADER MODEL & PART NO.

ITEM	310	370	430	DESCRIPTION
1.	23N298	37N79	37N34	Tailgate Frame
2.	23N99	37N35	37N35	RH Side Rubber
3.	23N100	37N36	37N36	LH Side Rubber
4.	-	-	43N5	Back Extension
5.	31N37	37N69	37N69	Tailgate Plywood with Poly
6.	-	-	43N6	Extension Angle
7.	23N104	"	"	Tailgate Corner
8.	23N105	"	"	Bottom Rubber
9.	23N67	"	"	Hose Bracket
10.	K132	"	"	Spacer
11.	23N107	"	"	Cylinder Pin
12.	23N108	"	"	Cotter Pin
13.	3G22	"	"	Roll Pin 5/16"x1-3/4"
14.	23N109	"	"	Washer
15.	23N299	"	23N110	RH Tailgate Mount
16.	23N111A	"	"	Hydraulic Cylinder
17.	23N231	37N59	37N59	Brace
18.	23N113	37N60	37N60	Hose (23N113-96" / 37N60-108")
19.	23N114	37N61	37N61	Hose (23N114-138" / 37N61-152")
20.	23N300	"	23N115	LH Tailgate Mount
21.	23N116	"	"	Tee
22.	23N117	"	"	Hose Holder
23.	31N47	37N80	37N80	Hose (31N47-306" / 37N80-318")
24.	23N163	"	"	Tailgate Poly Hold down
25.	23N232	"	"	Tailgate Bracket Brace
26.	23N233	37N62	37N62	Tailgate Bracket Brace
27.	23N234	"	"	90° Street Elbow 3/8"
28.	-	-	12V3	Self Tapping Bolt
29.	23N301	"	"	Cylinder Pin

NOTE: "(SAME PART NO. AS MODEL 310)
- (PART IS NOT USED ON THIS MODEL)

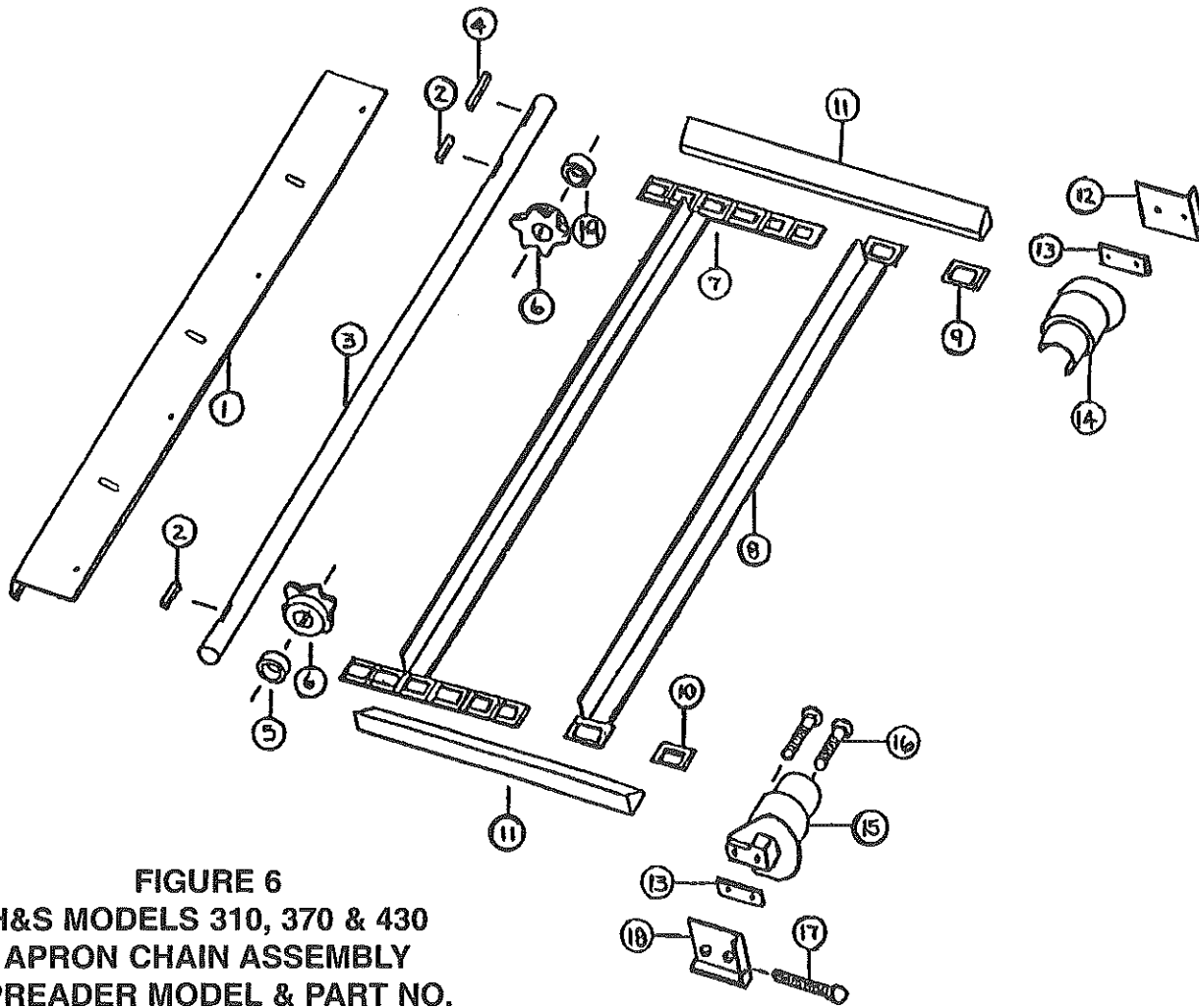


FIGURE 6
H&S MODELS 310, 370 & 430
APRON CHAIN ASSEMBLY
SPREADER MODEL & PART NO.

ITEM	310	370	430	DESCRIPTION
1.	37N82	"	"	Drive Shaft Shield
2.	23N303	"	"	3/8" x 1-3/4" Square Key
3.	27N19	"	"	Drive Shaft
4.	S138	"	"	3/8" x 2-3/8" Square Key w/Round Ends
5.	23N121	"	"	Spacer 5/8"
6.	23N122	"	"	Drive Sprocket 6T
7.	31N21	-	-	Apron Chain 26 Slats, 262 Links
	-	37N42	37N42	Apron Chain 28 Slats, 280 Links
8.	23N124	"	"	Slat w/Attachment Links
9.	S55	"	"	T-Rod Standard Link
10.	S56	"	"	T-Rod Connector Link
11.	31N22	37N43	37N43	Apron Chain Side Spacers
12.	A30	"	"	Chain Slide Plate LH
13.	23N126	"	"	Chain Slide Spacer
14.	23N127	"	"	T-Rod Slide LH
15.	23N128	"	"	T-Rod Slide RH
16.	23N129	"	"	1/2" x 4" Carriage Bolt GR.5
17.	23N130	"	"	1/2" x 4-1/2" Bolt GR.5
18.	A29	"	"	Chain Slide Plate RH
19.	23N266	"	"	Spacer 5/16"

NOTE: "(SAME PART NO. AS MODEL 310)

- (PART IS NOT USED ON THIS MODEL)

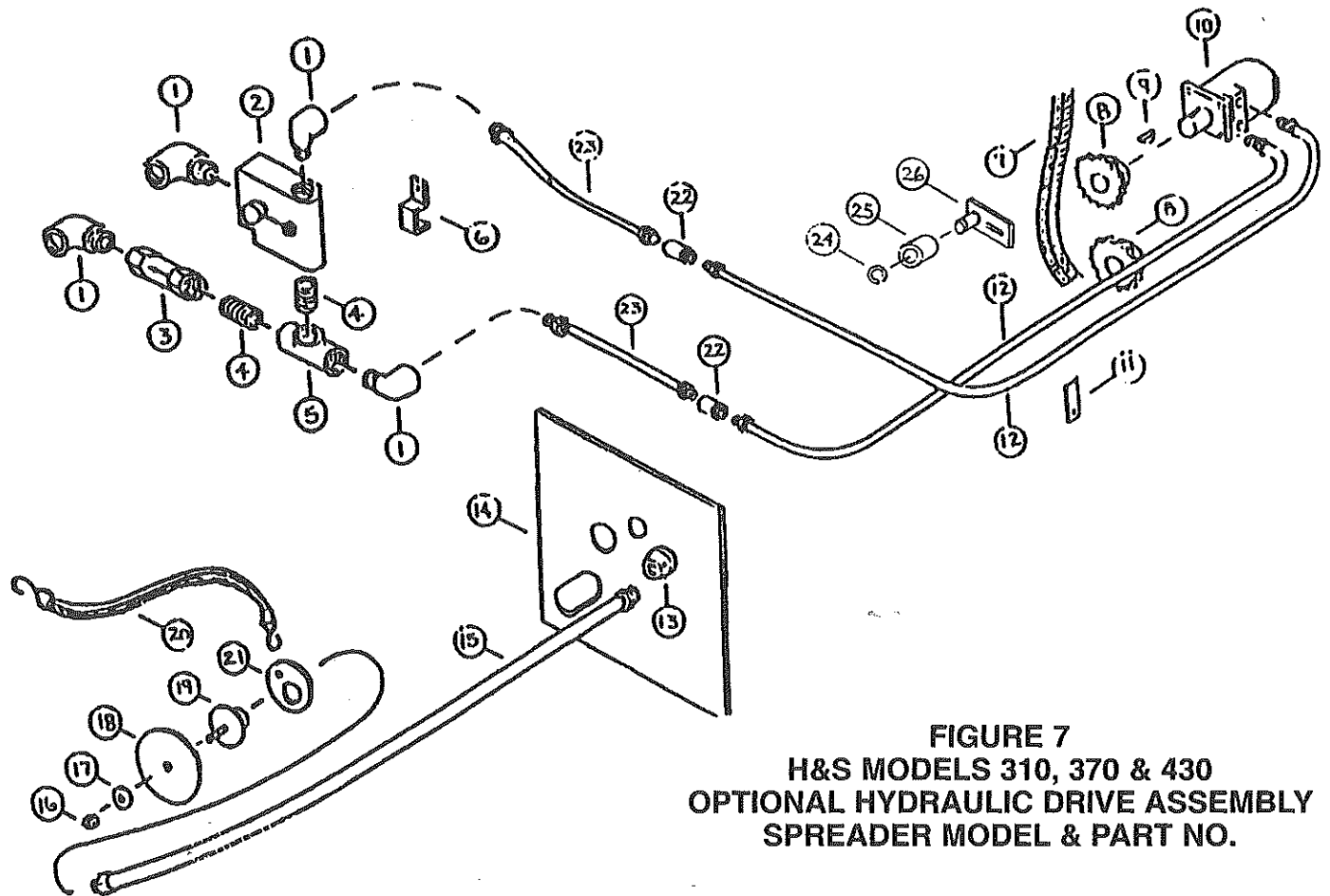


FIGURE 7
H&S MODELS 310, 370 & 430
OPTIONAL HYDRAULIC DRIVE ASSEMBLY
SPREADER MODEL & PART NO.

ITEM	310	370	430	DESCRIPTION
1.	HE58	"	"	90° Street Elbow
2.	DF15	"	"	Speed Control
3.	DF18	"	"	Check Valve
4.	DF7	"	"	Nipple
5.	DF8	"	"	Tee
6.	HE14	"	"	Hose Bracket
7.	23N131	"	"	#50 Chain 40 Pitches
8.	11S19	"	"	20T Sprocket
9.	5B10	"	"	1/4" x 1" Woodruff Key
10.	DF1	"	"	Hydraulic Motor
11.	23N117	"	"	Hose Holder
12.	23N132	"	"	Hydraulic Motor Hose
13.	DF21	"	"	Reducer
14.	23N133	"	"	Control Panel
15.	DF9	"	"	Hose for Handle
16.	K93	"	"	3/8" Lock Nut
17.	DF12	"	"	Washer
18.	DF11	"	"	Handle
19.	DF10	"	"	Handle Bracket
20.	DF14	"	"	Strap
21.	DF22	"	"	Ring for Strap
22.	31N23	"	"	Coupling
23.	HE11	HE12	HE12	Hose
24.	10R32	"	"	Snap Ring
25.	23N238	"	"	Chain Tightener Roller
26.	L10R35	"	"	Tightener Bracket

NOTE: "(SAME PART NO. AS MODEL 310)

FIGURE 8

12—COMPLETE GEAR BOX

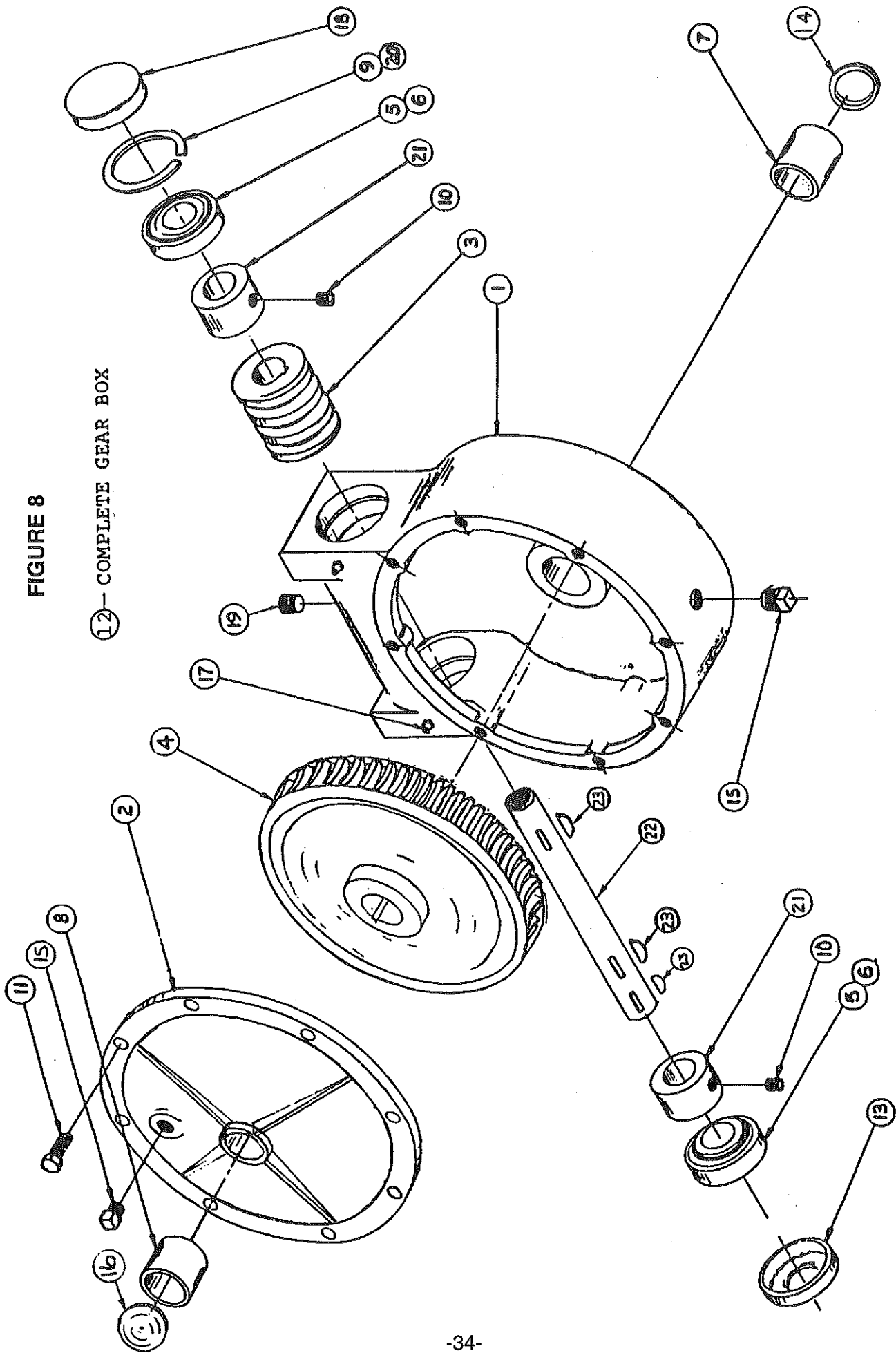


FIGURE 8
H&S MODELS 310, 370 & 430
WORM GEARBOX ASSEMBLY
SPREADER MODEL & PART NO.

ITEM	310	370	430	DESCRIPTION
1.	G114	"	"	Housing
2.	G116	"	"	Cover
3.	G76	"	"	Worm
4.	G77	"	"	Worm Gear
5.	G78	"	"	Bearing #15101
6.	G79	"	"	Bearing Cup #15245
7.	X8	"	"	Bearing - Oil Lite
8.	G81	"	"	Bearing - Oil Lite
9.	G82	"	"	Snap Ring
10.	G83	"	"	Setscrew 3/8" NC x 3/8" Long
11.	G84	"	"	Capscrew 3/8" NC x 1" Long
12.	G122	"	"	Worm Gearbox Complete
13.	G123	"	"	Seal
14.	17G133	"	"	Seal
15.	G65	"	"	Plug 3/8" NPT
16.	G117	"	"	Cap 1-7/8"
17.	G89	"	"	Zerk 1/4"-28
18.	G90	"	"	Cap
19.	G91	"	"	Vent Plug 3/8" NPT
20.	G92	"	"	Shim
21.	G93	"	"	Spacer
22.	23N236	"	"	Worm Gear Shaft
23.	5B10	"	"	1/4" x 1" Woodruff Key

NOTE: "(SAME PART NO. AS MODEL 310)

HES

FIGURE 9
GEAR BOX COMPLETE

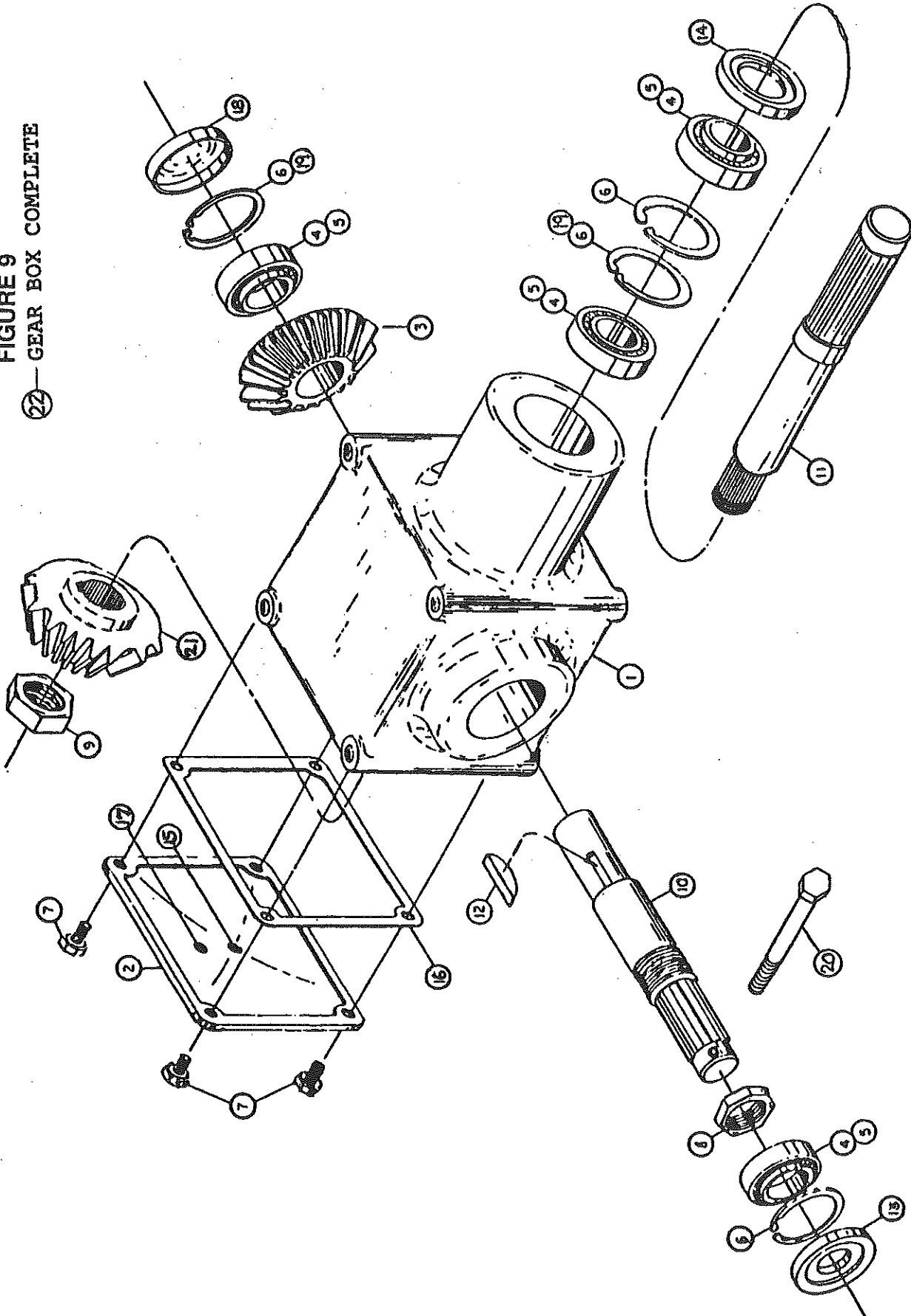


FIGURE 9
H&S MODELS 310, 370 & 430
BEVEL GEARBOX
SPREADER MODEL & PART NO.

ITEM	310	370	430	DESCRIPTION
1.	G50	"	"	Housing
2.	G51	"	"	Cover
3.	23N136	"	"	Bevel Gear 24T
4.	G53	"	"	Bearing #14137A
5.	G54	"	"	Bearing Cup #14276
6.	G55	"	"	Snap Ring
7.	G56	"	"	Capscrew
8.	G57	"	"	Stake Nut 1-1/2"
9.	31N39	"	"	Stake Nut 1-1/8"
10.	23N137	"	"	Shaft - Output
11.	31N40	"	"	Shaft - Input Double Splined
12.	G61	"	"	"E" (1210) Woodruff Key (Hard)
13.	G63	"	"	Seal - Output
14.	G64	"	"	Seal - Input
15.	G65	"	"	Plug 3/8" NPT
16.	G66	"	"	Gasket
17.	G67	"	"	Plug 1/8" NPT
18.	G68	"	"	Cap
19.	G69	"	"	Shim
20.	23N1	"	"	5/16" x 5 Bolt GR.5
21.	31N41	"	"	Bevel Gear 16T-Splined
22.	31N42	"	"	Bevel Gearbox Complete

NOTE: "(SAME PART NO. AS MODEL 310)

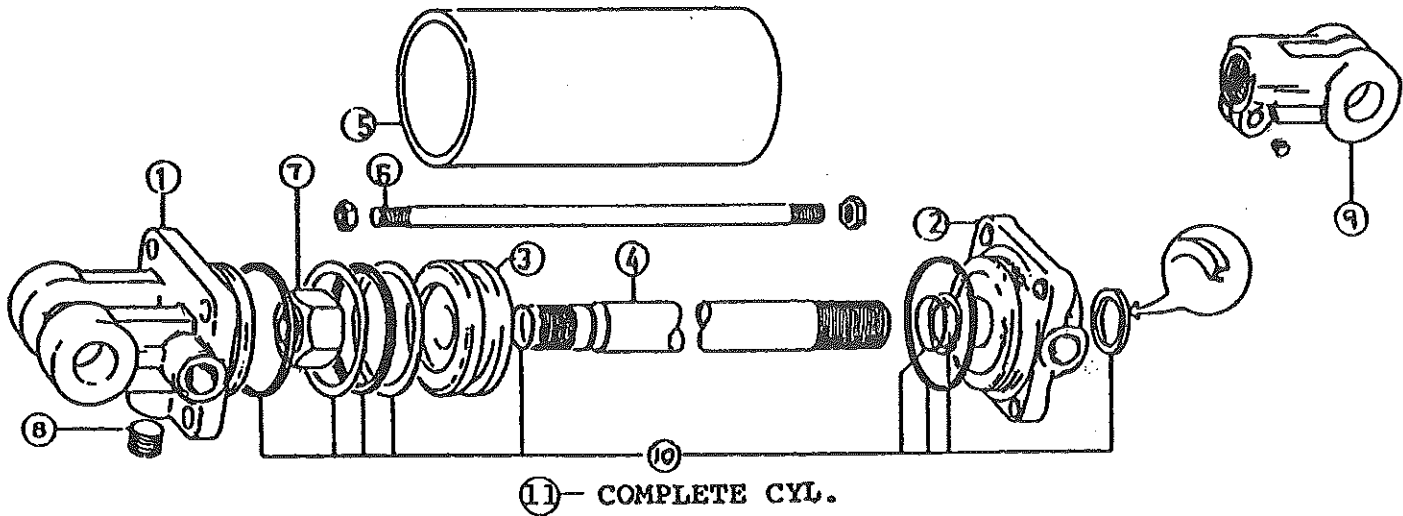


FIGURE 10
H&S MODELS 310, 370 & 430
HYDRAULIC CYLINDER
SPREADER MODEL & PART NO.

ITEM	310	370	430	DESCRIPTION
1.	23N142A	"	"	Clevis Cap
2.	23N143A	"	"	Rod Cap
3.	23N144	"	"	Piston
4.	23N145A	"	"	Rod
5.	23N146	"	"	Cylinder Tube
6.	23N147	"	"	Tie Rod
7.	23N148	"	"	Piston Nut
8.	23N149	"	"	Plug
9.	23N150A	"	"	Rod Clevis
10.	23N151	"	"	Seal Kit
11.	23N111A	"	"	Hydraulic Cylinder

NOTE: "(SAME PART NO. AS MODEL 310)

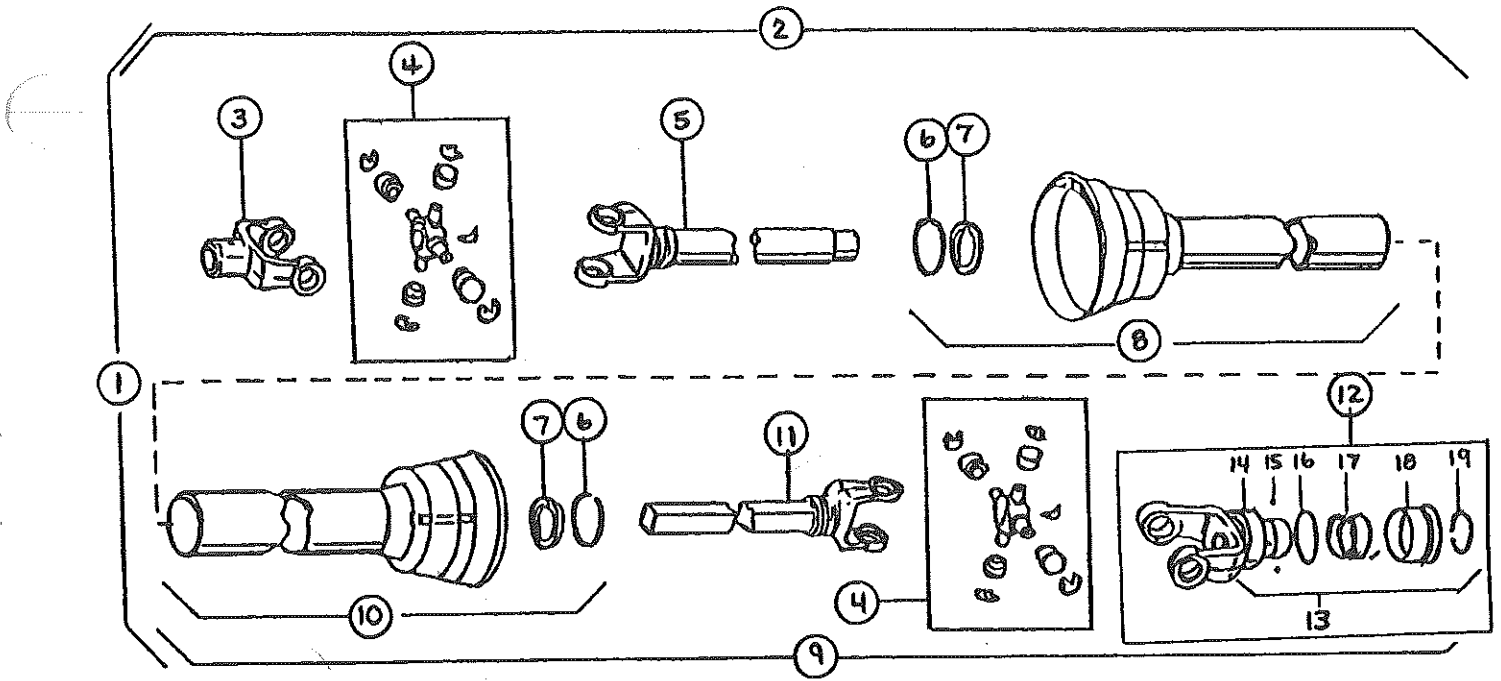


FIGURE 11
H&S MODELS 310, 370 & 430
PTO ASSEMBLY
SPREADER MODEL & PART NO.

ITEM	310	370	430	DESCRIPTION
1.	23N152	"	"	PTO Assembly Complete w/Shields
2.	23N153	"	"	Machine Half PTO w/Shield
3.	G1R35	"	"	End Yoke Machine Half
4.	14NW KIT	"	"	Repair Kit
5.	23N155	"	"	Yoke and Tube
6.	24N26	"	"	Bearing Retainer
7.	4N20	"	"	Nylon Bearing
8.	23N156	"	"	Inner Guard Including Item #6 & #7
9.	23N157	"	"	Tractor Half PTO w/Shield
10.	23N158	"	"	Outer Guard Including Item #6 & #7
11.	23N159	"	"	Yoke and Shaft
12.	23N162	"	"	Lock Yoke Assembly
*	37N73	"	"	Optional 1000 RPM Yoke
13.	S225	"	"	Spring Lock Repair Kit
14.	S226	"	"	Cover
15.	S212	"	"	Stainless Ball
16.	S227	"	"	Washer
17.	S228	"	"	Spring
18.	S229	"	"	Collar Assembly
19.	S215	"	"	Retaining Ring
*	S402	"	"	PTO Safety Manual

NOTE: " (SAME PART NO. AS MODEL 310)
*** (MEANS NOT SHOWN)**

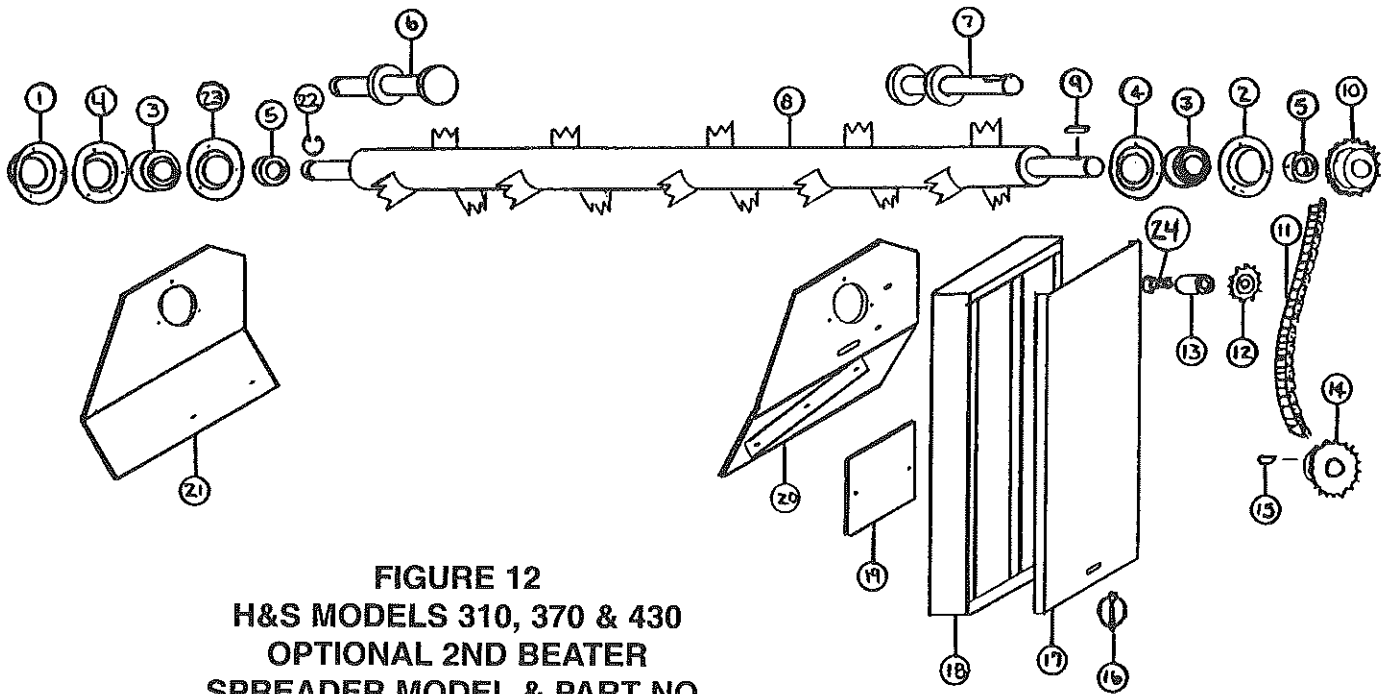


FIGURE 12
H&S MODELS 310, 370 & 430
OPTIONAL 2ND BEATER
SPREADER MODEL & PART NO.

ITEM	310	370	430	DESCRIPTION
1.	F95	"	"	Bearing Flange Guard
2.	F114	"	"	Bearing Flange w/Zerk
3.	F115	"	"	Bearing
4.	F14	"	"	Bearing Flange
5.	F16	"	"	Lock Collar
6.	23N164	"	"	LH Stub Shaft
7.	23N165	"	"	RH Stub Shaft
8.	23N166	"	"	2nd Beater
9.	G23	"	"	5/16" x 1-3/8" Square Key
10.	D18	"	"	Sprocket
11.	23N167	37N49	37N49	#60 Chain
12.	12N42	"	"	Idler Sprocket
13.	23N168	-	-	Spacer
14.	F13	"	"	Sprocket
15.	5B9	"	"	3/8" x 1-1/4" Key
16.	F56	"	"	Clip Pin
17.	23N169	"	"	Cover
18.	23N170	37N48	37N48	Shield
19.	23N171	37N45	37N45	Shield
20.	23N172	37N46	37N46	RH Panel
21.	23N173	37N47	37N47	LH Panel
22.	F73	"	"	Snap Ring
23.	F114	"	"	Flange w/Straight Zerk
24.	A9	-	-	Bolt 1/2" x 3-1/2" Carriage Bolt GR.5
*	-	17G98	17G98	Bolt 1/2" x 2-1/2" Carriage Bolt GR.5

NOTE: "(SAME PART NO. AS MODEL 310)
 - (PART IS NOT USED ON THIS MODEL)

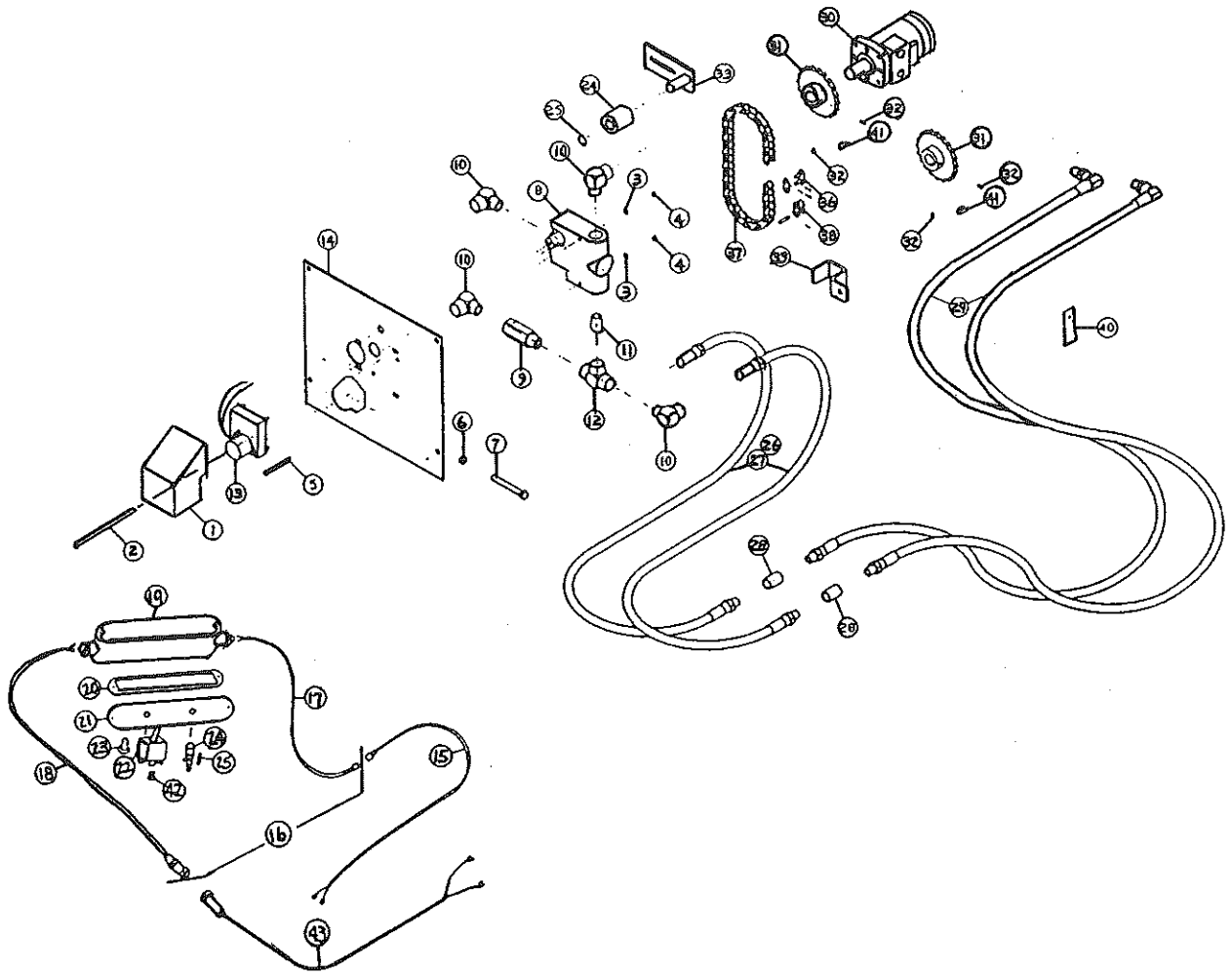


FIGURE 13
H&S MODELS 310 - 430
OPTIONAL ELECTRIC / HYD. KIT

ITEM	P/N	DESCRIPTION	ITEM	P/N	DESCRIPTION
1.	43H1	Motor Shield/Holder	24.	16SV231	Fuser Holder
2.	43H3	Shield Bolt	25.	16SV232	Fuse, 5 AMP (AGC-5)
3.	K84	Lockwasher	26.	HE11	Control Hose - 310 Only
4.	K85	Nut	27.	HE12	Control Hose - 370, 430, 430W ONLY
5.	43H4	Flow Control Mount Bolt	28.	31N23	3/8 Coupling
6.	K93	Flow Indicator Locknut	29.	23N132	Hyd. Motor Hose
7.	43H5	Flow Indicator	30.	DF1	Hyd. Motor
8.	DF15	Flow Control - Non-Adjustable	31.	11S19	Drive Sprocket
9.	DF18	Check Valve	32.	S435	Setscrew (5/16"-18)
10.	HE58	Elbow	33.	L10R35	Tightner Bracket
11.	DF4	Nipple	34.	23N238	Tightner Roller
12.	DF8	TEE	35.	10R32	Snap Ring
13.	16SV246	Gear Motor	36.	X61	#50 Chain Connector
14.	23N133	Control Panel	37.	23N131	#50 Chain x 40 Pitches (outdown & reuse chain on spreader)
15.	16SV272	Spreader Control Cord	38.	X60	#50 Chain Offset
16.	16SV321	Control End Complete	39.	HE14	Hose Bracket
17.	16SV270	Tractor Power Supply	40.	23N117	Hose Holder
18.	16SV271	Control Box Power Supply	41.	5B10	1/4 x 1 Woodruff Key
19.	16SV316	Control Box	42.	BFR320	Flag
20.	16SV317	Control Box Gasket	43.	16SV269	Tractor End
21.	16SV318	Control Box Cover	*	G110	3/8" x 3/4" Gr.2 Bolt
22.	16SV319	Auger Speed Switch	*	B68	3/8" Lockwasher
23.	16SV235	Flow Control Switch Boot			

NOTE: * (MEANS NOT SHOWN)

- SERVICE NOTES -

Lined area for service notes, consisting of multiple horizontal lines.

WARRANTY

Mr. Owner: Before Operating—Read and Understand Operating and Safety Instructions

H&S Manufacturing Co., Inc. truly believes you have made a wise choice and a sound and lasting investment. Many years of development have made available these quality machines to assure you the performance and reliability you need. We ask you to read the following agreement and warranty as this unit is subject to this warranty and agreement and no other.

H&S MANUFACTURING CO., INC. 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 over-time 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 to 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 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 quality or 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.

2/16/2004

WARRANTY REGISTRATION

Date of Purchase _____

Purchaser _____ Address _____

City _____ State _____ Zip _____

Product _____ Model # _____ Serial # _____

Dealer _____ Address _____

City _____ State _____ Zip _____

**FILL OUT AND MAIL
IMMEDIATELY TO MAKE
WARRANTY EFFECTIVE**



Signature of original buyer

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.

This Is Your Warranty Card
Please Fill Out
And Mail Immediately



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

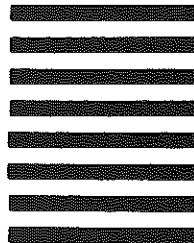
FIRST CLASS MAIL Permit No. 195 Marshfield, WI 54449

POSTAGE WILL BE PAID BY ADDRESSEE

H&S Manufacturing Co., Inc.

PO Box 768

Marshfield WI 54449-9963



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.
- Apron chains are adjusted properly.
- 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 pre-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 Model and Serial Number on Page 18 of this Manual.
- Have customer sign a completed "Warranty Registration," and mail it promptly.

Date Delivered _____

Dealer's Name _____

By _____

Signature of Original Buyer

Note: Warranty is not valid until warranty card is completed and returned to H&S Mfg. Co., Inc.

(Remove Dealers File Copy At Perforation)

H&S MODELS 310, 370 & 430 MANURE SPREADERS

Your new 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

MODEL NO	310	370	430
Top Flare Width	68"	68"	68"
Inside Width	59-3/4"	59-3/4"	59-3/4"
Inside Length	15'7"	16'-6"	16'6"
Inside Depth	28-3/8"	34-3/8"	40-3/8"
Overall Width W/295/275R 22.5 Tires	97"	97"	NA
Overall Width W/16.5 x 16.1 Tires	107"	107"	107"
Overall Length	21'-11-1/2"	23'-2-1/2"	23'-2-1/2"
Overall Loading Height (Top of Flare)	51-1/2"	57-1/2"	63-1/2"
Overall Height W/Hyd. Endgate	55"	61"	67"
Diameter of Beater	29"	29"	29"
Weight W/295/275R 22.5 Tires	4190 Lbs	4920 Lbs	NA
Weight W/16.5 x 16.1 Tires	4200 Lbs	4930 Lbs	5220 Lbs.
Capacity (Old Rating)	310 Bu.	370 Bu	430 Bu.
Capacity - Cu. Ft. Struck Level	185	235	275
Rear Hydraulic Endgate	Standard	Standard	Standard
Semi Liquid Rear Pan	Optional	Optional	Optional
Upper Beater	Optional	Optional	Optional
Swing Away Jack	Standard	Standard	Standard
Drive	Two Speed Clutch to Worm Gear All Models		
	Bronze.	Bronze.	Bronze
Variable Speed Hydraulic Drive	Optional.	Optional.	Optional
Front Splash Panel	Standard	Standard	Standard
PTO Speed	540 RPM.	540 RPM.	540

NOTE

Determine right or left side of spreader by viewing it from the rear. If instructions or parts lists call for hardened bolts, they are identified with three lines or marks on the head.

H&S MANUFACTURING CO. INC.

2608 S. Hume Ave.
P.O. Box 768 - Telephone (715) 387-3414
FAX (715) 384-5463
MARSHFIELD, WI 54449



H&S WAREHOUSE Rt. #5 and 76
P.O. Box 1260 - Telephone (716) 736-7595
FAX (716) 736-7596
RIPLEY, NY 14775

H&S MFG. CO.

products approved

for the

FEMA

SEAL OF QUALITY

