

**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 gearboxes 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 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 Serial Number on Page 22 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)

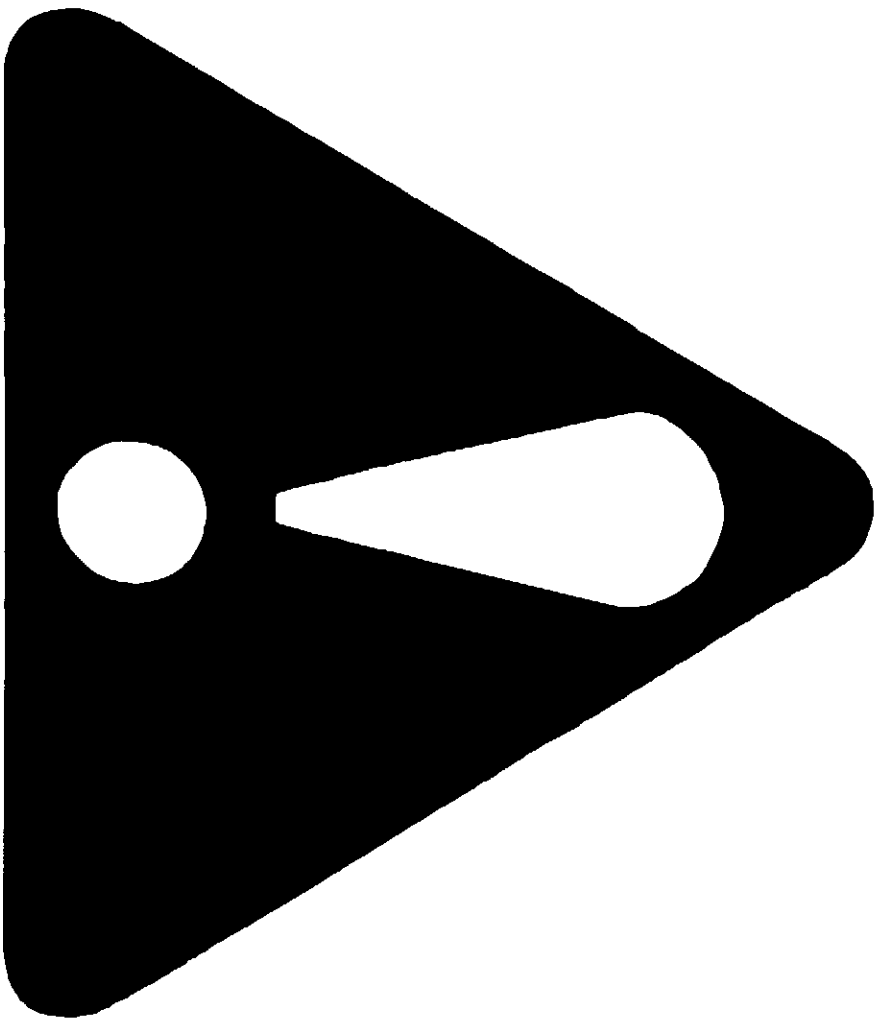
1

2

3

4

5



# **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**

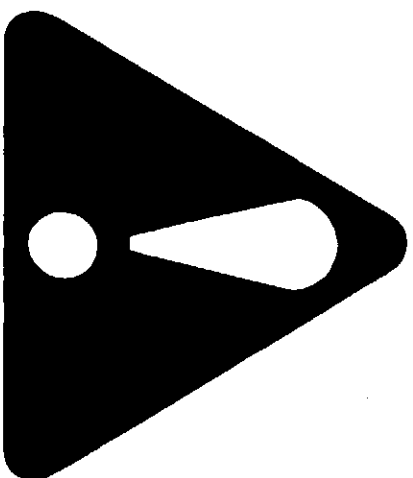
**This OPERATORS manual uses the term "Tractor" when identifying the power source.**

# **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.



## 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

## 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

## HELP AVOID INJURY

- READ & UNDERSTAND THE OPERATORS MANUAL PROVIDED WITH THIS MACHINE. IF REPLACED 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

72203



# ⚠ WARNING

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

14934

# ⚠ DANGER



STAY CLEAR OF BEATER IF TRACTOR OR PTO IS RUNNING. MANURE AND FOREIGN OBJECTS CAN BE THROWN CONSIDERABLE DISTANCES.

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

KEEP CLOTHING, YOURSELF AND OTHERS WELL CLEAR.

8894



# ⚠ 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

1119638



# ⚠ WARNING

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

714934



# ⚠ 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


14944



# ⚠ WARNING

DO NOT REMOVE SHIELDS ROTATING PARTS INSIDE

13294

 <p>1494E</p>	<p><b>⚠ WARNING</b></p> <p><b>DO NOT REMOVE SHIELDS MOVING PARTS INSIDE</b></p>
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<p><b>⚠ WARNING</b></p> 
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<p><b>DO NOT REMOVE SHIELDS MOVING PARTS INSIDE</b></p> <p>1494K</p>
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<p><b>⚠ DANGER</b></p> 	<p><b>NO STEP-STAY CLEAR</b></p> <p>3194A</p>
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<p><b>⚠ WARNING</b></p>   	<p><b>CRUSHING HAZARD</b></p> <p>TO PREVENT SERIOUS INJURY OR DEATH:  <b>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.</b></p> <p>82602</p>
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	<p><b>⚠ DANGER</b></p> <p>STAY CLEAR OF BEATER IF TRACTOR OR PTO IS RUNNING BEATER SHUT OFF COULD ACCIDENTALLY BE ENGAGED</p> <p>FAILURE TO HEED THIS WARNING MAY RESULT IN PERSONAL INJURY OR DEATH</p> <p>KEEP CLOTHING, YOURSELF AND OTHERS WELL CLEAR</p>
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<p><b>⚠ DANGER</b></p> 
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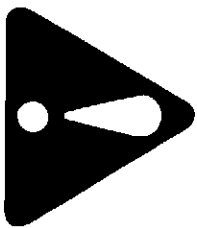
<p><b>NEVER ALLOW RIDERS ON THIS MACHINE</b></p> <p>3194B</p>
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<p><b>⚠ DANGER</b></p>  <p>50956</p> <p>ROTATING DRIVE LINE CONTACT CAN CAUSE DEATH</p>
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<p><b>⚠ WARNING</b></p> 
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<p><b>DO NOT CLEAN OR WORK ON THIS MACHINE WITHOUT FIRST DISENGAGING POWER AND SHUTTING OFF TRACTOR ENGINE.</b></p> <p>1494J</p>
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## H&S "ALL PURPOSE" 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 and hydraulics 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 or hydraulics.
- 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** hook up 1000 RPM tractor to the spreader unless spreader is equipped for 1000 RPM.
- STAY CLEAR** of hydraulic fittings, they may be under extreme pressure.
- When transporting on the highway, regularly clean the reflective tape and SMV decal at the rear of the spreader.

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

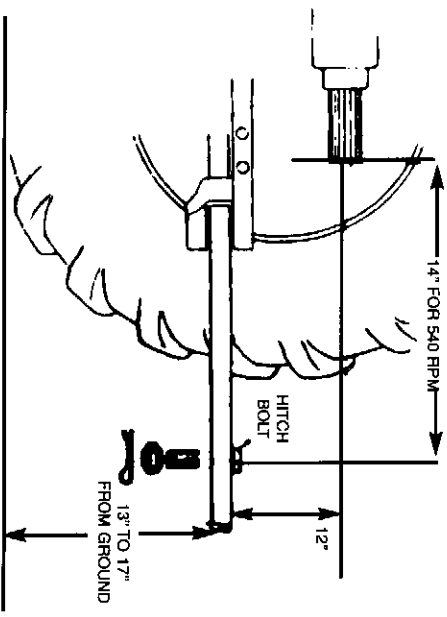
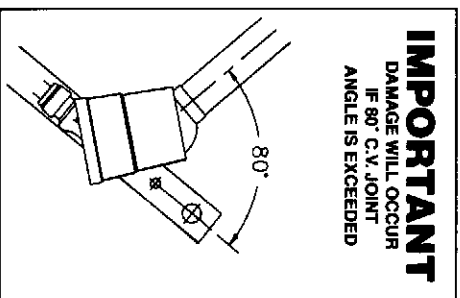
**ATTENTION - BE ALERT - YOUR SAFETY IS INVOLVED**

# OPERATION

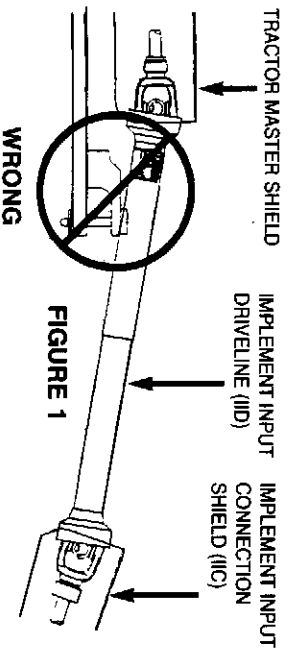
1. Check for proper assembly and adjustment and make sure that all bolts are tightened. Securely retighten after a few hours of operation, as bolts can loosen up on new machinery. Check wheel bolts upon delivery and periodically thereafter. Wheel bolts should be tightened at 85-95 ft./lbs. of torque.
2. Check the tires and inflate to the recommended pressure (11:00 x 22.5 tires to 40-60 pounds, 16.5 x 16.1 tires to 35-40 pounds).
3. Adjust the tractor hitch and attach the spreader to the tractor as described in the following sections.
4. Connect PTO from spreader to the tractor as described in the following sections.
5. Connect hydraulic hoses which operate augers from the spreader to a double acting valve on the tractor.
6. Connect hydraulic hoses which control rear gates from the spreader to a double acting valve on the tractor.
7. Connect electric auger speed control box to tractor power source, attach to a convenient place on the tractor.
8. Lubricate the machine completely and check the oil level of both gearboxes.
9. Before loading spreader, run machine for several minutes to make sure that the spreader is lubricated and operating properly.

## TRACTOR HITCH

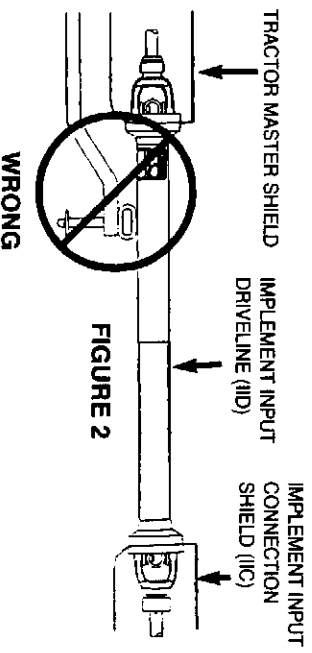
The hitch of the spreader is designed for a standardized tractor hitch. Adjust the drawbar so that it is 13 to 17 inches above the ground. Extend or shorten it so that the horizontal distance from the end of the tractor power take-off shaft to the center of the hitch pin hole is 14 inches, as shown in drawing. Use an adapter plate, if necessary, to secure the proper distance. 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]*



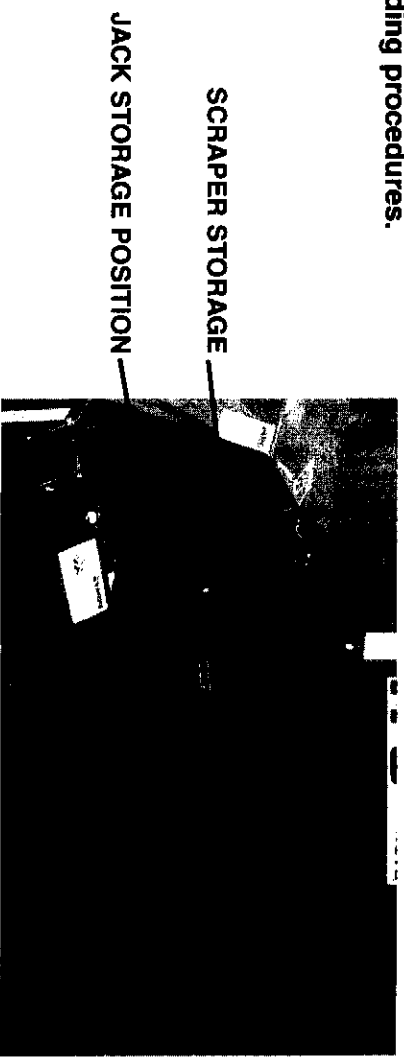


## OPERATION (Continued)

### ATTACHING TO THE TRACTOR

1. Fasten the spreader hitch to the drawbar with a hitch pin that cannot bounce out. 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 the left side of the spreader near front of spreader. This allows protection of jack from tractor tires during turns.
3. Slide spring loaded locking collar on PTO yoke rearward, and slide yoke 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.

**NOTE: Lift jack should not be used to support spreader during loading procedures.**



### LOADING THE SPREADER

Although your spreader is designed and built to handle a wide range of manures, many potential problems can be avoided when manure is spread if the following guidelines are established and met.

**NOTE: TO PREVENT DAMAGE TO AUGERS, BEATERS AND DRIVE LINE, FOREIGN OBJECTS (STONES, HEAVY TIMBER, METAL, OR LARGE FROZEN CHUNKS OF MANURE) SHOULD NEVER BE PUT INTO THE SPREADER.**

1. Before operation, especially in winter or freezing temperatures, make sure the augers and beaters are free to rotate, and the rear gate moves freely up and down.
2. Be sure rear gate and clean out door are closed before loading.
3. When loading pen-packed manure into the spreader with a loader bucket, shake the bucket to break up large chunks of manure. Material will spread more easily and efficiently.
4. Never excessively heap pen-packed or hard manure onto the spreader completely from front to rear.
5. Liquid manure or manure that flows will self-level allowing spreader to be filled to the top.

## **OPERATION (Continued)**

### **UNLOADING AND SPREADING**

To spread a wide variety of manure types and prevent unnecessary stress on the driveline components, observe the following guidelines for each type of manure.

**Liquid or Semi-Solid Manure (self-leveling).**

1. Engage tractor PTO at as low an RPM as possible. Slowly throttle tractor up to bring PTO up to 540 RPM.
2. Select desired ground speed and open discharge gate slowly to begin spreading.
3. Engage tractor hydraulics to operate augers.
4. To attain the desired coverage, adjust height of rear gate, speed of augers, and/or ground speed.

**DRY, PEN-PACKED, OR MANURE CONTAINING LONG STRAW OR HAY.**

1. Engage tractor PTO at as low an RPM as possible. Slowly throttle tractor up to bring PTO up to 540 RPM.
2. Select desired ground speed and open rear gate **completely** to begin spreading.
3. Engage appropriate lever of tractor hydraulics to operate augers. Begin unloading with augers at slow speed.
4. To achieve the desired coverage, adjust the speed of main augers and/or ground speed.

**NOTE: IF IT BECOMES NECESSARY TO REVERSE AUGERS, ENGAGE TRACTOR HYDRAULICS SLOWLY.**

### **OPERATION IN FREEZING WEATHER**

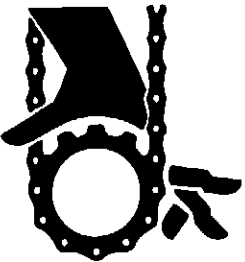
1. Always allow spreader to empty completely.
2. Disengage tractor PTO and hydraulics.
3. Shut off tractor and remove ignition key.
4. Allow all movement to stop before attempting to clean spreader.
5. Scrape any remaining manure from inside and rear of spreader. Clean all manure from rear pan, end of auger housings, and beaters.
6. Operate main augers to clean any remaining manure from inside spreader.
7. Run rear gate up and down to sufficiently clean gate track.
8. After following steps 3, 4 and 5, again check rear pan and beater area to be sure it is clean of all manure.
9. After hauling liquid or semi solid manure, place a small amount of straw in each auger housing at the front of the spreader and operate spreader. This will wipe out excess liquid and help prevent freeze up of spreader.
10. Close clean out door at rear of spreader.
11. Park spreader with rear gate approximately halfway open.

**NOTE: BEFORE LOADING SPREADER NEXT TIME, BE SURE AUGERS AND BEATERS ARE FREE TO ROTATE AND REAR DISCHARGE GATE MOVES FREELY UP AND DOWN.**

# ADJUSTMENTS

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

## **⚠ WARNING**

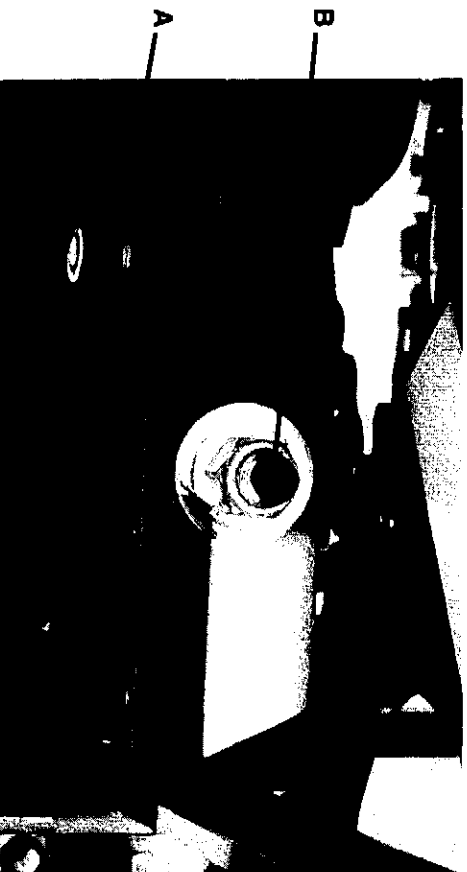


**DO NOT CLEAN  
OR WORK ON THIS  
MACHINE WITHOUT  
FIRST DISENGAGING  
POWER AND  
SHUTTING OFF  
TRACTOR ENGINE.**

### **AUGER DRIVE**

#### **PRIMARY DRIVE CHAIN #60**

Check adjustment on primary drive chain after first 5-6 loads. (This should allow for a sufficient wear-in period). Adjust chain by loosening nut (A). Then tighten nut (B) until there is 1/8" deflection at center of chain. Retighten nut (A). Check adjustment periodically to insure proper tension at all times. Overtightening or too loose of a chain will result in excessive wear on chain and sprockets.



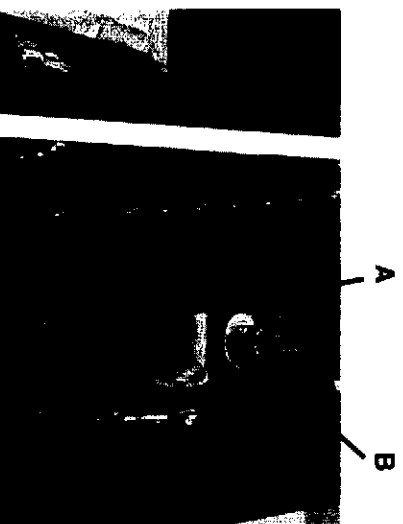
#### **FINAL DRIVE CHAINS #80**

**(#100 on Model 3302)**

Periodically check adjustment on final auger drive chains. Left and right hand augers each have their own tighteners. To tighten right hand drive chain, turn out (A) clockwise until there is 1/8" to 1/4" deflection at center of chain. Left hand auger drive chain is adjusted by turning nut (B) on tightener bolt clockwise until desired tension is reached.

#### **SIDE SHAFT DRIVE CHAIN #80**

Check adjustment of side shaft drive chain after first 5-6 loads. (This should allow for sufficient wear-in period). To adjust front drive chain, loosen bolt A. Tighten nut B until there is 1/2" deflection at center of chain. Retighten bolt A. Check adjustment periodically to insure proper adjustment at all times. Over tightening or too lose of a chain will result in excessive wear on the bearings, chain, and sprockets.



**NOTE: Periodically lubricate roller chains with a light machine oil.**

## INTERNAL BEATER DRIVE CHAIN #80

To adjust internal beater drive chain, slightly loosen bolt A. Using a hammer and a blunt punch, slide sprocket and bolt in adjustment slot against roller chain. There should be 1/4" deflection at center of chain for proper adjustment. Retighten bolt A. Periodically check adjustment to insure proper tension at all times.



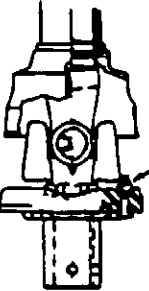
# ! DANGER



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.

**SHEAR BOLT  
NUT MUST FACE FORWARD**

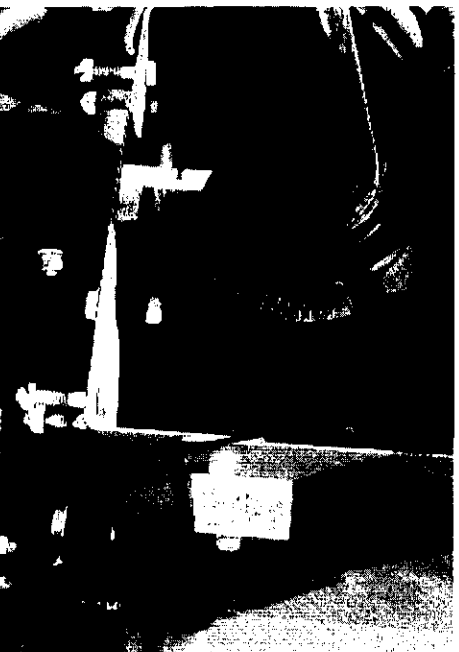


**540 RPM = 5/16 x 1-1/2 GR 8  
1000 RPM = 5/16 x 1-1/2 GR 2**

A technical diagram showing a shear bolt assembly. It consists of a bolt with a nut and a washer. The nut is positioned on the left side of the bolt, and the washer is on the right. The bolt is shown in a cross-sectional view, highlighting its unique shape designed for shearing.

## SHEAR BOLTS

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 shear bolt is normally due to large frozen chunks of manure, foreign objects (rocks, chunks of wood, etc.) in the manure, running augers too fast when unloading long straw and pen-packed material, or **STARTING THE SPREADER PTO TOO QUICKLY WITH HIGH TRACTOR RPM'S**. Always determine the reason for shearing bolt and eliminate problem before replacing shear bolt. Always use proper shear bolt (5/16-18 x 1-1/2" GR.8) for replacement when spreader is being operated at 540 RPM. Use shear bolt (5/16-18 x 1-1/2" GR.2) when spreader is being operated at 1000 RPM.



## **ALL PURPOSE SPREADER, CLEAN OUT DOOR**

The clean out door hydraulic cylinder is equipped with a shut off valve. This valve allows the user to lock the clean out door in the open or closed position for flexible operation.

### **VALVE OPEN POSITION**

During normal operation, the valve is open. When the rear gate is to be opened, the clean out door will close first. When closing the rear gate, the clean out door will open first.

### **VALVE CLOSED POSITION**

For liquid manure hauling, close the valve when the clean out door is closed. The clean out door will remain closed when the rear gate is operated.

For grain hauling, close the valve when the clean out door is open. The clean out door will remain open when the rear gate is operated.



**SHUT OFF VALVE**

**REAR DOOR INDICATOR**

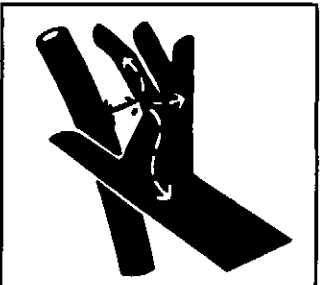


**CLEAN OUT DOOR INDICATOR**



## **! DANGER**

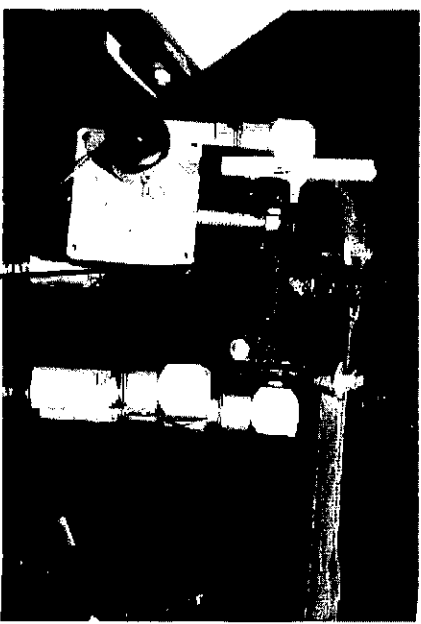
**STAY CLEAR OF BEATER IF  
TRACTOR OR PTO IS RUNNING  
BEATER SHUT OFF COULD  
ACCIDENTALLY BE ENGAGED  
FAILURE TO HEED THIS  
WARNING MAY RESULT IN  
PERSONAL INJURY OR DEATH  
KEEP CLOTHING, YOURSELF  
AND OTHERS WELL CLEAR**



## **⚠ WARNING**

### **DO NOT GO NEAR LEAKS**

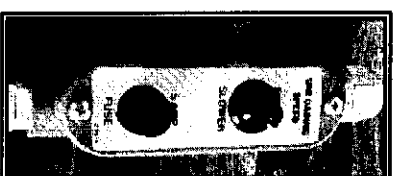
- High pressure oil easily punctures skin causing serious injury, gangrene or death.
- If injured, seek emergency medical help. Immediate surgery is required to remove oil.
- Do not use finger or skin to check for leaks.
- Lower load or relieve hydraulic pressure before loosening fittings.



**SPEED CONTROL VALVE**

## **AUGERS**

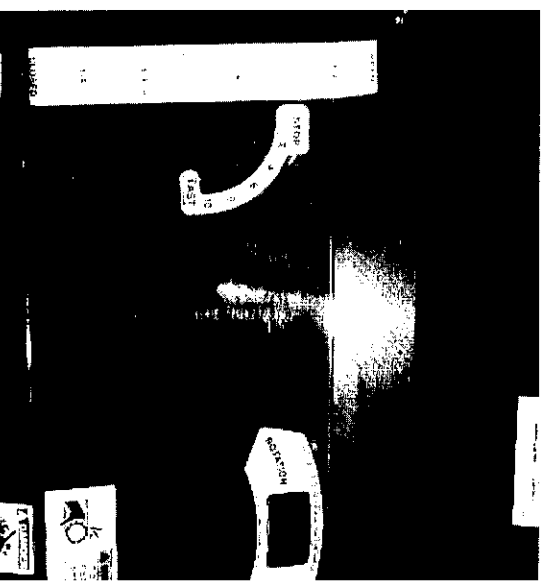
The main augers are hydraulically driven to offer a wide range of unloading speeds. Auger speed is controlled by utilizing the cab-mounted electric control. By moving the indicator from slower to faster as marked, the auger speed can be varied from zero to 13 RPM, depending on the tractor hydraulic system. A tractor hydraulic system with 16 gallons per minute flow, and 2200 pounds per inch pressure, will operate the spreader at maximum speed and performance. A system with less pressure will operate spreader efficiently, depending on type of material and the weight of the load. The auger driven mechanism is protected by a preset relief valve. Overriding relief valve is caused by too heavy of a load, feeding long material into the beaters too fast, or foreign object lodged in augers.



**ELECTRIC AUGER SPEED CONTROL**



**NOTE:** In some photographs within this operators manual, the shields have been removed or opened for clarification purposes **only. NEVER OPERATE SPREADER WITH GUARDS OR SHIELDS REMOVED.**



**AUGER SPEED INDICATOR**

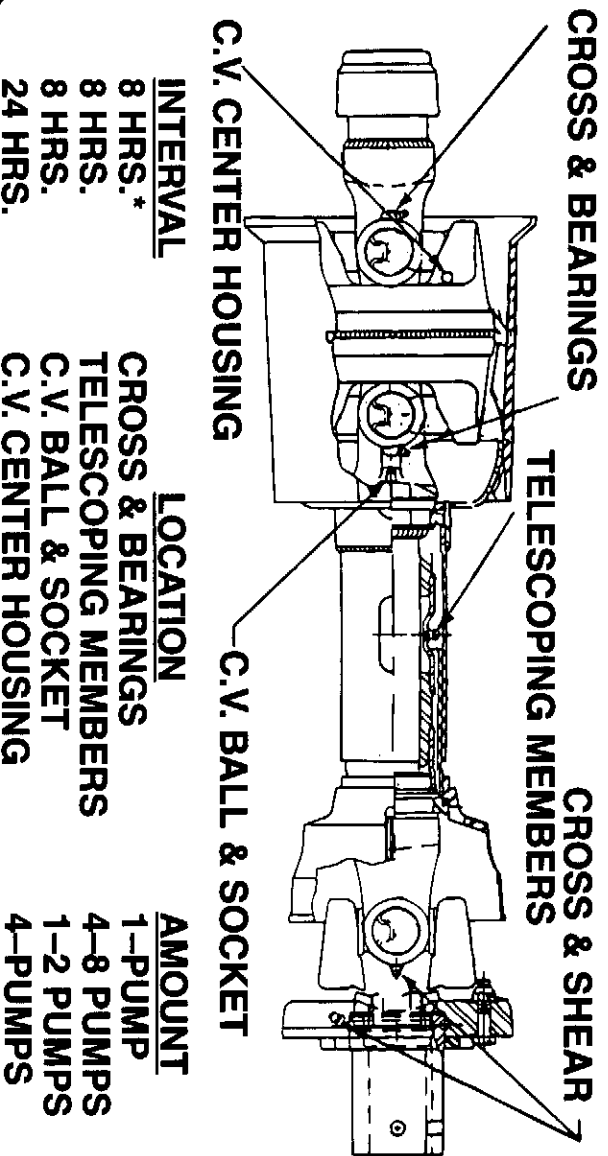
## **ADJUSTING WHEEL HUBS**

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.

# LUBRICATION GUIDE

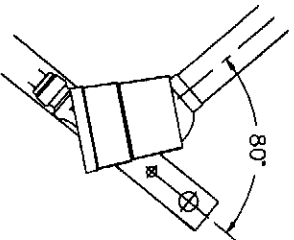
**PTO ASSEMBLY** – Care must be taken to keep the male and female driving elements well lubricated and free sliding. Failure to observe this precaution will result in excessive pressure being required to collapse or extend the assembly while subject to operating torque. This excessive force may damage 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.

## LUBRICATION REQUIREMENTS



### IMPORTANT

DAMAGE WILL OCCUR  
IF 80° C.V. JOINT  
ANGLE IS EXCEEDED



Lubricate all fittings with a good quality lithium based grease such as "Shell Super Duty", "Mobilith AW2", "Chevron Ultra Duty II" or equivalent. These greases meet N.L.G.I. #2 specifications and contain 1% Molybdenum Disulfide or less.

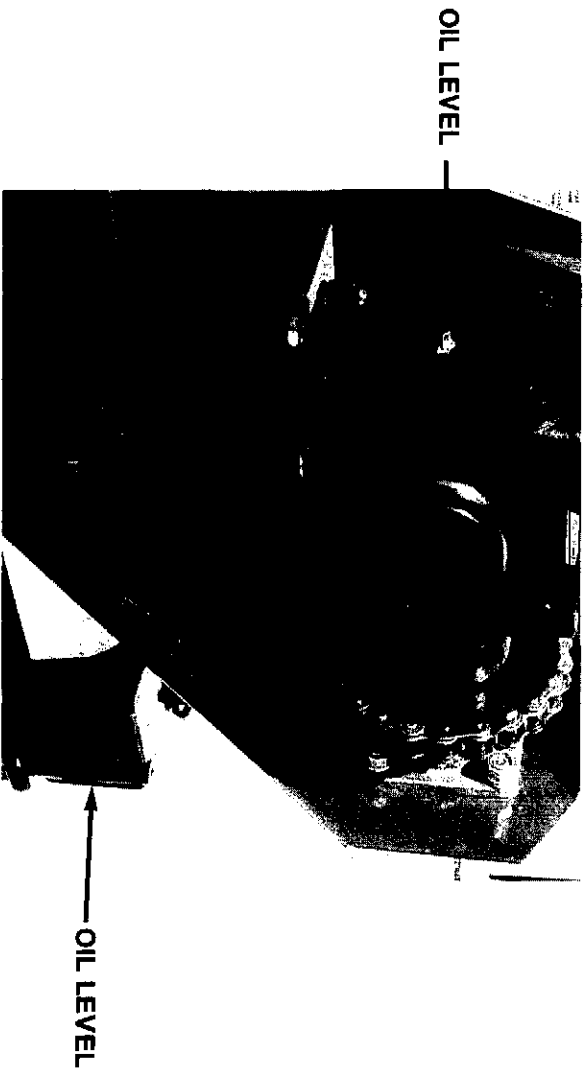
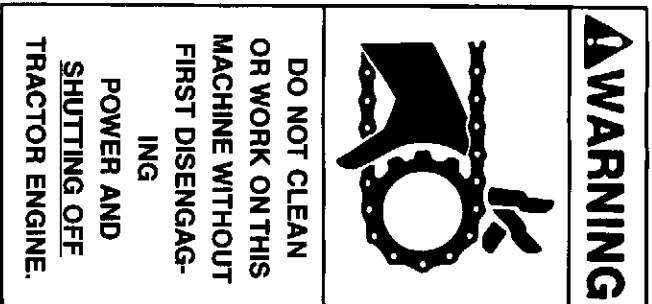
\* Constant angle applications must have a lube interval of 4 hours.

## LUBRICATION GUIDE (Continued)

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

**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.

**GEARBOX** – Before using your new spreader, check the oil level in the two beater drive gearboxes. Oil level should be at the center of the shafts in both gearboxes. Use 80W90 gear lube



### GREASE FITTINGS

There are numerous grease fittings your new 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.) Unusual or severe conditions may require more frequent lubrication. 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 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.

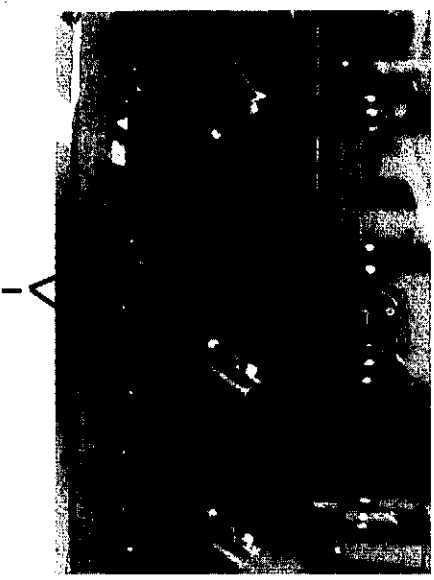
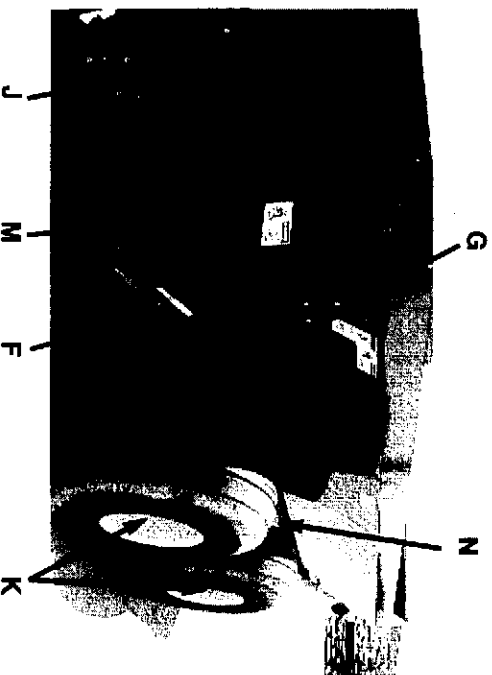
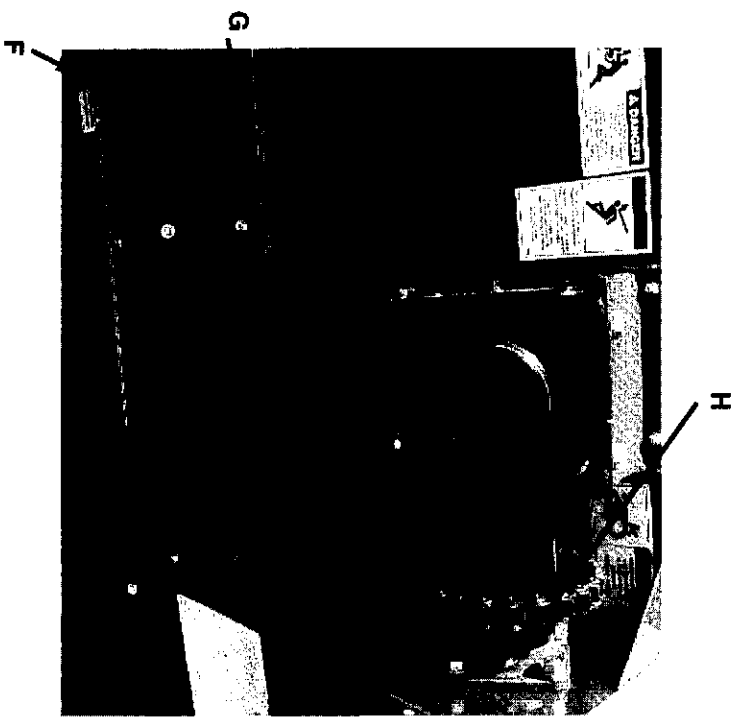
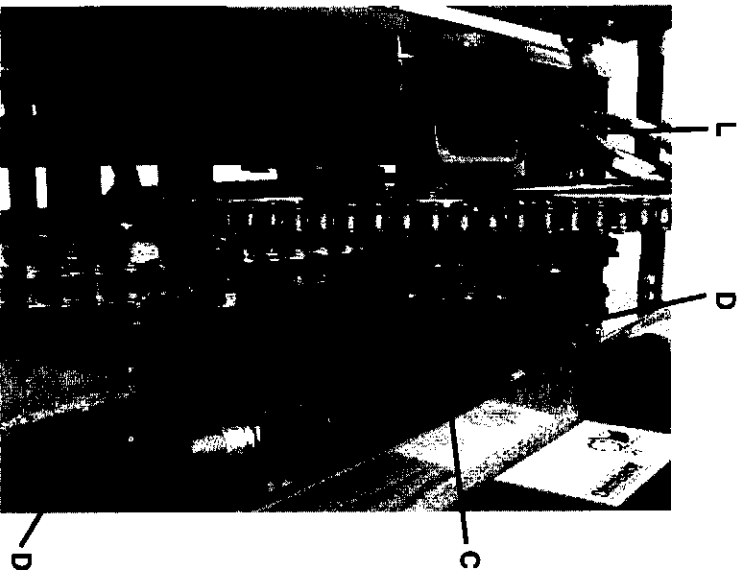
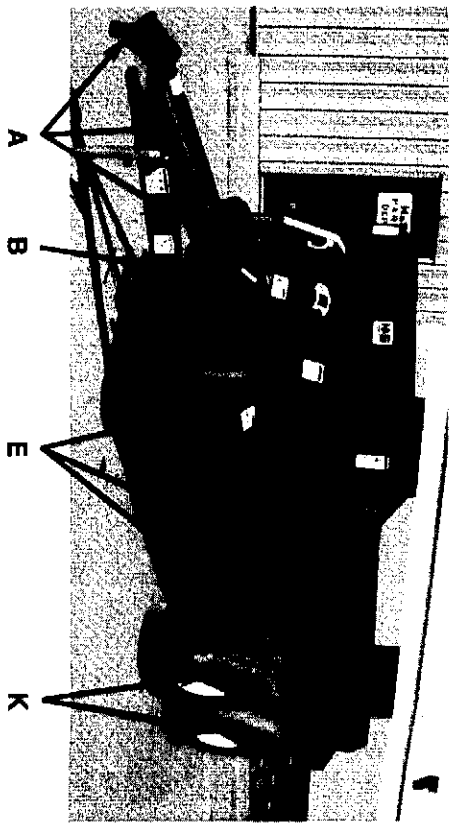
### GREASE ZERK LOCATION

Listed below and shown on the following page are the description and location of the grease fittings.

- A. (7) PTO - On each end at U-Joints, one on sliding tube. (See Lubrication Drawing, Page 17).
- B. (2) Front jack shaft (pillow block bearings).
- C. (1) Idler sprocket (right hand auger drive).
- D. (2) One on front of each auger.
- E. (4) Side shaft on left hand side of spreader.
- F. (2) One on each tandem axle pivot tube (remote zerks).
- G. (2) One on each end of internal beater.
- H. (1) Internal beater gearbox input shaft support.
- I. (2) One on rear of each auger rear support post.
- J. (1) Rear beater right hand support bearing.
- K. (4) One each on road wheel hub (tandem) (2) if single axle.
- L. (1) Main drive gear bearing.
- M. (1) Rear door hinge.
- N. (2) One on each side, tandem walking beam



SHIELDS REMOVED FOR CLARITY.  
DO NOT OPERATE WITH SHIELDS  
OPEN OR REMOVED.



## DECAL LOCATION

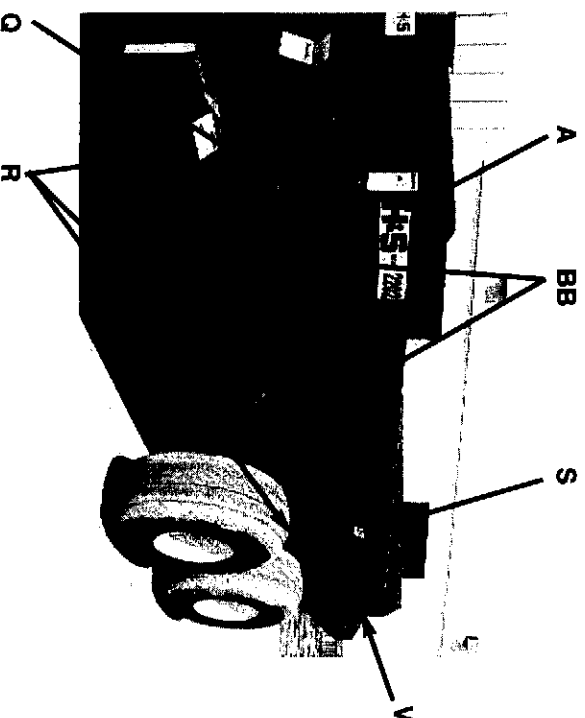
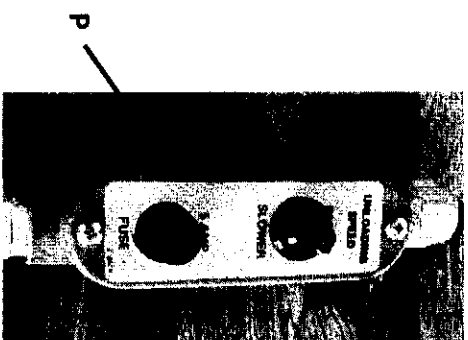
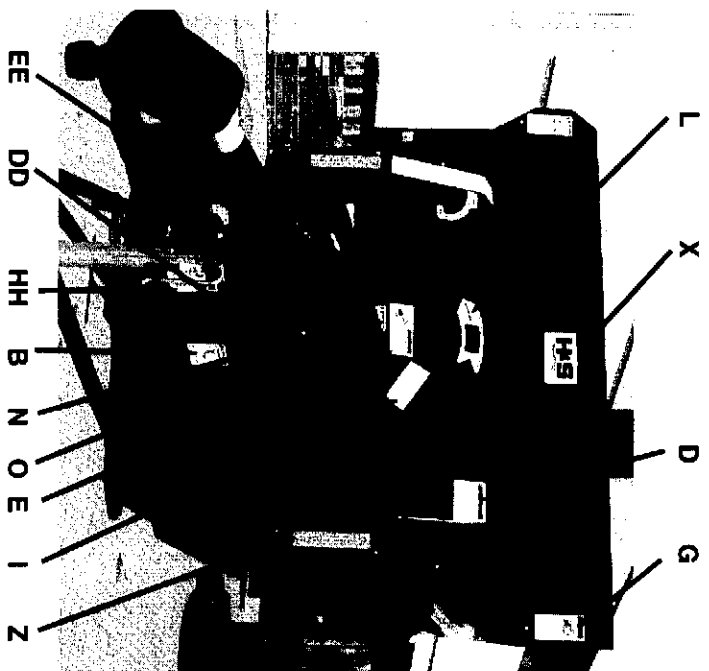
Your H&S All Purpose Manure Spreader was manufactured with operator safety in mind. Located on the manure spreader are various decals to aid in operation, and warn of danger or caution areas. Pay close attention to all the decals on your Manure Spreader.



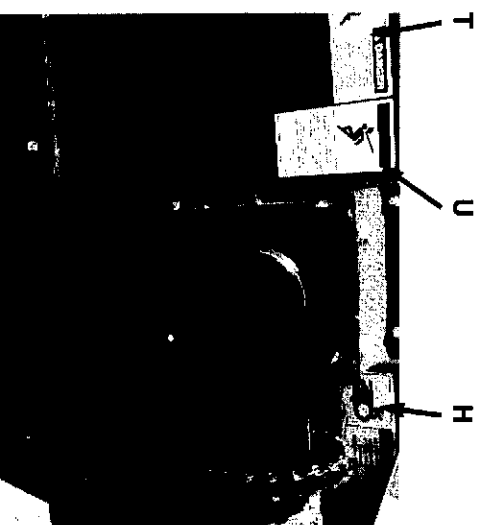
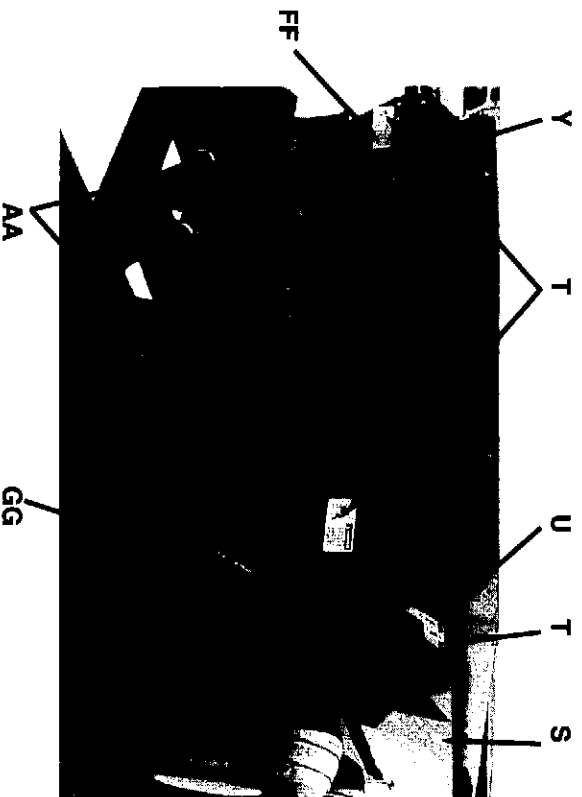
**DO NOT REMOVE ANY OF THESE DECALS. IF DECALS ARE LOST, DAMAGED, OR IF MANURE SPREADER IS REPAINTED, REPLACE DECALS. REMEMBER: DECALS ARE FOR YOUR PROTECTION AND INFORMATION.**

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	7896E	(2) Model 1502
	7896G	(2) Model 1802
	7896H	(2) Model 2202
	7896I	(2) Model 2602
	7896K	(2) Model 3302
AA	9194A	(2) Red Reflector
B	71494A	(3) Danger - No Step
BB		(3) Warning - Do Not Operate
C		FEMA Decal
CC	Weasler	Danger - Rotating Driveline (H&S Decal 1494L)
D	72203	Warning - Help Avoid Injuries
DD		Serial -Model Number
E	1494B	Warning - Do Not Remove Shields
EE	102196	PTO Lube
F	9194B	Danger - Never Allow Riders
FF	71188F	Attention: Long Straw
G	1494J	(2) Warning - Do Not Clean or Work
GG	3494A	(2) Remote Grease
H	1494A	(2) Warning - Do Not Operate
HH	82602	Warning - Crushing Hazard
I	11793	Attention: Tractor Half PTO
J	7896C	Rear Door Indicator
K	7896A	Auger Speed Indicator
L	7896D	Direction of Travel Indicator
M	H&S	Patent Number
N	7896B	Shear Bolt Instructions
O	5896B	Danger - Rotating Driveline
P	21897A	Electric Control Box Decal
Q	71188B	Jack Storage Position
R	12794	(3) Warning - Do Not Remove Shields
S	111593B	(2) Danger - Keep Out
T	111593A	(4) Danger - Stay Clear of Beater
U	9894	(2) Danger - Stay Clear of Beater
V	1494K	Warning - Do Not Remove Shields
W	11599	Warning - Do Not Go Near Leaks
X	B8	H&S Decal (5x8)
Y		SMV Decal
Z		(2) Amber Reflector
	1502-42802	Complete Set of Decals - Model 1502
	1802-42802	Complete Set of Decals - Model 1802
	2202-42802	Complete Set of Decals - Model 2202
	2602-42802	Complete Set of Decals - Model 2602
	3302-42802	Complete Set of Decals - Model 3302
	Paint - H&S Red	
	ZX21	Gallon
	ZX22	Quart
	ZX23	Pint



(UNDER SHIELD)



(SHIELDS REMOVED FOR CLARITY)

## 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 frame 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)

<b>H&amp;S MFG. CO. INC.</b>	
MRRSHFIELD, MIS.	
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

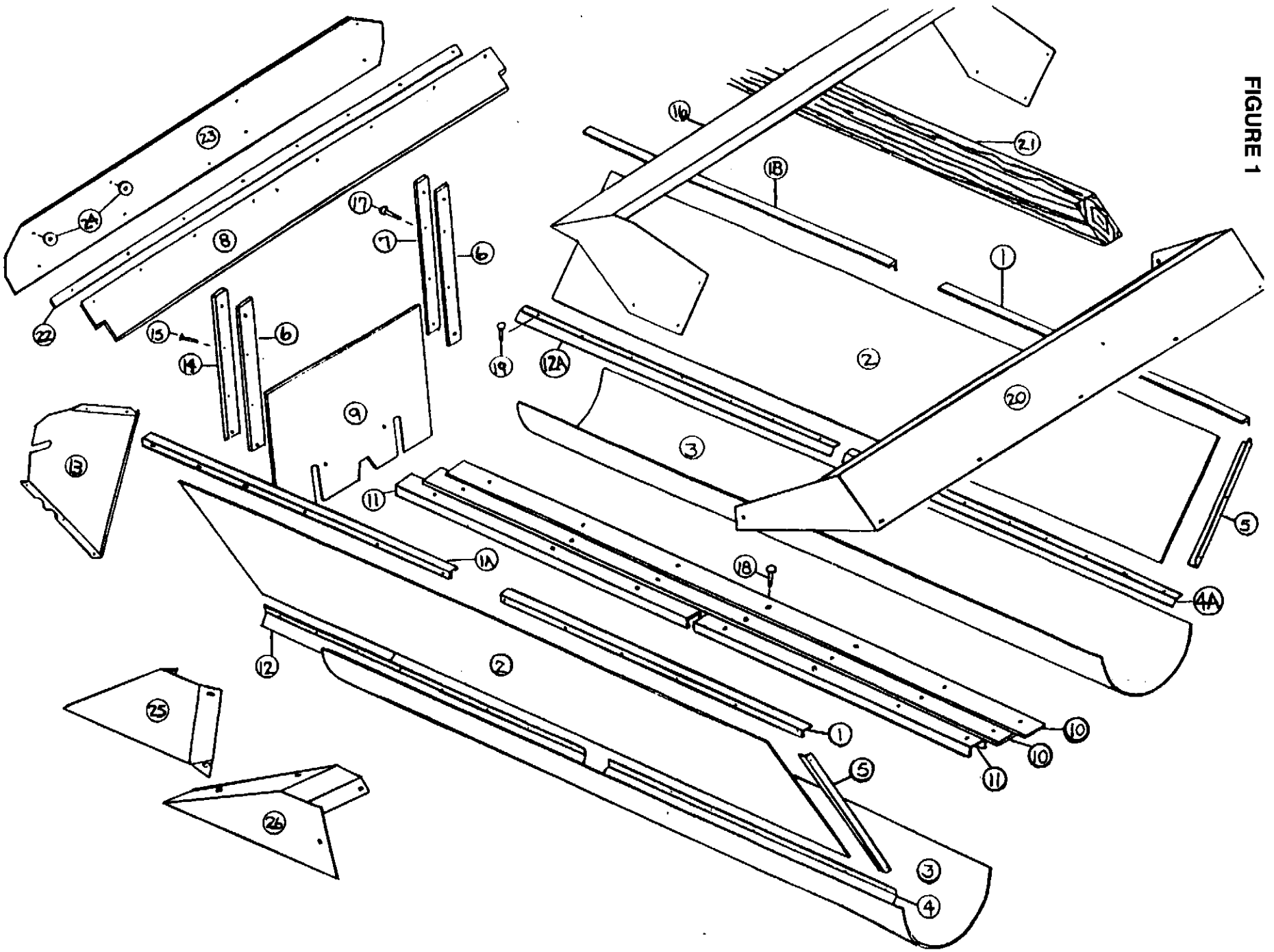
H&S IS CONTINUALLY STRIVING TO IMPROVE ITS' PRODUCTS.

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 writing]

FIGURE 1



**FIGURE 1  
BOX AND COMPONENT PARTS**

ITEM	SPREADER SIZES					DESCRIPTION
	1502	1802	2202	2602	3302	
1.	12SV1	16SV1	16SV2	"	33SV2	Poly Hold down Top
1A.	12SV2	16SV3	16SV2	"	-	Poly Hold down Top
1B.	12SV1A	16SV1	16SV2	"	-	Poly Hold down Top
2.	12SV3	16SV4	16SV5	"	33SV3	Poly Side Liner
3.	12SV4	16SV6	"	"	33SV4	Auger Housing Poly
4.	12SV5	16SV7	"	"	33SV5	Auger Wiper RH
4A.	12SV5A	16SV7A	"	"	33SV5A	Auger Wiper LH
5.	16SV8	"	"	"	"	Front Poly Hold down RH
*	16SV8A	"	"	"	"	Front Poly Hold down LH
6.	16SV9	"	"	"	"	Door Guide Poly
7.	16SV10	"	"	"	"	LH Door Guide
8.	12SV29	"	16SV11	"	-	Rubber Splash
9.	16SV12	"	"	"	"	Back Door
10.	12SV6	16SV13	"	"	33SV6	Center Wipers
11.	12SV7	16SV14	"	"	33SV7	Auger Poly Hold down
12.	12SV8	16SV15	"	"	33SV5A	Auger Wiper RH
12A.	12SV8A	16SV15A	"	"	33SV5	Auger Wiper LH
13.	12SV44	16SV265	16SV263	"	33SV87	RH Corner Filler
*	12SV45	16SV266	16SV264	"	33SV88	LH Corner Filler
14.	16SV18	"	"	"	"	RH Door Guide
15.	16SV19	"	"	"	"	CTR. Sunk Bolt 1/2" x 2"
16.	-	-	-	-	33SV13	Back Splash Extension
17.	23N194	"	"	"	"	1/2" x 2" Bolt GR.5
18.	16SV21	"	"	"	"	3/8" x 1-1/2" Carr. Bolt GR.5
19.	BFR247	"	"	"	"	3/8" x 1" Carr. Bolt GR.5
20.	16SV216	-	-	16SV216	33SV10	Front Splash
21.	-	-	-	16SV217	-	Wood Rails
*	12SV46	-	-	-	33SV11	Wood Rail LH
*	12SV47	-	-	-	33SV12	Wood Rail RH
22.	12SV30	"	16SV220	"	-	Strap
23.	12SV31	"	-	-	-	Back Splash Poly
24.	12SV32	"	-	-	-	Back Splash Poly Washer
25.	-	12SV40	-	-	-	Back Splash Gusset RH
*	-	12SV42	-	-	-	Back Splash Gusset LH
26.	12SV41	-	-	-	-	Back Splash Gusset RH
*	12SV43	-	-	-	-	Back Splash Gusset LH

**NOT SHOWN:**

**OPTIONAL HIGH SPLASHES**

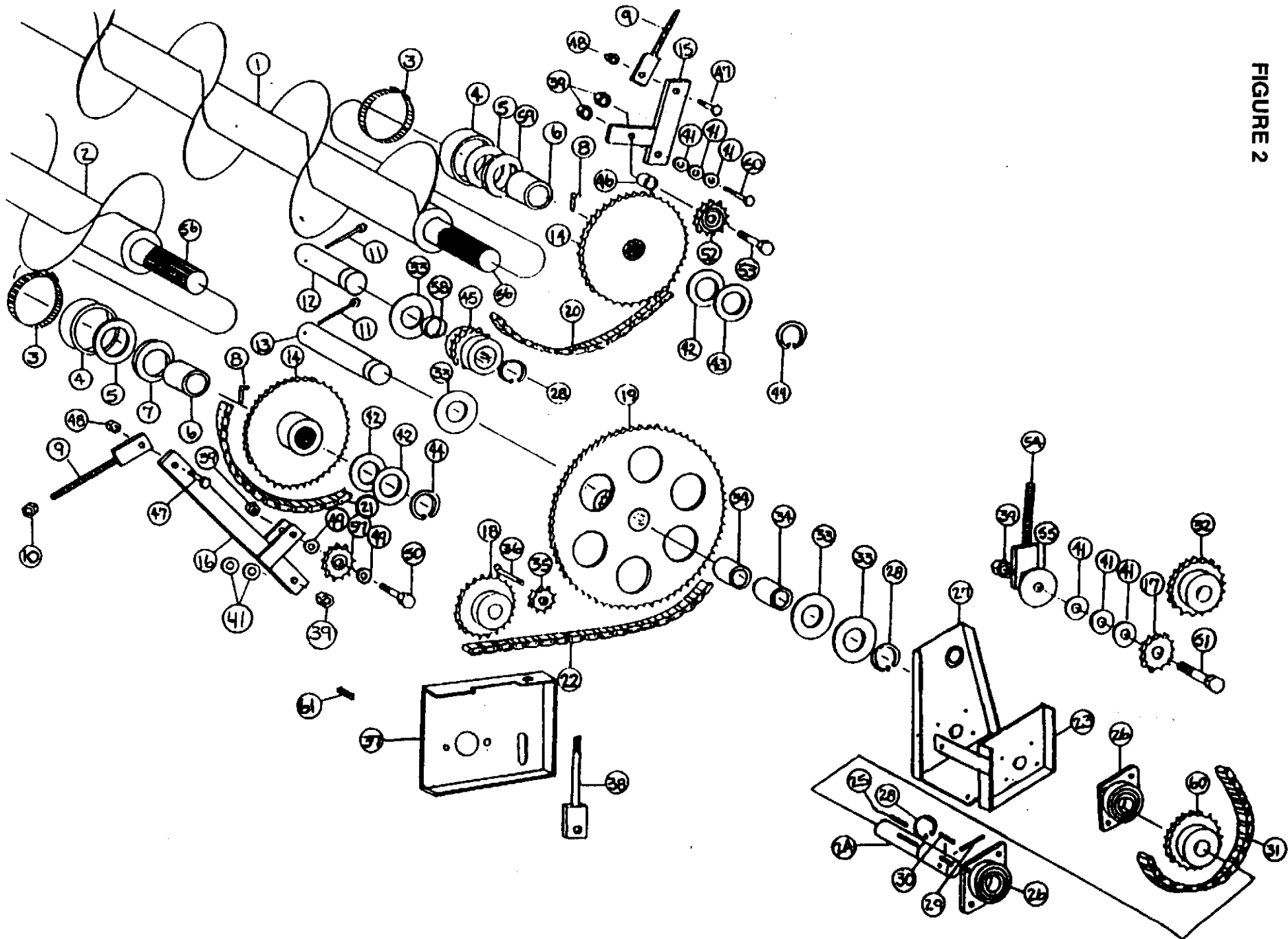
-	16SV359	16SV361	16SV360	-	High-Back Splash Extension
-	16SV369	16SV362	16SV363	-	Hi-Front Splash Extension

**NOTE:** \* (Means Not Shown)

" (Means Same as Preceding Number)

- ( Means Not Used on This Model)

FIGURE 2



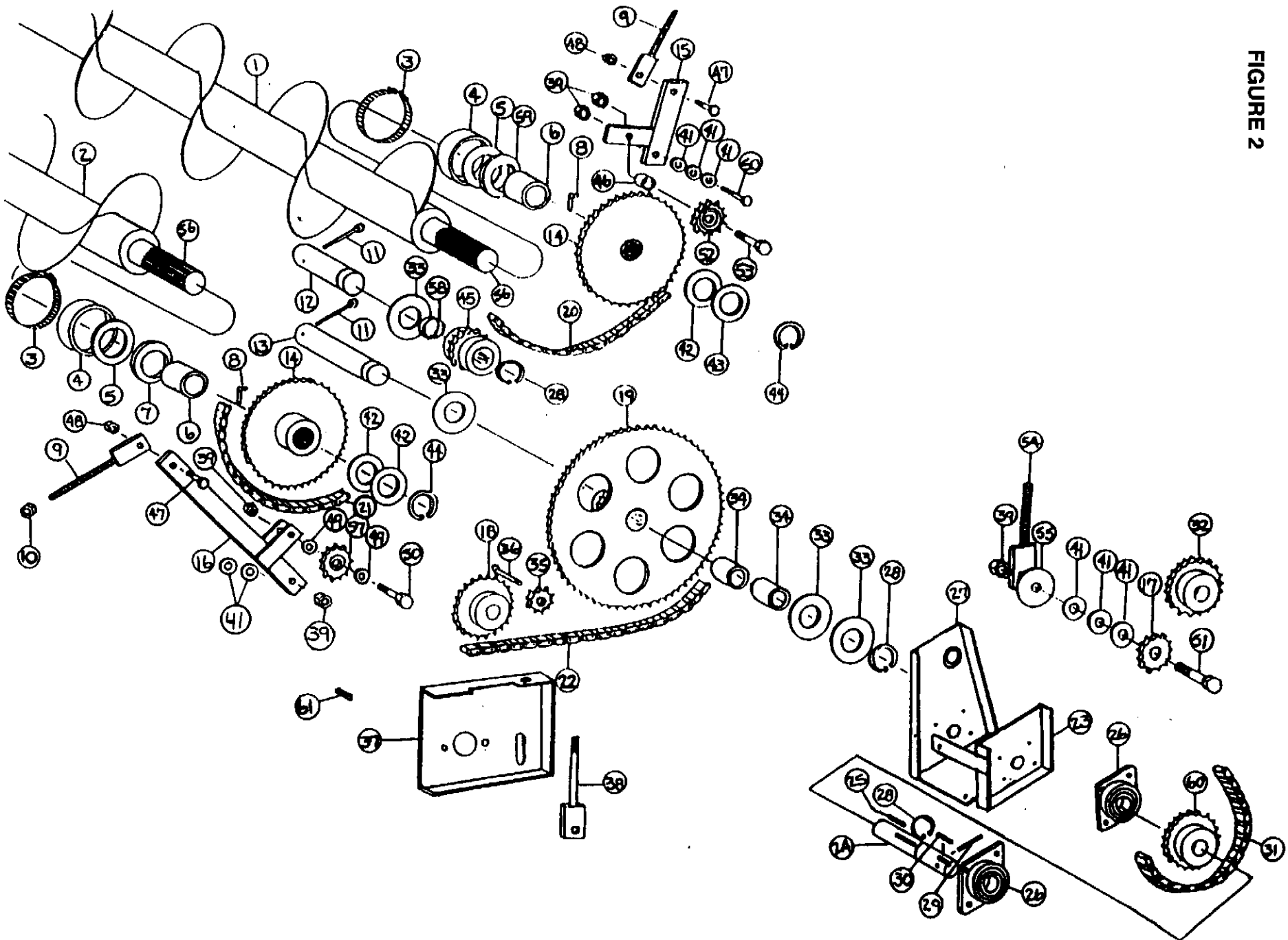


**FIGURE 2  
AUGERS AND DRIVE ASSEMBLY**

ITEM	SPREADER SIZES					DESCRIPTION
	1502	1802	2202	2602	3302	
1.	12SV9	16SV22	"	"	33SV14	LH Auger
2.	12SV10	16SV23	"	"	33SV15	RH Auger
3.	12V70	"	"	"	"	Clamp
4.	16SV24	"	"	"	"	Outer Seal
5.	16SV25	"	"	"	-	Inner Seal
*	-	-	-	-	16SV16	RH Spacer
*	-	-	-	-	12V74	LH Spacer
6.	12V73	"	"	"	"	Bronze Bushing
7.	12V72	"	"	"	33SV17	Bronze Thrust Washer
8.	16SV26	"	"	"	"	Pipe Grease Zerk
9.	12V78	"	"	"	"	Tightener Bracket
10.	R29	"	"	"	"	1/2" Nut
11.	23N1	"	"	"	"	Bolt 5/16" x 5" GR.5
12.	16SV27	"	"	"	33SV18	Idle Shaft
13.	16SV28	"	"	"	33SV19	Primary Shaft
14.	12V81	"	"	"	-	45T Sprocket
*	-	-	-	-	33SV20	35T Sprocket
15.	16SV30	"	"	"	33SV22	LH Tightener
16.	16SV29	"	"	"	33SV21	RH Tightener
17.	12V77	"	"	"	"	12T Idle Sprocket
18.	12SV11	"	16SV31	"	"	16T Sprocket
19.	16SV32	"	"	"	33SV23	98T Main Drive Sprocket
20.	16SV33	"	"	"	-	LH Final Drive Chain #80 59 Pitch
*	-	-	-	-	33SV24	LH Final Drive Chain #100 46 Pitch
21.	16SV34	"	"	"	-	RH Final Drive Chain #80 79 Pitch
*	-	-	-	-	33SV25	RH Final Drive Chain #100 62 Pitch
22.	16SV35	"	"	"	"	Aug. Primary Dr. Chain #60 110 Pitch
23.	16SV301	"	"	"	"	Front Post
24.	16SV302	"	"	"	"	Input Shaft
25.	PB87	"	"	"	"	3/8" x 2" Sq. Key
26.	12V67	"	"	"	"	Bearing Assembly
27.	16SV303	"	"	"	"	Rear Input Post
28.	12V62	"	"	"	"	Snap Ring
29.	16SV379	"	"	"	"	3/8" x 2-1/2" Roll Pin
30.	S38	"	"	"	"	3/8" x 2-3/8" Sq. Key
31.	16SV39	"	"	"	"	Side Shaft Chain #80 75 Pitch
*	-	-	-	-	33SV64	Side Shaft Chain #90 73 Pitch
32.	12V104	"	"	"	-	20T Sprocket
*	Optional	Optional	Optional	Optional	16SV213	23T Sprocket (1000 RPM)

*(Continued on Pages 28 & 29)*

FIGURE 2



**FIGURE 2  
AUGERS AND DRIVE ASSEMBLY**

ITEM	SPREADER SIZE					DESCRIPTION
	1502	1802	2202	2602	3302	
33.	16SV40	"	"	"	"	Shim
34.	16SV41	"	"	"	"	Bronze Bushing 1-3/4"ODx1-1/2"IDx2-3/8"
35.	12N42	"	"	"	"	15T Sprocket
36.	16SV91	"	"	"	"	Bolt 1/2" x 3-1/4" GR.5
37.	16SV42	"	"	"	"	Motor Mount
38.	16SV43	"	"	"	"	Tightener Bracket
39.	HE7	"	"	"	"	3/4" Nut
41.	T73	"	"	"	"	Shim
42.	16SV45	"	"	"	"	Shim 3/16"
43.	16SV46	"	"	"	"	Shim 1/4"
44.	B17F	"	"	"	"	Snap Ring
45.	16SV47	"	"	"	"	12T Idler Sprocket
*	-	-	-	-	33SV27	9T Idler Sprocket
46.	16SV48	"	"	"	"	Spacer
47.	12V45	"	"	"	"	Bolt 1/2" x 1-1/2" GR.5
48.	9S17	"	"	"	"	1/2" Lock Nut
49.	16SV49	"	"	"	"	Shim 1/16"
50.	HE8	"	"	"	"	Bolt 3/4" x 2-1/4" GR.5
51.	16SV50	"	"	"	"	Bolt 3/4" x 2-1/2" GR.5
52.	16SV328	"	"	"	-	Reinforced 12T Idler Sprocket
*	-	-	-	-	33SV1	Reinforced 9T Idler Sprocket
53.	16SV202	"	"	"	"	Bolt 3/4" x 3-3/4" GR.5
54.	16SV204	"	"	"	"	Tightener Mount
55.	16SV211	"	"	"	"	Spacer
56.	16SV222	"	"	"	"	Splined Shaft w/Auger End
57.	12V77	"	"	"	-	12T Idler Sprocket
*	-	-	-	-	33SV30	9T Idler Sprocket
58.	-	-	-	-	33SV29	Reverse Idler Spacer
59.	12V72	"	"	"	33SV17	Bronze Thrust Washer
*	-	-	-	-	33SV28	LH Auger Spacer
60.	12V104	"	"	"	-	20T Sprocket
*	Optional	Optional	Optional	Optional	ST11	13T Sprocket (1000 RPM)
61.	5B10	"	-	-	-	Key 1/4" x 1" Woodruff
*	-	-	G23	"	"	Key 5/16" x 1-3/8" Sq.

**NOTE:** \* (Means Not Shown)

" (Means Same as Preceding Number)

- (Means Not Used on This Model)

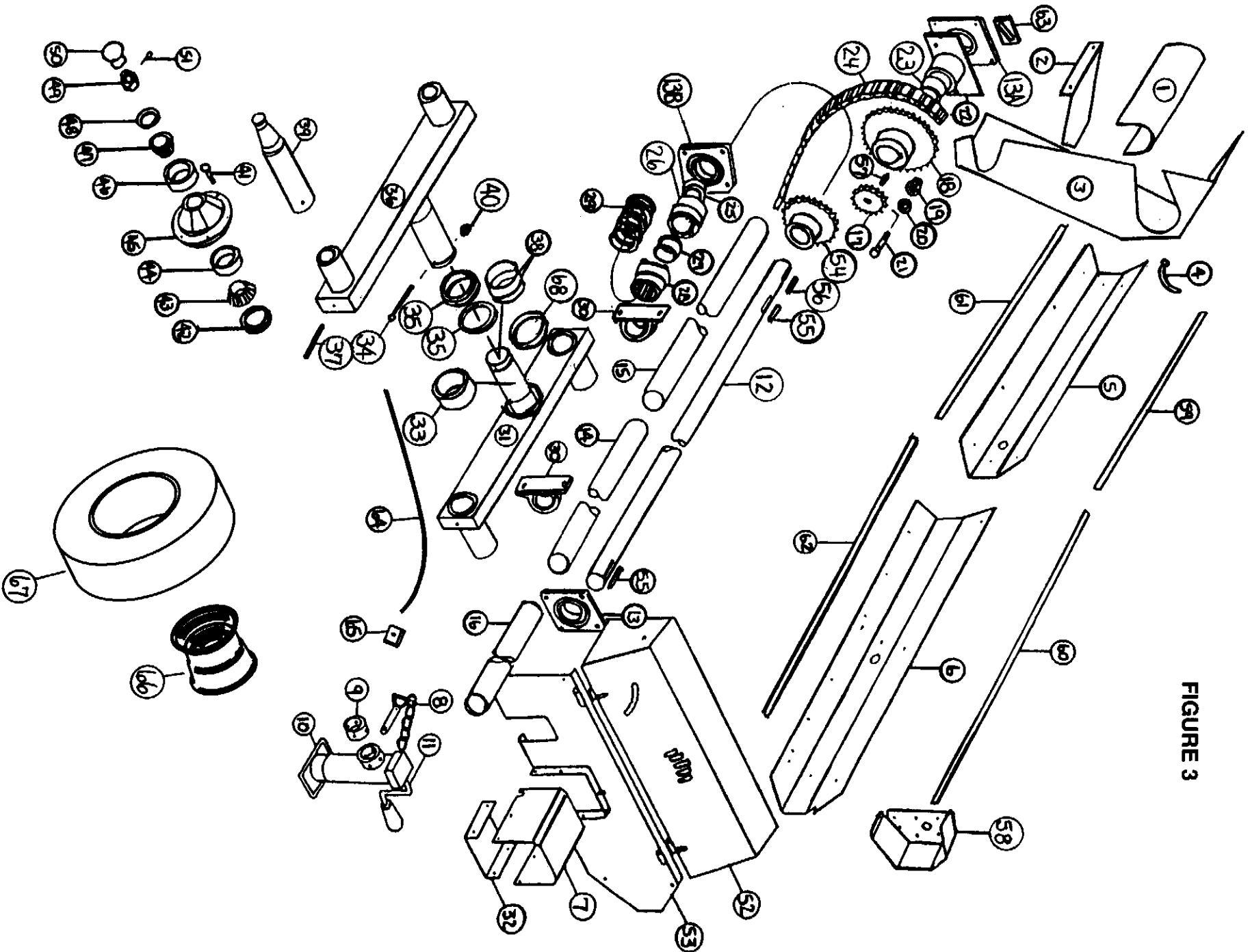


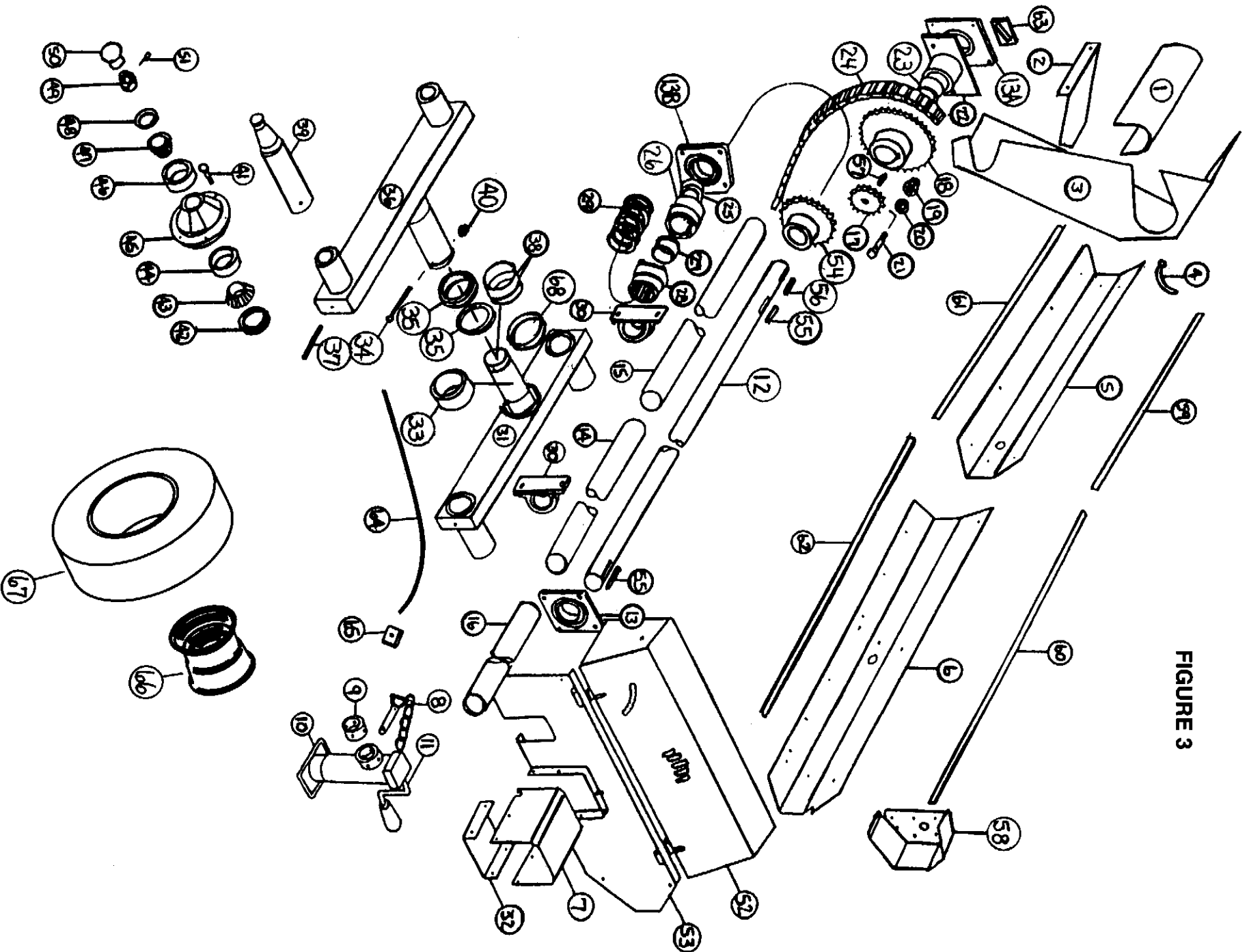
FIGURE 3

**FIGURE 3  
SHIELDS, SIDE SHAFT AND AXLE ASSEMBLIES**

ITEM	SPREADER SIZES				DESCRIPTION
	1502	1802	2202	2602	
1.	16SV51	"	"	"	Clutch Shield
2.	16SV52	"	"	"	Clutch Shield Bottom
3.	16SV53	"	16SV257	"	Top Beater Shield
4.	S192	"	"	"	Handle Nut
5.	12SV12	16SV54	16SV55	"	Rear Side Shield
6.	12SV13	16SV56	16SV57	"	Front Side Shield
7.	16SV329	"	"	"	PTO Shield
8.	12N13	"	"	"	Jack Pin
9.	12N14	"	"	"	Jack Mount
10.	27N14	"	"	"	Jack
11.	12N12	"	"	"	Jack Handle
Not Shn.	12N9	"	"	"	Jack Gear Replacement Kit
12.	12SV14	16SV59	"	"	Side Shaft
13.	12V67	"	"	"	Pillow Block Bearing
13A.	-	-	12V67	"	Pillow Block Bearing
13B.	33SV106	"	"	"	Pillow Block Bearing H.D.
14.	-	16SV60	"	"	Side Center PVC Shield
15.	12SV15	16SV61	"	"	Side Back PVC Shield
16.	12SV16	16SV62	"	33SV35	Side Front PVC Shield
17.	12V77	"	"	"	12T Idler Sprocket
18.	16SV63	"	"	"	23T Beater Sprocket
19.	16SV64	"	"	"	3/4" Flange Nut
20.	T73	"	"	"	Shim
21.	HE8	"	"	"	Bolt 3/4" x 2-1/4" GR.5
22.	16SV65	"	-	-	Outer Bearing
23.	16SV66	"	-	-	Bronze Bushing 1-3/4"ODx1-1/2"IDx2-1/8"
24.	16SV67	"	-	-	2nd Beater Chain #80 64 Pitch
*	-	-	16SV330	"	2nd Beater Chain #80 68 Pitch
25.	16SV68	"	"	"	Clutch Stop
26.	16SV69	"	"	"	Keyed Clutch
27.	16SV70	"	"	"	Bronze Bushing 1-1/2"ODx1"IDx3/4"
28.	16SV71	"	"	"	Splined Clutch
29.	23N89	"	"	"	Spring
30.	16SV72	"	"	"	Pillow Block Bearing
31.	-	16SV73	16SV74	"	Tandem Beam LH
Optional	12SV17	-	-	-	Tandem Beam LH
32.	16SV327	"	"	"	PTO Shield Bottom
33.	B58	"	16SV75	"	Bushing for Tandem Axle
34.	B61	"	-	-	Bolt for Axle 1/2" x 5" GR.5
*	-	-	16SV77	"	Bolt for Axle 1/2" x 6" GR.5
35.	16SV78	"	16SV214	"	Collar for Axle
36.	-	16SV80	16SV81	"	Tandem Beam RH
Optional	12SV18	-	-	-	Tandem Beam RH
37.	31N4	"	"	"	Roll Pin
38.	16SV82	"	16SV83	"	Inner Bushing

(Continued on Pages 32 & 33)

FIGURE 3



**FIGURE 3  
SHIELDS, SIDE SHAFT AND AXLE ASSEMBLIES**

ITEM	SPREADER SIZES					DESCRIPTION
	1502	1802	2202	2602	3302	
39.	12SV19	37N8	16SV85	"	33SV40	Standard Spindle
Optional	12SV26	16SV203	-	-	-	Spindle for 14 x 16.1 Wheel
Optional	31N2	-	-	-	-	Spindle for 8 x 22.5 Wheel
Optional	-	16SV203	16SV85	"	-	Spindle for 13.5 x 22.5 Wheel
40.	9S17	"	"	"	"	1/2" Top Lock Nut
41.	26G5	"	"	"	33SV41	Stud
Not Shn.	26G6	"	"	"	RG72	Nut for Stud
Optional	B32	-	-	-	-	Hub Bolt - Used w/Tandem Option
42.	B90	"	"	"	33SV42	Seal
Optional	B8	-	-	-	-	Seal - Used w/Tandem Option
43.	B91	"	"	"	33SV43	Inner Bearing
Optional	B7	-	-	-	-	Inner Bearing - Used w/Tandem Option
44.	B91A	"	"	"	33SV44	Inner Race
Optional	B7A	-	-	-	-	Inner Race - Used w/Tandem Option
45.	26G4	"	"	"	33SV45	Hub
Optional	B6	-	-	-	-	Hub - Used w/Tandem Option
46.	B94A	"	"	"	RG169	Outer Race
Optional	B5A	-	-	-	-	Hub - Used w/Tandem Option
47.	B94	"	"	"	RG170	Outer Bearing
Optional	B5	-	-	-	-	Outer Bearing - Used w/Tandem Option
48.	B4	"	"	"	33SV95	Washer
49.	B3	"	"	"	RG17	1" Slotted Nut
50.	B2	"	"	"	RG171	Hub Cap
51.	B31	"	"	"	33SV46	Cotter Pin
52.	16SV322	"	"	"	16SV323	Main Shield
53.	16SV324	"	"	"	16SV325	Main Shield Bottom
54.	ST11	"	"	"	"	13T Sprocket
55.	PB87	"	"	"	"	Key 3/8" x 2" Sq.
56.	A32	"	"	"	"	Key 3/8" x 1-3/8" Sq.
57.	16SV350	"	"	"	"	Key 3/8" x 2" Round Ends
58.	16SV326	"	"	"	"	Bearing Mount
59.	12SV35	16SV226	"	"	33SV38	Plastic Edging
60.	12SV33	16SV224	"	"	33SV48	Plastic Edging
61.	12SV36	16SV227	"	"	33SV50	Plastic Edging
62.	12SV34	16SV225	"	"	33SV49	Plastic Edging
63.	16SV355	"	"	"	"	Pillow Block Wedge
64.	-	-	16SV364	"	33SV103	Grease Line
65.	-	-	16V9	"	"	Grease Block
66.	12V36	-	-	"	-	Wheel 14 x 16.1
"	-	23N179	-	-	-	Wheel 8,250 x 22.5
Optional	16SV89	-	-	-	16SV89	Wheel 13.5 x 22.5
Optional	23N179	-	-	-	-	Wheel 13.5 x 22.5
Optional	-	12V36	-	-	-	Wheel 8,250 x 22.5
Optional	-	-	33SV105	"	"	Wheel 14 x 16.1
67.	23N54	-	"	"	-	Wheel 16 x 16.1
"	-	-	-	-	16SV88	Tire 16.5 x 16.1
"	-	23N180	-	-	-	Tire (TRUCK)
Optional	16SV88	23N54	-	-	-	Tire 11 x 22.5
Optional	-	-	-	-	-	Tire (TRUCK)
Optional	-	-	12V37	"	"	Tire 16.5 x 16.1
Optional	23N180	-	-	-	-	Tire 19L x 16.1
68.	-	B111	-	-	-	Tire 11 x 22.5
						Phenolic Bushing

**NOTE: \*** (Means Not Shown)  
 \*\* (Means Same as Preceding Number)  
 - (Means Not Used on This Model)

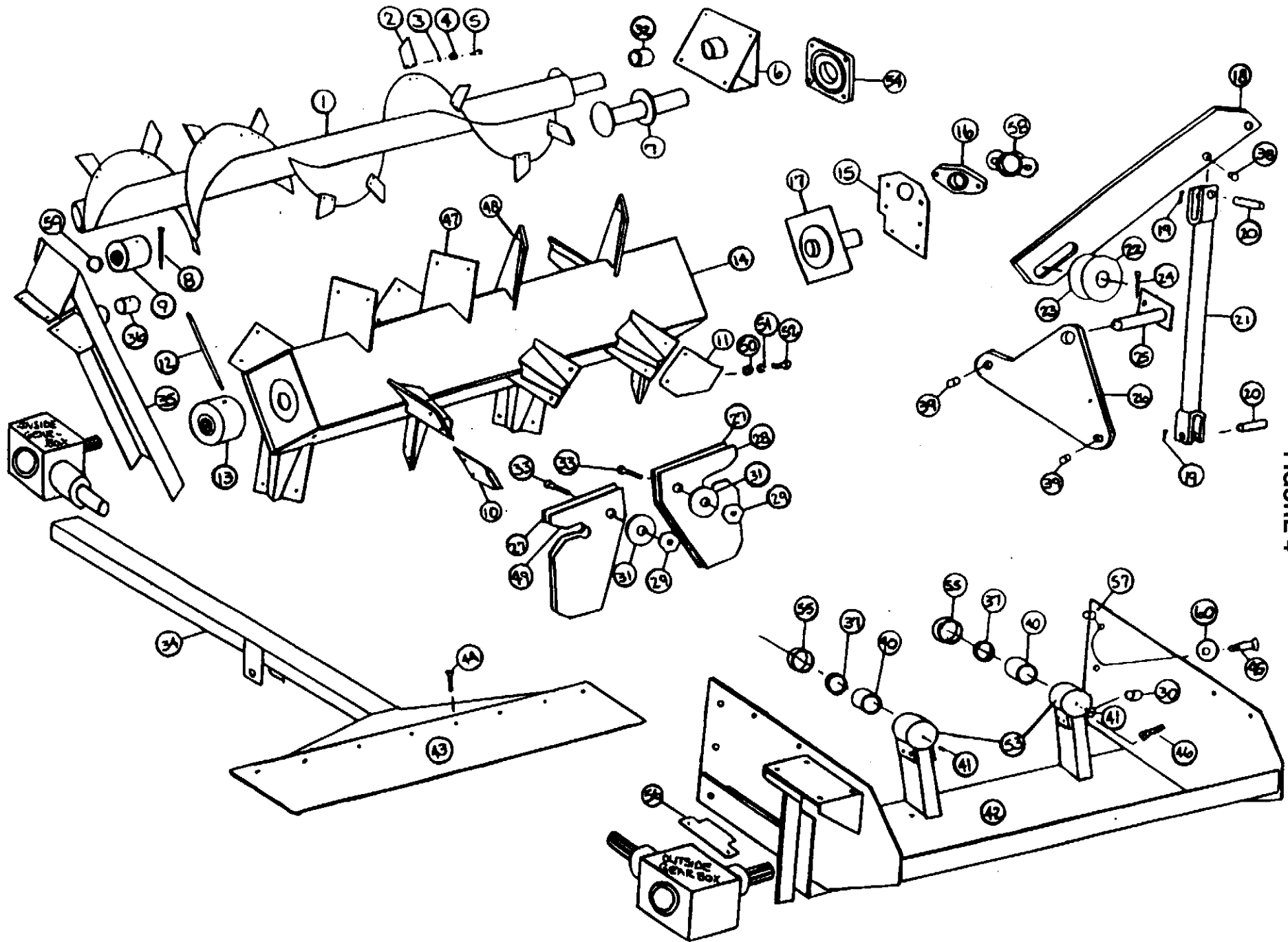


FIGURE 4

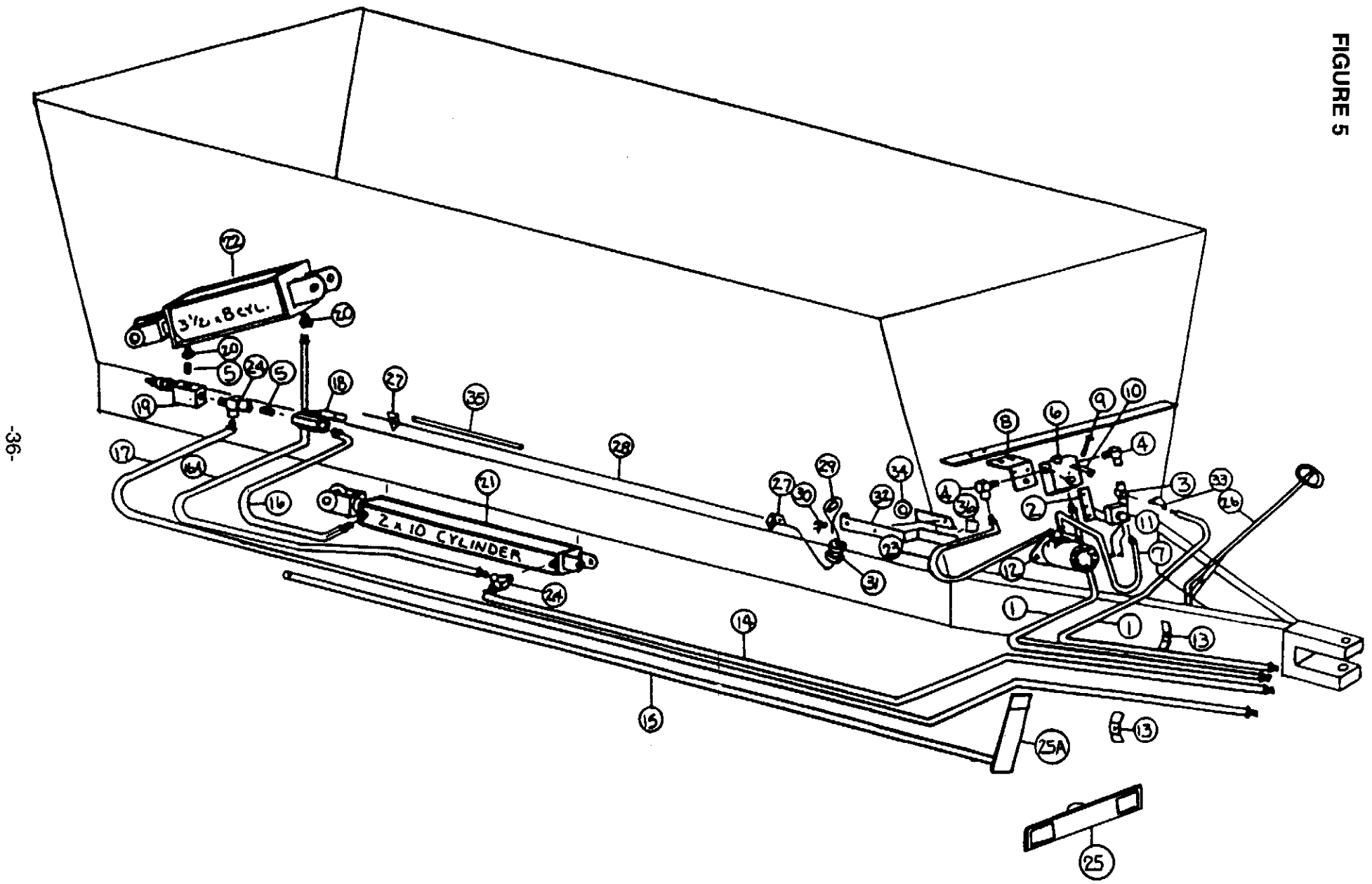


**FIGURE 4  
BEATERS AND PAN ASSEMBLIES**

ITEM	SPREADER SIZES					DESCRIPTION
	1502	1802	2202	2602	3302	
1.	33SV51	"	33SV104	"	"	Inside Beater
2.	16SV93	"	"	"	"	Beater Tooth
3.	R35	"	"	"	"	1/2" Lock Washer
4.	R11	"	"	"	"	1/2" Lock Nut
5.	R10	"	"	"	"	Bolt 1/2" x 1-1/4"
6.	33SV52	"	"	"	"	RH Beater Bearing
7.	33SV53	"	"	"	"	Beater Stub Shaft
8.	23N1	"	"	"	"	Bolt 5/16" x 5" GR.5
9.	23N2	"	43NW1	"	"	Splined Beater Insert
10.	16SV306	"	"	"	"	LH Beater Blade
11.	16SV305	"	"	"	"	RH Beater Blade
12.	16SV308	"	"	"	"	Beater Bolt
13.	23N2	"	"	"	"	Splined Beater Insert
14.	16SV304A	"	"	"	"	Beater
15.	16SV309	"	"	"	"	Beater Bearing Mount
16.	16SV336	"	"	"	"	Pillow Block Bearing
17.	16SV310	"	"	"	"	Beater Stub Shaft
18.	16SV103	"	"	"	33SV54	Door Lift Bar
19.	T72	"	"	"	"	Cotter Pint 5/32" x 1-1/2"
20.	16SV104	"	"	"	"	Lifting Arm Pins
21.	16SV105	"	"	"	"	Lifting Arm
22.	16SV106	"	"	"	"	Washer
23.	16SV107	"	"	"	"	Poly Door Washer
24.	16SV108	"	"	"	"	Cotter Pin
25.	16SV340	"	"	"	"	Bell Crank Hinge
26.	16SV273	"	"	"	"	Bell Crank
27.	16SV111	"	"	"	"	Sealing Plate Poly
28.	16SV112	"	"	"	"	Sealing Plate RH
29.	16SV221	"	"	"	"	Door Stop Nut
30.	16SV210	"	"	"	"	Spacer 15/16" x 1"
31.	16SV115	"	"	"	"	Spring
32.	16SV215	"	"	"	"	Bushing
33.	16SV117	"	"	"	"	Bolt 1/2" x 1-1/4" Allen Head
34.	12SV48	16SV311	"	"	"	Clean-Out Door
35.	16SV119	"	16SV268	"	33SV89	Gearbox Mount
36.	16SV120	"	S44	"	"	Bronze Bushing
37.	17G133	"	"	"	"	Auger Seal
38.	16SV261	"	"	"	"	Door Lift Bar Bushing
39.	16SV262	"	"	"	"	Bell Crank Bushing
40.	23N17	"	"	"	"	Bushing 1-3/4"ODx1-1/2"IDx2-1/2"
41.	G89	"	"	"	"	Grease Zerk
42.	33SV56	"	"	"	"	Back Pan
43.	16SV312	"	"	"	"	Clean-Out Door Poly
44.	16SV124	"	"	"	"	Bolt 5/16" x 1" Counter Sunk
45.	16SV125	"	"	"	"	Bolt 1/2" x 1-3/4" Counter Sunk
46.	16SV126	"	"	"	"	Bolt 1/2" x 2" Counter Sunk
47.	16SV313A	"	"	"	"	LH Blade Holder
48.	16SV314A	"	"	"	"	RH Blade Holder
49.	16SV208	"	"	"	"	Sealing Plate LH
50.	R10	"	"	"	"	1/2-13 x 1-1/4" Bolt GR.5
51.	R35	"	"	"	"	1/2" Lock Washer
52.	R11	"	"	"	"	1/2" Lock Nut
53.	33SV57	"	"	"	"	Auger End Bearing
54.	33SV65	"	"	"	"	Inside Beater Bearing
55.	33SV75	"	"	"	"	Auger Seal Collar
56.	16SV315	"	"	"	"	Beater Wiper
57.	X112	"	"	"	"	Spacer 9/16" x 1"
58.	16SV346	"	"	"	"	Bearing Cap
59.	"	"	16SV353	"	"	Seal
60.	16SV116	"	"	"	"	Door Stop Washer

NOTE: " (Means Same as Preceding Number)

FIGURE 5



**FIGURE 5  
HYDRAULICS**

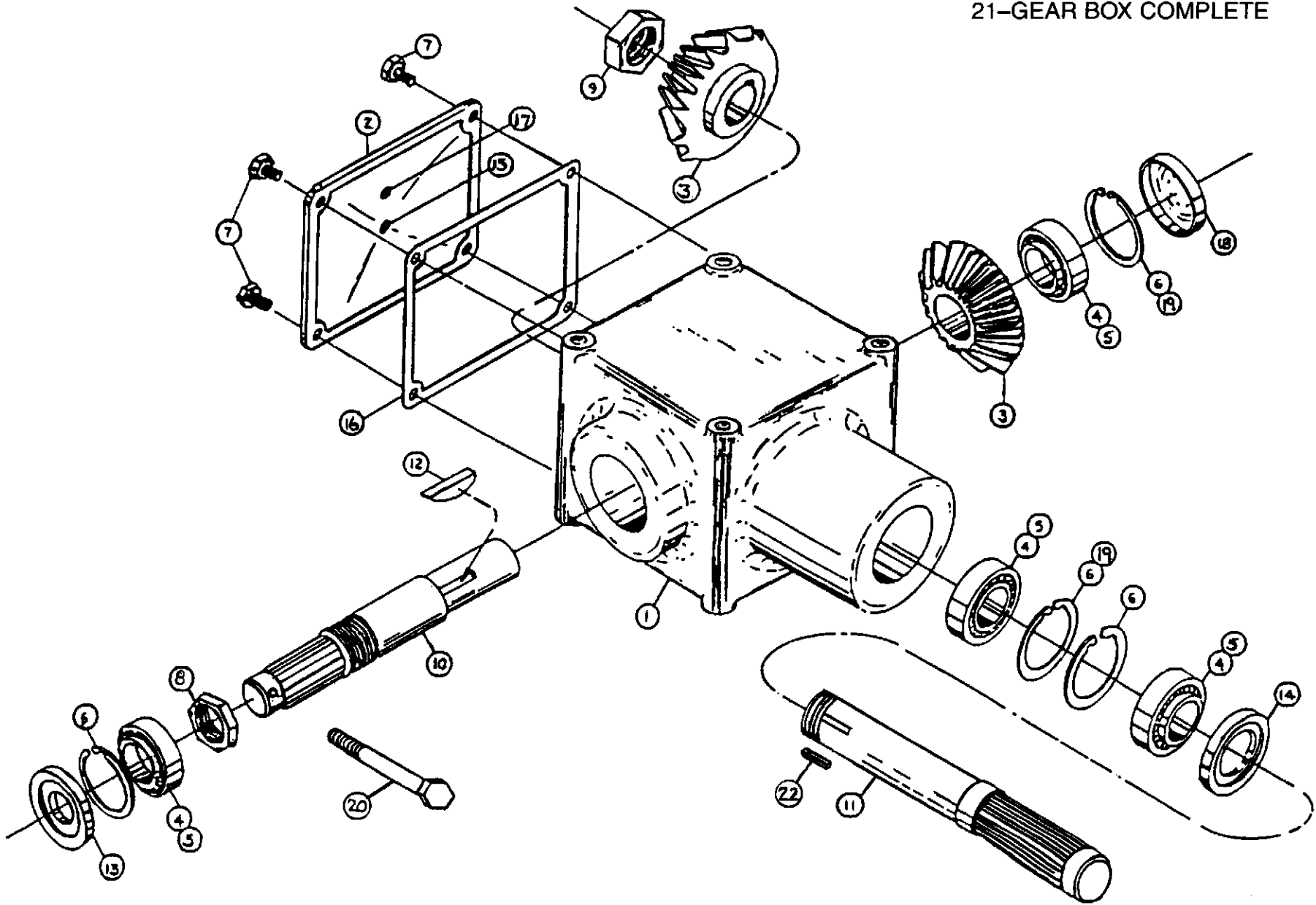
ITEM	SPREADER SIZES					DESCRIPTION
	1502	1802	2202	2602	3302	
1.	16SV129	"	"	"	"	Hose 1/2" x 108"
2.	16SV245	"	"	"	"	Speed Control Motor Mount
3.	16SV352	"	"	"	"	Service Tee 1/2"
4.	HE58	"	"	"	"	1/2" Hyd. Street Elbow
5.	16SV351	"	"	"	"	3/8" Male Coupling
6.	16SV347	"	"	"	"	Speed Control Valve
7.	16SV143	"	"	-	-	Hose 1/2" x 19"
*	-	-	16SV144	"	"	Hose 1/2" x 41"
8.	16SV331	"	"	"	33SV94	Valve Mount
9.	X26	"	"	"	"	Bolt 3/8" x 3" Full Thread
10.	16SV242	"	"	"	"	Speed Valve Pointer
11.	16SV246	"	"	"	"	Gear Motor
12.	16SV149	"	16SV150	"	"	Motor
13.	23N67	"	"	"	"	Hydraulic Hose Holder
14.	12SV51	-	-	-	-	Hose 3/8" x 236"
*	-	23N302	"	"	-	Hose 3/8" x 264"
*	-	-	-	-	27N45	Hose 3/8" x 288"
15.	12SV50	16SV337	"	"	33SV93	Door Rod
16.	-	BFR53	"	"	"	Hose 3/8" x 56"
*	12SV23	-	-	-	-	Hose 3/8" x 36"
16A.	BFR53	"	"	"	-	Hose 3/8" x 56"
*	-	-	-	-	33SV60	Hose 3/8" x 68"
17.	12SV52	-	-	-	-	Hose 3/8" x 256"
*	-	27N45	"	"	-	Hose 3/8" x 288"
*	-	-	-	-	37N80	Hose 3/8" x 318"
18.	16SV338	"	"	"	"	Ball Valve
19.	16SV339	"	"	"	"	Sequence Valve
20.	JB82	"	"	"	"	1/2" to 3/8" Bushing
21.	16SV171	"	"	"	"	2" x 10" Cylinder
22.	16SV167	"	"	"	"	3-1/2" x 8" Cylinder
23.	16SV141	"	"	"	"	Hose 1/2" x 24"
*	-	-	16SV142	"	"	Hose 1/2" x 46"
24.	23N116	"	"	"	"	3/8" Tee
25.	16SV148A	"	"	"	"	Indicator Bar (Standard)
25A.	16SV148	"	"	"	"	Indicator Bar (Removable Hitch)
26.	16SV332	"	"	"	"	Hose Holder
27.	16SV333	"	"	"	"	Cable Guide
28.	12SV49	16SV334	"	"	33SV90	Cable
29.	ES14	"	"	"	"	Thimble
30.	16SV342	"	"	"	"	Cable Clamp
31.	F33	"	"	"	"	Cable Insulator
32.	16SV335	"	"	"	"	Pointer
33.	HE58	"	"	"	"	Street Elbow 1/2"
34.	16SV354	"	"	"	"	Pointer Washer
35.	16SV365	"	"	"	"	Cable Guard
36.	16SV366	"	"	"	"	Pointer Shielding

**NOTE:** \* (Means Not Shown)

" (Means Same as Preceding Number)

- (Means Not Used on This Model)

**FIGURE 6**  
**21-GEAR BOX COMPLETE**

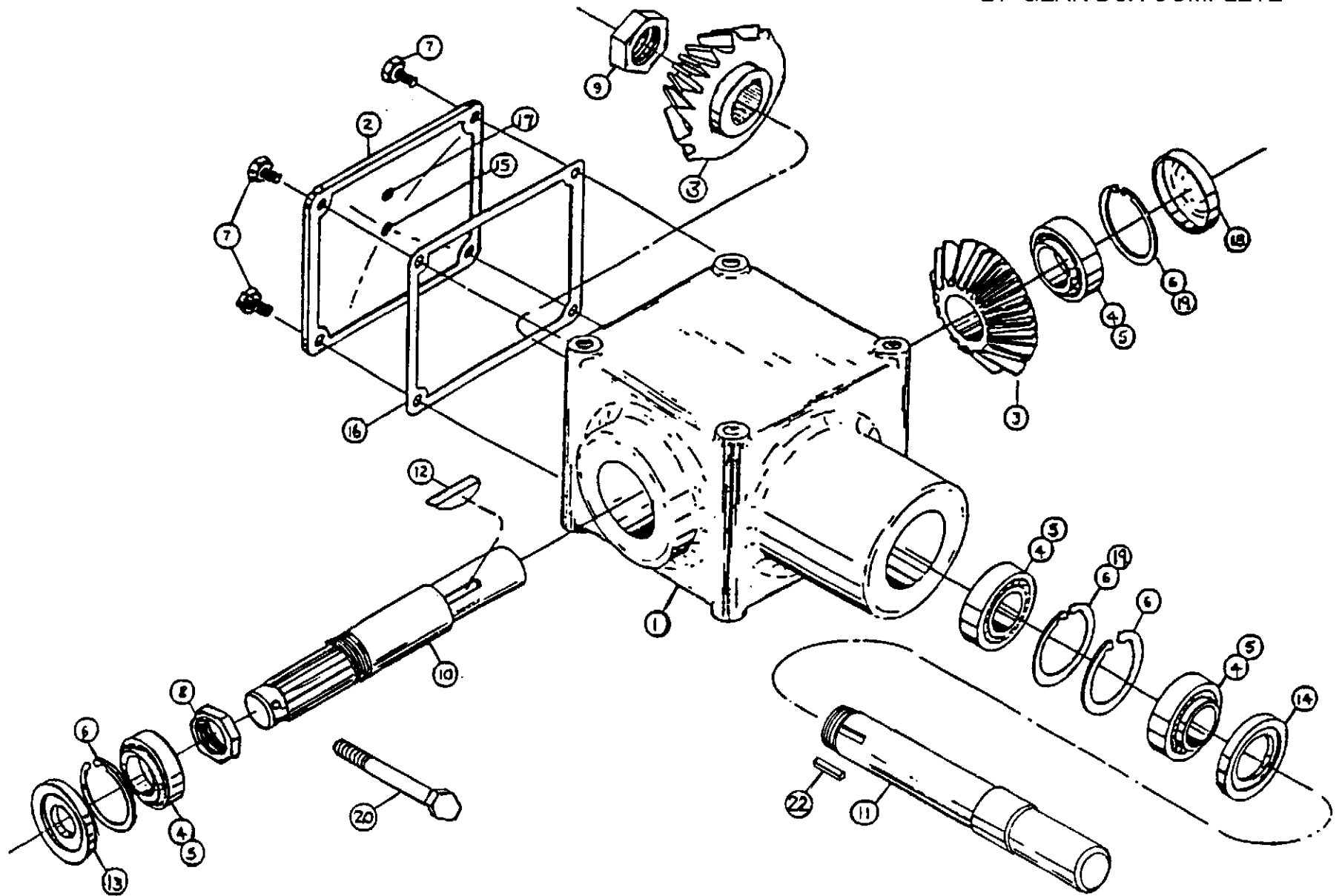


**FIGURE 6  
GEARBOX - OUTSIDE BEATER**

ITEM	SPREADER SIZES					DESCRIPTION
	1502	1802	2202	2602	3302	
1.	G50	"	"	"	"	Housing
2.	G51	"	"	"	"	Cover
3.	G52	"	"	"	"	Bevel Gear
4.	G53	"	"	"	"	Bearing #14137A
5.	G54	"	"	"	"	Bearing Cup #14276
6.	G55	"	"	"	"	Snap Ring
7.	G56	"	"	"	"	Cap screw
8.	G57	"	"	"	"	1-1/2" Stake Nut
9.	G58	"	"	"	"	1-3/8" Stake Nut
10.	23N137	"	"	"	"	Output Shaft
11.	G94	"	"	"	"	Input Shaft
12.	G61	"	"	"	"	"E" (1210) Woodruff Key
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.	16SV156	"	"	"	"	Bevel Gearbox Complete
22.	G62	"	"	"	"	Key 3/8" Sq. x 1-3/8" Hardened

**NOTE:** " (Means Same as Preceding Number)

**FIGURE 7**  
**21-GEAR BOX COMPLETE**

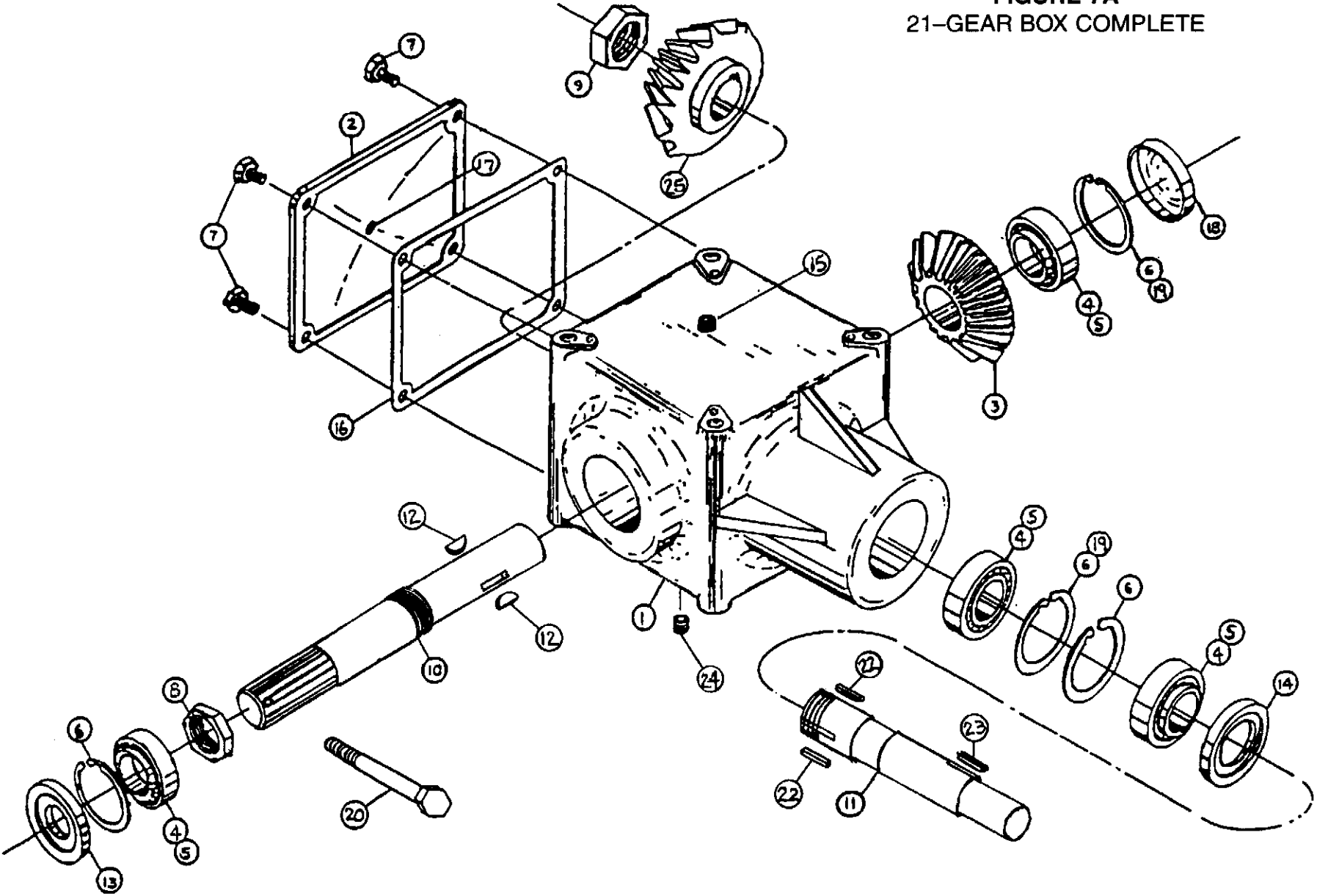


**FIGURE 7  
GEARBOX - INSIDE BEATER**

ITEM	SPREADER SIZES		DESCRIPTION
	1502	1802	
1.	G50	"	Housing
2.	G51	"	Cover
3.	G52	"	Gear
4.	G53	"	Bearing #14137A
5.	G54	"	Bearing Cup #14276
6.	G55	"	Snap Ring
7.	G56	"	Cap screw
8.	G57	"	1-1/2" Stake Nut
9.	G58	"	1-3/8" Stake Nut
10.	16SV153	"	Output Shaft
11.	16SV154	"	Input Shaft
12.	G61	"	"E" (1210) Woodruff Key
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.	16SV155	"	Bevel Gearbox Complete
22.	G62	"	Key 3/8" Sq. x 1-3/8" Hardened

**NOTE:** " (Means Same as Preceding Number)

**FIGURE 7A**  
**21-GEAR BOX COMPLETE**

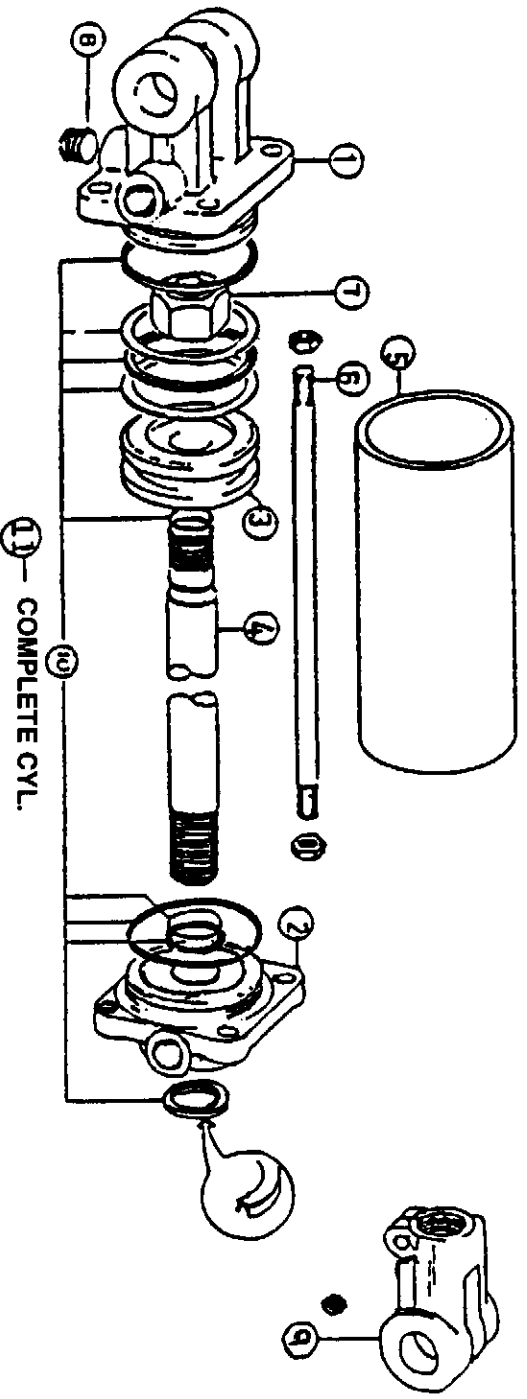




**FIGURE 7A  
GEARBOX - INSIDE BEATER**

ITEM	SPREADER SIZES			DESCRIPTION
	2202	2602	3302	
1.	G125	"	"	Housing
2.	G126	"	"	Cover
3.	G147	"	"	Gear
4.	G129	"	"	Bearing #14137A
5.	G128	"	"	Bearing Cup #14276
6.	G130	"	"	Snap Ring
7.	G56	"	"	Cap screw
8.	G132	"	"	1-1/2" Stake Nut
9.	G133	"	"	1-3/8" Stake Nut
10.	G148	"	"	Output Shaft
11.	G149	"	"	Input Shaft
12.	G61	"	"	"E" (1210) Woodruff Key
13.	G136	"	"	Seal - Output
14.	G137	"	"	Seal - Input
15.	G144	"	"	Plug 3/8" NPT
16.	G138	"	"	Gasket
17.	G65	"	"	Plug 1/8" NPT
18.	G140	"	"	Cap
19.	G141	"	"	Shim
20.	23N1	"	"	5/16" x 5" Bolt GR.5
21.	33SV78	"	"	Bevel Gearbox Complete
22.	G139	"	"	Key 3/8" Sq. x 1-3/8" Hardened
23.	G62	"	"	Key 3/8" Sq. x 1-1/2" Hardened
24.	G65	"	"	Plug 3/8" Sq. x 1-3/8"
25.	G147	"	"	

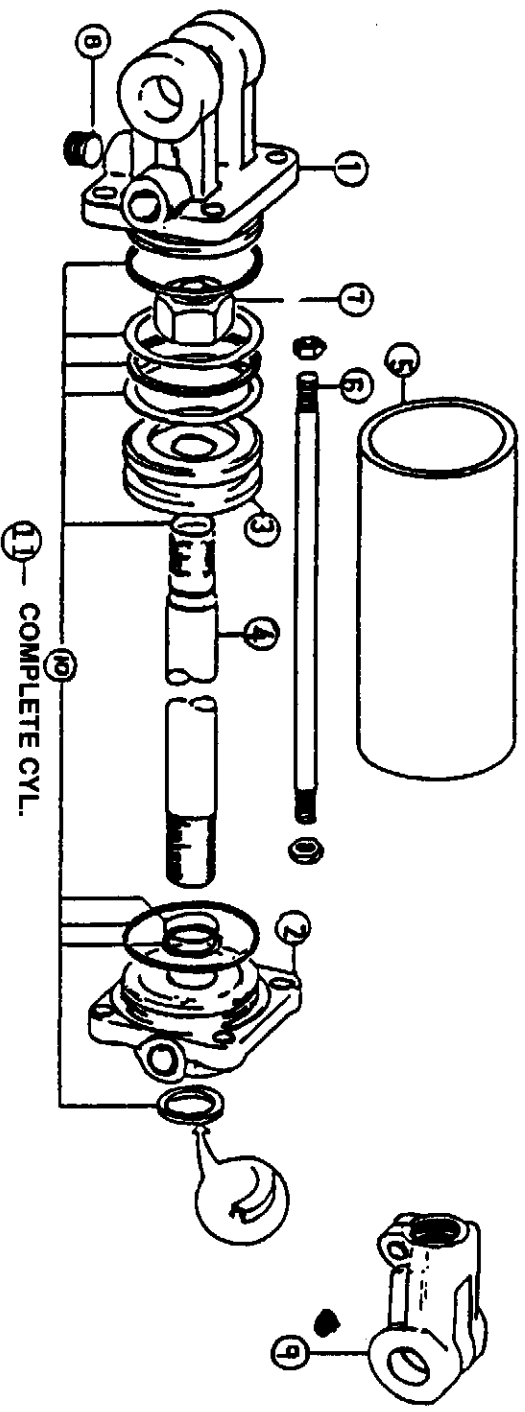
**NOTE:** " (Means Same as Preceding Number)



**FIGURE 8**  
**HYDRAULIC CYLINDER - BACK DOOR**

ITEM	SPREADER SIZES					DESCRIPTION
	1502	1802	2202	2602	3302	
1.	16SV157A	"	"	"	"	Clevis Cap
2.	16SV158A	"	"	"	"	Rod Cap
3.	16SV159	"	"	"	"	Piston
4.	16SV160A	"	"	"	"	Rod
5.	16SV161	"	"	"	"	Cylinder Tube
6.	16SV162	"	"	"	"	Tie Rod
7.	16SV163	"	"	"	"	Piston Nut
8.	16SV164	"	"	"	"	Plug
9.	16SV165A	"	"	"	"	Rod Clevis
10.	16SV166	"	"	"	"	Seal Kit
11.	16SV167A	"	"	"	"	Complete Hydraulic Cylinder

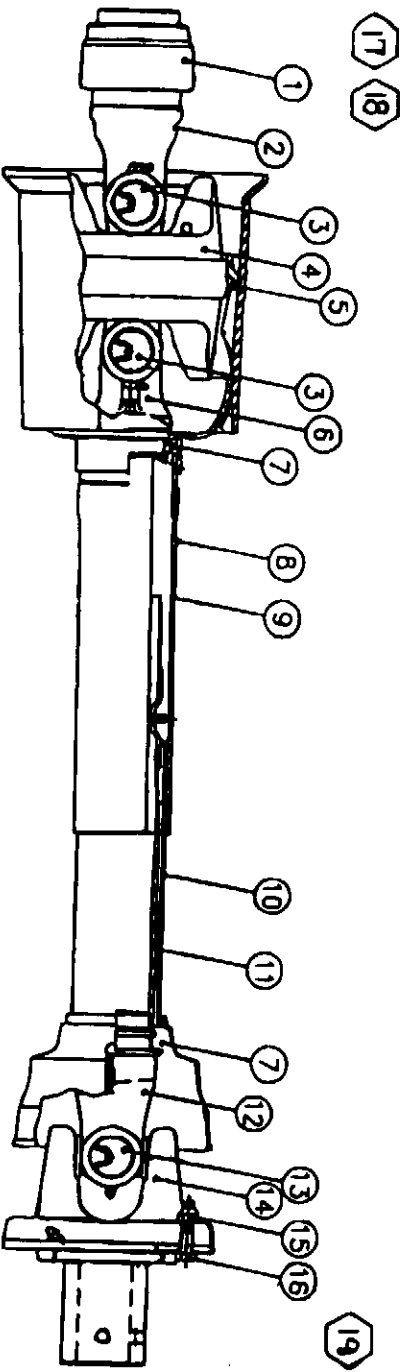
**NOTE:** " (Means Same as Preceding Number)



**FIGURE 9**  
**HYDRAULIC CYLINDER - CLEAN OUT DOOR**

ITEM	SPREADER SIZES					DESCRIPTION
	1502	1802	2202	2602	3302	
1.	23N142A	"	"	"	"	Clevis Cap
2.	23N143A	"	"	"	"	Rod Cap
3.	23N144	"	"	"	"	Piston
4.	16SV168A	"	"	"	"	Rod
5.	16SV169	"	"	"	"	Cylinder Tube
6.	16SV170	"	"	"	"	Tie Rod
7.	23N148	"	"	"	"	Piston Nut
8.	23N149	"	"	"	"	Plug
9.	23N150A	"	"	"	"	Rod Clevis
10.	23N151	"	"	"	"	Seal Kit
11.	16SV171A	"	"	"	"	Complete Hydraulic Cylinder

**NOTE:** " (Means Same as Preceding Number)



**FIGURE 10**  
**PTO**

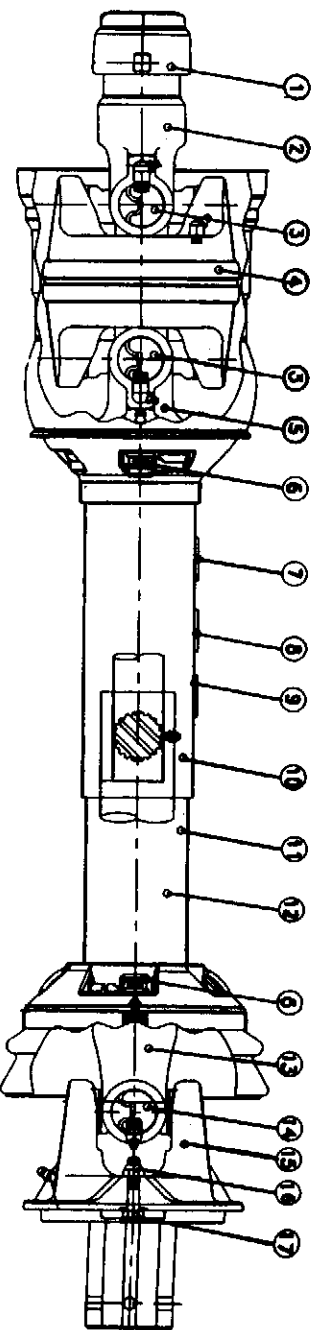
ITEM	540RPM	1000RPM-1-3/8"	1000RPM-1-3/4"	DESCRIPTION
1.	16SV274	"	16SV275	Safety Slide Lock Repair Kit
2.	16SV276	16SV277	16SV278	Safety Slide Lock Yoke Assembly
3.	16SV279	"	"	Cross & Bearing Kit (CAT. 4)
4.	16SV280	"	"	Center Housing
5.	16SV281	"	"	Bell Ext. w/Nylon Centralizer
6.	16SV282	"	"	Yoke & Shaft
7.	16SV181	"	"	Nylon Repair Kit
8.	16SV283	"	"	Safety Sign
9.	16SV284	"	"	Outer Guard
10.	16SV285	"	"	Inner Guard
11.	16SV286	"	"	Safety Sign
12.	16SV287	"	"	Yoke, Tube & Slip Sleeve
13.	16SV179	"	"	35R Cross & Bearing Kit
14.	16SV288	"	"	Ball Shear Assembly
15.	16SV194	"	"	Lock Nut 5/16"-18
16.	-	16SV289	"	Bolt 5/16"-18 x 1-1/2" GR.2
*	16SV290	-	-	Bolt 5/16"-18 x 1-1/2" GR.8
17.	16SV291	16SV292	16SV293	Joint & Shaft Half Assm. w/Guard
18.	16SV294	16SV295	16SV296	Joint & Shaft Half Assm.
19.	16SV297	16SV298	"	Joint & Tube Half Assm. w/Guard
20.	16SV299	16SV300	"	Joint & Tube Half Assm.
*	16SV343	16SV344	16SV345	Complete PTO
*	S204	"	"	PTO Safety Manual

**NOTE:** \* (Means Not Shown)

" (Means Same as Preceding Number)

- (Means Not Used on This Model)

*This PTO is for 2004 Model Year and Prior*



**FIGURE 10**  
**PTO**

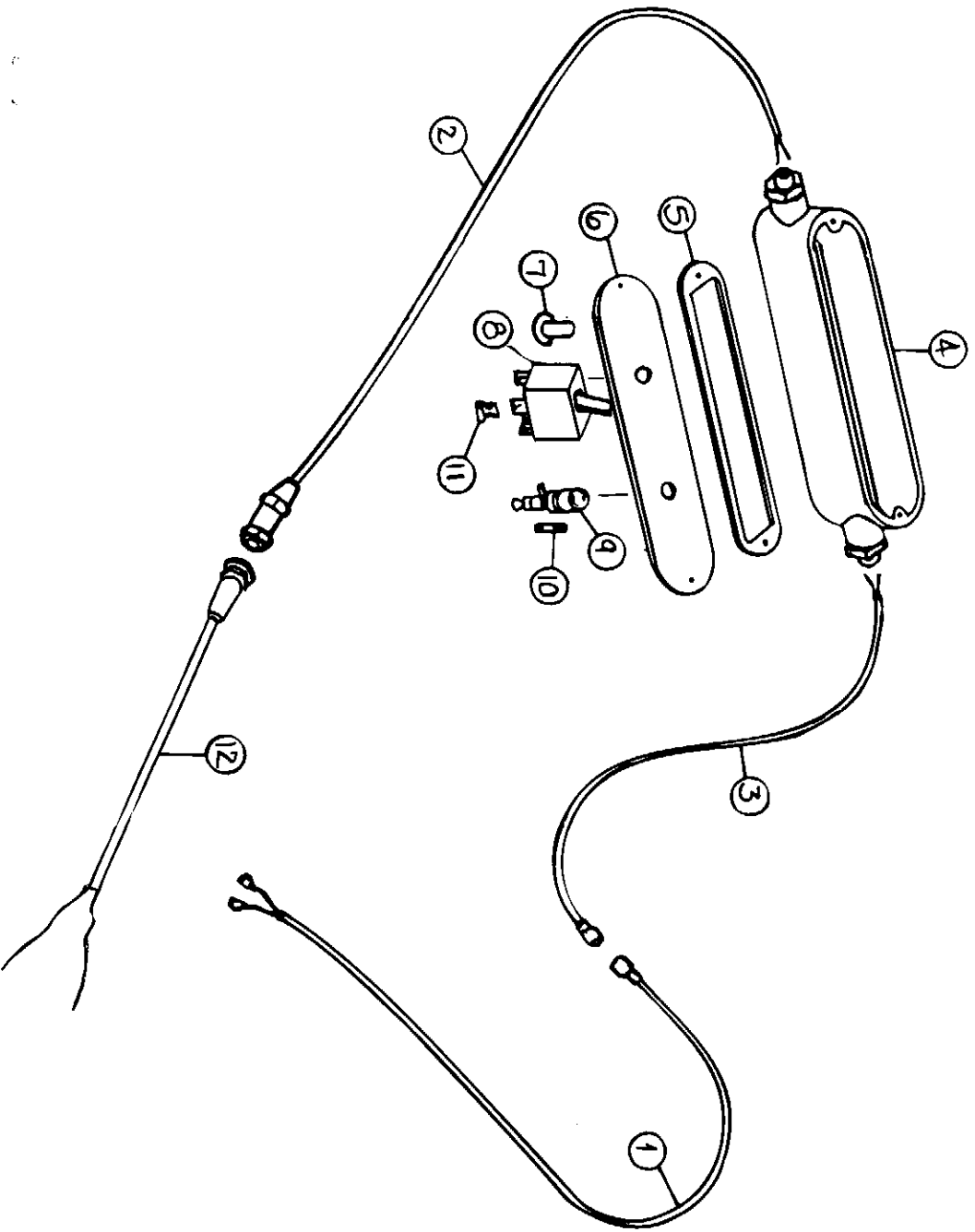
<b>ITEM</b>	<b>OPT. 540RP</b>	<b>1000RPM-1-3/8"</b>	<b>1000RPM-1-3/4"</b>	<b>DESCRIPTION</b>
1.	16SV274	"	16SV275	Safety Slide Lock Repair Kit
2.	16SV276	16SV277	16SV278	Safety Slide Lock Yoke Assembly
3.	16SV279	"	"	Cross Kit
4.	16SV382	"	"	Center Housing
5.	16SV282	"	"	Yoke & Shaft
6.	16SV383	"	"	Nylon Repair Kit
7.	16SV283	"	"	Safety Sign
8.	16SV286	"	"	Safety Sign
9.	16SV384	"	"	540 RPM Sign
10.	16SV385	16SV386	16SV385	Outer Guard
11.	16SV287	"	"	Inner Guard
12.	16SV388	"	"	Safety Sign (Not Shown)
13.	16SV287	"	"	Yoke, Tube & Slip Sleeve
14.	16SV179	"	"	35R Cross & Bearing Kit
15.	16SV288	"	"	Ball Shear Assembly
16.	16SV193	"	"	Lock Nut 5/16"-18
17.	16SV290	-	-	Bolt 5/16"-18 x 1-1/2" GR.8
*	-	16SV289	"	Bolt 5/16"-18 x 1-1/2" GR.2
18.	16SV389	16SV390	16SV391	Joint & Shaft Half Assm. w/Guard
19.	16SV392	16SV393	16SV394	Joint & Shaft Half Assm.
20.	16SV395	16SV396	16SV397	Joint & Tube Half Assm. w/Guard
21.	16SV299	16SV300	"	Joint & Tube Half Assm.
*	16SV343A	16SV344A	16SV345A	Complete PTO

**NOTE:** \* (Means Not Shown)

" (Means Same as Preceding Number)

- (Means Not Used on This Model)

*This PTO is for 2005 Model Year and After*



**FIGURE 12**  
**ELECTRIC CONTROL BOX**

<b>ITEM</b>	<b>PART NO.</b>	<b>DESCRIPTION</b>
1.	16SV272	Spreader Power Supply Cord w/Ends
2.	16SV271	Control Box Power Supply w/Plug in Slots
3.	16SV270	Tractor Power Supply w/Pins
4.	16SV316	Control Box
5.	16SV317	Control Box Gasket
6.	16SV318	Control Box Cover
7.	16SV235	Switch Boot
8.	16SV319	Auger Speed Switch
9.	16SV231	Fuse Holder
10.	16SV232	Fuse
11.	16SV320	Flag
12.	16SV269	Tractor Control Cord
Not Shown	16SV321	Control Box Complete