

OPERATOR'S MANUAL

# MANURE SPREADER

MS2334





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**WARRANTY:**

Warranty coverage is provided by John Deere according to the terms of the Agricultural/Commercial & Consumer Equipment Warranty Statement. Carefully read the warranty statement on the back of your original purchase order for details on coverage and limitations of this warranty.

**NOTES**

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# DEALER PRE-DELIVERY CHECK LIST

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

After the Manure Spreader has been completely set-up, check to be certain it is in correct operating 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.

- Manure Spreader was not damaged in shipment. Check for dents and loose or missing parts. Report damage immediately to Frontier.
- All bolts and fasteners are tight.
- Manure Spreader has been correctly assembled according to instructions in this manual. Wheel nuts and all other fasteners are tightly secured.
- All grease fittings have been lubricated. Gearboxes are filled to proper levels if applicable. See Lubrication Chapter of this manual for details.
- Hoses and fittings are properly attached and there are no visible leaks.
- Guards and shields are secure.
- Wheels are properly mounted.
- Tires are inflated to correct pressure.
- Chains tension is properly adjusted. See Adjustment Chapter of this manual.
- Decals are in place and legible.

**Connect the Manure Spreader onto a proper horsepower 540 RPM or 1000 RPM (if applicable) tractor and attach the PTO. Connect the lights. Run the Manure Spreader and make sure all components operate properly.**

- PTO guard turns freely.
- Discharge door operates smoothly.
- Main Auger operates up and down smoothly.
- Hydraulic system does not leak under pressure.
- Lights and wiring functioning properly.
- Electronic Scale (if provided) operates properly.
- Implement and all components are functioning properly.

Inspection Date \_\_\_\_\_ Model Number \_\_\_\_\_

Serial Number \_\_\_\_\_

Dealer's Name \_\_\_\_\_

Signature of Pre-Delivery Inspector \_\_\_\_\_

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# **DEALER DELIVERY CHECK LIST**

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

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

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

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

- Explain to the customer that the Pre-Delivery Inspection was made.
- Explain to the customer all the safety precautions they must exercise when operating this unit.
- Explain to customer that regular lubrication is required for proper operation and long life of machine. Show customer the Lubrication Chapter of the Operator's Manual.
- Give the customer the Operator's Manual and make sure they read and understand all operating and service instructions.
- Record model and serial number on this page and page 38 of this Operators Manual.

Date Delivered \_\_\_\_\_

Dealer's Name \_\_\_\_\_

By \_\_\_\_\_

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

(Remove Dealer File Copy At Perforation)

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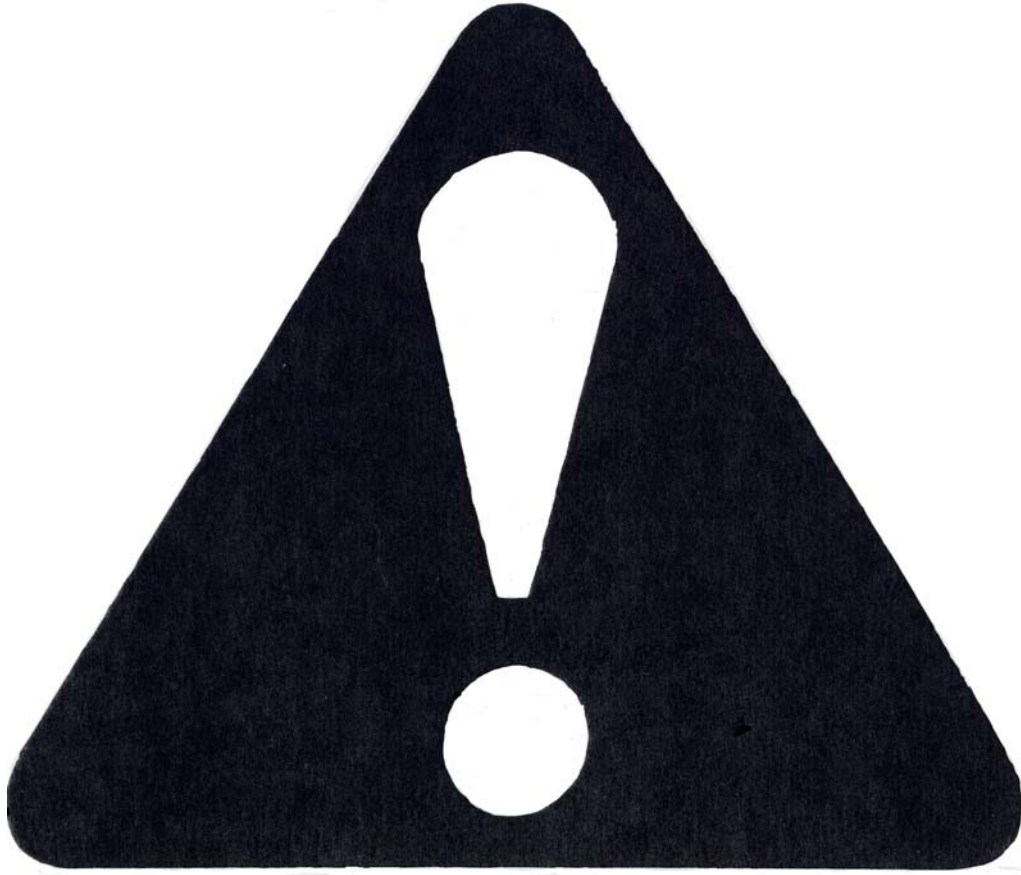


## 2334 Specifications

Cubic Ft. Struck Level	451				
Gallon Capacity	3377				
Tank Length	16'				
Overall Length	23' 7"				
Tank Width – Top	97"				
Auger Diameter	30"				
Poly Lined Tank	Left Side				
Overrunning Clutch	Yes				
Shear Bolt Protection	Yes				
PTO	1000				
Expeller Size	40"				
Front and Rear Splashguards	Yes				
Weight	10,940#				
		<b><u>Specs</u></b> <b><u>w/445x22.5</u></b> <b><u>Tires</u></b>	<b><u>Specs</u></b> <b><u>w/21L x 16.1</u></b> <b><u>Tires</u></b>	<b><u>Specs</u></b> <b><u>w/49x17x20</u></b> <b><u>Tires</u></b>	<b><u>Specs</u></b> <b><u>w/700/50x22.5</u></b> <b><u>Tires</u></b>
Side Loading Height		93"	N/A	93"	94"
Height @ Rear Splash		101"	N/A	101"	102"
Height @ Front Splash		101"	N/A	101"	102"
Overall Width		108"	N/A	117"	126"

**SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE**

## SAFETY INFORMATION



**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.

# SAFETY INFORMATION

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

## 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 single word; DANGER, WARNING, or CAUTION is used with the safety-alert symbol. DANGER identifies the most serious hazards.

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

General precautions are listed on CAUTION safety signs.



**WARNING**



**CAUTION**



## FOLLOW SAFETY INSTRUCTIONS

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

## OBSERVE MAXIMUM TRANSPORT SPEED

**The maximum transport speed for this implement is 32 km/h (20 m.p.h.).**

Some tractors are capable of operating at speeds that exceed the maximum transport speed of this implement. Regardless of the maximum speed capability of the tractor being used to tow this implement, do not exceed the implement's maximum transport speed.

Exceeding the implements maximum transport speed can result in:

- \* Loss of control of the tractor/implement combination
- \* Reduced or no ability to stop during braking
- \* Implement tire failure
- \* Damage to the implement structure or its components

Use additional caution and reduce speed when towing under adverse surface conditions, when turning, and when on inclines.

Do not attempt transport if the fully loaded implement weighs more than 1.5 times the weight of the tractor.



# SAFETY INFORMATION



**⚠ DANGER**

STAY CLEAR OF EXPELLER WHEN ROTATING OR IF TRACTOR IS RUNNING. FAILURE TO HEED THIS WARNING WILL RESULT IN SERIOUS INJURY OR DEATH. KEEP CLOTHING, YOURSELF AND OTHERS WELL CLEAR.

111209B

**⚠ 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



**⚠ DANGER**

**KEEP OUT**

DISENGAGE ALL POWER AND SHUT OFF TRACTOR ENGINE BEFORE ATTEMPTING TO ENTER OR CLEAN SPREADER. FAILURE TO HEED THIS WARNING WILL RESULT IN SERIOUS INJURY OR DEATH.

111209C

**⚠ CAUTION**



**PINCH POINT**

51010

**⚠ CAUTION**



**PINCH POINT,**  
TO AVOID HAND INJURY  
USE CAUTION WHEN  
CLOSING SHIELD

111209A



**⚠ WARNING**

**DO NOT GO NEAR LEAKS**

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

11599



**⚠ WARNING**

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

1494A

**⚠ WARNING**




**DO NOT REMOVE SHIELDS**

**MOVING PARTS INSIDE**

1494K

**⚠ WARNING**



Do not exceed this implement's maximum transport speed of 32 km/h (20 mph). Exceeding this speed may result in loss of control during transport or braking and serious injury or death.

Transport only with a properly ballasted tractor and a properly attached safety tow chain. Do not transport with a motor vehicle. Reduce speed and use additional caution when on inclines, towing under adverse surface conditions, and turning.

# SAFETY INFORMATION

	<p style="text-align: center;"><b>⚠ WARNING</b></p> <p style="text-align: center;"><b>DO NOT REMOVE SHIELDS</b></p> <p style="text-align: center;"><b>MOVING PARTS INSIDE</b></p>
1494B	

<b>⚠ WARNING</b>
<p><b>DO NOT REMOVE SHIELDS</b></p> <p><b>ROTATING PARTS INSIDE</b></p>
11210B

<b>ATTENTION</b>
<p style="text-align: center;">TORQUE SPECIFICATION FOR HUBS WITH 3/4-16 FLANGE NUTS IS 375-425 FT.-LBS.</p> <p style="text-align: center;">THIS TORQUE IS FOR UNLUBRICATED THREADS. THIS TORQUE IS NEEDED FOR THE HUBS TO CARRY THE RATED CAPACITY. IT IS VERY IMPORTANT TO FOLLOW THIS SPECIFICATION WHEN MOUNTING TIRE AND WHEEL ASSEMBLIES ON HUBS</p>
022310

<b>⚠ WARNING</b>
<b>HELP AVOID INJURY</b>
<ul style="list-style-type: none"> <li>• READ &amp; UNDERSTAND THE OPERATORS MANUAL PROVIDED WITH THIS MACHINE. IF MISPLACED CALL YOUR LOCAL JOHN DEERE DEALER WITH MODEL AND SERIAL NUMBER.</li> <li>• UNDERSTAND ALL SAFETY WARNINGS AND FUNCTION OF CONTROLS.</li> <li>• KEEP SAFETY DEVICES IN PLACE AND WORKING.</li> <li>• KEEP YOURSELF AND OTHERS WELL CLEAR OF MOVING PARTS.</li> <li>• DISCONNECT ALL POWER BEFORE SERVICING OR CLEANING THIS MACHINE.</li> <li>• DO NOT EXCEED 20 MPH</li> </ul>
FRON1

<b>⚠ WARNING</b>

<p style="text-align: center;">DO NOT CLEAN OR WORK ON THIS MACHINE WITHOUT FIRST DISENGAGING POWER AND SHUTTING OFF TRACTOR ENGINE.</p>
1494J

<b>⚠ DANGER</b>

<p style="text-align: center;"><b>ROTATING DRIVELINE CONTACT CAN CAUSE DEATH KEEP AWAY!</b></p> <p style="text-align: center;">DO NOT OPERATE WITHOUT-</p> <ul style="list-style-type: none"> <li>• ALL DRIVELINE, TRACTOR AND EQUIPMENT SHIELDS IN PLACE.</li> <li>• DRIVELINES SECURELY ATTACHED AT BOTH ENDS.</li> <li>• DRIVELINE SHIELDS THAT TURN FREELY ON DRIVELINE.</li> </ul>
1494L

<b>⚠ DANGER</b>

<b>ROTATING DRIVELINE CONTACT CAN CAUSE DEATH</b>
5896B

<b>⚠ DANGER</b>

<b>NO STEP-STAY CLEAR</b>
9194A

<b>⚠ CAUTION</b>
<p><b>To Avoid Serious Injury:</b></p> <ul style="list-style-type: none"> <li>■ Read Operator's Manual before operating, servicing or repairing equipment. Follow all safety rules and instructions. (Manuals are available from your selling dealer.)</li> <li>■ Never allow riders.</li> <li>■ Keep bystanders away from equipment during operation.</li> <li>■ Operate from tractor seat only.</li> <li>■ Keep all shields in place and in good condition.</li> <li>■ Lower equipment to ground, stop engine, remove key and set brake before dismounting tractor.</li> <li>■ Never allow children or untrained persons to operate equipment</li> </ul>
FRON1

## TRACTORS:

This Operators Manual uses the term “Tractor” when identifying the the power source.



# WARNING

## TO PREVENT SERIOUS INJURY OR DEATH

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

### **KNOW HOW TO STOP MANURE SPREADER BEFORE STARTING IT.**

If the Manure Spreader becomes clogged or for servicing, Stop the tractor engine, remove ignition key and allow all mechanisms to stop. Before cleaning or working on the Manure Spreader, detach the PTO shaft, and completely disengage the tractor hydraulics.

**DO NOT** attempt to perform maintenance or repair with tractor running, and PTO, and hydraulic hoses connected to the tractor.

**DO NOT** step up on the Manure Spreader at any time while in operation.

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

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

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

**STAY CLEAR** of discharge expeller when in operation.

Keep hands, feet, and clothing away from all moving parts when the Manure Spreader is in operation.

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

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

Do not step over PTO shaft: Stay clear of PTO at all times.

**NEVER** start the Manure Spreader until all guards and safety shields are secured in place.

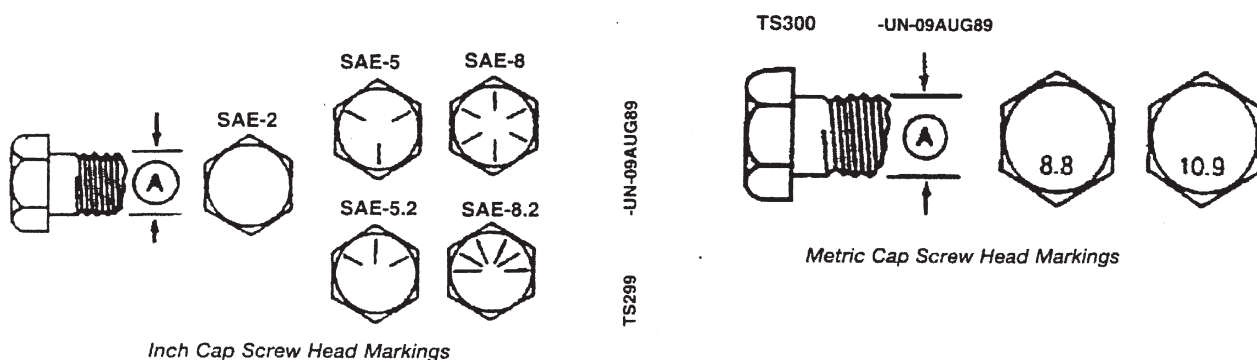
Never operate the Manure Spreader with a PTO speed greater than the recommended PTO RPM.

**STAY CLEAR** of hydraulic lines, they may be under extreme pressure or heat.

Frontier always takes the operator and their safety into consideration and guards exposed moving parts for their protection. However, some areas cannot be guarded or shielded in order to assure proper operation. In addition, the Operators Manual and decals on the Manure Spreader 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**

# CAP SCREW TORQUE VALUES



## INCH CAP SCREW TORQUE VALUES

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

## METRIC CAP SCREW TORQUE VALUES

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



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

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

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

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

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

## **SET-UP & ASSEMBLY**



**WARNING:** Some photographs used in the following pages show guards or shields removed for clarification. Never operate machine until these guards or shields are in proper operating position.

**NOTE:** Determine right or left side of the Manure Spreader by viewing it from the rear. If instructions or parts lists call for hardened bolts, refer to the Cap Screw Torque Value page to identify.

### **WHEELS & TIRES**

The Manure Spreader may be shipped without the wheels/tires installed.

1. Attach the wheels with tires, using the lug nuts furnished and torque the mounting hardware to the appropriate torque listed in the Service Chapter. Check wheel bolts periodically thereafter.
2. Inflate the tires to the appropriate pressure listed in the Service Chapter.
3. Check the Manure Spreader for proper assembly and adjustment and make sure that all bolts are tightened.
4. Securely retighten after a few hours of operation, as bolts can loosen up on new machinery.
5. Lubricate the Manure Spreader completely.



# **TRANSPORTING**

## **TRANSPORT LIGHTING & REFLECTORS**

Transport lighting with a 7 pin plug is standard equipment on the 2334. The lighting system is to be connected to the 7 pin power receptacle (per SAEJ560B) on your tractor. If your tractor is not equipped with the proper receptacle, see your tractor dealer for details. Red reflective safety decals and a SMV sign are on the rear of the tank for safety.



## **SAFETY CHAIN (Optional)**

Follow state and local regulations regarding use of a safety chain and transport lighting when towing farm equipment on public highways. A proper safety chain should be used to retain the safety connection between the towing and towed machines, in the event of separation of the primary attaching system. Check with local law enforcement agencies for your own particular regulations. Unless otherwise prohibited, use a slow-moving vehicle emblem. Never tow the Manure Spreader on a public highway at a speed greater than 20 mph (32 kph).

As required or when desired, the Manure Spreader can be equipped with a safety chain for travel on public highways.

1. Chain is sufficiently slack to allow turns and movements of either the tractor or the Manure Spreader, without placing tension on the chain.
2. Chain is of sufficient strength to hold the decoupled implement (and its load) and tow it to the shoulder.

## **TOWING ON HIGHWAY**

To view beyond the back of the larger trailer-mounted Manure Spreader when transporting the unit on a public highway, consider obtaining and installing a rear view mirror on your tractor with a wide load mounting bracket.

## **STORAGE**

Because the Manure Spreader is likely to be used year-round, it should be in ready-to-operate condition at all times. Several provisions have been designed into the Manure Spreader to enable it to be used in cold, moderate and warm outside temperatures. The most important factor for continuous proper operation is lubrication. When operating the Manure Spreader in freezing temperatures, the unit should be stored inside, if possible. Refer to [Operation Chapter](#) for special operating procedures in freezing temperatures.

# PREPARING FOR OPERATION

## PREPARING MANURE SPREADER

Properly lubricate the Manure Spreader, check automatic oiler level, and fill if necessary before operating. Refer to Lubrication Section of this Operator's Manual for locations.

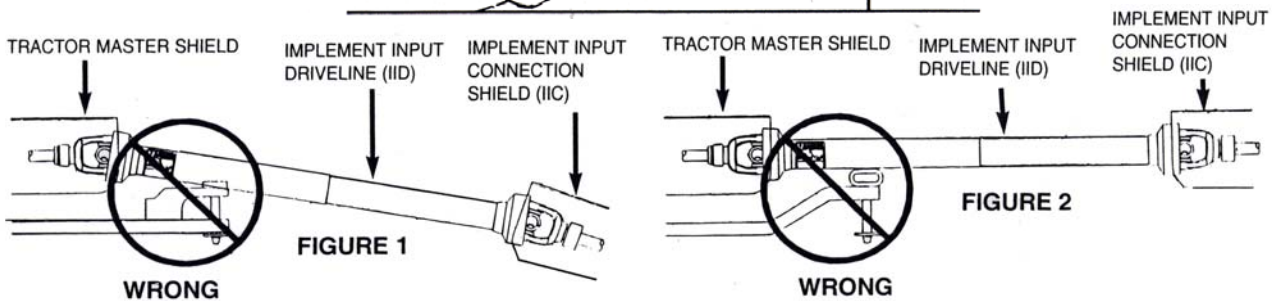
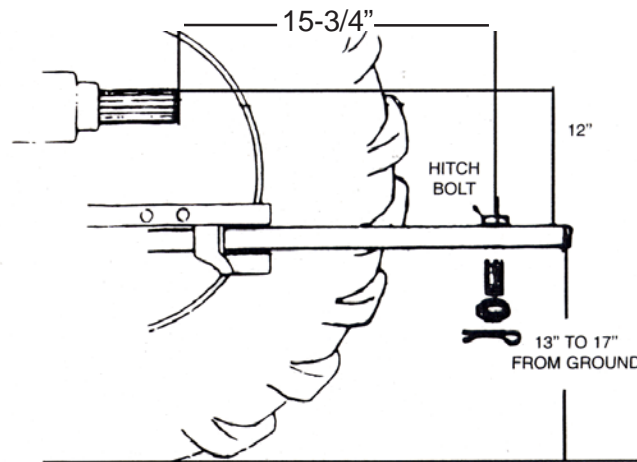
If the Manure Spreader is going to be operated in freezing temperatures, review and comply with recommendations in the Operation Chapter, under the Winter Operation section.

Proper operation of a loaded Manure Spreader requires a tractor with sufficient horsepower to run the PTO and proper size to counterbalance the weight of a loaded Manure Spreader.

## TRACTION CONNECTIONS

### Tractor Hitch

1. The hitch of the Manure Spreader is designed for a standardized tractor hitch. Adjust the drawbar so that it is 13 to 17 inches above the ground.
2. 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 15-3/4" for 1000 RPM PTO as shown in drawing. An improperly located hitch point may cause damage to the universal joints of the power takeoff.
3. Secure the drawbar so that the hitch pin hole is directly below the power drive line. Fasten the Manure Spreader to the tractor drawbar with an appropriate hitch pin with safety locking device. After the connection is made, remove the hitchjack and secure it to the "Storage Position" on the left side of the Spreader.



*If the Manure Spreader 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]*

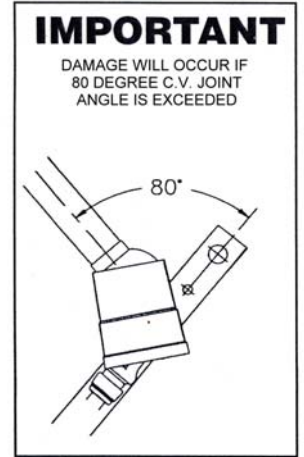
*If the Manure Spreader is attached to a tractor with an offset in the drawbar, be certain it is in the down position to prevent damage to the IID guarding and the IID telescoping members. [See Figure 2]*

# PREPARING FOR OPERATION

## PTO

The Manure Spreader is equipped with a constant velocity telescoping PTO drive shaft. This constant velocity capability, results in a smooth, quiet running drive line, without power fluctuation. The Manure Spreader can only be properly hooked-up to a tractor which has PTO and hitch dimensions conforming to ASAE Standard S203. Horsepower required may vary according to the consistency of material to be spread, ground speed and terrain. To prevent damage to the telescoping PTO drive, DO NOT allow the tractor's rear tires to make contact with the PTO or Manure Spreader while making sharp turns, Be careful when pulling the Manure Spreader with a tractor that is equipped with dual rear tires.

**NOTE:** *The maximum joint angle must not exceed 80° whether in operation or not. Any angle greater than 80°, will result in damage to the joint. For continuous operation, the maximum joint angle must be limited to 35°. Any continuous operation, at angles greater than 35°, will shorten joint life.*



Attach the Manure Spreader PTO to the tractor PTO shaft locking it into position and check distance by the following.

1. Maintain a straight alignment between the Manure Spreader and the tractor.
2. Maintain a distance of 6"- 12" between the top of the tractor drawbar and the center of the tractor PTO. An 8" distance is standard.

After the correct distance is obtained, slide back the coupler lock and attach the PTO drive to the tractor PTO shaft. Make sure that the coupler locks onto the PTO shaft; slide it back and forth until it locks.

**NOTE:** *Do NOT attempt to use a hammer to help in attaching the PTO drive connection.*

**NOTE:** *Remove the tractor 3-point quick hitch if the tractor is equipped with one. Tractor 3-point arms must be removed or positioned so they do not come in contact with the Manure Spreader tongue or PTO. Failure to heed will cause damage and void the warranty.*

## Hydraulics

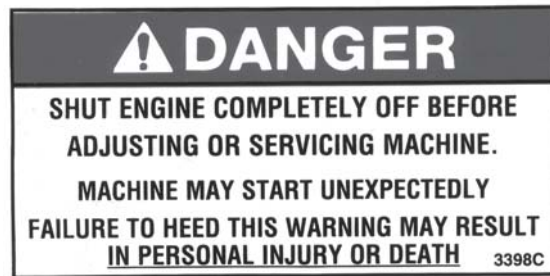
The Manure Spreader requires a 4 hose hook-up;  
- 2 hoses for raising/lowering the main auger.  
- 2 hoses for opening/closing the discharge door.  
Before starting the tractor, make sure each set of hydraulic hoses connects to the appropriate set of remote outlets on the tractor. Operate the tractor valve to fill the hydraulic lines and operate the cylinders. Add hydraulic fluid to the tractor system, as required.



# OPERATION

## EMERGENCY SHUTDOWN

In case a foreign object becomes lodged in the expeller or auger area, disengage the PTO. Stop the tractor engine, remove ignition key, and allow all mechanisms to stop before cleaning or working on the machine. If an object is lodged inside the tank, block-up the discharge gate and raise the conveyor auger before attempting to remove the object.



## GENERAL INFORMATION

Check entire Manure Spreader carefully before first operation. Tighten bolts and set screws that might have come loose in shipping. Lubricate as explained in the [Lubrication Chapter](#) in this manual.

The Manure Spreader features a large tank, forward right side discharge expeller, hydraulically controlled discharge gate, and conveyor auger. The Manure Spreader is designed and constructed to handle a wide variety of waste material types including liquids, semi-liquids, and limited solid material. Many potential spreading problems can be avoided if the following guidelines are established and met:

**NOTE:** *To prevent damage to the expeller, auger and drive line, foreign objects, such as stones, timber or metal, should never be placed into the Manure Spreader tank.*

1. In winter or freezing temperatures, make sure the auger and expeller are free to rotate and that the discharge gate moves freely, before loading the Manure Spreader and applying PTO power.
2. The discharge gate must be closed before loading.
3. The auger is completely lowered before loading.
4. When loading packed material into the Manure Spreader with a loader bucket, try to break up any large chunks.
5. Material which is too thick or solid to flow should only be heaped on the rear 2/3 of the Manure Spreader.
6. When hauling extremely heavy materials with a large portion of dirt, it may be necessary to reduce the load size to prevent excessive shear bolt breakage. Do not use extra sideboards. Do not overload the Manure Spreader. Overloading decreases spreading effectiveness.
7. Liquid or semi-liquids that flow will self-level allowing the Manure Spreader to be filled to a level such that sloshing or splashing material will be contained.

**NOTE:** *Expeller feeding will diminish as bridging occurs. To counteract bridging, completely raise, and lower the auger back down immediately. This operation will help to break-up the bridging.*

# OPERATION

## APPLICATION RATE

The side discharge style Manure Spreader features a hydraulically operated discharge gate to control the material flow out of the tank and into the expeller. Several factors influence the rate of discharge and the spread pattern. These factors include: ground speed, type or consistency of discharge material, PTO RPM, and discharge gate opening. Depending on your application requirements and the type of material being spread, a full range of patterns can be obtained. A discharge gate indicator provides a continuous visual display of the gate opening.

## FIELD OPERATION

The Manure Spreader is “direct drive” which begins to operate immediately when the PTO is engaged. Drive disengagement is made by shutting-off the tractor PTO. It is important that the PTO is engaged at low tractor RPM. Shear bolt overload protection on the PTO is provided for both the main auger and the expeller. For proper operation, establish and maintain the proper driveline alignment and tractor hookup. Before loading material, adjust the hitch clevis to your tractor in order to obtain a level or forward attitude of the Manure Spreader tank. Refer to the [Preparing For Operation Chapter](#) for additional details.

If the Manure Spreader is going to be operated in freezing temperatures, review and comply with recommendations in [Winter Operation](#).

## WINTER OPERATION

When loading and spreading material during winter or in freezing temperatures, the following recommendations apply:

1. After the Manure Spreader is unloaded and will not be used for some time, follow the [EMERGENCY SHUTDOWN PROCEDURE](#), then scrape away any solid material remaining on the inside of the tank or Expeller area.
2. Park the Manure Spreader with the auger fully raised, the discharge gate fully raised and blocked. Position the jack height so that liquids will run forward to the discharge opening.
3. Before loading the Manure Spreader again, unblock the discharge gate and engage the expeller to make sure that it is free to rotate. Then, slowly lower the auger to the bottom of the tank and cycle the discharge gate a few times.

**NOTE:** To eliminate freeze-up in the area under the expeller, open the expeller pan by pushing the trip handle forward, the pan will release. Before resuming operation, close the pan.



**NOTE:** The pan can be removed after release of the trip handle by lifting it out of the U-Shaped slots on each side of the pan if freeze-up problems persist in this area.



# OPERATION

## UNLOADING & SPREADING

### Packed Material

To unload and spread packed material and prevent unnecessary stress on the drive line components, observe the following guidelines:

1. Make sure the auger is completely lowered.
2. Engage the tractor PTO at as low an RPM as possible. Then, slowly bring the PTO up to the rated RPM.
3. Raise the discharge gate until it is about 1/3 open.
4. Select the desired tractor gear and begin spreading. To achieve the desired coverage, adjust the discharge gate and/or travel speed.
5. When spreading material which is susceptible to bridging, the auger should be cycled up and down, frequently, to provide a more consistent feeding of material into the expeller.

**NOTE:** Do NOT exceed the 1000 RPM operating speed.

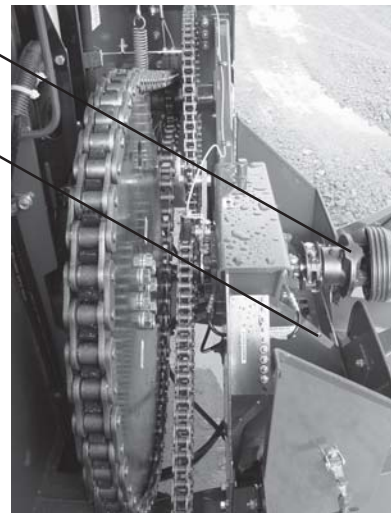
## OVERLOAD PROTECTION

When shear bolt failure is detected, stop all operation and follow the EMERGENCY SHUTDOWN PROCEDURE.

A single 5/16" x 2" grade 8 shear bolt with lock nut on the overrunning clutch of the PTO is used to provide overload protection on the Manure Spreader. Additional shear bolts are stored on the brackets of the gearbox reduction.

The following are probable causes for discharge expeller shear bolt failure:

1. PTO is being engaged while RPM's are too high.
2. A foreign object is present in the expeller.
3. Overfeeding of the expeller due to improper discharge gate adjustment.
4. Gate is being raised when spreading liquid material, before expeller is up to operating speed.



Shields open for viewing

# **OPERATION**

## **DRIVE CHAIN TOLERANCES**

Drive chains must be kept in adjustment within the following tolerances.

Jackshaft Chain Spring Length - 9-3/4" to 10-1/4"

Auger Chain Spring Length - 13-1/2" to 14"

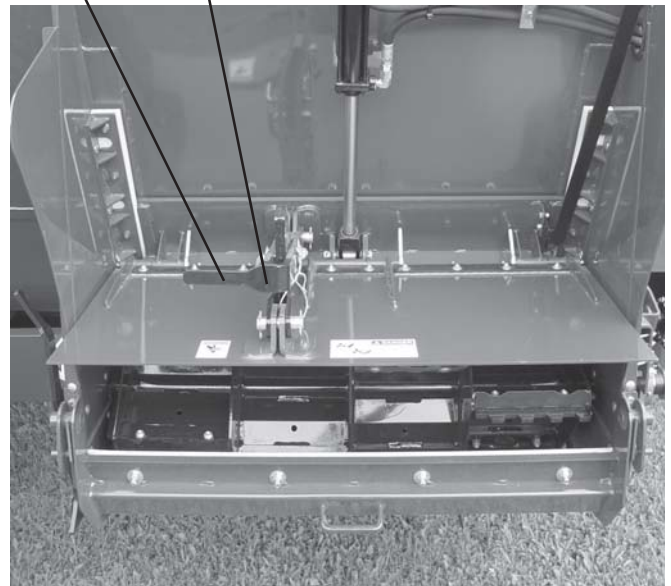
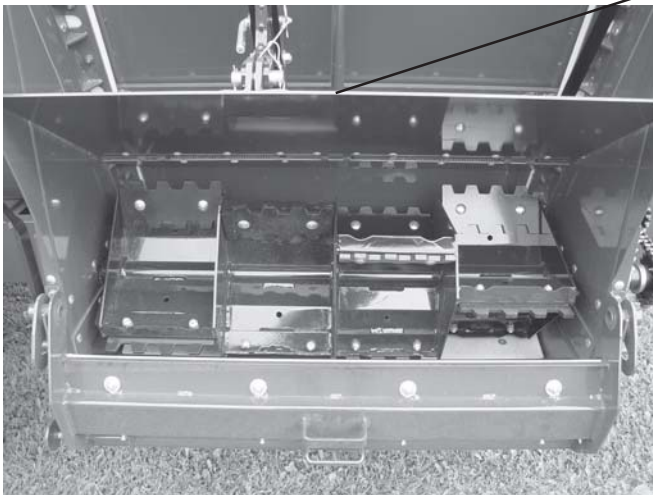
Expeller Drive Chain Deflection - 1/2"-3/4"

## **AUGER & EXPELLER SPEED OPTIONS**

The Manure Spreader is factory equipped with drive components selected to provide the best possible performance for processing basic material and manure types available. In certain materials, conveying and spreading performance can be improved by altering the speeds of the auger, the expeller, or both.

## **ADJUSTABLE EXPELLER SHIELD**

The Manure Spreader has a multi-position manual adjust expeller shield to direct material and provide the best possible performance for delivery of material.



# OPERATION

## CONTROLS & SAFETY EQUIPMENT

The Manure Spreader is provided with several features for operator safety and convenience.

### GUARDS & SHIELDS

Whenever possible and without affecting the operation of the Manure Spreader, guards, shields and/or hinged shields have been used on this equipment to protect potentially hazardous areas. In many places, decals are also provided to warn of potential dangers as well as to display special operation procedures.



### AUGER CONTROL

The Manure Spreader has a hydraulically controlled raise/lower main auger to overcome material bridging when unloading hard-packed waste material. The auger can be hydraulically raised from the tractor seat, as necessary. An auger height indicator, visible from the tractor seat, allows the operator to monitor the auger height. When the unit is parked overnight in freezing temperatures, hydraulically raise the main auger to prevent the auger from freezing against the bottom of the tank.



### DISCHARGE GATE CONTROL

The Manure Spreader has a hydraulically controlled discharge gate with indicator to regulate the amount of material being discharged. In freezing temperatures, leave the discharge gate partially opened when the unit is parked overnight, to prevent the gate from freezing against the bottom of the opening. A discharge gate height indicator, visible from the tractor seat allows the operator to monitor the gate opening.



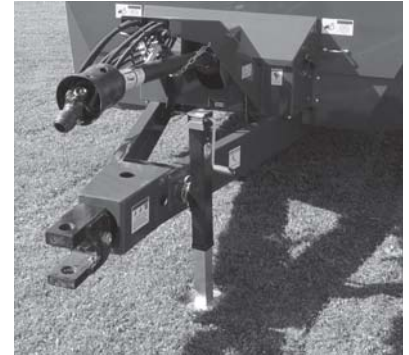
# OPERATION

## HITCHJACK

A jack is furnished with the Manure Spreader to support the machine when the tractor is disconnected and to adjust the hitch clevis to the tractor drawbar for hookup. The jack should never be used to support a loaded Manure Spreader.



When the jack is not being used to support the Manure Spreader, it should be relocated to the “storage” position located on the left side of the Manure Spreader as shown.



## SAFETY CHAIN

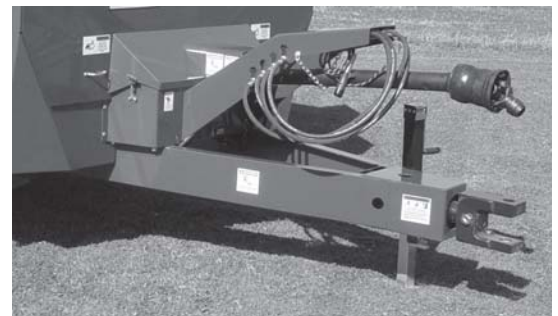
As required or when desired, the Manure Spreader should be equipped with a safety chain for transporting the unit on a public highway. Refer to the Transport Chapter for details.

## TELESCOPING PTO DRIVE

The telescoping PTO drive is designed to rotate freely inside the drive shield tubes.

The telescoping PTO drive is provided with a spring-loaded locking collar on one end to positively lock the drive connection onto the tractor PTO shaft. Depress the locking collar, against the spring tension, and slide the yoke onto tractor PTO shaft. Release the locking collar and move the yoke ahead or back until the lock engages into the groove on the shaft.

**NOTE:** *When the spreader is not attached to the tractor, the PTO Drive can be conveniently supported by the chain provided as shown. This position is used only when the Manure Spreader is NOT in operation. Never transport the Manure Spreader with the PTO in this position.*



## TRANSPORT LIGHTING

Connect the transport lighting cord that is standard equipment to the lighting system 7 pin power receptacle (per SAEJ560B) on your tractor. If your tractor is not equipped with the proper receptacle, see your tractor dealer for details.



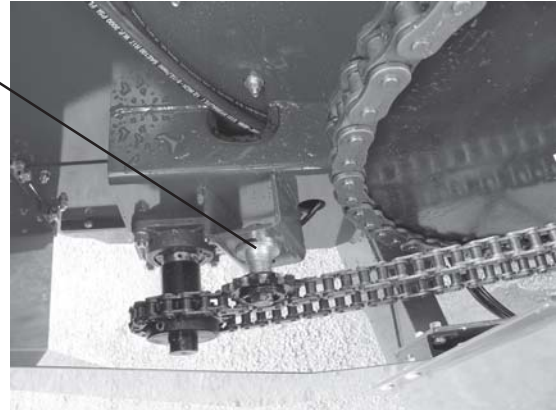
# ADJUSTMENTS

## DRIVE CHAIN IDLERS

### Expeller Drive Chain Idler

The expeller drive chain is tensioned with an adjustable sprocket Idler. The chain is properly tensioned when the chain can be deflected 1/2" to 3/4" (13-19 mm) with hand pressure.

**NOTE:** *If an Idler fails to maintain proper tension, replace the worn chain.*



Shield open for viewing

### Auger Drive Chain Idlers

The jackshaft and auger drive chain tighteners are spring loaded.

Use the eye bolt adjustment to achieve a spring length of 9-3/4" to 10-1/4" on the initial reduction auger drive chain.

The auger final drive chain tension device uses an eye bolt, and S-hook to accomplish adjustment. With the auger in its lowest position, use the eye bolt to achieve a spring length of 13-1/2" to 14" on the final drive chain for obtaining the specified tension.

**NOTE:** *If an Idler fails to maintain proper tension, replace the worn chain.*



Shield open for viewing

# ADJUSTMENTS

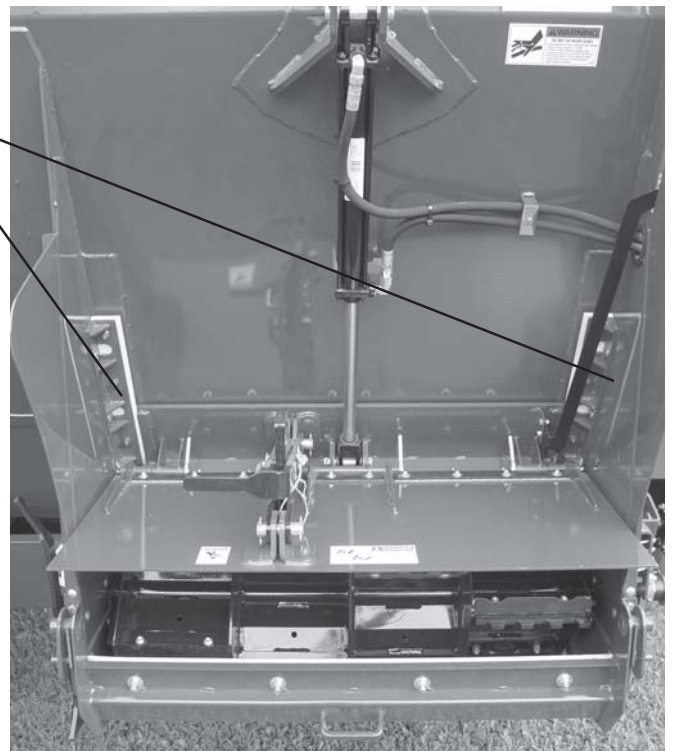
## FRONT & REAR AUGER SLIDES

The front and rear auger slide assemblies are retained by adjustment plates with diagonal slots. To adjust, loosen retaining hardware and drive the plates downward with a hammer until the slide assembly is snug against the tank, then re-tighten the retaining hardware. Grease the slide assembly to ensure a leak free seal.



## DISCHARGE GATE

The discharge gate is retained by adjustable angles that secure the gate to the tank through diagonal slots. To adjust, loosen retaining hardware and drive the angles downward with a hammer until the discharge gate is snug against the tank, then re-tighten the retaining hardware. Grease the discharge gate to ensure a leak free seal.



# SERVICE

## EXPELLER

Periodically inspect the expeller teeth for wear or damage. Damaged, broken, or missing expeller teeth will cause excessive machine vibration. Consult with your local Frontier dealer for additional ordering information.

## AUGER & EXPELLER SPEED OPTIONS

The expeller input drive sprocket can be changed by raising the auger and then removing the indicated sprocket which is retained by a snap ring and set screws.

The auger input drive sprocket change requires removal and disassembly of input shaft.

**NOTE:** *When making sprocket changes, some chain length modifications may be required depending on the condition of the chain and size of the sprocket installed.*

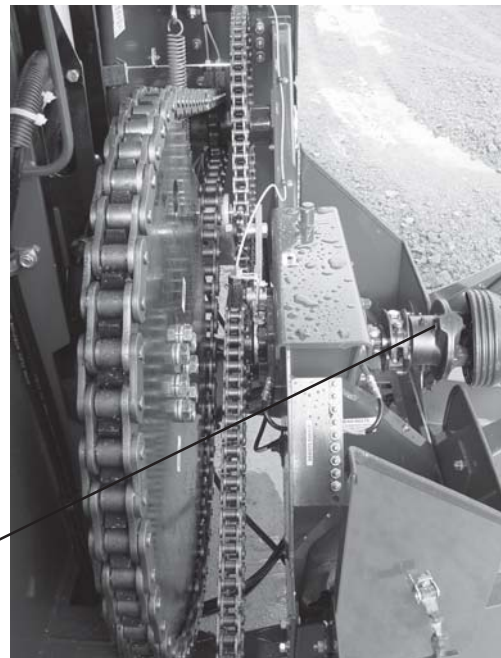
## OVERLOAD PROTECTION

When shear bolt failure is detected, stop all operation and follow the EMERGENCY SHUTDOWN PROCEDURE.

A single 5/16" x 2" grade 8 shear bolt with lock nut on the overrunning clutch of the PTO is used to provide overload protection to the Manure Spreader. Additional shear bolts are stored on the brackets of the gearbox reduction.

If the auger jackshaft bolts shear, proceed as follows:

1. Disengage the PTO.
2. If an object is lodged in the discharge door opening or inside the tank, raise the discharge door, then raise the main auger.
3. Shut-off tractor and remove key.
4. Open the main shield.
5. Remove any pieces of the shear bolt that may be still in the PTO shear device.
6. Trip the expeller pan to clear any material or objects.
7. Remove any foreign objects from the discharge door opening or inside the tank
8. Replace the shear bolt using the 5/16" x 2" grade 8 shear bolt stored on the brackets of the gearbox reduction.
9. Close the main shield and resume operation.



Shield open for viewing

**IMPORTANT:** *When resuming operation, place the tractor throttle at idle before engaging the PTO.*

**NOTE:** *A plain (standard) bolt will shear through the threads if used in this application. Shearing MUST take place through the shank of the bolt for proper operation.*

# SERVICE

## TIRES & WHEELS

Check the tire pressure after every 50 hours of operation. Tires should be inflated to the appropriate pressure listed in the table.

<u>Tire</u>	<u>Pressure</u>
21.5L x 16.1 – 18 Ply	44
445/65R22.5	85
49x19x20	80
700/50x22.5	41

Wheel lug torque should be checked after every 50 hours of operation and tightened to the appropriate torque.

- **Wheel bolts must be tightened between 375-425 ft/lbs. of torque.**

## **OPTIONAL FEATURES & ACCESSORIES**

**NOTE:** The optional features & accessories listed in this chapter, are shipped with separate instruction for installation, as applicable.

### **AUGER SPEED OPTIONS**

Several different drive sprockets are available to change auger speeds to various spreading needs. Sprockets are available as service parts.

### **EXPELLER SPEED OPTIONS**

Several different drive sprockets are available to change expeller speeds to various spreading needs. Sprockets are available as service parts.

### **SAFETY CHAINS**

An appropriate-sized safety chain, to accommodate the potential weight of the loaded Manure Spreader, is available.

## **ELECTRONIC SCALES & COMPONENTS**

### **Model: Digi-Star GT400**

An optional factory installed Digi-Star GT400 scale is available for accurate weight measurement for each load spread. The 5-point weighbar system features 3 modes, Net, Tare and Gross.



### **Model: Digi-Star NT460**

An optional factory installed Digi-Star NT460 scale system is available for accurate weight measurement and displaying actual tons per acre. The Indicator has GPS capability and stores pounds of manure spread on individual fields.



# LUBRICATION

Become familiar with all lubrication points and establish a routine to ensure complete lubrication of the Manure Spreader.

## GENERAL INFORMATION

**IMPORTANT:** *Catch and dispose of fluid per local waste disposal regulations whenever service is performed on hydraulic components, valves, cylinders, hoses, etc.*

## PTO ASSEMBLY

Keep the male and female shafts of the PTO 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 the main shaft bearings. Never lubricate the shield surfaces. The shield surfaces must be kept dry, as dirt accumulation on them will cause the shields to bind and not rotate. Dented or damaged PTO shields, will also result in excessive force being applied against the jackshaft. Damaged shields also cause difficulty when installing the assembly. If at any time the shields do not turn freely, they should be checked to determine the cause, and repaired or cleaned. To avoid damage to the main drive bearings, avoid turning sharp corners while PTO is running. Start and Stop PTO slowly to avoid damage to the drive line.

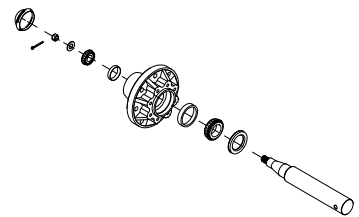


## WHEEL BEARING LUBRICATION, CLEAN & RE-PACK INSTRUCTIONS

**Grease wheel bearings as needed depending on amount of travel.**

Wheel hubs are equipped with a grease zerk for regular maintenance.

Annually disassemble and clean parts in a solvent. Pack bearings with a high grade grease. Reassemble, and tighten nut until a slight drag is felt when wheel is turned. Back nut off and insert cotter pin into first hole that you see as you back the nut off, bend cotter pin over and re-install cap.



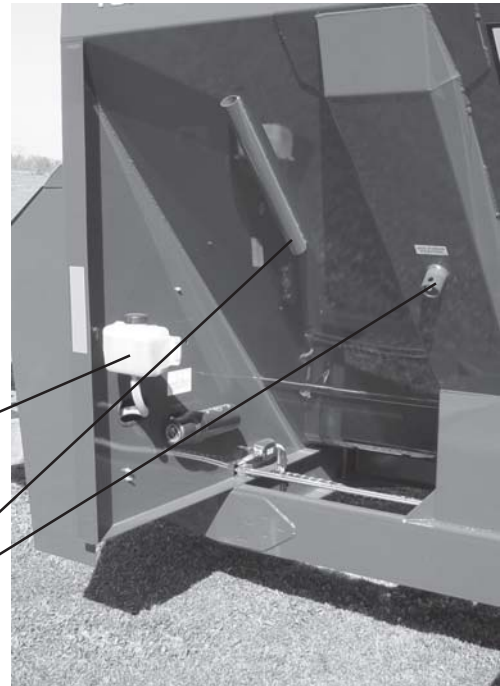
# LUBRICATION

## DRIVE CHAINS

The drive chains are lubricated by a automatic chain oiler. Any time that the discharge door is raised, a specified amount of oil is sent to the brushes on each of the chains. The oiler is adjustable to set the amount that is being discharged. This will extend the life of the drive chains. Keeping the chains aligned with sprockets will also lengthen the life of the sprockets and drive chains.

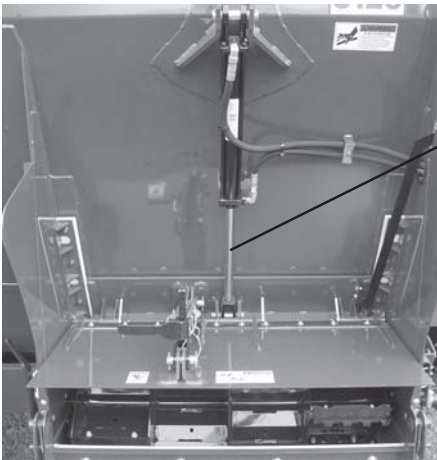


Oiler brushes on all chains.



The oiler reservoir is located on the left front side by the scraper holder and jack storage position.

## CYLINDERS



The discharge gate control cylinder shaft and both front and rear main auger cylinders should also be frequently coated with a rust preventative spray or lubricate since the cylinder shaft may remain extended when not being used for a period of time.





# LUBRICATION

## GREASING

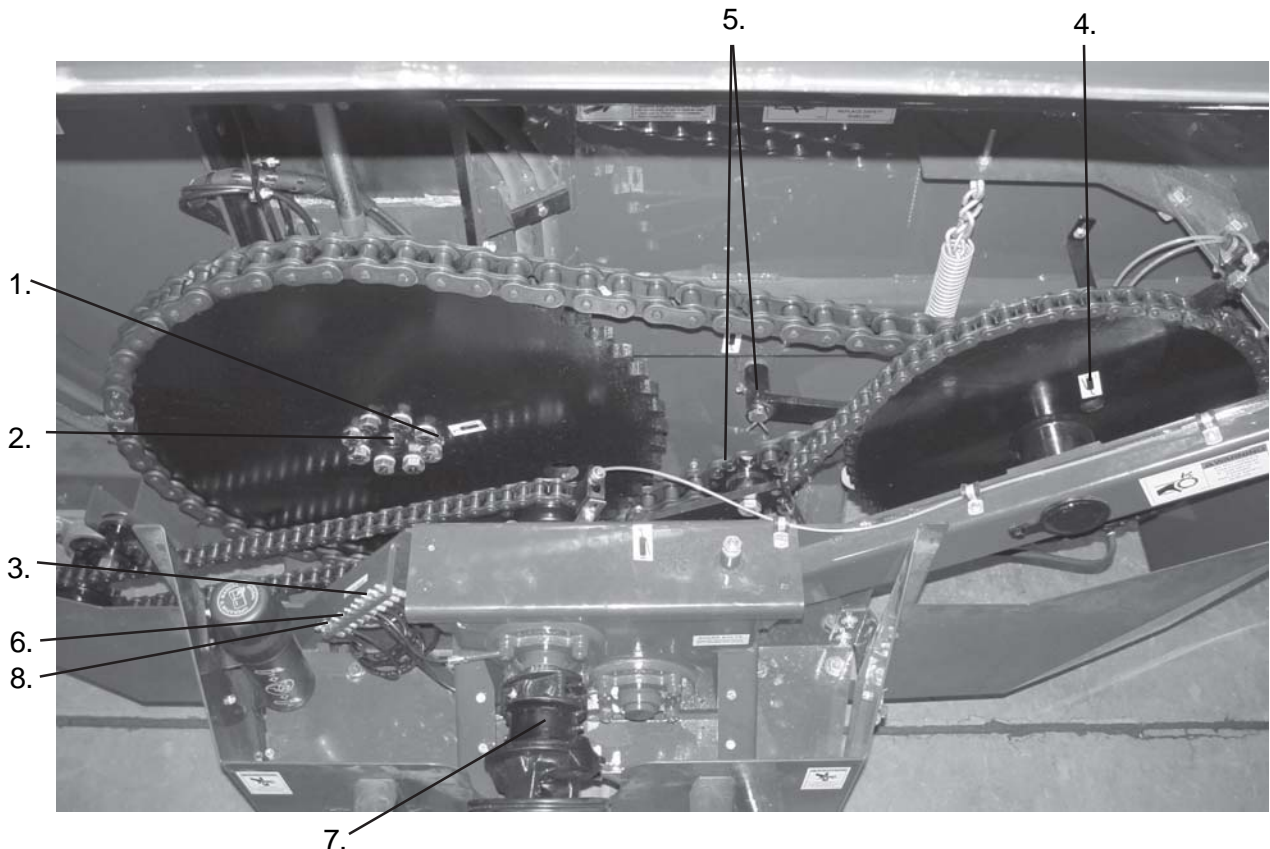
There are numerous grease fittings on the Manure Spreader. Lubricated properly and often with a high-quality grease, will prolong the life of the spreader. Replace any missing or plugged grease fittings.

Wipe dirt from the fittings before greasing to prevent the dirt from being forced into the bearing or pivot. Grease should come out around the shaft on sleeve type bearings. To minimize dirt build-up, avoid excessive greasing. After greasing, wipe off the excess grease from around the outside of the bearings to prevent the accumulation of chaff and grit.

*NOTE: Grease all fittings at the intervals of operation listed, before and after storing the Manure Spreader. Use a good grade of Lithium-base grease.*

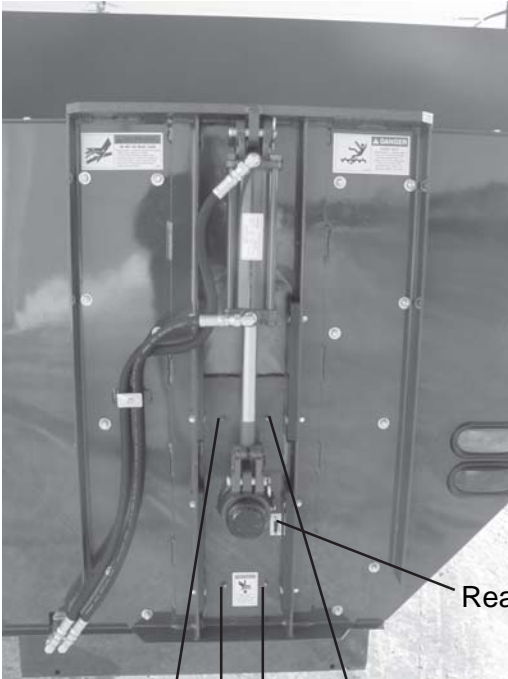
## Grease Fitting Locations - Grease Every 10 Hours (or Daily)

1. Main Auger Thrust Washer
2. Main Auger Front Bearing
3. Front Auger Slide Plate (4 Remote Zerks)
4. Auger Jackshaft (Zerk in Sprocket Hole)
5. 2 Idler Arms (1 Zerk on each)
6. Gearbox Bearings (4 Remote Zerks)
7. Over-Running Clutch (2 Places)
8. Front Expeller Bearing (1 Remote Zerk)



# LUBRICATION

## Grease Fitting Locations - Grease Every 10 Hours (or Daily)



Rear Auger Bearing

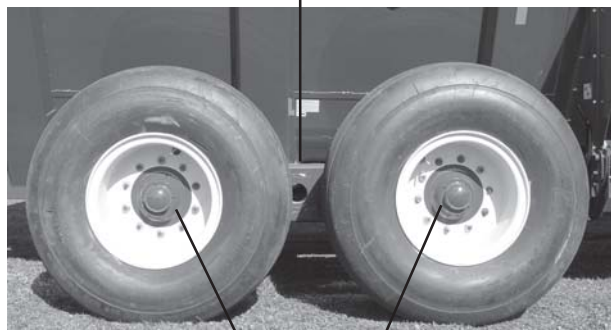
Rear Auger Slide Plate (4 Zerks)



Rear Expeller Bearing

Expeller Pan Release Pivot

Wheel Pivot (Each Side)



Axle Hubs

PTO Shaft - As required by Manufacturer

**LUBRICATION REQUIREMENTS**

<u>INTERVAL</u>	<u>LOCATION</u>	<u>AMOUNT</u>
8 HRS.*	CROSS & BEARINGS	1-PUMP
8 HRS.	TELESCOPING MEMBERS	4-8 PUMPS
8 HRS.	C.V. BALL & SOCKET	1-2 PUMPS
24 HRS.	C.V. CENTER HOUSING	4-PUMPS

## **TROUBLESHOOTING**

**NOTE:** This *Troubleshooting* Chapter presents problems, causes and suggested remedies beyond the extent of loose, worn or missing parts and it was developed with the understanding that the machine is in otherwise good operating condition.

<b>PROBLEM</b>	<b>CAUSE</b>	<b>REMEDY</b>
1.) Material NOT discharging from expeller	Discharge gate is NOT open.  Expeller is NOT operating.  Expeller is obstructed.  Auger is NOT turning.	Open gate.  See item #3  Activate gate to free obstruction  See item #2
2.) Auger will not turn	Shear bolts are sheared.  Drive chain not on sprocket.	Replace shear bolts.  Reinstall/replace chain. Sprockets MUST be properly aligned.
3.) Expeller not turning	Shear bolts have sheared.  Drive chain not on sprocket.	Replace shear bolts  Reinstall/replace chain.
4.) Chains are jumping drive sprocket teeth	Inadequate chain tension.  Sprocket teeth or chains excessively worn.	Adjust chain tension. See details in <u>Adjustments Chapter</u> .  Replace sprocket or chain.
5.) Excessive chain and/or sprocket wear.	Sprockets are NOT properly aligned.  Improper shear bolts being used.  Inadequate chain tension.	Re-align sprockets.  Install proper shear bolts listed in <u>Operations Chapter</u> .  See item #6
6.) Drive chain(s) will NOT stay properly tensioned.	Tensioner spring(s) NOT properly adjusted.  Idler pivot arm(s) binding.  Tensioner spring(s) broken or stretched.	Adjust tensioner spring(s).  Lubricate idler arm(s) to pivot freely.  Replace spring(s).
7.) Uniformity of spread or discharge rate not acceptable	Difficult to spread material.	Change expeller or auger speed sprockets.

# DECAL PLACEMENT

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

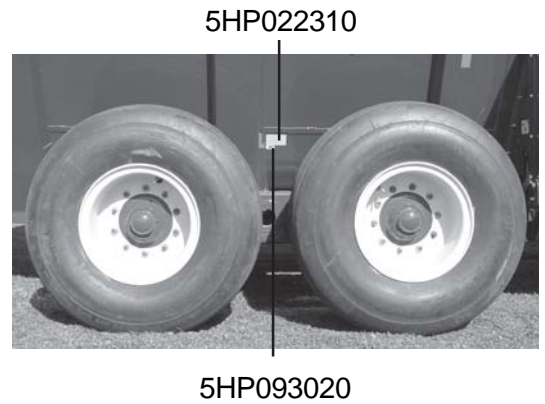
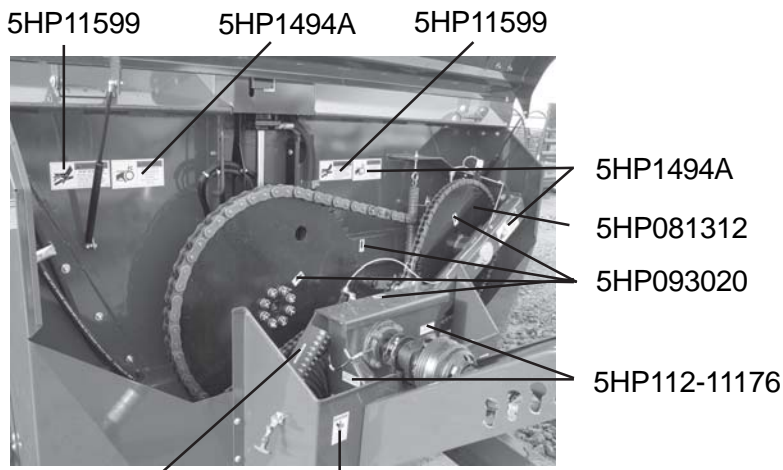
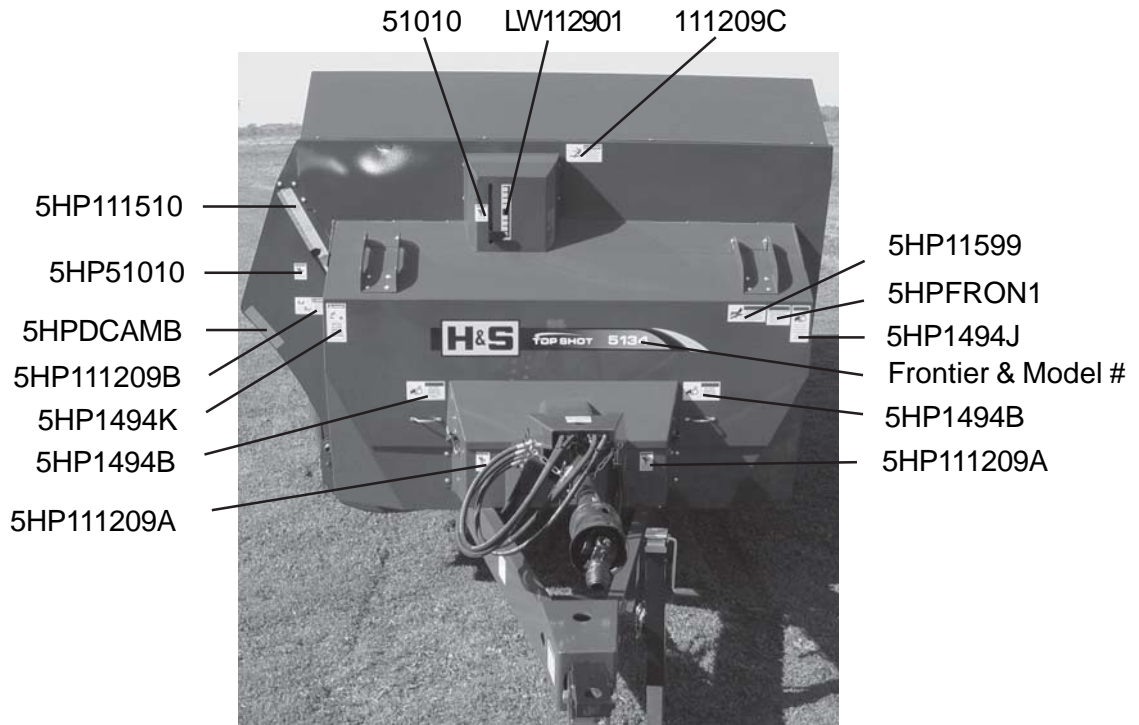


**DO NOT REMOVE ANY OF THESE DECALS. IF DECALS ARE LOST, DAMAGED, OR IF YOUR MANURE SPREADER IS REPAINTED, REPLACE DECALS. REMEMBER: DECALS ARE FOR YOUR PROTECTION AND SAFETY.**

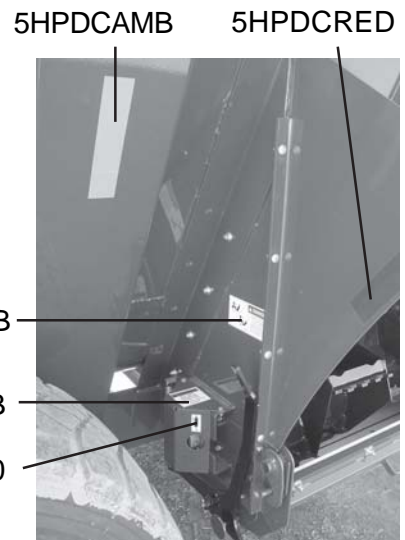
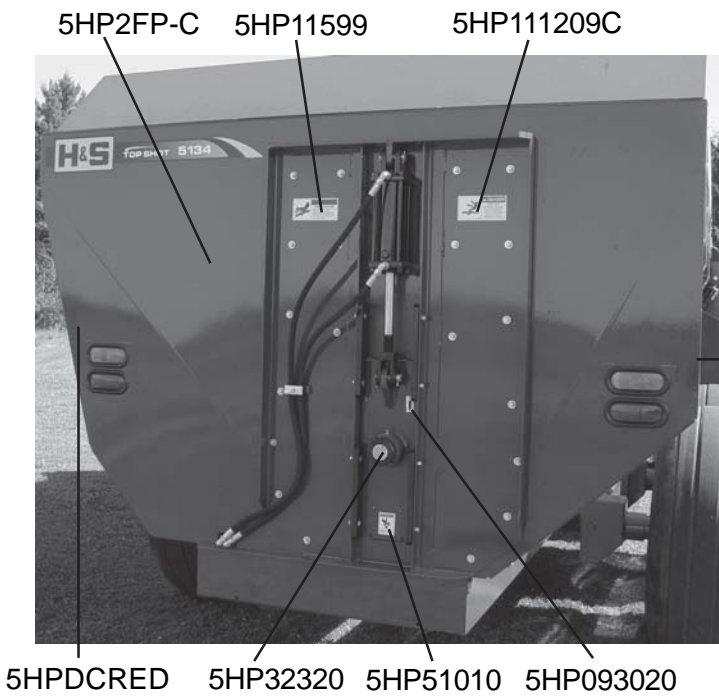
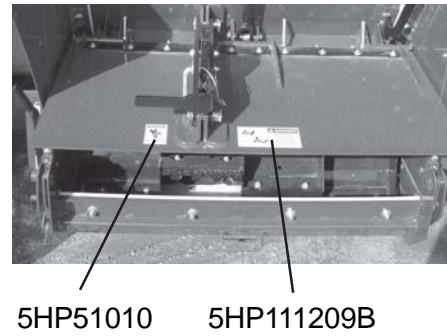
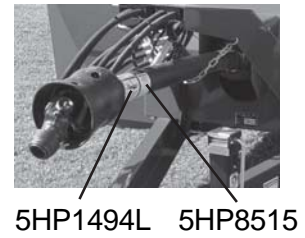
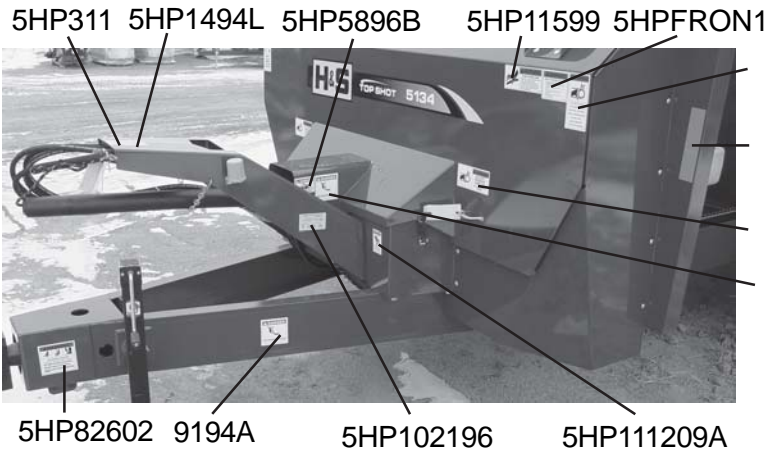
Listed below are the decals on your Manure Spreader. These decals may be ordered individually by part number, or by ordering as a complete set.

<u>Part #</u>	<u>Quantity</u>	<u>Description</u>
5HP1494A	3	Do not operate this machine if this decal is exposed. Replace safety shields
5HP1494B	2	Do not remove shields - moving parts inside
5HP1494J	1	Do not clean or work on the machine without first disengaging power
5FP1494K	1	Do not remove shields - moving parts inside
5HP1494L	2	Rotating driveline
5HP3494A	1	Remote Grease Decal
5HP5896B	2	Rotating driveline
5HP9194A	4	No step - stay clear
5HP11210B	1	Do not remove shields
5HP11599	4	Do not go near leaks
5HP51010	4	Pinch Point
5HP72203A	1	Help avoid injury - Read and understand the operators manual
5HP82602	2	Crushing Hazard
5HP093366	1	Operators Manual
5HP102196	1	Lube-CV Joint
5HP111209A	2	Pinch Point
5HP111209B	3	Stay clear of expeller when rotating or if tractor is running
5HP111209C	4	Keep Out - Disengage all power and shut off tractor engine
5HP111510	1	Discharge gate opening decal
5HP112-11176	2	Shear Bolts - Remove broken shear bolt before replacing
5HP093020	8	Grease zerk decal
5HP71188B	1	Jack Storage Position
5HP022310	2	Attention - Wheel Torque
5HPLW112901	1	Auger Height Indicator Decal
5HP311	1	Patent Decal
5HP32320	1	Spiral Decal for Main Auger Shaft-Rear
5HP8515	1	Degree of Angle Decal-PTO Shaft
5HPDCAMB	6	Amber Reflector
5HPDCRED	3	Red Reflector
5HP2FP-C	1	SMV Decal
5HP081312	1	Located Behind Sprocket

# DECAL PLACEMENT



# DECAL PLACEMENT



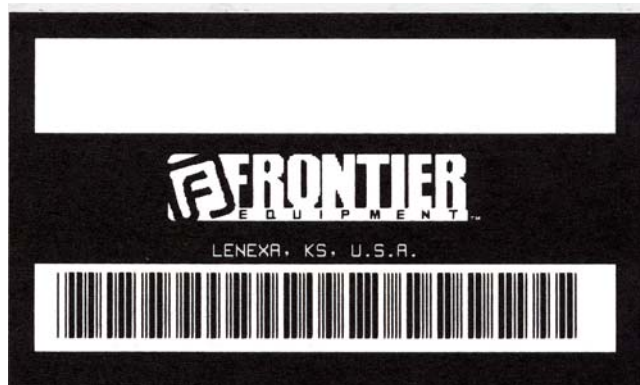
# **INSTRUCTIONS FOR ORDERING PARTS**

All service parts should be ordered through your authorized Frontier dealer. They will be able to give you faster service if you will provide them with the following

1. Model & Serial number is located on the main frame.
2. All reference to left or right apply to the Manure Spreader 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)



PLEASE RECORD NUMBERS FOR YOUR UNIT FOR QUICK REFERENCE

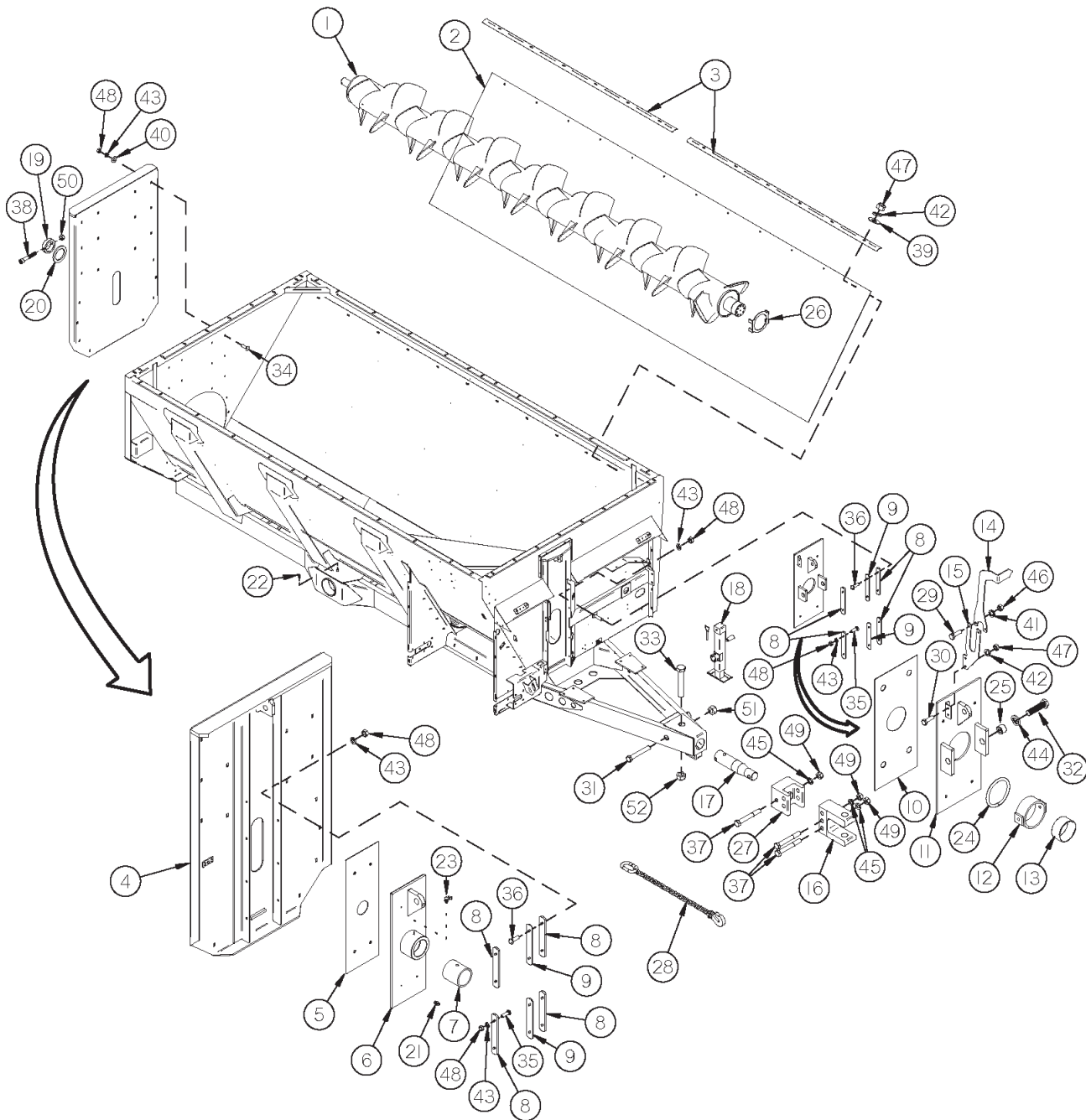
## **ABOUT IMPROVEMENTS**

FRONTIER IS CONTINUALLY STRIVING TO IMPROVE IT'S PRODUCTS

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

# FIGURE 1

## AUGER/LINER/SLIDES/HITCH





# FIGURE 1

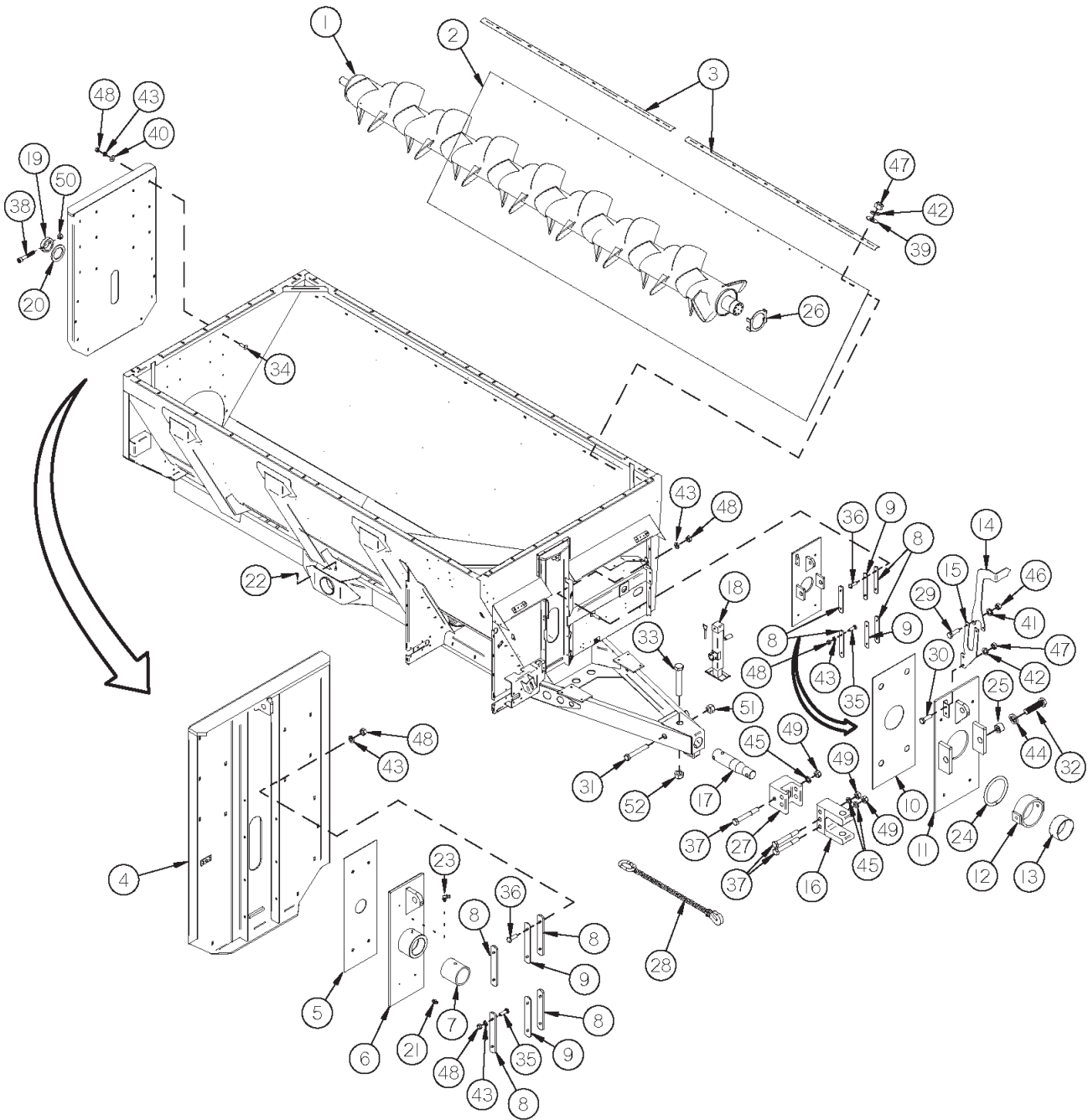
## AUGER/LINER/SLIDES/HITCH

<u>ITEM</u>	<u>QTY</u>	<u>PART #</u>	<u>DESCRIPTION</u>
1	1	5HPTS200	AUGER
2	1	5HPTS201	TUB SIDE POLY
3	1	5HPTS4	POLY TOP HOLD DOWN
4	1	5HPTS202	BACK PANEL
5	1	5HPTS7	BACK SLIDER POLY
6	1	5HPTS8	BACK SLIDER
7	1	5HPTS9	REAR AUGER BUSHING
8	8	5HPTS10	SLIDER GUIDE
9	6	5HPTS308	SLIDER GUIDE THIN
10	1	5HPTS203	FRONT POLY SLIDE
11	1	5HPTS204	FRONT SLIDE PLATE
12	1	5HPTS205	TRUNNION HOUSING
13	1	5HPTS206	FRONT AUGER BEARING
*	1	5HPTS400	TRUNNION HOUSING WITH BEARING
14	1	5HPTS207	AUGER INDICATOR TOP
15	1	5HPTS208	AUGER INDICATOR BOTTOM
16	1	5HP56310	TOPSHOT HEAVY CLEVIS
17	1	5HPTS210	HITCH BAR STRAIGHT
18	1	5HPTS306	JACK, SIDE WIND, 7000LBS
19	1	5HPTS19	AUGER BACK COLLAR
20	A/R	5HPTS227	SPACER 2-17/32" (THICK)
*	A/R	5HPTS28	SPACER 2-17/32" (THIN)
21	4	5HPG89	1/4" GREASE ZERK
22	1	5HPDWM133	1/8" 45° ZERK (RIGHT SIDE AXLE)
*	1	5HP16SV440	1/8" NPT GREASE ZERK (LEFT SIDE AXLE)
23	1	5HPRG51	GREASE ZERK 90 DEGREE
24	1	5HPTS229	6" RUBBER RING
25	2	5HPTS230	BUSHING 3/4" X 7/8"

**NOTE: \* MEANS NOT SHOWN  
A/R: MEANS AS REQUIRED**

# FIGURE 1

## AUGER/LINER/SLIDES/HITCH

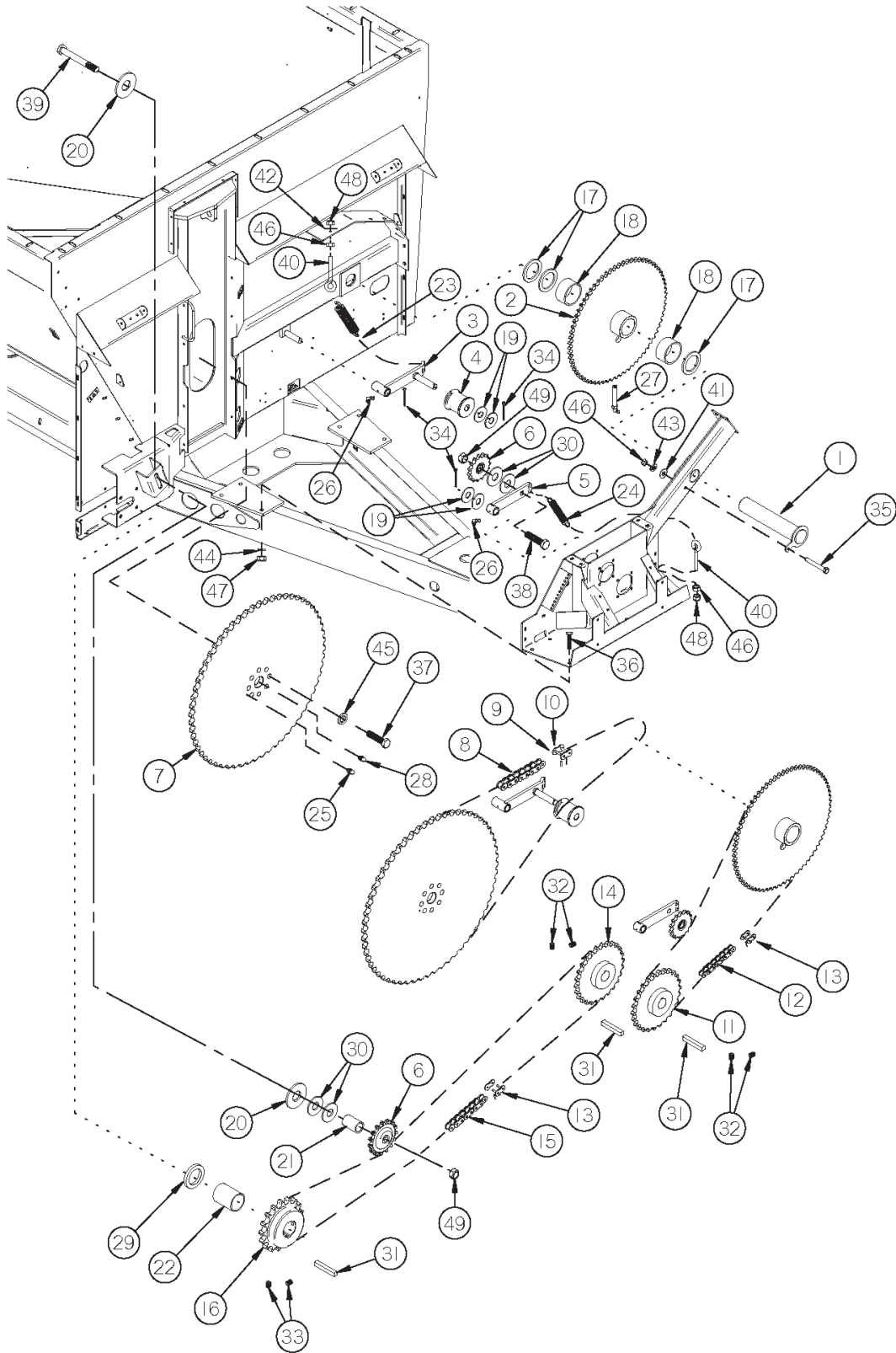


# FIGURE 1

## AUGER/LINER/SLIDES/HITCH

<u>ITEM</u>	<u>QTY</u>	<u>PART#</u>	<u>DESCRIPTION</u>
25	2	5HPTS230	BUSHING 3/4" X 7/8"
26	1	5HPTS320	WEAR PLATE 6 INCH
27	1	5HPAPX3HF41	HITCH ADAPTER
28	1	5HPSC60000	#60000 SAFETY CHAIN (OPTIONAL)
29	2	5HPYBHH08100	BOLT, 1/4" X 3/4" GR. 5
30	2	5HPYBHH10105	BOLT, 5/16" X 3/4" GR. 5
31	1	5HPYBHH20101	BOLT, HEX HEAD, 5/8" X 6" GR. 8
32	2	5HPYBHH24018	BOLT, HEX HEAD, 3/4"-10 X 2" GR. 8, YELLOW ZINC FINISH
33	1	5HPYBHH32026	BOLT, HEX HEAD, 1" X 6" GR. 8
34	20	5HPYBCR12010	CARR. BOLT, 3/8" X 1" GR. 5
35	8	5HPYBCR12020	CARR. BOLT, 3/8" X 1-1/4" GR. 5
36	8	5HPYBCR12015	CARR. BOLT, 3/8" X 1-1/2" GR. 5
37	3	5HPYBHH32024	BOLT, HEX HEAD, 1"-8 X 7-1/2" GR. 8
38	1	5HPYSHS12018	SOCKET HEAD CAP SCREW, 3/8" X 4"
39	12	5HPYWFL10005	WASHER, FLAT, 5/16" USS
40	20	5HPYWFL12005	WASHER, FLAT, 3/8" USS
41	2	5HPYWLO08005	WASHER, LOCK, 1/4"
42	14	5HPYWLO10005	WASHER, LOCK, 5/16"
43	36	5HPYWLO12005	WASHER, LOCK, 3/8"
44	2	5HPYWLO24005	WASHER, LOCK, 3/4"
45	3	5HPYWLO32005	WASHER, LOCK, 1"
46	2	5HPYNHX08005	HEX NUT, 1/4"-20
47	14	5HPYNHX10005	HEX NUT, 5/16"
48	36	5HPYNHX12005	HEX NUT, 3/8"-16
49	3	5HPYNHX32015	HEX NUT, 1"-8 GR. 8
50	1	5HPYNL12005	HEX NUT, TOP LOCK, 3/8"-16
51	1	5HPYNRL20005	HEX NUT, REVERSIBLE-SIDE LOCK, 5/8"-11
52	1	5HPYNRL32005	HEX NUT, REVERSIBLE-SIDE LOCK, 1"-8

**FIGURE 2**  
**AUGER & EXPELLER DRIVE**



## FIGURE 2

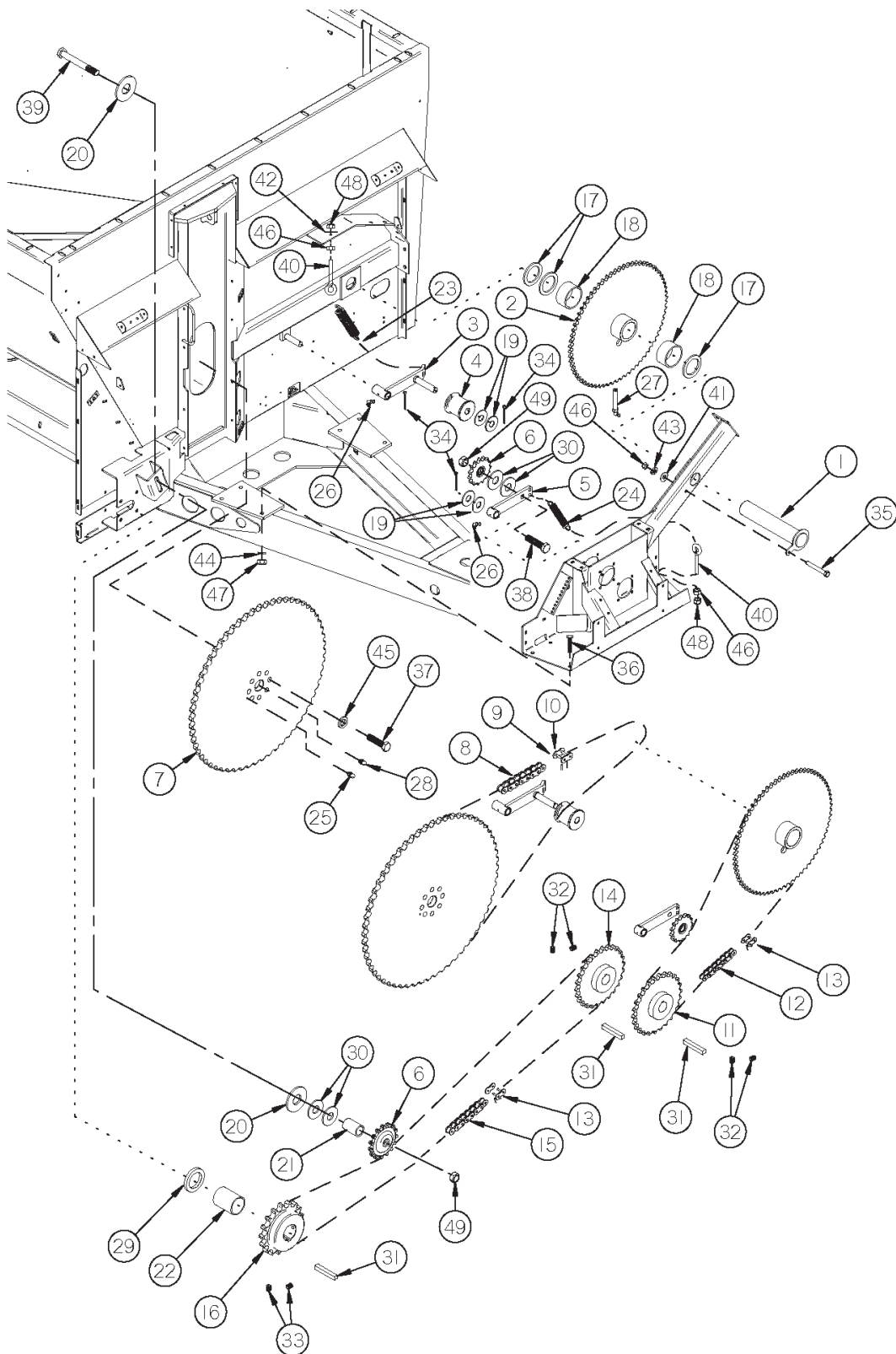
### AUGER & EXPELLER DRIVE

<u>ITEM</u>	<u>QTY</u>	<u>PART #</u>	<u>DESCRIPTION</u>
1	1	5HPTS211	COUNTER SHAFT
2	1	5HPTS212	COUNTER SHAFT REDUCTION
3	1	5HPTS213	AUGER CHAIN TENSIONER
4	1	5HPTS25	ROLLER IDLER
5	1	5HPTS214	CHAIN TENSIONER
6	2	5HP16SV328	SPROCKET/IDLER ASSY
7	1	5HPTS217	SPROCKET 140-B-54
8	1	5HPTS218	CHAIN/ROLLER #140HE X 77
9	1	5HPTS219	LINK/OFFSET (#140HE)
10	1	5HPTS220	LINK/CONNECTOR (#140HE)
11	1	5HPTS221	SPROCKET/DRIVE #80X14T (STANDARD)
*	1	5HPTS372	SPROCKET/DRIVE #80X12T (OPTIONAL)
*	1	5HPTS373	SPROCKET/DRIVE #80X15T (OPTIONAL)
*	1	5HPTS374	SPROCKET/DRIVE #80X16T (OPTIONAL)
12	1	5HPTS222	CHAIN/ROLLER #80HE X 98 (14T & 15T SPROCKETS)
*	1	5HPTS375	CHAIN/ROLLER #80HE X 97 (12T SPROCKET)
*	1	5HPTS376	CHAIN/ROLLER #80HE X 99 (16T SPROCKET)
13	2	5HPTS223	LINK/CONNECTOR (#80HE)
14	1	5HPTS224	SPROCKET #80X16T (STANDARD)
*	1	5HPTS377	SPROCKET #80X12T (OPTIONAL)
*	1	5HPTS221	SPROCKET #80X14T (OPTIONAL)
15	1	5HPTS225	CHAIN/ROLLER #80HE X 84 (16T SPROCKET)
*	1	5HPTS379	CHAIN/ROLLER #80HE X 82 (12T SPROCKET)
*	1	5HPTS380	CHAIN/ROLLER #80HE X 83 (14T SPROCKET)
16	1	5HPTS226	SPROCKET/80-B-17
17	A/R	5HPTS227	SPACER 2-17/32" (THICK)
*	A/R	5HPTS28	SPACER 2-17/32" (THIN)
18	2	5HPTS228	BRONZE BUSHING
19	4	5HPS345	1" SPACER
20	2	5HP16SV376	SPACER .780 ID

**NOTE: \* MEANS NOT SHOWN  
A/R: MEANS AS REQUIRED**

# FIGURE 2

## AUGER & EXPELLER DRIVE



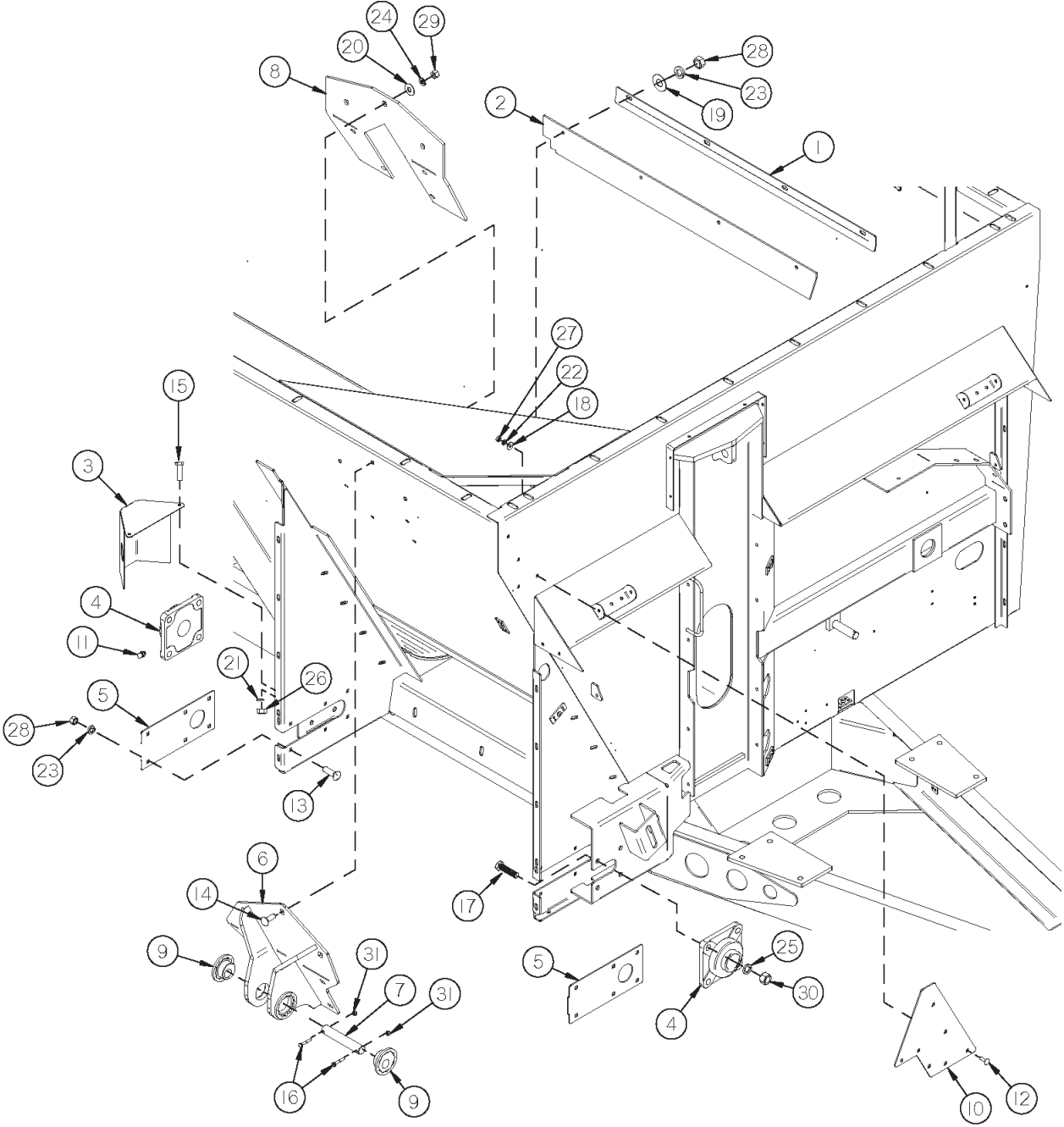
## FIGURE 2

### AUGER & EXPELLER DRIVE

<u>ITEM</u>	<u>QTY</u>	<u>PART#</u>	<u>DESCRIPTION</u>
21	1	5HPTS230	BUSHING 3/4" X 7/8"
22	1	5HPTS231	SPACER
23	1	5HPBFR138	SPRING
24	1	5HP10R14	SPRING/EXTENSION
25	1	5HPG89	GREASE ZERK
26	2	5HPRG51	GREASE ZERK 90 DEGREE
27	1	5HPZK90	ZERK, 90 DEGREE, 1-13/16" X 1/8" PIPE THREAD
28	1	5HPBFR28	1/8" NPT GREASE ZERK #1610 (LEFT SIDE AXLE)
29	A/R	5HPS36	SHIM, 3/16"
*	A/R	5HPS409	SHIM, 1/8"
30	4	5HPT73	WASHER
31	3	5HPG139	3/8" X 1-1/2" SQ. KEY
32	4	5HPYSKP12025	SET SCREW, SOCKET, KNURLED CUP PT, 3/8"-16 X 3/8"
33	2	5HPYSKP12010	SET SCREW, SOCKET, KNURLED CUP PT, 3/8"-16 X 1/2"
34	3	5HPYPCT05010	COTTER PIN, 5/32" X 1-1/2"
35	1	5HPYBHH12110	BOLT, 3/8" X 2-3/4" GR. 5
36	6	5HPYBHH20010	BOLT, 5/8" X 1-1/2" GR. 5
37	8	5HPYBHH24041	BOLT, HEX HEAD, 3/4" X 2-3/4" GR. 8
38	1	5HPYBHH24050	BOLT, 3/4" X 3" GR. 5
39	1	5HPYBHH24055	BOLT, 3/4" X 3-1/2" GR. 5
40	2	5HPYBTE12025	TURNTD EYE BOLT, 3/8" X 3" FULL THREAD
41	1	5HPYWFL10005	WASHER, FLAT, 5/16" USS
42	1	5HPYWFL12005	WASHER, FLAT, 3/8" USS
43	1	5HPYWLO12005	WASHER, LOCK, 3/8"
44	6	5HPYWLO20005	WASHER, LOCK, 5/8"
45	8	5HPYWLO24005	WASHER, LOCK, 3/4"
46	3	5HPYNHX12005	HEX NUT, 3/8"-16
47	6	5HPYNHX20005	HEX NUT, 5/8"-11
48	2	5HPYNKY12005	HEX NUT, NYLON LOCKNUT, 3/8"
49	2	5HPYNRL24005	HEX NUT, REVERSIBLE-SIDE LOCK, 3/4"-10

**NOTE: \* MEANS NOT SHOWN  
A/R: MEANS AS REQUIRED**

**FIGURE 3**  
**EXPPELLER/DISCHARGE GATE/BEARINGS**



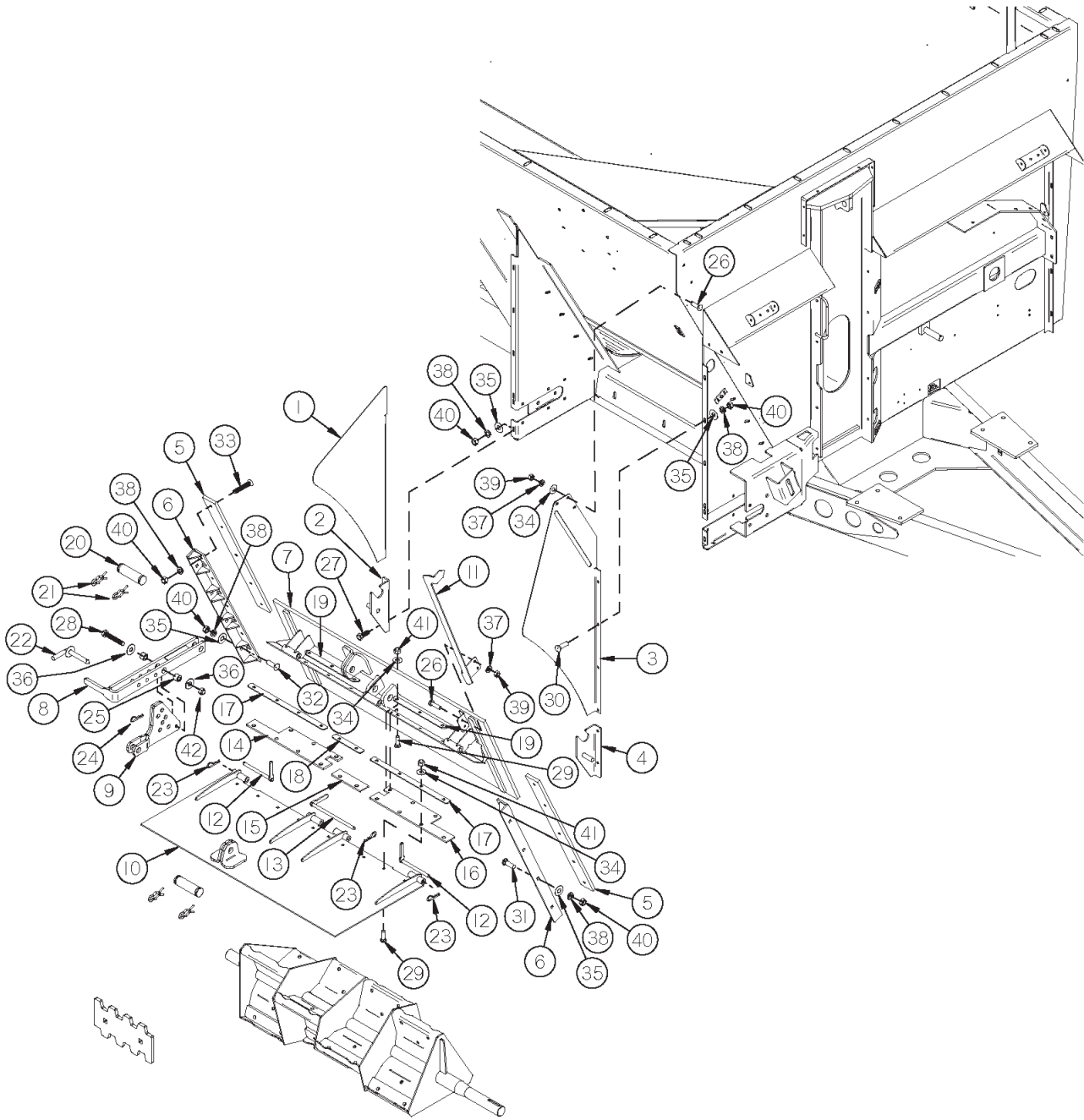


## FIGURE 3

### EXPELLER/DISCHARGE GATE/BEARINGS

<u>ITEM</u>	<u>QTY</u>	<u>PART #</u>	<u>DESCRIPTION</u>
1	1	5HPTS43	DOOR SEAL CLAMP
2	1	5HPTS44	EXPELLER DOOR TOP SEAL
3	1	5HPTS45	EXPELLER BEARING SHIELD
4	2	5HPHGV41	EXPELLER BEARING
5	2	5HPTS47	COVER PLATE
6	1	5HPAPX3WE69	CYL MOUNT SUB WELD
7	1	5HPAPX3SH15	DOOR CYL TOP PIN
8	1	5HPAPX33G52	DOOR CYL REINFORCEMENT
9	2	5HPDWM314	HEX PLUG
10	1	5HPAPX310G66	BOLT ON INDICATOR MOUNT
11	1	5HPG89	1/4"-28 STRAIGHT GREASE ZERK
12	4	5HPYBCR10010	CARR. BOLT, 5/16" X 1" GR. 5
13	12	5HPYBCR12010	CARR. BOLT, 3/8" X 1" GR. 5
14	7	5HPYBCR16010	CARR. BOLT, 1/2" X 1-1/2" GR. 5
15	2	5HPYBHH08100	BOLT, 1/4" X 3/4" GR. 5
16	2	5HPYBHH08025	BOLT, 1/4" X 1-1/2" GR. 5
17	8	5HPYBHH18010	BOLT, 9/16" X 1-3/4" GR. 5
18	4	5HPYWFL06010	WASHER, FLAT, 3/16" USS
19	4	5HPYWFL12005	WASHER, FLAT, 3/8" USS
20	7	5HPYWFL16005	WASHER, FLAT, 1/2" USS
21	2	5HPYWLO08005	WASHER, LOCK, 1/4"
22	4	5HPYWLO10005	WASHER, LOCK, 5/16"
23	16	5HPYWLO12005	WASHER, LOCK, 3/8"
24	7	5HPYWLO16005	WASHER, LOCK, 1/2"
25	8	5HPYWLO18005	WASHER, LOCK, 9/16"
26	2	5HPYNHX08005	HEX NUT, 1/4"-20
27	4	5HPYNHX10005	HEX NUT, 5/16"
28	16	5HPYNHX12005	HEX NUT, 3/8"-16
29	7	5HPYNHX16005	HEX NUT, 1/2"
30	8	5HPYNHX18005	HEX NUT, 9/16"-12
31	2	5HPYNTL08005	HEX NUT, TOP LOCK, 1/4"-20

# **FIGURE 4** **EXPELLER/DISCHARGE GATE/DOOR**



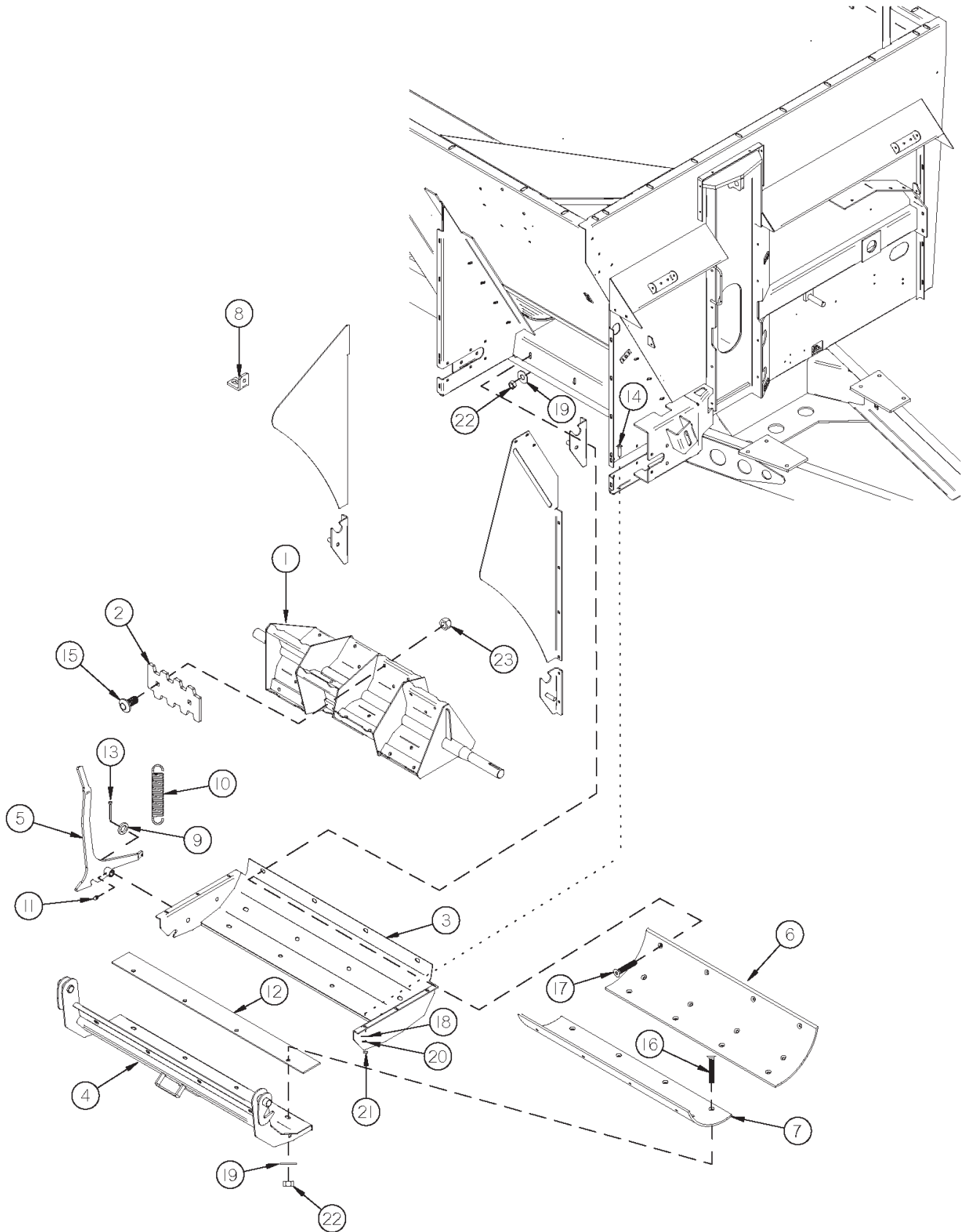
## FIGURE 4

### EXPELLER/DISCHARGE GATE/DOOR

<u>ITEM #</u>	<u>QTY</u>	<u>PART #</u>	<u>DESCRIPTION</u>
1	1	5HPTS232	EXPELLER SPOUT LEFT HAND
2	1	5HPTS49	PAN HINGE BRACKET LEFT
3	1	5HPTS233	EXPELLER SPOUT RIGHT HAND
4	1	5HPTS51	PAN HINGE BRACKET RIGHT
5	2	5HPTS52	DOOR SLIDER POLY
6	2	5HPTS53	EXPELLER DOOR GUIDE
7	1	5HPTS54	EXPELLER DOOR
8	1	5HPTS55	DEFLECTOR ADJUSTMENT HANDLE
9	1	5HPTS56	DEFLECTOR ADJUSTMENT LINK
10	1	5HPTS57	ADJUSTABLE FLAT DEFLECTOR
11	1	5HPTS58	DOOR INDICATOR
12	2	5HPTS59	DEFLECTOR SIDE PIN
13	1	5HPTS60	DEFLECTOR MID PIN
14	1	5HPTS61	DEFLECTOR SEAL LEFT
15	1	5HPTS62	DEFLECTOR SEAL MID
16	1	5HPTS63	DEFLECTOR SEAL RIGHT
17	2	5HPTS64	SEAL STRAP LONG
18	1	5HPTS65	SEAL STRAP MID
19	2	5HPTS66	SEAL STRAP SHORT
20	2	5HPT143	CYLINDER PIN
21	4	5HPT144	CLIP PIN
22	1	5HPTS69	CASTER LOCKING PIN
23	3	5HPX97	HAIR PIN
24	1	5HPWM378	HAIR PIN W/ LANYARD
25	2	5HPTS307	HANDLE PIVOT
26	5	5HPYBHH10105	BOLT, 5/16" X 3/4" GR. 5
27	4	5HPYBHH12010	BOLT, 3/8" X 1" GR. 5
28	1	5HPYBHH16105	BOLT, 1/2" X 3" GR. 5
29	16	5HPYBCR10010	CARR. BOLT, 5/16" X 1" GR. 5
30	8	5HPYBCR12010	CARR. BOLT, 3/8" X 1" GR. 5
31	7	5HPYBCR12020	CARR. BOLT, 3/8" X 1-1/4" GR. 5
32	1	5HPYBCR12015	CARR. BOLT, 3/8" X 1-1/2" GR. 5
33	10	5HPYSFS12005	FLAT HEAD SOCKET CAP SCREW, 3/8" X 1-1/4"
34	19	5HPYWFL10005	WASHER, FLAT, 5/16" USS
35	20	5HPYWFL12005	WASHER, FLAT, 3/8" USS
36	2	5HPYWFL16005	WASHER, FLAT, 1/2" USS
37	5	5HPYWLO10005	WASHER, LOCK, 5/16"
38	30	5HPYWLO12005	WASHER, LOCK, 3/8"
39	5	5HPYNHX10005	HEX NUT, 5/16"
40	30	5HPYNHX12005	HEX NUT, 3/8"-16
41	16	5HPYNL10005	HEX NUT, TOP LOCK, 5/16"-18
42	1	5HPYNL16005	HEX NUT, TOP LOCK, 1/2"-13

# FIGURE 5

## EXPELLER/DISCHARGE GATE/PAN



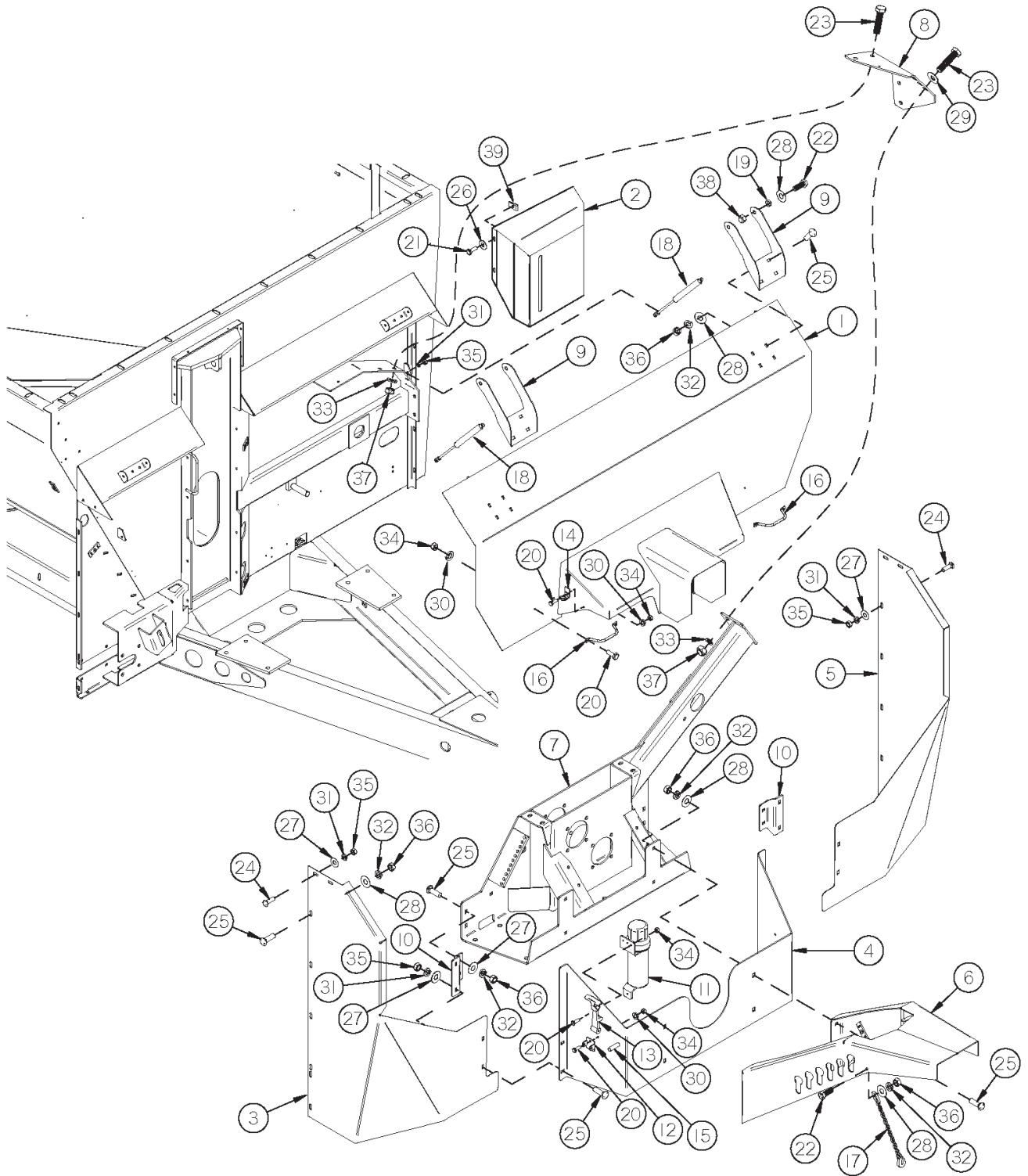
## FIGURE 5

### EXPELLER/DISCHARGE GATE/PAN

<u>ITEM</u>	<u>QTY</u>	<u>PART #</u>	<u>DESCRIPTION</u>
1	1	5HPTS67	EXPELLER
2	12	5HPTS68	EXPELLER PADDLE
3	1	5HPTS72	SWING AWAY PAN FRAME
4	1	5HPTS73	SWING AWAY PAN
5	1	5HPTS74	PAN LATCH HANDLE
6	1	5HPTS75	EXPELLER BACK POLY
7	1	5HPTS76	EXPELLER PAN POLY
8	1	5HP56N146	SHIELD ANGLE
9	3	5HPT73	SPACER
10	1	5HPK103	SPRING
11	1	5HPG89	1/4"-28 STRAIGHT GREASE ZERK
12	1	5HPTS18	PAN RUBBER SEAL
13	1	5HPYPCT06010	COTTER PIN, 3/16" X 1-1/4"
14	6	5HPYBCR10010	CARR. BOLT, 5/16" X 1" GR. 5
15	24	5HPYBCR16019	SHAKER SCREEN BOLT, 1/2" X 1-3/4" GR. 8
16	20	5HPYSFS16010	FLAT HEAD SOCKET CAP SCREW, 1/2" X 1-1/2"
17	4	5HPYSFS16020	FLAT HEAD SOCKET CAP SCREW, 1/2" X 1-3/4"
18	6	5HPYWFL10005	WASHER, FLAT, 5/16" USS
19	24	5HPYWFL16005	WASHER, FLAT, 1/2" USS
20	6	5HPYWLO10005	WASHER, LOCK, 5/16"
21	6	5HPYNHX10005	HEX NUT, 5/16"
22	24	5HPYNRL16005	HEX NUT, REVERSIBLE-SIDE LOCK, 1/2"-13
23	24	5HPYNL16006	HEX NUT, TOP LOCK, 1/2"-13 GR. 9

# FIGURE 6

## GUARDS/SHIELDS



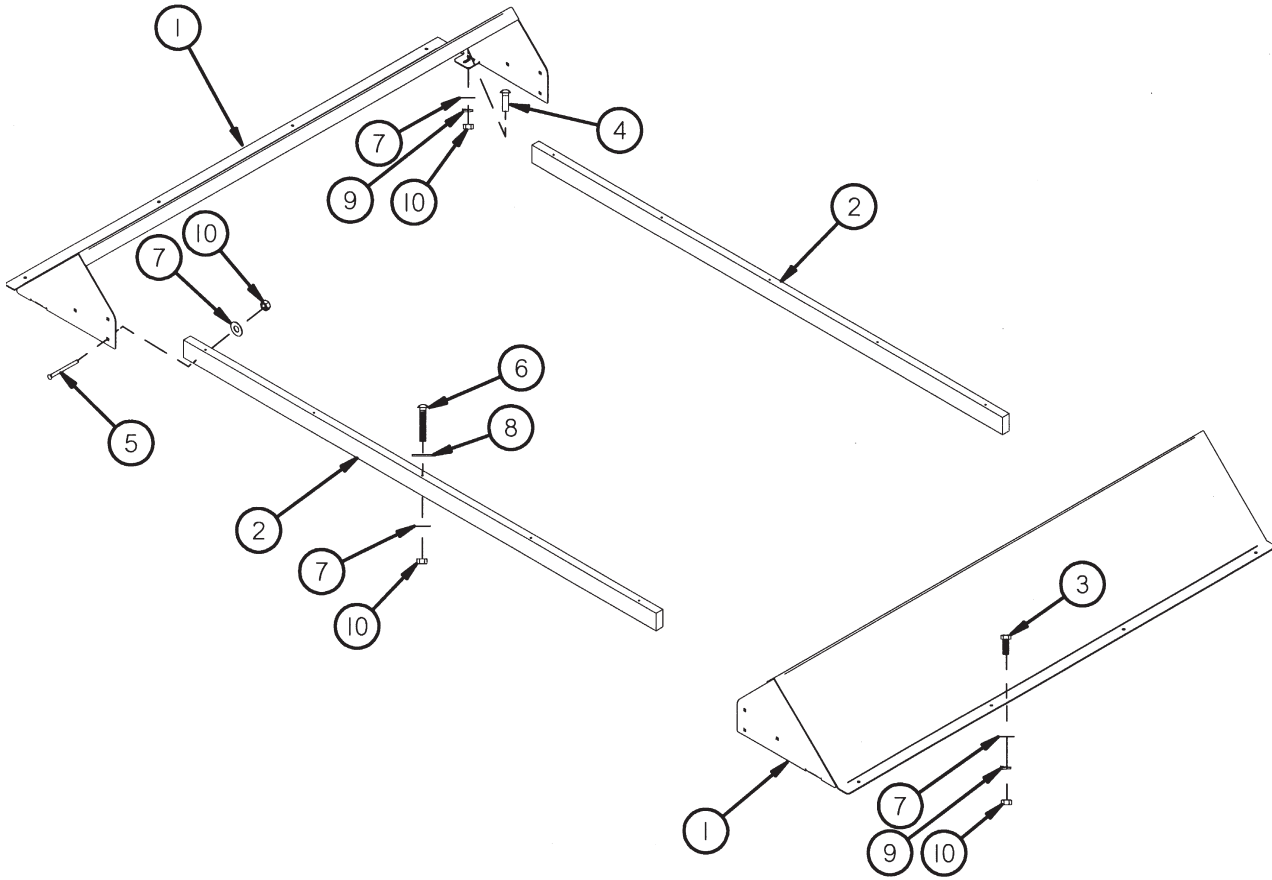
## FIGURE 6

### GUARDS/SHIELDS

<u>ITEM</u>	<u>QTY</u>	<u>PART #</u>	<u>DESCRIPTION</u>
1	1	5HPTS234	FRONT SHIELD
2	1	5HPTS235	FRONT CYLINDER COVER
3	1	5HPTS236	FRONT SHIELD RIGHT SIDE
4	1	5HPTS237	GEARBOX SHIELD
5	1	5HPTS238	FRONT SHIELD LEFT SIDE
6	1	5HPTS239	HOSE HOLDER
7	1	5HPTS240	GEARBOX
8	1	5HPTS241	JACKSHAFT BRACE
9	2	5HPTS242	SHIELD HINGE
10	2	5HPTS243	FRONT SHIELD MOUNT
11	1	5HPS522	MAUNAL HOLDER
12	2	5HPX194	LATCH MOUNT
13	2	5HPX192	RUBBER LATCH
14	2	5HPX193	LATCH KEEPER
15	2	5HPX195	LATCH PIN
16	2	5HPTS96	SHIELD HANDLE
17	1	5HPTS130	CHAIN PTO HOLDER
18	2	5HPTS244	GAS STRUT
19	4	5HPGM180	SPACER
20	11	5HPYBHH08015	BOLT, 1/4" X 1/2" GR. 5
21	4	5HPYBHH08100	BOLT, 1/4" X 3/4" GR. 5
22	5	5HPYBHH12010	BOLT, 3/8" X 1" GR. 5
23	8	5HPYBHH20010	BOLT, 5/8" X 1-1/2" GR. 5
24	8	5HPYBCR10030	CARR. BOLT, 5/16" X 3/4" GR. 5
25	24	5HPYBCR12010	CARR. BOLT, 3/8" X 1" GR. 5
26	4	5HPYWFL08005	WASHER, FLAT, 1/4" USS
27	8	5HPYWFL10005	WASHER, FLAT, 5/16" USS
28	29	5HPYWFL12005	WASHER, FLAT, 3/8" USS
29	3	5HPYWFL20005	WASHER, FLAT, 5/8" USS
30	8	5HPYWLO08005	WASHER, LOCK, 1/4"
31	10	5HPYWLO10005	WASHER, LOCK, 5/16"
32	25	5HPYWLO12005	WASHER, LOCK, 3/8"
33	8	5HPYWLO20005	WASHER, LOCK, 5/8"
34	11	5HPYNHX08005	HEX NUT, 1/4"-20
35	10	5HPYNHX10005	HEX NUT, 5/16"
36	25	5HPYNHX12005	HEX NUT, 3/8"-16
37	8	5HPYNHX20005	HEX NUT, 5/8"-11
38	4	5HPYNL12005	HEX NUT, TOP LOCK, 3/8"-16
39	4	5HPYNUN08005	EXTRUDED U NUT, 1/4"-20

# FIGURE 7

## SPLASH GUARDS/RAILS





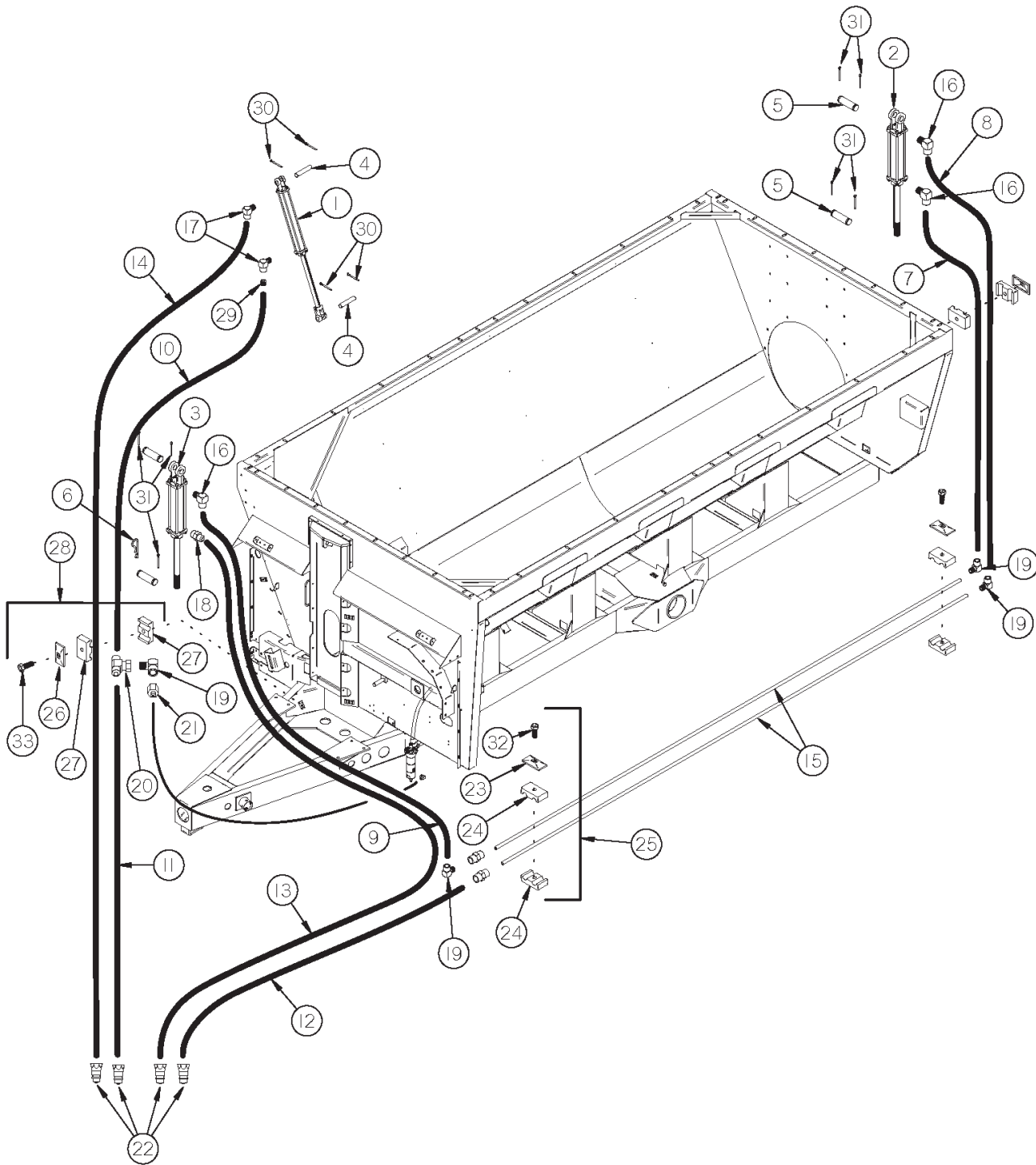
## FIGURE 7

### SPLASH GUARDS/RAILS

<u>ITEM</u>	<u>QTY</u>	<u>PART #</u>	<u>DESCRIPTION</u>
1	2	5HPTS245	SPLASH GUARD
2	2	5HPTS100	WOOD RAIL
3	8	5HPYBHH12010	BOLT, 3/8" X 1" GR. 5
4	4	5HPYBCR12010	CARR. BOLT, 3/8" X 1" GR. 5
5	12	5HPYBCR12080	CARR. BOLT, 3/8" X 3-1/4" GR. 5
6	10	5HPYBCR12125	CARR. BOLT, 3/8" X 6-1/2" GR. 2
7	34	5HPYWFL12005	WASHER, FLAT, 3/8" USS
8	10	5HPYWFL16005	WASHER, FLAT, 1/2" USS
9	12	5HPYWLO12005	WASHER, LOCK, 3/8"
10	34	5HPYNHX12005	HEX NUT, 3/8"-16

# FIGURE 8

## HYDRAULICS



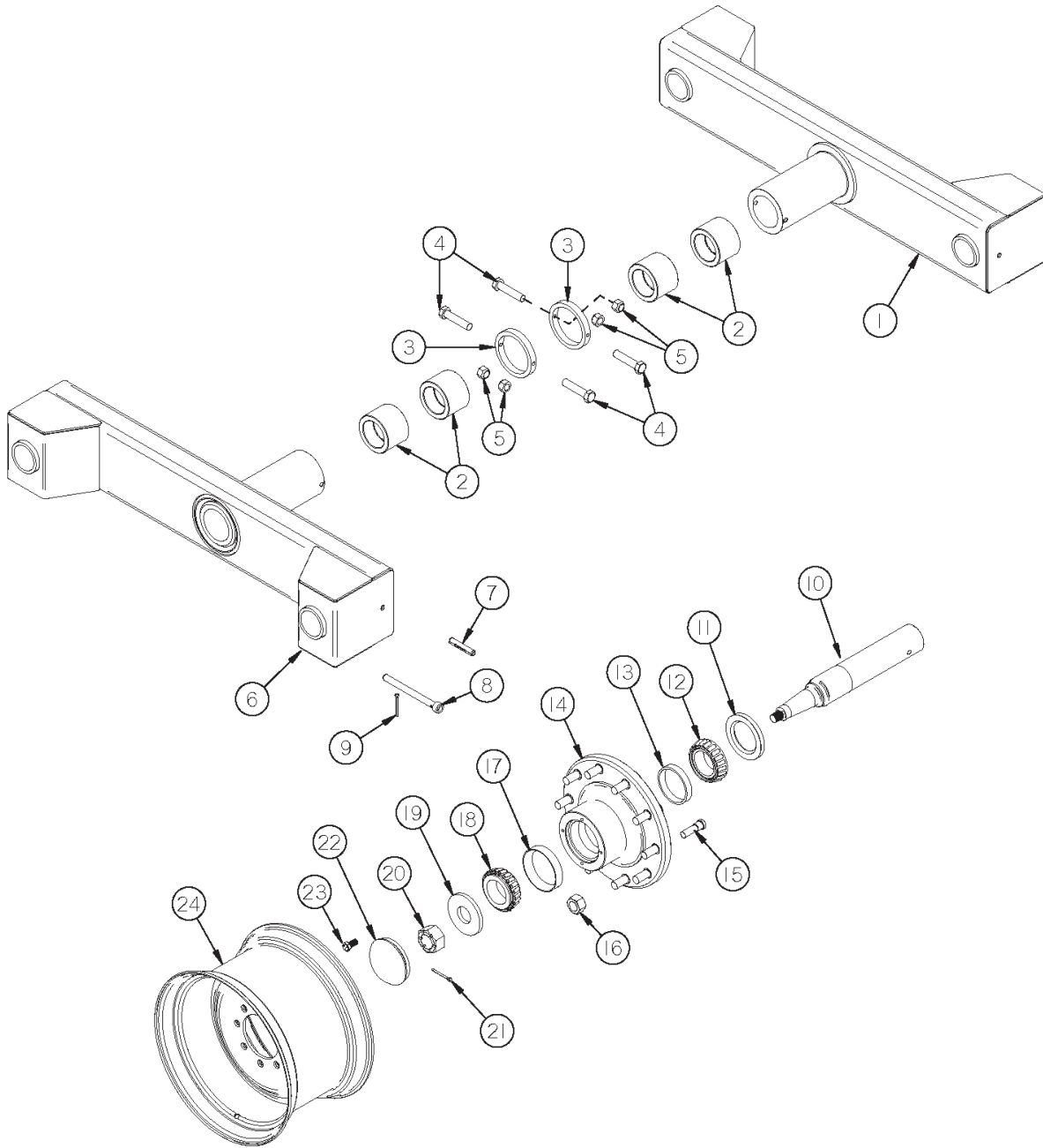
# FIGURE 8

## HYDRAULICS

<u>ITEM</u>	<u>QTY</u>	<u>PART #</u>	<u>DESCRIPTION</u>
1	1	5HP23N111A	2 X 16 CYLINDER
2	1	5HPTS105	3-1/4 x 8 CYLINDER
3	1	5HPTS104	3 X 8 CYLINDER
4	2	5HPLW55	CYLINDER PIN
5	4	5HPT143	CYLINDER PIN
6	1	5HPYPHR02010	HAIR PIN, #21-07
7	1	5HPTS115	HYDRAULIC HOSE 1/2" X 49" -8 JIC FEMALE SWIVEL & -8 JIC MALE
8	1	5HPTS247	HYDRAULIC HOSE 1/2" X 60" -8 JIC FEMALE SWIVEL & -8 JIC MALE
9	1	5HPTS248	HYDRAULIC HOSE 1/2" X 66" -8 JIC FEMALE SWIVEL & -8 JIC MALE
10	1	5HPTS249	HYDRAULIC HOSE 1/2" X 81" -8 JIC FEMALE SWIVEL & -8 JIC FEMALE SWIVEL
11	1	5HPTS250	HYDRAULIC HOSE 1/2 X 118" -8 JIC FEMALE SWIVEL & 1/2 MP
12	1	5HPTS251	HYDRAULIC HOSE 1/2 X 132" -8 JIC MALE & 1/2 MP
13	1	5HPTS252	HYDRAULIC HOSE 1/2 X 184" -8 JIC FEMALE SWIVEL & 1/2 MP
14	1	5HPTS253	HYDRAULIC HOSE 1/2 X 208" -8 JIC FEMALE SWIVEL & 1/2 MP
15	2	5HPTS116	HYDRAULIC LINE
16	3	5HPTS135	-8 MALE O-RING TO -8 MALE JIC 90°
17	2	5HPTS136	3/8" MALE PIPE TO -8 MALE JIC 90°
18	1	5HPTS137	-8 MALE O-RING TO -8 MALE JIC
19	4	5HPTFM83	-8 FEMALE JIC SWIVEL TO -8 MALE JIC 90°
20	1	5HPTS139	-8 JIC SWIVEL BRANCH TEE
21	1	5HPTS299	-8 MALE JIC TO 3/8" FEMALE PIPE
22	4	5HPDWM205	QUICK COUPLER MALE
23	3	5HPTS117	LINE CLAMP CAP
24	6	5HPTS118	LINE CLAMP BLOCK
25	3	5HPTFM91	DOUBLE STEEL LINE CLAMP
26	11	5HPGM69	LINE CLAMP CAP
27	22	5HPGM70	LINE CLAMP BLOCK
28	11	5HPGM9	HOSE CLAMP 1/2" TWIN (COMPLETE)
29	1	5HPTS197	ORIFACE .031
30	4	5HPYPCT05010	COTTER PIN, 5/32" X 1-1/2"
31	7	5HPYPCT06005	COTTER PIN, 3/16" X 1-1/2"
32	3	5HPYBHH10030	BOLT, 5/16" X 1-1/2" GR. 5
33	11	5HPYBHH10055	BOLT, 5/16" X 1-3/4" GR. 5

# **FIGURE 9**

## **TANDEM AXLES**



# FIGURE 9

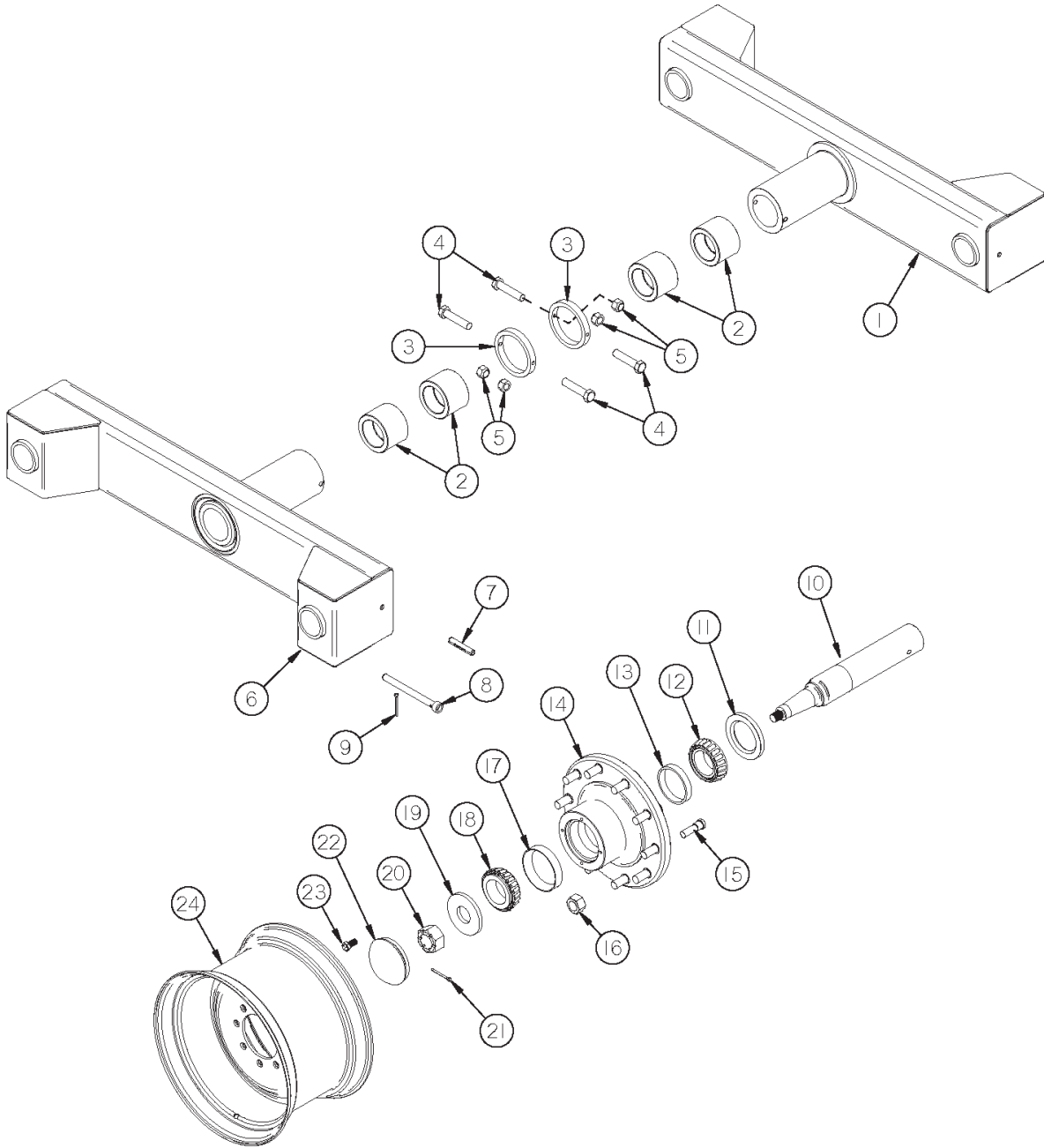
## TANDEM AXLES

<u>ITEM</u>	<u>QTY</u>	<u>PART #</u>	<u>DESCRIPTION</u>
1	1	5HPTS254	TANDEM AXLE LEFT 12000 LB
*	1	5HPTS255	TANDEM AXLE LEFT 15000 LB (OPTIONAL)
2	4	5HPTS256	PHENOLIC BUSHING
3	4	5HPTS257	COLLAR FOR AXLE
4	4	5HPYBHH16095	BOLT, 1/2" X 2-1/4" GR. 5
5	4	5HPYNL16005	HEX NUT, TOP LOCK, 1/2"-13
6	1	5HPTS258	TANDEM AXLE RIGHT 12000 LB
*	1	5HPTS259	TANDEM AXLE RIGHT 15000 LB (OPTIONAL)
7	4	5HPYPEX16020	ROLL PIN
8	4	5HPTS260	SPINDLE PIN (USED WITH OPTIONAL TANDEM ONLY)
9	4	5HPYPCT06020	COTTER PIN, 3/16" X 2" (USED WITH OPTIONAL TANDEM SPINDLE
10	4	5HPTS46	TANDEM SPINDLE (15000 LB HUB)
*	4	5HPTS394	SEAL
11	4	5HP60N5	SEAL
*	4	5HPTS387	INNER BEARING
12	4	5HP60N7	INNER BEARING
*	4	5HPTS388	INNER RACE
13	4	5HP60N6	INNER RACE
*	4	5HPTS389	HUB 10 BOLT 12000# (INC. INNER/OUTER RACES & STUD BOLTS)
14	4	5HP60N8	HUB 10 BOLT 15000# (INC. INNER/OUTER RACES & STUD BOLTS)
*	4	5HPTS395	HUB 10 BOLT 15000 LBS W/ SPINDLE
*	4	5HPTS261	STUD BOLT, 3/4"-16 UNF X 2-3/4" (3/4" SHOULDER)
15	40	5HPYBSD24010	WHEEL NUT, 3/4"-16 UNF GR. 8
16	40	5HPYNWL24005	

**NOTE: \* MEANS NOT SHOWN**

# FIGURE 9

## TANDEM AXLES



## FIGURE 9

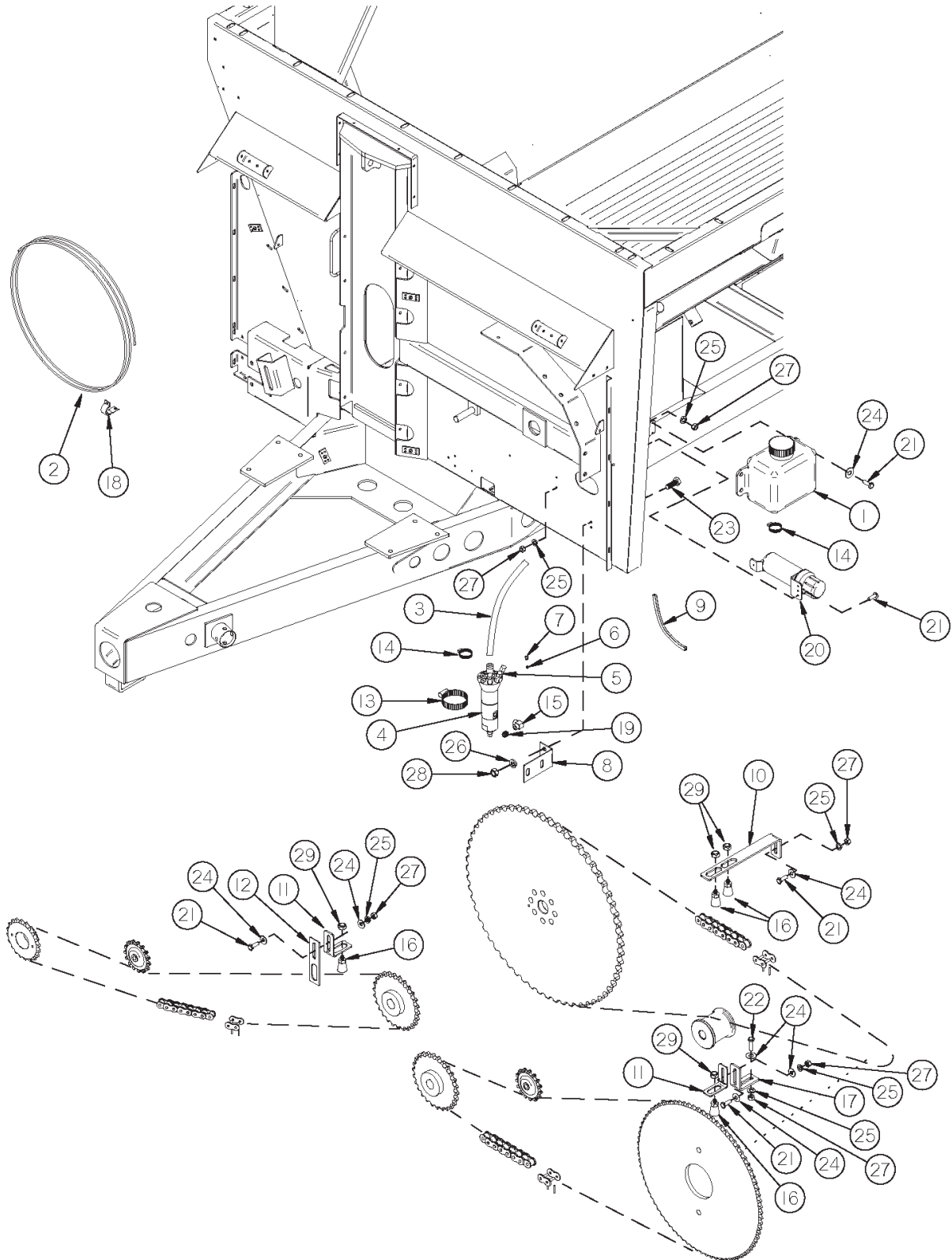
### TANDEM AXLES

<u>ITEM</u>	<u>QTY</u>	<u>PART#</u>	<u>DESCRIPTION</u>
17	4	5HP60N10	OUTER RACE
*	4	5HPTS390	OUTER RACE
18	4	5HP60N9	OUTER BEARING
*	4	5HPTS391	OUTER BEARING
19	4	5HP60N2	WASHER
*	4	5HPTS392	WASHER
20	4	5HPYNCA36005	HEX NUT, CASTLE, 1-1/4"-12
*	4	5HPYNSL44005	HEX NUT, SLOTTED, 2"-12
21	4	5HPYPCT07005	COTTER PIN, 7/32" X 2 "
*	4	5HPYPCT10020	COTTER PIN, 5/16" X 4"
22	4	5HP60N11	HUB CAP
*	4	5HPTS393	HUB CAP
23	16	5HPYBHH10020	BOLT, 5/16" X 1/2" GR. 5
24	4	5HP60N15	WHEEL 13.5 X 22.5 (10 BOLT)
*	4	5HP60N16	WHEEL 18 X 16.1
*	4	5HPTS262	WHEEL 24 X 22.5
*	4	5HPTS341	WHEEL 13.5 X 20, 10 HOLE

**NOTE: \* MEANS NOT SHOWN**

# FIGURE 10

## OILER KIT





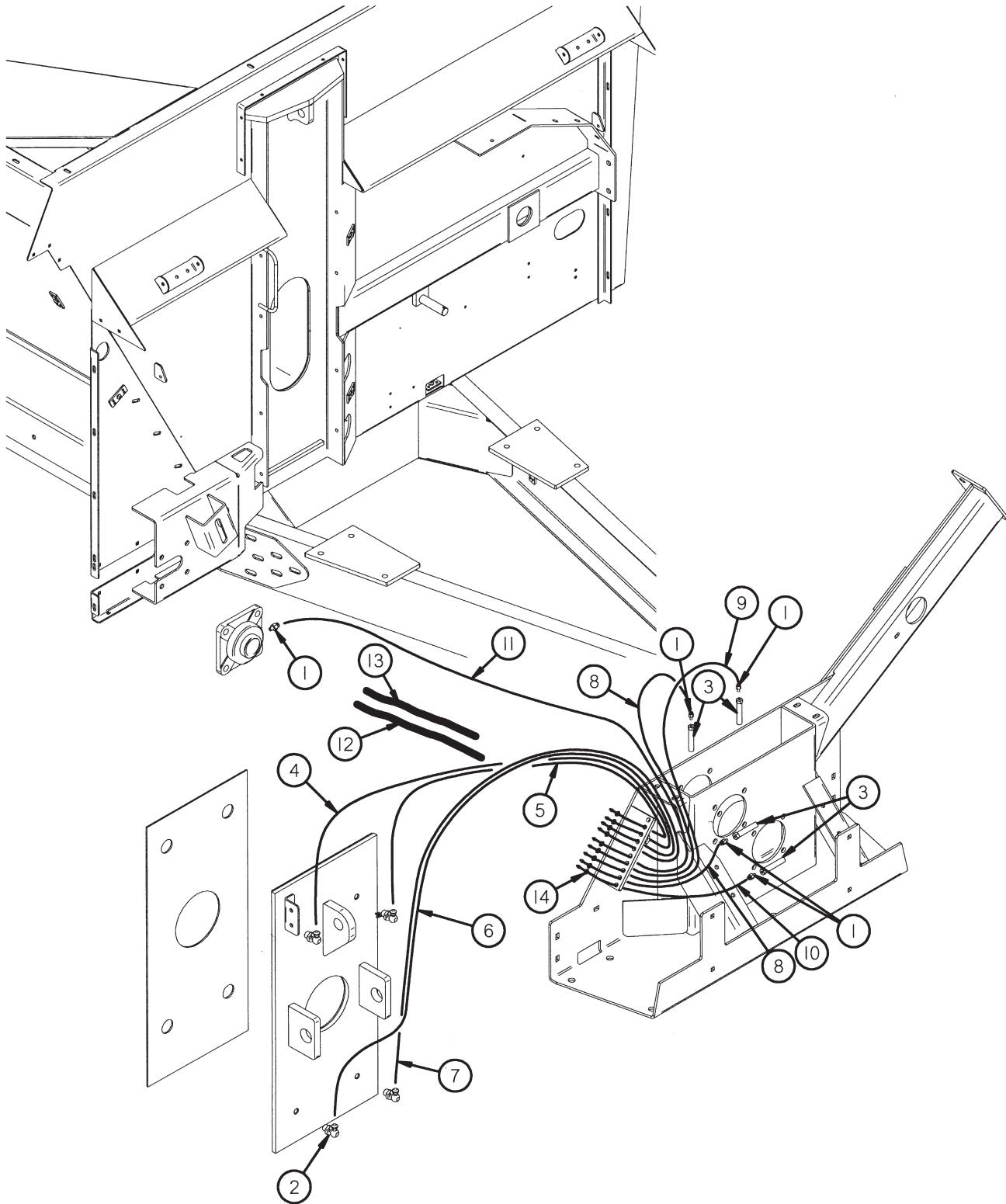
## FIGURE 10

### OILER KIT

<u>ITEM</u>	<u>QTY</u>	<u>PART #</u>	<u>DESCRIPTION</u>
1	1	5HPHGV63	RESERVOIR
2	1	5HPHGV71	OIL TUBE
3	1	5HPHGV66	FILLER HOSE
4	1	5HPHGV82	PUMP (COMPLETE)
5	4	5HPHGV86	STANDOFF
6	4	5HPHGV87	FERRULE
7	4	5HPHGV85	SLEEVE NUT
8	1	5HPHGV68	PUMP MOUNT BRACKET
9	1	5HPHGV77	EDGING
10	1	5HPTS322	EXTRA LONG BRUSH BRACKET
11	2	5HPTS98	OILER BRUSH BRACKET SINGLE
12	1	5HPHGV70	BRACKET MOUNT
13	1	5HPHGV74	2" HOSE CLAMP
14	2	5HPHGV75	1" HOSE CLAMP
15	1	5HPHGV65	O-RING/JIC ELBOW
16	4	5HPHGV67	BRUSH
17	1	5HPTS321	OILER HANGER 1
18	2	5HPHGV162	1/2" RUBBER WIRE HOLDER
*	2	5HPTS269	1/4" RUBBER WIRE HOLDER
*	2	5HPYSHW08005	ROLLING SCREW, 1/4"-20 X 3/8", HEX WASHER HEAD Z THREAD, UNSLOTTED
19	1	5HPTS198	ORIFACE .015 (4XHX7-S)
20	1	5HPS522	MANUAL HOLDER
21	10	5HPYBHH08100	BOLT, 1/4" X 3/4" GR. 5
22	1	5HPYBHH08010	BOLT, 1/4" X 1" GR. 5
23	2	5HPYBHH12135	BOLT, 3/8" X 3/4" GR. 5
24	10	5HPYWFL08005	WASHER, FLAT, 1/4" USS
25	11	5HPYWLO08005	WASHER, LOCK, 1/4"
26	2	5HPYWLO12005	WASHER, LOCK, 3/8"
27	11	5HPYNHX08005	HEX NUT, 1/4"-20
28	2	5HPYNHX12005	HEX NUT, 3/8"-16
29	4	5HPYNHX16005	HEX NUT, 1/2"

**NOTE: \* MEANS NOT SHOWN**

**FIGURE 11**  
**FRONT GREASE LINES**



## FIGURE 11

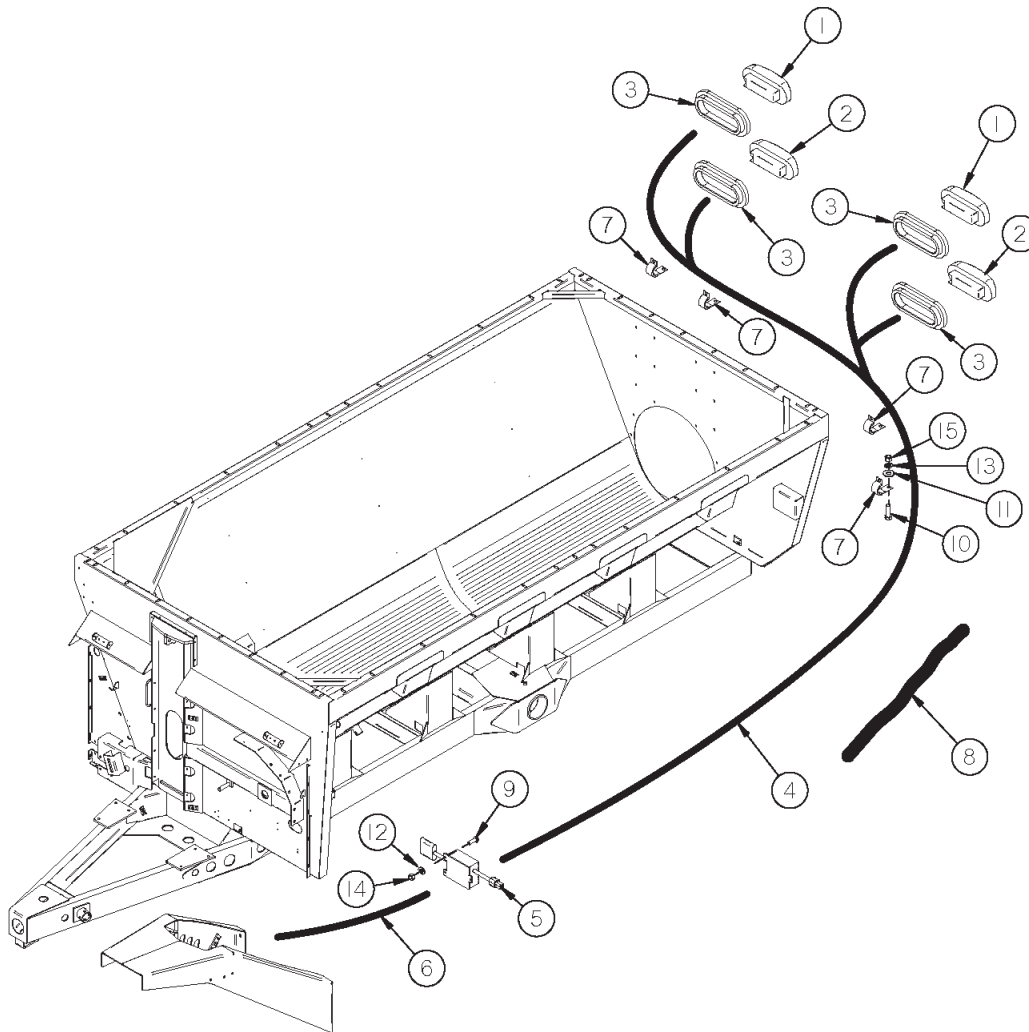
### FRONT GREASE LINES

<u>ITEM</u>	<u>QTY</u>	<u>PART #</u>	<u>DESCRIPTION</u>
1	5	5HPTS323	1/4"-28 TO 1/8" PIPE ADAPTER
2	4	5HPGM30	1/8" 90° GREASE LINE ADAPTER
3	4	5HP45N57	1/8" NPT X 2-5/8" LONG GREASE ZERK
4	1	5HPTS265	GREASE LINE - 81
5	1	5HPTS266	GREASE LINE - 82
6	1	5HPTS267	GREASE LINE - 97
7	1	5HPTS268	GREASE LINE - 101
8	2	5HPTS270	GREASE LINE - 8.5
9	1	5HPTS271	GREASE LINE - 13.5
10	1	5HPTS272	GREASE LINE - 14.5
11	1	5HPTS273	GREASE LINE - 46
12	1	5HPTS246	SPLIT LOOM 3/4" X 18"
13	1	5HPTS332	SPLIT LOOM 3/4" X 14"
*	2	5HPHGV72	3/4" RUBBER WIRE HOLDER
14	9	5HPYNML99005	M10-1.0 JAM NUT A2 SS

**NOTE: \* MEANS NOT SHOWN**

# FIGURE 12

## LIGHTING

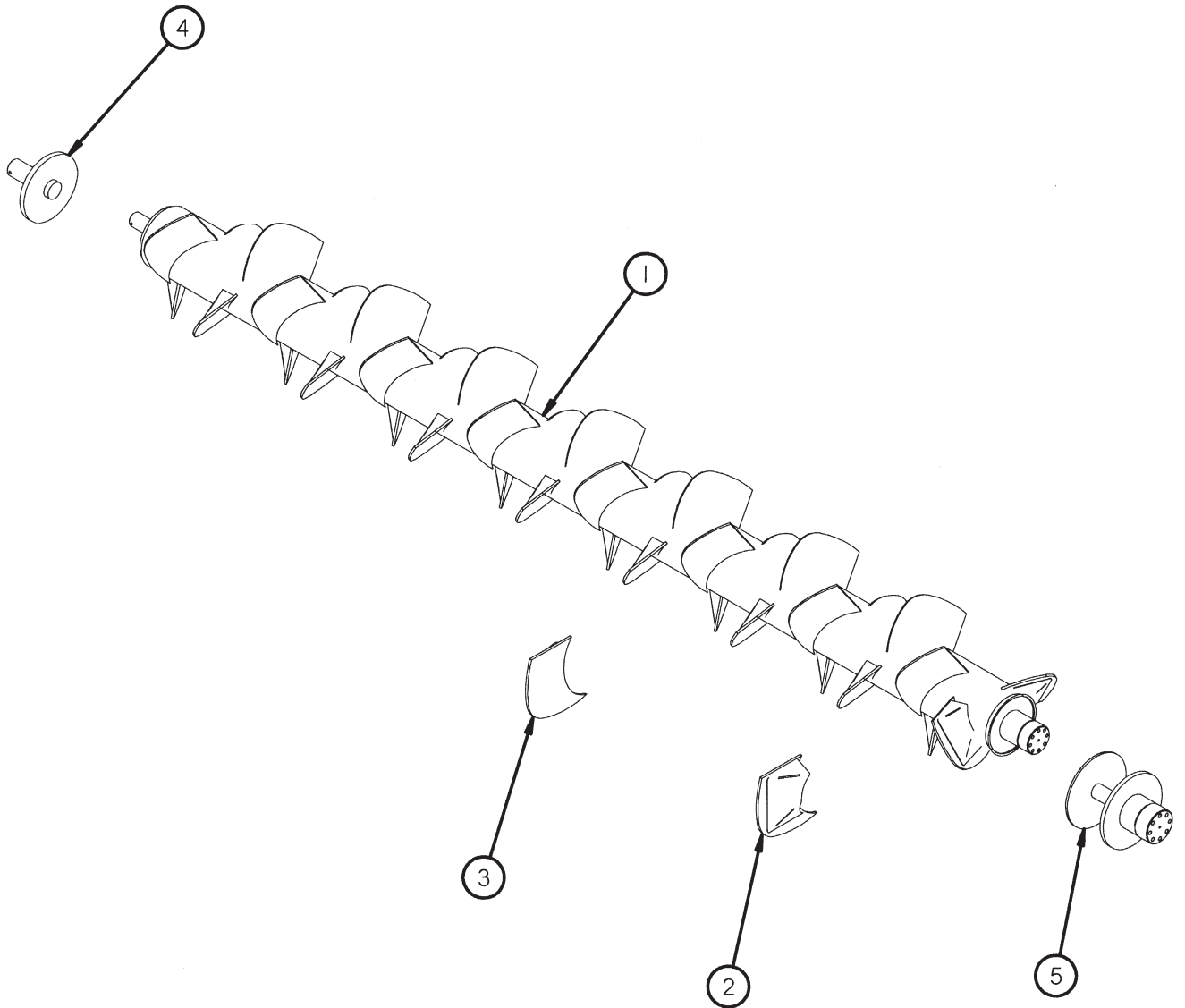


<u>ITEM</u>	<u>QTY</u>	<u>PART #</u>	<u>DESCRIPTION</u>
1	2	5HPS309	YELLOW HAZARD LIGHT
2	2	5HPS310	RED TAIL LIGHT
3	4	5HPS308	RUBBER LIGHT MOUNT
4	1	5HP56N155	TAIL LIGHT LOOM
5	1	5HPS441	FLASHER MODULE
6	1	5HPTS317	HARNES MODULE TO TRACTOR
7	4	5HPHGV162	1/2" RUBBER WIRE HOLDER
8	1	5HPTS129	SPIRAL WRAP, 30"
9	3	5HPYBHH08100	BOLT, 1/4" X 3/4" GR. 5
10	4	5HPYBHH10105	BOLT, 5/16" X 3/4" GR. 5
11	4	5HPYWFL10005	WASHER, FLAT, 5/16" USS
12	3	5HPYWLO08005	WASHER, LOCK, 1/4"
13	4	5HPYWLO10005	WASHER, LOCK, 5/16"
14	3	5HPYNHX08005	HEX NUT, 1/4"-20
15	4	5HPYNHX10005	HEX NUT, 5/16"
*	1	5HPTLPC	TRACTOR CORD

**NOTE: \* MEANS NOT SHOWN**

# FIGURE 13

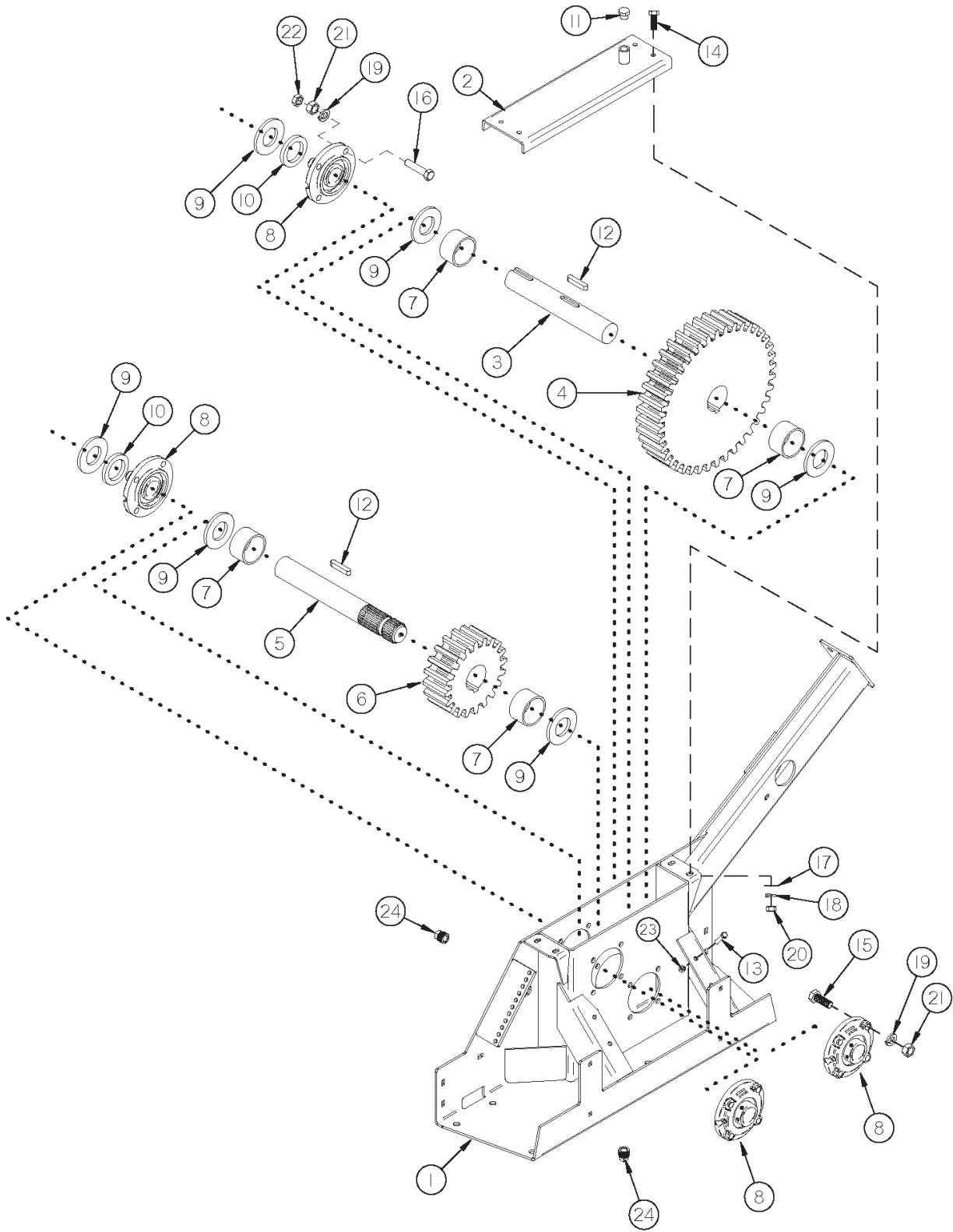
## AUGER



<u>ITEM</u>	<u>QTY</u>	<u>PART #</u>	<u>DESCRIPTION</u>
1	1	5HPTS200	AUGER
2	2	5HPTS275	AUGER PADDLE FRONT
3	37	5HPTS276	AUGER PADDLE REAR
4	1	5HPTS277	AUGER REAR ASSEMBLY
5	1	5HPTS278	AUGER INPUT SHAFT

# FIGURE 14

## GEARBOX



## FIGURE 14

### GEARBOX

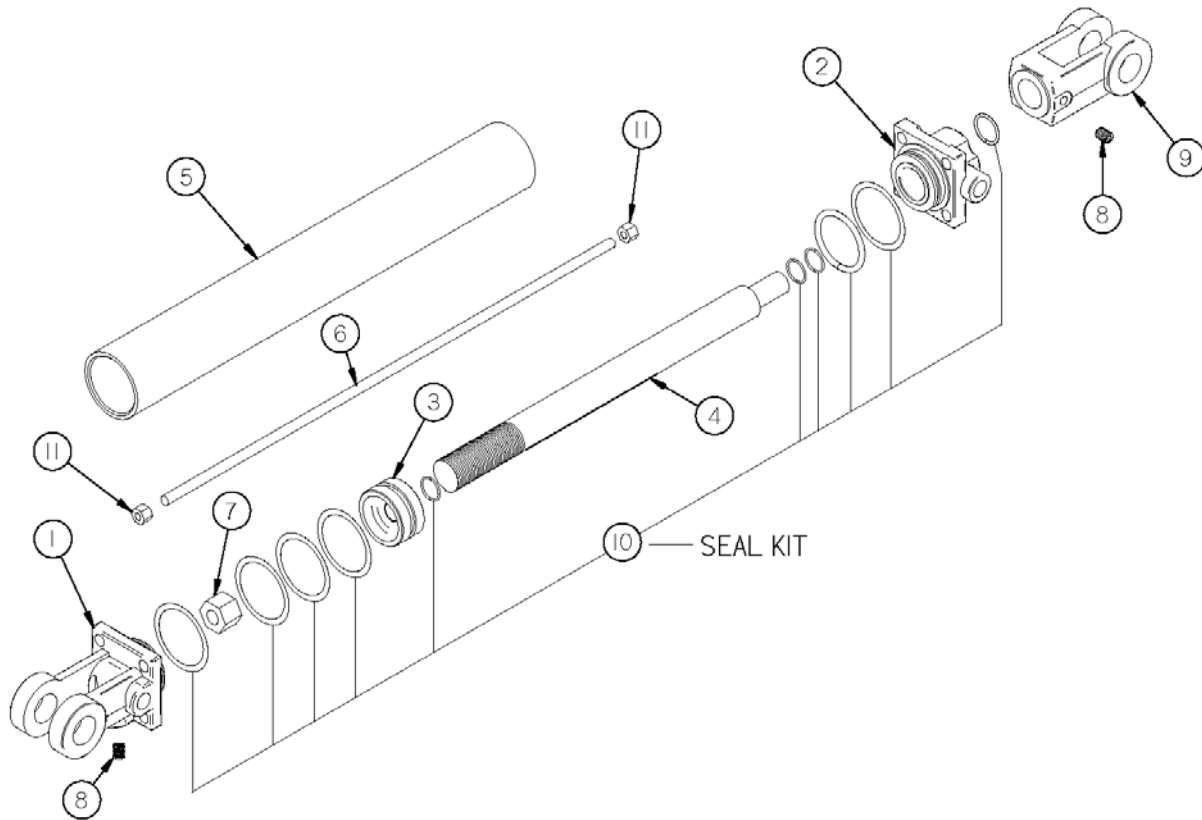
<u>ITEM</u>	<u>QTY</u>	<u>PART #</u>	<u>DESCRIPTION</u>
1	1	5HPTS240	GEARBOX
2	1	5HPTS279	GEARBOX COVER
3	1	5HPTS280	SECONDARY SHAFT
4	1	5HPTS281	SPUR GEAR 40 TOOTH
5	1	5HPTS282	SPLINED INPUT SHAFT
6	1	5HPTS283	SPUR GEAR 20 TOOTH
7	4	5HPTS284	BUSHING
8	4	5HPTS285	BEARING
9	A/R	5HPTS286	SHIM, 1/32" THICK
10	A/R	5HPS36	SHIM, 3/16" THICK
*	A/R	5HPS409	SHIM, 1/8" THICK
11	1	5HPSD134	VENT PLUG
12	2	5HP56N174	3/8" X 2" SQUARE KEY, ROUND ENDS (HARDENED)
13	4	5HPYBHH10075	BOLT, 5/16" X 2" GR. 8
14	4	5HPYBHH12010	BOLT, 3/8" X 1" GR. 5
15	15	5HPYBHH16065	BOLT, 1/2" X 2" GR. 5
16	1	5HPYBHH16080	BOLT, 1/2" X 2-1/2" GR. 5
17	4	5HPYWFL12005	WASHER, FLAT, 3/8" USS
18	4	5HPYWLO12005	WASHER, LOCK, 3/8"
19	16	5HPYWLO16005	WASHER, LOCK, 1/2"
20	4	5HPYNHX12005	HEX NUT, 3/8"-16
21	16	5HPYNHX16005	HEX NUT, 1/2"
22	1	5HPYNJM16005	HEX NUT, JAM, 1/2"-13
23	4	5HPYNL10005	HEX NUT, TOP LOCK, 5/16"-18
24	2	5HPDWM159	3/4" PIPE PLUG
*	1	5HPAPX3AS07	GEARBOX COMPLETE

**NOTE: \* MEANS NOT SHOWN**

**A/R: MEANS AS REQUIRED**

## FIGURE 15

### AUGER FRONT & REAR HYDRAULIC CYLINDER



#### PART #

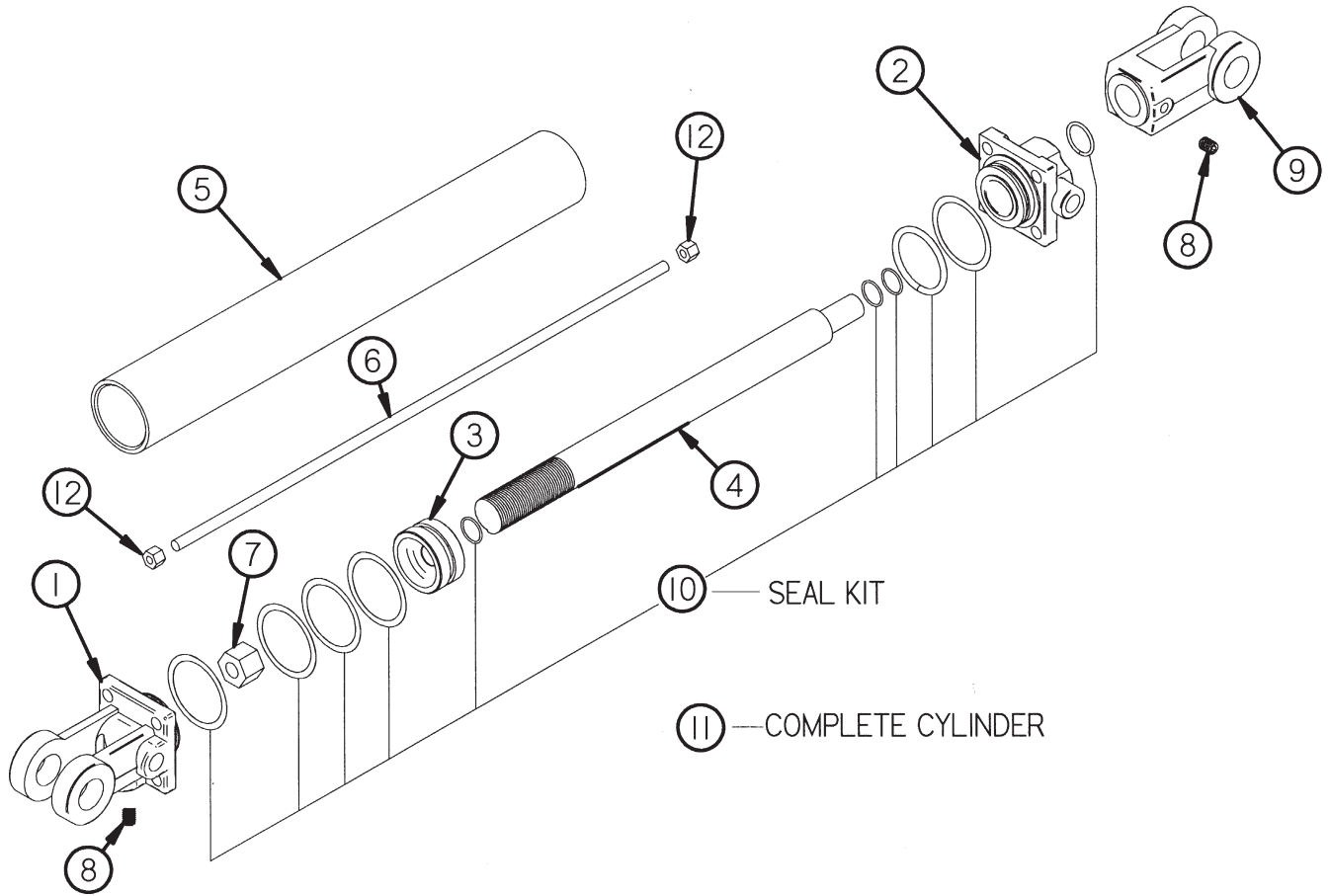
<u>ITEM</u>	<u>QTY</u>	<u>3" BORE</u>	<u>3-1/4" BORE</u>	<u>DESCRIPTION</u>
1	1	5HPTS160	5HPTS176	BASE (3/4-16 SAE PORT)
2	1	5HPTS158	5HPTS174	HEAD (3/4-16 SAE PORT)
3	1	5HPTS159	5HPTS175	PISTON NUT
4	1	5HPTS156	5HPTS172	ROD
5	1	5HPTS157	5HPTS173	TUBE
6	4	5HPTS153	5HPTS171	TIE ROD
7	1	5HPTS145	5HPTS166	PISTON NUT
8	1	5HPTS152	"	PLUG ASSY (3/4-16 SAE)
9	1	5HPTS155	"	CLEVIS ASSEMBLY
10	1	5HPTS163	5HPTS177	SEAL KIT
11	8	5HPTS144	5HPTS165	TIE ROD NUT

**NOTE: " MEANS SAME AS PREVIOUS MODEL**



# FIGURE 16

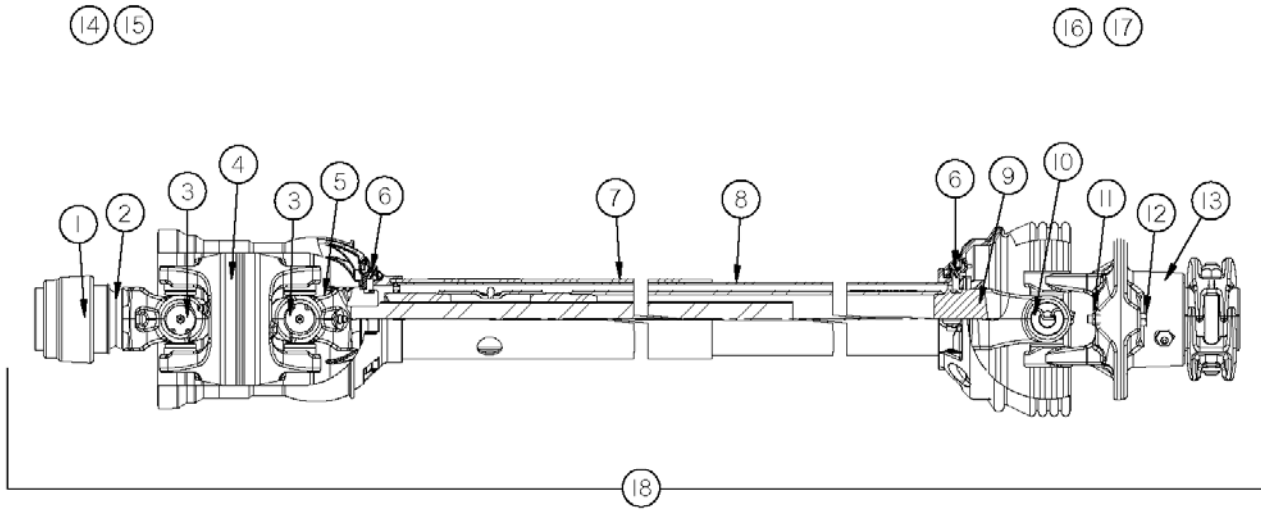
## EXPELLER DOOR HYDRAULIC CYLINDER



<u>ITEM</u>	<u>QTY</u>	<u>PART #</u>	<u>DESCRIPTION</u>
1	1	5HP23N142	CLEVIS CAP
2	1	5HP23N143	ROD CAP
3	1	5HP23N144	PISTON
4	1	5HP23N145A	ROD
5	1	5HP23N146	CYLINDER TUBE
6	4	5HP23N147	TIE ROD
7	1	5HP23N148	PISTON NUT
8	2	5HP23N149	PLUG
9	1	5HP23N150	ROD CLEVIS
10	1	5HP23N151	SEAL KIT
11	1	5HP23N111A	COMPLETE HYDRAULIC CYLINDER
12	8	5HPYNHX12005	HEX NUT, 3/8"-16

# FIGURE 17

## PTO



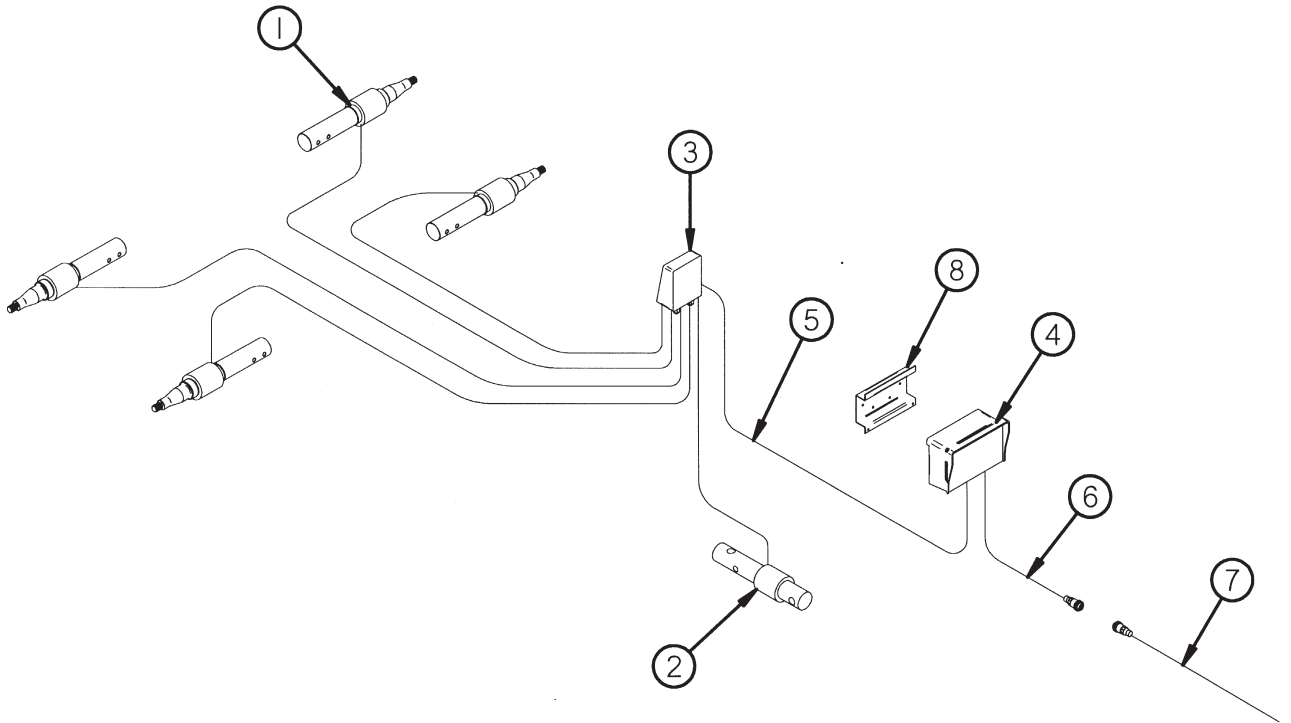
### PART #

<u>ITEM</u>	<u>1000RPM (1-3/8)</u>	<u>1000 RPM (1-3/4)</u>	<u>DESCRIPTION</u>
1	5HP16SV274	5HP16SV275	SAFETY SLIDE LOCK REPAIR KIT
2	5HPTS190	5HPTS193	SAFETY SLIDE LOCK YOKE ASSEMBLY
3	5HPTS179	"	CROSS KIT
4	5HPTS180	"	CENTER HOUSING
5	5HPTS287	"	YOKE & SHAFT
6	5HP16SV383	"	GUARD REPAIR KIT
7	5HP16SV283	"	SAFETY SIGN 13-10021
8	5HPTS288	"	OUTER GUARD
9	5HPTS289	"	INNER GUARD
10	5HP16SV388	"	SAFETY SIGN 13-10022
11	5HPTS290	"	YOKE, TUBE & SLIP SLEEVE
12	5HP16SV179	"	35R CROSS & BEARING KIT
13	5HPYNTL10005	"	HEX NUT, TOP LOCK, 5/16"-18
14	5HPYBHH10075	"	BOLT, 5/16" X 2" GR. 8
15	5HPTS291	"	OR BALL SHEAR ASSEMBLY
16	5HPTS292	5HPTS296	JOINT & SHAFT HALF ASSM. W/GUARD
17	5HPTS293	5HPTS297	JOINT & SHAFT HALF ASSM.
18	5HPTS294	"	JOINT & TUBE HALF ASSM. W/GUARD
19	5HPTS295	"	JOINT & TUBE HALF ASSM.
20	5HPTS303	---	COMPLETE PTO (#245-25123)
21	---	5HPTS304	COMPLETE PTO (#245-25124)

**NOTE: " MEANS SAME AS PREVIOUS MODEL**

# FIGURE 18

## SCALE

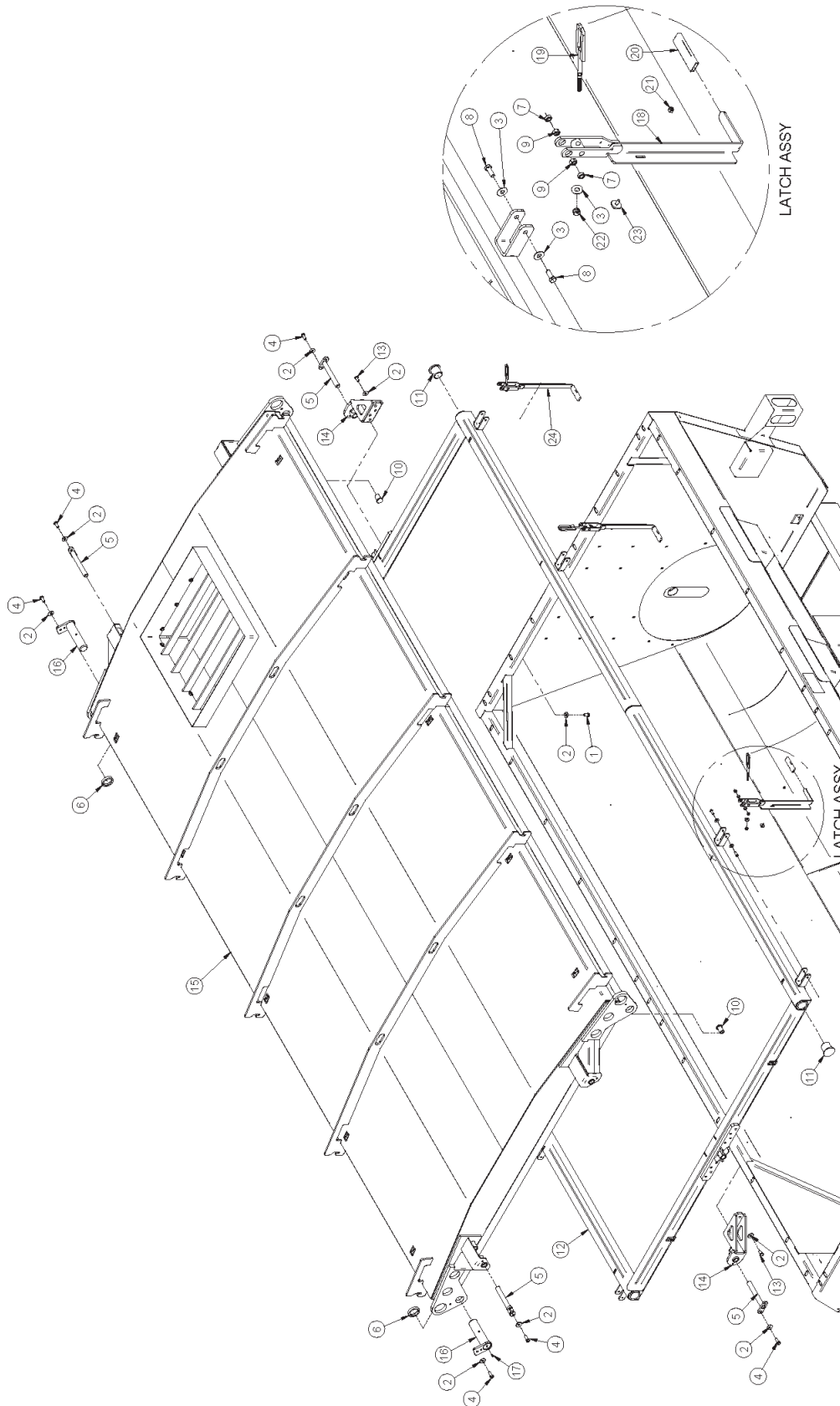


<u>ITEM</u>	<u>QTY</u>	<u>PART #</u>	<u>DESCRIPTION</u>
1	4	5HPTS334	SPINDLE LOAD CELL
*	4	5HPTS335	SPINDLE LOAD CELL (FOR OPTIONAL TANDEM)
2	1	5HPTS336	HITCH LOAD CELL
3	1	5HPTS83	JUNCTION BOX
4	1	5HPTS339	SCALE DISPLAY
*	1	5HPTS337	SCALE DISPLAY W/GPS (OPTIONAL)
5	1	5HPTS338	JUNCTION BOX CORD
6	1	5HPTS385	POWER CORD
7	1	5HP16SV269	TRACTOR POWER CORD
8	1	5HPGM408	SCALE HANGER BRACKET

**NOTE: \* MEANS NOT SHOWN**

# FIGURE 19

## COVER COMPONENTS



# FIGURE 19

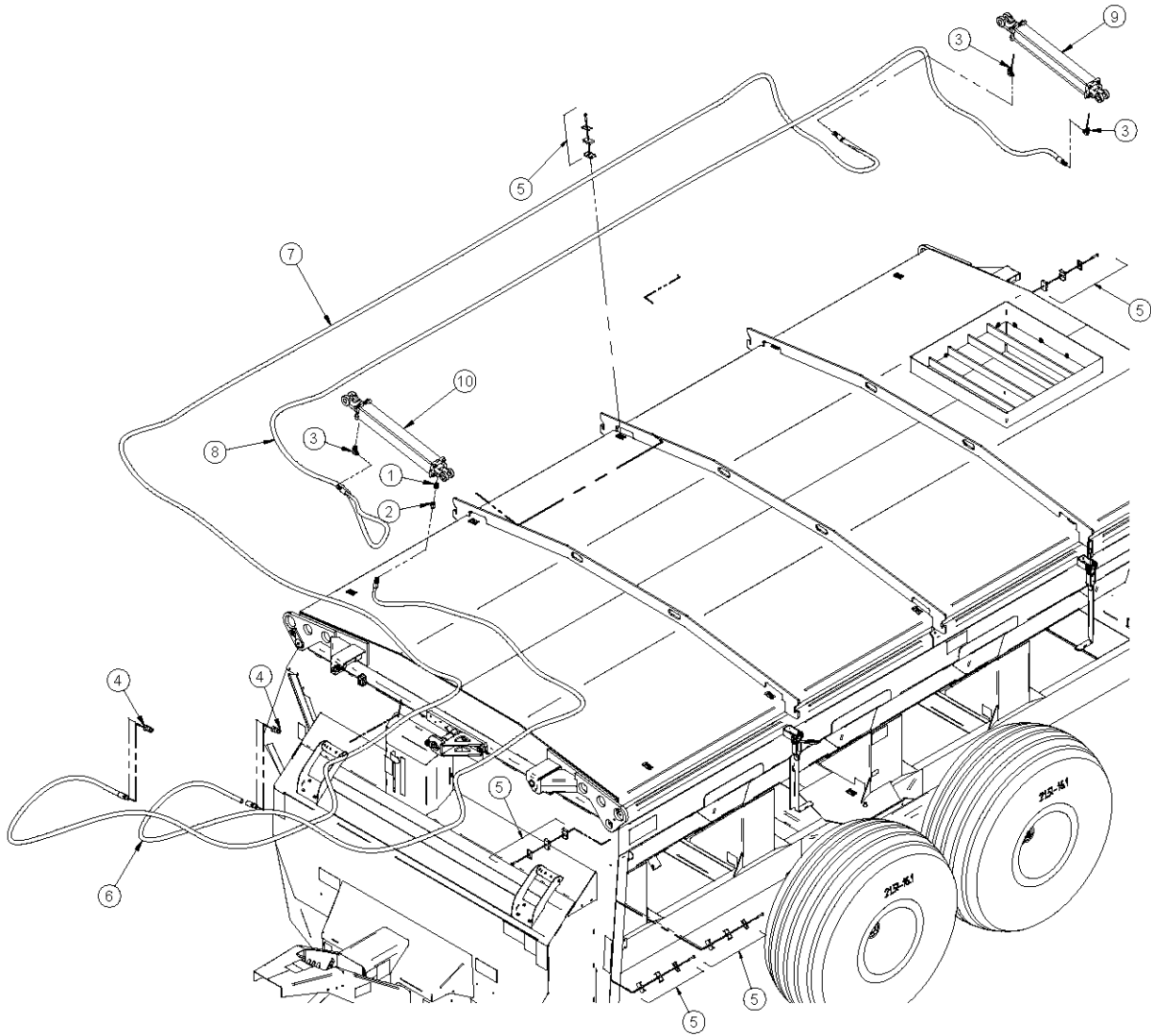
## COVER COMPONENTS

<u>ITEM</u>	<u>QTY</u>	<u>PART #</u>	<u>DESCRIPTION</u>
1	46	5HPYBHH16010	1/2 X 1 HEX BOLT
2	56	5HPYWFL16005	1/2" FLAT WASHER
3	12	5HPYWFL12005	FLAT WASHER, 3/8", GR. 5
4	2	5HPYBHH16045	BOLT, 1/2" X 1-1/4" GR. 5
5	4	5HP0229WE05	0229 CYLINDER PIN HANDLE WELDMENT
6	2	5HP0229TU05	HINGE SPACER
7	8	5HPGM180	DOOR PIVOT
8	8	5HPYBHH12010	3/8-16 x 1 HEX CAP SCREW GRADE 5
9	8	5HPYNRL12005	HEX NUT, REVERSIBLE-SIDE LOCK, 3/8-16
10	2	5HP0229MS06	0229 PIPE PLASTIC END PLUG 1.00
11	2	5HP0229MS04	0229 PIPE PLASTIC END PLUG
12	1	5HP0229WE13	0229 5134 TOP SHOT SUBFRAME WELDMENT
13	8	5HPYBHH16012	BOLT, 1/2-13 X 1 GR 8
14	2	5HP0229WE12	CYLINDER BASE MOUNT WELDMENT
15	1	5HP0229WE01	FRAME WELDMENT
16	2	5HP0229WE03	0229 HINGE PIN ASSY-RF
17	2	5HPBFR28	1/8 NPT STRAIGHT GREASE ZERK
18	2	5HP0229WE07	LID LATCH, RIGHT
*	2	5HP0229WE20	LID LATCH, LEFT
19	4	5HP0229WE08	DOOR HOOK
20	4	5HPGM370	HANDLE GRIP 1-1/2 X 4
21	4	5HPYNNY08005	HEX NUT, NYLON LOCKNUT, 1/4-20
22	4	5HPYNNY12005	3/8-16 GR5 NYLOCK NUT
23	4	5HP1022	0229 RUBBER BUMPER
24	2	5HP0229AS03	LATCH ASSEMBLY LEFT
*	2	5HP0229AS08	LATCH ASSEMBLY RIGHT

**NOTE: \* MEANS NOT SHOWN**

# **FIGURE 20**

## **COVER HYDRAULICS**

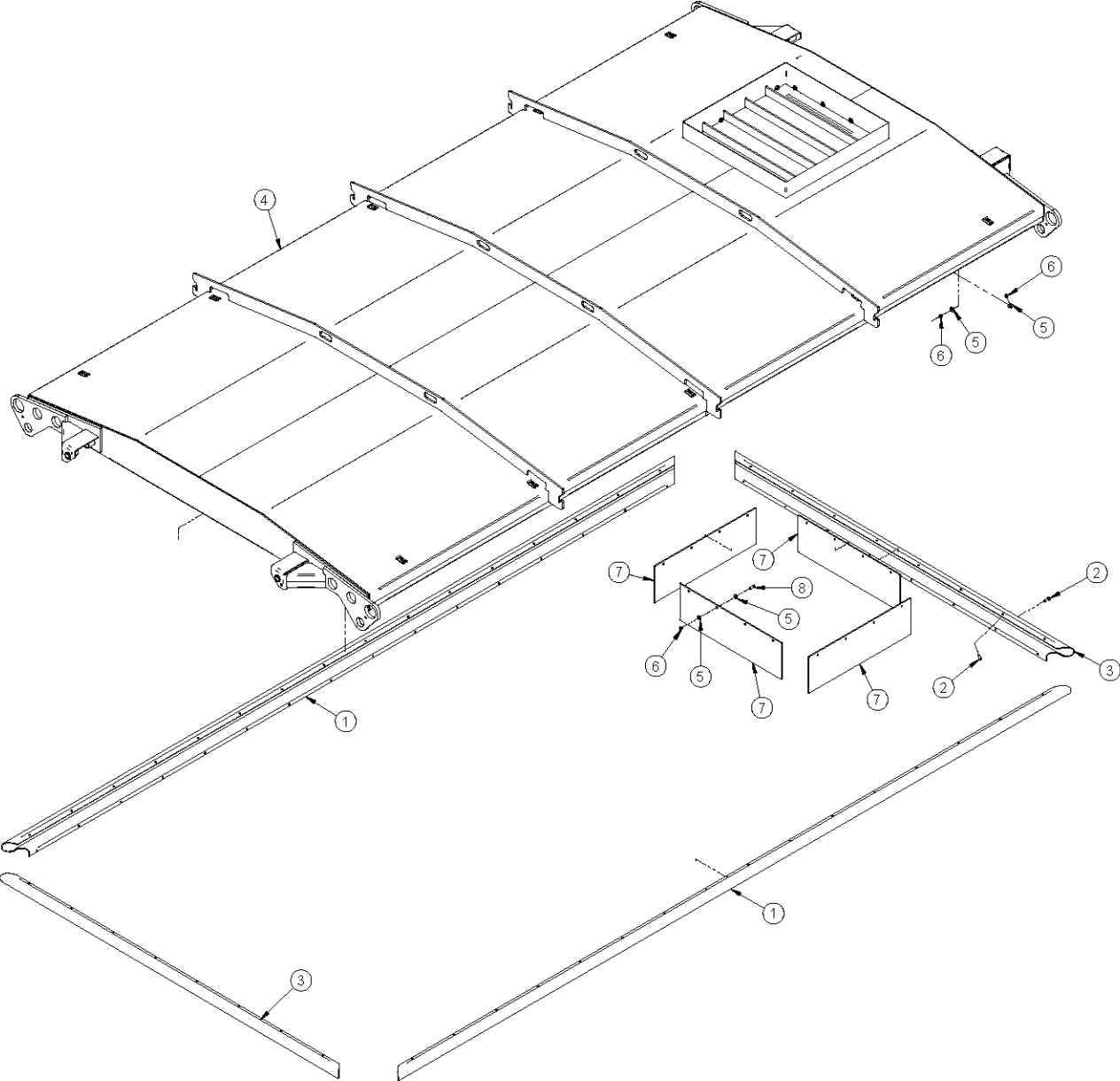


## **FIGURE 20**

### **COVER HYDRAULICS**

<b><u>ITEM</u></b>	<b><u>QTY</u></b>	<b><u>PART #</u></b>	<b><u>DESCRIPTION</u></b>
1	1	5HPCHM207	3/8 X 3/4 16 ORB STRAIGHT FITTING
2	1	5HP1023	06-06 M/F ORIFICE, 0.047
3	3	5HPCHM206	06 90 DEG TO 3/4-16 ORB FITTING
4	2	5HPDWM205	QUICK COUPLING MALE
5	12	5HPCHM270	3/8 TWO HOSE CLAMP
6	1	5HP0229MS07	HOSE, TRACTOR TO BASE
7	1	5HP0229MS08	HOSE, REAR ROD TO TRACTOR
8	1	5HP0229MS09	HOSE, FRONT ROD TO REAR BASE
9	1	5HP1020	3 IN X 20 IN STROKE SLAVE CYLINDER
*	-	5HP8266	SLAVE CYLINDER SEAL KIT
10	1	5HP1019	3.25 IN X 20 IN STROKE MASTER CYLINDER
*	-	5HP8267	MASTER CYLINDER SEAL KIT

**FIGURE 21**  
**COVER SEAL**





**FIGURE 21**  
**COVER SEAL**

<b><u>ITEM</u></b>	<b><u>QTY</u></b>	<b><u>PART #</u></b>	<b><u>DESCRIPTION</u></b>
1	2	5HP0229MS03	SEAL BELT, LONG
2	96	5HPYBCR12010	CARR. BOLT, 3/8 X 1 GR 5
3	2	5HP0229MS02	SEAL BELT, SHORT
4	1	5HP0229WE01	FRAME WELDMENT
5	128	5HPYWFL12005	FLAT WASHER, 3/8", GR. 5
6	112	5HPYNNY12005	HEX NUT, NYLON LOCKNUT, 3/8"
7	4	5HP0229MS05	BELTING, CHUTE
8	16	5HPYBHH12010	BOLT, 3/8" X 1" GR. 5





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