



HDII OPERATOR'S MANUAL AND PARTS LIST



WARNING

READ AND UNDERSTAND THIS MANUAL
BEFORE OPERATING THIS EQUIPMENT.
UNSAFE OPERATION OR MAINTENANCE OF
THIS EQUIPMENT CAN RESULT IN SERIOUS
INJURY OR DEATH.

Revision # 2
Starting Serial #310570

HSMFG1212

Manufactured By
H&S MANUFACTURING CO., INC.

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

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WARRANTY

H&S WARRANTY

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

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

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

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

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

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

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

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

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



WARRANTY REGISTRATION

Date of Purchase _____

Purchaser _____ Address _____

City _____ State _____ Zip _____

Product _____ Model# _____ Serial# _____

Dealer _____ Address _____

City _____ State _____ Zip _____

Signature of Original Buyer

MANUFACTURER'S STATEMENT

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

IMPORTANT!

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



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

FIRST CLASS MAIL Permit No.195 Marshfield, WI 54449

POSTAGE WILL BE PAID BY ADDRESSEE

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



DEALER PRE-DELIVERY CHECK LIST

AFTER COMPLETION, DEALER SHOULD REMOVE AND RETAIN FOR RECORDS

After the rake 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.

- Rake was not damaged in shipment. Check for dents and loose or missing parts. Report damage immediately to H&S Manufacturing Co., Inc.
- Rake has been correctly assembled according to instructions in this manual. Wheel nuts and all other fasteners are tightly secured.
- All bolts and fasteners are tight.
- All grease fittings have been lubricated. See Lubrication Chapter of this manual for details.
- Hoses and fittings are properly attached and there are no visible leaks.
- All mechanisms are operating trouble free.
- Rake wheels touch ground in unison when lowered into position. (Rake setting level)
- Wheels are properly mounted.
- Tires are inflated to correct pressure.
- Decals are in place and legible.

Model Number _____

Serial Number _____

Dealer's Name _____

Inspection Date _____

Signature of Pre-Delivery Inspector _____

(Remove Dealers File Copy At Perforation)

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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 Rake 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 raking and windrow width adjustments.
- 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 they read and understand all operating and service instructions.
- Record Serial Number on page 23 of this Manual.
- Have the customer sign a completed "Warranty Registration", and mail it.

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.

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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.

H&S MANUFACTURING CO., INC.

SAFETY INFORMATION

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.

OBSERVE MAXIMUM TRANSPORT SPEED

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

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

⚠ WARNING

HELP AVOID INJURY

- READ & UNDERSTAND THE OPERATORS MANUAL PROVIDED WITH THIS MACHINE. IF MISPLACED CALL H & S MANUFACTURING AT 715-387-3414 WITH MODEL AND SERIAL NUMBER.
- UNDERSTAND ALL SAFETY WARNINGS AND FUNCTION OF CONTROLS.
- KEEP SAFETY DEVICES IN PLACE AND WORKING.
- KEEP YOURSELF AND OTHERS WELL CLEAR OF MOVING PARTS.
- DISCONNECT ALL POWER BEFORE SERVICING OR CLEANING THIS MACHINE.
- DO NOT EXCEED 20 MPH

72203A




⚠ DANGER

STAY CLEAR OF RAKE WHEN OPENING OR CLOSING.

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

KEEP CLOTHING, YOURSELF AND OTHERS WELL CLEAR.

11694A



⚠ WARNING

STAY CLEAR OF RAKE WHEN RAISING OR LOWERING RAKE WHEELS.

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

KEEP CLOTHING, YOURSELF AND OTHERS WELL CLEAR.

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⚠ 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.

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TRACTORS

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



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.

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

Stop the tractor engine, remove ignition key, and allow all mechanisms to stop before cleaning, working, or adjusting on machine.

DO NOT attempt to perform maintenance or repair with tractor running.

DO NOT step up on machine at any time.

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

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

Stay clear of hydraulic lines, they may be under extreme pressure or heat.

Stay clear of rake when opening or closing main rake arm beams, or raising or lowering rake wheels.

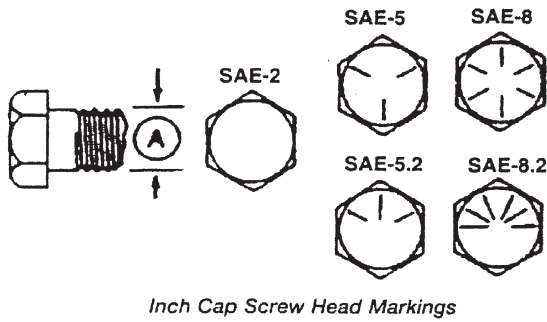
For transport, always make sure that the hair pin at the rear of the lift pipes, and the transport lock bars with safety clip pins for main rake beam, are securely locked in place.

Be sure to raise rake wheels before opening or closing main rake beams.

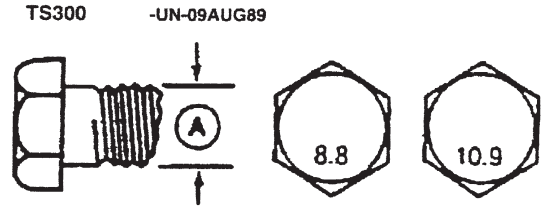
H&S Manufacturing Co. always takes the operator and their safety into consideration and guards exposed moving parts for their protection. However, some areas cannot be guarded or shielded in order to assure proper operation. In addition, the operators manual and decals on the machine itself warn you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

Study The Above Safety Rules
ATTENTION - BE ALERT - YOUR SAFETY IS INVOLVED

CAP SCREW TORQUE VALUES



Inch Cap Screw Head Markings



Metric Cap Screw Head Markings

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

NOTE: Determine right or left side of the wheel rake by viewing it from the rear. If instructions or parts lists call for hardened bolts, refer to bolt torque chart.

1. Assemble the rake or check the rake for proper assembly and adjustment. Make sure that all bolts are tightened. Securely retighten after a few hours of operation as bolts can loosen up on new machinery.
2. Attach the wheels with tires, using the lug nuts furnished and torque the mounting hardware to 85-95 ft./lbs. of torque. Check wheel bolts periodically thereafter.
3. Check tires and inflate to the recommended pressure. (9.5L x 15SL to 44 PSI)
4. Lubricate the rake completely (See Lubrication Chapter in This Manual).

TRANSPORTING

TOWING ON HIGHWAY

Follow state and local regulations when towing farm equipment on public highways. Never tow the rake on a public highway at a speed greater than 20 m.p.h. (32 kph).

TRANSPORT LOCKS

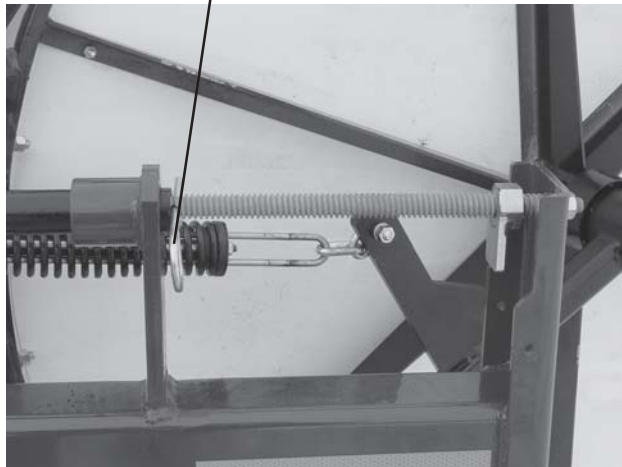
Rake Beam Locks

Mounted on the rake beams are self-storing transport locks for rake beam arms. The picture shows the transport lock in the engaged position when the rake is being transported.



Rake Wheel Locks

Located at the rear of the lift pipe, is a hair pin which is used to secure the rake wheels in the up position for transport.



REFLECTORS

Red and Amber reflective safety decals are on the rake for safety. Refer to the [Decal Placement Chapter](#) for location.

PREPARING FOR OPERATION

1. Lubricate the rake completely (See the Lubrication Chapter in this Manual).

2. Adjust the tractor hitch (13 to 17 inches above ground) and attach rake to tractor with a **hitch pin with a safety locking device**.

3. There are ten different positions to adjust the hitch on your Rake. The hitch should be adjusted so the vertical beams of the frame are perfectly vertical.



4. Remove the weight from lift jack. Remove jack from pipe and place on the convenient storage mount located on the front top of pole.



5. Mount the control box in a convenient location on tractor. Plug the 7-pin electrical connector on the main harness of rake into the tractor (This will power up the control box, work lighting and safety (lighting)).

Note: If the tractor is not equipped with a 7-pin connector, the tractor must be outfitted with one.

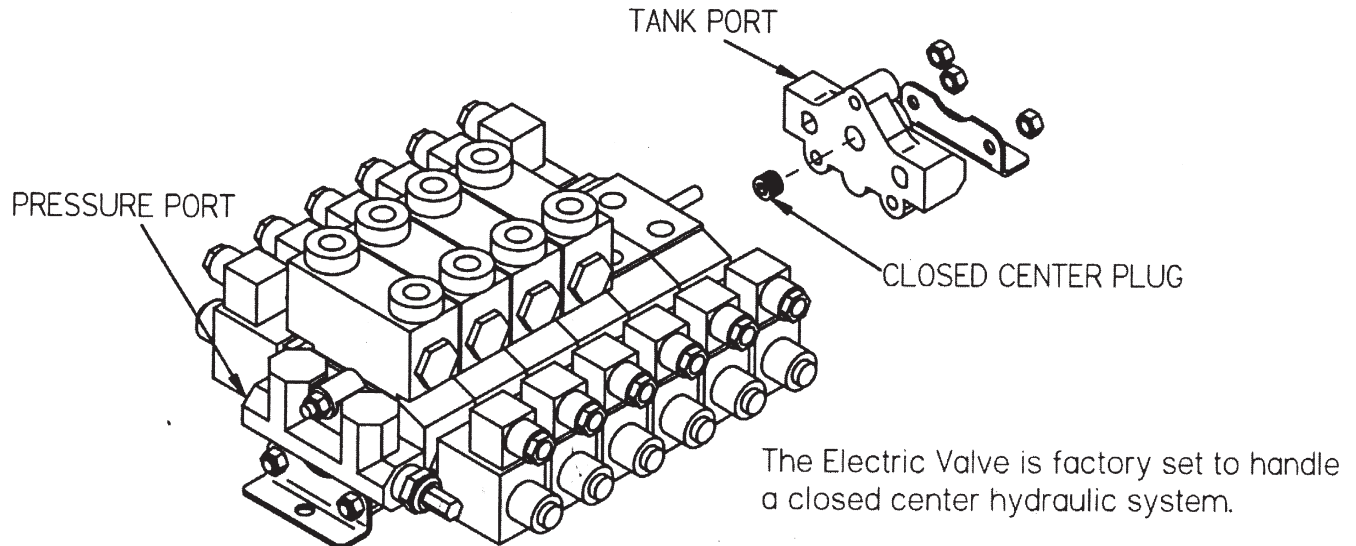


6. Check all bolts on the rake after 100 acres. Re-torque if necessary.

PREPARING FOR OPERATION

7. Connect the hydraulic hoses for all rake functions to a double acting valve on the tractor. Check the tractor hydraulic system and determine if tractor is closed or open center system. The rake is factory set-up for closed center (To change to open center, see the instructions below).

OPEN CENTER CHANGE



If closed center valve is used on a open center tractor it will cause the oil to heat because oil is dumping over relief.

Instructions for converting valve to open center:

1. Widen the left side of rake using the left frame width switch on the control box (Remember to be moving forward or rearward when doing this).
2. Release all the pressure in hydraulic system (Shut tractor OFF and remove ignition Key).
3. Support valve bottom.
4. Remove the left mounting bolt.
5. Remove the 3 tie rod nuts on the tank port (the outward side of valve).
6. Remove the end cap, (do not loose the o-rings that are between the sections).
7. Remove the plug in end cap with an allen wrench, (save for future use).
8. Re-Assemble the end cap and mounting angle, (torque tie rod nuts to 140 in.lbs. (16 N-M).
9. Install the bolt in mounting angle.

OPERATION & ADJUSTMENTS

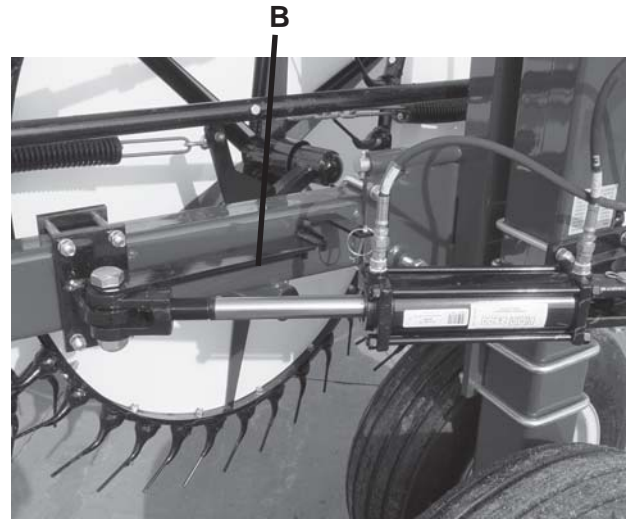
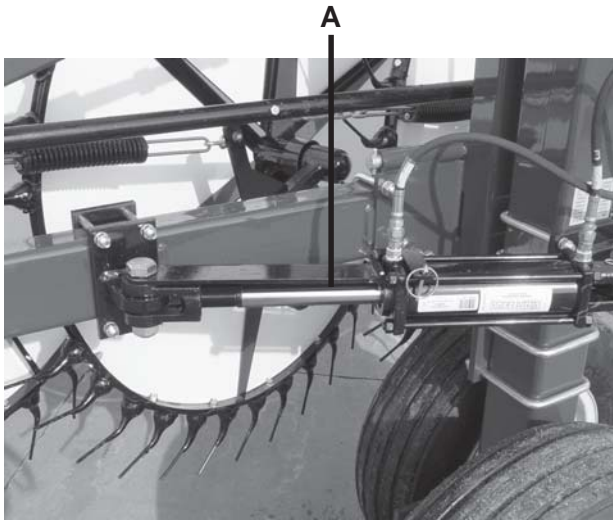
EMERGENCY SHUTDOWN

Stop the tractor engine, remove ignition key, and allow all mechanisms to stop before cleaning or working on the machine.

TRANSPORT LOCKS

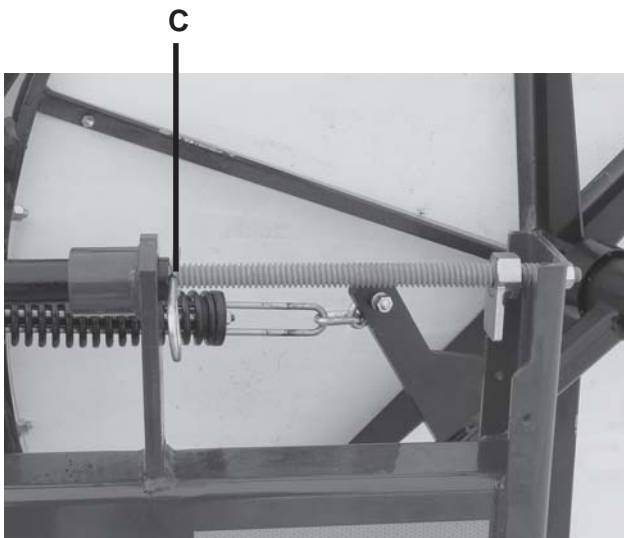
Rake Beam Locks

Mounted on the rake beams are self-storing transport locks for rake beam arms. Remove the clip pin and swing the transport lock toward the rake beam. There should be a fair amount of drag required to swing the lock. (A) shows the transport lock in the engaged position, (B) shows the transport lock in the storage position, to be used when in the raking mode.



Rake Wheel Locks

Located at the rear of the lift pipe, is a hair pin which is used to secure the rake wheels in the up position for transport (C). When in the down, or raking position, place the locking hair pin in the convenient storage position as shown.

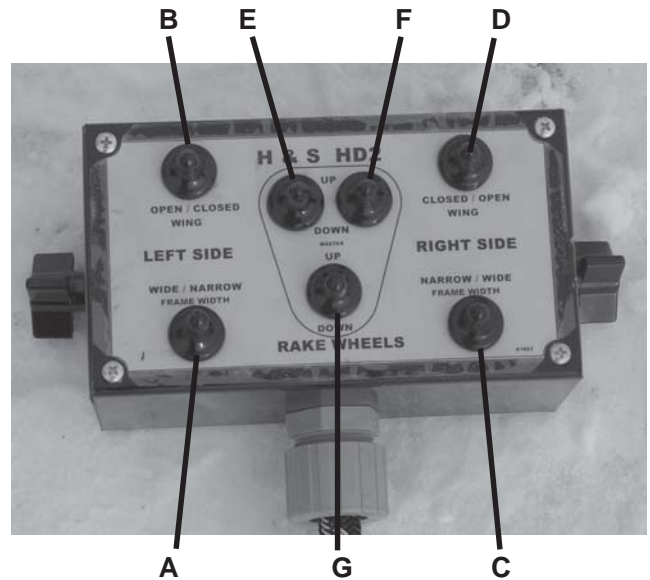


OPERATION & ADJUSTMENTS

NOTE: TRACTOR HYDRAULIC LEVER MUST BE ENGAGED TO PROVIDE OIL FLOW TO RAKE.

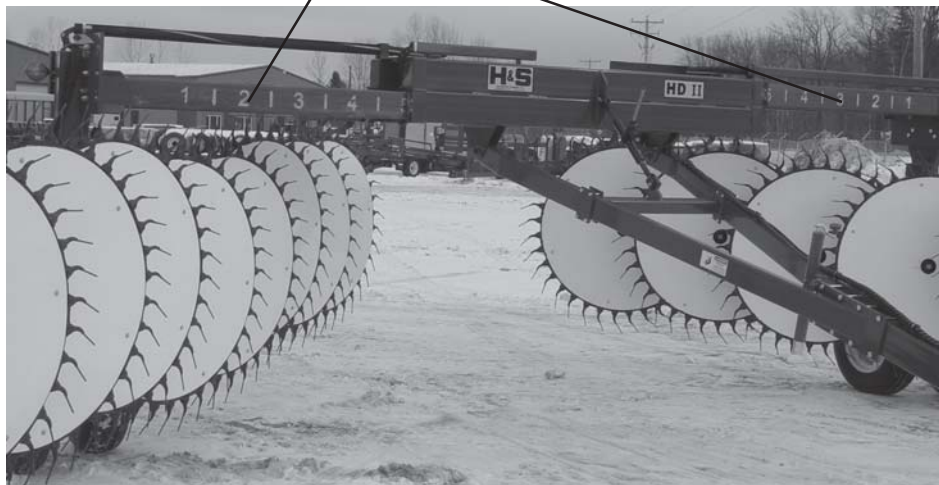
CONTROL BOX

The control box allows the operator to make many adjustments from the tractor seat. It is set up in three basic areas. The left side has two switches, one (A) for sliding the left center frame in or out, the other switch (B) controls the rake wheel beam angle. The right side also has two switches one (C) for sliding the right center frame in or out, the other switch (D) controls the rake wheel beam angle. In the center of the control box there are three switches. The switch on the left (E) will raise and lower the the left side rake wheels. The switch on the right (F) will raise and lower the right side rake wheels. The switch in the center (G) will raise and lower both left and right rake wheels.



CENTER FRAME

When opening or closing the center frame of the rake, it is **necessary to have forward or rearward motion to prevent any serious damage to rake.** Each side has it's own switch on the control box. There is a convenient number system on the two slider tubes to let the operator know where each side is located.



ATTENTION
NEVER ADJUST MAIN FRAME WIDTH WITHOUT FORWARD OR REARWARD MOTION OF RAKE. FAILURE TO HEED WILL CAUSE DAMAGE TO MAIN FRAME OR AXLE UPRIGHTS. 21804

RAKING ANGLE/WINDROW WIDTH

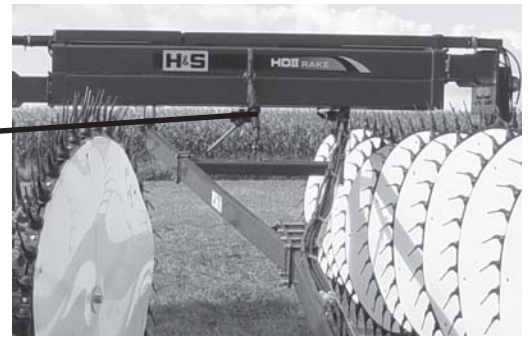
Before the rake beams can be angled, the center frame must be widened. The right and left rake wheel beam can be angled separately by their own switch on the control box. By angling each side more or less the desired windrow width can be accomplished.

NOTE: ANGLING THE RAKE BEAMS TO AN EXTENSIVE ANGLE BEFORE OPENING THE CENTER FRAME WILL RESULT IN DAMAGE TO THE RAKE WHEELS.

OPERATION & ADJUSTMENTS

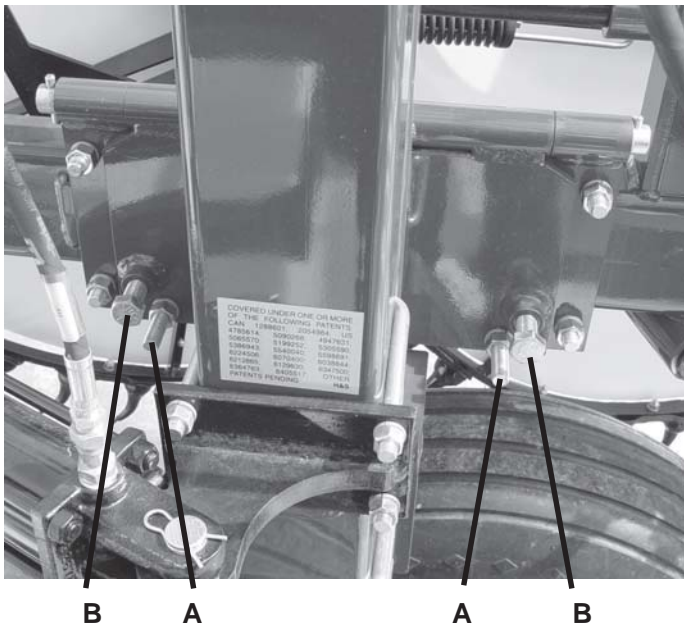
RAKE BEAM

Rake beams should be adjusted so they are level to slightly up in the front. They can be adjusted by using the ratchet jack located near the center of the rake. This adjustment is important to keep rake wheel ground pressure even along the rake beam. Failure to do this will cause the front wheels to make heavier contact with the ground.



RAKE BEAM TILT

The rake beam can be tilted from 0° to 10°. The 0° setting is to be used in normal conditions (dry and fluffy hay). The settings up to 10° are used in harsh conditions (heavy green hay or rained on hay that is matted into the stubble). To adjust the beam tilt, loosen the two tension bolts (A). Turn the two adjustment bolts (B) to desired tilt (make sure the two adjustment bolts are turned in evenly). Retighten the two tension bolts (A) securely. Repeat the same process on the opposite rake beam.



NO
BEAM
TILT

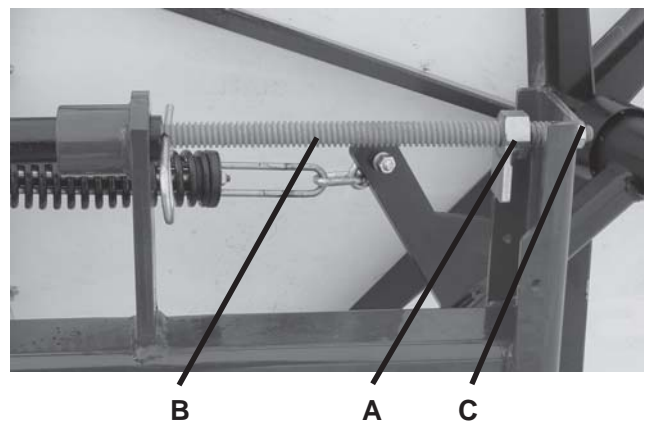


FULL
BEAM
TILT



RAKE WHEEL GROUND PRESSURE

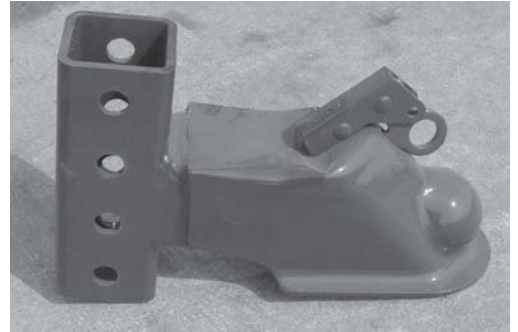
Rake wheel ground pressure is adjusted by turning locking nut and collar (A) in to decrease pressure or out to increase pressure. The length of the threaded rod (B), between (A) and rear support (C), will determine the rake wheel ground pressure. Measuring this distance or counting the threads will give you the same ground pressure on both rake beams.



OPTIONAL EQUIPMENT

BALL HITCH

The ball hitch is an option that can be added at any time. It allows for smoother operation in the field, by eliminating the distance between the clevis hitch and the tractor drawbar. Simply remove the clevis hitch and replace it with the ball coupler and install a 2-5/16" ball to the tractor drawbar.



LUBRICATION GUIDE

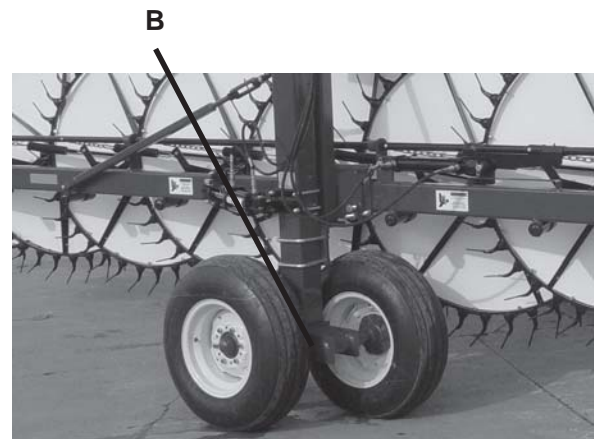
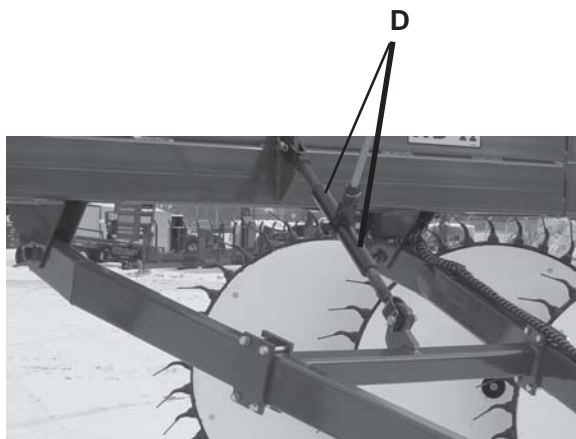
GREASE FITTINGS

There are numerous grease fittings on the HDII Rake. If lubricated properly and often enough, it will prolong the life of your HDII Rake. Grease daily during normal use and **before and after storage and after power washing**. Use a good grade of high quality grease. Make sure that grease comes out around the shaft on sleeve type bearings. Wipe off excessive grease to prevent accumulation of chaff or grit around the bearing.

LOCATION

Listed and shown are the description of location and number of grease fittings.

- A. (4) Two on each Lifting Cylinder Mount
- B. (2) One on each Tandem Pin
- C. (4) Two on each Beam Pivot (1) Top Pivot (1) Bottom Pivot
- D. (2) Ratchet Jack



DECAL LOCATION

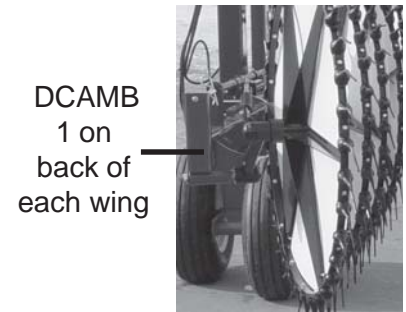
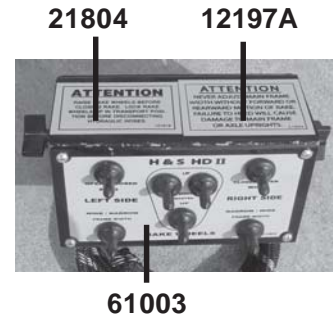
Your H&S HDII Rake was manufactured with operator safety in mind. Located on the HDII Rake are various decals to aid in operation, and warn of caution areas. Pay close attention to all decals.



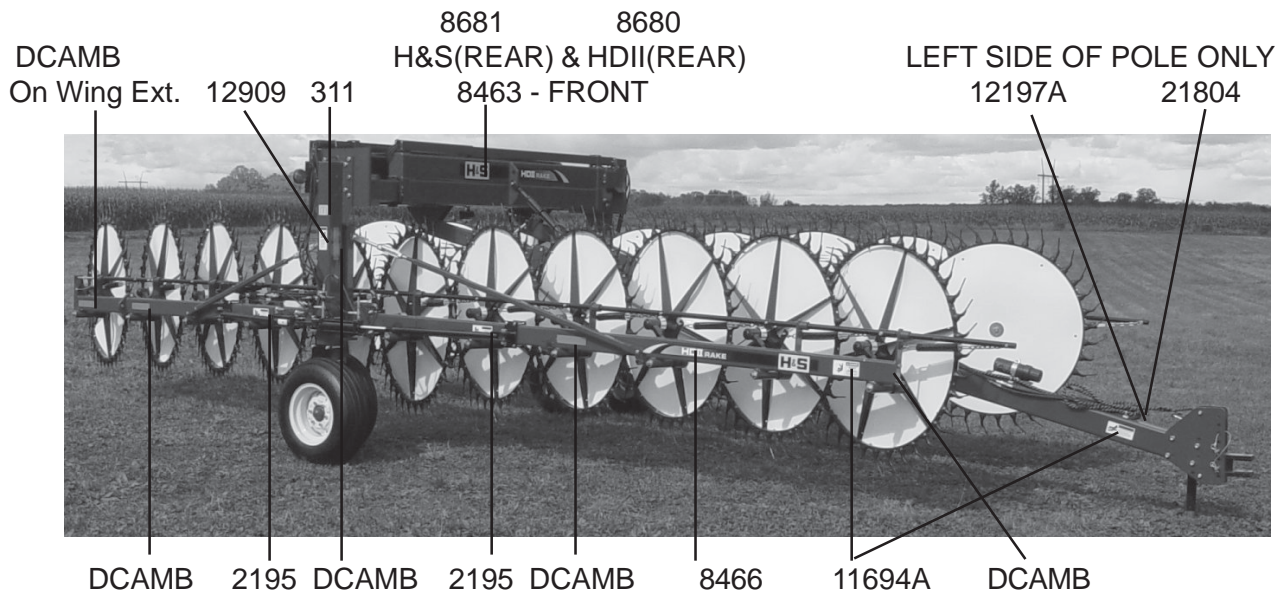
DO NOT REMOVE ANY OF THESE DECALS. IF DECALS ARE LOST, DAMAGED, OR IF HDII RAKE IS REPAINTED, REPLACE DECALS. REMEMBER: DECALS ARE FOR YOUR PROTECTION AND INFORMATION.

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

<u>PART</u>	<u>QTY.</u>	<u>DESCRIPTION</u>
311	4	Patent Numbers
2195	4	WARNING - Stay Clear of Rake
8463	1	H&S HDII - Front
8465	1	H&S HDII - Decal (Left)
8466	1	H&S HDII - Decal (Right)
8680	1	HDII Decal (Rear)
8681	1	H&S Decal (Rear)
21804	2	ATTENTION - Never Adjust Frame
22405	2	WARNING - Install Transport Locks
11599	2	WARNING - Do Not Go Near Leaks
11694A	4	DANGER - Stay Clear of Rake
12197A	1	ATTENTION - Raise Rake Wheels
12909	2	WARNING - Do Not Go Near Leaks
54033	1	3" - Made in the USA Decal
61003	1	Control Box Decal
71188B	1	Jack Storage
72203A	1	WARNING - Help Avoid Injury
DCAMB	7	Amber Reflector
DCRED	4	Red Reflector
DCSERIAL	1	Serial Number
0204-HDII	1	Complete Set of Decals



DECAL PLACEMENT IS THE SAME ON EACH SIDE UNLESS NOTED



TROUBLE SHOOTING



WARNING:
MAKE SURE THAT THE TRACTOR IS SHUT OFF AND THE RAKE CAN NOT MOVE BEFORE SERVICING THE HDII RAKE. MAINTENANCE AND REPAIR SERVICE WORK TO BE PERFORMED BY A QUALIFIED SERVICE PERSON ONLY.

TROUBLE

POSSIBLE CAUSE

POSSIBLE REMEDY

Main Frame Will Not Open or Close

No Electrical Power to Control Box

Check and Make Sure There is Power to Control Box

Blown Fuse or Circuit Breaker on Tractor

Check and Replace Fuse or Circuit Breaker

Hydraulic Lever Not Engaged or Engaged in Wrong Direction

Engage Hydraulic Lever or Move Hydraulic Lever in Opposite Direction

Hydraulic Hoses Not Connected to Tractor Properly

Check Hydraulic Hoses For Proper Connection

Solenoid Valve Sticking or Not Working Properly

Check Solenoid and Valve

Rake Beams Will Not Open or Close

No Electrical Power to Control Box

Check and Make Sure There is Power to Control Box

Transport Locks Still Engaged

Remove Clip Pin and Swing Self Storing Transport Locks Toward Frame

Blown Fuse or Circuit Breaker on Tractor

Check and Replace Fuse or Circuit Breaker

Hydraulic Lever Not Engaged or Engaged in Wrong Direction

Engage Hydraulic Lever or Move Hydraulic Lever in Opposite Direction

Hydraulic Hoses Not Connected to Tractor Properly

Check Hydraulic Hoses For Proper Connection

Solenoid Valve Sticking or Not Working Properly

Check Solenoid and Valve

Rake Wheels Will Not Raise or Lower

No Electrical Power to Control Box

Check and Make Sure There is Power to Control Box

Transport Lock Hair Pins Still Engaged

Remove Transport Lock Hair Pins and Place in Storage Position

Blown Fuse or Circuit Breaker on Tractor

Check and Replace Fuse or Circuit Breaker

Hydraulic Lever Not Engaged or Engaged in Wrong Direction

Engage Hydraulic Lever or Move Hydraulic Lever in Opposite Direction

Hydraulic Hoses Not Connected to Tractor Properly

Check Hydraulic Hoses For Proper Connection

Solenoid Valve Sticking or Not Working Properly

Check Solenoid and Valve

INSTRUCTIONS FOR ORDERING PARTS

All service parts should be ordered through your authorized H&S 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 left, rear main frame of your unit.
2. All reference to left or right apply to the machine as viewed from the rear.
3. Parts should not be ordered from illustration only. Please order by complete part number.
4. If your dealer has to order parts - give shipping instructions:
VIA truck - large pieces (please specify local truck lines)
VIA United Parcel Service (include full address)

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

PLEASE RECORD NUMBERS FOR YOUR UNIT FOR QUICK REFERENCE

ABOUT IMPROVEMENTS

H&S IS CONTINUALLY STRIVING TO IMPROVE 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

AXLE UPRIGHTS/TANDEMS

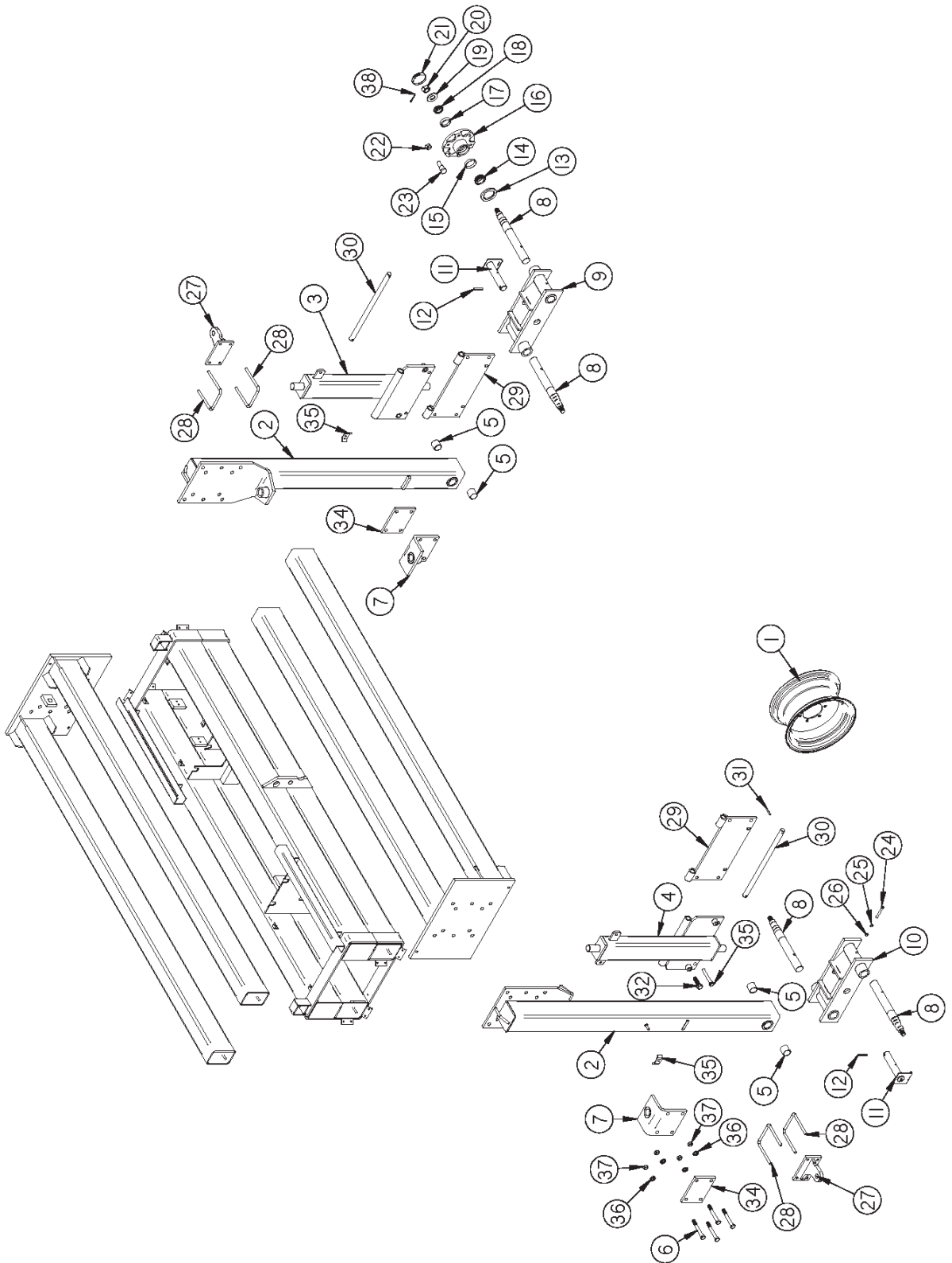


FIGURE 1

AXLE UPRIGHTS/TANDEMS

<u>ITEM</u>	<u>PART #</u>	<u>DESCRIPTION</u>
1	12N24	WHEEL 15 X 8
*	UR1	TIRE & TUBE 9.5L X 15 10 PLY
2	HD94	AXLE UPRIGHT
3	HD95	BEAM PIVOT LEFT
4	HD96	BEAM PIVOT RIGHT
5	HD153	BUSHING
6	YBHH20105	BOLT, 5/8" X 7" GR. 5
7	HD98	UPRIGHT BOTTOM PIVOT
8	HD99	SPINDLE
9	HD100	TANDEM AXLE LEFT
10	HD101	TANDEM AXLE RIGHT
11	HD102	TANDEM PIN
12	YPEX12025	EXPANSION PIN, 3/8" X 2-3/4"
13	RG98	SEAL
14	RG99	INNER BEARING
15	RG100	INNER RACE
16	RG101	HUB
17	RG47	OUTER RACE
18	RG48	OUTER BEARING
19	HD200	WASHER
20	YNSL32005	HEX NUT, SLOTTED, 1"-14
21	17G144	DUST CAP
22	YNWL16005	WHEEL NUT, 1/2"-20 UNF
23	YBSD16010	STUD BOLT, 1/2"-20 UNF X 1-7/8" (3/4" SHOULDER)
24	YBHH12145	BOLT, 3/8" X 3-1/2" GR. 5
25	YWLO12005	WASHER, LOCK, 3/8"
26	YNHX12005	HEX NUT, 3/8"-16
27	HD151	CYLINDER MOUNT UPRIGHT END
28	HD152	1/2" U-Bolt
29	HD164	BEAM PIVOT PLATE
30	HD165	HINGE PIN
31	YPEX10015	EXPANSION PIN, 5/16" X 1-3/4"
32	YBHH24020	BOLT, 3/4" X 2-1/2" GR. 5
33	YBHH20055	BOLT, 5/8" X 3-1/2" GR. 5
34	HD182	PIVOT MOUNT PLATE
35	HE42	HOSE CLAMP
36	YWLO20005	WASHER, LOCK, 5/8"
37	YNHX20005	HEX NUT, 5/8"-11 PLATED
38	YPCT05010	COTTER PIN, 5/32" X 1-1/2"

NOTE: * MEANS NOT SHOWN

FIGURE 2

MAIN FRAME

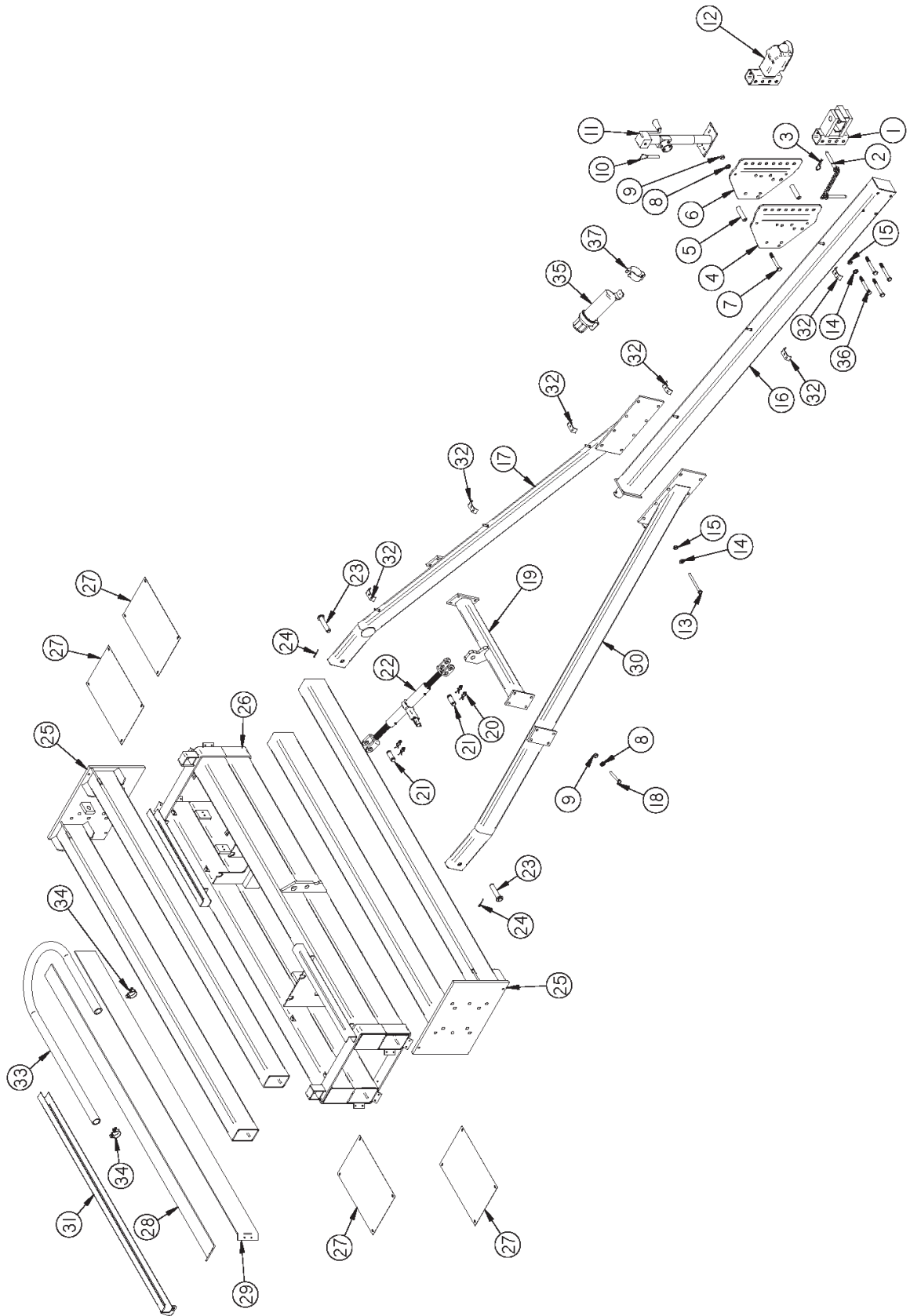


FIGURE 2

MAIN FRAME

<u>ITEM</u>	<u>PART #</u>	<u>DESCRIPTION</u>
1	HD83	HITCH CLEVIS
2	BFR450	HITCH PIN
3	YPHR02010	HAIR PIN, #21-07
4	HD84	HITCH MOUNT RIGHT
5	HD85	HITCH MOUNT SPACER
6	HD86	HITCH MOUNT LEFT
7	YBHH16160	BOLT, 1/2" X 5-1/2" GR. 5
8	YWLO16005	WASHER, LOCK, 1/2"
9	YNHX16005	HEX NUT, 1/2"
10	12N117	JACK PIN & CHAIN
11	BFR773	JACK
12	HD172	BALL COUPLER (OPTIONAL)
13	YBHH20100	BOLT, 5/8" X 6" GR. 5
14	YWLO20005	WASHER, LOCK, 5/8"
15	YNHX20005	HEX NUT, 5/8"-11 PLATED
16	HD89	POLE FRONT
17	HD90	POLE BACK LEFT
18	YBHH16125	BOLT, 1/2" X 3-3/4" GR. 5
19	HD92	JACK MOUNT TUBING
20	YPHR02020	HAIR PIN, #23-10
21	T143	JACK PIN
22	T138	RATCHET JACK
23	HD93	POLE PIVOT PIN
24	YPCT05010	COTTER PIN, 5/32" X 1-1/2"
25	HD103	INNER SLIDER
26**	HD104	CENTER SLIDER OUTSIDE
***	HD183	CENTER SLIDER OUTSIDE
27	HD105	SHIELD
28	HD106	POLY SLIDE NARROW 1/4"
*	HD155	POLY SLIDE NARROW 3/16"
29	HD107	POLY SLIDE WIDE 1/4"
*	HD156	POLY SLIDE WIDE 3/16"
30	HD108	POLE BACK RIGHT
31**	HD140	HOSE CHANNEL
***	HD184	HOSE CHANNEL
32	23N67	HOSE BRACKET
33**	HD169	HOSE SHIELD
***	HD185	HOSE SHIELD
34**	HD170	HOSE CLAMP (SIZE 40)
***	HD186	HOSE CLAMP (SIZE 48)
35	S522	MANUAL HOLDER
36	YBHH20095	BOLT, 5/8" X 5-1/2" GR. 5
37	S23	MANUAL CLAMP - LARGE

NOTE: * MEANS NOT SHOWN

**** (USED SERIAL #0032 AND BEFORE)**

***** (USED SERIAL #0033 AND AFTER)**

FIGURE 3
RAKE BEAMS

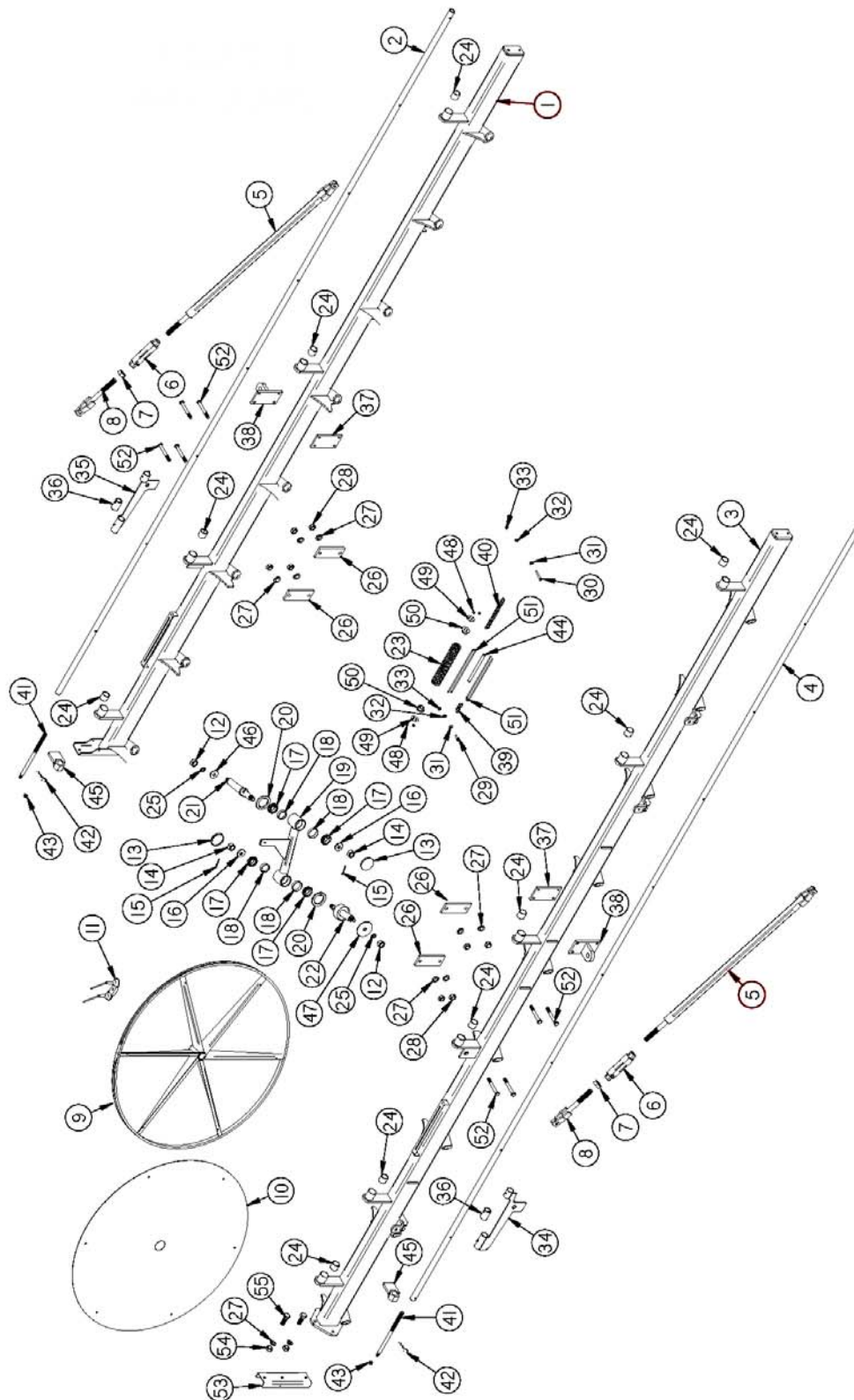


FIGURE 3

RAKE BEAMS

<u>ITEM</u>	<u>PART #</u>	<u>DESCRIPTION</u>
1	HD229	RAKE BEAM LEFT A
2	HD110	LIFTING PIPE LEFT
3	HD230	RAKE BEAM RIGHT A
4	HD112	LIFTING PIPE RIGHT
5	HD113	STABILIZER TUBING
6	HD114	TURNBUCKLE
7	YNJM32010	HEX NUT, JAM, 1"-8
8	HD116	TURNBUCKLE END
9	HD117	RAKE WHEEL
*	HD203	COMPLETE LH RAKE WHEEL
*	HD204	COMPLETE RH RAKE WHEEL
10	HD118	WIND GUARD
11	HD119	RAKE TOOTH
12	YNHX24005	HEX NUT, 3/4"-10 PLATED
13	17G144	DUST CAP
14	YNSL28005	HEX NUT, SLOTTED, 7/8"-14
15	YPCT05010	COTTER PIN, 5/32" X 1-1/2"
16	YWFL28005	WASHER, FLAT, 7/8" USS
17	HD122	BEARING
18	3G18	BEARING RACE
19	HD123	RAKE ARM
20	HD124	SEAL
21	HD125	PIVOT SPINDLE
22	HD126	RAKE WHEEL SPINDLE
23	HD127	SPRING
*	HD201	COMPLETE SPRING ASSEMBLY
24	HD128	BUSHING
25	YWSI24005	WASHER, LOCK, STAR, INTERNAL/EXTERNAL, 3/4"
26	HD202	BEAM PLATE
27	YWLO20005	WASHER, LOCK, 5/8"
28	YNTL20005	HEX NUT, TOP LOCK, 5/8"-11
29	YBHH12035	BOLT, 3/8" X 1-1/4" GR. 5
30	YBHH12100	BOLT, 3/8" X 2-1/4" GR. 5

NOTE: * MEANS NOT SHOWN

FIGURE 3
RAKE BEAMS

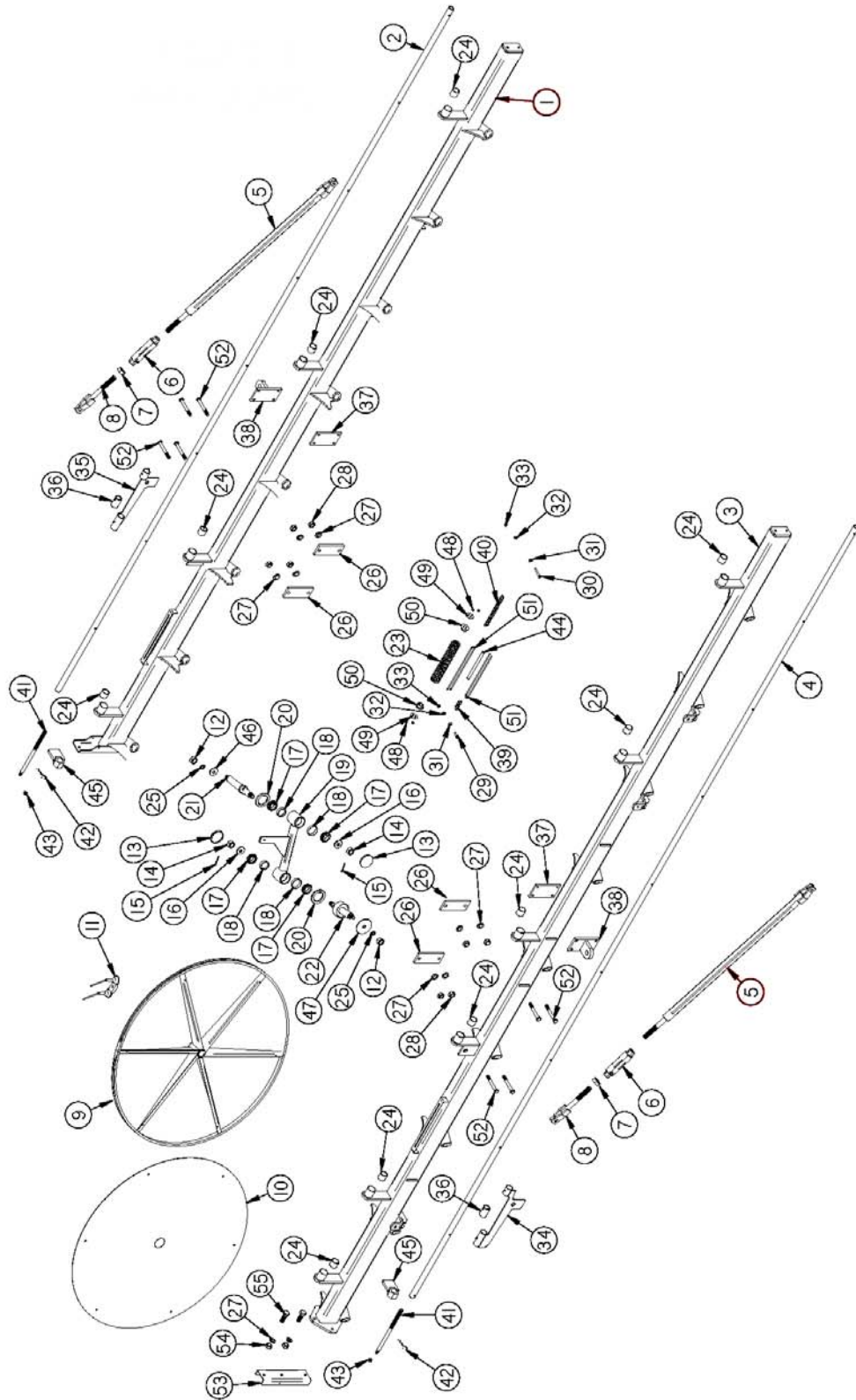


FIGURE 3

RAKE BEAMS

<u>ITEM</u>	<u>PART #</u>	<u>DESCRIPTION</u>
31	YWFL12005	WASHER, FLAT, 3/8" USS
32	YWLO12005	WASHER, LOCK, 3/8"
33	YNTL12005	HEX NUT, TOP LOCK, 3/8"-16
34	HD130	LIFTING CYLINDER MOUNT RIGHT
35	HD131	LIFTING CYLINDER MOUNT LEFT
36	HD175	LIFTING PIPE COLLAR
37	HD91	STANDOFF MOUNTING PLATE
38	HD132	CYLINDER MOUNT
39	HD214	RAKE WHEEL SHORT CHAIN
40	HD210	RAKE WHEEL CHAIN
41	HD154	ACME ROD
42	YPHR08040	HAIR PIN, 1/4" X 5"
43	YNHX16005	HEX NUT, 1/2"
44	HD179	SPRING STOPPER
45	BFR426	RAKE PRESSURE HANDLE
46	HD157	PIVOT WASHER
47	HD158	SPINDLE WASHER
48	YNNY08005	HEX NUT, NYLON LOCKNUT, 1/4"-20
49	HD176	SPRING HOLDER WASHER
50	HD177	POLY SPRING HOLDER
51	HD178	TORSION BAR
52	YBHH20085	BOLT, 5/8" X 5" GR. 5
53	HD231	ADJUSTMENT POST RIGHT
54	YNHX20005	HEX NUT, 5/8"-11 PLATED
55	YBHH20010	BOLT, 5/8" X 1-1/2" GR. 5

FIGURE 4 HYDRAULICS

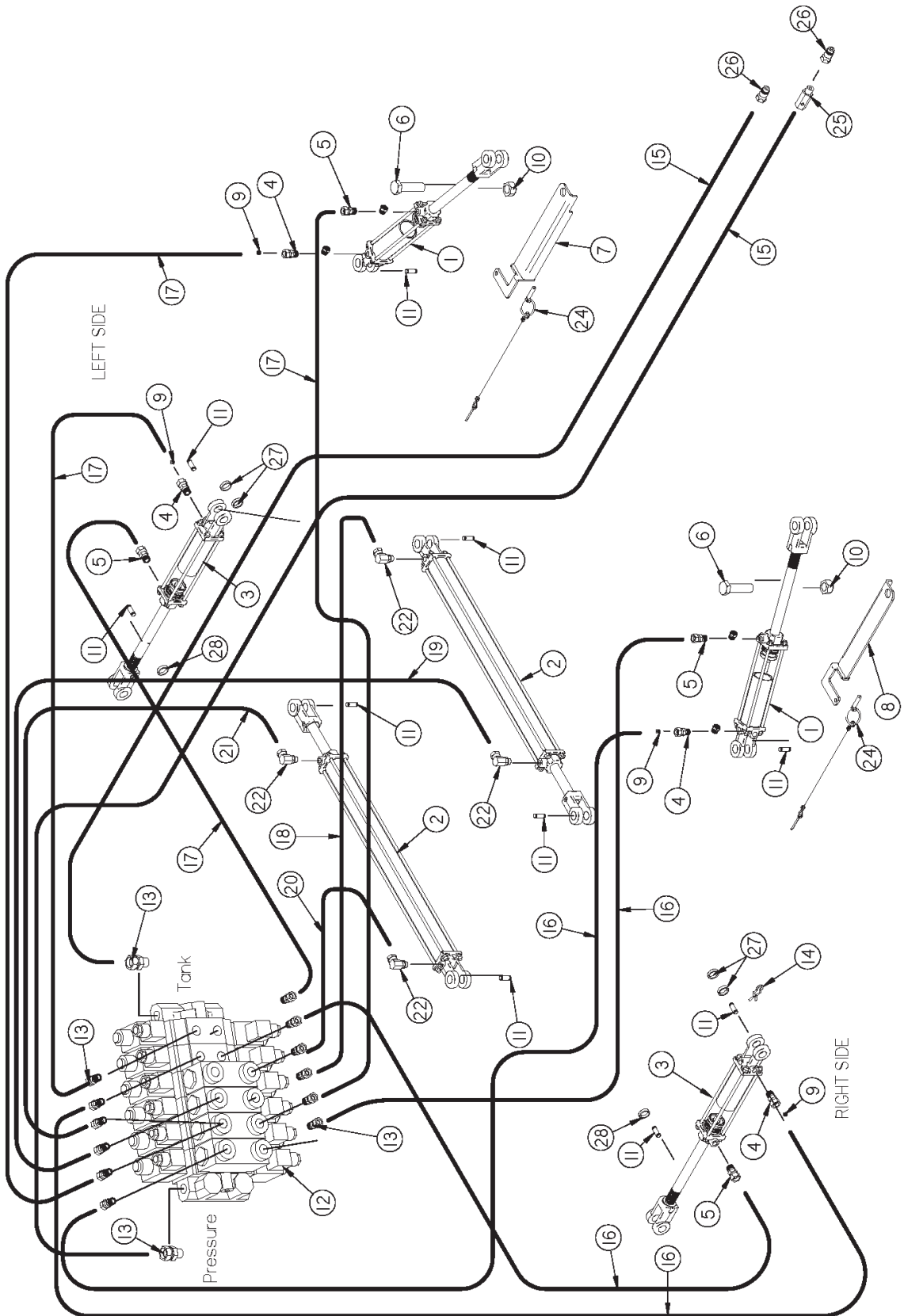


FIGURE 4

HYDRAULICS

<u>ITEM</u>	<u>PART#</u>	<u>DESCRIPTION</u>
1	HD135	HYDRAULIC CYLINDER 3" x 8"(SERIAL #315498 AND PRIOR)
*	56009	HYDRAULIC CYLINDER 3" x 8"(SERIAL #315499 AND FOWARD)
2	HD136	HYDRAULIC CYLINDER 3-1/2" x 60"(SERIAL #315533 AND PROIR)
*	56014	HYDRAULIC CYLINDER 3-1/2" x 60"(SERIAL #315534 AND FORWARD)
3	16SV171	HYDRAULIC LIFT CYLINDER 2" x 10"(SREIAL #315533 AND PROIR)
*	56000	HYDRAULIC LIFT CYLINDER 2" x 10"(SERIAL #315534 AND FORWARD)
4	BFR122	3/8" UNION ADAPTER
5	DWM233	3/8" UNION ADAPTER
6	YBHH32015	BOLT, 1"-8 X 4" GR. 5
7	HD137	TRANSPORT LOCK LEFT
8	HD138	TRANSPORT LOCK RIGHT
9	BFR120	.062 ORIFICE
10	YNTL32005	HEX NUT, TOP LOCK, 1"-8
11	T143	HYDRAULIC CYLINDER PIN
12	HD139	HYDRAULIC VALVE
*	HD216	SOLENOID TUBE ASSEMBLY
13	DWM268	9/16" MALE O-RING TO 3/8" PIPE UNION ADAPTER
14	T144	CYLINDER CLIP PIN
15	HD141	HYD. HOSE 3/8 X 288" 1/2MP & 3/8MP
16	HD142	HYD. HOSE 1/4 X 288" 3/8MP & 3/8MP
17	HD143	HYD. HOSE 1/4 X 210" 3/8MP & 3/8MP
18	HD144	HYD. HOSE 1/4 X 36" 3/8MP & 1/2MP
19	HD145	HYD. HOSE 1/4 X 96" 3/8MP & 1/2MP
20	HD147	HYD. HOSE 1/4 X 60" 3/8MP & 1/2MP
21	HD146	HYD. HOSE 1/4 X 20" 3/8MP & 1/2MP
22	WM175	1/2" 90° UNION ADAPTER
23	JB82	BUSHING 1/2" TO 3/8"
24	YPLY12010	LYNCH PIN, 7/16" X 1-3/4"
25	DF18	1/2" CHECK VALVE
26	DWM205	1/2" MALE QUICK COUPLER
27	X94	SPACER 5/16 x 1"
28	HD187	SPACER 3/4 x 1"

NOTE: * MEANS NOT SHOWN

FIGURE 5

WIRING

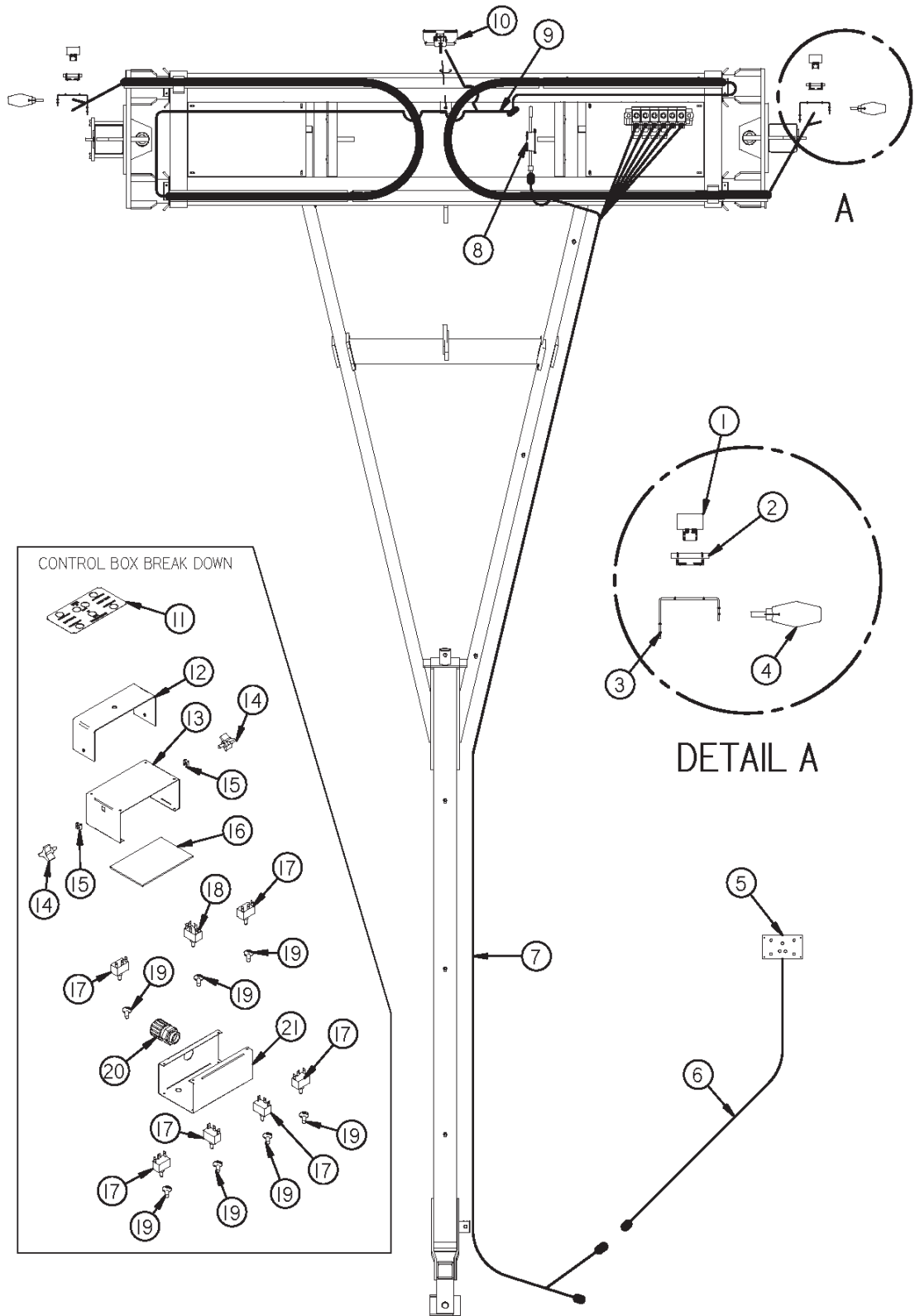


FIGURE 5

WIRING

<u>ITEM</u>	<u>PART #</u>	<u>DESCRIPTION</u>
1	S310	RED TAIL LIGHT
2	S308	RUBBER LIGHT MOUNT
3	HD148	LIGHT BRACKET
4	DWM129	YELLOW HAZARD LIGHT
5	HD180	COMPLETE CONTROL BOX W/ HARNESS
6	HD160	CONTROL BOX WHIP
7	HD161	MAIN HARNESS
8	S441	LIGHT MODULE
9	HD149	TAIL LIGHT LOOM
10	DWM130	FLOOD/WORK LIGHT
11	61003	CONTROL BOX DECAL
12	DWM326	CONTROL BOX MOUNT
13	DWM140	CONTROL BOX BOTTOM
14	HD174	KNOB
15	HD173	PANEL NUT
16	HD163	POLY SHIELD
17	HD207	MOMENTARY SWITCH
18	HD159	MASTER SWITCH
19	16SV235	SWITCH BOOT
20	DWM175	STRAIN RELIEF
21	HD150	CONTROL BOX TOP

FIGURE 6
HYDRAULIC CYLINDERS

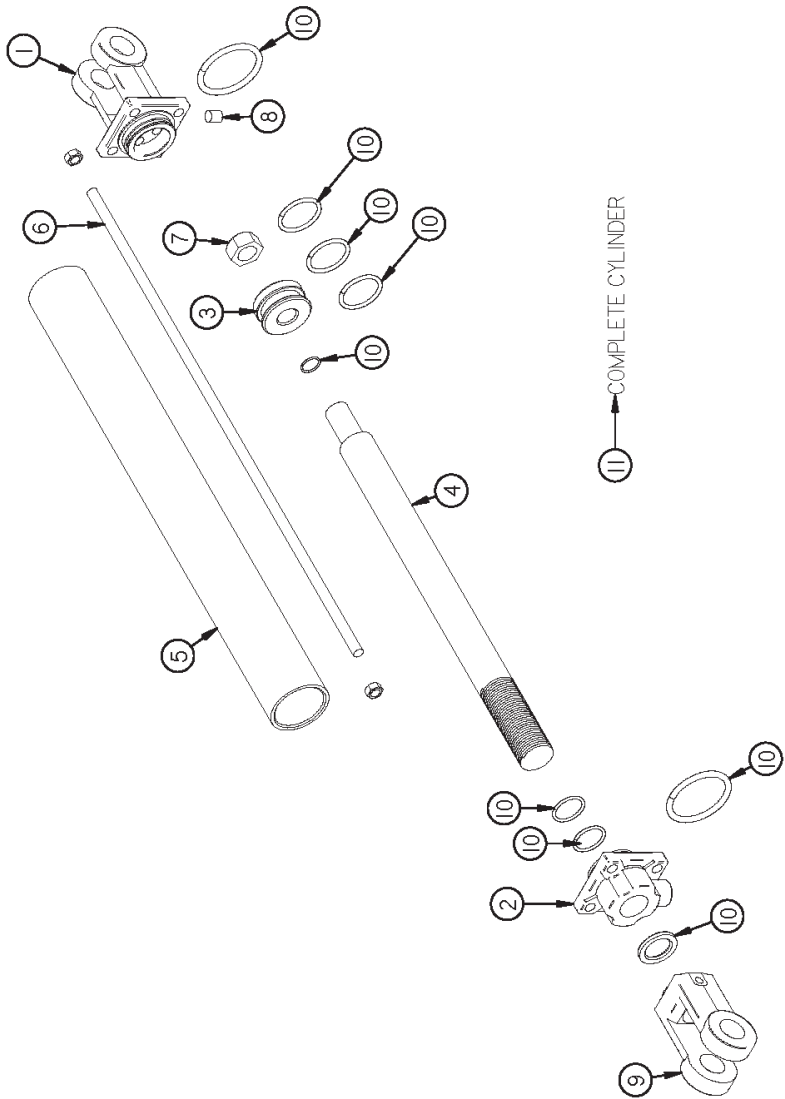


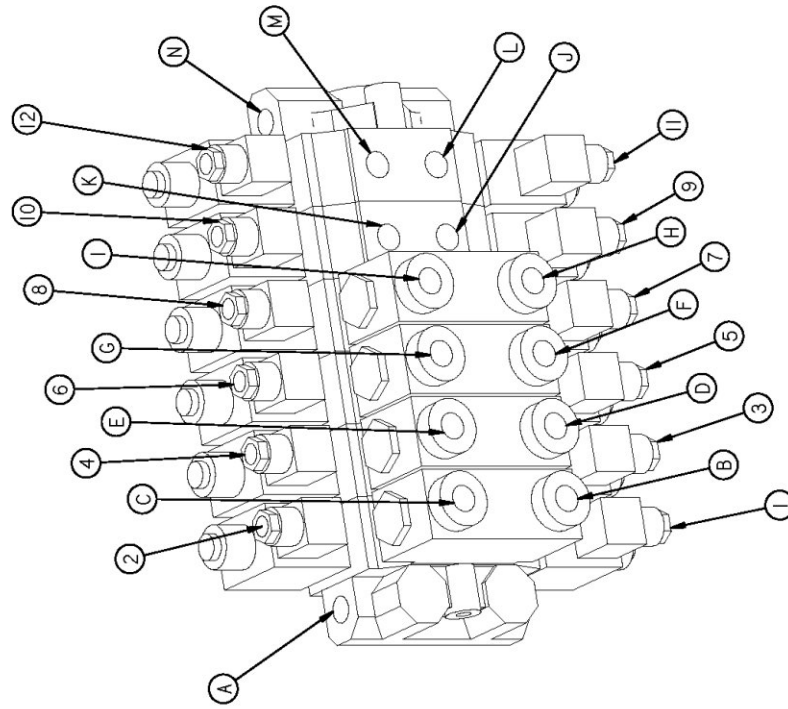
FIGURE 6

HYDRAULIC CYLINDERS

	LIFT CYLINDER/ WING CYLINDER/ FRAME WIDTH			
	2" X 10"	3" x 8"	3-1/2" x 60"	
<u>ITEM</u>	<u>PART #</u>	<u>PART #</u>	<u>PART #</u>	<u>DESCRIPTION</u>
1	23N142A	CHM138	XR55	CLEVIS CAP(SERIAL #315498 AND PRIOR)
2	23N143A	HD188	HD189	ROD CAP(SERIAL #315498 AND PRIOR)
*	56174	56176	56179	ROD CAP(SERIAL #315499 AND FORWARD)
3	23N144	DWM194	HD198	PISTON(SERIAL #315498 AND PRIOR)
*	56180	56182	56183	PISTON(SERIAL #315499 AND FORWARD)
4	16SV168A	HD190	HD191	ROD
5	16SV169	HD192	HD193	CYLINDER TUBE
6	16SV170	HD194	HD195	TIE ROD
7	23N148	XR61	XR61	PISTON NUT
8	23N149	XR62	XR62	PLUG
9	23N150A	XR63	XR63	ROD CLEVIS
10	23N151	HD196	HD197	SEAL KIT(SERIAL #315498 AND PRIOR)
*	56187	56189	56192	SEAL KIT(SERIAL #315499 AND FORWARD)
11	16SV171A	HD135	HD136	HYDRAULIC CYLINDER(SERIAL #315498 AND PRIOR)
*	56000	56009	56014	HYDRAULIC CYLINDER(SERIAL #315499 AND FORWARD)

FIGURE 7

HYDRAULIC VALVE



A	PRESSURE PORT	
B	RIGHT BEAM OPEN	Din # 1
C	RIGHT BEAM CLOSED	Din # 2
D	LEFT BEAM OPEN	Din # 3
E	LEFT BEAM CLOSED	Din # 4
F	RIGHT WIDTH OUT	Din # 5
G	RIGHT WIDTH IN	Din # 6
H	LEFT WIDTH OUT	Din # 7
I	LEFT WIDTH IN	Din # 8
J	RIGHT RAKE WHEEL UP	Din # 9
K	RIGHT RAKE WHEEL DOWN	Din # 10
L	LEFT RAKE WHEEL UP	Din # 11
M	LEFT RAKE WHEEL DOWN	Din # 12
N	TANK PORT	

FIGURE 8 MAIN HARNESS

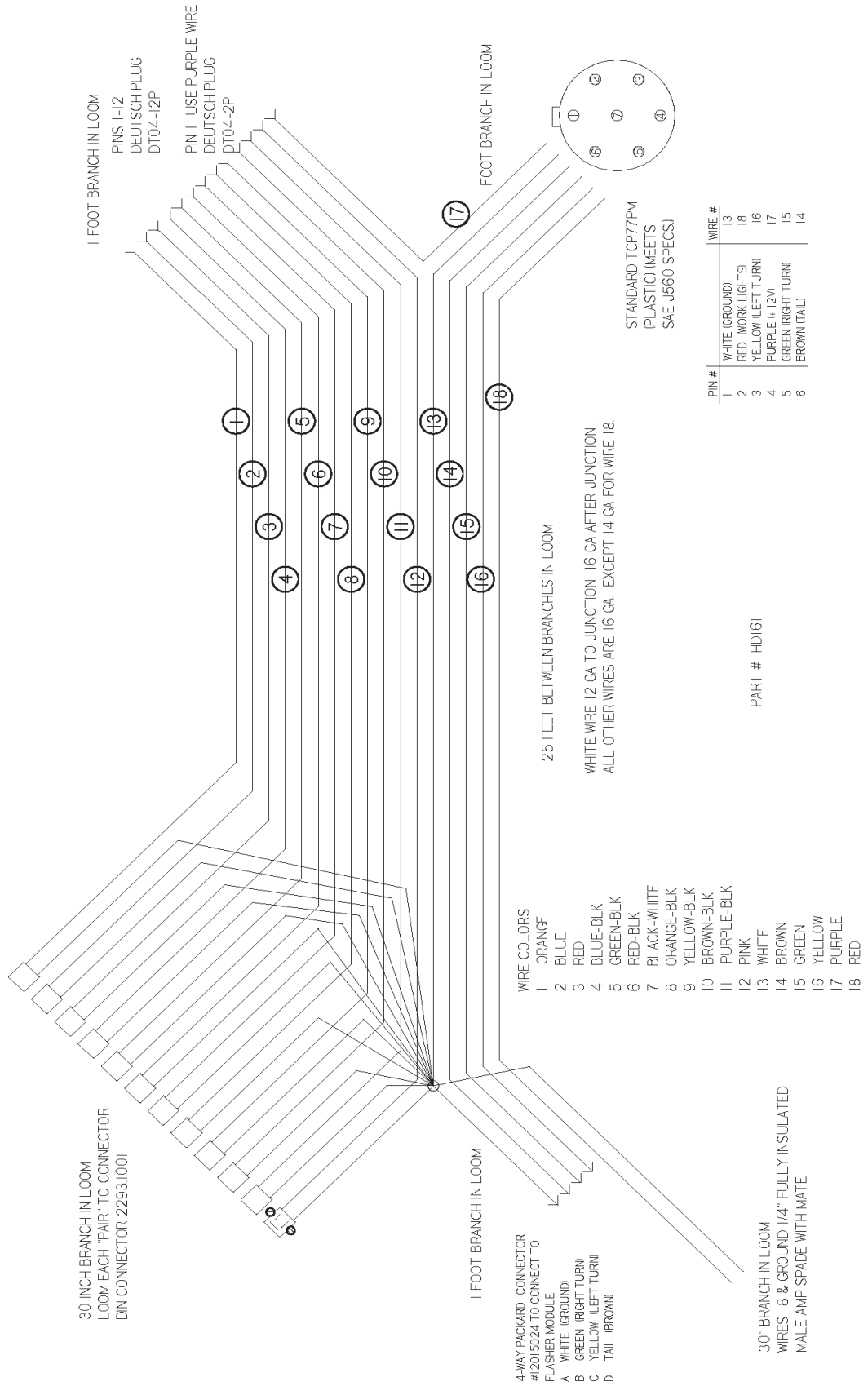


FIGURE 9

CONTROL BOX WIRING

CONTROL BOX WHIP

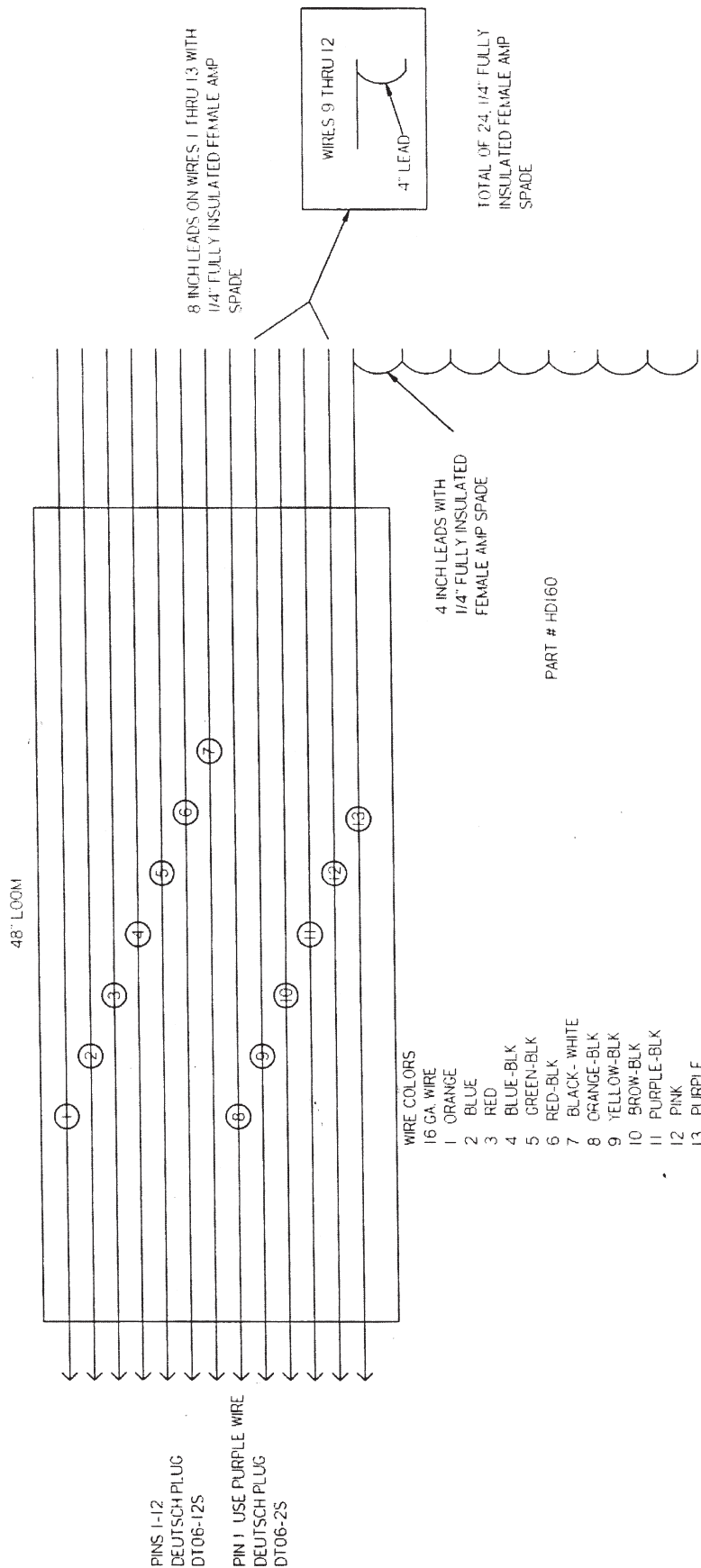
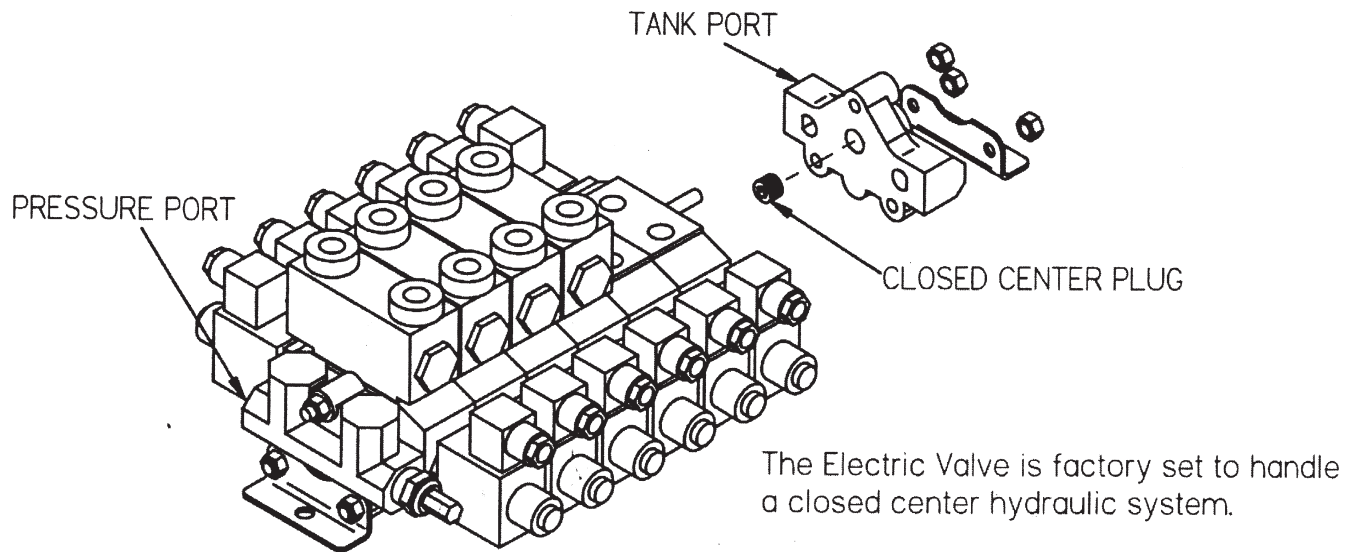


FIGURE 10

OPEN CENTER CHANGE



If closed center valve is used on a open center tractor it will cause the oil to heat because oil is dumping over relief.

Instructions for converting valve to open center:

1. Widen left side of rake using left frame width switch on control box (Remember to be moving forward or rearward when doing this).
2. Release all pressure in hydraulic system (Shut tractor OFF and remove ignition Key).
3. Support valve bottom.
4. Remove left mounting bolt.
5. Remove 3 tie rod nuts on tank port (the outward side of valve).
6. Remove end cap, (do not loose the o-rings that are between the sections).
7. Remove plug in end cap with allen wrench, (save for future use).
8. Re-Assemble end cap and mounting angle, (torque tie rod nuts to 140 in.lbs. (16 N-M)).
9. Install bolt in mounting angle.

FIGURE 11
FRONT RAKE WHEEL EXTENSION

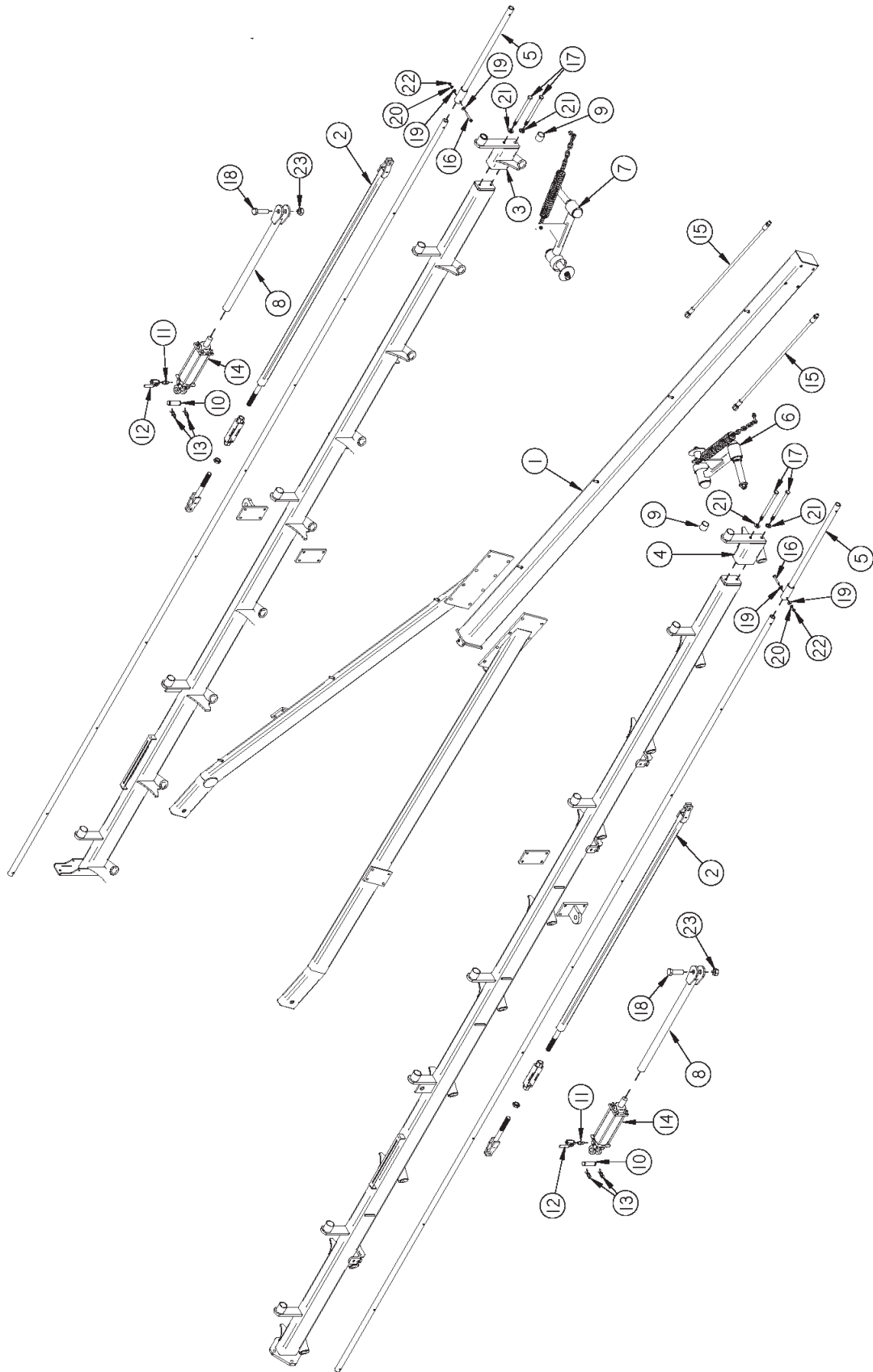


FIGURE 11

FRONT RAKE WHEEL EXTENSION

<u>ITEM</u>	<u>PART #</u>	<u>DESCRIPTION</u>
1	HD252	POLE
2	HD251	TURNBUCKLE LONG STUB LEFT
3	HD259	RAKE BEAM LEFT EXTENSION
4	HD260	RAKE BEAM RIGHT EXTENSION
5	HD253	LIFT PIPE
6	HD246	RAKE ARM RIGHT COMPLETE (INCLUDING SPRING ASSEMBLY) (SEE FIGURE 3 FOR DETAIL)
7	HD245	RAKE ARM LEFT COMPLETE (INCLUDING SPRING ASSEMBLY) (SEE FIGURE 3 FOR DETAIL)
8	HD248	CYLINDER ROD
9	HD128	BUSHING
10	T143	CYLINDER PIN
11	16SV351	CLOSE NIPPLE .375 X 2
12	WM140	1/2" BALL BALL VALVE
13	T144	CYLINDER CLIP PIN
14	56810	3" X 8" CYLINDER, WITH NO ROD CLEVIS (3000 PSI)
15	BFR635	HYDRAULIC HOSE 3/8" X 33" (102HY-8-6, 101HY-8-6)
16	YBHH12090	BOLT, 3/8" X 2-1/2" GR. 5
17	YBHH20120	BOLT, HEX HEAD, 5/8" X 9" GR. 5
18	YBHH32010	BOLT, 1"-8 X 3-1/2" GR. 5
19	YWFL12005	WASHER, FLAT, 3/8" USS
20	YWLO12005	WASHER, LOCK, 3/8"
21	YWLO20005	WASHER, LOCK, 5/8"
22	YNHX12005	HEX NUT, 3/8"-16
23	YNTL32005	HEX NUT, TOP LOCK, 1"-8
*	HD203	COMPLETE LH RAKE WHEEL
*	HD204	COMPLETE RH RAKE WHEEL

NOTE: * MEANS NOT SHOWN

FIGURE 12

RIGHT REAR WHEEL EXTENSION

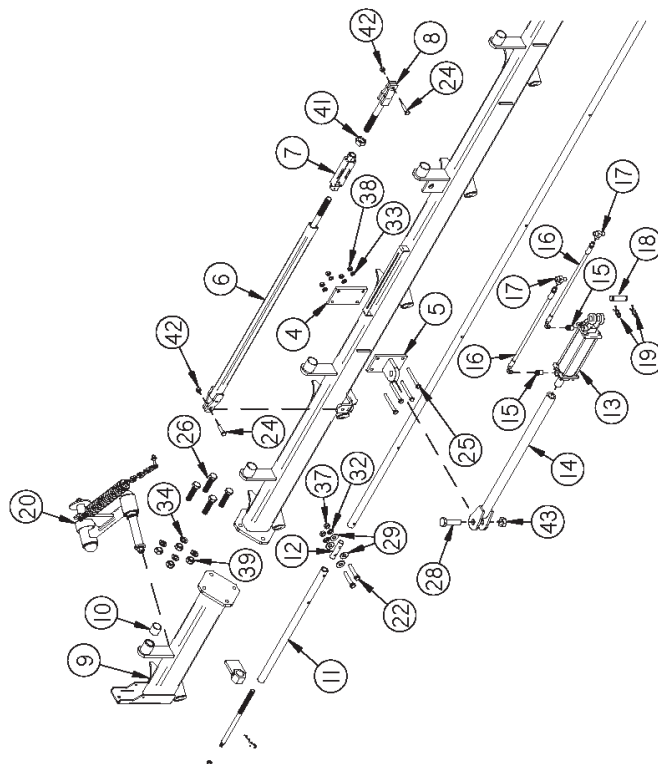
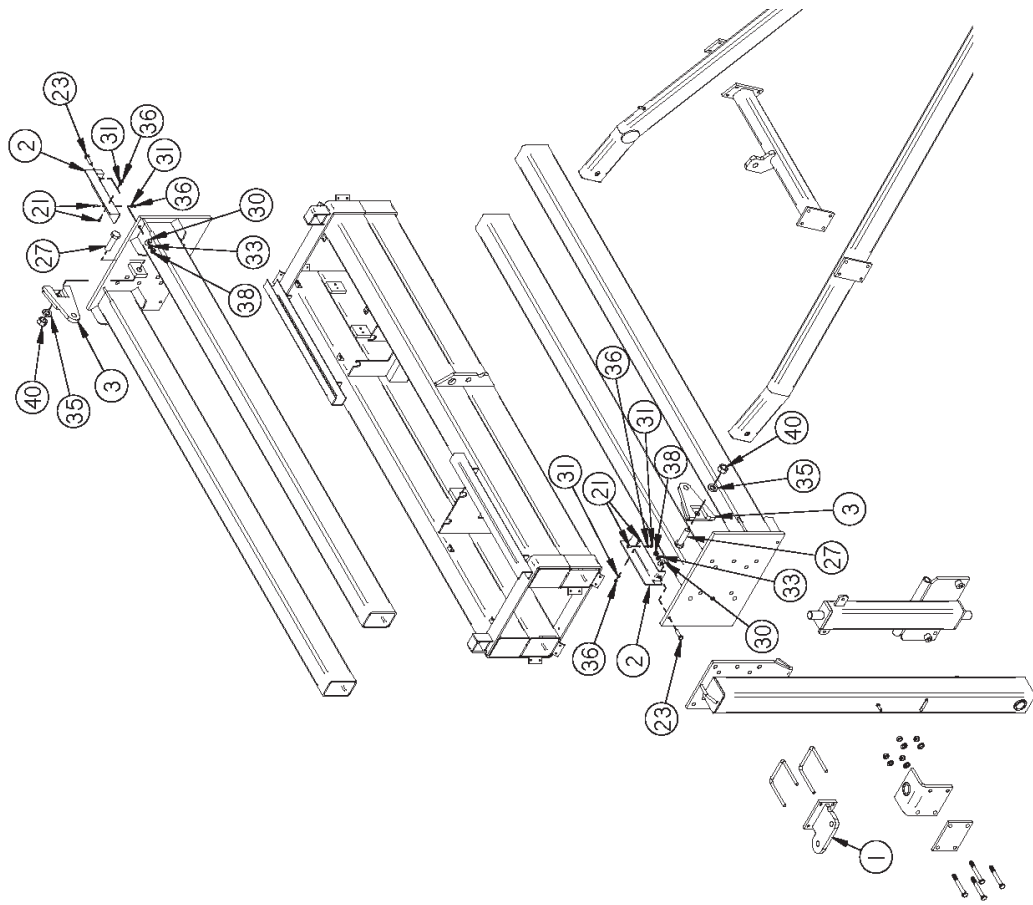


FIGURE 12

RIGHT REAR WHEEL EXTENSION

<u>ITEM</u>	<u>PART #</u>	<u>DESCRIPTION</u>
1	HD244	CYLINDER MOUNT DOUBLE
2	HD242	HOSE HOLDER
3	HD243	CYLINDER MOUNT EXTENSION
4	HD91	STANDOFF MOUNTING PLATE
5	HD132	CYLINDER MOUNT
6	HD113	STABILIZER TUBING
7	HD114	TURNBUCKLE
8	HD116	TURNBUCKLE END
9	HD239	RAKE BEAM REAR EXTENSION
10	HD128	BUSHING
11	HD241	LIFT PIPE
12	XR41	EXTENSION LIFT PIPE CONNECTOR
13	56810	3" X 8" CYLINDER, WITH NO ROD CLEVIS (3000 PSI)
14	HD248	CYLINDER ROD
*	HD256	REAR CYLINDER WITH ROD
15	SHM32	MALE CONNECTOR FTX 4-8
16	0216AS10	1/4" X 22" HYDRAULIC HOSE (139HY-4-4 & 103HY-6-4)
17	23N116	SERVICE TEE .375
18	T143	CYLINDER PIN
19	T144	CYLINDER CLIP PIN
20	HD246	RAKE ARM RIGHT COMPLETE (INCLUDING SPRING ASSEMBLY) (SEE FIGURE 3 FOR DETAIL)
21	YBHH08100	BOLT, 1/4" X 3/4" GR. 5
22	YBHH12075	BOLT, 3/8" X 2" GR. 5
23	YBHH16055	BOLT, 1/2" X 1-3/4" GR. 5
24	YBHH16065	BOLT, 1/2" X 2" GR. 5
25	YBHH16150	BOLT, 1/2" X 4-3/4" GR. 5
26	YBHH20025	BOLT, 5/8" X 2" GR. 5
27	YBHH32006	BOLT, 1"-8 X 2-3/4" GR. 5
28	YBHH32010	BOLT, 1"-8 X 3-1/2" GR. 5
29	YWFL12005	WASHER, FLAT, 3/8" USS
30	YWFL16005	WASHER, FLAT, 1/2" USS
31	YWLO08005	WASHER, LOCK, 1/4"
32	YWLO12005	WASHER, LOCK, 3/8"
33	YWLO16005	WASHER, LOCK, 1/2"
34	YWLO20005	WASHER, LOCK, 5/8"
35	YWLO32005	WASHER, LOCK, 1"
36	YNHX08005	HEX NUT, 1/4"-20
37	YNHX12005	HEX NUT, 3/8"-16
38	YNHX16005	HEX NUT, 1/2"
39	YNHX20005	HEX NUT, 5/8"-11 PLATED
40	YNHX32010	HEX NUT, 1"-8 PLATED
41	YNJM32010	HEX NUT, JAM, 1"-8
42	YNL16005	HEX NUT, TOP LOCK, 1/2"-13
43	YNL32005	HEX NUT, TOP LOCK, 1"-8
*	HD203	COMPLETE LH RAKE WHEEL (SEE FIGURE 3 FOR DETAIL)
*	HD204	COMPLETE RH RAKE WHEEL (SEE FIGURE 3 FOR DETAIL)
*	HD240	RAKE BEAM REAR EXTENSION KIT (INCLUDES RAKE ARM, SPRING ASSEMBLY, REAR EXT.)

NOTE: * MEANS NOT SHOWN

SPECIFICATIONS

	<u>17</u>	<u>18</u>	<u>19</u>	<u>20</u>
Wheel Diameter.	60"	60"	60"	60"
Teeth per Wheel.36 (18 sets of 2)			
Teeth	Rubber Mounted in a set of 2			
Transport Width.	12' 3"			
Transport Length.	28' 3"	30' 9"	30' 4"	32' 9"
Maximum Raking Width.	30' 3"	30' 3"	N/A	N/A
Maximum Finished Windrow Width.	72"	72"	N/A	N/A
Rake Wheel Hubs.	Tapered Bearings			
Rake Beam Tilt.0° to 10°			
Hitch Jack.	Standard			
Tail & Work Lights.	Standard			
Tires.9.5L x 15SL			

MODELS AND SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE.

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