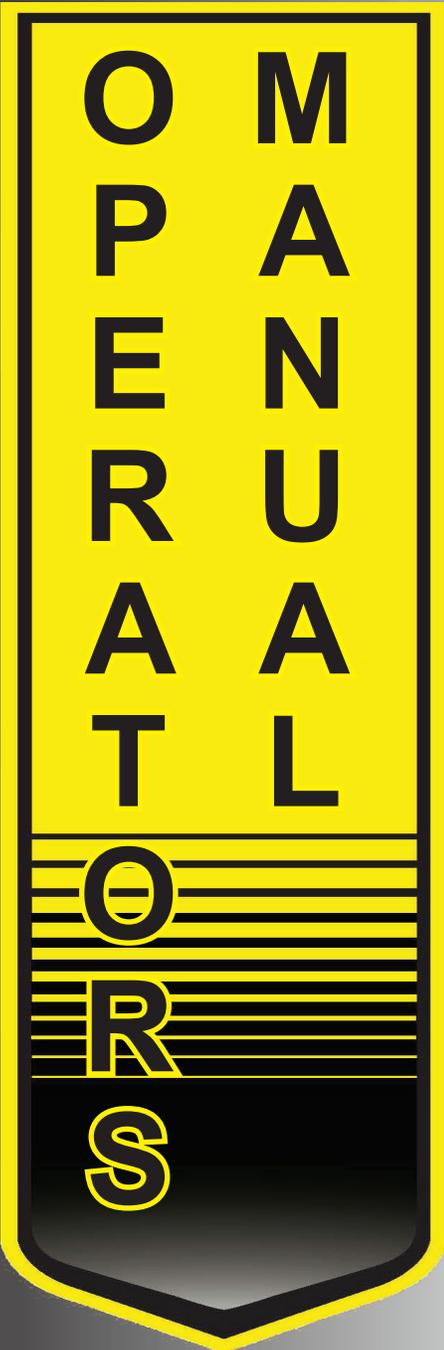


8117 HDII RAKE



WARNING

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

Starting Serial #911HD17001

Part #84086

Rev. #00

HSMFG0219

STRONG HERITAGE - STRONG PEOPLE - STRONGER FUTURE

CONTENTS

Warranty	1
Manufacturer's Statement	2
Warranty Registration Form	3
Dealer Pre-Delivery Checklist	5
Dealer Delivery Checklist	7
Safety Information - Be Alert Symbol	9
Explanation of Safety Signs	10
Safety Decals	11
Safety Information - Warning - Owner Must Read and Understand	12
Cap Screw Torque Values	13
Set-Up & Assembly	14
Transporting	15
Preparing for Operation	16-17
Operation & Adjustments	18-20
Optional Equipment	21
Lubrication Guide	22
Decal Location	23-24
Troubleshooting	25
Service Notes	26
Specifications	Inside Back Cover

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 on labor, and twenty-four (24) months on parts 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.

For commercial, custom for hire, or rental application, warranty is limited to 6 months from the date of delivery to the original purchaser, or the first day in service, whichever is earlier.

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, use for which the product was not designed, 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.

11/14/18

MANUFACTURER'S STATEMENT

Your New H&S Product 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 Machine before reading this manual carefully. Keep this manual available for ready reference.

H&S reserves the right to make changes or add improvements to its products at any time without incurring any obligation to make such changes to products previously manufactured. Specifications, statements and descriptions of Products contained in this publication are subject to change without prior notification.

WARRANTY REGISTRATION

- ❖ Date of Purchase: _____
 - ❖ Purchaser Name: _____
 - ❖ Street Address: _____
 - ❖ City: _____
 - ❖ State: _____ Zip: _____
 - ❖ Phone Number: _____
 - E-mail Address: _____
 - ❖ Product: _____
 - ❖ Model Number: _____
 - ❖ Serial Number: _____
 - ❖ You have received the Operators Manual for this product. Yes _____ No _____
- Interested in receiving the H&S Newsletter? Yes _____ No _____
-
- ❖ Dealer Name: _____
 - ❖ Street Address: _____
 - ❖ City: _____
 - ❖ State: _____ Zip: _____
 - ❖ Signature: _____
- ❖ *All fields must be filled out to insure prompt notification of product and/or warranty updates.*

Please mail the completed WARRANTY REGISTRATION FORM to:
H&S Manufacturing Co., Inc.
2608 S. Hume Ave.
Marshfield, WI 54449

(Remove Copy At Perforation)

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DEALER PRE-DELIVERY CHECKLIST

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 _____

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DEALER DELIVERY CHECKLIST

AFTER COMPLETION, DEALER SHOULD REMOVE AND RETAIN FOR RECORDS

This checklist 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 checklist, 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.
- 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.



WARNING



CAUTION



FOLLOW SAFETY INSTRUCTIONS

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

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

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 implement's 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.



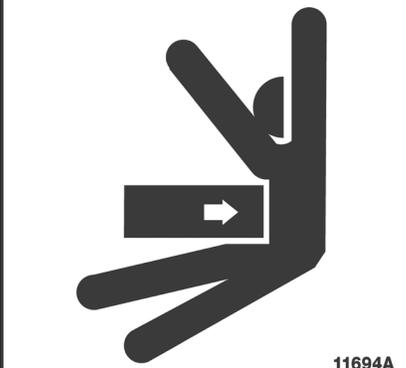
SAFETY INFORMATION

! 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

2195



! 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

TRACTOR:

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

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 operator's 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

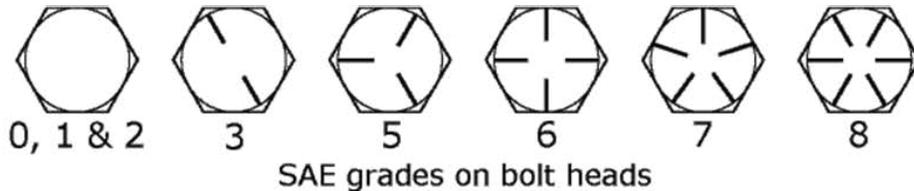
The specifications below are the torque values for fasteners as it adheres to the SAE torque value standards. All fasteners should be torqued to the proper values found in the figures below unless otherwise specified by the engineering drawing.

Lubed torque would be any fastener that has grease, liquid Loctite, oil, etc. on the threads.

Dry torque would be any fastener which has threads that are clean and dry and do not have any liquid Loctite or grease on them.

Hex Head Fasteners

The figure shown below shows how to determine what grade a fastener is.



	SUGGESTED ASSEMBLY TORQUE VALUES						WORKING TORQUE			
	SAE GRADE 2 -6"		SAE GRADE 5		SAE GRADE 8		18-8 SS	316 SS	BRASS	SILICON BRONZE
Diam & Thrds Per Inch	Dry FT. LB.	LUB FT. LB.	Dry FT. LB.	LUB FT. LB.	Dry FT.LB.	LUB FT. LB.	IN LBS	IN LBS	IN LBS	IN LBS
1/4-20	5.5	4.2	8	6.3	12	9	75.2	78.8	61.5	68.6
1/4-28	6.3	4.7	10	7.2	14	10	94.0	99.0	77.0	87.0
5/16-18	11	8	17	13	24	18	132	138	107	123
5/16-24	12	9	19	14	27	20	142	147	116	131
3/8-16	20	15	30	23	45	35	236	247	192	219
3/8-24	23	17	35	25	50	35	259	271	212	240
7/16-14	32	24	50	35	70	50	376	393	317	349
7/16-20	36	27	55	40	80	60	400	418	327	371
1/2-13	50	35	75	55	110	80	517	542	422	480
1/2-20	55	40	85	65	120	90	541	565	443	502
9/16-12	70	55	110	80	150	110	682	713	558	632
9/16-18	80	60	120	90	170	130	752	787	615	697
5/8-11	100	75	150	110	210	160	1110	1160	907	1030
5/8-18	110	85	170	130	240	180	1244	1301	1016	1154
3/4-10	175	130	260	200	380	280	1530	1582	1249	1416
3/4-16	200	140	300	220	420	310	1490	1558	1220	1382
7/8-9	170	125	430	320	600	450	2328	2430	1905	2140
7/8-14	180	140	470	350	670	500	2318	2420	1895	2130
1-8	250	190	640	480	910	680	3440	3595	2815	3185
1-14	280	210	720	540	1020	760	3110	3250	2545	2885

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 the Cap Screw Torque Values 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

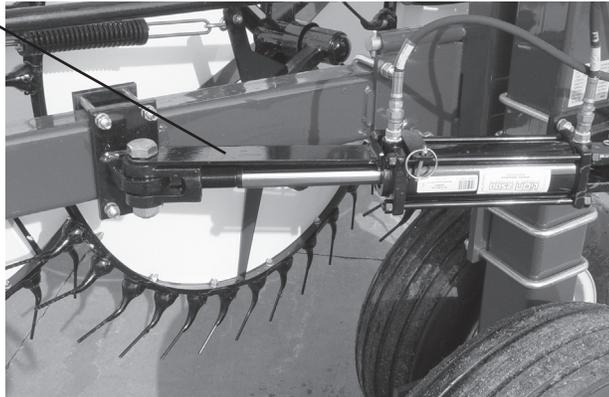
TOWING ON HIGHWAY

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 mph (32 kph).

TRANSPORT LOCKS

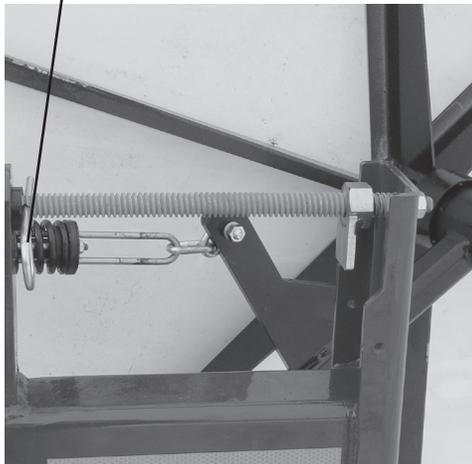
Rake Beam Locks

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

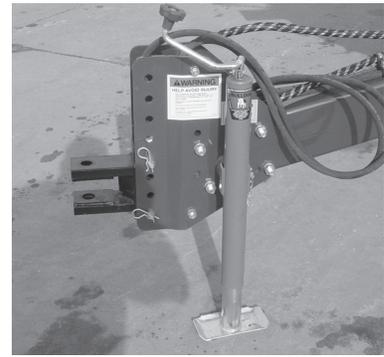
Red and Amber reflective safety decals are on the rake for safety. Refer to the [Decal Placement Chapter](#) for location.

PREPARING FOR OPERATION

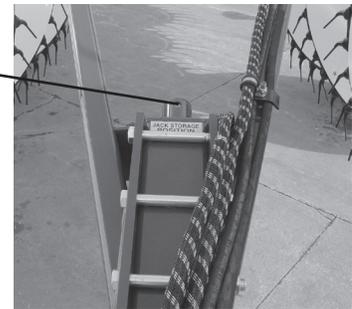
1. Lubricate the rake completely (See the Lubrication Chapter in this Manual).

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 should power up the control box, work lighting, and safety lighting. If the control box does not have power, connect the deutsch connector wire to the battery or 12-volt power source.



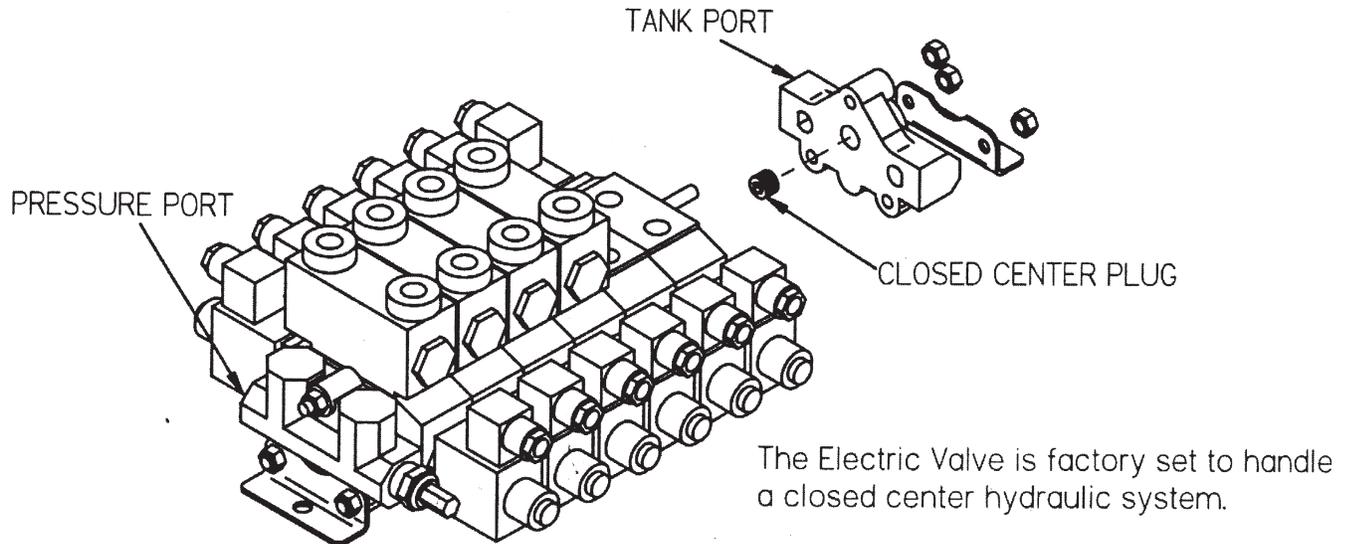
Note: If the tractor is not equipped with a 7-pin connector, the tractor must be outfitted with one to have the work lighting and safety lighting functional.

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 loosen 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

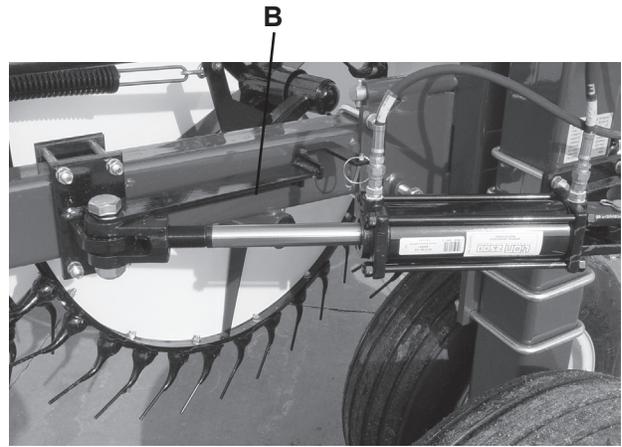
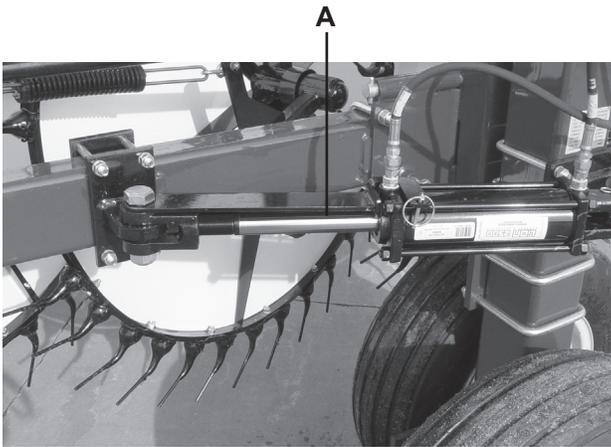
EMERGENCY SHUTDOWN

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

TRANSPORT LOCKS

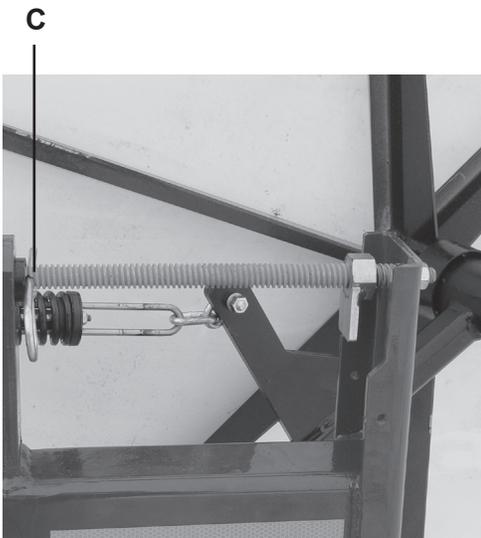
Rake Beam Locks

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.

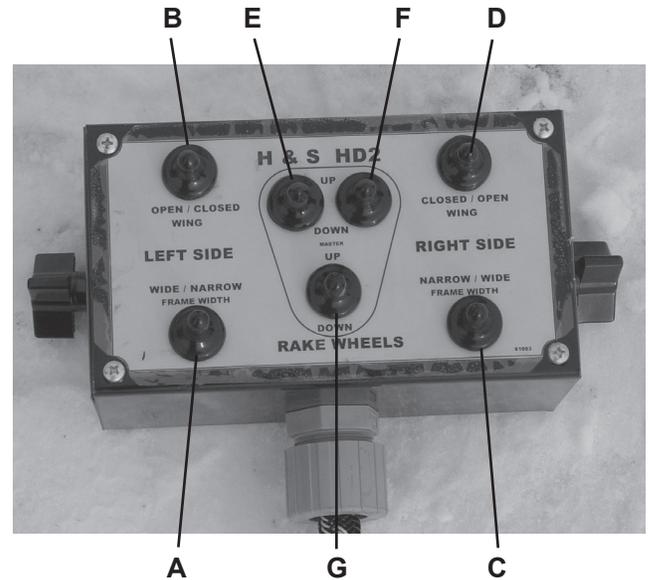


OPERATION & ADJUSTMENTS

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

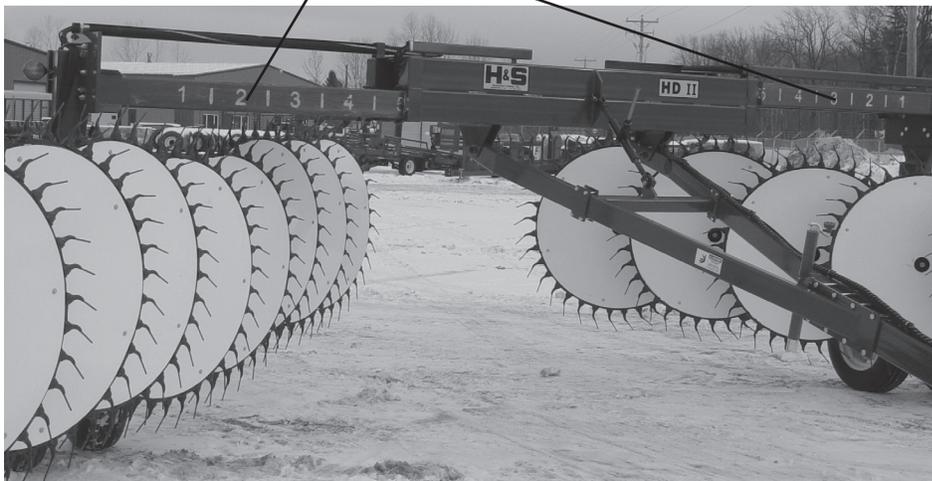
CONTROL BOX

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) controlling 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) controlling 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 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 its 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

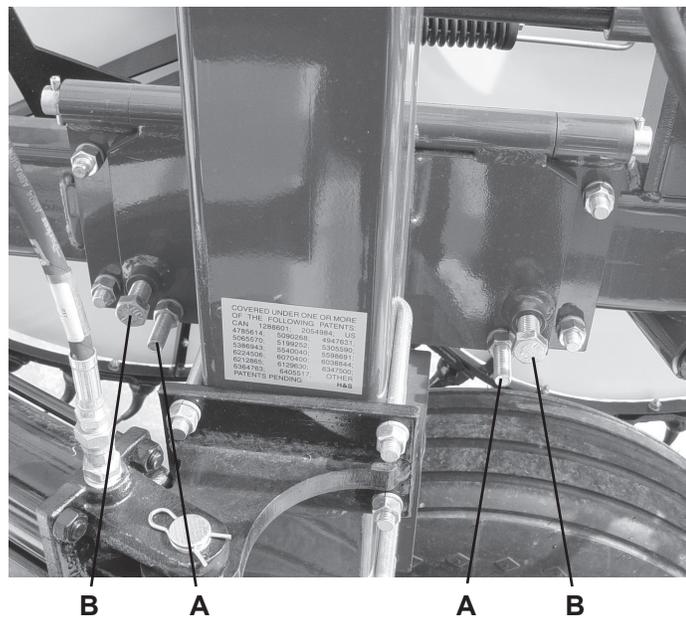
RAKE BEAM

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**

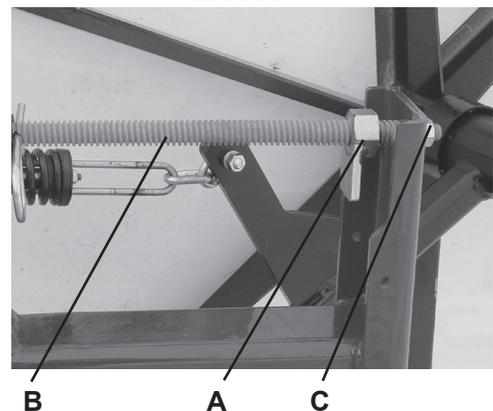


**FULL
BEAM
TILT**



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

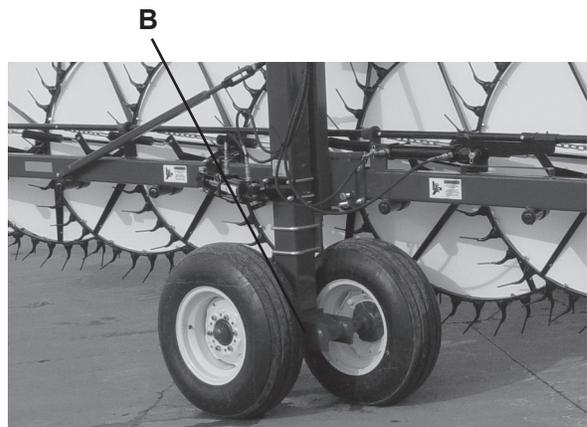
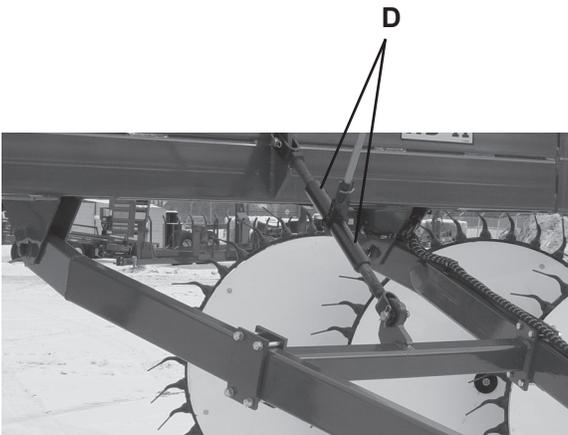
GREASE FITTINGS

There are numerous grease fittings on the **HDII** Rake. Lubricating properly and often enough will prolong the life of your 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

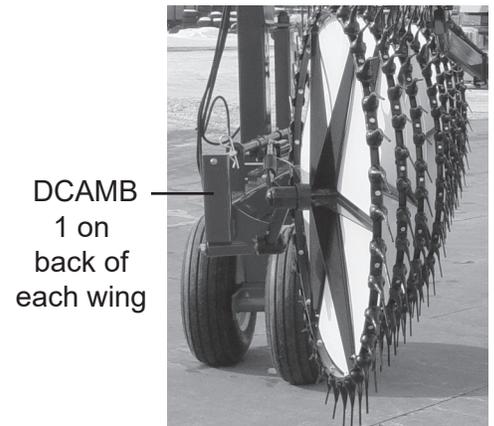
Your H&S rake was manufactured with operator safety in mind. Located on the rake are various decals to aid in operation and warn of caution areas. Pay close attention to all decals.



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.

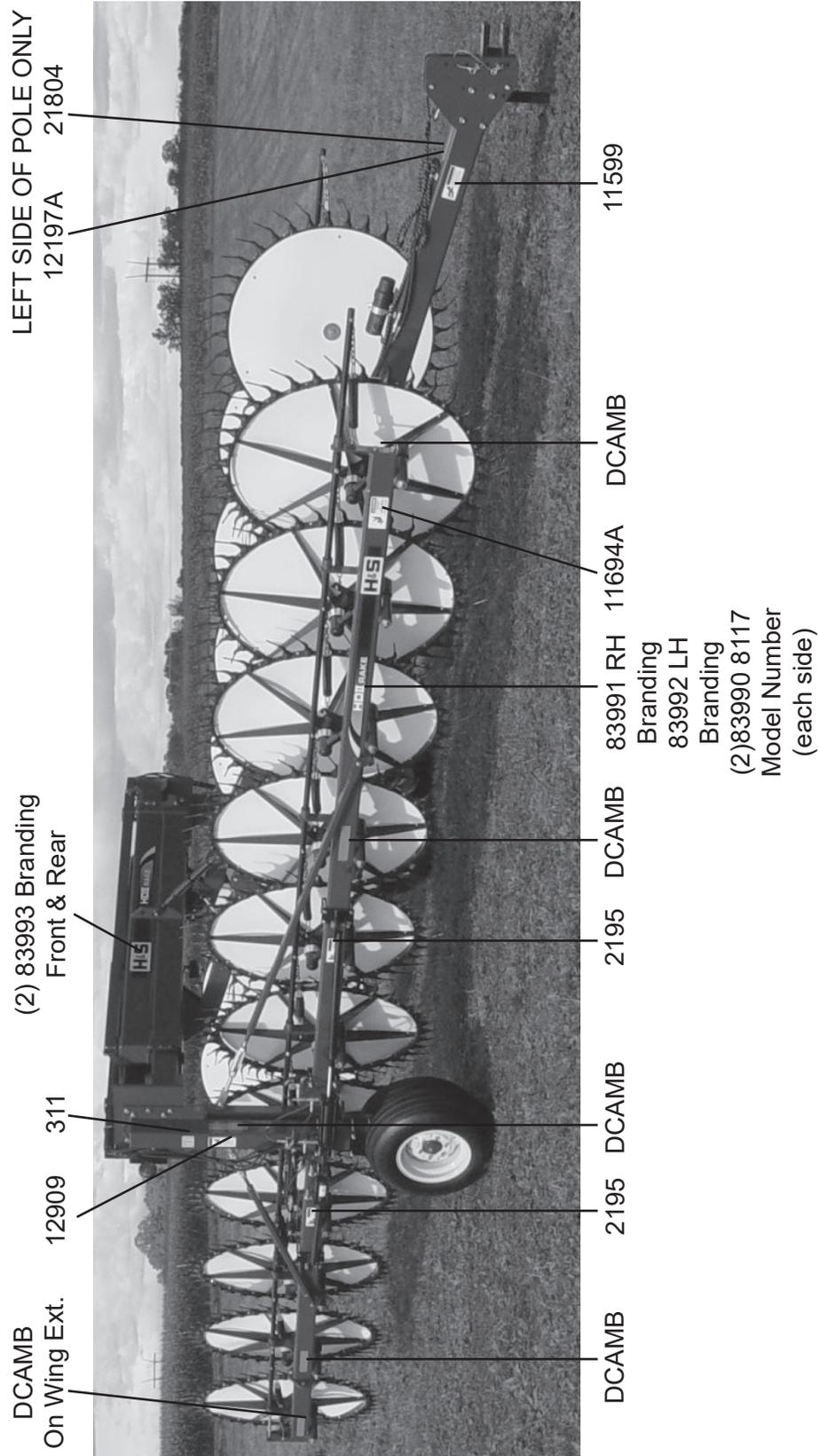
Listed below are the rake decals on your *HDII* Rake. These decals may be ordered individually by part number or by ordering a complete set.

<u>PART</u>	<u>QTY</u>	<u>DESCRIPTION</u>
311	1	Patent Numbers
2195	4	WARNING - Stay Clear of Rake
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	2	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
83990	2	8117 Model Number (1 on each rake beam)
83991	1	H&S <i>HDII</i> - Decal (Right)
83992	1	H&S <i>HDII</i> - Decal (Left)
83993	2	H&S <i>HDII</i> - Front & Rear of Overhead Beam
BFR723	1	SMV Sign Kit
DCAMB	9	Amber Reflector (8 on Rake/1 on Opt. Back Extension)
DCRED	4	Red Reflector
JD5922	2	Orange Non Reflective
DCSERIAL	1	Serial Number



DECAL LOCATION

DECAL PLACEMENT IS THE SAME ON EACH SIDE UNLESS NOTED



TROUBLESHOOTING



WARNING:

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

<u>TROUBLE</u>	<u>POSSIBLE CAUSE</u>	<u>POSSIBLE REMEDY</u>
Main Frame Will Not Open or Close	No Electrical Power to Control Box Blown Fuse or Circuit Breaker on Tractor Hydraulic Lever Not Engaged or Engaged in Wrong Direction Hydraulic Hoses Not Connected to Tractor Properly Solenoid Valve Sticking or Not Working Properly	Check and Make Sure There is Power to Control Box Check and Replace Fuse or Circuit Breaker Engage Hydraulic Lever or Move Hydraulic Lever in Opposite Direction Check Hydraulic Hoses For Proper Connection Check Solenoid and Valve
Rake Beams Will Not Open or Close	No Electrical Power to Control Box Transport Locks Still Engaged Blown Fuse or Circuit Breaker On Tractor Hydraulic Lever Not Engaged or Engaged in Wrong Direction Hydraulic Hoses Not Connected to Tractor Properly Solenoid Valve Sticking or Not Working Properly	Check and Make Sure There is Power to Control Box Remove Clip Pin and Swing Self-Storing Transport Locks Toward Frame Check and Replace Fuse or Circuit Breaker Engage Hydraulic Lever or Move Hydraulic Lever in Opposite Direction Check Hydraulic Hoses For Proper Connection Check Solenoid and Valve
Rake Beams Will Not Raise or Lower	No Electrical Power to Control Box Transport Locks Hair Pins Still Engaged Blown Fuse or Circuit Breaker On Tractor Hydraulic Lever Not Engaged or Engaged in Wrong Direction Hydraulic Hoses Not Connected to Tractor Properly Solenoid Valve Sticking or Not Working Properly	Check and Make Sure There is Raise Power to Control Box Remove Transport Lock Hair Pins and Place in Storage Position Check and Replace Fuse or Circuit Breaker Engage Hydraulic Lever or Move Hydraulic Lever in Opposite Direction Check Hydraulic Hoses For Proper Connection Check Solenoid and Valve

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)			
TeethRubber 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.

H&S MFG. CO.

products approved

for the

FEMA

SEAL OF QUALITY



Manufactured by:

H&S MANUFACTURING CO., INC.

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