

# H&S

# V-RAKES

# V-8 V-10 V-12



## WARNING

READ AND UNDERSTAND THIS MANUAL BEFORE  
OPERATING THIS EQUIPMENT.

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

# OPERATOR'S MANUAL

and

# PARTS LIST

10-4-2008

Manufactured By

## H&S MANUFACTURING CO., INC.

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

MARSHFIELD, WISCONSIN 54449

H&S V-RAKES  
V-8 V-10 V-12  
PARTS AND OPERATOR'S MANUAL

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# WARRANTY

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

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

### H&S MANUFACTURING CO., INC. WARRANTY

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

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

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

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

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

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

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

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

2/18/2004

### WARRANTY REGISTRATION

Date of Purchase \_\_\_\_\_

Purchaser \_\_\_\_\_ Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Product \_\_\_\_\_ Model # \_\_\_\_\_ Serial # \_\_\_\_\_

Dealer \_\_\_\_\_ Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

\_\_\_\_\_  
Signature of original buyer

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



**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 required in the U.S.A.

This Is Your Warranty Card  
Please Fill Out  
And Mail Immediately



NO POSTAGE  
NECESSARY  
IF MAILED  
IN THE  
UNITED STATES

**BUSINESS REPLY MAIL**

FIRST CLASS MAIL Permit No. 195 Marshfield, WI 54449

POSTAGE WILL BE PAID BY ADDRESSEE

H&S Manufacturing Co., Inc.

PO Box 768

Marshfield WI 54449-9963



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

**H&S  
DEALER PRE-DELIVERY CHECK LIST**

After the H&S V-Rake has been completely set-up, check to be certain it is in correct running order before delivering to the customer. The following is a list of points to inspect. Check off each item as you have made the proper adjustments and found the item operating satisfactorily.

- All grease fittings have been lubricated  
See lubrication guide in this manual.
- All mechanisms are operating trouble free.
- Rake wheels touch ground in unison when lowered into raking position.  
(Rake sitting level)
- All bolts and fasteners are tight.
- All decals are in place and legible.

(Dealer's Name)	Model Number
(Signature of Pre-Delivery Inspector)	Serial Number
(Signature of Pre-Delivery Inspector)	(Inspection Date)

**DEALER DELIVERY CHECK LIST**

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

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

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

- Explain to the customer that the pre-delivery inspection was made.
- Explain to the customer all the safety precautions they must exercise when operating this unit.
- Explain to customer that regular lubrication is required for proper operation and long life of machine. Show customer the lubrication section of Owner's Manual.
- Give the customer Owner's Manual and make sure he reads and understands all operating and service instructions.
- Record Serial Number on Page 18 of this Manual.
- Have customer sign a completed "Warranty Registration," and mail it promptly.

Date Delivered \_\_\_\_\_ Dealer's Name \_\_\_\_\_

By \_\_\_\_\_

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

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

Remove Dealers File Copy At Perforation





**BE  
ALERT!**      **YOUR SAFETY  
IS INVOLVED.**

**THIS SYMBOL IS USED THROUGHOUT THIS BOOK WHENEVER YOUR PERSONAL SAFETY IS INVOLVED. TAKE TIME TO BE CAREFUL. REMEMBER: THE CAREFUL OPERATOR IS THE BEST OPERATOR. MOST ACCIDENTS ARE CAUSED BY HUMAN ERROR. CERTAIN PRECAUTIONS MUST BE OBSERVED TO PREVENT THE POSSIBILITY OF INJURY OR DAMAGE.**

**TRACTORS**

**This operator's manual uses the term "Tractor" when identifying the power source for towing and lifting rake.**

**H&S MANUFACTURING CO. INC.**

## RECOGNIZE SAFETY INFORMATION

This is the safety-alert symbol. When you see this symbol on your machine or in this manual, be alert to the potential for personal injury.

Follow recommended precautions and safe operating practices.



## UNDERSTAND SIGNAL WORDS

A signal word—DANGER, WARNING, or CAUTION—is used with the safety-alert symbol. DANGER identifies the most serious hazards.

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

General precautions are listed on CAUTION safety signs.



**WARNING**



**CAUTION**



## FOLLOW SAFETY INSTRUCTIONS

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

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



**⚠ WARNING**

**HELP AVOID INJURY**

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

72203A

**⚠ WARNING**

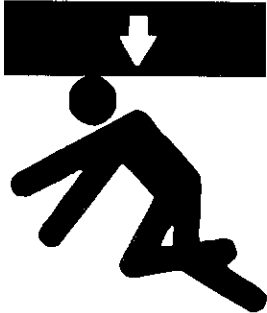


**STAY CLEAR OF RAKE WHEN RAISING OR LOWERING RAKE WHEELS.**

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

**KEEP CLOTHING, YOURSELF AND OTHERS WELL CLEAR.**

2700B



**⚠ 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.**

2700A



**⚠ WARNING**

**INSTALL LOCKING PINS FOR SERVICE OR TRANSPORT.**

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

73100B



**⚠ WARNING**

**INSTALL LOCKING PIN FOR SERVICE, TRANSPORT, OR WHEN RAKING WITH ONE SIDE. SEE OPERATOR'S MANUAL.**

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

73100C



**⚠ 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

## H&S V-RAKES



# 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.**

**IF RAKE ARMS ARE IN THE RAISED POSITION, MAKE SURE TRANSPORT LOCK PINS (10WR4) ARE INSTALLED TO LOCK ARMS UP BEFORE CLEANING, WORKING ON, OR ADJUSTING 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.

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

Stay clear of rake when raising or lowering main rake arm beams.

For transport and storage, always make sure that the transportation lock pins (10WR4) are positioned to lock the rake arms in the up position.

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

**Study The Above Safety Rules**

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


# OPERATION

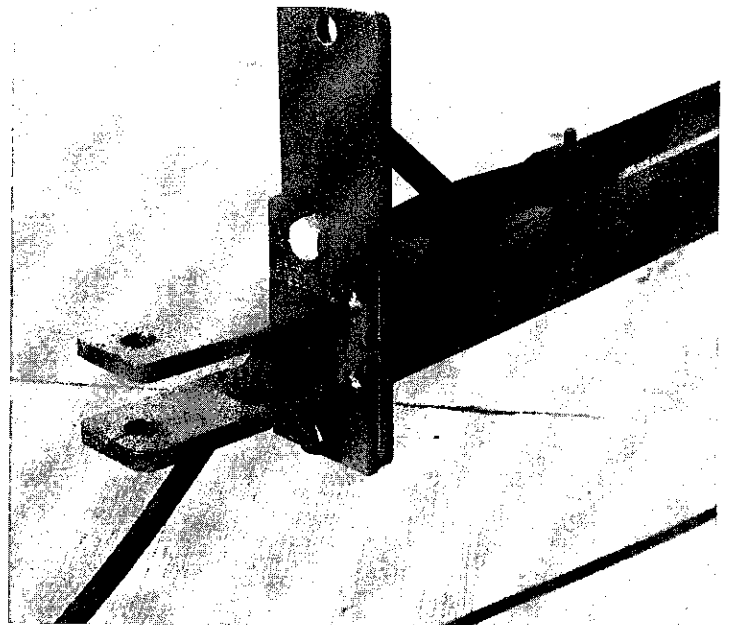
1. Check for proper assembly and adjustment and make sure that all bolts are tightened. Securely retighten after a few hours of operation as bolts can loosen up on new machinery. Check wheel bolts upon delivery and periodically thereafter. Wheel bolts should be tightened at 95 ft./lbs. of torque.
2. Check tires and inflate to recommended pressure.
3. Attach tractor hitch (13 to 17 inches above ground) and attach rake to tractor with a hitch pin that has a safety locking device.
4. Remove weight from lift jack. Rotate jack into storage position
5. Connect hydraulic hose for raising and lowering rake arms.
6. On all rake wheels, tooth bolts must be torqued to 40 ft./lbs. to help prevent excessive tooth breakage. **Re-torque rake tooth bolts after first 100 acres. (Part No. T175) Check periodically thereafter.**

**NOTE:** Determine right or left side of your V-Rake by viewing it from the rear. If instructions or parts lists call for hardened bolts, they are identified as Grade 5 by three lines on the head.

## ADJUSTMENTS

There are two different positions to adjust the hitch on your new V-Rake. The hitch should be adjusted so the main rake beams are level, or parallel to the ground.


	<p><b>⚠ WARNING</b></p> <p><b>DO NOT GO NEAR LEAKS</b></p> <ul style="list-style-type: none"><li>• High pressure oil easily punctures skin causing serious injury, gangrene or death.</li><li>• If injured, seek emergency medical help. Immediate surgery is required to remove oil.</li><li>• Do not use finger or skin to check for leaks.</li><li>• Lower load or relieve hydraulic pressure before loosening fittings.</li></ul>
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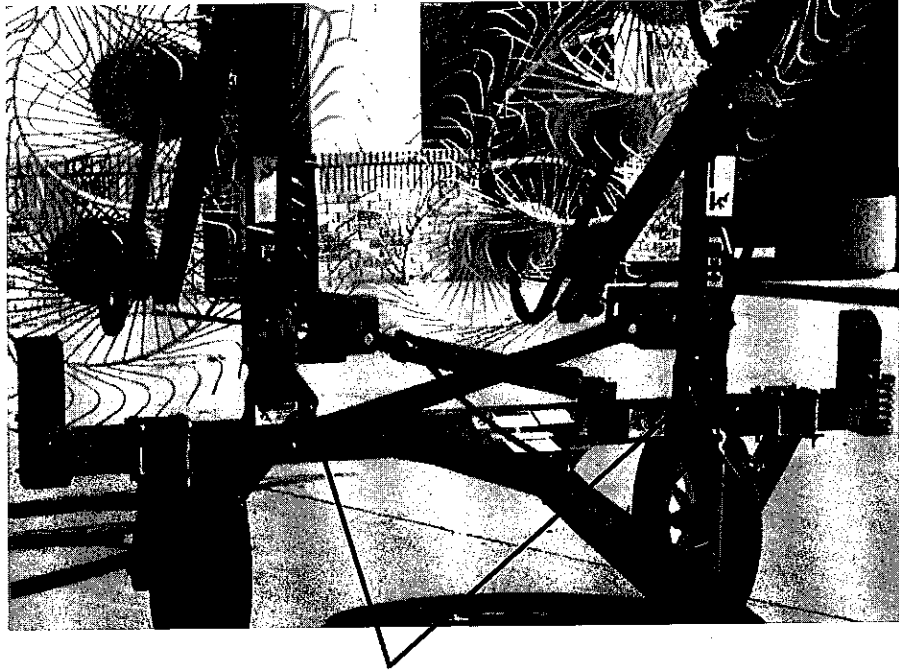


# OPERATION *(Continued)*

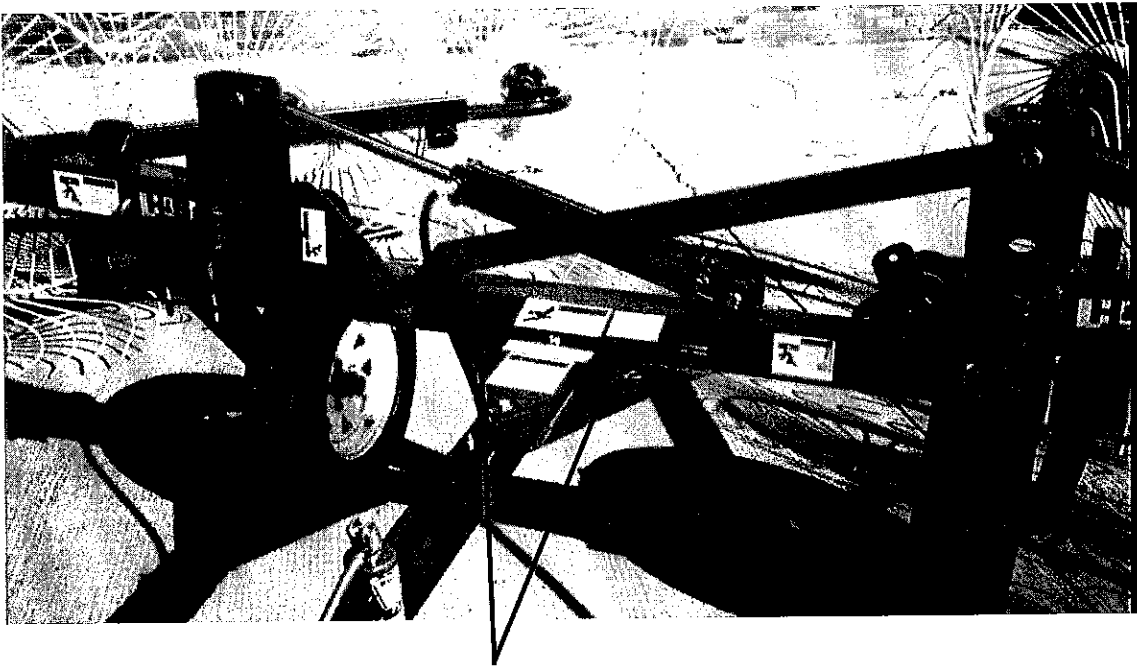
## TRANSPORT LOCKS

There are two transport locks on the V-Rake. The transport pins (10WR4) lock the rake beams into the up position for cleaning or working on the rake and for transport and storage. The pins should be in the storage position during operation.

<b>▲WARNING</b>

<b>STAY CLEAR OF RAKE WHEN RAISING OR LOWERING RAKE WHEELS.</b>
<b>FAILURE TO HEED THIS WARNING MAY RESULT IN PERSONAL INJURY OR DEATH.</b>
<b>KEEP CLOTHING, YOURSELF AND OTHERS WELL CLEAR.</b>



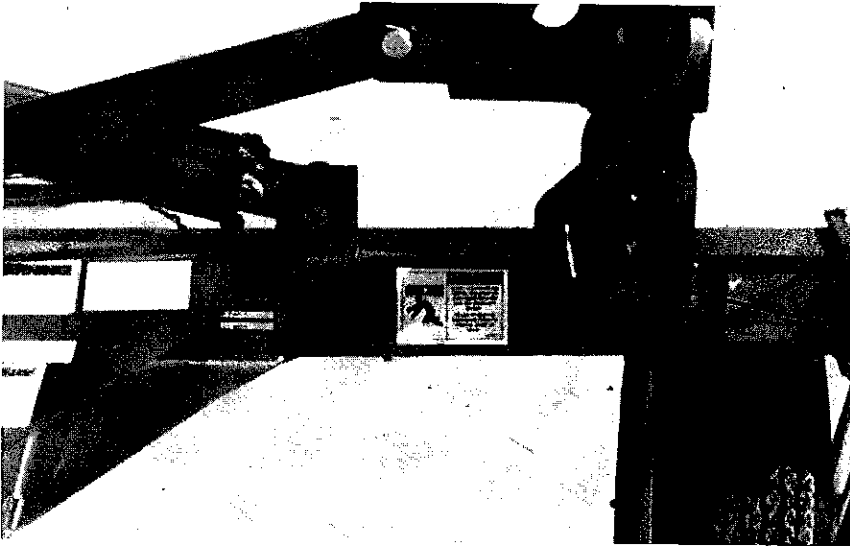
**Transport Position**



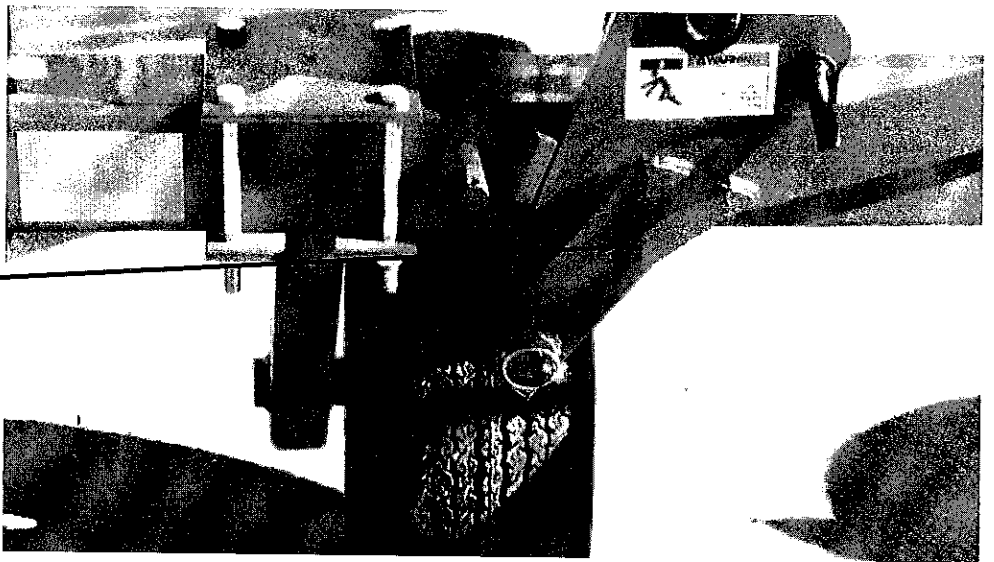
**Raking Position**

## OPERATION *(Continued)*

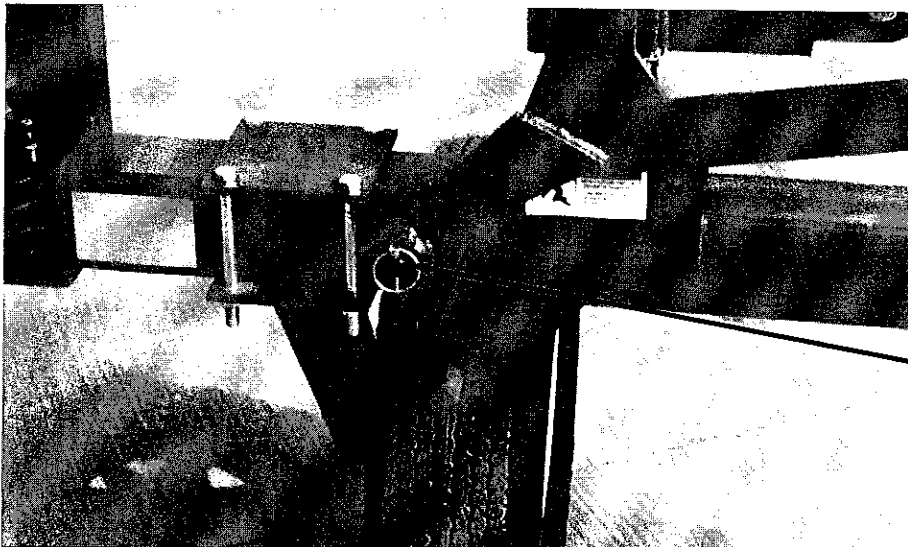
Raking with one side can be accomplished by locking the left rake arm in the transport position, disconnecting the lifting linkage (10WR35 or 12WR5), then putting it into the lifting linkage storage position.



Left Side Transport Position



Remove Lifting Linkage

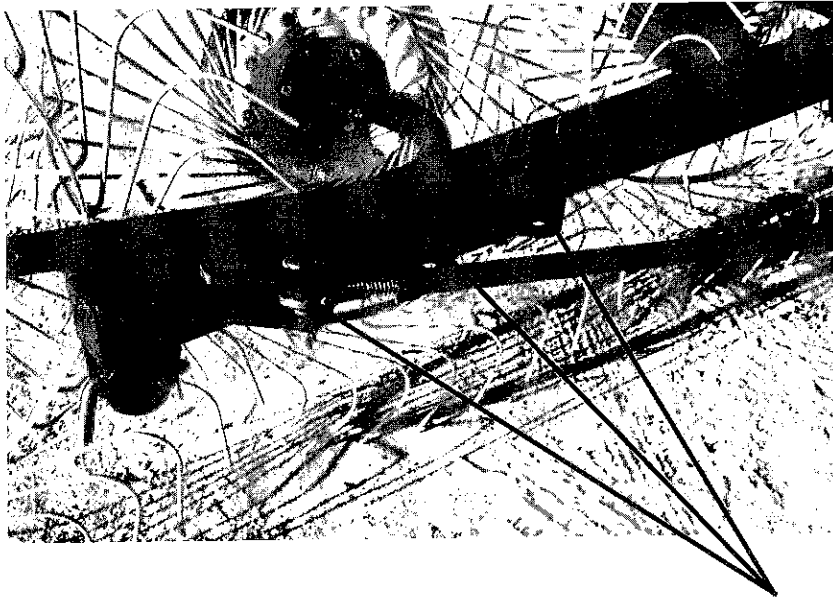


Place in Storage Position

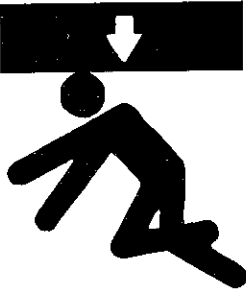
# ADJUSTMENTS

## RAKING WIDTH

There are three rake width adjustments on each rake arm. Width on each side can be set independently. Each rake beam angle can be adjusted independently for multiple raking combinations. Fine tuning is accomplished by adjusting the threaded ball end attached to the linkage arm.



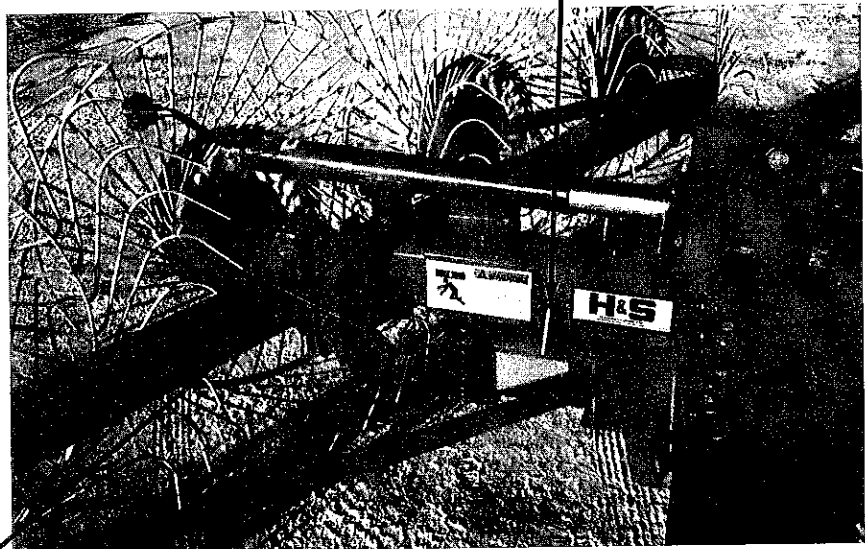
Rake Width Adjustments

	<p><b>⚠ WARNING</b></p> <p>STAY CLEAR OF RAKE WHEN RAISING OR LOWERING RAKE WHEELS.</p> <p>FAILURE TO HEED THIS WARNING MAY RESULT IN <u>PERSONAL INJURY OR DEATH.</u></p> <p>KEEP CLOTHING, YOURSELF AND OTHERS WELL CLEAR.</p>
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Locking Pin (10WR14)

## WINDROW WIDTH

Remove locking pin (10WR14). Remove jack from jack storage position. Position jack mount tube on top of rake beam pin (10WR6) with jack foot in position as shown. Windrow width can now be adjusted from 4' to 6', in 6" increments on each side of the rake. After the desired windrow width has been reached, re-insert pin (10WR14) in desired hole. Remove jack, and return to storage position.

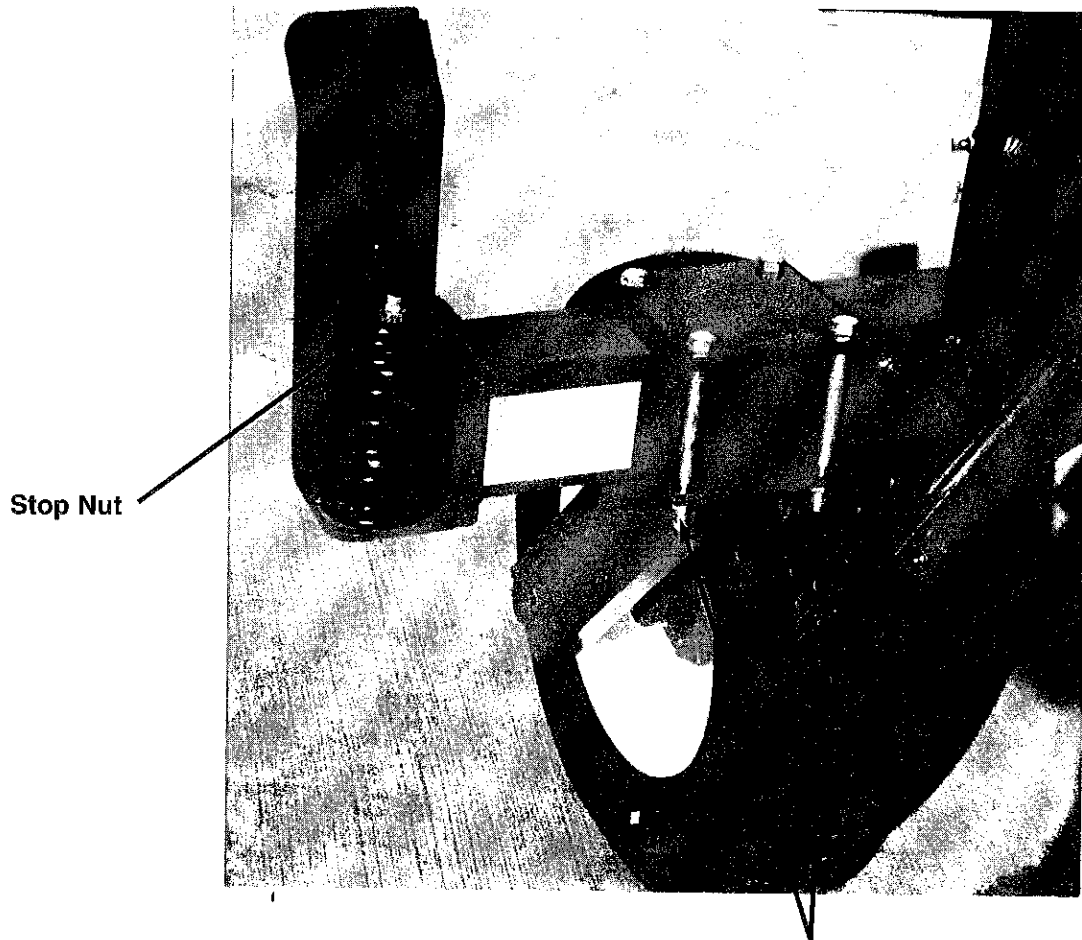


Rake Beam Pin (10WR6)

## ADJUSTMENTS *(Continued)*

### DOWN PRESSURE

Down pressure of the rake arms can be adjusted by adjusting the stop on top of the spring located at each end of the main frame. The stop should be adjusted so there is approximately 1/4 of an inch of threads showing above the jam nut. The V-Rake can be adjusted for less ground pressure by "raising" the stop.



Mounting Bolts (16SV77)

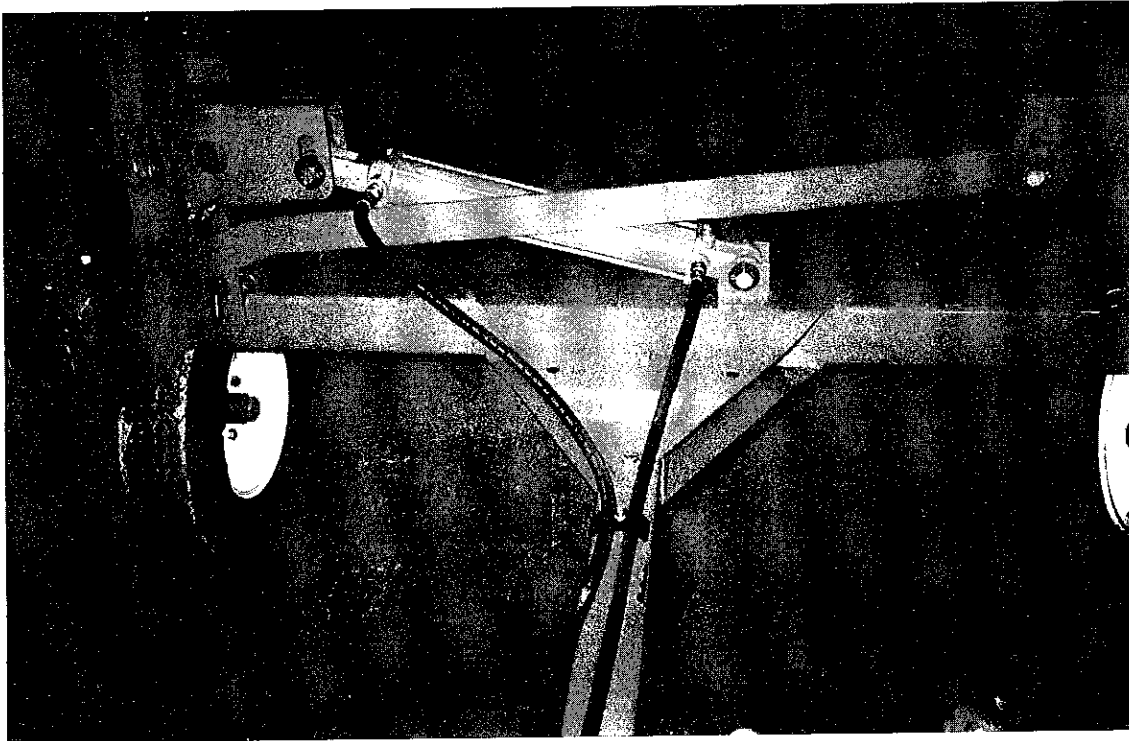
### TREAD WIDTH ADJUSTMENT (V-12 Only)

Tread width (wheel spacing) can be adjusted by first jacking up one side of the main frame. Loosen nuts (4) on the mounting bolts (16SV77). The entire wheel assembly now can be positioned as desired. Re-tighten nuts evenly. Repeat procedure on the opposite of the main frame.

## ADJUSTMENTS *(Continued)*

### FLOTATION

The V-Rake has been designed to be operated with the hydraulic cylinder in the float position. This allows the rake beam to "float" up and down without the hydraulic cylinder restricting it's motion. If your tractor does not have a float position, you will need the second hose option. **If rake is equipped with second hose option, it is very important transport lock pins are removed prior to attempting to lower rake arms. Failure to remove pins will result in damage to rake.**

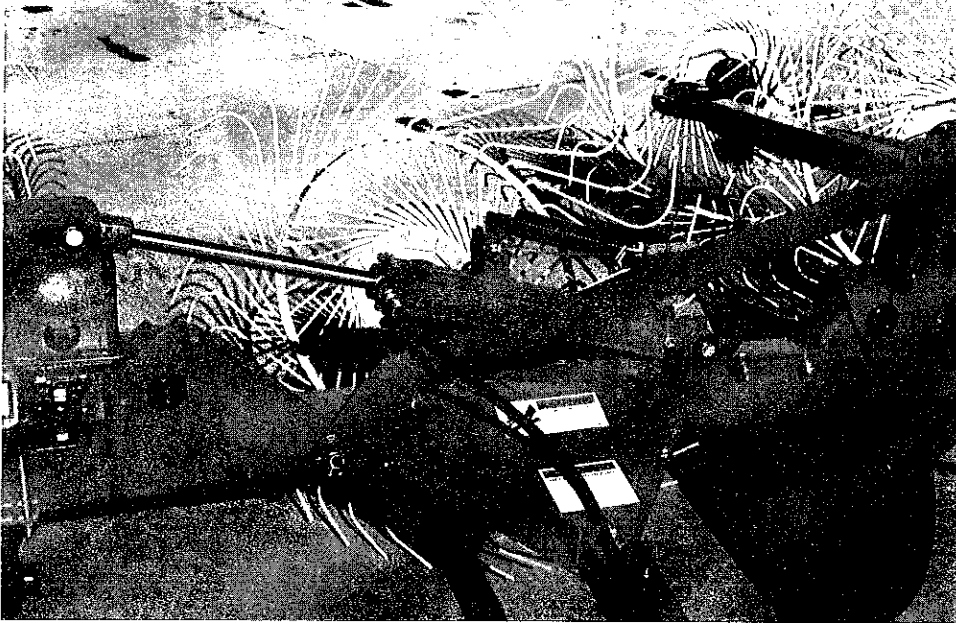


**NOTE:** If 2 hose system is desired, remove vent plug and install hose (3/8" x 145") (Part #10WR10) between cylinder and tractor.

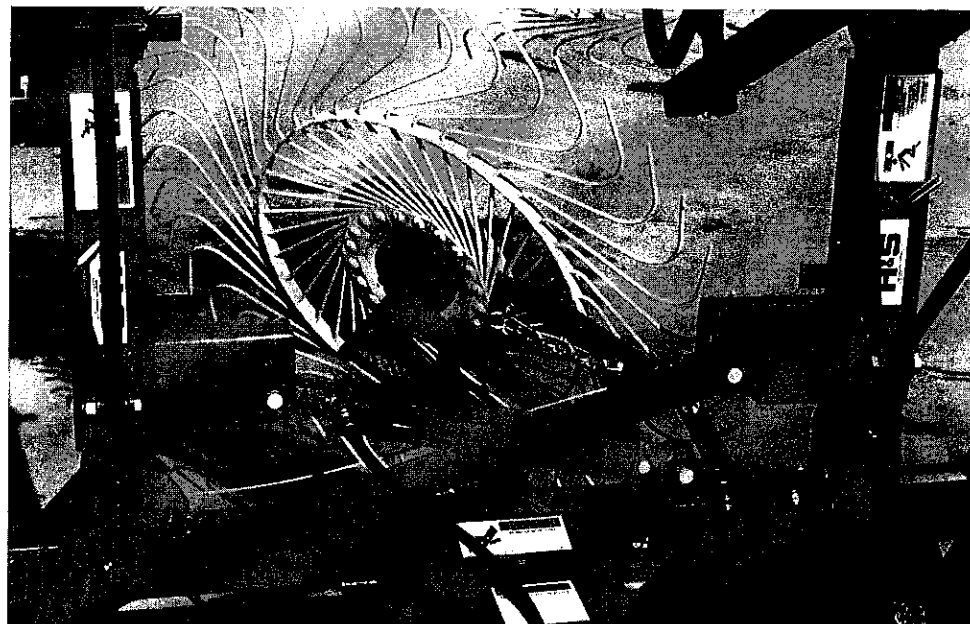


## OPTIONAL CENTER KICKER WHEEL

An optional center kicker wheel is available for the V-Rake. If the hay is laying out flat, the extra wheel allows you to raise the hay laying in the center of the rake out of the stubble for easier pick-up. Attached to the right lifter arm with a cable, the center kicker wheel will raise and lower when the hydraulics are activated. The center kicker wheel may be locked in the up position when not needed.



Down  
Position



Up  
Position

# LUBRICATION GUIDE

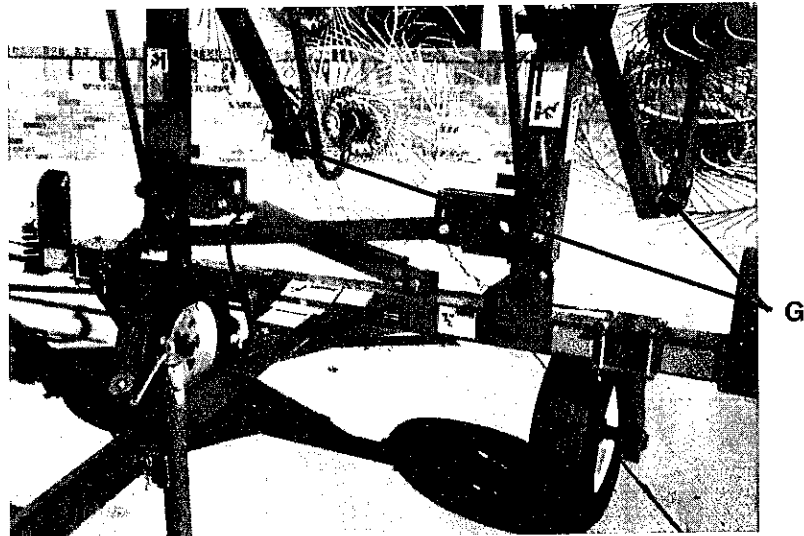
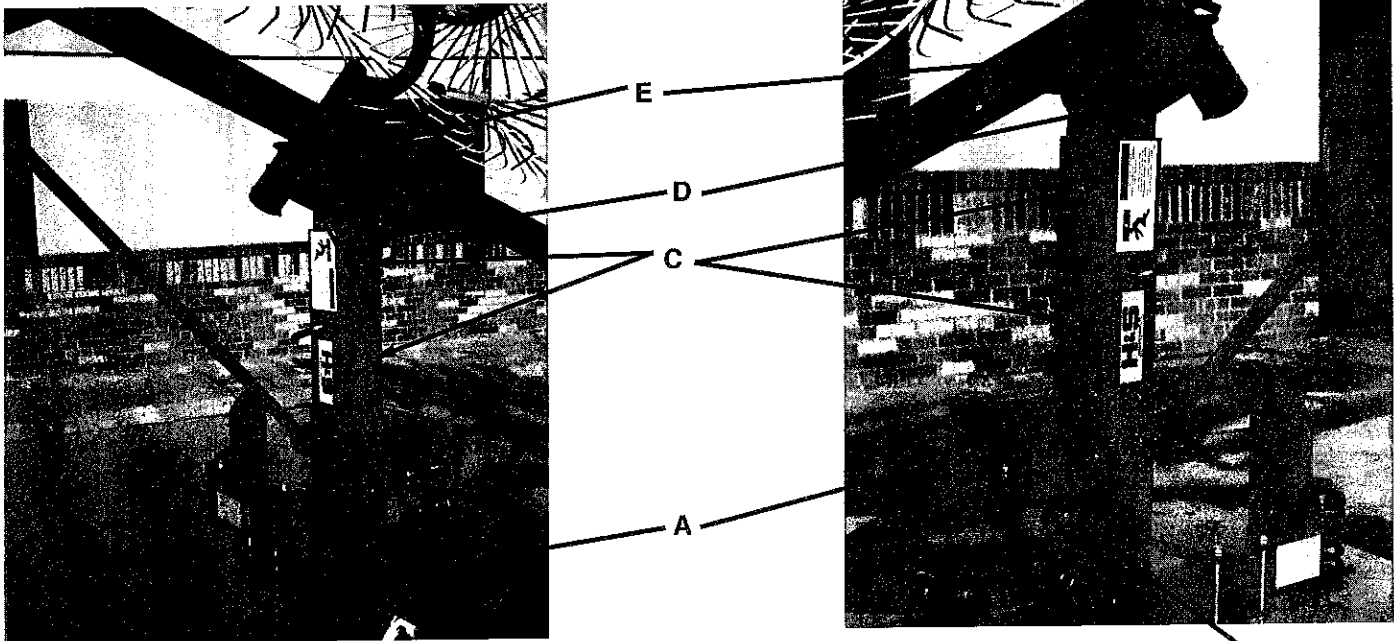
## GREASE FITTINGS

There are numerous grease fittings on your V-Rake. If these are lubricated properly and often enough, it will prolong the life of your V-Rake. Grease daily during normal use and before and after storage. Use a good grade of high quality grease. 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. (2) one on each end of left side lift linkage
- B. (2) one on each pivot arm pivot point
- C. (4) two on each of the lifter arms
- D. (2) one on each horizontal pivot point at the end of the lifter arms
- E. (2) one on each vertical pivot point, rake arm mount
- F. (1) Center kicker wheel arm (if so equipped)
- G. (4) Rake Arm mount (6 on V-10 & V-12)



# DECAL LOCATION

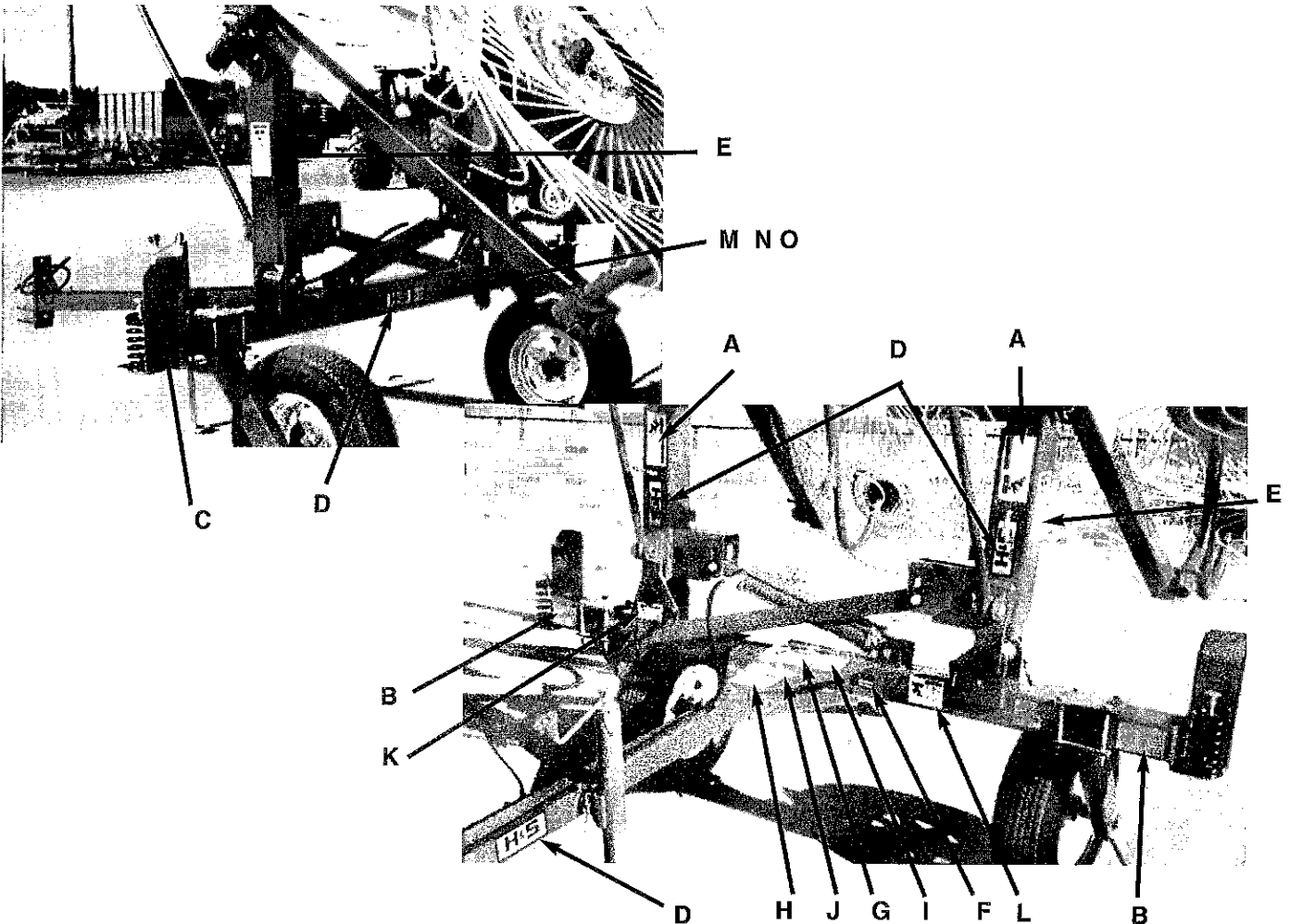
Your H&S V-Rake was manufactured with operator safety in mind. Located on the V-Rake are various decals to aid in operation, and warn of danger or caution areas. Pay close attention to all decals.



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

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

ITEM	PART NO.	DESCRIPTION		
A.	2700A	(2) Warning - Stay Clear of Rake		
B.		(2) Amber Decal (Reflective) (4) on 12 Wheel Only		
C.		(2) Red Decal (Reflective)		
D.	B6	(5) H&S Decal		
E.	2700B	(2) Warning - Stay Clear of Rake		
F.		Serial Number		
G.	11599	Warning - Do Not Go Near Leaks		
H.	72203A	Warning - Help Avoid Injury		
I.	H&S	Patent numbers		
J.	73100A	Locking Pin Storage		
K.	73100B	Install Locking Pins		
L.	73100C	Install Locking Pin		
M.	22500A	(3) V-8	Paint - H&S Red	
N.	22500B	(3) V-10	ZX21	Gallon
O.	2250C	(3) V-12	ZX22	Quart
	122203	Complete Set of Decals	ZX23	Pint



# INSTRUCTIONS FOR ORDERING PARTS

All service parts should be ordered through your authorized H&S dealer. He will be able to give you faster service if you will provide him with the following:

1. Model & Serial Number - Both are located on the left front of the 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

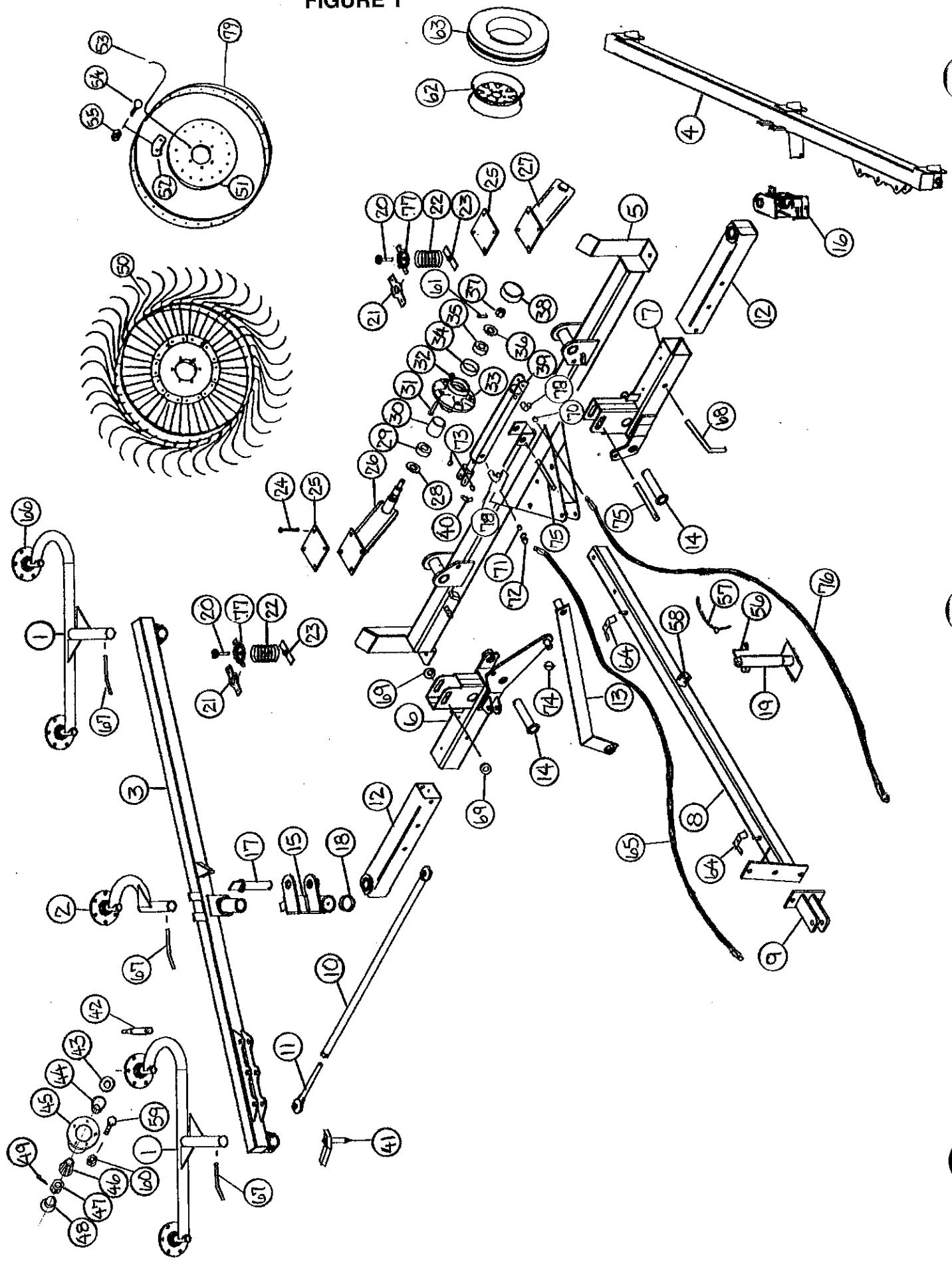
## ABOUT IMPROVEMENTS

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

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



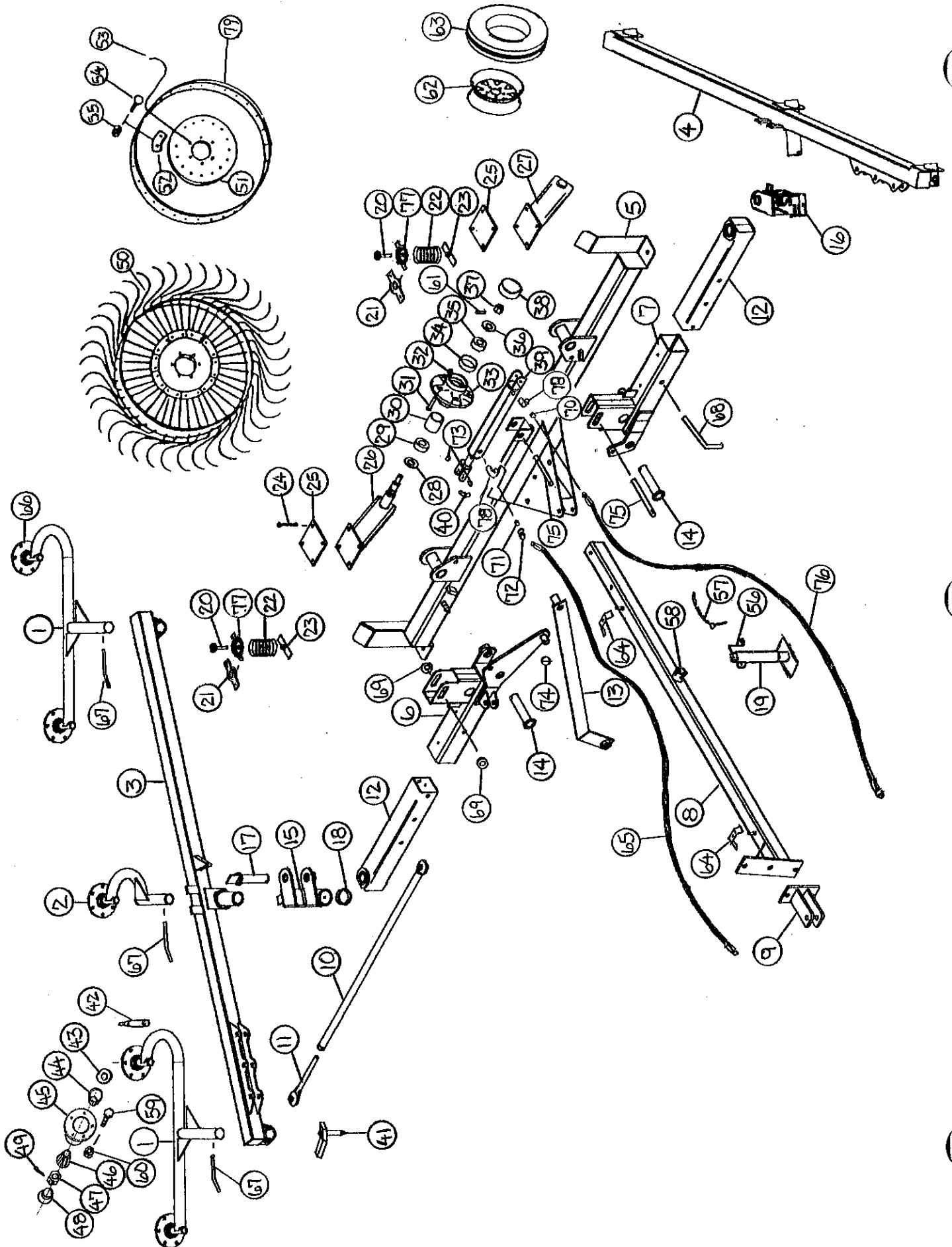
FIGURE 1



**FIGURE 1  
H&S V-RAKES**

ITEM	PART NUMBERS / RAKE SIZE			DESCRIPTION
	8WR	10WR	12WR	
1.	10WR22	"	"	Rake Arm
2.	—	10WR23	—	Single Rake Arm
3.	8WR1	10WR24	12WR2	Right Rake Beam
4.	8WR2	10WR25	12WR3	Left Rake Beam
5.	8WR9	10WR26	12WR4	Main Frame
6.	8WR7	10WR27	"	Right Lifter Arm
7.	8WR6	10WR28	"	Left Pivot Arm Housing
8.	10WR29	"	"	Pole
9.	10WR30	"	"	Hitch
10.	8WR8	10WR31	"	Link Rod
11.	10WR9	"	"	Adjusting Rod
12.	8WR5	10WR34	"	Slide Arm
13.	10WR35	"	12WR5	Lifting Linkage
14.	10WR7	"	"	Rake Arm Pins
15.	10WR36	"	"	Right Pivot Bracket
16.	10WR37	"	"	Left Pivot Bracket
17.	10WR6	"	"	Rake Beam Pin
18.	10WR8	"	"	Pivot Thrust Washer
19.	BFR223	"	"	Jack
20.	10WR16	"	"	Spring Adjustment
21.	10WR46	"	"	Spring Bottom
22.	10WR47	"	12WR1	Spring
23.	10WR3	"	"	Spring Clamp
24.	16SV77	"	"	Bolt 1/2" x 6" GR.5
25.	—	—	10WR38	Axle Plate
26.	10WR32	"	"	Right Axle
27.	10WR33	"	"	Left Axle
28.	CAT5	"	"	Seal
29.	CAT6	"	"	Inner Bearing
30.	CAT7	"	"	Inner Race
31.	CAT128A	"	"	Hub Stud
32.	CAT14	"	"	Hub Nut
33.	10WR49	"	"	Ground Wheel Hub
34.	CAT9	"	"	Outer Race
35.	CAT10	"	"	Outer Bearing
36.	BFR63	"	"	Washer
37.	T35	"	"	Nut
38.	CAT13	"	"	Hub Cap
39.	10WR11A	"	"	Cylinder 2-1/2" x 16"
40.	10WR4	"	"	Transport Pins
41.	10WR5	"	"	Slide Lock Pin
42.	BFR36	"	"	Spindle
43.	T163	"	"	Seal

FIGURE 1





**FIGURE 1  
H&S V-RAKES**

ITEM	PART NUMBERS / RAKE SIZE			DESCRIPTION
	8WR	10WR	12WR	
44.	T164	"	"	Inner Bearing
*	T165	"	"	Inner Race
45.	BFR32	"	"	Rake Wheel Hub
46.	T170	"	"	Outer Bearing
*	T171	"	"	Outer Race
47.	T172	"	"	Nut
48.	T173	"	"	Hub Cap
49.	T169	"	"	Cotter Pin
50.	BFR31	"	"	RH Rake Wheel
*	T174	"	"	LH Rake Wheel
51.	T179	"	"	Rake Wheel Center
52.	T178	"	"	Rake Tooth Clip
53.	T176	"	"	Rake Wheel Tooth
54.	T175	"	"	10MM x 25MM Carriage Bolt
55.	T166	"	"	10MM Nut
56.	BFR3	"	"	Jack Handle
57.	BFR4	"	"	Jack Pin & Chain
58.	12N14	"	"	Jack Mount
59.	T168	"	"	10MM x 25MM Bolt
60.	T166	"	"	10MM Nut
61.	T37	"	"	Cotter Pin
62.	CAT195	"	"	Wheel 13 x 4.5
63.	CAT198	"	"	Tire ST175 x 80D13
64.	23N67	"	"	Hose Holder
65.	10WR10	"	"	Hose 3/8" x 145"
66.	BFR76	"	"	Hub - Complete
67.	10WR13	"	"	Pin 3"
68.	10WR14	"	"	Pin 5"
69.	16SV136	"	"	Washer
70.	BFR70	"	"	Vent Plug
71.	BFR120	"	"	Orifice
72.	BFR122	"	"	Male Adapter Union
*	BFR617	"	"	Adapter Union & Orifice
73.	BFR33	"	"	Washer
74.	F56	"	"	Lynch Pin
75.	LW55	"	"	Pin
77.	10WR15	"	"	Spring Holder
<b>OPTIONAL DOUBLE ACTING CYLINDER:</b>				
76.	10WR10	"	"	Hose 3/8" X 145"
78.	—	—	23N234	90° Street Elbow
79.	T177	"	"	Outer Ring

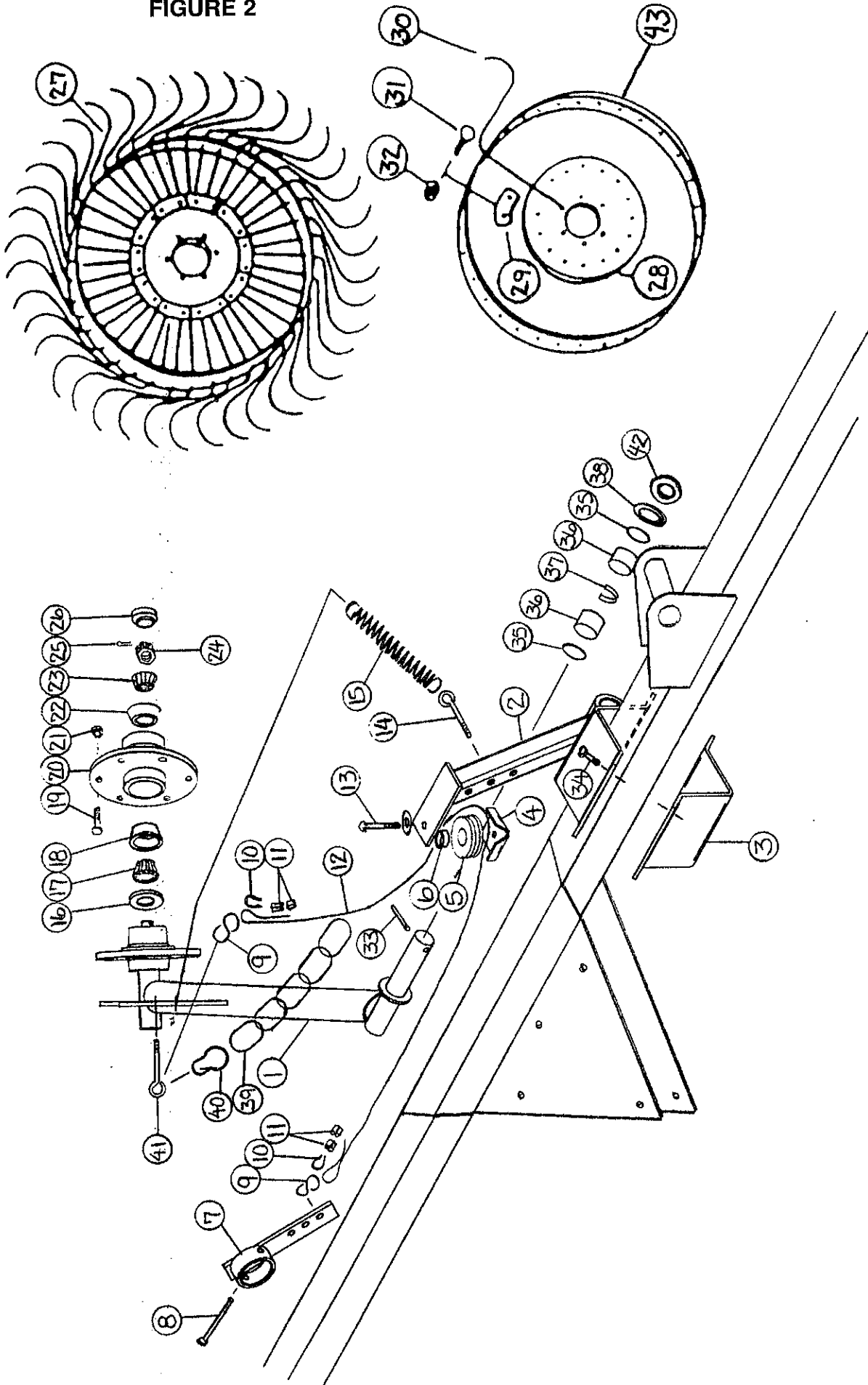
**NOTE:** #70 Vent Plug Not Used on Double Acting Cylinder

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

— (Means Not Used on This Model)

" (Means Same Part No. as Preceding Model)

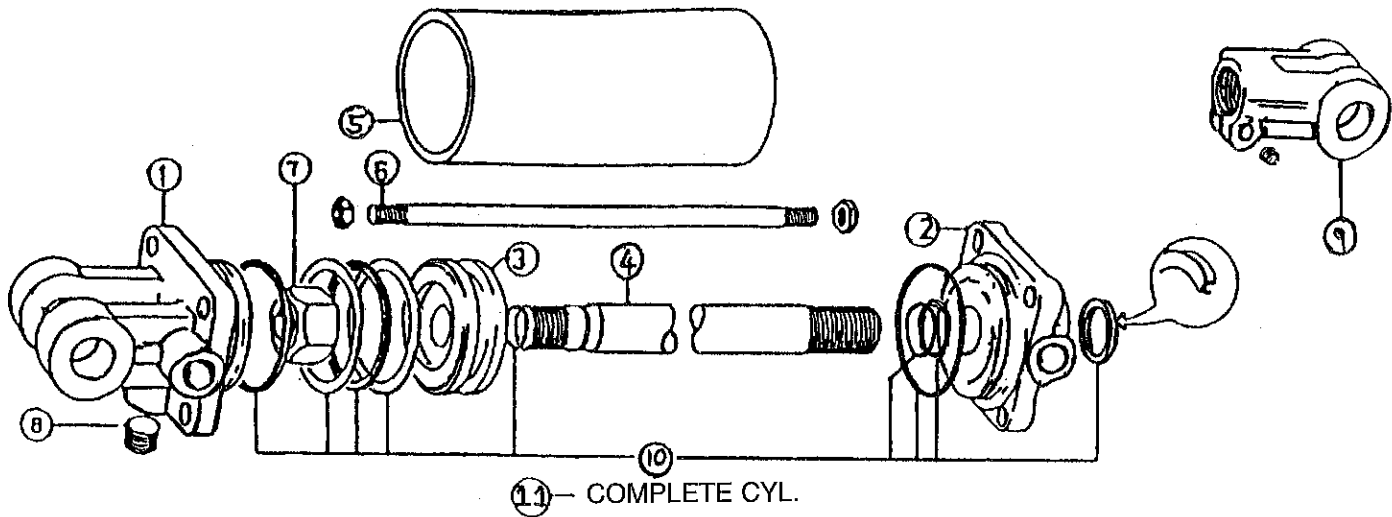
FIGURE 2



**FIGURE 2  
H&S V-RAKES  
OPTIONAL KICKER WHEEL**

<b>ITEM</b>	<b>10WR</b>	<b>12WR</b>	<b>DESCRIPTION</b>
1.	10WR41	"	Kicker Arm
2.	10WR39	"	Mounting Bracket Top
3.	10WR20	"	Mount
4.	10WR19	"	Pulley Mount
5.	BFR292	"	Poly Pulley
6.	ST81	"	Spacer
7.	10WR40	"	Pivot Mount
8.	10WR18	"	Bolt 5/16" x 3" GR.5
9.	F87	"	"S" Hook
10.	ES14	"	Cable Protector
11.	ES5	"	Crimp On Clamp
12.	12WR6	"	Cable (57")
13.	T19	"	Bolt 3/8" x 2" GR.5
14.	ES10	"	I-Bolt (5/16" x 4" Overall)
15.	BFR110	"	Spring
16.	T163	"	Seal
17.	T164	"	Inner Bearing
18.	T165	"	Inner Race
19.	T168	"	Hub Bolt
20.	BFR32	"	Hub
21.	T166	"	Hub Nut
22.	T171	"	Outer Race
23.	T170	"	Outer Bearing
24.	T172	"	Nut
25.	T169	"	Cotter Pin
26.	T173	"	Hub Cap
27.	10WR17	"	48" Kicker Wheel
28.	T179	"	Rake Wheel Center
29.	T178	"	Rake Tooth Clip
30.	10WR42	"	Rake Wheel Tooth
31.	T168	"	Bolt 10MM x 25MM
32.	T166	"	10MM Lock Nut
33.	3G22	"	Roll Pin
34.	12V45	"	Bolt 1/2" x 1-1/2" GR.5
35.	S99	"	"O" Ring
36.	G16	"	Bronze Bushing
37.	BFR230	"	Bearing Spacer
38.	BFR221	"	Poly Washer
39.	10WR44	"	Chain - 5 Links
40.	BFR295	"	Snap Hook
41.	10WR43	"	3/8" x 1" I-Bolt
42.	BFR229	"	Washer
43.	T177	"	Outer Ring

**NOTE** " (Means Same Part No. as Preceding Model)



**FIGURE 3  
H&S V-RAKES**

ITEM	PART NUMBERS / RAKE SIZE			DESCRIPTION
	8WR	10WR	12WR	
1.	T181A	"	"	Clevis Cap
2.	T182A	"	"	Rod Cap
3.	T183	"	"	Piston
4.	23N145A	"	"	Rod
5.	10WR45	"	"	Cylinder Tube
6.	23N147	"	"	Tie Rod
7.	23N148	"	"	Piston Nut
8.	23N149	"	"	Plug
9.	23N150A	"	"	Rod Clevis
10.	T187	"	"	Seal Kit
11.	10WR11A	"	"	Complete Hydraulic Cylinder

**NOTE:** " (Means Same Part No. as Preceding Model)

## H&S V-RAKES

Your new H&S V-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 V-Rake before reading this manual carefully. Keep this manual available for ready reference.

### H&S V-RAKE SPECIFICATIONS

	H&S V8	H&S V10	H&S V12
Wheel Diameter	55"	55"	55"
Teeth Per Wheel	40	40	40
Tooth Diameter	7mm	7mm	7mm
Transport Width	9'6"	9'6"	10'6"
Transport Length	113'	113'	113'
Window Width Adjustment	4'-6"	4'-6"	4'-6"
Raking Width	16'-20'	18'-22'	20'-24'
	3 settings	3 settings	3 settings
Raking Wheel Hubs	Tapered Bearings	Tapered Bearings	Tapered Bearings
Wing Flex	Limited	Limited	Limited
Number of Transport Wheels	2	2	2
Hitch Jack	Standard	Standard	Standard
Center Kicker Wheel		Optional	Optional
Number of Rake Wheels	8	10	12
Transport Wheels	ST175/80D13	ST175/80D13	ST175/80D13
Weight	1125 lbs.	1275 lbs.	1440 lbs.

#### NOTE

Determine right or left side of V-Rake by viewing it from the rear. If instructions or parts lists call for hardened bolts, they are identified as Grade 5 by three lines on the head.

## H&S MANUFACTURING CO. INC.

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



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

# H&S MFG. CO.

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