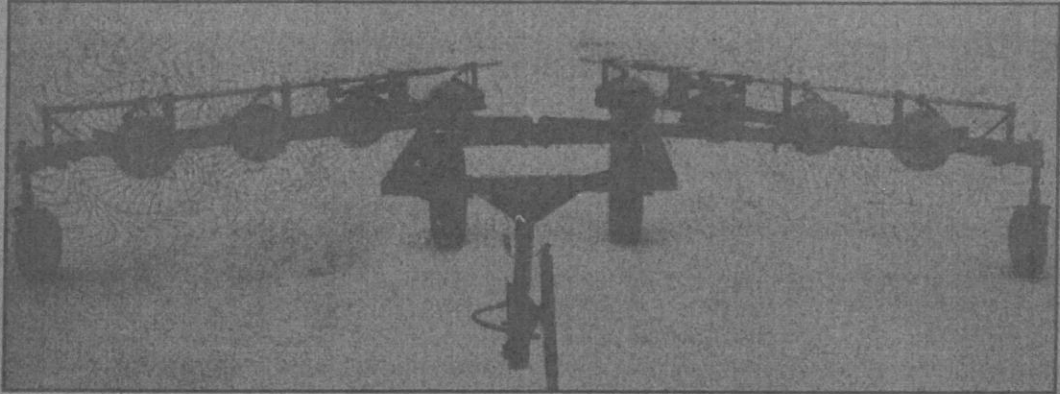
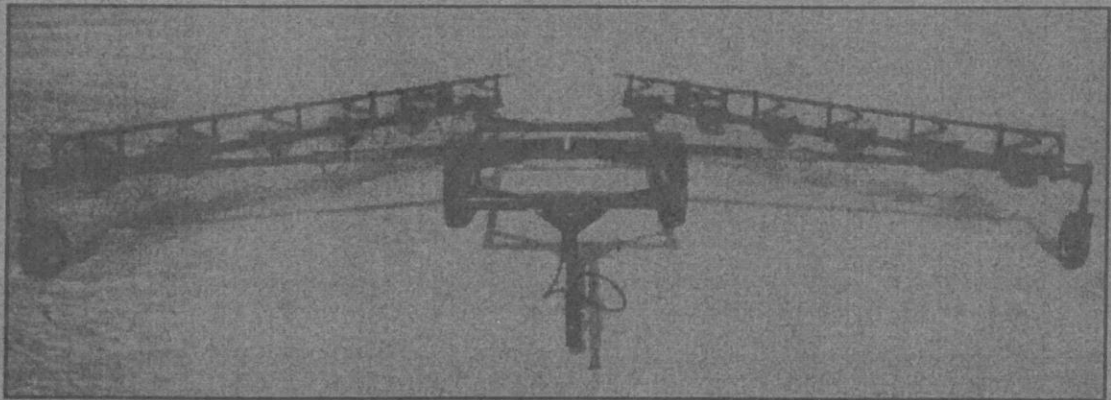


# H&S

## BI-FOLD RAKE



**EIGHT WHEEL BI-FOLD**



**TWELVE WHEEL BI-FOLD**



### **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 & PARTS LIST**

Manufactured By

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

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

MARSHFIELD, WISCONSIN 54449

**H&S**  
**BI-FOLD RAKE**

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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.**

### THE H&S WARRANTY

H&S Manufacturing Co., Inc. warrants this unit to be free from breakage or malfunctions due to defects in material and or workmanship for a period of one year from date of original sale on parts and limited labor, two years parts. Should such breakage or malfunction occur within warranty period the liability of H&S, its employees, agents, authorized distributors, and dealers (Hereinafter collectively referred to as sellers) is hereby expressly limited to repairing or, at its option, replacing free of charge at its factory, any such defective part or parts. Sellers liability is further expressly limited with respect to components manufactured by others, such as universal joints, bearings, detachable link and roller chains, tires, belts or trade accessories, to the extent of such warranties as are extended thereon to sellers by these manufacturers.

**THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO WARRANTIES OF MERCHANTABILITY OR APPLICABLE FOR ANY PARTICULAR PURPOSE, AND THE OBLIGATION AND LIABILITY OF SELLERS UNDER THIS WARRANTY, DOES NOT EXTEND TO LOSS OF CROPS, LOSS BECAUSE OF DELAY IN HARVESTING OR ANY EXPENSE OR LOSS INCURRED FOR LABOR, SUPPLIES, SUBSTITUTE MACHINERY OR RENTAL MACHINERY, TRANSPORTATION OR OTHER CHARGES, OR ANY OTHER INDIRECT OR CONSEQUENTIAL LOSS.**

H&S Mfg. Co., Inc. reserves the right to make changes in design and components or material or to utilize available materials which it deems satisfactory, in order to improve its products. Also H&S reserves the right to make changes in the construction or design of any parts without any incurring obligations to install these improvements or changes on previously delivered units.

This warranty shall be void if any part or parts not manufactured or supplied by H&S are used either in servicing and maintaining the unit, and sellers obligation to repair or replace parts are then voided. This warranty shall be void if in the judgement of H&S, repairs are made in such a manner to affect this unit in a materially adverse manner or if this unit is operated unsafely or while in a state of disrepair.

The terms and conditions of this warranty cannot be altered, modified, or waived by any seiler without the expressed, written consent of an officer of H&S Mfg. Co., Inc.

### NOTICE

H&S Manufacturing Co., Inc. disclaims any liability for the operation of the equipment with the safety guards removed or modified. The nature of this product requires that it be operated in a safe way only, and in good repair by qualified persons. Each purchaser, through the process of purchasing this equipment, agrees with H&S Manufacturing Co., Inc. to operate it in a safe manner and in accordance with applicable state and federal laws and agrees to indemnify and hold harmless H&S Manufacturing Co., Inc. from any loss to any person or persons caused by purchaser's failure to do so. Each purchaser further agrees to bring to the attention this notice to each subsequent purchaser, and to obtain his agreement thereto as a condition of resale or transfer.

### IMPORTANT

**TO MAKE THIS WARRANTY EFFECTIVE, THE OWNERS WARRANTY REGISTRATION FURNISHED WITH EACH MACHINE MUST BE FILLED OUT AND SENT TO H&S MANUFACTURING CO., INC. IF PURCHASER DOES NOT ACCEPT THIS WARRANTY AND AGREEMENT, HE MAY RESCIND THE SALE BY NOTIFYING ANY OF THE SELLERS IN WRITING OF THAT FACT WITHIN TEN DAYS FROM DATE OF SALE AND/OR PRIOR TO ANY USE OF THE EQUIPMENT WITHIN THIS 10 DAYS.**

2/97

**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

**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.

This Is Your Warranty Card  
Please Fill Out  
And Mail Immediately

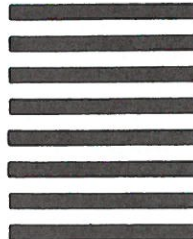


NO POSTAGE  
NECESSARY  
IF MAILED  
IN THE  
UNITED STATES

**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 Bi-Fold 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.

- 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
	_____
	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 Bi-Fold 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 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 this Manual.
- Give the customer Owner's Manual and make sure he reads and understands all operating and service instructions.
- Record Serial Number on Page 17 of this Manual.
- Have customer sign a completed "Warranty Registration," and mail it promptly.

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

By \_\_\_\_\_

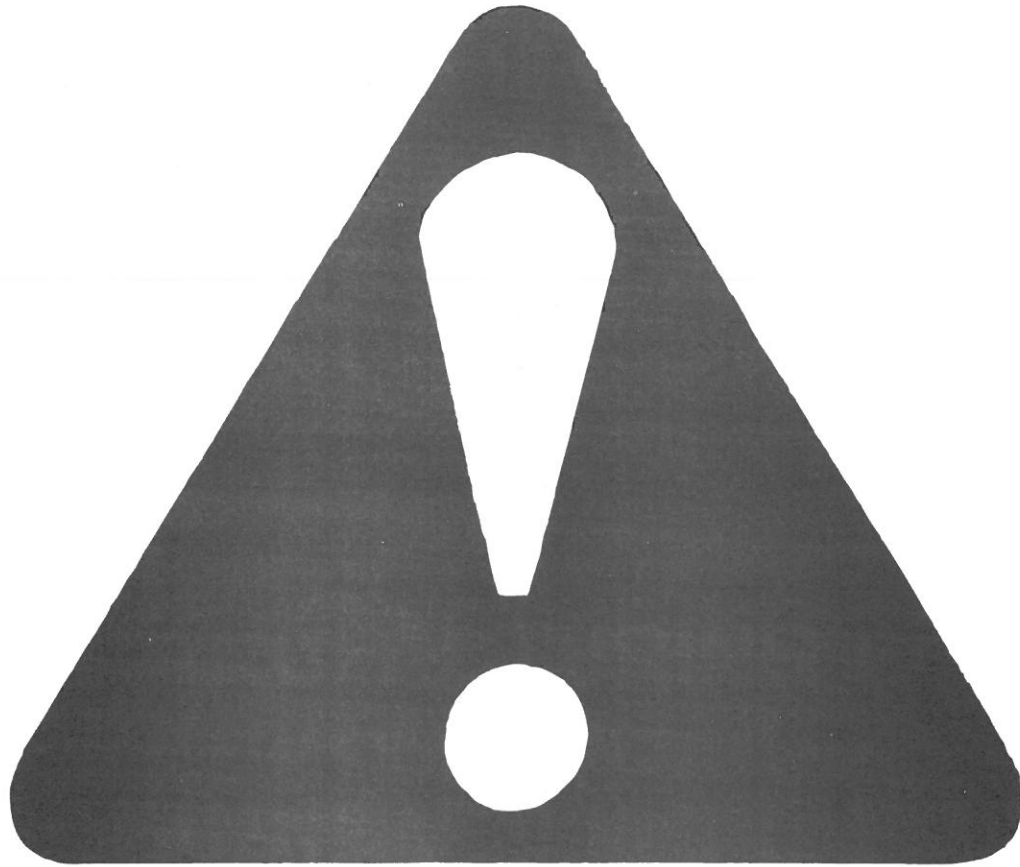
\_\_\_\_\_

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**

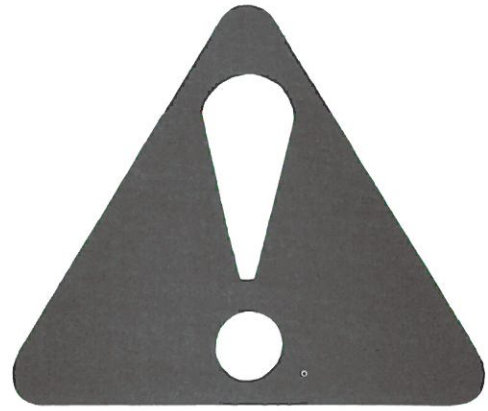
**This operator's manual uses the term "Tractor" when identifying the power source for towing and lifting Rake.**

**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**



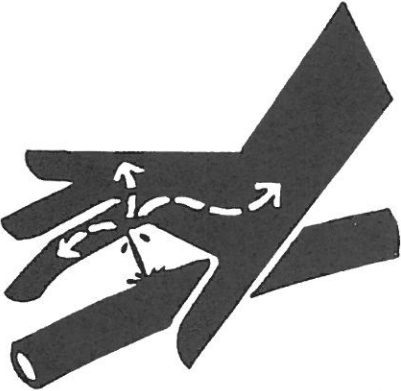
**CAUTION**

## 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.



 A black silhouette of a hand is shown being struck by a hydraulic line. The hand is positioned with fingers spread, and a thick black line representing a hydraulic hose is striking the palm area. Dashed white arrows point from the impact point towards the fingers and the wrist, indicating the direction of force or potential injury.	<p><b>! WARNING!</b></p> <p><b>STAY CLEAR OF HYDRAULIC LINES THEY MAY BE UNDER EXTREME PRESSURE OR HEAT.</b></p> <hr/> <p><b>FAILURE TO HEED MAY RESULT IN SERIOUS INJURY OR DEATH.</b></p> <p>2895</p>
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## H&S BI-FOLD RAKE



# WARNING

### TO AVOID 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** 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.

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

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

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

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

Always make sure pins (BFR26) holding Bi-Fold arms in transport position are securely locked in place.

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

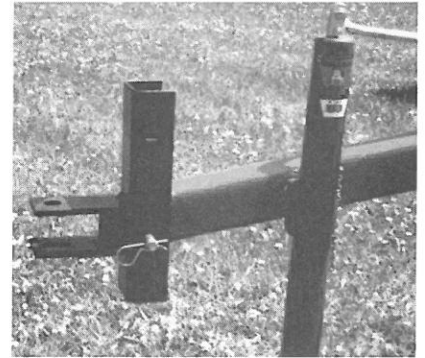
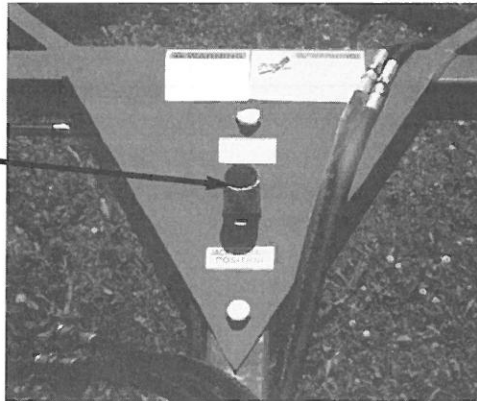
**Study The Above Safety Rules**

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

# OPERATION

1. Check for proper assembly and adjustment and make sure that all bolts are tightened. Securely retighten after a few hours of operation, as bolts can loosen up on new machinery. Check wheel bolts upon delivery and periodically thereafter. Wheel bolts should be tightened at 85-95 ft./lbs. of torque.
2. Check the tires and inflate to the recommended pressure.
3. Adjust tractor hitch (13 to 17 inches above ground) and attach rake to tractor with a hitch pin that cannot bounce out.
4. Remove weight from lift jack. Remove jack from pipe mount and place on convenient storage mount located on hitch gusset near main frame of rake.
5. Connect hydraulic hose from rake to single or double acting valve on the tractor.
6. Lubricate the machine completely.

**Jack  
Storage  
Position**



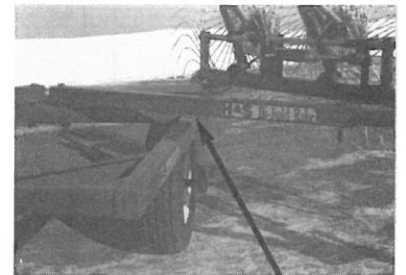
## ADJUSTMENTS

### HITCH

There are ten different positions to adjust the hitch on your new Bi-Fold Rake.

Adjustment of individual rake wheels should not have to be changed as these are preset at the factory.

Adjust hitch so main frame of rake is approximately two inches lower than width adjustment tube when rake is opened to raking position. This clearance is necessary to allow main frame to vary in height when road wheel passes over an obstacle without affecting ground contact of rake wheels.



**2" Clearance**

### TRANSPORT LOCK

Located at the front of each bank of rake wheels on the lift tube is the transport lock pin. This pin should be in the transport hole (A) when rake is not being used or is being transported. This will ensure rake wheels will not drop or lower during transport.

When you are ready to rake, completely raise rake wheels with hydraulic cylinders. Remove lock pin from transport hole and place in convenient storage hole (C) at the end of lift tube. Open rake to desired raking width and lower wheels until cylinders are completely collapsed. Rake wheels will now be on the ground and you are ready to rake. In this position, rake wheels have the widest floatation range both up and down for raking on hilly or uneven ground. On flat level ground, you may experience excess ground pressure on the rake wheels. This pressure can be eliminated by placing lock pin in the second hole (B) from end of lift pipe. In this position downward movement of rake wheels is lessened.



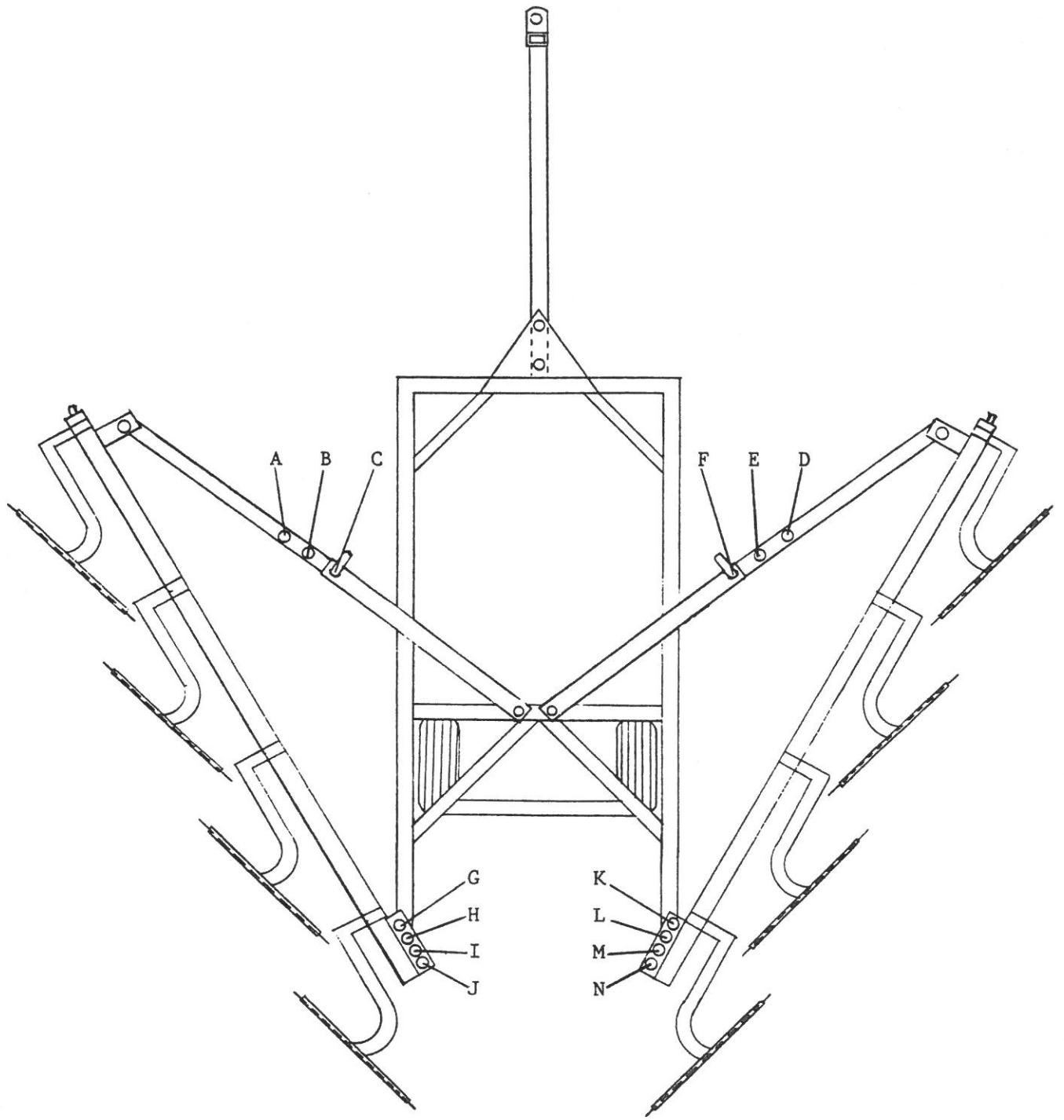
Raking with one side only can be accomplished by leaving opposite side of rake in transport position. Width adjustment pin must be in transport position so rake cannot unfold. Transport lock pin must be in transport hold so rake wheels cannot lower.

### RAKING AND WINDROW WIDTHS - EIGHT WHEEL

Listed below are numerous raking and windrow widths at which your Bi-Fold Rake can be set. These widths are only a guide, as type, density, and length of hay and heights of stubble will cause these measurements to vary. In heavy dense hay, windrow width will be approximately the width listed in the chart below. In lighter hay windrow widths can vary up to approximately twelve inches narrower than listed. The widths listed below are measured from the point at which the rake wheel teeth strike the ground.

Use the illustration on the opposite page for reference.

Position of Rear Holes Left Side	Position of Rear Holes Right Side	Position of Front Holes Left Side	Position of Front Holes Right Side	Raking Width	Windrow Width
J	N	A	D	11'6"	75"
		A	E	12'8"	72"
		A	F	13'10"	69"
		B	E	13'10"	66"
		B	F	15'	64"
		C	F	16'2"	58"
J	M	A	D	11'10"	70"
		A	E	13'2"	68"
		A	F	14'2"	64"
		B	E	14'2"	64"
		B	F	15'3"	62"
		C	F	16'4"	58"
J	L	A	D	12'4"	70"
		A	E	13'6"	67"
		B	D	13'8"	62"
		B	E	14'8"	58"
		C	D	14'7"	60"
		C	E	15'7"	57"
J	K	A	D	12'8"	68"
		B	D	13'10"	64"
		C	D	14'10"	60"
		A	D	12'8"	72"
		A	E	13'9"	65"
		A	F	14'10"	60"
I	M	B	E	14'10"	58"
		B	F	15'10"	54"
		C	F	16'8"	51"
		A	D	12'8"	68"
		A	E	13'10"	65"
		B	E	14'10"	59"
I	L	C	D	14'6"	60"
		C	E	15'8"	56"
		A	D	12'11"	63"
		B	D	14'1"	60"
		C	D	15'	55"
		A	D	13'	66"
I	K	A	E	14'	62"
		B	E	15'	58"
		A	D	13'4"	57"
		A	D	14'3"	52"
		B	D	14'3"	52"
		A	D	13'6"	59"

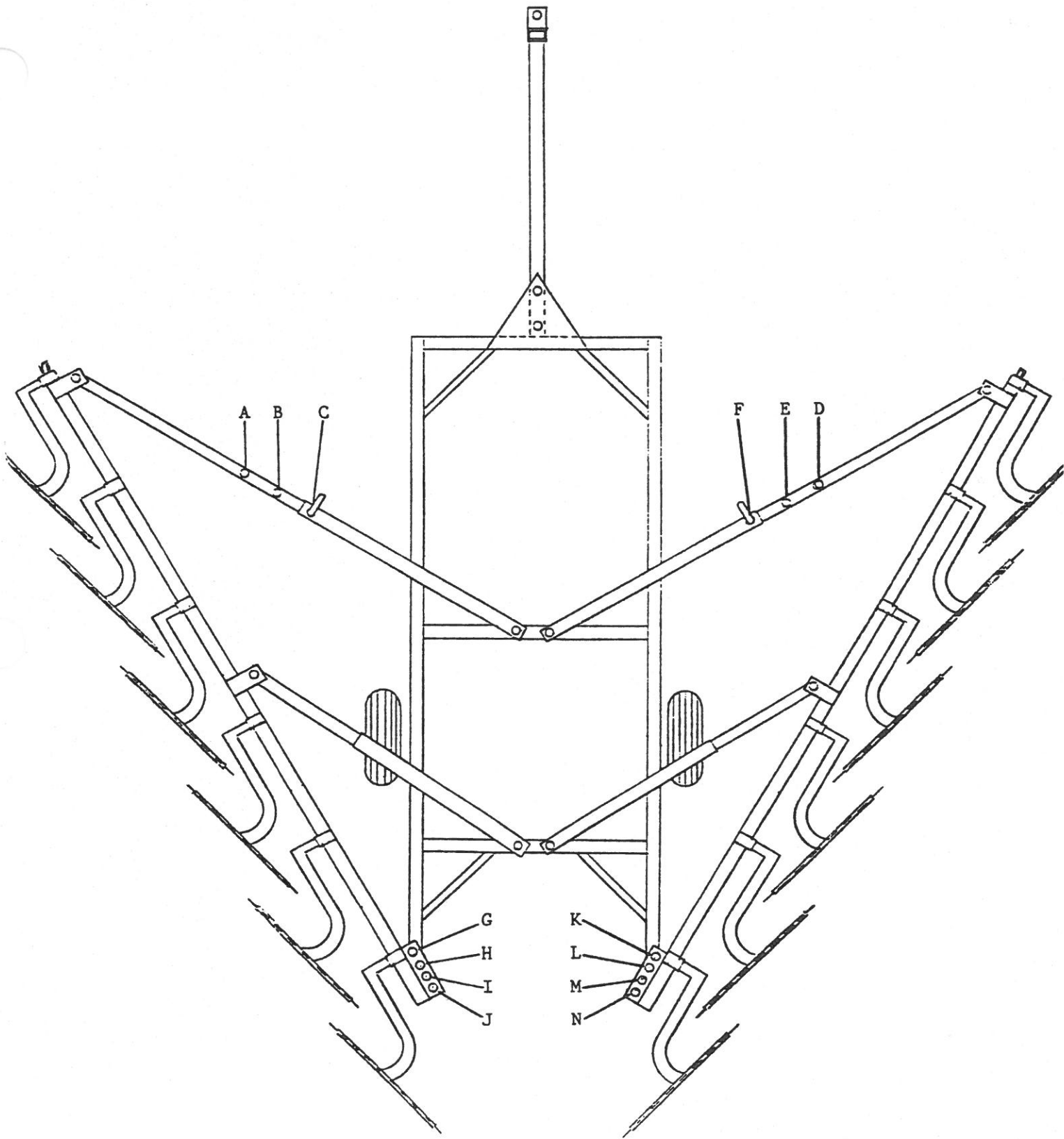


### RAKING AND WINDROW WIDTHS - TWELVE WHEEL

Listed below are numerous raking and windrow widths at which your Bi-Fold Rake can be set. These widths are only a guide, as type, density, and length of hay and height of stubble will cause these measurements to vary. In heavy dense hay, windrow width will be approximately the width listed in the chart below. In lighter hay windrow widths can vary up to approximately twelve inches narrower than listed. The widths listed below are measured from the point at which the rake wheel teeth strike the ground.

Use the illustration on the opposite page for reference.

Position of Rear Holes Left Side	Position of Rear Holes Right Side	Position of Front Holes Left Side	Position of Front Holes Right Side	Raking Width	Windrow Width
J	N	A	D	19'2"	68"
		A	E	20'4"	66"
		A	F	21'4"	64"
		B	E	21'6"	64"
		B	F	22'6"	62"
J	M	C	F	23'6"	60"
		A	D	19'8"	66"
		A	E	20'8"	63"
		A	F	21'7"	61"
		B	E	21'10"	61"
J	L	B	F	22'9"	59"
		C	F	23'9"	57"
		A	D	19'10"	63"
		A	E	20'9 1/2"	60"
		B	D	21'	61"
J	K	B	E	21'11 1/2"	58"
		C	D	22'	59"
		C	E	22'11 1/2"	56"
		A	D	19'11 1/2"	60"
		B	D	21'11 1/2"	58"
I	M	C	D	22'11 1/2"	56"
		A	D	20'2 1/2"	64"
		A	E	21'2"	61"
		A	F	22'1"	59"
		B	E	22'2"	58"
I	L	B	F	23'1"	56"
		C	F	24'	54"
		A	D	20'4 1/2"	61"
		A	E	21'4"	58"
		B	E	22'3 1/2"	55"
I	K	C	D	22'3"	56"
		C	E	23'2 1/2"	53"
		A	D	20'6"	58"
		B	D	21'5 1/2"	55"
		C	D	22'4 1/2"	53"
H	L	A	D	20'6"	58"
		A	E	21'5 1/2"	55"
H	K	B	E	22'5"	52"
		A	D	20'7 1/2"	55"
G	K	B	D	21'7"	52"
		A	D	20'9"	52"



## GAUGE WHEELS

Outboard gauge wheels are standard equipment on the eight wheel and twelve wheel Bi-Fold Rake. These wheels assist in supporting the rake wheel beams and allow the rake wheels to better follow the contour of the ground when operating on rough or sloping ground. Adjust hitch so main frame of rake is approximately two inches lower than width adjustment tube when rake is opened to raking position. This clearance is necessary to allow main frame to vary in height when road wheel passes over an obstacle without affecting ground contact of rake wheels.

Gauge wheels must be tilted up on their mounting brackets for transport. This eliminates undue stress on gauge wheels and rake arm beams when moving through ditches, etc.

## GAUGE WHEEL BRAKE

Located at the top of the gauge wheel pivot spindle is an adjustable brake. Adjust brake by tightening bolt (A). Brake should have enough tension to prevent zig zag motion at raking speeds, but still allow wheel to pivot when making corners.



2" Clearance



Transport Position

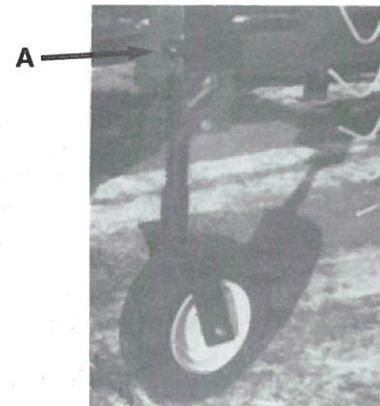
## OPTIONAL EQUIPMENT

### CENTER KICKER WHEEL

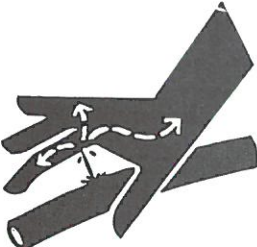
An optional center kicker wheel is available for the Bi-Fold Rake. If hay is laying out flat, this extra wheel allows you to raise the hay laying in the center of the rake out of stubble for easier baler pick up. Controlled with a hydraulic cylinder, the kicker wheel will raise when hydraulics are activated to raise left and right hand banks of rake wheels.



Working position



Working Position

	<p><b>! WARNING!</b></p> <p><b>STAY CLEAR OF HYDRAULIC LINES THEY MAY BE UNDER EXTREME PRESSURE OR HEAT.</b></p> <hr/> <p><b>FAILURE TO HEED MAY RESULT IN SERIOUS INJURY OR DEATH.</b></p>
---	---



Transport Position



# LUBRICATION GUIDE

## GREASE FITTINGS

There are twelve (eight wheel) and sixteen (twelve wheel) grease fittings on your H&S Bi-Fold Rake. Thirteen (eight wheel) and seventeen (twelve wheel) fittings if equipped with optional center kicker wheel. If these are lubricated properly and often enough it will prolong the life of the Bi-Fold Rake. Grease daily during normal use and before and after storage. Use a good grade of high quality grease. Make sure grease comes out around the shaft on the sleeve type bearings. Wipe off excess grease to prevent accumulation of chaff or grit around the bearings.

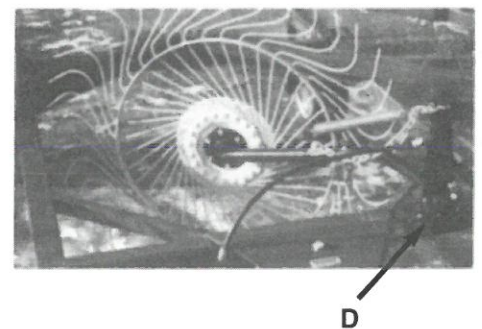
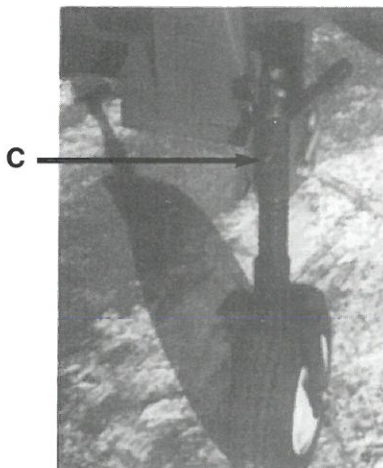
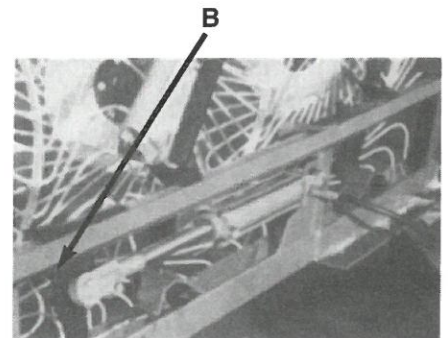
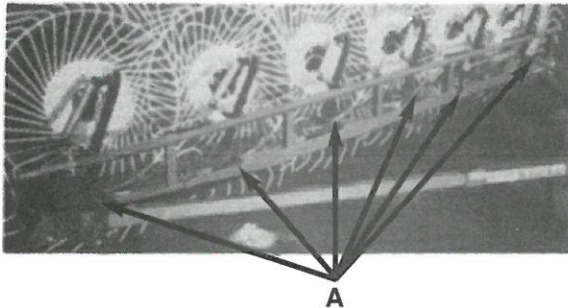
## LOCATION

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

- A. (12) twelve wheel (8) eight wheel, one on each rake wheel arm
- B. (2) one on each hydraulic lift bracket
- C. (2) one on each gauge wheel swivel point

## (OPTIONS)

- D. one on center kicker wheel pivot



# H&S BI-FOLD RAKE DECAL LOCATION

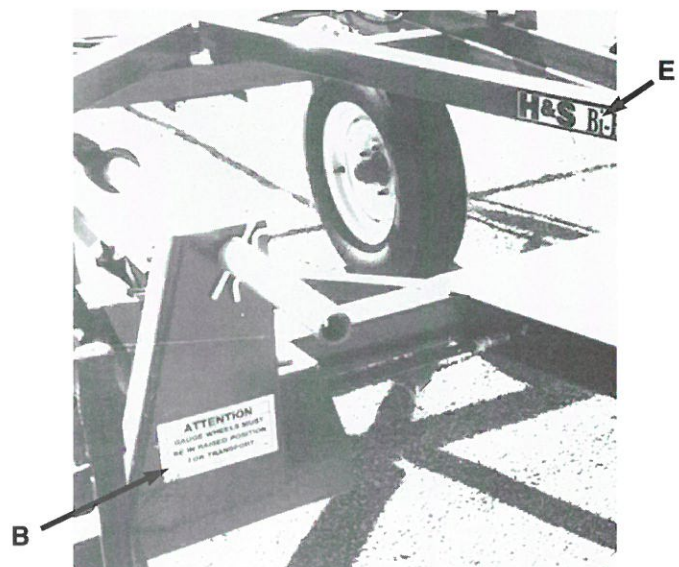
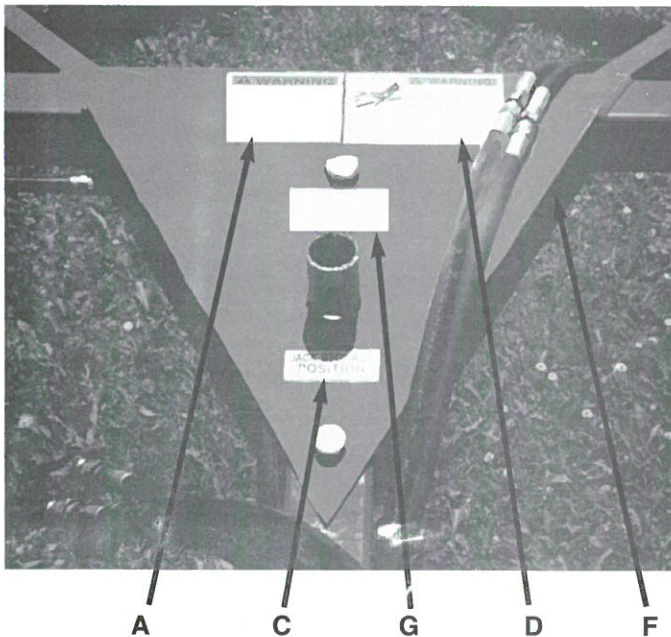
Your H&S Bi-Fold Rake was manufactured with operator safety in mind. Located on the Bi-Fold Rake are various decals to aid in operation, and warn of danger or caution areas. Pay close attention to all decals.



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

Listed below are the decals on your H&S Bi-Fold Rake. These decals may be ordered by part number, or by ordering a complete set.

REF. NO.	PART NO.	DESCRIPTION
A	5896A	Help Avoid Injury
B	11591	Attention: Gauge Wheels (2)
C	7188B	Jack Position
D	2895	Warning Hydraulic Lines (2)
E		H&S Bi-Fold Rake (4)
F		Model - Serial No.
G		Patent #'s
	101697	Complete Set of Decals



# 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 - H&S Bi-Fold Rake  
Serial Number - Serial number is located on the front main frame cross tubing left side of hitch.

2. Complete parts number and description, as shown in parts lists.

3. 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)

VIA Parcel Post

<b>H&amp;S Mfg. Co.</b>	
MARSHFIELD, WIS.	
MOD. NO.	<input type="text"/>
SER. NO.	<input type="text"/>

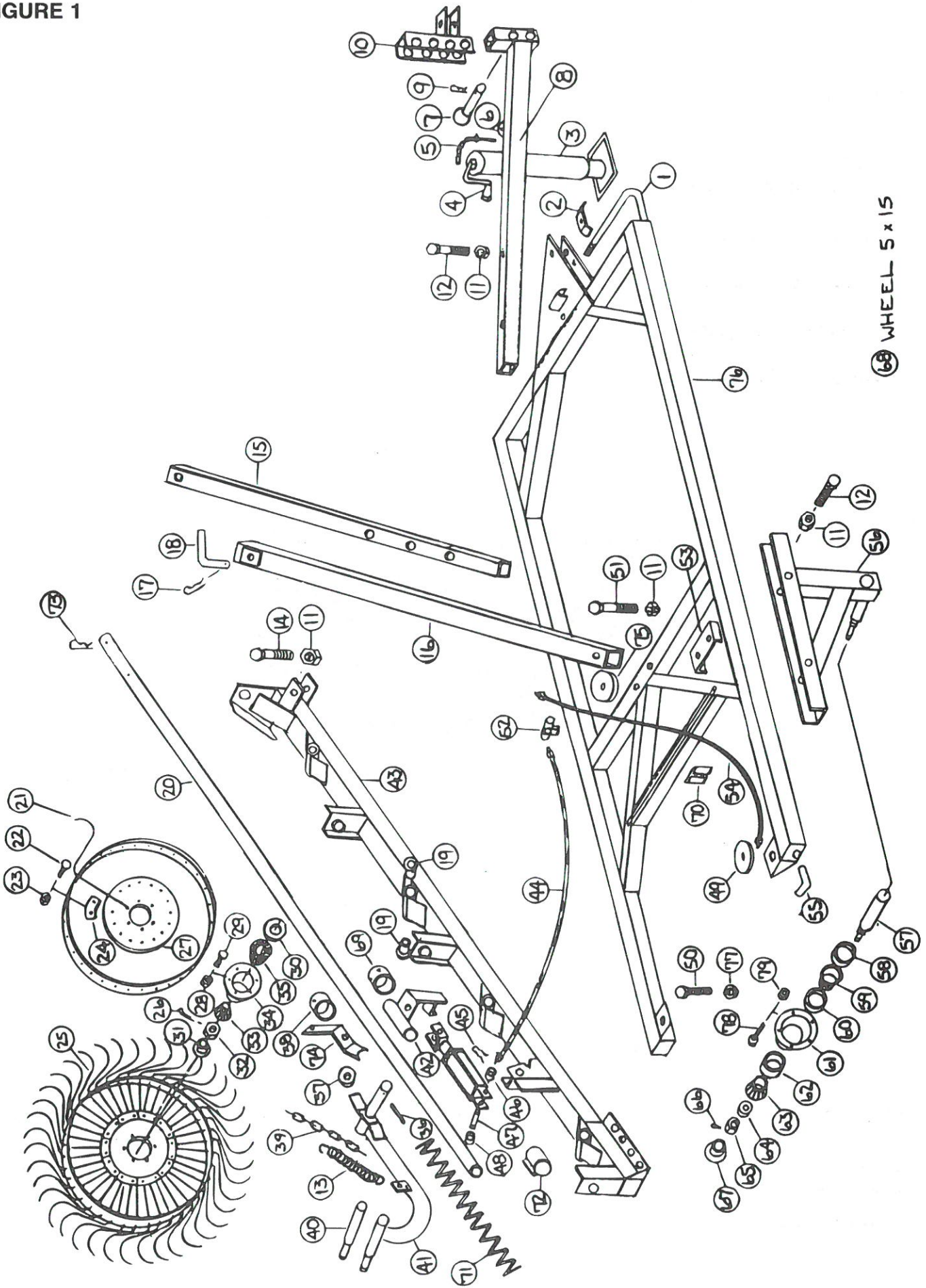
PLEASE RECORD NUMBERS FOR YOUR UNIT FOR QUICK REFERENCE

## ABOUT IMPROVEMENTS

H&S MFG. CO. 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

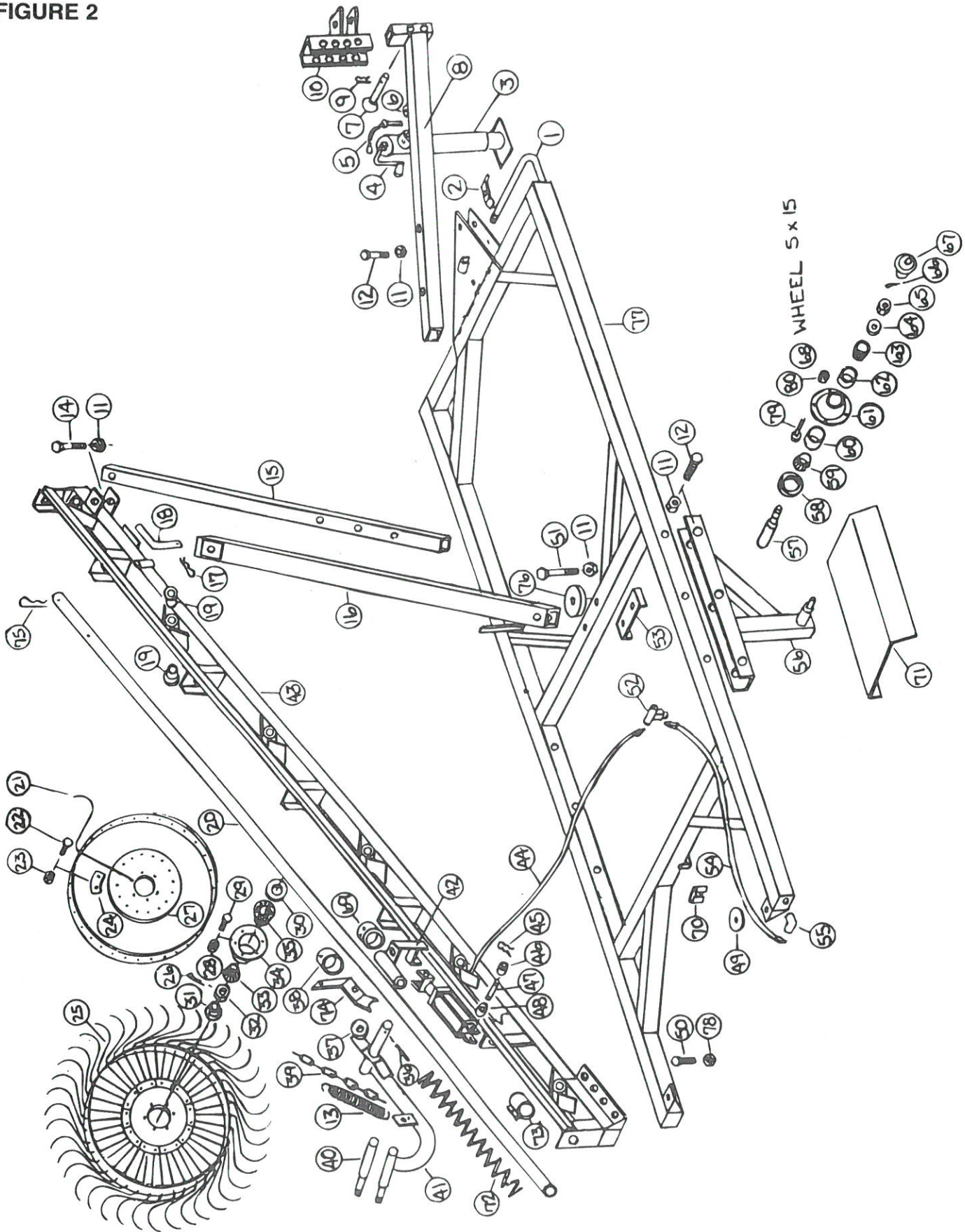


**FIGURE 1**  
**8 WHEEL BI-FOLD RAKE ASSEMBLY**

<b>NO.</b>	<b>PART NO.</b>	<b>DESCRIPTION</b>	<b>NO.</b>	<b>PART NO.</b>	<b>DESCRIPTION</b>
1.	BFR86	Hyd. Pipe	49.	BFR48	Poly Washer
2.	23N67	Hose Clamp	50.	HE8	3/4" x 2-1/4" Bolt Gr. 5
3.	BFR2	Clamp	51.	BFR107	3/4" x 8" Bolt Gr. 5
4.	BFR3	Jack Handle	52.	BFR74	Tee
5.	BFR4	Jack Pin & Chain	53.	BFR51	Pivot Point Plate
6.	12N14	Jack Mount	54.	BFR53	Hyd. Hose
7.	BFR5	Hitch Pin	55.	HE59	3/8" Elbow
8.	BFR6	Pole	56.	BFR148	RH Axle Assembly
9.	BFR7	Hair Pin	*	BFR149	LH Axle Assembly
10.	BFR129	Hitch	57.	BFR56	Spindle
11.	HE7	Lock Nut	58.	BFR57	Seal
12.	HE6	3/4" x 4-1/2" Bolt Gr. 5	59.	BFR58	Inner Bearing
13.	BFR138	Spring	60.	BFR59	Inner Race
14.	BFR23	3/4" x 4" Bolt	61.	BFR60	Hub
15.	BFR87	Inner Sleeve	62.	BFR61	Outer Race
16.	BFR88	Outer Sleeve	63.	BFR62	Outer Bearing
17.	ES7	Hair Pin	64.	BFR63	Washer
18.	BFR26	Pin	65.	BFR64	Nut
19.	BFR27	Bronze Bushing	66.	BFR65	Cotter Pin
20.	BFR145	Lifting Pipe	67.	BFR66	Hub Cap
21.	T176	Rake Wheel Tooth	68.	BFR67	Wheel 5 x 15
22.	T175	10mm x 25mm Carr. Bolt	69.	BFR83	Hyd. Lift Clamp
23.	T166	10mm Nut	70.	F97	SMV Holder
24.	T178	Rake Tooth Clip	71.	BFR84	Compression Spring
25.	T174	LH Rake Wheel or Kicker	72.	BFR34	Pipe Clamp
*	BFR31	RH Rake Wheel	73.	BFR137	Hair Pin
26.	T169	Cotter Pin	74.	BFR136	Spring Bracket
27.	T179	Rake Wheel Center	75.	BFR108	Sleeve Pivot Washer
28.	T166	10mm Nut	76.	BFR150	Main Frame
29.	T168	10mm x 25mm Bolt	77.	BFR127	3/4" Nylon Lock Nut
30.	T163	Seal	78.	BFR143	Stud Bolt
31.	T173	Hub Cap	79.	BFR144	Nut
32.	T172	Nut			
33.	T170	Outer Bearing			
*	T171	Outer Race			
34.	BFR32	Rake Wheel Hub	*	BFR154	RH Outer Sleeve
35.	T164	Inner Bearing	*	BFR75	Hub Assembly Road Wheel
*	T165	Inner Race			
36.	3G22	Roll Pin	*	BFR76	Hub Assembly Rake Wheel
37.	BFR33	Washer	*	BFR128	Tire 205 x 15
38.	BFR82	Pipe Clamp			
39.	BFR140	Chain			
40.	BFR36	Rake Wheel Spindle			
41.	BFR37A	Rake Arm LH			
*	BFR38A	Rake Arm RH			
42.	BFR39	Hyd. Lift Bracket LH			
*	BFR40	Hyd. Lift Bracket RH			
43.	BFR289	Rake Beam LH			
*	BFR290	Rake Beam RH			
44.	BFR46	Hyd. Hose			
45.	T144	Clip Pin			
46.	BFR47	Spacer			
47.	T143	Hyd. Cyl. Spacer			
48.	BFR47	Spacer			

**NOTE:** \* Means Not Shown

FIGURE 2

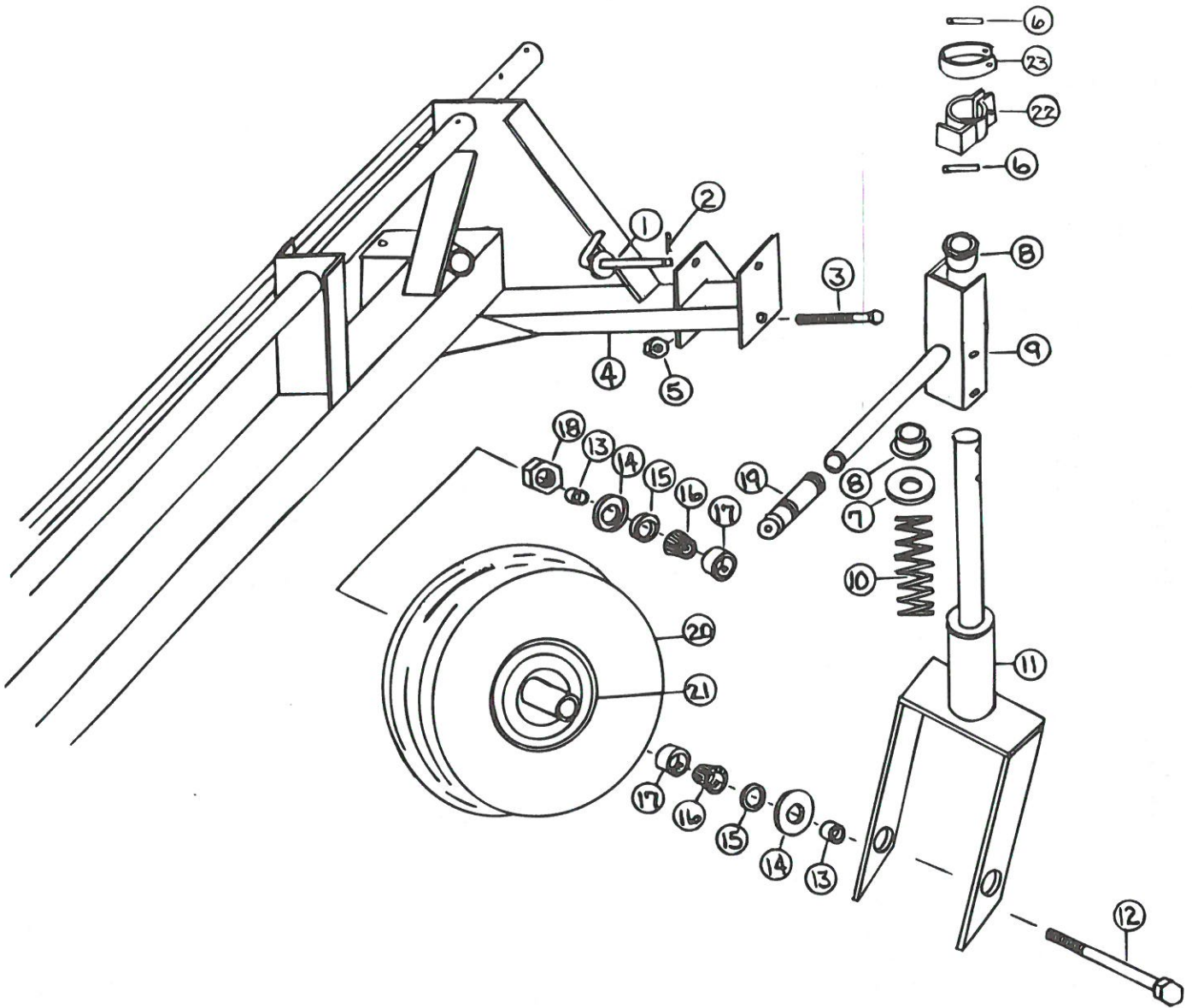


**FIGURE 2  
12 WHEEL BI-FOLD RAKE ASSEMBLY**

<b>NO.</b>	<b>PART NO.</b>	<b>DESCRIPTION</b>	<b>NO.</b>	<b>PART NO.</b>	<b>DESCRIPTION</b>
1.	BFR1	Hyd. Pipe	49.	BFR48	Poly Washer
2.	23N67	Hose Clamp	50.	HE8	3/4" x 2-1/4" Bolt Gr.5
3.	BFR2	Jack	51.	BFR107	3/4" x 8" Bolt Gr. 5
4.	BFR3	Jack Handle	52.	BFR74	Tee
5.	BFR4	Jack Pin & Chain	53.	BFR51	Pivot Point Plate
6.	12N14	Jack Mount	54.	BFR53	Hyd. Hose
7.	BFR5	Hitch Pin	55.	HF59	3/8" Hose
8.	BFR6	Pole	56.	BFR141	RH Axle Assembly
9.	BFR7	Hair Pin	*	BFR142	LH Axle Assembly
10.	BFR129	Hitch	57.	BFR56	Spindle
11.	HE7	Lock Nut	58.	BFR57	Seal
12.	HE6	3/4" x 4-1/2" Bolt Gr. 5	59.	BFR58	Inner Bearing
13.	BFR138	Spring	60.	BFR59	Inner Race
14.	BFR23	3/4" x 4" Bolt Gr. 5	61.	BFR60	Hub
15.	BFR24	Long Inner Sleeve	62.	BFR61	Outer Race
16.	BFR25	Long Outer Sleeve	63.	BFR62	Outer Bearing
17.	ES7	Hair Pin	64.	BFR63	Washer
18.	BFR26	Pin	65.	BFR64	Nut
19.	BFR27	Bronze Bushing	66.	BFR65	Cotter Pin
20.	BFR130	Lifting Pipe	67.	BFR66	Hub Cap
21.	T176	Rake Wheel Tooth	68.	BFR67	Wheel 5 x 15
22.	T175	10mm x 25mm Carr. Bolt	69.	BFR83	Hyd. Lift Clamp
23.	T166	10mm Nut	70.	F97	SMV Holder
24.	T178	Rake Tooth Clip	71.	BFR134	Fender RH
25.	T174	LH Rake Wheel Kicker	*	BFR135	Fender LH
*	BFR31	RH Rake Wheel	72.	BFR84	Compression Spring
26.	T169	Cotter Pin	73.	BFR34	Pipe Clamp
27.	T179	Rake Wheel Center	74.	BGFR136136	Spring Bracket
28.	T166	10mm Nut	75.	BFR137	Hair Pin
29.	T168	10mm Nut x 25mm Bolt	76.	BFR108	Sleeve Pivot Washer
30.	T163	Seal	77.	BFR139	Main Frame
31.	T173	Hub Cap	78.	BFR127	3/4" Nylon Lock Nut
32.	T172	Nut	79.	BFR143	Stud Bolt
33.	T170	Outer Bearing	80.	BFR144	Nut
*	T171	Outer Race			
34.	BFR32	Rake Wheel Hub			
35.	T164	Inner Bearing			
*	T165	Inner Race	*	BFR75	Hub Assembly Road Wheel
36.	3G22	Roll Pin			
37.	BFR33	Washer	*	BFR76	Hub Assembly Rake Wheel
38.	BFR82	Pipe Clamp	*	BFR128	Tire 205 x 15
39.	BFR140	Chain			
40.	BFR36	Rake Wheel Spindle			
41.	BFR37A	Rake Arm LH			
*	BFR38A	Rake Arm RH			
42.	BFR39	Hyd. Lift Bracket LH			
*	BFR40	Hyd. Lift Bracket RH			
43.	BFR547	Rake Beam LH			
*	BFR548	Rake Beam RH			
44.	BFR46	Hyd. Hose			
45.	T144	Clip Pin			
46.	BFR47	Spacer			
47.	T143	Hyd. Cyl. Spacer			
48.	BFR47	Spacer			

**NOTE: \*** Means Not Shown

FIGURE 3



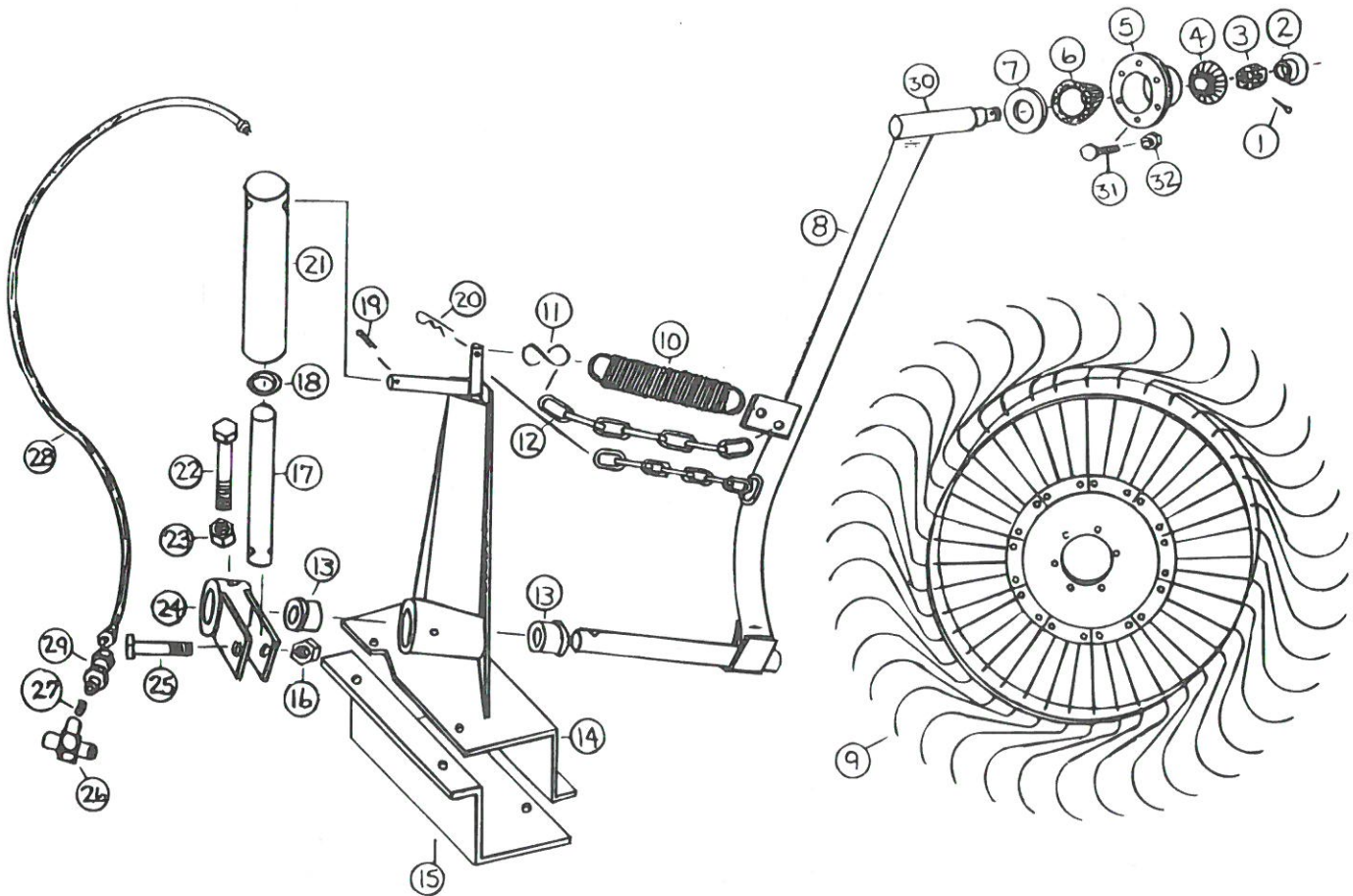


**FIGURE 3  
BI-FOLD CASTER WHEEL**

<b>NO.</b>	<b>PART NO.</b>	<b>DESCRIPTION</b>
1.	BFR197	Caster Locking Pin
2.	ES7	Hair Pin
3.	BFR133	Bolt 5/8 - 11 x 4" Gr. 5
4.	BFR151	RH Gauge Bracket
*	BFR152	LH Gauge Bracket
5.	T60	Lock Nut 5/8"
6.	F26	Roll Pin
7.	BFR98	Tubing End Washer
8.	T79	Bronze Bushing
9.	BFR262	Handle Bracket
10.	BFR213	Spring
11.	BFR264	Complete Fork
12.	BFR50	Bolt 3/4 - 10 x 7" Gr. 5
13.	BFR101	Wheel Bearing Spacer
14.	BFR102	Anti-wrap Cap
15.	BFR103	Seal
16.	T32	Bearing
17.	T33	Race
18.	BFR104	Lock Nut
19.	X41	Handle Grip
20.	BFR105	Tire
21.	BFR106	Wheel
22.	BFR260	Brake Assembly
23.	BFR261	Brake

**NOTE:** \* Means Not Shown

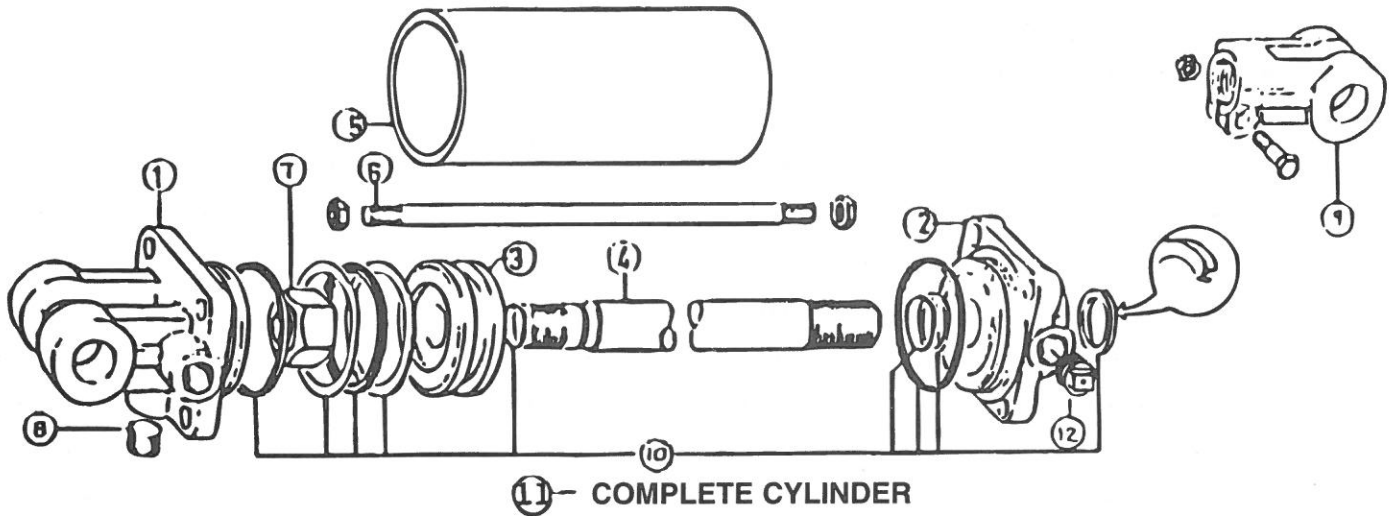
**FIGURE 4**  
**KICKER WHEEL ASSEMBLY**  
**8 WHEEL & 12 WHEEL STANDARD**



NO.	PART NO.	DESCRIPTION	NO.	PART NO.	DESCRIPTION
1.	T169	Cotter Pin	18.	BFR115	"O" Ring
2.	T175	Hub Cap	19.	T37	Cotter Pin 1"
3.	T173	Nut	20.	ES7	Hair Pin
4.	T170	Outer Bearing	21.	BFR116	Hydraulic Cylinder Tube
*	T171	Outer Race	22.	BFR117	3/8-16 x 2-1/2" Gr. 5
6.	T164	Inner Bearing	23.	K93	Lock Nut 3/8-16
*	T165	Inner Race	24.	BFR118	Cyl. Lift Bracket
7.	T163	Seal	25.	BFR119	1/2-13 x 2-1/4" Gr. 5
8.	BFR109	Kicker Arm Assembly Wheel	26.	BFR74	Tee
9.	T174	LH Rake or Kicker	27.	BFR120	Orifice
10.	BFR110	Kicker Wheel Spring	28.	BFR121	Hose
11.	BFR71	S-Hock	29.	BFR122	Male Adapter Union
12.	BFR111	Chain 18 Links	30.	BFR36	Spindle
13.	T78	Bushing	31.	T168	10mm x 25mm Bolt
14.	BFR112	Lift Tower	32.	T166	10mm Nut
15.	BFR113	Bottom Bracket			
16.	9S17	Lock Nut 1/2 x 13			
17.	BFR114	Piston			

**NOTE:** \* Means Not Shown

**FIGURE 5  
BI-FOLD RAKE HYDRAULIC CYLINDER**



<b>NO.</b>	<b>PART NO.</b>	<b>DESCRIPTION</b>
1.	23N142	Clevis Cap
2.	23N143	Rod Cap
3.	23N144	Piston
4.	T184	Rod
5.	BFR68	Cylinder Tube
6.	T186	Tie Rod.
7.	23N148	Piston Nut
8.	23N149	Plug
9.	23N150	Rod Clevis
10.	23N151	Seal Kit
11.	BFR69	Complete Cylinder
12.	BFR70	Vent Plug



## H&S BI-FOLD RAKE

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

### SPECIFICATIONS

	EIGHT WHEEL	TWELVE WHEEL
Overall Width - Transport	116"	116"
Overall Length - Transport	17'8"	21'10-1/2"
Width Outside Tires	59-1/2"	75"
Height to Bottom of Frame	26"	26"
Weight	1275 lbs.	1780 lbs.
Adjustable Hitch	10 Positions	10 Positions
Number of Rake Wheels	8	12
Number of Teeth per Rake Wheel	40	40
Overall Diameter of Rake Wheel	55"	55"
Raking Widths	12'6" - 17'2"	19- 24'
Windrow Widths	40 - 68"	40 - 68"
Swing Away Jack w/Storage Position	Standard	Standard
Gauge Wheels (2)	Option	Option
Center Kicker Wheel	Option	Option
Tire Size	15"	15"
Warranty		
1st Year - Parts & Limited Labor		
2nd Year - Parts		

#### NOTE

Determine right or left side of Bi-Fold Rake by viewing it from the rear. If instructions or parts lists call for hardened bolts, they are identified with three lines or marks on the head.

# **H & S MFG. CO.**

**products approved**

**for the**

**FEMA**

**SEAL OF QUALITY**

