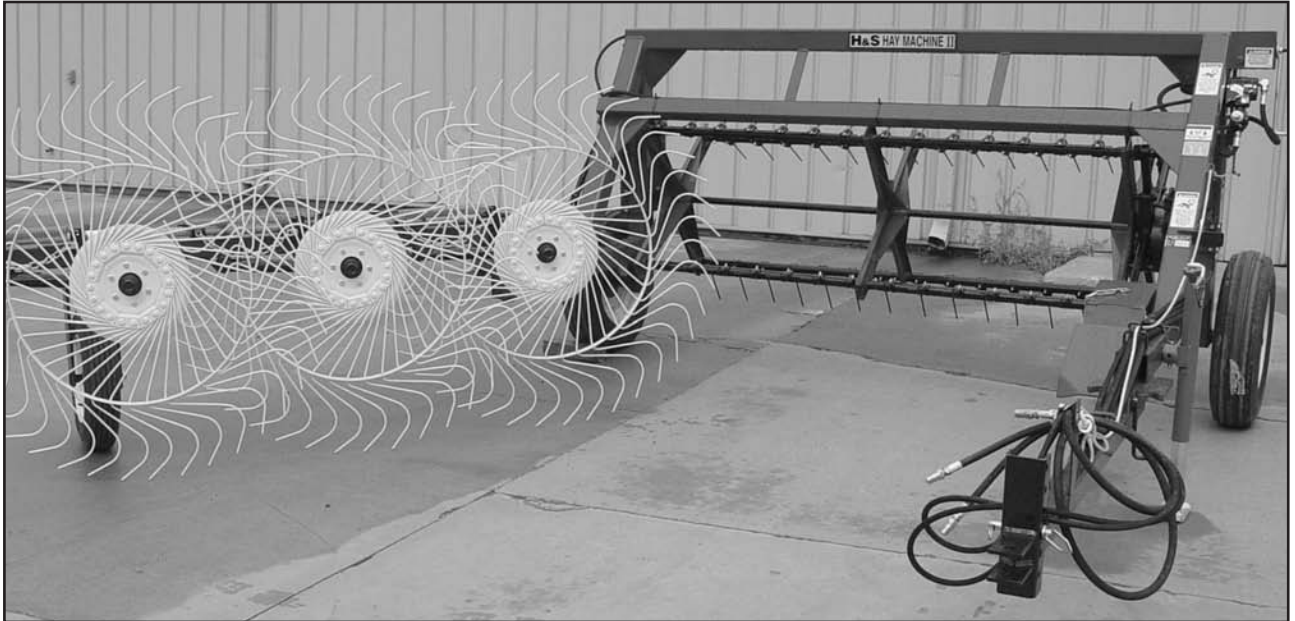


H&S

HAYMACHINE II



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

2-28-09

Manufactured By

H&S MANUFACTURING CO., INC.

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

MARSHFIELD, WISCONSIN 54449

H&S
HAYMACHINE II
OPERATOR'S AND PARTS 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.**

THE H&S WARRANTY

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

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

The warranty term for any product used in any commercial, custom, for hire or rental application, is limited to six (6) months from the date of delivery of the product to the original purchaser 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 of the spreader. This specific warranty on polybonded panels includes only replacement of any defective panel part without any allowance for labor beyond the terms of the general warranty (12 or 6 months), and is further limited to manure spreaders used to spread normal agricultural manure.

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

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

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

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

2/16/04

WARRANTY REGISTRATION

Date of Purchase _____

Purchaser _____ Address _____

City _____ State _____ Zip _____

Product _____ Model # _____ Serial # _____

Dealer _____ Address _____

City _____ State _____ Zip _____

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



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

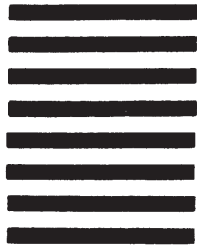


NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

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 Haymachine II 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 Shields and Guards are in place and fastened.
- All grease fittings have been lubricated - See lubrication guide in this manual.
- All mechanisms are operating trouble free.
- Belts are properly adjusted.
- All bolts and fasteners are tight.
- All decals are in place, and legible.

Dealer's Name	Model No.	Serial No.
(Signature of Pre-Delivery Inspector)	Date of Inspection	

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 Haymachine II 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 pre-delivery inspection was made.
- Explain to the customer all the safety precautions they must exercise when operating this unit.
- Explain the adjustment for proper material fluffing.
- 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 customer Owner's Manual and make sure he reads and understands all operating and service instructions.
- Record Model and Serial Numbers 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 the Haymachine II.

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.



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.

⚠ DANGER



DO NOT SHIFT LEVER WHEN TRACTOR IS RUNNING OR HYDS. ARE ENGAGED. FAILURE TO HEED MAY RESULT IN SERIOUS INJURY OR DEATH.

12494A

⚠ DANGER



STAY CLEAR OF REEL AND ALL ROTATING PARTS WHEN TRACTOR IS RUNNING OR HYDS. ARE ENGAGED. FAILURE TO HEED MAY RESULT IN SERIOUS INJURY OR DEATH.

12494B

⚠ WARNING



DO NOT CLEAN OR WORK ON THIS MACHINE WITHOUT FIRST DISENGAGING POWER AND SHUTTING OFF TRACTOR ENGINE.

1494J

⚠ WARNING



DO NOT REMOVE SHIELDS MOVING PARTS INSIDE

1494K

⚠ 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.

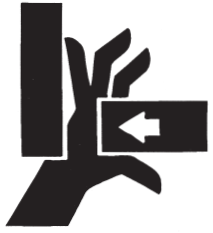
11694B

⚠ DANGER

DO NOT ADJUST SPEED OR HEIGHT OF REEL WHEN TRACTOR IS RUNNING OR HYDRAULICS ARE ENGAGED. REEL CAN START AUTOMATICALLY WHEN HYDRAULICS ARE ENGAGED. FAILURE TO HEED MAY RESULT IN SERIOUS INJURY OR DEATH.

12494C

⚠ 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!



KEEP CHILDREN AWAY AT ALL TIMES!

2495

⚠ WARNING



DO NOT GO NEAR LEAKS

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

11599

⚠ WARNING

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

H&S HAYMACHINE II



WARNING

TO PREVENT SERIOUS INJURY OR DEATH

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

KNOW HOW TO STOP MECHANISM BEFORE STARTING IT

If the machine becomes clogged, disengage the tractor hydraulics, stop the tractor engine and allow all mechanisms to stop before cleaning or working on the machine.

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

DO NOT step up on machine at any time.

NEVER manually feed material into the reel.

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

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

STAY CLEAR of rake arm when opening and closing.

Keep hands, feet, and clothing away from REEL WHEN IT IS REVOLVING.

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

Be sure the machine is clear of people, tools, and other objects before engaging tractor hydraulics.

NEVER start Haymachine II until all guards and safety shields are secured in place.

DO NOT adjust height or speed of reel when tractor is running or hydraulics are engaged.

DO NOT adjust angle of tedder teeth when tractor is running or hydraulics are engaged.

STAY CLEAR of hydraulic lines. They may be under extreme pressure or heat.

BE SURE to raise rake wheels before closing to transport 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 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

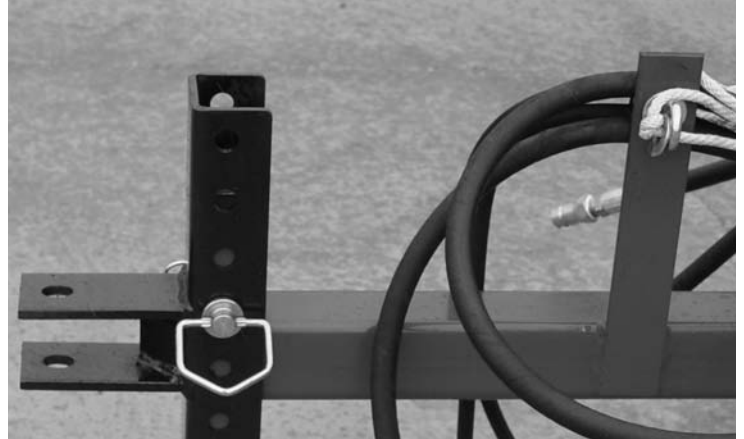
ATTENTION-BE ALERT-YOUR SAFETY IS INVOLVED

OPERATION

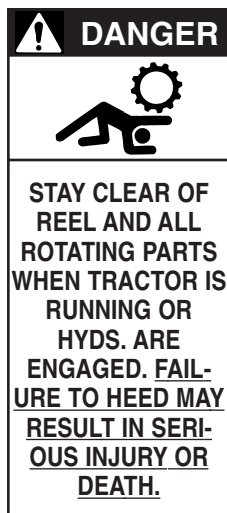
1. Check for proper assembly, and adjustments, and make sure that all bolts and set screws are tightened. Securely retighten after a few hours of operation, as bolts can loosen up on new machinery. Check wheel bolts upon delivery, wheel bolts should be tightened at 55 to 60 ft. lbs. of torque.
2. Check tires and inflate to proper pressure.
3. Adjust the tractor hitch and attach Haymachine II to the tractor as described in the following section.
4. Lubricate the machine completely as described in the lubrication section. (Pages 12-13)
5. Before operation run machine slowly to make sure the Haymachine II is operating and lubricated properly.

TRACTOR HITCH

Adjust the tractor drawbar so that it is 13 to 22 inches above the ground. The hitch of the Haymachine II is adjustable to accommodate different drawbar heights. Adjust hitch so that in transport position the gauge wheel is lifted off of the ground.



ATTACHING TO THE TRACTOR



1. Fasten the Haymachine II hitch to the drawbar using a 3/4" diameter hitch pin that has a locking device, insuring that it cannot bounce out.
2. Remove the weight from the jack. Swing jack forward into its horizontal position, and lock it to provide maximum ground clearance.
3. Shut off tractor before connecting hydraulic hoses from machine to tractor. Tractor hydraulics could accidentally engage causing possible instant operation of Haymachine II.
4. Attach two 3/8" hydraulic hoses from Haymachine II to one set of tractor remotes with properly fitting hydraulic quick couplers. This set of hoses is used to raise and lower the rake wheels.
5. Attach two 1/2" hydraulic hoses from Haymachine II to another set of tractor remotes with properly fitting hydraulic quick couplers. This set of hoses is used to open and close rake beam and also turn the tedder reel.

6. Attach directional valve control rope to a convenient place on the tractor, allowing sufficient slack in the rope for turning. This valve is used when opening and closing the rake arm.



Be certain to disengage hydraulics and shut off tractor before servicing or adjusting. Keep pant cuffs and other loose clothing away from all belts, reel and other moving parts. Keep off the equipment and keep all safety shields in place. **DO NOT** attempt to clean, grease, lubricate, or adjust while the machine is running. Never allow riders on the machine.

ADJUSTMENTS

While using your H&S Haymachine II, which is capable of turning and tedding quickly and efficiently, you might want to make adjustment changes to make it more efficient. As various conditions will effect the efficiency of your Haymachine II, only with experience will you know how to properly adjust the machine. Field conditions, weather conditions, and type and size of windrow and swath are some of the determining factors for proper teeth adjustment, height adjustment, and reel and ground speed to make your Haymachine II most efficient in gently moving, picking up, and fluffing all the hay.

The following are explanations of the various adjustments on this machine.



DANGER

DO NOT ADJUST SPEED OR HEIGHT OF REEL WHEN TRACTOR IS RUNNING OR HYDRAULICS ARE ENGAGED. REEL CAN START AUTOMATICALLY WHEN HYDRAULICS ARE ENGAGED. FAILURE TO HEED MAY RESULT IN INJURY OR DEATH.

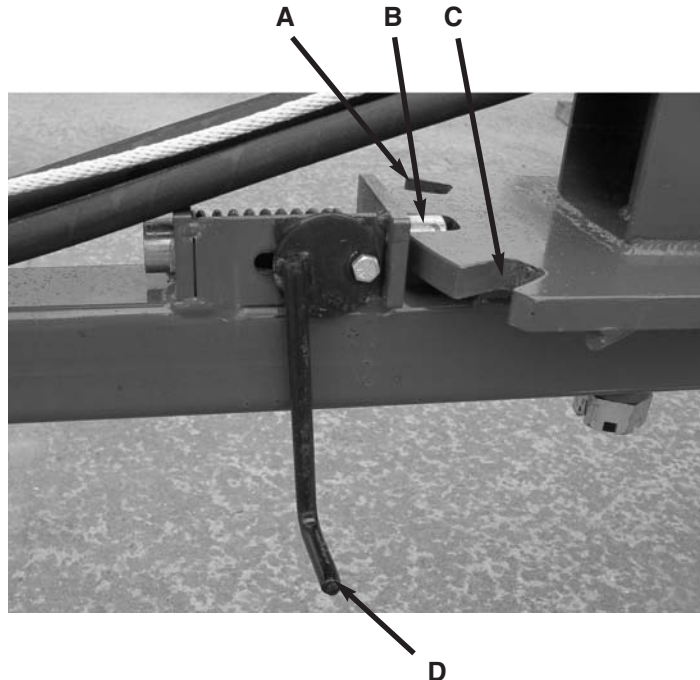
POLE POSITION

There are three positions (A-B-C) in which the pole can be locked for normal Haymachine II operation. To change position, lift locking lever (D), and swing pole to the desired position. Lower locking lever so spring loaded pin slides into locking notch.

Position (A) is used for transport. This positions the Haymachine II more directly behind the tractor to lessen the overall transport width.

The pole **MUST** be in positions (B or C) when opening or closing rake wheel arm to avoid hitting tractor tire with rake beam.

The three positions (A-B-C) should allow the operator to position the tractor properly between windrows or to straddle a windrow if necessary. Always make sure locking lever (D) is in the lowered position and locking pin is in the appropriate notch during operation.



TEDDER REEL HEIGHT

Your H&S Haymachine II incorporates two individual machines into one to provide outstanding ground speed yet gently moving hay off of damp ground and fluffing it up. The height of the tedding reel in relation to the ground can be adjusted by turning the hand crank (A) located on top left hand side of the machine. Turning hand crank clockwise will raise the tedder reel. Turning counterclockwise will lower the reel. Tedder reel should be adjusted so tedder teeth just clear the ground. Adjusting the reel too low will cause excess stress on the machine resulting in damage to the teeth, reel, and drive mechanism.



A


TEDDER REEL SPEED

The tedder reel is driven hydraulically to allow the operator to better coordinate the speed of the reel with the ground speed and teeth angle. Adjust reel speed with ground speed so when tedder reel passes over the windrow it gently lifts and fluffs the hay, but does not throw hay into the air. To adjust reel speed, shut off the tractor and disengage the tractor hydraulics. Move selector lever (A) located on speed control valve to the desired speed. Correct reel speed will vary depending on hay conditions, tooth angle, and ground speed.



A

TEDDER TEETH


! DANGER	
	
DO NOT SHIFT LEVER WHEN TRACTOR IS RUNNING OR HYDS. ARE ENGAGED. FAILURE TO HEED MAY RESULT IN SERIOUS INJURY OR DEATH.	

The aggressiveness of the tedder teeth to gently lift and fluff various types of hay can be regulated by moving the adjustment lever (A) located on the left hand side of the Haymachine II. There are eight (8) different settings. Moving the lever forward will make the teeth move aggressive and lift hay higher, while moving the lever rearward will lessen this effect. After changing the angle of the teeth, recheck the height adjustment of the tedder reel to assure proper and most efficient operation of the Haymachine II.



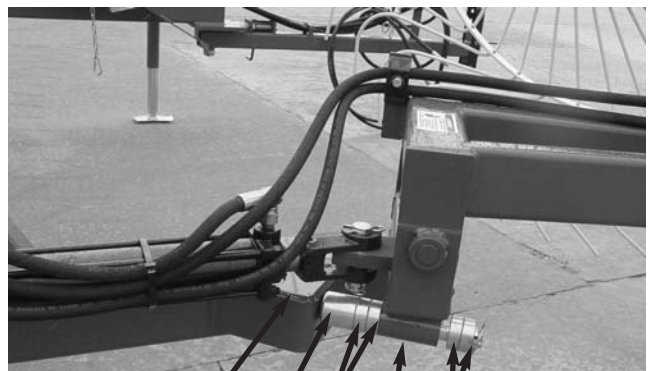
A

RAKE BEAM

! DANGER	
	
STAY CLEAR OF RAKE WHEN OPENING OR CLOSING. FAILURE TO HEED MAY RESULT IN PERSONAL INJURY OR DEATH. KEEP CLOTHING, YOURSELF AND OTHERS WELL CLEAR.	

The angle of the main rake beam can be changed to accommodate different windrow widths and crop conditions. The three rake wheels will turn up to approximately a four and a half foot windrow depending on the angle of the rake beam. To change the angle of rake beam, increase or decrease the number of spacers (A) on an adjustment shaft (B)

between adjustment stop (C) and adjustment shaft holder (D). Increasing the number of spacers will lessen the angle of rake wheels and decrease raking width. This will also make the rake wheels more aggressive when raking hay that has been rained on or is very heavy and green. To adjust angle of the rake beam, partially close rake beam. Remove clip pin from adjustment shaft (B) and remove shaft from holder bracket (D). Place desired number of spacers (A) on adjustment shaft and insert shaft back into holder on rake beam from cylinder side of holder. Place remaining spacers on shaft and install clip pin.



C B A D A

Start the tractor and open the rate beam until it contacts the stop. Attempt normal operation of Haymachine II to determine if desired raking angle has been attained. If not, readjust following the same procedure previously described.

RAKE WHEELS

The pressure of the rake wheels on the ground can be changed by changing the position of the spring where it attaches to the rake arm. This spring is set at the factory to provide the most ground pressure. If you feel that the rake wheels are scratching the ground too hard, reposition the spring from hole A to B as shown. This will lessen the ground pressure. The collars on the lift pipe are factory set and should not be changed.

Top Hole **B**



Bottom Hole **A**



V-BELT DRIVE

The v-belt drive absorbs shock and helps prevent damage to the machine should the reel strike an obstruction. Tension on the v-belts is provided by a spring loaded tightener. Spring tension is factory pre-set and requires no adjustment.



 WARNING

DO NOT CLEAN OR WORK ON THIS MACHINE WITHOUT FIRST DISENGAGING POWER AND SHUTTING OFF TRACTOR ENGINE

LUBRICATION GUIDE

ROAD WHEEL HUBS

The wheel axle bearings have been packed with grease at the factory. However, they should be checked periodically to insure proper operation. To adjust the wheel hubs, remove cotter pin from spindle. Tighten the castellated nut on the spindle to a point where there is no end play and a slight drag on the bearing. Reinstall cotter pin.

RAKE WHEEL HUBS

The bearings in the rake wheel hubs have been packed with grease at the factory. These should be checked periodically to insure smooth and proper rotation of rake wheels. Improperly greased or improperly tightened bearings will cause rake wheels to not rotate freely, thus causing improper operation.

LUBRICATION (CONTINUED)

The operator should become familiar with all lubrication points, and establish a systematic routine to insure complete and quick lubrication of the machine. Life expectancy of this or any other machine is dependent on regular maintenance including lubrication, proper adjustment, and bolt torque.

WARNING GREASE FITTINGS

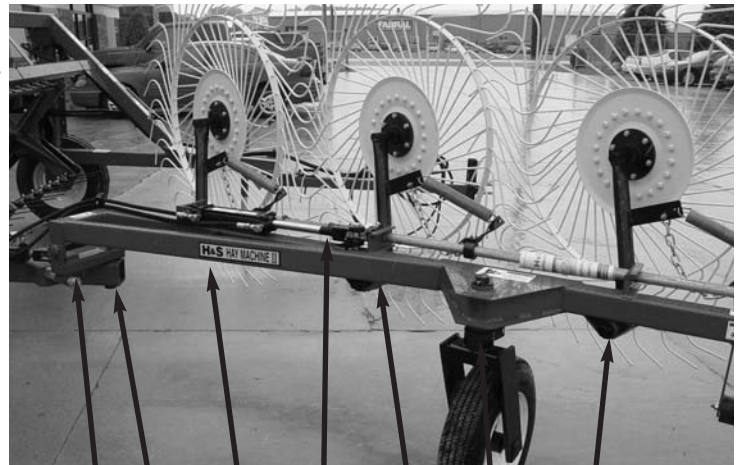


DO NOT CLEAN OR WORK ON THIS MACHINE WITHOUT FIRST DISENGAGING POWER AND SHUTTING OFF TRACTOR ENGINE

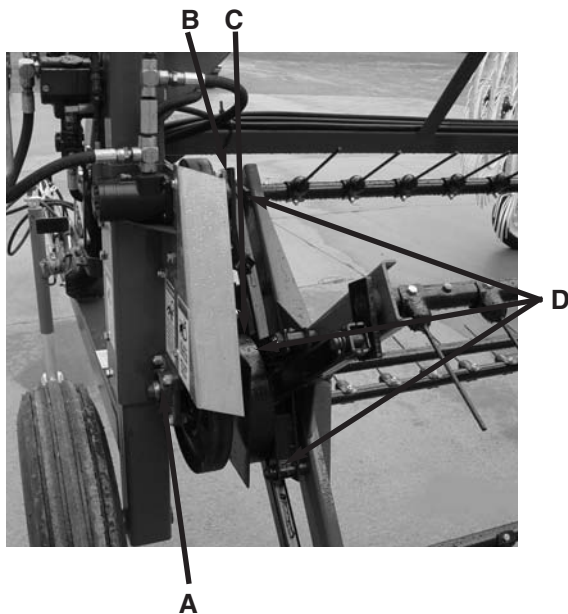
There are 36 grease fittings on this machine. If these are lubricated properly and often enough it will prolong the life of your Haymachine II. Grease daily during normal use, and before and after storage. Use a good grade of high quality grease. Make certain the grease fittings are free of paint and dirt. Grease them until grease comes out around the shaft on the sleeve type bearings. On the sealed ball bearings, grease should be added slowly until a slight bead forms at the seals indicating the correct amount of lubricant. Wipe off the excess grease to prevent the accumulation of chaff and grit around the bearings.

LOCATION OF GREASE FITTINGS

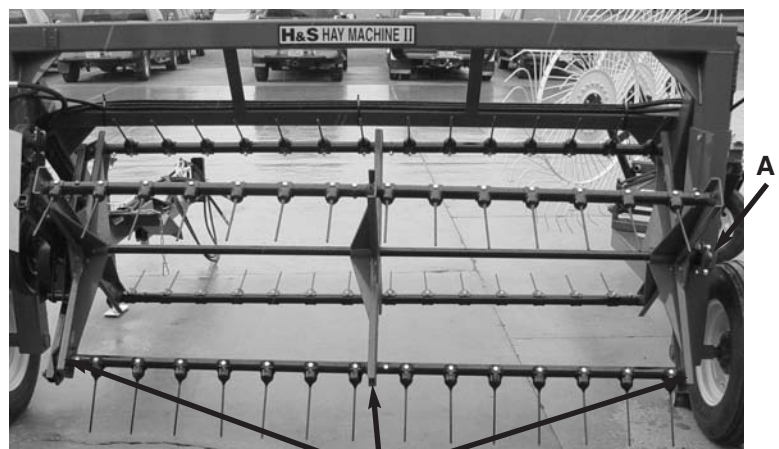
- A. (2) one at each end of reel main shaft (sealed bearings).
- B. One on upper drive pulley support bearing (sealed bearing).
- C. One on cam center bearing.
- D. (12) three on each set of cam arms.
- E. (12) one at end of each arm of each reel cross.
- F. One on rake wheel beam pivot.
- G. (3) one on each rake arm pivot.
- H. One on hydraulic lift bracket.
- I. One on gauge wheel pivot.
- J. (2) One on each side of rake beam pivot



J F G H G I G



A



E

FIELD OPERATION

Now that you have properly checked over the H&S Haymachine II, lubricated it, and have it safely attached to the tractor, you are ready to put it into operation. The following steps will aid in proper and most effective operation of the Haymachine.

1. Move pole from transport position to position B or C as described previously.
2. Unhook transport safety chain from rake wheel beam.
3. With operator in the tractor seat and all others well clear of the machine, pull and hold directional valve control rope. This will direct the flow of hydraulic oil to the rake wheel beam cylinder.
4. While maintaining tension on the rope, activate the tractor hydraulics to swing the rake beam open. Open rake beam until it engages the stops set for desired angle. Release control rope.
5. Adjust pole to desired angle to properly position the tractor with the windrows.
6. With tractor shut off and hydraulics disengaged, set the adjustment angle of the tedder teeth.
7. Adjust the height of the tedder reel. Tedder teeth should just clear the ground.
8. Set speed control for tedder reel to desired speed and lock in place.
9. Start the tractor and engage hydraulics to lower the rake wheels.
10. Engage hydraulic lever to operate the tedder reel. This lever must remain engaged to keep reel turning.
11. 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 the first 100 acres. (Part No. T175) Check periodically thereafter.
12. Adjust tractor RPM and ground speed and commence operation of the Haymachine II.

NOTE: If the tedder reel is too aggressive and the hay is being thrown up into the air, do one or more of the following:

1. Move tooth angle adjustment lever rearward to lessen aggressiveness of the teeth.
2. Slow down the tedder reel speed.
3. Increase the tractor ground speed.

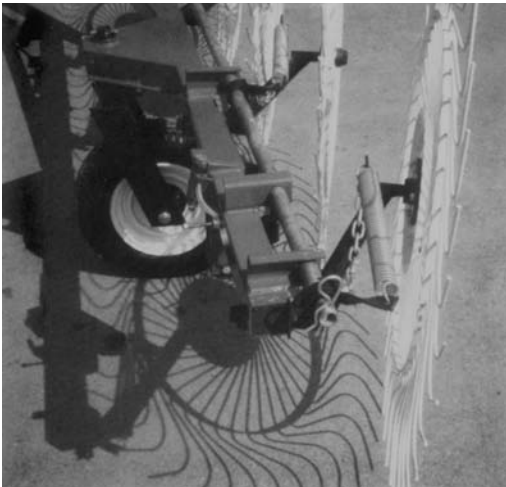
NOTE: If the rake wheels are not moving the hay properly or are skipping hay, do one or more of the following:

1. Check ground pressure of rake wheel and adjust accordingly. (Top hole in spring attaching bracket provides less pressure, bottom hole more pressure.)
2. Change angle of rake beam to make rake wheels run more straight with windrow.
3. Increase or decrease tractor ground speed.

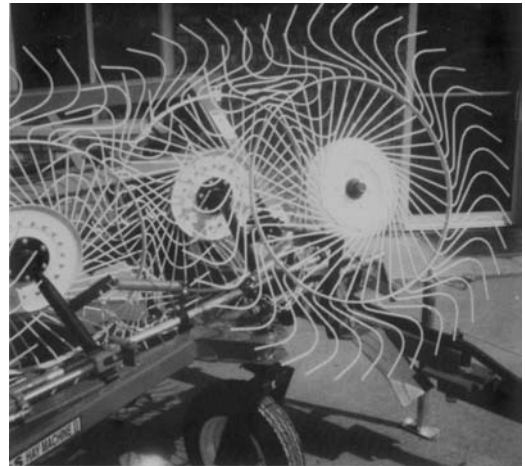
OPTIONAL EQUIPMENT

FOURTH RAKE WHEEL

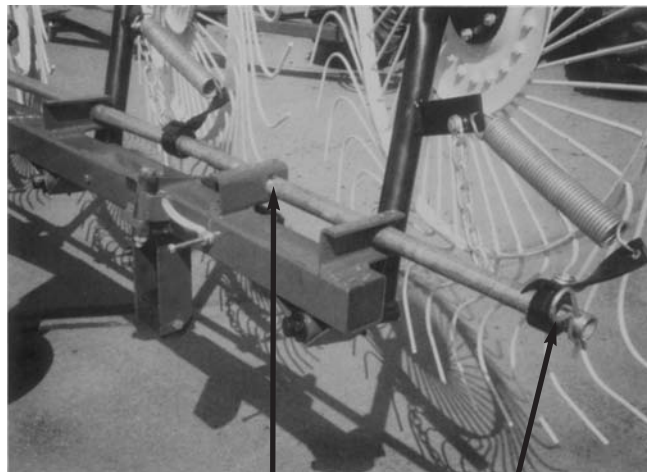
Under normal conditions the three rake wheels will turn up to a 4½' swath or windrow. If you feel the need to increase raking width, a fourth rake wheel may be added to the rake beam. This extra wheel will allow you to turn up to a six foot swath or windrow. The mounting bracket for the fourth wheel is bolted on to the end of the main rake beam. This extra wheel folds back against the main rake beam to allow rake beam to fold for transport. To fold for transport, raise rake wheels. Remove transport lock hair pin (A) from end of lift pipe and place in the second hole (B) from end of pipe. Fold rake wheel and mounting beam back against main rake beam. Beam from fourth wheel will rest on top of gauge wheel mounting bracket. (See pages 30-31)



Raking Position



Transport Position



B

A

DECAL LOCATION

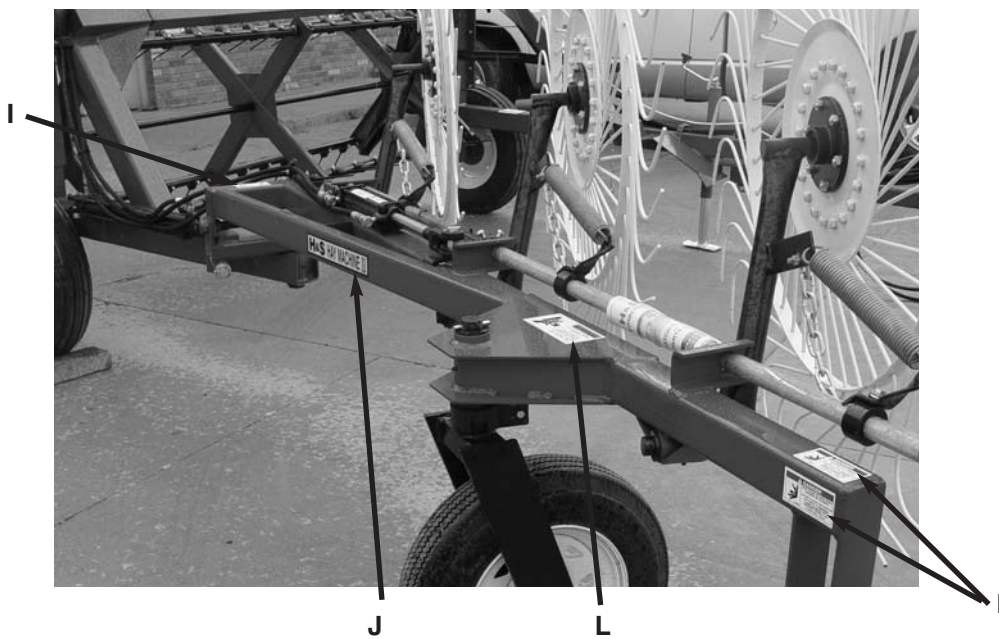
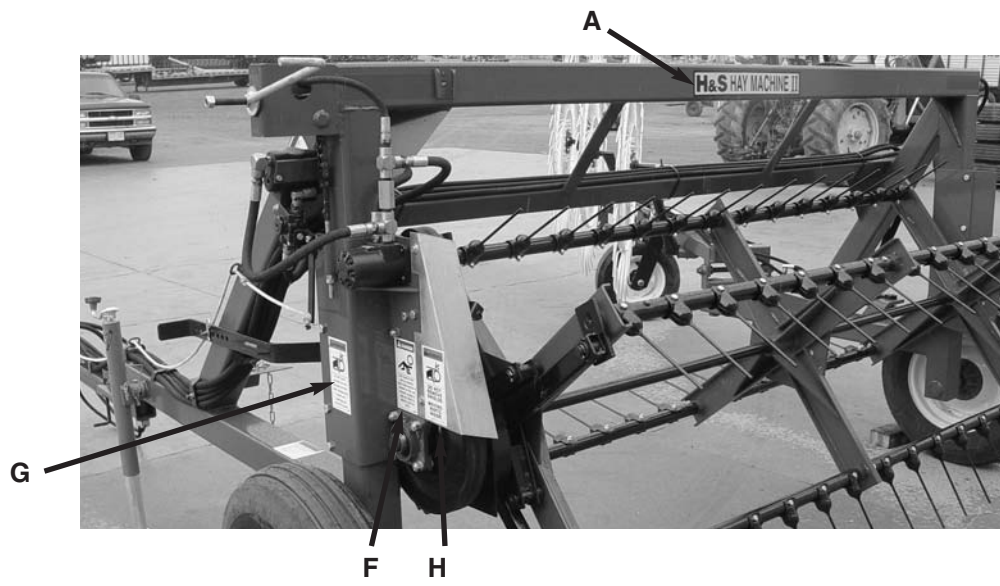
Your H&S Haymachine II was manufactured with operator safety in mind. Located on the Haymachine II are various decals to aid in operation, and warn of danger or caution areas. Pay close attention to all the decals on your Haymachine II.



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

Listed below and illustrated on the next page are the decals on your Haymachine II. These decals may be ordered individually by part number or by ordering a complete set.

ITEM	PART NO.	DESCRIPTION
A	102693	H&S Haymachine II (2)
B	12494A	DANGER - Do Not Shift Lever
C		Model and Serial Numbers
D	72203A	WARNING - Help Avoid Injury
E	12494C	DANGER - Do Not Adjust
F	12494B	DANGER - Stay Clear Of Reel (3)
G	1494J	WARNING - Do Not Clean Or Adjust
H	1494K	WARNING - Do Not Remove Shields
I	11694B	DANGER - Stay Clear Of Rake (3)
J	102793	H&S Haymachine II
K	2495	WARNING - Keep Children Away
L	2195	WARNING - Stay Clear When Raising
M	11599	WARNING - Do Not Go Near Leaks
N	H&S 404	Patent Numbers
	11704 HM	Complete Set of Decals
Paint - H&S Red		
	ZX21	Gallon
	ZX22	Quart
	ZX23	Pint



Instructions for Ordering Parts

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

1. Model number - H&S Haymachine II
Serial number -
2. All references to left or right, apply to the machine as viewed from rear.
3. Parts should not be ordered from the illustration only. Use complete parts number and description, as shown in the parts lists.
4. If the dealer has to order the part - give the shipping instructions.
VIA truck - large pieces (Specify local delivery truck line)
VIA United Parcel Service

H&S MFG. CO. INC.	
MARSHFIELD, WIS.	
MOD. NO.	HAYMACHINE II
SER. NO.	
DESCR.	

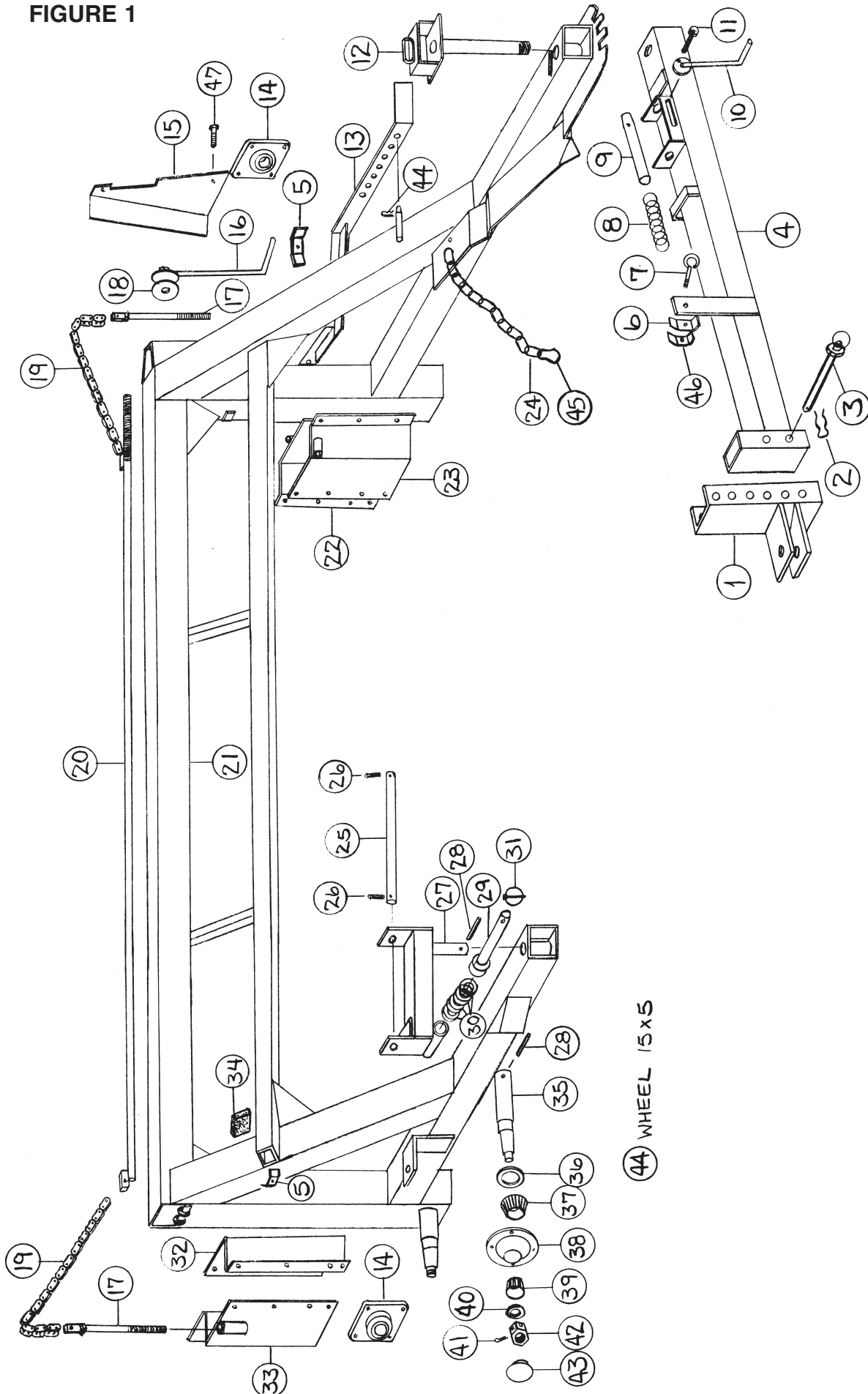
Record numbers in spaces provided above from the Serial Number tag off machine, as a handy record for quick reference.

ABOUT IMPROVEMENTS

H&S is continually striving to improve its products.

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

FIGURE 1



44 WHEEL 15x5

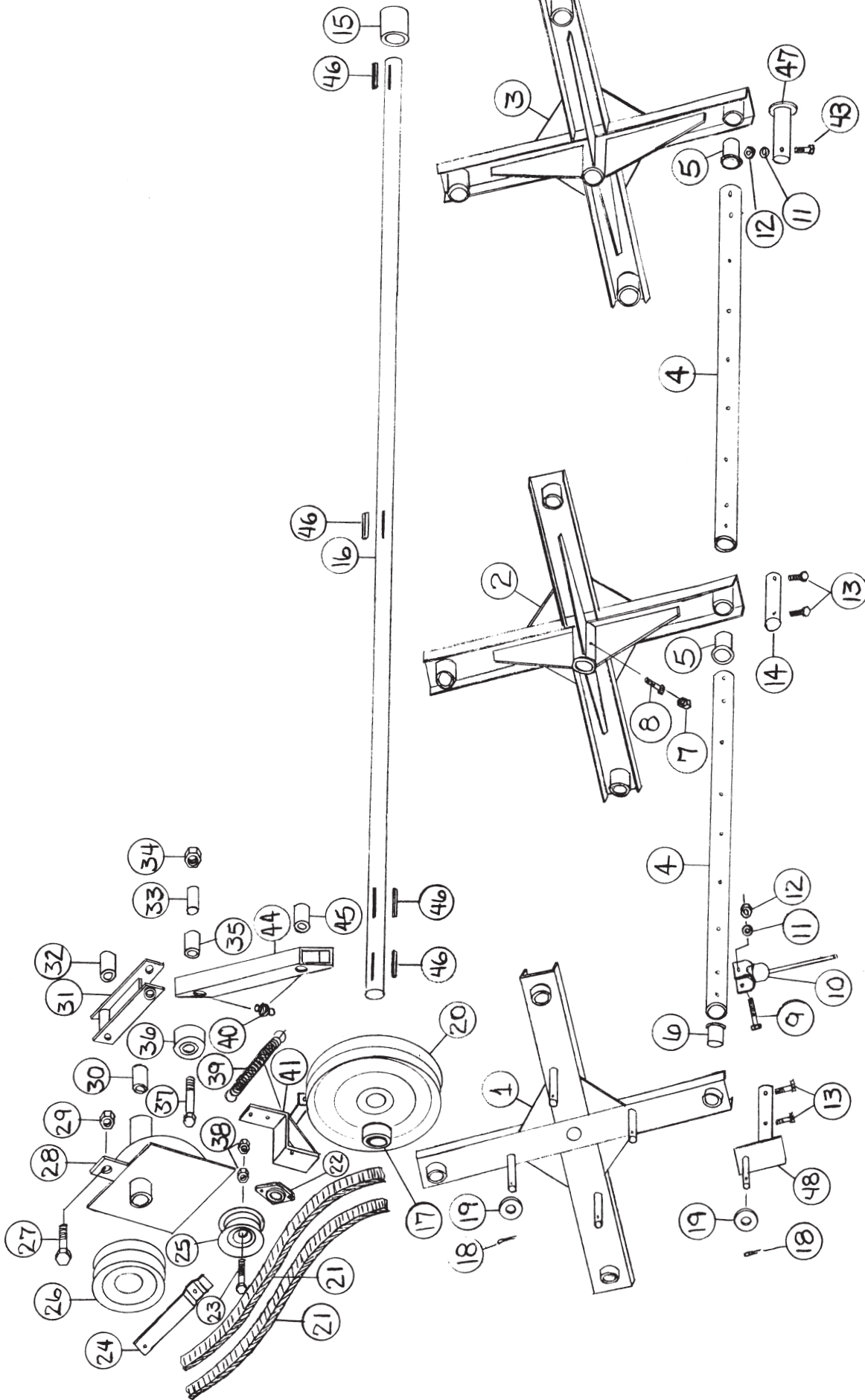
VIEWED FROM FRONT

**FIGURE 1
MAIN FRAME ASSEMBLY**

ITEM	PART NO.	DESCRIPTION
1.	BFR129	Hitch
2.	ES7	Hair Pin
3.	BFR5	Hitch Pin
4.	T200	Pole
5.	T223	Hose Clamp
6.	HE42	Hose Clamp
7.	BFR319	"I" Bolt
8.	T201	Spring
9.	T202	Pole Latch Pin
10.	T203	Latch Handle
11.	T245	Latch Bolt 3/8" X 3" Gr. 5
12.	T204	Pole Pivot Pin
13.	T205	Tine Pitch Handle
14.	33SV65	Bearing
15.	T206	Drive Belt Shield
16.	T207	Reel Lift Crank
17.	T208	Lifting Bolt
18.	T209	Poly Washer
19.	T210	Lifting Chain
20.	T211	Lifting Shaft
21.	T212	Main Frame
22.	T213	Left Outer Reel Slide
23.	T214	Left Inner Reel Slide
24.	T215	Safety Chain
25.	T216	Yoke Pin
26.	3G22	Roll Pin
27.	T217	Yoke
28.	12V59	Roll Pin 3/8" X 2-3/4"
29.	T218	Width Adjuster
30.	T219	Adjustment Spacer
31.	F56	Clip Pin
32.	T220	Right Inner Reel Slide
33.	T221	Right Outer Reel Slide
34.	BFR344	Foam Insert
35.	T222	Spindle
36.	BFR57	Seal
37.	BFR58	Inner Bearing
*	BFR59	Inner Race
38.	BFR60	Hub
39.	BFR62	Outer Bearing
*	BFR61	Outer Race
40.	BFR63	Washer
41.	BFR65	Cotter Pin
42.	BFR64	Nut
43.	BFR66	Hub Cap
44.	BFR67	Wheel 15 X 5
45.	BFR295	Snap Hook
46.	23N67	Hose Clamp
47.	12V66	Bolt 5/16" X 3/4"

NOTE: * (MEANS NOT SHOWN)

FIGURE 2

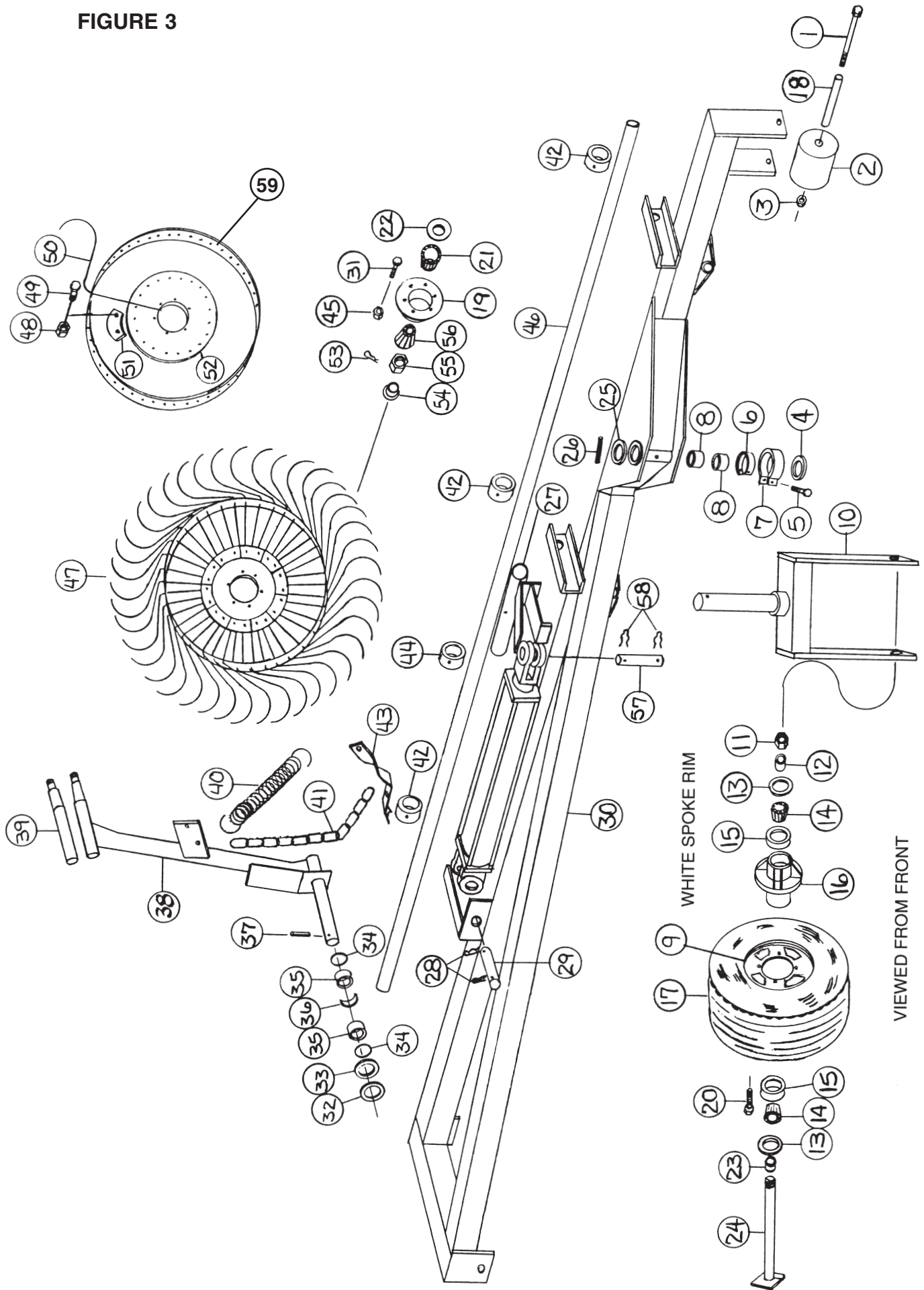


VIEWED FROM BACK

**FIGURE 2
REEL ASSEMBLY**

ITEM	PART NO.	DESCRIPTION
1.	T74	LH Reel Cross
2.	T75	Center Reel Cross
3.	T76	RH Reel Cross
4.	T784-8	Reel Pipe (8 Hole)
*	T784-9	Reel Pipe (9 Hole)
5.	T78	Bronze Bushing 1-1/4" ID (8)
6.	T79	Bronze Bushing 1-1/4" ID (4)
7.	T116	Nut 5/16"
8.	T115	Setscrew for Reel
9.	T123	Bolt 3/8" X 2-1/4" Gr. 5
10.	T82	Rubber Mounted Teeth
11.	B68	Lock Washer 3/8"
12.	K60	Nut 3/8"
13.	T114	Bolt 3/8" X 2" Gr. 5
14.	T85	Center Stub Shaft
15.	T246	Spacer 3"
16.	T224	Reel Shaft
17.	T254	Spacer 1-1/4"
18.	T72	Cotter Pin
19.	T73	Washer
20.	T225	Pulley
21.	T261	V-Belt
22.	T40	Bearing
23.	17G43	Bolt 1/2" X 3-1/2"
24.	T227	Drive Belt Tightener
25.	K156	Pulley
26.	T252	Pulley
27.	T62	Bolt 5/8" X 1-1/2"
28.	T64	Cam Assembly
29.	T60	Nut 5/8" Lock
30.	T63	Bronze Bushing 1-3/8" ID (2)
31.	T59	Cam Short Arm
32.	T58	Bronze Bushing 3/4" ID (4)
33.	T122	Steel Bushing
34.	T60	Nut 5/8" Lock
35.	T52	Bronze Bushing 3/4" ID (8)
36.	T66	Cam Roller Bearing
37.	T65	Bolt 5/8" X 4"
38.	9S17	Nut 1/2" Lock
39.	ST36	Spring
40.	T67	Long Grease Zerk
41.	T228	Bearing Mount
43.	T19	Bolt 3/8" X 2"
44.	T53	Cam Long Arm
45.	T52	Bronze Bushing (8)
46.	T50	Sq. Key 5/16" X 2"
47.	T83	RH Stub Shaft
48.	T80	LH Stub Shaft

FIGURE 3



WHITE SPOKE RIM

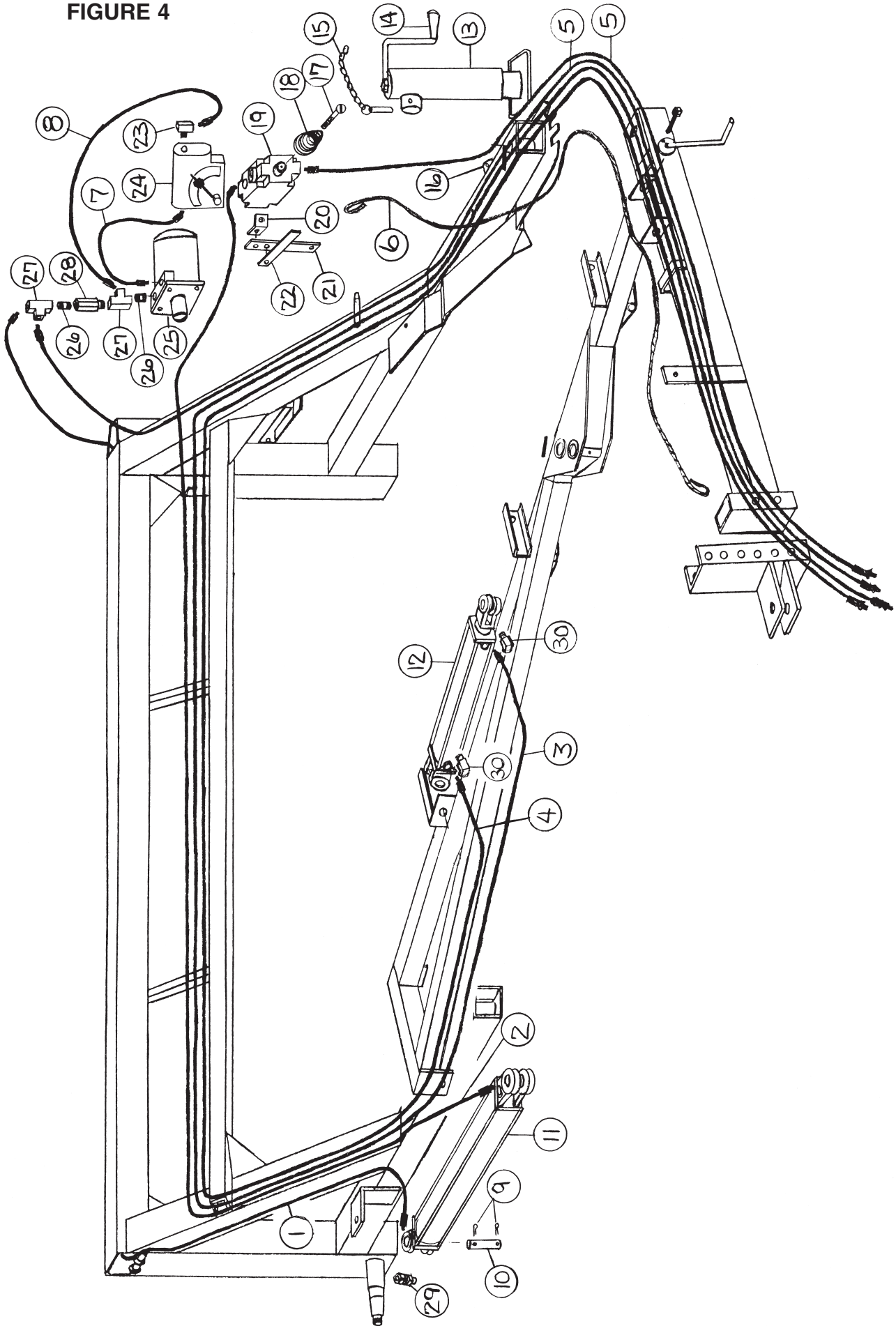
VIEWED FROM FRONT

FIGURE 3
RAKE BEAM ASSEMBLY

ITEM	PART NO.	DESCRIPTION
1.	BFR224	Bolt 1/2" X 4-1/2" Gr. 5
2.	BFR226	Poly Roller
3.	R29	Nut 1/2"
4.	BFR269	Bronze Washer (1)
5.	X26	Full Thread Bolt 3/8" X 3" Gr. 2
6.	BFR267	Brake Pad
7.	BFR268	Brake
8.	BFR625	Bronze Bushing (2)
9.	BFR280A	Wheel - Spoked
10.	BFR270	Complete Fork
11.	BFR271	Nylon Lock Nut 1"
12.	BFR272	Spacer
13.	BFR273	Seal
14.	BFR274	Bearing
15.	BFR275	Race
16.	BFR276	Hub (Only)
17.	BFR277	Tire
18.	T255	Axle Roller
19.	BFR32	Hub
20.	BFR339	Lug Bolt
21.	T164	Inner Bearing
*	T165	Inner Race
22.	T163	Seal
23.	BFR278	Spacer
24.	BFR279	Axle Shaft
25.	BFR179	Washer
26.	BFR313	Roll Pin
27.	T229	Hydraulic Lift Bracket
28.	T72	Cotter Pin
29.	PB13	Cylinder Pin
30.	T230	Rake Beam
31.	T168	10mm X 25mm Bolt
32.	BFR229	Steel Washer
33.	BFR221	Poly Washer
34.	S99	"O" Ring
35.	G16	Bushing
36.	BFR230	Spacer
37.	3G22	Roll Pin
38.	T231	Rake Wheel Arm
39.	BFR36	Rake Wheel Spindle
40.	BFR138	Spring
41.	BFR140	Chain
42.	BFR82	Pipe Clamp
43.	BFR256	Spring Bracket
44.	BFR83	Pipe Clamp
45.	T166	10mm Nut
46.	T232	Lifting Pipe
47.	BFR31	RH Rake Wheel
48.	T166	10mm Nut
49.	T175	10mm X 25mm Carr. Bolt
50.	T176	Rake Wheel Tooth
51.	T178	Rake Tooth Clip
52.	T179	Rake Wheel Center
53.	T169	Cotter Pin
54.	T173	Hub Cap
55.	T172	Nut
56.	T170	Outer Bearing
*	T171	Outer Race
57.	T143	Cyl. Pin
58.	T144	Clip Pin
59.	T177	Outer Ring

NOTE: * (MEANS NOT SHOWN)

FIGURE 4



VIEWED FROM FRONT

**FIGURE 4
RAKE HYDRAULICS**

ITEM	PART NO.	DESCRIPTION
1.	T233	Hyd. Hose 3/8" X 168"
2.	T234	Hyd. Hose 3/8" X 152"
3.	T235	Hyd. Hose 3/8" X 390"
4.	T236	Hyd. Hose 3/8" X 378"
5.	T237	Hyd. Hose 1/2" X 192"
6.	T238	Rope
7.	T239	Hyd. Hose 1/2" X 19"
8.	T240	Hyd. Hose 1/2" X 24"
9.	T144	Clip Pin
10.	T143	Cylinder Pin
11.	12V116	Cylinder
12.	BFR69	Hyd. Lift Cylinder
13.	BFR223	Jack
14.	B17B	Jack Handle
15.	BFR4	Jack Pin & Chain
16.	12N14	Jack Mount
17.	T247	Bolt
18.	T241	Spring
19.	16SV133	Selector Valve
20.	F92	Angle
21.	T242	Valve Handle
22.	T243	Valve Linkage
23.	HE58	Hydraulic Elbow 1/2"
24.	DF15	Speed Control Valve
25.	PB64	Hydraulic Motor
26.	DF7	Nipple 1/2"
27.	DF8	Tee 1/2"
28.	DF18	Check Valve
29.	T244	Adapter Union
30.	23N234	3/8" Elbow 90 Degree

FIGURE 5

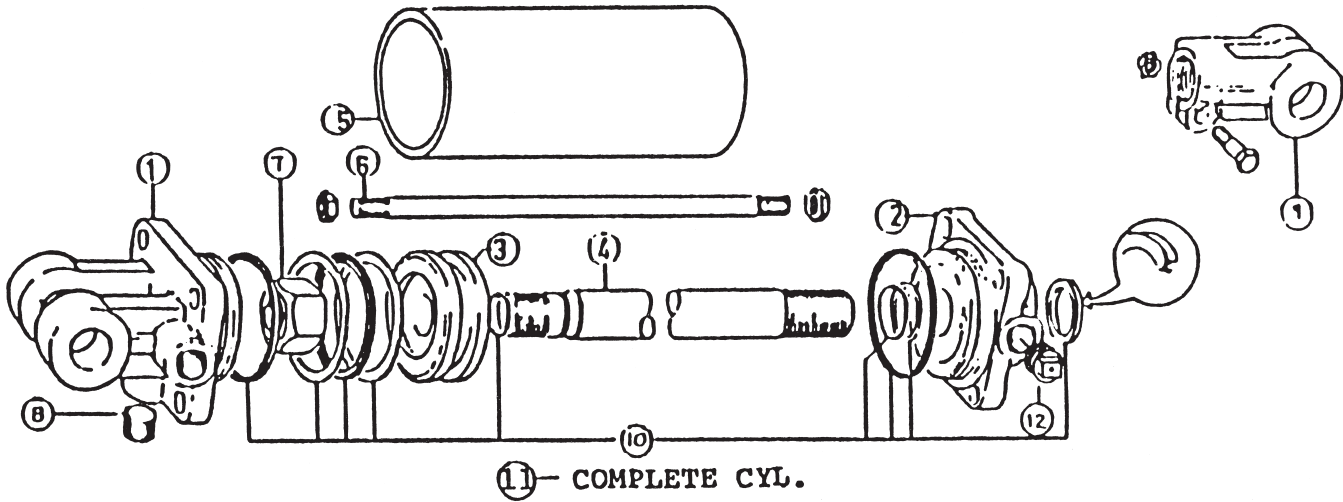


FIGURE 5
HYDRAULIC LIFT CYLINDER

ITEM	PART NO.	DESCRIPTION
1.	23N142A	Clevis Cap
2.	23N143A	Rod Cap
3.	23N144	Piston
4.	T184A	Rod
5.	BFR68	Cyl. Tube
6.	T186	Tie Rod
7.	23N148	Piston Nut
8.	23N149	Plug
9.	23N150A	Rod Clevis
10.	23N151	Seal Kit
11.	BFR69A	Complete Cylinder
12.	BFR70	Vent Plug

FIGURE 6

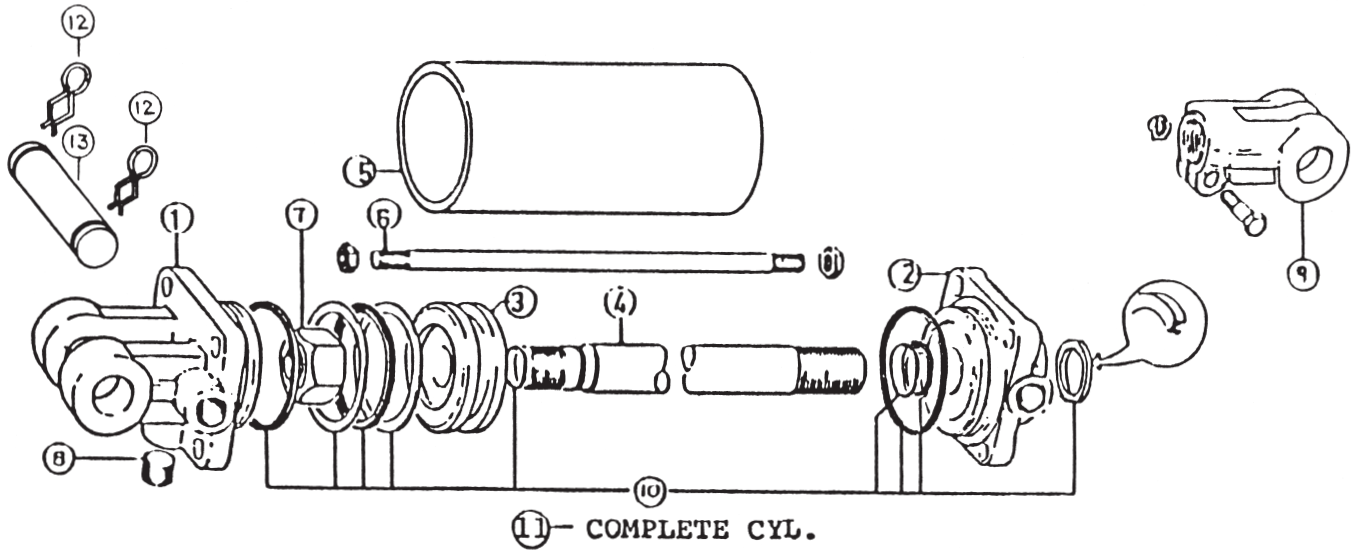


FIGURE 6
HYDRAULIC OPENING CYLINDER

ITEM	PART NO.	DESCRIPTION
1.	23N142A	Clevis Cap
2.	23N143A	Rod Cap
3.	23N144	Piston
4.	23N145A	Rod
5.	23N146	Cyl. Tube
6.	23N147	Tie Rod
7.	23N148	Piston Nut
8.	23N149	Plug
9.	23N150A	Rod Clevis
10.	23N151	Seal Kit
11.	12V116A	Complete Cylinder
12.	T144	Clip Pin
13.	T143	Hyd. Cyl. Pin

FIGURE 7

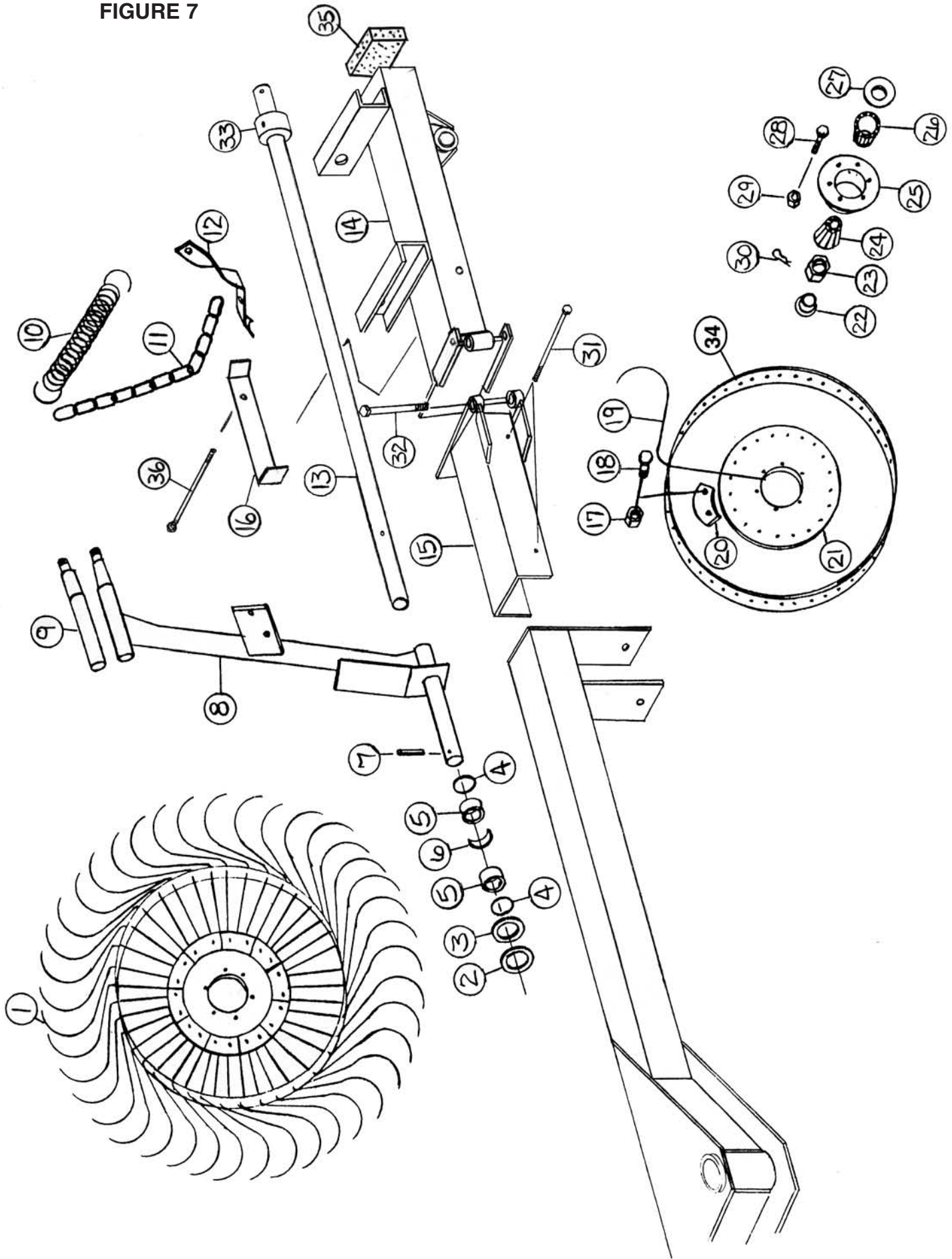


FIGURE 7
OPTIONAL FOURTH WHEEL ASSEMBLY

ITEM	PART NO.	DESCRIPTION
1.	BFR31	RH Rake Wheel
2.	BFR229	Steel Washer
3.	BFR221	Poly Washer
4.	S99	"O" Ring
5.	G16	Bushing
6.	BFR230	Spacer
7.	3G22	Roll Pin
8.	T231	Rake Wheel Arm
9.	BFR36	Rake Wheel Spindle
10.	BFR138	Spring
11.	BFR140	Chain
12.	BFR256	Spring Bracket
13.	T248	Lifting Pipe
14.	T251	Rake Beam Extension
15.	T249	Rake Beam Extension Bracket
16.	T284	Latch
17.	T166	10mm Nut
18.	T175	10mm X 25mm Carr. Bolt
19.	T176	Rake Wheel Tooth
20.	T178	Rake Tooth Clip
21.	T179	Rake Wheel Center
22.	T173	Hub Cap
23.	T172	Nut
24.	T170	Outer Bearing
*	T171	Outer Race
25.	BFR32	Hub
26.	T164	Inner Bearing
*	T165	Inner Race
27.	T163	Seal
28.	T168	10mm X 25mm Bolt
29.	T166	10mm Nut
30.	T169	Cotter Pin
31.	T253	3/8" X 4" Bolt Gr. 5
32.	RG174	5/8" X 5" Bolt Gr. 5
33.	BFR82	Pipe Clamp
34.	T177	Outer Ring
35.	BFR334	Foam Filler
36.	T285	Latch Fastener

NOTE: * (MEANS NOT SHOWN)

H&S HAYMACHINE II

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

H&S HAY MACHINE II SPECIFICATIONS

Drive	Hydraulic Tedder Reel Drive
Transport Wheels	5 Bolt, 15"x5" w/15" Tires
No. Rake Wheels	3 Standard, 4th Optional
No. of Rubber Mounted Teeth	56
Tedding Width.....	7'
Overall Transport Width.....	10'7"
Overall Length	12'2"
Weight.....	1680#

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
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