

# **OPERATOR'S MANUAL**

## **WIL-RICH SERIES 4400 CHISEL PLOW**

WIL-RICH  
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**Personal safety is important!**

**All personnel involved with the assembly and/or operation of this equipment must be informed of proper safety procedures. Operator's and assembly manuals provide the necessary information. If a manual is lost for a particular implement, order a replacement at once. Operator's and assembly manuals are available at no charge upon request.**

**Address inquires to:**

**Wil-Rich**

**P.O. Box 1030**

**Wahpeton, ND 58074**

**PH (701) 642-2621 FAX (701) 642-3372**

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## TO THE OWNER

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It is the responsibility for the user to read the Operator's Manual and comply with the safe and correct operating procedures as pertains to the operation of the product and to lubricate and maintain the product according to the information outlined in the Operator's Manual.

The user is responsible for inspecting his machine, and for having parts repaired or replaced when continued use of the product would cause damage or excessive wear to the other parts.

The word NOTE is used to convey information that is out of context with the manual text; special information such as specifications, techniques, reference information, and other information of supplementary nature.

Hutchinson Wil-Rich Manufacturing Company  
Wahpeton, ND      Made U.S.A.

Serial Number:

**WIL-RICH NOBLE**

This machine may be covered by one or more of the following patents.

-PAT. U.S. - 3,606,928 3,782,481 4,451,052 4,296,695  
4,054,177 4,068,723 4,121,852  
- PAT. CAN. - 1974 1976 1982 1985  
- OTHER PATENTS PENDING

When in need of parts, always specify the model and serial numbers, including prefix and suffix letters. Write these numbers in the space provided. The serial number plate is located on the main frame in the front center proximity.

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## CONTENTS

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SAFETY .....	1	STABILIZER WHEEL .....	8
PREPARATION .....	2-4	LEVELING .....	9-10
WING LIFT CIRCUITRY .....	4-5	SHANK ADJUSTMENT .....	11
MAIN FRAME DEPTH ADJUSTMENT .....	6	MAINTENANCE .....	11-12
WING DEPTH ADJUSTMENT .....	6	OPTIONAL EQUIPMENT .....	13-14
DEPTH CONTROL CIRCUITRY .....	7-8	TROUBLE SHOOTING .....	15

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## MODIFICATIONS

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It is the policy of Hutchinson Wil-Rich Manufacturing Company to improve its products whenever possible and practical to do so. We reserve the right to make changes, improvements, and modifications at any time without incurring the obligation to make such changes, improvements, and modifications on any equipment sold previously.

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# SAFETY

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Safety decals appear at various locations on your machine. These decals are provided for your safety and should be kept clean. Replace any decal that becomes worn, damaged, painted over, or otherwise difficult to read. Replacement decals are available through your Wil-Rich dealer.

## BEFORE OPERATING

Use extreme care when making adjustments.

When working under or around the machine always lower shanks to the ground.

After servicing, be sure all tools, parts, or servicing equipment is removed from the machine.

Make sure that there is no one near the machine just before operating and during operation.

## DURING OPERATION

Reduce speed when cornering on field ends and when operating on or across dead furrows.

Do not attempt to remove any obstruction while the machine is in motion.

Use extreme care when operating close to ditches, fences, or on hillsides.

No one other than the operator should ride on the tractor.

Before and during operation be sure no one is on or around the implement. Serious injury can result from improper use.

Hydraulic fluid escaping under pressure can have enough force to penetrate the skin. Hydraulic fluid may also infect a minor cut or opening in the skin. If injured by escaping fluid, see a doctor at once. Serious infection or reaction can result if medical treatment is not given immediately. Make sure all connections are tight and that hoses and lines are in good condition before applying pressure to the system. Relieve pressure before disconnecting the lines or performing other work on the hydraulic system. To find a leak under pressure use a small piece of cardboard or wood: Never use hands.

## ON-HIGHWAY OPERATION

Always place the machine in the transport position.

Comply with your state and local laws governing highway safety when moving machinery on a highway.

Reduce road speed on corners.

Drive at a reasonable speed to maintain complete control of the machine at all times.

A S.M.V. emblem should be used at all times while traveling on public roads.



**THIS SYMBOL IS USED TO CALL YOUR  
ATTENTION TO INSTRUCTIONS  
CONCERNING YOUR PERSONAL  
SAFETY. BE SURE TO OBSERVE AND  
FOLLOW THESE INSTRUCTIONS.**

## CHISEL PLOW PREPARATION

Before using the Wil-Rich chisel plow, a careful inspection should become routine. A check should be made to insure that all hardware is securely tightened and moving parts properly lubricated.

Tighten all loose nuts and bolts and replace any bent or broken parts.

When tightening bolts, they should be torqued to the proper number of foot-pounds as indicated in the table unless specified. It is important that all bolts be kept tight.

On new machines, all nuts and bolts should be rechecked after a few hours of operation.

### TORQUE IN FOOT POUNDS

BOLT DIA		3/8	1/2	5/8	3/4	7/8	1
HEX HEAD		9/16	3/4	15/16	1-1/8	1-5/16	1-1/2
UNC	GRADE 2	18	45	89	160	252	320
	GRADE 5	30	68	140	240	360	544
	GRADE 8	40	100	196	340	528	792
UNF	GRADE 2	21	51	102	178	272	368
	GRADE 5	32	70	168	264	392	572
	GRADE 8	48	112	216	368	792	840

Fig. 1 Bolt Torquing Table

When replacing a bolt, use only a bolt of the same grade or higher.



GRADE 2



GRADE 5



GRADE 8

Bolts with no markings and all U-bolts are grade 2.

Grade 5 bolts furnished with the machine are identified by three radial lines on the head.

Grade 8 bolts furnished with the machine are identified by six radial lines on the head.

## TIRE INFLATION

The use of the proper air pressure is the most important factor in satisfactory performance and maintenance of implement tires. Underinflation will damage the cord body of the tire and cause a series of diagonal breaks in the fabric in the sidewall area.

If the tire buckles or wrinkles, the air pressure should be increased to the point where the sidewalls remain smooth while operating.

Check the air pressure every two or three weeks and do not allow the pressure to drop to a point where buckling or wrinkling of the tire may be possible.

NOTE: DO NOT OVERINFLATE TIRES.

## WHEEL BOLTS

It is recommended that all wheel bolts be checked for tightness before using and again after one day of use. Paint or rust can work out causing the wheel to become loose. Check periodically to be sure the wheel bolts are tight.

## BEARING ASSEMBLIES

Bearing assemblies should be checked periodically for looseness. A loose bearing will cause costly damage after a short period of time.

## LUBRICATION

Make sure the chisel plow is properly lubricated. (See Maintenance, page 11-12.)

## HYDRAULICS

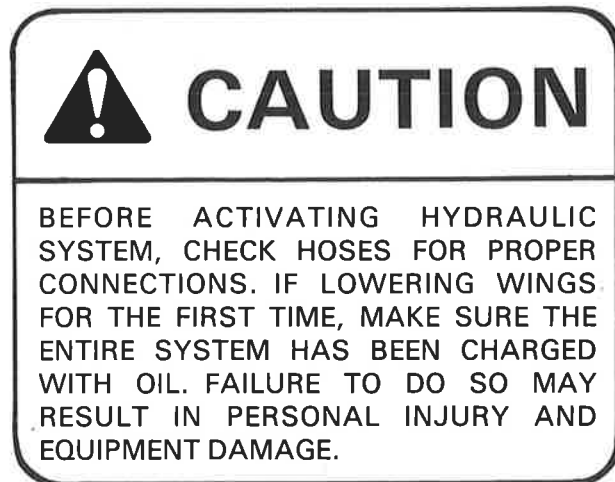
Check lift and wing folding linkages and cylinders for proper alignment and operation. On new machines check that the hydraulic system has been properly charged and purged. (See wing lift circuitry and depth control circuitry, pages 4-5, 7-8.)

## TRACTOR PREPARATION

Refer to the operator's manual furnished with your tractor for recommended adjustments and weight distribution.

When using a 3 point hitch, adjust the sway blocks to allow lateral flexibility when in operation. NOTE: Sway should be locked out during transport.

When using a drawn type chisel plow, the tractor drawbar should always be pinned in the center to allow for more stability.



NOTE: CHECK YOUR TRACTOR'S HYDRAULIC FLUID LEVEL AFTER CYCLING HYDRAULICS AND FILLING NEW CYLINDERS AND LINES. REFILL IF NECESSARY.

## HITCHING - 3 POINT MODELS

By using a combination of the hitch pin, spacers, and bushings, the Wil-Rich 3-point chisel plows will hitch to a category II or III quickhitch or 3-point.

Refer to your tractor's operator's manual for exact hitching procedures.

## HITCHING - DRAWN MODELS

After backing your tractor into position, attach the chisel plow to the tractor drawbar using a hitch pin of adequate size for the tractor-chisel plow combination.

Lock the pin in place to prevent loss (particularly when transporting). It is recommended that a safety chain be used for road transport.

Connect the chisel plows hydraulic hoses to the proper couplers on your tractor.

NOTE: AN OPTIONAL POLE JACK MAKES THE HITCHING OPERATION EASIER. SEE OPTIONAL EQUIPMENT, PAGES 13-14.

## TRANSPORTING

A S.M.V. (Slow Moving Vehicle) emblem should be used at all times while traveling on public roads.

The implement should always be placed in the transport position and the cylinder channel locks (Fig. 17) used when traveling on public roads. Never depend on your tractor's hydraulic system to carry the weight of the chisel plow while transporting.

Reduce speed when cornering and when traveling over rough and/or uneven ground. Drive at a reasonable speed to maintain complete control of the machine at all times.

Comply with your state and local laws governing highway safety when moving machinery on a highway.



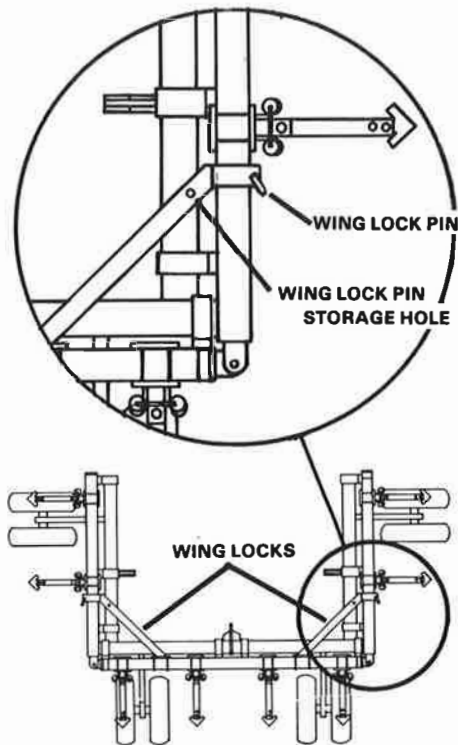
## WING LIFT CIRCUITRY



# DANGER

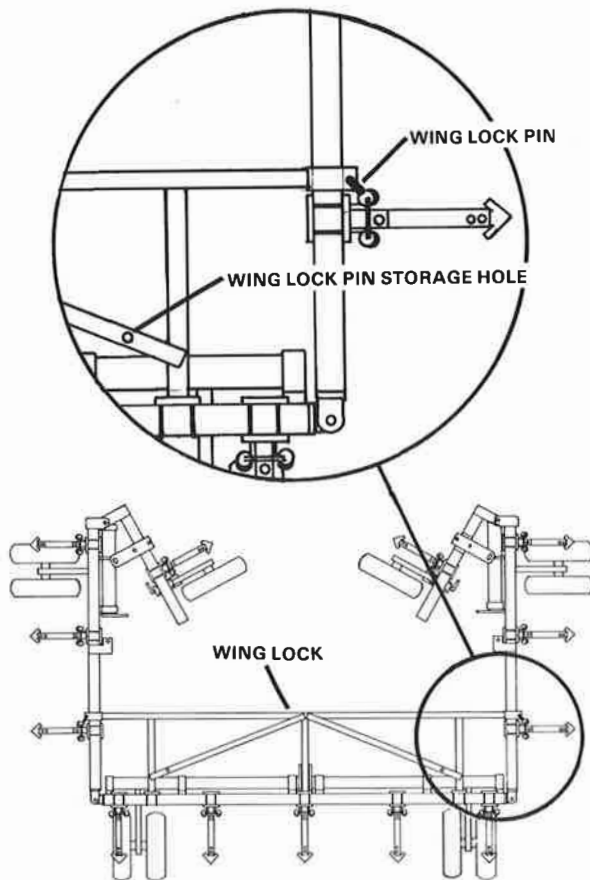
STAND CLEAR AT ALL TIMES. NEVER WALK OR STAND IN THE PATH OF THE WINGS. COMPLETELY LOWER WINGS BEFORE PERFORMING SERVICE OR ADJUSTMENTS. FAILURE TO DO SO CAN RESULT IN SERIOUS INJURY OR DEATH.

NOTE: USE EXTREME CAUTION WHEN WORKING AROUND OVERHEAD POWER TRANSMISSION LINES.



PI-75656

ANGLED WING LOCKS



PI-75657

FULL WIDTH WING LOCK

Fig. 2 Wing Locks



# CAUTION

THIS CYLINDER HAS AN INTEGRAL RESTRICTOR ORIFICE AND MUST BE REPLACED WITH AN IDENTICAL CYLINDER.

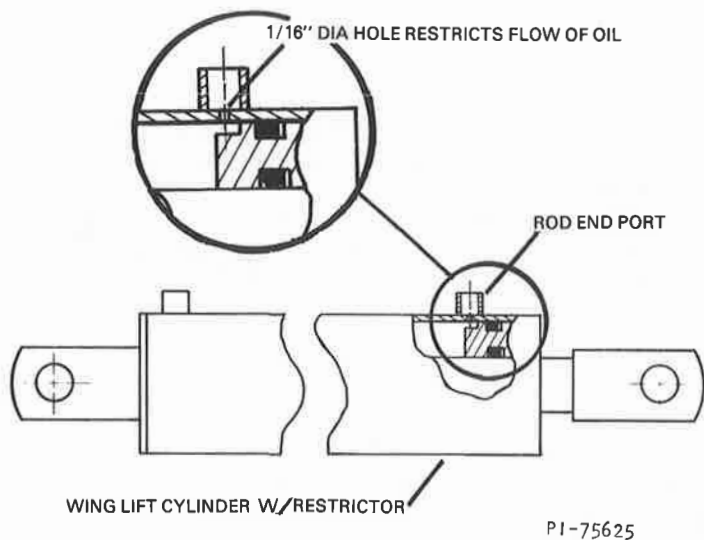


Fig. 3 Wing Lift Cylinder

Multiple wing chisel plows use a parallel hydraulic system as shown in Fig's 5 and 6. Pressure flows to all cylinders at once through a common line from the tractor. The cylinder or pair of cylinders with the least amount of weight to lift will actuate first. This type of hydraulic system properly sequences the folding and unfolding of the chisel plow wings. Check that your hydraulic system is properly connected before operating.

When raising the wings be sure the wing lock(s) is properly positioned to allow the wings to fold and that the wing lock pins have been removed and stored. Fold the main wings until they contact the clevis and install wing lock pins. (See Fig. 2)

Fig. 4 shows a simple two (2) cylinder circuit used to fold a pair of wings. This system is used on Wil-Rich chisel plows with a single pair of folding wings.

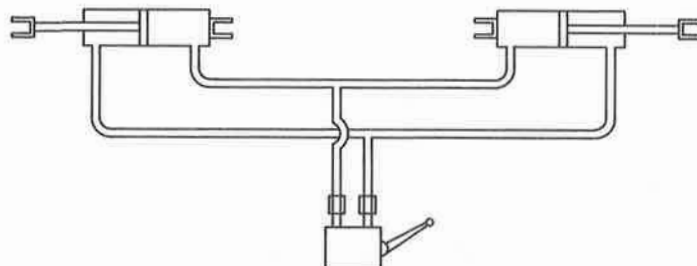


Fig. 4 Two Cylinder Wing Lift Circuit

When lowering the wings, hold the tractor control lever until all cylinders are completely extended. Fully extending the cylinders allows the wings to flex properly in the field.

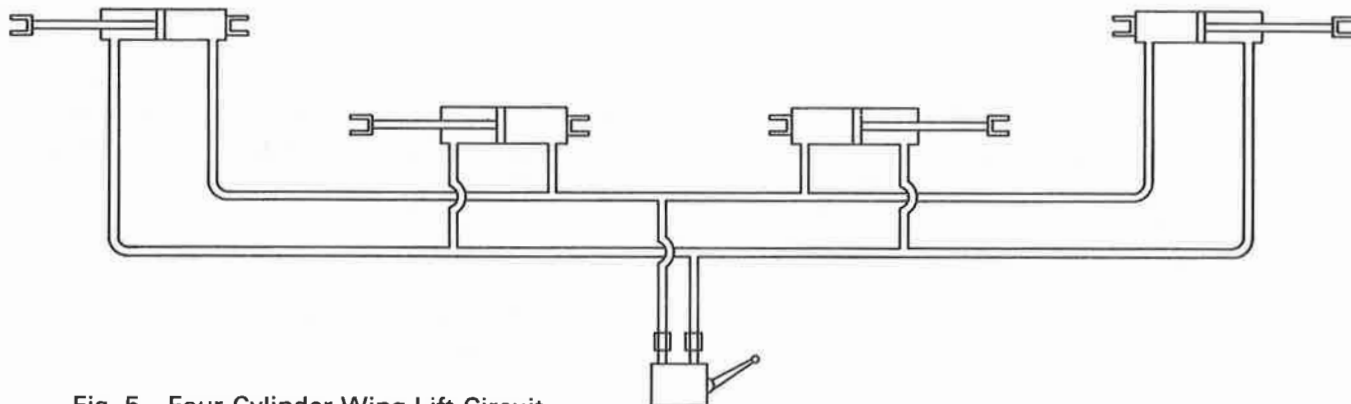


Fig. 5 Four Cylinder Wing Lift Circuit

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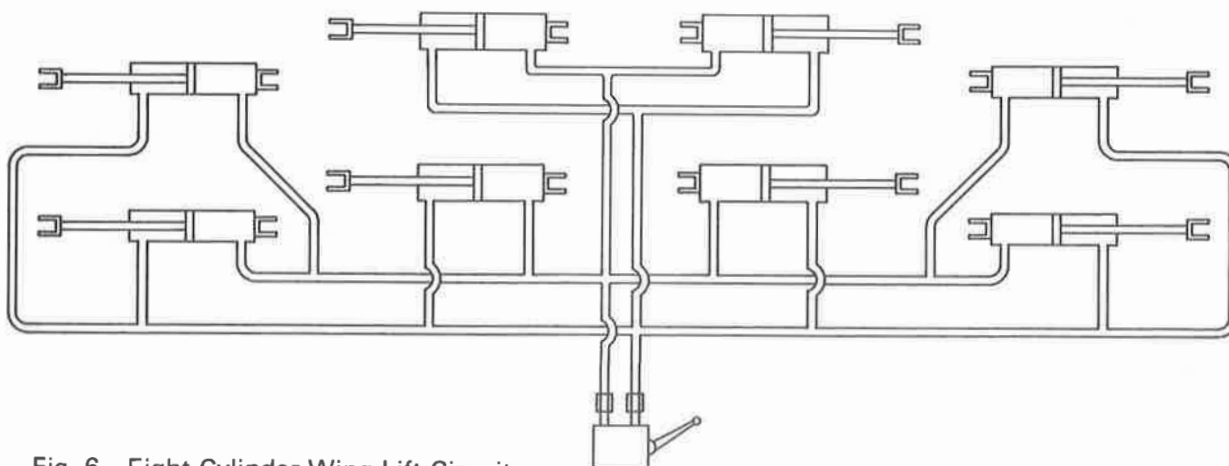


Fig. 6 Eight Cylinder Wing Lift Circuit

## MAIN FRAME DEPTH ADJUSTMENT

### 3-PT. CHISEL PLOWS

3-point chisel plow main frame depth is regulated with the power lift of the tractor. Consult your tractor's Operator's Manual for additional information.

### DRAWN CHISEL PLOWS

Main frame depth control is regulated by a pair of top bypass hydraulic cylinders.

Before setting the depth with the cylinder stop collars the axle masts have to be properly shimmed to level the frame from side to side.

With the implement on a level surface, hydraulically extend and hold the main frame depth control cylinders. Then, from a common point on each side of the main frame, measure down to the center pivot of each walking tandem (See Fig. 7). Add or remove shim plates from the mast assemblies as required until the left and right axles measure the same.

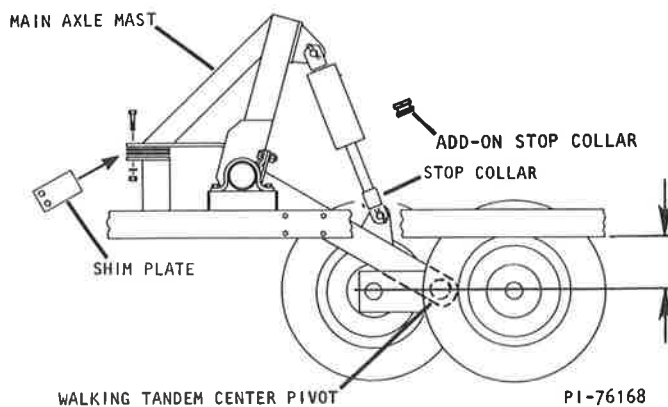


Fig. 7 Main Frame Axle Adjustment

The top bypass cylinders have mechanical depth stop collars. The stop collar is rotated on the cylinder rod to vary the retracted length of the cylinder; therefore providing an easy means of depth adjustment.

The depth is mechanically set by turning the stop collar "down" the cylinder rod for less depth, and "up" the rod for more depth. An add-on stop collar is provided in case the stop collar doesn't provide a shallow enough setting (See Fig. 7).

NOTE: IT IS IMPORTANT TO SET THE CYLINDER STOP COLLARS EQUALLY WHEN THE MAIN FRAME HAS TWO DEPTH CONTROL CYLINDERS.

## WING DEPTH ADJUSTMENT

Wing depth may be set mechanically or hydraulically.

Mechanically, it may be set by independent gauge wheels.

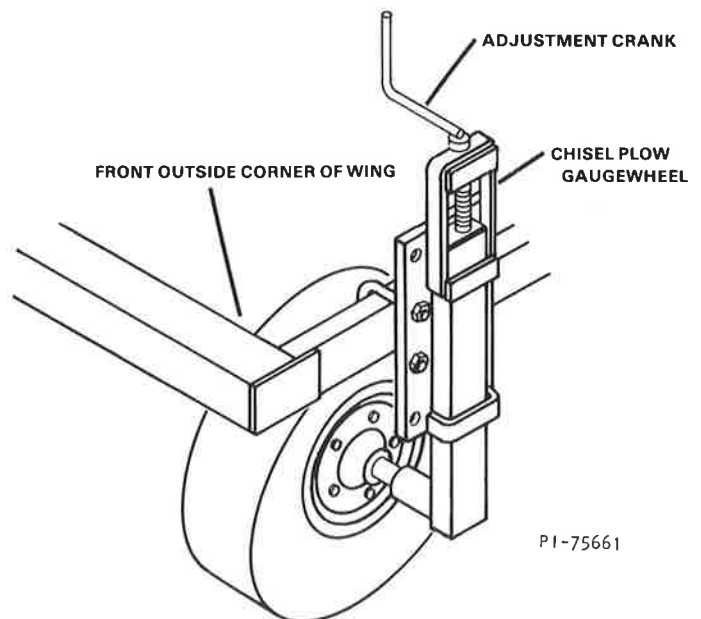


Fig. 8 Gauge wheel

To set gauge wheels, it is advisable to have the weight off the tire, then turn the crank to raise or lower the tire until the desired working depth is attained (See Fig. 8).

## WING DEPTH ADJUSTMENT (Cont.)

Wing depth is hydraulically set by a slave or bypass cylinder located on each wing axle. These cylinders are connected in series with the top bypass depth control cylinders on the main frame. (See depth control circuitry Fig. 11-13).

To adjust the wing axles the adjustment tube is turned to either shorten or lengthen the adjustment rod assembly. Shortening the adjustment rod will lower the wing. Lengthening the rod will raise the wing. The locking nut is then tightened to lock the setting (See Fig. 9).

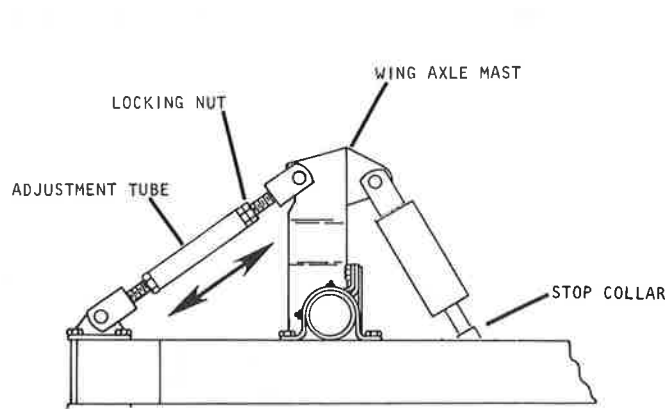


Fig. 9 Wing Axle Adjustment

**NOTE:** LOWERING THE CHISEL PLOW UNTIL IT IS RESTING ON ITS SHANKS WILL REMOVE THE MAJORITY OF THE WEIGHT FROM THE AXLES, ALLOWING EASIER ADJUSTMENT.

Wing depth is determined by the main frame stop collar setting. Only after the main frame and wings are leveled at working depth, should the wing axle stop collars be turned down against the cylinder body to mechanically lock the depth setting.

**NOTE:** STOP COLLARS ARE ONLY USED TO SET MACHINE DEPTH. ADJUSTMENTS REQUIRED TO LEVEL THE MAIN FRAME ARE MADE WITH THE SHIM PLATES AND THE WINGS WITH THE ADJUSTMENT TUBE.

## DEPTH CONTROL CIRCUITRY

The top by-pass cylinders are connected in series and therefore to charge the lines between the cylinders the cylinders have the capability of passing oil past the cylinder piston to the next cylinder.

Top by-pass cylinders will by-pass oil when the cylinder is fully extended. This by-pass condition will exist when the implement is raised to maximum ground clearance. At this time oil will by-pass through the 1/16" dia. by-pass hole and go on to the next cylinder. (See Fig. 10).

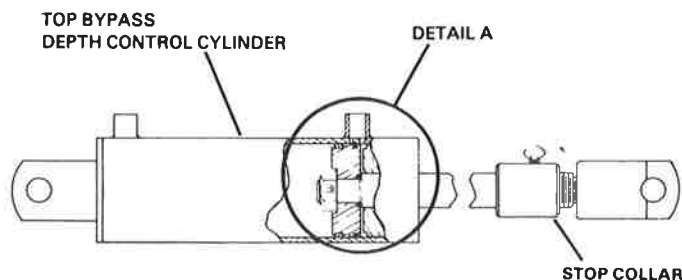
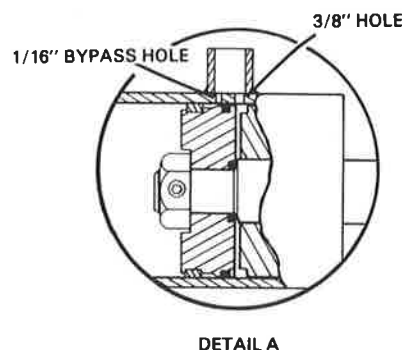
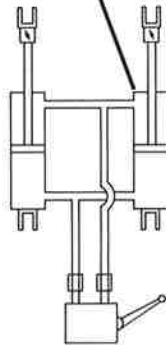


Fig. 10 Top Bypass Cylinder

**NOTE:** TO SYNCHRONIZE OR RE-SYNCHRONIZE THE BY-PASS SYSTEM, THE TRACTOR CONTROL VALVE IS HELD IN THE RAISED POSITION UNTIL THE ENTIRE IMPLEMENT IS RAISED AND ANY AIR THAT MAY BE IN THE LINES HAS BEEN EXPELLED.

**4 X 10.8 MAIN FRAME  
TOP BYPASS CYLINDERS**

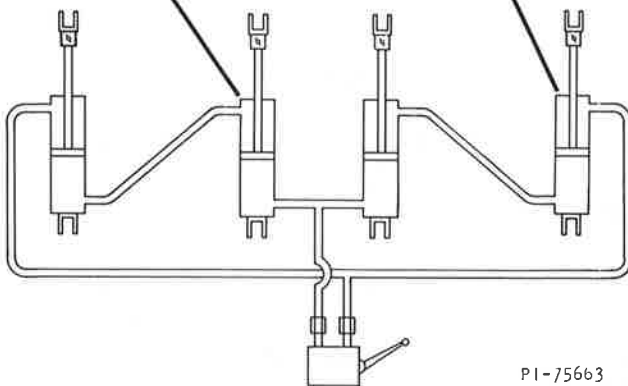


PI-75610

Fig. 11 Depth Control Circuit - No Wings

**4 X 10.8 MAIN FRAME  
TOP BYPASS CYLINDERS**

**4 X 9.3 WING TOP  
BYPASS CYLINDERS**



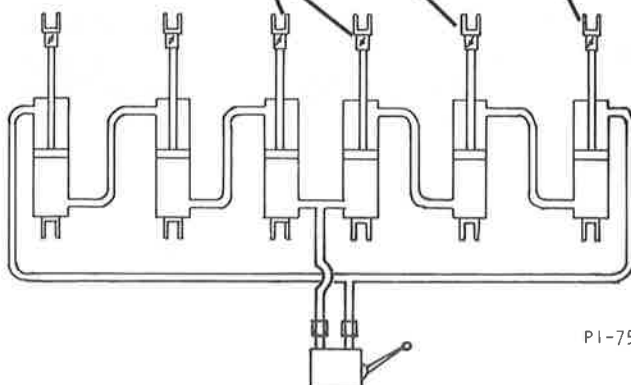
PI-75663

Fig. 12 Depth Control Circuit - Single Wing

**4 X 9.3 INNER WING  
TOP BYPASS CYLINDERS**

**4 X 10.8 MAIN FRAME  
TOP BYPASS CYLINDERS**

**4 X 8 OUTER WING  
TOP BYPASS CYLINDERS**

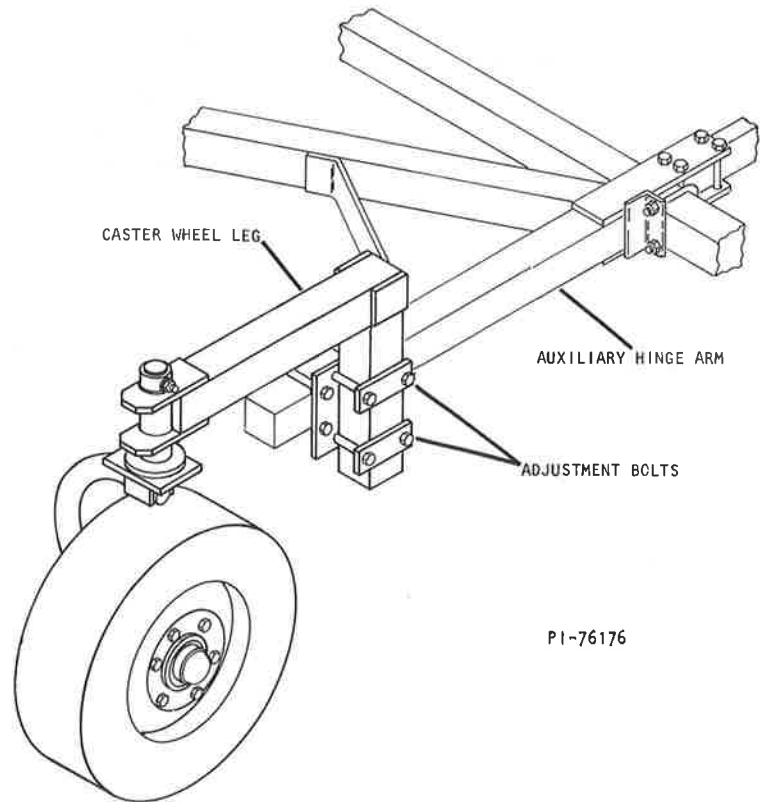


PI-75850

Fig. 13 Depth Control Circuit - Two Wings

## STABILIZER WHEEL

Series 4450 chisel plows are equipped with a casting stabilizer-gauge wheel mounted on the auxiliary hinge (See Fig. 14). This feature gives added stability to the machine during the tillage operation.



PI-76176

Fig. 14 Casting Stabilizer Wheel

Adjustment of this casting stabilizer wheel is made by loosening the bolts that hold the caster wheel leg to the auxiliary hinge arm and move the leg until the wheel is in the desired position.

The stabilizer wheel should be set to control forward "dipping" of the wing, it is not used for depth control. Set the wheel 1/2" to 1" above ground level, with the chisel plow at working depth and the tractor is in neutral.

Retighten the bolts to secure the caster wheel leg to the auxiliary hinge arm.

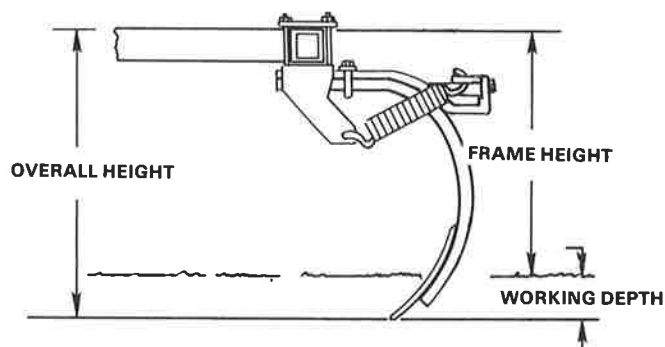
Stabilizer wheels are available as optional equipment for all wing style chisel plows and are recommended for use on all 9 and 12 ft. wing models. See optional equipment, page 13, for available styles.

## LEVELING

Proper field setting will require the use of a tape measure.

Although final leveling must be done in a level area of the field at working depth, it would be to your advantage to make pre-field adjustments in the yard to speed up the process in the field.

Hook the tape measure under the shovel point and measure to the top of the frame tube to get an overall height dimension. Subtract your working depth from the overall height dimension to arrive at a frame height dimension. The frame height dimension is then used as a gauge to level the machine. (See Fig. 15).



PI-75662

Fig. 15 Frame Height

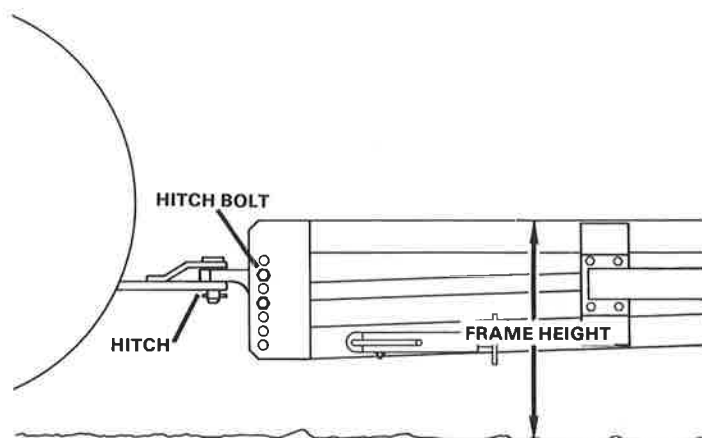
### LEVELING - 3-POINT CHISEL PLOWS

Front-to-rear and side-to-side leveling of 3-pt. hitch models is done with the tractor control arms. Consult your tractor's operator's manual for complete information on 3-point hitch setting.

All Wil-Rich 3-point chisel plows are equipped with gaugewheels to help maintain even working depth. These should be set after the machine is leveled side-to-side and is at working depth. Turn the adjustment crank to raise or lower the tire. (See Fig. 8).

### LEVELING DRAWN CHISEL PLOWS

Set the hitch so the top of the pole is equal to the frame height dimension. The hitch is adjusted by removing the hitch bolt and moving the hitch to the next hole (See Fig. 16).



PI-75662

Fig. 16 Hitch

NOTE: ON MACHINES EQUIPPED WITH A DUAL CAST HITCH, FLIPPING THE HITCH OVER WILL PROVIDE A FINER ADJUSTMENT THAN MOVING IT TO THE NEXT SET OF HOLES. (AN ADJUSTMENT OF 1" IS OBTAINED INSTEAD OF 2").

NOTE: WHEN MOUNTING THE DUAL CAST HITCH, SEPARATE, WHERE POSSIBLE, THE TWO HITCH BOLTS TO PROVIDE MAXIMUM SUPPORT (SEE FIG. 16).

4400 chisel plows use two main lift cylinders with adjustable stop collars to set the main frame to your frame height dimension. When the implement is set at working depth, the stop collars should be turned down against the cylinder body to lock the depth setting (See Fig. 17).

NOTE: IT IS IMPORTANT THAT THE MAIN FRAME HAS BEEN LEVELED FROM SIDE TO SIDE BEFORE LEVELING AT WORKING DEPTH. SEE MAIN FRAME ADJUSTMENT, PAGE 6.

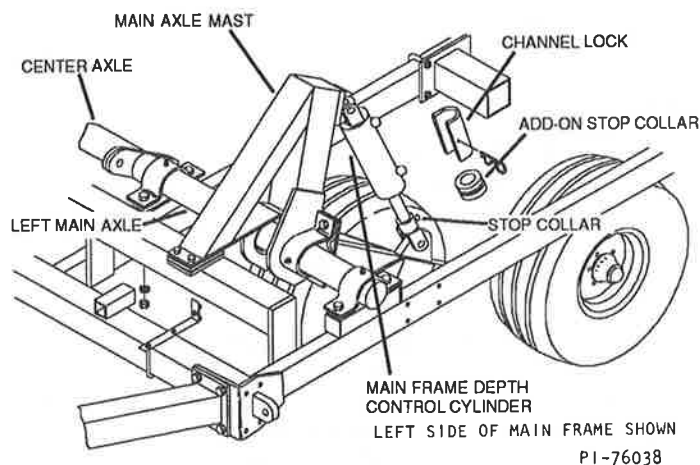


Fig. 17 Main Frame Depth Control Cylinder

It is important to have the hitch and main frame set to the same frame height dimension to assure equal penetration between front and rear shanks.

A channel lock is provided to mechanically lock the main frame depth control cylinders in transport position.

## LEVELING - GAUGEWHEEL WINGS

The gauge wheels are set by turning the adjustment crank until the ends of the wings are level with the main frame, at working depth. (See Fig. 8.)

## LEVELING - HYDRAULIC WINGS

Wings with hydraulic cylinders are leveled by setting the adjustment tube (See Fig. 18).

The wings are leveled after the main frame leveling is completed, at working depth.

Larger chisel plows may have more than one set of wings requiring depth setting. On these models, the inner wings should be leveled first.

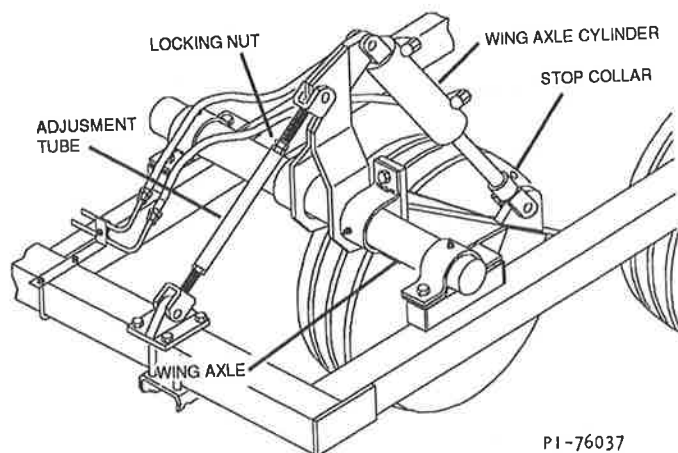


Fig. 18 Hydraulic Wing Adjustment

To set the adjustment tube, lower the chisel plow until its weight is supported by the shanks. Loosen the locking nut on the adjustment rod and turn the adjustment tube "in" or "out" until the ends of the wing are level with the main frame when at working depth. Lengthening the tube assembly will raise the wing and shortening it will lower the wing.

When the wings are level with the main frame, the locking nuts must be tightened against the tube to lock the setting.

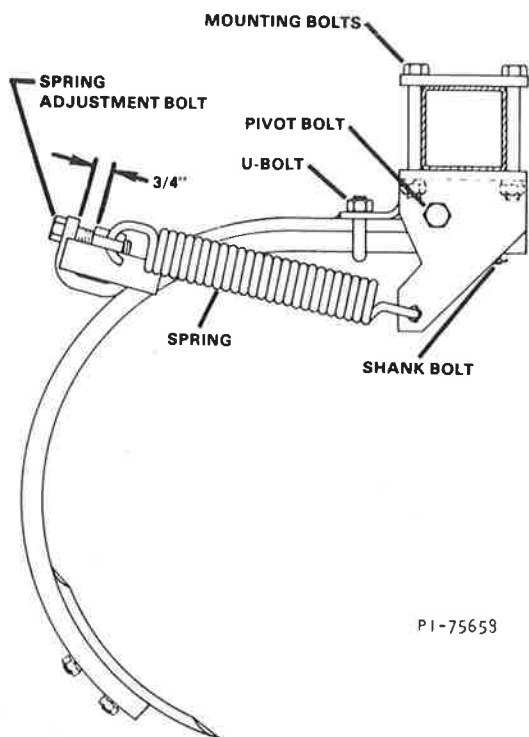
**NOTE: MAKE SURE ALL TIRES ARE EQUALLY INFLATED.**

When the wings are set level with the main frame at working depth, the stop collars on the wing lift cylinders are to be turned down against the cylinder body and the thumbscrew tightened to lock in the depth setting.

**NOTE: IT IS IMPORTANT THAT ALL OF THE STOP COLLARS CONTACT THE CYLINDERS WHEN AT WORKING DEPTH. IF ALL THE STOP COLLARS FAIL TO CONTACT THE CYLINDERS AT THE SAME TIME, THE FIRST TO CONTACT WILL STOP THE LOWERING OF THE MACHINE AND THE REMAINING CYLINDERS WILL NOT BE POSITIVELY LOCKED.**

**NOTE: BE SURE TO RECHECK LEVEL OF CHISEL PLOW WHENEVER WORKING DEPTH CHANGES, WHEN CHANGING FIELDS OR WHEN CHANGING TRACTORS.**

## SHANK ADJUSTMENT



PI-75659

Fig. 19 Shank Assembly

Each shank comes fully assembled from the factory. Install the shank in their proper location (See assembly manual for shank placements.) and securely tighten nuts.

The spring adjustment bolt is tightened to the 3/4" dimension (Fig 19) at the factory. Minor adjustments may be made to accommodate individual needs. If shanks are tripping excessively, springs can be tightened fully.

The mounting bolts, U-bolts and shank bolts should all be checked after a few days work and kept tightened.

The shank pivot bolt should not be overtightened, but kept tight enough to prevent turning.

It is recommended that 43° stem angle shovels be used. (See available shovels under optional equipment, page 13).

Wil-Rich chisel plows are also available with rigid shank assemblies. These assemblies are recommended for economy; but should not be used in fields with rocks or stumps. (See Optional Equipment, page 13.)

**NOTE: BE SURE TO MAINTAIN ADEQUATE TIRE/SHOVEL CLEARANCE ON SHANKS LOCATED IN AND AROUND THE WHEEL WELL WHEN MACHINE IS FULLY RAISED OR LOWERED.**

## MAINTENANCE

Periodic checks should be made to assure that all nuts and bolts remain securely tightened. Loose hardware is easily bent or lost and can cause excessive wear on parts. Replace any bent or broken bolts as soon as they are discovered.

Clean off any dirt or grease that may accumulate on moving parts at regular intervals. This will prevent any abrasive action which could cause excess or premature wear. Thoroughly inspect the implement for loose or broken parts and adjust or replace as necessary.

It is important that the chisel plow be regularly lubricated as recommended to obtain the most efficient operation. Proper lubrication helps prevent down-time due to excessive wear and increase machine life. When replacing springs make sure springs are positioned as the original spring was.



### CAUTION

**DO NOT ATTEMPT TO CLEAN, ADJUST, OR LUBRICATE THE CHISEL PLOW WHILE IT IS IN MOTION.**

## CYLINDER SHAFTS

If cylinder shafts are left exposed for any extended period of time, they should be coated with grease to protect them from rust and corrosion.

## AXLE CAPS

All axle caps should be greased once a day with a good quality grease. Lower machine onto the shovel points to relieve pressure on the caps which will make greasing easier (See Fig. 20).

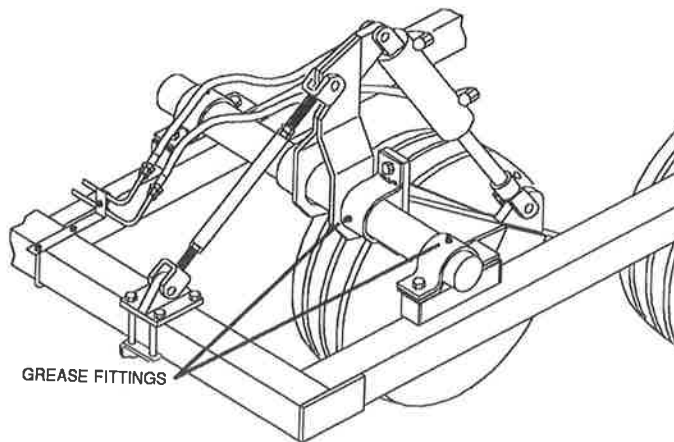


Fig. 20 Axle Caps

## HUB AND SPINDLE ASSEMBLIES

Each hub and spindle assembly comes with a grease fitting installed in the hub. These should be greased once a week during steady usage. Caution - do not over grease.

Clean and re-pack hub and spindle bearings once each season.

Tighten spindle nut so that there is a slight drag on the wheel when turned by hand. (See Fig. 21.)

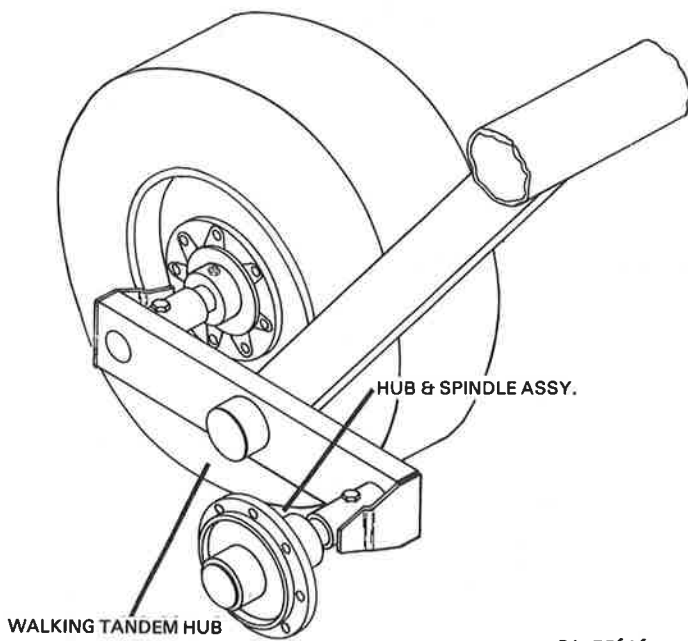


Fig. 21 Walking Tandem

## WALKING TANDEM ASSEMBLIES

Periodically check each walking tandem assembly for looseness and tighten spindle nut if the bearings show any evidence of side play.

Clean and re-pack walking tandem assemblies once each season.

The spindle nut should be tightened to allow a heavy drag when assembly is rotated by hand. (See Fig. 21.)

## HYDRAULICS

Inspect all hydraulic hoses and fittings for cracks and abrasions at least once a year. Tighten or replace as needed.

When connecting the hoses to the cylinders, tubing, or fittings; always use one wrench to prevent the hose from twisting and another wrench to tighten the union. Excessive twisting will shorten the hose life.

Do not over-tighten hydraulic fittings, excessive torque may cause them to crack.

Care should be taken to prevent twisting when tightening hose connections. Straighten any hose that appears twisted immediately. A twisted hose can burst under operating pressure.

## STORAGE

NOTE: IF POSSIBLE STORE YOUR MACHINE INSIDE.

At the end of a season, clean the implement thoroughly to remove any trash, soil or dirty grease which could hold moisture and cause premature rusting. Repaint any chipped, bare, or rusted areas to prevent any further deterioration. Inspect the machine for any worn or broken parts and adjust or replace as required.

SEE YOUR WIL-RICH DEALER FOR ANY PARTS AND/OR SERVICE WHICH MAY BE NEEDED.

Thoroughly lubricate all grease fittings at the end of each season's use and again before the first operation of the next season.

It is advisable, if possible, to store larger chisel plows with the wings down. With the wings completely lowered, the rod end cylinder pins of the wing lift cylinders should be removed and the cylinders carefully retracted.

Avoid possible damage to the hydraulic system by lowering the machine onto the shanks and relieve the pressure on the system. Doing this will also prevent damage to the tires by removing the chisel plow's weight.

Coat the shovels with grease and place boards under the points to prevent the shovels from settling into the ground.

## OPTIONAL EQUIPMENT

### SHOVELS

Shovels should be used for general tillage, seedbed preparation and weed eradication.



12", 14", 16", and 18" plain shovels

12", 14", 16", and 18" hard surfaced shovels

16" dura-faced shovel

### SPIKES

Spikes are recommended for deep penetration, hard soil conditions, killing of quack grass and other grassy weeds.



2" reversible spike

2" hard surfaced spike

2" dura-face spike

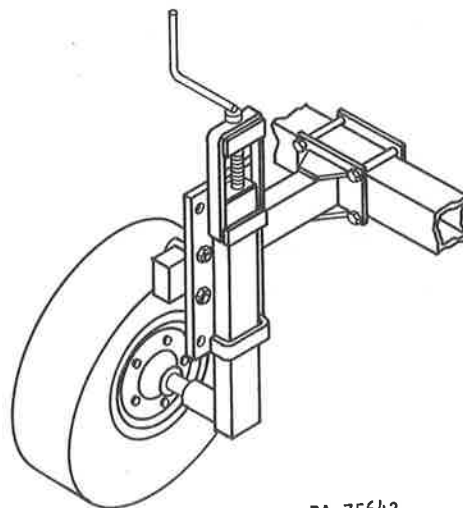
3" (right and left) plain twisted spike

3" (R & L) hard surfaced twisted spike

3-1/2" (R & L) dura-face twisted spike

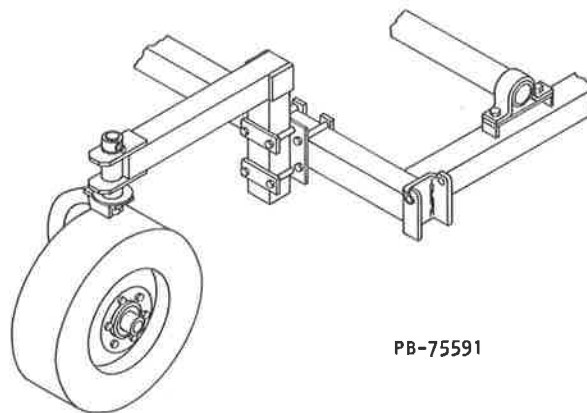
4" (R & L) moldboard spike

### STABILIZER WHEEL



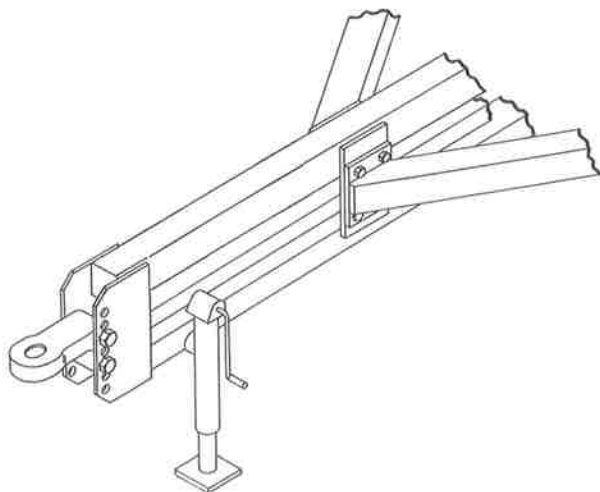
PA-75642

### CASTERING STABILIZER WHEEL

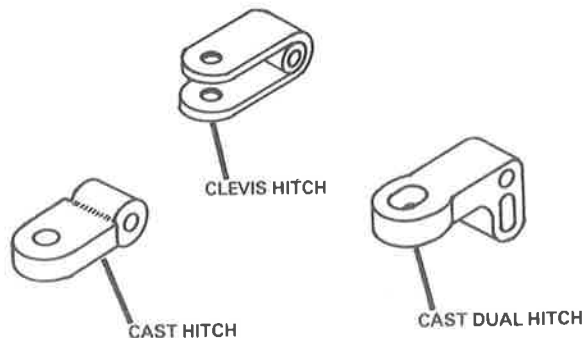


PB-75591

### POLE JACK



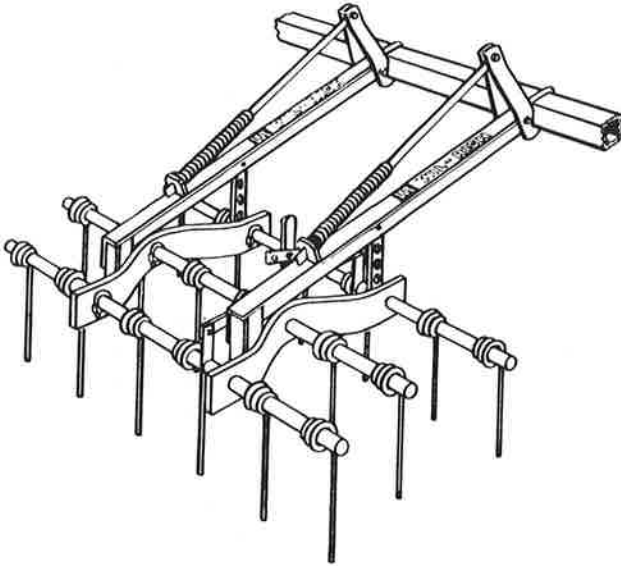
### HITCHES



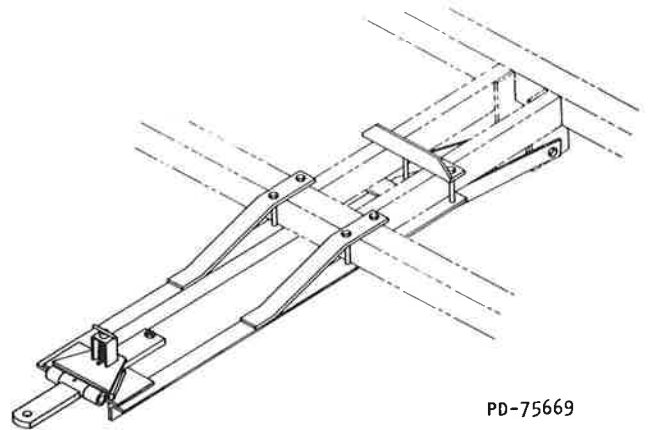
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## HARROWS

Wil-Rich harrows are available in 3-bar models to fit any size chisel plow.



## AUXILIARY HITCH

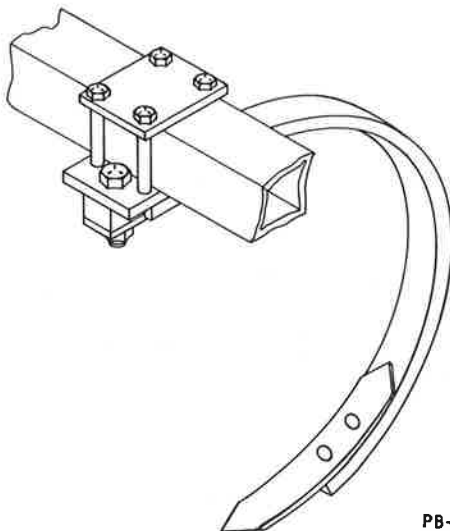


PD-75669

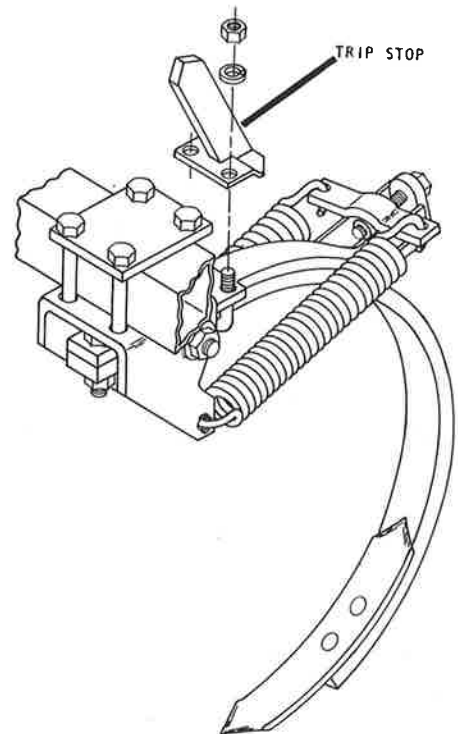
## TRIP STOP

Trip stops are available for use on reset shanks to restrict amount of tripping action and to prolong spring life.

## RIGID SHANK



PB-75668



# TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION
Poor or uneven penetration	Incorrect leveling adjustments on main frame or wings.	See leveling, page 9-10.
	Hitch not adjusted properly	Make sure wing cylinders are fully extended.  Install clevis hitch or cast hitch in proper hole to keep machine level.
	Hydraulic malfunction - air in lines, cylinders or hoses leaking or not installed properly.	Check for oil leakage in cylinders, hoses and fittings. Make sure all hydraulic cylinders and hoses are properly connected.
	Worn shovel points.	Adjust stop collar of main lift cylinder(s) to compensate for wear. Replace shovels if wear is severe.
	Tires not equally inflated	See tire inflation, page 2.
Settling of entire implement from raised position	Leaking cylinder	Replace cylinder seals
	Leaking tractor hydraulic control valve.	See Tractor Manual
Wings lowering too rapidly.	Incorrect cylinder installed, should have 1/16" dia. integral restrictor cylinder.	See wing lift circuitry page 4 and install correct cylinder.
Machine will not pull straight (skewing)	Chisel Plow not level	See leveling, page 9-10.
	Incorrect shank placement	Check shanks for proper location, see Assembly Manual.
	Tires not equally inflated	See tire inflation, page 2.

## WARRANTY

The only warranty Wil-Rich gives and the only warranty the dealer is authorized to give is as follows:

We warrant products sold by us to be in accordance with our published specifications or those specifications agreed to by us in writing at time of sale. Our obligation and liability under this warranty is expressly limited to repairing, or replacing, at our option, within 12 months after date of retail delivery, any product not meeting the specifications. ***We make no other warranty, express or implied and make no warranty of merchantability or of fitness for any particular purpose.*** Our obligation under this warranty shall not include any transportation charges or costs or installation or any liability for direct, indirect or consequential damage or delay. If requested by us, products or parts for which a warranty claim is made are to be returned transportation prepaid to our factory. Any improper use, operation beyond rated capacity, substitution of parts not approved by us, or any alteration or repair by others in such manner as in our judgement affects the product materially and adversely shall void this warranty. ***No employee or representative is authorized to change this warranty in any way or grant any other warranty.***

Wil-Rich reserves the right to make improvement changes on any of our products without notice.

***When warranty limited or not applicable:*** Warranty on hoses, cylinders, hubs, spindles, engines, valves, pumps or other trade accessories are limited to the warranties made by the respective manufacturers of these components. Rubber tires and tubes are warranted directly by the respective tire manufacturer only, and not by Wil-Rich.

Warranty does not apply to any machine or part which has been repaired or altered in any way so as in our judgement to affect its reliability, or which has been subject to misuse, negligence or accident.

***A Warranty Validation and Delivery Report form must be filled out and received by Wil-Rich to initiate the warranty coverage.***

### WARRANTY CLAIMS PROCEDURE

1. The warranty form must be returned to Wil-Rich within fifteen (15) working days from the repair date.
2. Parts returned to Wil-Rich without authorization will be refused. The parts must be retained at the dealership for ninety (90) days after the claim has been filed. If the Service Department would like to inspect the parts, a packing slip will be mailed to the dealer. The packing slip must be returned with the parts. The parts must be returned prepaid within thirty (30) days of receiving authorization. After the parts are inspected and warranty is verified, credit for the return freight will be issued to the dealer.
3. Parts that will be scrapped at the dealership will be inspected by a Wil-Rich Sales Representative, District Sales Manager or Service Representative within the ninety (90) day retaining period.

