



# **OPERATOR'S MANUAL**

## **WIL-RICH 4411 CUTTER CHISEL**

## **WIL-RICH 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, 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 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 Hutchinson Wil-Rich Manufacturing Company 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 Wil-Rich Sales Representatives, District Sales Managers or Service Representatives within the ninety (90) day retaining period.

**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 INQUIRIES TO:**

**HUTCHINSON WIL-RICH MANUFACTURING COMPANY**

**P.O. BOX 1030**

**WAHPETON, ND 58074**

**(701) 642-2621**

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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. - 3,806,928 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 in the spaces provided. The serial number plate is located on the main frame in the front left corner.

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## TO THE OWNER

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The Wil-Rich Cutter Chisel has as standard equipment a clearance lighting package and a safety chain kit. If your Cutter Chisel is not equipped with these packages, they can be ordered by contacting your local dealer or the factory directly.

It is the responsibility of 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.

If this machine is used by an employee or is loaned or rented, make certain that the operator(s) prior to operating, is instructed in safe and proper use and reviews and understands 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.

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## MODIFICATIONS

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It is the policy of Wil-Rich Operations 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.

## **SAFETY**

Safety decals appear at various locations on your machine. These decals are provided for your safety and must be kept clean. Replace any decal that becomes worn, damaged, painted over, or otherwise difficult to read. Free 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 must 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.

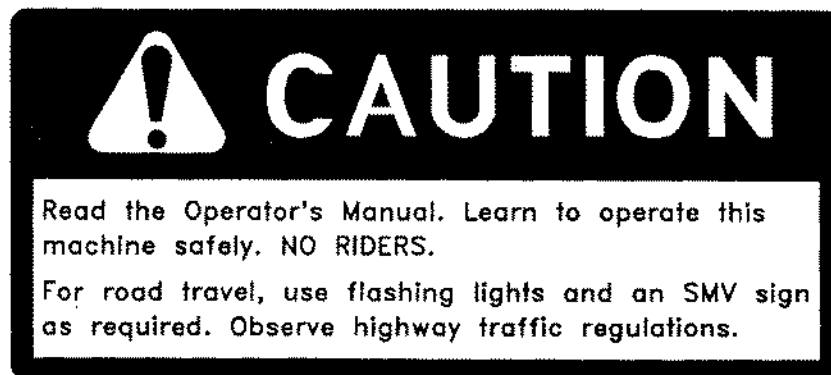
Drive at a reasonable speed to maintain complete control of the machine at all times.

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.

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# PREPARATION

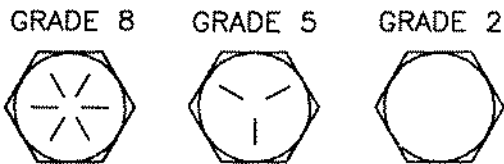
## CUTTER CHISEL

Before using the Wil-Rich Cutter Chisel a careful inspection must become routine. A check must 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 must 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 must 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	320
	5	30	68	140	240	544
	8	40	100	196	340	792
UNF GRADE	2	21	51	102	178	368
	5	32	70	168	264	572
	8	48	112	216	368	840

CI-75623

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

Bolts without 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 must 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 the first 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 must 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 8-9.)

## TRACTOR PREPARATION

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

The tractor drawbar must 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

After backing your tractor into position, attach the cutter chisel 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 Cutter Chisel hydraulic hoses to the proper couplers on your tractor.

## TRANSPORTING

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

The implement must always be placed in the transport position and the cylinder channel locks (Fig. 9) 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.

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## MAIN FRAME DEPTH ADJUSTMENT

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### 7 & 7-9 SHANK

The main frame of the 7-9 shank must be leveled side to side before any depth settings are attempted.

To level the unit side to side a sliding adjustable cylinder anchor is located on the right hand axle. (See Fig. 1) Loosen the two anchor bolts so the anchor is free to move. Turn the  $\frac{3}{4}$ " nuts to move the anchor up or down the axle leg. Moving the anchor up the leg will raise the right side of the machine, moving the anchor down will lower the right side of the unit.

Once the frame is level side to side tighten the adjustment nuts and anchor bolts securely.

It is important to ensure that the 8" stroke cylinder is on the right axle and the 9.3" stroke cylinder is on the left axle.

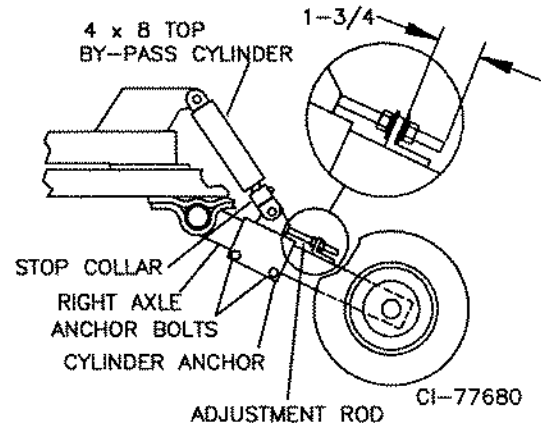


Fig. 1 7-9 Main Axle Adjustment

### 9 & 9-11 SHANK

Main frame depth on the Wil-Rich Cutter Chisel is regulated by a pair of top bypass hydraulic cylinders. (See Fig. 2 & 3.)

The main frame must be leveled side to side before any depth setting is attempted. The adjustment rod and tube are lengthened or shortened to raise or lower a side of the main frame. Use the 17.25 locating dimension in Fig. 2 & 3 as a guide to start from.

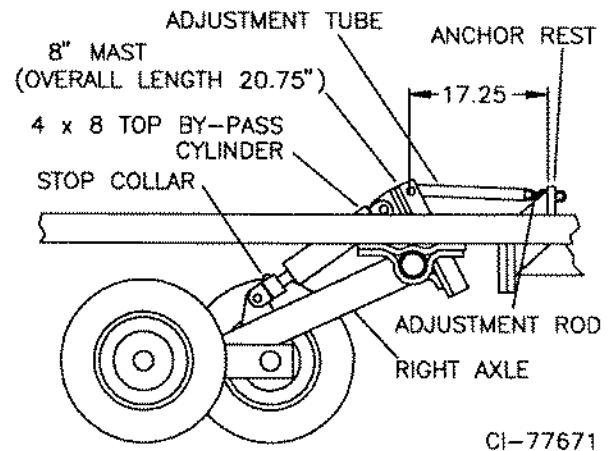


Fig. 2 Main Axle Adjustment

## CUTTER GANG ADJUSTMENT

**NOTE: IT IS IMPORTANT THAT THE MAST AND CYLINDER ARE PAIRED CORRECTLY.**

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; thereby providing an easy means of depth adjustment.

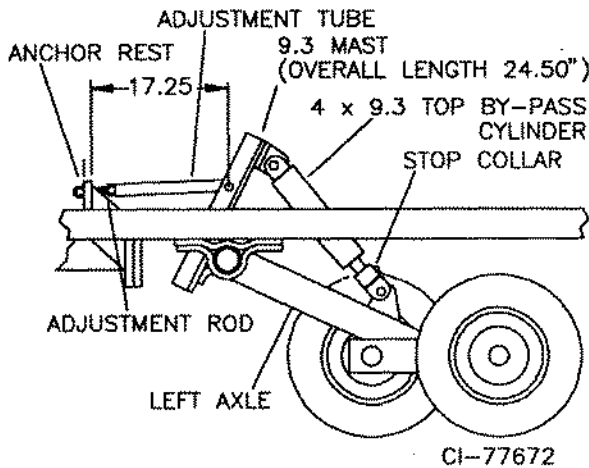


Fig. 3 Main Axle Adjustment

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. 9.)

**NOTE: STOP COLLARS ARE USED TO SET MACHINE DEPTH. ADJUSTMENTS REQUIRED TO LEVEL THE MAIN FRAME ARE MADE WITH THE ADJUSTMENT ROD.**

**NOTE: RUNNING THE CUTTER GANG TOO DEEP CAN PUT TOO MUCH WEIGHT ON THE GANG AND TEND TO PUSH THE WHOLE MACHINE OUT OF THE GROUND. SET THE GANG ONLY AS DEEP AS IS NEEDED TO CUT THE TRASH.**

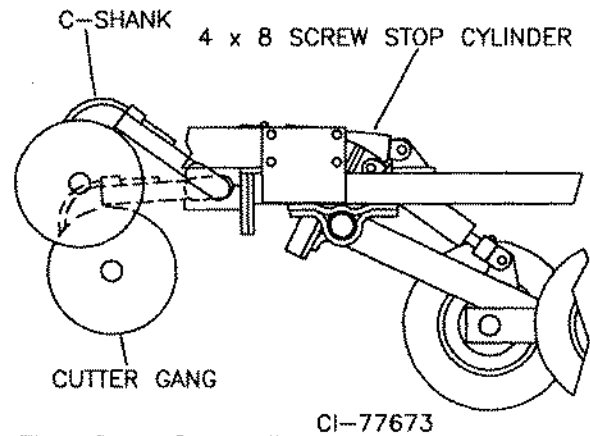


Fig. 4 Cutter Gang Adjustment

**NOTE: DO NOT MAKE SHARP TURNS WITH THE CUTTER GANG IN THE GROUND.**

The depth of the cutter gang is set by the hydraulic cylinder located at the center of the machine. Retracting the cylinder raises the gang while extending the cylinder will lower the gang. The trapped oil holds the cutter gang in position. (See Fig. 4.)

The C-shank relieves the impact load when encountering small obstructions.

The cutter gang must be set at the minimum depth needed to cut the trash. Attempting to hold the gang any deeper than is needed will be detrimental to the performance of the machine. Running too deep will push trash in front of the gang instead of cutting.



**CAUTION: WHEN WORKING ON OR AROUND CUTTER GANG CARE MUST BE EXERCISED IN HANDLING OR TIGHTENING BOLTS NEAR BLADES TO AVOID INJURY.**



# DEPTH CONTROL CIRCUITRY

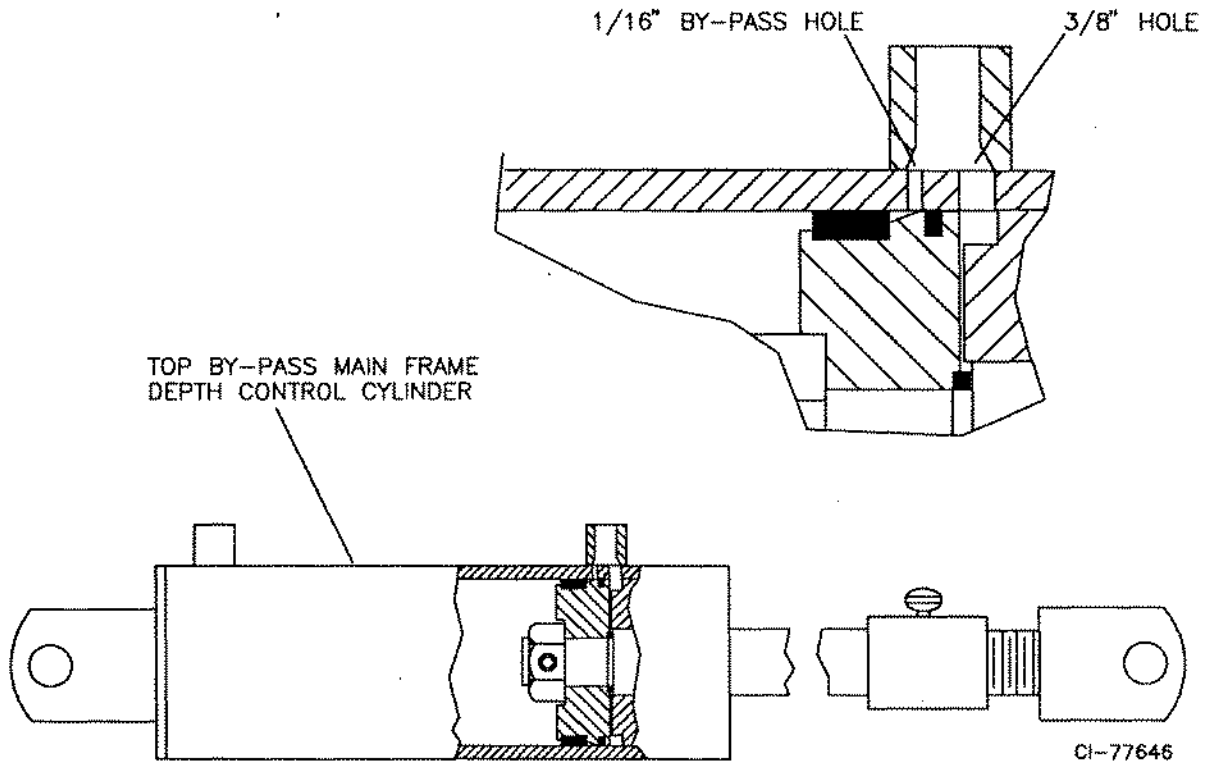


Fig. 5 Top By-Pass Cylinder

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 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. 5.)

**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.**

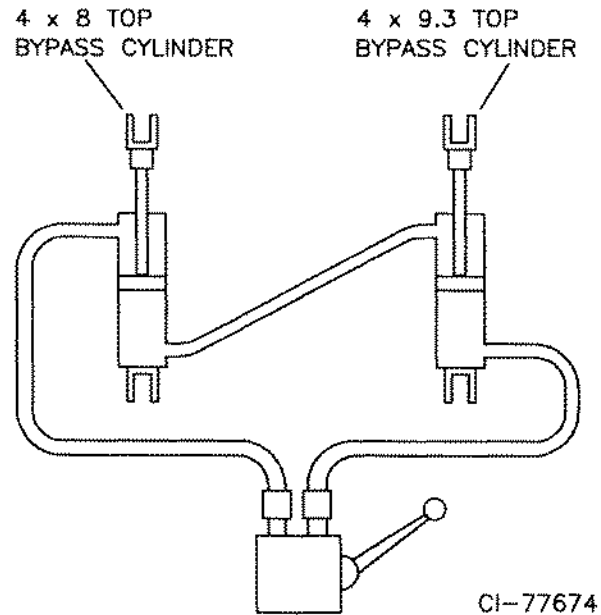


Fig. 6 Depth Control Circuit

# 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 adjustment 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. 7.)

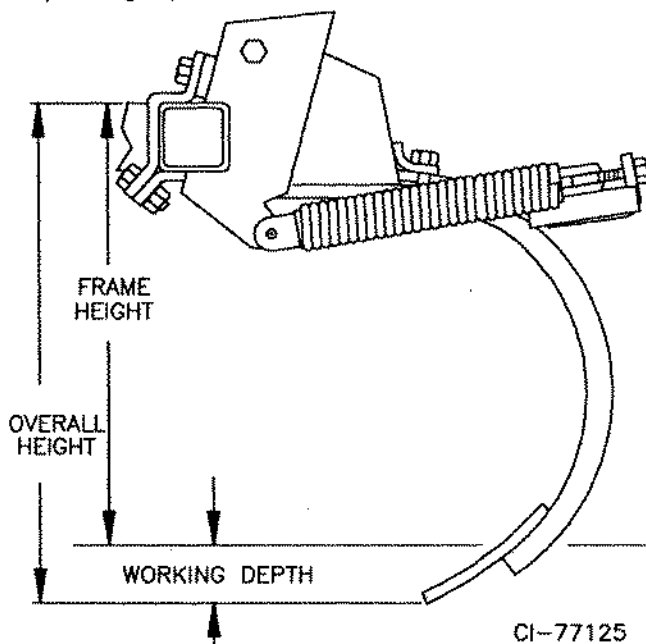


Fig. 7 Frame Height

Set the hitch so the bottom of the pole is equal to the frame height dimension. The hitch is adjusted by removing the hitch bolts and moving the hitch to the next hole. (See Fig. 8.)

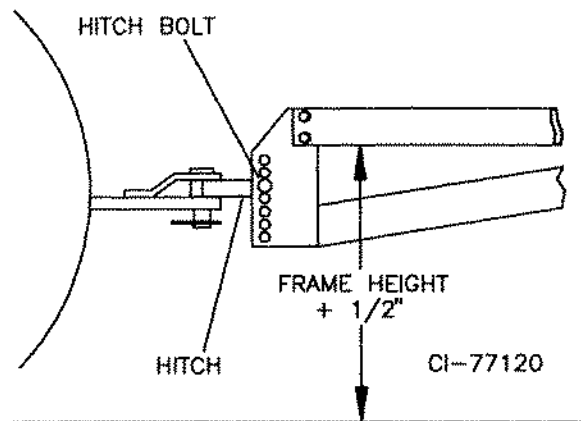


Fig. 8 Hitch

**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 4&5.**

Cutter Chisels use two depth control 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 must be turned down against the cylinder body to lock the depth setting. (See Fig. 9.)

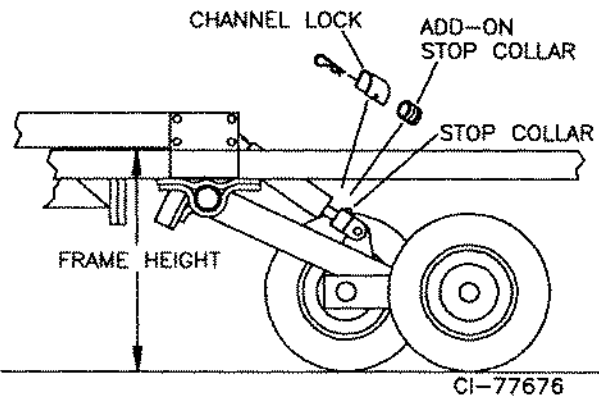


Fig. 9 Main Frame Depth Control Cylinder

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.

**NOTE: THE STOP COLLARS ON THE DEPTH CONTROL CYLINDERS WILL BE SET DIFFERENTLY TO COMPENSATE FOR THE CYLINDER STROKE DIFFERENCE.**

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

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

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

## SHANK ADJUSTMENT

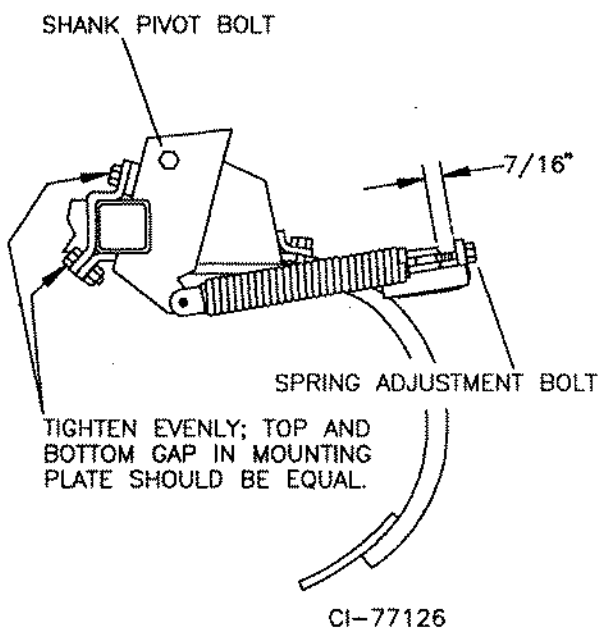


Fig. 10 Shank Assembly

Each shank comes fully assembled from the factory. Install the shanks in their proper location and securely tighten nuts.

The spring adjustment bolt is tightened to the 7/16" dimension (Fig. 10) at the factory and may require no further attention, however, minor adjustments may be made to accommodate individual needs.

All bolts must be checked after a few days work and kept tightened.

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

It is recommended that 43 degree stem angle shovels be used.

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

## MAINTENANCE

Periodic checks must be made to insure 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 cutter chisel be regularly lubricated as recommended to obtain the most efficient operation. Proper lubrication helps prevent down-time due to excessive wear and increases machine life.



### CAUTION

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

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## CYLINDER SHAFTS

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

## AXLE CAPS

All axle cap must be greased once a day with a good quality grease. Lower machine onto to shovel points to relieve pressure on the caps which will make greasing easier.

## HUB & SPINDLE ASSEMBLIES

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

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.

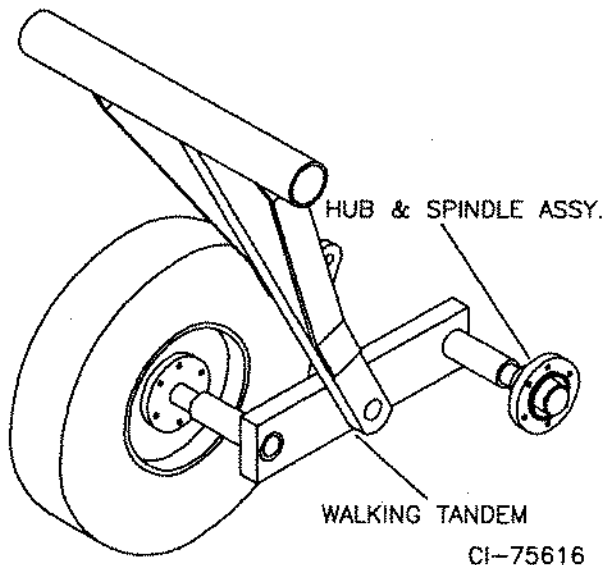


Fig. 11 Walking Tandem

## 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.

## 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 must be taken to prevent twisting when tightening hose connections. Immediately straighten any hose that appears twisted. 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.

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 Cutter Chisel's weight.

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

# TROUBLE SHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION
Poor or uneven penetration	<p>Incorrect leveling adjustments on main frame</p> <p>Hitch not adjusted properly</p> <p>Hydraulic malfunction - air in lines, cylinders or hoses leaking or not installed properly.</p> <p>Worn shovel points.</p> <p>Tires not equally inflated.</p>	<p>See leveling, page 7-8.</p> <p>Install clevis hitch or cast hitch in proper hole to keep machine level.</p> <p>Check for oil leakage in cylinders, hoses and fittings. Make sure all hydraulic cylinders and hoses are properly connected.</p> <p>Adjust stop collar of main lift cylinder(s) to compensate for wear. Replace shovels if wear is severe.</p> <p>See tire inflation, page 3.</p>
Settling of entire implement from raised position.	<p>Leaking cylinder</p> <p>Leaking tractor hydraulic control valve.</p>	<p>Replace cylinder seals</p> <p>See tractor manual</p>
<p>Gangs push trash</p> <p>Gangs ride over trash</p>	<p>Gangs too deep</p> <p>Cylinder Leaking</p> <p>Tractor valve leaking</p>	<p>Raise gangs</p> <p>Fix or replace cylinder</p> <p>See Tractor Manual</p>
Machine will not pull straight, (skewing).	<p>Chisel Plow not level</p> <p>Incorrect shank placement</p> <p>Tires not equally inflated</p>	<p>See leveling, page 7-8.</p> <p>Check shanks for proper location</p> <p>Inflate all tires to recommended pressure.</p>

