

OPERATOR'S MANUAL

WIL-RICH DRAWN & 3PT 6600 V-RIPPER

PRINTED IN USA (74105) J/M-300 06/89

HUTCHINSON WIL-RICH
MANUFACTURING COMPANY
BOX 1030 WAHPETON, ND 58074

WIL-RICH WARRANTY

The only warranty Hutchinson Wil-Rich Manufacturing Company 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.**

Hutchinson Wil-Rich Manufacturing Company 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 Hutchinson Wil-Rich Manufacturing Company.

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 HUTCHINSON WIL-RICH MANUFACTURING COMPANY TO INITIATE THE WARRANTY COVERAGE.

WARRANTY CLAIMS PROCEDURE

1. The warranty form must be returned to Hutchinson Wil-Rich Manufacturing Company 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 Hutchinson Wil-Rich Manufacturing Company 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

CONTENTS

TO THE OPERATOR	2
SAFETY	2-3
PREPARATION	4-5
DEPTH CONTROL CIRCUITRY	5-6
MAIN FRAME DEPTH ADJUSTMENT	6
LEVELING	7-8
FRONT CUTTER SETTING	9-11
SHANK SETTING	11-12
POINTS	12
REAR SHANK SETTING	13-14
MAINTENANCE	14-16

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 the serial number. Write this number in the space provided. The serial number plate is located on the main frame in the front right corner on 3PT models and center left on drawn models.

TO THE OWNER

The Wil-Rich V-Ripper has as standard equipment a clearance lighting package and a safety chain kit. If your V-Ripper 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, lubrication and maintenance of 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 understand the Operator's Manual.

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

MODIFICATIONS

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.

TO THE OPERATOR

Your Wil-Rich 6600 V-Ripper was designed to give you years of satisfactory performance. As with any tillage unit this machine was designed to operate within defined capabilities. For best performance and reliability an understanding of this range of operation is important.

This machine is designed to operate at a maximum depth of 18 inches. When operating in previously tilled soil, where the top surface is loosened, the points could penetrate deeper. When determining operating depth the condition of the soil surface should be considered.

Operating depth is a decision which each user must make to fit into their individual tillage strategy. Research data is limited but it is felt that it is only necessary to till two or three inches below the depth of the hardpan.

The depth of the hardpan can be determined by looking at the cross section of most soils. Another procedure would be to till three to four inches deeper than the field is normally worked during primary tillage. This should give good breakup of the ground although the type of soil, soil moisture content, speed of operation, etc. will affect the breakup.

The reset shank assemblies are designed to hold at working depth until the trip pressure is exceeded. At that point the shank will trip up and back until the shank point pressure is relieved. There are three factors which determine shank load; depth of operation, speed of travel, and soil condition. Soil condition refers to moisture content, type of soil, previous tillage operation and the presence of rocks.

With the springs fully tightened the shank point load must exceed approximately 5800 lbs. to trip. The trip uses the spring and the linkage design to achieve the trip pressure. Once the shank has tripped only the spring force is available to reset the assembly.

To resist the shank point pressure, in the operating range specified, requires the high trip force noted above. This high trip force is counter-balanced by the operating conditions. However, higher speeds, deeper tillage depths, or tough soil conditions can transfer shock loading to the machine and tractor which can eventually lead to component failure.

This is most likely to occur in rocky conditions and being aware of the factors noted above will add to the reliability and performance of the machine.

Since the reset of the shank assembly is dependent on the force of the springs it is also affected by the factors noted. In most conditions the springs should move the shank assembly back to the working position. If the unit is operating at the high end of any of the areas noted the shank assembly may hesitate resetting into the ground. If the springs are fully tightened the only option available to get better reset is to change the operating depth or speed. This is no different than any other spring reset assembly, as any design can be overpowered.

It should be remembered that a shock load is present on resetting, with the same effects as noted above.

Overloading a tillage machine is as inefficient as overloading a tractor.

SAFETY

Safety decals appear at various locations on your machine. The 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 before or 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 YOUR 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.

CI-77637



WARNING

1. BEFORE OPERATING – STUDY OPERATOR'S MANUAL, SAFETY MESSAGES AND SAFE OPERATING PROCEDURES, READ SAFETY SIGNS ON THIS MACHINE.
2. TRANSPORT ON PUBLIC ROADS – OBSERVE FEDERAL, STATE AND LOCAL REGULATIONS: DISPLAY SMV EMBLEM; ATTACH PROPER STRENGTH IMPLEMENT SAFETY CHAIN; AND LIMIT MAXIMUM SPEED TO 20MPH (32KM/H).
3. LOWER OR BLOCK ALL ELEVATED COMPONENTS BEFORE SERVICING OR LEAVING THIS MACHINE.

WARNING



CAUTION

LOWER PLOW
TO GROUND BEFORE
UNHITCHING TRACTOR



CAUTION

STAY CLEAR
OF BOTTOMS DURING
TRIPPING AND RESET



CAUTION

KEEP TRACTOR TIRES
CLEAR OF HITCH
DURING TURNS

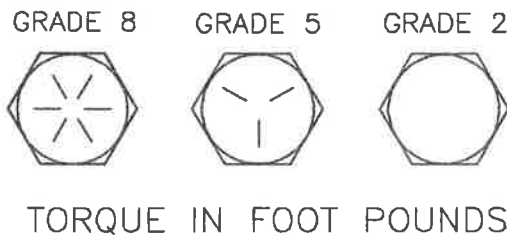
PREPARATION

Wil-Rich V-Rippers come in 3pt. sizes, 3, 5 & 7 shanks and in drawn sizes 5 & 7 shanks.

Before using the Wil-Rich V-Ripper 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

Unless specified bolts should be torqued to the proper number of foot-pounds as indicated in the table (See Fig. 1). It is important that all bolts be kept tight. On new machines all nut and bolts should be rechecked after a few hours of operation.



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
	5	30	68	140	240	360
	8	40	100	196	340	528
UNF GRADE	2	21	51	102	178	272
	5	32	70	168	264	392
	8	48	112	216	368	792

CI-75623

Fig. 1 Bolt Torquing Table

When replacing a bolt use only a bolt of the same grade or higher. On shear bolts use Wil-Rich part number 42359 only.

All U-bolts are grade 5.

Bolts with no markings 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 below the recommended pressure.

NOTE: DO NOT OVER INFLATE 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 dirt 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 V-Ripper is properly lubricated (See Maintenance page 12).

HYDRAULICS

Check lift cylinders for proper alignment and operations. On new machines check that the hydraulic system has been properly charged and purged. (See Depth Control Circuitry page 5.)

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 V-Ripper the tractor drawbar should always be pinned in the center to allow for more stability.

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 V-Ripper 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 V-Ripper hitch to the tractor drawbar, using a hitch pin of adequate strength for the tractor-V-Ripper combination. Lock the pin in place to prevent loss (particularly when transporting). The safety chain should always be used when transporting the V-Ripper.

Connect the V-Ripper hydraulic hoses to the proper couplers on your tractor.

TRANSPORTING

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

Always place the machine in the transport position, always use cylinder channel locks (See Figs. 4 & 8). Never depend on your tractor's hydraulic system to carry the weight of the implement while transporting

DEPTH CONTROL CIRCUIT

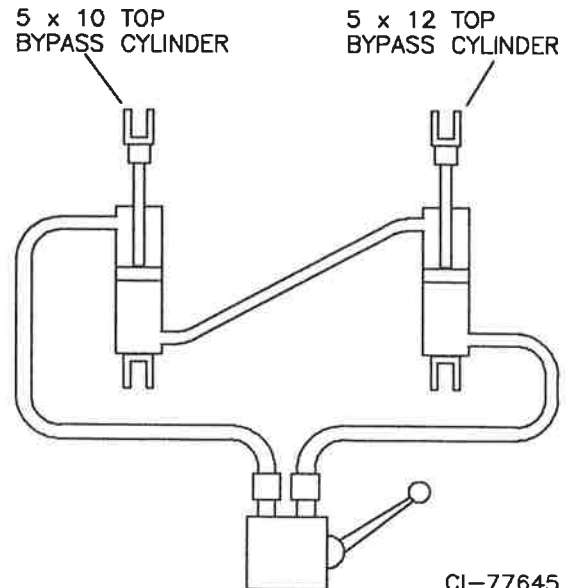


Fig. 2 Depth Control Circuit

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 cylinder 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 onto the next cylinder. (See Fig. 3)

NOTE: TO SYNCHRONIZE OR RESYNCHRONIZE 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.

Raise and lower the unit and observe that both cylinders are extending and retracting together. The cylinders are of different stroke lengths but should reach their extended and retracted points at the same time. If the cylinders do not act in unison, resynchronize.

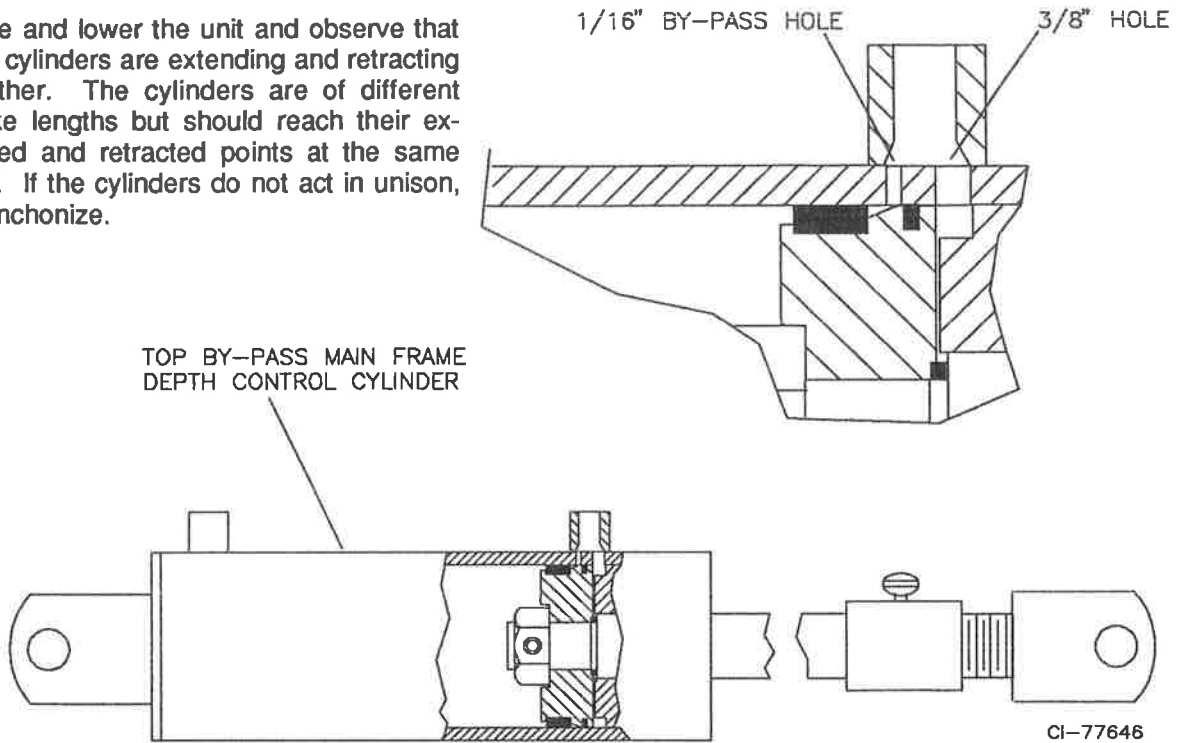


Fig. 3 Top By-Pass Cylinder

MAIN FRAME DEPTH ADJUSTMENT

3-point V-Ripper main frame depth is regulated with the power lift of the tractor. Consult your tractor's operator's manual for additional information. Gauge wheels are available to provide additional depth support.

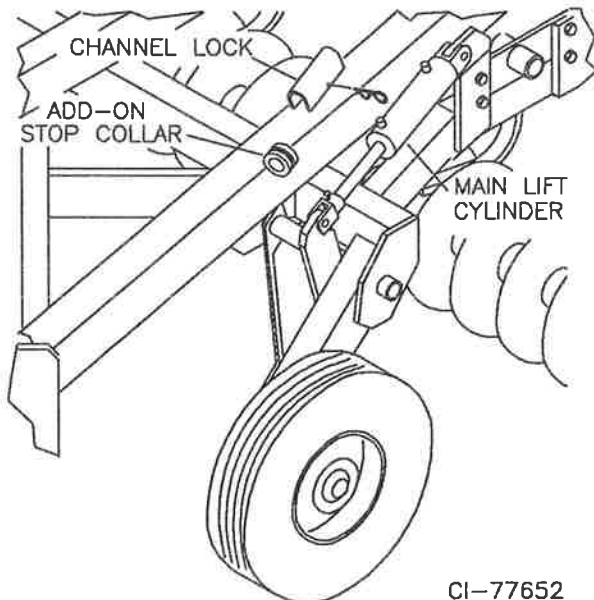


Fig. 4 Main Frame Lift Cylinder

DRAWN RIPPER

Main frame depth on the Wil-Rich 6600 series V-Ripper is regulated by a pair of top bypass hydraulic cylinders. (See Fig. 4) 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 if the stop collar doesn't provide a shallow enough setting.

LEVELING

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

OPERATIONAL PARAMETERS

Maximum Depth - 16" to 18"
Maximum Operating Speed - 4.5 to 6.mph
Cutter Depth - Depends on total machine depth. See cutter settings page 9.
Maximum Transport Speed - 25 mph
Horsepower Requirements - 40 to 50hp per shank

LEVELING DRAWN V-RIPPER

Depth setting should be done in a level area of the field.

Once the unit is completely assembled and all hardware has been properly tightened, the V-Ripper should be ready for field use. All settings for field use should be done on a level area of the field.

Two settings need to be made to level the main frame front to rear for field use: operating depth and hitch height.

To set the main frame operating depth, turn the stop collars up until they contact the cylinder clevis. Raise the main frame by fully extending the main lift cylinders.

It should be noted that front to rear leveling is very important, as a small variance in the degree of levelness can make a large difference in the shank operating depth.

Move forward and drop the unit into the ground. Use the tractor hydraulics to adjust the operating depth of the main frame. Once the desirable operating depth has been established, shut down the tractor with the implement in the ground. Move to the side of the unit and check the front to rear working depth. Setting the forward frame corner 5-5/8" higher than the rear will level the frame. See Fig. 6 for exact measurement locations.

Changing the hitch height changes the level of the frame. Remove the hitch bolts and move to the next set of holes until there is the 5-5/8" offset.

NOTE: 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". ALSO, WHEN MOUNTING THE DUAL CAST HITCH, SEPARATE, WHERE POSSIBLE, THE TWO HITCH BOLTS TO PROVIDE MAXIMUM SUPPORT (SEE FIG. 5).

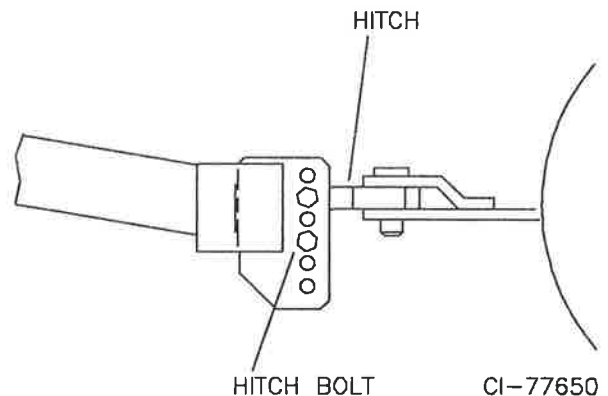


Fig. 5 Hitch

After the operating depth and level of the unit is set turn the stop collar on the 5 x 12 (longer) cylinder down until it contacts the stop plate on the end of the cylinder barrel

Raise the unit completely and bypass the cylinders for 15 to 20 seconds. Drop the unit back into the ground and the depth should be set correctly when the 5 x 12 cylinder bottoms out.

Turn the stop collar on the 5 x 10 (shorter) cylinder until it contacts the stop plate.

When level, front frame corners will be 5-5/8" higher than rear frame tubes.

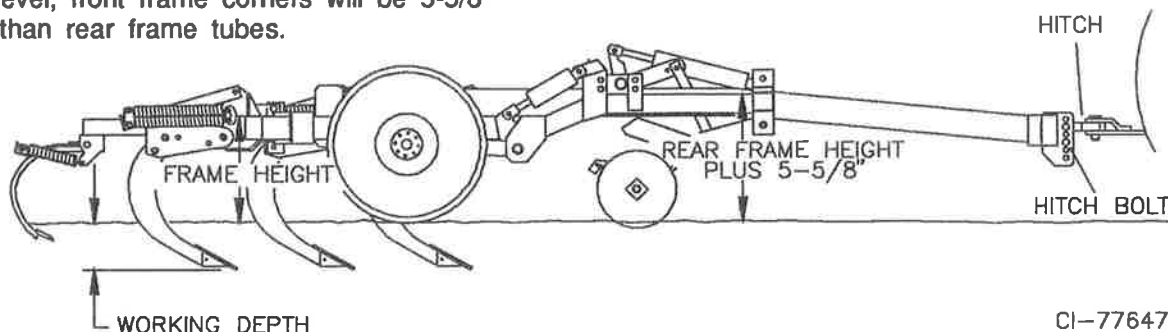


Fig. 6 Main Frame Leveling

Use the add-on stop collars provided if additional adjustment is needed.

It should be noted that raising the unit as in a tough spot, will pull the rear shanks out farther than the front shanks. Operating the unit at a point different than the point the machine was leveled (i.e. off the cylinder stops) will mean the front shanks are going deeper than the rear shanks. Operating the unit off the stop for an extended period of time could force the system out of sequence and the unit will not be level side to side. If this occurs, hold the tractor hydraulic lever with the cylinder fully extended to bypass the cylinder and clear out any air.

LEVELING 3-POINT V-RIPPERS

Front to rear leveling of 3-point hitch models is done with the tractor control arms. Consult your tractor operator's manual for specific information.

Loosen the U-bolts securing the gauge wheels and move the gauge wheels up as far as possible. Tighten to hold in place.

Check to ensure that the unit has been properly assembled and mounted to the tractor.

Move to the field and lower the unit into the ground. Use the tractor's 3-point depth controls to move the unit to the desired operating depth. Shut down the tractor with the unit at the working depth and measure the under frame distance at the center shank. Measure the under frame distance at the outer most shank on the machine and compare to the center shank distance. If the rear shanks are lower than the front shank shorten the 3-point top link. Conversely, if the rear shanks are higher than the center shank, lengthen the top link.

If the V-Ripper is not level from side to side adjust the bottom link on the tractor. Refer to the tractor operator's manual for additional information on hitch settings.

Normal draft load will pull the unit into the ground so use of draft sensing capabilities of some tractors may be affected.

The bottom 3-point links can be allowed to swing when the unit is operating, however, there should be no lateral movement of the bottom links when the unit is raised for transport.

Once the unit has been leveled to the tractor, lower the gauge wheels until they contact the ground. Adjust the gauge wheels evenly from side to side and at a depth which will carry a restricted portion of the machine's weight while operating. The gauge wheels are to stabilize the V-Ripper from side to side, with the tractor hitch being the main load carrying and depth control point.

When level, the frame under center shank will be at the same height as frame under the outer most shank.

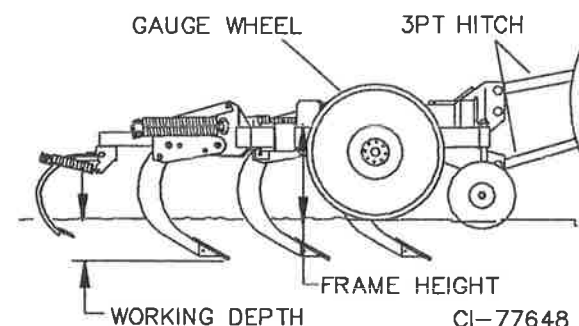


Fig. 7 3-Point Main Frame Leveling

FRONT CUTTER SETTING

NOTE: THE PRIMARY PURPOSE OF THE CUTTER OPTIONS IS TO KNOCK DOWN AND CUT UP TRASH FLOW THROUGH THE SHANKS.

3PT MODEL INDIVIDUAL COULTERS

3PT units equipped with coulters, adjustments are limited to coulters depth and spring tension. At shallower depths coulters may need to be lowered to provide the best cutting action.

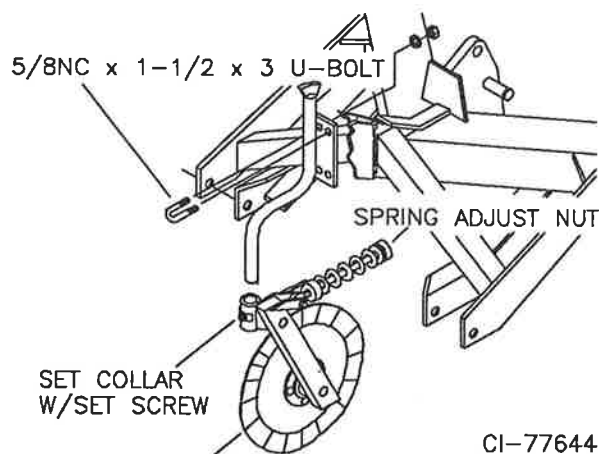
NOTE: SET COULTERS ONLY AS DEEP AS IS NEEDED TO PROPERLY CUT TRASH.

Setting the coulters deeper than necessary adds to coulters wear, decreased reliability and reduced cutting. Cutting depth is set by means of the U-bolt at the top of the mount and moving the coulters assembly up and down as needed.

Locate the coulters for the center shank as far forward as possible and 1" to 2" off the center of the shank for best results.

A set collar is provided in the coulters yoke to prevent the coulters from swinging completely around. The collar should be adjusted to allow the coulters to swing approximately the same distance from side to side.

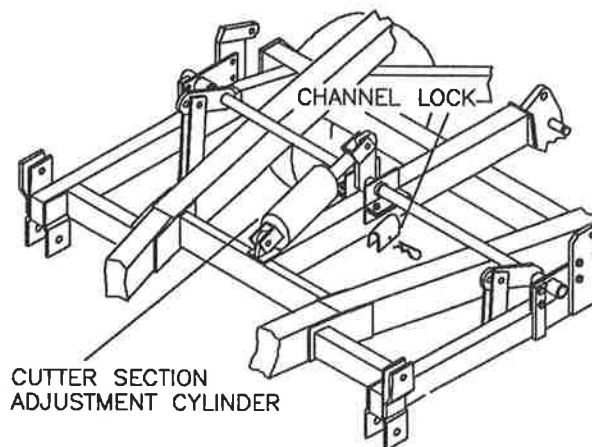
Coulters trip pressure can be increased by tightening the spring adjustment nut.



COULTERS ASSEMBLY

Fig. 9 Coulters Adjustment

DRAWN MODEL CUTTER SECTIONS



77653

Fig. 8 Section Adjustment

All cutter sections are hydraulically controlled by a cylinder located in the center to allow adjustment while operating. By activating the cutter cylinder, the cutter section can be raised or lowered as trash conditions dictate. Extending the cylinder raises the gang while retracting the cylinder will lower the gang.

If the cutter section is not needed the section can be raised as high as possible. It should be noted that at greater operating depths the cutter section may not raise totally above the trash.

If the cutter section is not to be used or if the unit is to be stored, the cutter section can be pinned up using the channel lock provided.

For extended use of the machine in conditions where the cutter is not needed, it can be completely removed by unpinning the depth linkages.

NOTE: WHEN WORKING ON OR AROUND THE CUTTER SECTIONS, CARE SHOULD BE EXERCISED IN HANDLING OR TIGHTENING BOLTS NEAR DISK BLADE TO AVOID INJURY.

STRAIGHT CUTTER GANG

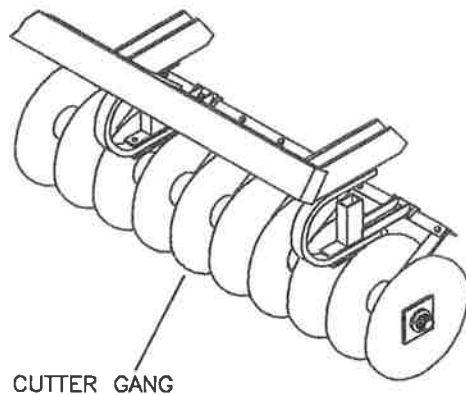


Fig. 10 Cutter Gang

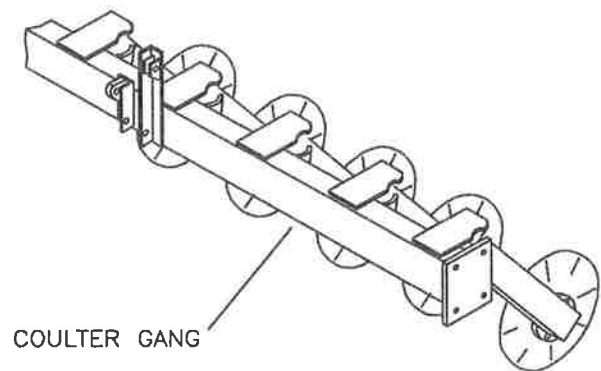
CI-77757

Do not try to hydraulically force the gang too deep into the ground. For best cutting and to minimize power requirements the cutter section should be set at the minimum depth to properly cut trash. Attempting to force the cutter section too deep will not ensure better trash cutting, or more trash coverage, and may force the unit out of the ground.

The cutter gang section is equipped with C-spring pressure relief, to decrease blade and total machine damage or wear, in the event of rock or obstruction contact.

When working known rocky areas of a field activate the hydraulic lift to raise the cutter gang section to decrease the potential for damage. Once through the problem area, retract the lift cylinder to return the cutter gang section to the preset cutting depth.

COULTER CUTTER SECTION



CI-77758

Fig. 11 Coulter Cutter

The coulters cutter section is comprised of individually mounted 20" blade coulters, spaced at 15". These spring loaded assemblies have the ability to swivel, making this option well suited to areas with heavier rock conditions and a more rolling ground contour.

Trash coverage is minimal, comparable to the Straight Gang Cutter Section.

Field adjustment is minimal. The only adjustment possible is the hydraulic variation of the coulters cutting depth. Best cutting action is obtained by positioning the coulters at the minimum depth to properly cut surface trash. Attempting to force the coulters too deep will tend to push trash in front of the blade and may force the unit out of the ground.

Use the hydraulic lift capabilities of the coulters cutter section to decrease the down pressure or raise the entire section over known rocky areas.

DISK CUTTER SECTION

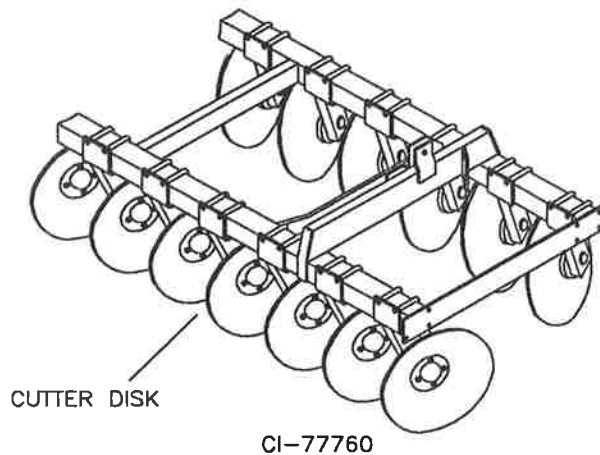


Fig. 12 Disk Cutter

The disk cutter section consists of two rows of individually mounted 20" shallow concave disk cutters. Cutter spacing is variable, from approximately 14" to 16" between cutters on the same bar. The best trash coverage and mixing is obtained by mounting cutters which throw one way on the front bar and mounting cutters which throw the opposite way on the rear bar. Position the rear cutter midway between the front cutters for best trash flow. If conditions dictate cutters can be moved laterally on the mounting bars to get more or less coverage. Refer to the general mounting dimensions in the Assembly Instructions.

Unlike the straight and coulter cutters the trash cutting and coverage of this option is effected by the depth of operation. Running the cutters at a greater depth will increase trash coverage and mixing but at a proportional increase in power required to pull the unit. Best cutting and mixing action is usually obtained when operating the cutters at a 4" to 5" depth. Attempting to force the disk cutter section deeper will greatly increase power requirements, decreasing the cutting action and force the unit out of the ground. Judicious use of the hydraulic depth adjust feature is important - DO NOT operate the disc cutters continuously at a greater depth than is required. Though the cutter section is spring loaded for relief when contacting an obstruction, damage and increased wear of components are the results of a heavy hand on the cutter section hydraulic depth control lever.

AUTOMATIC RESET

The only setting available on the trip assembly is the adjustment of the spring pressure. Tightening the spring will increase the reset pressure. It is best to tighten the springs just enough to give the pressure needed to hold the shank at the desired operating depth and properly reset. If the shank assembly is set overly tight, the chances of shank breakage or bending is increased. This is evident when working in rocky conditions at higher rates of speed or when operating at depths greater than normal.

Set the pressure at a point that is needed to hold and reset the shank and then increase as is required.

SPRING ADJUST BOLT

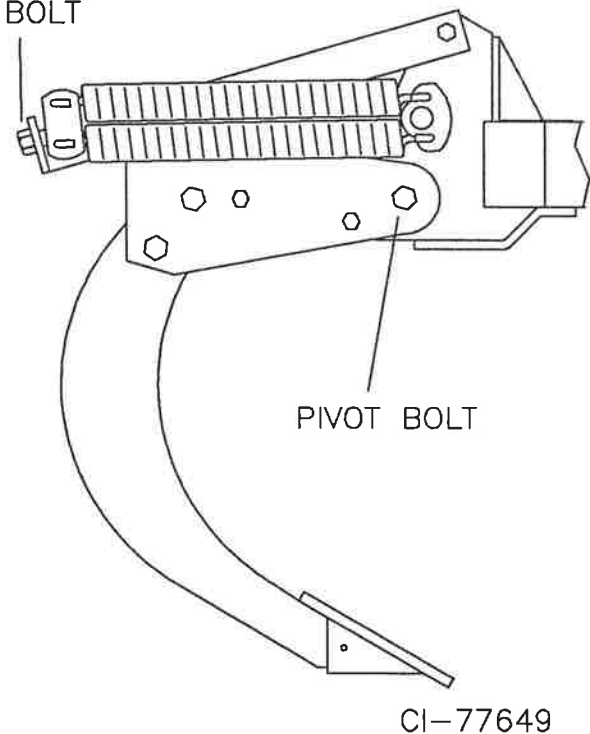


Fig. 13 Trip Shank

SHEAR BOLT

The shear bolt trip assembly is designed to protect the shank assembly and V-Ripper from damage when ripping in light rock conditions. When an obstruction is encountered while ripping, the shear bolt will absorb the shock load through shear and allow the shank assembly to rise above the obstruction before damage is done.

To reset the shank assembly, raise the V-Ripper out of the ground far enough to allow the trip assembly to swing down into ripping position. Replace the shear bolt (42359) and tighten to approximately 50 foot pounds torque (See Fig. 14).

Because this trip assembly is designed for use in area's of light rocks and the shock cushioning effect of the spring reset is not present, it is important you check all bolts and nuts on the shear bolt trip assemblies often enough to insure they are kept tight.

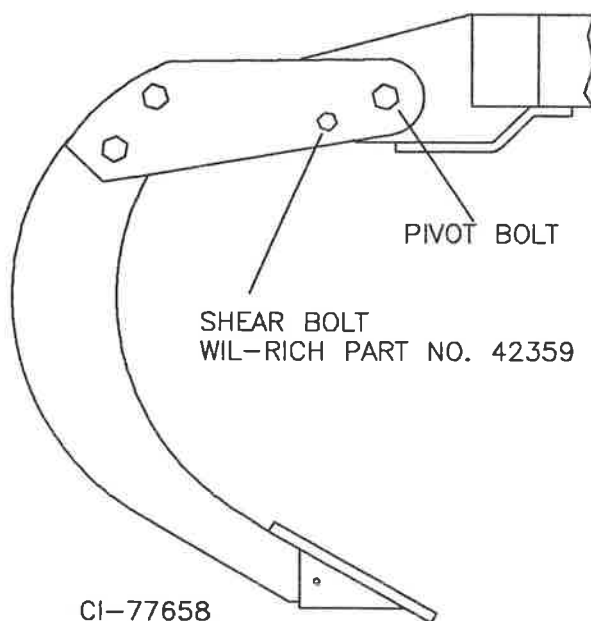


Fig. 14 Shear Bolt Shank

POINTS

The V-Ripper points are held to the shank by a 1/2" roll pin. To remove point use a punch to drive out the roll pin and slip the point off the shank. Replace point and drive roll pin in place. If the roll pin seems loose replace with a new pin or risk loss of the ripper point.

Point life can be greatly increase if the point is resurfaced before wear has reached the bottom plate (See Fig. 16). Use of an abrasive resistant hard facing wire or rod is recommended for resurfacing.

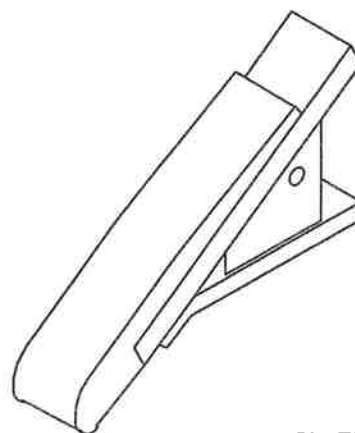
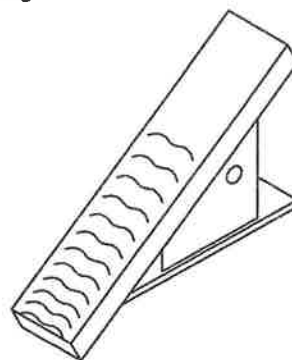


Fig. 15 V-Ripper Points CI-77659

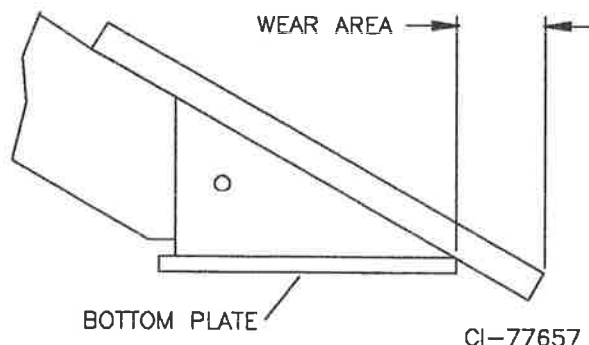


Fig. 16 Point Wear Area

REAR SHANK SETTINGS

The purpose of this addition is to add versatility. As designed, this frame allows additional shank assemblies to be mounted to the rear of the 6600 V-Ripper. These shanks are placed between the main ripper shanks on 30" spacings. Located in this position the shanks can be used to increase soil fractures, improve trash coverage or better the surface finish.

When operating the unit in wet conditions, or at slower speeds, the trash coverage from the main shank may be less than desired. Using the additional shanks will more thoroughly till the area between the main shank and improve trash coverage. With the main shanks tilling deeper and the rear shanks in place, a better overall surface coverage of trash can be obtained.

In some soils, such as wet and sticky soils, the fracture of soil between the main shanks may not be as complete as required. Use of the rear shanks can break up the area between the main shanks and ensure a better job of tillage.

If soil moisture conditions are such that the ripper shanks do a sufficient job of working up the soil, the rear shanks may not be needed, but usually because of the nature of this tillage operation the ripper shanks can produce large chunks, deep furrows, and a very rough surface finish. By using the rear shanks between the main ripper shanks some of the chunks can be broken up and the deep furrows filled in. The better surface finish which results from the use of the rear shanks can save on tillage trips and wear and tear on your finishing equipment.

CHISEL PLOW SHANK SETTING

The rear shank frame is designed with a wide range of vertical adjustment. This is to cover the range of working depths the main V-Ripper and rear shanks must operate in.

The rear shanks should always be operated at a shallower depth than the main ripper shanks. If main unit is to be operated at a shallower depth the rear shanks can be dropped as deep as the adjustment allows. It must be remembered that the rear chisel shanks do not have the strength or point pressure of the main ripper shanks.

To operate the main unit with the rear shanks out of the ground extend the cylinders fully and use a channel lock or stop collars to maintain

BOLT-ON FRAME ADJUSTMENTS

The manual adjust rear option is attached by bolting the mounting arms as shown in the Assembly Instructions. Mounting the arms with the rear mount plates down will set the chisel plow points approximately 1" to 8" above the main ripper shank point. **USE THIS SETTING ONLY WHEN OPERATING THE MAIN UNIT AS A SHALLOW DEPTH.** To set the chisel points 8" to 14" above the main ripper points the mounting arms need to be reversed, the rear mount plates should be up. (Fig. 17) Each set of mounting holes moves the rear bar about 1-2/4" vertically.

To reposition the rear bar, care should be exercised to properly support the bar throughout the procedure. Loosen the rear mounting bolts and remove both a top and bottom bolt from each side. While leaving one side loosely attached lift, with a Handy-Man jack or appropriate lifting device, one side up, remove the mounting bolts, loosely tighten and repeat the procedure on the other side. **ALWAYS MAKE SURE AT LEAST ONE SIDE IS BOLTED IN PLACE BEFORE LIFTING OR REMOVING THE MOUNTING BOLTS FROM THE OTHER SIDE.** Repeat this process in steps until the correct position has been reached. Replace all mount-

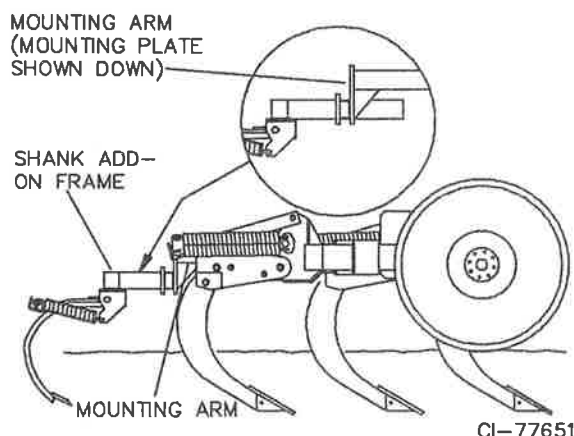
SCREW JACK & HYDRAULIC FRAME ADJUSTMENTS

The screw adjust rear attachment is adjusted by utilizing the ratchet screw adjust mechanism. Adjusting each side equally will minimize the strain on the machine and insure consistent operation.

The hydraulic adjust rear attachment is adjusted by activating the hydraulic cylinder. When the desired operating depth is reached, turn out the screw collar on the cylinder or use stop collars to maintain the set depth. The attachment should be operated with the cylinders fully retracted to the cylinder stops. To ensure consistent operation adjust each side to the same cylinder extension.

cylinder extension. Do not operate with the shanks totally out of the ground without the cylinder being fully locked up.

Fig. 17 Chisel Plow Shank Frame



NOTE: USE OF THE REAR SHANK FRAME WITH 3PT MODELS ADDS TO THE NEED FOR PROPER TRACTOR FRONT END WEIGHTING. MAKE CERTAIN TRACTOR STABILITY IS NOT COMPROMISED WITH THE OPTION.

SHOVEL SELECTION

The same principles for spike or sweep selection, as is applied to a chisel plow, can be used here. Straight spikes, twisted spikes (3" maximum), or sweeps can be mounted on the chisel shanks to complete the tillage job.

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 implement 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.

HUB & 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 repack hub and spindle bearings once each season.

Tighten spindle nuts so that there is a slight drag on the wheel when turned by hand.

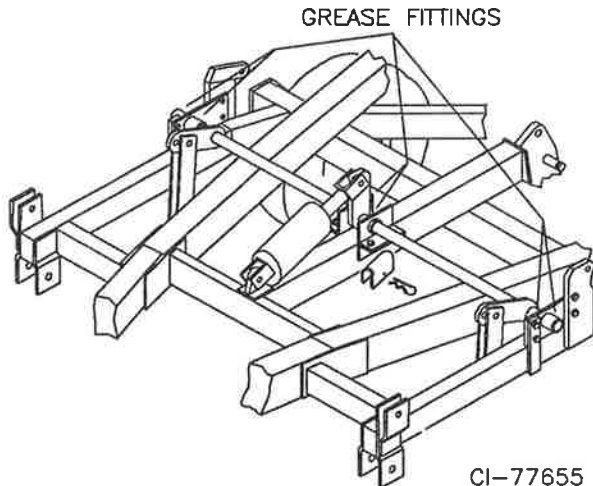


Fig. 18 Gang Adjustment Axle

AXLE

All axles should be greased once a day with a good quality grease. Lower machine onto the ripper points to relieve pressure on the axle which will make greasing easier. (See Fig. 19)

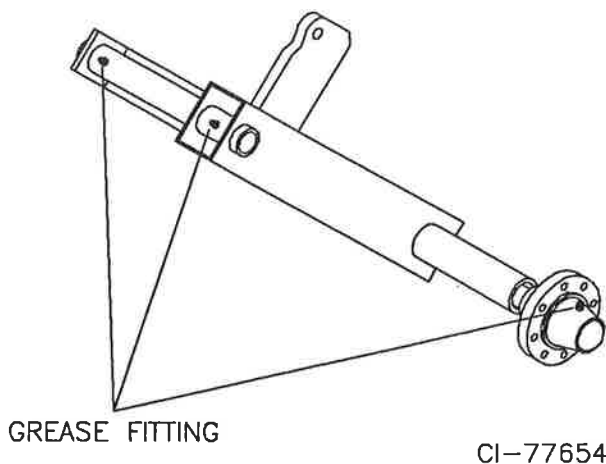


Fig. 19 Axle Leg

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.

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 cylinders, tubing, or fittings, always use one wrench to prevent the hose from twisting and another wrench to tighten the joint. Excessive twisting will shorten 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. Immediately straighten any hose that appears twisted. A twisted hose can burst under operating pressure.

TRIP SHANK ASSEMBLIES

Grease daily when operating with moderate to heavy tripping and every other day with light tripping.

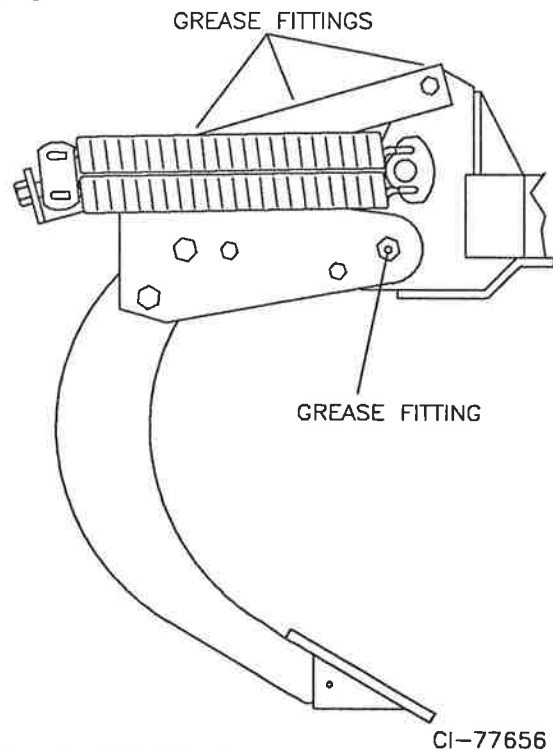


Fig. 20 Trip Shank

DISK GANGS

Do not run machine with loose cutter blades. Keep gang bolts tight! Tighten to 650 foot pounds, which is approximately 200 pounds at the end of a three foot long wrench.

Spending a little time and effort protecting the cutter blades will reward you with longer service, easier operation and higher resale value. Dirt and trash will hold moisture, causing rust. Apply a good rust preventative to all land polished surfaces.

If the blades, bearings, or spools must be replaced on the gang shaft, be sure to keep them in order when removing them so they can be replaced properly.



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

STORAGE

NOTE: IF POSSIBLE STORE YOUR MACHINE INSIDE.

At the end of the season, clean the implement thoroughly to remove any trash, soil or dirty grease which could hold moisture and cause rusting. Repaint any chipped, bare, or rusted areas to prevent any further deterioration. Inspect the machine 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 the 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 implement weight.

Coat the cutter blades with a good rust preventative. Coat the shovels and hydraulic cylinder rods with grease and place boards under the points and gangs to prevent the shovel and disk blades from settling into the ground. Keep direct sunlight off the tires.

Carefully rotate each gang and check for worn or damaged blades, bent gang shaft, worn scrapers, damaged bearings and other parts which may need replacing.

Whenever blades or bearings are replaced, the gang shaft nut must be torqued to 650 foot pounds, which is approximately 200 pounds on the end of a three-foot wrench.