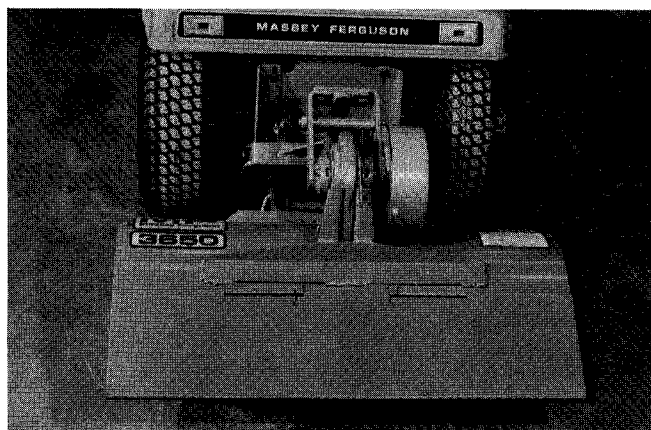


# Operator's Manual

AND

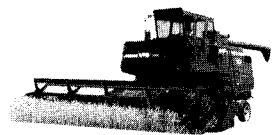
## Assembly Instructions



**MF 3650 PTO  
ROTARY TILLER**

**MF**

**Massey Ferguson**

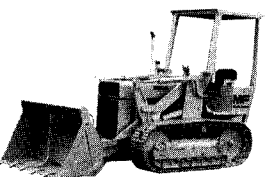


# Massey Ferguson



TO OUR CUSTOMER:

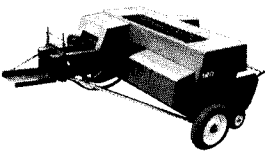
*Congratulations on your selection of a Massey-Ferguson Product. We believe you have exercised excellent judgment in the purchase of your Massey-Ferguson machine. We are most appreciative of your patronage.*



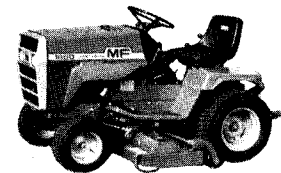
*Your Dealer has performed every pre-delivery service on your new machine.*



*He will be happy to acquaint you with the operating and maintenance instructions given in this manual, and to instruct you in the proper and varied applications of this machine. Call on him at any time when you have a question, or need equipment related to the use of your machine.*

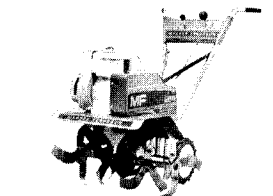


*We recommend that you carefully read this entire manual before operating the unit. Also, time spent in becoming fully acquainted with its performance features, adjustments and maintenance schedules will be repaid in a long and satisfactory life of the product.*



***This piece of equipment is covered by warranty.***

Massey-Ferguson reserves the right to make changes or add improvements to its products at any time without incurring any obligation to make such changes to products manufactured previously. Massey-Ferguson, or its dealers, accept no responsibility for variations which may be evident in the actual specifications of its products and the statements and descriptions contained in this publication.



## **Massey-Ferguson Inc.**

1901 BELL AVENUE, DES MOINES, IOWA 50315



## **Massey-Ferguson Industries Limited**

915 KING STREET WEST, TORONTO, CANADA



## SAFETY PRECAUTIONS



Read this Manual and Tractor Operator's Manual carefully before operating this unit. Pay special attention to all safety suggestions. They are included in this Manual for your protection.

- Know tractor and tiller controls and how to stop both units quickly.
- Do not allow children to operate unit. Do not allow adults to operate unit without proper instructions.
- Do not carry passengers. Keep children and pets a safe distance away.
- Clean work area of objects which could cause equipment damage or be thrown and cause personal injury.
- Disengage power to Tiller, shut off tractor and remove spark plug wire before unclogging, adjusting, repairing or lubricating unit.
- Keep all safety shields in place.
- Keep hands, feet and clothing away from moving parts.
- Do not stand near machine while it is in motion.
- Keep off implement unless seat or platform is provided.
- Check for and repair any damage caused by striking solid objects.
- When Tiller is removed from tractor, be sure to also remove PTO gear box and drive pulley assembly
- Do not operate Tiller on steep hillsides.
- If Tiller must be in raised position when being worked on, block it up securely.
- Check all nuts and bolts, particularly tine hardware, at frequent intervals.

**PERSONAL INJURY MAY RESULT IF THESE PRECAUTIONS  
ARE NOT FOLLOWED.**



Look for this symbol to point out important safety precautions. It means — **ATTENTION! BECOME ALERT!  
YOUR SAFETY IS INVOLVED.**



The MF 3650 PTO Rotary Tiller is for use with the MF 1200 Garden Tractor equipped with Rear PTO, Implement Lift Hitch. A Speed Reduc-Kit and Lift Helper Spring Kit is recommended. It may be used for both primary and secondary tillage and can replace the plow, disc and cultivator in normal garden work.

Serial identification plate is located on right side of shroud. Record this number in space provided and refer to it when requesting parts.

*NOTE: Reference to left-hand and right-hand used throughout Manual refers to a position behind Tiller facing forward.*

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## TRACTOR AND TILLER PREPARATION

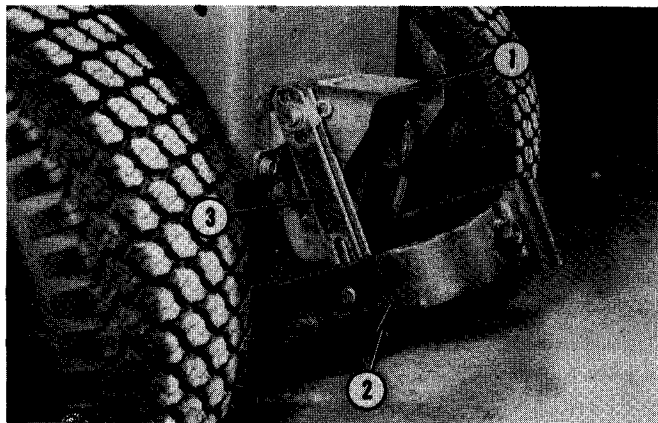


Fig. 1 - IMPLEMENT LIFT HITCH

1. PTO Shield
2. "C" Frame
3. Lift Links

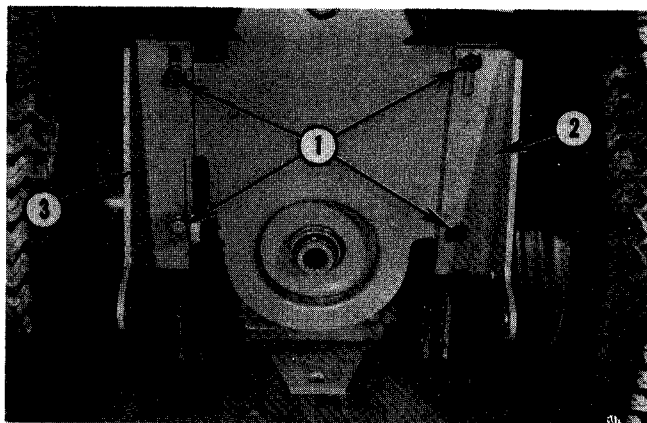


Fig. 3 - UPPER TILLER MOUNTING BRACKETS

1. 4 New Retaining Bolts
2. Right-Hand Bracket
3. Left-Hand Bracket

### TRACTOR



*CAUTION: Make sure tractor engine is shut off.*

Your MF 1200 Garden Tractor requires a Rear PTO Kit, Implement Lift Hitch Kit, in order to attach the MF 3650 Tiller. A Tractor speed Reduction Kit and Lift Helper Spring Kit is recommended. Your MF Dealer can supply and install these kits. If these kits are already installed, remove the "C" frame and its lift links,

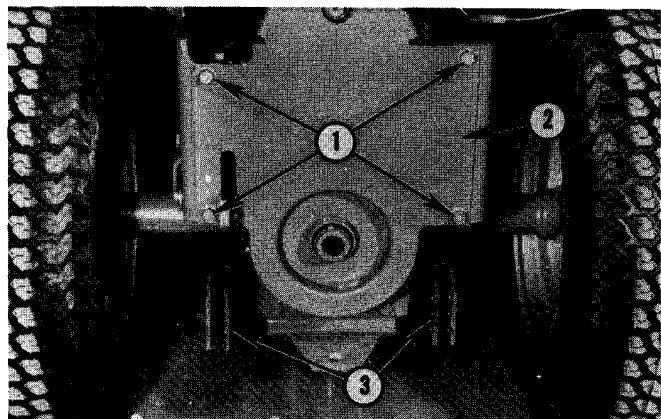


Fig. 2 - HITCH PARTS AND PTO SHIELD REMOVED

1. 4 Retaining Bolts
2. Rear PTO Belt Cover
3. Lift Hitch Mounting Brackets

Fig. 1. If tractor is equipped with Rear PTO Shield, Fig. 1, remove this also as the Tiller has its own PTO shield permanently attached to the frame.

Remove four (4) existing bolts from rear PTO belt cover, but do not remove cover itself, Fig. 2. Note that lift hitch mounting brackets remain on tractor.

Using four (4) new bolts supplied with Tiller hardware, attach the two (2) upper Tiller mounting brackets, as shown in Fig. 3. Do not tighten these four (4) bolts yet and note that there is a right and left hand bracket.

Install gear box as shown in Fig. 4, using short "L" pins and hairpins. With tractor on level surface and rear tires equally inflated, equalize distance between gear box "L" pins and floor and then tighten four mounting bracket bolts, Fig. 4.

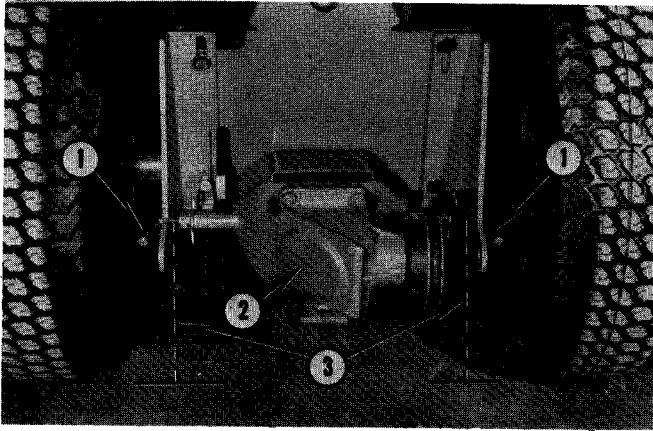


Fig. 4 - GEAR BOX INSTALLATION

1. Short "L" Pins
2. Gear Box
3. Leveling Gear Box

### TILLER

Install lower hitch frame to Tiller using bolt, pivot bushing and locknut provided, Fig. 5. Tighten locknut securely. Pivot bushing will prevent frame from binding. Frame should pivot freely after assembly.

### ATTACHING TILLER TO TRACTOR

1. Start tractor engine as outlined in Tractor Operator's Manual.

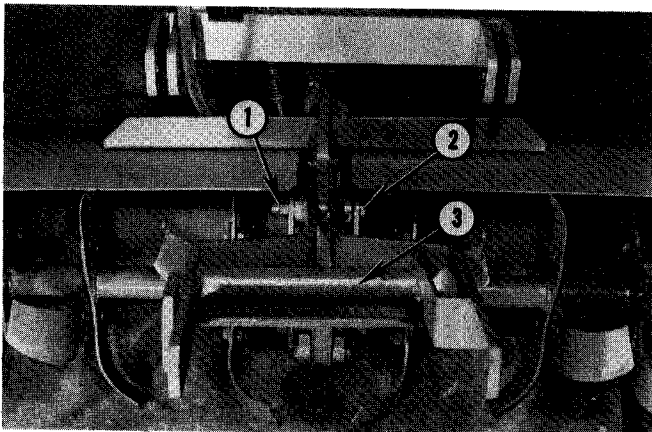


Fig. 5 - LOWER TILLER HITCH FRAME

1. Locknut
2. Bolt
3. Frame



*CAUTION: Do not move tractor if anyone is between tractor and Tiller or behind Tiller. Do not lean back to align hitch points.*

2. With tractor and Tiller on level area, back tractor to a position about 1 or 2 feet in front of Tiller, place in neutral and shut off engine.

3. Block up front of Tiller until lower hitch frame is about the same height as lower hole on tractor hitch mounting brackets.

4. Back tractor by hand until lower pin holes are lined up, install short "L" pins and secure with hairpins, Fig. 6. Never use middle or upper holes as lower hitch frame will interfere with drive pulley in transport position.

5. Place drive belt inside upper Tiller hitch frame and attach upper Tiller hitch frame, Fig. 7.

*Note: If drive belt pulley is difficult to install, unscrew belt tension adjuster, Fig. 8.*

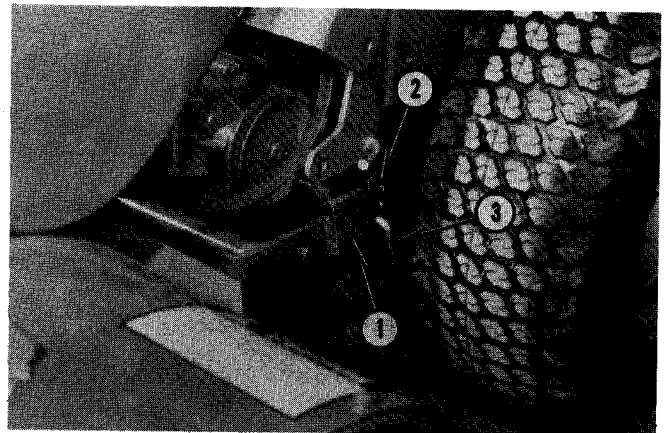


Fig. 6 - LOWER TILLER HITCH FRAME

1. Frame
2. Mounting Bracket
3. Short "L" Pin

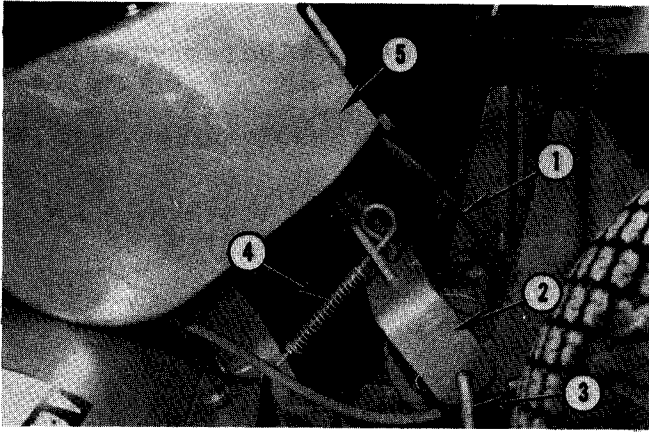


Fig. 7 - UPPER HITCH FRAME

1. Belt
2. Upper Hitch Frame
3. Short "L" Pin
4. Belt Cover Retainer
5. Belt Cover

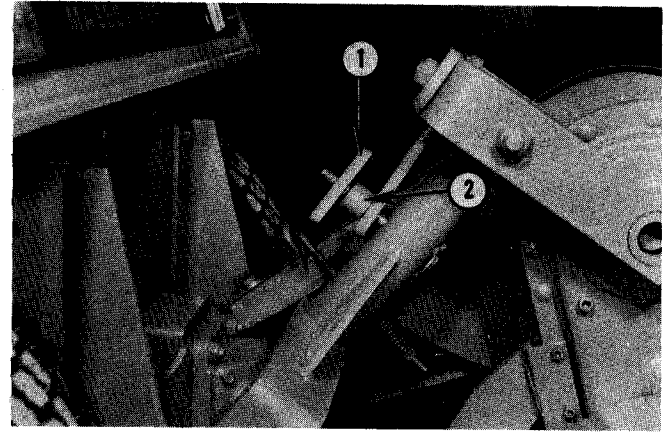


Fig. 9 - DRIVE BELT ADJUSTER

1. Adjuster
2. Spacer

6. Place drive belt over gear box pulley and make a visual check to be sure that belt is also in place on Tiller pulley.

7. Secure belt cover in place, as shown in Fig. 8.

8. Reset correct belt tension by screwing down on adjuster until it almost touches spacer, Fig. 9.

*Important: Over-tensioning belt will overload belt, bearings and other drive components resulting in shorter life. Correct belt tension allows belt to slip if rocks, roots or other solid objects are encountered.*

9. Install lift link supplied with Tiller, as shown in Fig. 10, using long "L" pin in lower frame and 1/2" headed pin in top through rockshaft.

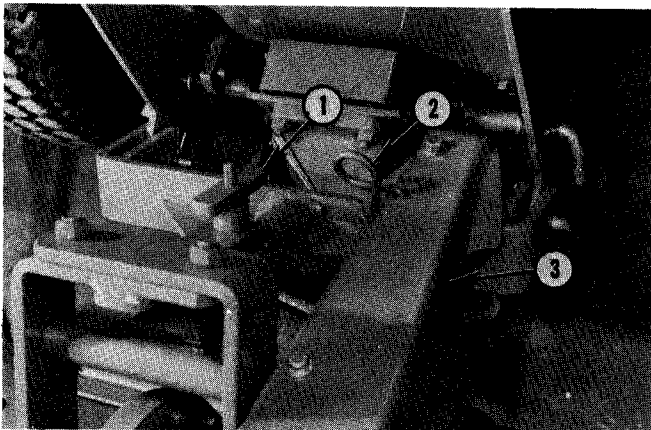


Fig. 8 - DRIVE BELT ADJUSTER

1. Adjuster
2. Belt Cover Retainer
3. Belt Cover

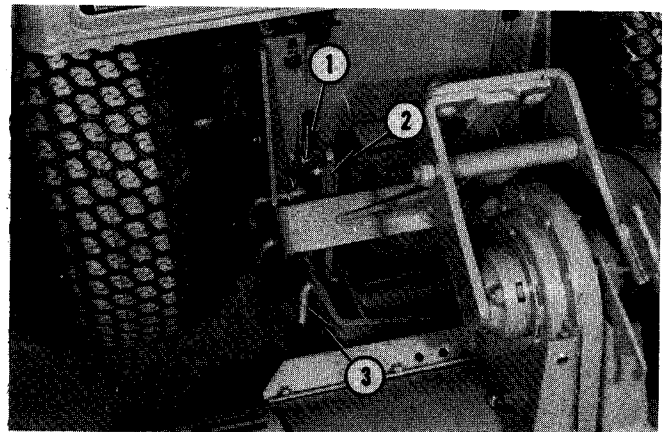


Fig. 10 - LIFT LINK INSTALLATION

1. Headed Pin
2. Lift Link
3. Long "L" Pin



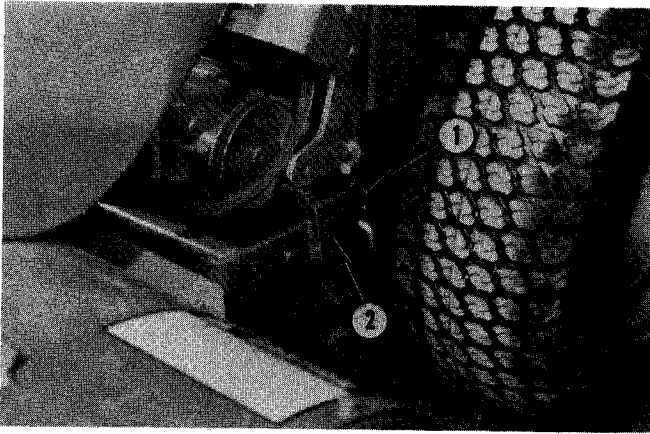


Fig. 11 - TRANSPORT HEIGHT STOP

1. Mounting Bracket
2. Stop Bar

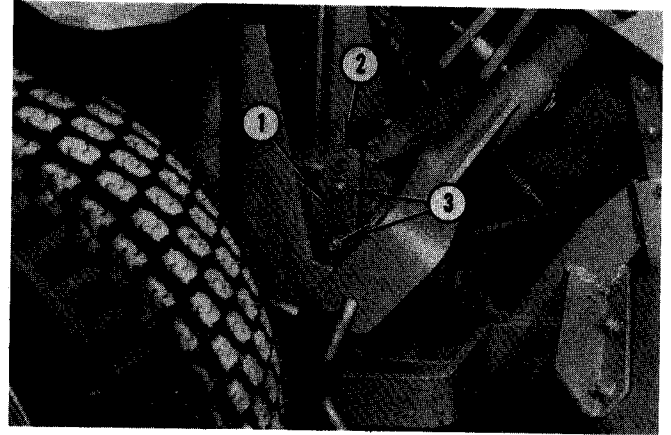


Fig. 12 - LIFT LINK ADJUSTMENT

1. Ears
2. Lift Link
3. Adjustment Bolts

### LIFT LINK ADJUSTMENT

Correct lift link adjustment is necessary to obtain maximum transport height of the Tiller and adequate working depth or ground penetration. This adjustment is considered correct when the stop bar (lower right-hand side of lower hitch frame) contacts the lower right-hand attaching bracket with the tractor lift lever in full rearward position. To accomplish this proceed as follows.

1. Raise Tiller until stop bar contacts mounting bracket and block up securely, Fig. 11.

2. Release all pressure on lift link by moving tractor lift lever forward.
3. Loosen 2 bolts on Tiller lift link, Fig. 12, and then move tractor lift lever fully to rearward position.
4. Holding lift link up, tap down ears on upper end of lift link and tighten the two retaining bolts, Fig. 12.



*CAUTION: Tractor lift lever will require high hand actuating force with Lift Helper Spring hooked up. Operate only from tractor seat and keep others away from Tiller while doing so.*

## OPERATION

Before operating Tiller, always check area to be worked. Do not run over large stones, pipes or other heavy obstructions which could damage Tiller.



*CAUTION: Never adjust or work on Tiller with tractor engine running. Although Tiller will not normally throw heavy objects, keep persons and pets from directly behind when it is in operation. Always make certain rear shield is lowered when Tiller is being operated in rocky conditions.*

### OPERATING TILLER

*NOTE: Do not try to operate Tiller in long grass or high weeds. Cut and remove this material before tilling. Failure to do this will usually result in wrapping of material on tine shaft reducing efficiency of tines.*

1. Raise or lower Tiller with tractor lift hitch lever or with power lift control, if so equipped.
2. To engage Tiller, move tractor rear PTO lever to the "ON" position.
3. Depress tractor neutral return brake pedal, place gear shift lever in 1st gear.
4. Advance throttle to "FAST" position and lower Tiller slowly to engage soil.
5. Release neutral return brake pedal slowly and fully. Recommended forward speed for tilling is 0.5 mph and 1.0 mph for cultivating. (Tractor speed reduction kit recommended.)
6. Always raise Tiller when turning or backing tractor.

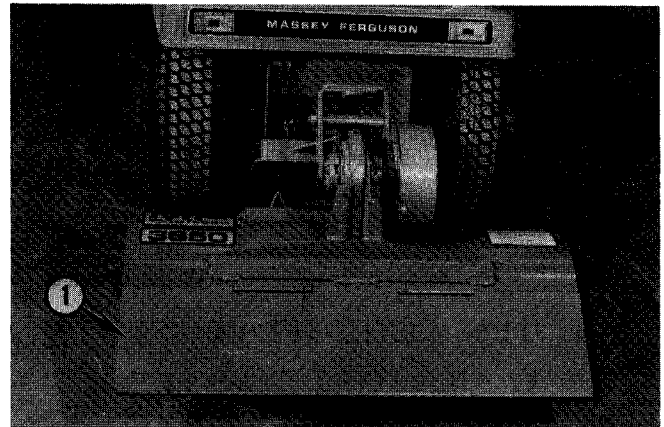


Fig. 13 - LEVELER BLADE  
1. Leveler Blade Lowered

7. Lower leveler blade when tilling to produce a finer or smoother seedbed, Fig. 13. For coarse bed or when cultivating, move leveler blade all the way up, Fig. 14.

8. If Tiller should encounter a heavy obstruction, stop tractor immediately and disengage Tiller drive. Should a large accumulation of heavy vines or weeds wrap around tines or shaft, turn off tractor engine and remove this material before proceeding.

9. If tractor is to be stopped for any length of time with Tiller in working position, quickly disengage

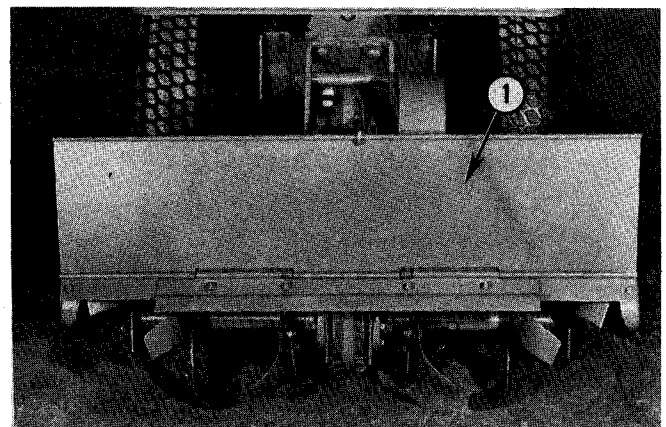


Fig. 14 - LEVELER BLADE  
1. Leveler Blade Raised

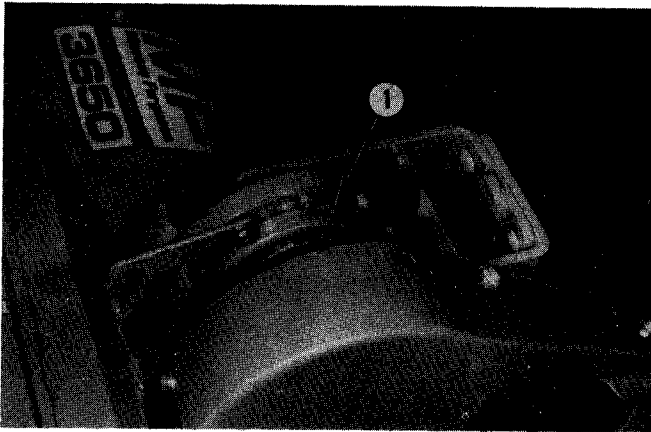


Fig. 15 - ENCLOSED CHAIN LUBRICATION

1. Oil Cup

drive or raise machine out of ground or its working motion will create a hole after a few seconds of stationary operation.

#### DETACHING TILLER



*CAUTION: Stop engine. Before attempting to detach Tiller, it is recommended that Tiller be lowered onto support blocks to prevent it from tipping over.*

1. Lower Tiller onto support blocks and raise belt cover shield.
2. Loosen drive belt tension by turning adjuster counterclockwise.



*CAUTION: Tractor lift lever will require high hand actuating force with Lift Helper Spring hooked up. Operate only from tractor seat and keep others away from Tiller while doing so.*

3. Release pressure on lift link by moving tractor lift lever forward.
4. Disconnect lift link at top.
5. Disconnect upper Tiller lift frame.

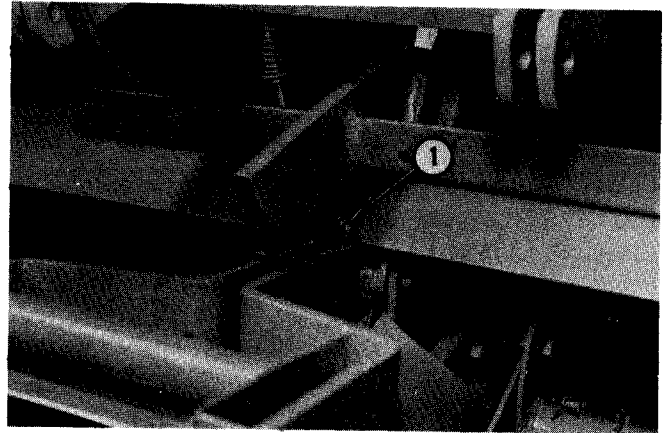


Fig. 16 - LOWER HITCH FRAME LUBRICATION

1. Grease Fitting

6. Disconnect lower Tiller lift frame.

7. Remove gear box.



*CAUTION: Do not leave gear box on tractor when not in use.*

#### LUBRICATION

Oil leveler blade hinges and springs and Tiller upper linkage pivot points on Tiller daily with engine oil, Fig. 17. Apply daily a few drops of engine oil through

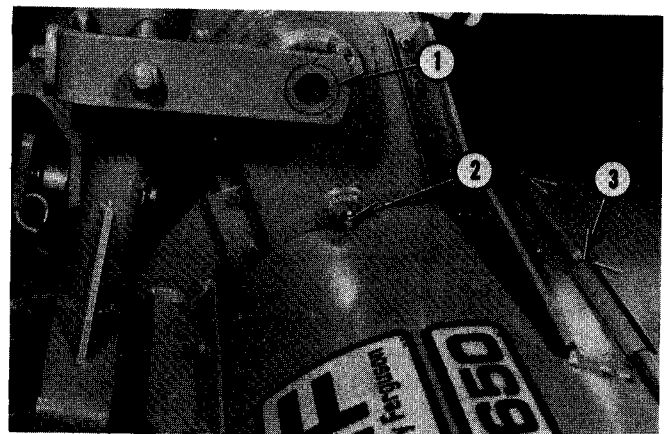


Fig. 17 - OTHER LUBRICATION POINTS

1. Upper Hitch Frame Pivot
2. Grease Fitting - Drive Chain Idler
3. Leveler Blade Hinges and Springs

oil cup on top of enclosed chain drive chain housing, Fig. 15.

purpose Lithium Base Grease such as MF Specification M-1105 to grease fittings shown in Figs. 16 and 17.

Daily apply a few shots of Multi-

### SPECIFICATIONS

Cutting Width .....	36 inches
Overall Width .....	38 inches
Number of Cutting Tips .....	20
Tilling Depth .....	Up to 8 inches
Drive .....	Tractor Rear PTO
Tine Material .....	High carbon, heat treated steel
Weight .....	205 lbs.
Shipping Weight .....	230 lbs.
Tine Retaining Bolt Torque .....	55 ft.-lbs.

**TROUBLE-SHOOTING**  
**TINES DO NOT ROTATE**

PROBABLE CAUSE	REMEDY
Material wrapped around tine shaft - Rock or root wedged in housing.	Clean and free up tine shaft-Disengage Tiller Drive and drive tractor in reverse with tines on ground.
Belt not properly tensioned	Readjust (Do not over tension)

**TINES DO NOT DIG**

PROBABLE CAUSE	REMEDY
One or more tines are reversed	Check tine installation, cutting edges must be toward direction of rotation
Tractor hitch linkage improperly adjusted	Check and adjust linkage
Ground too dry and hard	

**TILLER CLIMBS OUT OF GROUND**

PROBABLE CAUSE	REMEDY
Attempting to cut too deep for ground conditions on first pass	Make shallow cut on first pass-make successive passes
Too high a forward speed	Reduce forward speed (use Tractor Speed Reduction Kit)
Ground conditions severe	Adjust cutting depth with tractor control lever and make successive passes

**TINES WILL NOT CLEAR GROUND IN RAISED POSITION**

PROBABLE CAUSE	REMEDY
Tractor hitch not adjusted	Adjust Tiller lift link



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PRODUCTS**

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the kind of service that will keep your  
MF equipment on the job.**

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