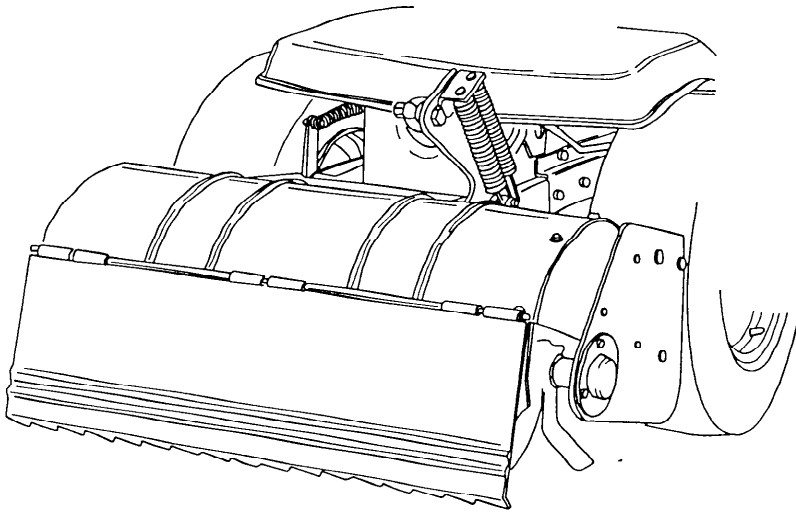


OPERATOR'S MANUAL

28" TILLER ATTACHMENT

MODEL NUMBER

190-757-000



IMPORTANT: READ SAFETY RULES AND INSTRUCTIONS CAREFULLY

Warning: This unit is equipped with an internal combustion engine and should not be used on or near any unimproved forest-covered, brush-covered or grass-covered land unless the engine's exhaust system is equipped with a spark arrester meeting applicable local or state laws (if any). If a spark arrester is used, it should be maintained in effective working order by the operator. In the State of California the above is required by law (Section 4442 of the California Public Resources Code). Other states may have similar laws. Federal laws apply on federal lands. A spark arrester for the muffler is available through your nearest engine authorized service dealer or contact the service department, P.O. Box 368022 Cleveland, Ohio 44136-9722.

MTD PRODUCTS INC. P.O. BOX 368022 CLEVELAND, OHIO 44136-9722

SECTION 1: IMPORTANT SAFE OPERATION PRACTICES



WARNING: THIS SYMBOL POINTS OUT IMPORTANT SAFETY INSTRUCTIONS WHICH, IF NOT FOLLOWED, COULD ENDANGER THE PERSONAL SAFETY AND/OR PROPERTY OF YOURSELF AND OTHERS. READ AND FOLLOW ALL INSTRUCTIONS IN THIS MANUAL BEFORE ATTEMPTING TO OPERATE YOUR UNIT. WHEN YOU SEE THIS SYMBOL- HEED ITS WARNING.



Danger: This cutting machine is capable of amputating hands and feet and throwing objects. Failure to observe the following safety instructions could result in serious injury or death.

1. GENERAL OPERATION

- Read, understand, and follow all instructions in the manual before attempting to attach and operate your tiller. Keep this manual in a safe place for future reference and for ordering replacement parts.
- Only allow responsible adults familiar with both the tiller and tractor instructions to operate the machine. Know controls and how to stop the machine quickly.
- Do not put hands or feet under or near rotating parts. Keep clear of tiller tines at all times.
- Clear the area of objects such as rocks, toys, wire, etc. which could become caught in the tiller tines. Always wear safety glasses or eye shields during operation or while performing an adjustment or repair, to protect eyes from foreign objects.
- Be sure the area is clear of other people and pets before tilling. Stop machine if anyone enters area.
- Never carry passengers. Only the operator should ride on the unit and only ride in the seat.
- Disengage tiller before shifting into reverse and backing up. Always look down and behind before and while backing.
- Slow down before turning. Operate the tractor smoothly. Avoid erratic operation and excessive speed.
- Never leave a running machine unattended. Always disengage attachment, place transmission in neutral, set park brake, stop engine and remove key before dismounting.
- Raise and disengage tiller before making sharp turns. Leaving tiller lowered and engage may adversely offset steering/control of machine.
- Disengage tiller when not tilling.
- Stop engine and wait until tiller comes to a complete stop before making any repairs, adjusting or removing any rocks or debris.
- Till only in good daylight or good artificial light.
- Do not operate the machine while under the influence of alcohol or drugs.
- Watch for traffic when operating near or crossing roadways.
- Use extra care when loading or unloading the machine into a trailer or truck. This unit should not be driven up or down a ramp onto a trailer or truck under power, because the unit could tip over, causing serious personal injury. The unit must be pushed manually to load or unload properly.
- Wear sturdy, rough-soled work shoes and close-fitting slacks and shirts. Do not wear loose fitting clothes or jewelry. They can be caught in moving parts. Never operate a unit in bare feet, sandals, or sneakers.
- Check overhead clearance carefully before driving under power lines, wires, bridges or low hanging tree branches, before entering or leaving buildings, or in any other situation where the operator may be struck or pulled from the unit, which could result in serious injury.
- Disengage all attachment clutches, thoroughly depress the brake pedal, and shift into neutral before attempting to start engine.

2. Slope Operation

- Slopes are a major factor related to loss of control and tip-over accidents which can result in severe injury or death. All slopes require extra caution. If you cannot back up the slope or if you feel uneasy on it, do not till on it.

DO:

- Till up and down slopes, not across.
- Remove obstacles such as rocks, limbs, etc.
- Watch for holes, ruts, bumps, and objects hidden under the soil (e.g. rocks). Uneven terrain could overturn the machine.
- Use slow speed. Choose a low enough gear so that you will not have to stop or shift while on the slope. Always keep tractor in gear when going down slopes to take advantage of engine braking action.

- Keep all movement on the slopes slow and gradual. Do not make sudden changes in speed or direction. Rapid engagement or braking could cause the front of the machine to lift.
- Avoid starting or stopping on a slope. If tires loose traction, disengage tiller and proceed slowly straight down the slope.
- For your safety, use the slope gauge included as part of this manual to measure slopes before operating this unit on a sloped or hilly area. If the slope is greater than 15 degrees as shown on the slope gauge, do not operate this unit on that area or serious injury could result.

DO NOT:

- Do not turn on slopes unless necessary; then, turn slowly and gradually downhill, if possible.
- Do not operate unit near drop-offs, ditches or embankments. A wheel over the edge or an edge caving in could cause sudden overturn.
- Do not operate tractor on wet grass. Reduced traction could cause sliding.
- Do not try to stabilize the machine by putting your foot on the ground.

3. Children

- Tragic accidents can occur if the operator is not alert to the presence of children. Children are often attracted to the machine and the tilling activity. Never assume that children will remain where you last saw them.
- Keep children out of the tilling area and in watchful care of an adult other than the operator.
- Be alert and turn machine off if children enter the area.
- Before and when backing, look behind and down for small children.
- Never carry children. They may fall off and be seriously injured or interfere with the safe machine operation.



Danger: Your unit was built to be operated according to the rules for safe operation in this manual. As with any type of power equipment, carelessness or error on the part of the operator can result in serious injury. If you violate any of these rules, you may cause serious injury to yourself or others.

- Never allow children to operate the machine.
- Use extra care when approaching blind corners, shrubs, trees or other objects that may obscure vision.

4. Service

- Use extra care in handling gasoline and other fuels. They are flammable and vapors are explosive.
- Use only an approved container.
- Never remove gas cap or add fuel with the engine running. Allow engine to cool at least two minutes before refueling. Do not smoke.
- Never refuel the machine indoors.
- Never store the machine or fuel container inside where there is an open flame, or spark, such as a water heater, space heater, clothes dryer and the like.
- Never run a machine inside a closed area.
- Check frequently and keep nuts and bolts tight and keep equipment in safe working condition.
- Never tamper with safety devices. Check their proper operation regularly. Use all guards as instructed in this manual.
- To reduce fire hazard, keep machine free of grass, leaves or other debris build-up. Clean up oil or fuel spillage. Allow machine to cool before storing.
- Stop and inspect the equipment for damage if you strike an object (e.g. rock). Repair, if necessary, before re-starting and operating the machine.
- Never make adjustments or repairs with the engine running.
- Check brake operation frequently. Adjust and service as required.
- Muffler, engine, and belt guards become hot during operation and can cause a burn. Allow to cool down before touching.
- Do not change the engine governor settings or overspeed the engine.

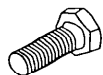
SECTION 2: SET-UP

CONTENTS OF HARDWARE PACK

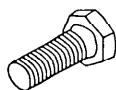
(F) Lock Washer (6)



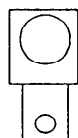
(E) Hex Bolts 5/16" - 24 x 7/8" long (6)



(M) Hex bolts 1/4" - 20 x 1.25" long



(P) Ferrule (1)



(J) Hairpin Clip (2)



(V) Split Spacers .505" ID x 5/8" O.D. (2)



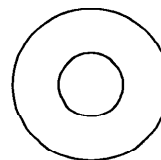
(O) Hex Nuts 1/4" - 24 Thd. (2)



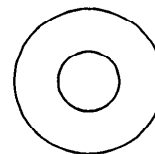
(G) Hex Nuts 5/16" - 24 Thd. (6)



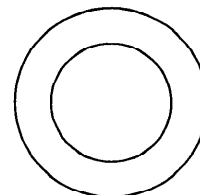
(B) Flat Washer 1/2" I.D. x 1-1/2" O.D. (1)



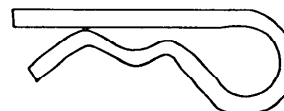
(C) Flat Washer 5/8" ID x 1-1/4" O.D. (1)



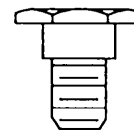
(U) Flat Washer 1/2" ID x 1-1/4" O.D.



(W) Hairpin Clip (1)



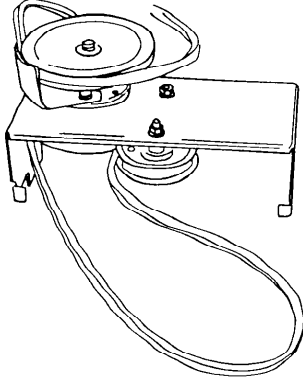
(R) Shoulder Bolt (1)



Not Shown: Extension Springs, Cupped Washers (Not all units will require all hardware.)

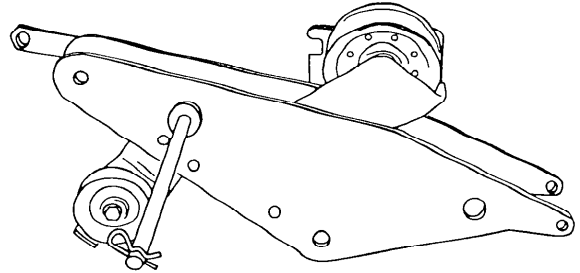
LOOSE PARTS IN CARTON

(AA) (1) Carriage Bracket Assembly



(FF) (1) Lift Rod Assembly

(BB) (1) Tiller Support Assembly



(DD) (2) Compression Springs Not Shown
(10 Tiller Attachment Not Shown)

SECTION 3: ASSEMBLY

NOTE: Some illustrations are shown with the left rear wheel of the tractor removed. It is not necessary to remove the left rear wheel to install the tiller.

NOTE: Right and left hand side of the unit is determined from the driver's seat, facing forward.

- Remove the cutting deck from your tractor if one is attached.
- Expand the tiller support assembly. See Figure 1.

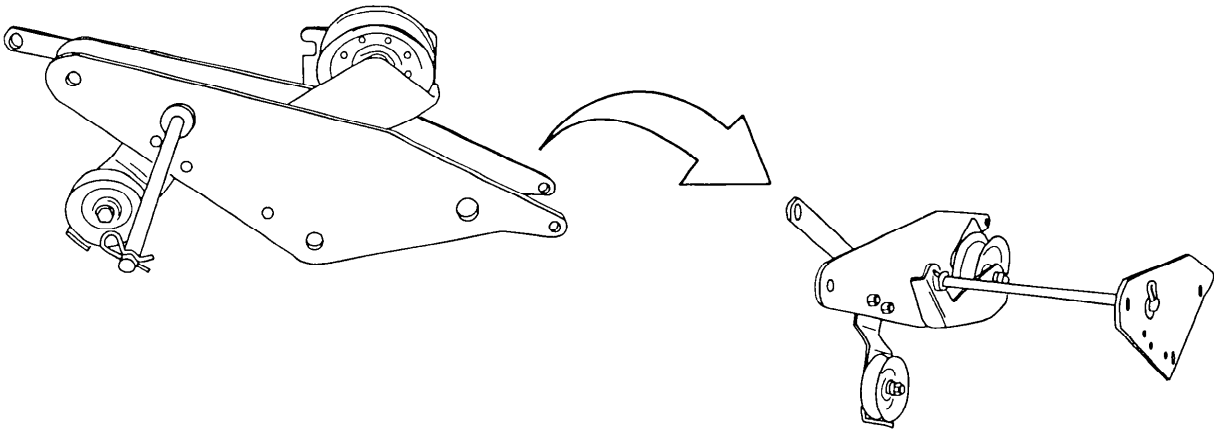


Figure 1

- Remove the two hairpin clips from the shaft on the rear of your tractor. See Figure 2.

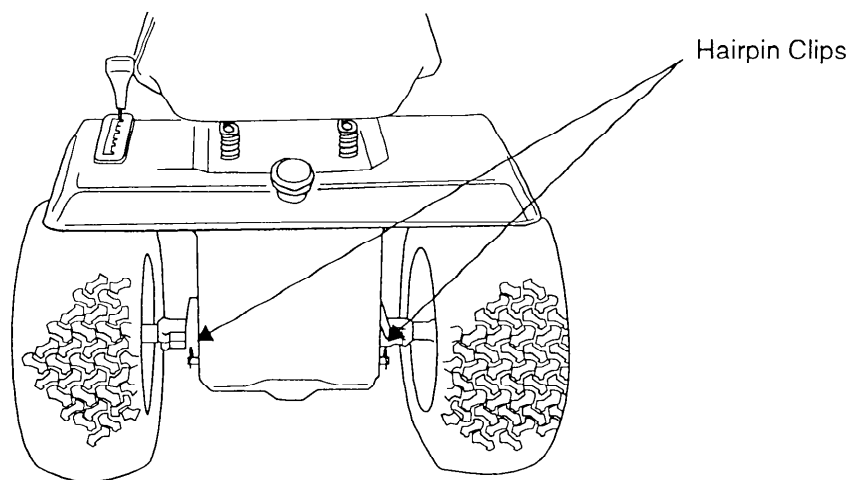


Figure 2

- Place the left plate of the tiller support assembly in position on the rear left hand side of tractor. See Figure 3. Place large hole in pivot bracket over shaft on tractor. Secure with on hairpin clip removed earlier. Slide shaft to the left and rotate the right plate of the tiller support assembly up until the large hole in the plate is aligned with the shaft. Push the shaft to the right, through the hole. Secure with the second hairpin clip earlier removed.

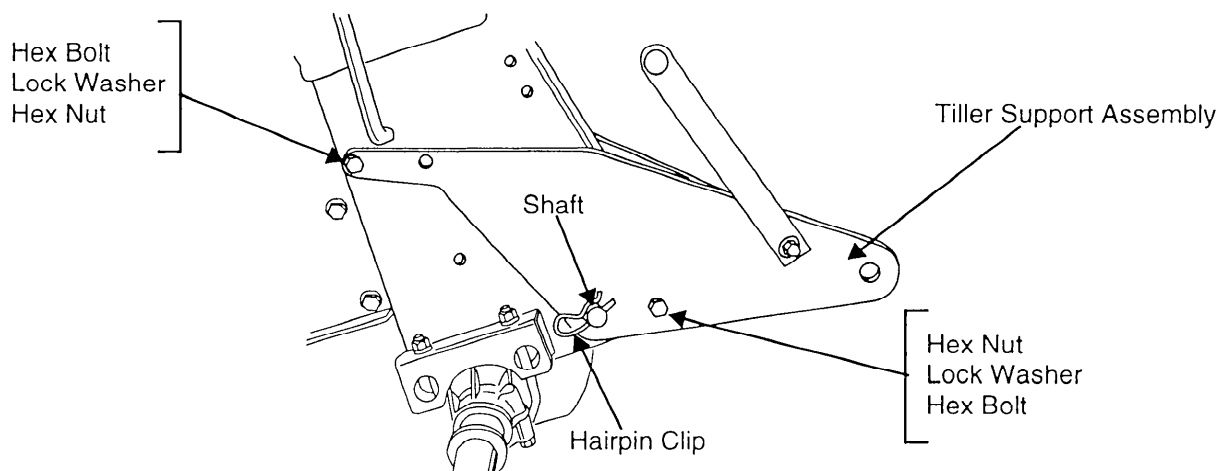


Figure 3

NOTE: Remove the transmission cover for easier access when installing the support pivot brackets to the tractor frame.

- Align the holes in the support pivot bracket with the holes in the tractor frame. Secure the support pivot bracket to the tractor frame with hex bolts (E), lock washers (F) and hex nuts (G) as shown in Figure 3.
- Tighten securely all four nuts and bolts which were used in assembly of pivot support brackets.

- Place carriage bracket assembly (AA) in position beneath the running board support rod on the tractor so belt will attach to engine pulley. Secure each side of carriage bracket to frame with hex bolts (E), lock washers (F) and hex nuts (G). Tighten securely. See Figure 4.

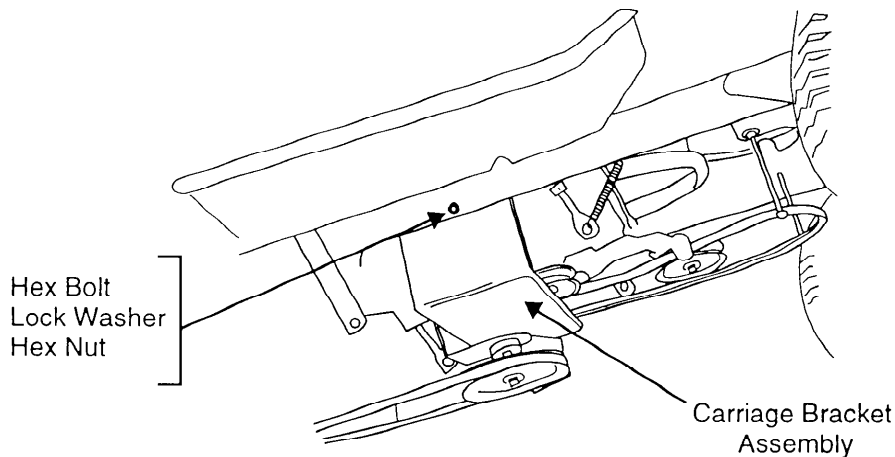


Figure 4

NOTE: If your tractor is so equipped, remove the round belt guard from the idler on tractor by removing the hairpin clip. See Figure 5.

- Remove the engine pulley belt guard by either unscrewing the belt guard release and swinging the engine pulley belt guard out of the way or by removing the two long hex bolts which act as belt keepers. See Figure 5.

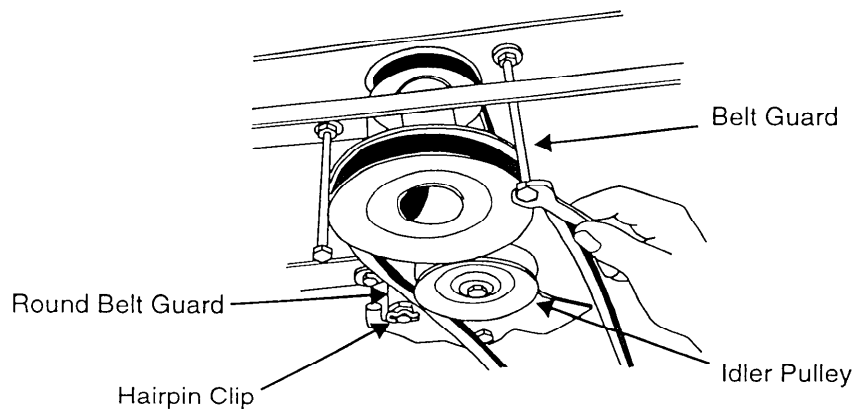


Figure 5

- Place the belt which is preassembled to the carriage bracket assembly around the idler pulley and engine pulley on the tractor.
- Reassemble the round belt guard and hairpin clip (if removed). Reassemble the engine pulley belt guard(s).
- Place in position behind the tractor.
- There is a weld pin on the front of the tiller on the right hand side. Push the tiller forward, then to the left so the weld pin goes through the bottom hole in the right hand pivot support bracket.
- Secure the weld pin using flat washer (D) (1/2" I.D. x 1" O.D.) and hairpin clip (J).
- Secure the left hand side of tiller to the support pivot bracket using shoulder bolt, lock washer and hex jam nut provided. Head of the shoulder bolt must be to the inside of the tiller. See Figure 6.

NOTE: It may be necessary to loosen the tiller drive pulley to insert the shoulder bolt through the tiller frame. If you do not need to loosen the pulley, ensure that it is retightened before use.

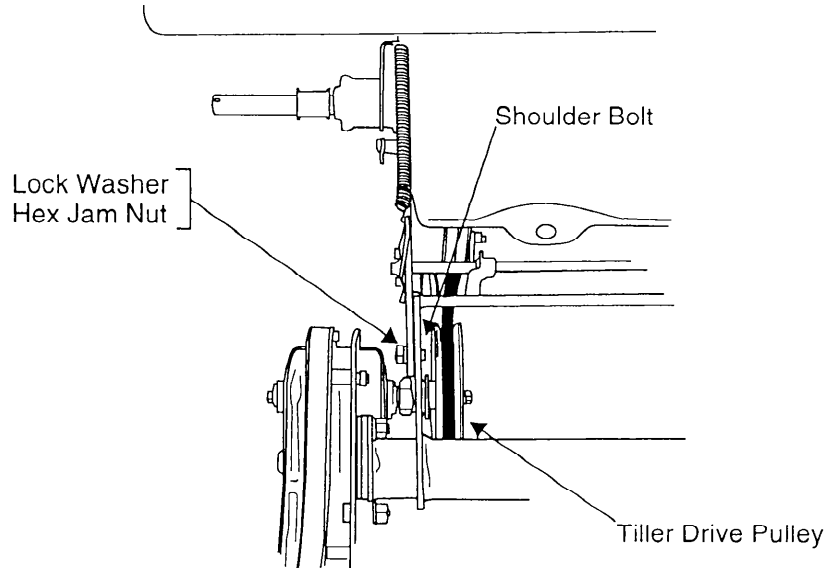


Figure 6

- Thread the adjustment ferrule (P) onto the end of the lift rod assembly a few turns. Slide the ferrule and the lift rod assembly through the slot in the right hand tractor fender.

NOTE: On models prior to 1984, it is necessary to extend the slot in the fender approximately 1-1/2" further down toward the running board. The slot should measure approximately 4-3/8".

- Attach the lift rod assembly to the rod which is part of the pivot bracket assembly as follows. See Figure 7.

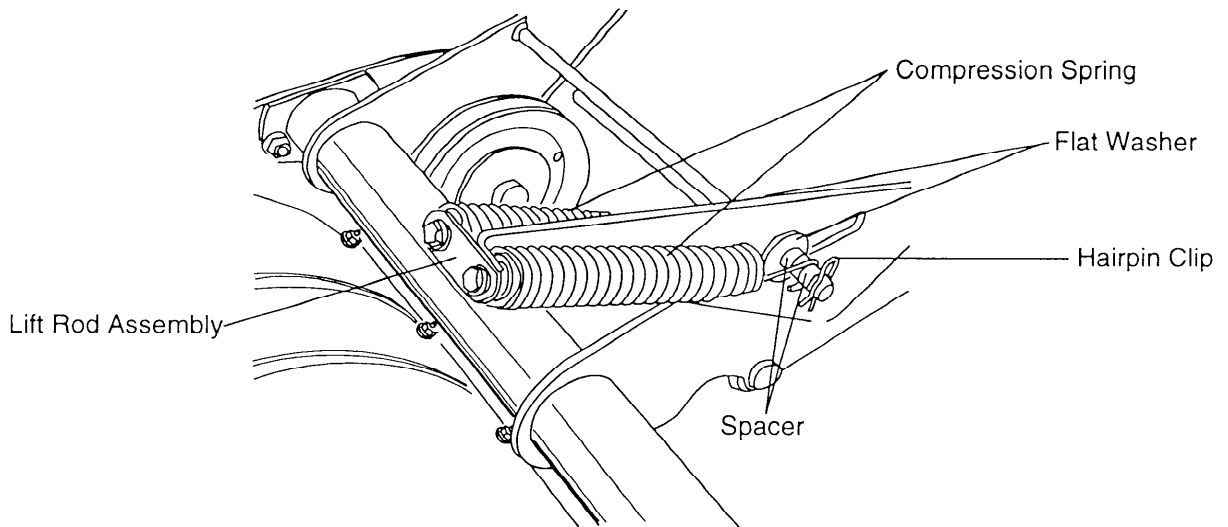


Figure 7

- Place flat washer (U) over the rod on the pivot bracket assembly.
- Slide the slot on the bracket (part of the lift rod assembly) over the rod (bracket must point upward).
- Place one flat washer (B) over rod, then two spacers (V). Secure with hairpin clip (W).
- Place one flat washer (X) (3/8" I.D. x 5/8" O.D.) over one hex bolt (Y) (5/16-18 x 3-1/4" Lg.). Hook on compression spring between the two spacers just assembled in the step above. Insert the hex bolt (Y) through the bracket on the lift rod assembly and start it into the compression spring.

- Start the other spring in the same manner, hooking it over the rod on the pivot bracket assembly (to the inside of the bracket). Now tighten both bolts (Y) securely.
- Move the lift lever on the tractor to the second notch on the index bracket as shown in Figure 8.

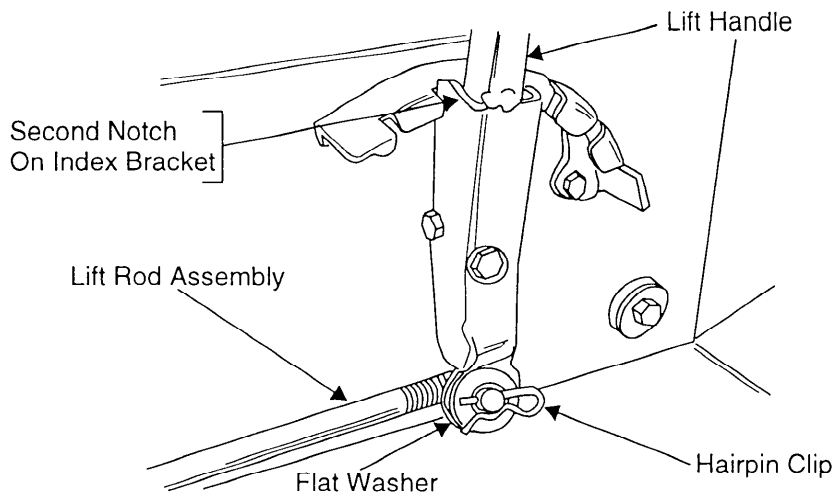
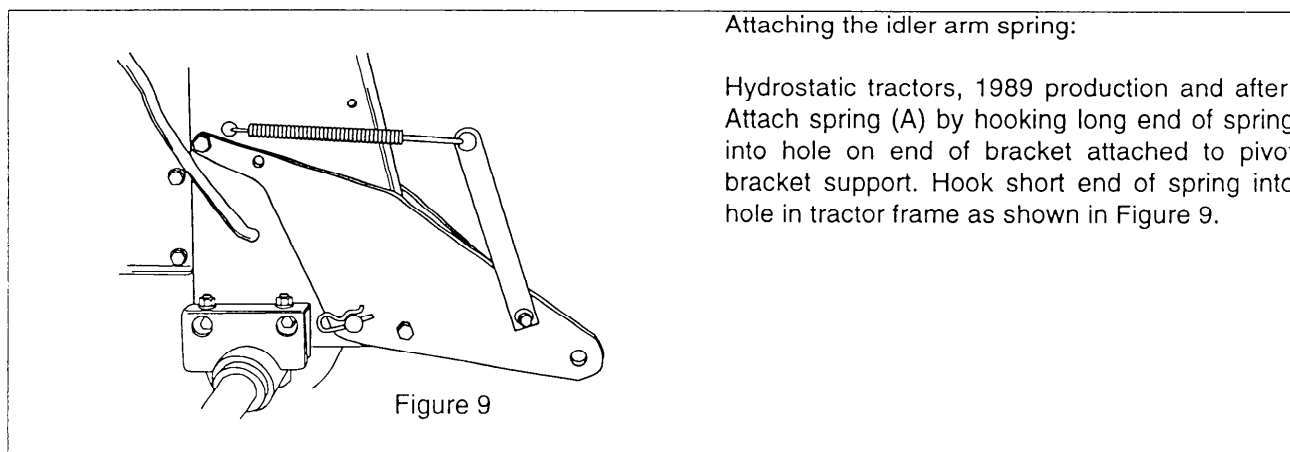
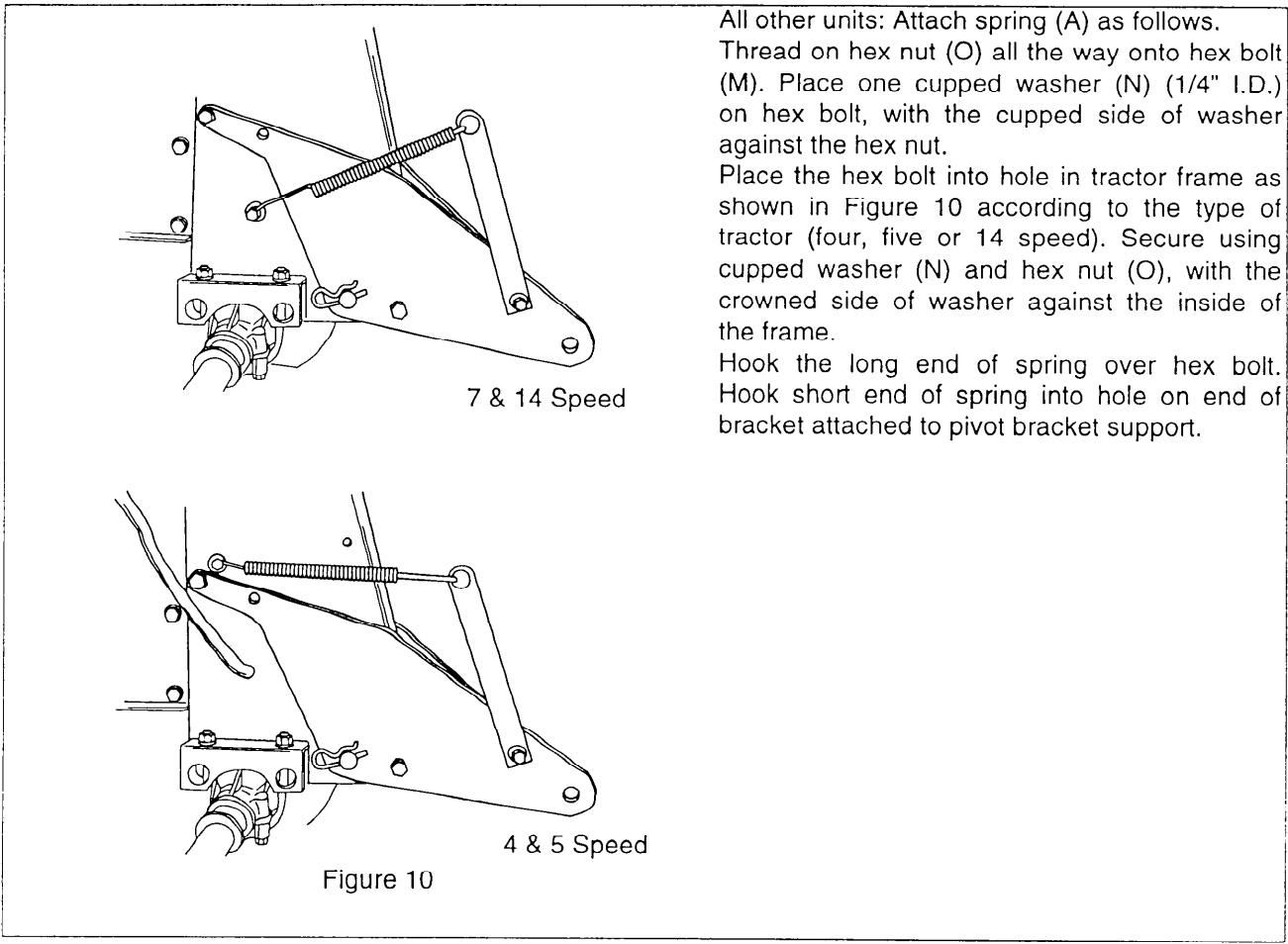


Figure 8

- Place a board under the tines. Thread the ferrule onto or off of the lift rod until it lines up with the bottom hole in the lift handle. Secure ferrule to lift handle using flat washer (C) and hairpin clip (J). See Figure 8.

NOTE: Refer to SECTION 4: OPERATION for additional adjustment information.





All other units: Attach spring (A) as follows. Thread on hex nut (O) all the way onto hex bolt (M). Place one cupped washer (N) (1/4" I.D.) on hex bolt, with the cupped side of washer against the hex nut. Place the hex bolt into hole in tractor frame as shown in Figure 10 according to the type of tractor (four, five or 14 speed). Secure using cupped washer (N) and hex nut (O), with the crowned side of washer against the inside of the frame. Hook the long end of spring over hex bolt. Hook short end of spring into hole on end of bracket attached to pivot bracket support.

Assemble belt as follows. See Figure 11.

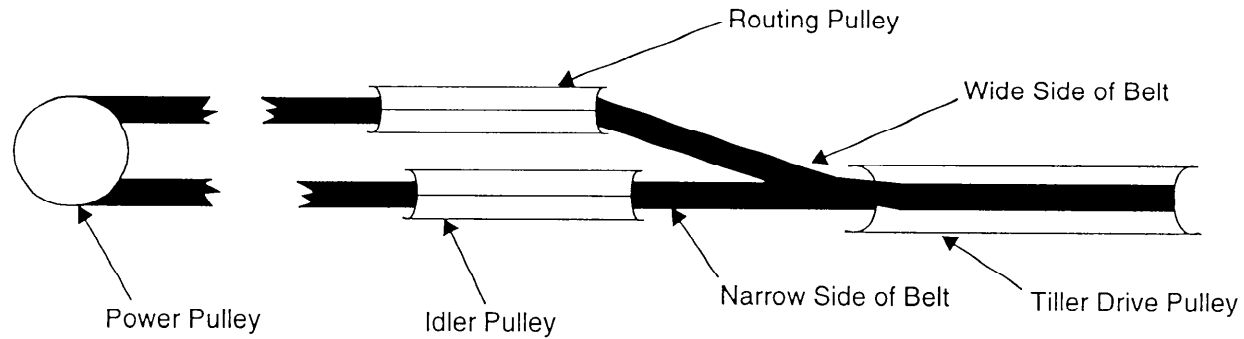


Figure 11

- Route belt from power pulley under idler pulley (narrow side of belt in groove of pulley).
- Slip belt up and over the tiller drive pulley ("V" side of belt goes in the pulley groove).
- Route belt so that wide side of belt goes under the routing pulley.
- Twist the belt 90 degrees to the right. Slip the belt around the power pulley on the tractor.

NOTE: The tines on the tiller are designed to rotate in the opposite direction of the wheels on the tractor. If they rotate in the same direction as the wheels, the belt is twisted in the wrong direction. Unhook the belt from the drive pulley and twist in the opposite direction.

- If there are holes provided in the tractor frame, hook the lift links up out of the way using the four extension springs (K). See Figure 12.

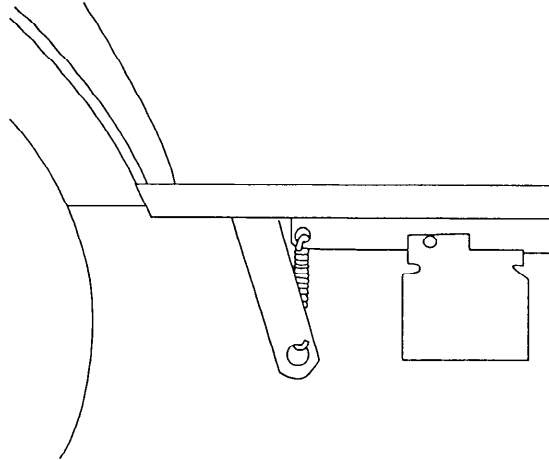


Figure 12

SECTION 4: OPERATION

CONTROLS

LIFT LEVER: The lift lever which is used to raise and lower the tiller and provide tilling depth adjustment is located on the right hand side of the tractor. To raise the tiller, pull back on the lift lever. To transport the tiller, place lift lever in the highest position.

P.T.O. LEVER: The P.T.O. lever is located on the right hand side of the tractor. The tines are engaged by lifting the P.T.O. lever to the "Engaged" position. Lower the P.T.O. lever to the "Disengaged" position to stop the tine rotation.

HOW TO USE YOUR TILLER

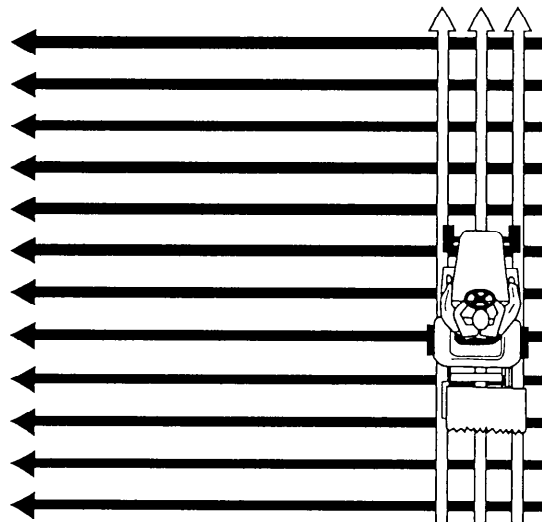


Figure 13

When tilling sod or soil which has not been tilled before, select a shallow tilling depth with the lift lever, and use a slow ground speed. For further depth, lower the lift lever and make several more passes over the area, each time tiling at right angles to the previous pass. See Figure 13.

When tilling loose soil, use a higher ground speed. Use the highest ground speed for pulverizing soil or for transporting the tiller.

For best results always till the ground at least twice (lengthwise, then widthwise) as shown in Figure 13.

ADJUSTMENT FERRULE

The adjustment ferrule on the lift rod assembly provides additional tilling depth adjustment. Recommended adjustment is as follows.

- Place lift lever in second position.
- Place a board under the tines and adjust the ferrule to fit into lift lever.

This adjustment provides approximately 3" ground clearance with the lift lever in the highest position (for transport).

Move the ferrule further back on the rod to reduce the tilling depth

SECTION 5: MAINTENANCE

CHAIN CASE LUBRICATION

The chain case is sealed at the factory and does not require checking or changing. If the chain case is disassembled for repair, replace the grease with 20 ounces of Plastilube "0" grade grease (part number 737-0133, 14 ounce container).

BEARING CUP

At least once a season, remove the bearing cup on the right hand side of the tiller housing. See Figure 14. Clean and refill with 2 ounce of Plastilube "0" grade grease (part number 737-0133).

LIMITED TORQUE PULLEY

If the limited torque pulley clutch is disassembled for any reason, reassemble as shown on page 13. Using a torque wrench, tighten the first hex jam nut to 350 in. lbs., then lock it in place with the second hex jam nut.

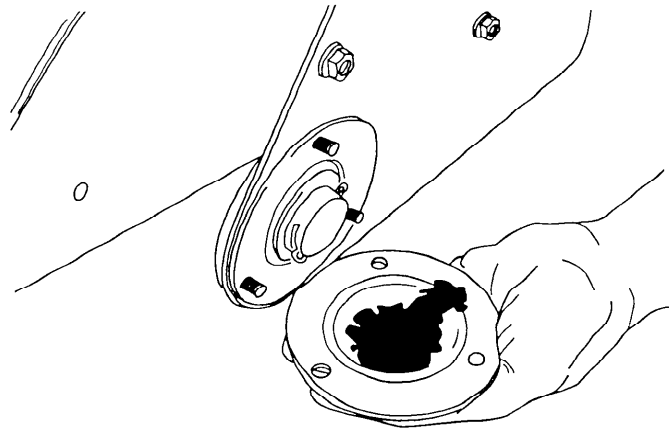


Figure 14