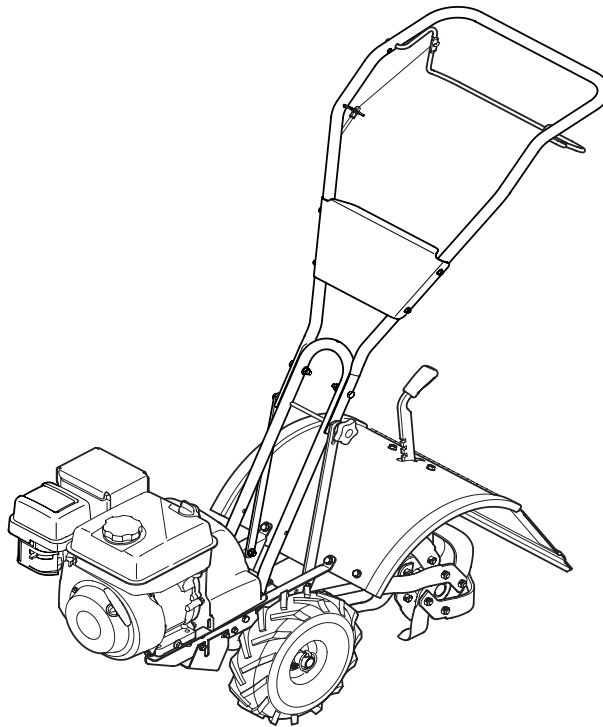




## OPERATOR'S MANUAL



### Rear Tine Tiller — Bronco

#### **⚠ WARNING**

**READ AND FOLLOW ALL SAFETY RULES AND INSTRUCTIONS IN THIS MANUAL  
BEFORE ATTEMPTING TO OPERATE THIS MACHINE.  
FAILURE TO COMPLY WITH THESE INSTRUCTIONS MAY RESULT IN PERSONAL INJURY.**

TROY-BILT LLC, P.O. BOX 361131 CLEVELAND, OHIO 44136-0019

## Thank You

Thank you for purchasing a Troy-Bilt Garden Tiller. It was carefully engineered to provide excellent performance when properly operated and maintained.

Please read this entire manual prior to operating the equipment. It instructs you how to safely and easily set up, operate and maintain your machine. Please be sure that you, and any other persons who will operate the machine, carefully follow the recommended safety practices at all times. Failure to do so could result in personal injury or property damage.

All information in this manual is relative to the most recent product information available at the time of printing. Review this manual frequently to familiarize yourself with the machine, its features and operation. Please be aware that this Operator's Manual may cover a range of product specifications for various models. Characteristics and features discussed and/or illustrated in this manual may not be applicable to all models. We reserve the right to change product specifications, designs and equipment without notice and without incurring obligation.

If you have any problems or questions concerning the machine, phone a authorized Troy-Bilt service dealer or contact us directly. Troy-Bilt's Customer Support telephone numbers, website address and mailing address can be found on this page. We want to ensure your complete satisfaction at all times.

Throughout this manual, all references to *right* and *left* side of the machine are observed from the operating position

The engine manufacturer is responsible for all engine-related issues with regards to performance, power-rating, specifications, warranty and service. Please refer to the engine manufacturer's Owner's/Operator's Manual, packed separately with your machine, for more information.

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## Record Product Information

Before setting up and operating your new equipment, please locate the model plate on the equipment and record the information in the provided area to the right. You can locate the model plate by standing at the operator's position and looking down at the front right corner of the tine shield. This information will be necessary, should you seek technical support via our web site, Customer Support Department, or with a local authorized service dealer.

### MODEL NUMBER

--	--	--	--	--	--	--	--	--	--	--

### SERIAL NUMBER

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## Customer Support

**Please do NOT return the machine to the retailer or dealer without first contacting our Customer Support Department.**

If you have difficulty assembling this product or have any questions regarding the controls, operation, or maintenance of this machine, you can seek help from the experts. Choose from the options below:

- ◇ Visit us on the web at [www.troybilt.com](http://www.troybilt.com)
- ◇ Call a Customer Support Representative at (800) 828-5500 or (330) 558-7220
- ◇ Write us at Troy-Bilt LLC • P.O. Box 361131 • Cleveland, OH • 44136-0019



**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 this machine. Failure to comply with these instructions may result in personal injury.

When you see this symbol. **HEED ITS WARNING!**

## CALIFORNIA PROPOSITION 65



**WARNING!** Engine Exhaust, some of its constituents, and certain vehicle components contain or emit chemicals known to State of California to cause cancer and birth defects or other reproductive harm.



**WARNING!** Battery posts, terminals, and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and reproductive harm. *Wash hands after handling*



**DANGER!** This machine was built to be operated according to the safe operation practices in this manual. As with any type of power equipment, carelessness or error on the part of the operator can result in serious injury. This machine is capable of amputating fingers, hands, toes and feet. Failure to observe the following safety instructions could result in serious injury or death.

## Training

1. Read, understand, and follow all instructions on the machine and in the manual(s) before attempting to assemble and operate. Keep this manual in a safe place for future and regular reference and for ordering replacement parts.
2. Be familiar with all controls and their proper operation. Know how to stop the machine and disengage them quickly.
3. Never allow children under 14 years of age to operate this machine. Children 14 and over should read and understand the instructions and safe operation practices in this manual and on the machine and be trained and supervised by an adult.
4. Never allow adults to operate this machine without proper instruction.
5. Keep the area of operation clear of all persons, particularly small children and pets. Stop machine if anyone enters the area.
2. Wear sturdy, rough-soled work shoes and close fitting slacks and shirt. Loose fitting clothes or jewelry can be caught in moving parts. Never operate this machine in bare feet or sandals.
3. Disengage clutch levers and shift (if provided) into neutral ("N") before starting the engine.
4. Never leave this machine unattended with the engine running.
5. Never attempt to make any adjustments while engine is running, except where specifically recommended in the operator's manual.

## Safe Handling of Gasoline:

To avoid personal injury or property damage use extreme care in handling gasoline. Gasoline is extremely flammable and the vapors are explosive. Serious personal injury can occur when gasoline is spilled on yourself or your clothes which can ignite. Wash your skin and change clothes immediately.

- a. Use only an approved gasoline container.
- b. Never fill containers inside a vehicle or on a truck or trailer bed with a plastic liner. Always place containers on the ground away from your vehicle before filling.

## Preparation

1. Thoroughly inspect the area where the equipment is to be used. Remove all stones, sticks, wire, and other foreign objects which could be tripped over and cause personal injury.

- c. When practical, remove gas-powered equipment from the truck or trailer and refuel it on the ground. If this is not possible, then refuel such equipment on a trailer with a portable container, rather than from a gasoline dispenser nozzle.
  - d. Keep the nozzle in contact with the rim of the fuel tank or container opening at all times until fueling is complete. Do not use a nozzle lock-open device.
  - e. Extinguish all cigarettes, cigars, pipes and other sources of ignition.
  - f. Never fuel machine indoors.
  - g. Never remove gas cap or add fuel while the engine is hot or running. Allow engine to cool at least two minutes before refueling.
  - h. Never over fill fuel tank. Fill tank to no more than ½ inch below bottom of filler neck to allow space for fuel expansion.
  - i. Replace gasoline cap and tighten securely.
  - j. If gasoline is spilled, wipe it off the engine and equipment. Move unit to another area. Wait 5 minutes before starting the engine.
  - k. To reduce fire hazards, keep machine free of grass, leaves, or other debris build-up. Clean up oil or fuel spillage and remove any fuel soaked debris.
  - l. Never store the machine or fuel container inside where there is an open flame, spark or pilot light as on a water heater, space heater, furnace, clothes dryer or other gas appliances.
11. After striking a foreign object, stop the engine, disconnect the spark plug wire and ground against the engine. Thoroughly inspect the machine for any damage. Repair the damage before starting and operating.
  12. Disengage all clutch levers (if fitted) and stop engine before you leave the operating position (behind the handles). Wait until the tines come to a complete stop before unclogging the tines, making any adjustments, or inspections.
  13. Never run an engine indoors or in a poorly ventilated area. Engine exhaust contains carbon monoxide, an odorless and deadly gas.
  14. Muffler and engine become hot and can cause a burn. Do not touch.
  15. Use caution when tilling near fences, buildings and underground utilities. Rotating tines can cause property damage or personal injury.
  16. Do not overload machine capacity by attempting to till soil too deep at too fast of a rate.
  17. If the machine should start making an unusual noise or vibration, stop the engine, disconnect the spark plug wire and ground it against the engine. Inspect thoroughly for damage. Repair any damage before starting and operating.
  18. Keep all shields, guards, and safety devices in place and operating properly.
  19. Never pick up or carry machine while the engine is running.
  20. Use only attachments and accessories approved by the manufacturer. Failure to do so can result in personal injury.
  21. If situations occur which are not covered in this manual, use care and good judgement. Contact Customer Support for assistance and the name of you nearest servicing dealer..

## Operation

1. Do not put hands or feet near rotating parts. Contact with the rotating parts can amputate hands and feet.
2. Do not operate machine while under the influence of alcohol or drugs.
3. Never operate this machine without good visibility or light. Always be sure of your footing and keep a firm hold on the handles.
4. Keep bystanders away from the machine while it is in operation. Stop the machine if anyone enters the area.
5. Be careful when tilling in hard ground. The tines may catch in the ground and propel the tiller forward. If this occurs, let go of the handle bars and do not restrain the machine.
6. Exercise extreme caution when operating on or crossing gravel surfaces. Stay alert for hidden hazards or traffic. Do not carry passengers.
7. Never operate the machine at high transport speeds on hard or slippery surfaces.
8. Exercise caution to avoid slipping or falling.
9. Look down and behind and use care when in reverse or pulling machine towards you.
10. Start the engine according to the instructions found in this manual and keep feet well away from the tines at all times.

## Maintenance & Storage

1. Keep machine, attachments and accessories in safe working order.
2. Allow a machine to cool at least five minutes before storing. Never tamper with safety devices. Check their proper operation regularly.
3. Check bolts and screws for proper tightness at frequent intervals to keep the machine in safe working condition. Also, visually inspect machine for any damage.
4. Before cleaning, repairing, or inspecting, stop the engine and make certain the tines and all moving parts have stopped. Disconnect the spark plug wire and ground it against the engine to prevent unintended starting.
5. Do not change the engine governor settings or over-speed the engine. The governor controls the maximum safe operating speed of engine.
6. Maintain or replace safety and instruction labels, as necessary.
7. Follow this manual for safe loading, unloading, transporting, and storage of this machine.
8. Always refer to the operator's manual for important details if the machine is to be stored for an extended period.

9. If the fuel tank has to be drained, do this outdoors.
10. Observe proper disposal laws and regulations for gas, oil, etc. to protect the environment.
11. According to the Consumer Products Safety Commission (CPSC) and the U.S. Environmental Protection Agency (EPA), this product has an *Average Useful Life* of seven (7) years, or 130 hours of operation. At the end of the *Average Useful Life* have the machine inspected annually by an authorized service dealer to ensure that all mechanical and safety systems are working properly and not worn excessively. Failure to do so can result in accidents, injuries or death.

## Notice Regarding Emissions

Engines which are certified to comply with California and federal EPA emission regulations for SORE (Small Off Road Equipment) are certified to operate on regular unleaded gasoline, and may include the following emission control systems: Engine Modification (EM), Oxidizing Catalyst (OC), Secondary Air Injection (SAI) and Three Way Catalyst (TWC) if so equipped.

## Spark Arrestor









**WARNING!** This machine is equipped with an internal combustion engine and should not be used on or near any unimproved forest-covered, brushcovered or grass-covered land unless the engine's exhaust system is equipped with a spark arrestor meeting applicable local or state laws (if any).

If a spark arrestor 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 arrestor for the muffler is available through your nearest engine authorized service dealer or contact the service department, P.O. Box 361131 Cleveland, Ohio 44136-0019.

## Safety Symbols

This page depicts and describes safety symbols that may appear on this product. Read, understand, and follow all instructions on the machine before attempting to assemble and operate.

Symbol	Description
	<b>READ THE OPERATOR'S MANUAL(S)</b> Read, understand, and follow all instructions in the manual(s) before attempting to assemble and operate.
	<b>WARNING— ROTATING TINES</b> Do not put hands or feet near rotating parts. Contact with the rotating parts can amputate hands and feet.
	<b>WARNING— ROTATING TINES</b> Do not put hands or feet near rotating parts. Contact with the rotating parts can amputate hands and feet.
	<b>WARNING— GASOLINE IS FLAMMABLE</b> Allow the engine to cool at least two minutes before refueling.
	<b>WARNING— CARBON MONOXIDE</b> Never run an engine indoors or in a poorly ventilated area. Engine exhaust contains carbon monoxide, an odorless and deadly gas.
	<b>WARNING— HOT SURFACE</b> Engine parts, especially the muffler, become extremely hot during operation. Allow engine and muffler to cool before touching.



**WARNING!** Your Responsibility—Restrict the use of this power machine to persons who read, understand and follow the warnings and instructions in this manual and on the machine.

**SAVE THESE INSTRUCTIONS!**

## Contents of Carton

- One Tiller
- One 20 oz. Bottle SAE 10W30 Oil
- One Handlebar Assembly
- One Operator's Manual
- One Engine Operator's Manual

**NOTE:** This Operator's Manual covers several garden tiller models. The tiller depicted may differ from yours.



**WARNING!** To prevent personal injury or property damage, do not start the engine until all assembly steps are complete and you have read and understand the safety and operating instructions in this manual.

## Recommended Tools for Assembly

- Two ½" open-end wrenches
- Block of wood (to support tiller when removing wheels)
- Tire pressure gauge
- Clean oil funnel
- Motor oil. Refer to the Engine Operator's Manual for oil specifications and quantity required.

## Assembly

### Unpacking Instructions

**NOTE:** While unpacking, do not severely bend any of the control cables.

1. The tiller is heavy, do not attempt to remove it from the shipping platform until instructed to do so in these Assembly steps.
2. Remove any packaging material from the carton. Remove any staples from the bottom of the carton and remove the carton from the shipping platform.
3. Remove all loose parts from the carton. Check that you have the items listed in the Contents of Carton list (contact your local dealer or the factory if items are missing or damaged).

## Handle

**NOTE:** All references to the right or left side of the tiller are from the operator's position.

1. Remove two hex screws (5/16-18 x 1.50), two flange lock nuts (5/16-18), carriage bolt (5/16-18 x 6.75), bell washer (.326 x .875 x .145) and knob (5/16-18) from the lower handlebar and support brackets. See Fig. 3-1.

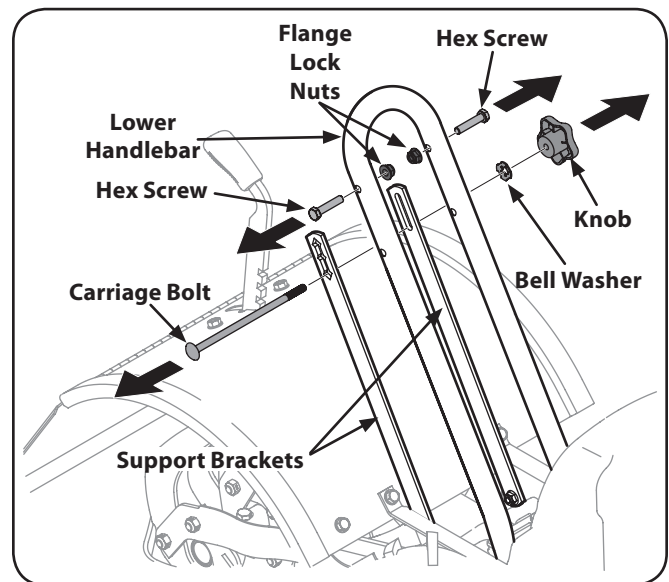


Figure 3-1

- Using two hex screws and two flange lock nuts, loosely attach the handlebar support using the upper holes. Tighten the two screws securely. See Fig. 3-2.

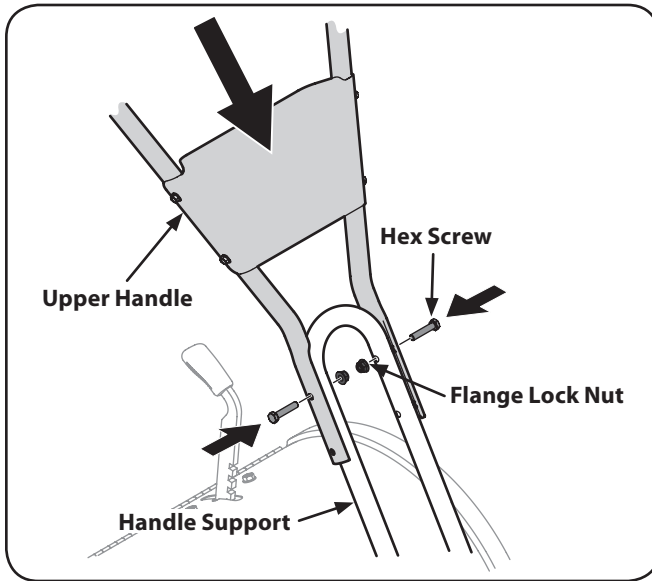


Figure 3-2

- Loosely attach the support brackets to the outside of the handlebar assembly using the carriage bolt, bell washer and knob. Refer to Fig. 3-3.

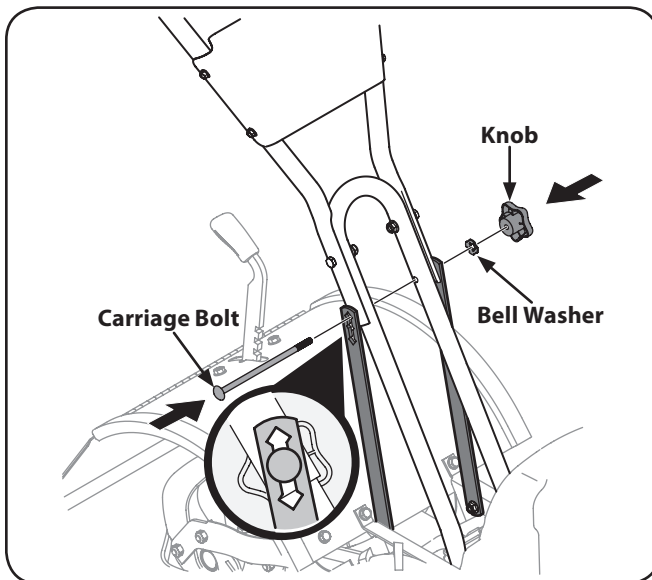


Figure 3-3

**NOTE:** If a support bracket will not move, loosen the attaching hex screws ( $\frac{5}{16}$ -18 x .75) and flange lock nuts ( $\frac{5}{16}$ -18) at the base of the support brackets.

**NOTE:** The support brackets must be assembled to the outside of the handlebar assembly.

- There are three height adjustment holes in the handlebar support bracket. Use a setting that will position the handlebars at approximately waist level when the tines are 3-4" into the soil. To adjust the height of the handlebars loosen the knob on the handle, pull out on the carriage screw, adjust to the desired setting, push the carriage screw in until the square portion of the screw locks into place and re-tighten the knob. See Fig. 3-4.

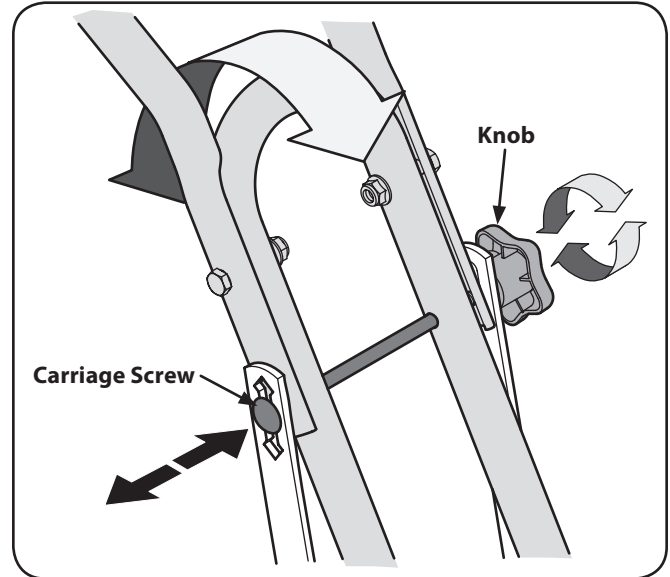


Figure 3-4

- Tighten all the handlebar mounting hardware securely.

### Move Tiller Off Crate

To roll the tiller off the shipping platform, put the wheels in freewheel, as follows:

- Place a sturdy block under the transmission to raise one wheel about 1" off the ground.
- Remove the wheel drive pin from the wheel hub and wheel shaft. See Fig. 3-5.

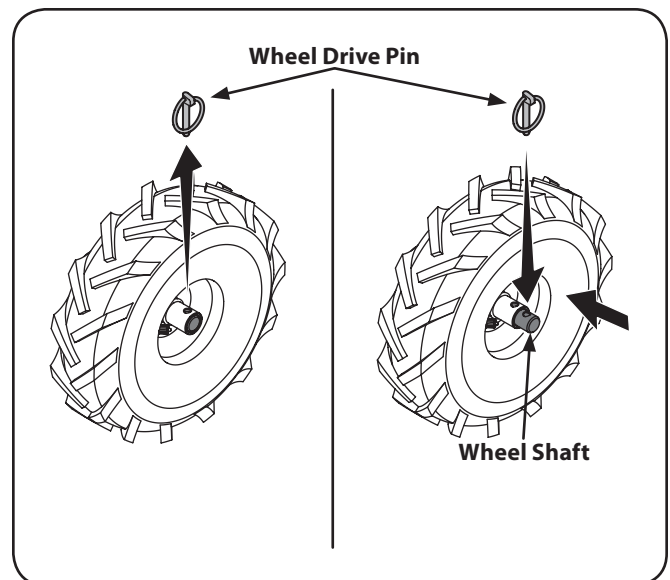


Figure 3-5



- Slide the wheel fully inward on the wheel shaft . Reinstall the wheel drive pin through the wheel shaft only (not through the wheel hub). See Fig. 3-5. The wheel should now spin freely (freewheel) on the wheel shaft. Repeat with the other wheel.
- Use the handlebar to roll the tiller to a flat area.

**NOTE:** Before starting the engine, the wheels must be placed in the WHEEL DRIVE position (pins through wheel hubs and wheel shaft).

### Forward Clutch Cable

- Carefully unwrap the forward clutch cable from its shipping position. Pull the cable up through the bottom hole of the cable bracket and push the cable connector up through the hole until the groove in the connector snaps into place. See Fig. 3-6.

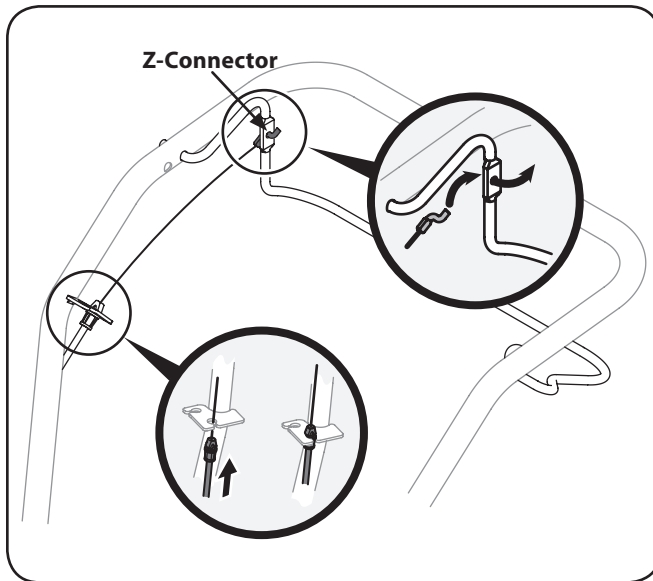


Figure 3-6

- Place the Z-connector into the hole in the forward clutch bail from the outside of the bail to the inside. See Fig. 3-6.

## Set-Up

### Tire Pressure

Check the air pressure with a tire gauge. Deflate or inflate the tires equally to between 15 and 20 PSI.

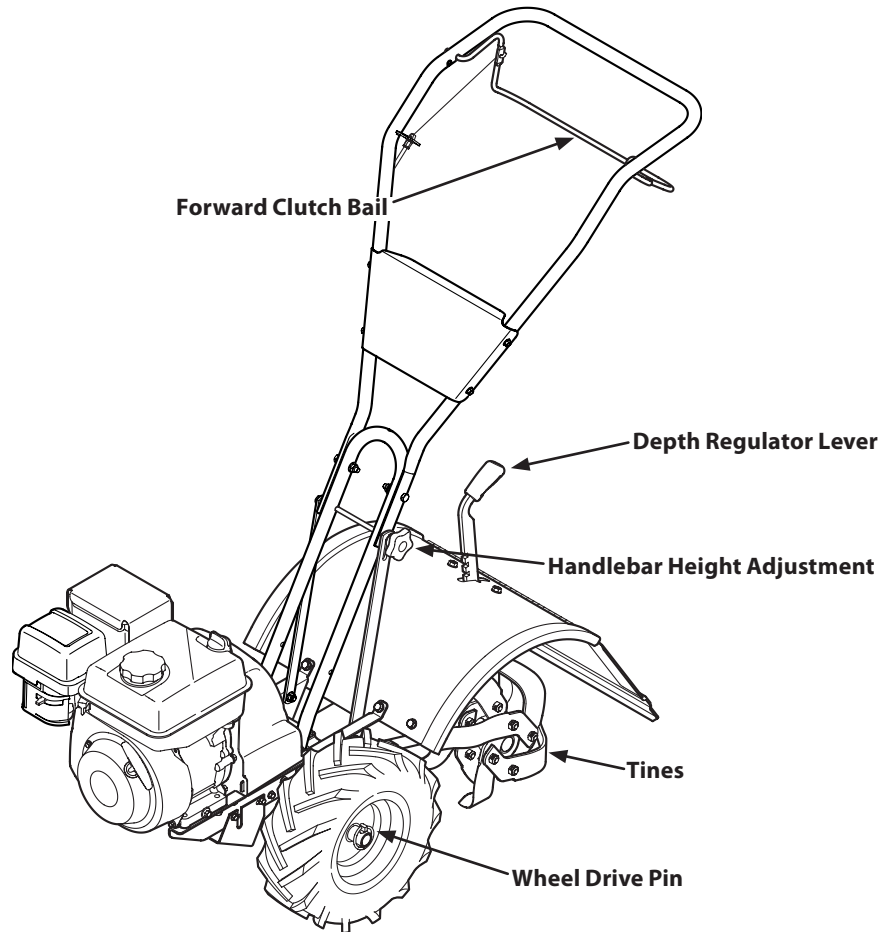
**NOTE:** Be sure that both tires are inflated equally or the tiller will pull to one side.

### Gas & Oil Fill Up



**WARNING!** Use extreme care when handling gasoline. Gasoline is extremely flammable and the vapors are explosive. Never fuel the machine indoors or while the engine is hot or running. Extinguish cigarettes, cigars, pipes and any other sources of ignition.

Service the engine with gasoline and oil as instructed in the Engine Operator's Manual packed separately with your tiller. Read the instructions carefully.



**Figure 4-1**

### **Forward Clutch Bail**

The forward clutch bail controls the engagement of the forward drive of the wheels and tines.

### **Depth Regulator Lever**

This lever controls the tilling depth of the tines. Pull the lever back and slide it up or down to engage the notched height settings.

### **Handlebar Height Adjustment**

The handlebar height is adjustable to three different settings. In general, adjust the handlebars so they are at waist level when the tines are 3-4" in the ground.

**NOTE:** This Operator's Manual covers several garden tiller models. The tiller depicted may differ from yours.

### **Engine Controls**

For detailed information on all engine controls refer to the separate Engine Operator's Manual.

### **Wheel Drive Pins**

Each wheel is equipped with a wheel drive click pin that secures the wheel to the wheel shaft. The wheels can be positioned in either a wheel drive or a freewheel mode.



**WARNING!** Before operating your machine, carefully read and understand this manual and all of its safety, operating and maintenance sections and instructions, along with all of the decals on the machine. Failure to follow these instructions can result in serious personal injury.

## Introduction

Read this Operation Section and the Engine Operator's Manual before you start the engine. Then, take the time to familiarize yourself with the basic operation of the tiller before using it in the garden.

Find an open, level area and practice using the tiller controls without the tines engaging the soil (put tines in "transport" setting).

Only after you've become completely familiar with the tiller should you begin using it in the garden.

## Break-In Operation

Perform the following maintenance after the first five (5) hours of new operation (see Maintenance & Adjustments Section in this manual).

1. Change engine oil.
2. Check for loose or missing hardware on unit. Tighten or replace as needed.
3. Check transmission gear oil level. See the Maintenance & Adjustments section.

## Starting the Engine

### Pre-Start Checklist

With the spark plug wire disconnected from the spark plug, perform the following checks and services before each use.

1. Read the Safe Operation Practices and the Features & Controls Section in this manual. Read the separate Engine Operator's Manual provided with the tiller.
2. Put the wheels in the wheel drive position (wheel pins must be through holes in wheel hubs and wheel shaft).



**WARNING!** Never allow either of the wheels to be in the freewheel position when the engine is running. Always put both wheels in the wheel drive position before starting the engine. Failure to comply could cause loss of tiller control, property damage or personal injury.

3. Check the tiller for loose or missing hardware. Service as required.
4. Check the engine oil level. See the Engine Operator's Manual.
5. Check that all the safety guards and covers are in place.
6. Check the air cleaner and engine cooling system. See the Engine Operator's Manual.

7. Fill the fuel tank with gasoline according to the directions in the separate Engine Operator's Manual. Follow all instructions and safety rules carefully.
8. If necessary, Attach the spark plug wire to the spark plug.

## Starting the Engine



**WARNING!** To help prevent serious personal injury or damage to the equipment, put both wheels in the WHEEL DRIVE position. Never have the wheels in FREEWHEEL position when the engine is running. When the wheels are in FREEWHEEL, they do not hold back the tiller and the tines could propel the tiller rapidly forward or backward. Put the Forward Clutch Bail in neutral (disengaged) positions by releasing the lever.



**WARNING!** Never run the engine indoors or in an enclosed, poorly ventilated area. Engine exhaust contains carbon monoxide, an odorless and deadly gas. Avoid the engine muffler and nearby areas. Temperatures in these areas may exceed 150° F.

1. Complete the Pre-Start Checklist on this page.
2. Put the wheels in the wheel drive position.
3. Move the depth regulator lever all the way down to the "travel" position, so that the tines clear the ground. To change the depth setting, pull back on the depth regulator lever (A) and lift up or down (B), then release the lever (C) to secure in the desired position. See Fig, 5-1.

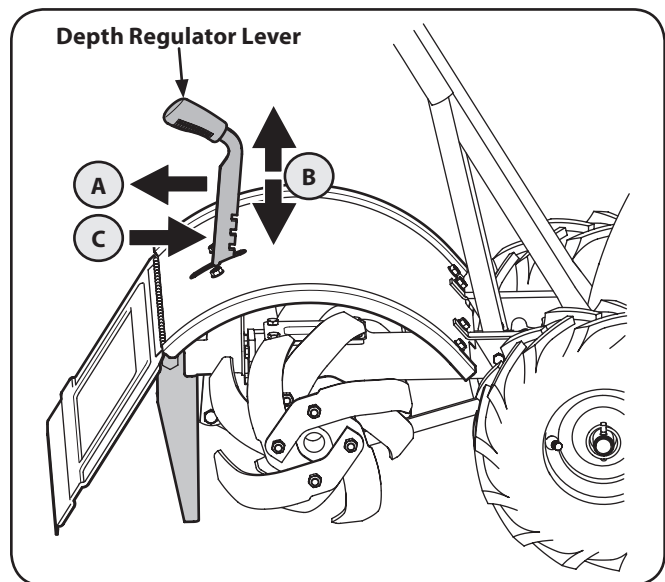


Figure 5-1

4. Release all the controls on the tiller.
5. Start the engine as instructed in the Engine Operator's Manual.

## Stopping the Engine

1. To stop the wheels and tines, release the Forward Clutch Bail.
2. Refer to the Engine Operator's Manual for instructions on stopping the engine.

## Engage Drive & Tines

**NOTE:** The tiller pictured on the following pages is used to demonstrate the operation of the tiller and may not look exactly like your tiller.

1. For forward motion of the wheels and power to the tines pull the forward clutch bail up against the handlebar. Release the bail to stop the forward motion of the wheels and tines. See Fig. 5-2.

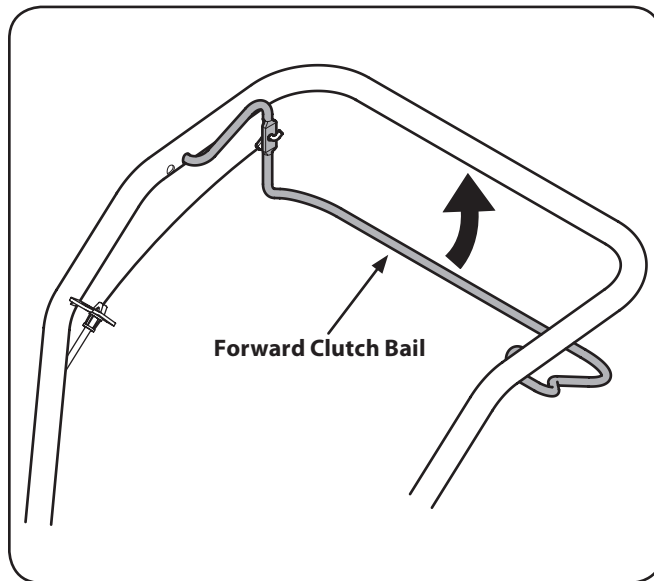


Figure 5-2

2. When tilling, relax and let the wheels pull the machine while the tines dig. Walk behind and a little to one side of the tiller. Use one hand, yet keep a light — but secure — grip on the handlebar (while keeping your arm loose). Let the tiller move at its own pace and do not push down on the handlebars to try and force the tines to dig deeper — this takes weight off the wheels and reduces traction.



**WARNING!** Do not push down on the handlebars to try to make the tiller till more deeply. Doing so takes the weight off the powered wheels, causing them to lose traction. Without the wheels to hold the tiller back, the tines will attempt to propel the tiller backward, towards the operator.

3. To move in reverse:
  - a. Release the forward clutch bail. Then lift the handlebar until the tines are off the ground.
  - b. Swing the handlebar to the left so the right wheel takes a "step" backward. Next swing the handlebar to the right so the left wheel "steps" backward. Repeat as needed.
  - c. If longer distances need to be covered in reverse, shut off the engine, then place the two wheels in freewheel.

## Turning the Tiller

Practice turning the tiller in a level, open area. Be very careful to keep your feet and legs away from the tines.

1. To begin a turn, lift the handlebars until the tines are out of the ground and the engine and tines are balanced over the wheels. See Fig. 5-3.

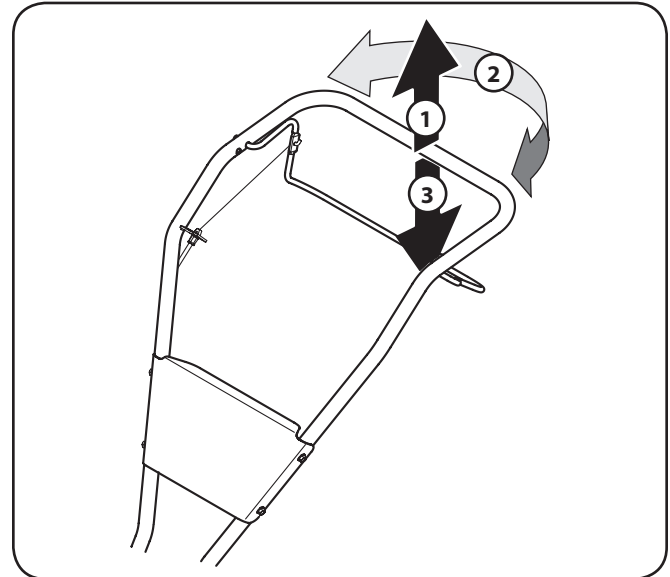


Figure 5-3

2. With the tiller balanced, push sideways on the handlebar to steer in the direction of the turn. See Fig. 5-3.
3. After turning, slowly lower the tines into the soil to resume tilling. See Fig. 5-3.

## Setting The Depth

Tilling depth is controlled by the depth stake which can be adjusted to five different settings. Adjust the side shields as you adjust the depth stake.



**WARNING!** Be certain spark plug wire is disconnected and grounded against the engine when performing any adjustments.

- When using the tiller for the first time, use the second adjustment hole from the top (1" of tilling depth).
- When breaking up sod and for shallow cultivation, use the setting which gives 1" of tilling depth (second hole from the top). Place the side shields in their lowest position.
- For further depth, raise the depth stake and make one or two more passes over the area.
- When tilling loose soil, the depth stake may be raised to its highest position (use bottom adjustment hole) to give the deepest tilling depth.
- To transport tiller, lower the depth stake (use top adjustment hole).

To adjust the depth stake, pull back on the depth adjustment bracket (A) and push up or down (B) until the bracket reaches the desired position and then release the bracket (C). See Fig. 5-1.

## Clearing the Tines

The tines have a self-clearing action which eliminates most tangling of debris in the tines. However, occasionally dry grass, stringy stalks or tough vines may become tangled. Follow these procedures to help avoid tangling and to clean the tines, if necessary.

- To reduce tangling, set the depth regulator deep enough to get maximum “chopping” action as the tines chop the material against the ground. Also, try to till under crop residues or cover crops while they are green, moist and tender.
- While tilling, try swaying the handlebars from side to side (about 6” to 12”). This “fishtailing” action often clears the tines of debris.



**WARNING!** Before clearing the tines by hand, stop the engine, allow all moving parts to stop and disconnect the spark plug wire. Failure to follow this warning could result in personal injury.

## Tilling Tips & Techniques

### Tilling Depth



**WARNING!** Before tilling, contact your telephone or utilities company and inquire if underground equipment or lines are used on your property. Do not till near buried electric cables, telephone lines, pipes or hoses.

- This is a CRT (counter-rotating tine) tiller. As the wheels pull forward, the tines rotate backward. This creates an “uppercut” tine action which digs deeply, uprooting soil and weeds. Don’t overload the engine, but dig as deeply as possible on each pass. On later passes, the wheels may tend to spin in the soft dirt. Help them along by lifting up slightly on the handlebar (one hand, palm up, works most easily).
- Avoid the temptation to push down on the handlebars in an attempt to force the tiller to dig deeper. Doing so takes the weight off the powered wheels, causing them to lose traction. Without the wheels to hold the tiller back, the tines will attempt to propel the tiller backward, towards the operator.

- When cultivating (breaking up surface soil around plants to destroy weeds, see Fig. 5-4), Adjust the tines to dig only 1” to 2” deep. Using shallow tilling depths helps prevent injury to the plants whose roots often grow close to the surface. If needed, lift up on the handlebars slightly to prevent the tines from digging too deeply. (Cultivating on a regular basis not only eliminates weeds, it also loosens and aerates the soil for better moisture absorption and faster plant growth.) Watering the garden area a few days prior to tilling will make tilling easier, as will letting the newly worked soil set for a day or two before making a final, deep tilling pass.

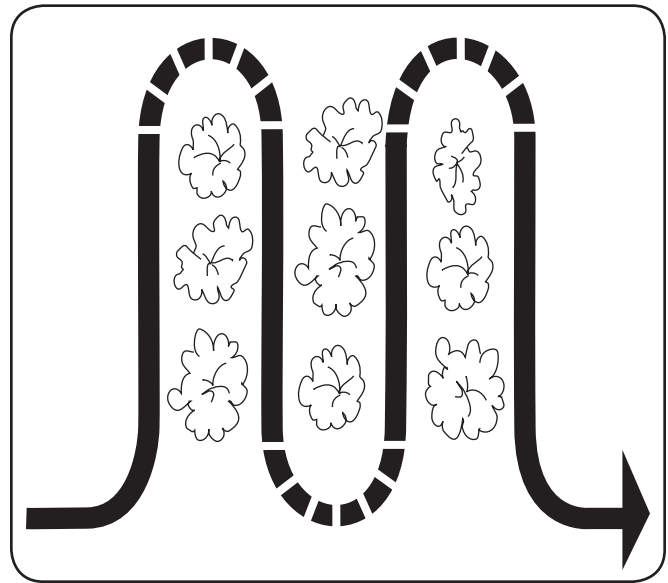


Figure 5-4

### Suggested Tilling Patterns

- When preparing a seedbed, go over the same path twice in the first row, then overlap one-half the tiller width on the rest of the passes. See Fig. 5-5.

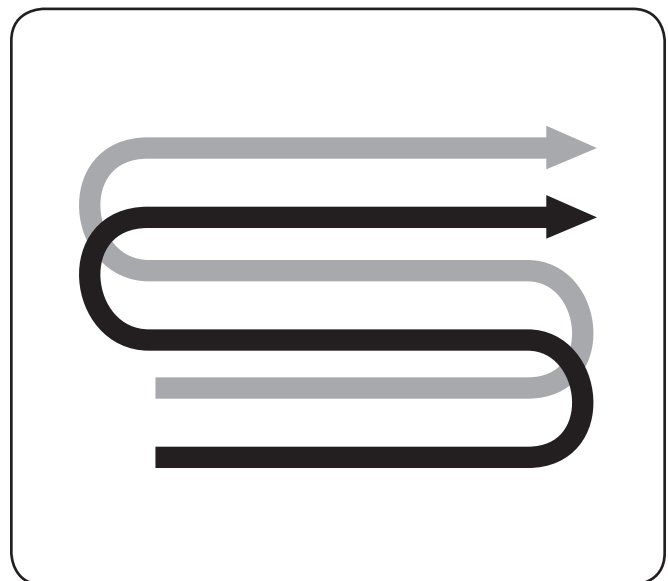


Figure 5-5

- When finished in one direction, make a second pass at a right angle, as shown in Fig. 5-6. Overlap each pass for best results (in very hard ground, it may take three or four passes to thoroughly pulverize the soil.)

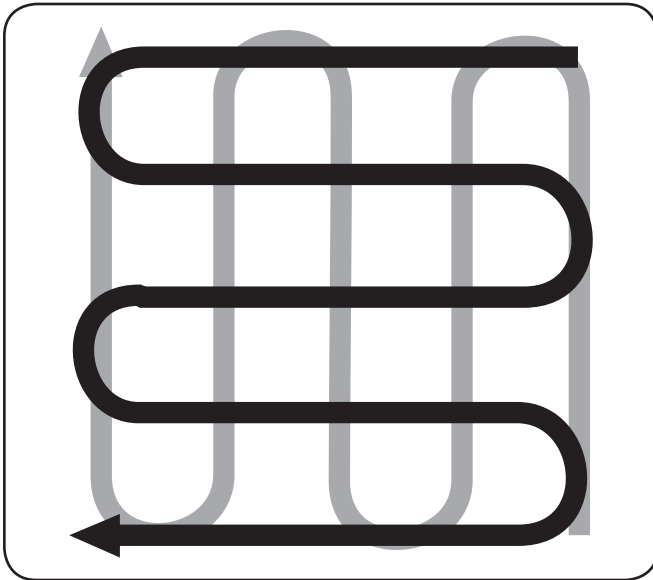


Figure 5-6

- If the garden size will not permit lengthwise and then crosswise tilling, overlap the first passes by one-half a tiller width, followed by successive passes at one-quarter width. See Fig. 5-7.

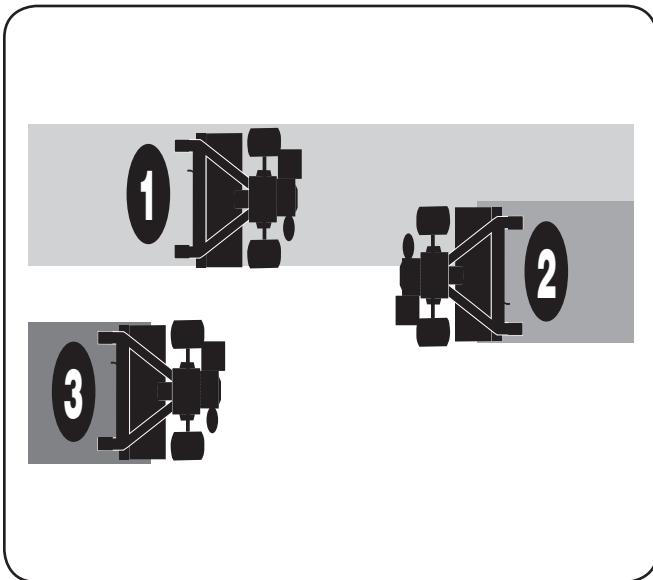


Figure 5-7

## Tilling on a Slope



**WARNING!** Do not operate the tiller on a slope too steep for safe operation. Till slowly and be sure you have good footing. Never permit the tiller to freewheel down slopes. Failure to follow this warning could result in personal injury.

- Till only on moderate slopes, never on steep ground where the footing is difficult.
- Tilling up and down slopes is recommended rather than terracing. Tilling vertically on a slope allows maximum planting area and also leaves room for cultivating.

**NOTE:** when tilling on slopes, be sure the correct oil level is maintained in the engine (check every one-half hour of operation). The incline of the slope will cause the oil to slant away from its normal level and this can starve engine parts of the required lubrication. Keep the motor oil level at the full point at all times.

## Tilling Up & Down a Slope

- To keep soil erosion to a minimum, be sure to add enough organic matter to the soil so that it has good moisture-holding texture and try to avoid leaving footprints or wheel marks.
- When tilling vertically, try to make the first pass uphill as the tiller digs more deeply going uphill than it does downhill. In soft soil or weeds, you may have to lift the handlebars slightly while going uphill. When going downhill, overlap the first pass by about one-half the width of the tiller.

## Terrace Gardening

- To create a terrace, start at the top of the slope and work down. Go back and forth across the first row as shown in Fig. 5-8.

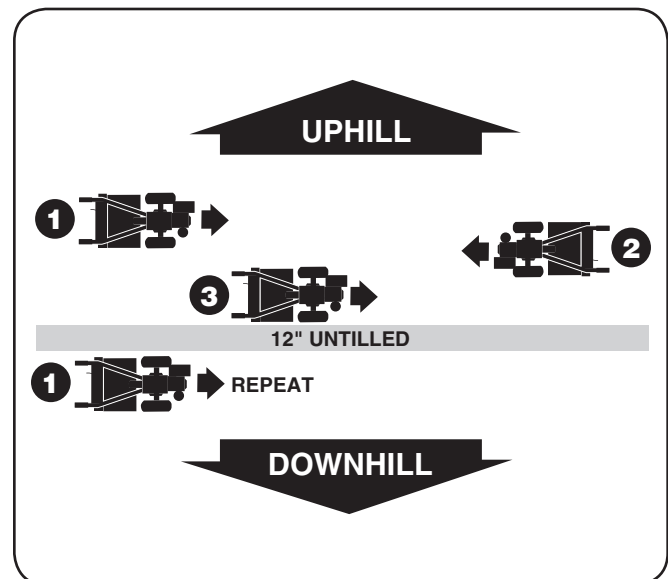


Figure 5-8

- Each succeeding lower terrace is started by walking below the terrace you're preparing. For added stability of the tiller, always keep the uphill wheel in the soft, newly tilled soil. Do not till the last 12" or more of the downhill outside edge of each terrace. This untilled strip helps prevent the terraces from breaking apart and washing downhill. It also provides a walking path between rows.

## Loading & Unloading the tiller



**WARNING!** Loading and unloading the tiller into a vehicle is potentially hazardous and doing so is not recommended unless absolutely necessary, as this could result in personal injury or property damage.

However, if you must load or unload the tiller, follow the guidelines given next.

- Before loading or unloading, stop the engine, wait for all parts to stop moving, disconnect the spark plug wire and let the engine and muffler cool.
- The tiller is too heavy and bulky to be lifted safely by one person. Two or more people should share the load.
- Use sturdy ramps and manually — with the engine shut off — roll the tiller into and out of the vehicle. Two or more people are needed to do this.
- The ramps must be strong enough to support the combined weight of the tiller and any handlers. The ramps should provide good traction to prevent slipping, they should have side rails to guide the tiller along the ramps and they should have a locking device to secure them to the vehicle.
- The handlers should wear sturdy footwear that will help prevent slipping.
- Position the loading vehicle so that the ramp angle is as flat as possible (the less incline to the ramp, the better). Turn the vehicle's engine off and apply its parking brake.
- When going up ramps, stand in the normal operating position and push the tiller ahead of you. Have a person at each side to turn the wheels.
- When going down ramps, walk backward with the tiller following you. Keep alert for any obstacles behind you. Position a person at each wheel to control the speed of the tiller. Never go down ramps tiller-first, as the tiller could tip forward.
- Place wooden blocks on the downhill side of the wheels if you need to stop the tiller from rolling down the ramp. Also, use the blocks to temporarily keep the tiller in place on the ramps (if necessary), and to chock the wheels in place after the tiller is in the vehicle.
- After loading the tiller, prevent it from rolling by engaging the wheels in the wheel drive position. Chock the wheels with blocks and securely tie the tiller down.