

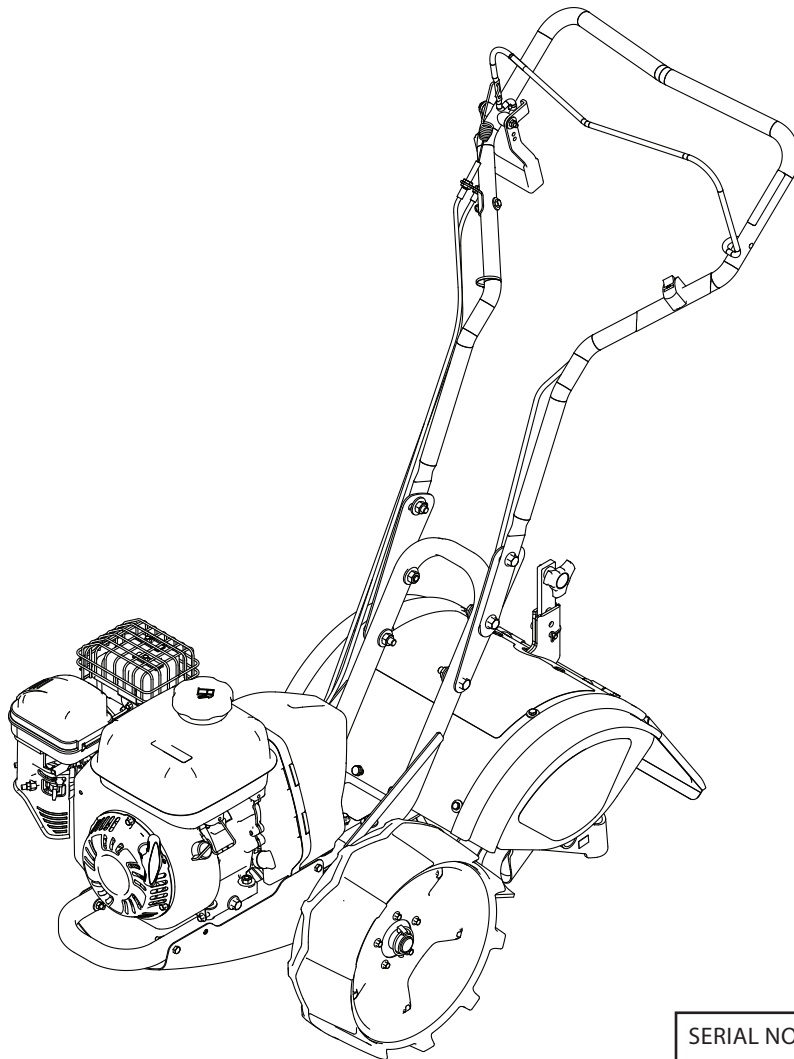


Owner's Manual

**VICTORY**  
Rear-Tine Tiller

Model #'s: 29409 / 29702

ENGLISH



SERIAL NO.

DATE OF PURCHASE:

THIS INSTRUCTION BOOKLET CONTAINS **IMPORTANT** SAFETY INFORMATION. PLEASE READ AND KEEP FOR FUTURE REFERENCE.

Get parts or technical assistance online at  
[www.GetEarthquake.com](http://www.GetEarthquake.com) or call (800) 345-6007

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P/N: 32440  
REV 2: 10/30/2018



## **STOP! ACTIVATE YOUR WARRANTY BEFORE USE**

All products must be registered *within 30 days* from the date of purchase in order to be covered under warranty. For more information regarding Warranty and Registration please review the Warranty and Registration terms and conditions expressed in the warranty insert.

## **INTRODUCTION**

Thank you for purchasing your product from Earthquake®. We have worked to ensure that this product meets the highest standards for usability and durability. With proper care, your purchase will provide many years of service.

Please read this entire manual before installation and use. Earthquake® reserves the right to change, alter or improve the product and this document at any time without prior notice. Due to continuous product improvements, product images may not be exact. Some assembly may be required.

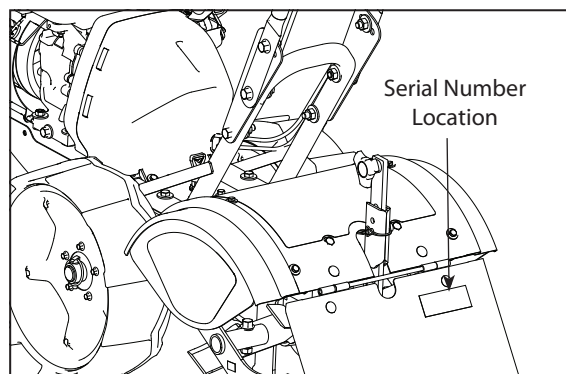
Read and keep this manual for future reference. This manual contains important information regarding safety, assembly, operation and maintenance. The owner must be certain that all the product information is included with the unit. This information includes the manual, the replacement parts and the warranties. This information must be included to make sure state laws and other laws are followed. All persons to whom rent/loan this unit must have access to and understand this information. This manual should remain with the product even if it is resold.

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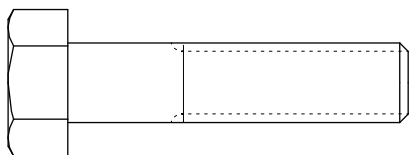
## **REGISTRATION AND SERVICE**

Record the product model number and serial number in the space provided for easy reference when ordering parts or requesting technical support. Excluding emissions-related warranty items, the warranty is valid only if the completed registration is received by Ardisam within 30 days of purchase. You can register your warranty online by visiting [www.GetEarthquake.com](http://www.GetEarthquake.com), or by mailing it to: Ardisam, 1160 8th Avenue, Cumberland, WI 54829. You may also call our Customer Service department at (800) 345-6007 Mondays through Fridays from 8 a.m. to 5 p.m. CST.

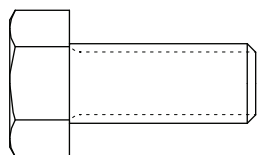


## BOLT IDENTIFICATION CHART

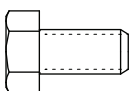
Bolts shown are for size reference only. Extra hardware may be included in the parts bag.



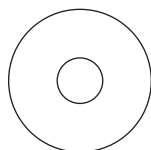
(A)  
M10 x 45 MM Bolt  
Qty 4



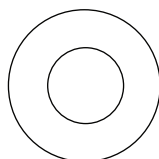
(B)  
M10 x 25 MM Bolt  
Qty 2



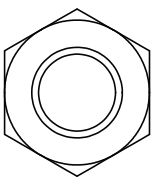
(F)  
M6 x 12 MM Bolt  
Qty 6



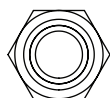
(H)  
M6 X 18.8 MM Washer  
Qty 12



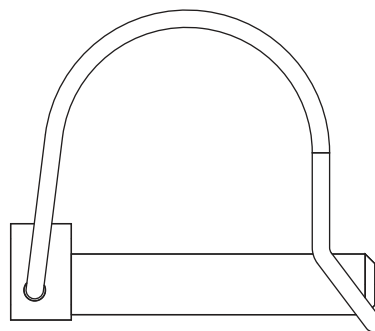
(D)  
M10 X 20 MM Washer  
Qty 6



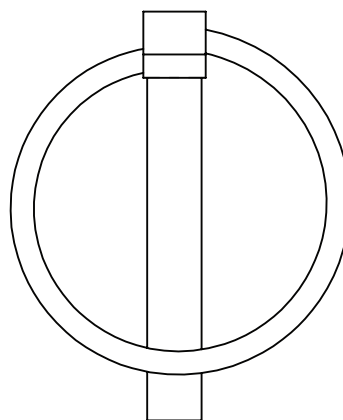
(C)  
M10 Nut  
Qty 6



(G)  
M6 Nut  
Qty 6



(I)  
Lock Pin  
Qty 1



(K)  
Lock Pin  
Qty 2

## WARNINGS AND SAFETY PRECAUTIONS

### OWNER'S RESPONSIBILITY


Accurate assembly and safe and effective use of the machine is the owner's responsibility.

- Read and follow all safety instructions.
- Carefully follow all assembly instructions.
- Maintain the machine according to directions and schedule included in this Earthquake® operator's manual.
- Ensure that anyone who uses the machine is familiar with all controls and safety precautions.

### SPECIAL MESSAGES

Your manual contains special messages to bring attention to potential safety concerns, machine damage as well as helpful operating and servicing information. Please read all the information carefully to avoid injury and machine damage.

**NOTE:** General information is given throughout the manual that may help the operator in the operation or service of the machine.


-  This symbol points out important safety instructions which if not followed could endanger your personal safety. Read and follow all instructions in this manual before attempting to operate this equipment.


### BEFORE OPERATING EQUIPMENT:

**Please read this section carefully.** Read entire operating and maintenance instructions for this product. Failure to follow instructions could result in serious injury or death. Operate the machine according to the safety instructions outlined here and inserted throughout the text. Anyone who uses this machine must read the instructions and be familiar with the controls.

### INTENDED USE / FORESEEABLE MISUSE

**IMPORTANT:** This is a motorized rotary tiller that works the soil by means of rotating tines. It is pedestrian-controlled, with a gasoline-fueled internal combustion engine to power the tines. It shall not be used for any other purpose.


**DANGER**



Keep away from rotating tines.  
Rotating tines will cause injury.

### NOTICE

NOTICE INDICATES YOUR EQUIPMENT CAN BE DAMAGED IF THE SAFETY INSTRUCTIONS THAT FOLLOW THIS SIGNAL WORD ARE NOT OBEYED.


### IMPORTANT

IMPORTANT INDICATES HELPFUL INFORMATION FOR PROPER ASSEMBLY, OPERATION OR MAINTENANCE OF YOUR EQUIPMENT.

### CAUTION

 CAUTION INDICATES A HAZARD WHICH, IF NOT AVOIDED, COULD RESULT IN PERSONAL INJURY AND/OR PROPERTY DAMAGE.



### WARNING

 WARNING INDICATES A HAZARD WHICH, IF NOT AVOIDED, COULD RESULT IN DEATH OR SERIOUS INJURY AND/OR PROPERTY DAMAGE.

### DANGER

 DANGER INDICATES A HAZARD WHICH, IF NOT AVOIDED, CERTAINLY WILL RESULT IN DEATH OR SERIOUS INJURY AND/OR PROPERTY DAMAGE.

### WARNING

-  YOU MUST READ, UNDERSTAND AND COMPLY WITH ALL SAFETY AND OPERATING INSTRUCTIONS IN THIS MANUAL BEFORE ATTEMPTING TO SETUP AND OPERATE YOUR MACHINE.
-  FAILURE TO COMPLY WITH ALL SAFETY AND OPERATING INSTRUCTIONS CAN RESULT IN LOSS OF MACHINE CONTROL, SERIOUS PERSONAL INJURY TO YOU AND/OR BYSTANDERS, AND RISK OF EQUIPMENT AND PROPERTY DAMAGE. THE TRIANGLE IN THE TEXT SIGNIFIES IMPORTANT CAUTIONS OR WARNINGS WHICH MUST BE FOLLOWED.

## GENERAL SAFETY RULES

- Read, understand, and follow all instructions on the machine and in the manual(s). Be thoroughly familiar with the controls and the proper use of the machine before starting. Know how to stop the machine and disengage the controls quickly.
- Use this equipment for its intended purpose only.
- Familiarize yourself with all of the safety and operating decals on this equipment and on any of its attachments or accessories.
- Do not put hands or feet near or under rotating parts.
- Only allow responsible individuals who are familiar with the instructions to operate the machine. Never allow children to operate this machine. Never allow adults to operate the machine without proper instruction.
- Thoroughly inspect the area where the machine is to be used and remove all foreign objects. Your equipment can propel small objects at high speed causing personal injury or property damage. Stay away from breakable objects, such as house windows, automobiles, greenhouses, etc.
- Keep the area of operation clear of all persons, particularly small children and pets.
- Do not operate in shorts or open toed shoes. Wear proper Personal Protective Equipment (PPE) at all times, such as gloves, proper footwear, and eye protection.
- Do not wear loose clothing or jewelry. They can get caught in moving parts. Always keep hands, feet, hair and loose clothing away from any moving parts on engine and machine.
- Always wear safety goggles or safety glasses with side shields when operating the machine to protect your eyes from foreign objects which can be thrown from the unit. Always wear a protective hearing device.
- Always wear work gloves and sturdy footwear. Wear footwear that will improve footing on slippery surfaces. Leather work shoes or short boots work well for most people. These will protect the operator's ankles and shins from small sticks, splinters, and other debris.
- It is advisable to wear protective headgear to prevent the possibility of being struck by small flying particles, or being struck by low hanging branches, twigs, or other objects which may be unnoticed by the operator.
- Do not operate product when fatigued or under the influence of alcohol, drugs or other medication which can cause drowsiness or affect your ability to operate this machine safely.
- Never operate machine in wet grass. Always be sure of your footing; keep a firm hold on the handle and walk; never run.
- Watch for traffic when operating machine near, or when crossing roads.
- Temperature of muffler and nearby areas may exceed 150° F (65° C). Allow muffler and engine areas to cool before touching. Never pick up or carry the machine while the engine is running.
- Prolonged exposure to noise and vibration from gasoline engine-powered equipment should be avoided. Take intermittent breaks and/or wear ear protection from engine noise as well as heavy work gloves to reduce vibration in the hands.
- When moving the packaged machine, always do so with a partner.
- Check local regulations for age restrictions on use of this machine.
- Never attempt to make any adjustment while the engine (motor) is running (except where specifically recommended by the manufacturer).
- The tines of the tiller should not rotate when the drive control lever is released into the neutral position. If it does rotate when in neutral, contact Earthquake® Customer Service for instruction.

## ENGINE SAFETY PRECAUTIONS

*If your product comes with a separate engine manual, be sure to read and follow all safety and warning precautions outlined there, in addition to any in this manual.*

## PREVENTING CARBON MONOXIDE POISONING

- Always start and run engine outdoors. Do not start or run engine in an enclosed area, even if doors or windows are open.
- Never try to ventilate engine exhaust indoors. Carbon monoxide can reach dangerous levels very quickly.
- Never run engine outdoors where exhaust fumes may be pulled into a building.
- Never run engine outdoors in a poorly ventilated area

## **WARNING**

⚠ **ENGINES GIVE OFF CARBON MONOXIDE, AN ODORLESS, COLORLESS, POISONOUS GAS. CARBON MONOXIDE MAY BE PRESENT EVEN IF YOU DO NOT SMELL OR SEE ANY ENGINE EXHAUST. BREATHING CARBON MONOXIDE CAN CAUSE NAUSEA, FAINTING OR DEATH, IN ADDITION TO DROWSINESS, DIZZINESS AND CONFUSION.**

⚠ **IF YOU EXPERIENCE ANY OF THESE SYMPTOMS, SEEK FRESH AIR AND MEDICAL ATTENTION IMMEDIATELY.**

⚠ **HOT GASES ARE A NORMAL BY-PRODUCT OF A FUNCTIONING INTERNAL COMBUSTION ENGINE. FOLLOW ALL SAFETY INSTRUCTIONS TO PREVENT BURNS AND FIRES.**

⚠ **DO NOT ALTER/MODIFY ENGINE:**

- **NEVER ALTER OR MODIFY THE ENGINE FROM THE FACTORY. SERIOUS INJURY OR DEATH MAY OCCUR IF ENGINE IS MODIFIED OR ALTERED.**
- **WHEN WORKING ON OR REPLACING PARTS FOR THE ENGINE OR PRODUCT, YOU MUST ALWAYS PUT THE ON/OFF SWITCH TO THE OFF POSITION.**

where the exhaust fumes may be trapped and not easily taken away. (Examples include: in a large hole or areas where hills surround your working area.)

- Never run engine in an enclosed or partially enclosed area. (Examples include: buildings that are enclosed on one or more sides, under tents, car ports or basements.)
- Always run the engine with the exhaust and muffler pointed in the direction away from the operator.
- Never point the exhaust muffler towards anyone. People should always be many feet away from the operation of the engine and its attachments.
- Do not change the engine governor settings or over-speed the engine.

## **PREPARATION**

- Dress appropriately when operating the tiller. Always wear sturdy footwear. Never wear sandals, sneakers or open shoes, and never operate the tiller with bare feet. Do not wear loose clothing that might get caught in moving parts. Wear proper Personal Protective Equipment (PPE) at all times, such as gloves, proper footwear, and eye protection.

- Carefully inspect the area to be tilled and remove all foreign objects. Do not till above underground water lines, gas lines, electric cables, or pipes. Do not operate the tiller in soil with large rocks and foreign objects which can damage the equipment.
- Disengage all clutches and leave control lever in the neutral position before starting the engine (motor).

## **SAFE HANDLING OF GASOLINE**

Use extra care in handling gasoline and other fuels. They are extremely flammable and vapors are explosive.

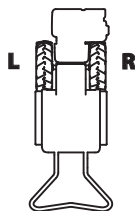
- Extinguish all cigarettes, cigars, pipes and other sources of ignition.
- Never remove gas cap or add fuel with the engine running.
- Allow engine to cool before refueling.
- Never store the machine or fuel container where there is an open flame, spark, or pilot light such as on a water heater or on other appliances.
- 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.
- Remove gas powered equipment from the truck or trailer and refuel it on the ground. If this is not possible, then refuel such equipment with a portable container, rather than from a gasoline dispenser nozzle.
- 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.
- If fuel is spilled on clothing, change clothing immediately.
- Never overfill fuel tank. Replace gas cap and tighten securely.
- If fuel is spilled do not attempt to start the engine but move the machine away from the area of spillage and avoid creating any source of ignition until fuel vapors have dissipated.
- Prevent fire and explosion caused by static electric discharge. Use only nonmetal, portable fuel containers approved by the Underwriter's Laboratory (U.L.) or the American Society for Testing & Materials (ASTM).
- Always fill fuel tank outside in a well ventilated area. Never fill your fuel tank with fuel indoors. (Examples include: basement, garage, barn, shed, house, porch, etc.).

- Test the fuel cap for proper installation before starting and using engine.
- Always run the engine with fuel cap properly installed on the engine.

## NOTICE

THE RIGHT AND LEFT SIDES OF YOUR ROTOTILLER ARE DETERMINED FROM THE OPERATING POSITION AS YOU FACE THE DIRECTION OF FORWARD TRAVEL.

ENGINE IS SHIPPED FROM FACTORY WITHOUT OIL. YOU MUST ADD ENGINE OIL BEFORE STARTING ENGINE.



## OPERATION

- Do not allow hands, feet, or other body parts, or clothing near the rotating tines or any other moving part. The tines begin to rotate once the engine/motor is started and the activating device is engaged. The tines may momentarily rotate after the activating device is released.
- Exercise extreme caution when crossing gravel surfaces. Stay alert for hidden hazards or traffic.
- If an object becomes lodged in the tines, flip the ON/OFF switch to the OFF position, allow to cool before attempting to remove the foreign object.
- After striking a foreign object, stop the engine (motor), remove the wire from the spark plug (or disconnect the cord for electric products), thoroughly inspect the machine for any damage, and repair the damage before restarting and operating the machine.
- Exercise caution to avoid slipping or falling.
- If the machine should start to vibrate abnormally, stop the engine (motor) and check immediately for the cause. Vibration is generally a warning sign of trouble.
- Stop the engine (motor) when leaving the operating position, before unclogging the tines, and when making any repairs, adjustments and inspections.
- Stop the engine (motor) when leaving the machine unattended.
- Before cleaning, repairing or inspecting, shut off the engine and make certain all moving parts have stopped. Disconnect the spark plug wire, and keep the wire away from the plug to prevent accidental starting. Disconnect the cord on electric motors.
- Do not operate tiller under the influence of alcohol or drugs.
- Never operate tiller without guards, covers, and hoods in place.
- Do not overload the machine capacity by attempting to till or cultivate too deep at too fast a rate.
- Never operate the machine at high transport speeds on hard or slippery surfaces.
- Never allow bystanders near the machine, especially small children.
- Use only attachments and accessories approved by the manufacturer of the machine (such as wheel weights, counterweights, and the like).
- Never operate the tiller without good visibility or light.
- 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 handlebars and do not restrain the machine.
- Use extreme caution when reversing or pulling the machine towards you. To avoid getting pinned against a structure, ensure adequate distance before reversing near a wall or fence.
- Do not change the engine governor settings or over speed the engine.
- Start the engine or switch on the motor carefully according to instructions and with feet away from the tines.
- Never pick up or carry a machine while the engine (motor) is running.
- Do not operate the tiller while under the influence of alcohol or drugs.
- Powered walk-behind tiller work is strenuous. You must be in good physical condition and mentally alert. If you have any condition that might be aggravated by strenuous work, check with your doctor before operating a powered walk-behind tiller.



## MAINTENANCE AND STORAGE

- Keep machine, attachments and accessories in safe working condition.
- Check shear bolts, engine mounting bolts and other bolts at frequent intervals for proper tightness to be sure the equipment is in safe working condition.
- To prevent accidental starting, always disconnect and secure the spark plug wire from the spark plug before performing tiller maintenance.
- Pulleys and belts should be kept free of oil or other moisture for efficient operation.
- Never store equipment with gasoline in the tank inside a closed building where ignition sources are present, such as hot water and space heaters, clothes dryers and the like. Allow engine to cool before storing in any enclosure.
- Always refer to the operator's guide instructions for important details if the tiller is to be stored for an extended period.
- If the fuel tank has to be drained, do this outdoors.
- Follow manufacturer's recommendations for safe loading, unloading, transport and storage of machine.

## SAFETY DECALS

This rototiller unit has been designed and manufactured to provide you with the safety and reliability you would expect from an industry leader in outdoor power equipment manufacturing.

Although reading this manual and the safety instructions it contains will provide you with the necessary basic knowledge to operate this equipment safely and effectively, we have placed several safety labels on the tiller to remind you of this important information while you are operating the unit.

Please review these decals now, and if you have any questions regarding its meaning or how to comply with these instructions, reread the complete safety instruction text in this manual. For additional questions call Earthquake® Customer Service.

## HAZARD SYMBOLS AND MEANINGS

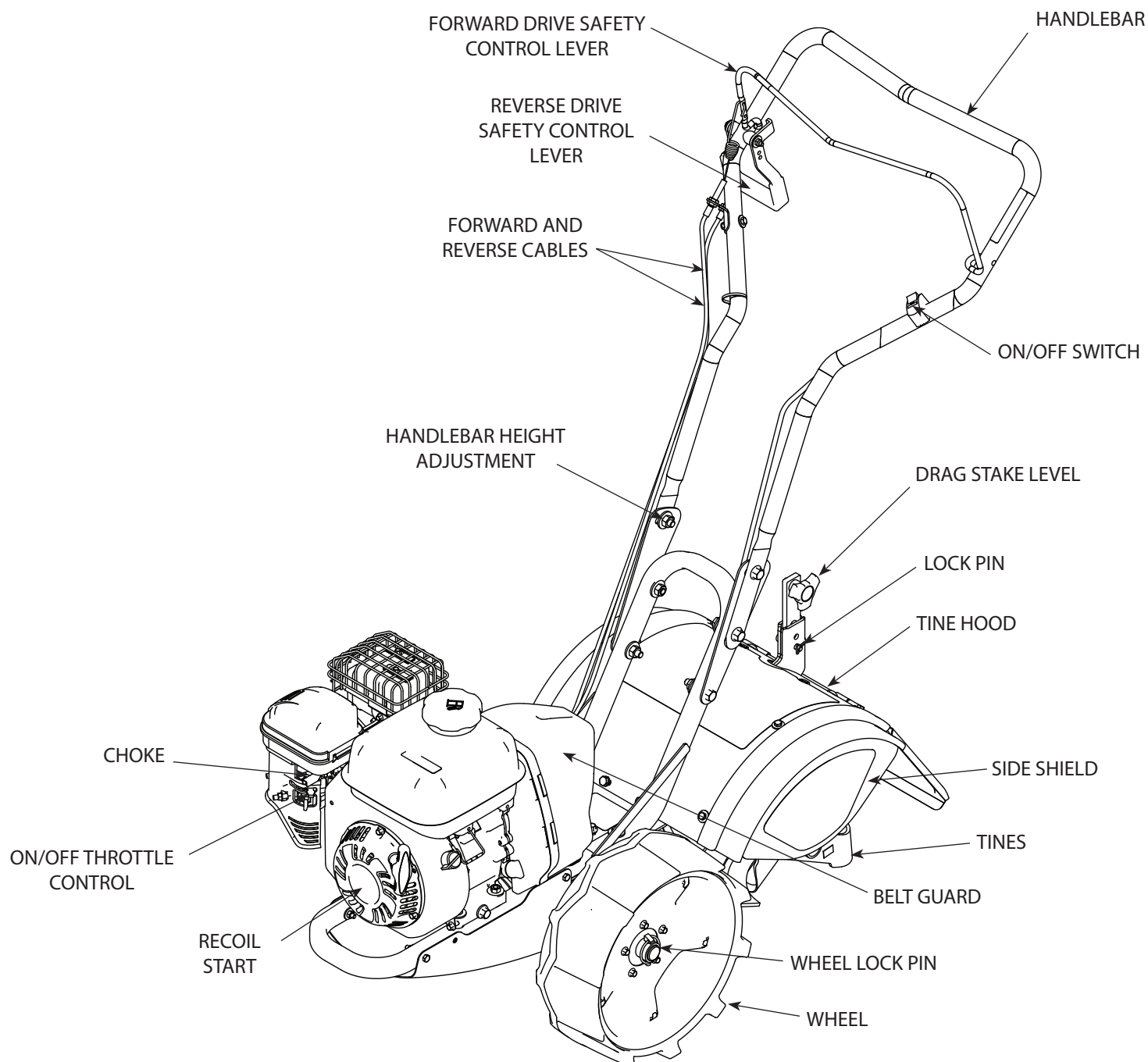
- A: Warning!
- B: Avoid Injury From Rotating Tines.
- C: Read Owner's Manual Before Operating Machine.
- D: Remove Objects that Could Be Thrown By This Machine.

- E: Dangerous Moving Parts.
- F: Be Aware of Moving and Rotating Parts.
- G: Wear Ear and Eye Protection At All Times.
- H: Do Not Service or Adjust Moving Parts Unless Engine is Stopped and Spark Plug Wire is Disconnected.
- I: Dress Appropriately And Wear Sturdy Footwear.
- J: Toxic Fumes—Do Not Operate in Unventilated Areas.
- K: Hot Surfaces.
- L: Fire Hazards.
- M: Do Not Use In Thunderstorms--For severe weather, stop operation of this machine and seek shelter.
- N: Team Lift--For your safety, always have at least two people when lifting this machine.
- O: Do Not Till Above Underground Utility Lines And Pipes.
- P: Do Not Operate When Children Or Others Are Around.





## FEATURES



## UNPACKING AND ASSEMBLY

### CARTON CONTENTS

- Hardware Parts Bag:
  - A - (4) M10 x 45 mm Hex Bolt
  - B - (2) M10 x 25 mm Hex Bolt
  - C - (6) M10 Nylock Nut
  - D - (6) M10 Flat Washer
  - F - (6) M6 x 12 mm Hex Bolt
  - G - (6) M6 Nylock Nut
  - H - (12) M6 Flat Washer
  - I - (1) Lockpin
  - J - (2) Handlebar Extensions
  - K - (2) LockPin
- Manual Parts Bag
- Unit with Handlebar
- Left and Right Side Shield
- Left and Right Wheel
- Drag Stake
- Bottle of 4-cycle Engine Oil

### TILLER ASSEMBLY

1. Open top of carton and remove the handlebar assembly.
2. Cut open seams of carton, exposing all contents and remove machine by:
  - a. Attach the loose wheels, in the box, onto the unit with the wheel lockpins in the **free-wheel position**. Slide the wheel all the way onto the axle and insert a (I) lockpin through the axle hole only. **SEE FIGURE 1.**
  - b. Roll the tiller from the carton.

#### Install the Drag Stake:

3. Locate the drag stake and (I) lockpin. Unscrew the adjusting knob from the top of the drag stake and slide the drag stake upwards into the vertical slot at the rear of the tine shield. **SEE FIGURE 2.**
4. Reattach the adjusting knob to the top hole of the drag stake.
5. Insert the lockpin through the hole in the vertical slot and one of the holes in the drag stake to hold it into place. **SEE FIGURE 2.**

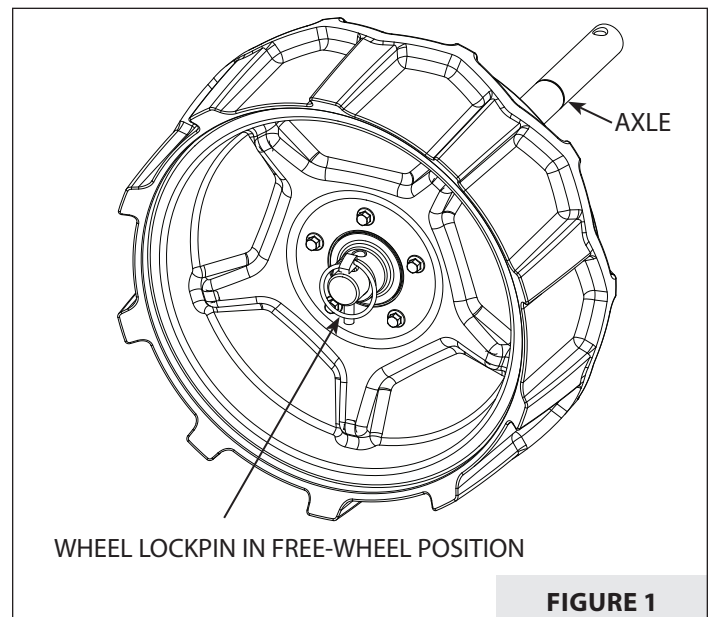
### NOTICE

HANDLE ROTOTILLER WITH CARE. DO NOT DAMAGE FORWARD CABLE WHEN TRANSPORTING OR OPERATING.

ENGINE IS SHIPPED FROM FACTORY WITHOUT OIL. YOU MUST ADD ENGINE OIL BEFORE STARTING ENGINE.

### WARNING

⚠ **COMBUSTIBLE DEBRIS CAN CATCH FIRE. IT IS A VIOLATION OF CALIFORNIA PUBLIC RESOURCE CODE, SECTION 4442, TO USE OR OPERATE ENGINE-POWERED PRODUCTS ON ANY FOREST-COVERED, BRUSH-COVERED, OR GRASS-COVERED LAND UNLESS THE EXHAUST SYSTEM IS EQUIPPED WITH A SPARK ARRESTER, AS DEFINED IN SECTION 4442, MAINTAINED IN EFFECTIVE WORKING ORDER. OTHER STATES OR FEDERAL JURISDICTIONS MAY HAVE SIMILAR LAWS. CONTACT THE ORIGINAL EQUIPMENT MANUFACTURER, RETAILER, OR DEALER TO OBTAIN A SPARK ARRESTER DESIGNED FOR USE WITH THIS PRODUCT.**



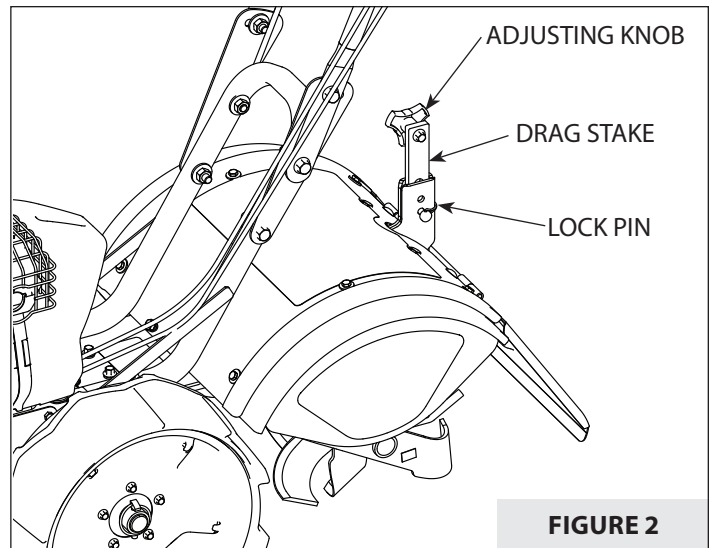
**FIGURE 1**

## Attach the Handlebar:

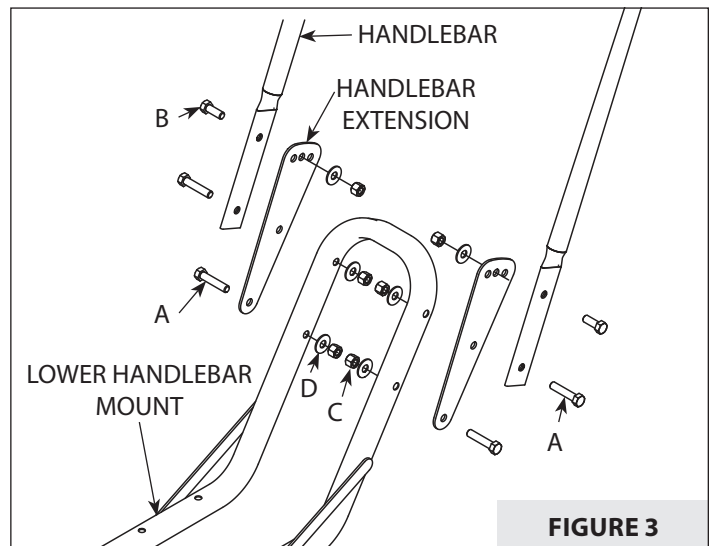
6. Locate the handlebar extensions and place them on the outside of the lower handlebar mount. Be sure to line up the handlebar extension pieces with the lower handlebar mount as shown on the decal located on the lower handlebar mount next to the mounting location. **SEE FIGURE 3.**
7. Insert one (A) M10 x 45 mm bolt into each of the lower holes in the side of the extension pieces. The bolts will pass through the lower hole of the lower handlebar mount. Place a (D) M10 flat washer and a (C) M10 nylock nut onto the end of each bolt and hand-tighten. **SEE FIGURE 3.**
8. Assemble the handlebar to the **outside** of the handlebar extension (side opposite the lower handlebar mount). Insert one (A) M10 x 45 mm bolt into each of the lower holes in the handlebar and through the **middle** hole on the handlebar extension. Place a (D) M10 flat washer and a (C) M10 nylock nut onto the end of each bolt and hand-tighten. **SEE FIGURE 3.**
9. Insert one (B) M10 x 25 mm bolt into each top hole on the handlebar and through the middle hole on the handlebar extension. Place a (D) M10 flat washer and a (C) M10 nylock nut onto the end of each bolt and hand-tighten. **SEE FIGURE 3.**
10. Tighten all M10 bolts and nuts that were assembled in the "Attach the Handlebar" section.

## Attach the Side Shields:

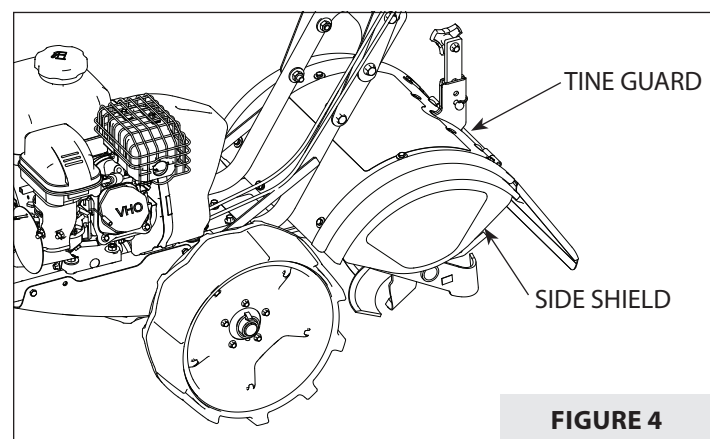
11. Locate the side shields and place one up against the side of the tine guard and hold in place. **SEE FIGURE 4.**
12. Place one (H) M6 flat washer onto one (F) M6 x 12 mm bolt. Repeat this process for all three (F) M6 x 12 mm bolts. Insert the three bolts into the three holes of the tine guard, making sure they pass through the side shield as well. Place a (H) M6 flat washer and a (G) M6 nylock nut onto the bottom of each of the bolt/washer combinations and tighten all with a wrench/socket.  
**NOTE: The side shield needs to be below the tine guard when they are attached together.**
13. Repeat steps 11-12 for the second side shield.



**FIGURE 2**



**FIGURE 3**



**FIGURE 4**

## FILL ENGINE CRANKCASE

1. Add oil according to engine manual. **DO NOT OVERFILL.** Use a clean, high quality detergent oil. Use no special additives with recommended oils. **DO NOT MIX OIL WITH GASOLINE.** Oil level must be full. Check the oil level by removing oil fill plug. Oil level should be up to the bottom of the fill plug opening.
2. Always check oil level before starting engine. Refer to engine manual for capacity and type of oil to use.

## FILL FUEL TANK

1. Add gasoline according to engine manual. **DO NOT OVERFILL.** Use 87+ octane unleaded ethanol-free gasoline. If an ethanol blend must be used, use ethanol fuel stabilizer. **DO NOT MIX OIL WITH GASOLINE.**
2. Always check gasoline level before starting engine. Refer to engine manual for capacity and type of gasoline to use.



## WARNING

⚠ THIS INFORMATION IS PROVIDED HERE ONLY TO INTRODUCE THE CONTROLS. DO NOT START THE ENGINE AT THIS TIME. PLEASE READ THIS SECTION AND ALL OPERATING AND SAFETY INSTRUCTIONS BEFORE STARTING YOUR TILLER.

- AS A SAFETY PRECAUTION, THE DRIVE SAFETY CONTROL LEVER WILL NOT LOCK IN THE FORWARD POSITION.
- TO STOP THE TINES AT ANY TIME, RELEASE THE DRIVE SAFETY CONTROL LEVER OR RELEASE THE REVERSE HANDLE.
- DO NOT OPERATE BOTH "FORWARD" AND "REVERSE" DRIVE SAFETY CONTROL LEVERS AT THE SAME TIME.
- ENGINE SHOULD BE OFF BEFORE ADJUSTING ANY CONTROLS.
- DO NOT ADJUST TILLING DEPTH UNLESS DRIVE SAFETY CONTROL LEVER IS RELEASED TO THE NEUTRAL POSITION.

## OPERATION

### CONTROLS:

#### DRIVE SAFETY CONTROL LEVER

Pull the drive safety control lever towards the handlebar to the **FORWARD** position to engage the wheels and tines. Releasing the lever into the **NEUTRAL** position stops the wheels and tines and brings the tiller to a complete stop. **SEE FIGURE 5.**

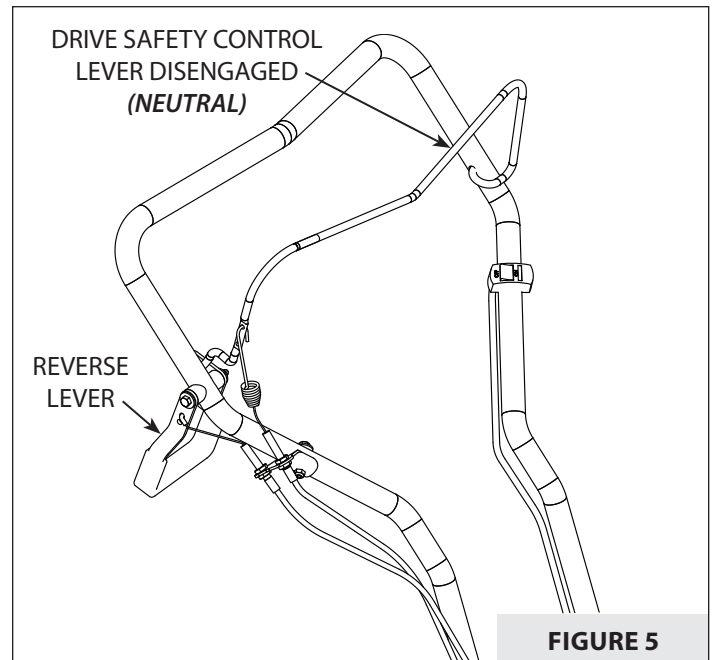


FIGURE 5

## BELT TENSION ADJUSTMENT

Proper belt tension is critical to good performance. After 1/2 hour of operation, all cables may have to be adjusted due to initial stretch. Thereafter, check tension after every 10 hours of operation.

### To increase belt tension do as follows:

1. Loosen upper jam nut. **SEE FIGURE 6.**
2. Tighten the lower jam nut in 1/8" increments, making sure not to over adjust the tension.
3. When proper adjustment is achieved, tighten upper jam nut. Tension is properly adjusted when engaging the drive safety control lever, the beehive spring on the cable stretches about 1/4 inch or 5 mm longer. **SEE FIGURE 6.**

**NOTE:** This procedure can be repeated until conduit adjustment bolts are fully adjusted. The beehive spring hook can also be adjusted by inserting in the additional linkage holes on the drive control lever. If no more adjustment can be made, belt may need to be replaced.

## DRAG STAKE

Tilling depth is controlled by the height of the drag stake. **SEE FIGURE 7.**

## To adjust tilling depth do as follows:

1. Remove lock pin.
2. Raise the drag stake to position tines at chosen tilling depth. Lowering the drag stake will allow for deeper tilling.
3. Align hole in drag stake with hole in drag stake mount and replace lock pin.

**NOTE:** Raise drag stake all the way when transporting tiller. Lower the drag stake all the way to maintain control of the tiller in harder soil conditions.

## HANDLEBAR HEIGHT ADJUSTMENT

Handlebar height can be adjusted in two ways to accommodate a total of four possible user heights. **SEE FIGURE 3** (previous page).

## To adjust height at handlebars do as follows:

1. Remove left and right handlebar mount hardware.
2. Align handlebar at desired height and attach hardware.

## WHEEL LOCK PINS

### To place wheels in free-wheel position do as follows:

**NOTE:** This allows wheels to turn freely on the axle for easy transportation.

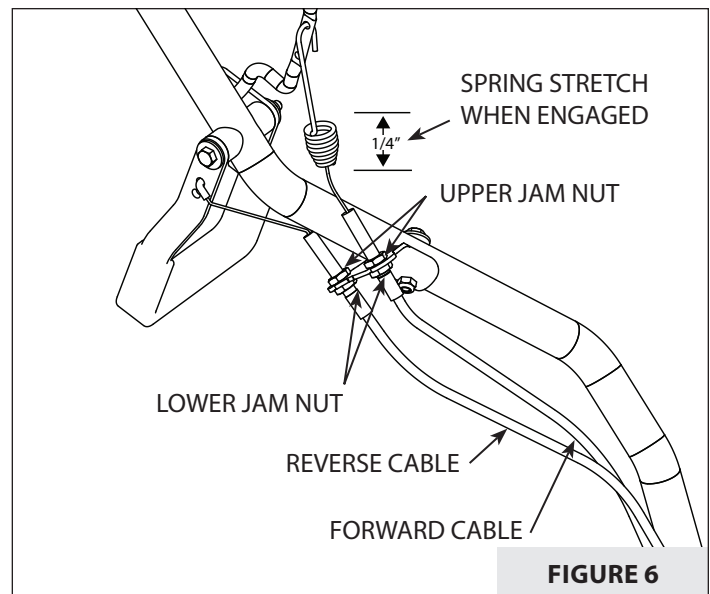
1. Remove lockpin. Slide wheel inward toward unit.  
**SEE FIGURE 8** (next page).
2. Insert lockpin through the axle hole only, fold lock ring to secure pin to axle.
3. Repeat for other wheel.

### To place wheels in tilling position do as follows:

**NOTE:** This locks wheels to the axle so they are able to propel the unit forward while in use.

1. Remove lockpin. Slide wheel slightly outward away from unit. Align hole in axle with hole in wheel hub. **SEE FIGURE 9** (next page).
2. Insert lockpin through both holes, fold lockpin ring to secure pin to axle.
3. Repeat for other wheel.

**NOTE:** Always have both wheel lockpins in or out. Do not operate tiller with only one wheel locked.

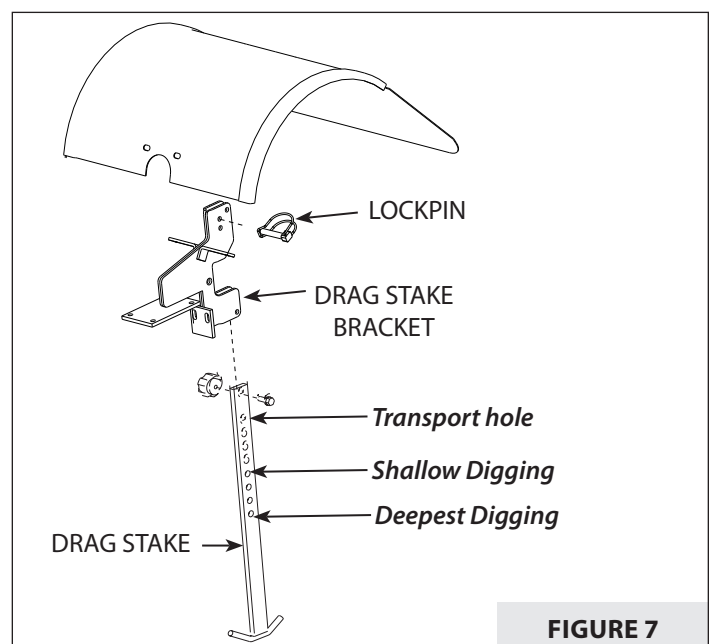


**FIGURE 6**

## **WARNING**

⚠ **EXTREME CAUTION MUST BE TAKEN IN SELECTING TILLING DEPTH. IF YOU ATTEMPT TO TILL TOO DEEPLY FOR SOIL CONDITIONS, THAT IS, WITH THE DRAG STAKE IN TOO HIGH OF A POSITION, LOSS OF CONTROL AND INJURY TO PERSONNEL CAN OCCUR.**

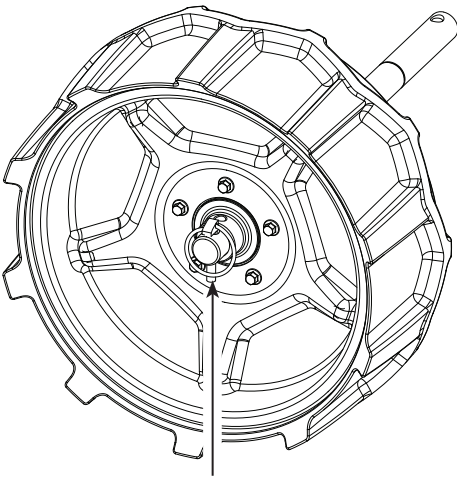
⚠ **ALWAYS SET THE DRAG STAKE LEVER IN THE TRANSPORT POSITION BEFORE STARTING THE ENGINE. PLACE THE LOCKPIN IN THE HIGHEST HOLE OF THE DRAG STAKE.**



**FIGURE 7**

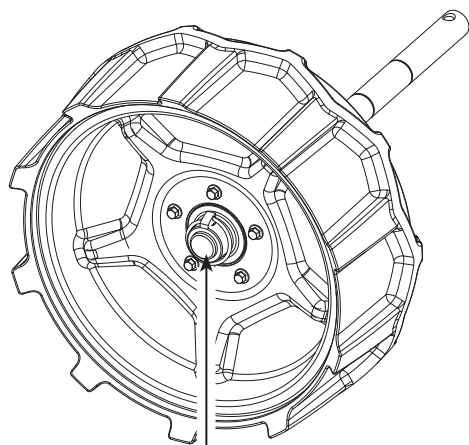
## ⚠ WARNING

⚠ NEVER START ENGINE OR OPERATE TILLER WITH WHEELS IN FREE-WHEEL POSITION. ALWAYS SET THE WHEELS IN TILLING POSITION BEFORE STARTING ENGINE. THE FREE-WHEEL POSITION IS FOR TRANSPORTING THE TILLER LONG DISTANCES OVER LEVEL GROUND. DO NOT ATTEMPT TO MOVE THE TILLER UP OR DOWN STEEP GRADES IN THE FREE-WHEEL POSITION.



WHEEL LOCKPIN IN *FREE-WHEEL* POSITION

FIGURE 8



WHEEL LOCKPIN IN *TILLING* POSITION  
(LOCKPIN IN AXLE HOLE AND WHEEL HOLE)

FIGURE 9

## ⚠ WARNING

⚠ DO NOT START YOUR TILLER UNTIL YOU HAVE READ THE MANUAL THAT CAME WITH YOUR ENGINE, AND THE SECTIONS IN THIS MANUAL TITLED "CONTROLS", "ADJUSTMENTS" AND "SAFETY". IF YOU HAVE READ THESE, FOLLOW THE STEPS IN THE FOLLOWING SECTION TO START YOUR TILLER. ALWAYS PERFORM THIS PRE-START INSPECTION BEFORE STARTING THE ENGINE. FAILURE TO FOLLOW WARNINGS CAN CAUSE INJURY OR DEATH.

⚠ ENGINE AND SURROUNDING PARTS BECOME EXTREMELY HOT DURING NORMAL USE. TEMPERATURE OF MUFFLER AND NEARBY AREAS MAY EXCEED 150°F. THESE AREAS WILL CAUSE SERIOUS BURN INJURIES IF TOUCHED BEFORE THE ENGINE HAS COOLED.

## OPERATION

### PRE-START INSPECTION:

1. Make sure all safety guards are in place and all nuts and bolts are secure.
2. Check oil level in engine crankcase. See your engine manual for procedure and specifications.
3. Inspect air cleaner for cleanliness. See your engine manual for procedure.
4. Check the fuel supply. Fill the fuel tank no closer than one inch from top of tank to provide space for expansion. See your engine manual for fuel recommendations.
5. Be sure spark plug wire is attached and spark plug is tightened securely.
6. Check position of wheels.
7. Check drag stake position.
8. Examine underneath and around engine for signs of oil or fuel leaks.
9. Inspect fuel hoses for tightness and fuel seepage.
10. Look for signs of engine damage.
11. Remove excessive debris from muffler area and recoil starter.
12. Turn fuel shutoff valve to the **ON** position if engine is equipped with one. It's located between tank and carburetor.



## START-UP

*For Kohler Engine powered models, refer to the engine manual for starting and stopping instructions.*

The controls required to start and run the rototiller are located on the engine and handlebar, and are the choke lever, throttle lever and On/Off switch. The choke lever is marked on one end with CHOKE and on the other with RUN. The throttle lever is marked on one end with a SLOW icon and on the other with a FAST icon.

A more detailed description of engine operation and all related precautions and procedures can be found in the engine manufacturer's manual that accompanies each tiller.

### Cold Starts:

1. Turn ON/OFF switch to the **ON** position.
2. Move choke lever to **CHOKE** position.
3. Move throttle lever to half way between **SLOW** and **FAST**.
4. Pull starting rope out slowly one time and allow to return normally.
5. Pull starting rope out rapidly, and allow rope to return normally. Repeat until engine starts.
6. When engine starts, gradually move choke lever to **RUN** position and move throttle lever to **FAST** position for tilling.

### Restarting a Warm Engine:

Restarting an engine that is already warm from previous running does not normally require use of the choke.

1. Move throttle lever to half way between **SLOW** and **FAST**.
2. Pull starting rope out rapidly, and allow rope to return normally. Repeat until engine starts.
3. Adjust throttle speed to **FAST** position for tilling.

### Idle speed:

Use the **SLOW** position or a position between **SLOW** and **FAST** on the throttle lever to reduce stress on the engine when tilling is not being performed. Lowering the engine speed to "idle" will help extend the life of the motor, as well as conserve fuel and reduce the noise level of the equipment.

### Operating Speed:



## CAUTION

- ⚠ DO NOT USE THE CHOKE TO STOP ENGINE. IF CHOKE LEVER IS PLACED IN CHOKE POSITION WHILE ENGINE IS RUNNING, BACKFIRE OR ENGINE DAMAGE MAY OCCUR.



## WARNING

- ⚠ ALWAYS MAINTAIN CONTROL OF YOUR TILLER. ONLY OPERATE TILLER IN SOIL CONDITIONS THAT ARE CONDUCIVE TO MAINTAINING CONTROL OF THE TILLER. DO NOT OPERATE TILLER IN CONDITIONS THAT CONTAIN ROCKS, FOREIGN OBJECTS, OR ANY OTHER MATERIAL THAT IS NOT SOIL. IF YOUR TILLER BUMPS, JERKS OR LURCHES, LET GO OF THE HANDLE BARS AND THE DRIVE CONTROL LEVERS IMMEDIATELY SO THAT THE TINES AND WHEELS STOP TURNING.
- ⚠ IMMEDIATELY RELEASE THE DRIVE CONTROL LEVER IF THE TINES JAM OR YOU STRIKE A FOREIGN OBJECT. WITH DRIVE CONTROL LEVER IN NEUTRAL POSITION, PUSH THROTTLE CONTROL TO STOP POSITION TO STOP THE ENGINE. DISENGAGE THE SPARK PLUG WIRE. WHEN TINES HAVE STOPPED, REMOVE FOREIGN OBJECTS AND CHECK FOR DAMAGE.

## IMPORTANT

PRACTICE OPERATING THE CONTROLS AND TILLER WITH TINES OUT OF GROUND BEFORE BEGINNING TO TILL. IT IS IMPORTANT THAT YOU KNOW HOW TO USE THE TILLER PROPERLY, KEEP CONTROL AT ALL TIMES, STOP THE TINES AND WHEELS FROM TURNING, AND STOP THE ENGINE IF NECESSARY. IF YOU DO NOT KNOW HOW TO DO THESE THINGS, READ THE CONTROLS, ADJUSTMENTS AND SAFETY SECTIONS BEFORE PROCEEDING.

For tilling, set the throttle lever to the **FAST** position.

## SHUTTING DOWN

To stop the engine at any time, move the On/Off switch to the **OFF** position. To stop wheels and tines at any time release drive safety control levers to **NEUTRAL** position.

## TILLING

1. Adjust the drag stake to desired tilling depth.  
**NOTE: Raise depth regulator lever up one hole at a time, testing tiller operation after each raise. Raising the drag stake too high can result in loss of control of tiller!**
2. Move the throttle control to **FAST** position.

- Place the tiller in **FORWARD** by pulling the drive safety control.

### Tilling tips:

The key to successful tilling is to begin with a shallow cut on the first pass, and then work an inch or two deeper on each successive pass.

- Tilling depth will vary with ground conditions.
- When beginning to till in unbroken ground or in extremely hard soil, set the lockpin in the highest hole of the drag stake (**SEE OPERATION SECTION**). This will allow for shallow tilling. With the drag stake in this position, make several light passes over the area to be tilled. Reset for deeper depths with successive passes.
- If tiller jumps or skids uncontrollably, lower the drag stake by placing the lockpin in a higher hole. This will allow for shallower tilling. Hold firmly to the handlebars to control sudden lurches.

### Cultivating tips:

If you plan to use your tiller for cultivating:

- Plant rows on 20" - 22" centers for ease of turning.
- Set the depth regulator lever with the lock pin in one of the higher holes. This will allow for shallow cultivation necessary to turn over weeds, and break up and aerate the soil.

## MAINTENANCE

### MAINTENANCE SCHEDULE

Your rototiller has been designed and produced by the industry's leading manufacturer of outdoor power equipment to provide you years of reliable operation.

Keeping your tiller in top running condition will prolong its life, and help you obtain optimum performance.

Please read this normal care schedule, and note the recommended care operating intervals to extend the life of your unit.

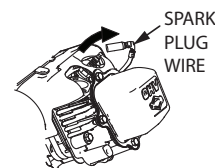
Good maintenance is essential for safe, economical, and trouble-free operation. Keeping your tiller in top running condition will prolong its life, and help you obtain optimum performance. It will also help reduce air pollution. To help you properly care for your engine, the following pages include a maintenance schedule, routine inspection procedures, and simple maintenance procedures using basic hand tools. Other service tasks that are more difficult, or require special tools, are

### **WARNING**

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### **WARNING**

**⚠ TO PREVENT ACCIDENTAL STARTING THE ENGINE MUST BE TURNED OFF AND COOL, AND SPARK PLUG WIRE MUST BE REMOVED AND SECURED FROM SPARK PLUG BEFORE CHECKING AND ADJUSTING ENGINE OR EQUIPMENT.**



best handled by professionals and are normally performed by a technician or other qualified mechanic.

Maintenance, replacement or repair of the emissions control devices and systems may be performed by any non-road engine repair establishment or individuals. However, items must be serviced by a service center to obtain "no charge" emissions control warranty service. View all Repair Centers in your area by using our location finder: [www.GetEarthquake.com](http://www.GetEarthquake.com)

The maintenance schedule applies to normal operating conditions. If you operate your tiller under unusual conditions, such as sustained high-load or high-temperature operation, or use in unusually wet or dusty conditions, consult your servicing dealer for recommendations applicable to your individual needs and use.

**NOTE: For engine maintenance, please refer to the manual included with your product.**

Maintenance Operation	Page	Before Each Use	50 hours or Every Season
Change forward belt	17		X
Check tiller transmission grease	18		X
Lubrication	19	X	
Clean tine axle shaft	19	X	
Lubricate wheel axle shaft	--		X

## SERVICING THE ROTOTILLER

The following information will help you make the necessary checks and perform the procedures required to follow the normal care recommendations made for your unit. If you prefer, your local authorized dealer can make these checks and perform the required procedures for you.

## BELT MAINTENANCE

### Check Belt Tension as follows:

Belt tension may decrease over time. It may need to be adjusted within the first half hour of operation, and should be checked after every ten hours of operation. Proper adjustment will assure long belt life. Too much or too little belt tension will cause premature belt failure.

An indication that the belt may need to be adjusted can be heard as a continuous squealing sound when the engagement lever is compressed, or the belt slips and tines won't turn.

**NOTE:** A short buzzing noise can be heard when engagement lever is released. This is normal, caused by the teeth of the cog belt catching the wire guide, stopping the rotation of the belt. This does not require the belt tension to be adjusted.

### CHANGE FORWARD/REVERSE BELT SEE FIGURES 10, 11 AND 12.

1. Turn off engine. Engine must be cool.
2. Remove spark plug wire and secure from spark plug.
3. Remove belt guard.
4. Remove the forward belt from the forward engine pulley:
  - a. Gently pull the engine recoil rope to rotate the pulley. With the pulley turning, force the forward belt out of the V-groove.
  - b. Slide the belt free of the engine pulley.
  - c. Pull the forward belt down and out of the way.
5. Remove the reverse belt from the reverse engine pulley:
  - a. Gently pull the engine recoil rope to rotate the pulley. With the pulley turning, force the reverse belt out of the V-groove.
  - b. Slide the belt free of engine pulleys and reverse belt guides.
  - c. Pull belt down and away from transmission pulley.

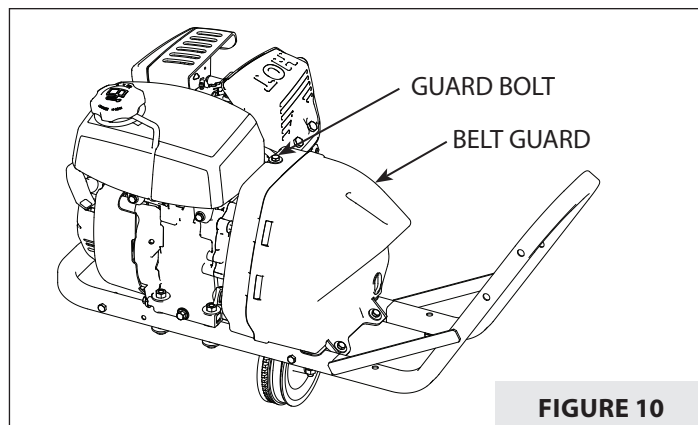


FIGURE 10

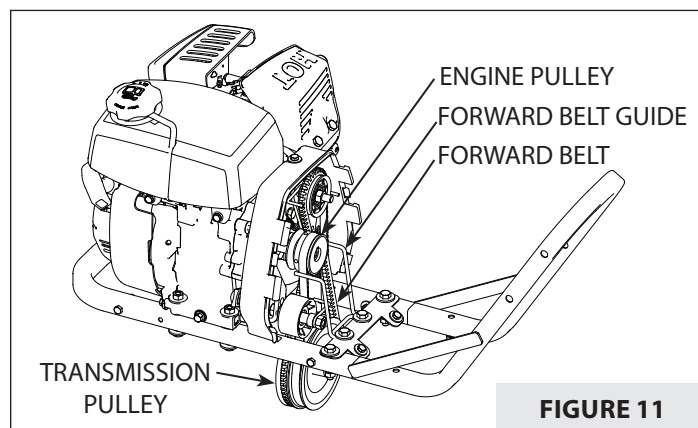


FIGURE 11

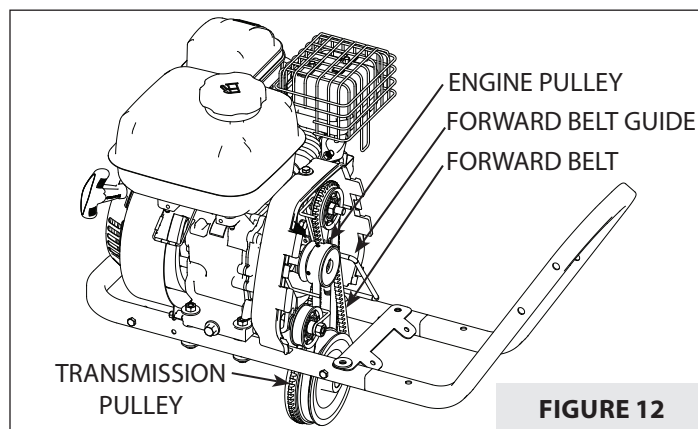


FIGURE 12

6. Install new reverse belt:
 

**NOTE: V side of belt should be up, away from pulley.**

  - a. Thread belt up from bottom.
  - b. Place belt around transmission pulley in groove.
  - c. Place belt under reverse belt guides.
  - d. Gently pull engine recoil rope while forcing the belt

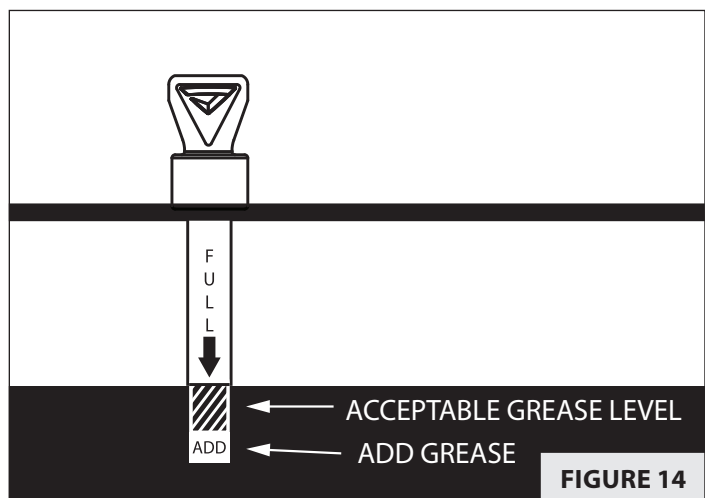
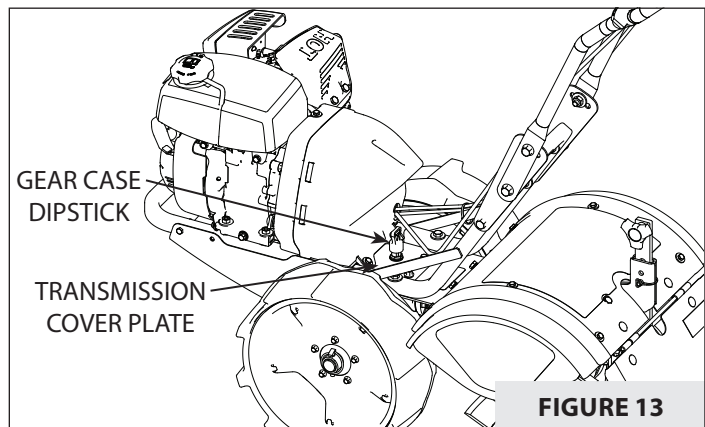
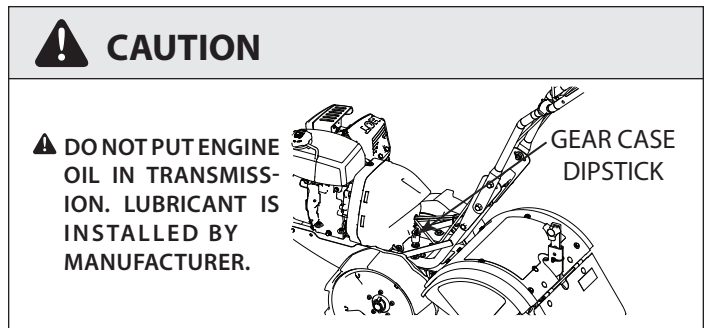
over the edge of the engine pulley into the V-groove.

7. Install new forward belt:
  - a. Place forward belt in transmission pulley groove.
  - b. Gently pull the engine recoil rope to rotate the pulley while forcing the forward belt into the V-groove.
8. Replace belt guard.
9. Attach spark plug wire.

## CHECK TILLER TRANSMISSION GREASE

Check the grease level annually. To check the grease level:

1. Tiller must first be run for approximately 30 minutes to warm up grease for a proper measurement. Once warm let sit 5 minutes to allow grease to settle.
2. Move tiller to level ground, making sure the transmission cover plate is level.
3. Remove the gear case dipstick located between the handle bar mounts and the engine mount and wipe grease off dipstick. **SEE FIGURE 13.**
4. Reinsert the dipstick all the way into the hole port in the transmission cover plate. **SEE FIGURE 14.**
5. Remove the dipstick and check grease level. If level is in the bottom **ADD** area or not present, add grease in 200ml increments until grease level reaches a proper level reading. **DO NOT OVERFILL.** The slashed, acceptable grease level area on the dipstick has a 200ml range.  
**NOTE: The front wheel transmission and rear tine transmission share a common reservoir. Recommended grease is Mystic 00, or equivalent, transmission grease. Oil must have an API - E.P (extreme pressure) rating of GL4 or lower. Higher E.P. rating (ie - GL5, GL6 etc) will cause the bronze components to soften. For partial fill-ups ( a few ozs or less) use SAE 140W or 85W gear oil or SAE 80W-90 weight gear oil with a API rating of GL4 or GL5. When replacing grease, the tiller transmission holds 18-22 ounces. DO NOT OVERFILL.**



## ENGINE MAINTENANCE

Refer to the engine manual included in your parts packet for information on engine maintenance. Your engine manual provides information and a maintenance schedule.

### Perform the following tasks:

1. Always check oil level before starting engine. Refer to engine manual for capacity and type of oil to use.
2. Change oil after first 5-8 hours of operation. Change oil while engine is warm. Refill with new oil of recommended grade.
3. Check spark plug yearly or every 50 hours of operation.
4. Service air cleaner.
5. Keep engine and parts clean.
6. Check engine and equipment often for loose nuts and bolts, keep these items tightened.

## CHECK OR FILL ENGINE CRANKCASE

1. Add oil according to engine manual. **Do not overfill.** Use a clean, high quality 4-cycle engine oil. Use no special additives with recommended oils. **Do not mix oil with gasoline.** Oil level must be full. Check the oil level by removing oil fill plug. Oil level should be up to the bottom of the fill plug opening.
2. Always check oil level before starting engine. Refer to engine manual for capacity and type of oil to use.

## LUBRICATION

Proper lubrication of moving mechanical parts is critical for proper care and maintenance. Oil the moving parts at 10 hour intervals using a 30 weight oil.

## CLEAN TINE AXLE SHAFT

1. Turn off engine. Engine must be cool.
2. Remove spark plug wire and secure from spark plug.
3. Tip the tiller forward. Block the tiller in position so that it rests on the engine mount and the tines are exposed.
4. Remove all vegetation, string, wire, and other material that may have accumulated on the axle between the inside set of tines and the seal on the transmission housing.
5. Tip the tiller back to a level position.
6. Replace spark plug wire.



## WARNING

**⚠ DO NOT STORE TILLER IN AN UNVENTILATED AREA WHERE FUEL FUMES MAY REACH FLAME, SPARKS, PILOT LIGHTS OR AN IGNITED OBJECT. DRAIN FUEL OUTDOORS AWAY FROM ANY IGNITION SOURCES. USE ONLY APPROVED FUEL CONTAINERS.**

## STORAGE

### PREPARE FOR STORAGE

Follow the steps below to prepare your tiller for storage. Read your engine manual for detailed instructions on preparing the engine for storage.

### To prepare your tiller for storage do as follows:.

1. Protect wheels and axles from rust:
  - Remove lock pin and slide wheel off hub.
  - Coat the axles lightly with axle grease.
  - Slide wheel back on hub and insert lock pin.
2. Drain fuel system completely following engine manufacturer's instructions or add fuel stabilizer to prevent fuel from gumming up during extended storage period.
3. While engine is still warm, drain the oil from the engine. Refill with fresh oil of the recommended grade.
4. Clean external surfaces, engine and cooling fan.
5. Spark plug preparation:
  - Remove spark plug, pour one ounce of SAE 30 oil into spark plug hole.
  - Plug hole and pull starter cord slowly to distribute oil evenly in cylinder head area.
  - Reinstall spark plug.
6. Transport unit to a suitable storage location. If you have chosen to use a fuel stabilizer and have not drained the fuel system, follow all safety instructions storage precautions in this manual to prevent the possibility of fire from the ignition of gasoline fumes. Remember, gasoline fumes can travel to distant sources of ignition and ignite, causing risk of explosion and fire.
7. If there is any possibility of unauthorized use or tampering, remove the spark plug and store it in a safe place before storing the rototiller unit. Be sure to plug the spark plug hole to prevent foreign material from entering.



## TROUBLESHOOTING AND REPAIR

### TROUBLESHOOTING GUIDE

While normal care and routine maintenance will extend the life of your rototiller, prolonged or constant use may eventually require that service be performed to allow it to continue operating properly. The troubleshooting guide below lists the most common problems, causes and remedies.

PROBLEM	REMEDY/ACTION
Engine will not start	<ul style="list-style-type: none"> <li>Add gas to gas tank.</li> <li>Connect spark plug wire to spark plug</li> <li>Throttle must be positioned at choke for a cold start</li> </ul>
Engine runs rough, floods during operation	<ul style="list-style-type: none"> <li>Clean or replace air cleaner</li> </ul>
Engine is hard to start	<ul style="list-style-type: none"> <li>Drain old fuel and replace with fresh. Use gas stabilizer at end of season</li> <li>Make sure spark plug wire is securely attached to spark plug</li> <li>Drive safety control levers must be released to neutral position to start the engine</li> </ul>
Engine misses or lacks power	<ul style="list-style-type: none"> <li>Raise the tines for shallow tilling by lowering the depth regulator lever</li> <li>Remove and clean fuel tank</li> <li>Clean or replace air cleaner</li> <li>Improper carburetor adjustment, take to authorized engine service center</li> <li>Replace spark plug and adjust gap</li> <li>Drain and refill gas tank and carburetor</li> </ul>
Engine will not stop when throttle control is positioned at stop	<ul style="list-style-type: none"> <li>See engine manual to check and adjust throttle linkage</li> </ul>
Tiller moves forward during starting	<ul style="list-style-type: none"> <li>Drive safety control levers must be released to neutral position to start the engine</li> </ul>
Tiller is difficult to control when tilling (machine jumps or lurches forward)	<ul style="list-style-type: none"> <li>Lock wheels in tilling position</li> <li>Raise tines for shallower tilling by lowering the depth regulator lever</li> </ul>
Tines turn, wheels do not turn	<ul style="list-style-type: none"> <li>Lock wheels in tilling position</li> <li>Internal transmission failure, see your dealer</li> </ul>
Tines turn, wheels turn, tiller does not move	<ul style="list-style-type: none"> <li>Raise the tines for shallower tilling by lowering the depth regulator lever</li> <li>Lift slightly on handlebars to allow wheels to gain traction</li> </ul>
Belts squeal in neutral	<ul style="list-style-type: none"> <li>Adjust forward belt guide: <ul style="list-style-type: none"> <li>turn engine off and allow muffler to cool</li> <li>disconnect spark plug wire and secure from spark plug</li> <li>remove belt guard</li> <li>pull down on drive safety control lever</li> <li>manually bend forward belt guide so there is 1/16 inch or less clearance between belt guide and belt</li> <li>replace belt guard and spark plug wire</li> </ul> </li> </ul>
Excessive heat build up in transmission/tine area during tilling	<ul style="list-style-type: none"> <li>Remove vegetation by following instructions in "Clean Tine Axle Shaft" of Normal Care section.</li> <li>Check transmission fluid and fill if needed</li> </ul>
Constant buzzing sound is heard while engagement lever is compressed	<ul style="list-style-type: none"> <li>Fully compress engagement lever</li> <li>Properly space wire guide against idler pulley</li> <li>Tighten throttle cable</li> </ul> <p><b>NOTE: If engagement lever is fully compressed, wire guide is properly adjusted, and cable has reach full adjustment and buzzing persists, the belt may be stretched and have to be replaced.</b></p>



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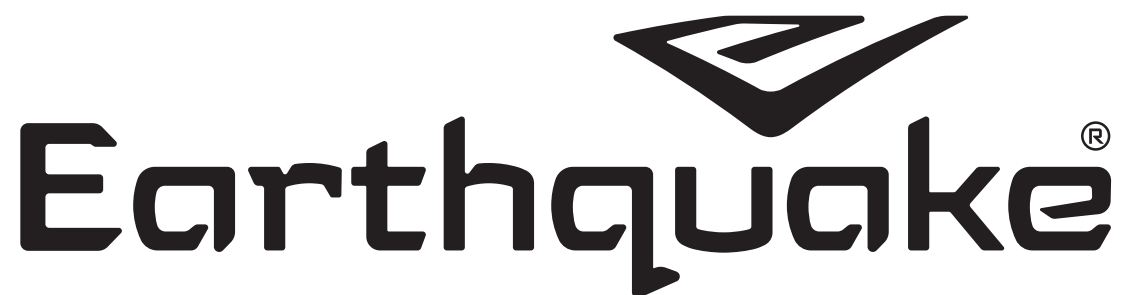
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NOTES:

Lined area for notes, consisting of 20 horizontal lines.



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