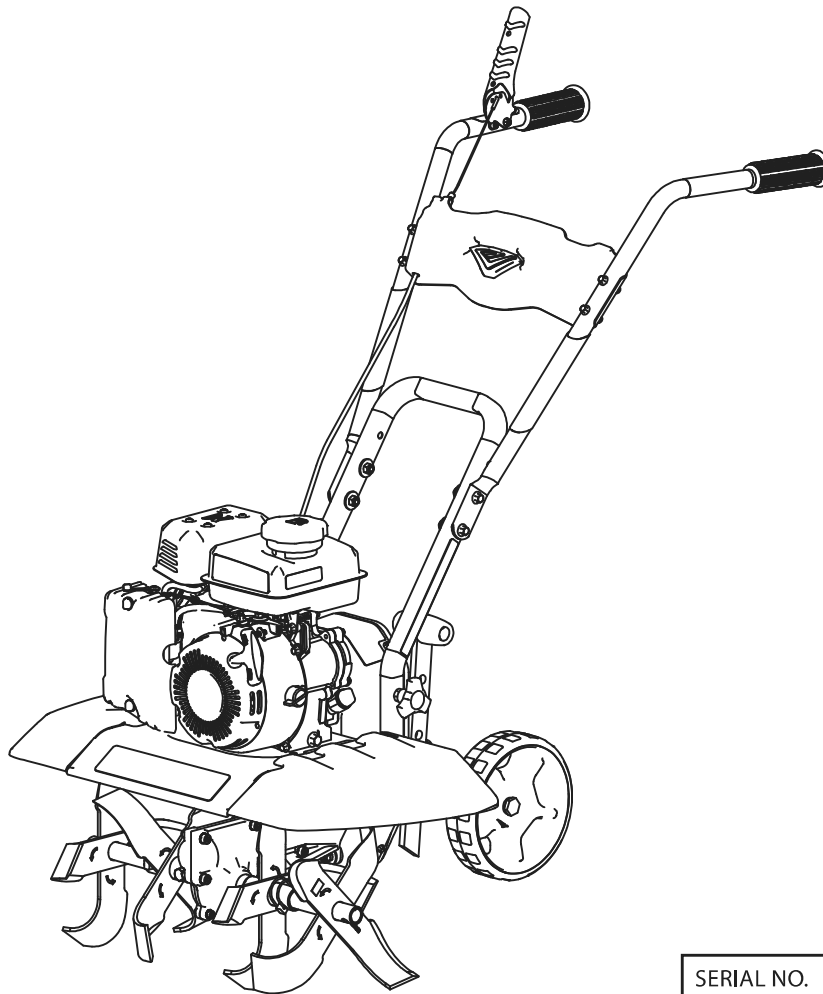


Owner's Manual

VERSA
Compact Tiller and Cultivator

**Model #'s: 20015 / 25780 /
24734 / 29241**

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 or call (800) 345-6007

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P/N: 31585
REV 2: 07/20/2022



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.

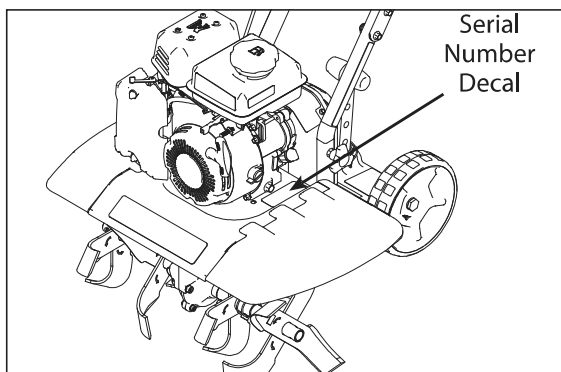
Read and keep this manual for future reference. This manual contains important information regarding safety, assembly, operation and maintenance. The owner must be certain that all the product information is included with the unit. This information includes the manual, the replacement parts and the warranties. 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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Warnings and Safety Precautions.....	4-8
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Assembly	10-15
Operation	16-19
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Troubleshooting and Repair.....	23

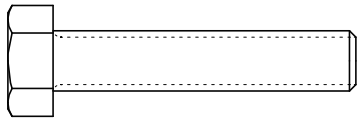
REGISTRATION AND SERVICE

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, or by mailing it to: Ardisam, 1730 Industrial Avenue, PO Box 666, 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.

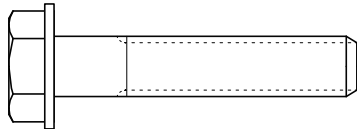


BOLT IDENTIFICATION CHART

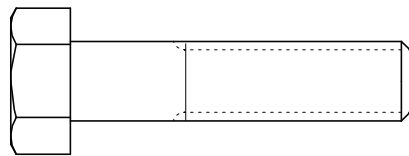
Bolts shown are for size reference only. Extra hardware may be included in the parts bag.



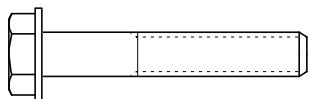
(A)
M8 x 40 MM Bolt
Qty 2



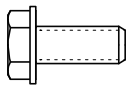
(B)
M8 x 40 MM Flange Bolt
Qty 4



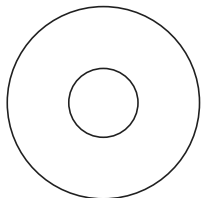
(C)
M10 x 45 MM Bolt
Qty 2



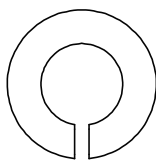
(D)
M6 x 35 MM Flange Bolt
Qty 4



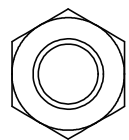
(E)
M5 x 12 MM Flange Bolt
Qty 4



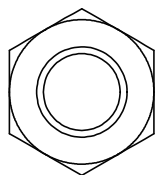
(F)
M8 X 25 MM Washer
Qty 6



(G)
M10 Spring Lock Washer
Qty 2



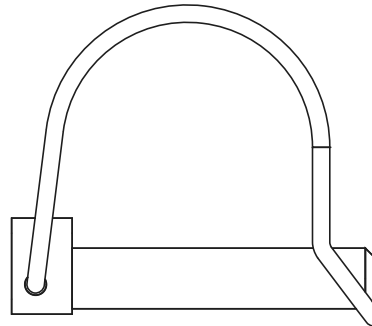
(H)
M8 Nut
Qty 6



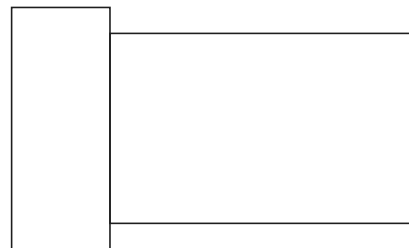
(I)
M10 Nut
Qty 2



(J)
M6 Nut
Qty 4

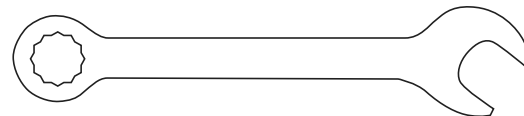


(K)
Lock Pin
Qty 1

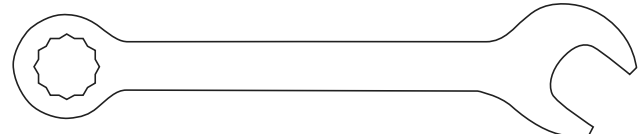


(L)
Tine Shaft Sleeve
Qty 2

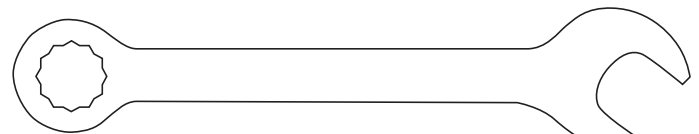
TOOLS NEEDED - NOT INCLUDED



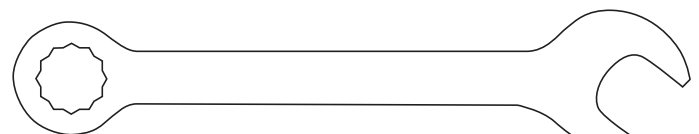
8 MM Wrench - Qty 1



10 MM Wrench - Qty 1



13 MM Wrenches - Qty 2



15 MM Wrenches - 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.

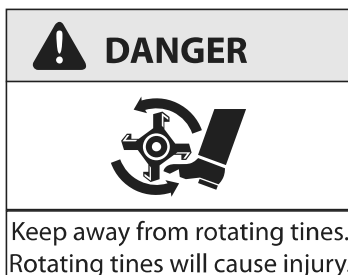
-  This symbol points out important safety instructions which if not followed could endanger your personal safety. Read and follow all instructions in this manual before attempting to operate this equipment.

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, but not self-propelled, with a gasoline-fueled internal combustion engine to power the tines. It shall not be used for any other purpose.



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.

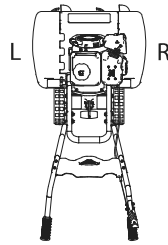
- Extinguish all cigarettes, cigars, pipes and other sources of ignition.
- Never remove gas cap or add fuel with the engine running.
- Allow engine to cool before refueling.
- Never store the machine or fuel container where there is an open flame, spark, or pilot light such as on a water heater or on 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.



A



B



C



D



E



F



G



H



I



J



K



L



M



N



O



P

FEATURES

The advantage of the Earthquake® VERSA Compact Tiller/Cultivator, over other tillers, is its low center of gravity and the ability to switch between tiller and cultivator in seconds with no tools! To convert your full width tiller to a narrow cultivator, just pull the lock pins to remove the outer tines. Then simply remove the hand knob bolts and pivot the handlebar back to remove the slide-on side shields. Refasten the handlebar to the pulley box to the desired height with the hand knob bolts and you're ready to cultivate between narrow garden rows (see detailed illustrated instructions on page 16). This tiller has been engineered to the highest standards by tilling experts who sought a light-weight, compact, and easily maneuverable tiller that can be used all season long.

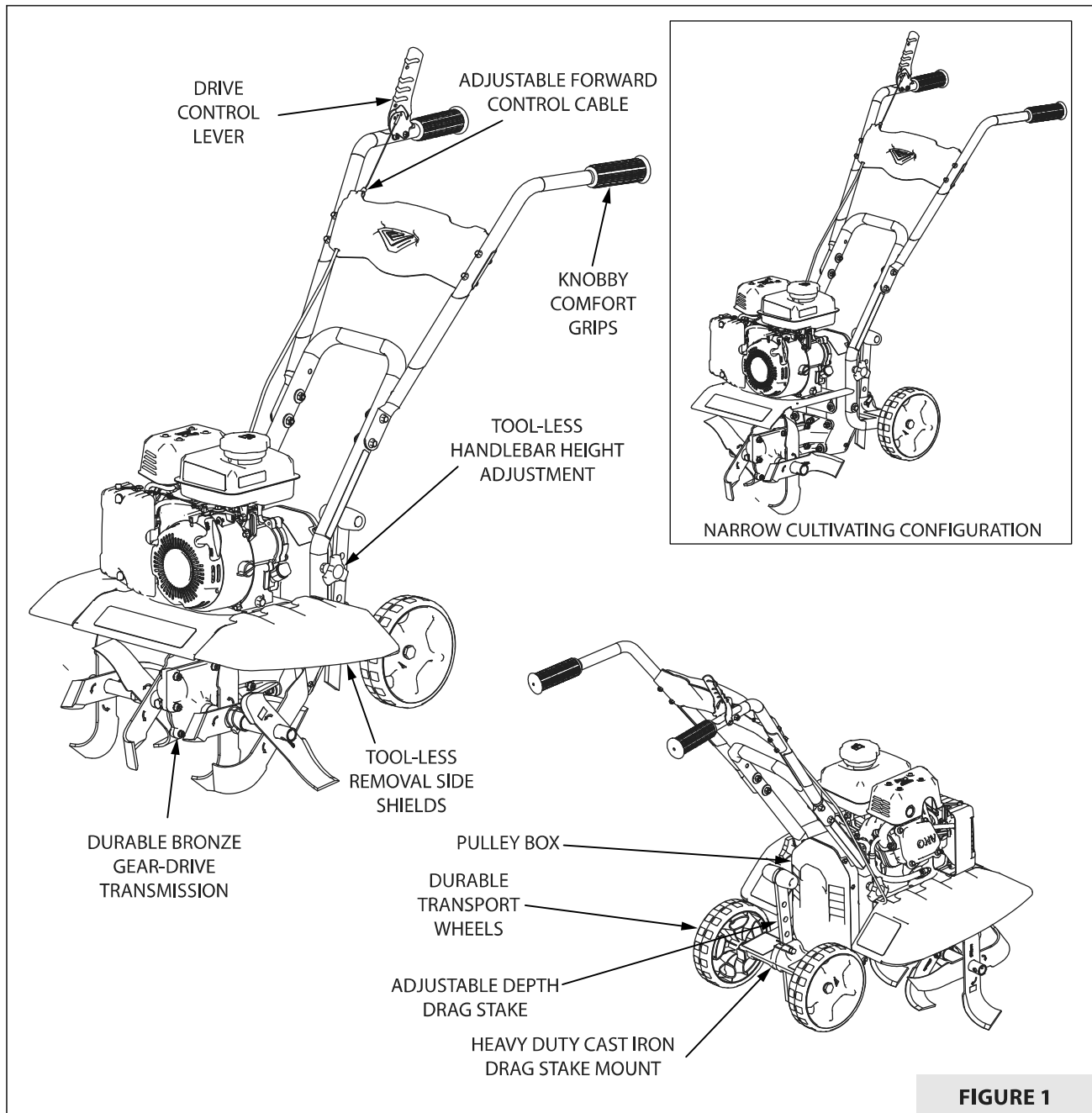


FIGURE 1

UNPACKING AND ASSEMBLY

CARTON CONTENTS

TILLER ASSEMBLY

- Hardware Parts Bag:
 - A - (2) M8 x 40 mm Hex Bolt
 - B - (4) M8 x 40 mm Hex Flange Bolt
 - C - (2) M10 x 45 mm Hex Bolt
 - D - (4) M6 x 35mm Hex Flange Bolt
 - F - (6) M8 x 25 mm Flat Washer
 - G - (2) M10 Spring Lock Washer
 - H - (6) M8 Nylock Nut
 - I - (2) M10 Nylock Nut
 - J - (4) M6 Nylock Nut
 - K - (1) Lock Pin
 - L - (2) Tine Shaft Sleeve
- Manual Parts Bag
- Left, Right, and Middle Handlebars
- Left and Right Side Shields
- Left and Right Tine Sets
- Pulley Box Cover
- E - (4) M5 x 25 mm Hex Flange Bolt
- Drag Stake
- Bottle of 4-cycle Engine Oil

NOTICE

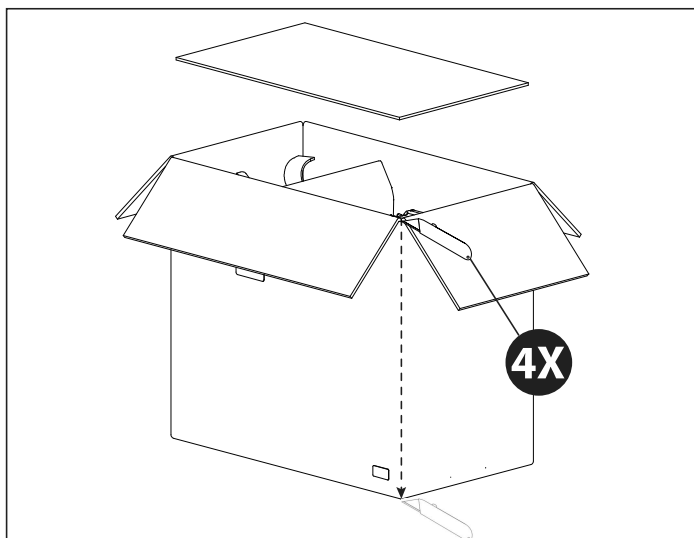
HANDLE ROTOTILLER WITH CARE. DO NOT DAMAGE FORWARD CABLE WHEN TRANSPORTING OR OPERATING.

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



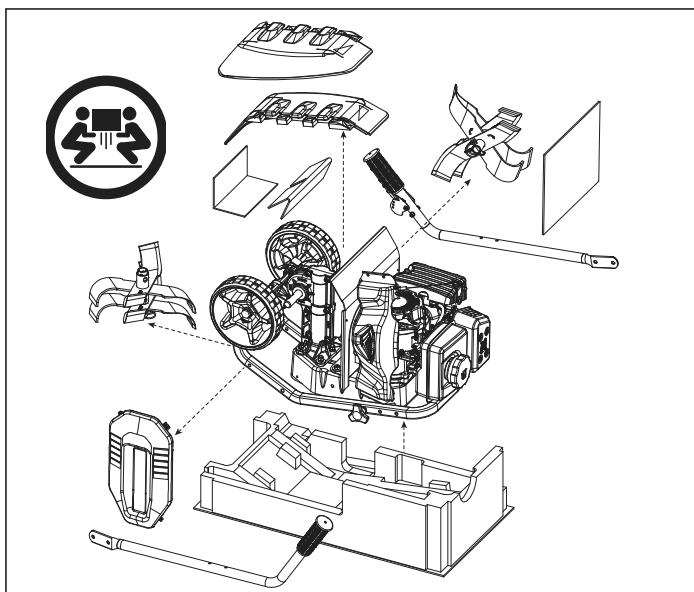
WARNING

- ⚠ 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.



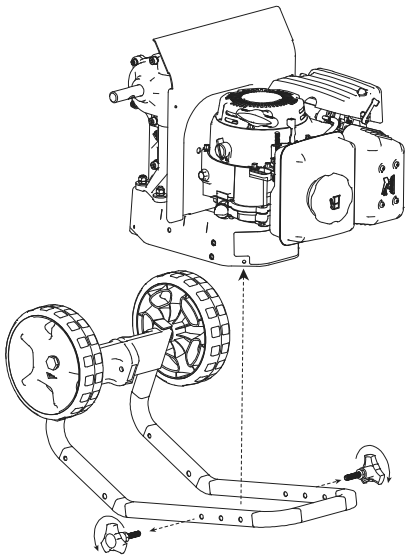
Open top of carton and remove packaging materials. Carefully cut the corners of the carton with a box cutter. Do not attempt to lift tiller assembly out of box.

FIGURE 2



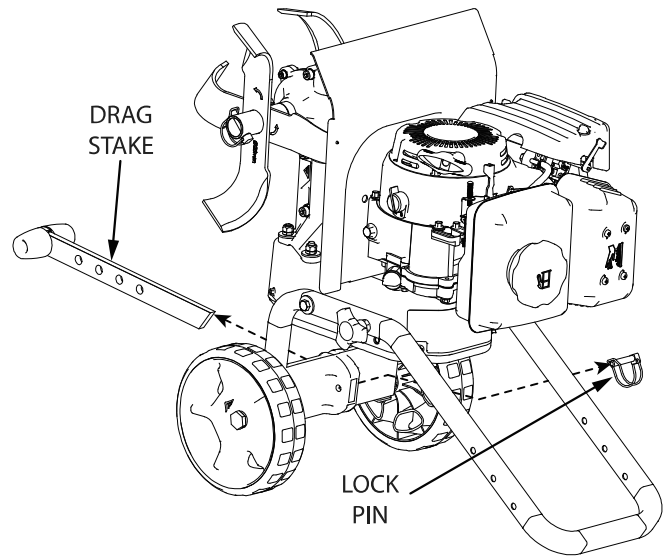
Carefully remove tiller assembly, additional assembly components and remaining packaging materials from package.

FIGURE 3



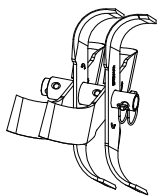
Remove hand knob bolts from both sides of tiller. Separate lower handlebar assembly from pulley box and cut zip ties to remove handlebars.

FIGURE 4 (FOR MODELS 20015/24734)

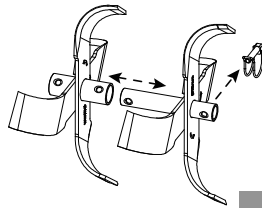


Remove drag stake from tiller assembly by removing the lock pin and setting both aside.

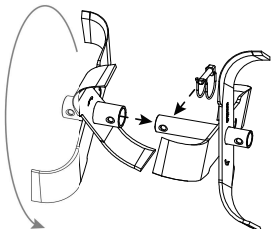
FIGURE 4 (FOR MODELS 25780/29241)



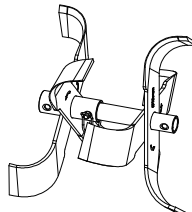
a



b



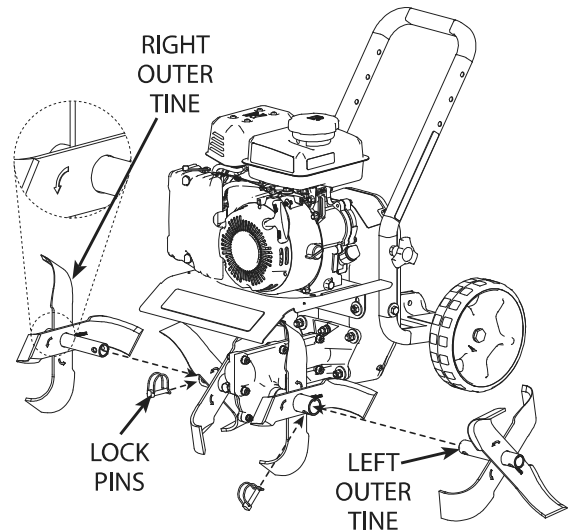
c



d

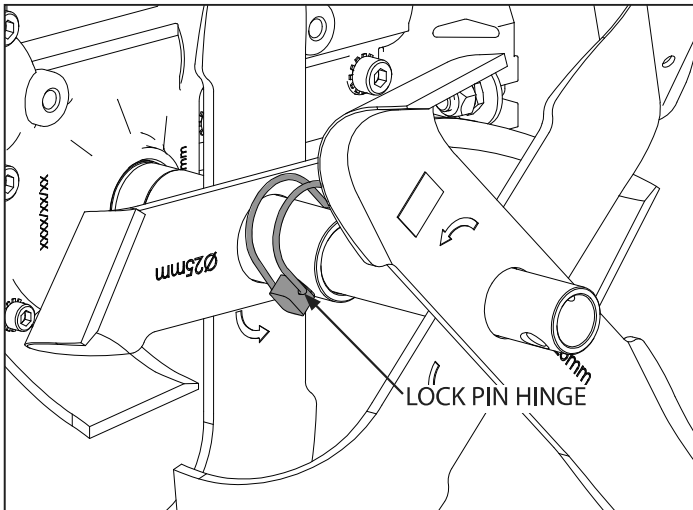
Remove lock pin from one tine set. Slide outer tine and rotate to align with the second hole position of inner tine, then secure with lock pin. Repeat for other tine set.

FIGURE 5 (FOR MODELS 20015/24734)

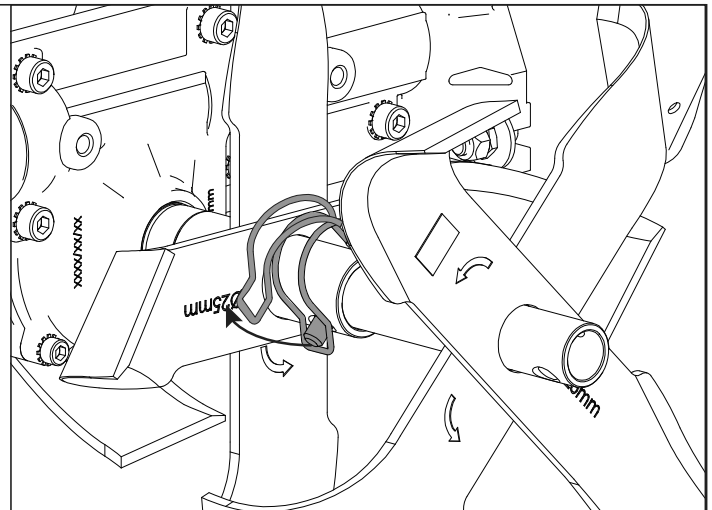


Remove lock pin from one inner tine. Check that arrows on tines are pointed in the direction of forward rotation and slide outer tine so that it aligns with the second hole position of inner tine. Secure with the lock pin. Repeat for other outer tine.

FIGURE 5 (FOR MODELS 25780/29241)



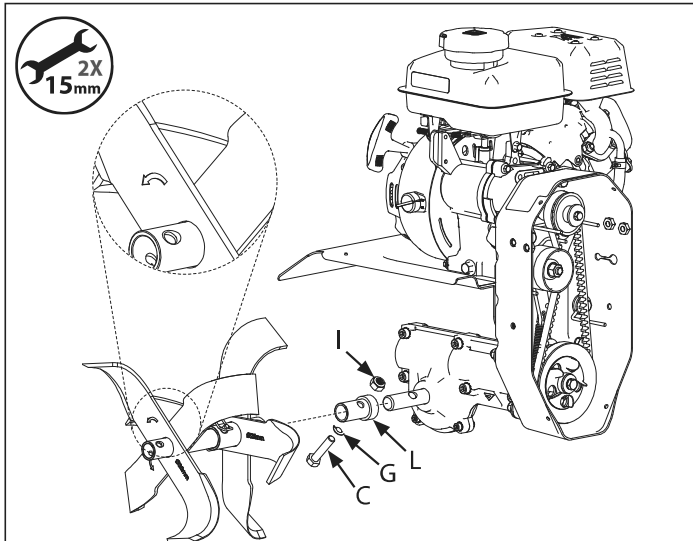
LOCK PIN INSTALLED CORRECTLY



LOCK PIN INSTALLED INCORRECTLY

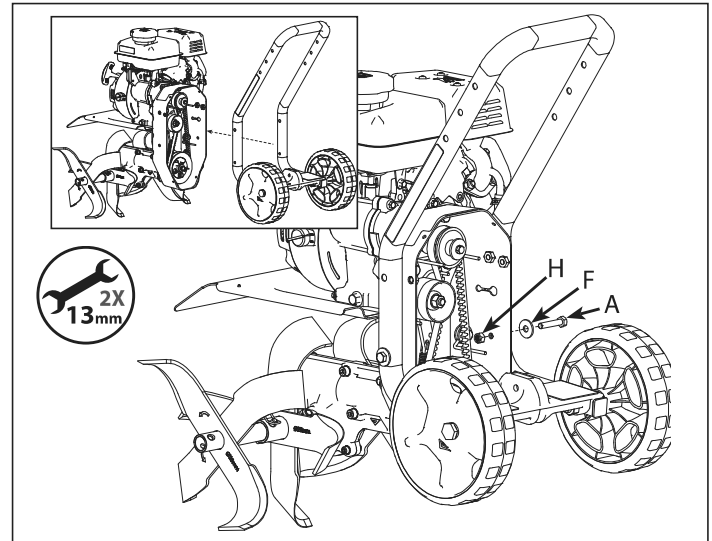
NOTE: Ensure the lock pins and tines are correctly installed. Lock pins must be installed so that the pin enters the hole in the tine from the front of the tiller, and so the wire bale hinges over the top of the tine pipe and latches to the protruding pin on the back side of the tine. Tines can inadvertently detach during tilling if lock pins are not installed correctly!

FIGURE 5A



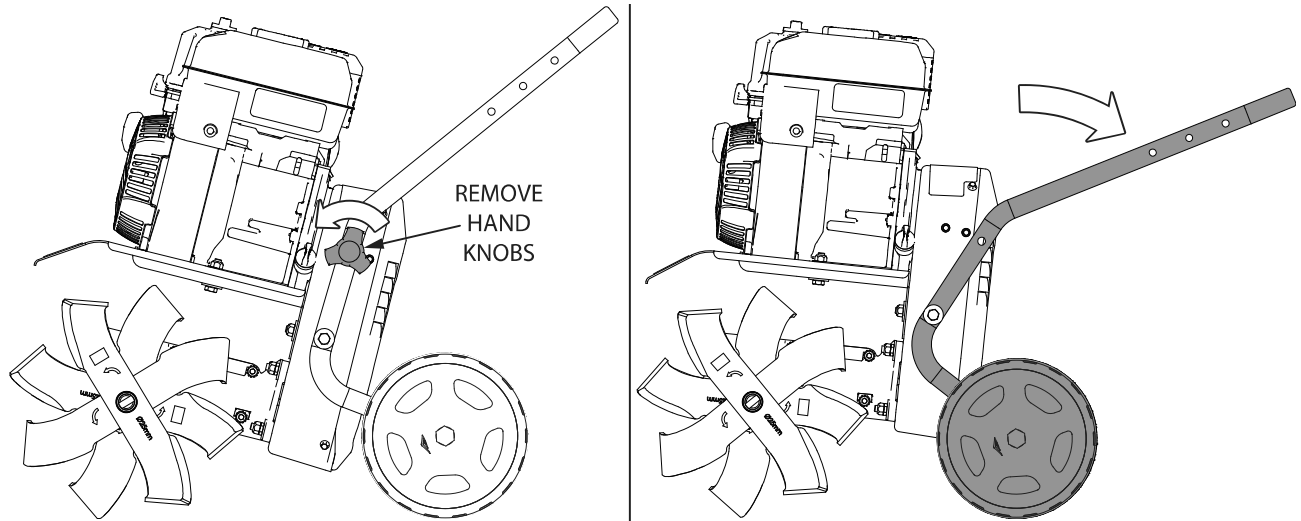
Check that arrows are pointing in the direction of forward rotation and slide left tine set over tine shaft sleeve, align mounting holes with the left tine shaft, and secure with the M10 x 45 mm Hex Bolt, Spring Lock Washer, and Nylock Nut. Tighten with two 15mm wrenches. Repeat for right tine set on right tine shaft.

FIGURE 6 (FOR MODELS 20015/24734)



Align lower handlebar assembly mount holes with lower mount holes on pulley box. Place one M8 x 25 mm Flat Washer on one M8 x 40 mm Hex Bolt and insert through lower mount hole of lower handlebar assembly and pulley box. Place one M8 Nylock Nut on bolt and tighten with two 13mm wrenches. Repeat for other side.

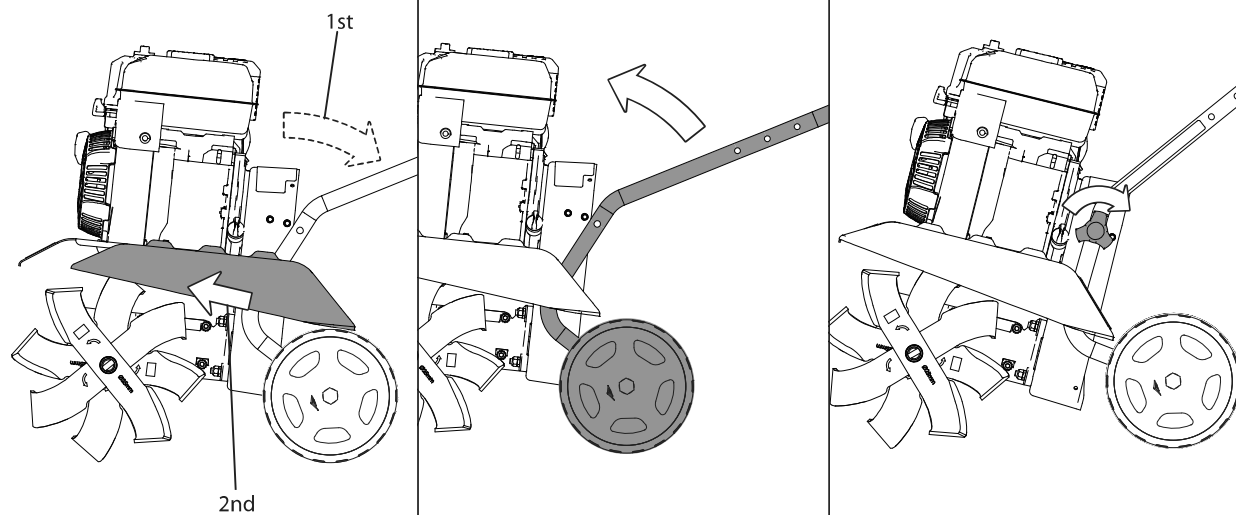
FIGURE 6A (FOR MODELS 20015/24734)



Tine side shield installation:

- Remove hand knob bolts from lower handlebar assembly.
- Rotate lower handlebar assembly away from engine to provide adequate clearance to install side tine shields.

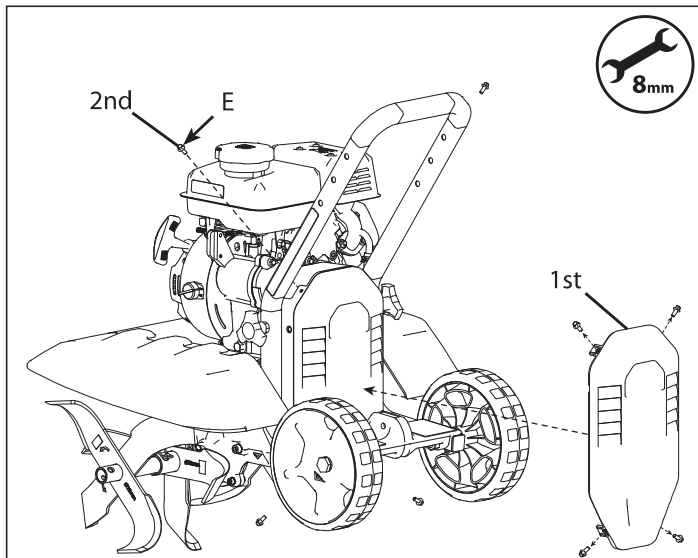
FIGURE 7A (FOR MODELS 25780/29241)



Rotate lower handlebar assembly away from engine to provide adequate clearance to install side tine shields. Slide left and right side shields onto center tine shield. Align side shield grooves with center tine shield and push until an audible click is heard and/or felt. This indicates that the tine shield has engaged with the shield lock and is secured all the way on. Rotate lower handlebar assembly up towards engine and insert hand knob bolts through upper mount holes and tighten.

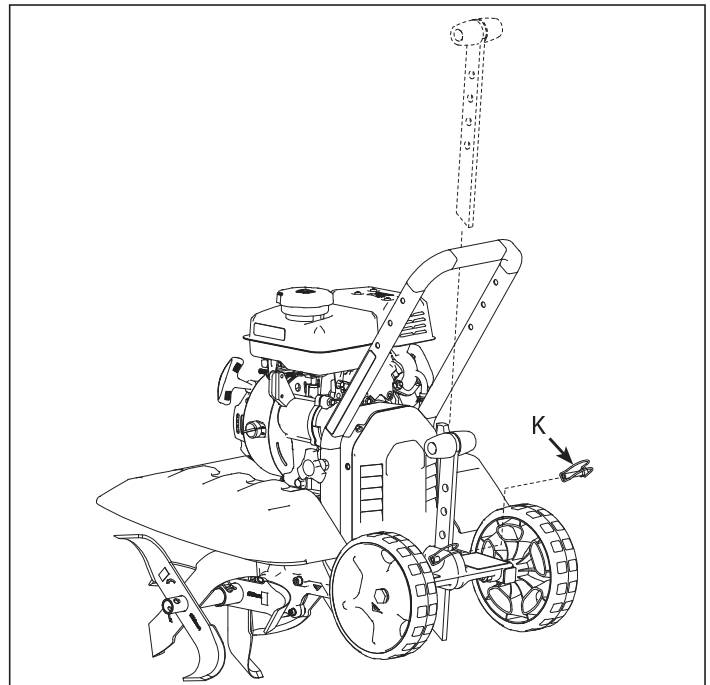
NOTE: Hand knob bolts can be inserted into one of two sets of holes depending on desired handlebar height.

FIGURE 7B



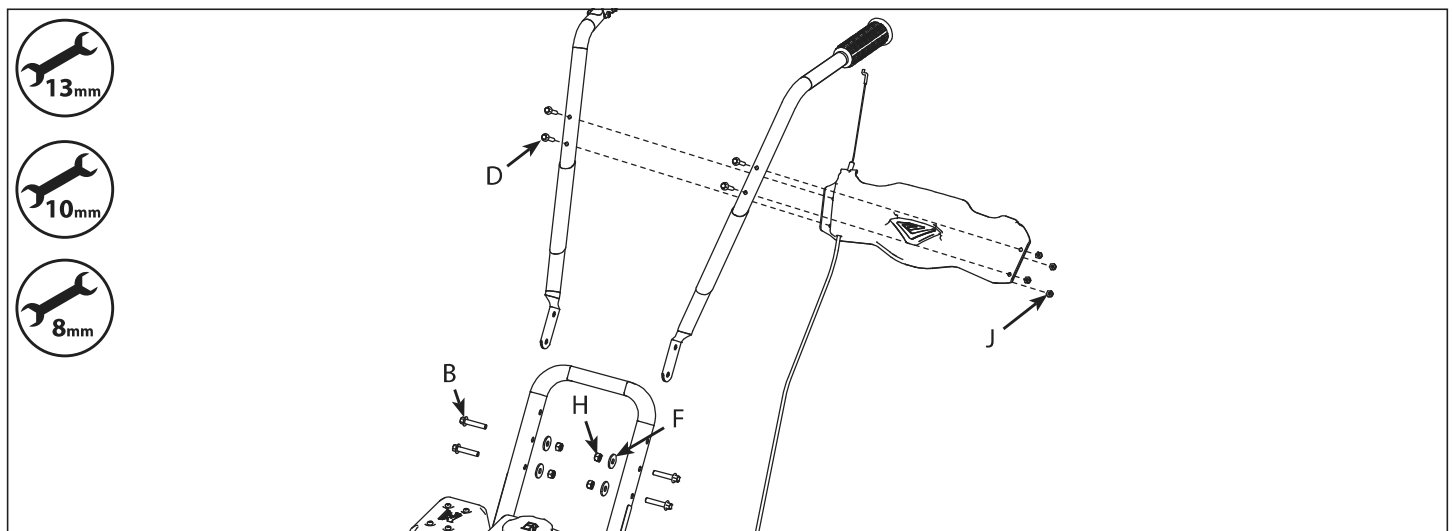
Remove four M5 x 12 mm Hex Flange Bolts from pulley box cover. Place pulley box cover onto pulley box and secure with the four M5 x 12 mm Hex Flange Bolts using an 8mm wrench.

FIGURE 8 (FOR MODELS 20015/24734)



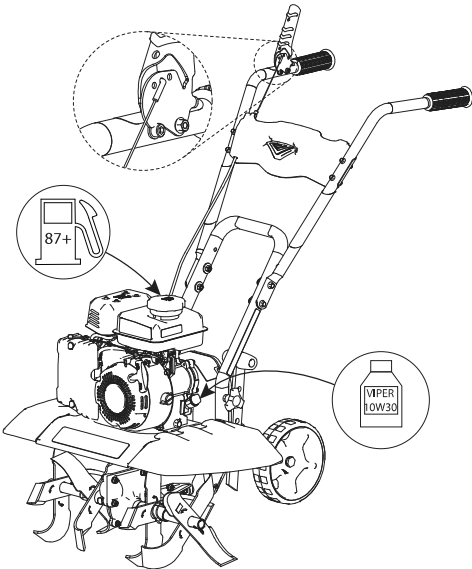
Slide drag stake through drag stake mount and secure with lockpin at the desired depth.

FIGURE 9



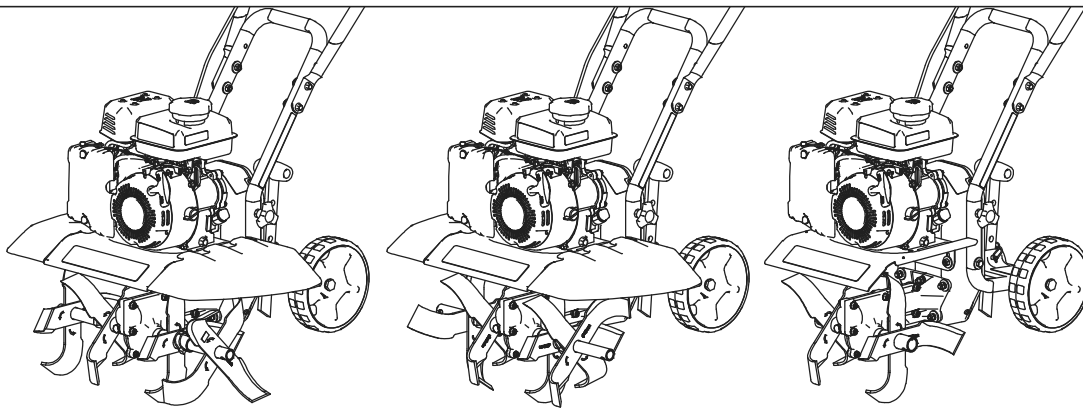
Align right handlebar mount holes with lower handlebar assembly mount holes at one of two height positions. Secure right handlebar with two M8 x 40 mm Hex Flange Bolts, two M8 x 25 mm Flat Washers, and Two M8 Nylock Nuts and hand tighten. Repeat for left handlebar. Align middle dash panel with mount holes of right and left handlebars. Secure middle dash panel with four M6 x 35 mm Hex Flange Bolts, and four M6 Nylock Nuts. Tighten all handlebar hardware with a combination of 8mm, 10mm, and 13mm wrenches. Use two zip ties to secure the forward cable. (optional).

FIGURE 10



Insert Z-bend end of drive cable into one of the three holes in the drive control lever ensuring there is no excess slack in the cable and the drive control lever remains in the full up position.

FIGURE 11



WIDE TILLING (21 INCHES)

NARROW TILLING (16 INCHES)

NARROW CULTIVATING (11 INCHES)

NOTE: Tines can be configured for multiple tilling situations:

- Wide Tilling - Install according to Figure 6.
- Narrow Tilling - Remove outer tines and lock pins and install on opposite tine shaft with the directional arrows pointing in the direction of forward rotation.
- Narrow Cultivating - Remove outer tines and lock pins. Side shields can also be removed for better viewing of plants.

FIGURE 12

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.
- PROTECTIVE FOOTWEAR MUST BE WORN WHILE OPERATING THIS PRODUCT.
- 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

Pulling down on drive safety control lever engages the tines. Releasing the drive safety control lever to a neutral position disengages the tines.

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. Proper tension is achieved when the beehive spring extends 1/8" - 1/4" when drive lever is engaged.

To increase belt tension do as follows:

1. Loosen upper jam nut. **SEE FIGURE 13.**
2. Tighten the lower jam nut in 1/8" increments, making sure not to over adjust the tension.
3. Check adjustment by measuring the beehive spring extension when drive lever is engaged. (Proper spring extension is 1/8" - 1/4") **SEE FIGURE 13.**
4. When proper adjustment is achieved, tighten upper jam nut.

***NOTE:** This procedure can be repeated until conduit adjustment bolts are fully adjusted. The Z-bend linkage 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 14.**

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.*

HEIGHT ADJUSTMENTS

Handlebar height can be adjusted in two ways to accommodate a total of four possible user heights. **SEE FIGURE 15.**

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.

To adjust height at pulley box do as follows:

1. Remove hand knob bolts from box and rotate handlebars to desired height then reattach hand knob bolts.

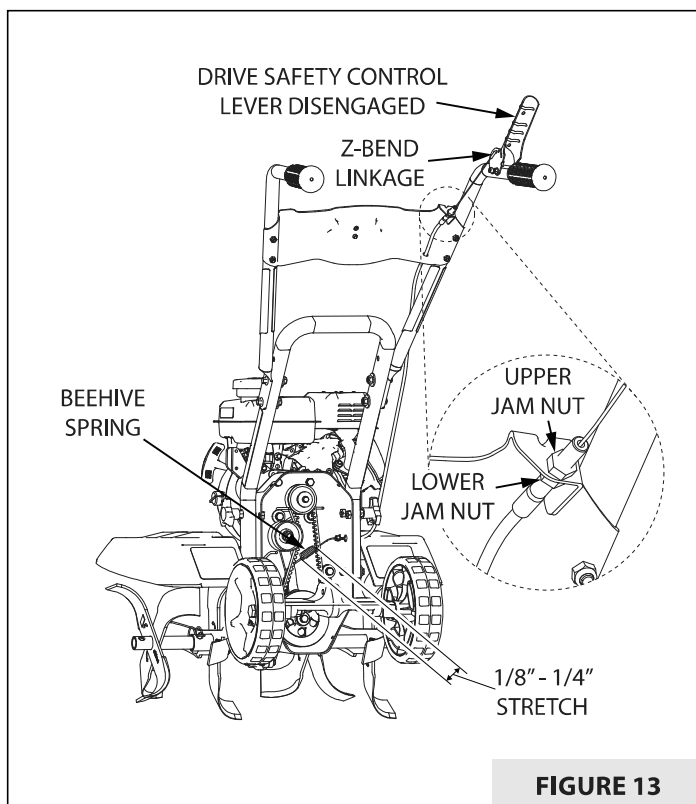


FIGURE 13

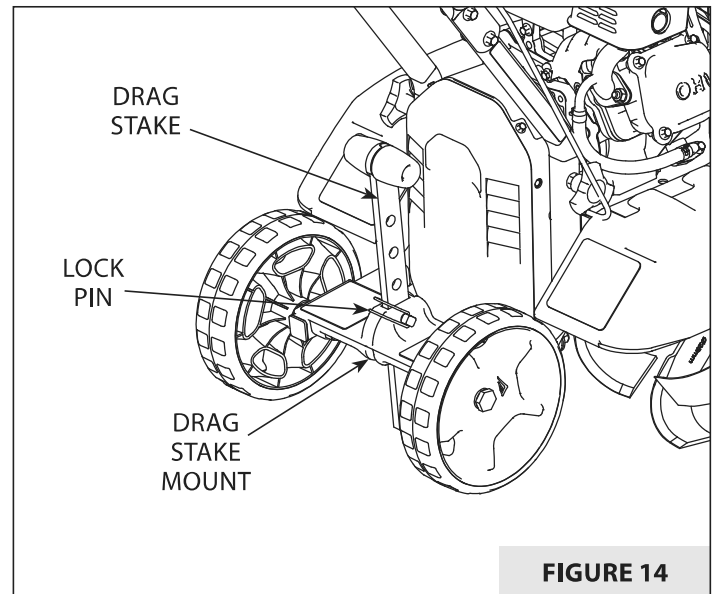


FIGURE 14

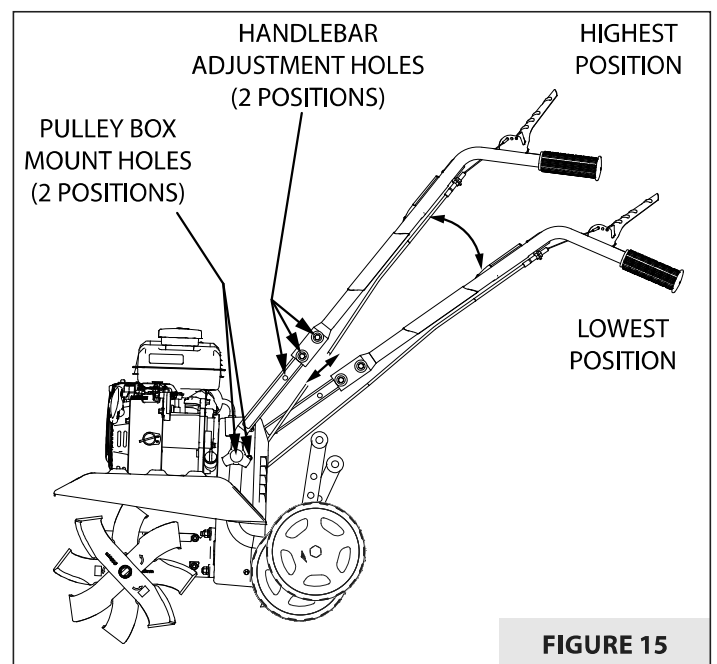


FIGURE 15

⚠ CAUTION

- ⚠ DO NOT USE CHOKE CONTROL TO STOP ENGINE. BACKFIRE OR ENGINE DAMAGE MAY OCCUR!
- ⚠ TO STOP THE ENGINE AT ANY TIME, MOVE THROTTLE CONTROL TO THE OFF OR STOP POSITION, OR TURN THE ON/OFF SWITCH TO OFF.
- ⚠ ALWAYS RELEASE DRIVE SAFETY CONTROL LEVER TO NEUTRAL POSITION BEFORE ADJUSTING THE DEPTH OF THE DRAG STAKE.
- ⚠ ENGINE IS SHIPPED FROM FACTORY WITHOUT OIL. YOU MUST ADD ENGINE OIL BEFORE STARTING ENGINE.

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 1 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 drag stake position.
7. Examine underneath and around engine for signs of oil or fuel leaks.
8. Inspect fuel hoses for tightness and fuel seepage.
9. Look for signs of engine damage.
10. Remove excessive debris from muffler area and recoil starter.

START-UP

- The controls required to start and run the rototiller are located on the engine.
- The throttle speed control is located above the pull-start recoil and is indicated by a rabbit for **FAST** and a turtle for **SLOW**.
- The choke lever is located above the air cleaner cover. The ON/ OFF switch is located on the side of the blower hous-

⚠ DANGER

- ⚠ DO NOT START YOUR TILLER UNTIL YOU HAVE READ AND UNDERSTAND THIS MANUAL AND THE SECTIONS IN THIS MANUAL COVERING SAFETY AND OPERATION.
- ⚠ ALWAYS PERFORM THE PRE-START INSPECTION CHECKLIST BEFORE STARTING THE ENGINE.
- ⚠ 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 TINE FROM TURNING, AND STOP THE ENGINE IF NECESSARY. IF YOU DO NOT KNOW HOW TO DO THESE THINGS, READ THE CONTROLS AND SAFETY SECTIONS BEFORE PROCEEDING.
- ⚠ 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 HANDLEBARS AND THE DRIVE CONTROL LEVER IMMEDIATELY SO THAT THE TINES STOP TURNING.
- ⚠ CAUTION MUST BE TAKEN WHEN SELECTING TILLING DEPTH. LOSS OF CONTROL COULD RESULT IF YOU ATTEMPT TO TILL IN CERTAIN SOIL CONDITIONS WITH THE DRAG STAKE SET IN TOO HIGH OF A POSITION.
- ⚠ STOP THE ENGINE AND REMOVE SPARK PLUG WIRE BEFORE REMOVING MATERIAL FROM THE TINES BY HAND OR ANY OTHER METHOD.
- ⚠ ENGINE AND SURROUNDING PARTS BECOME EXTREMELY HOT DURING NORMAL OPERATION. TEMPERATURE OF MUFFLER AND NEARBY AREAS MAY EXCEED 150°F (66°C). AVOID THESE AREAS. ALLOW ENGINE TO COOL COMPLETELY BEFORE TOUCHING THESE HOT SURFACES. THESE AREAS WILL CAUSE SERIOUS BURN INJURIES IF TOUCHED BEFORE THE ENGINE HAS COOLED.
- ⚠ ALWAYS KEEP HANDS AND FEET CLEAR OF ROTATING MACHINE PARTS.

ing closest to the recoil pull handle.

- Additional engine operation and related precautions and procedures can be found in the engine manufacturer's manual that accompanies each tiller.

COLD STARTS

1. Turn the ON/OFF switch to the **ON** position.
2. Move choke lever to **FULL CHOKE** position.

3. Move throttle lever to half way between the **SLOW** position and the **FAST** position.
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 increase throttle speed to the **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. Turn the ON/OFF switch to the **ON** position.
2. Move throttle lever to half way between **SLOW** and **FAST**.
3. Pull starting rope out rapidly until engine starts. Allow rope to return normally. Repeat until engine starts.
4. Adjust throttle speed to the **FAST** position for tilling.

OPERATING SPEED

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

SHUTTING DOWN

To stop the engine at any time, turn the ON/OFF switch to the **OFF** position. To stop tines at any time, release the drive safety control lever to the neutral position.

TILLING

1. Adjust the drag stake to desired tilling depth.

NOTE: *Raise drag stake up one hole at a time, testing tiller operation after each raise. Raising drag stake too high can result in loss of control of tiller!*

2. Move the throttle control to **FAST**.
3. Place the tiller in motion by pushing down on the drive safety control lever. This will engage the tines.

MAINTENANCE AND STORAGE

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

Please read the maintenance schedule in this manual for the tiller, and the maintenance schedule and recommendations in the accompanying engine manual. Observe these recommendations to extend the life of your product.

MAINTENANCE SCHEDULE

Maintenance Operation	Page	Before Each Use	10 hours	50 hours
Check belt tension	22		X	
Change drive belt	22-23			X
Clean tine axle shaft & lubricate parts	24		2	

EM = See engine manual

1 Change oil after first 5-8 hours of use, then after every 50 hours. Change oil every 25 hours when operating under heavy load or in high temperatures.

2 Clean tine axle shaft and lubricate each season or every 10 hours, whichever comes first.

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 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/Locations/ServiceCenter

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.

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 (see page 19).

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.

To check and adjust the forward belt tension:

1. Turn off engine. Engine must be cool.
2. Remove spark plug wire from spark plug and secure.
3. Remove pulley box cover by removing four cover bolts. **SEE FIGURE 16.**
4. With drive safety control lever in the neutral position, measure length of spring when in its relaxed state.
5. Pull down on drive safety control lever and measure length of spring when extended. Ideal length is 1/8" - 1/4" longer. **SEE FIGURE 17.**
6. Replace pulley box cover.

Change Drive Belt as follows:

1. Turn off engine. Engine must be cool.
2. Remove spark plug wire from spark plug and secure.
3. Remove pulley box cover by removing four bolts. **SEE FIGURE 16.**
4. Remove the belt from the engine pulley as follows:
 - a. Gently pull the engine recoil rope to rotate the pulley.
 - b. With the pulley turning, force the belt out of the

groove and slide the belt free of the engine pulley.

- c. Pull the belt down and out of the way.
 - d. Push the belt down and away from the transmission pulley to remove.
5. Install new belt as follows:
 - a. Place belt in transmission pulley groove.
 - b. Gently pull the engine recoil rope to rotate the pulley while forcing the belt into the engine pulley groove.
 6. Recheck belt tension and adjust if necessary
 7. Replace pulley box cover.
 8. Attach spark plug wire.

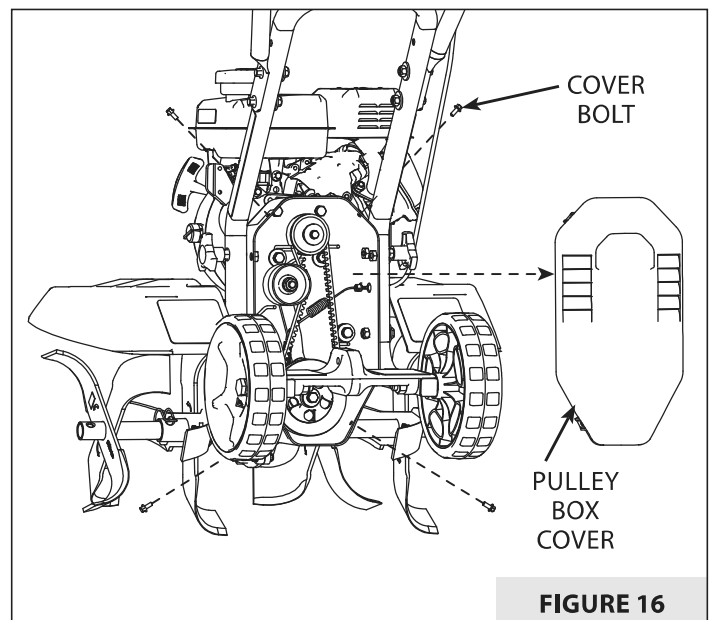
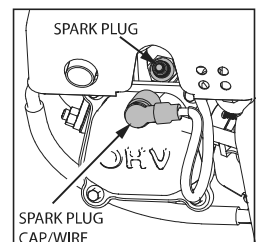


FIGURE 16

WARNING

⚠ TO PREVENT ACCIDENTAL STARTING:

ENGINE MUST BE TURNED OFF AND COOL, AND SPARK PLUG CAP/WIRE MUST BE REMOVED AND SECURED FROM SPARK PLUG BEFORE CHECKING AND ADJUSTING ENGINE OR EQUIPMENT.



⚠ PRACTICE SAFETY AT ALL TIMES. ENGINE MUST BE TURNED OFF AND ALLOWED TO COOL, AND SPARK PLUG WIRE MUST BE DISCONNECTED AND SECURED BEFORE ATTEMPTING ANY MAINTENANCE OR REPAIR.

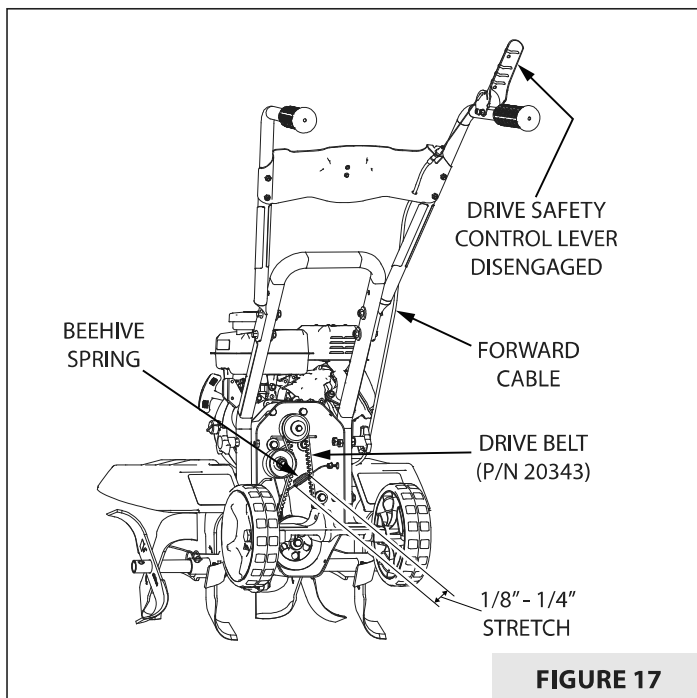


FIGURE 17



DANGER

- ⚠ **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.**
- ⚠ **ENGINE AND SURROUNDING PARTS BECOME EXTREMELY HOT DURING NORMAL OPERATION.**
- ⚠ **TEMPERATURE OF MUFFLER AND NEARBY AREAS MAY EXCEED 150°F (66°C). AVOID THESE AREAS. ALLOW ENGINE TO COOL COMPLETELY BEFORE TOUCHING THESE HOT SURFACES. THESE AREAS WILL CAUSE SERIOUS BURN INJURIES IF TOUCHED BEFORE THE ENGINE HAS COOLED.**
- ⚠ **ALWAYS KEEP HANDS AND FEET CLEAR OF ROTATING MACHINE PARTS.**

NOTICE

CHECK FORWARD BELT TENSION REGULARLY. TOO MUCH OR TOOL LITTLE TENSION WILL CAUSE PREMATURE BELT FAILURE.

DO NOT USE CHOKE CONTROL TO STOP ENGINE. BACKFIRE OR ENGINE DAMAGE MAY OCCUR!

TO STOP THE ENGINE AT ANY TIME, MOVE THROTTLE CONTROL TO THE OF OR STOP POSITION, OR SET THE ON/OFF SWITCH TO OFF.

NEVER RUN ENGINE WITHOUT COMPLETE AIR CLEANER INSTALLED ON ENGINE. ENGINE CAN OVERHEAT AND BECOME DAMAGED IF DEBRIS BLOCKS THE COOLING SYSTEM OR ROTATING SCREEN.

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 for performing the following tasks:

1. Check oil level before each use or after every 8 hours of operation.
2. Change oil after first 5-8 hours of operation. Change oil while engine is warm. Refill with new oil of recommended grade.
4. Check spark plug seasonally or every 100 hours of operation.
5. Service air cleaner.
6. Keep engine and parts clean.
7. Check engine and equipment often for loose nuts and bolts, keep these items tightened.

CHECK OR FILL ENGINE CRANKCASE

1. To change the oil, first remove the left side shield from the tiller. Then lock drag stake into deepest position and gently tip tiller to the left, resting it in a tilted position on its left outer tine, wheel, and drag stake. Remove oil fill plug with the tiller resting in the tilted position until all of the oil has been drained into an appropriate receptacle. **SEE FIGURE 18.** Wipe up any spilled oil residue and dispose of oil properly according to local laws and/or ordinances.
2. Return tiller back to its upright level position and 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 on most engines.

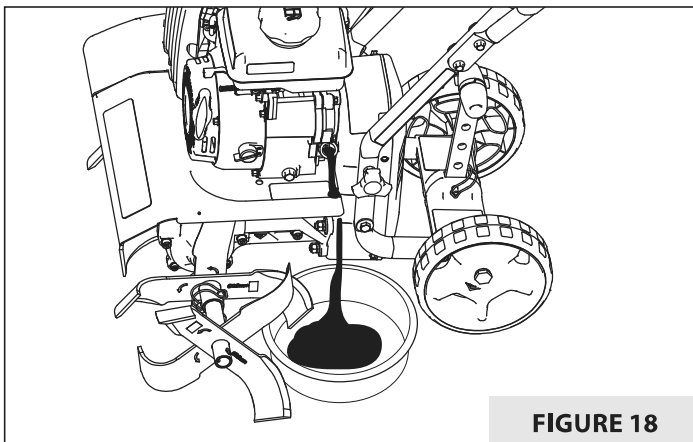
3. Always check oil level before starting engine. Refer to engine manual for capacity and type of oil to use.

CLEAN TINE AXLE SHAFT

1. Turn off engine. Engine must be cool.
2. Remove spark plug wire and secure from spark plug.
3. 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.
4. Replace spark plug wire.

LUBRICATION

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



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.

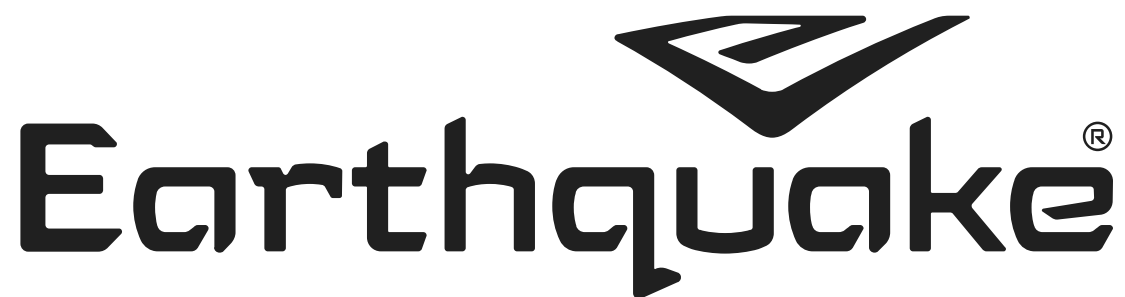
1. Protect tines and tine shafts from rust:
 - ***Coat the tine shaft lightly with axle grease.***
2. Drain fuel system completely following engine manufacturer's instructions or add fuel stabilizer to prevent fuel from gumming up during extended storage period.
3. While engine is still warm, drain the oil from the engine. Refill with fresh oil of the recommended grade.
4. Clean external surfaces, engine and cooling fan.
5. Remove spark plug, pour one ounce of SAE 30 oil into spark plug hole.
6. Plug hole and pull starter cord slowly to distribute oil evenly in cylinder head area.
7. Reinstall spark plug.
8. 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 and 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.
9. If there is any possibility of unauthorized use or tampering, remove the spark plug and store it in a safe place before storing the 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	• Add gas to gas tank • Connect spark plug wire to spark plug • ON/OFF switch must be turned ON and engine choked for a cold start
Engine runs rough, floods during operation	• Clean or replace air cleaner
Engine is hard to start	• Drain old fuel and replace with fresh. Use gas stabilizer at end of season • Make sure spark plug wire is securely attached to spark plug • Drive safety control lever must be released to neutral to start the engine
Engine misses or lacks power	• Raise the drag stake for shallower tilling • Clean or replace air cleaner • Improper carburetor adjustment, take to authorized engine service center • Replace spark plug and adjust gap • Drain and refill gas tank with fresh gasoline • Remove and replace fuel filter between hose and carburetor
Tiller moves forward during starting	• Drive safety control lever must be released to neutral to start the engine • Check belt tension
Tiller is difficult to control when tilling (Machine jumps or lurches forward)	• Lower engine speed in hard ground • Lower the drag stake for greater resistance and control of the tiller • Make sure tines are installed edges forward
Belts squeal in forward operation	• Adjust belt tension with engagement cable • Replace drive belt
Constant buzzing sound is heard while drive safety control lever is compressed	• Properly space wire guide from idler pulley to clear belt when engaged • Adjust engagement cable NOTE: If drive safety control lever is fully compressed, wire guide is properly adjusted, and cable has reached full adjustment and buzzing persists, the belt may be stretched and needs to be replaced. *
Excessive heat build up in transmission/tine area during tilling	• Remove vegetation • Check transmission lubrication and fill if needed



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