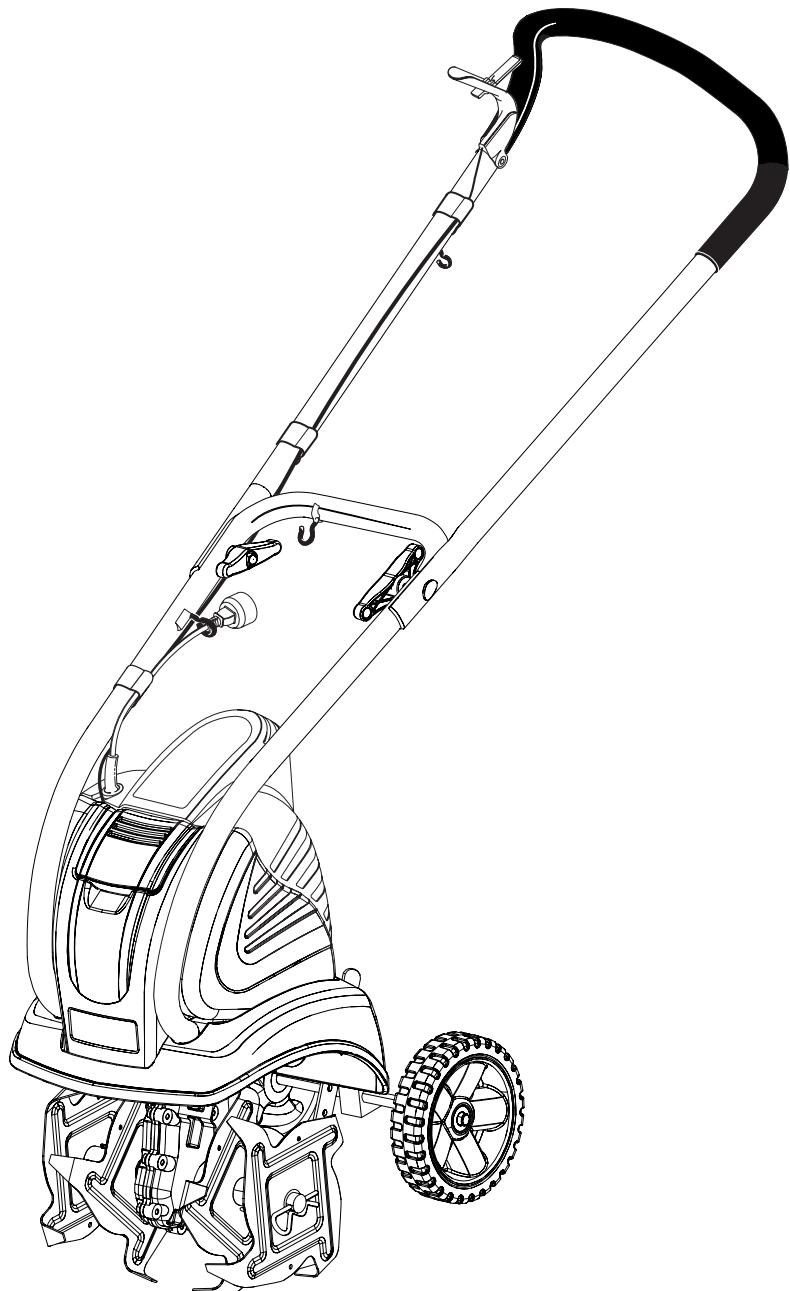




OPERATOR'S MANUAL

ELECTRIC CULTIVATOR

RY46501A



Your electric cultivator has been engineered and manufactured to Ryobi's high standard for dependability, ease of operation, and operator safety. When properly cared for, it will give you years of rugged, trouble-free performance.



WARNING: To reduce the risk of injury, the user must read and understand the operator's manual before using this product.

Thank you for buying a Ryobi product.

SAVE THIS MANUAL FOR FUTURE REFERENCE

TABLE OF CONTENTS

■ Introduction	2
■ General Safety Rules	3
■ Specific Safety Rules.....	4
■ Symbols.....	5-6
■ Electrical.....	7
■ Features.....	8
■ Assembly	9-11
■ Operation.....	11-13
■ Adjustments.....	14
■ Maintenance.....	15
■ Troubleshooting.....	15
■ Parts Ordering / Service	16

INTRODUCTION

This tool has many features for making its use more pleasant and enjoyable. Safety, performance, and dependability have been given top priority in the design of this product making it easy to maintain and operate.

GENERAL SAFETY RULES

WARNING:

READ AND UNDERSTAND ALL INSTRUCTIONS. Failure to follow all instructions listed below may result in electric shock, fire, and/or serious personal injury.

READ THESE INSTRUCTIONS

- Read the operator's manual carefully. Be thoroughly familiar with the controls and the proper use of the equipment. Know how to stop the unit and disengage the controls quickly.
- Do not operate power tools in explosive atmospheres, such as in the presence of flammable liquids, gases, or dust. Power tools create sparks which may ignite the dust or fumes.
- Double insulated tools are equipped with a polarized plug (one blade is wider than the other). This plug will fit in a polarized outlet only one way. If the plug does not fit fully in the outlet, reverse the plug. If it still does not fit, contact a qualified electrician to install a polarized outlet. Do not change the plug in any way. Double insulation  eliminates the need for the three-wire grounded power cord and grounded power supply system.
- Avoid body contact with grounded surfaces such as pipes, radiators, ranges, and refrigerators. There is an increased risk of electric shock if your body is grounded.
- Don't expose power tools to rain or wet conditions. Water entering a power tool will increase the risk of electric shock.
- Do not abuse the cord. Never use the cord to carry the tools or pull the plug from an outlet. Keep cord away from heat, oil, sharp edges, or moving parts. Replace damaged cords immediately. Damaged cords increase the risk of electric shock.
- Use outdoor extension cords marked "W-A" or "W." These cords are rated for outdoor use and reduce the risk of electric shock.
- Never allow children to operate the equipment. Never allow adults to operate the equipment without proper instruction.
- Always wear safety glasses with side shields. Everyday glasses have only impact resistant lenses. They are NOT safety glasses. Following this rule will reduce the risk of eye injury.

- Wear heavy long pants, boots, and gloves. Avoid loose garments or jewelry that could get caught in moving parts of the machine or its motor.
- Do not operate the equipment while barefoot or when wearing sandals or similar lightweight footwear. Wear protective footwear that will protect your feet and improve your footing on slippery surfaces.
- Secure long hair so it is above shoulder level to prevent entanglement in any moving parts.
- Do not operate the cultivator while under the influence of alcohol or drugs.
- Do not put hands or feet near or under tines.
- Exercise caution to avoid slipping or falling.
- Avoid accidental starting. Be sure the switch trigger is not engaged before plugging in.
- Never pick up or carry a machine while the tines are turning or the motor is running.
- Keep machine in good working condition.
- Check all nuts, bolts, and screws at frequent intervals for proper tightness to be sure the equipment is in safe working condition.
- Keep the unit free of grass, leaves, or grease to reduce the chance of a fire hazard.
- Do not use tool if switch does not turn it on or off. Any tool that cannot be controlled with the switch is dangerous and must be repaired.
- Disconnect the plug from power source before making any adjustments, changing accessories, or storing the tool. Such preventive safety measures reduce the risk of starting the tool accidentally.
- Before cleaning, repairing, or inspecting, unplug the cultivator and make certain all moving parts have stopped.
- Never spray water directly into the motor compartment of the cultivator.
- Service on the cultivator must be performed by qualified repair personnel only. Service or maintenance performed by unqualified personnel could result in injury to the user or damage to the product.
- Use only identical replacement parts when servicing the cultivator. Use of unauthorized parts may create a risk of serious injury to the user, or damage to the product.

SPECIFIC SAFETY RULES

- Do not use near underground electric cables, telephone lines, pipes, or hoses. If in doubt, contact your utility or telephone company to locate underground services.
- Make sure your extension cord is in good condition. When using an extension cord, be sure to use one heavy enough to carry the current your product will draw. A wire gauge size (A.W.G.) of at least 14 is recommended for an extension cord 50 feet or less in length. A cord exceeding 100 feet is not recommended. If in doubt, use the next heavier gauge. The smaller the gauge number, the heavier the cord. An undersized cord will cause a drop in line voltage resulting in loss of power and overheating.
- Start the cultivator carefully according to instructions from a normal operating position and with feet well away from the tines.
- If the unit strikes a foreign object, stop the motor, thoroughly inspect the machine for any damage, and repair the damage before restarting and operating the machine.
- Never leave the operating position when the motor is running.
- Unplug the unit before unclogging the tines and when making any repairs, adjustments, or inspections.
- Do not overload the machine capacity by cultivating too deep in a single pass or at too fast a rate.
- Be aware that the equipment may unexpectedly bounce upward or jump forward if the tines should strike buried obstacles such as large stones, roots, or stumps.
- Never operate the equipment on a slope.
- Use extreme caution when pulling the machine towards you.
- Save these instructions. Refer to them frequently and use them to instruct others who may use this cultivator. If you loan someone this unit, loan them these instructions also.

WARNING:

Some dust created by power sanding, sawing, grinding, drilling, and other construction activities contains chemicals known to cause cancer, birth defects or other reproductive harm. Some examples of these chemicals are:

- lead from lead-based paints,
- crystalline silica from bricks and cement and other masonry products, and
- arsenic and chromium from chemically-treated lumber.

Your risk from these exposures varies, depending on how often you do this type of work. To reduce your exposure to these chemicals: work in a well ventilated area, and work with approved safety equipment, such as those dust masks that are specially designed to filter out microscopic particles.

SYMBOLS

Some of the following symbols may be used on this tool. Please study them and learn their meaning. Proper interpretation of these symbols will allow you to operate the tool better and safer.

SYMBOL	NAME	DESIGNATION/EXPLANATION
V	Volts	Voltage
A	Amperes	Current
Hz	Hertz	Frequency (cycles per second)
W	Watt	Power
min	Minutes	Time
~	Alternating Current	Type of current
==	Direct Current	Type or a characteristic of current
n_0	No Load Speed	Rotational speed, at no load
	Class II Construction	Double-insulated construction
.../min	Per Minute	Revolutions, strokes, surface speed, orbits etc., per minute
	Wet Conditions Alert	Do not expose to rain or use in damp locations.
	Read The Operator's Manual	To reduce the risk of injury, user must read and understand operator's manual before using this product.
	Eye Protection	Always wear safety goggles, safety glasses with side shields, or a full face shield when operating this product.
	Safety Alert	Precautions that involve your safety.
	Keep Bystanders Away	Keep all bystanders at least 50 ft. away.
	Cutting Hazard	Keep feet and hands away from rotating tines.
	Hot Surface	To reduce the risk of injury or damage, avoid contact with any hot surface.

SYMBOLS

The following signal words and meanings are intended to explain the levels of risk associated with this product.

SYMBOL	SIGNAL	MEANING
	DANGER:	Indicates an imminently hazardous situation, which, if not avoided, will result in death or serious injury.
	WARNING:	Indicates a potentially hazardous situation, which, if not avoided, could result in death or serious injury.
	CAUTION:	Indicates a potentially hazardous situation, which, if not avoided, may result in minor or moderate injury.
	CAUTION:	(Without Safety Alert Symbol) Indicates a situation that may result in property damage.

SERVICE

Servicing requires extreme care and knowledge and should be performed only by a qualified service technician. For service we suggest you return the product to your nearest **AUTHORIZED SERVICE CENTER** for repair. When servicing, use only identical replacement parts.

WARNING:

To avoid serious personal injury, do not attempt to use this product until you read thoroughly and understand completely the operator's manual. Save this operator's manual and review frequently for continuing safe operation and instructing others who may use this product.



WARNING:

The operation of any power tool can result in foreign objects being thrown into your eyes, which can result in severe eye damage. Before beginning power tool operation, always wear safety goggles, safety glasses with side shields, or a full face shield when needed. We recommend Wide Vision Safety Mask for use over eyeglasses or standard safety glasses with side shields. Always use eye protection which is marked to comply with ANSI Z87.1.

SAVE THESE INSTRUCTIONS

ELECTRICAL

DOUBLE INSULATION

Double insulation is a concept in safety in electric power tools, which eliminates the need for the usual three-wire grounded power cord. All exposed metal parts are isolated from the internal metal motor components with protecting insulation. Double insulated tools do not need to be grounded.

WARNING:

The double insulated system is intended to protect the user from shock resulting from a break in the tool's internal insulation. Observe all normal safety precautions to avoid electrical shock.

NOTE: Servicing of a tool with double insulation requires extreme care and knowledge of the system and should be performed only by a qualified service technician. For service, we suggest you return the tool to your nearest authorized service center for repair. Always use original factory replacement parts when servicing.

ELECTRICAL CONNECTION

This tool has a precision-built electric motor. It should be connected to a **power supply that is 120 volts, 60 Hz, AC only (normal household current)**. Do not operate this tool on direct current (DC). A substantial voltage drop will cause a loss of power and the motor will overheat. If your tool does not operate when plugged into an outlet, double-check the power supply.

GFCI

Ground Fault Circuit Interrupter (GFCI) protection should be provided on the circuit(s) or outlet(s) to be used for the cultivator. Receptacles are available having built-in GFCI protection and may be used for this measure of safety.

EXTENSION CORDS

When using a power tool at a considerable distance from a power source, be sure to use an extension cord that has the capacity to handle the current the tool will draw. An undersized cord will cause a drop in line voltage, resulting in overheating and loss of power. Use the chart to determine the minimum wire size required in an extension cord. Only round jacketed cords listed by Underwriter's Laboratories (UL) should be used.

When working outdoors with a tool, use an extension cord that is designed for outside use. This type of cord is designated with "WA" on the cord's jacket.

Before using any extension cord, inspect it for loose or exposed wires and cut or worn insulation.

**Ampere rating (on tool data plate)

0-2.0	2.1-3.4	3.5-5.0	5.1-7.0	7.1-12.0	12.1-16.0
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Cord Length	Wire Size (A.W.G.)				
25'	16	16	16	16	14
50'	16	16	16	14	14
100'	16	16	14	12	10

**Used on 12 gauge - 20 amp circuit.

NOTE: AWG = American Wire Gauge

WARNING:

Keep the extension cord clear of the working area. Position the cord so that it will not get caught on lumber, tools, or other obstructions while you are working with a power tool. Failure to do so can result in serious personal injury.

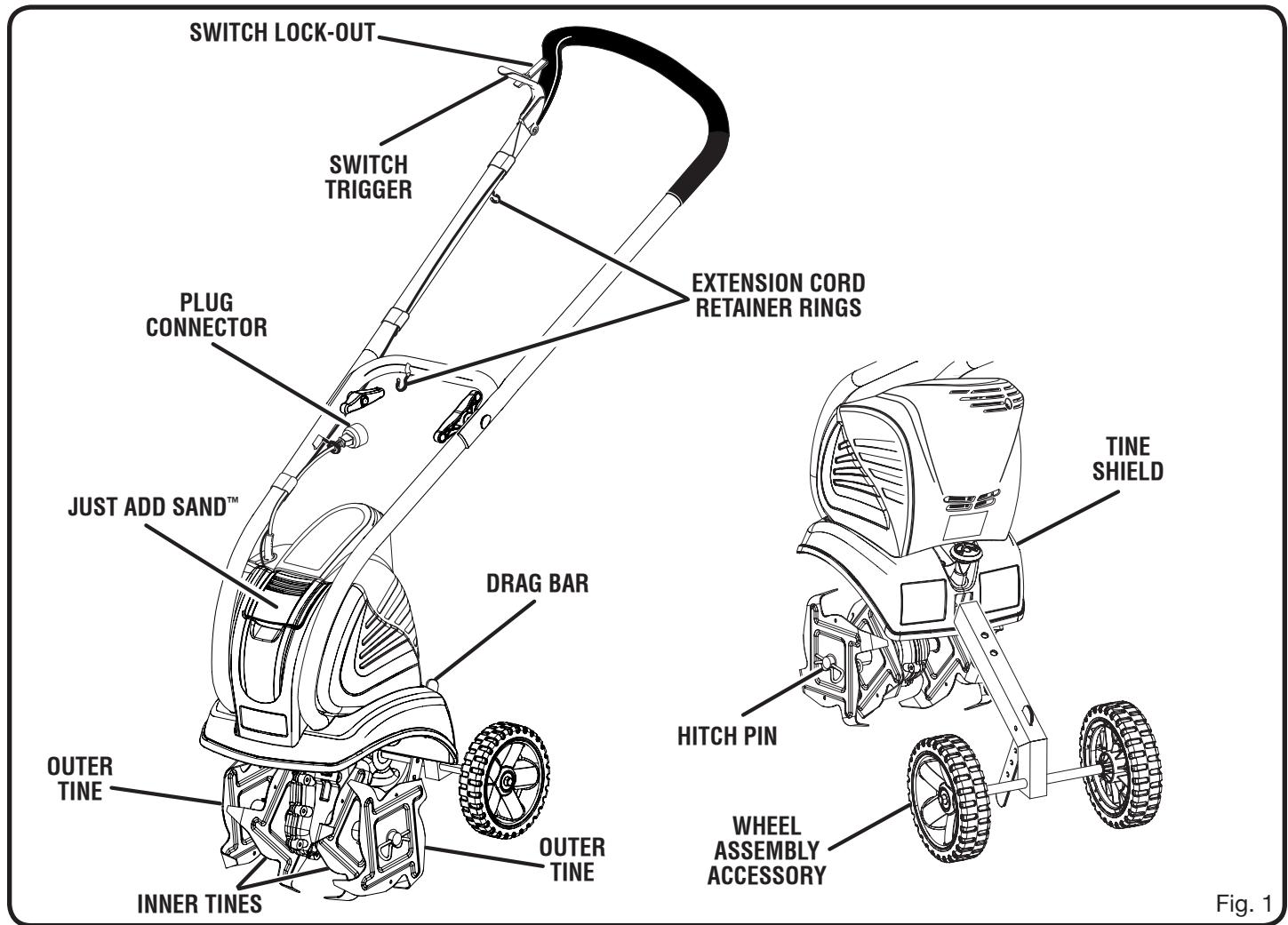
WARNING:

Check extension cords before each use. If damaged replace immediately. Never use tool with a damaged cord since touching the damaged area could cause electrical shock resulting in serious injury.

FEATURES

PRODUCT SPECIFICATIONS

Input	120 V, 60 Hz, AC only, 12 Amps
Sand Tank Capacity	13 lbs.
Weight	32 lbs.



KNOW YOUR CULTIVATOR

See Figure 1.

Before attempting to use this product, familiarize yourself with all operating features and safety rules.

JUST ADD SAND™

Putting sand in the sand tank allows greater stability when operating the cultivator, and also gives added weight to the machine, allowing it to cultivate with less effort and vibration.

SWITCH LOCK-OUT

The switch lock-out prevents accidental starting of the cultivator.

SWITCH TRIGGER

The switch trigger starts and stops the rotation of the tines.

ASSEMBLY

UNPACKING

This product requires assembly.

- Carefully remove the tool and any accessories from the box. Make sure that all items listed in the packing list are included.
- Inspect the tool carefully to make sure no breakage or damage occurred during shipping.
- Do not discard the packing material until you have carefully inspected and satisfactorily operated the tool.
- If any parts are damaged or missing, please call 1-800-860-4050 for assistance.

PACKING LIST

Cultivator
Drag Bar
Pull Pin
Hitch Pins (2)
Felt Washers (2)
Inner Tines (2)
Outer Tines (2)
Wheel Assembly (Accessory)
Operator's Manual
Warranty Registration Card

⚠ WARNING:

If any parts are missing do not operate this tool until the missing parts are replaced. Failure to heed this warning could result in possible serious personal injury.

⚠ WARNING:

Do not attempt to modify this tool or create accessories not recommended for use with this tool. Any such alteration or modification is misuse and could result in a hazardous condition leading to possible serious personal injury.

⚠ WARNING:

Do not connect to power supply until assembly is complete. Failure to comply could result in accidental starting and possible serious personal injury.

POSITIONING THE HANDLEBAR

See Figure 2.

- Loosen the two handlebar knobs.
- Unfold the handlebar into operating position.

NOTE: Do not use force. If there is binding, continue to loosen the knobs. Do not allow the switch cable to become pinched when raising the handlebar.

- Retighten the handlebar knobs.

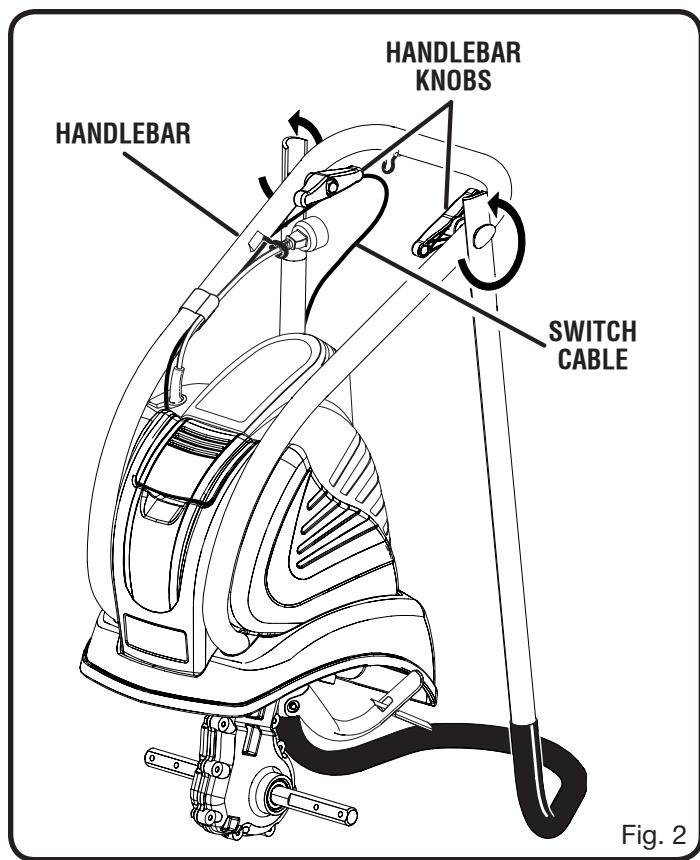


Fig. 2

ASSEMBLY

INSTALLING THE WHEEL ASSEMBLY

ACCESSORY

See Figures 3 - 4.

Use the wheel assembly accessory to transport the unit to and from the work area. To install:

- Raise the adjustment knob located at the back of the tine shield. Twist slightly to secure in the raised position.
- Insert the wheel assembly support rod into the opening beneath the adjustment knob. To place the wheels in a high position, insert the rod to the first hole. For a lower wheel position, insert the rod to the second hole.
- Rotate the adjustment knob in the opposite direction to return it to the seated position, which will secure the wheel assembly in place.
- Insert the drag bar into the open slot in the wheel assembly support rod.
- Insert pull pin through holes in support rod, passing through desired hole in drag bar, to secure drag bar at desired height.

INSTALLING THE TINES

See Figure 5.

The cultivator has four tines — two inner tines labeled B and C, and two outer tines labeled A and D. For correct operation of the unit, the tines must be installed in the correct orientation.

- Lean the unit back on its wheels so that the handlebar rests on the ground.
- Place tine C on the tine shaft to the left of the gear box. The stamped side of the tine should face away from the gear box.
- Place tine B on the tine shaft to the right of the gear box. The stamped side of the tine should face away from the gear box.
- Place a felt washer on each side of the tine shaft, and slide to rest against the inner tines.
- Place the outer tine labeled D on the left side of the tine shaft. The stamped side should face in toward tine C.
- Place the outer tine labeled A on the right side of the tine shaft. The stamped side should face in toward tine B.

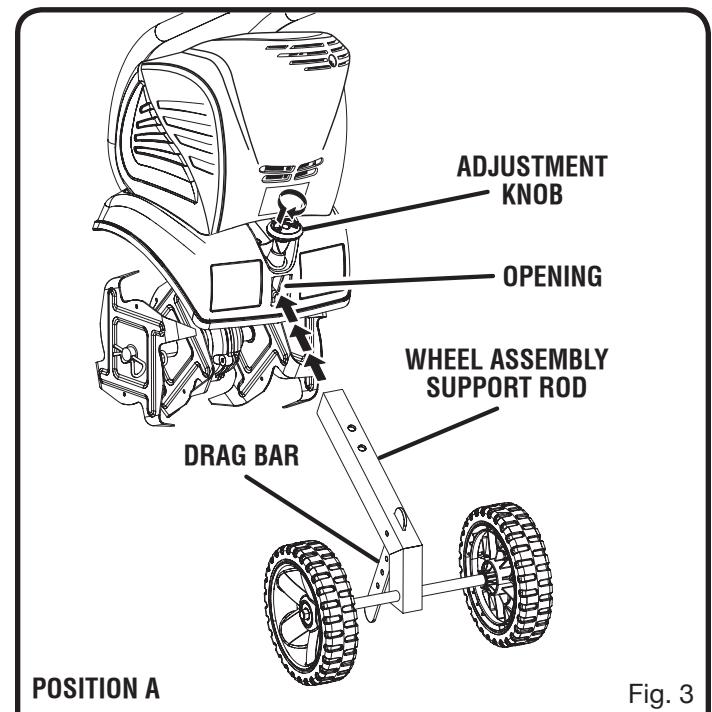


Fig. 3

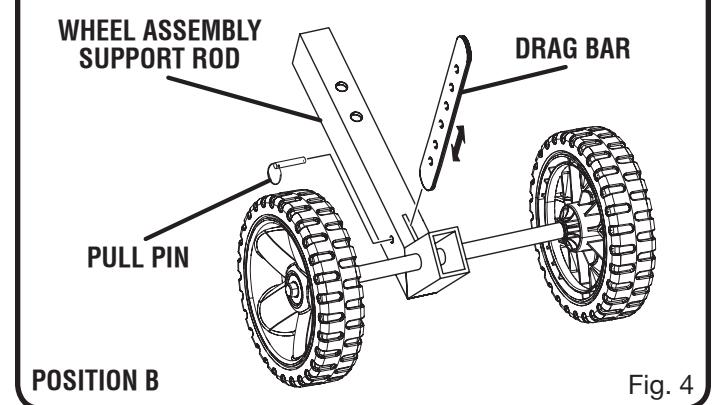


Fig. 4

NOTE: When installed correctly, the angled edge of the tine blades should face the ground.

- To secure the tines to the tine shaft, insert the hitch pin into the holes located on either side of the tine shaft.

NOTE: The unit will not operate properly if the tines are installed incorrectly. If you notice a problem with the cultivating operation of the unit, check for proper tine positioning.

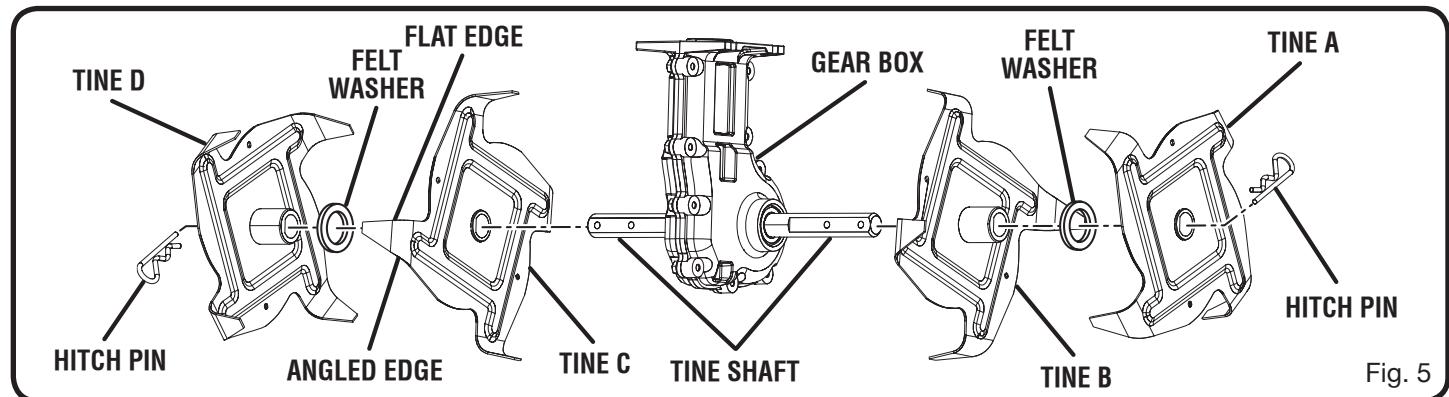


Fig. 5

ASSEMBLY

ADDING SAND

See Figure 6.

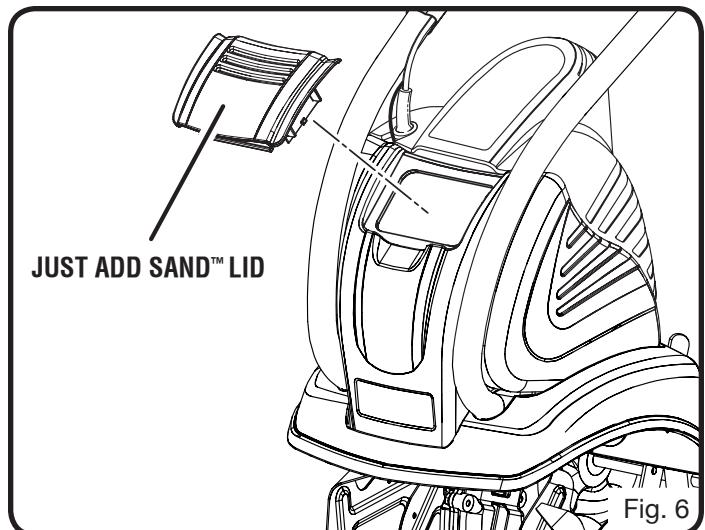
The cultivator is equipped with a Just Add Sand™ weight system, which improves the stability of the unit during operation. The added weight of the sand also helps you work with less effort and vibration.

To add sand:

- Lift the lid of the Just Add Sand™ tank and remove.
- Pour dry sand into the tank. The tank will hold approximately 13 pounds of sand.

NOTE: Be careful not to pour sand into or onto the motor housing.

- Replace Just Add Sand™ lid.



OPERATION

WARNING:

Do not allow familiarity with tools to make you careless. Remember that a careless fraction of a second is sufficient to inflict serious injury.

WARNING:

Always wear safety goggles or safety glasses with side shields when operating tools. Failure to do so could result in objects being thrown into your eyes, resulting in possible serious injury.

WARNING:

Do not use any attachments or accessories not recommended by the manufacturer of this tool. The use of attachments or accessories not recommended can result in serious personal injury.

WARNING:

Do not allow hands, feet, or any other part of the body or clothing near the rotating tines or any other moving part. The tines begin to rotate forward once the switch trigger is depressed. The tines continue to rotate until the switch trigger is released. Failure to avoid contact could cause serious personal injury.

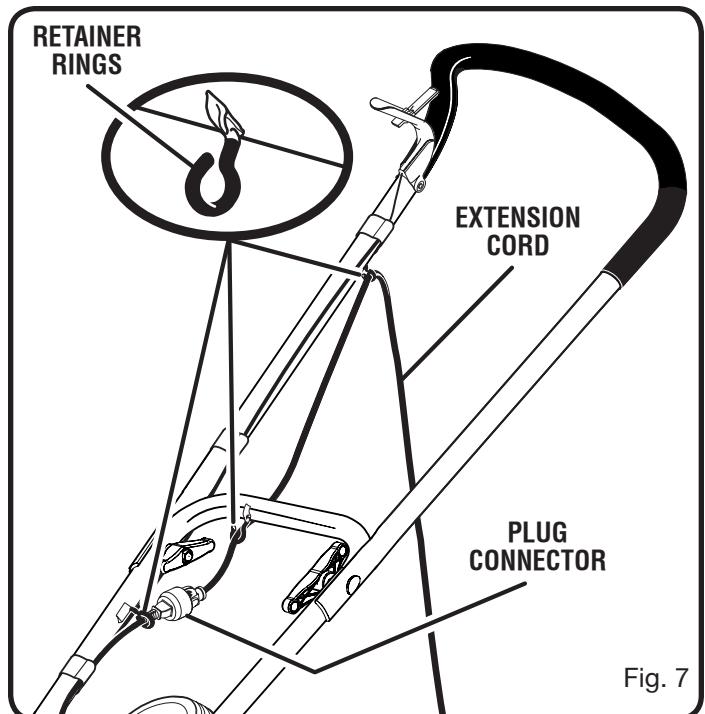
APPLICATIONS

- Breaking up garden soil to prepare seed bed for planting
- Shallow cultivating to remove weeds

STARTING/STOPPING THE CULTIVATOR

See Figures 7 - 8.

- Plug the cultivator into an approved outdoor extension cord.
- Route the extension cord through the extension cord retainer rings.



OPERATION

- Depress the switch lock-out.
- Pull the switch trigger toward the handlebar to begin tine rotation.
- To stop the cultivator, release the switch trigger.

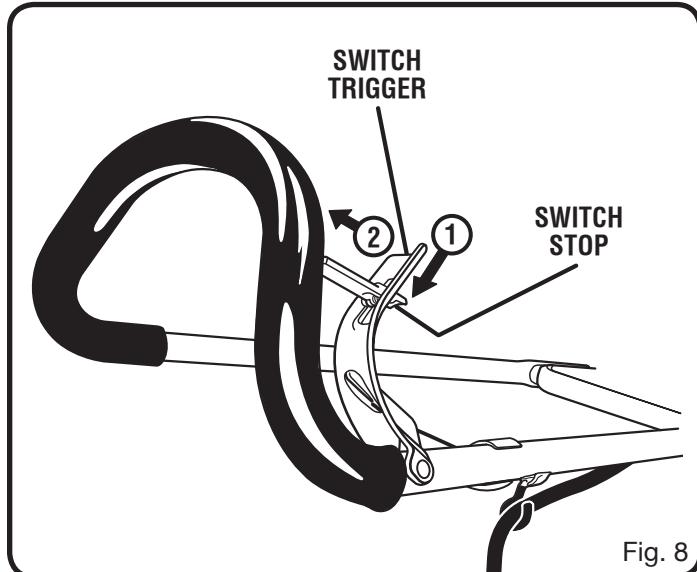


Fig. 8

PREPARING THE SEED BED

See Figure 9.

The cultivator can be used to break up garden soil and prepare a seedbed for planting. Plan ahead to leave enough room between the seed rows to allow for machine cultivating after the plants have grown.

- With the wheel assembly accessory installed in position A as described on page 14, roll the machine to the work area.
- For general cultivating, remove or adjust the wheel assembly accessory using the guidelines in "Adjusting Wheel Position" on page 14.
- The drag bar has two installation positions to choose from. Based on the type of soil being cultivated and soil conditions at the time, the appropriate height of the drag bar will vary. Adjust the drag bar position using the guidelines in "Adjusting Drag Bar Position" on page 14.
- Plug the unit into an approved outdoor extension cord.
- Route the extension cord through the extension cord retainer rings.
- Stand behind the unit with the tines on the ground and the work area clean and free of obstructions.
- Depress the switch lock-out.
- Pull the switch trigger toward the handlebar to begin tine rotation.

NOTE: If the machine moves forward too quickly and wheels are in position A or B with drag bar installed, push down on the handlebar to allow the drag bar to penetrate the soil and slow the forward motion of the unit. The rotating tines help to pull the machine forward,



Fig. 9

so use slower speeds and a shallow depth setting when learning to use the unit and when cultivating on rough or uneven ground.

NOTE: Several passes over the same path may be required to reach the desired depth. Do not try to dig too deeply in the first pass. If the machine jumps or bucks, allow the unit to move forward at a slightly faster rate or install wheel assembly accessory.

To dig more deeply, lift up on the handlebar. Apply downward pressure on the handlebar for more shallow cultivating.

If the machine stays and digs in one spot, try rocking the unit from side to side to start it moving forward again.

If the soil is very hard, water a few days before cultivating. Avoid working the soil when soggy or wet. Wait a day or two after heavy rain for the ground to dry.

OPERATION

GENERAL CULTIVATING

See Figure 10.

Shallow cultivating less than 2 in. deep can be used to disrupt weeds and aerate soil, without injuring nearby plant roots. It should be done often so that weeds do not grow large and cause tangling in the tines of the unit.

The two outer tine blades can be removed from the unit to allow a more narrow cultivating width.

To remove the two outer tines:

- Unplug the cultivator.
- Remove the hitch pins from the holes on the ends of the tine shaft.
- Remove the outside tine blades and felt washers from the tine shaft.
- Place hitch pins in the holes that were uncovered when felt washers were removed.

NOTE: The unit will not operate properly if the tines are installed incorrectly. If you notice a problem with the cultivating operation of the unit, check for proper tine positioning.

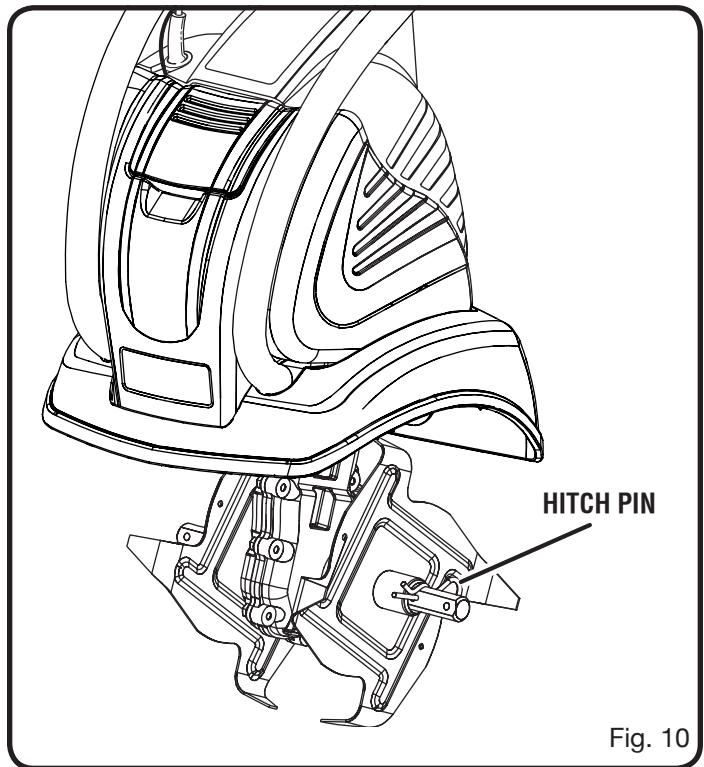


Fig. 10

ADJUSTMENTS

WARNING:

To prevent accidental starting that could cause serious personal injury, always disconnect the cultivator from any power source when making adjustments.

ADJUSTING WHEEL POSITION

See Figures 11 - 13.

The wheel position of the unit is adjustable. Holes on the wheel support rod offer different heights to choose from in both the A and B positions.

- Install the wheel assembly accessory in position A to transport the cultivator to and from the work area.
- For general cultivating, remove the wheel assembly to allow deep penetration of the tine blades into the cultivating surface.
- The wheel assembly accessory may be installed in position B to allow use of the drag bar during cultivating.

ADJUSTING DRAG BAR POSITION

See Figure 14.

The drag bar may be used to help control the cultivator's speed and depth of operation. It is located in a slot on the wheel assembly support and is secured with a pull pin.

To adjust the height of the drag bar:

- Remove the pull pin.
- Shift the drag bar up or down, depending on the depth you are trying to achieve.
- Reinsert the pull pin through the wheel support and drag bar to secure.

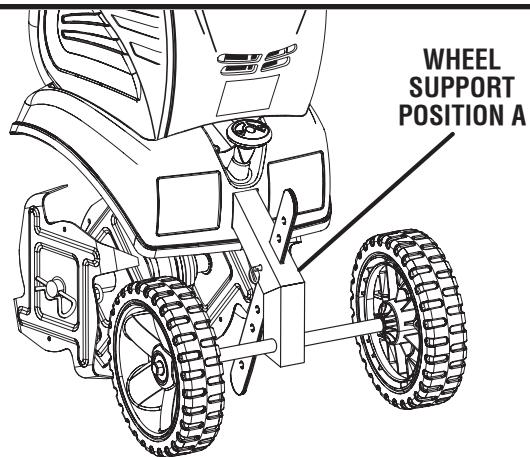


Fig. 11

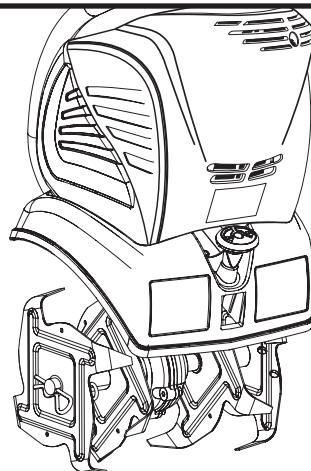


Fig. 12

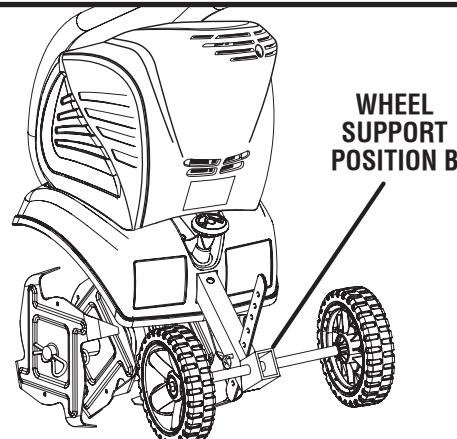


Fig. 13

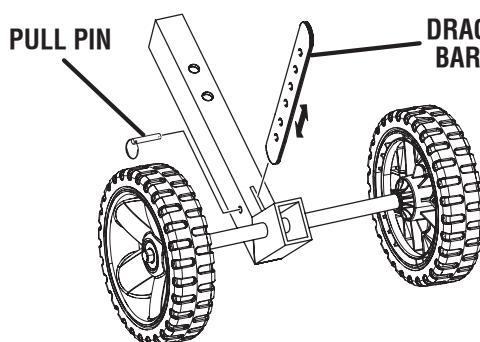


Fig. 14

MAINTENANCE

⚠ WARNING:

When servicing, use only identical Ryobi replacement parts. Use of any other parts may create a hazard or cause product damage.

⚠ WARNING:

Always wear safety goggles or safety glasses with side shields during power tool operation or when blowing dust. If operation is dusty, also wear a dust mask.

⚠ WARNING:

Before inspecting, cleaning or servicing the machine, unplug the power cord and wait for all moving parts to stop. Failure to follow these instructions can result in serious personal injury or property damage.

GENERAL MAINTENANCE

Avoid using solvents when cleaning plastic parts. Most plastics are susceptible to damage from various types of commercial solvents and may be damaged by their use. Use clean cloths to remove dirt, dust, oil, grease, etc.

⚠ WARNING:

Do not at any time let brake fluids, gasoline, petroleum-based products, penetrating oils, etc., come in contact with plastic parts. Chemicals can damage, weaken or destroy plastic which may result in serious personal injury.

Only the parts shown on the parts list are intended to be repaired or replaced by the customer. All other parts should be replaced at a Ryobi Authorized Service Center.

STORING THE CULTIVATOR

The following steps should be taken before storing the cultivator for the season.

- Clean dirt, grass, and other materials from the entire unit.
- Wipe the tines with oil or spray them with silicone lubricant to prevent rusting.
- Oil the switch trigger cable and all visible moving parts. Do not remove the motor cover.
- Order new parts to replace any that are badly worn or broken.
- Store in an upright position in a clean, dry place. Store with the handles in the extended position, or loosen handle knobs and fold handles down. Do not allow switch trigger cable to become pinched when lowering the handlebar.

PREPARING FOR USE AFTER STORAGE

The following steps should be taken before using the cultivator after it has been stored.

- Unfold the handles into the upright position and secure by tightening handlebar knobs. Do not allow the switch trigger cable to become pinched when raising the handlebar.
- Follow the steps on page 11 to restart the cultivator.

TROUBLESHOOTING

PROBLEM	CAUSE	REMEDY
Motor fails to start when switch trigger is depressed.	Power cord is not plugged in or connection is loose. Household circuit breaker is tripped.	Plug in the power cord. Check circuit breaker.
Motor runs but tines do not move.	Gear train failure.	Take unit to authorized service center.



OPERATOR'S MANUAL

ELECTRIC CULTIVATOR

RY46501A

- **SERVICE**

Now that you have purchased your tool, should a need ever exist for repair parts or service, simply contact your nearest Ryobi Authorized Service Center. Be sure to provide all pertinent facts when you call or visit. Please call 1-800-860-4050 for your nearest Ryobi Authorized Service Center. You can also check our web site at www.ryobitools.com for a complete list of Authorized Service Centers.

- **MODEL NO. AND SERIAL NO.**

The model number of this tool will be found on a plate attached to the housing. Please record the model number and serial number in the space provided below.

- **HOW TO ORDER REPAIR PARTS**

When ordering repair parts, always give the following information:

- MODEL NUMBER RY46501A
- SERIAL NUMBER

RYOBI TECHNOLOGIES, INC.

1428 Pearman Dairy Road, Anderson, SC 29625
Post Office Box 1207, Anderson, SC 29622-1207

Phone 1-800-860-4050

www.ryobitools.com