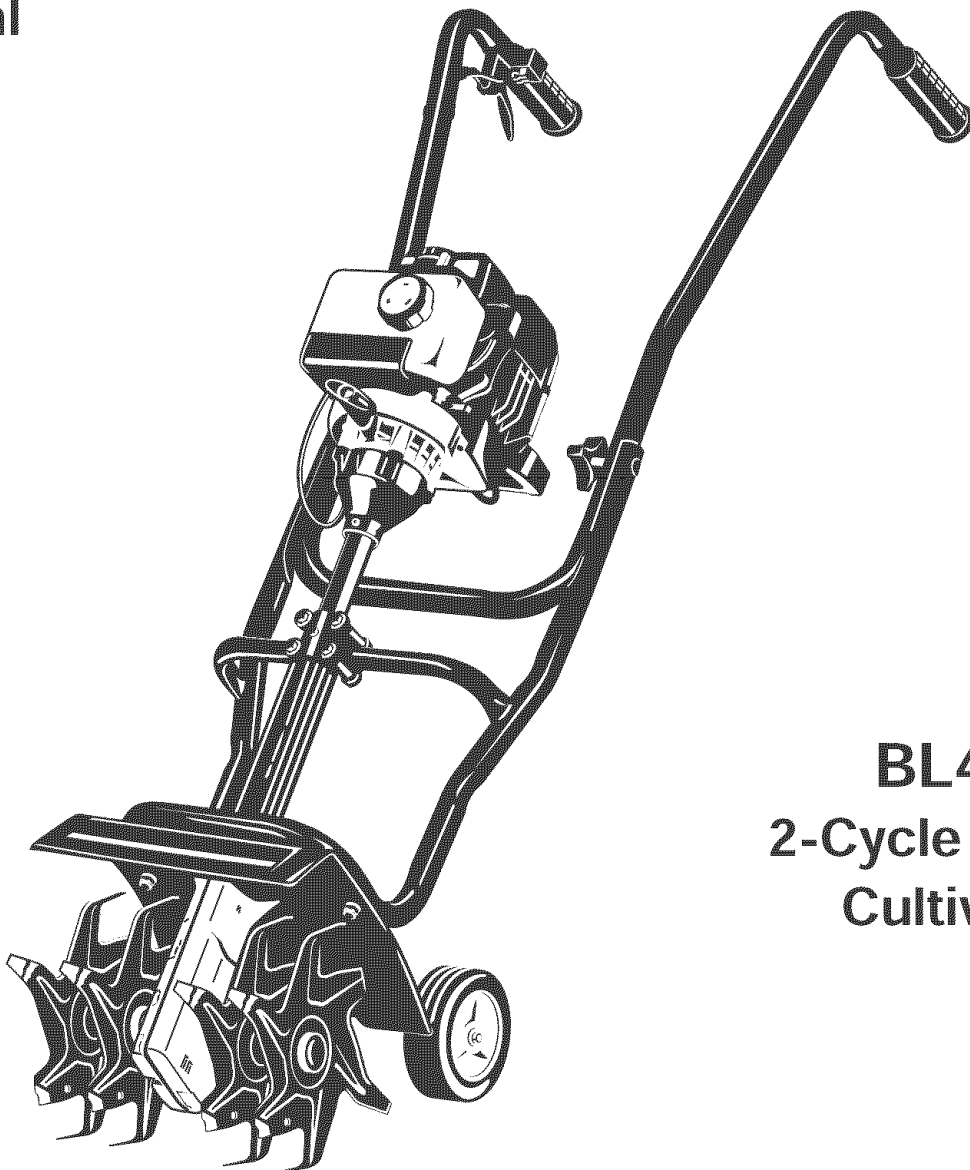




**Operator's  
Manual**



**BL410  
2-Cycle Garden  
Cultivator**

**SAVE THESE INSTRUCTIONS**

**DO NOT THROW AWAY**

# INTRODUCTION

## THANK YOU

Thank you for buying this quality product. This modern outdoor power tool will provide many hours of useful service. You will find it to be a great labor-saving device. This operator's manual provides you with easy-to-understand operating instructions. Read the whole manual and follow all the instructions to keep your new outdoor power tool in top operating condition.

## PRODUCT REFERENCES, ILLUSTRATIONS AND SPECIFICATIONS

All information, illustrations, and specifications in this manual are based on the latest product information available at the time of printing. We reserve the right to make changes at any time without notice.

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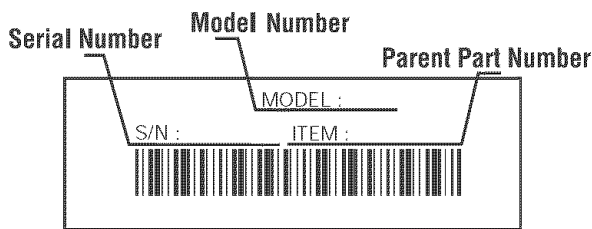
## SERVICE INFORMATION

Service on this unit both within and after the warranty period should be performed only by an authorized and approved service dealer.

For service call **1-800-345-8746** in the United States, or **1-800-668-1238** in Canada to obtain a list of authorized service dealers near you.

## DO NOT RETURN THE UNIT TO THE RETAILER. PROOF OF PURCHASE WILL BE REQUIRED FOR WARRANTY SERVICE.

Before beginning, locate the unit's model plate. It lists the model and serial numbers of your unit. Refer to the sample plate below and copy the information for future reference.



Copy the model and parent part number here: \_\_\_\_\_

Copy the serial number here: \_\_\_\_\_

*Make sure you carefully read and understand this manual before starting or operating this equipment.*

THIS PRODUCT IS COVERED BY ONE OR MORE U.S. PATENTS. OTHER PATENTS PENDING.



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## SPARK ARRESTOR NOTE

**NOTE:** For users on U.S. Forest Land and in the states of California, Maine, Oregon and Washington. All U.S. Forest Land and the state of California (Public Resources Codes 4442 and 4443), Oregon and Washington require, by law that certain internal combustion engines operated on forest brush and/or grass-covered areas be equipped with a spark arrestor, maintained in effective working order, or the engine be constructed, equipped and maintained for the prevention of fire. Check with your state or local authorities for regulations pertaining to these requirements. Failure to follow these requirements could subject you to liability or a fine. **This unit is factory equipped with a spark arrestor.** If it requires replacement, ask your LOCAL SERVICE DEALER to install the **Accessory Part #753-04925 Spark Arrestor Kit.**

## CALIFORNIA PROPOSITION 65 WARNING

WARNING

THE ENGINE EXHAUST FROM THIS PRODUCT CONTAINS CHEMICALS KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER, BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM.

# RULES FOR SAFE OPERATION

The purpose of safety symbols is to attract your attention to possible dangers. The safety symbols, and their explanations, deserve your careful attention and understanding. The safety warnings do not by themselves eliminate any danger. The instructions or warnings they give are not substitutes for proper accident prevention measures.

SYMBOL	MEANING
--------	---------



**SAFETY ALERT:** Indicates danger, warning or caution. Attention is required in order to avoid serious personal injury. May be used in conjunction with other symbols or pictographs.

**NOTE:** Advises you of information or instructions vital to the operation or maintenance of the equipment.

**Read the Operator's Manual(s) and follow all warnings and safety instructions.**

**Failure to do so can result in serious injury to the operator and/or bystanders.**

**FOR QUESTIONS, CALL 1-800-345-8746 in the United States, or 1-800-668-1238 in Canada**

SYMBOL	MEANING
--------	---------



**DANGER:** Failure to obey a safety warning will result in serious injury to yourself or to others. Always follow the safety precautions to reduce the risk of fire, electric shock and personal injury.



**WARNING:** Failure to obey a safety warning can result in injury to yourself and others. Always follow the safety precautions to reduce the risk of fire, electric shock and personal injury.



**CAUTION:** Failure to obey a safety warning may result in property damage or personal injury to yourself or to others. Always follow the safety precautions to reduce the risk of fire, electric shock and personal injury.

## • IMPORTANT SAFETY INSTRUCTIONS •

### READ ALL INSTRUCTIONS BEFORE OPERATING



**WARNING:** When using the unit, you must follow the safety rules. Please read these instructions before operating the unit in order to ensure the safety of the operator and any bystanders. Please keep these instructions for later use.

- Read the instructions carefully. Be familiar with the controls and proper use of the unit.
- Do not operate this unit when tired, ill, or under the influence of alcohol, drugs, or medication.
- Children and teens under the age of 15 must not use the unit, except for teens guided by an adult.
- All guards and safety attachments must be installed properly before operating the unit.
- Inspect the unit before use. Replace damaged parts. Check for fuel leaks. Make sure all fasteners are in place and secure. Replace parts that are cracked, chipped, or damaged in any way. Do not operate the unit with loose or damaged parts.

- Carefully inspect the area before starting the unit. Remove all debris and hard or sharp objects such as glass, wire, etc.
- Be aware of the risk of injury to the head, hands and feet.
- Clear the area of children, bystanders, and pets. At a minimum, keep all children, bystanders, and pets outside a 50 feet (15 m.) radius; there still may be a risk to bystanders from thrown objects. Bystanders should be encouraged to wear eye protection. If you are approached, stop the unit immediately.
- Squeeze the throttle control and check that it returns automatically to the idle position. Make all adjustments or repairs before using unit.

### SAFETY WARNINGS FOR GAS UNITS



**WARNING:** Gasoline is highly flammable, and its vapors can explode if ignited. Take the following precautions:

- Store fuel only in containers specifically designed and approved for the storage of such materials.
- Avoid creating a source of ignition for spilled fuel. Do not start the engine until fuel vapors dissipate.

## RULES FOR SAFE OPERATION

- Always stop the engine and allow it to cool before filling the fuel tank. Never remove the cap of the fuel tank, or add fuel, when the engine is hot. Never operate the unit without the fuel cap securely in place. Loosen the fuel tank cap slowly to relieve any pressure in the tank.
- Mix and add fuel in a clean, well-ventilated outdoor area where there are no sparks or flames. Slowly remove the fuel cap only after stopping engine. Do not smoke while fueling or mixing fuel. Wipe up any spilled fuel from the unit immediately. Always wipe unit dry before using.
- Move the unit at least 30 feet (9.1 m) from the fueling source and site before starting the engine. Do not smoke or allow sparks and open flames near the area while adding fuel or operating the unit.

### WHILE OPERATING

- Never start or run the unit inside a closed room or building. Breathing exhaust fumes can kill. Operate this unit only in a well ventilated outdoor area.
- Wear safety glasses or goggles that are marked as meeting ANSI Z87.1-1989 standards. Also wear ear/hearing protection when operating this unit. Wear a face or dust mask if the operation is dusty. Long sleeve shirts are recommended.
- Wear heavy, long pants, boots and gloves. Do not wear loose clothing, jewelry, short pants, sandals or go barefoot. Secure hair above shoulder level.
- This unit has a clutch. The tines remains stationary when the engine is idling. If it does not, have the unit adjusted by an authorized service technician.
- Be sure the tines are not in contact with anything before starting the unit.
- Use the unit only in daylight or good artificial light.
- Avoid accidental starting. The operator and unit must be in a stable position while starting. See *Starting/Stopping Instructions*.
- Use the right tool. Only use this tool for the purpose intended.
- Use extreme caution when reversing or pulling the unit towards you.
- Do not overreach. Always keep proper footing and balance. Take extra care when working on steep slopes or inclines.
- Always hold the unit with both hands when operating. Keep a firm grip on the grips.
- Keep hands, face, and feet at a distance from all moving parts. Do not touch or try to stop the tines when they are rotating.

- Do not touch the engine or muffler. These parts get extremely hot from operation. They remain hot for a short time after you turn off the unit.
- Do not operate the engine faster than the speed needed to cultivate. Do not run the engine at high speed when you are not cultivating.
- Always stop the engine when cultivating is delayed or when walking from one location to another.
- If you strike or become entangled with a foreign object, stop the engine immediately and check for damage. Do not operate before repairing damage. Do not operate the unit with loose or damaged parts.
- Stop and switch the engine to off for maintenance, repair, or to install or remove the tines.

Use only original equipment manufacturer replacement parts and accessories for this unit. These are available from your authorized service dealer. Use of any unauthorized parts or accessories could lead to serious injury to the user, or damage to the unit, and void your warranty.

- Keep unit clean of vegetation and other materials. They may become lodged between the tines.
- To reduce fire hazard, replace faulty muffler and spark arrestor, keep the engine and muffler free from grass, leaves, excessive grease or carbon build up.

### OTHER SAFETY WARNINGS

- Never store the unit, with fuel in the tank, inside a building where fumes may reach an open flame or spark.
- Allow the engine to cool before storing or transporting. Be sure to secure the unit while transporting.
- Store the unit in a dry area, locked up or up high to prevent unauthorized use or damage, out of the reach of children.
- Never douse or squirt the unit with water or any other liquid. Keep handles dry, clean and free from debris. Clean after each use. See the *Cleaning and Storage* instructions.
- Keep these instructions. Refer to them often and use them to instruct other users. If you loan someone this unit, also loan them these instructions.

## SAVE THESE INSTRUCTIONS

# RULES FOR SAFE OPERATION

## SAFETY AND INTERNATIONAL SYMBOLS

This operator's manual describes safety and international symbols and pictographs that may appear on this product. Read the operator's manual for complete safety, assembly, operating and maintenance and repair information.

### SYMBOL

### MEANING



- **SAFETY ALERT SYMBOL**  
Indicates danger, warning or caution. May be used in conjunction with other symbols or pictographs.



- **WARNING - READ OPERATOR'S MANUAL**  
Read the operator's manual(s) and follow all warnings and safety instructions. Failure to do so can result in serious injury to the operator and/or bystanders.



- **WEAR EYE AND HEARING PROTECTION**  
**WARNING:** Thrown objects and loud noise can cause severe eye injury and hearing loss. Wear eye protection meeting ANSI Z87.1 standards and ear protection when operating this unit. Use a full face shield when needed.



- **KEEP BYSTANDERS AWAY**  
**WARNING:** Keep all bystanders, especially children and pets, at least 50 feet (15 m) from the operating area.



- **UNLEADED FUEL**  
Always use clean, fresh unleaded fuel.



- **OIL**  
Refer to operator's manual for the proper type of oil.



- **THROWN OBJECTS AND ROTATING CUTTER CAN CAUSE SEVERE INJURY**  
**WARNING:** Do not operate without the proper attachments and guards in place. Keep away from the rotating tines.

### SYMBOL

### MEANING



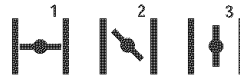
- **ON/OFF STOP CONTROL**  
ON / START / RUN



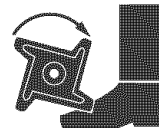
- **ON/OFF STOP CONTROL**  
OFF or STOP



- **HOT SURFACE WARNING**  
Do not touch a hot muffler, gear housing or cylinder. You may get burned. These parts get extremely hot from operation. They remain hot for a short time after the unit is turned off.



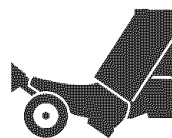
- **CHOKE CONTROL**  
1 • **FULL** choke position.  
2 • **PARTIAL** choke position.  
3 • **RUN** position.



- **GARDEN CULTIVATORS - ROTATING TINES CAN CAUSE SEVERE INJURY**  
**WARNING:** Stop the engine and allow the tines to stop before installing or removing tines, or before cleaning or performing any maintenance. Keep hands and feet away from rotating tines.



- **NO STEP**  
Always keep proper footing and balance. Do not overreach, take extra care when working on steep slopes or inclines.



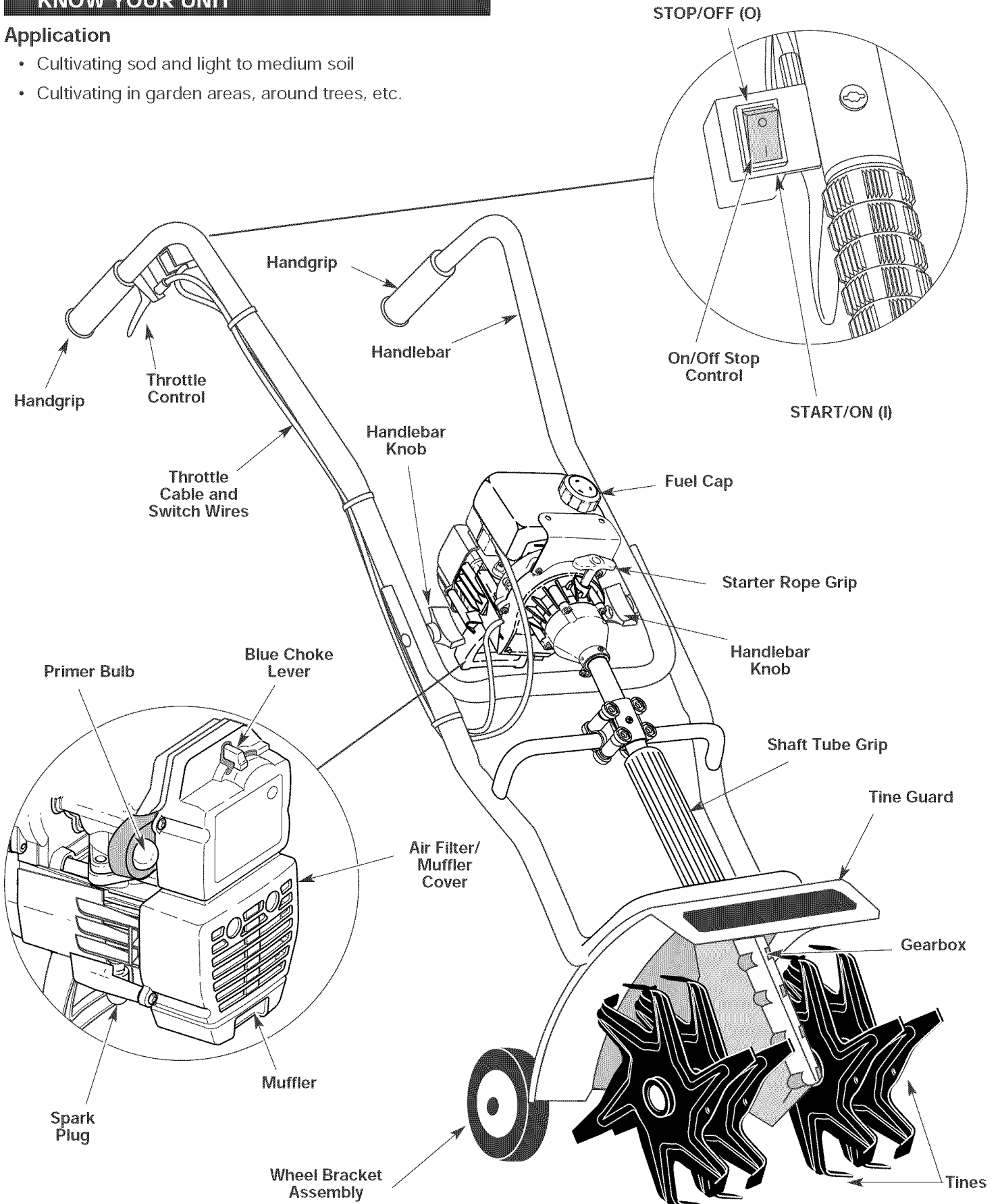
- **PLACE LEFT FOOT HERE**  
Avoid accidental starting. Stand in the starting position whenever pulling the starter rope. The operator and unit must be in a stable position while starting.

# RULES FOR SAFE OPERATION

## KNOW YOUR UNIT

### Application

- Cultivating sod and light to medium soil
- Cultivating in garden areas, around trees, etc.



# ASSEMBLY INSTRUCTIONS

## ASSEMBLING THE UNIT

Before operating, position the unit's handlebars.

**NOTE:** You may also need to reposition the wheel height before using the cultivator. Refer to the *Adjusting Tine Depth* section.

Begin by carefully unpacking the contents and making sure that nothing is damaged.

## POSITIONING THE HANDLEBARS

1. Loosen the two knobs on the inside of the handlebars (Fig. 1).
2. With the unit upright, swing the handlebars up into the operating position (Fig. 1).

**NOTE:** Take care not to pinch the throttle cable or switch wires when positioning the handlebar.

3. Tighten the knobs to secure the handlebars in place.

**NOTE:** Do not over-tighten the knobs.

4. Readjust the throttle cable and switch the wires so they are smooth and tight against the handlebar assembly. This will help prevent them from catching or snagging during normal operation.

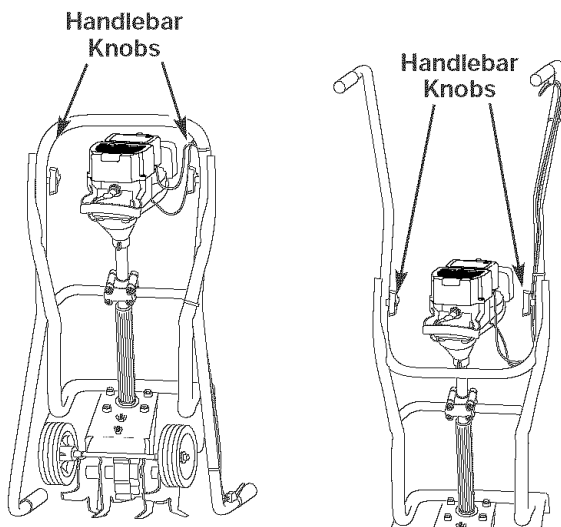


Fig. 1

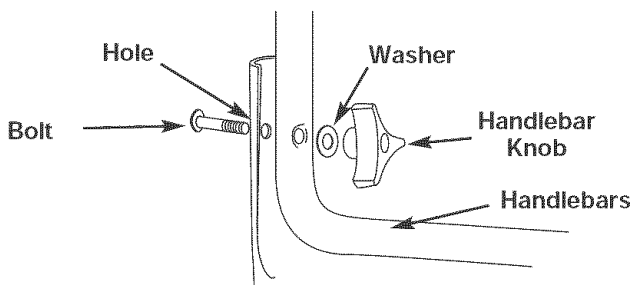


Fig. 2

## INSTALLING THE WHEEL BRACKET ASSEMBLY

If the wheel bracket assembly is not installed, or if you ever need to remove or reinstall it, follow the ensuing instructions.



**WARNING:** To avoid injury from the tines, wear heavy gloves and a long sleeve shirt when installing the wheel bracket assembly.



**WARNING:** To prevent serious personal injury, the wheel bracket assembly must be installed when operating the unit.

1. With the unit on its side, place the wheel bracket assembly on the underside of the tine guard (Fig. 3).
2. Install a carriage bolt through each of the slotted holes in the wheel bracket and into the tine guard.
3. On the **TOP** side of the tine guard, install a lock washer and a wing nut onto each of the bolts (Fig. 3).
4. Make sure the square shoulder of the bolts is pushed through the slotted holes in the wheel bracket. Tighten the wing nuts (Fig. 4).

**NOTE:** Do not over-tighten the wing nuts. Loosen the wing nuts to adjust wheel height.

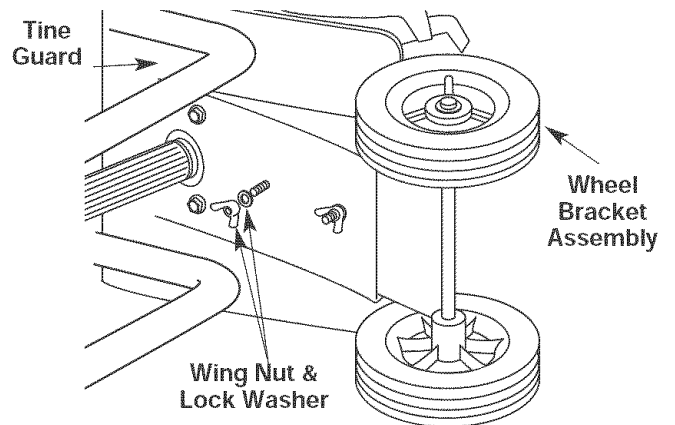


Fig. 3

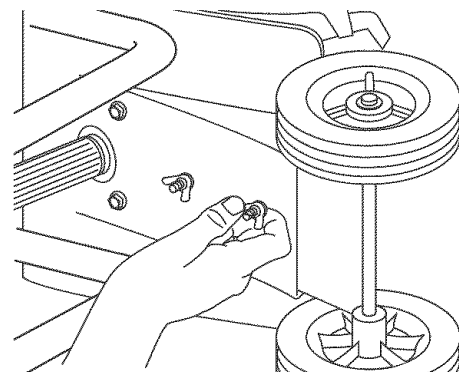


Fig. 4

# OIL AND FUEL INFORMATION

## OIL AND FUEL MIXING INSTRUCTIONS

Old and/or improperly mixed fuel are the main reasons for the unit not running properly. Be sure to use fresh, clean unleaded fuel. Follow the instructions carefully for the proper fuel/oil mixture.

### Definition of Blended Fuels

Today's fuels are often a blend of gasoline and oxygenates such as ethanol, methanol, or MTBE (ether). Alcohol-blended fuel absorbs water. As little as 1% water in the fuel can make fuel and oil separate. It forms acids when stored. When using alcohol-blended fuel, use fresh fuel (less than 60 days old).

### Using Blended Fuels


If you choose to use a blended fuel, or its use is unavoidable, follow recommended precautions:

- Always use the fresh fuel mix explained in your operator's manual
- Always agitate the fuel mix before fueling the unit
- Drain the tank and run the engine dry before storing the unit

### Using Fuel Additives



The bottle of 2-cycle oil that came with your unit contains a fuel additive which will help inhibit corrosion and minimize the formation of gum deposits. It is recommended that you use our 2-cycle oil with this unit.

If unavailable, use a good 2-cycle oil designed for air-cooled engines along with a fuel additive, such as STA-BIL® Gas Stabilizer or an equivalent. Add 0.8 oz. (23 ml.) of fuel additive per gallon of fuel according to the instructions on the container. NEVER add fuel additives directly to the unit's fuel tank.


	<b>CAUTION:</b> For proper engine operation and maximum reliability, pay strict attention to the oil and fuel mixing instructions on the 2-cycle oil container. Using improperly mixed fuel can severely damage the engine.
---	---

Thoroughly mix the proper ratio of 2-cycle engine oil with unleaded gasoline in a separate fuel can. Use a 40:1 fuel/oil ratio. Do not mix them directly in the engine fuel tank. See the table below for specific gas and oil mixing ratios.


**NOTE:** One gallon (3.8 liters) of unleaded gasoline mixed with one 3.2 oz. (95 ml.) bottle of 2-cycle oil makes a 40:1 fuel/oil ratio.

	+	
<b>UNLEADED GAS</b>		<b>2 CYCLE OIL</b>
<b>1 GALLON US (3.8 LITERS)</b>		<b>3.2 FL. OZ. (95 ml)</b>
<b>1 LITER</b>		<b>25 ml</b>

**MIXING RATIO - 40:1**

	<b>WARNING:</b> Gasoline is extremely flammable. Ignited Vapors may explode. Always stop the engine and allow it to cool before filling the fuel tank. Do not smoke while filling the tank. Keep sparks and open flames at a distance from the area.
---	--

	<b>WARNING:</b> Remove fuel cap slowly to avoid injury from fuel spray. Never operate the unit without the fuel cap securely in place.
--	--

	<b>WARNING:</b> Add fuel in a clean, well ventilated outdoor area. Wipe up any spilled fuel immediately. Avoid creating a source of ignition for spilt fuel. Do not start the engine until fuel vapors dissipate.
---	---

**NOTE:** Dispose of the old fuel/oil mix in accordance to Federal, State and Local regulations.

### FILLING THE FUEL TANK

Make sure the cultivator is in a horizontal position when filling or adding fuel to the tank.

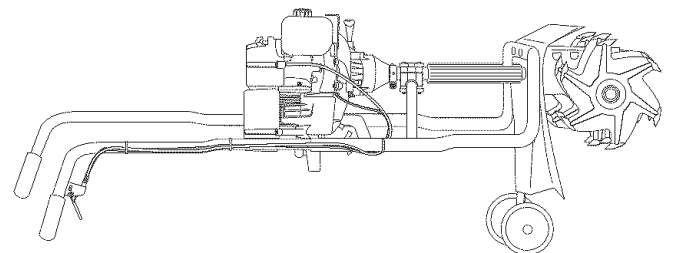


Fig. 5



# STARTING/STOPPING INSTRUCTIONS



**WARNING:** Operate this unit only in a well-ventilated outdoor area. Carbon monoxide exhaust fumes can be lethal in a confined area.



**WARNING:** Avoid accidental starting. Make sure you are in the starting position when pulling the starter rope (Fig. 8). To avoid serious injury, the operator and unit must be in a stable position while starting.

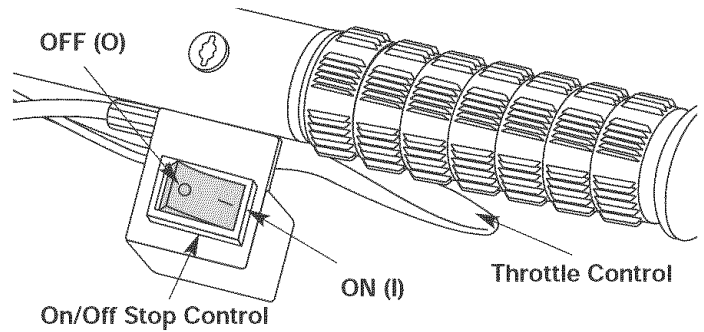


Fig. 6

## STARTING INSTRUCTIONS

1. Mix gas with oil. Fill fuel tank with fuel/oil mixture. Refer to *Oil and Fuel Mixing Instructions*.
2. Make sure the On/Off Stop Control is in the **ON (I)** position (Fig. 6).
3. Place the blue choke lever in Position 1 (Fig. 7).
4. Fully press and release the primer bulb 10 times, slowly. Some amount of **fuel should be visible in the primer bulb** and fuel lines (Fig. 7). If you can't see fuel in the bulb, press and release the bulb as many times as it takes before you can see fuel in it.
5. Stand between the handlebars and support the unit by placing your left foot on the wheel bracket assembly and gripping the handlebar grip with your right hand (Fig. 8).

**NOTE:** Tilt the unit back slightly to bring the tines off the ground when starting.

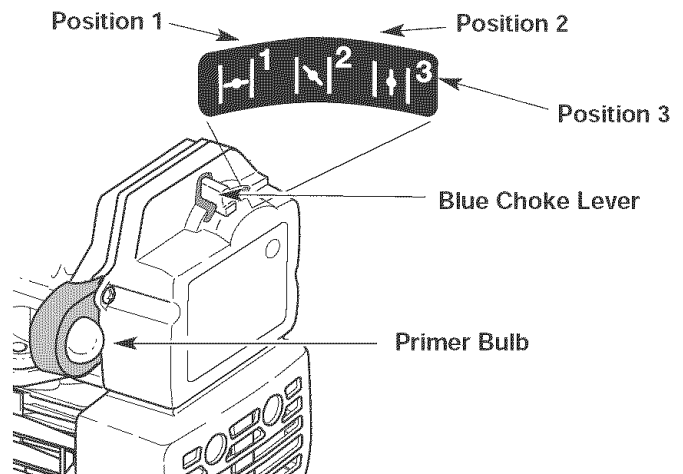


Fig. 7

6. While squeezing the throttle control to the wide open (full throttle) position, grasp the starter rope grip with your left hand. Pull the starter rope out a short distance, until you feel some resistance. This is usually around 2-4 inches. Then pull the rope smoothly and briskly. Repeat this 5 times.
7. Move the blue choke lever to Position 2.
8. While squeezing the throttle control, pull the starter rope in the same manner as explained in Step 6. Pull 1 to 3 times to start the engine.
9. Keep the throttle squeezed and allow the engine to warm up for 15 to 30 seconds.
10. Place the blue choke lever in Position 3. Release the throttle control to the idle position and begin operation.

**IF...** The engine does not start, go back to step 3.

**IF...** The engine fails to start after a few attempts, place the blue choke lever in Position 3 and squeeze the throttle control. Pull the starter rope briskly 3 to 8 times. The engine should start. If not, repeat.

**IF WARM...** If the engine is already warm, make sure the On/Off Stop control is in the ON position and start the unit with the blue choke lever in Position 2. After the unit starts, move the blue choke lever to Position 3.

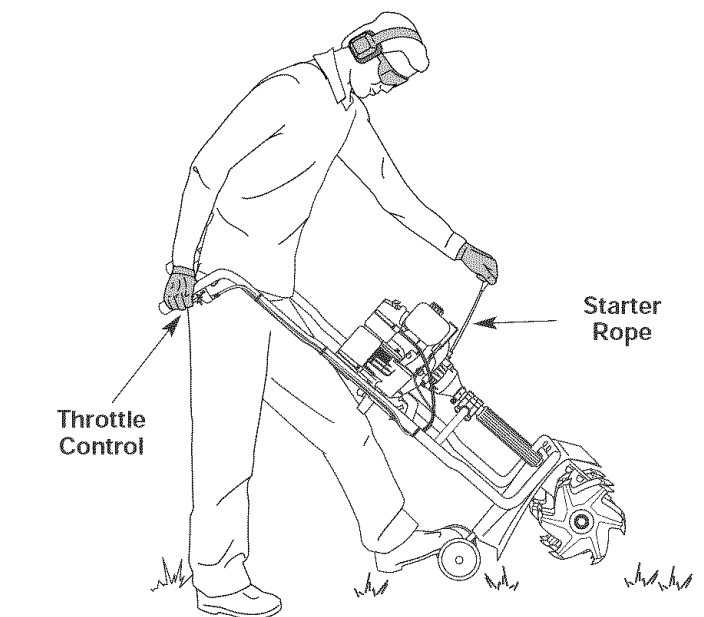


Fig. 8

## STOPPING INSTRUCTIONS

1. Release your hand from the throttle control. Allow the engine to cool down by idling.
2. Put the On/Off Stop Control in the **STOP (O)** position.

# OPERATING INSTRUCTIONS

## OPERATING TIPS



**WARNING:** Dress properly to reduce the risk of injury when operating this unit. Do not wear loose clothing or jewelry. Wear eye and ear/hearing protection. Wear heavy long pants, boots and gloves. Do not wear short pants, sandals or operate barefoot.

1. Move the cultivator to the work area prior to starting the engine. Transport the cultivator by pushing it on its wheels.



**WARNING:** To prevent serious personal injury, never pick-up or carry the unit while the engine is running.

2. Start the unit as described in the *Starting Instructions*.
3. With the engine running and the tines off the ground, depress the throttle control to increase the engine speed.
4. Holding both of the handlebar grips firmly, slowly lower the cultivator until the tines make contact with the ground (Fig. 9).
5. As cultivating action begins, pull back on the cultivator so that the tines can penetrate the ground.
6. Once the ground has been broken, continue at a moderate pace until you are familiar with the controls and the handling of the cultivator.



**WARNING:** To prevent serious personal injury, use extreme caution when reversing or pulling the unit towards you.

7. Pull the cultivator backwards to improve the depth of cultivation and reduce your effort.
8. If the tines are digging too deep or not deep enough, adjust them according to *Adjusting Tine Depth*.



Fig. 9

## ADJUSTING TINE DEPTH

Tine adjustment will vary depending on the type of soil being cultivated and how it will be used. Generally, adjusting the tines to break the soil 4 to 6 inches is recommended for most gardens. Adjust the tines as follows:

1. Stop the engine and disconnect the spark plug wire.
2. Loosen (do not remove) the two wing nuts on the tine guard (Fig. 10).
3. Slide the wheel bracket assembly down for shallower penetration, and up for deeper tine penetration.
4. Once the tines are in the desired position, tighten the wing nuts, making sure that the carriage bolts are seated properly through the bracket.
5. If the tine depth is incorrect, repeat steps 2 to 4.
6. Reconnect the spark plug wire and continue use.

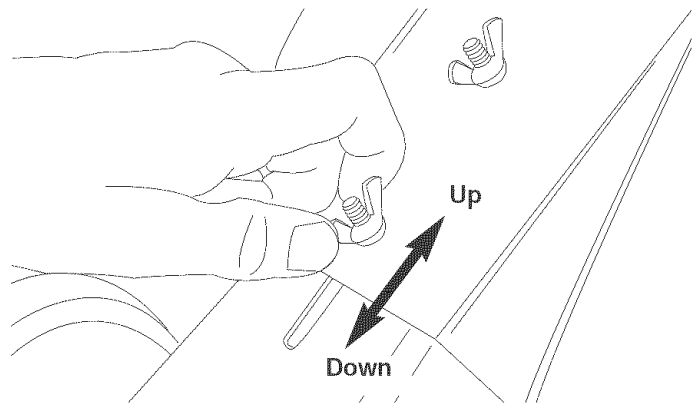


Fig. 10

## TRANSPORTING THE UNIT



**WARNING:** To prevent serious personal injury, always stop the engine when operation is delayed or when transporting the unit from one location to another

1. Stop the engine.
2. Slide the wheel bracket assembly all the way down.
3. Tilt the unit back until the tines clear the ground.
4. Push or pull the unit to the next location.

# MAINTENANCE AND REPAIR INSTRUCTIONS

## MAINTENANCE SCHEDULE

Perform these required maintenance procedures at the frequency stated in the table. These procedures should also be a part of any seasonal tune-up.

**NOTE:** Some maintenance procedures may require special tools or skills. If you are unsure about these procedures take your unit to any non-road engine repair establishment, individual or authorized service dealer.

	<b>WARNING:</b> To prevent serious injury, never perform maintenance or repairs with unit running. Always service and repair a cool unit. Disconnect the spark plug wire to ensure that the unit cannot start.
--	--

**NOTE:** Maintenance, replacement, or repair of the emission control devices and system may be performed by any non-road engine repair establishment, individual or authorized service dealer.

In order to assure peak performance of your engine, inspection of the engine exhaust port may be necessary after 50 hours of operation. If you notice lost RPM, poor performance or general lack of acceleration, this service may be required. If you feel your engine is in need of this inspection, refer service to any non-road engine repair establishment, individual or authorized service dealer for repair. **DO NOT** attempt to perform this process yourself as engine damage may result from contaminants involved in the cleaning process for the port.

FREQUENCY	MAINTENANCE REQUIRED	REFER TO
Before starting engine	Fill fuel tank with fresh fuel mix	Page 8
Every 10 hours	Clean and re-oil air filter	Page 12
Every 25 hours	Check and clean spark arrestor Check spark plug condition and gap	Page 12 Page 13
Every 50 hours	Inspect exhaust port and spark arrestor screen for clogging or obstruction to assure maximum performance levels	Page 12

## TINE REMOVAL AND REPLACEMENT

Replace all four (4) tines at the same time, because they will wear evenly through normal use. Work on one side at a time.

	<b>WARNING:</b> To prevent serious personal injury, always wear heavy gloves when handling the tines.
--	---

- Put the On/Off Stop Control in the **STOP (O)** position and disconnect the spark plug wire.
- Remove the clevis pin clips and clevis pins (Fig. 11).
- Remove the tines and felt washers from the shaft.
- Clean and oil the shaft.
- The tines are stamped with the letter "R" or "L" to identified their position on each side of the gearbox when facing the front of the unit.
- Replace the tines and felt washers onto the shaft with the hubs on the tines facing each other.

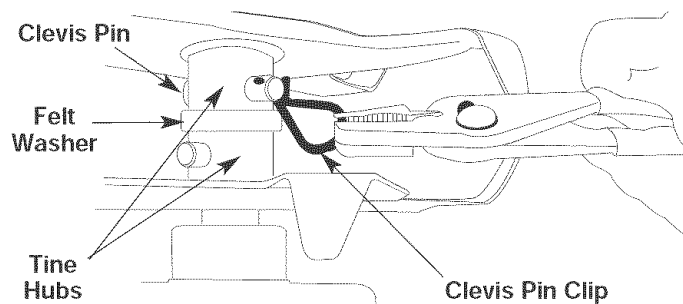


Fig. 11

- Before you reinstall the clevis pins and pin clips, ensure that the tips on the tines are staggered when compared to each other (Fig. 12).
- Repeat this procedure on the opposite side.

**NOTE:** When installed correctly, there will be an "R" and "L" tine on both the sides of the gearbox and the tips of the tines. These letters will line up in the same direction for each side. It is important that the tines are installed correctly.

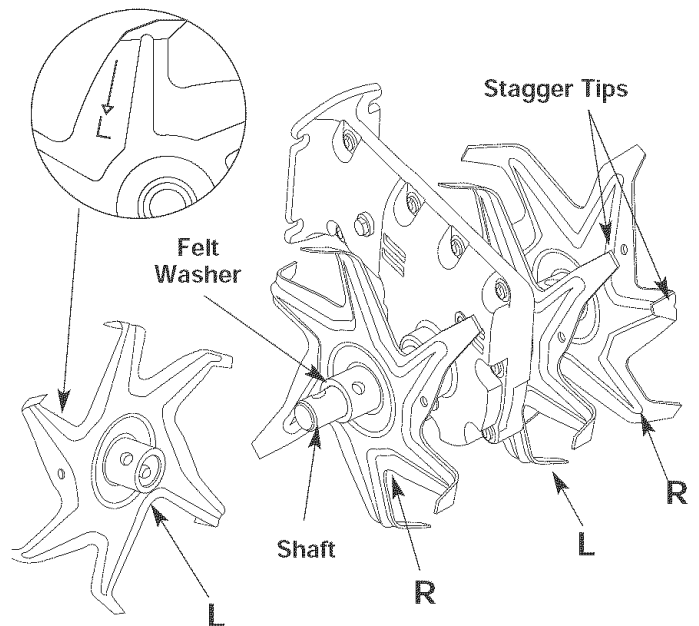


Fig. 12

# MAINTENANCE AND REPAIR INSTRUCTIONS

## AIR FILTER MAINTENANCE

### Removing the Air Filter/Muffler Cover



**WARNING:** To avoid serious personal injury, always turn the unit off and allow it to cool before you clean or service it.

1. Place the blue choke lever in Position 2.

**NOTE:** The blue choke lever must be in Position 2 (Fig. 13) to remove the air filter/ muffler cover.

2. Remove the four (4) screws securing the air filter/muffler cover (Fig. 13). Use a # T20 Torx bit screwdriver.
3. Pull the cover from the engine. Do not force.

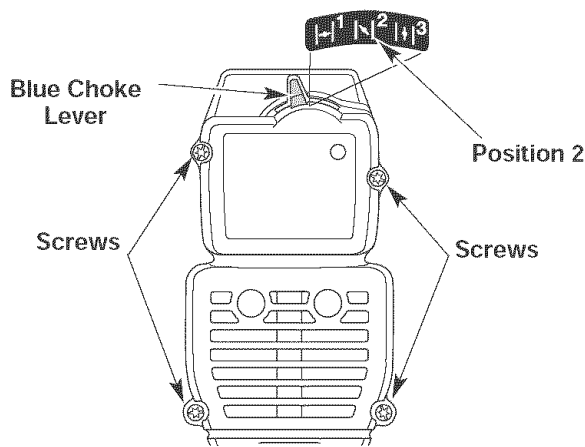


Fig. 13

### Cleaning the Air Filter

Clean and re-oil the air filter every 10 hours of operation. It is an important item to maintain. Failure to maintain your air filter properly can result in poor performance or can cause permanent damage to your engine.

1. Remove the air filter/muffler cover. Refer to the *Removing the Air filter/Muffler Cover* section.
2. Remove the air filter from inside the air filter/muffler cover (Fig. 14).
3. Wash the filter in detergent and water (Fig. 14). Rinse the filter thoroughly. Squeeze out excess water. Allow it to dry completely.
4. Apply enough SAE 30 oil to lightly coat the filter (Fig. 15).
5. Squeeze the filter to spread and remove extra oil (Fig. 15).
6. Replace the air filter inside the muffler cover (Fig. 14).

**NOTE:** Operating the unit without the air filter and cover assembly will **VOID** the warranty.

### Reinstalling the Air filter/Muffler Cover

1. Place the air filter/muffler cover over the back of the carburetor and muffler.

**NOTE:** The blue choke lever must be in Position 2 (Fig. 13) to remove the air filter/ muffler cover.

2. Insert the four (4) screws into the holes in the air filter/muffler cover (Fig. 13) and tighten. Use a # T20 Torx bit screwdriver. Do not over tighten. Do not force.

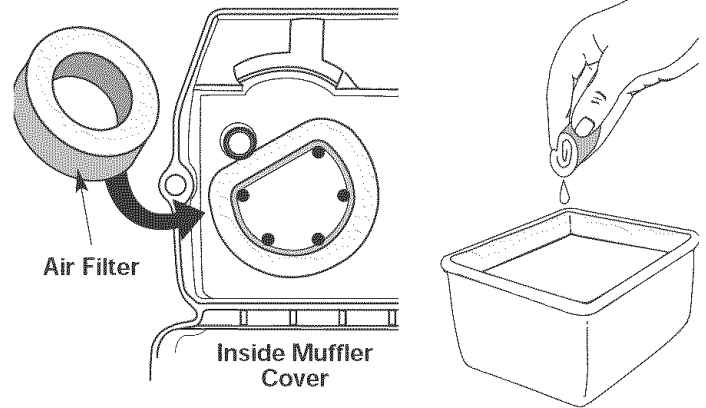


Fig. 14

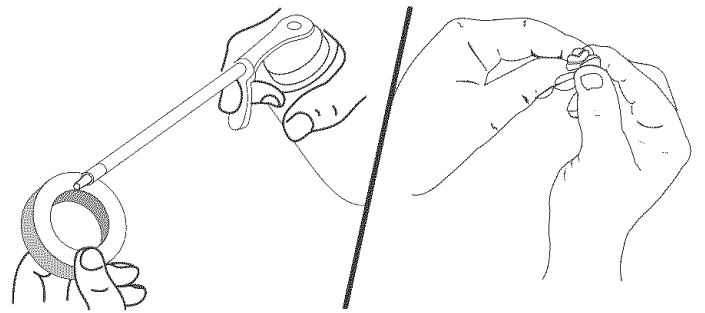


Fig. 15

## SPARK ARRESTOR MAINTENANCE

1. Remove air filter/muffler cover. Refer to *Removing the Air Filter/Muffler Cover*.
2. Locate the muffler, but do not remove it. Find the screw on the bottom of the muffler (Fig. 16). Remove the screw using either a torx #20 or flat blade screwdriver.
3. Carefully pry up the left side spark arrestor hood. Two tabs act as hinges on the right side of the hood. Flip open the spark arrestor hood like a door and then pull its tabs out of the muffler slots.
4. Using a small flat blade screwdriver, carefully pry the spark arrestor screen out from the inside of the spark arrestor hood.
5. Clean the spark arrestor screen with a wire brush. Replace it if it is damaged, or if you are unable to clean it thoroughly.
6. Reinstall the spark arrestor screen snugly back into the spark arrestor hood.
7. Reinstall the two hood tabs into the two muffler slots and flip the spark arrestor hood closed.
8. Replace the screw you removed in Step 2 and tighten it securely.
9. Reinstall the air filter/muffler cover.

# MAINTENANCE AND REPAIR INSTRUCTIONS



**WARNING:** If the exhaust deflector assembly is not tightened securely, it could fall off causing damage to the unit and possible serious personal injury.

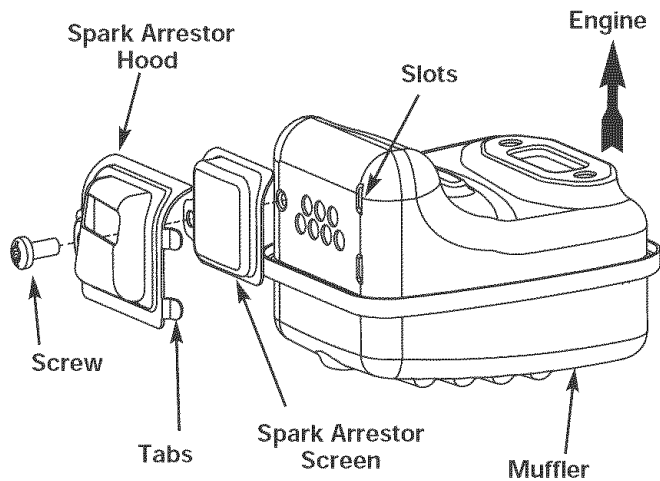


Fig. 16

## CARBURETOR ADJUSTMENTS

The engine's idle speed adjuster is adjustable through the air filter/muffler cover (Fig 17).

**NOTE:** Careless adjustments can seriously damage your unit. An authorized service dealer should make carburetor adjustments.

### Check Fuel Mixture

Old and/or improperly mixed fuel is usually the reason for the unit not running properly. Drain and refill the tank with fresh, properly mixed fuel prior to making any adjustments. Refer to *Oil and Fuel Information*.

### Clean Air Filter

The condition of the air filter is important to the operation of the unit. A dirty air filter will restrict air flow and change the air/fuel mixture. This is often mistaken for an out of adjustment carburetor. Check the condition of the air filter before adjusting the idle speed adjuster. Refer to *Air Filter Maintenance*.



**WARNING:** The unit will still run during idle speed adjustments. Wear protective clothing and observe all safety instructions to prevent serious personal injury.

## Adjust Idle Speed Adjuster

If after checking the fuel mixture and cleaning the air filter the engine still will not idle, adjust the idle speed screw as follows:

1. Start the engine and let it run for about 2-3 minutes at a high speed (full throttle) to warm up. Refer to the *Starting/Stopping Instructions*.

**NOTE:** Ensure the tines are not in contact with the ground when adjusting the idle.

2. Release the throttle control and let the engine idle. If the engine stops, insert a small phillips screwdriver into the hole in the muffler cover (Fig. 17). Turn the idle speed screw **clockwise** 1/8 of a turn at a time (as needed) until the engine idles smoothly.

**NOTE:** The tines should not rotate during engine idle.

3. If the tines rotate when the engine idles, turn the idle speed screw **counterclockwise** 1/8 of a turn at a time (as needed), to reduce idle speed.

Checking the fuel mixture, cleaning the air filter, and adjusting the idle speed screw should solve most engine problems. If not and all the following are true:

- The engine will not idle
- The engine hesitates or stalls on acceleration
- There is a loss of engine power

Have the carburetor adjusted by an authorized service dealer.

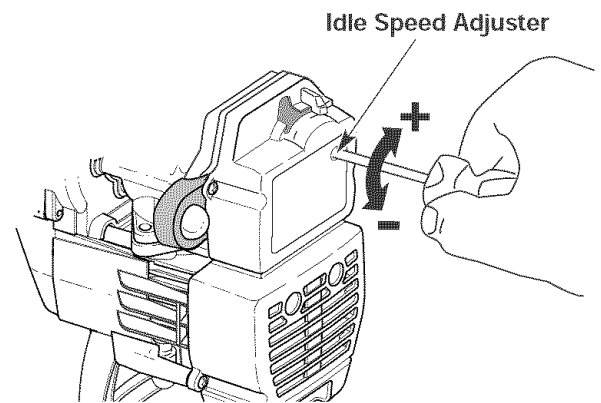


Fig. 17

## REPLACING THE SPARK PLUG

Use a Champion RDJ7Y spark plug (or equivalent). The correct air gap is 0.020 in. (0.5 mm). Remove the plug after every 25 hours of operation to check its condition.

1. Stop the engine and allow it to cool. Grasp the plug wire firmly and pull the cap from the spark plug.
2. Clean dirt from around the spark plug. Remove the spark plug from the cylinder head by turning a 5/8 in. socket counterclockwise.

**NOTE:** Replace a cracked, fouled or dirty spark plug.

3. Set the air gap at 0.020 in. (0.5 mm) using a feeler gauge (Fig. 18).



**CAUTION:** Do not sand blast, scrape or clean electrodes. Grit in the engine could damage the cylinder.

# MAINTENANCE AND REPAIR INSTRUCTIONS

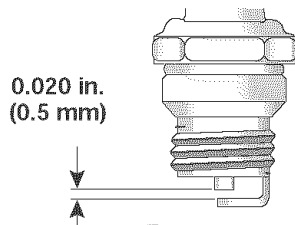


Fig. 18

4. Install a correctly gapped spark plug in the cylinder head. Tighten by turning the 5/8 in. socket clockwise until snug.

If using a torque wrench torque to:

**110-120 in.·lb. (12.3-13.5 N·m)**

Do not over tighten.

## CLEANING THE UNIT



**WARNING:** To avoid serious personal injury, always turn your unit off and allow it to cool before you clean or service it.

- Use a small brush to clean off the outside of the unit and to keep the air vents free of obstructions.
- Do not use strong detergents or petroleum based cleaners, like kerosene. Some household cleaners contain aromatic oils such as pine and lemon that can damage the plastic housings or handles. Wipe off any moisture with a soft cloth.

## STORAGE

- Never store a fueled unit where fumes may reach an open flame or spark.
- Allow the engine to cool before storing.
- Store the unit in a locked up area to prevent unauthorized use or damage.
- Store the unit in a dry, well-ventilated area.
- Store the unit out of the reach of children.

## LONG TERM STORAGE

If you plan to store the unit for an extended time:

1. Drain all fuel from the fuel tank into a container. Do not use fuel that has been stored for more than 60 days. Dispose of the old fuel in accordance to local regulations.
2. Start the engine and allow it to run until it stalls. This ensures that all fuel has been drained from the carburetor.
3. Allow the engine to cool. Remove the spark plug and put 1 oz. (30 ml) of high quality motor oil into the cylinder. Pull the starter rope slowly to distribute the oil. Reinstall the spark plug.

**NOTE:** Remove the spark plug and drain all of the oil from the cylinder before attempting to start the unit after storage.

4. Thoroughly clean the unit and inspect for any loose or damaged parts. Repair or replace damaged parts and tighten loose screws, nuts or bolts. The unit is ready for storage.

## TRANSPORTING

- Allow the engine to cool before transporting.
- Secure the unit while transporting.
- Drain the fuel tank before transporting.
- Tighten fuel cap before transporting.

## MOVING THE UNIT

1. Allow the unit to cool before moving.
2. Loosen the knobs on the handlebar.
3. Fold the handlebars down as shown (Fig. 19).

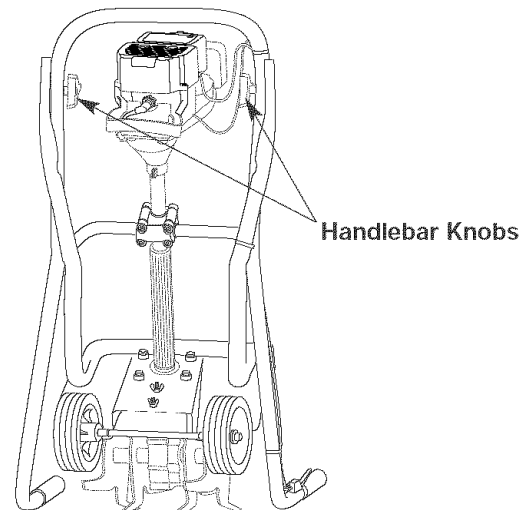


Fig. 19

4. Either carry the unit by the shaft tube grip or grasp the center of the handlebar to use it as a carrying handle (Fig. 20).
5. After the unit has been moved, reposition the handlebars and continue operation.

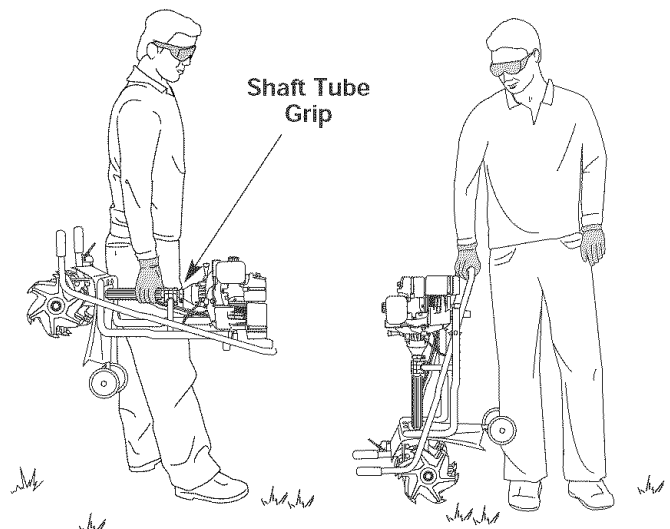


Fig. 20

# TROUBLESHOOTING

## ENGINE WILL NOT START

### CAUSE

Empty fuel tank  
Primer bulb wasn't pressed enough  
Engine is flooded  
Old or improperly mixed fuel  
Fouled spark plug  
Plugged spark arrestor

### ACTION

Fill fuel tank with properly mixed fuel  
Press primer bulb fully and slowly 10 times  
Squeeze the trigger and pull the starter rope  
Drain gas tank and add fresh fuel mixture  
Replace or clean the spark plug  
Clean or replace spark arrestor

## ENGINE WILL NOT IDLE

### CAUSE

Air filter is plugged  
Old or improperly mixed fuel  
Improper carburetor adjustment

### ACTION

Replace or clean the air filter  
Drain gas tank and add fresh fuel mixture  
Adjust according to the *Carburetor Adjustments* section

## ENGINE WILL NOT ACCELERATE

### CAUSE

Old or improperly mixed fuel  
Improper carburetor adjustment  
Tines bound with grass  
Dirty air filter  
Plugged spark arrestor

### ACTION

Drain gas tank and add fresh fuel mixture  
Take to an authorized service dealer for an adjustment  
Stop the engine and clean the tines  
Clean or replace the air filter  
Clean or replace spark arrestor

## ENGINE LACKS POWER OR STALLS WHEN CULTIVATING

### CAUSE

Old or improperly mixed fuel  
Improper carburetor adjustment  
Fouled spark plug  
Plugged spark arrestor

### ACTION

Drain gas tank and add fresh fuel mixture  
Take to an authorized service dealer for an adjustment  
Replace or clean the spark plug  
Clean or replace spark arrestor

**If further assistance is required, contact your authorized service dealer.**

# SPECIFICATIONS

## ENGINE\*

Engine Type.....	Air-Cooled, 2-Cycle
Displacement .....	31 cc
Idle Speed RPM .....	2,600-3,600 rpm
Operating RPM.....	7,800+ rpm
Clutch Type .....	Centrifugal
Ignition Type.....	Electronic
On/Off Stop Control.....	Rocker Switch
Spark Plug Gap .....	0.020 inch (0.5 mm)
Lubrication .....	Fuel/Oil Mixture
Fuel/Oil Ratio.....	40:1
Carburetor .....	Diaphragm, All-Position
Starter.....	Auto Rewind
Muffler .....	Baffled with Guard
Throttle.....	Spring Return
Fuel Tank Capacity.....	14 ounces (415 ml)

## DRIVE SHAFT and CULTIVATOR\*

Drive Shaft Tube .....	Steel Tube
Throttle Control .....	Finger-Tip Trigger
Cultivating Path Width (Maximum) .....	9 inches (22.86 cm)
Cultivating Depth (Maximum) .....	6 inches (15.24 cm)
Approximate Weight (no fuel) .....	26 lb. (12 kg)

\*All specifications are based on the latest product information available at the time of printing. We reserve the right to make changes at any time without notice.



# NOTES

# NOTES

## **California / EPA Emission Control Warranty Statement**

### **Your Warranty Rights and Obligations**

The California Air Resources Board, the Environmental Protection Agency and MTD LLC (MTD) are pleased to explain the emission control system warranty on your 2000 and later small off-road engine. New small off-road engines must be designed, built and equipped to meet stringent anti-smog standards. MTD must warrant the emission control system on your small off-road engine for the periods of time listed below provided there has been no abuse, neglect or improper maintenance of your small off-road engine.

Your emission control system may include parts such as the carburetor or fuel-injected system, the ignition system, and catalytic converter. Also included may be hoses, belts, connectors and other emission-related assemblies.

Where a warrantable condition exists, MTD will repair your small off-road engine at no cost to you including diagnosis, parts and labor.

The 2000 and later small off-road engines are warranted for two years. If any emission-related part on your engine is defective, the part will be repaired or replaced by MTD.

#### **Owners Warranty Responsibilities**

- As the small off-road engine owner, you are responsible for the performance of the required maintenance listed in your operator's manual. MTD recommends that you retain all receipts covering maintenance on your small off-road engine, but MTD cannot deny warranty solely for the lack of receipts or for your failure to ensure the performance of all scheduled maintenance.
- As the small off-road engine owner, you however should be aware that MTD may deny you warranty coverage if your small off-road engine or a part has failed due to abuse, neglect, improper maintenance or unapproved modifications.
- You are responsible for presenting your small off-road engine to a MTD Authorized Service Center as soon as a problem exists. The warranty repairs should be completed in a reasonable amount of time, not to exceed 30 days.

If you have any questions regarding your warranty rights and responsibilities, you should call 1-800-345-8746.

#### **Manufacturer's Warranty Coverage**

- The warranty period begins on the date the engine or equipment is delivered to the retail purchaser.
- The manufacturer warrants to the initial owner and each subsequent purchaser, that the engine is free from defects in material and workmanship which cause the failure of a warranted part for a period of two years.
- Repair or replacement of warranted part will be performed at no charge to the owner at an Authorized MTD Service Center. For the nearest location please contact MTD at: 1-800-345-8746.
- Any warranted part which is not scheduled for replacement, as required maintenance or which is scheduled for only for regular inspection to the effect of "Repair or Replace as Necessary" is warranted for the warranty period. Any warranted part which is scheduled for replacement as required maintenance will be warranted for the period of time up to the first scheduled replacement point for that part.
- The owner will not be charged for diagnostic labor which leads to the determination that a warranted part is defective, if the diagnostic work is performed at an Authorized MTD Service Center.
- The manufacturer is liable for damages to other engine components caused by the failure of a warranted part still under warranty.
- Failures caused by abuse, neglect or improper maintenance are not covered under warranty.
- The use of add-on or modified parts can be grounds for disallowing a warranty claim. The manufacturer is not liable to cover failures of warranted parts caused by the use of add-on or modified parts.
- In order to file a claim, go to your nearest Authorized MTD Service Center. Warranty services or repairs will be provided at all Authorized MTD Service Centers.
- Any manufacturer approved replacement part may be used in the performance of any warranty maintenance or repair of emission related parts and will be provided without charge to the owner. Any replacement part that is equivalent in performance or durability may be used in non-warranty maintenance or repair and will not reduce the warranty obligations of the manufacturer
- The following components are included in the emission related warranty of the engine, air filter, carburetor, primer, fuel lines, fuel pick up/ fuel filter, ignition module, spark plug and muffler.

# MANUFACTURER'S LIMITED WARRANTY FOR:



The limited warranty set forth below is given by MTD LLC ("MTD") with respect to new merchandise purchased and used in the United States, its possessions and territories.

MTD warrants this product against defects in material and workmanship for a period of two (2) years commencing on the date of original purchase and will, at its option, repair or replace, free of charge, any part found to be defective in material or workmanship. This limited warranty shall only apply if this product has been operated and maintained in accordance with the Operator's Manual furnished with the product, and has not been subject to misuse, abuse, commercial use, neglect, accident, improper maintenance, alteration, vandalism, theft, fire, water or damage because of other peril or natural disaster. Damage resulting from the installation or use of any accessory or attachment not approved by MTD for use with the product(s) covered by this manual will void your warranty as to any resulting damage. This warranty is limited to ninety (90) days from the date of original retail purchase for any MTD product that is used for rental or commercial purposes, or any other income-producing purpose.

**HOW TO OBTAIN SERVICE:** Warranty service is available, WITH PROOF OF PURCHASE THROUGH YOUR LOCAL AUTHORIZED SERVICE DEALER. To locate the dealer in your area, please check for a listing in the Yellow Pages or contact the Customer Service Department of MTD LLC by calling 1-800-345-8746 or writing to P.O. Box 361131, Cleveland OH 44136-0019 or if in Canada call 1-800-668-1238. No product returned directly to the factory will be accepted unless prior written permission has been extended by the Customer Service Department of MTD LLC.

**This limited warranty does not provide coverage in the following cases:**

- A. Tune-ups - Spark Plugs, Carburetor Adjustments, Filters.
- B. Wear items - Bump Knobs, Outer Spools, Cutting Line, Inner Reels, Starter Pulley, Starter Ropes, Drive Belts.
- C. MTD does not extend any warranty for products sold or exported outside of the United States of America, its possessions and territories, except those sold through MTD's authorized channels of export distribution.

MTD reserves the right to change or improve the design of any MTD Product without assuming any obligation to modify any product previously manufactured.

**No implied warranty, including any implied warranty of merchantability or fitness for a particular purpose, applies after the applicable period of express written warranty above as to the parts as identified. No other express warranty or guaranty, whether written or oral, except as mentioned above, given by any person or entity, including a dealer or retailer, with respect to any product shall bind MTD. During the period of the Warranty, the exclusive remedy is repair or replacement of the product as set forth above.** (Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.)

**The provisions as set forth in this Warranty provide the sole and exclusive remedy arising from the sales. MTD shall not be liable for incidental or consequential loss or damages including, without limitation, expenses incurred for substitute or replacement lawn care services, for transportation or for related expenses, or for rental expenses to temporarily replace a warranted product.** (Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.)

In no event shall recovery of any kind be greater than the amount of the purchase price of the product sold. Alteration of the safety features of the product shall void this Warranty. You assume the risk and liability for loss, damage, or injury to you and your property and/or to others and their property arising out of the use or misuse or inability to use the product.

This limited warranty shall not extend to anyone other than the original purchaser, original lessee or the person for whom it was purchased as a gift.

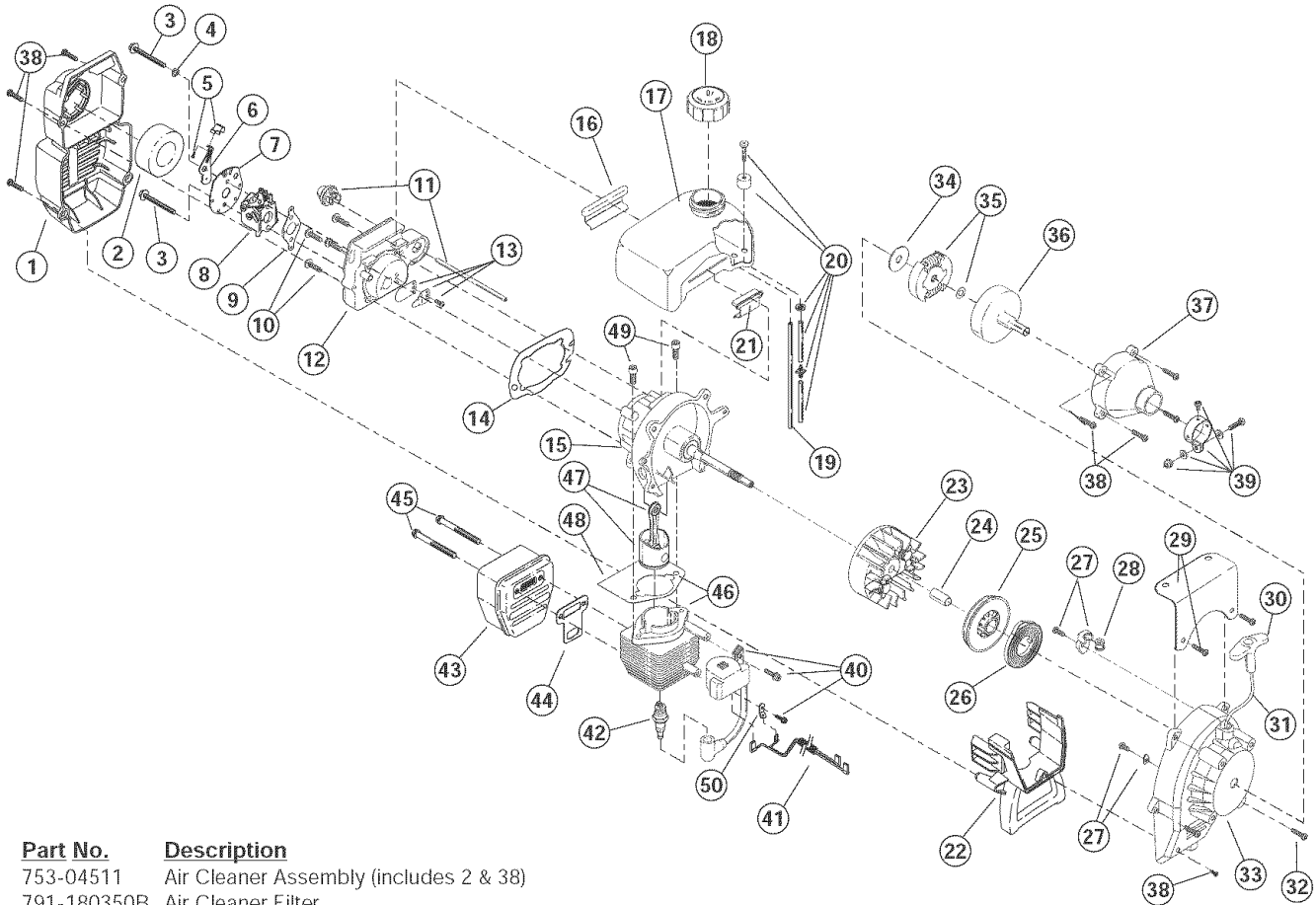
**How State Law Relates to this Warranty:** This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

To locate your nearest service dealer dial 1-800-345-8746 in the United States or 1-800-668-1238 in Canada.

**MTD LLC**  
P.O. Box 361131  
Cleveland, OH 44136-0019

# PARTS LIST

## ENGINE PARTS - BL410 2-CYCLE GAS CULTIVATOR

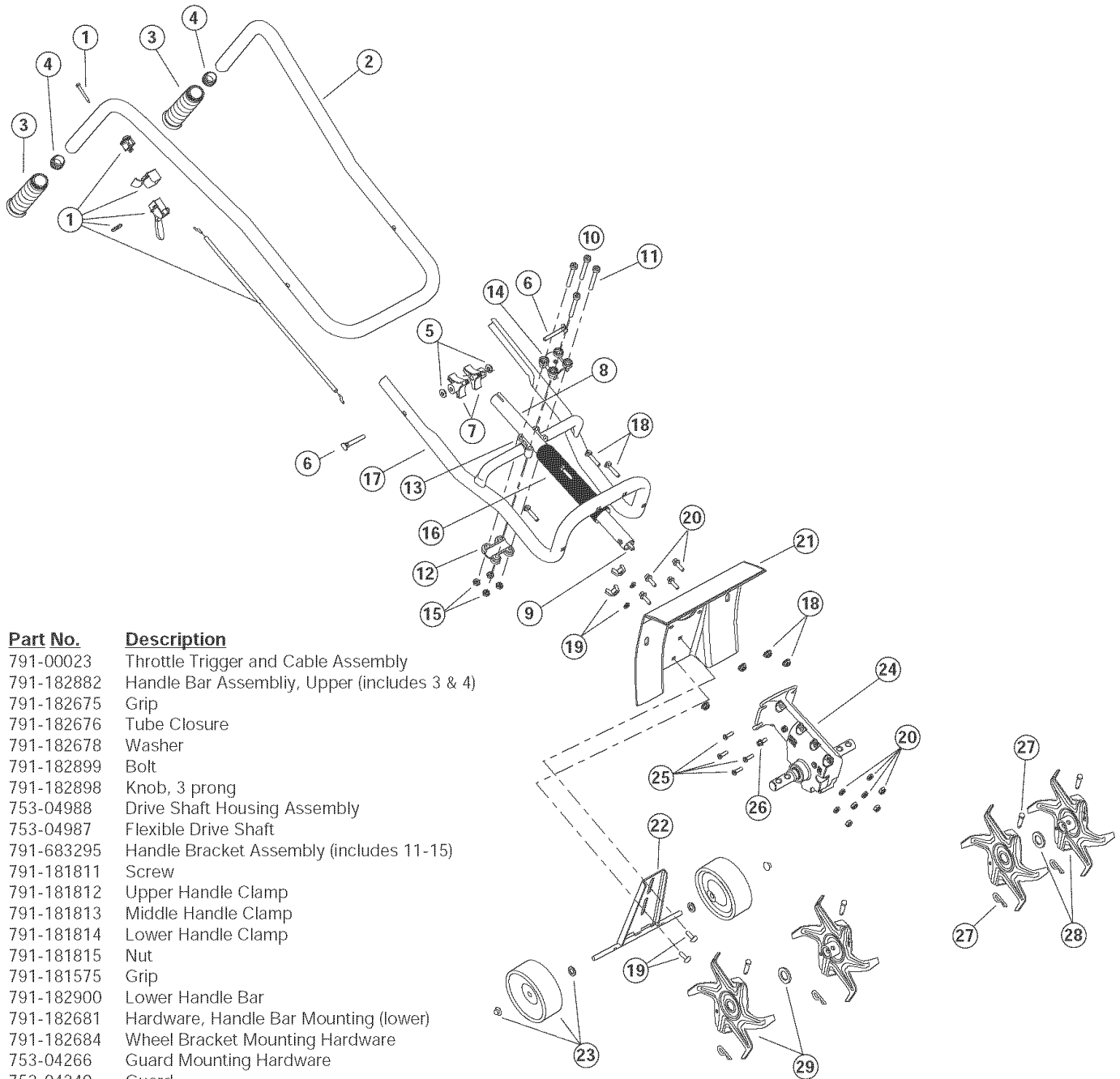


Item	Part No.	Description
1	753-04511	Air Cleaner Assembly (includes 2 & 38)
2	791-180350B	Air Cleaner Filter
3	791-180351	Carburetor Mounting Screw Assembly
4	791-180226	Wavey Washer
5	791-182202	Choke Knob & Screw
6	753-04418	Choke Lever Assembly (includes 5)
7	753-04419	Choke Lever & Plate (includes 6)
8	753-04333	Carburetor Assembly (includes 9 & 20)
9	791-610675	Carburetor Gasket
10	791-181860	Carb Mount Screw
11	791-683974B	Primer and Hose Assembly
12	753-1196	Carb Mount Assembly (includes 10, 13 & 14)
13	791-684451	Reed Assembly
14	753-1208	Carburetor Mount Gasket
15	753-04922	Crank Case Service Assembly (includes 10)
16	791-612134	Rear Mounting Pad
17	753-04306	Fuel Tank Assembly (includes 18-20)
18	791-182612	Fuel Cap Assembly
19	791-181086	Fuel Return Line
20	791-682039	Fuel Line Assembly
21	791-145308	Front Mounting Pad
22	753-04611	Shroud Extension and Stand (includes 38)
23	791-182736	Flywheel Assembly
24	791-181065	Spacer
25	753-1199	Recoil Pulley
26	791-613102	Recoil Spring
27	791-180930	Pulley Retainer Assembly
28	791-611061	Rope Guide
29	791-180317	Fuel Tank Guard Assembly
30	791-181079	Pull Handle
31	791-613103	Rope
32	791-181912	Housing Screw

Item	Part No.	Description
33	753-04238	Starter Housing Assembly (includes items 25-28, 30-32 & 38)
34	791-182396	Clutch Washer
35	791-182369	Clutch Rotor Assembly
36	791-153592	Clutch Drum Assembly
37	791-180098	Clutch Cover Assembly (includes 38)
38	791-181345	Clutch Cover Screw
39	791-153597	Upper Clamp Assembly
40	753-04337	Module Assembly (includes 50)
41	791-182880	Wire Lead
42	791-610311B	Spark Plug
43	753-04926	Muffler Assembly (includes item 44 & 45)
44	753-04619	Exhaust Gasket
45	753-04620	Muffler Mounting Bolt Assembly
46	753-04814	Cylinder Assembly (includes items 48 & 49)
47	753-04367	Piston & Rod Assembly
48	753-04182	Cylinder Gasket
49	791-182723	Cylinder Bolt
50	791-611063	Ground Tab
*	753-1209	Piston Ring
*	753-04925	Spark Arrestor
*	753-04986	Short Block Assembly (items 10, 15, 42 & 46-49)
*	791-181599	Clutch Springs (Qty. 2)
*		not shown

# PARTS LIST

## BOOM & CULTIVATOR PARTS - BL410 2-CYCLE GAS CULTIVATOR



Item	Part No.	Description
1	791-00023	Throttle Trigger and Cable Assembly
2	791-182882	Handle Bar Assembly, Upper (includes 3 & 4)
3	791-182675	Grip
4	791-182676	Tube Closure
5	791-182678	Washer
6	791-182899	Bolt
7	791-182898	Knob, 3 prong
8	753-04988	Drive Shaft Housing Assembly
9	753-04987	Flexible Drive Shaft
10	791-683295	Handle Bracket Assembly (includes 11-15)
11	791-181811	Screw
12	791-181812	Upper Handle Clamp
13	791-181813	Middle Handle Clamp
14	791-181814	Lower Handle Clamp
15	791-181815	Nut
16	791-181575	Grip
17	791-182900	Lower Handle Bar
18	791-182681	Hardware, Handle Bar Mounting (lower)
19	791-182684	Wheel Bracket Mounting Hardware
20	753-04266	Guard Mounting Hardware
21	753-04240	Guard
22	791-180320	Wheel Bracket Assembly (White Wheels)
22	753-05024	Wheel Bracket Assembly (All Black Wheels)
23	791-180944	Wheel Assembly (White Wheels)
23	753-04437	Wheel Assembly (All Black Wheels)
24	791-147474	Gear Box Assembly
25	791-182195	Screw
26	791-180288	Sleeve Retainer Bolt
27	791-147473	Tine Fastener Assembly
28	791-182729	Tine Assembly (Left Outer or Right Inner)
29	791-182730	Tine Assembly (Left Inner or Right Outer)

\* not shown