

700r

2-Cycle Gas Trimmer

OPERATOR'S MANUAL



FOR QUESTIONS, CALL 1-800-345-8746 in U.S. or
1-800-265-6778 in CANADA

www.ryobi.com

IMPORTANT MANUAL

DO NOT THROW AWAY

INTRODUCTION

THANK YOU

Thank you for purchasing this quality product. This modern outdoor power tool is designed to 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 entire manual and follow all of the instructions to keep your new outdoor power tool in top operating condition.

The other manual that came with your power tool, the parts manual, contains all of the information that you need to order parts.

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.

Copyright © 1998 Ryobi Outdoor Products, Inc. All Rights Reserved.

Bump Head™ is a trademark of Ryobi Outdoor Products.

Service Information

Service on this unit both within and after the warranty period should be performed only by an authorized and approved service dealer. Dial 1-800-345-8746 in the United States and 1-800-265-6778 in Canada to obtain the listing of the authorized service dealer nearest you. Do not return the unit to the retailer.

NOTE: PROOF OF PURCHASE WILL BE REQUIRED FOR WARRANTY SERVICE.

Make sure this manual is carefully read and understood before starting or operating this equipment.

THIS PRODUCT IS COVERED BY ONE OR MORE OF THE US PATENTS LISTED BELOW:
5,076,149; 4,901,682; 4,779,405; 4,651,422;
4,505,040; 4,463,498; 4,369,742; 4,342,236;
4,223,441; 2,125,688; D-249,012; D-239,329;
OTHER PATENTS PENDING.

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CONTENTS OF CARTON

This unit should consist of the following:

- Model 700r Trimmer
- D-Handle and Hardware
- String Guard and Hardware
- Bottle of 2-Cycle Oil
- Operator's Manual
- Parts Manual
- Owner's Registration Card

CALIFORNIA EMISSION REGULATIONS

The engine of your lawn and garden care product meets the 1995-1998 California emissions regulations. These units are identified by the label on the engine of your product. A typical identification label is shown.

To ensure that your unit continues to meet these regulations, refer to the following information and instructions in this operator's manual.

RYOBI®

IMPORTANT ENGINE INFORMATION

ENGINE DISPLACEMENT: 31cc
ENGINE FAMILY: SN4031UB24RA; EM
THIS ENGINE CONFORMS TO U.S. EPA PH1
AND 1995-1998 CALIFORNIA EMISSION
REGULATIONS FOR ULGE ENGINES.
REFER TO OPERATOR'S MANUAL FOR
MAINTENANCE SPECIFICATIONS
AND ADJUSTMENTS.

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.

SPARK ARRESTOR

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 states 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 not factory equipped with a spark arrestor.** If these items are required in your area, ask your LOCAL SERVICE dealer to install the **Optional Accessory Part #180030 Spark Arrestor Kit.**

FOR QUESTIONS, CALL 1-800-345-8746 IN U.S. OR 1-800-265-6778 in CANADA

SAFETY WARNINGS

THE PURPOSE OF SAFETY SYMBOLS IS TO ATTRACT YOUR ATTENTION TO POSSIBLE DANGERS. THE SAFETY SYMBOLS, AND THE EXPLANATIONS WITH THEM, 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 SYMBOL: Indicates danger, warning, or caution. Special attention is required in order to avoid serious personal injury. May be used in conjunction with other symbols or pictographs.



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



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



CAUTION: Failure to obey a safety warning may result in serious personal injury to yourself or to others. Always follow the safety precautions to reduce the risk of fire and personal injury.

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

• IMPORTANT SAFETY INFORMATION •

READ ALL INSTRUCTIONS

BEFORE OPERATING

- Read the instructions carefully. Be familiar with the controls and proper use of the unit.
- Children and adolescents must not manipulate units, except for adolescents in training and under the supervision of a specialist.
- All guards and safety attachments must be installed properly before operating the unit.
- Thoroughly inspect the unit for loose or damaged parts before each use. Do not use until adjustments or repairs are made.
- Carefully inspect the areas to be cut. Remove all debris that could become entangled in the string or blade. Also remove any objects that could be thrown during cutting.
- Be aware of the risk of injury to the head, hands and feet.

SAFETY WARNINGS FOR GAS TRIMMERS

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.

- 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.
- Pressure can build up in the fuel tank. Loosen the fuel tank cap slowly to relieve any pressure in the tank.
- Add fuel in a clean, well-ventilated area. Wipe up any spilled fuel immediately. If fuel has been spilled, avoid creating a source of ignition or starting the engine until fuel vapors have dissipated.
- Ensure correct fuel or fuel/oil mixture is used. Never operate the unit without the fuel cap securely in place.
- Move the unit at least 10 ft (3 m) from the fueling point before starting the engine. Do not smoke, keep sparks and open flames away from the area while adding fuel or operating the unit.

WHILE OPERATING

- Wear safety glasses or goggles and ear/hearing protection at all times when operating this unit. Always wear a face or dust mask if the operation is dusty.
- Dress properly. Do not operate this unit when barefoot or wearing open sandals. Always wear sturdy, rubber-soled footwear. The use of gloves and long pants is recommended.

SAFETY WARNINGS

- Do not wear loose fitting clothing or articles such as scarves, strings, chains, ties, etc. because they could get drawn into the air intake. Also make sure long hair does not get drawn into the air intake. Long hair must be pulled back and secured off shoulders and neck.
- The string guard must be in place at all times while operating the unit. **DO NOT OPERATE UNIT WITHOUT THE GUARD IN PLACE.**
- Before each use, check that the string head is correctly fixed and that the trigger returns automatically to the neutral position.
- Before starting, adjust the handle to your size and make sure that the string head is not in contact with anything.
- Use the unit only in daylight or good artificial light.
- Operate this unit only in a well-ventilated area outdoors. Carbon monoxide exhaust fumes can be lethal in a confined area.
- Avoid accidental starting. Be in the starting position whenever pulling the starting rope. The operator and unit must be in a stable position while starting, as shown in **Starting/Stopping Instructions.**
- Use the right tool. Do not use this unit for any job except for which it is intended.
- Do not overreach. Keep proper footing and balancing at all times.
- Always hold the unit with both hands when operating. Keep a firm grip on both the front and rear handles or grips.
- Keep hands, face, and feet away from all moving parts. Do not attempt to touch or stop the string or string head when it is rotating.
- Do not touch the muffler or cylinder. These parts get extremely hot from operation and remain hot for a short time after the equipment is turned off.
- Keep all bystanders, especially children and pets, at least 30 ft (9.1 m) away from the unit during operation.
- Do not operate the engine faster than the speed necessary to cut, trim or edge. Do not run the engine at high speed when not cutting.
- Always stop the engine when cutting is delayed or when walking from one cutting location to another.
- Do not operate unit without both trimming lines extended, and the proper line installed.
- Do not extend the trimming line beyond the length of the guard as specified in this manual.
- If you strike or become entangled with a foreign object, stop the engine immediately and check for damage. Repair any damage before further operation is attempted. Do not operate the unit with loose or damaged parts.
- Frequently inspect the condition of the string head. All damaged parts must be replaced immediately. Follow all the required precautions when undertaking replacement.
- All interventions, whether for maintenance, repair or for changing string head or safety attachments, must be undertaken with the engine/motor stopped.
- Use only genuine replacement parts when servicing this unit. These parts are available from your authorized dealer. The use of non-standard parts, or other accessories or attachments not designed for this unit, could result in 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 string head and guard mount.
- To reduce fire hazard, replace faulty mufflers and spark arrestors, keep the engine and muffler free of grass, leaves, excessive grease or carbon buildup.

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 in an enclosure.
- Lock up and store the unit in an appropriate and dry location to prevent unauthorized use and damage.
- Keep these instructions. Refer to them frequently and use them to instruct other users. If you loan someone this unit, also loan them these instructions.

SAVE THESE INSTRUCTIONS






SAFETY WARNINGS

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
	<ul style="list-style-type: none"> • SAFETY ALERT SYMBOL Indicates danger, warning, or caution. May be used in conjunction with other symbols or pictographs.
	<ul style="list-style-type: none"> • READ OPERATOR'S MANUAL Failure to follow operating instructions and safety precautions in operator's manual can result in serious injury. Read operator's manual before starting or operating this unit.
	<ul style="list-style-type: none"> • FOR SERVICE INFORMATION, CALL: USA: 1-800-345-8746 CANADA: 1-800-265-6778
	<ul style="list-style-type: none"> • WEAR EYE AND HEARING PROTECTION WARNING: Thrown objects and loud noise can cause severe eye injury and hearing loss. Wear eye and ear protection when operating this unit.
	<ul style="list-style-type: none"> • KEEP BYSTANDERS AWAY WARNING: Keep all bystanders, especially children and pets, at least 30 feet (9.1 m) away from the trimming area.
	<ul style="list-style-type: none"> • PRIMER BULB Push primer bulb, fully and slowly, 5 to 7 times.
	<ul style="list-style-type: none"> • UNLEADED FUEL Always use clean, fresh unleaded fuel.
	<ul style="list-style-type: none"> • INDICATES OIL Refer to operator's manual for the proper type of oil.
	<ul style="list-style-type: none"> • CHOKE CONTROL <ul style="list-style-type: none"> • FULL CHOKE position (A). • PARTIAL CHOKE position (B). • RUN position (C).

SAFETY WARNINGS

SYMBOL	MEANING
	<ul style="list-style-type: none">• THROWN OBJECTS AND ROTATING CUTTER CAN CAUSE SEVERE INJURY <p>WARNING: Do not operate unit without string guard in place. Keep away from rotating string head.</p>
	<ul style="list-style-type: none">• IGNITION SWITCH <p>ON / START / RUN</p>
	<ul style="list-style-type: none">• IGNITION SWITCH <p>OFF OR STOP</p>
	<ul style="list-style-type: none">• HOT SURFACE WARNING <p>Do not touch a hot muffler or cylinder. You may get burned. These parts get extremely hot from operation and remain hot for a short time after the unit is turned off.</p>
	<ul style="list-style-type: none">• SHARP BLADE <p>WARNING: Sharp blade on string guard. To prevent serious injury, do not touch blade.</p>

ASSEMBLY INSTRUCTIONS

INSTALLING THE D-HANDLE

1. Push the D-handle down over the boom (Fig. 1).
2. Install the bolt, washer and wing nut and tighten.

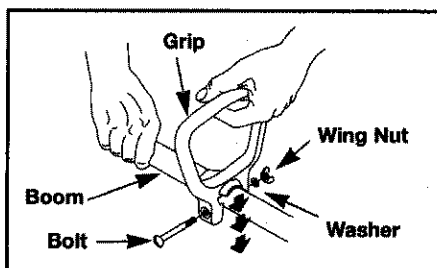


Fig. 1

ADJUSTING THE D-HANDLE

1. Loosen the wing nut. It is not necessary to remove the wing nut, washer and bolt.
2. Rotate the D-handle so the grip is above the top of the boom.
3. Position the D-handle as desired and tighten the wing nut (Fig. 2).

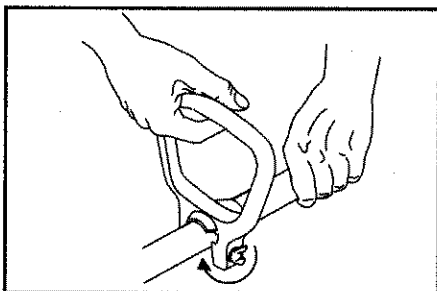


Fig. 2

INSTALLING THE STRING GUARD

If the string guard on your unit is not installed, use the following instructions.



WARNING: Never operate the trimmer without the string guard in place.

1. Place the string guard onto the boom above the clamp assembly, so that the guard is in front of the string head (Fig. 3).

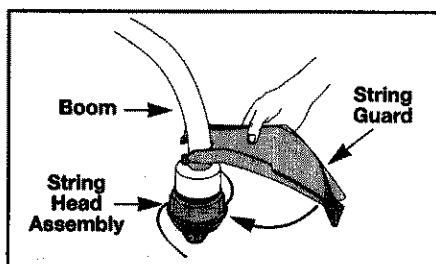


Fig. 3

2. Push the string guard down to the top of the string head assembly and then rotate the string guard to the proper position (Fig. 4). The string guard is in the correct position when the string guard points toward the engine, and the holes in the string guard line up with the holes in the top of the string head assembly.

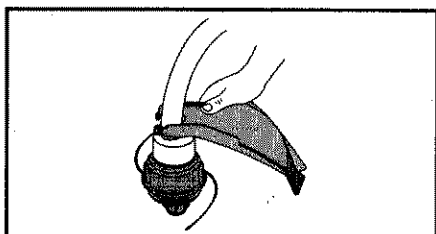


Fig. 4

3. Install the four (4) screws with a Phillips screwdriver (Fig. 5).

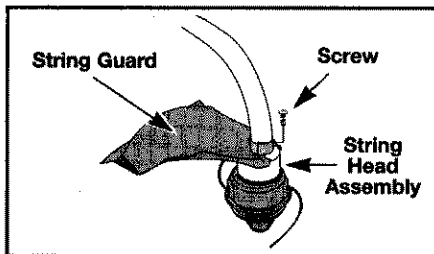


Fig. 5

OIL AND FUEL INFORMATION

NOTE: Alcohol-blended fuel absorbs moisture (water). As little as 1% moisture in the fuel can cause fuel and oil to separate and form acids when stored. If alcohol-blended fuel must be used, use fresh fuel (less than 60 days old), and mix according to the mixing instructions.

DEFINITION OF BLENDED FUELS

Today's fuels are often a blend of gasoline and one or more oxygenates such as ethanol, methanol or MTBE (ether).

USE OF BLENDED FUELS

If you choose to use a blended fuel or its use is unavoidable, the following precautions are recommended.

1. Always use fresh fuel mix per your operator's manual.
2. Use the special additive STA-BIL® or an equivalent.
3. Always agitate the fuel mix before fueling the unit.
4. Drain the tank and run the engine dry before storing the unit.



WARNING: Gasoline is extremely flammable and its vapors can explode if they are ignited. 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 away from the area.



WARNING: Remove fuel cap slowly to avoid injury from fuel spray.

USE OF FUEL ADDITIVES

The use of fuel additive, such as STA-BIL® Gas Stabilizer or an equivalent, will inhibit corrosion and minimize the formation of gum deposits. Add 0.8 oz (23 ml) per gallon of fuel per instructions on container. NEVER add fuel additives directly to the unit's fuel tank. Using a fuel additive can keep fuel fresh for up to six (6) months.



CAUTION: For proper engine operation and maximum reliability, pay strict attention to the oil and fuel mixing instructions on the 2-cycle oil container. Use a 32:1 fuel/oil ratio. Use 2-cycle oil. Using improperly mixed fuel can severely damage the engine.

OIL AND FUEL MIXING INSTRUCTIONS

Thoroughly mix the proper ratio of unleaded gasoline with 2-cycle engine oil in a separate fuel can, 32:1. Do not mix them directly in the engine fuel tank. See the table below for specific gas and oil mixing ratios.



UNLEADED
GAS

+



RYOBI OIL

1 U.S. GALLON
(3.8 liters)

+

4.0 fl. oz.
(118 ml)

1 LITER

+

30 ml

MIXING RATIO - 32:1

STARTING/STOPPING INSTRUCTIONS



CAUTION: This model is a non-clutch unit. At idle the trimming line continues to rotate.

1. **MIX OIL WITH GAS AND FILL FUEL TANK WITH FUEL/OIL MIXTURE** per instructions on page 9.
2. Put the **IGNITION SWITCH** IN THE **"ON"** POSITION (Fig. 6).
3. **FULLY PRESS AND RELEASE THE PRIMER BULB 5 TO 7 TIMES. FUEL SHOULD BE VISIBLE IN THE BULB** (Fig. 7).
4. **PLACE THE CHOKE LEVER IN THE FULL "CHOKE" POSITION (A)** (Fig. 8).
5. **WITH THE UNIT ON THE GROUND, SQUEEZE THE THROTTLE TRIGGER FULLY AND PULL THE STARTER ROPE BRISKLY** (Fig. 9) until the engine sounds like it wants to run (normally 2 to 5 pulls).

NOTE: Keep the throttle trigger depressed at all times until the engine is warmed up.

6. **PLACE THE CHOKE LEVER IN THE "PARTIAL" CHOKE POSITION (B)** (Fig. 8).
7. **PULL THE STARTER ROPE BRISKLY 1 TO 3 TIMES TO START THE ENGINE** (Fig. 9).
8. If the engine does not start, repeat steps 4 through 7.

NOTE: If the engine floods while attempting to start the unit, place the choke lever in the "RUN" position (C), squeeze the throttle trigger, and pull the starter rope briskly. The engine should start within three (3) to eight (8) pulls.

9. After the engine warms up for 5 to 10 seconds, **PLACE THE CHOKE LEVER IN THE "RUN" POSITION (C)** (Fig. 8). Be sure to keep throttle trigger depressed while warming up engine.

NOTE: Choking is not required when starting a warm engine. Start a warm engine in the "PARTIAL" CHOKE POSITION (B).

10. To stop the engine, put the **IGNITION SWITCH** IN THE **"OFF"** POSITION (Fig. 6).

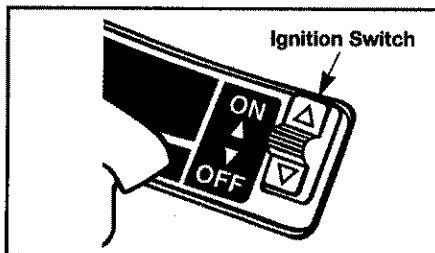


Fig. 6

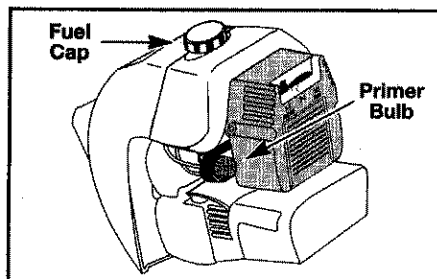


Fig. 7

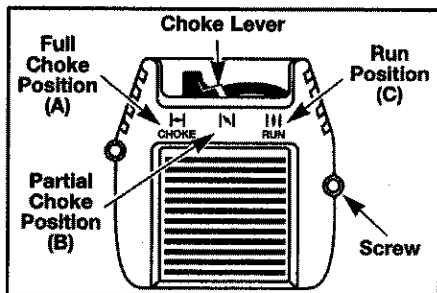


Fig. 8

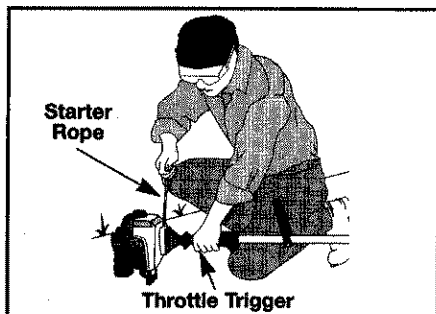


Fig. 9

OPERATING INSTRUCTIONS

ADJUSTING TRIMMING LINE LENGTH

Your trimmer is equipped with a bump head that allows the operator to release more trimming line without stopping the engine. To release additional line, lightly tap the trimming head on the ground (Fig. 10) while operating the trimmer at high speed.

NOTE: Always keep the trimming line fully extended. Line release becomes more difficult as cutting line becomes shorter.

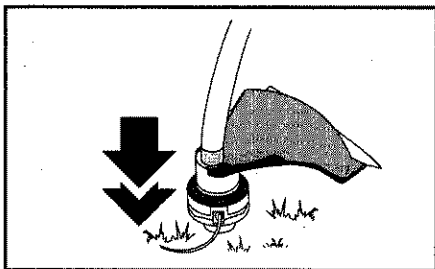


Fig. 10

Each time the head is bumped, about 1 in (25.4 mm) of trimming line is released. A blade in the string guard will cut the line to the proper length if excess line is released.

For best results, tap the head on bare ground or hard soil. If line release is attempted in tall grass, the engine may stall.



CAUTION: Do not remove or alter the line cutting blade assembly. Excessive line length will cause clutch to overheat and may result in serious personal injury.

DECORATIVE TRIMMING

Decorative trimming is accomplished by removing all vegetation around trees, posts, fences, etc.

Rotate the entire unit so that the string head is at a 30° angle to the ground (Fig. 11).

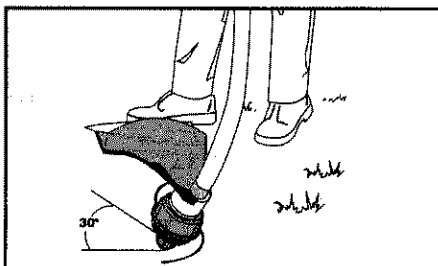


Fig. 11

MAINTENANCE AND REPAIR INSTRUCTIONS

MAINTENANCE SCHEDULE

These required maintenance procedures should be performed at the frequency stated in the table. They should also be included as part of any seasonal tune-up.



WARNING: Never perform maintenance or repairs with unit running. Always perform maintenance and repairs on a cool unit. Disconnect spark plug wire to make sure the unit will not start.

FREQUENCY	MAINTENANCE REQUIRED	REFER TO:
Daily or Before Starting Engine	Fill fuel tank with correct oil and fuel fixture.	Page 10
Every 10 Hours	Clean and re-oil air filter.	Page 14
Every 25 Hours	Inspect and clean muffler.	Pages 16-17
Every 50 Hours	Check spark plug condition and gap.	Page 16

LINE INSTALLATION

The trimming line may be replaced by two different methods - rewinding the existing reel or installing a prewound reel.

Rewinding the Existing Reel

To rewind the existing reel you must:

1. Check for the correct line size.
2. Remove the existing reel and spring.
3. Wind the existing reel with the new line.
4. Reinstall the existing reel and spring.

The Correct Line to Use

NOTE: It is very important to use the correct size line. A line with a diameter of **0.080 inch (2.03 mm)** must be used. The engine may overheat and fail if you use a larger line.

Removing the Existing Reel

1. Hold the outer spool with one hand and unscrew the Bump Knob™ **counterclockwise** (Fig. 12). Inspect the captured bolt inside the Bump Knob to make sure it moves freely. Replace the Bump Knob if it is damaged.
2. Remove the inner reel (Fig. 13).
3. Use a clean cloth to clean the inner surface of the outer spool (Fig. 14).

NOTE: Always clean the inner reel, outer spool, and shaft before reassembling the bump head.

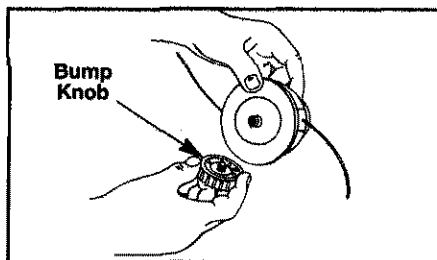


Fig. 12

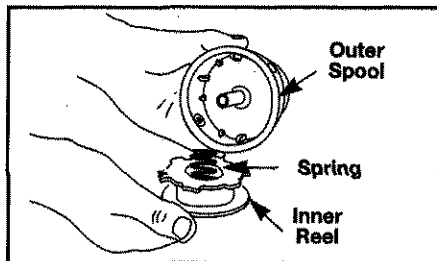


Fig. 13

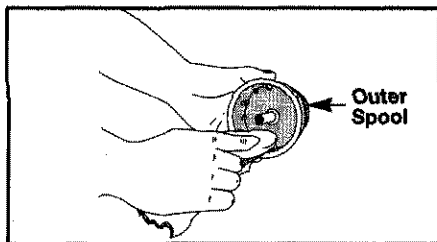


Fig. 14

MAINTENANCE AND REPAIR INSTRUCTIONS

4. Check the indexing teeth on the inner reel and outer spool for wear (Fig. 15). If necessary, remove burrs or replace the reel and spool.

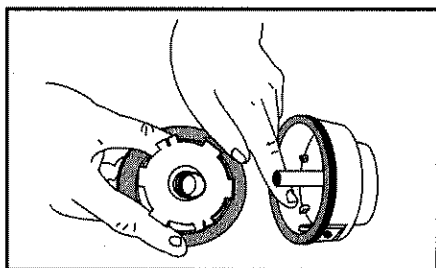


Fig. 15

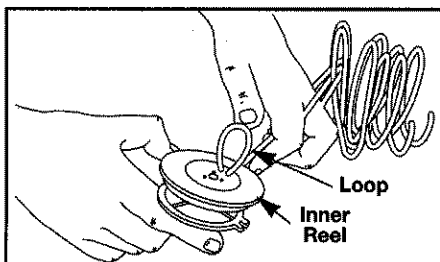


Fig. 16

Winding the Existing Reel

1. Take approximately **25 feet (7.6 m)** of new trimming line, loop it into two equal lengths. Insert each end of the line through one of the two holes in the inner reel (Fig. 16). Pull the line so that the loop is as small as possible.
2. Place your index finger between the two lines to stop the lines from overlapping (Fig. 17).
3. Wind the lines, in even and tight layers, onto the reel (Fig. 17). Wind the line in the direction indicated on the inner reel. Be sure not to overlap the two ends of the line.

NOTE: Failure to wind the line in the direction indicated will cause the string head to operate incorrectly.

3. Insert the ends of the line into the two holding slots (Fig. 18).

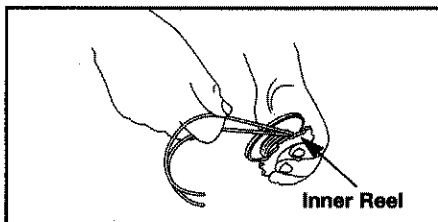


Fig. 17

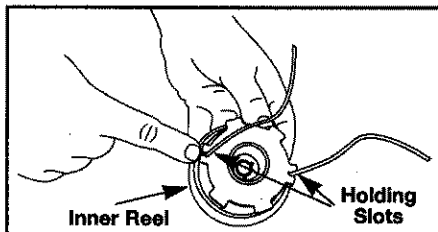


Fig. 18

Reinstalling the Reel

1. Insert the ends of the line through the eyelets in the outer spool, and insert the inner reel and spring into the outer spool (Fig. 19).
2. Grasp the line ends and pull firmly to release them from the holding slots in the inner reel.

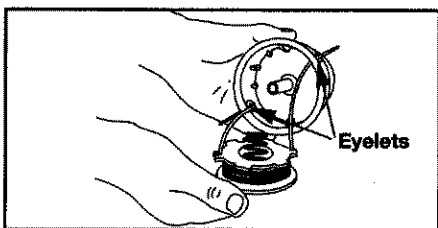


Fig. 19

3. Hold the inner reel in place and install the Bump Knob in the **clockwise** direction (Fig. 12). Line installation is now complete.

INSTALLING PREWOUND REEL

1. Follow the instructions in **The Correct Line to Use**.
2. Follow the instructions in **Removing the Existing Reel**.
3. Follow the instructions in **Reinstalling the Reel**.

MAINTENANCE AND REPAIR INSTRUCTIONS

AIR FILTER MAINTENANCE

CLEAN AND RE-OIL THE AIR FILTER EVERY 10 HOURS OF OPERATION. Your unit's air filter is one of the most important areas to maintain. If it is not maintained, you will void the warranty. Before cleaning, make sure the unit is turned off.

NOTE: The choke lever must be in the full "CHOKE" position (A) (Fig. 20) to remove and install the air filter cover.

1. Remove the screws on each side of the carburetor/air filter cover assembly (Fig. 20). Remove the air filter cover.

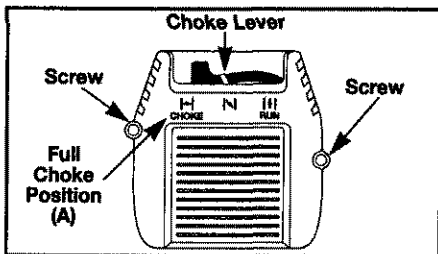


Fig. 20

2. Remove the air filter (Fig. 21).

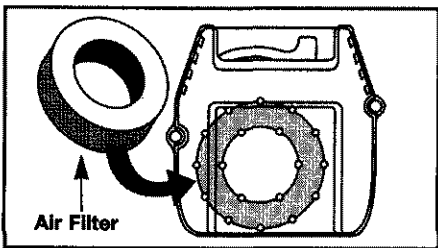


Fig. 21

3. Wash the filter in detergent and water (Fig. 22). Rinse the filter thoroughly and allow it to dry.

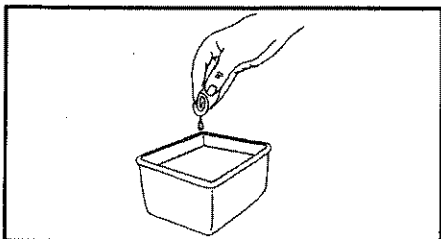


Fig. 22

4. Apply enough clean SAE 30 oil to lightly coat the filter (Fig. 23).

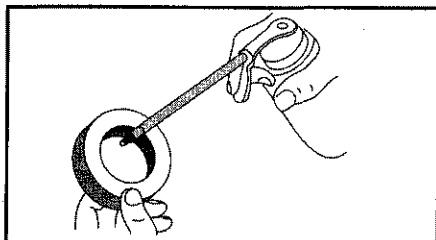


Fig. 23

5. Squeeze the filter to spread and remove excess oil (Fig. 24).

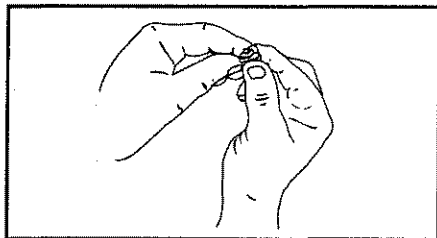


Fig. 24

6. Reinstall the filter (Fig. 21), air filter cover, and screws (Fig. 20).

NOTE: If the unit is operated without the carburetor/air filter cover assembled, you will **VOID** the warranty.

CARBURETOR ADJUSTMENT

This unit is equipped with a diaphragm-type carburetor that has been carefully calibrated at the factory. In most cases, no further adjustment is required.

NOTE: To meet the 1995-1998 California emission regulations, the carburetor has adjustment needle limiter caps to restrict the amount of adjustment. Removal or alteration of these caps will void the unit's warranty.

Old or improperly mixed fuel are usually the main reasons 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**.

The condition of the air filter is important to the operation of the unit. A dirty air filter will restrict the air flow, which upsets the fuel-air mixture in

MAINTENANCE AND REPAIR INSTRUCTIONS

the carburetor. The resulting symptoms are often mistaken for an out-of-adjustment carburetor. Therefore, check the condition of the air filter **before** adjusting the carburetor. Refer to **Air Filter Maintenance**.

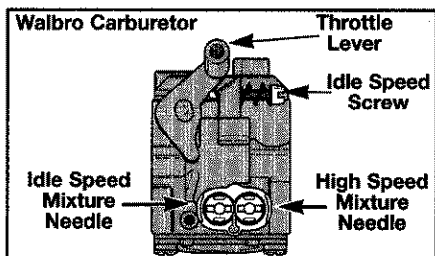


Fig. 25

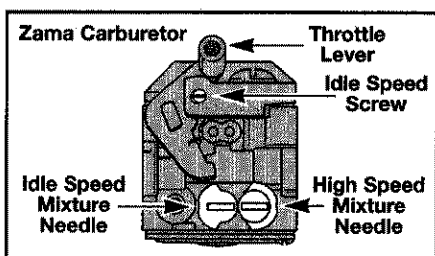


Fig. 26

If the following conditions are experienced, it may be necessary to adjust the carburetor:

- The engine will not idle
- The engine hesitates or stalls on acceleration
- A loss of engine power that is not corrected by cleaning the air filter and muffler

NOTE: Careless adjustments can seriously damage your unit. It is recommended that carburetor adjustments are made by an authorized service dealer.

Adjusting Carburetor

1. Clean the air filter if it is dirty. Refer to **Air Filter Maintenance**.
2. Make the initial settings with the engine stopped. These initial settings should allow you to start and warm up the unit before making the final adjustments.

Initial Idle Speed Setting

- a. For Walbro carburetors: Back the idle speed screw (Fig. 25) **out, counterclockwise**, until it does not contact the carburetor throttle lever.

Then turn the screw **in, clockwise**, until it just begins to move the throttle lever; then continue turning 2 full turns.

- b. For Zama carburetors: Back the idle speed screw (Fig. 26) **out, counterclockwise**, until it does not contact the throttle lever. Then turn the screw **in, clockwise**, until it just begins to move the throttle lever; then continue turning 1-1/2 turns.

3. **Initial High Speed Mixture and Idle Speed Mixture Needle Settings:** Turn both the high speed mixture and idle speed mixture needles **out, counterclockwise**, until the limiter caps stop.
4. Start the engine and let it run for a minute.
5. Release the throttle trigger and let the engine idle. If the engine stops, turn the idle speed screw (Figs. 25 and 26) **in, clockwise**, 1/8 turn at a time (as required) until the engine idles.

NOTE: Forcing the limiter caps with a screwdriver will damage the needle tips and the seat in the carburetor body.

6. **Final Idle Speed Screw and Idle Speed Mixture Needle Settings:** Adjust the idle speed screw and idle speed mixture needle for smoothest engine idle.

- a. Turn the idle speed mixture needle (Figs. 25 and 26) **in, clockwise**, until you hear the fastest idle; then turn the needle **out, counterclockwise**, 1/8 turn.
- b. Squeeze the throttle trigger. If the engine falters or hesitates as it accelerates, turn the idle speed mixture needle **out, counterclockwise**, 1/16 turn at a time until the engine accelerates rapidly.
- c. If the idle speed changes significantly because of Steps a and b, readjust the idle speed screw (refer to Step 2).

NOTE: The bump head/line spool should not rotate when the engine idles.

Final High Speed Mixture Needle Adjustment

1. High speed mixture needle adjustment is not recommended without a precision high speed tachometer.
2. The factory presets the high speed mixture needle at 1-1/4 turns out from the closed position. Your unit should perform well at this setting. If additional adjustment of the high speed mixture needle is required, contact your local authorized service dealer.

MAINTENANCE AND REPAIR INSTRUCTIONS

REPLACING THE SPARK PLUG

Use a Champion RDJ7Y spark plug (or equivalent). Correct air gap is **0.020 in (0.5 mm)**. Remove plug after **every 50 hours of operation** and check its condition.

1. Stop the engine and allow it to cool. Pull the wire off of the spark plug.
2. Clean around the spark plug and remove it from the cylinder head. Use a $5/8"$ socket to remove the plug.



CAUTION: Replace a cracked, fouled or dirty spark plug. Do not sand blast, scrape, or clean electrodes because the engine could be damaged by grit entering the cylinder.

3. Set the air gap at **0.020 in (0.5 mm)** using a wire feeler gauge (Fig. 27). Install a correctly gapped spark plug into the cylinder head. Torque to **110-120 in•lb (12.3-13.5 N•m)**.

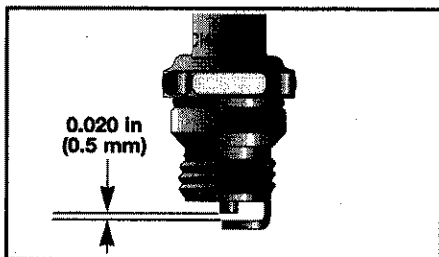


Fig. 27

INSPECTING THE MUFFLER

The muffler should be removed **every 25 hours of operation** to inspect for excessive carbon build-up. Excessive deposits around the exhaust port (Fig. 28) or exhaust holes will cause poor engine performance.

Use the following procedure to remove, inspect, and reinstall the muffler.



WARNING: To avoid serious personal injury, make sure that the muffler is cool before removing and inspecting.

Removing Muffler

1. Remove the muffler mounting bolts (Fig. 28).
2. Remove the muffler (with heat shield) and gasket. Discard the old gasket.

Muffler Mounting Bolts

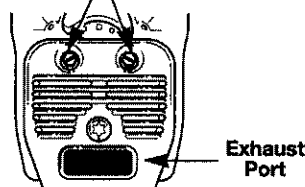


Fig. 28

3. Check the inlet port of the muffler and outlet port of the cylinder for excessive carbon deposits (Figs. 29 and 30). Clean or replace the muffler as required. If the outlet port of the cylinder is plugged, contact your authorized service dealer.
4. Inspect the muffler mounting holes for elongation. Replace the muffler and muffler bolts if the holes are elongated.

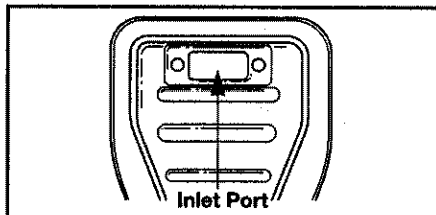


Fig. 29

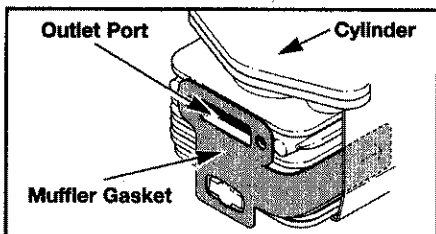


Fig. 30

Reinstalling Muffler

1. Install a new gasket. Make sure the arrow stamped into the gasket is to your right. Tuck the tab (with the arrow) between the cylinder and plastic shroud (Fig. 30).
2. Install the muffler with the muffler mounting bolts (Fig. 28) and torque the bolts to **80-90 in•lb (9-10.1 N•m)**.

MAINTENANCE AND REPAIR INSTRUCTIONS

CLEANING



WARNING: To avoid serious personal injury, always turn your trimmer off and allow it to cool before you clean or perform any maintenance on it.

Use a small brush to clean off the outside of the unit. Do not use strong detergents on plastic housing or handle. They can be damaged by household cleaners that contain aromatic oils such as pine and lemon, and by solvents such as kerosene. Wipe off any moisture with a soft cloth.

STORAGE

If the unit will be stored for an extended period of time, use the following storage procedure.

1. Drain all fuel from the fuel tank and drain into a container with the same 2-cycle fuel mixture. **Do not use fuel that has been stored for more than 60 days.** Dispose of the old fuel/oil mix in a safe manner and use a fresh mix.
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 approximately 1 oz (30 ml) of any high quality motor oil or 2-cycle 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 trimmer 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 now ready for storage.
5. To prevent unauthorized use or damage of the unit, store in a dry, well-ventilated area, up high or locked up, out of the reach of children.

ACCESSORIES/REPLACEMENT PARTS

2-Cycle Oil	147543
Spark Plug	610311
Replacement Line Cartridge	153577
Replacement Line	610375
Inner Reel Spring	610617
Bump Head Knob Assembly	153066
Fuel Cap	180000
Shoulder Strap	682075

TROUBLESHOOTING

PROBLEM	CAUSE	ACTION
Engine will not start	Ignition switch is "OFF" Empty fuel tank Primer bulb wasn't pressed enough Engine flooded Old or Improperly Mixed Fuel	Turn switch to "ON" Fill fuel tank Press primer bulb fully and slowly 5-7 times Use starting procedure WITHOUT USING CHOKE Drain fuel tank / Add fresh fuel mixture
Fouled spark plug	Excessive oil in oil / fuel mixture or Old Fuel	Replace spark plug / Drain fuel tank / Add fresh fuel mixture
Engine will not idle	Carburetor misadjusted Old or Improperly Mixed Fuel	Adjust carburetor Drain fuel tank / Add fresh fuel mixture
Engine will not accelerate	Old or Improperly Mixed Fuel String head bound with grass	Drain fuel tank / Add fresh fuel mixture Stop engine and clean string head
Engine lacks power or stalls when cutting	Muffler plugged Throttle wire has come loose Dirty air filter No oil in fuel or Old Fuel Carburetor misadjusted Muffler plugged String head bound with grass	Clean or replace muffler Tighten throttle wire Clean or replace air filter Drain fuel tank / Add fresh fuel mixture Adjust carburetor Clean or replace muffler Stop engine and clean string head
String head will not advance line	String head out of line Inner reel bound up String head dirty Line welded Line twisted when refilled Not enough line is exposed	Refill with new line Replace inner reel Clean inner reel and outer spool Disassemble, remove the welded section and rewind the line Disassemble and rewind line Push the Bump Knob and pull out line until 4 inches (102 mm) of line is outside of the string head

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

SPECIFICATIONS

ENGINE

Engine Type	Air-Cooled, 2-Cycle
Stroke	1.25 in (31.75 mm)
Displacement	1.9 cu. in. (31 cc)
Operating RPM	7,000-8,200 rpm
Idle Speed RPM	2,800-3,600 rpm
Ignition Type	Electronic
Ignition Switch	Slide Switch
Spark Plug Gap	0.020 in (0.5 mm)
Lubrication	Fuel/Oil Mixture
Fuel/Oil Ratio	32:1
Carburetor	Diaphragm, All-Position
Starter	Auto Rewind
Muffler	Baffled with Guard
Throttle	Manual Spring Return
Fuel Tank Capacity	18 oz (530 ml)
Fuel Tank	HD Polyethylene

DRIVE SHAFT & STRING HEAD

Throttle Control	Finger-Tip Trigger
Operating Weight	Approx. 10.5 lbs (4.725 kg)
Shoulder Strap	Optional
Line Spool	Bump Line Releaser
Line Spool Diameter	3 in (76.2 mm)
Trimming Line Diameter	0.080 in (2.03 mm)
Cutting Path Diameter	15 in (38.1 cm)

NOTES

CALIFORNIA EMISSION CONTROL WARRANTY STATEMENT YOUR WARRANTY RIGHTS AND OBLIGATIONS

The California Air Resources Board, and Ryobi Outdoor Products (ROP), is pleased to explain the emission control system warranty on your 1995 and later lawn and garden equipment engine. In California, new lawn and garden equipment engines must be designed, built and equipped to meet the State's stringent anti-smog standards. ROP must warrant the emission control system on your lawn and garden equipment engine for the periods of time listed below provided there has been no abuse, neglect or improper maintenance of your lawn and garden equipment engine.

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

Where a warrantable condition exists, ROP will repair your lawn and garden equipment engine at no cost to you including diagnosis, parts and labor.

The 1995 and later utility and lawn and garden equipment engines are warranted for two years. If any emission-related part on your engine is defective, the part will be repaired or replaced by ROP.

OWNER'S WARRANTY RESPONSIBILITIES:

- As the lawn and garden equipment engine owner, you are responsible for the performance of the required maintenance listed in your operator's manual. ROP recommends that you retain all receipts covering maintenance on your lawn and garden equipment engine, but ROP cannot deny warranty solely for the lack of receipts or for your failure to ensure the performance of all scheduled maintenance.
- As the lawn and garden equipment engine owner, you should however be aware that ROP may deny you warranty coverage if your lawn and garden equipment engine or a part has failed due to abuse, neglect, improper maintenance or unapproved modifications.
- You are responsible for presenting your lawn and garden equipment engine to a Ryobi 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 Ryobi Service Center. For the nearest location, please contact Ryobi at: 1-800-345-8746.
- Any warranted part which is not scheduled for replacement, as required maintenance which is scheduled 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 Ryobi 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 or warranted parts caused by the use of add-on or modified parts.
- In order to file a claim, go to your nearest Authorized Ryobi Service Center. Warranty services or repairs will be provided at all Authorized Ryobi 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.

LIMITED TWO-YEAR WARRANTY

RYOBI OUTDOOR PRODUCTS warrants each new RYOBI Product for two (2) years according to the following terms.

This warranty extends to the original retail purchaser only and commences on the date of original retail purchase.

Any part of the RYOBI Product manufactured or supplied by RYOBI and found in the reasonable judgement of RYOBI to be defective in material or workmanship will be repaired or replaced by an authorized RYOBI service dealer without charge for parts and labor.

The RYOBI Product including any defective part must be returned to an authorized service dealer within the warranty period. The expense of delivering the RYOBI Product to the dealer for warranty work and the expense of returning it back to the owner after repair or replacement will be paid for by the owner. RYOBI's responsibility in respect to claims is limited to making the required repairs or replacements and no claim of breach of warranty shall be cause for cancellation or rescission of the contract of sale of any RYOBI Product. Proof of purchase will be required by the dealer to substantiate any warranty claim. All warranty work must be performed by an authorized RYOBI service dealer.

This warranty is limited to ninety (90) days from the date of original retail purchase for any RYOBI Product that is used for rental or commercial purposes, or any other income-producing purpose.

This warranty does not cover any RYOBI Product that has been subject to misuse, neglect, negligence, or accident, or that has been operated in any way contrary to the operating instructions as specified in the RYOBI Operator's Manual. This warranty does not apply to any damage to the RYOBI Product that is the result of improper maintenance or to any RYOBI Product that has been altered or modified so as to adversely affect the product's operation, performance or durability or that has been altered or modified so as to change its intended use. The warranty does not extend to repairs made necessary by normal wear or by the use of parts or accessories which are either incompatible with the RYOBI Product or adversely affect its operation, performance or durability.

In addition, this warranty does not cover:

- 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

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

ALL IMPLIED WARRANTIES ARE LIMITED IN DURATION TO THE TWO (2) YEAR WARRANTY PERIOD OR NINETY (90) DAYS FOR PRODUCTS USED FOR ANY COMMERCIAL PURPOSE. ACCORDINGLY, ANY SUCH IMPLIED WARRANTIES INCLUDING MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR OTHERWISE, ARE DISCLAIMED IN THEIR ENTIRETY AFTER THE EXPIRATION OF THE APPROPRIATE TWO-YEAR OR NINETY DAY WARRANTY PERIOD. RYOBI'S OBLIGATION UNDER THIS WARRANTY, IS STRICTLY AND EXCLUSIVELY LIMITED TO THE REPAIR OR REPLACEMENT OF DEFECTIVE PARTS, AND ROP DOES NOT ASSUME OR AUTHORIZE ANYONE TO ASSUME FOR THEM ANY OTHER OBLIGATION. SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU.

RYOBI ASSUMES NO RESPONSIBILITY FOR INCIDENTAL, CONSEQUENTIAL OR OTHER DAMAGES INCLUDING, BUT NOT LIMITED TO EXPENSE OF RETURNING THE RYOBI PRODUCT TO AN AUTHORIZED SERVICE DEALER AND EXPENSE OF DELIVERING IT BACK TO THE OWNER, MECHANIC'S TRAVEL TIME, TELEPHONE OR TELEGRAM CHARGES, RENTAL OF A LIKE PRODUCT DURING THE TIME WARRANTY SERVICE IS BEING PERFORMED, TRAVEL, LOSS OR DAMAGE TO PERSONAL PROPERTY, LOSS OF REVENUE, LOSS OF USE OF THE PRODUCT, LOSS OF TIME, OR INCONVENIENCE. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

This warranty applies to all RYOBI Products manufactured by RYOBI and sold in the United States and Canada.

To locate your nearest service dealer dial 1-800-345-8746 in the United States or 1-800-265-6778 in Canada.

RYOBI®

RYOBI OUTDOOR PRODUCTS

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SAVE THESE INSTRUCTIONS FOR FUTURE REFERENCE.

FOR QUESTIONS CALL 1-800-345-8746 IN U.S.

OR 1-800-265-6778 IN CANADA

OPERATOR'S MANUAL PART NO. 181958

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