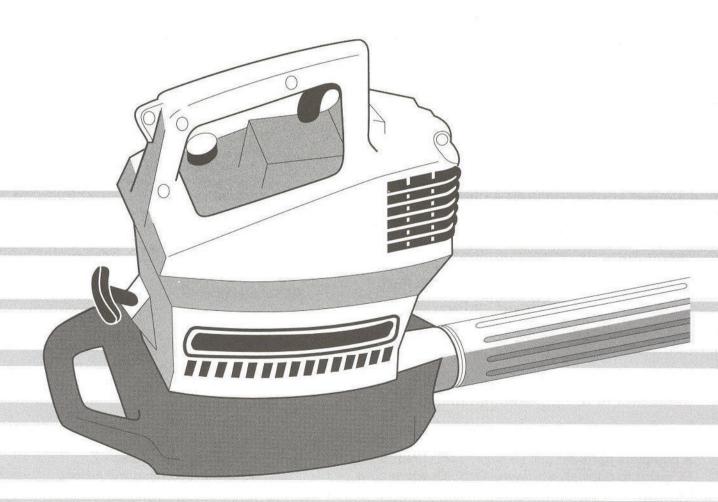


. 280r/310BVr \_

2-Cycle Gas 280r Blower or 310BVr Blower/Vacuum

## **OPERATOR'S MANUAL**



FOR QUESTIONS, CALL 1-800-345-8746 in U.S. or 1-800-668-1238 in CANADA www.RyobiOutdoor.com

## 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-tounderstand 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.

Dial:

- 1-800-345-8746 or www.RyobiOutdoor.com on the World Wide Web for authorized service dealers in the United States Or
- 1-800-668-1238 in Canada to obtain the listing of the authorized service dealer nearest vou.

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 U.S. PATENTS, OTHER PATENTS PENDING.

A complete parts list can be viewed and printed by going to our web site: www.RyobiOutdoor.com Or.

you can request a copy by calling 1-800-345-TRIM (1-800-345-8746). Please have the unit model and serial number when calling.

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#### CONTENTS OF CARTON

- Model 280r Blower or Model 310BVr Blower/Vacuum Model 280r includes:
  - Blower Tubes

Model 310BVr Blower/Vacuum includes:

- Blower/Vacuum Tubes
- Vacuum Bag/Strap and Adapter
- Shoulder Strap
- Operator's Manual
- Product Registration Card
- Bottle of Ryobi 2-Cycle Oil

Examine all parts to make certain that nothing is missing and no breakage has occurred during shipping. Any damaged part must be replaced before using this product.

## **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 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 #182747 Spark Arrestor.

## **WARNING!**

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 U.S. OR 1-800-668-1238 in CANADA

## **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 SYMBOL: 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.



**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 INFORMATION •

## **READ ALL INSTRUCTIONS**



**WARNING:** When using the unit, the safety rules must be followed. For your own safety and that of bystanders, please read these instructions before operating the unit. Please keep the instructions safe for later use.

#### **BEFORE OPERATING**

- 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.
- 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.

### 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.
- 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 area outdoors 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 area outdoors.
- To reduce the risk of injury associated with thrown objects, wear safety glasses or goggles that are marked as meeting ANSI Z87. standards.
- Never run the unit without the the proper equipment attached. When using this unit, always install the blower/vacuum tubes and vacuum bag depending on model. Make sure the vacuum bag is completely zipped closed.
- To reduce the risk of hearing loss associated with sound level(s), always wear ear/hearing protection when operating this unit.
- Wear heavy, long pants, boots, and gloves. Do not wear short pants, sandals, or go barefoot.
- To avoid static electricity shock, do not wear rubber gloves or any other insulated gloves while operating this unit.
- To reduce the risk of injury associated with objects being drawn into rotating parts, do not wear loose clothing, jewelry, scarves, and the like. Secure hair above shoulder level.
- Wear a face or dust mask if the operation is dusty.
   Long sleeve shirts are recommended.
- Use the unit only in daylight or good artificial light.
- Keep outside surfaces free from oil and fuel.
- Avoid accidental starting. Be in the starting position whenever pulling the starter rope. The operator and unit must be in a stable position while starting. See Starting/Stopping Instructions.
- Do not set unit on any surface except a clean, hard area while engine is running. Debris such as gravel, sand, dust, grass, etc. could be picked up by the air intake and thrown out by the discharge opening, damaging unit, property, or causing serious injury to bystanders or operator.
- Use the right tool. Only use this tool for the purpose intended.
- Do not force unit. It will do the job better and with less likelihood of injury at a rate for which it was designed.
- Do not overreach or use from unstable surfaces such as ladders, trees, steep slopes, rooftops, etc. Always keep proper footing and balance.
- Always hold the unit with a firm grip when operating.
- Keep hands, face, and feet at a distance from all moving parts. Do not touch or try to stop the impeller when it is rotating. Do not operate without guards in place.
- Do not put any object into openings. Do not use with any opening blocked; keep free of dirt, debris, and anything that may reduce the air flow.

- Do not touch the engine or muffler. These parts get extremely hot from operation. When turned off they remain hot for a short time.
- Do not operate the engine faster than the speed needed to do the job. Do not run the engine at high speed when not in use.
- Always stop the engine when operation is delayed or when walking from one location to another.
- Stop the engine for maintenance, repair, to install or remove the blower tubes or vacuum attachments.
   The unit must be stopped and the impeller no longer turning to avoid contact with the rotating blades.
- Use only genuine Ryobi® replacement parts when servicing this unit. These parts are available from your authorized service dealer. Do not use parts, accessories, or attachments not authorized by Ryobi® for this unit. Doing so could lead to serious injury to the user, or damage to the unit, and void your warranty.
- Never use this unit for spreading chemicals, fertilizers, or other substances which may contain toxic materials.
- 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.

#### WHILE OPERATING UNIT AS A BLOWER

 Never point the blower in the direction of people or pets, or in the direction of windows. Always direct the blowing debris away from people, animals, and windows. Use extra caution when blowing debris near solid objects such as trees, automobiles, walls, etc.

## WHILE OPERATING UNIT AS A VACUUM (Model 310BVr Only)

- Avoid situations that could catch the vacuum bag on fire. Do not operate near an open flame. Do not vacuum warm ash from fireplaces, barbecue pits, brush piles, etc. Do not vacuum discarded cigars or cigarettes unless the cinders are completely cool.
- The unit is designed to pickup dry material such as leaves, grass, small twigs, and bits of paper. Do not attempt to vacuum wet debris and/or standing water as this may result in damage to the blower/ vacuum. To avoid severe damage to the impeller, do not vacuum metal, broken glass, etc.

#### **OTHER SAFETY WARNINGS**

- Always disconnect the spark plug before performing maintenance or accessing movable parts.
- Never store the unit, with fuel in the tank, inside a building where fumes may reach an open flame (pilot lights, etc.) or sparks (switches, electrical motors, etc.).
- Allow the engine to cool before storing or transporting. Be sure to secure the unit while transporting.
- Store the unit in a dry place, either locked up or up high to prevent unauthorized use or damage. Keep 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 Cleaning and Storage instructions.
- Keep these instructions. Refer to them often and use them to instruct other users. If you loan this unit to others, also loan these instructions to them.

## **SAVE THESE INSTRUCTIONS**

## 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, 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.

#### **SYMBOL**

#### **MEANING**



## WEAR EYE AND HEARING PROTECTION

**WARNING:** The operation of any power tool can be the source of thrown objects and loud noise which can cause severe eye injury and hearing loss. Always wear safety glasses or goggles 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.



#### PRIMER BULB

Push primer bulb, fully and slowly, 5 to 7 times.



#### 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 guard in place. Keep away from the rotating cutter.



#### HOT SURFACE WARNING

Do not touch a hot muffler, gear housing, or cylinder. You may get burned. These parts get extremely hot from operation. When turned off they remain hot for a short time.



#### CHOKE CONTROL

- A FULL choke position.
- B PARTIAL choke position.
- C RUN position.



## • BLOWERS AND BLOWER/VACUUMS – ROTATING IMPELLER BLADES CAN CAUSE SEVERE INJURY

**WARNING:** Stop the engine and allow the impeller to stop before installing or changing tubes or bag, or before cleaning or performing any maintenance.

## **KNOW YOUR UNIT**

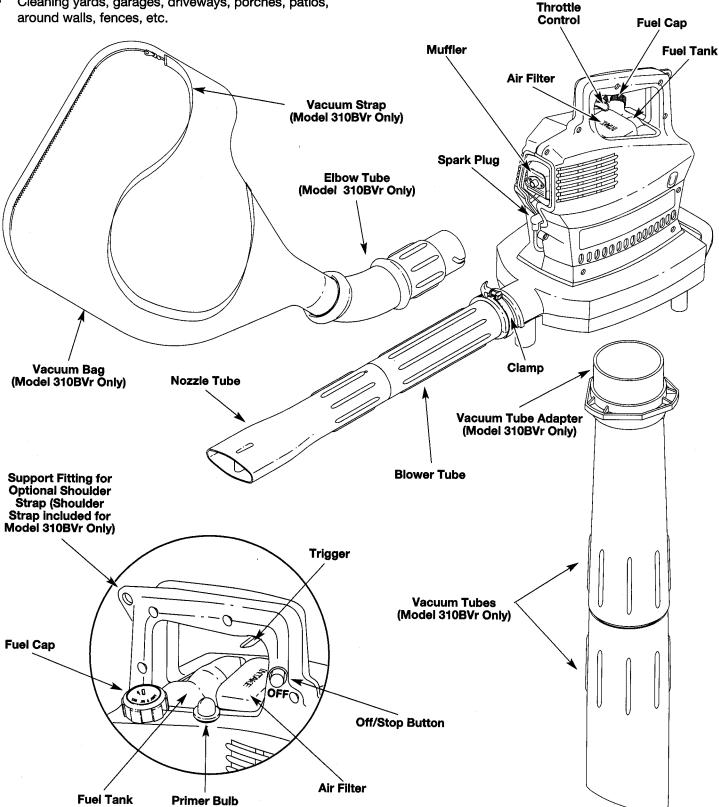
#### **APPLICATIONS**

Models 280r and 310BVr - As a BLOWER:

Cleaning yards, garages, driveways, porches, patios,

Model 310BVr only — As a VACUUM:

Picking up leaves, light debris, etc.

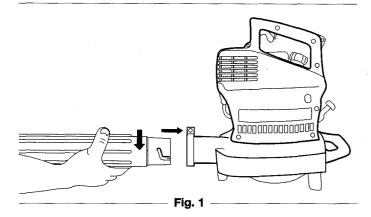


### **BLOWER TUBE AND NOZZLE ASSEMBLY**



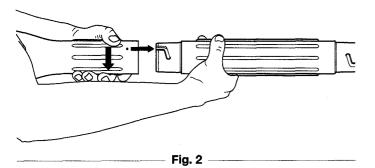
**WARNING:** Do not install tubes while unit is running to avoid serious personal injury.

- 1. Align the grooves in the blower tube with the pins in the blower outlet.
- 2. Grasping the tube firmly with both hands, push the tube into the blower outlet (Fig. 1). Turn the tube clockwise until it snaps into the detent and locks.



- 3. Align the pins of the blower nozzle with the grooves in the blower tube (Fig. 2).
- 4. Grasping the nozzle firmly with both hands, push the nozzle onto the blower tube. Turn the nozzle clockwise until it snaps into the detent and locks.

NOTE: The blower tube and nozzle or vacuum bag (Model 310BVr only) must be used at all times to prevent overheating the engine.

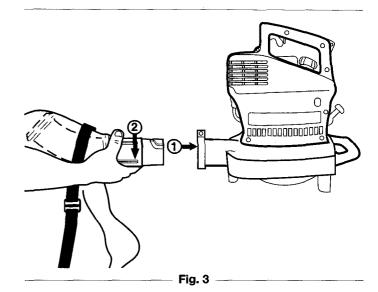


## INSTALLING THE VACUUM BAG/TUBE ASSEMBLY (MODEL 310BVr ONLY)



**WARNING:** Rotating impeller blades can cause severe injury. Do not attempt to convert the unit while the engine is running to avoid serious personal injury. Do not put hands or any other object into the vacuum tubes while they are installed on the unit.

- 1. Remove the blower tubes.
- 2. Align the grooves in the vacuum bag/elbow tube assembly with the pins in the blower outlet.
- Grasping the tube firmly with both hands, push the vacuum bag/elbow tube assembly into the blower outlet (Fig. 3). Turn the assembly clockwise until it snaps into the detent and locks. The curve of the adapter tube should angle upwards.



## INSTALLING THE ADAPTER ONTO THE UPPER VACUUM TUBE (MODEL 310BVr ONLY)



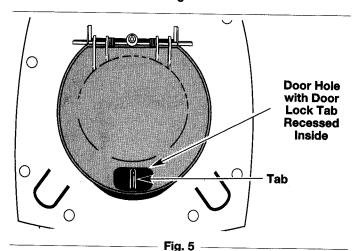
**WARNING:** Do not install while unit is running to avoid serious personal injury.

- Turn the blower upside down (Fig. 4). Hold the blower between your knees to install the adapter and vacuum tubes.
- Locate the hole in the door. The door lock tab is recessed in the hole (Fig. 5). Press the door lock tab toward the front of the unit (away from the handle) to release the lock and open the door (Fig. 6).
- 3. Align the adapter's three (3) slots with the unit's three (3) hooks (Fig. 6). Push firmly so all three (3) hooks snap through (Fig. 7).
- 4. Align the arrow on the upper vacuum tube with the arrow on the adapter. Slide the upper vacuum tube onto the adapter (Fig. 8).

**NOTE:** The arrows must align properly to install the vacuum tubes correctly.



Fig. 4



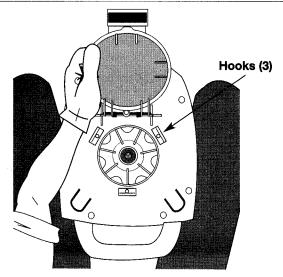


Fig. 6

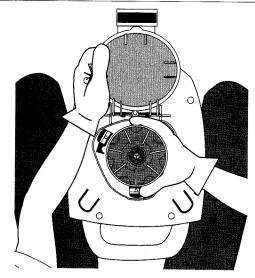


Fig. 7

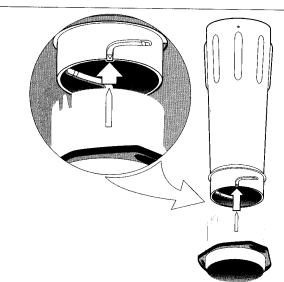


Fig. 8 -

 Grasping the upper vacuum tube firmly with both hands (Fig. 9), turn the vacuum tube clockwise (Fig. 10) until the two (2) tabs of the adapter snap into the two (2) square indentations of the upper vacuum tube (Fig. 11).

**NOTE:** This assembly requires the use of both hands because the parts fit together tightly.

**NOTE:** The flat area on the upper vacuum tube should face the handle as you install the vacuum tube (Fig. 13).

NOTE: When the tabs lock into the indentations, the adapter and vacuum tube become a permanent assembly. The adapter can no longer be removed from the vacuum tube.

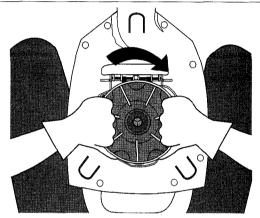
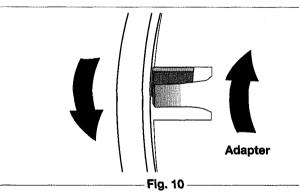


Fig. 9



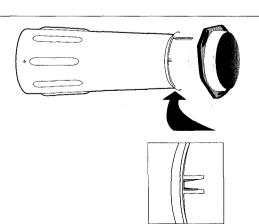


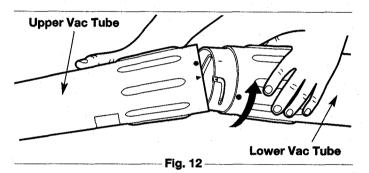
Fig. 11

## ASSEMBLING THE VACUUM TUBES (MODEL 310BVr ONLY)



**WARNING:** Do not install the vacuum tubes while unit is running to avoid serious personal injury.

- 1. Align the arrow on the lower vacuum tube with the arrow on the upper vacuum tube (Fig. 12).
- Grasping the lower vacuum tube firmly with both hands, push the lower vacuum tube into the upper vacuum tube. Turn the lower vacuum tube clockwise until it snaps into detent and locks. (The dot on the lower tube aligns with the dot on the upper tube when properly assembled.)



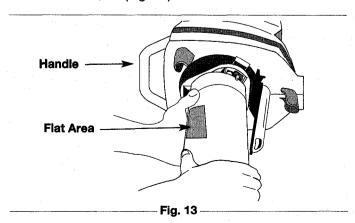
# INSTALLING THE COMPLETE VACUUM TUBE ASSEMBLY TO THE BLOWER/VACUUM (MODEL 310BVr ONLY)



**WARNING:** Do not install the vacuum tubes while unit is running to avoid serious personal injury.

1. Grasp the assembled vacuum tube firmly with both hands. Turn the tube/adapter clockwise as far as possible to the end of the grooves until it snaps into the detent and locks (Fig. 13).

**NOTE:** When the tube is installed correctly, the flat on the upper tube faces the handle on the blower/vac (Fig. 13).



## INSTALLING AND ADJUSTING THE SHOULDER STRAP (MODEL 310BVr ONLY)



**WARNING:** Always use the shoulder strap when using the vacuum (Model 310BVr only) to avoid serious personal injury.

**NOTE:** Have the shoulder strap on and adjusted, but not clipped to the support fitting prior to starting unit.

- 1. Push the strap through the center of the buckle.
- 2. Pull the strap over the cross bar and down through the slot in the buckle (Fig. 14).
- 3. Fully extend the strap.

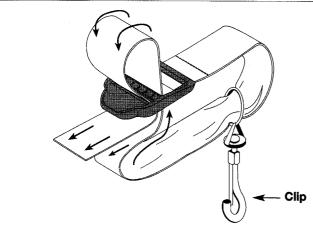
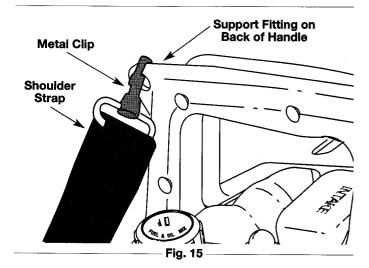


Fig. 14

4. Attach the metal clip of the shoulder strap to the support fitting on the back of the handle (Fig. 15).



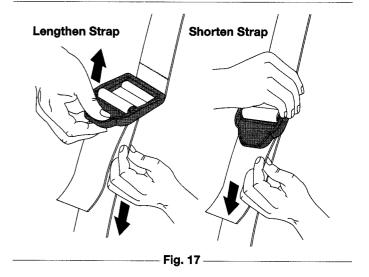
5. Place the strap over your head and onto your shoulders (Fig. 16).



6. While standing in the operating position (Fig.16)

adjust length to fit the operator's size.

- Lengthen the strap by pulling down on the strap and lifting the buckle end up (Fig. 17).
- Shorten the strap by pulling the strap down through the buckle while holding the buckle (Fig. 17).



## 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 fresh fuel mix per 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 Ryobi 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 only Ryobi 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.



**CAUTION:** For proper engine operation and maximum reliability, pay strict attention to the oil and fuel mixing instructions on the 2cycle 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 32:1 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 4 oz. (120 ml.) bottle of Rvobi 2-Cycle Oil makes a 32:1 fuel/oil ratio.







**UNLEADED GAS** 

**RYOBI 2 CYCLE OIL** 

1 US. GALLON + 4.0 FL. OZ. (3.8 LITERS)

(120 ml)

1 LITER + 30 ml

**MIXING RATIO - 32:1** 



**WARNING:** 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.



**WARNING:** Remove fuel cap slowly to avoid injury from fuel spray. Never operate the unit without the fuel cap securely in place.



WARNING: Add fuel in a clean, wellventilated area outdoors. Wipe up any spilled fuel immediately. Avoid creating a source of ignition for spilled 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.

## STARTING/STOPPING INSTRUCTIONS

#### STARTING INSTRUCTIONS



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



**WARNING:** Avoid accidental starting. Be in the starting position when pulling the starter rope (Fig. 20 for blower, Fig. 21 for vacuum). The operator and unit must be in a stable position while starting to avoid serious personal injury.

Also, do not set unit on any surface except a clean, hard area while starting. Debris such as gravel, sand, dust, grass, etc. could be picked up by the air intake and thrown out by the discharge opening, damaging unit, property, or causing serious injury to bystanders or operator.

Mix gas with oil. Fill fuel tank with fuel/oil mixture.
 See Oil and Fuel Mixing Instructions on page 12.



**WARNING: Model 310BVr only:** To avoid serious personal injury, always remove the vacuum bag prior to refueling the unit. The bag may become a fire hazard when saturated with fuel.

- 2. Fully press and release primer bulb slowly 5 to 7 times. Fuel should be visible in the bulb (Fig. 18). If fuel is not visible, press three (3) more times, or until it is.
- 3. Place the choke lever in the **FULL** choke ( ) position (Fig. 19).
- 4. Place the unit in the starting position (Fig. 20 for blower, Fig. 21 for vacuum).
- 5. Squeeze the throttle control to the wide open (full throttle) position (Fig. 18). Pull the starter rope briskly 5 times while still in the **FULL** choke ( → ) position. If the engine attempts to run before the fifth pull, proceed to Step 6.

NOTE: The engine will not run in the FULL choke ( → ) position.

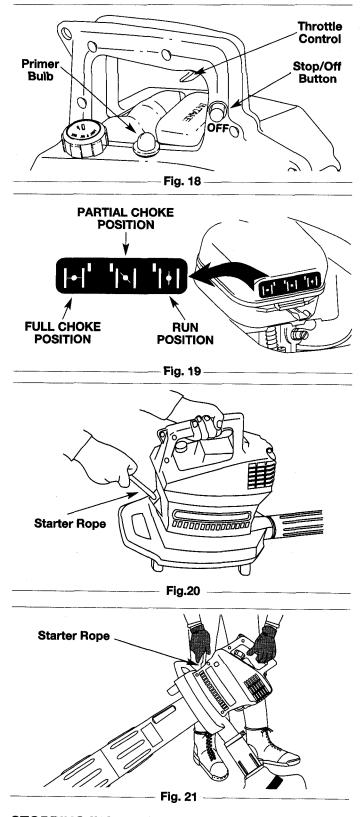
- 6. Place the choke lever in the **PARTIAL** choke (|\(\mathbb{\ceil}\)) position (Fig. 19).
- 7. Pull starter rope briskly 1 to 3 times to start the engine (Fig. 20 for blower, Fig. 21 for vacuum).

**NOTE:** Squeeze the throttle control until the engine has started and warmed up.

8. If the engine does not start, repeat steps 4 through 7.

NOTE: If the engine floods while trying to start, place the choke lever in the RUN ( | + | ) position (Fig. 19).

Pull the starter rope briskly. The engine should start with three (3) to eight (8) pulls.



## STOPPING INSTRUCTIONS

To stop the engine, push and hold the stop button until the engine comes to a complete stop (Fig. 18).

**NOTE:** To prevent vapor lock, avoid setting the unit in the sun.

## **OPERATING INSTRUCTIONS**

#### HOLDING THE BLOWER/VACUUM

Before operating the unit, stand in the operating position. Check for the following:

 Operator is wearing proper clothing, such as boots, safety glasses or goggles, ear/hearing protection, gloves, long pants, and long sleeve shirt.



**WARNING:** To avoid serious personal injury, wear goggles or safety glasses at all times when operating this unit. Wear a face mask or dust mask in dusty locations.

- If the conditions are dusty, a dust mask or face mask is being worn.
- The unit is in good working condition.
- The tubes and guards are in place and secure.



**WARNING:** To prevent serious personal injury to yourself or others, or damage to the unit, make sure blower tubes or vacuum tubes and vacuum bag are in place, depending on the model, before operating the unit.

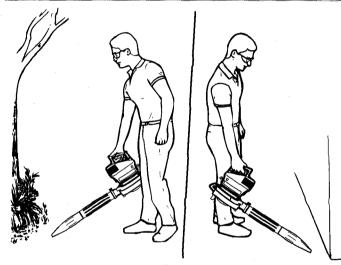
### **OPERATING TIPS**

- Assure the unit is not directed at loose debris or persons before starting unit.
- Be sure the unit is in good working condition. Make sure the tubes and guards are in place and secure.
- It is recommended holding the unit with both hands when operating the blower at waist level or at awkward angles (Fig. 23).
- To reduce the risk of hearing loss associated with sound level(s), the use of hearing protection is required.
- Operate power equipment only at reasonable hours not early in the morning or late at night when people might be disturbed. Comply with times listed in local ordinances. Usual recommendations are 9:00 am to 5:00 pm, Monday through Saturday.
- To reduce noise levels, limit the number of pieces of equipment used at any one time.
- To reduce noise levels, operate power blowers at the lowest possible speed to do the job.
- Check your equipment before operation, especially the muffler, air intakes, and air filters.
- Use rakes and brooms to loosen debris before blowing.
- In dusty conditions, slightly dampen surfaces or use a mister attachment when water is available.
- Conserve water by using power blowers instead of hoses for many lawn and garden applications, including areas such as gutters, screens, patios, grills, porches, and gardens.

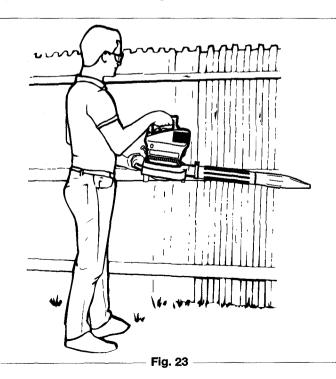
- Watch out for children, pets, open windows, or freshly washed cars, and blow debris safely away.
- Use the full blower nozzle extension so the air stream can work close to the ground.
- After using blowers and other equipment, CLEAN UP!
   Dispose of debris in trash receptacles.

### **BLOWER OPERATING PROCEDURES**

- 1 Use the blower for trees, shrubs, flower beds and hard-to-clean areas (Fig. 22).
- 2. Use the unit around buildings and for other normal cleaning (Fig. 22).
- 3. Use the blower for walls, overhangs, fences, and screens (Fig. 23).







## **OPERATING INSTRUCTIONS**

## VACUUM OPERATING PROCEDURES (MODEL 310BVr ONLY)

A

**WARNING:** DO NOT OPEN THE DOOR WITH THE ENGINE RUNNING! To do so can result in serious personal injury caused by contact with the rotating blades.

NOTE: Do not wear rubber or any other insulated gloves

to avoid static electricity shock.

NOTE: Be sure the vacuum bag is zipped closed before

operating the unit.

- 1. Move the unit slowly back and forth over the debris to be vacuumed (Fig. 24).
- 2. Vacuum a large pile of debris working from the outside of the pile. Do not force the suction tube into the debris because this can clog the tube.
- 3. Empty the collection bag after each use. Shake the bag vigorously while emptying to remove dust from the bag, which can block the proper amount of air flow and deteriorate the performance of the vacuum.

**NOTE:** Use the zipper when emptying the collection bag. Do not empty the bag through the nozzle.



Fig. 24

## MAINTENANCE AND REPAIR INSTRUCTIONS

**NOTE:** Some maintenance procedures may require special tools or skills. If you are unsure about these procedures, take your unit to an authorized service dealer.

#### **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:** To prevent serious injury, never do maintenance or repairs with unit running. Always do maintenance and repairs on a cool unit. Disconnect spark plug wire to ensure the unit will not start.

FREQUENCY	MAINTENANCE REQUIRED	REFER TO:
Before Starting Engine	Fill fuel tank with correct oil and fuel mixture	Page 12
Every 10 Hours	Clean and re-oil air filter	Page 15
Every 25 Hours	Check spark arrestor condition and clean Check spark plug condition and gap	Page 17 Page 19



WARNING: 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 as follows, you will void the warranty.

## AIR FILTER MAINTENANCE

Removing the Air Filter Cover



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

- 1. Grasp the air filter cover and press in with your thumb to release. Remove the cover from the air filter base (Fig. 25).
- 2. Turn the air filter cover over and remove the air filter from the inside (Fig. 26).
- 3. Wash the filter in detergent and water (Fig. 27). Rinse the filter thoroughly. Squeeze out excess water and allow it to dry completely.
- 4. Apply enough clean SAE 30 oil to lightly coat the filter (Fig. 28).

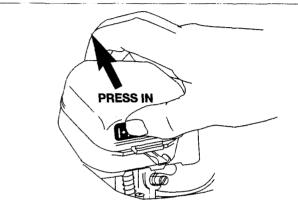


Fig. 25

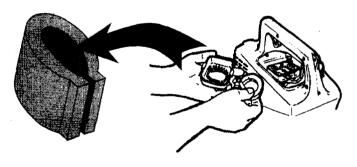


Fig. 26

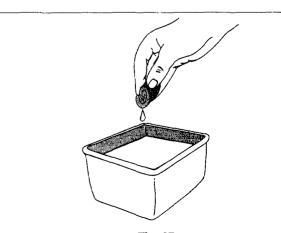
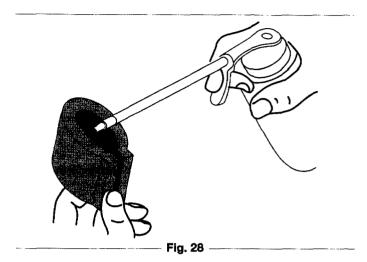
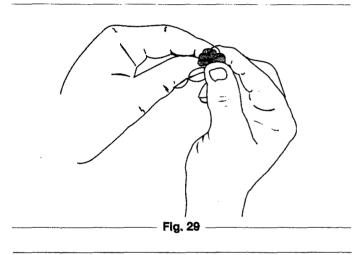
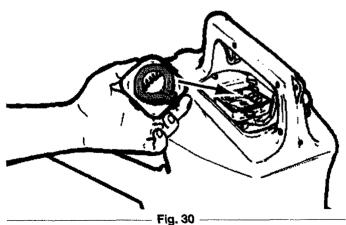


Fig. 27

- 5. Squeeze the filter to spread the oil and remove the excess (Fig. 29).
- 6. Carefully reinstall the air filter. Be sure the filter is seated properly before reinstalling it on the air filter base (Fig. 30).







### SPARK ARRESTOR MAINTENANCE

## Removing the Muffler



**WARNING:** Make sure the muffler is cool before removing it from the housing to prevent serious personal injury.

- Remove the 10 screws holding the unit housing together with a T20 Torx or flat blade screwdriver (Fig. 31).
- Locate the two (2) muffler mounting bolts that are holding the heat shield and muffler to the engine.
   Remove the two (2) bolts using a flat blade screwdriver or 5/16-inch socket or nut driver (Fig. 32).

NOTE: Do not remove the heat shield/muffler screw to separate the top heat shield from the muffler. The spark arrestor will be accessible without removing the screw.

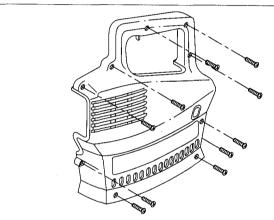
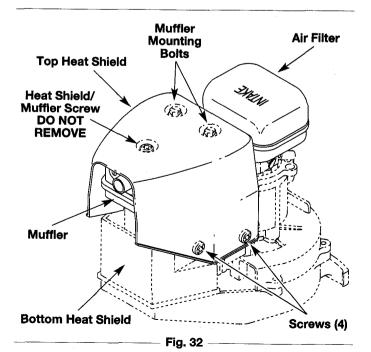


Fig. 31

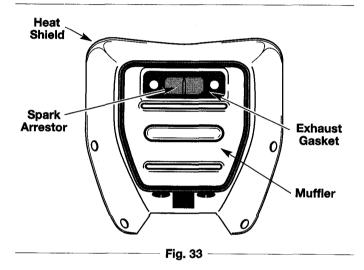


- 3. Locate the four (4) screws holding the top heat shield to the bottom heat shield (two on each side). Remove the four (4) screws using a T20 Torx or flat blade screwdriver (Fig. 32).
- 4. Remove the top heat shield with the muffler attached from the engine as one piece.

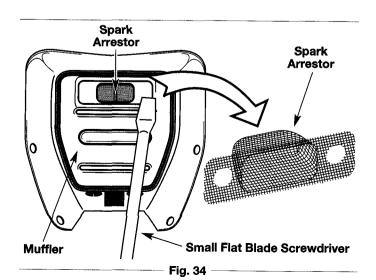
#### **Removing the Spark Arrestor**

 Turn the heat shield/muffler unit over. Look inside the heat shield and locate the exhaust gasket on the muffler. Remove the exhaust gasket from the muffler to locate the spark arrestor (Fig. 33).

**NOTE:** If exhaust gasket is torn or damaged, replace with a new gasket before reassembling.



- Using a small flat blade screwdriver, carefully pry up the spark arrestor from the recessed hole in the muffler. Remove spark arrestor from muffler (Fig 34).
- 7. Clean the spark arrestor with a wire brush. Replace if damaged or unable to clean thoroughly (Fig. 34).



- 8. Place heat shield/muffler on a flat, stable surface with the heat shield facing down. Reinstall the spark arrestor by pressing it into the recessed hole in the muffler. Make sure it fits tightly against the muffler and is not raised up, bent, or wrinkled once in place.
- Pick up the unit. If necessary, align muffler bolt holes with the bolt holes in heat shield. Insert muffler mounting bolts into holes of heat shield and through the muffler.
- Place heat shield/muffler on a flat, stable surface with the heat shield facing down. Place exhaust gasket over bolts sticking through the muffler and on top of the spark arrestor (Fig. 33).
- 11. Hold heat shield/muffler with finger over the exhaust gasket to keep it in place. Turn over and align bolts with bolt holes in the engine. Push bolts into the engine holes and release gasket once bolts are started. Do not tighten bolts completely.
- 12. Reinstall four (4) screws to attach top heat shield to bottom heat shield.
- 13. Tighten muffler mounting bolts.
- 14. Reassemble the housing unit. Realign the two housing units and screw holes. Make sure all wires and other parts are completely within the housing units and are not crimped, pinched, or sticking out. Reinstall the 10 screws.

#### **CARBURETOR ADJUSTMENT**

**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**, Pg. 12.

### 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** Pg. 15.

## **Adjusting the Carburetor**

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

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.

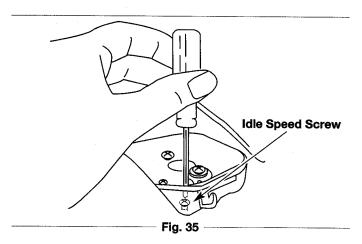


**WARNING:** This unit will need to be running during idle speed adjustment. Wear protective clothing and observe all safety instructions to prevent serious personal injury.

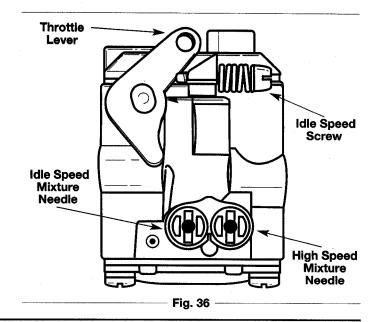
Do not set unit on any surface except a clean, hard area while starting or performing any adjustments. Debris such as gravel, sand, dust, grass, etc. could be picked up by the air intake and thrown out by the discharge opening, damaging unit, property, or causing serious injury to bystanders or operator.

### **Initial Idle Speed Setting**

Remove the air filter cover and insert a screwdriver through the opening in the air filter base (Fig. 35).

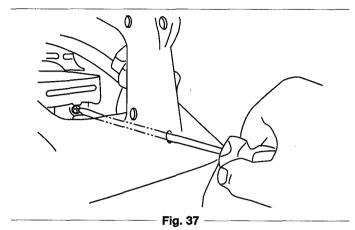


 Back the idle speed screw (Fig. 36) out (counterclockwise) until it does not contact the carburetor throttle lever. Then turn the screw in (clockwise) until it just begins to move the throttle lever; then continue turning for 2 more full turns.



## Initial High Speed Mixture and Idle Speed Mixture Needle Settings

4. Insert a small flat blade screwdriver through the hole at the back of the top handle (Fig. 37). Turn both the high speed mixture and idle speed mixture needles out (counterclockwise) until the limiter caps stop.



- 5. Start the engine and let it run for a minute.
- 6. Release the throttle trigger and let the engine idle. If the engine stops, turn the idle speed screw (Figs. 35 and 36) 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.

## Final Idle Speed Screw and Idle Speed Mixture Needle Settings

Adjust the idle speed screw and idle speed mixture needle for smoothest engine idle.

- 7. Turn the idle speed mixture needle (Fig. 36) in (clockwise) until you hear the fastest idle; then turn the needle out (counterclockwise) 1/8 turn.
- 8. Squeeze the throttle trigger. If the engine falters or hesitates as it accelerates, turn the idle speed mixture needle (Fig. 36) out (counterclockwise) 1/16 turn at a time until the engine accelerates rapidly.
- If the idle speed changes significantly because of Steps 7 and 8, readjust the idle speed screw (refer to Steps 1 through 3).

#### **Final High Speed Mixture Needle Adjustment**

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.

**NOTE:** High speed mixture needle adjustment is not recommended without a precision high speed tachometer.

### REPLACING THE SPARK PLUG

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

- 1. Stop the engine and allow it to cool. Grasp the spark plug wire cap firmly and pull it from the spark plug.
- Clean around the spark plug. Remove the spark plug from the cylinder head by turning a 5/8 in. socket counterclockwise.
- Replace a cracked, fouled, or dirty spark plug. Set the air gap at 0.020 in. (0.5 mm) using a feeler gauge (Fig. 38).



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

 Install a correctly gapped spark plug in the cylinder head. Tighten by turning the 5/8 inch 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.

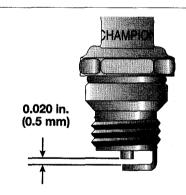


Fig. 38

## **ACCESSORIES/REPLACEMENT PARTS**

2-Cycle Oil147543
Spark Plug
Exhaust Gasket
Spark Arrestor
Fuel Cap
Vacuum Bag Assembly (Model 310BVr only)180490
Shoulder Strap 682075

These replacement parts can be purchased from your local authorized dealer.

#### **CLEANING**



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

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

#### **STORAGE**

- Never store the unit with fuel in the tank where fumes may reach an open flame or spark.
- Allow the engine to cool before storing.
- Store the unit locked up 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 the unit will be stored for an extended time, use the following storage procedure.

- 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 accordance to Federal, state, and 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 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 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 fuel from unit.
- Tighten fuel cap before transporting.

## **TROUBLESHOOTING**

## **ENGINE WILL NOT START**

### CAUSE

Choke in incorrect position

Empty fuel tank

Primer bulb wasn't pressed enough

Engine flooded

Old or improperly mixed fuel

Fouled spark plug

Plugged spark arrestor

#### ACTION

Refer to Starting/Stopping instructions on page 13

Fill fuel tank with properly mixed fuel

Press primer bulb fully and slowly 5-7 times until fuel is visible in the bulb

Use starting procedure WITHOUT USING CHOKE

Drain gas tank / 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 / Add fresh fuel mixture

Adjust per instructions on page 18

## **ENGINE WILL NOT ACCELERATE**

#### CAUSE

Old or improperly mixed fuel

Improper carburetor adjustment

Throttle wire has come loose

Dirty air filter

Plugged spark arrestor

#### ACTION

Drain gas tank / Add fresh fuel mixture

Take to an authorized service dealer for carburetor adjustment

Thread throttle wire through the carburetor throttle

lever. Tighten screw.

Clean or replace the air filter

Clean or replace spark arrestor

## **ENGINE LACKS POWER OR STALLS**

#### CAUSE

Old or improperly mixed fuel

Air filter is plugged

Improper carburetor adjustment

Fouled spark plug

Plugged spark arrestor

#### ACTION

Drain gas tank / Add fresh fuel mixture

Replace or clean the air filter

Take to an authorized service dealer for

carburetor adjustment

Replace or clean the spark plug

Clean or replace spark arrestor

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

## **SPECIFICATIONS**

ENGINE	
Type	
Displacement	
Bore	
Stroke	1.25 in (31.75 mm)
Operating RPM	
Ignition	Electronic Ignition
Lubrication	Fuel/Oil Mix (32:1)
Carburetor	Diaphragm, All Position
Ignition Switch	Push Button
Starter	Auto Rewind
Muffler	Baffled With Guard
Clutch	None
Throttle	Manual Spring Return
Bearings	Needle & Ball
Crankshaft	
Connecting Rod	
Fuel Tank	Clear Sight
Fuel Tank Capacity	
Spark Plug	110-120 in•lb (12.3-13.5 N•m)
BLOWER	
Max. Blower Velocity	
Max. Blower Volume	
Operating Weight	
BLOWER/VACUUM	
Vacuum Bag Capacity	1.4 bushels (0.066m³)

## **NOTES**

## MANUFACTURER'S LIMITED WARRANTY FOR:



The limited warranty set forth below is given by MTD SOUTHWEST INC ("MTD") with respect with 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 SOUTHWEST INC by calling 1-800-345-8746 or writing to 550 N. 54th Street, Chandler, Arizona 85226 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 SOUTHWEST INC.

## 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 RYOBI® 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.

RYOBI® is a registered trademark of Ryobi Limited.

## MTD SOUTHWEST INC

550 N. 54th Street Chandler, AZ 85226 U.S.A.

## SAVE THESE INSTRUCTIONS FOR FUTURE REFERENCE.

FOR QUESTIONS CALL 1-800-345-8746 IN U.S. OR 1-800-668-1238 IN CANADA

OPERATOR'S MANUAL PART NO. 10745 PRINTED IN U.S.A.

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