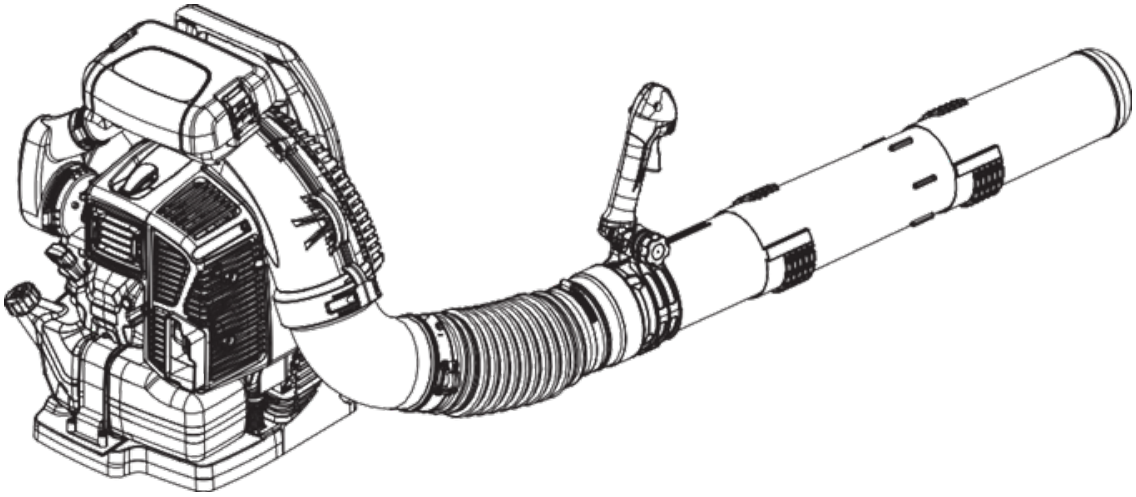
PRORUN®

GAS

OPERATOR'S MANUAL

BACKPACK BLOWER

MODEL: PBB3000



Everything PRORUN

Before using, read the instructions.

⚠ **IMPORTANT – READ CAREFULLY BEFORE USE.**

⚠ **IMPORTANT SAFETY INSTRUCTIONS – SAVE THESE INSTRUCTIONS**

WARNING: To reduce the risk of injury, the user must read and understand the User manual before using this product. Keep these instructions for future reference.

Please let us know what you think. To leave a comment and see our complete product line,

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Version: A – Issue Date: 5/29/2025

1. SPECIFICATION

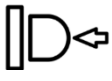
Model		PBB3000
Displacement		79.8cc
Engine Type		Single Cylinder 2-stroke
Power Output		4.4kW
Cooling System		Forced air cooled
Fuel	Type	87+ octane stabilizer-treated unleaded gasoline containing no more than 10% ethanol (E10) with 2-Stroke oil (see below)
	Capacity	115 fl. oz.
Oil	Type	2-Stroke oil must meet either JASO M345 FD or ISO-L-EGD requirements for air-cooled engines, synthetic
	Ratio	50:1 gasoline-to-oil ratio 2.6 oz oil per gallon of gasoline
Spark Plug	Type	Champion® RZ7C / Bosch® USR7AC NGK®CMR7H
	Gap	0.02"
Speed	Idle	3000±400RPM
	Maximum	8000 RPM
Rotation viewed from PTO (power takeoff - the output shaft)		Anticlockwise
Sound Level at 50 feet		80 dB
Run Time @ full throttle		90 minutes

2. TABLE OF CONTENTS

3. SAFETY

WARNING SYMBOLS AND DEFINITIONS	
	This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.
DANGER	Indicates a hazardous situation which, if not avoided, will result in death or serious injury.
WARNING	Indicates a hazardous situation which, if not avoided, could result in death or serious injury.
CAUTION	Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
NOTICE **CAUTION**	Addresses practices not related to personal injury.

SYMBOL DEFINITIONS

Symbol	Property or Statement
	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 by standers.
	Beware of thrown or blown objects, dust or other debris. Keep all persons away from the work area whilst using.
	If you are using the machine every day in normal conditions, you can be exposed to a noise level of 85 dB (A) or higher. Wear safety glasses and hearing protection.
	Wear gloves and protective footwear!
	Danger of dismemberment! Never use the machine with the grille open. Don't put your hand into the volute or tube.
	Fuel mixture tank
	Close the choke Half close the choke Open the choke
H L T	The screw under the "H" stamp is The High-speed mixture adjustment screw. The screw under the "L" stamp is The Low-speed mixture adjustment screw. The screw up the "T" stamp is the idle speed adjustment screw.
	Press the direction of the Primer Bulb.

	Turn the switch knob towards the "STOP" marking, immediately the engine stops.

IMPORTANT SAFETY INSTRUCTIONS

SAVE THESE INSTRUCTIONS

This manual contains important instructions that should be followed during setup, operation and maintenance of the Blower.

Set up Precautions

1. Gasoline fuel and fumes are flammable, and potentially explosive. Use proper fuel storage and handling procedures. Do not store fuel or other flammable materials nearby.
2. Have multiple ABC class fire extinguishers nearby.
3. Operation of this equipment may create sparks that can start fires around dry vegetation. A spark arrestor may be required. The operator should contact local fire agencies for laws or regulations relating to fire prevention requirements
4. Set up and use only on a flat, level, well-ventilated surface.
5. Wear goggles, heavy-duty work gloves, and dust mask/respirator during use.
6. Use only lubricants and fuel recommended in the Specifications chart of this manual

General Safety Instructions

⚠WARNING!

To reduce the risk of fire, or injury:

1. **Personal Protective Equipment.** To reduce the risk of hearing loss associated with sound levels, hearing protection is required. To reduce the risk of injury associated with thrown objects, always wear eye protection. Eye protection should meet the requirement of ANSI Z87.1. To reduce the risk of injury associated with the inhalation of dust, use a face filter mask in dusty conditions.
2. **Physical Condition of Operator.** Do not operate this unit when tired, ill, or under the influence of alcohol, drugs, or medication.
3. **Clothing Recommendation.** Always wear heavy, long pants, boots, gloves, and a long-sleeve shirt. To reduce the risk of injury associated with objects being drawn into rotating parts, do not wear loose clothing, scarves, jewelry, etc. Secure hair so it is above shoulder level.
4. **Condition of Unit before Use.** Inspect unit before each use. Replace damaged parts. Check for fuel leaks. Make sure all visible fasteners are in place and secure. Make sure attachments are properly installed and securely fastened. Be sure guards are properly attached and in the position recommended by the manufacturer.
5. **Proper Stance.** Keep firm footing and balance. Do not over-reach. Keep all parts of your body away from hot surfaces.
6. **Exhaust Gases.** Never start or run the unit inside a closed room or building; breathing exhaust fumes can kill.
7. **Fueling.** Mix and pour fuel outdoors where there are no sparks or flames. Slowly remove the fuel cap only after stopping the engine. Do not smoke while fueling or mixing fuel. Wipe spilled fuel from the unit. Move at least 3 m (10 ft) away from the fueling source and

site before starting engine. Always store gasoline in a container approved for flammable liquids.

8. **Work Area.** Clear the area of children, bystanders, and pets. At a minimum, keep all children, bystanders, and pets outside a 15 m (50 ft) radius; outside the 15 m (50 ft) zone, there is still a risk of injury from thrown objects. Bystanders should be encouraged to wear eye protection. If you are approached, stop the engine.
9. **Work from Ladders or on High Surfaces.** Work from ladders or high places (such as roofs) is prohibited and could result in severe injury.
10. **Transportation and Storage of the Unit.** The operator's manual should provide transportation and long- and short-term storage instructions.
11. **Service Work.** To reduce the risk of injury associated with contacting rotating parts, stop the engine before installing or removing attachments. Do not operate without guards in place. Always disconnect the spark plug before performing maintenance or accessing movable parts.
12. **Additional Operating Recommendations for Blowers and Blower Vacuums.** 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. To reduce sound levels, limit the number of pieces of equipment used at any one time. Operate blowers at the lowest possible engine speed to do the job. Use rakes and brooms to loosen debris before blowing. In dusty conditions, slightly dampen surfaces or use mister attachment when water is available. Conserve water by using blowers instead of hoses for many lawn and garden applications, including areas such as gutters, screens, patios, grills, porches, and gardens. Avoid blowing debris towards people, pets, open windows, or cars when using unit. Use the full blower nozzle extension when blowing.
13. After using blowers and other equipment, CLEAN UP! Dispose of debris in trash receptacles.
14. Do not allow to be used as a toy. Close attention is necessary when used by or near children.
15. Use only as described in this manual. Use only manufacturer's recommended attachments.
16. If appliance is not working as it should, has been dropped, damaged, left outdoors, or dropped into water, return it to a service center.
17. Do not handle appliance with wet hands.
18. Do not put any object into openings. Do not use with any opening blocked; keep free of dust, lint, hair, and anything that may reduce air flow.
19. Keep hair, loose clothing, fingers, and all parts of body away from openings and moving parts.
20. Use extra care when cleaning on stairs.
21. Do not use to pick up flammable or combustible liquids, such as gasoline, or use in areas where they may be present.
22. Do Not Use In Rain.
23. Wear goggles, hard hat and heavy-duty rubber work gloves. Use face or dust mask if operation is mask if operation is dusty.

24. Use Right Appliance - Do not use appliance for any job except that for which it is intended.
25. Do Not Force Appliance - It will do the job better and with less likelihood of injury at the rate for which it was designed.
26. Do not Overreach - Keep proper footing and balance at all times.
27. Stay Alert - Watch what you are doing. Use common sense. Do not operate appliance when you are tired.
28. Store Idle Appliances Indoors - When not in use, appliances should be stored indoors in dry, and high or locked-up place - out of reach of children.
29. Maintain Appliance With Care. Follow instructions for lubricating and changing accessories. Keep handles dry, clean, and free from oil and grease.
30. Check Damaged Parts - Before further use of the appliance, a guard or other part that is damaged should be carefully checked to determine that it will operate properly and perform its intended function. Check for alignment of moving parts, binding of moving parts, breakage of parts, mounting, and any other condition that may affect its operation. A guard or other part that is damaged should be properly repaired or replaced by a qualified technician unless indicated elsewhere in this manual.
31. Remove all hard objects from work area.
32. Do not blow debris in the direction of people, animals or property.
33. Use only accessories provided. 33. Maintain labels and nameplates on the appliance. These carry important safety information. If unreadable or missing, contact dealer for a replacement.
34. 34.People with pacemakers should consult their physician(s) before use. Electromagnetic fields in close proximity to heart pacemakers could cause pacemaker interference or pacemaker failure. The warnings, precautions, and instructions discussed in this instruction manual cannot cover all possible conditions and situations that may occur.
    It must be understood by the operator that common sense and caution are factors which cannot be built into this product but must be supplied by the operator.

Operating Precautions

1. Keep children away from the equipment, especially while it is in use.
2. Keep all spectators at least fifteen feet from the Engine during operation.
3. Fire Hazard! Do not fill fuel tank while engine is running. Do not operate if gasoline has been spilled. Clean spilled gasoline before starting engine. Do not operate near pilot light or open flame.
4. Do not touch engine during use. Allow engine to cool down after use.
5. Never store fuel or other flammable materials near the engine.
6. Secure the equipment on transport vehicles to prevent it from rolling, slipping, and tilting.
7. Industrial applications must follow OSHA requirements.
8. Do not leave the equipment unattended when it is running. Turn off the equipment before leaving the work area.
9. The equipment can produce high noise levels. Prolonged exposure to noise levels above 85 dBA is hazardous to hearing. Wear ear protection when operating or when working nearby while it is operating.

10. Wear glasses and hearing protection during use.
11. People with pacemakers should consult their physician(s) before use. Electromagnetic fields in close proximity to a heart pacemaker could cause pacemaker interference or pacemaker failure. Caution is necessary when near the engine's magneto or recoil starter.
12. Use only accessories that are recommended by manufacturer for your model. Accessories that may be suitable for one piece of equipment may become hazardous when used on another piece of equipment.
13. Do not operate in explosive atmospheres, such as in the presence of flammable liquids, gases, or dust. Gasoline-powered engines may ignite the dust or fumes.
14. Stay alert, watch what you are doing and use common sense when operating this piece of equipment. Do not use when tired, ill, or under the influence of drugs, alcohol or medication.
15. Do not overreach. Keep proper footing and balance at all times. This enables better control of the equipment in unexpected situations.
16. Dress properly. Do not wear loose clothing or jewelry. Keep hair, clothing and gloves away from moving parts. Loose clothes, jewelry or long hair can be caught in moving parts.
17. Parts, especially exhaust system components, get very hot during use. Stay clear of hot parts.
18. Do not cover the equipment during operation.
19. Keep the equipment, engine, and surrounding area clean at all times.
20. Do not smoke, or allow sparks, flames, or other sources of ignition around the equipment, especially when refueling.
21. Use the equipment, accessories, etc., in accordance with these instructions and in the manner intended for the particular type of equipment, taking into account the working conditions and the work to be performed. Use of the equipment for operations different from those intended could result in a hazardous situation.
22. Do not operate the equipment with known leaks in the engine's fuel system.
23. When spills of fuel or oil occur, they must be cleaned up immediately. Dispose of fluids and cleaning materials as per any local, state, or federal codes and regulations. Store oil rags in a bottom-ventilated, covered, metal container.
24. Keep hands and feet away from moving parts. Do not reach over or across equipment while operating.
25. Before use, check for misalignment or binding of moving parts, breakage of parts, and any other condition that may affect the equipment's operation. If damaged, have the equipment
26. serviced before using. Many accidents are caused by poorly maintained equipment.
27. Use the correct equipment for the application. Do not modify the equipment and do not use the equipment for a purpose for which it is not intended.

Service Precautions

1. Before service, maintenance, or cleaning:
    a. Turn the engine switch to its "OFF" position.
    b. Allow the engine to completely cool.
    c. Then, remove the spark plug cap from the spark plug.

2. Keep all safety guards in place and in proper working order. Safety guards include muffler, air cleaner, mechanical guards, and heat shields, among other guards.
3. Do not alter or adjust any part of the equipment or its engine that is sealed by the manufacturer or distributor. Only a qualified service technician may adjust parts that may increase or decrease governed engine speed.
4. Wear goggles, heavy-duty work gloves, and dust mask/respirator during service.
5. Maintain labels and nameplates on the equipment.
   These carry important information. If unreadable or missing, contact dealer for a replacement.
6. Have the equipment serviced by a qualified repair person using only identical replacement parts. This will ensure that the safety of the equipment is maintained. Do not attempt any service or maintenance procedures not explained in this manual or any procedures that you are uncertain about your ability to perform safely or correctly.
7. Store equipment out of the reach of children.
8. Follow scheduled engine and equipment maintenance.

Refueling:

1. Do not refill the fuel tank while the engine is running or hot.
2. Do not smoke, or allow sparks, flames, or other sources of ignition around the equipment, especially when refueling.
3. Do not fill fuel tank to the top. Leave a little room for the fuel to expand as needed, at least 1” from top of the neck. TO PREVENT FUEL LEAKAGE AND FIRE HAZARD, do not fill fuel above the bottom of the threads.
4. Refuel in a well-ventilated area only.
5. Wipe up any spilled fuel and allow excess to evaporate before starting engine. To prevent FIRE, do not start the engine while the smell of fuel hangs in the air.

4. SET UP

⚠ Read the ENTIRE IMPORTANT SAFETY INFORMATION section at the beginning of this manual including all text under subheadings therein before set up or use of this product.

⚠ WARNING!

TO PREVENT SERIOUS INJURY:

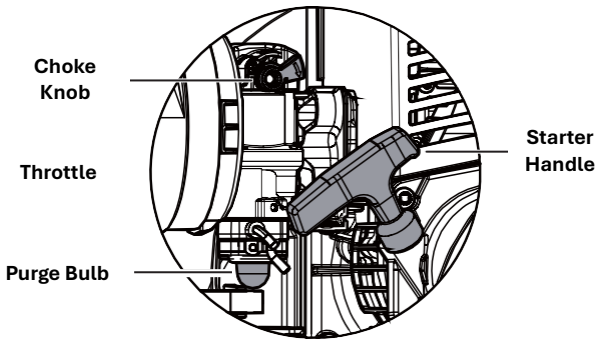
Operate only with proper spark arrestor installed.

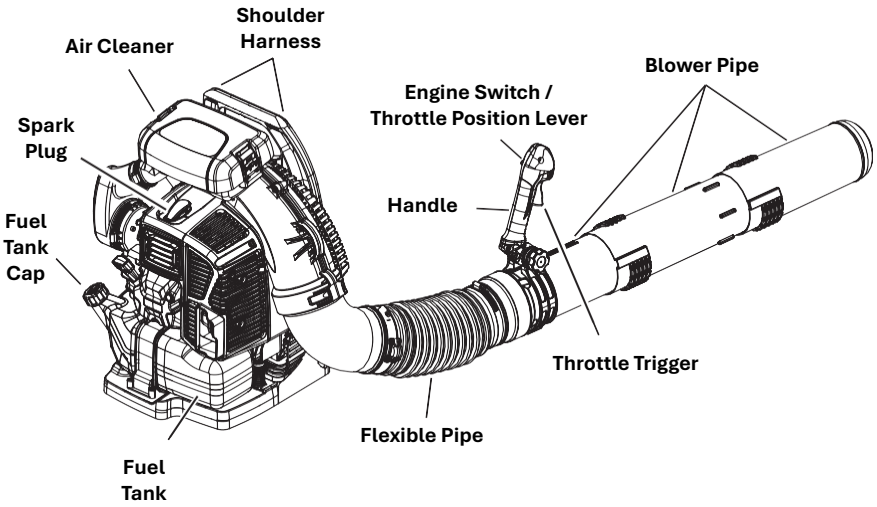
Operation of this equipment may create sparks that can start fires around dry vegetation.

A spark arrestor may be required.

The operator should contact local fire agencies for laws or regulations relating to fire prevention requirements.

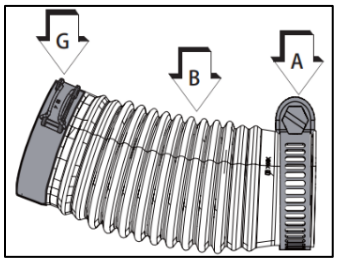
Components and Controls



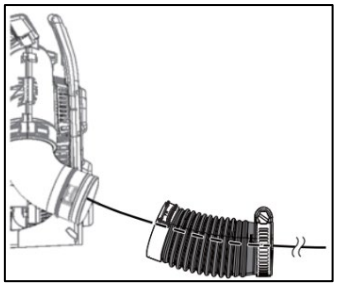


Assembling Blower Tube and Control Handle

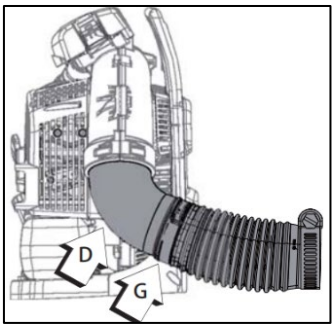
1. Assemble clamps (A) and (G) onto both ends of flexible pipe (B). Note: Clamp with cable guide loop (G) fits elbow end of flexible pipe.



2. Insert anti-static wire through flex tube. Note: A light lubricant may be used to ease assembly of flexible pipe to blower elbow.

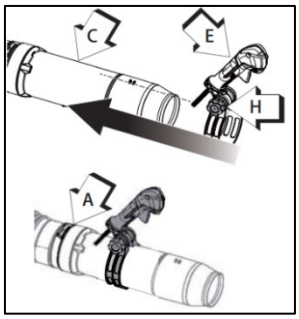


3. Assemble flexible pipe to elbow (D) on blower. Position clamp with cable guide loop (G) on outside of flexible pipe and tighten clamp. Note: Hang handle freely from blower to assure throttle cable is not twisted before installing handle (E).

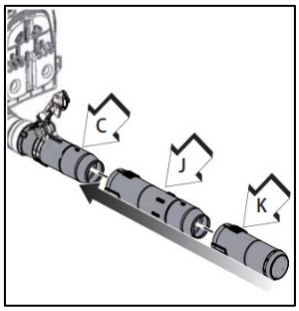


4. Position throttle cable along the outside of elbow. Loosen knob (H) on handle (E). Install onto swivel pipe (C).
5. Insert anti-static wire into swivel pipe.
6. Assemble swivel pipe into flexible pipe and tighten clamp (A).
7. Clip throttle cable into throttle cable guide loop.

8. Move handle (E) to desired position. Tighten knob (H).



9. Assemble straight pipe (J) onto swivel pipe, until you feel light resistance. Hold swivel pipe and turn straight pipe clockwise, engaging positive locking channels, until connection is firm. Do not force connection.
10. Assemble end pipe (K) to straight pipe as in step 9.
    Note: Blower use will eventually loosen pipe connections. Exclusive positive locking system allows pipes to be tightened. If loosening occurs, remove two straight pipes and install according to steps 9 and 10.



5. OPERATION

⚠ Read the ENTIRE IMPORTANT SAFETY INFORMATION section at the beginning of this manual including all text under subheadings therein before set up or use of this product.

Checking before Starting

Inspect the engine and equipment looking for damaged, loose, and missing parts before set up and starting. If any problems are found, do not use equipment until fixed properly.

Checking and Filling Fuel

⚠WARNING! TO PREVENT SERIOUS INJURY FROM FIRE:

Fill the fuel tank in a well-ventilated area away from ignition sources. If the engine is hot from use, shut the engine off and wait for it to cool before adding fuel. Do not smoke.

1. Clean the Fuel Tank Cap and the area around it.
2. Unscrew and remove the Fuel Tank Cap.

Note Do not use gasoline containing more than 10% ethanol (E10). Do not use E85 ethanol. Add fuel stabilizer to the gasoline or the Warranty is VOID.

Note Do not use gasoline that has been stored in a metal fuel container or a dirty fuel container. It can cause particles to enter the carburetor, affecting engine performance and/or causing damage.

⚠ IMPORTANT! Your Warranty is VOID if the Engine's Fuel Tank is not filled with the proper mixture (50:1) of unleaded gasoline and 2-cycle oil before each use.

2-Stroke oil must meet either JASO M345 FD or ISO-L-EGD requirements for air-cooled engines, synthetic.

Before each use, check the fuel level. Do not run the Engine with an improper unleaded gasoline/2-cycle oil mixture. Running the Engine with an improper mixture WILL permanently damage the Engine

Fuel to Oil Mix – 50:1 Ration			
US		Metric	
Gas	Oil	Gas	Oil
Gal.	Fl.oz.	L	cc
1	2.6	5	100
2	5.2	10	200
5	13	25	500

3. Fill an approved fuel container with half of the required amount of gasoline. Add the proper amount of 2-stroke oil to gasoline. Close container and shake to mix oil with gasoline. Add the remaining gasoline, close fuel container, and remix.
4. If needed, fill the Fuel Tank to about 1 inch under the fill neck of the Fuel Tank with the pre-mixed unleaded gasoline/2-cycle oil mixture.
5. Then replace the Fuel Tank Cap.
6. Wipe up any spilled fuel and allow excess to evaporate before starting engine. To prevent FIRE, do not start the engine while the smell of fuel hangs in the air.
7. Use caution when handling fuel. Move the blower at least 10 feet (3 m) from the fueling point before starting the engine.

Starting the Engine

Before Starting the Engine

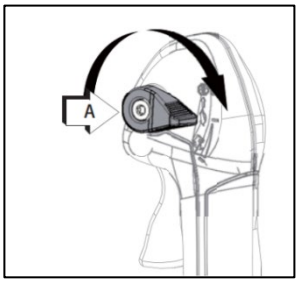
a. Inspect the equipment and engine.
b. Fill the engine with the proper amount and type of unleaded gasoline and 2-cycle oil mixture.
c. Fill the oil tank with the proper amount and type of bar and chain oil.

Manual Start

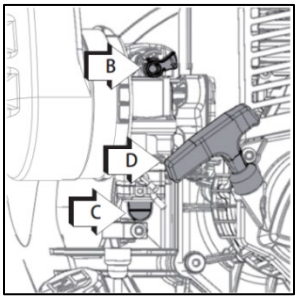
A "cold start" is when the engine is no longer hot to the touch, typically at least 30 minutes after it has last been run.

1. **Throttle Lever**
   Move throttle lever (A) to IDLE position.
2. **Choke**
   Rotate choke (B) to COLD START position.
3. **Purge Bulb**

Pump purge bulb (C) until fuel is visible. Pump bulb an additional 4 or 5 times.

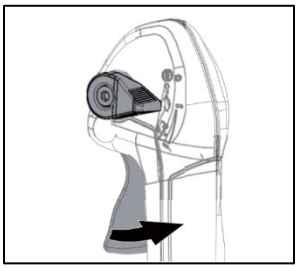


4. **Recoil Starter**
   Pull recoil starter handle (D) until engine fires, or a maximum of 5 pulls.



5. If engine fires and remains running, pull throttle trigger to run position, then proceed to engine warm up. If the engine fires and dies, proceed to step 6.

6. **Choke**
   After engine fires (or 5 pulls), move choke lever back to RUN position, then pull starter handle/rope until engine starts and runs. Allow unit to warm up at idle for several minutes. Note: If engine does not start with choke in "RUN" position after 5 pulls, move choke to COLD START position, and repeat steps 3- 6.



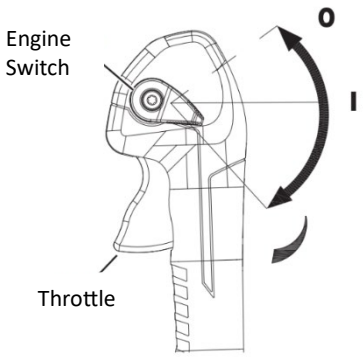
7. Throttle Lever After engine warm-up, move throttle lever gradually to increase engine RPM to desired operating speed.

Hot Start

To initiate a Hot Start, move the Choke Knob to the position, and follow the steps "1", "3", "4" of "Cold start" procedure.

Stopping the Engine

1. To stop the engine in an emergency, rotate the engine switch counterclockwise to shut the engine off immediately.



2. Under normal conditions, use the following procedure:
   a. Release the Throttle and move cruise lever (engine switch) back to idle position.
   b. Let Engine idle for 1 – 2 minutes.
   c. Press the Stop Engine Switch.

General Operating Instructions

Operating the Blower

1. The machine is carried as a backpack. Hold and control the blower tube with your right hand on the control handle.
2. Use Cruise Lever to adjust speed depending on the type of work being done.
3. Operate Blower at low speed for light material.
4. Operate Blower at medium speed to move grass clippings and small leaves on pavement or a solid surface.
5. Operate Blower at high speed for heavier materials like fresh snow or heavy dirt.
6. Hold the opening of the Blower as close to the ground as possible. Use the entire length of the blower tube to keep the airflow close to the ground.
7. When finished, turn off the engine as indicated in 'Stopping the Engine.'

6. MAINTENANCE

⚠WARNING!

TO PREVENT SERIOUS INJURY FROM ACCIDENTAL STARTING:

Turn the Power Switch of the equipment to its "OFF" position, wait for the engine to cool, and disconnect the spark plug cap before performing any inspection, maintenance, or cleaning procedures.

TO PREVENT SERIOUS INJURY FROM EQUIPMENT FAILURE:

Do not use damaged equipment. If abnormal noise, vibration, or excess smoking occurs, maintenance procedures, including any not detailed in this manual, will need to be performed by a qualified technician for safety. If you have any doubts about your ability to safely service the equipment or engine, have a qualified technician service the equipment instead.

Cleaning, Maintenance, and Lubrication

NOTE This maintenance schedule is intended solely as a general guide. If performance decreases or if equipment operates unusually, check systems immediately. The maintenance needs of each piece of equipment will differ depending on factors such as duty cycle, temperature, air quality, fuel quality, and other factors. If you have doubts about your ability to safely service this tool, have a qualified technician service the equipment instead.

NOTE The following procedures are in addition to the regular checks and maintenance explained as part of the regular operation of the engine and equipment.

Procedure	Before Each Use	Monthly or every 10 hr. of use	Every 3-mo. Or 20 hr. of use	Every 6 mo. or 50 hr. of use	Yearly or every 100 hr. of use	Every 2 Years
Brush off the outside of engine	X					
Check engine fuel/oil mixture level	X					
Change fuel filter					X	X
Clean air filter			X	X	X	X
Check and clean spark plug				X	X	X
Check/adjust idle speed	X					
1. Clean fuel tank and carburetor 2. Clean carbon build-up from combustion chamber					X**	X**
Replace fuel line if necessary.						X**

* Service more frequently when used in dusty areas.

** These items should be serviced by a qualified technician.

Air Filter

1. Close choke (COLD START position). This prevents dirt from entering the carburetor throat when the air filter is removed. Brush accumulated dirt from air cleaner area.
2. Remove air filter cover, foam pre-filter, and air filter. Brush dirt from inside cover..

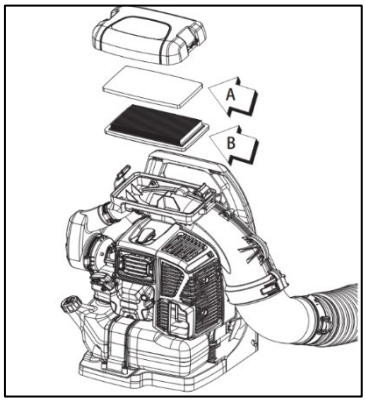
Foam Pre-Filter

- Clean foam pre- filter (A) in water/detergent solution and rinse with clean water.
- Wrap the foam pre-filter in a clean, dry cloth and squeeze (do not wring) dry. Allow to dry completely before reuse. Do not oil.

Air Filter

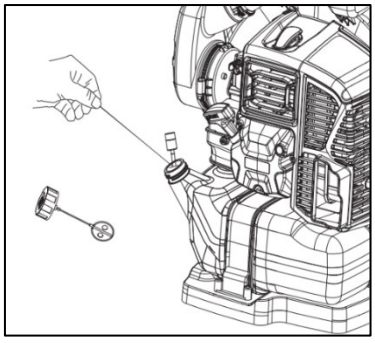
- Lightly brush debris from air filter (B).
- Replace filter if it is damaged, very dirty, or the rubber sealing edges are deformed.
- If filter can be reused, be certain it fits tightly in the air filter cavity, and is installed with the original side out.

3. Assemble components in reverse order.



Fuel Filter Maintenance

1. Clean the Fuel Tank Cap and the area around it.
2. Remove the Fuel Tank Cap from the Fuel Tank.
3. Use a suction pump (not included) to pump any fuel in the Tank into a proper gasoline container.
4. Use a piece of wire with a hook on one end to carefully extract the Fuel Filter from the Tank.
5. Remove used filter from fuel line. Attach a new filter to the fuel line and reinsert into the Fuel Tank.
6. Replace Fuel Tank Cap and tighten securely.



Spark plug Maintenance

1. Disconnect Spark Plug Cap from end of plug. Clean out debris from around Spark Plug.
2. Using a spark plug wrench, remove the Spark Plug.
3. Inspect the Spark Plug: If the electrode is oily, clean it using a clean, dry rag. If the electrode has deposits on it, polish it using emery paper. If the white insulator is cracked or chipped, the spark plug needs to be replaced.

Recommended Spark Plugs	
Bosch®	USR7AC
Champion®	RZ7C
NGK®	CMR7H

NOTICE Using an incorrect spark plug may damage the engine.

4. When installing a new spark plug, adjust the plug's gap to the specification on the Specifications chart. Do not pry against the Specifications chart. Do not pry against the electrode, the spark plug can be damaged.
5. Install the new spark plug or the cleaned spark plug into the engine.

- Gasket-style:

Finger-tighten until the gasket contacts the cylinder head, then tighten about 1/2-2/3 turn more.

- Non-gasket-style:

Finger-tighten until the plug contacts the cylinder head, then tighten about 1/16 turn more.

NOTICE Tighten the Spark Plug properly.

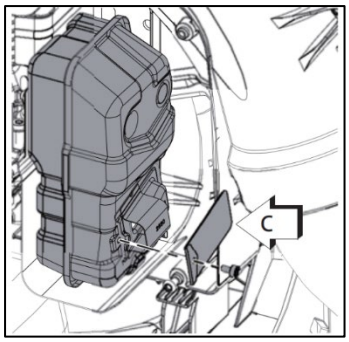
If loose, the Spark Plug will cause the engine to overheat.

If overtightened, the threads in the engine block will be damaged.

6. Apply dielectric spark plug boot protector (not included) to the end of the spark plug and reattach the cap securely.

Spark Arrestor Screen

1. Disconnect spark plug lead from spark plug.
2. Remove engine cover.
3. Remove spark arrestor screen (C) from muffler. Replace screen if plugged with carbon deposits. Note: When cleaning carbon deposits, be careful not to damage the catalytic element inside muffler.
4. Install spark arrestor screen.
5. Install engine cover.



Carburetor Adjustment

Engine Break-In

New engines must be operated a minimum duration of two tanks of fuel break-in before carburetor adjustments can be made. During the break-in period your engine performance will increase and exhaust emissions will stabilize. Idle speed can be adjusted as required.

High Altitude Operation

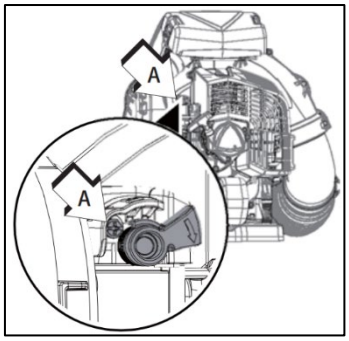
This engine has been factory adjusted to maintain satisfactory starting, emission, and durability performance up to 1,100 ft. (335 m) above sea level. To maintain proper engine operation and emission compliance above 1,100 ft. (335 m) ASL the carburetor may need to be adjusted by an authorized retailer service dealer.

Idle Adjustment

Before adjustment make sure that:

- Air filter is clean and properly installed.
- Spark arrestor screen and muffler are free of carbon.
- Blower pipes are installed.

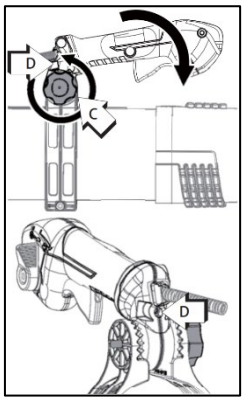
1. Start engine, run at idle for one minute.
2. Complete warm up by running at full throttle for 5 minutes, operating choke twice to clear air from carburetor chambers.
3. Check idle speed and reset if necessary. If a tachometer is available, idle speed screw (A) should be set to the specifications found on “Specifications” Page of this manual. Turn idle screw (A) clockwise to increase idle speed; counter clockwise to decrease idle speed.



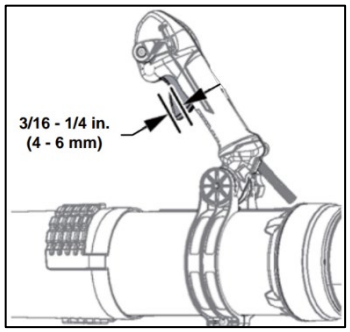
Throttle Cable Adjustment

If engine idle speed changes when blower pipe is moved, or engine will not reach full wide open throttle speed, adjust throttle cable.

1. Loosen handle adjustment knob (C) and tilt Tube Throttle handle forward to expose Adjustment Screw (D).



2. Turn Adjustment Screw until Throttle Trigger free play is 4-6mm (3/16-1/4 in.).3.After adjustment, squeeze and release Throttle Trigger several times to verify Carburetor Throttle Shaft has full range of movement from idle to wide open throttle positions.



Long-Term Storage

When the equipment is to remain idle for longer than 20 days, prepare the Engine for storage as follows:

1. CLEANING:

Wait for Engine to cool, then clean Engine with dry cloth. **NOTICE: Do not clean using water**. The water will gradually enter the Engine and cause rust damage. Apply a thin coat of rust preventive oil to all metal parts.

2. FUEL:

To protect the fuel system during storage, follow this procedure:

a. Carefully drain any remaining fuel in the fuel tank into an appropriate storage container.
b. Press the Primer Bulb 10 times.
c. Drain any residual fuel into storage container.
d. Start the Blower.
e. Allow engine to run at idle until Blower stalls from lack of fuel.
f. Replace Fuel Cap and tighten.

⚠WARNING! TO PREVENT SERIOUS INJURY FROM FIRE:

Drain the Fuel Tank in a well-ventilated area away from ignition sources. If the Engine is hot from use, shut the Engine off and wait for it to cool before draining fuel. Do not smoke.

3. LUBRICATION:

a. Clean out area around spark plug. Remove spark plug and pour 1/2 tablespoon of 2-stroke engine oil into cylinder through spark plug hole.
b. Replace spark plug, but leave spark plug cap disconnected.
c. Pull Starter Handle to distribute oil in cylinder. Stop after one or two revolutions when you feel the piston start the compression stroke (when you start to feel resistance).

4. STORAGE AREA:

Cover and store in a dry, level, well-ventilated area out of reach of children. Storage area should also be away from ignition sources, such as water heaters, clothes dryers, and furnaces.

5. AFTER STORAGE:

Before starting the Engine during or after storage, keep in mind that untreated gasoline will deteriorate quickly. Change to fresh fuel if untreated gasoline has been sitting for a month, if treated gasoline has been sitting beyond the fuel stabilizer's recommended time period, or if the Engine does not start.

7. TROUBLESHOOTING

Problem	Possible Causes	Probable Solutions
Engine will not start	FUEL RELATED: 1. No fuel in tank. 2. Choke not in START position, cold engine. 3. Gasoline with more than 10% ethanol used. (E15, E20, E85, etc.) 4. Low quality or deteriorated, old gasoline/oil mixture. 5. Carburetor not primed. 6. Dirty fuel passageways. 7. Carburetor is flooded. 8. Clogged Fuel Filter.	FUEL RELATED: 1. Fill fuel tank with fresh 87+ octane stabilizer-treated unleaded gasoline/oil mixture only. **Do not use gasoline with more than 10% ethanol (E15, E20, E85, etc.).** 2. Move Choke to START position. 3. Clean out ethanol-rich gasoline from fuel system. Replace components damaged by ethanol. Use fresh 87+ octane stabilizer-treated unleaded gasoline/oil mixture only. **Do not use gasoline with more than 10% ethanol (E15, E20, E85, etc.).** 4. Use fresh 87+ octane stabilizer-treated unleaded gasoline/oil mixture. **Do not use gasoline with more than 10% ethanol (E15, E20, E85, etc.).** 5. Press the Prime Bulb several times to prime. 6. Clean out passageways using fuel additive. Heavy deposits may require further cleaning. 7. Turn Choke Knob to RUN position. Pull Starter Handle 10-20 times to clear out Carburetor, then attempt to start with normal process. 8. Clean or replace Fuel Filter.
	IGNITION (SPARK) RELATED: 1. Spark plug cap not connected securely. 2. Spark plug electrode wet or dirty. 3. Incorrect spark plug gap. 4. Spark plug cap broken. 5. Incorrect spark timing or faulty ignition system.	IGNITION (SPARK) RELATED: 1. Connect spark plug cap properly. 2. Clean spark plug. 3. Correct spark plug gap. 4. Replace spark plug cap. 5. Have qualified technician diagnose/repair ignition system.
	COMPRESSION RELATED: 1. Cylinder not lubricated. Problem after long storage periods. 2. Loose or broken spark plug. (Hissing noise will occur	COMPRESSION RELATED: 1. Pour 1/2 tablespoon of oil into spark plug hole. Crank engine a few times and try to start again. 2. Tighten spark plug. If that does not work, replace spark plug.

⚠ **Follow all safety precautions whenever diagnosing or servicing the equipment or engine.**

Problem	Possible Causes	Probable Solutions
Engine misfires	1. Spark plug cap loose. 2. Incorrect spark plug gap or damaged spark plug. 3. Defective spark plug cap. 4. Old or low-quality gasoline/oil mixture. 5. Incorrect compression.	1. Check cap and wire connections. 2. Re-gap or replace spark plug. 3. Replace spark plug cap. 4. Use only fresh 87+ octane stabilizer-treated unleaded gasoline/oil mixture. **Do not use gasoline with more than 10% ethanol (E15, E20, E85, etc.).** 5. Diagnose and repair compression. (Use Engine will not start: COMPRESSION RELATED section.)
Engine stops suddenly	1. Fuel tank empty or full of impure or low-quality gasoline/oil mixture. 2. Defective breather valve creating vacuum, preventing proper fuel flow. 3. Faulty magneto. 4. Disconnected or improperly connected spark plug cap.	1. Fill fuel tank with fresh 87+ octane stabilizer-treated unleaded gasoline/oil mixture. **Do not use gasoline with more than 10% ethanol (E15, E20, E85, etc.)** 2. Test/replace breather valve. 3. Have qualified technician service magneto. 4. Secure spark plug cap.
Engine stops when under heavy load	1. Dirty air filter 2. Engine running cold.	1. Clean element. 2. Allow engine to warm up prior to operating equipment.
Engine knocks	1. Old or low quality gasoline/oil mixture. 2. Engine overloaded. 3.Incorrect spark timing, deposit buildup, worn engine, or other mechanical problems.	1. Fill fuel tank with fresh 87+ octane stabilizer-treated unleaded gasoline/oil mixture. **Do not use gasoline with more than 10% ethanol (E15, E20, E85, etc.).** 2. Do not exceed equipment's load rating. 3. Have qualified technician diagnose and service engine.

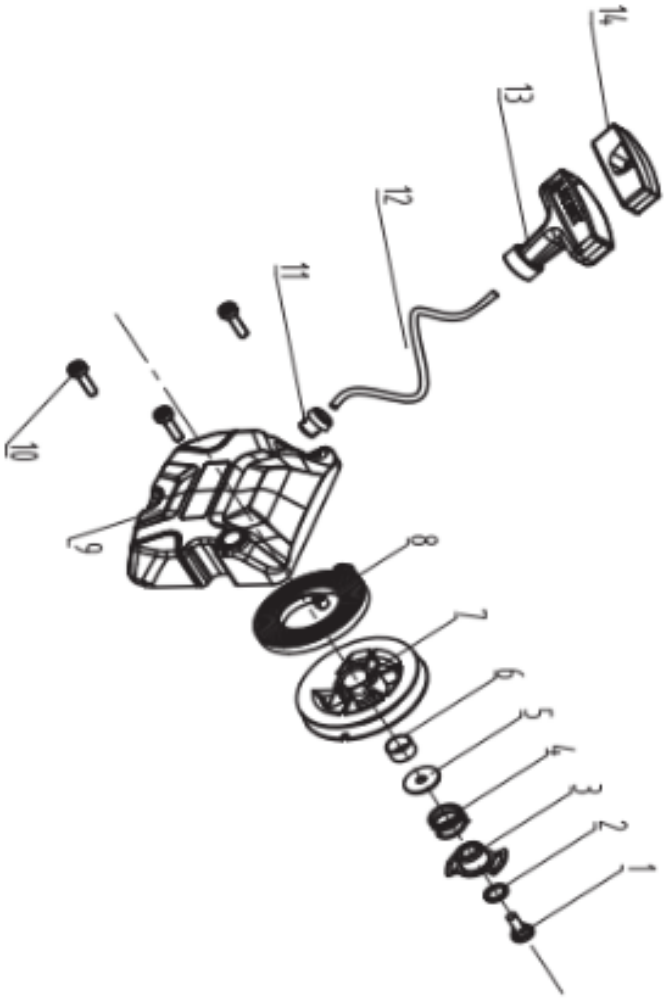
⚠ **Follow all safety precautions whenever diagnosing or servicing the equipment or engine.**

8. PARTS LIST AND DIAGRAM

Part List for Shell

NO.	Description	Qty
1	Starter screw	1
2	Wearing pad	1
3	Starting wheel gland	1
5	Flat washer 5.5x20x1	1
6	Starter wheel guide bush	1
7	Starting wheel	1
8	Starting coil spring	1
9	Starter cover	1
10	Screw M5x20	3
12	Starting rope	1
13	starting handle	1
14	Starting handle cover	1

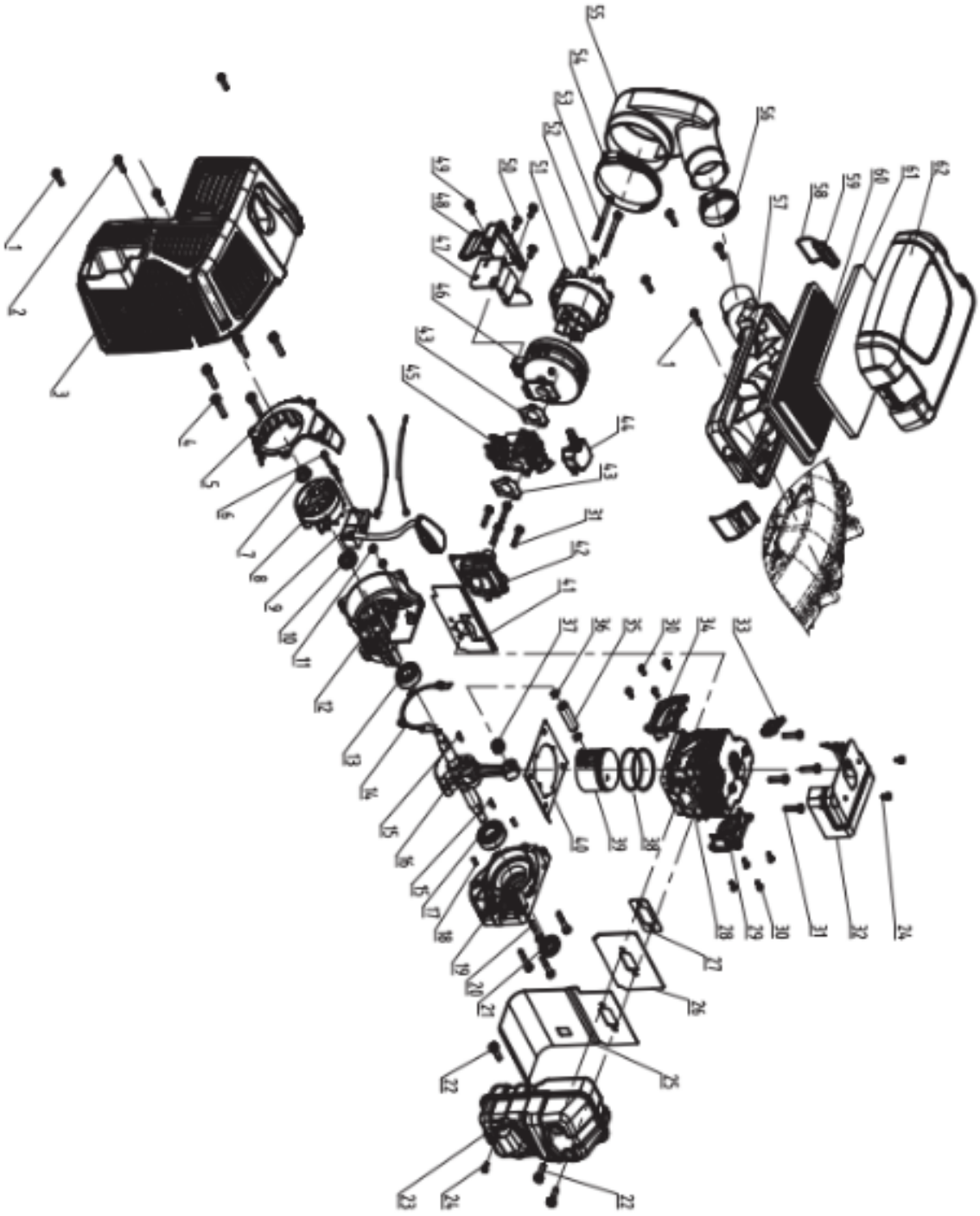
Assembly Diagram for Shell



Part List for Engine

NO.	Description	Qty
1	Self-tapping screw ST5X20	7
2	Screw M5x20	1
3	cylinder jacket	1
4	Screw M6x30	5
5	wind scooper	1
6	Screw M4x20	2
7	Nut M10	1
8	Flywheel	1
9	igniter	1
10	Oil seal 15x25x7	1
11	Igniter washer	2
12	Right box	1
13	Bearing 6202	1
14	Housing gasket	1
15	key 3 x 5 x 13	2
16	Crank connecting rod	1
17	Bearing 6203	1
18	Pin B4x10	2
19	Left box	1
20	Screw M5x35	4
21	Oil seal 17x30x7	1
22	Screw M6x20	3
23	muffler	1
24	Screw M4x8	3
25	Muffler insulation pad	1
26	Muffler seal plate	1
27	Muffler gasket	1
28	cylinder	1
29	Left cylinder cover	1
30	Hex head screw M4x10	8
31	Hex head screw M5x25	8
32	Cylinder cover	1
33	Spark plug	1
34	Right cylinder cover	1
35	Piston pin	1
36	Piston pin stop ring	2
37	Needle roller bearing	1
38	Piston ring	2
39	piston	1
40	Cylinder gasket	1
41	Intake pipe gasket	1
42	Inlet pipe	1
43	Carburetor gasket	1
44	Carburetor protection cap	1
45	carburetor	1
46	Air filter seat	1
47	Tubing guard plate	1
48	Tubing guard	1
49	Hex head screw M5x12	2
50	Self-tapping screw ST5x12	2
51	Gas hood	1
52	Self-tapping screw ST4.2x12	1
53	Screw M5x65	2
54	stainless steel clamp	1
55	Air filter inlet pipe	1
56	stainless steel clamp	1
57	Air filter body	1
58	Buckle spring	2
59	Air filter latch	2
60	Paper filter element	1
61	Filter sponge	1
62	Air filter upper cover	1

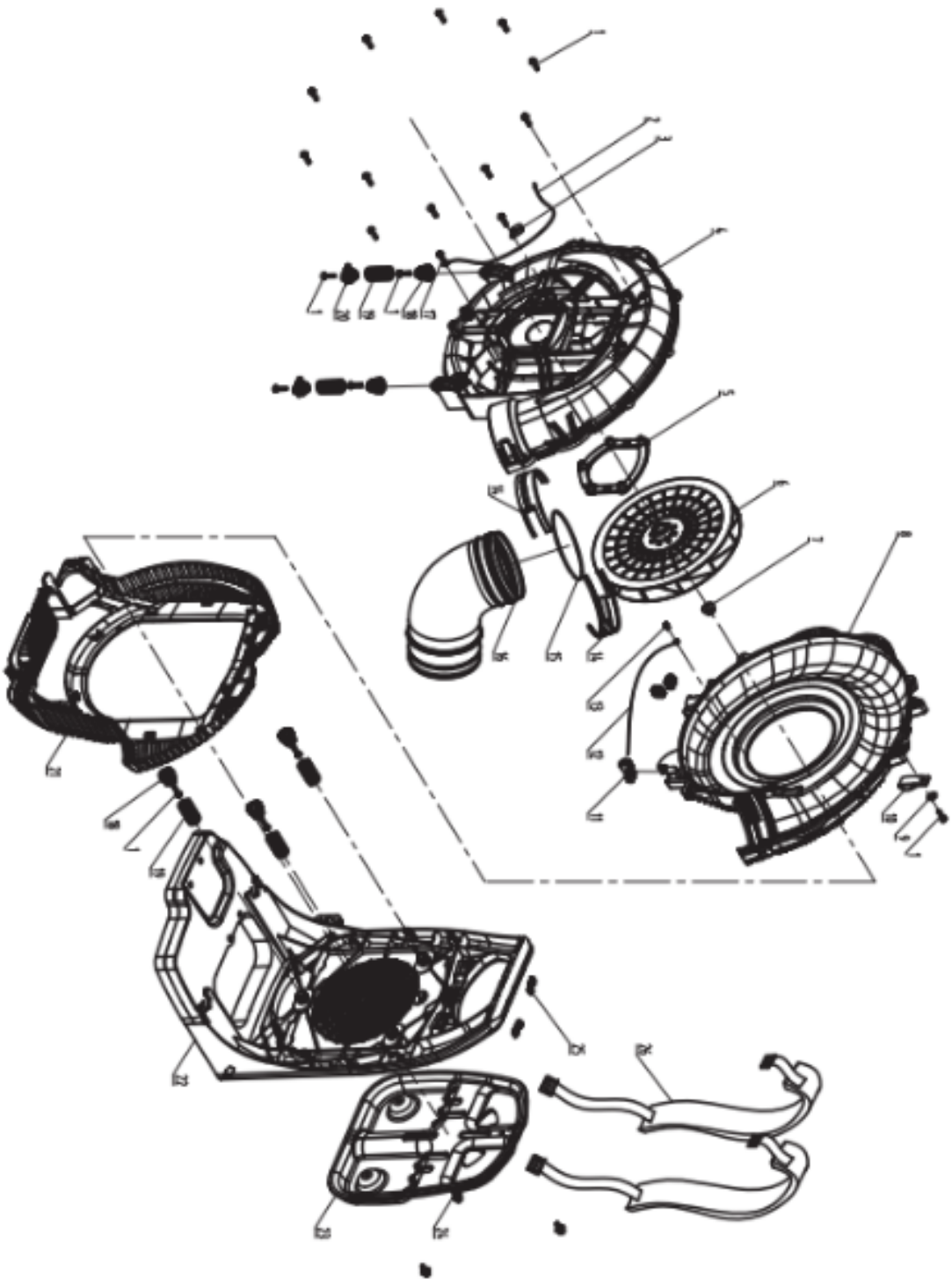
Assembly Diagram for Engine



Part List for Shell

NO.	Description	Qty
1	Self-tapping screw ST5X20	20
2	Conducting wire	1
3	Valve wire clamp	1
4	Left half vortex shell	1
5	Housing seat	1
6	impeller	1
7	Hexagon flange nut M10	1
8	Right half vortexes	1
9	Flat washer 5 x 16 x 1.5	1
10	Locking tape	1
11	Back frame damping rubber	4
12	Esd cable	1
13	Conducting spring	1
14	hoop	2
15	O-ring 120×3.1	1
16	elbow	1
17	self-tapping screw ST5x12	1
18	Spring seat 2	5
19	Damping spring	5
20	Spring seat 1	2
21	Guard frame	1
22	Back bracket	1
23	Back frame pads	1
24	Expansion buckle	3
25	Harness buckle	2
26	Harness	1

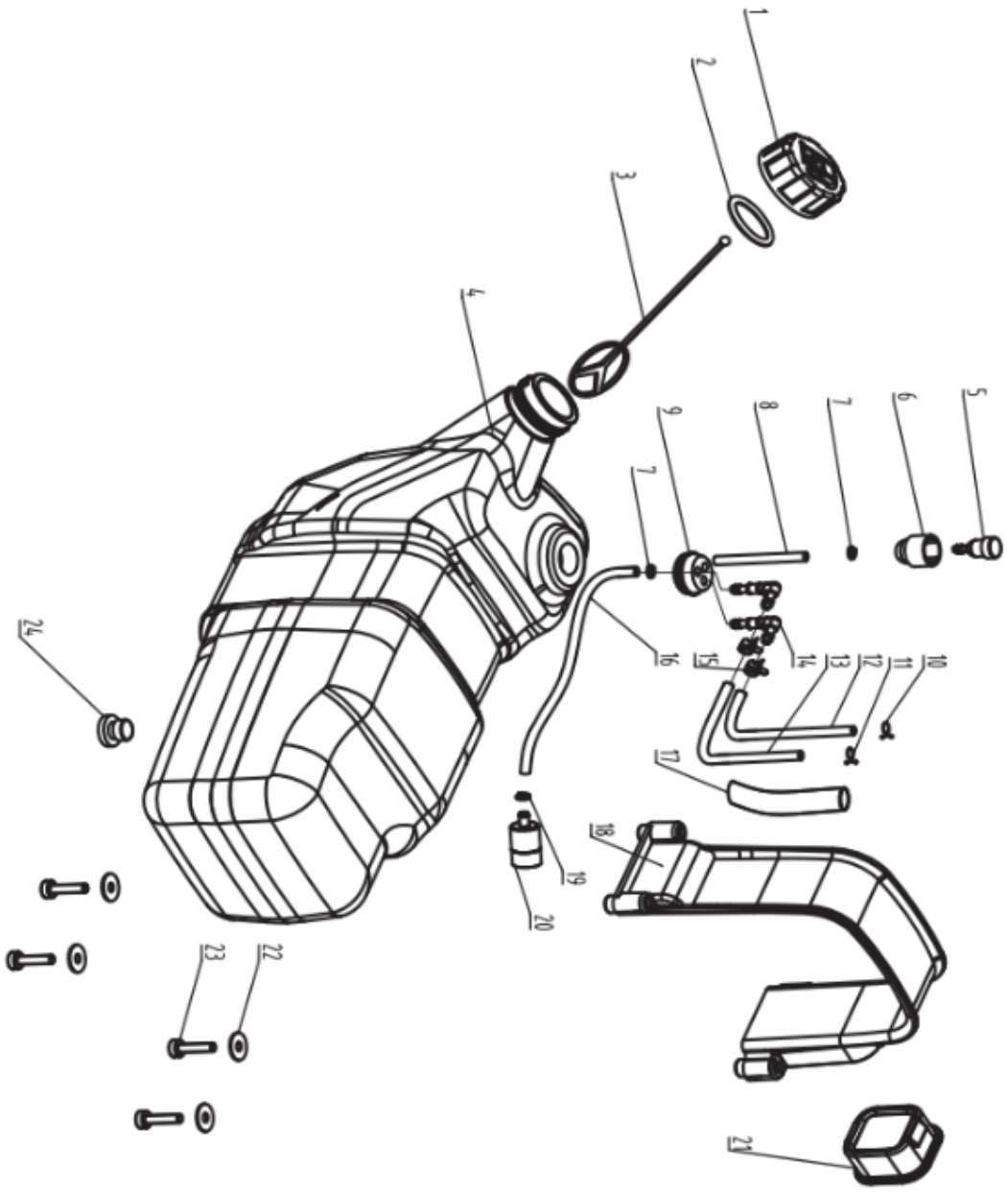
Assembly Diagram for Shell



Part List for Shell

NO.	Description	Qty
1	fuel tank cap	1
2	seal washer	1
3	Drop guard	1
4	fuel tank	1
5	equalizer	1
6	protective casing	1
7	Tubing spring	2
8	breather pipe	1
9	Fuel line holder	1
10	Wire clamp 4.5	1
11	Wire clamp 5	1
12	Return pipe (ϕ3xϕ6x170)	1
13	Fuel pipe (ϕ3xϕ6x145)	1
14	oil pipe joint	2
15	spring buckle	2
16	Fuel pipe (ϕ3xϕ5x200)	1
17	protection tube	1
18	Tank clamp	1
19	Tubing clamp spring ϕ7.5	1
20	Gasoline filter	1
21	Tank damping rubber	1
22	Flat washer 5 x 16 x 1.5	4
23	Screw M5x20	1
24	Rubber pad for base	1

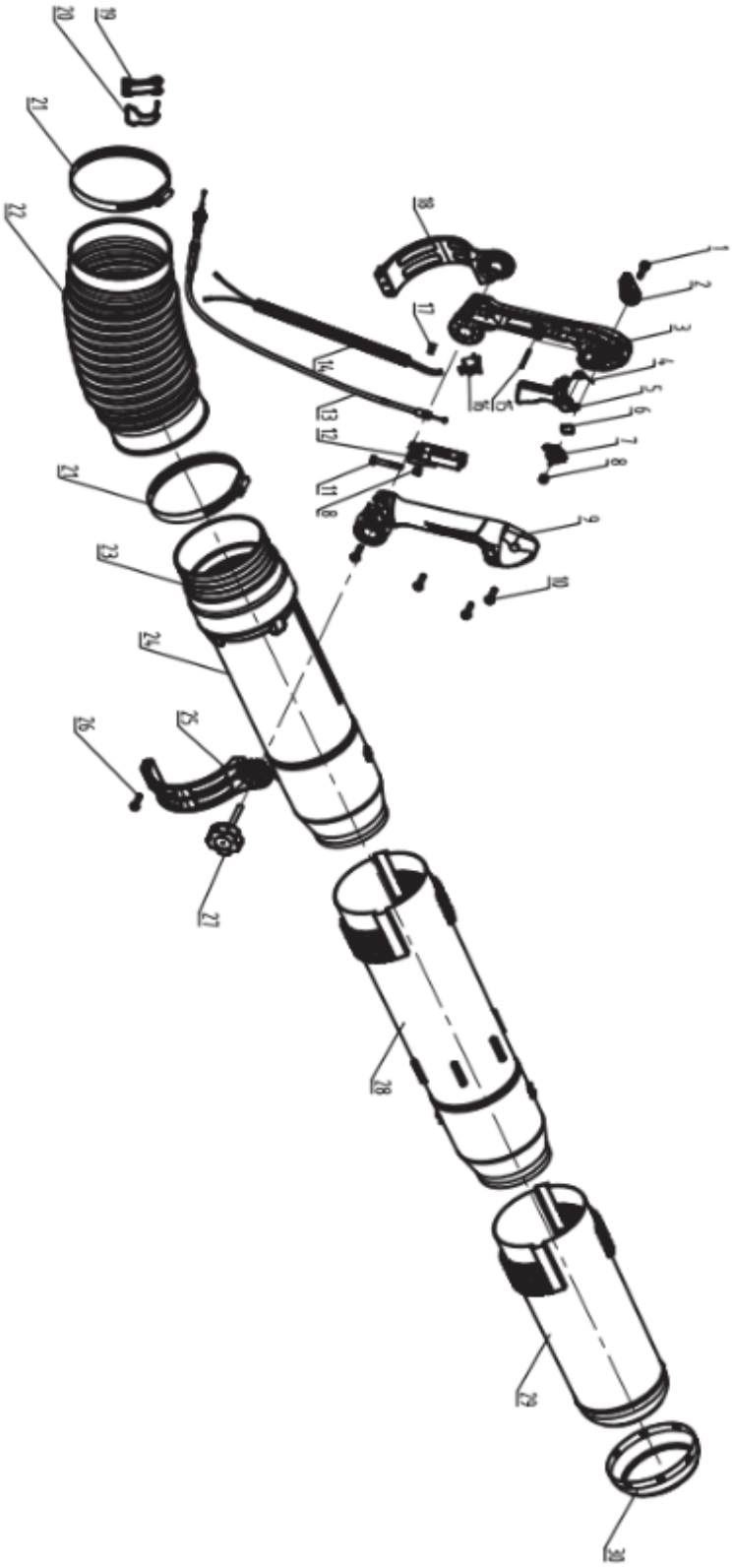
Assembly Diagram for Shell



Part List for Shell

NO.	Description	Qty
1	Hex head screw M5x20	1
2	Speed control knob	1
3	Handle left cover	1
4	Trigger torsion spring	1
5	trigger	1
6	Wave type elastic washer	1
7	Constant speed lever	1
8	nut M5	2
9	Handle right cover	1
10	self-tapping screw ST5X16	4
11	Hex head screw M5x30	1
12	Valve line adjusting seat	1
13	Valve cable	1
14	Flameout wire group	1
15	Cylindrical pin 3x32	1
16	Flameout switch	1
17	Flameout line reed	1
18	Handle seat fixing ring left	1
19	Clamp holder	1
20	Wire clamp	1
21	Stainless steel clamp	2
22	Telescopic tube	1
23	Support tube	1
24	blowpipe	1
25	Handle seat fixed ring right	1
26	self-tapping screw ST5X20	1
27	Locking knob	1
28	Blowpipe (middle)	1
29	Blowpipe (front)	1
30	Air duct guard mouth	1

Assembly Diagram for Shell



PRORUN regularly improves our products, and you may find slight differences between your machine and the descriptions contained within this operator's manual. Modifications can be made to the machine without notice and without the obligation to update the manual, providing that the essential safety and functional characteristics remain unaltered. Contact PRORUN Customer Service with any questions and for current specifications.

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