



Operator's Manual PB-2520 Power Blower

WARNING

The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

WARNING



Read and understand all provided literature before use. Failure to do so could result in serious injury.

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INTRODUCTION

Specifications, descriptions and illustrative material in this literature are as accurate as known at the time of publication, but are subject to change without notice. Illustrations may include optional equipment and accessories, and may not include all standard equipment.



Read and understand all provided literature. Literature contains specifications and information for safety, operation, maintenance, storage and assembly specific to this product.

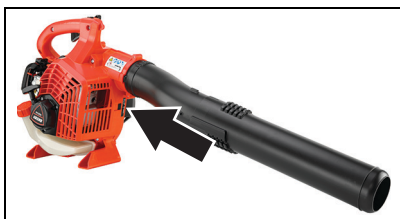
Additional or Replacement Manuals

Replacement Operator, Safety Manuals, and Parts Catalogs are available from your ECHO dealer or at echo-latinamerica.com.

SERVICING INFORMATION

Parts and Serial Number

Genuine ECHO Parts and Assemblies for your products are available only from an Authorized ECHO Dealer. When you do need to buy parts **always** have the Model Number and Serial Number of the unit with you. You can find these numbers on the engine housing. For future reference, write them in the space provided below.



Model No. _____ Serial No. _____

Warranty Registration

Your bill of sale must be provided to demonstrate proof of warranty.

Service

Service of this product during the warranty period must be performed by an Authorized ECHO Service Dealer. For the name and address of the Authorized ECHO Service Dealer nearest you, visit echo-latinamerica.com.

SAFETY

Manual Safety Symbols and Important Information

Throughout this manual and on the product itself, you will find safety alerts and helpful, informational messages preceded by symbols or key words. The following is an explanation of those symbols and key words and what they mean to you.

 **DANGER**

The safety alert symbol accompanied by the word “DANGER” calls attention to an act or condition which WILL lead to serious personal injury or death if not avoided.

 **WARNING**

The safety alert symbol accompanied by the word “WARNING” calls attention to an act or condition which CAN lead to serious personal injury or death if not avoided.

 **CAUTION**

The safety alert symbol accompanied by the word “CAUTION” calls attention to an act or condition which might lead to minor or moderate personal injury if not avoided.

 **NOTICE**

The enclosed message provides information necessary for the protection of the unit.


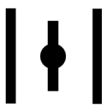


Note: This enclosed message provides tips for use, care and maintenance of the unit.

**CIRCLE AND SLASH SYMBOL**

This symbol means the specific action shown is prohibited. Ignoring these prohibitions can result in serious or fatal injury.

International Symbols

Symbol	Description	Symbol	Description
	Read and Understand the Operator's Manual	H	Carburetor Adjustment - High Speed Mixture
	Wear Eye, Ear and Head Protection	T	Carburetor Adjustment - Idle Speed
	Wear Hand Protection	L	Carburetor Adjustment - Low Speed Mixture
	Safety/Alert		Stop
	Hot Surface		Fuel and Oil Mixture
	Idle speed		Fast speed
	Finger severing		Purge Bulb
	DO NOT Allow Flames or Sparks Near Fuel		Ignition ON / OFF
	DO NOT Smoke Near Fuel		Choke Control "COLD START" Position (Choke Closed)

Symbol	Description	Symbol	Description
	Wear Slip Resistant Footwear		Choke Control "RUN" Position (Choke Open)
		Beware of thrown objects	
		Keep Bystanders and Helpers Away 15 m (50 ft.).	

Personal Condition and Safety Equipment

WARNING

Cancer and Reproductive Harm
www.P65Warnings.ca.gov

WARNING



The muffler or catalytic muffler and surrounding cover may become extremely hot. Always keep clear of exhaust and muffler area, otherwise serious personal injury might occur.



WARNING

Users of this product risk injury to themselves and others if the unit is used improperly and/or safety precautions are not followed. Proper clothing and safety gear must be worn when operating unit.

Physical Condition

Your judgment and physical dexterity may not be good:

- If you are tired or sick
- If you are taking medication
- If you have taken alcohol or drugs

Operate unit only if you are physically and mentally well.

Eye Protection

WARNING

- ◆ **Eye protection that meets ANSI Z87.1 or CE requirements must be worn whenever you operate the unit.**
- ◆ **For additional safety, a full-face shield can be worn over safety glasses or goggles to provide protection from sharp branches or flying debris.**

Hand Protection

Wear sturdy, no-slip, rubber work gloves to improve your grip on the handles. Gloves also provide protection against cuts and scratches, cold environments, and reduce the transmission of machine vibration to your hands.

Hearing and Ear Protection

ECHO recommends wearing personal protective equipment whenever unit is used.

Breathing Protection

Operators who are sensitive to dust or other common airborne allergens may need to wear a dust mask to prevent inhaling these materials while operating unit. Dust masks can provide protection against dust, plant debris, and other plant matter such as pollen. Make sure the mask does not impair your vision, and replace the mask as needed to prevent air restrictions.

Proper Clothing

Wear snug-fitting, durable clothing:

- Pants should have long legs, shirts should have long sleeves.
- **DO NOT WEAR SHORTS.**
- **DO NOT WEAR TIES, SCARVES, JEWELRY,** or clothing with loose or hanging items that could become entangled in moving parts or surrounding growth.
- Keep clothing buttoned or zipped, and keep shirt tails tucked in.
- Wear sturdy work shoes with nonskid rubber soles.
- **DO NOT WEAR OPEN TOED SHOES.**
- **DO NOT OPERATE UNIT WITH BARE FEET.**

Keep long hair away from engine and air intake. Retain hair with cap or net.

Heavy protective clothing can increase operator fatigue, which may lead to heat stroke. Schedule heavy work for early morning or late afternoon hours when temperatures are cooler.

WARNING

The components of this machine generate an electromagnetic field during operation, which can interfere with some pacemakers. To reduce the risk of serious or fatal injury, persons with pacemakers should consult with their physician and the pacemaker manufacturer before operating this machine. In the absence of such information, ECHO does not recommend the use of this machine by anyone who has a pacemaker.

Extended Operation and Extreme Conditions

CAUTION

Prolonged exposure to cold and/or vibration can result in injury. Read and follow all safety and operation instructions to minimize risk of injury. Failure to follow instructions can result in painful wrist/hand/arm injuries.

It is believed that a condition called Raynaud's Phenomenon, which affects the fingers of certain individuals, may be brought about by exposure to vibration and cold. Exposure to vibration and cold may cause tingling and burning sensations, followed by loss of color and numbness in the fingers. The following precautions are strongly recommended, because the minimum exposure, which might trigger the ailment, is unknown.

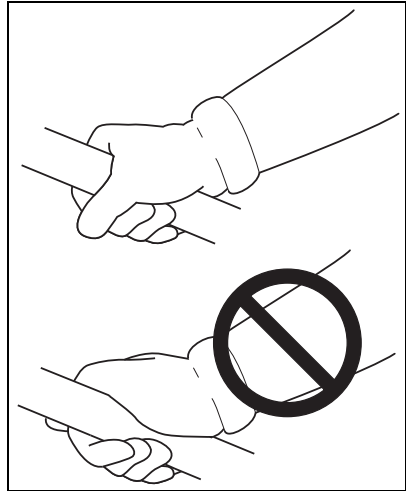
- Keep your body warm, especially the head, neck, feet, ankles, hands, and wrists.
- Maintain good blood circulation by performing vigorous arm exercises during frequent work breaks, and also by not smoking.
- Limit the hours of operation. Try to fill each day with jobs where operating the unit or other hand-held power equipment is not required.
- If you experience discomfort, redness, and swelling of the fingers followed by whitening and loss of feeling, consult your physician before further exposing yourself to cold and vibration.

Repetitive Stress Injuries (RSI)

It is believed that overusing the muscles and tendons of the fingers, hands, arms, and shoulders may cause soreness, swelling, numbness, weakness, and extreme pain in those areas. Certain repetitive hand activities may put you at a high risk for developing a Repetitive Stress Injury (RSI). An extreme RSI condition is Carpal Tunnel Syndrome (CTS), which could occur when your wrist swells and squeezes a vital nerve that runs through the area. Some believe that prolonged exposure to vibration may contribute to CTS. CTS can cause severe pain for months or even years.

To reduce the risk of RSI/CTS, do the following

- Avoid using your wrist in a bent, extended, or twisted position. Instead try to maintain a straight wrist position. Also, when grasping, use your whole hand, not just the thumb and index finger.
- Take periodic breaks to minimize repetition and rest your hands.
- Reduce the speed and force with which you do the repetitive movement.
- Do exercises to strengthen the hand and arm muscles.
- Immediately stop using all power equipment and consult a doctor if you feel tingling, numbness, or pain in the fingers, hands, wrists, or arms. The sooner RSI/CTS is diagnosed, the more likely permanent nerve and muscle damage can be prevented.



! DANGER

All over head electrical conductors and communications wires can have electricity flow with high voltages. This unit is not insulated against electrical current. Never touch wires directly or indirectly, otherwise serious injury or death can result.

! DANGER

Do not operate this product indoors or in inadequately ventilated areas. Engine exhaust contains poisonous emissions and can cause serious injury or death.

Read the Manual

- Provide all users of this equipment with the Operator's Manual for instructions on Safe Operation.

Clear the 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.
- Avoid blowing debris towards people, pets, open windows, or vehicles when using unit.
- Review area to be cleared. Look for potential hazards such as stones or metal objects.

Keep a Firm Grip

- Hold the handle in one hand, with thumb and fingers encircling the handle.

Keep a Solid Stance

- Maintain footing and balance at all times. Do not stand on slippery, uneven or unstable surfaces. Do not work in odd positions or on ladders. Do not over reach.

Avoid Hot Surfaces

- Keep exhaust area clear of flammable debris. Avoid contact during and immediately after operation.



Equipment

WARNING

Use only approved attachments. Serious injury may result from the use of a non-approved attachment combination. ECHO, Incorporated, will not be responsible for the failure of cutting devices, attachments or accessories which have not been tested and approved by ECHO. Read and comply with all safety instructions listed in this manual.

- Do not attempt to modify this product. Serious injury can result from the use of any modified product.
- Check unit for loose/missing nuts, bolts, and screws. Tighten and/or replace as needed.
- Do not use blower if any part is missing or damaged.
- Have repairs done only by an authorized ECHO Service dealer.

WARNING

Moving parts can amputate fingers or cause severe injuries. Keep hands, clothing and loose objects away from all openings.

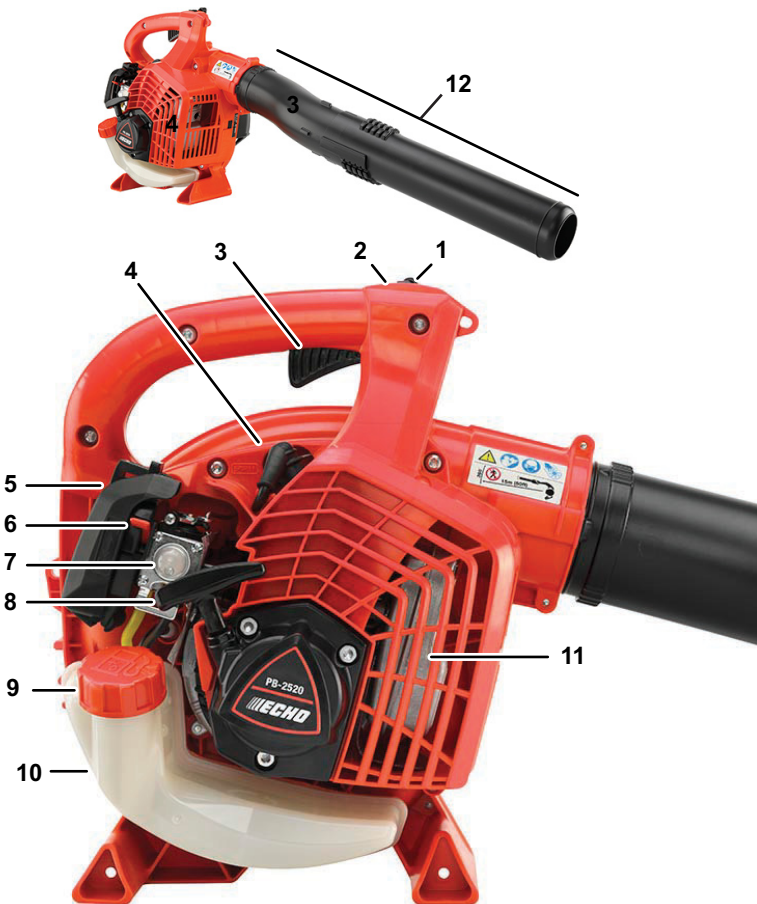
- ◆ ***ALWAYS stop engine, disconnect spark plug, and make sure all moving parts have come to a complete stop before removing obstructions, clearing debris, or servicing unit.***
- ◆ ***DO NOT start or operate unit unless all guards and protective covers are properly assembled to unit.***
- ◆ ***NEVER reach into any opening while the engine is running. Moving parts may not be visible through openings.***

WARNING

Periodically Check fuel system (fuel lines, vent, grommet, fuel tank, and fuel cap) for leaks especially if the unit is dropped. If damage or leaks are found, do not use unit, otherwise serious personal injury or property damage may occur. Have unit repaired by an authorized servicing dealer before using.

DESCRIPTION

Locate the safety decal(s) or etching(s) on your unit. Make sure they are legible, and that you understand and follow the instructions. If any cannot be read, replacements can be ordered from your dealer. Images shown below are for example only. Those on your unit might appear slightly different.



70dB(A)
per ANSI B175.2



1. Throttle Position Lever
2. Stop Switch
3. Throttle Trigger
4. Spark Plug
5. Air Cleaner
6. Choke
7. Purge Bulb
8. Recoil Starter Handle
9. Fuel Tank Cap
10. Fuel Tank
11. Spark Arrester Muffler or Spark Arrester Muffler with Catalyst
12. Blower Pipes

CONTENTS

The ECHO product you purchased has been factory pre-assembled for your convenience. Due to packaging restrictions, some assembly may be necessary.

After opening the carton, check for damage. Immediately notify your retailer or ECHO Dealer of damaged or missing parts. Use the contents list to check for missing parts.

- ___ 1 Power Head
- ___ 2 Blower Pipe
- ___ 1 Warranty Statement
- ___ 1 Operator's Manual

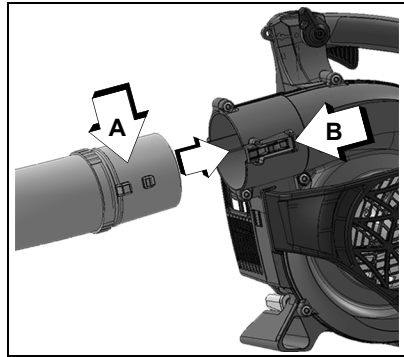
ASSEMBLY

⚠ WARNING

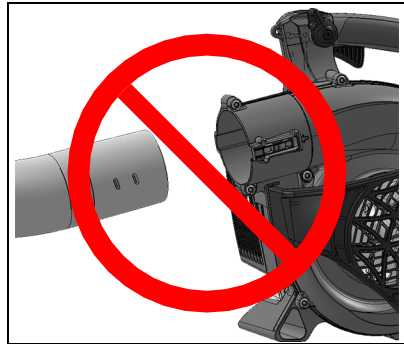
Never perform maintenance or assembly procedures with engine running or serious personal injury may result.

Install Blower Pipes

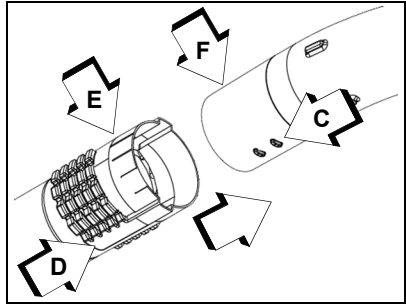
1. Stand unit upright on blower base.
2. Align large locking ribs (A) on curved blower pipe with pipe lock (B) in fan case. Slide curved blower pipe into fan case until a clicking sound is heard.



Do not assemble the opposite end of the curved blower pipe to the fan case.



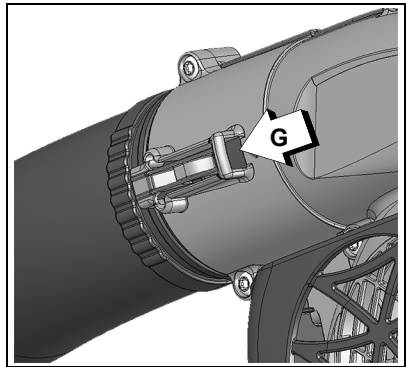
3. Align tabs (C) with grooves (D) and slide straight blower pipe (E) over curved pipe (F) until there is light resistance. Do not force the connection.
4. Hold curved pipe, and turn straight pipe clockwise, engaging positive locking channels until connection is firm.



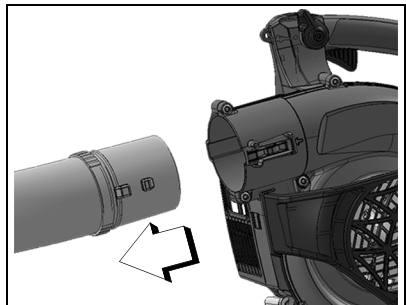
Note: Blower use will eventually loosen pipe connections. Exclusive positive locking system allows pipes to be tightened. If loosening occurs, remove straight pipe, and reinstall according to instructions 3 and 4.

Remove Blower Pipes

1. Insert screwdriver into hole (G) to release pipe lock.



2. Pull pipe out of fan case.
3. Remove screwdriver.



OPERATION

 WARNING

Moving parts can amputate fingers or cause severe injuries. Keep hands, clothing and loose objects away from all openings. Always stop engine, disconnect spark plug, and make sure all moving parts have come to a complete stop before removing obstructions, clearing debris, or servicing unit. Blower housing might contain shredder blades and other sharp edges that can cause serious injuries if touched, even if engine is off and blades are not moving. Wear gloves to protect hands from sharp edges and hot surfaces.

 WARNING

Operation of this equipment might create sparks that can start fires around dry vegetation. This unit is equipped with a spark arrester to prevent discharge of hot particles from the engine. Contact local fire authorities for laws or regulations regarding fire prevention requirements.

 WARNING

Engine exhaust IS HOT, and contains Carbon Monoxide (CO), a poison gas. Breathing CO can cause unconsciousness, serious injury, or death. Exhaust can cause serious burns. ALWAYS position unit so that exhaust is directed away from your face and body.

 WARNING

- ◆ This blower should be used for clearing leaves, grass, debris, and dust in yards, gardens, driveways, and parking lots only.
- ◆ Always maintain a direct, clear line of site to the unit and the work being performed.
- ◆ Always be alert for changes in operation of unit.
- ◆ Always shut engine off before transporting unit to new location.
- ◆ Always secure the unit during transportation to prevent turnover, fuel spillage, and damage to the unit.

Fuel

WARNING

Diesel fuels and alternative fuels, such as E-15 (15% ethanol), E-85 (85% ethanol) or any fuels not meeting ECHO requirements are NOT approved for use in ECHO 2-stroke gasoline engines. Use of diesel or alternative fuels can cause performance problems, loss of power, overheating, fuel vapor lock, and unintended machine operation, including, but not limited to, improper clutch engagement. Diesel or alternative fuels can also cause premature deterioration of fuel lines, gaskets, carburetors and other engine components.

Fuel Requirements

Gasoline - Use fresh (purchased within the last 30 days from the pump) 89 Octane [R+M/2] (mid grade or higher) gasoline known to be good quality. Gasoline may contain up to 10% Ethanol (grain alcohol) or 15% MTBE (methyl tertiary-butyl ether). Gasoline containing methanol (wood alcohol) is **NOT** approved. Use of ECHO branded fuel is recommended to extend engine life in all air-cooled 2-stroke and 2/4-stroke hybrid engines.

Two Stroke Oil - A two-stroke engine oil, such as ECHO branded 2-stroke oils, meeting ISO-L-EGD (ISO/CD 13738) and J.A.S.O. FD Standards must be used. ECHO branded 2-stroke oils meet these standards. Engine problems due to inadequate lubrication caused by failure to use an ISO-L-EGD (ISO/CD 13738) and J.A.S.O. M345-FD certified oil will void the two-stroke engine warranty.

WARNING

2-Stroke engine oil contains petroleum distillates and other additives that may be harmful if swallowed. Heated oil can release vapors that can cause flash fire, or ignite with explosive force. Read and follow the oil manufacturer's instructions, and observe all safety warnings and precautions for handling flammable liquids. For more detailed safety and first aid information, visit www.echo-latinamerica.com for a copy of the Material Safety Data Sheet.

- ◆ **KEEP OUT OF REACH OF CHILDREN.**
- ◆ **If swallowed, do not induce vomiting. CALL PHYSICIAN OR A POISON CONTROL CENTER IMMEDIATELY.**
- ◆ **WEAR SAFETY GLASSES when mixing or handling.**

- ◆ **AVOID** repeated or prolonged skin contact.
- ◆ **AVOID** inhaling oil mists or vapors.

NOTICE

ECHO branded 2-stroke oils may be mixed at 50:1 ratio for application in all ECHO engines sold in the past regardless of ratio specified in those manuals.

Handling Fuel

DANGER

Fuel is VERY flammable. Use extreme care when mixing, storing or handling, or serious personal injury will result.

- ◆ **Use an approved fuel container. Mark fuel containers as containing 2-stroke mixture fuel.**
- ◆ **DO NOT smoke near fuel.**
- ◆ **DO NOT allow flames or sparks near fuel.**
- ◆ **Fuel tanks/cans may be under pressure. Always loosen fuel caps slowly allowing pressure to equalize.**
- ◆ **NEVER refuel a unit when the engine is HOT or RUNNING!**
- ◆ **DO NOT fill fuel tanks indoors. ALWAYS fill fuel tanks outdoors over bare ground.**
- ◆ **DO NOT overfill fuel tank. Wipe up spills immediately.**
- ◆ **Securely tighten fuel tank cap and close fuel container after refueling.**
- ◆ **Inspect for fuel leakage. If fuel leakage is found, do not start or operate unit until leakage is repaired.**
- ◆ **Move at least 3 m (10 ft.) from refueling location before starting the engine.**

DANGER

Gasoline vapor is heavier than air, and can travel along the ground to nearby sources of ignition such as electrical motors, pilot lights, and hot or running engines. Vapors ignited by an ignition source can flash back to the fuel container, resulting in an explosion, fire, serious or fatal injuries, and extensive property damage.

Mixing Instructions**NOTICE**

Stored fuel ages. Do not mix more fuel than you expect to use in 30 days, 90 days when a fuel stabilizer is added.

1. Fill an approved fuel container with half of the required amount of gasoline.
2. Add the proper amount of 2-stroke oil to gasoline.
3. Close container and shake to mix oil with gasoline.
4. Add remaining gasoline, close fuel container, and remix.

Fuel to Oil Mix – 50:1 Ratio			
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

NOTICE

Spilled fuel is a leading cause of hydrocarbon emissions. Some locations may require the use of automatic fuel shut-off containers to reduce fuel spillage.

Storage - Fuel storage laws vary by locality. Contact your local government for the laws affecting your area. As a precaution, store fuel in an approved, airtight container. Store in a well-ventilated, unoccupied building, away from sparks and flames.

- Empty the fuel tank prior to storing the unit. Return unused fuel to an approved fuel storage container.

NOTICE

Stored two-stroke fuel can separate. ALWAYS shake fuel container thoroughly before each use.

NOTICE

Used oil and gasoline, and soiled towels are hazardous waste materials. Disposal laws vary by locality.

Starting Cold Engine

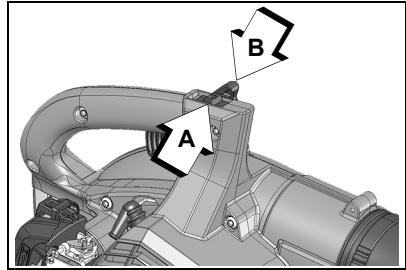
1. Stop Switch

Move stop switch (A) away from the STOP position.

Note: Engine will not run if safety switch is not activated.

2. Throttle Position Lever

Move throttle position lever (B) midway between idle and full throttle positions.

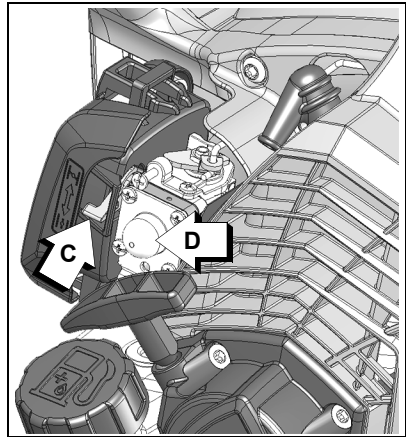


3. Choke

Move choke (C) to COLD START (|⊥|) (closed) position.

4. Purge Bulb

Pump purge bulb (D) until fuel is visible and flows freely in the clear fuel tank return line.



NOTICE

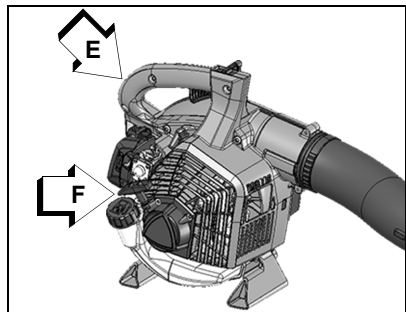
Recoil starter: Use short pulls - only 1/2 to 2/3 of rope for starting. Do not allow the rope to snap back in. Always hold the unit firmly.

5. Recoil Starter

Place the unit on a flat, clear area. Firmly grasp throttle handle (E) with left hand and rapidly pull recoil starter handle (F) until engine fires, or maximum 5 pulls.

6. Choke

Move choke lever to RUN (|↑|), and if necessary, restart engine.



Note: If engine does not start with choke in RUN position after 5 pulls, repeat instructions 3 - 6.

7. *Throttle Trigger*

After engine warm up, gradually depress throttle trigger to increase engine RPM to operating speed.

Note: Allow engine to warm up 3 minutes before use.

Starting Warm Engine

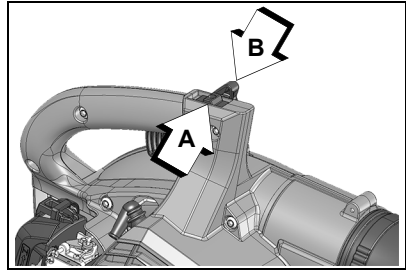
The starting procedure is the same as Cold Start except DO NOT close the choke.

1. *Stop Switch*

Move stop switch (A) away from the STOP position.

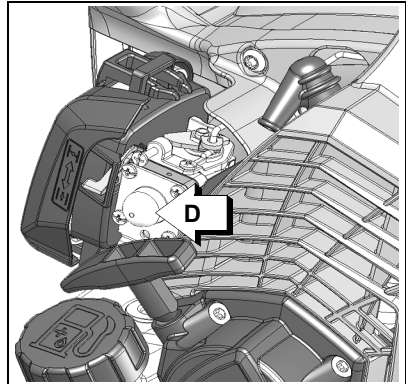
2. *Throttle Position Lever*

Move throttle position lever (B) midway between idle and full throttle positions.



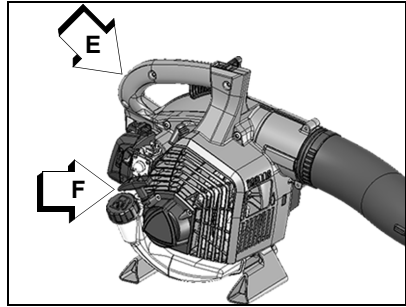
3. *Purge Bulb*

Pump purge bulb (D) until fuel is visible and flows freely in the clear fuel tank return line.



4. *Recoil Starter*

Place the unit on a flat, clear area. Firmly grasp throttle handle (E) with left hand and rapidly pull recoil starter handle/rope (F) until engine fires.



NOTICE

Recoil starter: Use short pulls - only 1/2 to 2/3 of rope for starting. Do not allow the rope to snap back in. Always hold the unit firmly.

Note: If engine does not start after 5 pulls, use Cold Start Procedure.

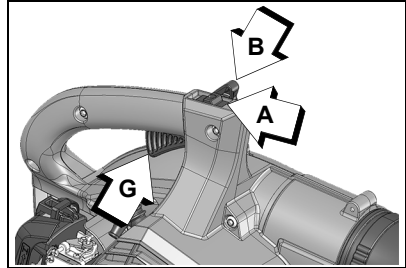
Stopping Engine

1. *Throttle Trigger/Throttle Position Lever*

Release throttle trigger (G). Move throttle position lever (B) forward to idle position and allow engine to return to idle before shutting off engine.

2. *Stop Switch*

Move stop switch (A) to STOP position.



! WARNING

If engine does not stop when stop switch is moved to STOP position, close choke - COLD START position - to stall engine. Have your dealer repair stop switch before using unit again.

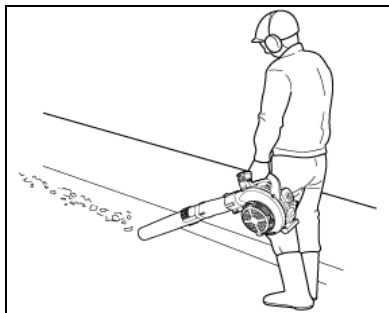
Operating Blower

WARNING

Always wear safety glasses, hearing protection and a face filter mask or serious personal injury may result. Do not point the blower pipe in the direction of people or pets.

NOTICE

Use reduced speed only when performing light-duty tasks or to comply with local noise regulations. Continuous low speed operation may allow fuel/oil residue to build-up on the piston and cause rapid build-up of carbon on the spark arrester screen, resulting in overheating and engine damage. To reduce harmful build-up, run engine at wide open throttle for at least 5 minutes every hour, and inspect/clean the spark arrester screen after approximately 40 hours of operation.



Read the safety section carefully.

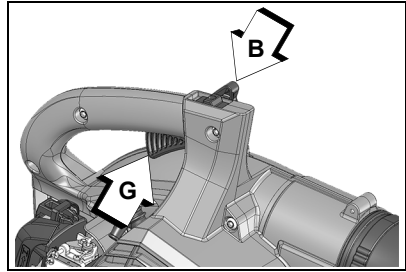
WARNING

- ◆ Use rakes and brooms to loosen debris before blowing.
- ◆ In dusty conditions, slightly dampen surfaces 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.
- ◆ Use the full blower nozzle extension when blowing.
- ◆ After using blowers and other equipment, **CLEAN UP!** Dispose of debris in trash receptacles.

NOTICE

To avoid engine damage due to over-revving, do not block blower pipe.

1. Use only during appropriate hours.
2. To reduce sound levels, limit the number of pieces of equipment used at any one time.
3. Allow the engine to warm up at a fast idle for a few minutes.
4. Control engine speed with throttle trigger (G), or for continuous use, set engine speed with throttle position lever (B). Rotate throttle position lever forward for lower speed, back for higher speed.
5. Use lower speed to blow debris from hard surfaces.
6. Additional speed may be necessary to clean debris, snow, etc. from lawns and flowerbeds.



Note: Never use a higher speed setting than necessary to perform a task. Remember, the higher the engine speed, the louder the blower noise. Minimize dust by using blower at lower speeds. Keep debris on your property. Be Smart - be a good neighbor.

MAINTENANCE

WARNING

Moving parts can amputate fingers or cause severe injuries. Keep hands, clothing and loose objects away from all openings. Always stop engine, disconnect spark plug, and make sure all moving parts have come to a complete stop before removing obstructions, clearing debris, or servicing unit. Allow unit to cool before performing service. Wear gloves to protect hands from sharp edges and hot surfaces.

WARNING

Operating a poorly maintained unit can result in serious injuries to operator or bystanders. Always follow all maintenance instructions as written, otherwise serious personal injury can result.

Your unit is designed to provide many hours of trouble free service. Regular scheduled maintenance will help your unit achieve that goal. If you are unsure or are not equipped with the necessary tools, we recommend that you take your unit to a Servicing Dealer for maintenance. To help you decide whether you want to DO-IT-YOURSELF or have the Dealer do it, each maintenance task has been graded. If the task is not listed, see your Dealer for repairs.

NOTICE

The use of emission control components other than those specifically designed for this unit is a violation of federal law.

Skill Levels

Level 1 = Easy to do. Common tools may be required.

Level 2 = Moderate difficulty. Some specialized tools may be required.

Level 3 = See your dealer.

Click [HERE](#) or go to <http://www.echo-usa.com/products/maintenance-kit>

or

[HERE](http://www.shindaiwa-usa.com/you-can.aspx) <http://www.shindaiwa-usa.com/you-can.aspx>

Maintenance Intervals

COMPONENT/SYSTEM	MAINTENANCE PROCEDURE	SKILL LEVEL
Daily or Before Use		
Air Filter	Inspect/Clean*	1
Choke Shutter	Inspect/Clean *	1
Fuel System	Inspect	1
Cooling System	Inspect/Clean	2
Recoil Starter Rope	Inspect/Clean*	1
Screws/Nuts/Bolts	Inspect/Tighten/Replace*	1
Every Refuel		
Fuel System	Inspect	1
Cooling System	Inspect/Clean	2
3 Months		

COMPONENT/SYSTEM	MAINTENANCE PROCEDURE	SKILL LEVEL
Air Filter	Replace*	1
Fuel Filter	Inspect*	1
Fuel Cap Gasket	Inspect*	1
Spark Plug	Inspect/Clean/Replace*	1
Muffler Spark Arrester	Inspect/Clean/Replace*	2
Cylinder Exhaust Port	Inspect/Clean/Decarbon	2
Yearly		
Fuel Filter	Inspect/Replace*	1
Fuel Cap Gasket	Replace*	1

IMPORTANT NOTE - Time intervals shown are maximum. Actual use and your experience will determine the frequency of required maintenance.

MAINTENANCE PROCEDURE NOTES:

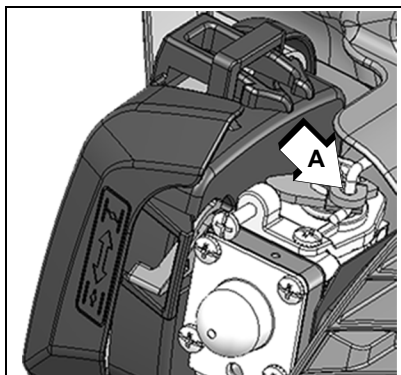
* Replacement is recommended based on the finding of damage or wear during inspection

Throttle Connecting Rod

Level 1.

Parts required: Lithium-based Grease.


1. Apply grease to throttle connecting rod at location (A).

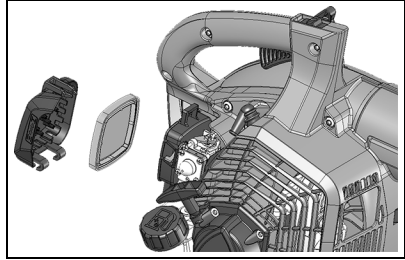


Air Filter

Level 1.

Parts required: Tune-Up Kit.

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. Brush dirt from inside cover.
3. Remove air filter and lightly brush debris from filter. Replace filter if it is damaged, fuel soaked, very dirty, or the rubber sealing edges are deformed. Clean the filter with a neutral detergent. Do not use solvents for cleaning.
4. If filter can be reused, be certain:
 - The entire frame of the filter is securely seated in the housing.
 - It is installed with the original side out.
5. Install air filter cover.



Fuel Filter

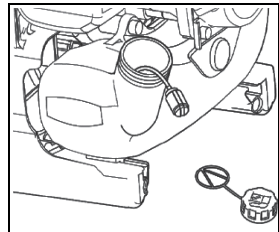
Level 1.

Parts required: Tune-Up Kit.

! DANGER

Fuel is VERY flammable. Use extreme care when mixing, storing or handling, or serious personal injury may result.

1. Use a clean rag to remove loose dirt from around fuel cap and empty fuel tank.



NOTICE

Do not damage fuel line while removing fuel filter from tank or line.

2. Pull the fuel filter from the tank.
3. Do not remove the wire coil clamp to remove the fuel filter. Pinch the fuel filter with the fingers on one hand and the fuel line with the other hand. Pull and twist slightly to separate.
4. Install the new filter with the reverse action.

Note: Federal EPA regulations require all model year 2012 and later gasoline powered engines produced for sale in the United States to be equipped with a special low permeation fuel supply hose between the carburetor and fuel tank. When servicing model year 2012 and later equipment, only fuel supply hoses certified by EPA can be used to replace the original equipment supply hose. Fines up to \$37,500 may be enforced for using an un-certified replacement part.

Spark Plug

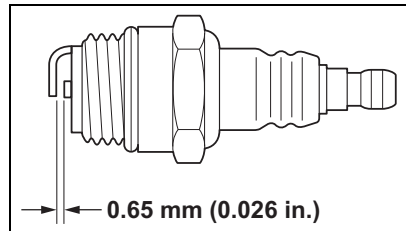
Level 2.

Parts required: Tune-Up Kit.

NOTICE

Use only NGK BPMP8Y spark plug otherwise severe engine damage may occur.

1. Remove spark plug and check for fouling, worn and rounded center electrode.
2. Clean the plug or replace with a new one. DO NOT sand blast to clean. Remaining sand will damage engine.
3. Adjust spark plug gap by bending outer electrode.
4. Tighten spark plug to 150-170 kgf • cm (130-150 lbf • in).



Cooling System

Level 2.

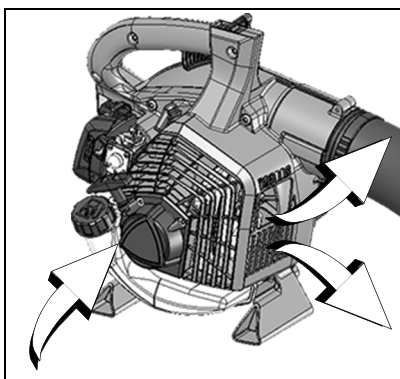
NOTICE

To maintain proper engine operating temperatures, cooling air must pass freely through the cylinder fin area. This flow of air carries combustion heat away from the engine.

Overheating and engine seizure can occur when:

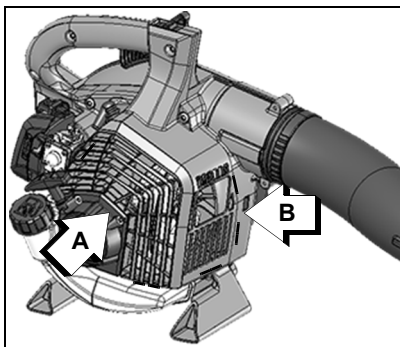
- Air intakes are blocked, preventing cooling air from reaching the cylinder.
- Dust and grass build up on the outside of the cylinder. This build up insulates the engine and prevents the heat from leaving.

Removal of cooling passage blockages or cleaning of cooling fins is considered "Normal Maintenance." Any failure attributed to lack of maintenance is not warranted.



Cleaning Grill

1. Brush accumulated debris from crankcase intake grill (A) and discharge grill (B).

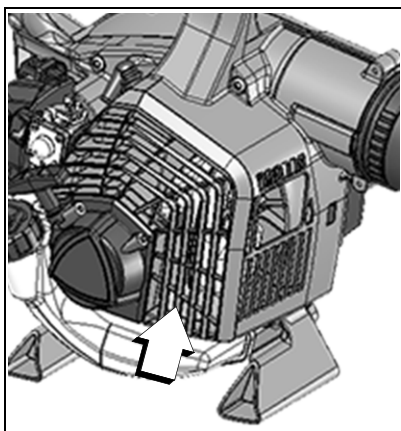


Cleaning Cylinder Fins

Blow compressed air through crankcase intake grill and discharge grill at area shown.

Exhaust System

See your dealer for maintenance.



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 and durability performance up to 335 m (1,100 ft.) above sea level (ASL). To maintain proper engine operation above 335 m (1,100 ft.) ASL the carburetor may need to be adjusted by an authorized service dealer.

NOTICE

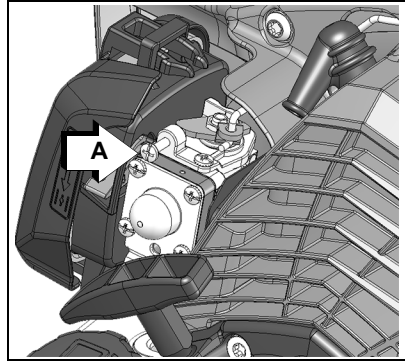
If the engine is adjusted for operation above 335 m (1,100 ft.) ASL, the carburetor must be re-adjusted when operating the engine below 335 m (1,100 ft.) ASL, otherwise severe engine damage may result.

Level 2.

Note: Every unit is run at the factory and the carburetor is set in compliance with emission regulations. Carburetor adjustments, other than idle speed, must be performed by an authorized dealer.

Before adjustment make sure that:

- Air filter is clean and properly installed.
 - Spark arrestor screen is 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.



TROUBLESHOOTING

⚠ DANGER

Fuel vapors are extremely flammable and may cause fire and/or explosion. Never test for ignition spark by grounding spark plug near cylinder plug hole, otherwise serious personal injury may result.

ENGINE PROBLEM TROUBLESHOOTING CHART				
Problem	Check	Status	Cause	Remedy
Engine starts hard or Engine does not start	Fuel at carburetor	No fuel at carburetor	Fuel strainer or fuel line obstructed	Clean or replace See your dealer
Engine starts hard or Engine does not start	Fuel at cylinder	No fuel at cylinder	Carburetor	See your dealer
		Muffler wet with fuel	Fuel mixture too rich	OPEN choke Clean or replace air filter Adjust carburetor See your dealer
	Spark at end of plug wire	No spark	Ignition at STOP position	Move ignition away from STOP position.
			Electrical problem	See your dealer
Spark at plug		Interlock switch		
			Incorrect gap - Covered with carbon - Fouled with fuel - Plug defective	Adjust to 0.65mm (0.026 in.) Clean or replace plug

ENGINE PROBLEM TROUBLESHOOTING CHART				
Problem	Check	Status	Cause	Remedy
Engine runs, but dies or Engine does not accelerate properly	Air filter	Air filter dirty	Normal wear	Clean or replace
	Fuel filter	Fuel filter dirty	Contaminants or residue in fuel	Replace filter or replace fuel
	Fuel vent	Fuel vent plugged	Contaminated fuel	Clean or replace
	Spark plug	Plug dirty or worn	Normal wear	Clean and adjust or replace
	Carburetor	Improper adjustment	Vibration	Adjust
	Cooling system	Cooling system dirty or plugged	Extended operation in dirty or dusty locations	Clean
	Spark arrester screen	Spark arrester screen plugged	Normal wear	Replace
Engine does not crank	N/A		Internal engine problem	See your dealer

STORAGE

WARNING

During operation the muffler or catalytic muffler and surrounding cover become hot. Always keep exhaust area clear of flammable debris during transportation or when storing, otherwise serious property damage or personal injury may result.

Long Term Storage (Over 30 Days)

Do not store your unit for a prolonged period of time (30 days or longer) without performing protective storage maintenance which includes the following:

1. Store unit in a dry, dust free place, out of the reach of children.


DANGER

Do not store in enclosure where fuel fumes may accumulate or reach an open flame or spark.

2. Place the stop switch in the "OFF" position.
3. Remove accumulation of grease, oil, dirt and debris from exterior of unit.
4. Perform all periodic lubrication and services that are required.
5. Tighten all the screws and nuts.
6. Drain fuel tank completely. Press purge bulb 6 -7 times to remove remaining fuel from carburetor then drain the tank again. Close choke, start and run the engine until it stops due to lack of fuel.
7. Allow engine to cool then remove the spark plug and pour 7 cc (1/4 oz.) of fresh, clean, two-stroke engine oil into the cylinder through the spark plug hole.
8. Pull the recoil starter handle 2-3 times to distribute the oil inside the engine.
9. Observe the piston location through the spark plug hole. Pull the recoil handle slowly until the piston reaches the top of its travel and leave it there.
10. Install the spark plug (do not connect ignition cable).
11. Remove blower pipe assembly from unit.

SPECIFICATIONS

MODEL	PB-2520
Length	324 mm (12.8 in.) (without blower pipes) 958 mm (37.7 in.) (with blower pipes)
Width	233 mm (9.2 in.)
Height	355 mm (14.0 in.)
Weight (dry)	3.6 kg (7.9 lb.) (without blower pipes) 3.9 kg (8.6 lb.) (with blower pipes)
Engine Type	Air-cooled, two-stroke, single-cylinder gasoline engine
Bore	34.0 mm (1.34 in.)
Stroke	28.0 mm (1.1 in.)
Displacement	25.4 cm ³ (1.55 in. ³)

MODEL	PB-2520
Exhaust	Spark arrester muffler or spark arrester muffler with catalyst
Carburetor	Diaphragm with purge pump
Ignition System	Flywheel magneto, capacitor discharge ignition type
Spark Plug	NGK BPMR8Y - Gap 0.65 mm (0.026 in.)
Fuel	Mixed (gasoline and two-stroke oil)
Gasoline/Oil Ratio	50:1
Gasoline	Use 89 Octane unleaded. Do not use fuel containing methyl alcohol, more than 10% ethyl alcohol or 15% MTBE. Do not use alternative fuels such as E-15 or E-85.
Oil	ISO-L-EGD (ISO/CD 13738) and J.A.S.O. M345- FD, two-stroke, air-cooled engine oil.
Fuel Tank Capacity	0.55 L (18.6 US fl. oz.)
Starter System	Automatic recoil starter, centrifugal type
Idle Speed	3,000 RPM
Wide Open Throttle Speed	7,500 RPM
Maximum Air Speed with pipes (MPH)	76.2 m/sec (170 mph)
Air Volume	12.8 m ³ /min. (453 ft. ³ /min.)
Sound Level at 15m (50 ft.) dB(A) scale per ANSI OPEI B175.2	70 dB(A)

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