PRORUN®

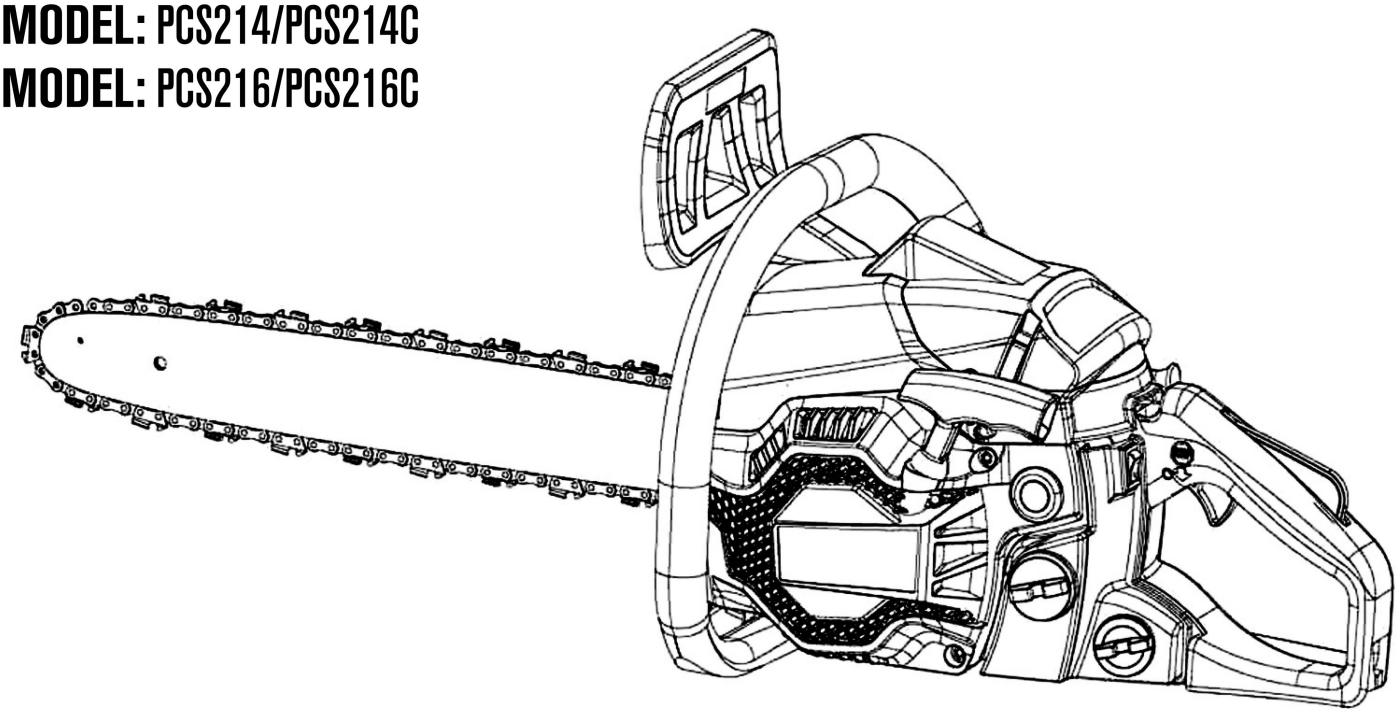
GAS///

Operator's Manual

CHAINSAW

MODEL: PCS214/PCS214C

MODEL: PCS216/PCS216C



Everything PRORUN

Before operating, 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 Operator's Manual before using this product. Save these instructions for future reference.

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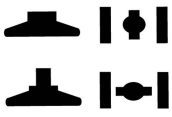
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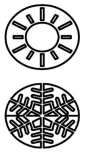
Safety

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 and follow all safety precautions in the operator's manual(s). Failure to follow instructions could result in serious personal injury.
	WARNING marking concerning Risk of Loss of Control. Do not operate the chainsaw with only one hand.
	WARNING marking concerning Risk of Loss of Control. Always use two hands when operating the chainsaw.
	Read the manual before set-up and/or use.
	WARNING marking concerning Risk of Kickback. Contact of the guide bar tip with any object should be avoided.

Symbol	Property or Statement
	Appropriate ear, eye, and head protection must be worn.
	Always wear safety and anti-vibration(AV) gloves when operating the device.
	Always wear safety and slip-resistant boots when operating the device.
	WARNING marking concerning saw chain Orientation. Cutters must face in direction of rotation.
	The port to refuel the "MIX GASOLINE"
	Operate the engine switch Flipping the switch to the "O" position, immediately the engine stops, ”O” and ”I” are shown on switch button.
	The port to refill the chain oil
	Adjust the oil flow. If you turn the screw by screwdriver counter-clockwise, the chain oil flow more, and if you turn it clockwise, less.
	Operate the choke knob Pulling out the choke knob, closes the choke; push in the choke knob, opens the choke.
	Shows the directions that the chain brake is released (white arrow) and activated (black arrow).
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.
I O	Operate the engine switch Flipping the switch to the "O" position, immediately the engine stops.

Symbol	Property or Statement
	Carburetor anti-freeze mechanism Anti-freeze mode

IMPORTANT SAFETY INSTRUCTION

SAVE THESE INSTRUCTION

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

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 ANSI-approved safety 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.

Operating Precautions

1.Chainsaws shall be used in accordance with the operating instructions and safety precautions listed in the operator's manual(s). It shall be the responsibility of the owner to see that such instructions and precautions are given to every operator who uses the saw;

2.Keep children away from the equipment, especially while it is in use.

3.Keep all spectators at least six feet from the Engine during operation.

4.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.

5.Do not touch engine during use. Allow engine to cool down after use.

6.Never store fuel or other flammable materials near the engine.

7.Secure the equipment on transport vehicles to prevent it from rolling, slipping, and tilting.

8.Industrial applications must follow OSHA requirements.

9.Do not leave the equipment unattended when it is running. Turn off the equipment (and remove safety keys, if available) before leaving the work area.

10.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.

11.Use safety footwear; snug-fitting clothing; protective gloves; eye, hearing, and head protection devices.

12.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.
13.Use only accessories that are recommended by manufacturer. Accessories that may be suitable for one piece of equipment may become hazardous when used on another piece of equipment.
14.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.
15. Stay alert, watch what you are doing and use common sense when operating this piece of equipment. Do not use while tired or under the influence of drugs, alcohol or medication.
16.Do not overreach. Keep proper footing and balance at all times. This enables better control of the equipment in unexpected situations.
17.Use this equipment with both hands only. A chainsaw is intended for two-handed use. Do not operate a chainsaw with one hand! Serious injury to the operator, helpers,bystanders, or any combination of these persons may result from one-handed operation.
18.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.
19.Parts, especially exhaust system components, get very hot during use. Stay clear of hot parts.
20.Do not cover the equipment during operation.
21.Keep the equipment, engine, and surrounding area clean at all times.
22. Do not smoke, or allow sparks, flames, or other sources of ignition around the equipment, especially when refuelling.
23.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.
24.Do not operate the equipment with known leaks in the engine's fuel system.
25.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.
26.Keep hands and feet away from moving parts.
Do not reach over or across equipment while operating.
27.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 serviced before using. Many accidents are caused by poorly maintained equipment.
28.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.
29.Never operate a chainsaw when you are fatigued, ill, or upset, or under the influence of medication that may make you drowsy, or if you are under the influence of alcohol or drugs.

Chainsaw Safety Warnings

1.**Keep all parts of the body away from the saw chain when the chainsaw is operating. Before you start the chainsaw, make sure the saw chain is not contacting anything.** A moment of inattention while operating chainsaws may cause entanglement of your clothing or body with the saw chain.
2.**Always hold the chainsaw with your right hand on the rear handle and your left hand on the front handle.** Holding the chainsaw with a reversed hand configuration increases the risk of personal injury and should never be done.
3.**Hold the power tool by insulated gripping surfaces only, because the saw chain may contact hidden wiring.** Saw chains contacting a “live” wire may make exposed metal parts of the power tool “live” and could give the operator an electric shock.
4.**Wear safety glasses and hearing protection. Further protective equipment for head, hands, legs and feet is recommended.** Adequate protective clothing will reduce personal injury by flying debris or accidental contact with the saw chain.
5.**Do not operate a chainsaw in a tree.** Operation of a chainsaw while up in a tree may result in personal injury.
6.**Do not allow other persons to be near the chainsaw when starting or cutting with the chainsaw.** Keep bystanders and animals out of the work area. Do not start cutting until you have a clear work area, secure footing, and a planned retreat path from the falling tree.
7.**When cutting a limb that is under tension be alert for spring back.** When the tension in the wood fibres is released the spring loaded limb may strike the operator and/or throw the chainsaw out of control.
8.**Use extreme caution when cutting brush and saplings.** The slender material may catch the saw chain and be whipped toward you or pull you off balance.
9.**Carry the chainsaw by the front handle with the engine stopped, the guide bar and saw chain to the rear, and the muffler away from your body. When transporting or storing the chainsaw always fit the guide bar cover.** Proper handling of the chainsaw will reduce the likelihood of accidental contact with the moving saw chain.
10.**Follow instructions for lubricating, chain tensioning and changing accessories.** Improperly tensioned or lubricated

lubricated chain may
either break or increase the chance for kickback.
11.Keep handles dry, clean, and free from oil and grease. Greasy, oily handles are slippery causing loss of control.
12. **Cut wood only. Do not use chainsaw for purposes not intended.**
For example: do not use chainsaw for cutting plastic, masonry or non-wood building materials.
Use of the chainsaw for operations different than intended could result in a hazardous situation.
13. Kickback may occur when the nose or tip of the guide bar touches an object, or when the wood closes in and pinches the saw chain in the cut. Tip contact in some cases may cause a lightning-fast reverse reaction, kicking the guide bar up and back toward the operator. Pinching the saw chain along the top of the guide bar may push the guide bar rapidly back toward the operator. Either of these reactions may cause you to lose control of the saw, which could result in serious personal injury. Do not rely exclusively upon the safety devices built into your saw.

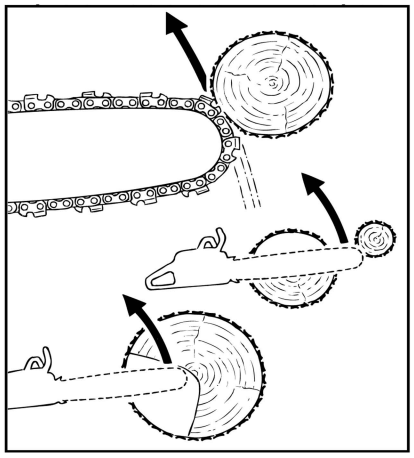


Figure 1: Kickback phenomenon

As a chainsaw user, you should take several steps to keep your cutting jobs free from accident or injury.
a) With a basic understanding of kickback, you can reduce or eliminate the element of surprise. Sudden surprise contributes to accidents.
b) Keep a good firm grip on the saw with both hands, the right hand on the rear handle and the left hand on the front handle, when the engine is running. Use a firm grip with thumbs and fingers encircling the chainsaw handles. A firm grip will help reduce kickback and maintain control of the saw. Don‘t let go.
c) Make sure that the area in which you are cutting is free from obstructions. Do not let the nose of the guide bar contact a log, branch, or any other obstruction that could be hit while you are operating the saw.
d) Cut at high engine speeds.
e) Do not overreach or cut above shoulder height.
f) Follow the manufacturer’s sharpening and maintenance instructions for the saw chain.
g) Only use replacement bars and chains specified by the manufacturer or the equivalent.
Decreasing the depth gauge height can lead to increased kickback.
14.Maintain labels and nameplates on the tool. These carry important safety information.
If unreadable or missing, contact manufacturer for a replacement.
15.Do not leave the tool unattended when it is running. Turn off the tool before leaving the work area.
16.This product is not a toy. Keep it out of reach of children.

17.People with pacemakers should consult their physician(s) before use. Electromagnetic fields in close proximity to heart pacemaker could cause pacemaker interference or pacemaker failure.

18.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.

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.

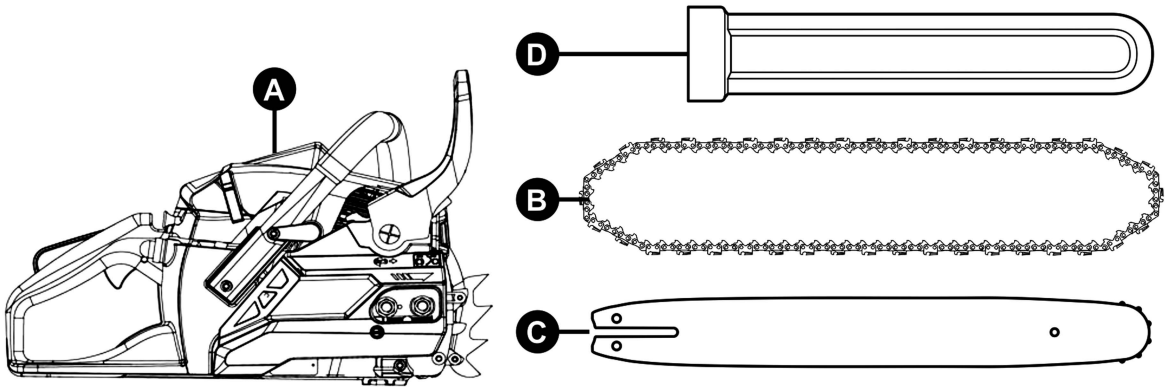
A spark arrestor may be required.

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

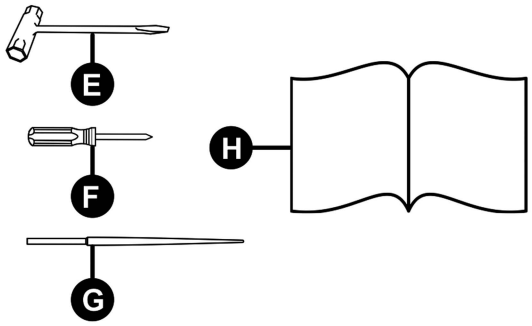
TO PREVENT SERIOUS INJURY FROM ACCIDENTAL STARTING: Make sure that the Engine is switched OFF, wait for the Engine to cool, and unplug the spark plug wire before performing any procedure in this section.

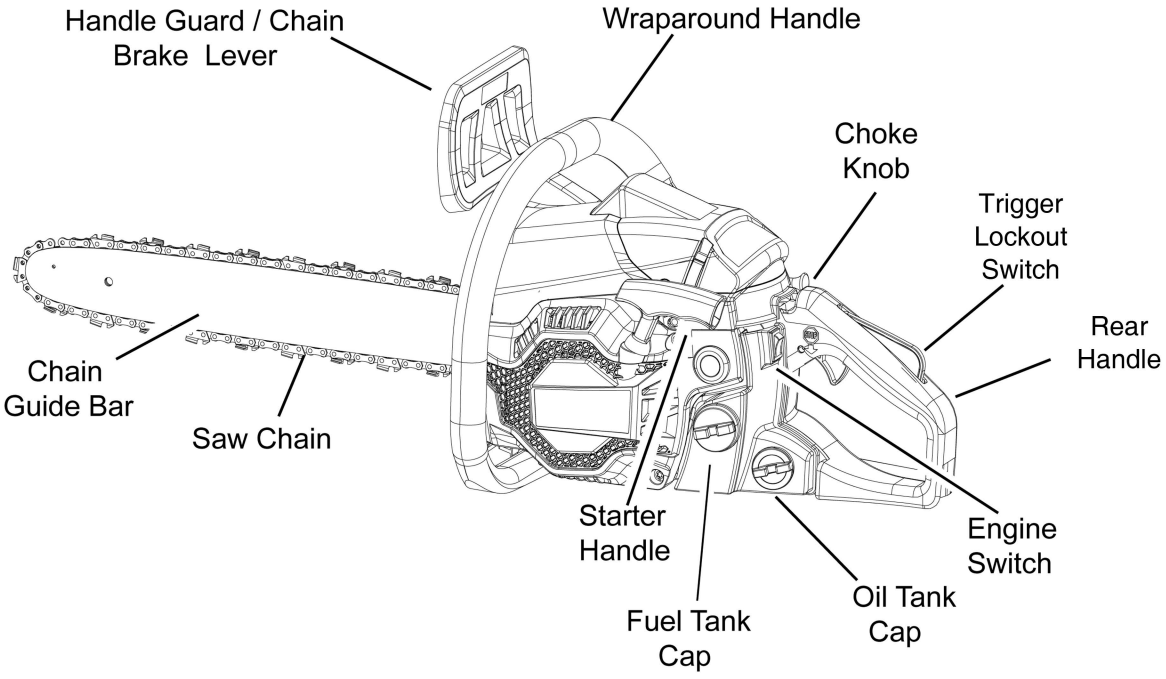
At high altitudes, the engine's carburetor, governor (if so equipped), and any other parts that control the fuel-air ratio will need to be adjusted by a qualified mechanic to allow efficient high-altitude use and to prevent damage to the engine and any other devices used with this product. Contact PRORUN Customer Service.

Components and Controls



PART	DESCRIPTION
A	ENGINE (CHAINSAW ASSY)
B	SAW CHAIN
C	CHAIN GUIDE BAR
D	GUIDE BAR SHEATH
E	SPARK PLUG WRENCH
F	SCREWDRIVER
G	FILE
H	OPERATOR'S MANUAL





Guide Bar and Saw Chain Installation and Adjustment

⚠WARNING

TO PREVENT SERIOUS INJURY FROM ACCIDENTAL OPERATION:
Make sure that the Engine is switched OFF, wait for the Engine to cool, and unplug the spark plug wire before performing any procedure in this section.

Note: New Saw Chains often need to be tensioned several times during first use. Check a new Saw Chain's tension often when first using.

Follow the directions in the following sections for installing the Guide Bar and Saw Chain, for checking and adjusting Saw Chain tension, and for replacing the Saw Chain when necessary.

Guide Bar / Saw Chain Installation/Replacement

1. Pull the Hand Guard / Chain Brake Lever back toward the rear to make sure the chain brake is not on.
2.Loosen and remove the Drive Cover Nuts, then remove the Drive Cover from the Saw.
3.Place the Saw Chain over the Guide Bar. The cutters of the Saw Chain must face away from the Chainsaw along the top edge of the Guide Bar. Fit the Drive Links into the groove around the Guide Bar.

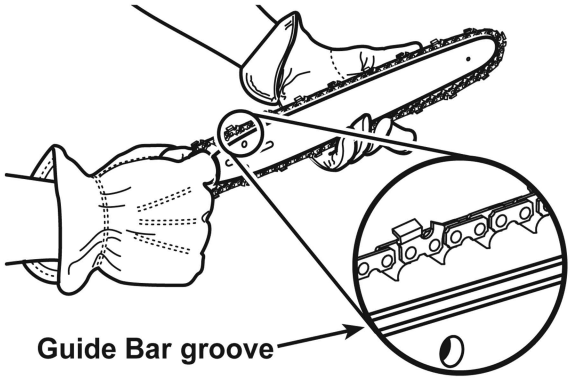


Figure 2: Saw Chain Orientation

4. Place the slotted end of the Chain Guide Bar over the Guide Bar Bolts and place the Saw Chain over the Drive Sprocket. Refer to Figure 3.
5.Check again that the Saw Chain cutters are aligned properly and the Saw Chain Drive Links are seated completely in the slot of the Guide Bar. The cutters of the Saw Chain must face away from the Chainsaw along the top edge of the Guide Bar.

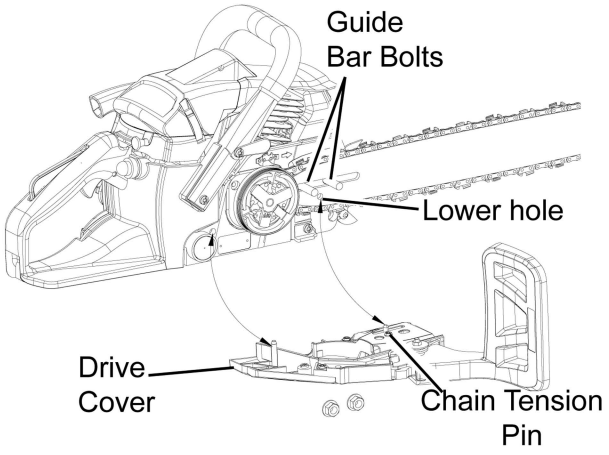


Figure 3:
Installing Guide Bar and Chain

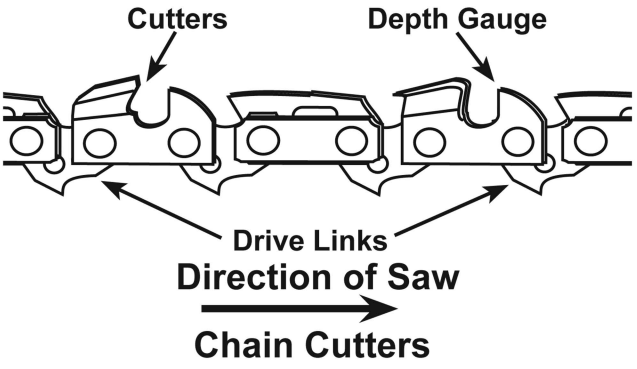


Figure 4: Saw Chain Orientation

6. Replace the Drive Cover, making sure the Chain Tension Pin on the Cover is inserted into the lower hole on the Guide Bar as shown in Figure 2. Replace the Drive Cover Nuts and tighten so that the Cover is snug, but not tight. Tension the Saw Chain following the steps in Checking Saw Chain Tension and Adjusting Saw Chain Tension on page 13.

Checking Saw Chain Tension

1.Before using, check the Saw Chain tension.
2.While wearing heavy-duty gloves, use your index finger and thumb to carefully grab the Saw Chain in the middle section under the Chain Guide Bar.
3.Pull the Saw Chain away from the Guide Bar.
4.The Saw Chain should snap back against the Guide Bar. The Chain should fit snugly in the groove of the Chain Guide Bar, yet you should still be able to slide the chain along the Chain Guide Bar by hand.
5.There should be no sagging between the Guide Bar and Saw Chain on the underside of the Guide Bar.

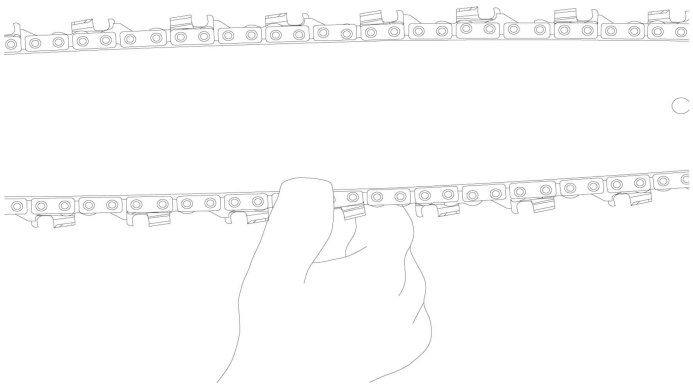
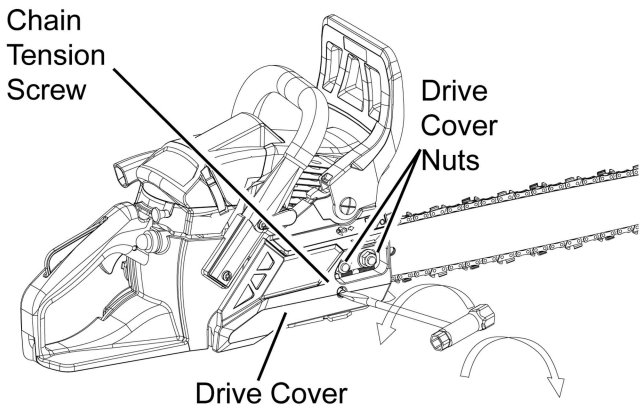


Figure 5: Checking Saw Chain Tension

Adjusting Saw Chain Tension

1.Loosen the Drive Cover Nuts on the Drive Cover. It is not necessary to remove the Drive Cover to adjust chain tension.

2.Turn the Chain Tension Screw clockwise to increase chain tension and counterclockwise to decrease tension.



3.Tighten the Drive Cover Nuts on the Drive Cover while holding the Chain Guide Bar up.

4.Check the Saw Chain tension again following steps 2 through 5 under Checking Saw Chain Tension above. If needed, repeat the adjusting steps to achieve the correct tension.

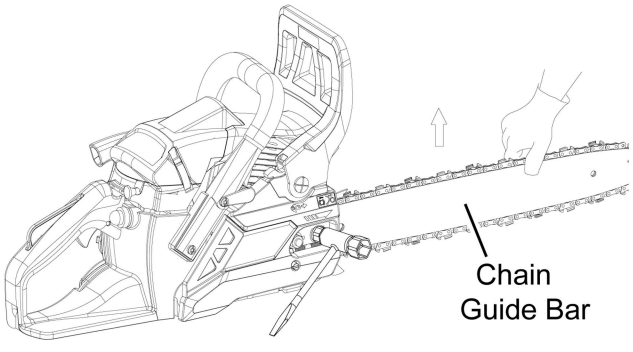


Figure 6:
Adjusting Saw Chain Tension

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 Saw Chain Tension

Inspect 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.

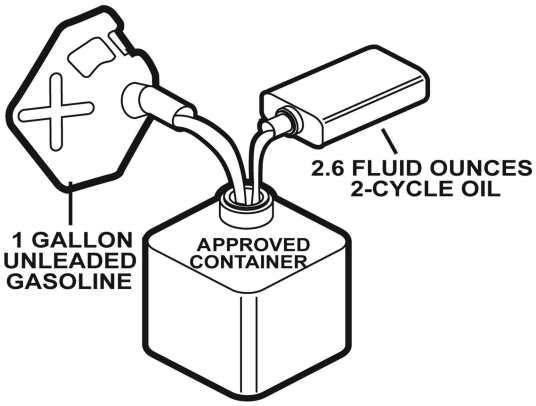


Figure 7: Fuel-Oil Mixture

3.To obtain the proper gasoline and 2-cycle oil mixture, mix **2.6 fluid ounces of 2-cycle oil with 1 gallon of unleaded gasoline** into an approved container. Then gently agitate the container to thoroughly mix the gasoline/2-cycle oil.
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 chainsaw at least 10 feet (3 m) from the fueling point before starting the engine.

Starting the Engine

Before 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.To start a cold Engine or first start of the day, ensure the Guide Bar and Saw Chain are not touching or near any object as Chain will spin during startup. Push the Hand Guard / Chain Brake Lever forward to engage the chain brake.

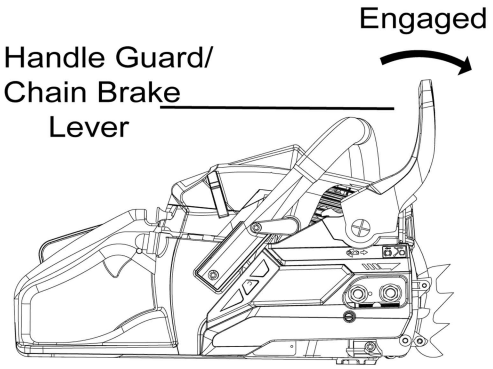


Figure 8: Lock the Handle Guard

2.Put the engine switch to the "I" position.

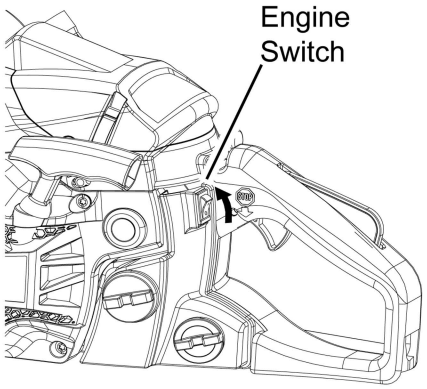


Figure 9: Put the Engine Switch

3.Press the Prime Bulb up to 10 times until the Bulb begins to fill with fuel.

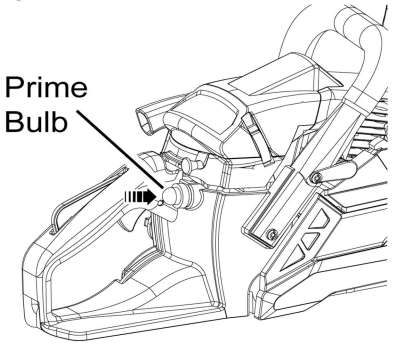


Figure 10:
Press on the Prime Bulb

4.Pull out the Choke Knob to the START (closed) position.

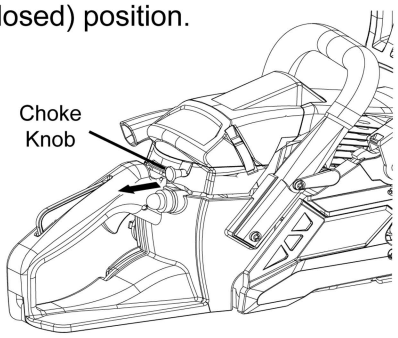


Figure 11:
Pull Out the Choke Knob

5.Hold the Chainsaw securely on the ground. Firmly grasp the Starter Handle and pull it rapidly until the Engine sputters.

Note: Do not let the Starter Handle snap back against the Engine. Hold it as it recoils so it doesn’t hit the Engine.

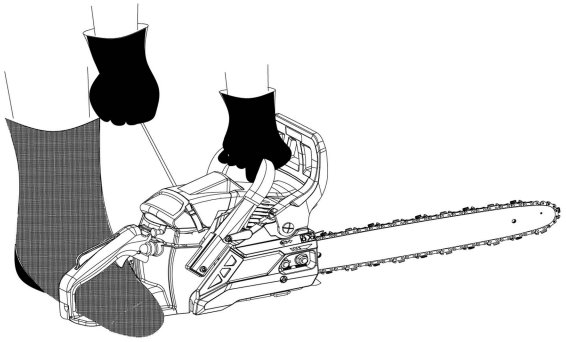


Figure 12: Starting the Engine

6.Press back the Choke Knob to the RUN (open) position—this will partially engage the throttle to assist starting.

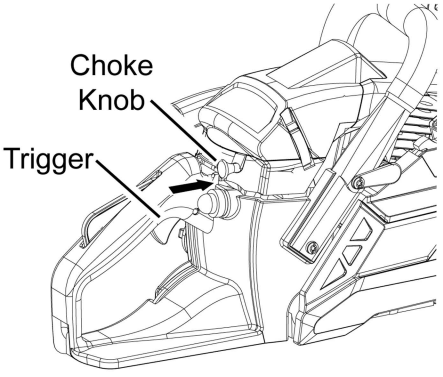


Figure 13:
Press Back the Choke Knob

Pull the Starter Handle rapidly until the Engine starts. Immediately disengage the chain brake by pulling back on the Hand Guard / Chain Brake Lever.
Caution! The Saw Chain will immediately start spinning with the Engine running at partial throttle. Allow the Engine to run at partial throttle for 5 seconds. Quickly squeeze and then release the trigger to disengage the throttle assist and allow the Engine to idle.Allow the Engine to warm up at idle for 60 seconds after each start-up so that the Engine can stabilize before use.

To Restart a Warm Engine

Follow the starting instructions above with the following exception:
Omit the portion of Step 5 which states — Firmly grasp the Starter Handle and pull it rapidly until the Engine sputters — and proceed to Step 6.

To SWITCH BETWEEN OPERATING MODES

1. Flip the engine switch to turn off the engine.
2. Remove the cover to the air filter, remove the air filter, and then remove the choke knob from the cylinder cover.
3. Loosen the screws holding the cylinder cover in place (i.e., the three screws on the inside and the one screw on the outside of the cover), and then remove the cylinder cover.
4. Press with your finger down on the icing cap located on the right-hand side of the cylinder cover to remove the icing cap.
5. Adjust the icing cap so that the “snow” mark faces upwards and then return it to its original position in the cylinder cover.
6. Fix the cylinder cover back into its original position, and then fix all other parts back into their proper positions.

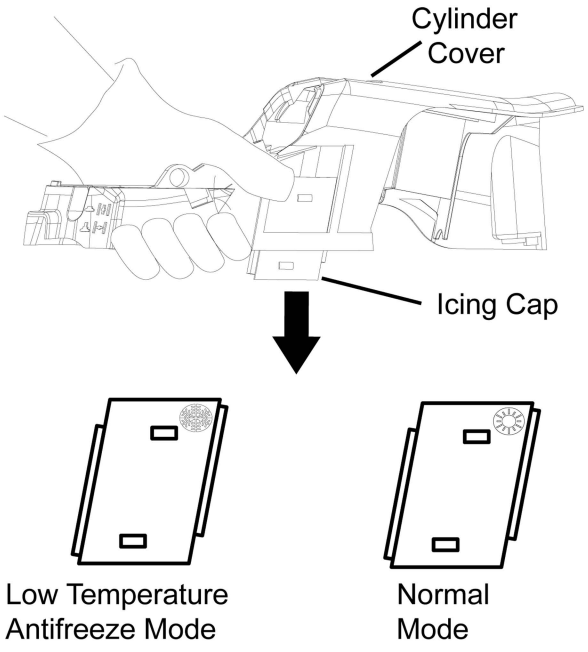


Figure 14:
Exchange the Icing Cap

Stopping the Engine

1.To stop the engine in an emergency, release the Trigger and press the Stop Engine Switch.

2.Under normal conditions, use the following procedure:

a. Release the Trigger.
b. Let Engine idle 3 to 5 minutes.
c. Press the Stop Engine Switch.

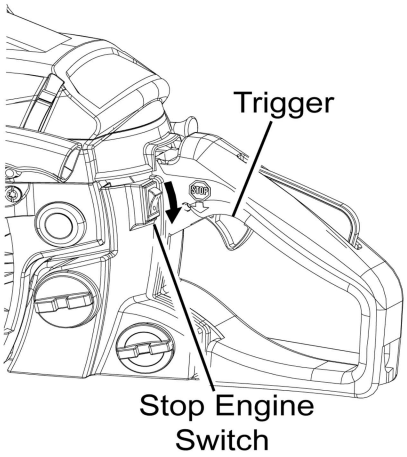


Figure 15: Stop the Engine

Workpiece and Work Area Set Up

1.Designate a work area that is clean and well lit. The work area must not allow access by children or pets to prevent distraction and injury.
2.There must not be objects, such as utility lines, nearby that will present a hazard while working.
3.A first-time user should, as a minimum practice, cut logs on a saw-horse or cradle before cutting down trees.

General Operating Instructions

1.Before first use and before each use thereafter, remove the Oil Tank Cap. Inspect the Cap Gasket for damage. Fill the Oil Tank to just below fill plug with oil (not included). Refer to Specifications chart on page 30 for oil type. Then replace the Oil Tank Cap. Oil is automatically applied to the Saw Chain during operation.

2.Start the Engine as detailed in Starting the Engine on page 14. If necessary, adjust Engine idle speed so Saw Chain does not rotate at idle. To adjust, turn the Idle Adjusting Screw (T) counterclockwise to lower idle speed until Chain does not turn. Refer to Figure 16.

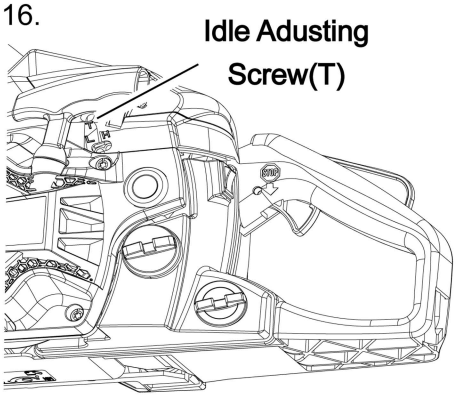


Figure 16: Idle Adjusting Screw

3.Place the Hand Guard / Chain Brake Lever in normal operating (disengaged) position by pulling the Hand Guard back toward the Handle. Refer to Figure 17.**Note:** The Chainsaw will not operate unless the Hand Guard / Chain Brake Lever is in the disengaged position.

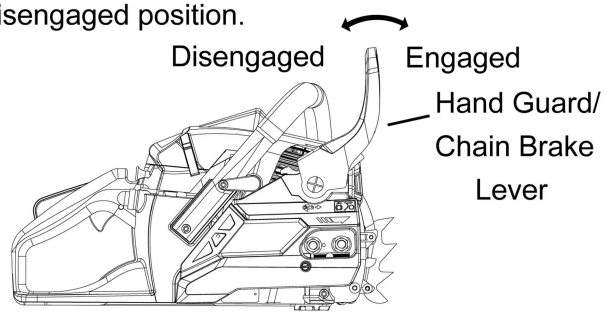


Figure 17: Hand Guard/Chain Brake Lever

4.Grasp the Handles with both hands. Always grip the handle with the thumb and fingers encircling the handle as shown in Figure 18.

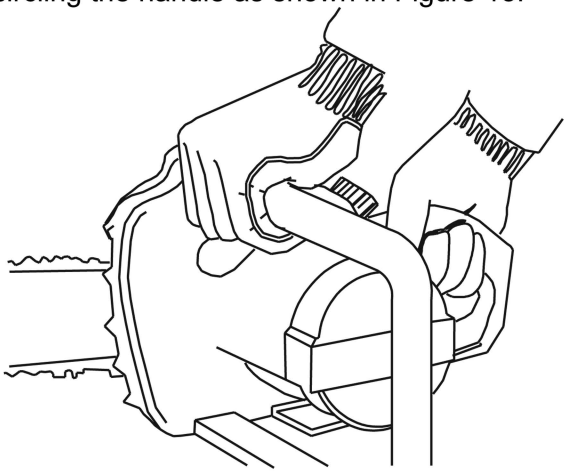


Figure 18: Holding the Chainsaw

Note: Front Hand Guard not shown.
5.Stand in front of the wood to be cut with your feet firmly in place.
6.Grasp the Rear Handle to activate the Trigger Lockout Switch, then squeeze and hold the Trigger. Releasing the Trigger will return the Engine to idling speed.
Note: The Trigger cannot be activated unless the Trigger Lockout Switch is depressed.
DANGER! To prevent serious injury and death from kickback: Do not touch the Guide Bar Nose to the wood.
7.When the Chainsaw reaches full speed, begin cutting with a light, downward pressure against the bottom mid-section of the Saw Chain. Allow the Saw Chain to cut at its own rate. Applying too much pressure can damage the tool.
DANGER! To prevent serious injury and death from kickback: When cutting loose, round wood stock, place the wood stock on a sawhorse, in a cradle, or use a timberjack (all sold separately) to avoid grabbing and throw back.
8.When cutting is complete release the Trigger, allow the Engine to idle 3 to 5 minutes, then press the Stop Engine Switch.

To prevent accidents, place the Hand Guard / Chain Brake Lever forward in its engaged position after use.
9.When the Saw has cooled completely, clean thoroughly and cover the Chain Guide Bar with the Chain Guide Bar Sheath. Store the tool indoors out of children's reach. See Long-Term Storage on page 25 for complete storage instructions.

Instructions concerning the proper techniques for basic felling, limbing, and cross-cutting

When bucking and felling operations are being performed by two or more persons at the same time, the felling operations should be separated from the bucking operation by a distance of at least twice the height of the tree being felled. Trees should not be felled in a manner that would endanger any person, strike any utility line or cause any property damage. If the tree does make contact with any utility line, the company should be notified immediately.
The chainsaw operator should keep on the uphill side of the terrain as the tree is likely to roll or slide downhill after it is felled.
An escape path should be planned and cleared as necessary before cuts are started. The escape path should extend back and diagonally to the rear of the expected line of fall as illustrated in Figure 19.
Before felling is started, consider the natural lean of the tree, the location of larger branches and the wind direction to judge which way the tree will fall.
Remove dirt, stones, loose bark, nails, staples and wire from the tree.

The Spiked bumper must always be put on while using the chainsaw on tree trunk. Push the spiked bumper into the tree trunk by using the rear handle. Push the front handle in the direction of cutting line. The spiked bumper must be remaining set for further saw guiding if necessary. Use a spiked bumper when cutting trees and thick branches can ensure your safety and decrease the working strength and vibration level.
If there's debris between the cutting material and chainsaw, turn off the machine. Wait until it stops completely. Wear the safety glove and remove the debris. If the chain must be removed, please follow the instruction of relevant part like installation in manual. A trial run must be conducted after the cleaning and re-installation. If vibration or mechanical noise is discovered, please stop the use and contact your dealer. Contact PRORUN Customer Service.

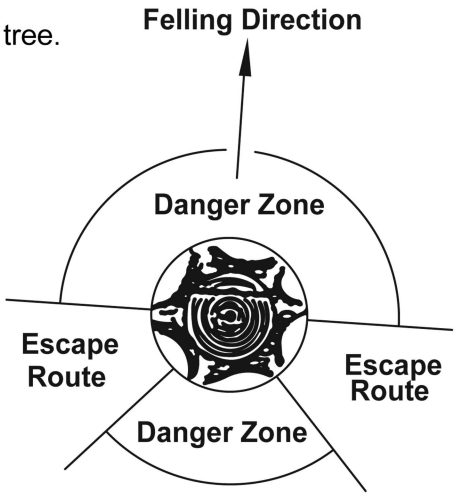


Figure 19: Escape Routes

Notching Undercut

Make the notch 1/3 the diameter of the tree, perpendicular to the direction of falls as illustrated in Figure 20. Make the lower horizontal notching cut first. This will help to avoid pinching either the saw chain or the guide bar when the second notch is being made.

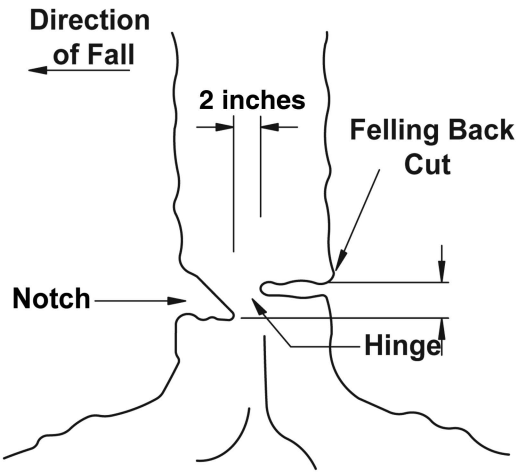


Figure 20: Undercutting

Felling Back Cut

Make the felling back cut at least 2 inches higher than the horizontal notching cut as illustrated in Figure 19. Keep the felling back cut parallel to the horizontal notching cut. Make the felling back cut so enough wood is left to act as a hinge. The hinge wood keeps the tree from twisting and falling in the wrong direction. Do not cut through the hinge.
As the felling gets close to the hinge, the tree should begin to fall.If there is any chance that

the tree may not fall in desired direction or it may rock back and bind the saw chain, stop cutting before the felling back cut is complete and use wedges of wood, plastic or aluminium to open the cut and drop the tree along the desired line of fall.
When the tree begins to fall remove the chainsaw from the cut, stop the motor, put the chainsaw down, then use the retreat path planned. Be alert for overhead limbs falling and watch your footing.

Limbing a Tree

Limbing is removing the branches from a fallen tree. When limbing leave larger lower limbs to support the log off the ground. Remove the small limbs in one cut as illustrated in Figure 21. Branches under tension should be cut from the bottom up to avoid binding the chainsaw.



Keep work off ground leave support limbs until log is cut
Figure 21: Tree Limbing

Bucking a Log

Bucking is cutting a log into lengths. It is important to make sure your footing is firm and your weight is evenly distributed on both feet. When possible, the log should be raised and supported by the use of limbs, logs or chocks. Follow the simple directions for easy cutting.
When the log is supported along its entire length as illustrated in Figure 22, it is cut from the top (overbuck).

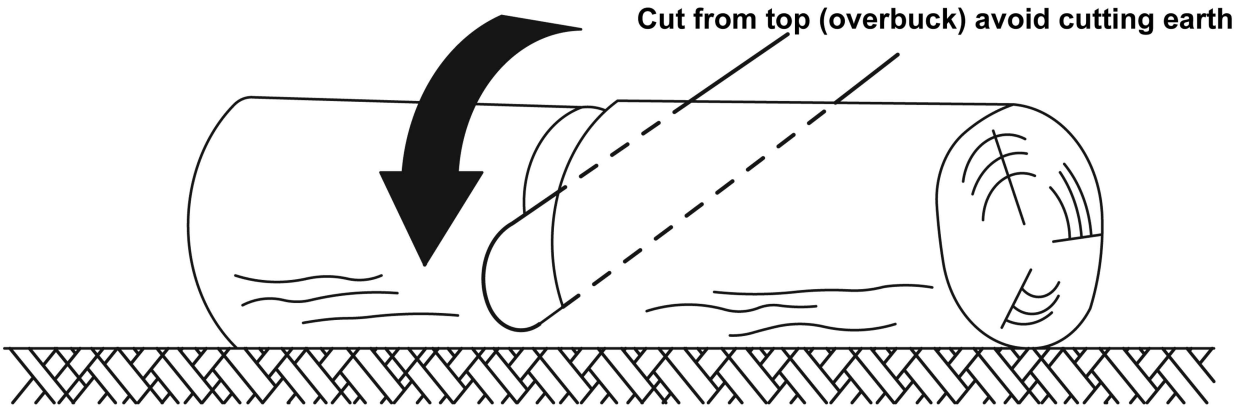


Figure 22: Log Supported Along the Entire Length

When the log is supported on one end, as illustrated in Figure 23, cut 1/3 the diameter from the underside (underbuck). Then make the finished cut by overbucking to meet the first cut.

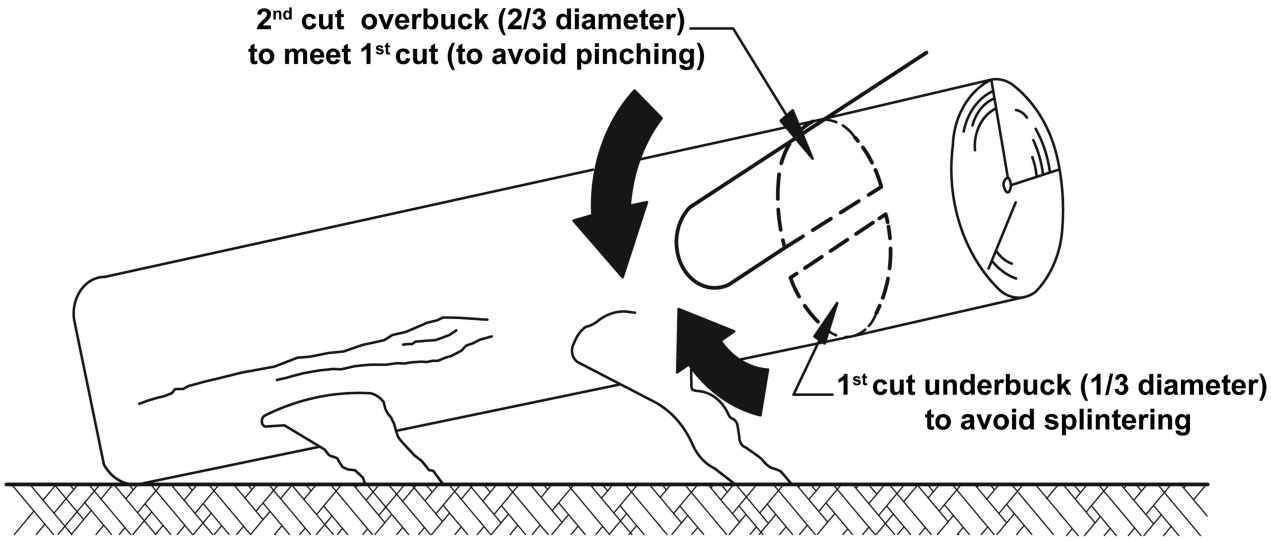


Figure 23: Log Supported One End

When the log is supported on both ends, as illustrated in Figure 24 cut 1/3 the diameter from the top (overbuck). Then make the finished cut by underbucking the lower 2/3 to meet the first cut.

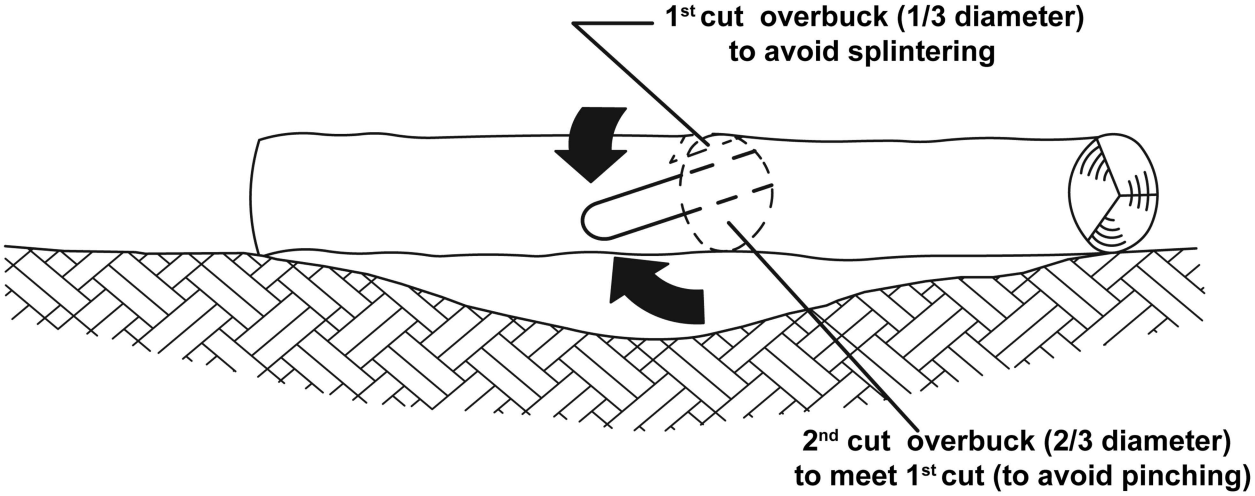
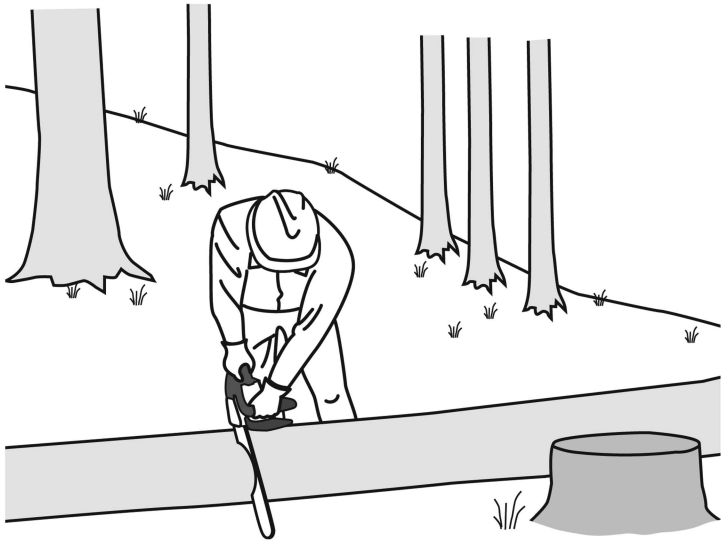


Figure 24: Log Supported Both Ends

When bucking on a slope always stand on the uphill side of the log, as illustrated in Figure 25. When “cutting through”, to maintain complete control release the cutting pressure near the end of the cut without relaxing your grip on the chainsaw handles. Don’t let the chain contact the ground. After completing the cut, wait for the saw chain to stop before you move the chainsaw. Always stop the motor before moving from tree to tree.



Stand on uphill side when cutting because log may roll

Figure 25: Bucking a Log

⚠WARNING

WARNINGTO 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, contact PRORUN Customer Service and have an approved technician service the equipment instead.

Cleaning, Maintenance, and Lubrication

1.**BEFORE EACH USE**, inspect the general condition of the tool. Check for:

- loose hardware
- misalignment or binding of moving parts
- cracked or broken parts
- dull or damaged saw chain
- any other condition that may affect its safe operation.

2.**BEFORE FIRST USE AND BEFORE EACH USE THEREAFTER**, make sure the Oil Tank is filled with oil (not included). Refer to Specifications Chart on page 30 for oil type.

3.**IF THE SAW CHAIN BECOMES LOOSE,** adjust the Saw Chain tension as described under Adjusting Saw Chain Tension on page 13.

4.**PERIODICALLY OR WHEN REPLACING SAW CHAIN**, turn the Chain Guide Bar over to distribute the wear on it. Replace the Guide Bar when bent, cracked, or when the Saw Chain moves excessively from side to side on the Guide Bar due to wear. Refer to Chain Guide Bar Care on page 23.
WARNING! TO PREVENT SERIOUS INJURY: Replace the Saw Chain and Guide Bar only with an identical Saw Chain and Guide Bar.

5.**AFTER USE**, when the Saw has cooled completely, clean thoroughly and cover the Chain Guide Bar with the Chain Guide Bar Sheath. Do not use solvents. Do not immerse this tool in liquid. Store the tool indoors out of children's reach. See Long-Term Storage on page 25 for complete storage instructions.

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, contact PRORUN Customer Service and have an approved 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 outside of engine	✓					
Check engine fuel/oil mixture level	✓					
Change fuel filter					✓	✓
Clean air filter			✓*	✓	✓	✓
Check and clean spark plug				✓	✓	✓
Check/adjust idle speed	✓					
1. Clean fuel tank and carburetor 2. Clean carbon build-up from combustion chamber					✓**	✓**
Replace fuel line if necessary						✓**

* Service more frequently when used in dusty areas.

** Contact PRORUN Customer Service. These items should be services by an authorized service technician.

Periodic Maintenance or When Replacing Saw Chain:

a.Clean and lubricate Chain Guide Bar and turn over.

b.Deburr Guide Bar as needed.

c.Check Chain Sprocket for wear or damage.

Monthly Maintenance:

Clean Chain Oil Tank.

If Worn or Damaged:

a. Replace Chain Guide Bar if it becomes worn, bent or damaged.

b. Sharpen or replace Saw Chain.

Sharpening/Replacing the Saw Chain

<u>CAUTION!</u> Wear heavy-duty work gloves when handling the Saw Chain.

1.For smooth and safe operation, always keep the Saw Chain cutters sharp.

2.Have the cutters sharpened by a qualified technician when you notice any of the following symptoms:

a. The sawdust becomes powder-like.

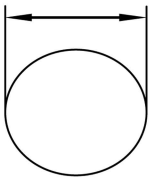
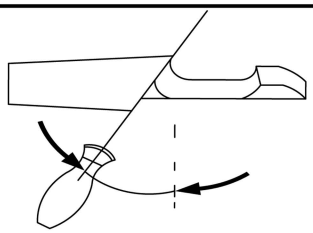
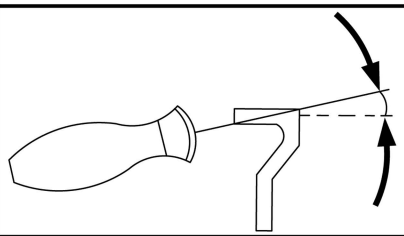
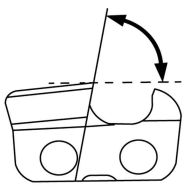
b. You can't make the cut without extra force.

c. The Chainsaw does not cut straight.

d. Vibration increases.

3.A Saw Chain that is damaged or too worn to be restored to a usable condition by sharpening will need to be replaced. Refer to Guide Bar / Saw Chain Installation/Replacement on page 12.

<u>WARNING!</u> TO PREVENT SERIOUS INJURY: Replace the Saw Chain only with an identical Saw Chain. Don't use a replacement saw chain unless it has been designated as meeting the kickback performance requirements in ANSI/OPEI B175.1-2012 on that specific power head. A low-kickback saw chain is a chain that has met the kickback performance requirements of ANSI/OPEI B175.1-2012 when tested according to the provisions specified in ANSI/OPEI B175.1-2012.

File diameter	Top plate angle	Down angle	Side angle
			
5/32 inch	30°	0°	80°

Chain Guide Bar Care

1.Remove the Chain Guide Bar periodically to clean and lubricate.

2.Deburr rails of Guide Bar as needed. Use a flat file to make side edges square.

3.Remove sawdust and sap from the Bar Groove using a Guide Bar cleaning tool (sold separately), then lubricate the nose sprocket at the ports with grease.

4.Reverse the Guide Bar when replacing the Saw Chain to prevent uneven wear.

5.The rails of the Guide Bar groove should always be parallel to each other. Place a ruler along the surface of the Guide Bar and Saw Chain. If there is a gap, the bar is normal.

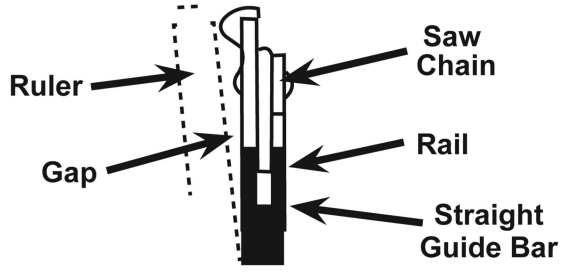


Figure 26: Normal Guide Bar

If the ruler is flush with the Guide Bar and Saw Chain, or the Chain tilts to one side, then the Bar is worn and needs to be replaced.

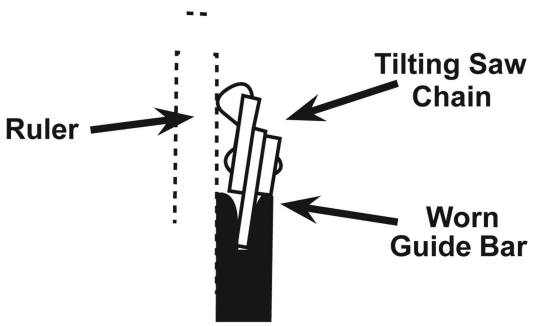


Figure 27: Worn Guide Bar

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.

3.To obtain the proper gasoline and 2-cycle oil mixture, mix **2.6 fluid ounces of 2-cycle oil with 1 gallon of unleaded gasoline** into an approved container. Then gently agitate the container to thoroughly mix the gasoline/2-cycle oil.

4.If needed, fill the Fuel Tank with the pre-mixed unleaded gasoline/2-cycle oil mixture. Do not fill fuel above the bottom of the Fuel Tank fill neck.

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.

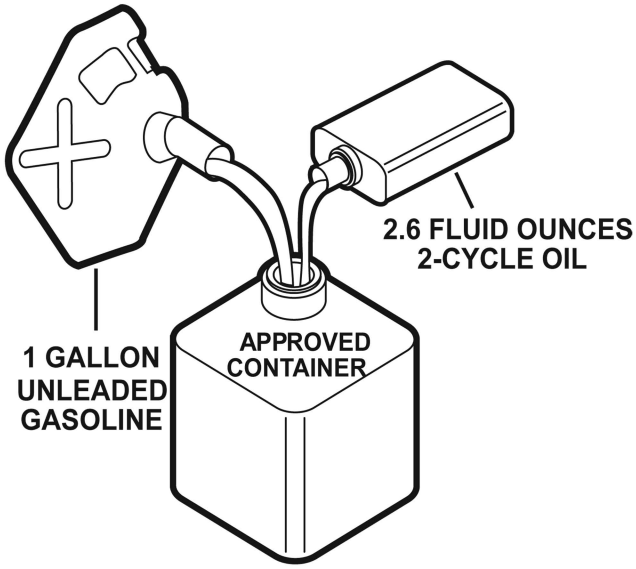


Figure 28: Fuel-Oil Mixture

Spark plug Maintenance

1.Remove the Air Filter Cover.

2.Disconnect Spark Plug Cap from end of plug. Clean out debris from around Spark Plug.

3.Using a spark plug wrench, remove the Spark Plug.

4.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®	L8RTF
Champion®	RCJ7Y
NGK®	BPMR7A

NOTICE: Using an incorrect spark plug may damage the engine.

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

6. 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.

7.Reattach the Spark Plug Cap securely.

Air Filter Maintenance

1. Remove the Air Filter Cover and the Air Filter and check for dirt. Clean or replace as described below.

2.To prevent injury from dust and debris, wear ANSI-approved safety goggles, NIOSH-approved dust mask/respirator, and heavy-duty work gloves. Remove dust on the Filter surface by tapping a corner of the Filter against a hard surface. In a well-ventilated area away from bystanders, use pressurized air to blow dust out of the Filter from the inside.

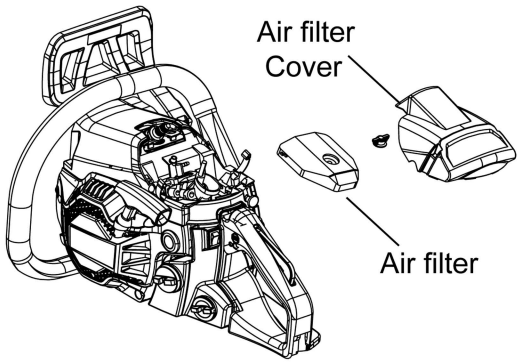


Figure 29: Air Fileter Maintenance

3.Install the new or cleaned filter. Reinstall and secure the Air Filter Cover before use.

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.

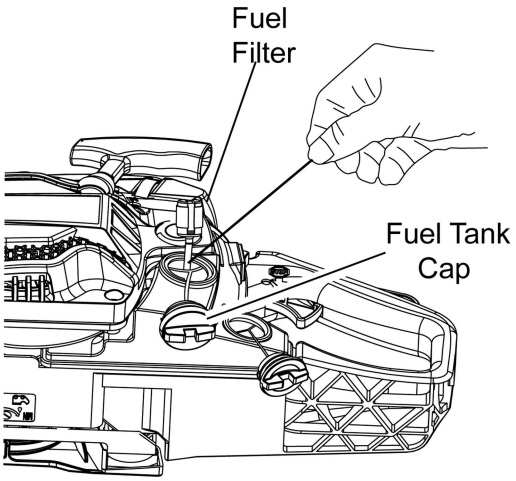


Figure 30: Fuel Filter Maintenance

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.

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:**



⚠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.

a.Remove the Fuel Tank Cap and drain any remaining fuel into an approved storage container.

b.Press the Prime Bulb 10 times.

c.Drain any residual fuel into the storage container.

d.Start the Engine and run at idle until the Engine stalls from lack of fuel.

e.Replace Fuel Tank Cap and tighten securely.

3.**LUBRICATION:**

a.Clean out area around spark plug. Remove spark plug and pour 1/2 tablespoon of 2-stroke 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).

d.Remove all residual bar and chain oil from the Oil Tank.

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 after storage, follow the procedures in Pre-Start Checks on page 14. If using pre-mixed fuel that has been stored, keep in mind that during storage some of the gasoline in the fuel evaporates while the 2-stroke oil does not, altering the gasoline-to-oil mix ratio. Running the Engine with an improper mixture WILL permanently damage the Engine. Use freshly mixed fuel when starting the Engine after storage.

Troubleshooting

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

Follow all safety precautions whenever diagnosing or servicing the equipment or engine. Contact PRORUN Customer Service.

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. Contact PRORUN Customer Service and have an approved 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. Contact PRORUN Customer Service and have an approved technician diagnose and service engine.
After sudden impact, engine will run, but equipment will not operate	Shaft key or other shear pin broken by impact to disconnect engine and limit damage.	Contact PRORUN Customer Service and have an approved technician check and replace broken shaft key or other shear pins.
Engine runs, but Chain does not rotate.	1.Chain tension too tight. 2.Guide Bar and/or Chain damaged. 3.Chain drive sprocket worn. 4.Chain brake is engaged.	1.Adjust Saw Chain tension. 2.Inspect Guide Bar and Chain for damage. Replace Guide Bar and Chain if necessary. 3. Contact PRORUN Customer Service and have an approved technician service tool. 4.Disengage the chain brake.

Follow all safety precautions whenever diagnosing or servicing the equipment or engine. Contact PRORUN Customer Service.

Problem	Possible Causes	Probable Solutions
Engine runs, Chain rotates but does not cut or cuts poorly.	1.Saw Chain not tensioned properly. 2.Saw Chain dull. 3.Saw Chain installed backwards.	1.Tension Saw Chain properly. 2.Sharpen Saw Chain or replace. 3.Reverse direction of Saw Chain.
Chain comes off Guide Bar.	1.Chain tension too loose. 2.Guide Bar and Chain not installed correctly.	1.Adjust Saw Chain tension. 2.Review and correct Guide Bar and Chain installation.
Guide Bar and Chain running hot	1.Chain tension too tight. 2.Oil Tank empty.	1.Adjust Saw Chain tension. 2.Check/refill Oil Tank.

Follow all safety precautions whenever diagnosing or servicing the equipment or engine. Contact PRORUN Customer Service.

Specifications.

Power Unit			PCS216/PCS216C	PCS214/PCS214C
Engine	Displacement		40.1cc	37.2cc
	Engine Type		Single Cylinder 2-stroke	
	Cooling System		Forced air cooled	
	Fuel	Type	87+ octane stabilizer-treated unleaded gasoline containing no more than 10% ethanol (E10) mixed with 2-Stroke oil (see below)	
		Capacity	13.2 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	
	Bore x Stroke		40.1mm x 31.1 mm	39mm x 31.1 mm
	Compression Ratio		7.5 : 1	
	Spark Plug	Type	Champion® RCJ7Y / Bosch® L8RTF / NGK® BPMR7A	
		Gap	0.02 inch	
	Speed	Idle	3000 ± 400RPM	
Chainsaw	Saw Chain	Length	16 inches	14 inches
		Pitch	0.375 inch	
		Gauge	0.050 inch	
		Model	Oregon 91P057X	Oregon 91P053X
	Guide Bar	Length	16 inches	14 inches
		Model	Oregon160SDEA041	Oregon140SDEA041
	Lubrication	Type	Bar and chain oil	
		Capacity	7.1 fl. oz.	

Parts List and Diagram

Part List for Base Until

No.	Description	Qty
1	Right Cap Assembly	1
2	Screw M5x40	1
3	Baffle Casing	1
4	Heavy Hammer Casing	1
5	Bezel	1
6	Heavy Hammer	1
7	Heavy Hammer Torsion Spring	1
8	Brake Torsion Spring	1
9	Washers 5.2x23x1.2	1
10	Nut M5	1
11	Spring Seat	1
12	Front Bezel Spring	1
13	Tensioner Cover Plate	1
14	Pin 3x14	1
15	Main Lever	1
16	Secondary Pull-Rod	1
17	Pin 3x9	3
18	Brake Control Rod	1
19	Brake Springs	1
20	Brake Strap	1
21	Self-Tapping Screw ST4.2x10	3
22	Brake Spring Cover Plate	1
23	Self-Tapping Screw ST4.2x10	2
24	Clutch Cover	1
25	Tensioning Gears	1
26	Tensioner Screws	1
27	Tensioning Block	1
28	Nameplate	1
29	Nut M8	2
30	Buckle	2
31	Clasp Fixed Plate	2
32	Air Filter Cover	1
33	Air Filter	1
34	Upper Cover Plate Assembly	1
35	Top Cover Plate	1
36	Aluminum Partition	1
37	Aluminum Partition	1
38	Antifreeze Block	1
39	Self-Tapping Screw ST4.8x16	8

No.	Description	Qty
40	Shock Absorber	1
41	Dust Shield	1
42	Retaining Bracket	1
43	Choke Knob	1
44	Starter Assembly	1
45	Self-Tapping Screw ST4.8x14	1
46	Large Washer	1
47	Starting Ratchet Wheel	1
48	Coil Spring	1
49	Starter Pull Cord	1
50	Start Plate	1
51	Starter Spring Cover	1
52	Starter Coil Spring	1
53	Starter Handle	1
54	Pull Cord Sheath	1
55	Self-Tapping Screw ST4.2x12	1
56	Starter Cover Lining	1
57	Starter Cover Housing	1
58	Self-Tapping Screw ST4.8x19	1
59	Deflectors	1
60	Dust Cover	1
61	Stopper Block Screws	2
62	Screw M5x14	1
63	Shock Mount	1
64	Right Dust Cover	1
65	Handle Torsion Spring	1
66	Handle	1
67	Cover Plate	1
68	Self-Tapping Screw ST4.8x25	4
69	Balancer Body Assembly	1
70	Balancer Holder	1
71	Oil Tank Base Assembly	1
72	Fuel Lines	1
73	Return Tube	1
74	Fuel Pipe Base	1
75	Balancing Weights	1
76	Fuel Filter	1
77	Base	1
78	Base Pull Spring	1

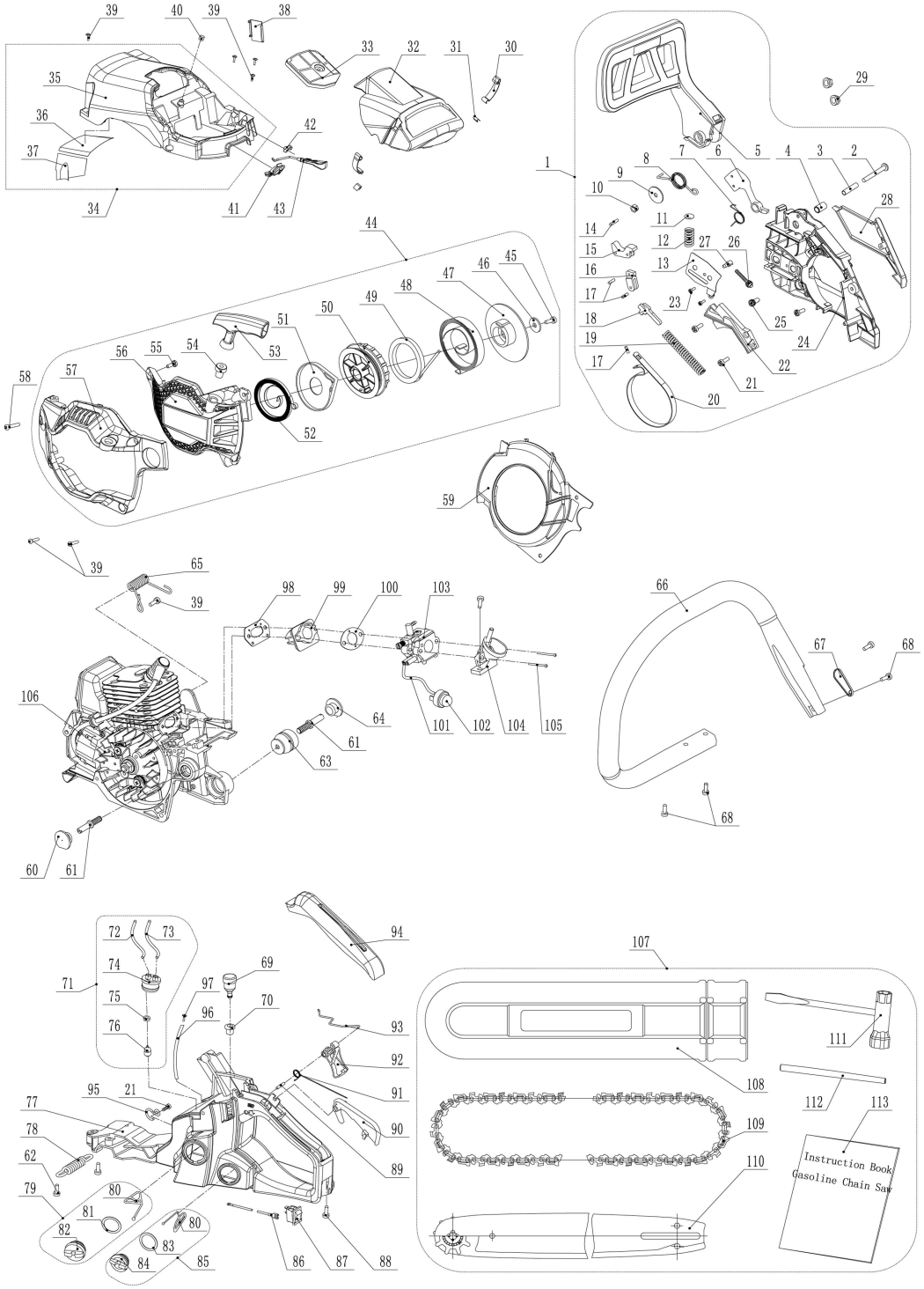
Parts List and Diagram

Part List for Base Until

No.	Description	Qty
79	Fuel Port Cap Assembly	1
80	Anti-Drop Plate	1
81	O-Type Rubber Seals 24.7x34x1.5	1
82	Fuel Port Cap	1
83	O-Type Rubber Seal 19x3.5	1
84	Oil Port Cap	1
85	Oil Port Cap Parts	1
86	Ground Wire	1
87	Flame-Out Switch	1
88	Self-Tapping Screw ST4.8x25	1
89	Pin 5x25	1
90	Trigger Control Arm	1
91	Trigger Torsion Spring	1
92	Trigger	1
93	Throttle Rod	1
94	Handle Cover	1
95	Oil Nozzle Retaining Ring	1
96	Snorkel 3.5x6.5x65	1

No.	Description	Qty
97	Self-Tapping Screw ST4x14	1
98	Air Intake Gasket	1
99	Air Intake Tube	1
100	Carburetor Gasket	1
101	Pump Tubing (2.5x5x175)	1
102	Primer Pump	1
103	Carburetor	1
104	Air Intake Socket	1
105	Screw	2
106	Engine Base	
107	Accessory Tool	1
108	14 Inch Bar And Chain Cover	1
109	14 Inch Saw Chain	1
110	14 Inch Guide Bar	1
111	Plug Wrench	1
112	File	1
113	Operator's Manual	1

Assembly Diagram for Base Until

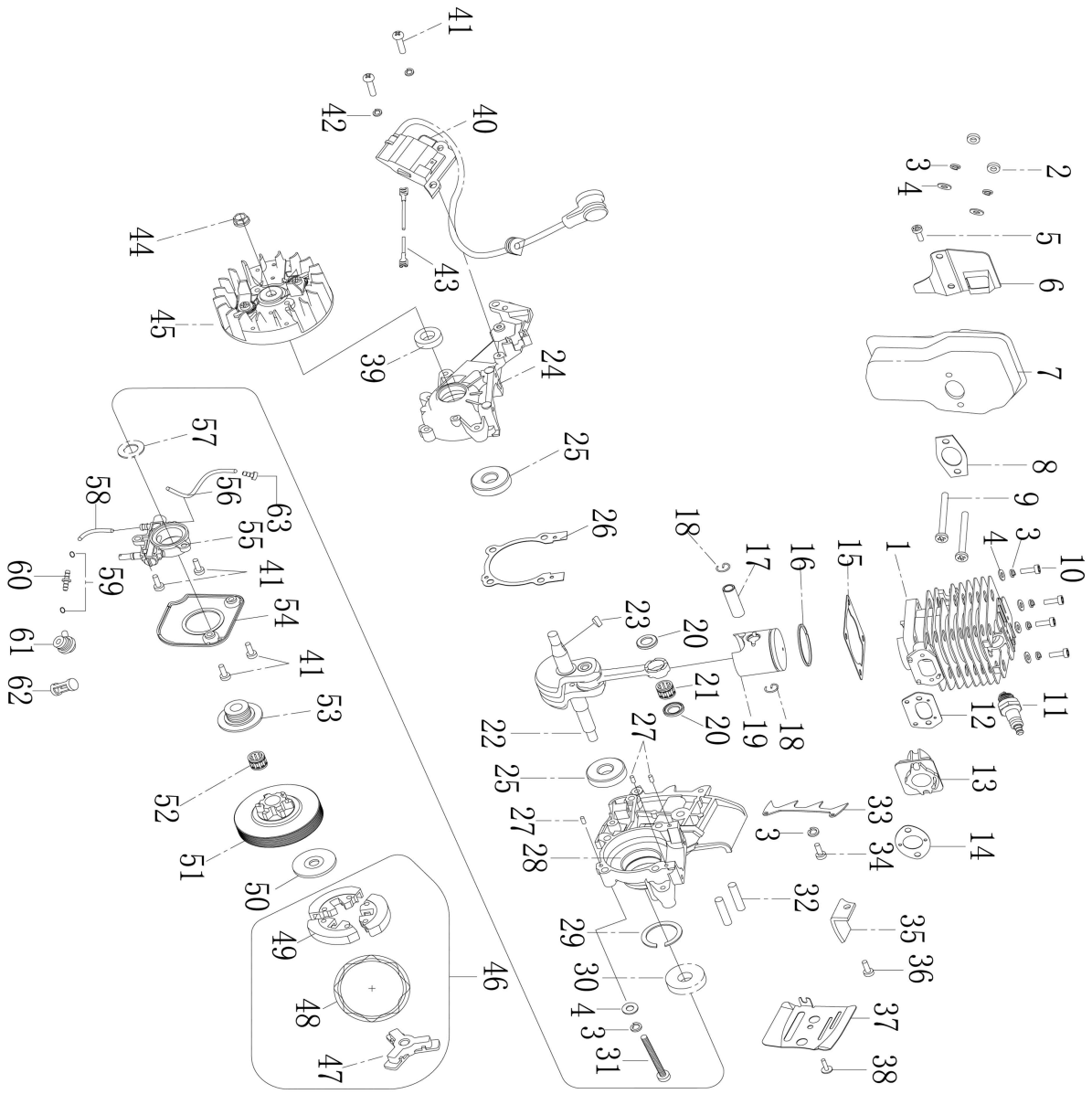


Part List for Engine

No.	Description	Qty
1	Cylinder Body	1
2	Nut M5	3
3	Lock Washer 5	2
4	Flat Washer 5	2
5	Screw M5×14	1
6	Muffler Cover Plate	1
7	Muffler	1
8	Muffler Sealing Gasket	1
9	Muffler Connecting Screw	2
10	Screw M5×20	4
11	Spark Plug	1
12	Gasket	1
13	Air Intake Tube	1
14	Gasket	1
15	Gasket	1
16	Piston Ring	1
17	Piston Pin	1
18	Piston Pin Circlip	2
19	Piston	1
20	Needle Bearing Ring	2
21	Needle Bearing	1
22	Crank Shaft	1
23	Semicircular Key	1
24	Crankcase LH	1
25	Bearing 6201 Grade D	2
26	Gasket	1
27	Pin	3
28	Crankcase RH	1
29	Shield Ring 32	1
30	Oil Seal 12×32×5.5	1
31	Screw M5x30	4
32	Double-Screw	2

No.	Description	Qty
33	Spiked Bumper	1
34	Screw M5×12	1
35	Chain Catcher	1
36	Chain Catcher Screw	1
37	Damper	1
38	Screw M4×10	1
39	Oil Seal 12×22×7	1
40	Igniter	1
41	Screw M4×14	6
42	Washer 4	2
43	Extinction Conductor	1
44	Nut M8×1	1
45	Flywheel Assembly	1
46	Clutch Assembly	1
47	Retainer	1
48	Clutch Extension Spring	1
49	Shoe Block	3
50	Clutch Adjusting Washer	1
51	Clutch Shell	1
52	Needle Bearing 10×13×13	1
53	Worm	1
54	Cover Plate	1
55	Oil Pump	1
56	Oil Outgoing Tube	1
57	Worm Washer 10x18x1	1
58	Oil Ingoing Tube	1
59	Oil Tube Clip	2
60	Oil Tube Tie-In	1
61	Nozzle	1
62	Oil Filter Screen	1
63	Oil Spray Nozzle	1

Assembly Diagram for Engine



Emissions Control System Warranty

Zhejiang Zhongjian Technology Co., Ltd., CALIFORNIA AND FEDERAL EMISSION CONTROL WARRANTY STATEMENT YOUR WARRANTY RIGHTS AND OBLIGATIONS

The U.S. Environmental Protection Agency (EPA), the California Air Resources Board (CARB), and Zhejiang Zhongjian Technology Co., Ltd (hereinafter called Zhongjian), are pleased to explain the Emissions Control System Warranty on your new 2020/2021 small off-road engine. In California, new equipment that uses small off-road engines must be designed, built, and equipped to meet the state's stringent anti-smog standards. In other states, new small off-road engine must be designed, built and equipped at the time of sale to meet the U.S. EPA regulations for small off-road engines. The small off-road engine must be free from defects in materials and workmanship which cause it to fail to conform with U.S. EPA standards for the first two years of engine use from the date of sale to the ultimate purchaser. Zhongjian, must warrant the emission control system on your small off-road engine for the period of time listed above provided there has been no abuse, neglect, or improper maintenance of your small off-road engine.

Your emission control system may include parts such as the carburetor or fuel injection system, the ignition system, catalytic converters, fuel tanks, valves, filters, clamps, connectors, fuel lines, fuel caps, canisters, vapor hoses, and other associated components. Also included may be hoses, belts and connectors, and other emission-related assemblies.

MANUFACTURER'S WARRANTY COVERAGE

This 1995 and later small off-road emissions control system is warranted for two years. If any emission-related part on your engine is defective, the part will be repaired or replaced by Zhongjian.

OWNER'S WARRANTY RESPONSIBILITIES

(a) As the small off-road engine owner, you are responsible for the performance of the required maintenance listed in your operator's manual. Zhongjian, recommends that you retain all receipts covering maintenance on your small off-road engine, but Zhongjian, cannot deny warranty solely for the lack of receipts or for your failure to ensure the performance of all scheduled maintenance.

(b) As the small off-road engine owner, you should be aware, however, that Zhongjian, may deny you warranty coverage if small off-road engine or a part has failed due to abuse, neglect, improper maintenance, or unapproved modifications.

(c) You are responsible for presenting your small off-road engine to a service center as soon as a problem exists. The warranty repairs should be completed in a reasonable amount of time, not to exceed 30 days.

If you have any questions regarding your warranty rights and responsibilities, you should contact a Zhongjian, Customer Representative at [Phone Number] or [website determined by brand].

DEFECT WARRANTY COVERAGE REQUIREMENTS:

(a) The warranty period begins on the date the engine or equipment is delivered to an ultimate purchaser.

(b) General Emissions Warranty Coverage. Zhongjian, warrants to the ultimate purchaser and each subsequent purchaser that your small off-road engine is designed, built, and equipped at the time of sale to conform with all applicable regulations adopted by the California Air Resources Board or the United States Environmental Protection Agency; and that it is free from defects in materials and workmanship which cause the engine to fail to conform with applicable regulations for a period of two years from the date the small off-road engine is purchased by the initial purchaser. Any replacement part or service that is equivalent in performance and durability may be used in non-warranty maintenance or repairs, and shall not reduce the warranty obligations of Zhongjian.

(c) The warranty on emissions-related parts will be interpreted as follows: Any warranted part that is not scheduled for replacement as required in the Maintenance Schedule is warranted for two

years. If any such part (including any part that is scheduled only for regular inspection) fails during the period of warranty coverage, it will be repaired or replaced at any [BRAND] ® Authorized Service Center at no charge. Any such part repaired or replaced under warranty will be warranted for the remaining warranty period. A statement to the effect of “repair or replace as necessary” would not reduce the period of warranty coverage. Any warranted part that is scheduled for replacement as required maintenance in the Maintenance Schedule is warranted for the period of time prior to the first scheduled replacement point for that part. Any such part repaired or replaced under warranty is warranted for the remainder of the period prior to the first scheduled replacement point, and will be repaired or replaced at any [BRAND]® Authorized Service Center for no charge until that replacement point is reached.

Zhongjian shall remedy warranty defects at any authorized [BRAND] ® Authorized Service Center, including any distribution center that may be franchised to service the subject engines. Any diagnostic work done at a [BRAND] ® Authorized Service Center shall be free of charge to the owner if such work determines that a warranted part is defective. Any manufacturer-approved or equivalent replacement part may be used for any warranty maintenance or repairs on emission-related parts, and must be provided free of charge to the owner if the part is still under warranty. Zhongjian, is liable for damages to other engine components caused by the failure of a warranted part still under warranty.

Add-on or modified parts that are not exempted by the California Air Resource Board may not be used. The use of any non-exempted add-on or modified parts will be grounds for disallowing a warranty claim. Zhongjian, will not be liable to warrant failures of warranted parts caused by the use of a non-exempted add-on or modified part.

The Emission Parts List specifically defines the emission-related warranted parts. Zhongjian, will provide any documents that describe its warranty procedures or policies within five days upon request by the California Air Resources Board.

EMISSIONS PARTS LIST (IF EQUIPED)

Exhaust Emissions

Fuel Metering System	Carburetor and internal parts (and/or pressure regulator or fuel injection system)
	Air/fuel ratio feedback and control system
	Cold start enrichment system
Air Induction System	Controlled hot air intake system
	Intake manifold
	Air filter
Ignition System	Spark Plugs
	Magneto or electronic ignition system
	Spark advance/retard system
Exhaust Gas Recirculation (EGR) System	EGR valve body, and carburetor spacer if applicable
	EGR rate feedback and control system
Air injection System	Air pump or pulse valve
	Valves affecting distribution of flow
	Distribution manifold
Catalyst or Thermal Reactor System	Catalytic converter
	Thermal reactor
	Exhaust manifold
Particulate Controls	Traps, filters, precipitators, and any other device used to capture particulate emissions
Miscellaneous items Used in Above Systems	Vacuum, temperature, and time sensitive valves and switche
	Electronic controls
	Hoses, belts, connectors, and assemblies

Evaporative Emissions

(1)	Fuel Tank	(10)	Vacuum Control Diaphragms**
(2)	Fuel Cap	(11)	Control Cables**
(3)	Fuel Line	(12)	Control Linkages**
(4)	Fuel Line Fittings	(13)	Purge Valves
(5)	Clamps**	(14)	Vapor Hoses
(6)	Pressure Relief Valves**	(15)	Liquid/Vapor Separator
(7)	Control Valves**	(16)	Carbon Canister
(8)	Control Solenoids**	(17)	Canister Mounting Brackets
(9)	Electronic Controls**	(18)	Carburetor Purge Port Connector

**Note: As they relate to the evaporative emission control system.

Zhongjian, will furnish with each new engine written instructions for its maintenance and use by the owner.

PRORUN regularly improves our products, and you may find slight differences between your machine and 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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