

5131-005

BENCHMARK™

3" 212cc GAS POWERED WOOD CHIPPER



USER MANUAL



This product is supported by **Midland Power**. Contact us directly for assistance and warranty help. Do not return this product to store.

You must register online for your warranty to be valid. It only takes a minute, do it now while you still have your purchase receipt.

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Support for your product is available online, including parts, service center locations, and live expert advice.

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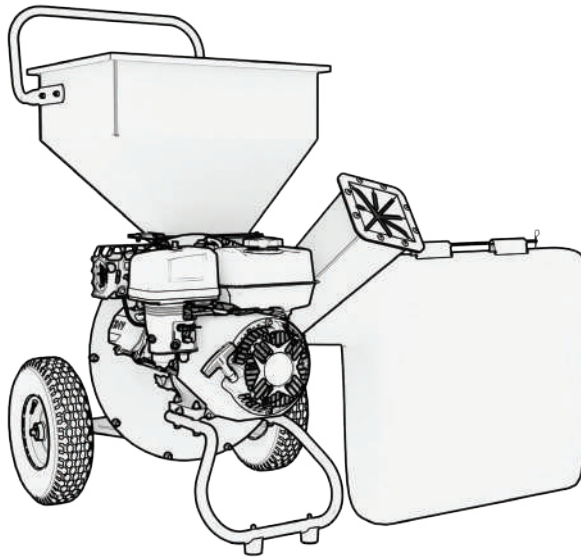
Or call us anytime at **1-877-528-3772**.

Thanks for choosing Benchmark!

You're excited to get started, we'll keep this brief.

READ THIS ENTIRE GUIDE BEFORE USING THIS PRODUCT AND SAVE FOR LATER USE.

This user guide contains important instructions including safety, setup, operation, and maintenance that must be followed. All information in this guide is based on information available at the time of print. This guide or revised editions can be found on our website for download. No part of this publication may be reproduced without written permission.



THIS PRODUCT MEETS ALL CERTIFICATION REQUIREMENTS FROM:



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

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5131-005_Manual_FR_2025-08-20

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1. SAFETY

1.1 WOOD CHIPPER SAFETY

WARNING!

The wood chipper is designed and intended only for cutting wooden logs and sticks under 3 inches in diameter into wood chips, and is not intended for any other purpose.

Only allow operators who are responsible, trained, familiar with these instructions, and physically capable operate the machine. If it is misused or not properly maintained, it can be dangerous. Remember you are responsible for your safety and those around you.

This wood chipper is capable of amputating hands and feet, and throwing objects. Hand contact with the rotating impeller inside the discharge chute is the most common cause of injury associated with wood chippers.

- This machine is capable of throwing objects that could injure bystanders or cause damage to buildings.
- When leaving the operating position always disengage the wood chipper, and turn off the engine. Never leave a running machine unattended.
- Never operate the wood chipper without proper guards, and other safety protective devices in place and working.
- Be careful when operating on or crossing gravel drives, walks, or roads. Stay alert for hidden hazards or traffic.
- Never operate the wood chipper without good visibility or light. Always be sure of your footing, and keep a firm hold on the handles. Walk; never run.
- Be careful to avoid slipping or falling.
- Be careful when operating on slopes.
- After striking a foreign object, stop the engine, remove the wire from the spark plug, thoroughly inspect the wood chipper for any damage, and repair the damage before restarting and operating the wood chipper.
- Do not operate the equipment without wearing adequate garments. Avoid loose fitting clothing that can get caught in moving parts. Wear footwear that will improve footing on slippery surfaces.
- Never touch a hot muffler or engine. Allow muffler and engine cylinder to cool before touching.

1.2 ENGINE SAFETY

⚠ WARNING ⚠
AVERTISSEMENT



TOXIC FUMES HAZARD. Running engines give off carbon monoxide, an odourless poisonous gas that can cause nausea, fainting, or death. Do not start engine indoors or in an enclosed area, even if the windows and doors are open.

DANGER TOXIQUE. Faire fonctionner un moteur dégage de l'oxyde de carbone, un gaz inodore toxique qui peut provoquer la nausée, évanouissement ou la mort. Ne pas démarrer le moteur à l'intérieur ou dans une espace clos, même si les fenêtres et les portes sont ouvertes.

⚠ WARNING!

- Always perform an oil and fuel check before starting the engine.
- Properly clean and maintain the equipment.
- Before operating, read the user guide carefully. Otherwise, personal injuries or equipment damage may result.
- Pay attention to the warning labels. The engine exhaust system will become heated during operation and remain hot immediately after the engine is stopped.
- Gasoline is a highly flammable and explosive liquid. Refuel in a well ventilated area with the engine stopped.
- Use of gasoline with an ethanol content greater than 10% can damage the engine and fuel system and will void the manufacturer's warranty.
- When refueling, keep it away from cigarettes, open flames, smoke and/or sparks.
- Do not touch the spark plug while the engine is operating or shortly after the engine has been shut down.
- Know how to stop the engine quickly and understand operation of all the controls. Never permit anyone to operate the engine without proper instructions.
- Do not operate in rain or snow.
- To avoid breathing in poisonous carbon monoxide from the exhaust gases, adequate ventilation should be provided if running in a partially enclosed space.
- If stored outdoors, check all electrical components before each use. Moisture can damage the electronics and can lead to an electric shock.
- Do not connect an extension to the exhaust pipe.
- If you start to feel sick, dizzy, or weak after the engine has been running, move to fresh air RIGHT AWAY. See a doctor. You could have carbon monoxide poisoning.

1.3 MAINTENANCE SAFETY

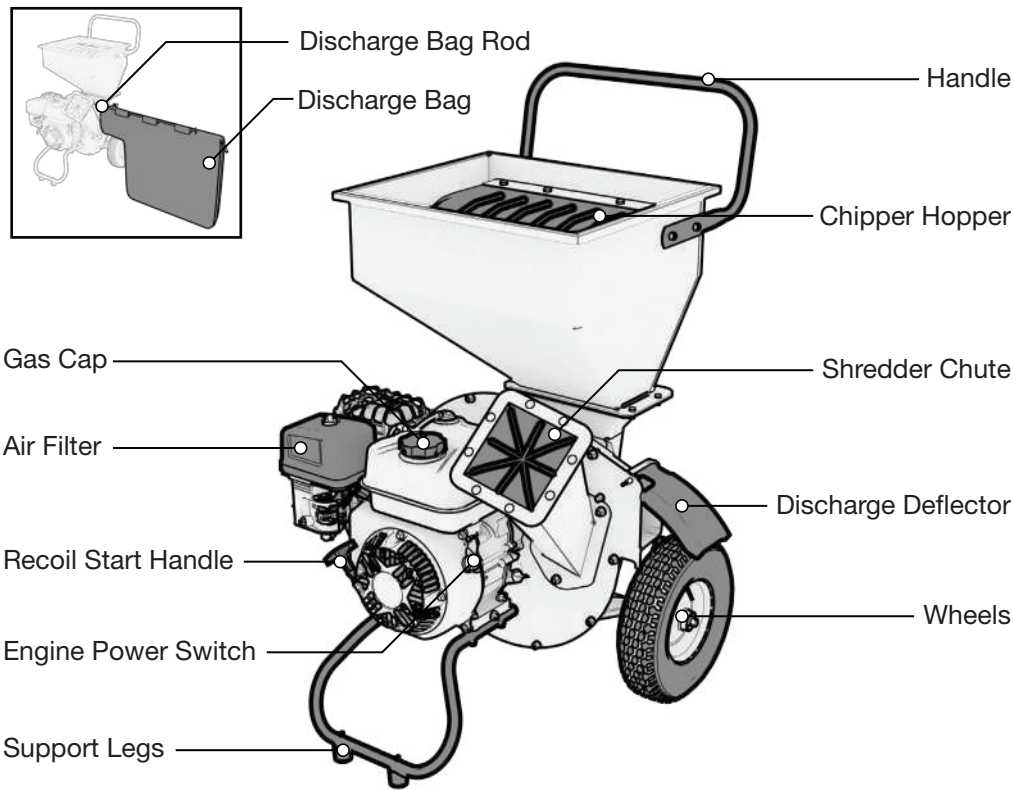
WARNING!

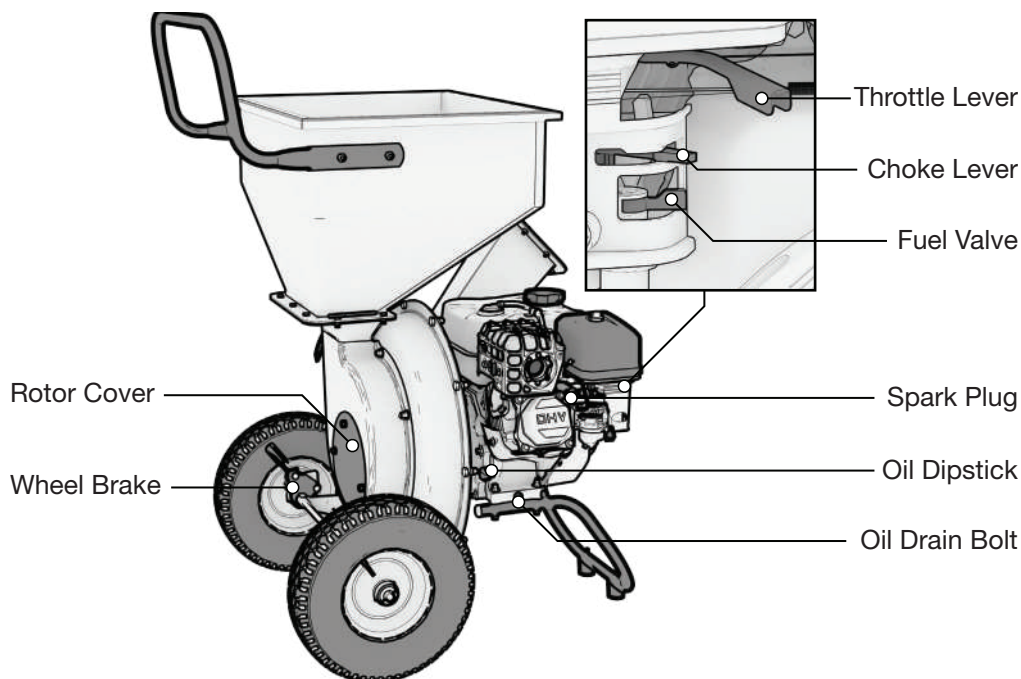
- After any maintenance is performed, wash immediately using soap and clean water because repeated exposure to lubricant may cause skin irritation.
- Allow the engine to cool down and turn off the engine before performing any maintenance. Failure to do so can cause severe personal injury or death.
- Do not clean with a pressure washer.
- Use rubber gloves when coming into contact with engine oil.
- Always stop the engine before removing the oil filler cap.
- Only qualified maintenance personnel with knowledge of fuels, electricity, and machinery hazards should perform maintenance procedures.

2. LEARN ABOUT YOUR WOOD CHIPPER

This section will show you how to identify key parts of your wood chipper. Going over the terminology below will make sure we're on the same page.

2.1 COMPONENT IDENTIFICATION





2.2 CONTROL FUNCTIONS

Chipper Hopper

- Chips branches up to 3 inches in diameter.

Shredder Chute

- Shreds sticks up to 1/2 inch in diameter.

Discharge Deflector

- Adjustable deflector to aim chipper discharge.

Discharge Bag

- Removable bag to hold wood chips.

Wheel Brakes

- Locks and unlocks the wheels of the wood chipper.

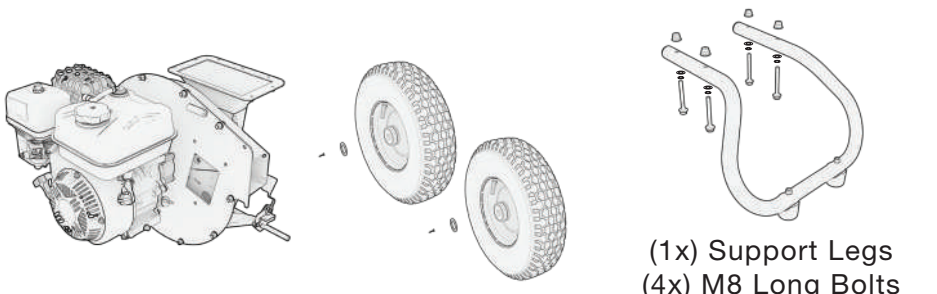
Rotor Cover

- Cover for rotor maintenance and debris cleaning.

2.3 MAKE SURE YOU HAVE EVERYTHING

Make sure your wood chipper has everything listed in the table below.

Pre-Assembled Base

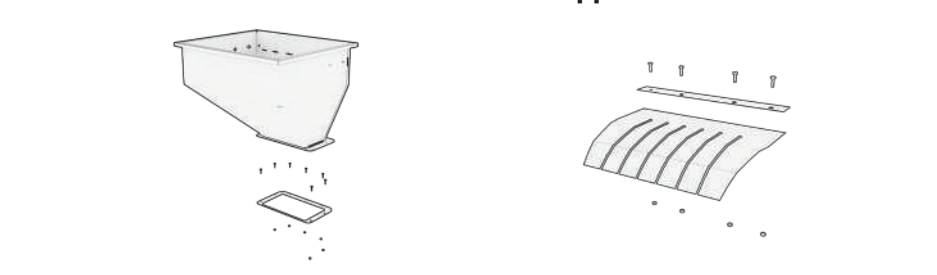


(1x) Chipper
(1x) Engine

(2x) Wheels
(2x) Axle Washers
(2x) Cotter Pins

(1x) Support Legs
(4x) M8 Long Bolts
(4x) M8 Lock Nuts
(4x) M8 Washer
(4x) M8 Spring Washer

Pre-Assembled Hopper



(1x) Chipper Hopper
(1x) Gasket
(7x) M6 Bolts
(7x) M6 Nuts

(1x) Hopper Flap
(1x) Hopper Flap Plate
(4x) M8 Bolts
(4x) M8 Nuts

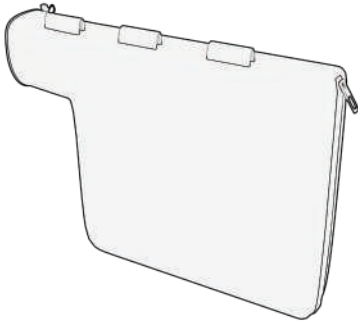
Components



(1x) Handle
(4x) M6 Bolts
(4x) M6 Nuts

(1x) Discharge Deflector
(1x) Adjustment Knob
(1x) M8 Shoulder Bolt
(1x) M8 Flange Nut

(1x) Shredder Chute
(3x) M8 Bolts
(3x) M8 Flange Nuts

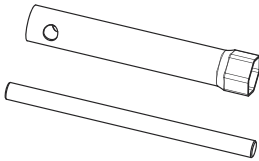


(1x) Discharge Bag

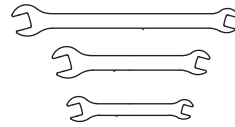


(1x) Discharge Bag Rod
(2x) Locking Pins

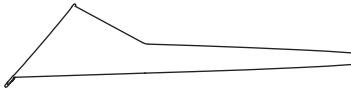
Other



(1x) Spark Plug Wrench
(1x) Spark Plug Wrench Handle



(3x) Wrenches



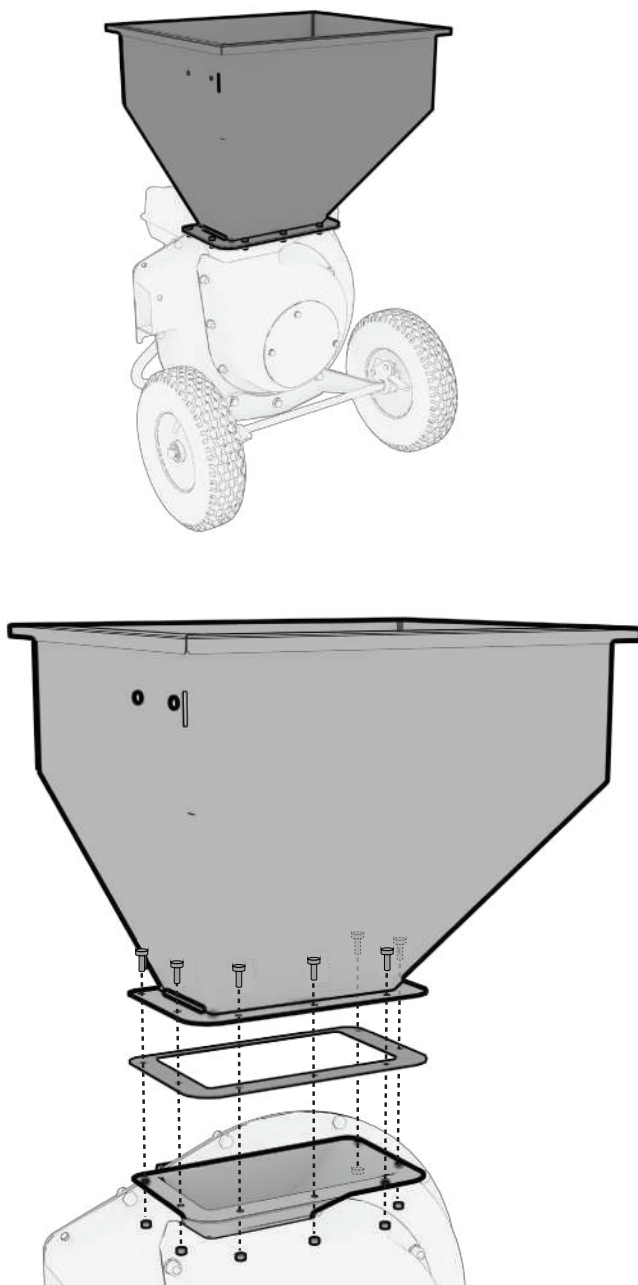
(1x) Funnel



Oil Bottle X 1

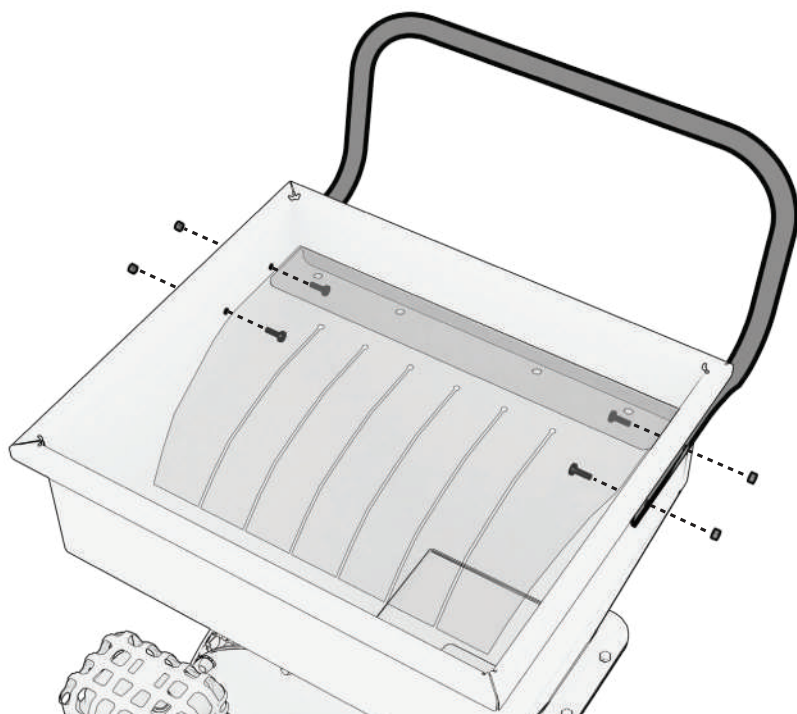
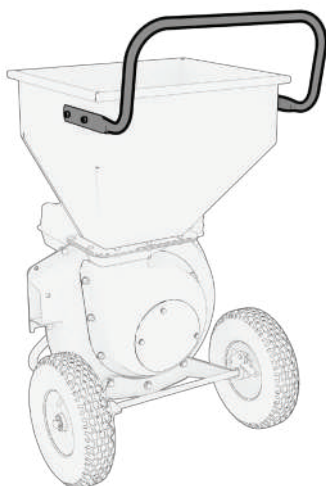
3. ASSEMBLY INSTRUCTIONS

3.1 INSTALLING THE CHIPPER HOPPER



1. Install the Chipper Hopper and Gasket to the Chipper.
Use 7x M6 Bolts and Nuts.

3.2 INSTALLING THE HANDLE

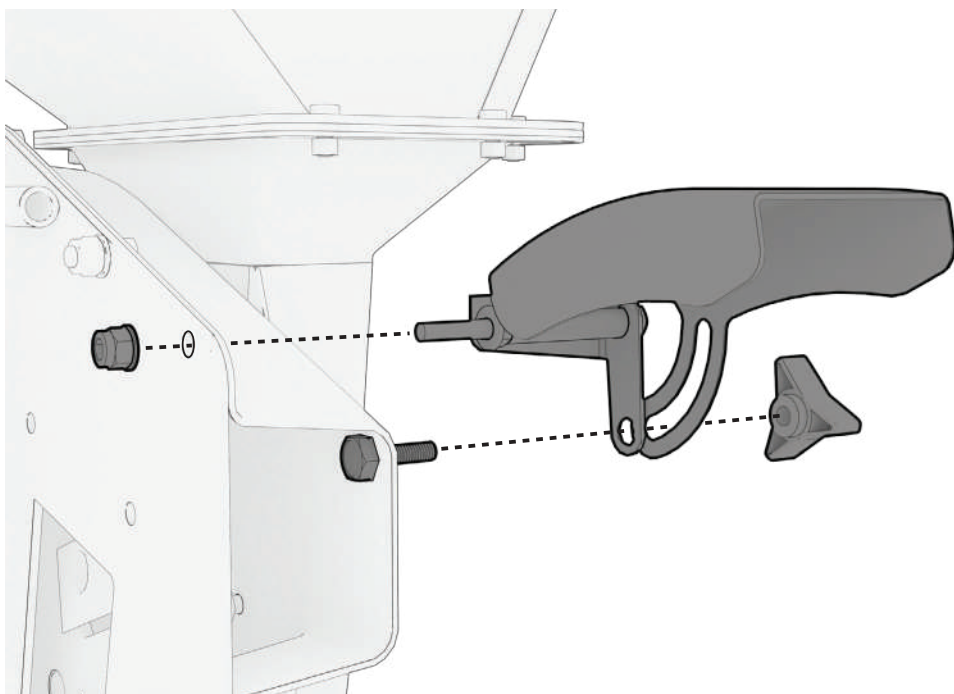
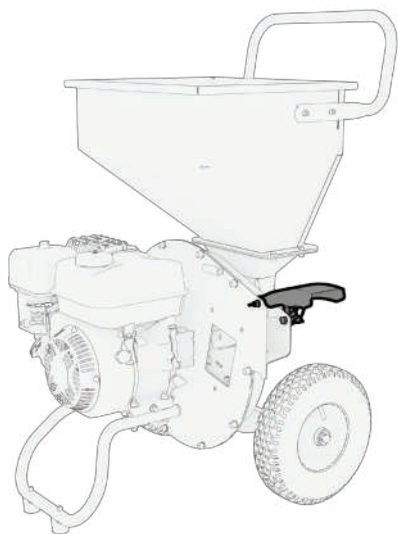


1. Install the Handle to the Hopper.
Use 4x M6 Bolts, and 4x M6 Nuts.

NOTE

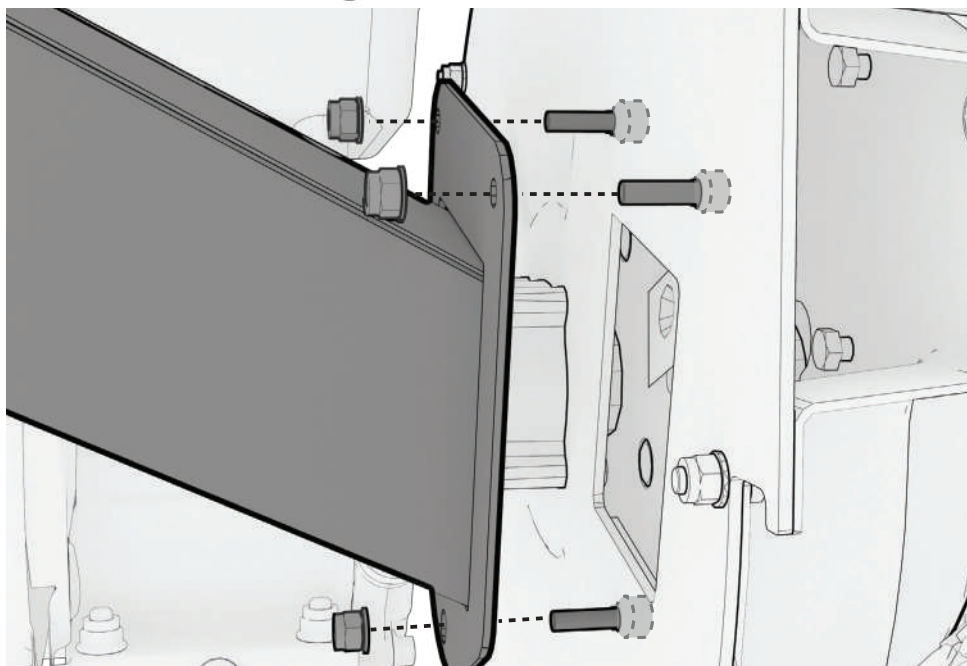
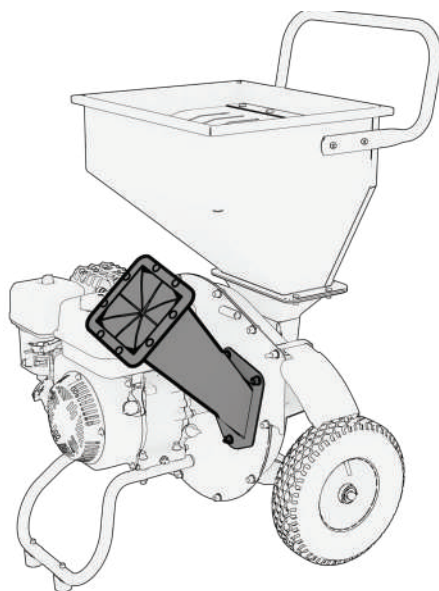
- The M6 Bolts are installed inside the Hopper. The M6 Nuts are installed outside the Hopper.

3.3 INSTALLING THE DISCHARGE DEFLECTOR



1. Install the Discharge Deflector to the Chipper.
Use 1x M8 Flange Nut, 1x M8 Shoulder Bolt, and 1x Adjustment Knob.

3.4 INSTALLING THE SHREDDER CHUTE

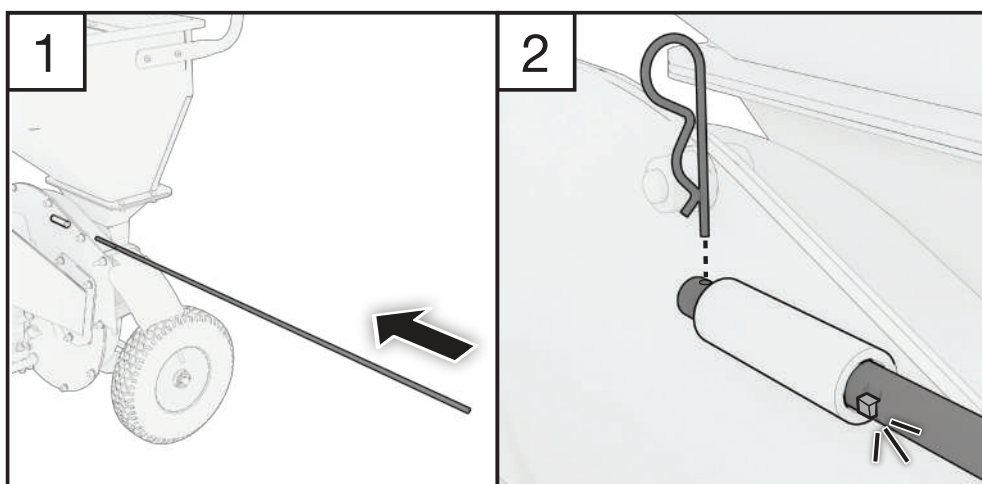
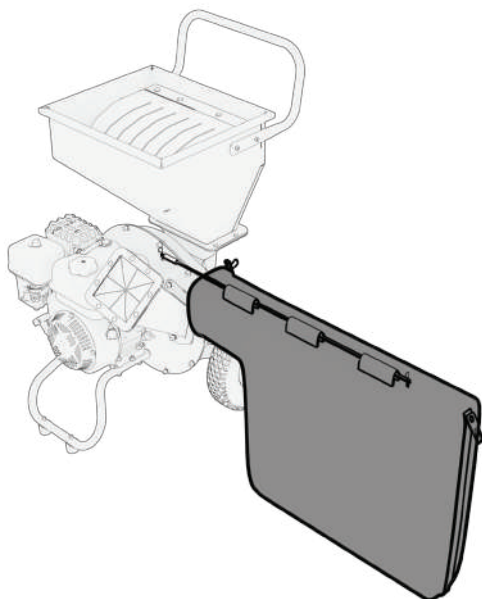


1. Install the Shredder Chute to the Rotor Housing.
Use 3x M8 Bolts, and 3x M8 Flange Nuts.

NOTE

- The M8 Bolts are installed inside the Rotor Housing. The Flange Nuts are installed outside the Rotor Housing.

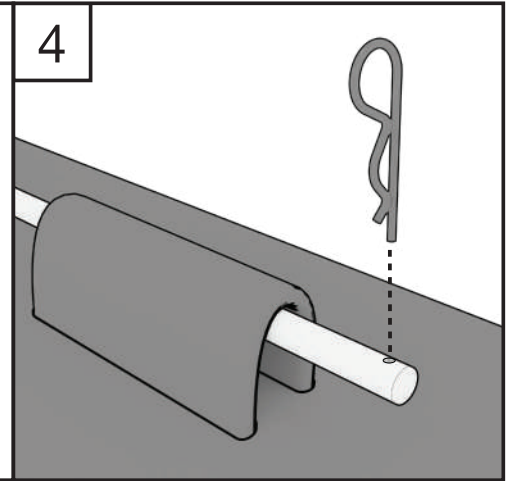
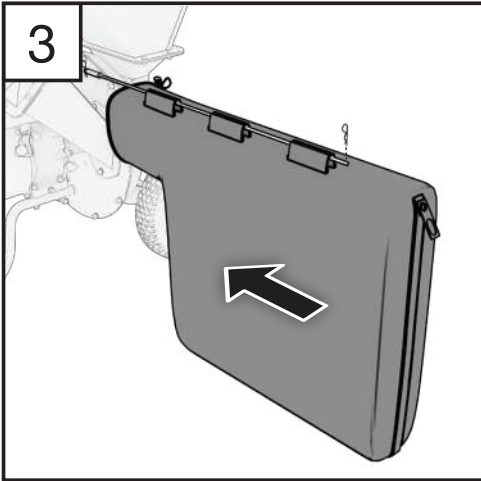
3.5 ASSEMBLE THE DISCHARGE BAG



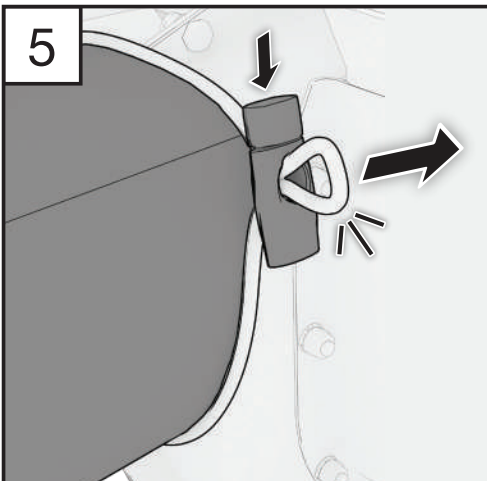
1. Slide the Discharge Bag Rod into the slot on the Chipper.
2. Use a Locking Pin to secure the Discharge Bag Rod.

NOTE

- Ensure the Discharge Bag Rod is installed with the Locking Notch towards the Chipper.



3. Slide the Discharge Bag onto the Discharge Bag Rod.
4. Use a Locking Pin to secure the Discharge Bag.



5. Secure the Discharge Bag by tightening the Paracord around the Discharge Chute.

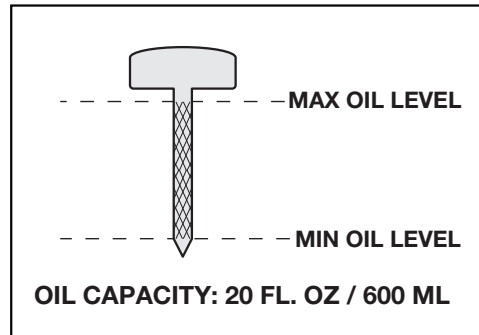
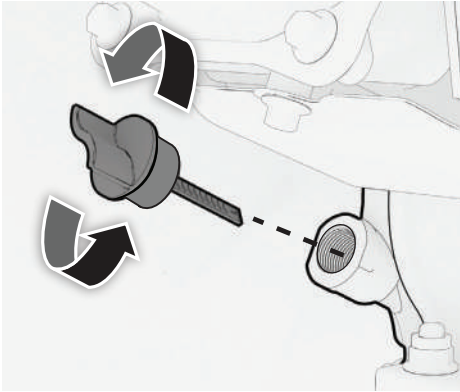
NOTE

- Adjust the Discharge Deflector to allow the Discharge Bag to fit.

4. PRE-OPERATION CHECK

The engine was shipped from the factory without oil. Before you start the engine, ensure that you add oil according to the instructions in this manual. If you start the engine without oil, it will be damaged beyond repair and will not be covered under the warranty.

4.1 ADD OIL

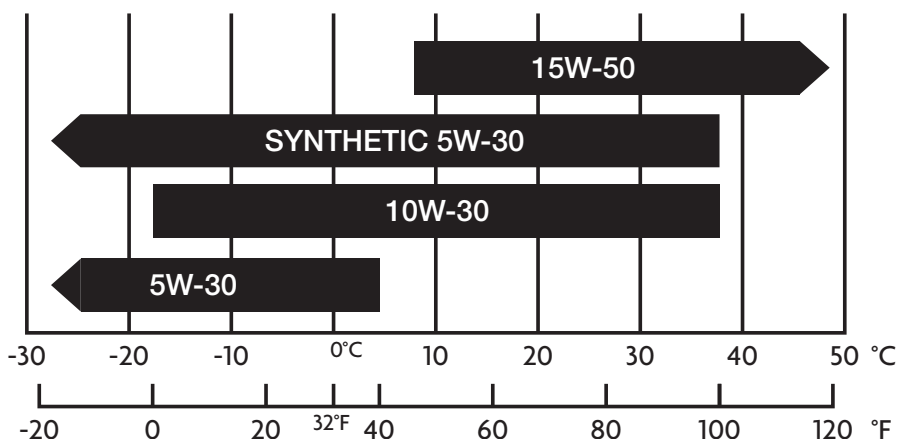


1. Set the Wood Chipper on a level surface and the power switch to OFF.
2. Clean the oil fill area of any moisture or debris.
3. Unscrew the oil dipstick and wipe it off.
4. Remove the dipstick and fill the oil to the maximum oil mark. Check the oil level by reinserting the dipstick *without* rethreading it.
5. Reinsert the dipstick and tighten securely.

NOTE

- Oil max. capacity: 20 fl Oz / 600 mL
- SAE 5W-30 is recommended for general use.
- Use of synthetic oil does not change maintenance intervals.
- DO NOT OVERFILL.

EFFECTIVE VISCOCITY RANGE OF ENGINE OILS



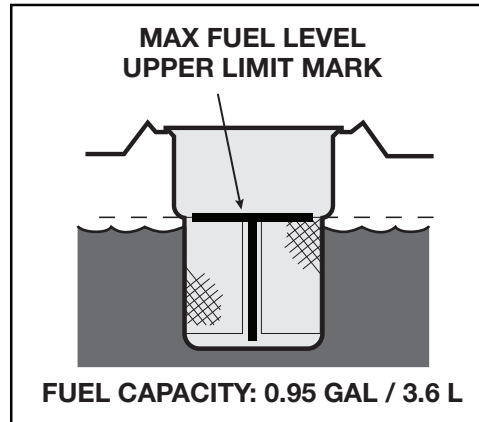
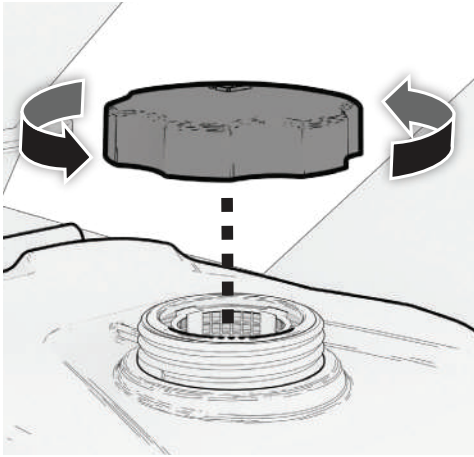
- Do not tilt when adding engine oil. This could result in overfilling and damage to the engine.
- Use high quality 4-stroke engine oil, certified to meet or exceed API standard SG, SF, SAE ratings with strong detergents. Using non-detergent or 2-stroke oil could shorten the engine's working life.
- Do not mix different engine oils.
- Handle and store the engine oil with care, avoid getting dirt or dust into the engine oil.
- To avoid damaging the engine, check the oil level as often as possible.

4.2 ADD FUEL

⚠ DANGER! ⚠

Gasoline is highly flammable and explosive under certain conditions. Refuel in a well-ventilated area with the engine stopped. Do not smoke or allow open flames or sparks in the area where the engine is being refueled or where gasoline is stored. Do not overfill the tank. Be careful not to spill fuel when refueling. Wipe up any spilled gasoline and let the area dry before starting the engine.

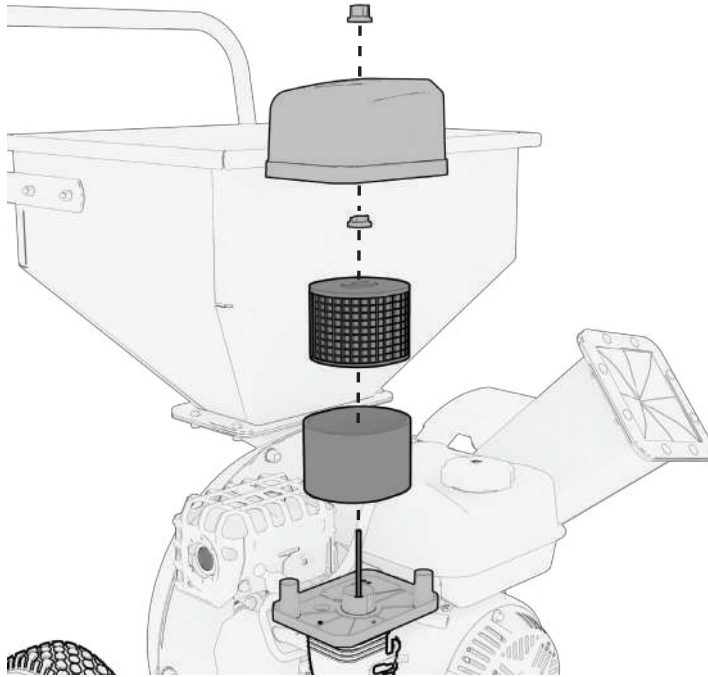
Gasoline substitutes such as gasohol are not recommended. They may be harmful to the fuel system components.



NOTE

- Fuel max. capacity: 0.95 Gal / 3.6 L
- Use of gasoline with an ethanol content greater than 10% can damage the engine and the fuel system and will void the manufacturer's warranty.
- Only use unleaded gasoline (Octane 85 or higher).
- Never use stale or contaminated gasoline, or an oil/gasoline mixture.
- Avoid getting dirt or water into the fuel tank.
- Do not use a mixture of gasoline containing methanol. This will cause serious damage to the engine.

4.3 PREPARE AIR FILTER



1. Remove the Air Filter Cover.
2. Remove the Air Filter Assembly.
3. Clean the Inner Paper Air Filter with compressed air.
4. Clean the Outer Foam Air Filter with gentle soap and water.
5. Allow the Outer Foam Air Filter to completely dry.
6. Add a few small drops of Engine Oil to the Outer Foam Air Filter. Squeeze to distribute evenly.
7. Re-Assemble the Air Filter Assembly, and Re-install the Air Filter and Cover.

4.4 SURVEY YOUR AREA

1. Familiarize yourself with the area in which you plan to operate the Wood Chipper. Mark off all boundaries of your workspace.
2. Ensure the area to be cleared is free of debris or objects that could be damaged by discharge.
3. Ensure the operating area is clear of bystanders, especially children. Be alert and turn the unit off if bystanders enter the area. Use extra care when working around blind corners, shrubs, trees, or other objects that may obscure vision.

5. STARTING THE ENGINE



Using a gas powered engine indoors WILL KILL YOU IN MINUTES.

Engine exhaust contains high levels of carbon monoxide (CO), a poisonous gas you cannot see or smell. If you can smell the engine exhaust you are breathing CO. Even if you cannot smell the exhaust, you could be breathing CO.

NEVER use an engine inside a home, garage, crawlspace, or other partly enclosed area, deadly levels of carbon monoxide can build up in these areas. Using a fan or opening windows and doors will NOT supply enough fresh air.

ONLY use a engine outdoors and far away from open windows, doors, and vents. These openings can pull in engine exhaust. Even when you use a engine correctly, CO may leak into the home. ALWAYS use a CO alarm in your home.

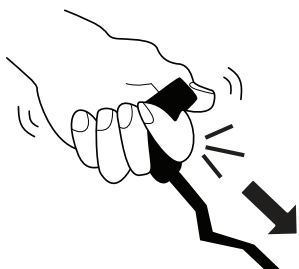
If you start to feel sick, dizzy, or weak after the engine has been running, move to fresh air RIGHT AWAY and seek medical attention. You could have carbon monoxide poisoning. Never run the engine in an enclosed or even partially enclosed area where people may be present.

NOTE

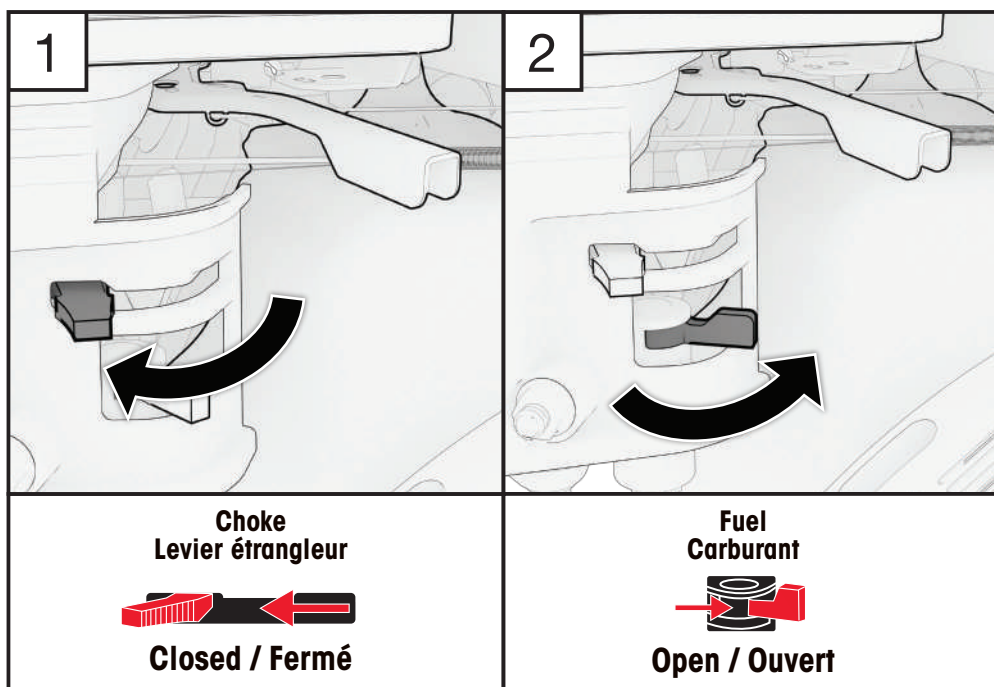
- Do not crank the engine with the spark plug removed.
- Do not over-prime the engine. If the engine floods, set choke to OPEN position, move throttle to FAST position and crank until engine starts.

⚠ WARNING!

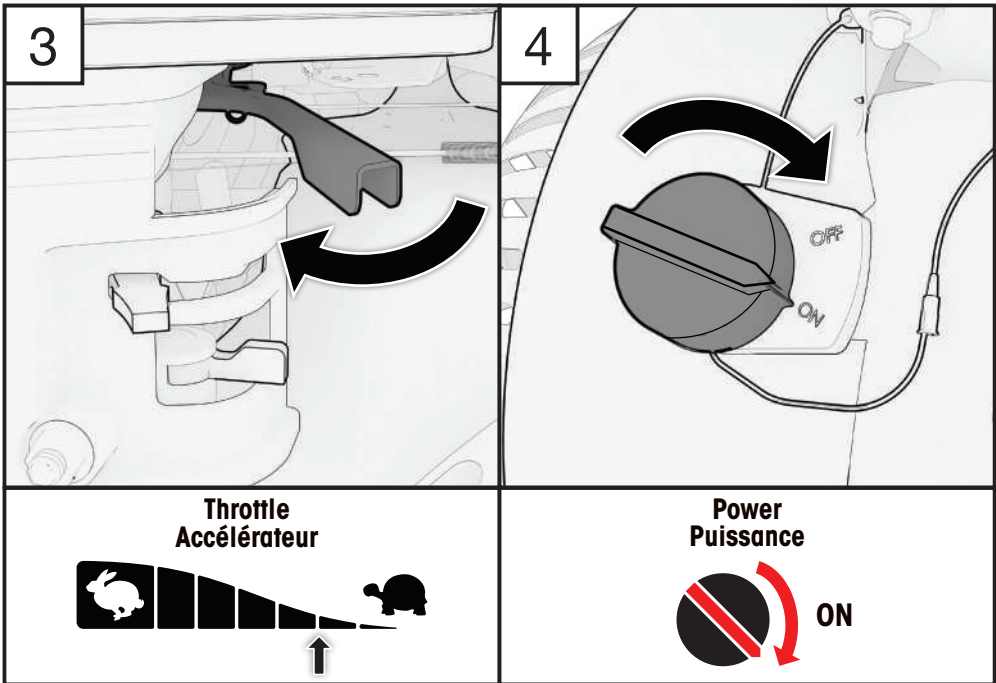
When Recoil Starting an engine, the Engine may suddenly kickback and pull the Recoil Starter Handle away from you. Take care to ensure a proper grip on the handle, and be prepared to let go if the engine begins to kickback.



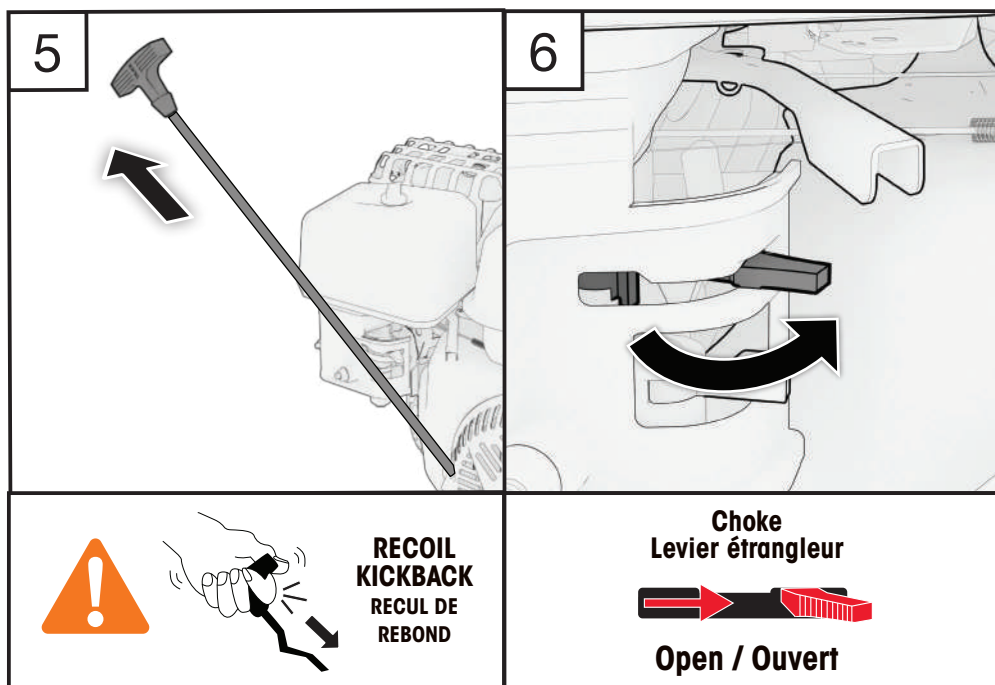
**RECOIL
KICKBACK
RECU DE
REBOND**



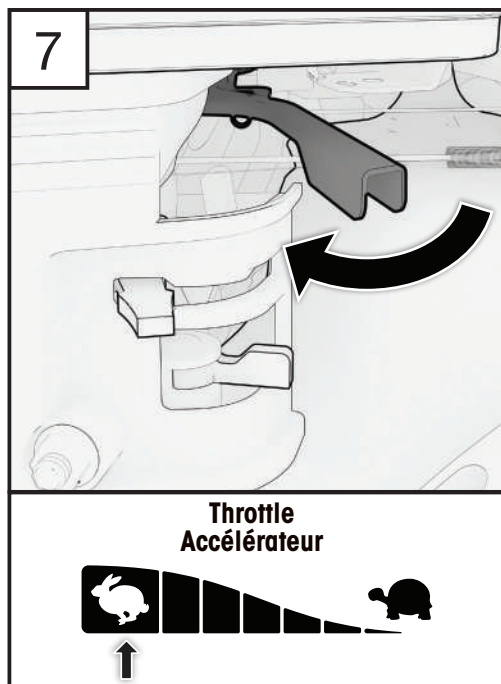
1. Turn the Choke Lever to the CLOSED position.
2. Turn the Fuel Lever to the OPEN position.



3. Set the Throttle Lever to 1/3 Speed.
4. Turn the Engine Power Switch ON.

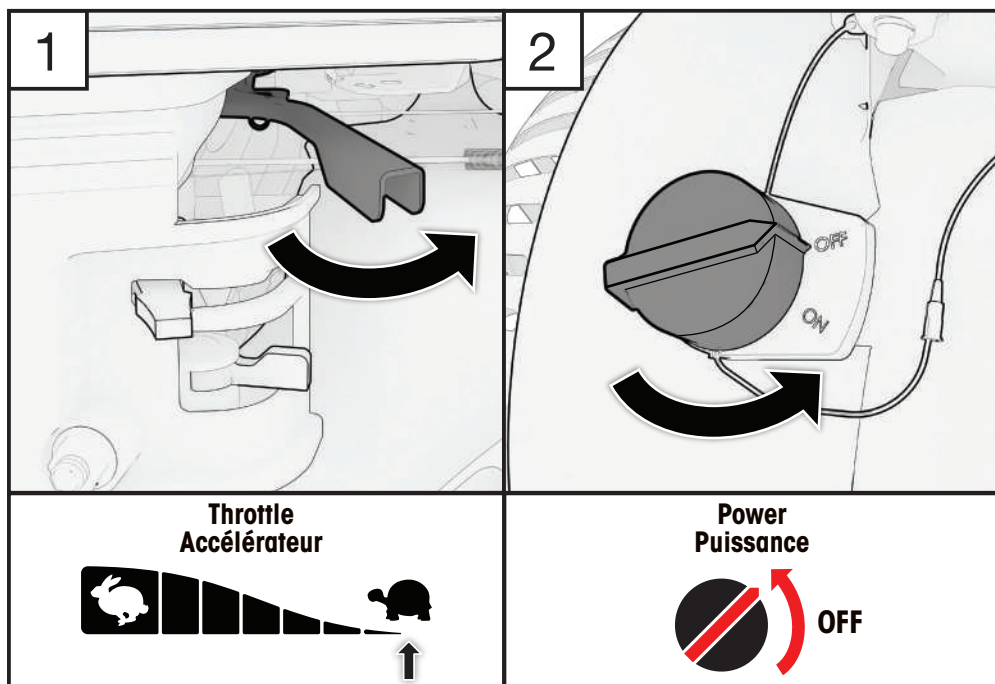


5. Pull the Recoil Starter Handle slowly until it engages then pull quickly. Repeat until the engine starts. Be prepared to release the Recoil Starter Handle if engine kickback occurs.
6. Allow the engine to warm up for several minutes. Move the Choke Lever to the OPEN position.

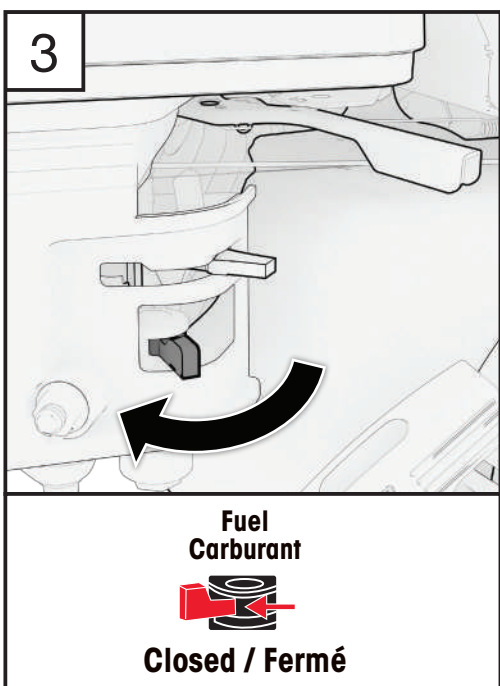


7. Once the engine has warmed up, move the Throttle Lever fully to the OPEN position.

6. STOPPING THE ENGINE



1. Turn the Throttle Lever to the SLOW position.
2. Turn the Engine Power Switch OFF.



3. Turn the Fuel Lever to CLOSED and allow engine to cool before storing.

NOTE

- To stop the engine in an emergency, immediately turn the Engine Power Switch OFF.
- Make sure the fuel valve is in the CLOSED position when stopping, transporting, and storing the engine.

7. USING YOUR WOOD CHIPPER

⚠ WARNING!

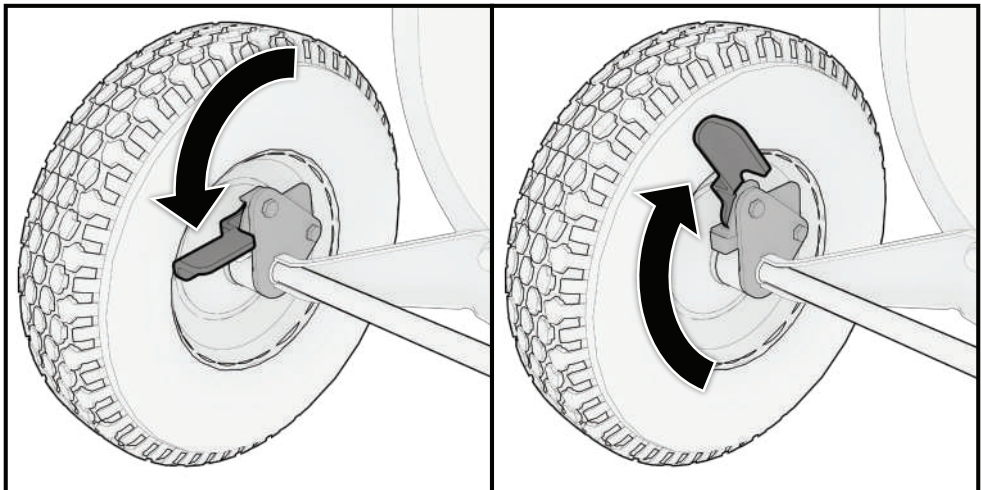
Debris such as rocks, nails, or other unintended objects can be picked up by the Wood Chipper and thrown from the Discharge Chute with force. Objects thrown from the Chute could cause death, serious injury, or property damage.

Always use Eye, Ear, and Body Protection when using the Wood Chipper.

7.1 LOCKING THE WHEELS

⚠ WARNING!

DO NOT use the Wood Chipper with the wheels unlocked. The Wood Chipper vibrates during use, and can slip if the wheel lock is not properly engaged.

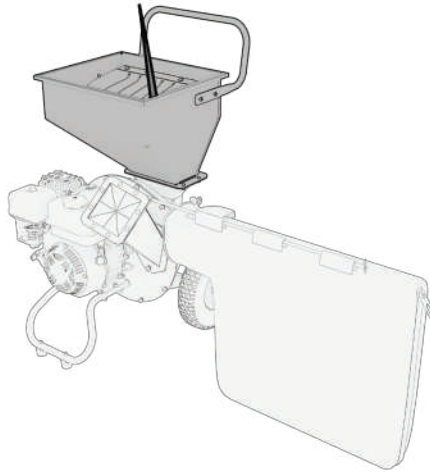


LOCKED WHEEL
ROUE BLOQUÉE

UNLOCKED WHEEL
ROUE DÉBLOQUÉE

1. To **LOCK** the wheels, push **DOWN** firmly on the Wheel Lock Levers. Gently move the Wood Chipper back and forth to ensure both wheels are properly locked.
2. To **UNLOCK** the wheels, press **UP** firmly on the Wheel Lock Levers. Gently move the Wood Chipper back and forth to ensure both wheels are properly unlocked.

7.2 USING THE SHREDDER HOPPER

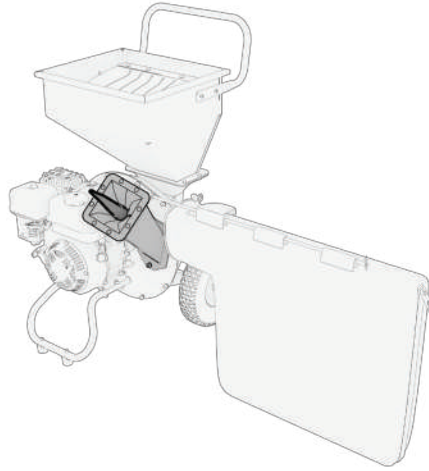


1. Ensure the Wood Chipper is on a flat surface, and your workspace is clear of obstacles.
2. Lock the Rear Wheels of the Wood Chipper.
3. Maintain a solid grip on the branch with both hands.
4. Insert branches up to 1/2 inch in diameter into the Shredder Hopper.
5. Let the Wood Chipper run for a few minutes to allow all debris to clear.

NOTE

- Do not overload the Shredder Hopper.
- Do not force the branch down.
- Wood must be dry before inserting.
- Trim smaller branches, vines, and other debris from the wood before inserting.
- Do not insert pieces of wood that are too small for the Shredder Hopper to grab.

7.3 USING THE CHIPPER CHUTE



1. Ensure the Wood Chipper is on a flat surface, and your workspace is clear of obstacles.
2. Lock the Rear Wheels of the Wood Chipper.
3. Maintain a solid grip on the branch with both hands.
4. Insert branches up to 3 inches in diameter into the Chipper Chute.
5. For difficult branches, gently rotate and insert / remove the branch from the Chipper Chute while feeding the branch.
6. Let the Wood Chipper run for a few minutes to allow all debris to clear.

NOTE

- Do not force the branch down.
- Wood must be dry before inserting.
- Trim smaller branches from the wood before inserting.
- Do not insert pieces of wood that are too small for the Chipper Chute to grab.

7.4 CLEARING THE WOOD CHIPPER

⚠ DANGER! ⚠

Hand contact with the rotating blades inside the Hopper and Chipper is the most common cause of injury associated with Wood Chippers. Fingers can quickly become caught in the blades, resulting in traumatic amputation or severe laceration. Never clear a clogged Wood Chipper with your hands.

Light Clog

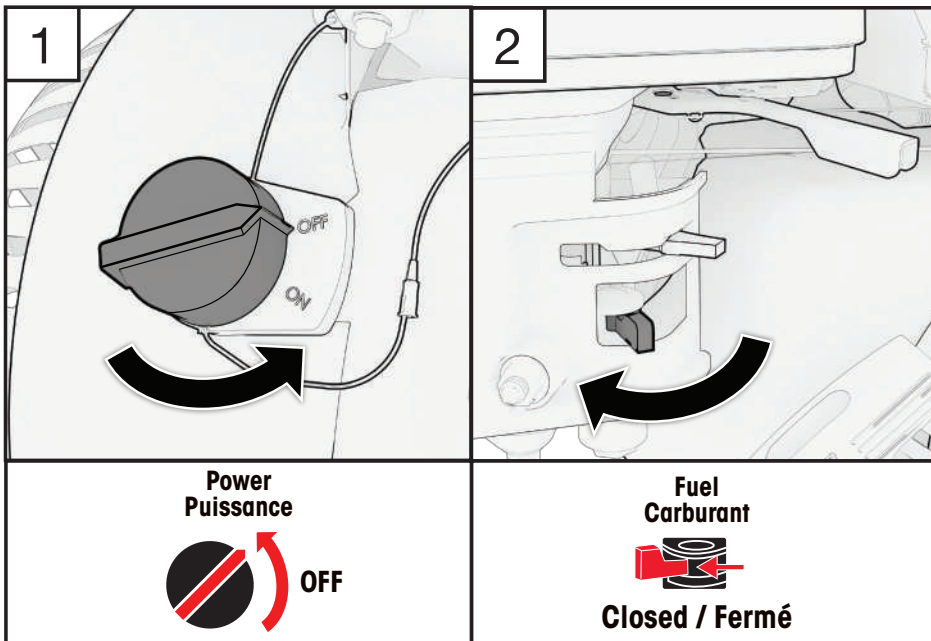
1. Ensure the Wood Chipper's wheels are locked.
2. Hold the handle of the Wood Chipper.
3. Move the Wood Chipper back and forth gently to shift clogged material.

Heavy Clog

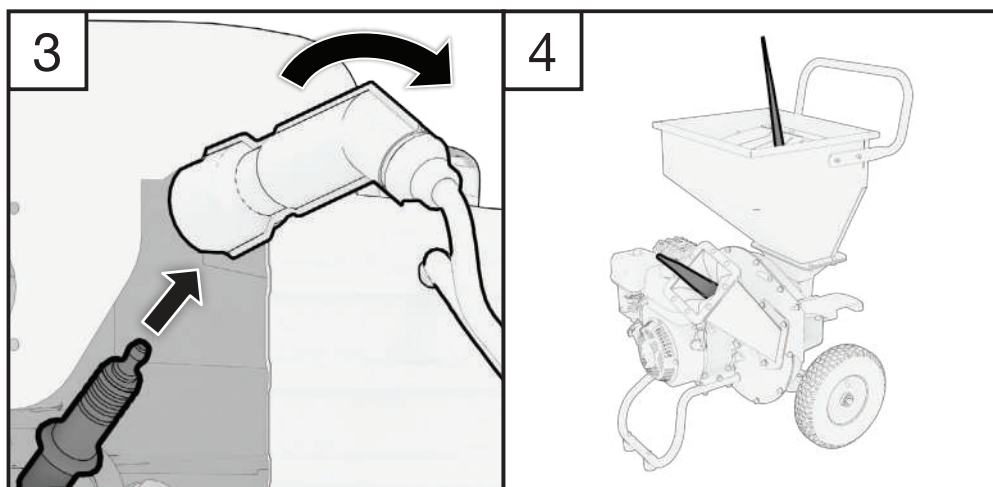
⚠ DANGER! ⚠

DO NOT attempt to clear a heavy clog without turning off the Engine AND removing the Spark Plug Boot. Engine Kickback might occur at any time.

DO NOT place your hands inside the Hopper or Chipper at ANY TIME. Engine Kickback might occur at any time.



1. Turn the Engine Power Switch OFF.
2. Turn the Fuel Lever to CLOSED.



3. Disconnect the Spark Plug Boot.
4. Carefully remove any material sticking outside the Hopper and Chute.
DO NOT stick your hands inside the Hopper or Chute.
5. Use a piece of wood under 1/2 inch in diameter to dislodge any material inside the Hopper or Chute.
DO NOT stick your hands inside the Hopper or Chute.
6. When Wood Chipper is cleared, Re-install the Spark Plug Boot, Turn the Fuel Lever to OPEN, and Turn the Engine Power Switch ON.

NOTE

- If your Wood Chipper is still clogged, it is time to clear the Rotor Housing. Follow the steps in Chapter 8.2: "Clearing Rotor Housing"

8. MAINTENANCE

WARNING!

Fuel and its vapors are extremely flammable, which could cause burns or fire resulting in death or serious injury. When performing maintenance that requires the unit to be tipped, the fuel tank must be empty, or fuel can leak out and result in a fire or explosion.

Proper maintenance keeps your Wood Chipper in the best operating condition by ensuring safe, economical and trouble-free operation. Only use genuine parts and recommended fluids to replace the worn components. Improper maintenance may cause malfunction and can lead to serious injury. Contact customer support if you have any maintenance questions.

General Inspection Tips

- Look for fuel leaks around the fuel tank, fuel hose, and fuel valve. Close the fuel valve and repair leaks immediately.
- Look and listen for exhaust leaks while the engine is running. Have all the leaks repaired before continuing operation.
- Check for dirt and debris and clean as necessary .
- Check the engine oil level and add oil as necessary.

8.1 MAINTENANCE SCHEDULE

Regular maintenance will improve performance and extend the service life. Maintain the Wood Chipper according to the maintenance schedule below.

NOTE

- Service more frequently when used in dusty areas or adverse conditions.
- These items should be serviced by an authorized service center, unless you have the proper tools and are mechanically proficient. Refer to user guide for service procedures.

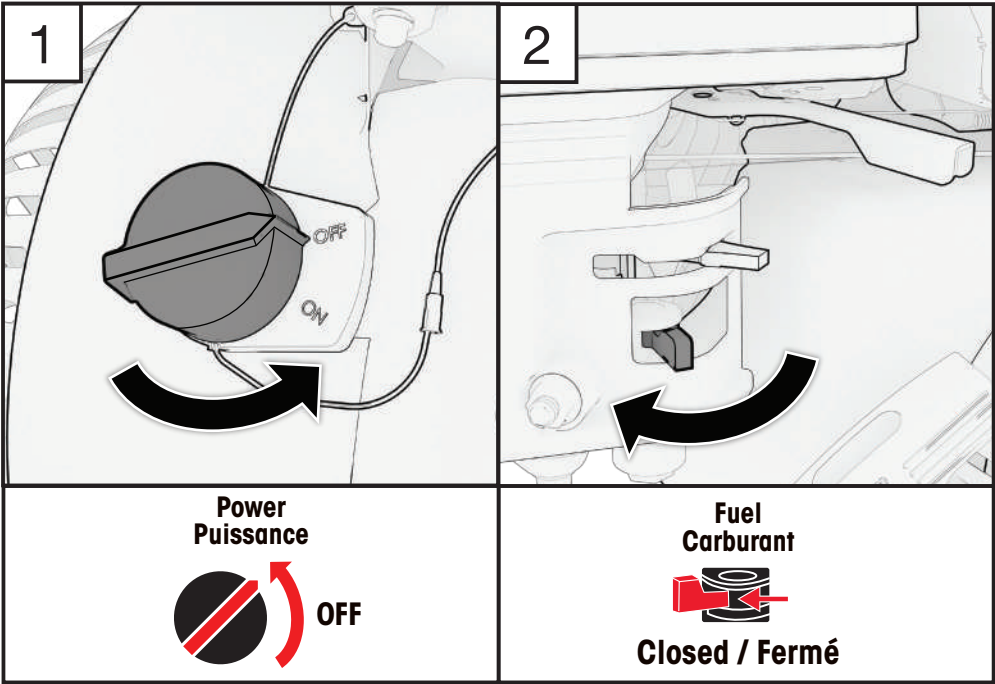
Before Each Use
Check engine oil level Clear Wood Chipper of debris
First 5 Hours
Change engine oil
First 10 Hours
Change engine oil Clear Rotor Housing
Every 3 Months
Clear Rotor Housing Inspect Rotor Blades
Every 25 Hours or 12 Months
Change engine oil Inspect/clean spark arrestor Inspect/clean spark plug Inspect/clean fuel line Check tire pressure Clear Rotor Housing Inspect Rotor Blades
Every 200 Hours
Replace spark plug Clean combustion chamber ¹ Inspect/adjust valve clearance ¹ Clean fuel tank and filter

¹ Recommend service to be performed by authorized service dealer.

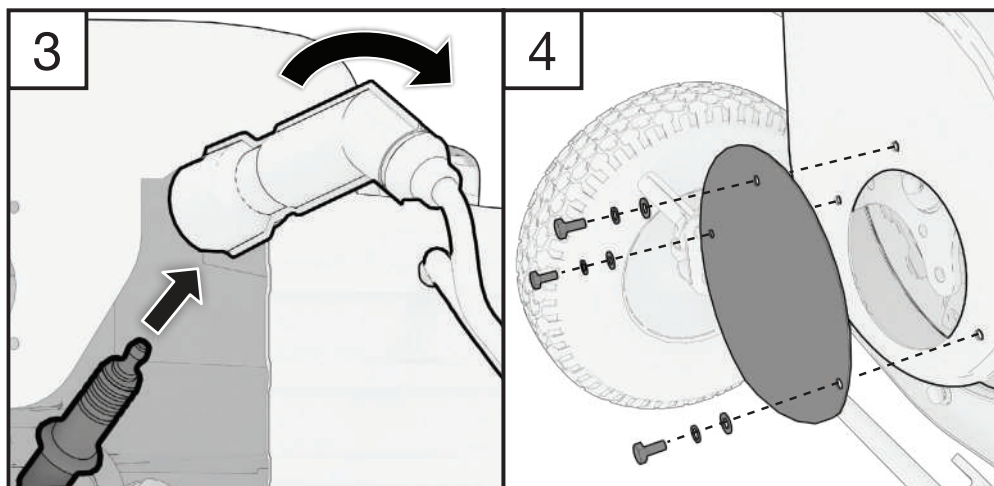
8.2 CLEARING ROTOR HOUSING

⚠ DANGER! ⚠

DO NOT attempt to clear the Rotor Housing without turning off the Engine **AND** removing the Spark Plug Boot. Engine Kickback might occur at any time.



- 1. Turn the Engine Power Switch OFF.
- 2. Turn the Fuel Lever to CLOSED.



3. Disconnect the Spark Plug Boot.
4. Remove the Rotor Housing Cover.
There are 3x M6 Bolts, 3x M6 Lock Washers, and 3x M6 Washers.
5. Remove any debris found in the Rotor Housing. DO NOT touch the Rotor Blades directly.
Use Protective Gear when clearing the Rotor Housing.
6. Re-install the Rotor Housing Cover.
There are 3x M6 Bolts, 3x M6 Lock Washers, and 3x M6 Washers.
7. Confirm that the Wood Chipper is unclogged by running the unit for a few minutes.
Ensure the Wood Chipper is on a level surface, with the wheels locked.
Ensure your surroundings are clear of obstacles before activating the Wood Chipper.

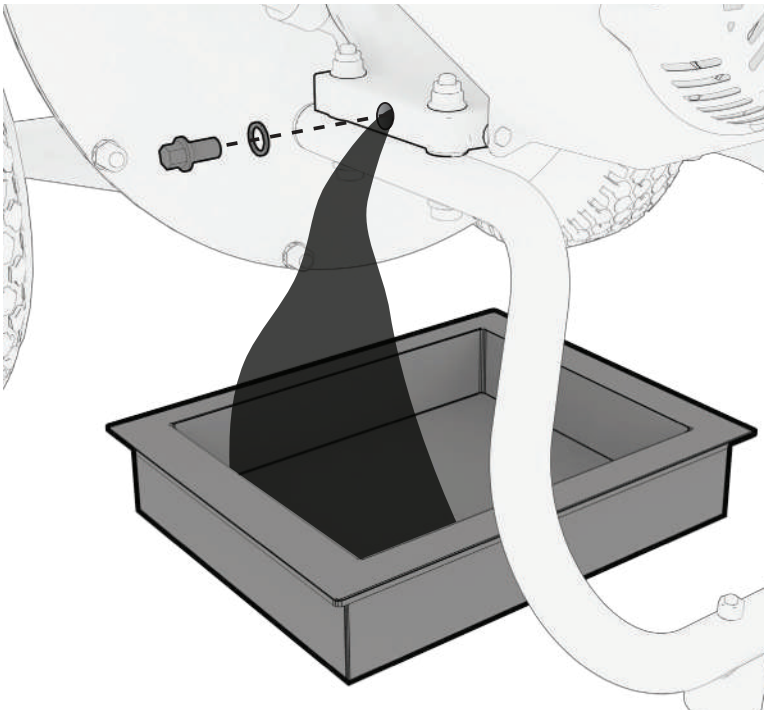
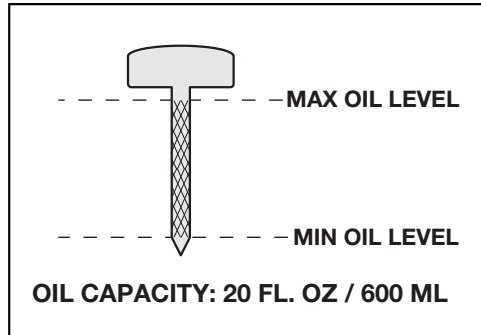
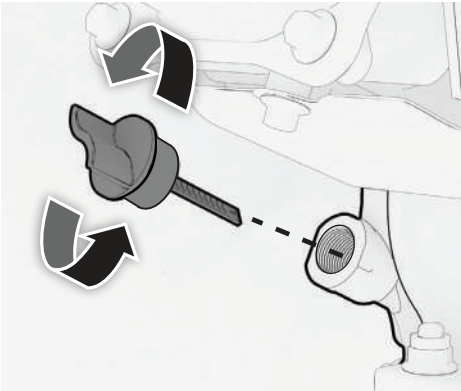
8.3 CHANGING THE ENGINE OIL

⚠ WARNING!

Used motor oil can cause skin irritations if left in long-term contact with skin. Thoroughly wash off used oil as soon as possible with soap and water.

Used oil must be disposed of properly. Do not dispose of used oil in drains or on soil. Local service shops provide environmentally-friendly disposal methods.

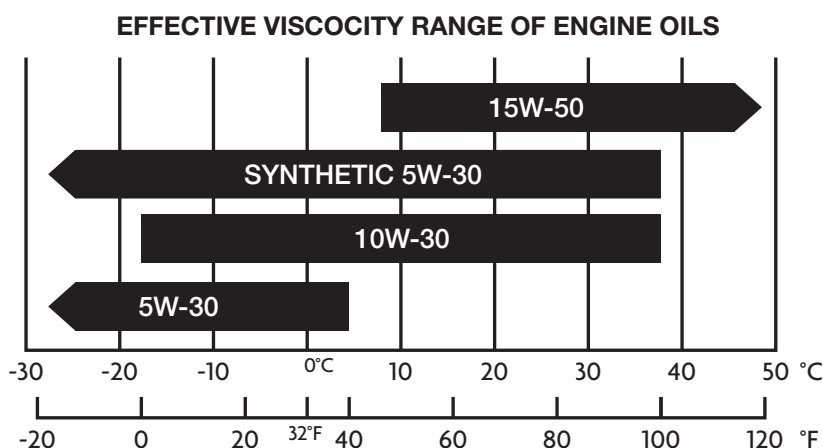
Drain the oil rapidly and completely while the engine is still warm.



1. With the engine stopped but still warm, place the unit on a level surface. Ensure that the Engine Power Switch is OFF.
2. Remove the Oil Drain Bolt and tilt the Wood Chipper slightly to drain the oil into an appropriate container.
3. After the oil has drained, reinstall and tighten the Oil Drain Bolt.
4. Clean any moisture or debris from the oil fill area.
5. Remove Oil Dipstick and wipe with a clean cloth, set aside.
6. Pour engine oil slowly into the engine oil fill tube. Do not overfill.
7. Wait one minute, then insert *without* tightening the dipstick. Remove again to check the oil level, it should be at the top of the full indicator.
8. When the oil level is at the top of the full indicator, reinstall and tighten the dipstick securely.

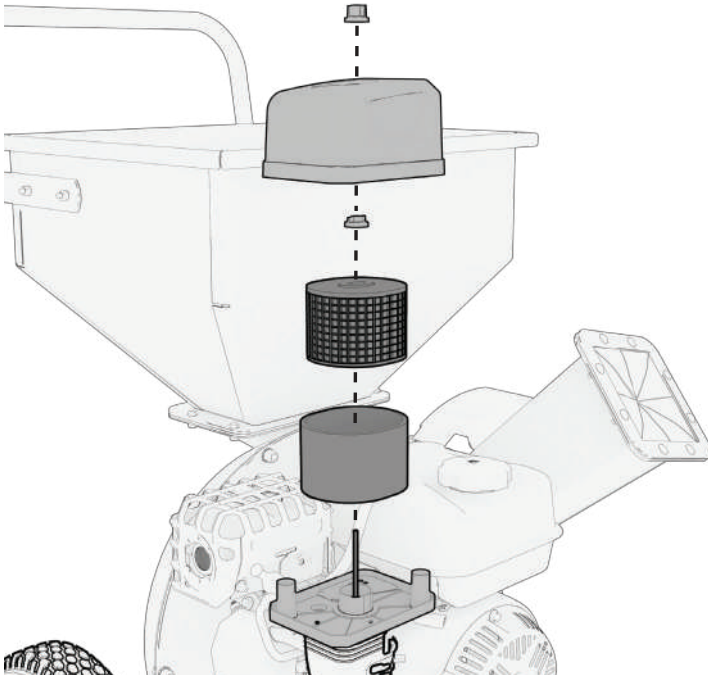
NOTE

- Oil max. capacity: 600 mL
- SAE 5W-30 oil is recommended for general use.
- Use of synthetic oil does not change maintenance intervals.
- DO NOT OVERFILL.



- Do not tilt when adding engine oil. This could result in overfilling and damage to the engine.
- Use high quality 4-stroke engine oil, certified to meet or exceed API standard SG, SF, SAE ratings with strong detergents. Using non-detergent or 2-stroke oil could shorten the engine's working life.
- Do not mix different engine oils.
- Handle and store the engine oil with care, avoid getting dirt or dust into the engine oil.
- To avoid damaging the engine, check the oil level as often as possible.

8.4 AIR FILTER MAINTENANCE



1. Remove the Air Filter Cover.
2. Remove the Air Filter Assembly.
3. Clean the Inner Paper Air Filter with compressed air.
4. Clean the Outer Foam Air Filter with gentle soap and water.
5. Allow the Outer Foam Air Filter to completely dry.
6. Add a few small drops of Engine Oil to the Foam Air Filter. Squeeze to distribute evenly.
7. Re-Assemble the Air Filter Assembly, and Re-install the Air Filter and Cover.

8.5 SPARK PLUG SERVICE

NOTE

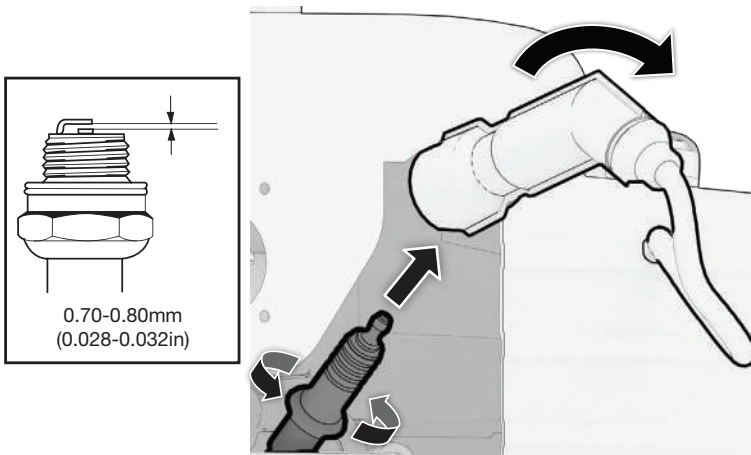
- Do NOT rinse spark plug in water. Follow guidelines and be careful not to overtighten the spark plug.

Recommended spark plug: **F7RTC**

Check the spark plug gap and clean the carbon deposits at the bottom of the spark plug.

Tighten 1/2 turn when installing a new spark plug.

Tighten 1/8 TO 1/4 turn when re-installing an old spark plug.



1. Remove the spark plug cap.
2. Remove the spark plug with the spark plug wrench.
3. Visually inspect the spark plug. Replace with a new one if the insulation is cracked or chipped. Clean with a wire brush if the spark plug is reused.
4. Measure the spark plug gap with a feeler gauge. The normal value is: 0.7-0.8mm (0.028- 0.032in). Adjust the gap by carefully bending the electrode.
5. Carefully reinstall the spark plug by hand, to avoid cross-threading. A new spark plug should be tightened 1/2 turn with a wrench. A used spark plug should be tightened 1/8 to 1/4 turn with wrench.
6. Reinstall the spark plug cap.

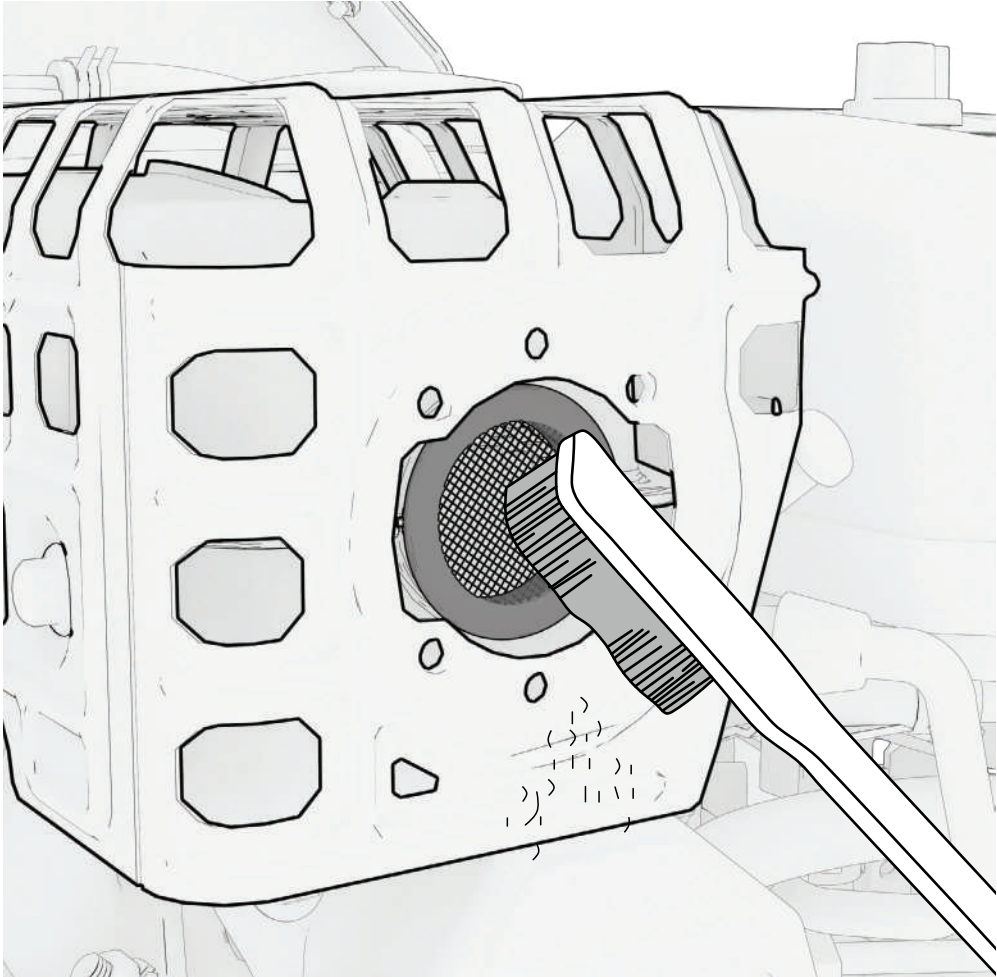
NOTE

- The spark plug must be securely tightened or it could cause the spark plug to heat up enough to damage the engine.
- Never use a spark plug with an improper heat range.

8.6 SPARK ARRESTER MAINTENANCE

⚠ WARNING!

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

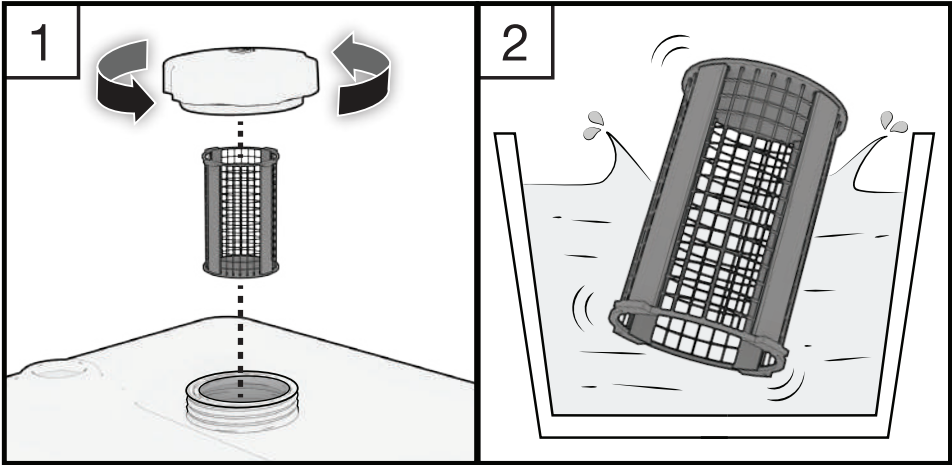


1. Use a brush to remove carbon deposits from the spark arrester / muffler. If the spark arrester is worn down, contact Customer Service.

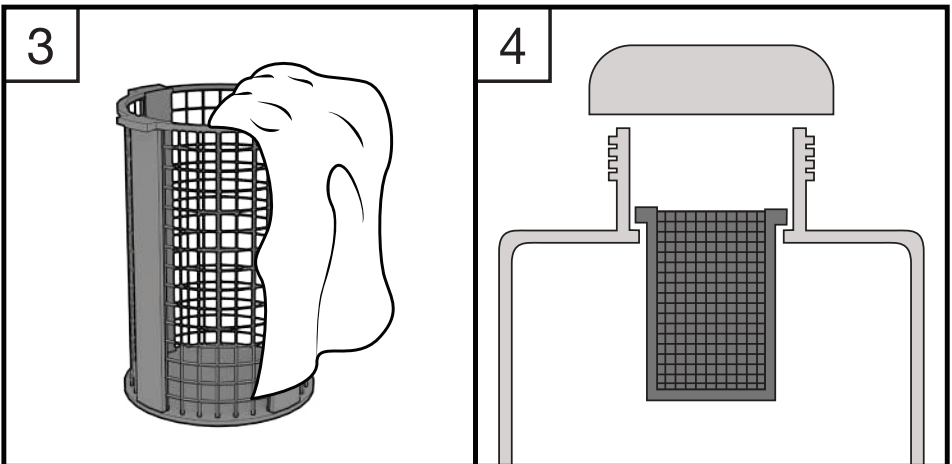
8.7 FUEL FILTER MAINTENANCE

⚠ WARNING!

Gasoline is highly flammable and explosive under certain conditions. Refuel in a well-ventilated area with the engine stopped. Do not smoke or allow open flames or sparks in the area where the Wood Chipper is being refueled or where gasoline is stored. Do not overfill the tank. Be careful not to spill fuel when refueling. Wipe up any spilled gasoline and let the area dry before starting the engine.



1. Remove the fuel cap and filter.
2. Clean the filter with solvent.



3. Wipe the filter.
4. Reinsert the filter.

8.8 CHECKING TIRE PRESSURE

WARNING!

Explosion hazard - Over-inflation of tires may cause them to explode, which could result in serious injury.

Do not inflate the tires above the maximum pressure.

Tire pressure should be checked periodically. Recommended tire pressure varies by tire manufacturer. A good rule of thumb is to inflate the tire up to, but not exceeding, the “Max Inflation” stamped on the side-wall of the tire.

8.9 CARBURETOR MODIFICATION FOR HIGH ALTITUDE OPERATION (Above 2000 feet)

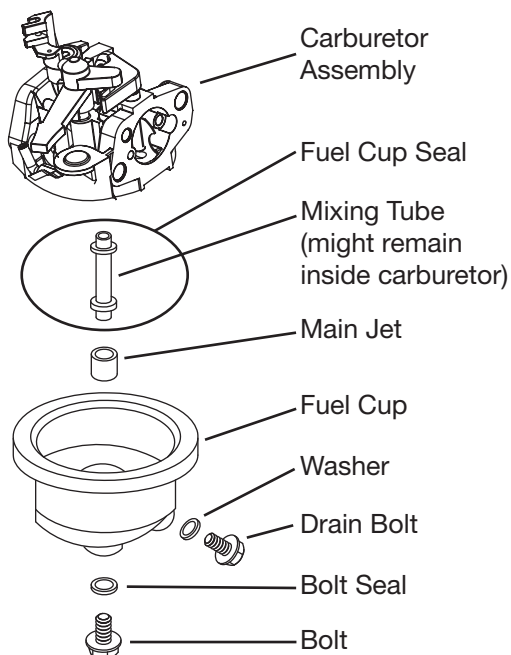
NOTE

- This engine is equipped to run at altitudes below 2,000-ft.
- A high-altitude Main Jet is recommended when operated at 2,000 to 7,000-ft above sea level.
- At elevations above 7,000-ft the engine may experience decreased performance even with a high-altitude Main Jet.

At high altitudes the carburetor’s air/fuel mixture becomes too rich, resulting in higher fuel consumption, lower performance, and carbon build-up on the spark plug. On the other hand, if the carburetor has been modified for high altitude operation and is operated below 2000-ft, the air/fuel mixture will then be too lean for low altitude use. Always use the correct Main Jet for your altitude.

The engine’s carburetor, governor (if so equipped), and any other parts that control the air/fuel 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. The fuel system on this engine may be influenced by operation at higher altitudes.

- Carburetor bowl may have gas in it which will leak upon removing the bolt.
- The mixing tube is held in place by the Main Jet and might fall out when it is removed. If it falls out, replace it in the same orientation before replacing the Main Jet.
- The Fuel Cup Seal and Bolt Seal may be damaged during removal and should be replaced with the new ones.



1. Turn off the engine.
2. Close the fuel valve.
3. Place a bowl under the fuel cup to catch any spilled fuel.
4. Unthread the bolt holding the fuel cup.
5. Remove the bolt, Bolt Seal, fuel cup, Fuel Cup Seal and Main Jet from the body of the carburetor assembly. A carburetor screwdriver (not included) is needed to remove and install the Main Jet.
6. Replace the Main Jet with the replacement Main Jet needed for your altitude range.
7. Replace the Fuel Cup Seal, fuel cup, Bolt Seal, and bolt. Tighten in place. Do not cross thread bolt when tightening. Finger tighten first and then use a wrench to make sure the bolt is properly threaded.
8. 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.

8.10 EMISSION CONTROL SYSTEM

Emission Source

Exhaust gas contains carbon monoxide, nitrogen oxides (NOx) and hydrocarbons. It is very important to control the emissions of NOx and hydrocarbons as they are a major contributor to air pollution. Carbon monoxide is a poisonous gas. The emission of fuel vapors is a source of pollution as well. The engine utilizes a precise air-fuel ratio and emission control system to reduce the emissions of carbon monoxide, NOx, hydrocarbons and evaporative fuel emissions.

Regulation

Your engine has been designed to meet current Environmental Protection Agency (EPA) standards. The regulations dictate that the manufacturer provides operation and maintenance standards regarding the emission control systems. Tune up specifications are provided in the Specifications section and a description of the emission control system may be found in the appendix to this manual. Adherence to the following instruction will ensure your engine meets the emission control standards.

Modification

Modification of the emission control system may lead to increased emissions. Modification is defined as the following:

- Disassembling or modifying the function or parts of the intake, fuel or exhaust system.
- Modifying or destroying the speed governing function of the Wood Chipper.

Engine faults that may affect emission

Any of the following faults must be repaired immediately. Consult with your authorized service centre for diagnosis and repair:

- Hard starting or shut down after starting.
- Unstable idle speed.
- Shut down or backfire after applying an electrical load.
- Backfire or after fire.
- Black smoke and/or excessive fuel consumption.

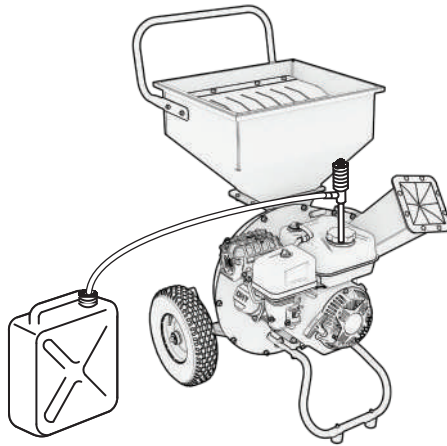
Replacement parts and accessories

The parts making up the emission control system in your product's engine have been specifically approved and certified by the regulatory agencies. You can trust that the replacement parts supplied by customer service have been manufactured to the same production standard as the original parts. The use of aftermarket replacement parts or accessories may negatively affect the engine emission performance. Therefore only use replacements parts and accessories from a qualified service centre to guarantee that the replacement products will not adversely affect emission performance.

Replacement parts other than those from an authorized service centre will void the warranty.

9. TRANSPORTATION & STORAGE

Draining the Fuel Tank



Drain the old gas and completely fill the tank with fresh gas. Add a fuel stabilizer according to the manufacturer's directions to keep your fuel fresh over long periods, we recommend B3C fuel additives. Run the engine for 2 minutes to circulate the fuel stabilizer.

Transporting the Wood Chipper

1. Do not overfill the fuel tank (No residual fuel on the neck of tank).
2. Avoid exposing the Wood Chipper to prolonged direct sunlight while in an enclosed vehicle. The high temperature inside the vehicle could cause fuel to vaporize resulting in a possible explosion.
3. Drain the Wood Chipper of fuel and oil before being transported on rough roads.

Storage

Gasoline can oxidize in as little as 30 days, causing gum and varnish to build up in fuel system components.

Storage Duration	Preparation Required
Less than 1 Month	■ No storage preparation required, simply store as is.
1 Month to 1 Year	■ Drain the old gas and completely fill the tank with fresh gas before storage. Add fuel stabilizer according to the manufacturer's directions. Adding a quality fuel stabilizer can keep gas fresh for up to a year.
1 Year or More	■ Drain off the gasoline from the fuel tank, and store in a suitable container. This will help prevent deposits from forming in the fuel system. ■ Turn the fuel switch to OPEN and loosen the carburetor drain bolt. Take off the spark plug cap and revolve the engine 3 or 4 times, by pulling the recoil handle, to fully discharge the gasoline from the fuel lines. ■ Turn the fuel switch to CLOSED and tighten the drain bolt of the carburetor. ■ Change oil while engine is still warm from operation. ■ Remove the spark plug, and pour a tablespoon of clean engine oil (10~20ml) into the cylinder. Revolve the engine several times by pulling on the recoil start to distribute the oil. Reinstall the spark plug. Pull the starter grip slowly until you feel resistance. At this point, the piston is coming up on its compression stroke and both the intake and exhaust valves are closed. This position helps to protect the engine from internal corrosion.

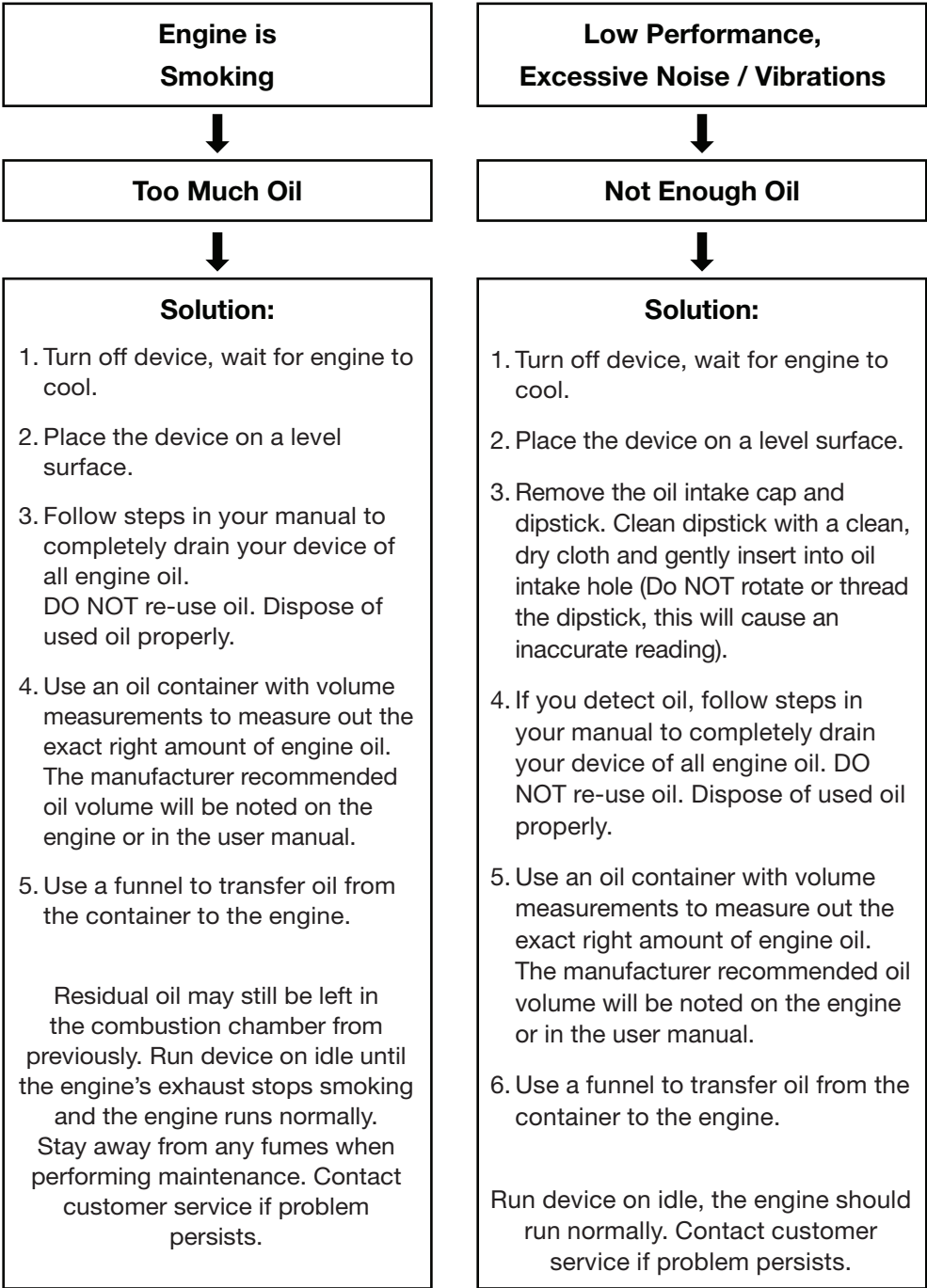
NOTE

- Ensure that the storage area is free of excess humidity and dust.

10. TROUBLESHOOTING

Problem	Look for	Solution
Engine does not start.	Power Switch is in OFF position.	Turn Power Switch to ON position.
	Fuel shut-off valve is in CLOSED position.	Turn valve to OPEN position.
	Out of fuel.	Fill fuel tank.
	Choke turned to OPEN (cold engine).	Turn choke to CLOSED, set throttle to FAST.
	Engine flooded.	Move the choke to OPEN position, move throttle to FAST position, and crank until the engine starts.
Engine is hard to start or runs poorly.	Water in fuel, or old fuel.	Fill with fresh fuel.
	Fuel cap vent is blocked.	Clear vent or replace fuel cap.
Excessive vibration.	Loose parts or damaged rotor assembly.	Stop engine immediately. Tighten all hardware. If vibration continues, have the unit serviced by an Authorized Dealer.
Unit does not discharge.	Clogged Shredder Hopper.	STOP THE ENGINE! UNPLUG THE SPARK PLUG! Never clear a clogged discharge chute with your hands! See "Clearing the Wood Chipper" and "Clearing the Rotor Housing".
	Clogged Chipper Chute.	
	Discharge chute clogged.	
	Foreign object lodged in Wood Chipper.	

10.1 OIL AND GAS TROUBLESHOOTING



**How do I make sure
I have enough oil?**



Most Accurate:

1. Follow steps in your manual to completely drain your device of all engine oil.
DO NOT re-use oil. Dispose of used oil properly.
2. Use an oil container with volume measurements to measure out the exact right amount of engine oil. The manufacturer recommended oil volume will be noted on the engine or in the user manual.

OR

Less Accurate:

1. Remove the oil intake cap and dipstick. Clean dipstick with a clean, dry cloth.
2. Gently insert into oil intake (Do NOT rotate or thread the dipstick, this will cause an inaccurate reading).
3. Remove dipstick and check oil level. Oil should be in-between the empty and full lines.
4. If it is close to the empty line, it is recommended to add more oil, or to change the oil if it appears significantly dark or sparkly.

**How often do I
change my oil?**



First Oil Change (~5 Hours):

1. Fill the new unit with the appropriate amount of oil and type (according to product manual).
2. Run the unit for 5 hours.
3. Drain oil and replace with fresh oil.
DO NOT re-use oil that has already been used.



Second Oil Change (~10 Hours):

1. Once the first cycle of oil has been replaced, run the unit for another 10 hours.
2. Drain and replace with fresh oil again.



**Consecutive Oil Changes
(Every 25 Hours):**

1. After the initial 'break-in' oil changes, replace oil every 25 hours of use.

11. TECHNICAL SPECIFICATIONS

	SPECIFICATIONS	3" 212cc Gas Powered Wood Chipper
ENGINE	Type	4-stroke, overhead valve, single cylinders, forced-air cooling
	Engine Displacement	212cc
	Horsepower	7 HP
	Engine Speed	1600 - 3600 rpm
	Spark Plug	F7RTC
	Spark Plug Gap	0.028 - 0.032 in (0.7-0.8mm)
	Start System	Recoil Start
	Fuel Capacity	0.58 Gal / 3.2 L
	Fuel Type	Unleaded Gasoline
	Oil Capacity	20.3 fl. oz. / 600 mL
	Oil Type	5W-30
WOOD CHIPPER	Chipper Chute Maximum Branch Diameter	3 inch
	Shredder Hopper Maximum Branch Diameter	1/2 inch
	Wheel	12-inch Pneumatic
	Wheel Pressure	0.15 MPa / 22 PSI
	Dimensions (L*W*H)	30.7 x 25.1 x 41 in
	Net Weight	116.6 lbs / 52.9 kg

12. APPENDIX

The standard condition of rated power output:

Altitude: 0m

Ambient temperature: 77°F (25°C)

Relative humidity: 30%

Factor of Environment Correction:

Altitude (m)	Ambient Temperature°F (°C)				
	77° (25°)	86° (30°)	95° (35°)	104° (40°)	113 (45°)
0	1	0.98	0.96	0.93	0.90
500	0.93	0.91	0.89	0.87	0.84
1000	0.87	0.85	0.82	0.80	0.78
2000	0.75	0.73	0.71	0.69	0.66
3000	0.64	0.62	0.60	0.58	0.56
4000	0.54	0.52	0.50	0.48	0.46

NOTE:

Relative humidity 60% correction factor C-0.01

Relative humidity 80% correction factor C -0.02

Relative humidity 90% correction factor C-0.03

Relative humidity 100% correction factor C-0.04

Example:

Rated power (PN) 2.8kVA Wood Chipper (Altitude: 1000m) Ambient temperature: 35°C, Relative humidity: 80%

$$P=Pn*(C-0.02)=2.8*(0.82-0.02)=2.24kVA$$

13. LIMITED WARRANTY

Warranty

Beginning at the time of retail purchase and for the duration of the warranty period Midland Power Inc. (Midland) warrants that Equipment manufactured by it is warranted to be free from defects in material and workmanship. Midland will, at its sole discretion, replace or repair any part(s) which, upon evaluation and testing by Midland or an authorized service center, show a defect in workmanship or material. Valid proof of purchase must be submitted online for registration with Midland, or presented to Midland at time of claim, for warranty to be valid. This warranty is not transferable from the original owner.

Limited Warranty Period:

Non-commercial use:

- Year 1, 2 and 3 - Parts and Labour
- Year 4 and 5 - Parts

Commercial use:

- First 6 Months - Parts and Labour

Commercial use includes utilization of the purchased product for a business or non-profit organization, or to financially benefit an individual. This includes, but is not limited to, usage in the context of a financial transaction, usage on commercial or non-profit property, or usage for advertising or marketing purposes.

Replacement parts sold to a consumer or installed by an authorized service center are warranted for a period of 90 days from date of purchase. Labour must be performed by an authorized service center unless given Midland's prior written approval. Midland will not bear any transportation or shipping fees to or from an authorized service center. Service calls, travel charges, overtime, or weekend rates, are not covered.

This warranty does NOT cover:

- a. Any repairs required as a result of any parts not supplied by Midland, and/or repair of parts that are not responsible for the failure or malfunction;
- b. Any Equipment modified, altered, disassembled or remodelled;
- c. Any repairs required as a result of a failure to install, maintain, store, transport, or operate the Equipment in accordance with standard practices set out in the user guide;
- d. Damage that occurred after receipt of equipment, not caused by defects in workmanship or material;
- e. Normal maintenance services, as outlined in the user guide and intended for a consumer to perform;
- f. Replacement of parts made in connection with normal maintenance services including oils, adhesives, additives, fuel, filters, brushes, belts, lubricants, spark plugs, gaskets, seals, fasteners, wires, tubes, pipes, fittings, wheels, batteries, and other expendables susceptible to natural wear;
- g. Any accessory or attachment.

Any battery supplied with this Equipment is considered a consumable item and is excluded from this warranty. Batteries can be damaged by shock, shorting terminals, heat, acid spillage, neglect, and other factors. It is the customer's responsibility to take great care when handling a battery so no spillage of acid occurs which may cause corrosion.

Midland disclaims any responsibility for loss of time or use of the product, transportation, or towing costs or any other indirect, incidental, or consequential damage, inconvenience or commercial loss.

This warranty is the entire and only warranty given by Midland for Midland products or equipment. No agent or employee is authorized to extend or enlarge this warranty on behalf of Midland by any written or verbal statement or advertisement.

Other States, U.S. territories, and Canada

In other areas of the United States and in Canada, your engine must be designed, built, and equipped to meet the U.S. EPA and Environment Canada emission standards for spark-ignited engines at or below 19 kilowatts.

All of the United States and Canada

Midland Power Inc. must warrant the emission control system on your power equipment engine for the period of time listed below, provided there has been no abuse, neglect, or improper maintenance of your power equipment engine. Where a warrantable condition exists, Midland Power Inc. will repair your power equipment engine at no cost to you including diagnosis, parts, and labor.

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

Emission Control System Warranty Parts:

This list applies to parts supplied by Midland Power Inc. and does not cover parts supplied by the equipment manufacturer. Please see the original equipment manufacturer's emissions warranty for non-Midland Power Inc. parts.

Consumable parts are covered up to a maximum of 30 days.

SYSTEMS COVERED IN WARRANTY	PARTS DESCRIPTION
Fuel Metering	Fuel assembly (includes starting enrichment system), Engine temperature sensor, Engine control module, Fuel regulator, Intake manifold
Evaporative	Fuel Tank, Fuel Cap, Fuel Hoses, Vapor Hoses, Carbon Canister, Canister Mounting Brackets, Fuel Strainer, Fuel cock, Fuel Pump, Fuel Hose Joint, Canister Purge Hose Joint
Exhaust	Catalyst, Exhaust Manifold
Air Induction	Air filter housing, Air filter element
Ignition	Flywheel magneto, Ignition pulse generator, Crankshaft position sensor, Power coil, Ignition coil assembly, Ignition control module, Spark plug cap, Spark plug
Crankcase Emission Control	Crankcase breather tube, Oil filler cap
Miscellaneous Parts	Tubing, fittings, seals, gaskets, and clamps associated with these listed systems



Customer Service

Online: www.benchmark.midlandpowerinc.com

Toll Free: 1-877-528-3772

Enjoy!

Be sure to check www.benchmark.midlandpowerinc.com for updates regarding your product.





BENCHMARKTM

5131-005