



MTD CHIPPER SHREDDER



SAFETY RULES

Training

1. Read, understand, and follow all instructions on the machine and in this manual before attempting to operate. Keep this guide in a safe place for future and regular reference and for ordering replacement parts.
2. Be familiar with all controls and their proper operation. Know how to stop the machine and disengage them quickly.
3. Never allow children under 16 years old to operate this machine.
4. Keep bystanders, helpers, pets, and children at least 75 feet from the machine while it is in operation. Stop machine if anyone enters the area.
5. Never run an engine indoors or in a poorly ventilated area. Engine exhaust contains carbon monoxide, an odorless and deadly gas.
6. Do not put hands and feet near rotating parts or in the feeding chambers and discharge opening. Contact with the rotating impeller can amputate fingers, hands, and feet.
7. Never attempt to unclog either the feed intake or discharge opening, remove or empty bag, or inspect and repair the machine while the engine is running. Shut the engine off and wait until all moving parts have come to a complete stop. Disconnect the spark plug wire and ground it against the engine.

Preparation

1. Thoroughly inspect the area where the equipment is to be used. Remove all rocks, bottles, cans, or other foreign objects which could be picked up or thrown and cause personal injury or damage to the machine.
2. Always wear safety glasses or safety goggles during operation or while performing an adjustment or repair, to protect eyes. Thrown objects which ricochet can cause serious injury to the eyes.

3. Wear sturdy, rough-soled work shoes and close-fitting slacks and shirts. Loose fitting clothes or jewelry can be caught in movable parts. Never operate this machine in bare feet or sandals. Wear leather work gloves when feeding material in the chipper chute.
4. Before starting, check all bolts and screws for proper tightness to be sure the machine is in safe working condition. Also, visually inspect machine for any damage at frequent intervals.
5. Maintain or replace safety and instructions labels, as necessary.
6. To avoid personal injury or property damage use extreme care in handling gasoline. Gasoline is extremely flammable and the vapors are explosive. Serious personal injury can occur when gasoline is spilled on yourself or your clothes which can ignite. Wash your skin and change clothes immediately.
 - a. Use only an approved gasoline container.
 - b. Extinguish all cigarettes, cigars, pipes, and other sources of ignition.
 - c. Never fuel machine indoors.
 - d. Never remove gas cap or add fuel while the engine is hot or running.
 - e. Allow engine to cool at least two minutes before refueling.
 - f. Never over fill fuel tank. Fill tank to no more than ½ inch below bottom of filler neck to provide space for fuel expansion.
 - g. Replace gasoline cap and tighten securely.
 - h. If gasoline is spilled, wipe it off the engine and equipment. Move machine to another area. Wait 5 minutes before starting the engine.
 - i. Never store the machine or fuel container inside where there is an open flame, spark, or pilot light (e.g furnace, water heater, space heater, clothes dryer, etc.)
 - j. To reduce a fire hazard, keep machine free of grass, leaves, or other debris build-up. Clean up oil or fuel spillage and remove any fuel soaked debris.
 - k. Allow machine to cool at least 5 minutes before storing.

Operation



1. Do not put hands and feet near rotating parts or in the feeding chambers and discharge opening. Contact with the rotating impeller can amputate fingers, hand, and feet.
2. Before starting the machine, make sure the chipper chute, feed intake, and cutting chamber are empty and free of all debris.
3. Thoroughly inspect all material to be shredded and remove any metal, rocks, bottles, cans, or other foreign objects which could cause personal injury or damage to the machine.
4. If it becomes necessary to push material through the shredder hopper, use a small diameter stick. Do not use your hands or feet.

5. If the impeller strikes a foreign object or if your machine should start making an unusual or vibration, immediately shut the engine off. Allow the impeller to come to a complete stop. Disconnect the spark plug wire, ground it against the engine and perform the following steps:
 - a. Inspect for damage.
 - b. Repair or replace any damaged parts.
 - c. Check for any loose parts and tighten to assure continued safe operation.
6. Do not allow an accumulation of processed material to build up in the discharge area. This can prevent proper discharge and result in kickback of material through the feed opening.
7. Do not attempt to shred or chip material larger than specified on the machine or in this guide. Personal injury or machine damage could result.
8. Never attempt to unclog either the feed intake or discharge opening while the engine is running. Shut the engine off, wait until all moving parts have stopped, disconnect the spark plug wire and ground it against the engine before clearing the debris.
9. Never operate without the shredder hopper, chipper chute, or chute deflector properly attached to the machine. Never empty or change discharge bag while the engine is running.
10. Keep all guards, deflectors and safety devices in place and operating properly.
11. Keep your face and body back and to the side of the chipper chute while feeding material into the machine to avoid accidental kickback injuries.
12. Never operate this machine without good visibility or light.
13. Do not operate this machine on a paved, gravel or non-level surface.
14. Do not operate this machine while under the influence of alcohol or drugs.
15. Muffler and engine become hot and can cause a burn. Do not touch.
16. Never pick up or carry machine while the engine is running.

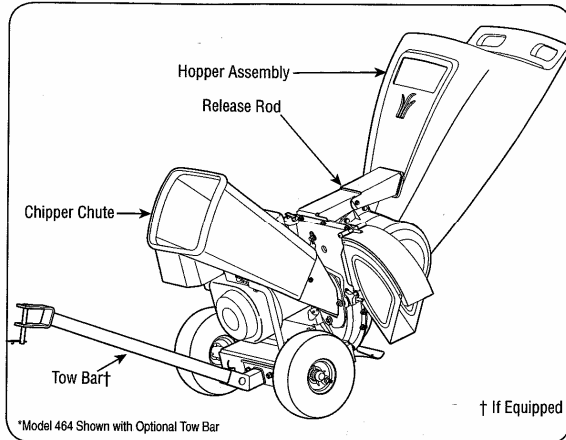
Maintenance & Storage

1. Never tamper with safety devices. Check their proper operation regularly.
2. Check bolts and screws for proper tightness at frequent intervals to keep the machine in safe working condition. Also, visually inspect machine for any damage and repair, if needed.
3. Before cleaning, repairing or inspecting, stop the engine and make certain the impeller and all moving parts have stopped. Disconnect the spark plug wire and ground it against the engine to prevent unintended starting.
4. Do not change the engine governor settings or overspeed the engine. The governor controls the maximum safe operating speed of the engine.
5. Maintain or replace safety and instruction labels, as necessary.
6. Follow this guide for safe loading, unloading, transporting, and storage of this machine.
7. Never store the machine or fuel container inside where there is an open flame, spark or pilot light such as a water heater, furnace, clothes dryer, etc.

Do Not Modify Engine

- To avoid serious injury or death, do not modify engine in any way. Tampering with the governor setting can lead to a runaway engine and cause it to operate at unsafe speeds. Never tamper with factory setting of engine governor.

OPERATING THE CHIPPER SHREDDER



Chipper Chute

Allows twigs and small branches up to ½ diameter to be fed into the impeller for chipping and shredding. Material can be raked into hopper assembly by lowering the hopper assembly.

Release Rod

The release rod is located on the impeller bracket assembly and it is used to release or lock the hopper when raising or lowering.

Gas and Oil Fill-Up

- Check oil level and add oil if necessary. See Oil Recommendations below.
- Oil Fill Procedure
 1. Place engine level and clean around oil fill.
 2. Remove dipstick, wipe with clean cloth, insert and tighten down again. Remove dipstick and check oil level. Oil should be at FULL mark. If oil is required, add slowly. Do not overfill --OR--
 3. Remove oil filler plug. Oil should be full to overflowing.
 4. Tighten dipstick or oil filler plug firmly before starting engine.

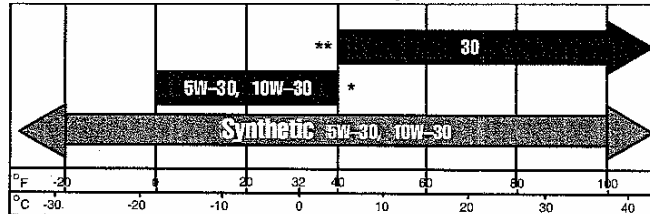
OIL RECOMMENDATIONS

CAUTION:

Engine shipped from Briggs & Stratton without oil. Before starting engine, fill with oil. Do not over-fill.

Use a high quality detergent oil classified "For Service SF, SG, SH, SJ" or higher such as Briggs & Stratton 30, Part Number 100005. Use no special additives with recommended oils. **Do not mix oil with gasoline.**

Choose the SAE viscosity grade of oil from this chart that matches the starting temperature anticipated before the next oil change.



CAUTION: Air cooled engines run hotter than automotive engines. The use of non-synthetic multi-viscosity oils (5W-30, 10W-30, etc.) in temperatures above 40° F (4° C) will result in higher than normal oil consumption. When using a multi-viscosity oil, check oil level more frequently.

* **CAUTION:** Synthetic oil must be used when operating engine under 40° F (4° C) or engine damage will occur.

** **CAUTION:** SAE 30 oil, if used below 50° F (10° C), will result in hard starting and possible engine bore damage due to inadequate lubrication.

- Service the engine with gasoline as instructed in the engine manual.
- Warning: Use extreme care when handling gasoline.
 1. Turn engine OFF and let engine cool at least 2 minutes before removing gas cap.
 2. Fill fuel tank outdoors or in a well-ventilated area.
 3. Do not overfill fuel tank. Fill to approximately 1-1/2 inches below top of neck.
 4. Keep gasoline away from sparks, open flames, pilot lights, heat, and other ignition sources.
 5. Check fuel lines, tank, cap, and fitting frequently for cracks or leaks. Replace if necessary.

Starting Engine

- **WARNING:** Never run the engine indoors or in a poorly ventilated area. Engine exhaust contains carbon monoxide, an odorless and deadly gas.
 1. Attach spark plug wire to spark plug. Make certain the metal cap on the end of the spark plug is fastened securely over the metal tip on the spark plug.
 2. Do not crank engine with spark plug removed.
 3. Choke lever on engine to CHOKE position. (A warm engine may not require choking).
 4. The throttle control lever is located on the engine. Move engine throttle control lever to FAST or START position.
 5. Turn fuel shut-off valve ON, if equipped.
 6. Move stop control to ON position, if equipped.
 7. Grasp starter handle and pull rope out slowly until engine reaches start of compression cycle (rope will pull slightly harder at this point), then pull cord rapidly to overcome compression, prevent kickback and start engine.

- **NOTE:** A noise will be heard when finding the start of the compression cycle. This noise is caused by the flails and fingers, which are part of the shredding mechanism, and it should be expected until the impeller reaches full speed.
- 8. Repeat the previous steps until engine fires. When engine starts, move choke control (if equipped) gradually to RUN position.
- 9. If engine floods, set choke to OPEN/RUN position, place throttle in FAST and crank until engine starts.

Stopping Engine

1. Move throttle control lever to STOP or OFF Position.
2. Disconnect spark plug wire from spark plug and ground against the engine.
3. Do NOT move choke control to CHOKE position to stop engine. Backfire or engine damage may occur.
4. **NOTE:** Close fuel shot-off valve to prevent leakage.

Using the Chipper Shredder

- Yard waste such as leaves and pine needles can be raked up through the hopper assembly for shredding. After material has been shredded by the flail blades on the impeller assembly, it will be discharged out of opening or into catcher bag.
- Do not attempt to shred or chip any material other than vegetation found in a normal yard (i.e. branches, leaves, twigs, etc.) Avoid fibrous plants such as tomato vines until they are thoroughly dried out.
- Twigs and small branches up to 4" (2" for Model Serious 450) in diameter can be fed into the chipper chute.

Lowering the Hopper Assembly

1. With one hand grasp the handle at the top of the hopper assembly and lift slightly.
2. With the other hand pull out on the release rod and lower the hopper assembly to the ground.

To Empty Bag

1. Un-clip drawstring and loosen bag from chute deflector opening.
2. Empty bag and reattach to the discharge chute opening. Pull on the drawstring until the bag is tight around the chute opening and clip the drawstring tight against the chute deflector.
3. **IMPORTANT:** The flail screen is located inside the housing in the discharge area. If the flail screen becomes clogged, remove and clean as instructed in SECTION 5: MAINTAINING YOUR CHIPPER SHREDDER. For best performance, it is also important to keep the chipper blade sharp.

MAINTAINING YOUR CHIPPER SHREDDER

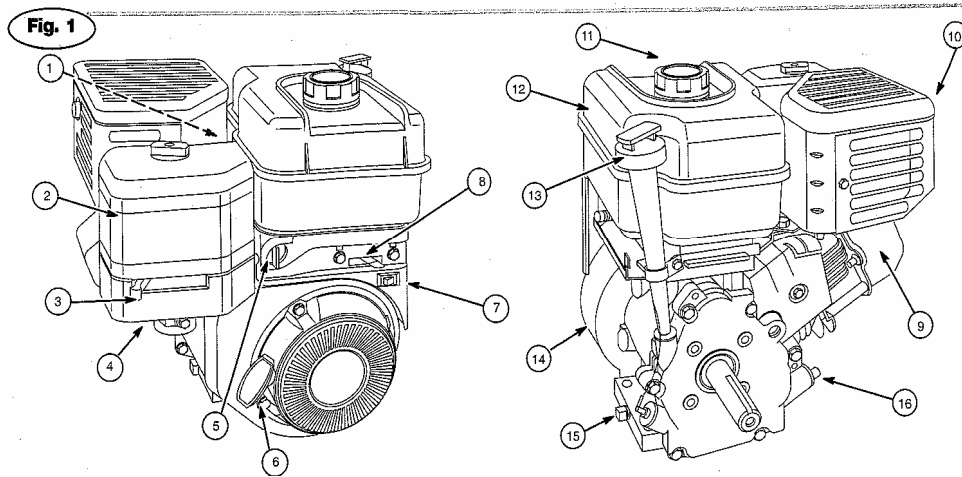
General Recommendations

1. Always observe safety rules when performing any maintenance.
2. The warranty on this chipper shredder does not cover items that have been subjected to operator abuse or negligence.
3. Changing of engine-governed speed will void engine warranty.

4. All adjustments should be checked at least once each session.
5. Periodically check all fasteners and make sure these are tight.

Engine Components (Figure 1)

- | | |
|---------------------------|--|
| (1) Spark Plug Wire | (9) Engine Model/Type/Code Number |
| (2) Air Cleaner | (10) Muffler/Spark Arrester, if equipped |
| (3) Choke | (11) Fuel Fill |
| (4) Carburetor | (12) Fuel Tank |
| (5) Fuel Shut-Off Valve | (13) Oil Fill/Dipstick, if equipped |
| (6) Rope Handle | (14) Blower Housing |
| (7) Stop Switch/Oil Guard | (15) Oil Drain Plug |
| (8) Throttle | (16) Oil Filler Plug |



Engine Care

- Maintain correct oil level and service when necessary.
 1. Check oil level regularly, every 8 hours or daily, before starting engine.
 2. Change oil after first 5 hours of operation. Change oil while engine is warm. See Oil Recommendations for correct type.
- Change Oil in Gear Reduction, if equipped
 1. Remove oil fill plug and oil level plug. Drain oil every 100 hours of operation or every season.
 2. To refill, pour SAE 30 oil into oil fill hole until it runs out level check hole. Replace both plugs.
 3. Oil fill plug has a vent hole and must be installed on top of gear case cover.
- Service air cleaner every 25 hours under normal conditions. Clean every few hours under extremely dusty conditions.
 1. Dual Element Air Cleaners
 - a. Replace pre-cleaner and/or cartridge if very dirty or damaged.
 - b. To service pre-cleaner, if equipped, wash in liquid detergent and water. Squeeze dry in a clean cloth and allow to dry thoroughly. DO NOT oil pre-cleaner.

- c. To service cartridge, clean by tapping gently on a flat surface. DO NOT oil cartridge.
 - d. CAUTION: Do not use pressurized air or solvent to clean Pressurized air can damage filter; solvent will dissolve filter.
2. Rectangle Dual Element Air Cleaner
 - a. Loosen screw and tilt cover down. Remove pre-cleaner (if equipped) and cartridge assembly from cover.
 - b. After servicing pre-cleaner and cartridge, place-cleaner, if equipped (arrows up) over cartridge pleats (pre-cleaner lip will be at bottom of pleats).
 - c. Install pre-cleaner and cartridge assembly in cover.
 - d. Insert tabs on cover into slots in bottom of base.
 - e. Tilt cover up and tighten screw securely.
 3. Oval Dual Element Air Cleaner
 - a. Remove knob and cover. Lift air cleaner off stud.
 - b. After cleaning, reassemble pre-cleaner on cartridge. Push air cleaner firmly down on stud to seat in base.
 - c. Push cover squarely onto base. Tighten knob securely.
 4. Oil Foam Air Cleaner
 - a. To service foam element, wash in liquid detergent and water. Squeeze dry in a clean cloth. Saturate in engine oil. Squeeze in clean, absorbent cloth to remove ALL EXCESS oil.
 - b. Loosen screw and tilt cover down. Remove bracket and foam element from cover.
 - c. Clean bracket, cover and base.
 - d. Install bracket and foam element in cover.
 - e. Insert tabs on cover into slots in bottom of base.
 - f. Tilt cover up and fasten securely with screw.
- Spark Plug Maintenance
 1. Clean/replace spark plug every 100 hours or every season, whichever occurs first.
 2. Spark plug gap should be 0.76 mm (0.030 in).
 - Clean engine regularly with a cloth or brush. Keep the cooling system (blower housing area) clean to permit proper air circulation. Remove all grass, dirt and combustible debris from muffler area.

Removing the Flail Screen

- If the discharge area becomes clogged, remove the flail screen and clean area as follows:
 1. Stop the engine and make certain the chipper shredder has come to a complete stop.
 2. Disconnect spark plug wire from spark plug and ground against the engine.
 3.
 - a) Remove the bag and two wing knobs on each side of the chute deflector.
 - b) Lift the chute deflector up to keep it out of the way.
 - c) Remove the two hairpin clips from each clevis pin which extend through the housing and remove pins.

- d) Remove the flail screen from inside the housing and clean the screen by scraping or washing with water. See Figure 5-2.
4. Reinstall the screen, making certain to reassemble the flail screen with the curve side down.
5. Reattach the chute deflector with the hardware previously removed and connect the bag to unit.

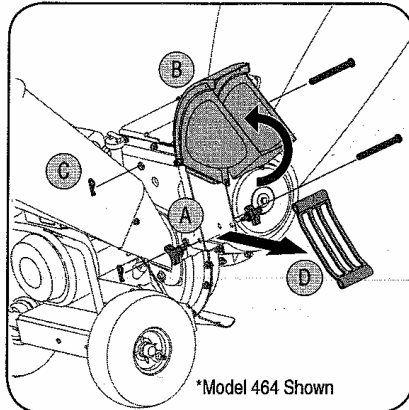


Figure 5-2

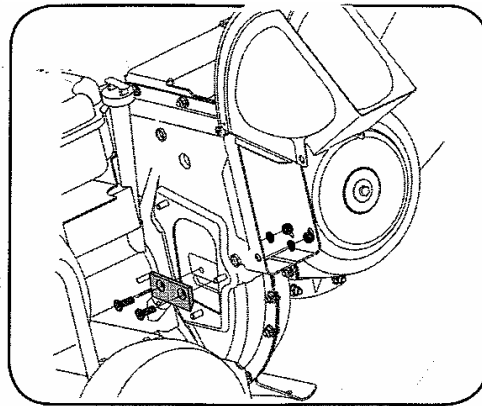


Figure 5-3

Sharpening Or Replacing Chipper Blades

1. Disconnect the spark plug wire and ground against the engine.
2. Remove the flail screen as instructed in the previous section.
3. Remove the chipper chute by removing three hex nuts and washers.
4. Remove the chipper chute support brace (Model Series 460) from the frame by removing the hex bolts.
5. Rotate impeller assembly by hand until you locate one of two chipper blades in the chipper chute opening.
6. Remove the blade by removing the internal hex screws, lock washers, and hex nuts which secure it to the impeller. Retain the hardware. See Figure 5-3.
7. **NOTE:** Use a 3/16" hex key (Allen) wrench on the outside of the blade and a 1/2" box (or socket) wrench on the inside of the impeller. Hold the Allen wrench stationary and rotate the box (or socket) wrench to loosen the nut.
8. Install a replacement blade (Part No. 781-0490) with the hardware removed earlier or sharpen.
9. **IMPORTANT:** When sharpening the blade, protect hands by using gloves. Follow the original angle of grind and make sure to remove an equal amount from each blade.
10. To replace the other blade, rotate the impeller to expose the second blade and repeat the steps above.
11. **NOTE:** Make certain blades are reassembled with the sharp edge facing upward.
Torque hardware to 250-300 in. lbs.

WARNING: The impeller's chipper blades and shredder blade are sharp. Wear leather gloves to protect your hands.

Sharpening Or Replacing the Shredder Blade

1. Stop the engine and make certain that all moving parts have come to a complete stop.
2. Disconnect the spark plug wire and ground against the engine.
3. Lower the hopper assembly and block up the housing.
4. Remove the six hex lock nuts and flat washers from the weld studs on the flail housing. Retain the hardware.
5. Carefully separate the hopper assembly from the impeller assembly and remove the support plate.
6. NOTE: When reassembling the support plate, make certain the embossed tab faces inward towards the impeller.
7. Remove the two wing knobs and cupped washers that secure the chute deflector and raise the chute.
8. insert a ½" or ¾" diameter pipe through the flail screen into the impeller to keep it from turning or remove the flail screen and insert a piece of wood into the chute opening.
9.
 - e. Remove the two internal hex screws, lock washers, and hex lock nuts which secure the shredder blade to the impeller.
 - f. Remove the hex bolt, lock washer, and flat washer to completely free shredder blade. See Figure 5-4.

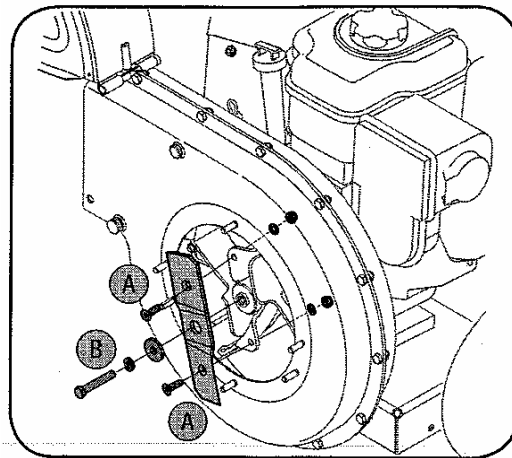


Figure 5-4

NOTE: Use a 3/16" hex key (Allen) wrench on the outside of the shredder blade and a ½" box (or socket) wrench on the inside of the shredder blade. Hold the Allen wrench stationary and rotate the box (or socket) wrench to loosen the nut. Use caution when removing the blade to avoid contacting the weld studs on housing.

IMPORTANT: When sharpening the blade, follow the original angle of grind as a guide. It is extremely important that each cutting edge receives an equal amount of grinding to prevent an unbalanced blade. An unbalanced blade will cause excessive vibration when rotating at high speeds and may cause damage to the unit. The blade can be tested by balancing it on a screwdriver or nail. Remove metal from the heavy side until it is balanced evenly.

Problem	Cause	Remedy
Engine fails to start	<ol style="list-style-type: none"> 1. Throttle lever not in correct starting position (if equipped). 2. Spark plug wire disconnected. 3. Choke not in CHOKE position (if equipped). 4. Fuel tank empty or stale fuel. 5. Engine not primed (if equipped). 6. Faulty spark plug. 7. Blocked fuel line. 8. Engine flooded. 	<ol style="list-style-type: none"> 1. Move throttle lever to FAST or START position. 2. Connect wire to spark plug. 3. Move choke lever to CHOKE position. 4. Fill tank with clean, fresh gasoline. 5. Prime engine as instructed in Engine Manual. 6. Clean, adjust gap, or replace. 7. Clean fuel line. 8. Wait a few minutes to restart, but do not prime.
Engine runs erratic	<ol style="list-style-type: none"> 1. Spark plug wire loose. 2. Unit running on CHOKE (if equipped). 3. Blocked fuel line or stale fuel. 4. Vent in gas cap plugged. 5. Water or dirt in fuel system. 6. Dirty air cleaner. 7. Carburetor out of adjustment. 	<ol style="list-style-type: none"> 1. Connect and tighten spark plug wire. 2. Move choke lever to OFF position. 3. Clean fuel line; fill tank with clean, fresh gasoline. 4. Clear vent. 5. Drain fuel tank. Refill with fresh fuel. 6. Refer to engine manual. 7. See authorized service dealer.
Engine overheats	<ol style="list-style-type: none"> 1. Engine oil level low. 2. Dirty air cleaner. 3. Carburetor not adjusted properly. 	<ol style="list-style-type: none"> 1. Fill crankcase with proper oil. 2. Refer to engine manual. 3. See authorized service dealer.
Occasional skips (hesitates) at high speed	<ol style="list-style-type: none"> 1. Spark plug gap too close. 2. Carburetor idle mixture adjustment improperly set. 	<ol style="list-style-type: none"> 1. Adjust gap to .030". 2. See authorized service dealer.
Excessive Vibration	<ol style="list-style-type: none"> 1. Loose parts or damaged impeller. 	<ol style="list-style-type: none"> 1. See authorized service dealer.
Unit does not discharge	<ol style="list-style-type: none"> 1. Chute deflector clogged. 2. Foreign object lodged in impeller. 3. Low engine RPM. 	<ol style="list-style-type: none"> 1. Stop engine immediately and disconnect spark plug wire. Clean flail screen and inside of discharge opening. 2. Stop engine and disconnect spark plug wire. Remove lodged object. 3. Always run engine at full throttle.
Rate of discharge slows considerably or composition of discharged material changes	<ol style="list-style-type: none"> 1. Low engine RPM. 2. Chipper blade dull. 	<ol style="list-style-type: none"> 1. Always run engine at full throttle. 2. Replace chipper blade or see your authorized service dealer.

Safety Labels Found On Your Chipper Shredder

⚠ DANGER

TO AVOID SERIOUS INJURY:

- Do not operate on uneven ground where unit is unstable. Do not operate on pavement, gravel or other hard surfaces since objects can ricochet and cause injury.
- To avoid a fire hazard, keep leaves, grass, and other combustible materials away from hot engine and muffler.
- Keep children and others away from area of operation.
- Wear approved safety glasses, gloves and ear protection.




**INSTRUCTIONS:
TO RAISE AND LOWER HOPPER**



⚠ DANGER

TO AVOID SERIOUS INJURY:

- Read the owner's manual(s) before starting and using unit.
- Keep all shields and guards in place and securely attached.
- Keep hands, feet, face, clothing and long hair out of Shredder Hopper, Chipper Chute and Discharge Chute while the engine is running. Rotating cutting blades inside these openings will cause serious personal injury if contacted. Material being processed may bounce back from inlet openings or be thrown from the discharge chute. Long hair or loose clothing may be pulled sucked into the inlet openings.
- Do not place branches over 1/2 inch diameter into the large Shredder Hopper. Branches over 1/2 inch in diameter should be placed in the Small Chipper Chute.
- If the chipped shredder jams or becomes clogged, immediately shut off the engine and wait for all moving parts to come to a complete stop before clearing.
- Do not install remove, adjust, or service the discharge screen or any other part while the engine is running. Blade contact can occur.



⚠ WARNING

TO AVOID EYE INJURY, WEAR SAFETY GLASSES.



DO NOT DEPOSIT MATERIAL LARGER THAN 1/2" DIAMETER IN LARGE SHREDDER HOPPER. THIS MAY DAMAGE MACHINE.

⚠ DANGER

- ROTATING CUTTING BLADES. KEEP HANDS AND FEET OUT OF OPENING WHILE MACHINE IS RUNNING.
- DO NOT OPERATE THIS MACHINE UNLESS THE CHUTE DEFLECTOR HAS BEEN PROPERLY INSTALLED AND IS SECURED WITH THE HAND KNOBS.



⚠ WARNING

- Do not transport machine while engine is running.
- Shredder should not be towed on any street, highway or public road.
- Do not tow shredder over 10 m.p.h.
- Do not allow anyone to sit or ride on shredder.
- Do not tow shredder for long distances.
- Before towing, be certain the shredder is correctly attached to towing vehicle.

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⚠ DANGER

DO NOT OPERATE THIS MACHINE UNLESS THE CHUTE DEFLECTOR HAS BEEN PROPERLY INSTALLED.

