Simplicity®

OPERATOR'S MANUAL

CHIPPER/SHREDDER
WITH ELECTRIC START

MODEL 6/14E

Mfg. No. 1692902

Simplicity®
Outdoor Power Equipment

500 N. Spring Street, P.O. Box 997
Port Washington, WI 53074-0997 USA

Form Nos. 1717126

Rev. 4/97
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TP 100-2056-00-CS-S

Baker™

OPERATOR'S MANUAL

CHIPPER/SHREDDER
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⚠ WARNING

You must read, understand and comply with all safety and operating instructions in this manual before attempting to set-up and operate your chipper/shredder.

Failure to comply with all safety and operating instructions can result in loss of machine control, serious personal injury to you and /or bystanders, and risk of equipment and property damage. The triangle in the text signifies important cautions or warnings which must be followed.

⚠ WARNING

Engine exhaust from this product contains chemicals known, in certain quantities, to cause cancer, birth defects, or other reproductive harm.

For easy reference, please record the information on the chart below.

The Equipment Reference Data can be found on the identification tag located on the unit's rear frame. ***(****Refer to the Engine Owner's Manual for location of engine information serial number.)*

EQUIPMENT REFERENCE DATA	
Model Description/Number	
M/N (Manufacturer's Number)	S/N (Serial Number)
Dealer Name	Date Purchased
ENGINE REFERENCE DATA	
Engine Make/Model	Engine ID/Serial Number

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TP 100-2056-00-CS-SB

Safety Rules & Information

⚠ WARNING

You must read, understand and comply with all safety and operating instructions in this manual before attempting to set-up and operate your chipper/shredder.

Failure to comply with all safety and operating instructions can result in loss of machine control, serious personal injury to you and /or bystanders, and risk equipment and property damage. The triangle in the text signifies important cautions or warnings which must be followed.

GENERAL

The Safety Alert symbol shown here is used to alert you to important safety information that must be read, fully understood, and followed at all times when handling, transporting, operating, servicing, or storing your chipper/shredder unit.

Each safety alert symbol is followed by a “signal word” that advises you of the relative intensity, or level, of the hazard the safety alert instructions pertain to.

The following list of signal words is being provided to help you understand the intensity levels associated with each signal word used in this manual.

Safe operation of the chipper/shredder unit requires that all operating and safety instructions be obeyed by everyone who uses, services, or otherwise handles the unit.

Although the instructions and warnings appearing in this manual cover most normal operating conditions, everyone using the chipper/shredder unit must also always follow safe work practices while operating, servicing, or handling the chipper/shredder unit under any conditions not specifically covered in this manual.

⚠ WARNING

Engine exhaust from this product contains chemicals known, in certain quantities, to cause cancer, birth defects, or other reproductive harm.

SETTING UP

1. Although most assembly has been done at the factory, your chipper/shredder unit requires minor assembly and the addition of engine oil before it can be used. Never attempt to start or operate the unit unless the chipper cone and shredder hopper have been properly installed and engine oil has been added.
2. Perform the required assembly in an area where the chipper/shredder can be handled comfortably. Never attempt to assemble the unit unless the engine/base assembly can be held or securely positioned for assembly needs.
3. Use proper hand tools for assembling the chipper/shredder. Never use tools such as adjustable open-end wrenches that can slip off hardware as it’s being fastened. Never use toothed gripping pliers which may damage hardware and make removal difficult.
4. Always use only the hardware provided with this unit for assembly. Never substitute parts, or mix the proper position of parts during assembly. If a part is missing, contact your local dealer for an exact replacement.
5. Assemble the unit in the sequence indicated in the assembly instructions. Make sure all hardware is properly tightened after assembly is completed and before starting the unit.
6. Make sure all required hardware has been installed. Never attempt to start or operate the unit unless you are sure that all required hardware has been used.
7. Inspect the shredder hopper and chipper cone for any debris, loose hardware, or other material that may have fallen in during unpacking and assembly. Always disconnect the spark plug wire from the spark plug, before removing any objects.

Setting Up Continued…

8. Never fill the fuel tank indoors! Gasoline vapors are explosive, and can easily travel unnoticed to sources of ignition, such as pilot lights or open flames on water heaters, furnaces, stoves, or dryers, sparks from electric motors and other electrical appliances, or unattended smoking materials. Contact with these or any other ignition sources will cause an explosion or fire, serious personal injury, and damage to property and equipment.
9. Never overfill the fuel tank. Fuel may run out of the tank and contact hot surfaces on the chipper/shredder motor and ignite, causing a fire and/or risk of an explosion. Fill fuel tank to 1/2" below bottom of filler neck only.
10. Use only an approved container for fuel and always handle the container with extreme care. Never smoke while fueling the chipper/shredder or transporting the fuel container.
11. Never store the fuel container or chipper/shredder indoors where there is a possibility of contact with any ignition source such as a spark, open flame, pilot light, heating element, or smoking materials.
12. Never attempt to operate a unit indoors or in an enclosed area. Engine exhaust contains Carbon Monoxide, an odorless, colorless, and tasteless gas. If inhaled, Carbon Monoxide can cause dizziness, nausea, unconsciousness, and if contact is allowed to continue, brain damage or death.
13. Operators must use extra care in handling gasoline and other fuels. These fuels are flammable and and their vapors can explode.

OPERATING LOCATION

1. Only operate the chipper/shredder outdoors on a firm, level, earthen or grassy area where the unit will be stable and will stay in position. Never attempt to operate the unit on a slope, or on wet or slippery surfaces where you could slip and fall toward the chipper cone or hopper openings.
2. Never operate the chipper/shredder on asphalt, concrete, or other hard or paved surfaces, as material being ejected out of the discharge chute could ricochet, causing injury to you or bystanders in the immediate area.
3. Never operate the chipper/shredder where children, pets, or others who may be unaware of the potential hazards associated with chipping and shredding operations could enter the area unexpectedly and be exposed to these hazards.
4. Never operate the chipper/shredder on rocky or gravel covered surfaces, as this surface debris could enter the unit and cause extensive damage, or be ejected out of the machine with sufficient force to cause a serious injury to you or bystanders.
5. Never operate the chipper/shredder in an area where sparks from the muffler could ignite surrounding brush or flammable materials. See the following Spark/Fire Hazard Warning.

⚠ DANGER

SPARK/FIRE HAZARD

GAS ENGINES MAY REQUIRE A SPARK ARRESTER FOR SAFE OPERATION

If the engine on this unit is not equipped with a spark arrester and is to be used on any forest, brush, or grass-covered unimproved land, a spark arrester must be added to the muffler before using the engine on such land. The arrester must be maintained in effective working order by the operator. In the State of California, the above is required by law (Section 4442 of the California Public Resources Code.) Other states may have similar laws. Federal laws apply on federal lands. See your authorized engine service center for muffler spark arrester options.

SAFE WEARING APPAREL

1. Always wear safety goggles to protect your eyes from flying debris when operating the chipper/shredder. One pair of safety goggles has been provided with the unit for your immediate use. All others in and around the immediate area must also wear approved safety glasses to protect their eyes from flying debris.
2. Wear hearing protection when the chipper/ shredder is to be used for prolonged periods of time, or whenever noise reaches an uncomfortable level.
3. When wearing work gloves, only wear properly fitted leather work gloves to protect your hands from cuts and scratches caused by tree limbs and branches. Never wear gloves with pull-ties or straps, as these could get entangled with branches and draw your hands into the chipper cone or shredder hopper cutting areas.
4. Never wear loose fitting clothing, hanging jewelry, ties, scarves, or other items that could get caught on tree limbs, branches, or moving parts, and draw your body parts into the cutting areas of the chipper cone and shredder hopper.
5. Always tie up long hair and prevent it from hanging down, where it could become tangled in branches or get caught in rotating parts and pull you into the cutting areas.
6. Even if you are wearing heavy-duty leather work gloves, never, ever place your hands in the chipper cone or shredder hopper while the unit is running. If you must reach in to clear a jam or free up branches, shut the unit off, disconnect and secure the spark plug wire at the spark plug, and carefully remove or clear the jammed material.

OPERATING SAFETY

1. Always obey the size limitations for tree limbs and branches stated in the Waste Materials Guide portion of this manual.
2. Never leave the machine running unattended. Always turn off the engine, wait for the rotor to come to a complete stop, and disconnect and secure the spark plug wire before leaving the area. Always move the unit to a safe storage area when not in use.
3. Always maintain secure footing and solid balance while starting or operating the chipper/shredder. Never lean directly over the machine.
4. Always stand to the side of the chipper cone when feeding tree limbs and branches into the unit, as tree limbs, branches, and harder woods may whip around while being chipped.
5. Always keep hands out of the chipper cone and shredder hopper when feeding materials. Never wrap fingers tightly around branches as you are feeding them into the unit, as a sudden inward surge could pull your hands and arms into the unit.
6. Always stand clear of the discharge area to avoid being struck by ricochets or material being ejected from the machine.
7. Never allow material to build up in the discharge area or shredding chamber, as this may cause new material being fed into the machine to kickback with sufficient force to injure you or other bystanders.
8. Never allow material to build up around the engine during chipper/shredder operation. This could result in a fire or overheating of the engine.
9. Never attempt to reposition or move the chipper/shredder unit while it is running. Doing so could cause the machine to tip over, and reaching to steady the unit could result in accidental insertion of your hands into the chipper cone or shredder hopper areas.
10. Never continue to operate the machine if it starts making unusual noise or vibration. Shut the engine off immediately, allow the rotor to stop, disconnect the spark plug wire from the spark plug, and do the following:

• Inspect the unit for any signs of damage or foreign material in the chipping or shredding areas. Remove any solid material that may be preventing the unit from operating properly.

• Check for loose parts, and loose or missing hardware, and repair or replace as required.

• Check the oil level in the engine crankcase. See ENGINE OIL LEVEL under Servicing The Chipper/Shredder.

11. Never attempt to clear clogs from the chipper cone, shredder hopper or discharge chute while the unit is running. Always shut the engine off, allow the rotor to come to a complete stop, and remove the spark plug wire from the spark plug before removing excess materials.
12. Never fill the fuel tank while the machine is running or while the engine is hot. An unexpected spill of fuel could contact a hot surface and ignite, causing fire or explosion. Turn off the engine, and allow the engine to cool before attempting refilling.
13. Never attempt to perform any maintenance, repairs, or attachment of accessories while the unit is running. Always shut the unit off, allow the rotor to come to a complete stop, and disconnect and secure the spark plug wire from the spark plug before beginning these activities.
14. Never remove guards, deflectors, or warning labels from the unit. If any of these are found to be missing, take the unit out of service until the appropriate repairs can be made. Tag the machine so others do not mistakenly attempt to use it while awaiting parts or repairs.
15. Always make sure that the shredding chamber, shredder hopper, and chipper cone are empty before restarting the unit after it has been idle. Attempting to start the unit with material in these areas could cause the engine starting cord to stop suddenly, injuring your hand and fingers, or toppling the unit over.
16. Never tamper with any engine controls to alter or increase maximum unit running speed. An over speeding condition could cause the engine to overheat, resulting in risk of fire, permanent engine damage, and voiding of your product warranty.
17. Always comply with the engine manual instructions for operating and periodic maintenance requirements. Make sure the oil level is always in the safe zone, and keep the air filter element clean.
18. Never allow children to operate the machine. Do not allow adults to operate it without proper instruction.
19. The unit must be shut off before attaching or removing the bag. Shut the engine off, wait for all moving parts to stop, remove and secure the spark plug wire, then attach or remove the bag.
20. Make certain that pieces of metal, rocks, bottles, cans, or other foreign objects are not accidentally included when feeding material into the chipper/shredder.

TRANSPORTING AND STORAGE

1. Always use the hopper handle and built-in wheels to move the chipper/shredder. Never lift the unit using the fuel tank for support. If the unit must be lifted , always use at least two people, and always grip the unit securely using the front leg and hopper handle.
2. If the unit must be tilted for transporting, consult the engine manual for required preparation. Normally, fuel and oil must be drained to prevent dangerous fuel leakage, and unwanted transfer of the sump oil into the cylinder head area.
3. Always refill the engine with the recommended oil before attempting to use the unit again after it has been drained for transportation.
4. Always observe safe refueling and fuel handling practices when refueling the unit after transportation or storage.
5. Always follow the engine manual instructions for storage preparations before storing the unit for prolonged periods.
6. Always follow the engine manual instructions for proper start-up procedures when returning the unit to service.

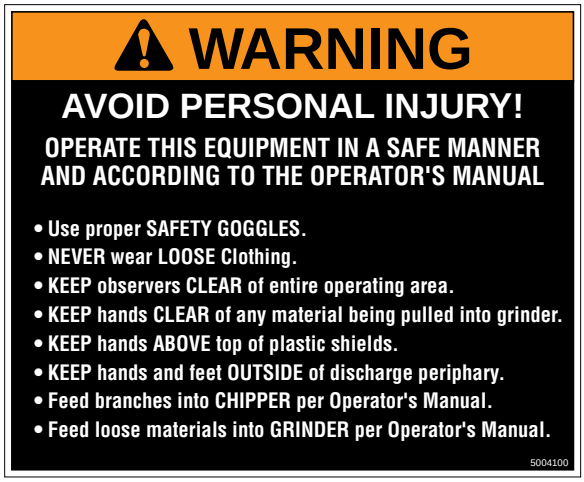
SERVICE AND MAINTENANCE

1. Before performing any service or repair, shut the engine off, wait for all moving parts to stop, then disconnect and secure the spark plug wire.
2. Always follow recommended engine and chipper/shredder procedures when performing required service and maintenance on the unit.
3. Use only factory authorized replacement parts when making repairs.
4. Always comply with recommended factory specifications on all settings and adjustments.
5. Only factory authorized service locations should perform major service and repairs.
6. Never attempt to make major repairs on this unit unless you have been properly trained and certified to work on large capacity chipper/shredder units. Improper service procedures can result in hazardous operation, equipment damage, and voiding of manufacturer's warranty.

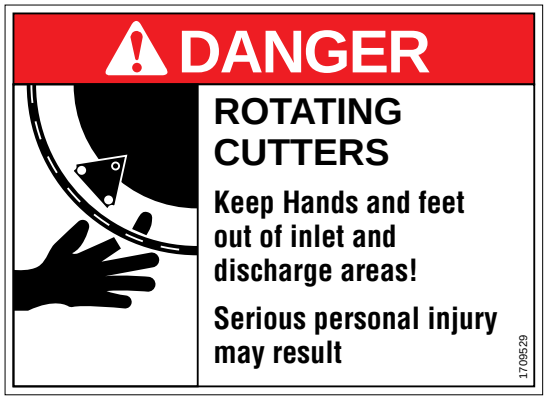
SAFETY DECALS

Safety warning decals are placed at strategic locations on the chipper/shredder as a constant reminder to the operator of the most important safety precautions. All Warning, Danger, Caution, and instructional messages on your chipper/shredder should be carefully read and obeyed.

If any of these decals are lost or damaged, replace them at once. They can be purchased from your dealer.



Part No. 504100
Operation / Warning Decal



Part No. 504100
Danger Decal

Part No. 1709529
Danger Decal

Part No. 1714640
Caution Decal

Becoming Familiar With The Chipper/Shredder

Each of the major components described below (see Figure 1) serve a specific function on the chipper/shredder. **Please take a moment and familiarize yourself with the name, location, and function of these components** so that you will better understand the safety and operating instructions provided in this manual.

A. Shredder Hopper — funnels leaves and other debris into the shredder housing.

B. Chipper Cone — helps guide tree limbs and branches directly into the chipper knives.

C. Discharge Chute —ejects the material out of the chipper/shredder, delivering processed materials to a specific area. The deflector shield directs debris down, while allowing soft materials to be ejected freely from the machine.

D. Collection Bag — this two-bushel bag is used to collect discharged material.

E. Engine — four-cycle air-cooled engine provides the power to chip or shred materials. Please read the engine manufacturer's manual for additional important information.

F. Fan/Rotor Housing Assembly — contains the chipper knives and shredding hammers that process the materials you'll be chipping and shredding.

G. The Support Leg And Wheels — give the chipper/shredder a stable, 3-point stance, allowing solid positioning on ground surfaces.

H. Shredding Hammers — the free-swinging, triangular shredding hammers and "J" hammers help pull material into the shredding chamber. The triangular hammers can be rotated yielding 6 different usable cutting edges.

I. Chipper Knives — are constructed of precision-tempered solid steel and can be sharpened.

J. *Optional Vacuum Kit* — for vacuuming up loose debris, this kit includes a vacuum hose, leaf scoop and other attachments.

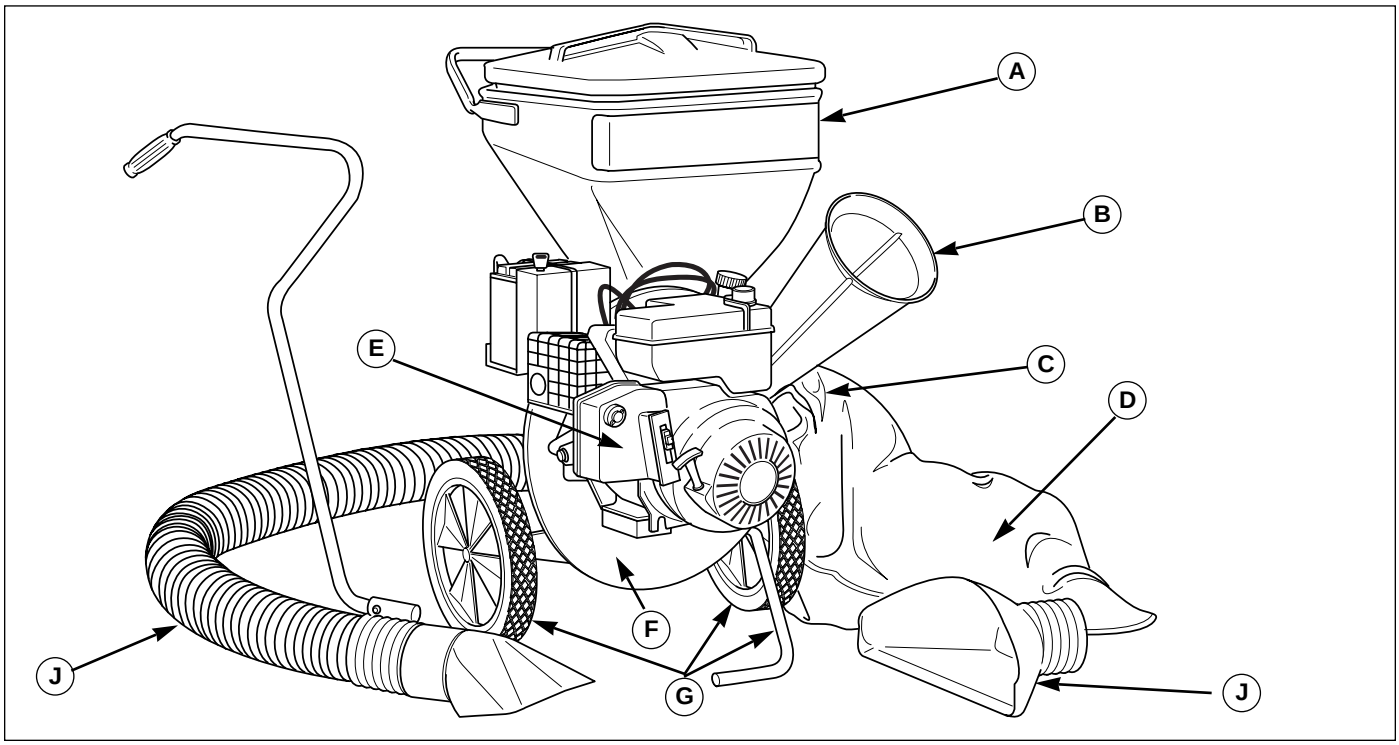


Figure 1. Major Components of your Chipper/Shredder

A. Shredder Hopper
B. Chipper Cone
C. Discharge Chute
D. Collection Bag
E. Engine
F. Fan/Rotor Housing Assembly
G. Support Leg & Wheels
H. Shredding Hammers (Not Shown)
I. Chipper Knives (Not Shown)
J. *Optional Vacuum Kit*

Assembling the Chipper Shredder

GENERAL

All of the major assembly procedures on your new Chipper/Shredder were performed at the factory, and only the items listed in this section need to be taken care of to make your unit fully operational.

TOOLS REQUIRED

- 1/2" Box Wrench or Socket
- 7/16" Box Wrench or Socket
- 1/4" Hex Wrench
- Phillips Screw Driver
- Hex (Allen) Wrench

HARDWARE DESCRIPTION

The hardware pack included with your unit contains the items listed below. (Additional hardware may be involved for other models.)

Description	Qty.
• BOLT, Hex Head 5/16-18 x 1	1
• BOLT, Hex Head 5/16-18 x 3/4	2
• BOLT, Hex Head 5/16-18 x 1/2	2
• WASHER, Flat 5/16	4
• LOCKWASHER, 5/16	2
• CAPSCREW, Hex Socket 1/4-20 x 3/4	6
• NUT, Flange (Whiz-lock) 1/4-20	6
• WASHER, 1/4	4

Attaching the Chipper Cone

1. See Figure 2. Position the chipper cone assembly base onto the mounting casting and attach the cone using the hex socket screws (1/4-20 x 3/4") and the 1/4" lock nuts provided.
2. Tighten lock nuts securely using a 7/16" wrench or socket.

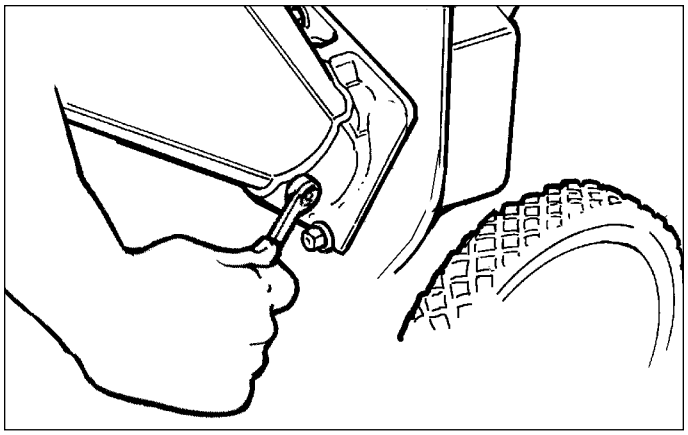


Figure 2. Installing Chipper Cone

Attaching the Handle

1. Lift the hopper handle up until the outer holes in the handle align with the holes in the shredder hopper. See Figure 3.
2. Secure the Hopper Handle in position using 1/4-20 x 3/4 hex socket screws, and 1/4-20 Whiz nuts, inserting the screws from the outside of the hopper.
3. Tighten all four screws securely.

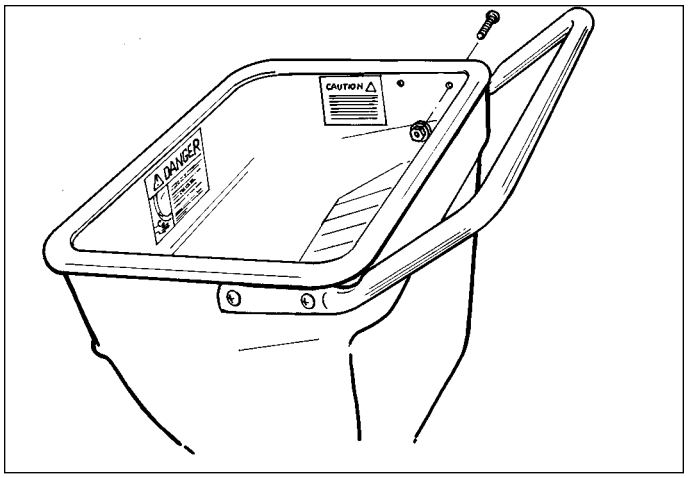


Figure 3. Installing the Hopper Handle

Attaching the Hopper

1. See Figure 4. Attach the hopper to the rotor housing, using care to engage the metal lip of the hopper liner to the inside of the housing.
2. Secure the hopper to the rotor housing using (2) 5/16 x 1/2 hex head bolts and (2) 5/16 flat washers. Do not tighten hardware at this time.

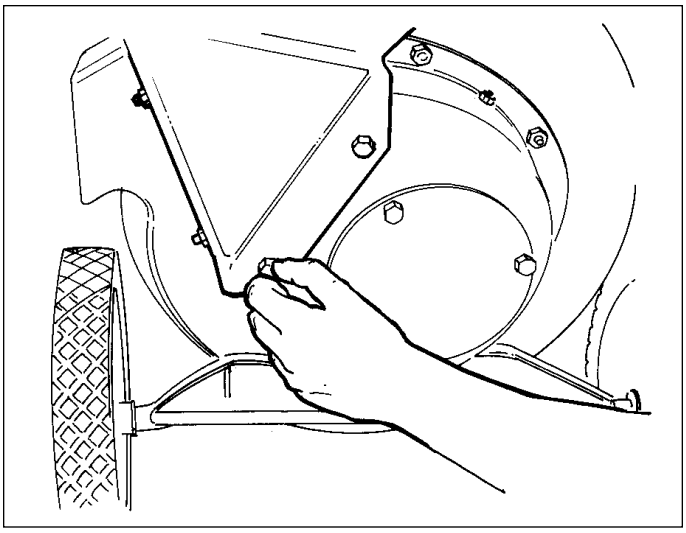


Figure 4. Attaching Hopper to the Rotor

3. See Figure 5. From the inside of the hopper, install (1) 5/16-18 x 3/4 hex head bolt, 5/16 lockwasher, and 5/16 flat washer into each of the upper and lower holes of the metal hopper liner. Do not tighten at this time.
4. Make sure the hopper is properly seated on the rotor housing, and then tighten all hardware securely.

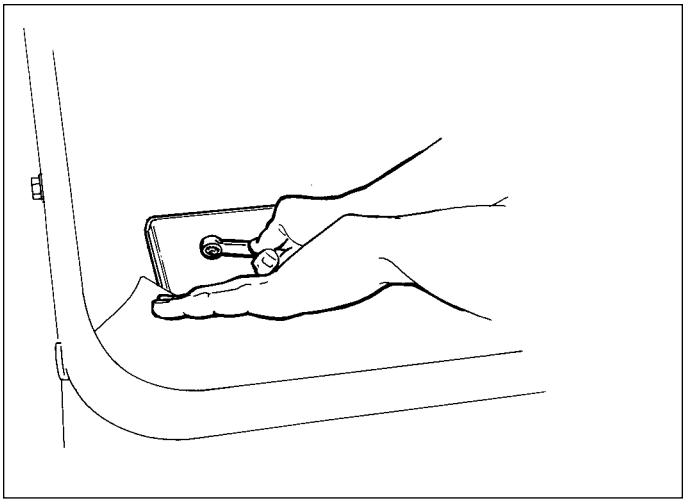


Figure 5. Installing Hardware Inside Hopper

Assembling the Chipper/Shredder

Attaching the Discharge Bag

Your unit comes equipped with a bag for collecting debris as it exits the discharge chute. Shut off engine, wait for it to stop, pull and secure spark plug wire,

See Figure 6 for installation.

Figure 6. Attaching the Discharge Bag

Check & Fill Engine Oil

Check the engine oil level on the dipstick (see Figure 7). If needed, fill the engine with proper oil specified by the engine manufacturer. See page 19 of this manual for additional information on the filling procedure. Consult the engine manufacturer's manual for details.

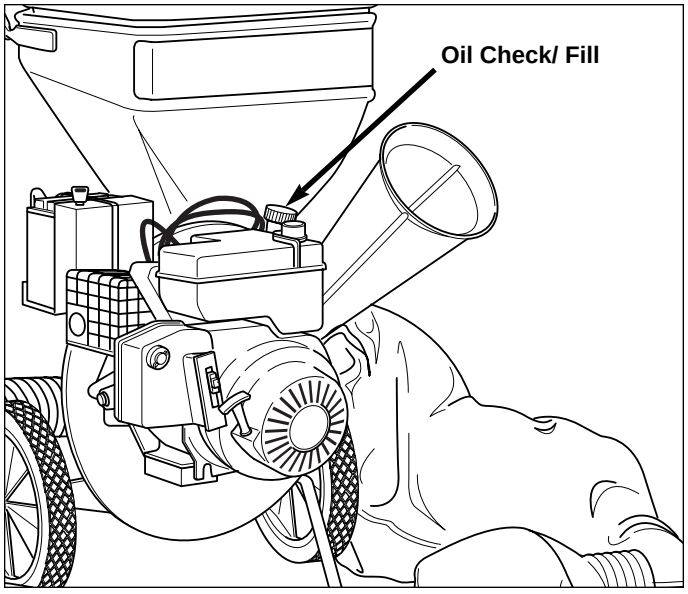


Figure 7. Check & Fill Engine Oil

Controls & Operation

CHECKS BEFORE STARTING

1. Inspect the chipper cone and shredder hopper for debris and other objects that may have fallen into the machine while the unit was stored, and remove them before starting the unit. Before reaching into the openings turn off the ignition and disconnect and secure the spark plug wire.
2. Inspect the chipper cone and shredder hopper, and make sure that they are firmly attached to the housing.
3. Check all parts to ensure that they are properly attached and that all fasteners are properly tightened.
4. Make sure the discharge chute deflector pivots freely, allowing mulch to be discharged freely. If the deflector does not pivot, loosen the mounting screw slightly to reduce tension on the pivot point.
5. Before attempting to start the engine, make sure:

- Engine oil is full.
- No fuel has spilled onto engine or surrounding components.
- All hardware and parts are properly secured.
- No foreign objects are in chipper cone or shredder hopper.
- Your clothing is not excessively loose or hanging down, and you are not wearing jewelry or other articles that could get caught in the machinery.

SITE LOCATION

1. Only operate the chipper/shredder outdoors on a firm, level, earthen or grassy area where the unit will be stable and will stay in position. Never attempt to operate the unit on a slope, or on wet or slippery surfaces where you could slip and fall toward the chipper cone or hopper openings.
2. Never operate the chipper/shredder on asphalt, concrete, or other hard or paved surfaces, as material being ejected out of the discharge chute could ricochet, causing injury to you or bystanders in the immediate area.
3. Never operate the chipper/shredder where children, pets, or others who may be unaware of the potential hazards associated with chipping and shredding operations could enter the area unexpectedly and be exposed to these hazards.
4. Never operate the chipper/shredder on rocky or gravel covered surfaces, as this surface debris could enter the unit and cause extensive damage, or be ejected out of the machine with sufficient force to cause a serious injury to you or bystanders.
5. Never operate the chipper/shredder in an area where sparks from the muffler could ignite surrounding brush or flammable materials. See the following Spark/Fire Hazard Warning.
6. Locate the unit near the waste materials to be processed to reduce lifting and carrying.
7. Trim and stack the materials for more efficient and safe operation of the chipper/shredder unit.
8. Provide sufficient room for maneuvering around the chipper/shredder. Never set up the work area so that operators must over-reach or have to step over materials to be processed.
9. Review all operating safety instructions before proceeding.

ENGINE CONTROLS

A. Ignition Switch — has three positions: START, RUN, and OFF. START cranks the engine for starting. RUN disengages the starter and allows the unit to run or be started with the recoil starter. OFF stops the engine.

B. Primer — assists in starting the engine by injecting fuel directly into the venturi of the carburetor.

C. Throttle/Stop Switch — controls the engine speed and has three positions: FAST, IDLE, and STOP. FAST runs the engine at maximum speed. This is the setting used while chipping and shredding. IDLE runs the engine at its slowest speed. Use idle to reduce stress on the engine when chipping or shredding is not being performed. STOP stops the engine.

D. Recoil Starter — is used to pull the engine over by hand for manual starting.

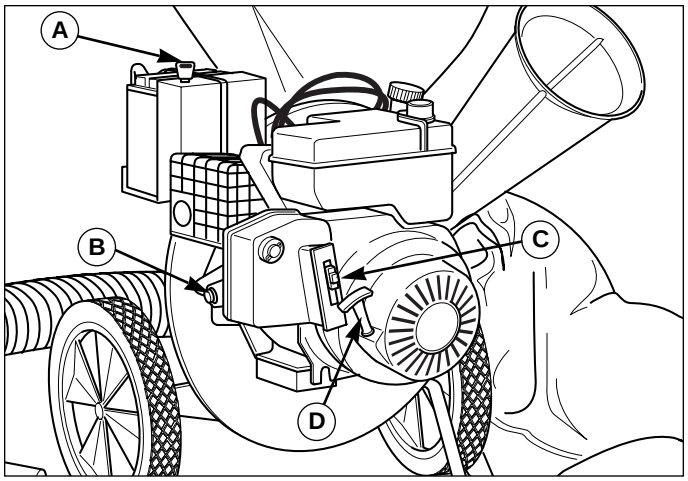


Figure 8. Descriptive Title

A. Ignition Switch
B. Primer
C. Throttle/Stop Switch
D. Recoil Starter

START-UP

The controls required to start and run the chipper/shredder are located on the engine, see Engine Controls. Also see the engine manual for engine related information.

Cold Starts

1. Install spark plug wire.
2. Push the primer three times.
3. Move throttle lever to the fast position.
4. Place foot on front support leg to hold unit firmly in place, and adopt a stable stance.
5. **Electric start:** Turn the ignition key to the start position. Crank the engine until it starts.

   Manual start: Pull recoil starter rope rope out and allow rope to return normally. Repeat until the engine starts.
6. Leave the throttle in the fast position for chipping and shredding.

NOTE: Because engines function differently under different conditions, the engine may need to be primed more or less than 3 times. You must determine what procedure works best for your conditions.

Restarting A Warm Engine

Restarting an engine that is already warm from previous running does not normally require as much priming.

1. Press the primer once.
2. Move throttle lever to the fast position.
3. Place foot on front support leg to hold unit firmly in place, and adopt a stable stance.
4. **Electric start:** Turn the ignition key to the start position. Crank the engine until it starts.

   Manual start: Pull recoil starter rope rope out and allow rope to return normally. Repeat until the engine starts.
5. Leave the throttle in the fast position for chipping and shredding.

NOTE: Because engines function differently under different conditions, the engine may need to be primed more or less than 1 time. You must determine what procedure works best for your conditions.

SHUTTING DOWN

When you're done using the chipper/shredder, following these simple but worthwhile steps will help you shut down the unit properly so that your next use will be trouble-free.

1. When you have completed processing the materials to be chipped or shredded, shut the engine off and allow the rotor to come to a complete stop before proceeding.
2. Remove the spark plug wire from the spark plug to prevent the possibility of inadvertent starting.
3. Inspect the following areas for any remaining materials that may have built up or become caught during the final chipping and shredding operations:
   - Shredder Hopper
   - Chipper Cone
   - Discharge Chute
   - Engine Recoil Starter Area

Using Your Chipper/Shredder

GENERAL FUNCTIONS

Your Chipper/Shredder is a multi-use tool for chipping tree limbs, shredding brush and leaves, and vacuuming up leaves and small organic materials. Learning how and when to use each function will increase the value of the Chipper/Shredder in your gardening tasks.

Chipper

The chipper is designed to handle tree limbs and branches up to 3" (7.5 cm) in diameter. It can also process organic matter such as corn stalks and berry canes.

Tree limbs and branches should be inserted “butt end” first into the chipper cone. The cone feeds the branches into the two rotor mounted chipper knives. Because of the angle of the blades the chipper will, to an extent, feed itself. The chips of material then pass through a slot in the rotor behind the chipper knives, where discharge air flow moves them through the fan chamber and out of the discharge chute.

Shredder

The shredder is designed to shred light brush, leaves, and other soft but bulky organic waste.

As this material is loaded into the shredder hopper, it is pulled into the path of swinging triangular hammers by “J” shaped shredding hammers. The hammers cut and grind the waste into progressively smaller pieces, and air flow then forces the reduced waste through scallops and out of the discharge chute.

Rotor Vacuum Blades

In addition to the shredding hammers and chipping knives, the rotor has four integrated fan blades. When the rotor spins, a vacuum action is created, which pulls waste down into the shredder hopper and into the grinding chamber. These spinning fan blades also create a blowing force that ejects shredded or chipped material out of the discharge chute, making room for more material to be pulled in and processed.

Discharge Bag

The discharge bag allows discharged materials to be collected. Before emptying the bag, be sure to shut off the engine, allow the rotor to stop completely, and remove and secure the spark plug wire. (See *Attaching the Discharge Bag* on page 10.)

Optional Vacuum Kit

The vacuum force created by the design of the fan blades and rotor makes it possible to equip your chipper/shredder with an optional vacuum attachment that greatly simplifies the processing of leaves and other loose waste. The vacuum kit attaches directly to the back of the grinder. A cover is placed over the shredder hopper diverting the chipper/shredders vacuum force to the vacuum attachment.

The vacuum kit allows leaves to be raked directly into the leaf tray, where vacuum action draws the material into the shredding chamber.

For hard-to-reach places, a nozzle and handle assembly can be used to vacuum material up much like a vacuum cleaner. The strength of the vacuum can be adjusted for different situations by turning the sleeve on the nozzle assembly.

⚠ WARNING

NEVER allow anyone to operate the unit or remain in the immediate area UNLESS they are wearing approved safety goggles.

Figure 9. Chipping of Tree Limbs

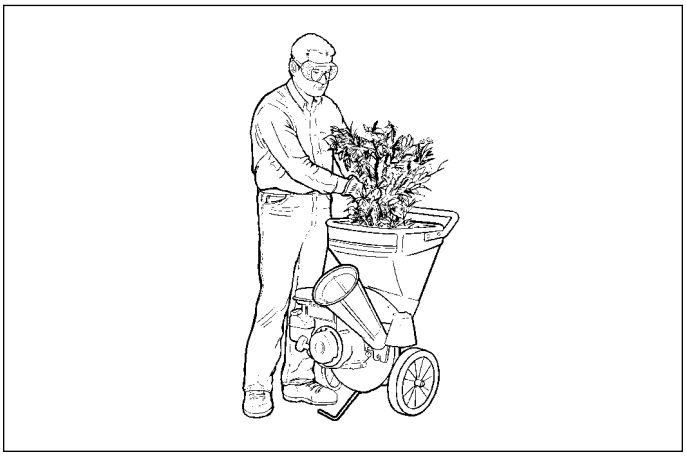


Figure 10. Shredding of Brush and Leaves

PROPER TECHNIQUE FOR CHIPPING

Always maintain a stable, well-balanced stance to one side of the unit when operating the chipper/ shredder. Never stand directly in front of the chipper cone when performing chipping operations, since occasional kick-backs may occur, and result in you being struck by the tree limb or branch being kicked back.

Hold tree limbs and branches carefully to maintain control as they are being fed into the chipper cone, letting the self-feeding action of the unit pull the material in.

Never wrap your fingers around tree limbs and branches so tightly that you can't let go quickly if the tree limb or branch is suddenly pulled into the chipper block.

Figure 11. Correct Chipping Stance

TIPS FOR BETTER CHIPPING

DO's

1. Prune tree limbs and large branches to limit their size to the maximum diameter allowed. Pruning tree limbs and branches close to the main portion of the limb or branch will make feeding into the chipper cone easier, and will help you maintain control as the material is drawn into the chipper block.
2. Manually rotate large, hard, or dried-out tree limbs that tend to resist chipping. Rotating as well as alternately inserting and retracting large, hard, or dried-out limbs allows the chipper knives to "take smaller bites" out the of material being chipped.
3. Always maintain adequate control of the tree limbs and branches being fed into the chipper cone to prevent them from whipping around and causing injury to you or damage to the cone. Larger limbs and branches may have a tendency to kick back toward the operator, so always be alert as you feed materials into the cone.
4. Group bunches of smaller branches together for easier feeding.

DON'Ts

1. If the material being chipped does not easily feed into the chipper, do not force it into the chipper. If the material to be chipped is extremely hard, kicks back forcefully, or cannot be easily controlled while it is being fed into the unit, remove the material immediately and set it aside. The material may not be suitable for chipping or you may need to sharpen the chipper blades to process the material. If normal chipping operation begins to require additional feeding force to process material, the chipper knives may be in need of routine sharpening. Consult the maintenance and service section of this manual for sharpening instructions, or take your unit to an authorized service center for prompt, reliable service.
2. Never use the chipper/shredder to chip very hard, dry materials such as kiln-dried dimensional lumber (2x4's, 1x2's, etc.), or other building and lumber yard materials.
3. Never use the chipper/shredder to chip pressure-treated wood products such as landscape timbers, fenceposts, or other outdoor building or landscaping lumber products.
4. Avoid chipping long pieces (over 6') because the outer end can whip in a circular motion and strike you or bystanders, causing personal injuries.
5. Never place your hands in the chipper cone to feed short lengths of material. As the material is chipped, short lengths may be pushed into the chipper with another tree limb.

PROPER TECHNIQUES FOR SHREDDING

Leaves and Lightweight Organic Matter

Place material to be shredded directly into the shredder hopper. Avoid large amounts of moist material that can cause shredded matter to build up in the discharge chute and prevent proper discharge. Alternate the processing of dry and moist materials to help prevent clogging of the discharge chute. When time permits, let wet material dry out for a few days prior to shredding.

Figure 12. Feeding Leaves and Lightweight Material

Properly Technique For Feeding Longer Materials

When processing brush, small branches, or other long types of organic matter, feed the materials to be shredded into the shredder hopper lengthwise, butt end first, to prevent clogging of the hopper.

If brush gets tangled and clogged as it's being fed into the hopper, never reach into the hopper to clear it while the unit is running. Shut the engine off, let the rotor come to a complete stop, and disconnect and secure the spark plug wire before attempting to clear the hopper.

Never wrap your fingers around branches so tightly that you can't let go quickly if the branch is suddenly pulled into the shredder hopper.

Figure 13. Feeding Brush and Longer Shreddables

Using the Optional Vacuum Kit

The vacuum kit attaches directly to the back of the grinder. A cover is placed over the shredder hopper diverting the chipper/shredders vacuum force to the vacuum attachment.

The vacuum kit allows leaves to be raked directly into the leaf tray, where vacuum action draws the material into the shredding chamber.

For hard-to-reach places, a nozzle and handle assembly can be used to vacuum material up much like a vacuum cleaner. The strength of the nozzle vacuum can be adjusted for different situations by turning the sleeve on the nozzle assembly.

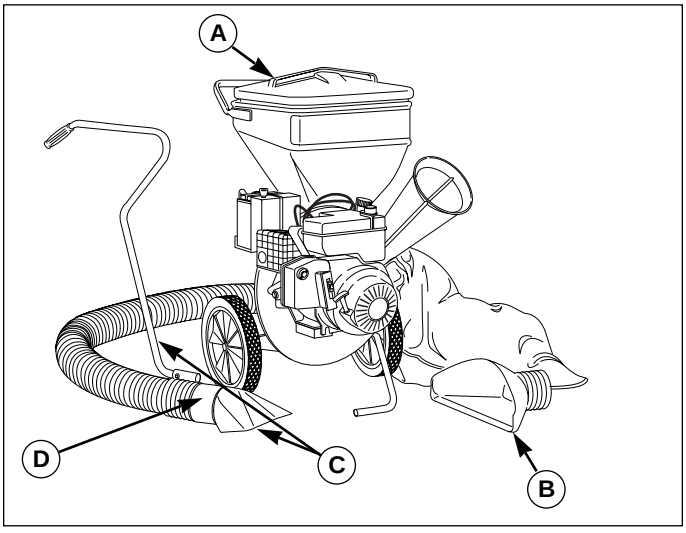


Figure 14. Vacuum Attachment (Optional)

A.	**Cover**	**C.**	**Nozzle and Handle**
B.	**Leaf Tray**	**D.**	**Vacuum Adjuster**

TIPS FOR BETTER SHREDDING

DO's

1. Process materials at a feeding rate that allows the rotor to keep turning at a consistently high rate of speed.
2. Alternate wet and dry material to prevent the discharge chute from becoming plugged. Dry and moist organic material including leaves, plants, flowers, fruits, and vegetables can all be shredded so long as dry and moist materials are alternated to help clear the shredder. Dry waste is more easily processed than moist waste.
3. Allow wet material to dry out for a few days prior to shredding if time permits.

If using the vacuum attachment:

4. Use the vacuum to collect light, loose, dry waste such as leaves, grass clippings, and light shavings, or sawdust.

DON'Ts

1. Do not overload the shredder hopper by dumping large volumes of material into the hopper opening. If the engine speed slows down dramatically, you are overloading the shredder.
2. Do not feed branches and twigs larger than 1/2" in diameter, or longer than 18", into the shredder.
3. Never use any object to force material into the shredder chamber. It could get caught in the shredding hammers and damage the unit, reducing shredder hammer effectiveness.

If using the vacuum attachment:

4. Do not overload the vacuum hose. Twigs, wet leaves, and other bulky materials will clog the hose and prevent shredding. The vacuum is engineered for small, loose waste and for cleaning around decorative landscaping and flower beds.
5. Avoid vacuum operation on areas where hard, non-organic materials such as gravel, dirt clumps, or other hard objects could get vacuumed into the shredder chamber.

Waste Materials Guide

Your chipper/shredder is designed to efficiently process a wide variety of organic yard and garden waste materials. To obtain consistent performance, extend the life of your unit, and help ensure safe operation, do not attempt to process non-organic materials. If you are unsure about processing a material not covered below, contact your local authorized dealer.

If you encounter any difficulties while processing any of these recommended materials, consult the troubleshooting section of this manual for guidance and recommended corrective action.

Type Of Waste	Size Limitations	Method to Use	Notes
Long, thicker tree limbs, smaller branches, or small branches grouped together for ease of handling.	**Maximum Diameter:** Model 6/14E - 2 1/2" (6.5 cm) **Maximum Length:** Model 6/14E - 6' (2 Meters)	Chipping	Bulky tree limbs and branches may need to be pruned close to the main stem to pass through the chipper cone properly. As the material is chipped, short lengths may be pushed into the chipper with another tree limb or batch of branches. **Never place hands in chipper cone to feed short lengths of material.** Avoid long pieces (over 6') as the outer end can whip in a circular motion and strike you or bystanders, causing personal injuries. **Never** use the chipper/shredder to chip very hard, dry materials such as kiln-dried dimensional lumber (2x4's, 1x2's, etc.), or other building and lumber yard materials. **Never** use the chipper/shredder to chip pressure-treated wood products such as landscape timbers, fence posts, or other outdoor building or landscaping lumber products.
Dry or moist organic material, including leaves, plants, flowers, fruits, vegetables.	Branches and twigs up to 1/2" diameter and 18" long.	Shredding	Alternately chip or shred moist, green waste with dry waste to avoid plugging of discharge chute. If time permits, allow wet material to dry out for a few days prior to shredding.
Light, loose, dry waste, such as leaves, grass clippings, and light shavings, or sawdust.	Small materials that will not obstruct the vacuum hose as it's being vacuumed.	Vacuum/ Shredding (Optional)	The vacuum is engineered for small, loose waste and for cleaning around decorative landscaping and flower beds. Twigs, moist leaves, and other bulky materials will clog the hose and prevent shredding. Dry waste is more easily processed than moist waste. Process at a feeding rate that allows the engine to keep turning at a consistently high rate of speed. Avoid vacuum operation on areas where hard, non-organic materials such as gravel, dirt clumps, or other hard objects could get vacuumed into the shredder chamber.

Regular Maintenance

Keeping your chipper/shredder in top running condition will prolong its life, and help you obtain optimum performance whenever you wish to chip or shred yard or garden waste.

Please read the normal care schedule below, and observe these recommended care operating intervals to extend the life of your unit.

NORMAL CARE PROCEDURES & SCHEDULE

Perform Each item at the Interval Shown

ITEM	Page	5 Hrs	25 Hrs	100 Hrs*
Check For Loose Parts & Hardware	19	●		
Check Oil Level And Add As Req'd	19	● Each Use		
Change Oil	19		● **	
Change Spark Plug	20			●
Clean Engine Fins & Air Intake Area	20	●		
Clean/Oil Air Filter Element	21		●	
Inspect Starter Rope & Handle	21			●
Inspect Battery & Electrical Connections	21			●
Check Battery Electrolyte Level	21			●
Lube Starter Drive Gear	22			●
Lubricate Wheel Axles	22			●
Inspect Chipper Cone & Shredder Hopper	22			●
Inspect Hopper Guards	23			●
Inspect/Rotate Shredding Hammers	23		●	
Inspect/Sharpen Chipping Knives	23		●	
Check Safety Labels	24	● Each Use		

* Perform required care yearly or at 100 Hour intervals, whichever is less.

** Change the engine oil after the first 5 hours of operation, then after every 25 hours of operation. See engine manual for oil recommendations or contact your dealer.

NOTE: Any unusual noise or vibration, decreased performance, or engine odor, requires immediate attention.

General

The following information will help you make the necessary checks and perform the procedures required to follow the normal care recommendations made for your chipper/shredder unit.

Your local authorized dealer can make these checks and perform the required procedures for you.

CHECK FOR LOSE PARTS AND HARDWARE

Check the following areas, and tighten as required:

1. Chipper Cone & Cone Mounting
2. Shredder Hopper
3. Rotor Housing
4. Deflector Shield

OIL LEVEL

1. Oil level must be full. Check the oil level by removing and checking the engine dip-stick (Figure 15). The oil level should be up to the full mark on the dip-stick.
2. Add the recommended oil a little at a time so as not to overfill.
3. Do not overfill the engine oil! Excess oil can be detrimental to the engine.
4. After the proper oil level is reached, replace the dip-stick and clean surrounding area of any spilled oil to prevent the sticking of debris that could fall into engine during the next oil check.

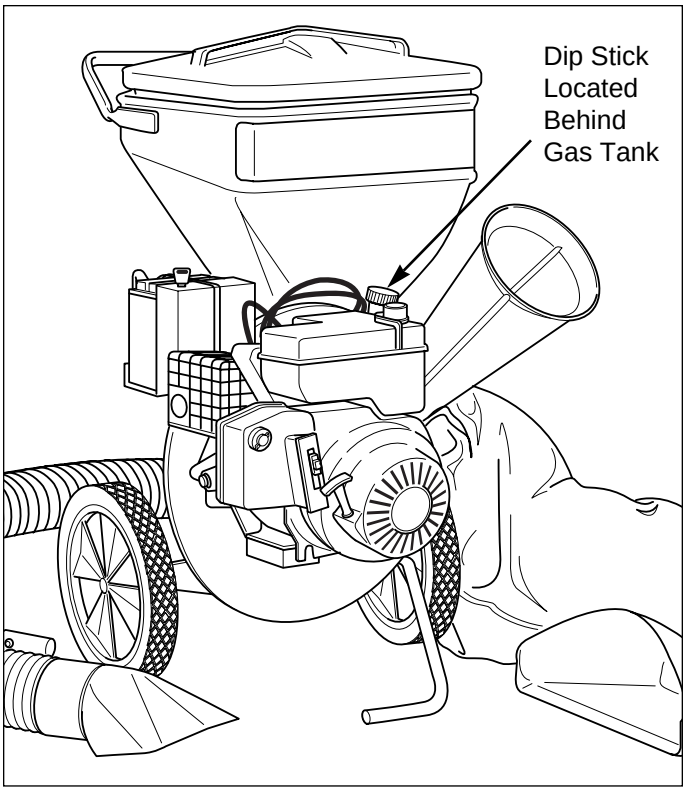


Figure 15. Oil Dip Stick Location

CHANGING OIL

Effective lubrication of the engine is critical to the life expectancy of internal engine components. Because of this, engine oil should be changed yearly when the chipper/shredder is used only occasionally, and more frequently depending on the amount of time the chipper/shredder is in use.

1. Drain engine oil by unscrewing drain plug (Figure 16) in the engine base and letting oil drain into a suitable container.
2. Dispose of the used oil by returning it to an oil recycling center or service station with a oil recycling tank.
3. After all old oil has been drained, screw drain plug in securely, and add oil as instructed in the "Oil Level" section, or see the engine manufacturer's manual for complete details and oil specifications.

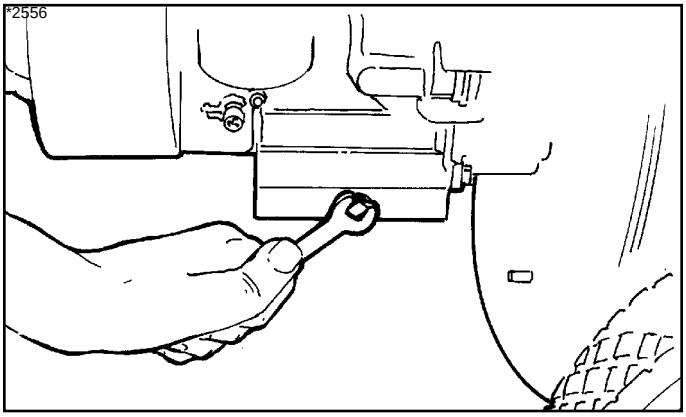


Figure 16. Engine Oil Drain Plug

⚠ CAUTION

Do not change the engine oil if the engine has just been run. Hot oil causes burns.

CHANGING THE SPARK PLUG

An annual spark plug change is an inexpensive preventive measure that can help keep your unit running properly throughout the year.

Only replace the spark plug with the same model plug or equivalent. See the engine manual or authorized dealer for more information.

1. Disconnect and secure the spark plug wire from the spark plug.
2. Clean the area around the spark plug to remove debris that could fall into the engine when the plug is removed.
3. Using a spark plug socket and appropriate wrench, unscrew the spark plug from the engine.
4. After first setting the proper gap on the replacement spark plug (see Engine Operator's Manual for proper gap setting for your engine), screw the new plug in and tighten. Don't over tighten, as this could damage the cylinder head.

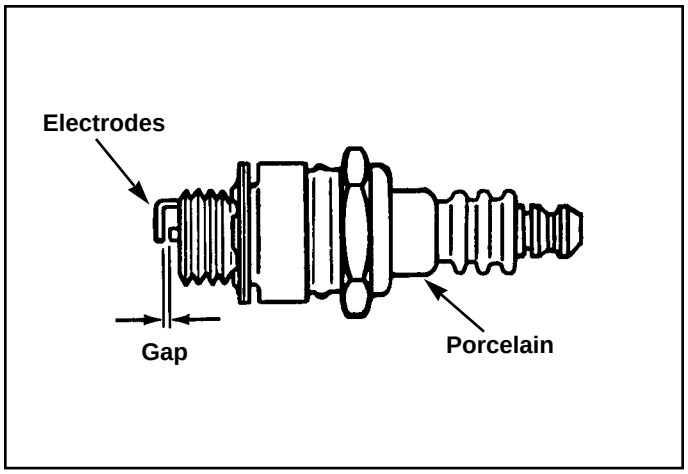


Figure 17. Spark Plug Gap Setting

CLEAN ENGINE FINS & AIR INTAKE AREA

The engine that powers this chipper/shredder is air-cooled and requires unobstructed air flow into and around the engine. For proper engine cooling, the cooling fins on the engine cylinder and cylinder head area must be kept clear of debris deposits and any other build-up that could prevent heat from radiating away from the engine.

To clean the air intake area, remove any debris build-up, and then blow out the area using a stream of compressed air. If a compressor is not available, use a stiff bristle parts brush, which is available at most auto parts supply stores.

⚠ CAUTION

Compressed air can spray debris into your eyes causing permanent damage. Always wear safety glasses when using compressed air.

Never use compressed air to clean your hands or skin.

To clean the cooling fins, brush the area between the fins with a stiff bristle parts brush, and blow out any remaining debris with a stream of compressed air. If the cooling fins are caked with an oily build-up of chipper/shredder debris, using a commercially available engine cleaning aerosol may help loosen and remove the deposits.

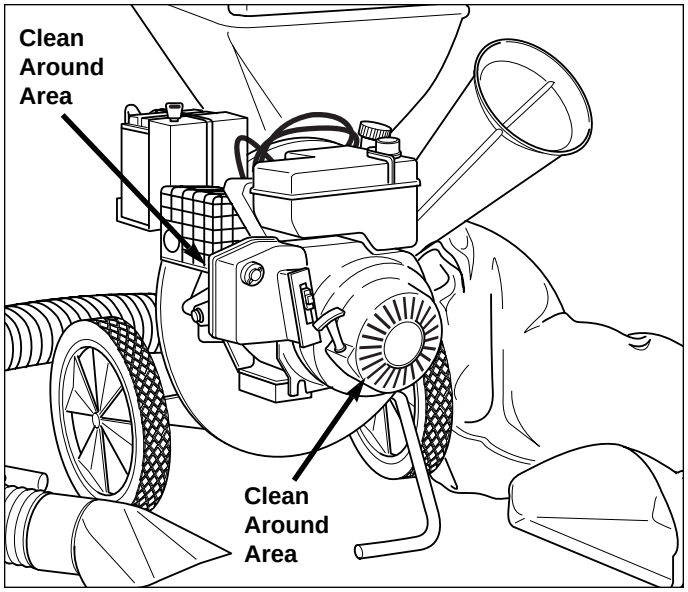


Figure 18. Areas to clean after use

If you use such a cleaning product, you must follow all safety and use instructions to prevent damage to the engine components and personal injury to you.

NOTE: DO NOT clean the engine with a stream of water because this could contaminate the electrical and fuel systems.

AIR FILTER REPLACEMENT/SERVICE

The engine air filter element filters and removes airborne dirt, dust, and other work site debris from the air before it can enter the carburetor and damage sensitive fuel passages.

Depending on the type of air filter element installed on your chipper/shredder engine, you should periodically perform one of the following steps:

Oil Foam Element:

- Clean the element in a safe solvent (not gasoline because it is flammable) and dry with a paper towel
- Moisten the element with clean engine oil
- Ring out the excess oil with a paper towel

Paper Element

- Shake/blow out any debris caught in the element
- Inspect the element and replace if it is dirty or discolored, clean and oil the air filter (foam filter only),

Note: Consult the engine manufacturer's manual for additional recommendations.

If you have any doubts about what type of filter element you have, consult you local authorized dealer for help.

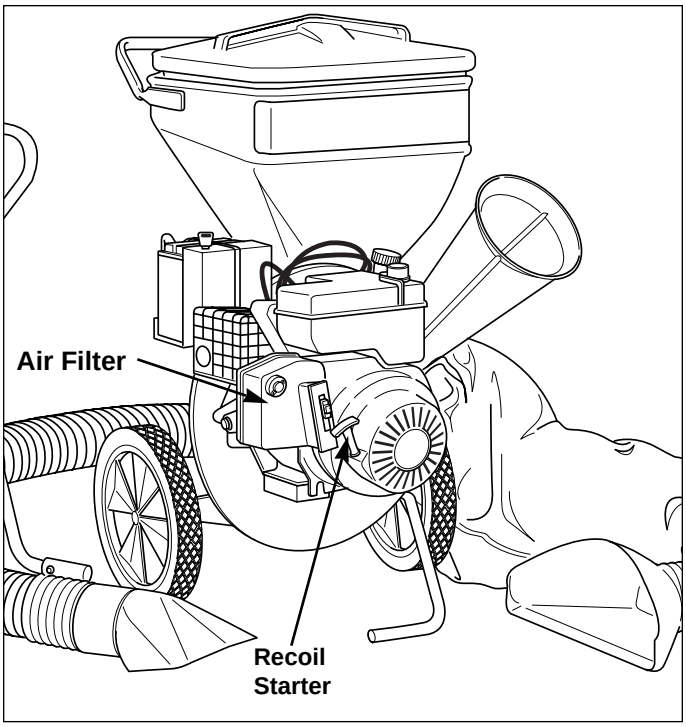


Figure 19. Air Filter and Recoil Starter Location

INSPECT STARTER ROPE & HANDLE

The recoil starter rope and handle should be inspected for signs of abrasion or wear that could result in breakage. It is much easier to replace a frayed rope than a broken one.

INSPECT BATTERY & ELECTRICAL CONNECTIONS

The battery should be inspected and cleaned every 100 hours of service or as needed. Check the electrolyte level and fill with distilled water if necessary. Fill the cells up to the bottom of the inside split ring. Clean and inspect the battery cables and terminals. Replace if corroded.

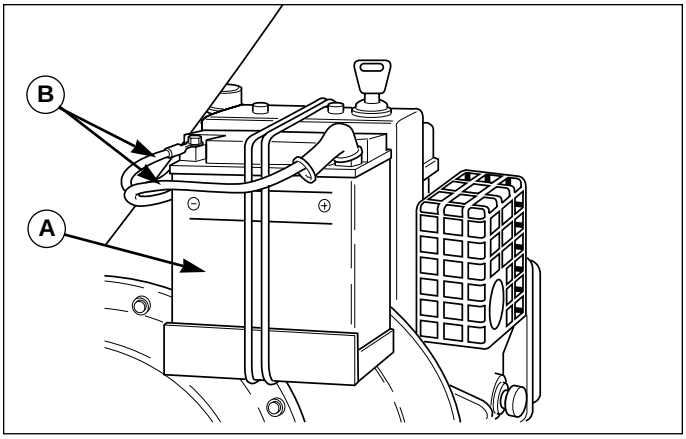


Figure 20. Battery and Cables
A. Battery **B. Cables**

LUBE STARTER DRIVE GEAR

The starter drive gear should be lubricated once a year or every 100 hours, or as needed. Lubricate the drive gear with a light weight oil.

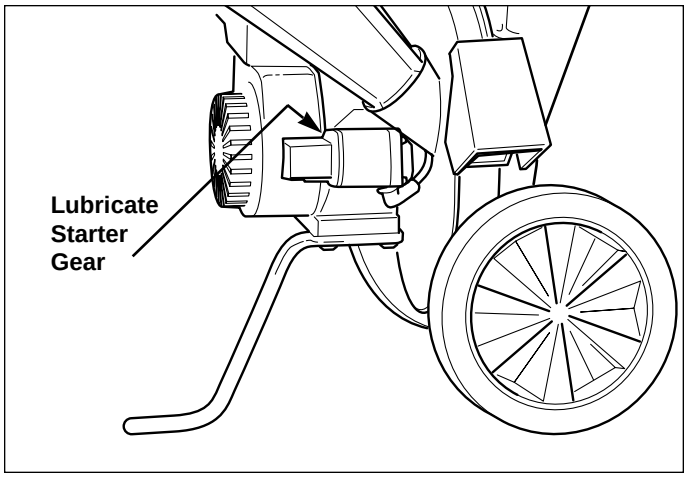


Figure 21. Starter Drive Gear Location

LUBRICATE WHEEL AXLES

To lubricate, squirt 3-5 drops of engine oil on each wheel axle. Wipe up any run-off and spin wheels briefly to work oil around entire axle.

INSPECT CHIPPER CONE & SHREDDER HOPPER

The chipper cone and shredder hopper are made of a highly durable polyethylene material that can withstand repeated abrasion and impact from normal chipper/shredder waste material processing.

Check these parts to make sure that they haven't been damaged or worn excessively by constant use, and replace them if they are cracked, worn out, or no longer fit securely on the chipper/shredder unit.

Contact your local authorized dealer for replacement parts.

Cracks, worn areas, and loose attachment points can cause material to jam or clog when feeding it into the machine, and may result in kick-back or other hazard to the operator.

Contact your local dealer for replacement parts if your unit shows any evidence of these problems, and discontinue use of the unit until the appropriate repairs can be made.

Never try to make temporary repairs yourself, as the repairs could give way during chipper/shredder operation, and expose you and bystanders in the area to risk of injury.

Never attempt to install non-factory parts on your chipper/shredder unit. These parts could appear to fit, but could cause operating and safety problems that might lead to equipment damage and/or injury.

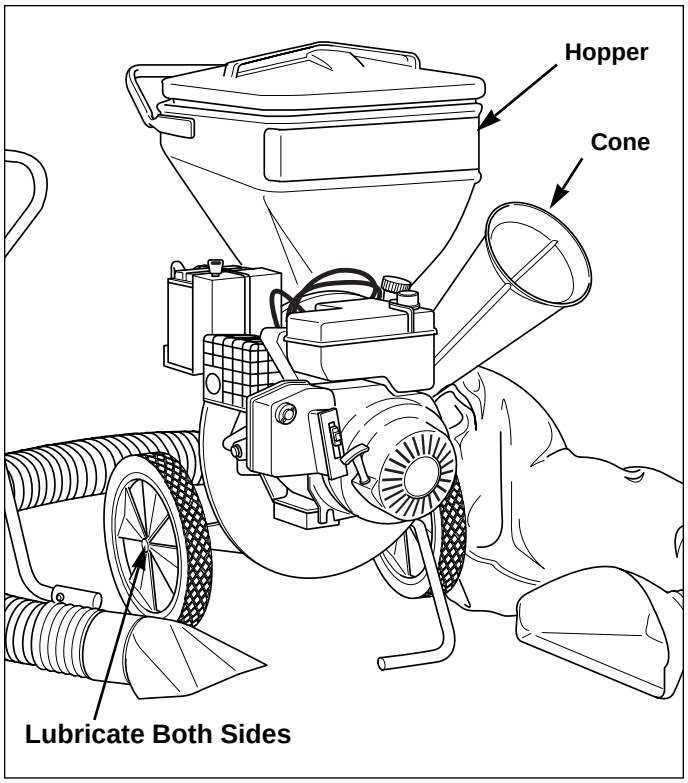


Figure 22. Cone, Hopper Location and Wheel Axle Lubrication Points

INSPECT HOPPER GUARDS

The hopper guards are made of a tough, flexible material that permits easy loading of the hopper, while preventing shredded pieces from being ejected out toward the operator.

The hopper guards must always be intact and properly installed to provide protection from ejected pieces.

If a hopper guard becomes damaged in use, do not operate the chipper/shredder until the hopper guard can be replaced.

Contact your local authorized dealer for replacement parts.

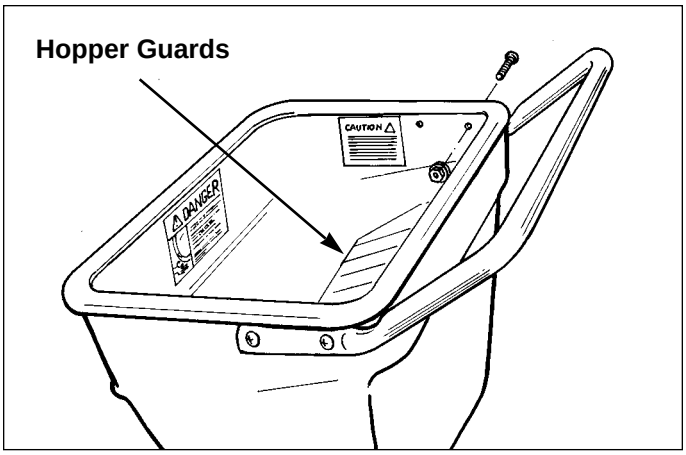


Figure 23. Hopper Guard Location

INSPECT/ROTATE SHREDDING HAMMERS

The shredding hammers of this chipper/shredder can be rotated to provide new cutting surfaces as required.

If the shredding action of the unit seems sluggish, or you notice that shredded material is not shredded as thoroughly as when the unit was new, the shredding hammers may need to be rotated or replaced.

Consult the Troubleshooting and Repair Section of this manual for complete disassembly, inspection, and replacement instructions.

Your local authorized dealer can provide this service to you if you do not wish to disassemble the unit and inspect/repair it yourself.

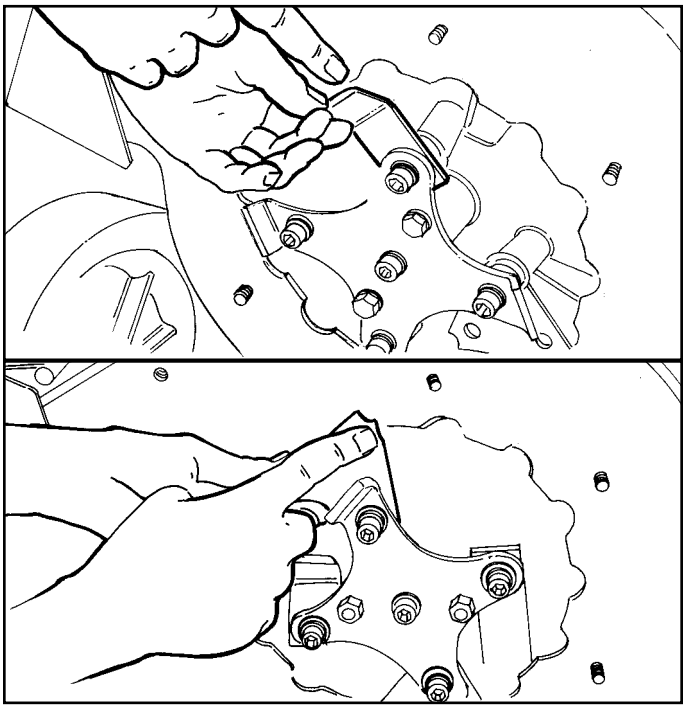


Figure 24. J Hammer (Top) and Triangular Hammer Wear Areas

INSPECT/SHARPEN CHIPPING KNIVES

Normal chipping operations will gradually wear the cutting edges of these blades, but they can be quickly and easily resharpened.

Consult the Troubleshooting and Repair Section of this manual for complete disassembly, inspection, and replacement instructions. However, the blades can be easily inspected by removing the chipper cone.

Your local authorized dealer can provide this service to you if you do not wish to disassemble the unit and inspect/repair it yourself.

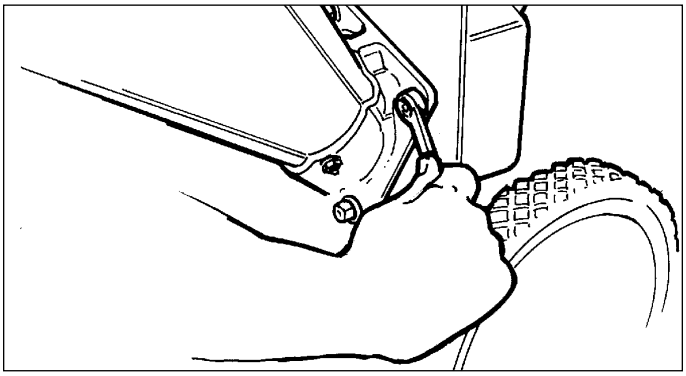


Figure 25. Removing the Chipper Cone to Inspect the Chipper Blades

CHECK SAFETY LABELS

Safety warning decals are placed at strategic locations on the chipper/shredder as a constant reminder to the operator of the most important safety precautions. All Warning, Danger, Caution, and instructional messages on your chipper.shredder should be carefully read and obeyed.

If any of these decals are lost or damaged, replace them at once. They can be purchased from your dealer. A list of these decals is located at the end of the "Safety Rules and Information" section of this manual.

STORAGE

Temporary Storage (30 Days Or Less)

Never store the chipper/ shredder indoors or in any other area where fuel vapor could travel to any ignition source. Fuel vapor is also toxic if inhaled, so never store the chipper/shredder in any structure used for human or animal habitation.

Here's a quick checklist of things to do when storing your chipper/shredder temporarily, or between uses:

- Store the unit in a location where there's no danger of overhead objects falling into the chipper cone or shredder hopper.
- Keep the unit in an area away from where children may come into contact with it. If there's any chance of unauthorized use disconnect and secure the spark plug wire. Also remove the ignition key and put it in a safe place.
- Never put the unit away while the engine is still hot from running. Let the engine cool down first to prevent the chance of fire.
- Never try to lift or position the unit in the storage area by holding the fuel tank. Always let the engine and muffler cool completely before allowing yourself to contact these parts.
- If the unit can't be stored on a reasonably level surface, use a block of wood to block the wheels. Never store the Chipper/Shredder where it could tip over.
- Never tip the unit more than 75° from vertical, and never lay the unit down on its side, as this could cause fuel leakage and undesirable oil transfer into the cylinder head. Excessive oil in the cylinder head will prevent unit from starting properly and cause engine smoking.
- Overhead objects that fall into shredder hopper may cause damage to the unit or serious injury to user and others if not detected before unit is started.

Long Term Storage (Longer Than 30 Days)

For storage longer than 30 days, follow the steps outlined in Short Term Storage in addition to the following steps.

Your chipper/shredder can be safely stored during off-seasons by following these simple storage instructions:

- Clean the external surfaces of the engine and cooling fan.
- Remove the spark plug, and squirt 1 ounce of engine oil into spark plug hole. Cover the spark plug hole and pull starter cord slowly to distribute oil evenly in cylinder head area. Reinstall spark plug.
- Drain fuel system completely following engine manufacturer's instructions or add fuel stabilizer to prevent fuel from gumming up during an extended storage period.
- Transport unit to a suitable storage location. If you have chosen to use a fuel stabilizer and have not drained the fuel system, follow all safety instructions and storage precautions in this manual to prevent the possibility of fire from the ignition of gasoline fumes. Remember, gasoline fumes can travel to distant sources of ignition and ignite, causing explosion and fire.

Troubleshooting & Repair

TROUBLESHOOTING

While normal care and regular maintenance will extend the life of your chipper/shredder, prolonged or constant use may eventually require that service be performed to allow it to continue operating properly.

The troubleshooting guide below lists the most common problems, their causes and remedies.

See the repair information on the following pages for instructions on how to perform most of these minor repairs yourself. If you prefer, all of these procedures can be performed for you by your local authorized dealer.

⚠ WARNING

Never attempt to perform any of these procedures while the engine is running.

Always turn the engine off, let the rotor come to a complete stop, and disconnect the spark plug wire from the spark plug before attempting to correct any problems.

FAILURE TO COMPLY WITH THIS SAFETY REQUIREMENT CAN RESULT IN SERIOUS PERSONAL INJURY TO YOU OR BYSTANDERS.

SYMPTOM	POSSIBLE CAUSE	REMEDIES
Engine won't start.	• Out of gas. • Spark plug wire disconnected. • Engine controls set wrong. • Spark plug fouled. • No compression - rope pulls• without resistance. • No spark - electrical system problem.	• Add gas. • Connect spark plug wire. • Check engine controls and adjust. • Remove Spark Plug, clean, and replace. • See your local dealer. • See your local dealer.
Engine runs, but rotor. won't turn.	• Crankshaft key broken or not installed.	• Replace crankshaft key.
Engine runs, rotor turns, but no material is being discharged.	• Discharge chute clogged. • Engine not running at full RPM.	• Clear discharge chute. • Adjust throttle to "Fast".
Excessive branch vibration when chipping materials.	• Chipper knives dull. • Tree limbs and branches are extremely hard or dried out.	• Sharpen or replace knives. • Material too dried out or hard for chipping - use for firewood.
Unusual noise or vibration when processing material.	• Rotor overloaded with material. • Non-organic matter caught in shredding chamber. • Chipper knives dull or loose. • Hammers, broken, bent, or loose. • Hammers frozen on shaft. • Crankshaft bent.	• Allow unit to clear itself before feeding more material in . • Follow shut-down procedure and remove material from unit. • Sharpen or tighten knives securely • Check for proper assembly or replace. • Check for obstructions and remove debris from hammer pivot areas. • See your local dealer for factory authorized repair.
Vacuum not working.	• Hopper lid not in place. • Material too wet. • Hose not attached properly. • Hose obstructed/damaged. • Engine not running at full RPM.	• Replace lid on hopper. • Allow material to dry. • Attach hose per kit instructions. • Inspect hose - repair or replace. • Set throttle to "Fast". See dealer if problem continues.

REPAIR

SHREDDING HAMMERS

The cutting edges of the shredding hammers may eventually wear out, requiring rotation of the hammers, or complete replacement if all cutting edges have been used.

Triangular hammers can be rotated five times after the first edge dulls, then flipped over once and rotated again for a total of six cutting edges. J hammers can be flipped over once (Model 5/14 only), for a total of two cutting edges. Shredding hammers need to be rotated when shredding performance becomes sluggish, or when the edges of the hammers wear down, as shown in Figure 24.

To inspect and service the shredding hammers, follow these steps:

1. Turn engine off, allow rotor to stop completely, remove the key, disconnect the battery, and disconnect and secure spark plug wire.
2. Detach the shredder hopper from the rotor housing, leaving the liner and handle in place on the hopper. See Figure 26.
3. Remove the rotor housing by unscrewing the 5/16–18 hex nuts that hold it to the fan housing. See Figure 27.

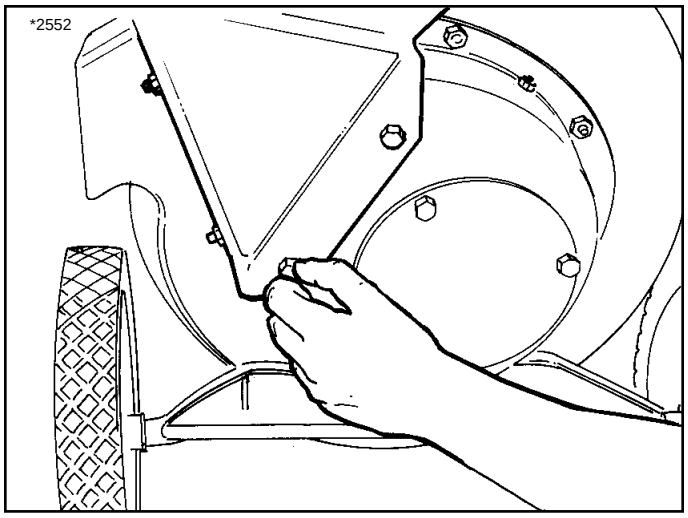


Figure 26. Removing Shredder Hopper

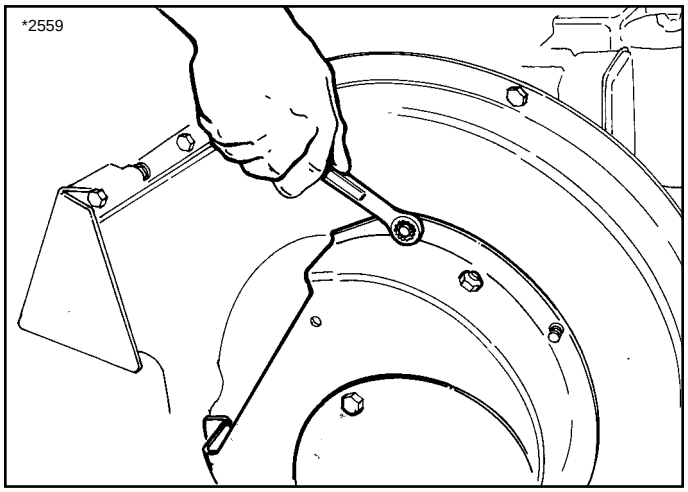


Figure 27. Removing Rotor Housing

4. Using leather work gloves to protect your hands from sharp edges, carefully rotate the rotor counterclockwise until the first worn hammer is at the top position.
5. Before proceeding, note the assembly sequence of the hammer, spacer, spacer tube, and hardware. Hammers and spacers must be reassembled in the same order to ensure proper rotor balance, shredding efficiency, and safety. See Figure 28 for correct position of parts.
6. Using a 5/16" Allen wrench, remove the socket head cap screw (A, Figure 28), lockwasher (B), flat washer (C), and spacer tube (D), being careful to catch the parts as the cap screw is removed.
7. Wipe the hammer and spacer tube clean, and inspect for excessive wear.

•If the spacer tube has light grooves worn into it, the tube may be reused by flipping its position over when reinstalling it.

•If the spacer tube has deep grooves worn into it, do not reuse the part - replace it using an exact factory replacement part only.

•Rotate or flip the hammer to provide a new cutting edge, or install a new hammer if worn out or damaged.

•Reassemble the hammer and related parts and hardware, observing the correct assembly sequence as shown in Figures 28 and 29.

8. Tighten the cap screw (A, Figure 28) securely. For proper assembly, torque to 30-35 ft. lbs.
9. Rotate rotor to expose next shredding hammer, and repeat steps 6 - 8. When replacing "J" hammers, observe the correct placement of the blade toward the inside or outside of the rotor assembly.
10. If chipping knives are to be inspected or serviced, go to the following section on chipping knives. If service is to be done on shredding hammers only, proceed to next step below.
11. Reassemble the rotor housing using the 5/16-18 hex nuts removed earlier.
12. Reattach the shredder hopper, repeating the assembly sequence used when the unit was first assembled.
13. Check all hardware for tightness and correct assembly before attempting to start unit. Do not attempt to start unit if extra hardware is left over after reassembly is complete. Check all hammer assemblies before proceeding.

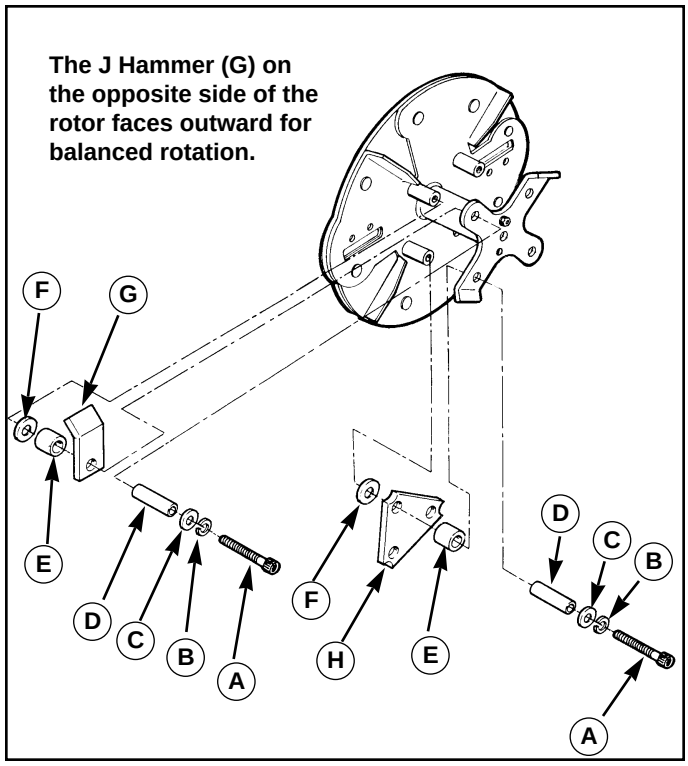


Figure 28. Proper Hammer Assembly

A. Capscrew, hex socket hd. w/patch, 3/8-16 x 2, Gr. 8
B. Lockwasher, split, 3/8
C. Washer, flat, 7/8
D. Spacer, tube
E. Spacer, 3/4 O.D., 3/4 long
F. Washer, 3/8 (814 only)
G. J hammer
H. Triangular hammer

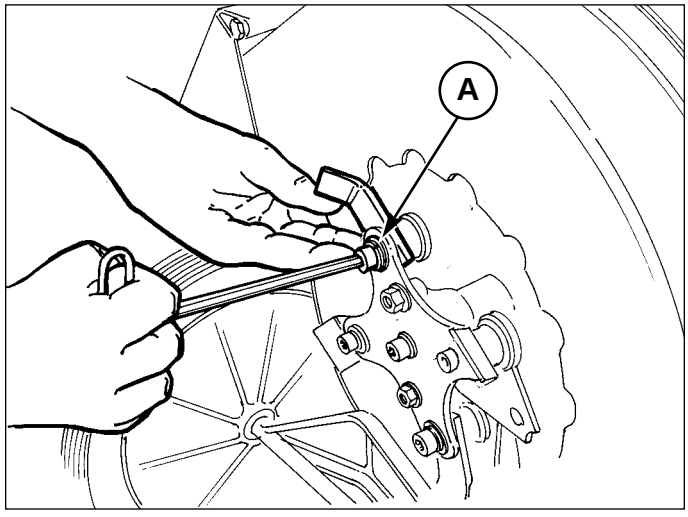


Figure 29. Reassembling Shredder J Hammer

CHIPPING KNIVES

Chipping knives should be resharpened or replaced when tree limbs and branches require extra force to feed completely into the chipper block.

Chipping knives may be resharpened until the distance between the mounting holes and the top corner of the blade bevel is 1/16" apart. (See Figure 33 on page 29).

To inspect and service the cutting knives, follow these steps:

1. Turn engine off, allow rotor to stop completely, remove the key, disconnect the battery, and disconnect and secure spark plug wire.
2. See Figure 30. Detach the shredder hopper from the rotor housing to gain access to the chipper knife socket head cap screws. Leave the liner and handle in place on the hopper.
3. Using an allen wrench on the bolt head inside the cone, and a 7/16" wrench or socket on the nut (see Figure 31) remove the chipper cone to expose the oval chipping block and one chipping knife.

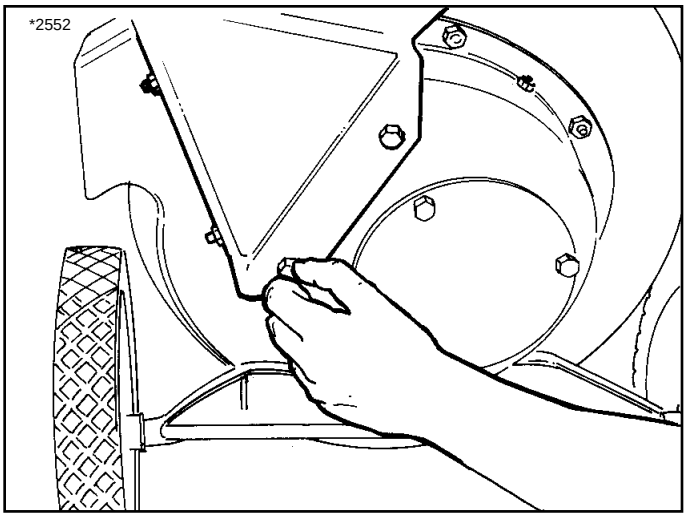


Figure 30. Removing Shredder Hopper

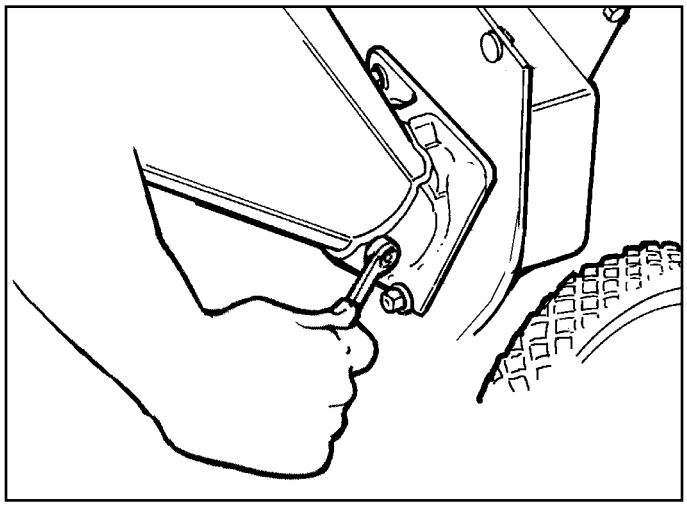


Figure 31. Removing Chipper Cone to Expose Chipping Knives.

4. Using a 1/4” hex wrench, loosen and remove the two socket head cap screws holding the chipper knife in place (access the screw heads from the rear of the unit), and remove the chipper knife.

> **⚠ CAUTION**
> **The chipper blades have sharp edges. Wear leather work gloves and remove the blades carefully.**

5. See Figure 32. Remove both knives through the opening in the front of the chipper/shredder, and sharpen equally or replace both blades to ensure proper balancing and correct chipping action.

NOTE: Slow-speed water-cooled grinding is suggested to help maintain blade temper and a long-lasting sharp edge. Rapid grinding and heating of blades will soften the edges, making repeated sharpening necessary.

Chipper knives require a 30° bevel on the cutting edge (as shown in Figure 33) for efficient chipping action.

Contact your local dealer or blade sharpening service if you prefer not to sharpen the blades yourself.

6. Clean the chipper knife mounting areas before reinstalling the blades to ensure a flat mounting surface.
7. Install the new chipper knives using the two socket head cap screws, and two new lockwashers, torque to 18-20 ft. lbs. **Never reinstall chipper knives with used lockwashers, as used lockwashers may not hold the knives adequately.**

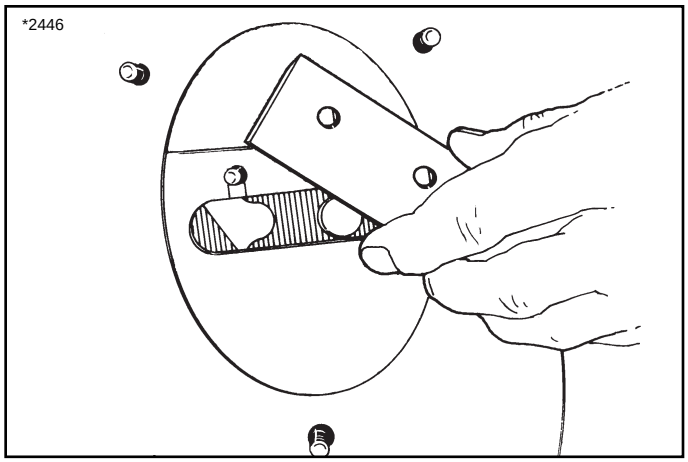


Figure 32. Removing Chipper Knife Through Front Opening

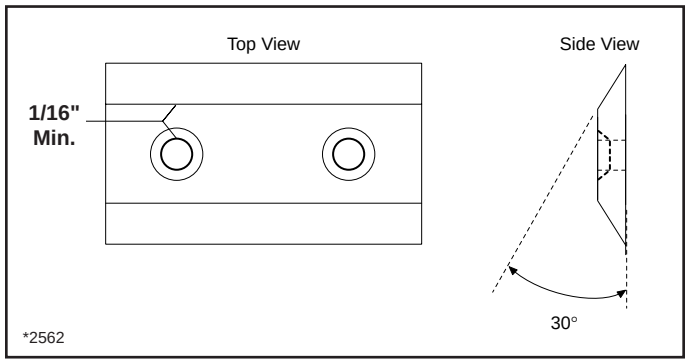


Figure 33. Chipper Knives Minimum Cutting Edge

29

8. Reattach the shredder hopper and chipper cone using the hardware removed during disassembly. Replace any hardware that appears to be damaged or worn excessively.
9. Check all hardware for tightness and correct assembly before attempting to start your unit. Do not attempt to start the unit if extra hardware is left over after reassembly is complete. Check for proper chipper knife assembly before proceeding.
10. Test the unit before attempting to use it to perform chipping. Start the unit, and check for unusual noise or vibration.
    - Shut the unit off immediately if either situation occurs and reinspect chipping knives to confirm correct positioning and assembly.
    - If assembly is correct, the blades may not have been sharpened evenly--causing an imbalance. Remove the blades and sharpen the evenly.
    - Recheck the unit. If problem persists, contact your local dealer for assistance.

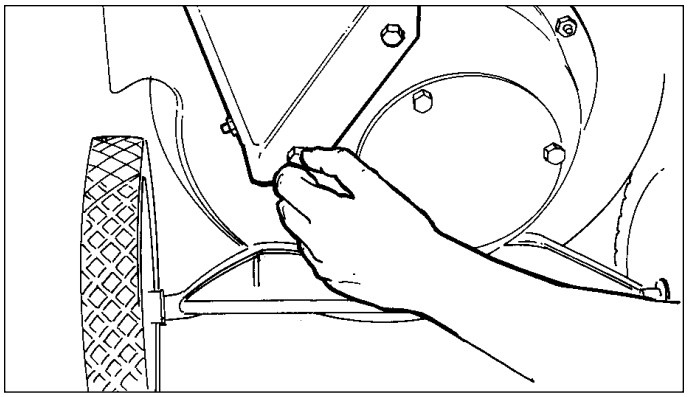


Figure 34. Attaching Hopper to the Rotor

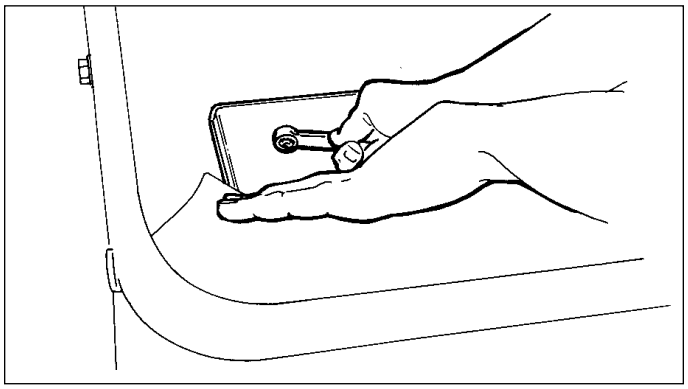


Figure 35. Installing Hardware Inside Hopper

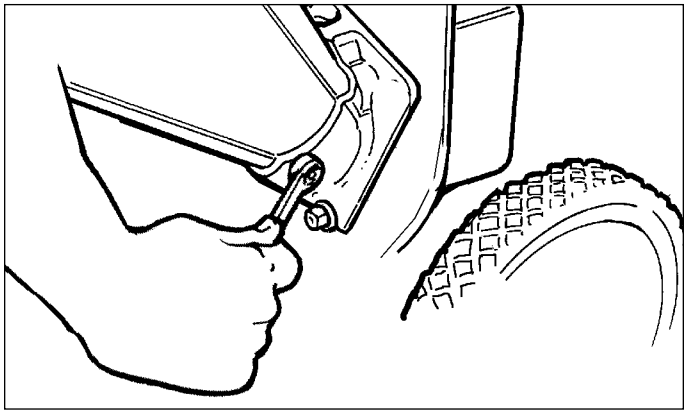


Figure 36. Installing the Chipper Cone

DEFLECTOR SHIELD

The deflector shield must pivot freely at all times, or processed material could back up, clogging the unit and requiring disassembly to clear

⚠ WARNING

Never use the unit unless the deflector shield is in place and operating properly. Material could be ejected out of the discharge chute with great force, injuring you or bystanders.

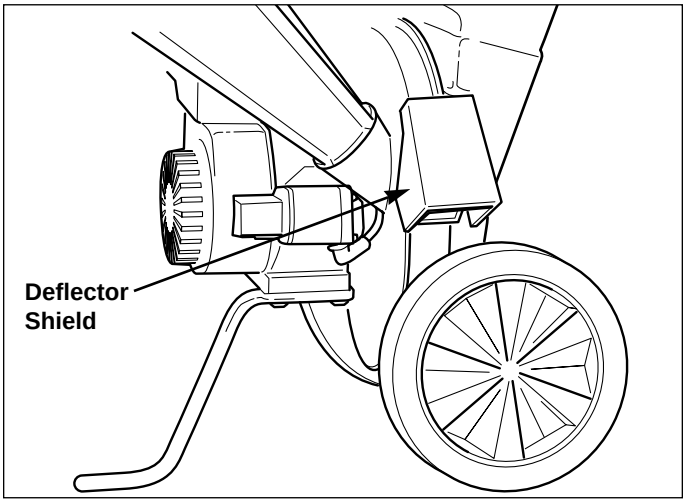


Figure 36. Deflector Shields

ENGINE SERVICE

Your chipper/shredder engine requires routine maintenance for long-life and trouble-free operation. Consult the manufacturer's manual and the Normal Care section for specific recommendations and service procedures.

⚠ WARNING

Never use a malfunctioning unit to process material, even if it appears to be chipping material adequately — AN UNEXPECTED KICK-BACK COULD OCCUR, CAUSING SERIOUS PERSONAL INJURY TO YOU OR BYSTANDERS.

Serious equipment damage could also result, voiding the warranty and requiring extensive repairs by a qualified service location.

Specifications

MODEL 6/14E

Engine Make .....Tecumseh
Horsepower.....5.5 HP
Chipping Capacity.....3"
Chipping Knives 2
Shredding Hammers.....2 - Triangular
2 - J Hammers

Shredder Capacity .....1/2" x 18" Long
Waste Reduction Ratio.....Up to 20:1
Weight .....120 lbs.
Optional Equipment .....Vac Kit
w/Leaf Tray & Vacuum End

Parts & Accessories

OPTIONS & ACCESSORIES

Several optional items and accessories are available that can help increase the usefulness and utility of your chipper/shredder unit:

VACUUM ATTACHMENT

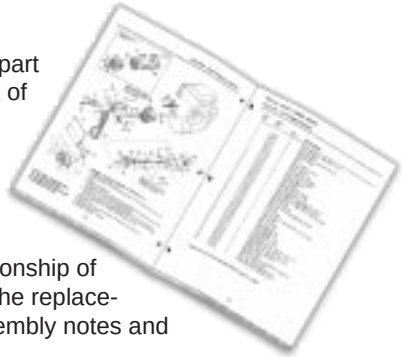
This easy-to-add accessory allows the chipper/ shredder to be equipped with a vacuum hose and other attachments to help simplify pick up of lightweight materials such as leaves and grass clippings. It can also be adjusted to vacuum without disturbing landscaping materials such as decorative rock.

Technical Manuals

Additional Technical Literature Available

Operators Manuals

Additional copies of this manual are available, (and as part of our product suport commitment, we maintain a stock of printed operators manuals going back many years!)



Parts Manuals

Fully illustrated parts manuals are also available — these manuals show all of the product's components in exploded views ("3D" illustrations which show the relationship of the parts and how they go together), as well as giving the replacement part numbers and quantities used. Important assembly notes and special torque values are included in these manuals.

For the applicable manuals currently available for your model, contact our Customer Publications Department at 414-284-8519. Have the information listed in the box at the right available when phoning in your request.

Please allow 3 to 4 weeks for delivery.

Model: _____

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