

OPERATOR'S MANUAL & ILLUSTRATED PARTS LIST

Model 5C

Mfg. Nos. 9051100 & 9150100



Model 5C shown with Optional Vacuum Kit

Red CyclorTM

PLEASE READ

Dear Customer:

Every effort has been taken to design and manufacture the most efficient, user-friendly product for your safe use.

You can, however, seriously injure yourself by poor judgment, negligent or careless operation and other unsafe procedures. In this manual and on the unit's decals, we have outlined specific hazards and how to operate this equipment safely. Please read, study and understand both this manual and the decals carefully before operating equipment.

There are also many operating tips outlined in the manual for faster, more efficient recycling of materials within the limits of the equipment.

Enjoy your new Yard Waste Management System, the best in the industry!

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1 SAFETY INSTRUCTIONS



This symbol is important to your personal safety and the safety of those in the area. When you see it, read the accompanying message carefully.

Read and understand this manual completely before attempting to operate your Chipper/Shredder. The most important factor in safe machine operation is competent, responsible use by the operator. All possible hazards for all situations cannot be anticipated in this manual. **Never allow untrained or unauthorized persons to operate this machine.**

This machine, if used in an unsafe manner, is capable of inflicting serious personal injury or property damage. Be sure to keep your hands, feet, and clothing away from the chipper cone, shredder hopper and discharge areas at all times while operating this unit.

WHERE TO OPERATE

- ▲ Never operate a gasoline engine in an enclosed area. Engine exhaust contains carbon monoxide, a colorless, odorless, tasteless and LETHAL gas.
- ▲ Choose a place to work where you can keep children, pets, and others out of the immediate area where you will be operating the machine.
- ▲ Operate the unit on a firm, level, earthen area to prevent tipping. Avoid wet, slick areas. Never operate on a paved, concrete or other hard surface as material discharging onto these surfaces can ricochet, causing injury.
- ▲ Always use extra care in handling gasoline and other fuels. These fuels are flammable, and their vapors are explosive.
 - Use only an approved gasoline container;
 - Never remove gas cap or add fuel with the engine running. Engine must be cool before refueling. DO NOT smoke;
 - Never refuel the machine indoors;
 - Never store the machine or fuel container inside where there is an open flame, such as a water heater.

WHAT TO WEAR

- ▲ Always wear safety goggles when operating the machine. For your protection, a pair of safety goggles is provided.
- ▲ Hearing protection is recommended.
- ▲ When wearing gloves, use only snug-fitting, high quality, leather work gloves.
- ▲ Avoid wearing loose-fitting clothing, jewelry, ties, or other articles that could get caught in a moving part. Make sure long hair is tied up and not exposed while operating unit.

BEFORE STARTING THE CHIPPER/SHREDDER

- ▲ Always operate alertly.
- ▲ Know your controls and how to use them.
 - Inspect material to be processed to make sure it is free of rocks, glass, metal and other foreign objects.
 - Make sure all parts and fasteners are tight before starting the machine.

- ▲ Keep all guards, deflectors and warning labels in place. Replace them whenever necessary.
- ▲ Make certain the shredding chamber, shredder hopper, and chipper cone are empty before starting or re-starting the unit.
- ▲ Do not tamper with the throttle or governor stops which protect the engine and rotor from overspeeding. Authorized service should be obtained if a problem with the governor exists.

SAFETY WHILE YOU WORK

- ▲ Adhere to the size limitations as stated in the Waste Materials Guide in this manual.
- ▲ Never attempt even a minor clean-out of the hoppers or discharge area while the unit is running. If clogging occurs, turn off the engine, let the rotor come to a complete stop, and disconnect the spark plug wire.
- ▲ Be with the machine at all times while it is running. If you must leave the work area, turn off the engine, disconnect the spark plug wire and wait for the rotor to come to a complete stop before departing.
- ▲ When feeding material, keep your face and body away from the feed areas.
- ▲ Be sure you have a good, solid footing and are not leaning over the machine.
- ▲ Always stand clear of the discharge area.
- ▲ Do not allow waste materials to build up in the discharge area or shredding chamber. This may result in kickback of material out of the machine.
- ▲ To prevent a possible fire, keep the engine clear of debris and other accumulations.
- ▲ Never transport the unit while it is running.
- ▲ If the cutting mechanism strikes any foreign objects or if the machine should start making any unusual noise or vibration, operator should shut off the engine immediately and allow the machine to stop. Disconnect the spark plug wire from the spark plug and take the following steps:
 - Inspect for damage;
 - Replace or repair any damaged parts;
 - Check for and tighten any loose parts.
- ▲ Never fill the gasoline tank while the machine is running or while the engine is hot. Turn off the engine and allow the engine to cool before refilling.
- ▲ Before attempting any maintenance or clean-out procedures or when adding or removing attachments, always shut off the engine and let the rotor come to a complete stop. Then, disconnect the spark plug wire.



FIRE HAZARD WARNING

(Especially for California Owner/Operators)

CAUTION: GAS ENGINE MAY REQUIRE SPARK ARRESTER!

If this engine is not equipped with a spark arrester and is to be used on any forest, brush, or grass-covered unimproved land, a spark arrester may have to 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 arrester muffler options.

2 ASSEMBLY

Most assembly has been done at the factory. The only assembly required is to install the chipper cone and the shredder hopper, and to move the hopper handle to the proper position.

Estimated Assembly Time: 10 minutes.

Tools required:

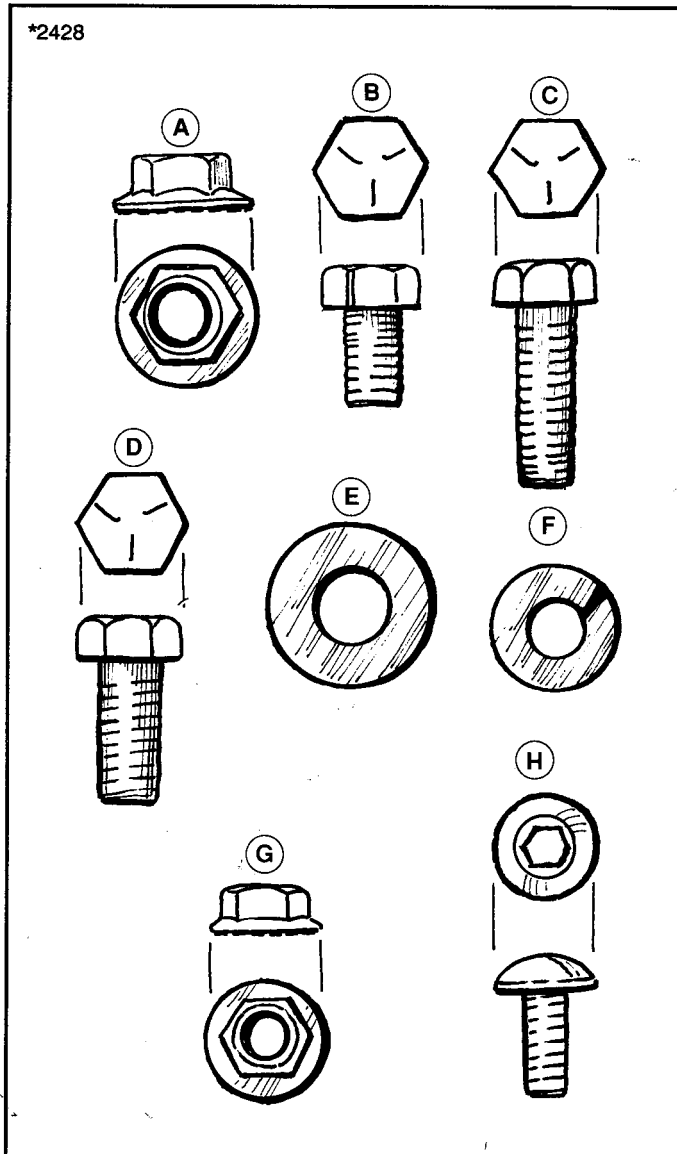
- 1/2" wrench
- 7/16" wrench
- #2 Phillips head screwdriver

Hardware Pack

Included with your Chipper/Shredder is a hardware pack, containing the following items:

Ref.

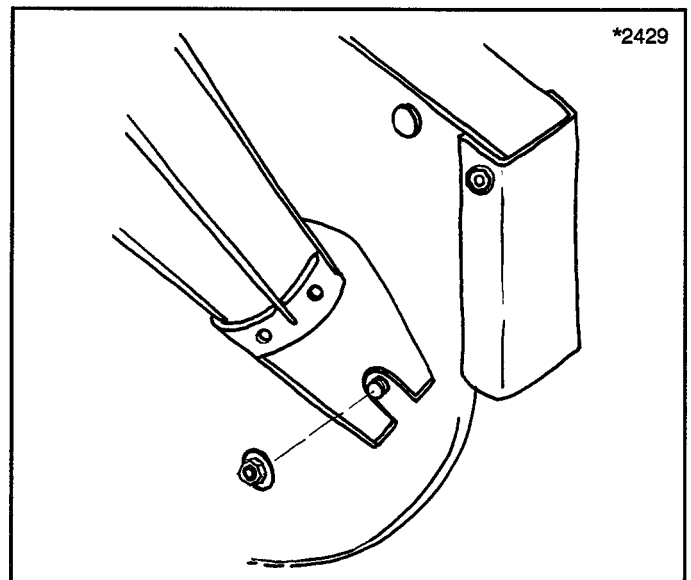
Letter	Description	Qty.
A	5/16-18 Whiz Nut	3
B	5/16-18 x 1/2" Hex Head Bolt	2
C	5/16-18 x 1" Hex Head Bolt	1
D	5/16-18 x 3/4" Hex Head Bolt	1
E	5/16" Flat Washer	4
F	5/16" Lockwasher	1
G	1/4-20 Whiz Nut	2
H	1/4-20 x 3/4" Hex Socket Button Head Screw	2



Chipper Cone Assembly

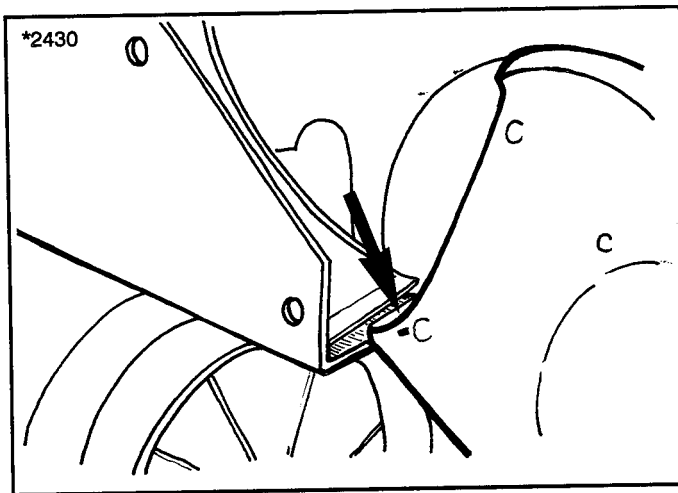
(Hint: Prior to installing the chipper cone, add engine oil. Your engine has been shipped without oil. **THE ENGINE MUST BE FILLED WITH OIL BEFORE OPERATION, OTHERWISE SERIOUS DAMAGE WILL OCCUR.** Refer to the engine manual for specifications.)

1. Install the chipper cone assembly with (2) 5/16" whiz nuts.
2. Tighten securely using a 1/2" wrench. Make sure that the chipper cone is in an upright position.

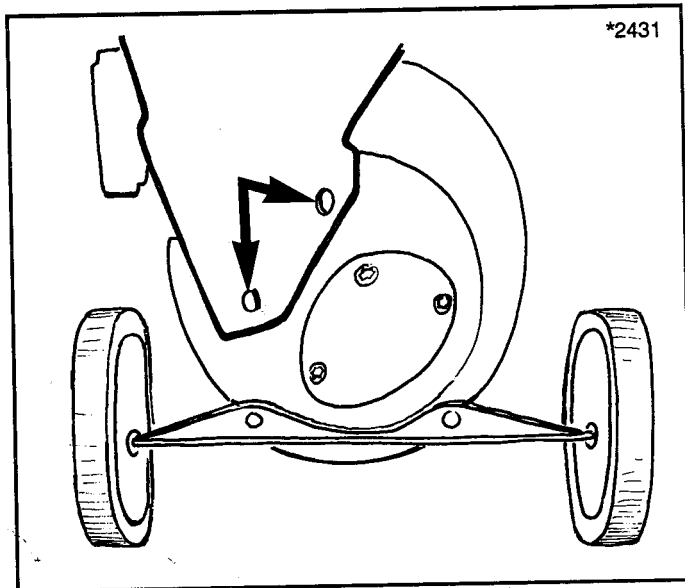


Shredder Hopper Assembly

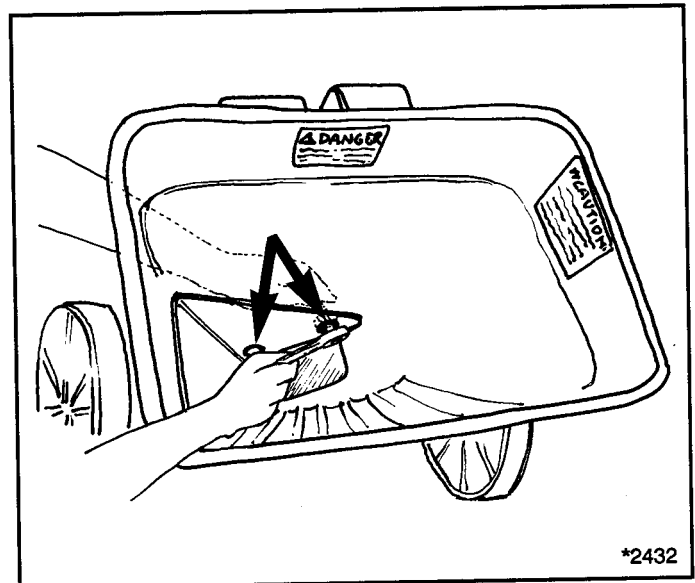
1. Attach the shredder hopper to the main body of the machine, making sure the metal lip of the hopper liner is to the inside of the rotor housing.



2. Install two (2) 5/16" x 1/2" hex head bolts with flat washers into the lower holes of the shredder hopper. For the time being, finger tighten only.

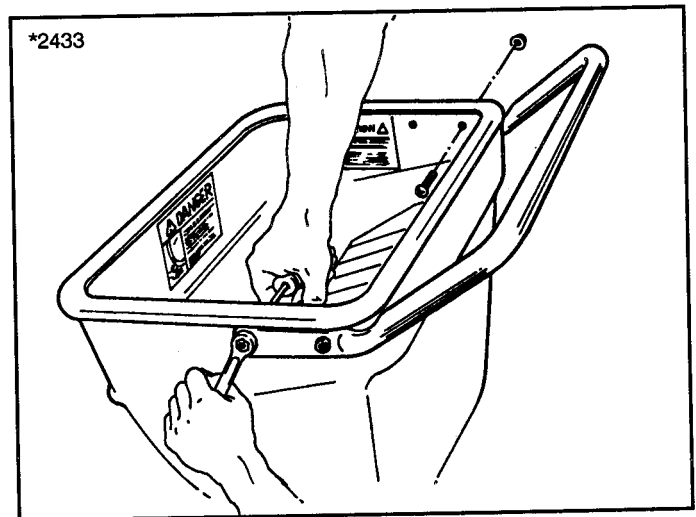


3. From the inside of the shredder hopper, install a 5/16-18 x 3/4" capscrew, lockwasher, and flat washer into the lower hole of the metal hopper liner. Then, install the 5/16-18 x 1" capscrew with flat washer into the upper hole of the liner and secure with a 5/16" whiz nut. (See top of next column for illustration.)
4. Tighten all bolts securely.



Hopper Handle

1. Rotate the handle up until the holes in the handle are aligned with the holes in the shredder hopper.
2. Insert two (2) 1/4-20 x 3/4" hex socket button head screws, making sure the heads are to the outside of the hopper.
3. Hold screw head with allen wrench and tighten nuts using a 7/16" wrench.



CAUTION

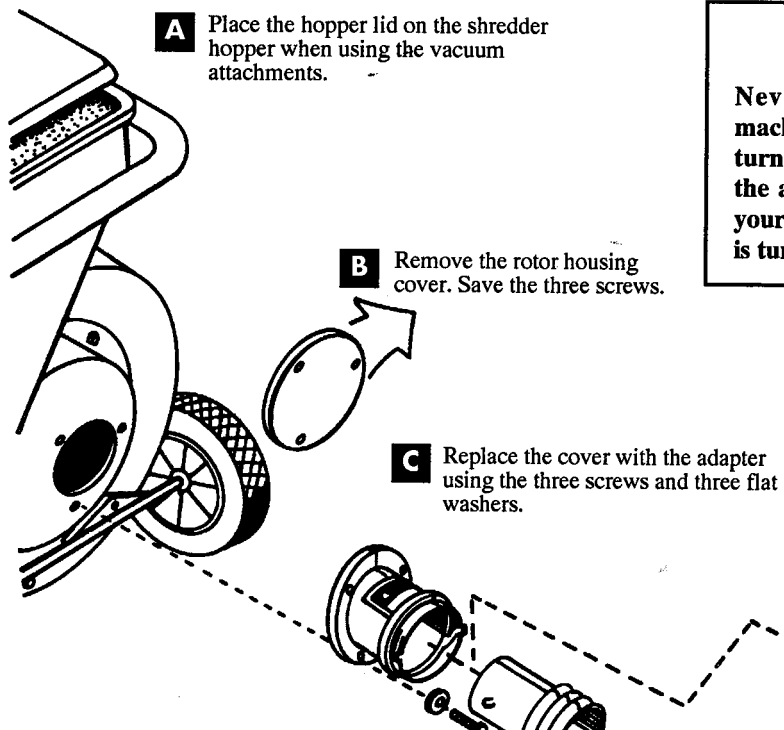
Your Chipper/Shredder is now assembled. Make sure tools, hardware, or other foreign objects have not been left inside the machine. Before operating your Chipper/Shredder, make sure you are familiar with the safety instructions found on page 3 and have completely read and understand this manual.

Optional Vacuum Kit Assembly

The Vacuum Kit (optional) requires some assembly. The illustration on this page shows how all the pieces fit together. Refer to page 18 for service part numbers.

! WARNING
 Turn off the engine, let the rotor come to a complete stop, and disconnect the spark plug wire before assembling your vacuum kit or changing attachments.

! WARNING
 Never remove the adapter from the back of the machine while the machine is running or the rotor is turning. The rotor is spinning just inches away from the adapter inlet. Serious injury will result if you put your fingers or foot in the adapter inlet while the rotor is turning!

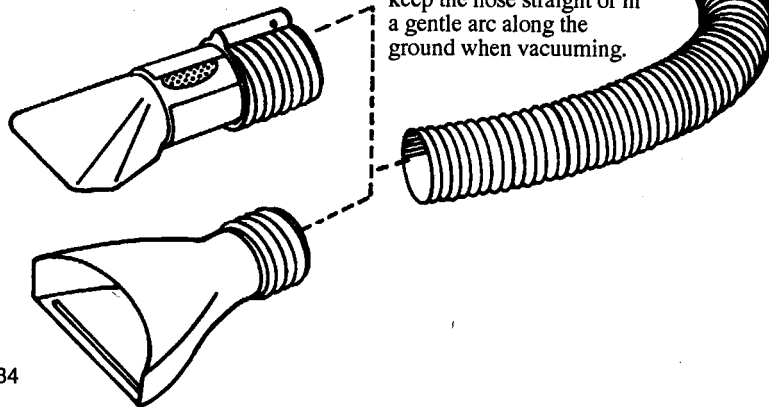


D Insert the plug when the vacuum attachments are not in use. To remove the plug or coupler (below), line up the seams or arrows running along the top of the attachment with those on the adaptor. Pull firmly until you hear a "snap". Then simply unscrew and remove.

TIP— Let the large intake under the nozzle hover over the leaves. It will steadily vacuum the waste. For best results, do not push the nozzle into the pile of waste.

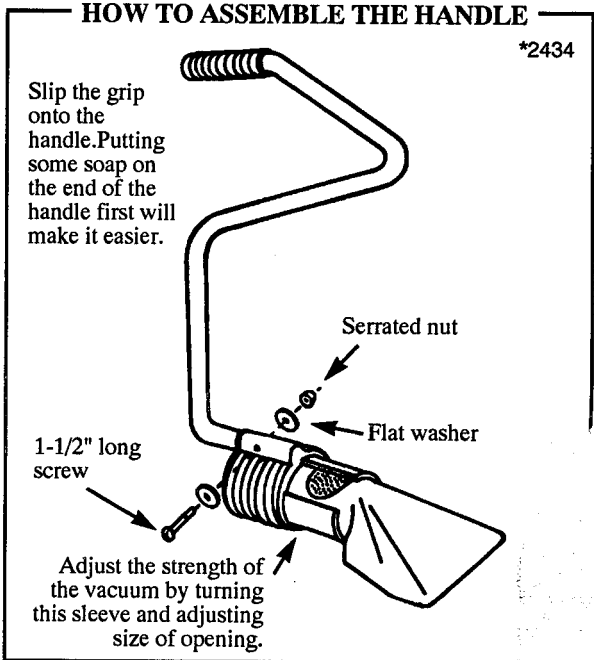
TIP— the straighter the hose, the better the vacuum. For best results, keep the hose straight or in a gentle arc along the ground when vacuuming.

E The coupler screws onto one end of the hose and is then attached to the adaptor. Screw the coupler (shown at left) onto the end of the hose and insert the other side into the adaptor. Twist until you hear it snap into place. To remove, line up the seams on top, pull until it clicks, and then unscrew and remove.



TIP— Set the leaf tray near a pile of leaves. Rake leaves into the tray at a steady rate so that the engine runs at an even level. For best results, do not cram the tray full of leaves. Avoid twigs which will block the leaves.

! CAUTION
 Please consult this owner's manual for other warnings and restrictions. Eye protection is necessary for safe operation. Hearing protection is advised.



3 HOW YOUR YARD WASTE MANAGEMENT SYSTEM™ WORKS

To help you better understand how to get the most out of your purchase, this section explains what goes on inside your machine.

The Chipper

The chipper is designed to process limbs and branches up to 2-1/2" in diameter. The chipper is also used to process tough organic matter such as berry canes and corn stalks.

Limbs inserted through the chipper cone pass through the chipper block. The two knives mounted on the heavy rotor pass the chipper block at 3600 RPM, chipping off the tip of the limb as they pass. These knives are extremely sharp and mounted at special angles so that the limbs are pulled in as they are fed into the block.

The chips then pass through a slot in the rotor behind the knives. From there discharge air flow conveys them through the fan chamber and out the discharge chute.

Chipping is the most efficient way to process waste. Limbs or branches bundled together and inserted butt-ends first will be converted into valuable chips in moments. Use these chips for decorative landscaping mulch.

The Shredder

Light brush, leaves and other waste inserted into the shredder hopper passes around or through the black hopper guard and into the path of the patented swinging triangular and J-hammers. The hammers cut and grind the waste into smaller and smaller pieces. Air flow then conveys the reduced waste out the discharge chute.

Because the hammers swing freely, when they hit material too large to shred on the first strike, they swing out of the way. Then the hammer on the next shaft swings around, striking the waste again, and so on, until the waste is reduced.

Because the hammers are shaped like a triangle, most of their mass is nearer the tip for 300% more shredding power than rectangular hammers. Also, their shape gives you a total of six leading edges. This means you can rotate your triangular hammer up to six times before replacing it.

The Vacuum System

Integrated into the rotor flywheel—in addition to hammers, knives and shafts—are four fan blades. When the rotor is spinning, a vacuum is created, pulling waste down the shredder hopper into the grinding chamber. There it will be spun around and shredded small enough for the force of the exiting air to convey it out.

The Vacuum Kit lets you take full advantage of the vacuum system. A lid is placed over the shredder hopper, directing the suction power to the hose inlet at the bottom of the grinder. Attach the vacuum hose to convey leaves and other loose waste materials to be shredded. Rake the materials into the Leaf Tray. Or attach the Nozzle and Handle to the end of the hose for hard to reach places. The strength of the vacuum can be adjusted by turning the sleeve.

Store the plug in the chipper cone to reduce air loss and noise.

4 GETTING STARTED

Safe Operating Area



CAUTION: BE SURE TO OPERATE YOUR ENGINE OUTDOORS IN A WELL-VENTILATED AREA. KEEP CHILDREN, PETS AND OTHER BYSTANDERS AWAY FROM THE OPERATING AND DISCHARGE AREAS.

1. Select an area with firm, level ground, covered by dirt or grass. Do not operate on wet, slick surfaces, in busy traffic or pedestrian areas.
2. Locate the unit near the waste materials to be processed. Trim and stack the materials for more efficient and safe operation.
3. Allow operators plenty of room to handle bulky material and to process waste without tripping or over-reaching.

Direct-Bagging

To collect waste as it exits the discharge chute, pull the bag over the deflector, hold the deflector part-way up and secure the cinch. Correctly installed, the bag will cover the entire deflector shield assembly. The cinch string is tightened around the shield assembly and a notch in the flange of the main body, below the chute.



WARNING

Do not attach or remove the bag while the rotors are turning. Serious personal injury may result. Turn the engine off and wait for the rotor to come to a complete stop before removing or attaching the bag.

Engine Controls

See your engine manual included with your purchase for complete engine instructions and warranty information.

Spark Plug Wire



CAUTION

Disconnect the spark plug wire from the spark plug while servicing the chipper/vac shredder to eliminate the chance of the engine accidentally firing.

Choke

Use for cold starts as needed.

Throttle

LOW This is the starting position for your engine. As the engine starts up, decrease the choke and ease the throttle towards the fast position. Use the low position to idle when you are not chipping and shredding.

FAST When chipping, shredding or vacuuming, move the throttle to the FAST position.

Vacuum Kit^d

Light, loose waste such as leaves and grass clippings may be vacuumed using the vacuum kit. Before starting the engine, place the lid over the shredder hopper. Remove the plug in the adapter. Insert and twist on the assembled coupler and hose. Then attach the Nozzle and Handle attachment or the Leaf Tray.

It is considered safe to change from the Nozzle to the Leaf Tray at the end of the hose while the rotor is turning. However, note warning below:



WARNING

NEVER remove or attach the plug or the coupler from the back of the machine while the rotor is turning! The rotor is spinning just inches away from the adapter inlet. Serious injury will result if you put your fingers or foot in the adapter while the rotor is turning!

Some Tips

- ▲ Stack limbs to be chipped and loose waste to be shredded in separate piles near the machine. Pruning the limbs to less than 2-1/2" diameter will make chipping go faster later.
- ▲ Chipping is faster than shredding.
- ▲ Rotate larger limbs while alternately inserting and retracting them in the chipper.
- ▲ Bundle several smaller branches and insert them into the chipper.
- ▲ Alternately chip or shred dry waste with wet, green waste to avoid plugging discharge chute.
- ▲ Let the knives and hammers do the work for you. If you find yourself forcing waste into the hoppers, there may be something wrong. Does the material exceed the size limitations? Do the hammers or knives need a fresh cutting edge?
- ▲ **DO NOT CUT CORNERS ON SAFETY.** Develop a consistent pace that allows you to work safely.
- ▲ Do not let go of large limbs and allow them to bounce around in the cone. They may damage the cone or be ejected back out toward the operator and cause injury.

5

WASTE MATERIALS GUIDE

Waste Materials Guide

	Types of Waste Permitted	Size Limitations	Notes
Shredding	Dry, moist or wet organic material including leaves, plants, flowers, fruits, vegetables. Dry waste is more easily processed than wet waste. Process at a rate that keeps the rotor turning consistently at a high rate.	Branches and twigs up to 1/2" diameter x 18" long. CAUTION Longer pieces may whiplash and cause injury as they are pulled into the rotor.	Alternately chip or shred dry waste with wet, green waste to avoid plugging discharge chute.
Chipping	Long, thicker limbs or smaller branches and twigs bundled together.	Limbs and branch bundles not to exceed 2-1/2" diameter.	Bulky limbs and branches may need to be pruned to fit thru the chipper cone. When limb is reduced to the length of cone, you have two choices according to the diameter of the material. (1) Material under 1/2" dia. and under 18" long may be fed into the shredder-grinder hopper. Or, (2) Limbs over 1/2" dia. may be either pushed in with another limb or pulled out, cut into short chunks and fed into the grinder hopper or set aside for firewood.
Vacuuming (Optional)	Light, loose, dry waste such as leaves, grass clippings and sawdust.	See "Notes"	The vacuum is engineered for loose waste and for cleaning up around decorative landscaping and flower beds. Twigs, very wet leaves and other bulky materials will not be easily processed.

6

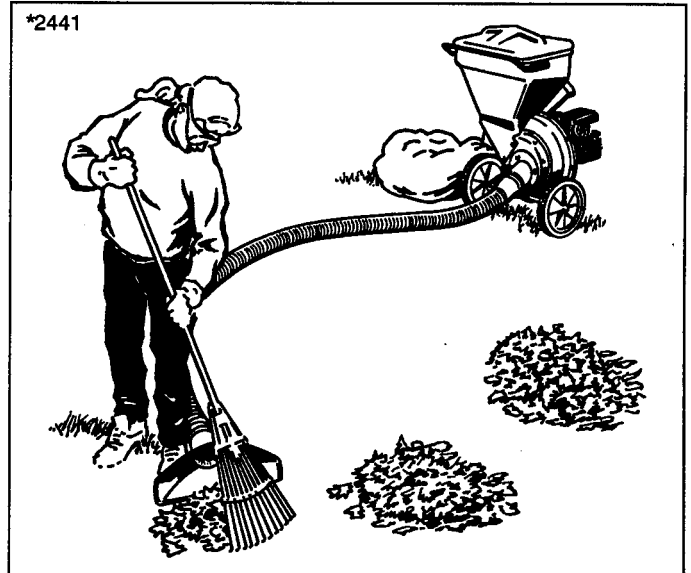
OPERATING TIPS

*2440



Keep your feet shoulder width apart when chipping. Hold branch loosely and let the self-feeding action pull it in. By pruning and stacking branches, tree limbs and other materials in separate piles near the unit, your work will go faster.

*2441



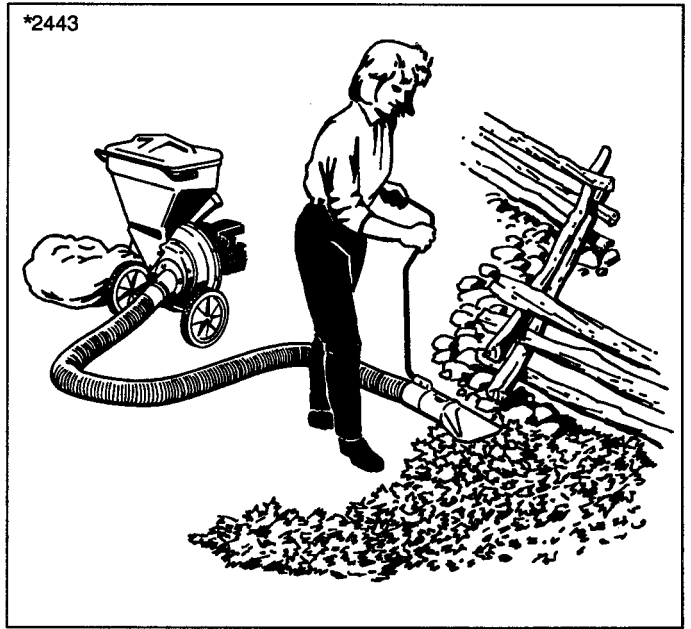
When using the optional Vacuum Kit, set the Leaf Tray near a pile of leaves. Rake leaves into the tray at a steady rate so that the engine runs at steady, higher RPM's. Allow the vacuum to pull leaves in. For best results, do not clog the tray with clumps of leaves.

*2442



Use an open-handed technique when pushing stubborn, bulky branches into the shredder. Do not grab and hold onto the material or reach beyond the hopper guards. If clogging occurs, turn the power off, disconnect the spark plug wire, wait for the rotor to stop, and remove the obstruction.

*2443



With the ergonomically (user friendly) designed handle and adjustable nozzle, you can vacuum under bushes and hard to reach places. Adjust the suction strength to vacuum loose materials without disturbing flower beds or decorative rock.

7 MAINTENANCE & SERVICE

Servicing your chipper/vac shredder is important to its performance and longevity. However, some mechanical ability is necessary to do some of the servicing procedures described below. See an authorized servicing dealer for expert assistance.

Engine Maintenance

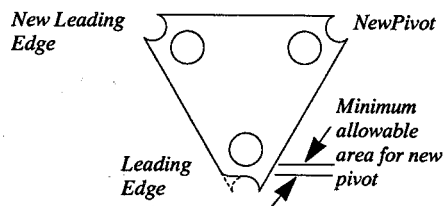
The manual supplied by the engine manufacturer is included with this unit. Add oil and gas as your engine manual advises. See an authorized engine dealer near you for repairs and maintenance.

Shredding Hammers

Both the triangular and J-hammers will show wear at their leading edges. Triangular hammers can be rotated twice after the first edge dulls, and then flipped and rotated again, for a total of six leading edges. J-hammers may be flipped once for a total of two leading edges.

If the leading edge looks worn (as shown in the illustration of the triangular hammer below), it is time to rotate the hammers to a new leading edge.

This illustration shows typical wear of the hammer's leading edge. Rotate to a new pivot for a new edge.

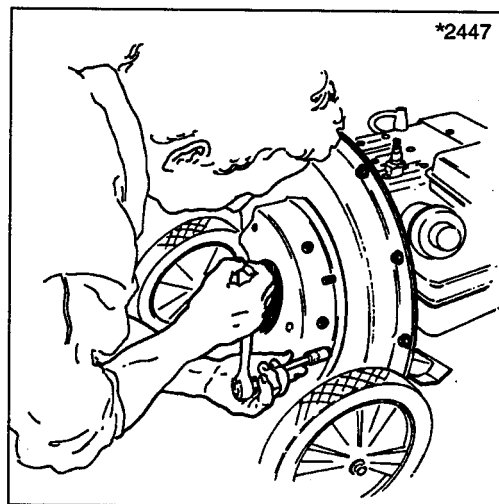


CAUTION

Before servicing your hammers or knives, turn off the engine, wait until the rotor stops completely and disconnect the spark plug wire.

- 1 Turn off the engine, disconnect the spark plug wire, wait for the rotor to stop completely.
- 2 Remove the shredder hopper from the rotor housing. (You may leave the liner, handle and guard in place.)
- 3 Remove the rotor housing, as shown in the illustration, STEP 2.

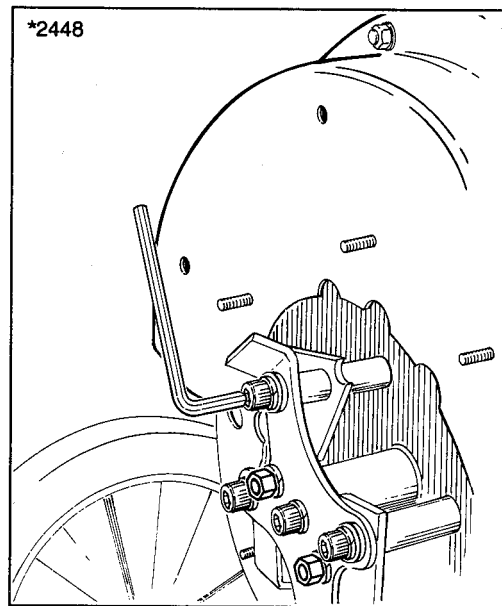
STEP 2:
After removing the shredder hopper, remove the rotor housing, exposing the hammers and shafts.



- 4 Slowly and carefully move the rotor by hand (counter-clockwise, as you face the back of the machine) so the shaft with the worn hammer is on top.
- 5 Before removing hardware, note the relationship of hardware, spacer, spacer tube, and hammer. (For additional reference, refer to the exploded view illustration in the Parts List at the back of this manual.) Hammers and spacers must be reassembled in the same order to ensure proper rotor balance, safety, and shredding efficiency.
- 6 With a 5/16" allen wrench, remove the socket-head capscrew, lockwasher, flat washer, and spacer tube through the front plate of rotor assembly. Catch the hammer and short spacer as capscrew is removed.

STEPS 5 & 6:

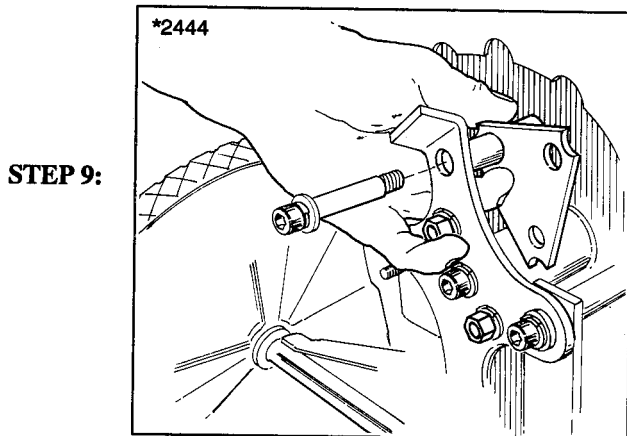
Note order of hammers and spacer for reassembly and remove capscrew.



- 7 Wipe off the spacer tube and inspect it for unusual wear. If it has grooves in it, turn the spacer tube end for end to change the wear area. If it has deep grooves, replace the spacer tube. (Note: both the hammers and spacer tube are heat treated steel and should not be repaired in any way - use new parts as required.)

(Continued)

- 8 Rotate or flip the hammer to a new leading edge.
- 9 Hold the hammer and spacer in position with one hand and reinstall capscrew, lockwasher, flat washer, and spacer tube through front plate and thread into welded spacer on rotor. Tighten the capscrew to 45 ft. lbs.



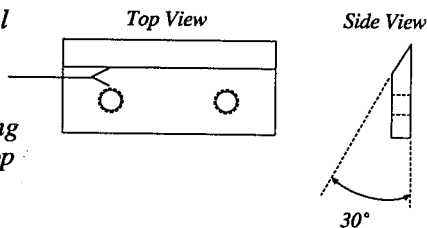
- 10 Rotate the rotor to the next shaft and service as described above. When replacing the J-hammer, note the orientation of the blade toward the inside or outside of rotor assembly.
- 11 Reassemble the rotor housing and shredder hopper unless the chipping knives are to be serviced.

Chipping Knives

You know the knives need resharpening when you must force limbs into the chipper. Sharp knives pull waste in without too much help from the operator.

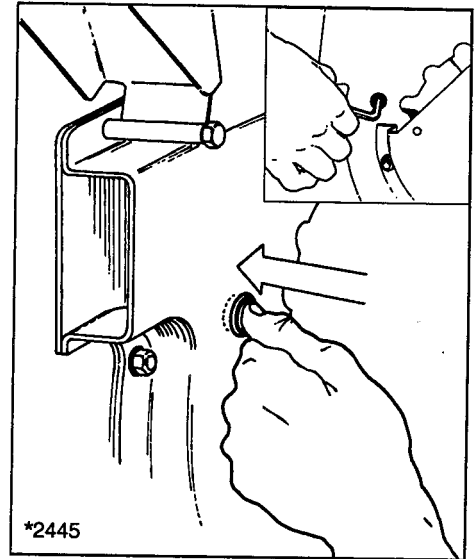
1/4" new. After several sharpenings, 1/16" is the min. distance.

See your local servicing dealer or machine shop for expert sharpening.



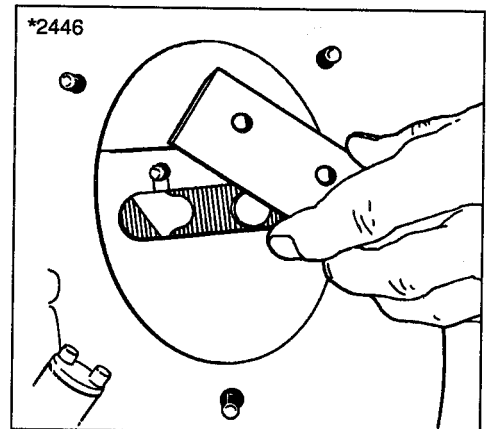
- 1 Turn off your engine, disconnect the spark plug wire and wait for the rotor to come to a complete stop before servicing your knives.
- 2 Remove the shredder hopper from the housing. With a 1/2" wrench, remove the chipper casting (with the chipper cone attached), exposing the oval chipping block.
- 3 Using the 1/4" Allen wrench provided, loosen the two socket head cap screws holding the knife in place. As the illustration shows, these are accessible from the back of the machine. You must temporarily remove the plug to access one of the screws.

- STEP 1:**
- Access to one of the knife's screws is gained by pushing out the plug and inserting the Allen wrench through the exposed hole. (See Insert) Replace the plug when you are finished servicing both hammers.



- 4 Remove both knives and sharpen them equally to maintain balanced chipping action. Slow speed, water-cooled grinding is preferred to preserve the precision temper of these knives. With care, a homeowner's bench grinder with a fine grit stone and a container of water will do well, too. Sharpen the knives to a 30 degree angle. (Your local, experienced machine shop professional is the preferred alternative for knife-sharpening.)

- STEP 4:**
- After loosening the screws, remove the knives through the chipper hole in the front of the machine. When resecuring the knives, be sure to use new lockwashers.



- 5 Clean the knife seat and mounting area before reinstalling the knife. Re-install the knife in the seat using the two socket head cap screws and two new lockwashers. Tighten with the 1/4" Allen wrench (L).

CAUTION

Use new lockwashers after servicing the knives. Once removed, lockwashers can lose their fastening qualities. Replace them each time you remove them for any reason.

Lockwashers & Fasteners

All fasteners have special locking qualities when new. Whenever removal or replacement of parts is required, use new lockwashers. Inspect and tighten loose fasteners before each use. (They may become loose due to normal vibration during operation.)

Deflector Shield and Hopper Guard

The hopper guards must be replaced if a flap or flaps become torn or broken. You must maintain the guards as well as the discharge deflector shield for safe operation. It is your responsibility to maintain these parts should they fall into disrepair.

Special Assistance

If you encounter a servicing problem that you cannot solve, and are unable to locate an authorized servicing dealer in your area, call our Customer Service Department for assistance at (414) 284-8786. Be prepared to give one of our representatives the following information:

Model # _____
Serial # _____
Where Purchased _____
Date of Purchase _____
Owner's Name _____

8 SAFETY DECALS

Safety decals are important, reminding operators to work sensibly. Replace them whenever they become ripped or unreadable. Operator safety depends on it!

⚠ DANGER

- SERIOUS PERSONAL INJURY MAY RESULT FROM THE ROTOR CUTTERS WHEN THEY ARE MOVING.
- ROTOR CUTTER WILL COAST AFTER THE SWITCH IS MOVED TO OFF.
- DO NOT PERFORM ANY CHANGE OF EQUIPMENT (SUCH AS THE BAG) OR MAINTENANCE UNTIL AFTER THE ROTOR IS COMPLETELY STOPPED AND THE CORD IS DISCONNECTED.
- A WHITE VISUAL INDICATOR IS APPARENT ON THE FAN END OF THE MOTOR TO DETERMINE IF THE CUTTERS ARE STOPPED.

⚠ DANGER

ROTATING CUTTERS

KEEP HANDS AND FEET OUT OF INLET AND DISCHARGE AREAS! SERIOUS PERSONAL INJURY MAY RESULT!



⚠ CAUTION ⚠

OPERATE THIS EQUIPMENT IN A SAFE MANNER & ACCORDING TO THE OPERATOR'S MANUAL

SERIOUS PERSONAL INJURY MAY RESULT IF YOU DO NOT !

- * Use proper safety GOGGLES, NEVER wear LOOSE clothing.
- * KEEP observers CLEAR of entire operating area.
- * KEEP hands CLEAR of any material being pulled into grinder.
- * KEEP hands ABOVE top of plastic shields.
- * KEEP hands and feet OUTSIDE of discharge periphery.
- * Feed limbs into CHIPPER per operator's manual.
- * Feed loose materials into GRINDER per operator's manual.

9 TROUBLESHOOTING GUIDE



CAUTION:

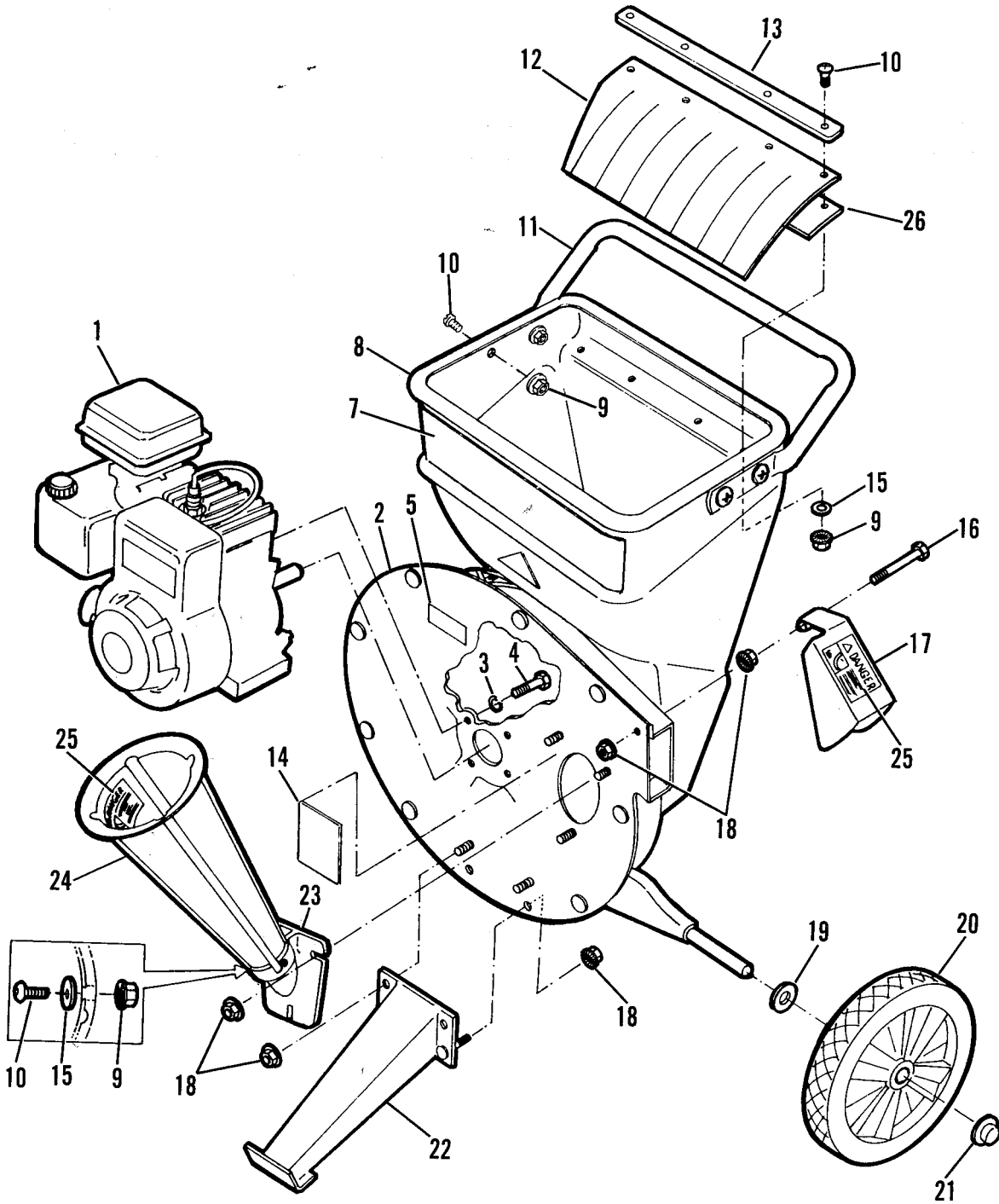
BEFORE TAKING ANY CORRECTIVE ACTION, TURN OFF THE ENGINE OR MOTOR, LET THE ROTOR COME TO A COMPLETE STOP, AND DISCONNECT THE SPARK PLUG WIRE OR UNPLUG THE ELECTRICAL CORD.

SYMPTOM	POSSIBLE CAUSE	REMEDIES
Engine won't start	<ul style="list-style-type: none"> • Out of gas • Spark plug wire disconnected • Controls in wrong position • No compression • Other problems 	<ul style="list-style-type: none"> • Add gas • Connect spark plug wire • Reposition controls • See your local dealer • See your local dealer
Engine runs, but rotor won't turn	<ul style="list-style-type: none"> • Crankshaft key broken or missing 	<ul style="list-style-type: none"> • Replace crankshaft key
Engine runs, rotor turns, but little or no material being discharged	<ul style="list-style-type: none"> • Discharge chute clogged • Engine not running at full RPM 	<ul style="list-style-type: none"> • Clear discharge chute • Set throttle to "fast" position or see your local dealer.
Excessive branch vibration when chipping	<ul style="list-style-type: none"> • Chipper knives dull or missing • Branch extremely hard and dry 	<ul style="list-style-type: none"> • Sharpen or replace • Use branch for firewood
Vacuum not working	<ul style="list-style-type: none"> • Hopper lid not in place • Material too wet • Hose not properly attached • Hose obstructed or damaged • Engine not running at full RPM 	<ul style="list-style-type: none"> • Put lid on hopper • Allow material to dry • Attach hose properly • Inspect hose for damage or obstruction • Set throttle to "fast" position or see your local dealer
Unusual noise or vibration	<ul style="list-style-type: none"> • Rotor overloaded • Non-organic matter caught in shredding chamber • Chipper knives loose or missing • Hammers broken, bent or missing • Hammers frozen on shaft • Crankshaft bent 	<ul style="list-style-type: none"> • Allow unit to clear itself before feeding more material • Remove non-organic matter • Tighten or replace knives • Replace hammers • Remove obstruction so hammers swing freely • See your local dealer

10 ILLUSTRATED PARTS

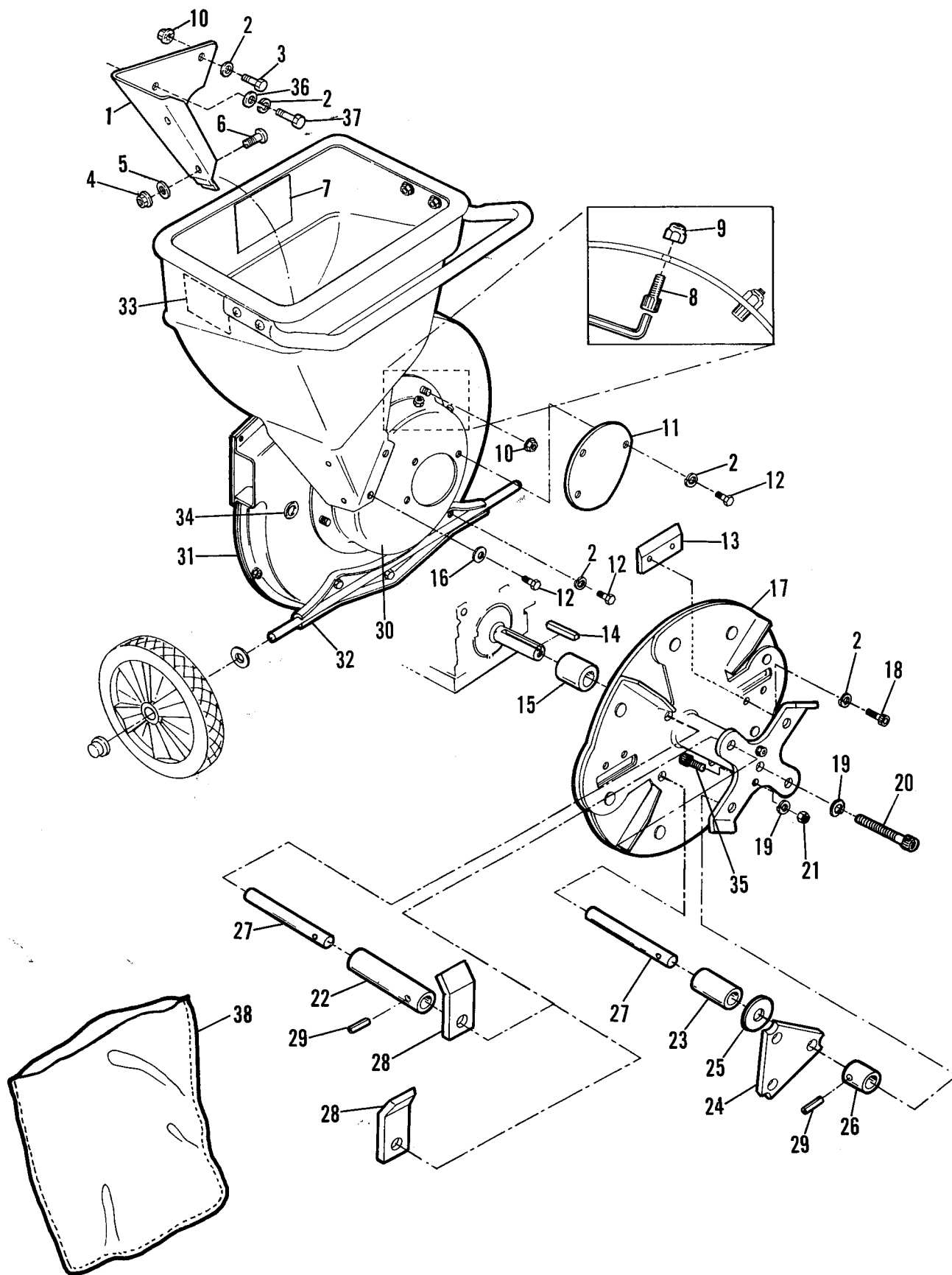
Hopper & Engine Group

*2478



Hopper & Engine Group

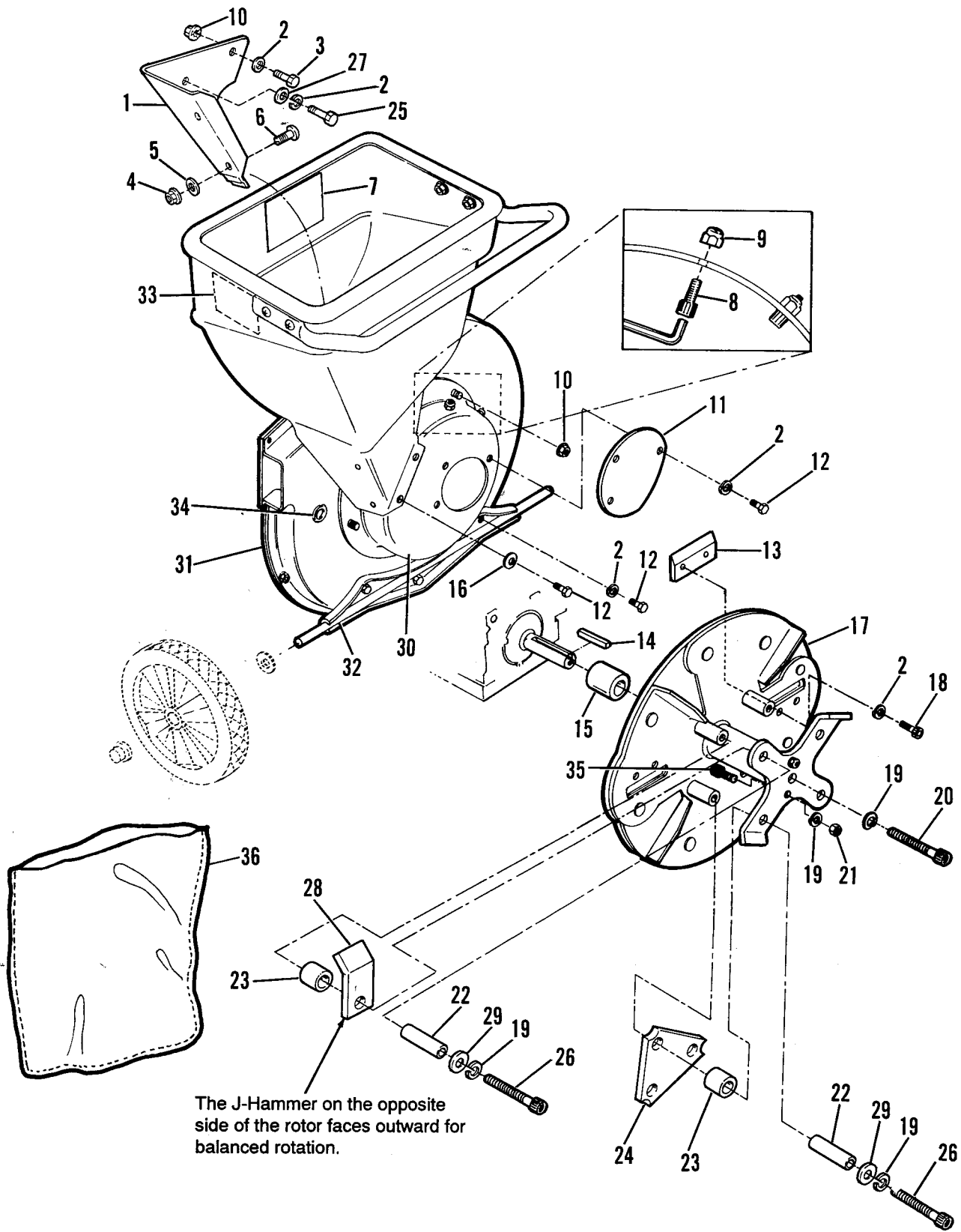
Ref. No.	Part No.	Qty.	Description
1		1	ENGINE, 5.0 HP Briggs & Stratton
2	3551100	1	ENGINE PLATE
3	1917356	4	LOCKWASHER, 5/16, Split
4	1921515	4	CAPSCREW, Hex Hd., 5/16"-24 x 3/4"
5		1	I.D. PLATE (Not Serviced)
6		1	DECAL, OPEI (Not Serviced)
7	See inside back cover }	1	DECAL, Model
8	See inside back cover }	1	SHREDDER HOPPER
9	1930647	12	NUT, 2-Way Lock, 1/4"-20
10	1960507	12	SCREW, Button Hd., Hex Socket, 1/4"-20 x 3/4"
11	3621100	1	HANDLE, Hopper
12	1095100	1	GUARD, Hopper
13	1098100	1	RETAINING STRIP, Hopper Guard
14		1	LABEL, Warning (Not Serviced - Shipping Only)
15	1921319	8	WASHER, 1/4" USS Flat
16	1926106	1	CAPSCREW, Hex Hd., 5/16"-18 x 3"
17	3685100	1	DEFLECTOR, Discharge
18	1931277	22	NUT, Hex, Serrated Flange 5/16"-18
19	1924361	2	WASHER, 1/2" Flat Iron
20	3612100	2	WHEEL, 12"
21	1678038	2	NUT, Push, 1/2"
22	3627100	1	ASSEMBLY, Leg
23	1068100	1	CHIPPER CASTING, 2-1/2"
24	See inside back cover }	1	CHIPPER CONE, 2-1/2"
25	5001612	2	DECAL, DANGER
26	1709603	1	SUPPORT, Hopper Guard



Rotor & Hammer Group - Effective with Serial Nos. up to 5000

Ref. No.	Part No.	Qty.	Description
1	3525100	1	HOPPER LINER
2	1917356	12	LOCKWASHER, 5/16" Split
3	1921333	1	CAPSCREW, Hex Hd., 5/16"-18 x 1"
4	1930647	2	NUT, 2-Way Lock, 1/4-20
5	1921319	2	WASHER, Flat, 1/4
6	1700819	2	CAPSCREW, Phillips Hd., 1/4-20 x 5/8
7	5004100	1	DECAL, CAUTION
8	6005100	2	CAPSCREW, Socket Hd., 5/16"-18 x 1/2"
9	1919438	2	NUT, Nylock, 5/16"-18
10	1931277	13	NUT, Flange, Hex, 5/16-18
11	3520100	1	COVER, Rotor Housing
12	1920787	8	CAPSCREW, Hex Hd., 5/16"-18 x 1/2"
13	3315612	2	CHIPPER KNIFE
14	905100	1	KEY, 1/4" Sq. x 1-7/8"
15	3299100	1	SPACER, Rotor, 1"
16	1919326	2	WASHER, Flat, 5/16"
17	*1685698	1	ROTOR, 1" Hub
18	6005612	4	CAPSCREW, Socket Hd., 5/16"-24 x 5/8"
19	1916965	7	LOCKWASHER, 3/8" Split
20	6516100	1	CAPSCREW, Socket Hd., 3/8"-24 x 2"
21	1916950	2	NUT, Hex, 3/8"-16
22	3455100	2	SPACER, Tube, 2-1/2" Long
23	3465100	2	SPACER, 1-5/8" Long
24	3307612	2	HAMMER, Triangular
25	1924361	2	WASHER, Flat, 1/2
26	3475100	2	SPACER, 13/16" Long
27	3309100	4	SHAFT, Hammer
28	3307100	2	J HAMMER
29	916169	4	ROLL PIN, 3/16" x 3/4"
30	3521100	1	HOUSING, Rotor
31	3501100	1	HOUSING, Fan
32	3505100	1	AXLE ASSEMBLY
33	5001612	1	DECAL, Danger
34	6075100	1	PLUG BUTTON
35	6518100	2	CAPSCREW, Socket Hd., 3/8"-16 x 5/8"
36	1924874	4	WASHER, Flat, 5/16"
37	1921332	1	CAPSCREW, Hex Hd., 5/16-18 x 3/4"
38	1709403	1	BAG, 24" x 36"

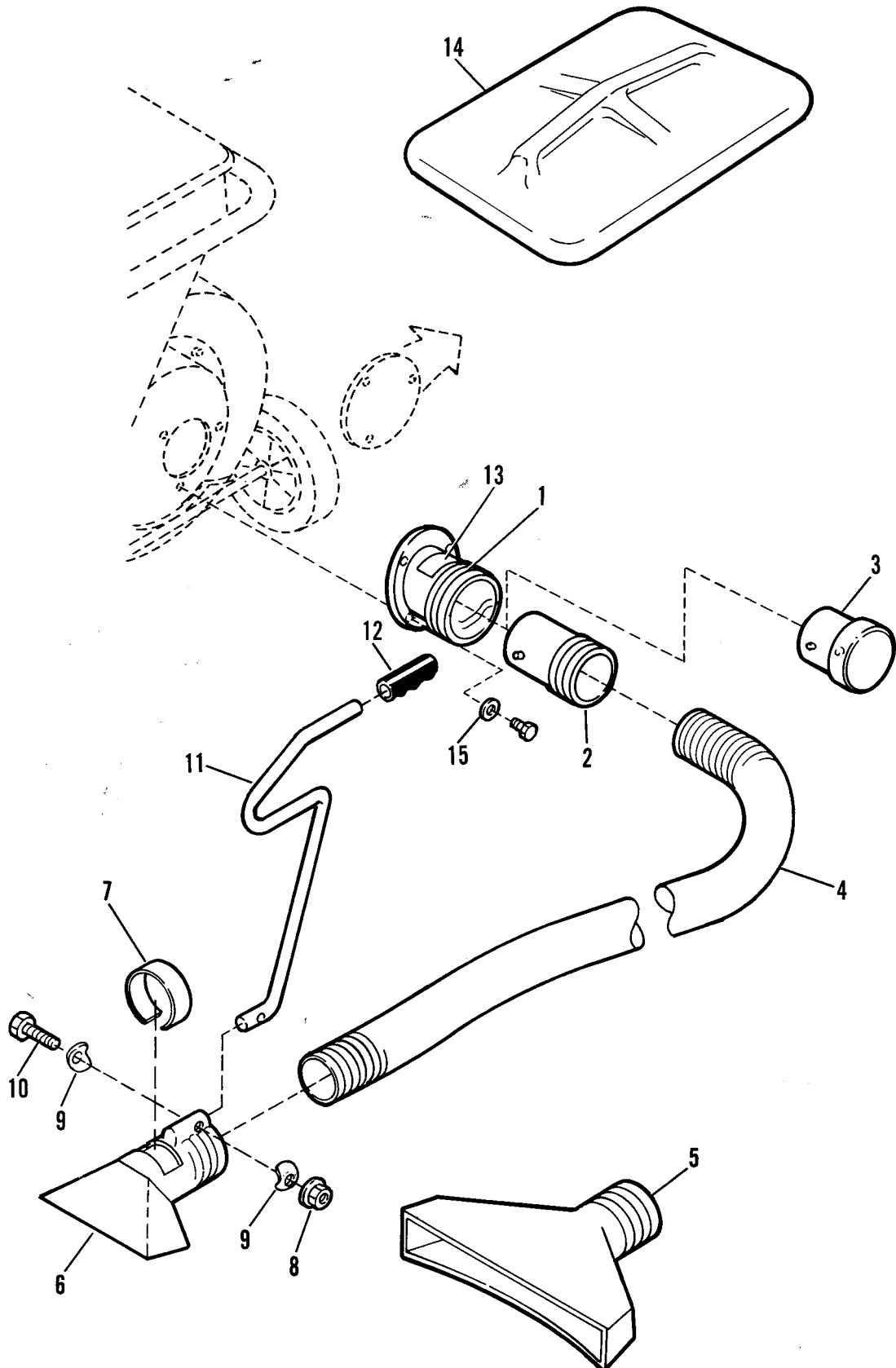
***Rotor Kit 1685698 contains Ref. Nos. 2, 17, 19, 22, 23, 26 and 29 on pages 18 & 19 (All items are marked with an "**").**



Rotor & Hammer Group - Effective with Serial Nos. 5000 and above

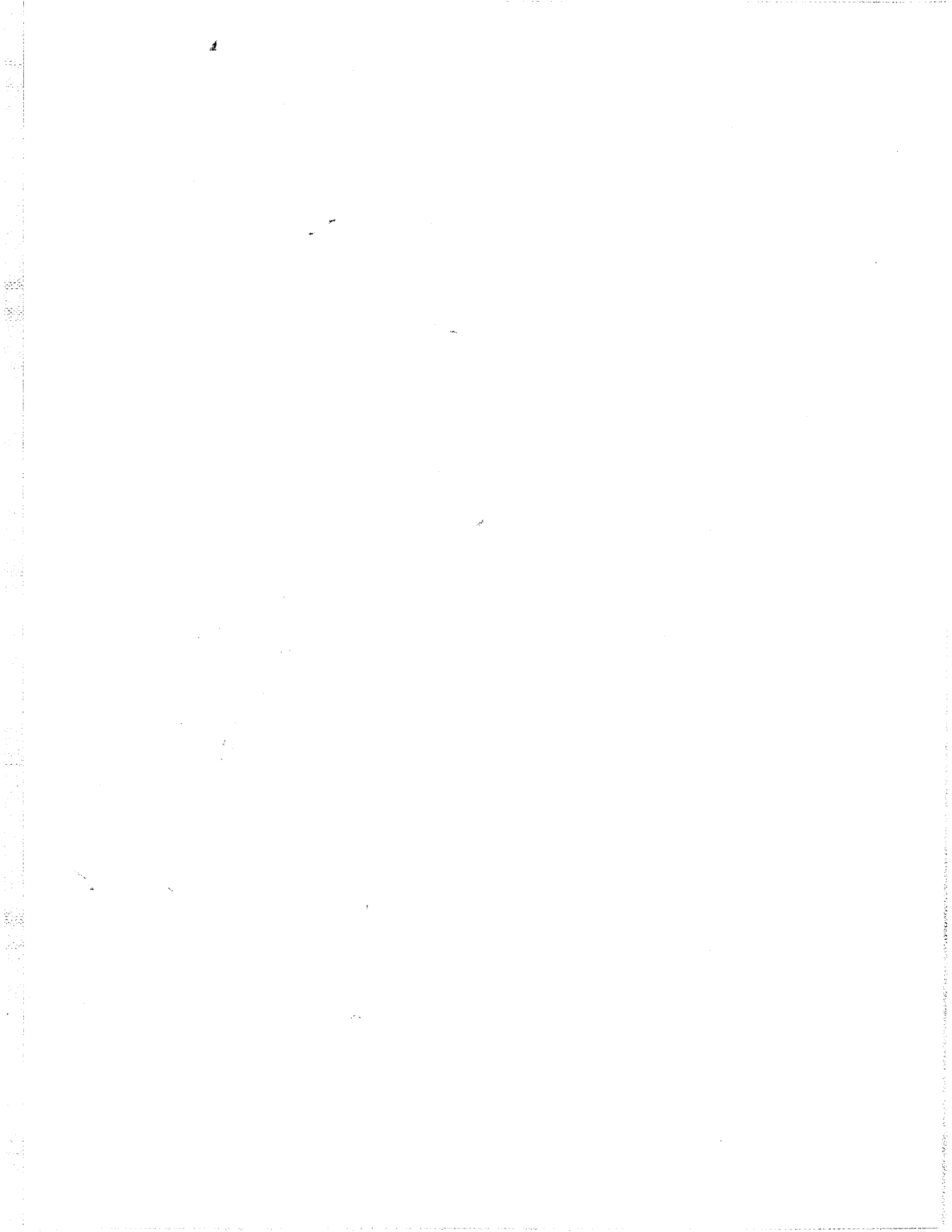
Ref. No.	Part No.	Qty.	Description
1	3525100	1	HOPPER LINER
2	*1917356	12	LOCKWASHER, 5/16" Split
3	1921333	1	CAPSCREW, Hex Hd., 5/16"-18 x 1"
4	1930647	2	NUT, 2-Way Lock, 1/4-20
5	1921319	2	WASHER, Flat, 1/4
6	1700819	2	CAPSCREW, Phillips Hd., 1/4-20 x 5/8
7	5004100	1	DECAL, CAUTION
8	6005100	2	CAPSCREW, Socket Hd., 5/16"-18 x 1/2"
9	1919438	2	NUT, Nylock, 5/16"-18
10	1931277	13	NUT, Flange, Hex, 5/16-18
11	3520100	1	COVER, Rotor Housing
12	1920787	8	CAPSCREW, Hex Hd., 5/16"-18 x 1/2"
13	3315612	2	CHIPPER KNIFE
14	905100	1	KEY, 1/4" Sq. x 1-7/8"
15	3299100	1	SPACER, Rotor, 1"
16	1919326	2	WASHER, Flat, 5/16"
17	*1709617	1	ROTOR, 1" Hub
18	6005612	4	CAPSCREW, Socket Hd., 5/16"-24 x 5/8"
19	*1916965	7	LOCKWASHER, 3/8" Split
20	6516100	1	CAPSCREW, Socket Hd., 3/8"-24 x 2"
21	1916950	2	NUT, Hex, 3/8"-16
22	*1709614	4	SPACER, Tube
23	*1709616	4	SPACER, 3/4 O.D., 3/4" Long
24	3307612	2	HAMMER, Triangular
25	1921332	1	CAPSCREW, Hex Hd., 5/16-18 x 3/4"
26	*1960508	4	CAPSCREW, Hex Socket Hd., w/Patch, 3/8-16 x 2, Gr. 8
27	1924874	4	WASHER, Flat, 5/16"
28	3307100	2	J HAMMER
29	*1924940	4	WASHER, Flat, 7/8" O.D.
30	3521100	1	HOUSING, Rotor
31	3501100	1	HOUSING, Fan
32	3505100	1	AXLE ASSEMBLY
33	5001612	1	DECAL, Danger
34	6075100	1	PLUG BUTTON
35	6518100	2	CAPSCREW, Socket Hd., 3/8"-16 x 5/8"
36	1704903	1	BAG, 24" x 36"

***Rotor Kit 1685698 contains Ref. Nos. 2, 17, 19, 22, 23, 26 and 29
(All items are marked with an "**").**



Vacuum Kit

Ref. No.	Part No.	Qty.	Description
1	1021100	1	ADAPTOR
2	1023100	1	COUPLER
3	1025100	1	PLUG
4	1035100	1	HOSE, 10' x 4" Dia.
5	1027100	1	LEAF TRAY
6	1030100	1	NOZZLE, with Valve Ring
7	1024100	1	VALVE RING
8	1960294	1	NUT, 1/4-20
9	1921319	2	WASHER, 1/4
10	6041612	1	SCREW, 1/4-20 x 1 1/2
11	1026100	1	HANDLE
12	1028100	1	HANDLE GRIP
13	5001612	1	DECAL, Danger
14	See inside back cover }	1	HOPPER LID
15	1919326	3	WASHER, Flat



Service Part Numbers for parts on page 15:

Ref. No.	Part No.	Qty.	Description
7	5090612	1	DECAL, 5C Red Cyclor
8	1709469	1	SHREDDER HOPPER
24	1709468	1	CHIPPER CONE

Optional Vacuum Kit - Mfg. No. 1692231

Service Part Numbers for parts on page 20:

Ref. No.	Part No.	Qty.	Description
14	1709467	1	HOPPER LID

LIMITED WARRANTY (North America Only)

Covered by Warranty

Red Cyclor Products (Red Cyclor) warrants to the original purchaser that each new product is merchantable and free from defects in workmanship and material.

During the warranty period, any authorized Red Cyclor Retail Outlet will provide, at no charge, both parts and labor (except as otherwise noted) necessary to correct any defect in workmanship and material.

Warranty Period

Red Cyclor Chipper/Shredders are warranted for the stated period from the date of the original purchase:

- (1) 2 years (one year if used for purposes other than personal household use).
- (2) Repair Parts (parts only, no labor are warranted for 90 days (45 days if used for purposed other than personal household use). See separate warranty for batteries.)

Repair parts installed on products receive the same warranty period remaining for the product or 90 days (45 days if used for purposes other than personal household use), whichever is longer.

Owner Responsibilities

To qualify for warranty service, the purchaser of a Red Cyclor product must:

- (1) Have sent the Warranty Registration card to Red Cyclor at the time of purchase.
- (2) Notify a Red Cyclor Dealer as soon as possible after discovery of a possible defect. (If you are not aware of your nearest Red Cyclor dealer, write for such information to Red Cyclor Products, Attn. Service Dept. 500 N. Spring St., Port Washington, WI 53074-0977.)

Not Covered by Warranty

The following are not covered by warranty:

- (1) Transportation charges to and from Dealers under Warranty Period.
- (2) Damage caused by misuse of the product or by operating the product in excess of recommended capacities: OR
- (3) Damage caused by negligence or accident: OR
- (4) Products which have been altered or repaired in a manner not authorized by Red Cyclor.
- (5) Engines are warranted separately by their respective manufacturers, except Company agrees to make available to the owners whatever warranty benefits may be made available to the Company by the manufacturers.
- (6) Normal maintenance and/or replacement of maintenance and wear items, such as oil, filters, and belts.
- (7) Products which have been sold to a second owner.

All implied warranties, except to the extent prohibited by any applicable law, shall have no greater duration than the warranty period for the applicable product. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

The Company's liability arising out of warranties, representations, instructions, or defects from any cause, shall be limited exclusively to repair or replacing parts under the conditions in this warranty, and in no event will Company be liable for incidental or consequential damages. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.



Red Cyclor Products
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