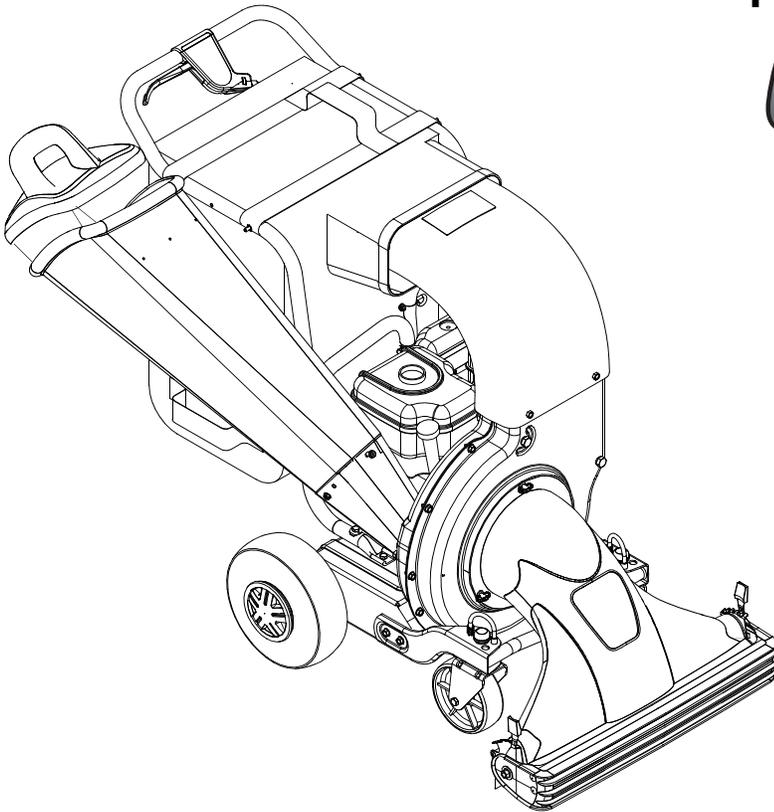




Operator's Manual

Chipper Shredder Vacuum

CSV206



IMPORTANT: Read safety rules and instructions carefully

Warning: This unit is equipped with an internal combustion engine and should not be used on or near any unimproved forest-covered, brush-covered or grass-covered land unless the engine's exhaust system is equipped with a spark arrester meeting applicable local or state laws (if any). If a spark arrester is used, it should 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. A spark arrester for the muffler is available through your nearest engine authorized service dealer or contact the service department, P.O. Box 361131 Cleveland, Ohio 44136-0019.

TROY-BILT LLC P.O. BOX 361131 CLEVELAND, OHIO 44136-0019

PRINTED IN U.S.A.

FORM NO. 769-00170C
(4/2004)

TABLE OF CONTENTS

Content	Page	Content	Page
Important Safe Operation Practices	3	Maintaining Your Chipper Shredder Vacuum	10
Assembling Your Chipper Shredder Vacuum	5	Trouble Shooting	13
Know Your Chipper Shredder Vacuum	7	Illustrated Parts List	14
Operating Your Chipper Shredder Vacuum	8	Warranty	20
Adjusting Your Chipper Shredder Vacuum	9		

FINDING MODEL NUMBER

This Operator's Manual is an important part of your new chipper shredder vacuum. It will help you assemble, prepare and maintain the unit for best performance. Please read and understand what it says.



Before you start assembling your new equipment, please locate the model plate on the equipment and copy the information from it in the space provided below. A sample model plate is also given below. You can locate the model plate by standing behind the unit and looking down at the frame below the engine. This information will be necessary to use the manufacturer's web site and/or help from the Customer Support Department or an authorized service dealer.



Copy the model number here: _____

Copy the serial number here: _____

CUSTOMER SUPPORT

Please do NOT return the unit to the retailer from where it was purchased, without first contacting Customer Support.

If you have difficulty assembling this product or have any questions regarding the controls, operation or maintenance of this unit, you can seek help from the experts. Choose from the options below:

	<p>Visit troybilt.com for many useful suggestions. Click on Customer Support button and you will get the four options reproduced here. Click on the appropriate button and help is immediately available.</p> <div style="display: flex; justify-content: space-between; align-items: center;"> <div style="width: 45%; text-align: center;"> <p><i>The answer you are looking for could be just a mouse click away!</i></p> </div> <div style="width: 40%; border: 1px solid black; padding: 5px;"> <div style="border-bottom: 1px solid black; padding: 2px;"> <p>Find Answers Click here to search our knowledge base. Search by product, keyword, or phrase.</p> </div> <div style="border-bottom: 1px solid black; padding: 2px;"> <p>My Stuff Login to check the status of your questions, modify your inquiries, or update your personal profile.</p> </div> <div style="border-bottom: 1px solid black; padding: 2px;"> <p>Service Locator Need local assistance? Click here to find authorized service centers in your area.</p> </div> <div style="padding: 2px;"> <p>Manuals Online Need a manual and/or parts list? Download literature from recent model years.</p> </div> </div> <div style="width: 45%; text-align: center;"> <p><i>The answer you are looking for could be just a mouse click away!</i></p> </div> </div>
	<p>If you prefer to reach a Customer Support Representative, please call 1-800-520-5520.</p>
	<p>The engine manufacturer is responsible for all engine-related issues with regards to performance, power-rating, specifications, warranty and service. Please refer to the engine manufacturer's Owner's/Operator's Manual, packed separately with your unit, for more information.</p>

SECTION 1: IMPORTANT SAFE OPERATION PRACTICES



WARNING: This symbol points out important safety instructions which, if not followed, could endanger the personal safety and/or property of yourself and others. Read and follow all instructions in this manual before attempting to operate this machine. Failure to comply with these instructions may result in personal injury. When you see this symbol - **heed its warning.**

WARNING: The Engine Exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

DANGER: This machine was built to be operated according to the rules for safe operation in this manual. As with any type of power equipment, carelessness or error on the part of the operator can result in serious injury. This machine is capable of amputating hands and feet and throwing objects. Failure to observe the following safety instructions could result in serious injury or death.

Training

1. Read, understand, and follow all instructions on the machine and in the manual(s) before attempting to assemble and operate. Keep this manual in a safe place for future and regular reference and for ordering replacement parts.
 2. Be familiar with all controls and their proper operation. Know how to stop the machine and disengage them quickly.
 3. Never allow children under 16 years old to operate this machine. Children 16 years old and over should read and understand the operation instructions and safety rules in this manual and should be trained and supervised by a parent.
 4. Never allow adults to operate this machine without proper instruction.
 5. Keep bystanders, helpers, pets, and children at least 75 feet from the machine while it is in operation. Stop machine if anyone enters the area.
 6. Never run an engine indoors or in a poorly ventilated area. Engine exhaust contains carbon monoxide, an odorless and deadly gas.
 7. Do not put hands and feet near rotating parts or in the feeding chambers and discharge opening. Contact with the rotating impeller can amputate fingers, hands, and feet.
 8. Never attempt to unclog either the feed intake or discharge opening, remove or empty vacuum bag, or inspect and repair the machine while the engine is running. Shut the engine off and wait until all moving parts have come to a complete stop. Disconnect the spark plug wire and ground it against the engine.
4. Before starting, check all bolts and screws for proper tightness to be sure the machine is in safe working condition. Also, visually inspect machine for any damage at frequent intervals.
 5. Maintain or replace safety and instructions labels, as necessary.
 6. To avoid personal injury or property damage use extreme care in handling gasoline. Gasoline is extremely flammable and the vapors are explosive. Serious personal injury can occur when gasoline is spilled on yourself or your clothes which can ignite. Wash your skin and change clothes immediately.
 - a. Use only an approved gasoline container.
 - b. Extinguish all cigarettes, cigars, pipes, and other sources of ignition.
 - c. Never fuel machine indoors.
 - d. Never remove gas cap or add while the engine is hot or running.
 - e. Allow engine to cool at least two minutes before refueling.
 - f. Never over fill fuel tank. Fill tank to no more than 1/2 inch below bottom of filler neck to provide space for fuel expansion.
 - g. Replace gasoline cap and tighten securely.
 - h. If gasoline is spilled, wipe it off the engine and equipment. Move machine to another area. Wait 5 minutes before starting engine.
 - i. Never store the machine or fuel container inside where there is an open flame, spark, or pilot light (e.g. furnace, water heater, space heater, clothes dryer, etc.)
 - j. To reduce a fire hazard, keep machine free of grass, leaves, or other debris build-up. Clean up oil or fuel spillage and remove any fuel soaked debris.
 - k. Allow machine to cool at least 5 minutes before storing.

Preparation

1. Thoroughly inspect the area where the equipment is to be used. Remove all rocks, bottles, cans, or other foreign objects which could be picked up or thrown and cause personal injury or damage to the machine.
2. Always wear safety glasses or safety goggles during operation or while performing an adjustment or repair, to protect eyes. Thrown objects which ricochet can cause serious injury to the eyes.
3. Wear sturdy, rough-soled work shoes and close-fitting slacks and shirts. Loose fitting clothes or jewelry can be caught in movable parts. Never operate this machine in

Operation

1. Do not put hands and feet near rotating parts or in the feeding chambers and discharge opening. Contact with the rotating impeller can amputate fingers, hands, and feet.

2. Before starting the machine, make sure the chipper chute, feed intake, and cutting chamber are empty and free of all debris.
3. Thoroughly inspect all material to be shredded and remove any metal, rocks, bottles, cans, or other foreign objects which could cause personal injury or damage to the machine.
4. If the impeller strikes a foreign object or and/or if your machine should make an unusual noise or vibration, shut the engine off immediately. Allow the impeller to stop; disconnect the spark plug wire, ground it against the engine and perform the following steps:
 - a. Inspect for damage.
 - b. Repair or replace any damaged parts.
 - c. Check for any loose parts and tighten to assure continued safe operation.
4. Do not allow an accumulation of processed material to build up in the discharge area. This can prevent proper discharge and result in kickback of material through the feed opening.
5. Do not attempt to shred or chip material larger than specified on the machine or in this manual. Personal injury or machine damage could result.
6. Never attempt to unclog either the feed intake or discharge opening while the engine is running. Shut the engine off, wait until all moving parts have stopped, disconnect the spark plug wire and ground it against the engine before clearing debris.
7. Never operate without vacuum bag and discharge chute properly attached to the machine. Never empty or change vacuum bag while the engine is running. Zippered end of vacuum bag must be kept closed at all times during operation.
8. Never operate without either the inlet nozzle or optional hose attachment properly attached to the machine. Never attempt to attach or change either attachment while the engine is running.
9. Keep all guards, deflectors and safety devices in place and operating properly.
10. Keep your face and body back and to the side of the chipper chute while feeding material into the machine to avoid accidental kickback injuries.
11. Never operate this machine without good visibility or light. Always be sure of your footing and keep a firm hold on the handles.
12. Do not operate this machine on a gravel surface.
13. Do not operate this machine while under the influence of alcohol or drugs.
14. Muffler and engine become hot and can cause a burn. Do not touch.
15. Never pick up or carry machine while the engine is running.

Maintenance & Storage

1. Never tamper with safety devices. Check their proper operation regularly.
2. Check bolts and screws for proper tightness at frequent intervals to keep the machine in safe working condition. Also, visually inspect machine for any damage and repair, if needed.
3. Before cleaning, repairing, or inspecting, stop the engine and make certain the impeller and all moving parts have

- stopped. Disconnect the spark plug wire and ground it against the engine to prevent unintended starting.
4. Do not change the engine governor settings or overspeed the engine. The governor controls the maximum safe operating speed of the engine.
5. Maintain or replace safety and instruction labels, as necessary.
6. Follow this manual for safe loading, unloading, transporting, and storage of this machine.
7. Never store the machine or fuel container inside where there is an open flame, spark or pilot light such as a water heater, furnace, clothes dryer, etc.
8. Always refer to the operator's manual for proper instructions on off-season storage.
9. If the fuel tank has to be drained, do this outdoors.
10. Observe proper disposal laws and regulations for gas, oil, etc. to protect the environment.

Your Responsibility

Restrict the use of this power machine to persons who read, understand and follow the warnings and instructions in this manual and on the machine.

NOTE: *Not all safety labels shown may apply to your chipper shredder vacuum.*

▲ WARNING

TO AVOID SERIOUS INJURY

- Read Owner's Manual and all safety labels on machine before starting and using machine.
- Keep hands, feet, face, long hair and clothing out of chipper inlet, vac inlet, and discharge area. There are **ROTATING BLADES** inside these openings.
- Wear approved safety glasses and gloves. Avoid loose fitting clothes.
- Keep the area of operation clear of all persons, particularly small children and pets.
- Keep all shields and guards (e.g. upper chipper chute extension, discharge chute, nozzle assembly) in place and securely attached.
- Check bag frequently for wear. Replace if worn or damaged.
- If unit becomes clogged or jammed, shut off engine right away. Do not attempt to clear clog or jam with engine running. Refer to Maintenance Section of Owner's Manual for unlogging instructions.
- Muffler and engine get hot and can cause burns. Do not touch. To avoid a fire hazard, keep leaves, grass, and other combustible debris off hot muffler and engine.
- Do not attempt to remove or attach vac nozzle or optional Hose Kit with engine running. Do not operate unit unless nozzle or optional Hose Kit is secured in place.
- Do not fill gas tank while engine is running. Allow engine to cool at least 2 minutes before refueling.

▲ CAUTION

DO NOT OPERATE THIS UNIT WITHOUT ENTIRE BAG AND DISCHARGE CHUTE IN PLACE. TURN THE ENGINE OFF AND ALLOW THE IMPELLER TO COME TO A COMPLETE STOP BEFORE REMOVING THE BAG.

S30131

▲ DANGER

ROTATING CUTTING BLADES. KEEP HANDS AND FEET OUT OF OPENINGS WHILE MACHINE IS RUNNING.

S30181

▲ WARNING

ROTATING BLADES INSIDE. KEEP HANDS AWAY FROM ALL OPENINGS. DO NOT REMOVE OR ATTACH NOZZLE OR OPTIONAL HOSE KIT WHEN ENGINE IS RUNNING!

S30183

SECTION 2: ASSEMBLING YOUR CHIPPER SHREDDER VACUUM

Unpacking

- Remove staples, break glue on top flaps, or cut tape at carton end and peel along top flap to open carton.
- Remove loose parts if included with unit (i.e., operator's manual, etc.)
- Cut along corners, lay carton down flat, and remove packing material.
- Roll or slide unit out of carton and check carton thoroughly for loose parts.

Loose Parts In Carton

Following is the list of loose parts shipped with your equipment. Compare the parts with the illustration in Figure 1 to identify these items.

1. Nozzle
2. Bag
3. Chipper Chute
4. Tamper Plug
5. Safety Glasses (Not Shown)
6. Oil (Not Shown)

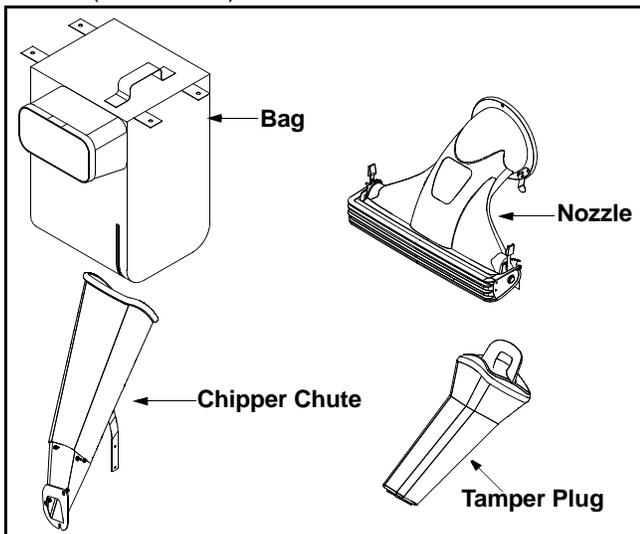


Figure 1

Before Assembly

IMPORTANT: This unit is shipped without gasoline or oil in the engine. Be certain to service engine with gasoline and oil as instructed in the accompanying engine manual before operating your machine.

NOTE: Reference to right or left side of the equipment is observed from the operating position, unless otherwise stated.

Attaching The Nozzle

- Remove three wing nuts from the front of the chipper shredder vacuum.
- Place nozzle in position over the three studs on unit and secure with wing nuts just removed. See Figure 2.

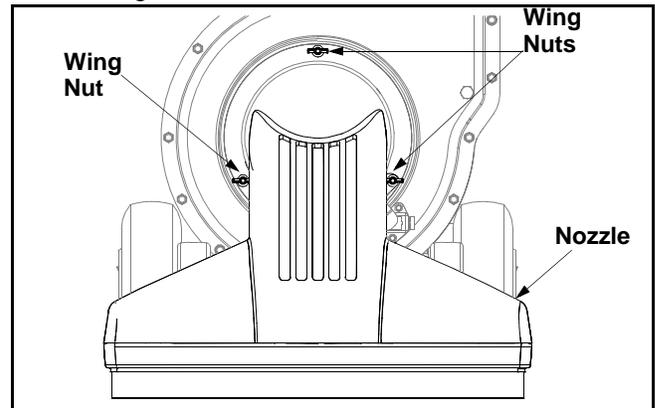


Figure 2

NOTE: The metal tab on the nozzle must depress the safety switch button attached to the front of the chipper shredder vacuum or the engine will not start.

Attaching the Chipper Chute

- Loosen, but do not remove, the two hex bolts, flat washers, and flange nuts which are secured to the support bracket. See Figure 3.

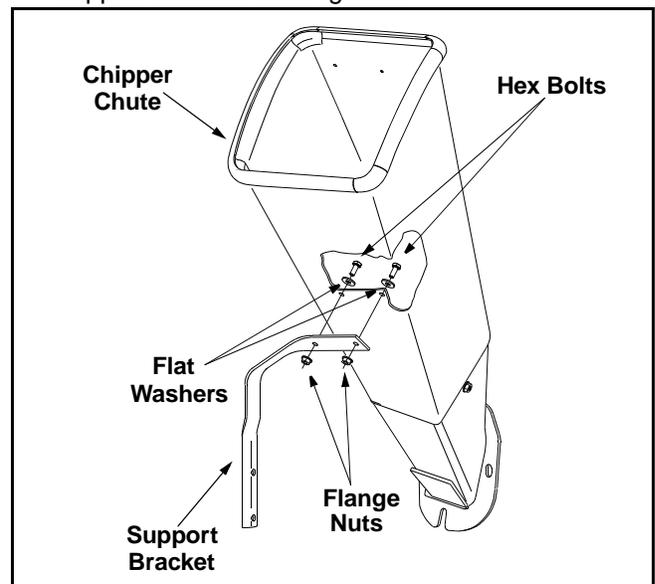


Figure 3

- Remove the two flange nuts, hex bolts and saddle washers which secure the right side of the upper handle to the right side of the lower handle. See Figure 4.

- Remove the three hex nuts and bell washers from the weld studs beside the opening on the right side of the chipper-shredder vacuum. See Figure 4.

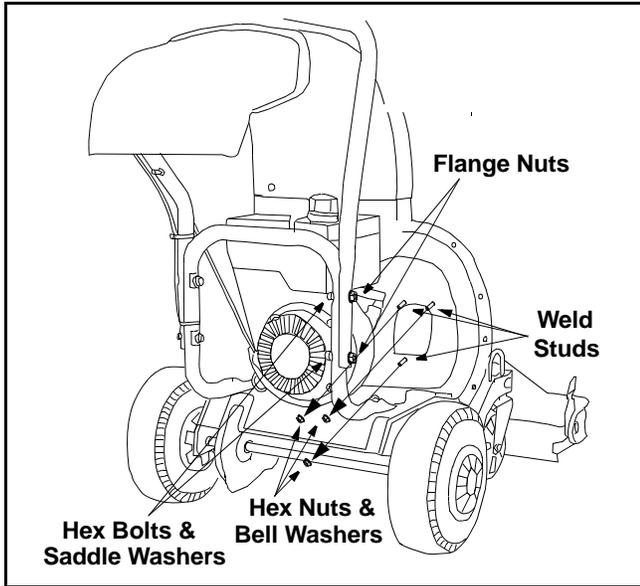


Figure 4

- Place the chipper chute over the weld studs keeping the slotted side towards the bottom. Loosely secure with the three hex nuts and bell washers that were removed earlier. Do not fully tighten the hex nuts at this point in the assembly. See Figure 5.

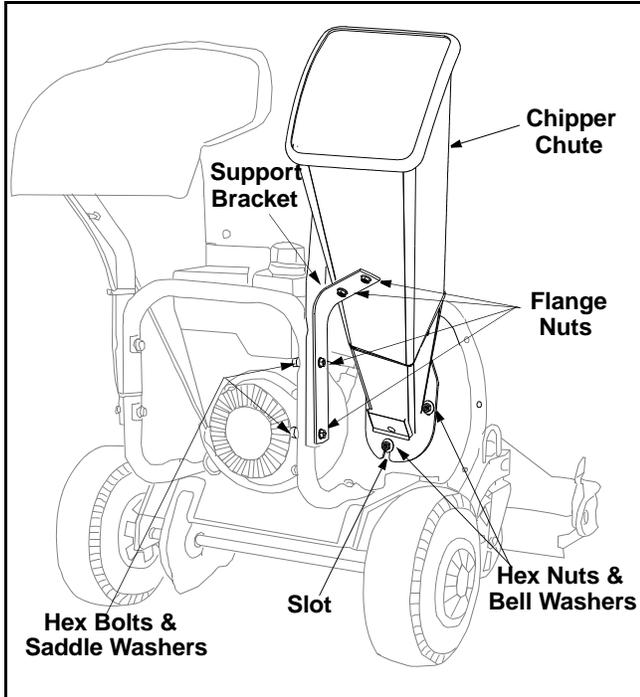


Figure 5

- Align the support bracket with the holes in the right side of the upper and lower handles where the hex bolts were just removed. Push up slightly on the chipper chute in order to better align the holes in the support bracket with the holes in the handles.
- Replace the hex bolts, saddle washers and flange nuts to affix the support bracket to the handle assemblies. See Figure 5.
- Follow by tightening all hardware securely first on the chipper chute, then on the support bracket, and finally on the handle.

Attaching The Bag

- Place bag under the upper handle assembly and slip the front opening on the bag over the discharge chute, making certain it is over the rim on the discharge chute. Follow direction of the arrows in Figure 6.

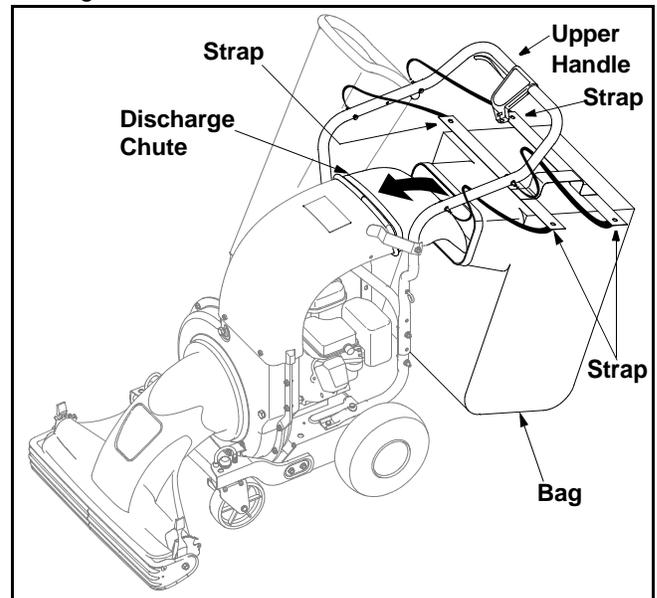


Figure 6

- Place the four straps on top of the bag **over** the upper handle, hooking them on the studs to secure in place. See Figure 6. Squeeze the clamp on the drawstring and pull the drawstring tight. Release the clamp.

SECTION 3: KNOW YOUR CHIPPER SHREDDER VACUUM



WARNING: Be familiar with all controls and their proper operation. Know how to stop the machine and disengage them quickly.

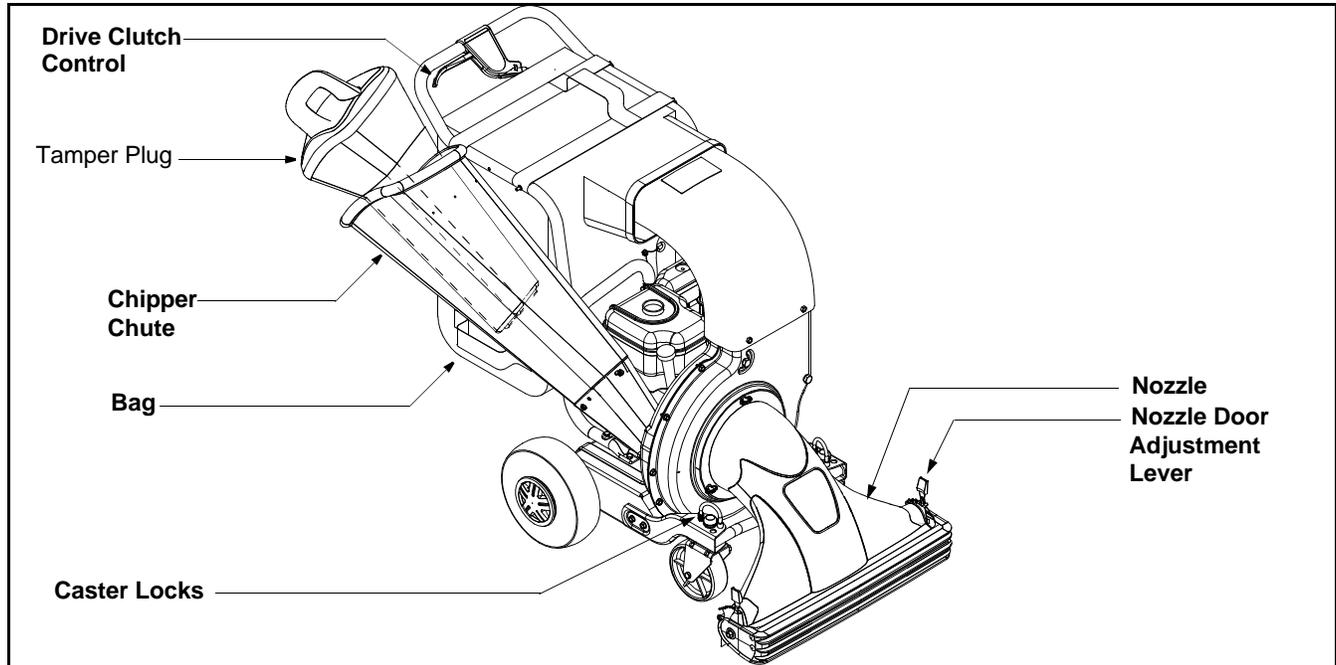


Figure 7

Vacuum/Chipper Bag

Collects shredded or chipped material fed through the chipper chute or vacuumed up through the nozzle. See Figure 7.

Chipper Chute

Allow twigs and small branches up to 3" in diameter to be fed into the impeller for chipping. See Figure 7.

Tamper Plug

This plug is inserted into the chipper chute to push twigs and small branches towards the impeller blades without endangering your hands.

Caster Locks

The caster locks are located on top of each front caster wheel. Refer to the Adjustment Section to position wheel locks. See Figure 7.

Nozzle Door Adjustment Levers

The nozzle adjustment levers are located on each side of the nozzle door. They are used to adjust the nozzle door for ground clearance that will provide the best performance for the operating conditions. See Figure 7.

Nozzle

Yard waste such as leaves and pine needles can be vacuumed up through the nozzle for shredding.

Drive Clutch Control

The drive clutch control is located on the upper handle assembly. Squeezing the drive clutch control against the upper handle engages the rear wheels. Release the drive clutch control to slow down or stop the wheel drive. See Figure 7.

Throttle Control Lever (Not Shown)

The throttle control lever is located on the engine. It controls the engine's speed and stops the engine. Refer to the engine manual for further details.

Starter Handle (Not Shown)

The starter handle is located on the engine. Pull the starter handle to start engine.

Engine Controls

Refer to the engine manual for the location and function of these controls.

Stopping the Engine

- Move throttle control lever to STOP or OFF position.
- Disconnect spark plug wire from spark plug and ground against the engine.

SECTION 4: OPERATING YOUR CHIPPER SHREDDER VACUUM

- Read, understand, and follow all instructions and warnings on the machine and in this manual before operating. A pair of safety glasses has been provided with this equipment.



WARNING: Always wear safety glasses during operation or while performing any adjustments or repairs. Thrown objects which ricochet can cause serious injury to the eyes.

Gas & Oil Fill-Up

Service the engine with gasoline and oil as instructed in the engine manual. Read instructions carefully.



WARNING: Use extreme care when handling gasoline. Gasoline is extremely flammable and the vapors are explosive. Never fuel machine indoors or while the engine is hot or running. Extinguish cigarettes, cigars, pipes, and other sources of ignition.

Starting Engine



WARNING: Keep bystanders, helpers, pets, and children at least 75 feet from the machine before starting and while operating. Do not operate this machine unless the discharge chute and bag have been properly installed and secured to the machine.

- Attach spark plug wire to spark plug. Make certain the metal cap on the end of the spark plug is fastened securely over metal tip on the spark plug.
- Make certain drive clutch control is in the disengaged (released) position.
- **Engines with choke lever:** Move choke lever on engine to CHOKE position. (A warm engine may not require choking).
- **Engines with primer:** Prime engine as instructed in the engine manual.
- Move engine throttle control lever to FAST or START position.
- Place one foot on the left rear wheel to prevent the unit from skidding while starting.
- Grasp starter handle and pull rope out slowly until engine reaches start of compression cycle (rope will pull slightly harder at this point).

NOTE: A noise will be heard at the start of the compression cycle, which will continue to be heard till the impeller reaches full speed.

- Keeping a firm grip on the starter handle, pull rope with a rapid, continuous, full arm stroke. Let the rope rewind slowly.

- Repeat until engine cranks. When engine starts, move choke control (if equipped) gradually to RUN position.

NOTE: See your engine manual packed with your unit for more detailed instructions.

To Empty Bag

- Open the large zipper in the rear of the bag to empty the contents. Be certain the zipper is closed completely when operating the unit.
- If bag is removed for any reason, follow instructions for attaching the bag in the ASSEMBLY section.

To Engage Drive

- To engage the wheel drive, hold the drive clutch control against the upper handle.
- Release the drive clutch control to stop the rear wheels from driving.
- Release the drive clutch control to slow down when negotiating an obstacle, making a turn, or stopping.
- Engage control slowly to prevent the front wheels from lifting up.

Using the Chipper Shredder Vacuum

- Place both hands on top of upper handle to push unit over yard waste. Yard waste such as leaves and pine needles can be vacuumed up through the nozzle for shredding.
- After material has been shredded by the blades on the impeller assembly, it will be discharged into catcher bag. Do not attempt to shred or chip any material other than vegetation found in a normal yard (i.e. branches, leaves, twigs, etc.) Avoid fibrous plants such as tomato vines until they are thoroughly dried out. Materials such as stalks or heavy branches up to 3" in diameter may be fed into the chipper chute.



WARNING: Do not attempt to shred, chip, or vacuum any material larger than specified on the machine or in this manual. Personal injury or damage to the machine could result.

IMPORTANT: The flail screen is located inside the housing in the discharge area. If the flail screen becomes clogged, remove and clean as instructed in the maintenance section. For best performance, it is also important to keep the chipper blade sharp.

Tire Pressure (Pneumatic tires only)

Maximum tire pressure under any circumstance is 30 psi. Equal tire pressure should be maintained at all times.

SECTION 5: ADJUSTING YOUR CHIPPER SHREDDER VACUUM



WARNING: Do not at any time make any adjustments without first stopping engine, disconnecting spark plug wire, and grounding it against the engine.

Front Caster Wheels

This chipper shredder vacuum is equipped with front caster wheels. The casters can be locked in a straight ahead position or to swivel freely.

- Lift and place pins in the larger holes for locked or straight ahead operation. See Figure 8.
 - a. Place pins in smaller holes to allow casters to rotate freely.
 - b. Lock wheels in straight position when operating on slopes.

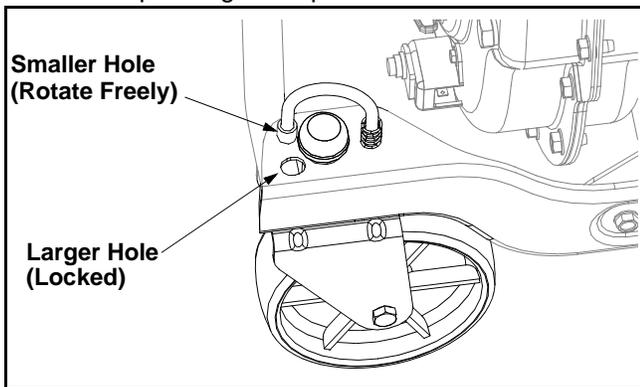


Figure 8

Nozzle Door Height

The nozzle adjustment levers are located on each side of the nozzle door. The nozzle door can be adjusted to one of five positions, ranging from 1/2" to 3" ground clearance, to provide best performance.

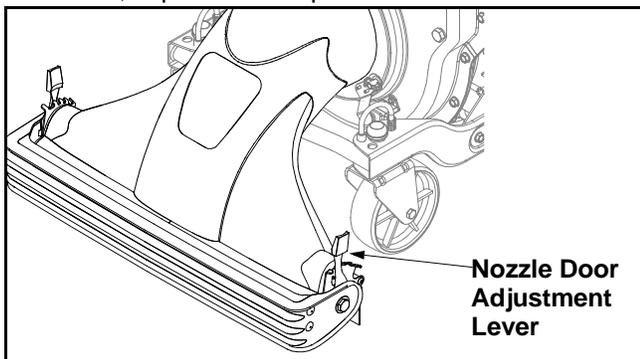


Figure 9

- Slide the height adjustment lever forward or backward for adjusting the nozzle door upwards or downwards. Height must be adjusted equally. In general, raise the nozzle to vacuum a thick layer of leaves and lower the nozzle for smooth surfaces. See Figure 9.

Drive Clutch Cable

Adjust the drive clutch control if:

- a. the chipper shredder vacuum moves forward with the drive clutch control disengaged,
 - b. it does not self-propel with the drive clutch control engaged, or
 - c. drive belt is slipping (unit hesitates while engine maintains the same speed).
- Use the adjustment wheel located in the clutch control housing to tighten or loosen the clutch cable.
 - In addition, the adjustment wheel may also be used to determine the position in which the drive clutch control is engaged. If it is more comfortable to have the drive engaged with the lever further away from the handle, tighten the clutch cable. See Figure 10.

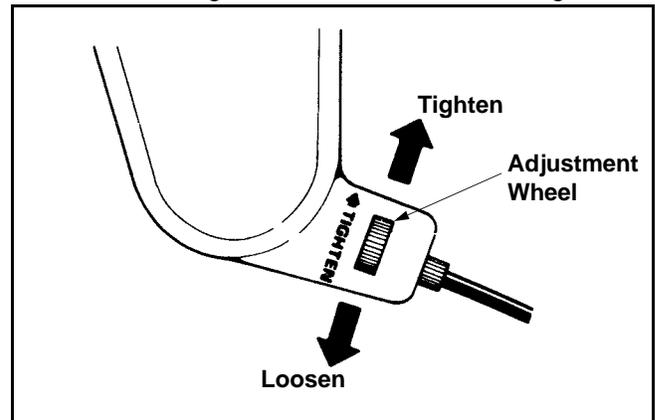


Figure 10

SECTION 6: MAINTAINING YOUR CHIPPER SHREDDER VACUUM



WARNING: Before performing any maintenance or repairs, stop the engine, wait until the machine comes to a complete stop, disconnect the spark plug wire and ground against the engine to prevent unintended starting.

Lubrication

- **Wheels:** Lubricate the rear wheels with light oil once a season.
- **Nozzle Door Adjustment Levers:** Lubricate each adjustment lever once a season with light oil.
- **Front Caster Wheels:** Grease fittings are located on the front caster wheels to provide easy lubrication of the swivel pins.

Cleaning the Flail Screen

If the discharge area becomes clogged, remove the flail screen and clean area as follows:

- Stop the engine and make certain the chipper shredder vacuum has come to a complete stop.
- Disconnect spark plug wire from spark plug and ground against the engine.
- Remove the vacuum bag and tamper plug from the equipment and save.
- Remove the four self-tapping screws from the bottom of the discharge chute, and the hex bolt, flat washer and hex nut from the top. Remove the discharge chute assembly. See Figure 11.

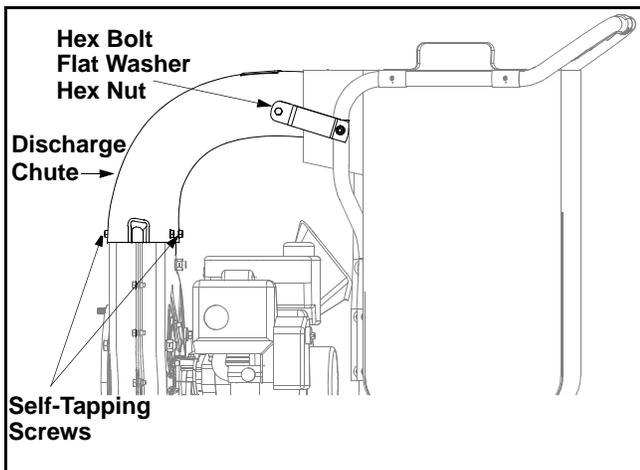


Figure 11

- Remove the two hex bolts and hex nuts which extend through the impeller housing. Lift the flail screen from inside the housing. See Figure 12.
- Clean the flail screen by scraping and/or washing with water, and reinstall the screen.

NOTE: Be certain to reassemble the flail screen with the curved side down.

- Reattach the discharge chute assembly with the hardware previously removed and attach the bag to the unit.

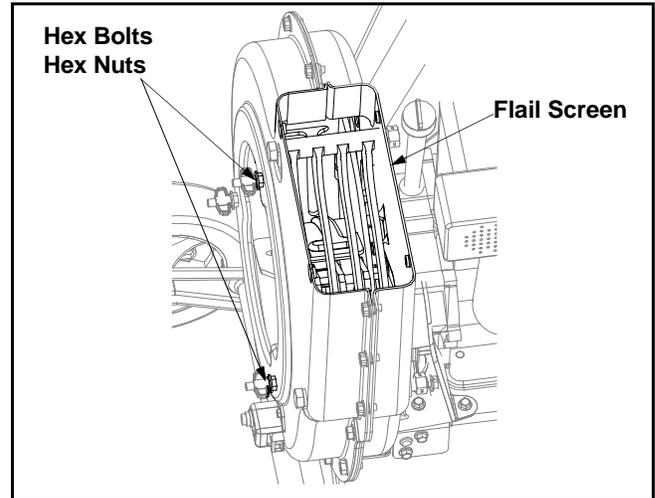


Figure 12

Servicing the Blades

NOTE: When tipping the unit, empty the fuel tank and keep the spark plug side up.

- Disconnect the spark plug wire and ground it against the engine.
- Remove the flail screen as instructed in the previous section.
- Remove plastic belt cover from front of the engine by removing the two self-tapping screws. See Figure 13.
- Remove the access plate by removing two hex lock nuts. See Figure 13.
- Locate one of the chipper blades in the access opening by rotating the impeller assembly by hand. Remove the chipper blade using a 3/16" allen wrench and a 1/2" wrench.
- Remove other blade in the same manner to replace or sharpen.

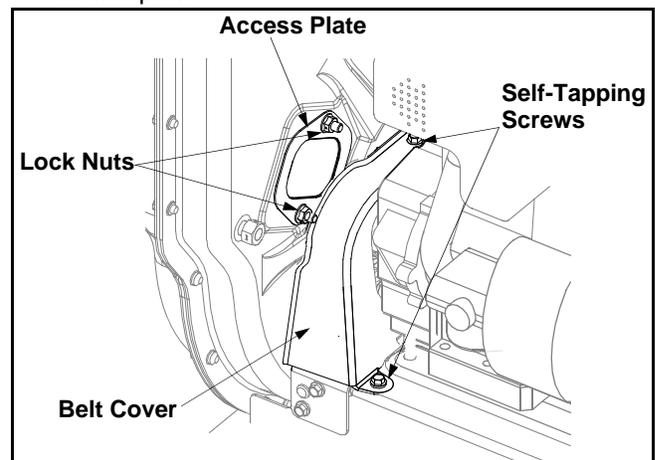


Figure 13



WARNING: Use caution when replacing the blades. Wear heavy gloves to avoid injury while handling the weld bolts, housing or the blades.

- When sharpening blades, follow the original angle of grind. Also, make sure to remove an equal amount from each blade and torque hardware to 250 - 300 in.lb.

NOTE: Make sure that blades are reassembled with the sharp edge facing upward.

Replacing the Belt

NOTE: Because the engine on this equipment has a tapered crankshaft, a special impeller removal tool (part number 753-0900) is required to remove the impeller assembly. Contact your local service dealer for this.

- Disconnect the spark plug wire and ground it away from the spark plug.
- Drain the gasoline and oil from the chipper shredder vacuum.
- Remove the three wing nuts that secure the nozzle to the outer housing and remove the nozzle. Refer to Figure 2.
- Remove the vacuum bag from the unit.
- Remove the discharge chute as instructed in "Cleaning The Flail Screen."
- Remove the plastic belt cover from front of the engine by removing two self-tapping screws. Refer to Figure 13.
- Tip the unit backward so that it rests on the handles.
- Remove the lower belt guard by removing the two self-tapping screws. See Figure 14.
- Remove the safety switch from front of the outer housing by removing the two self-tapping screws. See Figure 14.

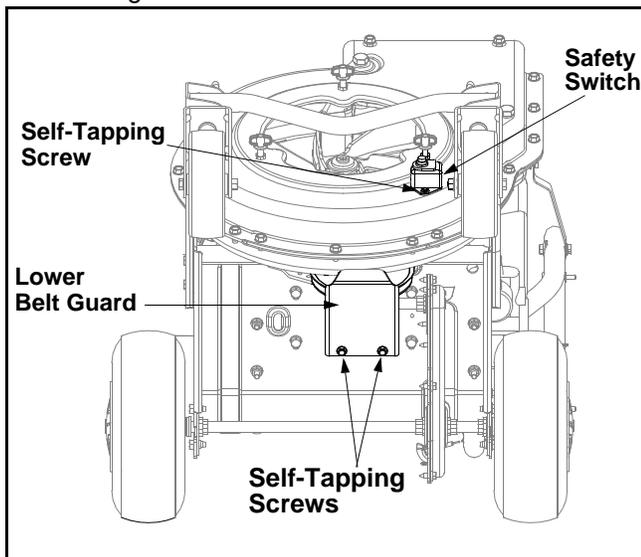


Figure 14

- Remove the two hex bolts and hex lock nuts which extend through the housing. Lift the flail screen out of the housing. Refer to Figure 11.
- Remove the outer housing and housing blades by removing the fourteen self-tapping screws.
- Remove the hex bolt, lock washer, and flat washer that secures the impeller assembly to the crankshaft. See Figure 15.

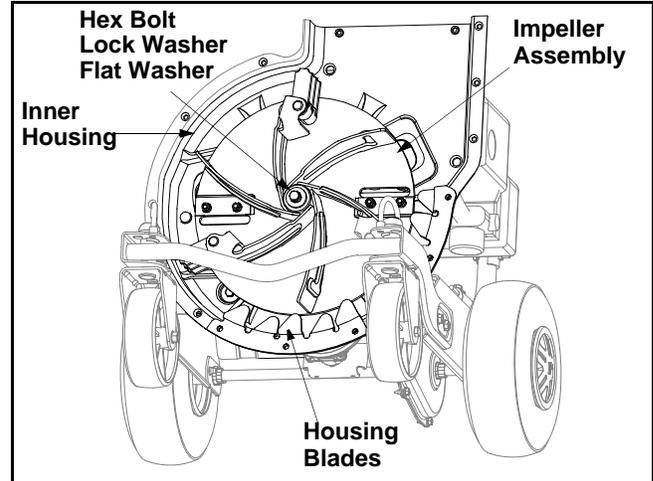


Figure 15

- Thread the special impeller tool into the crankshaft. Stop when the impeller assembly can move on the crankshaft.
- If the old belt is still on the unit, cut belt to remove from unit.
- Remove impeller assembly from the crankshaft and unthread the impeller tool from the impeller.

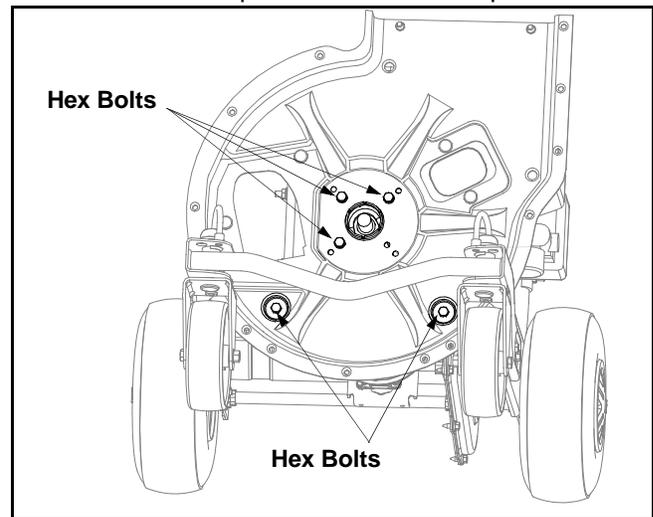


Figure 16

- Remove the inner housing and mounting adapter by removing the five hex bolts and two hex nuts. See Figure 16.
- Insert new belt between the frame and the transmission pulley. See Figure 17. (You may have to slightly pry the frame away from the pulley with a screwdriver for this.)

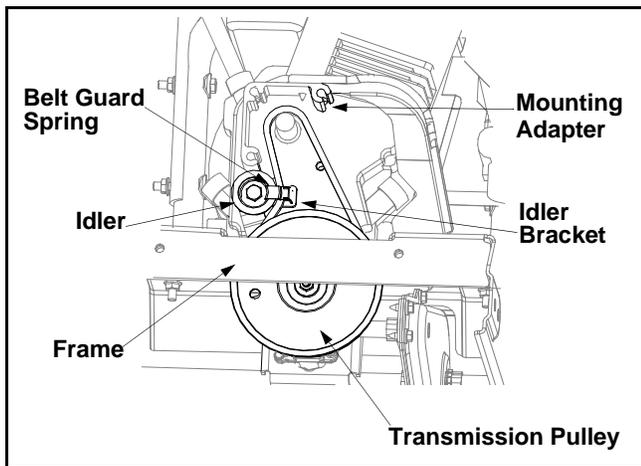


Figure 17

- Press down on the belt guard spring by the idler pulley, and release the spring from the slot on the idler bracket.
- Place the belt on the idler pulley and place belt guard spring back into the slot on the idler bracket. See Figure 17.
- Place the mounting adapter against the engine and make sure the hole in the mounting adapter is facing up.
- Place the inner housing against the mounting adapter and the frame. Secure with five hex bolts and two hex nuts previously removed. Refer to Figure 16.
- Slide the impeller assembly onto the crankshaft and place a screwdriver under the belt. Turn the impeller assembly counterclockwise to place the belt into the slot on the impeller. Make sure the belt is routed inside all belt guards.
- Secure impeller assembly to crankshaft using hex bolt, lock washer, and flat washer previously removed. Torque bolt between 550-700 in. lb.
- Place the housing blades against the inner housing. Refer to Figure 15.
- Place the outer housing against the inner housing. See Figure 18. Insert two screwdrivers into the holes to hold the blades in place while attaching the outer housing.
- Secure with the 14 self-tapping screws, previously removed. Insert all screws first before tightening.
- Reassemble the flail screen, discharge chute, nozzle and the bag. (For reassembly, follow instructions on previous page in reverse order.)

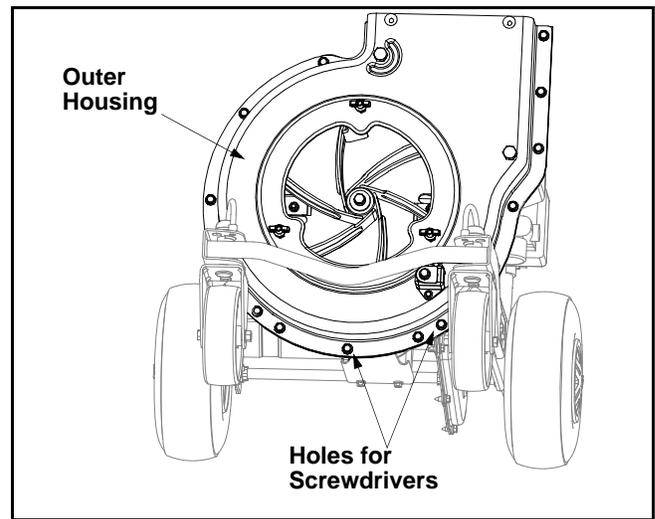


Figure 18

Engine

A few general recommendations are given below. However, refer to the accompanying engine manual for further details.

- Check **engine oil level** before each use as instructed in the engine manual. Read and follow instructions carefully.
- Clean **air cleaner** every 25 hours under normal conditions or once a season. Clean every few hours under extremely dusty conditions. To service the air cleaner, refer to the engine manual.
- The **spark plug** should be cleaned and the gap reset once a season. Check engine manual for correct plug type and gap specifications.

Storing Your Chipper Shredder Vacuum

- Clean the equipment thoroughly.
- Wipe equipment with an oiled rag to prevent rust.
- Refer to engine manual for correct engine storage instructions
- Store unit in a clean, dry area. Do not store next to corrosive materials such as fertilizer.



WARNING: Never store the machine or fuel container indoors where there is an open flame, spark, or pilot light such as on a water heater, furnace, clothes dryer, or other gas appliance.

SECTION 7: TROUBLESHOOTING

Problem	Cause	Remedy
Engine fails to start	<ol style="list-style-type: none"> 1. Spark plug wire disconnected. 2. Fuel tank empty or stale fuel. 3. Throttle control lever not in correct starting position. (If Equipped) 4. Choke not in CHOKE position. (If Equipped) 5. Blocked fuel line. 6. Faulty spark plug. 	<ol style="list-style-type: none"> 1. Connect wire to spark plug. 2. Fill tank with clean, fresh gasoline. 3. Move throttle lever to FAST position. 4. Move choke to CHOKE position. 5. Clean fuel line. 6. Clean, adjust gap, or replace.
Engine runs erratic	<ol style="list-style-type: none"> 1. Spark plug wire loose. 2. Unit running on CHOKE. (If Equipped) 3. Blocked fuel line or stale fuel. 4. Water or dirt in fuel system. 5. Dirty air cleaner. 6. Carburetor out of adjustment. 	<ol style="list-style-type: none"> 1. Connect and tighten spark plug wire. 2. Move choke lever to OFF position. 3. Clean fuel line; fill tank with clean, fresh gasoline. 4. Drain fuel tank. Refill with fresh fuel. 5. Clean or replace air cleaner. 6. See authorized service dealer.
Too much vibration	<ol style="list-style-type: none"> 1. Loose parts or damaged impeller. 	<ol style="list-style-type: none"> 1. See authorized service dealer.
Engine overheats	<ol style="list-style-type: none"> 1. Engine oil level low. 2. Dirty air cleaner. 3. Carburetor not adjusted properly. 	<ol style="list-style-type: none"> 1. Fill crankcase with proper oil. 2. Clean or replace air cleaner. 3. See authorized service dealer.
Occasional skip (hesitates) at high speed	<ol style="list-style-type: none"> 1. Spark plug gap too close. 	<ol style="list-style-type: none"> 1. Adjust gap to .030".
Unit does not discharge	<ol style="list-style-type: none"> 1. Discharge chute clogged. 2. Foreign object lodged in impeller. 3. Low engine RPM. 4. Vacuum bag is full. 	<ol style="list-style-type: none"> 1. Stop engine immediately and disconnect spark plug wire. Clean flail screen and inside of discharge opening. 2. Stop engine and disconnect spark plug wire. Remove lodged object. 3. Always run engine at full throttle. 4. Empty bag.
Rate of discharge slows considerably or composition of discharged material changes	<ol style="list-style-type: none"> 1. Low engine RPM. 2. Chipper blade dull. 	<ol style="list-style-type: none"> 1. Always run engine at full throttle. 2. Replace chipper blade or see your authorized service dealer.

NOTE: For repairs beyond the minor adjustments listed above, contact your nearest authorized service dealer.