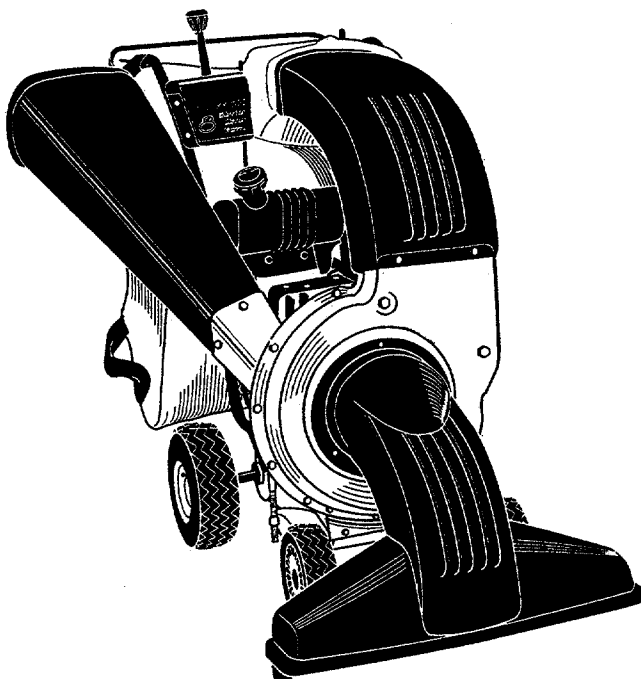


OWNER'S GUIDE

• ASSEMBLY • OPERATION • MAINTENANCE •



CHIPPER- VACUUM

**Model Series
315B**

IMPORTANT!

Record the **Model No.** and **Mfg. Code** which appear on your unit in the space below. You **must** have these numbers, along with the date of purchase, in order to receive warranty or service.

MODEL NO.

SERIAL NO.

**Important:
Read Safety Rules
and Instructions Carefully**



Made
in
AMERICA


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 368022, Cleveland, Ohio 44136-9722.

IMPORTANT

SAFE OPERATION PRACTICES



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 YOUR CHIPPER-VACUUM. FAILURE TO COMPLY WITH THESE INSTRUCTIONS MAY RESULT IN PERSONAL INJURY. WHEN YOU SEE THIS SYMBOL:  **HEED ITS WARNING.**



DANGER:

Your chipper-vacuum 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 unit is capable of amputating fingers and hands and throwing objects. Failure to observe the following safety instructions could result in serious injury or death.



I. GENERAL OPERATION

1. Read this owner's guide carefully in its entirety before attempting to assemble this machine. Read, understand, and follow all instructions on the machine and in the manual(s) before operation. Be completely familiar with the controls and the proper use of the machine before operating it. Keep this manual in a safe place for future and regular reference and for ordering replacement parts.
2. Your chipper-vacuum is a powerful tool, not a plaything. Therefore, exercise extreme caution at all times. Your unit has been designed to perform two jobs; to chip and vacuum vegetation found in a normal yard. Do not use it for any other purpose.
3. Never allow children under 16 to operate the unit. Children 16 years and older should only operate under close parental supervision. Only responsible individuals who are familiar with these rules of safe operation should be allowed to use your unit.
4. Keep the area of operation clear of all persons, particularly small children and pets. Stop the engine when they are in the vicinity of the unit. When chipping, keep work area clear of branches or obstacles which could cause you to stumble and fall.
5. When feeding material into this equipment, be extremely careful that pieces of metal, rocks, bottles, cans or other foreign objects are not included. Personal injury or damage to the machine could result.
6. Always wear safety glasses or safety goggles, during operation and while performing an adjustment or repair, to protect eyes from foreign objects that may be thrown from the machine.
7. Wear sturdy, rough-soled work shoes and close fitting slacks and shirt. Shirt and slacks that cover the arms and legs and steel-toed shoes are recommended. Do not wear loose fitting clothes or jewelry and secure hair so it is above shoulder length. They can be caught in moving parts. Never operate a unit in bare feet, sandals or sneakers. Wear gloves when feeding material in the chipper chute.
8. Do not operate the unit while under the influence of alcohol or drugs.
9. Do not overreach. Keep proper footing and balance at all times.
10. Never place your hands or any part of your body or clothing near or under rotating parts. Keep clear of the discharge opening at all times. Never insert your hands or any part of your body or clothing into the nozzle, chipper chute or discharge opening as the rotating impeller can cause serious injury.
11. If it is necessary for any reason to unclog the feed intake or discharge openings or to inspect or repair any part of the machine where a moving part can come in contact with your body or clothing, stop the machine, allow it to cool, disconnect the spark plug wire from the spark plug and move it away from the spark plug before attempting to unclog, inspect or repair.
12. Never operate unit without vacuum bag and discharge chute properly affixed to unit. Large zippered end of bag must be closed to prevent objects from being blown out.
13. Never operate unit without either the inlet nozzle or optional hose attachment properly affixed to unit. These devices shield the operator from accidental contact with the rotating impeller. Never attempt to convert the unit from nozzle to hose mode or vice versa with the engine running.
14. Never attempt to remove or empty vacuum bag when engine is running. Shut the engine off and wait for the impeller to come to a complete stop before removing the bag. The impeller continues to rotate for a few seconds after the engine is shut off. Never place any part of the body in the impeller area until you are sure the impeller has stopped rotating.
15. Keep all guards and safety devices in place and operating properly.
16. Do not allow an accumulation of processed material to build-up in the discharge area as this will prevent proper discharge and can result in kick-back from the chipper chute.
17. Keep your face and body back from chipper chute to avoid accidental bounce back of any material.
18. If the cutting mechanism strikes a foreign object or if your machine should start making an unusual noise or vibration, immediately stop the engine, disconnect the spark plug wire and move the wire away from the spark plug. Allow the machine to stop and take the following steps.
 - Inspect for damage.
 - Repair or replace any damaged parts.
 - Check for any loose parts and tighten to assure continued safe operation.
19. Muffler and engine become hot and can cause a burn. Do not touch.
20. Do not allow leaves or other debris to build-up on engine's muffler. The debris could ignite and cause a fire.
21. Do not operate engine if air cleaner or cover over carburetor air-intake is removed, except for adjustment. Removal of such parts could create a fire hazard.
22. Only operate unit in good daylight. Do not operate unit at night or in dark areas where your vision may be impaired.
23. Only use accessories approved for this machine by the manufacturer. Read, understand, and follow all instructions provided with the approved accessory.
24. If situations occur which are not covered by this manual, use care and good judgment. Contact your dealer for assistance.



II. CHILDREN

Tragic accidents can occur if the operator is not alert to the presence of small children. Children are often attracted to the chipping and vacuuming activity. Never assume that children will remain where you last saw them.

1. Keep children out of the work area and under the watchful eye of a responsible adult other than the operator.
2. Be alert and turn the unit off if a child enters the area.
3. Never allow children under the age of 16 to operate the chipper-vacuum.

III. SERVICE

1. Use extreme care in handling gasoline and other fuels. They are extremely flammable and the vapors are explosive.
 - a. Store fuel and oil in approved containers, away from heat and open flame, and out of the reach of children.
 - b. Check and add fuel before starting the engine. Never remove gas cap or add fuel while the engine is running. Allow engine to cool at least two minutes before refueling.
 - c. Replace gasoline cap securely and wipe off any spilled gasoline before starting the engine as it may cause a fire or explosion.
 - d. Extinguish all cigarettes, cigars, pipes and other sources of ignition.
 - e. Never refuel unit indoors because flammable vapors will accumulate in the area.
 - f. Never store the machine or fuel container inside where there is an open flame or spark such as a gas hot water heater, clothes dryer or furnace.
2. Never run your machine in an enclosed area as the exhaust from the engine contains carbon monoxide, which is an odorless, tasteless and deadly poisonous gas.
3. To reduce fire hazard, keep engine and muffler free of leaves, grass, and other debris build-up. Clean up fuel and oil spillage. Allow unit to cool at least 5 minutes before storing.
4. Before cleaning, repairing, or inspecting, make certain the impeller and all moving parts have stopped. Disconnect the spark plug wire and keep wire away from spark plug to prevent accidental starting. Do not use flammable solutions to clean air filter.
5. Keep all nuts, bolts, and screws tight to be sure the equipment is in safe working condition.
6. Never tamper with safety devices. Check their proper operation regularly.
7. After striking a foreign object, immediately stop the engine, disconnect the spark plug wire from the spark plug, and thoroughly inspect the unit for any damage. Repair damage before starting and operating unit.
8. Do not alter or tamper with the engine's governor setting. The governor controls the maximum safe operating speed of the engine. Over-speeding the engine is dangerous and will cause damage to the engine and to other moving parts of the machine.
9. Check the vacuum bag frequently for wear. Replace if worn or damaged.
10. Keep vacuum bag free of debris when not in use.

OWNER'S
MANUAL



SAFETY LABEL



WARNING — 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.

ASSEMBLY INSTRUCTIONS

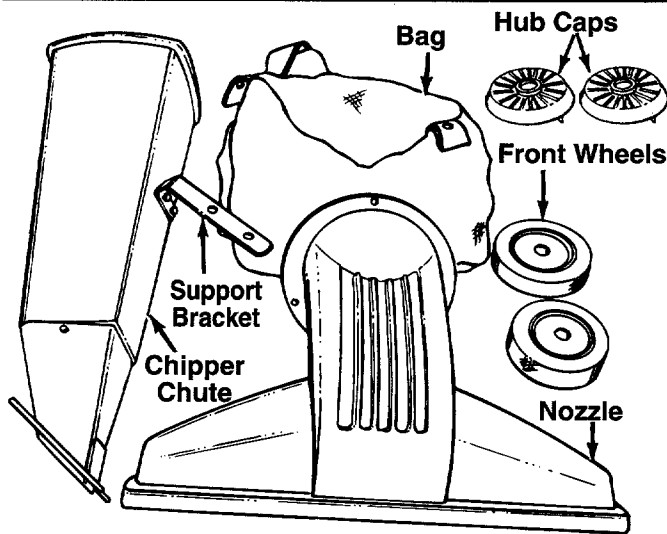


FIGURE 1.

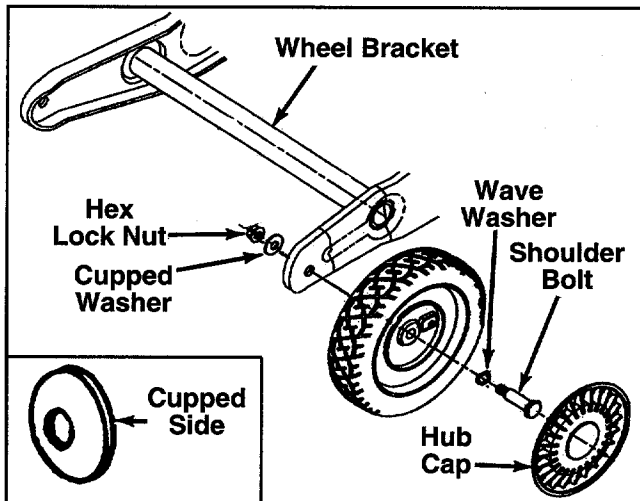


FIGURE 2.

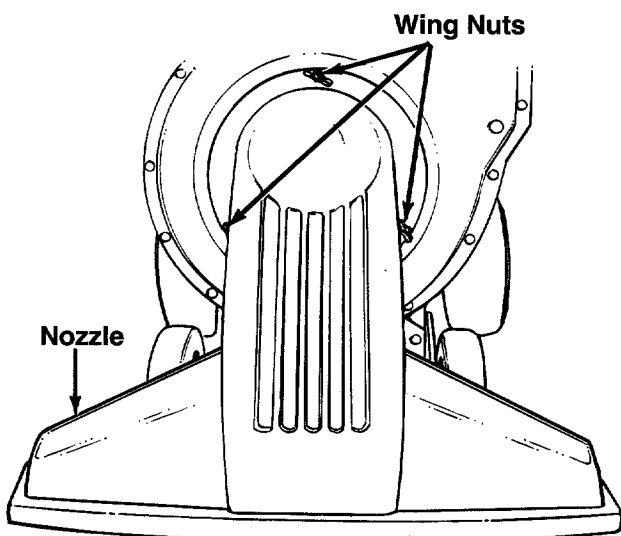


FIGURE 3.

IMPORTANT: This unit is shipped **WITHOUT GASOLINE or OIL** in the engine. After assembly, see operation section of this manual for proper fuel and engine oil recommendations.

NOTE: To determine right and left hand sides of your chipper-vacuum, stand behind and face the unit (Refer to figure 7).

Your chipper-vacuum has been completely assembled at the factory except for the front wheels, hub caps, nozzle, chipper chute, support bracket and bag. A pair of safety glasses are also included in the carton.

TO REMOVE CHIPPER-VACUUM FROM CARTON

Cut the corner of the carton. Remove all packing inserts and loose parts. Push down on handle to lift front of chipper-vacuum, and roll chipper-vacuum out of the carton. Make certain all parts and literature have been removed before the carton is discarded.

TOOLS REQUIRED FOR ASSEMBLY

- (1) 3/4" Open End Wrench
- (2) 1/2" or Adjustable Wrenches
- (1) 9/16" Wrench
- (1) Funnel

LOOSE PARTS IN CARTON (See Figure 1)

- | | |
|---------------------|---------------------|
| (2) Front Wheels | (1) Bag |
| (2) Hub Caps† | (1) Shift Knob† |
| (1) Nozzle | (1) Tamper Plug† |
| (1) Chipper Chute | (1) Safety Glasses† |
| (1) Support Bracket | |

†Not Shown

ATTACHING THE FRONT WHEELS

1. Tilt unit backward so that it rests on the handle (place a piece of the carton under handle to avoid scratches). Remove the cardboard packing material around the wheel brackets.
2. Remove the hex lock nuts and shoulder bolts from the front of the wheel brackets. See figure 2.
3. Place wave washer on shoulder bolt. Insert shoulder bolt through wheel, with the head of the shoulder bolt through the flat side of the wheel.
4. Assemble wheel to outside of wheel bracket. Secure with cupped washer (cupped side of washer goes against the bracket) and hex lock nut. Tighten.
5. Align the four tabs on the hub caps with the four holes in the wheel. Press in each tab until it locks in place. The hub cap edges must be flush with the wheel rim when installed properly.

ATTACHING THE NOZZLE (See figure 3)

1. Remove the three plastic wing nuts from the front of the chipper-vacuum. Place the nozzle in position over the three weld studs. Secure with the wing nuts just removed.
2. Set unit in upright position.

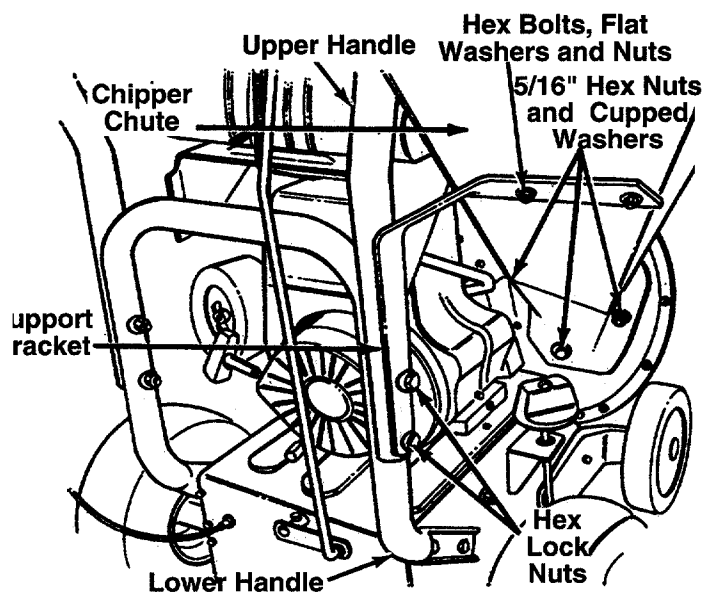


FIGURE 4.

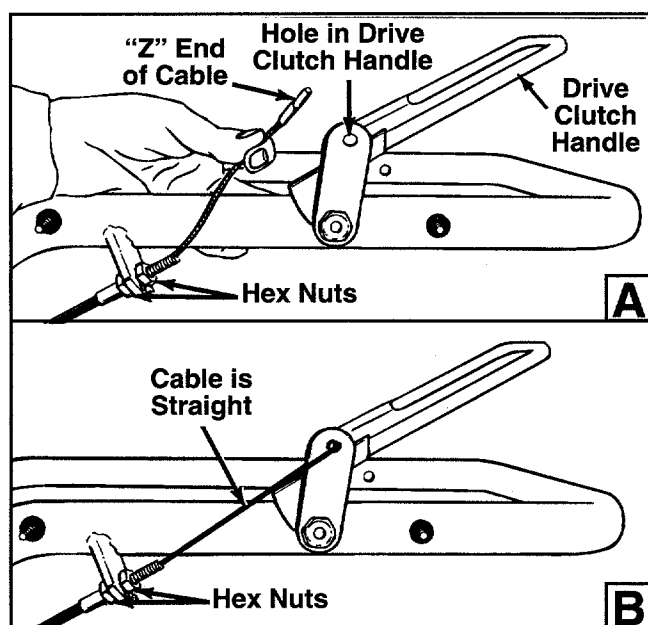


FIGURE 5.

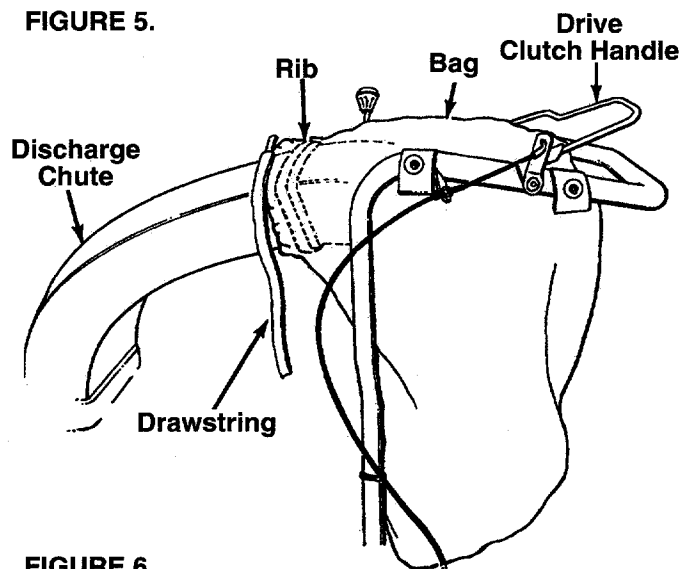


FIGURE 6.

ATTACHING THE CHIPPER CHUTE AND SUPPORT BRACKET (See figure 4)

1. Remove the two hex lock nuts from the hex bolts which secure the right side of the upper handle to the lower handle. Leave bolts and washers in place.
2. Remove three cupped washers and 5/16" hex nuts from the weld studs beside the opening on the right side of the chipper-vacuum.
3. Place the chipper chute in position over the weld studs (slot goes at the bottom). Secure with cupped washers and hex nuts just removed. Only tighten the three nuts one or two threads for ease of further assembly.

NOTE: Cupped side of the washer goes against the chipper chute. See figure 2 to identify cupped side of washer.

4. Remove the two hex bolts, flat washers and nuts which are attached to the support bracket.
5. Attach the support bracket to the bottom of the chipper chute loosely using the hardware removed previously. HEADS OF THE HEX BOLTS AND WASHERS GO TO THE INSIDE OF THE CHIPPER CHUTE.
6. Place the support bracket over the two bolts in the handle. Pushing UP on the chipper chute will aid the alignment of the holes in the support bracket with the bolts in the handle.
7. Tighten all hardware securely on the chipper chute, support bracket and handle.

ATTACHING THE CLUTCH CABLE

The clutch cable has been assembled at the factory. Loosen the hex nuts at the cable bracket. Hook the "Z" end of the cable into the drive clutch handle from the outside to the inside as shown in figure 5A. Pliers will aid in assembly.

CLUTCH CABLE ADJUSTMENT

Adjust the hex nuts at the cable bracket so there is no slack in the cable, but the **cable is NOT tight**. Do not **overtighten the cable**. See figure 5B.

To check the clutch adjustment, proceed as follows.

1. Push the chipper-vacuum backward and forward with the drive clutch handle released. It should move freely.
If it does not, loosen both hex nuts at the cable bracket. See figure 5B. Turn bottom nut counter-clockwise to loosen the cable.
2. Engage the drive clutch handle (hold against upper handle), and try to push chipper-vacuum backward and forward. The wheels should lock up.
If the wheels do not lock up, loosen both hex nuts at the cable bracket. Turn bottom nut clockwise to tighten the cable.
3. Recheck adjustment. Tighten both hex nuts when correct adjustment is reached.

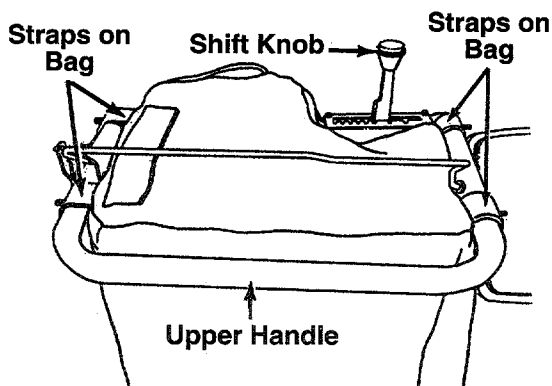


FIGURE 7.

ATTACHING THE BAG

1. Place bag inside of handle assembly. Slip the opening on the bag over the discharge chute, making certain it is over the rib on the discharge chute. See figure 6.
2. Place the four straps on the top of the bag over upper handle, hooking them on studs. See figure 7. Be sure the bag goes under the drive clutch handle.
3. Squeeze the clamp on the drawstring, and pull the drawstring tight. Release the clamp.

INSTALLING THE SHIFT KNOB

Remove the cardboard protecting the threads. Thread the shift knob onto the end of the shift lever.

OPERATION

CONTROLS (See figure 8)

SHIFT LEVER

The shift lever may be moved into one of eight positions. Run engine with throttle in the fast position. Use the shift lever to determine ground speed.

Forward—one of six speeds. Position number one (1) is the slowest. Position number six (6) is the fastest.

Reverse—two reverse (R) speeds. "R" (all the way to the right) is the faster of the two.

DRIVE CLUTCH HANDLE

Squeezing the drive clutch handle against the upper handle engages the wheel drive. Release the drive clutch handle to stop the forward drive.

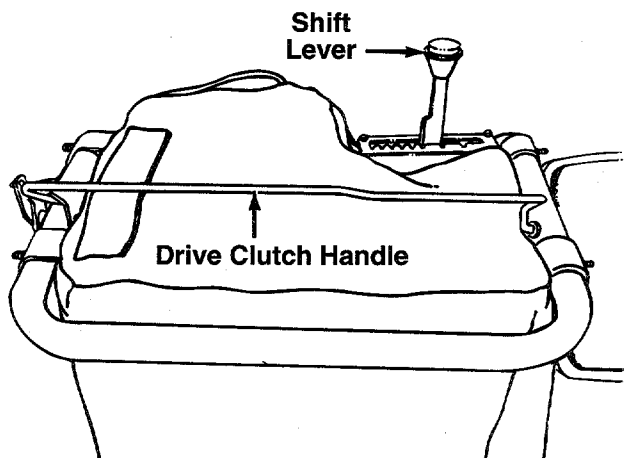


FIGURE 8.

GAS AND OIL FILL-UP

Service the engine with gasoline and oil as instructed in the separate engine manual packed with your chipper-vacuum. Read instructions carefully.

NOTE: Your chipper-vacuum is shipped without oil; however, a small amount of oil may be present from the factory. Do not overfill.



WARNING: Never fill fuel tank indoors, with engine running or while engine is hot. Do not smoke when filling fuel tank.

TO START ENGINE

IMPORTANT: If unit shows any sign of motion with the clutch handle disengaged, shut engine off immediately. Readjust as instructed in the "Clutch Cable Adjustment" section of the Assembly Instructions.



WARNING: Be sure no one other than the operator is standing near the chipper-vacuum while starting or operating. Do not operate this chipper-vacuum unless the nozzle, discharge chute and bag have been properly installed.

1. Attach spark plug wire to spark plug.
2. Make certain drive clutch handle is in the disengaged (released) position.
3. Move choke lever on engine to CHOKE position. (A warm engine may not require choking.)
4. Move throttle control lever on engine to FAST position.
5. Place one foot on the left rear wheel to prevent the unit from skidding while starting.
6. Grasp starter handle and pull rope out slowly until engine reaches start of compression cycle (rope will pull slightly harder at this point). Let the rope rewind slowly.

NOTE: A noise will be heard when finding the start of the compression cycle. This noise is caused by the flails and fingers which are part of the shredding mechanism falling into place, and should be expected. In addition, the flails and fingers will be noisy after the engine is started, until the impeller reaches full speed.

7. Pull rope with a rapid, continuous, full arm stroke. Keep a firm grip on starter handle. Let rope rewind slowly. Do not let starter handle snap back against starter.
8. Repeat instructions 6 and 7 until engine fires. When engine starts, move choke control gradually to RUN position.

TO STOP ENGINE

1. To stop engine, move throttle control lever to OFF position.
2. Disconnect spark plug wire and ground to prevent accidental starting while equipment is unattended.

IMPORTANT: The vacuum bag may have an air escape located on the upper left hand side. See figure 9. The air escape can be opened if the vacuum is operated in wet, sandy or muddy conditions.

The bag may be emptied using the large zipper as shown in figure 9. **Be certain the zipper is closed when operating the unit.**

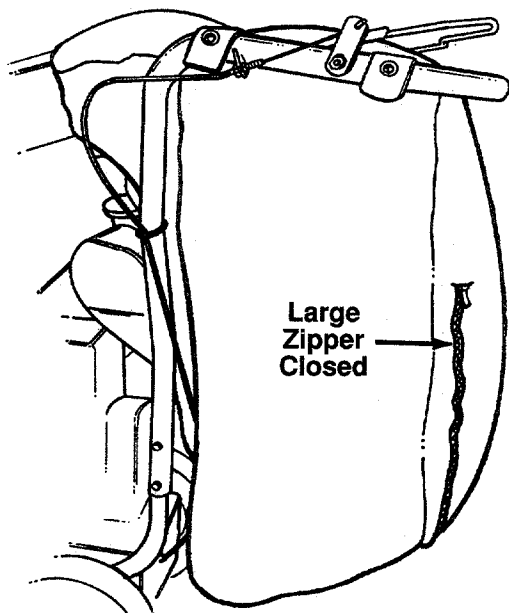


FIGURE 9.

TO ENGAGE DRIVE

IMPORTANT: Always release the drive clutch handle before moving the shift lever.

With the engine running near top speed, move shift lever into one of the six FORWARD positions or two REVERSE positions. Select a speed appropriate for the conditions that exist. Use the slower speeds until you are familiar with the operation of the chipper-vacuum.

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

HOW TO USE THE CHIPPER

Do not attempt to shred or chip any material other than vegetation found in a normal yard (i.e., branches, leaves, twigs, etc.). Material such as stalks or heavy branches **up to 3" in diameter** may be fed into the chipper chute. See figure 10.



WARNING: Material up to a maximum of 3" in diameter may be fed into the chipper chute. Do not attempt to shred or chip any material larger than 3" in diameter. Personal injury or damage to the machine could result.

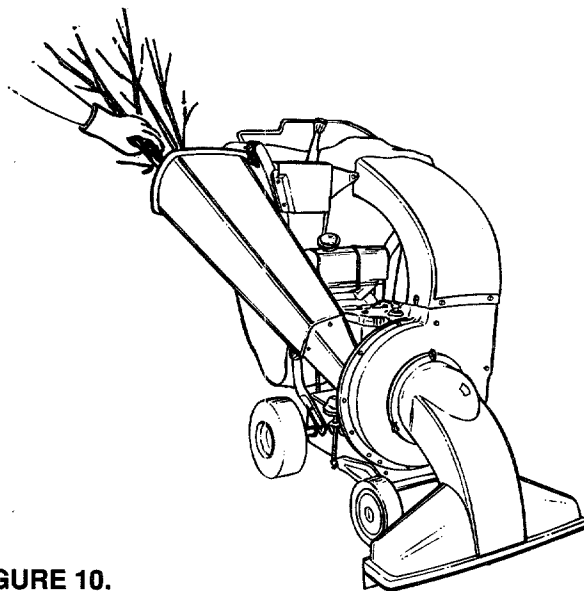


FIGURE 10.

IMPORTANT: There is a flail screen located inside the housing in the discharge area. If the flail screen becomes clogged, remove and clean as instructed in the Maintenance section on page 9.

For best performance, it is important to keep the chipper blades sharp. Refer to Maintenance section, page 9. If the composition of the material being discharged changes (becomes stringy, etc.) or if the rate at which the material is discharged slows down considerably, it is likely that the chipper blades are dull and need to be sharpened or replaced.

ADJUSTMENTS



WARNING: Do not at any time make any adjustment to the unit without first stopping engine and disconnecting spark plug wire.

HEIGHT ADJUSTMENT

The height adjustment knob is located on the right hand side of the chipper-vacuum. See figure 11. Turn the knob clockwise to raise the nozzle. Turn the knob counterclockwise to lower. (Be careful not to turn knob too far—rod could come out of ferrule.)

The best height for the nozzle will vary according to the conditions. Adjust the height of the nozzle to find the setting which gives the best performance for the operating conditions. In general, raise the nozzle to vacuum a thick layer of leaves; lower the nozzle for smooth surfaces.

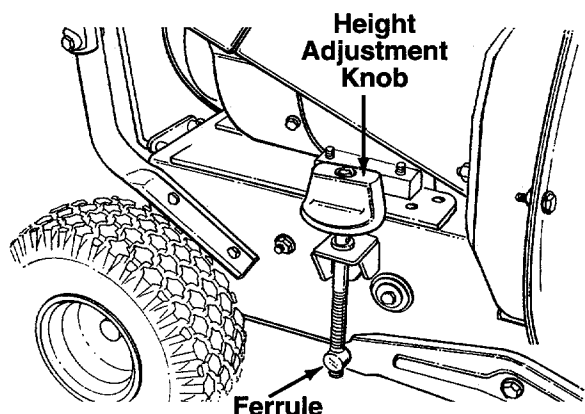


FIGURE 11.

CARBURETOR ADJUSTMENT



WARNING: If any adjustments are made to the engine while the engine is running (e.g., carburetor), keep clear of all moving parts. Be careful of heated surfaces and muffler.

Minor carburetor adjustment may be required to compensate for differences in fuel, temperature, altitude or load. Do not make unnecessary adjustments. Factory settings are satisfactory for most applications and conditions. If adjustment is needed, refer to the separate engine manual packed with your chipper-vacuum.

NOTE: A dirty air cleaner will cause engine to run rough. Be certain air cleaner is clean and attached to the carburetor before adjusting carburetor.

CLUTCH CABLE ADJUSTMENT

To adjust the clutch cable, refer to the "Clutch Cable Adjustment" section of Assembly Instructions.

SHIFT ROD ADJUSTMENT

If the shift rod needs adjustment to obtain forward or reverse correctly, proceed as follows. See figure 12.

1. Remove the bag from the unit.
2. Remove the hairpin clip and flat washer from the upper end of the shift rod. Pull the ferrule out of the hole in the shift lever. (Make certain wave washer remains in place on the ferrule.)
3. Place the shift lever in 6th position (all the way to the left).
4. Push down on the shift rod. Thread the ferrule up or down the shift rod until the ferrule lines up with the upper hole in the shift lever.
5. Secure ferrule to shift lever with flat washer and hairpin clip.

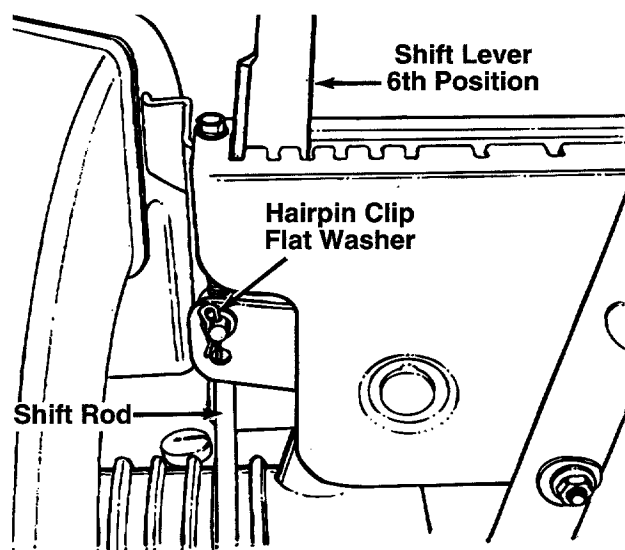


FIGURE 12.

MAINTENANCE



WARNING: Always stop engine and disconnect spark plug wire before cleaning, lubricating or performing any repairs or maintenance.

LUBRICATION

Wheels—Rear wheels are provided with light oil bearings. Place a few drops of SAE 30 oil on each bearing once a season.

Height Adjustment Mechanism—Lubricate the pivot points on the height adjustment mechanism once a season using a light oil.

CLEANING

Clean the chipper-vacuum thoroughly after each use. Wash the bag periodically with water. Allow to dry thoroughly in the shade. Do not use heat.

ENGINE

Refer to the separate engine manual for engine maintenance instructions.

Maintain **engine oil** as instructed in the separate engine manual packed with your unit. Read and follow instructions carefully.

Service **air cleaner** every 25 hours under normal conditions. Clean every few hours under extremely dusty conditions. Poor engine performance and flooding usually indicates that the air cleaner should be serviced. To service the air cleaner, refer to the separate engine manual packed with your unit.

The **spark plug** should be cleaned and the gap reset once a season. Spark plug replacement is recommended at the start of each season; check engine manual for correct plug type and gap specifications.

Clean the engine regularly with a cloth or brush. Keep the cooling system (blower housing area) clean to permit proper air circulation which is essential to engine performance and life. Be certain to remove all dirt and combustible debris from muffler area.

REMOVING THE FLAIL SCREEN

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

1. Stop the engine. Make certain the chipper-vacuum has come to a complete stop. Disconnect the spark plug wire before unclogging the discharge chute.
2. Remove the vacuum bag from the unit.
3. 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 13.

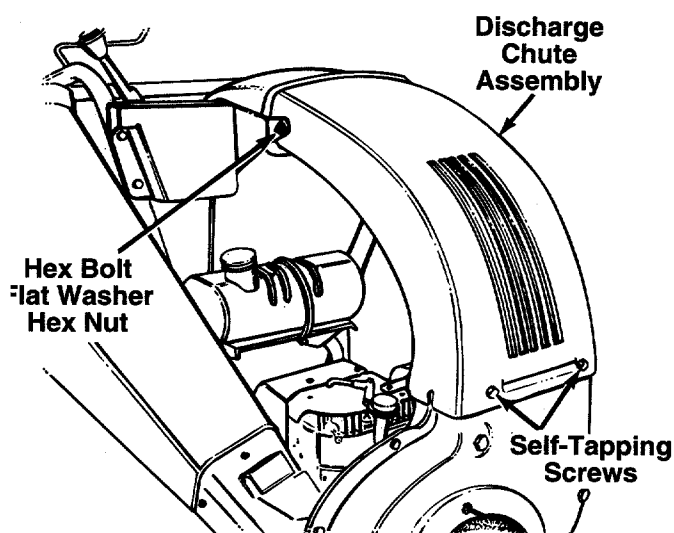


FIGURE 13.

4. Remove the two hex bolts and hex nuts which extend through the housing. Lift the flail screen from inside the housing. See figure 14.

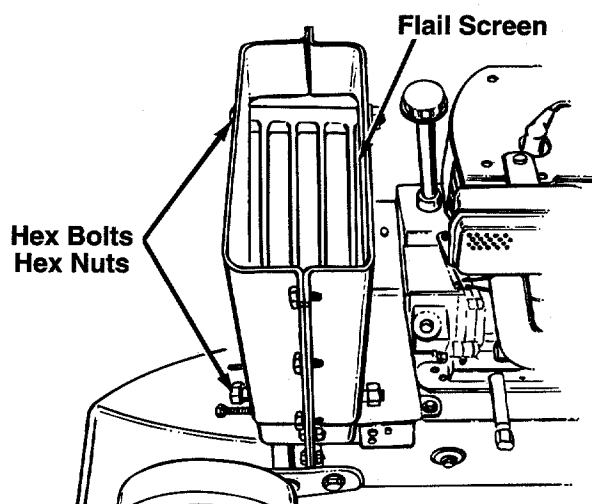


FIGURE 14.

5. Clean the screen by scraping or washing with water. Reinstall the screen.

NOTE: Be certain to reassemble the flail screen with the curved side down as shown in figure 14.

SHARPENING OR REPLACING CHIPPER BLADES

1. Disconnect the spark plug wire and move away from the spark plug.
2. Remove the flail screen as instructed in the previous section.
3. Remove the plastic belt cover on the front of the engine by removing the two self-tapping screws. See figure 15.

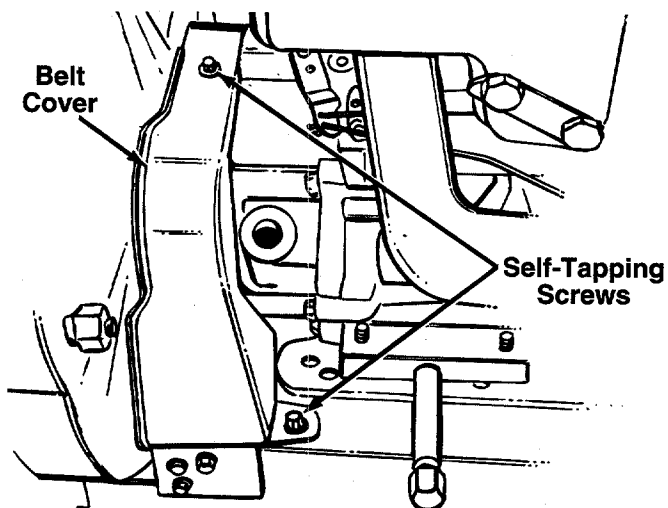


FIGURE 15.

4. Remove the access plate by removing two hex lock nuts. See figure 16.

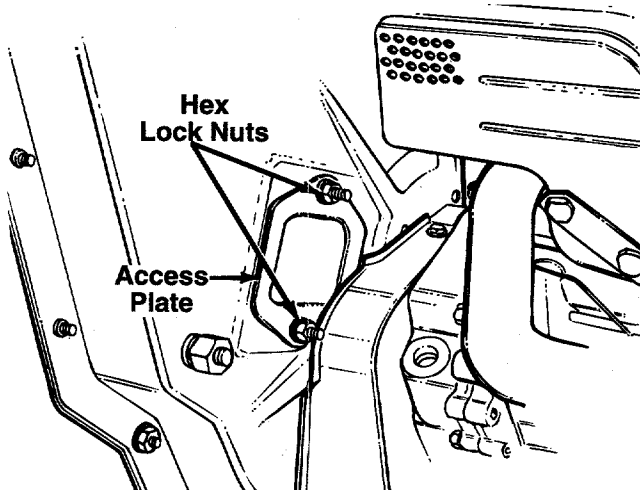


FIGURE 16.

5. Locate one of the chipper blades in the access plate opening by rotating the impeller assembly by hand. Remove the blade using a 3/16" allen wrench on the outside of the blade and 1/2" wrench on the impeller assembly, inside the housing.

6. Remove the other blade in the same manner. Replace or sharpen blades. If sharpening, make certain to remove an equal amount from each blade. Reassemble in reverse order.

NOTE: Make certain blades are reassembled with the sharp edge facing upward, as viewed from the access plate opening.

CHANGING THE FRICTION WHEEL RUBBER

The rubber on the friction wheel is subject to wear and should be checked after 50 hours of operation, and periodically thereafter. Replace friction wheel rubber if any signs of wear or cracking are found.

1. Drain the gasoline and oil from the chipper-vacuum.
2. Tip the unit backward so it rests on the handles.
3. Remove the frame cover by removing eight self-tapping screws from underneath the chipper-vacuum. See figure 17.
4. Remove the gear shaft from the unit by removing the hex bolts, lock washers and flat washers from each side of the frame. See figure 18. Hold the friction wheel assembly, and slide the gear shaft out of the unit toward the right side.
5. Remove the six screws from the friction wheel assembly (three from each side). Remove the friction wheel rubber from between the friction wheel plate.
6. Reassemble new friction wheel rubber to the friction wheel assembly, tightening the six screws in rotation and with equal force.
7. Slide the friction wheel assembly up onto the shift mechanism, then slide the gear shaft back into the unit. Reassemble in reverse order.
8. Readjust the clutch cable. Refer to adjustment section.

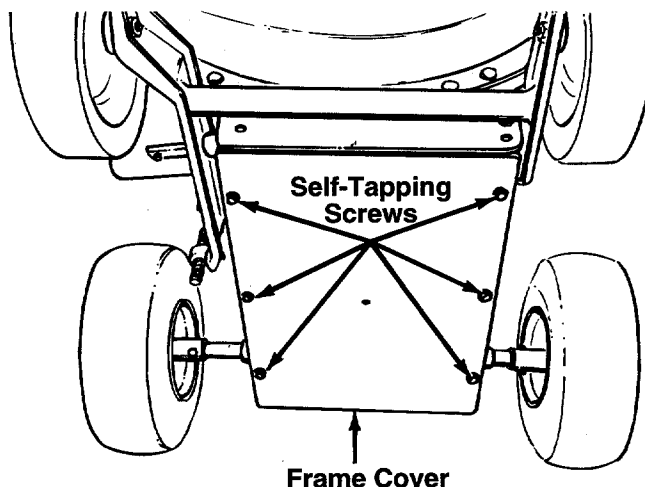


FIGURE 17.

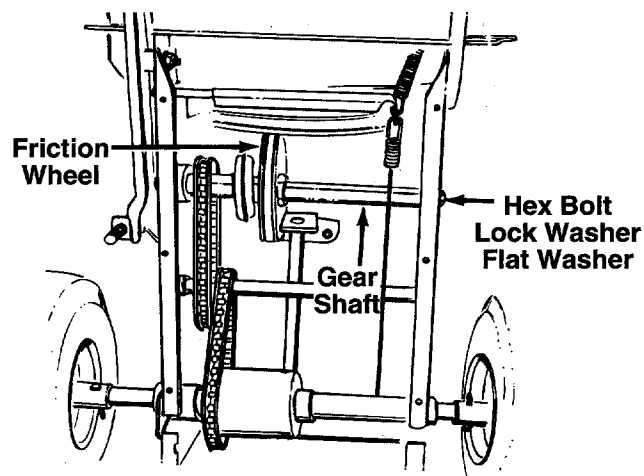


FIGURE 18.

BELT REMOVAL AND REPLACEMENT



WARNING: Disconnect the spark plug wire and move away from the spark plug.

1. Remove the plastic belt cover on the front of the engine by removing two self-tapping screws. Refer to figure 14.
2. Drain the gasoline and oil from the chipper-vacuum.
3. Tip the unit backward so that it rests on the handles.
4. Remove the frame cover by removing eight self-tapping screws from underneath the chipper-vacuum. Refer to figure 17.
5. Remove the idler pulley bracket as follows. (See figure 19.)
 - a. Take the tension off the belt by pivoting the idler pulley toward you, and line up the holes in the idler bracket assembly. Insert a nail or similar object through the holes to hold the idler pulley in this position.
 - b. Remove three self-tapping screws, and lift off the idler bracket assembly.

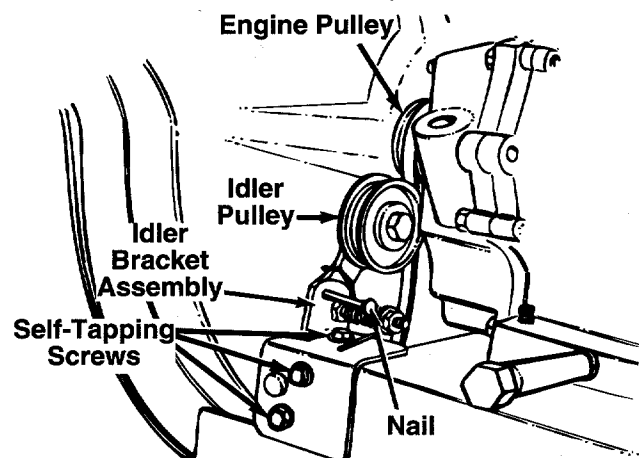


FIGURE 19.

6. Remove the hex bolt and lock washer from the engine pulley. See figure 19. Slip the engine pulley off the engine shaft, and remove the belt from the pulley.
7. Loosen the nut on the stop bolt until there is clearance between the support bracket and the friction wheel disc. See figure 20.
8. Slip the belt between the friction wheel and friction wheel disc. Remove and replace belt. Reassemble following instruction in reverse order.

NOTE: The support bracket must rest on the stop bolt after the new belt has been assembled.

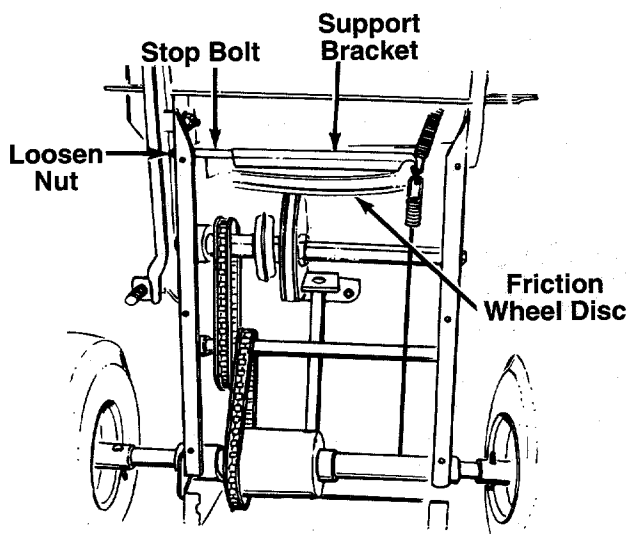


FIGURE 20.

OFF-SEASON STORAGE

The following steps should be taken to prepare your chipper-vacuum for storage.

1. Remove all dirt from exterior of engine and equipment.
2. Refer to engine manual for correct engine storage instructions.
3. Wipe unit with an oiled rag to prevent rust (use a light oil or silicone), especially if storing in an unventilated or metal storage shed.
4. Store in a dry, clean area. Do not store next to corrosive materials, such as fertilizer.

OPTIONAL EQUIPMENT

Hose Attachment Kit Model 290-005 is available as optional equipment.

Model No.	-315B
Spark Plug	J-8C
Air Filter Element	33268
Air Pre-Cleaner	35881
Engine Oil (SAE 30)	737-0208 (26 oz. req'd.)
Chipper Blade (Standard)	781-0490
Chipper Blade (Tooled Steel)	742-0544
Bag	764-0472
Safety Glasses	723-0400
Vacuum Hose Kit (Optional)	290-005

The only way to ensure the performance of your product is to use original equipment parts and accessories, which are designed and engineered to exacting specifications. When you substitute, you take a chance on quality, reliability, safety and performance. Use original equipment parts—See your local service dealer.

TROUBLE SHOOTING

PROBLEM	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
Engine fails to start	<ol style="list-style-type: none"> 1. Spark plug wire disconnected. 2. Fuel tank empty, or stale fuel. 3. Faulty spark plug. 	<ol style="list-style-type: none"> 1. Connect wire to spark plug. 2. Fill tank with clean, fresh fuel. 3. Clean, adjust gap or replace.
Loss of power; operation erratic	<ol style="list-style-type: none"> 1. Spark plug wire loose. 2. Unit running on CHOKE. 3. Blocked fuel line or stale fuel. 4. Water or dirt in fuel system. 5. Carburetor out of adjustment. 6. Dirty air cleaner. 	<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. Disconnect fuel line at carburetor to drain fuel tank. Refill with fresh fuel. 5. Adjust carburetor.† 6. Service air cleaner.†
Engine overheats	<ol style="list-style-type: none"> 1. Carburetor not adjusted properly. 2. Engine oil level low. 	<ol style="list-style-type: none"> 1. Adjust carburetor.† 2. Fill crankcase with proper oil.
Too much vibration	Loose parts or damaged impeller.	Stop engine immediately and disconnect spark plug wire. Tighten all bolts and nuts. Make all necessary repairs. If vibration continues, have unit serviced by an authorized service dealer.
Unit does not discharge	<ol style="list-style-type: none"> 1. Discharge chute clogged. 2. Foreign object lodged in impeller. 3. 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 housing. See Maintenance section of this manual. 2. Stop engine immediately and disconnect spark plug wire. Remove lodged object. 3. Empty bag.
Rate of discharge slows considerably or composition of discharged material changes	Chipper blades dull.	Sharpen or replace chipper blades.

†Refer to the engine manual packed with your unit.

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

For Replacement Parts, Contact:
SERVICE DEPARTMENT • P.O. BOX 368022 • CLEVELAND, OHIO 44136-9722