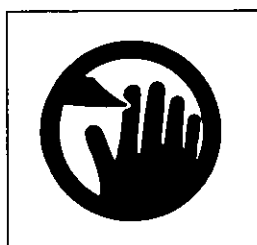


OPERATOR'S MANUAL

5 H. P. CHIPPER/SHREDDER

▲ WARNING

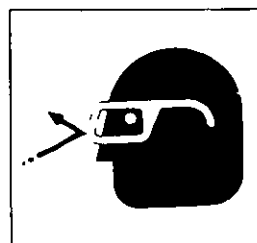
Those who use or maintain the machine must be trained in its proper use, know of its dangers, and read the entire manual before attempting to set-up, operate, or service the machine. Failure to observe all instructions in this manual can result in serious injury.



Your chipper/shredder is a powerful machine which is capable of amputating hands and fingers, feet and toes, and throwing objects that can cause serious injury.



Gasoline is highly flammable, capable of burning and exploding if not properly handled.




Always wear proper eye protection during operation of chipper/shredder to prevent injury to eyes from flying objects which may be thrown from the machine.

TABLE OF CONTENTS

SAFETY INSTRUCTIONS	3
ASSEMBLY	4
OPERATION	5
MAINTENANCE	7
TROUBLE SHOOTING	11

Safety Definitions and Decals

A signal word - **DANGER, WARNING, CAUTION** - is used with the safety-alert symbol  and identifies the level of hazard. The level of hazard intensity is determined by the following definitions:

DANGER

The signal word "**DANGER**" indicates extreme danger to a person on or near a machine exists as a result of the very nature of the machine itself which **WILL** result in death or serious injury if the recommended precautions are not taken.

WARNING

The signal word "**WARNING**" indicates danger to a person on or near a machine exists which **COULD** result in death or serious injury if the recommended precautions are not taken.

CAUTION

The signal word "**CAUTION**" indicates danger to a person on or near a machine exists which **MAY** result in minor or moderate injury if the recommended precautions are not taken.

REGARDLESS OF THE LEVEL OF HAZARD BE CAREFUL

DECAL INFORMATION

Safety decals and instructions are easily visible to the operator and are located near any area of potential danger. Replace any decal that is damaged or missing.



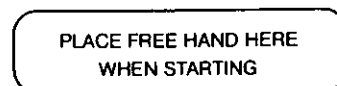
Part No. 400085



Part No. 400101



Part No. 402354



Part No. 402016



Part No. 401877

NOTE: This product is equipped with an internal combustion type engine. Do not use unit on or near any unimproved forest-covered or brush-covered land unless the exhaust system is equipped with a spark arrester meeting any applicable local, state or federal laws. A spark arrester, if it is used, must be maintained in effective working order by the operator. See your authorized service center or engine manufacturer's service center.

Safety Instructions

▲ WARNING ALWAYS DISCONNECT THE SPARK PLUG WIRE AND PLACE IT WHERE IT CANNOT MAKE CONTACT WITH SPARK PLUG TO PREVENT ACCIDENTAL STARTING DURING PREPARATION - MAINTENANCE - STORAGE OF CHIPPER/SHREDDER.

Failure to follow safety instructions and warnings in this manual could result in serious injury. Read them carefully.

TRAINING

1. Become familiar with the operator's manual before attempting to operate this equipment.
2. Children shall not be allowed to operate this equipment.
3. This equipment shall not be operated in the vicinity of bystanders.
4. Carbon monoxide can be extremely dangerous in enclosed areas; operators shall not run the machine in an enclosed area since the exhaust from the engine contains carbon monoxide, which is colorless, odorless, tasteless and is a deadly poisonous gas..
5. Operators shall not allow hands or any other part of the body or clothing inside the feeding chamber, discharge chute, or near any moving part.
6. Before inspecting or servicing any part of the machine, the operator shall shut off the power source, disconnect the spark plug wire from the spark plug, and make sure that all moving parts have come to a complete stop.

PREPARATION

1. Operators shall obtain and wear safety glasses at all times while operating the machine.
2. Operators shall avoid wearing loose-fitting clothing.
3. Operators shall operate the machine only on a level surface.
4. Operators shall not operate the machine on a paved or gravel surface.
5. Before starting the machine, operators shall check that all screws, nuts, bolts, and other fasteners are properly secured. Damaged or unreadable warning and operating decals shall be replaced.
6. Operators shall use extra care in handling gasoline and other fuels. These fuels are flammable, and their vapors are explosive.
 - Only an approved container shall be used;
 - Gas cap shall never be removed or fuel added with the engine running. Engine shall be allowed to cool before refueling. Operators shall not smoke;
 - The machine shall not be refueled indoors;
 - The machine or fuel container shall not be stored inside where there is an open flame, such as a water heater.

OPERATION

1. Before starting the machine, operators shall make certain that the cutting chamber is empty.
2. Stay alert-pay attention to what you are doing. Do not operate Chipper/Shredder while under the influence of alcohol, drugs or medication that causes impairment of senses or reactions.
3. When feeding shreddable material into the equipment, operators shall be extremely careful that pieces of metal, rocks, bottles, cans, or other foreign objects are not included.

4. If the cutting mechanism strikes any foreign objects or if the machine should start making any unusual noise or vibration, operators shall shut off the engine immediately and allow the machine to stop. Operators shall disconnect the spark plug wire from the spark plug and take the following steps:
 - a) Inspect for damage;
 - b) Replace or repair any damaged parts;
 - c) Check for and tighten any loose parts.
5. The engine shall be kept clean of debris and other accumulations.
6. Processed material shall not be allowed to build up in the discharge areas; this can prevent proper discharge and result in kickback of material through the feed opening.
7. Do not allow hands or any other part of the body or clothing inside the feeding chambers or discharge chute, or near any moving part.
8. All guards and deflectors shall be kept in place and in good working condition.
9. Operators shall stand clear of the discharge area when operating this machine.
10. Operators shall keep their faces and bodies back from the feed opening.
11. Operators shall not overreach. They shall keep proper balance and footing at all times.
12. Operators shall not tamper with the engine-governor settings on the machine; the governor controls the maximum safe operating speed and protects the engine and all moving parts from damage caused by overspeed. Authorized service shall be sought if a problem exists.
13. This machine shall not be transported while the engine is running.
14. If the machine becomes clogged, operators shall shut off the engine (or motor) and disconnect the spark plug wire before clearing debris.
15. The unit shall be shut off before attaching or removing the bag.

MAINTENANCE AND STORAGE

1. When this equipment is stopped for service, inspection, or storage, or to change an accessory, operators shall make sure the spark plug wire is disconnected from the spark plug. Operators shall allow the machine to cool before making any inspections, adjustments, etc. The machine shall be maintained with care and kept clean.
2. Inspect unit for worn, damaged or missing parts. Keep chipper/shredder in its best operating condition by replacing worn, damaged or missing parts.
3. Store the machine out of reach of children and where gasoline vapors will not reach an open flame or spark. For extended storage periods, run the unit dry of gas. Always allow the machine to cool before storing.

Assembly

Before installing hopper, unscrew two thumbscrews from threaded inserts in hopper. Loosen, but do not remove, three thumbscrews in bottom of rotor housing. Hold hopper in place to align three notches in flange at bottom of hopper with thumbscrews. Push hopper firmly into place so slots "bottom" on screws. Install two thumbscrews through open holes in rotor housing flange and into threaded inserts in hopper. Tighten thumbscrews to secure hopper.



Fig. 1

To install collector bag, place bag opening around discharge opening, withdraw plunger in drawstring lock and pull drawstring around opening until bag is tight. Push in plunger to retain drawstring and bag. Try to locate drawstring lock directly above hook that protrudes from rotor housing for best bag retention.

NOTE: Drawstring lock on some bags may not be as shown in Fig. 2.

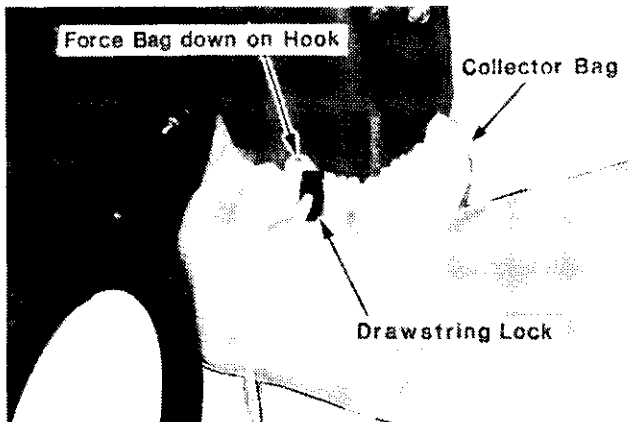


Fig. 2

The Chipper/Shredder may be operated without collector bag installed. When operating without bag, stay clear of discharge opening and do not allow material to collect and restrict discharge of material.

The Chipper/Shredder is shipped without gasoline in the fuel tank and very little oil in engine crankcase. DO NOT operate engine until crankcase has been filled with oil as specified in engine manual provided with the machine.

Position Chipper/Shredder on a level surface so engine will be level. Using funnel provided, fill engine with oil to point of overflowing, using oil fill opening below fuel tank. If any oil is spilled, wipe it up since oil will attract dust and dirt.



Fig. 3

▲ DANGER

Handle gasoline with care—it is highly flammable.

Remove cap from fuel tank filler opening and carefully fill tank with fresh, lead free gasoline. See engine manual. DO NOT MIX OIL WITH GASOLINE. Leave some space in fuel tank to allow for expansion of fuel from engine heat or sunlight. Do not use gasoline that may be stale from long periods of storage in container.

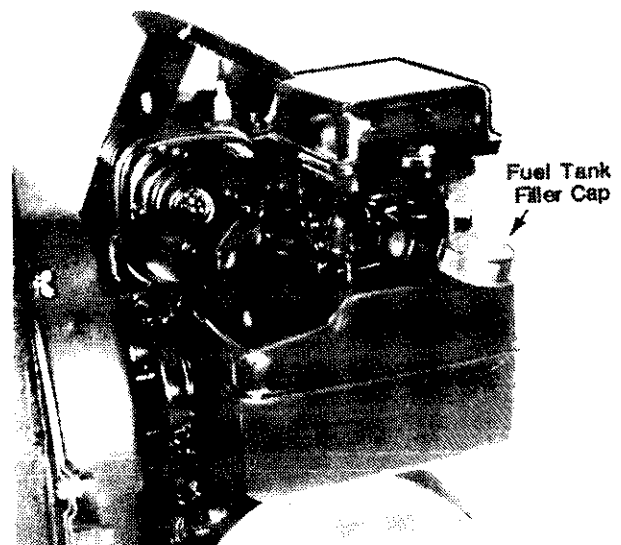


Fig. 4

Operation

▲ WARNING

The operation of chipper/shredder can result in foreign objects being thrown into eyes, which can result in eye damage. Always wear safety goggles or eye shields during operation of chipper/shredder.



Maximum shredding results, equipment performance, and personal safety depend on correct operation of the equipment and on proper maintenance of its components. The operator of this chipper/shredder should, therefore, become familiar with the machine and its controls before attempting to operate the equipment. The two important considerations are:

- (a) Knowing the location of the controls and their function, as outlined in this manual, to ensure for most efficient operation of the equipment and for best performance.
- (b) Observing at all times the operating instructions and safety rules to reduce the risk of possible injury to persons and to equipment.

Use the Chipper/Shredder only for the purpose for which it was intended—that of mulching/shredding leaves and chipping twigs, stalks and tree branches. Using the chipper/shredder for any other purpose could result in damage to machine and risk of injury to the operator.

MULCHING GATE

The mulching gate should be installed as shown in Fig 5 to restrict the flow of material out through the discharge opening, to yield finely mulched material.

The mulching gate is normally used anytime dry leaves are being shredded. If leaves are damp or wet, or green yard debris is being shredded, mulching gate should be removed to prevent plugging.

If shredded material is not at the desired consistency, it may have to be fed through the machine a second time.

The mulching gate should not be used when chipping tree limbs, branches and twigs as the gate will not alter the size of chipped material.

To install mulching gate, disconnect spark plug wire, then remove hopper by removing two thumbscrews from engine side of hopper and loosening three thumbscrews in bottom of hopper. Place gate through slotted opening in rotor cover so tab protrudes out of rotor housing. Formed edge of gate must fit into depression in rotor cover. Install hairpin cotter to retain.

To remove mulching gate, reverse steps for installing gate.

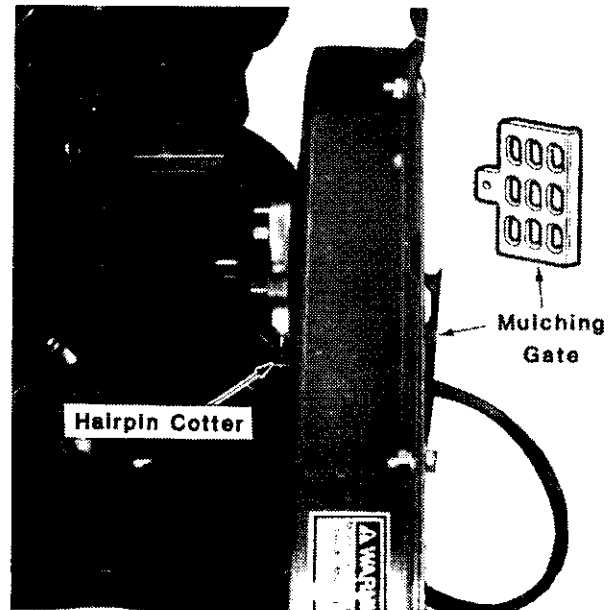


Fig. 5

Reinstall hopper, securely tightening three thumb screws in hopper bottom. Reinstall two thumbscrews in hopper and tighten. Reconnect spark plug wire when you are ready to start engine.

Operation (cont'd)

STARTING ENGINE

▲WARNING

DO NOT operate indoors—exhaust fumes contain CARBON MONOXIDE, an ODORLESS and DEADLY GAS.

Move the Chipper/Shredder to the location of the anticipated use before starting engine. Machine should be positioned on firm level ground.

Prepare for operating chipper/shredder by putting on safety goggles provided with machine and a good pair of work gloves and shoes. If available, it is recommended that suitable hearing protection also be used when operating chipper/shredder.

If shredded material is to be collected in the bag, be sure collector bag is securely tied to discharge chute.

▲WARNING

Shredded material is discharged with considerable force that could cause injury from flying pieces if bag is not used.

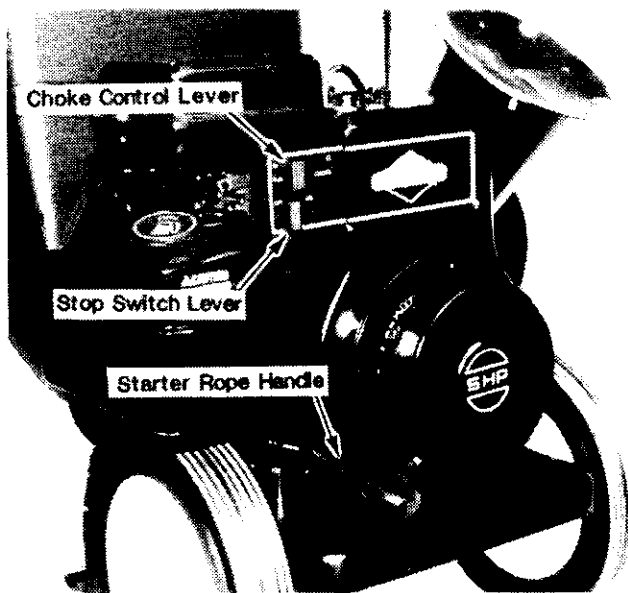


Fig.6

Place choke control (upper) lever in the choke position and the stop switch (lower) lever in the ON position. If engine is warm, it may not require choking to start.

NOTE: Be sure hopper and chipper tube are empty before starting engine. Do not put anything into hopper or chipper tube until engine is running.

To crank engine for starting, grasp starter rope handle and pull rope slowly until resistance is felt. Then pull rope rapidly to overcome cylinder compression, prevent kick-back and start engine. Repeat as necessary, with choke slightly opened, until engine starts. DO NOT allow starter rope to snap back; let it rewind slowly.

When engine starts, move choke lever to RUN position and allow engine to warm up before beginning shredding operations.

▲WARNING

DO NOT touch hot muffler, cylinder head or cooling fins, as contact may cause burns.

▲CAUTION

To reduce fire hazard, keep the engine, especially the area near muffler, free of grass, leaves and other such debris. Clean off accumulated debris only when engine is cool.

To stop engine, move stop switch lever to the OFF position.

NOTE: Before stopping engine, be sure all material has cleared out of hopper, chipper tube and rotor housing and has discharged into collector bag or onto ground.

Be sure machine is on level, firm ground that provides good footing for working around unit.

To begin with, feed yard trash into hopper to become familiar with how machine works and it's capacity to handle various materials.

Whenever possible we recommend feeding material through the chipper tube. This will chip the material into finer pieces, even the smallest of twigs.

▲WARNING

Do not look directly down into hopper or chipper tube when chipper/shredder is running.

Do not place material larger than ½ inch in diameter into hopper. Any material that is heavier than ½ inch in diameter must be fed into chipper tube. Branches up to 2-¼ inches in diameter may be fed into chipper tube.

▲WARNING

The baffle in the hopper is there to restrict material from being thrown back at the operator. DO NOT operate chipper/shredder if baffle is missing and NEVER put your hands down into hopper while chipper/shredder is operating.

Operation (cont'd)

⚠ CAUTION

Do not put rocks, bottles or cans into chipper/shredder. Machine is designed to shred leaves and branches only.

Material, such as small twigs, leaves, grass, hay and straw being fed into the hopper for shredding should slide easily into cutting blade by its own weight. If necessary, work material down to cutting area with a small branch or twig. Never use a hard object to push material down as damage to machine and possible personal injury could result if contact is made with blade.

⚠ WARNING

Never put your hands down into hopper.

Do not feed large amounts of wet or green material into hopper at one time. Feed it in moderate amounts.

Loose material can be dumped directly into the hopper. Do not over feed so that the chamber is too full. If engine speed slows down, feed material into the hopper at a slower rate.

⚠ WARNING

Processed material must not be allowed to build up in discharge area as this will prevent proper discharge and result in kickback of material through feed opening.

Wear heavy gloves, such as with leather palms, when feeding twigs, branches and small saplings into chipper tube since material can be jerked into chipper tube with considerable force, resulting in cuts and splinters.

Maintenance

⚠ WARNING

Do not make modifications to chipper/shredder which could impair its function and create a safety hazard.

LUBRICATION

Follow recommendations given in engine manual for lubricating and maintaining engine for continuous, trouble free operation.

The Chipper/Shredder does not require any lubrication other than lubricating transport wheel hubs occasionally and servicing engine according to instructions in engine manual.

Hold branches firmly and away from your body when feeding chipper tube.

Smaller limbs with branches can be squeezed together and pushed into the chipper tube.

Push branches into chipper tube only as fast as the chipper will cut without slowing down the engine. If engine does slow down, reduce the rate at which you are feeding in the branch.

When collector bag is full, stop engine and wait for all moving parts to stop before removing and emptying bag.

Collector bag should be checked frequently for signs of wear or deterioration. Replace bag if worn or damaged, being sure replacement bag complies with the original manufacturer's recommendation or specification.

⚠ DANGER

Do not use any attachments with this chipper/shredder that are not specifically recommended by manufacturer.

In the event the rotor chamber should become clogged with shredded material or chips, stop the engine and disconnect wire from spark plug before clearing offending material.

Remove hopper to gain access to rotor chamber. Remove mulching gate if it is installed. Fig. 5. Use a stick of wood to loosen packed material from around rotor, being careful so your hands do not come in contact with sharp shredder blade. If necessary, remove rotor cover to thoroughly clean out chamber. If a waterhose is available, water may be sprayed into chamber to remove accumulated debris.

To drain engine oil, reach under engine base plate and unscrew plug from elbow, using a ½ inch open end wrench. Be prepared to catch oil in a pan when plug is removed.



Fig. 7

Maintenance (cont'd)

REMOVING SHREDDER OR CHIPPER BLADE

⚠ WARNING

Disconnect spark plug wire and keep it away from plug to prevent accidental starting.

When cleaning, repairing or inspecting your chipper/shredder make certain all moving parts have stopped.

To reduce the risk of injury, always wear heavy gloves when handling rotor cover and rotor assembly.

Do not touch cutting edges of shredder blade. They are sharp and can cause a severe injury.

1. To remove hopper, remove three thumbscrews in bottom of hopper and two thumbscrews in upper flange of rotor housing.
2. Using a 7/16 inch wrench, remove seven bolts in rotor housing cover and remove cover.

⚠ WARNING

The cutting edges of the chipper and shredder blade are sharp and can lacerate (cut) skin tissue even when not in motion or in storage. Care should be taken when doing any repair work on or near the blades.

3. Using a 9/16 inch wrench, remove retaining bolt and three conical washers from engine shaft. To keep rotor from turning, wedge a solid stick (hammer handle) into rotor. Carefully slide rotor assembly off shaft. If necessary, tap rotor hub with a hammer to break it loose from shaft. If rotor is stuck on engine shaft, use a suitable 2-jaw gear puller to remove rotor from engine shaft. Be careful not to lose square key in engine shaft groove.



Fig 8

NOTE: Chipper/shredder may be slightly off-balance when hopper, rotor cover and rotor are removed. Be careful not to upset or tip machine when working on rotor assembly.

4. Remove shredder blade from hub flange by removing nuts and lockwashers from two retaining bolts, using 9/16 inch wrenches.
5. Remove two screws holding chipper blade to rotor, using a 7/16 inch wrench and appropriate size hex wrench. Note position of blade on rotor.
6. Carefully examine shredder and chipper blades and replace them with new blades if they are badly worn, nicked or otherwise damaged. If cutting edges on blades can be restored by sharpening, follow instructions under heading **Sharpening Blades**.
7. Install chipper blade on rotor, using new retaining screws, lockwashers and nuts. Fig. 9. Tighten nuts to 80 in. lbs. or 6-1/2 ft lbs. torque with a torque wrench.

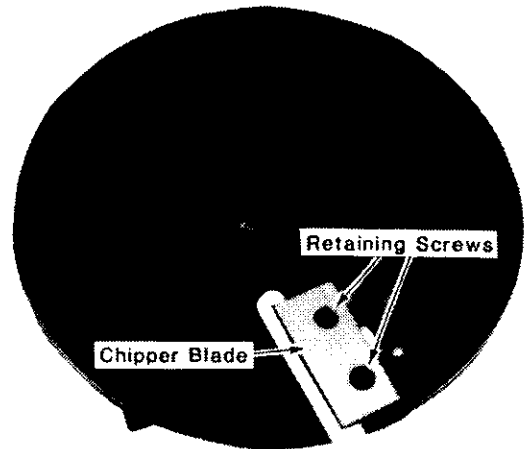


Fig. 9

8. Reinstall shredder blade on hub flange, being sure sharp edges on blade are positioned as shown in Fig. 10. Rotor turns counterclockwise when looking into rotor housing. If blade is installed backwards, it will not cut and shred material. Tighten nuts on shredder blade retaining bolts 21 to 24 ft. lbs. torque.

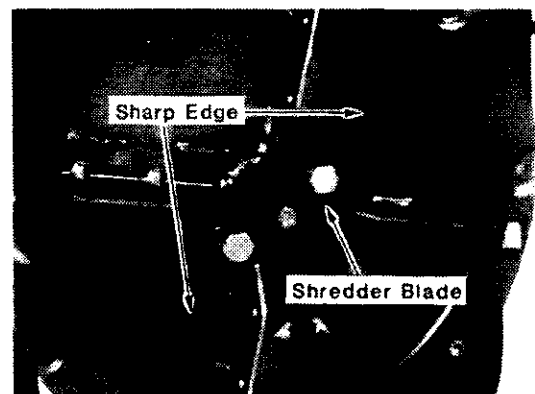


Fig. 10

Maintenance (cont'd)

9. Reinstall square key in groove in engine shaft if it was removed. Apply a coating of light oil to engine shaft before installing rotor assembly.
10. Align keyway in rotor hub with key in engine shaft groove and reinstall rotor assembly.
11. Assemble three conical lock washers on bolt and reinstall bolt in engine shaft. Concave (cupped side) of washers must be against blade. Use only recommended bolt for retaining rotor. See parts list. Do not use a substitute. Tighten bolt to 24 ft. lbs. torque.
12. Reinstall cover on rotor housing, tightening retaining screws securely. Be sure eye on end of ground wire is reinstalled on cover retaining screw from which it was removed. Reinstall three thumbscrews in threaded inserts in lower flange of housing, leaving screws loose to accept hopper when it is installed.
13. Hold hopper in place on three lower thumbscrews and reinstall two thumbscrews holding hopper to upper flange of rotor housing. Securely tighten all thumbscrews.

⚠ WARNING

Ejector blades welded to rotor disc should never be straightened should they become bent. Any attempt to straighten blades could fracture welds and blade could come loose during operation.

ENGINE GROUNDING SWITCH

Chipper/Shredder has a grounding switch that is activated by the hopper. When the hopper is installed, switch is activated to allow engine to be started. When hopper is removed, switch is closed, preventing engine from being started.

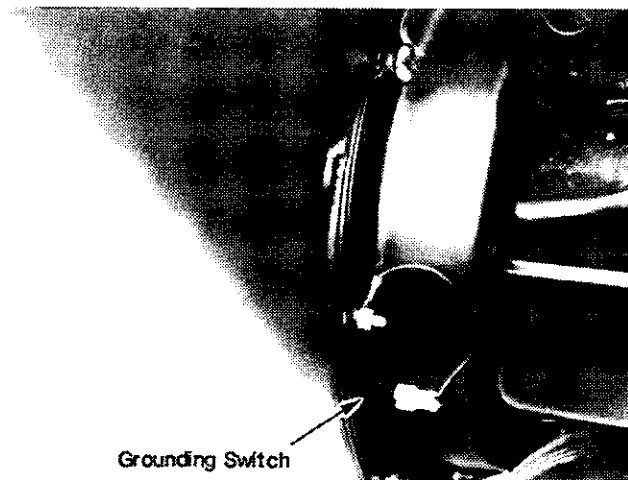


Fig.11

Operation of engine grounding switch may be checked with hopper installed or removed. To check switch operation, first disconnect wire from spark plug and remove spark plug from engine. Reconnect wire to spark plug and lay on top of engine. Place stop switch lever on engine in the ON position.

With hopper installed, crank engine with starter rope. If a spark occurs between spark plug electrodes, grounding switch is okay. No spark between electrodes indicates grounding switch is faulty and must be replaced.

With hopper removed, crank engine with starter rope. If no spark occurs between spark plug electrodes, grounding switch is okay. If a spark occurs, grounding switch is faulty and must be replaced. **CAUTION:** Keep hands away from opening in rotor housing cover when cranking engine while hopper is removed.

⚠ WARNING

Immediately replace grounding switch if it is damaged or malfunctioning. Do not operate machine if switch is faulty.

⚠ WARNING

Do not bypass engine grounding switch and do not operate chipper/shredder with hopper removed.

When checking operation of grounding switch, don't overlook the possibility that the spark plug could be faulty, requiring replacement of plug as recommended in engine manual.

SHARPENING BLADES

Blades with dull cutting edges will reduce the efficiency and performance of the machine. Maintain a sharp edge on the shredder and chipper blades. Only the beveled side of the blade should be sharpened, following the original angle of grind.

If a bench grinder is used for sharpening blades, the grinder should have a fine grit stone to provide a smooth, sharp cutting edge. A file may be used to clean up nicks and remove burrs from backside of blade, opposite the beveled side.

When sharpening shredder blade, remove only enough material from each end to obtain a sharp edge and maintain blade in a balanced condition.

To check blade balance, place a round shank screwdriver through center hole in blade and position blade parallel to the ground. If blade is not balanced, heavy end will rotate down. Remove material from heavy end of blade to balance blade.

Maintenance (cont'd)

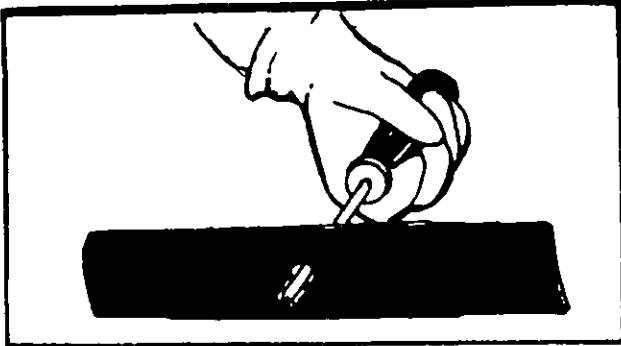


Fig. 12

1. Disconnect wire from spark plug.
2. Clean unit thoroughly, including engine.
3. Refer to engine manual for engine storage instructions.
4. Carefully inspect unit for worn, damaged or missing parts. Replace any that are worn, damaged or missing.
5. Store Chipper/Shredder in a dry, locked up place, out of the reach of children.

STORAGE

If Chipper/Shredder is to be idle for 30 days or more, the following steps should be followed to prepare unit for storage.

▲ DANGER

Never store engine with fuel in tank indoors or in enclosed, poorly ventilated enclosures, where fuel fumes may reach an open flame, spark or pilot light as on furnace, water heater, clothes dryer, etc.

Handle gasoline carefully. It is highly flammable and careless use could result in serious fire damage to property or injury or death to people.

Drain fuel into an approved container outdoors, away from open flame. Do not smoke when handling gasoline.

Troubleshooting

Problem	Cause	Remedy
Engine fails to start	A Check fuel tank for gas	A Fill tank if empty.
	B Spark plug lead wire disconnected	B Connect lead wire.
	C Stop switch lever not in the ON position	C Move lever to ON position
	D Choke all the way open or closed	D Move choke to halfway position.
	E Faulty spark plug	E Replace spark plug.
	F Carburetor improperly adjusted	F Adjust carburetor. See engine manual.
	G Old, stale gasoline	G Drain and refill with fresh gasoline.
	H Faulty grounding switch.	H Check operation as explained in manual.
Hard starting, loss of power or erratic operation	A Spark plug wire loose	A Connect and tighten spark plug wire.
	B Carburetor improperly adjusted	B Adjust carburetor. See engine manual.
	C Dirty air cleaner	C Clean air cleaner as described in the engine manual.
	D Dirt in gas tank	D Remove dirt and fill tank with fresh gas.
	E Water in fuel supply	E Drain contaminated fuel and fill tank with fresh gas.
	F Vent in gas cap plugged.	F Clear vent or replace gas cap.
Occasional skip (hesitates) at high speeds	A Carburetor idle speed too slow	A Adjust carburetor. See engine manual.
	B Spark plug gap too close	B Adjust to .030".
	C Carburetor needle valve adjusted improperly	C Adjust carburetor. See engine manual
Idles poorly	A Spark plug fouled, faulty, or gap too wide.	A Reset gap to .030" or replace spark plug.
	B Carburetor improperly adjusted	B Adjust carburetor. See engine manual.
	C Dirty air cleaner	C Clean air cleaner as described in the engine manual
Engine overheats	A Carburetor not adjusted properly	A Adjust carburetor. See engine manual.
	B Air flow restricted	B Remove blower housing and clean as described in the engine manual.
	C Engine oil level low	C Fill crankcase with the proper oil.
Excessive vibration	A Worn or bent shredder blade.	A Replace blade
	B Bent or damaged ejector blades.	B Replace rotor/impeller
	C Rotor/impeller loose on shaft.	C Tighten retaining bolt.
	D Engine mounting bolts loose.	D Tighten bolts.

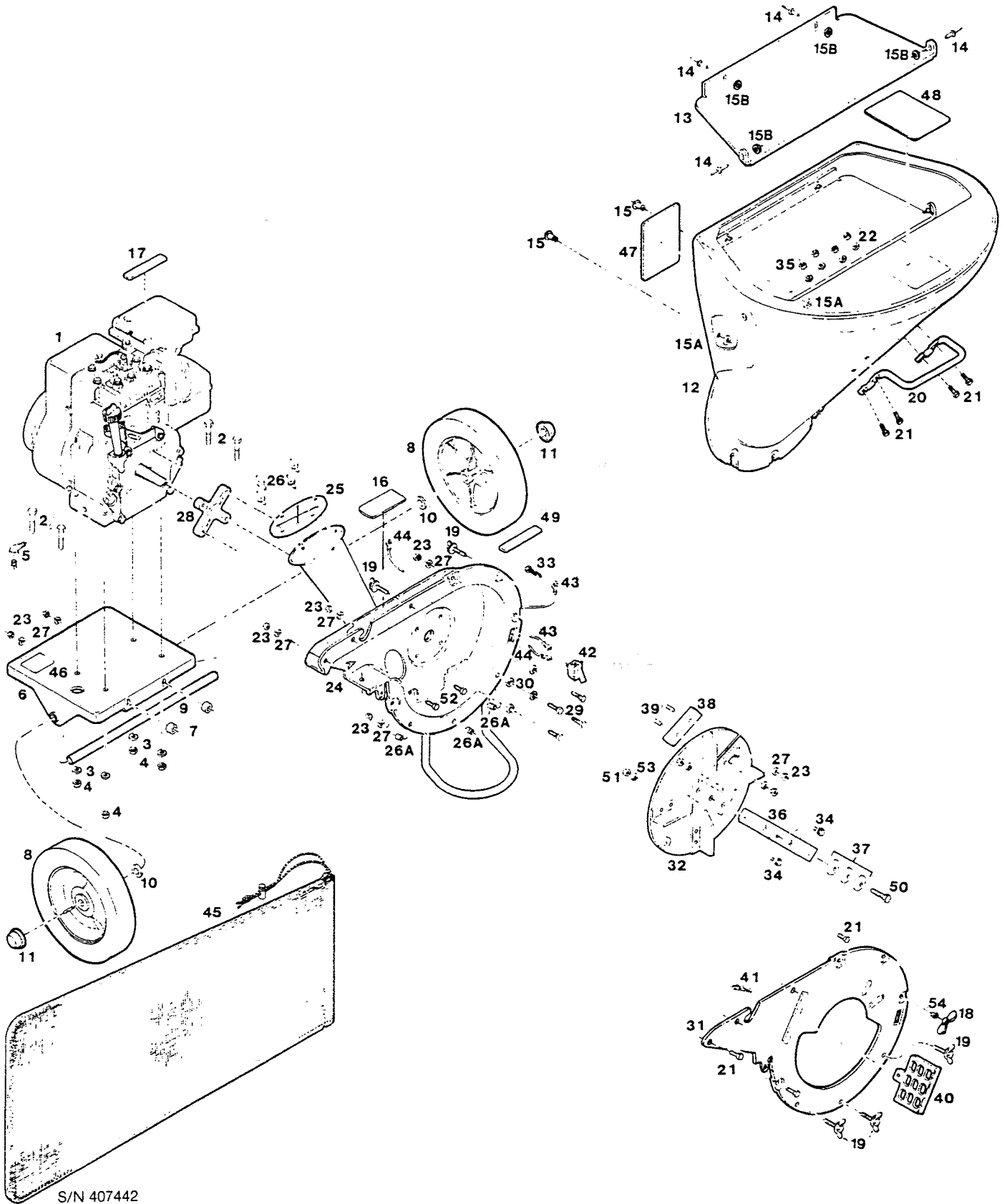
Note: For repairs beyond the minor adjustments listed above, please contact the factory or authorized service dealer

PLACE OF PURCHASE		DATE OF PURCHASE
MACHINE MODEL #	SERVICE #	DATE CODE
ENGINE MODEL #	ENGINE SERIAL#	
FILL IN THE ABOVE AND KEEP OPERATOR'S MANUAL HANDY FOR READY REFERENCE. ALONG WITH ENGINE OPERATING AND MAINTENANCE INSTRUCTION.		



Chipper/Shredders are engineered and built to meet ANSI B71.6 American National Standard Institute. Safety Specifications for powered shredder/grinders.

MODEL: AWC5M - CAW5M
5 hp CHIPPER/SHREDDER



S/N 407442
 407443
 P/L 406409
 406410
 O/M 406407
 406408
 E/M,082099

MODEL: AWCG5M - CAWCG5M
5 hp CHIPPER/SHREDDER

Index No.	Part No.	Description	Index No.	Part No.	Description
1	*	Engine-4 cycle	27	715094	Washer-split lock 1/4
2	150250	Bolt-hex 5/16-18 x 1-1/2	28	403493	Spacer-housing to engine
3	311118	Washer-lock 5/16	29	382283	Bolt-hex 5/16-24 x 1
4	310045	Nut-hex 5/16-18	30	153510	Washer-lock 5/16 int tooth
5	401687	Elbow-pipe, oil drain	31	405761	Cover-rotor
6	406380	Base-engine	32	406415	Disc-rotor w/paddles
7	403667	Spacer-housing	33	158972	Bolt-hex 1/4-20 x 1
8	042531	Wheel-plastic w/rubber tire	34	382465	Bolt-shoulder 3/8-16 x 7/8
9	401034	Axle-wheel	35	616375	Nut-hex 1/4-20 ctr lock
10	156075	Washer-flat 1/2	36	412049	Blade-shredding
11	111823	Cap-hub	37	158055	Washer-conical lock
	401398	Hopper Complete	38	405829	Blade-chipper
		Includes items 12, 13, 14, 15, 15A, 15B, 18, 20, 21, 22, 35, 47 and 48	39	382648	Screw-flat head 1/4-20 x 7/8 cntrsnk
12	402073	Hopper-plastic w/baffle	40	667188	Gate-mulching
		Includes next 5 parts	41	401901	Hairpin cotter
13	405514	Baffle-hopper	42	402743	Switch-safety interlock
14	154534	Rivet-pop	43	630467	Wire-ground, black
15	**	Insert-threaded	44	403998	Wire-connector, red
15A	159921	Washer-flat 3/8	45	405795	Bag-collector
15B	153734	Washer-flat 3/16	46	795344	Decal-Made in U.S.A.
16	405076	Decal-Discharge Area	47	400085	Decal-Keep Hands & Feet Out
17	402016	Decal-Place Free Hand Here	48	400101	Decal-Do Not Use Hands
18	382804	Nut-wing 1/4-20	49	402354	Decal-Hot Surface
19	382481	Screw-wing 1/4 - 20 x 1	50	382341 †	Bolt-hex 3/8-24 x 1-1/4
20	405472	Handle-hopper	51	715391	Nut-hex 3/8-16
21	159004	Bolt-hex 1/4-20 x 3/4	52	155341	Bolt-hex 1/4-20 x 7/8
22	615690	Washer-flat 1/4	53	150185	Washer-split lock 3/8
23	310052	Nut-hex 1/4-20	54	155242	Nut-hex 1/4-20 ctr lock jam
24	406231	Housing-rotor w/chipper tube	--	400069	Goggles-safety
		Includes item 25, 26 and 26A	--	402701	Kit-Service, threaded inserts
25	404152	Guard-chipper tube opening	--	615609	Bolt-hex 1/2-20 x 1-1/2 (in bag) (Use as pusher bolt when removing rotor from engine shaft.)
26	382499	Rivet-pop			
26A	403600	Insert-threaded 1/4-20			

** Use 402701 Service Kit for replacement

† Special bolt available only from Manufacturer.
Do not use substitute bolt.

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P/L 406409
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O/M 406407
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