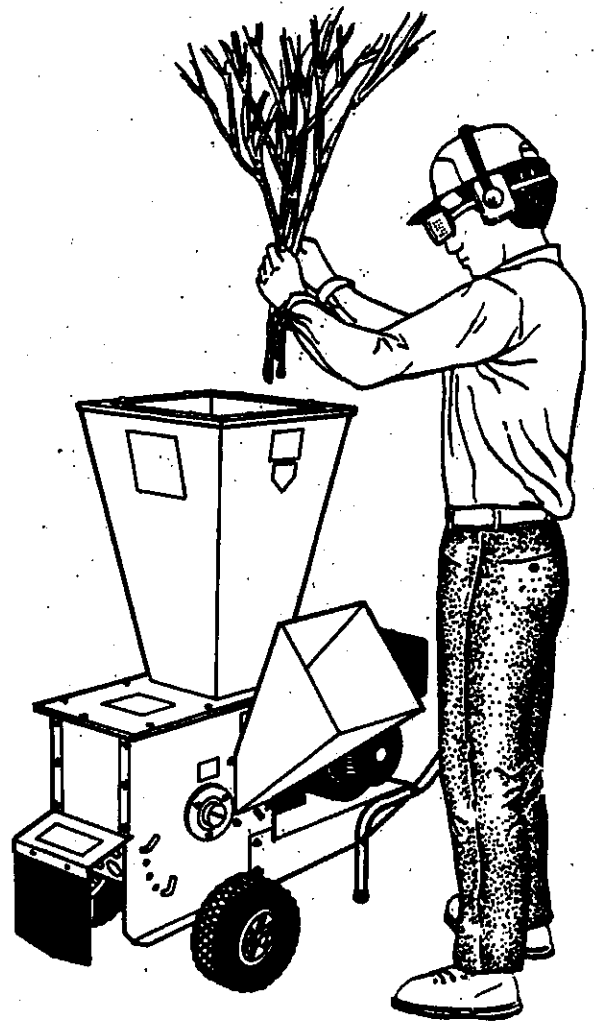
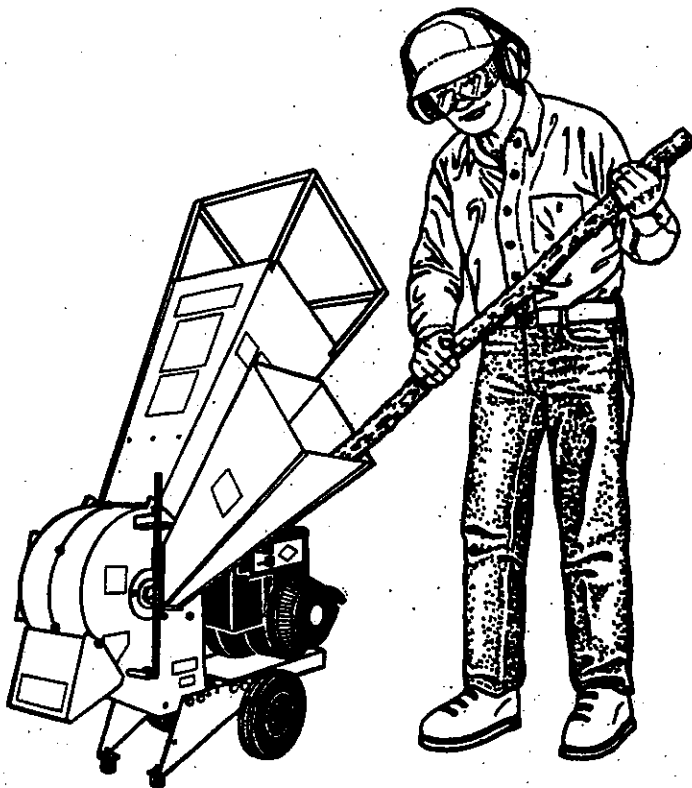
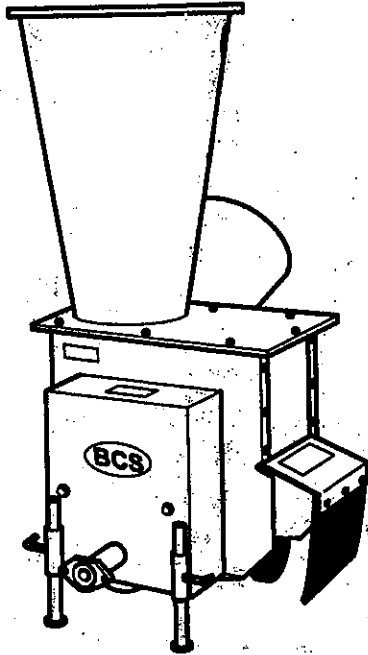


BCS Chipper/Shredder Owners Manual



READ THIS OWNER'S MANUAL BEFORE ATTEMPTING TO ASSEMBLE AND OPERATE THE CHIPPER/SHREDDER.

GENERAL PRECAUTIONS AND INSTRUCTIONS FOR USE OF CHIPPER/SHREDDER

TRAINING

READ THIS MANUAL PLUS THE ENGINE MANUAL BEFORE ASSEMBLING AND OPERATING THIS BCS CHIPPER/SHREDDER.

This unit is designed for operation by properly instructed adults only. Make sure that any person operating this equipment has read these manuals.

DO NOT LET CHILDREN OPERATE THE CHIPPER/SHREDDER.

KEEP THE OPERATING AREAS CLEAR OF PEOPLE AND ANIMALS. BE CAREFUL THAT CHILDREN DO NOT COME NEAR.

Do not operate this equipment in enclosed areas. Engine exhaust contains carbon monoxide. Carbon

monoxide is an odorless, deadly poisonous gas.

Do not allow hands to enter the Shredder hopper or the Chipper feed chute when the engine is running or the Chipper/Shredder shaft is rotating. When necessary to put hands and fingers into any opening of the unit, shut down engine, disconnect spark plug wire and wait until all movement stops. Check paint slash on the shaft of model Bio 100 Chipper/Shredder to be sure there is no movement.

When storing unit or leaving it unattended, make the engine unstartable by disconnecting the spark plug wire from the spark plug.

PREPARATION

The following body protection should be worn during operation of the Chipper/Shredder:

1. Wear snug-fitting clothing that protects body surfaces, and allows freedom of movement without being baggy. Never wear ties, scarfs or jewelry that could be caught in the machine.
2. Wear hearing protection.
3. Wear eye protection goggles stamped "Z87" (for ANSI Standard Z87.1).
4. When working in strong sunlight, protect your body with clothing and apply a sun block to exposed areas of skin. Wear sunglasses under the safety goggles.

Take the following precautions for the safe storage and handling of gasoline fuel:

1. Keep fuel supplies in approved type, properly labeled fuel containers.
2. Do not store fuels or fueled units in closed (unventilated) areas, or in garages or shops connected to human living quarters. Do not store fuel or fueled units where there are flames or sources of sparks such as electrical appliances and switches.

3. Obey all local regulations for the storage and handling of fuel.
4. Do not smoke when fueling, or fuel where fumes could be ignited by fire or sparks.
5. Do all fueling outdoors over non-flammable surfaces. If fuel is spilled on unit, wipe the unit dry and properly dispose of the wiping rag. **ALWAYS MOVE THE UNIT AT LEAST 10 FEET (3 meters) from the fueling spot and fuel supplies before starting the engine.**
6. Always remove the engine fuel cap very slowly to equalize tank pressure and avoid spurting of fuel. Keep your face and eyes away from the tank while loosening the cap.
7. Do not fuel a running or hot engine. Do not loosen the fuel cap until the engine has stopped. Then wait several minutes for the engine to cool before pouring fuel.

Operate the Chipper/Shredder only on a level surface. Do not operate the unit on paved or gravel surfaces.

Before starting, check that all screws, nuts, bolts and other fasteners are properly secured.

OPERATION

All chute safety covers and hand stops, deflectors and feed chutes must be in proper position. Do not operate if any safety devices or fastening parts are missing from the unit.

Before starting make sure that the grinding chamber contains no foreign objects that could interfere with operation or eject from the intake openings at high speed.

Operate only when there is good visibility. Do not operate at dusk or at night.

Do not let hands or any other part of your body, or your clothing, enter either of the Chipper/Shredder intake openings, or go near the discharge opening unless the engine spark plug wire is disconnected and Chipper/Shredder shaft is not rotating.

The zone of operation is anywhere except on the discharge side or in front of the Chipper chute. Do not stand directly in front of the Chipper feed chute. Do not peer down into the Shredder hopper. Materials can be thrown back out of the intakes. Do not go on the discharge side of the unit during operation.

Allow engine to warm up. Then operate at maximum

throttle speed setting. Never change the engine governor setting or overspeed the engine to gain power.

Side branches should be lopped off to avoid clogging the hopper or chute.

DISCONNECT THE SPARK PLUG WIRE FROM THE SPARK PLUG TO ENSURE AGAINST ACCIDENTAL STARTING DURING ANY OF THE FOLLOWING OPERATIONS:

1. Repairs or adjustments to unit or engine.
2. Before transport or storage, or whenever you are going to leave the unit unattended.
3. Before removing a foreign object from the unit, or before starting cleaning, inspection or maintenance work.
4. If the machine starts to vibrate or suddenly run erratically. A poorly running unit should be inspected by an authorized BCS servicing dealer before further use.

Do not touch the engine when it is running or when surfaces are still hot from operation.

MAINTENANCE AND STORAGE

Clean leaves, debris and fuel off the unit to avoid the possibility of fire.

Keep the unit in good working condition. Clean the unit at regular intervals, and check each time for loose or missing parts.

Do all items of maintenance explained in this Chipper/Shredder Owners Manual. Do not attempt disassembly or repairs not included in instructions from BCS or the engine manufacturer. Some adjustments and internal servicing of both engine and the BCS Chipper/Shredder should be done by BCS trained service personnel at an authorized BCS servicing dealer or distributor.

Shut down the engine immediately if a foreign object gets into the grinding chamber, or the unit suddenly makes loud noises or vibrates excessively.

When the Chipper/Shredder is stopped for servicing, inspection, storage or to change an accessory, make sure the spark plug wire is disconnected from the spark plug. Allow the machine to cool before making any inspections, adjustments, etc.

Allow the unit to cool before putting it away. Keep it out of the reach of children, and where sparks cannot ignite the gasoline fumes.

Do not store the unit with fuel in the system. Disconnect the fuel line at the carburetor inlet and drain the fuel into a fuel container. Then reconnect the fuel line. Start and run the engine until it stops from lack of fuel. Dispose of the drained gasoline safely.

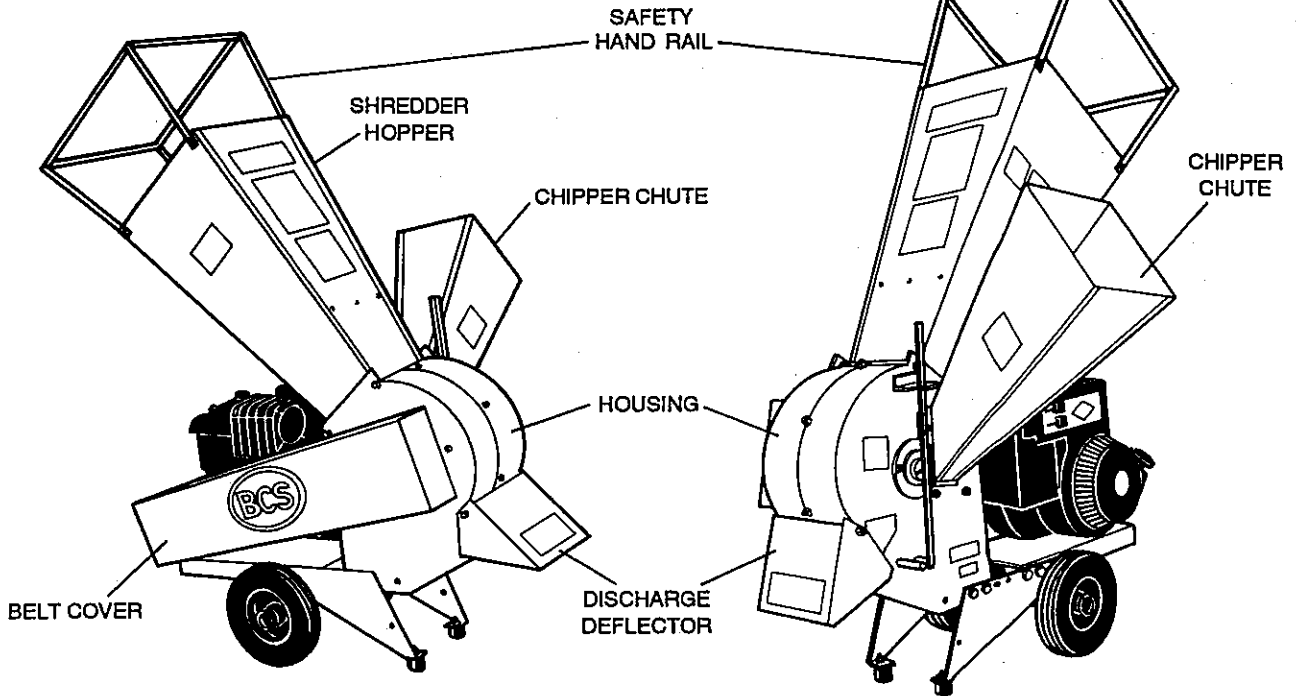
Store the cleaned and drained Chipper/Shredder in a well-ventilated place, protected from dampness and the weather.

UNPACKING THE Bio 80

1. Open the top of the carton, and lift out the first piece you see. This is the hand shield that goes onto the Shredder hopper at the top of the unit.
2. Remove the bubble packing and lift out the large Shredder hopper. Remove the Chipper discharge deflector that is inside the hopper.
3. Reach into the carton and pull out the bag containing instructions and some small parts.
4. Slit the corners of the carton on the engine side (the side away from the belt cover). Lay the side of the carton down flat. Remove the two wheels, then slide the unit free of the carton.

IMPORTANT

EXAMINE ALL PARTS OF THE UNIT FOR SHIPPING DAMAGE. IF THERE IS DAMAGE, NOTIFY THE SHIPPER.



ASSEMBLING THE Bio 80

1. Mount the two wheels on the axles. Insert the pins (from bag) and turn down their circlips over the wheel hubs.
2. With a #17 metric wrench, remove hex lock nuts and flat washers from upper mounting bolts on the Chipper/Shredder housing. Pull out the long bolts.
3. Position the Shredder hopper onto the housing. The side with the model name and instruction decals goes toward the curved end of the unit housing.
4. Shove the long bolts back through the housing and the hopper. Secure with the flat washers and nuts that were removed in step 2.
5. With a #10 wrench, install the safety hand rail to the top of the hopper with four M8 x 16mm bolts and hex lock nuts.
6. With a #13 wrench, remove the two hex lock nuts and flat washers from the mounting studs, and mount the Chipper intake chute to the housing with these fasteners.
7. The position of the discharge deflector on the Chipper/Shredder housing must be adjusted before first use. Loosen the hex lock nuts on each side with a #13 wrench. Raise and lock the deflector in a position where discharge can occur only below the deflector.
8. With a #13 wrench, use flat washers and hex-locknuts to secure the two rubber feet to the frame.

NOTE

Position of deflector may be adjusted to direct the discharge as desired. But do not adjust so low that unit discharges above the deflector.

UNPACKING THE Bio 100

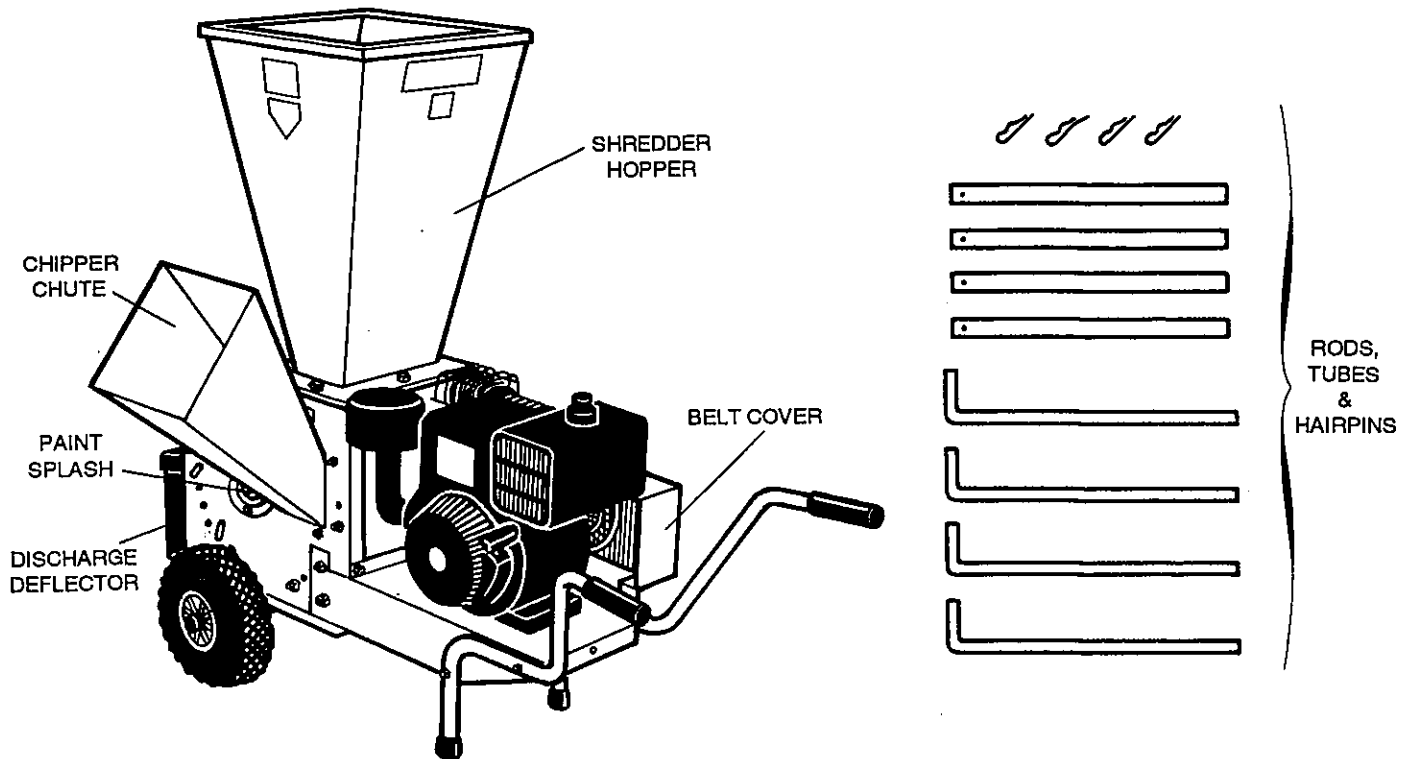
1. Cut the strapping and lift the top and sides of the box off the wooden skid base.
2. Remove the wheels.
3. Remove and strip the Shredder hopper of its packing material. Take two handlebars, a bag of parts, an instructions package and the wheel axle from the hopper.
4. Remove the package containing three rods and hairpins and five tubes. These parts are for optional

use. They replace the curved discharge screen now on the unit.

5. Free the unit from the wooden skids by pulling out the two nails.

IMPORTANT

BEFORE ASSEMBLING THE UNIT, CHECK THE CONTENTS. NOTIFY THE SHIPPER OR DEALER IF THERE ARE ANY MISSING OR DAMAGED PARTS.



ASSEMBLING THE Bio 100

1. Block up front of unit off the wooden skids. Slide the axle under the base and hold in position with the studs of axle protruding through the four holes in the base. Start a flat washer and M8 hex-lock nut onto each stud. Tighten all four nuts with a #13 wrench.
2. Slide the wheels partway onto the axles. Then remove the blocking. Pick up the engine end and walk the unit clear of the skid base. Using large hairpins (from parts bag) on both sides of each wheel, pin the wheels in position.
3. Block up the engine end for attachment of the

handle bars at threaded holes on each side of the base. With a #13 wrench, install M8 flat washers and hex-lock nuts at the four holes. Tap the rubber grips onto the handlebar ends.

4. Mount the Shredder hopper onto the unit. Slip a flat washer onto each of eight M8 x 20mm bolts. Drop the bolts through the eight holes in the hopper. Secure with a flat washer and M8 hex-lock nut on each bolt.
5. Mount the Chipper chute on the three studs surrounding the intake, on side of unit, and secure with flat washers and M8 hex-lock nuts.

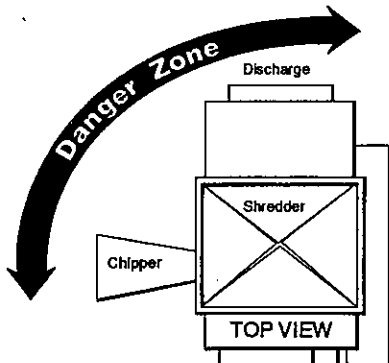
CHIPPER/SHREDDER OPERATION

SETTING UP FOR OPERATION

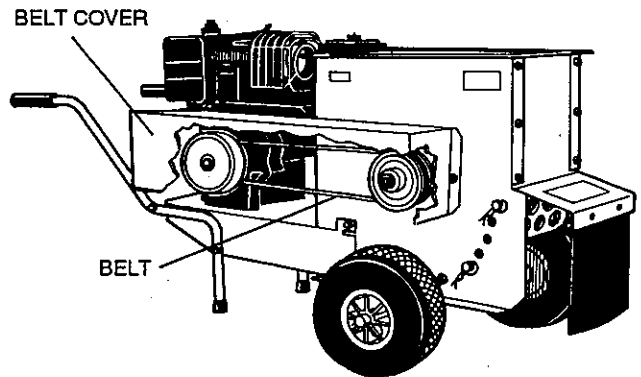
⚠ DANGER

Material can be thrown out from both feed and discharge openings.

1. Wear safety goggles and a hat.
2. Do not look into shredder hopper or place your head over it when the unit is running.
3. Do not go on the discharge side of the unit or directly in front of the Chipper chute.



1. The unit rests on rubber tires and bumpers, but should be further cushioned by setting it only on firm, level ground. Do not place it on paved or gravel surfaces. The unit may be placed on a blanket or tarp to catch the processed material.



2. Inspect the hopper before starting the engine. On the model Bio 80, pull the starter rope very slowly to see if the engine and Chipper/Shredder turn over freely. On the model Bio 100, reach under the belt cover, grasp and pull belt to the left and right to see if the Chipper/Shredder shaft is free to turn.

⚠ WARNING

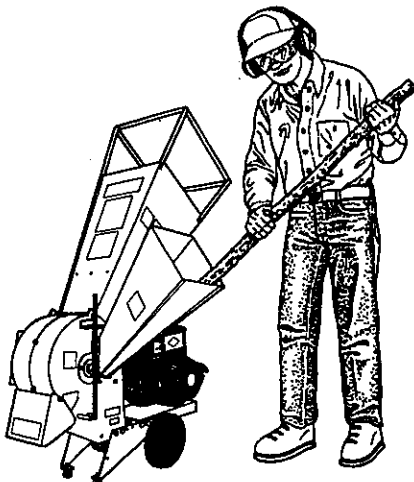
Inspect what you plan to feed into the hopper. Remove glass, metal, brick, stones, long or thick branches, or anything else that could damage the machine or fly out at high speed.

3. ALWAYS OPERATE THE CHIPPER/SHREDDER AT FULL THROTTLE.
4. Chipping and shredding may be done simultaneously.

CHIPPING WOOD

⚠ DANGER

DO NOT PUT HANDS DOWN INTO THE CHUTE WHEN THE UNIT IS RUNNING.



1. Wood in diameters up to 2-1/2" for the Bio 80 and 3-3/4" for the Bio 100 can be fed through the Chipper chute.
2. Put the thickest end of the branch into the chute. Side branches must be either bent to fit or lopped off. Find just the right feed pressure to apply not too much! Do not let the chipper overfeed itself. Pull back when engine bogs down and wait for speed to resume before feeding wood. On the Bio 100 unit, the engine must maintain high speed under load to keep the centrifugal clutch solidly engaged. Proper feed pressure and engine speed are important for the life of both models.

⚠ WARNING

Do not go on the discharge side of the unit or stand directly in front of the intake chute when feeding the Chipper. Keep to one side of the chute.

- NEITHER PULL OUT NOR PUSH IN the short end pieces with your hands. Use the next log or branch to feed the short end through the Chipper each

time. Short ends sometimes feed themselves through the chipper, but very often are thrown out.

SHREDDING



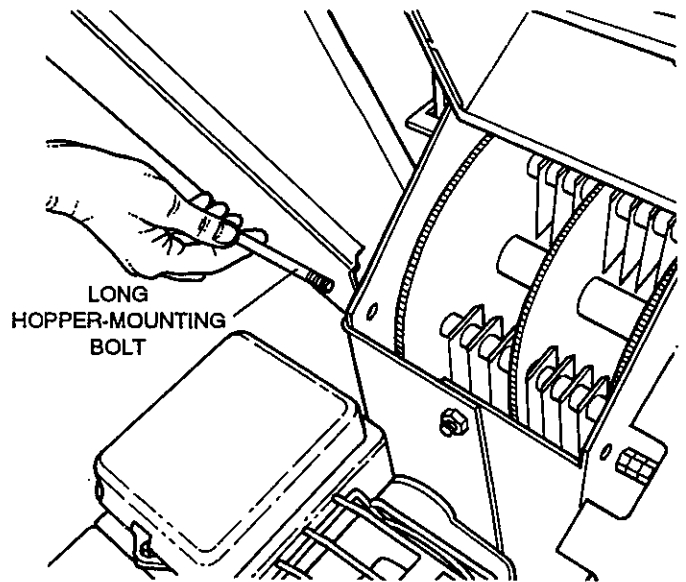
⚠ DANGER
 Shredder grasps and pulls material down into hopper with surprising speed. Do not wear rings, bracelets, jewelry, watches or any other items that could be caught in the material and draw your hands into the Shredder. Hold the material very lightly. Do not use a hard throwing or spearing force. Gloves, when worn for shredding, should be large enough to slip off your hands if caught in the material.

- Be very careful what you put into the hopper. The Shredder cannot handle cloth, string, plastics, glass, rubber, rocks or paving, brick, large wood chunks, metal, thick branches and long vines. Any material more than two centimeters (about 3/4") thick can jam the Shredder.
- Soggy soil, green garden wastes and wet grass clippings may require mixing in with some dry wood chips or leaves to avoid clogging the Shredder.
- Preparation of the material may help in feeding it through the hopper. Cutting side branches off stems, for example, helps the mass of material slide down the hopper walls. Adding too much material at a time can clog the works. Throwing

thick weeds or branches into the hopper with force overfeeds the flails (knife blades) and jams the Shredder. Rods and tubes can replace the curved "swiss cheese" screen on model Bio 100 for improved shredding of wet materials or finer chips (see "Changing Screen on Bio 100").

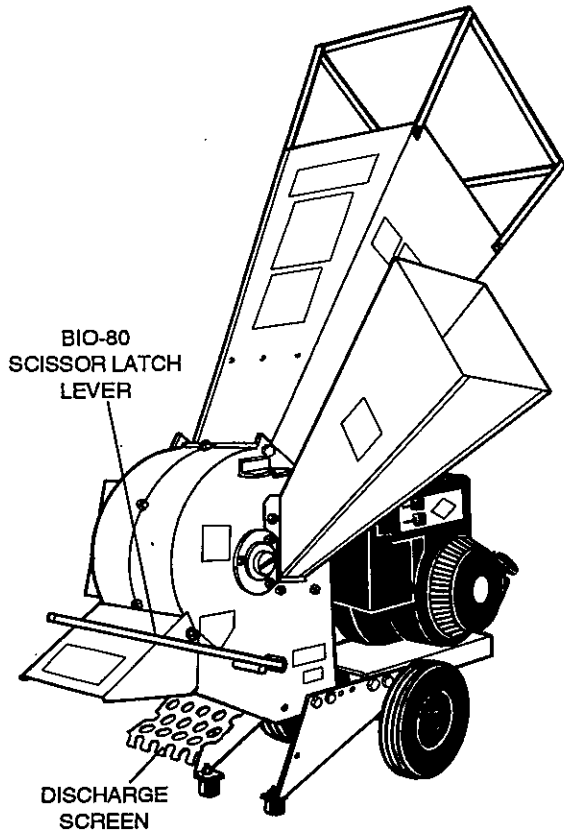
⚠ WARNING
 Always shut down the engine and wait until all movement stops before clearing the hopper or discharge screen, and before removing the hopper to remove a blockage.

- To clear Bio 80 discharge: Shut down the unit and disconnect the spark plug wire. Free up and move the screen latch lever forward to open the discharge screen. Clear out material with wooden tool handle or brush. Do not reach inside with fingers because the flails (knife blades) are very sharp. Pull the starter rope to feel whether the shafts turn freely. If so, latch screen with the lever and connect the wire to the spark plug.



- To clear Bio 80 blockage: Shut down the unit and disconnect the spark plug wire. Remove the nut and flat washer stud on the right side of the Chipper chute. Loosen the other stud nut. Remove the lock nut and flat washer from the long hopper-mounting bolt nearest the engine. Pivot the hopper forward for access to the grinding chamber. Release lever

CHANGING SCREEN ON Bio 100



to open the discharge screen (see previous paragraph). Wear heavy work gloves while clearing the blockage. Check that the engine and Chipper shafts turn freely before you reassemble hopper and chute to the unit and connect the spark plug wire.

IMPORTANT

ANY TIME THE CHIPPER/SHREDDER AND ENGINE SEEM TO BOG DOWN, SHUT DOWN THE UNIT, AND CLEAR THE GRINDING CHAMBER, PER ABOVE INSTRUCTIONS. OR SEE "TROUBLESHOOTING" ON PAGE 9 FOR POSSIBLE CAUSES AND REMEDIES.

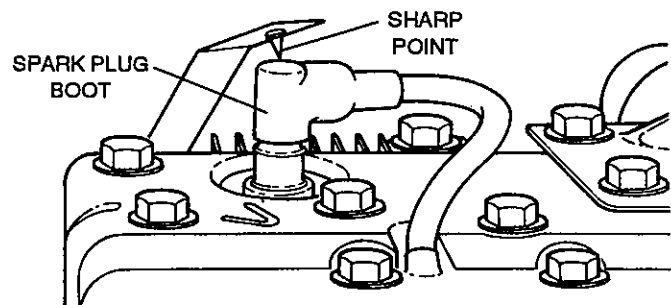
6. To clear Bio 100 discharge screen or internal blockage: These processes require temporary removal of the belt cover and the discharge screen. Removal of the hopper may be required to remove internal blockage. Removal of objects between the Chipper hopper and the rotating members, requires removing the hopper assembly, held by eight sets of M8 x 20 bolts, lock washers and hex nuts.

WARNING

On the centrifugal clutch-equipped Bio 100 the Chipper/Shredder shaft may continue to rotate silently after engine shut-down. After shutting down engine, check the paint slash on the end of the Chipper/Shredder shaft. Be sure the shaft has stopped rotating before you work on the unit.

WARNING

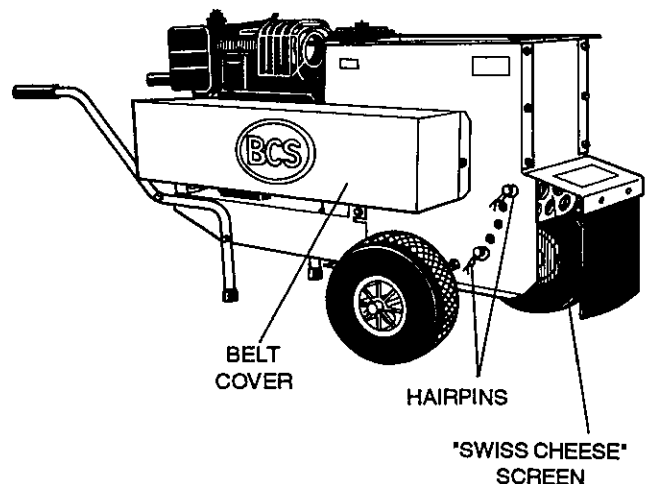
The engine-grounding lever over the spark plug boot on the Bio 100 has a sharp point to penetrate the boot and ground the ignition. Be careful of this point when disconnecting the spark plug wire.



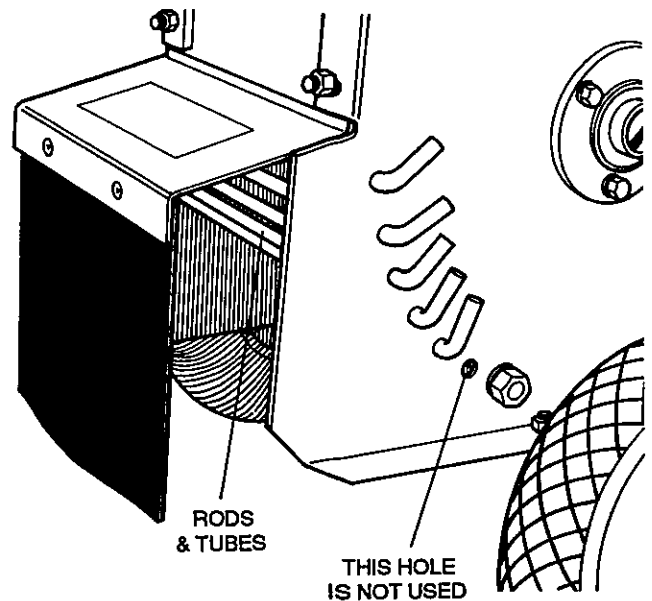
IMPORTANT

THIS DISASSEMBLY ROUTINE SHOULD BE FOLLOWED TO REMOVE THE SCREEN EITHER FOR CLEARING OUT DEBRIS OR REPLACEMENT WITH RODS AND TUBES.

1. Shut off engine, disconnect spark plug wire and wait for unit rotation to stop before doing this work.
2. Remove the belt cover, held in two places by M8 bolts, flat washers and hex nuts.



- Look at the series of six holes on the chute side of the unit. Two of these holes have long rods running through the curved discharge screen to the back of the unit. Remove the hairpins and slide out the rods. The curved screen will be replaced by five sets of rods and tubes in the next step.
- The bottom hole of the series of six will not be used. Start one rod into the top position hole. Slip a tube onto the rod and push the rod through the hole on the rear side (see figure at right). Lock in place with a hairpin. Install the four other rods and tubes in the same manner, leaving the bottom hole empty.

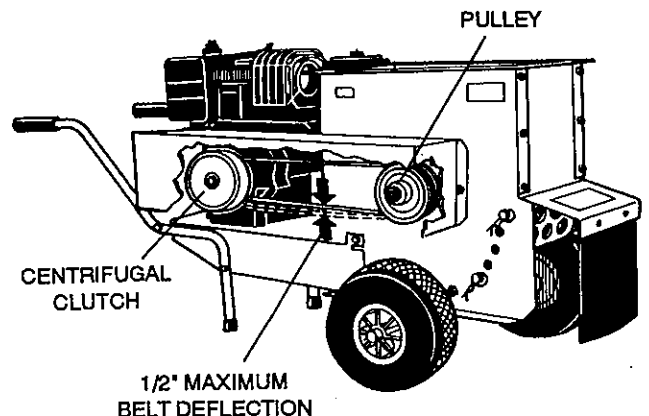


⚠ DANGER
Do not use this Chipper/Shredder with the discharge left unscreened. Discharge must be covered either with the rods and tubes or the standard screen.

MAINTENANCE, ADJUSTMENT AND TROUBLESHOOTING

⚠ WARNING
Shut off engine. Wait for the unit to stop. Then remove the spark plug wire from the spark plug before working on the unit. Do not bring fuel or a fueled engine near flame or sparks.

- Wipe exterior of the unit clean after each use. Check for loose or missing parts.
- Clean out the hopper and the discharge screen before next use.
- Do not remove the spark plug unless there is trouble starting the engine. Try starting with a new, properly gapped plug.
- If a new spark plug does no good, drain fuel tank and safely dispose of fuel that may not be fresh. Fill tank with fresh gasoline and try starting engine.
- If a new spark plug and fresh gasoline does not start the engine, consult the operator's manual supplied by the engine manufacturer. Various detailed service publications for your engine are available from the engine manufacturer.
- If Chipper/Shredder output (volume) drops off while engine runs at working speed, check tension of the drive belt. Belt should be taught enough not to slip, but not so tight as to fray. To increase belt tension: loosen the four engine mounting bolts; pull engine back on the mount to increase tension and tighten the bolts.
- On the Bio 100 only: If tightening the belt tension does not restore proper Chipper/Shredder volume, the centrifugal clutch may be worn and slipping. Have this checked by your BCS servicing dealer or authorized distributor can disassemble the unit and sharpen or replace the knives.
- Do not keep fuel in the unit for a longer than one month. Before storing the unit, disconnect the fuel line at the carburetor inlet and drain the fuel into an approved fuel container. Reconnect the fuel line start and run engine until it stops from lack of fuel. Dispose of the gasoline safely. Store unit in a well-ventilated place, protected from dampness and the weather.



USE AND CARE OF CHIPPER/SHREDDER

Be sure to read the BCS Chipper/Shredder Owner's Manual which comes with the attachment, and also obey the safety messages printed on the unit and the Chipper/Shredder attachment.

This unit reduces thick branches to chips, and pulverizes lawn and garden waste for mulching or adding to your compost pile. Careless or improper use can be very dangerous.

Wear safety goggles of the type specified by ANSI Safety Standard Z87. Also wear a hat.

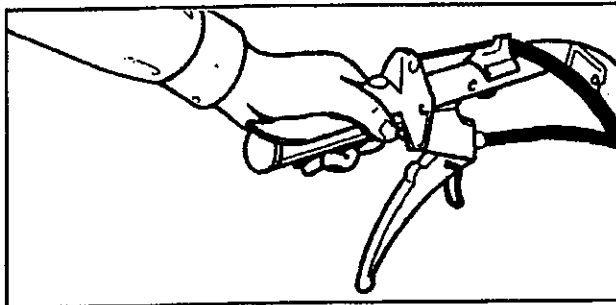
Work gloves may be worn when feeding the Chipper, but not when feeding the Shredder, because they can pull your hands into the hopper if snagged by the material.

Remove jewelry or clothing articles which could be drawn into the machine.

Set up on firm ground, but not on gravel, concrete, brick or other surfaces which provide no cushion.

▲ DANGER

Do not start engine when there is material in the Shredder. Shut off engine and disconnect the spark plug wire before cleaning a jammed hopper, changing screens or performing any maintenance or service.



After latching the clutch and stop switch and starting the engine, leave the unit in neutral.

Disengage the clutch lever while pinning down the stop switch lever (See drawing). Engage the PTO when ready to operate.

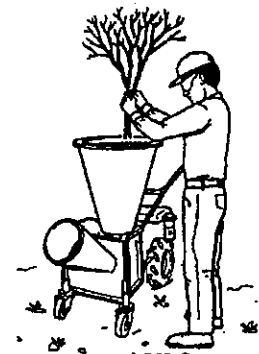
Be careful what you put into the Shredder hopper. The machine can shred most organic materials. However, objects of certain shape, size, or texture may cause trouble even if organic.

The Shredder cannot handle thick branches or large chunks of wood. Neither Shredder nor Chipper can handle cloth, string, glass, rubber, metal, rocks or paving, or long vines.



DO NOT GO ON THIS DISCHARGE SIDE OF MACHINE

DO NOT LEAN OVER THE HOPPER



Soggy soil, green garden wastes and wet grass clippings can be processed through the Shredder by mixing dry leaves and wood chips with the wet stuff.

For wet processing, the standard curved screen with the "Swiss cheese" holes should be replaced with the set of five rods and tubes supplied with the attachment.

▲ DANGER

Do not use the Chipper/Shredder with an unscreened discharge.

The discharge must be covered either with the rods and tubes or the standard screen.

IMPORTANT

Always disengage the PTO lever before stopping the engine. If the PTO remains in engagement during engine shutdown, the rotating Chipper/Shredder shaft may motorize and restart the engine.

After shutdown, always check the paint splash across the drive shaft (near Chipper chute) to be sure all movement has stopped.

CHIPPER/SHREDDER MAINTENANCE

1. Clean out the hopper before each use.
2. Clean the exterior at regular intervals, and apply a light oil or wax to prevent rust.
3. Shaft bearings are the sealed, self-lubricating type requiring no further lubrication.
4. Check all fasteners frequently and tighten loose parts.

Replace missing or worn parts. See the illustrated parts list in your Chipper/Shredder owner's manual for parts information.

BCS

WARRANTY INFORMATION

Limited Warranty

PERIOD OF WARRANTY COVERAGE

Personal, Family, or Household

The BCS No-Time-Limit Warranty is available on units sold from Sept 1992 and beyond to the original owner. The BCS No-Time-Limit Warranty applies to all transmission components. This will include all components located inside the transmission housing excluding the clutch assembly and PTO coupling.

BCS Chipper/Shredders and all remaining parts on BCS tractors and attachments are warranted for a period of three (3) years from the date of purchase.

All engines (Acme, Honda, Kohler, Briggs & Stratton, and Lombardini) are covered by a separate warranty issued by the individual engine manufacturers. Please refer to the engine warranty for details.

Commercial, Professional, and Rental Use

BCS tractors and attachments are warranted for a period of one (1) year from the date of purchase.

All engines (Acme, Honda, Kohler, Briggs & Stratton and Lombardini) are covered by a separate warranty issued by the individual engine manufacturers. Please refer to the engine warranty for details.

WARRANTY SERVICE

For warranty service, return the defective BCS product together with proof of date of purchase and the serial number of your BCS product to an authorized BCS servicing dealer or BCS factory recommended service station. Transportation of your BCS product to and from the place where warranty service is performed shall be at your expense and risk.

See the yellow pages or call (800) 543-1040 for the name and address of the BCS servicing dealer or service station near you. You may also obtain warranty information by writing:

BCS America LLC.
8111 NE Columbia Blvd.
Portland, OR. 97218

WARRANTY COVERAGE, CONDITIONS, EXCLUSIONS, AND LIMITATIONS

BCS agrees to cover the cost of parts and a specified labor for any repair from a failure that was caused in the judgment of BCS to be a defect in materials or workmanship.

This warranty is given to the first retail purchaser (other than for purposes of resale) only and is not transferable. This warranty does not cover damage resulting from other than defects in material or workmanship, or damage caused by unreasonable use including the failure to provide reasonable and necessary maintenance as prescribed in your BCS owner's manual.

This warranty does not cover tune-ups or replacement on non-defective parts that may wear out with reasonable use within the warranty period which may require replacement in connection with normal maintenance, such as, by way of example, tiller tines, lawn mower blades, clutches, and control cables.

In addition, this warranty does not cover repairs performed due to neglect, abuse or use of the equipment other than the application it is designed for.

This warranty is void if the serial number of your BCS machine is removed or defaced or if service for defects covered under this warranty is performed by other than an Authorized BCS Servicing Dealer or BCS Factory Recommended Service Station.

This warranty applies only to BCS machines sold within the United States of America and Canada.

THIS LIMITED WARRANTY IS IN LIEU OF ALL OTHER EXPRESS WARRANTIES. ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURCHASE, MERCHANTABILITY- OR OTHERWISE, APPLICABLE TO THIS PRODUCT, SHALL BE LIMITED IN DURATION TO THE DURATION OF THIS LIMITED WARRANTY. BCS SHALL NOT BE LIABLE FOR ANY SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES, WHETHER BASED ON LOST GOODWILL, LOST PROFITS, WORK STOPPAGE IMPAIRMENT OF OTHER GOODS OR OTHERWISE.

SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG ANY IMPLIED WARRANTY LASTS SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.

This warranty supersedes any other warranty on your BCS machine, including any warranty contained in your owner's manual.

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

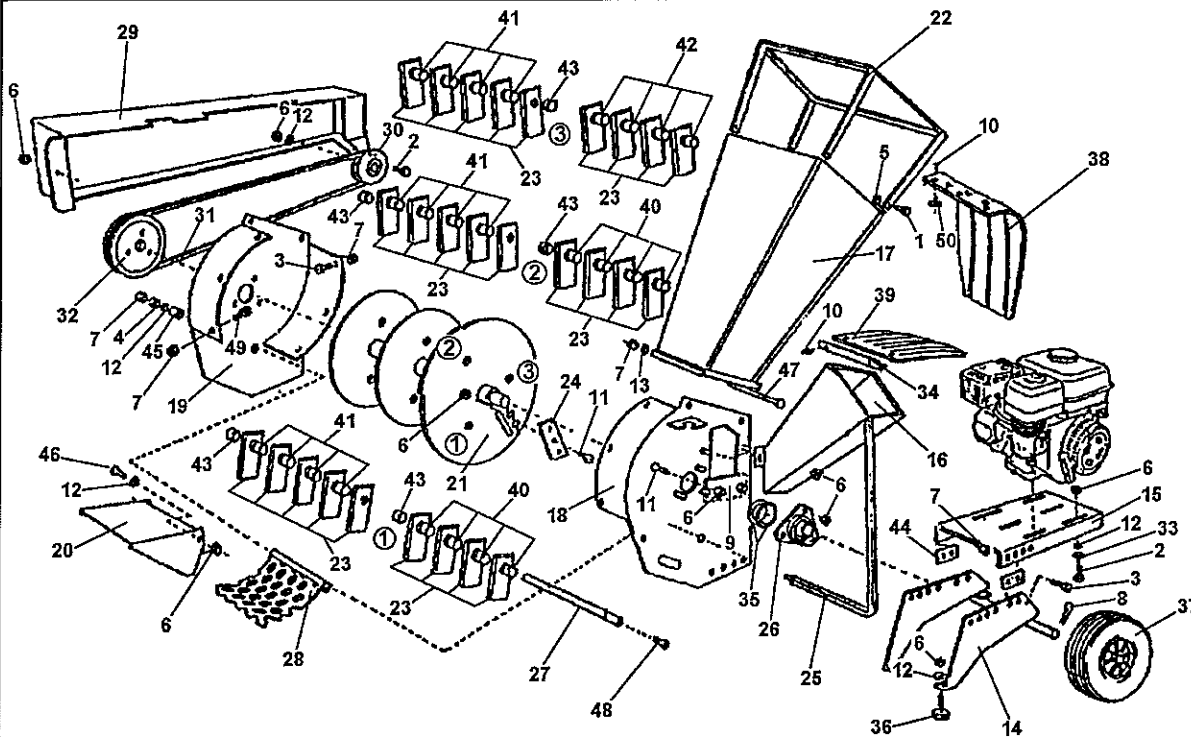
This warranty is given by BCS America LLC., 8111 NE Columbia Blvd., Portland, OR 97218
Phone: (800) 543-1040

Engine Driven
Chipper Shredder

Generation I - 5HP
Bio 80 Square Hopper

Serial Number Range

01.00



ID	PART NO	QTY	DESCRIPTION	ID	PART NO	QTY	DESCRIPTION
1	311.12090		SCREW M6X16	26	581.58212		SUPPORTS
2	311.12154		SCREW M8X40	27	581.58213		ROD
3	311.12219		SCREW M10X25	28	581.58214		SCREEN
4	312.11100		NUT M10	29	581.58215		CRANKCASE
5	312.41060		NUT, SELF LOCKING M6	30	581.58216		PULLEY
6	312.41080		NUT, SELF LOCKING M8	31	581.58217		BELT A49
7	312.41100		NUT, SELF LOCKING M10	32	581.58218		PULLEY
8	580.02052		PIN **	33	581.58219		PLATE
9	581.27424		STATIONARY BLADE	34	581.58220		ANGLE BAR
10	581.27432		RIVET 4.9X16	35	581.58221		SHIM
11	581.27433		COUNTER SUNK BOLT, M8X25	36	581.58222		RUBBER FOOT
12	581.27484		WASHER	37	581.58223		WHEELS
13	581.27491		WASHER	38	581.58224		FLAP
14	581.58200		FRAME	39	581.58225		FLAP
15	581.58201		ENGINE SUPPORT	40	581.58226		SPACER
16	581.58202		CHIPPER CHUTE	41	581.58227		SPACER
17	581.58203		HOPPER	42	581.58228		SPACER
18	581.58204		RIGHT SIDE WALL	43	581.58229		SPACER
19	581.58205		LEFT SIDE WALL	44	581.58230		SPACER
20	581.58206		FLAP	45	581.58232		SPACER
21	581.58207		FLYWHEEL	46	581.58233		SCREW M8X20
22	581.58208		PROTECTION	47	581.58234		SCREW M10X20
23	581.58209		KNIVES	48	581.58235		SCREW M10X15
24	581.58210		BLADE	49	581.58236		SCREW M10X16
25	581.58211		SCREEN LEVER	50	581.58237		FLATWASHER

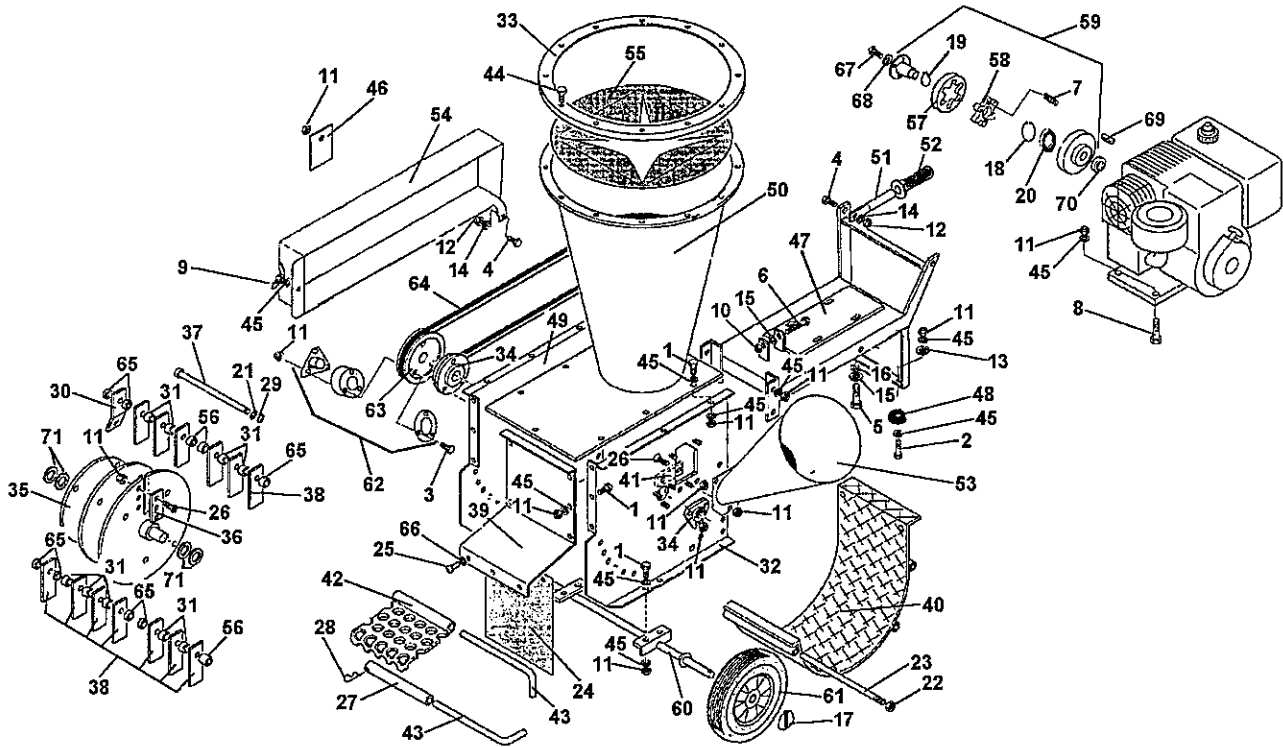
**= THESE PARTS ARE INTERCHANGEABLE WITH THE GENERATION II UNITS

Engine Driven
Chipper Shredder

Generation I - 8HP
Bio 100 Round Hopper

Serial Number Range

03.00



ID	PART NO	QTY	DESCRIPTION	ID	PART NO	QTY	DESCRIPTION
1	311.12150		SCREW, M8X20	36	581.27460		BLADE **
2	311.12153		SCREW, M8X35	37	581.27461		SHAFT HAMMER W/SNAP RING **
3	311.12157		SCREW, M8X50	38	581.27462		KNIVES **
4	311.12211		SCREW, M10X30	39	581.27470		DEFLECTOR, DISCHARGE **
5	311.12266		SCREWM12X16	40	581.27471		PANEL, BOTTOM **
6	311.12705		SCREW, M12X140	41	581.27474		BLADE STATIONARY **
7	311.52060		SCREW, M6X30	42	581.27475		SCREEN **
8	311.52083		SCREW, M8X30	43	581.27476		ROD **
9	312.00501		"W" NUT	44	581.27479		SCREW, M6.3X19
10	312.11120		NUT, M12	45	581.27484		WASHER
11	312.41080		NUT, SELF LOCKING, M8	46	581.27496		PLATE
12	312.41100		NUT, SELF LOCKING	47	581.58201R		ENGINEPLATE
13	314.11090		WASHER, FLAT, M8.4	48	581.58222R		RUBBERFOOT
14	314.11105		WASHER	49	581.58251		LEFT SIDE WALL
15	314.11130		WASHER, FLAT, M13	50	581.58252		HOPPER
16	314.23130		WASHER, LOCK, M13	51	581.58253R		HANDLE STEM
17	342.40001		QUICKPIN	52	581.58255R		HANDLE KNOB
18	351.11062		CIRCLIP, LARGE, CLUTCH	53	581.58257		CHIPPERCHUTE, ROUND
19	351.21035		CIRCLIP, CLUTCH	54	581.58259		BELT CRANKCASE
20	371.12335		BEARING, M35X62X14, CLUT	55	581.58260R		HOPPER FLAP
21	563.48597		WASHER	56	581.58262		SPACER
22	581.27427		NUT, M12	57	581.58263		CLUTCH LINING
23	581.27428		ROD	58	581.58263R		STAR, CLUTCH
24	581.27431		SHIELD **	59	581.58264		CLUTCH ASSEMBLY
25	581.27432		RIVET, 4.9X16	60	581.58265		WHEEL SUPPORT
26	581.27433		COUNTER SUNK BOLT, M8X25	61	581.58266		WHEELS
27	581.27436		SLEEVE	62	581.58267		PULLEY ASSEMBLY
28	581.27437		COTTERPIN	63	581.58267R		PULLEY, PULLEY ONLY
29	581.27439		CIRCLIP	64	581.58268		BELT
30	581.27440		L BLADE **	65	581.58269		WASHER
31	581.27441		SPACER **	66	581.58270		WASHER
32	581.27453		RIGHT SIDE WALL	67	581.58271		SCREW
33	581.27454R		DEFLECTOR SUPPORT	68	581.58273		WASHER
34	581.27458		SUPPORT & BEARING **	69	581.58274		KEY
35	581.27459		DRUM	70	581.58275		SPACER
				71	581.58277		SHIM

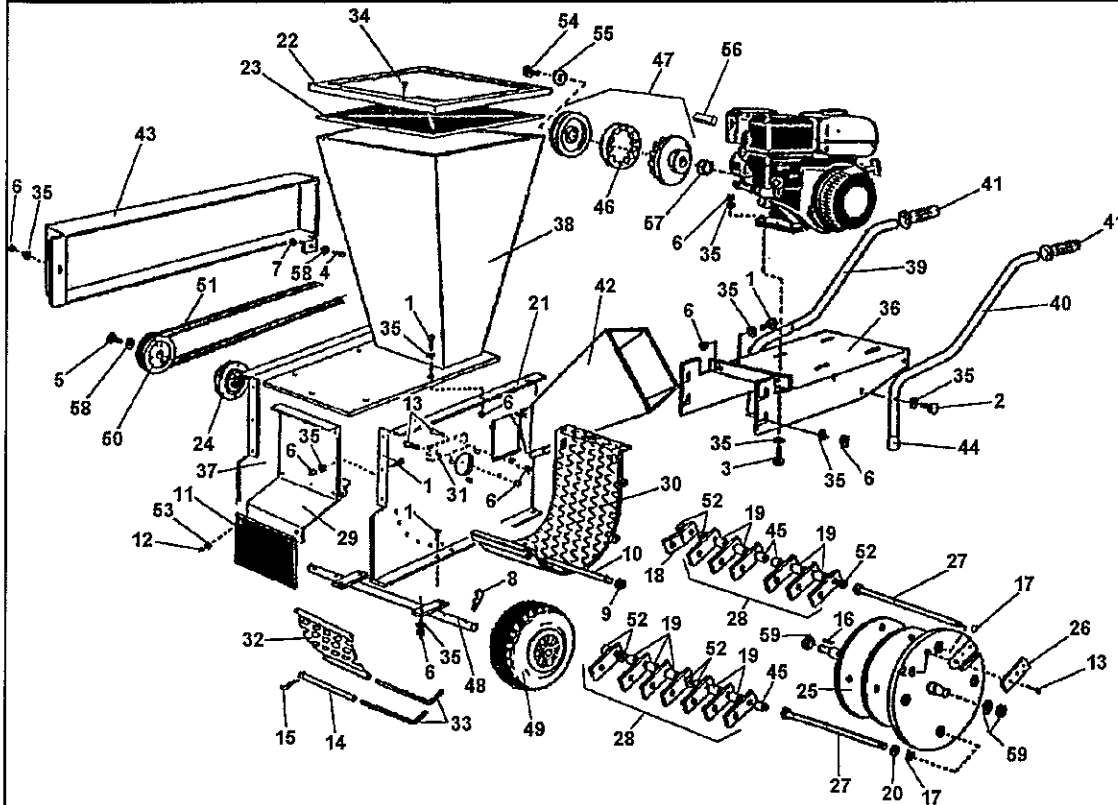
**= THESE PARTS ARE INTERCHANGEABLE WITH THE GENERATION II UNITS

Engine Driven
Chipper Shredder

Generation I - 8HP
Bio 100 Square Hopper

Serial Number Range

02.00



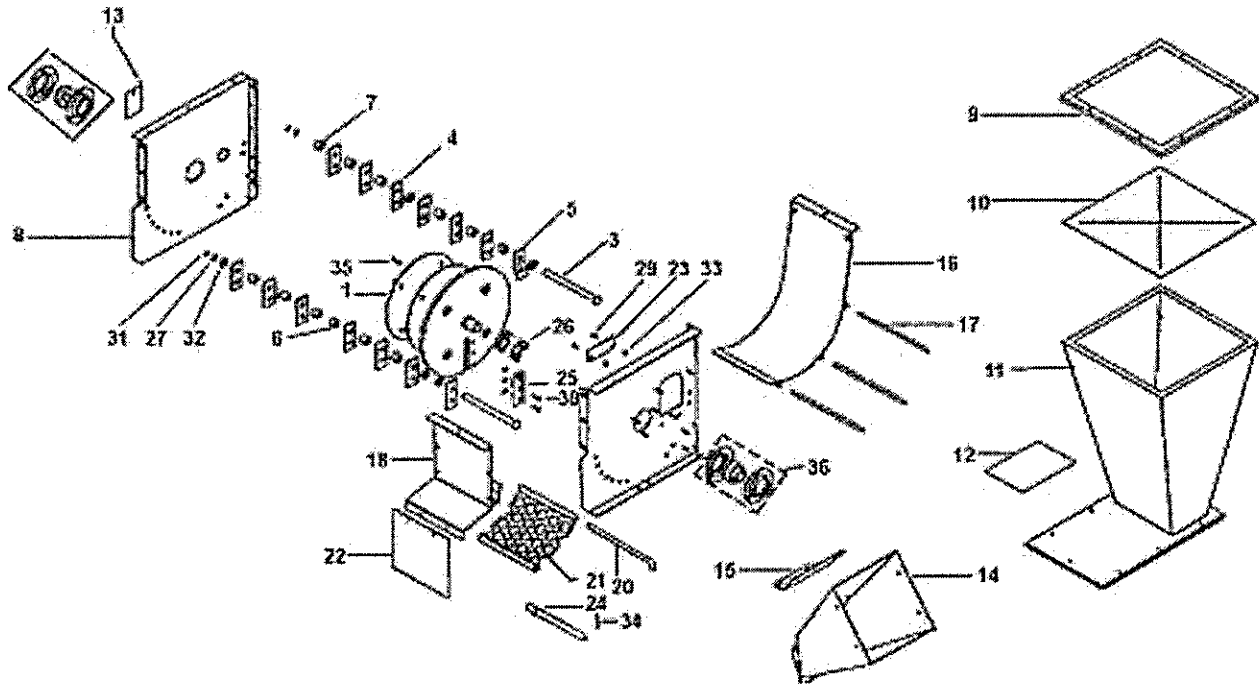
ID	PART NO	QTY	DESCRIPTION	ID	PART NO	QTY	DESCRIPTION
1	311.12150		SCREW, M8X20	31	581.27474		BLADE STATIONARY**
2	311.12154		SCREW, M8X40	32	581.27475		SCREEN **
3	311.12161		SCREW, M8X50	33	581.27476		ROD **
4	311.12211		SCREW, M10X30	34	581.27479		SCREW, M6.3X19
5	311.12219		SCREW M10X25	35	581.27484		WASHER
6	312.41080		NUT, SELF LOCKING, M8	36	581.58250		ENGINE PLATE
7	312.41100		NUT, SELF LOCKING, M10	37	581.58251		LEFT SIDE WALL
8	580.02052		PIN **	38	581.58252		HOPPER
9	581.27427		NUT, M12	39	581.58253		RIGHT HANDLE STEM
10	581.27428		ROD	40	581.58254		LEFT HANDLE STEM
11	581.27431		SHIELD **	41	581.58255		HANDLE KNOB
12	581.27432		RIVET, 4.9X16	42	581.27451		CHIPPER CHUTE, SQUARE
13	581.27433		COUNTER SUNK BOLT, M8X25	43	581.58259		BELT CRANKCASE
14	581.27436		SLEEVE	44	581.58261		RUBBER FOOT
15	581.27437		COTTER PIN	45	581.58262		SPACER
16	581.27438		KEY	46	581.58263		CLUTCH LINING
17	581.27439		CIRCLIP	47	581.58264		CLUTCH ASSEMBLY
18	581.27440		L BLADE **	48	581.58265		WHEEL SUPPORT
19	581.27441		SPACER **	49	581.58266		WHEELS
20	581.27442		SPACER	50	581.58267		PULLEY ASSEMBLY
21	581.27453		RIGHT SIDE WALL	51	581.58268		BELT
22	581.27454		DEFLECTOR SUPPORT **	52	581.58269		WASHER
23	581.27455		HOPPER FLAP **	53	581.58270		WASHER
24	581.27458		SUPPORT & BEARING **	54	581.58271		SCREW
25	581.27459		DRUM **	55	581.58273		WASHER
26	581.27460		BLADE **	56	581.58274		KEY
27	581.27461		SHAFT HAMMER W/SNAP RING **	57	581.58275		SPACER
28	581.27462		KNIVES **	58	581.58276		WASHER
29	581.27470		DEFLECTOR, DISCHARGE **	59	581.58277		SHIM
30	581.27471		PANEL, BOTTOM**				**= THESE PARTS ARE INTERCHANGEABLE WITH THE GENERATION II UNITS

**Chipper
Shredder**

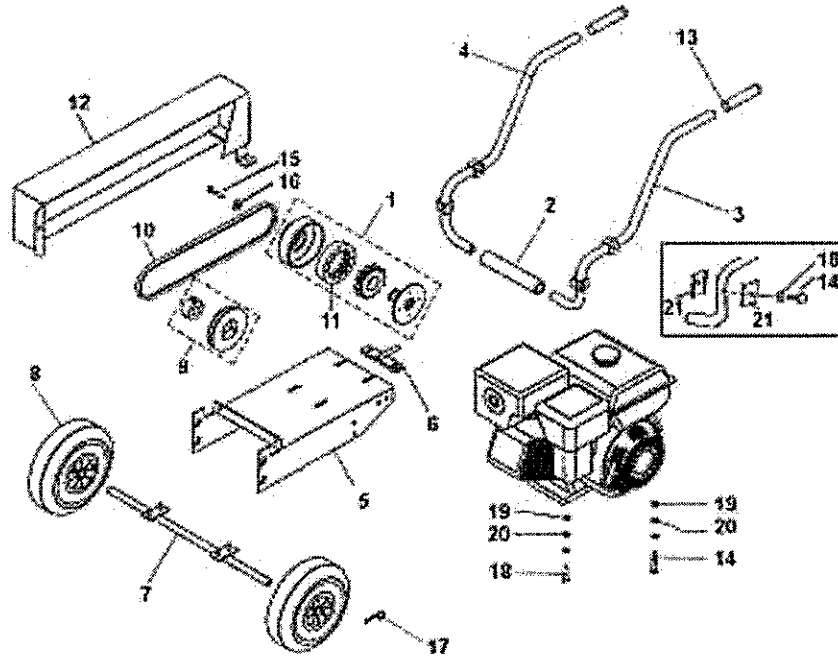
**Generation II
Chipper Unit**

**Serial Number Range
915694 +**

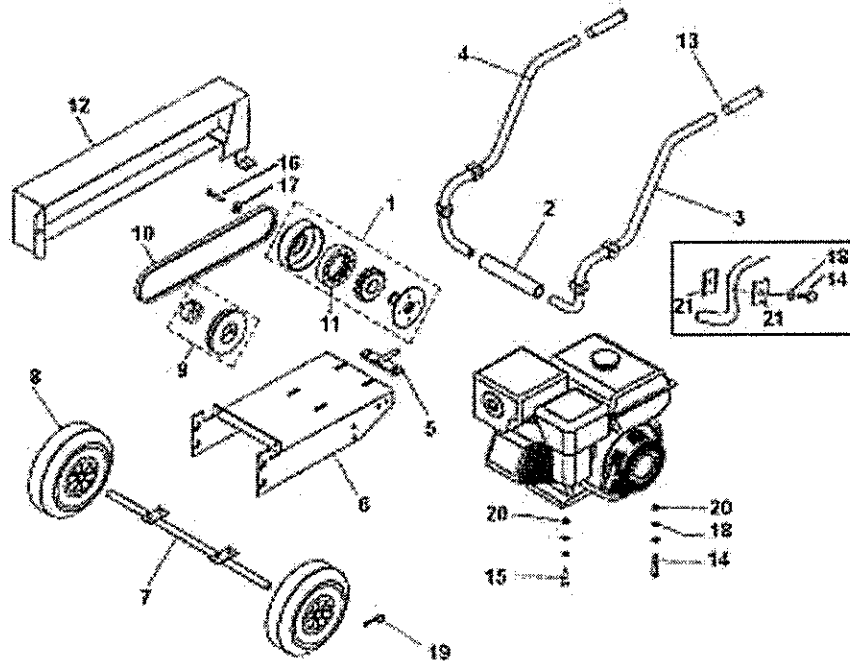
04.00



ID	PART NO	QTY	DESCRIPTION	ID	PART NO	QTY	DESCRIPTION
1	010101000	1	ROTOR	21	012800000	1	SCREEN
NI	010101001	1	ROTOR COMPLETE	22	012900000	1	SHEILD
3	010102000	4	SHAFT, HAMMER	23	013000000	1	BLADE, STATIONARY
4	010103000	26	HAMMER, STRAIGHT	24	013200000	5	SLEEVE
5	010104000	2	HAMMER, L-SHAPED	25	013300000	1	BLADE
6	010105000	16	SPACER	26	021100002		
7	010108001	12	SPACER	27	080009016	4	SHIM
8	010141000	1	PANEL	NI	205000000	1	
9	010300000	1	DEFLECTOR SUPPORT	29	500011008	2	BOLT
10	010302000	1	HOPPER FLAP	30	500012008	3	BOLT
11	010304000	1	HOPPER	31	510012000	4	CIRCLIP
12	010610000	1	DECAL	32	511120020	10	WASHER
13	011300000	1		33	520002008	3+2	NUT
14	011800050	1	CHIPPER CHUTE	34	530003000	5	COTTER PIN
15	011800051	1	SUPPORT PLATE, CHUTE	35	530004000	1	KEY
16	012000000	1	PANEL, BOTTOM	36	550002030	2	BEARING ASSEMBLY
17	012100000	3	SLEEVE				
18	012200000	1	DISCHARGE DEFLECTOR				
19	012500001	1	PANEL				
20	012700000	5	ROD				



ID	PART NO	QTY	DESCRIPTION	ID	PART NO	QTY	DESCRIPTION
1	013800000	1	CLUTCH COMPLETE	16	510000843	1	WASHER
2	013900001	1	RUBBER HOSE	17	520001000	4	LYNCH PIN
3	014300252	1	HANDLEBAR LH	18	520002510	2	BOLT M10X50 HONDA
4	014300253	1	HANDLEBAR RH	19	520007010	4	BLOCK M10 HONDA
5	014500001	1	DECK, ENGINE SUPPORT HONDA	20	530001800	6	WASHER M10 HONDA
6	014500005	1	BELT TENSIONER	21	013900008	8	BLOCK
7	014600000	1	AXLE, WHEEL	PLEASE NOTE THAT REF# 21 WAS ONLY USED ON A FEW EARLY UNITS, AFTER THAT REF #21 WAS WELDED TO THE INDIVIDUAL HANDLEBARS.			
8	014700000	2	WHEEL				
9	014800000	1	PULLEY WTAPER LOCK				
10	014900056	1	BELT, HONDA				
11	019400000	1	CLUTCH RUBBER, STAR				
12	019700000	1	BELT SHIELD HONDA				
13	020903000	2	HANDLE GRIP				
14	500001060	2	BOLT M10X60 HONDA				
15	507160134	1	BOLT 7/16X 1.5" UNF HONDA				



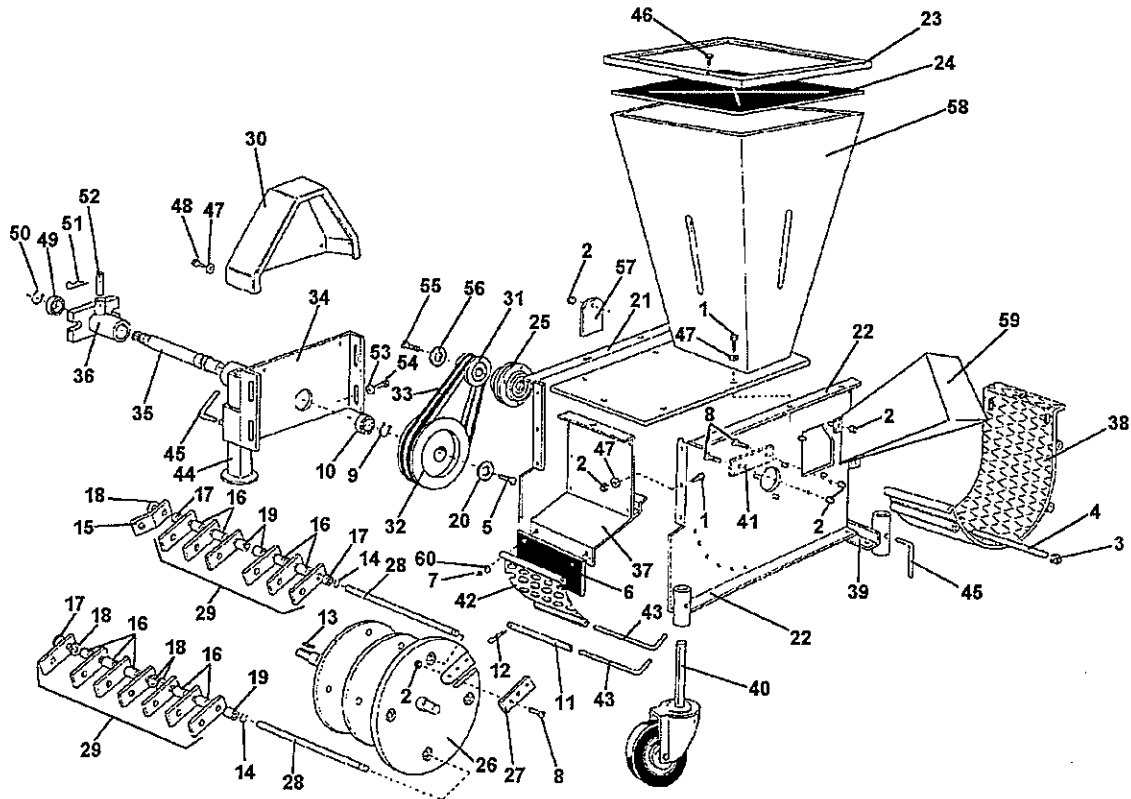
ID	PART NO	QTY	DESCRIPTION	ID	PART NO	QTY	DESCRIPTION
1	013800000	1	CLUTCH COMPLETE	16	503800112	1	BOLT 3/8 X 1.5" UNF, B&S
2	013900001	1	RUBBER HOSE	17	510000843	1	WASHER
3	014300252	1	HANDLEBAR LH	18	314.11090	6	WASHER M8
4	014300253	1	HANDLEBAR RH	19	520001000	4	LYNCH PIN
5	014500005	1	BELT TENSIONER	20	520002008	4	BLOCK B&S
6	014500011	1	DECK, ENGINE SUPPORT B&S	21	013900008	8	BLOCK
7	014600000	1	AXLE, WHEEL				
8	014700000	2	WHEEL				
9	014800000	1	PULLEY W TAPER LOCK				
10	014900052	1	BELT B&S				
11	019400000	1	CLUTCH RUBBER, STAR				
12	019700001	1	BELT SHIELD B&S				
13	020903000	2	HANDLE GRIP				
14	500070000	6	BOLT M8X60 B&S				
15	501840010	2	BOLT M8X40, B&S				
							PLEASE NOTE THAT REF# 21 WAS ONLY USED ON A FEW EARLY UNITS, AFTER THAT REF #21 WAS WELDED TO THE INDIVIDUAL HANDLEBARS.

Chipper Shredder

Bio 100 Attachment Square Hoppers

Serial Number Range All Attach, Square Hoppers

01.00



ID	PART NO	QTY	DESCRIPTION	ID	PART NO	QTY	DESCRIPTION
1	311.12150		SCREW, M8X20	31	581.27464		PULLEY **
2	312.41080		NUT, SELF LOCKING, M8	32	581.27465		PULLEY **
3	581.27427		NUT, M12	33	581.27466		BELT
4	581.27428		ROD	34	581.27467		REAR SUPPORT **
5	581.27430		SCREW, M8X20	35	581.27468		DRIVE SHAFT FOR SPLINE DRIVE
6	581.27431		SHIELD **	36	581.27469		SUPPORT **
7	581.27432		RIVET, 4.9X16	37	581.27470		DEFLECTOR, DISCHARGE **
8	581.27433		COUNTER SUNK BOLT, M8X25	38	581.27471		PANEL, BOTTOM **
9	581.27434		CIRCLIP	39	581.27472		SUPPORT
10	581.27435		BEARING	40	581.27473		WHEEL ASSEMBLY
11	581.27436		SLEEVE	41	581.27474		BLADE STATIONARY **
12	581.27437		COTTER PIN	42	581.27475		SCREEN **
13	581.27438		KEY	43	581.27476		ROD **
14	581.27439		CIRCLIP	44	581.27477		STAND **
15	581.27440		L BLADE **	45	581.27478		ADJUSTING SCREW **
16	581.27441		SPACER **	46	581.27479		SCREW, M6.3X19
17	581.27442		SPACER	47	581.27484		WASHER
18	581.27443		SPACER	48	581.27485		SCREW M8X16
19	581.27444		SPACER	49	581.27487		BEARING
20	581.27447		WASHER **	50	581.27488		CIRCLIP
21	581.27452		PANEL	51	581.27489		COTTER PIN
22	581.27453		RIGHT SIDE WALL	52	581.27490		PIN **
23	581.27454		DEFLECTOR SUPPORT **	53	581.27491		WASHER
24	581.27455		HOPPER FLAP **	54	581.27492		SCREW M10X25
25	581.27458		SUPPORT & BEARING **	55	581.27493		SCREW M10X30
26	581.27459		DRUM **	56	581.27494		WASHER
27	581.27460		BLADE **	57	581.27496		PLATE
28	581.27461		SHAFT HAMMER W/SNAP RING **	58	581.58252		HOPPER
29	581.27462		KNIVES **	59	581.27451		CHIPPER CHUTE, SQUARE
30	581.27463		BELT COVER **	60	581.58270		WASHER
				61	581.90471		DRIVE SHAFT FOR 3 DOG DRIVE

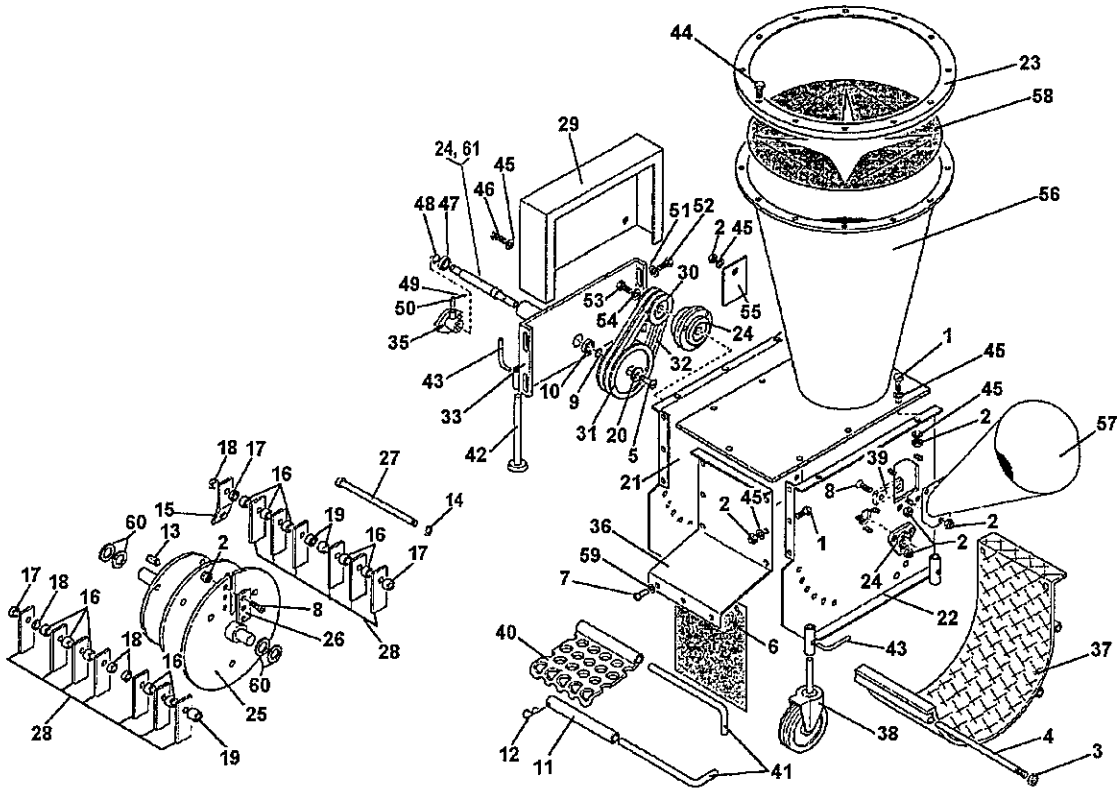
**= THESE PARTS ARE INTERCHANGEABLE WITH THE GENERATION II UNITS

**Chipper
Shredder**

**Bio 100 Attachment
Round Hoppers**

**Serial Number Range
All Attach, Round Hoppers**

02.00



ID	PART NO	QTY	DESCRIPTION	ID	PART NO	QTY	DESCRIPTION
1	311.12150		SCREW, M8X20	31	581.27465		PULLEY **
2	312.41080		NUT, SELF LOCKING, M8	32	581.27466		BELT
3	581.27427		NUT, M12	33	581.27467		REAR SUPPORT **
4	581.27428		ROD	34	581.27468		DRIVE SHAFT
5	581.27430		SCREW, M8X20	35	581.27469		SUPPORT **
6	581.27431		SHIELD **	36	581.27470		DEFLECTOR, DISCHARGE **
7	581.27432		RIVET, 4.9X16	37	581.27471		PANEL, BOTTOM **
8	581.27433		COUNTER SUNK BOLT, M8	38	581.27473		WHEEL ASSEMBLY
9	581.27434		CIRCLIP	39	581.27474		BLADE STATIONARY **
10	581.27435		BEARING	40	581.27475		SCREEN **
11	581.27436		SLEEVE	41	581.27476		ROD **
12	581.27437		COTTER PIN	42	581.27477		STAND **
13	581.27438		KEY	43	581.27478		ADJUSTING SCREW **
14	581.27439		CIRCLIP	44	581.27479		SCREW, M6.3X19
15	581.27440		L BLADE **	45	581.27484		WASHER
16	581.27441		SPACER **	46	581.27485		SCREW M8X16
17	581.27442		SPACER	47	581.27487		BEARING
18	581.27443		SPACER	48	581.27488		CIRCLIP
19	581.27444		SPACER	49	581.27489		COTTER PIN
20	581.27447		WASHER **	50	581.27490		PIN **
21	581.27452		PANEL	51	581.27491		WASHER
22	581.27453		RIGHT SIDE WALL	52	581.27492		SCREW M10X25
23	581.27454R		DEFLECTOR SUPPORT	53	581.27493		SCREW M10X30
24	581.58258		SUPPORT & BEARING **	54	581.27494		WASHER
25	581.27459		DRUM **	55	581.27496		PLATE
26	581.27460		BLADE **	56	581.58252		HOPPER
27	581.27461		SHAFT HAMMER W/SNAP RING **	57	581.58257		CHIPPER CHUTE
28	581.27462		KNIVES **	58	581.58260R		HOPPER FLAP
29	581.27463		BELT COVER **	59	581.58270		WASHER
30	581.27464		PULLEY **	60	581.58277		SHIM

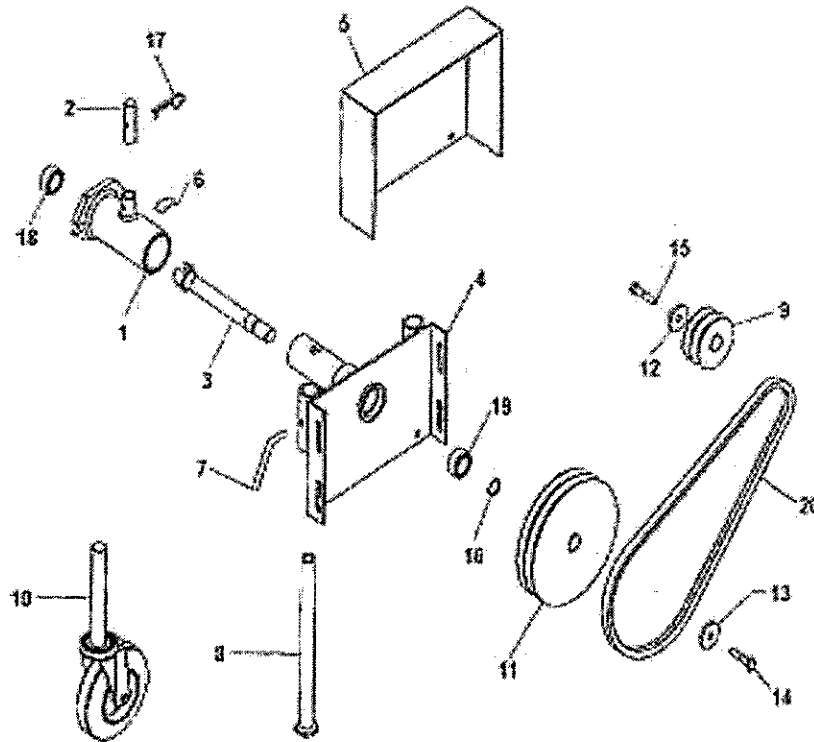
**= THESE PARTS ARE INTERCHANGEABLE WITH THE GENERATION II UNITS

**Chipper
Shredder**

**Generation II
PTO Drive**

**Serial Number Range
915694 +**

03.00



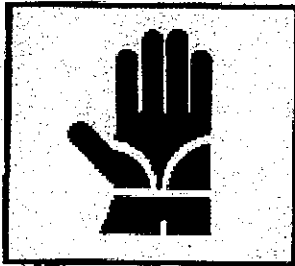
ID	PART NO	QTY	DESCRIPTION	ID	PART NO	QTY	DESCRIPTION
1	010201000	1	PTO ADAPTER FLANGE	11	013100000	1	PULLEY
2	010202000	1	PIN	12	013500000	1	WASHER
3	010203030	1	PTO DRIVE SHAFT 3 DOG	13	013600000	1	WASHER
4	010204000	1	ADAPTER PLATE	14	500010010	1	BOLT
5	010700000	1	SHIELD	15	500012008	1	BOLT
6	010900000	1	DECAL	16	510011000	1	SNAPRING
7	011000000	4	LOCKING HANDLE	17	530001000	1	LYNCHPIN
8	011100000	2	STABILIZER LEG	18	540001000	1	BEARING
9	011200000	1	PULLEY	19	540002000	1	BEARING
10	012600000	2	CASTER WHEEL ASSEMBLY	20	620002034	2	BELT

Chipper Shredder Decal Sheet Part 1
581.27445

OPERATING INSTRUCTIONS

1. READ SAFETY RULES AND OPERATING INSTRUCTIONS BEFORE STARTING UNIT.
2. KEEP HANDS, FACE, CLOTHING, CHILDREN AND PETS AWAY FROM INTAKE HOPPER, DISCHARGE AREA AND MOVING PARTS.
3. USE APPROVED SAFETY GLASSES AND GLOVES. AVOID WEARING LOOSE-FITTING CLOTHING.
4. IF UNIT JAMS, TURN POWER OFF, DISCONNECT SPARK PLUG WIRE AND MAKE SURE ALL MOVING PARTS HAVE COME TO A COMPLETE STOP. USE ONLY A WOODEN STICK TO CLEAR.
5. KEEP ALL SHIELDS IN PLACE.
6. DO NOT: • USE HANDS TO CLEAN DISCHARGE AREA
DO NOT: • INSTALL RODS, SCREEN, ADJUST OR SERVICE WHILE OPERATING;
DO NOT: • OPERATE ON UNEVEN GROUND, OR PAVED OR GRAVEL SURFACE.
DO NOT: • OPERATE GAS UNIT IN ENCLOSED AREA.

FAILURE TO HEED MAY RESULT IN
SERIOUS PERSONAL INJURY



⚠ DANGER
ROTATING CHIPPER
BLADE CAN CAUSE
SERIOUS PERSONAL
INJURY. DO NOT
OPERATE UNLESS
CHIPPER CHUTE IS
BOLTED IN PLACE.

⚠ DANGER
MAXIMUM
ALLOWABLE
CHIPPING
DIAMETER:

3"



Chipper Shredder Decal Sheet Part 2

581.27445

⚠ DANGER

ROTATING CUTTING BLADES.
KEEP HANDS AND FEET OUT
OF INLET AND DISCHARGE
OPENINGS WHILE MACHINE
IS RUNNING TO AVOID
SERIOUS PERSONAL INJURY.

NO HANDS BELOW THIS LINE

⚠ WARNING

DO NOT START ENGINE UNLESS BELT
COVER IS ATTACHED. Failure to Comply
Could Result in Personal Injury From Moving
Belt And Pulleys. See Owner's Manual For
Full Safety And Maintenance Instructions.

⚠ DANGER
KEEP HANDS AND FEET AWAY



⚠ DANGER

Rotating Cutter Blades Slow
Gradually After Engine Is Off And
Clutch Lever Is Disengaged.
To Avoid Personal Injury Let
Blades Stop Completely.

MADE IN ITALY

BCS America LLC.
8111 NE Columbia Blvd.
Portland, OR. 97218