

SHREDDER/CHIPPER

SAFETY AND OPERATING INSTRUCTION MANUAL

MODEL:

SC1650E



This manual contains information concerning proper and improper operation procedures, warnings, maintenance, troubleshooting, and assembly tips. Everyone who operates this machine should read these instructions and be thoroughly familiar with them.

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SECTION I – SAFETY



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 shredder/chipper. Failure to comply with these instructions may result in personal injury. When you see this symbol - **heed its warning**.

THIS MACHINE IS CAPABLE OF INFLICTING SERIOUS INJURY IF OPERATED IMPROPERLY -- READ WARNINGS & CAUTION LABELS.

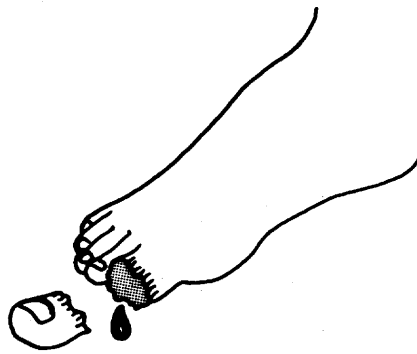
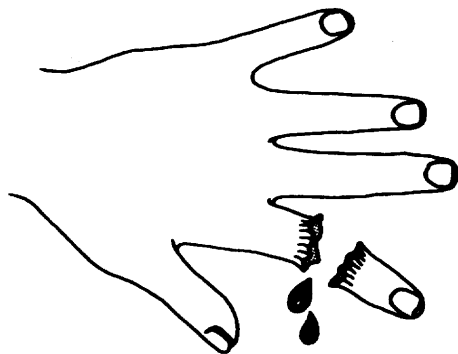
INTENDED USE

Never use your shredder/chipper for any other purpose than shredding and chipping limbs or other lawn and garden debris. It is designed for this use and any other use may cause serious injury.



DANGER: *Rotating cutting blade.*

Keep hands and feet out of inlet and discharge opening while machine is running.

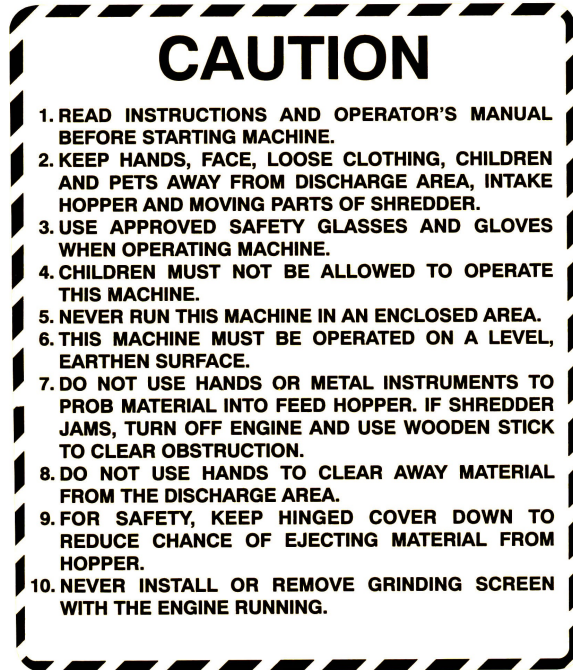


DANGER: This machine can **CRUSH, GRIND, CUT,** and **SEVER** parts of your body if they enter the inlet or discharge area of your shredder/chipper.



DANGER: Your shredder/chipper 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.** If you violate any of these rules, you may cause serious injury to yourself or others.

MAKE CERTAIN THAT ALL SAFETY LABELS ON THIS EQUIPMENT ARE KEPT CLEAN AND IN GOOD CONDITION. IF YOU NEED REPLACEMENT LABELS, ORDER BY PART NUMBER.



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080-0967



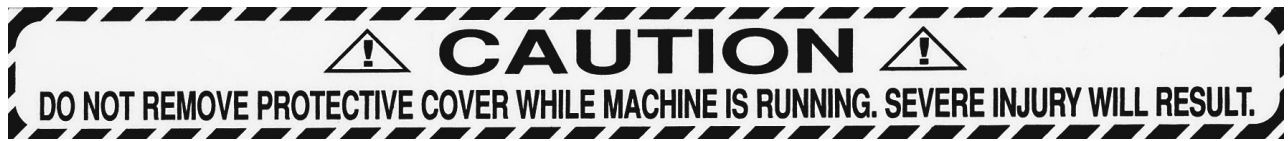
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091-0059



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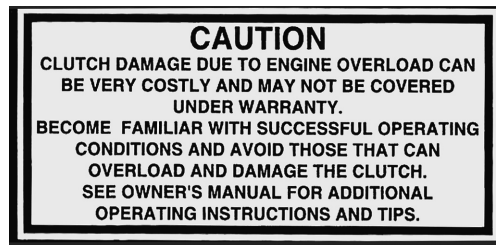
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091-0380



091-0381



913-0265



091-0044

SAFE OPERATION PRACTICES

TRAINING

- Read this owner's manual carefully in its entirety before attempting to assemble this machine. Read, understand, and follow all instructions on the machine 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.
- Know how to stop the unit and disengage the controls quickly.
- Never allow children to operate the unit. Never allow adults to operate the equipment without proper instruction. Only responsible individuals who are familiar with these rules of safe operation should be allowed to use your unit.
- 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. Keep work area clean and clear of branches or obstacles, which could cause you to stumble or fall.
- Keep in mind that the operator or user is responsible for accidents or hazards occurring to other people, their property, and themselves.
- Your shredder/chipper is a powerful tool, not a plaything. Exercise extreme caution at all times. Your unit has been designed to shred and chip. Do not use it for any other purpose.
- If situations occur which are not covered in this manual, use care and good judgment. Contact your place of purchase for additional assistance.

PREPARATION

- Thoroughly inspect the area where the equipment is to be used and remove all foreign objects.
- Do not operate the machine without wearing adequate outer garments and safety goggles. Always wear safety glasses or goggles during operation and while performing any adjustment or repair, to protect eyes from foreign objects that may be thrown from the machine. Be sure your glasses or goggles fit properly.
- Avoid loose-fitting clothes and use protective footwear that will improve footing on slippery surfaces. Shirt and slacks that cover the arms and legs and steel-toed shoes are recommended. Secure hair above shoulders. Do not wear loose clothes or jewelry that can be caught in moving parts. Never operate a unit in bare feet, sandals or sneakers. Wear gloves when feeding material into the shredder hopper or chipper chute. Be sure your gloves fit properly and do not have loose cuffs or drawstring.
- Warning: Fuel is highly flammable and the vapors are explosive. Take the following precautions.
 - Store fuel and oil in approved containers.
 - Keep away from heat and open flame, and out of the reach of children.
 - Refuel outdoors only and do not smoke while refueling.
 - Check and add fuel before starting the engine. Never remove gas cap or add fuel while the engine is running or when the engine is hot. Allow engine to cool before refueling.
 - If fuel is spilled, do not attempt to start the engine but move the machine away from the area of spillage and avoid creating any source of ignition until fuel vapors have disappeared.
 - Replace all fuel tank and container caps securely.
 - Never store the machine or fuel container inside where there is an open flame or spark, such as a gas hot water heater, space heater, clothes dryer or furnace.
 - To reduce fire hazard, keep engine and muffler free of debris build-up. Clean up fuel and oil spillage. Allow unit to cool at least five minutes before storing.
- Never attempt to make any adjustments while the engine is running.

OPERATION

- Never place your hands, feet, or any part of your body in the shredder hopper, chipper chute, discharge opening, or near or under any moving part while the shredder/chipper is running. Keep clear of the discharge opening at all times. If it becomes necessary to push material into the shredder hopper or chipper chute, use a small diameter stick, NOT YOUR HANDS.
- Keep your face and body back from the shredder hopper and chipper chute to avoid accidental bounce back of any material.
- The machine should only be operated on a level surface. Never operate your unit on a slippery, wet, muddy, or icy surface.
- Exercise caution to avoid slipping or falling.
- Stay alert for hidden hazards or traffic. Do not carry passengers.
- If the cutting mechanism strikes a foreign object or if your machine should start making an unusual noise or vibration, immediately stop the engine, remove the spark plug wire(s) and wait for all moving parts to come to a complete stop. After the machine has come to a complete stop proceed as follows:
 - Inspect for any damage.
 - Repair or replace any damaged parts before restarting and operating the machine.
- If the machine should start to vibrate abnormally, immediately stop the engine, remove the spark plug wire(s) and wait for all moving parts to come to a complete stop and inspect for the cause. Vibration is generally a warning sign of trouble.
- Stop the engine when leaving the operating position, and when making any repairs, adjustments and inspections.
- Take all possible precautions as recommended by the manufacturer when leaving the machine unattended. Stop the engine and remove the key if so equipped.
- Before cleaning, repairing, or inspecting, shut off the engine and make certain the flywheel and all moving parts have come to a complete stop. Disconnect the spark plug wire and keep the wire away from spark plug to prevent accidental starting. Do not use flammable solutions to clean air filter.
- Never run this machine in an enclosed area as the exhaust from the engine contains carbon monoxide, which is an odorless, tasteless, and deadly poisonous gas.
- Keep all guards and safety devices in place and operating properly. Do not operate the machine if all safety guards are not in place.
- Do not use the unit with the shredder hopper or chipper hopper removed.
- The muffler and engine become hot and can cause a severe burn. Do not touch.
- Keep children and pets away.
 - Tragic accidents can occur if the operator is not alert to the presence of small children.
 - Keep children out of the work area and under the watchful eye of a responsible adult other than the operator.
 - Be alert and turn the unit off if a child enters the area.
 - Never allow children to operate the shredder/chipper.
- Do not overload or attempt to shred or chip material beyond manufacturers recommendation. Personal injury or damage to the machine could result.
- Never operate the machine at high transport speeds or on hard or slippery surfaces.
- Never allow bystanders near the unit while running.
- Only use accessories approved for this machine by the manufacturer. Read, understand, and follow all the instructions provided with the approved accessory.
- Only operate unit in good daylight. Do not operate unit at night or in dark areas where your vision may be impaired.
- Use extreme caution when reversing or pulling the machine towards you.
- Do not tamper with the engine's governor setting. The governor controls the maximum safe operation speed and protects the engine. Over-speeding the engine is dangerous and will cause damage to the engine and to the other moving parts of the machine. See your authorized dealer for engine governor adjustments.
- Start the engine according to the manufacturer's instructions. Keep hands and feet away from inlet and discharge areas.
- Never pick up or carry the machine while the engine is running.
- Do not operate while under the use of alcohol, drugs, or medication. A clear mind is essential for safety.
- Do not allow anyone who is not alert to operate this machine.
- When feeding material into this equipment, be extremely careful that pieces of metal, rocks, or other foreign objects are not included. Personal injury or damage to the machine could result.

- Keep area of discharge clear of people, animals, buildings, glass or anything else that will obstruct clear discharge, cause injury or damage. Wind can also change discharge direction, so be aware.
- 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 kickback from the shredder hopper or chipper chute.
- Do not allow any part of the engine, especially around the cooling fans and muffler, to become clogged with processed material, leaves, oil, grease or any other combustible material.
- 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.

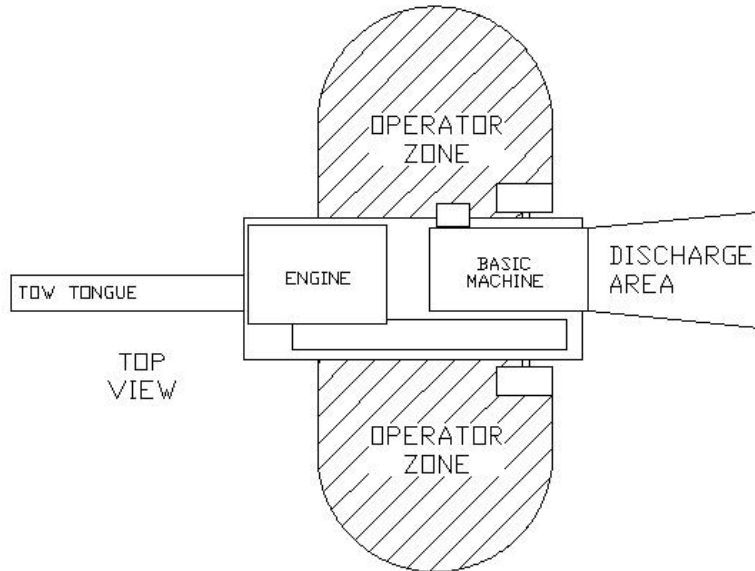
TOWING – HIGHWAY TOWABLE MODEL

- Obey all state and local regulations when towing on public roads and highways.
- Before towing, be certain the shredder chipper is correctly and securely attached to the towing vehicle and the safety chains are in place. Leave slack in the chains to allow for turning.
- Do not allow anyone to sit or ride on the shredder/chipper. This can cause serious injury.
- Stay alert for hidden hazards or traffic. Do not carry passengers.
- Never carry any cargo or wood on your shredder/chipper. It may fall off and endanger following vehicles.
- Allow for added length when turning, parking, and crossing intersections and in all driving situations.
- Be care when backing up, you. You can easily jackknife your shredder/chipper.
- Adjust towing speed for terrain and conditions. Do not exceed 45 MPH when towing.
- Because there is no suspension on the shredder/chipper, it will tend to bounce more on rough roads. Be extra cautious when towing over bumpy or rough terrain including railroad crossings.

MAINTENANCE AND STORAGE

- Keep machine, attachments and accessories in safe working condition.
- Check engine mounting bolts and other hardware at frequent intervals for proper tightness. Never operate your shredder/chipper in poor mechanical condition or when in need of repair. Be sure all safety guards and shields are in proper position. These safety devices are for your protection.
- Never store machine with fuel in the fuel tank inside a building where ignition sources are present, such as hot water and space heaters, clothes dryers and the like. Allow the engine to cool before storing in any enclosure.
- Always refer to the operator's manual for important details if the machine is to be stored for an extended period.
- If the fuel tank is to be drained, do this outdoors.
- Follow the manufacturer's recommendations for safe loading, unloading and storage of machine.
- If it is necessary for any reason to unclog the feed intake or discharge openings or to inspect or repair the machine where a moving part can come in contact with your body or clothing, shut the machine off, allow all moving parts to come to a complete stop and disconnect spark plug wire(s) before attempting to unclog, inspect or repair.
- Check the knife mounting screws at frequent intervals for proper tightness. Also visually inspect the knife for wear or damage. Replace the knife with parts that meet original equipment specifications.
- Knives should be checked for sharpness and the bolts attaching them to the flywheel for tightness every 8-10 hours of operation.
- Check the gap between the knife and wear plate every time you sharpen or replace the knife, or every 8-10 hours of operation.
- Never tamper with safety devices. Check their proper operation regularly.
- Inspect the belt each time you use the unit. Look for damage, worn areas or tears. Do not use the unit if this condition exists.
- Do not tamper with the engine's governor setting. The governor controls the maximum safe operation speed and protects the engine. Over-speeding the engine is dangerous and will cause damage to the engine and to the other moving parts of the machine. See your authorized dealer for engine governor adjustment

OPERATOR ZONE



- Only operate your shredder/chipper from the operator zone.
- Know how to turn your unit off.
- Never move your shredder/chipper or leave it unattended with the engine running.
- Follow engine owner's manual for engine maintenance and repair.

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.

**SAVE THESE INSTRUCTION
FOR FUTURE REFERENCE**

A NOTE TO ALL USERS:

Under California law, and the laws of some other states, you are not permitted to operate an internal combustion engine using hydrocarbon fuels without an engine spark arrester. This also applies to operation on US Forest Lands. In the state of California and Washington the above is required by law. Other states may have similar laws. A spark arrester for the muffler is available through the engine manufacturer's servicing dealer. Failure of the owner/operator to maintain this equipment in compliance with state regulations is a misdemeanor under California law and may be in violation of the other state and/or federal regulations. Contact your local fire marshal or forest service for specific information in your area.

ADDITIONAL INFORMATION AND POTENTIAL CHANGES

MacKissic, Inc. reserves the right to discontinue, change, and improve its products at any time without notice or obligation to the purchaser. The descriptions and specifications contained in this manual were in effect at printing. Equipment described within this manual may be optional. Some illustrations may not be applicable to your machine.

SECTION II - ASSEMBLY INSTRUCTIONS

PACKAGE CONTENTS

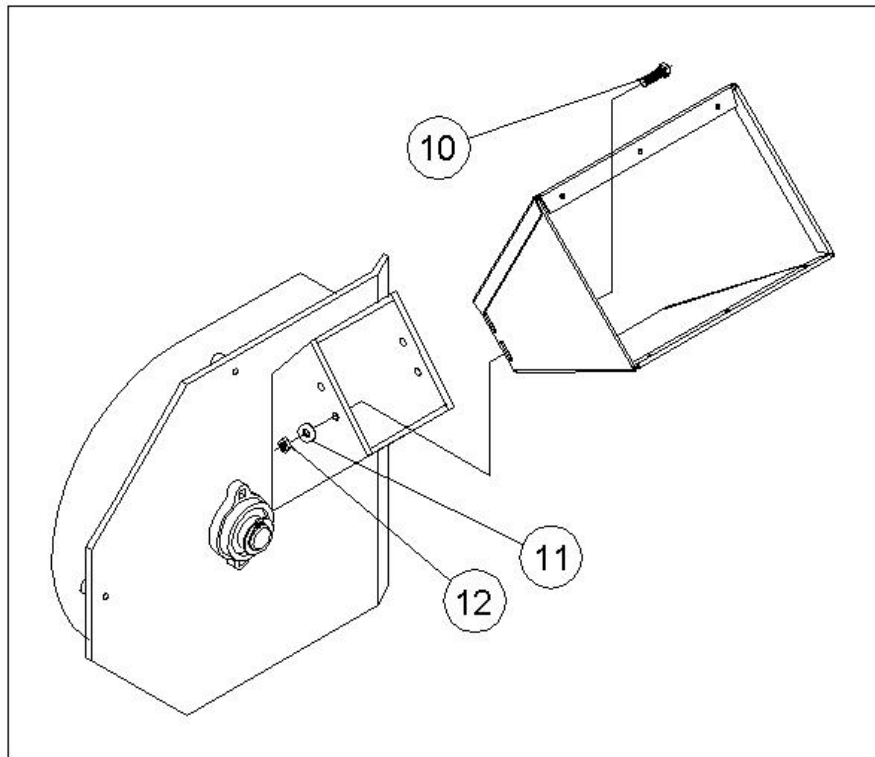
SKID	PARTS BOX	BOLTBAG	PART #	WHERE USED
BASIC MACHINE	HITCH PLATE	4 EA – 5/16-18 X ¾" CARRIAGE BOLT	090-0462	4 EA – CHIPPER HOPPER
CHIPPER HOPPER	STAND	9 EA – 5/16 FLATWASHERS	090-0233	4 EA – CHIPPER HOPPER
SHREDDER HOPPER	OWNER'S MANUAL			4 EA – SHREDDER HOPPER
TOW TOUNGE	ENGINE MANUAL			1 EA – FRONT TOW TONGUE
PARTS BOX	WARRANTY CARD	11 EA – 5/16-18 NYLOCK NUT	090-0460	4 EA – CHIPPER HOPPER
	BOLTBAG			4 EA – SHREDDER HOPPER
	KNIFE GAUGE			2 EA – HITCH PLATE
				1 FRONT TOW TONGUE
		7 EA – 5/16-18 X 1" HHCS	090-0088	2 EA – HITCH PLATE
				1 EA – FRONT TOW TONGUE
				4 EA – SHREDDER HOPPER
		1 EA – ¼-20 X 1 ¼" U-BOLT	090-0610	1 EA – REAR TOW TONGUE
		2 EA – ¼-20 NYLOCK NUT	090-0470	2 EA – REAR TOW TONGUE
		1 EA – 1/8 HAIR COTTER PIN	706-0924	1 EA - STAND

STEP I – UNPACKING AND CHECKING CONTENTS

1. Remove all items from the crate.
2. After unpacking the crate, compare the contents with the list above.
3. If any parts are missing, contact your place of purchase at once.
4. Assembly should be done on a clean, level surface.

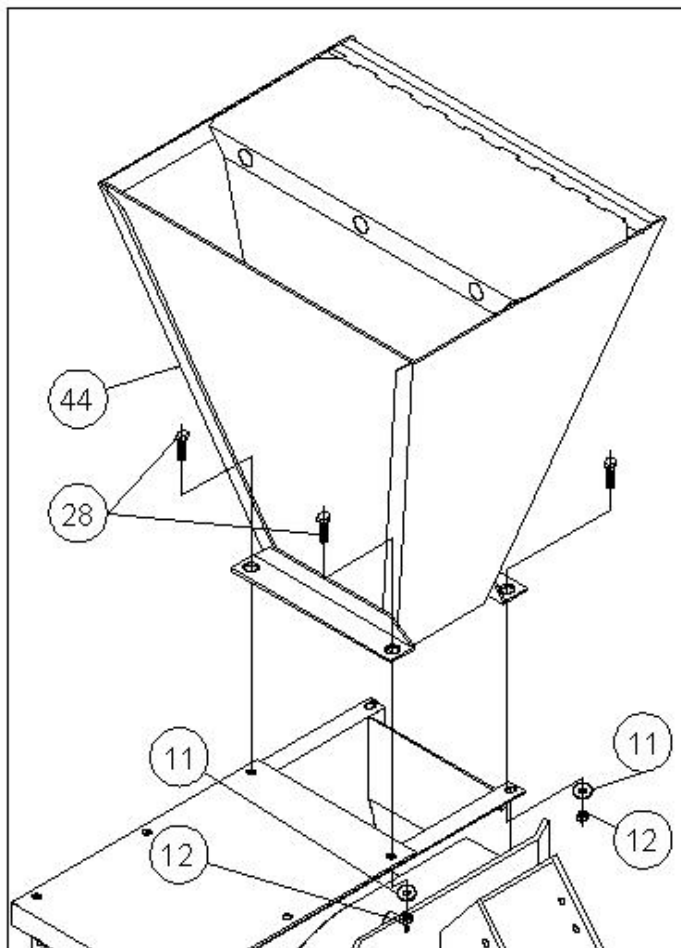
STEP II – INSTALLING THE CHIPPER HOPPER – HIGHWAY AND NON-HIGHWAY MODELS

1. Attach the chipper hopper to the basic machine with four 5/16-18 carriage bolts (#10), flat washers (#11) and nylock nuts (#12). Put the bolts through the hopper from inside and secure with the flatwashers and the nylock nuts. Secure tightly.
2. During attachment of the hopper to the machine, adjust the hopper up or down to achieve a smooth transition between the hopper and the chute on the machine. If the hopper slips too low, branches can hit the chute, preventing proper feeding.



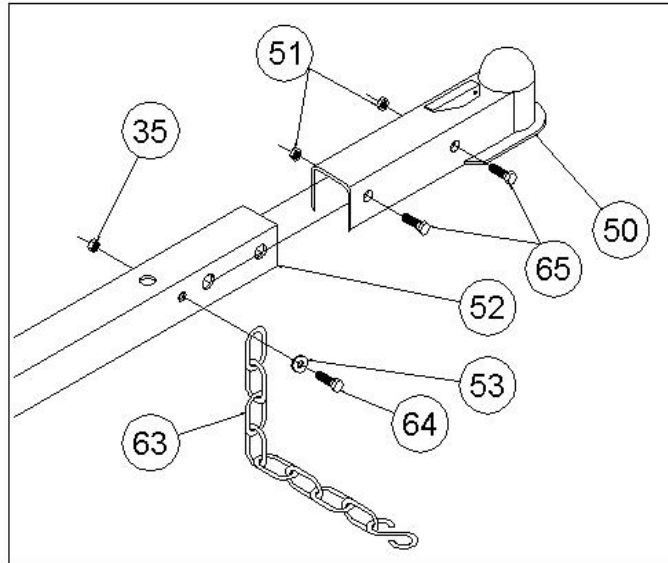
SECTION III – INSTALLING THE SHREDDER HOPPER - (If not installed from factory) – HIGHWAY AND NON-HIGHWAY MODELS

1. Set shredder hopper (#44) in place on top of the basic machine. Secure in place with four 5/16-18 x 1" HHCS (#39), four 5/16 flat washers (#11) and four 5/16-18 nylock nuts (#12).



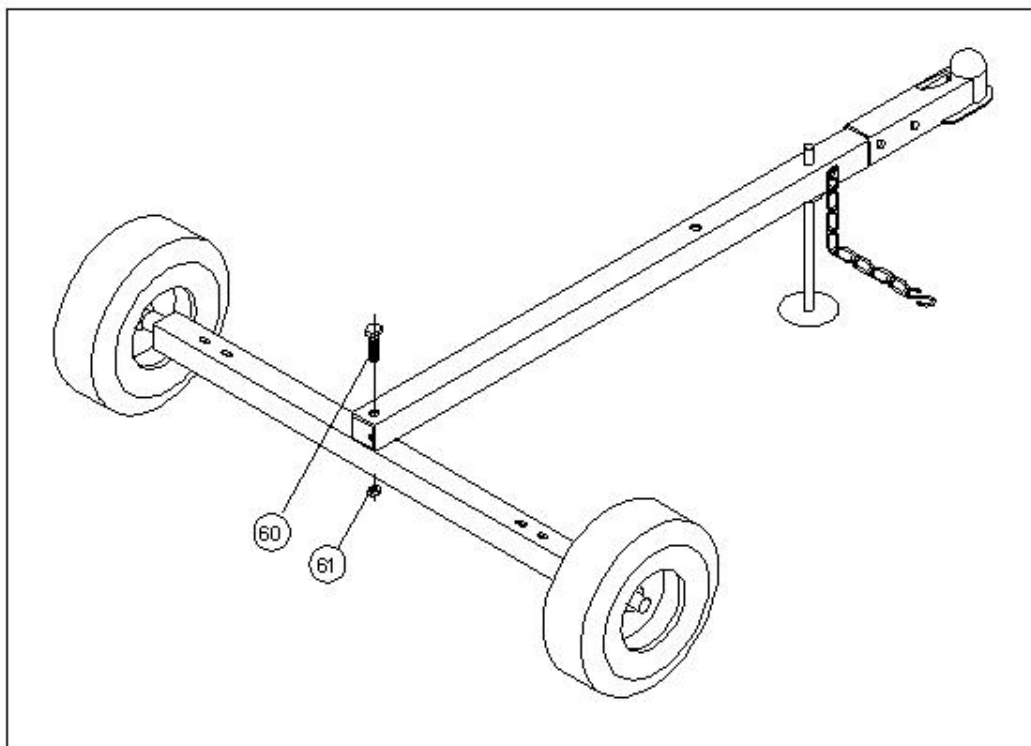
STEP V – ATTACHING HITCH AND SAFETY CHAINS TO TOW TONGUE – HIGHWAY TOWABLE MODEL

1. Slide the hitch (#50) over the end of the tow tongue (#52).
2. Secure the hitch to the tow tongue with two 1/2-13 x 3" HHCS (#65) and two 1/2-13 gripco locknuts (#51).
3. Take the 3/8-16 x 3 1/2" HHCS (#64) and put a 3/8 washer (#53) and one of the safety chains (#63) on the bolt. Put the bolt through the tow tongue, add the other safety chain to the bolt and secure with a 3/8 flat washer and a 3/8-16 nylock nut (#35).

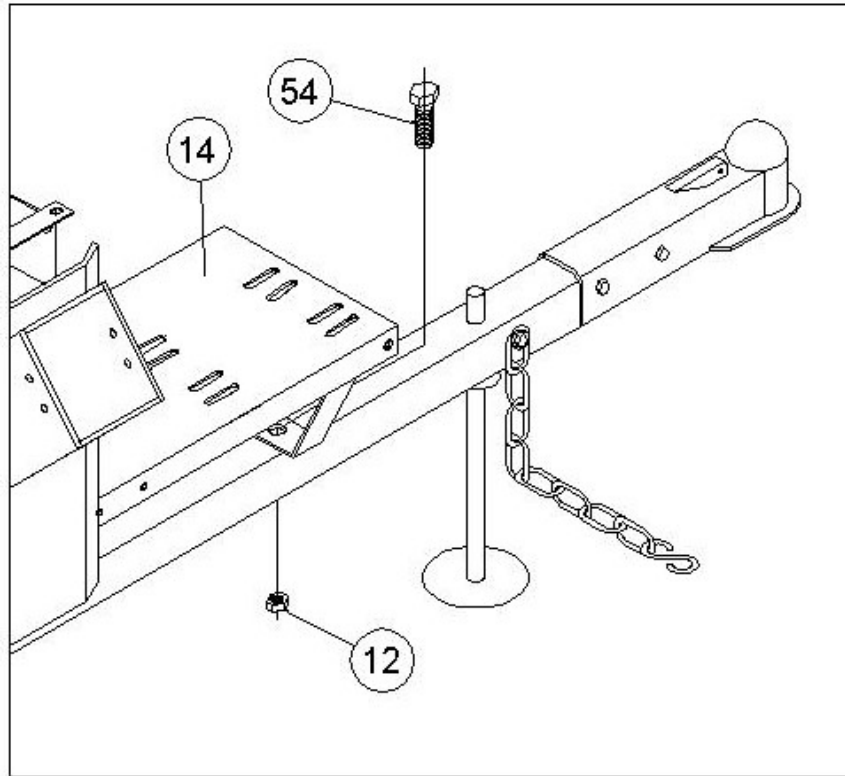


STEP VI – ATTACHING TOW TONGUE TO MACHINE - HIGHWAY TOWABLE MODEL

1. Put tow tongue in place on top of axle and secure with 5/8-11 x 3 1/2" HHCS (#60) and 5/8-11 nylock nut (#61).

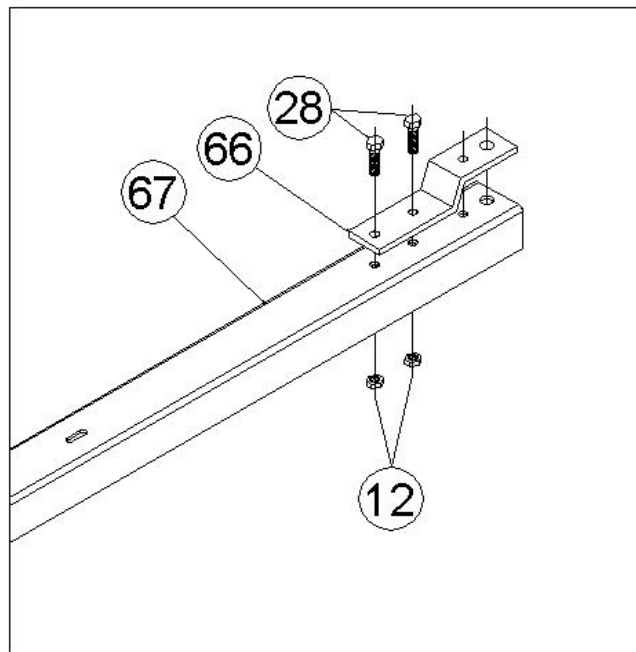


2. Attach the front of the tow tongue to the engine base weldment (#14) with a 5/16-18 x 3" HHCS (#54) and a 5/16-18 nylock nut (#12).



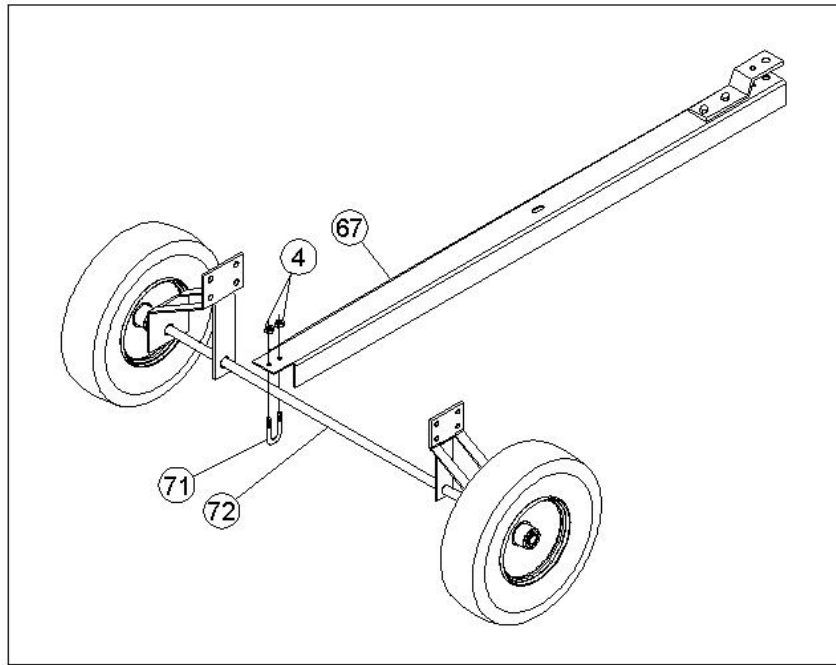
STEP VII – ATTACHING HITCH PLATE TO TOW TONGUE – NON-HIGHWAY MODEL

1. Attach the hitch plate (#66) to the tow tongue (#67) with two 5/16-18 x 1" HHCS (#28) and two 5/16-18 nylock nuts (#12).

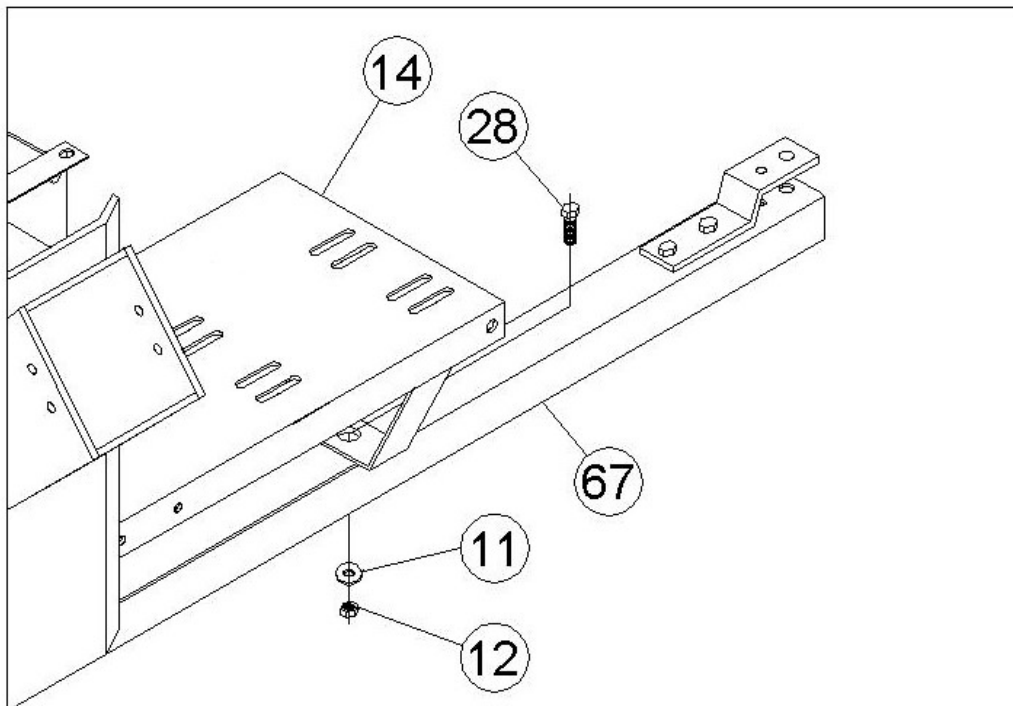


STEP VIII – ATTACHING TOW TONGUE TO MACHINE – NON-HIGHWAY MODEL

1. Set the tow tongue (#67) in place on top of the axle (#72) as shown.
2. Secure in place with the u-bolt (#71) and two ¼-20 nylock nuts (#4).



3. Attach the front of the engine base (#14) to the tow tongue (#67) with a 5/16-18 x 1" HHCS (#28), a 5/16 flat washer (#11) and a 5/16-18 nylock nut (#12).



SECTION III - LUBRICATION & ENGINE START UP

FOR INFORMATION ABOUT:

- OIL
- FUEL
- STARTING
- STOPPING
- RECOMMENDED MAINTENANCE
- SERVICE
- STORAGE
- ENGINE WARRANTY INFORMATION

REFER TO THE ENGINE OWNER'S MANUAL.

THE ENGINE ON YOUR CHIPPER SHREDDER HAS BEEN SHIPPED DRY.

BE SURE TO SERVICE THE ENGINE ACCORDING TO THE ENGINE OWNER'S MANUAL PRIOR TO STARTING.

FAILURE TO DO SO CAN RESULT IN DAMAGE NOT WARRANTED BY THE ENGINE MANUFACTUROR.

WARNING: Do not fill closer than ½" from the top of the fuel tank to prevent spills and to allow for fuel expansion. If gasoline is accidentally spilled, move the machine away from the area of the spill. Avoid creating any source of ignition until gasoline vapors have disappeared.

CAUTION: Experience indicates that alcohol blended fuels (gasohol, ethanol, methanol) can attract moisture which leads to separation and formation of acids during storage. Acidic gas can damage the fuel system or an entire engine while in storage. To avoid engine problems, the fuel system should be empty before storage for periods over 30 days. For more information, refer to the engine owner's manual. Use fresh fuel each season. Never use engine or carburetor cleaner products in the fuel tank or permanent damage may result.

ALWAYS CHECK OIL LEVEL PRIOR TO STARTING THE CHIPPER SHREDDER.

SECTION IV – SHREDDING & CHIPPING

THIS SHREDDER/CHIPPER WAS DESIGNED FOR SHREDDING LEAFY GARDEN OR ORGANIC MATERIAL AND CHIPPING LIMBS OR BRANCHES. NEVER USE THIS MACHINE FOR ANY OTHER PURPOSE AS IT COULD CAUSE SERIOUS INJURY.

CONTACT WITH INTERNAL ROTATING HAMMERS WILL CAUSE SERIOUS PERSONAL INJURY. DO NOT PUT HANDS, FACE, FEET OR CLOTHING INTO THE SHREDDER HOPPER, CHIPPER CHUTE, DISCHARGE OPENING OR NEAR THE DISCHARGE AREA AT ANY TIME.

MAINTENANCE AND SERVICE SHOULD ONLY BE PERFORMED AFTER THE ENGINE IS OFF AND ALL MOVING PARTS HAVE COME TO A COMPLETE STOP. USE ONLY A WOODEN STICK TO CLEAR JAMMED MATERIAL AFTER ALL MOVING PARTS HAVE STOPPED COMPLETELY.

SAFETY FIRST

- Always wear protective gloves and safety glasses during operation of the shredder/chipper.
- Never allow your hands or any part of your body or clothing inside the feed hoppers or discharge area of the shredder/chipper.
- Keep all protective guards and warning labels on the machine and in good working condition.
- Always stand clear of the discharge area when the shredder/chipper is running.
- Keep your face and body back from the feed hoppers to avoid being struck by any material that may bounce back.
- Keep proper balance and footing while operating the shredder/chipper.
- If it becomes necessary to push material into the feed hoppers, only use a wood stick, never your hands or anything steel.
- Never assume you know where the chipper knife is. You do not know where it is.
- Keep area of discharge clear of people, animals, buildings, glass or anything else that will obstruct clear discharge, cause injury or damage. Wind can also change discharge direction, so be aware.
- Always keep hands out of the feed hoppers.
- Never operate the shredder/chipper without the hoppers in place.
- Do not transport the shredder/chipper with the engine running.

PROCESSING MATERIAL

- Your shredder/chipper can process dry or green material.
- Green material will process quicker and easier than dry material.
- Soft wood processes easier the hard wood.
- Your operator experience will teach you how different materials shred and chip.
- Your operator experience will teach you how fast you can process different materials.
- Most materials process well with the standard screen provided with the unit.

- When chipping branches, sometimes a tail will be left at the end of a branch. To avoid this, rotate the branch as it is fed into the chute.
- Rotating the branch as you feed it into the machine will improve chipping performance.
- An optional screen is available for greater reduction of the material being processed through the shredder hopper.

USING THE SHREDDER HOPPER

- The shredder hopper is located on the top of the unit and is the opening into which all materials to be shredded should be fed. Most organic materials can be shredded. A flex guard, or blowback shield is secured to the hopper. Material must be pushed past this flap using a wooden stick in order to enter the main shredding chamber where revolving steel hammers do the shredding. **The blowback shield is an important feature. It prevents kickback of materials! Do not use your machine unless the blowback shield is securely fastened in place.**
- Due to the wide variety of materials that can be shredded, and their very different physical characteristics, only feed limited quantities of any material into the hopper at first. The amount and length of material can be increased if you find that the material is being processed without any difficulty. Your judgment and operator experience are very important. Be sure not to overload the machine by feeding too much material into the hopper at one time. If you hear the RPM's of the engine decreasing, stop feeding material into the machine at once. Do not resume feeding the machine until it has returned to full speed.
- The maximum diameter of material that can be shredded is 1". Any larger material should be fed through the chipper-hopper. Material larger than 1" can cause serious damage to any of the internal parts of the shredding chamber. The unit should be inspected after every use for bent hammers, missing spacers, damage to the screen or any other obvious problems. If damage occurs, the rotor assembly can become unbalanced causing excessive vibration. If used in this state, damage can occur. Do not use the machine if vibration is present. Vibration is generally a warning sign of trouble.
- Several small branches can be fed into the shredder-hopper at once providing their combined diameter is less than 1". Branches longer than three feet should be cut to make them more manageable. Green materials should be allowed to dry, or processed in small batches with dry materials to avoid winding around the rotor assembly.
- Wet materials will clog the machine easily. For best results, allow wet materials to dry for 7 to 10 days before processing. If clogging occurs, you can remove the screen and process material without, but the reduction will not be as great. Slowing your rate of feeding material into the machine will also reduce the chance of clogging.

MATERIALS BEST SUITED FOR SHREDDING

- | | | |
|-------------------|-------------------|-------------------|
| • Leaves | • Flowers | • Corn Stalks |
| • Roots | • Soil | • Palm frond tops |
| • Grass clippings | • Garden debris | • Potato vines |
| • Straw | • Hedge clippings | • Tomato vines |
| • Hay | • Kitchen Waste | • Paper |
| • Small branches | • Manure | |

NOTE - The hammers within the shredding chamber can tug suddenly at material being fed into the shredder-hopper. Do not hold on tightly to branches and vines, and don't feed material straight down into the hopper with your arm pointing downward toward the opening. Instead, keep your arms parallel to the ground and several inches above the top edge of the hopper.

USING THE CHIPPER HOPPER

- This chipper-hopper is mounted on the side of the machine and is designed to chip the larger, heavier materials that the shredder-hopper isn't designed to handle. Branches fed into the chute are turned into "chips" by the revolving chipper knife mounted on a flywheel. The chipper-hopper can chip branches and vines ranging in size from 1" to 4" in diameter. Cut your materials into manageable lengths before feeding them into the chipper.

Note: The chipper hopper must be securely bolted to the side of your equipment before using the machine!

- Do not force material into the chipper. If the machine does not chip well, the chipper knives need replaced or sharpened or the gap between the knife and the wear plate needs adjusting.
- Extremely hard knots will not process very well. Short stubs that have not self-fed through the chipper can be pushed through with the next branch to be chipped. **DO NOT THROW REMAINING STUBS OR UNCHIPPABLE KNOTS INTO THE SHREDDER-HOPPER. DAMAGE WILL RESULT.**
- Cut chipping material into manageable lengths of no more than five or six feet long before chipping them.
- If branches are larger than 1" in diameter, feed only one branch at a time through the chipper hopper.
- Branches smaller than 1" in diameter can be bundled together and fed through the chipper hopper at one time.
- Overloading the shredder/chipper will cause the rotor speed to decrease. If you hear the RPM's decreasing, stop feeding material into the machine until the machine has returned to full speed.

MATERIALS BEST SUITED FOR CHIPPING.

- Branches, vines or stalks from 1" to 4" in diameter.

USE COMMON SENSE WHEN USING YOUR SHREDDER/CHIPPER.

- **LEARN TO RECOGNIZE THE CHANGE IN THE SOUND OF YOUR MACHINE WHEN IT IS OVERLOADED.**
- **BECOME FAMILIAR WITH SUCCESSFUL OPERATING CONDITIONS AND AVOID THOSE THAT CAN OVERLOAD AND DAMAGE THE MACHINE.**
- **IF THE MACHINE BECOMES JAMMED BY OVERLOADING OR ANY OTHER CAUSE, STOP THE MACHINE IMMEDIATELY.**
- **IF YOU JAM THE MACHINE AND DO NOT STOP THE ENGINE, IT CAN DAMAGE THE MACHINE. THIS DAMAGE CAN BE COSTLY AND IT MAY NOT BE COVERED UNDER WARRANTY. FOR THIS REASON, IT IS IMPORTANT THAT YOU IMMEDIATELY STOP THE ENGINE IF THE MACHINE BECOMES JAMMED.**
- **ONLY YOUR OPERATOR EXPERIENCE WILL TELL YOU HOW FAST TO FEED MATERIAL TO BE PROCESSED.**
- **CHECK TO SEE THAT THE FLYWHEEL WILL TURN FREELY BEFORE YOU START THE SHREDDER/CHIPPER.**
- **VISUALLY CHECK CHIPPER KNIFE FOR DAMAGE EACH TIME YOU USE YOUR SHREDDER/CHIPPER.**
- **CHECK KNIFE CONDITION, WEAR PLATE CONDITION, GAP SETTING AND THE NUTS AND BOLTS THAT HOLD THE KNIFE IN PLACE FOR TIGHTNESS EVERY 8-10 HOURS OF OPERATION.**
- **DO NOT ALLOW PROCESSED MATERIAL TO BUILD UP WITHIN 3" OF DISCHARGE CHUTE OPENING. TURN THE MACHINE BEFORE MOVING THE SHREDDER/CHIPPER OR PILE AS NEEDED. FAILURE TO DO THIS COULD RESULT IN UNNECESSARY JAMMING OF THE MACHINE.**
- **TO MOVE PILE OF PROCESSED MATERIAL, TURN THE MACHINE OFF AND USE A SPADE, RAKE, OR LONG HANDLE TOOL. NEVER USE YOUR HANDS OR FEET!**

SECTION V – MAINTENANCE & STORAGE

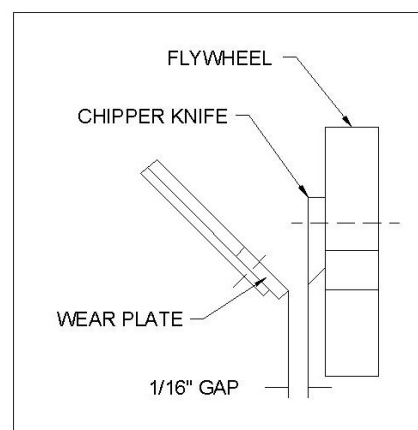
IMPORTANT: The knife should be checked for sharpness and the bolts attaching them to the flywheel for tightness every 8-10 hours of operation.

IMPORTANT: Every time you perform maintenance or any kind of service or check on the knife, be sure to check the gap between the knife and wear plate for proper setting.

NOTE: A knife gauge has been provided with your machine. It is 1/16th thick and should be used to set the correct gap between the knife and wear plate.

If the cutting mechanism strikes any foreign object or if your machine should start making an unusual noise or is vibrating, stop the engine, disconnect the spark plug wire(s) from the spark plug(s). Allow the engine to cool before you:

- a. Inspect and examine for damage.
 - b. Check for loose nuts, bolts or parts.
 - c. Repair or replace any damaged parts before restarting and operating the machine.
1. When not in use, your shredder/chipper should be stored out of the reach of children. Be sure that there are no gasoline fumes in the storage area. For long periods of storage (over the winter), refer to the engine owner's manual.
 2. After every 8 hours of operation, lubricate the chipper side bearing. To do this, wipe all dirt, etc., from the grease fittings with a clean cloth, then apply no more than 3 shots of quality general-purpose grease with a hand-pumped grease gun. Over lubrication can also damage bearings. Also, check the bearing collar set screws regularly to be sure they are tight. If they are loose, reset them with Loctite 243, obtainable at any hardware store.
 3. You will find information included referring to operation and maintenance of the engine. Look it over carefully. **BE CERTAIN TO ADD OIL BEFORE STARTING IT.**
 4. When the steel chipping knife needs replacing or sharpening, refer to the section on removal, sharpening and re-installation.
 5. Care must be exercised when sharpening the knife to maintain the correct bevel and a straight edge. Refer to sharpening directions. When you install a knife, the clearance between the knife and wear plate must be checked and set. This clearance or gap should be set to 1/16" (see figure 1).
 6. To adjust this clearance, loosen the three 1/4" nuts and bolts holding the wear plate in place. The wear plate can be slid up or down (in or out) to achieve the correct gap setting.
 7. Take the knife gauge and slide between the knife and wear plate. If the gap is set correctly, the knife gauge will lightly touch both the knife and wear plate. If the gap is too small, you will not be able to get the gauge between the knife and wear plate. If the gap is too large, there will be excess room between the knife gauge, knife and wear plate. Tighten the nuts and bolts when the wear plate is in the correct position. Be certain the flywheel rotates without hitting anything before starting the chipper.
 8. If the gap between the wear plate and the knife is not set correctly, you will have excessive vibration when chipping and the blade will seem to be dull. This should be checked every 8-10 hours of operation.
 9. If at any time it becomes necessary to disassemble the chipper for repairs, the chipper disk must be re-installed in exactly the same position on the rotor shaft.



NOTE: Proper gap setting is critical to the proper operation of your machine.

REMOVAL, SHARPENING AND RE-INSTALLATION OF CHIPPER KNIFE

HOW TO REMOVE THE KNIFE

- Stop the engine.
- Remove spark plug wire(s) and keep away from spark plug(s).
- Disconnect battery at negative terminal.
- Open the access cover on the chipper basic machine.
- Rotate the chipper disk until the three countersunk screws attaching the knife to the flywheel are visible through the access door.
- Clean out the heads of the allen screws with an awl or sharp tool.
- Insert a 3/16" allen wrench into the heads of the screws.
- While applying pressure with the allen wrench, apply heat from a propane torch to the screws to break loose the Loctite on the screws.
- Remove the heat once the screws have loosened.
- Remove all three allen screws in this manner.

KNIFE SHARPENING

- You should never attempt to sharpen the chipper knife freehand.
- It is extremely important that the 45-degree angle be maintained consistently for proper performance.
- The chipper knife should be taken to a machine shop for proper sharpening.
- Excessive heat generated during the sharpening process will damage knives and weaken the metal. Be sure the knife is not overheated.

KNIFE INFORMATION

- The chipper knife should be checked routinely for sharpness.
- Using a dull knife will decrease performance and cause excessive vibration that will cause damage to the shredder/chipper.
- How many times a knife can be sharpened is determined by how much material needs to be taken off to sharpen or to compensate for dents or gouges.
- A new chipper knife has 5/16" measurement between the short side bevel edge and the knife mounting holes. See figure 2.

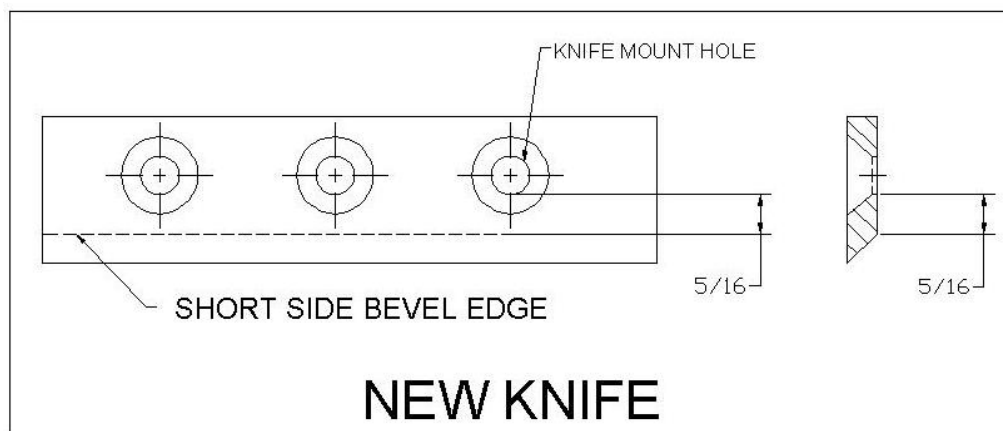


Figure 2

- The knife should never be sharpened to the extent that more than $3/32$ " is taken off this measurement.
- Once this measurement is below $7/32$ " (see figure 3) the knife should be replaced.
- If you are unable to remove dents or gouges with these guidelines, replace the knife.

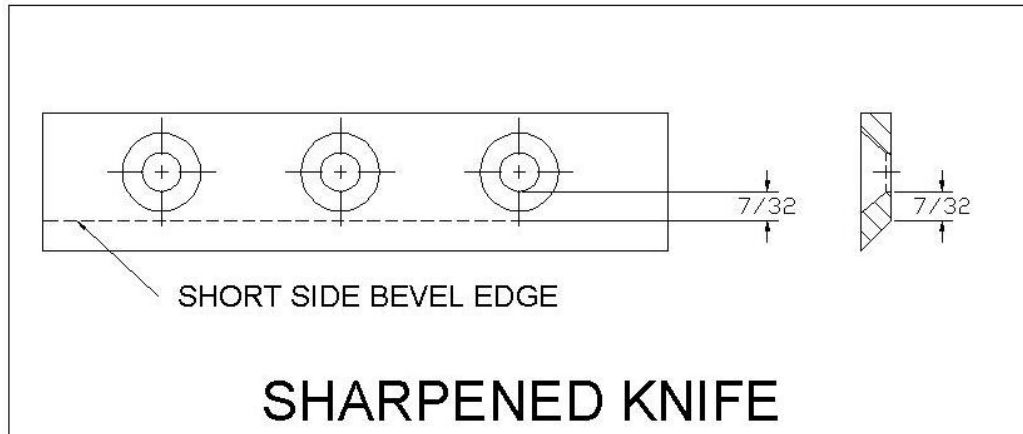


Figure 3

KNIFE INSTALLATION

- Clean chipper disk where knife is going to be attached.
- Visually inspect the chipper disk slot and knife mounting area and be sure they are clean and that the knife will be able to mount flush against the chipper disk.
- Visually inspect and clean the knife.
- Apply Loctite 243 to the socket head cap screws that hold the knife in place.
- Hand tighten the knife to the chipper disk. If you are installing a new knife, use the new hardware that comes with the knife when attaching it to the chipper disk.
- Tighten the center bolt.
- Tighten the outer bolt.
- Tighten the inner bolt.
- Double-check all three for tightness one more time.

WEAR PLATE

- The wear plate should have a square edge and be free of dents or gouges.
- The wear plate can be sharpened by hand, but as with the knife, do not overheat during the sharpening process. This will change the characteristics of the steel and it should be replaced.
- Check the gap between the knife and wear plate every time any adjustments are done to either piece, or every 8-10 hours of operation.

AFTER ANY BLADE OR WEAR PLATE MAINTENANCE OR ADJUSTMENT, ROTATE THE CHIPPER DISK BY HAND. WATCH AND LISTEN CAREFULLY FOR ANY UNUSUAL NOISES, CLICKING OR VIBRATION. IF ANY OF THESE ARE DETECTED, INSPECT THE MACHINE FOR DAMAGE. REPAIR OR REPLACE ANY DAMAGED PARTS AND CHECK FOR ANY LOOSE PARTS AND RETIGHTEN.

KNIVES MUST BE CHECKED AND MAINTAINED!

THE KNIFE MUST BE SHARP!

BE SURE TO REINSTALL THE KNIFE CORRECTLY AND DOUBLE CHECK FOR TIGHTNESS!

HAMMERS

When the hard steel hammers of the rotor assembly become dull or round on the cutting edge, they may be rotated or reversed. **These hammers have four cutting edges that may be used before replacement is necessary.** To reverse the hammers proceed as follows.

- Remove belt guard.
- Remove round cover plate from behind belt guard.
- Remove the top plate.
- Remove shredder hopper.
- Turn rotor assembly until hammer rod is facing up.
- Turn hammer rod until end of pin is facing up.
- Drive the roll pin from the hammer rod with a punch.
- Remove hammer rod through access hole on side of machine.
- Reverse hammers and reinstall with spacers on hammer rod.
- Replace old roll pin with new roll pin if necessary.

NOTE: Be sure the hammers and spacers are reinstalled in exactly the order in which they were removed. Refer to the rotor assembly drawing for the correct order.

INSTRUCTIONS FOR ADJUSTING OR REPLACING BELT

BELT ADJUSTMENT

The belt on your chipper should deflect 3/8" under three pounds of pressure as shown in figure 1 below. If it doesn't, adjust per the following directions.

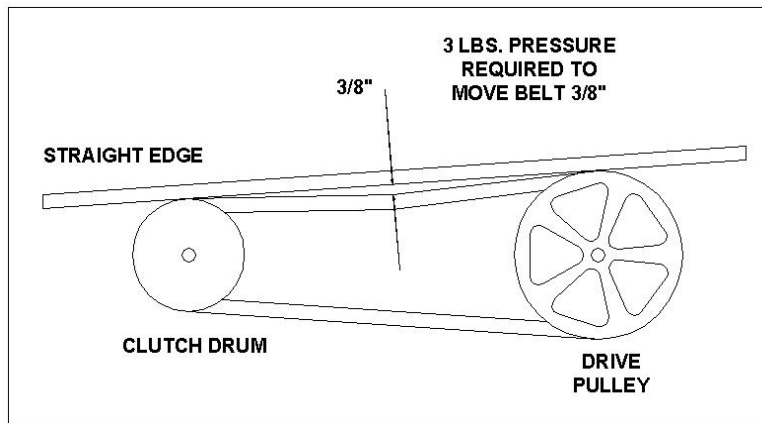


Figure 1

- Remove belt guard.
- Loosen engine bolts.
- Tighten or loosen the nut on the belt tensioner until you have the correct tension as shown in figure 1.
- Retighten engine bolts.
- Check alignment of the clutch with the drive pulley by placing a straightedge across both faces as shown in figure 2. If adjustment is necessary, correct alignment by moving rotor pulley in or out on the rotor shaft. **Do not make adjustment by moving the clutch on the engine shaft.**
- Replace belt guard.

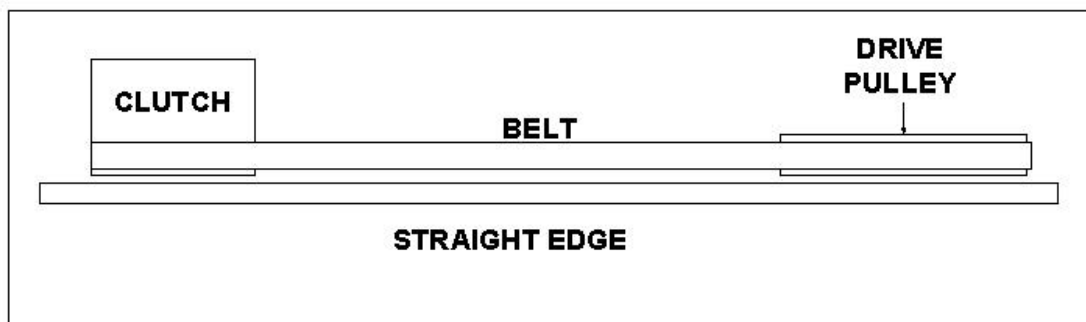


Figure 2

BELT REPLACEMENT

- To replace the belt, follow the above belt adjustment directions.
- After you have loosened the engine bolts, remove the old belt and replace it with a new one.
- Set belt tension and alignment per above directions.

NOTE: Check and re-tighten belts after initial break-in period, one hour of use.

CENTRIFUGAL CLUTCH TECH TIPS

CLUTCH PART NO. 030-0202

THE SHOES AND SPRINGS ON THE CLUTCH ARE NORMAL WEAR ITEMS. IF YOU NOTICE DECREASED PERFORMANCE OF THE CLUTCH THEY SHOULD BE CHECKED AND REPLACED IF NECESSARY.

The clutch on your machine is designed for rugged, dependable service, however, it is important to understand the limitations of a clutch. A clutch is designed to provide load free starting of the engine, and slippage under excessive overloading of the driven application. These features help protect the engine from damages such as broken crankshafts and starters.

The clutch obtains its power from engine RPM's. The lower the engagement speed, and the higher the maintained engine speed, the more torque the clutch can transfer to the driven unit. **Do not operate at less than full RPM's.**

- At engine start-up, the engine of your chipper operates under no load until approximately 1000-1200 RPM'S at which speed the centrifugal clutch engages and begins driving the rotor.
- Proper rotor speed is 2400 RPM +/- 200 RPM.
- Do not tamper with the engine's governor setting. The governor controls the maximum safe operation speed and protects the engine. Over-speeding the engine is dangerous and will cause damage to the engine and to the other moving parts of the machine. See your authorized dealer for engine governor adjustments.
- Become familiar with successful operating conditions and avoid those that can overload and damage the machine.
- Do not overload or attempt to chip material beyond manufacturers recommendation. Personal injury or damage to the machine could result.
- Learn to recognize the sound of the machine when it is overloaded.
- If the machine becomes jammed by overloading or any other cause, stop the machine immediately.
- If you jam the machine and do not stop the engine, it can:
 - Burn the belt.
 - Ruin the clutch.
- Only your operator experience will tell you how fast you can successfully feed limbs into the machine.
- **Clutch damage can be costly and it may not be covered under warranty. For this reason, it is important that you immediately shut off the machine if it becomes jammed.**

CLUTCH MAINTENANCE

The centrifugal clutch on this machine is permanently lubricated and does not require oil or grease. More lubricant can be added to the bushing. Any standard motor oil is recommended. If, after long periods of use, the drum wobbles excessively, replace the drum assembly. Always replace shoes and springs in sets. Whenever shoes are changed, replace all springs.

CLUTCH REMOVAL

1. Remove clutch from shaft by removing bolt and washers.
2. Slide clutch off shaft.
3. Remove key from keyway.

DISASSEMBLY OF EXISTING CLUTCH

1. Remove retainer ring and slide off drum assembly.
2. Unhook one spring from its shoe. Use tape wrapped pliers to avoid nicking spring.
3. Carefully note position of shoes. Remove shoes from hub.

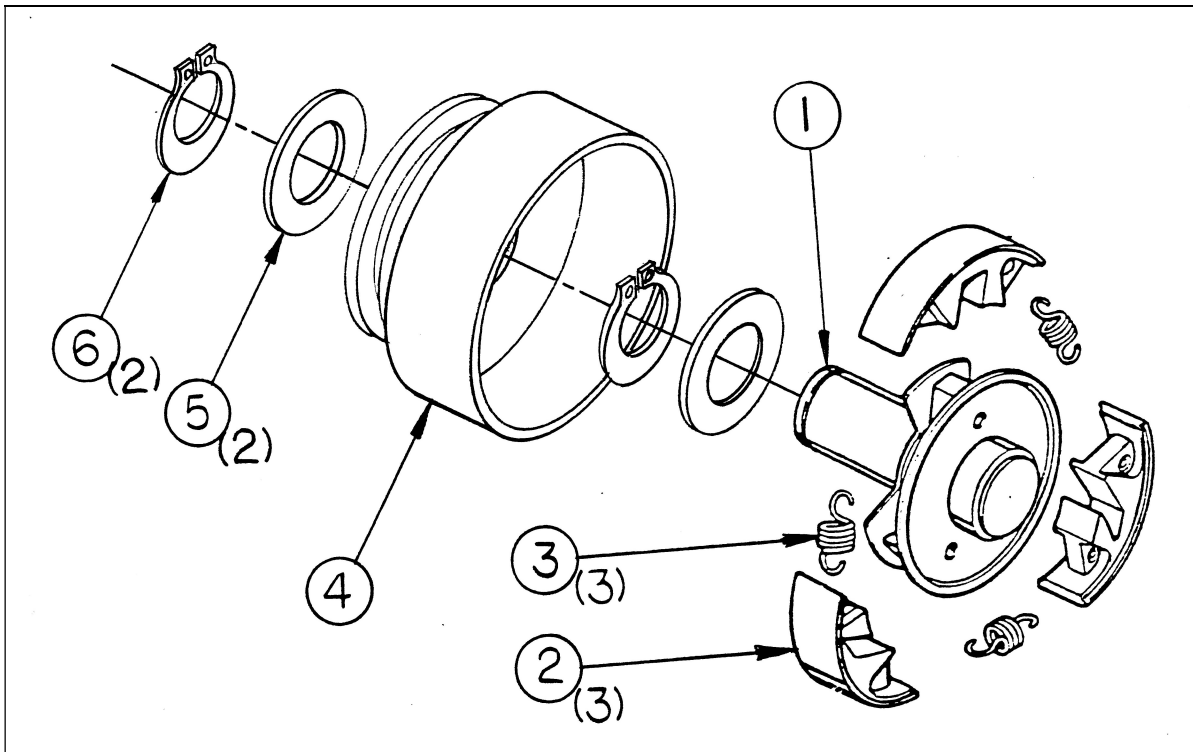
REASSEMBLE

1. Locate shoes correctly on hub for rotation required.
2. Place one end of each spring over a shoe pin, stretch spring just enough to clear pin on the other shoe. Use tape wrapped pliers to avoid nicking spring. Avoid over stretching that may damage spring. Repeat for all shoes.
3. Replace washer on hub shaft.
4. Reassemble drum to hub, secure with retaining ring.
5. Locate key in keyway of hub.
6. Slide clutch onto crankshaft, then washers.
7. Secure hub by tightening cap screw and allen head set screws.

INSTALLATION OF A NEW CLUTCH

1. Clean shaft and remove any burrs.
2. Apply anti-seize compound to the shaft.
3. Place key in keyway on shaft.
4. Slide clutch onto shaft, secure with bolt, flat washer and lock washer.
5. Tighten two allen head set screws..

030-0202 CLUTCH BREAKDOWN



<u>Item</u>	<u>Part No.</u>	<u>Qty</u>	<u>Description</u>
1	030-0202-3	1	Hub Assembly
2	030-0164-2	3	Shoe
3	030-0202-5	3	Spring
4	030-0202-2	1	Drum Assembly
6	030-0202-1	1	Retaining Ring
---	030-0164-6	2	Retaining Ring
Not Shown	030-0202-6	1	Roller Bearing

TROUBLESHOOTING

SYMPTOM	PROBLEM	CORRECTION
Clutch overheats. Belt burns. Flywheel won't turn.	Clutch is slipping or flywheel is jammed or stopped.	<ul style="list-style-type: none"> • Immediately stop engine. • Remove spark plug wires. • Turn flywheel by hand to be sure it turns freely. • Check belt tension.
Chipping action seems too slow or flywheel stalling.	Engine speed is too slow. Belts are slipping.	<ul style="list-style-type: none"> • Run engine at full throttle. • Check for loose or missing belt & tighten.
When chipping, log seems to vibrate excessively & "hammers" hands.	Knife is dull. Gap between knife & wear plate is too great.	<ul style="list-style-type: none"> • Remove knife & sharpen - be sure to maintain same bevel of 45 degrees. • Adjust gap as per instructions.
Chipper knife is hitting wear plate.	The gap between the knife and wear plate is set incorrectly.	<ul style="list-style-type: none"> • Adjust gap per directions in the front of this section.
Engine runs but flywheel doesn't rotate.	Inner shoes of clutch worn. Retaining springs weak or broken. Loose drive belt.	<ul style="list-style-type: none"> • Replace worn or broken clutch parts. • Check belt tension. • Clear chipper chamber.

LUBRICATION AND MAINTENANCE

OPERATION TIME	PROCEDURE	COMMENTS
BREAK IN	<ul style="list-style-type: none"> • Change engine oil and filter after first five hours. • Check belt tension. • Check all nuts and bolts for tightness. 	<ul style="list-style-type: none"> • Follow oil recommendations per the engine & owner's manual. • Adjust per directions. • Tighten if necessary.
8 HOURS	<ul style="list-style-type: none"> • Check engine oil. • Check chipper knife for sharpness. • Check knife and wear plate gap. • Clean air filter. • Grease bearings on basic chipper. * 	<ul style="list-style-type: none"> • Per recommendations. Do not overfill. • See knife information. • See gap setting information. • Per engine recommendations. • Use quality general-purpose grease.
40 HOURS	<ul style="list-style-type: none"> • Change engine oil. ** • Check tire pressure. • Remove and sharpen or replace chipper knife. • Sharpen wear plate. 	<ul style="list-style-type: none"> • Per recommendations. Do not overfill. • Add or adjust as required. • See knife information. • See wear plate information.
100 HOURS	<ul style="list-style-type: none"> • Replace belt. • Change engine oil. 	<ul style="list-style-type: none"> • Order replacement belts. • Per recommendations. Do not overfill.
200 HOURS	<ul style="list-style-type: none"> • Change engine oil filter. • Clean and adjust, or replace spark plugs. 	<ul style="list-style-type: none"> • Per recommendations in engine manual. • Per recommendations in engine manual.

* No more than three pumps of a hand-pumped grease gun. Do not over-grease as this may damage the bearing seal.

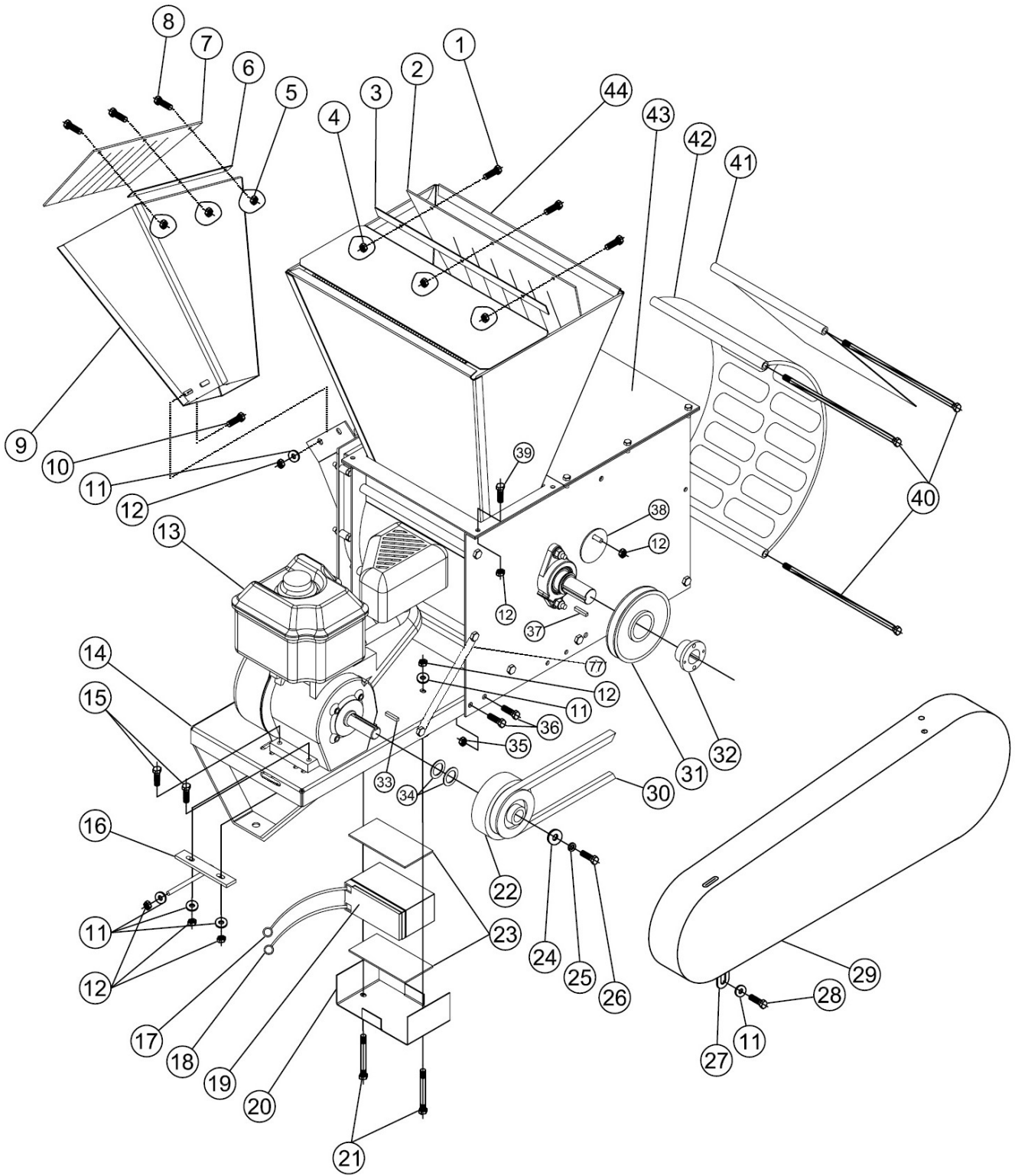
** Lubrication schedule may vary depending on working environment. Overly dirty and dusty situations will require more frequent oil changes to protect the engine.

SECTION VI - PARTS

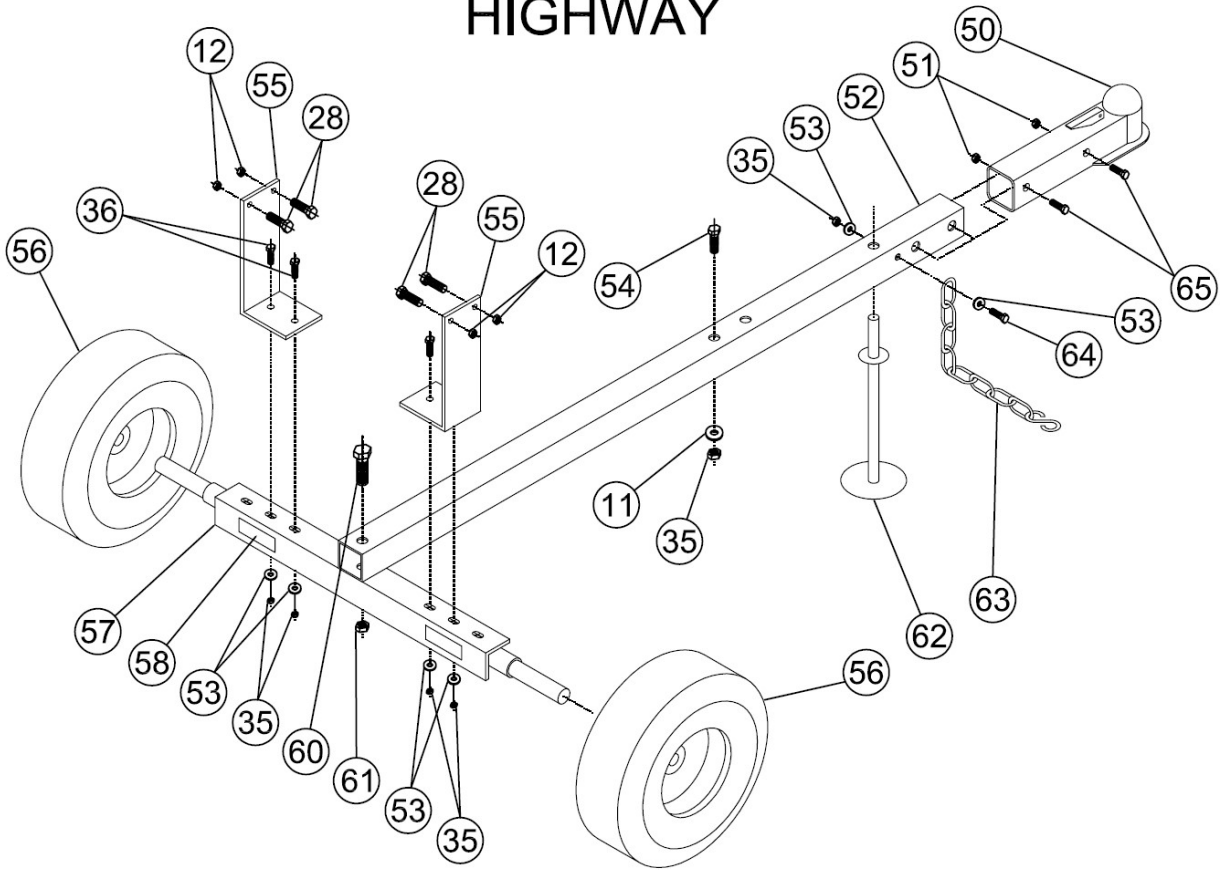
PARTS LIST

ITEM #	PART #	QTY	DESCRIPTION
1	090-0012	3	¼-20 X ¾" HHCS
2	910-0052	1	SHREDDER HOPPER BLOW BACK SHIELD
3	911-0049	1	BLOW BACK SHIELD MOUNT STRIP
4	090-0470	5	¼-20 NYLOCK NUT
5	090-0703	3	10-24 NYLOCK NUT
6	913-0378	1	BLOW BACK SHIELD MOUNT STRIP
7	910-0053	1	CHIPPER HOPPER BLOW BACK SHIELD
8	090-0739	3	10-24 X ¾" HHMS
9	910-0039	1	CHIPPER HOPPER WELDMENT
10	090-0462	4	5/16-18 X ¾" CARRIAGE BOLT
11	090-0233	14	5/16 USS FLAT WASHER
12	090-0460	28	5/16-18 NYLOCK NUT
13	030-0602	1	1650 SERIES B&S ENGINE ELECTRIC START
14	910-0061	1	ENGINE BASE WELDMENT
15	090-0091	4	5/16-18 X 1 ¾" HHCS
16	913-0437	1	BELT TENSIONER
17	913-0097	1	POSITIVE BATTERY CABLE
18	913-0429	1	NEGATIVE BATTERY CABLE
19	030-0244	1	12V BATTERY
20	900-0332	1	BATTERY BOX
21	090-0076	2	5/16-18 X 3 ½" HHCS
22	030-0202	1	CLUTCH
23	030-0377	2	BATTERY PAD
24	704-0106	1	WASHER
25	090-0228	1	3/8 LOCK WASHER
26	090-0633	1	3/8-24 X 1 ½" HHCS
27	900-0103-1	3	BELT GUARD BRACKET
28	090-0088	18	5/16-18 X 1" HHCS
29	030-0484	1	BELT GUARD
30	030-0488	1	5H600 BELT
31	030-0443	1	6" SHEAVE
32	030-0444	1	QD BUSHING
33	703-0424	1	¼ X 2" KEY
34	090-0024-3	3	SHIM
35	090-0461	10	3/8-16 NYLOCK NUT
36	090-0110	4	3/8-16 X 1" HHCS
37	080-0081	1	¼ X 1 ¼" KEY
38	900-0040	1	COVER PLATE
40	910-0058	4	SCREEN & BAFFLE ROD
41	910-0051	1	BAFFLE WELDMENT
42	910-0048	1	SCREEN WELDMENT
43	910-0057	1	SC150 BASIC MACHINE
44	910-0024	1	SHREDDER HOPPER WELDMENT
50	913-0218	1	TRAILER HITCH
51	090-0050	2	½-13 GRIPCO LOCKNUT
52	900-0252	1	TOW BEAM
53	090-0234	6	3/8 USS FLAT WASHER

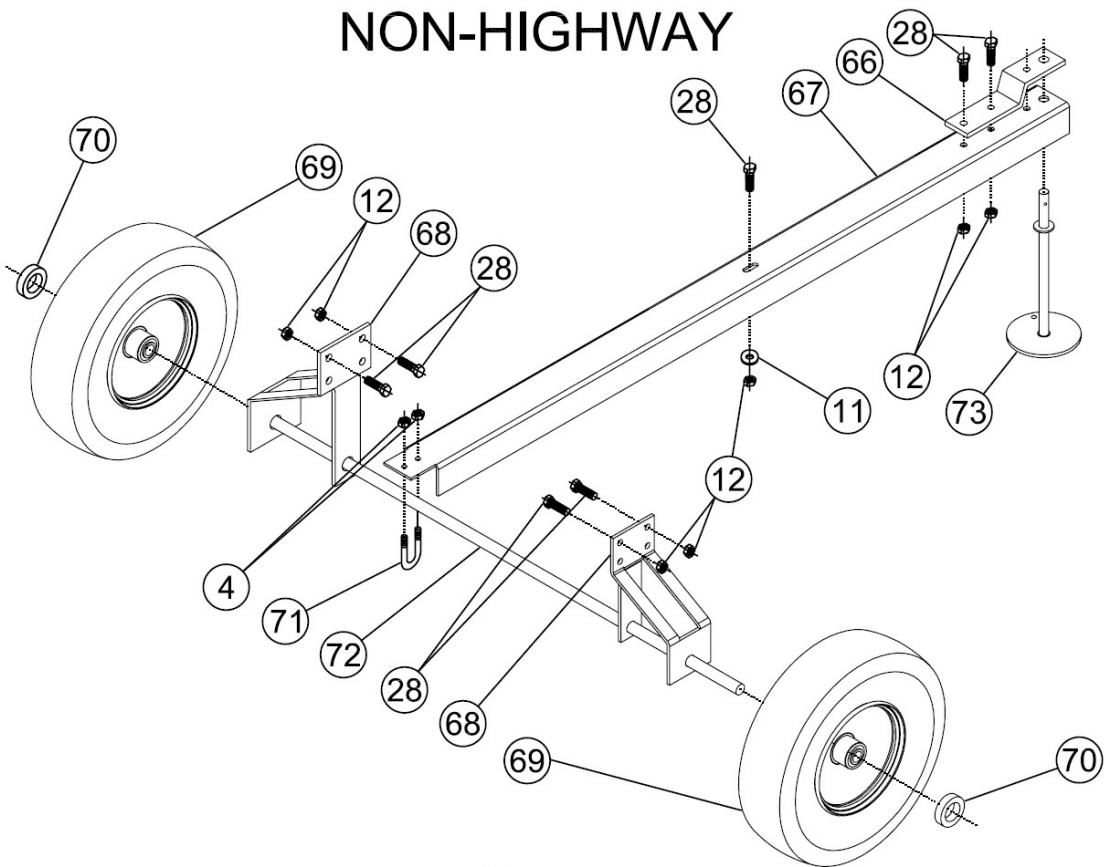
54	090-0093	1	5/16-18 X 3" HHCS
55	900-0249	2	AXLE BRACKET
56	702-0040	2	WHEEL & TIRE
57	911-0070	1	AXLE WELDMENT
58	030-0375	2	REFLECTOR
60	090-0201	1	5/8-11 X 3 1/2" HHCS
61	090-0694	1	5/8-11 NYLOCK NUT
62	108-0076	1	STAND WELDMENT
63	408-0078	2	SAFETY CHAIN
64	090-0123	1	3/8-16 X 3 1/2" HHCS
65	090-0370	2	1/2-13 X 3" HHCS
66	913-0008	1	HITCH PLATE
67	913-0089	1	TOW BEAM
68	908-0060	2	AXLE BRACKET
69	030-0240	2	4.10/3.50 – 6 WHEEL & TIRE
70	090-0536	2	5/8" SHAFT COLLAR
71	090-0610	1	1/4-20 X 1 1/4" U BOLT
72	913-0090	1	28 1/4" AXLE
73	913-0029	1	STAND WELDMENT
74	080-0090	6	RIVET
75	090-0111	4	3/8-16 X 1 1/4" HHCS
76	500-0012	2	5/8" SPACER
77	911-0306	1	ENGINE BRACE



HIGHWAY



NON-HIGHWAY

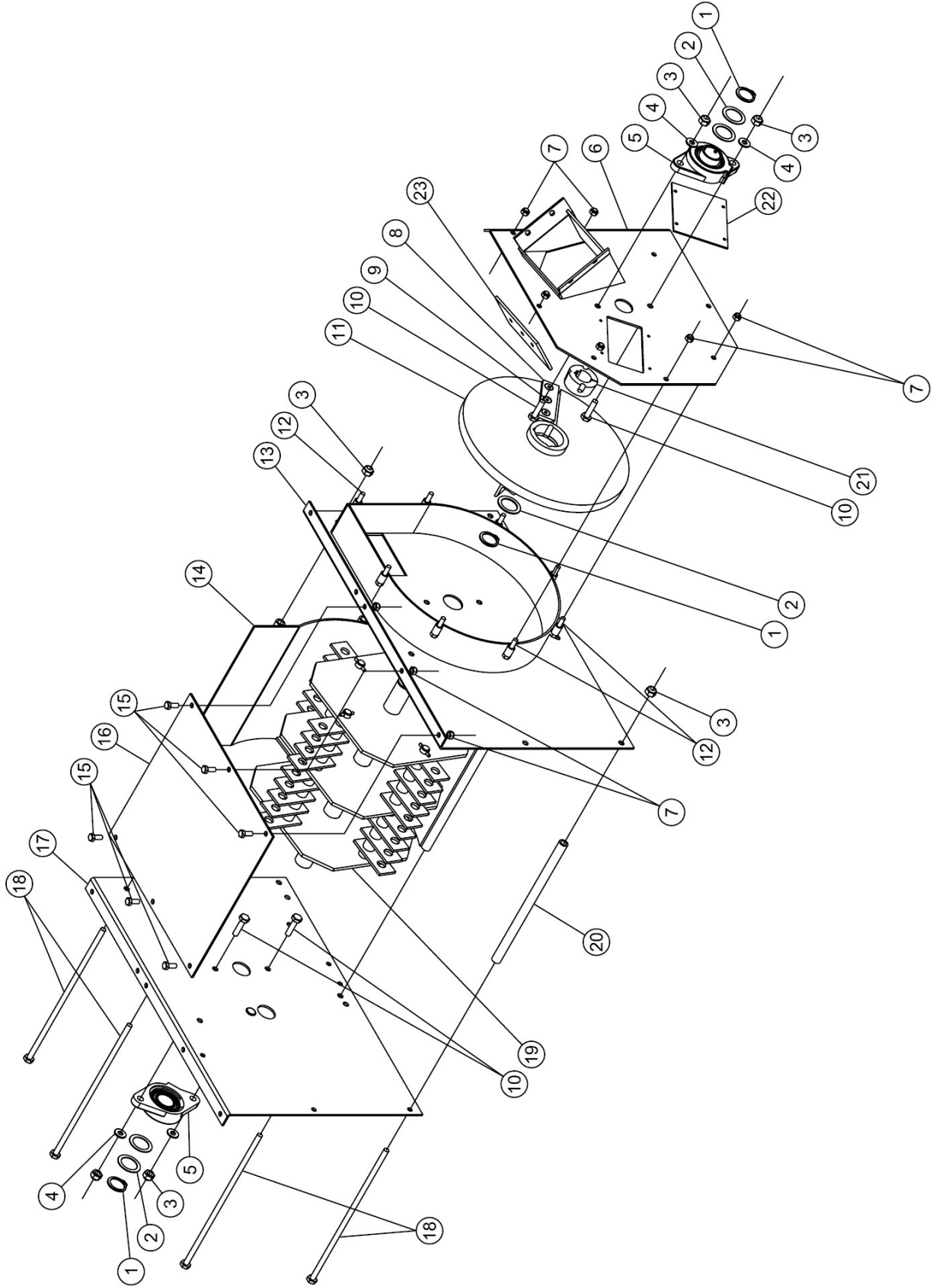


BASIC PARTS LIST

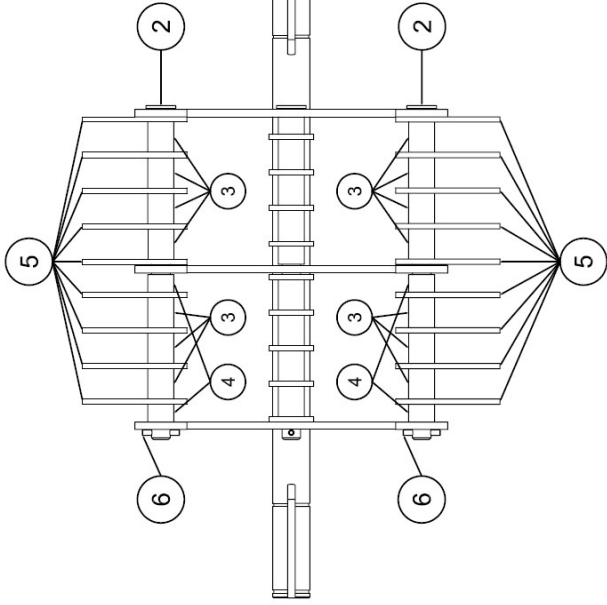
ITEM #	PART #	QTY	DESCRIPTION
1	030-0449	3	RETAINING RING
2	030-0452	5	SHIM
3	090-0049	9	3/8-16 GRIPCO LOCKNUT
4	090-0233	4	5/16 USS FLAT WASHER
5	030-0441	2	BEARING
6	910-0022	1	CHIPPER CHUTE PLATE WELDMENT
7	090-0048	14	5/16-18 GRIPCO LOCKNUT
8	030-0498	1	KNIFE
9	090-0413	3	5/16-18 X 1" FSHCS
10	090-0121	4	3/8-16 X 1 1/4" HHCS
11	910-0020	1	CHIPPER DISK – COMPLETE WITH KNIFE
12	090-0089	8	5/16-18 X 1 1/4" HHCS
13	910-0006	1	CHIPPER SIDE WELDMENT
14	910-0003	1	SCROLL WELDMENT
15	090-0066	6	5/16-18 X 3/4" HHCS
16	910-0009	1	TOP PLATE
17	910-0056	1	DRIVE SIDE PLATE WELDMENT
18	910-0065	5	SCROLL BOLT WELDMENT
19	910-0016	1	ROTOR ASSEMBLY
20	910-0002	1	SCROLL TUBE
21	030-0442	1	TAPERLOCK BUSHING
22	913-0210	1	ACCESS COVER
23	910-0044	1	WEAR PLATE

ROTOR ASSEMBLY PARTS LIST

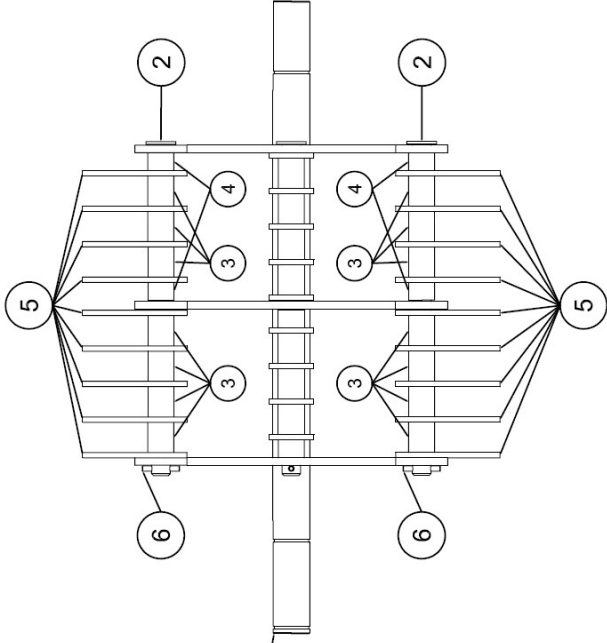
ITEM #	PART #	QTY	DESCRIPTION
1	910-0012	1	ROTOR WELDMENT
2	910-0013	4	HAMMER ROD
3	910-0014	28	HAMMER SPACER
4	910-0015	8	HAMMER SPACER
5	500-0008	36	HAMMER
6	090-0626	4	ROLL PIN



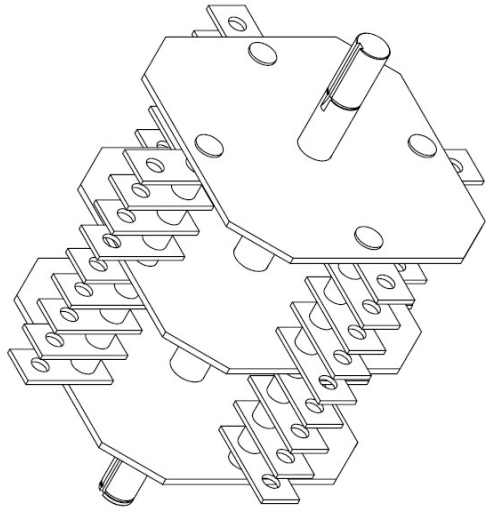
ROW 1



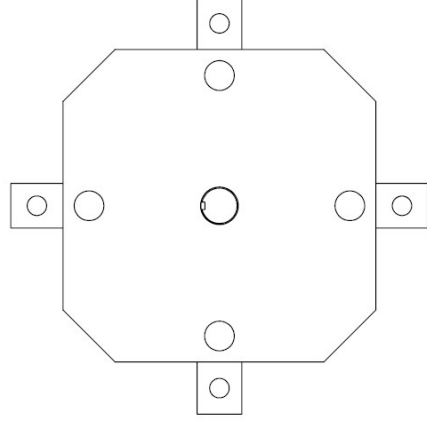
ROW 2



ROW 3



ROW 4



910-0016 ROTOR ASSEMBLY

LIMITED WARRANTY

Any product manufactured by MacKissic, Inc. and found, in the judgment of MacKissic, Inc., to be defective in material or workmanship, will be repaired or replaced by an Authorized MacKissic Service Dealer without charge for parts and labor to the original owner of the MacKissic product.

The MacKissic product including any defective part must be returned to an Authorized MacKissic Service Dealer within the warranty period. The expense of delivering the product to the dealer for warranty work and the expense of returning it back to the owner after repair or replacement will be borne by the owner. MacKissic's responsibility is limited to making the required repairs or replacements only. No claim of breach of warranty shall be cause for cancellation or rescission of the sales contract of any MacKissic product. Proof of purchase will be required by the dealer to substantiate any warranty claim. All warranty work must be performed by an Authorized MacKissic Service Dealer.

This warranty is limited to two years from the date of original retail purchase for any MacKissic product that is used for consumer purposes or 90 day for commercial and rental use.

This warranty does not cover any product that has been subject to misuse, abuse, neglect, negligence, or accident, or that has been operated in any way contrary to or inconsistent with the operating instructions as specified in the owner's manual. The warranty does not apply to any damage to the product that is the result of improper maintenance, or to any product or parts that have not been assembled or installed as specified in the owner's manual.

The warranty does not cover any product that has been altered or modified. In addition, the warranty does not extend to repairs made necessary by normal wear, or by the use of parts or accessories which, in the judgment of MacKissic, Inc., are either incompatible with the MacKissic product or adversely affect its operation, performance or durability. This warranty does not cover engines, electric starters, batteries, and tires which are warranted separately by their manufacturer and for a different period of time.

MacKissic, Inc. reserves the right to change the design of any product without assuming any obligation to modify any product previously manufactured.

THE DURATION OF THE LIMITED WARRANTY IS TWO YEARS CONSUMER, 90 DAYS COMMERCIAL AND RENTAL USE. REPAIR OR REPLACEMENT AS PROCEEDED UNDER THIS LIMITED WARRANTY IS THE EXCLUSIVE REMEDY OF THE PURCHASER. MacKissic, INC., SHALL NOT BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES, EXCEPT THE LIMITED WARRANTY DESCRIBED ABOVE, ALL IMPLIED WARRANTIES (MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE) ARE SPECIFICALLY DISCLAIMED.

MacKissic, INC. ASSUMES NO RESPONSIBILITY FOR INCIDENTAL, CONSEQUENTIAL OR OTHER DAMAGES INCLUDING, BUT NOT LIMITED TO, EXPENSE FOR GASOLINE, OIL, EXPENSE OF DELIVERING THE PRODUCT TO AN AUTHORIZED MacKISSIC SERVICE DEALER AND EXPENSE OF RETURNING IT BACK TO THE OWNER, MECHANIC'S TRAVEL TIME, TELEPHONE OR TELEGRAM CHARGES, RENTAL OF A LIKE PRODUCT DURING THE TIME WARRANTY REPAIRS ARE BEING PERFORMED, TRAVEL, LOSS OR DAMAGE TO PERSONAL PROPERTY, LOSS OF REVENUE, LOSS OF USE OF THE PRODUCT, LOSS OF TIME OR INCONVENIENCE.

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

08/29/2022

03/14/19

OWNER'S MANUAL REVISION FOR SC1650E/SC1650HTE **P/N 910-0055**

**PLEASE KEEP THIS SHEET WITH YOUR OWNER'S MANUAL AND REFERENCE IT
WHEN ORDERING PARTS AND/OR SAFETY DECALS**

ITEM #	PAGE	DESCRIPTION	NEW PART #
2	32	SHREDDER HOPPER BLOW BACK SHIELD	810-0298 & 910-0361
27	32	BELT GUARD BRACKET	921-0027-BL
29	32	BELT GUARD	940-3093-BL
44	32	SHREDDER HOPPER	910-0103-GR
13	35	CHIPPER SIDE PLATE (TD)	910-0102-GR
17	35	DRIVE SIDE PLATE	910-0101-GR

NOT SHOWN

PART #	DESCRIPTION	QTY.
030-0640	BATTERY BOOTS	1
921-1097-BL	INNER BELT GUARD	1

NEW SAFETY DECALS

PART #	DESCRIPTION	QTY.
091-0057	DANGER, HANDS & FEET DECAL	2
913-0265	CLUTCH DAMAGE DECAL	1
930-0004	BELT GUARD WARNING DECAL	1
930-0006	AVOID ELECTRICAL SHOCK DECAL	1
930-0007	BURN HAZARD WARNING DECAL	1
930-0009	ROTATING PARTS WARNING DECAL	1
930-0010	DISCHARGE WARNING DECAL	1
930-0013	DANGER, LARGE HOPPER DECAL	3
940-0001	ROTATING KNIFE WARNING DECAL	1
940-0011	DISCHARGE DANGER DECAL	1