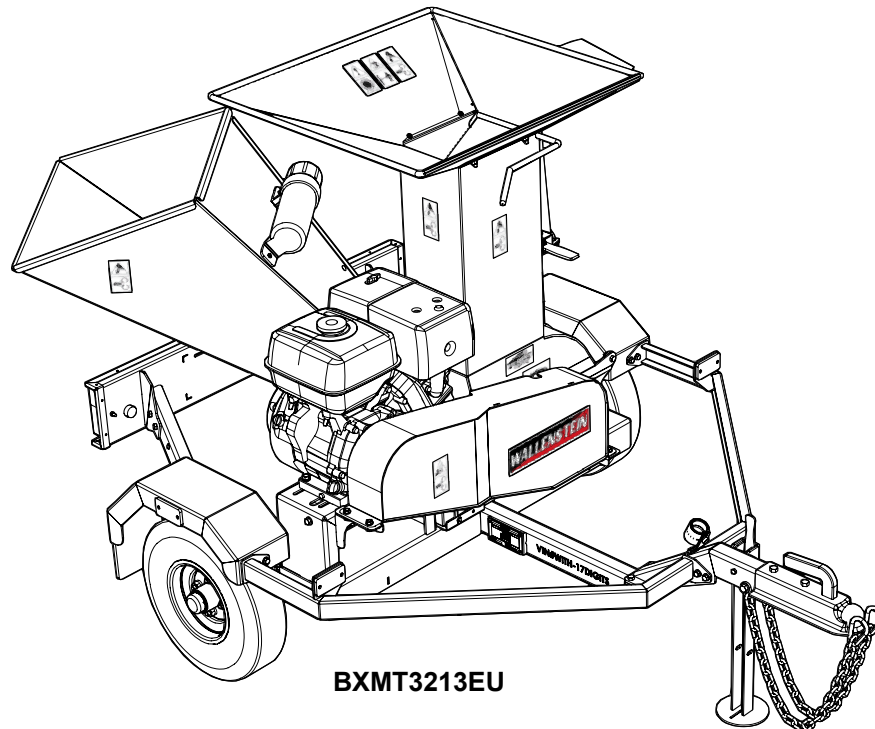


# WALLENSTEIN

BY EMB MFG INC.

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BXMT3213EU

## **BXMT3213EU TRAILER CHIPPER / SHREDDER OPERATOR'S MANUAL**



**Before putting the BXMT3213EU into service:**  
Do not attempt to start or operate the wood chipper without thoroughly re-  
viewing this manual for safe and proper operation.

**Keep this manual with the  
machine at all times**



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## WARRANTY

Effective on products retailed on or after January 1, 2011.

**Register your product online at [www.embmfg.com](http://www.embmfg.com) within 30 days of purchase to activate warranty.**

This product is warranted to be free of defects in materials and workmanship under normal use and service, for a period of

### **Three (3) Years for Consumer One (1) Year for Commercial/Rental**

from the date of purchase, when operated and maintained in accordance with the Operating and Maintenance Instructions supplied with this unit. Warranty is limited to the repair of the product and/or replacement of parts.

#### **This warranty does not cover the following items:**

1. Batteries – due to shipping periods associated with exporting
2. Machines or parts lost or damaged during shipment,
3. Normal maintenance or adjustments after initial pre-service and set up is completed
4. Normal replacement of service items.
5. Accessory items / parts not supplied by EMB MFG INC.
6. Damages resulting from:
  - misuse, negligence, accident, theft or fire
  - use of improper or insufficient fuel, fluids or lubricants
  - use of parts or after market accessories other than genuine EMB MFG INC. parts
  - modifications, alteration, tampering or improper repair performed by parties other than an authorized dealer
  - any device or accessories installed by parties other than an authorized EMB dealer or distributor

Engines are covered by the manufacturer of the engine and covered by the warranty period specified by that manufacturer.

**Engine warranty must be registered at the engine manufactures website.** For service contact your local engine dealer.

Under no circumstances will the manufacturer be liable for any consequential damage or expense of any kind, including loss of profits. The manufacturer is under no circumstances liable for tow vehicle of any kind. The manufacturer is not liable for the maintenance of the product.

This warranty is extended only to the original purchaser and is not transferable. Warranty is void if repairs are attempted by anyone other than a Wallenstein Authorized Service Centre.

If a difficulty develops with the product, contact the local dealer from which you purchased the unit. Only Wallenstein authorized dealers are authorized to make repairs to the product or affect the replacement of defective parts, which will be done at no charge within a reasonable time after the receipt of the product. Unit or parts shall be returned at the customer's expense to the Authorized Service Centre. Damage in transit is not covered by warranty. Include the original purchase receipt with any claim (keep a copy of the receipt for your files). Warranty Parts are FOB St. Clements, Canada. Freight charges from EMB to Distributors or Dealers are at the Distributors expense.

The distributor's liability under warranty is limited to freight charges for any warranty parts, repair of the product and/or replacement of parts and is given to the purchaser in lieu of all other remedies including incidental and consequential charges. There are no warranties, expressed or implied, other than those specified herein.

EMB MFG Inc  
4144 Boomer Line, St Clements, ON N0B 2M0 Canada  
Phone: 519-699-9283 Fax: 519-699-4146 : attention to Warranty Dept  
Email: [warranty@embmfg.com](mailto:warranty@embmfg.com)

**WALLENSTEIN**  
**BX3213EU TRAILER CHIPPER - SHREDDER**  
**DELIVERY INSPECTION REPORT**  
 To activate warranty, register your product online at  
**www.embmfg.com**

\_\_\_\_\_  
 Customer's Name

\_\_\_\_\_  
 Contact Name

\_\_\_\_\_  
 Dealer Name

(\_\_\_\_\_) \_\_\_\_\_  
 Phone Number

\_\_\_\_\_  
 Serial Number

\_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_  
 Delivery Date

✓	<b>Pre-Delivery Inspection</b>
	Inspect for damage from shipping, immediately contact the shipping company if damage is found.
BXMT3213	Trailer Chipper - Shredder
	Check Blade Clearance
	Rotor Turns Freely
	Belt Tension Checked
	Pulleys Aligned
	Fasteners Tight
	Grease Zerks / Lubricate Pivot Points
	Check Tire Pressure / Wheel Nuts
	Check Cutting Blades & Chop Block
	Check Hopper Swing Gate Moves Freely
	Check Spring Rotor Lock Moves Freely
	Check Engine Fluid Levels
	Review Operating and Safety Instructions
Safety Checks	
	All Safety Decals Installed
	Guards and Shields Installed and Secured
	Check Function of Brake and Signal Lighting
	Safety Chain on Hitch
	Check Running Lights
	Review Operating and Safety Instructions

I have thoroughly instructed the buyer on the equipment care, adjustments, safe operation and applicable warranty policy and reviewed the manual.

\_\_\_\_\_  
 Dealer's Rep. Signature

\_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_  
 Date

The product manuals have been received by me and I have been thoroughly instructed as to care, adjustments, safe operation and applicable warranty policy.

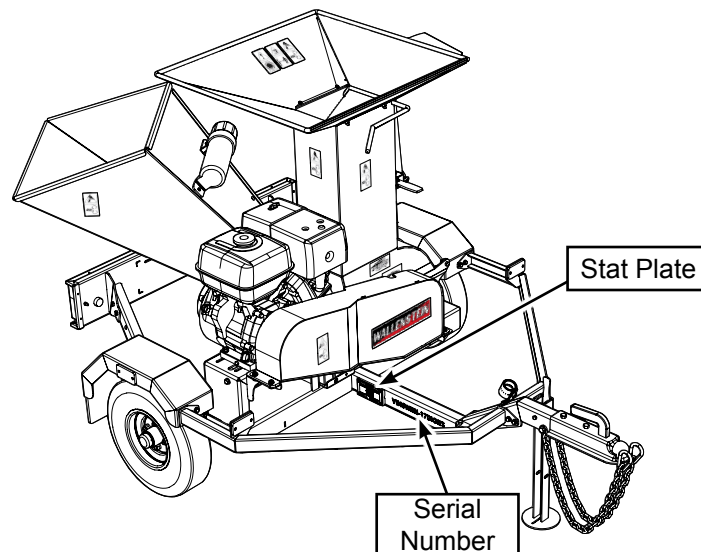
\_\_\_\_\_  
 Owner's Signature

\_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_  
 Date

## SERIAL NUMBER LOCATION

Always give your dealer the serial number of your Wallenstein Trailer Chipper - Shredder when ordering parts or requesting service or other information.

The serial number for the BXMT3213EU is engraved on the main frame. The CE stat plate is located on the the frame riveted in place beside the serial number.



Please mark the serial number in the space provided for easy reference.

Serial Number \_\_\_\_\_

## LABELLING INFORMATION

As you begin to get familiar with your Wallenstein product, you will notice that there are numerous labels located on the machine. Here is a brief explanation of what they are for and how to read them.

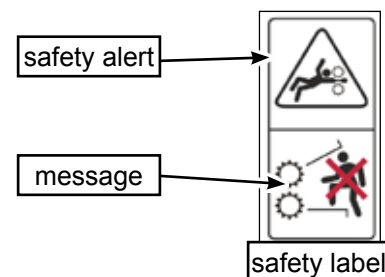
There are three different types of labelling: safety, informative and product labels.

**Safety Labels** are pictorial and always with a yellow background colour and generally 2 panel. The top panel shows the safety alert (the potential hazard) and the bottom panel shows the message (how to avoid the hazard).

**Informative Labels** are generally pictorial, have a white background colour and can vary to the number of panels. The label will illustrate the function of a feature and is accompanied by detailed instructions in the owners manual, with the label illustrated along side.

**Product Labels** are associated with the product and carry various messages. (model, serial, etc)

See the section on safety signs for safety label definitions. For a complete illustration of labels and label locations, download the parts manual for your model product at [www.embmfg.com](http://www.embmfg.com).

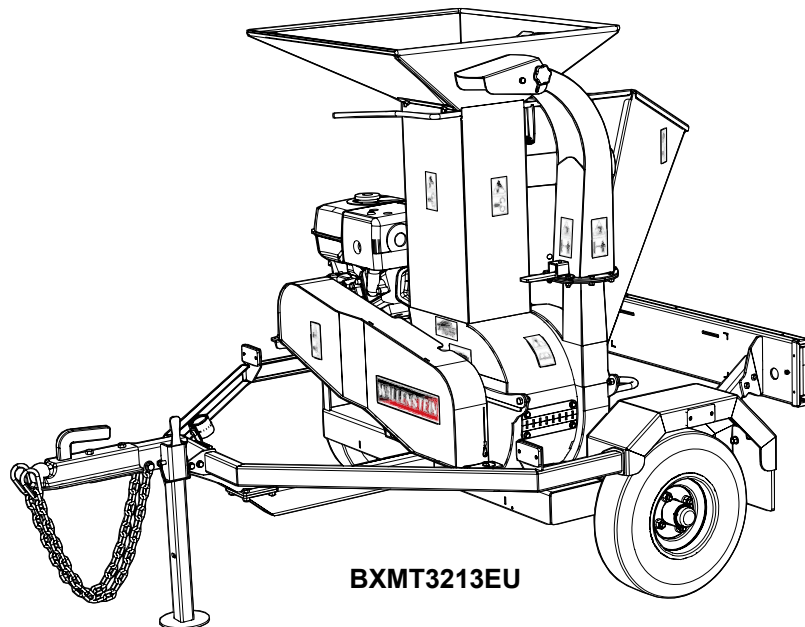


# 1 INTRODUCTION

Congratulations on your choice of a Wallenstein Trailer Chipper-Shredder. This equipment has been designed and manufactured to meet the needs of a discerning buyer, whether for home, or timber and landscaping industry. Pick up and go wherever you need it. Ideal for keeping jobsites clean and tidy, contractors, arborists and municipalities can easily chip or mulch branches into vehicles and haul them away with the trailer style BXMT Chipper / Shredder.

Features include:

- Oversized chipper rotor in the BXMT allows for a more reliable, more powerful chipping force.
- The centrifugal clutch system makes it easier for the unit to start, which means less wear and tear and longer life on the drive belt.
- TORFLEX® Suspension, This high end trailer suspension allows for easy pulling over long distances with less stress on the equipment.
- EXCLUSIVE CHOP-BLOCK, For shredding, the BXMT revolutionizes the whole way you've come to expect finely mulched ground cover. Inside Wallenstein's innovative shredding chamber are of intricate cutting knives and the exclusive CHOP-Block. The CHOP-Block works like an anvil, trapping the material and forcing it to be shredded more precisely, ensuring consistent cut, clean-out and delivery of the mulch through the exit chute.



Safe, efficient and trouble free operation of your Wallenstein Chipper-Shredder requires that you and anyone else who will be using or maintaining the Chipper-Shredder, read and understand the Safety, Operation, Maintenance and Trouble Shooting information contained within the Operator's Manual.

This manual covers the Wallenstein Trailer Chipper-Shredder BXMT3213EU. Use the Table of Contents or Index as a guide to locate required information.

Keep this manual handy for frequent reference and to pass on to new operators or owners. Call your Wallenstein dealer or the Distributor if you need assistance, information or additional copies of the manuals.

**OPERATOR ORIENTATION** - The directions left, right, front and rear, as mentioned throughout this manual, are determined when sitting in the tow unit driver's seat and facing in the direction of travel.

## 2 SAFETY

### SAFETY ALERT SYMBOL

This Safety Alert symbol means  
**ATTENTION! BECOME ALERT!**  
**YOUR SAFETY IS INVOLVED!**



The Safety Alert symbol identifies important safety messages on the Wallenstein Trailer Chipper-Shredder and in the manual. When you see this symbol, be alert to the possibility of personal injury or death. Follow the instructions in the safety message.

Why is SAFETY important to you?

#### 3 Big Reasons

**Accidents Disable and Kill**  
**Accidents Cost**  
**Accidents Can Be Avoided**

#### SIGNAL WORDS:

Note the use of the signal words **DANGER**, **WARNING** and **CAUTION** with the safety messages. The appropriate signal word for each message has been selected using the following guide-lines:

**DANGER** - Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury. This signal word is to be limited to the most extreme situations typically for machine components which, for functional purposes, cannot be guarded.

**WARNING** - Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury, and includes hazards that are exposed when guards are removed. It may also be used to alert against unsafe practices.

**CAUTION** - Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

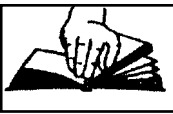
If you have any questions not answered in this manual or require additional copies or the manual is damaged, please contact your dealer or Wallenstein, 4144 Boomer Line, St. Clements, ON, N0B 2M0. Phone (519) 699-9283 or Fax (519) 699-4146.



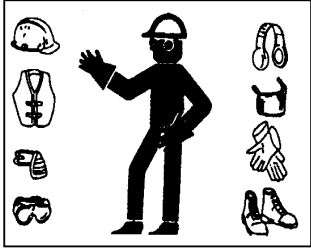
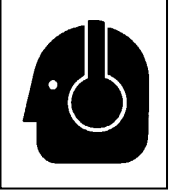
# SAFETY

**YOU** are responsible for the SAFE operation and maintenance of your Wallenstein Trailer Chipper-Shredder. **YOU** must ensure that you and anyone else who is going to use, maintain or work around the Trailer Chipper-Shredder be familiar with the using and maintenance procedures and related **SAFETY** information contained in this manual. This manual will take you step-by-step through your working day and alerts you to all good safety practices that should be used while using the Trailer Chipper-Shredder.

Remember, **YOU** are the key to safety. Good safety practices not only protect you but also the people around you. Make these practices a working part of your safety program. Be certain that **EVERYONE** using this equipment is familiar with the recommended using and maintenance procedures and follows all the safety precautions. Most accidents can be prevented. Do not risk injury or death by ignoring good safety practices.

## 2.1 SAFETY DO'S & DON'TS'

- **DO** give operating instructions to operators or employees before allowing them to operate the machine, and REVIEW annually thereafter.
- **DO** read and understand ALL Safety and Operating instructions in the manual and follow them. Most accidents can be avoided. The most important safety device on this equipment is a SAFE operator. 
- **DO NOT** expect a person who has not read and understood all use and safety instructions to operate the machine. An untrained operator is not qualified and exposes himself and bystanders to possible serious injury or death. It is the owners responsibility to the operator to ensure familiarity and understanding of the machine.
- **DO NOT** modify the equipment in any way. Unauthorized modification may impair the function and/or safety and could affect the life of the equipment.
- **DO NOT** allow riders while towing the machine.
- **DO NOT** risk injury or death by ignoring good safety practices.

- **DO** review safety related items annually with all personnel who will operating or maintaining the Chipper / Shredder.
- **DO** have a first-aid kit available for use should the need arise and know how to use it. 
- **DO** read and understand all safety signs located on the machine before using, maintaining, adjusting or cleaning the Trailer Wood Chipper / shredder.
- **DO** have a fire extinguisher available for use should the need arise and know how to use it. 
- **DO** inspect and secure all guards before starting.
- **DO** wear appropriate protective gear. This list includes but is not limited to:
  - A hard hat
  - Heavy gloves
  - Wet weather gear
  - Hearing Protection
  - Respirator or filter mask
  - Protective shoes with slip resistant soles
  - Protective glasses, goggles or face shield
- **DO** wear suitable ear protection for prolonged exposure to excessive noise. 
- **DO** prepare before servicing, adjusting, repairing or unplugging:
  - stop the machine,
  - shut off the engine,
  - remove ignition key and place in your pocket,
  - wait for all moving parts to stop
  - clear the area of people, especially small children.
  - set tow vehicle brake
- **DO** check splitting bed, air vents, intakes and exhausts, that they are clear of debris prior to starting the machine
- **DO NOT** touch hot engine parts, muffler, muffler cover, engine body, engine oil, etc. during operation and after the engine has been shut off. Contact may cause burns.
- **DO NOT** modify, disable or change in any way the safety controls.
- **DO** think SAFETY! Work SAFELY!




## 2.2 EQUIPMENT SAFETY GUIDELINES

Safety of the operator and bystanders is one of the main concerns in designing and developing a machine. However, every year many accidents occur which could have been avoided by a few seconds of thought and a more careful approach to handling equipment. You, the operator, can avoid many accidents by observing the following precautions in this section. To avoid personal injury or death, study the following precautions and insist those working with you, or for you, follow them.

1. In order to provide a better view, certain photographs or illustrations in this manual show an assembly with a safety shield removed. However, equipment should never be operated in this condition. Keep all shields in place. If shield removal becomes necessary for repairs, replace the shield prior to use.
2. Replace any safety sign or instruction sign that is not readable or is missing. Location of such safety signs is indicated in this manual.
3. Never use alcoholic beverages or drugs which can hinder alertness or coordination while operating this equipment. Consult your doctor about operating this machine while taking prescription medications.
4. **Under no circumstances should young children be allowed to work with this equipment. Do not allow persons to operate or assemble this unit until they have read this manual and have developed a thorough understanding of the safety precautions and of how it works.** Review the safety instructions with all users annually.
5. This equipment is dangerous to children and persons unfamiliar with its operation. The operator should be a responsible, properly trained and physically able person familiar with and trained in this equipment's operations. If the elderly are assisting with work, their physical limitations need to be recognized and accommodated.
6. Never exceed the limits of a piece of machinery. If its ability to do a job, or to do so safely, is in question - **DON'T TRY IT.**
7. Do not modify the equipment in any way. Unauthorized modification result in serious injury or death and may impair the function and life of the equipment.
8. In addition to the design and configuration of this implement, including Safety Signs and Safety Equipment, hazard control and accident prevention are dependent upon the awareness, concern, prudence, and proper training of personnel involved in the operation, transport, maintenance, and storage of the machine.
9. Refer also to Safety Messages and operation instruction in each of the appropriate sections of the Tractor and machine Manuals. Pay close attention to the Safety Signs affixed to the tractor and the machine.
10. **Safe condition** involves the following procedure:
  - shut off the engine.
  - ensure all components have stopped moving.
  - remove and pocket the ignition key.
  - disconnect the battery.
  - block & chock the wheels.Safe Condition procedure should be performed before any service, maintenance work or storage preparation.

## 2.3 SAFETY TRAINING

1. Safety is a primary concern in the design and manufacture of our products. Unfortunately, our efforts to provide safe equipment can be wiped out by a single careless act of an operator or bystander.
2. In addition to the design and configuration of equipment, hazard control and accident prevention are dependent upon the awareness, concern, prudence and proper training of personnel involved in the operation, transport, maintenance and storage of this equipment.
3. It has been said, "The best safety feature is an informed, careful operator." We ask you to be that kind of an operator. It is the operator's responsibility to read and understand ALL Safety and Operating instructions in the manual and to follow these. Accidents can be avoided.
4. **Working with unfamiliar equipment can lead to careless injuries. Read this manual, before assembly or operating, to acquaint yourself with the machine. If this machine is used by any person other than yourself, or is loaned or rented, it is the machine owner's responsibility to make certain that the operator, prior to operating:**
  - Reads and understands the operator's manuals.
  - Is instructed in safe and proper use.
  - Understands and knows how to perform the "safe condition" procedure:
    - shut off the engine
    - ensure all components have stopped moving.
    - remove and pocket the ignition key
    - disconnect the battery
    - block & chock the wheels
5. Know your controls and how to stop the machine quickly in an emergency. Read this manual thoroughly
6. Be certain only a properly trained and physically able person will operate the machinery. A person who has not read and understood all operating and safety instructions is not qualified to operate the machine. An untrained operator exposes himself and bystanders to possible serious injury or death. If the elderly are assisting, their physical limitations need to be recognized and accommodated.

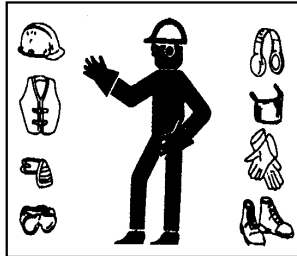
## 2.4 PREPARATION

1. Never use the engine and machine until the operators have been adequately trained in the safe operation of the machine and have read and completely understand:

- Safety, Operation and Feature sections of this manual,
- Engine Operator's Manual
- Each of the Safety Messages found on the safety signs on the engine and machine.

2. Personal protection equipment including:

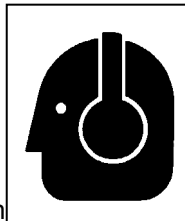
- hard hat
- safety glasses
- safety shoes
- gloves
- hearing protection
- safety vest



are recommended during assembly, installation, operation, adjustment, maintaining, repairing, removal, cleaning, or moving the chipper. Do not allow long hair, loose fitting clothing or jewellery to be around equipment.

### 3. **PROLONGED EXPOSURE TO LOUD NOISE MAY CAUSE PERMANENT HEARING LOSS!**

Power equipment can be noisy enough to cause permanent, partial hearing loss. We recommend that you wear hearing protection on a full-time basis. Noise over 85dB on a long-term basis can cause severe hearing loss.



Noise over 90db adjacent to the Operator over a long-term basis may cause permanent, total hearing loss.

**Caution:** Hearing loss from loud noise (from tractors, chain saws, radios, and other such sources close to the ear) is cumulative over a lifetime without hope of natural recovery.



4. Clear working area of stones, branches or hidden obstacles that might be hooked or snagged, causing injury or damage.
5. Determine where the split logs will be piled and ensure it does not interfere with safe loading of material into the machine
6. Precut material so that it is ready to load into the machine. Do not run a chainsaw and the machine at the same time.
7. Use only in daylight or good artificial light.
8. Be sure machine is properly mounted, adjusted and in good operating condition.
9. Ensure that all safety shielding and safety signs are properly installed and in good condition.
10. If fuel is on site, store it well away from the chip pile and feed material.
11. Do not operate gas powered machinery indoors, **even if** doors and windows are open. Carbon monoxide produced by the engine is a poison that you cannot see or smell and can kill in minutes.
12. When operating this equipment , always let someone know where you are and what you are doing. In case of accident or injury some one will be aware of your location.
13. Perform the "PreOperation Checklist" procedure before starting work.

## 2.5 MAINTENANCE SAFETY

1. Good maintenance is your responsibility. Poor maintenance is an invitation to trouble.
2. Follow good shop practices.
  - Keep service area clean and dry.
  - Be sure electrical outlets and tools are properly grounded.
  - Use adequate light for the job at hand.



3. Do not operate gas powered machinery indoors without direct venting out doors. Carbon monoxide produced by the engine is a poison that you cannot see or smell and can kill in minutes.
4. Put the machine in **safe condition** before working on this machine:
  - shut off the engine
  - ensure all components have stopped moving.
  - remove and pocket the ignition key
  - disconnect the battery
  - block & chock the wheels
5. Allow the engine to cool before performing maintenance, engine components and oil may be hot enough to cause injury.
6. Never work under equipment unless it is blocked securely.
7. When performing any service or maintenance work always use personal protection devices such as
  - safety glasses,
  - hand protection - gloves
  - hearing protectors
  - safety shoesUse tight fitting gloves when handling parts.

8. Where replacement parts are necessary for periodic maintenance and servicing, genuine factory replacement parts must be used to restore your equipment to original specifications. The manufacturer will not be responsible for injuries or damages caused by use of unapproved parts and/or accessories.
9. A fire extinguisher and first aid kit should be kept readily accessible while performing maintenance on this equipment.  
10. Inspect and tighten all bolts, nuts and screws and check that all electrical and fuel connections are properly secured to ensure chipper / shredder is in a safe working condition.
11. When completing a maintenance or service function, make sure all safety shields and devices are installed before placing chipper in service.
12. When cleaning any parts, do not use gasoline, use regular cleanser.
13. Always use two people to handle heavy, unwieldy components during assembly, installation, removal or moving.
14. Never place any part of your body, fingers, hands, feet, etc. where it would be in danger if movement should occur during assembly, installation, operation, maintaining, repairing, removal or moving. Keep others away.
15. Always use proper tools, that are in good condition. Make sure you understand how to use them, before performing any service work.

## 2.6 OPERATING SAFETY

Please remember it is important that you read and heed the safety signs on the Chipper / Shredder. Clean or replace all safety signs if they cannot be clearly read and understood. They are there for your safety, as well as the safety of others. The safe use of this machine is strictly up to you, the operator.

1. All things with moving parts are potentially hazardous. There is no substitute for a cautious, safe-minded operator who recognizes potential hazards and follows reasonable safety practices. The manufacturer has designed this Trailer Chipper / Shredder to be used with all its safety equipment properly attached, to minimize the chance of accidents. Read and understand operator's manual before starting, to make sure you have all safety equipment attached and operational.
2. Close and secure all covers, guards, deflectors and shields before starting and operating.
3. Personal protection equipment including hearing protection, hard hat, safety glasses, safety shoes, and gloves are recommended during assembly, installation, operation, adjustment, maintaining, repairing, removal, or moving. Do not allow long hair, loose-fitting clothing, or jewellery to be around moving parts.
4. Do not allow bystanders within 20 feet of machine during operation. Wood chips can fly out and injure others.
5. Inspect electrical harness, sensors and controller to ensure they are in good condition before operating to maintain control.
6. Never place any part of your body where it would be in danger if movement should occur during operation, maintenance, repairing, or moving.
7. Use care when feeding material into chipper. Do not send metal, bottles, cans, rocks, glass or other foreign material into wood chipper. If foreign material enters chipper, stop machine, turn engine off and place ignition key in your pocket and wait for all moving parts to stop before removing material and/or unplugging. Inspect machine for damaged or loose parts before resuming work.
8. Do not point discharge at people, animals or buildings. Rotor can expel wood chips fast enough to cause injury.
9. Do not reach into shredder or feed hopper openings when the engine is running. Be sure the Shredder hopper hinged gate and chipper hopper rubber flaps are in good condition and function as required.
10. Turn machine off, stop and disable engine, remove ignition key, set park brake and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging.
11. Do not operate gas powered machinery indoors, **even if** doors and windows are open. Carbon monoxide produced by the engine is a poison that you cannot see or smell and can kill in minutes.
12. Never use alcoholic beverages or drugs which can hinder alertness or coordination while operating this equipment. Consult your doctor about operating this machine while taking prescription medications.
13. Do not climb or sit on machine when operating. Keep proper balance and footing at all times.
14. Never allow children or unauthorized people to operate or be around this machine.
15. Keep the working area clean and free of debris to prevent tripping. Operate only on level ground.
16. Do not move or transport Chipper-Shredder when the rotor is turning.

## 2.7 TIRE SAFETY

1. Have a qualified tire dealer or repair service perform required tire maintenance, never attempt to mount a tire on your own.
2. Inflate tires to manufacturer's specifications as stated on the tire sidewall.
3. Do not exceed the maximum towing speed indicated on tire sidewall.
4. When replacing worn tires, make sure they meet the original tire specifications. Never undersize.

## 2.8 STORAGE SAFETY

1. Store the chipper in an area away from human activity.
2. Do not allow children to play on or around the stored machine.
3. Store the chipper in a dry, level area. Support the frame with planks if required.
4. If storing for long periods consult your engine owners manual for safe storage.

## 2.9 SHREDDER SAFETY


1. Do not overreach into the hopper. Keep proper balance and footing at all times.
2. Shredder knives can cause serious injury or death. Keep hands, feet and clothing away from the rotating shredder knives.
3. Never climb onto the feed table or hopper when the chipper is operating or running.
4. When feeding material into the feeder or hopper wear eye face and hearing protection.

## 2.10 TRANSPORT SAFETY

1. Comply with state and local laws governing safety and transporting of machinery on public roads.
2. Do not exceed a safe travel speed. Slow down for rough terrain and cornering.
3. Do not transport or move the machine with the engine running.
4. Be sure the trailer is hitched positively to the towing vehicle. Always attach safety chain between the hitch and the towing vehicle.
5. Inspect rims for dents or damage, check wheel lugs and tighten if required.
6. Inspect tires for cuts or damage, check tire pressure and top up if required.
7. Inspect all access panels and guards to ensure they are secured.

8. Inspect fuel and hydraulic tank caps are on tight to prevent spills while transporting.
9. Clean off all debris from the Chipper /shredder.
10. Check that all the lights, reflectors and other lighting requirements are connected and in good working condition.
11. Never allow riders on the machine.
12. Be a safe and courteous driver. Always yield to oncoming traffic in all situations, including narrow bridges, intersections, etc.
13. Watch for traffic when near or crossing roadways.
14. Do not drink and drive.
15. Just before transport, perform a circle check to ensure everything is safe, secure and in working condition.

## 2.11 BATTERY SAFETY

 **Caution:** Poison / Danger - Causes Severe Burns. The battery contains sulphuric acid. Avoid contact with skin, eyes or clothing. Keep out of reach of children.

1. Wear gloves and safety glasses or face shield when working on or near batteries.
2. Use a battery carrier to lift the battery or place hands at opposite corners to avoid spilling acid through the vents.
3. Avoid contact with battery electrolyte:  
**External Contact:** Flush immediately with water.  
**Eye Contact:** Flush with water for 15 minutes. Get prompt medical attention. Clean up any spilled electrolyte immediately.
4. Avoid contact with battery posts, terminals and related accessories, they contain lead and lead compounds, chemicals known to cause harm. Wash hands immediately after handling battery.
5. Keep all sparks and flames away from batteries, as gas given off by electrolyte is explosive.
6. To avoid injury from spark or short circuit, disconnect battery ground cable before servicing any part of the electrical system.
7. FROZEN BATTERIES CAN EXPLODE and result in death or serious injury. DO NOT jump start / charge a frozen battery. Let battery thaw before charging.

## 2.12 GAS MOTOR SAFETY

### BEFORE STARTING ENGINE, READ AND UNDERSTAND THE OPERATING AND MAINTENANCE INSTRUCTIONS THAT CAME WITH YOUR ENGINE.

#### WARNING: DO NOT

1. DO NOT start the engine with out checking fluid levels
2. DO NOT operate gas powered machinery indoors, **even if** doors and windows are open. Carbon monoxide produced by the engine is a poison that you cannot see or smell and can kill in minutes.
3. DO NOT choke carburettor to stop engine. Whenever possible, gradually reduce engine speed before stopping.
4. DO NOT run engine above rated speeds. This may result in injury or engine failure.
5. DO NOT tamper with governor springs, governor links or other parts which may increase the governed speed.
6. DO NOT tamper with the engine speed selected by the original equipment manufacturer.
7. DO NOT check for spark with spark plug or spark plug wire removed.
8. DO NOT crank engine with spark plug removed. If engine is flooded, place throttle in "FAST" position and crank until engine starts.
9. DO NOT operate engine without a muffler.
10. DO NOT remove fuel tank cap while engine is running.
11. DO NOT operate engine with an accumulation of grass, leaves, dirt or other combustible materials in the muffler area.
12. DO NOT touch hot muffler, cylinder or fins because contact may cause burns.
13. DO NOT run engine without air cleaner or air cleaner cover removed.
14. DO NOT use this engine on any forest covered, brush covered, or grass covered unimproved land unless a spark arrester is installed on the muffler. The arrester must be maintained in effective working order by the operator. In the state of California the above is required by law (Section 4442 of the California Public Resources Code). Other states may have similar laws. Federal laws apply on federal land.


#### WARNING: DO

1. ALWAYS DO remove the wire from the spark plug when servicing the engine or equipment TO PREVENT ACCIDENTAL STARTING.
2. DO keep cylinder fins and governor parts free of grass and other debris which can affect engine speed.
3. DO examine muffler periodically to be sure it is functioning effectively. A worn or leaking muffler should be repaired or replaced as necessary.
4. DO use fresh gasoline. Stale fuel can gum carburettor and cause leakage.
5. DO check fuel lines and fittings frequently for cracks or leaks. Replace if necessary.

## 2.12 REFUELLING SAFETY

1. Handle fuel with care. It is highly flammable.
2. Allow engine to cool for 5 minutes before refuelling. Clean up spilled fuel before restarting engine.
3. Do not refuel the machine while smoking or when near open flame or sparks.
4. Fill fuel tank outdoors.
5. Prevent fires by keeping machine clean of accumulated trash, grease and debris.



 Caution: Fire Hazard - No Smoking  
To Prevent serious injury or death:

- Do not smoke while refueling
- Keep sparks, flames, and hot material away
- Ensure the engine is off and cooled
- Ensure muffler is cooled





### 3 SAFETY SIGNS

1. Keep safety signs clean and legible at all times,
2. Replace safety signs that are missing or have become illegible.
3. Replaced parts that displayed a safety sign should also display the current sign.
4. Safety signs in Section 3 each have a part number displayed with it. Use this part number when ordering replacement parts.
5. Safety signs are available from your authorized Distributor or Dealer Parts Department or the factory.

#### 3.1 HOW TO INSTALL SAFETY SIGNS:

- Be sure that the installation area is clean and dry.
- Be sure temperature is above 50°F (10°C).
- Determine exact position before you remove the backing paper.
- Remove the smallest portion of the split backing paper.
- Align the sign over the specified area and carefully press the small portion with the exposed sticky backing in place.
- Slowly peel back the remaining paper and carefully smooth the remaining portion of the sign in place.
- Small air pockets can be pierced with a pin and smoothed out using the piece of sign backing paper.

#### 3.2 SAFETY SIGN EXPLANATIONS:



**Warning: flying objects!** Chips exiting the chute can cause serious harm. Do not stand or work in front of the chute and do not point the chute in the direction of workers or bystanders while the machine is in operation.



**Caution:** read and understand ALL **safety and operating instructions** in the manual, read and understand ALL **safety labels** located on the machine. The most important safety device on this equipment is an informed SAFE operator.



**Danger: crushing danger!** The guard has been removed, keep your hands away from all moving parts. Never try to clear a jam with your hands! Wait for all moving parts to come to a complete stop before reaching into this area or clearing obstructions.



**Danger: Amputation Danger!** Keep your hands away from all moving parts during operation! This machine has rotating cutting blades capable of amputating fingers and hands. Failure to follow these instruction could result in serious injury or death

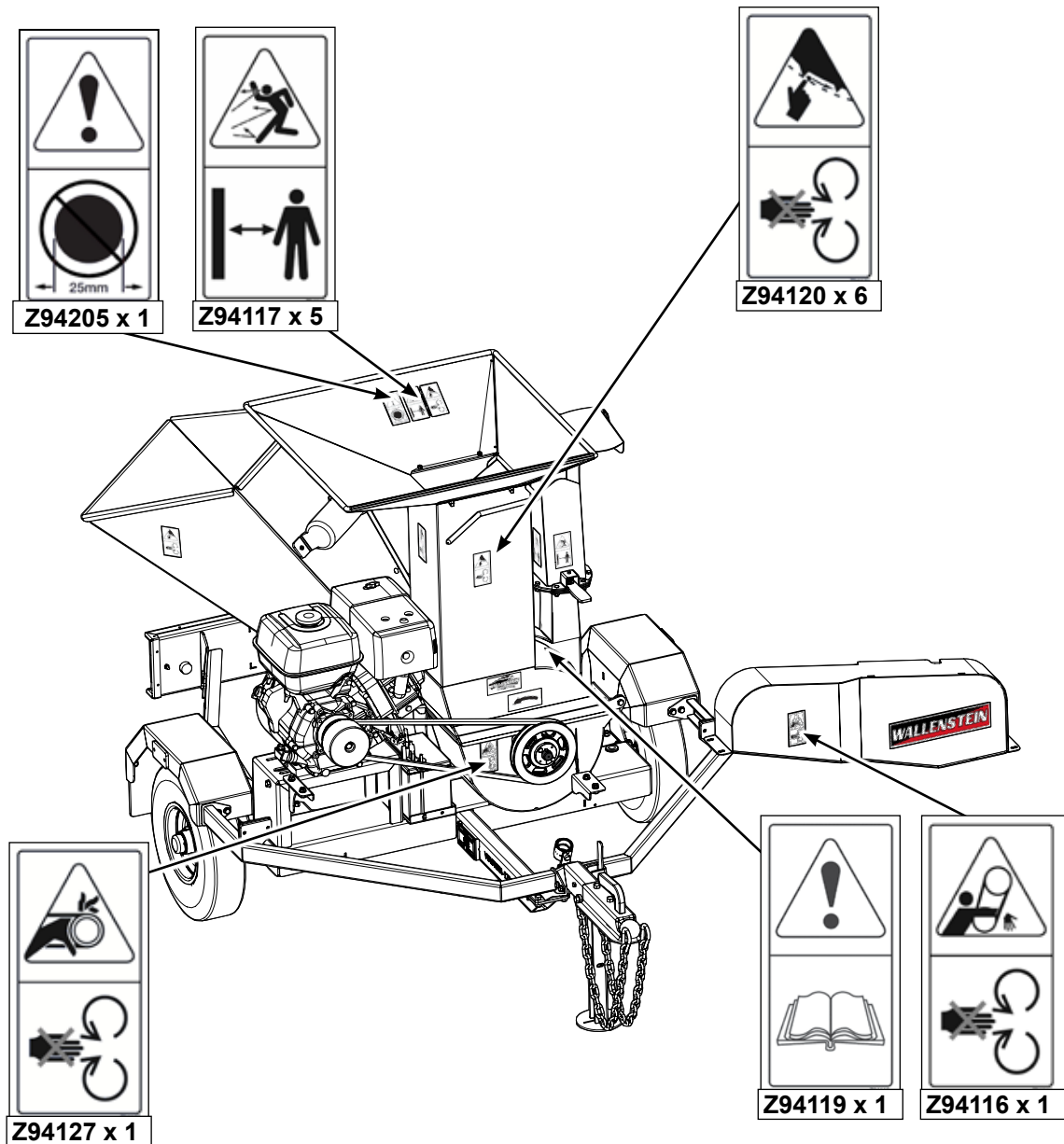


**Caution: maximum size restriction!** Do no feed material larger than 25 mm. Larger material will jam the machine and stall the machine. Wait for all moving parts to come to a complete stop before loading or clearing obstructions.

### 3.3 SAFETY SIGNS

The types of safety signs and locations on the equipment are shown in the illustrations that follow. Good safety requires that you familiarize yourself with the various safety signs, the type of warning and the area, or particular function related to that area, that requires your SAFETY AWARENESS.

- Think SAFETY! Work SAFELY!



REMEMBER - If safety signs have been damaged, removed, become illegible or parts replaced without safety signs, new signs must be applied. New safety signs are available from your authorized dealer.

## 4 OPERATION



# OPERATING SAFETY

- Close and secure rotor cover before operating.
- Close and secure all guards, deflectors and shields before starting and operating.
- Read and understand operator's manual before starting. Review safety instructions annually.
- Personal protection equipment including hearing protection, hard hat, safety glasses, safety shoes, and gloves are recommended during assembly, installation, operation, adjustment, maintaining, repairing, removal, or moving. Do not allow long hair, loose-fitting clothing, or jewellery to be around moving parts.
- Never place any part of your body where it would be in danger if movement should occur during assembly, installation, operation, maintenance, repairing, unplugging or moving.
- Use care when feeding material into Chipper-Shredder. Do not send metal, bottles, cans, rocks, glass or other foreign material into Chipper-Shredder. If foreign material enters Chipper-Shredder, stop machine, turn engine off, remove ignition key, set park brake and wait for all moving parts to stop before removing material and/or unplugging. Inspect machine for damaged or loose parts before resuming work.
- Do not run machine inside a closed building to prevent asphyxiation from engine exhaust.
- Turn machine off, stop and disable engine, remove ignition key, set park brake and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging.
- Never use alcoholic beverages or drugs which can hinder alertness or coordination while operating this equipment. Consult your doctor about operating this machine while taking prescription medications.
- Do not allow riders on this machine at any time. There is no safe place for any riders.
- Never allow children or unauthorized people to operate or be around this machine.
- Do not reach into shredder or feed hopper openings when the engine is running. Be sure the Shredder hopper hinged gate and chipper hopper rubber flaps are in good condition and function as required.
- Keep the working area clean and free of debris to prevent tripping. Operate only on level ground.
- Do not point discharge at people, animals or buildings. Rotor can expel wood chips fast enough to cause injury.
- Do not move or transport Chipper-Shredder when the rotor is turning.
- Do not exceed a safe travel speed when transporting. Cross safety chain under hitch on trailer model when attaching to truck.

### 4.1 TO THE NEW OPERATOR OR OWNER

The Wallenstein Trailer Chipper-Shredders are designed to chip, chop or mulch scrap lumber, small trees, brush, limbs and other wood debris. The chipped or mulched material is fine enough to be composted or used in a variety of ways.

**It is the responsibility of the owner or operator to read this manual and to train all other operators before they start working with the machine. Follow all safety instructions exactly. Safety is everyone's business. By following recommended procedures, a safe working environment is provided for the operator, bystanders and the area around the worksite. Untrained operators are not qualified to use the machine.**

Many features incorporated into this machine are the result of suggestions made by customers like

you. Read this manual carefully to learn how to use the Chipper-Shredder safely and how to set it to provide maximum field efficiency. By following the using instructions in conjunction with a good maintenance program, your Trailer Chipper-Shredder will provide many years of trouble-free service.

#### 4.1.1 IMPORTANT

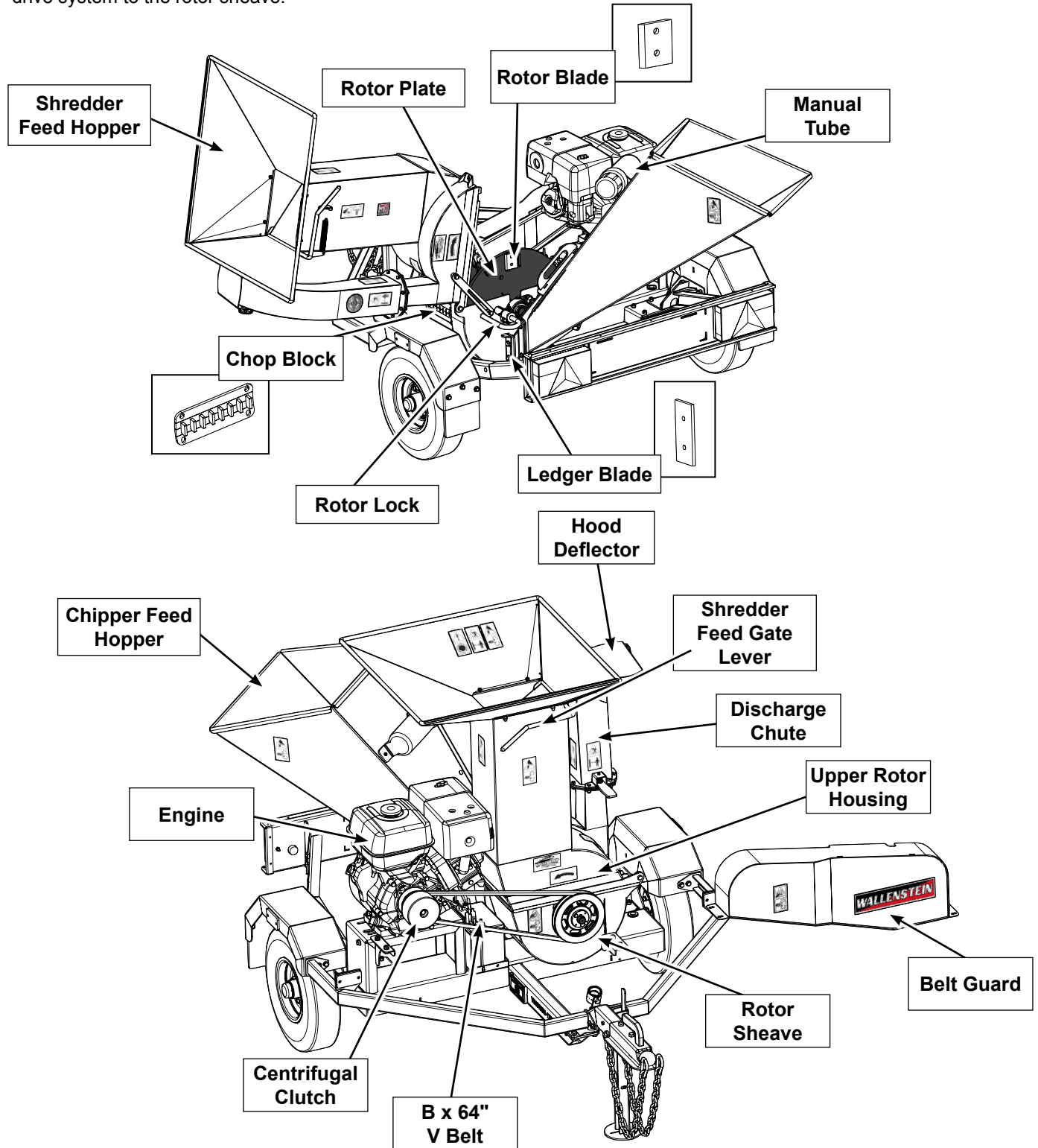
**Ensure all operators understand how to put the machine in safe condition before working with this machine,**

- shut off the engine.
- ensure all components have stopped moving.
- remove and pocket the ignition key.
- disconnect the battery.
- block & chock the wheels.

## 4.2 MACHINE COMPONENTS

The Wallenstein Trailer Chipper-Shredder is a rotor with blades and knives for chipping and mulching wood. Feed hoppers move the wood material into the rotor for chipping and into the knives for shredding/mulching. The chipper rotor is designed with 2 blades to provide uniform chip size. The shredder rotor is equipped with 3 sets of swinging knives to provide a fine mulch. A chop block in the mulcher compartment shreds the material as it moves through the machine.

The engine is mounted on the frame which turns the centrifugal clutch, then power is transmitted through a V belt drive system to the rotor sheave.



### 4.3 MACHINE BREAK-IN

Although there are no operational restrictions on the Chipper-Shredder when used for the first time, it is recommended that the following mechanical items be checked:

**A. After operating for 1 hour:**

1. Check alignment of pulleys. Align as required.
2. Check belt tension. Adjust as required.
3. Torque all fasteners and hardware.
4. Check condition of rotor bearings.
5. Check the condition and clearance of the moving and stationary blades, knives and chop block. Adjust or replace as required.
6. Check the condition of the curtain in the chipper feed hopper and the safety gate in the shredder feed hopper. The curtain and safety gate must move freely back into position to prevent wood from flying out.
7. Check for entangled material. Remove all entangled material before resuming work.
8. Check tire pressure. Inflate as required.

**B. After operating for 10 hours:**

1. Repeat steps 1 through 8 listed above. (Section A)
2. Change engine oil.
3. Go to the normal servicing and maintenance schedule as defined in the Maintenance Section.

### 4.4 PRE-OPERATION CHECKLIST

Efficient and safe operation of the Wallenstein Trailer Chipper-Shredder requires that each operator reads and understands the using procedures and all related safety precautions outlined in this section. A pre-operation checklist is provided for the operator. It is important for both the personal safety and maintaining good mechanical condition that this checklist is followed.

Before operating Chipper-Shredder and each time thereafter, the following areas should be checked off:

Pre-Operation Checklist	✓
Check and lubricate the machine per the schedule outline in the Maintenance Section.	
Check the tension and alignment of the belt. Adjust tension and align as required.	
Check the rotor housing and discharge chute. Remove any blockages, twine, wire or other material that has become entangled .	
Check the condition and clearance of the rotor and stationary blades. Adjust or replace as required.	
Check condition of the battery and other electrical components. Keep all components in good condition.	
Check condition of all hydraulic components. Keep all components in good condition.	
Check engine fluid levels. Top up as required. Refere to the engine operators manual.	
Check that all bearings turn freely. Replace any that are rough or seized.	
Check and ensure that all covers, guards and shields are in place, secured and functioning as designed	
Check and inspect tires, wheels, brakes and hubs .	
Check all fasteners and tighten, and ensure your equipment is working and in good repair.	
Check that personal protection equipment including hard hat, safety glasses, safety shoes, safety vest, hearing protection and gloves are used and in good repair.	
Check that all loose fitting clothing or jewellery is not worn and loose long hair is tied back.	

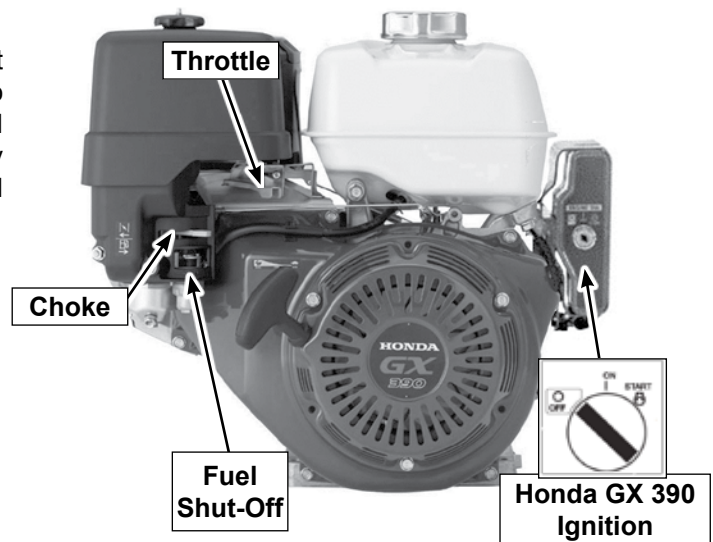
## 4.5 CONTROLS

### 4.5.1 GAS ENGINE ELECTRIC START

**BXMT3213EU:** Honda GX390

Always read the engine Operator's manual supplied with the machine for the detailed operating procedures.

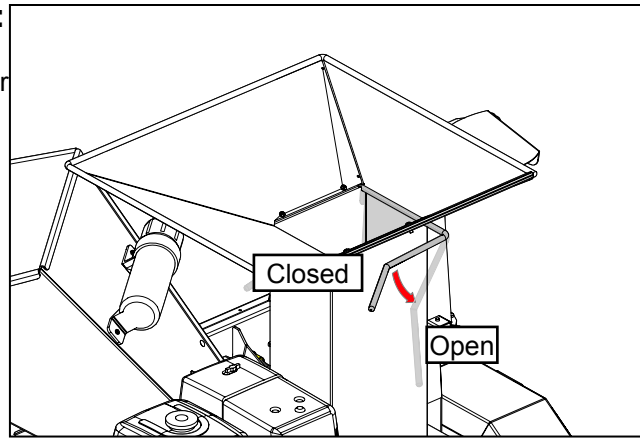
- **Ignition Switch:** This key operated switch controls the electric power to the engine.
  - OFF** Turn key fully counterclockwise to stop the electrical system power and turn the engine off.
  - RUN / ON** Turn clockwise to the centre detent for the run position. This is the position where the engine will continue to run.
  - START** Turn fully clockwise to the last spring-loaded detent position to engage the starter solenoid and start the engine. Release the key when the engine starts and it will return to the RUN position.
- **Fuel Shut-Off Valves:** The engine is equipped with a valve between the fuel tank and the carburettor. Slide the fuel valve toward the block to turn ON and away to turn OFF. Turn the fuel OFF when not in use or when transporting.
- **Throttle:** This lever controls the engine RPM. Move the lever side to side Always run at maximum throttle while operating.
- **Choke:** The choke controls the fuel/air mixture to the engine. Close the choke when starting if the engine is cold. Open the choke as the engine warms. Always open the choke fully during start-up.
- **Starting rope:** This retracting rope and T-bar is used to turn the engine over for starting. Grasp the T-bar firmly and pull the rope sharply to start the engine.



#### 4.5.2 SHREDDER FEED GATE LEVER:

The shredder intake is designed with spring-loaded gate to allow the material in the hopper to move into the shredder rotor and close when unattended.

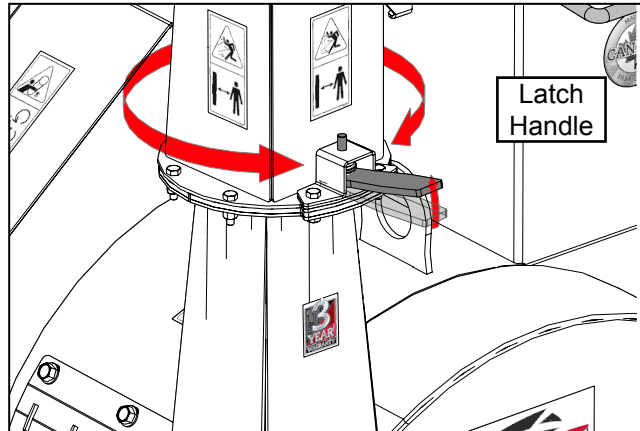
Levers on each side of the hopper control the position of the gate. Move the lever down to allow the material to move into the shredding rotor. Release the lever and the spring will move the gate into its closed position.



#### 4.5.3 DISCHARGE CHUTE:

The discharge chute is designed with a spring-loaded latch handle that allows the chute to be positioned 360° then locked into position with the latch.

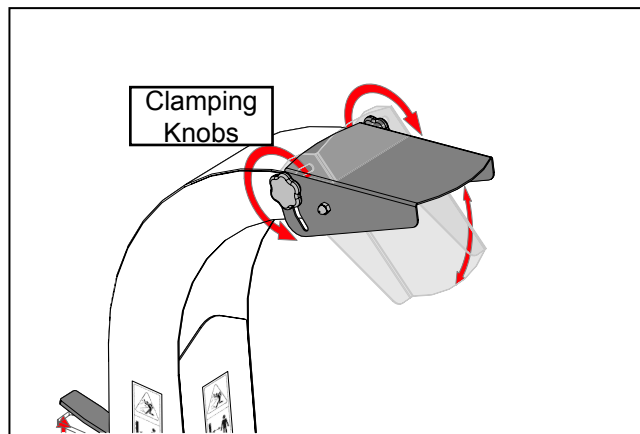
Lift the latch handle till the chute lock pin disengages, position the chute as required and release the latch handle and lock the chute into position at the next nearest lock point.



#### 4.5.4 HOOD DEFLECTOR:

The discharge chute is equipped with a hood deflector on the end of the chute to direct the chips exactly where desired.

The deflector is held in position by clamping knobs on each side. Turn the knobs counter clockwise to loosen the deflector, move the deflector as required and tighten the clamps.

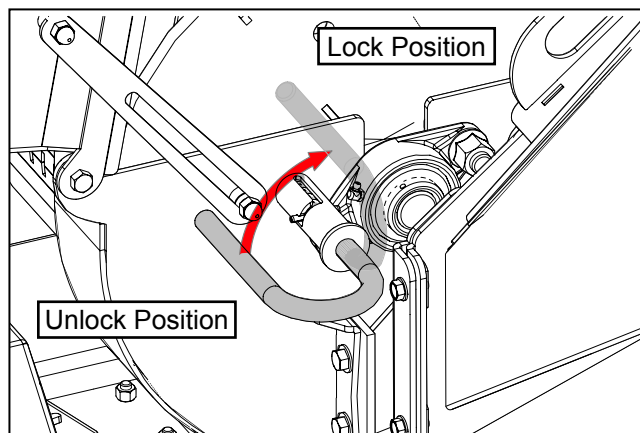


#### 4.5.5 ROTOR LOCK:

The BXMT3213EU is supplied with a rotor lock. The rotor lock must be used whenever upper rotor hood is opened. This ensures the rotor and shredder will not move during maintenance or clearing a clog. It is impossible to engage the lock while the rotor hood is closed.

Engage the rotor lock:

- twist the locking plunger out of the unlock position ,
- manually rotate the rotor till the plunger snaps in to the rotor

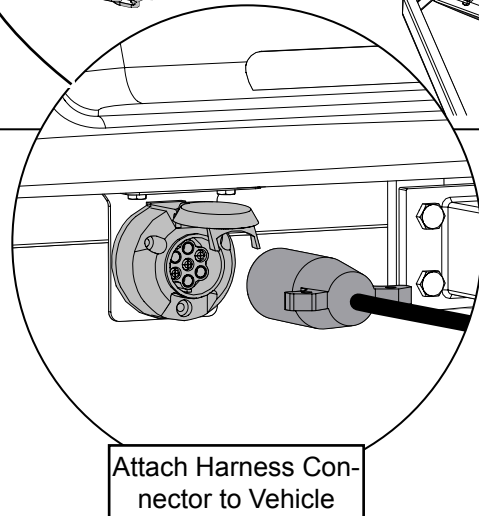
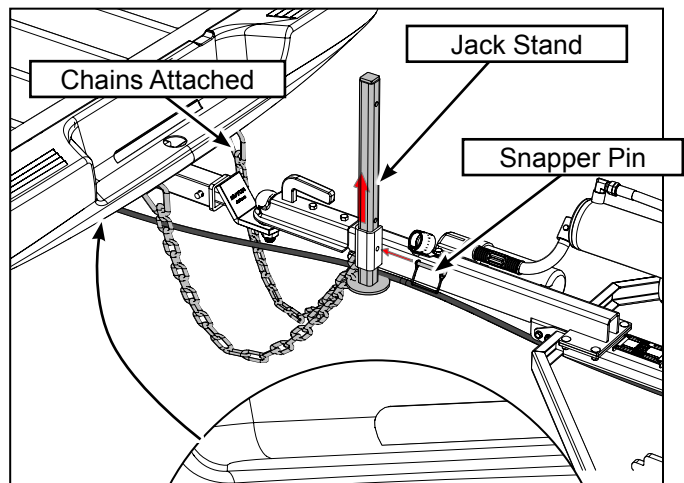
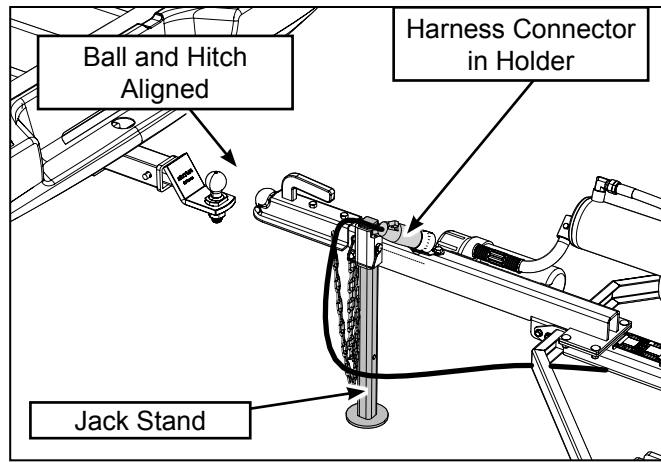




## 4.5.6 BALL & COUPLER

The Trailer Chipper / Shredder should always be located on a level, dry area that is free of debris and other foreign objects. When attaching the machine to a tow vehicle, follow this procedure:

1. Make sure that all bystanders, especially small children, are clear of the working area.
2. Make sure there is enough room and clearance to safely back up to the machine.
3. Slowly back the tow vehicle until the coupler on the hitch and ball are aligned.
4. For the ball hitch:
  - Lift the hitch and place the coupler over the ball on the hitch.
  - Flip the latch to lock the coupler around the ball.
5. Pull out the jack stand snapper pin, and pull up the jack stand in its stowed position. Install snapper pin to secure the stand.
6. Attach the safety chain securely to the tow frame to prevent unexpected separation.
7. Connect the wiring harness for the lights.
8. Route the harness and cables across the hitch to prevent snagging. Be sure to provide slack for turning.
9. Reverse the above procedure when unhooking.



**Trailer Coupling: (typical)**



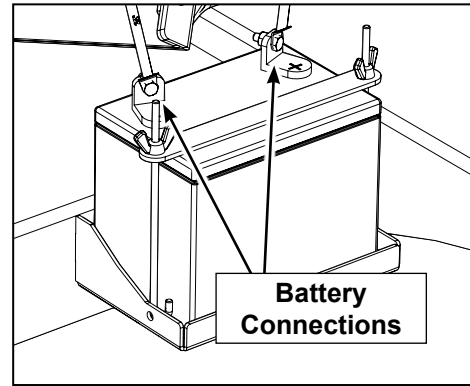
## 4.6 MACHINE SET-UP

Follow this procedure to prepare and set-up the machine at the work site:

1. Use the tow unit to position the Wood Chipper / Shredder at the work site.
2. The chipper / shredder can be used as a stand alone, or if you require more stability leave your machine attached to the tow vehicle.

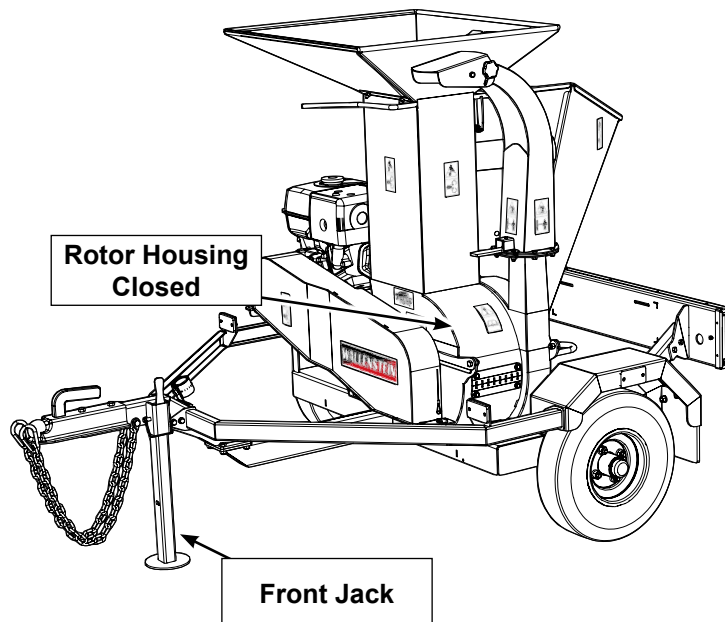
### IMPORTANT

Position the machine so the prevailing wind/breeze blows the exhaust gases/fumes away from the operator's station.



**Battery Cable: (typical)**

3. Ensure the upper rotor housing is lowered and secured .
4. Check that the front jack is in position.
5. Check the battery cable and if required connect the cable and tighten fastener securely to ensure a good connection.



## 4.7 FIELD OPERATION



# OPERATING SAFETY

- Close and secure rotor cover before operating.
- Close and secure all guards, deflectors and shields before starting and operating.
- Read and understand operator's manual before starting. Review safety instructions annually.
- Personal protection equipment including hearing protection, hard hat, safety glasses, safety shoes, and gloves are recommended during assembly, installation, operation, adjustment, maintaining, repairing, removal, or moving. Do not allow long hair, loose-fitting clothing, or jewellery to be around moving parts.
- Keep hydraulic lines and fittings tight, in good condition and free of leaks.
- Never place any part of your body where it would be in danger if movement should occur during assembly, installation, operation, maintenance, repairing, unplugging or moving.
- Use care when feeding material into Chipper-Shredder. Do not send metal, bottles, cans, rocks, glass or other foreign material into Chipper-Shredder. If foreign material enters Chipper-Shredder, stop machine, turn engine off, remove ignition key, set park brake and wait for all moving parts to stop before removing material and/or unplugging. Inspect machine for damaged or loose parts before resuming work.
- Do not run machine inside a closed building to prevent asphyxiation from engine exhaust.
- Turn machine off, stop and disable engine, remove ignition key, set park brake and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging.
- Never use alcoholic beverages or drugs which can hinder alertness or coordination while operating this equipment. Consult your doctor about operating this machine while taking prescription medications.
- Do not allow riders on this machine at any time. There is no safe place for any riders.
- Never allow children or unauthorized people to operate or be around this machine.
- Do not reach into shredder or feed hopper openings when the engine is running. Be sure the Shredder hopper hinged gate and chipper hopper rubber flaps are in good condition and function as required.
- Keep the working area clean and free of debris to prevent tripping. Operate only on level ground.
- Do not point discharge at people, animals or buildings. Rotor can expel wood chips fast enough to cause injury.
- Do not move or transport Chipper-Shredder when the rotor is turning.
- Do not exceed a safe travel speed when transporting. Cross safety chain under hitch on trailer model when attaching to truck.

**The operator has the responsibility of being familiar with all operating and safety procedures and following them.**

Although the Trailer Chipper/ Shredder is easy to use, each operator should review this section to familiarize himself with the detailed safety and operating procedures. When preparing this machine for use, follow this procedure:

### 4.7.1. PREPARE

- Clear the area of bystanders, especially small children.
- Each operator must be trained and familiar with the set up and operation of the Chipper / Shredder and its components.
- Review the machine components (see Section 4.2)
- Review and follow the Pre-Operation Checklist (see Section 4.4).
- Review operation and function of the controls (see section 4.5)
- Survey the work site, move to a clear, level work area and position at the work site. Do not start the Wood Processor until it is in position.
- Set up the machine (see section 4.6).
- Each person must wear appropriate **Personal Protective Equipment (PPE)** whenever operating the Wood Processor or working in the vicinity. This equipment is designed to prevent injury to any personnel in the area. This list includes but is not limited to:
  - Safety shoes with slip resistant soles.
  - Safety goggles or face shield.
  - Hearing protection.
  - Heavy or leather gloves

#### 4.7.2. STARTING PROCEDURE

- a. The Chipper / Shredder should be set up and ready to run. (see 4.6)
- b. Set park brake if connected to tow vehicle.
- c. Lower the support leg stand and secure with the snapper pin.
- d. Close the choke if the engine is cold.
- e. Move the throttle to its 1/4 throttle position (if the throttle is set any higher the centrifugal clutch could potentially engage and stall a cold engine.)
- f. Open the fuel supply valve
- g. Use the ignition key and turn it to the "start" indicator, to turn over the engine. Release the key when the engine has started and the key will return to the centre run position.
- h. Run the engine for a few minutes to allow it to warm.
- i. Gradually open the choke.
- j. Turn the discharge head to its desired position.
- k. Slowly increase the engine speed to engage the centrifugal clutch.

- l. Increase throttle setting to maximum speed for operation.
- m. Ensure that the rotor is up to speed, start feeding material into hopper.

#### 4.7.3 STOPPING:

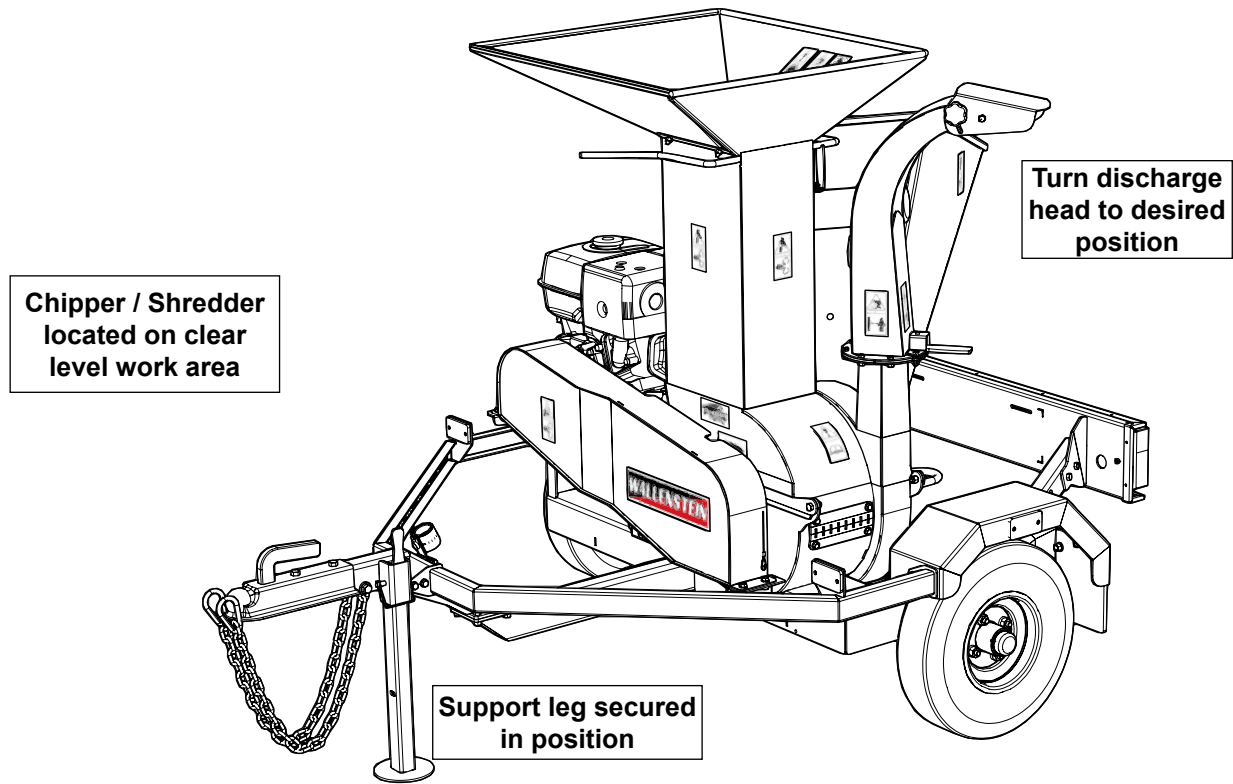
- a. Stop feeding material into the hopper.
- b. Slow engine RPM.
- c. Stop engine using ignition switch.

#### 4.7.4 EMERGENCY STOPPING

If an emergency occurs:

**shut off the engine.**

Correct emergency situation before restarting engine and resuming work.



## 4.7.5 CHIPPING OPERATION

The BXMT Chipper / Shredder is a strong, rugged machine that is built to a straight-forward design which provides consistent chipping and shredding. **Capacity** of the BXMT3213EU is 76mm (3.0") for the chipper and 26mm (1.0") for the shredder

Always wear personal protective equipment (PPE) whenever operating the machine. This includes but is not limited to protective shoes with slip resistant soles, protective goggles or face shield, heavy gloves, hearing protection and protective clothing.

Do not place metal, bottles, cans, rocks, glass or other solid material into the wood chipper. If something like this gets into the machine, stop the machine immediately for a detailed inspection. Stop engine, remove ignition key and place in your pocket and wait for all moving parts to stop before inspecting or unplugging. Inspect machine for damaged or loosened parts before resuming work.

**Caution and care should be exercised when feeding material into the feeder. Do not reach into the hopper past the curtain barrier.**

- a. Before beginning to feed, ensure the motor warmed up and the rotor is up to speed.
- b. Slowly slide the wooden material into the feed hopper and move it into the rotor.
- c. Do not force the material into the rotor, as the material engages the rotor, the rotor will draw the material in. Use continuous lite pressure to guide in the material.
- d. Be aware of how much material you feed in, slow down or stop if the engine begins to slow down.
- e. Do not reach into the feed hopper further than the curtain to be sure not to contact the blades on the rotor.
- f. Use a stick or branch to push any piece of material into the rotor that does not move on its own. If the jam persists then stop the engine and wait for the rotor to stop and then clear the jam. **Do not take a chance with getting your hand caught in the rotor.**
- g. Ensure your wood chip pile is contained and doesn't affect the immediate work area.

### ROTATING CUTTING BLADES

Keep hands and feet out of inlet and discharge openings while machine is operating to avoid serious personal injury. Stop engine, remove spark plug wire and allow machine to come to a complete stop before clearing obstructions or making adjustments.



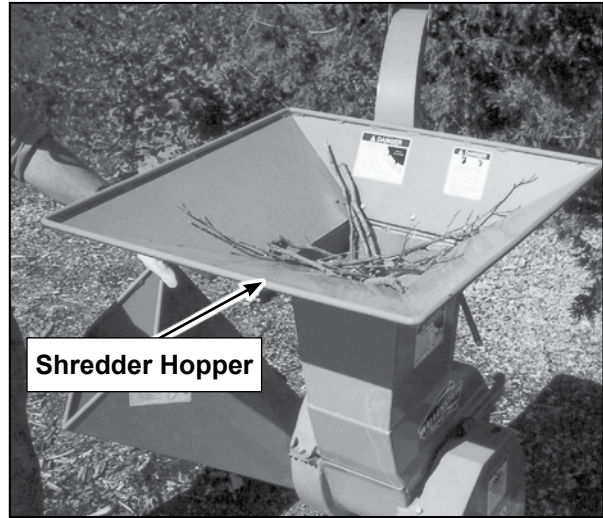
## 4.7.6 SHREDDING OPERATION

Always wear personal protective equipment (PPE) whenever operating the machine. This includes but is not limited to protective shoes with slip resistant soles, protective goggles or face shield, heavy gloves, hearing protection and protective clothing.

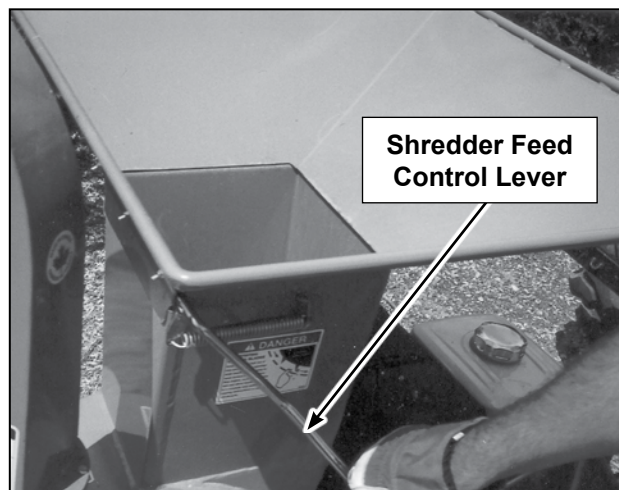
Do not place metal, bottles, cans, rocks, glass or other solid material into the wood chipper. If something like this gets into the machine, stop the machine immediately for a detailed inspection. Stop engine, remove ignition key and place in your pocket and wait for all moving parts to stop before inspecting or unplugging. Inspect machine for damaged or loosened parts before resuming work.

### When the rotor is up to speed:

- Place the leafy/wooden material into the shredder feed hopper until the hopper is full.
- Use the shredder feed control handle on the side of the hopper to open the feed gate. You can control how much and how fast the material is delivered into the shredder by varying the gate opening.
- Place the small pieces of wood material into the hopper and then manually open the gate. Release the gate when the material enters the shredder.
- Place the large, bushy, bulky material into the hopper and intake. Most of the time the shredder rotor will pull it in.
- If the shredder begins to slow down, stop and let the shredder get back up to speed, then restart feeding.
- Do not reach into the shredder feed hopper further than the gate to avoid contact with the knives on the rotor.
- Use a stick or branch to push any piece of material into the knives that does not move on its own and stops in the chipper housing.
- Release the handle and the gate will close. Ensure the gate is closed between feeds to keep flying material contained in the shredder housing. **Do not prop open the gate.**



**Do not reach beyond the gate into the shredder housing under any circumstance. Serious injury may occur. To safely remove a jam, stop the engine first.**






#### 4.7.7 UNPLUGGING:

Although the machine is designed to handle a wide variety of material without any problem, occasionally it plugs. When the machine plugs, follow this procedure to unplug:

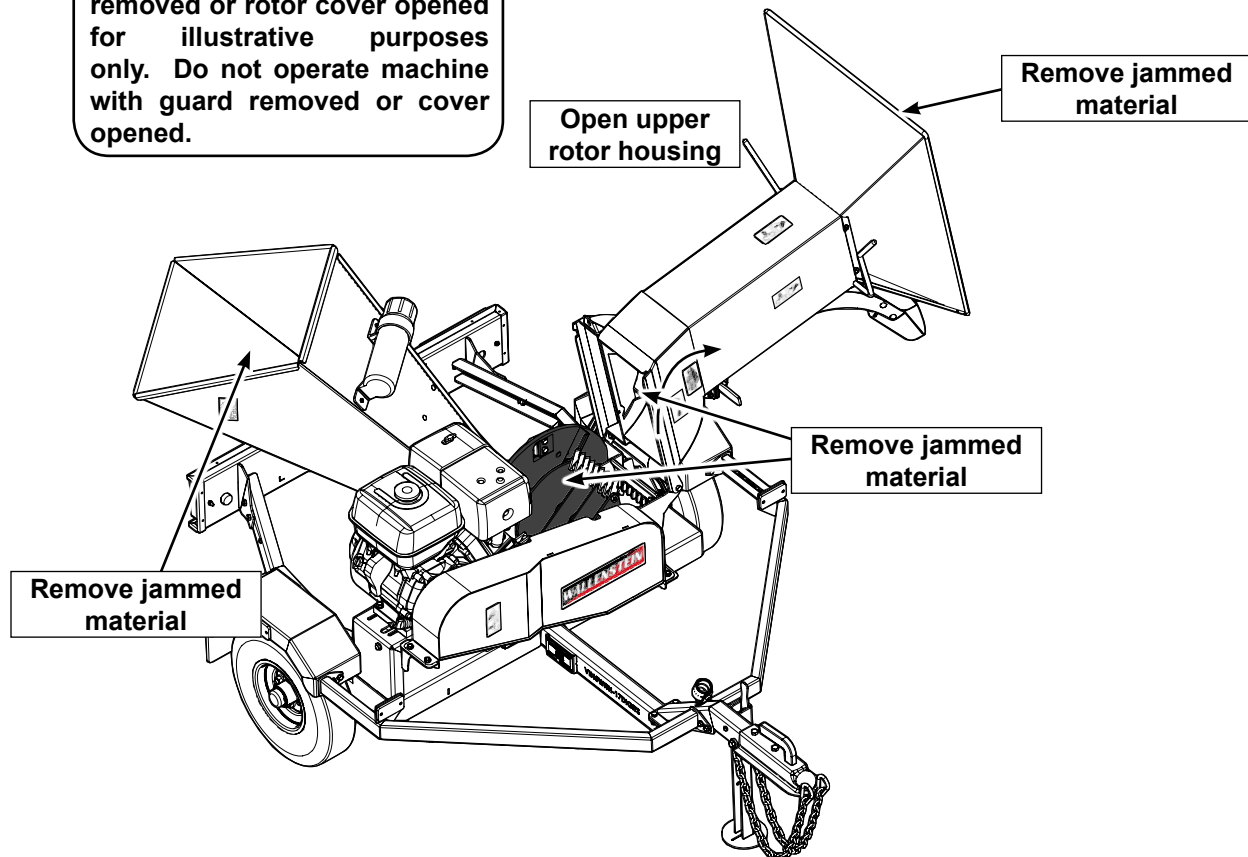
- Clear the area of bystanders, especially small children.
- Stop the engine, remove the ignition key and place it in your pocket and wait for all moving parts to stop before unplugging.
- Pull any material out of the chipper hopper and shredder hopper. Be sure all the material is out and nothing is jammed or wedged between the input opening and the rotor.
- Pull any material out of the discharge hood. Use a stick to poke loose any material jammed into the discharge hood. Do not allow anything to remain in this area.
- Check that everyone is clear of machine before restarting engine.
- Start the engine and resume working.

#### 4.7.8 SEVERE PLUG:

- Clear the area of bystanders, especially small children.
- Stop the engine, remove the ignition key and place it in your pocket or remove spark plug wire, and wait for all moving parts to stop before unplugging.
- Loosen the upper rotor housing anchor nuts and open the rotor housing
- Engage the rotor lock:
  - twist the locking plunger out of the unlock position ,
  - carefully rotate the rotor till the plunger snaps in to the rotor
- Remove jammed material from inside the chipper rotor and shredder compartment.
- Clean out the discharge area rotor paddles.
- Be sure to turn the rotor by hand to be sure there is nothing jammed between the rotor and stationary blades.
- Close and secure the rotor housing. Tighten fasteners to their specified torque.
- Check that everyone is clear of machine before restarting engine.
- Start the engine and resume working.

 **WARNING**

Machine is shown with guard removed or rotor cover opened for illustrative purposes only. Do not operate machine with guard removed or cover opened.



#### 4.7.9 REFUELLING:

**BXMT3213EU** has an engine mounted fuel tank.

Do not overfill. Use caution to prevent spilling. Do not smoke while refuelling.



#### 4.7.10 SAFETY CURTAINS:

Each feed hopper is designed with an internal rubber/belting curtain to prevent chips and debris from coming out of the hopper when working. Check the condition of the curtain each day prior to starting. Replace the curtain if torn, damaged or missing to minimize the chance of material coming out of the feed hopper.

#### 4.7.11 OPERATING HINTS:

- a. Keep the working area clean and free of debris to prevent slipping or tripping. Operate only on level ground.
- b. Do not place hands or any body parts into the feed hopper during operation. Use a stick or branch to push material into the rotor when it goes past the curtain in the feed hopper.
- c. Do not point discharge at people, animals or buildings. Rotor can expel wood chips fast enough to cause injury.
- d. Use care when feeding material into the chipper. Do not send metal, bottles, cans, rocks, glass or other foreign material into the wood chipper. If foreign material enters chipper, stop machine, turn engine off and place ignition key in your pocket and wait for all moving parts to stop before removing material and/or unplugging. Inspect machine for damaged or loose parts before resuming work.



## 5 TRANSPORTING

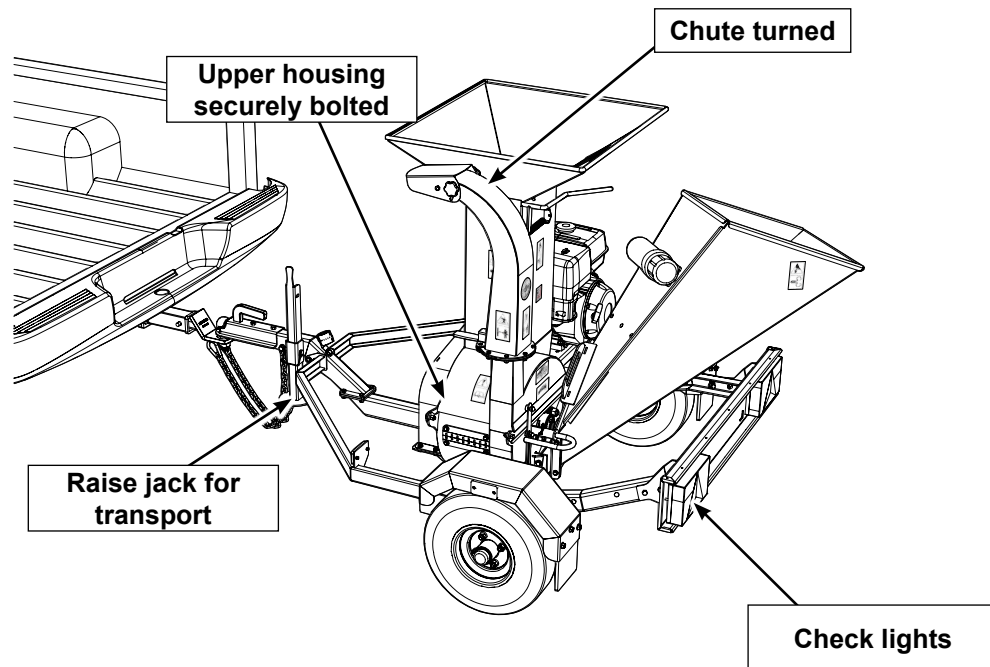


### TRANSPORT SAFETY

- Do not exceed a safe travel speed.
- Always follow and obey applicable highway rules and regulations.
- Be sure all lights and markers required by the traffic regulations are in place, clean and working.
- Inspect rims for dents or damage, check wheel lugs and tighten if required.
- Always attach the safety chains between the machine and the pick-up. Cross the chains under the hitch when connecting.
- Always use a mechanical retainer through the ball hitch mechanism when attaching to tow vehicle.
- Do not drink and drive.
- Plan your route to avoid rough terrain. Slow down when encountering rough conditions or cornering.
- Raise and secure feed hopper before moving or transporting.

When transporting the machine, review and follow these instructions:

1. Clear the area of bystanders, especially small children.
2. Check that all the lights and reflectors required by the highway authorities are in place, clean and working.
3. Insure that the machine is securely attached to the tow vehicle. Always use safety chains crossed between the truck and machine.
4. Do not allow riders.
5. Never exceed a safe travel speed. Slow down when encountering rough road conditions and cornering.
6. Do not drink and drive.
7. Raise the jack and secure it with the snapper pin before transporting.
8. Turn the discharge hood and position over the machine to reduce the width of the machine.
9. Ensure upper rotor housing is securely bolted.





## 6 STORAGE



### OPERATING SAFETY

- Store the unit in an area away from human activity.
- Do not permit children to play on or around the stored machine.
- Store the unit in a dry, level area. Support the frame with planks if required.

### 6.1 PLACING IN STORAGE

After the season's use or when the machine will not be used for a period of time, completely inspect all major systems of the Trailer Wood Chipper. Replace or repair any worn or damaged components to prevent any unnecessary down time at the beginning of the next season.

Follow this procedure before storing:

1. Remove all material from the machine.
2. Thoroughly wash the machine with a pressure washer or water hose to remove all dirt, mud or debris.
3. Inspect all rotating parts for entangled material. Remove all entangled material.
4. Check the condition of the belts and pulleys. Replace or adjust as required.
5. Run the machine a few minutes to dry the moisture from inside the machine.
6. Turn fuel valve off.
7. Turn the discharge hood and position over the machine, to make it more compact.
8. Touch up all paint nicks and scratches to prevent rusting.
9. Remove ignition key and store in a secure place.
10. Remove the battery and store it in a cool, dry area on wooden blocks or a wooden pallet. Charge it monthly to maintain an adequate charge.
11. It is best to store the machine inside. If that is not possible, cover with a waterproof tarpaulin and tie down securely.
12. Store in an area away from human activity.
13. Do not allow children to play around the stored unit.

### 6.2 REMOVING FROM STORAGE

When removing this machine from storage, follow this procedure:

1. Remove the tarpaulin if covered.
2. Install and connect the battery.
3. Bring the ignition key.
4. Review and follow the pre-operation checklist.

### IMPORTANT

If the machine has been stored for more than 6 months, warm the engine by running it for 2-3 minutes and drain the oil. Change the oil while the oil is warm to remove any condensation. Refer to Maintenance section.

## 7 SERVICE AND MAINTENANCE



### MAINTENANCE SAFETY

- Good maintenance is your responsibility. Poor maintenance is an invitation to trouble.
- Follow good shop practices.
  - Keep service area clean and dry.
  - Be sure electrical outlets and tools are properly grounded.
  - Use adequate light for the job at hand.
- Make sure there is plenty of ventilation. Never operate the engine of the towing vehicle in a closed building. The exhaust fumes may cause asphyxiation.
- Before working on this machine, shut off the engine, set the brake, and turn fuel valve off.
- Never work under equipment unless it is blocked securely.
- Always use personal protection devices such as eye, hand and hearing protectors, when performing any service or maintenance work. Use heavy gloves when handling sharp components.
- Where replacement parts are necessary for periodic maintenance and servicing, genuine factory replacement parts must be used to restore your equipment to original specifications. The manufacturer will not be responsible for injuries or damages caused by use of unapproved parts and/or accessories.
- A fire extinguisher and first aid kit should be kept readily accessible while performing maintenance on this equipment.
- Periodically tighten all bolts, nuts and screws and check that all electrical and fuel connections are properly secured to ensure unit is in a safe condition.
- When completing a maintenance or service function, make sure all safety shields and devices are installed before placing unit in service.

## 7.1 SERVICE

### 7.1.1 FLUIDS AND LUBRICANTS

1. **Grease:**  
Use an SAE multipurpose high temperature grease with extreme pressure (EP) performance. Also acceptable is an SAE multipurpose lithium base grease.
2. **Engine Oil:**  
Refer to the engine manufacturer's manual for maintenance and service information
3. **Engine Gasoline:**  
Use a standard automotive super unleaded gasoline for all operating conditions.

Fuel Tank Capacity:

Honda GX390                      6.5 L (1,5 gal US)

4. **Storing Lubricants:**  
Your machine can operate at top efficiency only if clean lubricants are used. Use clean containers to handle all lubricants. Store them in an area protected from dust, moisture and other contaminants.

### 7.1.2 GREASING

Refer to section 7.1.1 for recommended grease.

Use the Maintenance Checklist provided to keep a record of all scheduled maintenance.

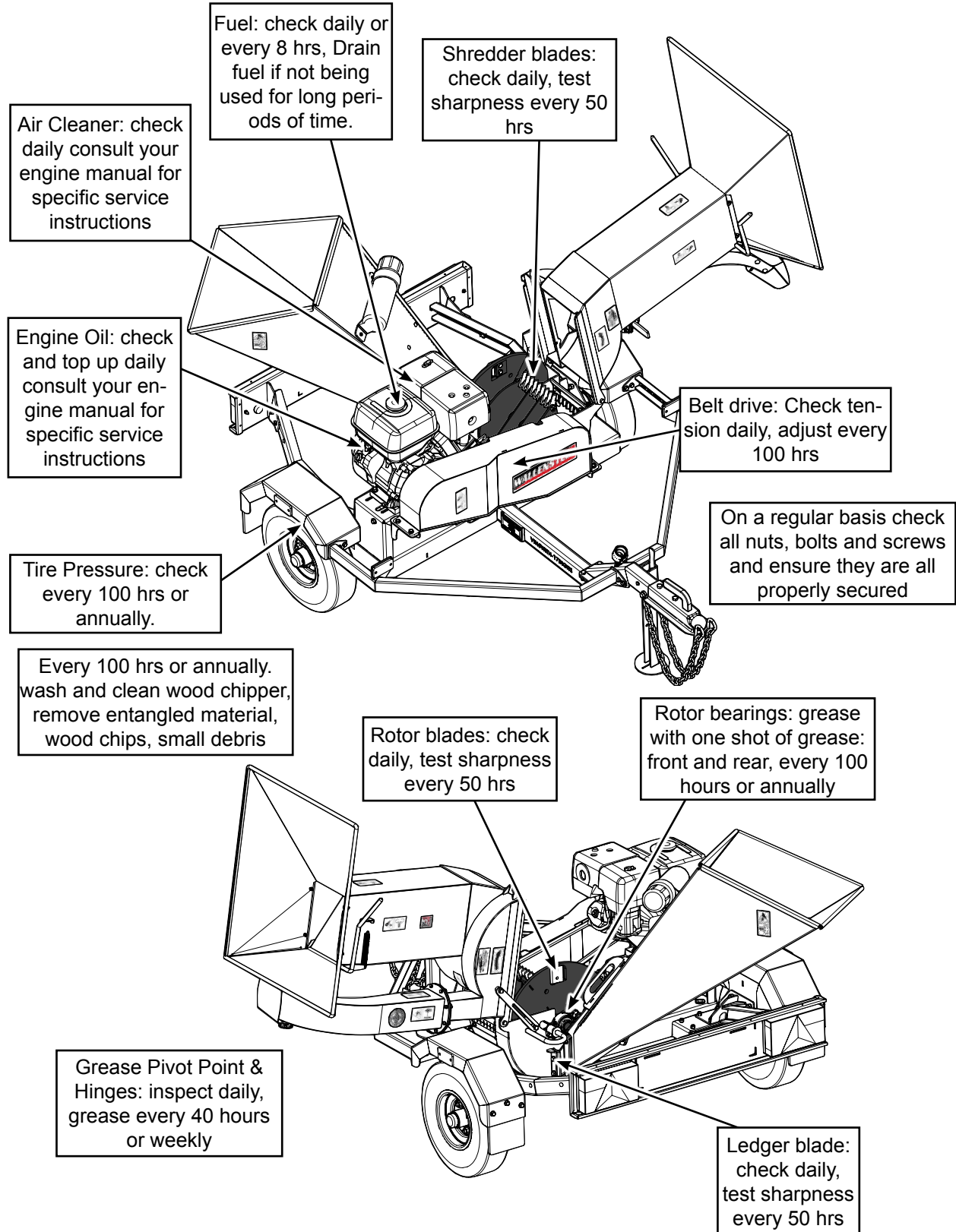
1. Use a hand-operated grease gun for all greasing.
2. Wipe grease fitting with a clean cloth before greasing, to avoid injecting dirt and grit.
3. Replace and repair broken fittings immediately.
4. If fittings will not take grease, remove and clean thoroughly. Also clean lubricant passageway. Replace fittings if necessary.
5. Do not overgrease bearings, overgreasing causes bearing failure.

### 7.1.3 SERVICE ILLUSTRATION

See Service Record Chart

This illustration shows the general location of service points for all models in this manual.

**Refer to your engine instruction manual for specific maintenance instructions / requirements**





## 7.2 MAINTENANCE

By following a careful service and maintenance program for your machine, you will enjoy many years of trouble-free operation. **Review your engines instruction manual for specific instructions / requirements**

### 7.2.1 CLEANING AIR CLEANER

1. Place all controls in neutral, stop and disable engine before beginning maintenance.
2. **Review your engines instruction manual for specific instructions / requirements**

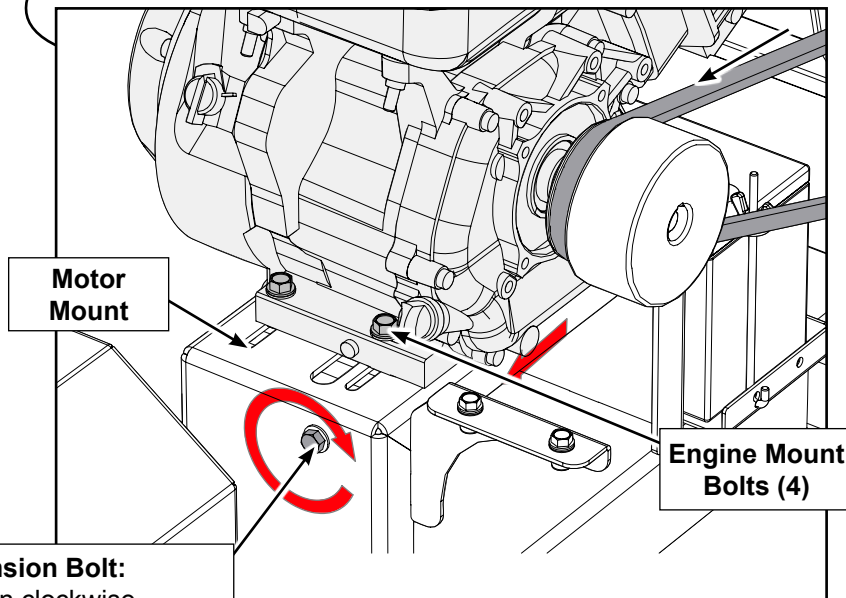
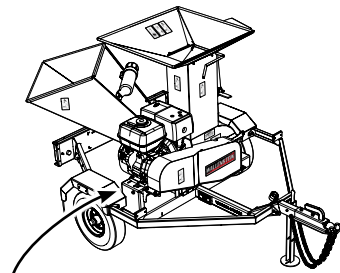
### 7.2.2 CHANGE ENGINE OIL

1. Place all controls in neutral, stop and disable engine before beginning maintenance.
2. **Review your engines instruction manual for specific instructions / requirements**

### 7.2.3 DRIVE BELT REPLACEMENT:

Follow this procedure to replace the drive belt.

1. Ensure the engine is off (ignition switch is off and the fuel valve is closed).
2. Remove the 4 bolts that secure the belt guard, and remove the guard.
3. Loosen (do not remove) the 4 x bolts that hold the engine mount to the main frame (located 2 on each side of engine)
4. Turn the belt tensioning bolt counter clockwise, until belt is loose enough to remove, then remove the belt.
5. Replace with the new belt
6. Turn the belt tensioning bolt clockwise, to pull the engine mount outwards to tighten the belt
7. Check the tension by pushing on the belt with your fore finger and measure its deflection. Drive belt should deflect no more than 1/2 to 5/8" (13 mm to 16 mm).
8. When tension is correct, check pulley alignment then tighten up all four engine mount bolts, and replace the belt shield and bolts.
9. Recheck tension after 10 hrs of use.



#### Belt Tension Bolt:

1. To tighten turn clockwise
2. To loosen turn counter-clockwise.

## 7.2.4 BELT TENSION

The machine is designed with a centrifugal clutch on the engine shaft when engaged is used to drive the rotor plate sheave.

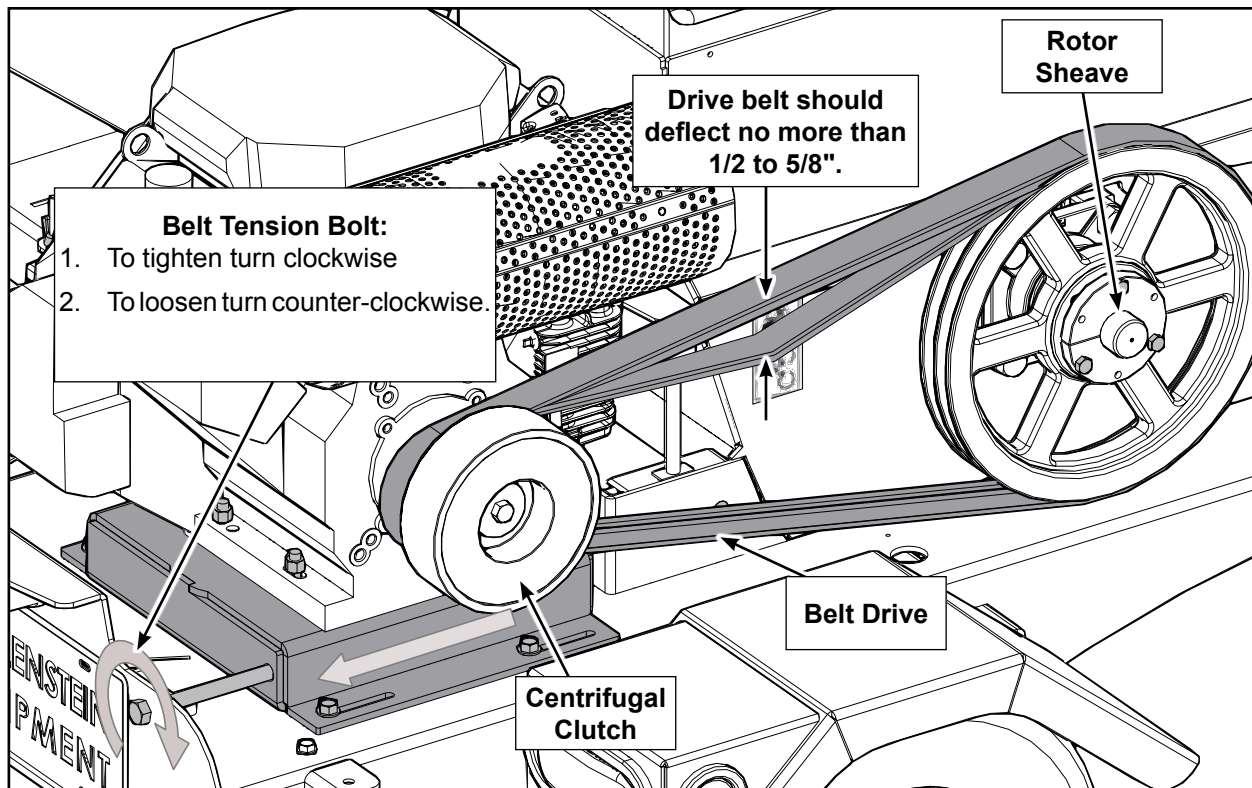
When the belt is in disrepair or loose, the ability to efficiently drive rotor may be affected.

Therefore it is important to periodically check the condition as well as the tension of the belt.

Frayed, cracked or worn drive belts should be replaced. Drive belt should deflect no more than 1/2 to 5/8" (13 mm to 16 mm). For accurate measurement use a drive belt tension gauge. Contact your dealer for more information on belt tension.

### Drive Belt Tension Check and Adjustment:

1. Ensure the engine is off (ignition switch is off and the fuel valve is closed).
2. Remove the 4 bolts that hold the belt guard to the machine, remove the belt guard.
3. Check the tension by pushing on the belt with your fore finger and measure its deflection. Drive belt should deflect no more than 1/2 to 5/8" (13 mm to 16 mm).
4. If the belt requires adjustment, loosen (do not remove) the 4 x bolts that hold the engine mount to the main frame, (located 2 on each side of engine)
5. Turn the belt tensioning bolt clockwise, to pull the engine mount outwards to tighten the belt or turn the bolt clockwise, to loosen the belt.
6. Snug 1 bolt on each side of the engine mount.
7. Check the tension by pushing on the belt with your fore finger and measure its deflection. Drive belt should deflect no more than 1/2 to 5/8" (13 mm to 16 mm).
8. If the tension is incorrect, loosen the engine mount bolts and adjust the belt tension bolt as required.
9. When tension is correct, tighten up all four engine mount bolts and replace the belt shield and bolts.



Tension Adjustment: (typical)

## 7.2.5 SHEAVE ALIGNMENT

A "V" belt transmits rotational power to the rotor. It must be kept properly tensioned and the sheaves aligned to obtain the expected performance and life.

For maximum accuracy, have your sheaves aligned with a laser alignment tool. Contact your dealer for information on laser alignment.

Alignment may be carried out using a straight edge, to check the alignment, follow this procedure:

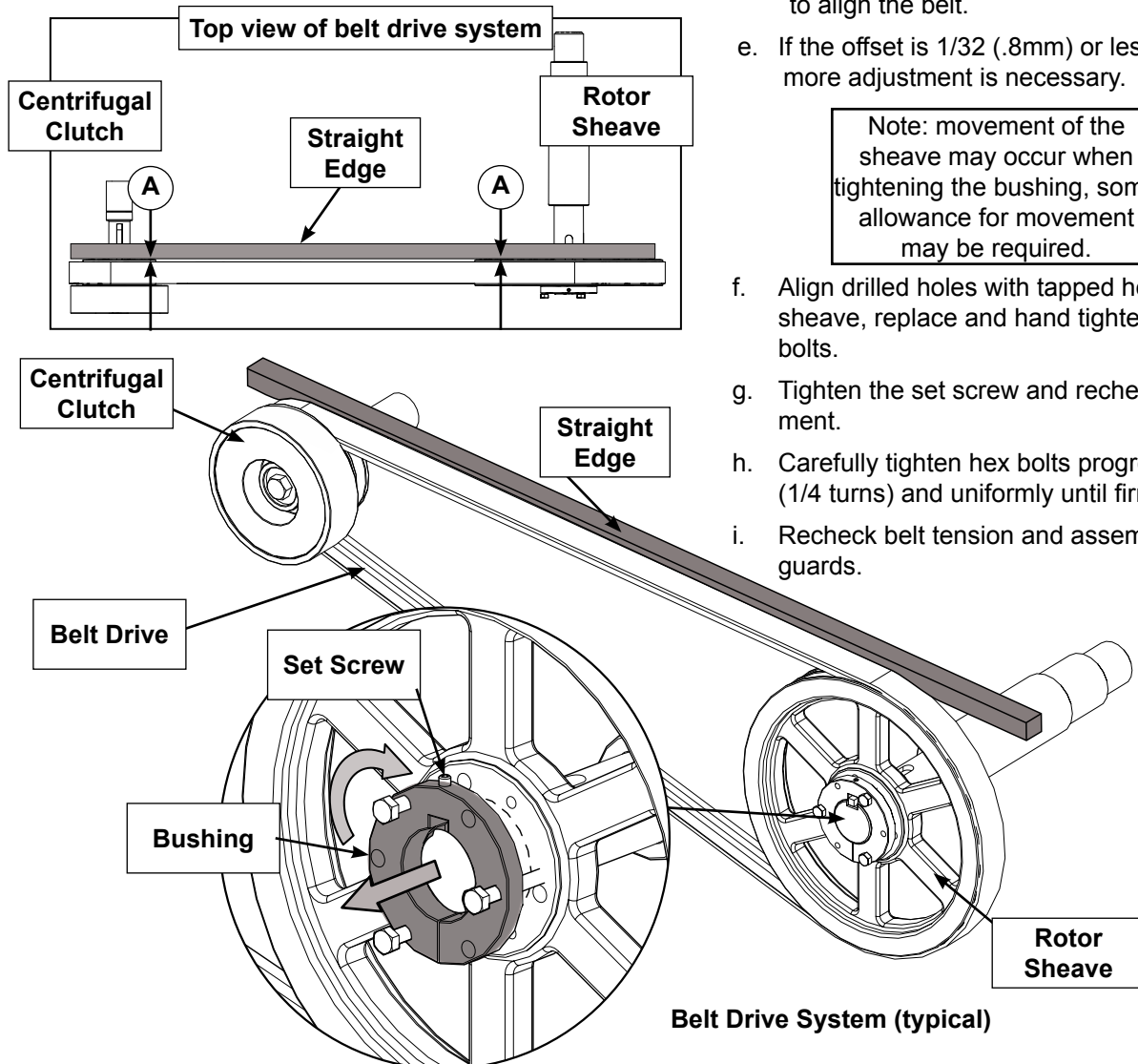
1. Clear the area of bystanders, especially small children.
2. Turn machine off, stop engine, remove ignition key and place in pocket and wait for all moving parts to stop.
3. Remove the belt guard.
4. Have a straight edge at least 50" (127cm) in length.
5. Place the straight edge along the face on the back of the clutch, and place the opposite end along the back face of the rotor sheave.

6. Check to see if there is a gap between the straight edge and the clutch or the sheave, measure the gap (A).
7. If there is more than 1/32" (.8mm) offset then adjustment is required.

### 8. To adjust alignment:

- a. Loosen the set screw on the bushing attached to rotor sheave.
  - b. Remove the hex bolts on the bushing, and thread them into the tapped holes on the bushing.
  - c. Tighten the hex bolts progressively with 1/4 turns until bushing is free from the sheave taper.
  - d. Move the sheave to the required position to align the belt.
  - e. If the offset is 1/32 (.8mm) or less then no more adjustment is necessary.
- f. Align drilled holes with tapped holes on the sheave, replace and hand tighten the hex bolts.
- g. Tighten the set screw and recheck alignment.
- h. Carefully tighten hex bolts progressively (1/4 turns) and uniformly until firmly seated.
- i. Recheck belt tension and assemble belt guards.

Note: movement of the sheave may occur when tightening the bushing, some allowance for movement may be required.





## 7.2.6 ROTOR BLADE:

The rotor and ledger blades need to be sharp for the Chipper / Shredder to perform as expected. Periodic inspection is recommended. Keep the blades sharp to reduce the amount of power required during operation. Watch the sharpness of the blades when processing material with a lot of sand, soil or dirt mixed with it. Reverse or sharpen the blades if the cutting edge becomes dull.

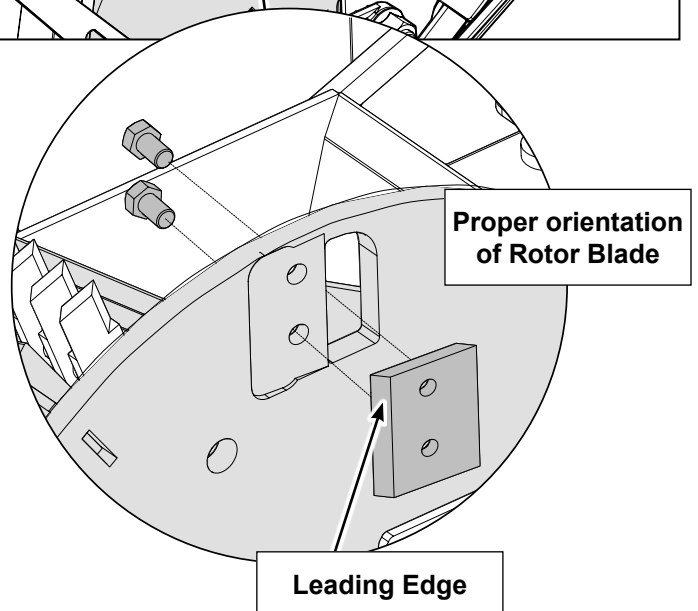
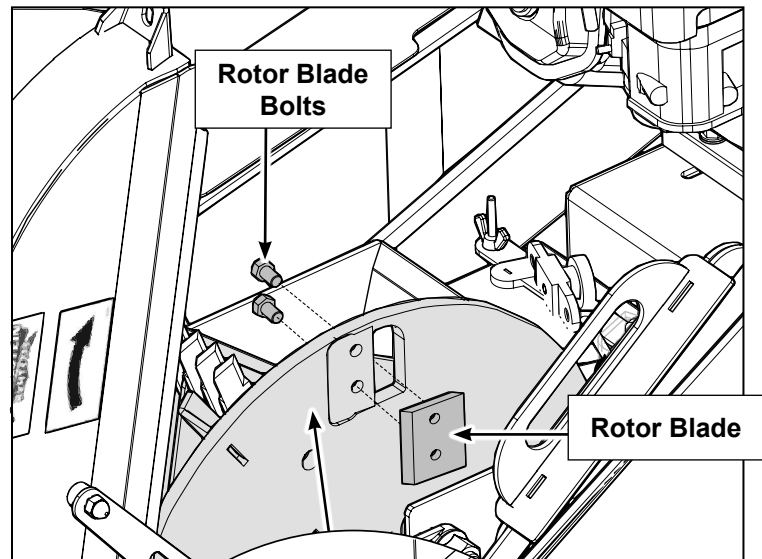
The rotor is equipped with 2 blades spaced evenly to keep the rotor in balance. If one needs to be changed, the one opposite should also be changed.

It is recommended that the rotor blades be removed from the rotor when sharpening. Always sharpen the blades at a 45° angle to provide the best cutting effect as it meets the stationary blade. Be sure to tighten the blade mounting bolts to their specified torque when re-installing the blades to the rotor.

1. Ensure the engine is off (ignition switch is off and the fuel valve is closed).
2. Remove the bolt that secures the upper rotor housing, and carefully open the rotor housing.
3. Manually rotate chipper rotor plate so that the blade is fully exposed
4. Engage the rotor lock, to secure the rotor while changing the rotor blades:

- twist the locking plunger out of the unlock position ,
- carefully rotate the rotor till the plunger snaps in to the rotor

5. Remove the bolts that hold the rotor blade to the rotor, remove the blade.
6. Rotate the blade and reinstall or replace with new or re-sharpened blade.
7. Ensure the blade is properly oriented, with the leading edge out. The blade is designed to fit into the rotor one way only. See diagram for proper installation.
8. Tighten down bolts as specified in the torque chart
9. Repeat steps for second blade.



**! WARNING**  
Machine is shown with guard removed for illustrative purposes only. Do not operate machine with guard removed.

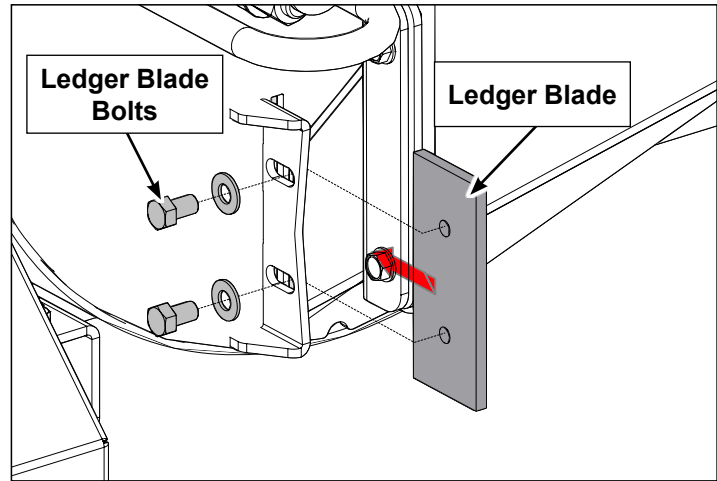


## 7.2.7 LEDGER BLADE:

Each machine is equipped with a ledger (stationary) blade that acts as a shear for the moving rotor blades.

The ledger blade is designed with 4 usable corners. When the corner facing the rotor blade rounds over, remove the blade and re-install with a different corner facing the rotor blade. It is recommended that the clearance between the rotor and stationary blades be set and maintained at 1/32 to 1/16" (.76 - 1.52 mm) to obtain the best performance.

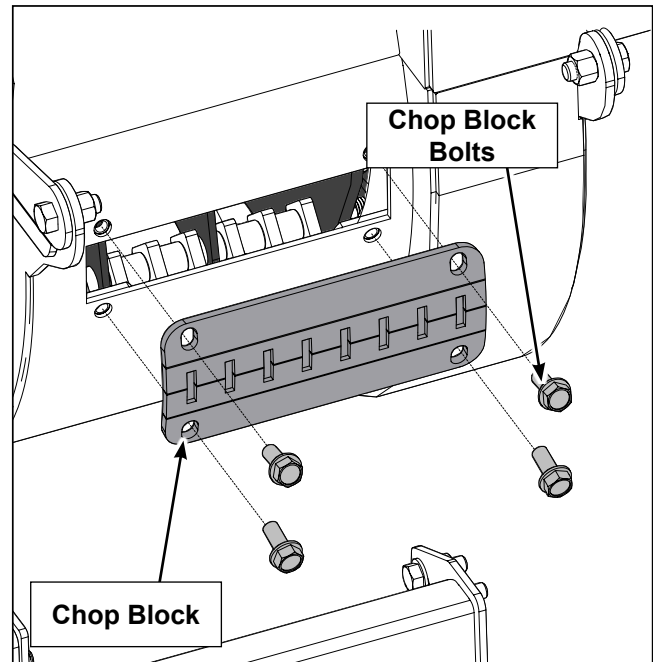
1. Ensure the engine is off (ignition switch is off and the fuel valve is closed).
2. Remove the 4 bolts that hold the ledger blade to the ledger mount, remove the blade.
3. Rotate the blade and replace or replace with new or re-sharpened blade.
4. Hand tighten the bolts and set the clearance between the ledger and rotor blades at 1/32 - 1/16" (.76 - 1.52 mm). For fast and easy setting, use our chipper clearance setting gauge, available from your dealer (see accessories)
5. Tighten down bolts as specified in the torque chart



## 7.2.8 CHOPBLOCK:

The ChopBlock is an assembly of breaker tabs bolted in to the bottom rotor housing. The shredder knives pass through the chop block, and helps to break the material into smaller pieces and turn it into mulch. Inspect the chop block for damage such as gouges, bent, or missing teeth. A damaged chop block should be replaced. If its teeth are showing wear, remove and rotate the chop block.

1. Ensure the engine is off (ignition switch is off and the fuel valve is closed).
2. Remove the bolt that hold the upper rotor housing, and carefully open the rotor housing.
3. Remove the 6 bolts that hold the chop block to the housing, remove the chop block.
4. Rotate and install, or install a new chop block.
5. Replace the chop block bolts.
6. Close and secure the upper rotor housing.



### WARNING

Machine is shown with guard removed or rotor cover opened for illustrative purposes only. Do not operate machine with guard removed or cover opened.

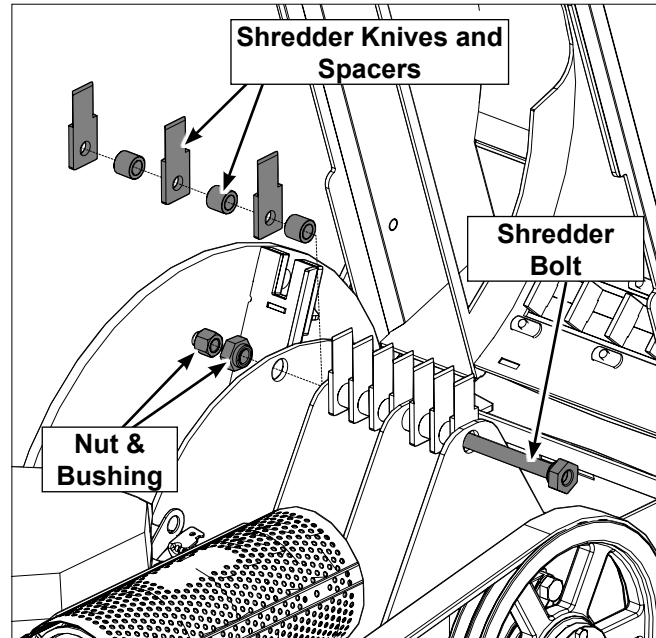
## 7.2.9 SHREDDER KNIFE:

The shredder rotor is designed with 3 sets of swinging knives (27 knives). Each knife has a bevelled edge that cuts, chops and mulches the material as it moves around the rotor compartment. In addition the chop block helps to break the material into smaller pieces and turn it into mulch.

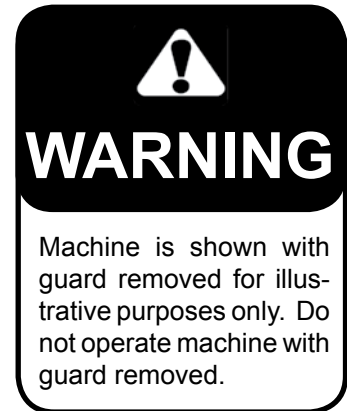
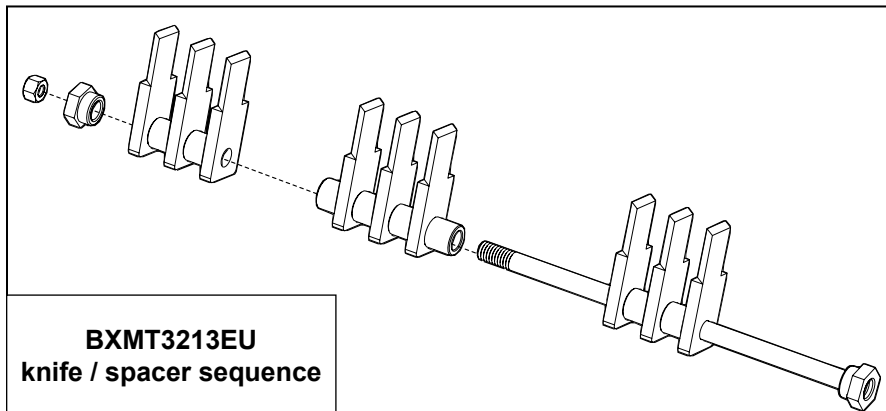
The sized opening in the divider at the top of the rotor keeps the material inside the rotor housing, until it becomes a fine enough to move through the opening to the rotor paddles and expelled out the discharge chute.

To remove the knives follow this procedure:

1. Ensure the engine is off (ignition switch is off and the fuel valve is closed).
2. Remove the 2 bolts that hold the upper rotor housing, and carefully open the rotor housing.
3. Manually rotate chipper rotor plate so that one set of shredder knives is fully exposed
4. Engage the rotor lock, to secure the rotor while changing the shredder knives:
  - twist the locking plunger out of the unlock position
  - carefully rotate the rotor till the plunger snaps in to the rotor
5. Loosen the shredder bolt that holds the set of shredder knives and spacers to the shredder plate,
6. Slowly remove the bolt while catching the knives and spacers as they become free.
7. Reverse the knife and replace, or replace with new or re-sharpened knives.
8. **Ensure that the knives and spacers are installed in the correct sequence, improper installation will decrease performance of the shredder, and could cause damage. Refer to diagram for help.**
9. Tighten down bolts as specified in the torque chart, ensure knives rotate freely.
10. Repeat steps for second and third sets of shredder knives.



SHREDDER KNIVES















## 8 TROUBLE SHOOTING





The Wallenstein Trailer Wood Chipper / Shredder is designed with blades on a rotor to cut, shear and shred wooden material. It is a simple and reliable system that requires minimal maintenance.

In the following section, we have listed many of the problems, causes and solutions to the problems that you may encounter.

If you encounter a problem that is difficult to solve, even after having read through this trouble shooting section, please call your local distributor or dealer. Before you call, please have this Operator's Manual from your unit and serial number ready.

PROBLEM	CAUSE	SOLUTION	CAUTION	
Rotor does not turn	Obstructed discharge.	Clear debris from discharge chute.		Ensure machine is off
	Rotor plugged.	Inspect and clear chipper hopper lower rotor housing and rotor.		Ensure machine is off
	Loose belt.	Follow tension adjustment procedure and tighten belt.		Ensure machine is off
	Broken belt.	Follow belt replacement procedure and replace belt.		Ensure machine is off
Slow feeding.	Low engine speed.	Check that choke is off, and throttle is set to maximum.		
	Blades and/or knives are dull.	Rotate, sharpen or replace blade and/or knives.		Ensure machine is off
	Rotor blade angle wrong, improper angle.	Re-sharpen knives to specified angle and check that blade is installed properly.		Ensure machine is off
	Obstructed discharge.	Clear debris from discharge chute.		Ensure machine is off
Unusual vibration while running.	Broken or missing blade or knife.	Replace broken/missing blade or knife.		Ensure machine is off.
	Rotor may be bent	Check rotor to see if it wobbles. Replace rotor		Ensure machine is off, call technician for repair
Mulch too Course	ChopBlock or Twig Breaker may be damaged	Inspect ChopBlock and Twig Breaker, replace if damaged.		Ensure machine is off.
	Broken or missing blade or knife.	Replace broken/missing blade or knife.		Ensure machine is off.
	Knives in shredder improperly re-installed	Check installation of knives and adjust as required, per maintenance instructions.		Ensure machine is off.


## Trouble Shooting, Continued

PROBLEM	CAUSE	SOLUTION	CAUTION	
Machine requires excessive power or stalls.	Obstructed discharge.	Clear debris from discharge chute		Ensure machine is off
	Engaging clutch too quickly	Engage clutch slowly, ensure hoppers and rotor housing are empty.		
	Feeding in too much material	Feed smaller amounts into shredder hopper.		
	Feeding material too quickly	Feed larger material slowly into chipper hopper.		
	Rotor plugged.	Inspect and clear chipper hopper lower rotor housing and rotor.		Ensure machine is off
	Green material will not discharge.	Allow material to dry or alternate dry/wet material.		
	Chipper blade clearance too large.	Set clearance to 1/32 to 1/16 " (.76 - 1.52 mm). Use chipper clearance tool (see accessories)		Ensure machine is off.
	Dull blades and/or knives.	Rotate, sharpen or replace blade and/or knives		Ensure machine is off.
<b>Engine related issues.</b>	<i>Refer to your engine instruction manual for specific trouble shooting instructions / requirements.</i>			

## 9 ACCESSORIES

Call your dealer for pricing and availability

For replacement parts, go to [www.embmfg.com](http://www.embmfg.com) and click on "Parts and Manuals" to download the latest parts manual for you model chipper, then call your dealer to order.

<p>#1012L269</p> 	<p><b>#1012L269 LEDGER CLEARANCE SETTING GAUGE</b></p> <p>For <b>BXMT3213EU Chipper / Shredder</b> An easy and accurate way of setting the critical clearances between the ledger blade and the rotor chipper blade.</p>
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# 10 SPECIFICATIONS

## 10.1 MECHANICAL

<b>BXMT3213EU</b>	
<b>Drive System</b>	Belt Drive, Centrifugal Clutch
<b>Engine</b>	389cc Honda GX390E
<b>Electric Start</b>	Yes
<b>Chipper Capacity</b>	3" 7.6 cm
<b>Chipper Housing Opening</b>	6" x 3" 15.2 cm x 7.6 cm
<b>Chipper Hopper Opening</b>	12.5" x 10" 31.8 cm x 29.2 cm
<b>Number of Chipper Blades</b>	2 Offset
<b>Chipper Knife Type</b>	Hardened / Reversible
<b>Shredder Capacity</b>	1" 2.5 cm
<b>Shredder Hopper Opening</b>	30" x 28" 76.2 cm x 71.1 cm
<b>Shredder Housing Opening</b>	10" X 10" 25.4 cm x 25.4 cm
<b>Number of Shredder Knives</b>	27
<b>Shredder Knife Type</b>	Hardened / reversible
<b>Discharge Hood Rotation</b>	360 degrees
<b>Rotor Weight</b>	70 lbs 31.8 kg
<b>Discharge Hood Height</b>	58" 140.2 cm
<b>Input RPM</b>	3600
<b>Rotor RPM</b>	1600
<b>Weight Total</b>	520 lbs 236 kg
<b>Tire Size</b>	4.80-8 LRC USATrail E-marked
<b>Dimensions L x W x H</b>	93.5" x 60" x 57" 237.5cm × 152.4cm × 145cm

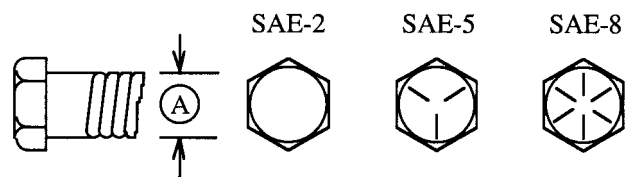
**SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE**

## 10.2 BOLT TORQUE

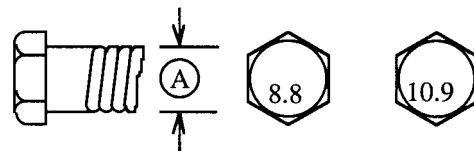
### CHECKING BOLT TORQUE

The tables shown below give correct torque values for various bolts and capscrews. Tighten all bolts to the torques specified in chart unless otherwise noted. Check tightness of bolts periodically, using bolt torque chart as a guide. Replace hardware with the same strength bolt.

ENGLISH TORQUE SPECIFICATIONS						
Bolt Diameter "A"	Bolt Torque*					
	SAE 2 (N.m) (lb-ft)		SAE 5 (N.m) (lb-ft)		SAE 8 (N.m) (lb-ft)	
1/4"	8	6	12	9	17	12
5/16"	13	10	25	19	36	27
3/8"	27	20	45	33	63	45
7/16"	41	30	72	53	100	75
1/2"	61	45	110	80	155	115
9/16"	95	60	155	115	220	165
5/8"	128	95	215	160	305	220
3/4"	225	165	390	290	540	400
7/8"	230	170	570	420	880	650
1"	345	225	850	630	1320	970



METRIC TORQUE SPECIFICATIONS				
Bolt Diameter "A"	Bolt Torque*			
	8.8 (N.m) (lb-ft)		10.9 (N.m) (lb-ft)	
M3	0.5	0.4	1.8	1.3
M4	3	2.2	4.5	3.3
M5	6	4	9	7
M6	10	7	15	11
M8	25	18	35	26
M10	50	37	70	52
M12	90	66	125	92
M14	140	103	200	148
M16	225	166	310	229
M20	435	321	610	450
M24	750	553	1050	774
M30	1495	1103	2100	1550
M36	2600	1917	3675	2710



Torque figures indicated above are valid for non-greased or non-oiled threads and heads unless otherwise specified. Therefore, do not grease or oil bolts or capscrews unless otherwise specified in this manual. When using locking elements, increase torque values by 5%.

\* Torque value for bolts and capscrews are identified by their head markings.

### 10.3 WHEEL LUG TORQUE

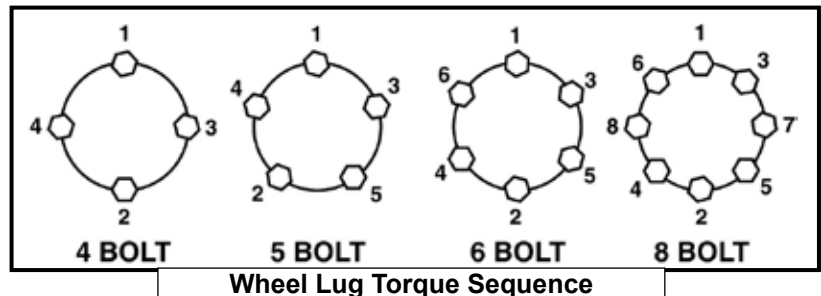
It is extremely important safety procedure to apply and maintain proper wheel mounting torque on your trailer axle. Torque wrenches are the best method to assure the proper amount of torque is being applied to a fastener.

Wheel lugs should be torqued before first road use and after each wheel removal. Check and re torque after the first 16Km (10 miles), 40Km (25 miles), and again at 80Km (50 miles). Check periodically thereafter.

Note: Wheel lugs must be applied and maintained at the proper torque levels to prevent loose wheels, broken studs, and possible dangerous separation of wheels from your axle.

Wheel Torque Requirements				
Wheel Size	Torque Unit	1st Stage	2nd Stage	3rd Stage
8"	ft-lbs	12 - 20	30 - 35	45 - 55
	Nm	16 - 26	39 - 45.5	58.5 - 71.5
12"	ft-lbs	20 - 25	35 - 40	50 - 60
	Nm	26 - 32.5	45.5 - 52	65 - 78
13"	ft-lbs	20 - 25	35 - 40	50 - 60
	Nm	26 - 32.5	45.5 - 52	65 - 78
14"	ft-lbs	20 - 25	50 - 60	90 - 120
	Nm	26 - 32.5	65 - 78	117 - 156
15"	ft-lbs	20 - 25	50 - 60	90 - 120
	Nm	26 - 32.5	65 - 78	117 - 156
16"	ft-lbs	20 - 25	50 - 60	90 - 120
	Nm	26 - 32.5	65 - 78	117 - 156

- Start all lugs by hand to prevent cross threading.
- Tighten lugs in sequence, per wheel lug torque sequence chart.
- The tightening of the fasteners should be done in stages. Following the recommended sequence, tighten fasteners per wheel torque requirements chart.



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