

WALLENSTEIN

BY EMB MFG INC.

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BXMT3209



BXMT3213 / BXMT3214SU



BXMT4224 / BXMT4228SU / BXMT4238

TRAILER CHIPPER-SHREDDER MODELS BXMT3209, BXMT3213, BXMT3214SU & BXMT4224, BXMT4228SU, BXMT4238 OPERATOR'S MANUAL

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WARRANTY

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

Register your product online at 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) Machines or parts lost or damaged during shipment,
- 2) Normal maintenance or adjustments after initial pre-service and set up is completed
- 3) Normal replacement of service items.
- 4) Accessory items / parts not supplied by EMB MFG INC.
- 5) 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).

The distributor's liability under warranty is limited to the 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

WALLENSTEIN
TRAILER CHIPPER-SHREDDER
INSPECTION REPORT

This form must be filled out by the dealer and signed by both the dealer and the customer at the time of delivery.

Customer's Name _____	Dealer Name _____
Address _____	Address _____
City, State/Province, Code _____	City, State/Province, Code _____
Phone Number (____) _____	Phone Number (____) _____
Contact Name _____	
Model _____	
Serial Number _____	
Delivery Date _____	

DEALER INSPECTION REPORT

____ Check Blade Clearance
____ Rotor Turns Freely
____ Belt Tension Checked
____ Pulleys Aligned
____ Fasteners Tight
____ Lubricate Machine
____ Check Tire Pressure
____ Retainer Installed Through Ball Hitch Mechanism
____ Check Engine Fluid Levels
____ Check Cutting Blades and Chop Block
____ Check That Spring-Loaded Safety Gate Moves Freely

SAFETY

____ Safety Chain on Hitch
____ All Decals Installed
____ Guards and Shields Installed and Secured
____ Review Operating and Safety Instructions

I have thoroughly instructed the buyer on the above described equipment which review included the Operator's Manual content, equipment care, adjustments, safe operation and applicable warranty policy.

Date _____ Dealer's Rep. Signature _____

The above equipment and Operator's Manual have been received by me and I have been thoroughly instructed as to care, adjustments, safe operation and applicable warranty policy.

Date _____ Owner's Signature _____

To activate warranty, register your product online at www.embmfg.com

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 plates are located where indicated. Please mark the numbers in the spaces provided for easy reference.



Engine Serial Number _____

1 INTRODUCTION

Congratulations on your choice of a Wallenstein Trailer Chipper-Shredder to compliment your operation. This equipment has been designed and manufactured to meet the needs of a discerning timber or landscaping industry.

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.



BXMT3209



BXMT3213 / BXMT3214SU



BXMT4224 / BXMT4228SU / BXMT4238

This manual covers the Wallenstein Trailer Chipper-Shredder BXMT3209, BXMT3213, BXMT3214SU, BXMT4224, BXMT4228SU and BXMT4238. 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.

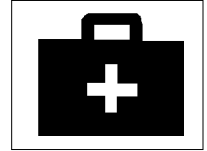
- Trailer Chipper-Shredder owners must give operating instructions to operators or employees before allowing them to operate the machine, and at least annually thereafter.
- The most important safety device on this equipment is a SAFE operator. It is the operator's responsibility to read and understand ALL Safety and Operating instructions in the manual and to follow these. Most accidents can be avoided.
- A person who has not read and understood all using and safety instructions is not qualified to use the machine. An untrained operator exposes himself and bystanders to possible serious injury or death.
- 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.
- Think SAFETY! Work SAFELY!

2.1 GENERAL SAFETY

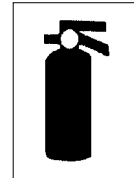
1. Read and understand the Operator's Manual and all safety signs before using, maintaining, adjusting or cleaning the Trailer Chipper-Shredder.



2. Have a first-aid kit available for use should the need arise and know how to use it.



3. Have a fire extinguisher available for use should the need arise and know how to use it.



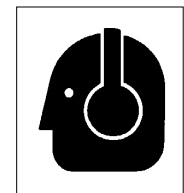
4. Do not allow riders.

5. Wear appropriate protective gear. This list includes but is not limited to:

- A hard hat
- Protective shoes with slip resistant soles
- Protective glasses, goggles or face shield
- Heavy gloves
- Wet weather gear
- Hearing Protection
- Respirator or filter mask



6. Install and secure all guards before starting.



7. Wear suitable ear protection for prolonged exposure to excessive noise.

8. Turn machine off, stop and disable engine, remove ignition key and place in your pocket, set park brake and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging.


9. Clear the area of people, especially small children, before using the unit.

10. Review safety related items annually with all personnel who will be operating or maintaining the Trailer Chipper-Shredder.

2.2 EQUIPMENT SAFETY GUIDELINES

1. Safety of the operator and bystanders is one of the main concerns in designing and developing equipment. 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.
2. In order to provide a better view, certain photographs or illustrations in this manual may show an assembly with a safety shield removed. However, equipment should never be used in this condition. Keep all shields in place. If shield removal becomes necessary for repairs, replace the shield prior to use.
3. Replace any safety sign or instruction sign that is not readable or is missing. Location of such safety signs is indicated in this manual.
4. Never use alcoholic beverages or drugs which can hinder alertness or coordination while using this equipment. Consult your doctor about using this machine while taking prescription medications.
5. **Under no circumstances should young children be allowed to work with this equipment. Do not allow persons to use 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.
6. 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 machinery and trained in this equipment's operations. If the elderly are assisting with work, their physical limitations need to be recognized and accommodated.
7. 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.**
8. Do not modify the equipment in any way. Unauthorized modification may result in serious injury or death and may impair the function and life of the equipment.
9. 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. Refer also to Safety Messages and operation instruction in each of the appropriate sections of the engine and machine manuals. Pay close attention to the Safety Signs affixed to the tow vehicle and the machine.

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 Using 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 using, 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 using:**
 - a. **Reads and understands the operator's manuals.**
 - b. **Is instructed in safe and proper use.**
5. Know your controls and how to stop tow unit, engine and machine quickly in an emergency. Read this manual and the one provided with your engine.
6. Train all new personnel and review instructions frequently with existing workers. Be certain only a properly trained and physically able person will use the machinery. A person who has not read and understood all using and safety instructions is not qualified to use the machine. An untrained operator exposes himself and bystanders to possible serious injury or death. If the elderly are assisting with the work, their physical limitations need to be recognized and accommodated.

2.4 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 displayed in Section 3 each have a part number in the lower right hand corner. Use this part number when ordering replacement parts.
5. Safety signs are available from your authorized Distributor or Dealer Parts Department or the factory.

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.

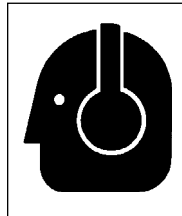
2.5 PREPARATION

1. Never use the engine and machine until you have read and completely understand this manual, the Engine Operator's Manual and 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, and gloves are recommended during assembly, installation, operation, adjustment, maintaining, repairing, removal, cleaning, or moving the unit. 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 with or without equipment attached can often be noisy enough to cause permanent, partial hearing loss. We recommend that you wear hearing protection on a full-time basis if the noise in the Operator's position exceeds 80db. 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.
NOTE: 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. Use only in daylight or good artificial light.
6. Be sure machine is properly mounted, adjusted and in good operating condition.
7. Ensure that all safety shielding and safety signs are properly installed and in good condition.



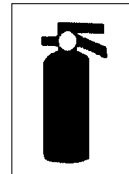
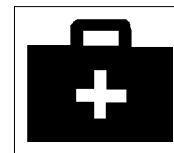
2.6 MAINTENANCE SAFETY

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. 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.
4. Before working on this machine, shut off the engine, set the brake, and turn fuel valve off.
5. Never work under equipment unless it is blocked securely.
6. Always use personal protection devices such as eye, hand and hearing protectors, when performing any service or maintenance work. Use heavy or leather gloves when handling blades.
7. 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.
8. A fire extinguisher and first aid kit should be kept readily accessible while performing maintenance on this equipment.
9. 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.
10. When completing a maintenance or service function, make sure all safety shields and devices are installed before placing unit in service.



2.7 OPERATING SAFETY

1. Please remember it is important that you read and heed the safety signs on the Trailer 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.
2. 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. Study this manual to make sure you have all safety equipment attached.
3. Close and secure rotor cover before operating.
4. Close and secure all guards, deflectors and shields before starting and operating.
5. Read and understand operator's manual before starting. Review safety instructions annually.
6. 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.
7. Keep hydraulic lines and fittings tight, in good condition and free of leaks.
8. 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.
9. 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.
10. Do not run machine inside a closed building to prevent asphyxiation from engine exhaust.
11. 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 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.
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 allow riders on this machine at any time. There is no safe place for any riders.
14. Never allow children or unauthorized people to operate or be around this machine.
15. 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.
16. Keep the working area clean and free of debris to prevent tripping. Operate only on level ground.
17. Do not point discharge at people, animals or buildings. Rotor can expel wood chips fast enough to cause injury.
18. Do not move or transport Chipper-Shredder when the rotor is turning.
19. Do not exceed a safe travel speed when transporting. Cross safety chain under hitch on trailer model when attaching to truck.

2.8 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 run engine in an enclosed area. Exhaust gases contain carbon monoxide, an odourless and deadly poison.
2. DO NOT place hands or feet near moving or rotating parts.
3. DO NOT store, spill, or use gasoline near an open flame, or devices such as a stove, furnace, or water heater which use a pilot light or devices which can create a spark.
4. DO NOT refuel indoors where area is not well ventilated. Outdoor refuelling is preferred.
5. DO NOT fill fuel chipper while engine is running. Allow engine to cool for 5 minutes before refuelling. Store fuel in approved safety containers.
6. DO NOT remove fuel tank cap while engine is running.
7. DO NOT operate engine if gasoline is spilled. Move machine away from the spill and avoid creating any ignition until gasoline has evaporated.
8. DO NOT smoke while filling fuel tank.
9. DO NOT choke carburettor to stop engine. Whenever possible, gradually reduce engine speed before stopping.
10. DO NOT run engine above rated speeds. This may result in injury.
11. DO NOT tamper with governor springs, governor links or other parts which may increase the governed speed.
12. DO NOT tamper with the engine speed selected by the original equipment manufacturer.
13. DO NOT check for spark with spark plug or spark plug wire removed.
14. DO NOT crank engine with spark plug re-

moved. If engine is flooded, place throttle in "FAST" position and crank until engine starts.

15. DO NOT strike flywheel with a hard object or metal tool as this may cause flywheel to shatter in operation. Use proper tools to service engine.
16. DO NOT operate engine without a muffler. Inspect periodically and replace, if necessary. If engine is equipped with a muffler deflector, inspect periodically and replace, if necessary with correct deflector.
17. DO NOT operate engine with an accumulation of grass, leaves, dirt or other combustible materials in the muffler area.
18. 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.
19. DO NOT touch hot muffler, cylinder or fins because contact may cause burns.
20. DO NOT run engine with air cleaner or air cleaner cover removed.

WARNING: DO

1. ALWAYS DO remove the wire from the spark plug when servicing the engine or equipment TO PREVENT ACCIDENTAL STARTING. Disconnect the negative wire from the battery terminal if equipped with a 12 volt starting system.
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.

2.9 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.



2.10 TIRE SAFETY

1. Failure to follow proper procedures when mounting a tire on a wheel or rim can produce an explosion which may result in serious injury or death.
2. Do not attempt to mount a tire unless you have the proper equipment and experience to do the job.
3. Have a qualified tire dealer or repair service perform required tire maintenance.
4. When replacing worn tires, make sure they meet the original tire specifications. Never undersize.

2.11 BATTERY SAFETY

1. Keep all sparks and flames away from batteries, as gas given off by electrolyte is explosive.
2. Avoid contact with battery electrolyte: wash off an spilled electrolyte immediately.
3. Wear safety glasses when working near batteries.
4. Do not tip batteries more than 45°, to avoid electrolyte loss.
5. To avoid injury from spark or short circuit, disconnect battery ground cable before servicing any part of the electrical system.

2.12 STORAGE SAFETY

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

2.13 TRANSPORT SAFETY

1. Comply with Provincial / state and local laws governing safety and transporting of machinery on public roads.
2. Check that all the lights, reflectors and other lighting requirements are installed and in good working condition.
3. Do not exceed a safe travel speed. Slow down for rough terrain and cornering.
4. Fold up and secure feed hopper before moving or transporting.
5. Be sure the trailer is hitched positively to the towing vehicle and a retainer is used through the hitch jaws. Always attach a safety chain between the hitch and the towing vehicle.
6. Do not drink and drive.
7. Be a safe and courteous driver. Always yield to oncoming traffic in all situations, including narrow bridges, intersections, etc. Watch for traffic when operating near or crossing roadways.
8. Never allow riders on the machine.

2.14 SIGN-OFF FORM

Wallenstein follows the general Safety Standards specified by the American Society of Agricultural and Biological Engineers (ASABE) and the Occupational Safety and Health Administration (OSHA). Anyone who will be using and/or maintaining the Trailer Wood Chipper / Shredder must read and clearly understand ALL Safety, Usage and Maintenance information presented in this manual.

Do not use or allow anyone else to use this chipper / shredder until such information has been reviewed. Annually review this information before the season start-up.

Make these periodic reviews of SAFETY and OPERATION a standard practice for all of your equipment. We feel that an untrained operator is unqualified to use this machine.

A sign-off sheet is provided for your record keeping to show that all personnel who will be working with the equipment have read and understand the information in the Operator's Manual and have been instructed in the operation of the equipment.

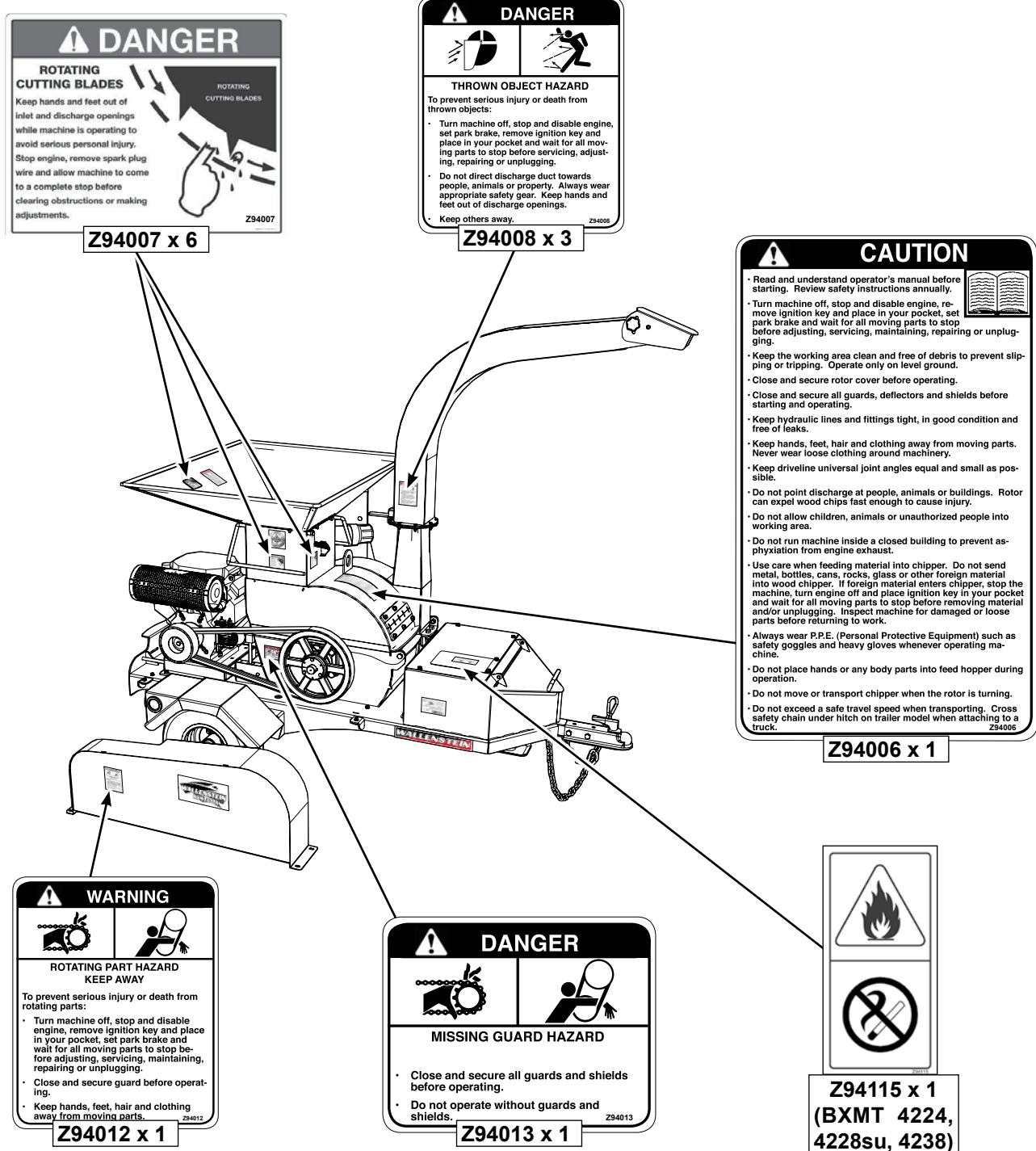
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3 SAFETY SIGN LOCATIONS

3.1 3 - PANEL SAFETY SIGNS

The types of safety signs and locations on the equipment are shown in the illustrations that follow. Model BXMT4224 is illustrated but indicates the general location of the various safety signs. 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!

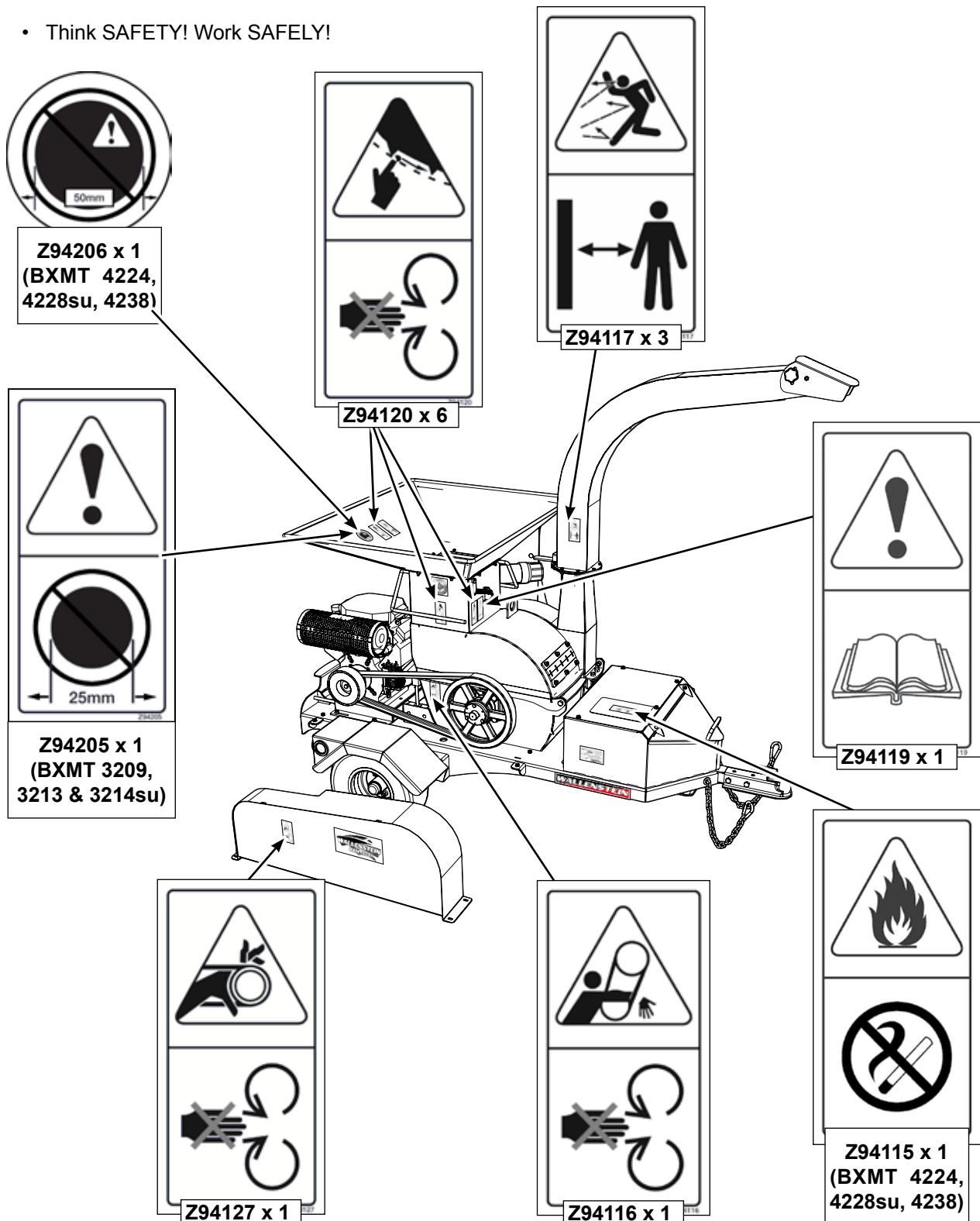


REMEMBER - If safety signs have been damaged, removed, become illegible or parts replaced without safety signs, new signs must be applied. New safety signs are available from your authorized dealer.

3.2 2 - PANEL SAFETY SIGNS

The types of safety signs and locations on the equipment are shown in the illustrations that follow. Model BXMT4224 is illustrated but indicates the general location of the various safety signs. 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.
- 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.

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.

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 operate 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.

4.2 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.

An engine is mounted on the frame to drive the rotor. Power is transmitted through a centrifugal clutch on the engine output shaft and through a V belt drive system.

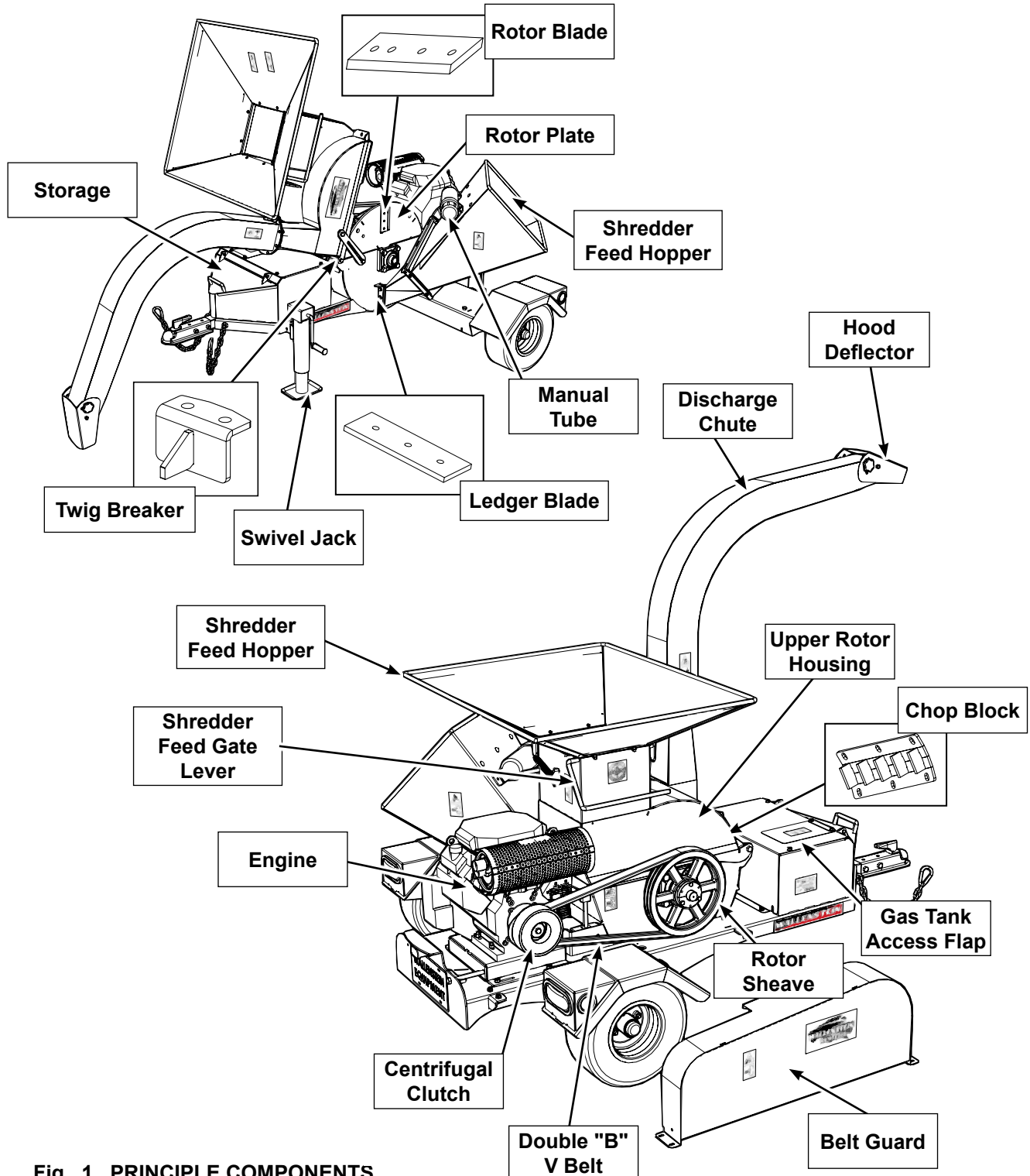


Fig. 1 PRINCIPLE COMPONENTS

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:

1. Lubricate the machine per the schedule outline in the Maintenance Section.
2. Check the tension and alignment of the belts. Adjust tension and align as required.
3. Check the rotor, blades, knives and chop block. Remove any twine, wire or other material that has become entangled.
4. Check the condition and clearance of the moving and stationary blades, knives and chop block. Adjust or replace as required.
5. Check engine fluid levels. Top up as required.
6. Check that all bearings turn freely. Replace any that are rough or seized.
7. Make sure that all guards and shields are in place, secured and functioning as designed.

4.5 CONTROLS

4.5.1 GAS ENGINE MANUAL / ELECTRIC START

BXMT3209: Honda GX270

BXMT3213: Honda GX390

BXMT3214su: Subaru EX40

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

- **On / Off Switch (BXMT3209):** This rotary switch controls the electrical power to the engine electrical system. Turn the switch clockwise to turn the electrical system on. Turn counter-clockwise turn the electrical system off and stop the engine .
- **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:** Each 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.

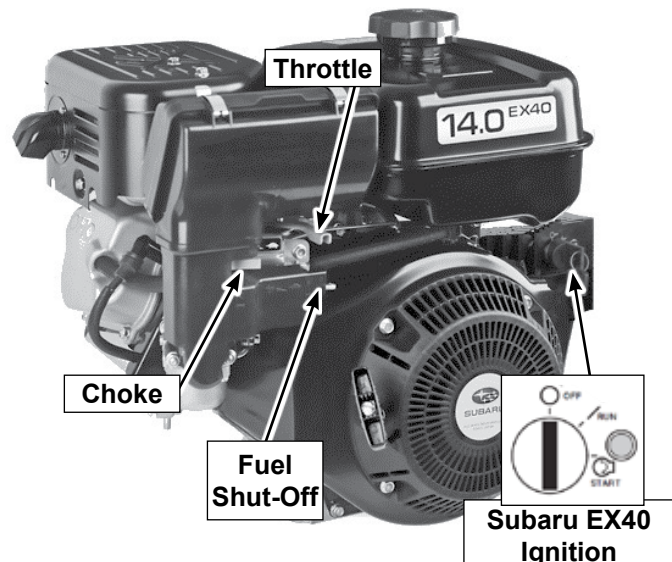
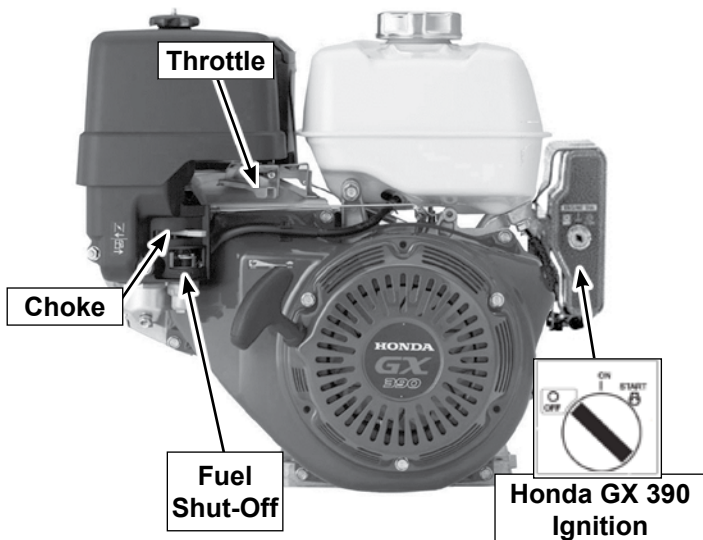
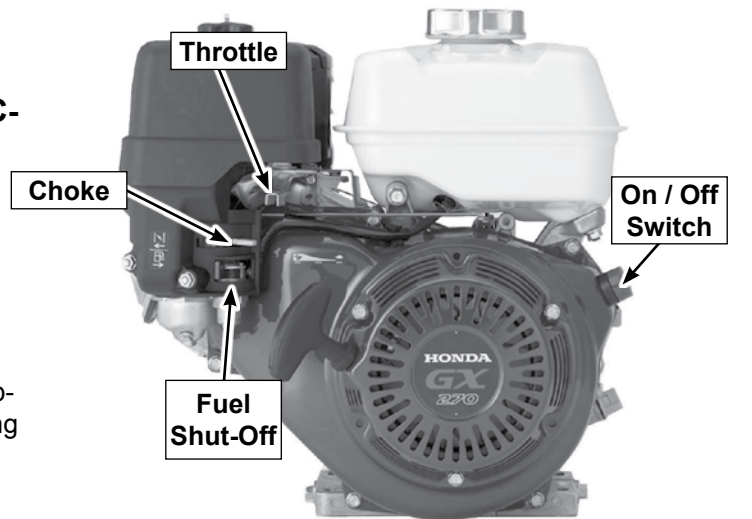


Fig. 2 ENGINE

4.5.2. GAS ENGINE ELECTRIC START

BXMT4224: Honda GX690

BXMT4228su: Subaru EH72FI

BXMT4238: Kohler CH980

Before starting to work, all operators should familiarize themselves with the location and function of controls.

1. Gas Engine:

Before starting, read the engine manufacturers operator's manual for more detailed instructions.

- **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.

- **Choke: (Honda & Kohler)**

Honda: This push/pull knob controls the position of the choke. Pull the knob out to close the choke for starting when the engine is cold. Push the knob in to open the choke as the engine warms. Always push the knob in fully in when operating the machine.

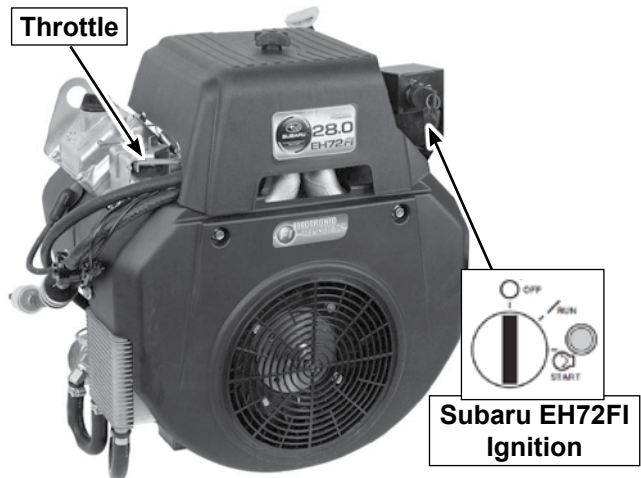
Kohler: This left/right slider controls the position of the choke. Slide the choke to the right to close the choke for starting when the engine is cold. Slide the knob to the left to open the choke as the engine warms. Always slide the choke fully to the left when operating the machine.

- **Throttle:** This lever controls the engine RPM.

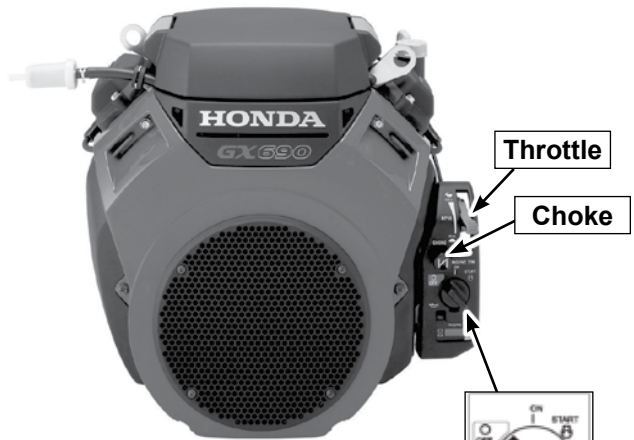
Subaru: slide the lever to the back to increase engine speed and forward to decrease.

Honda: slide the lever up to increase engine speed and down to decrease.

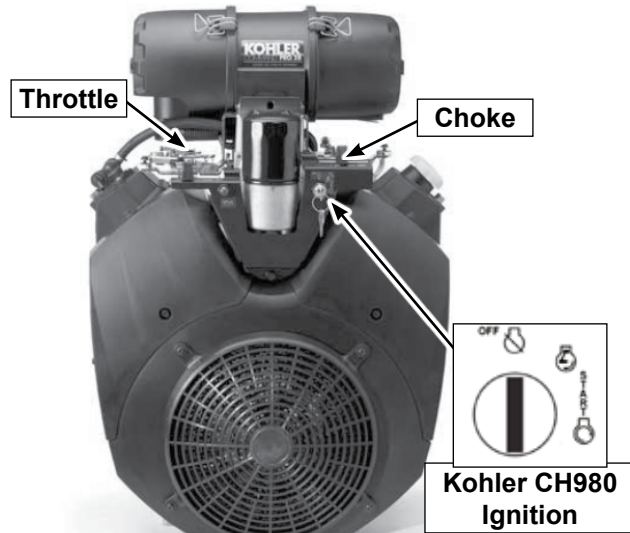
Kohler: slide the lever to the left to increase engine speed and right to decrease.



Subaru EH72FI Ignition



Honda GX 690 Ignition



Kohler CH980 Ignition

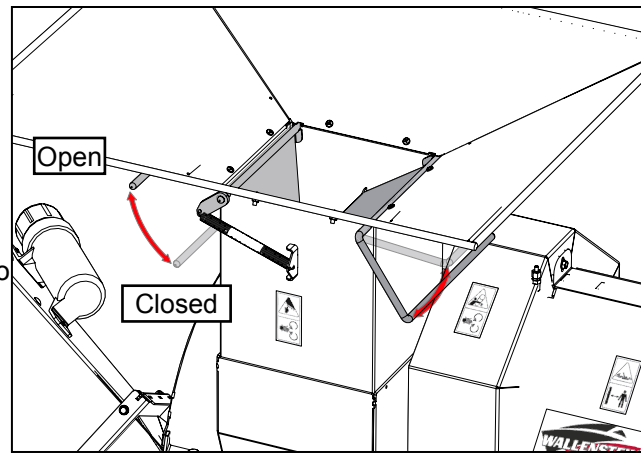
Fig. 3 ENGINE

4.5.3 SHREDDER FEED GATE LEVER:

The shredder intake is designed with spring-loaded gates 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(s) down to allow the material to move into the shredding rotor. Release the lever(s) and the spring will move the gate into its closed position.

BXMT4224, 4228su & 4238 has dual gates, **BXMT3209, 3213, 3214SU** has a single gate with levers on each side.

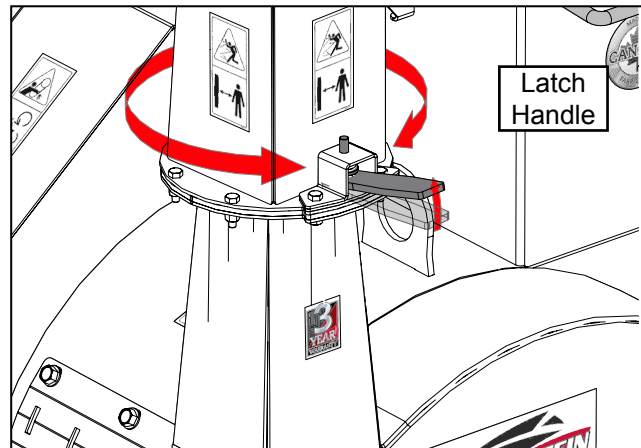


Feed Gate Lever

4.5.4 DISCHARGE CHUTE:

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

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

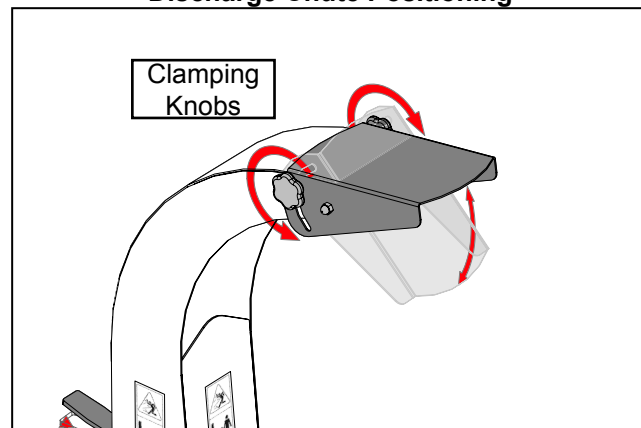


Discharge Chute Positioning

4.5.5 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.



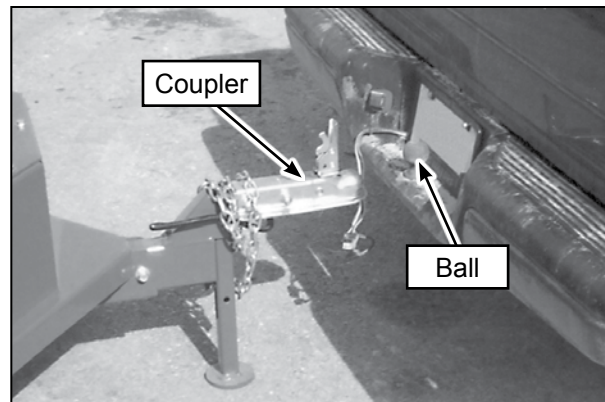
Hood Deflector Positioning

Fig. 4 Controls

4.6 BALL & COUPLER

The Wood 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 unit, 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. Attach the ball hitch:
 - a. Lift the hitch and place the coupler over the ball on the hitch.
 - b. Flip the latch to lock the coupler around the ball and install .
 - c. Install the snapper pin to secure the latch
 - d. **BXMT3213, 3214su:** Pull out the snapper pin and pull up to place stand in its stowed position. Replace snapper pin.
 - e. **BXMT4224, BXMT4228su, BXMT4238:** Crank the swivel jack up, pull out the snapper pin and swivel the stand into its stowed position. Replace snapper pin.
6. Attach the safety chain securely to the tow frame to prevent unexpected separation. Cross the chains when attaching to the tow vehicle
7. Reverse the above procedure when unhooking.
8. Ensure light wiring harness is connected to the tow vehicle.
9. Route the harness and cables across the hitch to prevent snagging. Be sure to provide slack for turning.
10. Reverse the above procedure when unhooking.



ALIGNED



ATTACHED

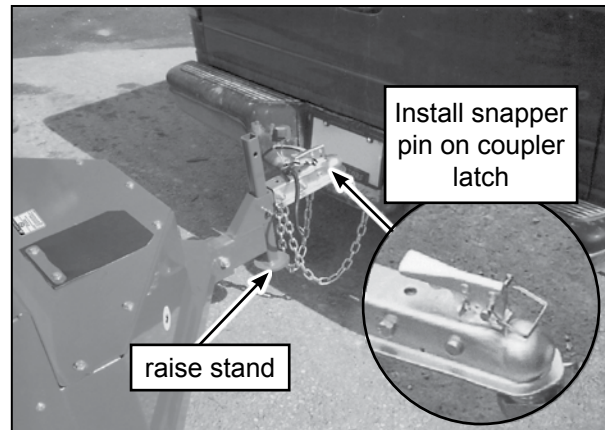


Fig.5 PIN / STAND / SAFETY CHAIN / WIRING HARNESS

4.7 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.

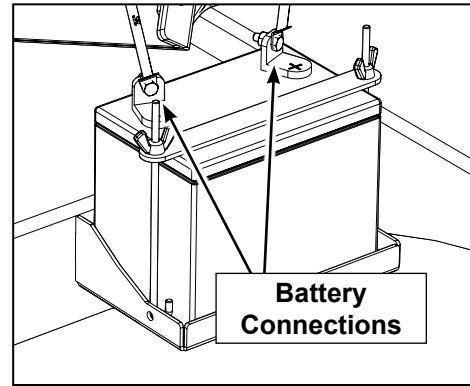


Fig. 6 BATTERY CABLE: (typical)

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. (**except BXMT3209**)

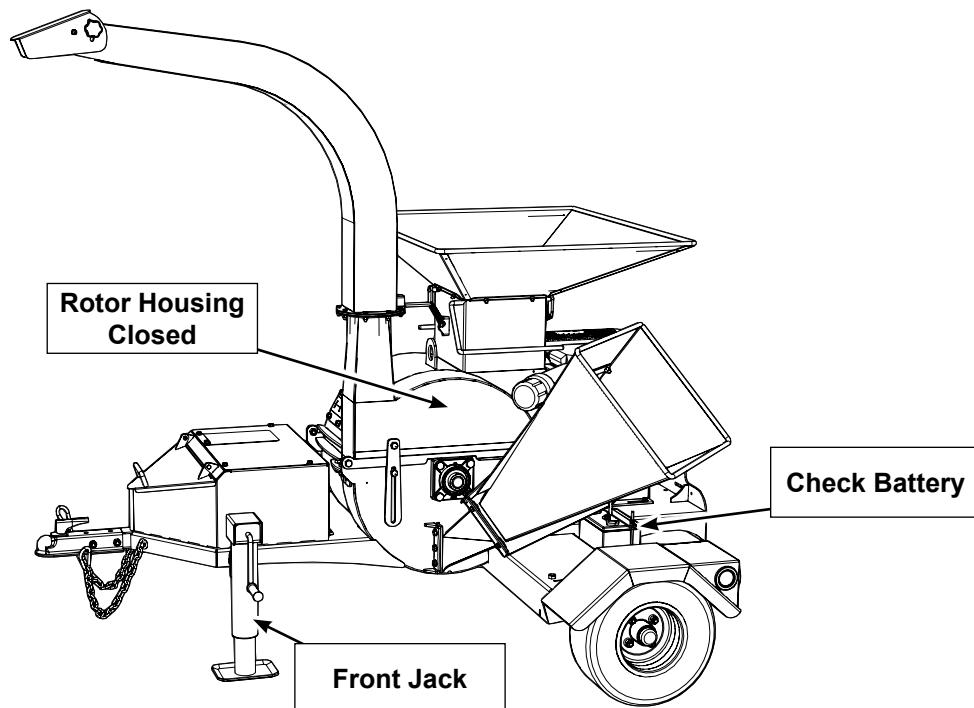


Fig. 14 SET UP

4.8 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:

4.8.1. 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 4.7).
- 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

4.8.2. STARTING PROCEDURE

- a. The Chipper / Shredder should be set up and ready to run. (see 4.7)
- 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. (not available for fuel injected Subaru)
- 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 (**BXMT3209, BXMT3213, BXMT3214su**).
- g. Electric Start (Except BXMT3209): 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.
Manual Start (BXMT3209): Turn the on/off switch to "on". Grasp the "T" bar on the pull cord firmly, and pull the rope sharply to start the engine.
- 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.

4.8.3 STOPPING:

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

4.8.4 EMERGENCY STOPPING

If an emergency occurs:

shut off the engine.

Correct emergency situation before restarting engine and resuming work.

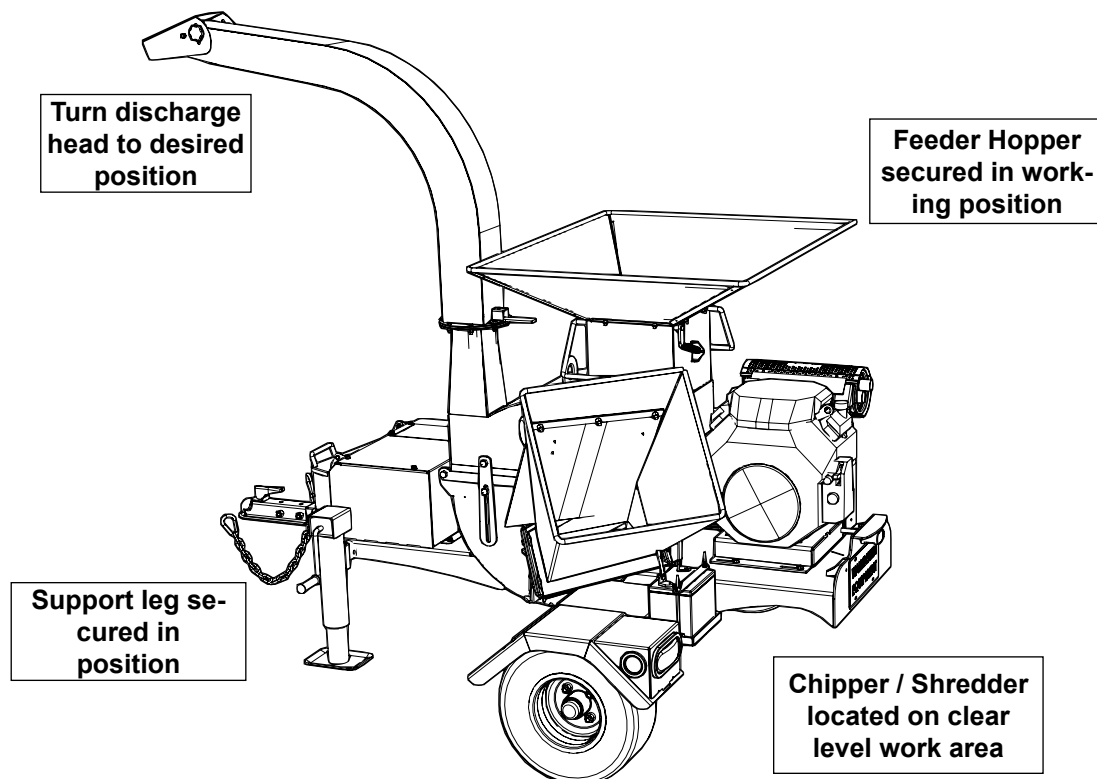


Fig. 7 STARTING/STOPPING

4.8.5 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. See chart for capacity:

Model	Chipper	Shredder
BXMT3209	3" (76mm)	1" (26mm)
BXMT3213	3" (76mm)	1" (26mm)
BXMT3214su	3" (76mm)	1" (26mm)
BXMT4224	4" (101mm)	2" (51mm)
BXMT4228su	4" (101mm)	2" (51mm)
BXMT4238	4" (101mm)	2" (51mm)

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.

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.



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

- Before beginning to feed, ensure the motor warmed up and the rotor is up to speed.
- Slowly slide the wooden material into the feed hopper and move it into the rotor.
- 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.
- Be aware of how much material you feed in, slow down or stop if the engine begins to slow down.
- Do not reach into the feed hopper further than the curtain to be sure not to contact the blades on the rotor.
- 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.**
- Ensure your wood chip pile is contained and doesn't affect the immediate work area.



Fig. 8 OPERATING

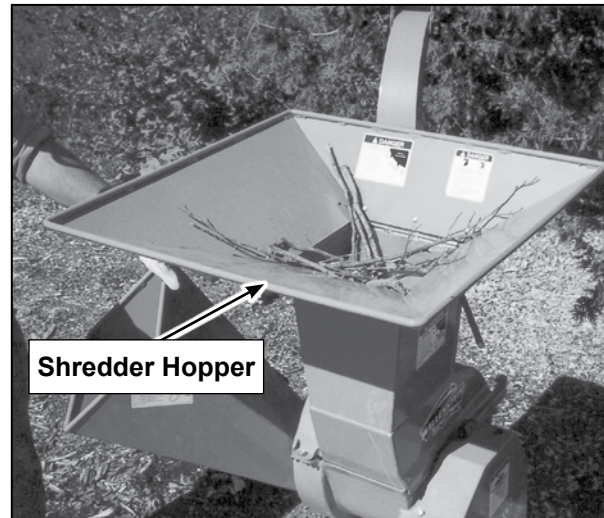
4.8.6 SHREDDING OPERATION

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.

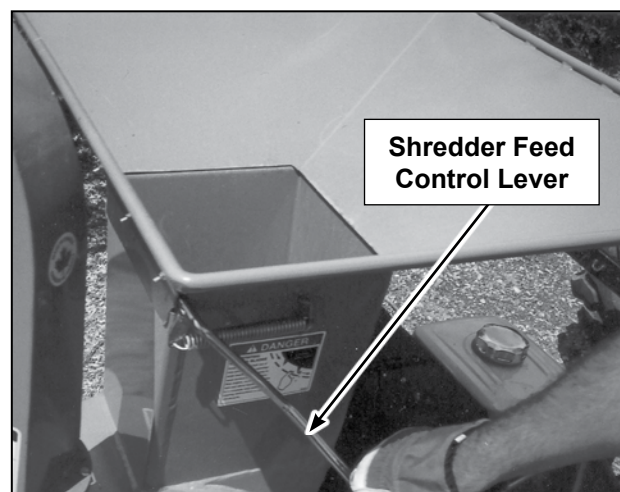


Fig. 9 SHREDDER OPERATION

4.8.6 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.

4.8.7 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
- 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.

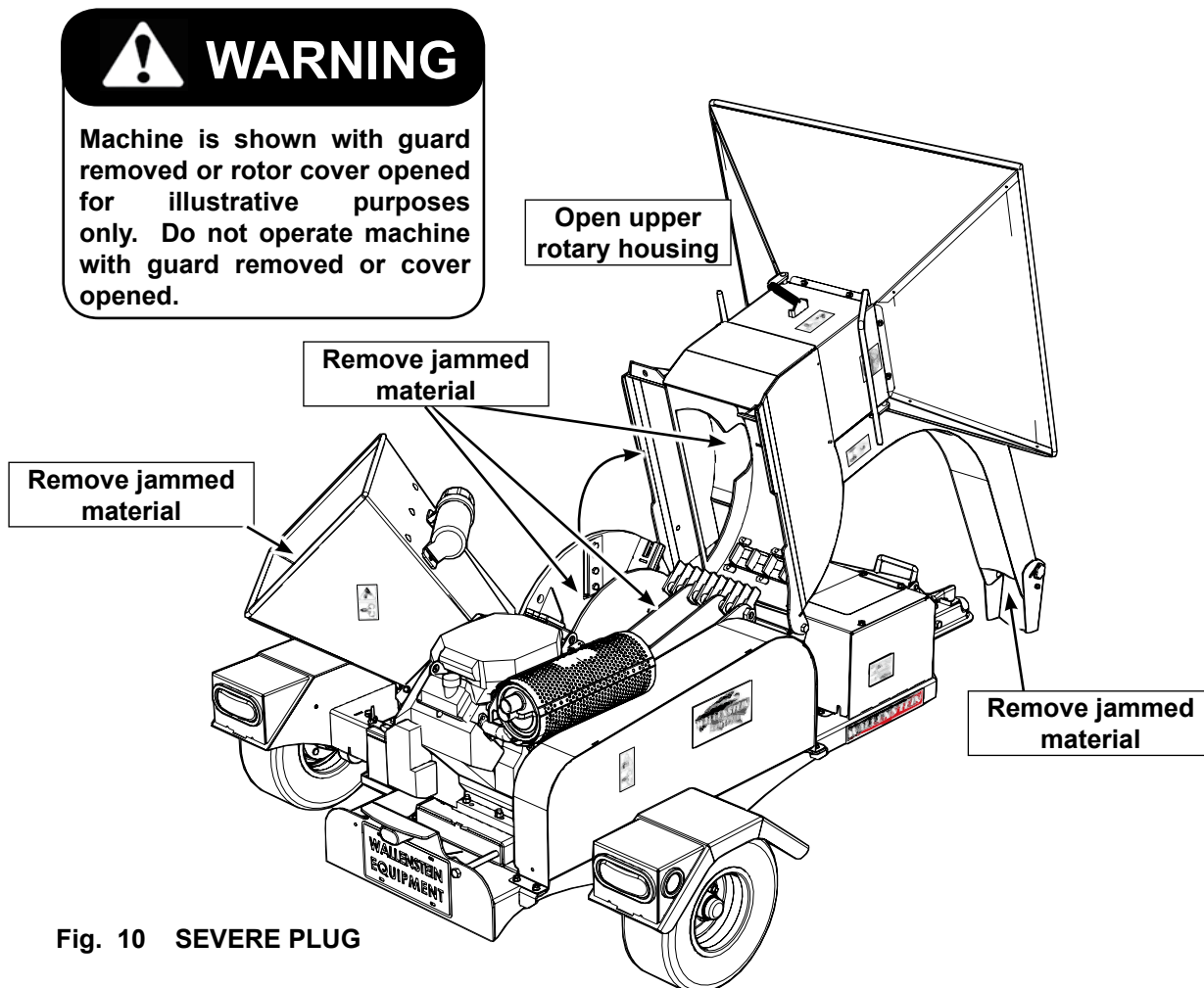


Fig. 10 SEVERE PLUG

4.8.8 REFUELLING:

BXMT3209, 3213, 3214su models have an engine mounted fuel tank.

BXMT4224, 4228su and 4238 models have the fuel tank located in the front frame and is accessed by lifting the rubber flap over the cap. Do not overfill. Use caution to prevent spilling. Do not smoke while refuelling.



4.8.9 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.

4.8.10 OPERATING HINTS:

- Keep the working area clean and free of debris to prevent slipping or tripping. Operate only on level ground.
- 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.
- Do not point discharge at people, animals or buildings. Rotor can expel wood chips fast enough to cause injury.
- 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.

**BXMT3209,
3213 & 3214su**



**BXMT4224, BXMT-
4228su, BXMT4238**

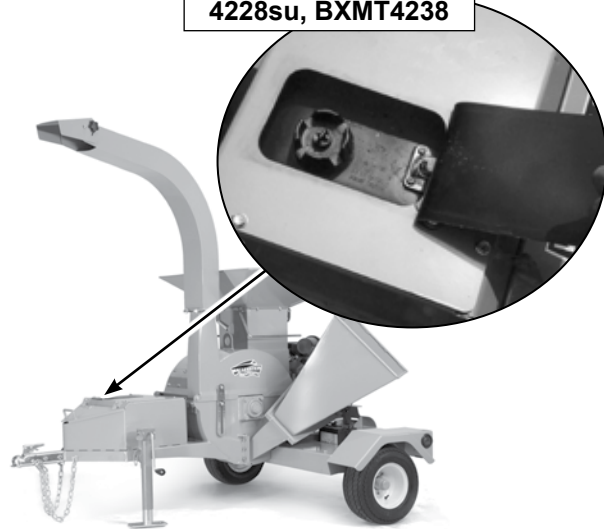


Fig. 11 FUEL TANK

**Feeder Hopper
Safety Curtain**

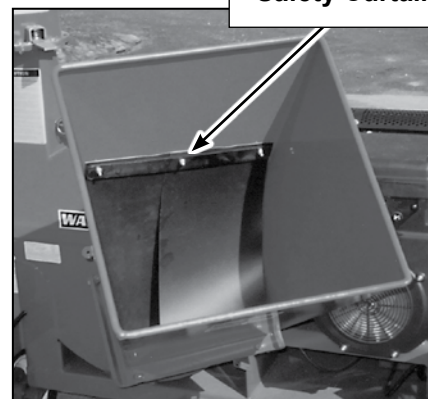


Fig. 12 CURTAIN

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 pick-up with a mechanical retainer through the ball safety chains on 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 and swivel 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.

g is securely bolted.

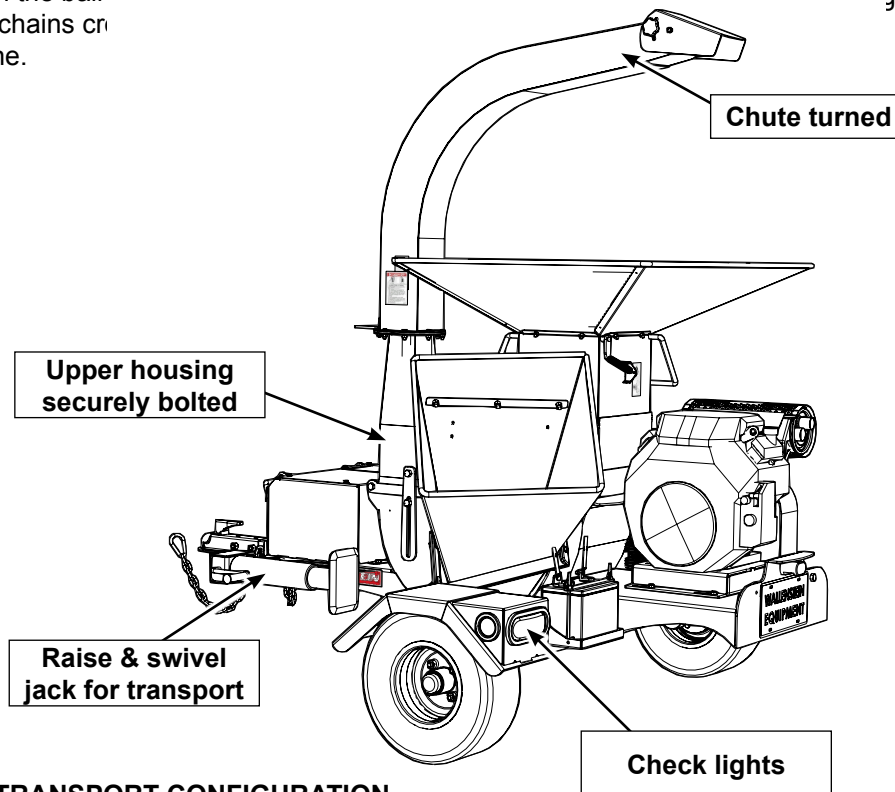


Fig. 13 TRANSPORT CONFIGURATION

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.

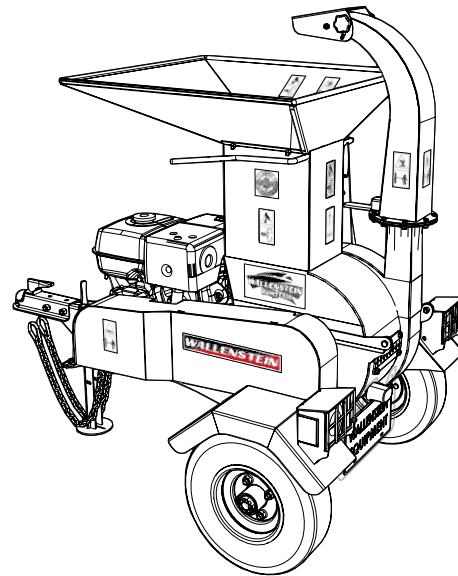


Fig. 14 STORED

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 GX270	6.5 L (1,5 gal US)
Honda GX390	6.5 L (1,5 gal US)
Subaru EX40	7 L (1.85 gal US)
Honda GX690	25 L (4 gal US)
Subaru EH72FI	25 L (4 gal US)
Kohler CH980	25 L (4 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-held 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.

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

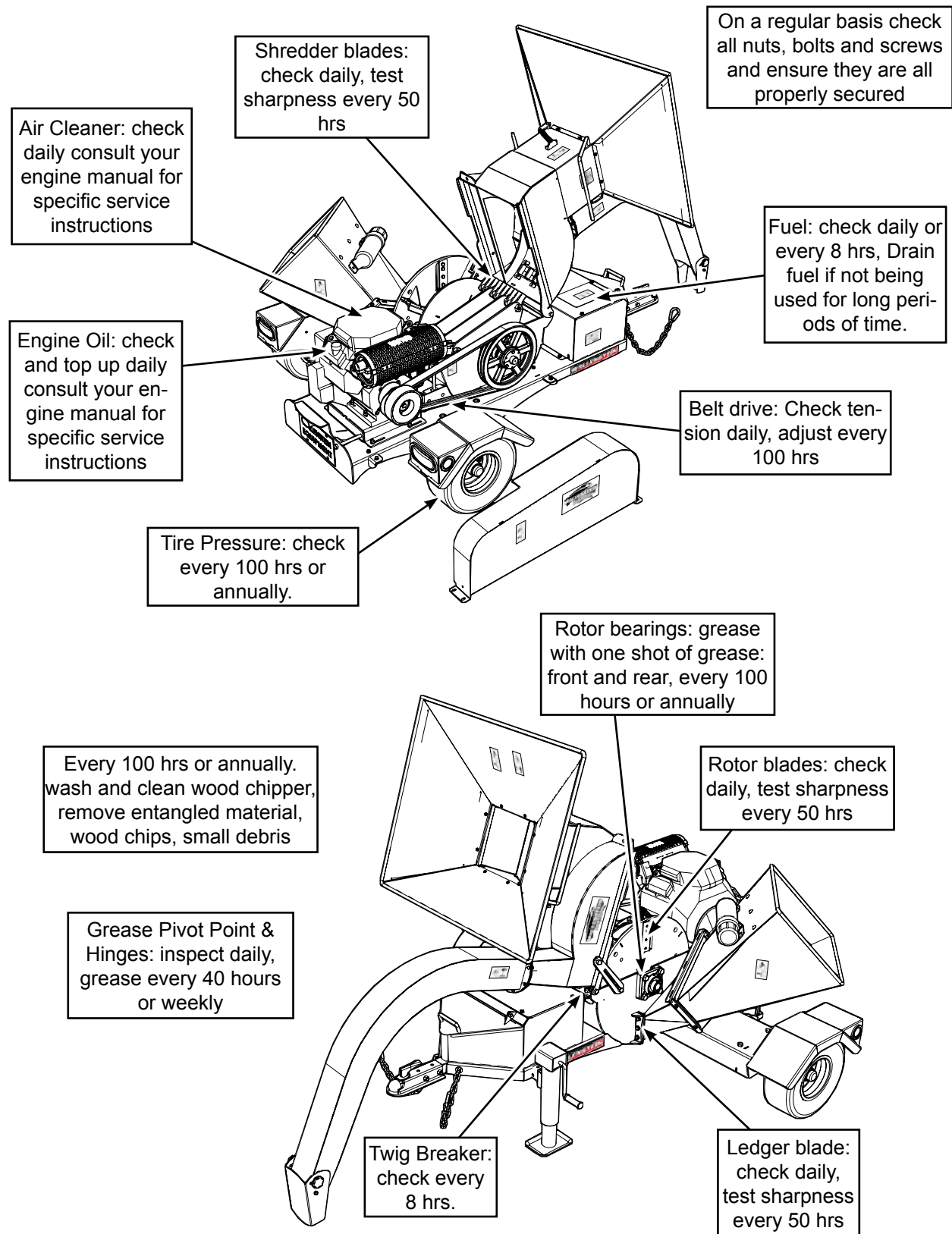


Fig. 15 SERVICE

7.1.4 SERVICE RECORD

See Lubrication and Maintenance sections for details of service. Copy this page to continue record.

[illegible]

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:

Although model BXMT4224 is illustrated, the procedures can be applied to all models in this manual.

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.

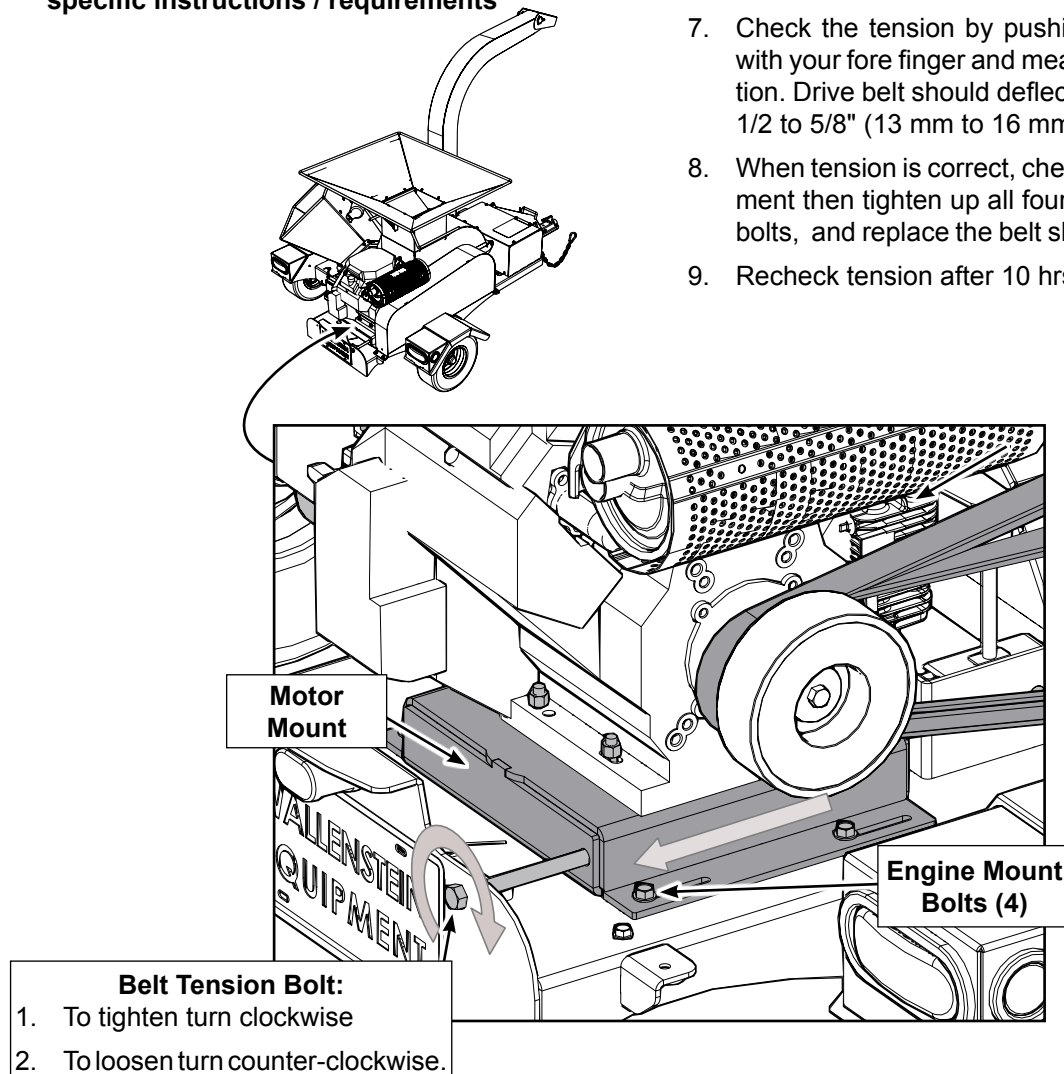


Fig. 16 BOTTOM VIEW OF MOTOR MOUNT

7.2.4 BELT TENSION

Although model BXMT4224 is illustrated, the procedures can be applied to all models in this manual. 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.



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.

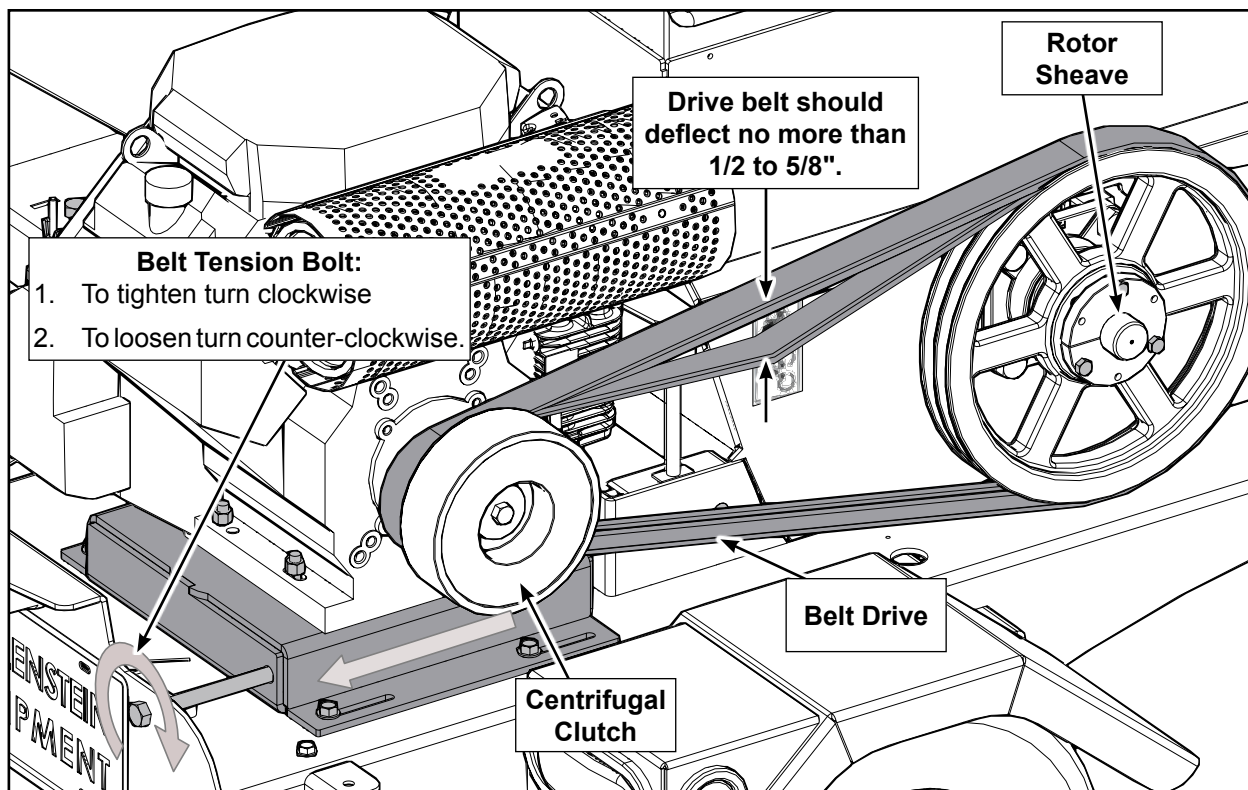


Fig. 17 BELT TENSION

7.2.5 SHEAVE ALIGNMENT

Although model BXMT4224 is illustrated, the procedures can be applied to all models in this manual. A set of V belts transmits rotational power to the rotor. They 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 3 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.

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

- f. Align drilled holes with tapped holes on the sheave, replace and hand tighten the 3 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.

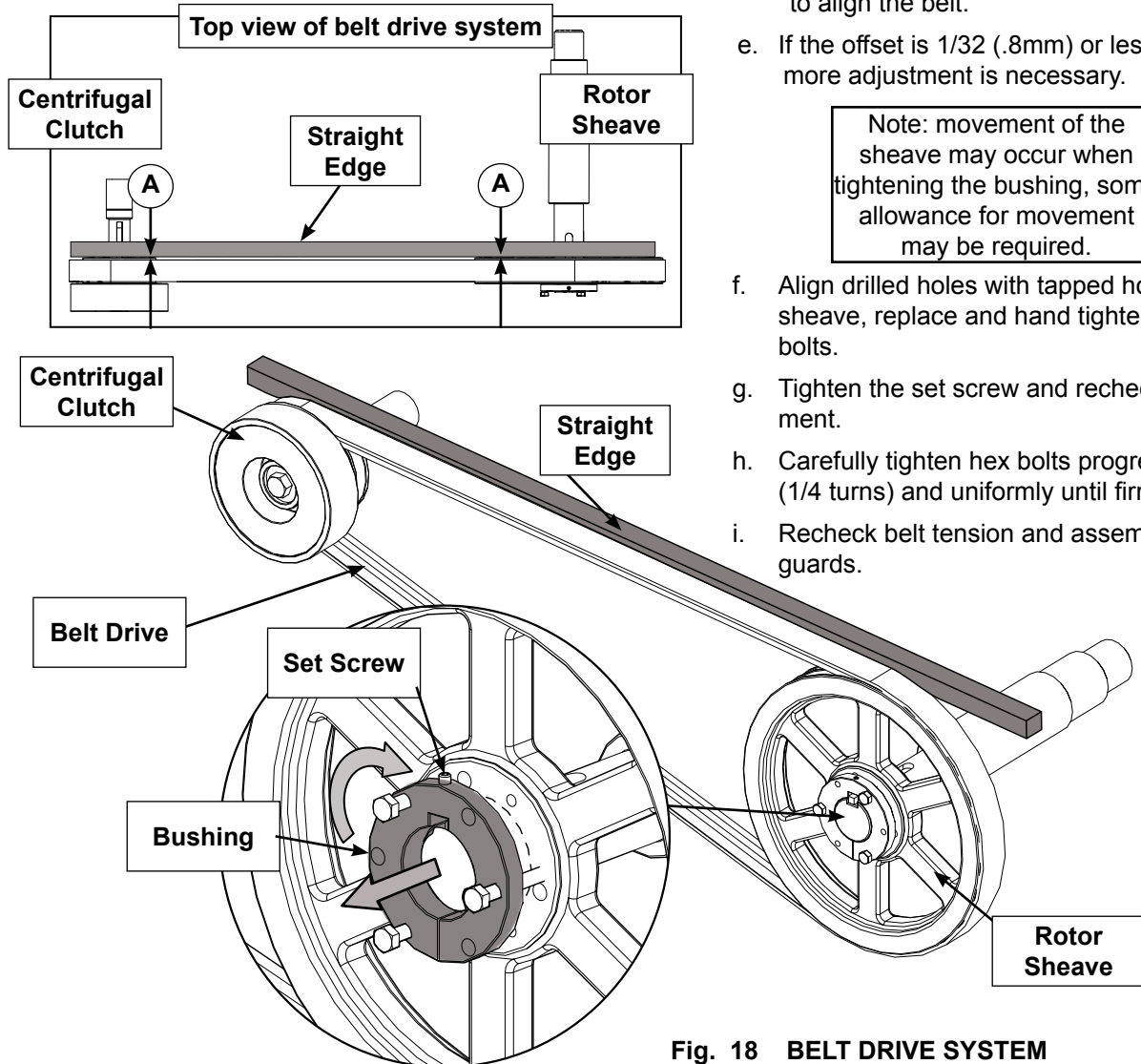


Fig. 18 BELT DRIVE SYSTEM

7.2.6 BLADE AND BREAKER MAINTENANCE:

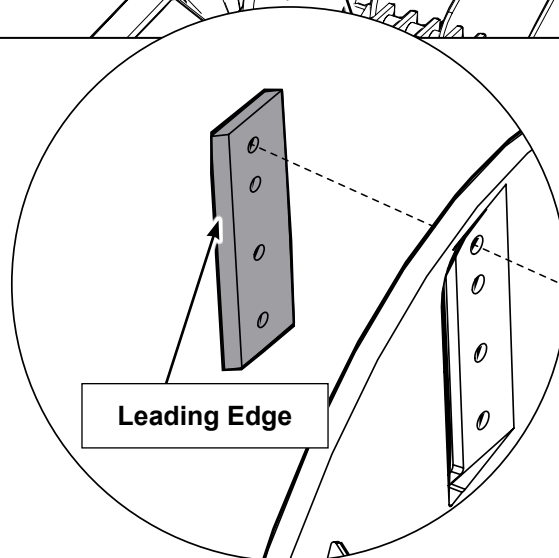
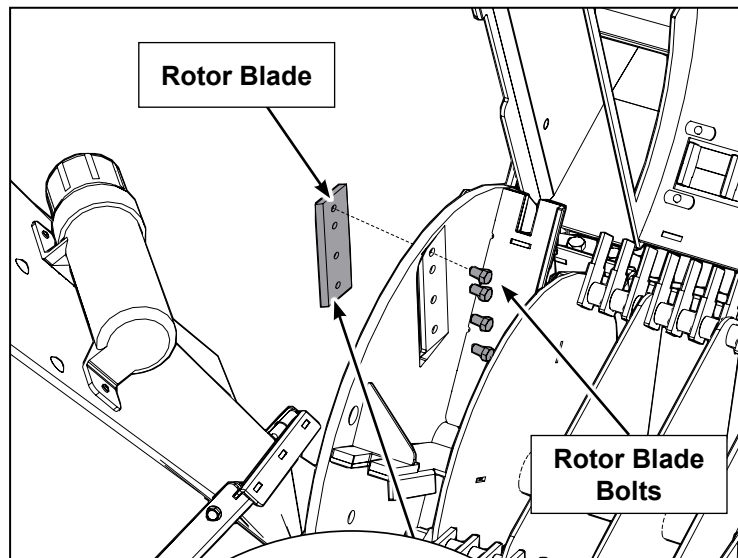
The rotor and ledger blades need to be sharp for the Chipper / Shredder to perform as expected. Periodic inspection is recommended. Keep the blades sharp to reduce the amount of power required during operation. Watch the sharpness of the blades when processing material with a lot of sand, soil or dirt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

Rotor Blades:

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. Remove the bolts that hold the rotor blade to the rotor, remove the blade.
5. Rotate the blade and reinstall or replace with new or re-sharpened blade.
6. 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.
7. Tighten down bolts as specified in the torque chart
8. Repeat steps for second blade.



WARNING

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

**Proper orientation
of Rotor Blade**

Fig. 19 ROTOR BLADE

Ledger Blades:

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

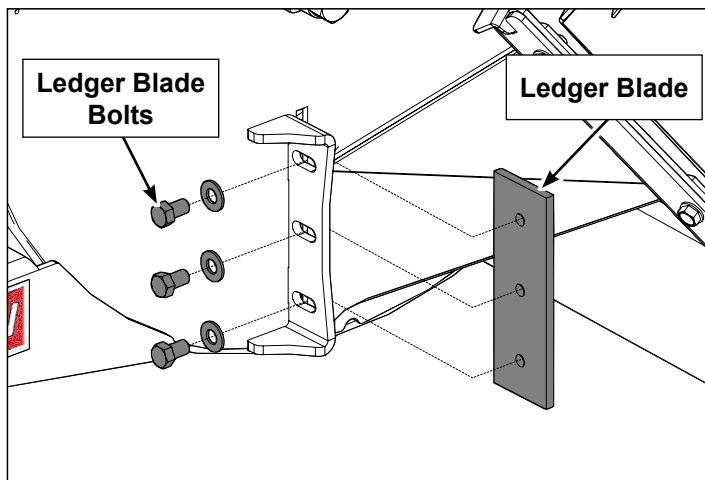


Fig. 20 LEDGER BLADE

Twig Breaker:

The Twig Breaker is a breaker tab located on side of the lower rotor housing. The discharge paddle passes around the twig breaker and helps to break the material into smaller pieces and turn it into mulch. Inspect the twig breaker for damage such as gouges, a bent, or missing tooth. A damaged twig breaker should be replaced. If the tooth is showing wear, remove and replace the twig breaker.

1. Ensure the engine is off (ignition switch is off and the fuel valve is closed).
2. Remove the 2 bolts and nuts that hold the twig breaker to the housing, remove the twig breaker. The fuel bay housing is located just behind the twig breaker, use caution when removing.
3. Reverse the steps to install the new twig breaker.

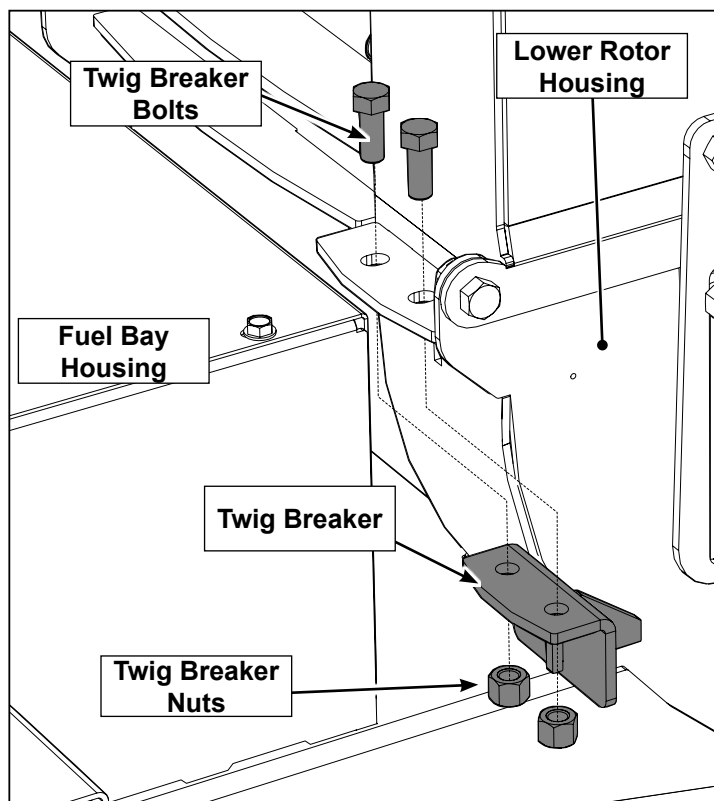
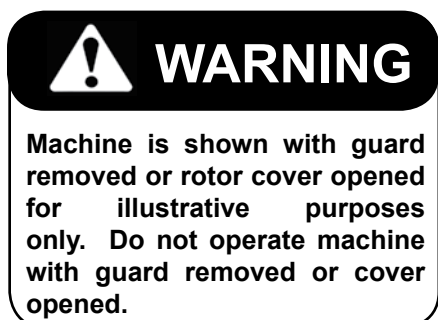


Fig. 21 TWIG BREAKER

Shredder Knives:

The shredder rotor is designed with 3 sets of swinging knives (30 knives on the **BXMT4224, 4228su, 4238**) 27 knives on the **BXMT3209, 3213, 3214su**). 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. Loosen the shredder bolt that holds the set of shredder knives and spacers to the shredder plate,
5. Slowly remove the bolt while catching the knives and spacers as they become free.
6. Reverse the knife and replace, or replace with new or re-sharpened knives.
7. **Ensure that the knives and spacers are installed in the correct sequence, improper installation will decrease performance of the shredder. Refer to diagram for help.**
8. Tighten down bolts as specified in the torque chart, ensure knives rotate freely.
9. Repeat steps for second and third sets of shredder knives.

**BXMT4224, 4228su, 4238
knife / spacer sequence**

**BXMT3209, 3213, 3214su
knife / spacer sequence**

**Fig. 23 SHREDDER
KNIFE SEQUENCE**

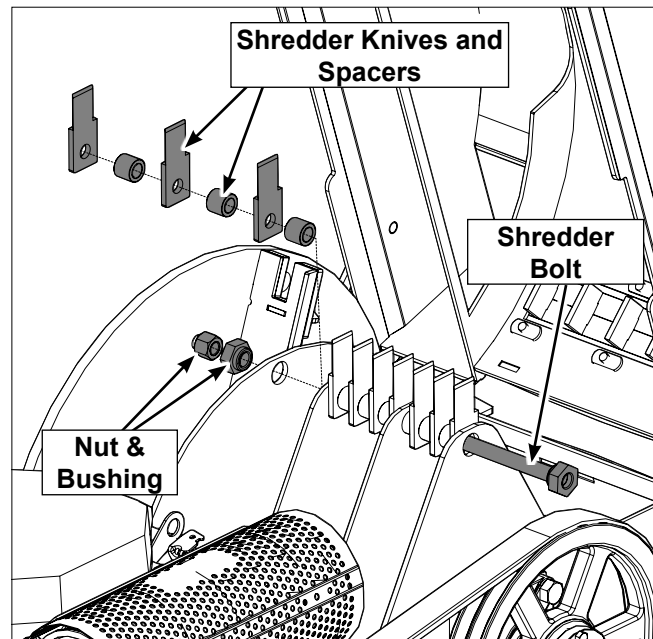
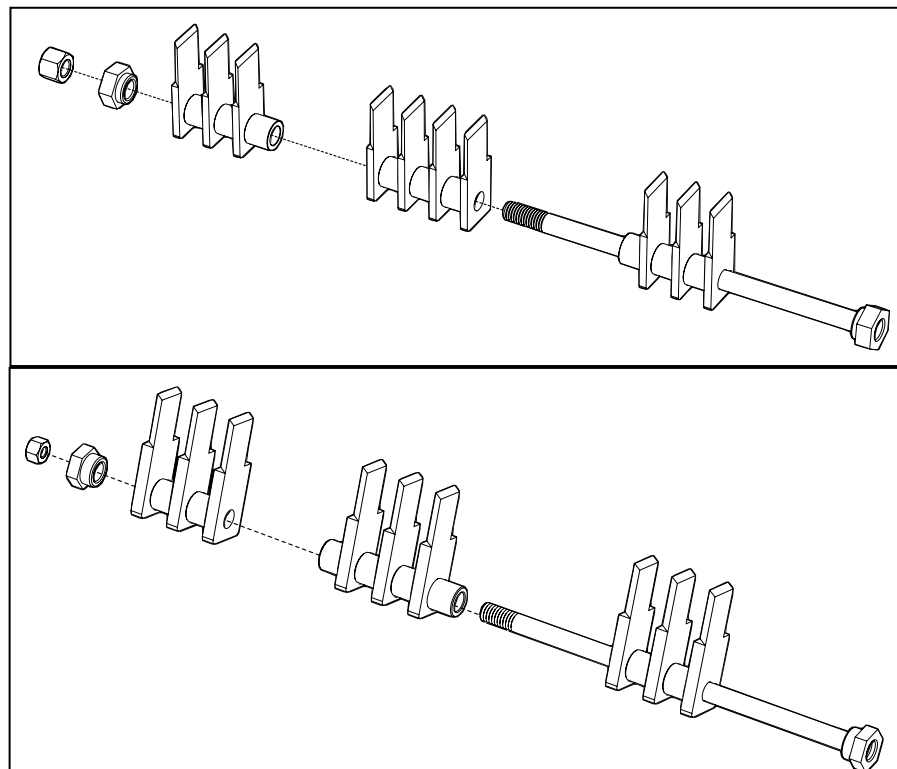


Fig. 22 SHREDDER KNIVES



ChopBlock:

The ChopBlock is an assembly of breaker tabs bolted in at the bottom of the upper 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. If it is bent, replace it.

1. Ensure the engine is off (ignition switch is off and the fuel valve is closed).
2. Remove the bolt that holds 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.

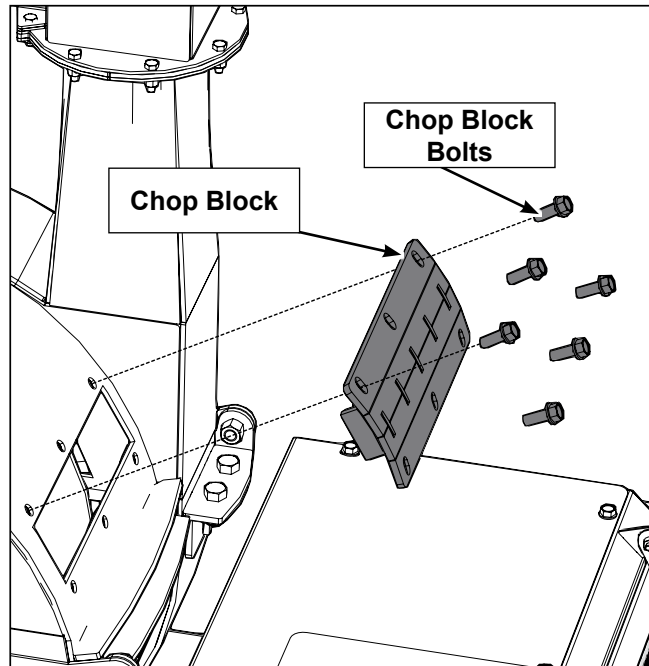


Fig. 24 CHOP BLOCK

WARNING













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

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.
Engine related issues.		Refer to your engine instruction manual for specific trouble shooting instructions / requirements.		

9 ACCESSORIES

Call your dealer for pricing and availability

For replacement parts, go to www.embmfg.com and click on "Parts and Manuals" to download the latest parts manual for you model splitter, then call your dealer to order.

 <p>#1012L269</p>	<p>#1012L269 LEDGER CLEARANCE SETTING GAUGE</p> <p>For BXMT Series Chipper / Shredders 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

BXMT	3209	3213	3214su	4224	4228su	4238
Drive System	Belt Drive, Centrifugal Clutch					
Engine	9 HP Honda GX270	13 HP Honda GX390	14 HP Subaru EX40	24 HP Honda GX690	28 HP Subaru EH72FI	38 HP Kohler CH980
Electric Start	No	Yes				
Chipper Capacity	3" 7.6 cm			4" 10.1 cm		
Chipper Housing Opening	6" x 3" 15.2 cm x 7.6 cm			10" x 3" 25.4 cm x 7.6 cm		
Chipper Hopper Opening	12.5" x 10" 31.8 cm x 29.2 cm			17.5" x 18" 44.5 cm x 45.7 cm		
Number of Chipper Blades	2 Offset			2		
Chipper Knife Type	Hardened / Reversible					
Shredder Capacity	1" 2.5 cm			2" 5.1 cm		
Shredder Hopper Opening	30" x 28" 76.2 cm x 71.1 cm			40" x 33" 101.6 cm x 83.8 cm		
Shredder Housing Opening	10" X 10" 25.4 cm x 25.4 cm			10.5" X 10.5" 26.7 cm x 26.7 cm		
Number of Shredder Knives	27			30		
Shredder Knife Type	Hardened / reversible					
Discharge Hood Rotation	360 degrees					
Rotor Weight	70 lbs 31.8 cm			170 lbs 77.1 kg		
Discharge Hood Height	56" 142.2 cm	58" 147.3 cm		64" 162.6 cm		
Input RPM	3600					
Rotor RPM	1600			1200		
Weight Total	400 lbs 181 kg	520 lbs 236 kg		1080 lbs 490 kg		
Tire Size	4.10 x 6	4.80 x 8		6.50 x 8		
Dimensions L x W x H	44" x 58" x 56" 111.8 cm × 147.3 cm x 142.2 cm	44" x 60" x 58" 111.8 cm × 152.4 cm × 147.3 cm		64" x 84" x 64" 162.6 cm × 213.4 cm × 162.6 cm		
Accessories				Built-In Tool Box	Built-in Tool Box	Built-in Tool Box

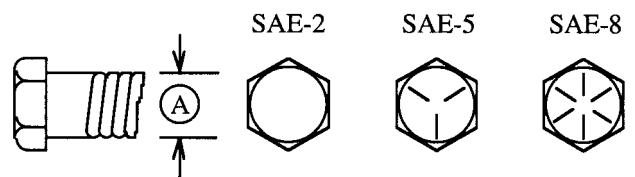
SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

10.2 BOLT TORQUE

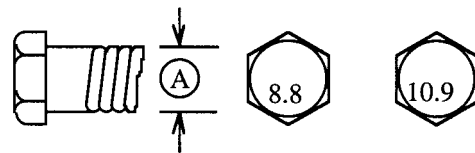
CHECKING BOLT TORQUE

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.

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