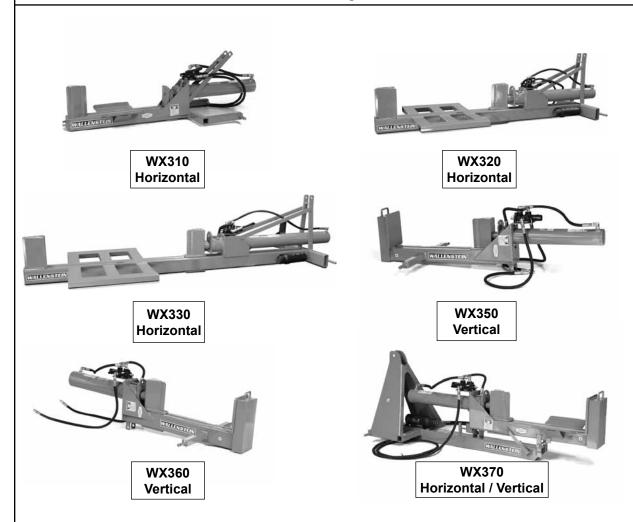


EMB Manufacturing Inc.

4144 Boomer Line · St. Clements, On · N0B 2M0 · Canada Ph: (519) 699-9283 · Fax: (519) 699-4146 www.embmfg.com



3 POINT HITCH WOODSPLITTER MODELS WX310, WX320, WX330, WX350, WX360 & WX370

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

rev.201011

WARRANTY IS VOID IF NOT REGISTERED

WALLENSTEIN 3 POINT HITCH WOODSPLITTER

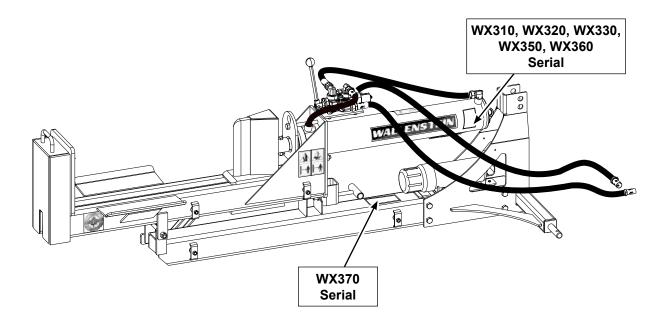
INSPECTION REPORT

This form must be filled out by the dealer and signed by I	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	SAFETY
Check For Hydraulic Leaks Check That Cylinder Extends Freely Fasteners Tight Lubricate Machine Retainer Installed Through Mounting Pins	All Decals Installed Guards and Shields Installed and Secured Review Operating and Safety Instructions
I have thoroughly instructed the buyer on the above deserator's Manual content, equipment care, adjustments,	
Date De	ealer's Rep. Signature
The above equipment and Operator's Manual have bee instructed as to care, adjustments, safe operation and a	
Date Ov	vner's Signature
To activate warranty, register your p	product online at www.embmfg.com

SERIAL NUMBER LOCATION

Always give your dealer the serial number of your Wallenstein 3 Point Hitch Woodsplitter 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.



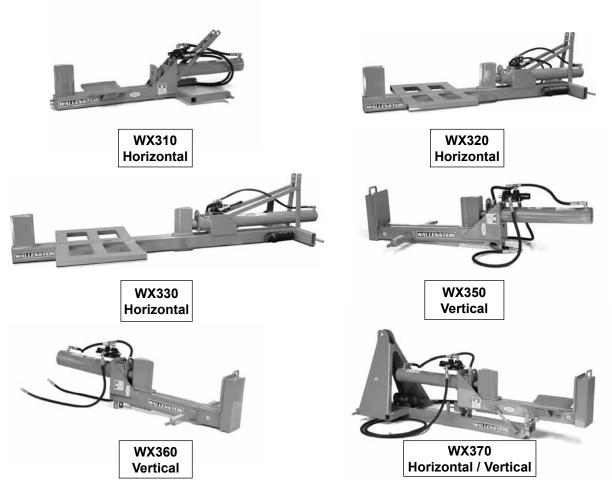
SERIAL NUMBER LOCATION

Model Number	
Splitter Serial Number	

1 INTRODUCTION

Congratulations on your choice of a Wallenstein 3 Point Hitch Woodsplitter to complement your log splitting operation. This equipment has been designed and manufactured to meet the needs of a discriminating buyer for the efficient splitting of logs.

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



This manual covers the Wallenstein 3 Point Hitch Woodsplitters, models WX310, WX320, WX330, WX350, WX360 and WX370. Units with closed centre hydraulics are identified with a "C" (eg:WX310C) in the model number. Opertation is identical for both models.

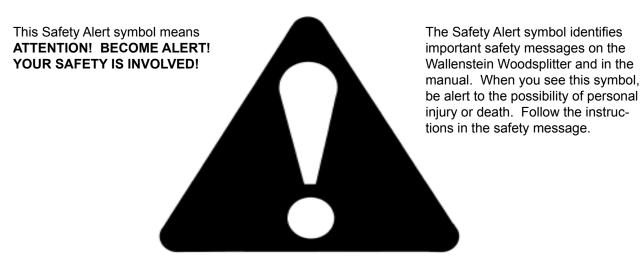
Use the Table of Contents and Index as a guide to locate required information.

Keep this manual handy for frequent reference and to pass on to new operators or owners. Call your Wallenstein dealer, distributor or the factory 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 as seen from the driver's seat and facing in the direction of travel.

SAFETY

SAFETY ALERT SYMBOL



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 3 Point Hitch Woodsplitter. YOU must ensure that you and anyone else who is going to operate, maintain or work around the Woodsplitter be familiar with the operating 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 adhered to while operating the Woodsplitter.

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** operating this equipment is familiar with the recommended operating 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.

- Woodsplitter owners must give operating instructions to operators or employees before allowing them to operate the machine, and at least annually.
- The most important safety feature 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 operating and safety instructions is not qualified to operate 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

 Read and understand the Operator's Manual and all safety signs before operating, maintaining, adjusting or unplugging the Woodsplitter.



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



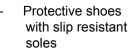
 Have a fire extinguisher available for use should the need arise and know how to use it.

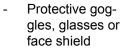


4. Do not allow riders.

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







- Heavy gloves
- Protective clothing
- Install and secure all guards before starting.



- 7. Wear suitable ear protection for prolonged exposure to excessive noise.
- 8. Place all controls in neutral, stop tractor engine, set park brake, remove ignition key and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging.
- 9. Clear the area of people, especially small children, before starting.
- 10. Review safety related items annually with all personnel who will be operating or maintaining the Woodsplitter.

2.2 EQUIPMENT SAFETY GUIDELINES

- Safety of the operator and bystanders is one
 of the main concerns in designing and developing a machine. However, every year
 many accidents occur which could have been
 avoided by a few seconds of thought and a
 more careful approach to handling equipment.
 You, the operator, can avoid many accidents
 by observing the following precautions in this
 section. To avoid personal injury or death,
 study the following precautions and insist
 those working with you, or for you, follow
 them.
- 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 operated 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.
- 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.
- 5. Under no circumstances should young children be allowed to work with this equipment. Do not allow persons to operate or assemble this unit until they have read this manual and have developed a thorough understanding of the safety precautions and of how it works. Review the safety instructions with all users annually.

- 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 farm 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. Use a tractor equipped with a Roll Over Protective Structure (ROPS) and a seat belt.
- 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.**
- Do not modify the equipment in any way. Unauthorized modification result in serious injury or death and may impair the function and life of the equipment.
- 10. 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 Tractor and machine Manuals. Pay close attention to the Safety Signs affixed to the Tractor and the machine.

SAFETY TRAINING 2.3

- 1. Safety is a primary concern in the design and manufacture of our products. Unfortunately, our efforts to provide safe equipment can be wiped out by a single careless act of an operator or bystander.
- 2. In addition to the design and configuration of equipment, hazard control and accident prevention are dependent upon the awareness, concern, prudence and proper training of personnel involved in the operation, transport, maintenance and storage of this equipment.
- 3. It has been said, "The best safety feature is an informed, careful operator." We ask you to be that kind of an operator. It is the operator's responsibility to read and understand



ALL Safety and Operating instructions in the manual and to follow these. Accidents can be avoided.

- 4. Working with unfamiliar equipment can lead to careless injuries. Read this manual, and the manual for your tractor, before assembly or operating, to acquaint yourself with the machines. If this machine is used by any person other than yourself, or is loaned or rented, it is the machine owner's responsibility to make certain that the operator, prior to operating:
 - a. Reads and understands the operator's manuals.
 - b. Is instructed in safe and proper use.
- 5. Know your controls and how to stop tractor, engine, and machine quickly in an emergency. Read this manual and the one provided with vour tractor.
- 6. Train all new personnel and review instructions frequently with existing workers. Be certain only a properly trained and physically able person will operate the machinery. A person who has not read and understood all operating and safety instructions is not qualified to operate the machine. An untrained operator exposes himself and bystanders to possible serious injury or death. If the elderly are assisting with farm work, their physical limitations need to be recognized and accommodated.

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 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. (See Section 3).
- 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

- Never operate the tractor and machine until you have read and completely understand this manual, the Tractor Operator's Manual, and each of the Safety Messages found on the safety signs on the tractor 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, or moving the implement. 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!



Tractors 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. Operate the machine only with a tractor
 - equipped with an approved Roll-Over-Protective Structure (ROPS). Always wear your seat belt. Serious injury or even death could result from falling off the tractor—particularly during a turnover when the operator could



be pinned under the ROPS or the tractor.

- 5. Clear working area of stones, branches or hidden obstacles that might be hooked or snagged, causing injury or damage.
- 6. Operate only in daylight or good artificial light.
- 7. Be sure machine is properly mounted, adjusted and in good operating condition.
- 8. Ensure that all safety shielding and safety signs are properly installed and in good condition.

2.6 OPERATING SAFETY

- Please remember it is important that you read and heed the safety signs on the Woodsplitter. 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.
- 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 Woodsplitter 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. If a safety shield or guard is removed for any reason, it must be replaced before the machine is again operated.
- 4. Personal protection equipment including hard hat, safety glasses, hearing protection, safety shoes, and tight 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.
- Always use two people to handle heavy, unwieldy components during assembly, installation, removal or moving.
- Never place any part of your body, fingers, hands, feet, etc. where it would be in danger if movement should occur during assembly, installation, operation, maintaining, repairing, removal or moving. Keep others away.
- 7. Do not allow bystanders within 20 feet of machine during operation. Wood chips can fly out and injure others.
- 8. Do not step over or straddle splitter during operation.
- 9. Do not try to split more than one log at a time. The extra log can fly out and cause injury.
- 10. Keep your fingers and hands away from cracks in the log that can open while splitting.

- 11. Always load logs by holding on the sides, not the top and bottom.
- 12. Do not load the splitter when the wedge is in motion.
- 13. Do not try to split logs across the grain. Some kinds can burst or splinter and fly out of machine causing injury.
- 14. For uneven cut logs, always place the wide end down and the most square kind against the splitting wedge.
- 15. 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 the machine or tractor at any time. There is no safe place for any riders.
- 17. Before you operate the machine, check over all pins, bolts, connections and hydraulic components to be sure all are securely in place and tight. Tighten or replace any leaking, damaged or worn parts immediately.
- 18. Do not allow anyone who is not familiar with the safety rules and operation instructions to use this machine.
- 19. Never allow children to operate or be around this machine.
- 20. Use stabilizer bars, adjustable sway chains, or sway blocks on the tractor lift arms to keep the machine from swinging side to side. Adjust as tightly as practical for best performance.
- 21. Do not operate on slopes or hillsides. Sloping terrain can cause logs to roll or slip.
- 22. Clear the work area of objects which might be picked up and snagged or entangled in the machine. Do not operate on slippery, wet, muddy or icy surfaces. Good footing prevents slipping and tripping.

2.7 HYDRAULIC SAFETY

- Make sure that all the components in the hydraulic system are kept in good condition and are clean.
- 2. Replace any worn, cut, abraded, flattened or crimped hoses and metal lines.
- Stop engine or motor, disconnect spark plug wire or unplug power cord, and wait for all moving parts to stop before servicing, adjusting, repairing or cleaning.
- 4. Do not attempt any makeshift repairs to the hydraulic lines, fittings or hoses by using tapes, clamps or cements. The hydraulic system operates under extremely high-pressure. Such repairs will fail suddenly and create a hazardous and unsafe condition.
- Wear proper hand and eye protection when searching for a highpressure hydraulic leak. Use a piece of wood or cardboard as a backstop instead of hands to isolate and identify a leak.





- If injured by a concentrated high-pressure stream of hydraulic fluid, seek medical attention immediately. Serious infection or toxic reaction can develop from hydraulic fluid piercing the skin surface.
- 7. Before applying pressure to the system, make sure all components are tight and that lines, hoses and couplings are not damaged.
- Think SAFETY! Work SAFELY!

2.8 STORAGE SAFETY

- 1. Store the unit in an area away from human activity.
- 2. Do not permit 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.

2.9 TRANSPORT SAFETY

- Comply with state and local laws governing highway safety and movement of machinery on public roads.
- The use of flashing amber lights is acceptable in most localities. However, some localities prohibit their use. Local laws should be checked for all highway lighting and marking requirements.
- At all times, when driving the tractor and equipment on the road or highway under 20 mph (32 kph) use flashing amber warning lights and a slow moving vehicle (SMV) identification emblem. Do not exceed 20 mph (32 kph). Reduce speed on rough roads and surfaces.
- 4. Plan your route to avoid heavy traffic.
- 5. Always install transport locks, pins or brackets before transporting.
- 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.
- Turn into curves or go up or down hills only at a low speed and at a gradual steering angle.
 Make certain that at least 20% of the tractor's weight is on the front wheels to maintain safe steerage. Slow down on rough or uneven surfaces.
- A heavy load can cause instability of the tractor.
 Use extreme care during travel. Slow down on
 turns and watch out for bumps. The tractor may
 need front counterweights to counterbalance the
 weight of the machine.
- 10. Never allow riders on either tractor or machine.

2.10 MAINTENANCE SAFETY

- 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.



- 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 brakes, and remove the ignition keys.
- 5. Never work under equipment unless it is blocked securely.
- 6. Use personal protection devices such as eye, hand and hearing protectors, when performing any service or maintenance work.
- 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 cotter pins are properly installed 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.

2.11 SIGN-OFF FORM

Wallenstein follows the general Safety Standards specified by the American Society of Agricultural Engineers (ASAE) and the Occupational Safety and Health Administration (OSHA). Anyone who will be operating and/or maintaining the Woodsplitter must read and clearly understand ALL Safety, Operating and Maintenance information presented in this manual.

Do not operate or allow anyone else to operate this equipment 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 operate 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.

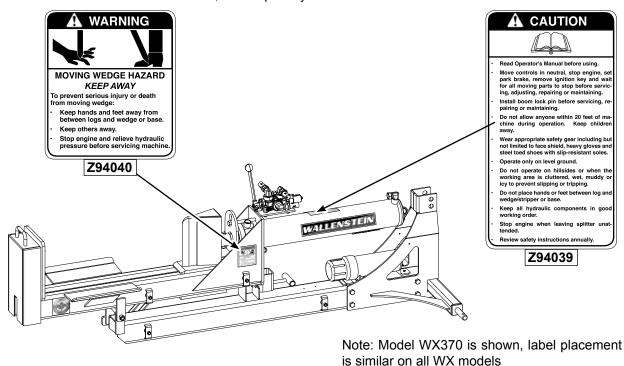
SIGN-OFF FORM

	SIGN-OFF FORIVI								
DATE	EMPLOYEES SIGNATURE	EMPLOYERS SIGNATURE							

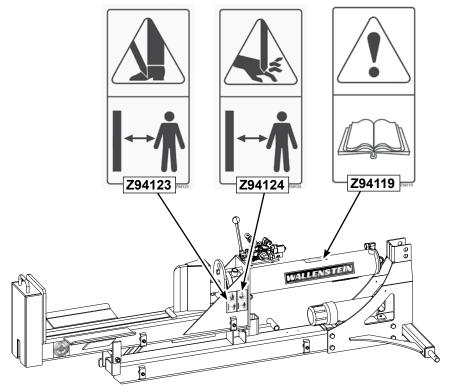
3 SAFETY SIGN LOCATIONS

3.1 THREE PANEL

The types of safety signs and locations on the equipment are shown in the illustration below. 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.



3.2 TWO PANEL



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

4 OPERATION

OPERATING SAFETY

- Read and understand the Operator's Manual and all safety signs before operating, servicing, adjusting, repairing or unplugging.
- · Do not allow riders.
- Install and secure all guards and shields before starting or operating.
- Keep hands, feet, hair and clothing away from moving parts.
- Place all controls in neutral, stop tractor engine, set park brake, remove ignition key and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging.
- Place all tractor and machine controls in neutral before starting.
- Always wear the appropriate personal safety equipment when operating splitter including but not limited to hard hat, safety shoes, face shield and heavy gloves.
- Clear the area of bystanders, especially small children, before starting.
- Do not operate on slopes or side hills.
- Keep working area clean, neat and dry to prevent slipping and tripping.
- Keep all mechanical and hydraulic components in good condition. Do not operate with leaks or damaged components.
- Load splitter by holding logs on the side rather than the top and bottom.
- Do not split wood across the grain.
- Review safety instructions with all operators annually.

4.1 TO THE NEW OPERATOR OR OWNER

The Wallenstein 3 Point Hitch Woodsplitter is designed to split any kind of wood or log. Be familiar with the machine before starting.

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 equipment. 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.

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 work site. Untrained operators are not qualified to operate the machine.

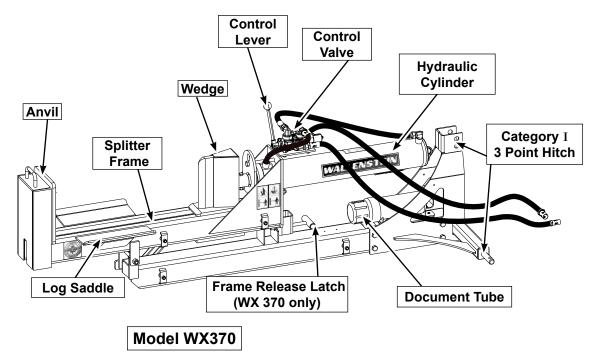
Many features incorporated into this machine are the result of suggestions made by customers like you. Read this manual carefully to learn how to operate the machine safely and how to set it to provide maximum field efficiency. By following the operating instructions in conjunction with a good maintenance program, your Woodsplitter will provide many years of trouble-free service.

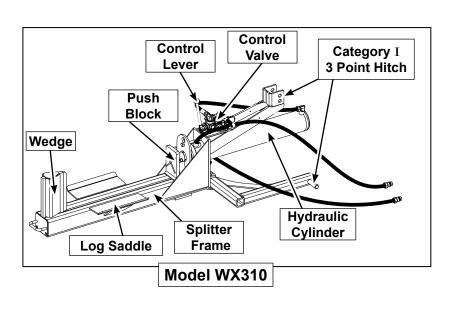
4.2 MACHINE COMPONENTS

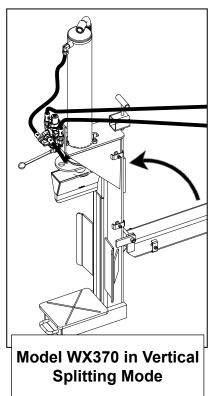
The Wallenstein 3 Point Hitch Woodsplitter consists of a wedge on the end of a hydraulic cylinder for splitting wood or logs. Hydraulic power from the tractor is routed through a double acting valve

to control the cylinder position. The WX370 Splitter can be used in vertical or horizontal configuration.

Note: Models WX310 & WX370 are shown, component layout is similar on all WX models







4.3 MACHINE BREAK-IN

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

A. After Operating For 1 and 5 Hours:

- 1. Check all nuts, bolts and other fasteners. Tighten to their specified torque level.
- 2. Check hydraulic system for leaks. Tighten all leaking fittings and replace any leaking components.
- 3. Then go to the service schedule as defined in the Maintenance Section.

4.4 PRE-OPERATION CHECKLIST

Efficient and safe operation of the Wallenstein Woodsplitter requires that each operator reads and understands the operating 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 the good mechanical condition of the Woodsplitter that this checklist is followed.

Before operating the machine and each time thereafter, the following areas should be checked off:

- 1. Use only a small Agricultural tractor of less than 100 horsepower on the machine.
- 2. Check that the machine is properly attached to the tractor. Be sure retainers are used on the mounting pins.
- 3. Be sure extra weights are mounted on the front of the tractor if required.
- 4. Check the wedge and block. Be sure they are not damaged or broken and is not badly worn. Repair or replace as required.
- 5. Check for entangled material. Remove this material.
- 6. Check for hydraulic leaks. Tighten fittings or replace components to stop leaks.

4.5 ATTACHING/UNHOOKING TRACTOR

4.5.1 THREE POINT HITCH

HORIZONTAL MODELS (WX310, 320, 330, 370) AND VERTICAL MODELS (WX360, 350)

All WX models (horizontal and vertical splitting) attach the 3 point hitch in the same manner, follow the steps below and use the pictures as a guide.

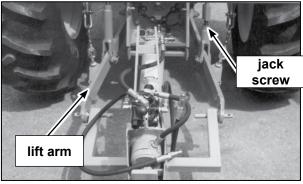
Note: All WX models are "quick hitch" compatible

When attaching splitter to a tractor, follow this procedure:

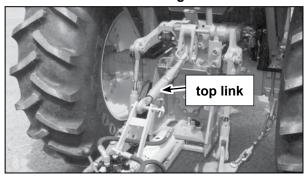
- 1. Clear the area of bystanders, especially small children.
- 2. Make sure there is enough room and clearance to safely back up to the splitter.
- 3. Place the lift arms in their full sway position.
- 4. Back up slowly and align the lift arm ball to the pins on the machine.
- 5. Align the left lift arm ball with the left splitter pin.
- 6. Insert the left pin through the ball and install the retainer.
- 7. Align the right lift arm ball to the pin by turning the jackscrew on the arm.
- 8. Insert the right pin through the ball and install the retainer. Return the jackscrew to its starting position.
- Remove the top pin and install the top link.
 Use the turnbuckle to align the top link. Insert
 the pins and install the retainers. Return the
 turnbuckle to its original length and lock.



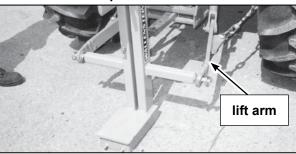
Move or remove the tractor drawbar if there is interference between the cylinder and drawbar. Check the tractor manual if required.



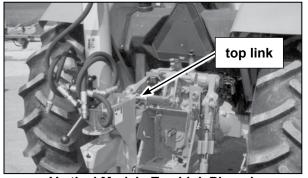
Lift Arms Aligned



Top Link Pinned



Vertical Model - Lift Arms Pinned



Vertical Model - Top Link Pinned

Fig. 7 ATTACHING: HORIZONTAL AND VERTICAL

4.5.2 CONNECT THE HYDRAULICS:

- 1. Use a clean rag or paper towel to clean the dirt from couplers on the hose ends and the tractor.
- 2. Connect the hoses to the tractor couplers. Be sure the couplers are securely seated.
- 3. Route and secure the hoses along the hitch with clips, tape or plastic ties to prevent binding and pinching.
- 4. Start the engine and place the tractor hydraulic lever in detent.
- 5. Move the splitter hydraulic lever to move the wedge.
- 6. Reverse the hoses if the wedge does not move in the same direction as the hydraulic lever.
- 7. Slowly raise the machine through its operating range to make sure that there is no interference or binding.
- 8. Level the splitter front and rear, and side to side using the jackscrew on the right arm and the turnbuckle on the top link.
- 9. The splitter bed should always be horizontal or vertical (depending on its working configuration) during operation.
- 10. To unhook from the tractor, reverse the above procedure. Always park the machine in a dry, level area.

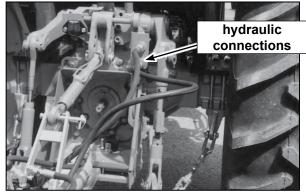
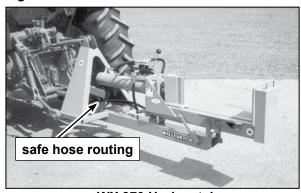


Fig. 10 ATTACHING AND HYDRAULICS



WX 370 Horizontal



WX 370 Vertical Fig. 12 LEVELLING ADJUSTMENTS



HIGH PRESSURE FLUID HAZARD

To prevent serious injury or death from high-pressure fluid:

- Relieve pressure on system before repairing or adjusting.
- Wear proper hand and eye protection when searching for leaks. Use wood or cardboard instead of hands.

Keep all components in good repair.

4.6 CONTROLS

All controls are conveniently positioned next to where the operator would stand when loading or splitting wood. Review this section to familiarize yourself with the location and function of the control before starting.

All Wallenstein WX 3 Point Hitch Woodsplitters are designed with one (1) hydraulic lever to control the extending and retracting movement of the cylinder rod.

Wedge Position Control Lever:

This 3-position spring-loaded-to-center neutral lever controls the flow of oil to the cylinder.

- 1. Move the lever toward the base and hold for the cylinder piston to extend and split the wood.
- 2. Move the lever away from the wood and place in detent to retract the cylinder ram.
- Release the lever, it will return to its centered neutral position at the end of the stroke, after pressure builds up enough to kick the lever out of detent.
- 4. The cylinder piston will stop moving.



Horizontal



Vertical

Fig. 13 HYDRAULIC CONTROL LEVER

4.7 FIELD OPERATION

Wallenstein Woodsplitters attach to a tractor 3 point hitch and use the tractor hydraulics to move a wedge through wood to split it.

The operation and operating procedures outlined in this section are similar for both horizontal splitters (WX310, 320, 330, 370) or vertical splitters (WX360, 350).

The WX370 splitter can be used in the vertical or horizontal configuration, and its operation is covered later on in this section

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



OPERATING SAFETY

- Read and understand the Operator's Manual and all safety signs before operating, servicing, adjusting, repairing or unplugging.
- Do not allow riders.
- Install and secure all guards and shields before starting or operating.
- Keep hands, feet, hair and clothing away from moving parts.
- Place all controls in neutral, stop tractor engine, set park brake, remove ignition key and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging.
- Place all tractor and machine controls in neutral before starting.
- Always wear the appropriate personal safety equipment when operating splitter including but not limited to hard hat, safety shoes, face shield and heavy gloves.

- Clear the area of bystanders, especially small children, before starting.
- Do not operate on slopes or side hills.
- Keep working area clean, neat and dry to prevent slipping and tripping.
- Keep all mechanical and hydraulic components in good condition. Do not operate with leaks or damaged components.
- Load splitter by holding logs on the side rather than the top and bottom.
- Do not split wood across the grain.
- Review safety instructions with all operators annually.



Each operator should review this section of the manual at the start of the season and as often as required to be familiar with the machine.

4.7.1 OPERATION

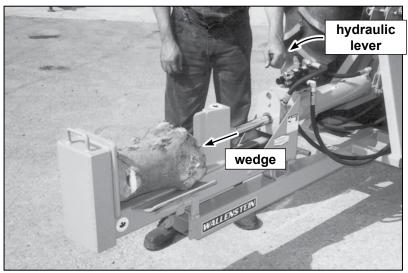
- 1. Clear the area of bystanders, especially small children.
- 2. Review and follow the Preoperation Checklist (Section 4.4).
- 3. Attach the splitter to the tractor (Section 4.6).

IMPORTANT

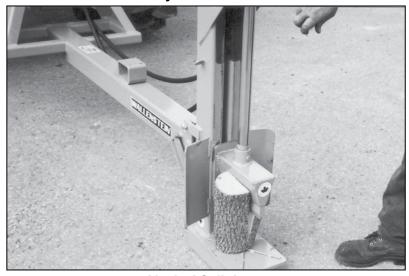
If the parking brakes don't hold the tractor, chock the wheels front and rear.

4.7.2 BEGIN WORK:

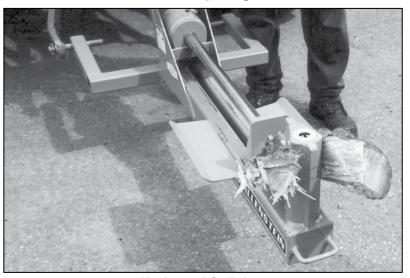
- Move tractor into its working position, lower the frame to the ground and set park brake. Be sure the working area is level, dry and free of obstructions.
- 2. Place the throttle in its midrange position.
- 3. On the tractor, place the working hydraulic circuit in detent.
- Use the hydraulic control on the splitter to move the wedge/ cylinder to its fully retracted position.
- 5. Position log between the wedge and the base of the frame.
- 6. Move the hydraulic lever toward the base and hold it while the wedge moves through the log.
- 7. Release the lever when the log splits into 2 pieces or the wedge reaches the base and the wedge will stop.
- Move the lever fully into detent. Release the lever and it will be in detent until the ram reaches the end of the stroke. The pressure will build up until it kicks the lever out of detent.



Hydraulic Lever



Vertical Splitting

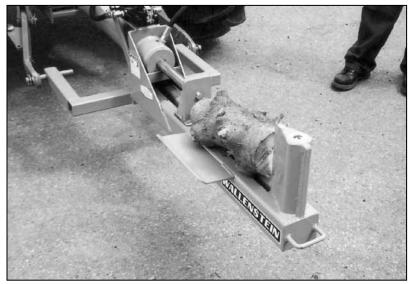


Horizontal Splitting

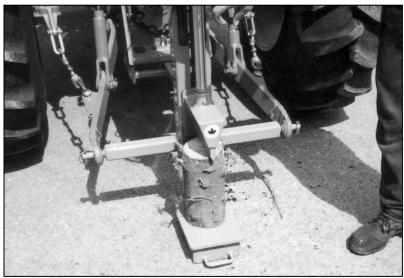
Fig. 14 STARTING

4.7.3 LOG PLACEMENT:

- Always grasp the log by the sides when placing in the splitter. This will minimize the chance of the operator getting their fingers or arm between the wedge and the log.
- 2. Always wear the appropriate safety gear when working around the machine. This includes but is not limited to:
 - Hard hat for protection to the head.
 - Face mask for protection to the face and eyes from flying chips.
 - Heavy gloves for protection from slivers, chips and pinching.
 - Safety shoes with slip resistant soles for protection to the feet and toes from dropped logs and pieces of wood. Slip resistant soles reduce the change of slipping.



Horizontal



Vertical

Fig. 16 LOG PLACEMENT





4.7.4 WEDGE CONFIGURATION:

All Woodsplitters come from the factory equipped with a single blade wedge. An optional 4 way wedge is available that fits over the single wedge. It can be used at any time to split wood into smaller more manageable pieces.

See the accessories page at the back of this manual, or call your dealer for more details.

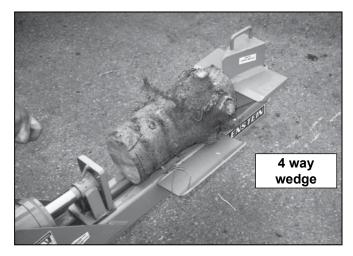
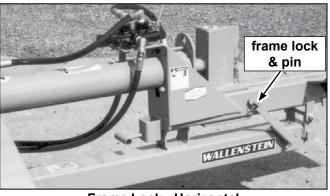


Fig. 17 4 SEGMENT WEDGE

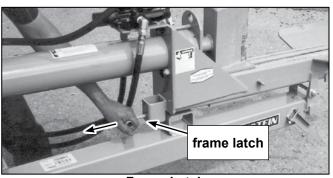
4.7.5. WX370 CONVERSION Horizontal to Vertical:

The WX370 Series is designed with a pivoting latching main frame that allows it to be used in the horizontal or vertical configuration.

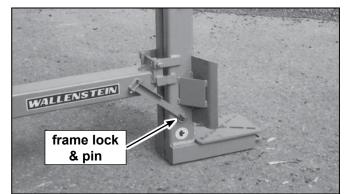
- 1. Ensure the splitter is properly and securely attached to the tractor.
- 2. Check that there is enough ground clearance for the splitter frame to swing down.
- 3. Find the frame lock, unpin and swing the frame lock away from the splitter frame
- Find the frame latch and pull it out to release the splitter frame
- 5. Carefully tilt the splitter frame forward, and attach the frame lock and retainer pin when the splitter frame is in position.
- 6. Position the 3 point hitch so that the anvil is resting on the ground.



Frame Lock - Horizontal



Frame Latch



Frame Lock - Vertical

Fig. 18 HORIZONTAL TO VERTICAL

NOTE

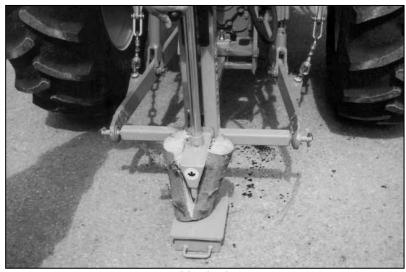
Always install the frame lock and retainer when the frame is in its horizontal or vertical configuration.

4.7.6. OPERATING HINTS:

- Hold the hydraulic lever in the wedge extend direction until the log/wood splits. There is no need to complete the cycle once the log is split.
- 2. Put the hydraulic lever into detent when retracting, the wedge will retract and automatically stop when it reaches the end of the stroke, leaving you free to perform other tasks.
- 3. Always keep the working area neat and clean to prevent tripping. Pile the split and unsplit wood in piles close to the working area. Do not allow pieces to pile up and clutter the area. A cluttered working area can lead to tripping and an accident. Do not take chances with safety.
- 4. Do not place the splitter on muddy, icy, wet or cluttered surfaces. Each can lead to slipping or tripping and cause accidents.
- 5. When the machine is new lubricate the plate under the wedge slider with graphite, each time the machine is used to improve wear and reduce friction and/or binding. When the paint is eventually worn off, it will polish itself.



Horizontal



Vertical

Fig. 19 WORK PLACE

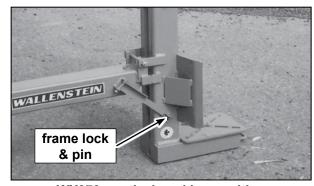
TRANSPORT SAFETY

- Comply with state and local laws governing highway safety and movement of machinery on public roads.
- The use of flashing amber lights is acceptable in most localities. However, some localities prohibit their use. Local laws should be checked for all highway lighting and marking requirements.
- At all times, when driving the tractor and equipment on the road or highway under 20 mph (32 kph) use flashing amber warning lights and a slow moving vehicle (SMV) identification emblem. Do not exceed 20 mph (32 kph). Reduce speed on rough roads and surfaces.

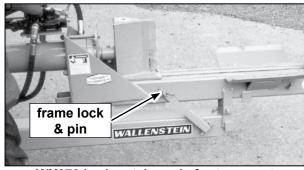
- Plan your route to avoid heavy traffic.
- Always install transport locks, pins or brackets before transporting.
- Do not drink and drive.
- Be a safe and courteous driver. Always yield to oncoming traffic in all situations, including narrow bridges, intersections, etc. Watch for traffic when operating near or crossing roadways.
- Never allow riders on either tractor or machine.

When transporting the machine, review and follow these instructions:

- Be sure all bystanders are clear of the machine
- 2. Be sure that the machine is securely attached to the tractor and all retainer pins are installed.
- **3. WX370 Series**: secure the frame lock bracket with the anchor pin and retainer between the frame members (fig 20)
- 4. Be sure you have installed extra weights on the front of the tractor if required.
- 5. Clean the SMV emblem, lights and reflectors and be sure they are working.
- Be sure you are in compliance with all applicable lighting and marking regulations when transporting. Check with your local authorities.
- 7. Be sure your machine can clearly be seen by overtaking and oncoming traffic.
- 8. Keep to the right and yield the right-of-way to allow faster traffic to pass. Drive on the road shoulder if permitted by law.
- 9. Do not allow riders.
- Always use hazard flashers on the tractor when transporting unless prohibited by law.
- 11. Never transport in vertical position.



WX370: vertical working position



WX370 horizontal, ready for transport

Fig. 20 FRAME LOCK BRACKET

4.9 STORAGE

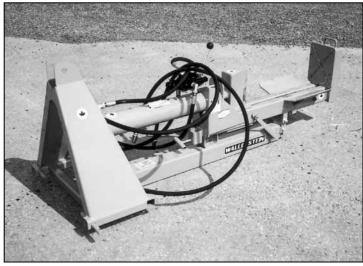
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STORAGE SAFETY

- 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.

After the season's use, the machine should be thoroughly inspected and prepared for storage. Repair or replace any worn or damaged components to prevent any unnecessary down time at the start of next season. To insure a long, trouble free life, this procedure should be followed when preparing the unit for storage:

- 1. Clear the area of bystanders, especially small children.
- 2. Thoroughly wash the machine using a pressure washer to remove all dirt, mud, debris and residue.
- Inspect the wedge, cylinder ram and wear plates for damage or entangled material. Repair or replace damaged parts. Remove all entangled material.
- 4. Touch up all paint nicks and scratches to prevent rusting.
- 5. Move to storage area.
- 6. Select an area that is dry, level and free of debris.
- 7. Fully retract the cylinder ram.
- 8. Stow hydraulic lines on the splitter so they won't drag or lay on the ground.
- 9. Unhook from tractor.
- 10. If the machine cannot be placed inside, cover with a waterproof tarpaulin and tie securely in place.
- 11. Store the machine in an area away from human activity.
- 12. Do not allow children to play on or around the stored machine.



Horizontal Model



Vertical Model

Fig. 21 STORED

5 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 wood splitter, 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.

5.1 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.

Your wood splitter 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.

5.2 GREASING

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.
- Replace and repair broken fittings immediately.
- If fittings will not take grease, remove and clean thoroughly. Also clean lubricant passageway. Replace fittings if necessary.

5.3 SERVICING INTERVALS

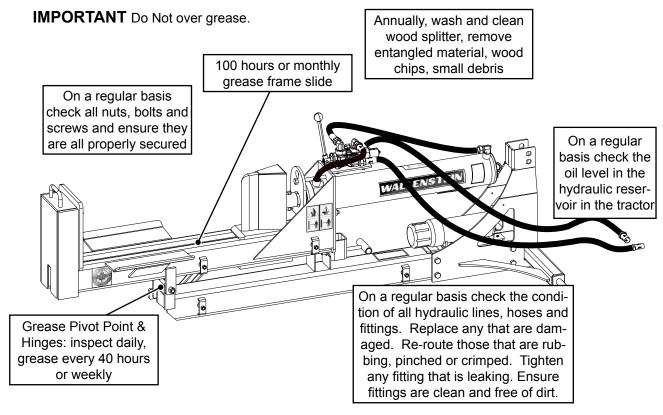
See service record and service illustration for service interval information. The period recommended is based on normal operating conditions. Severe or unusual conditions may require more frequent lubrication or oil changes.

IMPORTANT Do Not over grease.

5.4 SERVICE ILLUSTRATION

See Service Record Chart

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



5.5 SERVICE RECORD

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

	8 Hc	ours or l	Daily	100 l	nours		8 Hc	ours or l	Daily	100 l	nours
	Check	Check	Change	Replace	Clean		Check	Check	Change	Replace	Clean
Hydraulichoses.	Secure face	Hydraulic Oll Lev.	Grease Frame C.	Clean Machine	Hydraulic t	"tings, f. "Oses,	Secure face	Hydraulic Oli Leyci	Grease Frame C.	Clean Machine	

TROUBLE SHOOTING

Always wear the appropriate safety gear when trouble shooting, performing maintenance or working around the machine. This includes but is not limited to:

• Hard hat for protection to the head.

6

• Heavy gloves for hand protection.

- Face mask for protection to the face and eyes.
- Safety shoes with slip resistant soles and steel toes

PROBLEM	CAUSE	SOLUTION		CAUTION
	No pressurized hydraulic oil.	Oil filter plugged. Change filter.	$\boldsymbol{\Lambda}$	Ensure machine is off and cooled down.
	No pressurized hydraulic oil	Low hydraulic oil level, top up	A	Ensure machine is off and cooled down
Cylinder rod moves slowly or doesn't move.	Wood jammed around wedge.	Shut machine off and safely remove wood.		Ensure machine is off
	Not enough pressure.	Call technician, system relief setting may be low (below 2750 psi).	A	Ensure machine is off and call hydraulic technician.
	Low engine speed.	Check that choke is off, check throttle is set to maximum.		
	Detent set too tight.	Call technician, adjustment required with detent on valve.	A	Ensure machine is off and call hydraulic technician.
Control handle doesn't go to neutral after rod is fully retracted.	Hydrualic fluid too cold.	Allow machine to warm up.		
	Hydrualic fluid is too old or contaminated.	Change hydraulic fluid and filter	A	Ensure machine is off and cooled down.
Control handle goes to neutral before rod is fully retracted.	Detent set too loose.	Call technician, adjustment required with detent on valve.	A	Ensure machine is off and call hydraulic technician.
Control handle does't go to neutral when released.	Control may be damaged.	Call technician, control may need service or be replaced.		Ensure machine is off and call hydraulic technician.
Cylinder stops on contact with wood.	Second stage on pump not functioning.	Call technician, pump may need service or be replaced.	A	Ensure machine is off and call hydraulic technician.
Wedge jumps.	Wedge frame jamming.	Lubricate wedge frame wear plates.	A	Ensure machine is off.
Leaking hydraulic hose.	Hose worn or damaged.	Replace hose.	A	Ensure machine is off and cooled down.
Leaking cylinder.	Seals worn.	Call technician, seal replacement may be required.	A	Ensure machine is off and call hydraulic technician.
Cylinder Rod moves in wrong diection	Hydraulic hoses switched	Switch hydraulic hose connections	A	Ensure machine is off
Hydraulics behave eratically	mis-matched valve (open / closed system)	Determine hydraulic system on tractor, ensure valve system matches		Ensure machine is off and call hydraulic technician / service

7 SPECIFICATIONS

7.1 MECHANICAL

MODEL	WX310	WX320	WX330	WX350	WX360	WX370		
Mounting		3 POINT HITCH MOUNTED						
Cylinder diameter	4" / 102 mm	4 1/2" / 115mm	4 1/2" / 115mm	4" / 102 mm	5" / 127mm	5" / 127mm		
Cylinder stroke	24" / 609mm	36" / 914mm	48" / 1220mm	24" / 609mm	24" / 609mm	24" / 609mm		
Splitting force @ 2550 psi	16 ton / tonne	20 ton / tonne	20 ton / tonne	16 ton / tonne	25 ton / tonne	16 ton / tonne		
Splitting force @ 3000 psi	20 ton / tonne	25 ton / tonne	25 ton / tonne	20 ton / tonne	31 ton / tonne	20 ton / tonne		
Standard valve type	OPEN CENTER WITH AUTO RETURN DETENT							
Closed Center Hydraulic Valve	OPTIONAL							
Splitter orientation		HORIZONTAL		VERTICAL		HORIZ&VERT		
4-way splitting wedge	#W4110	#W4130	#W4130	#W4120	#W4130	#W4120		
Weight	215 lb / 98kg	375 lbs / 170 kg	425 lb / 193kg	220 lb / 100kg	320 lb / 146	290 lb / 132kg		
Dimensions (L x W x H)	70" x 28" x 24" 178cm x 72cm x 61cm	96" x 30" x 24" 244cm x 77cm x 61cm	120" x 30" x 24" 305cm x 77cm x 61cm	70" x 28" x 18" 178cm x 72cm x 56cm	70" x 28" x 26" 178cm x 72cm x 66cm	86" x 30" x 30" 219cm x 77cm x 77cm		
Recommended minimum hydraulic flow (GPM / lpm) gallon per minute /	10 GPM / 38 lpm	13 GPM / 50 lpm	13 GPM / 50 lpm	10 GPM / 38 lpm	16 GPM / 61 lpm	10 GPM / 38 lpm		

SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE

7.2 HYDRAULIC FITTING TORQUE

HYDRAULIC FITTING TORQUE							
Tube Size OD	Nut Size Across Flats	Torque	Value*	Turns To	mended Tighten Finger ening)		
(in.)	(in.)	(N.m)	(lb-ft)	(Flats)	(Turn)		
3/16	7/16	8	6	1	1/6		
1/4	9/16	12	9	1	1/6		
5/16	5/8	16	16 12		1/6		
3/8	11/16	24	18	1	1/6		
1/2	7/8	46	34	1	1/6		
5/8	1	62	46	1	1/6		
3/4	1-1/4	102	75	3/4	1/8		
7/8	1-3/8	122	90	3/4	1/8		

[•] The torque values shown are based on lubricated connections as in reassembly.

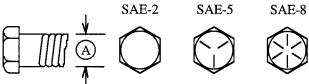
Tightening Flare Type Tube Fittings *

- 1. Check flare and flare seat for defects that might cause leakage.
- 2. Align tube with fitting before tightening.
- 3. Lubricate connection and hand tighten swivel nut until snug.
- 4. To prevent twisting the tube(s), use two wrenches. Place one wrench on the connector body and with the second tighten the swivel nut to the torque shown.

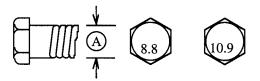
7.3 BOLT TORQUE

CHECKING BOLT TORQUE

ENGLISH TORQUE SPECIFICATIONS								
Bolt	Bolt Torque*							
Diamter "A"	_	E 2 (lb-ft)	SA (N.m)	E 5 (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		Bolt Torque*							
Diameter	8	.8	10).9					
"A"	(N.m)	(lb-ft)	(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					

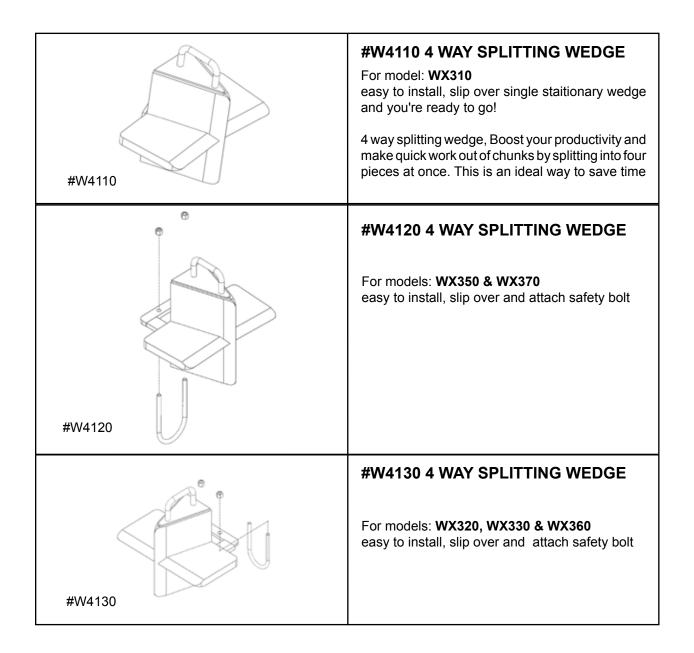


Torque figures indicated above are valid for non-greased or non-oiled threads and heads unless otherwise specified. Therefore, do not grease or oil bolts or capscrews unless otherwise specified in this manual. When using locking elements, increase torque values by 5%.

^{*} Torque value for bolts and capscrews are identified by their head markings.

8 ACCESSORIES

4 way splitting wedge, Boost your productivity and make quick work out of chunks by splitting four pieces at once. This is an ideal way to save time. Call your dealer for pricing and availability



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