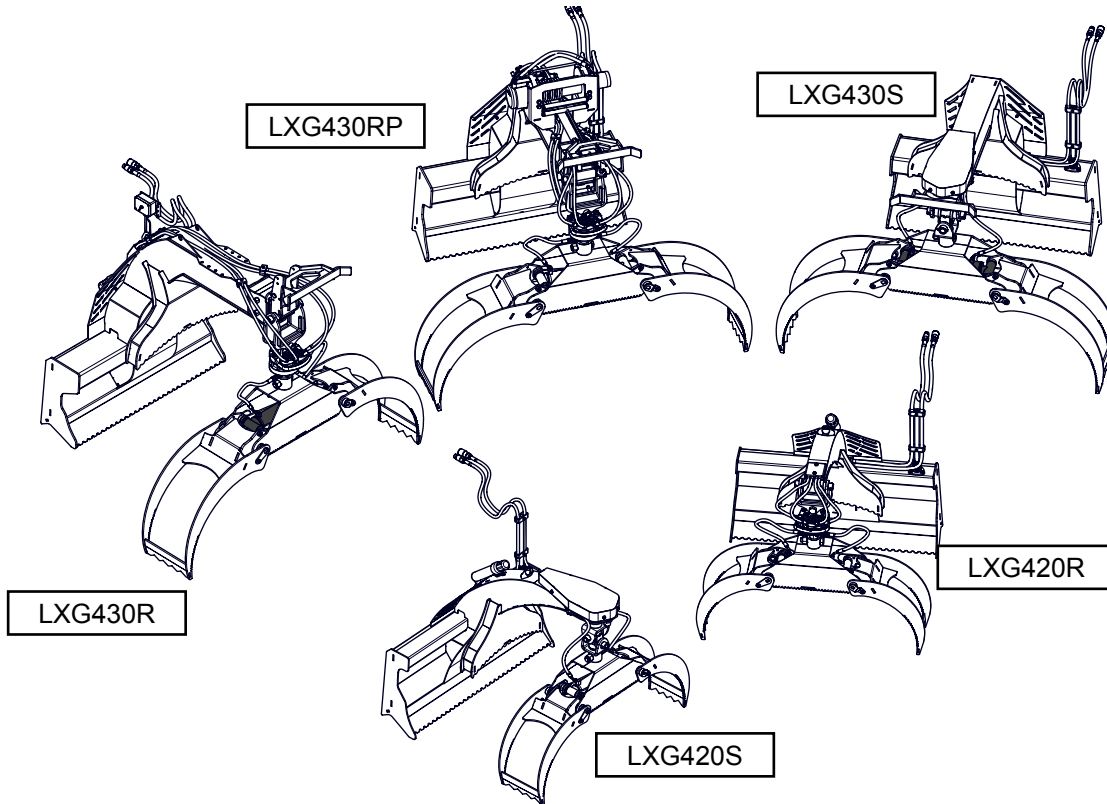


WALLENSTEIN

BY EMB MFG INC.

EMB Manufacturing Inc.
4144 Boomer Line · St. Clements, Ontario · N0B 2M0 · Canada
www.wallensteinequipment.com



LXG400 SERIES SKIDSTEER GRAPPLE OPERATOR'S MANUAL



NOTICE

Operation Hazard:

Do not activate hydraulic high flow to the remotes when using the grapple attachment. The grapple is designed to work with standard flow settings and will be damaged if used in high flow settings.

Do not attempt to start or operate the equipment without thoroughly reviewing this manual for safe and proper operation.

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

TABLE OF CONTENTS

DELIVERY INSPECTION REPORT	4	5	FIELD OPERATION	28
SERIAL NUMBER LOCATION	5	5.1	PREPARE	28
LABEL INFORMATION	5	5.2	STARTING PROCEDURE	29
1 INTRODUCTION	6	5.2.1	SKID STEER	29
2 SAFETY	7	5.2.2	STOPPING:	29
2.1 SAFETY DO'S & DON'TS'	8	5.2.3	EMERGENCY STOPPING:	29
2.2 EQUIPMENT SAFETY GUIDELINES.....	9	5.3	GRAPPLING	30
2.3 SAFETY TRAINING.....	10	5.3.1	PARALLEL LIFTING:	30
2.4 HYDRAULIC SAFETY	10	5.3.2	SKIDDING:	30
2.5 STORAGE SAFETY	10	5.3.3	RIGHT ANGLE LIFTING:	30
2.6 PREPARATION.....	11	5.3.4	SPRING RETURN PIVOT	31
2.7 OPERATING SAFETY	12	5.3.5	PIVOT SHEAR BOLT	31
2.8 WINCHING SAFETY	13	5.4	GRAPPLE PUSH BAR	32
2.9 MAINTENANCE SAFETY.....	14	5.5	BOOM EXTENDER	32
2.10 TRANSPORT SAFETY	14	5.6	WINCHING	33
2.11 GRAPPLE SAFETY	15	5.7	OPERATING HINTS	34
2.11.1 WORK ZONE:	15	6	TRANSPORT	35
2.11.2 SAFE ZONE:	15	7	STORAGE	36
2.12 SIGN-OFF FORM	16	8	SERVICE AND MAINTENANCE	37
3 SAFETY SIGNS	17	8.2	SERVICE ILLUSTRATION.....	38
3.1 HOW TO INSTALL SAFETY SIGNS:.....	17	8.3	SERVICE RECORD CHART	39
3.2 SAFETY SIGN EXPLANATIONS:.....	17	9	TROUBLE SHOOTING	40
3.3 SAFETY SIGN LOCATION	18	10	SPECIFICATIONS	41
4 OPERATION	19	10.1	MECHANICAL	41
4.1 TO THE NEW OPERATOR OR OWNER	19	10.2	BOLT TORQUE	42
4.1.1 IMPORTANT	19	10.3	HYDRAULIC FITTING TORQUE	43
4.2 EQUIPMENT MATCHING.....	19	11	ACCESSORIES	44
4.3 MACHINE COMPONENTS	20	#Z92318	CHOKER CHAIN 5/16" X 7.5 FT	44
4.4 MACHINE BREAK-IN	21	#Z92126	SYNTHETIC CHOKER, 7/16"X 7 FT ..	44
4.5 PRE-OPERATION CHECKLIST	21	#Z92125	SYNTHETIC CHOKER, 3/8"X 5 FT	44
4.6 ATTACH TO SKID STEER.....	22	#5089A100	SELF RELEASING	
4.7 CONTROLS / FEATURES	23		SNATCH BLOCK	44
4.7.1 HYDRAULIC CONTROL SELECTOR	23	#Z99001	48" LOG PEAVEY	44
4.7.2 CONTROL SELECTOR MOUNTING	24	#Z99003	SKIDDING TONGS	44
4.7.3 HYDRAULIC WINCH.....	24			
4.7.4 HYDRAULIC BOOM EXTENDER	25			
4.7.5 HYDRAULIC ROTATOR	25			
4.7.6 SPRING RETURN PIVOT	26			
4.7.7 HYDRAULIC GRAPPLE HEAD	26			
4.7.8 GRAPPLE PUSH BAR	27			
4.7.9 CANTILEVER CRADLE.....	27			



WARRANTY

Effective on products retailed on or after January 1, 2015.

Register your product online at www.wallensteinequipment.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

**Five (5) Years for Consumer
Two (2) 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.170216

WARRANTY IS VOID IF NOT REGISTERED

**WALLENSTEIN
LXG400 SERIES SKID STEER GRAPPLE**

DELIVERY INSPECTION REPORT

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

Customer's Name _____

Contact Name _____

Dealer Name _____

(_____) _____
Phone Number

Serial Number _____

_____/_____/_____
Delivery Date

✓	Dealer Inspection Check
LXG 400 Series Grapple	
	Check Hydraulic Hoses
	Check All Fasteners
	Check Grapple Function
	Lock Pins are in Place (stand)
	Pivot Assembly Moves Freely
	Guards and Shields Installed and Secured
	Check all Safety Labeling is Attached
	Review Operating and Safety Instructions
LXG 420R/430R Grapple	
	Check Rotator Function
	Review Operating and Safety Instructions
LXG 420RP/430RP Grapple	
	Check Rotator Function
	Check Extension Arm Function
	Check Winch Function
	Check Selector Switch Assembly Function
	Review Operating and Safety Instructions

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

Dealer's Rep. Signature

_____/_____/_____
Date

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

Owner's Signature

_____/_____/_____
Date

SERIAL NUMBER LOCATION

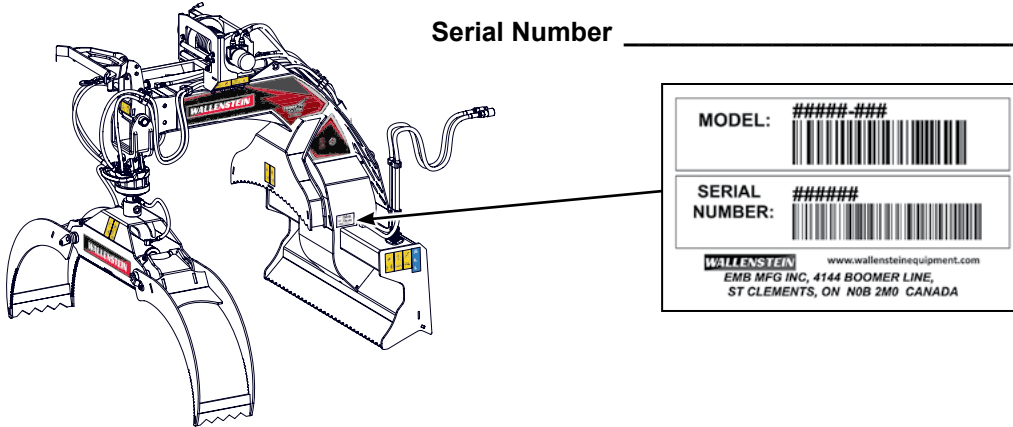
Always give your dealer the serial number of your Wallenstein Skid Steer Log Grapple when ordering parts or requesting service or other information.

The serial number plate is generally located where indicated in all LXG 400. Please mark the numbers in the spaces provided for easy reference

SERIAL NUMBER LOCATION

Model Number _____

Serial Number _____



LABEL INFORMATION

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

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

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

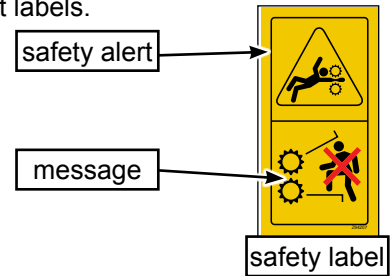
Safety Notice Labels are pictorial with a blue background and generally rectangular with single or multiple symbols. The label illustrates requirements for safe operation (safety equipment, housekeeping etc). These labels are accompanied by detailed instructions in the owners manual, with the label illustrated along side.

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

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

Maintenance Labels are associated with the product and carry various messages. They are generally pictorial. They may be round or rectangular, have a green background and can vary to the number of panels. The label may illustrate the type maintenance and frequency in time between services. Labels are accompanied by detailed instructions in the owners manual, with the label illustrated along side.

See the section on safety signs for safety label definitions. For a complete illustration of labels and label locations, download the parts manual for your model product at www.wallensteinequipment.com.



1 INTRODUCTION

Congratulations on your choice of a Wallenstein LXG Series Skid Steer Log Grapple to complement your log handling operation. This equipment has been designed and manufactured to meet the needs of a discerning land owner, or small scale timber / landscaping industry.

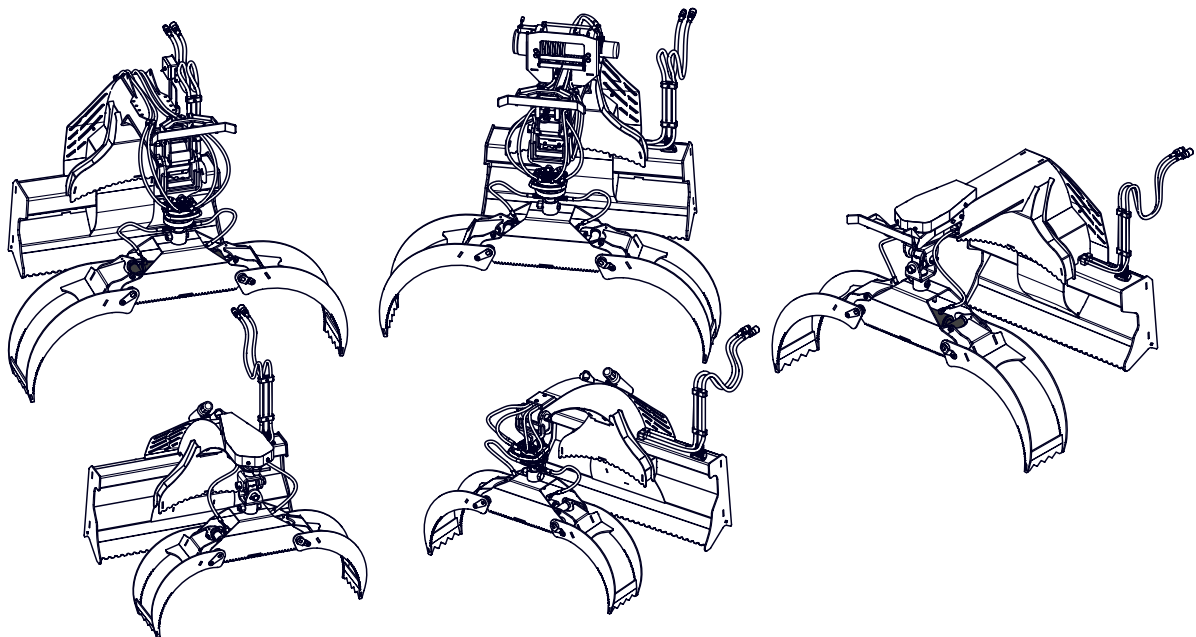
Safe, efficient and trouble free operation of your Log Grapple requires that you and anyone else who will be operating or maintaining the machine, read and understand the Safety, Operation, Maintenance and Trouble Shooting information contained within the Operator's Manual.

This manual covers the Wallenstein Skid Steer Log Grapple Models:

48" : LXG420S & LXG420R

72" : LXG430S, LXG430R & LXG430RP

The grapple assembly on all models feature heavy duty AR400 material for exceptional durability. LXG420S/430S grapple features a 180° rotator with three position lockable spring return, while the LXG420R/430R features a 360° hydraulically controlled rotator for the grapple. The flagship LXG430RP also features a 360° hydraulically controlled rotator, and includes a hydraulic powered 4082kg (9000 lb) winch and 0 - 60cm (0" to 24") boom extender.



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.



NOTICE

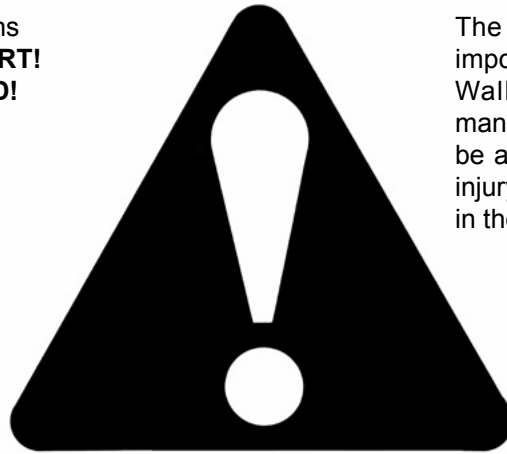
Operation Hazard:

Do not activate hydraulic high flow to the remotes when using the grapple attachment. The grapple is designed to work with standard flow settings and will be damaged if used in high flow settings.

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 Grapple 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**, **CAUTION** and **NOTICE** 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.

NOTICE - Indicates a situation that could result in damage to the machine or other property.

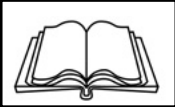


If you have any questions not answered in this manual or require additional copies or the manual is damaged, please contact your dealer or Wallenstein, 4144 Boomer Line, St. Clements, ON, N0B 2M0. Phone (519) 699-9283 or Fax (519) 699-4146.



SAFETY

YOU are responsible for the SAFE operation and maintenance of your Wallenstein MX Series Manure Spreader. **YOU** must ensure that you and anyone else who is going to use, maintain or work around the spreader be familiar with the use 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 spreader.

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 use and maintenance procedures and follows all the safety precautions. Most accidents can be prevented. Do not risk injury or death by ignoring good safety practices.

2.1 SAFETY DO'S & DON'TS'

- **DO** give operating instructions to operators or employees before allowing them to operate the machine, and REVIEW annually thereafter.
- **DO** read and understand ALL Safety and Operating instructions in the manual and follow them. Most accidents can be avoided. The most important safety device on this equipment is a SAFE operator. 
- **DO NOT** expect a person who has not read and understood all use and safety instructions to operate the machine. An untrained operator is not qualified and exposes himself and bystanders to possible serious injury or death. It is the owners responsibility to the operator to ensure familiarity and understanding of the machine.
- **DO** wear suitable ear protection for prolonged exposure to excessive noise. 
- **DO NOT** modify the equipment in any way. Unauthorized modification may impair the function and/or safety and could affect the life of the equipment.
- **DO NOT** allow riders.
- **DO NOT** risk injury or death by ignoring good safety practices.
- **DO** review safety related items annually with all personnel who will be operating or performing maintenance .
- **DO** have a first-aid kit available for use should the need arise and know how to use it. 


- **DO** have a fire extinguisher available for use should the need arise and know how to use it. 
- **DO** read and understand all safety signs located on the machine before using, maintaining, adjusting or cleaning the spreader.
- **DO** inspect and secure all guards before starting.
- **DO** wear appropriate **PPE** (personal protective equipment). This includes but is not limited to:
 - A hard hat
 - Heavy gloves
 - Hearing Protection
 - Respirator or filter mask
 - Protective shoes with slip resistant soles
 - Protective glasses, goggles or face shield
- **DO** set Safe Condition procedure before any service, maintenance work, storage preparation or hooking up.

Safe Condition involves the following procedure:


 - ensure grapple is clear & closed
 - shut off hydraulics
 - ensure all components have stopped moving
 - shut off the engine
 - remove and pocket the ignition key
 - set the parking brake
- **DO** check cables, chains and pulley's, that they are clear of debris prior to starting the machine
- **DO** think SAFETY! Work SAFELY!

2.2 EQUIPMENT SAFETY GUIDELINES


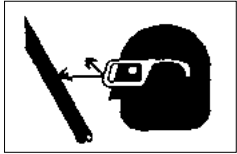
Safety of the operator and bystanders is one of the main concerns in designing and developing equipment. However, every year many accidents occur which could have been avoided by a few seconds of thought and a more careful approach to handling equipment. You, the operator, can avoid many accidents by 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 to follow them.

1. 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.
2. Replace any safety sign or instruction sign that is not readable or is missing. Location of such safety signs is indicated in this manual.
3. Never use alcoholic beverages or drugs which can hinder alertness or coordination while using this equipment. Consult your doctor about using this machine while taking prescription medications.
4. **Under no circumstances should young children be allowed to work with this equipment. Do not allow persons to 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.
5. This equipment is dangerous to children and persons unfamiliar with its operation. The operator should be a responsible, properly trained and physically able person familiar with machinery and trained in this equipment's operations. If the elderly are assisting with work, their physical limitations need to be recognized and accommodated.
6. Operate the machine only with a skid steer equipped with an approved Roll-Over-Protective-Structure (ROPS). Always wear your seat belt when operating the skid steer. Serious injury or even death could result from falling off the skid steer - - particularly during a turnover when the operator could be pinned under the ROPS or the skid steer.
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 skid steer and machine manuals. Pay close attention to the Safety Signs affixed to the skid steer and the machine.
10. **Safe Condition** involves the following procedure:
 - ensure grapple is clear & closed
 - shut off hydraulics
 - ensure all components have stopped moving
 - shut off the engine
 - remove and pocket the ignition key
 - set the parking brakeSafe Condition procedure should be performed before any service, maintenance work or storage preparation.

2.3 SAFETY TRAINING

1. Safety is a primary concern in the design and manufacture of our products. Unfortunately, our efforts to provide safe equipment can be wiped out by a single careless act of an operator or bystander.
2. In addition to the design and configuration of equipment, hazard control and accident prevention are dependent upon the awareness, concern, prudence and proper training of personnel involved in the operation, transport, maintenance and storage of this equipment.
3. It has been said, "The best safety feature is an informed, careful operator." We ask you to be that kind of an operator. It is the operator's responsibility to read and understand ALL Safety and 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:**
 - Reads and understands the operator's manuals.
 - Is instructed in safe and proper use of the equipment.
 - Understands and knows how to perform the "Safe Condition" procedure:
 - ensure grapple is clear & closed
 - shut off hydraulics
 - ensure all components have stopped moving
 - shut off the engine
 - remove and pocket the ignition key
 - set the parking brake
5. 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 use 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.
6. Know your controls and how to stop skid steer and machine quickly in an emergency. Read this manual and the one provided with skid steer.

2.4 HYDRAULIC SAFETY

1. Make sure that all the components in the hydraulic system are kept in good condition and are clean.
2. Before applying pressure to the system, make sure all components are tight, and that lines, hoses and couplings are not damaged.

3. Do not attempt any make-shift 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.

4. Wear proper hand and eye protection when searching for a high pressure hydraulic leak. Use a piece of wood or cardboard as a back-stop instead of hands to isolate and identify a leak.
5. 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.
6. Relieve pressure on hydraulic system before maintaining or working on system.



NOTICE

Operation Hazard:

Do not activate hydraulic high flow to the remotes when using the grapple attachment. The grapple is designed to work with standard flow settings and will be damaged if used in high flow settings.

2.5 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.
4. Store on level ground with the grapple tines open for maximum stability.

2.6 PREPARATION

1. Never use the machine until the operators have been adequately trained in the safe operation of the machine and have read and completely understand:
 - Safety, Operation and Feature sections of this manual,
 - Skid Steer Operator's Manual
 - Each of the Safety Messages found on the safety signs on the skid steer and machine.

2. Personal protection equipment including:

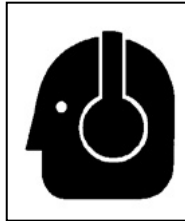
- hard hat,
- safety glasses,
- safety shoes,
- gloves,
- hearing protection
- safety vest

are recommended during assembly, installation, operation, adjustment, maintaining, repairing, removal, cleaning, or moving the trailer. 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 skid steers, chain saws, radios, and other such sources close to the ear) is cumulative over a lifetime without hope of natural recovery.

4. When there are 2 or more operators, review and understand the system of hand signals.
5. Keep bystanders away at a safe distance (6m - 20 ft) when loading or stacking. Mark the danger zone with safety cones.
6. Determine a safe load / unload trailer location:
 - area must be clear of stones, branches or hidden obstacles that might cause a tripping, hooking or snagging hazard.
 - ground should be firm and level.
 - Be aware of overhead hazards: branches, cables, electrical wires.
7. Determine a safe log stack location:
 - Log stack should be on level ground.
 - Ensure stack location does not interfere with safe loading / unloading of material.
 - Tall log stacks should be braced to prevent collapse.
8. Precut and delimb material so that it is ready to load into the trailer. Do not run a chainsaw and the machine at the same time.
9. Use only in daylight or good artificial light.
10. Be sure machine is properly mounted, adjusted and in good operating condition.
11. Ensure that all safety shielding and safety signs are properly installed and in good condition.
12. If fuel is on site, store it well away from the material pile .
13. Perform the "PreOperation Checklist" procedure before starting work.
14. Ensure there is a clear level path when skidding logs to avoid hangups and potential roll over situations.

2.7 OPERATING SAFETY

1. Please remember it is important that you read and heed the safety signs on the Log Grapple. 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 Log Grapple 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.
5. Always use two people to handle heavy, unwieldy components during assembly, installation, removal or moving. Ensure the skid steer parking brake is on.
6. 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 6m (20 feet) of machine during operation. Logs can roll unexpectedly and injure others.
8. Do not step over or straddle logs during operation.
9. 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.
10. Do not allow riders on the machine or skid steer at any time. There is no safe place for any riders.
11. 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.
12. Do not allow anyone who is not familiar with the safety rules and operation instructions to use this machine.
13. Never allow children to operate or be around this machine.
14. Do not operate on slopes or hillsides. Sloping terrain can cause logs to roll or slip.
15. 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.
16. **Set Safe Condition** before servicing, repairing or maintaining:
 - ensure grapple is clear & closed
 - shut off hydraulics
 - ensure all components have stopped moving
 - shut off the engine
 - remove and pocket the ignition key
 - set the parking brake



NOTICE

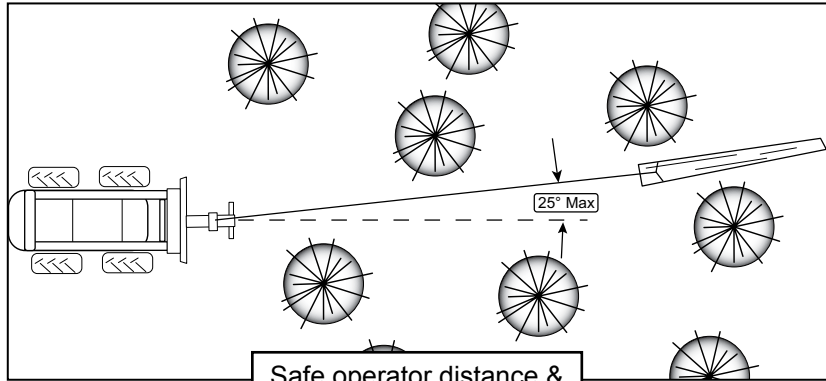
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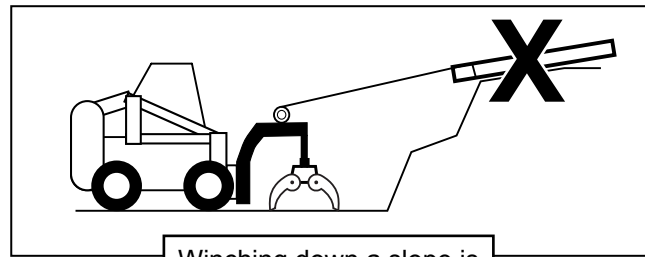
2.8 WINCHING SAFETY

(LX430RP model only)

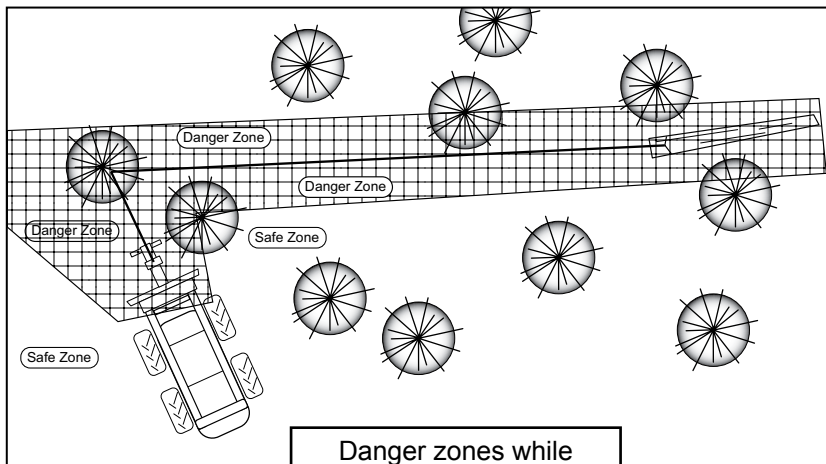
1. Do not exceed winching angle of more than $\pm 25^\circ$, and operate only on level ground with the grapple lowered to the ground for stability.
2. Do not winch down a slope, always winch up a slope, winching down a slope could result in crushing injuries resulting from a log rolling down hill.
3. When using snatch blocks to winch at difficult angles, be aware of danger zone created between the snatch block, log and skid steer
4. Do not allow anyone within 6 m (20 ft) of machine or logs during operation. Keep children away. Logs could roll in unpredictable ways
5. Always lower open grapple to the ground when operating the winch to provide stability
6. Always wind the rope under load, rope will not wind properly if not under load.
7. Check rope condition before using winch. Rope may break during operation if it is corroded, knotted, has broken strands or sharp kinks. Replace rope if damaged.
8. Do not winch across a slope and do not operate on hillsides or when working area is cluttered, wet, muddy or icy to prevent slipping and tripping. Winching across a slope could cause your skid steer to roll over.
9. Do not touch rope during operation.



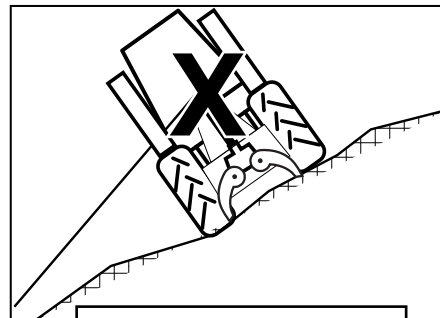
Safe operator distance & winch angle



Winching down a slope is dangerous



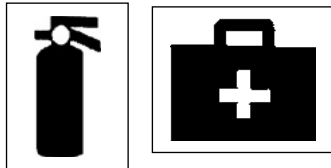
Danger zones while winching



It is dangerous to winch across a slope

2.9 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. **Set Safe Condition** before servicing, repairing or maintaining:
 - ensure grapple is clear & closed
 - shut off hydraulics
 - ensure all components have stopped moving
 - shut off the engine
 - remove and pocket the ignition key
 - set the parking brake
5. Never work under equipment unless it is blocked securely.
6. When performing any service or maintenance work always use personal protection devices such as
 - safety glasses,
 - hand protection - gloves
 - hearing protectors
 - safety shoes
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.
11. When cleaning any parts, do not use gasoline, use regular cleanser.
12. Always use proper tools, that are in good condition. Make sure you understand how to use them, before performing any service work.
13. Never place any part of your body where it would be in danger if movement should occur during assembly, installation, maintenance, repairing or moving.

2.10 TRANSPORT SAFETY

1. Comply with state and local laws governing highway safety and movement of machinery on public roads.
2. At all times, when driving the skid steer 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.
3. Always check pins or brackets before transporting.
4. Do not drink and drive.
5. 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.
6. Plan your route to avoid heavy traffic. Turn into curves or go up or down hills only at a low speed and at a gradual steering angle. Slow down on rough or uneven surfaces.
7. Never allow riders on either skid steer or machine.

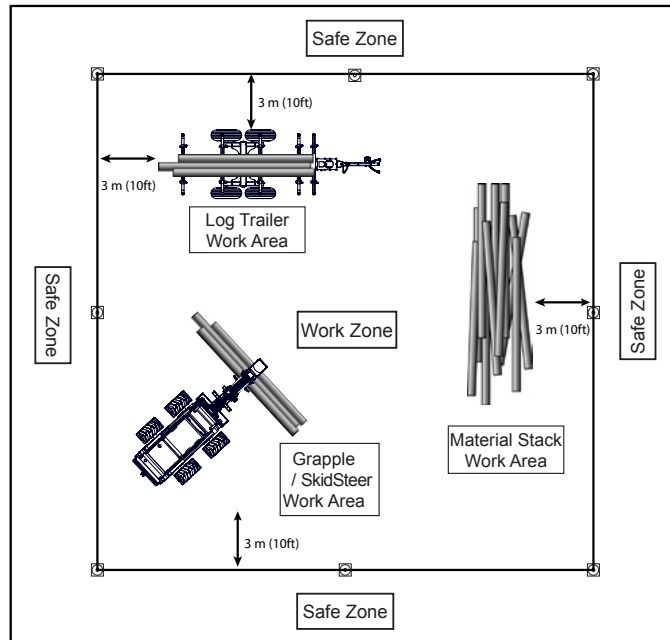
2.11 GRAPPLE SAFETY

The LXG400 series Grapple is a skid steer mounted grapple on a boom that is capable of lifting and transporting several logs at a time

2.11.1 WORK ZONE:

Follow these important points to keep operators and workers safe from potential hazards.

- Operator safety zone is in the operators seat. Always operate the grapple controls from the operators seat.
- Always be aware of the position of the boom and material being handled and the material stack or trailer.
- Always be aware of bystanders & workers when moving between work area, ensure they are in the safe zone.
- Always be aware of hazards when lifting and moving logs, inspect your work zone to take these hazards into account:
 - objects overhead
 - structures close to the work site
 - skidding / winching on a slope
 - long or heavy logs
- Always be aware of overhead hazards, modify your work zone to take these hazards into account:
 - telephone lines
 - tree branches
 - roof overhang
 - washlines, ropes or cables
 - power lines - maintain a 15m (50 ft) distance



Work Zone / Safe Zone

2.11.2 SAFE ZONE:

Injury may occur from heavy material falling / dropping or material on a rotating grapple creates a collision hazard if workers or bystanders are inside the work zone. Follow these important points to keep workers and bystanders safe from potential hazards:

- Operator safety zone is in the operators seat. Always operate the grapple controls from the operators seat.
- A work zone perimeter should be established around the entire work area, and clearly marked with safety cones.
- The perimeter should be at least 10 ft from any work area with in the work zone.
- Workers and bystanders should never approach the backhoe while in operation with out first signaling the operator.
- Always know where all workers and bystanders are located when operating the backhoe.
- All bystanders should be kept outside of the work zone until the machine is in safe mode:
 - the worker has made eye contact with the grapple operator.
 - grapple is in rest position (grapple open & lowered to the ground).
 - shut off the engine.

3 SAFETY SIGNS

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

3.1 HOW TO INSTALL SAFETY SIGNS:

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

3.2 SAFETY SIGN EXPLANATIONS:



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



Caution: rollover danger! Do not winch at angles greater than 25°. Use snatchblocks when winching at angles more than 25°.



Caution: Falling debris may result in death or serious injury. Do not lift any load that cannot be safely secured by the grapple. Do not lift any load while bystanders are near, keep other people away while operating equipment



Caution: Hydraulic fluid under pressure. Exposed hydraulic hoses or hoses under guards are subject to potential hydraulic leaks. Set **Safe Condition** before searching for leaks around the machine or removing guards. Do not check for leaks with unprotected eyes, hands or fingers when the system is pressurized. Serious injury will result.



Caution: Do not perform any maintenance or repairs with the skid steer running. Shut the skid steer off.



Caution: winch line, entanglement danger present, keep hands, loose clothing, and long hair away from winch line while it is operating.



Caution: be aware of pinch hazards from moving parts: boom, grapple, and logs.



Caution: Personal Protection Equipment (PPE) is required when operating this machine. Failure to wear PPE will result in personal injury



Caution: Ensure latch levers and latch pins are engaged on the hitch to prevent the grapple from falling off and potentially causing injury or death. Read the Skid Steer owners manual on mounting attachments

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

- Place controls in neutral, stop engine, remove ignition key and wait for all moving parts to stop before servicing, adjusting, repairing or maintaining.
- Do not allow bystanders within 20 feet (6 m) of machine to prevent injury from rolling logs.
- Wear appropriate safety gear including but not limited to a hard hat, safety glasses, hearing protection, safety shoes and heavy gloves.
- Operate only on level ground.
- Do not operate on hillside or when working area is cluttered, wet, muddy or icy to prevent slipping or tripping.
- Do not allow riders.
- Keep all hydraulic components in good repair.

4.1 TO THE NEW OPERATOR OR OWNER

The LXG400 series Wallenstein Skid Steer Log Grapple is designed to grab and pull any kind of wood or log. Be familiar with the machine before starting.

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

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

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

4.1.1 IMPORTANT

Ensure all operators understand how to put the machine in Safe Condition before working with this machine,

- ensure grapple is clear & closed
- shut off hydraulics
- ensure all components have stopped moving
- shut off the engine
- remove and pocket the ignition key
- set the parking brake

4.2 EQUIPMENT MATCHING

At the time of purchase your dealer will have matched the proper sized grapple for your machine. If you intend to move this grapple to another machine, use this chart to insure grapple is matched to the machine for safe and reliable operation of the LXG400 series Log Grapple.

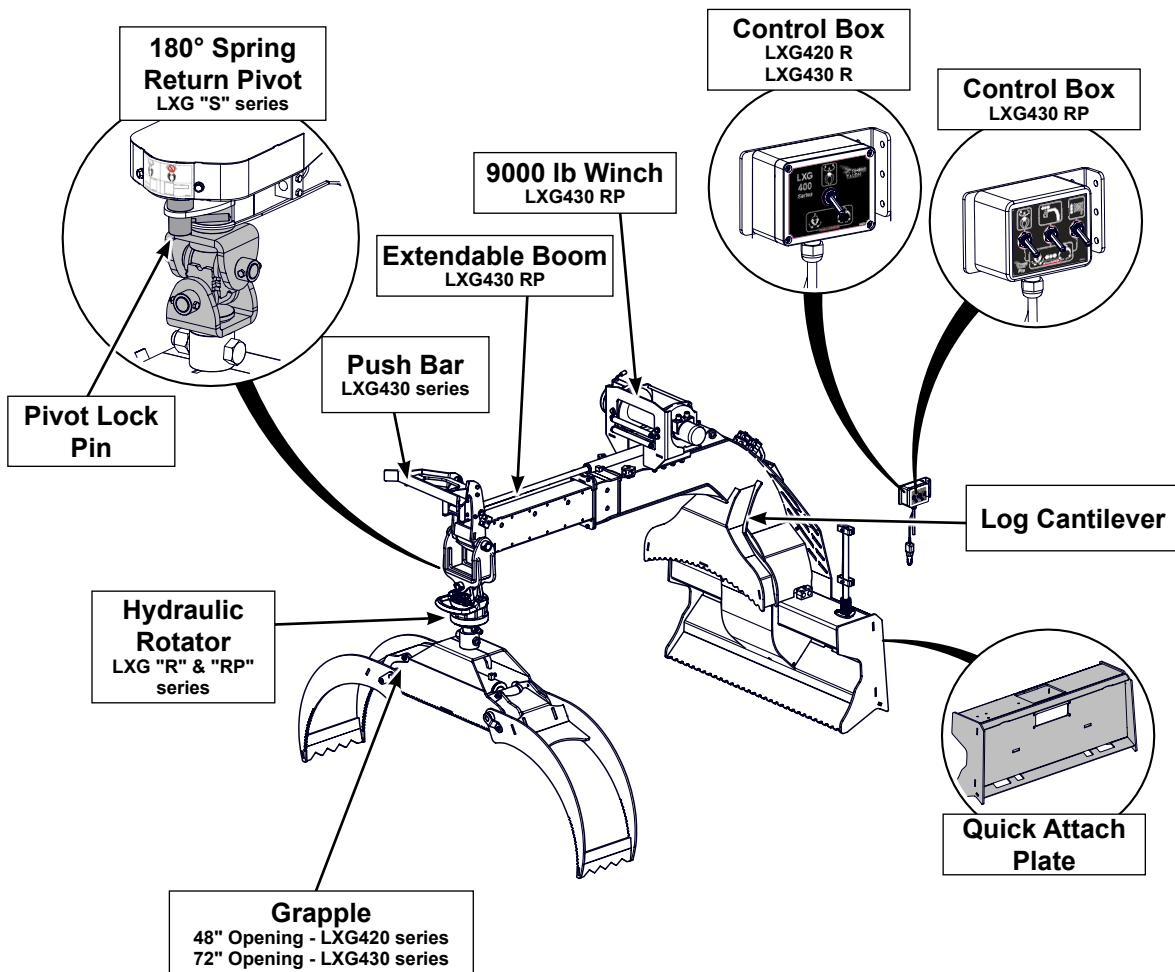
	LX420S	LX430S	LX420R	LX430R	LX430RP	
Mounting	STANDARD SKIDSTEER QUICK ATTACH					
Boom Lift Capacity	1360 kg 3000 lbs	2041 kg 4500 lbs	1360 kg 3000 lbs	2041 kg 4500 lbs	Retracted 2041 kg 4500 lbs	Extended 1360 kg 3000 lbs
Recommended HP	23 - 52 kW 30 - 70 hp	52 - 74 kW 70 - 100 hp	23 - 52 kW 30 - 70 hp	52 - 74 kW 70 - 100 hp	52 - 74 kW 70 - 100 hp	
Hydraulic Flow	19 lpm min. 5 gpm min.	19 lpm min. 5 gpm min.	19 lpm min. 5 gpm min.	19 lpm min. 5 gpm min.	38 lpm min. 10 gpm min.	
Hydraulic Pressure	20 684 kPa 3000 psi					

4.3 MACHINE COMPONENTS

The Wallenstein LXG400 Series Skid Steer Log Grapples are available in 5 configurations and all consist of a grapple on the end of a frame that mounts to the quik-tach on a skid steer for grasping and picking up wood or logs. Hydraulic power is provided by the skid steer is used to control the hydraulics. The grapple is designed to pivot and swivel to align the log as required.

Specific model features LXG400 series grapples:

- LXG420S:** 48" grapple, 3 lockable position 180° spring return pivot
- LXG420R:** 48" grapple, 360° hydraulic rotator
- LXG430S:** 72" grapple, 3 lockable position 180° spring return pivot & push bar
- LXG430R:** 72" grapple, 360° hydraulic rotator & push bar
- LXG430RP:** 72" grapple, 360° hydraulic rotator, push bar, winch and extendable boom



4.4 MACHINE BREAK-IN

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

A. After operating for 1 hour:

1. Ensure the machine is in **safe condition** before checking any components (see 4.1.1)
2. Check that all grapple pivot pins are secure and in place.
3. Check that all grapple pivot points move freely.
4. Check for leaks in the hydraulic system.
 - Inspect connectors and fittings for leaks.
 - Inspect hoses for damage. Reroute hoses if rubbing.
5. Check all hydraulic cylinders for smooth operation.
6. Check that all nuts, bolts and other fasteners are tight. Retighten to their specified torque.

B. After operating for 10 hours:

1. Repeat steps 1 through 6 listed above. (Section A)
2. Go to the normal servicing and maintenance schedule as defined in the Maintenance Section.



Z94203

Use Your Personal Protection Equipment

4.5 PRE-OPERATION CHECKLIST

Efficient and safe operation of the Wallenstein Log Grapple 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 that this checklist is followed, for personal safety and ensuring the grapple is in good mechanical condition.

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

Pre-Operation Checklist		✓
LXG400 "S" series		
Check that grapple pivot rotates freely 180° and lock functions properly		
LXG400 "R" & "RP" series		
Check that hydraulic rotator has no leaks and rotates freely 360°.		
LXG430RP		
Check the condition of the synthetic rope. Replace if frayed or if it has any broken strands		
Check the condition of the hydraulic winch, and fairlead components, winch system must move freely to operate properly.		
Check the condition of the hydraulic extendable boom and components, boom system must move freely to operate properly.		
Check the condition of wiring harness from control to the grapple.		
LXG400 Series		
Check that the machine is properly attached to the Skid Steer. Be sure locking levers are engaged mounting pins are extended into the attachment .		
Check and lubricate the machine per the schedule outline in the Maintenance Section.		
Check condition of all hydraulic components. Keep all components in good condition. (see "Hydraulic Fitting Torque" specification chart)		
Check that all bushings move freely. Replace any that are rough or seized.		
Check and ensure that all covers, guards and shields are in place, secured and functioning as designed		
Check all fasteners and tighten as required. (see "Bolt Torque" specification chart)		
Check that personal protection equipment is used and in good repair.		

4.6 ATTACH TO SKID STEER

The LXG400 series grapples are equipped with a universal quick attach plate, that will work with any skid steer quick attach hitch.

Please refer to your skid steer's owners manual for specific instructions on hitch plate mounting.

When attaching the grapple to a skid steer, follow this general procedure:

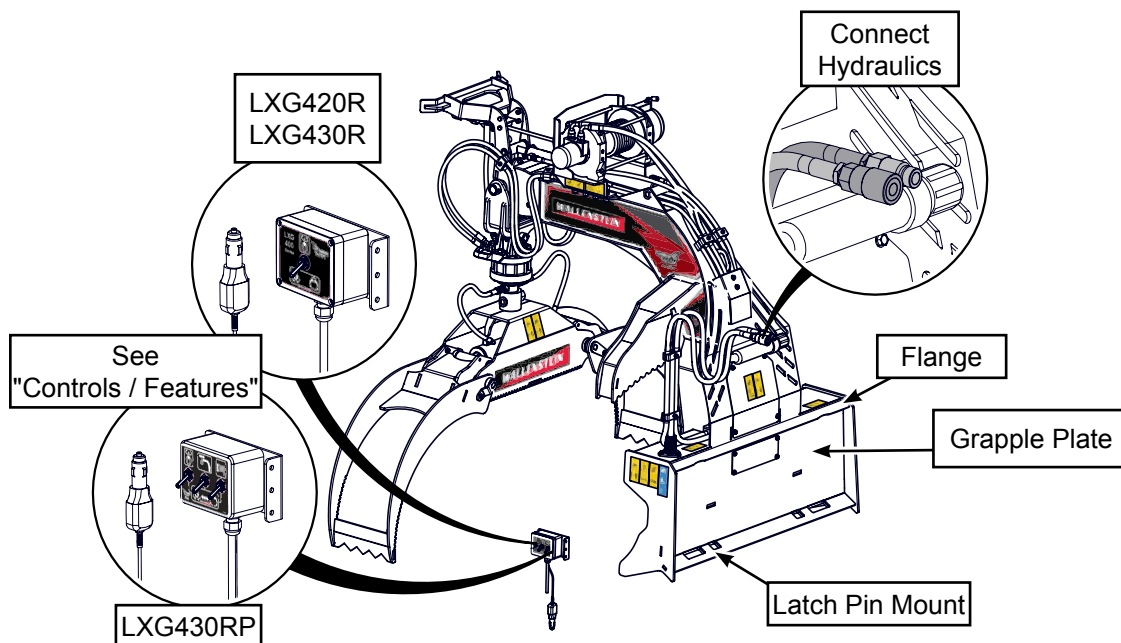
1. Clear the area of bystanders, especially small children.
2. Make sure there is enough room and clearance to safely drive up to the grapple, ensure the skid steer is "square" to the grapple,
3. Lift the latch arms on the quick attach hitch, ensure latch pins are retracted.
4. Tilt the hitch forward until the top edge of the hitch is below the flange on the back side of the grapple plate and centered between the vertical plates.
5. At the slowest speed possible, drive into the grapple plate.
6. Tilt the skid steer hitch back, to engage the flange on the grapple plate.
7. Shut off the skid steer and engage the park/lock brake, dismount and inspect the pin alignment.
8. Push the latch arms fully down extending the latch pins through the grapple plate latch pin mount, securing the grapple.
9. Before operating the grapple check that the hitch and latch pins are correctly engaged and secure.
10. Connect hydraulic lines to skid steer hydraulic remotes. For LXG420R, LXG430R and LXG430RP, mount the control selector in the cab and connect to a 12v source. (**see section 4.7.2 Control Selector Mounting**)
11. To detach grapple from the skid steer:
 - leave the control selector mounted, simply disconnect the harness connector.
 - reverse the above procedure.
 - Always park the machine in a dry, level area.
 - **Ensure grapple head is in the open position for stability.**



NOTICE

Operation Hazard:

Do not activate hydraulic high flow to the remotes when using the grapple attachment. The grapple is designed to work with standard flow settings and will be damaged if used in high flow settings.



4.7 CONTROLS / FEATURES

The hydraulic functions of the **LXG400 Series** are managed thru the skid steers hydraulic remote connectors and controlled by the hydraulic controls in the cab. Refer to your skid steers owners manual on where to connect and how to control the hydraulic features of the grapple.

In addition to the hydraulic grapple some models feature more hydraulic functions. These models require an electrically wired control which mounts in the cab, that controls all the hydraulic features from within the cab.

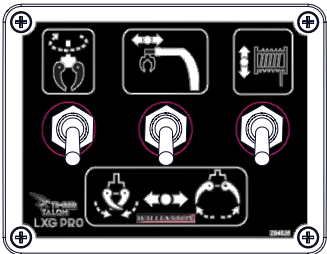
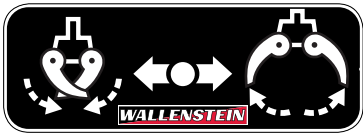

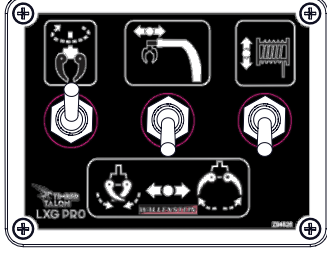


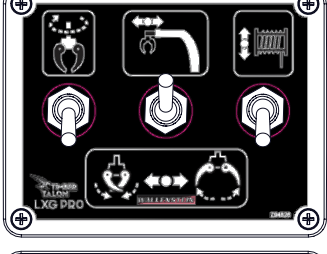
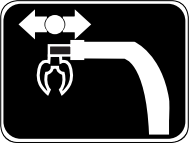
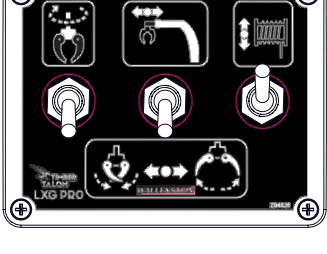
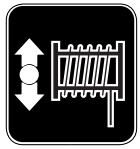
LXG420R & LXG430R: these models feature an hydraulic rotator, which replaces the spring return pivot on the other models.

LXG430RP: in addition to the hydraulic rotator, the LXG430RP also features an hydraulic winch and an extendable boom.

Please review this section to familiarize yourself with the location and function of each control before starting. Familiarizing yourself with the controls will enable you to take advantage of all the features available on the LXG400 series grapples and apply them as conditions demand.

4.7.1 HYDRAULIC CONTROL SELECTOR

The hydraulic control selector box provides a way of controlling all the hydraulic functions with a single hydraulic control in the cab. The position of the switches determine which function will be active at the hydraulic control. **LXG430R:** AVOID ACTIVATING MORE THAN ONE SWITCH AT A TIME, see the illustration below to understand switch positioning.

LXG430R		LXG420R & LXG430R
	<p>1. All switches down: activates the open /close fork function.</p> 	
	<p>2. Left Switch up; activates the Grapple rotate function.</p> 	
	<p>3. Middle Switch Up: activates the boom extender function.</p> 	
	<p>4. Right Switch Up: activates the winch function</p> 	<div style="border: 1px solid black; padding: 10px;"> <p>Caution Operation Hazard: DO NOT ACTIVATE MORE THAN ONE SWITCH AT A TIME. Functions will not operate as expected if more than one switch is activated.</p> </div>

4.7.2 CONTROL SELECTOR MOUNTING

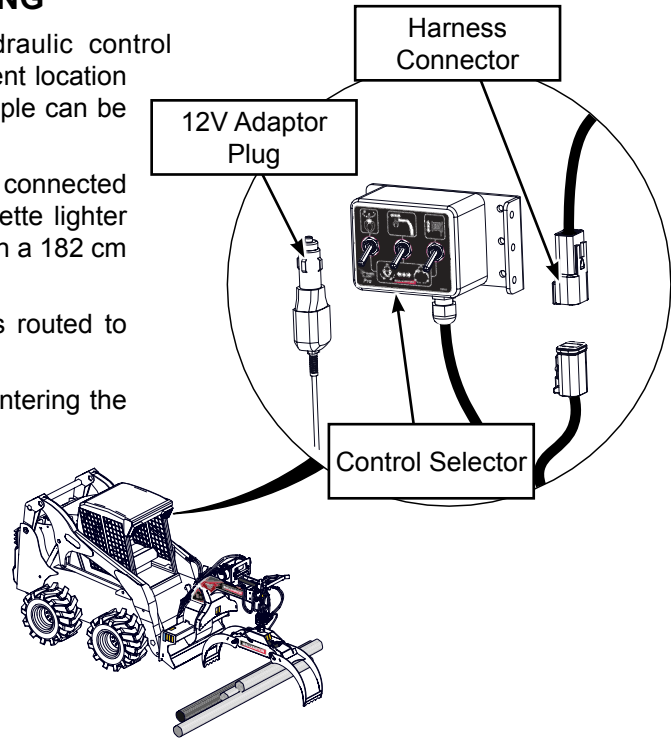
LXG420R, LXG430R & LXG430RP: the hydraulic control selector box needs to be mounted in a convenient location inside the cab of the skid steer, so that the grapple can be easily and safely controlled.

The Control requires a 12v source and can be connected thru the 12v adaptor plug into a standard cigarette lighter receptacle. For convenience, the plug comes with a 182 cm (72") lead.

When mounting the control ensure the cable is routed to avoid:

- being entangled by the operator exiting or entering the cab
- being hit or pinched by the machine or material.

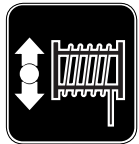
The main harness features a connector that allows the controller to be detached from the grapple, allowing the controller to remain in the cab when the grapple has been removed and stored.



4.7.3 HYDRAULIC WINCH

(LXG430RP only)

The single speed hydraulic winch has a capacity of 4082kg (9000 lb). It features a 12.7mm x 30m (1/2 x 100') high strength braided polyurethane UHMW rope. Characteristics of this rope include, abrasion resistant, low stretch, light weight, 12 strand braided construction. This flexible rope will also float on water.



Forward and reverse is activated in cab through the control selector box, and is controlled by the skid steers hydraulic remote levers.

The lever to engage and disengage the winch is located on the side of the winch.

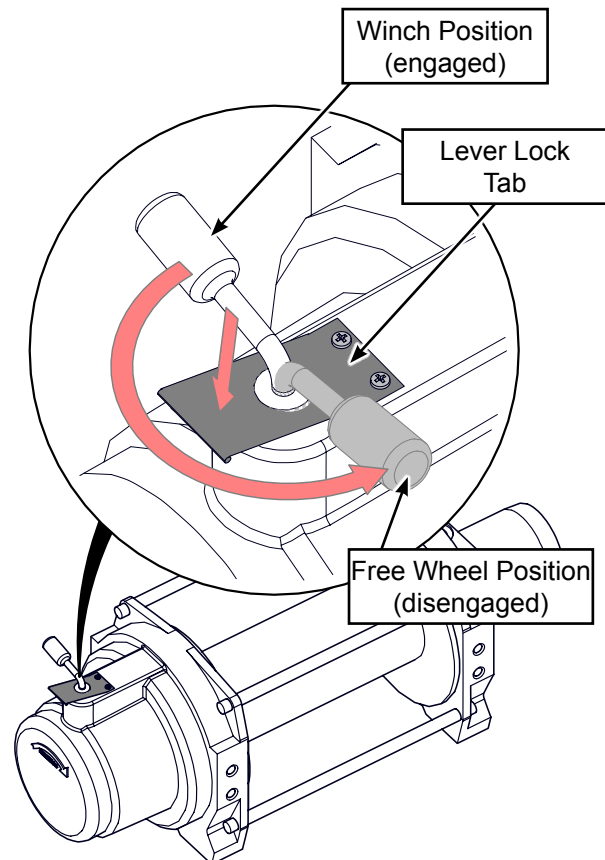
Facing the side of the winch, and with the winch shut off:

Engage the winch for winching:

1. press down on the lever lock tab,
2. move the lever to the left
3. release the lock tab

Disengage the winch, free wheel:

1. press down on the lever lock tab,
2. move the lever to the right
3. release the lock tab
4. rope is ready to free wheel out.

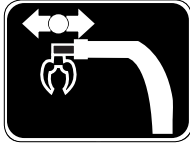


NOTE:

Always read the winch operator's guide supplied with the machine to familiarize yourself with its operating and procedure details.

4.7.4 HYDRAULIC BOOM EXTENDER

(LXG430RP only)



The extender's function is activated in cab through the control selector box, and the extend and retract is controlled by the skid steer's hydraulic remote levers.

The boom has a extension range of 0 - 60cm (0" to 24")

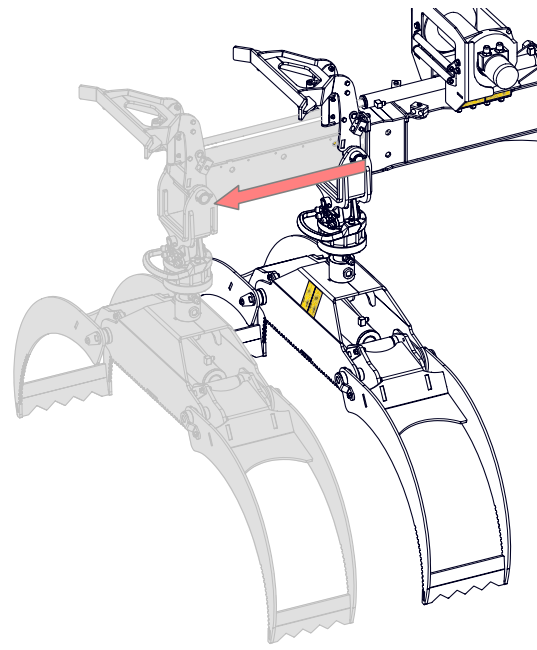
The main purpose of the extender boom is to help reach difficult area's. It is not recommended to skid with a load while the boom is extended.



NOTICE

Operation Hazard:

Ensure that the winch hook is not in the boom fairlead, damage to the machine will result if the hook becomes jammed in the fairlead as the boom is extended.



4.7.5 HYDRAULIC ROTATOR

(LXG420R, LXG430R & LXG430RP)

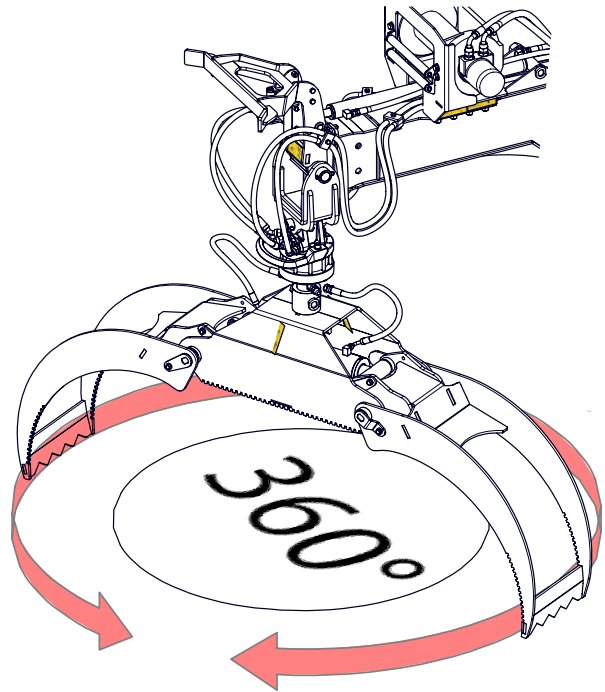


The hydraulic rotator is activated in cab through the control selector box, and the rotation is controlled by the skid steer's hydraulic remote levers. The rotator is capable of bidirectional 360° continuous rotation, and is designed for both skidding or carrying a load.



WARNING

A collision / crushing / pinch hazard exists from the grapple forks when operating the rotator. Be aware of workers close by, or around the machine.



4.7.6 SPRING RETURN PIVOT

(LXG420S & LXG430S)

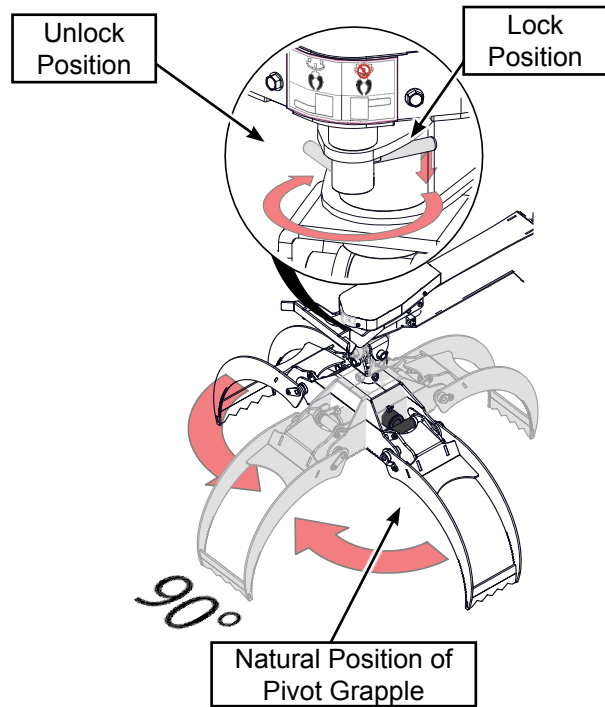
The LXG420S & LXG430S feature a lockable grapple pivot with a spring return and is designed for carrying a load or skidding.

When unlocked the pivot can rotate a maximum of 180° (90° in each direction). While skidding the pivot will automatically rotate for turns and the spring will return the pivot to its natural position (parallel with the base).

It is recommended to have the pivot unlocked while skidding.

The pivot features 3 lock positions, lateral (one each end of the 90°) & parallel to the base. Locking is recommended to be used when carrying, lining up and stacking logs or whenever the pivoting feature is not desirable.

Note: the pivot is protected by a shear bolt. If excessive torque loads occur the bolt will shear.



WARNING

A collision hazard exists from the grapple forks when locking or unlocking the pivot. The pivot is under spring tension and will rotate the grapple with force if released unexpectedly. Be aware of workers close by, or around the machine.



NOTICE

Operation Hazard:
Ensure that the pivot is unlocked during skidding, damage to the machine will result if the pivot is locked while turning a corner.

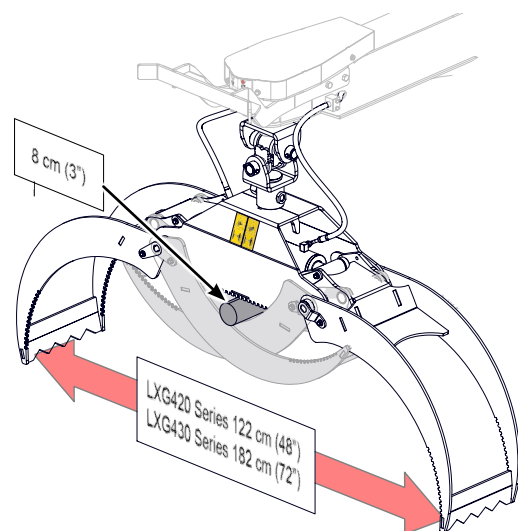
4.7.7 HYDRAULIC GRAPPLE HEAD

All the LXG series features a hydraulic grapple head, the forks are designed to "bypass" each other so that they can grasp material as small as 8 cm (3").

Maximum opening width of the grapple for the LXG420 series is 122 cm (48") while the LXG430 series is a massive 182 cm (72")

The models LXG420S, LXG430S, LXG420R, & LXG430R grapple head is controlled in cab directly by the skid steers hydraulic remote levers.

The LXG430RP grapple head is activated in cab through the control selector box, and the head open / close is controlled by the skid steer's hydraulic remote levers.



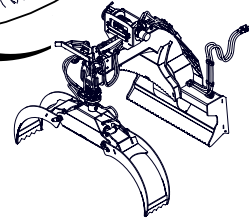
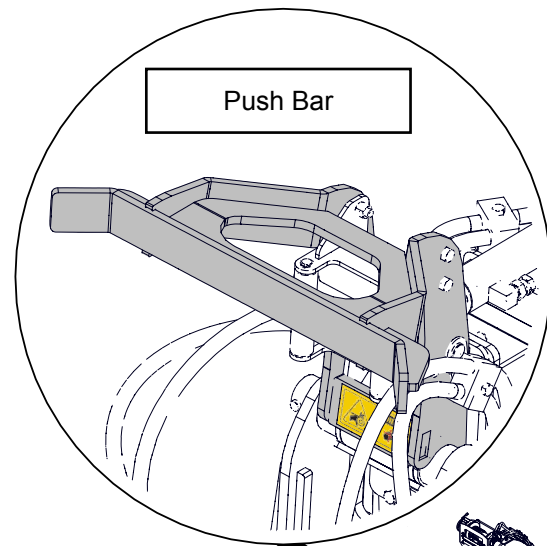
4.7.8 GRAPPLE PUSH BAR

All the LXG430 series feature a heavy duty 48 cm (19.0") wide push bar, used to aid in tree felling. When preparing to fell a tree, drive the skid steer up to the tree and use the push bar to apply pressure to push the tree in the fall-line you've chosen. This reduces the need for time-consuming wedging and cabling associated with tree felling. The push bar is made of AR400 steel that is abrasion resistant, hardened steel well suited for the job of tree felling.



Danger

Felling trees is potentially hazardous activity. There are many considerations to be addressed prior to felling a tree. To avoid potential injury or death, ensure you plan your tree felling in a safe and well thought out manner.



4.7.9 CANTILEVER CRADLE

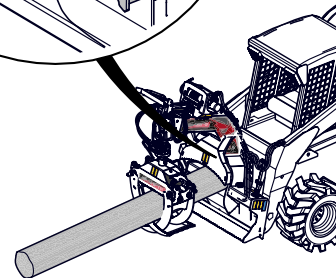
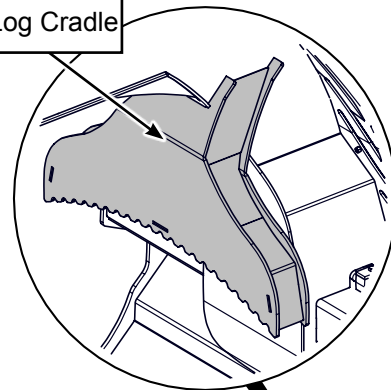
All the LXG400 series feature a heavy duty cantilever log cradle that is used for lifting and stacking logs. The cradle is also useful to lift and transport logs instead skidding them. When using the cradle the serrated edge prevents the log from sliding off the cradle as you transport or position the log for stacking.



Warning

Be aware of the potential collision hazard with the swing radius of the log while transporting. To avoid potential injury, plan your route and ensure workers and bystanders are at least 6m (20 ft) away from the machine.

Cantilever Log Cradle



5 FIELD OPERATION



OPERATING SAFETY

- Read and understand operator's manual before starting. Review safety instructions annually
- Move controls to neutral or OFF position, stop engine, remove ignition key and place in your pocket, set park brake and wait for all moving parts to stop before servicing, repairing or maintaining.
- Do not allow bystanders within 20 feet (6 m) of machine to prevent injury from rolling logs.
- Wear appropriate safety gear including but not limited to a hard hat, safety glasses, hearing protection, safety shoes and heavy gloves.
- Operate only on level ground.
- Do not operate on hillside or when working area is cluttered, wet, muddy or icy to prevent slipping or tripping.
- Do not allow riders on this machine at any time. There is no safe place for any riders.
- Do not move or carry people on the grapple
- Keep all hydraulic components in good repair.
- Check rope condition before using winch
- Do not exceed winching angle of more than + 25°.
- Do not use a skid steer unless it is equipped with a ROPS
- Review section 2.6 on Grapple Safety and set up the work zone.

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

Although the LXG400 Series skid steer grapples are 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:

5.1 PREPARE

- Clear the area of bystanders, especially small children.
- Each operator must be trained and familiar with the set up and operation of the Grapple 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 4.6)
- Survey the work site, move to a clear, level work area and position at the work site.
- Each person must wear appropriate **Personal Protective Equipment (PPE)** whenever operating the Grapple or working in the vicinity. 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

5.2 STARTING PROCEDURE

These procedures can be applied to all versions of the LXG400 series grapple

After following all operating safety and preparation procedures the Grapple should be set up and ready to run. Skid steer manual should also be reviewed.

5.2.1 SKID STEER

- a. Ensure all the grapple access covers are secured
- b. Inspect hydraulic connectors for positive connection.
- c. Start skid steer.
- d. Run the engine for a few minutes to allow it to warm.
- e. Test the functions of the grapple
- f. Ensure machine is stable, with no unusual vibration and proceed with work.

5.2.2 STOPPING:

- a. Lower the grapple to the ground.
- b. Release the hydraulic control, to prevent accidental activation of the grapple
- c. Slow engine RPM and stop engine, remove ignition key and place in your pocket and wait for all moving parts to stop.

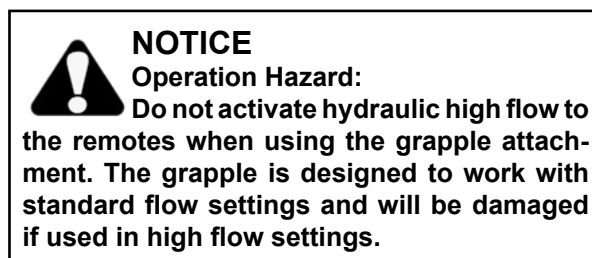
5.2.3 EMERGENCY STOPPING:

If an emergency occurs:

- **Release the hydraulic control.**
- **Shut off the engine**
- **Correct emergency situation before restarting engine and resuming work.**

Ensure all operators understand how to put the machine in Safe Condition before working with this machine,

- ensure grapple is clear & closed
- shut off hydraulics
- ensure all components have stopped moving
- shut off the engine
- remove and pocket the ignition key
- set the parking brake



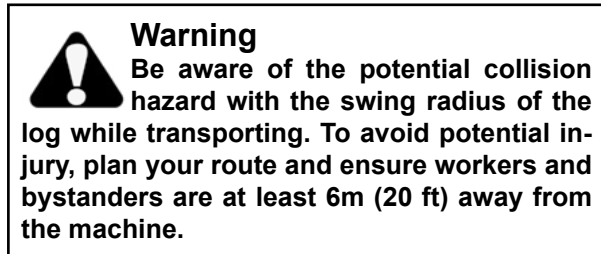
5.3 GRAPPLING

The LXG400 series grapples are strong, rugged machines that are built to a straight-forward design which provides a strong, reliable tool that can be used for piling, skidding, and generally managing logs in your woodlot.

These procedures can be applied to all versions of the LXG400 series grapple. After following all operating safety and preparation procedures the grapple should be set up and ready to run. Skid Steer manual should also be reviewed.

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

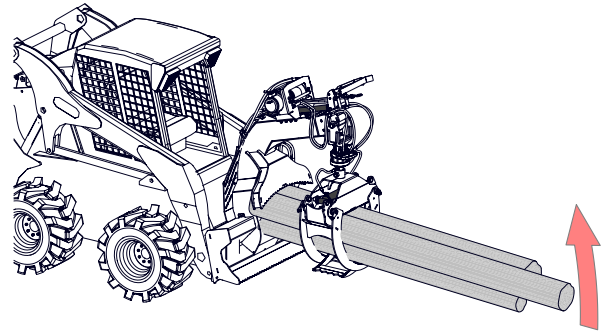
Inspect machine for damaged or loosened parts, repair or replace parts as required before beginning work.



5.3.1 PARALLEL LIFTING:

When preparing to grapple a log for parallel lifting

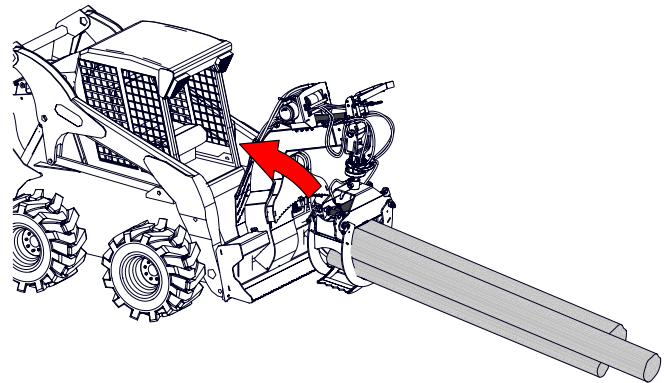
1. Position the grapple cantilever over the end of the log,
2. Lower the grapple and drive forward slightly into the log end so the cradle is over the log and carefully close the grapple forks until you have a good grip on the log.
3. Tilt the grapple back and move on to the next log or begin piling.



5.3.2 SKIDDING:

When preparing to grapple a log for skidding,

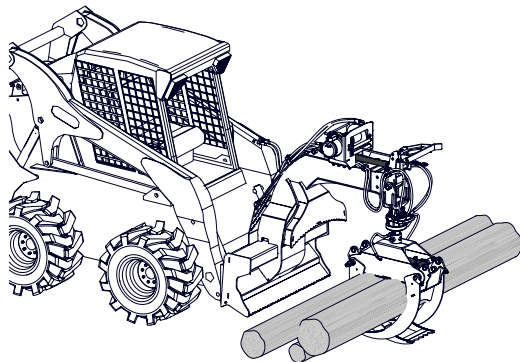
1. Position the grapple over the end of the log about 25 - cm (10 -12") from the end of the log.
2. Lower the grapple onto the log and carefully close the grapple forks until you have a good grip on the log.
3. Raise or tilt the grapple and move on to the next log or begin skidding.



5.3.3 RIGHT ANGLE LIFTING:

When preparing to grapple a log for lifting at right angles:

1. Position your grapple at the midway point of the log so that when you lift, the log will remain balanced.
2. Lower the grapple onto the log and carefully close the grapple until you have a good grip on the log.
3. Raise or tilt the grapple and move the logs to the pile.



5.3.4 SPRING RETURN PIVOT

The LXG420S & LXG430S feature a lockable grapple with a return to centre spring pivot and is designed for carrying a load or skidding. Note that the pivot is protected by a shear bolt. If excessive torque loads occur the bolt will shear. See replacement instructions below

The same grappling procedures can be applied to spring return pivot, but the grapple must be manually positioned. Follow the procedure below:

Lock / Unlock Procedure (from a locked position)

To disengage the lock,

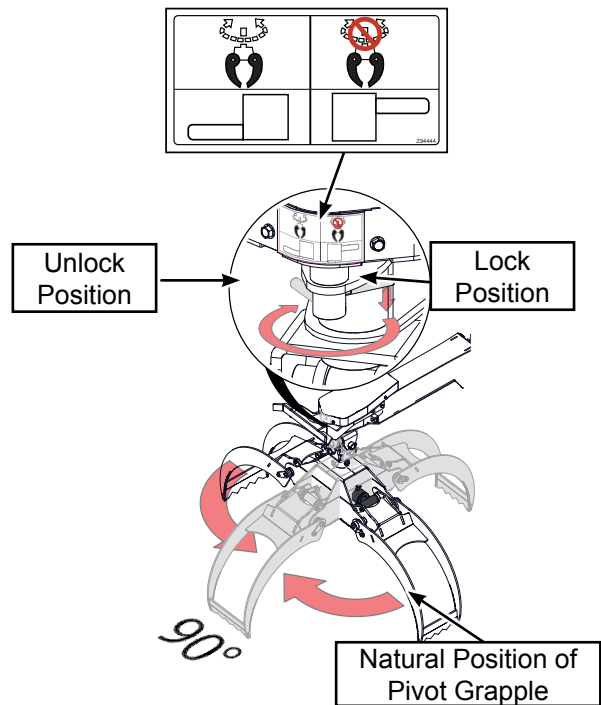
1. pull down on the grapple lock lever
2. when the lever is out of the notch, swivel the lever around to the far side into the unlock position notch.
3. the pivot is now unlocked.
4. reverse the procedure to lock the pivot

Lateral grapple lock:

1. pull down on the grapple lock lever (do not move to unlock notch)
2. begin to manually rotate the grapple to 90° & release the lock lever.
3. finish pivoting the grapple to 90° and the lock lever will automatically pop into position.

Lateral grapple unlock:

1. relieve spring pressure on the lock by turning the grapple slightly.
2. keep pressure on the grapple and pull down on the lock lever, **do not let go of the grapple.**
3. rotate the grapple slightly and release the lock lever.
4. carefully and slowly allow the spring to rotate to the pivot natural position and the lock lever will pop into position.



NOTICE
Operation Hazard:
Ensure that the pivot is unlocked during skidding, damage to the machine will result if the pivot is locked while turning a corner.

5.3.5 PIVOT SHEAR BOLT

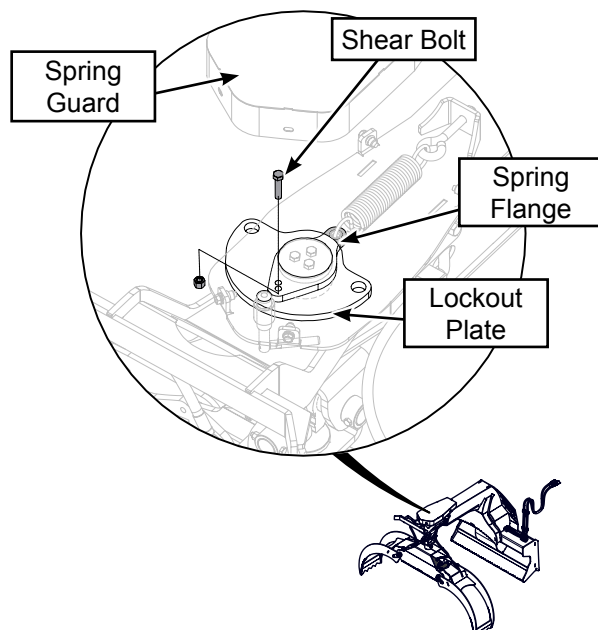
To replace pivot shear bolt:

1. Remove spring guard
2. the shear bolt is located on the lockout plate. Remove the old shear bolt and nut
3. Install the new shear bolt and nut through the lockout plate and spring flange

#Z71317 Hex Bolt, 3/8NC x 1-3/4"

#Z72231 Hex Lock Nut, 3/8NC

WARNING
A collision hazard exists from the grapple forks when locking or unlocking the pivot. The pivot is under spring tension and will rotate the grapple with force if released unexpectedly. Be aware of workers close by, or around the machine.

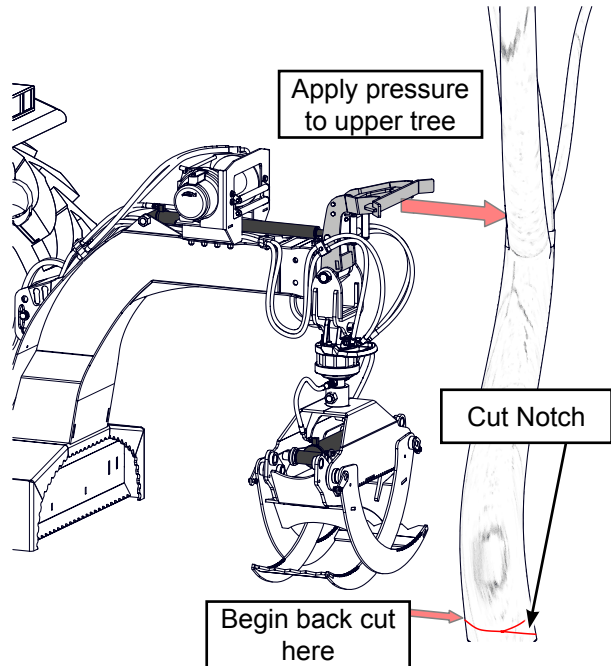


5.4 GRAPPLE PUSH BAR

All the LXG430 series feature a heavy duty 48 cm (19.0") wide push bar, used to aid in tree felling. Do not attempt to push a tree over, the push bar is meant only to apply directional pressure, so that when the tree is cut, it will fall in a predictable manner. Tree felling should only be attempted by those only with enough experience to do so safely.

When preparing to fell a tree:

1. Check that there are no bystanders in the area.
2. Check for hazards: utilities, animals, dead hanging branches, etc
3. Check for tree lean, make sure that the tree will fall the way you want it.
4. Plan an escape route, make sure you have a clear way of getting out of the way.
5. Drive the skid steer up to the tree, and use the push bar to apply slight pressure to the upper tree along the fall-line you've chosen.
6. With your chainsaw, carefully begin cutting a notch in the side of the tree fall.
7. Begin back cut at the bottom of the tree, on the same side as the grapple, leave a hinge, cut only enough to allow the tree to fall along the fall line.
8. When the tree begins to fall stop cutting and back away from the tree and allow it to fall.



Danger

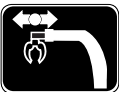
Tree felling is a potentially hazardous activity. There are many considerations to be addressed prior to felling a tree. To avoid potential injury or death, ensure you plan your tree felling in a safe and well thought out manner.

5.5 BOOM EXTENDER

(LXG430RP only)

The boom has a extension range of 0 - 60cm (0" to 24") The main purpose of the extender boom is to help reach difficult areas, and is not intended to be in extended mode during the regular work cycle. It is important to note that the boom capacity drops 35% when extended. Refrain from carrying or skidding with a load while the boom is extended.

When preparing to extend:

1. Ensure the winch hook is not in the extender fairlead.
2.  Select the extender switch on the control selector.
3. Extend the grapple to complete the task.
4. Retract the extender once the task is complete



NOTICE

Operation Hazard:
Ensure that the winch hook is not in the boom fairlead, damage to the machine will result if the hook becomes jammed in the fairlead as the boom is extended.

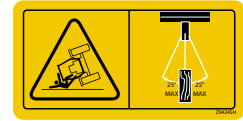
5.6 WINCHING

(LXG430RP only)

Always read the winch operator's guide supplied with the machine to familiarize yourself with its safety and operating procedure details.

The single speed hydraulic winch has a capacity of 4082kg (9000 lb) and can be used to winch up logs that are otherwise inaccessible.

It is recommended that the pull angle of the rope not exceed $\pm 25^\circ$ from the horizontal axis of the machine. Exceeding that angle can subject the machine to a tipping load and tip the machine over. Use a log peavey to move the log in line with the grapple to reduce or eliminate the tipping load.

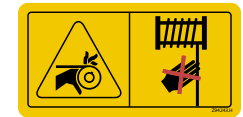


Do not use the winch rope as a choker to attach directly to the log, the rope will sustain damage while winching along the ground, always use a winch strap or choker to attach to the log. Damaging the rope will weaken it and could break under load.


When operating the winch with no load, ensure there is some tension on the rope so it will wind correctly and also to prevent tangling while unwinding.

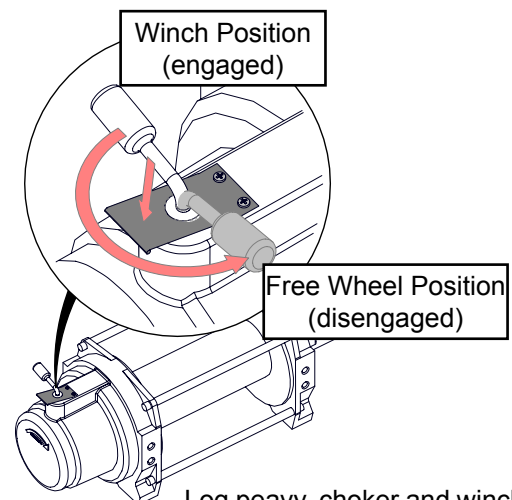
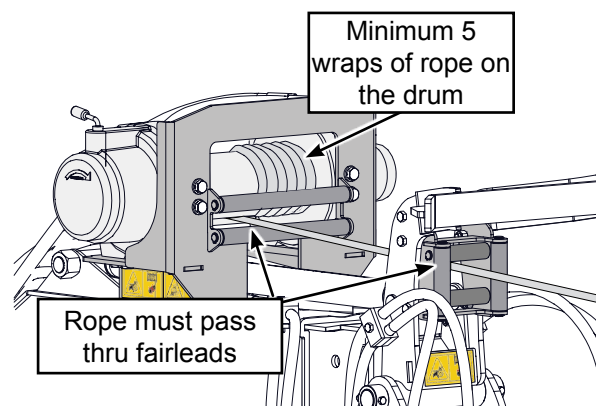
Never use the winch with less than 5 wraps on the winch drum, the rope may pull free from its anchor point under load.


Never touch rope while pulling a load, while anyone is at controls, or while operating winch.



When preparing to winch:

1. As much as possible, face the grapple in the direction of winching, within 25° .
2. Ensure the rope passes through the fairleads, to provide maximum protection for the rope.
3. Release the winch rope by moving the winch gear lever to the right.
4. Grasp the hook on the winch rope, and pull the rope out to the logs.
5. Wrap the winch strap or choker around the log. You may need to roll the log onto the scrap using a log peavey.
6. Attach the winch hook onto the winch strap or choker.
7. Engage winch drive mechanism with the winch gear lever.
8.  Select the winch switch on the control selector.
9. Use the winch to pull log up to the grapple
10. Ensure the log is stable, disengage the winch gear, pull out the rope slightly.
11. Detach the winch hook from the strap, and remove the strap.



 **NOTICE:**
Use a winch strap: avoid using the rope to attach to the log, while winching the log the rope will sustain damage while dragging along the ground

Log peavey, choker and winching straps available from your dealer see accessory page

5.7 OPERATING HINTS

Engine RPM:

The LXG Grapples are designed to operate with an hydraulic flow between 19 -38 lpm (5 - 10 gpm) except for the LXG430RP which requires 38 - 75 lpm (10 - 20 gpm). It is recommended that the skid steer be run at a at no less than 1/4 throttle.

General:

- Delimb all tree trunks to make it easier and safer for handling
- If working with a trailer ensure it always securely attached to the tow vehicle. This provides required stability when loading / unloading heavy logs.
- Stay away from overhead power lines to prevent serious injury or death from electrocution. Remember, electrocution can occur without direct contact.
- Position the trailer as close to the material stack possible. This will make manoeuvring the grapple easier especially with heavy logs.

Rough Terrain:

The machine can be used in a variety of conditions including rugged terrain.

- We recommend that the area be clear and the ground be firm.
- Reduce speed over rough terrain.
- When skidding logs, if possible winch the load across the rough terrain.
- Be extra cautious and use common sense.

Slopes:

- Ensure that there are no bystanders on the slope.
- Skidding, if possible confine your travel to straight up and down slopes.
- Do not attempt to travel across a slope that is too steep for maintaining proper balance of the machine.
- Travel at safe speeds, avoid turns on slopes.

Points to Remember:

- Refrain from skidding or carrying a load with the boom extended (LXG430RP)
- Be aware of the swing radius of the logs while carrying them at right angle or parallel.
- Never winch at an angle greater than 25° and never winch across a slope. (LXG430RP)
- Plan your skidding path, so that it is free of debris and obstacles
- Always pull a log, never try to drive forward while skidding a log.
- Use a optional choker chain or winch strap to connect to the winch cable. Do not use the winch rope to prevent breakage from abrasion or snagging.



NOTICE

Operation Hazard:

Do not activate hydraulic high flow to the remotes when using the grapple attachment. The grapple is designed to work with standard flow settings and will be damaged if used in high flow settings.

6 TRANSPORT

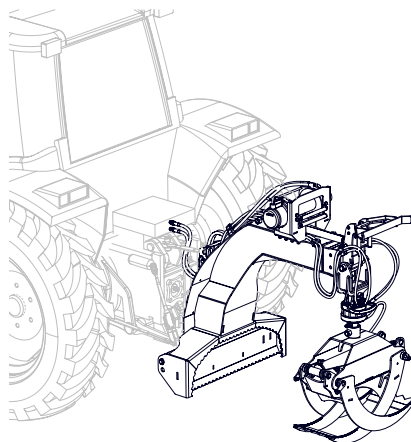


TRANSPORT SAFETY

- 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 skid steer 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.
- Turn into curves or go up or down hills only at a low speed and at a gradual steering angle. Slow down on rough or uneven surfaces.
- A heavy load can cause instability of the skid steer. Use extreme care during travel. Slow down on turns and watch out for bumps.
- Never allow riders on either skid steer or machine.

When transporting the machine, review and follow these instructions:

1. Be sure all bystanders are clear of the machine.
2. Be sure that the machine is securely attached to the skid steer and Latch arm and pins are secure.
3. Close the forks for transport
4. Attach the SMV emblem, and check lights and reflectors and be sure they are working.
5. Be sure you are in compliance with all applicable lighting and marking regulations when transporting. Check with your local authorities.
6. Be sure your machine can clearly be seen by overtaking and oncoming traffic.
7. 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.
8. Do not allow riders.
9. Always use hazard flashers on the skid steer when transporting unless prohibited by law.



7 STORAGE

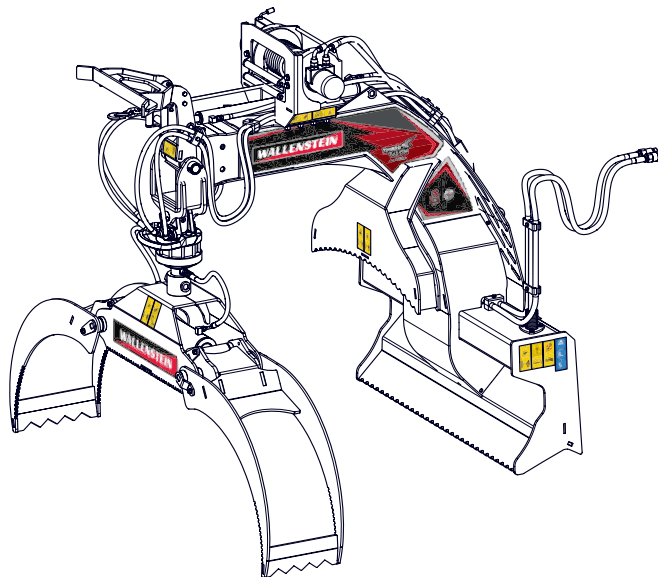


STORAGE SAFETY

- 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. (use caution when pressure washing hydraulics, high pressure water could damage seals)
3. Inspect the cylinder(s), rotator or pivot and grapple 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, select an area that is dry, level and free of debris.
6. If desired, on dirt floors, set down some planks to isolate the grapple from the floor.
7. Open the grapple forks, this provides maximum stability for storage.
8. Carefully lower grapple and unhook from skid steer.
9. Ensure the Grapple is stable.
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.



8 SERVICE AND MAINTENANCE



MAINTENANCE SAFETY

- Follow ALL the operating, maintenance and safety information in the manual.
- 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.
- Put the machine in Safe Condition before performing maintenance
 - ensure grapple is clear & closed
 - shut off hydraulics
 - ensure all components have stopped moving
 - shut off the engine
 - remove and pocket the ignition key
 - set the parking brake
- 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.
- 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.
- Use only tools, jacks and hoists of sufficient capacity for the job.
- When completing a maintenance or service function, make sure all safety shields and devices are installed before placing unit in service.
- Keep hands, feet, hair and clothing away from moving or rotating parts.
- A fire extinguisher and first aid kit should be kept readily accessible while performing maintenance on this equipment.
- 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
- Clear the area of bystanders, especially small children, when carrying out any maintenance and repairs or making any adjustments.

8.1 SERVICE

8.1.1 FLUIDS AND LUBRICANTS

1. **Grease:**
Use an SAE multi-purpose high temperature grease with extreme pressure (EP) performance. Also acceptable is an SAE multipurpose lithium base grease.
2. **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.
3. **Hydraulic Oil:**
Use SL1503 Dual Purpose Hydraulic Fluid for all operating conditions.

8.1.2 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.
3. Replace and repair broken fittings immediately.
4. If fittings will not take grease, remove and clean thoroughly. Also clean lubricant passage. Replace fitting if necessary.

IMPORTANT Do Not over grease.
One shot of grease is sufficient



Look for this label on your machine, it indicates a grease point and the number of hours between greasing.

8.2 SERVICE ILLUSTRATION

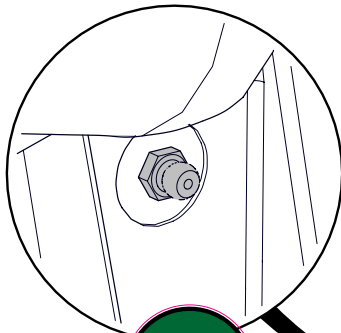
See Service Record Chart

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

On a regular basis check all nuts, bolts and screws and ensure they are all properly secured.

On a regular basis check the condition of synthetic rope. Replace if damaged. Ensure rope is clean and free of dirt.

50 Hours or weekly inspect fairlead rollers (LXG430RP)



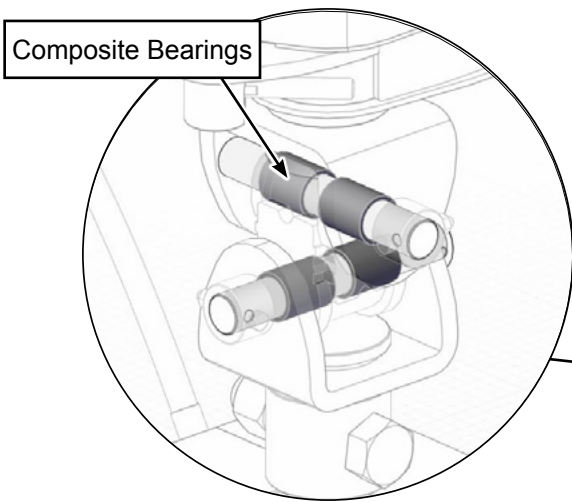
50 Hours or weekly Rotator Hanger LXG420R, 430R & 430RP

IMPORTANT
Do Not over grease.

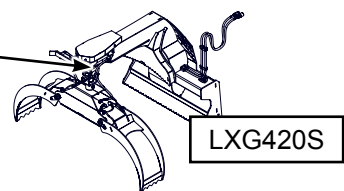
Annually, inspect hydraulic hoses and connections

Annually, wash and clean, remove entangled material, wood chips, small debris.

50 Hours or weekly inspect support legs (LXG420R, LXG430R & LXG430RP)



Composite Bearings



LXG420S










All LXG models use **composite bearings** in the grapple head assembly. In addition, models LXG420R, 430R & 430RP use composite bearings on the upper hanger assembly and models LXG420S & 430S use them on the entire hanger assembly and the pivot. Composite bearings are completely self lubricating, do not require lubrication maintenance and normally run dry. **Composite bearings** are designed for the high loads associated with grappling.

9 TROUBLE SHOOTING

The Wallenstein LXG400 series Skid Steer Mounted Log Grapple uses hydraulic power to open and close a grapple to hold and lift logs. It is a simple and reliable system that requires minimal maintenance.

In the following section, we have listed 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 dealer, distributor or Wallenstein. Before you call, please have this Operator's Manual and the serial number from your Log Grapple ready.

PROBLEM	CAUSE	SOLUTION	CAUTION	
Hydraulics move slowly or don't move. Grapple head - all models. Extender, rotator RP - version).	No pressurized hydraulic oil.	Oil filter plugged. Change filter.		Ensure machine is off and cooled down.
	No pressurized hydraulic oil	Low hydraulic oil level, top up.		Ensure machine is off and cooled down.
	Hydraulic hoses switched	Switch connections.		Ensure machine is off.
	Not enough flow	Flow control set too low, set control higher for more flow.		
	Control selector not powered (control box version)	connect control selector to a 12v source.		
	Wrong function selected (control box version)	Ensure only one switch is selected, select the correct function on the control selector.		
	Harness connector loose (control box version)	Reconnect harness connector for control selector.		
	Harness cable / connector damaged. (control box version)	Inspect connector pins and harness for damage, repair or replace as required.		Ensure machine is off.
	Low engine speed.	increase RPM.		
Cylinders jerk, don't run smoothly. (Grapple head - all models. Extender - RP version).	Leak in hydraulic system	Air getting into system, tighten all hydraulic connections, check hoses.		Ensure machine is off.
	Couplers dirty or incompatible	Clean couplers, ensure mating couplers are correct type. (Flat-Face Coupler, ISO 16028)		Ensure machine is off.
	Tractor has closed centre hydraulic circuit			
Leaking hydraulic hose.	Hose worn or damaged.	Replace hose.		Ensure machine is off and cooled down.
Leaking cylinder.	Seals worn.	Call technician, seal replacement may be required.		Ensure machine is off and call hydraulic technician.
Pivot doesn't lock	Shear pin broken	replace shear pin.		Ensure machine is off.

10 SPECIFICATIONS

10.1 MECHANICAL

	Heavy Duty Compact Bypass Grapple					
	LXG420S	LXG430S	LXG420R	LXG430R	LXG430RP	
Mounting	STANDARD SKIDSTEER QUICK ATTACH					
Dimensions (LxWxH)	130 x 132 x 112 cm 51" x 52" x 44"	176 x 193 x 135 cm 69" x 76" x 53"	130 x 132 x 120 cm 51" x 52" x 47"	171 x 193 x 171 cm 67" x 76" x 67"	171 x 193 x 178 cm 67" x 76" x 70"	
Weight	254 kg 560 lbs	476 kg 1050 lbs	267 kg 588 lbs	510 kg 1124 lbs	655 kg 1444 lbs	
Boom Lift Capacity	1360 kg 3000 lbs	2041 kg 4500 lbs	1360 kg 3000 lbs	2041 kg 4500 lbs	Retracted 2041 kg 4500 lbs	Extended 1360 kg 3000 lbs
Rotator Rating	3062 kg 6750 lbs	4082 kg 9000 lbs	3062 kg 6750 lbs	4082 kg 9000 lbs	4082 kg 9000 lbs	
Grapple Rotation	180° LOCKABLE SPRING RETURN			360° CONTINUOUS HYDRAULIC		
Grapple Opening Max Open - Max Closed	8 - 122 cm 3" - 48"	3" - 72" 8 - 182 cm	8 - 122 cm 3" - 48"	8 - 182 cm 3" - 72"	8 - 182 cm 3" - 72"	
Grapple Cylinder Clamp Force	4264 kg 9400 lbs	9525 kg 21000 lbs	4264 kg 9400 lbs	9525 kg 21000 lbs	9525 kg 21000 lbs	
Grapple Fork Material	AR400					
Recommended HP	23 - 52 kW 30 - 70 hp	52 - 74 kW 70 - 100 hp	23 - 52 kW 30 - 70 hp	52 - 74 kW 70 - 100 hp	52 - 74 kW 70 - 100 hp	
Hydraulic Flow	19 lpm min. 5 gpm min.	19 lpm min. 5 gpm min.	19 lpm min. 5 gpm min.	19 lpm min. 5 gpm min.	38 lpm min. 10 gpm min.	
Hydraulic Pressure	20 684 kPa 3000 psi					
Hydraulic Disconnects	Flat-Face Coupler, ISO 16028 1 x M & F					
Hydraulic Winch	-	-	-	-	Capacity 4082 kg 9000 lb	Rope: 30 m 100 ft
Push Bar (width)	-	19" 48 cm	-	19" 48 cm	19" 48 cm	
Hydraulic Extendaboom Max Extention	-	-	-	-	61 cm 24"	
Electrical Cab Remote	-	-	Included	Included	Included	
Option / Accessories	-	-	-	-	#Z92125 Synthetic Choker, 3/8"x 5ft,	
	-	-	-	-	#Z92126 Synthetic Choker, 7/16"x 7ft,	
	-	-	-	-	#5089A100 Self Releasing Snatch Block	
	-	-	-	-	# Z99003 Logging Tongs	
	#299001 48" (1.2 m) Log Peavey					

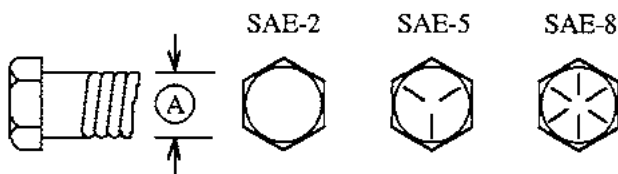
SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE

10.2 BOLT TORQUE

CHECKING BOLT TORQUE

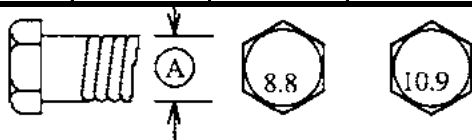
The tables shown below give correct torque values for various bolts and capscrews. Tighten all bolts to the torques specified in chart unless otherwise noted. Check tightness of bolts periodically, using bolt torque chart as a guide. Replace hardware with the same strength bolt.

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



Torque figures indicated 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%.

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

10.3 HYDRAULIC FITTING TORQUE

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.
- The torque values shown are based on lubricated connections as in reassembly.

HYDRAULIC FITTING TORQUE					
Tube Size OD	Nut Size Across Flats	Torque Value*		Recommended Turns To Tighten (After Finger Tightening)	
		(N.m)	(lb-ft)	(Flats)	(Turn)
(in.)	(in.)				
3/16	7/16	8	6	1	1/6
1/4	9/16	12	9	1	1/6
5/16	5/8	16	12	1	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



NOTICE

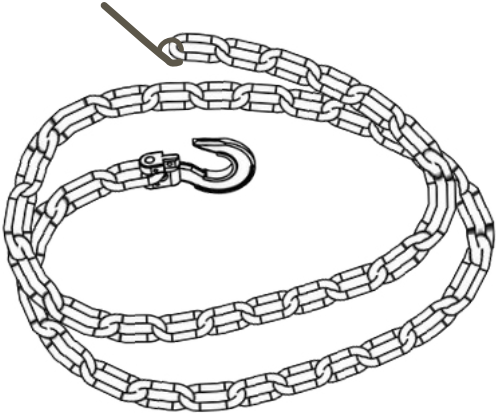
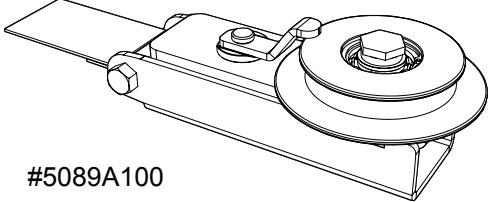
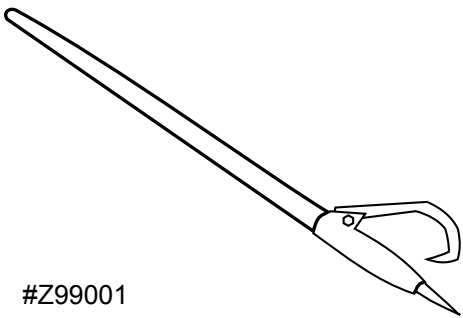
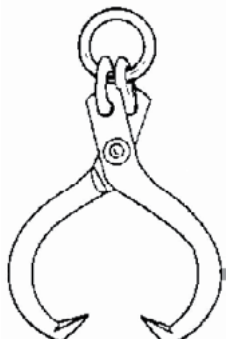
Operation Hazard:

Do not activate hydraulic high flow to the remotes when using the grapple attachment. The grapple is designed to work with standard flow settings and will be damaged if used in high flow settings.

11 ACCESSORIES

Call your dealer for pricing and availability

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

 <p>#Z92318</p>	<p>Chokers:</p> <ul style="list-style-type: none">#Z92318 CHOKER CHAIN 5/16" X 7.5 FT#Z92126 SYNTHETIC CHOKER, 7/16"X 7 FT#Z92125 SYNTHETIC CHOKER, 3/8"X 5 FT <p>Eases winching activities by providing a secure support when winching and skidding.</p> <p>Synthetic rope chokers (braided UHMW) is a high strength polyethylene, lighter and easier to use than chain.</p>
 <p>#5089A100</p>	<p>#5089A100 SELF RELEASING SNATCH BLOCK</p> <p>When obstacles prevent direct winching, or to prevent damage to other trees, the Wallenstein self-releasing snatchblock should be used. The snatchblock releases the rope when the log reaches it.</p>
 <p>#Z99001</p>	<p>#Z99001 48" LOG PEAVEY</p> <p>Quality 2 3/8" diameter hardwood handle, with a Western Duck Bill Hook.</p> <p>Helps to move those heavy log timbers into position.</p>
 <p>#Z99003</p>	<p>#Z99003 SKIDDING TONGS</p> <p>Heavy Duty Forged Ring Skidding Tongs</p> <p>Maximum Opening: 25"</p> <p>Minimum Opening: 4-1/2"</p> <p>Tough log skidding tongs are a quick and easy way to skid logs.</p>

INDEX

SYMBOLS	
12V	24
A	
ASAE	16
C	
CANTILEVER	20, 27
CAUTION	7
COLLISION HAZARD	15, 26, 27, 30, 31
COMPOSITE	38
CONTROL BOX	20
D	
DANGER	7
E	
EMERGENCY	29
ENGINE RPM	34
EXTENDER	25, 32
F	
FELLING	27, 32
G	
GREASE	37
H	
HEARING LOSS	11
HIGH FLOW	1, 6, 10, 12, 22, 29, 34, 43
HYDRAULIC OIL	37
L	
LOCK / UNLOCK	31
N	
NOTICE	7
O	
ORIENTATION	6
OSHA	16
P	
PIVOT LOCK PIN	20
PPE	28
R	
ROUGH TERRAIN	34
S	
SAFE CONDITION 8, 9, 10, 12, 14, 17, 19, 29, 37	
SAFE ZONE	15
SHEAR BOLT	26, 31
SLOPE	13
SMV	35
W	
WARNING	7
WINCH	19, 20, 24, 33
WORK ZONE	15