

OPERATOR'S MANUAL

LXT95 / LXT115 **Log Trailer and Grapple**

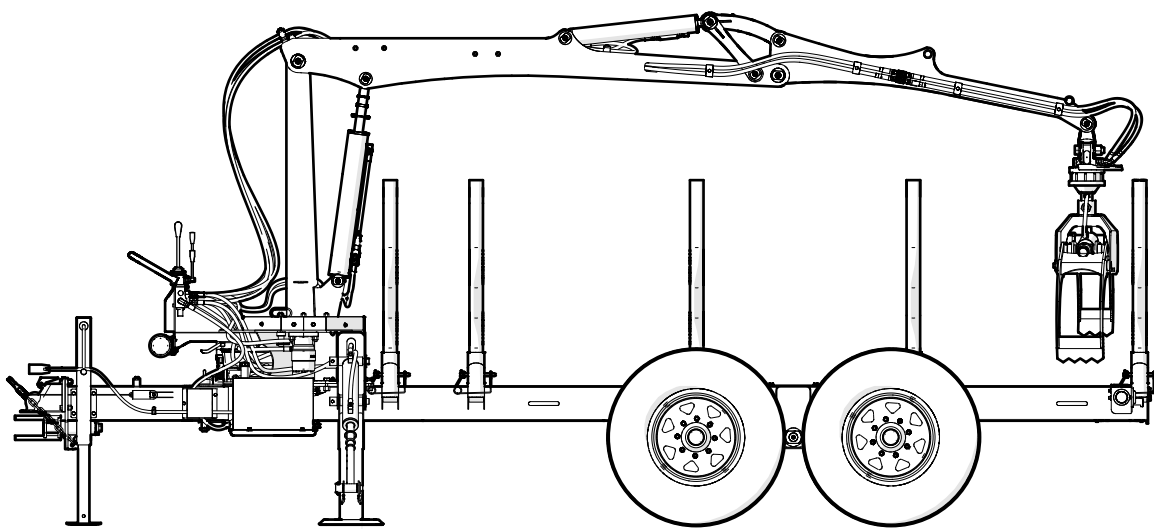


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PRODUCT WARRANTY



LIMITED WARRANTY

Wallenstein products are warranted to be free of defects in materials and workmanship under normal use and service, for a period of

Five Years for Consumer Use

Two Years for Commercial/Rental Use

from the date of purchase, when operated and maintained in accordance with the operating and maintenance instructions supplied with the unit. Warranty is limited to the repair of the product and/or replacement of parts.

This warranty is extended only to the original purchaser and is not transferable.

Repairs must be done by an authorized dealer. Products will be returned to the dealer at the customer's expense. Include the original purchase receipt with any claim.

This warranty does not cover the following:

- 1) Normal maintenance or adjustments
- 2) Normal replacement of wearable and service parts
- 3) Consequential damage, indirect damage, or loss of profits
- 4) Damages resulting from:
 - Misuse, negligence, accident, theft or fire
 - Use of improper or insufficient fuel, fluids or lubricants
 - Use of parts or aftermarket accessories other than genuine Wallenstein 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 dealer
- 5) Engines. Engines are covered by the manufacturer of the engine for the warranty period they specify. For the details of your engine warranty, see your engine owner's manual. Information about engine warranty and service is also available in the FAQ section at www.wallensteinequipment.com

WALLENSTEIN
LX Series Grapple Boom / LT Series Log Trailers
DELIVERY INSPECTION REPORT
 To activate warranty, register your product online at
www.wallensteinequipment.com

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

 Customer's Name

 Contact Name

 Dealer Name

(_____) _____
 Phone Number

 Grapple Serial Number

 Trailer Serial / VIN Number

_____/_____/_____
 Delivery Date

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

 Dealer's Rep. Signature

_____/_____/_____
 Delivery 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

_____/_____/_____
 Delivery Date

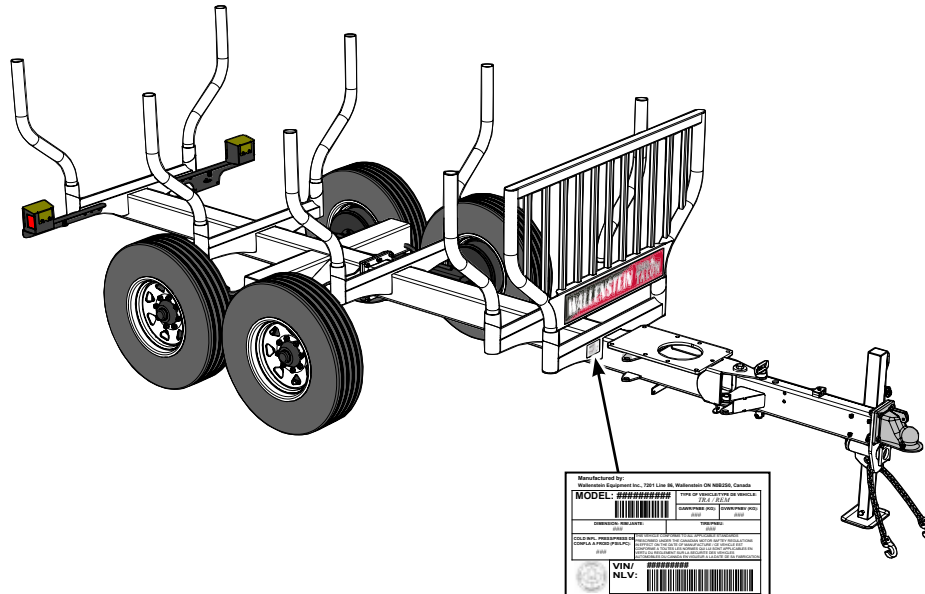
<input checked="" type="checkbox"/>	Dealer Inspection Check
LX95 / LX115 Hydraulic Boom	
<input type="checkbox"/>	Check Hydraulic Hoses
<input type="checkbox"/>	Boom Function
<input type="checkbox"/>	Grease Zerks / Lubricate Pivot Points
<input type="checkbox"/>	Boom Lock Pin Installed
<input type="checkbox"/>	Check All Fasteners
<input type="checkbox"/>	Grapple Function
LT30 / LT60 Log Trailer	
<input type="checkbox"/>	Torque Wheel Nuts
<input type="checkbox"/>	Check Tire Pressure
<input type="checkbox"/>	Check All Fasteners
<input type="checkbox"/>	Grease Zerks / Lubricate Pivot Points
<input type="checkbox"/>	Retainer in Hitch
<input type="checkbox"/>	Check Bunk Posts, Back Stop
<input type="checkbox"/>	Check Trailer Jack
L301 Hydraulic Power Pack for LX95	
L601 Hydraulic Power Pack for LX115	
<input type="checkbox"/>	Check Hydraulic Fluid Level
<input type="checkbox"/>	Check Hydraulic Hoses
<input type="checkbox"/>	Check Engine (fuel, oil, start up)
Highway Option for LT60	
Highway Option for LT30	
<input type="checkbox"/>	Test Signal And Brake Lights
<input type="checkbox"/>	Test Function Of Electric or Surge Brakes
<input type="checkbox"/>	Retainer Installed Through Ball Hitch
<input type="checkbox"/>	Safety Chain On Hitch
<input type="checkbox"/>	Torque Wheel Nuts
ATV Option LT30	
<input type="checkbox"/>	Test Function Of Adjustable Tandem
<input type="checkbox"/>	Check Hydraulic Hose
<input type="checkbox"/>	Test Function Of Surge Brakes
L400 3 Point Hitch Cat. II Boom Adaptor	
<input type="checkbox"/>	Lubricate Pivot Points
Hydraulic Winch Option	
<input type="checkbox"/>	Test Function Of Winch:
	Forward & reverse / high & low speed

SERIAL NUMBER LOCATION

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

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

LXT highway model trailers will have a VIN number plate instead of a serial number plate.



SERIAL NUMBER LOCATION

Boom / Grapple Model Number _____

SAFETY DECAL INFORMATION

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

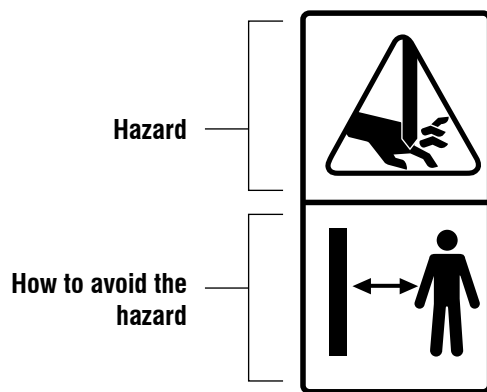
There are three different types of labelling: safety, informative and product decals.

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

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

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

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



1 INTRODUCTION

Congratulations on your choice of Wallenstein log handling equipment to compliment your operation!

This equipment has been designed and manufactured to meet the needs of small timber and landscaping industries. The LXT series is available in many different variations and features.

The log grapple features built in stabilizers, and standard 360° swivel grapple, with bypassing jaws to easily pick up small diameter material.

The LT series of log trailer are designed with a mounting platform to fit the LX series of booms. Each unit come standard with removable, heavy duty bunk posts and back stop.

Accessories available for the LXT grapples and trailers include, backhoe, post hole auger, dump box, flat bed and more. (See page 78 for more information on accessories.)

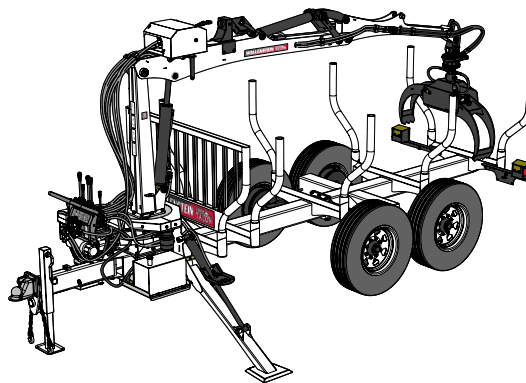
This manual covers all factory variations

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

This manual covers the Wallenstein Log Grapple Trailer. Use the Table of Contents or Index as a guide to locate required information.

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

OPERATOR ORIENTATION - The directions left, right, front and rear, as mentioned throughout this manual, are determined when standing at the operating station and looking over the machine.



LXT95 Trailer / Grapple

Grapple Boom / Trailer (off road/ towable)
Winch
Hydraulic Sliding Axle
Surge Brakes

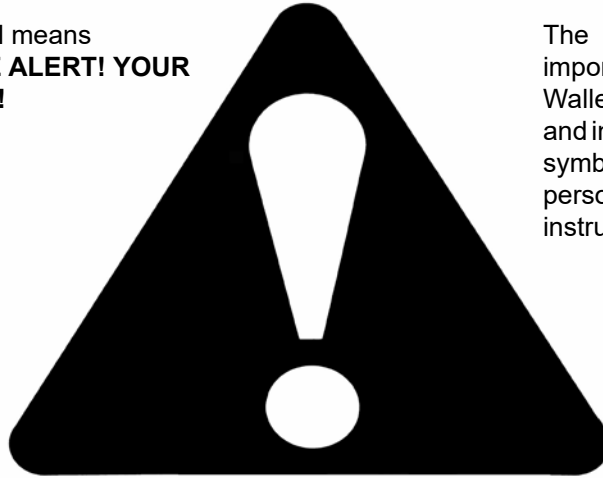
LXT115 Trailer / Grapple

Grapple Boom / Trailer (highway towable)
Winch
Electric Brakes

2 SAFETY

SAFETY ALERT SYMBOL

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



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

Why is SAFETY important to you?

3 Big Reasons

Accidents Disable and Kill
Accidents Cost
Accidents Can Be Avoided

SIGNAL WORDS:

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

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

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

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

SAFETY

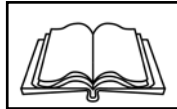
YOU are responsible for the SAFE operation and maintenance of your Wallenstein LXT Log Grapple & Trailer. **YOU** must ensure that you and anyone else who is going to use, maintain or work around the machine be familiar with the use and maintenance procedures and related **SAFETY** information contained 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 LXT Log Grapple.

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.

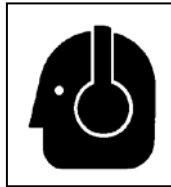
2.1 SAFETY DO'S & DON'TS'

- **DO** give operating instructions to operators or employees before allowing them to operate the machine, and REVIEW annually thereafter.

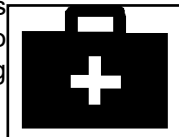
- **DO** read and understand ALL Safety and Operating instructions in the manual and follow them. Most accidents can be avoided. The most important safety device on this equipment is a SAFE operator.



- **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** 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** inspect and secure all guards before starting.
- **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 grapple.

- **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 closed and resting on trailer
- install boom pick lock
- shut off the engine
- turn fuel valve off
- ensure load is secure
- set the parking brake on the tractor
- **DO NOT** touch hot engine parts, muffler cover, hoses, engine body, coolants, engine oil, etc. during operation and after the engine has been shut off. Contact may cause burns.
- **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** think SAFETY! Work SAFELY!


2.2 EQUIPMENT SAFETY GUIDELINES

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

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 machine until they have read this manual and have developed a thorough understanding of the safety precautions and machine function.**
5. Review the safety instructions with all users annually.
6. This equipment is dangerous to children and persons unfamiliar with its operation. The operator should be a responsible, properly trained and physically able person familiar with machinery and trained in this equipment's operations. If the elderly are assisting with work, their physical limitations need to be recognized and accommodated.
7. Never exceed the limits of a piece of machinery. If its ability to do a job, or to do so safely, is in question - **DON'T TRY IT.**
8. Do not modify the equipment in any way. Unauthorized modification may result in serious injury or death and may impair the function and life of the equipment.
9. In addition to the design and configuration of this implement, including Safety Signs and Safety Equipment, hazard control and accident prevention are dependent upon the awareness, concern, prudence, and proper training of personnel involved in the operation, transport, maintenance, and storage of the machine. Refer also to Safety Messages and operation instruction in each of the appropriate sections of the engine and machine manuals. Pay close attention to the Safety Signs affixed to the tow vehicle and the machine.
10. **Safe condition** involves the following procedure:
 - grapple closed and resting on trailer
 - install boom pin lock
 - shut off the engine
 - turn fuel valve off
 - ensure load is secure
 - secure the trailer from movement

Safe Condition procedure should be performed before any service, maintenance work, transport or storage preparation.

2.3 SAFETY TRAINING

1. Train all new personnel and review instructions frequently with existing workers. 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 Use 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:
 - grapple closed and resting on trailer
 - install boom pin lock
 - shut off the engine
 - turn fuel valve off
 - ensure load is secure
 - secure the trailer from movement
5. Know your controls and how to stop the engine and machine quickly in an emergency. Read this manual and the one provided with your engine.
6. Be certain only a properly trained and physically able person will use the machinery. A person who

has not read and understood all using and safety instructions is not qualified to use the machine. An untrained operator exposes himself and bystanders to possible serious injury or death. If the elderly are assisting with the work, their physical limitations need to be recognized and accommodated.

7. When operating this equipment we recommend 2 operators be present and have a basic system of hand signals. All operators must trained in safe operation of the machine and be completely familiar with all components of the machine and their function.

2.4 PREPARATION

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

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

2. Personal protection equipment including:

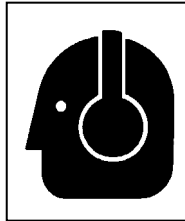
- hard hat,
- safety glasses,
- safety shoes,
- gloves,
- hearing protection
- safety vest

are recommended during assembly, installation, operation, adjustment, maintaining, repairing, removal, cleaning, or moving the 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 tractors, 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.

2.5 MAINTENANCE SAFETY

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



3. Make sure there is plenty of ventilation. Never operate the machine or the towing vehicle in a closed building. The exhaust fumes may cause asphyxiation.
4. Put the machine in **safe condition** before working on this machine:
 - grapple closed and resting on trailer
 - install boom pin lock
 - shut off the engine
 - turn fuel valve off
 - ensure load is secure
 - secure the trailer from movement
5. Allow the engine to cool before performing maintenance, engine components and oil may be hot enough to cause injury.
6. Never work under equipment unless it is blocked securely.
7. When performing any service or maintenance work always use personal protection devices such as
 - safety glasses,
 - hand protection - gloves
 - hearing protectors
 - safety shoes
8. Where replacement parts are necessary for periodic maintenance and servicing, genuine factory replacement parts must be used to restore your equipment to original specifications. The manufacturer will not be responsible for injuries or damages caused by use of unapproved parts and/or accessories.
9. A fire extinguisher and first aid kit should be kept readily accessible while performing maintenance on this equipment.
10. Inspect and tighten all bolts, nuts and screws and check that all electrical, hydraulic and fuel connections are properly secured to ensure grapple is in a safe condition.
11. When completing a maintenance or service function, make sure all safety shields and devices are installed before placing grapple in service.
12. When performing maintenance on this equipment we recommend to have at least 2 workers present. Do not work alone in case an emergency should arise.
13. When cleaning any parts, do not use gasoline, use regular cleanser.
14. Always use proper tools, that are in good condition. Make sure you understand how to use them, before performing any service work.
15. Never place any part of your body where it would be in danger if movement should occur during assembly, installation, maintenance, repairing or moving.
16. Remove the wire from the spark plug when servicing the engine or equipment **TO PREVENT ACCIDENTAL STARTING.**

2.6 BOOM SAFETY

The LXT Grapple features a repositionable work station, the boom is capable of 270° rotation:

LX95

- horizontal reach ranging from 2.9 m (9' 6") to .9 m (2' 9")
- maximum vertical reach of approximately 4.5 m (15') from the ground to the grapple knuckle

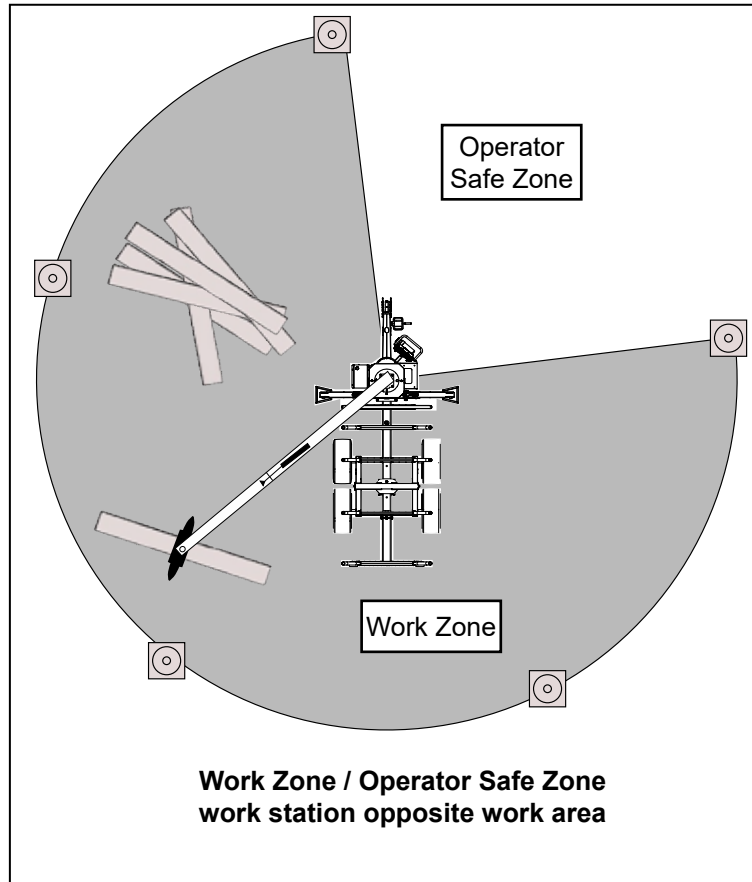
LX115

- horizontal reach ranging from 3.5 m (11' 6") to .9 m (2' 9")
- maximum vertical reach of approximately 5.5 m (18') from the ground to the grapple knuckle

2.6.1 OPERATOR SAFE ZONE:

In certain cases where the boom is fully retracted and handling an 2.4m (8') log, it is possible to create a collision hazard with the operator at the control station. Follow these important points to keep operators and workers safe from potential hazards.

- Create a 90° operator safety zone based on the position of your work station, and material stack. Never move the grapple or material into the operator safe zone.
- Always move the work station opposite the work area: if work area is on the left of the trailer, position the control station on the right of the trailer.
- Always be aware of the position of the boom and material being handled.
- Always be aware of overhead hazards, modify your work zone to take these hazards into account:
 - Telephone lines
 - Tree branches
 - Roof overhang
 - Wash lines, ropes or cables
 - Power lines – maintain a 15 m (50 ft) distance - electrocution can occur with out direct contact (arcing).



2.6.2 WORK ZONE:

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

- A 6m (20') radius work zone perimeter should be established, and clearly marked with safety cones.
- Workers and bystanders should never approach the grapple while in operation with out first signalling the operator.
- Always know where all workers and bystanders are located when operating the grapple.
- All bystanders should be kept outside of the work zone until the machine is in **safe condition**:
 - grapple closed and resting on trailer
 - install boom pin lock
 - shut off the engine
 - turn fuel valve off
 - ensure load is secure
 - secure the trailer from movement

2.7 OPERATING SAFETY

1. Read or review the safety sections of this manual.
2. When operating this equipment it is recommended to have 2 operators present and have a basic system of hand signals in place. All operators must be trained in safe operation of the machine and completely familiar with all components of the machine and their function.
3. If working alone, ensure someone knows your location and the type of work you are doing. Keep regular contact.
4. Please remember it is important that you read and heed the safety signs on the Log Grapple Trailer. 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.
5. 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.
6. The manufacturer has designed this Log Grapple Trailer 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, and secured.
7. Ensure operators are using personal protection equipment including:
 - hearing protection,
 - hard hat,
 - safety glasses,
 - safety shoes,
 - gloves
 - safety vest
8. Do not allow long hair, loose-fitting clothing, or jewellery to be around moving parts.
9. Inspect hydraulic lines and fittings, they should be in good condition and free of leaks.
10. Remove boom lock pin before operating the machine
11. Do not run machine inside a closed building to prevent asphyxiation from engine exhaust. Position the machine so the exhaust is downwind.
12. Extend stabilizers to support and steady the trailer / boom during loading or stacking.
13. Always have the trailer attached to the tow vehicle when operating the boom, to provide stability and prevent rolling or movement during operation.
14. Position the trailer to provide a firm base for the stabilizer pads before loading or stacking.
15. Be aware of overhead obstructions such as:
 - power lines
 - telephone lines
 - tree branches
 - roof overhang
 - washlines, ropes or cables.
16. Stay 15 m (50 ft) away from power lines. Electrocutation can occur without direct contact.
17. Keep the working area clean and free of debris to prevent tripping. Operate only on level ground.
18. Always be aware of operator position relative to the boom and its load. Always position the work station and operator opposite the work area.
19. Do not overload boom or trailer capacity.

LXT Grapple maximum lift capacity

 - LX95 363 kg (800 lb)
 - LX115 544 kg (1200 lb)

LXT Trailer maximum load capacity:

 - LT 30 off road 2268 kg (5000 lb)
highway 2268 kg (5000 lb)
 - LT 60 offroad 4536 kg (10,000 lb)
highway 5216 kg (11500 lb)
20. 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.
21. Keep all bystanders at least 6 m (20 ft) away from trailer, grapple and logs when loading or unloading or when the engine is running.
22. Never allow children or unauthorized people to operate or be around this machine when not in operation.
23. Do not move or carry people on boom or grapple.

2.8 TRANSPORT SAFETY

1. Comply with Provincial / state and local laws governing safety and transporting of machinery on public roads.
2. Do not transport or move the trailer with the engine running.
3. Ensure boom is secured with the boom pin lock and the stabilizers are fully retracted
4. Align the boom lengthways with the trailer and clamp grapple to the frame or log before moving or transporting.
5. Always attach a safety chain between the hitch and the tow vehicle.
6. If equipped, ensure dump box, or flat bed mounts are pinned and secured.
7. Inspect rims for dents or damage, check torque on wheel lugs and tighten if required.
8. Inspect tires for cuts or damage, check tire pressure and top up if required,
9. Check the swing or wind up jack is in the up position and secured with the snapper pin.
10. Do not drink and drive.
11. Be a safe and courteous driver, and use your signal lights. Always yield to oncoming traffic in all situations, including narrow bridges, intersections, etc. Watch for traffic when operating near or crossing roadways.
12. Never allow riders on the machine.
13. Just before transport, perform a circle check to ensure everything is safe and secured.
14. Check that trailer brakes are functioning properly. (if installed)
15. Check that all reflectors and signal lights are installed and in good working condition.
16. Do not exceed 80 km/h (50 mph) highway travel speed
17. Do not exceed maximum load capacity:
18. When transporting by highway, check that a Slow Moving Vehicle (SMV) sign is attached, and reflectors are installed and in good working condition .
19. Ensure your tow vehicle has the correct sized towing ball and a retainer is used through the ball hitch latch

2.9 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 makeshift repairs to the hydraulic lines, fittings or hoses by using tapes, clamps or cements. The hydraulic system operates under extremely high pressure. Such repairs will fail suddenly and create a hazardous and unsafe condition.
4. Wear proper hand and eye protection when searching for a high pressure hydraulic leak. Use a piece of wood or cardboard as a backstop 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.



2.10 GAS MOTOR SAFETY

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

1. DO NOT start the engine without checking fluid levels
2. DO NOT run engine in an enclosed area. Exhaust gases contain carbon monoxide, an odourless and deadly poison.
3. DO NOT choke carburettor to stop engine. Whenever possible, gradually reduce engine speed before stopping.
4. DO NOT run engine above rated speeds. This may result in injury or engine failure.
5. DO NOT tamper with governor springs, governor links or other parts which may increase the governed speed.
6. DO NOT tamper with the engine speed selected by the original equipment manufacturer.
7. DO NOT check for spark with spark plug or spark plug wire removed.
8. DO NOT crank engine with spark plug removed. If engine is flooded, place throttle in "FAST" position and crank until engine starts.
9. DO NOT operate engine without a muffler.
10. DO NOT remove fuel tank cap while engine is running.
11. DO NOT operate engine with an accumulation of grass, leaves, dirt or other combustible materials in the muffler area.
12. DO NOT touch hot muffler, cylinder or fins because contact may cause burns.
13. DO NOT run engine without air cleaner or air cleaner cover removed.
14. DO NOT use this engine on any forest covered, brush covered, or grass covered unimproved land unless a spark arrester is installed on the muffler. The arrester must be maintained in effective working order by the operator. In the state of California the above is required by law (Section 4442 of the California Public Resources Code). Other states may have similar laws. Federal laws apply on federal land.
15. ALWAYS remove the wire from the spark plug when servicing the engine or equipment TO PREVENT ACCIDENTAL STARTING.
16. Keep cylinder fins and governor parts free of grass and other debris which can affect engine speed.
17. Examine muffler periodically to be sure it is functioning effectively. A worn or leaking muffler should be repaired or replaced as necessary.
18. Use fresh gasoline. Stale fuel can gum carburettor and cause leakage.
19. Check fuel lines and fittings frequently for cracks or leaks. Replace if necessary.

2.11 REFUELLING SAFETY

1. Store fuel in approved safety containers.
2. Do not smoke while filling fuel tank.
3. Handle fuel with care. It is highly flammable.
4. Outdoor refuelling is preferred, do not refuel indoors where area is not well ventilated.
5. Do not fill fuel tank while engine is running.
6. Allow engine to cool for 5 minutes before refuelling.
7. Prevent fires by keeping machine clean of accumulated trash, grease and debris.
8. Do not store, spill, or use gasoline near an open flame, or devices such as a stove, furnace, or water heater which use a pilot light or devices which can create a spark.
9. Do not operate engine if gasoline is spilled. Clean up spilled fuel before restarting engine.
10. Move machine away from the spill area and avoid creating any ignition until gasoline has evaporated.

2.12 TIRE SAFETY

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

2.13 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. If storing for long periods consult your engine owners manual for safe storage.



WARNING!



Fuel vapors can explode causing injury or death. Do not smoke while refueling. Keep sparks, flames, and hot components away.

W027

2.14 SIGN-OFF FORM

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

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

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

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

[illegible]

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 EXPLANTATION:



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



Caution: be aware of collision hazard of an unsecured boom. Install boom lock pin to prevent injury from potential movement of the boom during transport.



Caution: Be aware of and keep 15 meters (50 ft) or more away from overhead electrical cables. Serious injury or death from electrocution could occur. Electrocution is possible with out direct contact (arcing).



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



Caution: be aware of dropping or collision with material from the boom. Avoid crushing /impact injuries, always know the boom position, boom material and location of workers and bystanders.

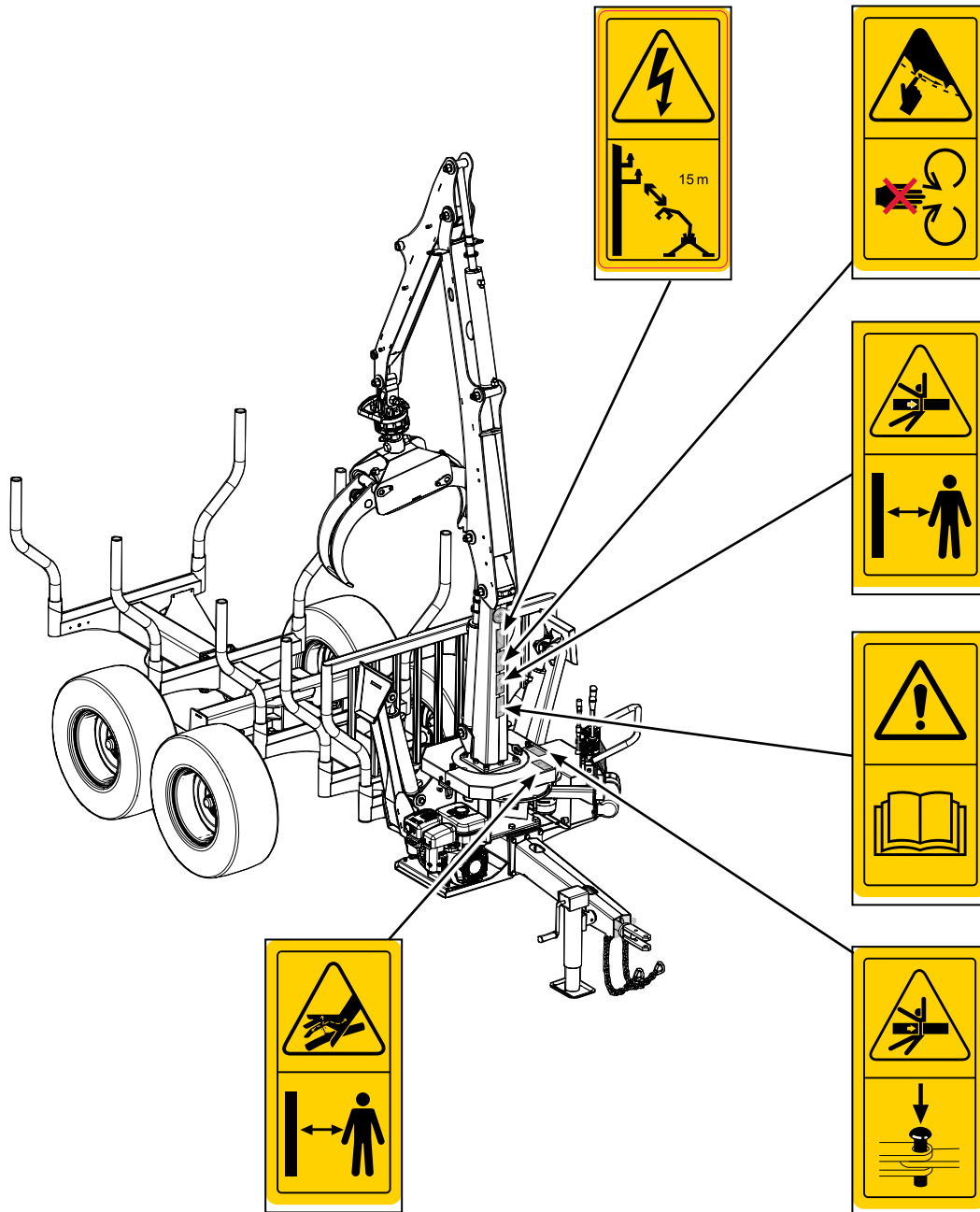


Caution: Hydraulic fluid under pressure, do not check for leaks with you hand or fingers when the system is pressurized. Serious injury will result.

3.3 SAFETY SIGN LOCATIONS

The types of safety signs and locations on the equipment are shown in the illustrations that follow. The LT30 / LX95 are illustrated but the location and label type is similar for the LT60 / LX115. Good safety requires that you familiarize yourself with the various safety signs, the type of warning and the area, or particular function related to that area, that requires your SAFETY AWARENESS.

- Think SAFETY! Work SAFELY!



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

4 OPERATION & FEATURES



OPERATING SAFETY

- Please remember it is important that you read the operator's manual and heed the safety signs on the machine. 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.
- Before moving, making adjustments or servicing, put the machine in safe condition:
 - Install boom pin lock
 - Shut off the engine
 - Turn fuel valve off
 - Ensure load is secure
 - Secure the trailer from movement
- Extend stabilizers to support frame during loading and unloading.
- Position the trailer to provide a firm base for the stabilizer pads before loading or unloading.
- Stay away from overhead utilities and obstructions. Review position of power lines.
- Stay 50 feet (15 m) away from power lines. Electrocutation can occur without direct contact.
- Keep all bystanders out of the work zone, at least 20 ft (6 m) feet away from trailer, grapple and logs when loading or unloading or when engine is running.
- Position the controls and operate the machine opposite the work zone.
- Be aware of your operator safe zone, and keep boom and material out.
- Do not run machine inside a closed building to prevent asphyxiation from engine exhaust.
- Do not move or carry people on boom or grapple.
- Never use alcoholic beverages or drugs which can hinder alertness or coordination while operating this equipment. Consult your doctor about operating this machine while taking prescription medications.
- Do not allow riders on this machine at any time. There is no safe place for any riders.
- Never allow children or unauthorized people to operate or be around this machine.
- When operating this equipment it is recommended to have at least 2 operators present and trained in safe operation of the machine. All operators must be completely familiar with all components of the machine and their function.
- Keep hydraulic lines and fittings tight, in good condition and free of leaks.
- Keep the working area clean and free of debris to prevent tripping. Operate only on level ground.
- Do not overload lift or trailer capacity.
- Review safety instructions annually.

4.1 TO THE NEW OPERATOR OR OWNER

The Wallenstein LXT Log Grapple Trailer is designed to lift, load and transport wood or logs out of the woods or woodlot.

It is the responsibility of the owner or operator to read this manual and to train all other operators before they start working with the machine. Follow all safety instructions exactly. Safety is everyone's business. By following recommended procedures, a safe working environment is provided for the operator, bystanders and the area around the work site. Untrained operators are not qualified to 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 trailer safely and how to set it to provide maximum field efficiency. By following the instructions in conjunction with a good maintenance program, your Log Grapple Trailer 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,

- Grapple closed and resting on trailer
- Install boom pin lock
- Shut off the engine
- Turn fuel valve off
- Ensure load is secure
- Secure the trailer from movement

4.2 MACHINE COMPONENTS

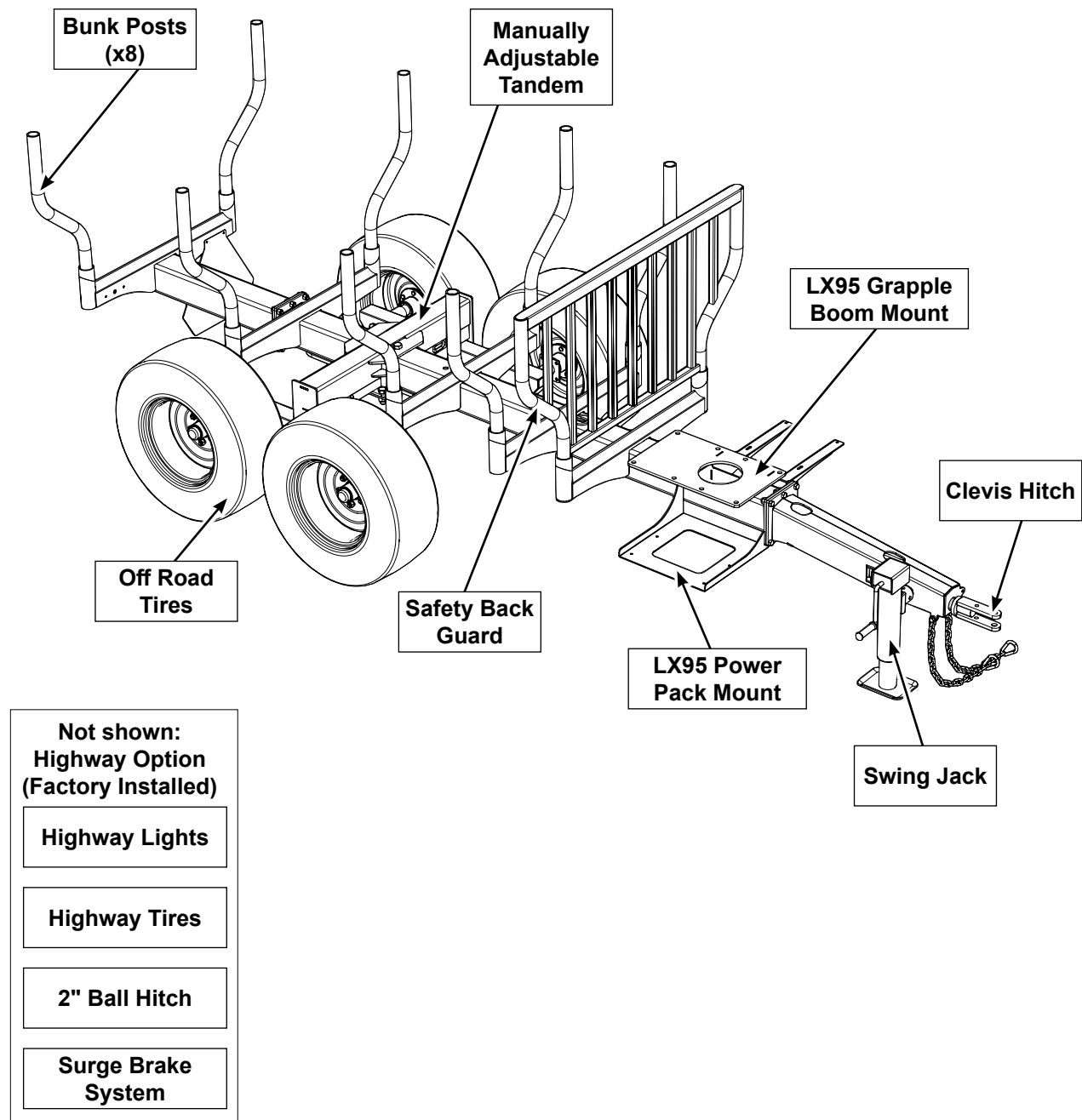
The Wallenstein LXT Log Grapple & Trailer are specifically designed to meet all your woodlot requirements. Featuring a heavy-duty pivoting hydraulic log grapple and 4 wheel trailer for picking, stacking, and hauling logs, the LXT grapple and trailer combo easily and efficiently finishes the job.

4.2.1 LT30 LOG GRAPPLE TRAILER

The LT30 trailer comes outfitted for off road operation, and features a manually adjustable tandem swing axle, 8 removable self centering bunk posts and integrated safety back guard. Standard mounting for the LX95 Grapple Boom and LX 95 Hydraulic Power Pack make the LT30 ready for all your forestry needs.

After market kits include: Expanded Metal flat bed and 25 ft³ (0.7 m³) Dump Box. See pg 78 for accessories.

For more LT30 kit information or detailed **LT30 Parts Manual**, see your dealer or visit the Wallenstein web site.

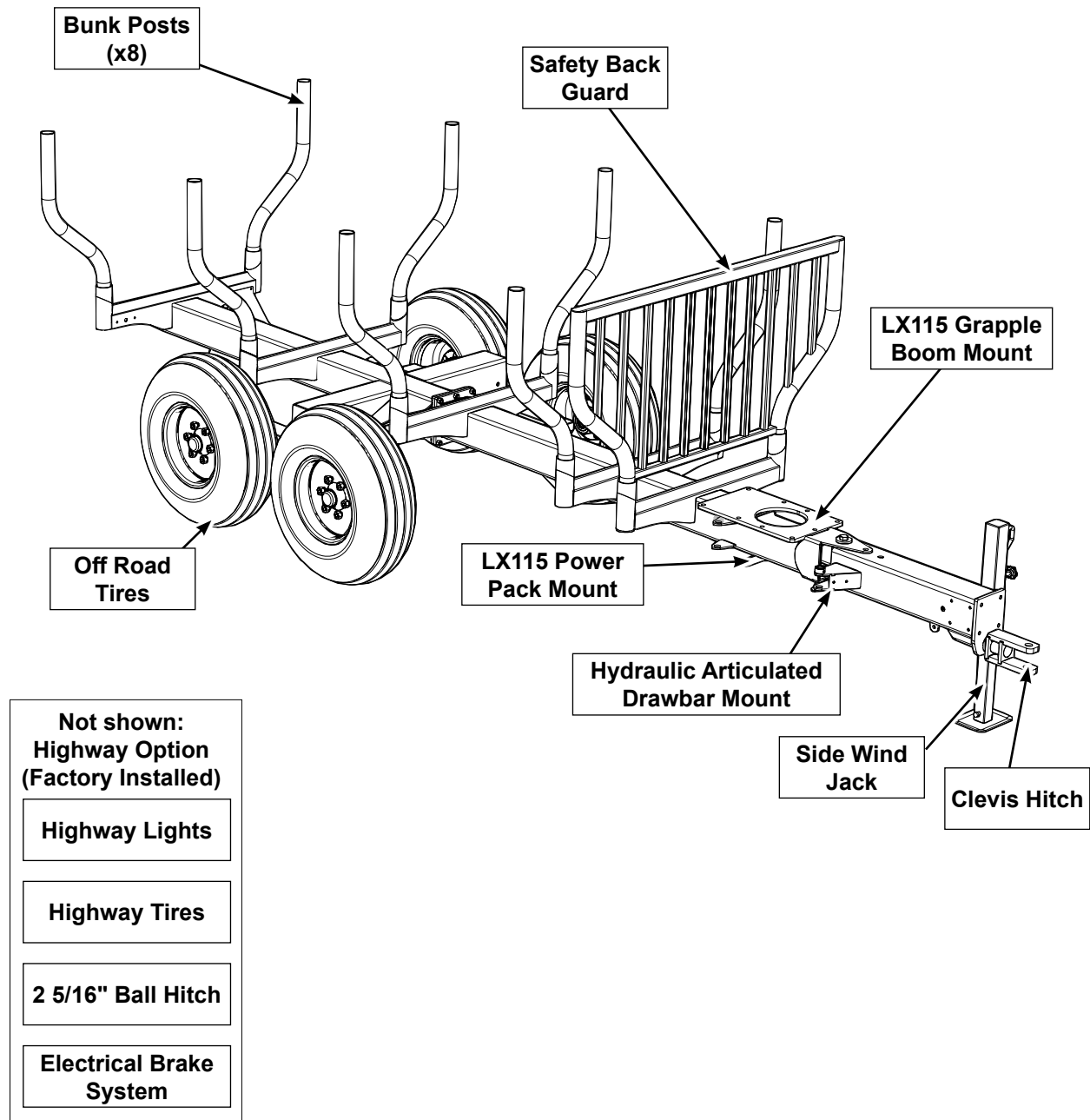


4.2.2 LT60 LOG GRAPPLE TRAILER

The LT60 trailer comes outfitted for off road operation, and features tandem swing axles, 8 removable self centering bunk posts and integrated safety back guard. Standard mounting for the Hydraulic Articulated Drawbar, LX115 Grapple Boom and LX115 Hydraulic Power Pack make the LT60 ready for all your forestry needs.

After market kits include: Expanded Metal flat bed and 25 cu ft (0.7 cu meter) Dump Box. See pg 78 for accessories.

For more LT60 kit information or detailed **LT60 Parts Manual**, see your dealer or visit the Wallenstein web site.



4.2.4 LXT SERIES GRAPPLE

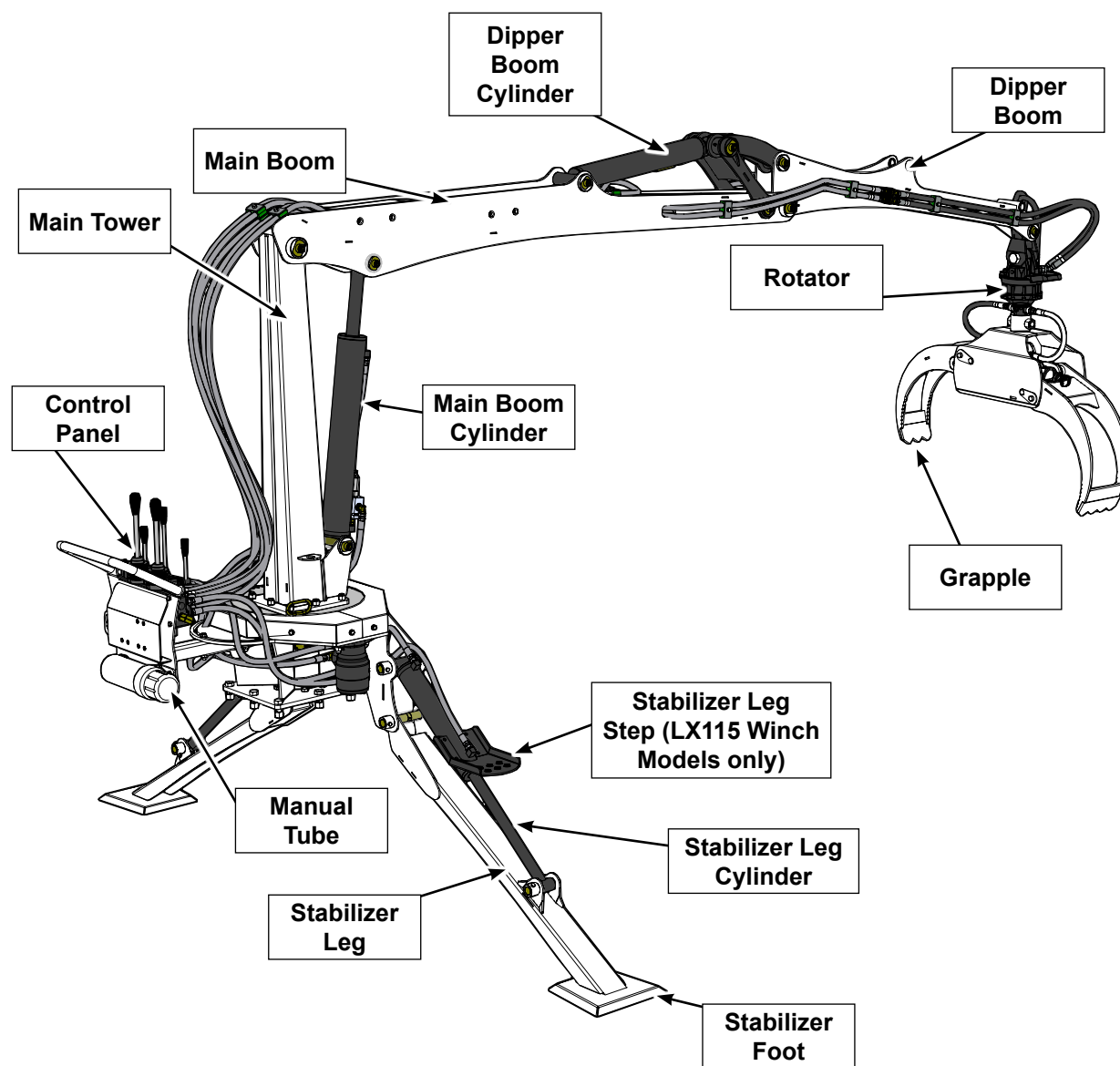
LX series of grapple booms can be fitted to the LT trailer or Wallenstein 3 Point Hitch Grapple Boom Adaptor. The easy to use positionable controls are mounted in front of the boom for efficient operation of the grapple and boom as well as the two stabilizer arms.

Hydraulic power may be provided by the optional LX Power Pack, or by your tractor hydraulics.

Bolt on kits include: Back Hoe, Post Hole Auger, and 2 Speed Hydraulic Winch. See pg 78 for accessories.

For more LX kit information or detailed ***LX Parts Manual***, see your dealer or visit the Wallenstein web site.

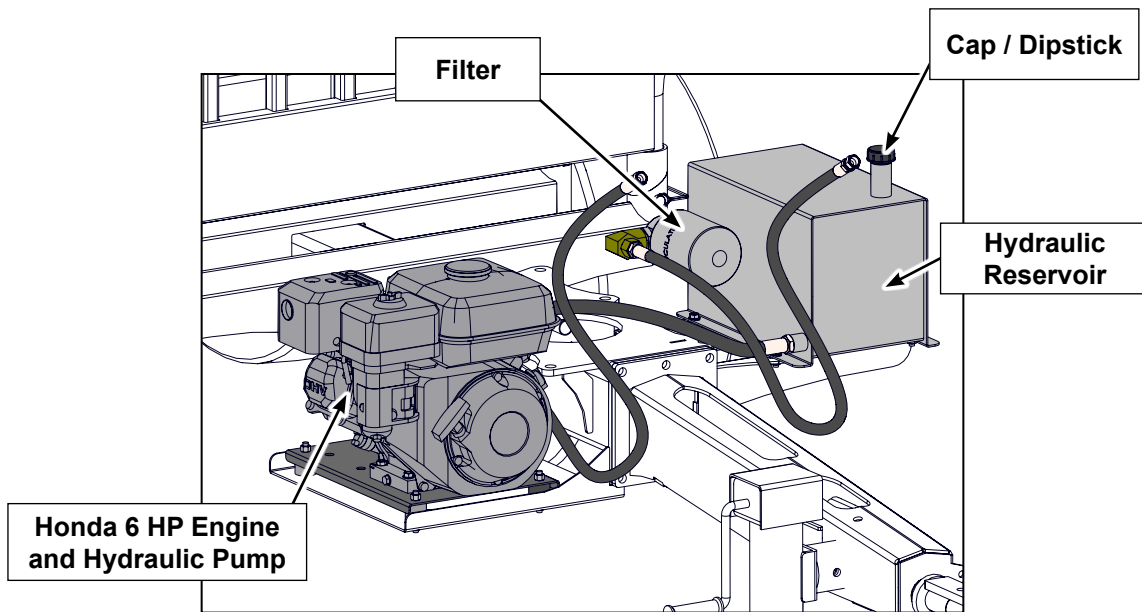
LX115 is illustrated, but is similar to LX95.



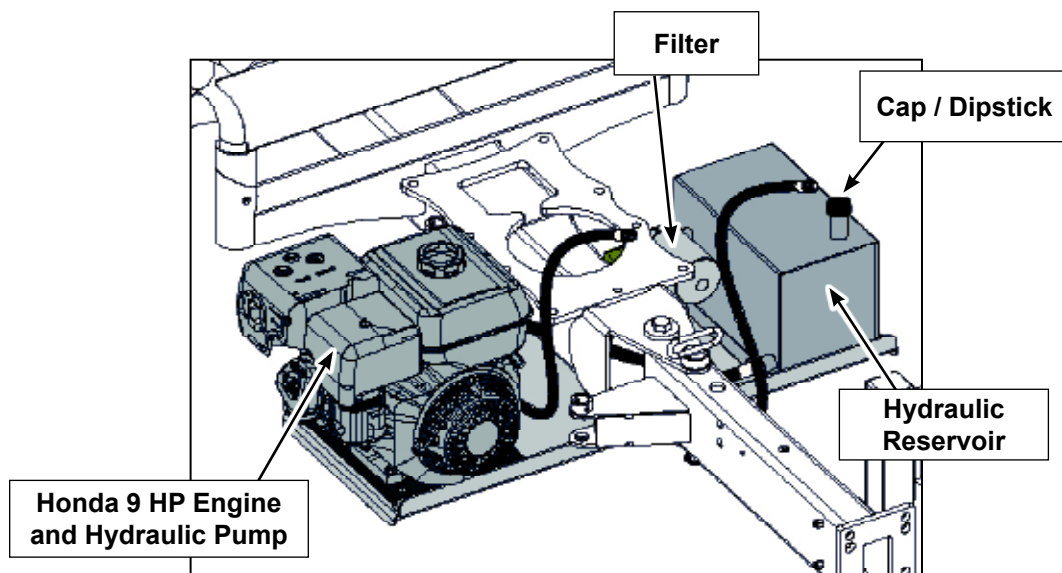
4.2.5 LOG GRAPPLE TRAILER POWER PACKS

The LT series trailers come prefitted for powerpack installation. The power pack is the perfect match to hydraulically power the LT accessories: LX Grapple Boom, Winch, and Adjustable Tandem (LX95 only).

For more information or detailed **Power Pack Parts Manual**, see your dealer or visit the Wallenstein web site.



LX95 Power Pack - mounted on LT30



LX115 Power Pack - mounted on LT60

4.3 MACHINE BREAK-IN

4.3.1 LT30 / LT60 LOG GRAPPLE TRAILER

Although there are no operational restrictions on the Log Grapple Trailer 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 bunk arms pivot and move freely.
3. Check that all nuts, bolts and other fasteners are tight. Retighten to their specified torque.
4. Check wheel hubs for tightness.
5. Check torque on wheel nuts.
6. Check tire pressure. Inflate as required.
7. Check that tandem slide moves freely (LT30 only) Grease if required.
8. Check that tandem axle pivots move freely.

B. After operating for 10 hours:

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

4.3.2 LX95 / LX115 LOG GRAPPLE

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 boom and grapple pivot pins are secure and in place.
3. Check that all boom and grapple pivot points move freely, grease if required.
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 and motors for

smooth operation.

6. Check that stabilizers function properly.
7. Check that control panel pivots with out binding, adjust if required.
8. 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 8 listed above.(Section A)
2. Go to the normal servicing and maintenance schedule as defined in the Maintenance Section.

4.3.3 LOG GRAPPLE TRAILER POWER PACKS

Although there are no operational restrictions on the Log Grapple Power Packs 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 for leaks in the hydraulic system.
 - Inspect connectors and fittings for leaks.
 - Inspect hoses for damage. Reroute hoses if rubbing.
3. Check hydraulic pump smooth operation.
4. Check hydraulic fluid level, add if required.
5. Check engine, review the engine operators manual for break-in information
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.

4.4 PRE-OPERATION CHECKLIST

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

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

Pre-Operation Checklist		✓
LX Series Boom & Grapples		
Lubricate the machine per the schedule outline in the Maintenance Section.		
Check that all boom pivot points move freely.		
Check that the grapple and pivot move freely.		
Check that stabilizers move freely.		
Check for leaks in the hydraulic system. Tighten leaking fittings, cylinders or rotator. Repair or replace any damaged components.		
Make sure that all guards and shields are in place, secured and functioning as designed		
Check all fasteners and hardware, retorque if required.		
LX Power Packs		
Follow the pre-operation check in your engine owners manual.		
Check hydraulic reservoir. Top up as required.		
Check for entangled material. Remove all entangled material before resuming work.		
Check for leaks in the hydraulic system. Tighten leaking fittings. Repair or replace any damaged components.		
LT Series Trailer		
Check tire pressure. Inflate as required.		
Check wheel lugs		
Check mounting legs are securely pinned (dumper or flat bed only)		
Check adjustable tandem is pinned (LT30 only)		
LX Series Three Point Hitch		
Check all fasteners and hardware on the 3 PH and adaptor, retorque if required.		

4.5 CONTROLS

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 LX / LT and apply them as conditions demand.

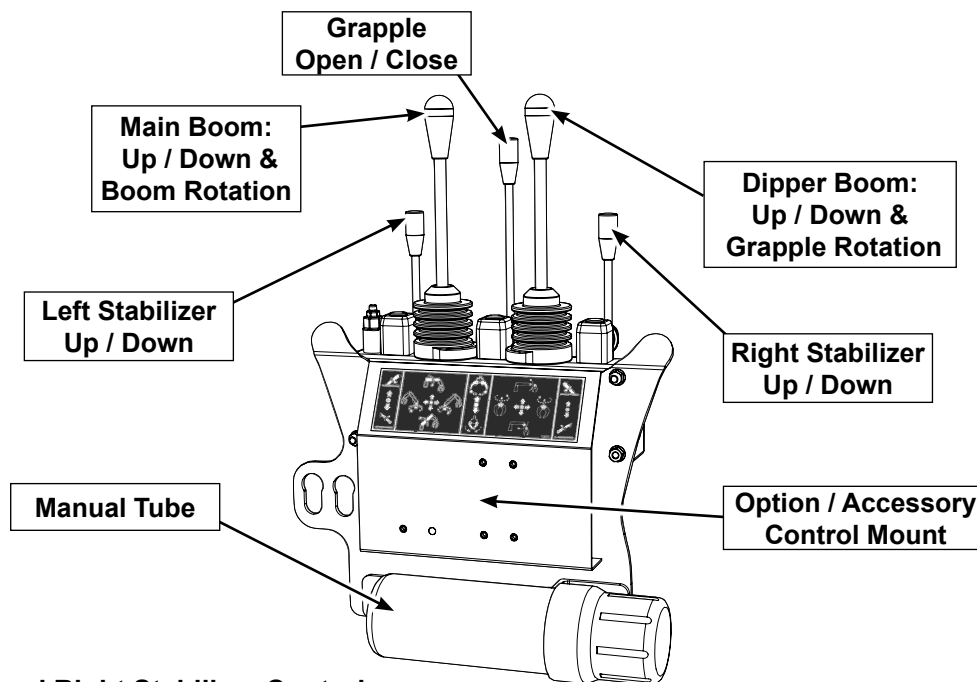
4.5.1 LXT SERIES BOOM GRAPPLE HYDRAULIC CONTROL PANEL:

An optional Hydraulic Power Pack is available to connect to your tractor hydraulics. The L101 Tractor Hydraulic Kit or the L400 3-PH kit, which includes the L101, must be purchased separately to do so. The L301 or L601 Powerpack can also be used depending on the application..

The control panel is laid out so that the controls are easy to see and use. All hydraulic control valves are mounted on control panel attached to the main frame. The two outer levers control the position of the stabilizers and the inner joy stick controls operate the function of the boom, dipper and bucket.

As an added safety feature, the main boom has been fitted with an hydraulic "lock". Which means that if hydraulic pressure is lost (broken hose, engine stops) the boom cylinder will keep its position until hydraulic pressure is returned.

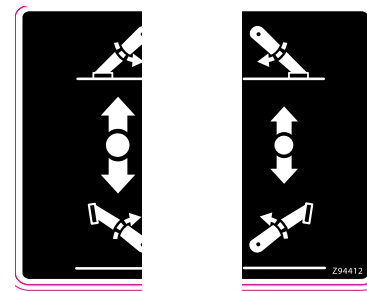
Below the main controls is a **Option / Accessory Control Mount**, for the optional Hydraulic Tandem control (LX95 factory installed) and Hydraulic Winch Accessory control (LX95 / LX115).



1. Left and Right Stabilizer Controls:

The levers located on the far left and far right. These 2 position spring-loaded-to-neutral-center levers control the flow of oil to the stabilizer cylinder.

- Push and hold to lower the stabilizer to the desired position.
- Pull and hold the lever to raise the stabilizer.
- Release the lever when the stabilizer is in its desired position, and it will spring return to its neutral position.

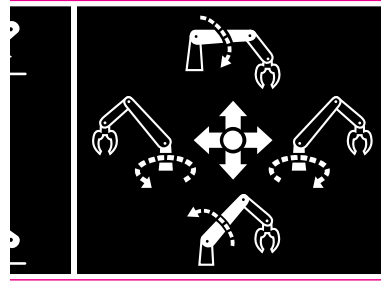


2. **Main Boom Up / Down & Boom Rotation:**

The joy stick located left of center.

This 4 position spring-loaded-to-neutral-center lever (joy stick) controls the horizontal rotation and up / down position of the main boom.

- Move and hold the lever to the left to swing the boom to the left.
- Move and hold the lever to the right to swing the boom to the right.
- Push and hold the lever to lower (extend) the boom.
- Pull and hold the lever to raise (retract) the boom.
- Release the joystick, it will spring return to its neutral position and stop movement of the boom.

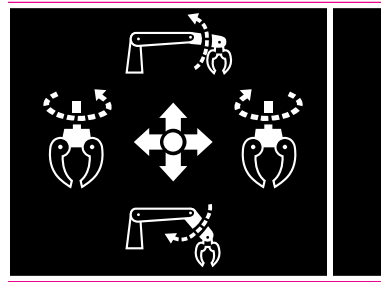


3. **Dipper Boom: Up / Down & Grapple Rotation**

The joy stick located right of center.

This 4 position spring-loaded-to-neutral-center lever (joy stick) controls the up / down position of the dipper and rotation of the grapple.

- Move and hold the lever to the left to rotate the grapple counter clockwise.
- Move and hold the lever to the right to rotate the grapple clockwise.
- Push and hold the lever to move the dipper up. Pull and hold the lever to move the dipper down .
- Release the lever to stop the motion of the dipper boom and the grapple rotation and they will remain in their position.

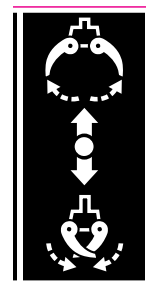


4. **Center Lever - Grapple Position:**

The lever located on center of the control panel.

This 2 position spring-loaded-to-neutral-center lever controls the flow of oil to the grapple.

- Push on the lever and hold to open the grapple.
- Pull and hold to close the grapple.
- Release the lever and it will return to its centered neutral position. The grapple will stop opening and closing.



4.5.2 LX SERIES HYDRAULIC POWER PACKS:

The LXT Series have a LT trailer mount Hydraulic Power Pack kit accessory. The LX95 and LX115 each have their own kit but both have similar features. The following describes the functions of the features in each kit. The kit requires installation into the grapples hydraulic system.

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

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

1. Gas Engine:

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

a. Ignition Switch:

This switch controls the electrical power to the engine electrical system. Turn the switch clockwise to turn the electrical system ON and the engine will run. Turn counter-clockwise to stop the engine.

b. Fuel Shut-Off Valve:

Each engine is equipped with a valve between the fuel tank and the carburettor. Slide the lever to the right to turn the fuel OFF and left to turn ON. Turn the fuel OFF before transporting.

c. Throttle:

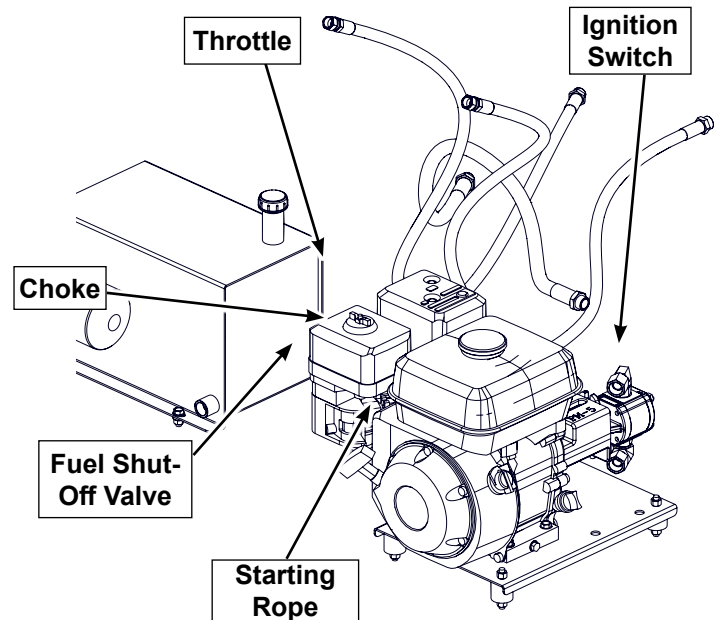
This lever controls the engine RPM. Slide the lever to the left to increase engine speed and slide the lever to the right to decrease.

d. Choke:

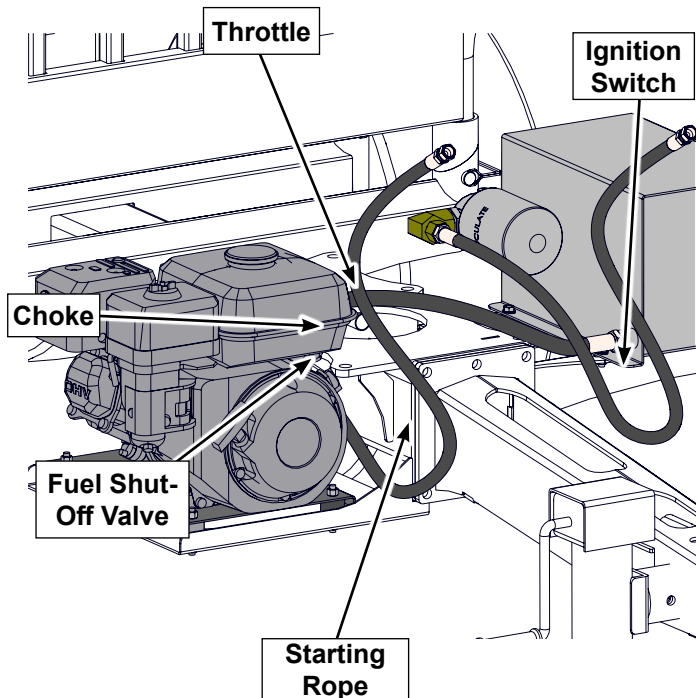
The choke controls the fuel/air mixture to the engine. Move choke laterally to the left, to close the choke when starting when the engine is cold. Slide the lever to the right to open the choke as the engine warms. Always slide the lever fully to the right when operating the machine.

e. Starting Rope:

This retracting rope and T-bar is used to turn the engine over for starting. Grasp the T-bar firmly and pull the rope sharply to start the engine.



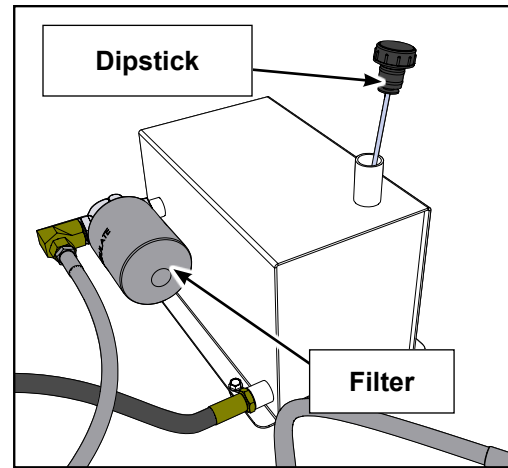
Honda GX200 - LX95 Power Pack



Honda GX270 - LX115 Power Pack

2. Hydraulic Reservoir:

The hydraulic reservoirs for each kit feature a dip stick with high and low indicators and a spin on filter cartridge.



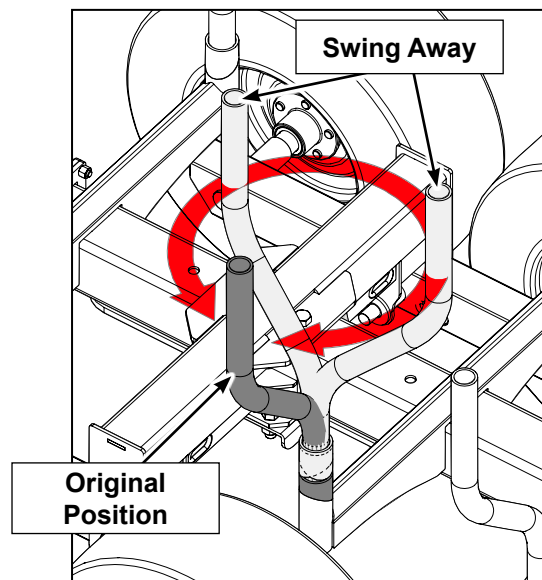
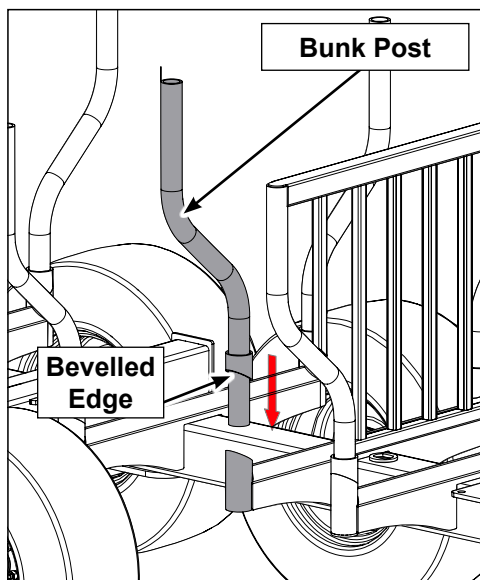
4.5.3 LT SERIES LOG TRAILERS

The LT Series Log Trailers are specifically designed for Grapple and Powerpack accessory installation. The LT30 and LT60 both come standard with off road tires and 8 self centering removable bunk posts. Once the bunk posts are removed, both trailers can be easily fitted with our Expanded Metal Flat Bed or Dump Box accessory.

1. LT30 / LT60 Bunk Posts

The bunk posts are designed to hold and secure heavy loads and are easily removed if required. To remove, simply lift straight up and out.

The bevelled post stop and post mount ensures that if bumped or knocked with a grapple load the bunk posts will swing away and return to position on their own.



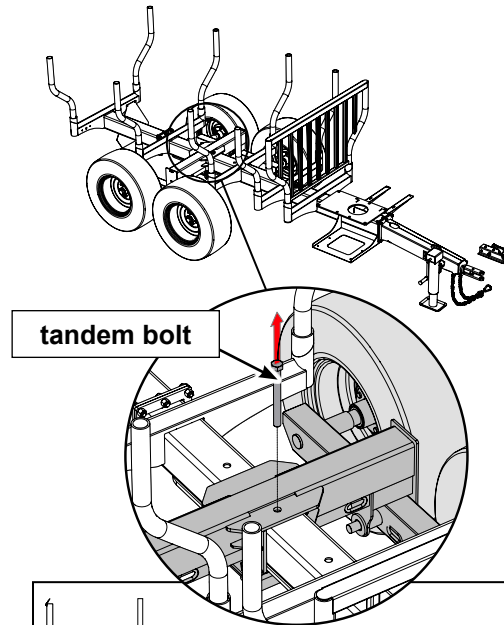
Bunk Post Function

2. LT30 Tandem Adjust

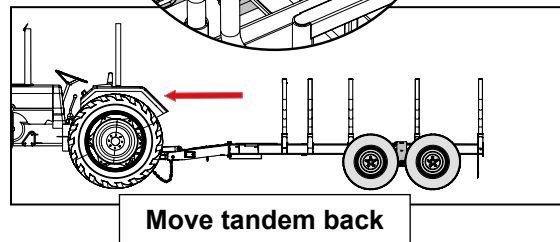
The LT30 comes standard with a three position manually adjustable tandem. The tandem can be used to help balance a load or adjust the tongue weight for added traction if required.

To ensure snag free adjustment, check that the trailer is on level ground and that the frame is not under tension or twisted.

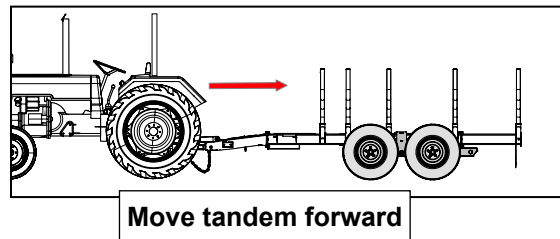
- a. To adjust the tandem, have your trailer attached to the tow vehicle. You may have to chock the trailer wheels.
- b. Remove the tandem nut and bolt as shown.



- c. To move the tandem back, drive the tow vehicle forward.



- d. To move the tandem forward drive the tow vehicle back.
- e. Once the tandem is in position, reinstall the nut and bolt.



4.6 TRAILER / TOW VEHICLE

Review the transport safety section (2.7) before proceeding.

When coupling or uncoupling the trailer to a tow vehicle, the trailer should always be located on a level, dry area that is free of debris and other foreign objects.

4.6.1 CLEVIS HITCH

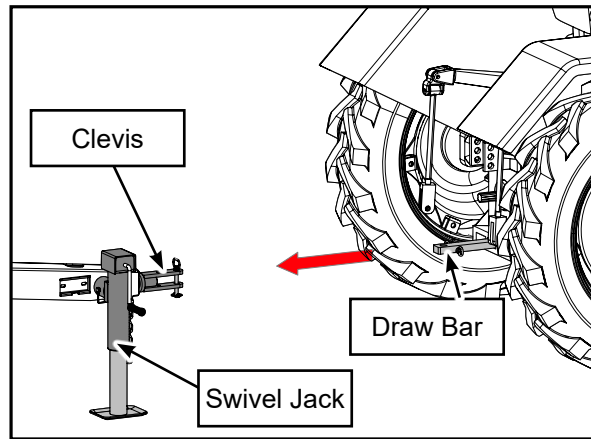
Follow this procedure:

1. Make sure that all bystanders, especially small children, are clear of the working area.
2. Make sure there is enough room and clearance to safely back up to the machine.
3. Use the trailer jack to raise the clevis to the height of the tow vehicle draw bar
4. Slowly back the tow vehicle until the draw bar and clevis are aligned.
5. Attach the clevis:
 - Place hitch pin through the clevis and draw bar.
 - Install the snapper pin to secure the hitch pin
6. Stow the jack:
 - Swivel Jack(LT30): Crank the jack up, pull the jack pin, swivel to its stowed position
 - Stationary Jack (LT60): Pull the jack pin, move the drop leg up, repin and crank to fully retract the leg.
7. Attach the safety chain securely to the tow vehicle to prevent unexpected separation. Cross the chains when attaching to the tow vehicle
8. Reverse the above procedure when uncoupling.

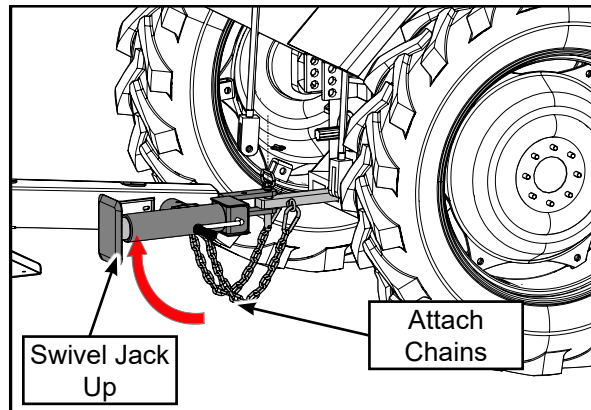
4.6.2 PINTLE HITCH

Follow this procedure (LT60 accessory):

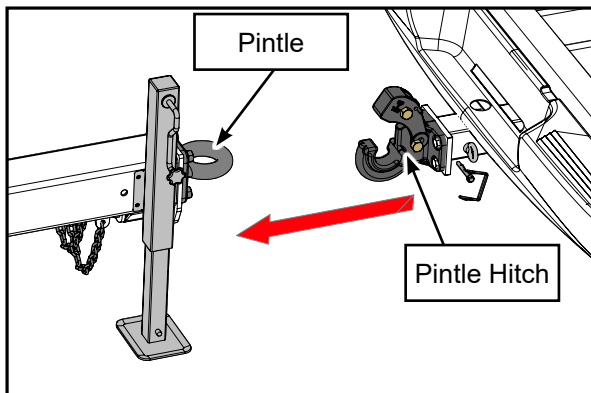
1. Make sure that all bystanders, especially small children, are clear of the working area.
2. Make sure there is enough room and clearance to safely back up to the machine.
3. Use the trailer jack to raise the pintle to the height of the pintle hook
4. Slowly back the tow vehicle until the pintle hook and pintle ring are aligned.
6. Close the latch on the pintle hook and install latch pin
7. Pull the jack pin, crank the jack up,
8. Reverse the above procedure when uncoupling.



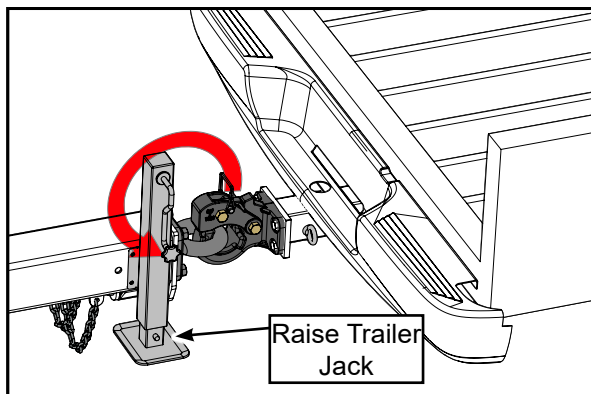
ALIGNED



ATTACHED



ALIGNED

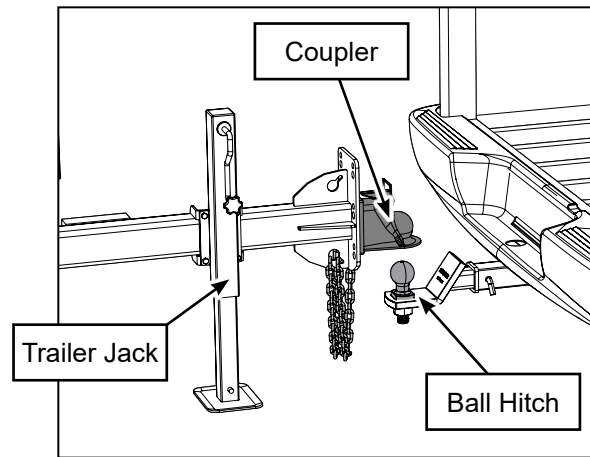


ATTACHED

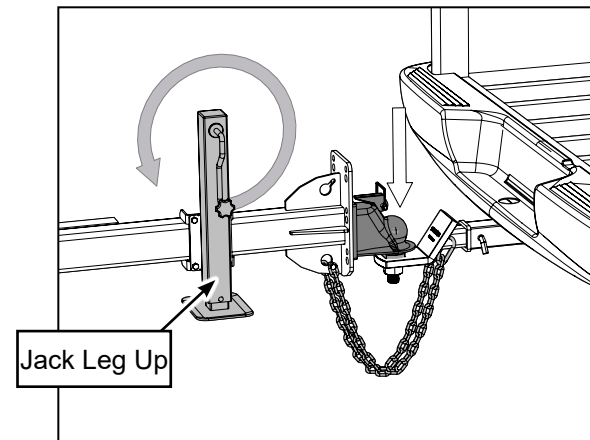
4.6.3 BALL AND COUPLER

Follow this procedure:

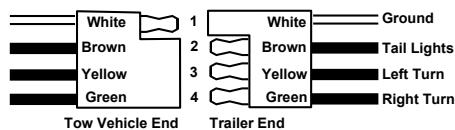
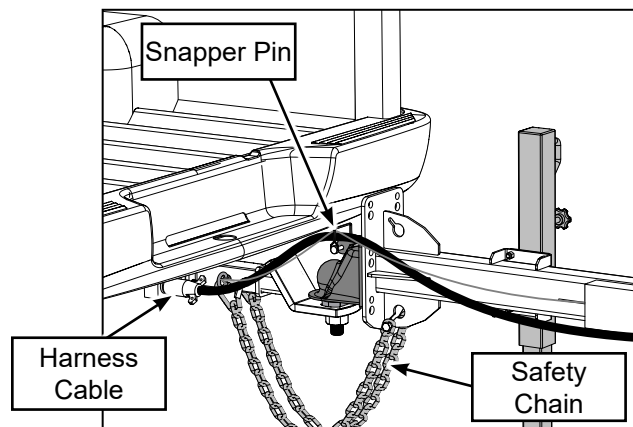
1. Make sure that all bystanders, especially small children, are clear of the working area.
2. Make sure there is enough room and clearance to safely back up to the machine.
3. Use the trailer jack to raise the tongue above the height of the tow vehicle ball hitch.
4. Slowly back the tow vehicle until the coupler on the hitch and ball are aligned.
5. Attach the ball hitch:
 - Place the coupler over the ball on the hitch.
 - Flip the latch to lock the coupler around the ball and install .
 - Install the snapper pin to secure the latch
6. Stow the jack:
 - Swivel Jack (LT30): Crank the jack up, pull the jack pin, swivel to its stowed position
 - Stationary Jack (LT60): Pull the jack pin, move the drop leg up, repin and crank to fully retract the leg.
7. Attach the safety chain securely to the tow vehicle to prevent unexpected separation. Cross the chains when attaching to the tow vehicle
8. Ensure light harness cable is firmly connected to the tow vehicle, and the signal lights are working.
9. Route the harness and cables across the hitch to prevent snagging. Be sure to provide slack for turning.
10. Reverse the above procedure when unhooking.



ALIGNED



ATTACHED



Connector Wiring
LT30H & LT30HA

4.7 MACHINE SET-UP

4.7.1 GRAPPLE AND TRAILER

Follow this procedure to prepare and set-up all LXT models at the work site.

Use the tow vehicle to position the grapple and trailer at the work site.

IMPORTANT

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

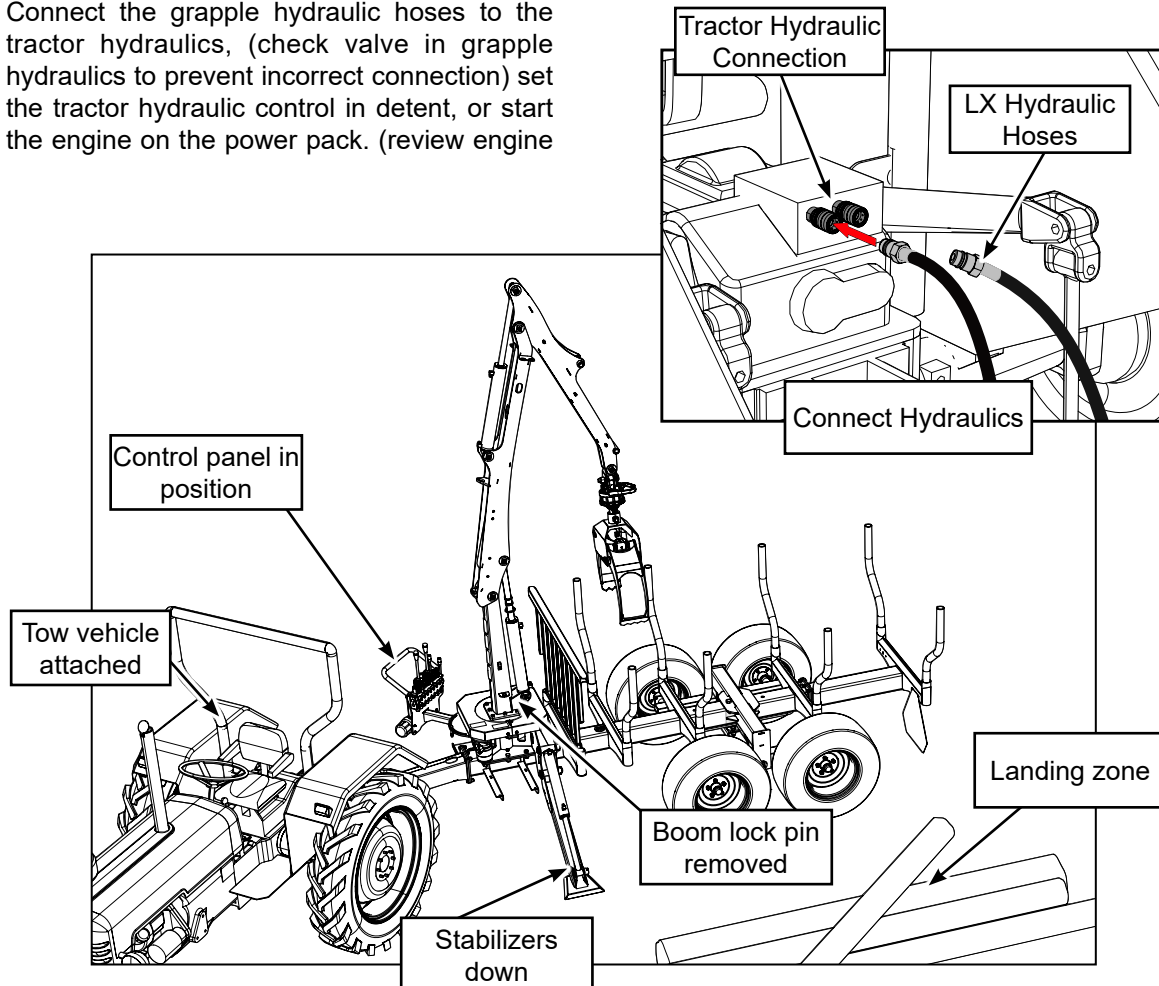
1. Check for leaks or damage to the engine, all hoses and hydraulic components. Repair as required.
2. The machine is designed to be used while attached to the tow vehicle. The log trailer requires the stability of the tow vehicle while lifting or winching heavy loads. Do not operate if not attached to the tow vehicle.
3. Connect the grapple hydraulic hoses to the tractor hydraulics, (check valve in grapple hydraulics to prevent incorrect connection) set the tractor hydraulic control in detent, or start the engine on the power pack. (review engine

IMPORTANT

Tipping hazard, do not operate machine if not attached to the tow vehicle.

owners manual)

4. Lower the stabilizer legs so that they are firmly placed on the ground.
5. Lower the trailer jack for extra stability.
6. Determine your work area / landing zone and position the control panel so the operator is opposite the landing zone, (facing the work area)
7. Remove the boom lock pin.
8. Check all functions of the hydraulic system before beginning work.



5 FIELD OPERATION



OPERATING SAFETY

- Please remember it is important that you read the operator's manual and heed the safety signs on the machine. 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.
- Before moving, making, adjustments or servicing, put the machine in safe condition:
 - install boom pin lock
 - shut off the engine
 - turn fuel valve off
 - ensure load is secure
 - secure the trailer from movement
- Review section 2.6 on Boom Safety and set up the operator safe zone and work zone.
- Extend stabilizers to support frame during loading and unloading.
- Position the trailer to provide a firm base for the stabilizer pads before loading or unloading.
- Stay away from overhead utilities and obstructions. Review position of power lines.
- Stay 15m (50 ft) away from power lines. Electrocution can occur without direct contact.
- Keep all bystanders out of the work zone, at least 6m (20ft) feet away from trailer, grapple and logs when loading or unloading or when engine is running.
- Position the controls and operate the machine opposite the work zone.
- Be aware of your operator safe zone, and keep boom and material out.
- Do not run machine inside a closed building to prevent asphyxiation from engine exhaust.
- Do not move or carry people on boom or grapple.
- Never use alcoholic beverages or drugs which can hinder alertness or coordination while operating this equipment. Consult your doctor about operating this machine while taking prescription medications.
- Do not allow riders on this machine at any time. There is no safe place for any riders.
- Never allow children or unauthorized people to operate or be around this machine.
- When operating this equipment it is recommended to have at least 2 operators present and trained in safe operation of the machine. All operators must be completely familiar with all components of the machine and their function.
- Keep hydraulic lines and fittings tight, in good condition and free of leaks.
- Keep the working area clean and free of debris to prevent tripping. Operate only on level ground.
- Do not overload lift or trailer capacity.
- Review safety instructions annually.

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

5.1 PREPARE

Although the Log Grapple Trailer is easy to use, each operator should review this section to familiarize himself with the detailed safety and operating procedures. When using this machine, follow this procedure:

5.1.1 PREPARATION

- Clear the area of bystanders, especially small children, (see section 2.6: Boom Safety.)
- Review the machine components (see Section 4.2)
- Review and follow the PreOperation Checklist (see Section 4.4).
- Review operation and function of the controls (see section 4.5)
- Survey the work site, move to a clear, level work area and position at the work site. Do not start the trailer and grapple until are in position.
- Set up the machine: stabilizers down and attached to tow vehicle. (see section 4.7).

5.1.3 TRAINING

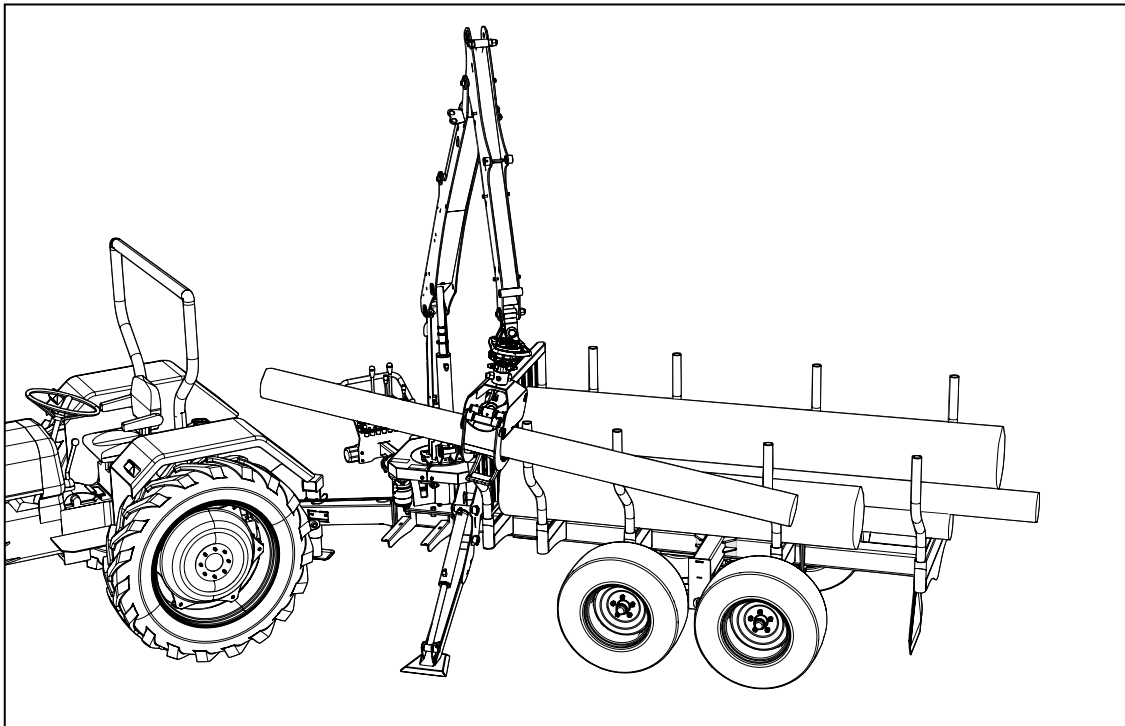
Each operator must be trained and familiar with the set up and operation of the machine and its components.

It is recommended that all new or experienced operators at the start of a new season, move the trailer to an open area without obstructions or bystanders to practice moving the boom, dipper and grapple. Set up the machine and practice moving and manipulating each component to be familiar and comfortable with how they function. Time invested in training and practice will insure a more efficient operation and a safer working environment.

5.1.2 PROTECTIVE EQUIPMENT

Each person must wear appropriate Personal Protective Equipment (PPE) This equipment is designed to prevent injury to any personnel in the area. This list includes but is not limited to:

- Safety shoes with slip resistant soles.
- Safety goggles or face shield.
- Hearing protection.
- Heavy or leather gloves.



Safe Loading

5.2 STARTING PROCEDURE

These procedures can be applied to all models.

After following operating safety and preparation procedure (4.8.1) the grapple / trailer should be set up and ready to run. Tractor or Power Pack engine manual should also be reviewed. Review Section 2.6 for safe zone and work zone.

5.2.1 TRACTOR

- Inspect hydraulic connectors for positive connection.
- Start tractor.
- Run the engine for a few minutes to allow it to warm.
- Increase engine speed to approximately half throttle.
- Ensure stabilizers are lowered and firmly placed and proceed with work.

5.2.2 POWER PACK

- Close the choke if the engine is cold.
- Move the throttle to its 1/3 throttle position.
- Open the fuel supply valve.
- Turn the ignition switch to "on". Grasp the T bar on the pull cord firmly, and pull the rope sharply to start the engine.
- Run the engine for a few minutes to allow it to warm.
- Gradually open the choke.
- Increase engine speed to full throttle.
- Ensure stabilizers are lowered and firmly placed and proceed with work.



5.2.3 STOPPING:

- Move grapple to safe location,
 - secure the trailer from movement
 - close the grapple and set it on the ground, or clamp the grapple to trailer frame or log.
 - if possible, install boom pin lock
 - shut off the engine
 - turn fuel valve off
 - ensure load is secure
- Slow engine RPM.
- Stop engine using ignition switch.

5.2.4. EMERGENCY STOPPING:

If an emergency occurs:

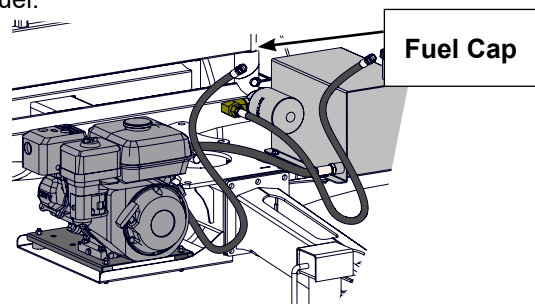
- shut off the engine,**
- if possible, carefully lower the grapple load onto the trailer or ground**
- Correct emergency situation before restarting engine and resuming work.

5.2.5 REFUELLING:

Power Packs require fuel to run. Avoid running the tank dry. Use the appropriate grade of fuel, and use caution to prevent spilling. Do not smoke while refuelling.

To add fuel:

- Ensure the machine is in **safe condition** before beginning to fuel (see 4.1.1)
- Allow the engine and muffler to cool.
- Clean area around fuel fill cap and remove cap.
- Using a clean funnel, fill fuel tank to 1.25cm (1/2") below bottom of filler neck to provide space for any fuel expansion. Do not overfill.
- Install fuel fill cap securely and wipe up any spilled fuel.



Honda GX270 Fuel Tank

5.3 LOADING AND PICKING:

When preparing to load follow the procedures under section 5.1. Ensure stabilizers are down and trailer is attached to the tow vehicle.

5.3.1 LOAD DISTRIBUTION

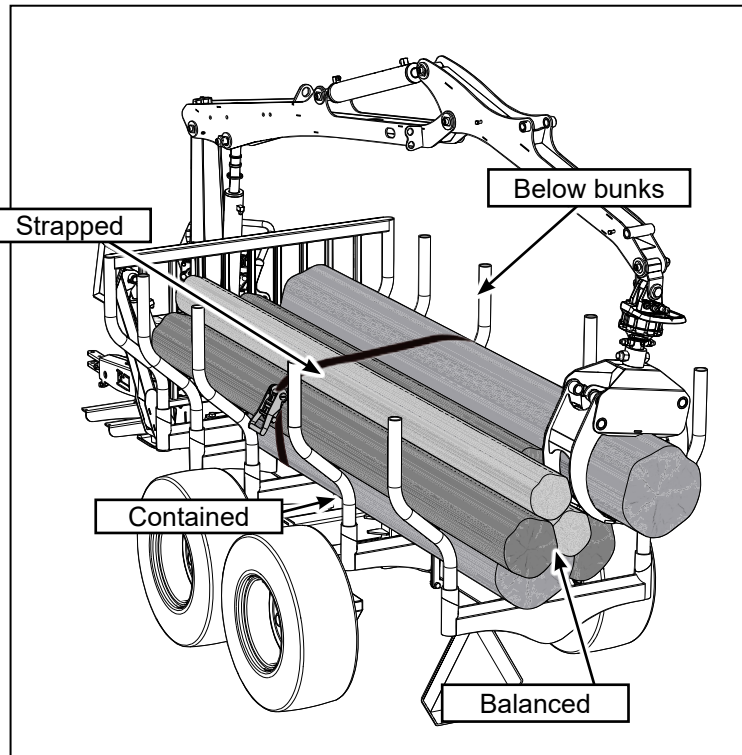
Always balance the load in the center of the trailer to maintain a balanced weight distribution on the tires and trailer frame, larger logs on the bottom and smaller on top. The best results are obtained when loads are planned in a safe and common sense manner.

- Do not load logs above the height of the trailer bunks.
- Do not load logs so as to create a peak in the center of the load. The load must be flat as possible.
- Ensure no logs or branches are protruding out of the side of the trailer load should be contained within the bunks.
- Ensure no logs are sitting in an unstable position.
- Secure the load by strapping it down when preparing to transport.



Caution: Overhead Loads!

- Contact with heavy logs swinging or falling and swinging booms can cause severe injury or death.
- Never operate the boom or load over or near personnel
- Do not operate loader within 100 feet of all electrical power transmission lines.

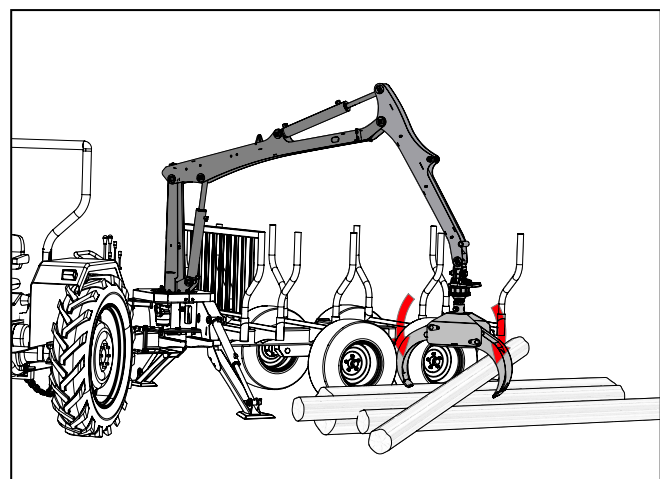


5.3.2 LOADING

1. Allow the power pack or tractor and hydraulics to warm before beginning picking operation.
2. Open the grapple and release it from the trailer frame.
3. Raise and rotate the boom out over the log to be picked, so that the grapple is positioned at the center of the log.
4. Rotate the grapple until it is at right angles to the length of the log.
5. Open the grapple and lower it over log.

IMPORTANT

For safe and efficient operation estimate the position of the log center of gravity to keep it balanced when rotating, lifting and swinging.



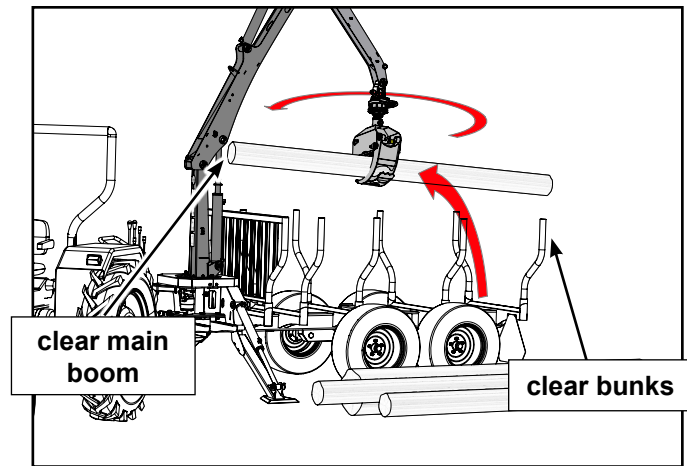
Open grapple and lower

6. Close grapple, and lift the log. If the log is not reasonably balanced, then lower the log and reposition the grapple for a more balanced hold.
7. Slowly lift the log high enough to clear the bunk posts.

IMPORTANT

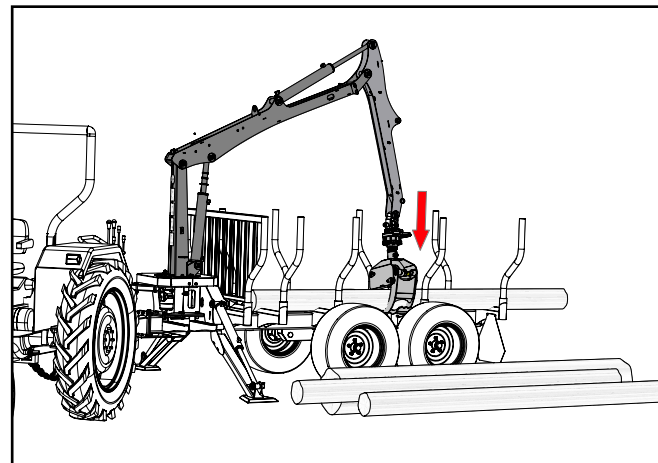
When lifting, rotating and swinging your load, ensure that you clear the trailer and boom components.

8. Carefully rotate the boom and swing the log over the trailer.
9. Using the grapple rotator, align the log over the trailer, be aware of the end of the log so that it clears the main boom and lift cylinder as you rotate the log.



Lift and rotate

10. Carefully lower the log on to the trailer and release log.
11. Repeat picking with the next logs until loaded.



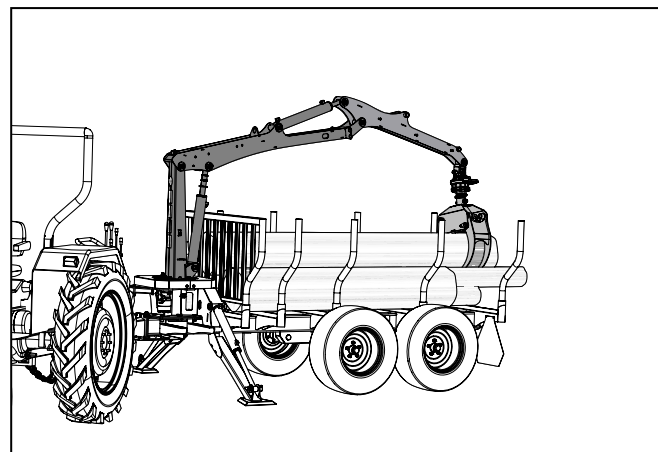
Lower and release



Caution: Overhead Loads!

- Contact with heavy logs swinging or falling and swinging booms can cause severe injury or death.
- Never operate the boom or load over or near personnel
- Do not operate loader within 100 feet of all electrical power transmission lines.

12. Do not load trailer above rated capacity.
13. Clamp the grapple to one of the logs on the trailer to keep the boom in a safe position when preparing to transport.



Grapple safe position

5.4 UNLOADING AND STACKING:

When preparing to unload follow the procedures under section 5.1. Ensure stabilizers are down and trailer is attached to the tow vehicle.

5.4.1 STACKING

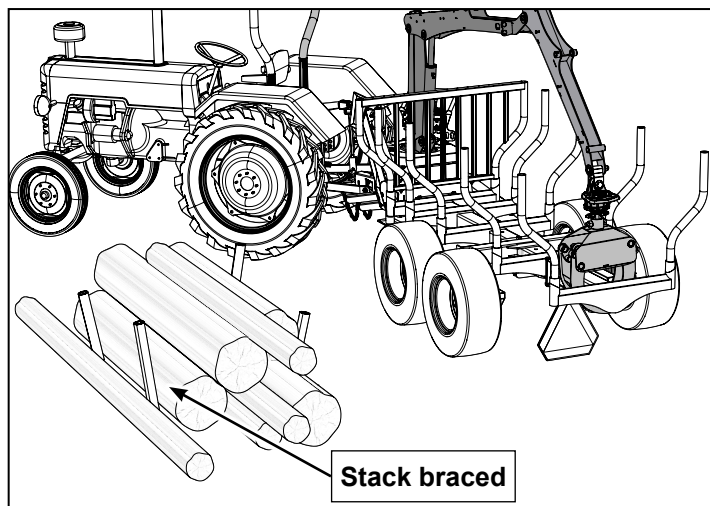
Determine a safe log stack location:

- 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.

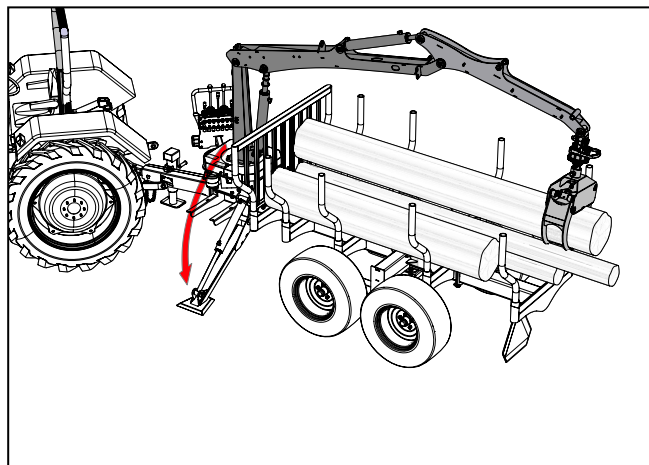


Caution: Overhead Loads!

- Contact with heavy logs swinging or falling and swinging booms can cause severe injury or death.
- Never operate the boom or load over or near personnel
- Do not operate loader within 50 feet of all electrical power transmission lines.



Stacked



Stabilizers extended

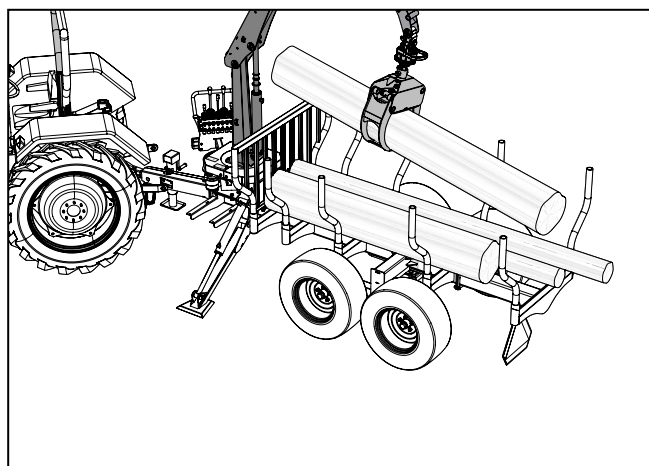
5.4.2 UNLOADING

1. When preparing to unload ensure the stabilizers are lowered and firmly placed.
2. Release the boom from safe position, open the grapple and raise the boom.
3. Raise the boom over the log to be picked, so that the grapple is positioned at the center of the log.

IMPORTANT

For safe and efficient operation estimate the position of the log center of gravity to keep it balanced when rotating, lifting and swinging.

4. If required rotate the grapple until it is at right angles to the length of the log.
5. Open the grapple and lower it over log.
6. Close grapple, and pick the log. If the is not reasonably balanced, then lower the log and reposition the grapple for a more balanced hold.

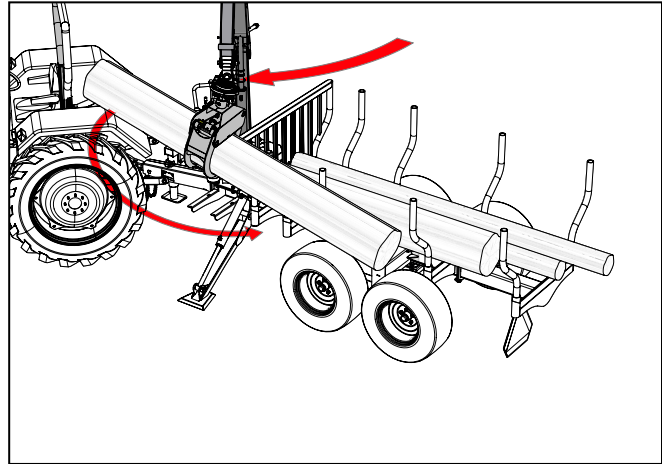


Pick the log

IMPORTANT

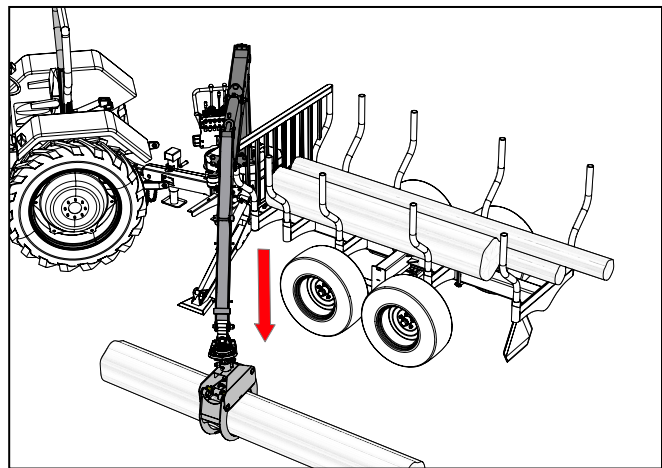
When lifting, rotating and swinging your load, ensure that you clear the trailer and boom components.

7. Slowly lift the log high enough to clear the bunk posts, be aware of the end of the log so that it clears the main boom and lift cylinder as you lift and swing the log.
8. Carefully rotate the boom and swing the log over the ground.
9. Using the grapple rotator, align the log over landing zone.



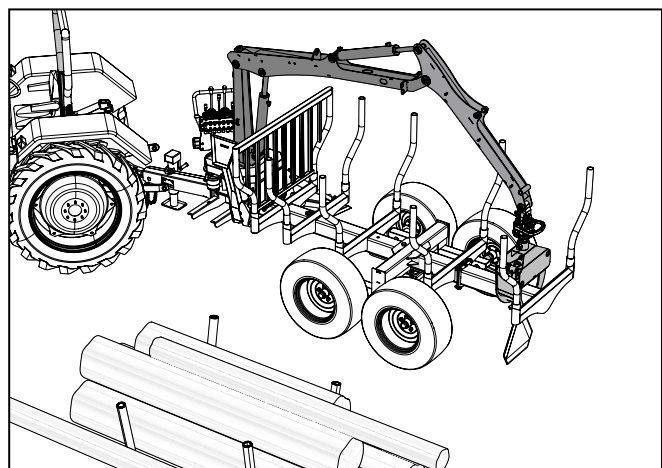
Swing and rotate

10. Carefully lower the log on to the ground and release log.
11. Repeat with the next logs until unloaded



Lower and release

12. Prepare for transport.
 - Clamp the grapple to the frame of the trailer to keep the boom in a safe position
 - Raise the stabilizers
 - Crank or swing up the trailer jack



Grapple safe position

5.5 OPERATING HINTS:

When unloading follow the procedures under section 5.1.

General:

- Delimb all tree trunks to make it easier and safer for loading, transporting and unloading
- Be sure the trailer is 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.
- Always fully extend the stabilizers to provide stability to the machine during operation. Be sure the area under the stabilizers can provide the required support.
- Position the grapple / trailer as close to the landing zone as possible. This will make manoeuvring the grapple easier especially with heavy logs.

Rugged 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 and level.

In cases where that is not possible:

- Ensure that the stabilizer feet have firm footing (use planks or stabilizer pads).
- Use the stabilizers to keep the boom and trailer as level as possible.
- Apply parking brakes of the tow vehicle, for extra stability.
- Place chocks in front of and behind the tow vehicle and the trailer tires to limit the chance of movement.
- Be extra cautious and use common sense.

Slopes:

Use the area at the top of the slope and use a winch to winch logs to your position. Ensure that the area is clear and the ground is firm and level.

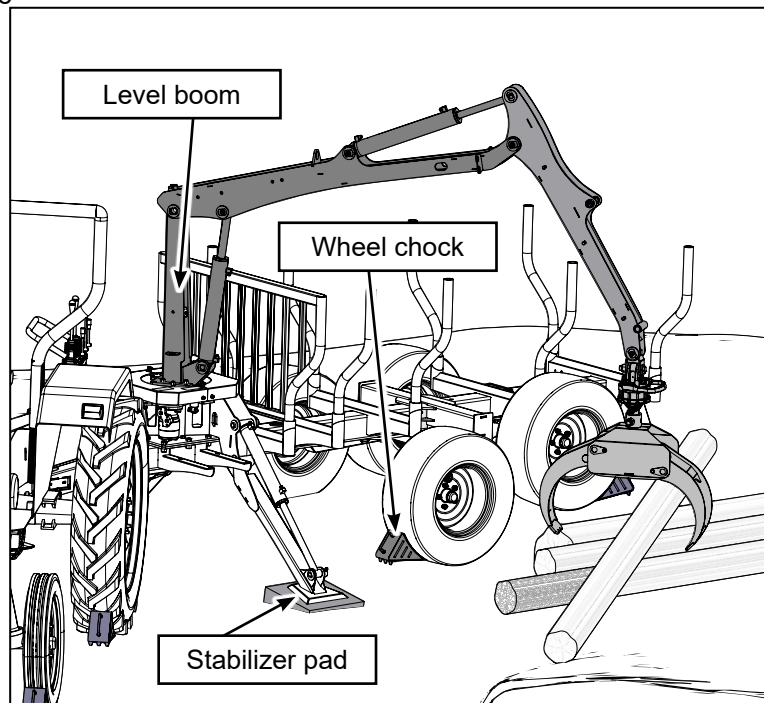
Exercise caution when winching, the trailer should always be positioned up hill of the log. Winching downhill is hazardous and may result in the log rolling and striking the operator.

In cases where that is not possible, and working on the slope is required:

- Always position the trailer going up and down the slope rather than across to eliminate the chance to tip the unit over.
- Ensure that the stabilizer feet have firm footing (use planks or stabilizer pads).
- Apply parking brakes of the tow vehicle, for extra stability.
- Place chocks in front of and behind the tow vehicle and the trailer tires to limit the chance of movement.
- Be extra cautious and use common sense.

IMPORTANT

For safe and efficient operation follow the Boom safety procedures in Section 2.6.



6 LX / LT OPTIONAL EQUIPMENT

This section applies to LX Grapple series and LT Log Trailer series factory options.

Hydraulic Winch - LX95W / LX95PW / LX115W / L400

Hydraulic Tandem - LT30A / LT30HA

6.1 LT30 HYDRAULIC TANDEM

The hydraulically controlled tandem adds versatility to the LT30 by allowing the tandem to be adjusted after the trailer has been loaded. Useful to help balance a load or adjust the tongue weight for added traction at the time of transport. To ensure snag free adjustment, check that the trailer is on level ground and that the frame is not under tension or twisted.

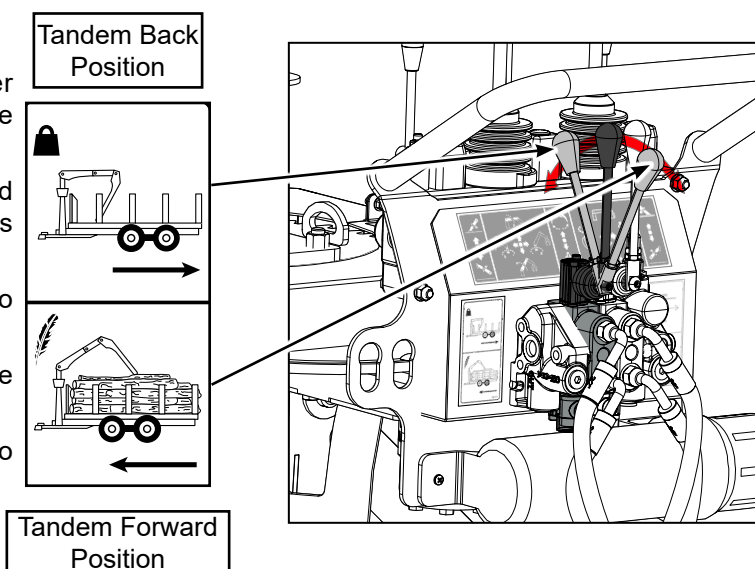
IMPORTANT

Remove the tandem bolt before loading, to ensure the tandem will be able to move.

6.1.1. HYDRAULIC TANDEM CONTROL

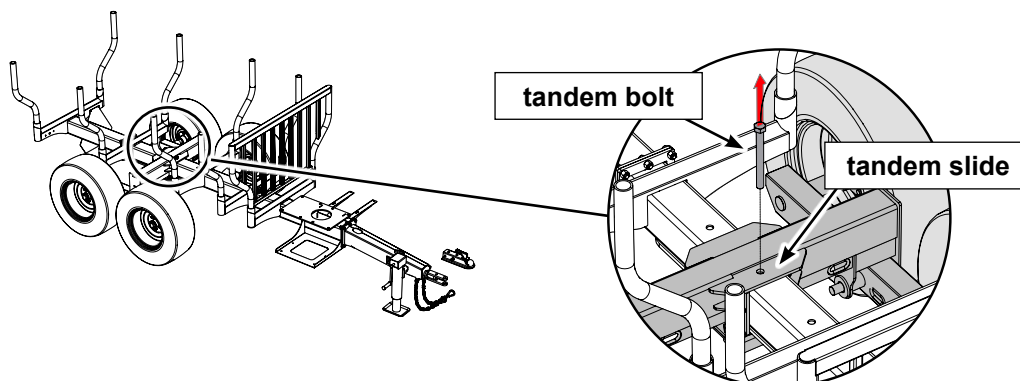
This 3-position "spring-loaded-to-center neutral" valve controls the flow of oil to the hydraulic cylinder powering tandem.

1. Pull the hydraulic control lever back and hold to move the tandem forward towards the boom.
2. Release the lever and it will return to neutral and stop moving the tandem.
3. Push the lever forward to move the tandem backward, away the boom.
4. Release the lever and it will return to neutral and stop moving the tandem.



6.1.2. HYDRAULIC TANDEM

Before loading and using the LT30 hydraulic tandem, check that the tandem bolt has been removed and ensure that the tandem slide is lubricated.



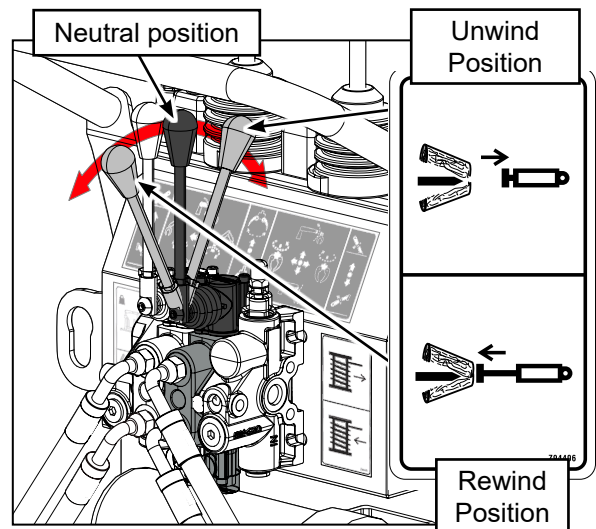
6.2 HYDRAULIC WINCH

The winch is used to pull in material from a distance, and get it close enough for the grapple to pick. The winch specifications are different for each grapple model, but the operation is the same for both.

6.2.1. HYDRAULIC WINCH CONTROL

This 3-position valve controls the flow of oil to the hydraulic motor powering the rope winch.


1. Pull the hydraulic control lever back and hold to start the winch and rewind the rope.
2. Release the lever and it will return to neutral and stop rewinding the rope.
3. Push the lever forward to allow the rope to unwind under power.
4. Release the lever and it will return to neutral and stop unwinding the rope.




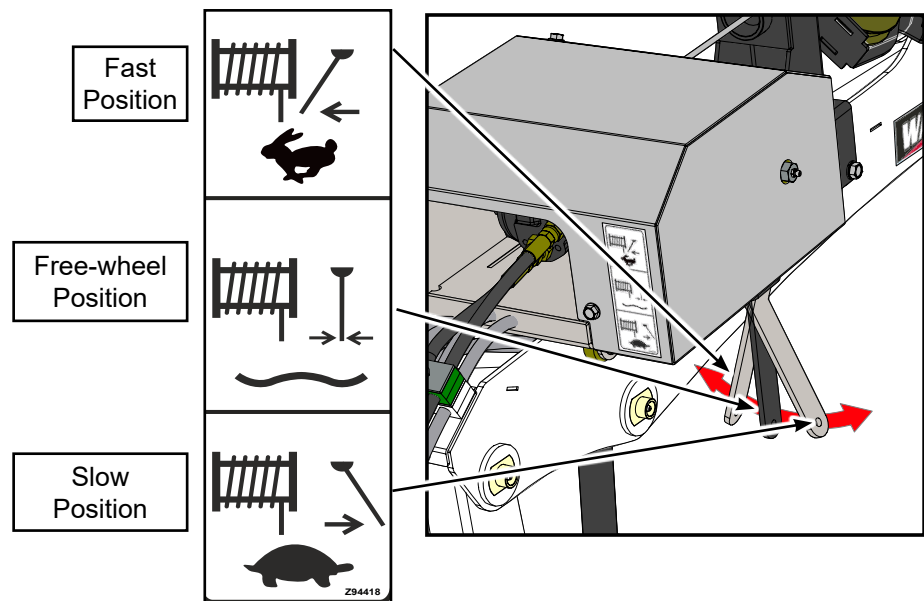
6.2.2. WINCH GEAR LEVER:

This three-position lever controls the gears on the winch drive system.

1. Pull the lever back to engage the winch gear to the hydraulic motor.
2. Push it forward to disengage the winch gear from the hydraulic motor, allowing the gear free-wheel. The rope can then be easily pulled out to attach to a log.

 **Caution:** Stay clear of the winch rope while winching, injury from entanglement or rope burn could occur!

 **Caution:** Always ensure the area is clear of bystanders when operating the winch, and never use the winch to hold or secure loads



6.3 BRAKING SYSTEMS

Trailer Brakes are part of the **Highway** or **ATV** option for the LT30 and **Highway** option for the LT60. Brakes help to control the trailer and its load.

Important Notice

Laws regarding towing and trailers vary across regions, make sure you are in full compliance with the law in your area regarding trailer brakes, coupler requirements, safety chains, trailer width requirements, trailer lights, etc.

Contact your government motor vehicle department for more information. In addition, check with your vehicle dealer or vehicle's owner's manual to make sure you have the proper towing vehicle and hitch attachments for the load you'll be pulling.

6.3.1. LT30 HYDRAULIC (SURGE) BRAKES

ATV & Highway Option

Surge trailer brakes are mechanically driven with an hydraulic brake cylinder actuator and is independent of the tow vehicle. An electrical connection is required only to operate the brake and signal lights. They come on automatically when you apply the brakes in the tow vehicle. As the tow vehicle slows down, the trailer momentum keeps it moving forward. This moves the brake actuator and applies the trailer brakes. This 'surge' action is where the surge brakes get their name.

LT30 surge brakes feature "free" backing brakes to allow backing without the brakes applying. Free backing brakes have a primary shoe on a pivot which allows normal braking in the forward direction, but allows the primary shoe to rotate away from the drum surface when backing.

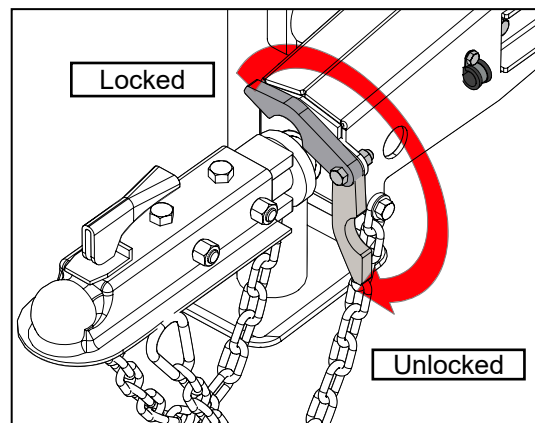
When approaching a long downhill grade, DO NOT shift into lower gears. This can make the trailer brakes come on the whole time you are going downhill and may cause your trailer brakes to fail. DO NOT ride the brake pedal going downhill. When you need to slow down, press the brake pedal and slow down at least 5 mph below the speed limit. Then let completely off the brake pedal and let the brakes cool before you press the brake pedal again.

DO NOT use weight-distributing hitches with surge-braked trailers. Overloading or improper installation of weight-distributing hitches may not let hydraulic surge brake actuators work and the tow vehicle and trailer may take longer to stop.

Before normal use, your trailer brakes should be burnished-in by applying the brakes 20-30 times with approximately a 20 mph (32 km/h) decrease in speed, e.g. 65 km/h. to 33 km/h. (40 mph to 20 mph) Allow ample time for brakes to cool between application. This allows the brake shoes to seat in to the drum surfaces.

The LT30 surge brake system features a brake lockout at the tongue assembly. Flip the lockout latch over, keeps the surge mechanism from operating during transport. This feature is handy when travelling off road over rough terrain, preventing brakes from activating during bumping and jarring. Be sure to unlock the brakes when transporting normally.

6.3.2. LT60 ELECTRIC BRAKES



Highway Option

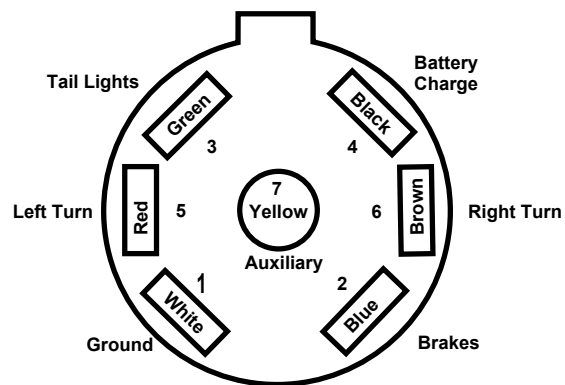
Electric brakes are electrically driven, with electromagnet actuators. and are dependant on an electrical signal from the tow vehicle. With electric brakes, the driver can adjust the amount of braking on the trailer by using the brake controller mounted in the tow vehicle.

The brake controller is an additional part and must be installed in the tow vehicle for electric trailer brakes to work. The brake controller receives a signal when the tow vehicle is slowing down and puts on the trailer brakes. This type of braking system also works when backing up the trailer.

DO NOT use your tow vehicle or trailer brakes alone to stop both vehicle and load. Your brake controller must be set up according to the manufacturer's recommendations to ensure proper synchronization between the tow vehicle and the trailer. Additionally, you may have to make small adjustments occasionally to accommodate changing loads and driving conditions.

Proper synchronization of tow vehicle to trailer braking can only be accomplished by road testing. Brake lockup and sensitivity is quite often due to the lack of synchronization between the tow vehicle and the trailer being towed, (too high of a threshold voltage (over 2 volts), or under adjusted brakes).

Before any synchronization adjustments are made, your trailer brakes should be burnished-in by applying the brakes 20-30 times with approximately a 32 km/h (20 mph) decrease in speed, e.g. 65 km/h. to 33 km/h. (40 mph to 20 mph) Allow ample time for brakes to cool between application. This allows the brake shoes and magnets to slightly "wear-in" to the drum surfaces.



Connector Wiring



Caution:

- **Highway:** Do not exceed 80 km/h (50 mph) maximum highway travel speed.
- **Off road:** Do not exceed 50 km/h (30 mph) maximum safe off road travel speed.

7 TRANSPORTING



TRANSPORT SAFETY

- Comply with state and local laws governing safety and transporting of machinery on public roads.
- Check that all the lights, reflectors and other lighting requirements are installed and in good working condition.
- Do not exceed a maximum safe travel speed indicated below. Slow down for rough terrain and cornering.
- Retract and lower boom and clamp grapple to frame or log before moving or transporting.
- Be sure the trailer is hitched positively to the tractor and a retainer is used through the drawbar. Always attach a safety chain between the hitch and the tractor.
- Do not drink and drive.
- Be a safe and courteous driver. Always yield to oncoming traffic in all situations, including narrow bridges, intersections, etc. Watch for traffic when operating near or crossing roadways.
- Never allow riders on the machine.

When transporting the machine, review and follow these instructions:

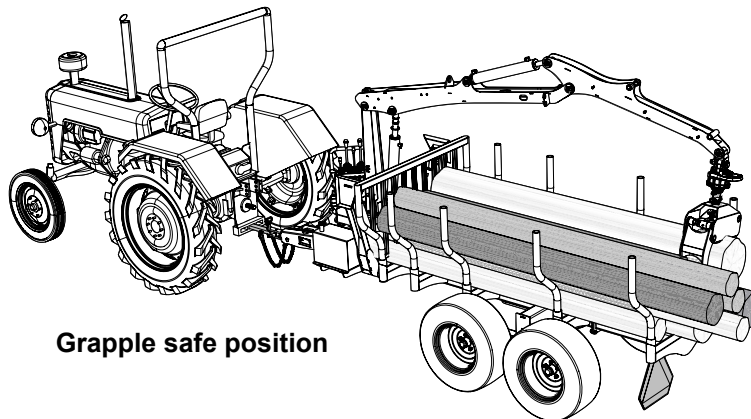
7.1 OFF ROAD TRAILER

1. Be sure the trailer is hitched positively to the vehicle and a retainer is used through the drawbar .
2. Do not exceed 50 km/h (30 mph) safe travel speed. Slow down for rough terrain and cornering.
3. Do not exceed maximum load capacity:
 - LT 30 5000 lb (2267 kg)
 - LT 60 10,000 lb (4536 kg)
4. When transporting by highway, check that a Slow Moving Vehicle sign is attached, and reflectors are installed and in good working

condition.

7.2 HIGHWAY TRAILER

1. Check that trailer brakes are functioning properly.
2. Ensure your tow vehicle has the correct sized towing ball (**LT30** -2", **LT60** 2 5/16") and a retainer is used through the ball hitch latch.
3. Check that all reflectors and signal lights are installed and in good working condition.
4. Do not exceed 80 km/h (50 mph) maximum highway travel speed
5. Do not exceed maximum load capacity:
 - LT 30 highway 5000 lb (2267 kg)
 - LT 60 highway 11,500 lb (kg)
6. **LT60** articulating drawbar: ensure drawbar is straight and drawbar pin is installed



Grapple safe position

7.3 GENERAL

1. Ensure the load is balanced. Read section 5.3.1 on Load distribution
2. Check torque on wheel lugs.
3. **LT30** - Manual Tandem Adjust: to prevent the tandem from moving during transport ensure the tandem pin is in and secured. **Not required for hydraulic tandem.**
4. Comply with Provincial / state and local laws governing safety and transporting of machinery on public roads.
5. Do not transport or move the trailer with the engine running.
6. Ensure boom is secured with the boom pin lock and the stabilizers are fully retracted
7. Align the boom lengthways with the trailer and clamp grapple to the frame or log before moving or transporting.
8. Always attach a safety chain between the hitch and the tow vehicle.
9. If equipped, ensure dump box, or flat bed mounts are pinned and secured.
10. Inspect rims for dents or damage.
11. Inspect tires for cuts or damage, check tire pressure and top up if required,
12. **LT30**, check the swing jack is in the up position and secured with the snapper pin. **LT60**, check side wind jack is in the up position and the extension is secured with the latch pin.
13. Never allow riders on the machine.
14. Just before transport, perform a circle check to ensure everything is safe and secure.
15. Secure the load by strapping it down when preparing to transport.



Caution:

- **Highway:** Do not exceed 50 mph (80 km/h) maximum highway travel speed.
- **Off road:** Do not exceed 50 km/h (30 mph) maximum safe off road travel speed.

8 STORAGE



OPERATING SAFETY

- Store the unit in an area away from human activity.
- Do not permit children to play on or around the stored machine.
- Store the unit in a dry, level area.
- Replace any missing or unreadable safety decals.
- Allow machine to cool before covering or storing in an enclosure.

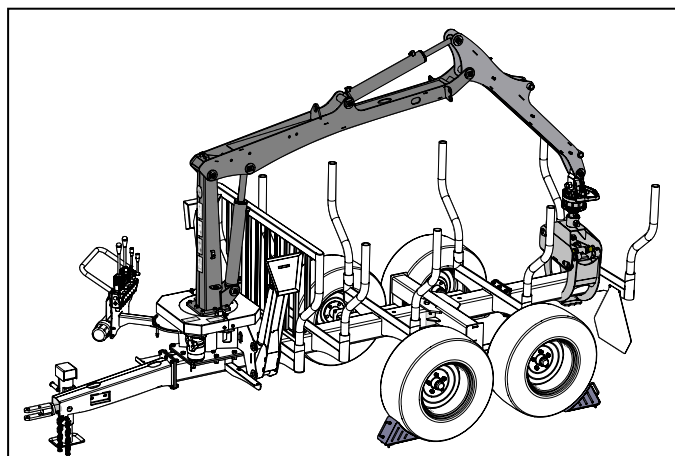
8.1 PLACING IN STORAGE

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

8.1.1 GRAPPLE / TRAILER STORAGE

Follow this procedure before storing:

1. Unload all material from the machine.
2. Thoroughly wash the machine with a pressure washer or water hose to remove all dirt, mud or debris.
3. Lubricate all grease fittings. Make sure all grease cavities have been filled with grease to remove any water residue from washing.
4. Apply a coat of heavy grease to exposed cylinder rams to prevent rusting.
5. Swing the boom straight out behind and install the boom lock pin.
6. Clamp the grapple to the back of the trailer frame.
7. Chock the wheels to prevent unintentional movement.
8. Inspect all moving parts for entangled material.
9. Check the condition of the hydraulic components. Tighten or replace leaking fittings.
10. Stow hydraulic hoses in storage brackets to keep them off the ground.
11. Touch up all paint nicks and scratches to prevent rusting.
12. It is best to store the machine inside. If that is not possible, cover with a waterproof tarpaulin and tie down securely.
13. Check tire pressure and top up if required.
14. Store in an area away from human activity.
15. Do not allow children to play around the stored unit.



Grapple safe position

8.1.2 GRAPPLE / THREE POINT HITCH

Follow this procedure for grapple / L400, 3-point hitch combination before storing:

1. Thoroughly wash the machine with a pressure washer or water hose to remove all dirt, mud or debris.
2. Lubricate all grease fittings. Make sure all grease cavities have been filled with grease to remove any water residue from washing.
3. Touch up all paint nicks and scratches to prevent rusting.
4. Swing the boom straight out behind and install the boom lock pin.
5. Move to storage area.
6. Place blocks or planks under the stabilizers and grapple, lower the 3PH.
7. Lower the grapple boom and stabilizers
8. Stow hydraulic hoses in storage brackets to keep them off the ground.
9. Unhook from tractor.
10. If the machine cannot be placed inside, cover with a waterproof tarpaulin and tie securely in place.
11. Store the machine in an area away from human activity.
12. Do not allow children to play on or around the machine.

8.1.3 POWER PACK

Follow this procedure for LX Power Pack before storing:

1. Review the engine owners manual concerning storage and prepare the engine for storage.

8.2 REMOVING FROM STORAGE

When removing this machine from storage, follow this procedure:

1. Review and follow the pre-operation checklist.
2. Review safety and operation procedures.
3. Remove the tarpaulin if covered.
4. Power Packs: review engine startup procedure in the engine owners manual.

IMPORTANT

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

9 SERVICE AND MAINTENANCE



MAINTENANCE SAFETY

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

9.1 SERVICE

Ensure the machine is in **safe condition** before working with this machine,

- grapple closed and resting on trailer
- install boom pin lock
- shut off the engine
- turn fuel valve off
- secure the trailer from movement

9.1.1 FLUIDS AND LUBRICANTS

1. **Grease:** Use an SAE multipurpose high temperature grease with extreme pressure (EP) performance. Also acceptable is an SAE multipurpose lithium base grease.
2. **Engine Oil:** Refer to the engine manufacturer's manual for maintenance and service information.
2. **Engine Fuel:** Refer to the engine manufacturer's manual for fuel type information
Fuel Tank Capacity:
GX200 3.4 L (.89 US Gal.)
GX270 6.1L (1.6 US Gal.)
3. **Hydraulic Oil:** Use Dexron III hydraulic oil for all operating conditions.
Reservoir Capacity 17.5 L (4.6 US Gal.)
4. **Storing Lubricants:** Your machine can operate at top efficiency only if clean lubricants are used. Use clean containers to handle all lubricants. Store them in an area protected from dust, moisture and other contaminants.

9.1.2 GREASING

Refer to section 9.1.1 for recommended grease.

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

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

9.1.3 LX SERVICE ILLUSTRATION

See Service Record Chart

This illustration shows the general location of service grease points for all LX Boom Grapple models. LX115 is shown but service information is applicable to both models.

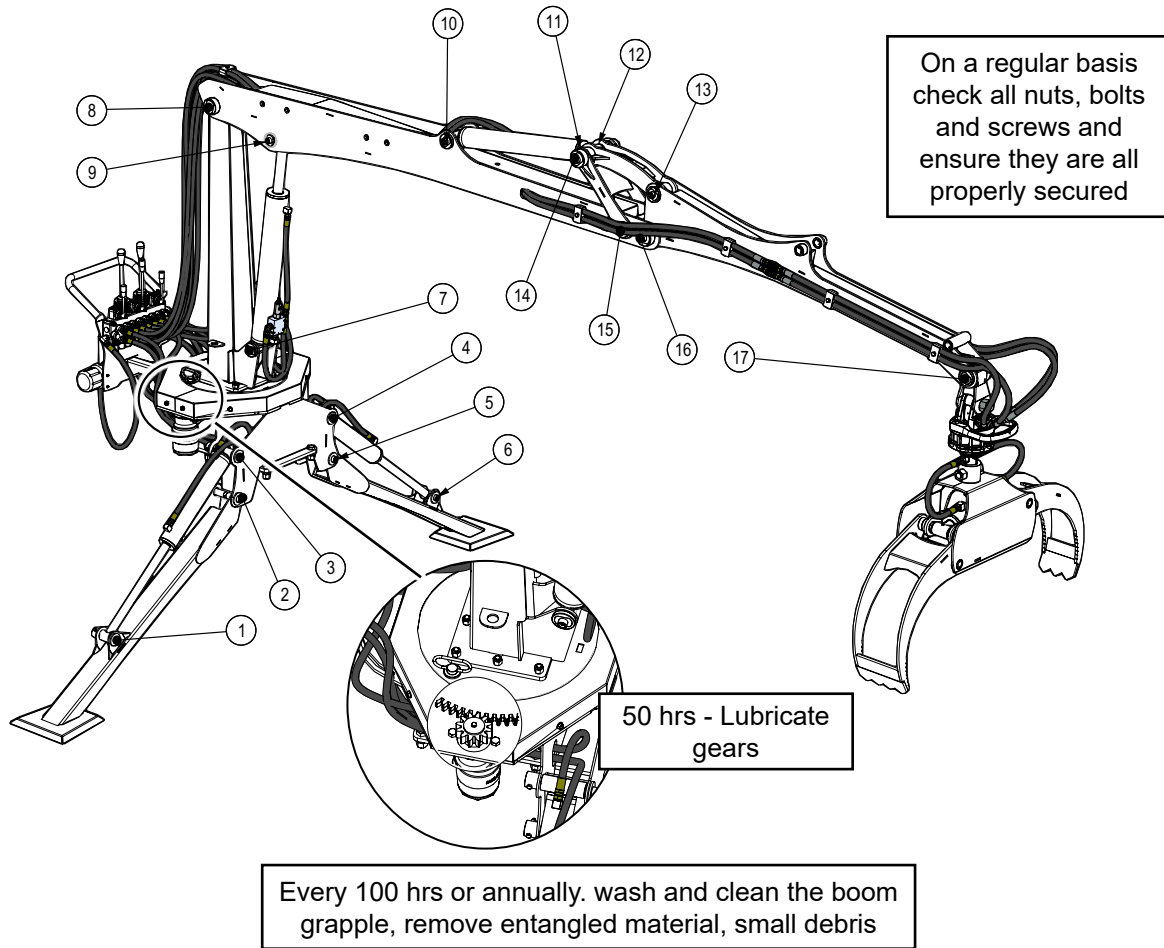
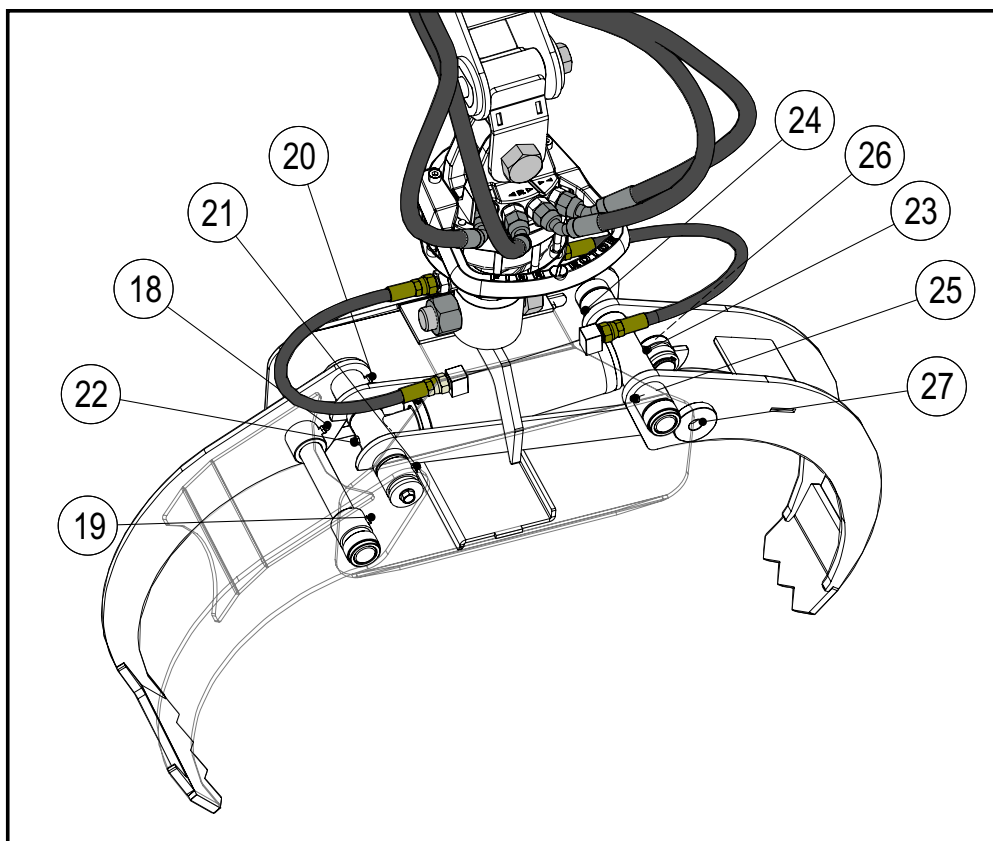


Chart below shows location of grease zerks on the LXT series booms. Note: On model LX95 locations 1 through 6 are removable pins, and should be lubricated every 100 hrs or annually.

Location	Grease Points - 50 hrs or Annually		Location	Grease Points - 50 hrs or Annually	
1	Left Stabilizer Arm	LX115 only	1	Left Stabilizer Arm	LX115 only
2	Left Stabilizer Arm Pivot	LX115 only	2	Left Stabilizer Arm Pivot	LX115 only
3	Left Stabilizer Cylinder Pivot	LX115 only	3	Left Stabilizer Cylinder Pivot	LX115 only
4	Right Stabilizer Arm	LX115 only	4	Right Stabilizer Arm	LX115 only
5	Right Stabilizer Arm Pivot	LX115 only	5	Right Stabilizer Arm Pivot	LX115 only
6	Right Stabilizer Cylinder Pivot	LX115 only	6	Right Stabilizer Cylinder Pivot	LX115 only
7	Main Boom Cylinder Pivot		7	Main Boom Cylinder Pivot	
8	Main Boom Arm Pivot		8	Main Boom Arm Pivot	
9	Main Boom Arm		9	Main Boom Arm	

On a regular basis check the condition of all hydraulic lines, hoses and fittings. Replace any that are damaged. Re-route those that are rubbing, pinched or crimped. Tighten any fitting that is leaking. Ensure fittings are clean and free of dirt.



Cut away view showing grapple grease points

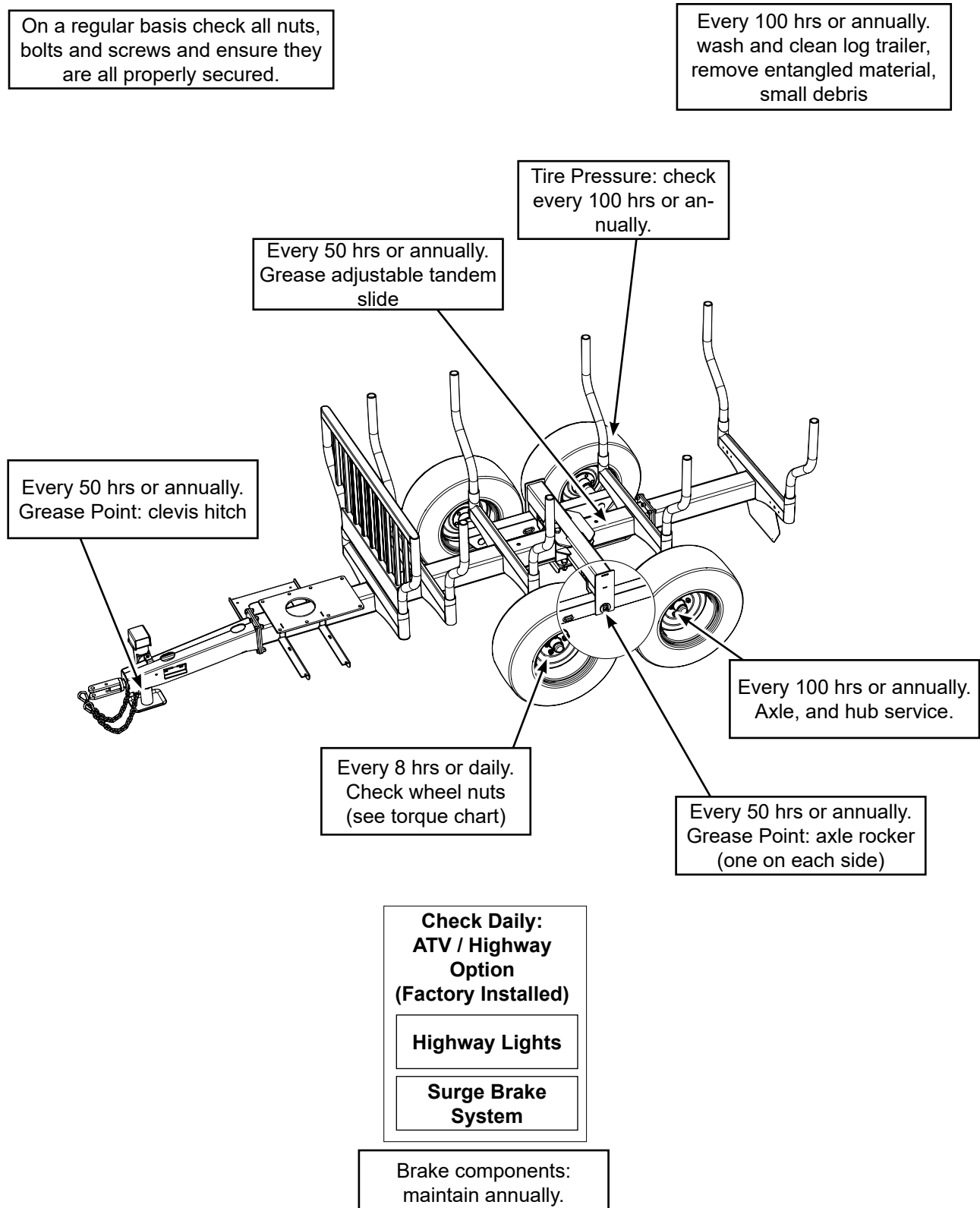
Chart below shows location of grease zerks on the LXT series grapples.

Location	Grease Points - 50 hrs or Annually	
18	Grapple Outside Arm Pivot-1	
19	Grapple Outside Arm Pivot-2	
20	Grapple Outside Arm Linkage Pivot-1	
21	Grapple Outside Arm Linkage Pivot-2	
22	Grapple Cylinder Rod End Pivot	
23	Grapple Cylinder Butt End Pivot	
24	Grapple Inside Arm Pivot-1	
25	Grapple Inside Arm Pivot-2	
26	Grapple Inside Arm Linkage Pivot-1	
27	Grapple Inside Arm Linkage Pivot-2	

9.1.4 LT30 SERVICE ILLUSTRATION

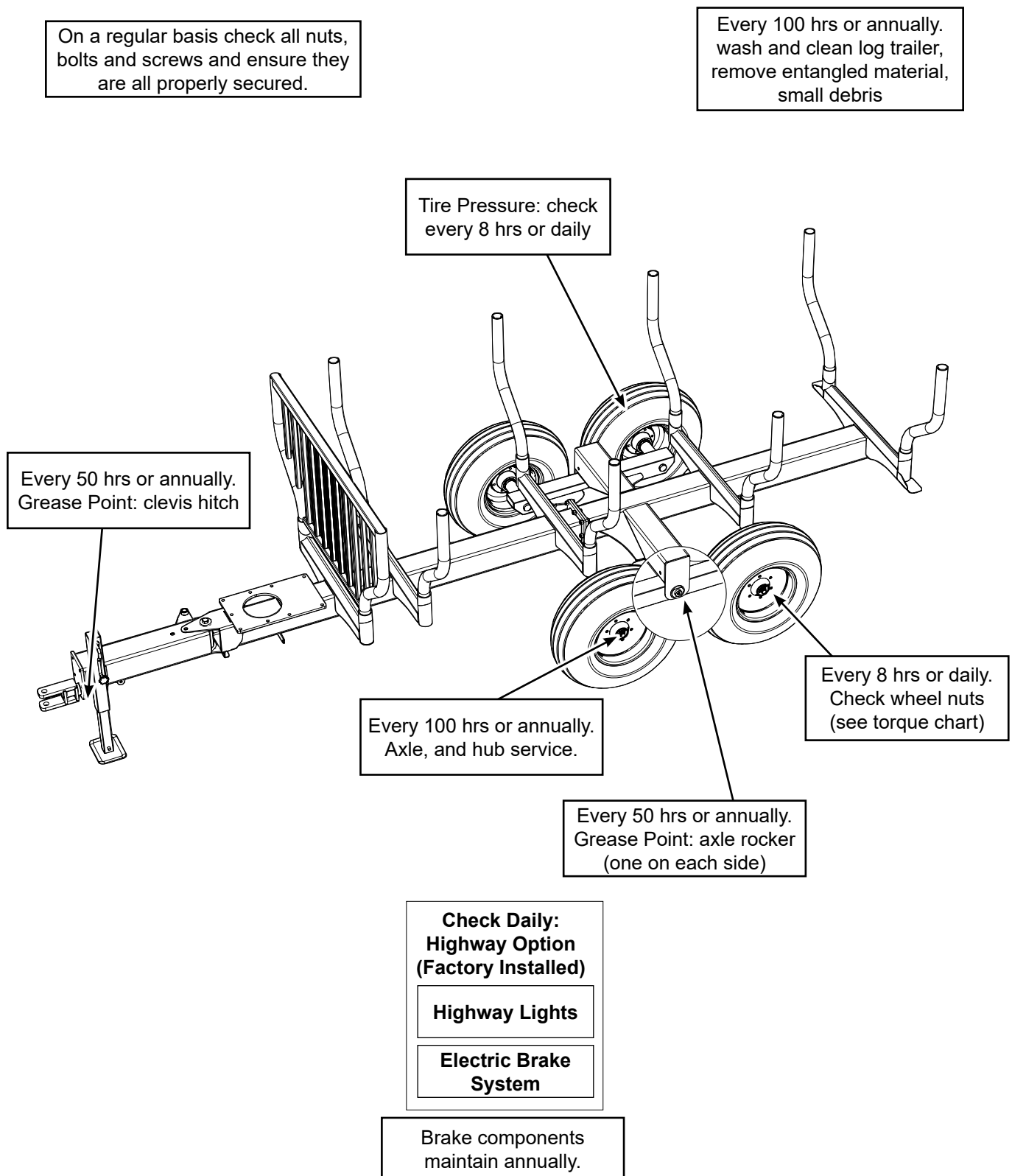
See Service Record Chart

This illustration shows the general location of service points for all versions of the LT30 Log Trailer.



9.1.5 LT60 SERVICE ILLUSTRATION

See Service Record Chart



9.1.6 SERVICE RECORD

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

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9.2 MAINTENANCE

By following a careful service and maintenance program for your machine, you will enjoy many years of trouble-free operation.

Put the machine in **safe condition** before working on this machine,

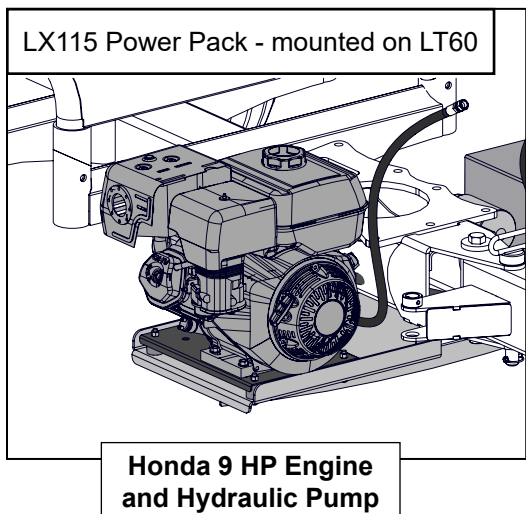
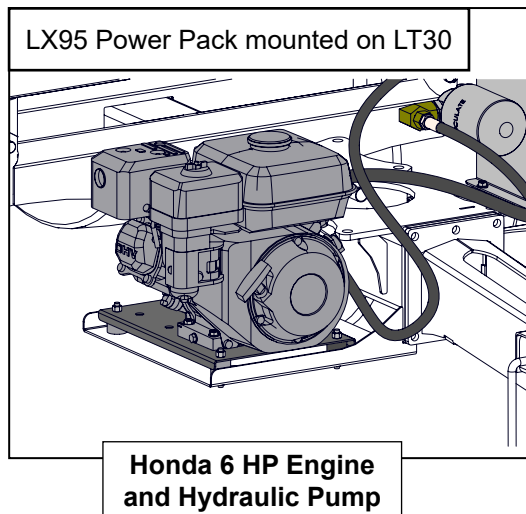
- grapple closed and resting on trailer
- install boom pin lock
- shut off the engine
- turn fuel valve off
- ensure load is secure
- secure the trailer from movement

9.2.1 LX90 / LX115 POWER PACK ENGINE

See Service Record Chart

Engine Service: refer to engine owners manual for service:

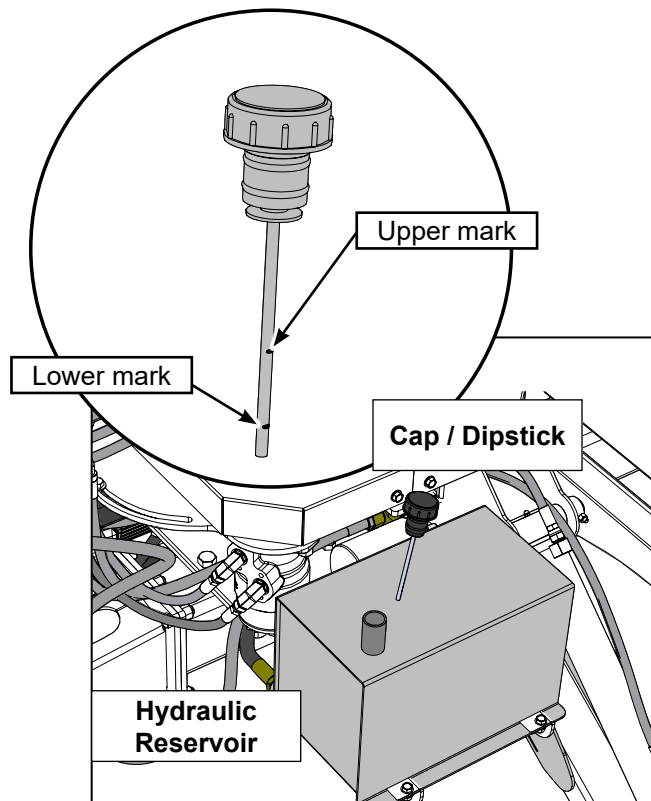
- Air cleaner
- Oil change



9.2.2 HYDRAULIC OIL FILL

The hydraulic tank on both the LX90 & LX115 power pack is located opposite the engine beside the trailer tongue. They are equipped with a cap / dipstick that shows the level of oil in the tank. Hydraulic oil level should be checked daily, and the quality of the oil should be inspected every 50 hrs. If the oil is dirty or smells burnt, it should be replaced.

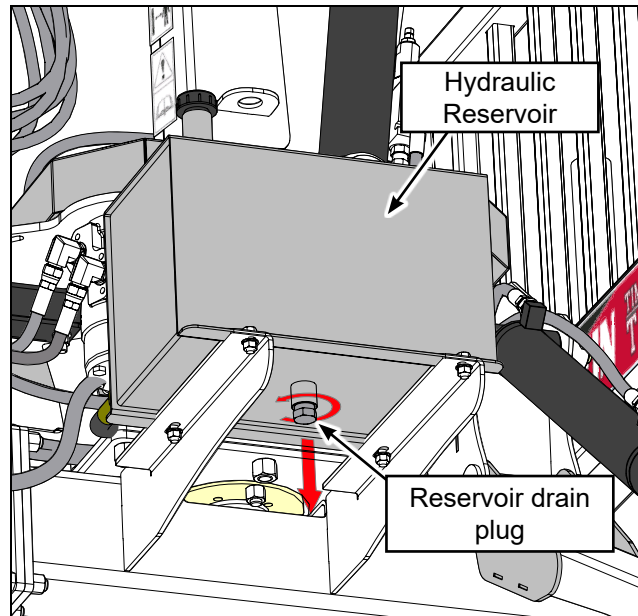
1. Ensure the machine is in **safe condition** (see 8.2)
 2. Allow the engine and muffler to cool.
 3. Clean area around fill cap and remove cap.
 4. Using a clean funnel, fill the tank according to the oil dip stick:
 - Never fill the oil tank above the **upper** (maximum) line at the top of the dip stick.
 - Do not run the machine with the oil level below the **bottom** (minimum) line at the bottom of the dip stick.
 - Reservoir Capacity 17.5 L (4.6 US Gal.)
 - Use Dexron III hydraulic oil for all operating conditions.
 5. Install fill cap securely and wipe up any spilled fuel.
- Check levels after changing filters or servicing hydraulic components.



9.2.3 HYDRAULIC OIL DRAIN

The hydraulic tank may occasionally need to be drained. The drain plug is located at the bottom of the hydraulic tank. Follow this procedure to drain the tank:

1. Ensure the machine is in **safe condition** (see 8.2)
2. Allow the machine to cool before changing the oil. Hot oil can cause burns if it contacts exposed skin. It is best to change oil while the machine is warm to keep the contaminants in suspension.
3. Have a drain pan ready than can hold 17.5 L (4.6 US Gal.)
4. Clean area around drain and remove the bolt.
5. Allow the oil to drain, then flush the tank.
6. Replace the bolt, and refill the tank with 17.5 L (4.6 US Gal.) of Dexron III hydraulic oil.
7. Dispose of used oil in a environmentally acceptable fashion.



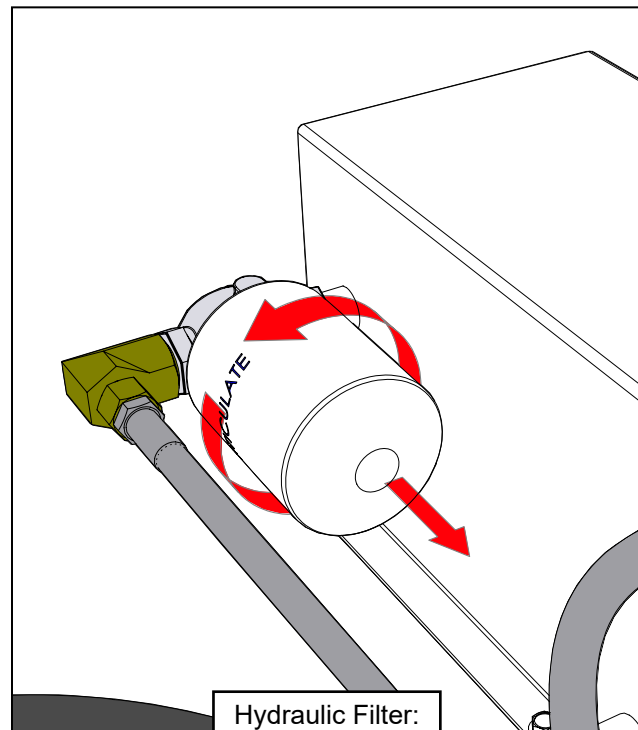
IMPORTANT

Use care when draining the tank to prevent spilling the contents and contaminating the workplace.

9.2.4 HYDRAULIC OIL FILTER

The hydraulic filter needs to be changed at least every 100 hours or annually. The filter is located below the control panel. Follow this procedure to change out the filter:

1. Ensure the machine is in **safe condition** (see 8.2)
2. Allow the machine to cool before changing the oil filter. Hot oil can cause burns if it contacts exposed skin. Have a drain pan ready to catch any dripping oil.
3. Clean area around filter, then remove the filter.
4. Apply a light coat of oil to the O ring and install the replacement filter (AE-25). Snug up by hand and then tighten 1/2 turn.
5. Run the machine for 1-2 minutes while operating hydraulics and check filter head for oil leaks.
6. If leaks are found around the filter, tighten slightly.
7. Check hydraulic reservoir oil level. Top up as required.
8. Dispose of used oil filter in a environmentally acceptable fashion.



Hydraulic Filter:
replace every 100
hrs or annually

9.2.5 HYDRAULIC WINCH - OPTION

The winch option consists of the winch, and pivoting winch guide. Although the winch specifications for the **LX95** is different from the **LX115** but maintenance procedure for both is the same.

The winch has a grease point that needs to be greased every 50 hrs (per service record chart) The pivoting winch guide should be inspected daily and lubricated as required.

Ensure the machine is set in **safe condition** (see 8.2) before performing maintenance. See illustration below:

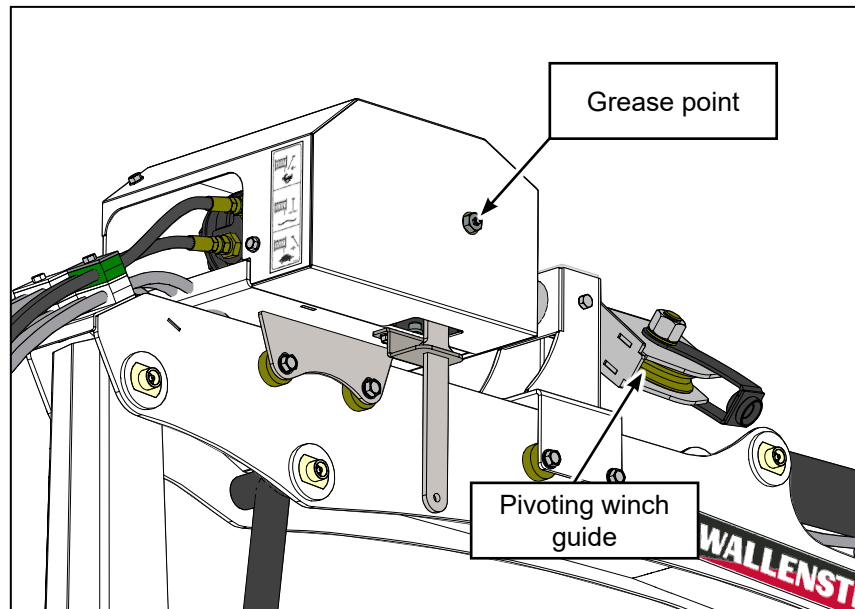


Fig. 29 WINCH ASSEMBLY

9.2.6 LT30 HYDRAULIC (SURGE) BRAKES

Trailer Brakes are part of the **Highway** or **ATV option** for the **LT30**

Only a qualified mechanic trained in the repair and maintenance of braking systems should attempt brake repair, and replacement. When making adjustments or repairs to the surge brakes: be aware that there is a left and right brake assembly.

Your trailer brakes must be inspected and serviced immediately if a loss of performance is indicated. With normal use, servicing at one year intervals is usually adequate. With increased usage, this work should be done more frequently as required.

Brake Lining

A simple visual inspection of your brake linings will tell if they are usable. Replacement is necessary if the lining is worn (to within 1/16 or less), contaminated with grease or oil, or abnormally scored or gouged. Hairline heat cracks are normal in bonded linings and should not be cause for concern. When replacement is necessary, it is important to replace both shoes on each brake and both brakes of the same axle. This will help retain the "balance" of your brakes. Before reassembling, apply a light film of grease or anti-seize compound on the brake anchor pin, the actuating arm bushing and pin, and the areas on the backing plate that are in contact with the brake shoes.

Wheel Cylinders

- Inspect for leaks and smooth operation.
- Clean with brake cleaner and flush with fresh brake fluid.
- Hone or replace as necessary.

Brake Lines

- Check for cracks, kinks, or blockage. Flush with fresh brake fluid.
- Bleed system to remove all air. Replace as necessary.
- Shoes and Linings

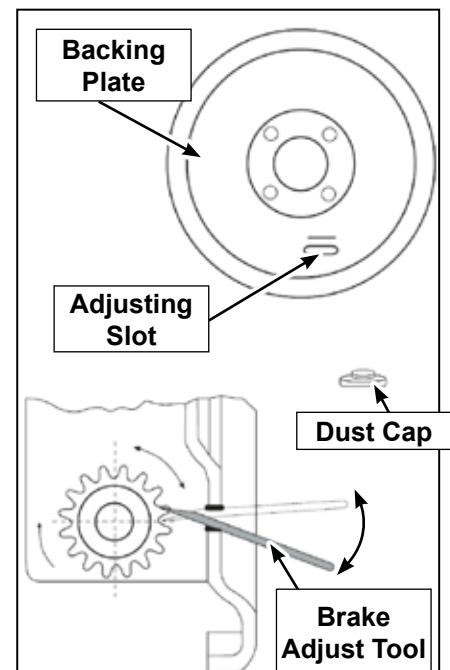
Hardware

- Check all hardware.
- Check shoe return spring, hold down springs, and adjuster springs for stretch or wear. Replace as required.
- Service kits are available.

To make brake adjustments to your LT Log trailer, follow the procedure explained below. If you are not sure about making these adjustments, have a qualified mechanic make the adjustments.

Ensure the machine is set in **safe condition** (see 8.2) before performing maintenance.

1. Raise the trailer wheel so it can turn freely.
2. Locate and remove the dust cover from the adjusting slot on the lower back of the brake backing plate.
3. Locate the brake adjusting screw [called a star adjuster] through the adjusting slot and insert a brake adjusting tool. Adjust the brake shoes out [tighten by turning the star adjuster down on the left side drum and up on the right side drum] until tires will not turn by hand, then back off [loosen by turning the star adjuster up on the left side drum and down on the right side drum] the adjustment until the wheel turns freely, usually with a slight lining drag.
4. If properly adjusted the drum should turn freely and have a barely audible sound of the shoes against the drums. This indicates that the shoes are in contact with the drum, but not dragging a lot.



9.2.7 LT60 ELECTRIC BRAKES

Trailer Brakes are part of the **Highway option** for the **LT60**

Only a qualified mechanic trained in the repair and maintenance of braking systems should attempt brake repair, and replacement. When making adjustments or repairs to the electric brakes: be aware that there is a left and right brake assembly.

Your trailer brakes must be inspected and serviced immediately if a loss of performance is indicated. With normal use, servicing at one year intervals is usually adequate. With increased usage, this work should be done more frequently as required. Magnets and shoes must be changed when they become excessively worn or scored, a condition which can reduce vehicle braking. Clean the backing plate, magnet arm, magnet, and brake shoes. Make certain that all the parts removed are replaced in the same brake and drum assembly.

Before reassembling, apply a light film of grease or anti-seize compound on the brake anchor pin, the actuating arm bushing and pin, and the areas on the backing plate that are in contact with the brake shoes.

Brake Lining

A simple visual inspection of your brake linings will tell if they are usable. Replacement is necessary if the lining is worn (to within 1/16 or less), contaminated with grease or oil, or abnormally scored or gouged. Hairline heat cracks are normal in bonded linings and should not be cause for concern. When replacement is necessary, it is important to replace both shoes on each brake and both brakes of the same axle. This will help retain the "balance" of your brakes.

Magnets

Your electric brakes are equipped with high quality electromagnets that are designed to provide the proper input force and friction characteristics. Your magnets should be inspected and replaced if worn unevenly or abnormally. For best results, the magnet should be flat. Even if wear is normal the magnets should be replaced if any part of the magnet coil has become visible through the friction material facing of the magnet.

It is also recommended that the drum armature surface be refaced when replacing magnets (see section on Brake Drum Inspection). Magnets should also be replaced in pairs - both sides of an axle.

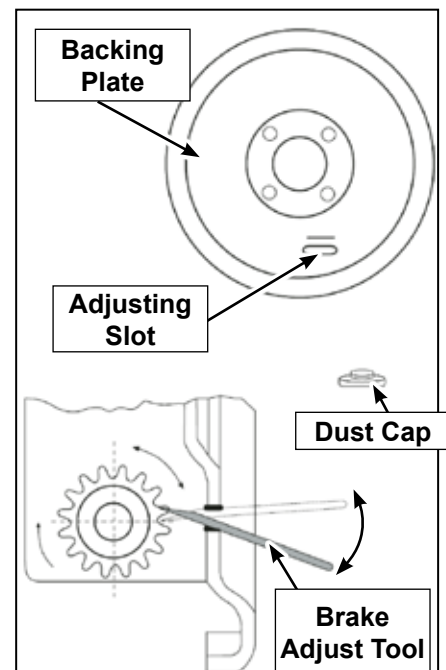
Hardware

- Check all hardware.
- Check shoe return spring, hold down springs, and adjuster springs for stretch or wear. Replace as required.
- Service kits are available.

To make brake adjustments to your LT Log trailer, follow the procedure explained below. If you are not sure about making these adjustments, have a qualified mechanic make the adjustments.

Ensure the machine is set in **safe condition** (see 8.2) before performing maintenance.

1. Raise the trailer wheel so it can turn freely.
2. Locate and remove the dust cover from the adjusting slot on the lower back of the brake backing plate.
3. Locate the brake adjusting screw [called a star adjuster] through the adjusting slot and insert a brake adjusting tool. Adjust the brake shoes out [tighten by turning the star adjuster down on the left side drum and up on the right side drum] until tires will not turn by hand, then back off [loosen by turning the star adjuster up on the left side drum and down on the right side drum] the adjustment until the wheel turns freely, usually with a slight lining drag.
4. If properly adjusted the drum should turn freely and have a barely audible sound of the shoes against the drums. This indicates that the shoes are in contact with the drums, but not dragging a lot.



























10 TROUBLE SHOOTING

The Wallenstein Log Grapple Trailer is designed to lift, load and transport wood or logs out of the woods or woodlot. It is a simple and reliable system that requires minimal maintenance.

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

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

PROBLEM	CAUSE	SOLUTION	CAUTION	
Cylinder rods move slowly or don't move. (main boom, dipper boom, grapple, stabilizers).	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	connection at grapple switched, check colour code and match connections.		Ensure machine is off.
	Not enough flow	Flow control set too low, set control higher for more flow.		
	Hydraulic hoses switched	Switch input / output hydraulic hose connections.		Ensure machine is off.
	Low engine speed.	Check that choke is off, check throttle is correctly set.		
Cylinders jerk, don't run smoothly.	Leak in hydraulic system	Air getting into system, tighten all hydraulic connections.		Ensure machine is off.
Control handle doesn't go to neutral when released.	Return springs collapsed.	Check valve return springs, replace if required.		Ensure machine is off.
	No pressurized hydraulic oil.	Oil filter plugged. Change filter.		Ensure machine is off.
	No pressurized hydraulic oil	Low hydraulic oil level, top up.		Ensure machine is off.
	Control may be damaged.	Call technician, control may need service or be replaced.		Ensure machine is off and call hydraulic technician.
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.
Hydraulics behave erratically.	mis-matched valve (open / closed system)	Determine hydraulic system on tractor, ensure valve system matches.		Ensure machine is off and call hydraulic technician / service.
Boom drifts down.	leaking seals	replace seals .		Ensure machine is off and call hydraulic technician / service.
	Counter balance valve defective	repair or replace valve.		Ensure machine is off and call hydraulic technician / service.

PROBLEM	CAUSE	SOLUTION	CAUTION	
Boom Doesn't rotate or rotates slowly	Boom pin in place	remove boom lock pin before starting work		
	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
	Not enough pressure.	Flow control set to low, set control higher for more flow		
	Hydraulic hoses switched	Switch input / output hydraulic hose connections		Ensure machine is off
	Low engine speed.	Check that choke is off, check throttle is correctly set.		
	Boom swing gears jammed	Clear debris in boom swing gears		Ensure machine is off
	Boom swing gears require lubrication	lubricate gears		Ensure machine is off
Power Pack Engine Issues	See trouble shooting section in engine owners manual			
Brakes don't work (LT30: ATV / Hiway Options LT60: Hiway Option)	Brake lock out engaged (LT30)	Disengage lockout.		Brake service should be carried out by qualified technician
	Trailer connector, wiring issue (LT60)	Inspect connectors & wiring, clean contacts, replace broken wires.		Brake service should be carried out by qualified technician
	Broken or leaking brake line (LT30)	Replace brake line.		Brake service should be carried out by qualified technician
	Brake adjustment not correct	Adjust brakes		Brake service should be carried out by qualified technician
Surging brakes (LT30: ATV / Hiway Options LT60: Hiway Option)	Grease or oil on linings	Clean or replace		Brake service should be carried out by qualified technician

11 SPECIFICATIONS

11.1 MECHANICAL

11.1.1 LT30 LOG TRAILER

LT30	
Load Capacity: Off Road	5000 lb 2268 kg
Highway (with Highway Option)	5000 lb 2268 kg
Trailer Bed Length	96" (8ft) 2.4 m
Dimensions (LxWxH)	161" x 64" x 58" 409 cm x 163 cm x 147 cm
Tongue Weight (Dry): tandem position: front with Grapple Only with Grapple & Power Pack tandem position: back with Grapple Only with Grapple & Power Pack	200 lbs (91 kg) 250 lbs (114 kg) 465 lbs (211 kg) 515 lbs (234 kg)
Trailer Weight (GVW) Trailer only	849 lbs 385 kg
Tires: Offroad Highway	27 x 10.5 x 15 - 8 Ply (standard) ST205-75R14 LRC
Ground Clearance	14" (35.5cm)
Factory Options	6089A350 Highway Option (surge brakes, tires, lights, 2" ball hitch, VIN) 6083A300 Hydraulic Tandem Option (requires LX95 Boom Option) LX95 114" Reach Hydraulic Boom (L101 req'd if not using power pack)
Features	Standard Mounting for LX 95 Grapple / Boom Standard Mounting for LX 95 Power Pack 3 position Manual Tandem Axle Adjustment 19" (48.25cm) Swivel Axles 8 removable self centering bunk posts Integrated Safety Back Guard Clevis Hitch
Recommended Minimum ATV / Utility Vehicle	600 cc
Model Variations	
LT30	Trailer- Offroad - standard Features (use with LX95, LX95PW)
LT30-H	Trailer - highway Kit - surge brakes, tires(ST205-75R14 LRC), lights, 2" ball coupler (use with LX95, LX95PW)
LT30-A	Trailer - ATV kit: Offroad with Hydraulic Tandem (w/valve stack (platform) & surge brakes (req's LX95 or LX95W)
LT30-HA	Trailer - highway Kit with Hydraulic Tandem (req's LX95 or LX95W)
After Market Options	L310 Dump Box - 25 cu ft (0.7 cu meter) L330 Expanded Metal Flat Bed - 9.0' x 5.0' (274 cm x 152 cm) L301 LX 95 Power Pack (Honda GX200 6HP, hydraulic pump, 4.6 US gal (17.5 litre) tank) L101 Tractor Hydraulic Kit (when using tractor hydraulics - incl: adjustable flow divider, hoses, hrdwre)

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

11.1.2 LX95 LOG GRAPPLE

LX95	
For use with	LT30 Log Trailer Wallenstein 3 Point Hitch Catagory 2 Adaptor
Weight	800 Lbs. 363 kg
Maximum Horizontal Reach	9' 6" 2.9 m
Maximum Vertical Reach (ground to grapple knuckle)	15' 4.5 m
Lifting Capacity	800 Lbs. 363 kg
Grapple Rotation	360°
Boom Rotation	270°
Grapple Opening	3" - 30" 7.6 - 76 cm
Stabilizer Width	7' 5" 2.27 m
Dipper & Grapple Cylinders	2.5" 6.35 cm
Main Boom Cylinder	2.5" 6.35 cm
Stabilizer Cylinder	2" 5.0 cm
Recommended Hydraulic Flow	1-2 GPM 4 - 8 l/m
Recommended HP Tractor - Trailer	30 HP 24 kW
Recommended HP Tractor - 3 PH	40 HP 30kW
Standard Features	Grapple Hydraulic Hoses with couplers Left & Right Stabilizers Positionable Control Panel Hydraulic Lock on Main Boom (prevents boom movement if hydraulic pressure is lost)
Model Variants	
LX95	Standard Boom (with out hyd.valve stack (option platform) use with all LT30 models and L400 (3ph)
LX95W	Standard Boom with winch with out hyd.valve stack (option platform) use with LT30-A & LT30-HA
LX95PW	Standard Boom with winch & hyd.valve stack (platform) use with LT30 & LT30-H & L400 (3ph)
After Market Options	LT30 Log Trailer (L101 req'd if not using power pack) L101 Tractor Hydraulic Kit (when using tractor hydraulics - incl: flow control, hoses, hrdwre) L400 3 Point Hitch Catagory 2 Adaptor (LX Adaptor, 3PH Adaptor, Flow Control, hrdwre) 6083A200 Hydraulic Winch Kit 2 speed LA610 6" Diameter Auger Kit (hole depth: 42" - 107 cm) LA910 9" Diameter Auger Kit (hole depth: 42" - 107 cm) L301 LX 95 Power Pack (Honda GX200 6HP, hydraulic pump, 4.6 US gal (17.5 litre) tank) BA201 Back Hoe Kit - Bucket not included (includes:hydraulic cylinder, hoses, bucket linkage, pins & hrdwre) Bucket Options for Back Hoe Kit: BK2690 9" 3 Tooth Bucket BK2612 12" 3 Tooth Bucket BK2615 15" 4 Tooth Bucket BK2618 18" 4 Tooth Bucket

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

11.1.3 LT60 LOG TRAILER

LT60	
Load Capacity: Off Road	10000 lb 4536 kg
Highway (with Highway Option)	11500 lb 5216 kg
Trailer Bed Length	132" (11ft) 3.3 m
Dimensions (LxWxH)	198" x 68" x 60" 503 cm x 173 cm x 152 cm
Tongue Weight: with Grapple Only with Grapple & Power Pack	480 lbs (218 kg) 555 lbs (252 kg)
Trailer Weight (GVW)	1269 lbs 576 kg
Tires: Offroad Highway	11L15 15x8 Frm Splst - 12 Ply (standard) ST235-80R16 LRE
Ground Clearance	17" (43cm)
Features	Standard Mounting for LX 115 Power Pack Standard Mounting for LX 115 Grapple / Boom Swivel Axles 8 removable bunk posts Integrated Safety Back Guard Clevis Hitch
Factory Options	6089A370 Highway Option (electric brakes, tires, lights, 2 5/16"ball hitch, VIN) LX115 138" Reach Hydraulic Boom (L101 req'd if not using power pack)
Model Variations	
LT60	Standard Trailer- Offroad (use with all LX115 booms)
LT60H	Trailer - highway Kit (electric brakes, tires(ST235-80R16 LRE), lights, 2 5/16"ball couple) (use with all LX115 booms)
After Market Options	L640 Pintal Hitch L620 Dump Box - 45 cu ft (1.3 cu meter) L650 Hydraulic Articulated Drawbar (off road only) L630 Expanded Metal Flat Bed - 10' 6".' x 5' 8" (321 cm x 179 cm) L601 LX 115 Power Pack (Honda GX270 9HP, hydraulic pump, 4.6 US gal (17.5 litre) tank L101 Tractor Hydraulic Kit (when using tractor hydraulics - incl: adjustable flow divider, hoses, hrdwre)

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

11.1.4 LX115 LOG GRAPPLE

LX115	
For use with	LT60 Multipurpose Trailer Wallenstein 3 Point Hitch Catagory 2 Adaptor
Weight	1200 Lbs. 363 kg
Maximum Horizontal Reach	11' 6" 3.5 m
Maximum Vertical Reach (ground to grapple knuckle)	18' 5.5 m
Lifting Capacity	1200 Lbs. 363 kg
Grapple Rotation	360°
Boom Rotation	270°
Grapple Opening	3" - 38" 7.6 - 96.5 cm
Stabilizer Width	8' 11" 2.7 m
Dipper & Grapple Cylinders	2.5" 6.35 cm
Main Boom Cylinder	3.0" 7.6 cm
Stabilizer Cylinder	2.0" 5.0cm
Recommended Hydraulic Flow	4-6 GPM 15 - 23 l/m
Recommended HP Tractor - Trailer	45 HP 34 kW
Recommended HP Tractor - 3 PH	60 HP 45 kW
Standard Features	Grapple Hydraulic Hoses with couplers Left & Right Stabilizers Positionable Control Panel Hydraulic Lock on Main Boom (prevents boom movement if hydraulic pressure is lost)
Model Variants	
LX115	Standard Boom - use with LT60, LT60-H & L400 (3PH)
LX115W	Standard Boom , with Hydrualic Winch- use with LT60, LT60-H & L400 (3PH)
After Market Options	LT60 Log Trailer L400 3 Point Hitch Catagory 2 Adaptor (LX Adaptor, 3PH Adaptor, Flow Divider) 6083A200 Hydraulic Winch Kit 2 speed LA610 6" Diameter Auger Kit (hole depth: 42" - 107 cm) LA910 9" Diameter Auger Kit (hole depth: 42" - 107 cm) L601 LX 115 Power Pack (Honda GX270 9HP, hydraulic pump, 4.6 US gal (17.5 litre) tank) BA201 Back Hoe Kit - Bucket not included (includes:hydraulic cylinder, hoses, bucket linkage, pins & hrdwre) Bucket Options for Back Hoe Kit: BK2690 9" 3 Tooth Bucket BK2612 12" 3 Tooth Bucket BK2615 15" 4 Tooth Bucket BK2618 18" 4 Tooth Bucket

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

11.2 BOLT TORQUE

Checking Bolt Torque

The tables shown give correct torque values for various bolts and capscrews. Tighten all bolts to the torque values specified in the table, unless indicated otherwise. Check tightness of bolts periodically.

IMPORTANT! If replacing hardware, use fasteners of the same grade.

IMPORTANT! Torque figures indicated in the table are for non-greased or non-oiled threads. Do not grease or oil threads unless indicated otherwise. When using a thread locker, increase torque values by 5%.



NOTE: Bolt grades are identified by their head markings.

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



SAE Gr. 2



SAE Gr. 5



SAE Gr. 8

Metric Bolt Torque Specifications				
Bolt Diameter	Torque Value			
	Gr. 8.8		Gr. 10.9	
	lbf•ft	N•m	lbf•ft	N•m
M3	0.4	0.5	1.3	1.8
M4	2.2	3	3.3	4.5
M6	7	10	11	15
M8	18	25	26	35
M10	37	50	52	70
M12	66	90	92	125
M14	83	112	116	158
M16	166	225	229	310
M20	321	435	450	610
M30	1,103	1 495	1,550	2 100



8.8



10.9

11.3 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. Hand-tighten swivel nut until snug.
4. To prevent twisting the tube, use two wrenches. Place one wrench on the connector body and tighten the swivel nut with the second. Torque to values shown.

If a torque wrench is not available, use the FFFT (Flats From Finger Tight) method.

Hydraulic Fitting Torque					
Tube Size OD	Hex Size Across Flats	Torque value		Flats From Finger Tight	
Inches	Inches	lbf•ft	N•m	Flats	Turns
3/16	7/16	6	8	2	1/6
1/4	9/16	11–12	15–17	2	1/6
5/16	5/8	14–16	19–22	2	1/6
3/8	11/16	20–22	27–30	1-1/4	1/6
1/2	7/8	44–48	59–65	1	1/6
5/8	1	50–58	68–79	1	1/6
3/4	1-1/4	79–88	107–119	1	1/8
1	1-5/8	117–125	158–170	1	1/8

Values shown are for non-lubricated connections.

11.4 WHEEL LUG TORQUE

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

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



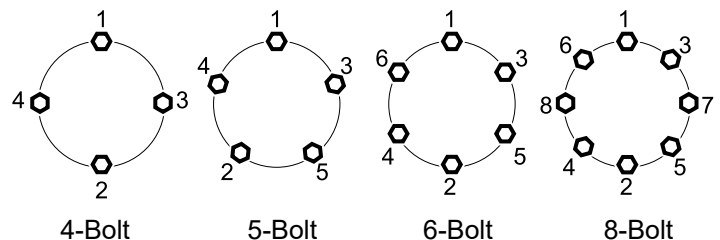
WARNING!

Wheel lug nuts must be installed and kept at the proper torque value to prevent loose wheels, broken studs, or possible separation of wheels from axle.

- Start all lug nuts onto the threads by hand.
- Tighten lug nuts in stages, following the pattern shown in the Wheel Lug Nut Torque table.

Wheel Lug Nut Torque				
Wheel Size	Units	1st Stage	2nd Stage	3rd Stage
8"	lbf•ft N•m	12–20 16–26	30–35 39–45.5	45–55 58.5–71.5
12"	lbf•ft N•m	20–25 26–32.5	35–40 45.5–52	50–60 65–78
13"	lbf•ft N•m	20–25 26–32.5	35–40 45.5–52	50–60 65–78
14"	lbf•ft N•m	20–25 26–32.5	50–60 65–78	90–120 117–156
15"	lbf•ft N•m	20–25 26–32.5	50–60 65–78	90–120 117–156
16"	lbf•ft N•m	20–25 26–32.5	50–60 65–78	90–120 117–156

Wheel Lug Torque Pattern



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