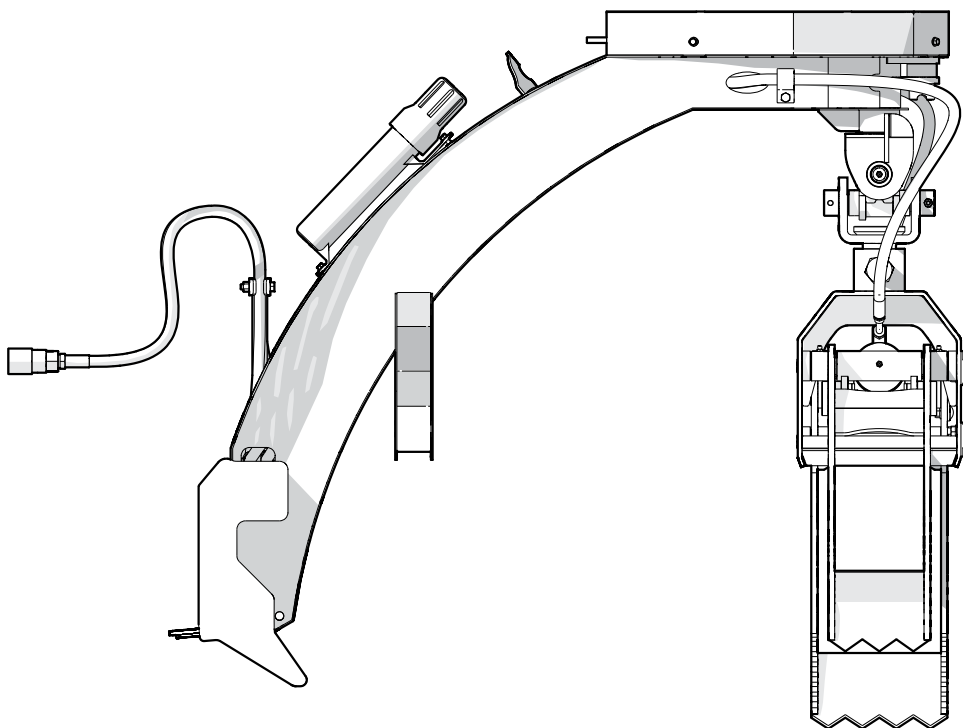


# OPERATOR'S MANUAL

---

## LXG210 Series Mini Skid Steer Log Grapple



# 1. Foreword

## 1.1 Introduction

### **Congratulations on your choice of a Wallenstein LXG210 Series Log Grapple!**

Wallenstein **LXG210 Series Log Grapples** are designed to mount on a mini skid steer. The grapple can be used for loading / carrying logs in a small-scale timber industry or landscaping business. The following table outlines some basic differences in the models.

Model	Mounting	Weight
LXG210S	Mini skid steer mount	285 lb (130 kg)
LXG210SB	Bobcat® mini skid steer mount	343 lb (156 kg)

Safe, efficient and trouble-free operation of this Wallenstein product requires that anyone using or maintaining the machine reads and understands the Safety, Operation, and Maintenance information contained within the Operator's Manual.

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, further information, or additional copies of the manual.

Units of measurement in Wallenstein Equipment technical manuals are written as:  
US Customary (SI metric)

**Wallenstein Equipment Inc. • © 2021. All rights reserved.**

No part of this work may be copied, reproduced, replaced, distributed, published, displayed, modified, or transferred in any form or by any means except with the prior permission of Wallenstein Equipment Inc.

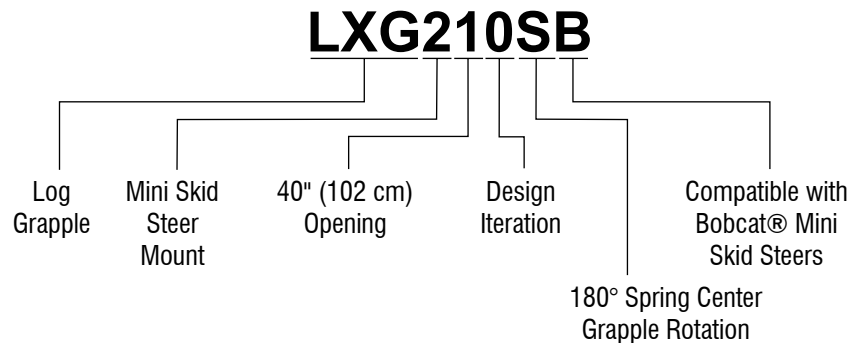
### **WARNING!**

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

**Always keep this manual with the machine.**

W034

## Model Configuration



## Table of Contents

<b>1. Foreword .....</b>	<b>2</b>	<b>9. Troubleshooting.....</b>	<b>30</b>
1.1 Introduction .....	2	<b>10. Specifications .....</b>	<b>31</b>
1.2 Delivery Inspection Report.....	4	10.1 Machine Specifications .....	31
1.3 Serial Number Location .....	5	10.2 Common Bolt Torque Values.....	32
1.4 Types of Decals on the Machine .....	6	10.3 Hydraulic Fitting Torque.....	33
<b>2. Safety .....</b>	<b>7</b>	<b>11. Product Warranty .....</b>	<b>34</b>
2.1 Safety Alert Symbol .....	7	<b>12. Alphabetical Index .....</b>	<b>35</b>
2.2 Signal Words .....	7		
2.3 Why is SAFETY important? .....	7		
2.4 Safety Rules .....	8		
<b>3. Safety Signs .....</b>	<b>12</b>		
3.1 Safety Sign Locations .....	12		
3.2 Safety Sign Explanations.....	14		
3.3 Replacing Damaged Safety Signs .....	15		
<b>4. Familiarization.....</b>	<b>16</b>		
4.1 To the New Operator .....	16		
4.2 Operator Orientation .....	16		
4.3 Grapple Major Components.....	17		
<b>5. Installation.....</b>	<b>18</b>		
5.1 Matching Grapple to Mini Skid Steer .....	18		
5.2 Connecting to the Mini Skid Steer .....	18		
5.3 Hydraulic Connection Requirements .....	18		
5.4 Grapple Removal.....	18		
5.5 Storage .....	19		
<b>6. Controls .....</b>	<b>20</b>		
6.1 Grapple Forks .....	20		
6.2 Spring-return Pivot.....	20		
6.3 Cantilever Cradle .....	21		
<b>7. Operating Instructions .....</b>	<b>22</b>		
7.1 Operating Safety.....	22		
7.2 Machine Break-in.....	22		
7.3 Pre-operation Checks .....	22		
7.4 Skidding Logs .....	23		
7.5 Right Angle Lifting.....	23		
7.6 Parallel Lifting with Cantilever Cradle .....	23		
7.7 Spring-return Pivot.....	24		
7.8 Operating Hints.....	26		
7.9 Traveling .....	26		
7.10 Storage .....	27		
<b>8. Service and Maintenance.....</b>	<b>28</b>		
8.1 Maintenance Safety .....	28		
8.2 Maintenance Schedule .....	28		
8.3 Grease Type .....	28		
8.4 Grease Points .....	29		

## 1.2 Delivery Inspection Report

### Wallenstein LXG210 Series Grapples

To activate warranty, register your product at: [www.wallensteinequipment.com](http://www.wallensteinequipment.com)

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

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

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

\_\_\_\_\_  
Customer

\_\_\_\_\_  
Dealer

\_\_\_\_\_  
Address

\_\_\_\_\_  
Address

\_\_\_\_\_  
City, State/Province, ZIP/Postal Code

\_\_\_\_\_  
City, State/Province, ZIP/Postal Code

(       )  
\_\_\_\_\_  
Phone Number

(       )  
\_\_\_\_\_  
Phone Number

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

\_\_\_\_\_  
Model

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

\_\_\_\_\_  
Delivery date

### 1.2.1 Dealer Inspection Report

\_\_\_\_\_ Check Condition of Hydraulic Hoses

\_\_\_\_\_ Check that all Fasteners are Tight

\_\_\_\_\_ Check Hydraulic Functions

\_\_\_\_\_ Check Grapple Function

\_\_\_\_\_ Check Pivot Assembly Moves Freely

\_\_\_\_\_ Check Guards and Shields Installed

\_\_\_\_\_ Check Rotator Function

#### Safety Checks

\_\_\_\_\_ All Safety Decals Installed and in Good Condition

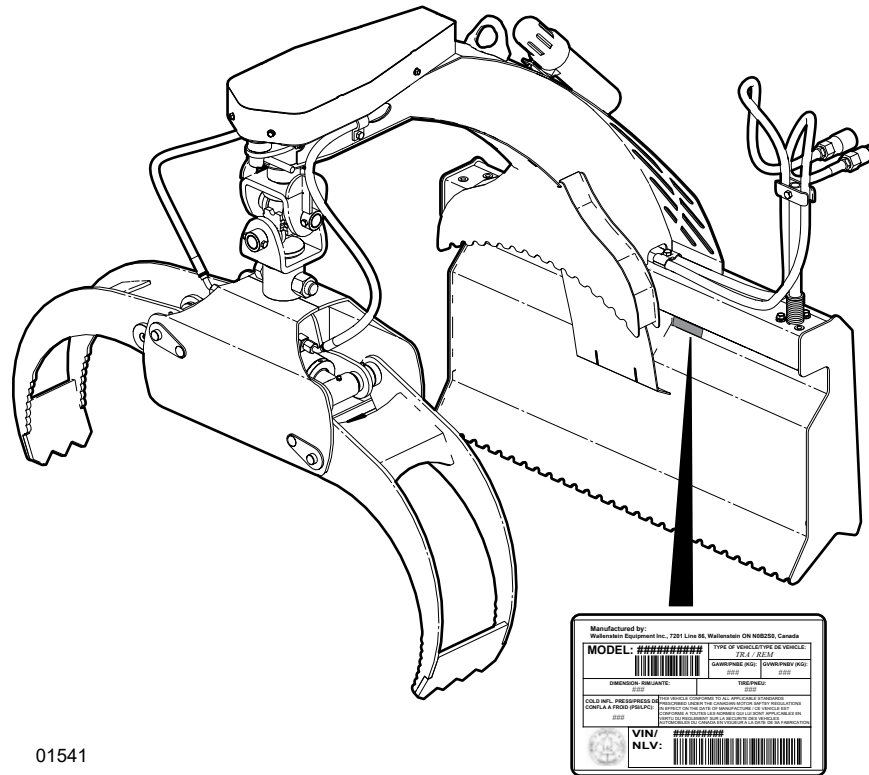
\_\_\_\_\_ Operating and Safety Instructions Reviewed

## 1.3 Serial Number Location

Always provide your dealer with the serial number of your Wallenstein product when ordering parts or requesting service or other information.

The Serial Number Plate location is shown in the illustration. **Please record the product Model and Serial Number in the space provided below for easy reference.**

Record Product Information Here	
<b>Model:</b>	
<b>Serial Number:</b>	



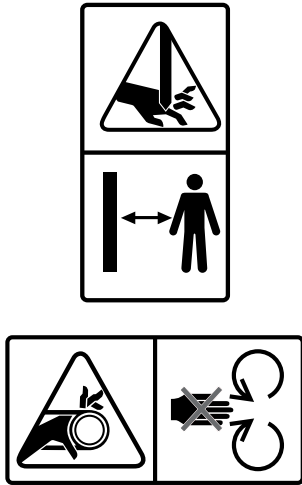
01541

**Fig. 1**–Serial Number Plate Location (Typical)

## 1.4 Types of Decals on the Machine

When getting familiar with the Wallenstein product, notice that there are numerous decals located on the machine. There are different types of decals for safety, information, and product identification. The following section explains what they are for and how to read them.

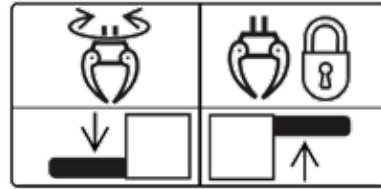
**Safety Sign Decals** have a yellow background and are generally two panel. They can be either vertical or horizontal orientation.



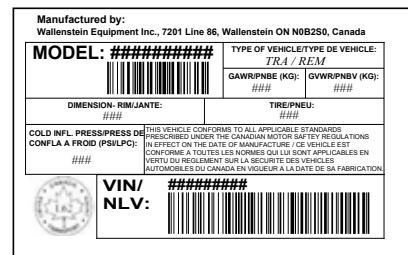
**Safety Notice Decals** are pictorial with a blue background and generally rectangular with single or multiple symbols. This decal informs what Personal Protective Equipment is required for safe operation.



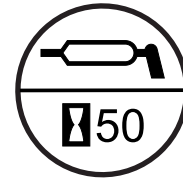
**Informative Decals** are generally pictorial with a white background and can vary in the number of panels. This type of decal provides additional information to the operator or explains the operation of a control.



**Product Decals** indicate machine model and serial number, and other important information.



**Maintenance Decals** have a green background. The decal indicates a maintenance procedure and frequency interval.



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

## 2. Safety

### 2.1 Safety Alert Symbol

This Safety Alert Symbol means:

**ATTENTION! BE ALERT!  
YOUR SAFETY IS INVOLVED!**

The Safety Alert Symbol identifies important safety messages on the machine 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.



### 2.2 Signal Words

The signal words **DANGER**, **WARNING** and **CAUTION** determine the seriousness level of the warning messages in this manual. The appropriate signal word for each message in this manual has been selected using the following guidelines:

#### **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.

**IMPORTANT** – To avoid confusing equipment protection with personal safety messages, a signal word **IMPORTANT** indicates a situation that if not avoided, could result in damage to the machine.

### 2.3 Why is SAFETY important?

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



**YOU** are responsible for the SAFE operation and maintenance of your Wallenstein product. **YOU** must make sure that anyone who is going to use, maintain or work around the machine is familiar with the operating and maintenance procedures and related **SAFETY** information contained in this manual. This manual alerts you to all good safety practices that should be used while using your Wallenstein equipment.


**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 operating and maintenance procedures and follows all the safety precautions.

**Do not risk injury or death by ignoring good safety practices.**

## 2.4 Safety Rules


Safety is a primary concern in the design and manufacture of Wallenstein products. Unfortunately, efforts to provide safe equipment can be wiped out by a single careless act.

- It is the operator's responsibility to read, understand and follow ALL safety and operation instructions in this manual. 
- The operator of this grapple must be a responsible, properly trained and physically able person familiar with machinery and trained in the operation of a mini skid steer. Learn the controls and how to stop the machine quickly in an emergency before working with the grapple.
- An employer has the responsibility to train employees how to operate the equipment they are using. When someone does not understand the basic operation of a piece of equipment, they can create dangerous situations very quickly. Operators must completely understand:
  - Safety section of this manual
  - Safety decals on the machine
  - Mini skid steer operator's manual
- If this machine is used by any other person, loaned or rented, it is the owner's responsibility to make certain that prior to using, every operator is fully trained.
- Review safety related items annually with all personnel who will be operating or performing maintenance.
- Keep a first-aid kit available for use should the need arise and know how to use it. 
- Never consume alcohol or drugs when operating this equipment. Alertness or coordination can be affected. Consult your doctor about operating this machine while taking prescription medications.
- Never swing a load if the operator's line of sight is obstructed. Do not lift it higher than is necessary to provide unobstructed vision for the equipment operator.
- Always wear PPE when operating or servicing the machine. Hard hats, protective glasses, protective shoes, gloves, reflector type vests and ear protection are types of equipment that may be required.
- Avoid loose fitting clothing, loose or uncovered long hair, jewelry, and loose personal articles. These can get caught in moving parts. Jewelry may also ground a live circuit.

- 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. 

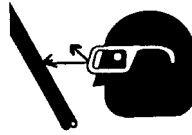
- Wear hearing protection on a full-time basis if the noise in the operator's cab exceeds 80 dB. Noise over 85 dB on a long-term basis can cause severe hearing loss. Noise over 90 dB adjacent to the operator over a long-term basis may cause permanent, total hearing loss.
- Keep bystanders away at a safe distance at least 10 ft (3 m) from stacking zone. Mark the zone with safety cones.
- Use the machine only in daylight or good artificial light.
- Perform the **Pre-operation Checks** before starting work (see *page 22*).
- Do not risk injury or death by ignoring good safety practices.

### Equipment Safety Guidelines

- Replace any safety sign or instruction sign that is not readable or is missing. Location and explanation of safety signs start on *page 12*.
- 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. Unapproved modifications void warranty.
- Never exceed the limits of machine if its ability to do a job, or to do so safely is in question.
- Protective cab guards must be provided on a log loader unless the absence of guards does not pose a hazard to the operator.
- Shut down the machine and place it in a Safe Condition before performing any service, maintenance work or storage preparation.
- Make sure that all the components in the hydraulic system are kept in good condition and are clean.
- Before applying pressure to the system, make sure all connections are tight. Check lines, hoses, and couplings for damage. 
- Do not attempt any makeshift repairs to the hydraulic lines, fittings or hoses by using tape, clamps or cements. The hydraulic system operates under extremely high pressure. Such repairs can fail suddenly and create a hazardous and unsafe condition.



- 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.



- 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.
- Relieve pressure on hydraulic system before working on system.
- A heavy load can cause the mini skid steer to become unstable. Use extreme care during travel (slow down on turns and watch out for bumps).

### 2.4.1 Safe Condition

Throughout this manual, we talk about a '*Safe Condition*'. What this means is parking the machine in a manner that makes it safe to service or repair.

**Place the machine in a Safe Condition before performing any service, maintenance work, or storage preparation by performing the following:**

- Empty material from grapple.
- Lower grapple to ground.
- Shut down mini skid steer engine.
- Move controls to verify there is no movement.

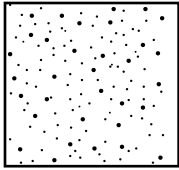
### Designated Safe Area

(See following page.)

- A *Safe Area* must be designated for workers on foot near this equipment.
- The boundaries of a designated **Safe Area** must be communicated to all workers within and near the **Work Zone**.
- No equipment should enter or proceed through a **Safe Area** unless—
  - The equipment operator first obtains permission in a clear and unmistakable manner from all the workers in that safe work area or from the supervisor of those workers, and
  - Those workers take a safe position.

### Work Zone Arrangement

- A *Work Zone* includes any area where work with this grapple is done but does not include the traveled portion of a road unless that portion of the road is being used as a landing.
- Work being done inside a **Work Zone** in a forestry operation must be planned, and the work area must be located, constructed, maintained, and operated to make sure that:
  - Logs can be moved safely in the area
  - Log piles and equipment used to handle the logs do not become unstable or otherwise create a hazard
  - Workers can work in locations clear of moving logs and equipment
  - Workers are not exposed to incoming or runaway logs or other debris
  - The area is kept free from buildup of bark and other debris to the extent that it would pose a risk to workers
  - An effective method of dust control is used and maintained
- Log piles must, to the extent practicable, be located on stable and relatively level ground.
- Log piles must not be higher than the safe operating reach of the mini skid steer being used to handle the logs.



### 1. Safe Area

The area outside of the Work Zone is designated a Safe Area for coworkers.



### 2. Work Zone

Injury may occur from heavy material falling / dropping in this area. Material on a grapple can create a collision hazard if workers or bystanders are inside the Work Zone.

Place safety cones around the area to warn others.

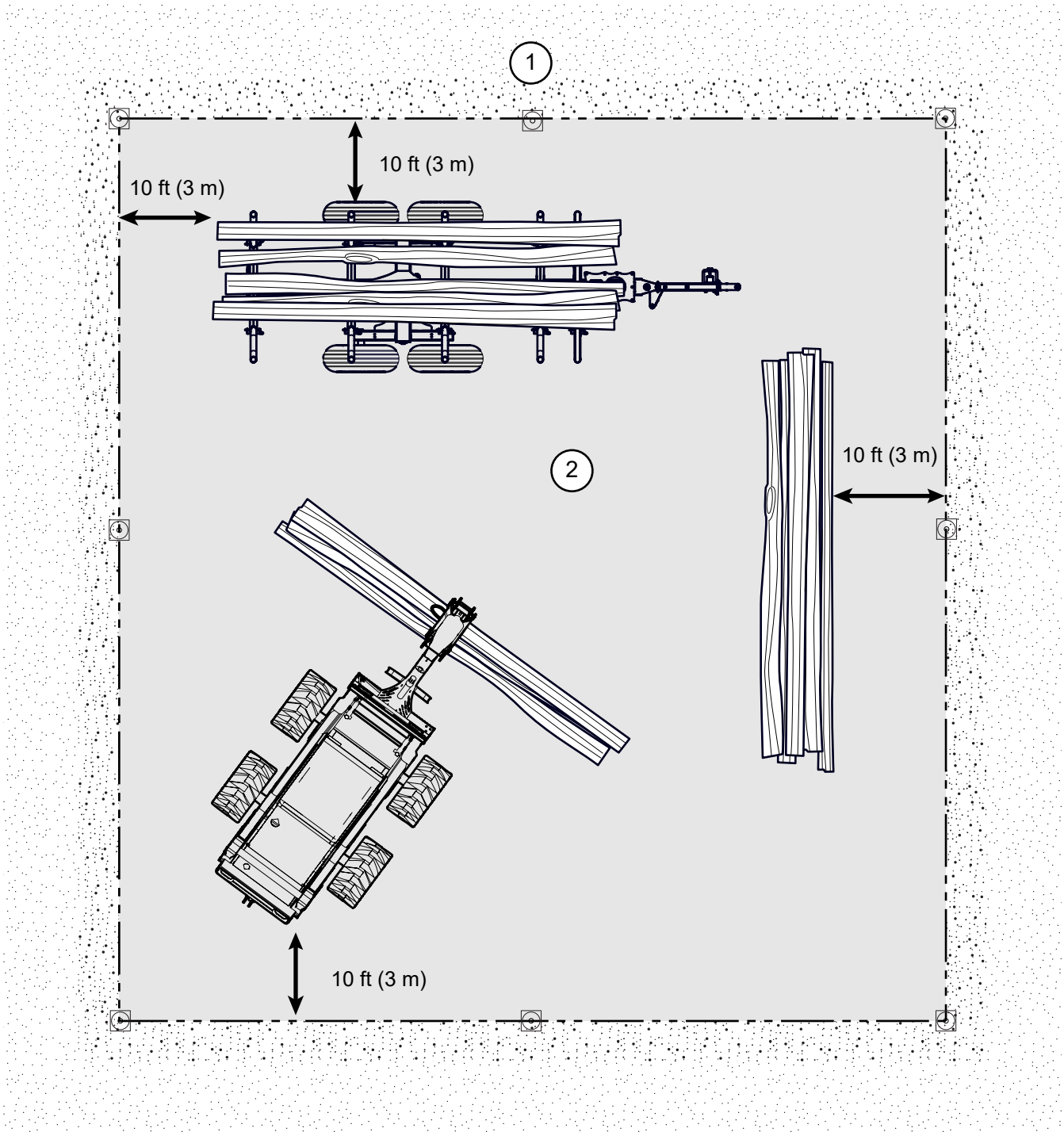


Fig. 2—Work Zone and Safe Zone

### 2.4.2 Sign-Off Form

Anyone using this machine must read and thoroughly understand all Safety, Operation and Maintenance information in this manual. An untrained operator should never use this machine.

To help document this training, the sign-off sheet provided below can be used.

Make periodic reviews of Safety and Operation a standard practice for all operators. Review again at the startup of every season.

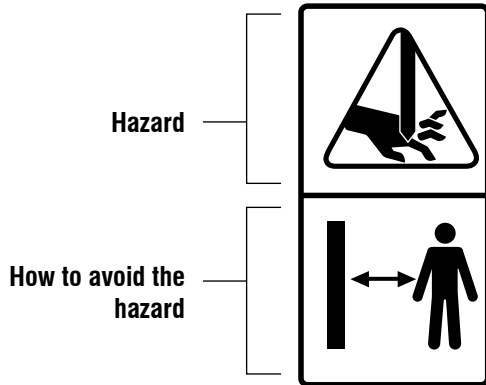
The design and manufacture of this product conforms to relative provisions in the following standards:

- ASABE S318 Safety for Agricultural Field Equipment
- ISO 3600 Tractors, machinery for agriculture and forestry, powered lawn and garden equipment – Operator’s manuals – Content and format

Sign-off Form		
Date	Owner	Employee

### 3. Safety Signs

The top (or left-hand) panel on the decal shows the safety alert (the potential hazard), and the bottom (or right-hand) panel shows the message (how to avoid the hazard).

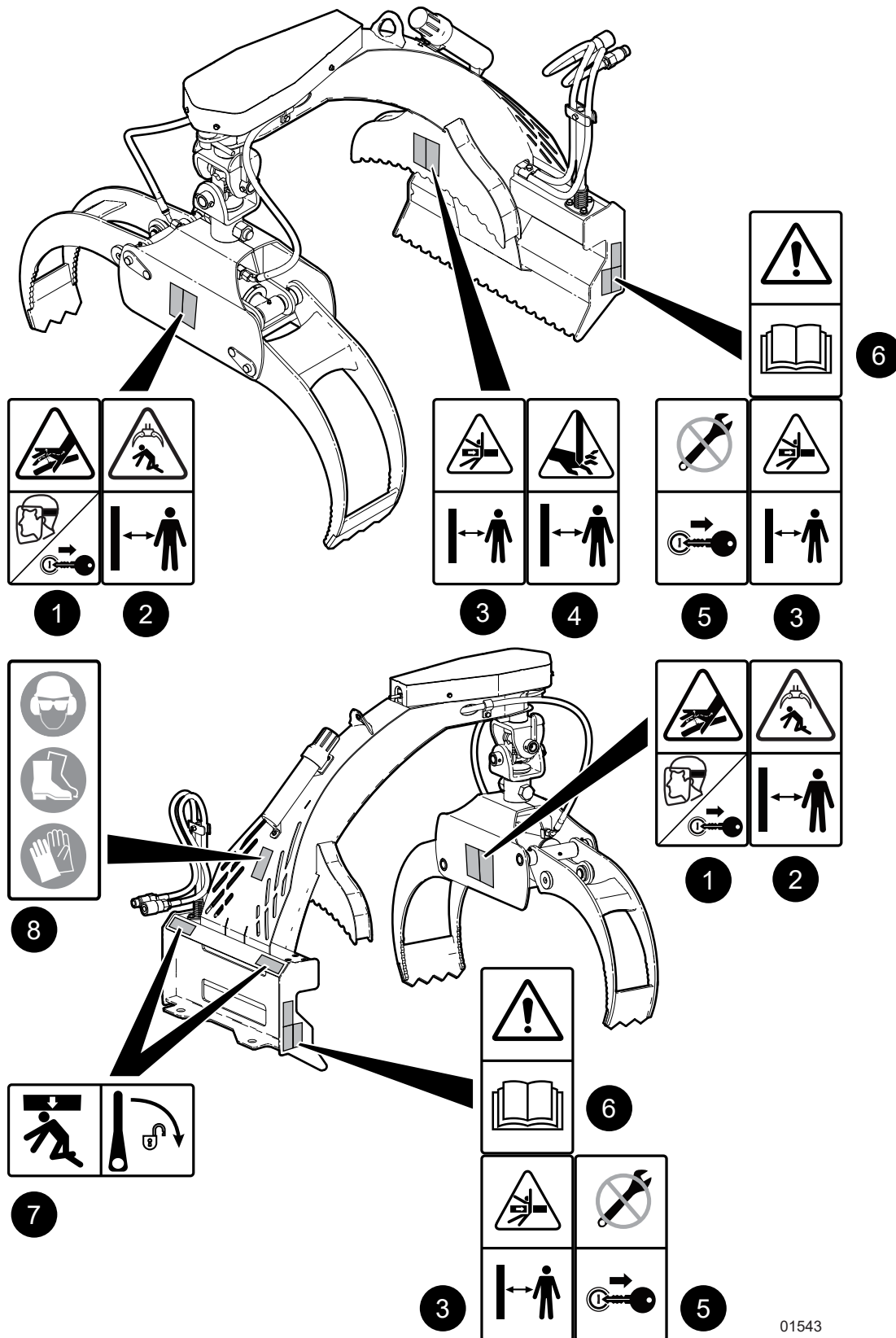


#### 3.1 Safety Sign Locations

Practicing good safety means becoming familiar with safety signs and warnings and being aware of the situations that require alertness.

**Think SAFETY! Work SAFELY!**

### 3.1.1 Safety-sign Locations



Safety

Fig. 3 – Safety-sign Locations

01543

## 3.2 Safety Sign Explanations

### 1. Caution!

Hydraulic fluid under pressure. In the event of a leak, shut machine down. Do not check for leaks with bare hands. Wear proper hand and eye protection when searching for a high-pressure hydraulic leak.



### 2. Warning!

Risk of falling debris from grapple. Do not lift any load that cannot be safely secured by the grapple. Never allow anyone to walk under overhead load. Keep bystanders at a safe distance.



### 3. Caution!

Be aware of pinch hazards from moving parts such as boom, grapple, and logs.



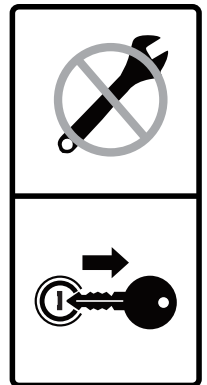
### 4. Warning!

Be aware of crush hazards from moving parts. Keep hands clear of the machine during operation.



### 5. Caution!

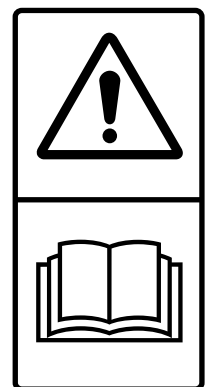
Risk of machine moving unexpectedly causing injury when servicing or repairing. Shut down machine before performing maintenance procedures. Remove the ignition key.



### 6. Caution!

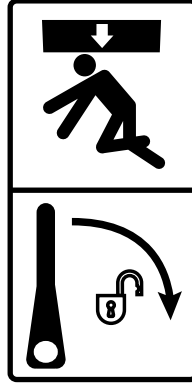
Refer to the operator's manual. Read ALL operating instructions in the manual and learn the meaning of ALL safety signs on the machine.

The best safety feature is an informed operator.



## 7. Warning!

Be aware of impact and crush hazards from above. Lower and lock the grapple in position.



## 8. Warning!

Always wear appropriate Personal Protective Equipment when using this machine. For example:

- A hard hat
- Heavy gloves
- Hearing protection
- Protective shoes with slip resistant soles
- Protective glasses, goggles or face shield



**IMPORTANT! If parts are replaced that have safety signs on them, new signs must be applied. Safety signs must always be replaced if they become damaged, are removed, or become illegible.**

Replacement safety decals are available from your authorized dealer or distributor.

## 3.3 Replacing Damaged Safety Signs

- Always replace safety signs that are missing or have become illegible. Replacement safety signs are available from your authorized distributor, dealer parts department, or the factory.
- Always keep safety signs clean and legible.
- Parts replaced that had a safety decal on them must also have the safety sign replaced.

### Procedure

Installation area must be clean and dry. Make sure the surface is free of grease or oil. Ambient temperature must be above 50 °F (10 °C).



*Determine exact position before removing the backing paper on the decal.*

1. Peel the decal off the backing sheet.
2. Align the decal with an edge on the machine if possible.
3. Starting on one edge, carefully press the center of the exposed sticky backing in place, smoothing it out as you work from one side to the other.
4. Use a squeegee, credit card or similar to smooth it out. Work from one end of the decal to the other end.

Small air pockets can be pierced with a pin and smoothed out using the piece of sign backing paper.

## 4. Familiarization

### 4.1 To the New Operator

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.

By following recommended procedures, a safe working environment is provided in the area around the work site.

Untrained operators are not qualified to use the machine.

#### 4.1.1 Training

Each operator must be trained in the proper operating procedures prior to using the machine.

1. Review control location, function and movement directions.
2. Move the unit to a large open area to allow the operator to become familiar with control function and machine response.
3. When a new operator is familiar and comfortable with the machine, they can proceed with the work.

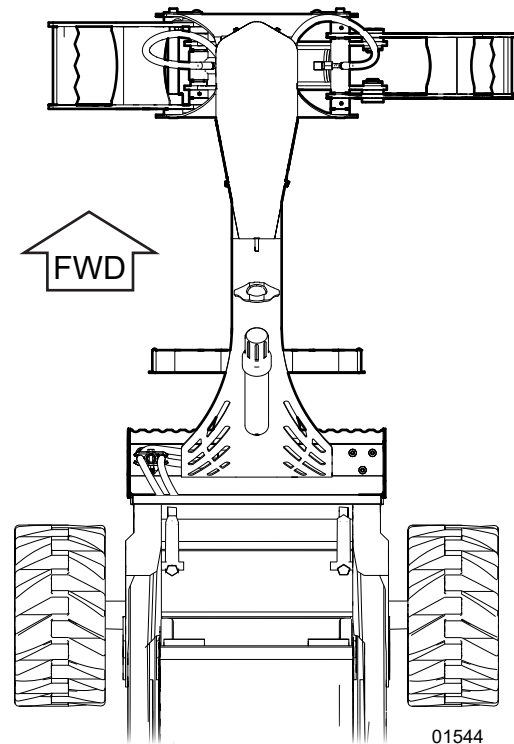
#### 4.1.2 Job Site Familiarization

Become familiar with the work site prior to beginning. Avoid the possibility of problems or accidents by reviewing the following.

- Determine a safe work area / trailer-load 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.
- Determine a safe log stack location:
  - Stack should be on level ground.
  - Make sure stack location does not interfere with safe operation of the machine.
- Precut and de-limb logs.

### 4.2 Operator Orientation

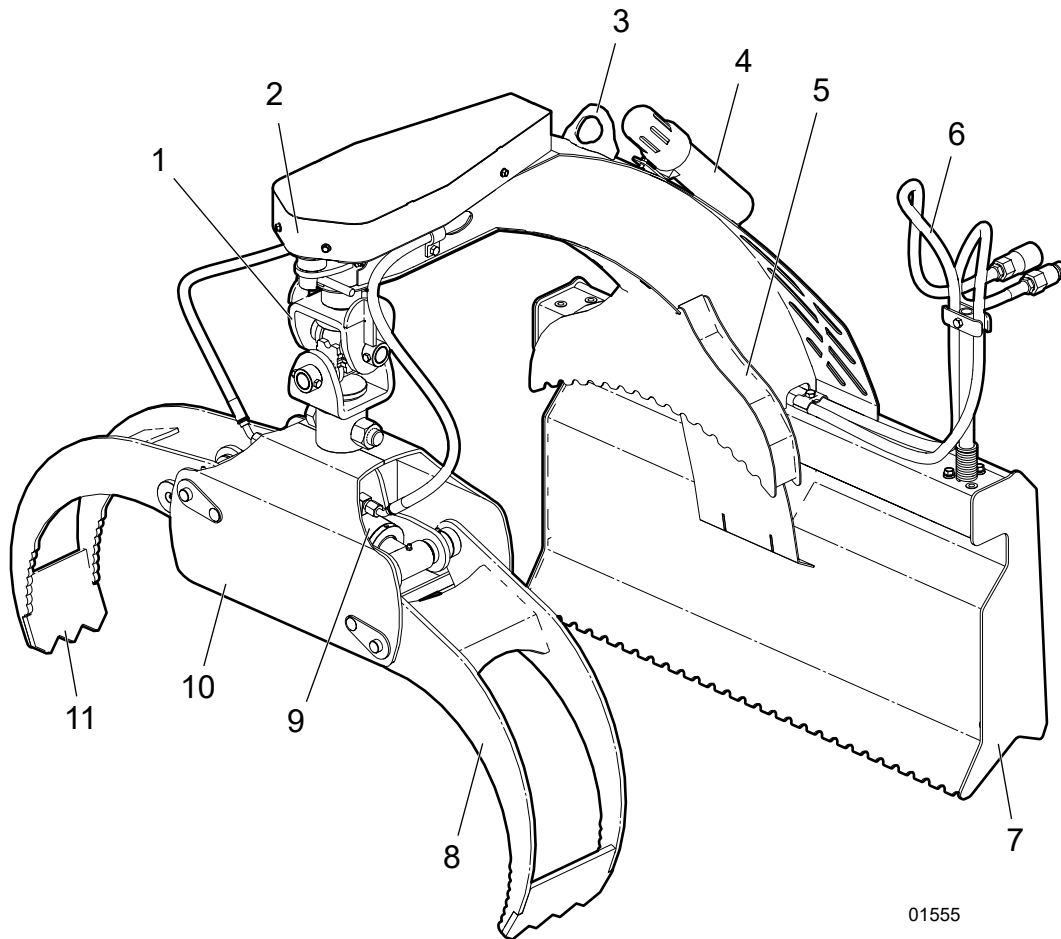
**IMPORTANT!** The directions for left-hand, right-hand, backward and forward mentioned throughout this manual are determined when sitting in the mini skid steer seat, facing the direction of forward travel.



**Fig. 4**—Direction of Forward Travel



## 4.3 Grapple Major Components



01555

**Fig. 5–** Grapple Major Components

- |  |                        |
|--|------------------------|
| 1. Main Pivot                              | 7. Lower Main Frame    |
| 2. Return Lock Assembly (under the shield) | 8. Grapple Outer Fork  |
| 3. Hydraulic Hose End Storage              | 9. Hydraulic Cylinder  |
| 4. Operator Manual Storage Tube            | 10. Grapple Housing    |
| 5. Cantilever Log Cradle                   | 11. Grapple Inner Fork |
| 6. Hydraulic Hoses                         |                        |

## 5. Installation

The mini skid steer must have enough weight in the rear to balance the load of the grapple.

### 5.1 Matching Grapple to Mini Skid Steer

Use the following table as a reference guide.

Grapple Model	LXG210S	LXG210SB
<b>Mounting Plate</b>	Mini skid steer mount	Bobcat mini skid steer mount
<b>Recommended Engine Power</b>	12–50 hp (9–37 kW)	12–50 hp (9–37 kW)
<b>Required Hydraulic Oil Flow</b>	3 US gpm (11 Lpm)	3 US gpm (11 Lpm)
<b>Grapple weight</b>	285 lb (130 kg)	343 lb (156 kg)

### 5.2 Connecting to the Mini Skid Steer

The LXG210S grapple is equipped with a quick attach plate, that is designed to work with the following mini skid steer brands:

- Toro
- Vermeer
- Ramrod
- Boxer
- Ditch Witch

The LXG210SB grapple is equipped with a quick attach plate that is designed to work with Bobcat mini skid steers.

See the mini skid steer manufacturer's documentation for specific instructions on hitch-plate mounting.

1. Clear the area of bystanders.
2. Make sure that there is enough room and clearance to safely drive the mini skid steer to the grapple, and that the mini skid steer is square to the grapple.
3. Lift the latch arms on the quick-attach hitch and make sure that the latch pins are retracted.
4. Tilt the hitch forward until the top edge of the hitch is below the flange on the rear of the grapple plate and centered between the vertical plates.
5. At the slowest speed possible, drive the mini skid steer forward to the grapple plate.
6. Tilt the mini skid steer hitch back to engage the flange on the grapple plate.

7. Turn off the mini skid steer, apply the parking brake, and then dismount to inspect the pin alignment.
8. Push the latch arms fully down to extend the latch pins through the grapple plate latch-pin mount and secure the grapple. Make sure that the hitch and latch pins are correctly engaged and secure.
9. Connect the hydraulic lines.

### 5.3 Hydraulic Connection Requirements

The grapple requires one remote pressure and one return hydraulic connection.

#### Set Flow Rate and Relief Pressure

- Set oil flow rate at **5.3 US gpm (20 Lpm)**.
- Set relief pressure at **3000 psi (207 bar)**

Check and adjust both grapple circuits so they are within the specification.

**IMPORTANT! After installation is complete, cycle grapple then check the mini skid steer hydraulic oil level.**

### 5.4 Grapple Removal

1. Select an area to store the grapple that is dry, level and free of debris, away from human activity.
2. Open the grapple forks for maximum stability. Set it down on wood planks to keep it off the ground. Make sure the grapple is stable.

#### **WARNING!**

**Risk of serious injury from escaping high-pressure oil. Actuate controls after engine shut down to relieve trapped pressure before loosening hydraulic connections.**

W080

3. Shut down the mini skid steer engine. Actuate hydraulic controls to relieve any trapped pressure in the circuit. Disconnect the hydraulic hoses from the grapple and cap the lines to prevent dirt from getting into the couplers.
4. Tilt the mini skid steer hitch forward to disengage the flange on the grapple plate.
5. Push the latch arms fully up to retract the latch pins from the grapple plate latch-pin mount and release the grapple.
6. Move the mini skid steer away from the grapple.

## 5.5 Storage

Store the grapple away from human activity in a dry, level area. Place wood planks under it to keep it off the ground. If the grapple cannot be stored inside, cover with a waterproof tarp.

1. Clean the grapple to remove all dirt, mud, and entangled material.
2. Inspect the cylinder, rotator, pivot and grapple for damage. Repair or replace damaged parts.
3. Touch up all paint nicks and scratches to prevent rusting.

## 6. Controls

The grapple functions are powered by the mini skid steer's hydraulic system. The following section outlines the different types of controls specific to each model type.

### 6.1 Grapple Forks

The grapple forks are powered from the mini skid steer's remote hydraulics. The grapple has an inner and outer fork that bypass each other when closing. A closed grapple can grasp material as small as 3" (8 cm).

#### Grapple Maximum Opening

The grapple's maximum open size is 3"-40" (8 cm -102 cm) and is controlled directly using the mini skid steer's remote hydraulic connections.

### 6.2 Spring-return Pivot

The grapple has a mechanical pivot that allows the grapple forks to rotate 90° in either direction when unlocked. A spring in the pivot forces the grapple to center itself (perpendicular to the grapple boom) when the load permits. While skidding for example, the pivot can rotate as the load turns.

The pivot has three lock positions—two parallel with the boom (one each end of the 90°) and one parallel to the base. Locking is recommended to be used when carrying, lining up and stacking logs or whenever the pivoting feature is not desirable. Unlock the pivot when skidding.

**IMPORTANT!** Make sure the pivot is **UNLOCKED** during skidding. Damage to the pivot can occur if locked when turning or contacting other objects.

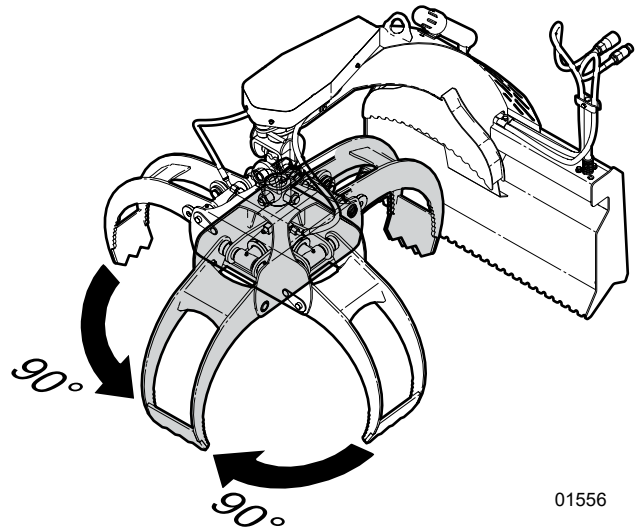


Fig. 6—Spring-return Pivot

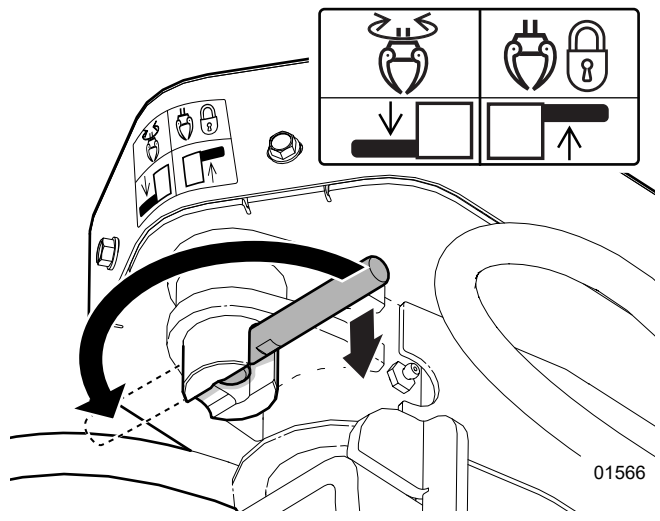


Fig. 7—Grapple Pivot Lock Lever

### **CAUTION!**



**Risk of injury from collision with the grapple forks when locking or unlocking the pivot. The grapple fork pivot is under spring tension, and when unlocked can rotate the grapple with force unexpectedly.**

**Stand clear of the grapple when unlocking the pivot.**

W087

## 6.3 Cantilever Cradle

The grapple has a heavy-duty cantilever log cradle used for lifting, stacking, and transporting logs. The serrated edge prevents the log from sliding off the cradle as you transport or position the log for stacking.

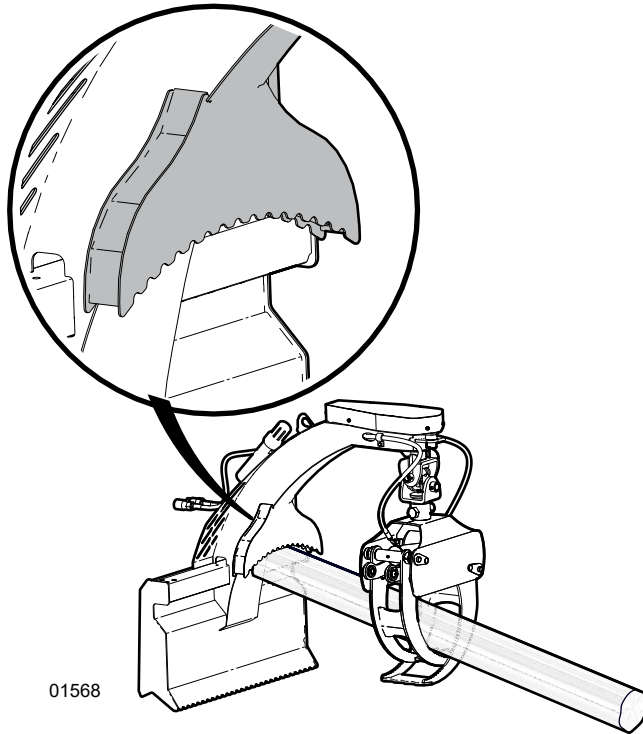


Fig. 8 – Cantilever Cradle

### **WARNING!**



Be aware of potential collision hazard from the swing radius of the log while transporting. Plan the route ahead of time.



Keep bystanders 20 ft (6 m) away from the machine.

W090

## 7. Operating Instructions

The LXG210 Series grapples are strong, rugged machines that can be used for piling, skidding, and generally managing logs in the woodlot.

**The operator is responsible to be familiar with and follow all operating and safety procedures.**

- Learn the basic operation of the grapple to prevent the chance of creating a dangerous situation with the load.
- When using the grapple, position the mini skid steer on firm, level ground.

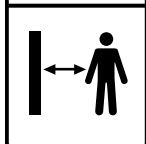
### 7.1 Operating Safety

- **Do not allow anyone near the grapple while in operation. Always keep coworkers and bystanders in full view while loading.**
- **Always wear the seat belt while operating the grapple. Remain seated in the operator's seat during operation.**
- **Never exit the machine leaving a load suspended. When leaving the machine for any reason, always lower the grapple to the ground.**
- **Close the grapple completely around logs. Avoid pinching a log with the grapple.**
- **Avoid operating where there is a possibility of the grappled load striking other obstacles.**
- **If piling logs, piles should be in a level, clear area to prevent logs from rolling. Make even piles so logs are parallel and ends match.**
- **Clean debris from the loading area. Debris may interfere with grappling.**
- **Place the grapple on the ground and stop the engine before exiting the machine.**

#### **WARNING!**



Be aware of potential collision hazard from the swing radius of the log while transporting. Plan the route ahead of time.



Keep bystanders 20 ft (6 m) away from the machine.

W090

### 7.2 Machine Break-in

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


#### After 1–5 hours of operation:

1. Check all nuts, bolts and other fasteners. Tighten to their specified torque.
2. Check hydraulic system for leaks. Tighten leaking connections and replace any leaking components.
3. Check mini skid steer hydraulic oil reservoir level. Top up as required.
4. Check for entangled material. Remove before resuming work.
5. Lubricate grapple rotator hanger bearing (if equipped).

#### After 20 hours of operation:

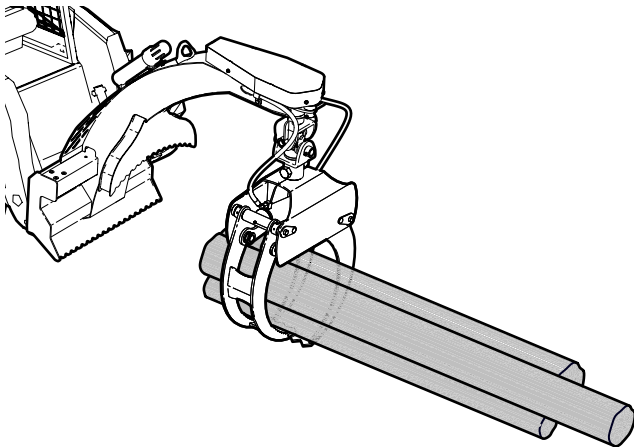
6. Repeat the above steps.

### 7.3 Pre-operation Checks

Items to Check	
Check for entangled material. Remove any twine, wire or other material from the grapple.	
Check and tighten all fasteners. Make sure your equipment is working properly and in good repair.	
Check for hydraulic leaks. Tighten fittings or replace components to stop leaks.	
Check mini skid steer hydraulic fluid level. Top level up as required.	

## 7.4 Skidding Logs

- Position the grapple over the end of the log, a foot (25 cm) or so from the end.
- Lower the grapple onto the log and close the forks around it.
- Raise the grapple and move on to the next log or begin skidding. Carry the load as low as possible for better visibility and stability.

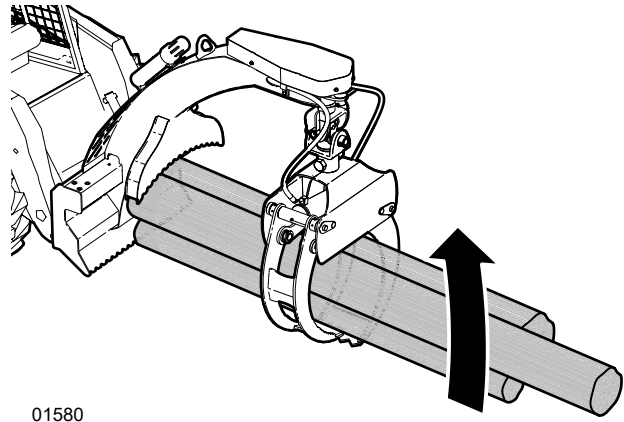


01579

Fig. 9—Skidding

## 7.6 Parallel Lifting with Cantilever Cradle

- Position the grapple cantilever over the end of the log.
- Lower the grapple and drive the mini skid steer slightly into the log end. Close the grapple forks until there is a good grip on the log.
- Raise the grapple to carry the log.

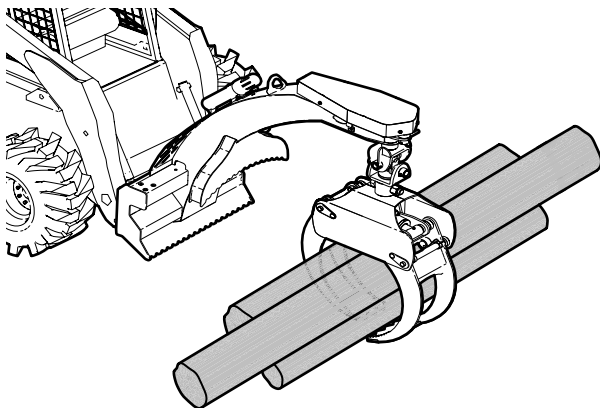


01580

Fig. 11—Parallel Lift with Cantilever

## 7.5 Right Angle Lifting

- Determine where the center of the load is in order to pick it up safely. The stump end of logs can be heavier and the smaller ends lighter. Balance loads carefully.
- Make sure grapple forks have full contact with all the pieces you are lifting. Otherwise the load could become unstable causing a dangerous situation.



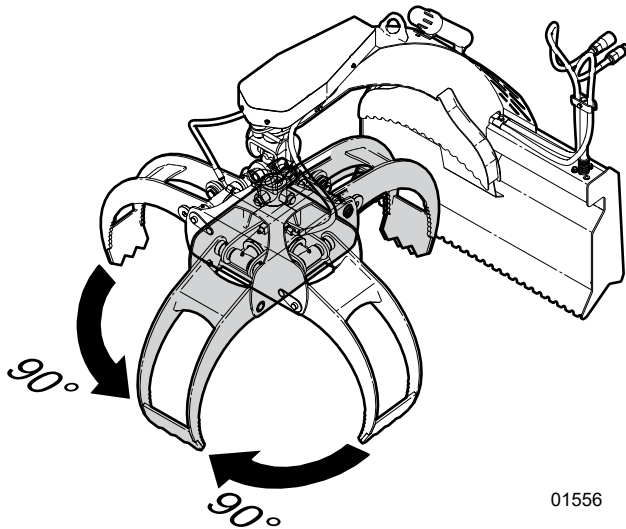
01582

Fig. 10—Lifting

## 7.7 Spring-return Pivot

The grapple has a return-to-center spring pivot on the grapple. The pivot can be locked, or left unlocked for carrying a load or skidding.

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



01556

Fig. 12—Spring-return Pivot

**IMPORTANT!** Make sure the pivot is **UNLOCKED** during skidding. Damage to the pivot can occur if locked when turning or contacting other objects.

### 7.7.1 To Unlock Pivot

1. Pull down on the grapple lock lever out of the Lock position notch. Turning the grapple slightly may be required.
2. Rotate the lock lever around by hand to the far side and release it into the Unlock position notch. The grapple can now rotate freely.

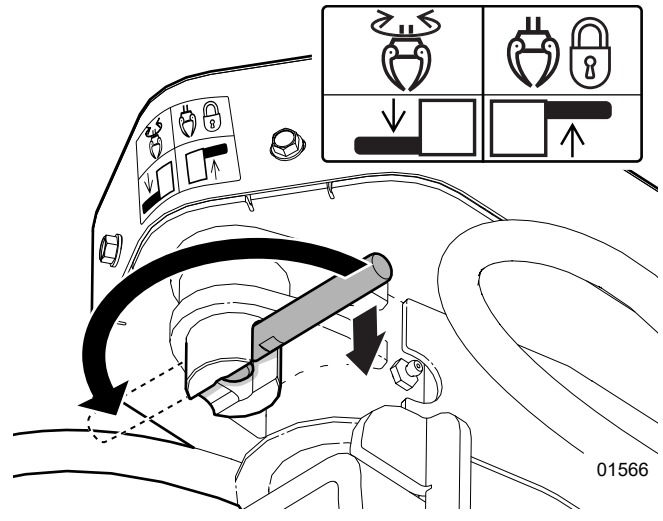
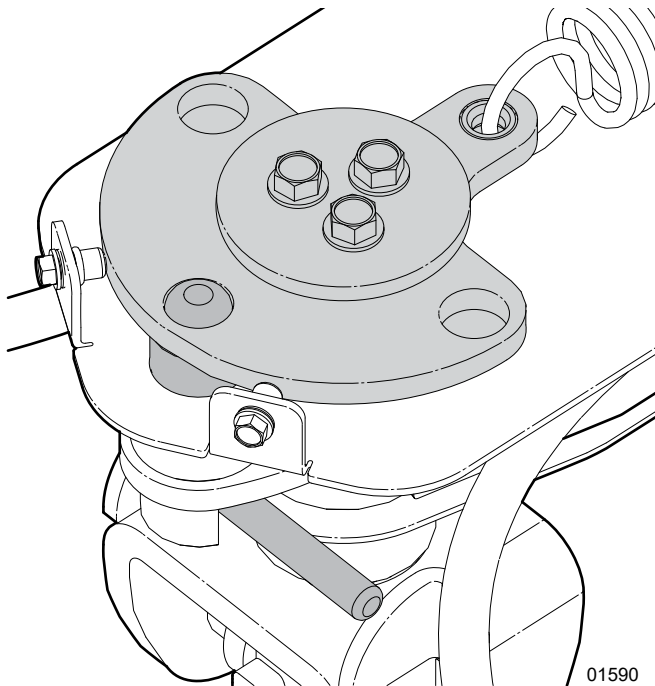


Fig. 13—Grapple Pivot Lock Lever



## 7.7.2 To Lock Pivot

1. Pull the grapple lock lever down out of the Unlock notch. Rotate the lever around and release into the Lock position notch.
2. Rotate the grapple by hand one way or the other to one of the 90° locking positions. Listen for a 'click' sound as the pin locks into the hole.



**Fig. 14**—Pivot Lock

## 7.8 Operating Hints

### General

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

### Engine Speed

It is recommended that the mini skid steer engine operate at no less than 1/2 throttle. LXG Grapples are designed to operate with a hydraulic flow between 5–10 gpm (19–38 Lpm).

### Rough Terrain

The machine can be used in a variety of conditions including rugged terrain. Try to work on firm, level ground whenever possible. Reduce speed over rough terrain.

### Working on Slopes

- Make sure that there are no bystanders on the slope.
- When skidding, confine your travel to straight up and down slopes.
- Do not attempt to travel across steep slopes to avoid a potential rollover.
- Travel at safe speeds. Avoid turns on slopes.

### Points to Remember

- Be aware of the swing radius of the logs while carrying them at right angle or parallel.
- Plan your skidding path so that it is free of debris and obstacles.
- Always pull logs backward. Never try to drive forward with the grapple holding a log.
- While carrying logs, avoid hitting objects with the ends of the logs.

## 7.9 Traveling

(No load in the grapple.)

- **Make sure that the grapple is securely attached to the mini skid steer, and that the latch arm and pins are secure before transporting.**
  - **Turn into curves or go up or down hills only at a low speed and at a gradual steering angle. Slow down on rough or uneven surfaces.**
  - **A heavy load can cause instability of the mini skid steer. Use extreme care during travel. Slow down on turns and watch out for bumps.**
  - **Never allow riders on the mini skid steer or grapple.**
1. Be sure all bystanders are clear of the machine.
  2. Check the machine is securely attached to the mini skid steer and all retainer pins are installed.
  3. Close the forks. Be aware of grapple head swing. Tie off grapple head for extended road travel or driving over rough terrain.
  4. Attach a slow moving vehicle sign at the back of the mini skid steer. Check mini skid steer lights function properly.
  5. Be sure you follow all applicable lighting and marking regulations when transporting. Check with your local authorities.
  6. Be sure your machine can clearly be seen by overtaking and oncoming traffic.
  7. Keep to the right and yield the right-of-way to allow faster traffic to pass. Drive on the road shoulder if permitted by law.
  8. Always use hazard flashers on the mini skid steer when transporting unless prohibited by law.

## 7.10 Storage

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

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

1. Thoroughly wash the machine using a pressure washer to remove all dirt, mud, debris and residue. Be cautious when pressure washing around hydraulic and electrical components, direct pressure could cause damage.
2. Inspect the cylinder, rotator or pivot and grapple for damage or entangled material. Repair or replace damaged parts. Remove all entangled material.
3. Touch up all paint nicks and scratches to prevent rusting.
4. Select a dry, level area and free of debris away from human activity.
5. Open the grapple forks to provide maximum stability.
6. Carefully lower grapple and make sure the machine is stable. Unhook from mini skid steer.
7. If the machine cannot be stored inside, cover with a waterproof tarp.

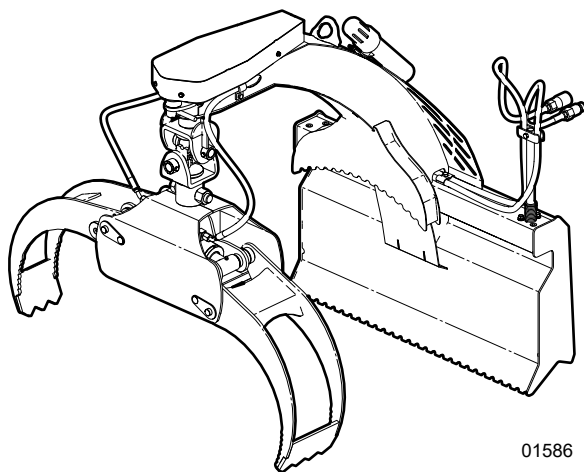


Fig. 15—Grapple in Storage

## 8. Service and Maintenance

### 8.1 Maintenance Safety

Before performing any maintenance procedure, place the machine in a Safe Condition to work on.

- Empty material from grapple.
  - Lower grapple to ground.
  - Turn mini skid steer engine off.
  - Move controls to verify there is no movement.
- 
- 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.
  - Never operate the engine in a closed building. Exhaust fumes may cause asphyxiation.
  - Never work under equipment unless it is blocked or supported securely.
  - When performing any service or maintenance work always wear appropriate PPE.
  - Where replacement parts are necessary, genuine factory replacement parts must be used to restore your equipment to original specifications. The manufacturer cannot be responsible for injuries or damages caused by use of unapproved parts or accessories.
  - Keep hands away from moving parts. NEVER grease or work on the grapple when it is moving.
  - Always use proper tools, that are in good condition. Make sure you understand how to use them, before performing any service work.

### 8.2 Maintenance Schedule

Complete maintenance procedures at the specified time or hour interval, whichever comes first.

#### Every 50 hours or Weekly

Grease the pins, bearings, and bushings.

See page 29.

#### Every 100 hours or Annually

Check the hydraulic hoses and connections for leaks and overall condition.

### 8.3 Grease Type

Use an SAE multipurpose, high-temperature grease with extreme pressure (EP) performance. Also acceptable is an SAE multipurpose lithium base grease.

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

## 8.4 Grease Points

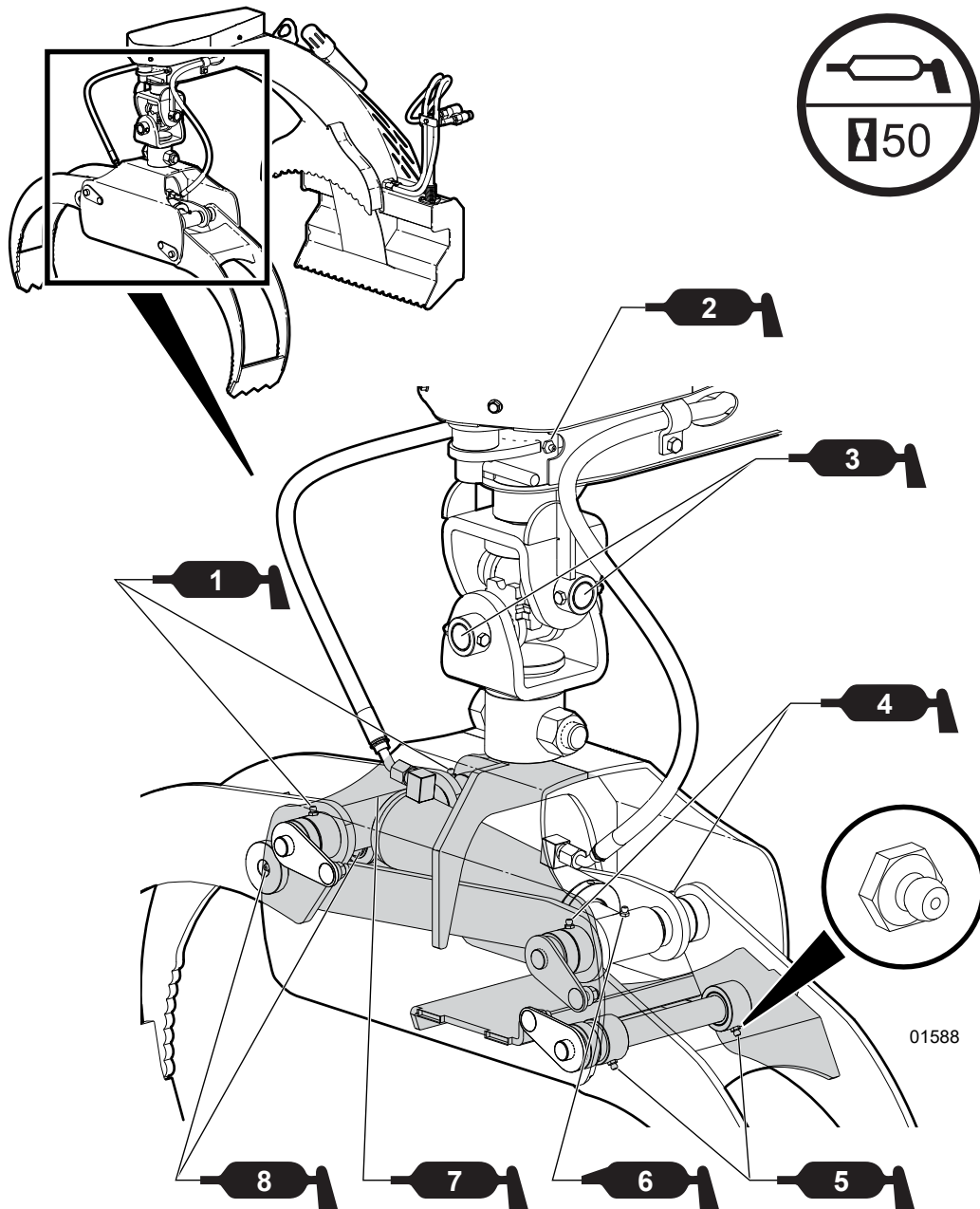


Fig. 16—50-hour Grease Points

Location	Component	Number of Grease Points
1	Wide-fork linkage-bar bushings	2
2	Return-lock assembly flat bearing	1
3	Pivot-assembly pins	2
4	Narrow-fork linkage-bar bushings	2

Location	Component	Number of Grease Points
5	Narrow-fork bushings	2
6	Cylinder barrel	1
7	Cylinder rod	1
8	Wide-fork bushings	2

## 9. Troubleshooting

In the event a problem occurs with the grapple, the following table lists some probable causes and solutions.

If a problem exists that is difficult to solve, call your local dealer, distributor, or Wallenstein Equipment. Have the grapple serial number handy.

Problem	Possible Cause	Solution
Hydraulics functions move slowly or do not move.	No pressurized hydraulic oil. Filter plugged.	Change Filter
	Low oil level	Top up as required.
	Hoses connected incorrectly.	Correct.
	Low oil flow. Flow control set too low.	Adjust control.
	Selector valve not powered (machines with optional selector valve kit).	Connect selector valve solenoid to 12 VDC source.
	Wrong function selected (machines with optional selector valve kit).	Check harness is connected to correct function.
	Harness connector loose or damaged (machines with optional selector valve kit).	Check connection. Inspect for damage. Repair or replace.
	Low engine speed	Increase engine speed.
Hydraulic functions are jerky.	Leak in hydraulic system. Air getting into the system.	Tighten all connections. Check for leaks in hoses.
	Hose couplers dirty or incompatible.	Clean couplers. Make sure mating couplers are correct type.
	Mini skid steer has closed-center hydraulic circuit.	Contact service technician.
Leaking hydraulic hose.	Hose worn and damaged, or connector is loose.	Inspect hose for damage. Replace if damaged. Check to make sure connectors are tight. See <i>page 33</i> for connector torque requirements.
Leaking hydraulic cylinder.	Cylinder seals worn or damaged.	Disassemble and overhaul cylinder. Check oil for debris.
Pivot does not return to neutral position.	Spring broken.	Replace.
	Lock lever engaged.	Release.

## 10. Specifications

### 10.1 Machine Specifications<sup>1</sup>

Specification	LXG210S	LXG210SB
Rotation Angle	180°	
Recommended Mini Skid Steer Power	12–50 hp (9–37 kW)	
Lift Capacity	1,000 lb (454 kg)	
Required Hydraulic Flow	3 US gpm (11 Lpm)	
Grapple Opening	3"–40" (8 cm–102 cm)	
Clamp Force	9,400 lb (4264 kg)	
Rotator/Pivot Rating	6,750 lb (3062 kg)	
Total Weight	285 lb (130 kg)	343 lb (156 kg)
Dimensions (L x W x H)	47" x 44" x 40" (120 cm x 112 cm x 102 cm)	
Mounting System	Universal Mini Skid Steer Quick Attach Plate	Bobcat Mini Skid Steer Quick Attach Plate

<sup>1</sup> Specifications subject to change without notice


## 10.2 Common Bolt Torque Values

### 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.

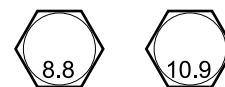
**IMPORTANT!** Torque figures indicated in the table are for non-greased or non-oiled threads. Do not grease or oil threads unless indicated otherwise. When using a thread locker, increase torque values by 5%.

 **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



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





## 10.3 Hydraulic Fitting Torque

### Tightening Flare Type Tube Fittings

1. Check flare and flare seat for defects that might cause leakage.
2. Align tube with fitting before tightening.
3. 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. 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](http://www.wallensteinequipment.com)

# 12. Alphabetical Index

<b>B</b>		Operating Safety .....	22
Bolt torque .....	32		
Break-in .....	22		
<b>C</b>			
Checking Bolt Torque .....	32		
Controls .....	18		
Cantilever Cradle .....	21		
Grapple Forks .....	20		
Spring-return Pivot .....	20		
<b>D</b>			
Driving Over Rough Terrain .....	26		
<b>E</b>			
Engine Speed .....	26		
Equipment Safety Guidelines .....	8		
<b>F</b>			
Familiarization .....	16		
Grapple Major Components .....	17		
Job Site Familiarization .....	16		
Operator Orientation .....	16		
To the New Operator .....	16		
Training .....	16		
<b>G</b>			
Grapple Major Components .....	17		
Grapple Removal .....	18		
Grease .....			
Grease points .....	29		
Grease type .....	28		
<b>H</b>			
Hydraulic Connection Requirements .....	18		
Hydraulic Fitting Torque .....	33		
<b>I</b>			
Installation .....			
Connecting to the Mini Skid Steer .....	18		
Grapple Removal .....	18		
Hydraulic Connection Requirements .....	18		
Matching Grapple to Mini Skid Steer .....	18		
Storage .....	19		
<b>M</b>			
Machine Break-In .....	22		
Maintenance Schedule .....	28		
<b>O</b>			
Operating Hints .....	26		
Operating Instructions .....	22		
Machine Break-in .....	22		
Operating Hints .....	26		
Operating Safety .....	22		
Parallel Lifting with Cantilever Cradle .....	23		
Pre-operation Checks .....	22		
Right Angle Lifting .....	23		
Skidding Logs .....	23		
Spring-return Pivot .....	24		
Storage .....	27		
Traveling .....	26		
		<b>P</b>	
		Parallel Lifting with Cantilever Cradle .....	23
		Points to Remember .....	26
		Pre-operation Checks .....	22
		<b>R</b>	
		Recommended Engine Speed .....	26
		Replace Damaged Safety Signs .....	15
		Right Angle Lifting .....	23
		<b>S</b>	
		Safe Condition .....	8, 9
		Safety .....	7
		Equipment Safety Guidelines .....	8
		How to Install Safety Signs .....	15
		Maintenance Safety .....	28
		Operating Safety .....	22
		Safe Condition .....	9
		Safety Alert Symbol .....	7
		Signal Words .....	7
		Safety Alert Symbol .....	7
		Safety Signs .....	
		Installing .....	15
		Safety Sign Explanations .....	14
		Safety Sign Locations .....	12
		Serial number .....	5
		Service and Maintenance .....	28
		Grease Points .....	29
		Grease Type .....	28
		Maintenance Safety .....	28
		Maintenance Schedule .....	28
		Set Flow Rate and Relief Pressure .....	18
		Sign-off form .....	11
		Sizing the Grapple to Match the Mini Skid Steer .....	18
		Skidding Logs .....	23
		Specifications .....	31
		Common Bolt Torque Values .....	32
		Hydraulic Fitting Torque .....	33
		Machine Specifications .....	31
		Spring-return Pivot .....	24
		To Lock Pivot .....	25
		To Unlock Pivot .....	24
		Storage .....	19, 27
		<b>T</b>	
		Traveling .....	26
		Troubleshooting Guide .....	30
		Types of Decals on the Machine .....	6
		<b>W</b>	
		Warranty .....	34
		Working on Slopes .....	26



[www.wallensteinequipment.com](http://www.wallensteinequipment.com)