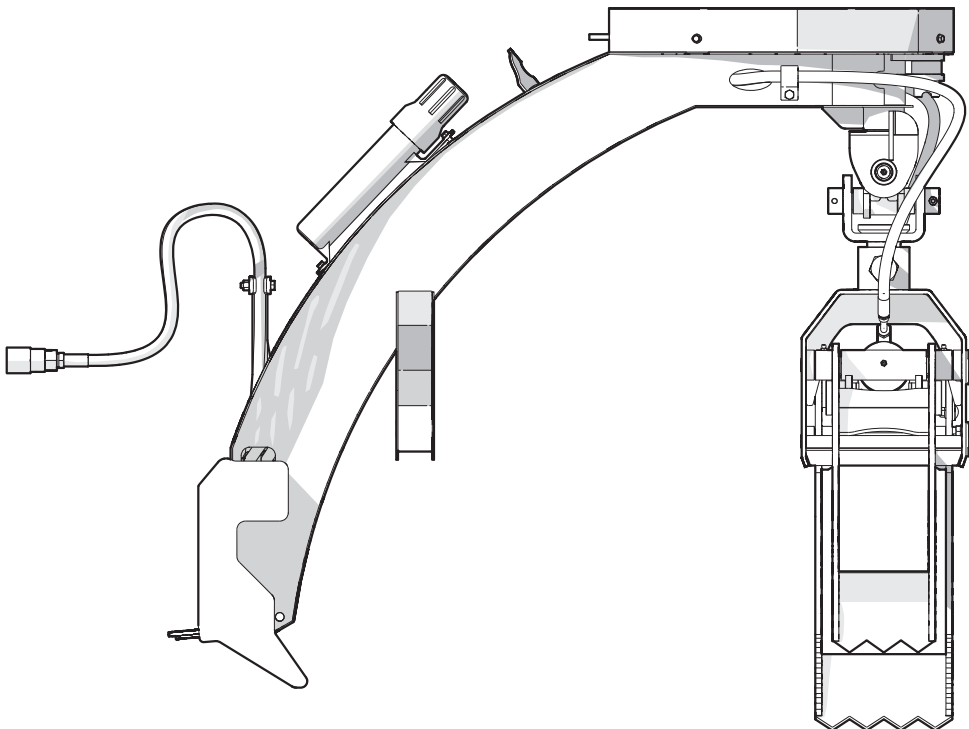


OPERATOR'S MANUAL



LXG210S-SKD / LXG210SB-SKD Log Grapple





Delivery Inspection Report

Skid Pro Attachments LXG210S-SKD / LXG210SB-SKD Mini Skid Steer Log Grapple

To register your product and start the warranty, go to www.skidpro.com.

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

I have received the product manuals and been thoroughly instructed about the care, adjustments, safe operation, and applicable warranty policy.

I have thoroughly instructed the customer about the equipment care, adjustments, safe operation, applicable warranty policy, and reviewed the manuals with them.

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

Inspection Checklist

- _____ Pivot assembly moves freely.
- _____ Rotator functions correctly.
- _____ Grapple functions correctly.
- _____ Hydraulic system functions correctly.
- _____ Hydraulic connections are tight, and hoses and fittings are in good condition.
- _____ There are no hydraulic fluid leaks.
- _____ All fasteners are torqued to the correct specifications.
- _____ All grease locations are lubricated.
- _____ Operator's Manual is in the document storage tube.

Safety Checks

- _____ All safety labels are applied and legible.
- _____ All guards and shields are installed.
- _____ Operating and safety instructions were reviewed.

Table of Contents

Delivery Inspection Report	2	7. Transport.....	29
Warranty.....	4	7.1 Transport Safety	29
Serial Number Location	5	7.2 Prepare the Machine for Transport	29
1. Introduction	6	7.3 Connect to a Mini Skid Steer	29
1.1 Types of Labels on the Machine.....	7	7.4 Disconnect from a Mini Skid Steer	30
2. Safety	8	8. Storage.....	31
2.1 Safety Alert Symbol	8	8.1 Storage Safety	31
2.2 Signal Words	8	8.2 Put the Machine in Storage	31
2.3 Why Safety is Important.....	8	8.3 Remove the Machine from Storage	31
2.4 Safety Rules	9	9. Service and Maintenance.....	32
2.5 Equipment Safety Guidelines	9	9.1 Service and Maintenance Safety.....	32
2.6 Safe Condition	10	9.2 Fluids and Lubricants.....	33
2.7 Hydraulic System Safety	10	9.3 Maintenance Schedule.....	33
2.8 Safety Training.....	11	9.4 Clean the Machine	34
2.9 Sign-Off Form.....	12	9.5 Grease Points	34
2.10 Work Site.....	13	10. Troubleshooting.....	36
3. Safety Labels	15	11. Specifications	37
3.1 Replace a Safety Label.....	15	11.1 Machine Specifications	37
3.2 Safety Label Locations.....	16	11.2 Hydraulic System Specifications	37
3.3 Safety Label Definitions.....	17	11.3 Bolt Torque.....	38
4. Familiarization	19	11.4 Hydraulic Fitting Torque	39
4.1 New Operator	19	12. Accessories	40
4.2 Training	19	13. Index.....	41
4.3 Operator Orientation.....	19		
4.4 Machine Components	20		
5. Controls	21		
5.1 Open or Close the Forks.....	21		
5.2 Pivot-Assembly Lock.....	21		
5.3 Cantilever Cradle.....	23		
6. Operating Instructions	24		
6.1 Operating Safety	24		
6.2 Pre-Start Checklist.....	25		
6.3 Machine Break-In.....	25		
6.4 Start the Machine.....	25		
6.5 Stop the Machine.....	26		
6.6 Emergency Stop	26		
6.7 Prepare the Logs and Equipment.....	26		
6.8 Lift Logs in the Primary Position.....	26		
6.9 Lift Logs in a 90-Degree Position	27		
6.10 Skid Logs	27		
6.11 Release the Logs	28		



LIMITED WARRANTY

Skid Pro warranty covers this attachment for twenty-four months from date of shipment, to the original owner. Warranty covers products to be free from defects in material and workmanship when properly set up and operated in accordance with Skid Pro's recommendations.

WARRANTY CLAIM PROCEDURE

All warranty claims must be submitted within the manufacturer's limited warranty period. Pictures and/or a video of the failing component(s) are required to properly document all potential warranty claims. To submit a warranty claim, contact your Skid Pro Product Guru or complete a Warranty Claim Form on our website and send it along with supporting pictures/video to sales@skidpro.com. Upon receipt, the warranty claim information will be reviewed and once determined to be a valid claim, a return authorization number will be issued for the return of the defective part(s) if applicable and replacement part(s) will be shipped. If it is determined the defective parts are to be returned and they are not received by Skid Pro within 30 days of receiving the replacement parts, the Buyer will be charged for the cost of the replacement parts plus any shipping charges. Tampering with the failed part (i.e. disassembling a motor or cylinder) will void the warranty.

EXCLUSIONS OF WARRANTY

Skid Pro's requirement for any issue with respect to attachments shall be limited to repairing or replacing the defective part, as this is a parts-only warranty and does not include any labor to replace or install the part or downtime from resulting issue. Skid Pro has full technical support & assistance to assure customer replaces the part properly for optimal performance on attachment.

This warranty shall not apply to any attachment's wear items, or attachments that have been repaired or altered outside the Skid Pro factory in any way, or that has been subject to misuse, negligence or accident beyond Skid Pro's recommended use and/or machine rated capacity.

This warranty is exclusive and in lieu of all other warranties and conditions. Skid Pro disclaims all other warranties and conditions, express or implied, including any implied warranties or conditions of merchantability or fitness for a particular purpose. In no event shall Skid Pro be liable for any special, incidental, indirect or consequential damage, whatsoever, including, but not limited to, loss or interruption of business, lost profits, or loss of machine use, whether based on contract, warranty, tort, negligence, strict liability, statute or otherwise, even if Skid Pro has been advised of the possibility of such damages.

No agent, employee, or representative of Skid Pro has any authority to bind said company to any affirmation, representation, or warranty concerning its machinery and/or attachments except as specifically set forth herein. Any disagreement or dispute of warranty policy or customer expectations of product, soundness, functionality, or performance would take place in Douglas County, Alexandria, MN, where Skid Pro operates.

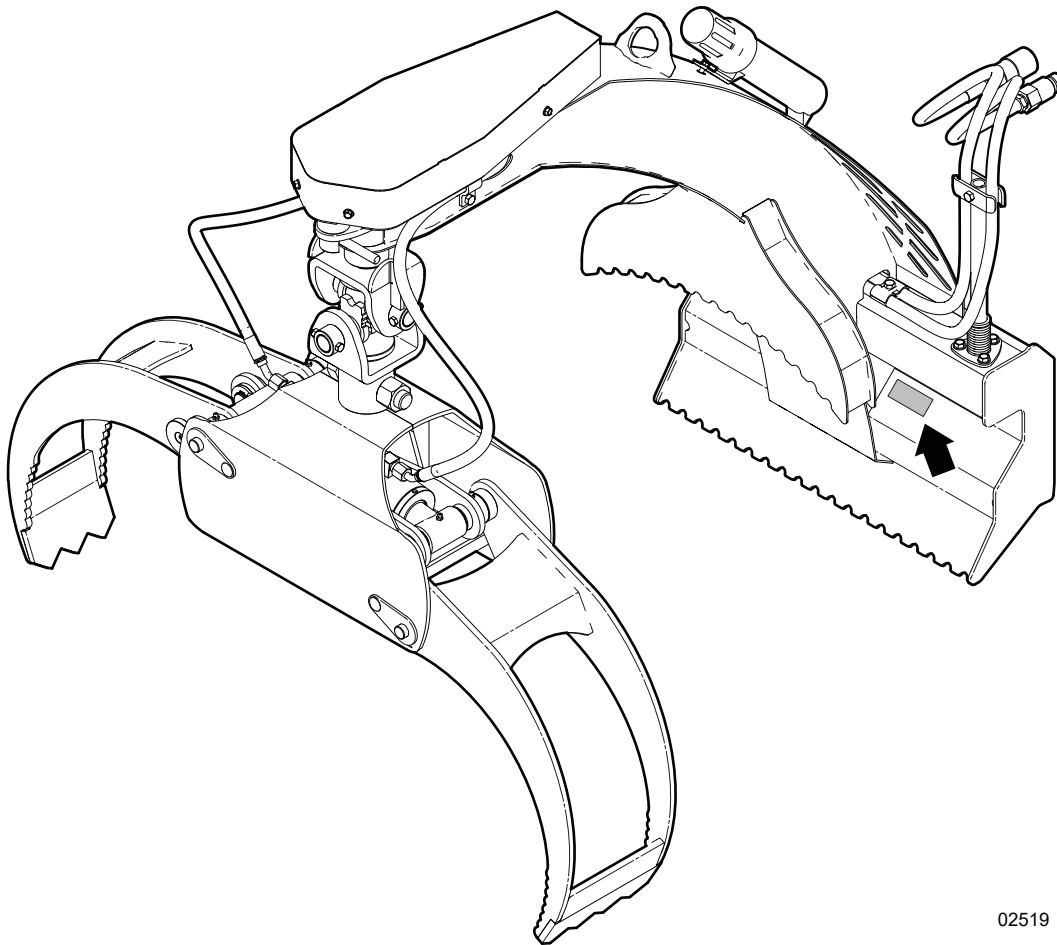
rev Jan. 2021

Serial Number Location

Always provide the model and serial number of your Skid Pro Attachments product when you order parts, or request service or other information. The product information plate location is shown in the following illustration.

Record the serial number of your product here:

Model	
Serial Number	



02519

Figure 1 – Product information plate location

1. Introduction

WARNING!

Do not start or operate the machine before you read this manual. Make sure that you fully understand all the safety, operation, and maintenance information before you operate the machine.

Keep this manual with the machine at all times and available for frequent reference.

W034

Congratulations on your choice of a Skid Pro Attachments LXG210S-SKD or LXG210SB-SKD mini skid steer log grapple!

This high-quality machine is designed and manufactured to move logs in a small-scale wood lot or landscape business.

If you have questions about a mini skid steer brand that is not shown in the following table, contact Skid Pro Attachments.

Specification	LXG210S-SKD	LXG210SB-SKD
Minimum horsepower	12 hp (9 kW)	
Hydraulic fluid flow	3 gpm (11 Lpm)	
Compatible mini skid steers	<ul style="list-style-type: none"> • Toro • Vermeer • Ramrod • Boxer • Ditch Witch 	<ul style="list-style-type: none"> • Bobcat

For safety, efficiency, and trouble-free operation of this Skid Pro Attachments product, everyone who uses or maintains the machine must read and understand the safety, operation, and maintenance information in this manual and the mini skid steer manufacturer's manual.

Keep this manual available for frequent reference and to give to new operators or owners. Contact Skid Pro Attachments if you need assistance, information, or additional copies of the manuals.

For support or service, contact Skid Pro Attachments.

Units of measurement in this manual are written as: US Customary (SI metric).

Skid Pro Attachments • © 2024. All rights reserved.

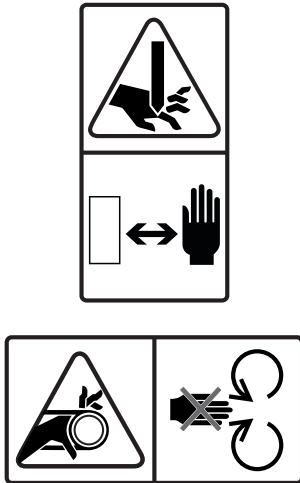
No part of this work may be copied, reproduced, replaced, distributed, published, displayed, modified, or transferred in any form or by any means except with the prior permission of Skid Pro Attachments.

This manual is subject to change without notice. For the most current information, go to www.skidpro.com.

1.1 Types of Labels on the Machine

There are different types of labels on your Skid Pro Attachments product. The labels are for safety, information, and product identification. This section explains what the labels are for and how to read them.

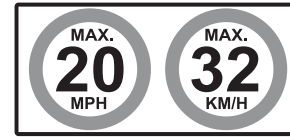
Safety labels are pictorial with a yellow background and have two panels. They can be vertical or horizontal.



Mandatory action labels are pictorial with a blue background and usually rectangular with single or multiple symbols. This label shows the type of personal protective equipment (PPE) that is necessary for safe operation.



Information labels are usually pictorial with a white background and the number of panels can be different. This type of gives information to the operator or shows the operation of a control.



Product labels show the machine model and serial number. For more product information, scan the quick response (QR) code.



Maintenance labels have a green background and the number of panels can be different. This label shows the type of maintenance and how frequently it is necessary.



For safety label definitions, see *Safety Label Definitions* on page 17. For a complete illustration of labels and label locations, download the parts manual for your Skid Pro Attachments product at www.skidpro.com.

2. Safety

Read and understand all safety information before operating the machine.

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 aware of 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** identify the severity of a hazard to anyone who uses the machine. The applicable signal word for each message was selected using the following guidelines:

DANGER

Identifies a hazardous situation that, if not avoided, **will** result in serious injury or death. This signal word is used to tell anyone who uses the machine about the most hazardous situations and machine components that cannot be guarded against.

WARNING

Identifies a hazardous situation that, if not avoided, **could** result in serious injury or death. This signal word includes hazards that occur when guards are removed and can be used to tell anyone who uses the machine about unsafe practices.

CAUTION

Identifies a hazardous situation that, if not avoided, **could** result in minor or moderate injury. It can also be used to tell anyone who uses the machine about unsafe practices.

IMPORTANT – Identifies a situation that could result in damage to the machine or property, but is not a personal injury hazard.



Provides additional information that is helpful.

2.3 Why Safety is Important

- **Accidents disable and kill people.**
- **Accidents cost money.**
- **Accidents are preventable.**

YOU are responsible for the safe operation and maintenance of your Skid Pro Attachments product. **YOU** must make sure that you and anyone else who uses, maintains, or works around the machine is familiar with the operation and maintenance procedures and related **SAFETY** information contained in this manual. Obey the safety best practices included in this manual when you use your machine.

YOU are responsible for your own safety. Obey safety best practices to protect yourself and the people around you. Make these practices part of your safety program. Make sure that **EVERYONE** who uses this machine is familiar with the recommended operation and maintenance procedures, and obeys all the safety instructions. Most accidents can be prevented.

Do not risk injury or death by ignoring safety instructions and best practices.

2.4 Safety Rules

Skid Pro Attachments puts considerable effort into manufacturing products that are safe to use; however, it is also the responsibility of the operator to use the equipment safely.

For safety information that is specific to machine operation, service, or maintenance, see the applicable section in this manual.

- It is the operator's responsibility to read, understand, and follow ALL safety and operating instructions in this manual.
- If you do not understand any part of this manual or need assistance, contact Skid Pro Attachments.
- Do not let anyone use this machine until they have read this manual. The operator must have a thorough understanding of the safety precautions and how the machine works. Review the safety instructions with all users annually.
- Operators must be responsible, familiar with, and physically able to use the machine. Each operator must be trained before they use the machine. Before operation, evaluate the physical and/or mental limitations of each operator to make sure that they can use the machine safely. Do not let a child operate the machine.
- Make sure that all users understand the safety labels on the machine before they operate, service, adjust, or clean it. For safety label definitions, see *Safety Label Definitions on page 17*.
- Learn the controls and how to stop the machine quickly in the event of an emergency. For instructions, see *Emergency Stop on page 26*.
- Keep a first-aid kit available and know how to use the contents of it.



- Keep a fire extinguisher available and know how to use it.
- Wear the appropriate PPE when you operate, service, or maintain the machine. This includes, but is not limited to:
 - A hard hat.
 - Heavy gloves.
 - Hearing protection.
 - Protective shoes with steel toes and slip resistant soles.
 - Protective glasses, goggles, or a face shield.



- Prolonged exposure to loud noise can cause permanent hearing loss. Power equipment with or without a vehicle 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 position 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 on a long-term basis can cause permanent, total hearing loss.
- Do not wear loose clothing, jewelry, or loose personal articles. Keep long hair tied up and covered. Loose items can get caught in moving parts and cause injury. Jewelry can ground a live electrical circuit which can cause injury and machine damage.
- Do not consume alcohol or drugs before or during machine operation. Alertness or coordination can be affected. When you take prescription medications, consult your doctor before you operate the machine.
- Only use the machine in daylight or good artificial light.
- Make sure that all guards and shields are installed. If removal is necessary for repair, replace them before you use the machine.
- Do not let anyone ride on the machine during transport.
- Keep bystanders a minimum of 10 ft (3 m) from the work area. Mark the work area with safety cones.

2.5 Equipment Safety Guidelines

Safety 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.

Obey the following precautions to avoid hazards. Make sure that anyone who works with you obeys them as well.

- Replace safety or instruction labels that are not readable or are missing. For locations and explanations, see *Safety Labels on page 15*.
- Do not modify the equipment in any way. Unapproved modification can result in serious injury or death. In addition, unapproved modification can cause incorrect operation and decrease the life of the machine. Unapproved modification voids the warranty.
- Make sure that the machine is correctly stationed, adjusted, and in working condition.
- Keep the machine free of accumulated grease and debris to prevent fires and machine damage.
- Make sure that the attachment plate is safely attached to the mini skid steer coupler.

- Make sure that the log stack does not interfere with the safe operation of the machine.
- Look for and avoid overhead hazards (for example; branches, cables, and electrical wires).
- A heavy load can cause the mini skid steer to become unstable. Be careful during travel (decrease speed before you turn and look for hazards).
- Do not exceed the limitations of the machine. If the machine does not operate normally or you feel unsafe, stop the machine!

2.6 Safe Condition

References are made to **safe condition** throughout this manual. Safe condition means that you put the machine in a state that makes it safe to service or maintain.

Before you start any service or maintenance, do the following:

SAFE CONDITION

1. Remove logs from the machine.
2. Fully open the log-grapple forks.
Wait for all movement to stop.
3. Lower the machine to the ground.
4. Stop the mini skid steer. Make sure that the hydraulic system is off.
For more information, see the mini skid steer manufacturer's manual.
5. Operate the hydraulic controls to release the pressure.
6. Set the mini skid steer parking brake.
7. Remove the mini skid steer ignition key.
Keep the ignition key with you to prevent someone from starting the mini skid steer.
8. Wait for the hydraulic fluid to cool.

2.7 Hydraulic System Safety

WARNING!

Do not use your hand to check for hydraulic fluid leaks. Hydraulic fluid that leaks under pressure can penetrate the skin and cause serious injury or death. Use a piece of cardboard, wood, or plastic to check for leaks. Put on heavy gloves and the correct eye protection.

Get medical attention immediately if you are injured by a concentrated high-pressure stream of hydraulic fluid. Serious infection or a toxic reaction can occur after hydraulic fluid pierces the skin.

CAUTION!

Wait for the hydraulic fluid and machine components to cool before you start maintenance or service. Hydraulic fluid gets hot during operation and makes the hoses and fittings hot. Hot hydraulic fluid and machine components can cause burns.

IMPORTANT! Optimal hydraulic fluid temperatures are between 120° F and 140° F (50° C and 60° C). If the hydraulic fluid temperature is higher than 180° F (82° C), it can cause seal damage and degrade the hydraulic fluid. High hydraulic fluid temperatures often indicate that there is a problem.

- Keep all hydraulic system components clean and in working condition.
- Make sure that hydraulic hose routing is correct to prevent chafing.
- Replace a hydraulic hose that shows signs of swelling, wear, leaks, or damage immediately. A swollen, worn, damaged, or leaking hose can burst and cause a hazardous and unsafe condition.
For more information, see *Hydraulic Hose Specifications* on page 37.
- Do not make any temporary repairs to the hydraulic hoses or fittings. Do not use tape, clamps, or cements to repair a hydraulic hose or fitting. Use of these materials can cause sudden failure and create a hazardous and unsafe situation.
- Do not bend or hit high-pressure hydraulic hoses.
- Do not adjust a pressure relief valve or other pressure-limiting device to a pressure that is greater than the specified rating.

2.8 Safety Training

An untrained operator can cause serious injury or death to themselves or others. Review the safety instructions with all users annually. The *Sign-Off Form on page 12* can be used to keep a training record.

- When someone does not understand the operation of a machine, they can create dangerous situations very quickly. Operators must understand the safety information in this manual and the safety labels that are on the machine.
- The owner has the responsibility to provide instruction to anyone who is going to operate the machine. This machine is dangerous to anyone who is unfamiliar with its operation.
- If the machine is loaned or rented, it is the owner's responsibility to make sure that, before anyone uses the machine, every operator does the following:
 - Reads and understands this manual.
 - Receives instruction in the safe and correct use of the machine.
 - Understands and knows how to set the machine to a **Safe Condition**.
For instructions, see *Safe Condition*.

2.10 Work Site



It is the responsibility of the operator to be fully familiar with the work site before starting work. Prevent unsafe situations and make every effort to prevent accidents.

2.10.1 Select a Work Site

Select a safe work area and machine location:

- The ground should be firm and level. Do not use the machine in areas where there is mud, ice, or it is wet.
- Make sure that there is a sufficient amount of space and clearance for the operator, the mini skid steer, the machine, the log pile, and movement of the logs.
- Remove all stones, branches, or hidden obstacles that might cause a tripping, hooking, or snagging hazard.
- Make sure that there are no overhead hazards such as branches, cables, or electrical wires.
- Select a location for the wood pile. Make sure that the wood pile does not prevent safe operation of the mini skid steer and the machine.

2.10.2 Set Up a Safe Work Area

Read and obey the instructions for safe operation of the machine.

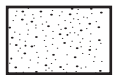
Keep bystanders and workers safe from hazards. Obey the following guidelines:

- Use safety cones to identify the work zone perimeter. The work zone perimeter should be a minimum of 10 ft (3 m) away from any hazard in the work zone. The area outside the work zone perimeter is the safe zone.
- Never let people approach the work zone during machine operation. Everyone must signal and make eye contact with the operator before they approach the work zone.
- Keep all bystanders in the safe zone. Never let bystanders in the work zone.
- Only the operator can let people enter the work zone. The operator must make sure that it is safe for a person to enter the work zone.
- When there are two or more workers, they must agree on a system of hand-signals to use for communication.
- The operator must make eye contact with coworkers and use the agreed system of hand signals. The operator must always be aware of their coworkers and know where they are.

- The work zone in a forestry operation must be planned, located, constructed, maintained, and operated to make sure that the following are possible:
 - Logs can be moved safely in the work zone.
 - Log stacks and the equipment used to handle the logs do not become unstable or otherwise create a hazard.
 - Workers can work in locations that are clear of moving logs and equipment.
 - Workers are not exposed to rolling or uncontrolled logs, or other debris.
 - The area is kept free from the buildup of bark and other debris to the extent that it would pose a risk to the workers.
 - An effective method of dust control is used and maintained.
 - Log stacks are not higher than the safe operating reach of the mini skid steer.

A safe work area is divided into two zones:

- **Safe Zone**
The safe zone is the area outside the work zone perimeter. All people who are not directly involved with the work can be in this area. There are minimal hazards in the safe zone.
- **Work Zone**
The work zone is the area where the operator must be to operate the machine. People who are helping with the work and wearing the necessary PPE can be in this zone. The operator must know where all the people in the work zone are. The operator must make eye contact with people before they enter the work zone. There are possible hazards in the work zone.



1. Safe zone



2. Work zone

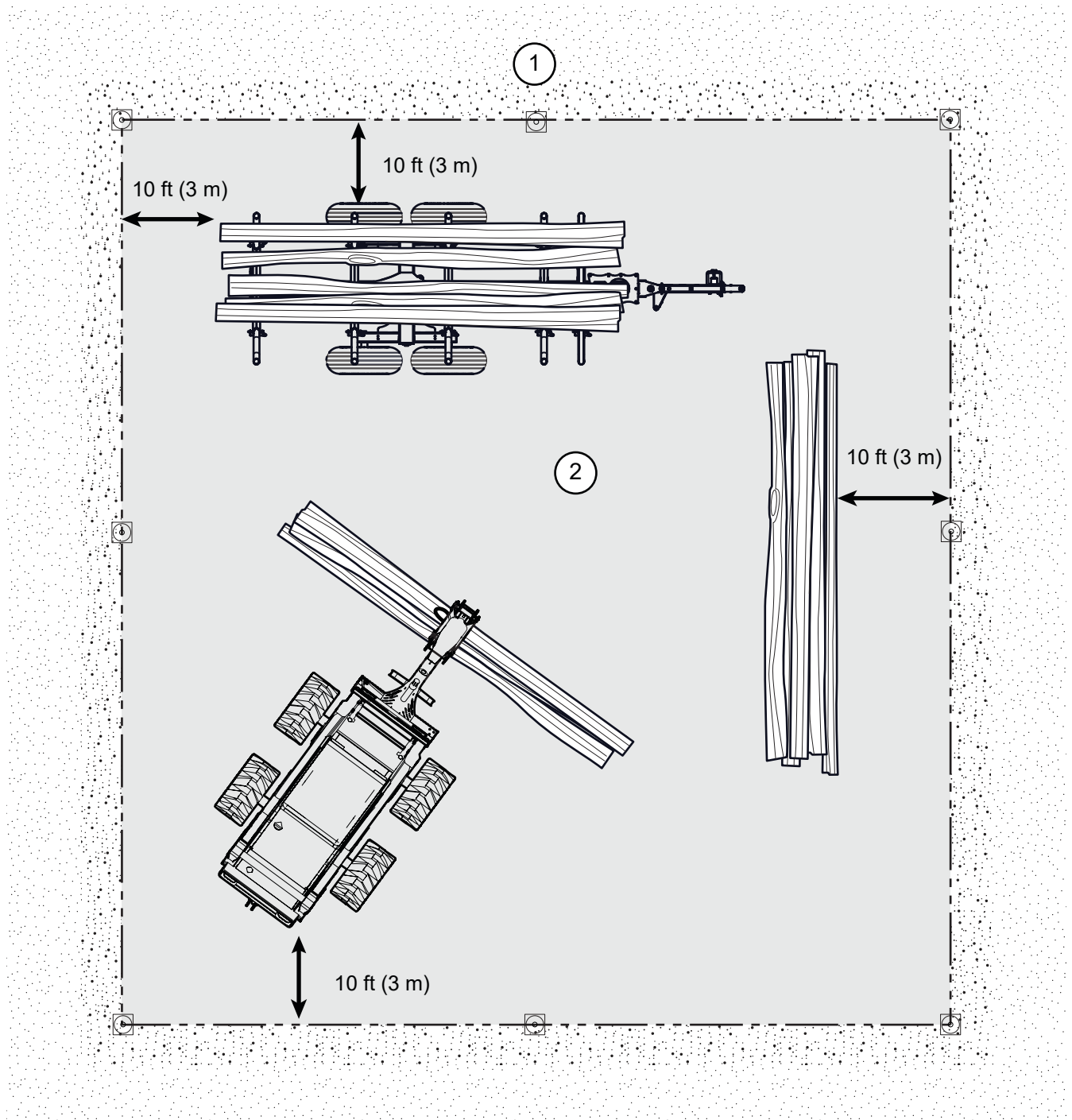


Figure 2—Example layout of a safe work area

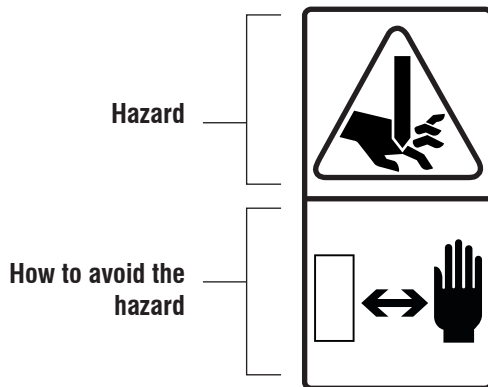
3. Safety Labels

WARNING!

Replace all safety labels that are missing, damaged, or illegible. If a component is replaced and it has a safety label on it, apply a safety label to the new component. Operating the machine with missing, damaged, or illegible safety labels puts the operator at risk of serious injury or death.

W100

Learn what the safety labels mean and know the safety hazards. A safety label can be vertical or horizontal. Vertical safety labels have a top panel and a bottom panel. Horizontal safety labels have a left side panel and a right side panel. The top or left side panel shows the safety alert (possible hazard), and the bottom or right side panel shows the action message (how to prevent illness, injury, or death).



Think SAFETY! Work SAFELY!

3.1 Replace a Safety Label

- Always replace safety labels that are missing or have become illegible. Replacement safety labels are available from Skid Pro Attachments.
- Keep the safety labels clean and legible at all times.
- When a part that has a safety label on it is replaced, the correct safety label must be applied to the replacement part.

3.1.1 Conditions

- The installation area must be clean and dry.
- The application surface must be clean and free of grease or oil.
- The ambient temperature must be above 50 °F (10 °C).

3.1.2 Tool

Use a squeegee, plastic card, or similar tool to smooth out the label.

3.1.3 Procedure

1. Identify the label location.
2. Peel the label off the backing paper.
3. Hold the label above the location where you are going to apply it.
Align the edges of the label with an edge of the machine.
4. Start at one edge and carefully press the center of the adhesive side of the label onto the machine.
5. Use an appropriate tool to smooth the label. Work from one side to the other.
6. If there are small air pockets:
 - a. Use a pin to pierce the air pocket.
 - b. Use a piece of the label backing paper to smooth the air pocket.

3.2 Safety Label Locations

The numbers correspond with the *Safety Label Definitions* on page 17.

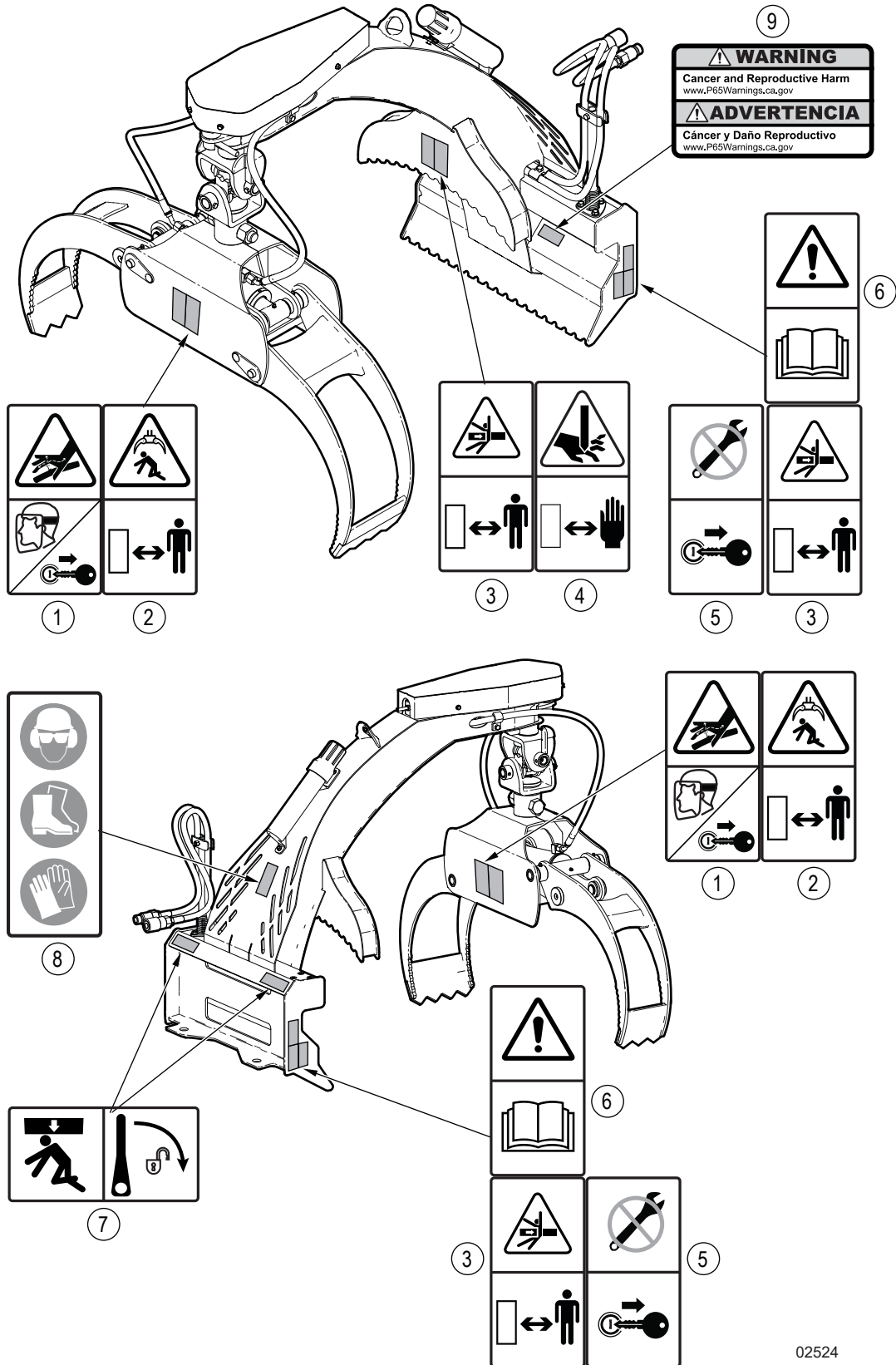


Figure 3—Safety label locations

3.3 Safety Label Definitions

1. Warning!

High-pressure injection hazard

Injection of pressurized hydraulic fluid can cause serious illness, injury, or death.

If you think there is a hydraulic fluid leak, move away from the area. Do not use your hands to find hydraulic fluid leaks. Wear the correct hand and eye protection, and always use a piece of cardboard, wood, or plastic to find a leak.



2. Warning!

Impact and crush hazards

The log grapple or logs can move or fall unexpectedly. If the log grapple or load hits a person it can cause serious injury or death.

Keep people a safe distance away from the machine during operation. Only use the machine to lift logs or objects that can be lifted safely. Do not let anyone go below or near a lifted load.

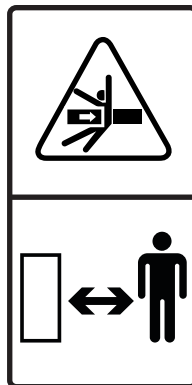


3. Warning!

Pinch and impact hazards

The machine or load can move unexpectedly. If the machine or load hits a person it can cause serious injury or death.

Keep people a safe distance away from the machine and load during operation. Only use the machine to lift a load that can be lifted safely.



4. Warning!

Crush, pinch, cut, or sever hazard

Hands or fingers can be crushed, pinched, cut, or severed in this area.

Keep people a safe distance away from the machine during operation.

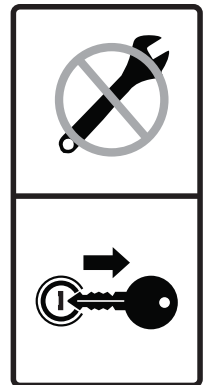


5. Warning!

Put the machine in a safe condition before service or maintenance

If you work on a machine that is not in a safe condition, it can cause serious injury or death.

Put the machine on the ground, remove the hydraulic fluid pressure, stop the mini skid steer, set the parking brake, and remove the key before you start service, maintenance, or troubleshooting.

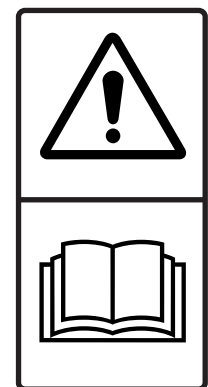


6. Caution!

Read the Operator's Manual

There is important safety information and instructions in the Operator's Manual.

Read all the safety information and instructions in the Operator's Manual. Know what all the safety labels mean.

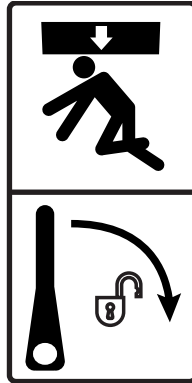


7. Warning!

Impact and crush hazards

If you do not engage the lock pins correctly, the machine can fall off the mini skid steer and cause personal injury or death.

Fully engage each lock pin before you use the machine.



8. Warning!

Wear the necessary PPE

For example:

- A hard hat.
- Heavy gloves.
- Hearing protection.
- Protective footwear with steel toes and slip resistant soles.
- Protective goggles or a face shield



9. Warning!

Risk of cancer and reproductive harm

The machine materials contain chemicals or machine operation can produce gases or dust that are identified by the state of California as causes of cancer, birth defects, or other reproductive harm.

This warning is a requirement of the state of California, USA to comply with Proposition 65: the Safe Drinking Water and Toxic Enforcement Act of 1986.



4. Familiarization

The Skid Pro Attachments LXG210S-SKD and LXG210SB-SKD log grapples are designed to move logs in a small-scale wood lot or landscaping business.

The log grapple forks can open to be put around a log and can close to hold the log. Use the log grapple to move or turn the log. The mini skid steer hydraulic system provides power to the machine.

4.1 New Operator

WARNING!

All operators must understand how to put the machine in a safe condition before they service, maintain, or store the machine. For instructions, see *Safe Condition* on page 10.

It is the responsibility of the owner and the operator to read this manual, and to train all operators before they work with the machine. Obey all safety instructions.

Only a fully trained operator is approved to use the machine. A person who operates the machine without the correct training is a danger to themselves and others, and can cause property damage.

4.2 Training

Each operator must be trained in the correct operating procedures before using the machine. The sign-off form on page 12 can be used to keep a training record.

1. Teach the new operator the control locations, functions, and movement directions.
2. Put the machine in a large open area and let the new operator learn the control functions and machine responses.
3. After the new operator knows and is comfortable with the machine, they can start work.

4.3 Operator Orientation

IMPORTANT! When describing controls throughout this manual, the directions for left side, right side, front, and rear are determined when sitting in the mini skid steer driver's seat, facing the direction of forward machine travel.

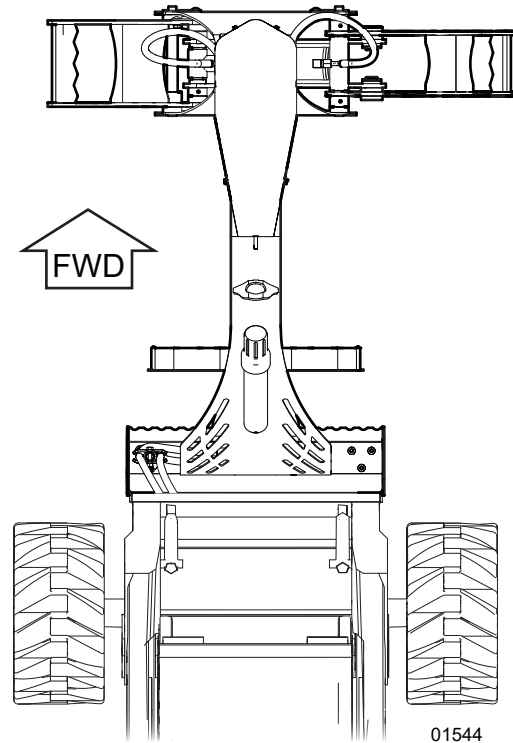


Figure 4—Operator orientation

4.4 Machine Components

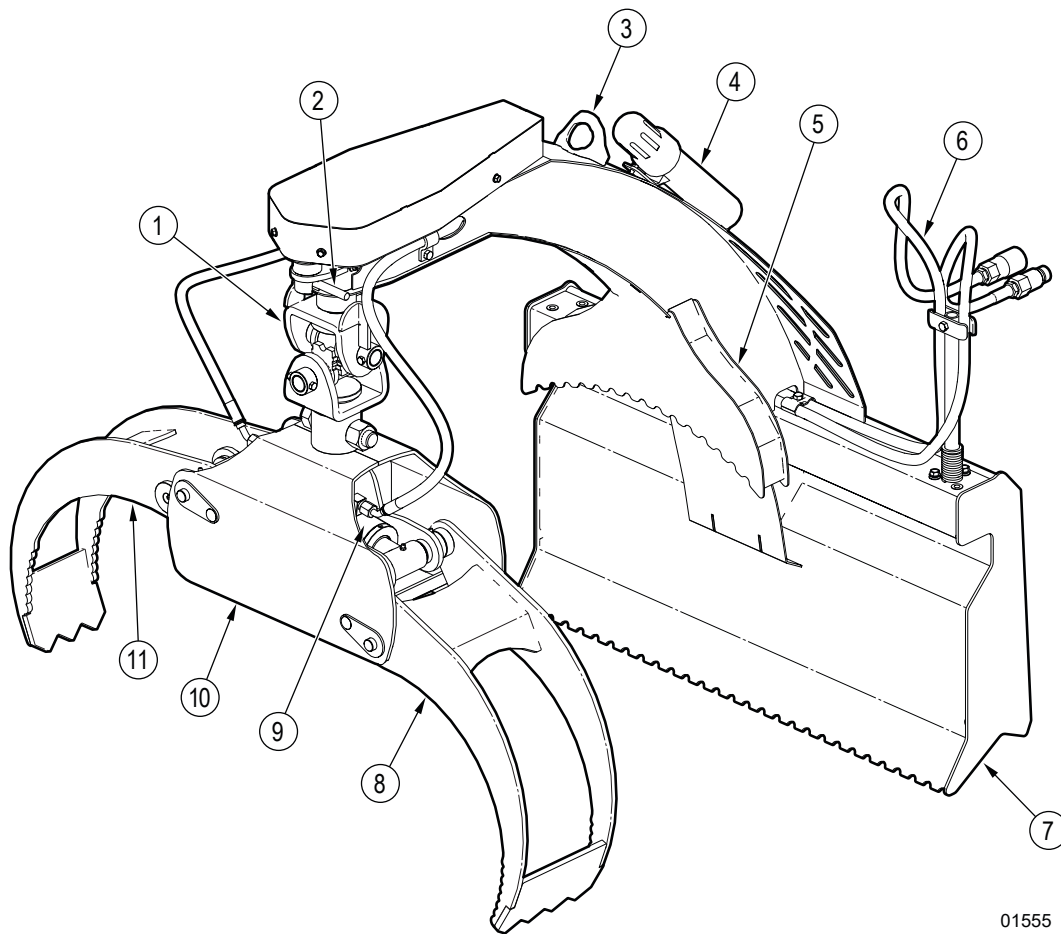


Figure 5– Machine components (LXG210SB shown)

- | | |
|-------------------------------|-------------------------------------|
| 1. Pivot assembly | 7. Mini skid steer attachment plate |
| 2. Pivot lock | 8. Outer fork |
| 3. Hydraulic hose-end storage | 9. Hydraulic cylinder |
| 4. Document storage tube | 10. Grapple housing |
| 5. Cantilever cradle | 11. Inner fork |
| 6. Hydraulic hoses | |

5. Controls

! WARNING!

Do not operate the machine until you know the location of all the controls and how to use them correctly.

Read the Operator's Manual and the mini skid steer manufacturer's manual in full before you operate the machine.

5.1 Open or Close the Forks

The mini skid steer remote hydraulic system provides power to the log grapple inner and outer forks. The inner fork goes through the outer fork when the log grapple is closed.

The machine can hold a log that is between the minimum and maximum diameters:

- **Minimum log diameter:** 3" (8 cm)
- **Maximum log diameter:** 40" (102 cm)

5.2 Pivot-Assembly Lock

! WARNING!

Stay a safe distance from the log-grapple forks when you unlock the pivot assembly. When you unlock the pivot assembly, the log-grapple forks can turn unexpectedly and hit you.

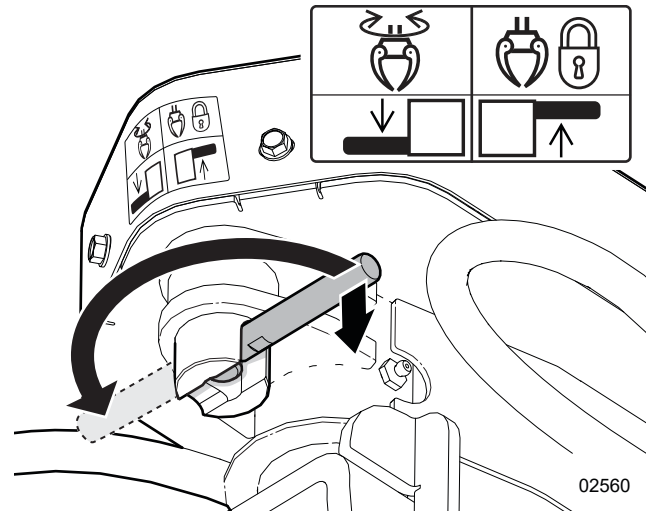
W134

IMPORTANT! Unlock the pivot assembly before you skid a log. If the pivot assembly is locked when you skid a log, it can damage the machine.

The machine has a spring that keeps the log-grapple forks in the primary position (parallel to the mini skid steer attachment plate). When the pivot assembly is unlocked, the log-grapple forks can turn up to 90-degrees clockwise or counterclockwise. For example, when you skid a log the log-grapple forks can turn with the load. For more information, see *Figure 7 on page 22*.

The pivot assembly can be locked in one of three positions for tasks such as carrying, aligning, or stacking logs, or when you do not want the log grapple to turn.

5.2.1 Pivot-Assembly Lock Lever



02560

Figure 6—Pivot-assembly lock lever

	Unlocked
	Locked
	Lower to unlock
	Lift to lock

5.2.2 Unlock the Pivot Assembly

1. Lower the pivot-assembly lock lever until it is out of the notch.
You might have to move the log-grapple forks slightly to release the pivot-assembly lock pin.
2. Turn the pivot-assembly lock lever clockwise to the unlocked position (the opposite side of the pivot assembly).

5.2.3 Lock the Pivot Assembly

1. Lower the pivot-assembly lock lever until it is out of the notch.
You might have to move the log-grapple forks slightly by hand to release the pivot-assembly lock pin.
2. Turn the log-grapple forks clockwise or counterclockwise 90-degrees.
3. Release the pivot-assembly lock lever into the locked position.
4. Try to turn the log-grapple forks by hand. Make sure that the pivot-assembly lock pin is engaged in the lock plate. Listen for a click sound when the pin engages with the hole.

5.2.4 Pivot-Assembly Positions

The pivot assembly can be set to one of the following positions:

Unlocked	The log-grapple forks are parallel to the mini skid steer attachment plate (primary position) and can turn freely up to 90-degrees clockwise or counterclockwise.
Locked in the primary position	The log-grapple forks are parallel to the mini skid steer attachment plate (primary position) and do not turn.
Locked 90-degrees clockwise	The log-grapple forks are perpendicular to the mini skid steer attachment plate (90-degrees clockwise) and do not turn.
Locked 90-degrees counterclockwise	The log-grapple forks are perpendicular to the mini skid steer attachment plate (90-degrees counterclockwise) and do not turn.

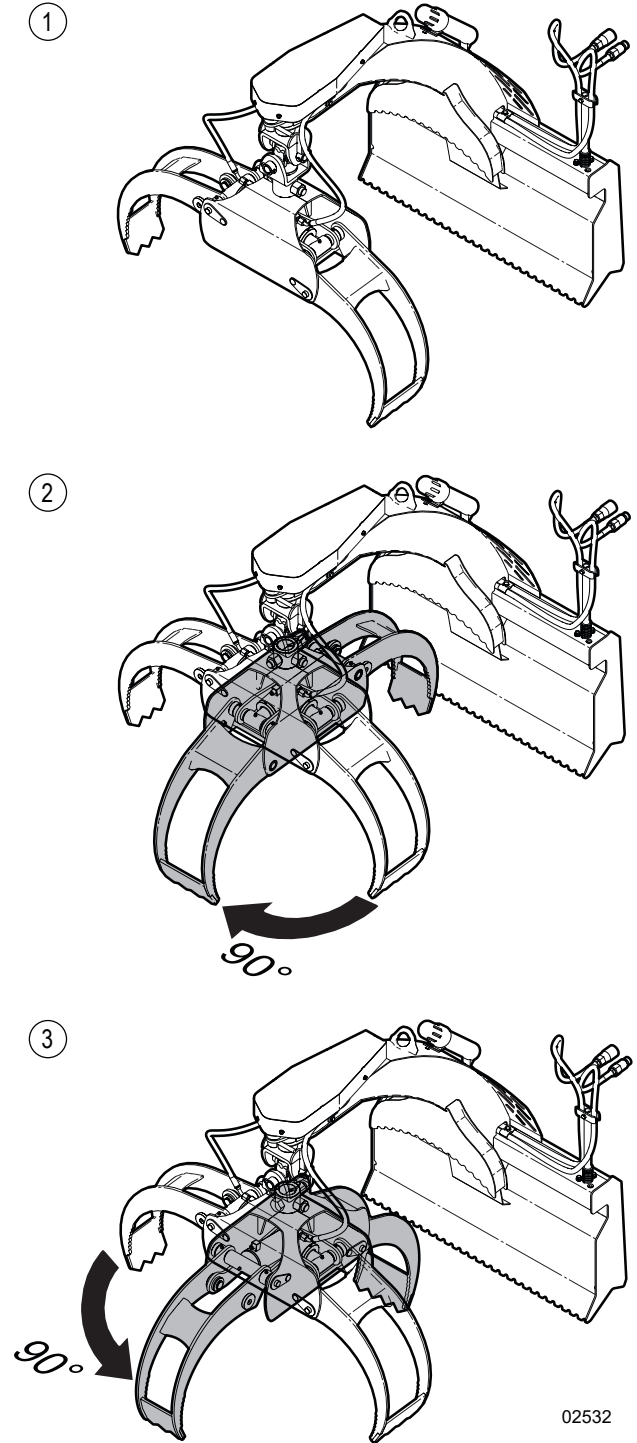


Figure 7—Log-grapple fork positions

1. Primary position
2. 90-degree clockwise position
3. 90-degree counterclockwise position

5.2.5 Pivot-Assembly Lock Components

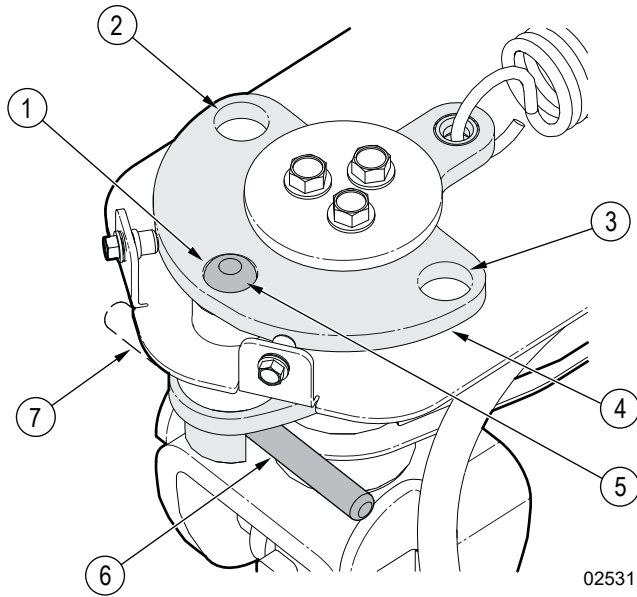


Figure 8—Pivot-assembly lock components
(shown with the guard removed)

- | | |
|--|---|
| 1. Primary lock position hole | 5. Pivot-assembly lock pin |
| 2. Counterclockwise lock position hole | 6. Pivot-assembly lock lever in the locked position |
| 3. Clockwise lock position hole | 7. Pivot-assembly lock lever unlocked position |
| 4. Lock plate | |

5.3 Cantilever Cradle

The cantilever cradle provides a stable location to support the end of a log in the primary position. The serrated edge helps to keep the log in position.

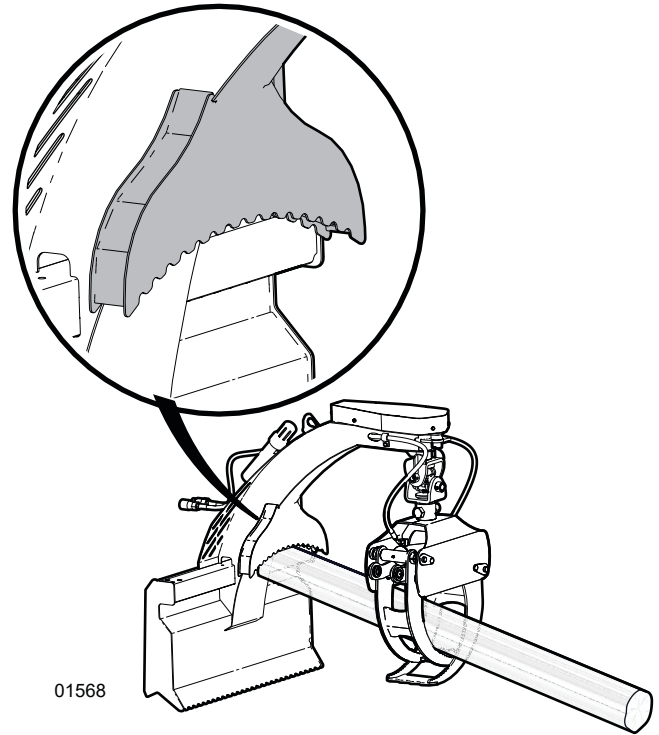


Figure 9—Cantilever cradle

6. Operating Instructions

The operator is responsible to be familiar with and obey all operating and safety procedures. Read and understand all the safety information in this manual before you operate the machine.

6.1 Operating Safety

WARNING!

Wear the personal protective equipment (PPE) that is necessary to do the work safely.

This includes, but is not limited to, a hard hat, hearing protection, a face shield, protective footwear, a respirator, and heavy gloves.

W101

WARNING!

Keep people a minimum of 20 ft (6 m) away from the machine and the load when you skid logs. Plan the route before you start to skid. The machine and logs move during skidding and can hit people or objects. If the machine or a log hits a person, it can cause serious injury or death.

W090

- Read and understand this manual and the mini skid steer manufacturer's manual before you operate the machine. Review all safety information annually.
- Become familiar with the mini skid steer controls before you start to work. Learn and practice how to safely operate each machine function.
- Use the machine in a clear location on dry, level ground. Do not operate the machine on a hillside or area that is cluttered, wet, muddy, or icy to prevent slips, trips, and falls.
For more information, see *Work Site* on page 13.
- Only operate the mini skid steer in a location that has good air flow. Engine exhaust gases contain carbon monoxide (an odorless gas) that can cause asphyxiation.
- Do not move the log grapple and load if the operator cannot see the log grapple, load, the area around them.
- Make sure that the load weight is less than the maximum machine and mini skid steer capacity.
- Do not lift the logs higher than is necessary.
- Stay a minimum of 50 ft (15 m) away from power lines. Know where all the above ground and below ground power lines are located. Electrocutation from power lines can cause serious injury or death. Electrocutation can occur without direct contact because electricity from power lines can arc through the air. Higher voltages increase the risk that an arc will occur.
- Keep the work area clean and free of debris.
- Attach all guards and shields before you start the machine.
- Do not stand, sit, or climb on any part of the machine.
- Do not step over, straddle, or go below the machine.
- Keep bystanders a minimum of 10 ft (3 m) from the work zone. Mark the safe zone with safety cones.
- Keep your hands, feet, clothing, and long hair away from the machine during operation.
- Always stay in the mini skid steer and wear the necessary restraint (for example, a seat belt) while you operate the machine.
- Know the movement and turn radius of the mini skid steer and logs when they are in the primary and 90-degree angle positions.
- Make sure that the logs do not hit objects or people when they are in the machine.
- Put the machine on the ground before you get out of the mini skid steer.
- Close the log grapple fully around the log or logs. Do not grip a log with only the end of the log-grapple forks.
- Only skid logs straight up or straight down a slope. Do not skid across a steep slope.
- Cut logs to the necessary length and remove the limbs before you move them.
- Always drive the mini skid steer in reverse when you skid logs.
- If you stack logs:
 - Make sure that the log stack does not prevent safe operation of the machine.
 - Make sure that the log stack is level.
 - Clear the area around the log stack to prevent logs from rolling.
 - Stack the logs parallel to each other with the ends aligned.

6.2 Pre-Start Checklist

Complete the following before you operate the machine the first time and each time after that:

Items to Complete	✓
Read and obey the <i>Safety Rules on page 9</i> and the <i>Operating Safety on page 24</i> .	
Check to make sure that the machine is attached to the mini skid steer correctly.	
Check the mini skid steer hydraulic fluid level and quality. If necessary, add hydraulic fluid or change the hydraulic fluid.	
Make sure that the machine is lubricated, as specified in the <i>Maintenance Schedule on page 33</i> .	
Use a safe method to check the hydraulic hoses and fittings for leaks. If necessary, tighten the fittings or replace the components. Move a hose if it is pinched or rubs on something. For more information, see <i>Hydraulic Fitting Torque on page 39</i> .	
Remove anything that is entangled on the machine. For example, branches or vines.	
Make sure that all guards and shields are installed. If necessary, replace the guards or shields.	
Make sure that all the fasteners are installed and torqued to the correct specifications. For more information, see <i>Bolt Torque on page 38</i> .	
Make sure that the operator is wearing the necessary PPE. The PPE must be in good condition.	
Make sure that the operator is not wearing loose-fitting clothing or jewelry, and long hair is tied up.	
Make sure that there are no bystanders inside the work zone. For zone definitions, see <i>Work Site on page 13</i> .	

6.3 Machine Break-In

Before and during the first eight hours of operation, do the following tasks.

6.3.1 Before Initial Startup

- Read and understand all safety information in this manual and the mini skid steer manufacturer's manual.
- Review the *Machine Components on page 20*.
- Review the operation and function of the *Controls on page 21*.
- Complete the *Pre-Start Checklist on page 25*.

6.3.2 After One, Five, and 20 Hours of Operation

- Check the fasteners and make sure that they are torqued to the correct specifications. For more information, see *Bolt Torque on page 38*.
- Remove material that is entangled on the machine.
- Use a safe method to check the hydraulic hoses and fittings for leaks. If necessary, tighten the fittings or replace the components. Move a hose if it is pinched or rubs on something. For more information, see *Hydraulic Fitting Torque on page 39*.
- Check the mini skid steer hydraulic fluid level. If necessary, add hydraulic fluid. For instructions, see the mini skid steer manufacturer's manual.
- Continue with the regular *Maintenance Schedule on page 33*.

6.4 Start the Machine



WARNING!

Before you start the machine, read and understand all the safety information in this manual and the mini skid steer manufacturer's manual.

IMPORTANT! After you start the mini skid steer, make sure that you set the engine speed (throttle) to more than 1/2 the maximum speed. The hydraulic system flow for the machine must be between 5 gpm (19 Lpm) and 10 gpm (38 Lpm).

Before you start the machine, see the information under *Controls on page 21*.

1. Complete the tasks described in the *Pre-Start Checklist*.
2. Connect the machine to the mini skid steer. For instructions, see *Connect to a Mini Skid Steer on page 29*.
3. Increase the mini skid steer engine speed to between 1/2 and 3/4 of the maximum speed.

6.5 Stop the Machine

1. Remove logs from the machine.
2. Fully open the log-grapple forks.
Wait for all movement to stop.
3. Lower the machine to the ground.
4. Stop the mini skid steer. Make sure that the hydraulic system is off.
For more information, see the mini skid steer manufacturer's manual.
5. Operate the hydraulic controls to release the pressure.
6. Set the mini skid steer parking brake.
7. Remove the mini skid steer ignition key.
Keep the ignition key with you to prevent someone from starting the mini skid steer.
8. Wait for the hydraulic fluid to cool.

6.6 Emergency Stop

In an emergency:

1. If it is possible, lower the machine to the ground.
2. Stop the mini skid steer. Make sure that the hydraulic system is off.
For instructions, see the mini skid steer manufacturer's manual.
3. If it is safe to, operate the hydraulic controls to release the pressure.
4. Set the mini skid steer parking brake.
5. Remove the mini skid steer ignition key.
Keep the ignition key with you to prevent someone from starting the mini skid steer.

6.7 Prepare the Logs and Equipment

- Remove branches and limbs from the logs.
- Cut logs to the necessary length.
- If you use a trailer:
 - Make sure that the trailer is safely attached to a tow vehicle. The tow vehicle provides stability that is necessary for loading or unloading logs.
 - Put the trailer as close as possible to the log stack. This makes it easier to move the logs, especially for heavy logs.

6.8 Lift Logs in the Primary Position

If the logs are too long to lift at the point of their centre mass, use the cantilever cradle to balance them.

6.8.1 Lift Logs with the Cantilever Cradle

To lift logs in the primary position with the cantilever cradle:

1. Lock the pivot assembly in the primary position.
For instructions, see *Lock the Pivot Assembly on page 22*.
2. Put the cantilever cradle above one end of the logs.
3. Slowly, drive the mini skid steer forward until the machine touches the end of the logs.
4. Pick up the logs:
 - a. Open the log-grapple forks.
 - b. Lower the log-grapple forks around the logs.
 - c. Close the log-grapple forks.
Make sure that the log-grapple forks are in full contact with all the logs. If the log-grapple forks are not fully closed, the load can become unstable and cause a dangerous situation.
 - d. Slowly, lift the log-grapple until the logs become stable against the cantilever cradle.
5. Move the logs to the selected location.
6. Release the logs.
For instructions, see *Release the Logs on page 28*.

6.8.2 Lift Logs without the Cantilever Cradle

To lift logs in the primary position without the cantilever cradle:

1. Lock the pivot assembly in the primary position.
For instructions, see *Lock the Pivot Assembly on page 22*.
2. Complete steps 3 to 8 of the procedure *Lift Logs in a 90-Degree Position*.

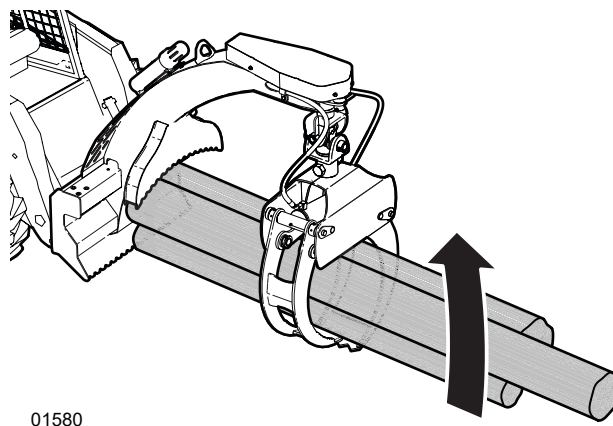


Figure 10—Lift logs in the primary position with the cantilever cradle

6.9 Lift Logs in a 90-Degree Position

1. Turn the log-grapple forks to a 90-degree position.
For more information, see *Pivot-Assembly Lock* on page 21.
2. Lock the pivot assembly.
For instructions, see *Lock the Pivot Assembly* on page 22.
3. Put the machine above the location that you think is the centre mass of the load.
The stump end of logs can be heavier and the smaller ends lighter. For safety, carefully balance the load.
4. Pick up the log:
 - a. Open the log-grapple forks.
 - b. Lower the log-grapple forks around the logs.
 - c. Close the log-grapple forks.
Make sure that the log-grapple forks are in full contact with all the logs. If the log-grapple forks are not fully closed, the load can become unstable and cause a dangerous situation.
 - d. Slowly, lift the log-grapple.
5. Do one of the following:
 - If the logs are balanced in the log grapple, continue with step 6.
 - If the logs are not balanced in the log grapple:
 - i. Lower the log-grapple forks and logs.
 - ii. Open the log-grapple forks.
 - iii. Move the log grapple along the logs.
Select the location that you think is the centre mass of the logs.
 - iv. Return to step 4.
6. Lift the logs off the ground.
Keep the logs as low as possible for stability.
7. Move the logs to the selected location.
8. Release the logs.
For instructions, see *Release the Logs* on page 28.

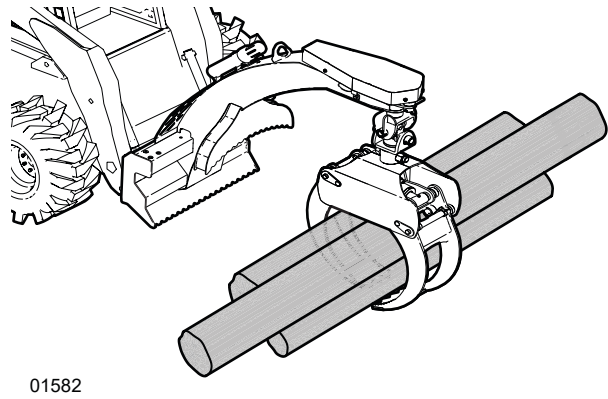


Figure 11 – Lift logs at a 90-degree angle

6.10 Skid Logs

! WARNING!

Keep people a minimum of 20 ft (6 m) away from the machine and the load when you skid logs. Plan the route before you start to skid. The machine and logs move during skidding and can hit people or objects. If the machine or a log hits a person, it can cause serious injury or death.

W090

! WARNING!

Do not transport the machine across a steep slope. The mini skid steer and machine can tilt and fall over. If the mini skid steer or machine falls on you it can cause serious injury or death.

! WARNING!

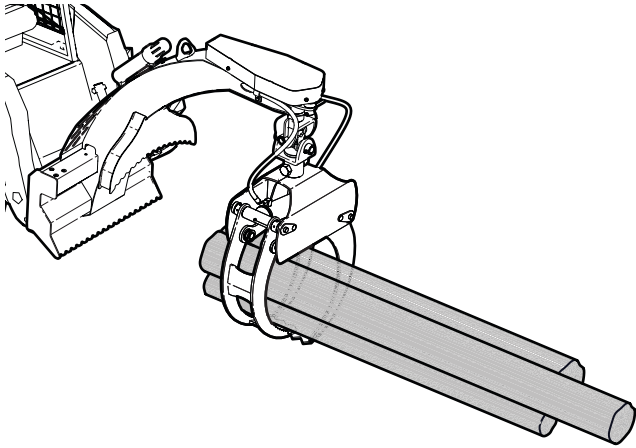
Stay a safe distance from the log-grapple forks when you unlock the pivot assembly. When you unlock the pivot assembly, the log-grapple forks can turn unexpectedly and hit you.

W134

IMPORTANT! Unlock the pivot assembly before you skid a log. If the pivot assembly is locked when you skid a log, it can damage the machine.

1. Plan the skidding route.
2. Make sure that the pivot assembly is unlocked.
For instructions, see *Unlock the Pivot Assembly* on page 21.
3. Put the grapple above one end of the log or logs, approximately 1 ft (25 cm) from the end.

4. Lower the grapple to the logs and close the forks around them.
5. Lift the grapple.
Keep the logs as low as possible for better visibility and stability.
6. Skid the logs to the selected location.
Drive the mini skid steer in reverse.
7. Release the logs.
For instructions, see *Release the Logs*



01579

Figure 12–Skid logs

6.11 Release the Logs

1. Lower the logs to the ground or log stack.
2. Slowly, open the log-grapple forks.
Make sure that the logs do not roll out of control.
3. Lift the log-grapple forks above the logs.
4. Carefully, move the machine away from the logs.
Make sure that the log-grapple forks do not hit the logs and cause them to roll out of control.
5. Close the log-grapple forks.

7. Transport

IMPORTANT! Equipment that is transported on a public roadway must comply with the local laws that govern the safety and transport of machinery. Before you take any machine on a public roadway, make sure that it has the necessary lighting, reflectors, and markings, and that they are in working condition.

These machines are not intended for use or transport on a public roadway.

For specific requirements, contact your local transportation authority.

7.1 Transport Safety

WARNING!

Do not transport the machine across a steep slope. The mini skid steer and machine can tilt and fall over. If the mini skid steer or machine falls on you it can cause serious injury or death.

IMPORTANT! The maximum machine transport speed is 20 mph (32 km/h).

- Make sure that the machine is safely attached to the mini skid steer.
- Do not let people ride on the machine.
- Decrease your speed for rough terrain and around corners.
- Plan your route to avoid heavy traffic.
- Make sure that all the guards and shields are installed.
- Remove all debris from the machine.
- When the machine is ready for transport, do a circle check to make sure that everything is safe.

7.2 Prepare the Machine for Transport

1. Remove logs from the machine.
2. Stop the machine.
For instructions, see *Stop the Machine on page 26*.
3. Remove all debris from the machine.
4. Examine the coupler lock pins to make sure that they are through the machine attachment plate and the connection is safe.
5. Do a circle check to make sure that everything is safe.

7.3 Connect to a Mini Skid Steer

WARNING!

Read and understand the *Hydraulic System Safety on page 10*.

IMPORTANT! Set the hydraulic system to the correct specifications. See *Hydraulic System Specifications on page 37*. After installation, operate the machine through each function one time, and then check the mini skid steer hydraulic fluid level.

The mini skid steer must have two hydraulic fluid connections on the front (one pressure and one return). For more information, see the mini skid steer manufacturer's manual.

1. Make sure that the ground is flat and there is a sufficient amount of space to safely drive the mini skid steer to the machine.
2. Remove all debris from the mini skid steer coupler.
3. Move the coupler lock pins to the unlocked position. Some mini skid steers have a button that operates the lock pins and some mini skid steers have manual lock pins.
4. Lower the coupler.
5. Drive the mini skid steer to the machine and align the coupler with the machine attachment plate. Make sure that the coupler is between the flanges on each side of the attachment plate.
6. Tilt the top of the coupler forward until the top edge of the coupler is below the top flange on the attachment plate.
7. At the slowest speed possible, drive forward until the top of the coupler touches the attachment plate.
8. Lift the coupler and tilt the top toward the rear of the mini skid steer until it is fully engaged with the attachment plate.
9. If the mini skid steer has an automated function that moves the coupler lock pins, move the coupler lock pins to the locked position.
10. Stop the mini skid steer, apply the parking brake, and make sure that the hydraulic system is off.
11. Operate each hydraulic control once to release the pressure.
12. If the mini skid steer has manual coupler lock pins, move the coupler lock pins to the locked position.

13. Connect the hydraulic pressure and return hoses to the correct connections on the mini skid steer.
Use clips, tape, or plastic ties to attach the hoses to the mini skid steer loader and prevent damage. Make sure that the hoses can move when you tilt the machine.
For the hydraulic system settings, see *Hydraulic System Specifications on page 37*.
14. Examine the coupler lock pins to make sure that they are through the attachment plate and the connection is safe.
15. Start the mini skid steer.
16. Operate the machine through each function one time.
17. Do steps 10 and 11 again.
18. Check the mini skid steer hydraulic fluid level.
For safety information and instructions, see the mini skid steer manufacturer's manual.
9. Start the mini skid steer.
10. Tilt the top of the coupler forward until the top of the coupler is below the top flange on the machine attachment plate.
11. Slowly, reverse the mini skid steer away from the machine.

7.4 Disconnect from a Mini Skid Steer

WARNING!

After you stop the engine, operate each hydraulic control to release the hydraulic fluid pressure. Make sure that you release the hydraulic fluid pressure before you loosen a hydraulic hose connection. A thin, high pressure stream of hydraulic fluid can penetrate your skin and cause serious illness, injury, or death.

W080

1. Make sure that the ground is flat and there is a sufficient amount of space to safely drive the mini skid steer away from the machine.
2. Fully open the log-grapple forks for maximum stability.
3. Carefully, lower the machine to the ground.
4. If the mini skid steer has a button that operates the coupler lock pins, move the coupler lock pins to the locked position.
5. Stop the mini skid steer, apply the parking brake, and make sure that the hydraulic system is off.
6. Operate each hydraulic control once to release the pressure.
7. If the mini skid steer has manual coupler lock pins, move the coupler lock pins to the locked position.
8. Disconnect the two hydraulic hoses from the mini skid steer.
Put the hoses away from the attachment plate and coupler connection to prevent damage.

8. Storage

At the end of the season or when the machine is not going to be used for an extended length of time, store the machine correctly to prevent damage.

8.1 Storage Safety



Do not let children play on or around the stored machine. If children play on or around the machine it can result in serious injury or death.

W105

IMPORTANT! A pressure washer can damage the machine's product identification plate and make it unreadable. Do not direct the spray from a pressure washer onto the product identification plate. Use a clean, soft cloth that is dampened with water to remove dirt.

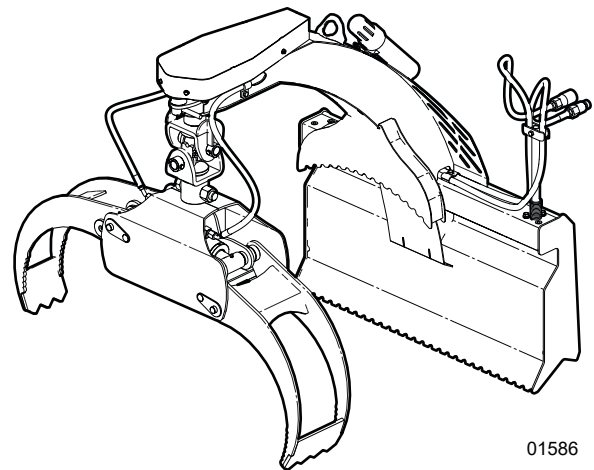
- Store the machine in a dry, level location away from human activity.
- Store the machine indoors, if possible.
- If necessary, support the machine with blocks for stability.

8.2 Put the Machine in Storage

1. Set the machine to a safe condition.
For instructions, see *Safe Condition on page 10*.
2. Check all the moving parts and remove all entangled material.
3. Clean the machine.
For instructions, see *Clean the Machine on page 34*.
4. Examine the machine fully, including internal components.
Replace or repair any worn or damaged components.
5. Paint scratches and dents to prevent rust.
6. Put the machine in the storage location.
Store the machine in a vertical position with the forks in the primary position. See *Figure 13*.
7. Disconnect the machine from the mini skid steer.
For instructions, see *Disconnect from a Mini Skid Steer on page 30*.
8. If the machine must be stored outdoors, cover the machine with a waterproof tarp.
The machine should be stored indoors, if possible.

8.3 Remove the Machine from Storage

1. Do the *Pre-Start Checklist on page 25*.
2. Do the necessary maintenance.
For necessary maintenance, see the *Maintenance Schedule on page 33*.
3. Connect the machine to a mini skid steer.
For instructions, see *Connect to a Mini Skid Steer on page 29*.



01586

Figure 13—Storage position

9. Service and Maintenance

Regular preventive maintenance can improve performance and prolong the life of the machine. Machine maintenance is your responsibility.

9.1 Service and Maintenance Safety

WARNING!

Before you start service or maintenance:

- **Set the machine to a safe condition.**
- **Wait for the machine to cool. Hot fluids can cause burns.**
- **Read and understand all the service and maintenance safety information.**

WARNING!

Wear the personal protective equipment (PPE) that is necessary to do the work safely.

This includes, but is not limited to, a hard hat, hearing protection, a face shield, protective footwear, a respirator, and heavy gloves.

W101

WARNING!

After service and maintenance, install all the guards and shields. Do not operate the machine with any guard or shield removed.

Set the machine to a safe condition before you start any service or maintenance:

SAFE CONDITION

1. Remove logs from the machine.
2. Fully open the log-grapple forks.
Wait for all movement to stop.
3. Lower the machine to the ground.
4. Stop the mini skid steer. Make sure that the hydraulic system is off.
For more information, see the mini skid steer manufacturer's manual.
5. Operate the hydraulic controls to release the pressure.
6. Set the mini skid steer parking brake.

SAFE CONDITION

7. Remove the mini skid steer ignition key.
Keep the ignition key with you to prevent someone from starting the mini skid steer.
 8. Wait for the hydraulic fluid to cool.
-
- Follow good shop practices:
 - Keep the work area clean and dry.
 - Ground electrical outlets and tools.
 - Have sufficient light for good visibility.
 - Use tools that are in working condition and correct for the task. Make sure that you know how to use the tools before you use them.
 - Only operate the mini skid steer in a location that has good air flow. Engine exhaust gases contain carbon monoxide (an odorless gas) that can cause asphyxiation.
 - Do not work under equipment unless it is safely supported with blocks.
 - Do not do service or maintenance work alone. Always have a minimum of two people in case an emergency situation occurs.
 - Keep a fire extinguisher and first aid kit available at all times.
 - When service or maintenance is complete, do the following:
 - Replace all guards and shields.
 - Torque the fasteners to the correct specifications.
 - Make sure that the hydraulic connections are connected correctly and in safe working condition.
 - Do not use gasoline or diesel fuel to clean parts. Use the correct cleaning product.
 - When replacement parts are necessary, use genuine factory replacement parts to restore your machine to the original specifications. The manufacturer cannot be responsible for injuries or damages caused by use of unapproved parts and/or accessories.

9.2 Fluids and Lubricants

The machine needs the correct fluids and lubricants for operation and maintenance.

9.2.1 Lubricant Handling and Storage

For optimum machine efficiency, use clean lubricants and clean containers to handle all lubricants. Store lubricants in an area that is protected from dust, moisture, and other contaminants.

9.2.2 Grease

Use an SAE multi-purpose high temperature grease with extreme pressure (EP) performance. An SAE multipurpose lithium-based grease is an acceptable substitute.

9.3 Maintenance Schedule

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

Task	8 hours or daily	50 hours or weekly	100 hours or monthly	Reference
Check that all the fasteners are torqued to the correct specifications.	●			See page 37.
Check the hydraulic hoses and fittings for damage. Replace a hose or fitting that is damaged.	●			
Remove all debris and entangled material.	●			N/A.
Grease the machine.		●		See page 34
Clean the machine.			●	See page 34.

9.4 Clean the Machine

IMPORTANT! Do not use gasoline, diesel fuel, or thinners for cleaning. Harsh chemicals can damage the machine finish.

IMPORTANT! Do not direct the spray from a pressure washer onto the following components:

- The product identification plate.
- Bearings.

A pressure washer can damage these components.

1. Use a hose or pressure washer and mild detergent to remove dust, dirt, and debris.
2. Use a clean, soft cloth, that is dampened with water to remove dirt from the product identification plate and bearings.
3. Apply grease to the areas where the pressure washer possibly removed it.
For instructions, see *Grease Points*.

9.5 Grease Points

IMPORTANT! Do not over grease a bearing. Too much grease can cause the bearing seals to fail.



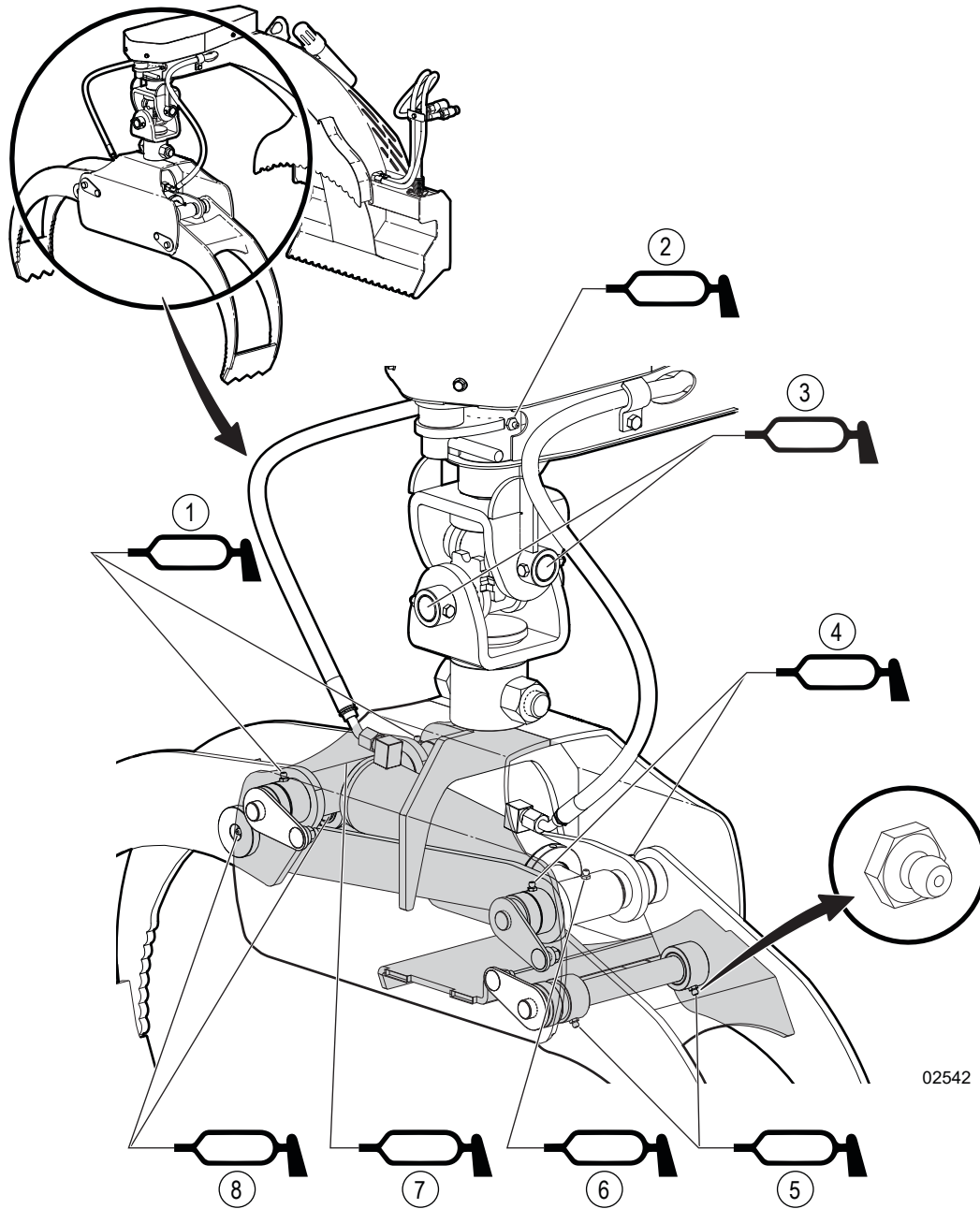
Look for this type of label on the machine. Each label identifies a grease point and shows the greasing interval in hours.

For grease specifications, see *Grease on page 33*.

- Use a clean cloth to clean each grease fitting before you apply grease. This prevents grease and dirt from getting inside the component.
- Use a hand-held grease gun to apply **one pump** of grease to each grease point.
- If a grease fitting is damaged, replace it immediately.
- If a grease fitting does not accept grease:
 - a. Remove the grease fitting.
 - b. Clean the passageway behind the grease fitting.
 - c. Clean the grease fitting thoroughly or get a new grease fitting.
 - d. Install the grease fitting.

Item	Location	Number of Points
1	Outer-fork linkage-bar bushing	2
2	Pivot-assembly lock flat bearing	1
3	Pivot-assembly pin	2
4	Inner-fork linkage-bar bushing	2

Item	Location	Number of Points
5	Inner-fork bushing	2
6	Cylinder barrel	1
7	Cylinder rod	1
8	Outer-fork bushing	2



02542

Figure 14—Grease points

10. Troubleshooting



WARNING!

Before troubleshooting, read and understand the *Service and Maintenance Safety on page 32.* Set the machine to a safe condition.

The following table lists some of the problems that can occur and gives possible causes and solutions.

If you find a problem that is difficult to solve, even after reading this information, please contact Skid Pro Attachments. When you contact someone, please have the serial number of your product available. To find the serial number on your machine, see *Serial Number Location on page 5.*

Problem	Possible Cause	Solution
Hydraulic functions move slowly or do not move.	There is no hydraulic fluid pressure.	The mini skid steer hydraulic fluid filter is blocked. Change the hydraulic fluid filter. The mini skid steer hydraulic fluid level is low. Add hydraulic fluid. The mini skid steer hydraulic system relief pressure is set too low. Contact an approved technician.
	The hydraulic hoses are connected incorrectly.	Remove the hoses, and then connect them to the opposite connections.
	The hydraulic fluid flow is too low.	Increase the hydraulic fluid flow control setting.
	The mini skid steer engine speed is too slow.	Check the mini skid steer engine speed. If necessary, increase the mini skid steer speed.
Hydraulic functions are not smooth.	There is a leak in the hydraulic system. There is air in the hydraulic system.	Tighten all the hydraulic fittings. Use a safe method to check the hydraulic hoses for leaks.
	The hydraulic hose connections are dirty or not compatible.	Clean the hose connections. Make sure that the hose connections are the correct type.
	The mini skid steer has a closed-center hydraulic circuit.	Contact an approved technician.
Hydraulic hose or fitting leaks.	The hydraulic hose is worn or damaged, or the fitting is loose.	Tighten the fitting or replace the hose.
Hydraulic cylinder leaks.	The hydraulic cylinder seals are worn or damaged.	Repair or replace the hydraulic cylinder. Contact an approved technician.
Pivot assembly does not go back to the primary position.	The spring is damaged or broken.	Examine the spring. Replace the spring if it is damaged or broken.
	The pivot-assembly lock lever is engaged.	Release the pivot-assembly lock lever.

11. Specifications

For more information, go to www.skidpro.com.

11.1 Machine Specifications¹

Specification	LXG210S-SKD	LXG210SB-SKD
Rotation angle	180°	
Recommended mini skid steer power	12 to 50 hp (9 to 37 kW)	
Lift capacity	1,000 lb (454 kg)	
Minimum hydraulic flow rate	3 US gpm (11 Lpm)	
Grapple opening	3" to 40" (8 cm to 102 cm)	
Clamp force	9,400 lb (4264 kg)	
Rotator and pivot rating	6,750 lb (3062 kg)	
Total machine 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

11.2 Hydraulic System Specifications

It is necessary for the mini skid steer to have one remote pressure hydraulic connection and one return hydraulic connection.

11.2.1 Hydraulic Hose Specifications

Hose	Type	Working pressure
High-pressure	SAE 100R17 braided 1/2" (12.5 mm) inside diameter (SAE -8) 3/8" (10 mm) inside diameter (SAE -6)	3,000 psi

11.2.2 Hydraulic Fluid Flow Rate

Set the hydraulic fluid flow rate to **5.3 US gpm (20 Lpm)**.

11.2.3 Hydraulic System Relief Pressure

Set the hydraulic system relief pressure to **3000 psi (207 bar)**.

¹ Specifications are subject to change without notice.

11.3 Bolt Torque

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

IMPORTANT! The torque specifications in these tables are for non-greased or non-oiled threads. Do not grease or oil fastener threads unless otherwise indicated. When using a thread lock, increase the specified torque 5%.



Bolt grades are identified by the marks on top of the bolt head.

These bolt torque specification tables give the correct torque settings for common bolts and capscrews. Tighten all bolts to the torque that is specified in the table, unless otherwise indicated. Check the bolt tightness periodically.

Imperial Bolt Torque Specifications

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



SAE Gr. 2



SAE Gr. 5



SAE Gr. 8

Metric Bolt Torque Specifications

Bolt Diameter	Torque			
	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

11.4 Hydraulic Fitting Torque

Tighten flare-type tube fittings:

1. Check the flare and flare seat for defects that might cause leaks.
2. Align the tube with the fitting before tightening.
3. Hand-tighten the swivel nut until it is snug.
4. To prevent the tube from twisting, use two wrenches. Place one wrench on the connector body and tighten the swivel nut with the second wrench. Torque the fitting to the correct specification.

If a torque wrench is not available, use the flats from finger tight (FFFT) method.

Hydraulic Fitting Torque Specifications					
Tube size OD	Hex size across flats	Torque		Flats from finger tight	
		lbf•ft	N•m	Flats	Turns
Inches	Inches				
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

Specifications are for non-lubricated connections.

12. Accessories

There are no accessories currently available for this machine.

13. Index

	A			M
Accessories.....		40	Machine	
	B		Break-in	25
Bolt torque.....		38	Components	20
	C		Specifications.....	37
Cantilever cradle		23	Maintenance schedule	33
Clean the machine		34		N
Connect to a mini skid steer.....		29	New operator.....	19
Controls.....		21		O
Cantilever cradle.....		23	Operating instructions	24
Forks, open or close		21	Emergency stop.....	26
Pivot-assembly lock.....		21	Lift logs, 90-degree position.....	27
	D		Lift logs, primary position	26
Delivery Inspection Report.....		2	Machine break-in	25
Disconnect from a mini skid steer		30	Operating safety	24
	E		Prepare logs and equipment.....	26
Emergency stop		26	Pre-start checklist	25
Equipment safety guidelines		9	Release the logs	28
	F		Skid logs	27
Familiarization.....		19	Start the machine.....	25
Machine components.....		20	Stop the machine.....	26
New operator.....		19	Operator	
Operator orientation.....		19	New.....	19
Training.....		19	Orientation	19
Fluids and lubricants		33		P
Grease.....		33	Pivot-assembly lock	21
Handling.....		33	Prepare logs and equipment	26
Form, training sign-off		12	Prepare the machine for transport	29
	G		Pre-start checklist.....	25
Grease		33		R
Grease points.....		34	Release the logs	28
	H			S
Hydraulic system			Safe condition	10, 32
Safety.....		10	Safety.....	8
Specifications.....		37	Emergency stop.....	26
	I		Equipment safety guidelines.....	9
Introduction		6	Hydraulic system safety.....	10
	L		Operating safety	24
Labels			Safe condition	10
Information labels		7	Safety alert symbol	8
Maintenance labels.....		7	Safety rules.....	9
Mandatory action labels.....		7	Service and maintenance safety.....	32
Product labels.....		7	Signal words	8
Safety labels		7	Storage safety.....	31
Types of labels on the machine		7	Training.....	11
Lift logs			Sign-off form.....	12
90-degree position		27	Transport safety.....	29
Primary position		26	Work area	13
Lock, pivot assembly.....		21	Work site.....	13
			Safety labels.....	15
			Replace a safety label	15
			Safety label definitions.....	17
			Safety label locations.....	16
			Serial number location	5

Service and maintenance..... 32
 Clean the machine..... 34
 Maintenance schedule..... 33
 Service and maintenance safety..... 32
 Skid logs..... 27
 Specifications 37
 Bolt torque 38
 Hydraulic fitting torque 39
 Hydraulic system 37
 Machine 37
 Start the machine 25
 Stop the machine 26
 Storage..... 31
 Put the machine in storage..... 31
 Remove the machine from storage..... 31
 Storage safety..... 31

T

Torque specifications
 Bolt torque 38
 Hydraulic fitting torque 39
 Training 19
 Transport..... 29
 Connect to a mini skid steer 29
 Disconnect from a mini skid steer..... 30
 Prepare the machine for transport..... 29
 Transport safety 29
 Troubleshooting 36
 Types of labels on the machine..... 7

W

Warranty..... 4
 Work area..... 13
 Work site 13



A series of 25 horizontal lines spanning the width of the page, providing a template for writing.



**PO Box 982
Alexandria, MN 56308**

Phone: 877-378-4642

Fax: 320-759-1057

www.skidpro.com

sales@skidpro.com