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Skid Loader (skid-steer) Operator Training

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Skid Loader Operator Training

- Training and Documentation

- Following this training, you will be given a short quiz.
- Provide printed documentation of completion for this online training to your supervisor.
- Complete the hands-on practical evaluation, conducted by your supervisor, to complete the training course.
- Supervisors must maintain documentation copies of both the online training and practical evaluation for EACH employee.
- Supervisors send copies of the skid loader Operator Evaluation Form to:

Kent McGuire – CFAES Health and Safety Coordinator

Email: mcguire.225@osu.edu

Mail: Ag Engineering, 590 Woody Hayes Dr. Columbus, Ohio 43210

- Refresher training must be taken **annually** for all skid loader operators by taking this online training. [OSHA 29CFR 1928.51(d)]



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Skid Loader Operator Training

- Questions about the material

For questions concerning the material, contact:

- Kent McGuire – CFAES Health and Safety Coordinator at 614-292-0588 or mcguire.225@osu.edu
- Or OSU Environmental Health & Safety at 614-292-1284

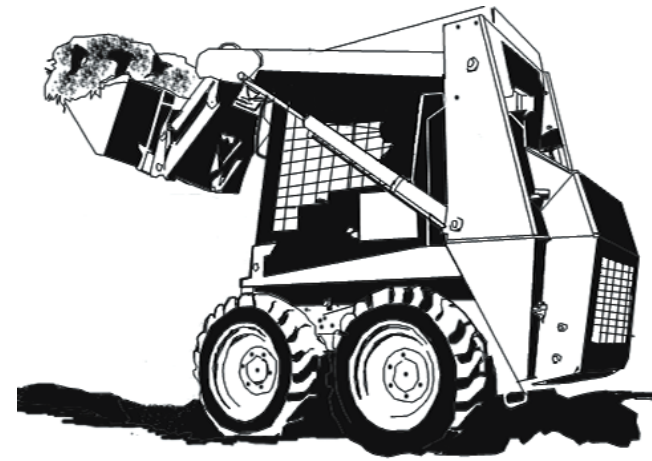


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Learning Objectives

- Understand the purpose of a skid loader.
- Understand the characteristics of a skid loader.
- Recognize the hazards associated with a skid loader.
- Understand skid loader stability.
- Identify the controls and instrumentation of a skid loader.
- Understand preventative maintenance and pre-operation checks.
- Demonstrate safe use of a skid loader.





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Purpose of Skid Loaders

- Skid loaders are compact, powerful, and versatile machines.
- Can be 4-wheel or track driven.
- Turns by skidding, or dragging its fixed-orientation wheels / tracks across the ground.
- They fit into small spaces, and can turn within a tight radius.
- Skid loaders function to push, scrape, scoop, lift, and dump materials.
- Can be used as a remote power source for variety attachments.
- Easy to operate but, the operator must know the machine's proper use, as well as its limitations.



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Skid Loader Characteristics

Hydraulic Power

- A skid loader is a very powerful hydraulic machine.
- A hydrostatic transmission controls forward and reverse direction.
- Hydrostatic valves control the flow of hydraulic oil to steer the machine by “skidding” it sharply around corners.
- The machine moves the instant you move the hydraulic control levers or pedals.
- The skid loader will move forward, reverse, or sideways.
- The load bucket will lift, roll or tilt.
- **Bumping the control levers can cause the machine to move unintentionally.**



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Skid Loader Characteristics

Weight and Stability

- The skid loader's center of gravity is low and between the wheels.
- The center of gravity is always shifting during operation.
- Typically $\frac{2}{3}$ of the skid loader's weight is towards the rear axle of the machine.
- Lifting a load transfers weight to the front axle.
 - The higher the load, increases height of the center of gravity, and increases risk of tip-over in any direction.
- Know the manufactures load weight limit and **DO NOT** exceed this limit.





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Skid Loader Characteristics

Machine Hazards

- Pinch points, cut points, and crush points exist within close reach of the operator's space.
- Lift arms raise and lower the loader bucket near the operator's cab.
- The loader bucket is mounted in front of the operator and can be rolled forward or tilted back within inches of the operator.
- Control levers, pedals, and a parking brake are arranged compactly within the operator's space.
- It is easy to bump these controls.
 - Workers have been crushed between lift arms and the skid loader
 - Loader buckets have dropped onto workers
 - Loader buckets have rolled back and crushed a worker's legs
- Operators must be aware of job site hazards.



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Skid Loader Characteristics

Safety features

- Rollover Protective Structure (ROPS)
 - Provides protection against being crushed should the skid loader tip or overturn.
- Falling Object Protective Structure (FOPS)
 - Provides protection from falling objects or loads that could impact the operator area.
- Side Screens
 - Protects operator from thrown objects or debris and prevents the operator from reaching out the side of the cab, under the lift arms.
- Seat belt and seat-bar restraint
 - Keeps the operator in the Zone-of-Protection (seat). Works with ROPS to create a safe zone in the operator area.
- Interlock System
 - Electrical lock system that prevents starting the engine or use of hydraulic controls if the seat belt and seat-bar are not used.



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Pre-operation

Preventative maintenance

Before using the skid loader, complete a maintenance inspection of the machine:

- Inspect machine carefully by walking around it before starting.
- Keep all guards and shields in good condition and properly installed.
- Fix damage and replace worn parts immediately.
 - Report all damage (no matter how small) to the supervisor
- Pay special attention to leaking hydraulic hoses and damaged electrical wiring.

Daily Operating Checklist

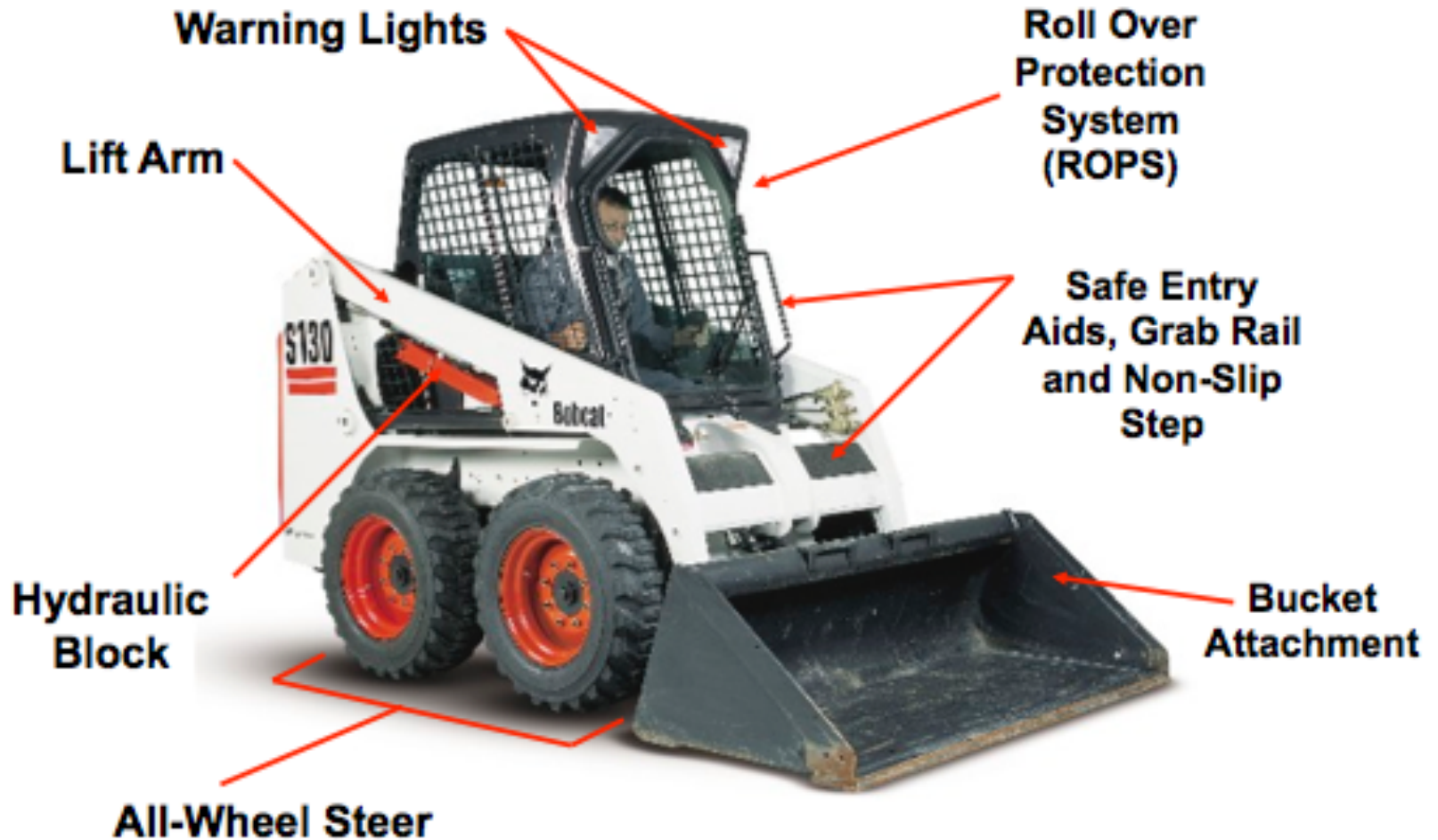
- Test safety systems
- Check fuel level
- Check engine oil level
- Check hydraulic oil level and hoses
- Check coolant level and hoses
- Remove dirt and debris from radiator



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Skid Loader Components





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Skid Loader Controls

Skid loaders are controlled by hand levers and foot pedals. The beginning operator should understand the following points:

- ***Movement controls:*** Grasp the right and left hand control levers; push both levers forward to move forward, or pull the levers rearward to move in reverse. Let go of the levers to stop the movement.
- ***Steering controls:*** To control the steering direction, *GENTLY* push one hand lever forward while pulling the other lever back. Pushing the left lever forward while pulling the right lever back will make the skid steer travel to the RIGHT.
- ***Lift controls:*** Standard skid loader controls use foot pedals to control the lift arms and load bucket. Advanced or joystick controls can use a combination of foot pedals and hand controls or all hand controls for the lift arms and load bucket.

You will need to get familiar with the machine at your location



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Skid Loader Controls

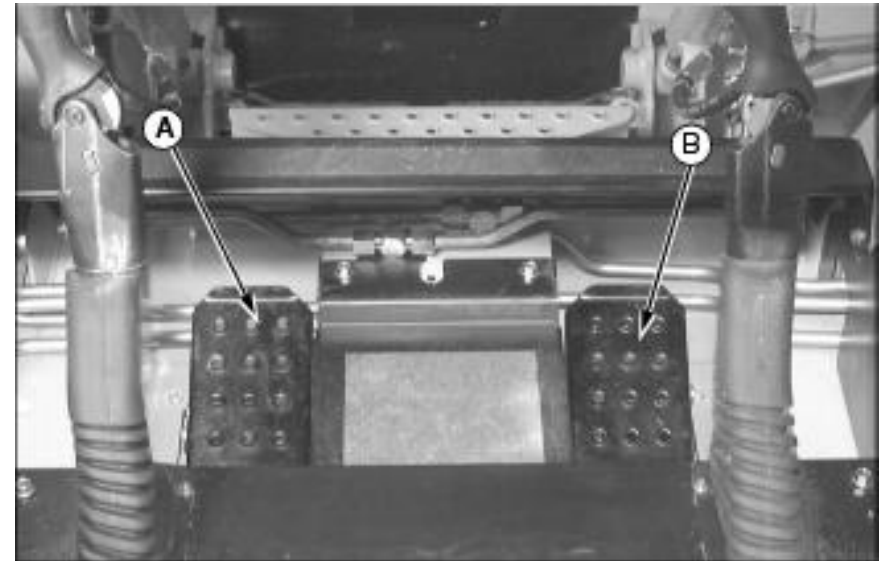
“Standard” Controls

Operator Station



- | | |
|--------------------|-------------------------|
| A - Seat Belt | B – Drive Control Lever |
| C – Horn Button | D – Seat Adjustment |
| E – Throttle Lever | F – Boom Lock Lever |

Foot Pedals



- A – Boom Control Pedal
B – Bucket Control Pedal

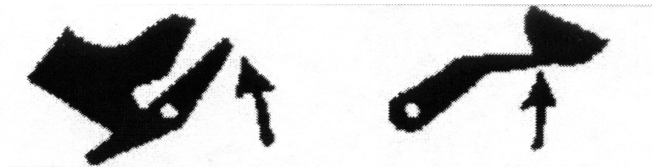


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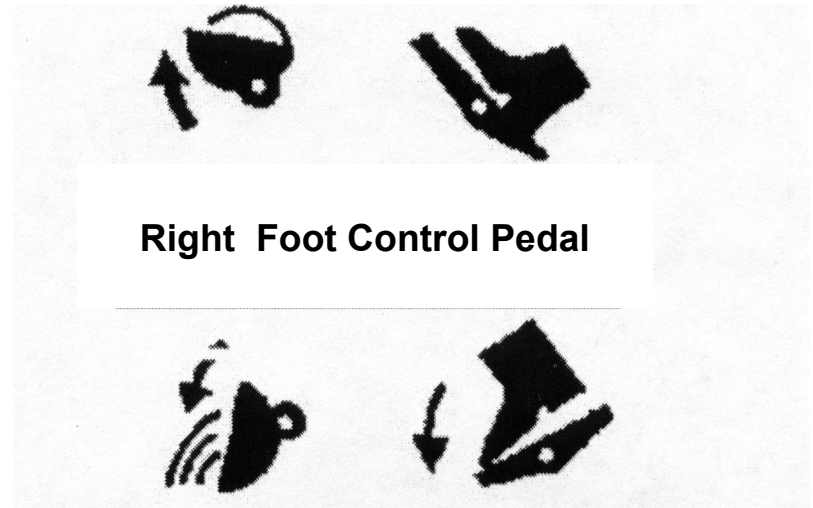
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Skid Loader Controls

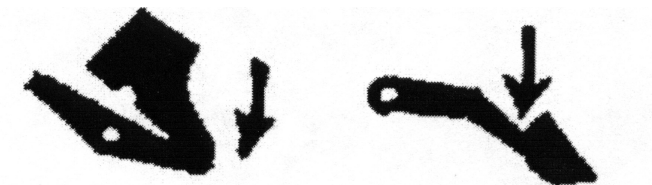
Standard Skid Loader Controls



Left Foot Control Pedal



Right Foot Control Pedal



The hands and feet control the skid steer.

- Hand levers drive the left and right side tires.
- Foot controls raise the lift arms (boom) and tilt or roll the bucket.
 - The left heel raises the lift arms. The left toes lowers the lift arms.
 - The right heel rolls the bucket back to load. The right toes tilt the bucket to dump the contents of the bucket.
- Practice these actions in a **SAFE, OPEN AREA** before proceeding to operate the skid loader in a work environment.

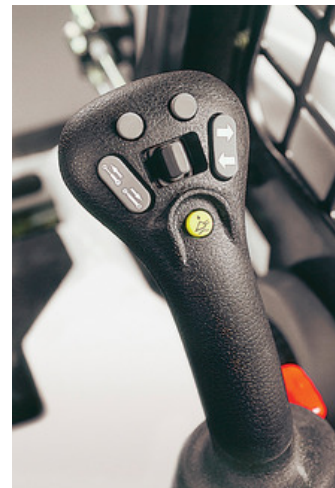


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Skid Loader Controls

Advanced / Joystick Loader Control Systems



With Joystick controls:

- The left joystick manages left-side drive and lift functions.
- The right joystick controls right-side drive and tilt functions as well as auxiliary hydraulics.
- Practice these actions before proceeding to operate the skid steer.



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Skid Loader Controls

- Before using the skid loader, review the operator's manual and become familiar with the controls.
- A competent person should demonstrate how to start and stop the engine, how to move the machine forward and reverse, how to steer the skid loader, and how to raise, lower, and tilt the bucket attachment.
- Understand how to safely change attachments and how the controls are used to operate the attachment.





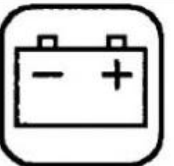






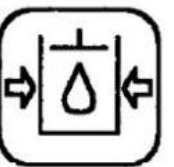




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Instruments and Gauges

- Instrument panels can include warning lights, analog gauges, computer digital displays, buzzers, or standard gauges.
 - Warning indicator lights can include:

General Warning	Fuel Level	System Voltage	Engine Oil Pressure	Engine Coolant Temperature	Air Filter
					
					
Two Speed	Glow Plugs	Seat Belt	Hydraulic Charge Pressure	Hydraulic Oil Temperature	Hydraulic Filter



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Attachment Operation

Skid loaders can be very versatile with a wide variety of attachments:





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Attachment Operation

Attachment installation and use

- Attachments must be compatible with the machine.
- Installation must be handled by a competent person.
- Carefully read attachment manual and follow all instructions and warnings.
- Verify that all connections are secure and attachment responds properly to controls.
- Test attachment in an open area to insure proper operation.
- Attachment changes can effect:
 - Intended use of the skid loader
 - Weight or balance of the machine
 - Can alter machine controls, performance, or reliability

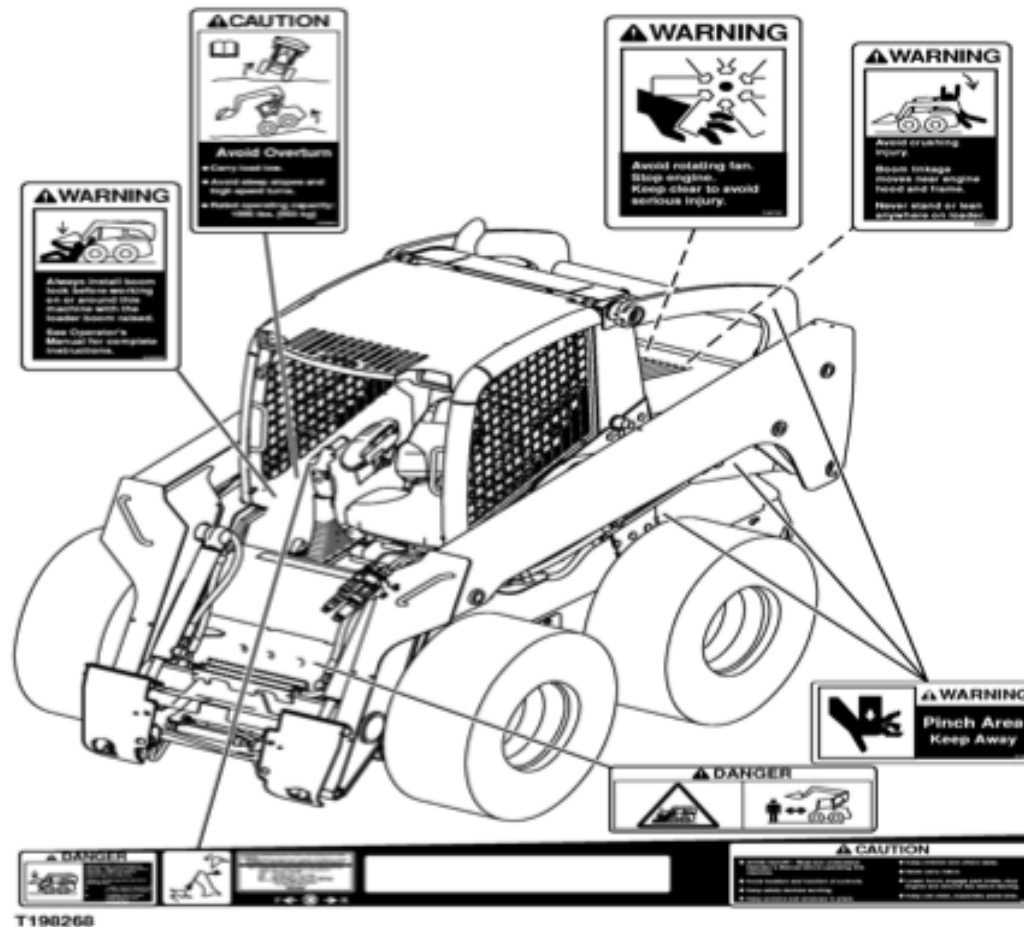


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General Safety Procedures

Follow all manufacturer's safety labels





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General Safety Procedures

Entering and exiting the skid loader

- Lift arms and bucket should be completely lowered.
- The seat and floor should be clear of obstructions.
- Face the machine and maintain 3-points of contact when getting on and off.
- To enter the skid loader, use the grab bars (hand holds) and the tread plates mounted on the loader bucket. *Never use machine controls as handholds.*
- The loader bucket and machine steps can be slippery when wet or muddy. Keep these areas clean.
- When seated, lower the restraint bar and/or fasten the seat belt.
- Exit the machine in the same manner.
- Do not reach into the cab from the ground level to move hydraulic levers or pedals to position the lift arms and bucket.



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General Safety Procedures

- One seat and one seat belt means ONE OPERATOR. No passengers are permitted in the operator area or on the bucket.
- Lower the safety restraint bar and/or fasten the seat belt every time you enter the machine.
- Be sure area around skid loader is clear of children, bystanders, farm animals or other equipment.
- Lower all equipment to the ground, engage park brake and shut off machine, before allowing anyone to approach.
- Never stand or lean where lift arms or load bucket movements could crush you.
- Use the lift arm locks (boom locks) to prevent lift arms from dropping downward if repairs must be made to the machine.
- Use caution when working in poor weather conditions.



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Potential Site Hazards

Site hazards include

- Buried utilities – water, electrical, natural gas
- Overhead power lines
- Adjacent structures, equipment, or traffic
- Excessive debris, mud, or snow
- Limited vision / blind corners
- Excessive noise for long periods of time

Safety for job-site hazards

- Be aware of bystanders and fellow workers
- Do not work near overhead utility lines
- Use barricades or signal person to keep vehicles or pedestrians away
- Use the proper Personal Protective Equipment (PPE)
- Consider travel path conditions
 - Steep terrain
 - Soft soil
 - Loose gravel
 - Rutting
 - Uneven ground transitions





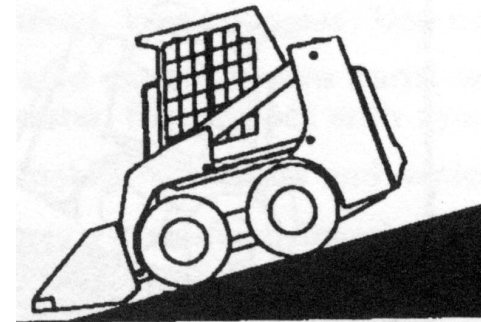
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Safe Operation

Preventing machine tip over:

- Avoid crossing steep slopes such as ditches or stream banks.
- Avoid sharp turns and reduce speeds when turning.
- Use slower speeds over rough ground.
- Balance loads so weight is evenly distributed and load is stable.
- Lower the load bucket for travel to aid in visibility and to lower the machine's center of gravity.
- Do not overload the bucket. Exceeding that capacity with a lifted load can result in forward or sideways tipping of the machine.
- When moving up a slope keep the heaviest weight up the hill.
 - With an empty bucket, back up the hill/slope.
 - With a full bucket, drive forward up the hill/slope.





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Safe Operation

- Before moving the machine, be sure all persons or vehicles are clear of the machine path.
- Use signal person when backing if view is obstructed.
- Never swing, lift or move a load overtop of anyone.
- Lower the boom and bucket, stop the engine, and set the park brake before dismounting the machine. Do this every time.
- Prevent material rollback by securing loads in the bucket and filling the bucket only to rated levels.
- Avoid working with an embankment or pile that is taller than the machine. A collapse could cause the operator station to become buried.
- Do not reach outside of the cab while the skid loader is running. All adjustments and connections of attachments should be made with the engine stopped.

Safe skid steer loader work requires attention to the machine, the surroundings, and the work being done.



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Roadway Safety

Operating or traveling on public roads

- Only when absolutely necessary.
- Must have proper lighting and marking to assure visibility.
- Additional light beacons, slow moving vehicle (SMV) emblem or other devices may require installation.
- Keep warning devices clean and in working condition.
- Move equipment at off-peak hours, but in daylight when possible.
- Use escort vehicle when possible.
- Keep loads and loader bucket low.
- Stay alert for traffic and roadside obstacles.





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Skid Loader Operator Training

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- Contact Kent McGuire – CFAES Health and Safety Coordinator at 292-0588 or mcguire.225@osu.edu
- Visit OSU Ag Safety and Health at www.agsafety.osu.edu

Reference

- National Safe Tractor and Machinery Operation Program, Hazardous Occupations Safety Training in Agriculture. Penn State University, Ohio State University, and National Safety Council
- OSHA 29CFR1910 and 29CFR1928





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- **Remember!**
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You have completed the Skid Loader Operator Training, click below to begin the progression quiz: