

# SKID-STEER LOADERS

Skid-steer loaders put workers at risk of rollover and run-over incidents. Workers who operate or work near skid-steer loaders may be crushed or caught by the machine or its parts. Skid-steer loaders have features that expose workers to other risks of injury.

The operator's seat and controls are between the lift arms and in front of the lift arm pivot points. Thus operators must enter and exit from the loader through the front of the machine and over the bucket. If the worker does not exit or enter properly, a foot or hand control may be activated and may cause movement of the lift arms, bucket, or other attachment. Such an incident could cause death or serious injury. The skid-steer loader is very compact and places the operator close to the zone of movement for the lift arms.

## **Deaths have occurred from:**

- Pinning between the bucket and frame of the machine or between the lift arms and frame
- Crushing incidents
- Rollovers
- Pinning between the loader and another object
- Being run over

Fatalities involving pinning between the bucket and frame or between the lift arms and frame resulted from the following activities:

- Working or standing under a raised loader bucket
- Leaning out of the operator's compartment into the path of the moving lift arms (pinned against frame)
- Entering or exiting (pinned between bucket and frame)
- Unknown (pinned between bucket and frame)

## **OSHA Regulations**

The current Occupational Safety and Health Administration (OSHA) regulations for the construction industry do not specifically address skid-steer loaders.

However, they require employers to protect workers from several hazards associated with operating and maintaining these machines.

The OSHA regulations apply to motor vehicles, mechanized equipment, and marine operations. They address operator restraints, operating procedures, rollover protection, machine guarding, and maintenance procedures.

## **OSHA regulations that apply to skid-steer loaders are summarized as follows:**

- Seat belts shall be provided, and they shall meet the requirements of the Society of Automotive Engineers (SAE) standard, Seat Belts for Construction Equipment (J386-1969) [29 CFR\* 1926.602(a)(2)].
- All bi-directional machines shall be equipped with a horn, distinguishable from the surrounding noise level, which shall be operated as needed when the machine is moving in either direction [29 CFR 1926.602(a)(9)(i)].
- Scissors points on all front-end loaders, which constitute a hazard to the operator during normal operation, shall be guarded [29 CFR 1926.602(a)(10)].
- End loader buckets and similar equipment shall be either fully lowered or blocked when being repaired or when not in use.
- All controls shall be in a neutral position, with the motors stopped and the brakes set, unless work being performed requires otherwise [29 CFR 1926.600(a)(3)(i)].

- Equipment manufactured on or after September 1, 1972, shall be equipped with ROPS which meet the minimum performance standards prescribed in 29 CFR 1926.1001 and 1926.1002 or shall be designed, fabricated, and installed in a manner which will support, based on the ultimate strength of the metal, at least two times the weight of the equipment applied at the point of impact [29 CFR 1926.1000(b) and 1926.1000(c)(2)].
- No modifications or additions which affect the capacity or safe operation of the equipment shall be made without the manufacturer's written approval. If such modifications or changes are made, the capacity, operation, and maintenance instruction plates, tags, or decals shall be changed accordingly [29 CFR 1926.602(c)(ii)].

### **ANSI/SAE Standard**

The SAE has developed a standard for the American National Standards Institute (ANSI) addressing skid-steer loaders. The SAE standard SAE J1388 contains design guidelines that address machine rollovers and the hazards of pinning between the lift arms and frame and between the bucket and frame.

### **To conform to this recommended practice, manufacturers must do the following:**

- Provide warnings, operator instructions, and service procedures
- Equip the machine with seat belts
- Provide a means to prevent the lift arm from lowering when the operator is entering or exiting from the machine
- Provide handholds and steps to facilitate entry and exit from the loader
- Provide ROPS with side screens
- Provide two openings for emergency exit
- Provide safety signs and instructions to warn of hazards during normal operations and servicing

NIOSH recommends that employers and workers comply with OSHA regulations, maintain equipment in accordance with ANSI/SAE standards, and take the following measures to prevent injury when operating or working near skidsteer loaders:

### **Always use and maintain the safety devices provided by manufacturers:**

1. Liftarm supports
  2. Interlocked controls
  3. Seat belts
  4. ROPS
- Follow safe operating procedures.
  - Follow safe mounting and dismounting procedures.
  - Follow proper maintenance procedures.
  - Train workers to read and follow the manufacturer's procedures for operating and servicing skidsteer loaders.

### **Using and Maintaining Safety Devices**

- Regularly inspect and maintain all safety devices provided by manufacturers.

**Liftarm supports:** Use the liftarm supports provided by or recommended by the manufacturer when it is necessary to work or move around the machine with the bucket in a raised position while the controls are unattended.

- Machines now being manufactured have either the pin-type supports (which can be operated from inside the operator's cab) or the strut-type supports (which may also be operated from inside the cab or may require the help of a coworker).

- If the machine is not equipped with lift arm supports, contact the equipment dealer or manufacturer's representative for help in selecting proper support procedures.
- Never use concrete blocks as supports. They can collapse under even light loads.
- Hoists and jacks used for support must be free of defects such as bent, cracked, or twisted parts or pinched, frayed, or twisted cable. They must also be capable of supporting the load.

**Interlocked controls:** Regularly inspect and maintain interlocked controls in proper operating condition. These systems require the operator to be properly positioned and restrained before the loader can be used.

- Never bypass or defeat interlocked controls.
- Make sure that the seat belt is always securely fastened around the operator when the loader is in operation.
- Always use restraint bars if they are provided. Although workers and employers may perceive safety features such as interlocked controls and seat belts as obstacles to efficient machine operation, bypassing these devices increases the risk of death or serious injury.

**Seat belts:** Make sure that the seat belt is secured around the operator whenever the seat is occupied.

- The seat belt protects the operator in several ways. If seat belts are part of the interlocked control system, they protect workers from being caught and crushed between the lift arms and frame.
- During rollovers, the seat belt maintains the operator within the protective envelope of the ROPS.
- The seat belt can also protect the operator from leaning or being jostled into the operating zone of the lift arms and bucket.

**Retrofit packages:** If side screens, interlocks, ROPS, and seat belts are not present, contact the equipment dealer or manufacturer's representative about the availability of retrofit packages or replacement parts.

### **Skid-steer Operations**

- Make sure that you understand all manufacturers' warnings and instructions before you operate your skidsteer loader.
- Operate the loader from the operator's compartment; never from the outside.
- Stay seated when operating the loader controls.
- Work with the seat belt fastened and the restraint bar in place.
- Keep your arms, legs, and head inside the cab while operating the loader.
- When possible, plan to load, unload, and turn on level ground.
- For maximum stability, travel and turn with the bucket in the lowest position possible.
- Never exceed the manufacturer's recommended load capacity for the machine.
- Operate on stable surfaces only.
- Avoid traveling across slopes; travel straight up or down with the heavy end of the machine pointed uphill.
- Always face the direction of travel.
- Keep bystanders away from the work area.
- NEVER modify or bypass safety devices.

### **Entering and Exiting from the Loader Safely**

- Enter only when the bucket or other attachment is flat on the ground, or when the lift-arm supports are in place. Use supports supplied or recommended by the manufacturer.
- When entering the loader, face the seat and keep a three-point contact with handholds and steps.
- Never use foot or hand controls for steps or handholds.

- Keep all walking and working surfaces clean and clear of debris.

**Before leaving the operator's seat:**

1. Lower the bucket or other attachment flat to the ground
  2. Set the parking brake
  3. Turn off the engine
- If you are unable to exit through the front of the machine, use the emergency exit through the roof or across the back.

**Maintaining the Loader in Safe Operating Condition**

- Follow the manufacturer's instructions for maintaining the loader.
- Keep the foot controls and the operator's compartment free of mud, ice, snow, and debris.

**Before servicing the loader:**

1. Set the parking brake
  2. Lower the bucket or other attachment flat to the ground
  3. Turn off the engine
  4. Remove the key from the switch.
- If the machine cannot be serviced with the bucket on the ground, use the lift arm supports recommended or provided by the manufacturer.
  - If the machine is not equipped with lift arm supports, contact the equipment dealer or manufacturer's representative for help in selecting proper supports.
  - Never work on the machine with the engine running unless directed to do so by the operator's manual.
  - Follow the manufacturer's safety recommendations to complete the task.
  - If the adjustments require that the engine be in operation, use two persons to perform the task.

# Skid-Steer Loader Poster

## DO:

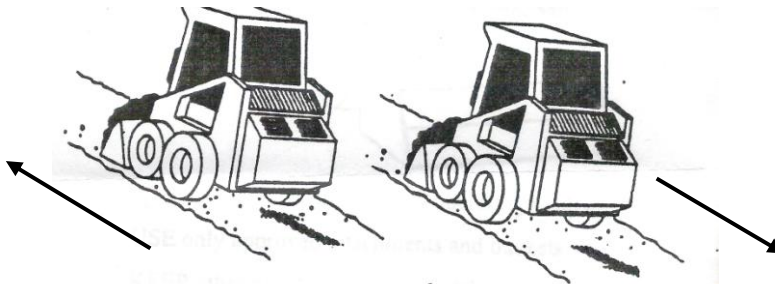
- Read and follow** the manufacturer's operating manual.
- Use** the safety treads and grab handles to get on and off the loader. Remember to always maintain three points of contact.
- Use** the seat bar and fasten the seat belt.
- Keep** feet on the pedals when operating the loader.
- Only use** approved attachments and buckets.
- Keep** other people away from the work area.
- Carry** bucket or attachments as low as possible.
- Load, unload, and turn** on level ground.
- Wear** hearing and head protection.

## CHECK the following before starting the engine:

- Fuel and oil
- Hydraulic fluid
- Cooling system
- Operator cab, seat belt and seat bar
- Lift arm and cylinder pivot points
- Tires

- GO** straight up and down slopes with the heavy end of the loader uphill.

Going Up and Down a slope with the bucket full  
Keep Heavy End Up



Going Up and Down a slope with the bucket empty  
Keep Heavy End Up



## DO NOT:

- Do not** use loader without approved Roll-Over Protection (ROP) and Falling Object Protection (FOP) cab.
- Do not** exceed rated operating capacity.
- Do not** carry passengers.
- Do not** travel or turn with the lift arms up.
- Do not** leave the loader with the engine running or with the lift arms up.
- Do not** travel across a grass slope.
- Do not** approach overhead electrical wires.

