

SKID STEER LOADER

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# SAFETY MANUAL

FOR OPERATING AND MAINTENANCE PERSONNEL



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## Acknowledgment

We wish to thank the members of the Association of Equipment Manufacturers for their invaluable contributions in preparing this Safety Manual.

Many pictorials in this safety manual can be downloaded at <http://pictorials.aem.org>.

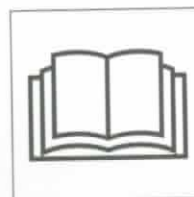
For additional publications, visit our website at [www.safetymaterials.org](http://www.safetymaterials.org).

## Foreword

This safety manual is intended to point out some of the basic safety situations that may be encountered during the normal operation and maintenance of your machine and to instruct you in safety practices for dealing with these conditions. This manual is **NOT** a substitute for the manufacturer's operator's manual(s).

Additional precautions may be necessary, or some instructions may not apply, depending on equipment, attachments and conditions at the jobsite or in the service area. The manufacturer has no direct control over equipment application, operation, inspection or maintenance. Therefore, it is **YOUR** responsibility to use good safety practices in these areas.

The information provided in this manual supplements the specific information about your machine that is contained in the manufacturer's operator's manual(s). Other information that may affect the safe operation of your machine may be contained on safety signs or in insurance requirements, employer's safety and training programs, safety codes, local, state/provincial and federal laws, rules and regulations.



Read and understand  
manuals before  
operating

**IMPORTANT!** Before you operate this machine, make sure you have the manufacturer's manual(s) for this machine and all attachments. If the manufacturer's manuals are missing, obtain replacements from your employer, equipment dealer or directly from the manufacturer. Keep this safety manual and the manufacturer's manuals with the machine at all times. Read and understand all manuals.

Safety videos and other training resources are available from some manufacturers and dealers. Operators are encouraged to periodically review these resources.

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# Safety Alerts

## Safety Alert Symbol

This Safety Alert Symbol means: **"ATTENTION! STAY ALERT! YOUR SAFETY IS INVOLVED!"**



The Safety Alert Symbol identifies important safety messages on equipment, safety signs, in manuals or elsewhere. When you see this symbol, be alert to the possibility of death or personal injury. Carefully read the message that follows and inform other operators. Follow instructions in the safety message.

## Signal Words

Signal words are distinctive words that will typically be found on safety signs on the skid steer loader and other jobsite equipment. These words may also be found in this manual and the manufacturer's manuals. These words are intended to alert the operator to a hazard and the degree of severity of the hazard.



**DANGER** indicates a hazardous situation that, if not avoided, will result in death or serious injury.



**WARNING** indicates a hazardous situation that, if not avoided, could result in death or serious injury.



**CAUTION** indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.



**NOTICE** indicates a property damage message.

## A Word to the User/Operator

It is **YOUR** responsibility to read and understand this safety manual and the manufacturer's manuals before operating this equipment. This safety manual takes you step by step through the working day.

Graphics have been provided to help you understand the text.

Hazard recognition and accident prevention depend upon you being alert, careful and properly trained in the inspection, operation, transport, maintenance and storage of this equipment.

Remember that **YOU** are the key to safety. Good safety practices not only protect you but also protect the people around you. Study this manual and the manufacturer's operating manuals for the specific machine. Make them a working part of your safety program. Keep in mind that this safety manual is written only for skid steer loaders with wheels and tracks.

After studying the manufacturer's operating manual(s) and this safety manual, please contact the equipment manufacturer with any remaining questions.



Read and understand all safety signs – replace damaged signs

Practice all usual and customary safe working precautions and remember:

**SAFE OPERATION IS UP TO YOU!**

**YOU CAN PREVENT DEATH OR SERIOUS INJURY CAUSED BY UNSAFE WORK PRACTICES!**



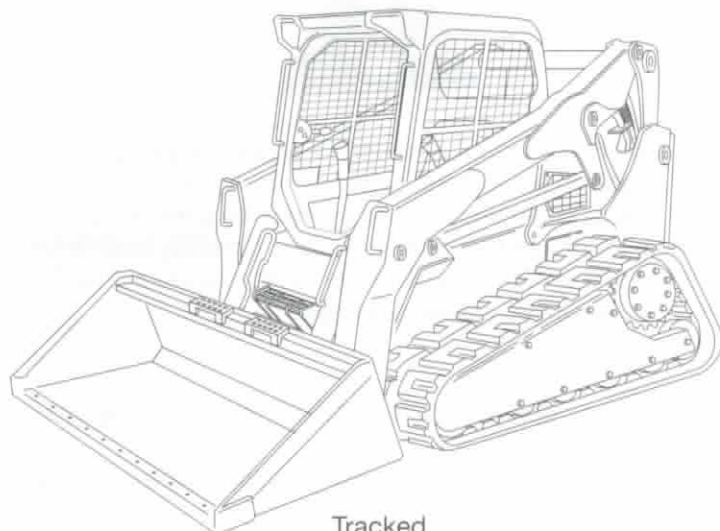
# Types of Skid Steer Loaders

The skid steer loader is a self-propelled machine fitted with either wheels or tracks for use on different types of terrain. This highly maneuverable machine is often equipped with a bucket, pallet forks, or an approved attachment for specialized work. If your loader has a powered attachment, it is important to read the manufacturer's operating manuals pertaining to that attachment before operating.

When used normally, the skid steer loader excavates or loads through forward motion of the machine and lifts, transports and discharges material. To accommodate a wide range of conditions and personal preferences, some skid steer loaders have multiple control configurations, patterns and operating modes, each with unique operating characteristics.



Wheeled



Tracked

## One-Call First

### Call

Before starting any digging project, contact the local One-Call service by dialing 811 (USA only) to have underground utilities located. A One-Call referral number, **1-888-258-0808**, is also available for both USA and Canada.



**Call before you dig—dial 811 (USA only) 1-888-258-0808 (USA & Canada)**

One-Call will notify participating utility companies that you intend to dig. You must also call any utility companies which do not participate in the One-Call service. Always inspect the jobsite for evidence of unmarked utilities and contact others if necessary.

### Plan the Work

Be aware of the lead time for marking in the work area. This time may vary from state to state and county to county. If you do not locate utilities, you may have an accident or suffer injuries, cause service interruptions, damage the environment or experience job delays.

### Dig

Most utilities mark their underground facilities using American Public Works Association (APWA) underground color codes. Verify marks before digging.

In the United States, The Occupational Safety and Health Administration (OSHA) Standard 29 CFR 1926.651 requires that the estimated location of underground utilities be determined before beginning an excavation. When actual excavation approaches an estimated utility location, the exact location of the underground installation must be determined by a safe, acceptable and dependable method. Other OSHA regulations may also apply to the jobsite.

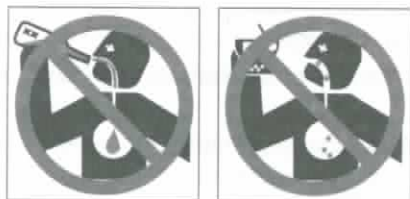
#### APWA Underground Color Codes

Color	Description/Meaning
Red	Electric power lines, cables, conduit, lighting cables
Yellow	Gas, oil, steam, petroleum or gaseous materials
Orange	Communication, alarm or signal lines, cables or conduits
Blue	Potable water
Green	Sewers and drain lines
Purple	Reclaimed water, irrigation and slurry lines
White	Proposed excavation
Pink	Temporary survey markings

# Follow a Safety Program

## For Safe Operation

You must be a qualified and authorized operator for safe operation of this machine. You must clearly understand the written instructions supplied by the manufacturer, be trained — including actual operation — and know the safety rules and regulations for the jobsite. It is a good safety practice to point out and explain safety signs and practices to others, and to make sure they understand the importance of following these instructions.



Never operate while impaired by alcohol or drugs

**⚠ WARNING!** Drugs and alcohol affect operator alertness and coordination, and the ability to safely operate the equipment. **Never operate the machine while impaired by use of alcohol or drugs. Never knowingly allow anyone to operate the machine when their alertness or coordination is impaired.**

An operator taking prescriptions or over-the-counter medication must consult a medical professional regarding any side effects of the medication that would hinder their ability to safely operate this equipment.

### Be Alert!

Know where to get assistance. Keep emergency numbers for doctors, ambulance service, hospital and fire department near your telephone. Know how to use a first aid kit and fire extinguisher/fire suppression system; know their location and practice getting to them. Ensure they have been properly tested and maintained.

Let others know where you will be working, and what time you will be returning. In case of an emergency, you want others to know where to find you.

### Be Aware!

Take advantage of training programs offered.

Know the proper response to a fire or chemical spill on your machine.

### Be Careful!

Human error is the result of many factors: carelessness, fatigue, sensory overload, preoccupation, unfamiliarity with the machine or attachments, or drugs and alcohol, to name a few. You can avoid death or serious injury caused by these and other unsafe work practices. Be careful; never assume accidents cannot happen to you.

For your safety and the safety of others, act safely and encourage your fellow workers to act safely as well.

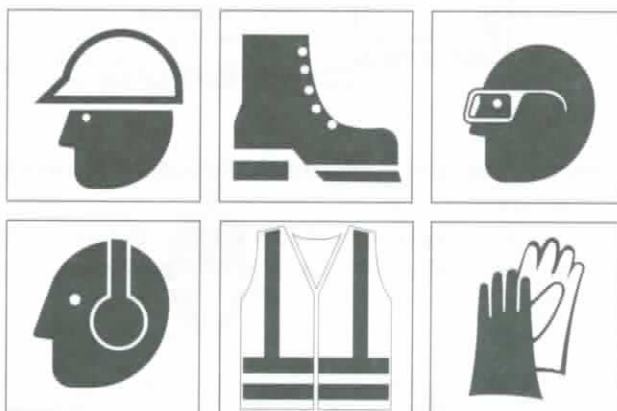
## Protect Yourself

Wear all the personal protective clothing and Personal Protective Equipment (PPE) issued to you or called for by job conditions.

You may need:

- Hard hat.
- Safety shoes.
- Safety glasses, goggles or face shield.
- Heavy duty gloves.
- Hearing protection.
- Reflective clothing.
- Wet weather gear.
- Respirator or filter mask.

Wear whatever is needed to protect yourself — don't take chances.



**⚠ WARNING!** Avoid death or serious injury from entanglement. **Do not wear loose clothing or accessories that could catch on moving parts or controls.** Examples of items to avoid include flopping cuffs, dangling neckties and scarves, wallets attached to chains, jewelry and wrist watches.

## Know the Rules

Most job sites have rules governing equipment use and maintenance. Before you start work at a new location, check with the supervisor or safety coordinator. Ask about the rules you will be expected to obey.



Know and understand rules of operation



Understand jobsite signals



# Follow a Safety Program

OSHA enforces federal laws within the United States that apply to the safe operation, application and maintenance of equipment on some jobsites. It is the employer's responsibility to comply with these laws. A federal representative may periodically inspect a jobsite to see that these laws are being followed.

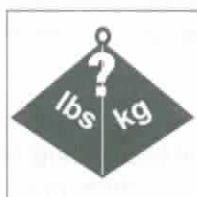
There may be other local, state/provincial, federal laws or international organizations that regulate the use of this equipment, along with specific jobsite or employer rules. It is important that you know and comply with all applicable laws and rules, **including those requiring operator training and certification.**

**These are some of the rules you must work by:**



**Read and understand manuals before operating**

- Only qualified and authorized individuals may operate this equipment.
- Inspect your machine and attachments before each use as specified by the manufacturer and your employer.



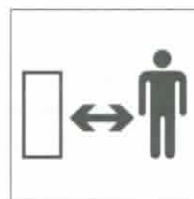
**Know machine capacity and operating characteristics**

- Know the capacity and operating characteristics of your equipment. Do not misuse it.
- Wear proper clothing and PPE. Check that others are also wearing appropriate clothing.
- All shields, guards, air filters, access panels and doors must be properly installed before each use.



**No riders**

- Know the rules regarding traffic at your jobsite. Know what all signs, flags, and markings mean. Know hand, flag, horn, whistle, siren, or bell signals, if used.
- Never modify or remove any part of the machine (except for service; then make sure the part is re-installed or replaced if defective or worn out).



**Keep bystanders away**

- **Never allow children to play near, ride on or operate the equipment.**
- Keep bystanders well clear of the operation.
- Know the work area before you use the equipment. Be aware of possible hazards.
- Only use attachments and parts that are approved by the manufacturer.
- Do not allow riders.



**Fasten seat belt or operator restraint**

- Fasten seat belt or operator restraint before starting.
- Drive forward whenever possible.
- Always look in the direction of travel.
- Look before backing up.
- Carry the load low.
- Never leave the operator's seat without lowering the bucket or other attachment flat on the ground, or engaging the approved lift arm support device(s) and then stopping the engine and removing the ignition key, if equipped. (See page 16, **Safe Shutdown.**)



**Carry the load low**

- Use three-point contact (handholds and steps) and face the equipment when mounting or dismounting. (See page 10, **Mount and Dismount Properly.**)
- Never use the loader bucket as a man lift/transport or work platform.

# Follow a Safety Program

## Know the Equipment

Read and understand the DANGER, WARNING, CAUTION and NOTICE safety labels and other informational signs on the machine and the attachments, and in the manufacturer's operating manuals. Ask your supervisor or dealer to explain any information you do not understand. Failure to obey safety instructions could result in death or serious injury.

### Know the following about your equipment:

- Function, purpose and use of all controls.
- Correct operation speeds.
- Slope and uneven terrain capabilities and proper operation.
- Braking and steering characteristics.
- Turning radius and clearances.

- How to quickly stop equipment in an emergency.
- Rated operating capacity.

Keep in mind that rain, snow, ice, loose gravel, soft ground, slopes, and other site conditions can affect your machine's operating capabilities. Make sure you are thoroughly familiar with your machine's stability, braking, traction, and other handling characteristics under any conditions you are likely to encounter.

**IMPORTANT:** This manual covers safe practices for skid steer loaders equipped with a bucket, pallet forks, or simple attachments. If your machine is equipped with specialized or powered attachments, such as a snow blower, backhoe, stump grinder or others, it is important to read the manufacturer's operating and safety manuals pertaining to that attachment before using it.

## Prepare for Safe Operation

### Check and Use All Available Safety Devices

To protect you and others around you, your machine may be equipped with the safety equipment listed below. Additional equipment may be required or some items may not apply, depending on attachments used, jobsite conditions or applicable jobsite rules. Check that each required item is securely in place and in operating condition:

- Falling Object Protective Structure (FOPS).
- Rollover Protective Structure (ROPS).
- Seat Belt.
- Operator seat/restraint bar(s)/interlock control system.
- Cab side-screens or windows.
- Special enclosures or accessories required for specific applications or jobsite conditions.
- Alternate exit (window).
- Grab handles.
- Lift-arm support device(s).
- Lights.
- Anti-skid tread/steps.
- Safety signs.
- Horn.
- Guards.
- Back-up alarm.
- Fire extinguisher.
- First aid kit.
- Rotating beacon.
- Windshield wiper/defroster.

Use them! Never remove or disconnect any safety device.



Fasten  
your  
seat belt

When using specialized attachments that may throw debris, such as a stump grinder or snow blower, make sure all cab openings are closed or covered with adequate protection, including impact-resistant glass, or polycarbonate (if required). Refer to the attachment's operating manual(s) for more specific information.

**⚠ WARNING! Never remove or modify a ROPS or FOPS, except when servicing the machine.** Serious injury or death could result.

### Check the Machine

Before beginning your work day, inspect the machine and have all systems in good operational condition.



Inspect  
the machine before  
each work day

**⚠ WARNING!** Hydraulic system or part failure could cause unsupported equipment to fall. Avoid crushing injury from falling equipment. **Do not go under raised loader arm(s) unless it is properly supported according to the manufacturer's operating manual.**



# Prepare for Safe Operation

- Perform daily and periodic service procedures as instructed by the equipment manufacturer.
- Check for broken, missing, loose, or damaged parts. Make necessary repairs.
- Check the tires or tracks for cuts, missing lugs, bulges, and correct pressure or track tension.
- Keep the steps and handholds clean and free of grease, oil, dirt, snow or ice.
- Check the parking brake for proper operation.
- Check condition and operation of attachment quick-coupling device. Perform daily cleaning and maintenance following manufacturer's instructions.
- Ensure shielding is properly installed and in good condition. Repair or replace if damaged or missing.
- Ensure work lights (if equipped) are kept clean. Check that all lights work properly.
- Ensure the horn and back-up alarm (if equipped) are operating correctly. Repair or replace if damaged.
- Ensure any Slow Moving Vehicle (SMV) signs, reflectors and warning lights are in good condition and can be clearly seen. Repair or replace if damaged.
- Ensure all tools or loose objects are removed or securely fastened while operating the machine.
- Check for damaged or leaky hydraulic systems. Repair or adjust as needed.

## Hydraulic Fluid Injection Hazard

**⚠ WARNING!** Accidental injection of high-pressure oil into the hands or body is dangerous and could result in death or serious injury. **Use caution when checking hydraulic leaks as pressurized hydraulic fluid has enough force to penetrate skin, causing serious personal injury.**



High pressure  
fluid can inject  
into the body

If a leak is discovered:

- Ensure engine is turned off; relieve pressure in hydraulic circuit.
- Wear proper hand and eye protection.
- Visually examine the hydraulic hose or fluid lines in the vicinity of the leak for breaks or cracks. **Do not** use your hand to check for leaks.
- Repair or replace hydraulic lines per manufacturer's recommendation.

Fluid injection injuries are not always obvious. Victims have reported such injuries feel like a bee sting or splinter under the skin. If you suspect you have a fluid injection injury, do not take chances. Seek proper

medical care immediately. If any fluid is injected into the skin, it must be surgically removed within a few hours by a doctor familiar with this type of injury.

## Check the Cooling System

When checking the cooling system, make sure the engine is turned off and is cool. Remove the key to prevent fans from unexpectedly starting. Ensure the coolers and engine compartment are clean and free from debris, which could ignite and cause a fire.

If the machine is air-cooled, be sure the cooling unit has an unobstructed air flow. If it is liquid-cooled, check coolant level (at overflow tank, if provided).

**⚠ WARNING!** Allow the radiator to cool before checking the level. Hot radiator fluids could escape as steam and burn you. (See page 19, **Engine Coolant Hazards.**)

## Clean Up

**⚠ WARNING!** Avoid serious injury or death. **Always lower the lift arm(s) or secure with the approved lift arm support device(s) and stop engine before cleaning any part of the machine.**

Clean windows, lights, and safety signs.

Make sure the operator's area, steering levers, pedals, joysticks, steps, and grab handles are clean. Oil, grease, snow, ice, mud, or debris in these areas could cause you to slip and fall, or lose control of the machine. Clean your boots of excess mud before entering the machine.

Remove all personal items or other objects from the operator's area. Secure these items in a toolbox or remove them from the machine.



Wear  
eye protection

## Use Caution When Fueling

**⚠ WARNING!** Avoid injury from fire or explosion. **Never fill the fuel tank with the engine running, while smoking or when near an open flame.**

Never overfill the tank or spill fuel. If fuel is spilled, clean it up immediately.

Be sure to use the correct type and grade of fuel.

Ground the fuel funnel or nozzle against the filler neck to prevent sparks that could ignite fuel vapors. Be sure to replace the fuel fill cap (if equipped) when you are done.



# Prepare for Safe Operation

## Ultra-Low Sulfur Diesel (ULSD) Fuel Hazard

### Avoid Static Electricity Risk When Fueling



Static discharge during fueling can cause explosion

**⚠ WARNING!** Ultra-Low Sulfur Diesel (ULSD) poses a greater static ignition hazard than earlier diesel formulations. Avoid death or serious injury from fire or explosion; **consult with your fuel or fuel system supplier to ensure the delivery system is in compliance with fueling standards for proper grounding and bonding practices.**

## Know the Working Area

Learn as much about your working area as possible.

### Check at Ground or Floor Level

Inspect the surface over which you will travel. Look for holes, drop-offs and obstacles. Look for rough spots or hidden obstacles on surfaces which could cause a collision or loss of control. Look for weak spots on docks, ramps or floors. Look for oil spills, wet spots, and slippery surfaces. Look for soft soil, deep mud or standing water. Watch for anything that might make you lose control or cause the machine to roll over.

When operating inside a building, make certain you are within weight limitations of floors and ramps. Be aware of overhead clearances, doorways, aisles, etc. Plan travel routes ahead of time, in order to make sure you can see and protect bystanders. Pick up debris that can puncture tires or damage tracks.

### Plan Your Work

Make sure you know where you will make your pickups, lifts, and turns. Before you raise a loader bucket, know where you will dump it, and ALWAYS carry the load low.

### Check Overhead

Check the clearances of doorways, canopies, and overheads. Know exactly how much clearance you have under power and telephone cables. (See chart).

## Required Clearance for Operation Near High-Voltage Power Lines

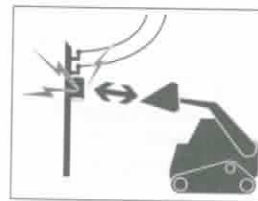
Normal Voltage kV (Phase to Phase)	Minimum Approach Distance <sup>1</sup>	
	ft.	(m)
Up to 50 kV	10	(3.0)
Over 50 to 200 kV	15	(4.6)
Over 200 to 350 kV	20	(6.1)
Over 350 to 500 kV	25	(7.6)
Over 500 to 750 kV	35	(10.7)
Over 750 to 1,000 kV	45	(13.7)
Over 1,000 kV	*	*

\*Environmental conditions such as fog, smoke or precipitation may require increased clearances.

<sup>1</sup>As established by the utility owner/operator or registered professional engineer who is a qualified person with respect to electrical power transmission and distribution.

**⚠ DANGER!** Contact with energized power lines will cause serious injury or death. **Never approach overhead power lines with any part of your machine unless all local, state/provincial and national (OSHA) required safety precautions have been taken.** Always use extreme caution around power lines.

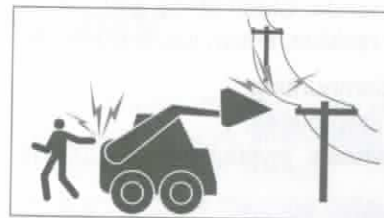
Know your margin of safety. If possible, have power



Stay away from energized power sources

to lines disconnected. If not possible, request a signal person for guidance.

**⚠ DANGER!** Electrocutation will result from touching or being near a machine that is in contact with, or near, an electrical source. **Stay away from any machine in contact with electrical wires until you are told it is safe to approach.**



Avoid electrocution, stay clear of energized power lines

# Prepare for Safe Operation

## Other Buried Hazards

CHECK UNDERGROUND. Know the location of gas lines and water pipes, or cables before digging.

**⚠ WARNING!** A cut fiber optic cable could cause serious eye injury if you look into the damaged end of the cable. **Do not look into damaged fiber optic cables!**

Always contact your local One-Call system and any utility companies that do not subscribe to One-Call before doing any digging. (See page 4, **One-Call First.**)



Locate all utilities, maintain a safe distance

## Start Safely

### Mount and Dismount Properly

**⚠ WARNING!** Avoid injury or death from being caught between the lift arm attachment and the machine. **Never mount or dismount a loader unless the lift arm(s) are lowered or secured by approved lift arm support device(s), and the engine is turned off.**



Use three points of contact when mounting or dismounting

Always use three-point contact when mounting or dismounting the machine. Three-point contact means one hand and two feet, or two hands and one foot, in contact with the machine at all times.

Never mount or dismount while carrying tools or objects that prevent three-point contact. Put parts or tools down. Maintaining proper contact, climb or dismount, and then pick up the object.

Face the machine when you enter or leave the machine.

Clean shoes and wipe hands. Clean steps and handholds of chemical residue, snow, ice, mud or oil.

During mounting and dismounting:

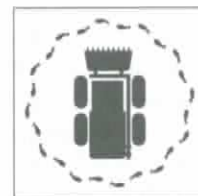
- Use handholds and step plates.
- Never use steering wheels, joysticks or controls as handholds.
- Never jump on or off the machine.
- Never mount or dismount from a moving machine.



Avoid falls, clean up slippery areas

### Warn Personnel Before Starting

Before starting, walk completely around the machine. **Make sure no one is under the machine, on it, or close to it.** Let others know you are starting up and don't start until everyone is completely clear of the machine. As the equipment operator, you are responsible for the safe use of the machine, so always make sure you have communicated your work plans to others on the site.



Before starting, walk completely around loader

### Starting the Engine

**⚠ WARNING!** Start the engine from the operator's seat only. **Never attempt to start the engine by shorting across starter terminals.** The machine may move unexpectedly, which could cause serious injury or death to anyone in its path.

Know the exact starting procedure for your machine. See the manufacturer's operating manual(s) for starting.

- Sit in the operator's seat and adjust the seat so you can operate all the controls properly.
- Fasten the seat belt/operator restraint.
- Familiarize yourself with warning devices, gauges and operating controls.
- Lower the operator seat/restraint bar(s) (if equipped).
- Make sure controls are in the neutral/locked position.
- Clear the area of all persons.
- Start the engine following the instructions in the manufacturer's operating manual(s).
- If necessary to run the engine or operate the machine within an enclosed area, be sure there is adequate ventilation.



# Start Safely

**⚠ WARNING!** Exhaust fumes can kill. **Do not breathe exhaust fumes!**

## Starting Aids

If you have trouble starting the engine and need to use jumper cables, follow the instructions in manufacturer's operating manual(s). **Jump-starting is a two-person**



To avoid explosion, follow proper jump-starting procedures

**operation.** The operator must be in the operator's seat when jump-starting so the machine will be under control when the engine starts.

**⚠ WARNING!** A battery explosion or a run-away machine could result from improper jump-starting procedures. (See page 20, **Battery Hazards**.)

Ether/cold start fluid is **HIGHLY FLAMMABLE**. Before using it, always read the instructions on the ether/cold start fluid container and the instructions in the manufacturer's operating manual(s).



Never start engine by shorting across starter terminals

**⚠ WARNING!** Avoid injury from explosion or fire. If the engine is equipped with a glow plug pre-heater or other intake manifold type pre-heater, follow manufacturer's instructions before using ether/cold start fluid.

## After Starting Engine

Observe gauges, instruments, and warning lights to assure that they are functioning and their readings are within the operating range.

## Run an Operating Check

Do not use a machine that is not in proper operating condition. It is your responsibility to check the condition of all systems and to run the check in a safe area.

## Test Controls

Loaders come equipped with various control configurations, patterns and operating modes, each with their own handling characteristics. Some have selectable or configurable controls, to suit personal preferences or specific applications. Make sure that you know which control pattern you have selected and that you understand how the machine will handle when using that control pattern.

Make sure the machine is operating properly by doing the following:

- With the control levers or joysticks in neutral, test engine speed control.
- Operate each pedal, lever or joystick to make sure all lift arm and tilt functions are correct.
- Operate the travel control lever(s) or joysticks to ensure correct operation in forward and reverse. Test steering to the right and to the left, while moving slowly in a clear, safe area.

**⚠ WARNING!** Before operating the machine under working conditions, **be certain you can control both the speed and direction of the machine**. Any loss of control could result in death or serious injury.

# Operate Safely

## Masked Visibility Areas

Machines have areas where the operator's visibility of the job site can be affected by the machine itself. ROPS posts, attachments, lift arms, even items in the cab, could limit your view of the surrounding area and possibly mask hazards or people around you. These masked visibility areas vary from machine to machine, and it is very important you be aware of these areas before operating your machine.

Follow these safety precautions to reduce the hazards posed by masked visibility areas:

- Pay particular attention when raising or lowering the bucket or other attachment, because masked visibility areas can change.
- Look around the machine before operating. Objects near the machine and close to the ground can be difficult to see from the cab.
- Always look in the direction of travel, including reverse. A back-up alarm is no substitute for looking behind you when operating the machine in reverse.
- Keep bystanders away, even if your machine is equipped with a back-up alarm.
- Keep the lift arm(s) low while traveling.

# Operate Safely

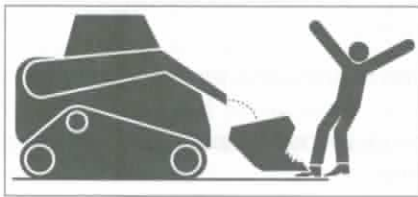
## Remember These Rules

Do not overload the bucket or attachment, or carry a load which could fall from the bucket or attachment. Keep loaded bucket level as lift arm(s) are moved and as loader moves up or down, on slopes and on ramps.

Different attachments can change the weight distribution of the loader. They can also affect its stability and handling response. Be sure you can keep the loader under complete control.

## Install Attachments Properly

When changing buckets or installing attachments follow the manufacturer's instructions. Make sure all connectors are securely fastened. Tighten all bolts, nuts and screws to torque values recommended by the manufacturer.



Avoid crushing injuries

**⚠ WARNING!** Failure to properly attach the machine coupler could result in serious crushing injury or death. **Properly secure the attachment to the machine coupler to prevent it from falling off.**

Check the attachment coupler and the attachment for wear and hydraulic leaks before coupling the attachment to the machine.

Check to be sure that the coupler pins or wedges are fully engaged into the attachment and that the coupler is securely engaged and locked to the attachment, both mechanically and hydraulically, before operating.

**⚠ WARNING!** Never modify your loader's ROPS. To do so could result in serious injury or death. (See page 7, **Check and Use All Available Safety Devices.**)

Know the pinch points and rotating parts on the loader; awareness on your part can prevent accidents.

## Remember the Other Person

Never allow an untrained or unqualified person to operate the machine. If operated improperly, this machine can cause serious injury or death.

**⚠ WARNING!** The loader is a one-person machine. Avoid death or serious injury — **never permit riders! Never use the bucket, forks, or other attachments as a work platform or personnel carrier.**

**⚠ WARNING!** To avoid serious injury or death, never lift, swing, or move a load over anyone. **Keep others away from your operation.**

## Back up Safely

Check that the back-up alarm, if equipped, is working properly. Remember, **a back-up alarm is not a substitute for looking to the rear when operating the machine in reverse.** Always look around before you back up the machine. Be sure that everyone is in the clear. Drive forward whenever possible. **ALWAYS LOOK IN THE DIRECTION OF TRAVEL.**

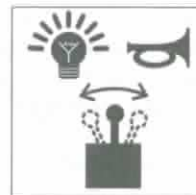


Never use the bucket as a work platform

## Follow Safe Operating Practices

Make these safe practices part of your daily routine:

- Keep your seat belt/operator restraint fastened.
- Never leave the operator's seat without lowering the bucket or other attachment flat on the ground, or engaging the approved lift arm support device(s) and then stopping the engine and removing the ignition key, if equipped. (See page 16, **Safe Shutdown.**)
- Operate the controls smoothly — don't jerk the steering levers or joysticks.
- Carry the load low.
- Avoid sudden stops, starts or turns.
- Use care and good judgment.
- Never attempt to operate the controls unless properly seated in the cab.



Operate instruments and controls smoothly

**⚠ WARNING!** Avoid Serious injury or death! **Keep your entire body inside the operator's cab while operating the machine.** Never work with your head, arms, feet or legs beyond the operator's compartment.

## Use Attachments Safely

Most loaders can be operated with a wide variety of attachments. These include buckets, pallet forks, augers, snow plows and many others. Make sure the attachment is approved by the manufacturer for use on the machine you are operating. If you are not sure, ask your supervisor or contact your dealer. Be sure to read the manufacturer's operating manuals pertaining to that attachment before using it. Make sure the attachment is properly coupled to the machine before using it.



# Operate Safely

**Stay alert!** Should something break, come loose, or fail to operate on your machine, stop work. Lower the lift arm(s), shut off the engine and inspect the machine.



Make sure attachment is properly coupled

## Watch Out for Hazardous Working Conditions

Be alert for hazards. Know where you are at all times. Watch for branches, cables, or doorways.

**⚠ WARNING!** Avoid death or serious injury! **Never undercut a high bank.**



Never undercut a high bank

Extreme caution should be used when working along the tops of banks or slopes. Always operate the loader perpendicular to the bank. Keep away from the edge.



Operate perpendicular to banks – stay back from the edge

**⚠ WARNING!** Never operate the machine close to the edge of an overhang or gully. The edges could collapse or a slide could occur causing serious injury or death.

Use caution when working along docks, runways, banks and slopes. Keep away from the edges of drop-offs.

### Stay alert! Cave-ins can be hazardous!

Use caution when working beneath an overhang.

Use caution when backfilling. Do not get too close to the trench wall. The combined weight of the equipment and the load could cause the trench wall to give way.

When working near hazardous conditions, have a spotter work with you to look for dangers. Make certain they stay a safe distance from your machine.

Be careful when handling materials such as rocks, gas cylinders, barrels, etc. Lifting too high and rolling the bucket too far back could result in these materials falling into the operator's compartment. Special enclosures to restrict material from entering cab openings (with a polycarbonate door, for example) may be available for use with certain attachments. Check with your dealer.

## Traveling on Jobsite

Take it slow and easy when traveling through congested areas. Traffic courtesy pays off.

Give the right-of-way to loaded machines. Maintain a safe distance from other machines. Pass cautiously.

Don't obstruct your vision when traveling or working. (See page 11, **Masked Visibility Areas.**) Carry the bucket LOW for maximum stability and visibility while traveling. Operate at speeds slow enough so you have complete control at all times. If possible, avoid travel over rough, slippery or uneven terrain, and on hillsides.

## Travel Safely

Always have the lift arm(s) down when traveling or turning. Plan the operation to load, unload and turn on flat, level ground.



Use caution – stay safely away from bank or excavation edge

Never ram the bucket into a material pile. Skid steer loaders have more force at slow speeds.

When traveling over rough terrain, **SLOW DOWN** to prevent losing control.

Both tracked and wheeled loaders can drop down suddenly if you are traveling over uneven surfaces like curbs, ramps or similar types of surfaces. If you cannot avoid these types of operating conditions, drive slowly when you approach these types of uneven surfaces to avoid spilling your load or tipping the machine. **ALWAYS CARRY THE LOAD LOW.**

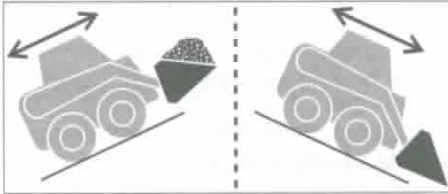


Keep loads low when traveling

# Operate Safely

Raise loads slowly and at an even rate, and be ready to lower the load quickly if the machine becomes unstable.

Avoid steep slopes or unstable surfaces. If you must drive on a slope, keep the load low and proceed with extreme caution. Do not drive across an excessively steep slope under any circumstances. Travel straight up and down the slope. Before operating on slopes, check the surface conditions for adequate traction. Loss of traction can cause the machine to slide and tip.



Keep heavy end of loader uphill

**⚠ WARNING!** Avoid death or serious injury. **Travel up and down slopes with the heavy end of the machine pointed uphill.**

Loaders are heavier on the rear end when unloaded and heavier on the front end when fully loaded, so remember this simple rule:

- **Loaded** bucket: Machine pointed uphill.
- **Empty** bucket: Machine pointed downhill.

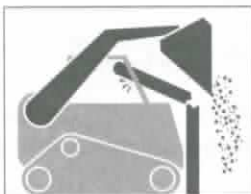
Check machine manufacturer's recommendations.

A skid steer loader's center of gravity will shift as loads are raised and lowered, so do not assume it will handle the same way when the load's elevation or position has changed. Avoid changing direction of travel, making sharp turns or traveling on steep slopes with a raised load. If you are working on a ramp or slope, locate a flat, level area so you can turn, load and unload safely.

**⚠ WARNING!** Avoid death or serious injury. **Keep the load as low as possible** for maximum stability AND VISIBILITY.

**⚠ WARNING!** Avoid death or serious injury. **Make sure you can see where you are going.** Never travel with a load obstructing your vision.

**⚠ WARNING!** **Never unload material over an obstruction**, such as a post, that could enter the operator cab. This could cause the machine to tip forward or flip, causing serious injury or death.



Never unload over objects that can enter cab

## Rules of the Road

When traveling on public roads or streets, obey all traffic regulations applicable to loader use and classification.

Make sure lights and warning signs are in place and visible. Make sure a Slow Moving Vehicle (SMV) emblem is installed and visible to any vehicle approaching from the rear.

Find out if you must use an escort vehicle. Place the bucket in the transport position. Approach intersections with caution; observe speed and traffic control signs. Avoid panic stops and sharp turns.

Like any responsible operator, be considerate of other drivers. If traffic backs up behind you, it is a good idea to pull over periodically and allow traffic to pass when it is safe to do so.

Stop at all railroad crossings and look both ways before proceeding. Never park in traffic areas. If it is necessary to stop at night, pull off the road and set up flares or reflectors. When driving at night, use appropriate lights.



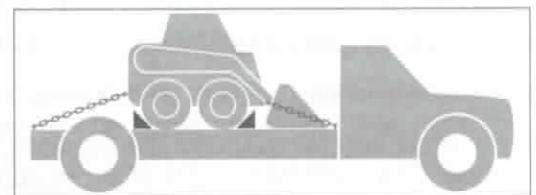
Obey traffic regulations

## Watch Out for Obstacles

Adjust your speed to conditions. Go around rocks and stumps. Avoid crossing ditches, curbs or exposed railroad tracks. If obstacles are unavoidable, reduce speed, raise bucket or attachment a short distance (if needed for clearance) and cross at an angle. If the loader bucket is being used to scrape pavement, check for hidden obstacles that could cause a collision.

Keep your skid steer loader under control. Keep speed to a minimum when visibility is poor.

Before entering underpasses, tunnels or bunkers, check for oncoming traffic or obstructions.



Chain and block loader securely for transport



# Operate Safely

## Loader Transporting Safety Tips

Always wear your seat belt/operator restraint when loading or unloading your machine from a transport device, such as a flatbed truck.

When transporting a loader, follow the manufacturer's recommended loading and unloading procedures.

Several precautions are applicable to all machines:

- Keep bystanders away.
- Load and unload on a level surface.
- Maintain proper visibility by loading or unloading in well-lit areas, and away from other vehicles, equipment or buildings.
- Block transport vehicle so it cannot move.
- Ensure trailer bed and ramps are in good condition.
- Use ramps of adequate size and strength, with a low angle and proper height.
- Rear of trailer must be blocked or supported.
- Keep trailer bed and ramps free of clay, oil, ice, snow, and other materials which can become slippery.
- Back the machine up the ramp onto the transport vehicle. If the machine is equipped with a heavy attachment it may be necessary to drive forward onto the transport vehicle.
- Cover or remove rear-facing SMV sign on the skid steer loader, if equipped, to avoid confusing drivers following the transport vehicle.
- Chain and block the machine securely for transport. Use tie-down points as marked on the machine by the manufacturer. Follow the manufacturer's instructions in the operator's manual for tying down.
- Unload the machine by driving off in the opposite direction; do not turn the machine around.



Ventilate  
work area

## Exhaust Fumes in a Closed Space Can Kill

Vent exhaust and assure a flow of fresh air when an internal combustion engine is used in a closed space.

**⚠ WARNING!** Exhaust fumes from diesel, gasoline or LP gas engines can kill. **Do not breath exhaust fumes from any kind of engine.**



Do not operate in  
explosive/flammable  
atmosphere

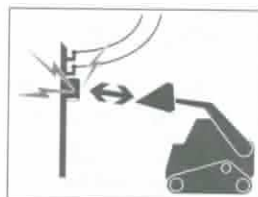
## Operating in Flammable/Explosive Atmospheres

**⚠ WARNING!** A standard loader or loader equipped with a spark arrestor/spark arresting muffler cannot be operated in flammable or explosive atmospheres. Using them in explosive atmospheres can result in fires and/or explosions which could cause serious injury or death.

**Use only an approved skid steer loader with a label designation of G, GS, D, DS, DY, LP, LPS, G/LP, or GS/LPS.** See Code of Federal Regulations (OSHA) 29 CFR Part 1910.178 to determine permissible areas where these machines can be operated.

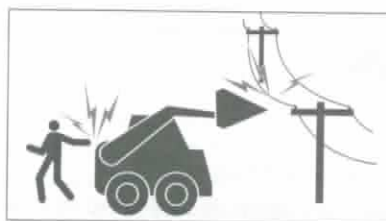
## Electrical Hazards Overhead and Underground

**⚠ DANGER!** Contact with energized power lines will cause serious injury or death. **Never approach overhead power lines with any part of your machine unless all local, state/provincial and national (OSHA) required safety precautions have been taken.** Always use extreme caution around power lines.



Stay away from  
energized  
power sources

Know your margin of safety. (See **chart** on page 9.) If possible, have power to lines disconnected. If not possible, request a signal person for guidance.



Avoid  
electrocution, stay  
clear of energized  
power lines

**⚠ DANGER!** Electrocution will result from touching or being near a machine that is in contact with, or near, an energized electrical source. **Stay away from any machine in contact with electrical wires until you are told it is safe to approach.**



Locate all  
utilities, maintain  
a safe distance

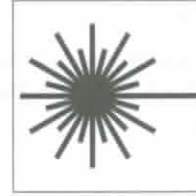
# Operate Safely

## Other Buried Hazards

**CHECK UNDERGROUND.** Know the locations of gas lines, water pipes, and cables before digging.

Always contact your local One-Call system and any utility companies which do not subscribe to One-Call before doing any digging. (See page 4, **One-Call First.**)

**⚠ WARNING!** Fiber optic cables are often made of glass which can be very sharp when broken. They frequently carry infrared or laser light, which may not be visible, but is still very dangerous. To avoid serious injury, **do not handle or look directly into the exposed ends of damaged fiber optic cables!**



Do not  
look into  
fiber optic  
cables



Call before you  
dig—dial 811  
(USA only)  
1-888-258-0808  
(USA & Canada)

## Shut Down Safely

### Select a Proper Parking Site

When shutting down, select level ground whenever possible. If you must park on a slope or incline, position the loader at right angles to the slope, engage the parking brake, lower the bucket (and other attachments) to the ground and block the wheels or tracks.



Lower  
attachment

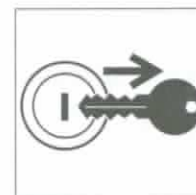
If arm(s) need to be in the raised position for maintenance, remove attachments as specified in the manufacturer's operating manual and secure the arm(s) using the approved lift arm support device(s).

**⚠ WARNING!** Avoid death or serious injury. **Never leave the loader unattended with the engine running or the lift arm(s) raised.**

### Safe Shutdown

The detailed shutdown procedure is given in your manufacturer's manual(s). In general, this includes:

- Stop loader.
- Lower bucket or other attachment flat on the ground.
- Ensure all wheels or front of tracks are on the ground.
- Position controls in neutral or locked position.
- Engage parking brake.
- Idle engine for short cool-down period.
- Stop engine and remove ignition key (if equipped.)
- Cycle hydraulic controls to eliminate pressure.
- Raise operator seat/restraint bar(s) (if equipped).
- Make sure controls are locked in neutral (if equipped).
- Unbuckle seat belt/restraint.
- Lock covers and enclosures.
- Shut off master electric switch (if equipped).
- When you leave the loader, always maintain three-point contact with the steps and grab handles. Face the loader as you dismount. Never jump off machine.
- Block wheels or tracks if on a slope or incline.



Shut engine off,  
remove key



# Perform Maintenance Safely

## Know What You're Doing

Maintenance on this type of machine is not for inexperienced or untrained personnel. It can be hazardous unless performed properly. Be sure you have the necessary skill, information, correct tools and proper equipment to do the job safely.



Maintain equipment

Be sure to maintain the equipment according to the manufacturer's instructions. Regularly check the operation of the protective and safety devices.

**Do not** perform any work on a machine unless you are authorized and qualified to do so.

If you have been authorized to perform maintenance, **read the manufacturer's operating and service manuals.** Study the instructions: check the lubrication charts, examine all the instruction messages on the machine.

## Protect Yourself

Wear all the personal protective clothing and PPE issued to you or called for by job conditions.

You may need:

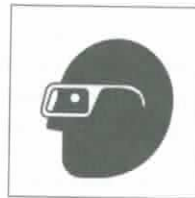
- Hard hat.
- Safety shoes.
- Safety glasses, goggles or face shield.
- Heavy duty gloves.
- Hearing protection.
- Reflective clothing.
- Wet weather gear.
- Respirator or filter mask.

Wear whatever is needed to protect yourself. Do not take chances.



Avoid rotating parts

**⚠ WARNING!** Avoid death or serious injury from entanglement. **Do not wear loose clothing or accessories. Stay away from all rotating components when the engine is running.** Contact, wrapping or entanglement with rotating or moving parts could result in death or serious injury.



Wear eye protection

Wear a rubber apron and rubber gloves when working with corrosives. Wear gloves and safety shoes when handling wooden blocks or sharp-edged metal.

Always use safety glasses, goggles or a face shield. They provide eye protection from fluids under pressure, during grinding and while servicing batteries. Protection is also needed from flying debris, liquids and loose material produced by equipment, tools and pressurized air/water.

Wear a face shield and follow manufacturer's instructions when you disassemble spring-loaded components or work with battery acids. Keep pockets free of all objects that could fall out and drop into machinery.



Do not loosen radiator cap until cool

Handle tools and heavy parts sensibly, with regard for the safety of yourself and others. Lower items; don't drop them.

## Prepare the Work Area

- Position the machine in a level area out of the way of other working equipment.
- Make sure there is adequate light, ventilation and clearance.
- Remove oil, grease or water to eliminate any slippery surfaces.
- Clean around the area to be serviced to minimize contamination.



Avoid falls, clean slippery surfaces

# Perform Maintenance Safely

## Prepare the Machine

Stored energy sources (electrical, mechanical, hydraulic, pneumatic, chemical, thermal, etc.) must be controlled or reduced to a practical minimum before performing any maintenance, repair or service procedures.

Safety practices to prevent potential injuries from energy-releasing sources include:

- Place controls in NEUTRAL or LOCKED position before shutting off engine.
- Set parking brake or block wheels.
- Allow all moving parts to stop.
- Shut off engine.
- Relieve hydraulic system pressure by moving controls several times in all directions.
- Lock ignition, remove key (if equipped) and take it with you.
- Look and listen for evidence of moving parts before dismounting.
- Shut off master electrical switch (if equipped).
- Securely support or block up machine before working underneath machine or other lifted components.
- Securely support, block up, or lock up other components with approved locking devices before working near or underneath them.
- Relieve pressure before disconnecting or disassembling any pressurized system.
- Block or relieve spring pressure before disassembling any spring-loaded mechanism.
- Avoid flames, sparks, or smoking near any fuel, hydraulic fluid or other flammable material such as spraying debris.



Use a "DO NOT OPERATE" tag

Attach a "DO NOT OPERATE" warning tag to the control levers. Lock out the unit according to the manufacturer's operating manual. If there is a key, remove it and take it with you.

Install approved support device(s) when working under or near raised equipment.

**⚠ WARNING!** Unsupported raised machines or other equipment may drop unexpectedly. **Never go under equipment when raised unless supported by an approved support device(s).** Death or serious crushing injury could result from falling equipment.

Remove only guards or covers that provide access to the area being serviced. Replace all guards and covers when work is complete.

**⚠ WARNING!** Avoid injury or death. **Never work on machinery with the engine running unless instructed by the manufacturer's manuals for specific service.**

## Common Maintenance Safety Practices

### Use Proper Ventilation

If it is necessary to run an engine in an enclosed area, remove the exhaust fumes from the area with an exhaust pipe extension.

If you do not have an exhaust pipe extension, make sure you open doors and windows to get plenty of outside air into the area.

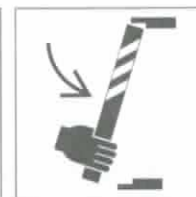


Ventilate work area

**⚠ WARNING!** Exhaust fumes contain carbon monoxide which could be deadly if inhaled. **Never operate any type of engine without proper ventilation.** EXHAUST FUMES CAN KILL.

### Use Jacks and Hoists Carefully

Safety stands or blocks must be located on a rigid part of the machine. Do not position stands under axles or wheel supports that may rotate.



Avoid crushing, use proper support for raised equipment

**⚠ WARNING!** Prevent crushing injury. **Never use concrete blocks for supports. They could collapse under even light loads.**

If you must work beneath raised equipment, always use wood blocks, jack-stands or other rigid and stable supports. When using jacks or hoists always be sure they are adequately supported.

Make sure the hoists or jacks you use are in good repair. Never use jacks with cracked, bent, or twisted parts. Never use frayed, twisted or pinched cables. Never use bent or distorted hooks.



# Perform Maintenance Safely

## Fuel Hazards

**⚠ WARNING!** Avoid serious injury or death. **Always use approved fuel containers and/or fuel dispensing equipment to reduce the risk of explosion or fire.**



No smoking and no open flames

Always observe these practices to reduce the possibility of a serious accident:

- Shut off engine and ignition during refueling.
- Always ground the fuel nozzle against the filler neck to avoid sparks.
- Keep sparks and open flames away from fuel.
- Do not smoke while refueling or when handling fuel containers.
- Do not cut or weld on or near fuel lines, tanks or containers.
- Do not overfill the tank or spill fuel. Clean up spilled fuel immediately.

## Ultra-Low Sulfur Diesel (ULSD) Hazard

**⚠ WARNING!** Ultra-Low Sulfur Diesel (ULSD) poses a greater static ignition hazard than earlier diesel formulations. Avoid death or serious injury from fire or explosion; **consult with your fuel or fuel system supplier to ensure the delivery system is in compliance with fueling standards for proper grounding and bonding practices.**

## Engine Coolant Hazards

**⚠ WARNING!** Avoid serious injury or death. Liquid cooling systems build up pressure as the engine gets hot, so **use extreme caution before removing the radiator cap.**



Remove radiator cap slowly

- Stop the engine and wait for the system to cool.
- Wear protective clothing and safety glasses.
- Turn the radiator cap slowly to the first stop to allow the pressure to escape before removing completely.

## Hydraulic System Hazards

Be sure to follow manufacturer's instructions for relieving fluid pressure before performing any maintenance. The hydraulic system is pressurized whenever the engine is on and may hold pressure even after the engine is shut off. Cycle hydraulic controls, including auxiliary hydraulic control (if equipped), after the engine is shut off.



Check for leaks and inspect hoses

During inspection of the hydraulic system:

- Wait for fluid to cool before disconnecting the lines. Hot hydraulic fluid can cause SEVERE BURNS.
- Wear appropriate eye protection. Hydraulic fluid can cause permanent eye injury.
- When venting or filling the hydraulic system, loosen the filler cap slowly and remove it gradually.
- **Never** reset any relief valve in the hydraulic system to a pressure higher than recommended by the manufacturer.

## Hydraulic Fluid Injection Hazard

**⚠ WARNING!** Accidental injection of high-pressure oil into the hands or body is dangerous and could result in death or serious injury. **Use caution when checking hydraulic leaks as pressurized hydraulic fluid has enough force to penetrate skin, causing serious personal injury.**



High pressure fluid can inject into the body

If a leak is discovered:

- Ensure engine is turned off; relieve pressure in hydraulic circuit.
- Wear proper hand and eye protection.
- Visually examine the hydraulic hoses or fluid lines in the vicinity of the leak for breaks or cracks. **Do not** use your hand to check for leaks.
- Repair or replace hydraulic lines according to the manufacturer's recommendations.

# Perform Maintenance Safely

Fluid injection injuries are not always obvious. Victims have reported such injuries feel like a bee sting or splinter under the skin. If you suspect you have a fluid injection injury, do not take chances. Seek proper medical care immediately. If any fluid is injected into the skin, it must be surgically removed within a few hours by a doctor familiar with this type of injury.

## Electrical System Hazards

### Light Bulbs and Illumination

Some machines are equipped with High-Intensity Discharge (HID) Xenon light bulbs which operate at very high voltage. Do not begin installation of HID-Xenon lamps unless the lamps are turned off, the engine is turned off, the key is removed (if equipped), and you are wearing appropriate eye protection.

**⚠ WARNING!** Do not look directly into HID-Xenon lamps. Eye damage could occur.

Wear gloves and safety glasses when handling bulbs. Dangerous voltage sparks may occur and cause injury or damage to the connector. See manufacturer's warnings packaged with replacement bulbs.

Before working on the electrical system, disconnect the battery cable(s).

- Remove the battery negative (-) cable(s) first.
- When reconnecting the battery, connect the battery negative (-) cable(s) last.



Wear hand protection

### Battery Hazards

The liquid in batteries contains acid, which is a POISON and could cause SEVERE CHEMICAL BURNS.

Avoid injury:

- Wear a face shield to prevent contact with your eyes.
- Wear chemical-resistant gloves and clothing to keep electrolyte off your skin and regular clothing.



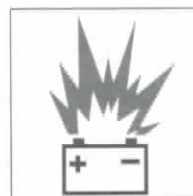
Wear face protection

**⚠ WARNING!** Electrolyte will damage eyes or skin on contact. **Always wear a face shield to avoid electrolyte in eyes.**

If electrolyte contacts eyes, flush immediately with clean water and get medical attention. **Wear chemical-resistant gloves and protective clothing to keep electrolyte off skin.** If electrolyte contacts exposed skin or clothing, wash off immediately with clean water. **If electrolyte is ingested,** drink large quantities of water or milk. **DO NOT** induce vomiting. Seek medical attention immediately.

### Avoid Explosion

**⚠ WARNING!** Avoid serious injury from explosion. Lead-acid batteries produce extremely explosive gases especially when being charged. **Keep arcs, sparks, flames and lighted tobacco away.**



Avoid sparks and open flames near batteries

- Do not smoke near batteries.
- Keep them away from arcs, sparks and open flames.
- Provide adequate ventilation.

**Never** check the battery by placing a metal object across the battery posts. The resulting spark could cause an explosion.

**⚠ WARNING!** Avoid serious injury from battery explosion. **Do not charge a battery or jump-start the engine if the battery is frozen.**



When jump-starting, observe polarity and make final connection at ground point

Warm to 60°F (15.5°C) or the battery may explode and could cause serious injury.

Safety rules during battery jump-starting:

- Follow the instructions for proper battery jump-starting, as specified in the manufacturer's manual.
- Be sure the machines are not touching.
- Observe the polarity of the batteries and connections.

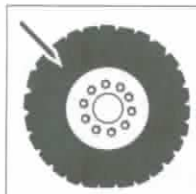


# Perform Maintenance Safely

- Make the final cable connection to the engine or the furthest ground point away from the battery. Never make the final connection at the starter or dead battery. Sparks may ignite the explosive gases present at the battery.
- When disconnecting cables, remove the cables in reverse order of connection (e.g., final connection first).

## Tire and Wheel Maintenance

Check your tires and wheels daily because the stability of the machine can be dramatically affected by tire pressure or damage to tires or wheels.



Check tires and wheels for damage

Check tires for:

- Correct pressure.
- Cuts and bulges.
- Nails or other punctures.
- Uneven or excessive wear.
- Condition of valve stems and caps.

Check wheels for:

- Damage to the rims.
- Missing or loose lug nuts or bolts.
- Misalignment.

All tire service should be performed by a qualified tire service center or by an authorized service person who has been properly trained in the procedures and use of safety equipment designed for tire servicing.

**⚠ WARNING!** The types of wheels and tires usually found on this equipment require special care when servicing to prevent death or serious injury. **Do not inflate the tires above the recommended pressure.**



Maintain proper tire pressure

Keep wheel lug nuts tightened to manufacturer's recommendations.

An increase in tire pressure during operation is normal, and should NOT be reduced.

Never reinflate a tire that has been run flat or seriously under-inflated without removing the tire from the wheel.

Have the tire and wheel closely inspected for damage before remounting.

When adding air to a tire, do so from a distance. Always use a long hose with a self-attaching chuck; stand away from the tire sidewall and to one side as far as possible.



Avoid tire explosion

Do not inflate tires with flammable gases or from systems using an alcohol injector.

Never cut or weld on a wheel with an inflated tire mounted on it. This could cause explosive decompression.

Check that the tire size and wheel are correctly matched.

When replacing the tires, ensure the tires are of the appropriate rating specified by the manufacturer.



Use safety devices when reinflating tires

**⚠ WARNING!** Avoid death or serious injury. **Always use a safety cage or cable restraints when reinflating a repaired tire.**

Tires should not be operated at speeds higher than their rated speed.

## Track Maintenance

Track tension is important for good track performance, reducing excessive track wear and preventing tracks from derailing.

Tracks under tension can store an incredible amount of energy, and although some machines have automatic track tensioners, special tools and procedures may be required to check or adjust track tension.



Check for track damage

# Perform Maintenance Safely

Removing and installing tracks also requires following safe and proper servicing procedures. Always follow the manufacturer's instructions for track maintenance and servicing, including adjusting track tension.



High pressure fluid  
can inject into  
the body

**⚠ WARNING!** Most track tensioning systems have compressed springs or pressurized fluid (oil or grease). **Improperly releasing track tension forces could cause serious injury or death.** Always follow the manufacturer's warnings and instructions for track adjustment and other maintenance and servicing procedures.

## Roll-Over Protective Structure (ROPS) and Falling Object Protective Structure (FOPS) Safety Precautions

Do not remove the ROPS/FOPS except for service. Reinstall them correctly before allowing the machine back into service.

Do not modify ROPS/FOPS in any manner. Unauthorized modifications such as welding, drilling, cutting or adding attachments could weaken the structure and reduce your protection. Replace ROPS/FOPS if subjected to rollover or damage. Do NOT attempt to repair them. See the manufacturer's manual(s) for complete instructions and inspection requirements.

## Complete Service and Repairs Before Machine is Released

Tighten all bolts, fittings, and connections to torques specified by the manufacturer.

Are there any missing cotter pins, washers, locknuts, etc.? Are there any parts left over?

Start the engine and check for leaks. (See page 19, **Hydraulic System Hazards**.) Operate all controls to make sure the machine is functioning properly. Test the machine if necessary. After testing, shut down and check the work you performed.

Recheck all fluid levels before releasing the equipment for operation.

All parts should be inspected during repair and replaced if worn, cracked or damaged. Excessively worn or damaged parts could fail and cause injury or death.

Install all guards, covers, and shields after servicing. Refill and recharge pressure systems only with manufacturer-approved or recommended fluids.



Verify service work  
when completed

## Final Word to the User

You have just finished reading the AEM Skid Steer Loader Safety Manual. It is impossible for this manual to cover every safety situation that you may encounter on a daily basis. Your knowledge of these safety precautions and your application to the basic rules of safety will help to build good judgment in all situations. Our objective is to help you develop, establish and maintain good safety habits to make operating a skid steer loader easier and safer for you.

This manual is one in a series on the safe operation of machinery, published by AEM.