

# Skid Steer Maintenance & Safety

*Tips and Guidelines to Help You  
Work Safely on Your  
Skid Steer Loader*

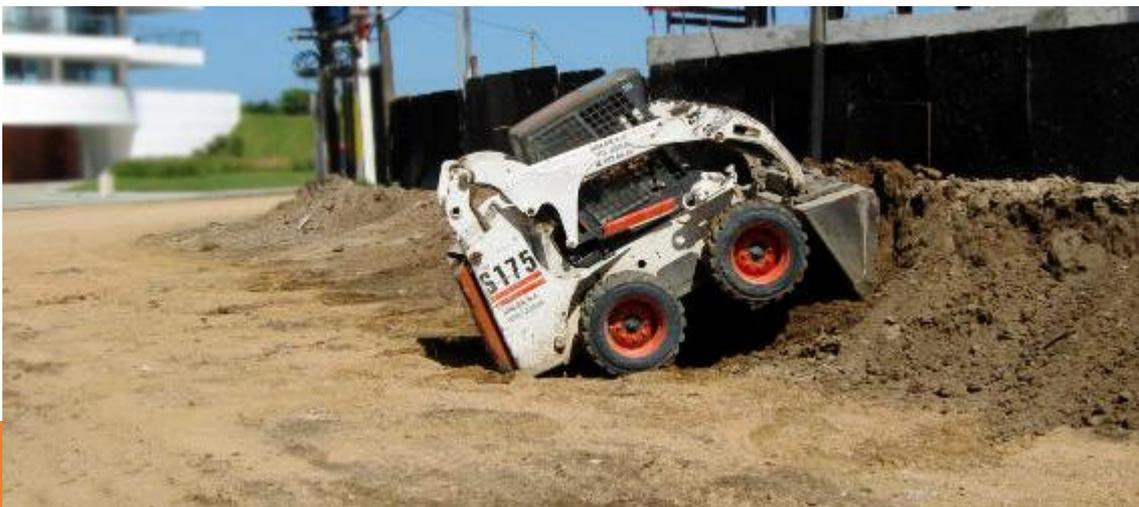


US Distributor for Eaton Final Drives



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# Introduction

Working on skid steer loaders can be dangerous – whether you are operating it or servicing it. In this eBook, we are going to talk about how to be safe when working on a SSL so you don't become another statistic.

Just keep in mind that this isn't intended to be an exhaustive list of steps to take, nor should it take the place of manufacturer instructions and guidelines.

Remember to be safe!



# Getting Yourself Prepared

The first step in safety is protecting yourself. In this chapter, we'll talk about the steps you need to take in order to prepare yourself to work safely.

## Clothing and Accessories

Remember not to wear loose clothing or accessories that might get entangled in moving parts. This includes things like ties, scarves, chains, etc. Entanglements can quickly become fatal.



## Check Your Pockets

Clean out your pockets (maybe putting the contents in a tray where you can easily access them when you are finished). Items in your pockets might fall into the machinery and cause damage to the equipment or injury to you.



## Don't Forget PPE



Also make sure you have any PPE that you might need, and keep in mind that eye protection is always advised. There are quite a few ways your eyes can be injured during routine maintenance, including corrosive liquids, pressurized fluids, and debris carried by compressed air.

You may want to consider using a face shield if you might be exposed to battery acid or if you will be disassembling any spring-loaded components.

## Safety Boots



If your skid steer is going to be on jacks or blocks, or if you are going to be moving anything heavy around, wear safety shoes. You don't want to drop a final drive motor in your running shoes -- your foot won't ever be the same.

## Absolutely No Smoking

Finally, put up your cigarettes. You don't need any open flames or smoking near fuel or hydraulic fluid. You might get fired – permanently.



# Safety Labels

In order to work safely, you need to be able to recognize the meaning of common safety labels and icons.

## Color-Coded Safety Labels

There are three levels of safety labels, each representing an increasing level of seriousness: *Caution*, *Warning*, and *Danger*.

<b>Caution</b>	Ignoring a caution label means you could be injured or the equipment could be damaged.
<b>Warning</b>	Ignoring a warning label is more intense -- you could be seriously injured or even killed
<b>Danger</b>	Ignoring a danger label means you will be seriously injured or killed

# Safety Symbols

Here are some common symbols you will see:



Burn hazard



Keep hands away from moving parts



High pressure fluid can cause an injection injury



Equipment can drop and crush you



Avoid getting caught in rotating parts

# Preparing a Safe, Clean Work Area

A clean work area is important not just for your safety, but for the well-being of your skid steer loader and its hydraulic system.

## Safe Environment

The skid steer should be placed on a level area and out of the way of moving equipment



Before you start working, take a few minutes to address any spilled grease, oil, or water that could prove slippery.

## Clean Work Area

Next, clean the work area. You want to reduce the chances of introducing contamination to the hydraulic system, even if you are working out in the field.



Your tools can still be kept clean, and you can keep hydraulic hoses and ports contamination free with just a little extra effort.

# Preparing the Skid Steer

There are some steps you need to follow to make sure the skid steer is safe for you to work on.

## Turn Off the Engine

Before the engine is shut off, make sure that the controls are in a neutral or locked position. Next, either set the parking brake or block the skid steer wheels. Wait long enough for all the moving parts to stop, then shut off the engine.

*Don't work on a skid steer loader if the engine is still running unless the manufacturer's manual gives clear instructions to do so.*



## Importance of Ventilation

If you are going to run the engine, make sure you have plenty of ventilation. If you have to work in an enclosed area, either remove the exhaust fumes using an exhaust pipe extension or by opening doors and windows so the exhaust can escape.



Failure to ventilate your work area in situations like this can result in a permanent nap. Don't forget that exhaust fumes can be deadly.

## Relieve Hydraulic Pressure

Next, cycle the controls several times in all directions to relieve the pressure in the hydraulic system. Lock the ignition, remove the key, and take it with you (but don't leave it in your pocket to fall out).

## Do Not Operate Tag

Use a “Do Not Operate” tag as a reminder for others to not try to use the skid steer while you are working on it.



## Electrical System

If your skid steer has a master electrical switch, then shut it off.

## Proper Use of Supports



Next, block up or support the machine before you try to work beneath it. Do not use concrete blocks or angle iron. Instead, use wooden blocks, jack stands, or rigid / stable supports.

Concrete blocks and angle iron are not a good idea because they can shift or collapse, even under light loads.

Always place supports beneath the rigid part of the machine. That means not placing them under axles or wheel supports that rotate.

## Lift Arm Supports

When it comes to lift arms, use the lift arms supports supplied or approved by manufacturer. This is very important -- mechanics have been fatally crushed when the lift arm drops.



If you need to work on a machine that does not have a lift-arm support, contact your equipment dealer or manufacturer for help in obtaining one. Do not work without one.



## Dealing with Pressure

For spring-loaded mechanisms, either block the spring or relieve the spring pressure before working on it. Before you disconnect or disassemble any pressurized system, take the time to relieve that pressure.

# Heavy Parts

Heavy parts like final drive might require the use of a jack or a hoist. Here are some tips on how to use them safely.

If you are going to have to pull or install something heavy, like a final drive motor, you'll probably be using some type of hoist or jack. If so, make sure the hoist / jack is supported so that it is going to be stable while supporting weight. For final drives, some people use a fork lift.



Don't use a broken or damaged hoist / jack unless you want to risk breaking something -- including yourself. Don't use hooks that are bent or distorted because this can weaken them. Also, don't use cables that are twisted, punched, or frayed for the same reason.



Finally, make sure the load is secured before you try to move it.

# Working With Tires

Tires can be more dangerous than you might think, especially if they've been repaired. Here are some tips for safely working with the wheels and tires on your skid steer.

## Inflation

One of the first rules in working with skid steer tires safely is to never over inflate them. There is a good reason why there are inflation guidelines from the manufacturer.

Inflating skid steer tires isn't the same as inflating a tire on your car. It can be more dangerous, and that's why you should add air to skid steer tires from a distance using a self-attaching chuck on a long hose. Also, stand away from the sidewall of the tire and to the side. Tires can explode, and you don't want to be in the damage path when it happens.

If you are re-inflating a repaired tire, do so inside a safety cage or cable restraints. If the tire blows while you are re-inflating it, you can be seriously injured or even killed if you don't do this.



## Flat / Damaged Tires

If you have a tire that has been run flat or has been seriously under inflated, do not re-inflate it without first removing it from the wheel. Then, carefully inspect the wheel and the tire before you remount it.



## Wheels

If you have a wheel with an inflated tire mounted on it, do not cut or weld on that wheel. This can result in what is called explosive decompression and you can get seriously injured.



# Working With Batteries

Batteries, if you aren't careful, can be accidents waiting to happen. Here's what you need to know in order to stay safe when working with them.

## Electrolyte

Batteries contain electrolyte. Electrolyte can cause severe chemical burns and will injure your skin and eyes as soon as it makes contact with them.



If you come into contact with electrolyte, flush the area of contact with water immediately! If you ingest electrolyte, start drinking a ton of water or milk and seek medical help ASAP. Do not try to induce vomiting ... it will only make things much worse for you.

Wear a face shield so both your eyes and face are protected and wear chemical resistant gloves and clothing (at least an apron) to keep the electrolyte away from your skin and your clothes.

## Risk of Explosion

Batteries can explode.

- ✓ **Do not** allow batteries near open flames, arcs, or sparks -- they can explode
- ✓ **Do not** smoke around batteries -- they can explode
- ✓ **Do not** check a battery placing something across the battery posts -- the spark can cause an explosion
- ✓ **Do not** charge a battery or jump-start the engine if the battery temperature is below 60°F -- it can explode

# Working With Hydraulics

There are some dangers associated with hydraulics, so here are some guidelines and warnings to help you stay safe.

## Hydraulic Fluid Pressure

Fluid pressure needs to be relieved before maintenance is performed on the hydraulic system. You should check the manufacturer's guidelines on how to accomplish this.





Remember that the hydraulic system will be pressurized when the engine on, and can remain pressurized even after the engine is turned off. That's why it is important to cycle the hydraulic controls after you have shut the engine off. If you have auxiliary hydraulics, do the same for those.

## Hot Hydraulic Fluid

Wait for the hydraulic fluid to cool down before disconnecting any hydraulic lines. You can get burned quite badly from hot hydraulic fluid!



## Venting the Hydraulic System

When you get ready to vent the hydraulic system, do so by slowly loosening the filler cap, then removing it gradually.

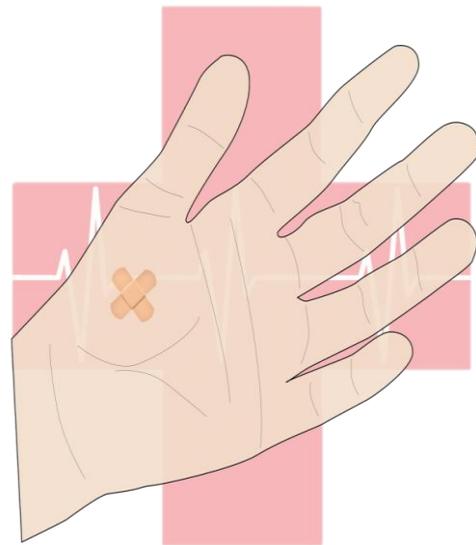
# Relief Valves

Never reset a relief valve to a pressure higher than what the manufacturer recommends. There is a very good reason why the manufacturer set that limit, and to go past it is to risk damage to the equipment and injury to yourself.



# Injection Injuries

Be very careful when working around pressurized hydraulic fluid. Hydraulic fluid injection injuries are extremely dangerous and occur when pressurized hydraulic fluid makes its way beneath your skin. What may feel like a bee sting or even a splinter can cause loss of a body part or even death in a matter of hours.



# Hydraulic Leaks

That's why, when looking for hydraulic leaks, you never use your hands. Use a piece of wood or cardboard to check for the presence of leaks. You can visually check for cracks and breaks. Wear your PPE, including protection for both your hands and your eyes.

If you do find a leak, then it needs to be repaired right away. Unrepaired hydraulic system leaks can lead to issues like a lift arm lowered unexpectedly and crushing someone.

Leaks can also cause problems for the machine. If fluid can leak out, then contaminants can make their way in.

# Wrapping Up

Don't forget to follow these safety guidelines when wrapping up so that the next person to use the skid steer stays safe, too.

When you are finished with any maintenance or repairs, make sure ...

- ✓ There are no leftover parts
- ✓ There are no missing washers, bolts, locknuts, cotter pins, etc.
- ✓ All connections, bolts, and fittings are tightened to manufacturer torque specifications
- ✓ Fluid levels are acceptable
- ✓ Engine starts and no leaks are apparent
- ✓ Machine is functioning properly

# Safety Resources

Here are resources where you can find much more detailed information about skid steer and safety.

*AEM Skid Steer Loader Safety Manual  
(2013)*

[OSHA Skid Steer Loader Safety for the Landscaping and Horticultural Services Industry](#)

[Hazards Associated with Operating Skid-Steer Loaders with Bypassed and/or Improperly Maintained Safety Devices](#)

[NIOSH Preventing Injuries and Deaths from Skid Steer Loaders](#)

At Texas Final Drive, we stock new and reman hydraulic final drive motors for skid steer loaders, compact track loaders, mini-excavators, and other machines. Take a look at our [Final Drive Shop](#) online and let us help you find the motor you need!



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