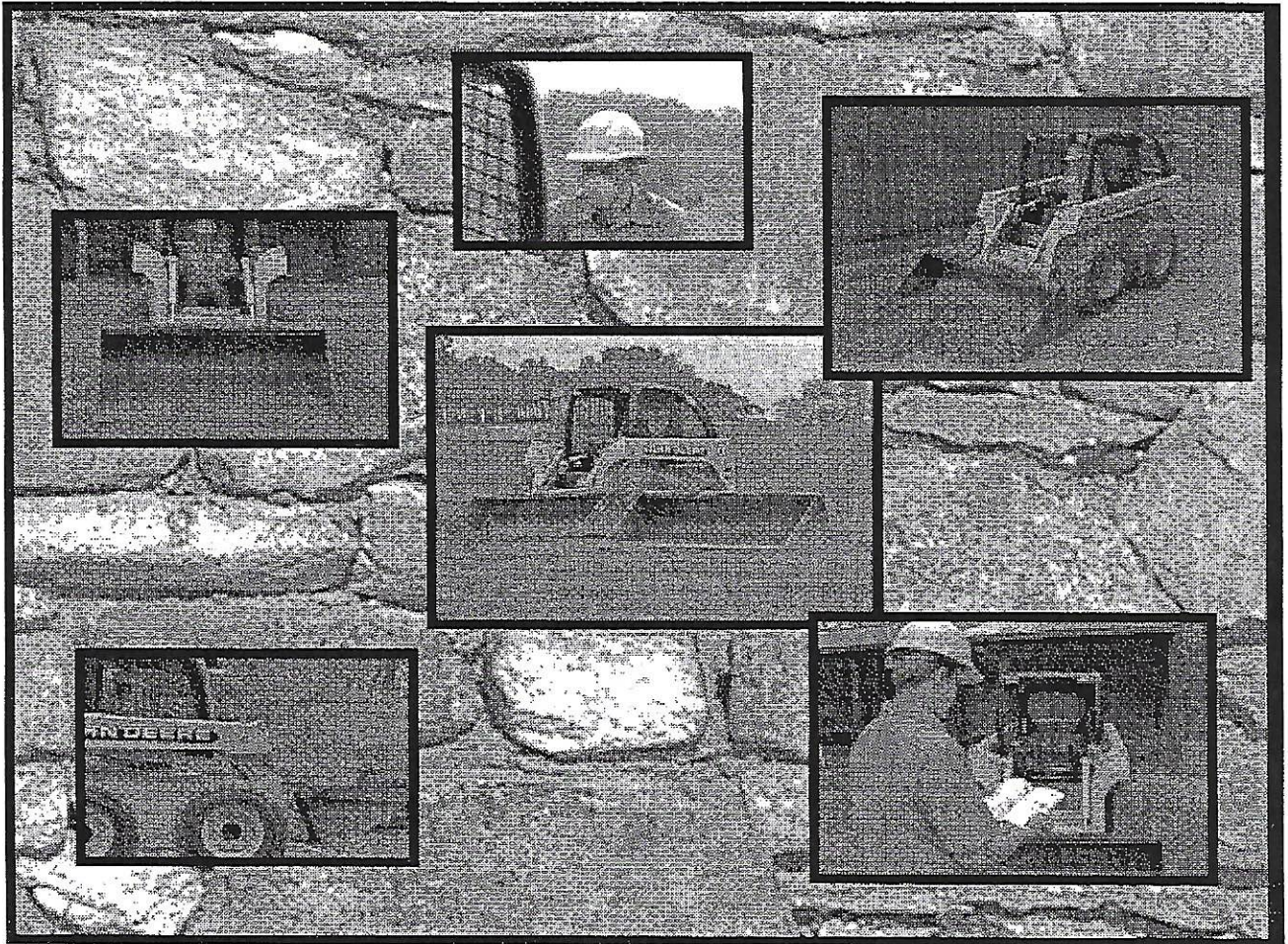




The Skid-Steer Loader Resource Guide



A Supplement to the ALCA Equipment Safety & Training Series
Landscape Construction Equipment Videos

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JOHN DEERE

Skid-Steer Loader Resource Guide

TABLE OF CONTENTS

Introduction	1
Equipment Components	2
Basic Parts	
Safety Labels & Instructions	
Safety Basics	3
Personal Protective Equipment	
Pre-Start Inspection	4
Loose & Damaged Parts	
Safety Guards	
Fueling	5
Fueling Procedures	
Spills, Safety Considerations	
Site Inspection	6
Debris, Hazards, Obstacles	
Starting & Stopping	7
Procedures	
Tricks of the Trade	8
Operating Tips	
The Finished Product	13
A Professional Job	
Trailer	14
Loading Procedure	
Safeguarding Equipment & Tools	
Maintenance	15
Secrets to Superior Results	
Quick Quiz	16
Quiz, Answer Sheet, Answer Key	



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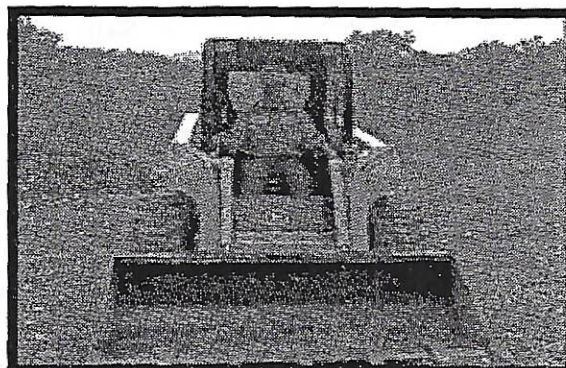


INTRODUCTION

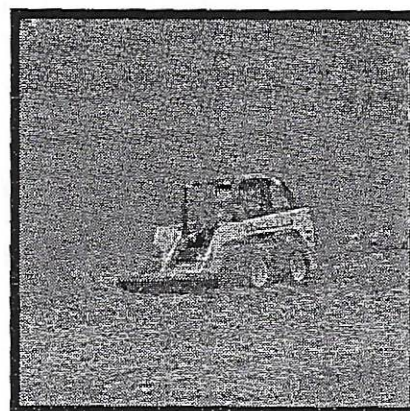
Safe, Efficient Use of the Skid-Steer Loader

A Versatile, Productive Piece of Equipment

The skid-steer loader is a self-propelled machine that is compact, rugged, and highly maneuverable. The skid-steer has earned the reputation of being one of the most productive machines capable of performing a wide variety of applications under various conditions.

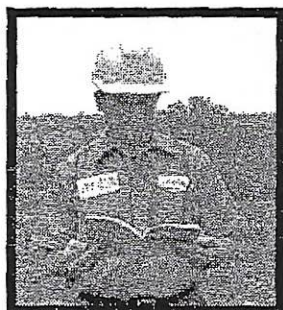


The skid-steer loader performs various tasks including: moving material, excavating areas, leveling surfaces, and backfilling holes. The machine is equipped with four-wheel drive and two independent transmissions, one powering the left side and one the right. This allows the loader to "skid-steer" and turn in its own tracks.



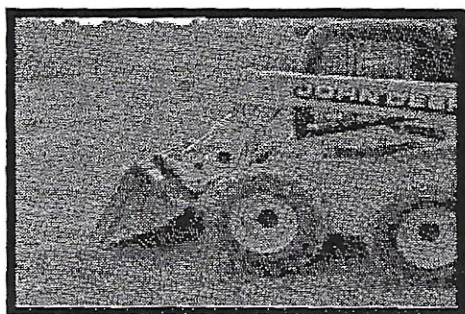
The loader is a powerful piece of equipment. It takes a trained operator to use the skid-steer safely and efficiently. It is imperative that you read the Operator's Manual and fully understand all the features and safety

components before working with the loader.



Read your Operator's Manual

This Resource Guide and the video it accompanies is intended for general familiarization and as a training tool. They are not intended in any way to replace the Operator's Manual.



There are significant differences between various skid-steer loader manufacturer's models. You must read the Operator's Manual of your specific skid-steer loader BEFORE you operate it.

EQUIPMENT COMPONENTS

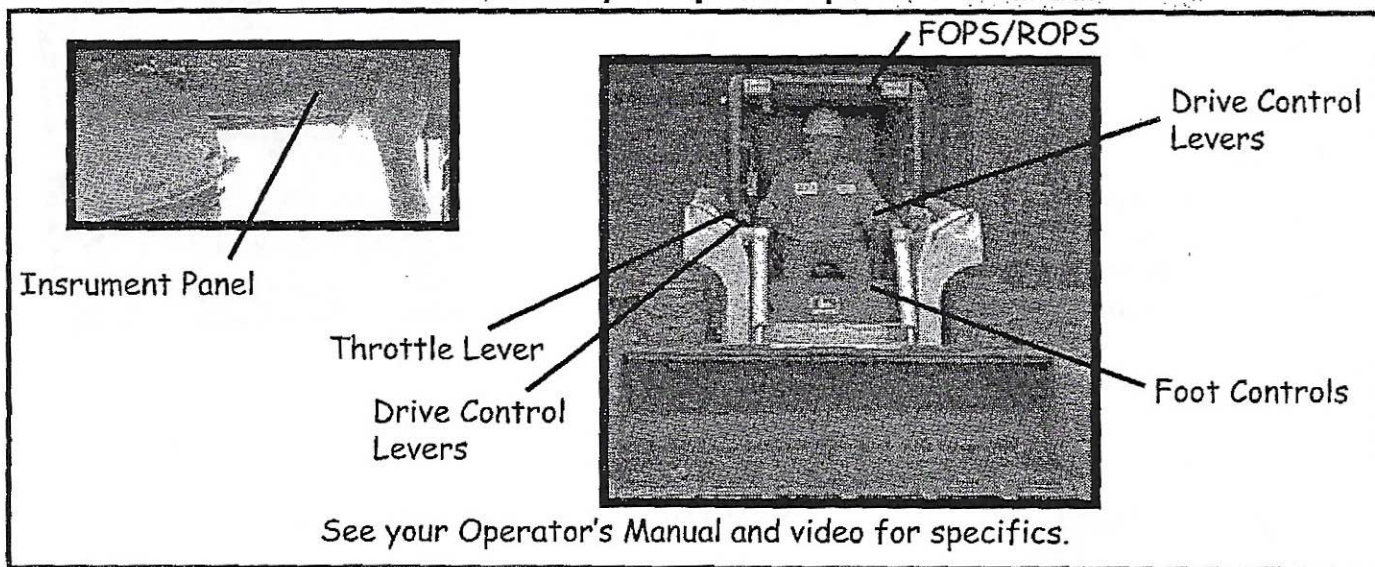
Parts & Controls / Safety Labels & Instructions

Basic Parts

The basic hand controls of the skid-steer loader seen in the video include the drive control levers, the throttle lever, the boom lock lever, the seat adjustment lever, and the seat belt. The foot controls are the boom pedal, the bucket control pedal, and on some loaders, the parking brake pedal.

The instrument panel includes the work lights, fuel gauge, battery gauge, engine temperature, engine oil pressure, warning lights, an hour meter, a cold start switch, the parking brake switch, and the ignition switch.

Safety features include the Operator's Enclosure which provides falling object protection, or FOPS, and roll over protection or ROPS. The FOPS and ROPS should never be removed or modified. They are provided for the operator's safety to protect from a crushing load. The loader also has a seat belt activated interlock system so that you must have your belt on to start the engine. The enclosure has a rear opening for an emergency exit. Not all loaders are alike. **REMEMBER to check your specific Operator's Manual!**



Safety Labels & Instructions

Read and understand the warning labels on the skid-steer loader. If the labels have become worn, inform your supervisor. Whenever and wherever you see the Safety-Alert Symbol, read the message with it carefully! On your equipment you may find safety labels titled DANGER, WARNING, and CAUTION.



Safety labels may warn you of hot surfaces, corrosive or poisonous substances, hazards related to fueling and refueling, and other dangers. There are different types of Warning labels located on the loader. The Danger Label indicates an extreme hazard where injury or death is likely if precautions are not taken. A warning Label denotes that a hazard exists and that an injury or death could result if precautions are not taken. The Caution Label is placed to remind you to heed safety practices.



SAFETY BASICS

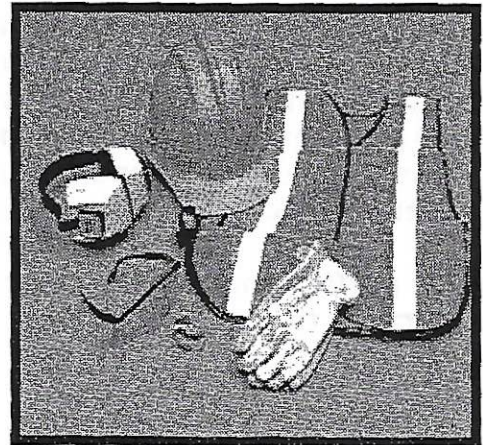
Personal Protective Equipment

Protective Apparel

Unnecessary accidents can be avoided by wearing the appropriate personal protective equipment and by using common sense.



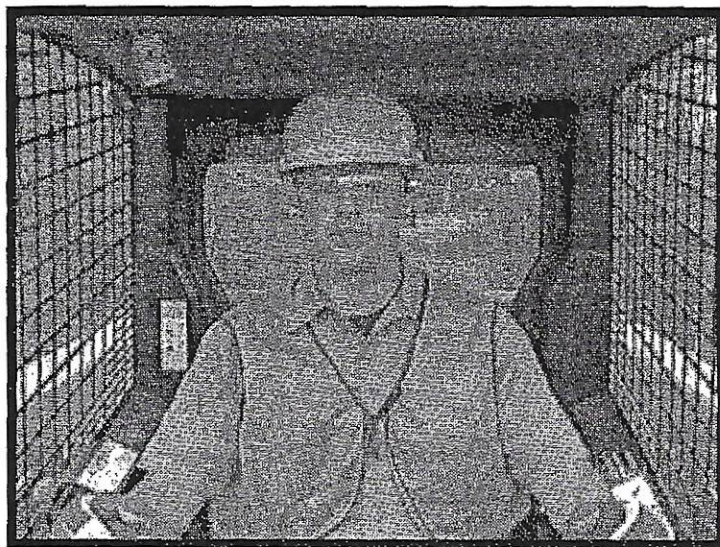
ALWAYS wear a hard hat when operating the loader. Hearing and eye protection should also be worn while operating the skid-steer.



Always wear gloves or mitts while working. Wearing long pants to protect your legs is another required safety element. Always wear steel-toed work boots with good ankle support.



Never wear loose clothing or any accessories like jackets with draw strings, scarves, or jewelry that could catch in moving parts. Depending upon your work site, it may be necessary to wear a reflective vest if you are working near a road; or a respirator or filter mask if you are working under dusty conditions.



Each time the skid-steer loader is going to be used, it is essential that the operator wear the appropriate personal protective equipment.



PRE-START INSPECTION

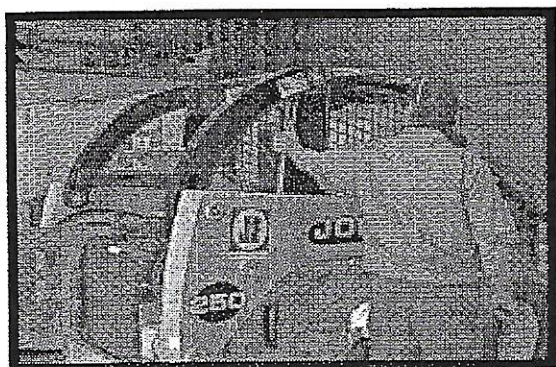
Loose & Damaged Parts / Safety Guards

Pre-Start Inspection

ALWAYS inspect the skid-steer loader before taking the equipment to the job site or starting the engine. This inspection helps prevent serious maintenance problems, and more importantly, it can prevent an accident or injury.

When performing the pre-start inspection, the following things should be checked:

- **Engine Oil Level.** If the level is low, add oil. It is important that you never overfill the crankcase. This could cause damage to the engine.
- **Air Filter.** Inspect the filter for damage and dirt. If the filter is dirty, tap the excess dirt out. Do not use compressed air because the high pressure could damage the filter.
- **Hydraulic and Hydrostatic Fluid Level.** Check the hydraulics for fluid leaks. If there are leaks, it is important to correct the problem because without the appropriate amount of fluid there could be damage to the equipment and the fluid leaking will stain the concrete.
- **Lift Arm and Pivot Pins.** Inspect to see if they look to be free of damage or any broken or loose parts.



**Always inspect
the loader
BEFORE leaving
the shop to avoid
problems.**



Mr. Tips

- **The Cab and Pedals.** Check for loose or broken parts. Check the pedals for dirt. It is imperative that dirt and debris be kept out of the pedal controls because this makes operating the loader easier and safer.
- **Tires.** Check the overall condition of the tires and make sure they have the correct air pressure.
- **Fuel Level.** Always start your day with a full tank. A partially filled tank will only result in a delay later.
- **Levers.** After inspecting the loader, start up the machine and test the levers and controls, making sure that the equipment is in good condition and will perform on the job.
- **Warning Labels.** Read and heed all of the warning labels on the loader.



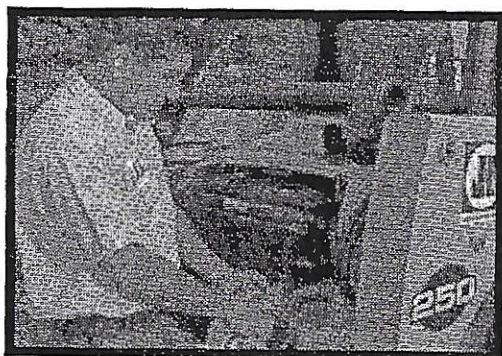
FUELING

Fueling Procedures / Spills, Safety Considerations

Fueling the Skid-Steer Loader

There are certain things to remember when fueling the skid-steer loader. Make sure that you use the proper fuel for the equipment you are using. Also do the following:

- Always stop the engine and follow the proper shut-down procedures.
- Never smoke when fueling!
- Open the rear service door and remove any dirt and debris from the area around the fuel tank cap.
- Remove the fuel cap and fill the tank only to the bottom of the filler neck.
- Wipe up any fuel spills immediately and wipe up any dripped fuel around the fuel tank.
- Replace the fuel cap.
- Close the rear service door.



**Remember, wipe up
any spilled fuel
IMMEDIATELY!**



Mr. Tips



Refueling

Always start your day with a full tank. A partially filled tank just means a delay later ... returning to a safe fueling site, waiting for the engine to cool, and refueling. Fuel spilled on a hot engine is a major fire hazard!



SITE INSPECTION

Debris, Hazards, Obstacles

Inspect The Work Area

It is important to plan ahead for the job. Before beginning the project, visit the site to make sure that the grades are acceptable and the area is in the condition that was promised.

Before reaching the job site, check with the property owner or project supervisor to make sure that ALL of the underground utilities and buried obstacles have been located and marked.

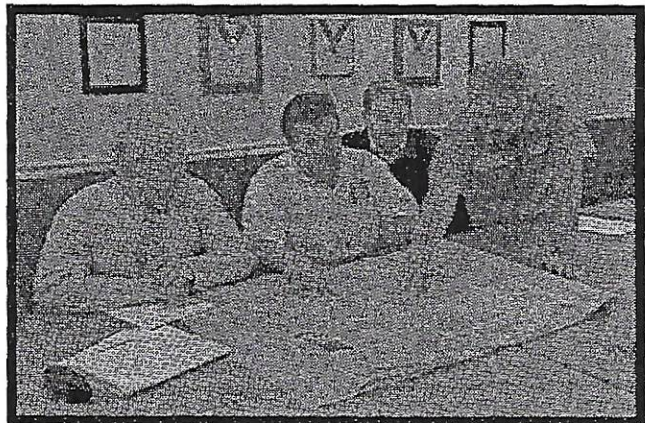


Before operating the loader:

- Look for rocks, stones, boards with nails, and debris such as broken glass, bottles, wires, or anything that could puncture tires or interfere with your work.
- Always check the job site for existing damage caused by others, like tire marks, cracked concrete or broken drain lines. Point them out to the owner or supervisor before starting work. Photographs may be used to document problems.
- Plan where you will be making pickups, lifts and turns and know where delivered materials will be dumped for efficient handling and to minimize clean up.
- Avoid skid turns on hard surfaces because the loader will damage the concrete. Plan to make turns on dirt or gravel.
- Check overhead clearances under power lines and eaves.

Holding a pre-construction meeting with the supervisor, foreman and other key people to help plan the job ahead can make a huge difference if the project is to be a success.

Before working with the skid-steer loader, it is important to inspect the work area for hidden hazards and to come up with a work plan.



STARTING & STOPPING Procedures

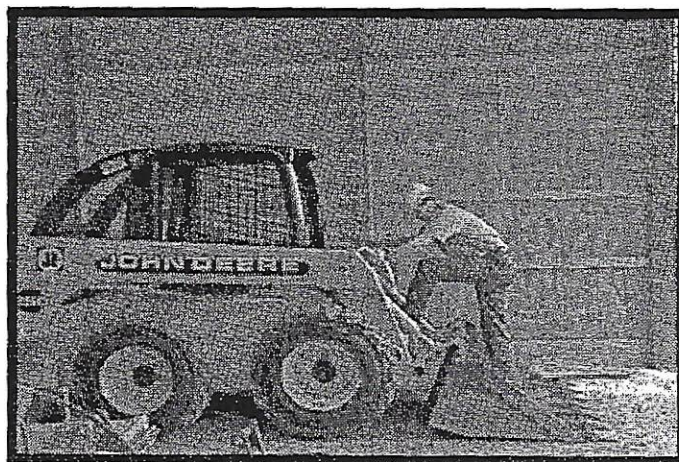
Start-up

Before starting the skid-steer loader, walk completely around the machine making sure that no one, or anything, is under it, or close by.

Never mount the machine unless the lift arms are lowered or restrained by a lift arm restraint device.

When starting the loader you should:

- Enter the loader by facing the machine, making sure that you maintain a three-point contact with the steps and the grab handles.
 - When entering, exiting, and operating the machine, watch out for pinch points where your hands, fingers, or other body parts could get squeezed.
 - Once in the cab, ease yourself into the seat.
 - Adjust the seat, and then fasten and adjust your seat belt so that the belt is snug across your hips. If your loader has a restraint bar, you still need to fasten your belt.
 - Place your feet on the hydraulic foot pedal, making sure the boom and bucket hydraulics are in the neutral position. Also, make sure the steering levers are in the neutral position.
 - Look around and behind the loader, making sure that the area is clear.
 - Turn the key to start and release the key when the engine starts.
 - If using a diesel engine, refer to Operator's Manual for starting aids that may be required.
 - Always look at the instrument panel before operating the loader to make sure the motor systems are working properly.
- Allow the engine and hydrostatic system to warm up.
 - Check the hydraulics by raising the lift arms and tilting the bucket.
 - Make sure the parking brake is disengaged before operating.



Shut Down

- To stop your loader, you must be on level ground.
- Lower the bucket or other attachment flat on the ground when parking or leaving the loader.
- Engage the parking brake.
- Stop the engine.
- Cycle the hydraulic controls to eliminate any pressure, then check that the controls are locked in neutral.
- Unbuckle your seat belt and remove the ignition key.
- When you leave the machine, always maintain a three-point contact with the steps and the grab handles
- Refer to your Operator's Manual for loader specific shut-down procedures.

TRICKS OF THE TRADE

Operating Tips

Quality Expectations – Professional Finish

Professionals always strive to maintain their projects at the highest standards of quality. Here are some specific examples of the approaches professionals take to meet these high expectations.

Using Your Skid-Steer

Being very familiar with your loader will help you more effectively do your job. Here are some things you can do to help you with this task:

- Remember that diesel engine machines should be operated at full throttle.
- Once the engine throttle is set, get familiar with the operation of the loader and its controls. Do this by running the loader empty and at reduced speed until you can operate it smoothly and confidently.
- The steering levers control the speed, the farther you move them, the faster the speed.
- The loader has a rated operating load and these load limits must not be exceeded.
- Use the correct size bucket for the weight of the material being handled.
- Overloading could cause tipping, resulting in possible injury and damage to the machine or attachment.

REMEMBER that the loader has a hydrostatic transmission. This means that the machine will react the moment you move the steering levers forward or rearward!



**Diesel engines
should be operated
at full throttle!**



Mr. Tips

TRICKS OF THE TRADE

Operating Tips (continued)

Operational Techniques

The skid-steer loader is a very versatile, powerful piece of equipment. It is used for loading and unloading materials, excavating, leveling and backfilling.

Loading and Unloading

To load the bucket from the material pile:

- Drive the loader to the material pile.
- Move the lift arms all the way down.
- Put the cutting edge of the bucket on the ground.
- Drive slowly into the pile. You get the most amount of power at the wheels with only minimal movement of the steering levers.
- When the bucket fills, tip it back, keeping the lift arms low.
- **DO NOT OVERLOAD THE BUCKET!** Overloading causes instability, which can cause tipping.
- Look behind and around you, then back away from the pile.
- Always travel with the lift arms as low as possible.

To unload the bucket:

- Drive to the dumpsite.
- Raise the lift arms and tilt the bucket until it is empty.
- Make sure you are on flat ground whenever raising the lift arms with a loaded bucket to avoid tipping.
- Carefully, back away from the dumpsite, raise the front of the bucket, then lower the lift arms.

To unload material into a truck or bin:

- Drive forward slowly.
- Raise the lift arms until the bucket is just over the truck bed.
- Level the load while raising the bucket.
- Dump the load by tilting the bucket fully forward.

Excavating/Digging

Learning to excavate takes time practice and patience. To make digging easier particularly in hard soils, it is recommended that you use a tooth bucket.

To start digging:

- Put the lift arms all the way down.
- Tilt the bucket so the cutting edge hits the ground.
- Slowly move forward, continue to tilt the bucket down until the cutting edge enters the ground.
- If the ground is hard, raise and lower the cutting edge of the bucket in smaller increments as you travel slowly forward. This will increase your traction while also evening out the digging depth.
- Continue to drive slowly forward until the bucket is full.

Leveling

To level loose material:

- Start by driving to the front of the area that you are going to be leveling.
- Lower the lift arms and put them in the float position by pushing the pedal.
- Position the cutting edge so that it is almost perpendicular to the ground.
- Look behind and around you and then begin driving backward to level the loose material.
- Begin tilting the bucket as you near the end of the grade to smooth out the material.
- **ALWAYS** release the lift arms from the float position **BEFORE** moving forward.



TRICKS OF THE TRADE

Operating Tips (continued)

Operational Techniques

Backfilling

To use the loader to backfill:

- Lower the lift arms and put the cutting edge of the bucket on the ground.
- Drive slowly into the material and push it into the hole.
- Tilt the bucket forward as soon as the bucket clears the leading edge of the hole, while lifting the arms.
- Depending on the size of the hole, you may have to raise the lift arms in order to empty the bucket.
- Use extreme caution when backfilling! The combined weight of the material and the loader could cause the trench wall to collapse.

Installing Attachments

To switch buckets:

- Lower the attached bucket to the ground, engage the parking brake, and properly shut down the loader. Properly exit the loader.
- Lift up on the latch handles, making sure that they are fully raised.
- Enter the skid-steer, fasten your seat belt, and start the engine.
- Release the parking brake and tilt the mounting plate forward and back away from the attachment.

To install an attachment:

- Make sure that the attachment levers are disengaged.
- Drive the loader forward until the top edge of the mount plate is completely under the top flange of the attachment.
- Tilt the plate backward until the attachment is slightly off the ground.
- Stop the engine and safely exit the loader using the grab handles and steps, always maintaining three points of contact.
- Push down on the locking levers until they are fully engaged in the lock position.
- The latching pins must extend through the holes in the mounting frame of the attachment, securely fastening it to the mount plate.

**Remember,
when on a
slopes,
ALWAYS keep
the heavy
end uphill!**

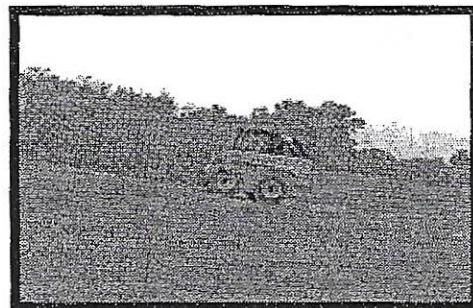


Mr. Tips

Slopes

When operating on slopes be extremely careful, and NEVER travel across steep slopes!

Always keep the heavy end uphill when going up or down hills. The loader, with an empty bucket, or light attachment, carries about 70% of its weight at the rear and 30% at the front. This ratio reverses when the bucket is loaded with material. Therefore, when the bucket is empty drive backward up a slope or ramp and drive forward down. When the bucket is full or when you have a heavy attachment mounted, like a backhoe, drive forward up the slope or ramp and drive in reverse when you are going down.



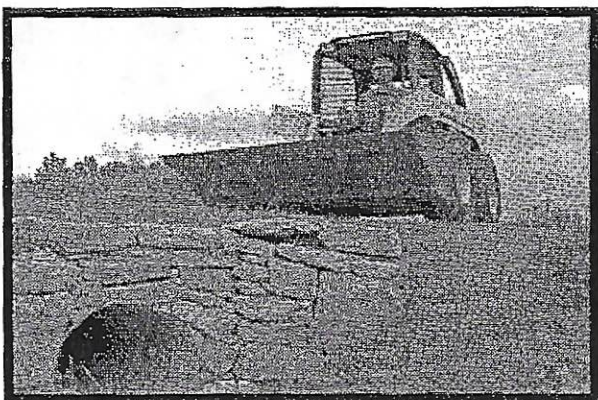
TRICKS OF THE TRADE

Operating Tips (continued)

Professional Techniques

Here are some ways to safely and productively operate your skid-steer loader:

- Safe handling of loads requires care, good judgement, and common sense.
- Always be prepared for your job. Knowing the capabilities and limitations of your equipment and your skill level will help to make the job go smoothly.
- Never ram a bucket into a material pile.
- The loader has more power with only minimum movement at the control levers.
- Always carry the load as low as possible, this provides the best stability and visibility.
- Operate the controls smoothly, keeping your hands on the controls and your feet on the foot pedals or rests at all time.
- Never stand, lean, or reach out of the front of the loader when the engine is running. A steering control lever or hydraulic control could be activated.
- Avoid rough terrain, ditches, curbs, and exposed railroad tracks whenever possible.
- Create a safe work area by filling ruts, building soil ramps, and moving obstacles.
- If obstacles are unavoidable, reduce your speed to help you maintain control, raise the bucket high enough to clear the obstacle, and cross at an angle.



- Slow down when you approach a dumping site. Raise the load safely, keeping your load level to prevent materials from spilling out the back of the bucket.
- Never lift, swing, or move a load over anyone!
- Never allow someone to reach under or stand under raised lift arms.
- If the lift arms must be left in a raised position for service work, you must engage the lift arm stops to prevent accidental lowering.
- Always look to the rear before backing up!
- Never carry riders on the loader or on any attachment.
- Be aware of potential job site hazards like overhead power lines and under ground power and gas lines.
- Always have a spare tire and lug wrench in case your skid-steer gets a flat tire at the job site.
- Avoid scraping the bucket on finished concrete because it will cause damage.
- If you must work in an enclosed area, make sure that you have adequate ventilation. Exhaust fumes can cause serious illness.

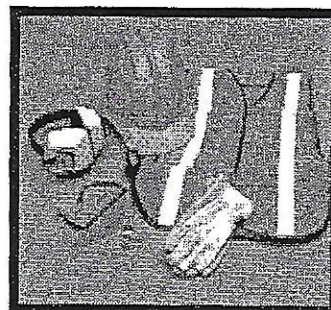
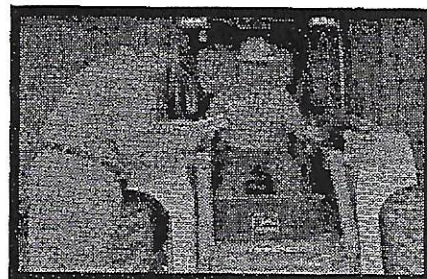
TRICKS OF THE TRADE

Operating Tips (continued)

Professional Techniques

For safe and efficient operation of the loader, there are some things that you should remember:

- Take time to read your Operator's Manual.
- Become familiar with all of the parts, as well as the warning labels, before operating your system.
- Receiving hands-on training from your supervisor prior to operation is vital.
- Always wear the appropriate personal protective equipment.
- Perform a thorough inspection of the equipment before leaving the shop.
- If you find a problem with the equipment, tag it for repair. This assures that the problem will be fixed before going to the next job.
- Always inspect the work area prior to operating the loader and come up with a work plan.
- Be aware. Keep an eye out for people and animals that could approach your work area. If approached, immediately shut off the loader and clear the area before restarting.
- If you must park on a slope or an incline, always park sideways to the slope, set the emergency brake and block the wheels.



Be aware!
If someone
approaches
you while
working –
SHUT DOWN
IMMEDIATELY!



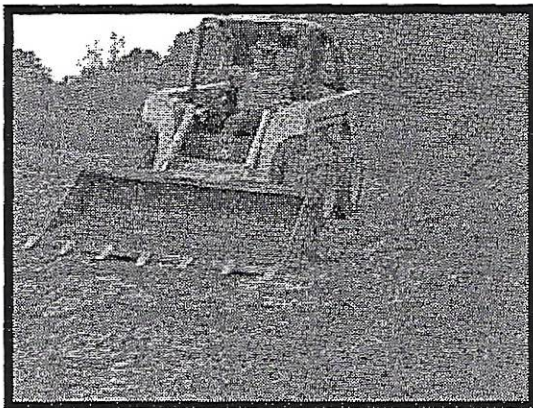
THE FINISHED PRODUCT

A Professional Job

Clean Up

Before leaving the site, inspect the area.

Make sure that the work site is left in a suitable manner, cleaning up any debris that may have been generated. The quality of the finished project depends on your attention to detail.



REMEMBER!

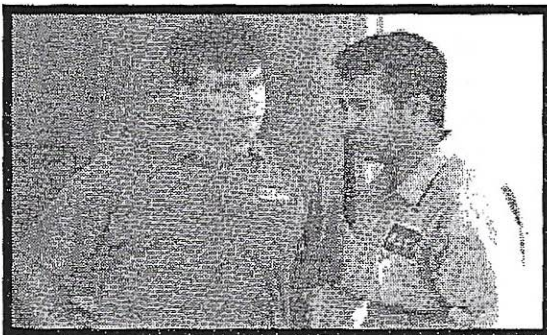
Be aware of your surroundings.
It will help eliminate the chance of property damage and accidents!

Reporting

If you experienced any problems with your loader, alert your supervisor or mechanic.

Always be aware of hazards at the work site and keep an eye out for property to avoid. This will help avoid property damage, as well as accidents and injuries.

If property damage does occur and you cannot fix it immediately, notify your supervisor. This way the problem can be addressed quickly and responsibly.



You and your company are responsible for property damage. By informing your supervisor, you can prevent other problems from arising. You never want your customers to be unhappy with the services you and your company provide!

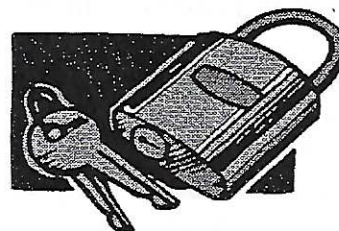
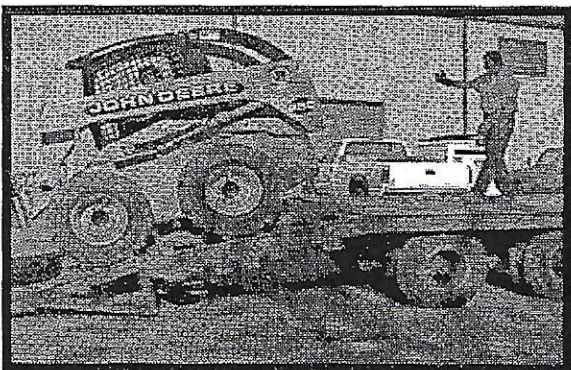
Trailer

Loading Procedure/Safeguarding Equipment & Tools

Loading Procedure

To trailer the skid-steer loader:

- Make sure that the hitch is securely connected and the trailer wheels have been chocked.
- The rear of the trailer must be properly supported by ramp legs when loading or unloading equipment.
- Drive up the ramp with the heavy end up hill.
- Make sure that the weight of the loader is evenly distributed over the trailer axles with the appropriate weight on the trailer hitch. FOLLOW YOUR TRAILER MANUFACTURER'S RECOMMENDATIONS.
- Lower the bucket, resting it on the trailer bed.
- Shut down the loader, making sure that you remove the ignition key and engage the parking brake.
- Make sure that the trailer is free of rocks, soil, or other debris that could fly off during transport.
- Secure the loader by installing the proper tie downs at the front and rear of the loader.
- Always check the hitch, latch, and safety chains on the trailer before driving. Refer to your Operator's Manual for these specifics.



Security

Any piece of equipment is capable of disappearing from a work site fairly easily. It is important to take steps to safeguard your loader.

Thieves work quickly, so even if you are going to be away for only a few minutes, and you are going to be out of the sight of your loader, you must take positive steps to discourage theft by making it as difficult as possible.

At the end of the day, or when you are not using the loader, always remove the key and leave it in a secure location.

MAINTENANCE

Secrets to Superior Results

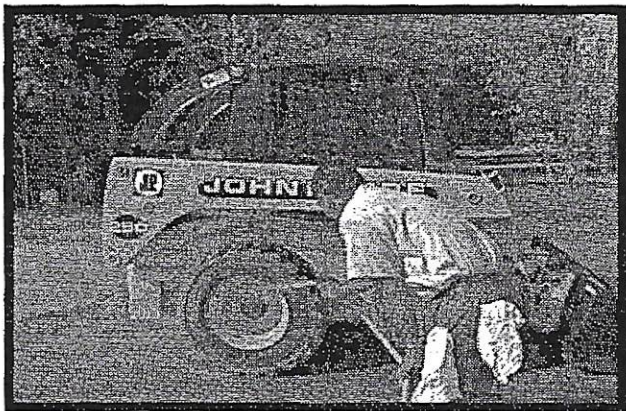
Repairs are costly. Preventive Maintenance is your Insurance!

Routine maintenance of the skid-steer loader will ensure that it is operating safely and at peak performance.

Check the tire pressure and adjust if necessary. Inspect the fluid levels and other parts of the loader as you prepare a list of possible problems for your supervisor or mechanic. Check the filters and fluids daily and more often in extreme conditions.

Ask your supervisor about maintenance procedures that are above the daily maintenance routine.

Never perform any work on the machine unless you are authorized and qualified to do so.



Cleaning the Skid-Steer Loader

The loader should be cleaned after use by removing any accumulated dirt or mud. Clean equipment also helps to give your company a professional image.

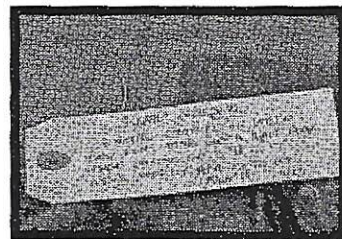
Report Equipment Problems

The key to the operation of any piece of equipment is properly reporting problems when they arise. Daily reporting of even minor problems means that they can be corrected immediately – saving time and money!

At the end of the day, any equipment that is damaged or needs to be seen by the mechanic must be cleaned and properly tagged. Use your company's tagging procedures.

Generally, information on the tag includes:

- The date;
- Supervisor's name; and
- The description of the problem.



Once you have tagged the equipment, deliver it to the mechanic. This reporting procedure must be done on the same day that the equipment fails so that the mechanic has time to fix the problem before the next day's use!

Remember, always follow your company's reporting procedures. This important end-of-the-day procedure will insure that you have the necessary equipment for the next day.