

310K Backhoe Loader Repair



REPAIR TECHNICAL MANUAL

Backhoe Loaders (iT4/S3B) models 310K (PIN:1T0310KXE219607-)**

TM12436 27 DEC 15 (ENGLISH)

For complete service information also see:

310K Backhoe Loader Diagnostic	TM12435
JDLink (MTG) Technical Manual	TM114519
Super Caddy Oil Cleanup Procedure	CTM310
120 Series Hydraulic Cylinders	CTM120519
4045 PowerTech Diesel Engines Below 130kW (174hp) (PWX & PVX Interim Tier 4/Stage IIIB) Level 23 ECU	CTM114619
120 Series Hydraulic Cylinders	CTM114319
125 Series Hydraulic Cylinders	CTM109319
100 Series Hydraulic Cylinders	CTM103519

John Deere Construction and Forestry
Printed by Belgreen



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Foreword

This manual is written for an experienced technician. Essential tools required in performing certain service work are identified in this manual and are recommended for use.

Live with safety: Read the safety messages in the introduction of this manual and the cautions presented throughout the text of the manual.



CAUTION:

This is the safety-alert symbol. When you see this symbol on the machine or in this manual, be alert to the potential for personal injury.

Technical manuals are divided in two parts: repair and operation and tests. Repair sections tell how to repair the components. Operation and tests sections help you identify the majority of routine failures quickly.

Information is organized in groups for the various components requiring service instruction. At the beginning of each group are summary listings of all applicable essential tools, service equipment and tools, other materials needed to do the job, service parts kits, specifications, wear tolerances, and torque values.

Technical Manuals are concise guides for specific machines. They are on-the-job guides containing only the vital information needed for diagnosis, analysis, testing, and repair.

Fundamental service information is available from other sources covering basic theory of operation, fundamentals of troubleshooting, general maintenance, and basic type of failures and their causes.

Manual Identification—READ THIS FIRST!

IMPORTANT:

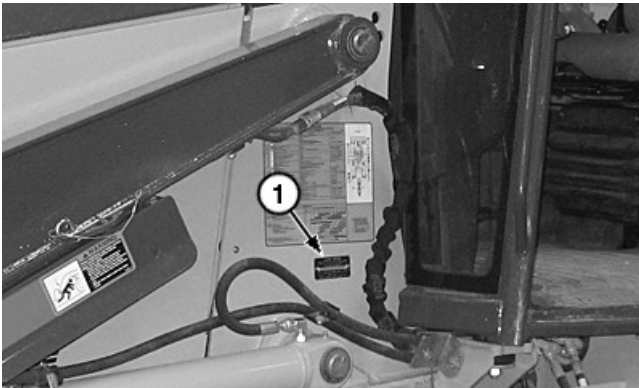
Use only supporting manuals designated for your specific machine. If incorrect manual is chosen, improper service may occur. Verify product identification number (PIN) when choosing the correct manual.

Choosing the Correct Supporting Manuals

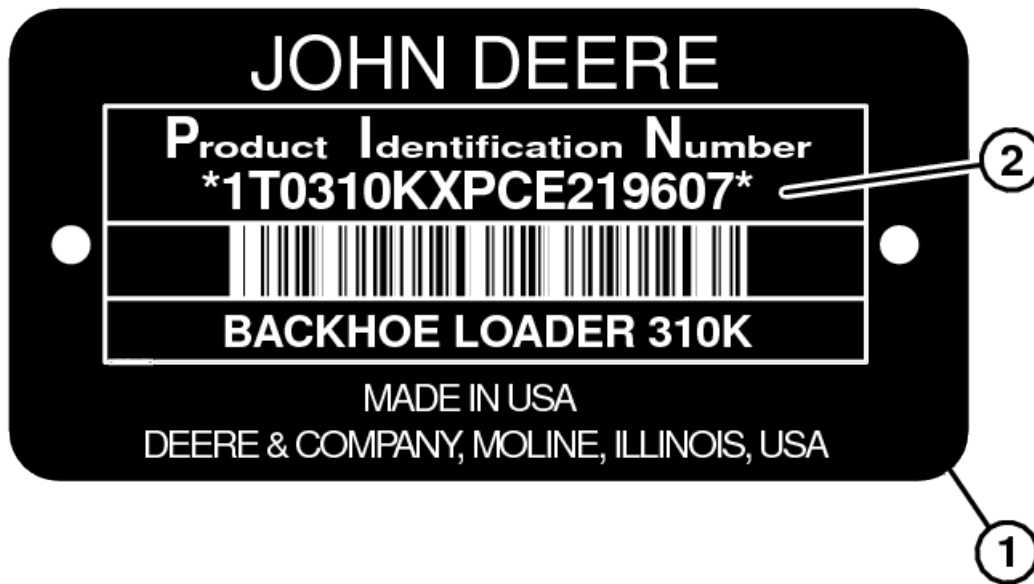
John Deere backhoe loaders are available in different machine configurations based on the various markets into which they are sold. Different supporting manuals exist for different machine configurations.

When necessary, product identification numbers are listed on the front covers of backhoe loader manuals. These numbers are used to identify the correct supporting manual for your machine.

Product Identification Number



PIN Plate Location



Example of PIN Plate

LEGEND:

- 1 PIN Plate
- 2 17-Character PIN

The product identification number (PIN) plate (1) is located on the left-side of machine on the loader frame. Each machine has a 17-character PIN (2) shown on PIN plate.

The PIN identifies the producing factory, machine model number, machine option, year of manufacture, engine emission level, and machine serial number.

PIN Identification Table

17-Character PIN Examples																
(3)			(4)				(5)	(6)	(7)	(8)	(9)					
1	T	0	3	1	0	K	X			E	2	1	9	6	0	7
1	T	0	3	1	0	K	X			D	2	1	9	6	0	7
1	T	0	3	1	0	K	X			C	2	1	9	6	0	7

- **(3)—World Code** —Identifies location where machine is manufactured.
- **(4)—Machine Model Identifier** —Identifies model number.
- **(5)—Machine Option Code** —Identifies which major machine option is equipped. This character will change from one machine to another.
- **(6)—Check Letter** —This is a random character assigned by the factory. This is not used in machine identification.
- **(7)—Manufacturing Year Code** —Identifies year of machine manufacture.
- **(8)—Engine Emission Code** —Represents engine emission certification.
- **(9)—Machine Serial Number** —Identifies machine serial number. This character will change from one machine to another.

The following is an example for a 310K machine that meets Interim Tier 4 and Stage III B emission levels:

PIN Identification

1T0310KX_E219607

1T0	World Code (manufacturing location)
1DW	Davenport Works
1T8	Thibodaux Works
1T0	Dubuque Works
310K	Machine Model Identifier
X	Machine Option Code
X	Base Machine
S	Super Duty
E	Easy Power (EP)
T	Total Machine Control (TMC) Configuration
_	Check Letter (variable)
_	Manufacturing Year Code (variable)
C	2012
D	2013
E	2014
F	2015
G	2016
E	Engine Emission Code
C	Tier 2 and Stage II
D	Tier 3 and Stage III A
E	Interim Tier 4 and Stage III B
F	Tier 4
G	Interim Tier 4 and Stage III A (19-56 kW)
219607	Machine Serial Number

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Group 0001 - Safety

Recognize Safety Information



Safety alert Symbols



▲ WARNING

▲ CAUTION

Safety Alert Symbols

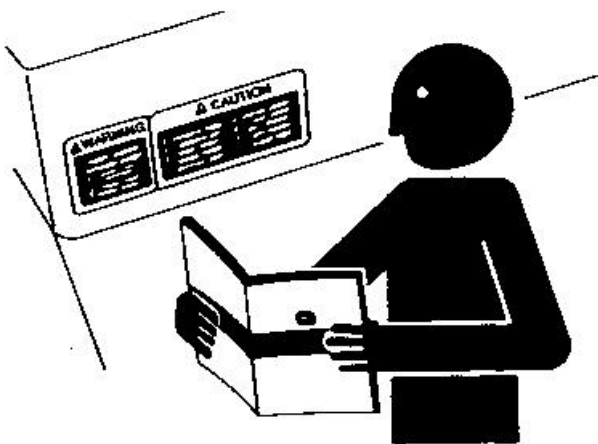
This is the safety alert symbol. When you see this symbol on your machine or in this manual, be alert for the potential of personal injury.

Follow the precautions and safe operating practices highlighted by this symbol.

A signal word — DANGER, WARNING, or CAUTION — is used with the safety alert symbol. DANGER identifies the most serious hazards.

On your machine, DANGER signs are red in color, WARNING signs are orange, and CAUTION signs are yellow. DANGER and WARNING signs are located near specific hazards. General precautions are on CAUTION labels.

Follow Safety Instructions



Safety Messages

Carefully read all safety messages in this manual and on your machine safety signs. Keep safety signs in good condition. Replace missing or damaged safety signs. Use this operator's manual for correct safety sign placement. Be sure that new equipment components and repair parts include the current safety signs. Replacement safety signs are available from your John Deere dealer.

There can be additional safety information contained on parts and components sourced from suppliers that is not reproduced in this operator's manual.

Learn how to operate the machine and how to use controls properly. Do not let anyone operate without instruction.

Keep your machine in proper working condition. Unauthorized modifications to the machine could impair the function or safety and affect machine life.

If you do not understand any part of this manual and need assistance, contact your John Deere dealer.

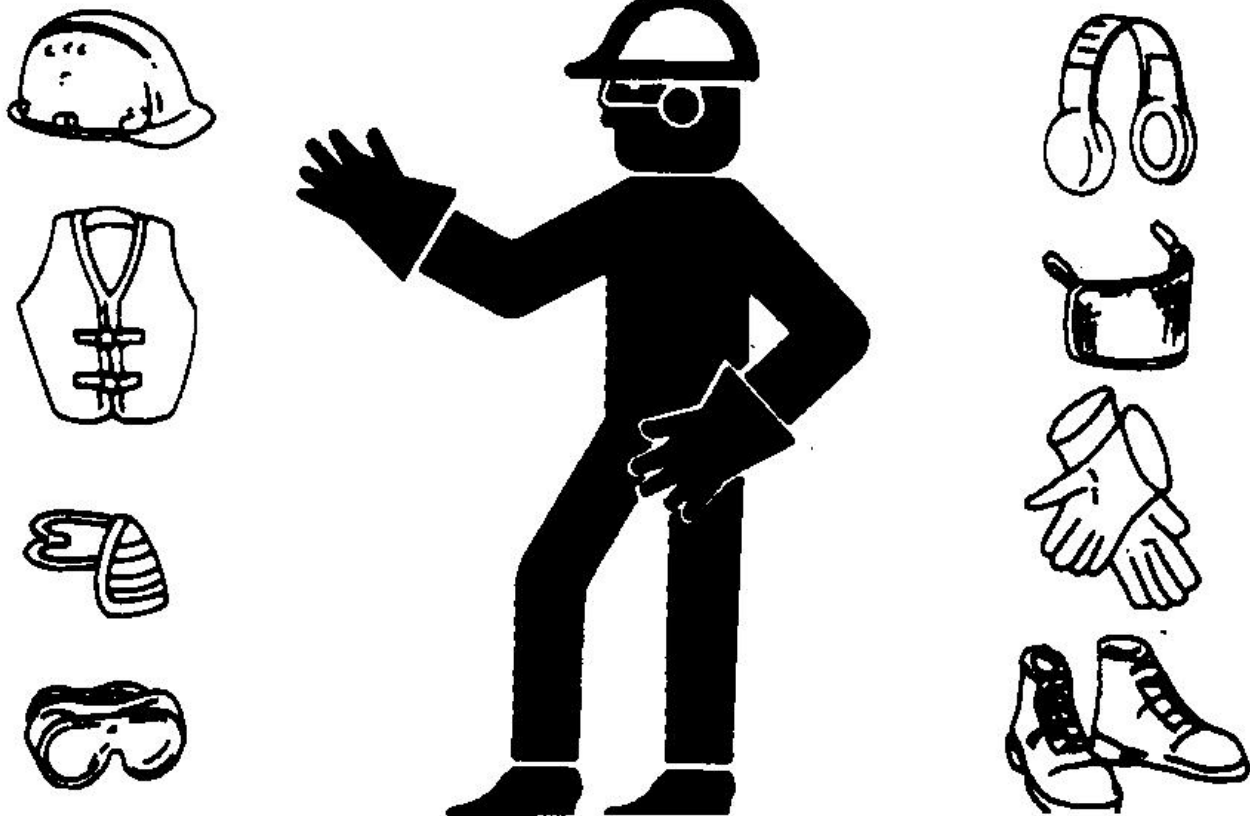
Operate Only If Qualified

Do not operate this machine unless the operator's manual has been read carefully, and you have been qualified by supervised training and instruction.

Operator should be familiar with the job site and surroundings before operating. Try all controls and machine functions with the machine in an open area before starting to work.

Know and observe all safety rules that may apply to every work situation and work site.

Wear Protective Equipment



Protective Clothing

Guard against injury from flying pieces or metal or debris; wear goggles or safety glasses.

Wear close fitting clothing and safety equipment appropriate to the job.

Operating equipment safely requires the full attention of the operator. Do not wear radio or music headphones while operating machine.

Prolonged exposure to loud noise can cause impairment or loss of hearing. Wear suitable hearing protection such as earmuffs or earplugs to protect against objectionable or uncomfortable loud noises. Radio or music headphones are not suitable to use for hearing protection.

Avoid Unauthorized Machine Modifications

John Deere recommends using only genuine John Deere replacement parts to ensure machine performance. Never substitute genuine John Deere parts with alternate parts not intended for the application as these can create hazardous situations or hazardous performance. Non-John Deere parts, or any damage or failures resulting from their use are not covered by any John Deere warranty.

Modifications of this machine, or addition of unapproved products or attachments, may affect machine stability or reliability, and may create a hazard for the operator or others near the machine. The installer of any modification which may affect the electronic controls of this machine is responsible for establishing that the modification does not adversely affect the machine or its performance.

Always contact an authorized dealer before making machine modifications that change the intended use, weight or balance of the machine, or that alter machine controls, performance or reliability.

Inspect Machine

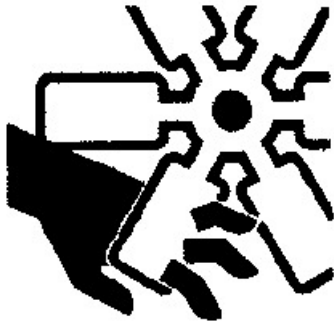


Inspect Machine

Inspect machine carefully each day by walking around it before starting.

Keep all guards and shields in good condition and properly installed. Fix damage and replace worn or broken parts immediately. Pay special attention to hydraulic hoses and electrical wiring.

Stay Clear of Moving Parts



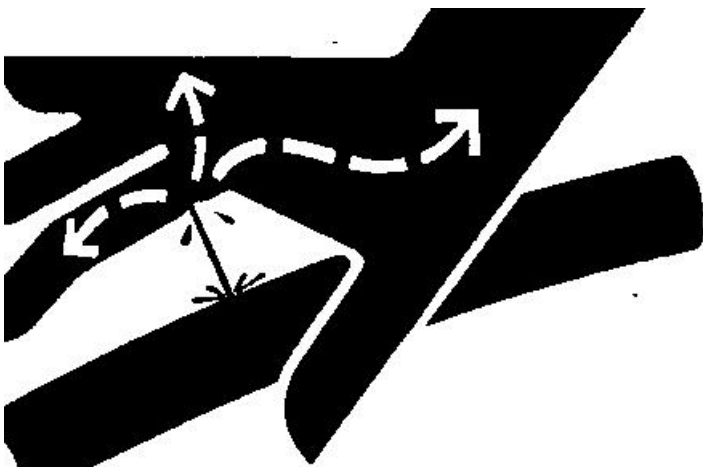
Stay Clear of Moving Parts

Entanglements in moving parts can cause serious injury.

Stop engine before examining, adjusting, or maintaining any part of machine with moving parts.

Keep guards and shields in place. Replace any guard or shield that has been removed for access as soon as service or repair is complete.

Avoid High-Pressure Fluids



High Pressure

Inspect hydraulic hoses periodically – at least once per year – for leakage, kinking, cuts, cracks, abrasion, blisters, corrosion, exposed wire braid or any other signs of wear or damage.

Replace worn or damaged hose assemblies immediately with John Deere approved replacement parts.

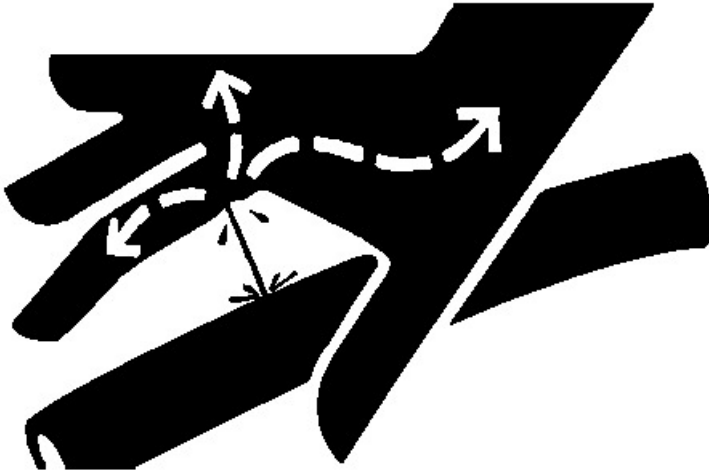
Escaping fluid under pressure can penetrate the skin causing serious injury.

Avoid the hazard by relieving pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure.

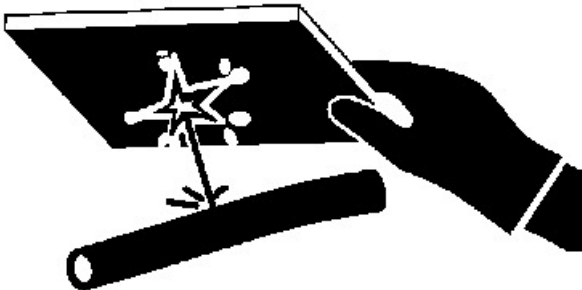
Search for leaks with a piece of cardboard. Protect hands and body from high-pressure fluids.

If an accident occurs, see a doctor immediately. Any fluid injected into the skin must be surgically removed within a few hours or gangrene may result. Doctors unfamiliar with this type of injury should reference a knowledgeable medical source. Such information is available in English from Deere & Company Medical Department in Moline, Illinois, U.S.A., by calling 1-800-822-8262 or +1 309-748-5636.

Avoid High-Pressure Oils



Avoid High Pressure Oils



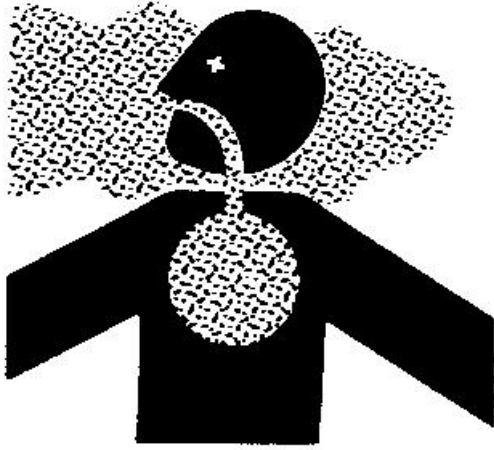
Avoid High-Pressure Oils

This machine uses a high-pressure hydraulic system. Escaping oil under pressure can penetrate the skin causing serious injury.

Never search for leaks with your hands. Protect hands. Use a piece of cardboard to find location of escaping oil. Stop engine and relieve pressure before disconnecting lines or working on hydraulic system.

If hydraulic oil penetrates your skin, see a doctor immediately. Injected oil must be removed surgically within hours or gangrene could result. Contact a knowledgeable medical source or the Deere & Company Medical Department in Moline, Illinois, U.S.A.

Work In Ventilated Area



Engine exhaust fumes

Engine exhaust fumes can cause sickness or death. 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, open the doors and get outside air into the area.

Prevent Fires



Handle Fuel Safely



Clean Machine Regularly



Carry A Fire Extinguisher

Handle Fuel Safely: Store flammable fluids away from fire hazards. Never refuel machine while smoking or when near sparks or flame.

Clean Machine Regularly: Keep trash, debris, grease and oil from accumulating in engine compartment, around fuel lines, hydraulic lines, exhaust components, and electrical wiring. Never store oily rags or flammable materials inside a machine compartment.

Maintain Hoses and Wiring: Replace hydraulic hoses immediately if they begin to leak, and clean up any oil spills. Examine electrical wiring and connectors frequently for damage.

Keep A Fire Extinguisher Available: Always keep a multipurpose fire extinguisher on or near the machine. Know how to use extinguisher properly.

Prevent Battery Explosions



Battery Explosions

Keep sparks, lighted matches, and open flame away from the top of battery. Battery gas can explode.

Never check battery charge by placing a metal object across the posts. Use a volt-meter or hydrometer.

Do not charge a frozen battery; it may explode. Warm battery to 16°C (60°F).

Handle Chemical Products Safely



Material Safety Data Sheet

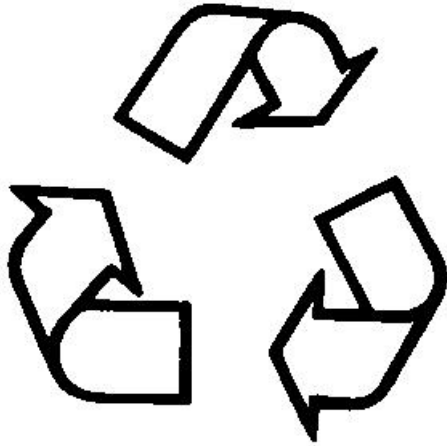
Direct exposure to hazardous chemicals can cause serious injury. Potentially hazardous chemicals used with John Deere equipment include such items as lubricants, coolants, paints, and adhesives.

A Material Safety Data Sheet (MSDS) provides specific details on chemical products: physical and health hazards, safety procedures, and emergency response techniques.

Check the MSDS before you start any job using a hazardous chemical. That way you will know exactly what the risks are and how to do the job safely. Then follow procedures and recommended equipment.

(See your John Deere dealer for MSDS's on chemical products used with John Deere equipment.)

Decommissioning: Proper Recycling and Disposal of Fluids and Components



Recycle Waste

Safety and environmental stewardship measures must be taken into account when decommissioning a machine and/or component. These measures include the following:

- Use appropriate tools and personal protective equipment such as clothing, gloves, face shields or glasses, during the removal or handling of objects and materials.
- Follow instructions for specialized components.
- Release stored energy by lowering suspended machine elements, relaxing springs, disconnecting the battery or other electrical power, and releasing pressure in hydraulic components, accumulators, and other similar systems.
- Minimize exposure to components which may have residue from agricultural chemicals, such as fertilizers and pesticides. Handle and dispose of these components appropriately.
- Carefully drain engines, fuel tanks, radiators, hydraulic cylinders, reservoirs, and lines before recycling components. Use leak-proof containers when draining fluids. Do not use food or beverage containers.
- Do not pour waste fluids onto the ground, down a drain, or into any water source.
- Observe all national, state, and local laws, regulations, or ordinances governing the handling or disposal of waste fluids (example: oil, fuel, coolant, brake fluid); filters; batteries; and, other substances or parts. Burning of flammable fluids or components in other than specially designed incinerators may be prohibited by law and could result in exposure to harmful fumes or ashes.
- Service and dispose of air conditioning systems appropriately. Government regulations may require a certified service center to recover and recycle air conditioning refrigerants which could damage the atmosphere if allowed to escape.
- Evaluate recycling options for tires, metal, plastic, glass, rubber, and electronic components which may be recyclable, in part or completely.
- Contact your local environmental or recycling center, or your John Deere dealer for information on the proper way to recycle or dispose of waste.

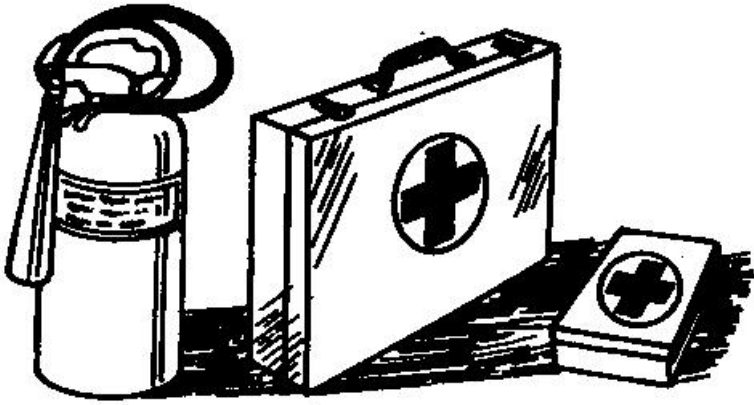
Exhaust Filter Ash Handling and Disposal



CAUTION:

Under federal, state, and local laws or regulations, exhaust filter ash can be classified as a hazardous waste. Hazardous waste must be disposed of in accordance with all applicable federal, state, and local laws or regulations governing hazardous waste disposal. Only a qualified service provider should remove ash from the exhaust filter. Personal protective equipment and clothing, maintained in a sanitary and reliable condition, should be used when handling and cleaning exhaust filter. See your authorized dealer for exhaust filter ash handling and disposal.

Prepare for Emergencies



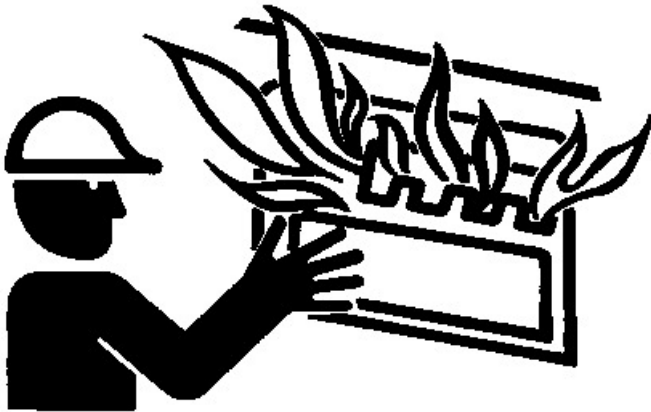
First Aid Kit

Be prepared if a fire starts.

Keep a first aid kit and fire extinguisher handy.

Keep emergency numbers for doctors, ambulance service, hospital, and fire department near your telephone.

Clean Debris from Machine



Clean Debris From Machine

Keep engine compartment, radiator, batteries, hydraulic lines, exhaust components, fuel tank, and operator's station clean and free of debris.

Clean any oil spills or fuel spills on machine surfaces.

Temperature in engine compartment could go up immediately after engine is stopped. **BE ON GUARD FOR FIRES DURING THIS PERIOD.**

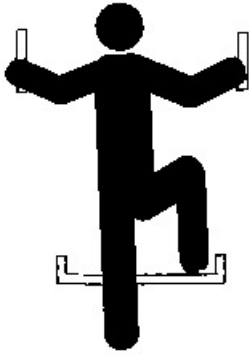
Open access door(s) to cool the engine faster, and clean engine compartment.

Add Cab Guarding for Special Uses

Special work situations or machine attachments could create an environment with falling or flying objects. Working near an overhead bank, demolition work, using a hydraulic hammer or winch, working in a forestry application or wooded area, or working in a waste management application, for example, could require added guarding to protect the operator.

Additional level II FOPS (falling object protective structure), forestry protection packages, and special screens or guarding should be installed when falling or flying objects could enter or damage the machine. A rear screen should always be used with a winch to protect against a snapping cable. Before operating in any special work environments, follow the operator protection recommendations of the manufacturer of any specialized attachment or equipment. Contact your authorized John Deere dealer for information on protective guarding.

Use Steps and Handholds Correctly



Use Handholds And Steps

Prevent falls by facing the machine when you get on and off. Maintain 3-point contact with steps and handrails. Never use machine controls as handholds.

Use extra care when mud, snow, or moisture present slippery conditions. Keep steps clean and free of grease or oil. Never jump when exiting machine. Never mount or dismount a moving machine.

Start Only From Operator's Seat



Operate Only From Operators Seat

Avoid unexpected machine movement. Start engine only while sitting in operator's seat. Ensure that all controls and working tools are in proper position for a parked machine.

Never attempt to start engine from the ground. Do not attempt to start engine by shorting across the starter solenoid terminals.

Use and Maintain Seat Belt



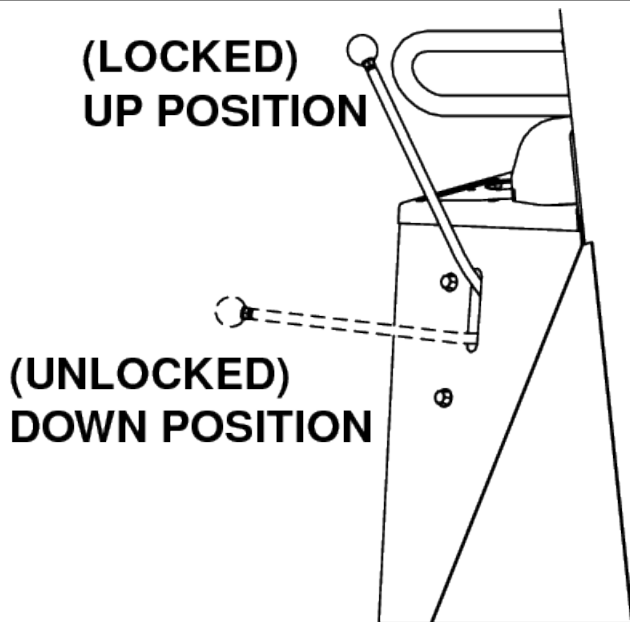
Use and Maintain Seat Belt

Use seat belt when operating machine . Remember to fasten seat belt when loading and unloading from trucks and during other uses.

Examine seat belt frequently. Be sure that webbing is not cut or torn. Replace seat belt immediately if any part is damaged or does not function properly.

The complete seat belt assembly should be replaced every three years, regardless of appearance.

Prevent Unintended Machine Movement

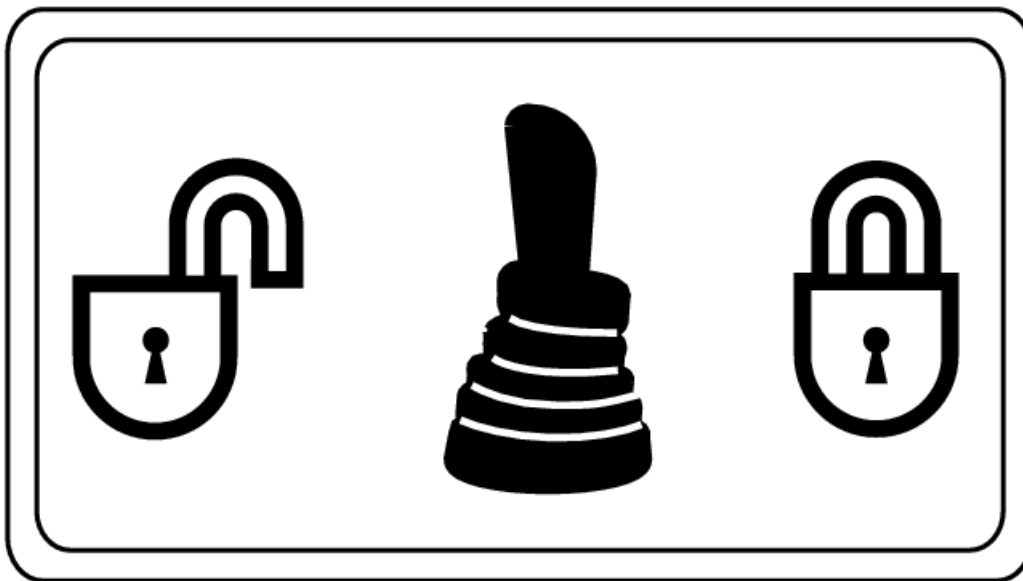


LOCKED Position

Always move the park lock levers to the up (locked) position before leaving the operator's seat for any reason .

Be careful not to accidentally actuate controls when coworkers are present. Engage park lock and lower work equipment to the ground during work interruptions. Stop the engine before allowing anyone to approach the machine. Follow these same precautions before standing up, leaving the operator's seat, or exiting the machine.

Prevent Unintended Machine Movement—If Equipped With Pilot Controls



Pilot Control Enable/Disable Switch

Be careful not to accidentally actuate control levers when coworkers are present. Always lock hydraulics on backhoe during work interruptions. Lock hydraulics before allowing anyone to approach machine.

Avoid Work Site Hazards

**Thanks very much for your reading,
Want to get more information,
Please click here, Then get the complete
manual**

