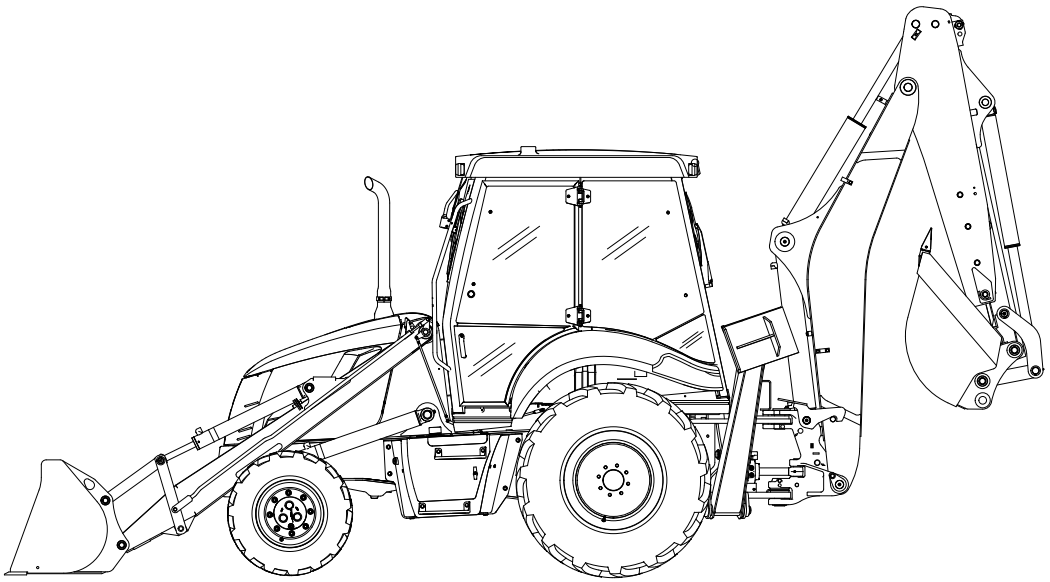
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OPERATOR'S MANUAL

B95C
B95CTC
B95CLR
B110C



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English 03/12

NEW HOLLAND CONSTRUCTION

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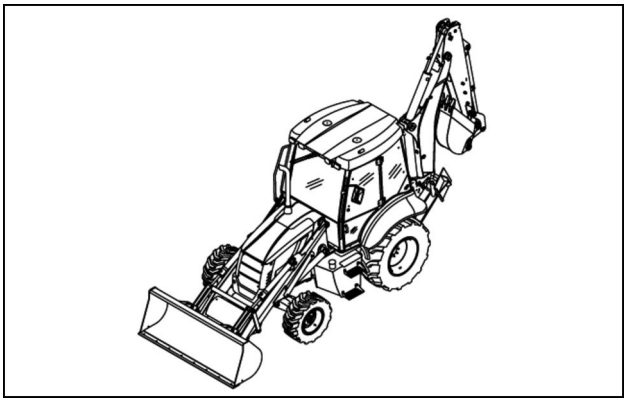
1 - GENERAL INFORMATION

Foreword

Loader backhoes B95C -B95CTC -B95CLR - B110C have been designed to perform most earth-moving operations.

If you use this machine for duties involving the use of attachments, accessories, or special tools, consult your dealer to make sure that the adaptations or modifications carried out are in conformity with the machine's technical specifications and with current regulations on safety.

Any modifications or adaptations which are not approved by the manufacturer may invalidate the machine's original conformity with safety requirements.



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Intended use

This machine has been built with the most advanced technology and in accordance with recognized safety rules.

The machine must be used according to its intended use, respecting the safety and precautionary rules and strictly following the operating instructions. Any functional disorders, especially those affecting the safety of the machine, should therefore be rectified immediately.

⚠ WARNING

Avoid injury!
Using the machine for purposes other than or beyond the intended use is not allowed; for example:
- for the transportation of persons,
- as a working platform,
- for pulling attached loads,
- for pulling or transporting loads without the intended working equipment.
Failure to comply could result in death or serious injury.

W1142B

The manufacturer/supplier cannot be held responsible for any damage resulting from unintended use. The risk involved in such misuse lies entirely with the user.

ATTENTION: *For clarity purposes, some figures in this manual show the machine with protection panels or covers removed. Never operate the machine with any protection panels or covers removed.*

ATTENTION: *It is absolutely forbidden to tamper with and/or change the setting of any of the hydraulic system valves to avoid damaging machine components, with a consequent risk for personal safety.*

The current operator's manual is the user's guide for correct run-in, use and maintenance of the machine.

Carefully read this operator's manual and store it in the cab for quick location and reference.

Instructions concerning safety, operation and maintenance have been developed to permit safe service and operation of this machine.

In the event of queries or suggestions relevant to your machine do not hesitate to address to your dealer. Dealers have qualified and trained personnel at disposal as well as original spares, means and equipment suitable to carry out all necessary maintenance.

Do not use this machine for any applications or purposes other than those described in this manual. If you use this machine for duties involving the use of attachments, accessories, or special tools, consult your dealer to make sure that the adaptations or modifications carried out are in conformity with the machine's technical specifications and with current regulations on safety.

Any modifications or adaptations which are not approved by the manufacturer may invalidate the machine's original conformity with safety requirements.

NOTICE: *The engine and fuel system on your machine are designed and built to government emissions standards. Tampering by dealers, customers, operators and users is strictly prohibited by law. Failure to comply with this prohibition could result in government fines, rework charges, invalid warranty, legal action and possible confiscation of the machine until rework to original condition is completed. Engine service and/or repairs must be carried out by a certified technician only.*

Before entrusting this machine to an operator, make sure that:

- The operator is qualified to operate the machine correctly and safely.
- The operator has read and fully understood the instructions given in this manual.

Consult your dealer to obtain extra manuals or manuals in other languages.

Your dealer is at your disposal for any further information you may need.

Spare parts

The "non-genuine" spare parts have not been checked and authorized by the manufacturer. The assembly and/or use of such products may have negative effects on the machine design features and could impair its operation safety. The manufacturer is not liable for any damage caused by "non-genuine" spare parts or accessories.

Warranty

This machine is under warranty according to the regulations in force in your country and in compliance with the sales agreement drawn up with the dealer. The warranty, however, expires if the operation and maintenance instruction for this machine and contained in this manual, have not been followed.

NOTE: *Each machine is supplied complete with a copy of this manual. Descriptions and illustrations provided herein are not binding. The manufacturer, provided that the basic characteristics of machine types described and shown in this manual remain the same, reserves the right to change components, parts and accessories supplied without any commitment to timely update this publication, and this any time it deems it convenient for improvement purposes or due to commercial or manufacturing requirements. For exact information, please consult your dealer or contact the manufacturer's branch offices, who remain at your disposal for further help.*

CNH Italia S.p.A. technical manuals

Manuals are available from your dealer for the operation, service, and repair of your machine. For prompt convenient service, contact your dealer for assistance in obtaining the manuals for your machine.

Your dealer can expedite your order for Operator's Manuals, Parts Catalogs, Service Manuals, and maintenance records.

Always give the machine name, model, and product identification number (PIN) of your machine so your dealer can provide the correct manuals for your machine.

The company is continually striving to improve its products and therefore reserves the right to make improvements and changes when it becomes practical and possible to do so, without incurring any obligation to make changes or additions to the equipment sold previously.

All data given in this manual is subject to production variations.

NOTICE: *Operating and service messages displayed on the electronic operating panel may vary from what is shown in the Operator's Manual. Should this occur, adhere to the latest instruction on the electronic operating panel.*

Dimensions and weights are approximate only and the illustrations do not necessarily show the machine in standard condition. For exact information about any particular machine, consult your dealer.

Electro-Magnetic Compatibility (EMC)

Interference may arise as a result of add-on equipment which may not necessarily meet the required standards. As such interference can result in serious malfunction of the unit and/or create unsafe situations, you must observe the following:

- The maximum power of emission equipment (radio, telephones, etc.) must not exceed the limits imposed by the national authorities of the country where you use the machine.
- The electro-magnetic field generated by the add-on system should not exceed **24 V/m** at any time and at any location in the proximity of electronic components.
- The add-on equipment must not interfere with the functioning of the on board electronics. Failure to comply with these rules will render the warranty null and void.

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Note to the Owner

Read this manual before you start the engine or operate the machine. If you need more information, see your NEW HOLLAND CONSTRUCTION dealer.

This manual contains important information about the safe operation, adjustment, and maintenance of your loader backhoe. This manual is divided into chapters as outlined in the table of contents. Refer to the index at the end of this manual for locating specific items about your machine. The loader backhoe conforms to current safety regulations.

Read this manual carefully, paying particular attention to the instructions concerning safety, operation and maintenance so as to avoid the risk of injury while operating or servicing the machine. The machine has been designed and manufactured according to the strictest quality standards. However, the risk of accidents can never be completely excluded. That is why it is essential to observe elementary safety rules and precautions.

DO NOT operate or permit anyone to operate or service this machine until you or the other persons have read and understand the safety, operation, and maintenance instructions in this manual. Use only trained operators who have demonstrated the ability to operate and service this machine correctly and safely.

The information in this manual is provided on the basis of information that was available at the time that the manual was written. Settings, procedures, part numbers, software, and other items can change. These changes can affect the service that is given to the machine. Ensure that you have the complete and most current information from your dealer before you start any machine operation.

The Operator's Manual is to be stored in the manual compartment equipped on this machine. Make sure this manual is complete and in good condition. Consult your dealer to obtain additional manuals or manuals in other languages. An AEM safety booklet is included with each machine. Take the time to read the booklet and understand its content.

Contact your dealer for any further information or assistance about your machine. Your dealer has Corporation approved service parts. Your dealer has technicians with special training that know the best methods of repair and maintenance for your machine.

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Read the Operator's Manual

Improper operation of this machine can cause death or serious injury. Before using the machine, make certain that every operator

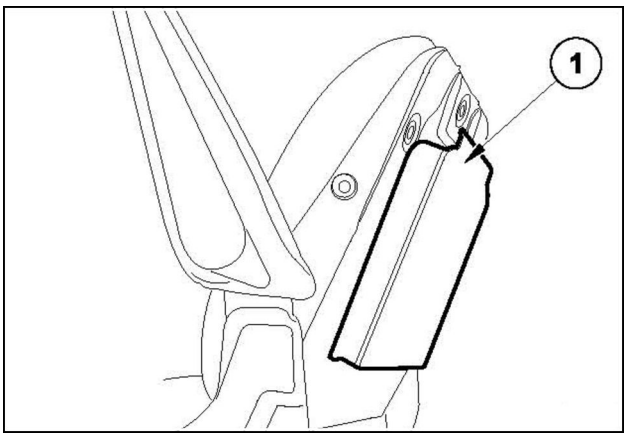
- is instructed in safe and proper use of the machine.
- reads and understands the manual(s) pertaining to the machine.
- reads and understands all safety decals on the machine.
- clears the area of other persons and domestic animals.
- learns and practices safe use of machine controls in a safe, clear area before operating this machine on a job site.

It is your responsibility to observe pertinent laws and regulations and follow **CNH Italia S.p.A.** instructions on machine operation and maintenance.

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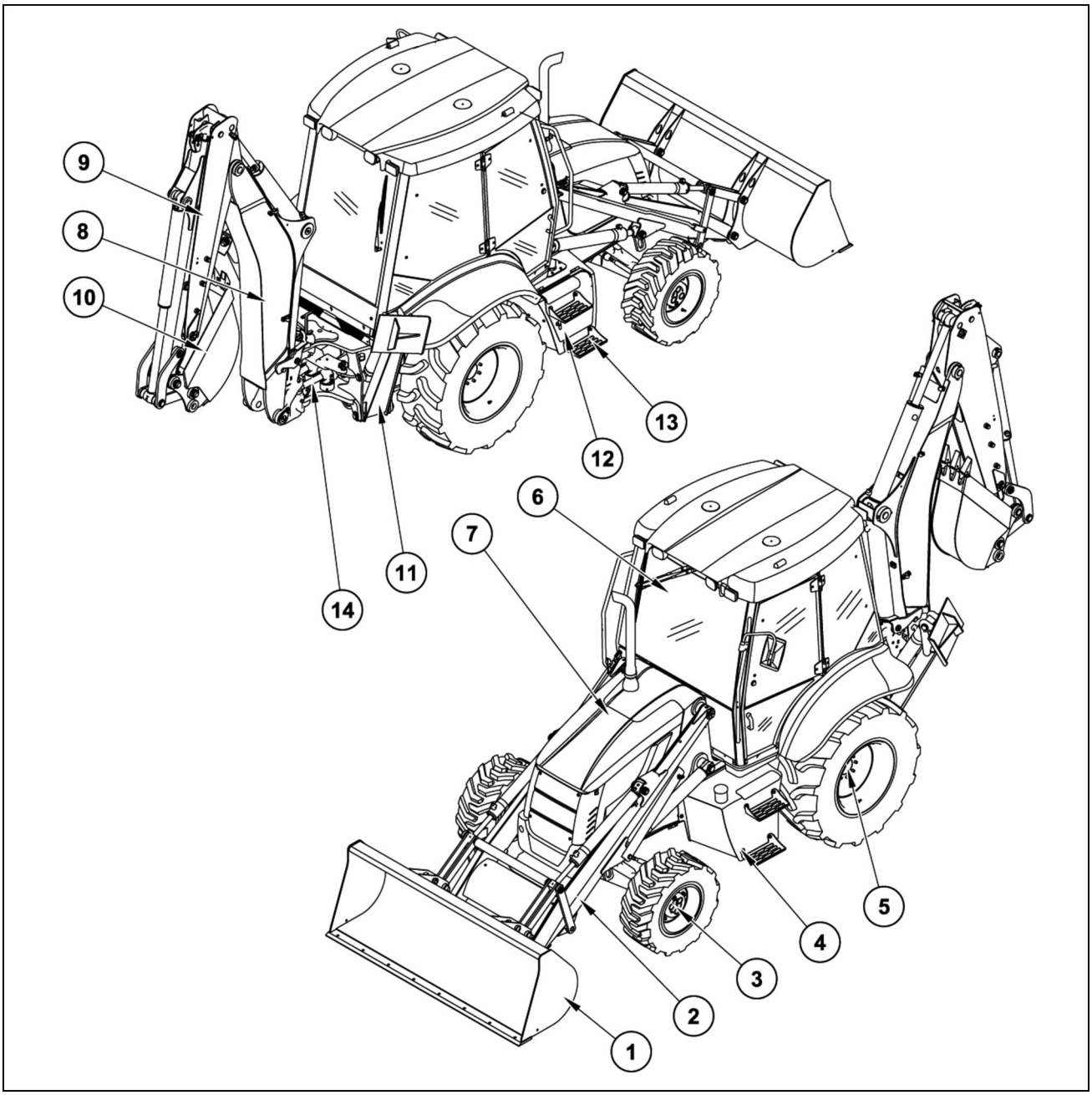
Operator's manual storage

Keep the Operator's Manual in the storage compartment provided on the rear of the operator’s seat. The Operator's Manual must be available for use by all operators.



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Component identification



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1. Loader bucket
2. Loader arm
3. Front axle
4. Fuel tank
5. Rear axle
6. Operator’s compartment - Cab
7. Engine guard
8. Backhoe attachment boom
9. Dipper or telescopic dipper
10. Backhoe bucket
11. Stabilizers
12. Battery box
13. Hydraulic oil tank
14. Swing cylinders

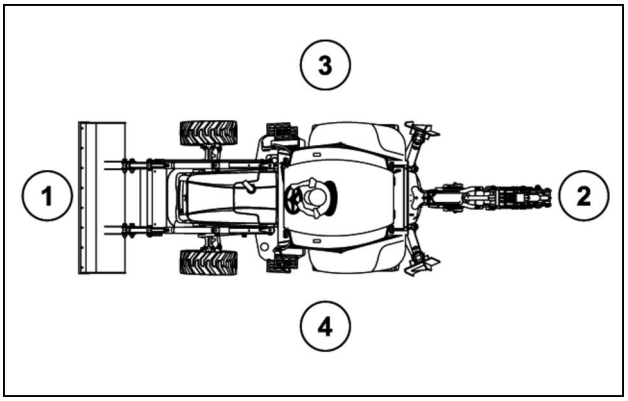
Right, left, front and rear of the machine

Machine sides

The terms “right”, “left”, “front” and “rear”, when used in this manual, indicate the sides of the machine as seen from the operator’s seat.

Operator and seat in loader attachment position

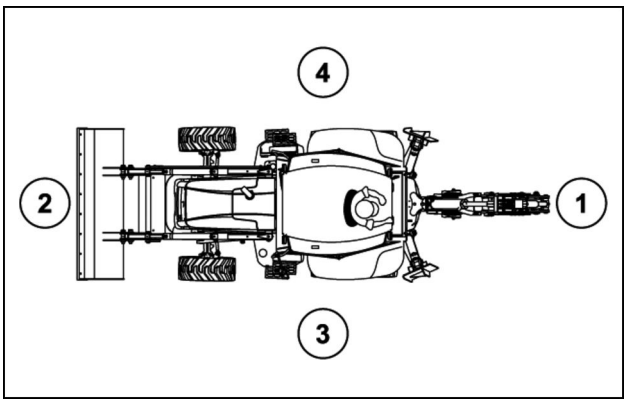
1. Front side
2. Back side
3. Right side
4. Left side



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Operator and seat in backhoe attachment position

1. Front side
2. Back side
3. Right side
4. Left side



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Component identification plates

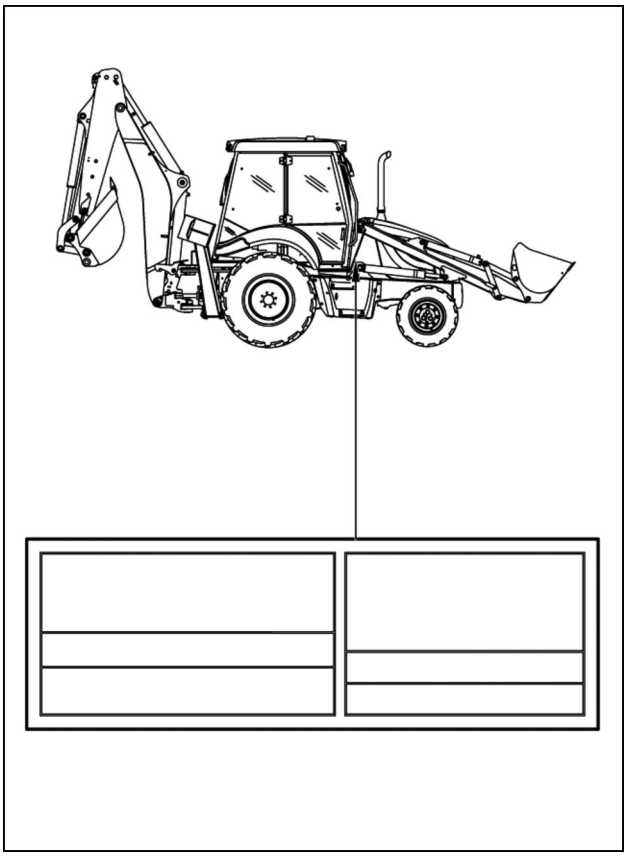
When ordering parts, requesting information or assistance, always give your Dealer the model and serial number of your machine and component concerned.

MACHINE

Type / Model and Category.....Loader backhoe B95C (*)

Serial number.....

(*) or B95CTC, B95CLR and B110C



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ENGINE 72 kW

Type / Model.....F5HFL413C for B95C (*)

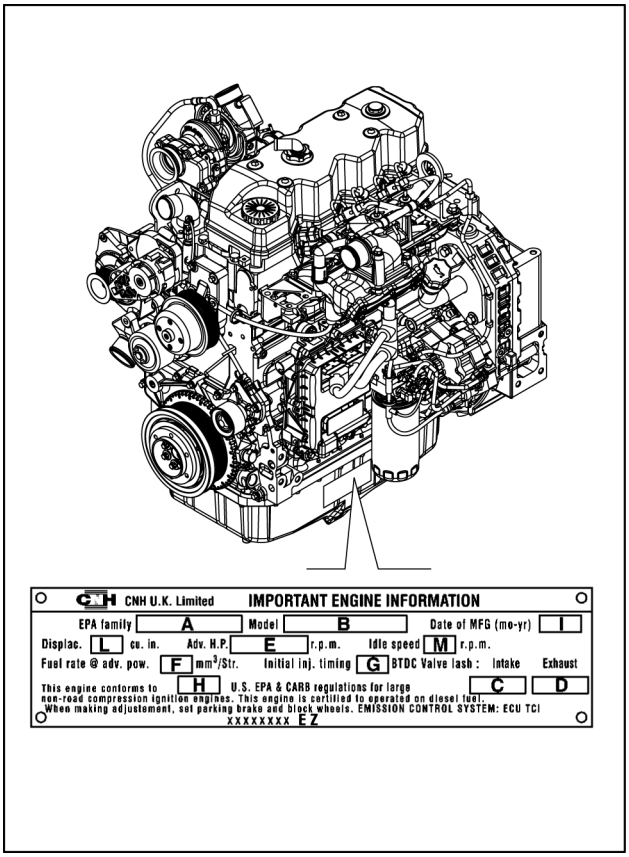
Serial number.....

(*) or B95CTC and B95CLR

ENGINE 82 kW

Type / Model.....F5HFL413B for B110C

Serial number.....

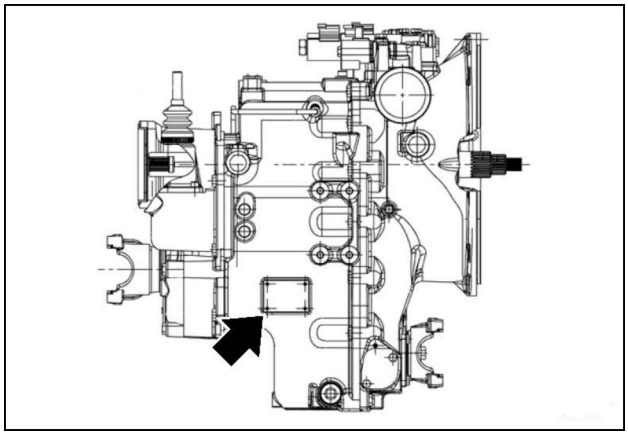


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TRANSMISSION - POWERSHUTTLE

Model.....

Serial number.....

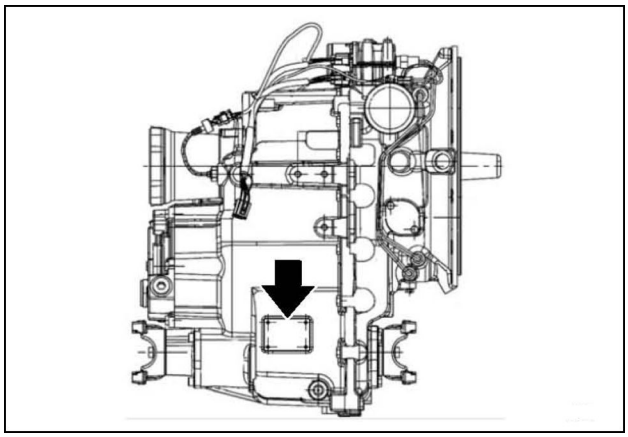


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POWERSHIFT - TRANSMISSION

Model.....

Serial number.....



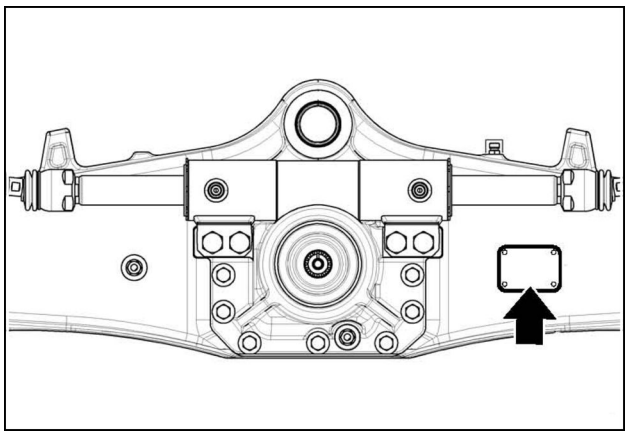
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FRONT AXLE

Type.....

Serial number.....

Ratio.....



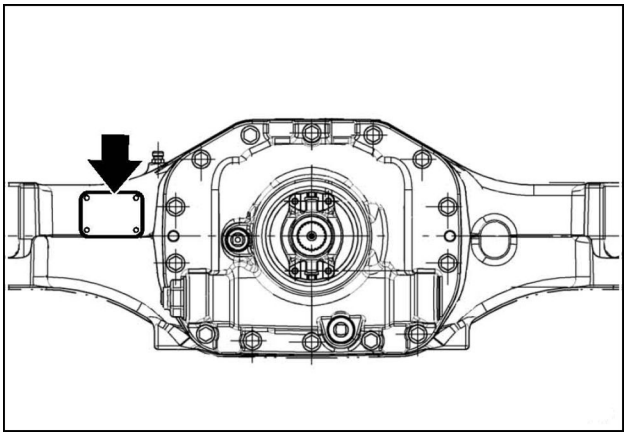
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REAR AXLE

Type.....

Serial number.....

Ratio.....

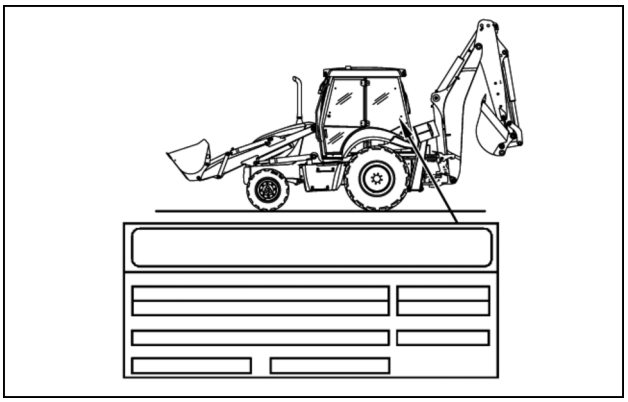


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CAB

Serial number.....

Date.....

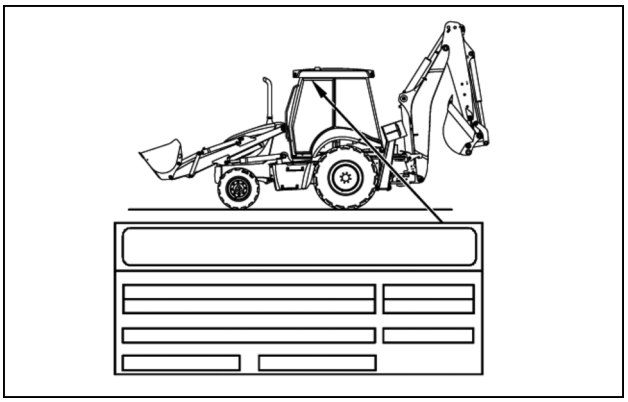


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ROPS

Serial number.....

Date.....



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2 - SAFETY INFORMATION

Safety rules and signal word definitions

Personal safety



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible death or injury.

Throughout this manual and on machine decals, you will find the signal words DANGER, WARNING, and CAUTION followed by special instructions. These precautions are intended for the personal safety of you and those working with you.

Read and understand all the safety messages in this manual before you operate or service the machine.

⚠ DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury. The color associated with DANGER is RED.

⚠ WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury. The color associated with WARNING is ORANGE.

⚠ CAUTION, used with the safety alert symbol, indicates a hazardous situation which, if not avoided, could result in minor or moderate injury. The color associated with CAUTION is YELLOW.

FAILURE TO FOLLOW DANGER, WARNING, AND CAUTION MESSAGES COULD RESULT IN DEATH OR SERIOUS INJURY.

Machine safety

NOTICE: *Notice indicates a situation which, if not avoided, could result in machine or property damage. The color associated with Notice is BLUE.*

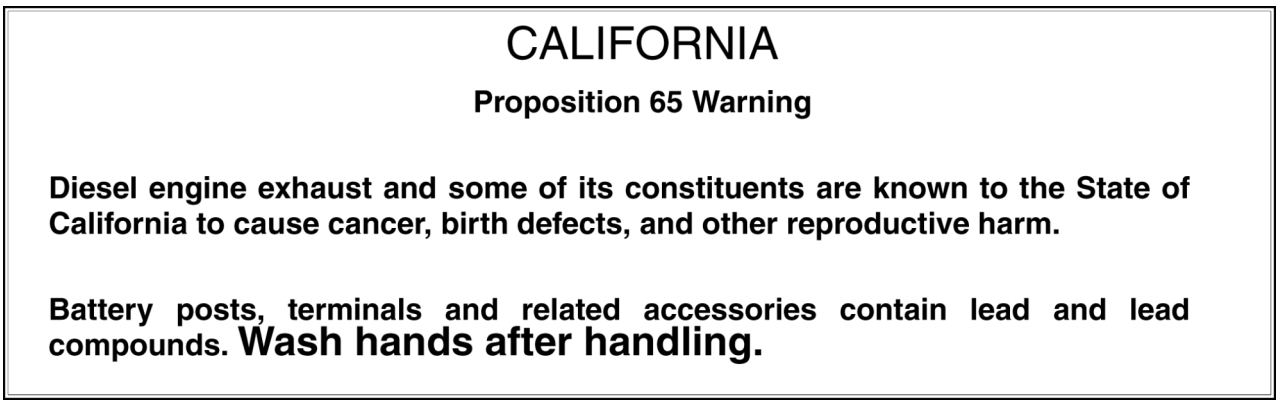
Throughout this manual you will find the signal word Notice followed by special instructions to prevent machine or property damage. The word Notice is used to address practices not related to personal safety.

Information

NOTE: *Note indicates additional information which clarifies steps, procedures, or other information in this manual.*

Throughout this manual you will find the word Note followed by additional information about a step, procedure, or other information in the manual. The word Note is not intended to address personal safety or property damage.

Safety rules - California Proposition 65 Warning



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California Proposition 65 Warning

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.

Battery posts, terminals and related accessories contain lead and lead compounds. Wash hands after handling.

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Safety rules - General



Understand that your safety and the safety of other workers or bystanders is measured by how you service and operate this machine. Know the positions and operation of all controls before you try to operate. CHECK ALL CONTROLS IN A SAFE AREA BEFORE STARTING YOUR WORK.

READ THIS MANUAL COMPLETELY and make sure you understand the controls. All equipment has a limit. Make sure you understand the speed, brakes, steering, stability, and load characteristics of this machine before you start to operate.

Most accidents involving machine operation and maintenance can be avoided by following basic safety rules and precautions. Read and understand all the safety messages in this manual, the safety manual and the safety decals on the machine before you operate or service the machine. See your dealer if you have any questions.

The safety information given in this manual does not replace safety codes, insurance needs, or federal, state, and local laws. Make sure your machine has the correct equipment according to these rules or laws.

CNH Italia S.p.A. is continuing to work for your safety by making loader backhoes with better protection and by providing rules for safe operation.

- Do not rush. Walk, do not run.
- Dirty or slippery steps, ladders, walkways and platforms can cause falls. Make sure these surfaces remain clean and clear of debris.
- Wear protective equipment when appropriate. Hard hats, protective glasses, protective shoes, gloves, reflector type vests, respirators, and ear protection are examples of equipment that may be required.
- Certain protective equipment should be replaced and renewed upon age and wear. Old hard hats may not afford the original user's intention. Faded and soiled vest are no longer as highly visible as original intent. See the manufacture’s recommendation.
- Wear the seat belt to maximize the protection capability of the cab or ROPS. Inspect the mounting bolts for the seat belt and the ROPS, if equipped, on a daily basis to ensure their integrity.
- Do not permit riders on the machine or attachments.
- Remove all loose objects stored in the machine. Remove all objects which do not belong in or on the machine and its equipment.
- Do not operate this machine or perform maintenance work if you have not had appropriate training, and read and fully understand the instructions and warnings in this manual.

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Safety rules - Air conditioning system



- The air conditioning system is under high pressure. Do not disconnect any lines. The release of high pressure can cause serious injury.
- Only a trained service technician shall service, repair, or recharge the air condition system.
- Always wear safety protection when working around the liquid refrigerant. The refrigerant can cause serious injury to eyes and skin.

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Safety rules - Basic operating



⚠ WARNING

Escaping fluid!
Hydraulic fluid or diesel fuel leaking under pressure can penetrate the skin and cause infection or other injury. To prevent personal injury: Relieve all pressure before disconnecting fluid lines or performing work on the hydraulic system. Before applying pressure, make sure all connections are tight and all components are in good condition. Never use your hand to check for suspected leaks under pressure. Use a piece of cardboard or wood for this purpose. If injured by leaking fluid, see your doctor immediately.
Failure to comply could result in death or serious injury.

W0178A

⚠ WARNING

Some components may continue to run down after disengaging drive systems.
Make sure all drive systems are fully disengaged.
Failure to comply could result in death or serious injury.

W0113A

- Always check the operating and the road safety of the machine before starting.
- Always make sure the working area is clear of other persons, domestic animals, tools, etc. before you start operating the machine.
- Another worker or bystander within the operating area of a machine can be struck or crushed by the machine or its equipment. DO NOT allow anyone to enter the work area.
- Always sound horn before starting the machine.
- Never operate the engine in enclosed spaces as harmful exhaust gases may build up.
- Check brakes, steering, and other machine control devices in accordance with maintenance instructions, prior to starting operation. Observe all gauges or warning instruments for proper operation. Operate all controls to ensure proper operation. If any malfunctions are found, remove the key and attach a 'Do Not Operate' tag on the machine until the malfunction is corrected.
- If a failure that causes loss of control such as steering, service brakes, or engine occurs, stop the machine motion as quickly as possible. Make sure the machine is securely parked. Remove the key and attach a 'Do Not Operate' tag on the machine until the malfunction is corrected or the machine can be safely towed.
- Make sure all components are in good condition and tighten all connections before starting the engine or pressurizing the system.
- Make sure all guards and shields are in good condition and properly installed before operating machine. Never operate the machine with the shields removed. Always close access doors or panel before operating the machine.
- Before starting the engine, be sure all operating controls are in the neutral or park lock position.
- Start the engine only from the operator’s seat.
- Operate controls only when seated in the operator's seat, except for those controls expressly intended for use from other locations.
- Do not allow other persons to ride on the machine or on an attachment/implement.
- Operate and drive the machine with care and at speed compatible with conditions. Use extra caution when operating over rough ground, on slopes, and when turning.
- If your machine has a cab, make sure that all windows are clean and that the windshield wipers work correctly.
- Dust, fog, smoke, etc., can decrease your vision and cause an accident. Stop the machine or decrease the speed until you can see.
- Understand the machine limitations and keep the machine under control.
- Before you operate at night, check that all lamps illuminate.
- Select a gear that will prevent excessive speed when going downhill. Do not coast downhill.
- DO NOT attempt to remove material from any part of the machine while it is being operated or components are in motion.

- When using the backhoe:
  - Position the stabilizer pads for maximum stability.
  - Install a guard rail and warning signs to keep other persons away from the machine if operating in an area with reduced visibility, such as a building.
  - Place the direction control lever and the transmission in neutral and apply the parking brake before turning the operator's seat around to the backhoe position.
  - Ensure the seat is locked into position.
  - Know which control pattern is engaged before actuating the hydraulics (pilot control machines only).
  - Use caution when swinging the backhoe completely to the side to prevent contact with the stabilizers.
- Before leaving the vehicle:
  - Park the vehicle on a hard, level surface.
  - Put all controls in neutral or park lock position.
  - Engage the parking brake; use wheel chocks if required.
  - Lower all hydraulic equipment, attachments/implements or tools, to the ground.
  - Shut down the engine and remove the key.
- In a rare circumstance when the engine must be running without an operator in the cab, take these precautions:
  - Reduce engine speed to low idle.
  - Disengage all drive systems.
  - Put the transmission in neutral.
  - Apply the parking brake.

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Safety rules - Battery



⚠ WARNING

Battery acid causes burns. Batteries contain sulfuric acid.
Avoid contact with skin, eyes or clothing. Antidote (external): Flush with water. Antidote (eyes): flush with water for 15 minutes and seek medical attention immediately. Antidote (internal): Drink large quantities of water or milk. Do not induce vomiting. Seek medical attention immediately.
Failure to comply could result in death or serious injury.

W0111A

- Follow manufacturer's instructions when storing and handling batteries.
- Always wear eye protection when working with a battery.
- Do not create sparks or have open flame near the battery.
- Do not weld, grind, or smoke near a battery.
- Ventilate when charging or using a battery in an enclosed area.
- When disconnecting the battery terminals, remove the negative (-) cable first; then remove the positive (+) cable. When connecting the battery terminals, connect the positive (+) cable first; then connect the negative (-) cable.
- Disconnect the battery (both terminals) before welding on any part of the machine. Failure to do so may cause damage to sensitive electrical components. For additional welding precautions, refer to this chapter.
- When using auxiliary batteries or connecting booster cables to start the engine, use the procedure shown in this manual. DO NOT short across terminals.
- When working around storage batteries, remember that all of the exposed metal parts are “live”. Never lay a metal object across the terminals because a spark, short circuit, explosion, or personal injury may result.
- Frozen electrolyte can cause the battery to explode. Do not charge a frozen battery or use a frozen battery to booster start the machine. Always keep the battery at full charge to prevent the electrolyte from freezing.
- Keep batteries out of reach of children and other unauthorized persons.
- Battery posts, terminals, and related accessories contain lead and lead compounds. Wash hands after handling.

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Safety rules - Electrical storm safety



- Do no operate machine during an electrical storm.
- If you are on the ground during an electrical storm, stay away from machinery and equipment. Seek shelter in a permanent, protected structure.
- If an electrical storm should strike during operation, remain in the cab. Do not leave cab or operator's platform. Do not make contact with the ground or objects outside the machine.

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Safety rules - Fire or explosion prevention



- Leaked or spilled fuel/oil on hot surfaces or electrical components can cause a fire.
- Sparks from the electrical system or engine exhaust can cause an explosion and fire. Before you operate the machine in an area with flammable dust or vapors, use good ventilation to remove the flammable dust or vapors.
- Engine fuel can cause an explosion or fire. Do not fill the fuel tank with the engine running, if you are near an open fire, or if you are welding, smoking, etc.
- Do not weld or flame cut any items that contain flammable material. Clean items thoroughly with non-flammable solvent before welding or flame cutting.
- Always have a fire extinguisher near or on the machine. Make sure the fire extinguisher(s) is maintained and serviced according to the manufacturer's instructions.
- If a fire extinguisher has been used, always recharge or replace the fire extinguisher before operating the machine.
- Do not expose the machine to flames, burning brush, or explosives.
- At least once each day, and at the end of the day, remove all trash and debris from the machine especially around hot components such as engine, transmission, exhaust, battery, etc. More frequent cleaning of the machine may be necessary depending on the operating environment and conditions.
- At least once each day, remove debris accumulation around moving components such as bearings, pulleys, belts, gears, cleaning fan, etc. More frequent cleaning of the machine may be necessary depending on the operating environment and conditions.
- If the machine has an oil, fuel, or hydraulic fluid leak, always repair the leak and clean the area before operating.
- Keep the cooling system clean and maintain the correct coolant level.
- Do not store oily rags or other flammable materials on the machine.
- Inspect the electrical system for loose connections or frayed insulation. Repair or replace loose or damaged parts.
- Promptly investigate any unusual smells or odors that may occur during operation of the machine.
- If you weld, grind, or use a cutting torch on the machine:
  - Clean the area to be repaired.
  - Disconnect or isolate the drive train controller.
  - Keep the ground cable from the welder as near to the work area as possible.
- Sparks or flame can cause the hydrogen gas in a battery to explode. To prevent an explosion:
  - Connect the negative (-) cable last.
  - When connecting booster cables to start the engine, use the procedure shown in this manual.
  - Do not short circuit the battery posts with metal items.
  - Do not weld, grind, or smoke near the battery.

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Safety rules - Fuel handling precautions



- Do not smoke or permit open flames while fueling or near fueling operations.
- Do not fill the fuel tank completely to the top. Allow room for expansion.
- Clean up spilled fuel immediately and dispose of contaminated material in an environmentally correct manner.
- Tighten the fuel tank cap securely. Should the fuel cap be lost, replace it only with the original manufacturer's approved cap. Use of a non-approved cap without proper venting may result in pressurization of the tank.
- Never use fuel for cleaning purposes.
- Use the correct fuel grade for the operating season.

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Safety rules - Hazardous chemicals



- If you are exposed to, or come in contact with, hazardous chemicals you can be seriously injured. The fluids, lubricants, paints, adhesives, coolants, etc. required for the function of the machine can be hazardous. They may be attractive and harmful to domestic animals as well as humans.
- Material Safety Data Sheets (MSDS) provide information about chemical substances within a product, safe handling procedures, first aid measures, and procedures to be taken in the event of a spill or accidental release. MSDS are available from your dealer.
- Before you service the machine, check the MSDS for each lubricant, fluid, etc. used in the machine. This information indicates the associated risks and will help you service the machine safely. Follow the information in the MSDS, on manufacturer's containers, as well as the information in this manual when servicing the machine.
- Dispose of all fluids, filters, and containers in an environmentally safe manner according to local laws and regulations. Check with local environmental and recycling centers or your dealer for correct disposal information.
- Store fluids and filter in accordance with local laws and regulations. Use only appropriate containers for the storage of chemicals or petrochemical substances.
- Keep out of reach of children or other unauthorized persons.

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Safety rules - Lifting and overhead loads



- Never lift loads in excess of capacity.
- Carry loads in recommended positions for maximum stability.
- Never use buckets, forks, etc. or other lifting, handling, or digging equipment to lift persons.
- Do not use raised equipment as a work platform.
- Know the full area of movement of the machine and equipment and do not enter or permit anyone to enter the area of movement while the machine is in operation.
- Never enter or permit anyone to enter the area underneath raised equipment. Equipment and/or loads can fall unexpectedly and crush persons underneath it.
- Do not leave equipment in raised position while parked or during service, unless securely supported. Hydraulic cylinders must be mechanically locked or supported if they are left in a raised position for service or access.
- Buckets, forks, etc. or other lifting, handling, or digging equipment and its load will change the center of gravity of the machine. This can cause the machine to tip on slopes or uneven ground.
- Load items can fall off the bucket or lifting equipment and crush the operator. Care must be taken when lifting a load. Use proper lifting equipment.
- Use the recommended machine ballast and counterweighting.
- Do not lift load higher than necessary. Lower loads to transport. Remember to leave appropriate clearance to the ground or other obstacles.
- Equipment and associated loads can block visibility and cause an accident. Do not operate with insufficient visibility.

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Safety rules - Maintenance precautions



- Keep area used for servicing the machine clean and dry. Clean up spilled fluids.
- Service machine on firm level surface.
- Do not attempt service unless trained. Refer to manuals and experienced service personnel for help.
- Wear protective glasses and other required safety equipment when servicing the machine.
- Wear gloves to protect hands when handling cables.
- Disconnect the battery before working on the electrical system. Know the consequences of disconnecting any electronic or computer devices.
- Do not attempt to clean, lubricate, clear obstructions, or make adjustments to the machine while it is in motion or while engine is running.
- If the engine must be in operation to make certain adjustments, place the transmission in neutral, apply the parking brake, place the equipment in a safe position, securely block the wheels, and use extreme caution.
- Unsupported hydraulic cylinders can lose pressure and drop the equipment causing a crushing hazard. Do not leave equipment in a raised position while parked or during service, unless securely supported.
- Shut down the engine, remove the key, and relieve the pressure before disconnecting or connecting fluid lines.
- Shut down the engine and remove the key before disconnecting or connecting electrical components.
- Replace damaged or worn tubes, hoses, electrical wiring, etc.
- Scalding can result from incorrect removal of coolant caps. Cooling system operates under pressure. Hot coolant can spray out if a cap is removed while the system is hot. Allow the system to cool before removing cap. When removing a cap, turn it slowly to allow pressure to escape before completely removing the cap.
- Engine, transmission, exhaust components, and hydraulic lines may become hot during operation. Take care when servicing such components. Allow surfaces to cool before handling or disconnecting hot components. Wear protective equipment where appropriate.
- Continuous long term contact with hydraulic fluid may case skin cancer. Avoid long term contact and wash the skin promptly with soap and water.
- When replacing hardened pins, use a brass drift or other suitable material between the hammer and pin.
- When welding, follow the instructions in this manual. Always disconnect battery before welding on machine. Always wash your hands after handling battery components.
- Keep the brakes and steering systems in good operating condition.
- Replace all missing, illegible, or damaged safety signs. Keep all safety signs clean.
- Install guards and shields after servicing the machine.
- Close all access doors and install all panels after servicing the machine.
- Always make sure working area is clear of tools, parts, other persons, and domestic animals before you start operating the machine.

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Safety rules - Mounting and dismounting



- Face the machine when mounting and dismounting.
- Mount and dismount the machine only at designated locations that have hand holds, steps, or ladders.
- Maintain a three-point contact with steps, ladders, and hand holds.
- Do not jump off the machine.
- Never mount or dismount from a moving machine.
- Do not use the steering wheel or other controls or accessories as hand holds when entering or exiting the cab or operator's platform.
- Make sure steps, ladders, and platforms remain clean and clear of debris and foreign substances. Injury may result from slippery surfaces.

Safety rules - Operator precautions



- Continuous long term contact with hydraulic fluid may cause skin cancer. Avoid long term contact and wash the skin promptly with soap and water.
- Know and understand the job site traffic flow patterns and obey signalmen, road signs, and flagmen.
- Know and use the hand signals required for particular jobs, and know who has the responsibility for signaling. Refer to page **2-36**.
- Know and understand that job site conditions may change on an hourly basis. Hills of dirt, debris, or obstructions may grow and change from the time you began the day. It is your responsibility to monitor the changes and keep the machine, tools, and attachments/implements, etc. a safe distance.
- Keep clear of moving parts. Loose clothing, jewelry, watches, long hair, and other loose or hanging items can become entangled in moving parts.
- Wear protective equipment when appropriate. Hard hats, protective glasses, protective shoes, gloves, reflector type vests, respirators, and ear protection are examples of equipment that may be required.
- Walk around the work area before you start and look for hazards. Note and avoid all hazards and obstructions such as ditches, underground lines, trees, cliffs, overhead electrical wires, or areas where there is danger of a slide.
- Do not operate the machine if you do not feel well. This can be dangerous for you and for the people around you.
- Do not operate the machine while under the influence of alcohol, drugs, or while otherwise impaired.
- OSHA requirements make it the employer’s responsibility to fully instruct each operator in the proper and safe operation of all operative equipment. Both employer and employee should thoroughly familiarize themselves with this manual and the AEM safety booklet.

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Safety rules - Specific precautions to this machine



- Keep the load or tool as low as possible while moving the machine around the work site.
- Adjust the rear window before actuating the backhoe hydraulics. The rear window could come into contact with the control lever.
- Pilot control machines are equipped with two backhoe control patterns. You must know which pattern the machine is in, before operating the machine (actuating the hydraulics).
- Release all hydraulic pressure before servicing the machine.
- You must know which circuits have accumulators and how to release pressure properly.
- Always use the lift arm support strut when servicing the machine with lift arms up.

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Safety rules - Transporting precautions



- Comply with local laws and regulations.
- Use appropriate lighting as defined by local regulations. A rotating beacon is recommended.
- Make sure the slow moving vehicle (SMV) and/or speed indicator symbol (SIS) is visible.
- Never transport the machine without the backhoe in the transport position with the swing lock pin installed.
- Incorrect towing procedures can cause accidents. When towing a disabled machine, follow the procedure in this manual. Use only rigid tow bars.
- When absolutely necessary to tow the machine, do not exceed the recommended towing speed. Be sure the towing machine has sufficient braking capacity to stop the towed load. If the towed machine cannot be braked, a towbar must be used or two towing machines must be used - one in front pulling and one in the rear to act as a brake. Avoid towing over long distances.
- Lock the brake pedals together when roading to provide equalized brake application.
- Lift implements and attachments high enough above ground to prevent accidental contact with road.
- Be aware of overhead structures or power lines and make sure the machine and/or attachments can pass safely under.
- Travel speed should be such that complete control and machine stability is maintained at all times.
- Slow down and signal before turning.
- Pull over to allow faster traffic to pass.
- Use approved drawbar and/or attachment point, (if equipped), if using your machine to tow another machine. If a cable or chain is used, keep people away from the tow line.
- Follow correct towing procedure for equipment with or without brakes.

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Safety rules - Utility precautions



- During operation it is likely that you will be working around or near buried utility lines which may include, but are not limited to:
  - Electrical power line
  - Gas line
  - Water line
  - Communication line - telephone or cable television
  - Sewer line
- When digging or using ground engaging equipment, be aware of buried cables and other services. Contact your local utilities or authorities, as appropriate, to determine the locations of services.
- In U.S.A. and Canada call one of many One Call System Director services. If you do not know the local number, call the national number (U.S.A. and Canada only): 1-888-258-0808. This number will direct you to the state or regional utility that assists with excavation activity.
- After locating any buried utility lines, carefully dig a hole by hand and/or automatic vacuum equipment to the utility line to verify the location and depth of the line.
- Where applicable, know the utility color code.

Electric	Red
Gas, oil, or petroleum	Yellow
Communication, telephone, television	Orange
Water	Blue
Sewer	Green/Brown
Proposed excavation	White
Surveying	Pink
Reclaimed water and slurry	Purple

- Make sure the machine has sufficient clearance to pass in all directions. Pay special attention to overhead power lines and hanging obstacles. High voltage lines may require significant clearance for safety. Contact local authorities or utilities to obtain safe clearance distances from high voltage power lines.
- Retract raised or extended components, if necessary. Remove or lower radio antennas or other accessories. Should contact occur between the machine and an electric power source, the following precautions must be taken:
  - Stop the machine movement immediately.
  - Apply the parking brake, shut down the engine, and remove the key.
  - Check if you can safely leave the cab or your actual position without contact with electrical wires. If not, stay in your position and call for help. If you can leave your position without touching lines, jump clear of the machine to make sure you do not make contact with the ground and machine at the same time.
  - Do not permit anyone to touch the machine until power has been shut off to the power lines.

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Safety rules - Wheels and tires



⚠ DANGER

Explosion hazard!
Welding to a wheel can create an explosive air and gas mixture. Removing air from the tire or loosening the tire on the wheel (breaking the bead) will NOT eliminate the hazard. ALWAYS remove the tire completely from the wheel before welding.
Failure to comply will result in death or serious injury.

D0033A

- Tires are heavy. Handling tires without the proper equipment could cause death or serious injury.
- Make sure tires are correctly inflated. Do not exceed recommended load or pressure. Follow instructions in this manual for proper tire inflation.
- Always have a qualified tire technician service the tires and wheels. If a tire has lost all pressure, take the tire and wheel to a tire shop or your dealer for service. Explosive separation of the tire can cause serious injury.

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Safety rules - Ductile iron



⚠ DANGER

Improper operation or service of this machine can result in an accident.
Any unauthorized modifications made to this machine can have serious consequences. Consult an authorized dealer on changes, additions, or modifications that may be required for this machine. Do not make any unauthorized modifications.
Failure to comply will result in death or serious injury.

D0030A

Before you weld, cut, or drill holes on any part of this machine, make sure the part is not cast ductile iron. See your dealer if you do not know if a part is cast ductile iron. The following are cast ductile iron parts:

- two wheel drive steering link
- dump links
- front axle
- stabilizers
- extendahoe
- swing
- bucket linkage
- Air Conditioning (A/C) compressor mounting bracket

Unauthorized modifications to cast ductile iron parts can cause injury or death. Welding, cutting, or drilling can cause cast ductile iron to break. Do not weld, cut, or drill to repair or to attach items to cast ductile iron parts on this machine.

Safety rules - Roll Over Protective Structure (ROPS)



⚠ WARNING

Roll-over hazard!
After an accident, fire, tip over, or roll over, a qualified technician MUST replace the Roll-Over Protective Structure (ROPS) before returning the machine to the field or job site operation.
Failure to comply could result in death or serious injury.

W0134A

⚠ WARNING

Misuse hazard!
Your machine is equipped with an operator protective structure. DO NOT weld, drill holes, attempt to straighten, or repair the protective structure. Modification in any way can reduce the structural integrity of the structure.
Failure to comply could result in death or serious injury.

W0001B

⚠ DANGER

Crushing hazard!
DO NOT operate the machine with the Roll-Over Protective Structure (ROPS) removed. Remove the ROPS only for service or replacement.
Failure to comply will result in death or serious injury.

D0032A

Your machine is equipped with an operator Protective Structure, such as: Rollover Protective Structure (ROPS) or Falling Object Protective Structure (FOPS). A ROPS may be a cab frame or a two posted or four posted structure used for the protection of the operator to minimize the possibility of serious injury. The mounting structure and fasteners forming the mounting connection with the machine are part of the ROPS.

The protective structure is a special safety component of your machine.

DO NOT attach any device to the protective structure for pulling purposes. DO NOT drill holes into the protective structure.

The Protective Structure and interconnecting components are a certified system. Any damage, fire, corrosion or modification will weaken the structure and reduce your protection. If this occurs, the Protective Structure MUST be replaced so that it will provide the same protection as a new Protective Structure. Contact your dealer for Protective Structure inspection and replacement.

After an accident, fire, tip over, or roll over, the following MUST be performed by a qualified technician before returning the machine to field or job side operation:

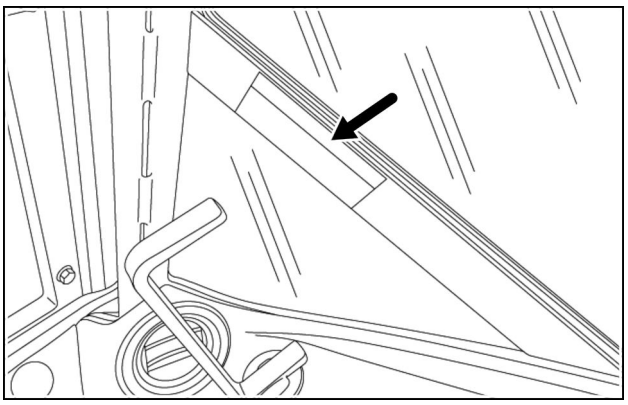
- The protective structure MUST be replaced.
- The mounting or suspension for the protective structure, operator's seat and suspension, seat belt and mounting components, and wiring within the protective structure MUST be carefully inspected for damage.
- All damaged parts MUST be replaced.

DO NOT WELD, DRILL HOLES, ATTEMPT TO STRAIGHTEN, OR REPAIR THE PROTECTIVE STRUCTURE. MODIFICATION IN ANY WAY CAN REDUCE THE STRUCTURAL INTEGRITY OF THE STRUCTURE WHICH COULD CAUSE DEATH OR SERIOUS INJURY IN THE EVENT OF FIRE, TIP OVER, ROLL OVER, COLLISION, OR ACCIDENT.

Seat belts are part of the protective system and must be worn at all times. The operator must be held to the seat inside the frame in order for the protective system to work.

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A ROPS label is fastened to the protective structure and shows the ROPS PIN, the gross weight, approval, regulation, and model numbers of the machine.



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Safety rules - Seat belt

⚠ WARNING

Roll-over hazard!
Securely fasten the seat belt. Your machine is equipped with a Roll-Over Protective Structure (ROPS) cab, ROPS canopy, or ROPS frame for your protection. The seat belt can help ensure your safety if it is properly used and maintained. Never wear a seat belt loosely or with slack in the belt system. Failure to comply could result in death or serious injury.

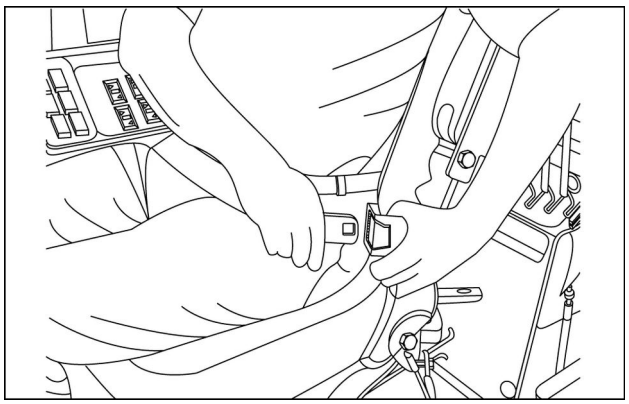
W0143A

Seat belts must be worn at all times.

- Keep seat belts in good condition.
- Keep sharp edges and items that can cause damage away from the belts.
- Periodically check belts, buckles, retractors, tethers, slack take-up system, and mounting bolts for damage.
- Replace all parts that have damage or wear.
- Replace belts that have cuts that can make the belt weak.
- Check that bolts are tight on the seat bracket or mounting.
- If belt is attached to seat, make sure seat or seat brackets are mounted securely.
- Keep seat belts clean and dry.
- Clean belts only with soap solution and warm water.
- Do not use bleach or dye on the belts, because this can make the belts weak.

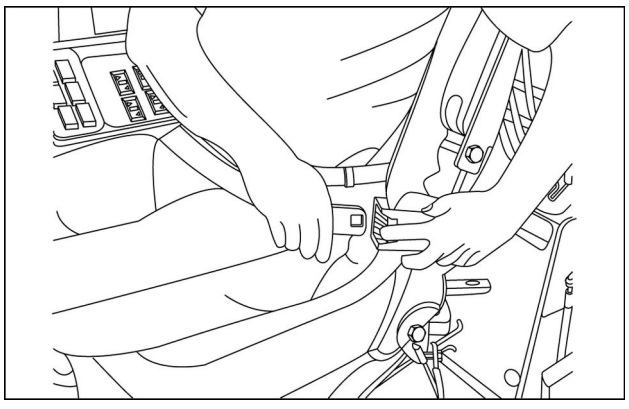
Fasten/release

1. Pull the right-hand belt strap from the retractor.
2. Insert the metal end into the latch mechanism of the left-hand side of the seat.



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3. To release, press the red button on the latch mechanism. The seat belt will automatically retract.



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Safety signs

Decals

⚠ WARNING

Avoid injury!
Make sure decals are perfectly legible. Clean decals regularly. Replace all damaged, missing, painted over, or illegible decals. See your dealer for replacement decals. When replacing parts bearing decals, be sure to put new decals on each new part.
Failure to comply could result in death or serious injury.

W0229A

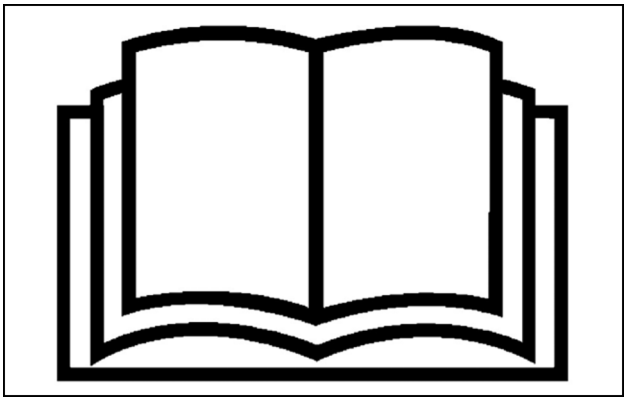
NOTE: *Make sure that you read all the safety decals and all instructional decals. The decals are intended for the personal safety of you and those working with you. Walk around your machine and note the content and location of the decals. Review the decals with all machine operators.*

NOTE: *Some decal locations may vary slightly between various model configurations.*

NOTE: *When you clean the decals, use only a cloth, water and soap. Do not use solvents, gasoline, etc.*

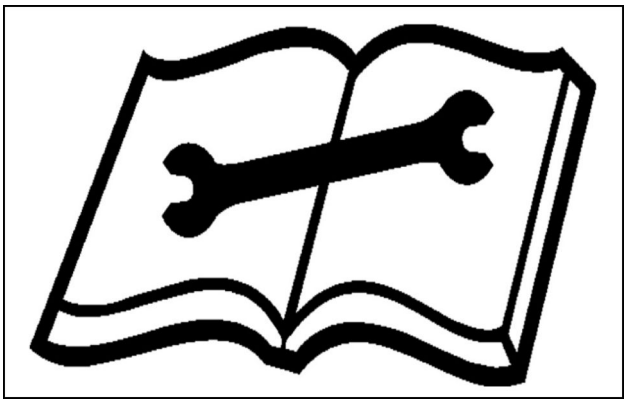
NOTE: *This chapter only covers decals relating to safety and machine operation and servicing. For information on all decals for the machine, consult your authorized dealer.*

This symbol instructs you to refer the Operator's Manual for further information regarding maintenance, operational guidelines, etc.



LEEN11T0027AA 1

This symbol instructs you to refer to the Service Manual. If you doubt your ability to perform service operations, contact your authorized dealer.

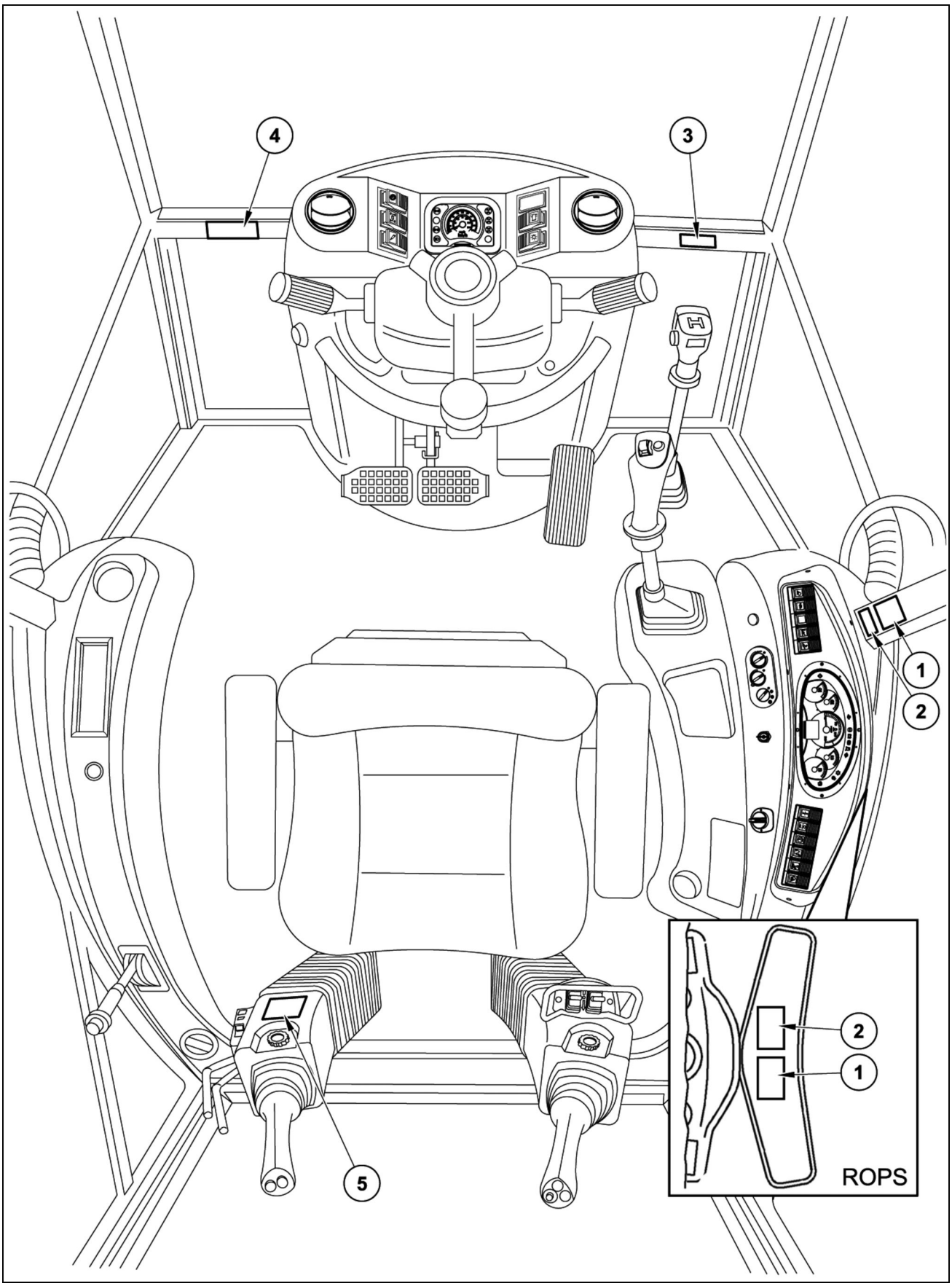


LEEN11T0028AA 2

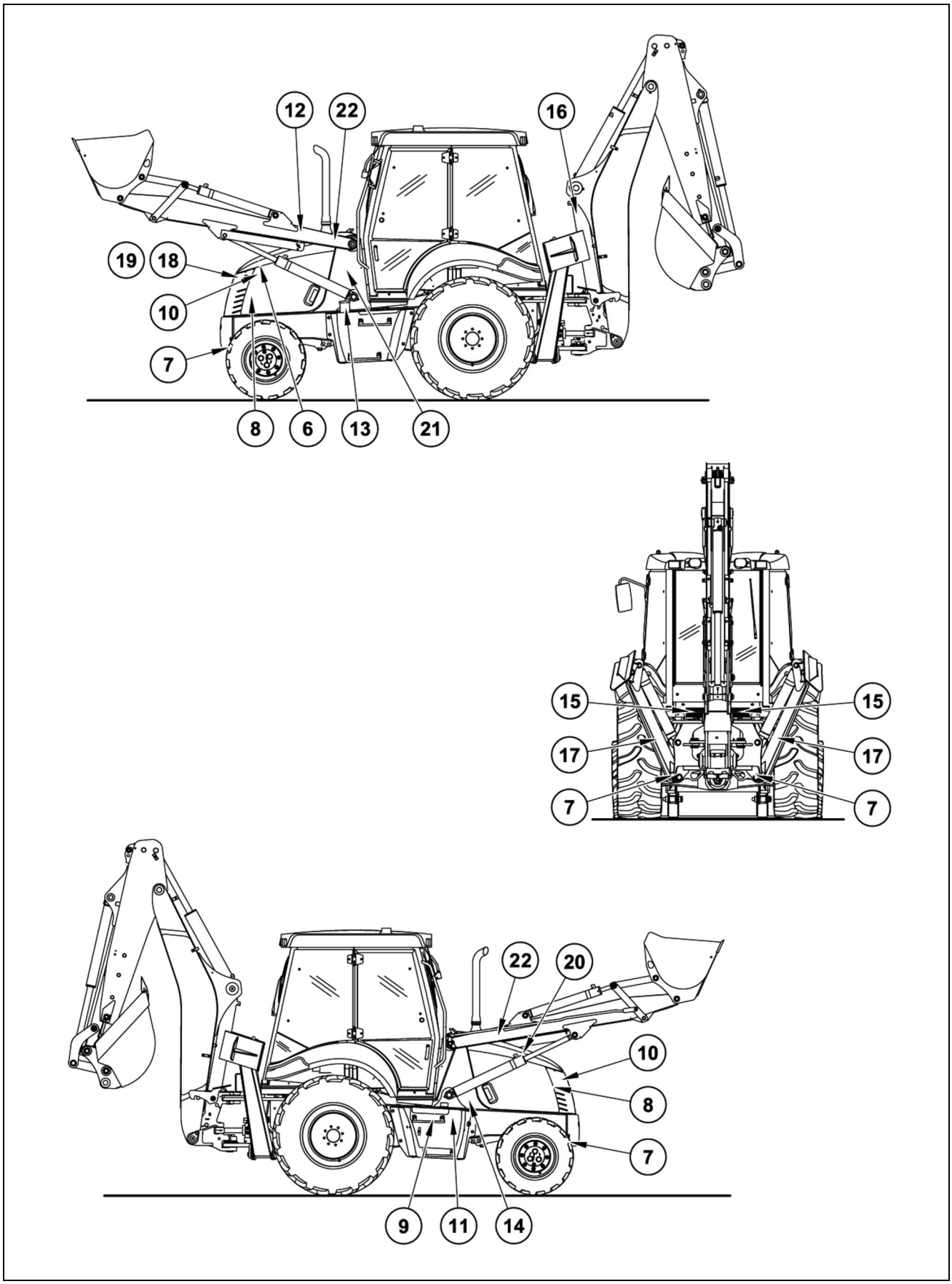
https://truckmanualshub.com/

POSITION OF DECALS

When replacing decals, be sure to install them in the locations shown.



LEEN12T0712HA 3



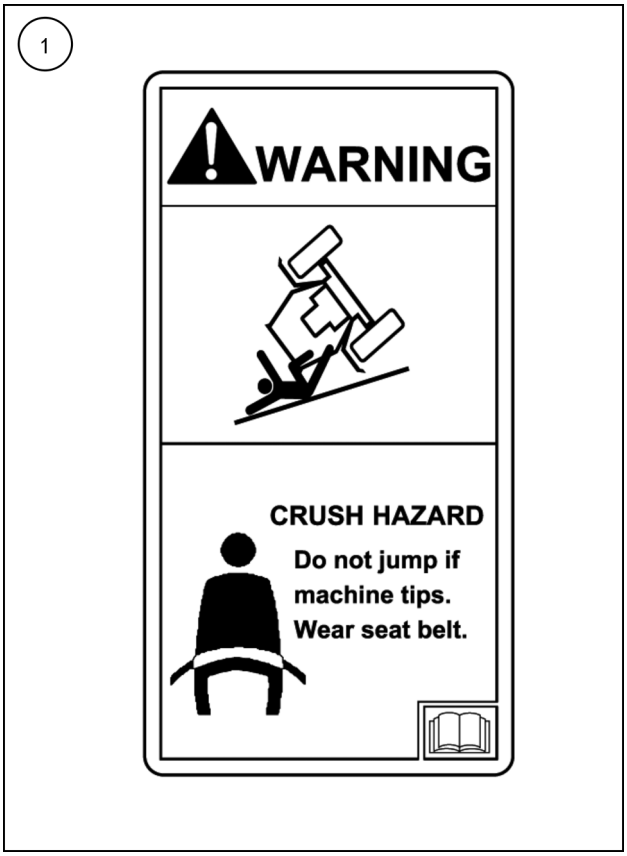
LEEN12T0713HA 4

https://truckmanualshub.com/

Seat belt

This decal reminds you to wear your safety belt at all times to avoid the risk of being ejected from the operator's compartment in the event that the machine turns over.

English: 85821920
French: 85828063
Spanish: 85828064

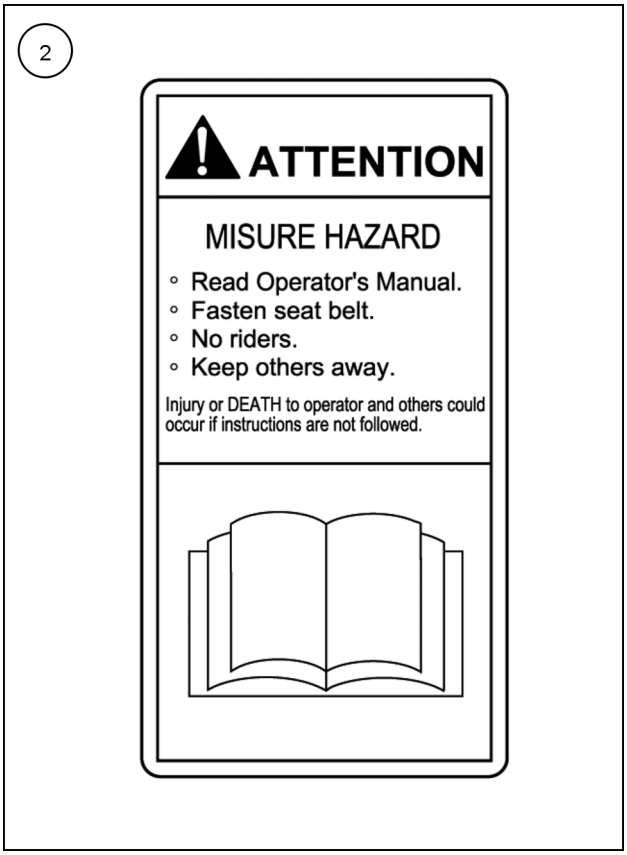


LEEN12T0715BA 5

Safety instructions

This decal warns of possible misuse hazards during machine operation.

English: 85821923
French: 85828065
Spanish: 85828066



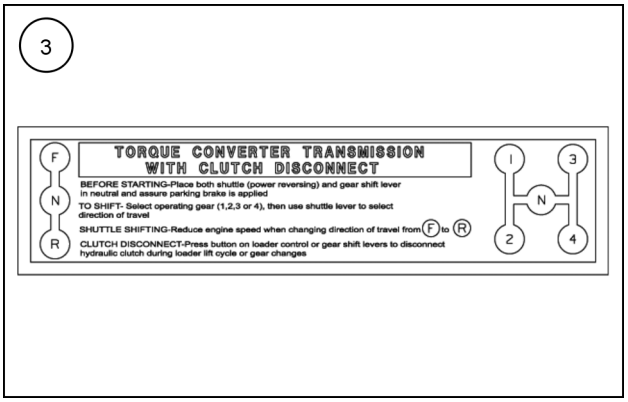
LEEN12T0716BA 6

https://truckmanualshub.com/

Torque converter transmission (only on powershuttle models)

This decal indicates the operations of torque converter transmission with clutch disconnect.

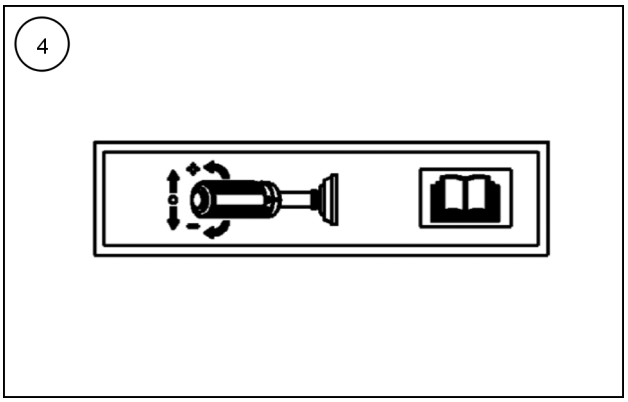
English: 84411782



LEEN12T0717AA 7

Gearshift lever (only on powershift models)

This decal indicates the operation of the gearshift lever.

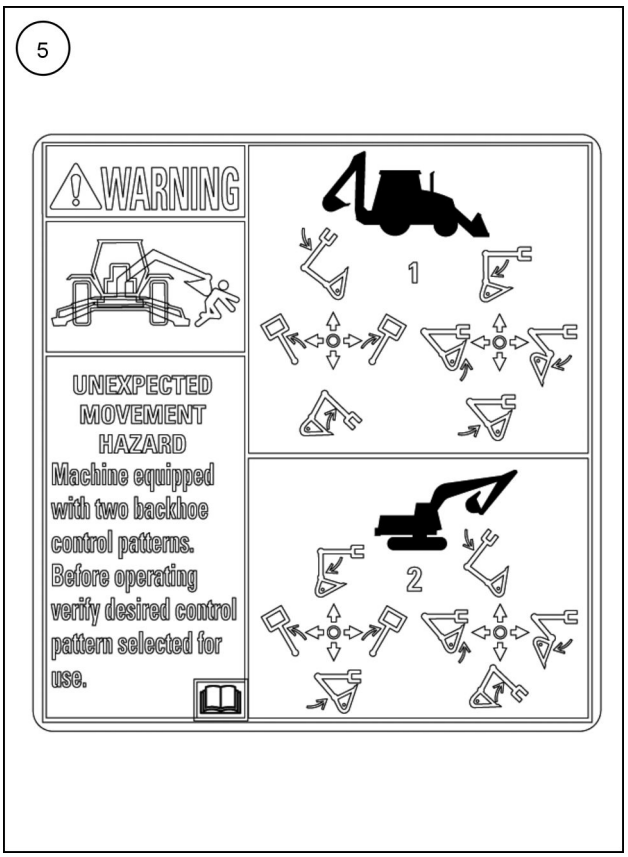


LEEN12T0718AA 8

Danger unspected movement hazard of machine

This decal warn certain movements of machine for the backhoe attachment. Verify desired control pattern selected and carefully read the Operator's Manual.

English: 87305413
French: 85828092
Spanish: 85828093



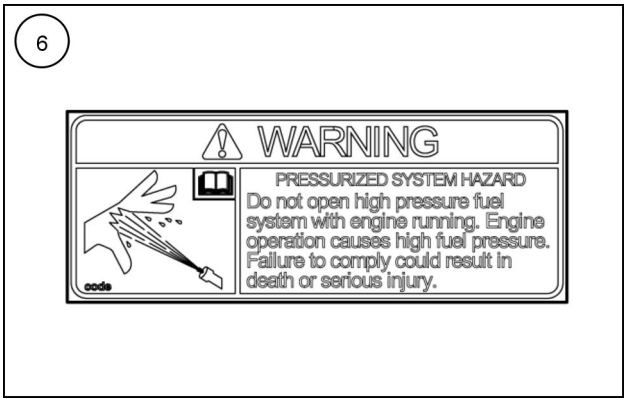
LEEN12T0719BA 9

https://truckmanualshub.com/

High pressure fuel

This decal indicates the presence of high pressure fuel.

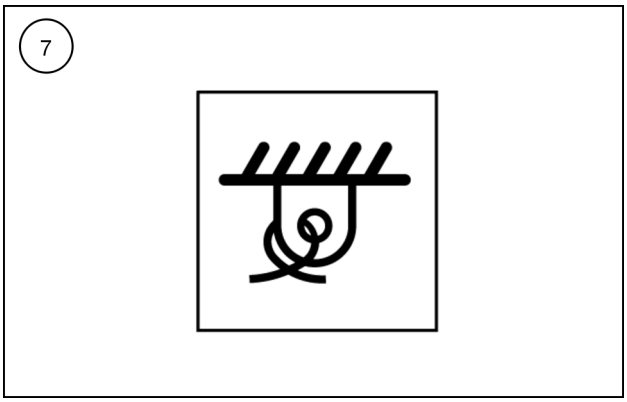
English: 87581010
French: 87596089
Spanish: 87596091



LEEN12T0721AA 10

Tie-down points

This decal shows the tie-down points to be used when securing the machine for transport.



LEEN12T0722AA 11

Danger hot liquid under pressure

This decal warns against the presence of hot liquid under pressure.
Wait for the system to cool down before starting any operation.

English: 85821916
French: 85828094
Spanish: 85828095



LEEN12T0723BA 12

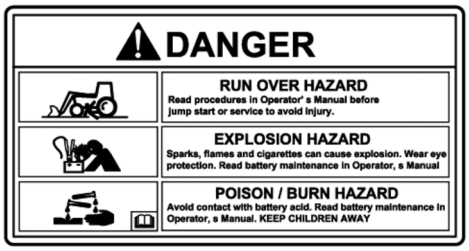
https://truckmanualshub.com/

Battery

This decal indicates that it is necessary to carefully read the Operator's Manual before performing any operation on the batteries.

English: 85821917
French: 85828088
Spanish: 85828089

9



LEEN12T0724AA 13

Engine

This decal warns that certain components in the engine compartment can trap your hand, cut or burn you. Before opening the engine guard, stop the engine, remove the starter key and carefully read the Operator's Manual.

English: 85821919
French: 85828090
Spanish: 85828091

10

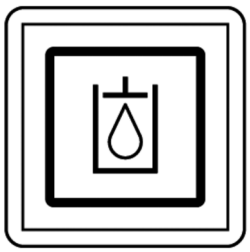


LEEN12T0725BA_1 14

Hydraulic oil tank

Make sure that you only fill a reservoir bearing this decal with hydraulic fluid. See Section 7 "Maintenance".

11



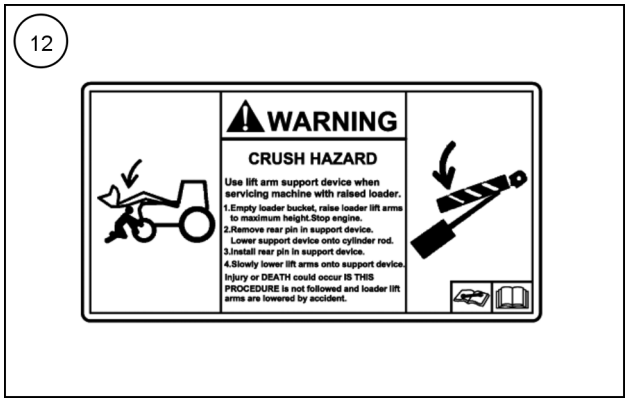
LEEN12T0726AA 15

https://truckmanualshub.com/

Loader safety strut

This decal warns that it is mandatory to install the safety strut when carrying out any operation requiring the loader attachment to be in raised position.

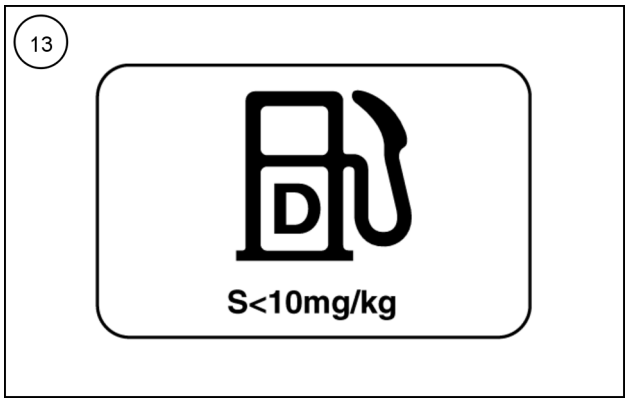
English: 85821921
French: 85828084
Spanish: 85828085



LEEN12T0727AA 16

Fuel tank, low sulfer diesel fuel

Make sure that the tank bearing this decal contains low sulfer diesel fuel only. See Section 7 “Maintenance”.



LEEN12T0729AA 17

https://truckmanualshub.com/

Starting the engine

This decal warns that the engine must be started only from the operator’s seat with the transmission in neutral.

English: 85821928
French: 85828086
Spanish: 85828087



LEEN12T0730BA 18

Precautions for the use of the backhoe attachment

This decal warns of the risk of machine movements during backhoe operation.

English: 85821922
French: 85828080
Spanish: 85828081



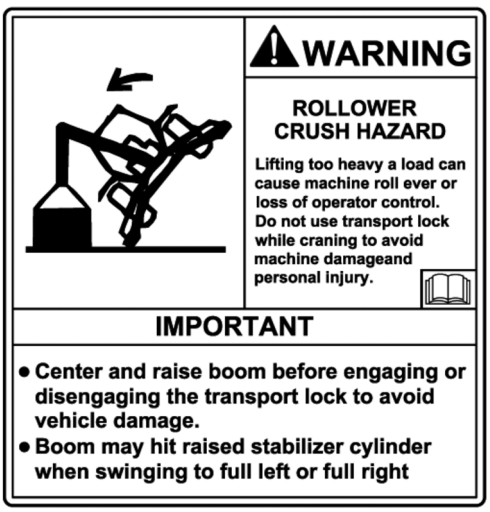
LEEN12T0731BA 19

Precautions for lifting loads with the backhoe attachment

This decal warns of the possibility of loss of machine control during lifting operations.

English: 85821924
French: 85828069
Spanish: 85828070

16



LEEN12T0732BA 20

Stabilizers

This decal warns not to stay near the stabilizers while they are lowering, as it could be dangerous.

English: 85821927
French: 85828097
Spanish: 85828098

17



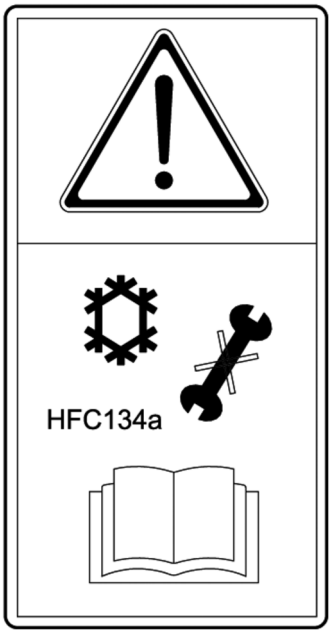
LEEN12T0733BA 21

https://truckmanualshub.com/

Air conditioning (Optional)

This decal indicates that an air conditioning system is installed in the machine. The maintenance operations must be performed by qualified personnel.

18



LEEN12T0734BA 22

Air conditioning (Optional)

This decal indicates that an air conditioning system is installed in the machine. The maintenance operations must be performed by qualified personnel.

English: 87324469

19



LEEN12T0735BA 23

Explosion hazard, ether

This decal warns of extreme caution, as a release of ether could occur in the indicated area.

English: 8603092
French: 8603093
Spanish: 8603094

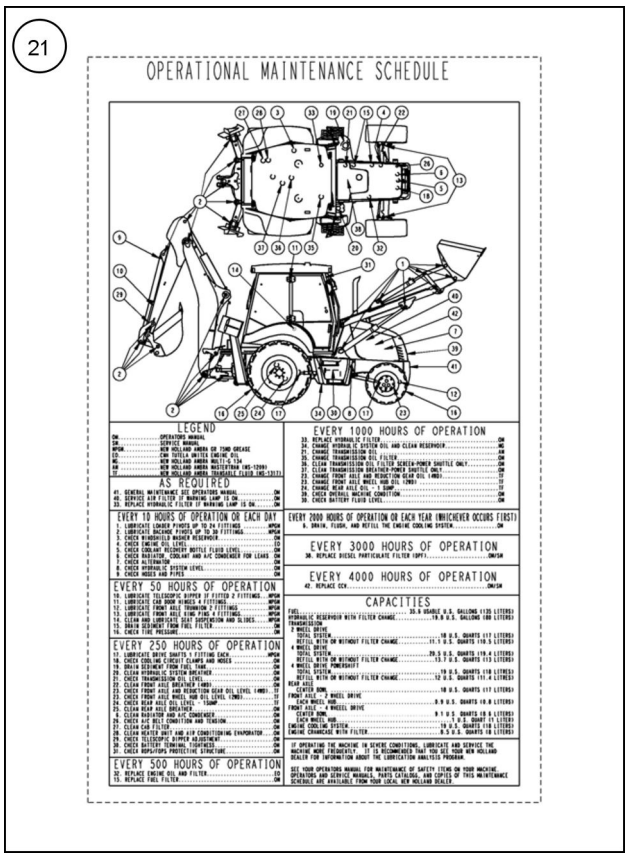


LEEN12T0736BA_1 24

Maintenance

This decal indicates all operations of maintenance scheduled. Read carefully section 7 “Maintenance”.

English: 84582104
French: 84582110
Spanish: 84582105



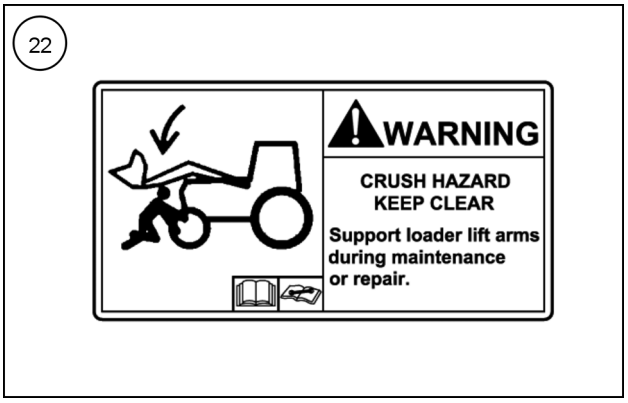
LEEN12T0737BA 25

https://truckmanualshub.com/

Crush hazard, loader attachment upper position

This decal warns that it is mandatory to install the safety strut when carrying out during maintenance or repair operations requiring the loader attachment to be in raised position.

English: 85821946
French: 85828082
Spanish: 85828083



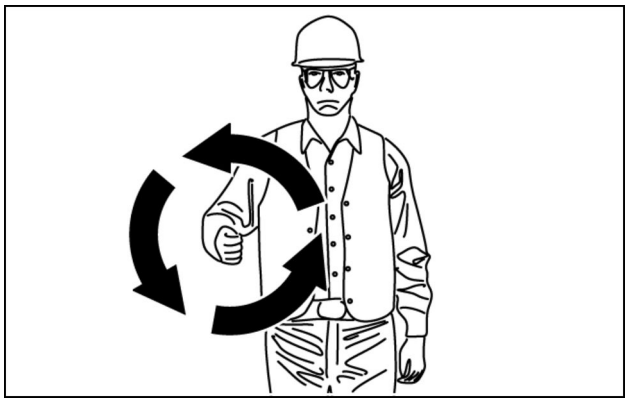
LEEN12T0738AA 26

https://truckmanualshub.com/

Hand signals

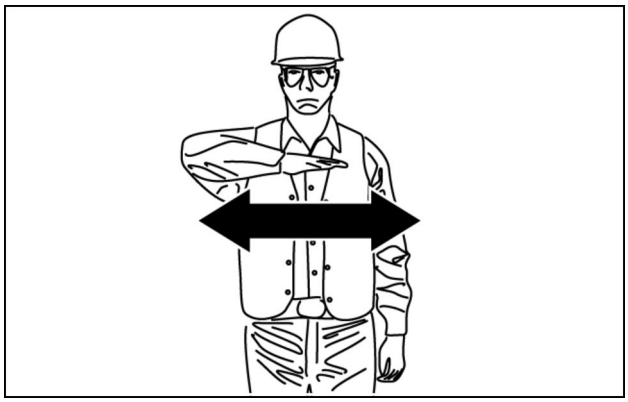
When operating the machine, never attempt to carry out tasks calling for fine control or to work in areas where visibility is poor or impaired without seeking the assistance of a signal person. Make perfectly sure that you and the signal person understand the signals to be used.

Start the engine



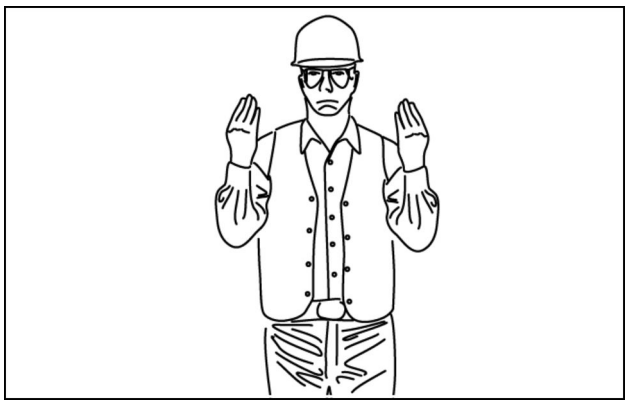
LEEN11T0005AA 1

Stop the engine



LEEN11T0006AA 2

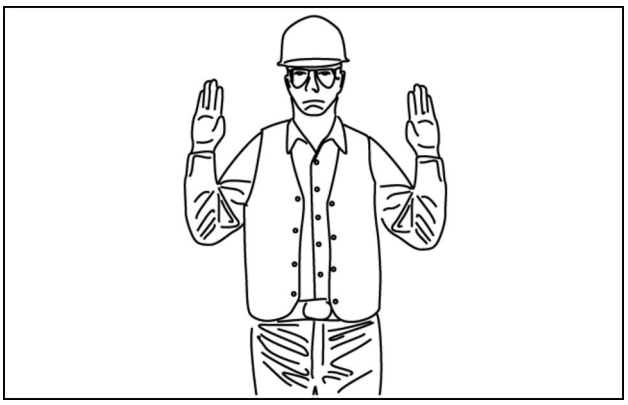
Come to me
Wave hands back and forth (palms inward).



LEEN11T0007AA 3

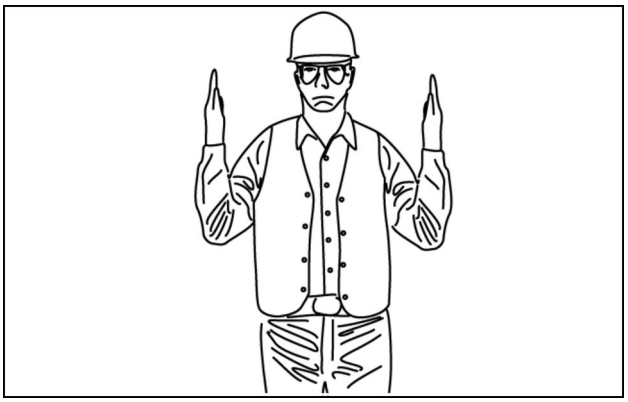
https://truckmanualshub.com/

Move away from me
Wave hands back and forth (palms outward).



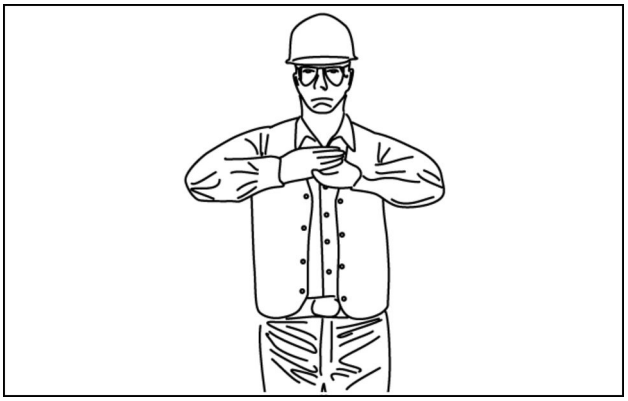
LEEN11T0008AA 4

Go this far



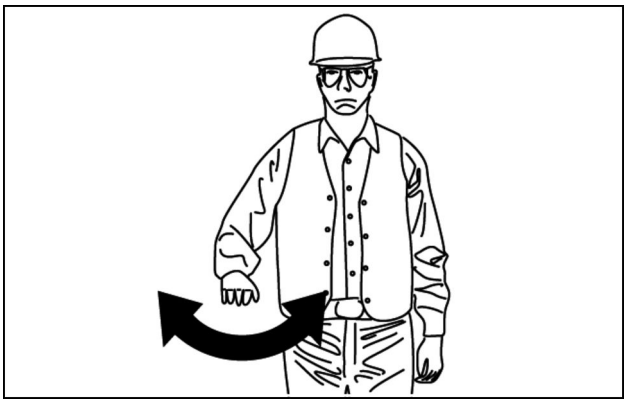
LEEN11T0009AA 5

All stop and hold



LEEN11T0010AA 6

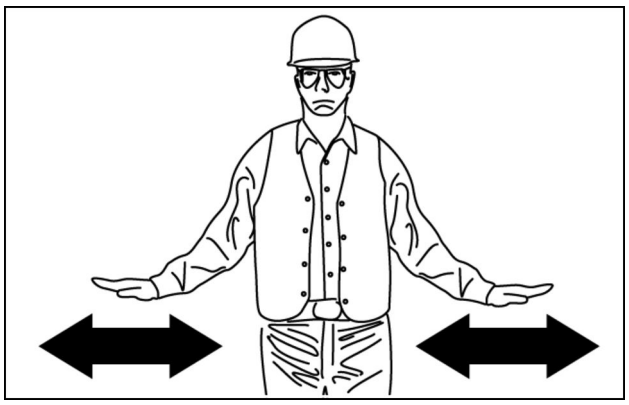
Stop
Move one hand back and forth.



LEEN12T0534AA 7

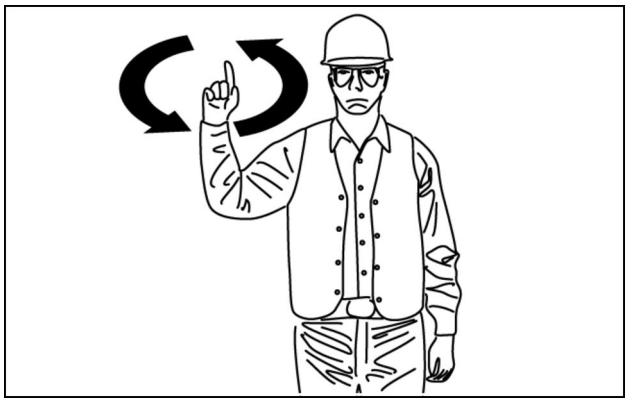
https://truckmanualshub.com/

Emergency stop
Move both hands back and forth.



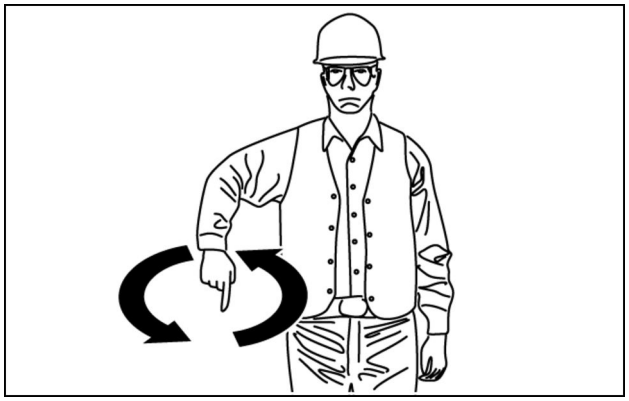
LEEN11T0012AA 8

Raise load or bucket



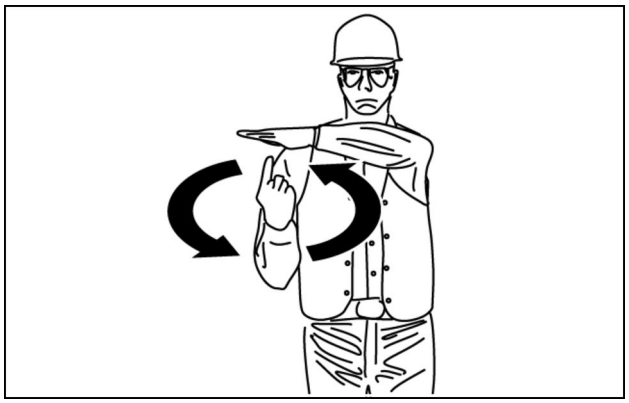
LEEN11T0013AA 9

Lower load or bucket



LEEN11T0014AA 10

Raise load or bucket slowly



LEEN11T0015AA 11

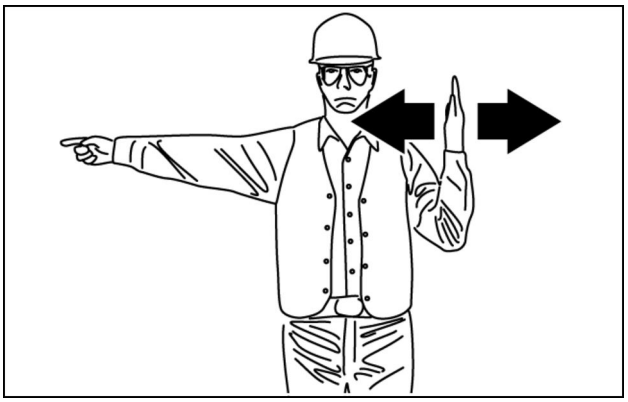
https://truckmanualshub.com/

Lower load or bucket slowly



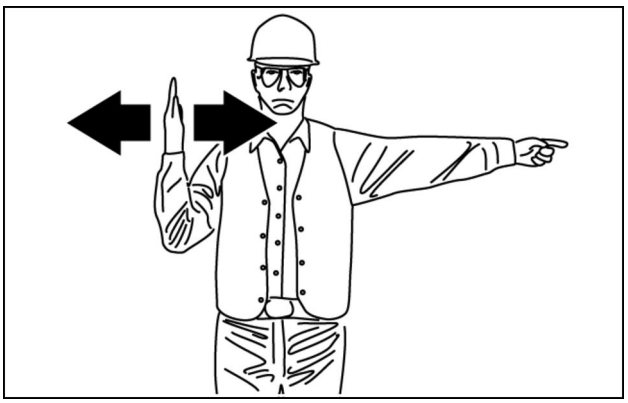
LEEN11T0016AA 12

Turn machine left swing load left
To stop movement, stop moving hand and make a fist.



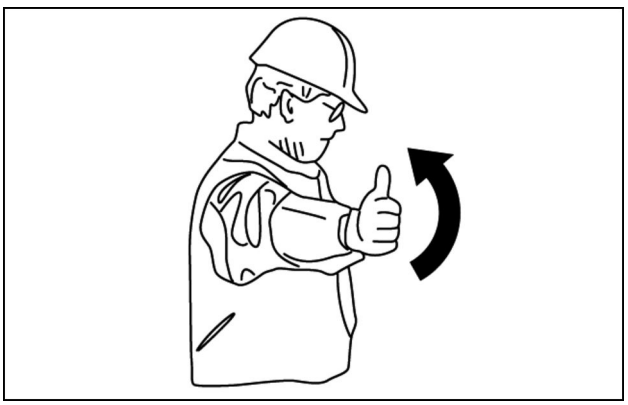
LEEN11T0017AA 13

Turn machine right swing load right
To stop movement, stop moving hand and make a fist



LEEN11T0018AA 14

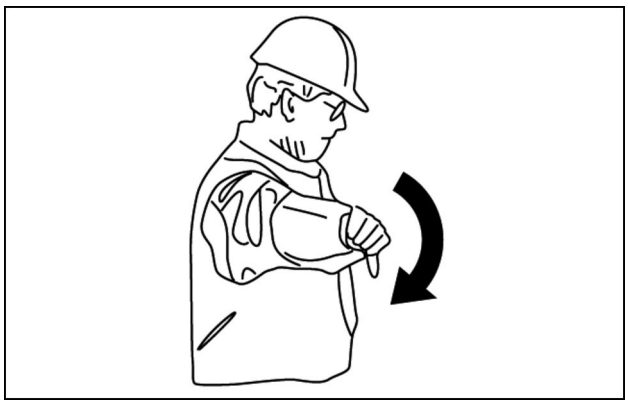
Roll back loader bucket



LEEN12T0535AA 15

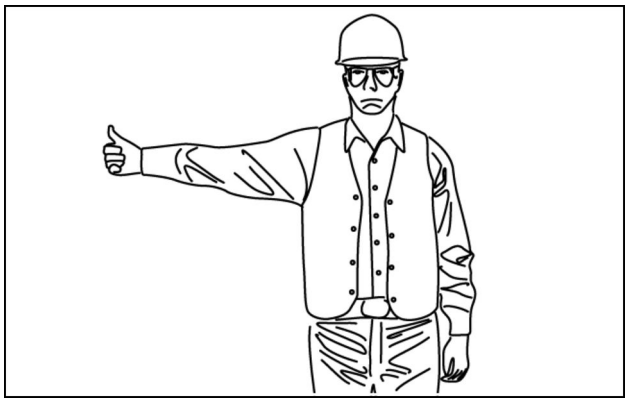
https://truckmanualshub.com/

Dump loader bucket



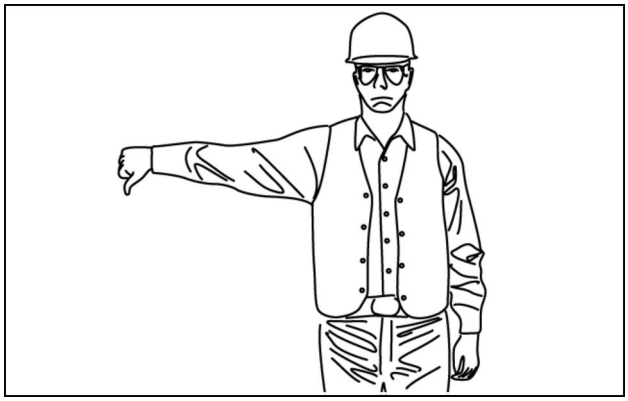
LEEN12T0536AA 16

Raise backhoe boom



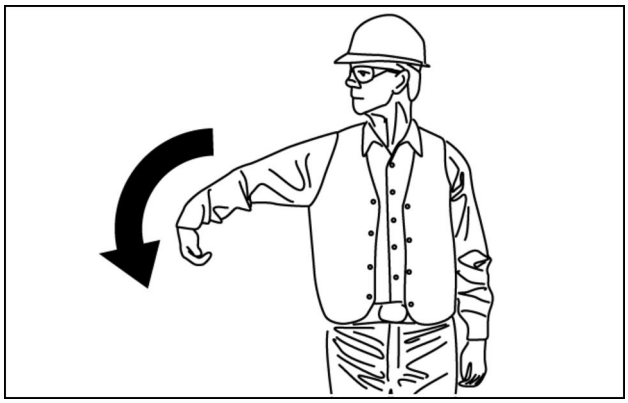
LEEN11T0019AA 17

Lower backhoe boom



LEEN11T0020AA 18

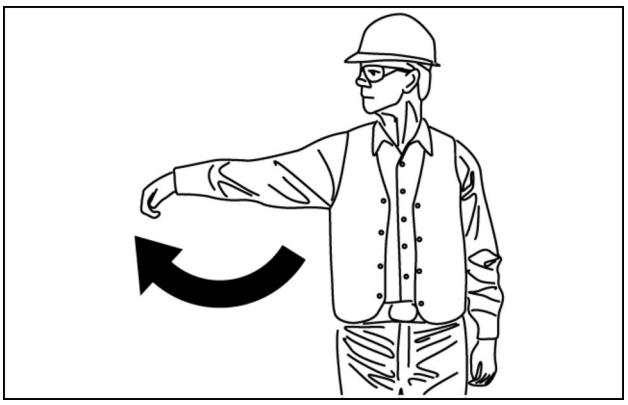
Backhoe dipper in



LEEN11T0021AA 19

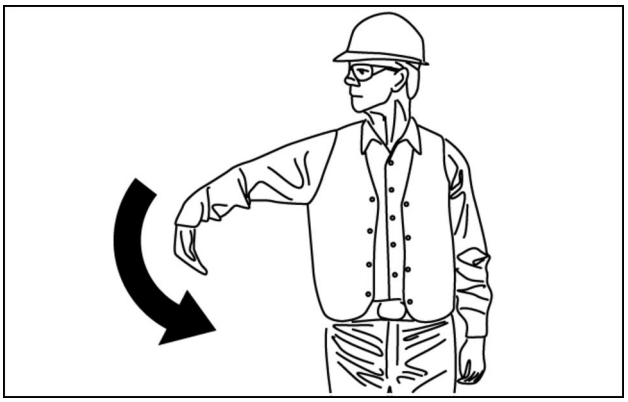
https://truckmanualshub.com/

Backhoe dipper out



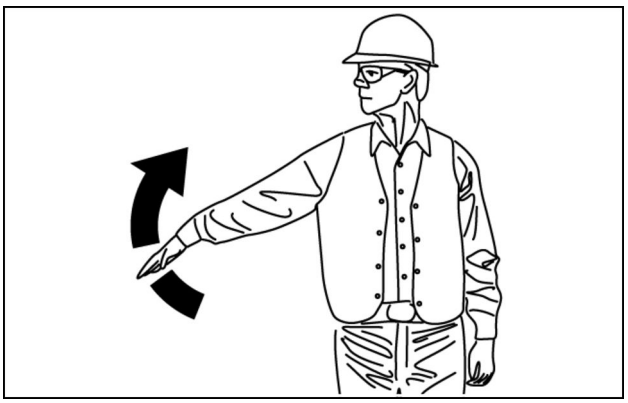
LEEN11T0022AA 20

Backhoe bucket dig



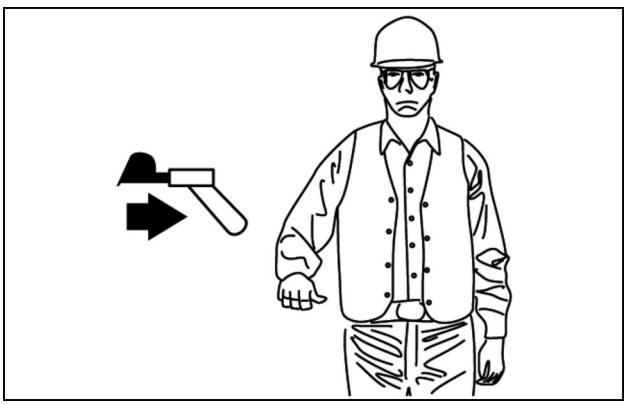
LEEN11T0023AA 21

Backhoe bucket dump



LEEN11T0024AA 22

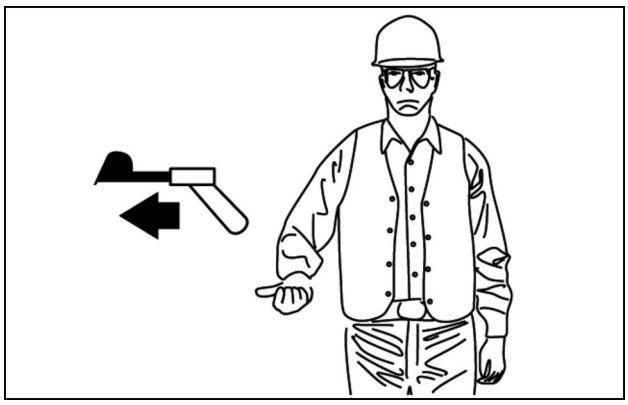
Retract telescopic dipper (if fitted)



LEEN12T0537AA 23

https://truckmanualshub.com/

Extend telescopic dipper (if fitted)



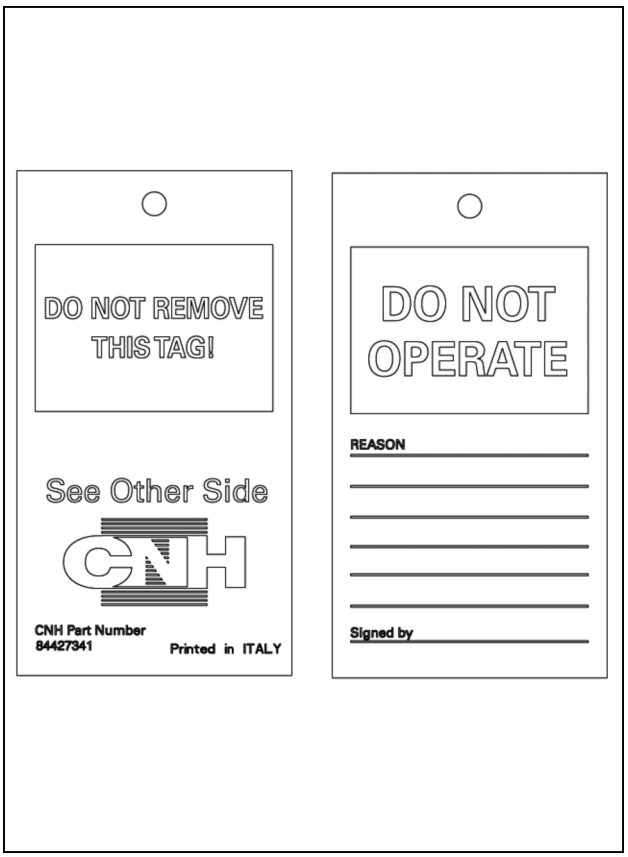
LEEN12T0538AA 24

https://truckmanualshub.com/

Do Not Operate hang tag

Before you start servicing the machine, attach a 'Do Not Operate' warning tag to the machine. Attach the tag in an area that is easily visible.

- English 84427341
- Spanish 84427340
- French 84427332
- Portuguese 84427338



LEEN12T0563BA 1

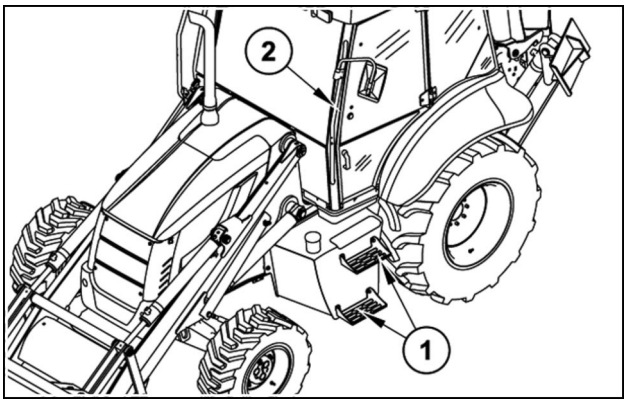
https://truckmanualshub.com/

3 - CONTROLS/INSTRUMENTS

ACCESS TO OPERATOR'S PLATFORM

Access to operator's platform

Use the steps **(1)** and access handles **(2)** when entering or leaving the operator’s compartment.



LEEN12T0539AA_2 1

⚠ CAUTION

Fall hazard!
When entering or exiting the cab, never use the control levers as handholds. Always mount and dismount the machine in a safe way. Maintain a three-point contact with steps, ladders, and/or handholds.
Failure to comply could result in minor or moderate injury.

C0075B

⚠ WARNING

Fall hazard!
Clean the steps and access handles to remove all traces of grease, oil, mud, and ice (in winter).
Failure to comply could result in death or serious injury.

W0139A

⚠ WARNING

Fall hazard!
Jumping on or off the machine could cause an injury. Always face the machine, use the handrails and steps, and get on or off slowly. Maintain a three-point contact to avoid falling: both hands on the handrails and one foot on the step, or one hand on the handrail and both feet on the steps.
Failure to comply could result in death or serious injury.

W0141A

https://truckmanualshub.com/

Doors

To open the right-hand and left-hand doors from the outside, push the lock **(1)** completely inwards and contemporarily pull the handle **(2)**.

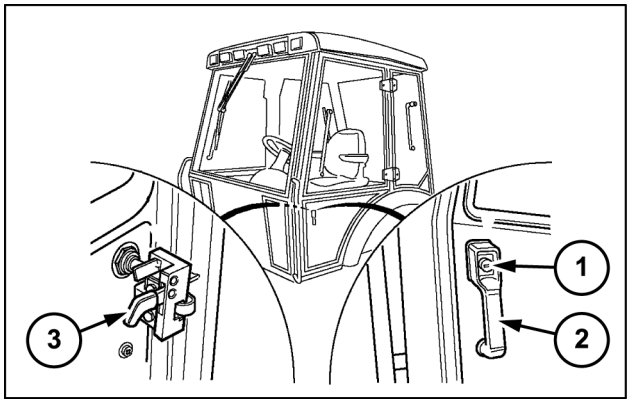
Lift the handle **(3)** to open the right-hand and left-hand doors from the inside.

NOTICE: *Use the left-hand door for entering or leaving the operator's compartment. The right-hand door is only for use in emergency.*

⚠ WARNING

Moving parts!
Make sure all entry and mechanical access doors are properly closed before operating the machine.
Failure to comply could result in death or serious injury.

W0238A



MOLI12LBB0133AB 2

NOTE: *Use the starter switch key to lock the doors.*

Cab door window

Partially opened

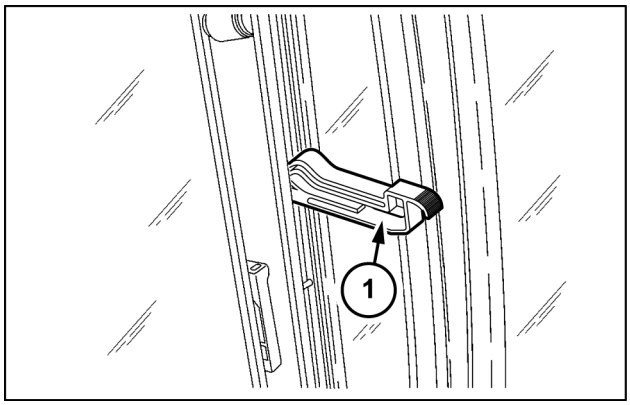
Raise the handle **(1)** and push it outwards and downwards to lock the window in a partially opened position.

Fully opened

With the window closed, raise the handle **(1)** to the horizontal position and then tilt it rearwards to disengage it from the pin. Open the window until it engages in the rubber locking device.

Closed

Make sure the window handle **(1)** completely engages in the lock pin, close the window and then tilt the handle downwards.



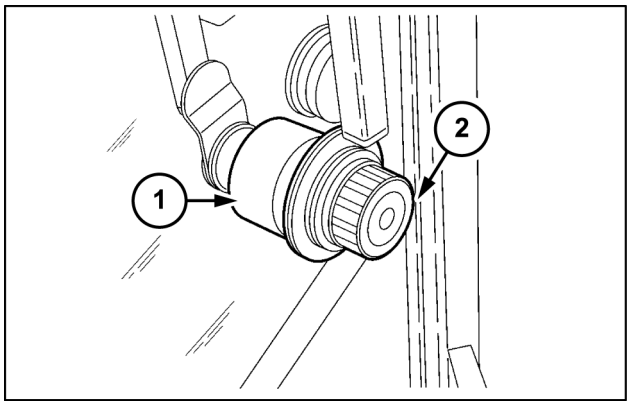
MOLI12LBB0134AB 3

Side windows

Use the window handle to open the window until it engages in the rubber locking device **(1)**. Pull on item **(2)** to release the window.

NOTICE: *Do not leave the windows free to swing but fix them in latched position.*

NOTICE: *When opening or closing windows, always hold them firmly until they are completely locked in position.*



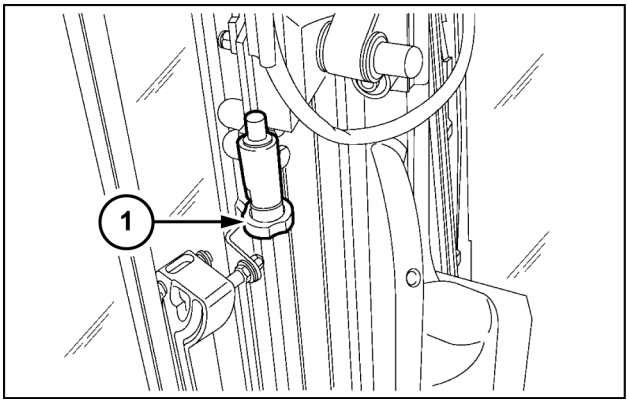
MOLI12LBB0135AB 4

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Rear windows

Opening

Release the locks **(1)** and swing the window inwards with the handles.



MOLI12LBB0136AB 5

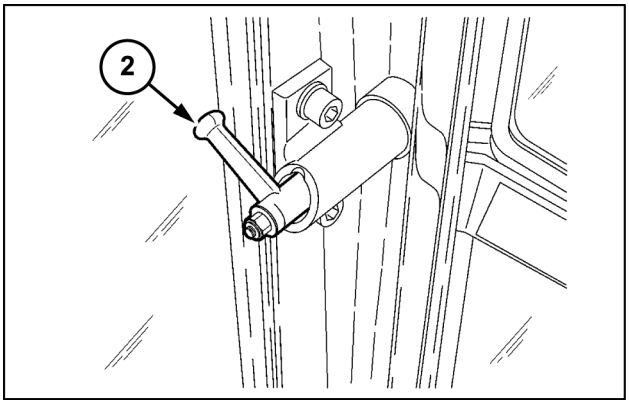
Bring the window into horizontal position and lock it with the latches **(2)**.

NOTICE: *Make sure the window is completely locked.*

Closing

Release the latches **(2)** and tilt into lower position with the handles.

Lock the window with the locks **(1)**.



MOLI12LBB0137AB 6

OPERATOR'S SEAT

Operator's seat

To operate the machine correctly with maximum efficiency and comfort, check that the operator’s seat and its adjustment controls are in good condition and then adjust the seat to suit the operator’s size and weight.

NOTICE: *Before using the controls, make sure that the seat is adjusted and positioned correctly.*

NOTICE: *Always fasten your seat belt before starting the engine. The machine is equipped with a roll over protection system (ROPS) which ensures your safety. The seat belt will protect you efficiently if you attach it correctly and if you always wear it. The seat belt must not be too loose. It must not be twisted or caught in the seat.*

ATTENTION: *Do not use the seat belt without the ROPS/ FOPS cab (or protective structure).*

NOTE: *The seat complies with standard* ***ISO 7096:2000*** *class* ***EM5****.*



MOLI12LBB0154AA 1

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Standard Seat (vinyl and de luxe model)

Armrest angle adjustment

Raise the armrest, turn the knob **(1)** to obtain the desired armrest position and then lower the armrest.

Cushion angle adjustment

To adjust the cushion angle, turn the knob **(2)** clockwise or counterclockwise, to increase or reduce the angle.

Seat belt

To attach the seat belt **(3)**, insert the buckle into the socket **(8)**.

To release the belt, press the button on the socket.

Seat back angle adjustment

To adjust the seat back angle, hold the lever **(4)** rearward, move the seat back to obtain the desired position and then release the lever.

Swing

Release the seat using lever **(5)** and swing it round. Release the lever and make sure the seat is locked correctly in place.

Combined height and weight adjustment

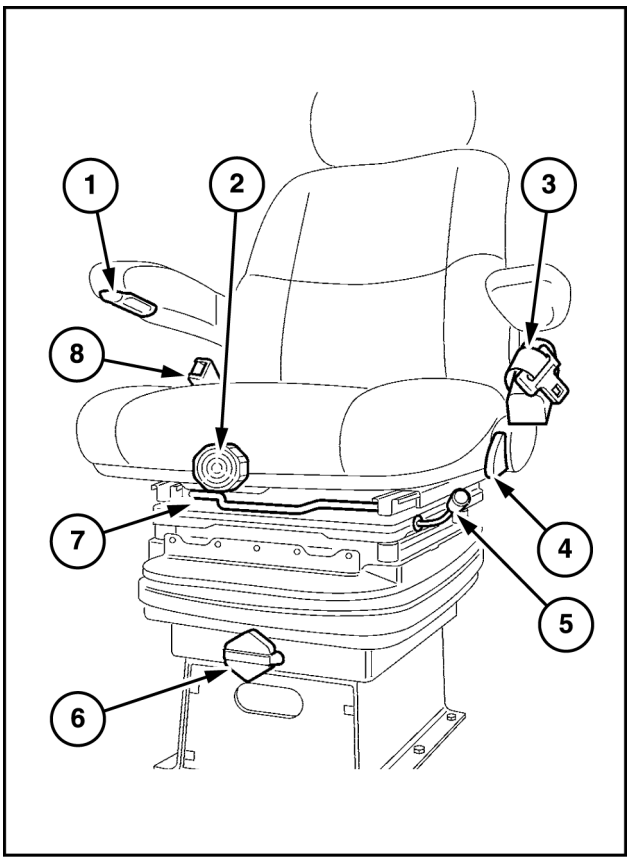
Adjustment may be made to suit the operator's size. Turn the control **(6)** to obtain the desired height.

Seat fore-and-aft adjustment

Hold the lever **(7)** in raised position, slide the seat until the desired position is reached and then release the lever.

Seat height adjustment

The seat height can be adjusted to three detent positions. To raise the seat, pull lever **(7)** upwards and lift the seat to the required position. To lower the seat, pull the seat upwards to allow the detent to disengage and the seat to return to the lowest position.



MOLI12LBB0155BB 2

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Seat (de luxe model, pneumatic version)

Arm tilt adjustment

Raise the armrest, turn the knob **(1)** to obtain the desired armrest position and then lower the armrest.

Cushion angle adjustment

To adjust the cushion angle, turn the knob **(2)** clockwise or counterclockwise, to increase or reduce the angle.

Lumbar support adjustment

Turn the knob **(9)** to obtain good back support from the seat back.

Seat belt

To attach the seat belt **(3)**, insert the buckle into the socket **(8)**. To release the belt, press the button on the socket.

Seat back angle adjustment

To adjust the seat back angle, hold the lever **(4)** rearward, move the seat back to obtain the desired position and then release the lever.

Swing

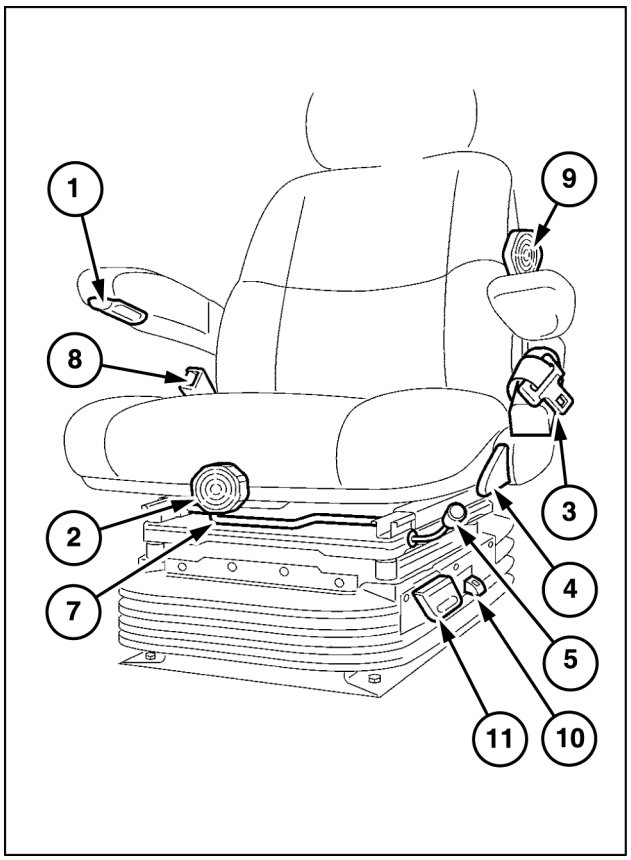
Release the seat using lever **(5)** and swing it round. Release the lever and make sure the seat is locked correctly in place.

Combined height and weight adjustment

Lower the lever **(11)** to reduce the rigidity of the suspension. Raise the lever to increase the rigidity of the suspension. The indicator **(10)** shows the result.

Seat fore-and-aft adjustment

Hold the lever **(7)** in raised position, slide the seat until the desired position is reached and then release the lever.



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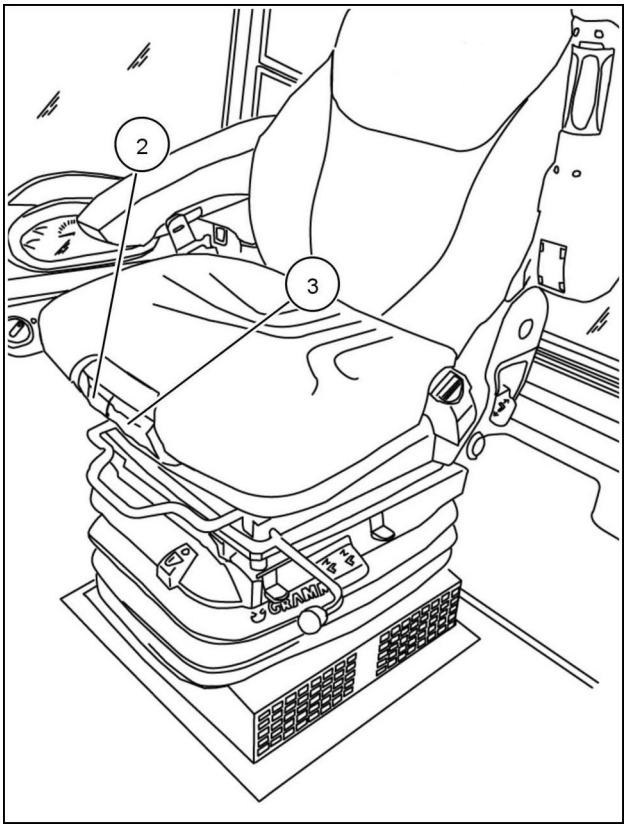
https://truckmanualshub.com/

PNEUMATIC SEAT

Cushion tilt adjustment

Lift handle (2) up and move the cushion to the desired position. Release the handle to lock the cushion in place.

Lift up on the handle (3). Move the seat to the desired angle. Release the handle to lock the cushion angle.

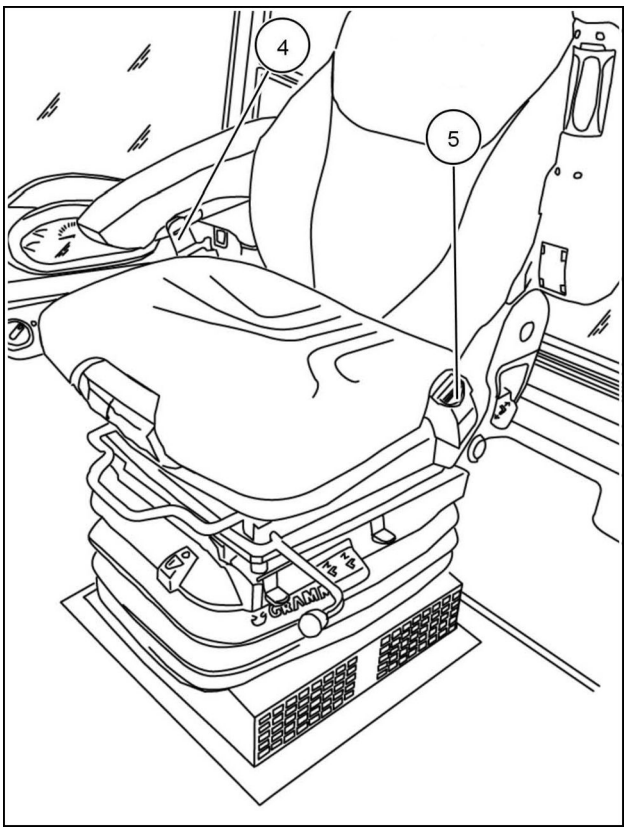


LEEN11T0459AA 4

SEAT BELT

To attach the seat belt (4), insert the buckle into the socket (5).

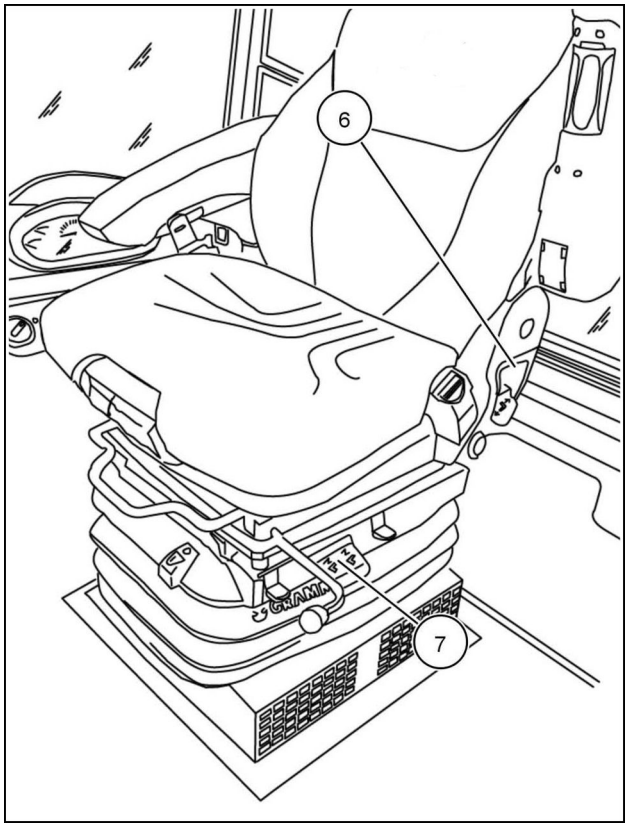
To release the belt, press the button on the socket (5).



LEEN11T0460AA 5

SEAT BACK ANGLE ADJUSTMENT

To adjust the seat back angle, hold the lever (6) rearward, move the seat back to obtain the desired position and then release the lever.



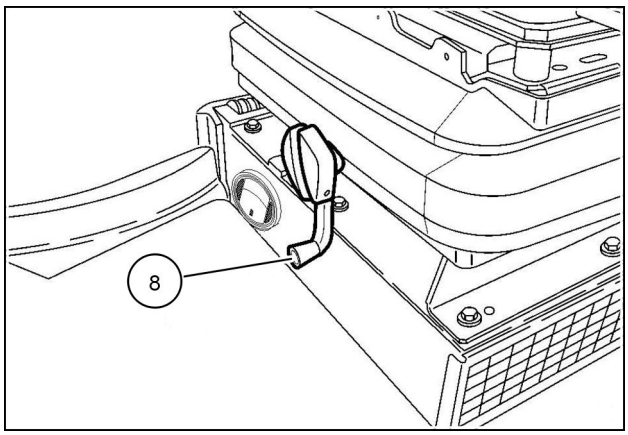
LEEN11T0461AA 6

SWING

Release the seat using lever (7) and swing it round. Release the lever and make sure the seat is locked correctly in place.

COMBINED HEIGHT AND WEIGHT ADJUSTMENT (Mechanical version)

Adjustment may be made to suit the operator's size. Turn the control (8) to obtain the desired height.

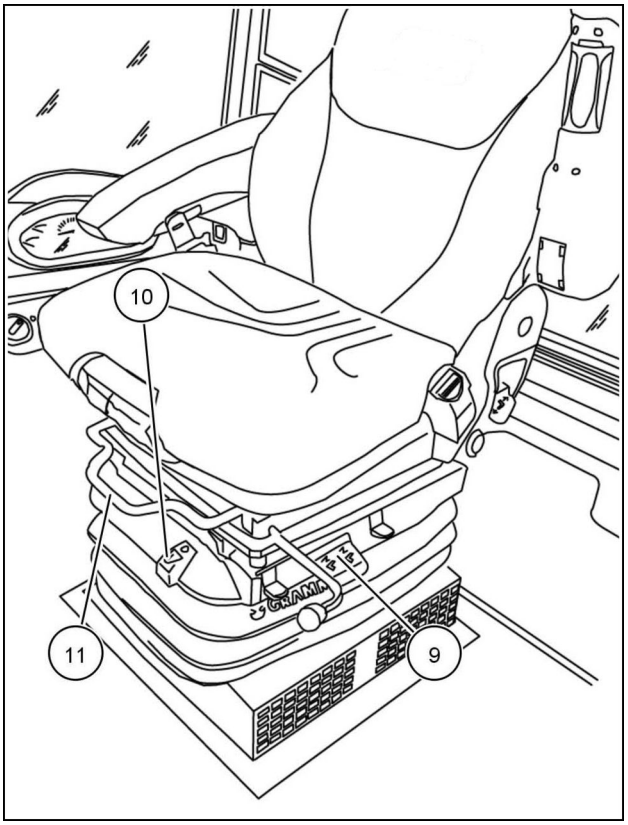


LEEN11T0087AA 7

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(Pneumatic version)

Lower the lever (9) to reduce the rigidity of the suspension. Raise the handle to increase the rigidity of the suspension. The indicator (10) must be green when the operator is sitting on the seat.



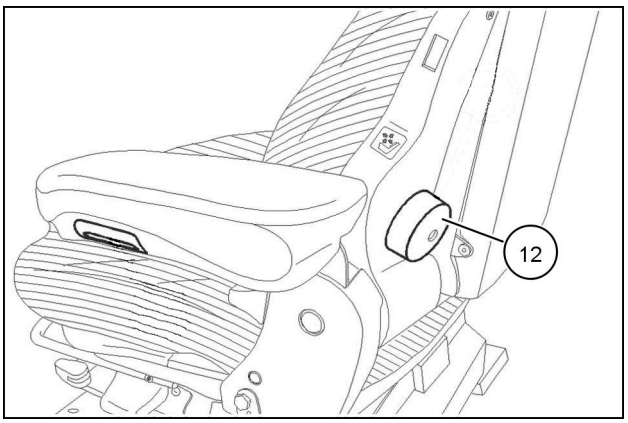
LEEN11T0464AA 8

SEAT FORE-AND-AFT ADJUSTMENT

Hold the lever (11) in raised position, slide the seat until the desired position is reached and then release the lever.

LUMBAR SUPPORT ADJUSTMENT

Turn the knob (12) to obtain good back support from the seat back.



LEEN11T0088AA 9

FORWARD CONTROLS

Front controls

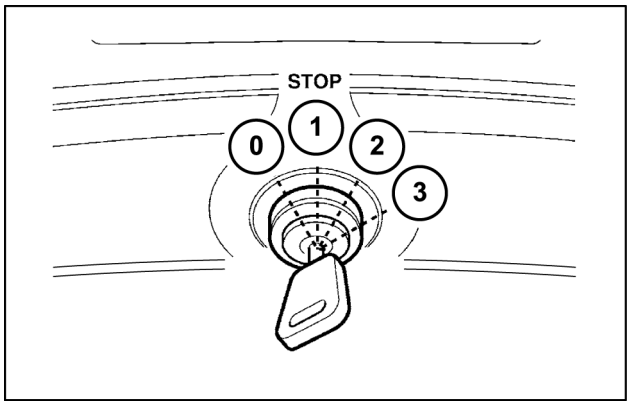
NOTE: *The instruments represented may not exactly correspond to the instruments on your machine.*

Starter switch key

⚠ WARNING

Misuse hazard!
Before starting the engine, make sure you are fully aware of the location and the function of each control.
Failure to comply could result in death or serious injury.

W0226A



MOLI12LBB0105AB 1

Located on the right of the operator's seat (with seat in loader attachment position), this switch has four positions:

Position "0": not used

Position "1": stop

Position "2": run

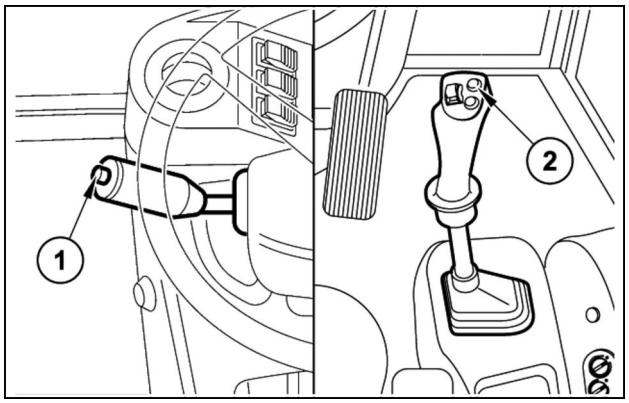
Position "3": start

NOTE: *This key can be used to lock the cab doors, the engine guard and the fuel tank plug.*

Horn button

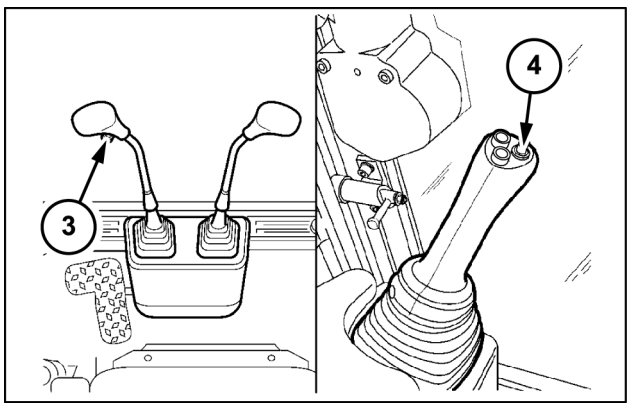
To sound the horn, press the button:

- **(1)** on the transmission control lever (only for Power-Shuttle models).
- **(2)** on the loader attachment control lever (only for Power-Shift models).



LEEN12T0540AA 2

- **(3)** on the backhoe attachment mechanical control lever (only for mechanical control models).
- **(4)** on the left hand backhoe attachment hydraulic control lever (only for pilot-control models).



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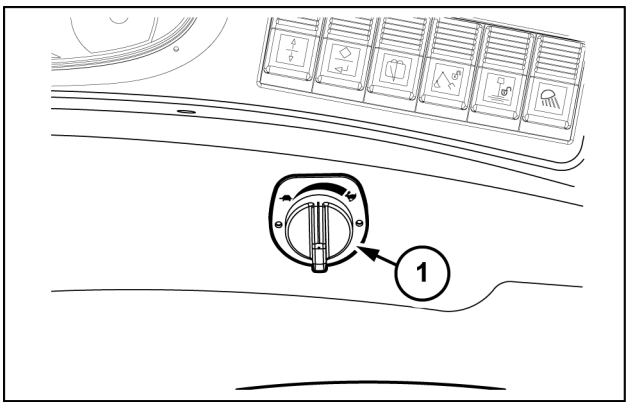
Engine accelerator knob

The knob **(1)** enables the engine speed to be increased or decreased.

Turn to to increase the speed.

Turn to to decrease the speed.

NOTICE: *Never use the knob **(1)** during travel on public highways.*



MOLI12LBB0127AB 4

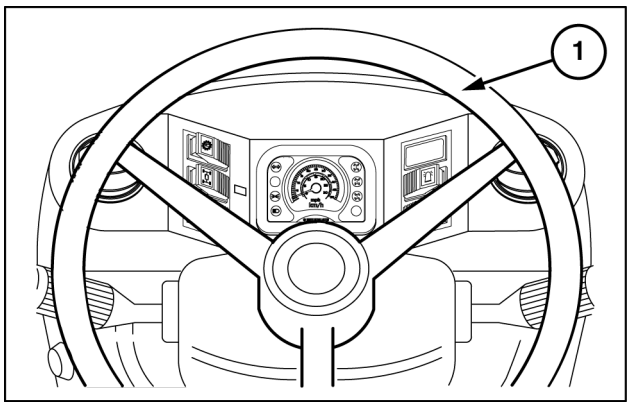
Steering column

The machine is equipped with a hydrostatic power steering, which considerably reduces the effort necessary to turn the steering wheel **(1)**. Familiarise yourself with the effort required to turn the wheel before driving the machine for the first time.

ATTENTION: *Because your machine is equipped with hydrostatic power steering, never hold the steering wheel against either of the steering stops. Failure to observe this precaution may result in damage to the steering system components.*

NOTICE: *In case of a broken steering hose, the machine cannot be steered, stop the machine immediately and contact your Dealer.*

In the event of loss of power steering due to engine failure, the machine can still be driven to a place of safety. The force necessary to turn the steering wheel and steer the machine will, however, be much higher.



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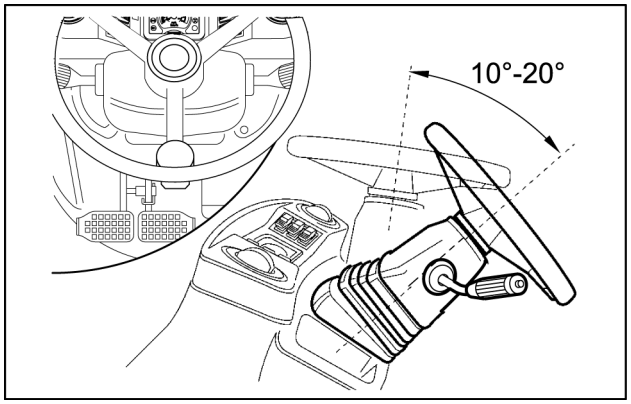
Adjustable steering column (optional)

The angle of the steering column can be varied through an approximate range of **10 - 20 °**.

Adjustment is by release of the foot pedal at the base of the column. Apply a light pressure to this pedal and position the steering column to suit your needs.

With the column in the desired position release the foot pedal which will lock the column in position.

NOTICE: *It is essential that the machine be brought to a complete stop before attempting to adjust the steering column tilt position. If this instruction is not observed an accident may occur.*



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Pedal controls

Engine accelerator

Located under the steering wheel, this pedal **(1)** enables the engine speed to be increased or decreased.

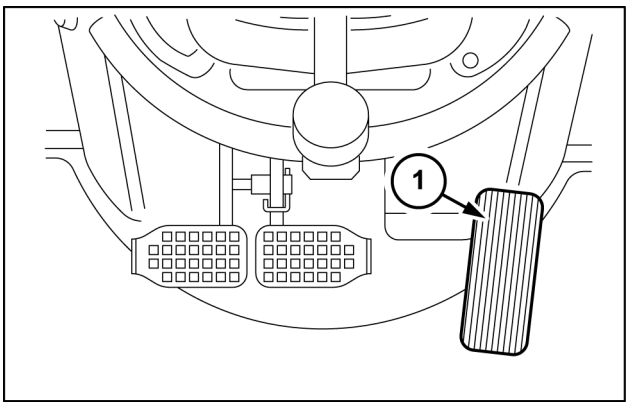
Deeply press the pedal to increase the engine speed.

Release the pedal to reduce the engine speed.

This pedal is used for travel and for operating the loader attachment.

NOTE: *This pedal is coupled with the engine accelerator knob/lever. Before using the pedal, make sure that the manual accelerator is in the minimum speed position.*

NOTICE: *Never use this pedal when working with the backhoe attachment.*



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Brake pedals

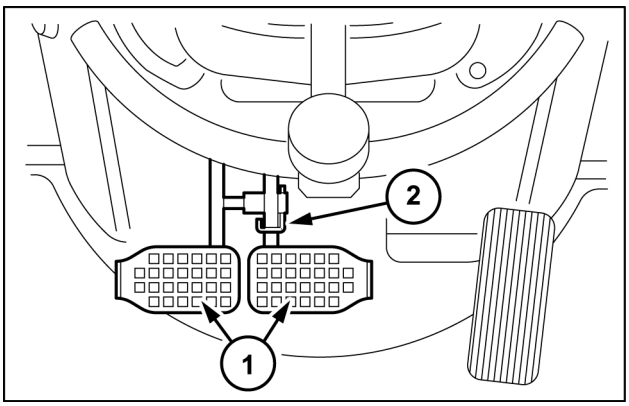
Located under the steering wheel, these two pedals **(1)** are equipped with a system **(2)** which enables them to be locked together or unlocked.

This enables the machine either to be braked (pedals locked) by pressing either of the pedals or to be turned (pedals unlocked) to the right by pressing on the right-hand pedal or to the left by pressing on the left-hand pedal.

Braking with one pedal only should only be carried out at low speed.

NOTE: *When the pedals are locked and the brakes are applied, the lamp of the 2WD - 4WD switch turns on the front instrument panel.*

To lock the two pedals together, tilt the latch so it engages on the right-hand pedal.



MOLI12LBB0128AB 2

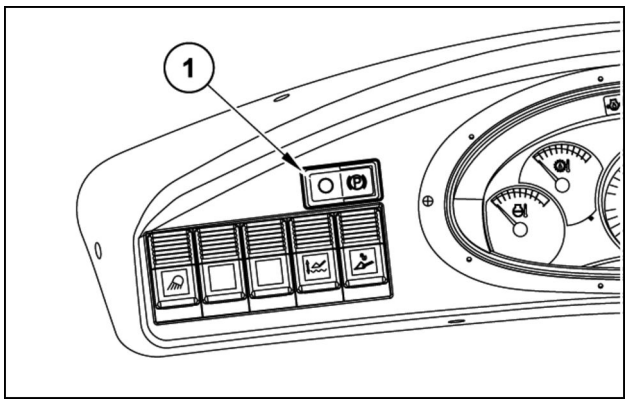
Parking brake lever

The parking brake is a Spring Applied Hydraulic Released **(SAHR)** brake.

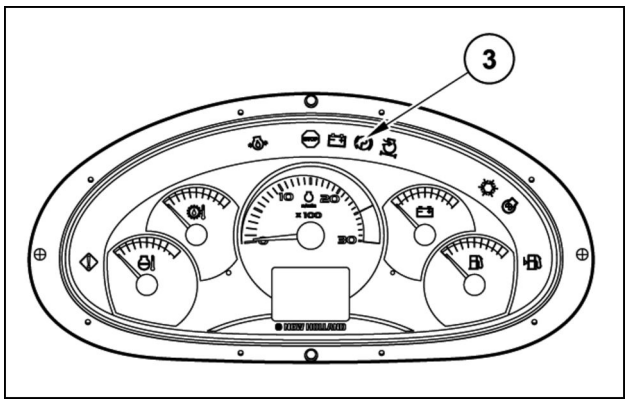
⚠ WARNING

Loss of control hazard!
To prevent inadvertent machine movement, take care to avoid accidental contact with the gearshift levers. Always stop the engine, firmly apply the parking brake, and place all gearshift levers in neutral before leaving the machine.
Failure to comply could result in death or serious injury.

W0130A



LEEN12T0541AA 1



LEEN12T0542AA 2

The parking brake should be applied if the engine is stopped. The parking brake is always engaged when the ignition switch is turned "OFF".
At start up, cycle the switch from the park emblem to the O emblem. Cycle the switch, regardless of the position the switch **(1)** was in at startup..

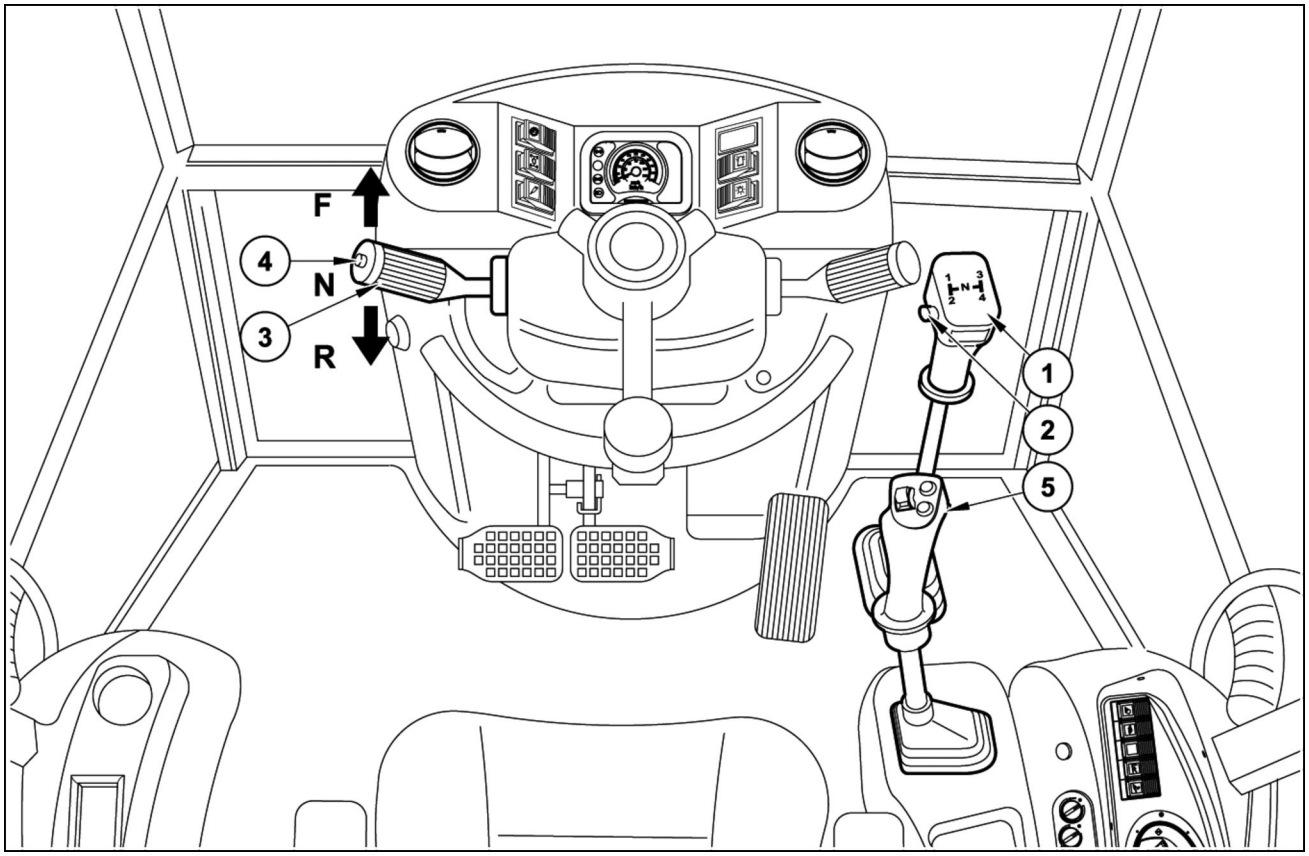
Press Ⓟ to engage the parking brake [the control lamp **(2)** on the side instrument turns on]

Press ○ to release the parking brake [the control lamp **(2)** on the side instrument turns off].

ATTENTION: *a failure in the operating procedure or a failure in the electrical or hydraulic function can result in abrupt engagement of the parking brake. Always wear your seat belt.*

Transmission controls

Power-Shuttle



LEEN12T0543FA 1

1. Gearshift lever: It is possible to select four forward and four rearward travel gears.
2. Transmission disconnect button (on gearshift lever): prior to changing gear depress and hold down this switch which disengages transmission drive, select the required gear with the gearshift lever and release the switch to reengage drive.
3. Direction lever: the movement of this lever from the neutral position will engage the forward or reverse travel.

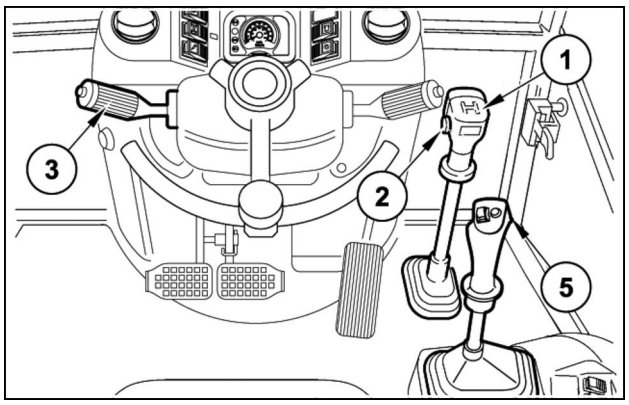
   NOTE: *in reverse gear an audible alarm device sounds.*
4. Horn button.
5. Transmission disconnect button (on loader attachment control lever).

Transmission

The transmission is fully synchronized providing four forward and four reverse speeds allowing gear ratio changes on the move. A torque converter is used to connect the engine to the transmission and the column mounted Power-Shuttle lever **(3)** enables shifts between forward and reverse travel without disengaging gear ratios.

A device for “transmission disconnection” is activated by pushing button **(2)**, placed on the gearshift lever **(1)** or by pushing button **(5)**, placed on the loader attachment control lever.

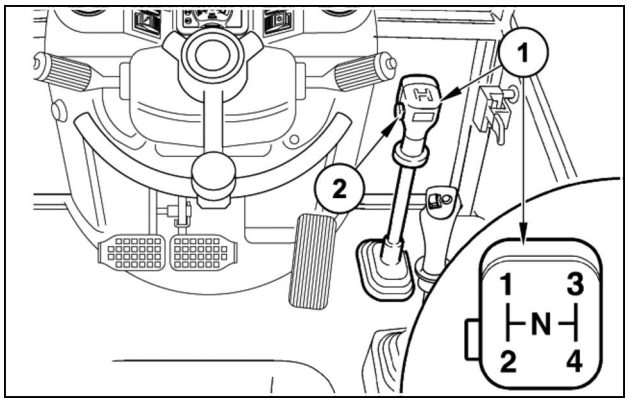
NOTICE: *Always apply the parking brake whenever the machine is parked as the machine is free to roll even though the transmission gearshift lever and power reversing lever may be “In Gear” and the engine is turned OFF.*



LEEN12T0544AA 2

Gearshift lever

The single gearshift lever **(1)** is used to select any of the four gear ratios. The transmission disconnect button **(2)** is depressed and held as the lever is shifted from one gear to another and then released to re-connect transmission drive.



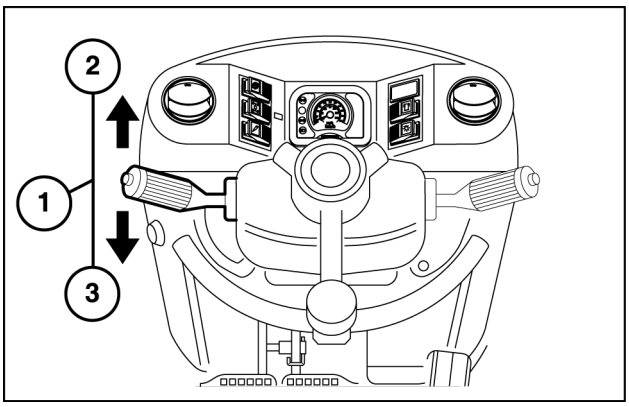
LEEN12T0545AA 3

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Forward/reverse Power-Shuttle lever (travel direction change)

To select the forward travel, engage the required gear ratio with the gearshift lever, then, with the engine idling, lift the Power-Shuttle lever from the neutral lock position **(1)** and move it to the forward position **(2)**. Use the accelerator pedal to control the engine rpm and the ground speed.

To reverse the direction of travel, reduce engine speed and move the power reversing from neutral lock position **(1)** and rearwards **(3)** for reverse travel an audible alarm device sounds.



MOLI12LBB0115AB 4

NOTICE: *The Power-Shuttle lever is equipped with a neutral lock to prevent an accidental engagement of the transmission. With this design, the Power-Shuttle lever moves through a "T" slot to the forward or reverse positions.*

NOTICE: *When operating at low environmental temperatures with cold transmission oil, allow the oil to warm up before attempting to shift the Power-Shuttle lever. The transmission can be shifted normally after the oil warms up.*

NOTICE: *The transmission is disconnected whenever the parking brake is engaged.*

NOTICE: *The Power-Shuttle lever can be shifted at any engine speed; however, as a safety and precautionary measure, the engine must run at approximately* ***1200 RPM****.*
This action is easily controlled by using the foot accelerator to control engine and ground speed.

Transmission disconnection

The 4x4 transmission provides for easy upward and downward gear ratio changes on the move. However, as a clutch is not used between the engine and transmission, the power flow from the engine to the transmission must be interrupted to shift from one gear ratio to another. This is accomplished by using a transmission disconnect (dump) button.
The finger operated button **(2)** on the main gearshift lever knob **(1)** is easy to operate.

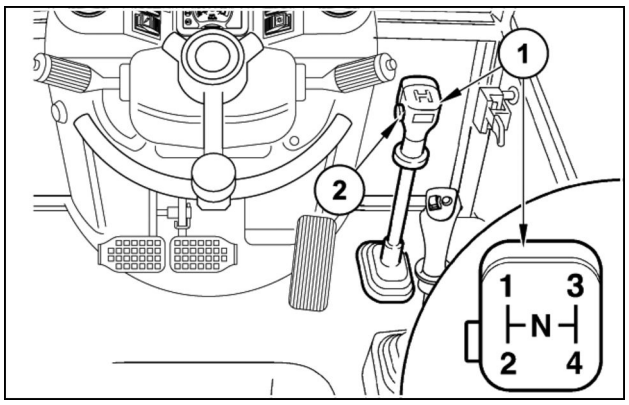
ATTENTION: *To avoid personal injury do not use the disconnect switch control to coast down hill. Excessive speed may cause loss of control, personal injury to a bystander or failure of the transmission.*

To make upward gear ratio changes simply depress and hold the button **(2)** on the gearshift lever **(1)**, while moving the lever from one gear ratio to another. When the desired gear ratio has been selected release the button and allow the unit to gain engine speed and ground speed. If another higher ratio is required repeat the procedure.

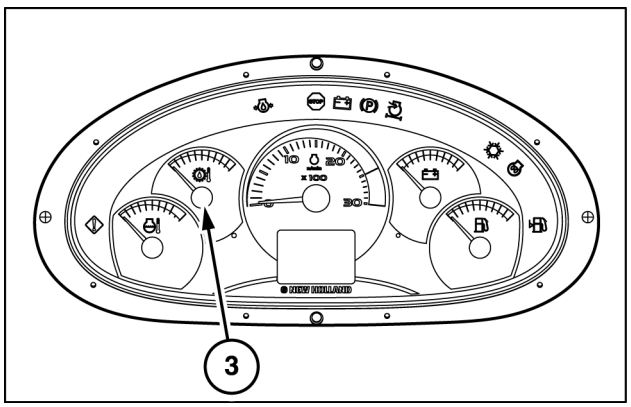
NOTICE: *To prevent possible damage to the transmission hydraulic clutches, never use the disconnect switch for inching the machine forward. Inching the machine forward with the button will cause the clutches to slip excessively and overheat.*

To make downward gear ratio changes or reduce ground speed, simply lower the engine speed, depress and hold the gearshift lever button and downshift the transmission. When the desired gear ratio has been selected release the button and adjust the engine speed to suit ground speed required.
Operating the machine in a too high gear or under a too heavy load will cause the torque converter to slip excessively and overheat. If the machine is overloaded, the engine speed will not exceed a range of **1800 - 2200 RPM** at maximum accelerator and the torque converter will “stall” bringing the machine to a complete stop.
If “stall” does occur, there is still sufficient engine power to operate the loader attachment; however, to prevent the transmission from overheating, either reduce the load on the machine or select a lower gear ratio.

NOTICE: *Operating at a “stall” for more than **20 s** can cause the transmission to overheat and can possibly damage the transmission. If the transmission overheats, the needle **(3)** reaches the red field. Shift both the Power-Shuttle lever and the gearshift lever to neutral. Let the engine run idle (**1000 RPM**) until transmission oil cools down enough to have the needle **(3)** return to correct position. Once the needle is returned to its position, all operations can be resumed.*

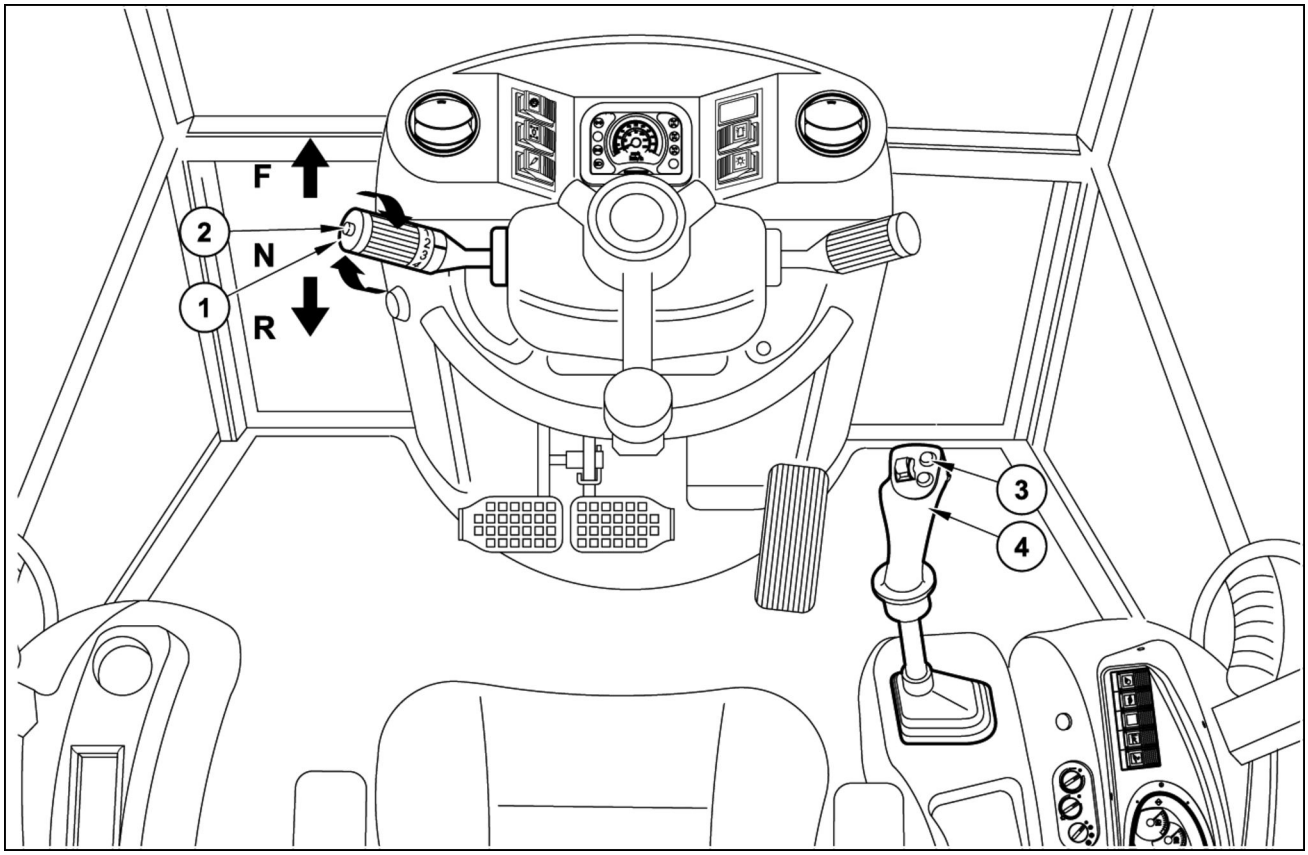


LEEN12T0545AA 5



MOLI12LBB0117AB 6

Power shift transmission controls



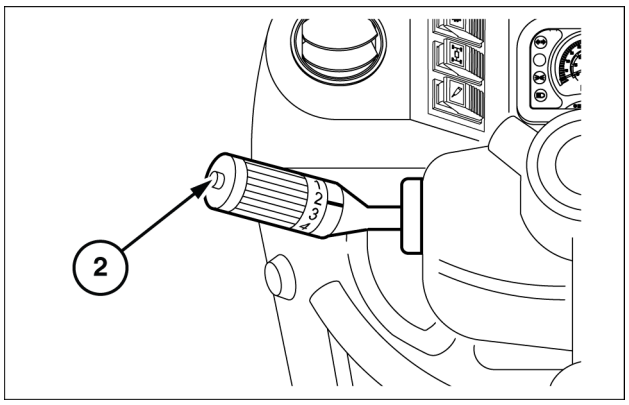
LEEN12T0546FA 7

1. Power shift transmission gearshift and direction-of-travel lever: It is possible to select four forward and four rearward travel gears.
   The lever has 3 positions, according to which the travel direction is defined:
   F = Forward travel
   N = Idle/neutral
   R = Reverse
   By turning the knob, instead, the following gears are selected:
   1 = 1st gear
   2 = 2nd gear
   3 = 3rd gear
   4 = 4th gear
2. Kickdown switch: if the machine is in 2nd gear and 1st is required for loader work engaging kickdown instantly drops the gear from 2nd to 1st. When reverse is selected the transmission reverts to 2nd gear. When the reverse travel is activated, transmission reverts to second gear.
3. Horn button.
4. Transmission disconnect button (on loader attachment control lever).

Kickdown

The kickdown function (2nd to 1st gear only) instantly increases the torque on the driving wheels and, hence, the digging power. For example when the loader is pushing into a pile and more torque is required at the wheels.

This is achieved by an instant gearshift from 2nd to 1st by using button **(2)** without activating the gearshift lever.



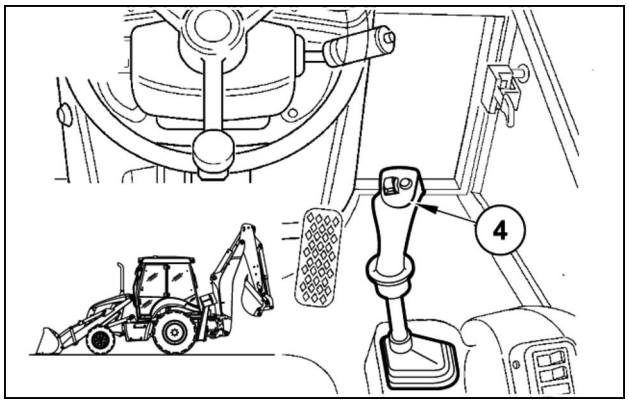
MOLI12LBB0119AB 8

Transmission disconnection

The disconnect feature is useful when loading, for example; when pushing the loader into a pile and you have sufficient dirt in the bucket press the disconnect switch **(4)** which disengages the transmission and allows the full power of the engine to be directed to the hydraulic oil pump.

Disconnect is available in 1st and 2nd gear.

NOTE: *Transmission disconnect is selectable, when the machine speed is less than* ***5 km/h*** *(****3.11 mph****) and by depressing the button on the loader lever and remains active until the pedals or switch are released.*



LEEN12T0547AA_1 9

RIGHT-HAND SIDE CONTROLS

Right-hand side controls

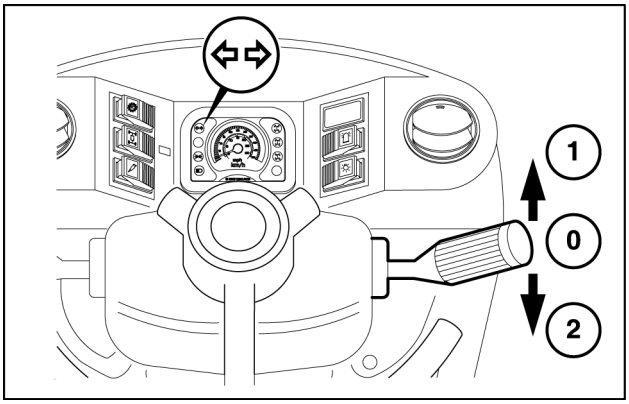
Lever for direction indicators, main beams, front windshield wiper and washer (CAB)

Located on the right of the steering wheel, this lever has five positions:

Position “0”: Neutral

Position “1”: The left-hand direction indicators and the direction indicator lamp under the steering wheel flash at the same speed.

Position “2”: The right-hand direction indicators and the direction indicator lamp under the steering wheel flash at the same speed.



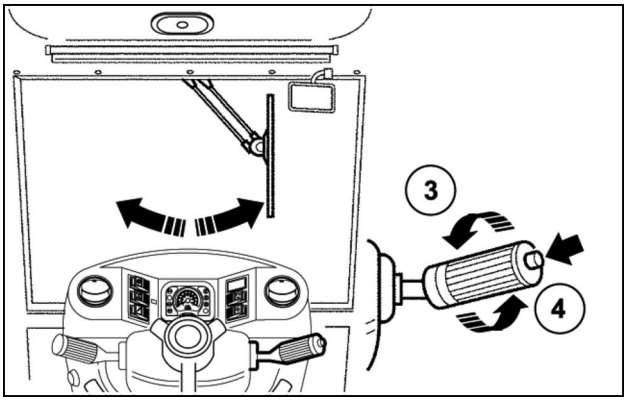
MOLI12LBB0109AB 1

Position “3”: Turn the knob of the handle counterclockwise to activate the front windshield wiper.

0 = Stop

I = Normal speed

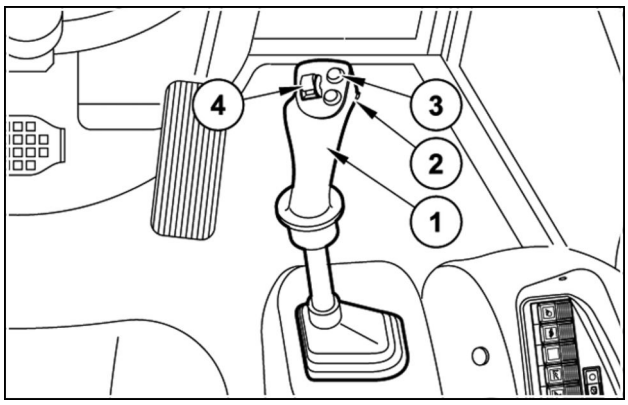
Position “4”: (momentary action control) Press and hold down the button on the tip of the handle to operate the windshield washer.



LEEN12T0781AA 2

Loader attachment control lever

1. Loader attachment control lever
2. Transmission disconnect button
3. Horn button
4. Roller for the proportional control Of 4 x 1 loader bucket



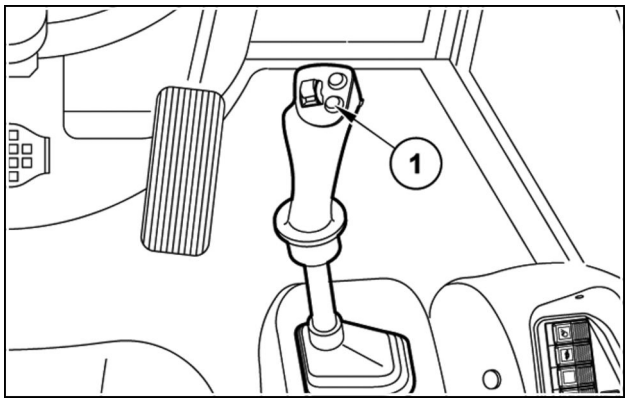
LEEN12T0548AA 3

Differential lock switch

⚠ WARNING

Loss of control hazard!
Avoid using differential lock at speeds above 8 km/h (5 mph). Never use at speeds above 15 km/h (9 mph) or at any time when turning the machine.
Failure to comply could result in death or serious injury.

W0334A



LEEN12T0549AA 4

To activate the differential lock, carry out the following procedure:

- before engaging the differential lock make sure neither rear wheel is spinning freely.
- to engage the differential lock, press the switch **(1)**.
- to disengage the differential lock, release the switch **(1)**.

The differential lock effectively places both rear wheels into a direct drive, this action stops one rear wheel spinning.

The lock will remain engaged until either of the foot brakes are applied and the machine stops or by disengaging the switch.

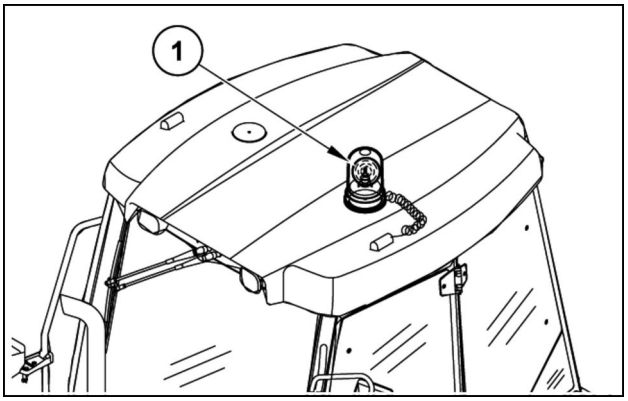
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EXTERIOR CONTROLS

Rotating beacon – Optional

The rotating beacon **(1)** should be placed on the cab roof and the cable connected to one of the **12 V** sockets over the door on each side of the machine.

NOTICE: *The rotating beacon must be installed and operated when undertaking road travel.*



LEEN12T0550AA 1

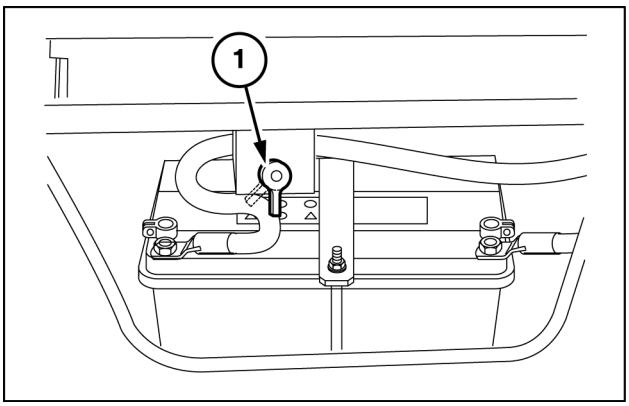
Battery master switch

NOTE: *The battery master switch must be switched off at the end of each working day, for machine service or for any operations on the electrical system.*
It acts as an anti-theft device when the cab doors and windows are locked.

The battery master switch **(1)** is located in the battery compartment and is used to completely disconnect the battery from the electrical system.

When the battery master switch has an inclination of 45°, the circuit is disconnected.

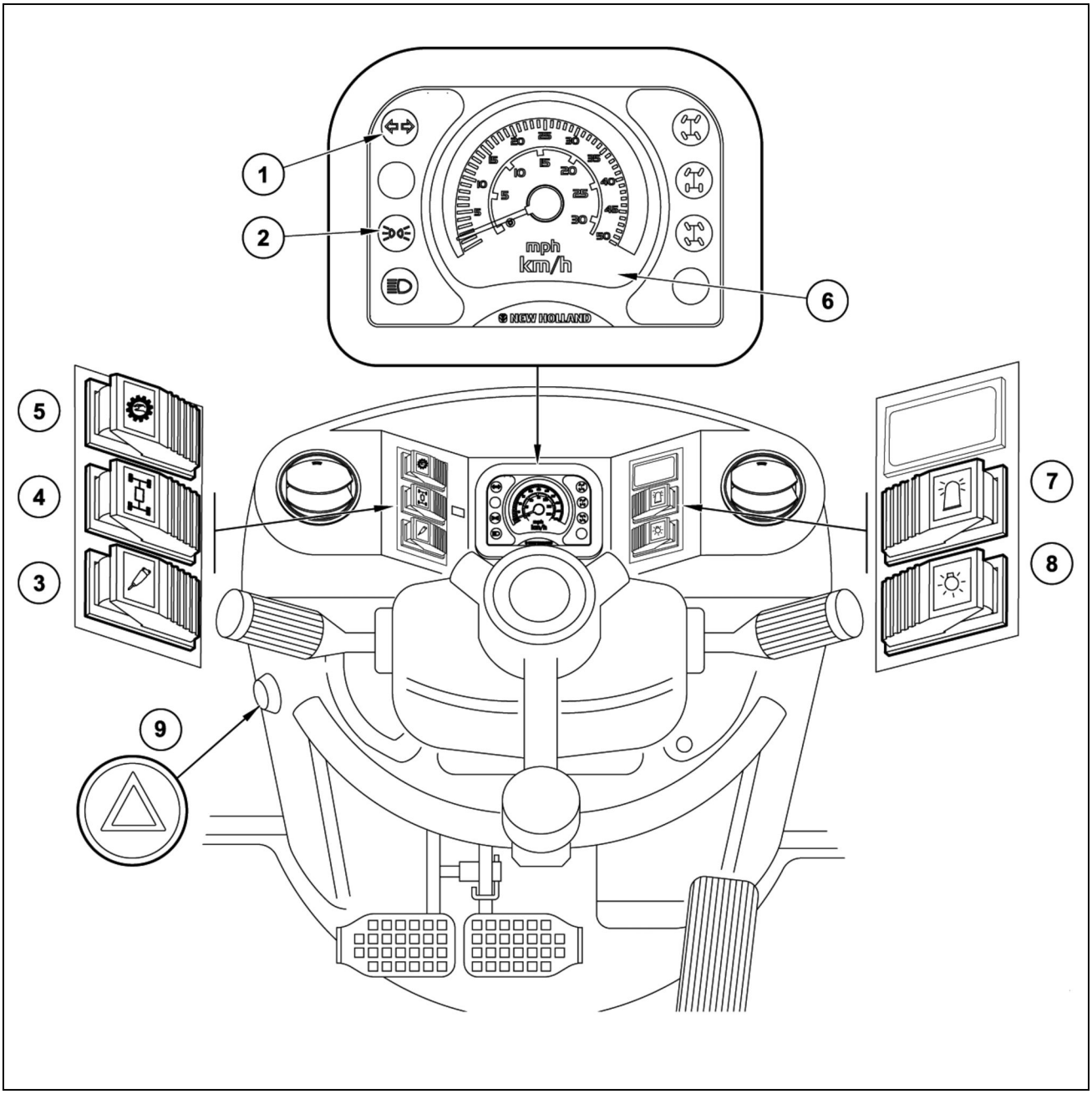
When the master switch is in vertical position, the circuit is connected.



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INSTRUMENT CLUSTER

Instrument cluster – Front



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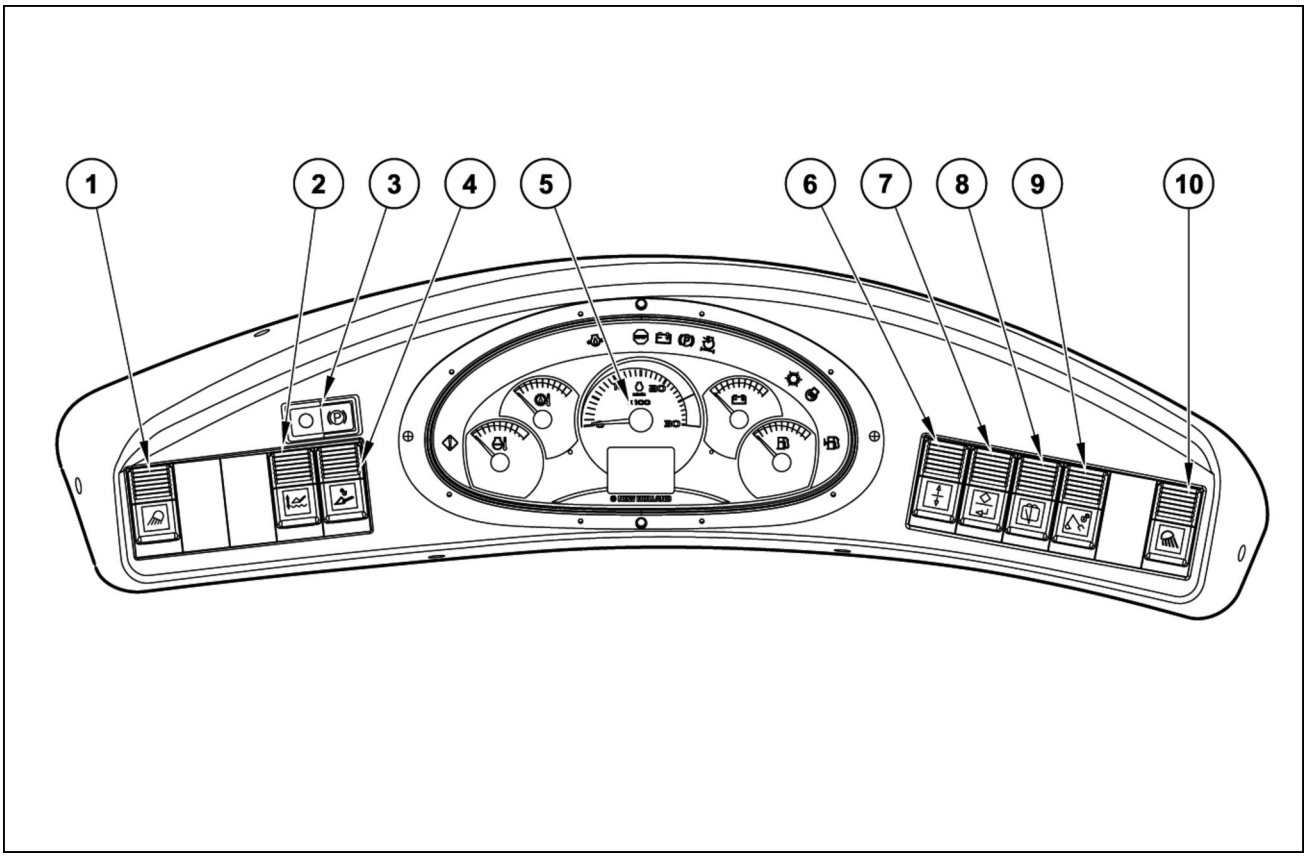
1. Direction indicator lamp
   This lamp turns on when the direction indicators are working.
2. Side rear light indicator lamp
   This indicator lamp turns on when the side rear lights are on.
3. Hand-held auxiliary hydraulic attachment switch (optional)
   This switch has two positions:
   - The first position is OFF (control lamp on).
   - The second position is ON and enables the auxiliary hydraulic attachments (control lamp off).

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4. 2WD/4WD Switch
   This switch is used to engage or disengage the 4WD function.
   This switch has two positions:
   - First position (Power-Shuttle) (by pushing button on the right):
     Rear wheel drive and braking on rear wheels for all gears (lamp off).
   - First position (Power-Shift) (by pushing button on the right):
     Rear wheel drive with braking only on rear wheels (only in first and second gear) (lamp off);
     rear wheel drive and braking on 4 wheels (in third and fourth gear) (lamp on) when both brake pedals activated.
   - Second position (by pushing button on the left):
     4 wheel drive and braking on 4 wheels (lamp on).
5. Manual mode selection switch (powershift transmission
   In situations where manual gearshifting (up or downshift) is required, the automatic gearshift of the powershift transmission can be overridden by means of this switch.
   When the manual mode is no longer required, place the switch back to the OFF position to return to automatic gearshifting.

   NOTE: *Changing gears up or down must always be done using the powershift transmission lever.*
6. Speedometer (Optional)
   The speedometer shows travel speed in kilometres per hour (km/h) and miles per hour (mph).
7. Rotating beacon switch
   This switch is used to turn the rotating beacon on or off.
8. Light switch
   This switch has two positions:
   - The first position is OFF (control lamp off).
   - Second position, by pressing the symbol side (first click), the instrument cluster panel is powered, the side rear lights indicator lamp is turned on (control lamp on)
9. Hazard light switch
   Press the control down to locked position. The direction indicators and the control will flash simultaneously. Press the control down again to turn off the direction indicators and the indicator lamp.

Instrument cluster panel – Side



LEEN12T0552FA_1 1

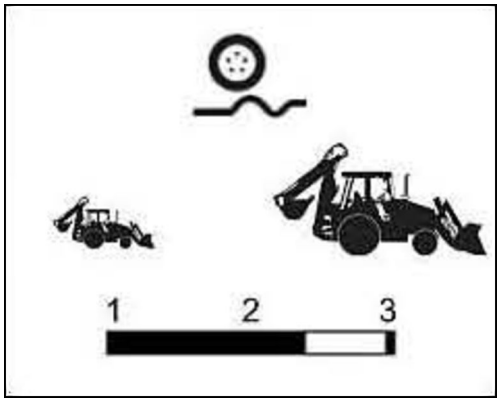
1. Front work light switch
   This switch has three positions:
   - The first position is OFF (control lamp off).
   - Second position, by pressing the symbol side (first click), cluster **(5)** turn on, switches backlighting turnings on and the outer front work lights are turned on (control lamp on).
   - Third position, by pressing the symbol side again (second click), the inner front work lights are turned on too (control lamp on).

2. "Glide ride" switch (optional on 2WD models)
   The "glide ride" system control improves the machine comfort during travel, regardless of the type of terrain and with the loader bucket full or empty.
   It reduces forward and rearward pitching when moving rearwards or forwards and when carrying loads, at the same time increasing productivity and operator comfort.
   It also reduces impact forces to the machine during operation. Do not use this system while operating the loader attachment.

   ATTENTION: *Never operate the "glide ride" system control when the loader arm and loader bucket are maintaining the front of the machine raised off the ground. The machine could fall and cause serious or fatal injury.*

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2. "Auto Ride Control" switch (Optional on 4wd models) The "auto ride" system control improves the machine comfort during travel, regardless of the type of terrain and with the loader bucket full or empty. It reduces forward and rearward pitching when moving rearwards or forwards and when carrying loads, at the same time increasing productivity and operator comfort. It also reduces impact forces to the machine during operation. This is a 3 position switch. Push on the left of the switch for the manual ON position. Auto Ride Control can be left ON at all times, whether loading or roading. The center position is the automatic and most commonly used position. In the automatic position, Auto Ride Control will automatically activate when ground speed is above a threshold set by the operator. The indicator light on the switch will illuminate when Auto Ride Control is activated. To turn Auto Ride Control off, push on the right of the function switch for the OFF position. Do not use the OFF position while operating the loader attachment. To set the Auto Ride Control Speed Settings press the cluster enter key ↵ Navigate the Up or Down arrows to reach the Auto Ride Control Sensitivity screen:



LEEN11T0013WA 2

	Ride Control Activate	Ride Control Deactivate
Speed Threshold Setting = 1	Above **9.2 km/h** (**5.7 mph**) average wheel speed	Below **7.6 km/h** (**4.7 mph**) average wheel speed
Speed Threshold Setting = 2 (Default Factory Setting)	Above **9.5 km/h** (**5.9 mph**) average wheel speed	Below **7.9 km/h** (**4.9 mph**) average wheel speed
Speed Threshold Setting = 3	Above **9.9 km/h** (**6.2 mph**) average wheel speed	Below **8.4 km/h** (**5.2 mph**) average wheel speed

Press the cluster display key ◇ to save the value, and again to return to the hour meter display.

ATTENTION: *Never operate the "auto ride" system control when the loader arm and loader bucket are maintaining the front of the machine raised off the ground. The machine could fall and cause serious or fatal injury.*

3. Parking brake switch
The parking brake is a Spring Applied Hydraulic Released **(SAHR)** brake. The parking brake should be applied if the engine is stopped. The parking brake is engaged whenever the ignition key is turned OFF..
At start up, cycle the switch from the park emblem to the O emblem. Cycle the switch, regardless of the position the switch was in at startup.

Press Ⓟ to engage the parking brake.
Press ○ to release the parking brake.

4. Loader attachment lock valve switch (optional)
This switch has two position:
   - First position (control lamp off) condition with blocked valves;
   - Second position (control lamp on), by pressing the side with the symbol, the valves are released.

5. Side instrument cluster

6. Up/down switch
By means of this control, it is possible to scroll through the menu or data options shown on the diagnostic display.

7. Menu enter switch
By means of this control it is possible to display and confirm the menu options shown on the display.

8. Rear windshield wiper and washer switch
When this switch is pressed, the windshield wiper is activated and will continue operating until the switch is returned to the OFF position. The windshield washer is operated by further pressing and holding the switch.
When the switch is released, the washer stops and the wiper starts operating again.

9. Backhoe attachment locking switch (optional)
The switch is used to lock (control lamp on) or unlock (control lamp off) the backhoe attachment safety hook in preparation for road travel.

10. Rear work light switch
This switch has three positions:
   - The first position is OFF (control lamp off).
   - Second position, by pressing the symbol side (first click), cluster **(5)** turn on, switches backlighting turnings on and the outer rear work lights are turned on (control lamp on).
   - Third position, by pressing the symbol side again (second click), the inner rear work lights are turned on too (control lamp on).

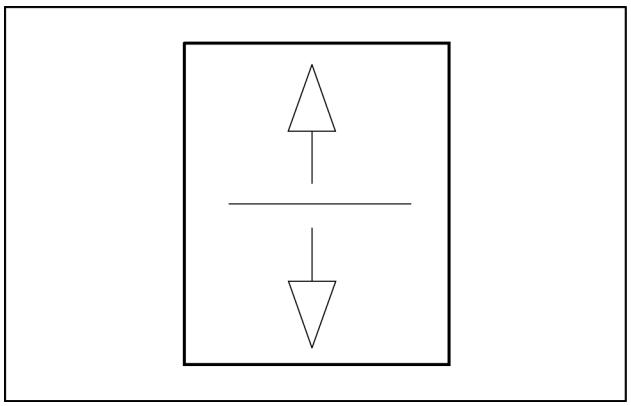
Display Switches

Switches provided for operator / service input:

UP/DOWN switch

Use this UP/DOWN switch to scroll through the menus.

NOTE: *Push the UP arrow at start-up to display the engine rpm on the digital display.*



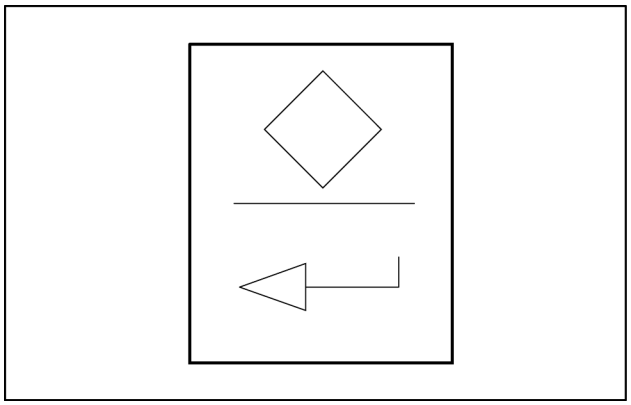
MOLI12LBB0097AA 1

Display enter switch

Use this switch to select between display and service menus or enter selections.

The top portion of the switch is used to select the displays.

The **90 °** arrow icon or the bottom portion of the switch is used to confirm the selected choices.



MOLI12LBB0096AA 2

Using the display switches, you will be able to scroll through the following:

- Battery voltage
- Backhoe loader hours
- Setup

Features adjustable during setup:

- Backlighting dimming and contrast control
- Maintenance/service interval customization
- Storage of error codes
- Low temperature idle speed setting:
  When the engine coolant temperature is below **10 °C** (**50 °F**), the unit will change from a normal low idle to a low temperature idle which can be adjusted between **975 RPM** and **1500 RPM**. The default setting is **1000 RPM**
- High idle speed setting (**2500 RPM** maximum)

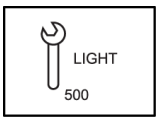
Maintenance

Two different kinds of maintenance will be available:

- light maintenance
- heavy maintenance

Light maintenance

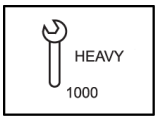
The hours shown will be the hours when light maintenance is required, not the standard hours displayed by the hourmeter.



Amber-coloured lighting
The interval can be set between **50 h** and **500 h** in steps of 50 (0.0, 50, 100, 150, 200, 250, 300, 350, 400, 450, 500). The 0.0 setting turns the light maintenance feature off.

Heavy maintenance

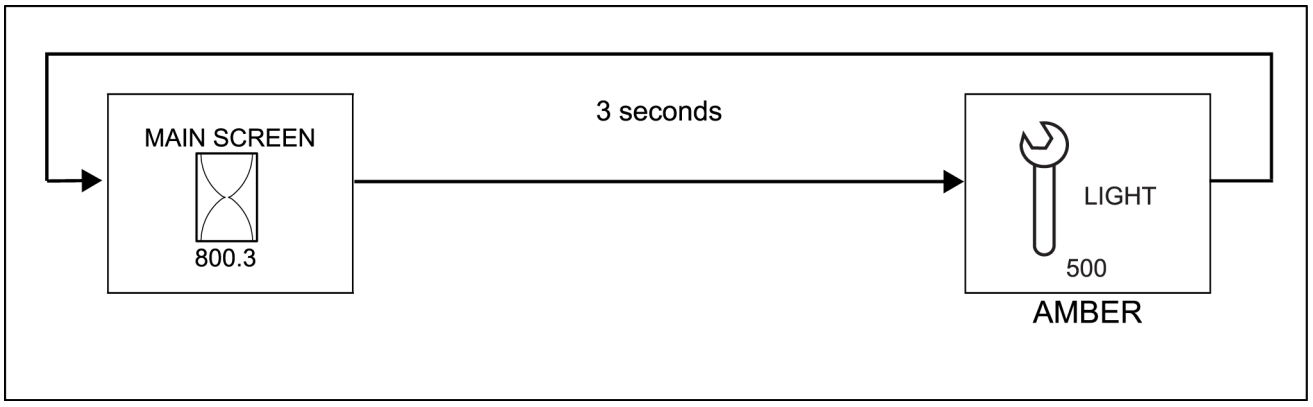
The hours shown will be the hours when heavy maintenance is required, not the standard hours displayed by the hourmeter.



Amber-coloured lighting
The interval can be set between **50 h** and **500 h** in steps of 100 (0.0, 500, 600, 700, 800, 900, 1000). The 0.0 setting turns the heavy maintenance feature off.

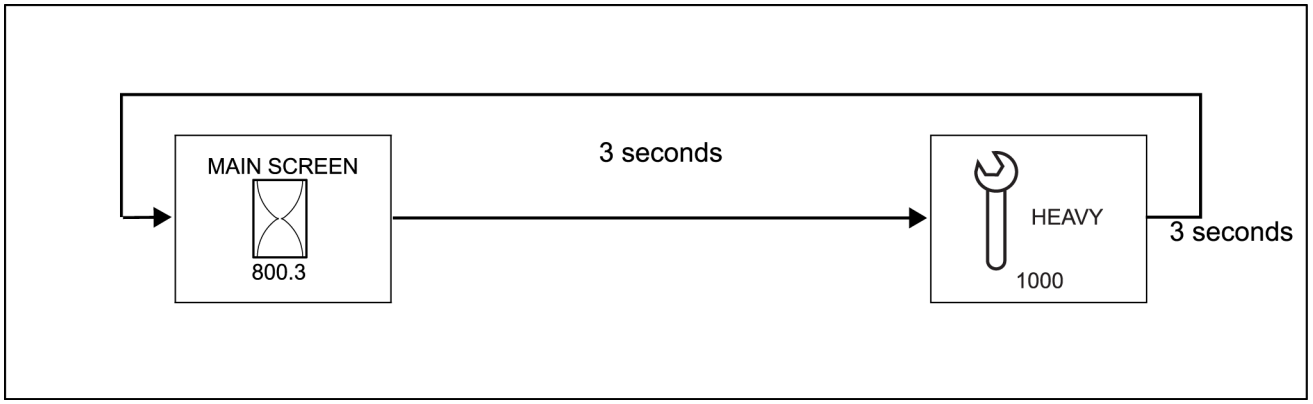
Display function

When the hourmeter reaches the light service interval.



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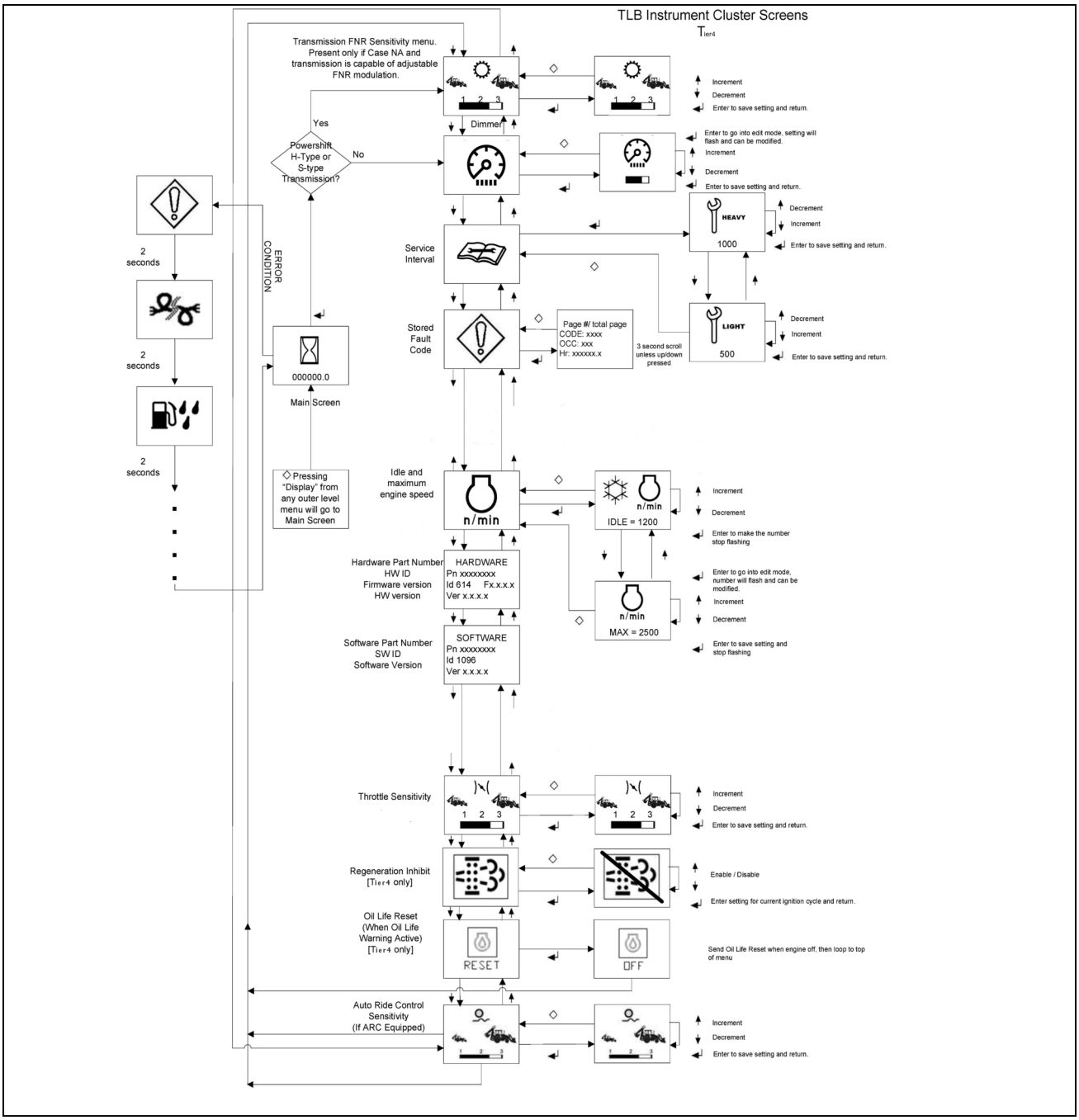
When the hourmeter reaches the heavy service interval



MOLI12LBB0101EA 2

Audible alarm for 1 s when displaying either service interval for the first time

Setup menu



LEEN11T0003BA_3 1

Regenerating the diesel particulate filter (DPF) automatically/manually

⚠ CAUTION

Burn hazard!
During the Diesel Particular Filter (DPF) regeneration process the exhaust stack and fixed hood area becomes extremely hot. Allow area to cool before servicing or working near the exhaust system components.
Failure to comply could result in minor or moderate injury.

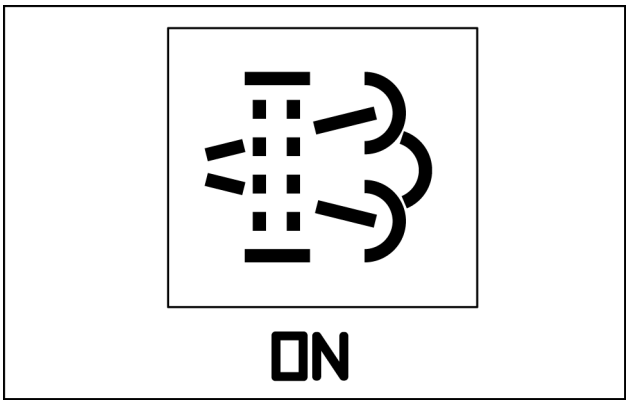
C0102A

- During the auto regeneration process an increase in engine noise level may be observed.
- During the auto regeneration process a burning or “hot” odor may be present.
- The operator may continue to operate the machine normally during the auto regeneration process. When engine load is high enough regeneration may happen. If the load drops, regeneration may stop early.
- The auto regeneration process will last approximately 5 – 20 minutes depending on the ash level in the DPF and current machine operations.

DPF regeneration – Auto

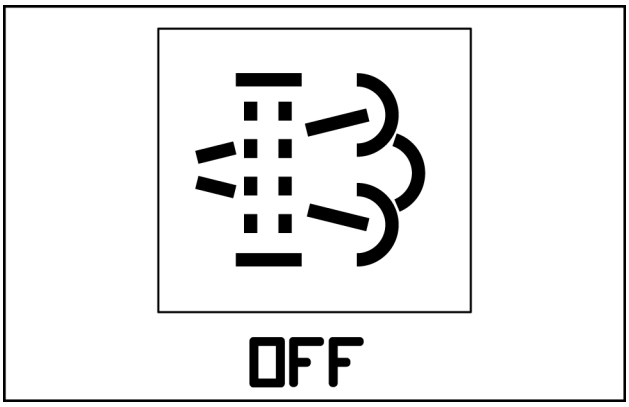
NOTE: *The operator may choose to delay the auto regeneration process, refer to the regeneration inhibit procedure. However, continuing to delay the auto regeneration process will eventually result in a forced regeneration.*

Operator is notified by a single audible beep and the DPF regeneration **ON** symbol appears on the display screen. The DPF regeneration process begins and the display will alternate between the DPF **ON** symbol and the hour meter, approximately 10 times.



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After the regeneration process is complete a single audible beep and the DPF regeneration **OFF** symbol will appear on the display screen. The display will alternate between the DPF **OFF** symbol and the hour meter, approximately 10 times.



RCPH11TLB005AAD 2

⚠ WARNING

Fire hazard!
During the Diesel Particular Filter (DPF) forced regeneration process the exhaust stack and fixed hood area becomes extremely hot. Park the machine outside and away from combustible or highly flammable material.
Failure to comply could result in death or serious injury.

W1165A

⚠ CAUTION

Burn hazard!
During the Diesel Particular Filter (DPF) regeneration process the exhaust stack and fixed hood area becomes extremely hot. Allow area to cool before servicing or working near the exhaust system components.
Failure to comply could result in minor or moderate injury.

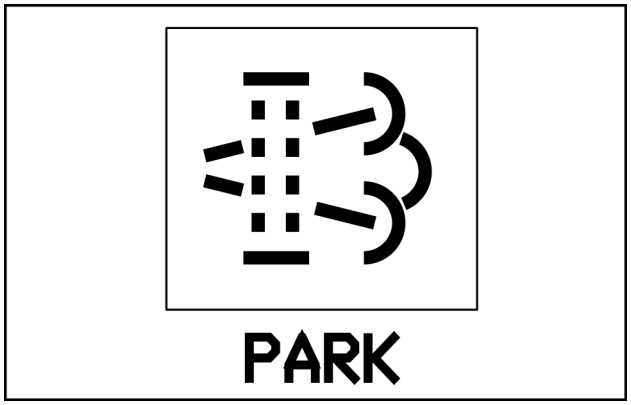
C0102A

- On occasion, the machine will need to be safely parked and run through a forced regeneration to clear accumulated ash in the DPF that can not be cleared through normal machine operating cycles.
- The operator may NOT continue to operate the machine normally during the forced regeneration process.
- During the forced regeneration process an increase in engine noise level may be observed.
- During the forced regeneration process a burning or “hot” odor may be present.
- The forced regeneration process will last approximately 20 minutes depending on the ash level in the DPF.
- If the forced generation process is not allowed the machine will begin to de-rate . Damage or shortened DPF life may occur if the forced regeneration is ignored for an extended period of time.

DPF regeneration – Forced

Operator will be notified with one of the following:

- extended audible alert, amber STOP LED and the DPF regeneration **PARK** symbol will appear on the display screen. Indicating a high level of ash is present in the DPF system.
- Constant audible alert, red STOP LED and the DPF regeneration **PARK** symbol will appear on the display screen. Indicating an extremely high level of ash is present in the DPF system.

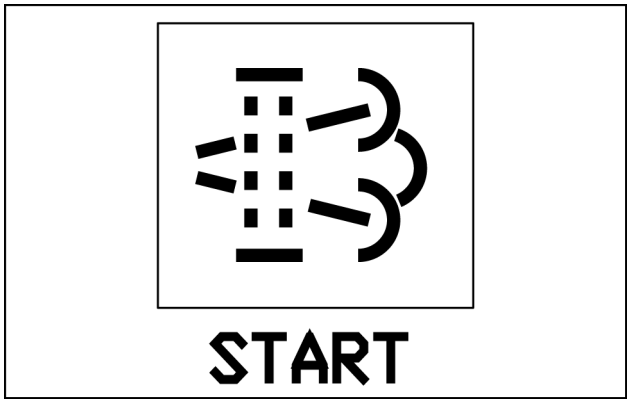


RCPH11TLB004AAD 3

Calmly find a location out of the way on the job site and clear away from any combustible material. Perform the following:

- Put the machine in Neutral.
- Engage parking brake.
- Put both the hand and foot throttles in their idle position.
- Wait for the DPF regeneration **START** symbol to appear on the display.

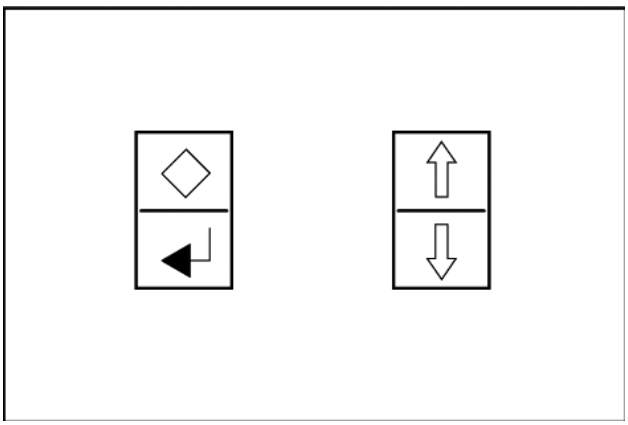
NOTE: *Changing any of the above conditions during the forced regeneration process will cause the process to FAIL.*



RCPH11TLB003AAD 4

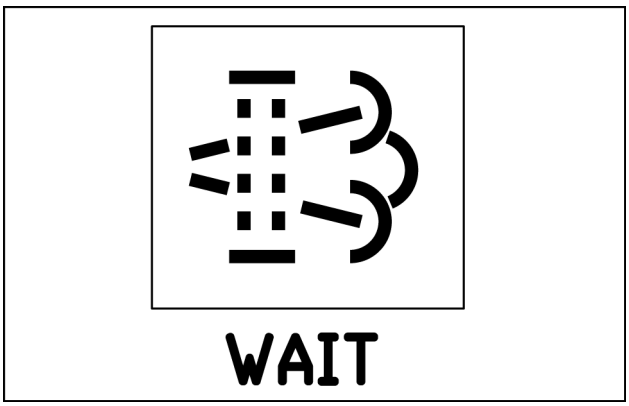
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Press Enter



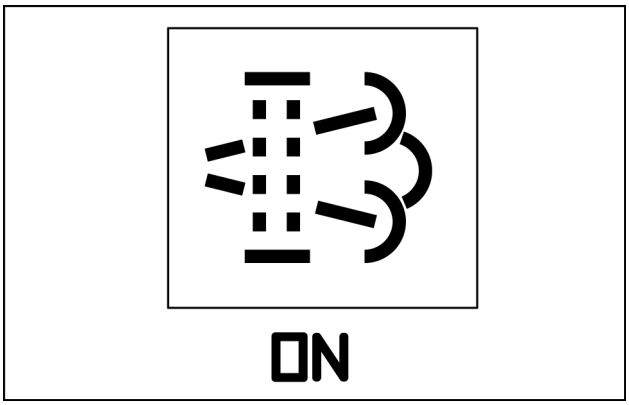
LEEN12T0526FA_4 5

DPF regeneration **WAIT** symbol appears. The system is validating machine readiness and all actions in step 2 have been completed.



RCPH11TLB002AAD 6

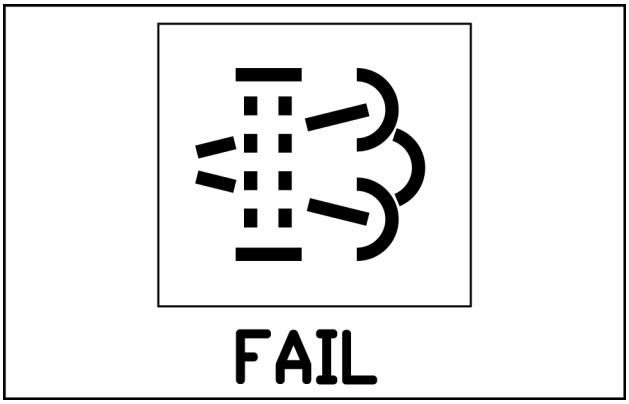
One of the following will occur.
DPF regeneration **ON** symbol appears indicating the regeneration process has started, allow approximately 20 minutes to complete.



RCPH11TLB006AAD 7

DPF regeneration **FAIL** symbol appears indicating the machine is not ready. Repeat step 2.

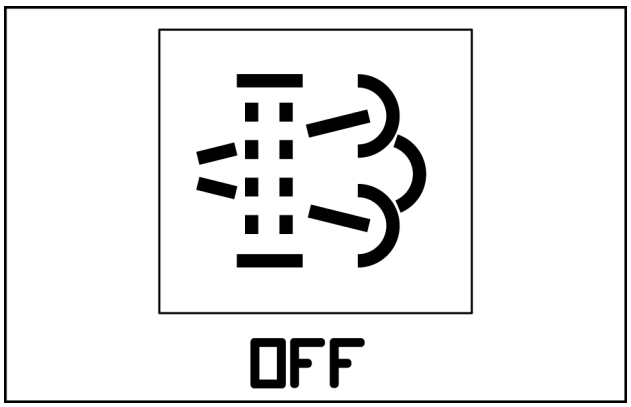
NOTE: *If the DPF regeneration continues to FAIL contact your authorized dealer for service.*



RCPH11TLB010AAD 8

https://truckmanualshub.com/

DPF regeneration **OFF** symbol appears indicating the regeneration process is complete. Machine is ready for operation.



RCPH11TLB005AAD 9

https://truckmanualshub.com/

Regeneration inhibit

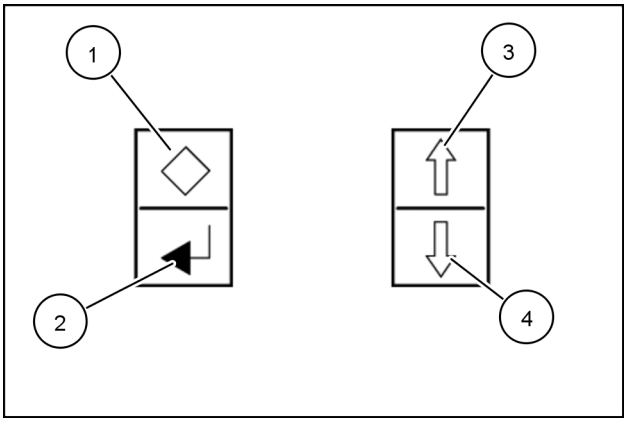
The regeneration inhibit Selection screen allows the operator to delay the DPF auto regeneration process during the current key cycle.

NOTE: *The regeneration inhibit feature returns to the enable setting by default at the next key cycle.*

NOTE: *The operator may choose to delay the auto regeneration process. However, continuing to delay the auto regeneration process will eventually require a forced regeneration.*

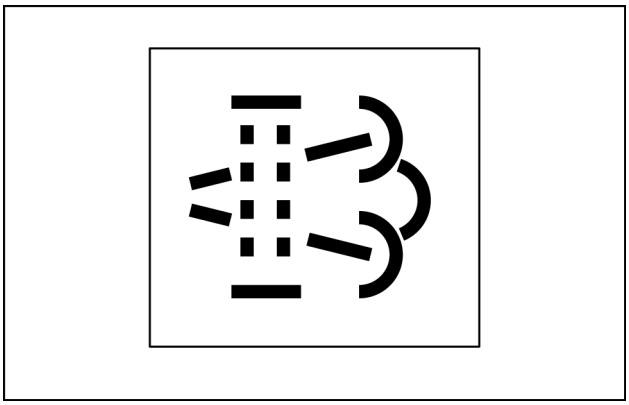
Disable the regeneration inhibit feature:

1. Press Enter **(2)** to access the menu screens.
2. Press the up arrow **(3)** or the down arrow **(4)** to navigate through the menu screens.



LEEN12T0526FA_4 1

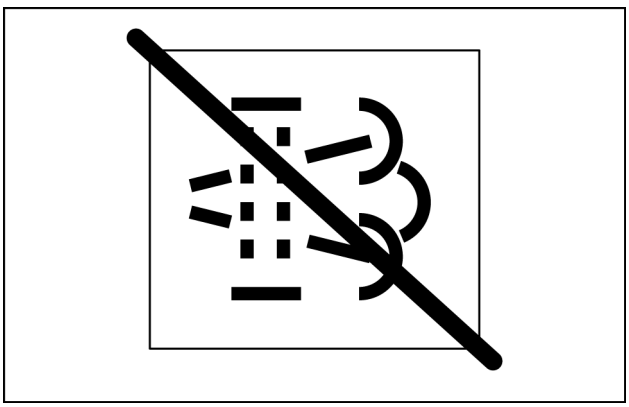
3. When the regeneration inhibit Selection screen displays, press Enter. The menu screen flashes.



RCPH11TLB008AAD 2

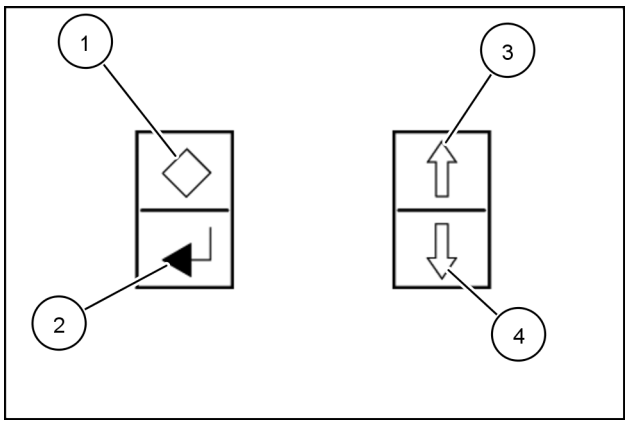
4. Press Enter to disable the regeneration inhibit process. The display screen changes to indicate the feature is disabled.

   NOTE: *The regeneration inhibit disabled image will reappear on a consistent basis with an audible alert until the operator enables the feature or turns the machine off.*



RCPH11TLB007AAD 3

5. Use the arrows to navigate to a different menu screen or press Escape **(1)** until you return the main screen (engine hour meter).



LEEN12T0526FA_4 4

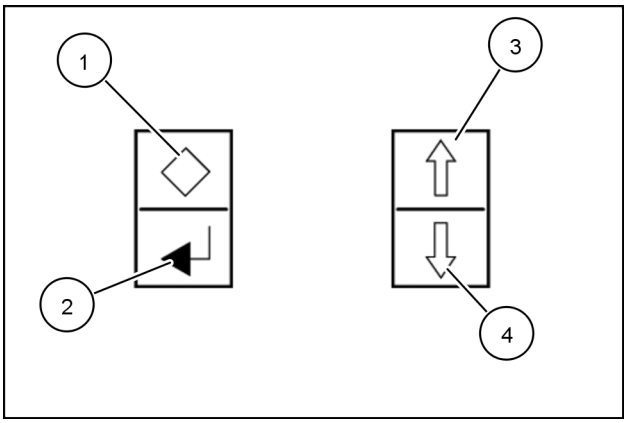
https://truckmanualshub.com/

Oil life reset

The oil life reset Selection screen allows the operator to clear the active warning indicating an oil change is required.

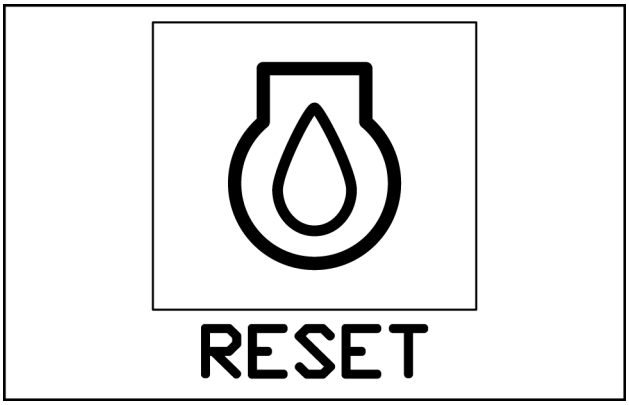
Oil life reset:

1. Turn the engine OFF.
2. Turn the key to the ON position but do not start the engine.
3. Press Enter **(2)** to access the menu screens.
4. Press the up arrow **(3)** or the down arrow **(4)** to navigate through the menu screens.



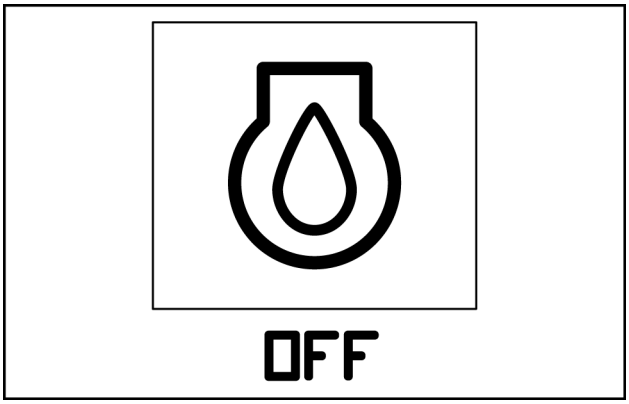
LEEN12T0526FA_4 1

3. Stop when the Selection screen displays the oil life reset image.



RCPH11TLB011AAD 2

4. Press Enter to reset the oil life. The display flashes and changes to OFF.
5. Wait a few seconds, the screen defaults to the machine hour screen.



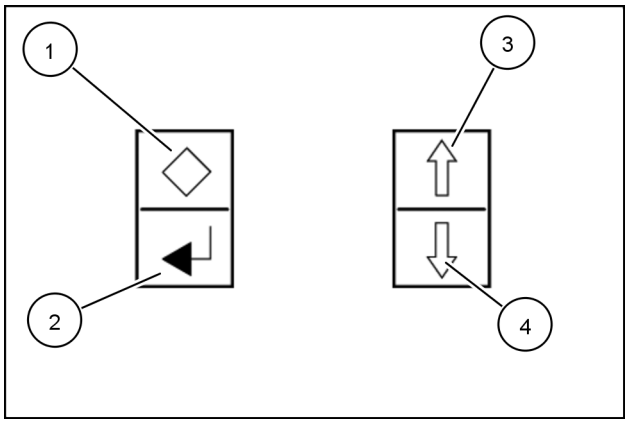
RCPH11TLB012AAD 3

Display brightness

NOTE: *Machines equipped with the AIC only.*

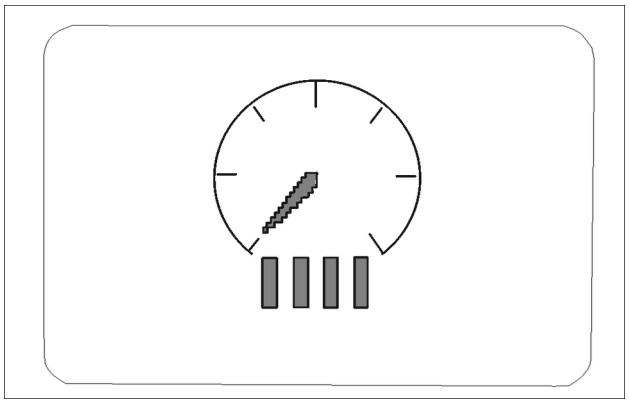
Adjust the brightness of the AIC display:

1. Press Enter **(2)** to access the menu screens.
2. Press the up arrow **(3)** or the down arrow **(4)** to navigate through the menu screens.



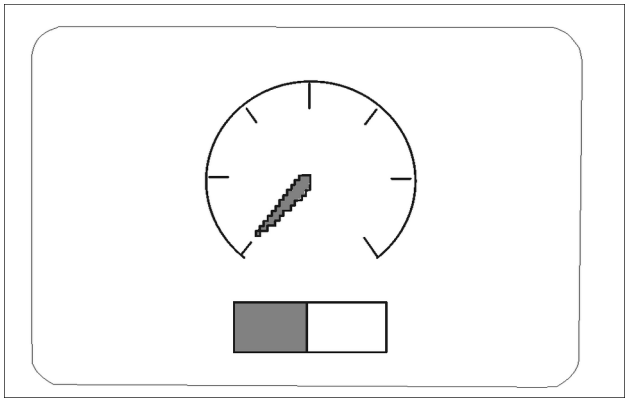
LEEN12T0526FA_4 1

3. When the Instrument Cluster Dimmer screen displays, press Enter.



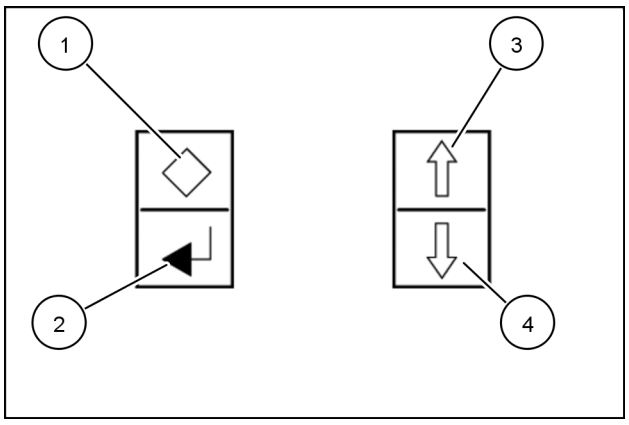
RCPH10TLB196AAF 2

4. Press Enter to access the setting screen.
5. Press Enter again. The setting bar flashes.
6. Press the up arrow or the down arrow to adjust the screen brightness.
7. Press Enter to save the selection.



RCPH10TLB197AAF 3

8. Press Escape **(1)** to return to the Instrument Cluster Dimmer screen.
9. Use the arrows to navigate to a different menu screen or press Escape until you return the main screen (engine hour meter).



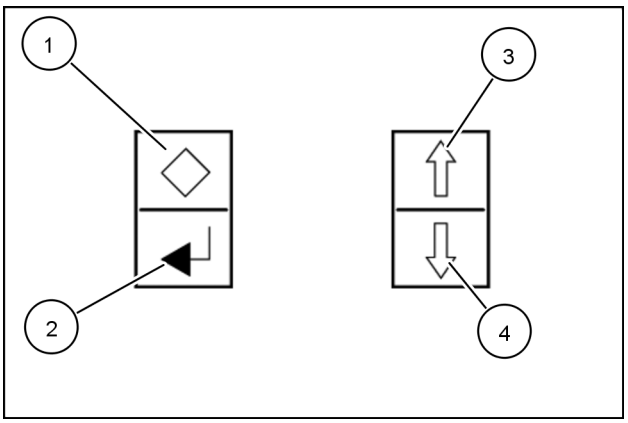
LEEN12T0526FA_4 4

https://truckmanualshub.com/

Throttle sensitivity

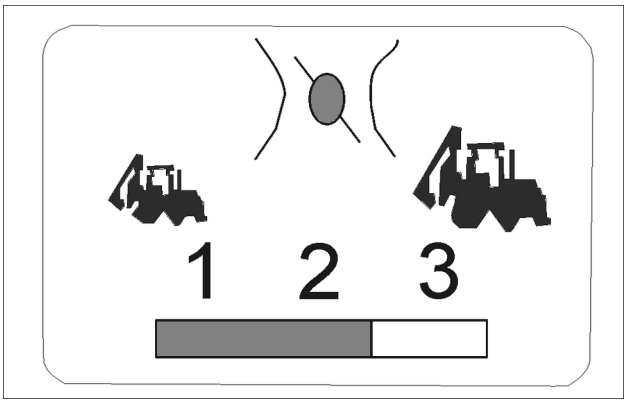
Change the throttle sensitivity:

1. Press Enter **(2)** to access the menu screens.
2. Press the up arrow **(3)** or the down arrow **(4)** to navigate through the menu screens.



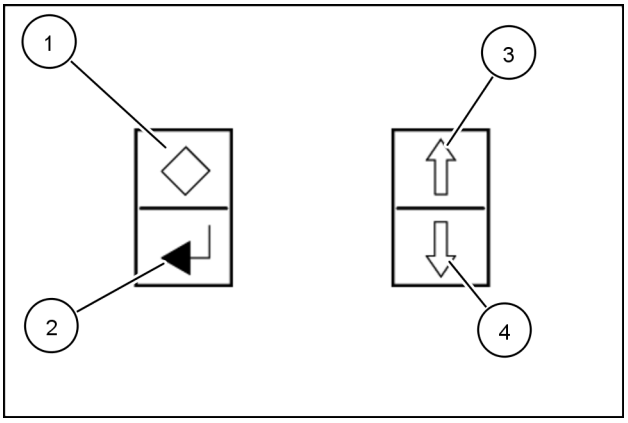
LEEN12T0526FA_4 1

3. When the Throttle Sensitivity screen displays, press Enter. The setting bar flashes.
4. Press the up arrow or the down arrow to adjust the setting, where 1 is least aggressive and 3 is most aggressive.
5. Press Enter to save the selection.



RCPH10TLB195AAF 2

6. Use the arrows to navigate to a different menu screen or press Escape **(1)** until you return the main screen (engine hour meter).



LEEN12T0526FA_4 3

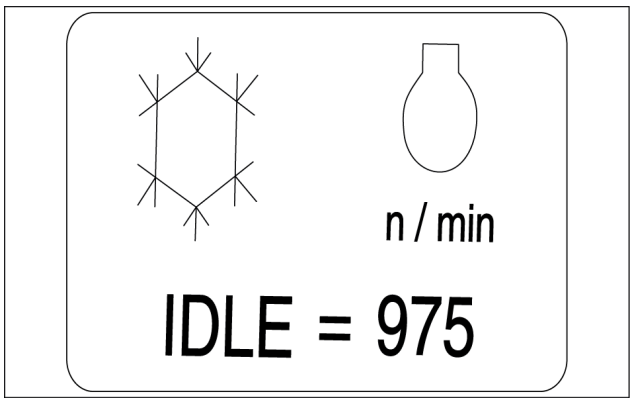
Maximum throttle/Cold start idle

The Idle Increment (engine speed) menu lets the operator configure the cold start idle and/or the maximum engine throttle settings.

NOTE: *The settings do not reset at key cycle.*

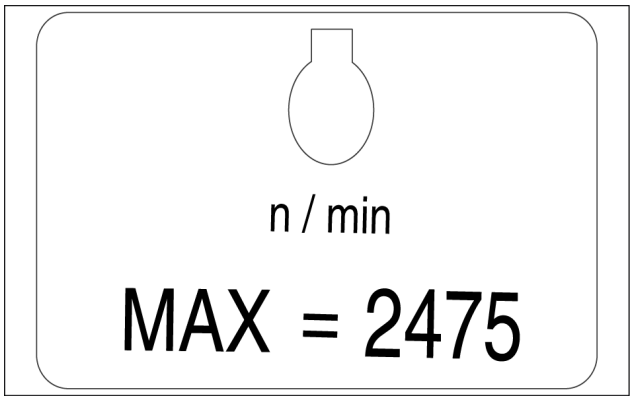
- Cold start idle - Sets the minimum engine speed (up to 1500 RPM) that the engine idles while cold. For example, if set to 1500 RPM, the cold engine will idle at that RPM until the engine warms to approximately **20 °C** (**68 °F**). Dealer can adjust the temperature as needed.

NOTE: *low idle automatically adjusts up at higher altitudes to insure proper performance.*



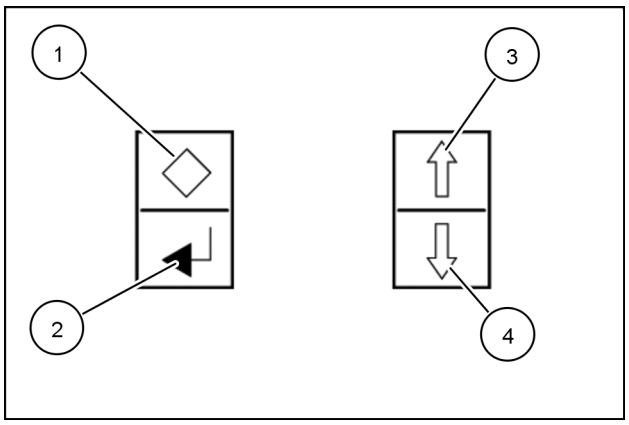
RCPH10TLB424AAF 1

- Maximum throttle - Sets the maximum engine speed during operation. The engine will not exceed this speed.



RCPH10TLB423AAF 2

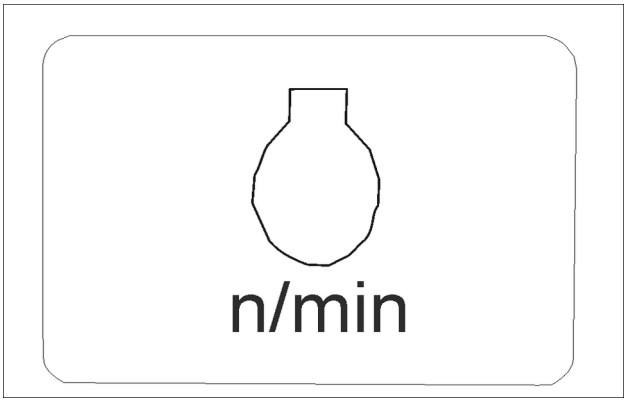
1. Press Enter **(2)** to access the menu screens.
2. Press the up arrow **(3)** or the down arrow **(4)** to navigate through the menu screens.



LEEN12T0526FA_4 3

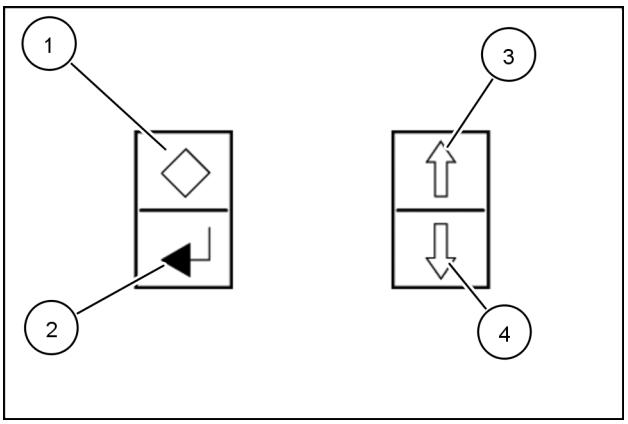
https://truckmanualshub.com/

3. When the Idle Increment screen displays, press Enter.



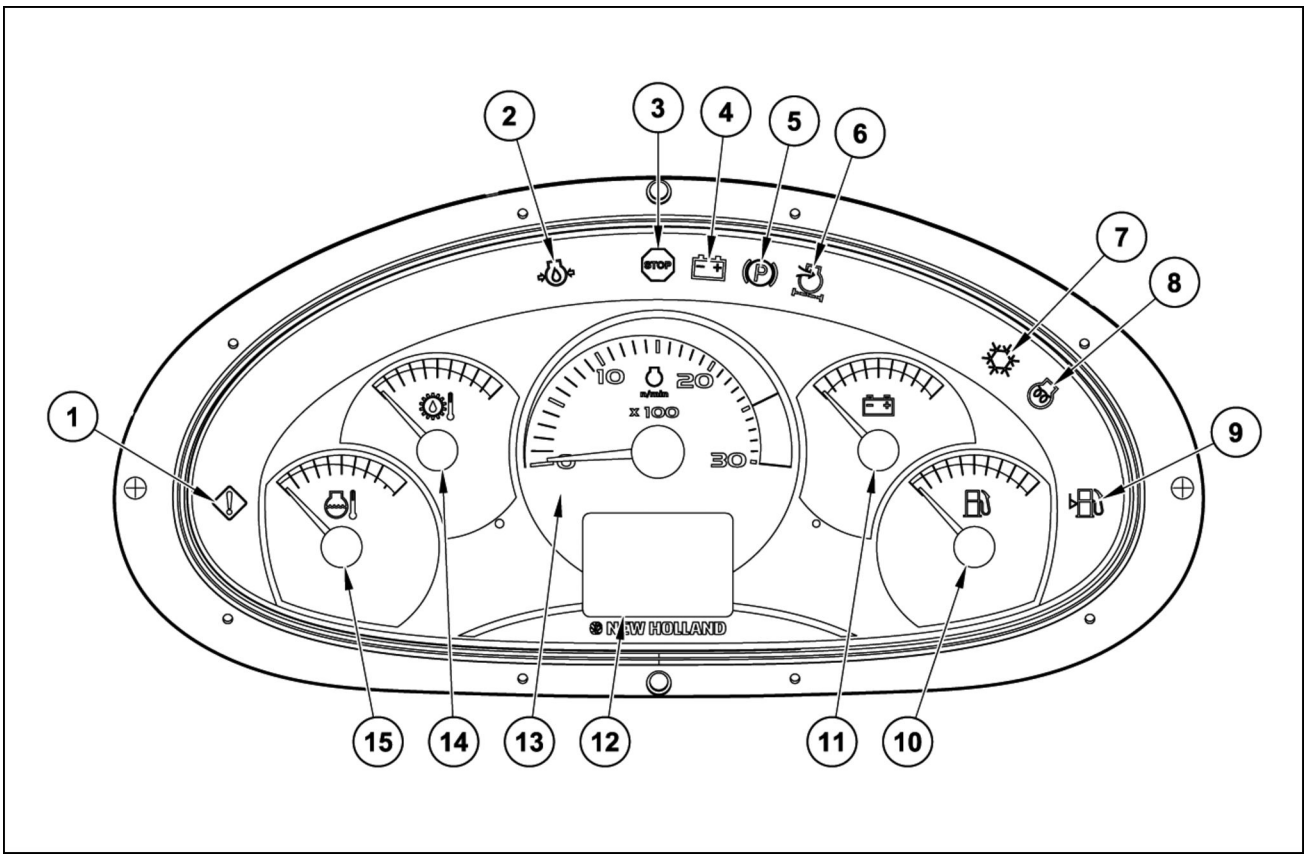
RCPH10TLB201AAF 4

4. Press the up arrow or the down arrow until the cold start idle or the maximum throttle screen appears.
5. Press Enter. The setting flashes.
6. Press the up arrow or the down arrow to adjust the setting.
7. Press Enter to save the setting.
8. Press Escape **(1)** until you return to the Idle Increment screen.
9. Press the up arrow or the down arrow to adjust another setting, or press Escape to return to the Idle Increment screen.
10. Use the arrows to navigate to a different menu screen or press Escape until you return the main screen (engine hour meter).



LEEN12T0526FA_4 5

Instrument cluster – Side



LEEN12T0749FA 1

1. Caution master lamp
   This lamp signals a not critical caution. When this caution is active, it is necessary to change the operating mode, plan a down time to carry out maintenance or, if the fault continues, consult your dealer. This lamp turns on at the same time of lamps **(2)**, **(4)**, **(6)** and **(8)**.
2. Engine oil pressure warning lamp
   This warning lamp turns on and the audible warning device sounds when the engine oil pressure is too low.
3. Stop master lamp
   The stop master lamp signals a critical caution. When this lamp turns on, stop the machine immediately and shut off the engine.
   If this is not the case, the machine can get damaged or accidents may occur.
4. Battery charge warning lamp
   This warning lamp turns on when the alternator/fan belt is broken or when the alternator is not charging the battery.
5. Parking brake warming lamp
   This indicator lamp turns on when the parking brake is activated (wheels braked).
6. Air filter restriction lamp
   This warning lamp turns on when the air filter element needs to be cleaned or replaced.
7. Air conditioner indicator lamp (Optional)
   This lamp turns on when the air conditioner is working.
8. Glow plug indicator lamp
9. Low fuel level warning lamp
   This warning lamp turns on when the fuel level is low. You have approximately an hour to fill the fuel tank.

   NOTE: *When the starter switch key is in the ON position, all lamps turn on and the instrument buzzer sounds for* ***5 s****. Afterwards, the lamps turn off and only lamp* ***(2)*** *remains on. The gauges* ***(10)*** *and* ***(11)*** *set to position.*
10. Fuel level gauge
    This gauge shows the quantity of fuel in the fuel tank.
11. Battery charge indicator
    This indicator shows the state of charge of the battery. At normal charge the needle should be in the grey area. If the needle is in the left red area, this shows that the battery charge is insufficient or that the alternator is not charging the battery. If the needle is in the right red area, this indicates excessive battery charge which may cause damage to the battery.
12. Diagnostic display
    By means of this display it is possible to visualize the various data of diagnostics. The service hours are also indicated.

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13. Tachometer
The tachometer shows the engine speed in revolutions per minute.
The figures indicated must be multiplied by 100.
Each intermediate mark shows a value of **100 RPM**.
We recommend not to reach the red line.

14. Transmission oil temperature gauge
This gauge shows the transmission oil temperature. When the temperature is normal, the needle is in the grey area. If the needle is in the red area, change down to a lower gear. If the needle still remains in the red area, stop machine travel, place the gearshift lever and the direction of travel control lever in neutral position and let the engine run at **1000 RPM**. If this operation does not enable the oil temperature to be reduced, check the gearbox oil level and make sure that the radiator and oil cooler are perfectly clean.

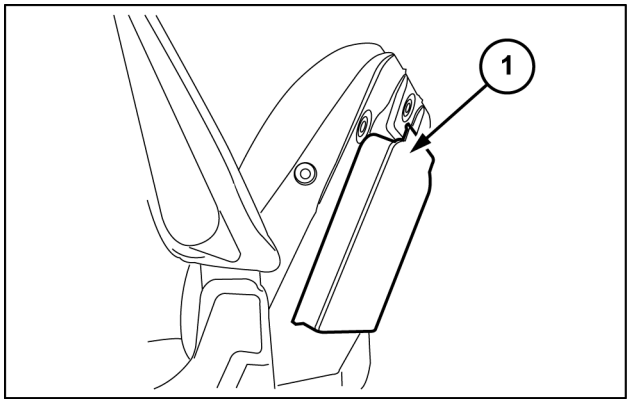
15. Engine coolant temperature gauge
This gauge shows the temperature of the engine coolant solution. When the temperature is normal, the needle is in the grey area. If the needle is in the red area, the audible warning sounds.

CAB CONTROLS AND ADJUSTMENTS

Cab and platform - Control identification

Document storage box

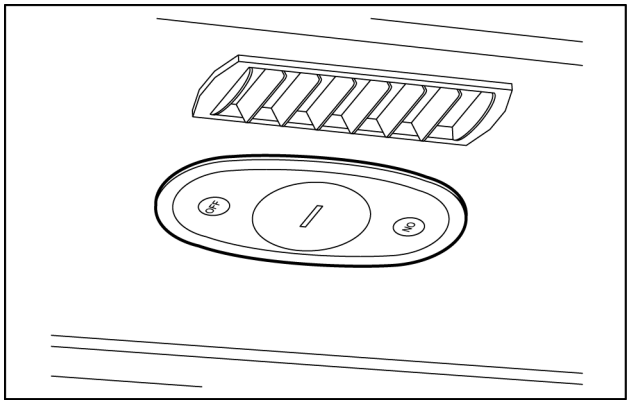
In the rear part of the operator's seat there is a document storage box **(1)** where the Operator's Manual and possibly other documents can be stored.



MOLI12LBB0138AB 1

Operator's compartment light

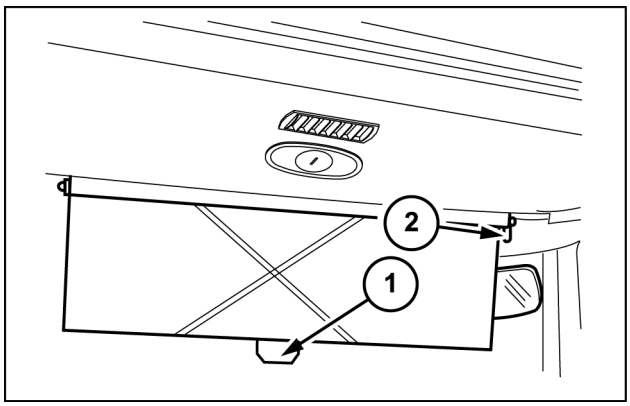
This light is mounted on the roof. Light has 3 positions:
- one if OFF;
- one operates with the door open;
- one on, regardless of whether the door is open or closed.



MOLI12LBB0139AB 2

Sun visor

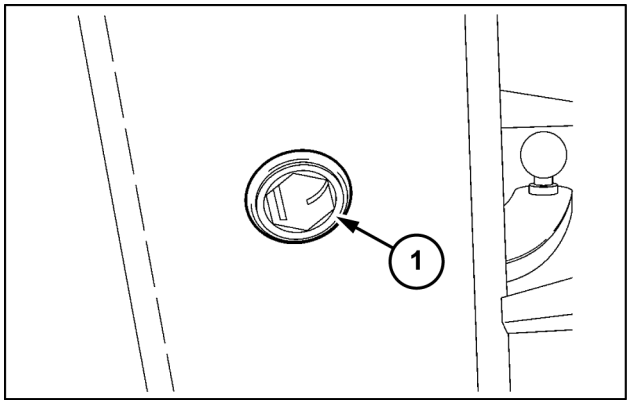
Use the tab **(1)** to pull the sun visor down and place it in the position required. Push up the latch **(2)** to roll up the sun visor.



MOLI12LBB0140AB 3

Auxiliary 12 V socket

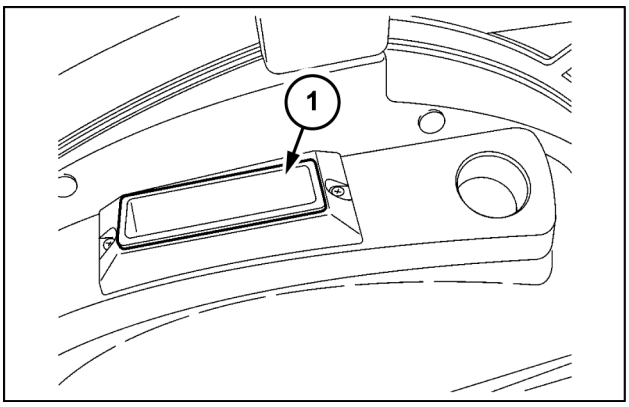
An auxiliary **12 V** power socket **(1)** is located on the cab's left-hand post.



MOLI12LBB0141AB 4

Object storage box

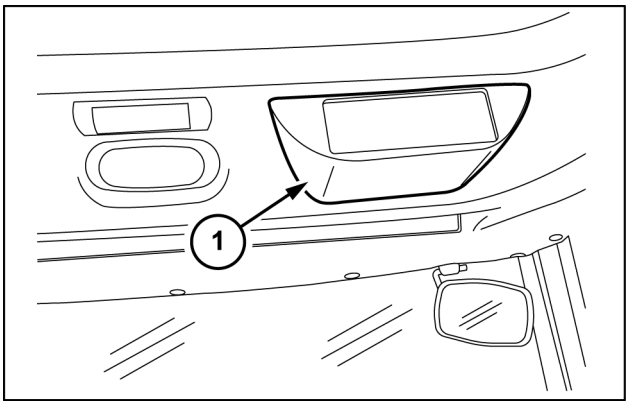
On the left side of the cab there is an object storage box **(1)**.



MOLI12LBB0142AB 5

Radio compartment (Optional)

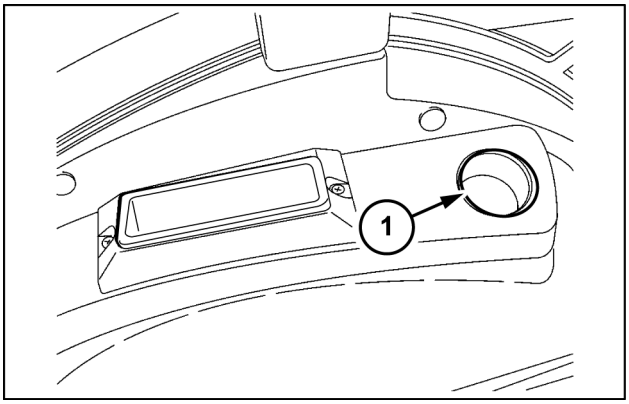
On the cab roof there is a compartment **(1)** where the radio is installed. The radio is optional.



MOLI12LBB0143AB 6

Storage areas

Located at the front left and rear right, these areas **(1)** can be used for cups, bottles etc.



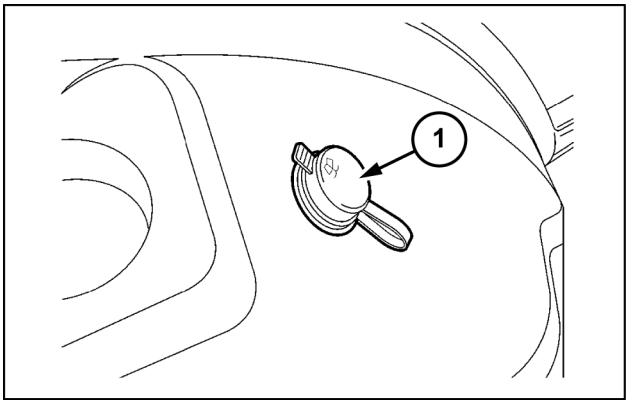
MOLI12LBB0144AB 7

Front and rear windshield washer reservoir

This reservoir **(1)** is located on the left-hand side of the cab and has two electric pumps controlled by a switch or by the lever for the direction indicators, main beams, front windshield wiper and washer.

NOTE: *In cold weather, use a windshield washer with low temperature capability.*

NOTICE: *Never operate the windshield washer when the reservoir is empty, since this may damage the electric pumps.*



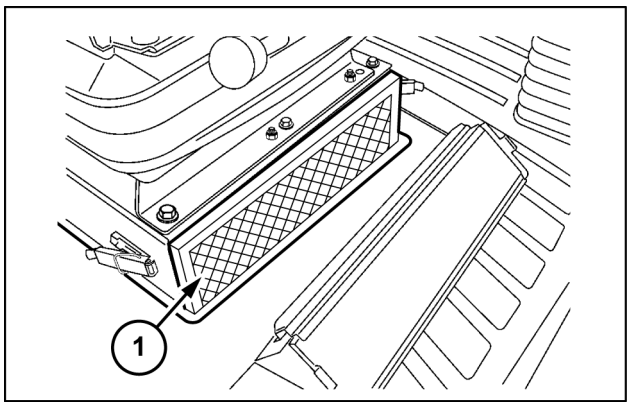
MOLI12LBB0145AB 8

Air filter

This is located under the operator's seat.

Clean the filter **(1)** with compressed air, working from the clean side towards the outside. The air pressure must not exceed **2 bar** (**29 psi**) and the nozzle must be held at least **30 cm** (**11.81 in**) from the element.

NOTICE: *Before using compressed air, take the necessary precautions to protect your face.*



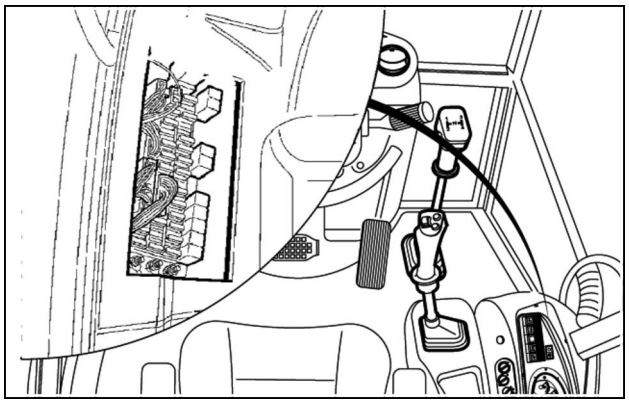
MOLI12LBB0146AB 9

Fuse and relay control unit

This fuse and relay control unit is located under the side instrument cluster panel and may be accessed via the right-hand cab door.

Diagnostic socket

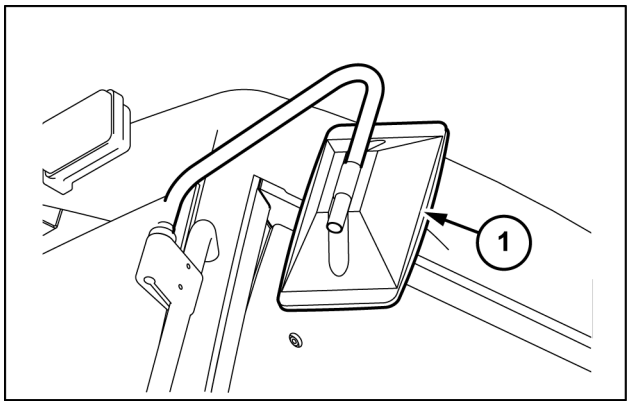
The diagnostic socket is located to the left of the fuse and relay control unit. By means of this socket it is possible, when connected to the electronic service tool, to have access to the engine data and to detect possible faults.



LEEN12T0553AA 10

Rear view mirrors (Optional)

Make sure the right-hand and left-hand rear view mirrors **(1)** are correctly adjusted before undertaking any travel.



MOLI12LBB0151AB 11

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Loader attachment controls

Loader attachment controls

⚠ WARNING

Misuse hazard!
Before starting the engine, make sure you are fully aware of the location and the function of each control.
Failure to comply could result in death or serious injury.

W0226A

ATTENTION: *Before using the controls make sure that the operator's seat is correctly adjusted in the loader attachment position.*

With standard loader bucket

Located on the right of the steering wheel, this nine position lever operates all the loader attachment controls. The speed of movement of each control depends on the angle to which the lever is tilted. In the intermediate position, two movements can be obtained simultaneously.

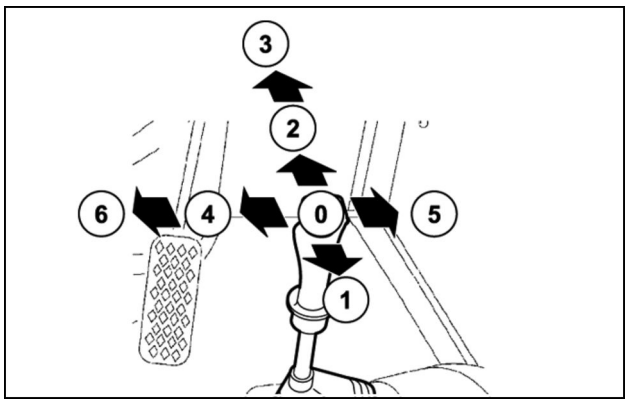
With 4 x 1 loader bucket

The function of the lever is identical to that of the machine fitted with the standard loader bucket, with the addition of the clam control.

Loader attachment – Operation

Neutral and hold

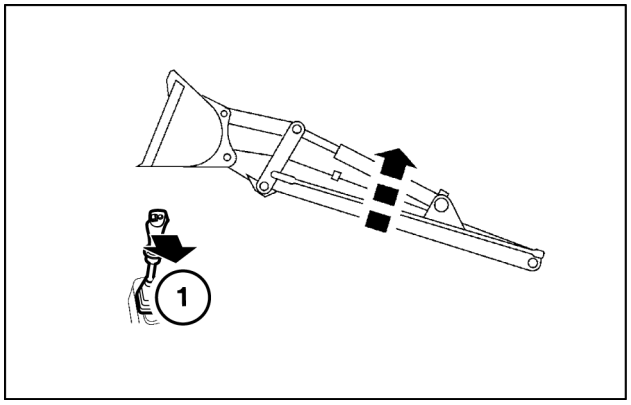
With the lever in the neutral/hold position "0", the attachment movement can be stopped. As soon as the lever is released, it automatically returns to the neutral position "0" and the attachment remains in the position where it was when movement stopped.



LEEN12T0554AA 1

Raising the loader attachment

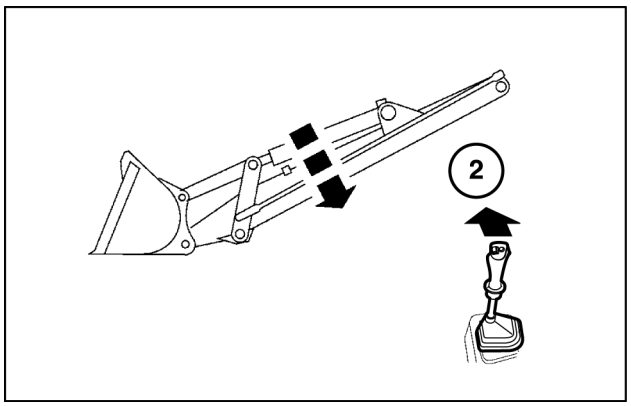
With the lever in position "1", the attachment rises.



MOLI12LBB0158AB 2

Lowering the loader attachment

With the lever in position "2", the attachment lowers.

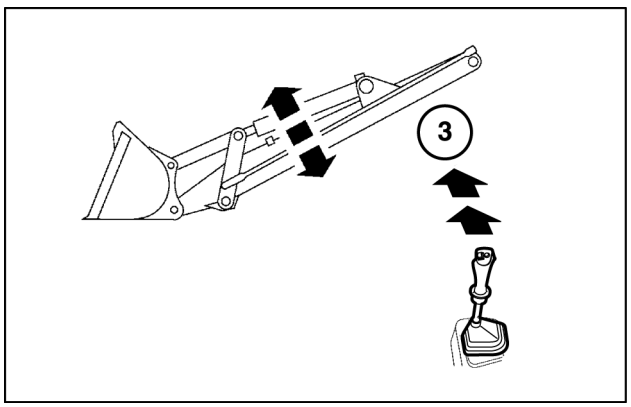


MOLI12LBB0159AB 3

Loader bucket float control

With the lever in position "3", the bucket follows the contours of the ground without it being necessary to operate the lever.

NOTE: *In this position the lever does not automatically return to neutral when it is released. It is necessary to move it manually.*

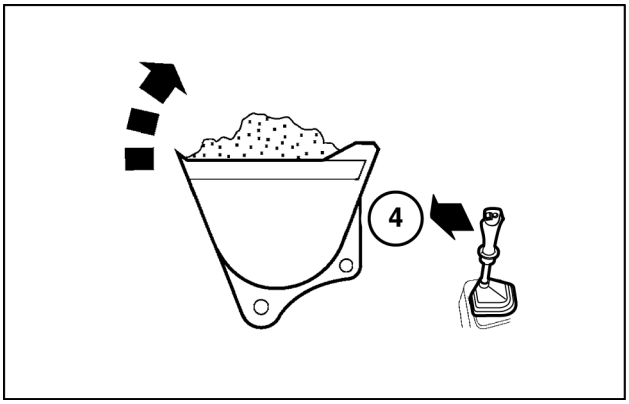


MOLI12LBB0160AB 4

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Filling the loader bucket

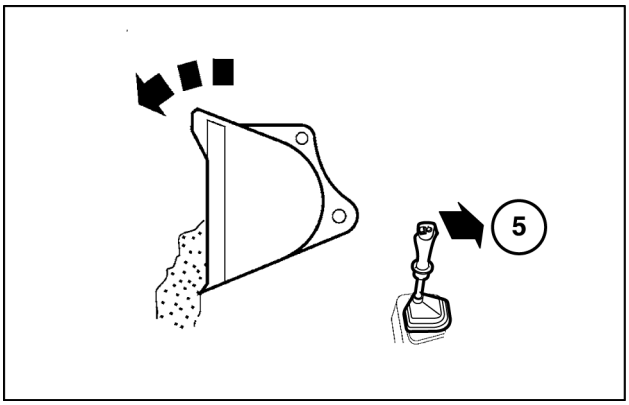
With the lever in position "4", the bucket rolls back (fills).



MOLI12LBB0161AB 5

Dumping the loader bucket

With the lever in position "5", the bucket rolls forward (dumps).

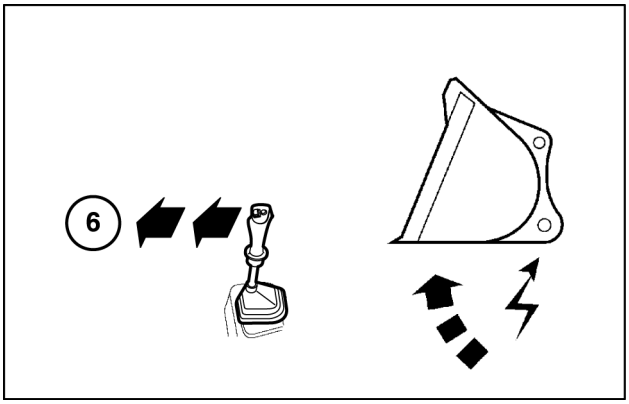


MOLI12LBB0162AB 6

Automatic return to loader bucket filling

Lever must be moved to float (position 3) and roll back (position 6) at the same time; diagonal operation. If moved to the indicates position “6” the bucket will roll back but the loader will not lower.

NOTE: *It is possible to adjust the tilt angle for bucket filling.*



MOLI12LBB0163AB 7

Loader bucket control - 4x1 (If fitted)

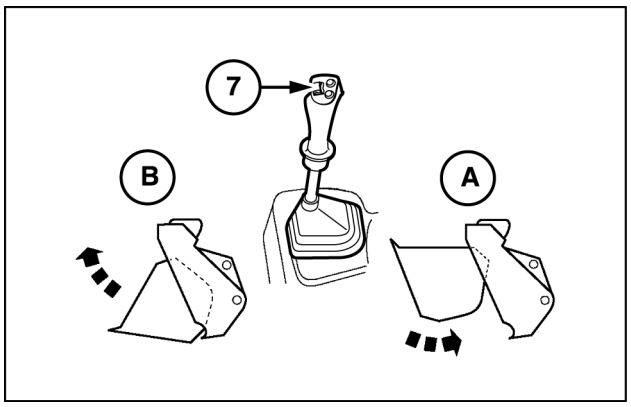
This control operates the opening and closing of the 4 x 1 loader bucket clam.

This control is proportional:

When releasing the roller **(7)**, it automatically returns to the initial position (neutral) and the bucket remains in the position where it was when movement stopped.

A. When shifting the roller **(7)** forward, the loader bucket clam closes.

B. When shifting the roller **(7)** backward, the loader bucket clam opens.



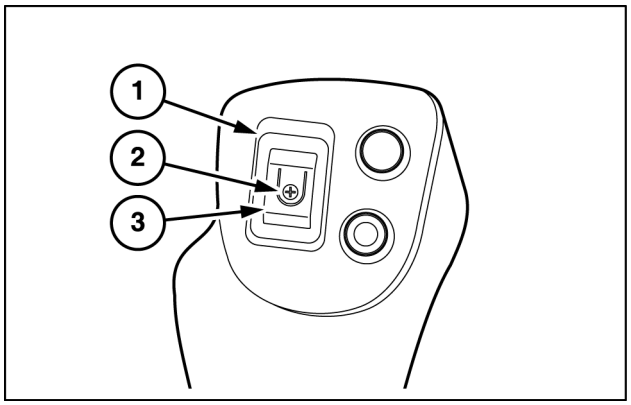
MOLI12LBB0164AB 1

4 x 1 loader bucket control roller detent procedure

The operator may install a detent position for the 4 x 1 bucket operation.

This position alters operation in order to allow the operator to lock the switch in the open circuit position, so that this position is held until the operator unlocks the switch.

The standard position of the switch is with the open U shape pointing upwards. In this configuration, the switch will automatically spring back to the neutral position when released, from any position.



MOLI12LBB0165AB 2

To set the detent position to the bucket open position, it is necessary to remove the top of the switch, rotating it by 180°.

Remove the screw **(2)** of the roller **(1)** using a small phillips screwdriver.

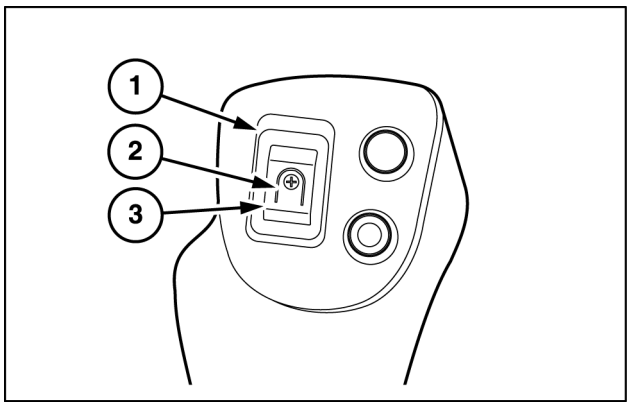
Lift and remove the top portion **(3)** of the roller switch, rotate it by 180° and tighten the screw in the top portion of the roller.

NOTE: *The open U shape must point downwards.*

Carefully restore the screw **(2)** into place and do not overtighten.

Test the switch by lifting it up into detent position before restoring the cap into place. The switch should lock into position.

In this condition, the 4 x 1 loader bucket control roller is locked. To unlock it, it is necessary to rotate the top portion again and take it back to its initial position.



MOLI12LBB0166AB 3

Backhoe attachment controls

Backhoe attachment controls

NOTE: *The instruments represented may not exactly correspond to the instruments on your machine.*

NOTICE: *before using the backhoe attachment, check that the lock hook* ***(3)*** *has been disengaged, either by means of the lever* ***(2)*** *or the switch* ***(1)****.*

NOTICE: *Whenever the backhoe attachment is used, the machine must be resting on the stabilizers.*

⚠ WARNING

Unexpected machine movement!
Pilot controls have two different backhoe controls patterns; before operating the machine, check which control function is active.
Failure to comply could result in death or serious injury.

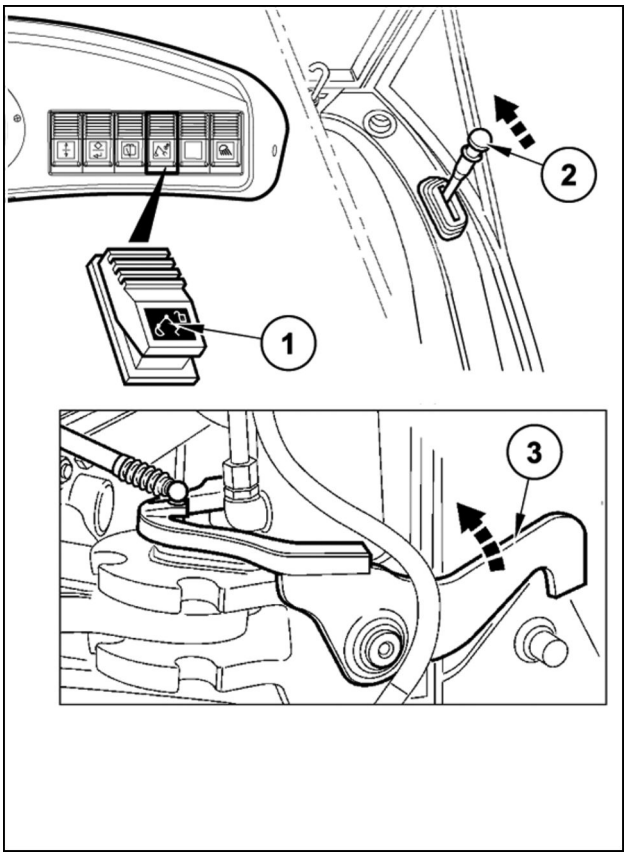
W0185A

⚠ WARNING

Unexpected machine movement!
With the engine running and only the gear lever in neutral, the machine can engage and move suddenly if someone accidentally moves the transmission F-N-R lever. Place all levers in neutral, lower any implements, and apply the parking brake before exiting the machine. Use wheel chocks when parking on slopes.
Failure to comply could result in death or serious injury.

W1191A

NOTE: *Before Using the backhoe controls, make sure that the operator's seat is correctly adjusted in the backhoe attachment position.*



LEEN12T0555BA 1

Backhoe attachment mechanical controls version

Stabilizer mechanical controls

NOTICE: *Whenever the backhoe attachment is used, the machine must be resting on the stabilizers.*

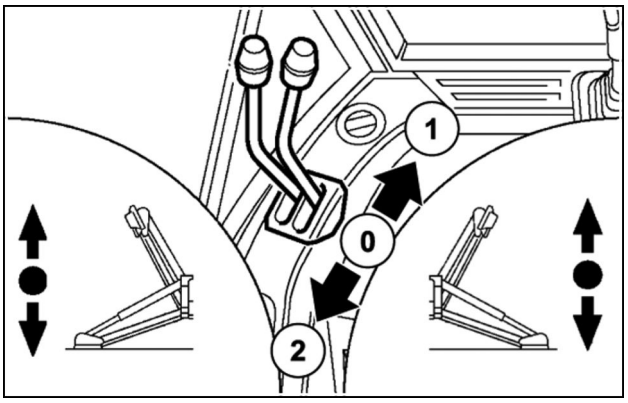
Left-hand stabilizer left-hand control lever

This lever has three positions:

Position "0": Neutral. This position stops the movement of the left-hand stabilizer. As soon as the lever is released, it automatically returns to the neutral position "0" and the left-hand stabilizer stops raising or lowering.

Position "1": The left-hand stabilizer lowers.

Position "2": The left-hand stabilizer rises.



LEEN12T0556AA 1

Right-hand stabilizer right-hand control lever

This lever has three positions:

Position "0": Neutral. This position stops the movement of the right-hand stabilizer. As soon as the lever is released, it automatically returns to the neutral position "0" and the right-hand stabilizer stops raising or lowering.

Position "1": The right-hand stabilizer lowers.

Position "2": The right-hand stabilizer rises.

NOTE: *To raise or lower the two stabilizers at the same time, operate the two levers simultaneously.*

NOTICE: *Before machine travel or before using the loader attachment, make sure the stabilizers are completely raised.*

During road travel, the stabilizers must be completely raised.

Attachment mechanical controls

These control levers are used to operate the backhoe attachment. The speed of movement of each control depends on the angle to which the lever is tilted. In the intermediate position, two movements can be obtained simultaneously.

Four backhoe attachment control configurations exist, depending on the country concerned:

- Standard configuration
- **ISO** configuration
- Four lever pattern configuration
- Cross-pattern configuration

The operating pattern of the control levers is different. Check which configuration you have on your machine.

Standard configuration

Backhoe boom and backhoe attachment swing left-hand control lever

This lever has five positions:

Position "0": Neutral/hold. This position enables the attachment movement to be stopped. As soon as the lever is released, it automatically returns to the neutral position "0" and the attachment remains in the position where it was when movement stopped.

Position "A": The boom lowers.

Position "B": The boom rises.

Position "C": The backhoe attachment swings to the left.

Position "D": The backhoe attachment swings to the right.

Backhoe dipper and backhoe bucket right-hand control lever

This lever has five positions:

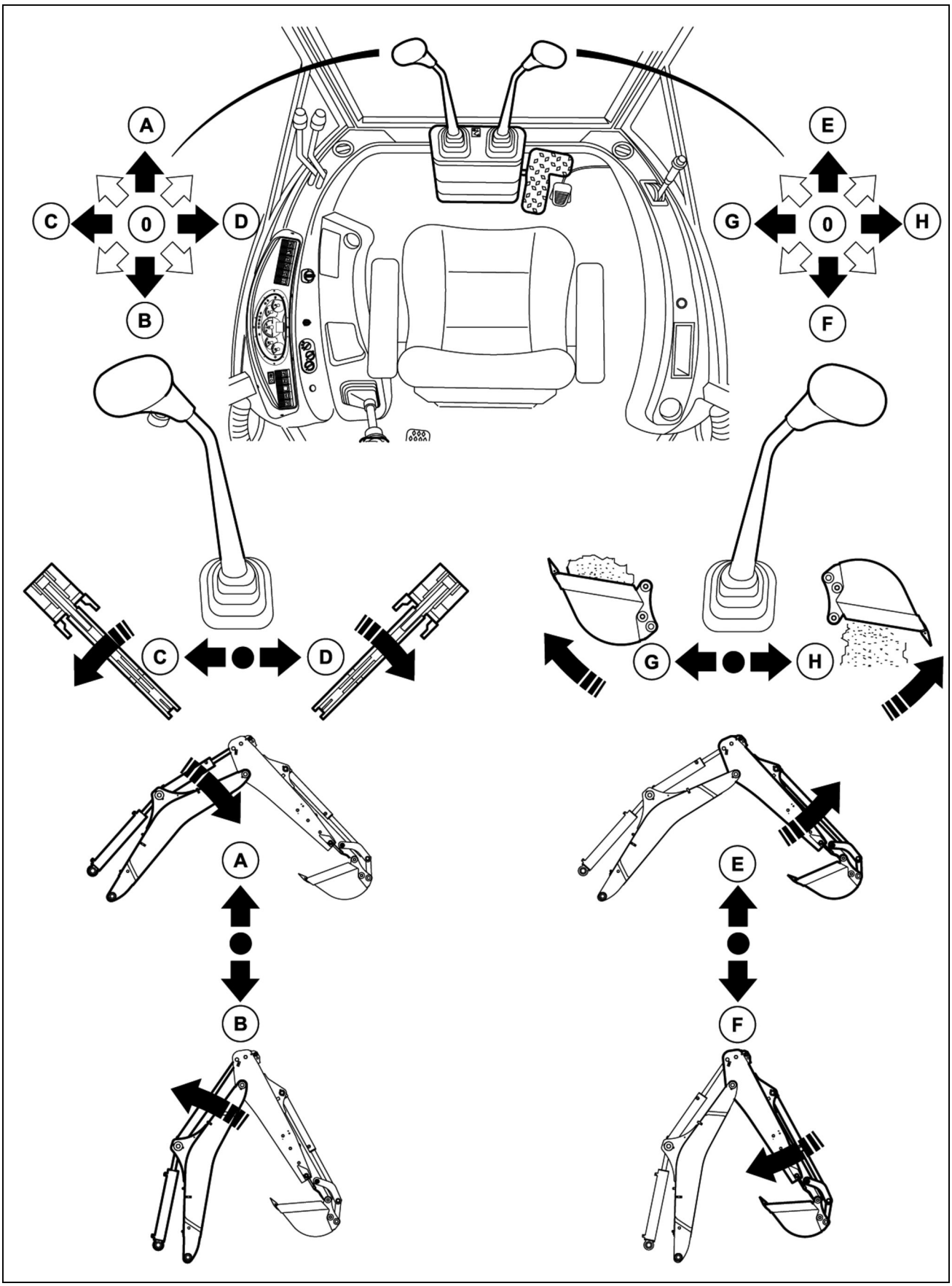
Position "0": Neutral/hold. This position enables the attachment movement to be stopped. As soon as the lever is released, it automatically returns to the neutral position "0" and the attachment remains in the position where it was when movement stopped.

Position "E": The backhoe dipper extends.

Position "F": The backhoe dipper retracts.

Position "G": The backhoe bucket closes.

Position "H": The backhoe bucket opens.



LEEN12T0557HA_1 2

ISO configuration

Backhoe dipper and backhoe attachment swing left-hand control lever

This lever has five positions:

Position "0": Neutral/hold. This position enables the attachment movement to be stopped. As soon as the lever is released, it automatically returns to the neutral position "0" and the attachment remains in the position where it was when movement stopped.

Position "A": The backhoe dipper extends.

Position "B": The backhoe dipper retracts.

Position "C": The backhoe attachment swings to the left.

Position "D": The backhoe attachment swings to the right.

Backhoe boom and backhoe bucket right-hand control lever

This lever has five positions:

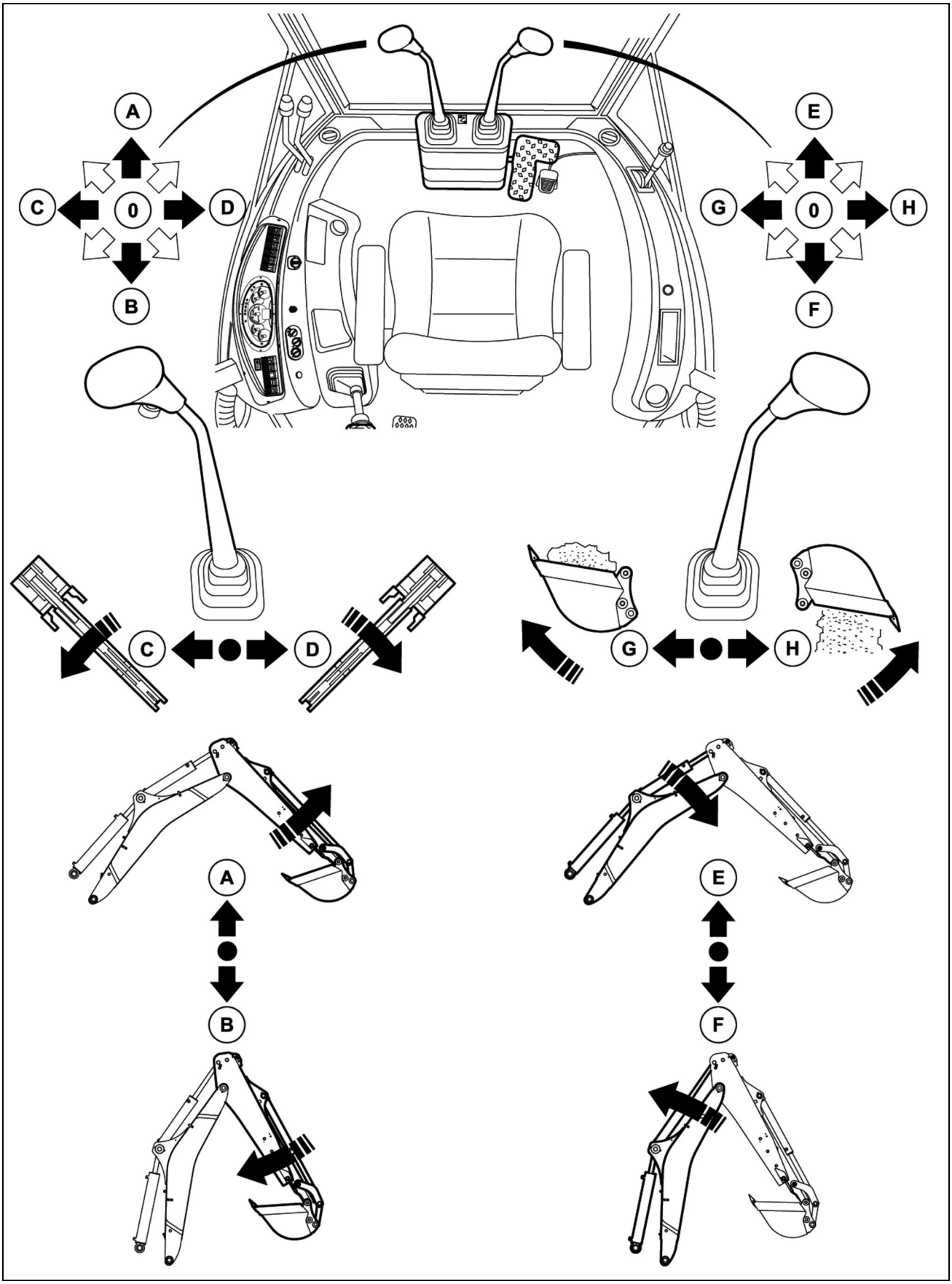
Position "0": Neutral/hold. This position enables the attachment movement to be stopped. As soon as the lever is released, it automatically returns to the neutral position "0" and the attachment remains in the position where it was when movement stopped.

Position "E": The boom lowers.

Position "F": The boom rises.

Position "G": The backhoe bucket closes.

Position "H": The backhoe bucket opens.



LEEN12T0558HA_1 3

Four-lever pattern configuration

Lever (1) for dipper

This lever has three positions:

Position "0": Neutral/hold. This position enables the attachment movement to be stopped. As soon as the lever is released, it automatically returns to the neutral position "0" and the attachment remains in the position where it was when movement stopped.

Position "A": The backhoe dipper extends.

Position "B": The backhoe dipper retracts.

Lever (2) for boom

This lever has three positions:

Position "0": Neutral/hold. This position enables the attachment movement to be stopped. As soon as the lever is released, it automatically returns to the neutral position "0" and the attachment remains in the position where it was when movement stopped.

Position "C": The boom rises.

Position "D": The boom lowers.

Lever (3) for backhoe bucket

This lever has three positions:

Position "0": Neutral/hold. This position enables the attachment movement to be stopped. As soon as the lever is released, it automatically returns to the neutral position "0" and the attachment remains in the position where it was when movement stopped.

Position "E": The backhoe bucket closes.

Position "F": The backhoe bucket opens.

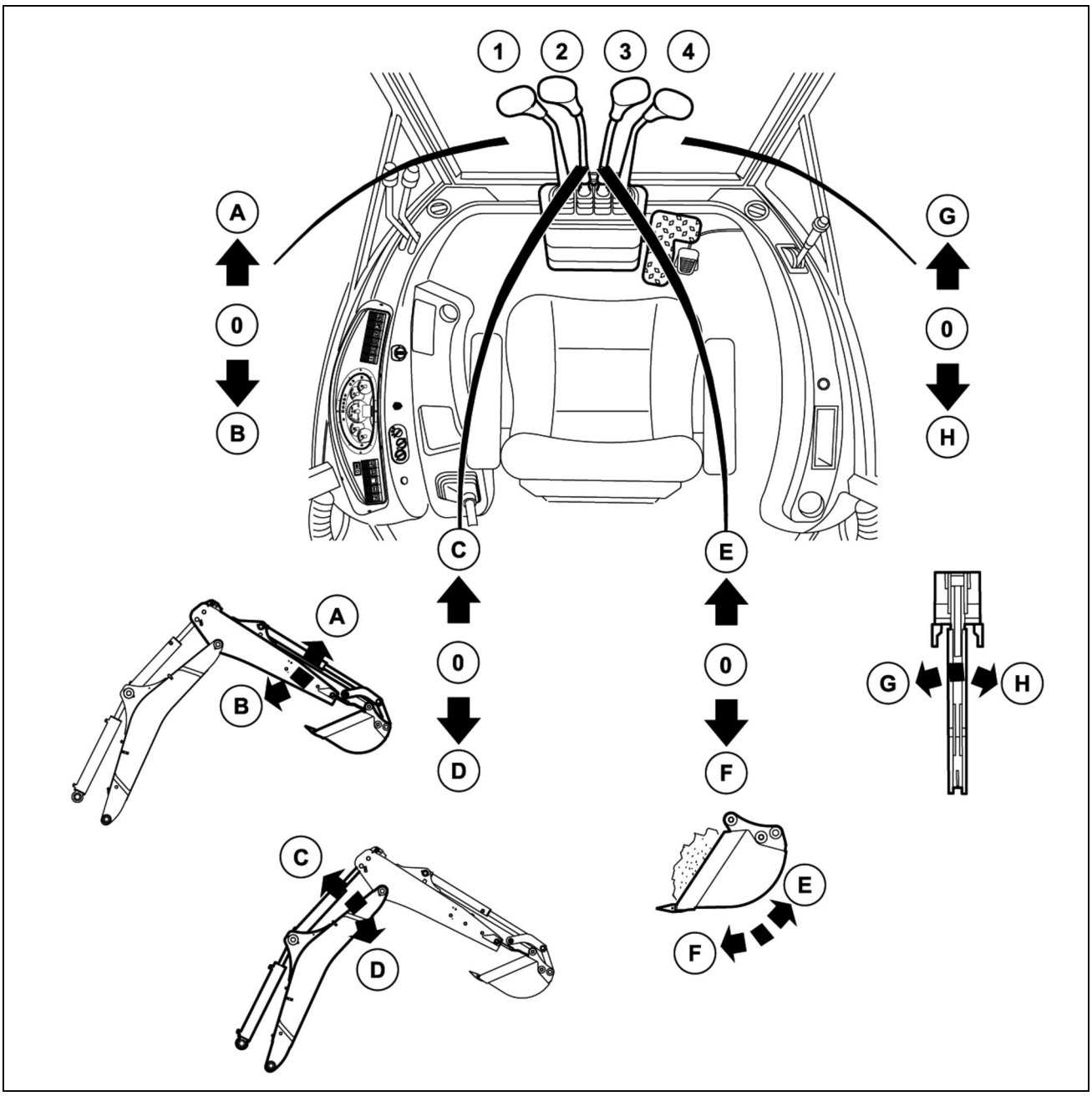
Lever (4) for backhoe attachment swing

This lever has three positions:

Position "0": Neutral/hold. This position enables the attachment movement to be stopped. As soon as the lever is released, it automatically returns to the neutral position "0" and the attachment remains in the position where it was when movement stopped.

Position "G": The backhoe attachment swings to the right.

Position "H": The backhoe attachment swings to the left.



LEEN12T0559GA_1 4

Cross-pattern configuration

Backhoe boom and backhoe attachment swing left-hand control lever

This lever has five positions:

Position "0": Neutral/hold. This position enables the attachment movement to be stopped. As soon as the lever is released, it automatically returns to the neutral position "0" and the attachment remains in the position where it was when movement stopped.

Position "A": The boom lowers.

Position "B": The boom rises.

Position "C": The backhoe attachment swings to the left.

Position "D": The backhoe attachment swings to the right.

Backhoe dipper and backhoe bucket right-hand control lever

This lever has five positions:

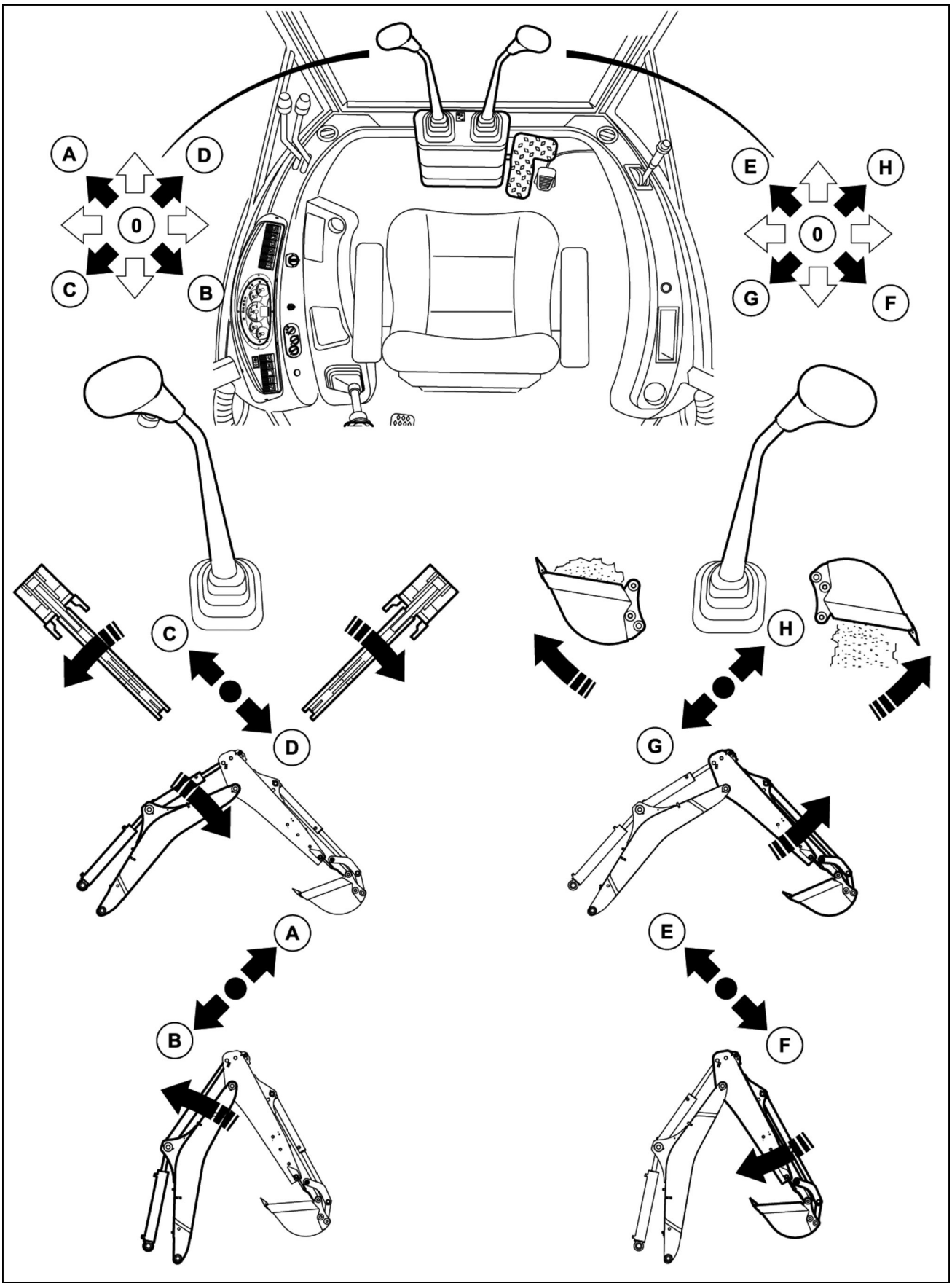
Position "0": Neutral/hold. This position enables the attachment movement to be stopped. As soon as the lever is released, it automatically returns to the neutral position "0" and the attachment remains in the position where it was when movement stopped.

Position "E": The backhoe dipper extends.

Position "F": The backhoe dipper retracts.

Position "G": The backhoe bucket closes.

Position "H": The backhoe bucket opens.



LEEN12T0560HA_1 5

Telescopic dipper mechanical control pedal (if fitted)

This pedal **(A)** has three positions:

Position "0": Neutral. This position enables the movement of the telescopic dipper to be stopped.

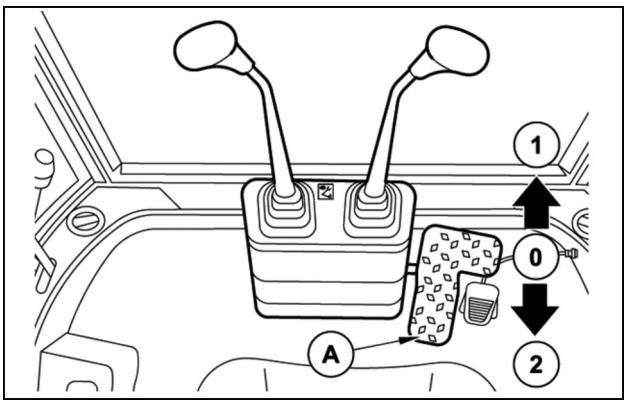
The pedal automatically returns to this position as soon as it is released.

Position "1": The telescopic dipper extends.

Position "2": The telescopic dipper retracts.

Before using this pedal make sure that the telescopic dipper is mechanically unlocked.

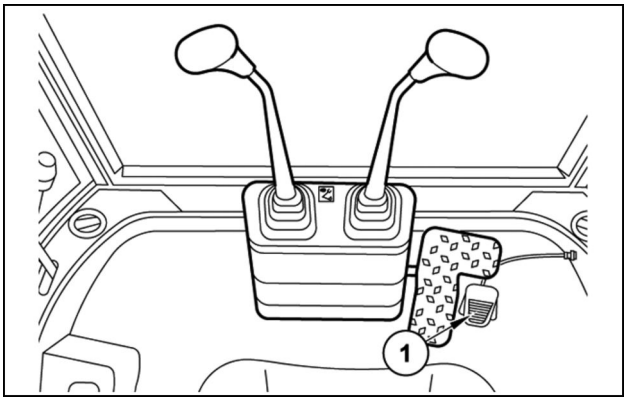
NOTE: *Operating the backhoe attachment control levers and this pedal simultaneously will enable numerous possibilities of progressive functioning.*



LEEN12T0802AA 6

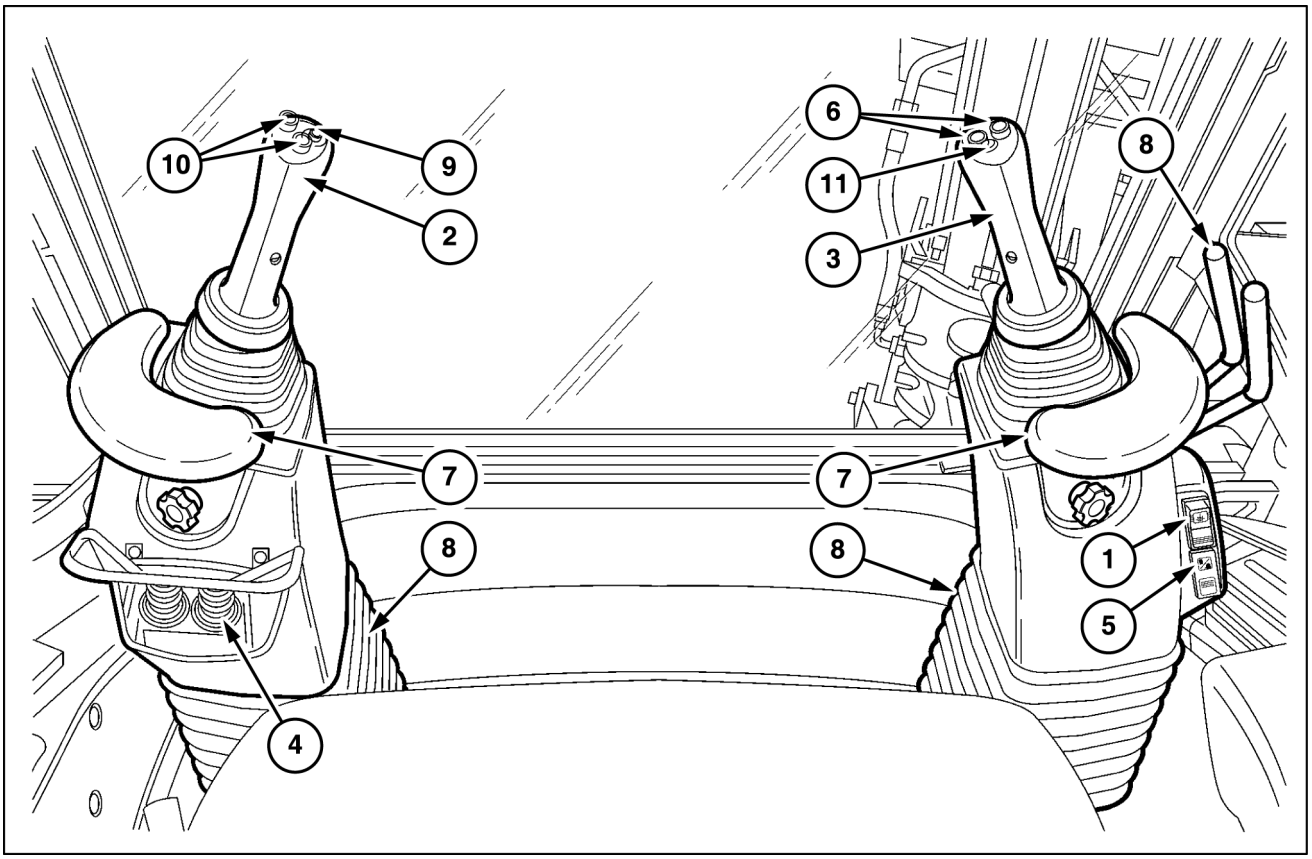
Auxiliary attachment control pedal (optional)

This pedal **(1)** is located to the right of the backhoe attachment controls and is used for operating auxiliary attachment, such as a hydraulic hammer.



LEEN12T0803AA 7

Backhoe attachment hydraulic controls



MOLI12LBB0178FB 1

1. Control enable switch: with this switch in the ON (lamp on) position, all backhoe attachment hydraulic controls are functional.
2. Left-hand hydraulic control lever: The left-hand hydraulic control lever controls attachment swing and the boom or the dipper (depending on the control pattern adopted).
3. Right-hand hydraulic control lever: The right-hand hydraulic control lever controls the bucket and the boom or the dipper (depending on the control pattern adopted).

   NOTE: *The operating speed depends on the angle of movement of the control levers. In intermediate position, two movements may be obtained simultaneously.*
4. Stabilizer controls: The right-hand control is for the right-hand stabilizer and the left-hand control is for the left-hand stabilizer.
5. Control pattern change switch: This switch is used for changing the standard control pattern to the **ISO** pattern.
6. Telescopic dipper controls: (proportional controls): Press the right-hand button to extend the telescopic dipper. Press the left-hand button to retract the telescopic dipper.
7. Wrist rests: The wrist rests may be adjusted to the required height.
8. Hydraulic control lever support angle adjustment: These controls are used for the fore/aft and left/right adjustment of the arm.
9. Horn button: (Momentary action control).
10. Controls of auxiliary bidirectional attachment (If fitted): Proportional buttons for the activation of the additional attachment.
11. Decelerator button: By pressing this button, the engine rpm sets to low idle. During this phase, the accelerator knob and pedal are disabled.
    By pressing the button again, the engine rpm is restored and the accelerator knob and pedal are functional again.

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Control enable switch

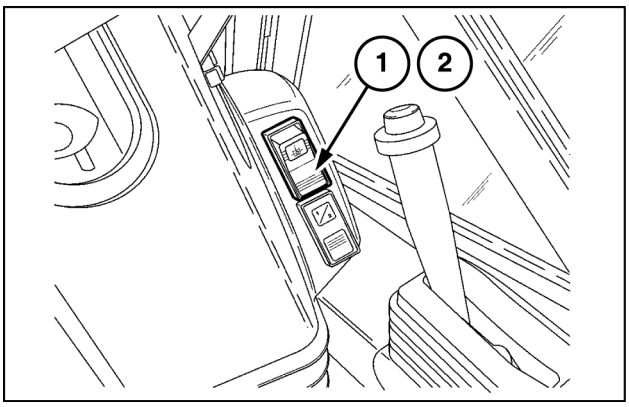
This control is located on the right-hand control lever.

This switch has three positions:

- Position OFF: (Lamp off) all controls will deactivate.
- Position "1": By pressing the upper side (lamp off), the stabilizers will activate.
- Position "2": By pressing the upper side (lamp on) again, all controls will activate.

NOTICE: *After using the attachment or before leaving the machine, always tilt the switch to OFF by pressing the lower side of the switch (lamp off). Never forget this basic safety requirement.*

NOTE: *when the engine is started, the backhoe control will default to either OFF or "1" depending on the switch position.*



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Control pattern change switch (Boom or dipper)

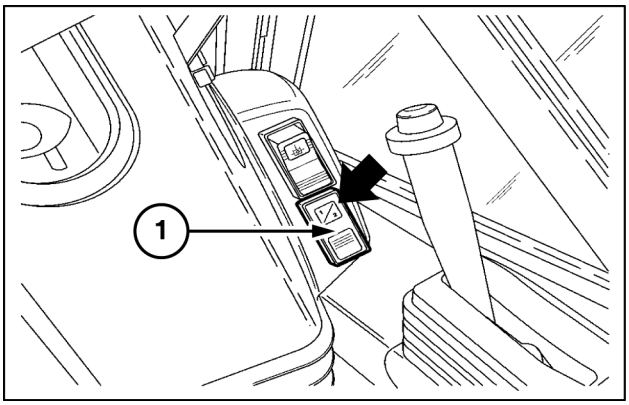
Located on the right-hand hydraulic control lever, this switch is fitted with a locking device.

The switch is used to change from standard pattern to **ISO** version, or vice versa.

To unlock the switch, push the locking device upwards and at the same time press the top of the switch **(1)**. In this position, the switch turns on and the controls are in **ISO** pattern.

The boom and dipper controls on the hydraulic control levers are now inverted.

Press the bottom of the switch **(1)** to lock and return to standard pattern operation.



MOLI12LBB0180AB 3

Backhoe attachment hydraulic controls

Standard configuration

Backhoe boom and backhoe attachment swing left-hand hydraulic control lever.

This hydraulic control lever has five positions:

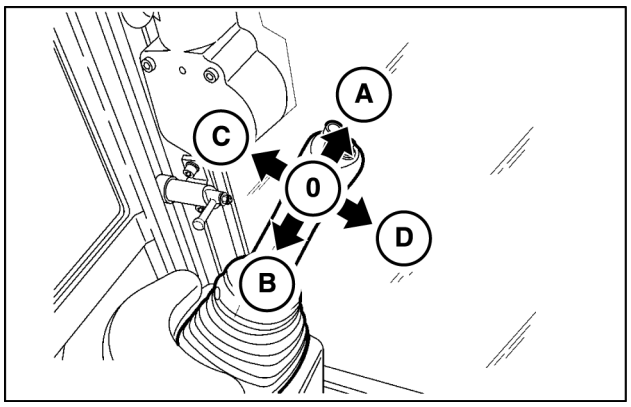
Position "0": Neutral/hold. This position enables the attachment movement to be stopped. As soon as the hydraulic control lever is released, it automatically returns to the neutral position "0" and the attachment remains in the position where it was when movement stopped.

Position "A": The boom lowers

Position "B": The boom rises

Position "C": The backhoe attachment swings to the left

Position "D": The backhoe attachment swings to the right



MOLI12LBB0181AB 4

Backhoe dipper and backhoe bucket right-hand hydraulic control lever

This hydraulic control lever has five positions:

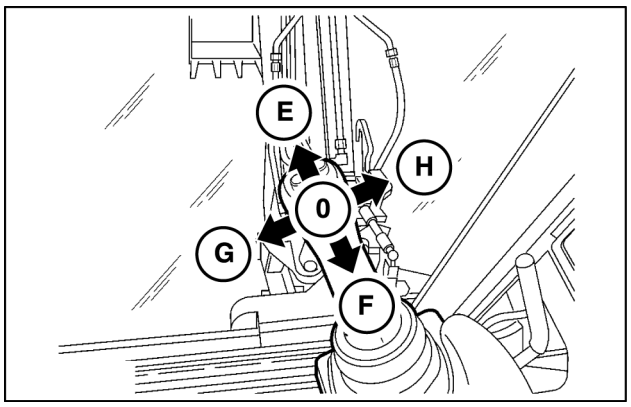
Position "0": Neutral/hold. This position enables the attachment movement to be stopped. As soon as the hydraulic control lever is released, it automatically returns to the neutral position "0" and the attachment remains in the position where it was when movement stopped.

Position "E": The backhoe dipper extends.

Position "F": The backhoe dipper retracts.

Position "G": The backhoe bucket closes.

Position "H": The backhoe bucket opens.



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Stabilizer hydraulic controls

These controls are located on the left-hand hydraulic control lever and may be operated independently or simultaneously. These controls are proportional, and therefore, the stabilizer speed may vary.

NOTICE: *Whenever the backhoe attachment is used, the machine must be resting on the stabilizers.*

Left-hand stabilizer left-hand control lever

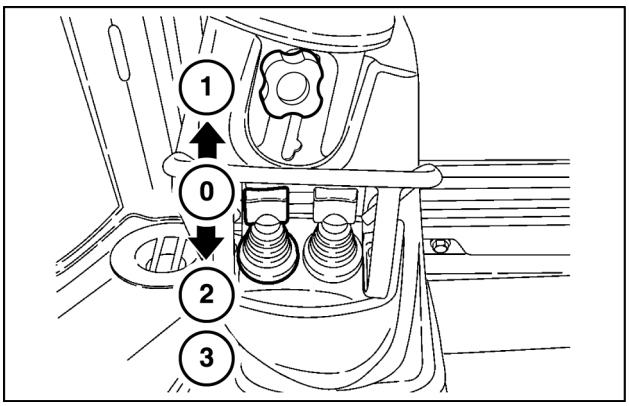
This lever has four positions:

Position "0": Neutral. This position stops the movement of the left-hand stabilizer. As soon as the lever is released from positions "1" or "2", it automatically returns to the neutral position "0" and the left-hand stabilizer stops raising or lowering.

When held in position "1": The left-hand stabilizer lowers.

When held in position "2": The left-hand stabilizer rises.

Position "3": Stabilizer auto-up feature.



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Right-hand stabilizer right-hand control lever

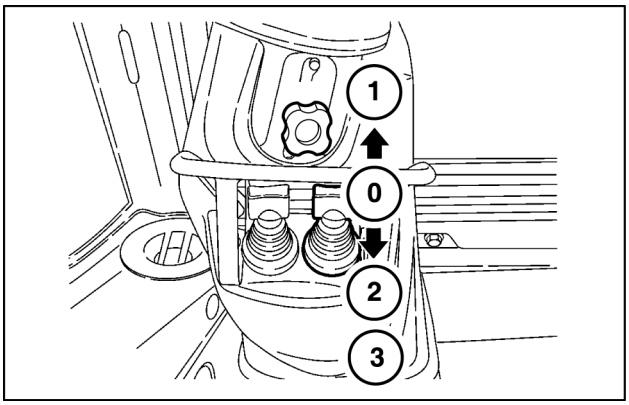
This lever has four positions:

Position "0": Neutral. This position stops the movement of the right-hand stabilizer. As soon as the lever is released from positions "1" or "2", it automatically returns to the neutral position "0" and the right-hand stabilizer stops raising or lowering.

When held in position "1": The right-hand stabilizer lowers.

When held in position "2": The right-hand stabilizer rises.

Position "3": Stabilizer auto-up feature.



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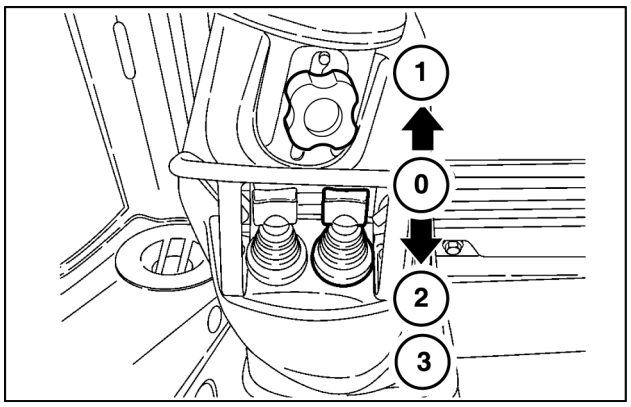
Auto-up feature (Center pivot version) (Optional)

Position "3": When the levers are momentarily pulled back to this position and then released, they return to the neutral position and the stabilizers automatically rise to road travel position, there by leaving your hand free for other duties. To stop the automatic rise at any time, push or pull the levers; the rise of the stabilizers stops.

NOTE: *The machines not provided with the optional auto-up feature still have the relevant detent position, but this does not affect the stabilizer operation in any way.*

NOTICE: *Before machine travel or before using the loader attachment, make sure the stabilizers are completely raised.*

NOTICE: *During road travel, the stabilizers must be completely raised and immobilized by means of the pins provided for that purpose.*



MOLI12LBB0185AB 8

Telescopic dipper controls (If fitted)

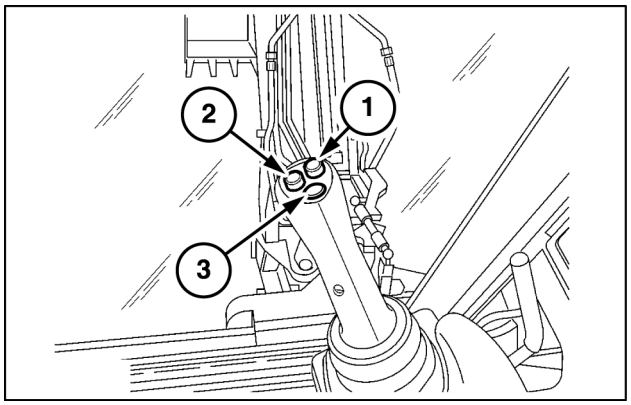
Press and hold down the right-hand button **(1)** to extend the telescopic dipper. As soon as the button is released the dipper stops and remains in the position it occupied when the button was released.

Press and hold down the left-hand button **(2)** to retract the telescopic dipper. As soon as the button is released the dipper stops and remains in the position it occupied when the button was released.

By pressing button **(3)**, it is possible to set the engine rpm to idle run disabling accelerator handle and accelerator pedal. By pressing again button **(3)** the engine rpm are restored and the accelerator handle and accelerator pedal as well.

Before using these controls, make sure the telescopic dipper is mechanically unlocked.

NOTE: *Operating the backhoe attachment control levers and these controls simultaneously will enable numerous possibilities of progressive functioning.*

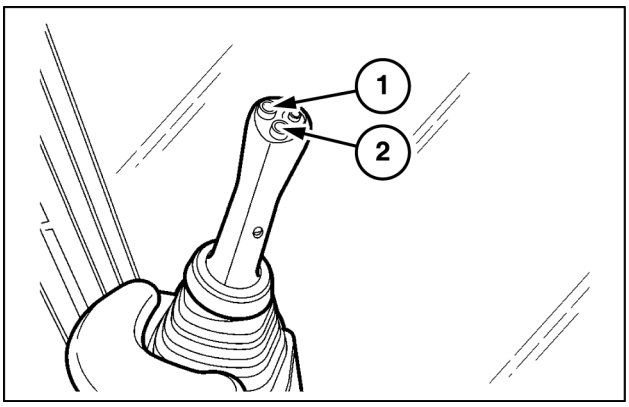


MOLI12LBB0186AB 9

Auxiliary bi-directional controls (If fitted)

Press and hold the left-hand button **(1)** to let the oil flow out of the left-hand side of the boom.

Press and hold the left-hand button **(2)** to let the oil flow out of the right-hand side of the boom.



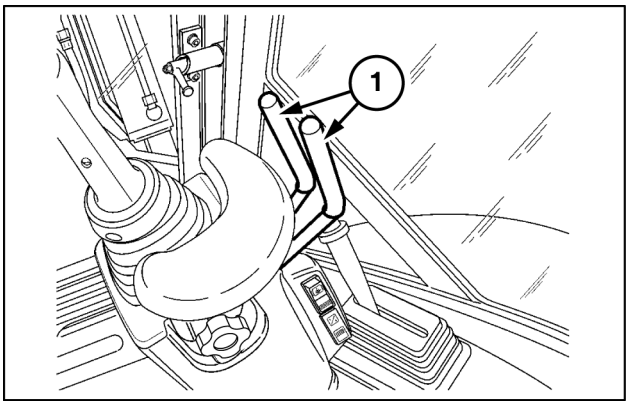
MOLI12LBB0187AB 10

Hydraulic control lever support adjustments

Fore and aft

Squeeze the two levers **(1)**, then tilt the hydraulic control levers to the desired position.

Once the desired position is reached, release the two levers **(1)**.

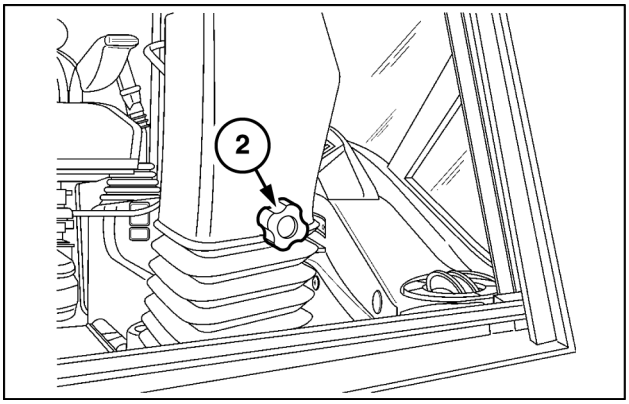


MOLI12LBB0188AB 11

Left and right

Loosen the two knobs **(2)** located in front of each hydraulic control lever support, then tilt the supports to the required position.

Once the adjustment has been carried out, tighten the two knobs **(2)**.



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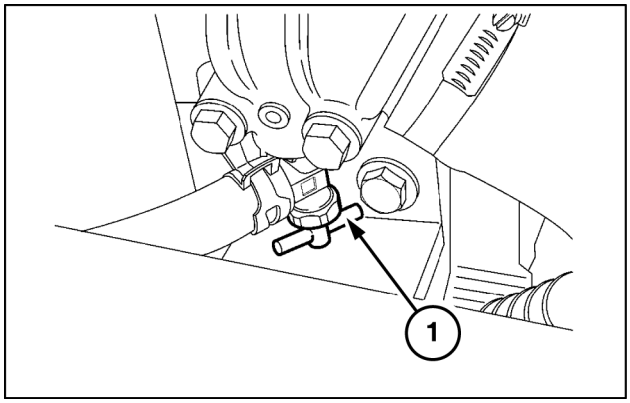
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CLIMATE CONTROLS

Heating and air conditioning controls

The heating, ventilation and air conditioning controls are located on the right side of the cab (operator's seat in loader attachment position).

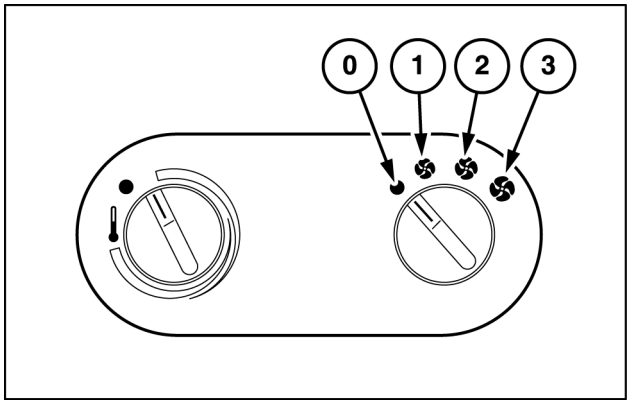
NOTE: *In order to use the heating, it is necessary to open the heater shut-off valve* ***(1)*** *located on the engine's right side.*



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Ventilation

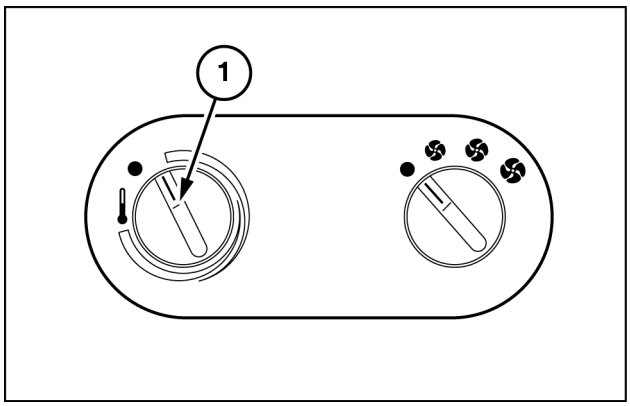
This four position knob enables air flow to be adjusted in the operator's compartment.
Position "0": stop
Position "1": low flow
Position "2": medium flow
Position "3": high flow



MOLI12LBB0191AB 2

Heating (Optional)

This knob **(1)** enables the air temperature to be adjusted in the operator's compartment.
To increase the temperature, turn the control knob clockwise (warm).
To decrease the temperature, turn the control knob counterclockwise (cold).



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Air conditioning (Optional)

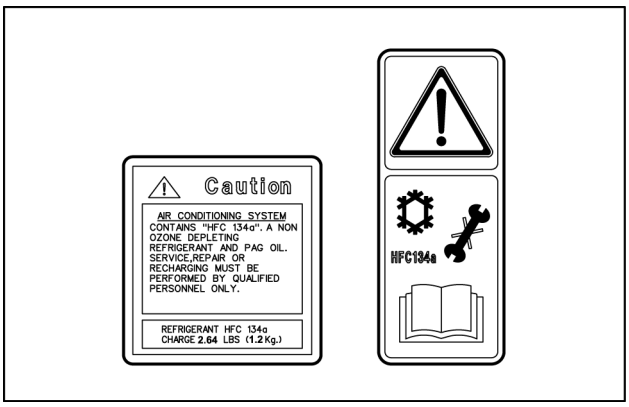
When using the air conditioning, it is essential that all the windows of the operator's compartment are completely closed.

To ensure correct operation and full efficiency of the air conditioning system, it must be used at least once a week, even for a short time.

HFC R134A coolant

For technical details, see the decal located on the right side of the cooler.

***ATTENTION: HFC R134A** coolant can be dangerous if improperly handled. Therefore it is important the following warning and directions are adhered to. **HFC R134A** has a boiling point of **-12 °C** (**10.4 °F**).*
Never expose any part of the air conditioning system to flames or excessive heat because of the risk of fire or explosions and the production of phosgene gas.
Never disconnect or disassemble any part of the air conditioning system as escaping coolant can cause frostbite.
If coolant comes into contact with your skin, use the same treatment as for frostbite.
*Warm the exposed area of skin with your hand or lukewarm water **32 °C** (**89.6 °F**), cover loosely with a bandage to protect against infection and consult a doctor immediately.*
*If coolant comes into contact with your eyes, rinse them immediately with cold water for at least **5 min** and consult a doctor immediately.*



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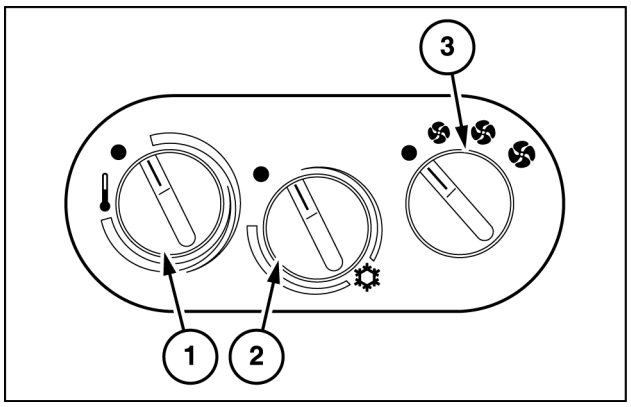
Controls

The air conditioning control can be adjusted to obtain the desired temperature in the cab.

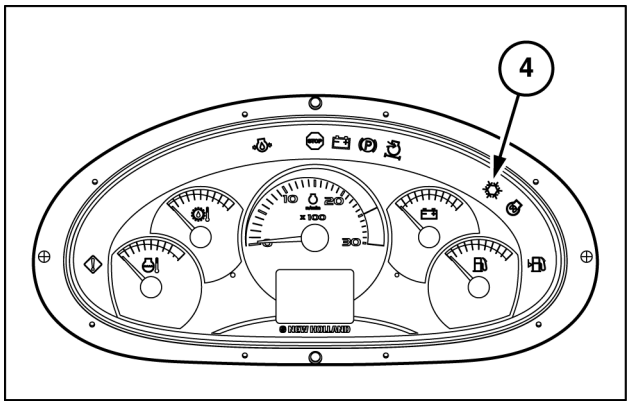
To activate air conditioning, turn the selector **(2)**. Upon activation, the warning lamp **(4)** on the side instrument cluster turns on. The selector **(1)** allows choosing the ideal temperature according to your requirements. Positioning selector **(1)** to “0” and turning selector **(2)** you will obtain more or less cold according to the selector **(2)** position. By positioning selector **(1)** to any other position different from “0”, you will obtain instead a mixture of warm and cold air and the desired climate inside the cab.

NOTE: *The air conditioning can be operated only if the ventilation selector **(3)** is not set to the stop position.*

Turn the selector **(3)** for air capacity according to your requirements.



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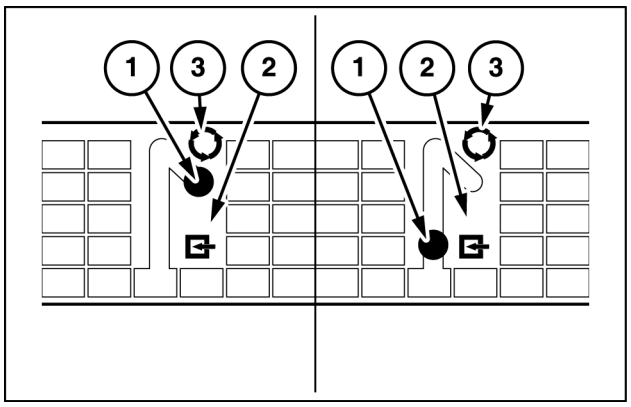
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Air recirculation

The air recirculation control is located under the seat, on the left side.

When the knob **(1)** is positioned corresponding to the symbol **(3)** the air does not come in from the outside, and the air recirculation mode is activated.

When the knob is positioned corresponding to the symbol **(2)** the air comes in from the outside.



MOLI12LBB0197AB 7

Cab air louvers

Air flow diffusers are connected to the heater system and receive air from the blower, to direct warm or cold air onto the windshield and side windows or to the cab interior as required.

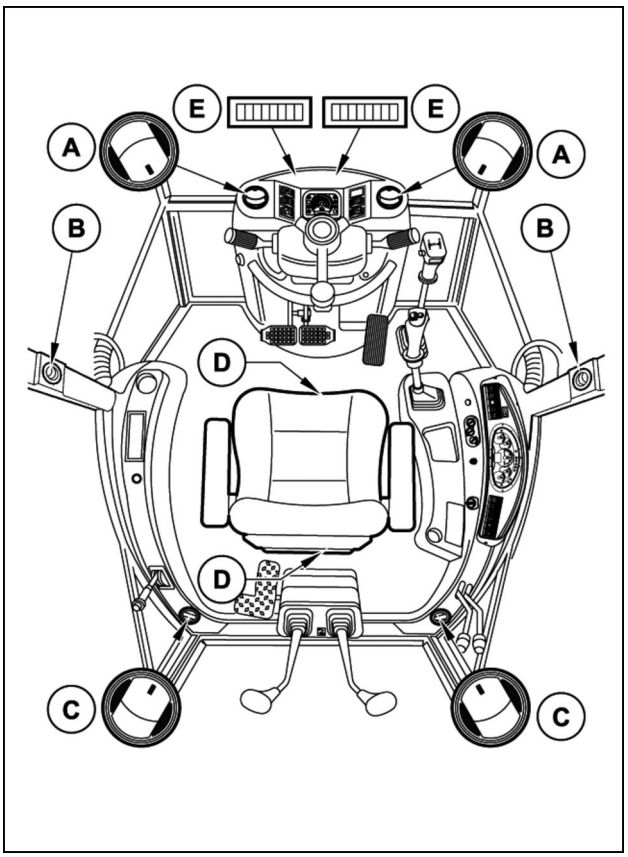
Each diffuser may be swivelled and adjusted to control the flow of air.

To open a diffuser, press one side of the disc and turn it, as required, to direct the air flow.

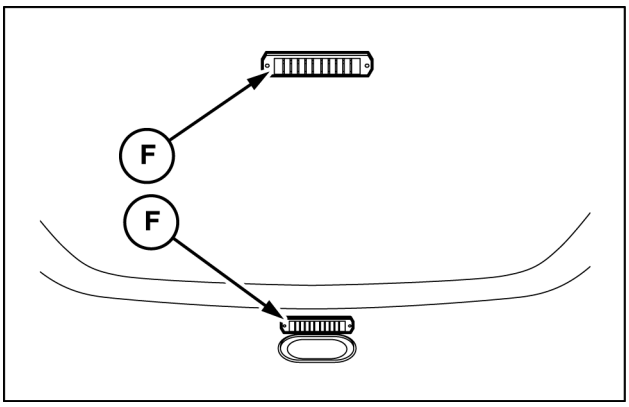
The diffusers are located as follows:

- two on the top of the front instrument panel **(A)**
- two on the front edge of the front console **(E)**
- two to the rear of the seat **(C)**
- two under the seat, one in front, the other on the rear **(D)**
- two on the cab posts, right and left **(B)**
- two on the ceiling, in front and back of operator's head **(F)**.

NOTE: *The diffusers **(B)** and **(F)** are mounted only when air conditioning (optional) is fitted.*



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4 - OPERATING INSTRUCTIONS

COMMISSIONING THE UNIT

Before using the machine

ATTENTION: *Read and familiarize yourself with the instructions and warnings shown in this manual before operating the machine.*

Before using the machine, some precautions are necessary.

Check the levels (engine oil, hydraulic fluid and coolant fluid) and make sure that the various fluids correspond to the conditions of use.

Carry out the daily maintenance operations.

Walk round the machine, look for any leaks and inspect the hoses. Tighten or replace any items as required.

Before undertaking road travel, unlock the attachments, completely raise the stabilizers and install the safety systems required by the regulations.

Before road travel or night work, check that the lighting and signalling systems are correctly operating and correctly adjusted.

Check the condition of the tires and the tire pressure.

Clean the steps and access handles.

The presence of oil, mud or ice (winter) can cause accidents.

Make sure they are always clean.

Clean or replace safety decals which are no longer legible.

Make sure that the engine tilt hood is closed and latched correctly.

Remove anything which might hinder visibility. Clean the windows and the rearview mirrors.

Make sure that no objects or tools are left on the machine or in the operator’s compartment.

Make sure you know how to evacuate the machine (emergency exit via the right-hand door) in case exit through the left-hand door is impossible.

Make sure that the right-hand door is not locked.

Make sure that nobody is under or on the machine.

The operator should be the only person on the machine.

Make sure that nobody is within the working range of the machine.`

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Operating the machine

⚠ WARNING

Driving hazard!
Check all controls and safety devices in a safe, open area before starting work.
Failure to comply could result in death or serious injury.

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When using the machine, some precautions are necessary.

Start the engine taking into account weather conditions.

Regularly check the hourmeter on the side instrument display to ensure servicing intervals are observed.

If you use the machine under particularly severe conditions (dusty or corrosive atmosphere, etc.), the Servicing Intervals should be reduced.

Make sure that the operator's seat is correctly adjusted and positioned.

Never operate any control or driving component unless you are seated correctly in the operator's seat with the seat belt adjusted and attached correctly.

Avoid running the engine in an enclosed space. If necessary, ensure good ventilation under all circumstances.

Dust, smoke or fog can reduce visibility and cause an accident. Stop or slow down the machine until normal visibility is restored.

If there is any operating problem, immediately lower the loader equipment to the ground, engage the parking brake and stop the engine.

Find the cause or inform responsible persons and take the necessary measures to forbid the use of the machine.

When stopping the engine take account of weather conditions. See page **4-9**.

When parking the machine, see page **4-14**.

When loading the machine onto the trailer, see page **5-11**.

When towing the machine, see page **5-12**.

Road operation

NOTICE: *Road speed is subject to restrictions according to the country. It is the operator's responsibility to limit his speed accordingly.*

Before carrying out any road travel, lock the attachments and install the safety systems required by regulations.

The machine must be within the maximum dimensions permitted on the road in accordance with local road traffic regulations.

Completely raise the stabilizers.

Check that the lighting and signalling systems operate correctly.

Check that the brakes and steering operate correctly.

Check the condition of the tires and the tire pressure.

Never leave the operator's compartment when the engine is running.

Never use the differential lock.

Job site operation

On job sites on the public highway, use regulation signals, taking into account the working range of the machine.

Local regulations define the number, type and location of reflective strips.

Be vigilant, be aware of places where other persons are working close to your working area.

Keep other persons away from the machine. Serious physical injury can result if these instructions are not observed.

Adapt your driving style to suit the conditions of work (sloping ground or rough ground), the state of the road and weather conditions.

Operate all controls consistently so the machine works smoothly.

When travelling at right angles to the slope keep the loader bucket at ground level.

When travelling in the same direction as the slope, move onto the slope in low gear (first gear). Never travel downhill with the gearshift lever in neutral position.

When working on a slope, engage the front drive axle (4WD) if equipped.

Holes, obstacles, debris and other hazards in the working area can cause serious physical injury. Always walk around and identify all possible hazards before operating the machine in a new working area.

Make sure you know the location of underground pipes or cables before beginning work.

Electrical cables, gas pipes, water pipes or other underground installations can cause serious physical injury.

Do not work close to live overhead electric lines without first making sure that the minimum distances are observed: **5 m** (**16.4 ft**).

Running-in period

Your machine will last longer and give better and more economical performance if you pay particular attention to the engine during the first **20 h** of operation.

During this period:

Keep a close watch on the instrument panel.

Operate the machine at normal speeds.

Do not run the engine too much at stalling speeds (with the wheels turning slowly or stopped and the engine at full speed).

To ensure adequate lubrication, idle the engine at **1000 RPM** for **1 min** before increasing the RPM.

Maintain the engine at the normal operating temperature.

Do not run the engine at idle speed for long periods

During the running-in period, the following inspections and maintenance operations must be carried out in addition to the operations shown in the Maintenance section:

Every 10 h or daily

Check the engine oil and coolant levels.

Check the transmission and rear axle oil levels.

Check the backhoe and loader attachment lubrication.

Check wheel nuts for tightness.

After the first 50 operating hours

After the first 50 operating hours, consult your Dealer for the **50 h** maintenance recommended by the Manufacturer.

STARTING THE UNIT

Starting the engine

NOTE: *The instruments represented may not exactly correspond to the instruments on your machine.*

To correctly perform the starting procedure, some precautions are necessary.

Check that the seat **(1)** is properly locked in the loader attachment working position.

Adjust the seat and fasten the seat belt.

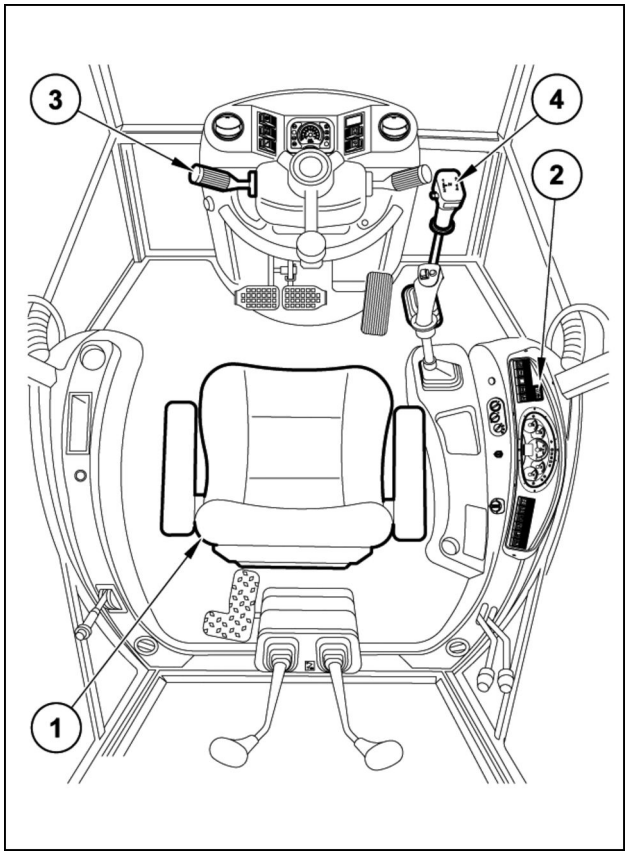
Check that the parking brake switch **(2)** is engaged.

Check that the engine accelerator knob is in low idle position.

Check that the direction-of-travel lever **(3)** is in neutral position.

NOTE: *If this is not done, the audible warning device will sound and it will be impossible to start the engine.*

Check that the gearshift lever **(4)** is in neutral position (Power-Shuttle).



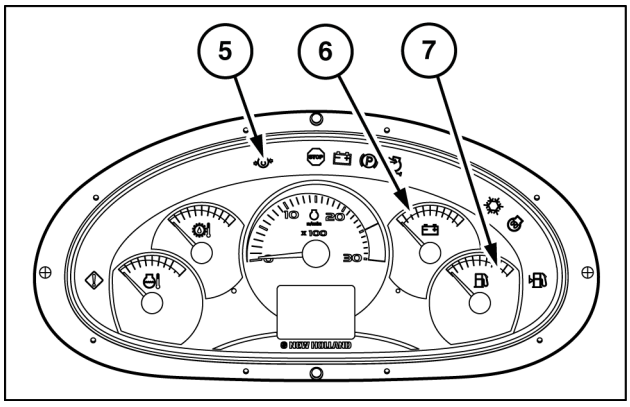
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Turn the starter switch key to the ON position. All lamps turn on and the instrument buzzer sound for **5 s**. Afterwards, the lamps turn off and only lamp **(5)** remains on. The gauges **(6)** and **(7)** set to position.

Press the accelerator pedal down about a quarter of the way.

Turn the key to the starting position. Release the key as soon as the engine starts. If the engine stops, wait about one minute before starting the operation again.

NOTICE: *Do not operate the starter motor for more than **30 s** at a time. Do not operate the starter motor when the engine is running.*



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When the engine is running, check the indicators and indicator lamps to make sure that all systems are operating correctly.

Using the accelerator pedal, run the engine at half speed until it has reached normal operating temperature.

NOTE: *Do not run the engine at idle speed for too long, since this may cause the formation of deposits in the oil. Whenever conditions of use and safety allow it, run the engine at maximum speed.*

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Assisted starting (Jump-starting)

A high current flows on connection of the ground cable.

Sparks occurring at the contact point may ignite gases at the discharged battery.

Connect the ground cable to the frame as far as possible away from the discharged battery.

During assisted starting operations (by means of an external battery), do not lean over the batteries. Wear goggles.

Never try to start the machine when the batteries are defective or frozen.

Only connect batteries (battery assemblies) with the same voltage.

Only use tested jumper cables with insulated terminal clips and an adequate lead diameter.

Ensure that the bodies of the supplying and receiving machines are not in contact. Otherwise a current flow might result from connecting the positive poles.

Risk of short-circuiting.

When performing assisted starting, never use power supplies creating an over-voltage, such as, for example, two or three batteries in series or devices generating voltages above **12 V**.

Never use welding generators or welding transformers as power sources.

Position jumper cables in such a way that they cannot be caught by rotating engine components.

Check whether the battery of the receiving machine (discharged battery) is in working order:

- Switch off electrical accessories (lights, fans).
- Insert the key into the cylinder, the warning lamps for the engine check must turn on.
- If warning lamps do not turn on, the battery is faulty (discharged or with a short-circuit inside).

In this case the machine must not be started, as the alternator would then be damaged.

Install a functional battery before jump-starting.

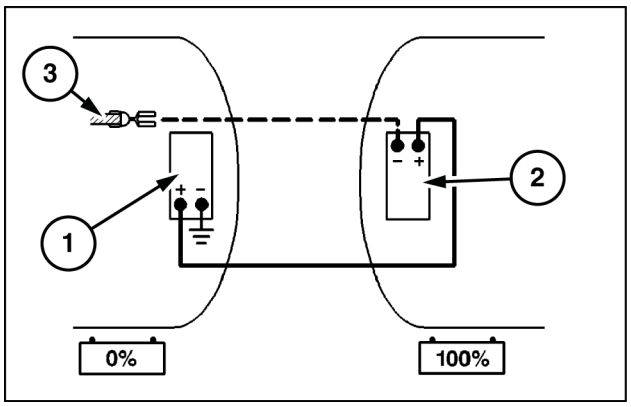
https://truckmanualshub.com/

Switch off all electrical accessories in receiving machine and turn key switch to "0".

Switch off all accessories in supplying machine (booster battery) and shut off engine.

Connect the red jumper cable to the positive clamp of the discharged battery **(1)** and then to the positive clamp of the booster battery **(2)**.

Connect the black jumper cable first to the negative clamp of the booster battery **(2)** and then to the frame on the receiving machine **(3)**, near the negative clamp of the discharged battery.



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Starting the engine

Start the engine of the supplying machine.

Increase RPM.

Start the engine of the receiving machine.

If the engine does not start up after **30 s**, wait one minute before restarting.

Activate some of the accessories with high current absorption, such as complete lighting and air-conditioning.

This prevents voltage peaks, which might damage electronic modules, from occurring when the jumper cables are disconnected.

Disconnect the jumper cables in reverse order as used when installing.

Run the engine at moderate speed for about half an hour. The batteries recharge partially.

Have the electrical system of the machine checked, to determine why the batteries were flat.

Starting the engine - At temperatures below -18 °C (-0.4 °F) (Optional)

This starting system is to be used when the ambient temperature is between **-18 °C** (**-0.4 °F**) and **-29 °C** (**-20.2 °F**).

The engine block heater heats the engine coolant and is for use at temperatures below **-18 °C** (**-0.4 °F**).

When used in conjunction with engine air heating, the engine block heater will be effective down to **-29 °C** (**-20.2 °F**).

Consult your dealer.

The system works on **115 V** alternating current.

ATTENTION: *To avoid shocks or other injuries, never use a non-grounded or inadequate extension lead. Always use a grounded 3 core extension lead with a 3 wire plug which is rated for at least a **15 A** load.*

To operate the heater, connect the heater plug to a suitable extension lead and switch on for two hours before carrying out the cold weather starting procedure.

NOTE: *The heater may be left switched on for more than two hours without damage. However, no noticeable increase in the heater's effectiveness will be achieved after this period of time.*

Starting the engine - At low temperatures

This starting system activates when the ambient temperature is lower than **5 °C** (**41 °F**).

NOTE: *in very cold starting conditions [starting below* ***-15 °C*** *(****5 °F****)] the engine controller will limit the engine speed to a maximum of* ***1200 RPM*** *to prevent damage to the engine. If the throttle setting is at low idle upon start, the engine will run at* ***950 RPM*** *unless overridden by the cluster setting. You can adjust the engine speed between* ***950 RPM*** *and* ***1200 RPM*** *during this time. At* ***-20 °C*** *(****-4 °F****), this may take up to* ***100 s****.*

When starting a cold engine at temperatures below **5 °C** (**41 °F**), open the throttle fully.

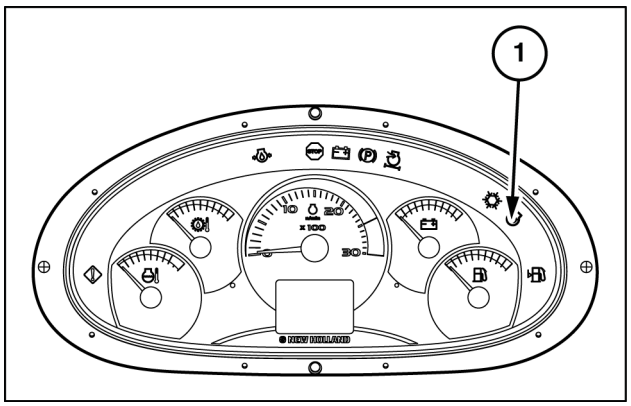
Turn the key switch to the ON position and check the instrument cluster.

Wait for the glow plugs indicator light **(1)** to turn off before turning the key switch to ON.

Turn the key switch to ON until the engine starts, then release the key.

If the engine fails to start after a maximum of **30 s** of cranking repeat the starting procedure.

Do not operate the starter for more than **30 s**.



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STOPPING THE UNIT

Stopping the engine

Check that the direction-of-travel control lever **(1)** is in the neutral position.

(Power-Shuttle) place the gearshift lever **(2)** in neutral position.

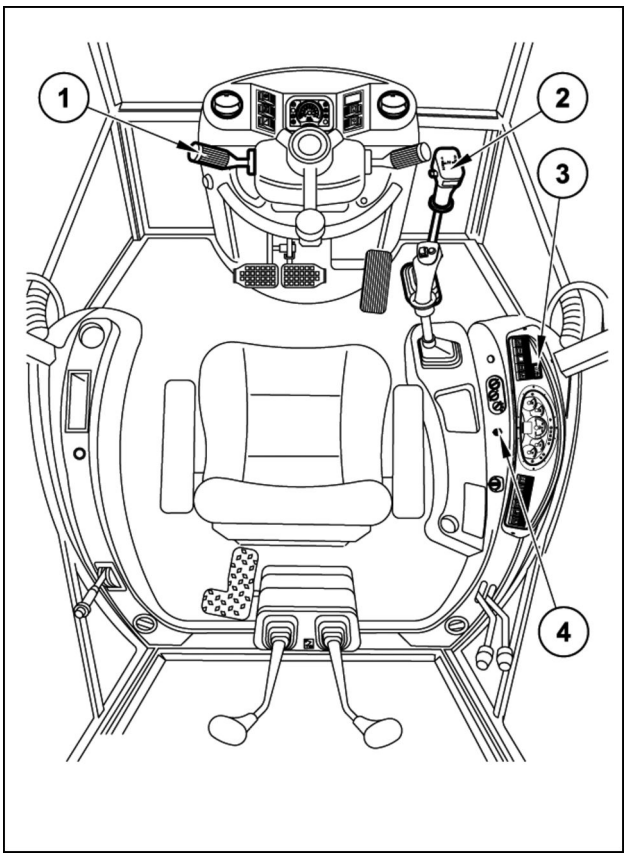
Engage the parking brake by pressing the switch **(3)**.

Allow the engine to run at idle speed for about one minute in order for the turbocharger to be lubricated correctly.

NOTICE: *In cold weather, run the engine at low idle speed for three to five minutes.*

Turn the starter switch key **(4)** to the OFF position, then remove it.

NOTICE: *If it is necessary to stop the engine for a long time, place the machine in safety conditions.*



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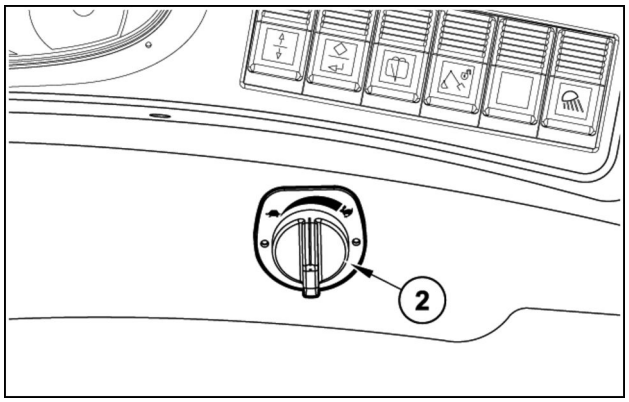
MOVING THE UNIT

Job site travel

NOTE: *The instruments represented may not exactly correspond to the instruments on your machine*

NOTE: *After road travel, remove all road safety devices before carrying out any job site travel.*

Make sure that the engine accelerator knob **(2)** is in low idle position.

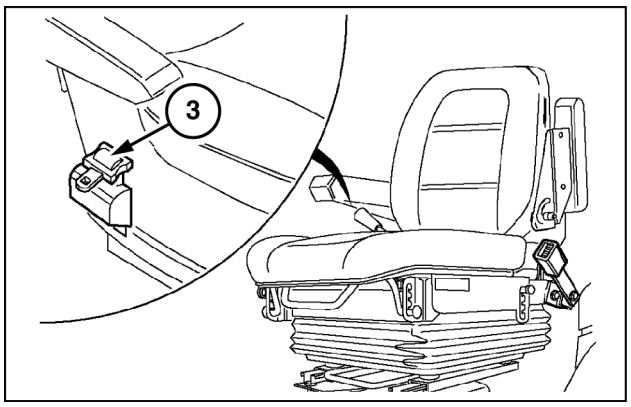


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Make sure the stabilizers are completely raised.

Make sure the doors are properly closed and that the engine tilt hood is closed and locked.

Adjust the operator's seat correctly. Fasten the seat belt **(3)** correctly and then adjust it.

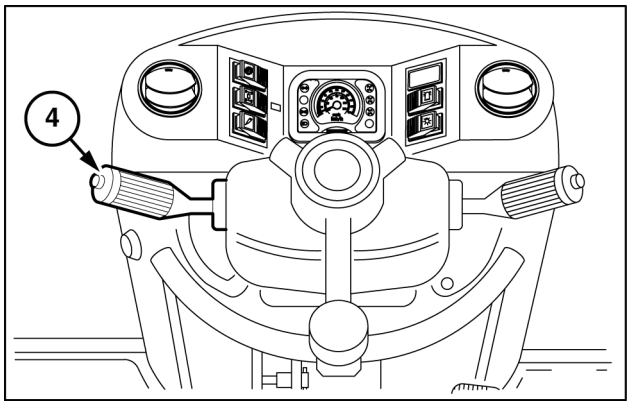


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Check that the direction of travel lever **(4)** is in neutral position.

Start the engine.

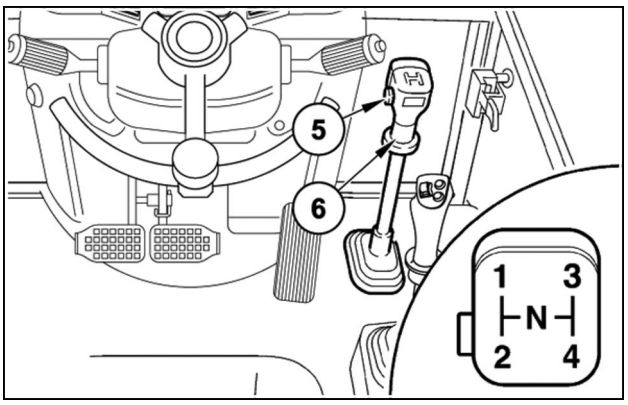
Raise the loader attachment about **20 cm** (**7.9 in**) off the ground.



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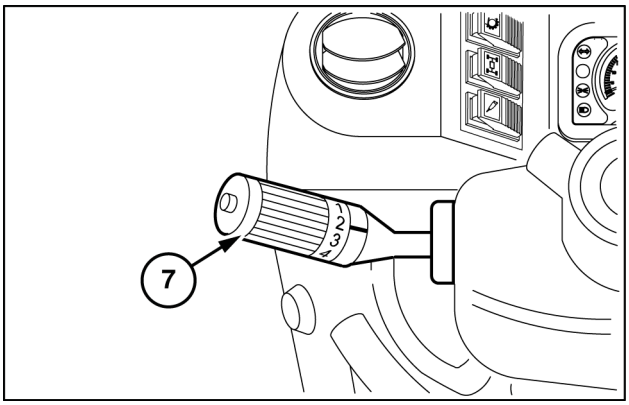
(Power-Shuttle) press the transmission disconnect button **(5)** and then place the gearshift lever **(6)** in first or second gear.



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(Power-Shift) place the gearshift lever **(7)** in first or second gear.

Press the brake pedals down and turn the parking brake switch to the OFF position.

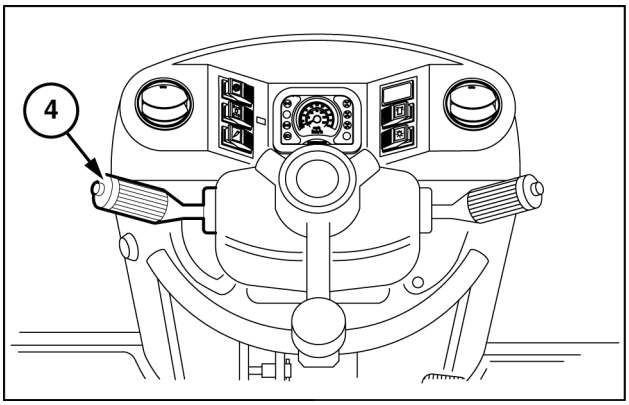


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Place the direction of travel control lever **(4)** in the desired position, forward or reverse travel.

Release the brake pedals and control the travel speed by means of the accelerator pedal.

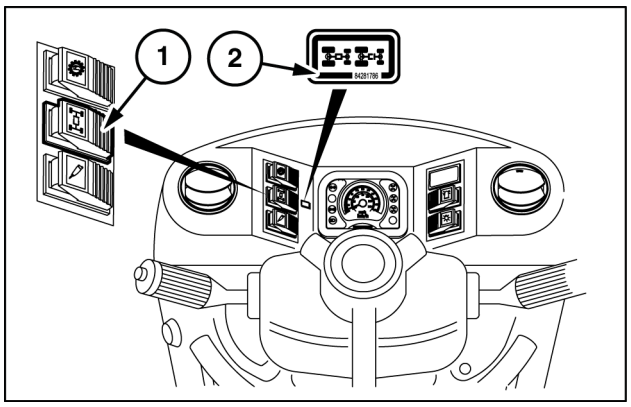
NOTE: *While travelling, check all gauges and indicator/ warning lamps frequently.*



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2WD or 4WD

NOTE: *Machines with or without four wheel drive should not be allowed to exceed* ***40 km/h*** *(****24.9 mph****).*
A freewheel descent or towing the machine at excessive speed may cause loss of control, personal injury to the operator or damage to transmission. Keep the machine in the same gear going downhill as would be used when going uphill. The engagement of the 2WD and 4WD must be carried out with stopped machine.



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4WD Switch (1)

This switch has two positions:

- First position (Power-Shuttle) (by pushing button on the right):
  rear wheel drive and braking on rear wheels for all gears (lamp off).
- First position (Power-Shift) (by pushing button on the right):
  rear wheel drive with braking only on rear wheels (only in first and second gear) (lamp off):
  rear wheel drive and braking on four wheel (in third and fourth gear) (lamp on).

  NOTICE: *4WD braking is only active with both brake pedals latched together.*

- Second position (by pushing button on the left):
  4 wheel drive and braking on 4 wheels (lamp on).
  See decal **(2)**.

NOTE: *To prevent undue tire wear when travelling on public highways or on any hard surface, it is recommended that the four wheel drive is disengaged, particularly in 3rd or 4th gear.*

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Differential lock button

NOTICE: *Never use the differential lock during road travel.*

The differential lock gives equal power to both rear wheels.

It is particularly useful when the wheels have insufficient grip, as in the following cases.

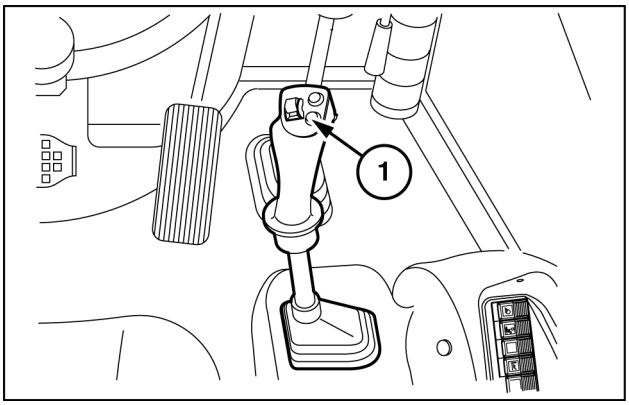
When the machine is stuck

Make sure that the rear wheels are not turning.

Press the differential lock button **(1)**.

Use the accelerator pedal to increase the engine speed and then release the differential lock button **(1)**.

NOTE: *The differential is automatically released when the locking system is disengaged, when the rear wheel grip returns to normal, with no wheel slip or when one of the brake pedals is operated.*



MOLI12LBB0221AB 1

Before crossing a soft or muddy area

⚠ WARNING

Loss of control hazard!
Avoid using differential lock at speeds above 8 km/h (5 mph). Never use at speeds above 15 km/h (9 mph) or at any time when turning the machine.
Failure to comply could result in death or serious injury.

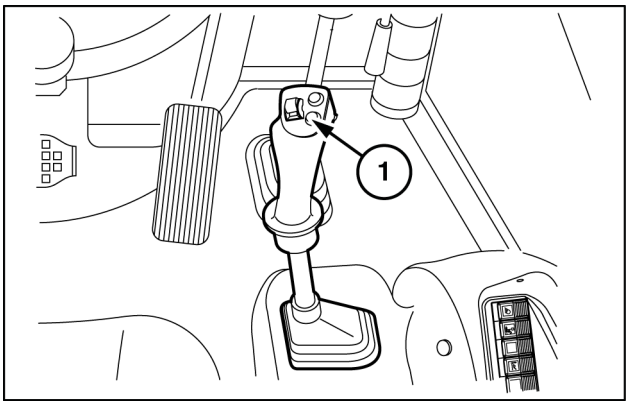
W0334A

Make sure that the machine is moving in a straight line and that both rear wheels are turning at the same speed.

Press the differential lock button **(1)**.

After you have moved through the area, release the differential lock button **(1)**.

NOTE: *You can cause damage to the transmission if you try to engage the differential lock when the machine is turning or if one of the two rear wheels is rotating faster than the other one.*



MOLI12LBB0222AB 2

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PARKING THE UNIT

Engine - Park

When parking the machine, some precautions are necessary.

Move the machine to a level and firm ground, away from any soft ground, excavations or poorly shored cavity.

Lower the loader attachment to the ground.

Place the backhoe attachment in the road travel position.

Place the direction-of-travel lever and gearshift lever in neutral position.

Immobilize the machine by means of the parking brake.

Completely raise the stabilizers.

Stop the engine and remove the starter switch key.

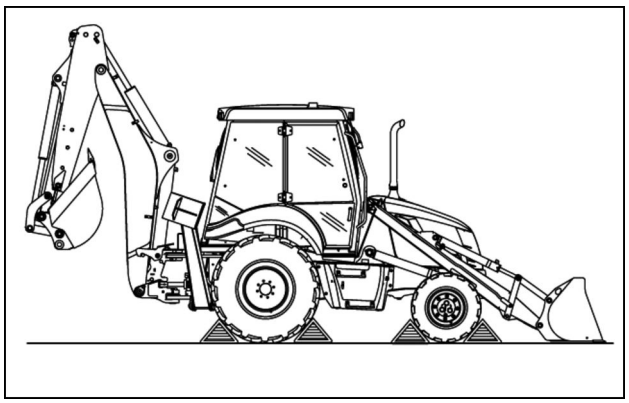
Release the hydraulic pressure by operating the control levers in all directions.

On pilot controlled machines, turn the key to ON and release the pressure by moving the hydraulic control levers in all directions.

If the unit is on a slope, place blocks under the wheels in order to prevent the machine from moving.

Disconnect the electrical system by disconnecting the battery master switch.

Check that no part of the machine is protruding onto the public highway. If this cannot be avoided, install signs in compliance with the relevant regulations.

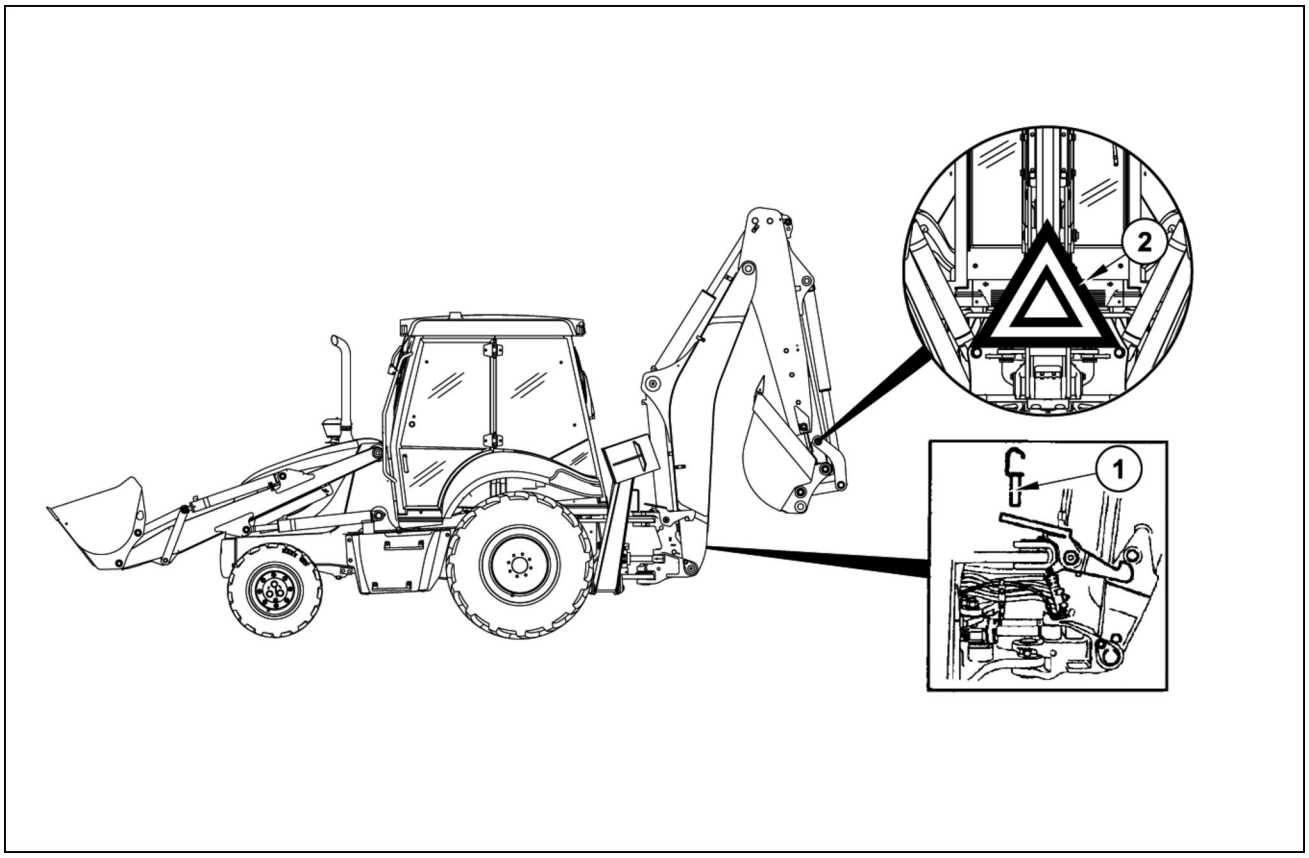


LEEN12T0640AA 1

5 - TRANSPORT OPERATIONS

ROAD TRANSPORT

Requirements for road travel



LEEN12T0641FA_1 1

Install the safety systems in compliance with legal requirements. Make sure your machine complies with the local legislation.

1. BACKHOE ATTACHMENT LOCKING PIN (If fitted): install the pin in the locking bar.
2. SLOW MOVING VEHICLE TAG (If fitted): mounted either on the chassis or on the bucket cylinder rod.

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Precautions for road travel

⚠ WARNING

Avoid injury!
Before starting the engine, securely fasten the seat belt. The seat belt can help ensure your safety if it is properly used and maintained. Never wear a seat belt loosely or with slack in the belt system. Never wear the belt if it is twisted or pinched between the seat structures.
Failure to comply could result in death or serious injury.

W0142A

⚠ WARNING

Collision hazard!
Collision of high speed road traffic and slow moving machines can cause death or personal injury. On roads use transport lighting according to local laws. Pull over to let faster traffic pass. Slow down and signal before turning off.
Failure to comply could result in death or serious injury.

W0408A

ATTENTION: *Before undertaking any road travel, make sure that the backhoe attachment is in road travel position and mechanically immobilized*

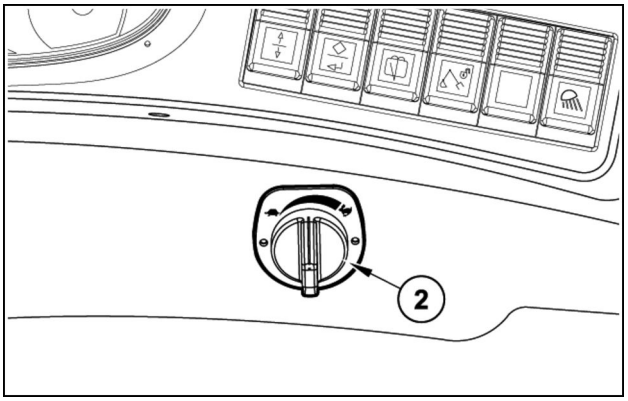
https://truckmanualshub.com/

PREPARING FOR ROAD TRANSPORT

Preparing the machine for road travel

NOTE: *The instruments represented may not exactly correspond to the instruments on your machine.*

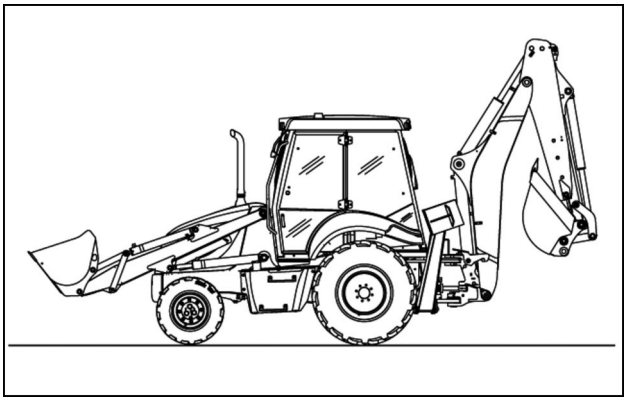
Make sure that the engine accelerator knob **(2)** is in low idle position.



LEEN12T0638AA 1

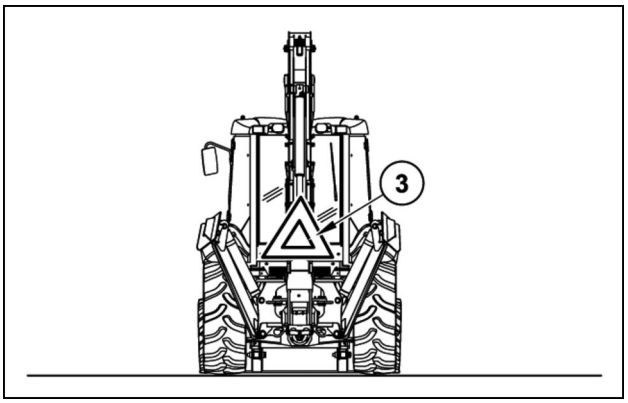
Place the seat in the loader attachment position.

Place the backhoe attachment in road travel position. Stop the engine and remove the starter switch key.



LEEN12T0642AA 2

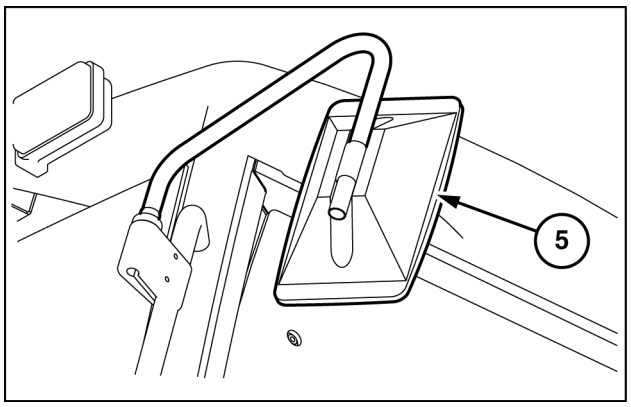
Apply the warning plate **(3)** to the bucket cylinder rod or chassis.



LEEN12T0643AA 3

https://truckmanualshub.com/

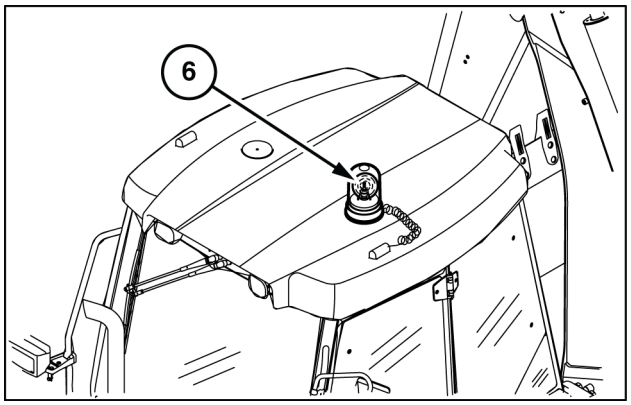
Correctly adjust the rearview mirrors **(5)**. Clean the licence plates if necessary.



MOLI12LBB0229AB 4

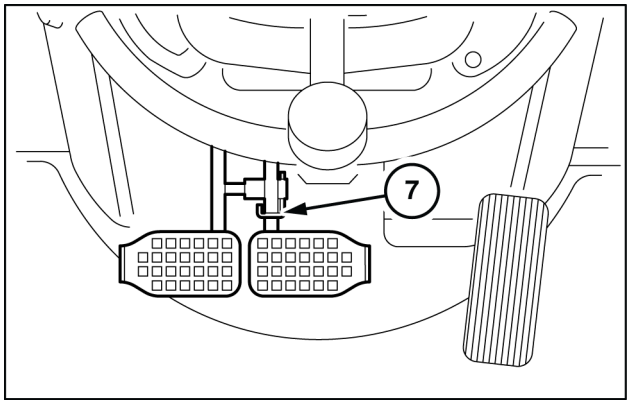
Install the rotating beacon **(6)** on the cab roof, then connect the relative cable and operate the switch.

Make sure the doors are properly closed and that the engine guard is locked.



MOLI12LBB0230AB 5

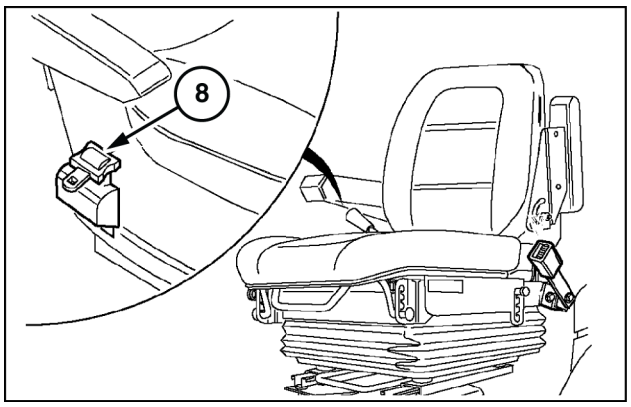
Make sure that the two brake pedals are locked together by means of the relevant pin **(7)**.



MOLI12LBB0231AB 6

Adjust the operator’s seat correctly.

Fasten and adjust the seat belt **(8)**.

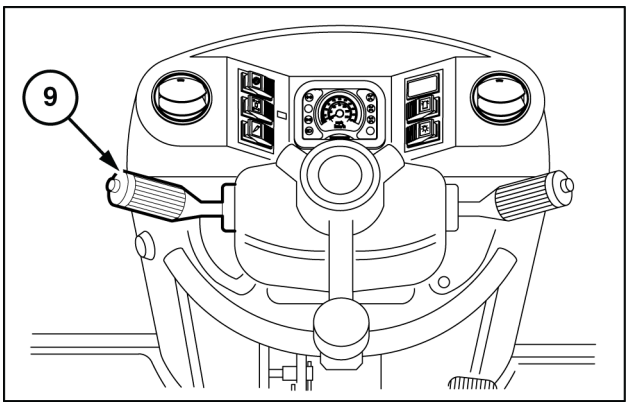


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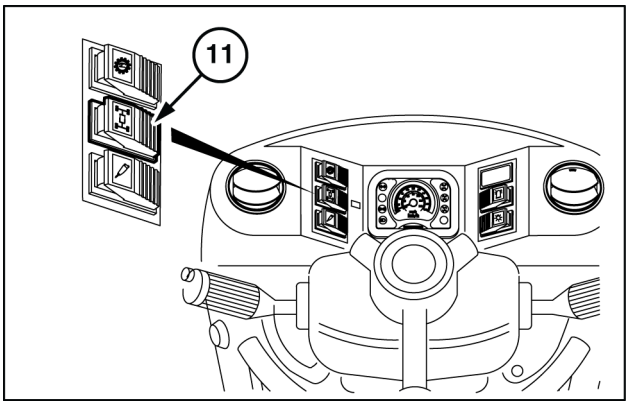
Check that the direction-of-travel lever **(9)** is in neutral position.

Start the engine.



MOLI12LBB0233AB 8

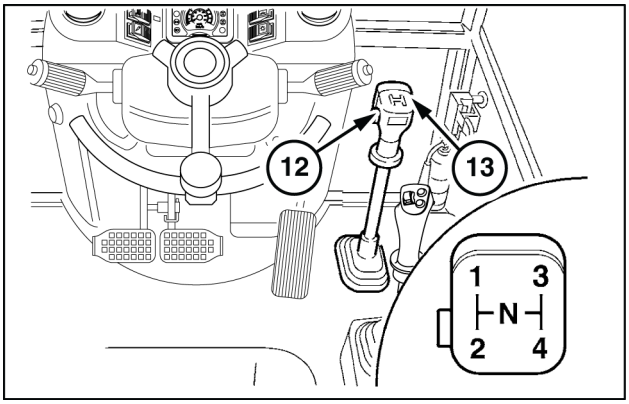
Make sure that the switch **(11)** is in the OFF position (4WD transmission of front wheels disengaged).



MOLI12LBB0235AB 9

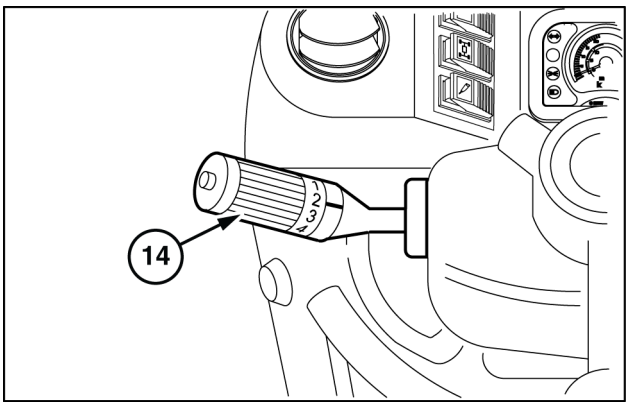
(Power-Shuttle) press the transmission disconnect button **(12)** and then place the gearshift lever **(13)** in first gear.

Release the button **(12)**.



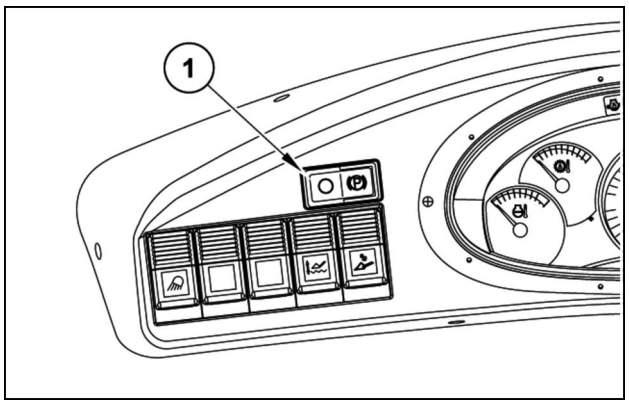
MOLI12LBB0236AB 10

(Power shift) place the gearshift lever **(14)** in desired gear.



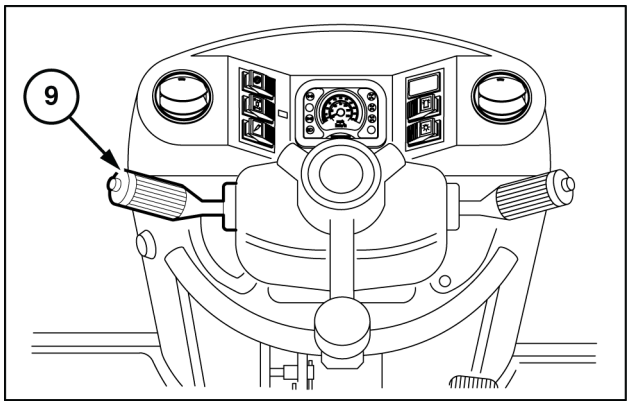
MOLI12LBB0237AB 11

Press the brake pedals and, if necessary, release the parking brake by means of the switch **(13)**.



LEEN12T0541AA 12

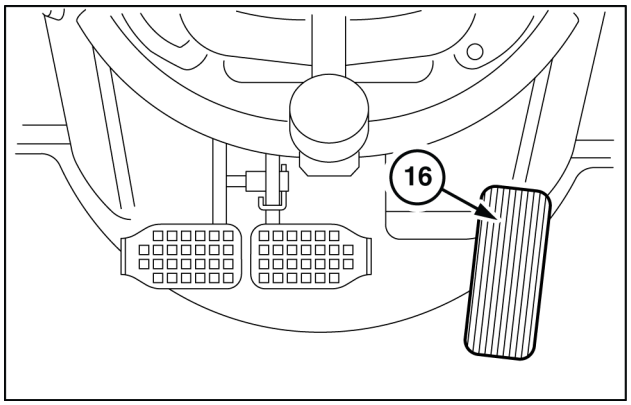
Position the direction-of-travel control lever **(9)** forwards.



MOLI12LBB0239AB 13

Release the brake pedals and adjust the travel speed by means of the accelerator pedal **(16)**.

NOTICE: *In the event of a braking system failure, immediately engage the parking brake switch **(1)**.*



MOLI12LBB0240AB 14

ATTENTION: *Check all gauges and indicator/warning lamps frequently.*

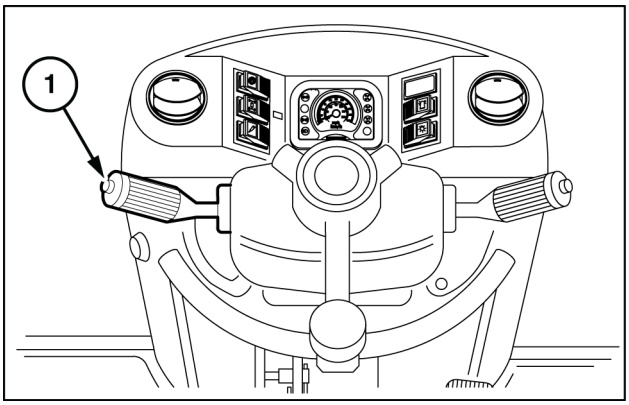
https://truckmanualshub.com/

Setting the backhoe attachment in road travel position

NOTE: *The instruments represented may not exactly correspond to the instruments on your machine.*

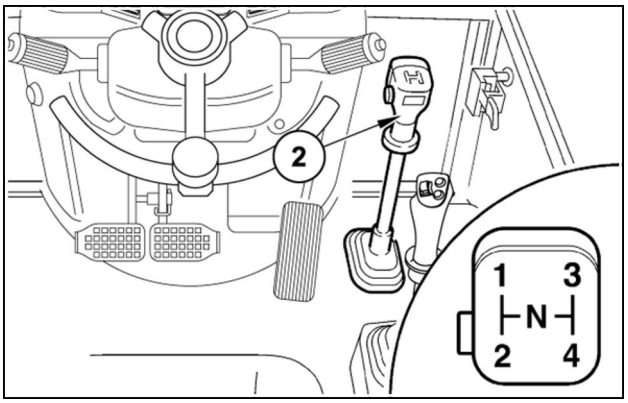
NOTICE: *This procedure must be used for road travel, for operating the loader attachment, when transporting the machine on a trailer and when parking the machine.*

Check that the direction-of-travel control lever **(1)** is in the neutral position.



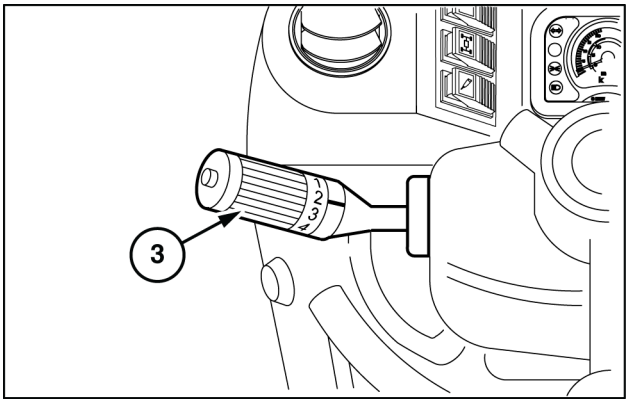
MOLI12LBB0241AB 1

(Power-Shuttle) make sure that the gearshift lever **(2)** is in neutral position.



LEEN12T0644AA 2

(Power shift) make sure that the gearshift lever **(3)** is in neutral position.



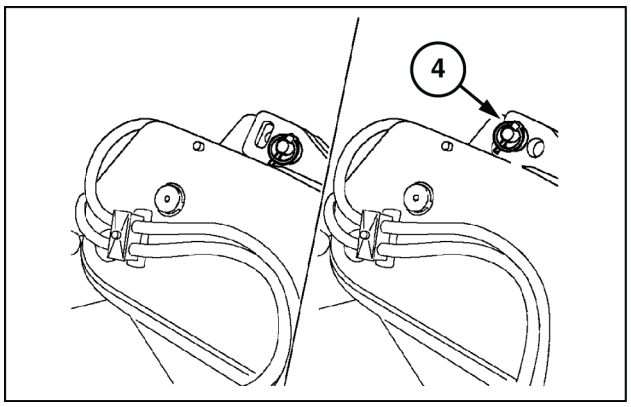
MOLI12LBB0243AB 3

Make sure that the operator’s seat is correctly positioned.

Make sure that the machine is resting on the stabilizers and the loader bucket.

https://truckmanualshub.com/

Completely retract the telescopic dipper (if fitted) and place the pin **(4)** in locked position.



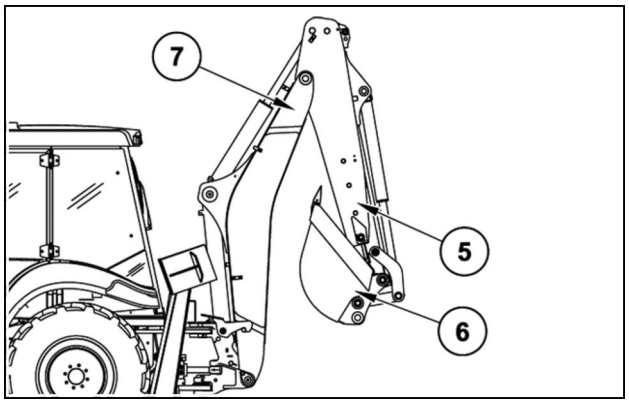
MOLI12LBB0244AB 4

Place the backhoe attachment in line with the machine.

Run the engine at about **900 RPM**.

Completely retract the telescopic dipper **(5)** and the backhoe bucket **(6)**.

Completely retract the boom **(7)**.



LEEN12T0645AA 5

Lock the backhoe attachment.

Raise the stabilizers completely.

Run the engine at low idle speed.

Turn the seat round to the loader attachment position. Raise the loader bucket.

Stop the engine and remove the starter switch key.

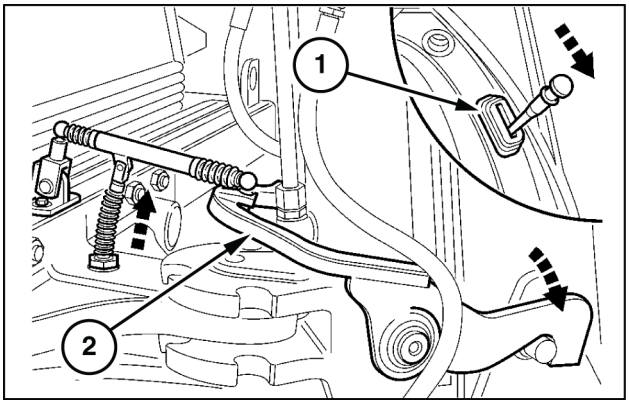
https://truckmanualshub.com/

Locking or unlocking the backhoe attachment

Before undertaking any road travel, the backhoe attachment must be “locked” in transport position. In order to do this, retract the dipper completely against the boom and then fully raise the boom so that the lock bar engages on the boom pins.
Backhoe attachment can be locked mechanically or electrically as shown below.

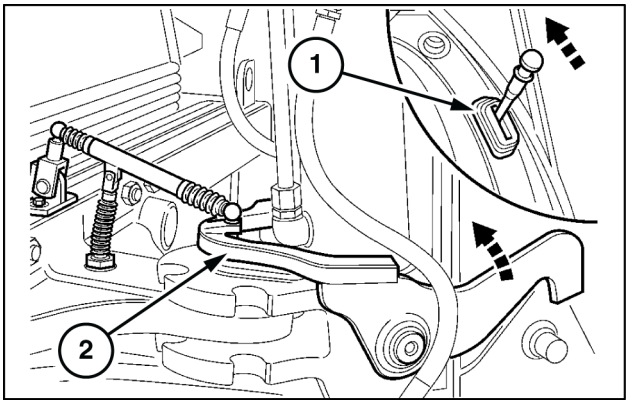
Mechanically operated control

To lock the attachment, pull lever **(1)** backwards and raise the boom until the locking system **(2)** engages. Release the lever.



MOLI12LBB0246AB 1

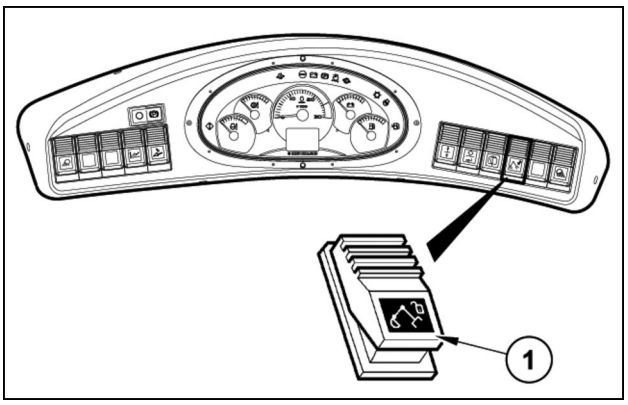
To unlock the attachment, push lever **(1)** forwards to release the locking system **(2)** and then lower the boom.



MOLI12LBB0247AB 2

Electrically operated control (Optional)

To unlock the attachment, place the switch **(1)** in the OFF position. The indicator lamp **(2)** turns off and the locking system releases. Lower the boom.

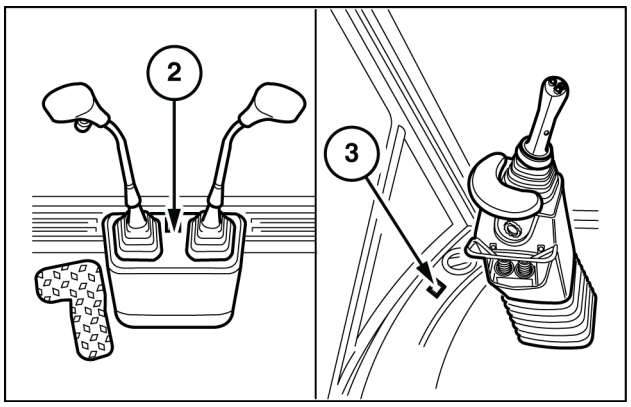


LEEN12T0646AA 3

https://truckmanualshub.com/

To lock the attachment, place the switch **(1)** in the ON position. The indicator lamp **(2)** (mechanical backhoe models) or the indicator lamp **(3)** (pilot backhoe models) lights on. Raise the boom until it engages.

ATTENTION: *Do not attempt to use the backhoe attachment with the boom in locked position, as this could damage the locking system.*



MOLI12LBB0249AB 4

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SHIPPING TRANSPORT

Machine transport (on a trailer)

⚠ WARNING

Transport hazard!
The machine can slip or fall from a ramp or trailer. Make sure the ramp and trailer are not slippery. Remove all oil, grease, ice, etc. Move the machine on or off the trailer with machine centered on the trailer or ramp.
Failure to comply could result in death or serious injury.

W0152A

Make sure you know the safety rules and regulations before transporting this machine.

Make sure that the articulated vehicle and the machine are fitted with the correct safety equipment.

NOTICE: *During machine loading and unloading operations, the brake pedals must be "locked" together.*

Loading

Place some wedges behind the trailer wheels and place the trailer enlargement ramps (if provided).

Place the backhoe attachment in the road travel position.

Raise the loader bucket about **20 cm** (**7.9 in**) above the ramps.

Place the gearshift lever in first gear and load the machine carefully onto the trailer.

Lower the loader attachment so that the bucket rests on the bed of the trailer.

Low backhoe attachment to the bed of the trailer.

Activate the parking brake and place the direction of travel control lever and gearshift lever in neutral position.

Stop the engine and remove the starter switch key.

Make sure the windows, the doors, the battery compartment, the fuel tank plug and the engine guard are properly closed and locked.

Turn the rear view mirrors inwards.

Use chocks and chains to immobilize the machine and the backhoe attachment on the trailer.

Measure the distance between the ground and the highest point. You must know the total height.

NOTE: *After a few miles, check that the machine has not moved and that the chains are still under tension.*

Unloading

Remove the chocks and the retaining chains.

Raise the loader attachment to bring the bucket a few centimetres above the bed of the trailer.

Engage the parking brake switch and place the gearshift lever in first gear.

Slowly reverse the machine, at the same time raising the loader attachment so as to keep it a few centimetres above the bed of the trailer.

Return the rear view mirrors to their correct position.

RECOVERY TRANSPORT

Towing the machine

NOTE: *The instruments represented may not exactly correspond to the instruments on your machine.*

⚠ WARNING

Misuse hazard!
Towing is a delicate maneuver that is always carried out at the risk of the user. The manufacturer's warranty does not apply to incidents or accidents that occur during towing. Where possible, carry out the repairs at the site.
Failure to comply could result in death or serious injury.

W0286A

⚠ WARNING

Loss of control hazard!
Avoid using differential lock at speeds above 8 km/h (5 mph). Never use at speeds above 15 km/h (9 mph) or at any time when turning the machine.
Failure to comply could result in death or serious injury.

W0334A

⚠ WARNING

Transport hazard!
When towing on rough terrain or between field operations, always do the following: Engage the transport pin. Install a safety chain between the machine and towed vehicle. This prevents accidental release of the towed vehicle.
Failure to comply could result in death or serious injury.

W1121A

⚠ WARNING

Hazard to bystanders!
The operator must be the only person on the machine when towing. Make sure that nobody else is on the machine or within its working range.
Failure to comply could result in death or serious injury.

W0259A

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The machine should only be towed in case of failure.

First of all make sure that it can be towed without causing further damage.

Whenever possible carry out the repair at the site or consult your Dealer.

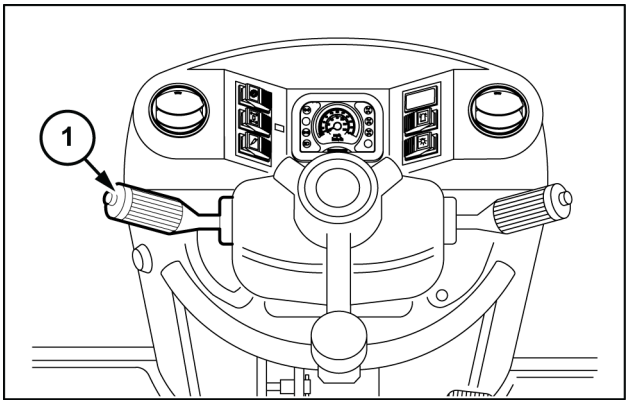
If the machine is on the public highway, make sure that no component of the machine projects onto the highway. If this cannot be avoided, install signs in compliance with the relevant regulations.

If the machine has to be towed with the engine shut down, it is necessary to uncouple the front and rear (4WD) transmission shafts.

Before towing, be sure to do the following:

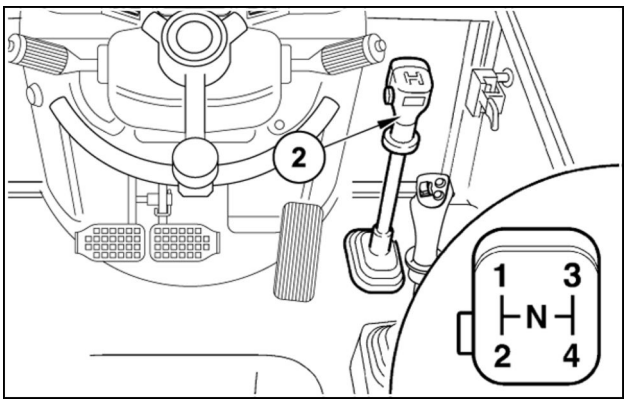
Check that steering can be used.

Check that the direction-of-travel control lever **(1)** is in the neutral position.



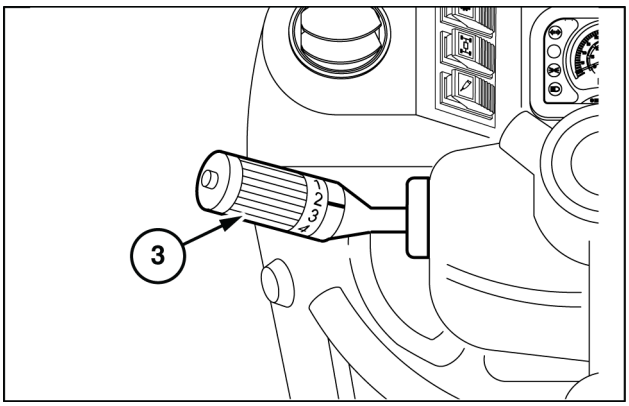
MOLI12LBB0310AB 1

(Power-Shuttle) place the gearshift lever **(2)** in neutral position.



LEEN12T0644AA 2

(Power shift) place the gearshift lever **(3)** in neutral position.



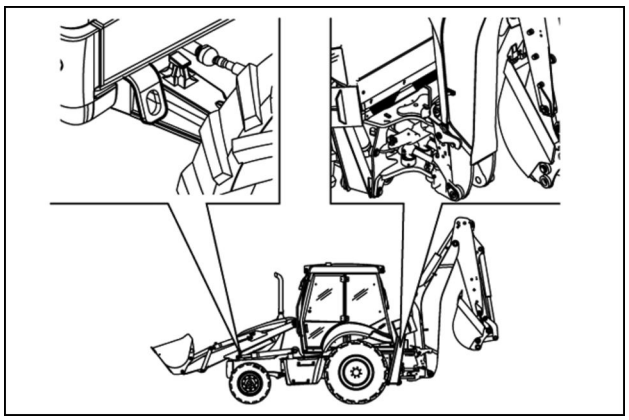
MOLI12LBB0312AB 3

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If the engine is running, make sure the 4WD is disengaged.

ATTENTION: *If the engine is not running, the force necessary to turn the steering wheel will be higher.*

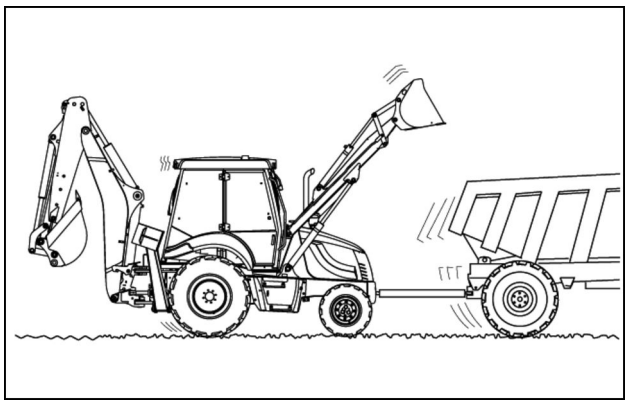
To tow the machine, attach a towing bar to one of the hooking points shown by the decals.



LEEN12T0647AA 4

Make sure the attachments are raised sufficiently to avoid any interference with the ground or the trailer.

If it is not possible to raise the attachments sufficiently to avoid interference, then they must be removed.



LEEN12T0648AA 5

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6 - WORKING OPERATIONS

GENERAL INFORMATION

Operating the machine in cold weather

NOTICE: *before operating at temperatures below* ***-1 °C*** *(****30.2 °F****), operate the engine for approximately* ***15 min*** *at a speed below* ***1200 RPM*** *to warm the oil up to the normal operating temperature.*

Fuel

Refill the fuel tank after each working day to prevent the formation of condensation and the entry of water into the fuel system.

NOTE: *use low sulfer diesel fuel ONLY.*

To prevent the formation of crystals **-2 °C** (**28.4 °F**) use a low temperature fuel or mix a protective fluid with your fuel.

Lubricating oil

Select oil viscosity (SAE grade) according to ambient temperature before starting engine.

Increase oil change frequency when operating below **-10 °C** (**14 °F**).

Engine oil

The engine oil must have a viscosity corresponding to the ambient temperature.

Coolant

It must have characteristics corresponding to the ambient temperature.

Battery

Efficient cold starting requires that battery is sufficiently charged.

Warm up the batteries approximately up to **+20 °C** (**68 °F**) (disassembly and storage in a warm place) in order to be able to start the engine at a temperature below **4 - 5 °C** (**39.2 - 41 °F**).

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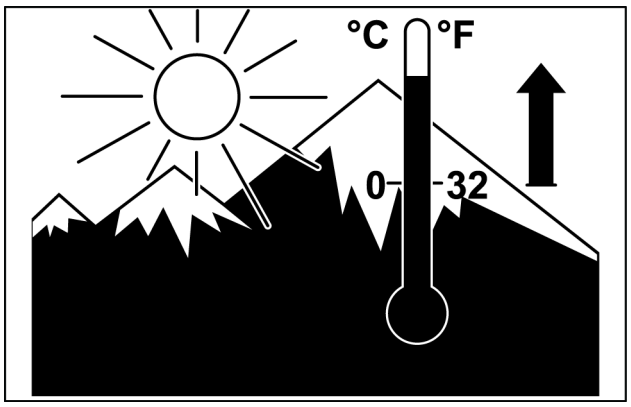
Operating the machine in high altitude

Air density decreases as altitude or ambient temperature increases.

As a result of this, the engine's maximum output, quality of exhaust gas, temperature level and, in extreme cases, starting behavior, are impaired.

Engine can be used at altitudes up to **3000 m** (**9842 ft**) and temperatures up to **50 °C** (**122 °F**) for mobile operations.

If the engine is to operate under more severe conditions (at higher altitudes or temperatures), it will be necessary to reduce the injected fuel quantity with the resulting loss of engine power.



MOLI12LBB0250AA 1

Observe the following recommendations:

- Maintain the correct coolant level in the coolant reservoir.
- Check the condition of the cooler plug before starting and replace it if necessary.
- Carefully clean the cooler and the engine.
- Check the condition of the alternator belt and engine fan belt.
- Use lubricants with the recommended degree of viscosity.
- Use an appropriate coolant.

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Hot temperature operation

Hot weather conditions cause special problems. During these conditions, your machine will require special attention to prevent serious damage. Hot weather maintenance will extend the service life of your machine.

Use the correct solution of ethylene glycol and water in the cooling system.

To prevent damage to the machine:

1. Keep the coolant at the correct level in the coolant reservoir and in the radiator.
2. See your dealer and have the deaeration cap tested before hot weather starts. Replace the cap as required.
3. Clean all dirt and debris from the radiator, coolers, and engine area.
4. Check the condition of the fan drive belt.
5. Use lubricants of the correct viscosity.

https://truckmanualshub.com/

Operating the machine in water

Make sure that the bed of the stream or stretch of water can support the weight of the machine.

The level of the water must not exceed the height of the centre of the front wheels.

NOTICE: *Never work in water if the water level is higher than the centre of the front wheels.*

Before taking the machine into the water, pump plenty of new grease into the machine's attachment linkages.

NOTICE: *Never work in fast-flowing water.*

https://truckmanualshub.com/

Lifting the machine

NOTICE: *Before lifting the machine, it is essential to place the backhoe attachment in the road travel position.*

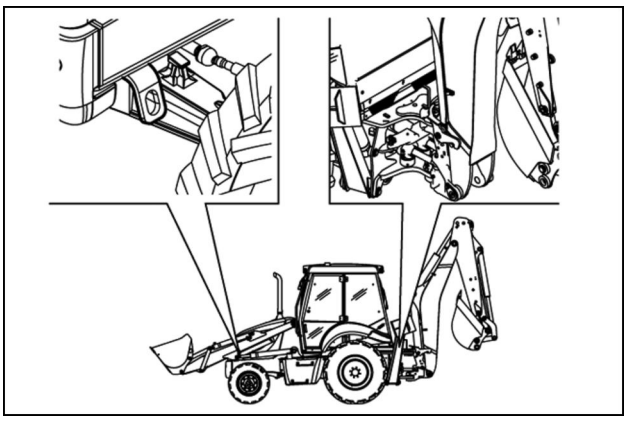
The hooking points for the machine are shown by decals.

NOTICE: *Never use any other hooking points than those shown by the decals.*

Use suitable slings to lift the machine.

Make sure that the slings are in perfect condition and that they can support the weight of the machine.

ATTENTION: *Do not allow anybody within the machine's working range. Never suspend the machine over people who are in proximity.*



LEEN12T0647AA 1

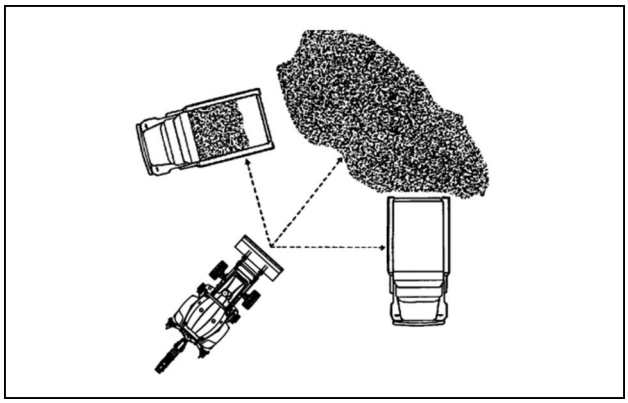
https://truckmanualshub.com/

Loader attachment

Organizing the job site

Use the shortest possible work cycles. The location provided for the trucks is an all important element. Spend a little time levelling the work area.

A smooth working surface facilitates the work of the machine and moving and parking the trucks. It gives a shorter work cycle.



LEEN12T0649AA 1

⚠ WARNING

Loss of control hazard!
A full bucket in the raised position may cause the machine to slide when operating over rough ground. Keep the bucket as low as possible during operation for better stability and visibility. Always operate the machine at slow speeds over rough ground.
Failure to comply could result in death or serious injury.

W0271A

ATTENTION: *On the job site, always keep the bucket as close as possible to the ground so as to increase the machine's stability to the maximum and to ensure perfect visibility.*

ATTENTION: *On rough or slippery ground, when the bucket is full, drive the machine as slowly as possible. There is a risk of accident if these instructions are not observed.*

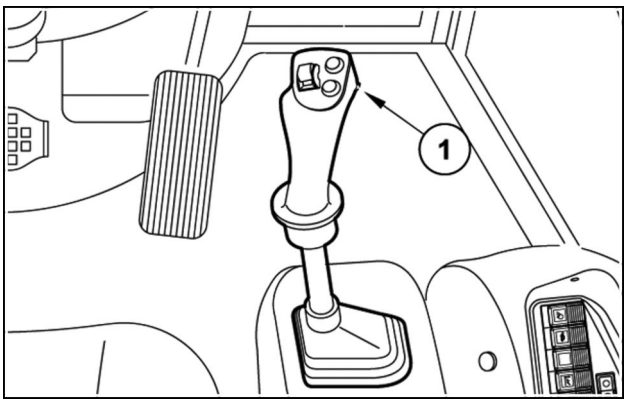
https://truckmanualshub.com/

Transmission disconnect button

To give maximum power, press the disconnect button **(1)** on the opposite side of the lever and hold it down. This will cause the transmission to revert to neutral.

Release the disconnect button **(1)** to engage the transmission again.

NOTICE: *When the button is pressed, the wheels of the machine are free. If necessary, use the brakes to stop the machine.*



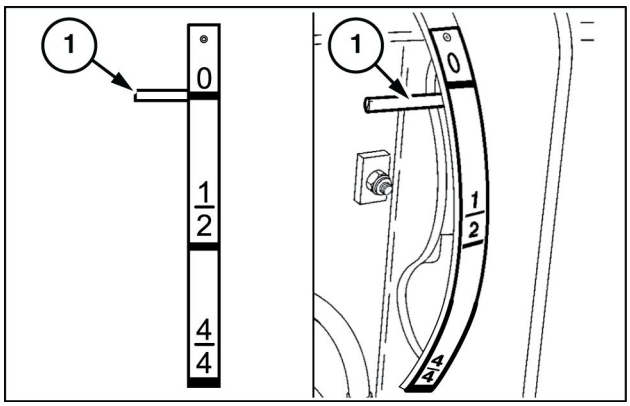
LEEN12T0746AA 1

https://truckmanualshub.com/

4x1 Loader bucket clam opening indicator (If fitted)

This indicator, located on the top right-hand side of the clam, allows the operator to see the degree of clam opening and the bucket digging depth.

When the pin **(1)** is positioned corresponding to the "0" the bucket is closed, when its position corresponds to the "1/2" the bucket is half-way opened and, when it faces the "4/4" the bucket is fully opened.



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Operating the loader attachment

The following instructions do not cover all possible conditions of use of the loader attachment. They only constitute basic information to enable the machine to be operated correctly.

Where possible, always use the loader attachment at full engine speed.

The first time it is operated, manoeuvre the machine in a clear area, at low speed.

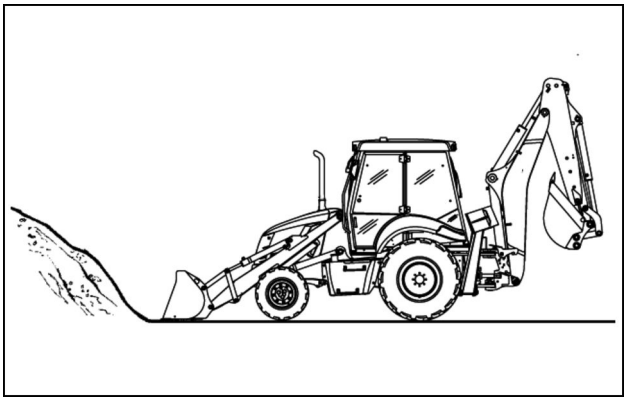
⚠ WARNING

Hazard to bystanders!
Material can spill from a loaded bucket. You must manually roll back a loaded bucket before lowering the loader. The self-leveling feature does not automatically roll back the bucket.
Failure to comply could result in death or serious injury.

W0197A

Loading operations

To fill the bucket from a stock pile, set the bucket in the level position and lower the attachment with the control lever to “float” position.

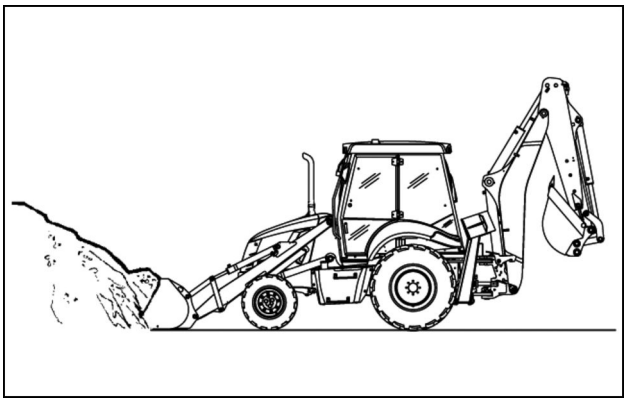


LEEN12T0650AA 1

When the loader has entered the pile, press down the transmission disconnect button, allow the control lever to move backwards and then simultaneously operate the controls to lift and roll back the bucket.

Lift and roll-back of the bucket will increase efficiency as a level bucket throughout the lifting cycle resists bucket lift and increases break away effort.

NOTE: *Do not be concerned if the bucket is not completely filled during each pass. Maximum productivity is determined by the amount of material loaded in a given period of time. Time is lost if two or more attempts are made to fill the bucket on each pass.*



LEEN12T0651AA 2

⚠ WARNING

Falling objects!
Dirt slides can be dangerous. Exercise extreme care when undercutting high banks. Watch for falling rocks and cave-ins.
Failure to comply could result in death or serious injury.

W0021A

https://truckmanualshub.com/

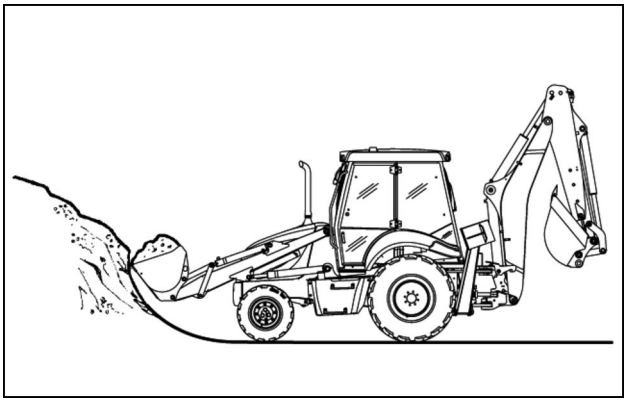
Dump the bucket completely, raise the attachment and then release the transmission disconnect button.

Keep the bucket position as low as possible, especially when working on sloping or rough ground.

⚠ WARNING

Loss of control hazard!
A full bucket in the raised position may cause the machine to slide when operating over rough ground. Keep the bucket as low as possible during operation for better stability and visibility. Always operate the machine at slow speeds over rough ground.
Failure to comply could result in death or serious injury.

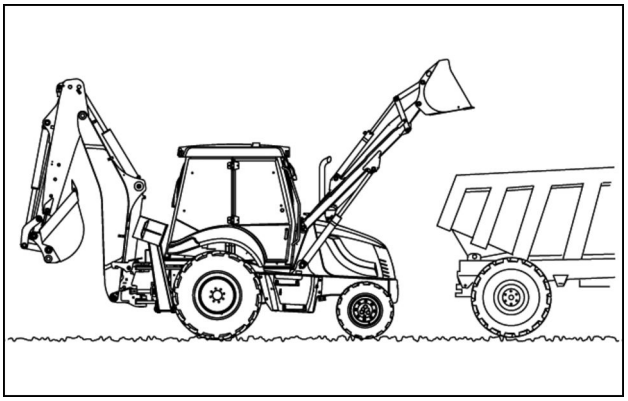
W0271A



LEEN12T0652AA 3

Raise the loader high enough to clear any obstruction prior to dumping the load.

After the bucket is dumped, back away while lowering and levelling the bucket, using the return-to-dig feature if required.



LEEN12T0653AA 4

During hard surface operation, place the loader attachment lever in “float” position and keep the bucket level. This will permit the bucket to “float” on the contour of the working surface.

If hydraulic down pressure is exerted, the bucket will wear faster than normal.

The “float” position will prevent the mixing of surface material with stockpile material.

It will also reduce the chance of surface gouging when removing snow or other material.

When loading from a bank select the highest forward gear which will provide the most efficient loading operation without going into a “stall”.

Keep the working area free of ruts and holes occasionally back grading with the bucket using the low rear edge of the bucket.

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For site stripping peeling or scraping, use down pressure with the loader attachment lever in the lowered position, and a slight bucket angle to start the cut. Begin the cut at the notch approximately **50 mm** (**1.97 in**) deep and hold the depth by feathering the bucket to adjust the cutting lip up or down as required.

When the machine front tires enter the cut, adjust the lift arms to maintain the correct depth.

Make additional cuts until the desired depth is reached.

Back grade the working area occasionally with the bucket flat and slight down pressure to keep the working area smooth and free from ruts or holes.

If the loader attachment lever is moved for lift cylinder action without controlling the bucket angle, the bucket may gouge and leave a series of ruts in the surface.

To backfill a trench efficiently it is necessary to move the maximum amount of soil without losing speed.

If a “stall” occurs downshift or reduce the depth of cut.

If the machine is not working at capacity in the gear selected, increase the depth of cut.

Operate at right angles to the trench with the loader bucket level.

Leave the soil in the bucket as emptying the bucket on each pass is time-consuming, and leave soil that drifts over the side of the bucket for the final clean up.

One lengthwise clean up is usually sufficient to gain an acceptable grade after backfilling.

When backfilling from a large pile, shovel off the top of the pile, pushing toward the excavation.

Drag some soil rearwards to form a work ramp of the convenient grade.

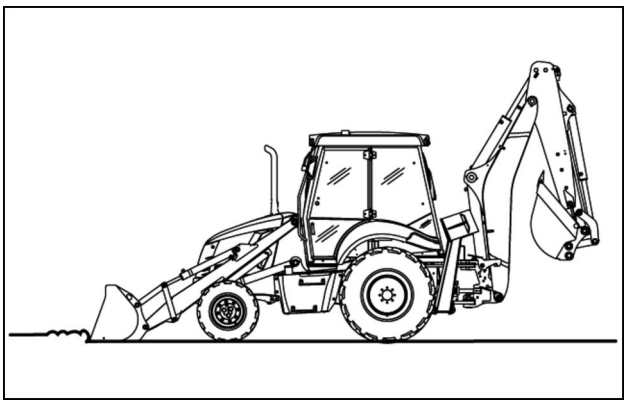
If during the backfill operation the machine front wheels get stuck in a trench dump the bucket and apply down pressure to lift the front wheels from the trench.

Actuate the bucket as engine power is applied to move the machine rearwards.

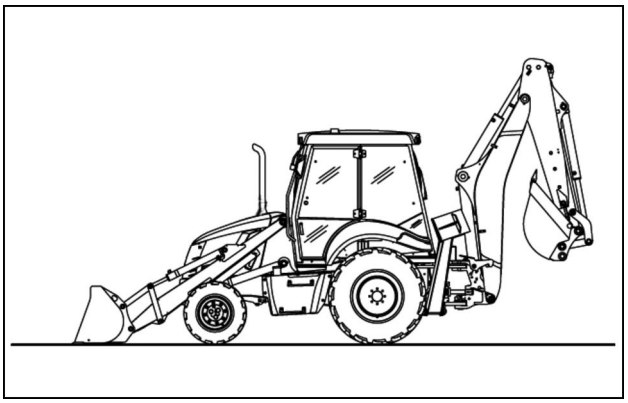
NOTE: *Maximum bucket down pressure may be obtained by progressively shifting the loader attachment lever to the right.*

NOTICE: *The safe working load of the loader attachment is calculated using a standard bucket; therefore, when using another bucket or attachment for lifting or handling a load, the weight of the bucket or attachment must be taken into account when calculating the rated load of the loader attachment.*

Safe working load = **1000 kg** (**2205 lb**).



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LEEN12T0655AA_1 6

Loader attachment safety strut

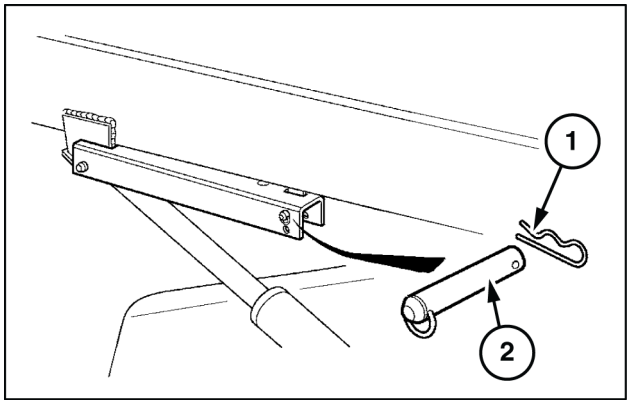
Loader attachment safety strut (B95C - B95CLR- B110C)

Located on the left-hand side of the loader attachment, this safety strut enables the loader attachment to be locked in the raised position for maintenance or servicing the unit.

Locked position

Completely raise the loader attachment. Stop the engine and remove the starter switch key.

Remove the split pin **(1)** and the lock pin **(2)**.

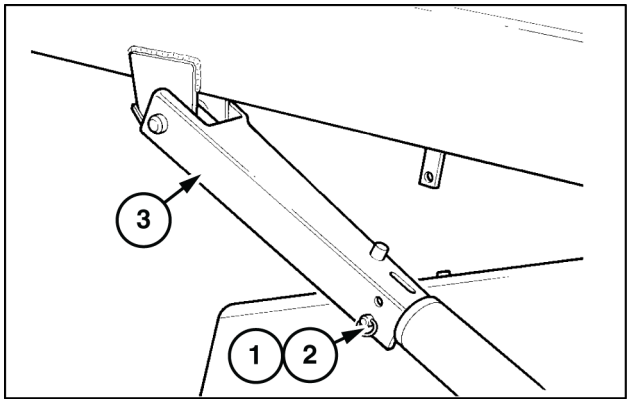


MOLI12LBB0260AB 1

Place the strut **(3)** on the cylinder rod and install the pin **(2)** and the split pin **(1)** back into the holes in the strut.

NOTICE: *It is mandatory to install the safety strut when carrying out any operation requiring the loader attachment to be in the raised position.*

Lower the loader attachment until the safety strut is firmly against the cylinder.



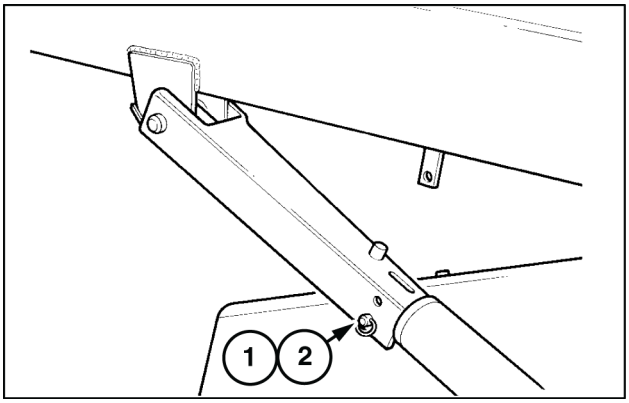
MOLI12LBB0261AB 2

https://truckmanualshub.com/

Unlocked position

Completely raise the loader attachment and stop the engine.

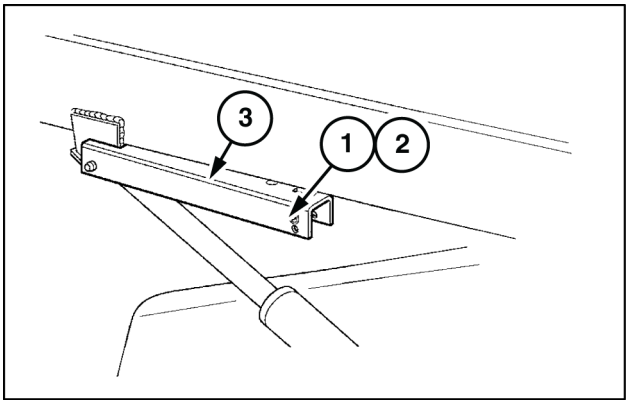
Remove the split pin **(1)** and the lock pin **(2)**.



MOLI12LBB0262AB 3

Remove the strut **(3)** from the attachment and install the pin **(1)** and the split pin **(2)** back into the holes in the strut.

Start the engine and lower the loader attachment.



MOLI12LBB0263AB 4

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Loader attachment safety strut (B95CTC)

Located on the left-hand side of the loader attachment, this safety strut enables the loader attachment to be locked in the raised position for maintenance or servicing the unit.

Locked position

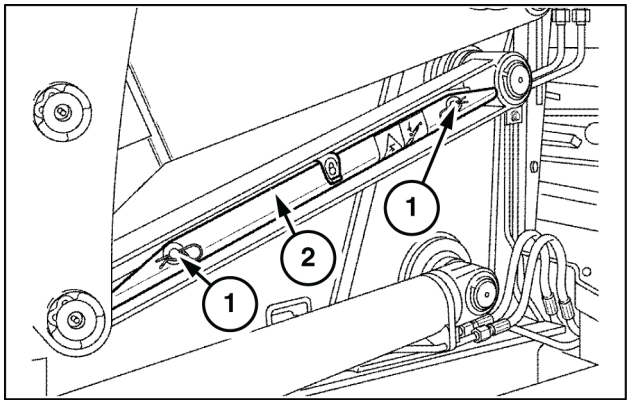
Completely raise the loader attachment. Stop the engine and remove the starter switch key.

Remove the split pins **(1)** and the safety strut **(2)** from the arm. Put the split pins back in place.

Place the strut **(2)** on the cylinder rod and fasten it by means of the fastening flip **(3)**.

NOTICE: *It is mandatory to install the safety strut when carrying out any operation requiring the loader attachment to be in the raised position.*

Lower the loader attachment until the safety strut is firmly against the cylinder.

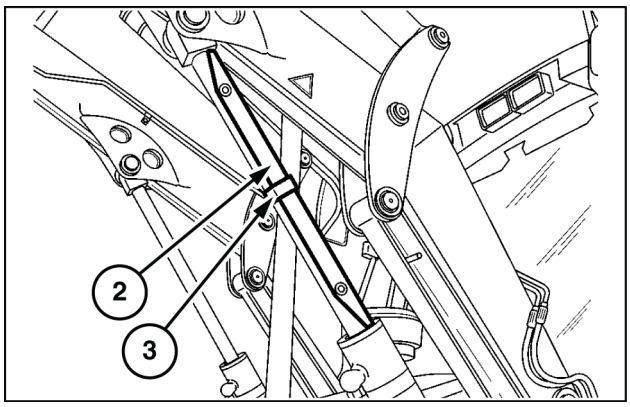


MOLI12LBB0264AB 5

Unlocked position

Completely raise the loader attachment and stop the engine.

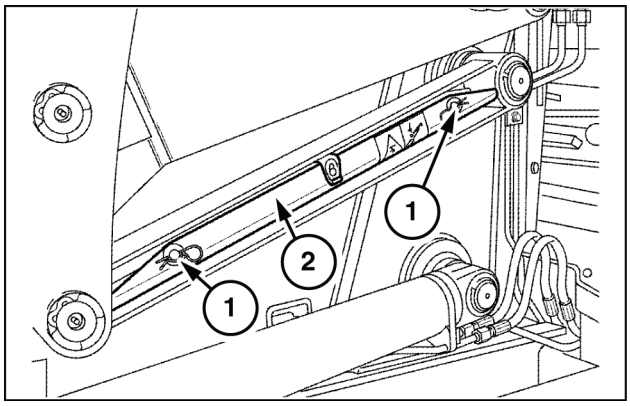
Remove the flip **(3)** and the strut **(2)** from the cylinder rod.



MOLI12LBB0265AB 6

Install the safety strut **(2)** on the loader arm by means of the split pins **(1)**.

Start the engine and lower the loader attachment.



MOLI12LBB0266AB 7

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Loader bucket Removal

B95C - B95CLR - B110C

Move the machine to a level and firm ground.

Lower the bucket to the ground in dump position (tilted completely forward).

Stop the engine and remove the starter switch key.

If the machine is fitted with a 4x1 bucket, release the pressure from the bucket circuit.

Remove the fastening screws, then remove the pins **(1)**.

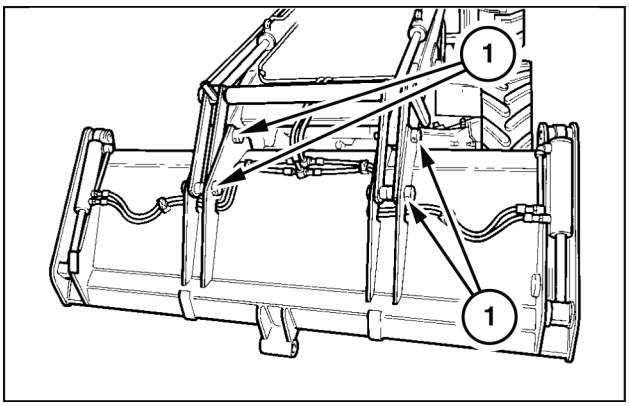
ATTENTION: *Always wear eye protection when using a tool which might project metal particles. Use a hammer with a soft face, such as copper, for pins assembly/disassembly.*

(4x1 bucket) disconnect and plug the hydraulic supply lines.

Start the engine.

Operate the attachment controls so as to release the bucket.

Reverse the machine from the bucket.



MOLI12LBB0267AB 1

B95CTC

Move the machine to a level and firm ground.

Lower the bucket to the ground in dump position (tilted completely forward).

Stop the engine and remove the starter switch key.

If the machine is fitted with a 4x1 bucket, release the pressure from the bucket circuit.

Remove the retaining rings and pins, then drive out the pins **(1)**.

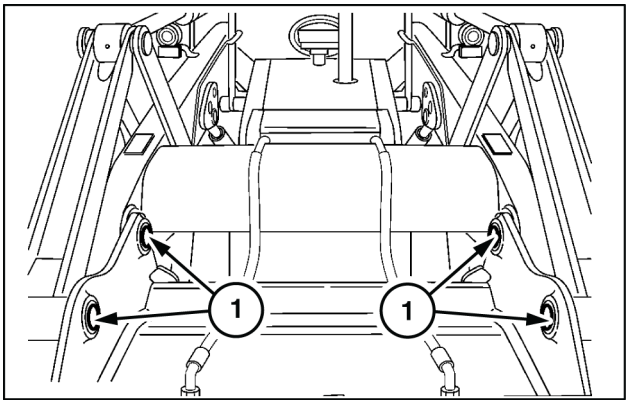
ATTENTION: *Always wear eye protection when using a tool which might project metal particles. Use a hammer with a soft face, such as copper, for pins assembly/disassembly.*

(4x1 bucket) disconnect and plug the hydraulic supply lines.

Start the engine.

Operate the attachment controls so as to release the bucket.

Reverse the machine from the bucket.



MOLI12LBB0270AB 2

https://truckmanualshub.com/

Loader bucket Installation

B95C - B95CLR - B110C

Make sure all bushings are completely clean. Remove any dirt or foreign matter, if necessary.

Start the engine.

Use the attachment controls to engage the attachment between the bucket lugs.

Install the arm/bucket pins **(1)** and then install the relevant retaining bolts.

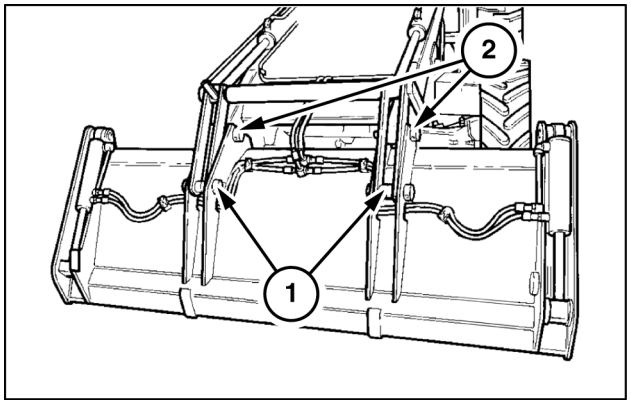
Use the bucket controls to align the connecting rod orifices with the bucket lugs.

Stop the engine and remove the starter switch key.

(4x1 bucket) release the pressure from the bucket circuit.

Install the rod/bucket pins **(2)**, and then install the relevant retaining bolts.

(4x1 bucket) remove the plugs and reconnect the hydraulic lines.



MOLI12LBB0268AB 1

B95CTC

Make sure all bushings are completely clean. Remove any dirt or foreign matter, if necessary.

Start the engine.

Use the attachment controls to engage the attachment between the bucket lugs.

Reinstall the arm/bucket pins **(1)** and then install the relevant retaining pins and rings.

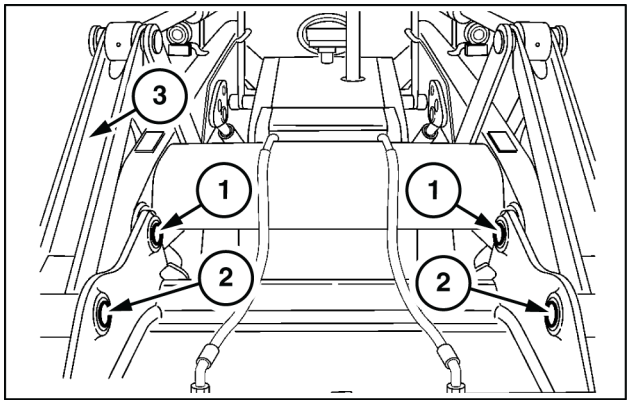
Use the bucket controls to align the connecting rod holes **(3)** with the bucket lugs.

Stop the engine and remove the starter switch key.

(4x1 bucket) release the pressure from the bucket circuit.

Install the rod/bucket pins **(2)** and then install the relevant retaining pins and rings.

(4x1 bucket) remove the plugs and reconnect the hydraulic lines.



MOLI12LBB0271AB 2

https://truckmanualshub.com/

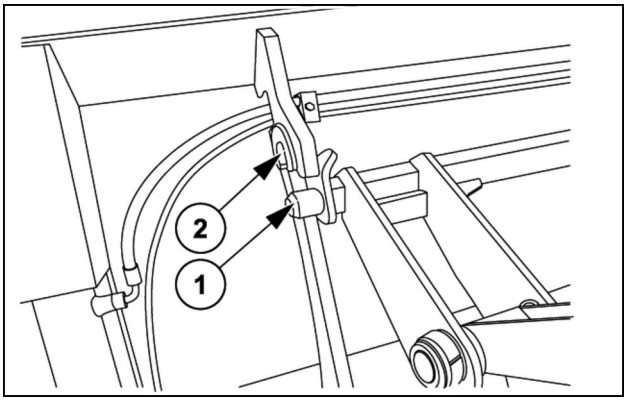
Loader bucket with quick coupler (B95CTC)

The loader hydraulic coupler allows the operator to change front end attachments without using special tools or additional manpower.

INSTALLATION

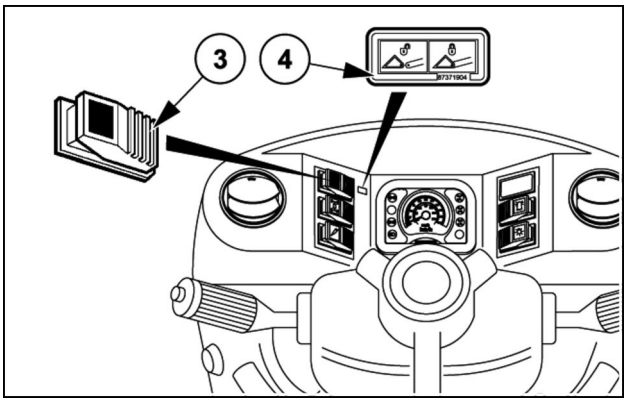
Make sure the bucket is in a safe area, on a level and firm ground and with the upper pins in place.

Tilt the quick coupler forwards and engage the top pins **(1)** into the upper hooks **(2)** of the bucket.



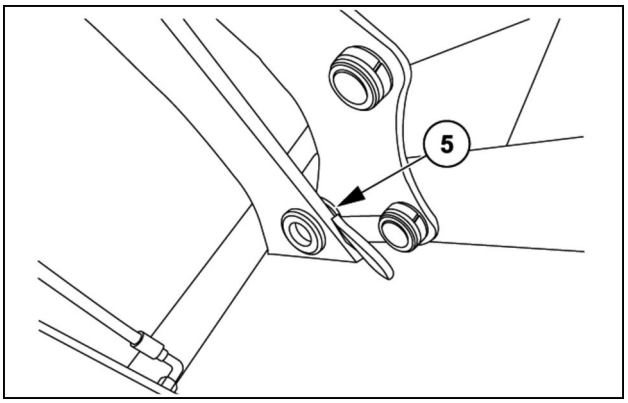
LEEN12T0656AA 1

Press and hold the quick coupler switch **(3)** located left of the front instrument panel as indicated in the decal **(4)**.



LEEN12T0657AA 2

This will retract the lock pins **(5)**.

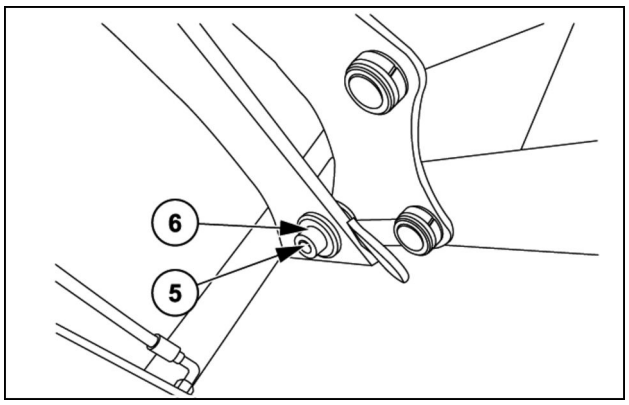


LEEN12T0658AA 3

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Lift the loader attachment and rotate the quick coupler rearwards until the lock pins **(6)** are aligned with the lower bores of the bucket.

Release the switch **(3)** allowing the lock pins **(5)** to engage in the mounting bores of the bucket.



LEEN12T0659AA 4

Visually confirm that the lock pins have correctly secured the bucket.

NOTICE: *make sure the loader bucket is correctly installed before using the loader attachment.*

REMOVAL

With the attachment resting on the ground, press and hold the switch to disengage the lock pins.

Raise the loader attachment off the ground and slowly rotate the top of the quick coupler outwards until the lock pins are clear of the bucket mounting bores. Release the switch.

Slowly lower the loader attachment to the ground while rotating the top of the quick coupler outwards.

When the upper pins of the quick coupler are free from the bucket hooks, back away from the bucket.

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Loader bucket with forks Optional

NOTICE: *The forks are heavy, so use great care when swinging them into their working and stowage position.*

Install forks in working position

Move the bucket to a level and firm ground.

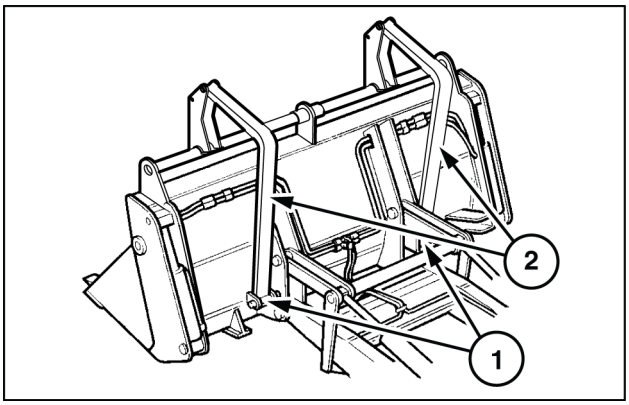
Stop the engine and remove the starter switch key.

Deactivate the parking brake.

Remove the retained pin and the pin **(1)**.

Lower the fork **(2)** manually and carefully until it is laying in position against the bucket cutting edge.

NOTICE: *The forks must be laying against the cutting edge of the bucket, and never against bucket teeth.*



MOLI12LBB0272AB 1

Install the pin **(1)** and the safety pin.

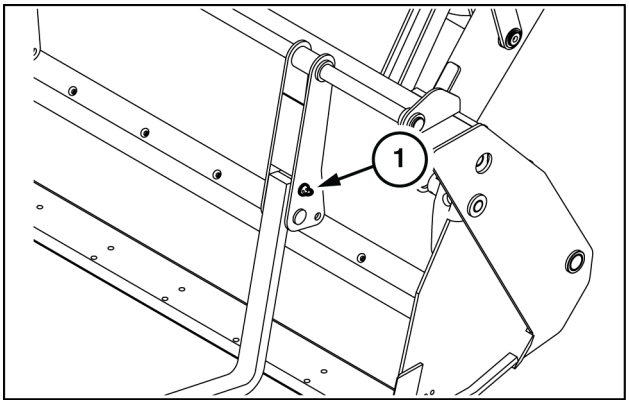
Repeat the same operations for the other fork.

Slide the forks until they are suitably spaced for the intended job.

NOTICE: *The two forks must be positioned at the same distance from the centre of the bucket.*

NOTICE: *Never use the forks to lift the machine.*

ATTENTION: *When using the forks with a 4x1 bucket, never attempt to use the bucket jaw opening function.*



MOLI12LBB0273AB 2

https://truckmanualshub.com/

Install the forks in rest position

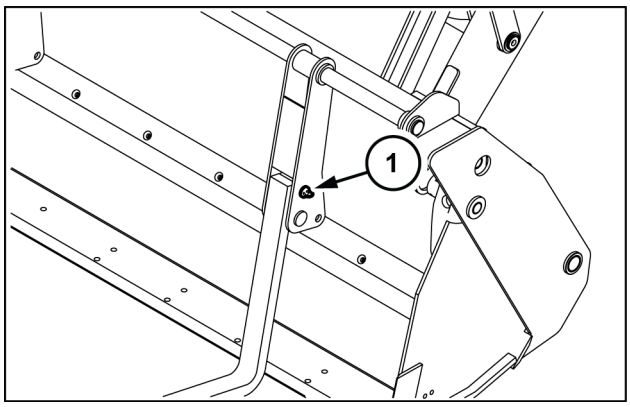
Rest the loader bucket on a level and firm ground.

Stop the engine and remove the starter switch key.

Disengage the parking brake.

Remove the retained pin and the pin **(1)**.

Tilt the fork **(2)** manually and carefully until it is rearwards into transport position.



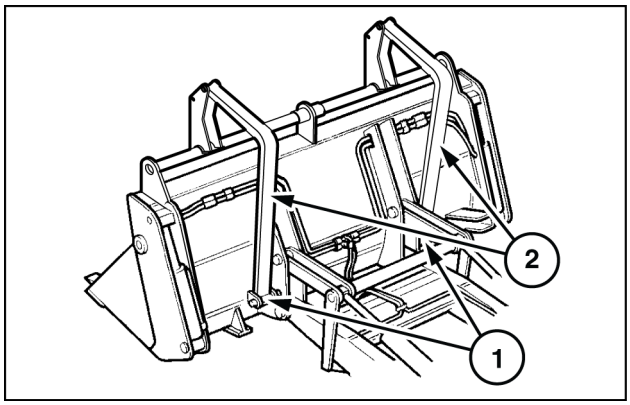
MOLI12LBB0274AB 3

Reinstall the pin **(1)** and the safety pin into their housing.

NOTE: *If necessary, slide the fork to the side to bring it into its housing.*

Repeat the same operations for the other fork.

NOTICE: *The forks must be securely retained in their proper storage position using the pins and split pins provided for this purpose. If forks are not correctly secured, they can cause serious injury.*



MOLI12LBB0275AB 4

https://truckmanualshub.com/

Lifting loads with the loader attachment

⚠ WARNING

Heavy object!
ALWAYS use adequate lifting equipment (heavy-duty hoist, loader, or forklift) to lift the component.
Failure to comply could result in death or serious injury.

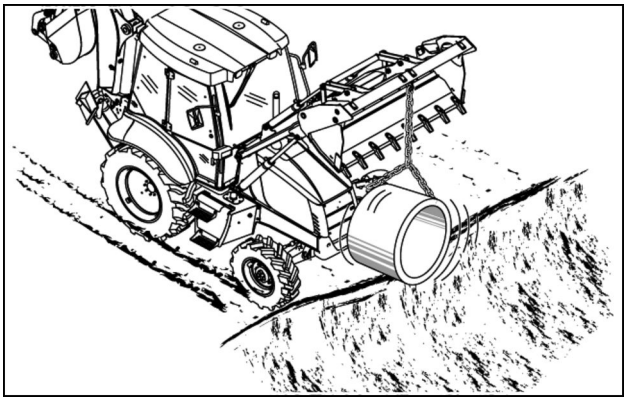
W0101A

Loader bucket - with lifting ring

The lifting ring is the only point to which loads may be attached on the loader bucket. The bucket must also be in dumping position.

Loader bucket - without lifting ring

If the loader bucket is not supplied ex-works with a lifting ring, consult your dealer.



LEEN12T0660AA 1

Use the controls gradually so as to move the attachment accurately.

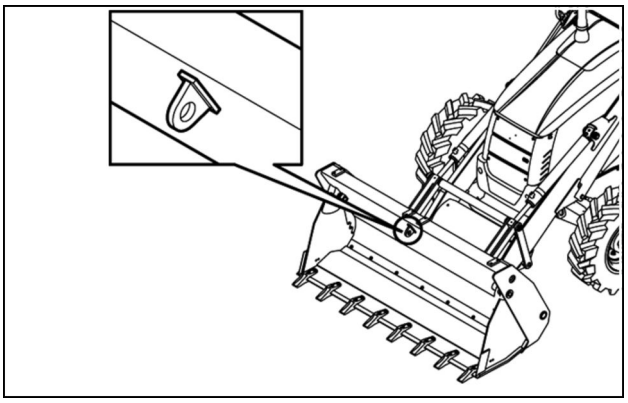
The maximum authorized load must not exceed **1000 kg** (**2205 lb**).

Steady the load a few centimeters above the ground so it is perfectly balanced before carrying out the lifting operation.

Do not allow any person within the machine's working range.

When moving with a load, be sure to:

- Keep the load as close as possible to the ground and to the machine.
- Always travel at low speed.
- Operate the controls smoothly to obtain precise movements and travel.
- In order to reduce the load's oscillation, avoid slinging it with too long ropes and/or chains.



LEEN12T0661AA 2

Maximum lifting loads with forks (if equipped) on loader bucket

ATTENTION: *Do not exceed the maximum safe working load for the loader.*
Ensure you comply with local "lifting" regulations and, if in any doubt, consult your dealer.

NOTICE: *When using a 4 x 1 bucket with forks, make sure that the bucket jaws are closed while lifting a load. Do not attempt to open the bucket jaws with loaded forks.*

The machine must be on a firm and level ground and the forks must be in horizontal position.

Backhoe attachment

Backhoe attachment

The following instructions do not cover all possible conditions of use of the backhoe attachment.

They only constitute basic information to enable the machine to be operated correctly.

NOTICE: *To achieve an optimum balance between machine performance and fuel economy, operate the machine at* ***1600 - 1700 RPM****.*

NOTE: *The first time it is operated, manoeuvre the machine in a clear area and at low speed.*

Make sure that no other person is in the working range of the machine.

Never dig near or under the stabilizers, since the machine could fall into the excavation.

When working in an area of reduced visibility, for example next to a building, place a safety barrier and sign panels to prevent anyone coming near the machine.

The backhoe attachment will dig more quickly if the work cycle is short and uninterrupted.

Organize your work site so as to obtain a smooth work cycle.

If you try to use the backhoe bucket for digging too wide a trench, you may cause a stall situation (where the dipper control lever is tilted towards the rear but nothing happens).

The hydraulic system main relief valve makes a noise when a hydraulic stall occurs.

This overload causes the work cycle to be prolonged and it increases the hydraulic fluid temperature.

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Setting the backhoe attachment in working position

⚠ WARNING

Overturning hazard!
Be careful when you operate the machine on a hillside. You must be in the operator's seat (loader operation position) when you move the machine forward. Always engage the parking brake and shift the direction control lever and the transmission to neutral before you operate the backhoe.
Failure to comply could result in death or serious injury.

W0220A

⚠ WARNING

Equipment failure could cause accident or injury!
Always fasten seat belt securely before operating the machine. Inspect seat belt parts for wear and/or damage. To ensure operator safety, replace any and all damaged parts of the seat belt prior to operation.
Failure to comply could result in death or serious injury.

W0046A

Check that the direction-of-travel control lever to neutral position.

Make sure the gearshift lever is in neutral position.

Make sure that the parking brake switch is engaged.

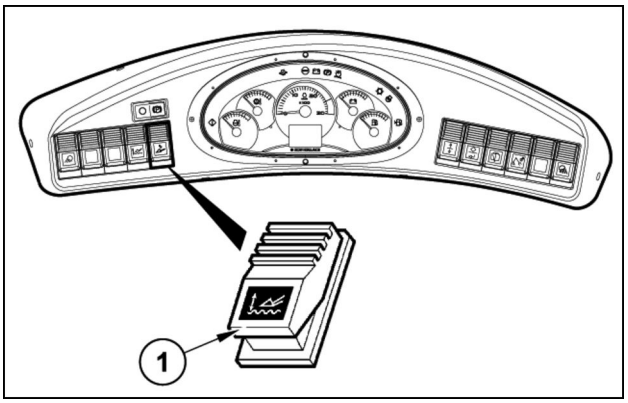
Make sure the “glide ride” system **(1)** (if fitted) is turned off and that the switch lamp is not alight.

Start the engine.

Press down on the ground with the bucket until the front wheels are no longer supporting the weight of the machine.

Turn the seat round to the backhoe attachment position and adjust it correctly.

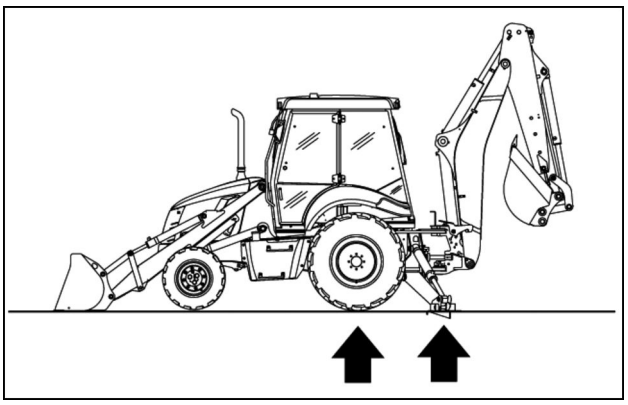
Accelerate and run the engine at the required speed.



LEEN12T0662AA 1

Lower the stabilizers slightly, leaving the rear wheels in contact with the ground.

NOTICE: *Whenever the backhoe attachment is used, the machine must always be resting on the stabilizers.*



LEEN12T0663AA 2

Place the backhoe attachment in line with the machine.

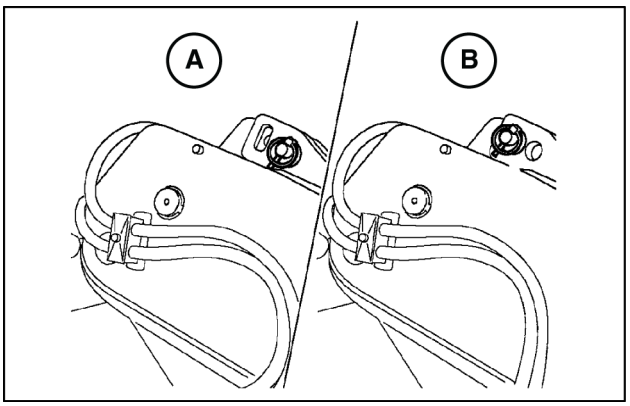
⚠ WARNING

Hazard to bystanders!
The operator must be the only person on the machine when towing. Make sure that nobody else is on the machine or within its working range.
Failure to comply could result in death or serious injury.

W0259A

Raise the boom to release the safety strut.

When using the telescopic dipper (if fitted) make sure that the pin is placed in unlocking position.



MOLI12LBB0279AB 3

A. Unlocked position
B. Locked position

⚠ WARNING

Hazard to bystanders!
Always sound the horn before starting the machine. Make sure the work area is clear of other persons, domestic animals, tools, etc. before you operate the machine. Never allow anyone in the work area during machine operation.
Failure to comply could result in death or serious injury.

W0304A

⚠ WARNING

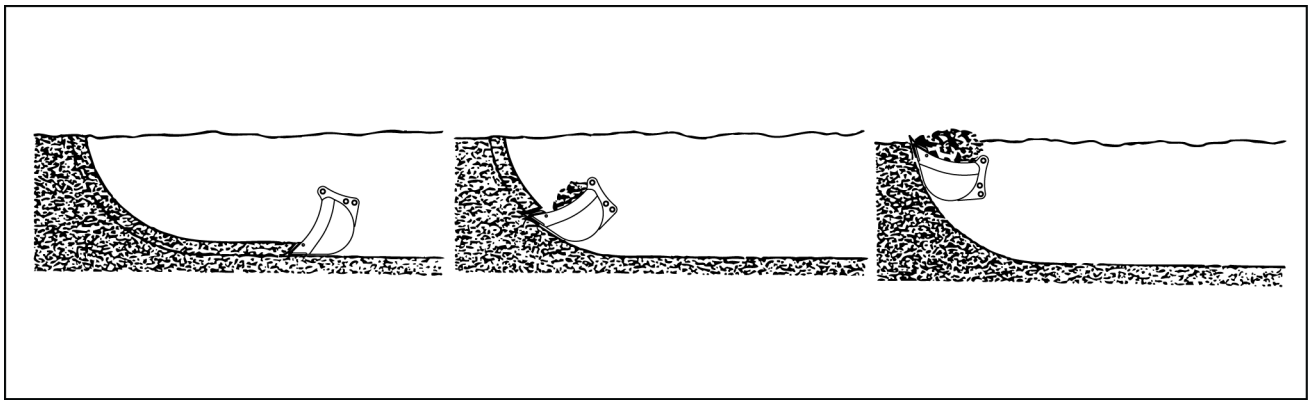
Avoid injury!
Operate controls only when seated in the operator's seat.
Failure to comply could result in death or serious injury.

W0956A

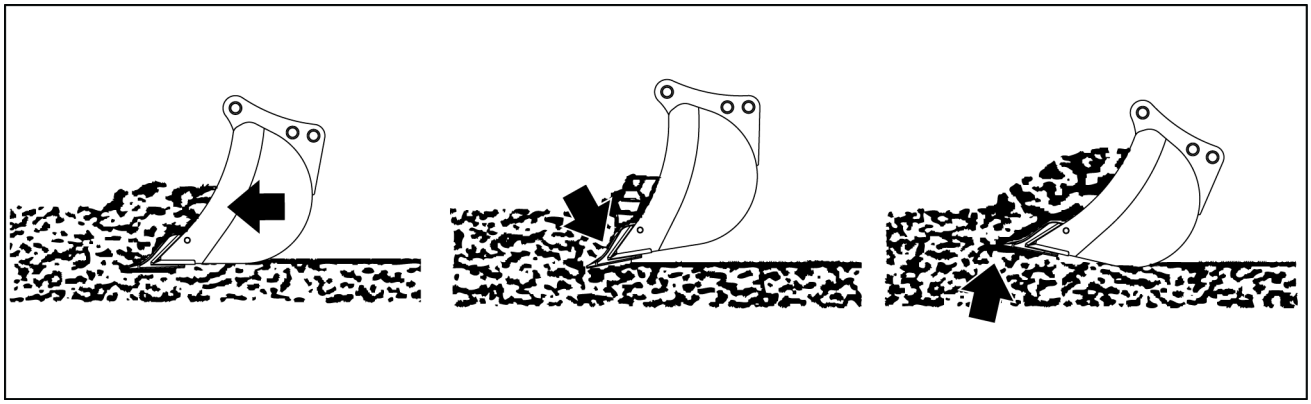
https://truckmanualshub.com/

Operating the backhoe attachment

Digging method



MOLI12LBB0283EA 1



MOLI12LBB0284EA 2

Correct	Wrong	Wrong
	The backhoe bucket will dig in and cause a stall	The bucket is pushed upwards. This will also increase the cycle time

Operating techniques

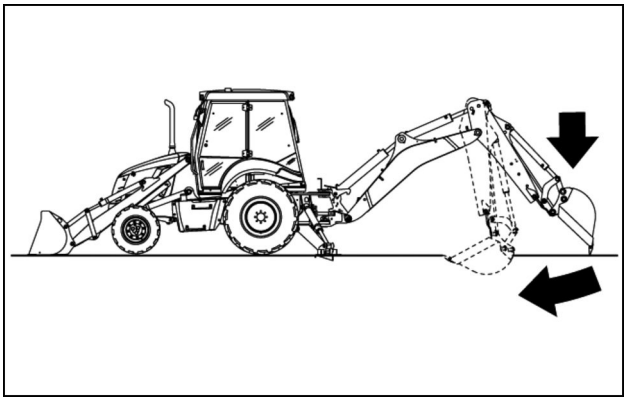
NOTICE: *Never operate any of the backhoe attachment control levers with arm locked in transport position.*

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Filling the backhoe bucket

Fill the backhoe bucket by manoeuvring the dipper. Keep the bottom of the backhoe bucket parallel to the cut. The backhoe bucket teeth and blade must cut the ground like the blade of a knife. The depth of dig varies depending on the type of material.

Dump the bucket contents onto the spoil pile, rolling out the bucket as the pile is approached. Avoid constant jarring or hammering-type contact between the spoil pile and bucket as this will cause wear to the bucket pins and bushings.



LEEN12T0664AA 3

Moving the machine forwards when working on flat ground

It is possible to use the backhoe attachment to move the machine forward at the same time as the excavation.

Make sure that the front wheels are straight.

Set the engine speed to **1000 RPM**.

Release the parking brake.

Raise the boom and retract the dipper, then move the boom so as to place the backhoe bucket teeth on stable ground.

Raise the stabilizers and the loader bucket about **20 cm** (**7.9 in**) from the ground.

Use the boom and dipper to move the machine.

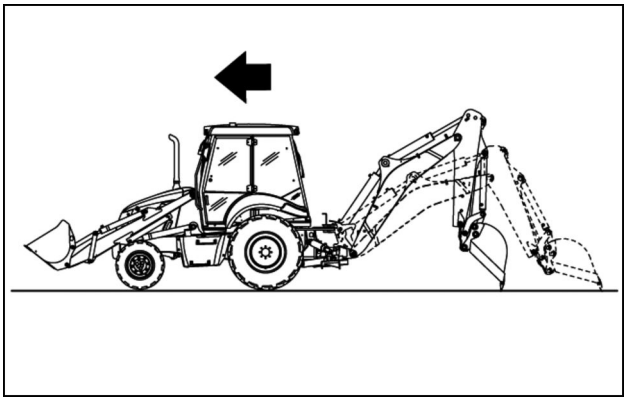
After moving the machine, lower the stabilizers and place the loader bucket on the ground, then level the machine.

Use the parking brake to brake the machine.

NOTICE: *This procedure can only be used on level ground. Never use it on sloping ground. On sloping ground it is mandatory to turn the operator's seat to the loader attachment position to move the machine by the normal procedure.*

The machine can be moved sideways in the same fashion, except that the bucket must be flat to support the weight of the machine.

Use the swing control to move the machine sideways to the required position.



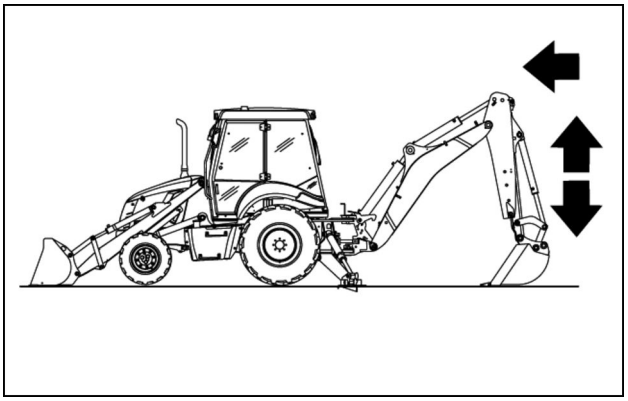
LEEN12T0665AA 4

https://truckmanualshub.com/

Telescopic dipper

To avoid the risk of damage and to extend the overall life of machines fitted with a telescopic dipper the following precautions must be observed.

When the attachment is used for compacting operations, the telescopic dipper must be fully retracted and locked.



LEEN12T0666AA 5

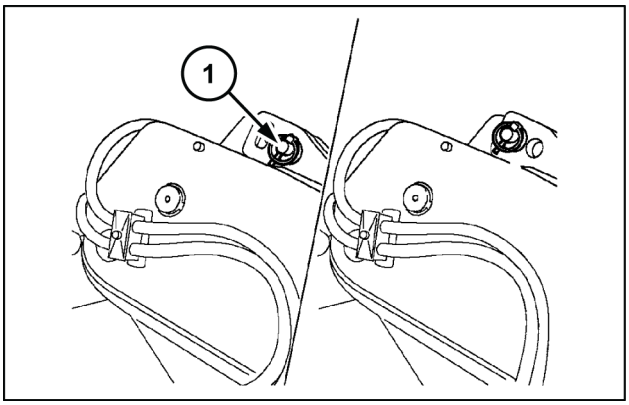
Before returning to normal use, install the pin in working position **(1)**.

When you use the hydraulic breaker, make sure that the telescopic dipper is retracted and the pin is in locked position **(1)**.

When using a toothed bucket to break hard ground, avoid extending the dipper beyond **0.60 m** (**1.97 ft**).

When digging in wet soil or mud and the bucket needs to be cleaned, do not knock the bucket against the ground with the dipper extended.

Avoid overloading the attachment by using a bucket which is too big in harsh working conditions, as this will reduce the useful life of the machine.



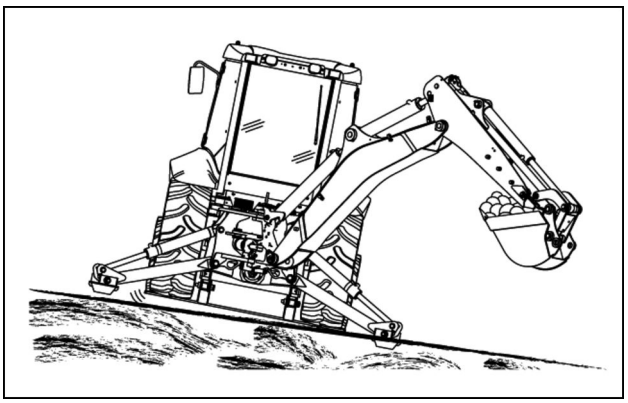
MOLI12LBB0288AB 6

Do not bottom-out the swing cylinder with the dipper extended.

For safety reasons, when working on sloping ground, do not swing the boom to dump the bucket contents on the side sloping down.

NOTICE: *Make sure that the rear windows are closed. Always wear your seat belt for protection in the event of the machine overturning. Never try to jump from the machine and always remain in the cab.*

When operating with the dipper fully extended, ensure that the bucket does not receive a sharp impact which will cause distortion of the cylinder rod.



LEEN12T0667AA 7

Trenching

Trenching is the most basic backhoe excavating operation.

Other digging operations are merely variations of this basic function (filling the bucket, dumping the bucket and moving the machine forward).

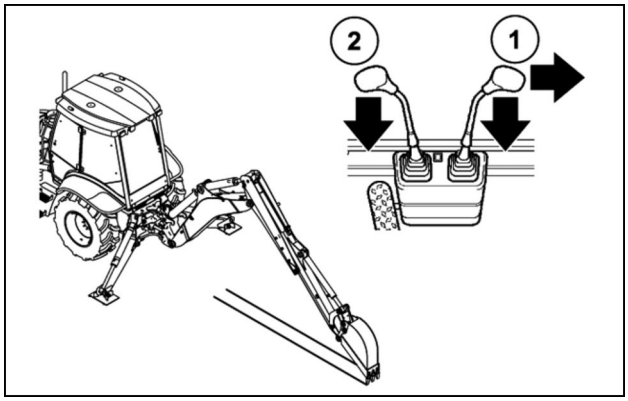
While trenching, it is generally important to maintain a level trench bottom. This is accomplished by setting the bucket at the correct angle of approach.

Pull on the dipper lever to maintain the correct cutting angle as the bucket is crowding in **(1)** applying light pressure to the right.

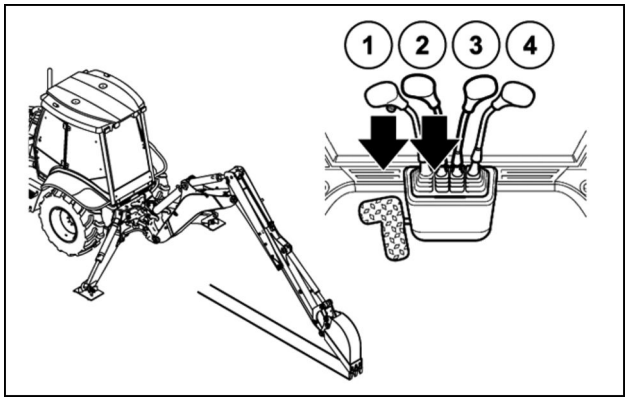
At the same time, pull on the lift lever **(2)** to relieve down pressure and keep the bucket in the same plane.

Continue the trench by moving forward. Moving too far will require excessive down pressure for digging, plus hand clean-up of the trench bottom.

It is better to move a lesser amount that to move too far.



LEEN12T0668AA 8

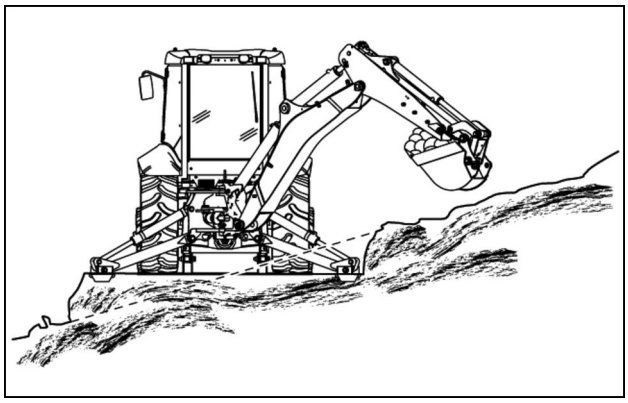


LEEN12T0669AA 9

When using the backhoe attachment for digging on slopes, if possible, position the attachment uphill. However, if this is not practicable, use the loader or backhoe attachment to cut a level surface into the slope for the uphill wheel and stabilizer, and deposit the spoil from the slot onto the downhill side for the opposite wheel and stabilizer.

When digging always deposit the spoil from the trench on the uphill side.

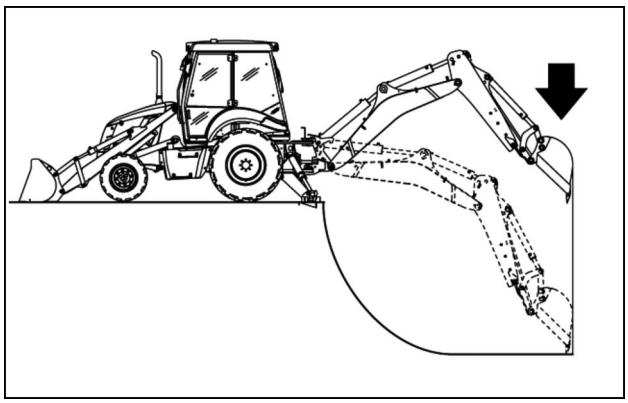
NOTICE: *When excavating across a slope it is not possible to make use of the loader bucket for added stability. Do not overload the bucket and avoid swinging a loaded bucket to the downhill side of the slope.*



LEEN12T0670AA 10

To finish the far wall on a straight-walled excavation crowd out the bucket while forcing the bucket down the excavation from the boom.

To finish the rear wall crowd in the bucket, while lifting with the boom, keeping the edges of the bucket horizontal.



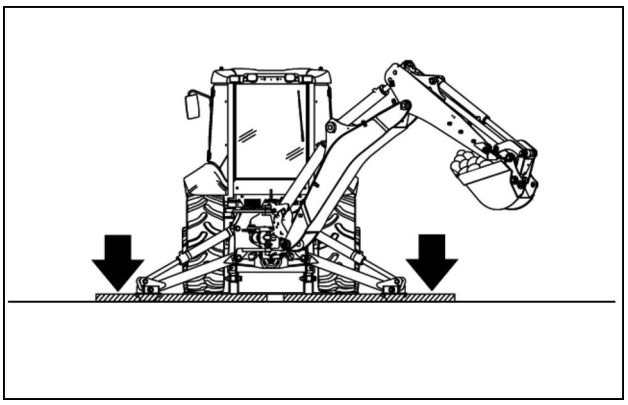
LEEN12T0671AA 11

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When finishing straight walls in sandy soil, position a platform under the rear tires and stabilizers to distribute the load over a larger area and reduce the possibility of a cave-in.

The platform will also reduce the possibility of the machine creeping rearwards if hard digging is encountered.

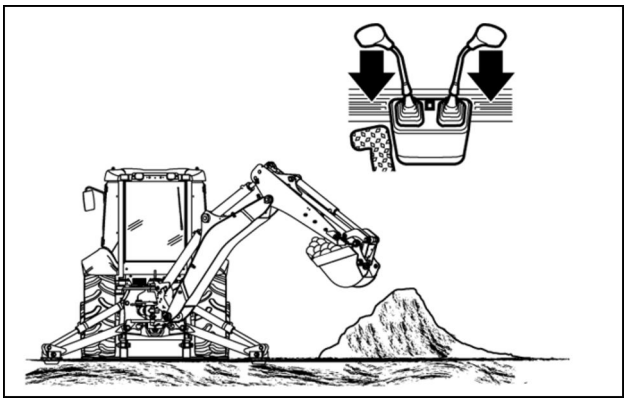
NOTICE: *Do not backfill a trench using the swing device to swing the bucket sideways. Doing so can damage the dipstick, boom, swing cylinders or mainframe.*



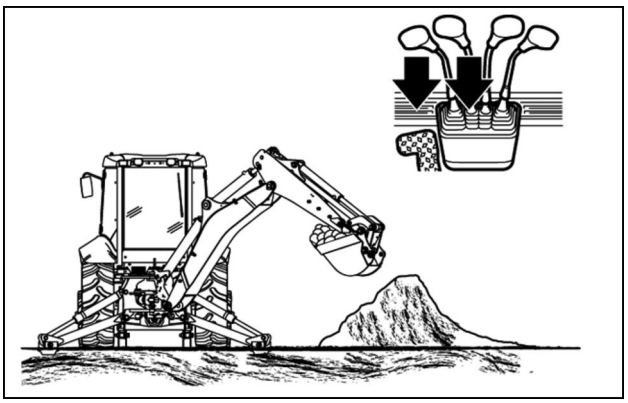
LEEN12T0672AA 12

To backfill a trench, lift the bucket over the spoil pile and then crowd in the dipper and lift the boom.

Pull both the crowd and boom levers simultaneously for smooth even backfilling.



LEEN12T0673AA 13



LEEN12T0674AA 14

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Backhoe bucket – remove

Move the machine to a level and firm ground.

Lower the stabilizers and place the bucket on the ground.

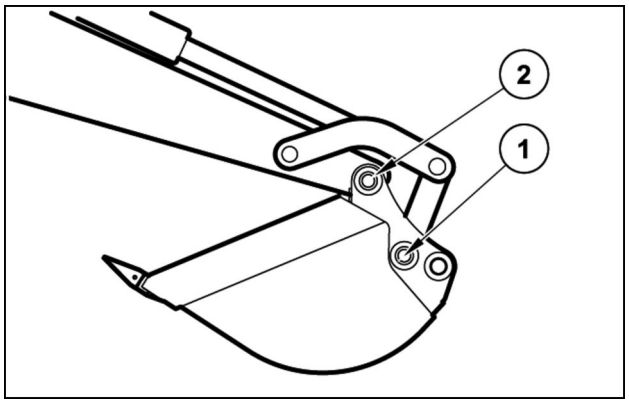
Stop the engine and remove the starter switch key.

Remove the lock rings and pins and the rod/bucket link pin **(1)**.

⚠ CAUTION

Flying objects!
Wear eye protection. Do not strike steel parts with a steel hammer. Parts may break.
Failure to comply could result in minor or moderate injury.

C0024A



LEEN12T0675AA 1

Start the engine.

Retract the bucket cylinder rod.

Operate the attachment controls so that the dipper/ bucket pin is not supporting the load of the dipper.

Stop the engine and remove the starter switch key.

Remove the lock rings and pins and the arm/bucket link pin **(2)**.

Start the engine.

Operate the attachment controls so as to disconnect the dipper from the bucket.

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Backhoe bucket – install

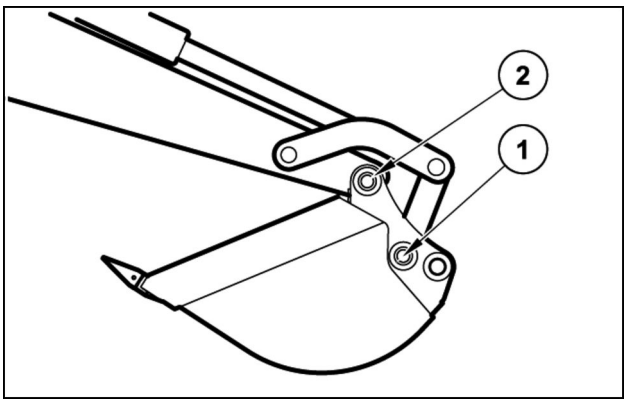
Start the engine.

Extend the bucket cylinder rod to bring the connecting rod to their housing.

Reinstall the arm/bucket link pin **(2)**, then install the lock rings and pins.

Slightly raise the attachment, then operate the bucket and dipper control to align the dipper hole with the bucket lugs.

Reinstall the rod/bucket link pin **(1)**, then install the lock rings and pins.



LEEN12T0675AA 1

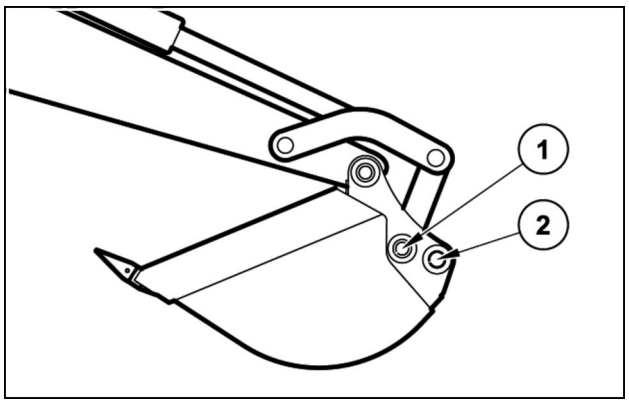
https://truckmanualshub.com/

Backhoe bucket – digging angle

It is possible to change the backhoe bucket opening angle, depending on the work which is to be carried out.

Position **(1)**: Bucket maximum power.

Position **(2)**: Enables the bucket to open by 10° more and, therefore, to dig vertical side trenches closer to the machine.



LEEN12T0676AA 1

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Ballasting

Tire liquid ballasting

Tire size	Water	Calcium chloride	Tire total weight
12.5/80-18	**89 l** (**23.51 US gal**)	**53 kg** (**117 lb**)	**142 kg** (**313 lb**)
16.9-28	**227 l** (**59.97 US gal**)	**136 kg** (**300 lb**)	**363 kg** (**800 lb**)

NOTE: *The tires shown in the table above are for general outfit. Therefore, the tires fitted to your machine may vary from those shown.*

Liquid ballast

Filling the front and rear tires with liquid ballast is a convenient method of adding weight.

A solution of calcium chloride and water is recommended. This gives a low freezing point and provides a higher density than plain water.

⚠ WARNING

Hazardous chemicals!
SLOWLY add calcium chloride flakes to water, stirring continuously. To avoid a violent reaction, NEVER add water to calcium chloride.
If any flakes contact the eyes, flush the eyes immediately with clean, cold water for at least 15 minutes. Seek medical assistance immediately.
Failure to comply could result in death or serious injury.

W0388A

NOTE: *When filling a tire with calcium chloride/water solution, the valve should be placed at the highest point on the wheel. The valve should be at the highest point when checking or adjusting air pressure if the tire is liquid ballasted.*

The table above shows the quantity of calcium chloride and water required for each tire size option and is based on **0.6 kg** (**1 lb**) of calcium chloride per litre of water to give a **75 %** fill of the tire. This calcium chloride/water solution will give protection from freezing down to an ambient temperature of **-46 °C** (**-50.8 °F**).

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Weighting limitations

If the machine is only fitted with a loader attachment, four **453.6 kg** (**998 lb**) weights must be mounted at the rear of the unit to provide counterbalance during loader operation. This provides a total of **1814.4 kg** (**3992 lb**) counterbalance to the rear of the unit.

To obtain sufficient counter-balance for backhoe operation weight can be added to the unit in the form of cast counterweights and liquid ballast.

ATTENTION: *Do not operate the loader with the backhoe removed or with less than four* ***453.6 kg*** *(****998 lb****) or* ***1814.4 kg*** *(****3992 lb****) total, rear counterweights installed. Operating the unit with less than the recommended rear counterweight may cause the unit to become unstable and upset, causing possible personal injury.*

Where additional stability during operation of the backhoe is required liquid ballast can be added to the tires, as above table.

Because special equipment is required to fill the tires it is recommended that this be carried out by your dealer.

NOTICE: *Only add the quantity of ballast necessary to ensure the correct stability. Excess ballast overloads the machine unnecessarily and increases fuel consumption. When adding ballast, do not exceed the maximum load ratings for the tires.*

For further information, consult your dealer.

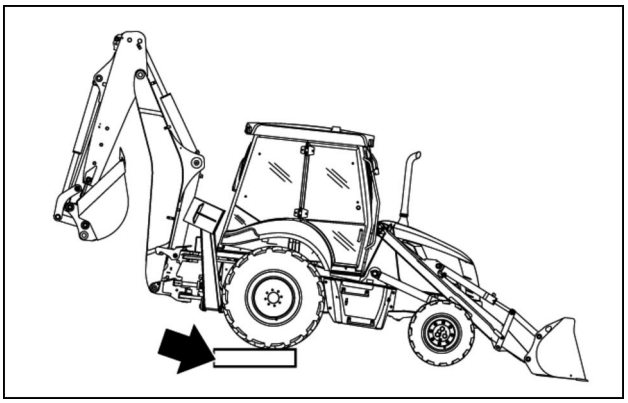
When adding ballast the total weight of the machine including liquid, cast iron weights and equipment (if fitted) should not exceed the maximum specification.

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Machine weighting

When adding ballast to the machine, do not exceed the gross weight shown on the identification plates.

NOTE: *The total weight on the rear axle is measured with only the rear wheels on the scales, the weight on the front axle is measured with only the front wheels on the scales.*



LEEN12T0677AA 1

NOTE: *The load capacity of the tires may be lower than the load capacity of the front axle, if this is the case, the lower value of the two must be used.*

Four wheel drive (4WD) front axle maximum permissible loading inclusive of ballast and loader in the raised position with no load in the bucket.

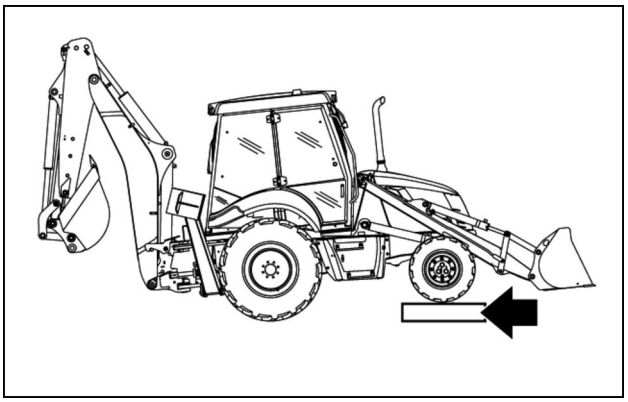
Static load rating = **20625 daN** (**46366.86 lbf**).

Dynamic load rating = **8250 daN** (**18546.74 lbf**) [speed **40 km/h** (**24.85 mph**)].

Rear axle maximum permissible loading with ballast and backhoe in the raised position with no load in the bucket.

Static load rating = **18750 daN** (**42151.69 lbf**).

Dynamic load rating = **7500 daN** (**16860.68 lbf**) [speed **40 km/h** (**24.85 mph**)].



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Lifting loads with backhoe attachment

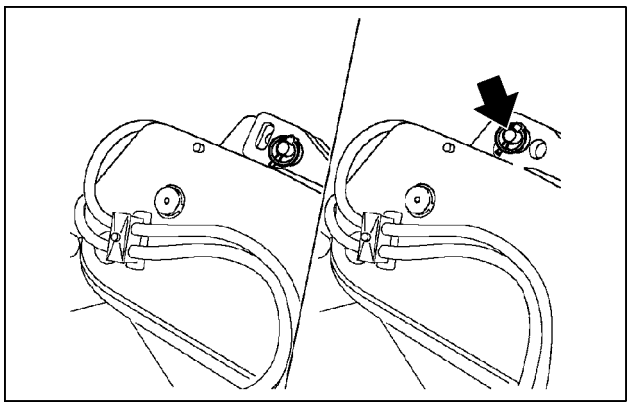
Move the machine to a level and firm ground.

Retract the loader bucket completely and then let the bucket weight press against the ground.

Lower the loader attachment until the front wheels just touch the ground without supporting the weight of the machine.

Lower the stabilizers until the rear wheels just touch the ground without supporting the weight of the machine.

If the machine is equipped with a telescopic dipper, it is mandatory for it to be completely retracted and mechanically locked.



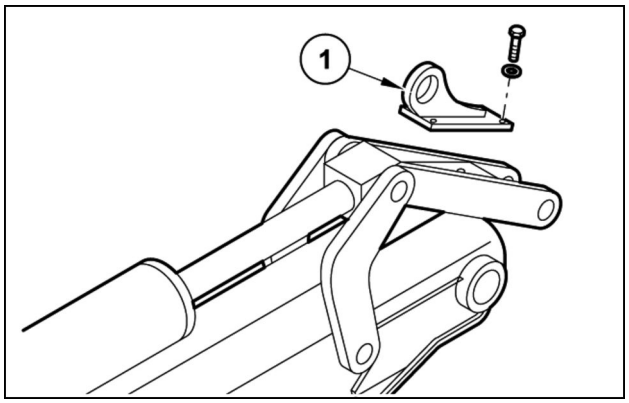
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Use the load fixing point: the ring **(1)** on the backhoe bucket connecting rod and never use other load fixing points.

It is forbidden to weld hooks or lugs to the bottom of buckets.

The maximum authorised load must not exceed **1000 kg** (**2200 lb**).

Use slings and chains in perfect conditions, able to support the load and equipped with an efficient safety device.



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7 - MAINTENANCE

GENERAL INFORMATION

Fluids and lubricants supply summary table

RECOMMENDED FLUIDS AND APPLICATION	NEW HOLLAND CONSTRUCTION-Specifications	INTERNATIONAL Specifications	MODELS		QUANTITY
ENGINE - OIL Ambra UNITEK 10W -40	Mat 3521	**API CJ-4**, **ACEA E9**, **SAE 10W40**, **SAE 15W40**	2WS - with filter		**8 l** (**2.11 US gal**)
COOLING SYSTEM Akcela Premium Anti-freeze antifreeze 50% water 50%	**NH900A**	**ASTM D6210**	ALL		**24 l** (**6.30 US gal**)
HYDRAULIC SYSTEM Ambra Multi G Hydrosystem biodegradabale 46 BIO-S	**NH410B NH646BS**	**API GL-4**, **ISO VG 32/46**, **SAE 10W30**	ALL		**118 l** (**31.10 US gal**)
POWERSHUTTLE TRANSMISSION Ambra Mastertran	**MAT 3525**		2WD 4WD		**18.5 l** (**4.07 US gal**) **20.8 l** (**4.57 US gal**)
POWERSHIFT TRANSMISSION Ambra Mastertran			ALL		**20.8 l** (**4.57 US gal**)
FRONT AXLE Ambra TRX 80W -140	**NH600/TR**	**API GL-4 SAE 80W-140**	2WD		**0.2 l** (**0.1 US gal**)
			4WD	Differential	**6.5 l** (**1.70 US gal**)
				Wheel reduction gear (each)	**0.7 l** (**0.20 US gal**)
REAR AXLE Ambra TRX 80W -140			Differential		**21.2 l** (**5.60 US gal**)
			Wheel reduction gear (each)		**0.8 l** (**0.20 US gal**)
FUEL WITH LOW SULFUR Decanted and filtered diesel fuel			ALL		**135 l** (**35.50 US gal**)
VARIOUS JOINTS Ambra MG2 grease	**NH 585/GR**	**NLGI 2**	ALL		As required
TELESCOPIC DIPPER Ambra Grease GR EXP	**NH 587/GR**	**NLGI 2**	ALL		As required
AIR CONDITIONING COMPRESSOR PAG SP 20 oil			ALL		**240 cm³** (**14.6 in³**)

Fuel

Use diesel fuel suitable for the ambient temperature conditions (**ASTM D975**).

Use fuel which is to **ASTM** (American Society for Testing and Materials) **D975** standard (North America). In Europa, fuel must comply with Specification Standard **EN 590** or ITS EQUIVALENT.

Use grade No. 2 fuel, with ultra low sulfur. The use of other types of fuel can result in a loss of power of the engine and may cause high fuel consumption.

In very low ambient temperatures, use a mixture of fuels No. 1 and No. 2 as necessary. Consult your fuel supplier for appropriate fuel supply.

If the temperature falls below the fuel cloud point (point at which wax begins to form) the wax crystals will cause power loss or will prevent the engine from starting.

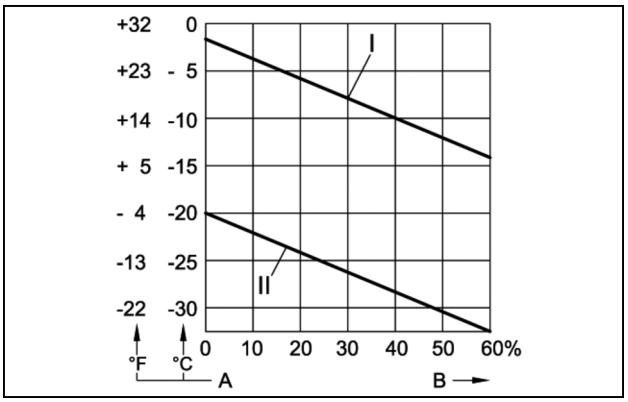
In cold weather, fill the fuel tank at the end of the day's work in order to prevent the formation of condensation.

WINTER FUEL

At low temperatures, obstructions due to paraffin precipitations may generate in the fuel system, which can cause engine anomalies. When the outside temperature drops below **0 °C** (**32 °F**), it is necessary to use winter fuel, which can be used up to a temperature of **-15 °C** (**5 °F**) and which can be purchased in filling stations since the beginning of the cold season. Often, fuel with additives (Superdiesel) is available, and it can be used approximately up to a temperature of **-20 °C** (**-4 °F**).

- At temperatures below **-15 °C** (**5 °F**) or **-20 °C** (**-4 °F**), it is necessary to mix it with oil. The necessary mixing percentages can be obtained from the diagram reported here to the side.

In case only summer fuel is available and temperature is below **0 °C**, fuel can be mixed with oil in the percentages reported in the diagram anyway, in any case up to a maximum of **60 %**.



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Caption:

I Summer diesel fuel

II Winter diesel fuel

A Outside temperature

B Oil percentage

ATTENTION: *Never mix diesel fuels with petrol.*

Fuel storage

Prolonged storage of fuel can lead to the accumulation of impurities and condensation in the fuel. Engine trouble can often be traced to the presence of water in the fuel.

The storage tank must be placed outside and the temperature of the fuel should be kept as low as possible. Drain off water and impurities regularly.

Biodiesel fuel - Biodiesel fuels

Biodiesel usage in NEW HOLLAND CONSTRUCTION products

Introduction to Fatty Acid Methyl Ester (FAME) biodiesel

FAME biodiesel, called biodiesel fuel in the following section, consists of a family of fuels derived from vegetable oils treated with methyl esters.

There are two main biodiesel fuel types: Rapeseed Methyl Ester (RME) and Soybean Methyl Ester (SME). RME is a blend of rapeseed and sunflower methyl ester, and is the preferred crop in Europe. SME is the preferred crop in the United States.

Biodiesel fuel is a renewable alternative fuel source. Its use and development is promoted worldwide, especially in Europe and in the United States.

Biodiesel fuel can be used to run diesel engines as pure biodiesel fuel or when blended with standard diesel fuel:

- B5: indicates the blend of **5 %** biodiesel and **95 %** diesel fuels.
- B7: indicates the blend of **7 %** biodiesel and **93 %** diesel fuels.
- B20: indicates the blend of **20 %** biodiesel and **80 %** diesel fuels.
- B100: indicates pure biodiesel, or **100 %** biodiesel fuel. Do not use.

Biodiesel fuel has several positive features in comparison with diesel fuel:

- Biodiesel fuel adds lubricity to the fuel, which is beneficial in many circumstances, particularly as sulfur and aromatics are removed from the fuel.
- Biodiesel has a greater cetane number and burns cleaner.
- Biodiesel produces less particulate matter and reduces smoke emissions.
- Biodiesel is fully biodegradable and non-toxic.

Diesel and biodiesel fuel specifications

Tier 4a diesel fuel specifications are covered by the following:

- **EN 590** - Specification of Diesel fuel. (10 ppm sulfur maximum.)

Biodiesel blends are covered by:

- European Diesel Fuel Specification **EN 590** allows up to **7 %** biodiesel since 2009. European fuel suppliers are allowed to use up to **7 %** biodiesel fuel (B7) to supply the network.

Pure biodiesel (B100) specification is covered by the following requirements:

- Europe: **EN 14214:2009** - Automotive fuels. Fatty Acid Methyl Ester (FAME) for diesel engines. Requirements and test methods.
- **DIN V 51606** - German standard for biodiesel.

NOTICE: *Biodiesel fuels approved for use in the NEW HOLLAND CONSTRUCTION equipment must be transesterified and comply with the European Standard* ***EN14214*** *or the German standard* ***DIN V 51606****.*

NOTICE: *Cold Pressed Biodiesel, Cold Pressed Oil, Straight Vegetable Oil (SVO), or more generally unrefined vegetable oils used as motor fuel, are fuels that are normally made from Rapeseed oil or similar high oil content crops. These kinds of fuel are not transesterified, so they do not fulfil the* ***EN14214*** *requirements. There is no recognized quality standard available for these types of fuel. Therefore the use of Cold Pressed Biodiesel, Cold Pressed Oil, Straight Vegetable Oil (SVO), or more generally unrefined vegetable oils used as motor fuel are NOT APPROVED at any blend in any NEW HOLLAND CONSTRUCTION product.*

NOTICE: *Any engine and fuel injection equipment fitted to a NEW HOLLAND CONSTRUCTION vehicle found to have run with any blend of NON-APPROVED fuel (fuel not fulfilling the specification described in the requirement* ***EN14214****) will no longer be covered for Warranty by NEW HOLLAND CONSTRUCTION.*

Biodiesel fuel usage conditions

You must stringently follow the biodiesel fuel usage conditions. Incorrect application of the biodiesel fuel usage conditions could lead to severe damage to the engine, fuel injection equipment and aftertreatment system.

The main concerns related to operation with biodiesel fuels are:

- Filters and injector blockage caused by poor fuel quality.
- Wear and corrosion of internal components due to water content, which affects lubricity.
- Deterioration of some rubber sealing compounds in the fuel system.
- Biodiesel oxidation, which can lead to the formation of deposits that can harm the fuel injection system.

NOTICE: *Any problem in the engine fuel injection equipment associated with non-compliance to the following conditions for biodiesel fuel handling and maintenance will not be covered for Warranty by NEW HOLLAND CONSTRUCTION.*

Purchase biodiesel fuel from a trusted supplier who understands the product and maintains acceptable fuel quality. It is highly recommended that you use

biodiesel from BQ 9000 accredited suppliers to maintain the quality and consistency of the fuel. The BQ 9000 Quality Management Program is accredited by the National Biodiesel Board for producers and marketers of biodiesel fuel. See the National Biodiesel Board website at www.biodiesel.org for more information.

The use of biodiesel blends above B7 through B20 will not void the NEW HOLLAND CONSTRUCTION warranty as long as the following conditions for biodiesel fuel handling and maintenance are stringently followed:

Biodiesel fuel must be pre-blended by the supplier. Mixing biodiesel fuels on-site can result in an incorrect mixture that could damage the engine and/or fuel system.

NOTICE: *NEW HOLLAND CONSTRUCTION may void your warranty if the problem is associated with poor fuel quality due to improper blending. It is the responsibility of the fuel supplier and/or yourself to ensure the right type of fuel and blend is delivered and used.*

Maintenance intervals

For machines using the all electronic engines with a high pressure common rail fuel system, the engine oil and filter change interval is not affected when using biodiesel blends up to B7.

Check all hoses, connections and gaskets to ensure integrity and cleanliness every 3 months or 150 hours of operation, whichever comes first.

Regular oil sampling is highly recommended to monitor for oil and engine deterioration.

NOTE: *Oil sampling kits are available from your authorized NEW HOLLAND CONSTRUCTION dealer.*

When switching back from biodiesel to regular **EN 590** or #2 diesel, all fuel filter, oil and oil filter should be changed even if this falls between routine service intervals.

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Fuel tank

The fuel tank **(1)** is located on the left-hand side of the machine, under the cab.

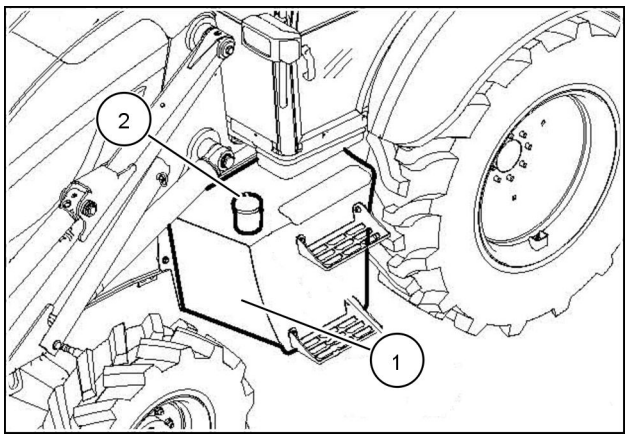
NOTE: *tank capacity* ***135 l (38.20 US gal****).*

It is possible to fill fuel through the plug **(2)**.

In cold weather, use a fuel suitable to the ambient temperature and refill at the end of each working day, in order to prevent condensation.

The plug **(2)** can be opened only with the starter switch key. During assembly, make sure it is correctly fitted before locking it.

ATTENTION: *Never fill fuel into the tank with the engine running. Never smoke or bring close open flames while refilling.*



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Hydraulic oil

For the first filling, the Manufacturer uses **AMBRA MULTI G Oil**.

Hydraulic oil is not water-soluble; this can cause the formation of condensation water in the hydraulic oil tank. Therefore, periodically drain condensation water, especially after the machine has been left unused for a long time.

Dispose of the drained liquid as for exhaust oil.

ECOLOGICAL HYDRAULIC OIL

The hydraulic system of this machine can be filled also with ecological synthetic hydraulic oil (special equipment). In this case, tags reporting special warnings will have to be applied to the machine.

This synthetic hydraulic oil “HYDROSYSTEM 46 BIO-S" has been tested by the Manufacturer, prior to approving its use on these machines.

It is also possible to change from mineral hydraulic oil to this synthetic hydraulic oil afterwards. Ecological synthetic hydraulic oil too must not be disposed of as normal waste. It must be disposed of as any other exhaust oil.

In case the hydraulic oil is released to the environment, inform the machine’s owner and the competent authorities.

The use of “HYDROSYSTEM 46 BIO-S” fluid is only limited to hydraulic systems.

Do not mix the hydraulic oil with oils of different brands; a possible mix would reduce its biodegradability.

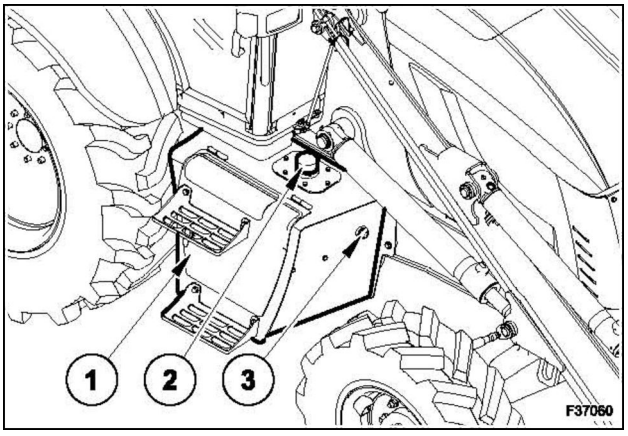
HYDRAULIC OIL TANK

The hydraulic oil tank **(1)** is located on the right hand side of the machine, under the cab.

NOTE: *tank capacity* ***75 l (10.30 US gal)****.*

The oil level can be checked through the sight glass **(3)**.

By removing the plug **(2)**, by means of the special wrench supplied with the machine, it is possible to fill the oil.



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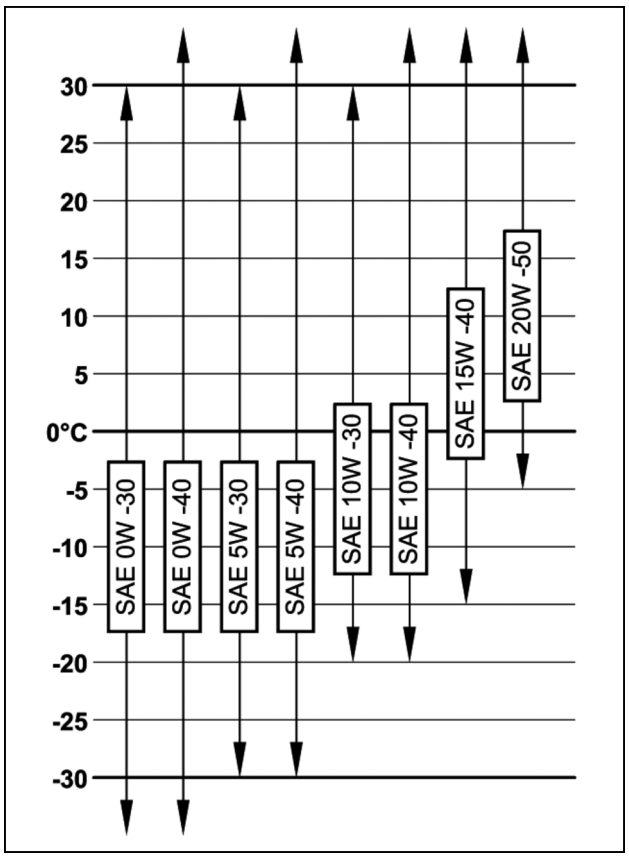
Engine oil viscosity

As a general rule, multigrade oils must be used. In closed rooms heated to temperatures > **5 °C** (**41 °F**), it is also possible to use single-grade oils. As the viscosity of lubricating oils varies according to the temperature, the temperature of the place where the engine will be used is decisive for choosing the oil viscosity grade (SAE grade). According to the diagram reported here to the side, it is possible to choose the necessary oil viscosity for each temperature in order to guarantee an optimum operation of the engine.

If a certain oil type is used to temperatures lower than those indicated in the diagram, it could negatively affect the starting capacity of the engine, but without damaging the engine itself.

The use of a certain type of oil at temperatures above those indicated in the diagram must be limited as much as possible, in order to minimize the possible wear damage caused to the engine.

Synthetic oils provide a better performance because of their better stability as regards temperature and oxidation.



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Safety instructions

Perform checks and maintenance operations only after reading and learning the instructions and the warnings contained in this manual.

ATTENTION: *There is a risk of serious injury if maintenance or repairs are not performed correctly. If you do not understand the maintenance procedures, consult your Dealer.*

Make sure you know the position and function of every control. Operating the controls wrongly can cause serious physical injury.

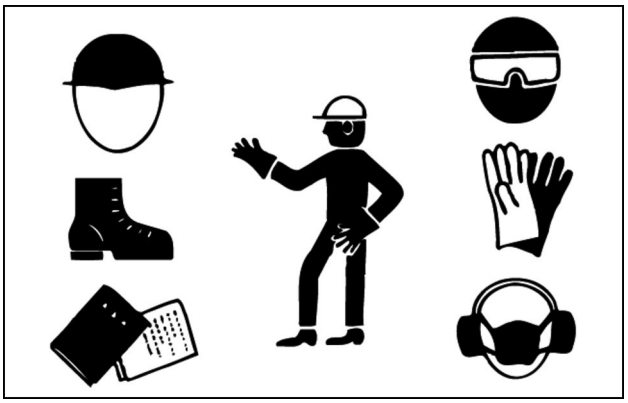
Any modification to this machine without prior authorization could cause serious injury. Do not make any modifications without authorization. Consult your Dealer.

Carefully observe the maintenance intervals indicated in this manual.

NOTICE: *if you use the machine under particularly severe conditions (dusty or corrosive atmosphere, etc.), the maintenance intervals should be reduced.*

Before performing any operation on the machine, wear tight clothes and personal safety devices appropriate for the operation to be carried out:

- safety helmet;
- safety shoes;
- heavy gloves;
- reflective clothing;
- wet weather clothing.



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If the environment conditions make it necessary, the following personal safety equipment should be at hand:

- respirators (or dustproof masks);
- ear plugs or acoustic ears protections;
- goggles with lateral shield or masks for eyes protection.

Before performing any maintenance operation, wait for the engine and all hydraulic systems and components to cool down.

Clean the grease fittings before lubrication.

Before filling oil, clean the area around plugs and necks.

Carefully prevent that dust or dirt enter the hydraulic systems or components.

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MACHINE SAFETY

Before performing any maintenance or repair operation, make sure the machine is in safe conditions.

Move the machine to a level and firm ground, away from any soft ground, excavations or poorly shored cavity.

Lower the loader attachment to the ground.

Place the backhoe attachment in the road travel position.

Place the direction-of-travel lever and gearshift lever in neutral position.

Immobilize the machine by means of the parking brake.

Completely raise the stabilizers and lock them mechanically.

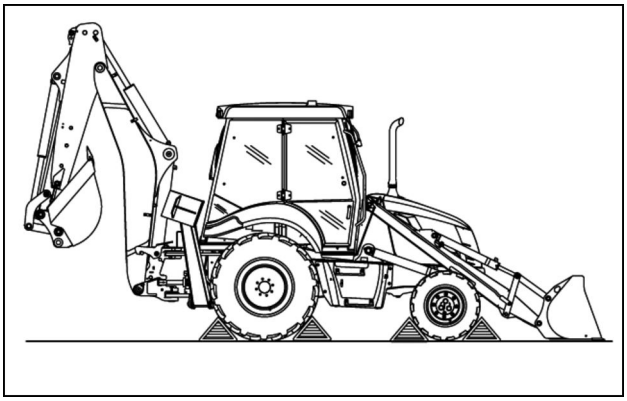
Stop the engine and remove the starter switch key (must be performed with the engine stopped and the starter switch key removed from the cylinder).

Release the hydraulic pressure by operating the control levers in all directions. On hydraulically controlled machines, turn the key to ON and release the pressure by moving the hydraulic control levers in all directions.

Disconnect the electrical system by disconnecting the battery master switch.

Place some wedges under the wheels in order to prevent the machine from moving.

NOTE: *for all maintenance operations which require the loader attachment to be raised, install the safety support strut.*



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PERSONNEL

The personnel in charge of the checks and maintenance operations must be sufficiently skilled to perform these operations on this machine or similar machines.

This skill may be obtained by being trained for several days by a technician, for example, or by attending a training course given by qualified teachers.

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Work hours and intervals

One of the premises for the manufacturer to satisfy the warranty obligations is the regular performance of all inspection, maintenance and repair operations prescribed, according to the instructions given in this manual, as well as the use of original spare parts.

During the warranty period, all inspection, maintenance and repair operations, except for the daily and weekly inspection and maintenance, must be carried out by the service department or an authorized workshop.

In order to guarantee the good operation and a long life of the machine and its components, some intervals have been defined for the performance of maintenance operations, these intervals must be carefully observed.

The maintenance intervals indicated in this manual apply to normal operating conditions. If operating conditions are more severe, the intervals will have to be accordingly reduced.

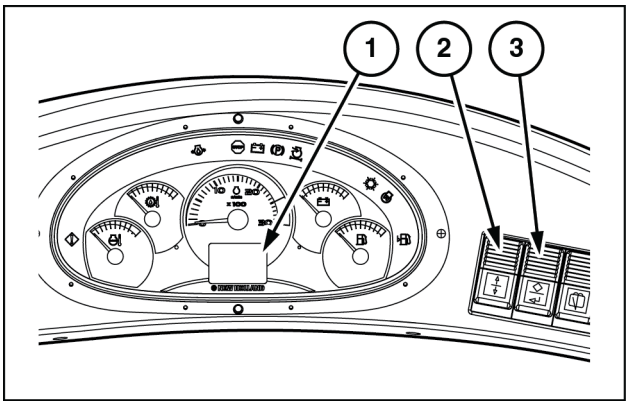
Hour meter

Observe the maintenance intervals by daily consulting the work hours displayed by the hour meter located in the side instrument.

The hours are shown on the display **(1)** located in the side instrument.

To display the hours when the machine is off:

- Press either switch **(2)** or **(3)**.
- The hours are displayed for about **15 s**.



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Intervals

Servicing and inspection intervals are variable.

All operations are scheduled on the following basis:

- Every **10 h** or once a day, whichever comes first.
- Every **50 h** or once a week, whichever comes first.
- Every **250 h** or once every 3 months, whichever comes first.
- Every **500 h** or once every 6 months, whichever comes first.
- Every **1000 h** or once a year, whichever comes first.
- Every **2000 h** or once every 2 years, whichever comes first.
- Every **3000 h** or once every 3 years, whichever comes first.
- Every **4000 h** or once every 4 years, whichever comes first.

MAINTENANCE CHART

Maintenance Chart

Interval	Page Nb.	Maintenance Action	Nb. of pts	Check	Cleaning	Grease	Adjust	Replace	Change fluid	Drain fluid
Every 10 hours	**7-14**	Checks at start-up and before each workshift (10 hours)		X						
	7-15	Drive belts - check		X						
	7-16	Hydraulic system - lines		X						
	7-17	Engine oil level		X						
	7-18	Hydraulic oil level		X						
	7-19	Fuel tank - level		X						
	7-20	Engine coolant		X						
	7-21	Windshield washer fluid level		X						
	7-22	Check wheels and tires		X						
	7-23	Working attachments - greasing		X						
Every 50 hours	**7-24**	Fuel pre-filter - draining condensation		X						
	7-25	Tires		X						
	7-29	Air conditioning system			X					
	7-30	Door hinges				X				
	7-31	Working attachments - greasing				X				
Every 250 hours	**7-32**	Cab Protection System (ROPS/FOPS)		X						
	7-35	Seat and seat belt		X						
	7-36	Cab air filter			X					
	7-37	Fuel tank - draining		X						
	7-38	Radiator and condenser - cleaning			X					
	7-39	Transmission oil level		X						
	7-40	Front and rear axle		X						
	7-45	Hydraulic oil tank breather / filler cap - cleaning		X						
	7-46	Battery terminals		X						
	7-47	Heater and evaporator (air conditioning system) - Cleaning			X					
	7-48	Telescopic dipper (Optional) - Adjustment check					X			
Every 500 hours	**7-49**	Engine oil and filter						X		
	7-51	Fuel filter						X		
	7-52	Fuel prefilter						X		
	7-53	Fuel system bleeding		X						

Interval	Page Nb.	Maintenance Action	Nb. of pts	Check	Cleaning	Grease	Adjust	Replace	Change fluid	Drain fluid	
Every 1000 hours	**7-54**	Machine inspection and cleaning		X							
	7-55	Engine air filters						X			
	7-57	Powershuttle transmission - oil filter replacement							X		
	7-58	Powershuttle transmission - oil change							X		
	7-59	Powershuttle transmission - screen filter cleaning			X						
	7-60	Powershift transmission - oil filter replacement						X			
	7-61	Powershift transmission - oil change							X		
	7-62	Front and rear axle - oil change							X		
	7-64	Brake pedal lever - greasing				X					
	7-65	Hydraulic oil system - oil filter replacement						X			
	7-66	Hydraulic oil tank - oil change							X		
	7-68	Hydraulic cylinders - check		X							
	7-69	Battery electrolyte level		X							
	7-71	Alternator - check		X							
Every 2000 hours	**7-72**	Engine coolant							X		
Every 3000 hours	**7-74**	Diesel particulate filter (DPF)						X			
Every 4000 hours	**7-75**	Engine breather filter						X			
As required	**7-76**	Drive belt						X			
	7-78	Air conditioning compressor drive belt						X			
	7-79	Turbocharger		X							
	7-80	Fuel system bleeding		X							
	7-81	Air filter elements - cleaning and replacement						X			
	7-85	Wheels and tires		X							
	7-87	Hydraulic system - pressure release					X				
	7-89	Replace the bulbs		X							
	7-91	Fuses and relays						X			
	7-98	Battery removal and installation						X			
	7-99	Telescopic dipper (if equipped) - draining									X
	7-100	Bucket teeth - replacement						X			
	7-101	Loader bucket - self-levelling adjustment					X				

Every 10 hours

Checks at start-up and before each workshift (10 hours)

MACHINE - GENERAL INSPECTION

Before using the machine, it is recommended to perform a general inspection.

Externally check the machine and its working attachments, checking for possible breaks or damage of the components or the structure. Should problems be detected, contact an authorized workshop to have the necessary repairs carried out.

Replace the damaged or excessively worn parts with original spare parts.

Keep the machine clean by daily removing the dirt accumulated while working.

SERVICE BRAKE

Check the operation of the service (pedal) brakes on a hard level surface after the first 100 hours of operation.

1. Make sure the area is clear of other workers or bystanders.
2. Lock both pedals together with the brake pedal lock.
3. Shift the transmission to 2nd gear.
4. Drive the machine forward at full throttle.
5. When the machine is moving at full speed, remove your foot from the throttle and stop the machine.
6. The machine must stop smoothly in a straight line and the brake pedal effort must feel firm.

NOTICE: *If the machine does not stop in a straight line or if the brake pedal effort feels soft, contact your dealer for service.*

PARKING BRAKE

The parking brake is not serviceable. If a reduction of the braking action is detected, contact the Service Department.

LIGHTS

Before using the machine, it is recommended to check that all lights are clean and correctly operating.

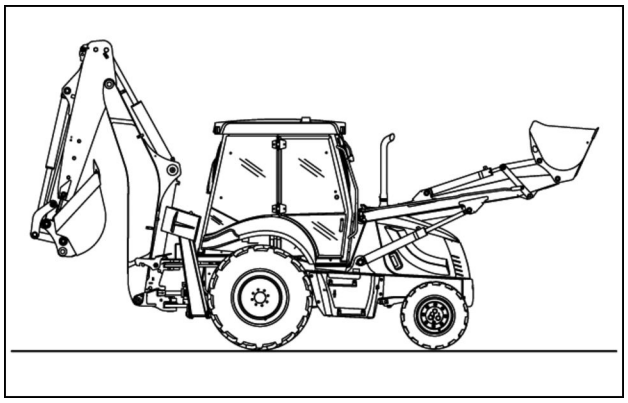
FUNCTIONALITY OF CONTROLS AND LAMPS

Before using the machine, it is recommended to check that all controls, instruments and lamps in the operator’s compartment are correctly operating.

Should problems be detected, stop the engine and find the cause of the anomaly.

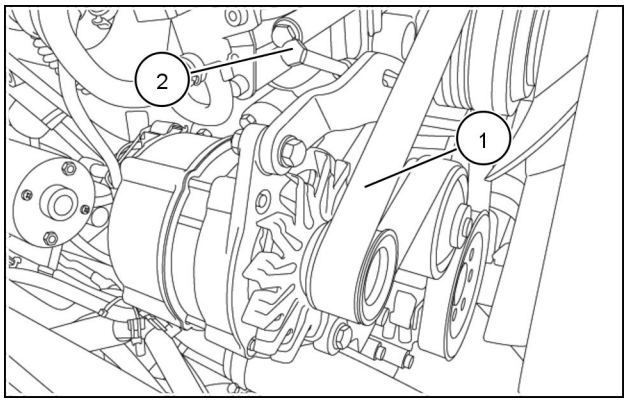
Drive belts - check

Move the machine to a level and firm ground.



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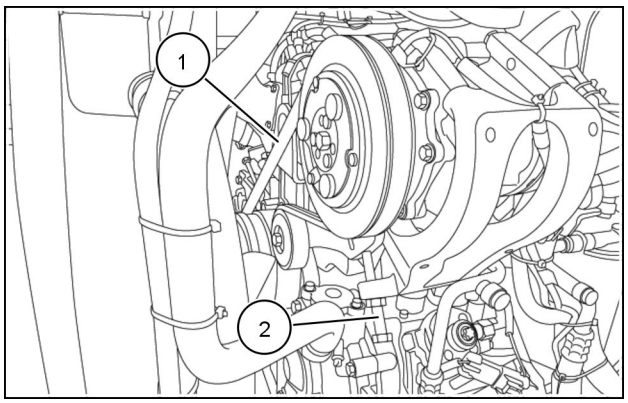
Visually check the condition of the belt **(1)**.
Replace if it is worn or damaged as indicated in the section “As required”.



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AIR CONDITIONER COMPRESSOR

Visually check the condition of the belt **(1)**.
Replace it if it is worn or damaged. Check the belt **(1)** tension and adjust if necessary as indicated in the section “As required”.



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Hydraulic system - lines

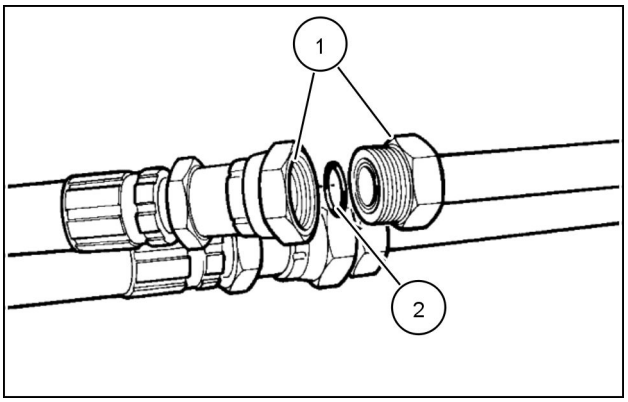
Check the hydraulic system lines for possible leaks.

Repair all hydraulic oil leaks promptly to avoid loss of oil and possible damage and dirt entry into the system. When checking for hydraulic leaks, start and operate the engine at **1200-1500 RPM**.

Remove and install new hoses immediately, if they are severely damaged by a cut or scrape, swollen at the fittings, or leaking.

ATTENTION: *If leaks are detected, stop the engine, release the hydraulic system pressure and clear the problem. Do not unscrew hoses or fittings without releasing the hydraulic system pressure first.*

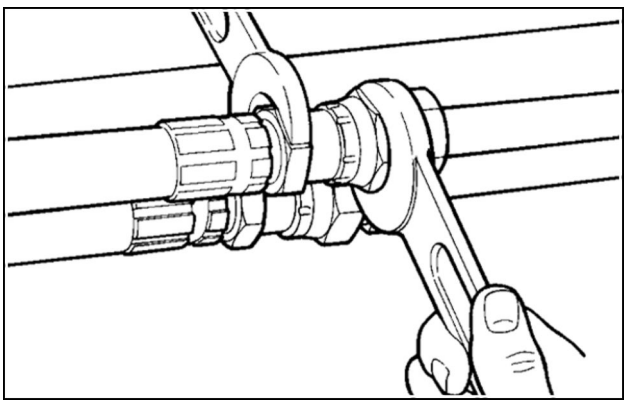
If a hydraulic hose or tube is replaced, the following procedure should be observed.
Loosen the fittings **(1)** and remove the hose or tube, then remove and discard the O-ring seal **(2)**.
Immerse the new O-ring into clean hydraulic oil before assembly.
Install the new O-ring **(2)** into the fitting **(1)** and if necessary, retain in position using petroleum jelly. Assemble the new hose or tube and tighten the fitting finger-tight, while holding the tube or hose to prevent it from turning. The tube's or hose's turning could damage the O-ring.
Using two suitable wrenches, tighten the fittings to specification.



LEEN11T0359AA 1

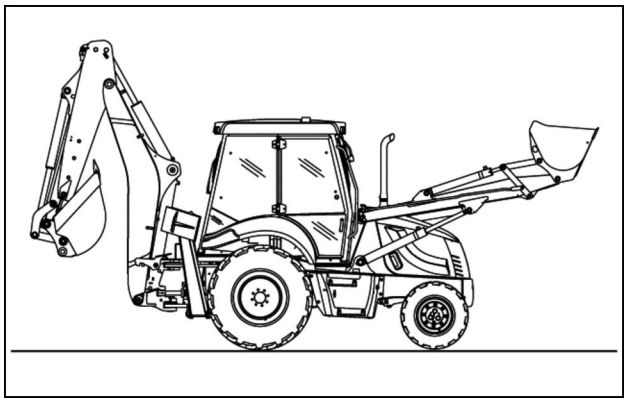
NOTICE: *when replacing or assembling a pipe or hose, make sure that all elements are perfectly clean and free from any trace of dirt. Failure to ensure absolute cleanliness will result in the hose / pipe leaking after installation or possible damage to other hydraulic system components.*

To ensure a leak free joint is obtained, it is important that the fittings are not overtorqued or undertorqued.
When replacing a hose, it is necessary to bleed air from the system. For this purpose, let the engine run at **1200–1500 RPM**, contemporarily actuating the loader and backhoe attachment controls for **15 min** or until air is bled from the system.


LEEN11T0360AA 2

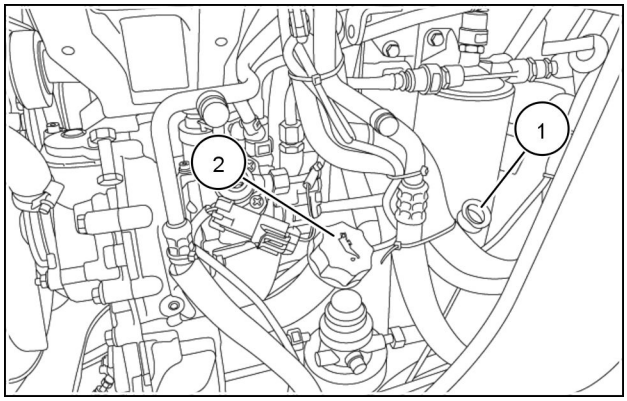
Engine oil level

Move the machine to a level and firm ground.
Raise the loader attachment and install the safety support strut.
Place the backhoe attachment in the road travel position.
Place the direction-of-travel lever and gearshift lever in neutral position.
Immobilize the machine by means of the parking brake.
Stop the engine, wait for it to cool down and remove the starter switch key.
Release any possible residual pressure from the hydraulic system by moving the control levers in all directions.



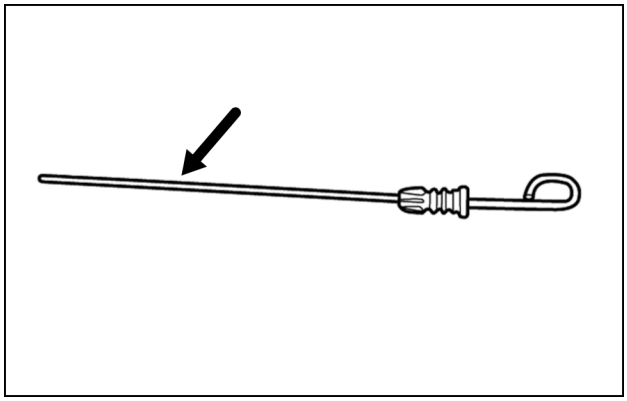
LEEN12T0685AA 1

Open and raise the engine guard tilt hood.
Extract the dipstick **(1)**, clean it with a clean cloth and completely insert it into the hose, then take it out again.



LEEN11T0356AA 2

If the oil level is below the add mark, remove the filler cap **(2)** and add oil up to the full mark on the dipstick.
Retighten the filler cap **(2)**.



LEEN11T0361AA 3

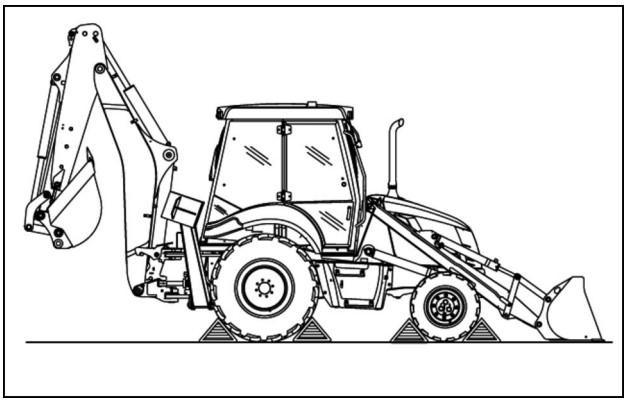
Lower and lock the engine tilt hood.

Remove the safety support strut and lower the loader attachment.

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Hydraulic oil level

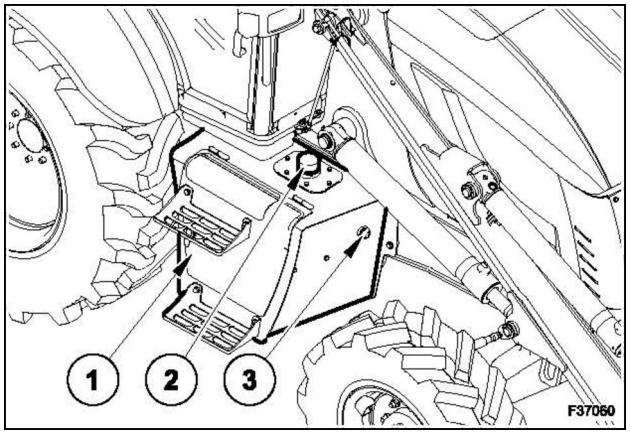
Move the machine to a level and firm ground.
Lower the loader attachment to the ground.
Place the backhoe attachment in the road travel position.
Place the direction-of-travel lever and gearshift lever in neutral position.
Immobilize the machine by means of the parking brake.
Stop the engine and remove the starter switch key.
Release any possible residual pressure from the hydraulic system by moving the control levers in all directions.



LEEN12T0640AA 1

Check the hydraulic oil level in the tank **(1)** by means of the level gauge **(3)** after waiting for the oil to cool down, reaching the ambient temperature.
The hydraulic oil level must reach at least the half of the gauge **(3)**.
If necessary, top up.

NOTICE: *even when its level is insufficient, a small quantity of hydraulic oil remains in the lower part of the gauge. This does not mean that the level is sufficient.*



LEEN12T0565AA 2

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Fuel tank - level

ATTENTION: *Never smoke or bring open flames close to the fuel tank.*
Fuel may be irritant on skin; wear gloves or apply some protective cream.
Never remove the plug or refill with the engine running.
Before filling the tank, clean the area around the filler plug in order to prevent that foreign bodies enter the tank. After filling, screw in and tighten the plug again.
Do not spill fuel and do not let it be absorbed by the ground, as it represents a danger of environmental pollution.
Immediately absorb fuel spillovers with rags or binding substances, then dispose of them according to the environmental legislation.

Move the machine to a level and firm ground.

Lower the loader attachment to the ground.

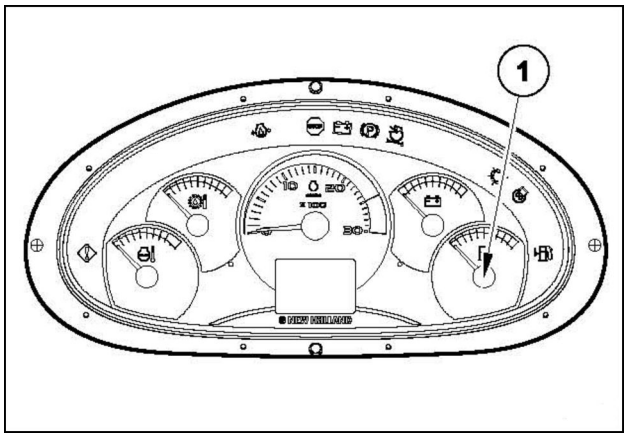
Place the backhoe attachment in the road travel position.

Place the direction-of-travel lever and gearshift lever in neutral position.

Immobilize the machine by means of the parking brake.

Stop the engine and remove the starter switch key.

Now it is possible to check the quantity of fuel in the tank by looking at the relevant gauge **(1)** in the side instrument panel.
If necessary, top up.

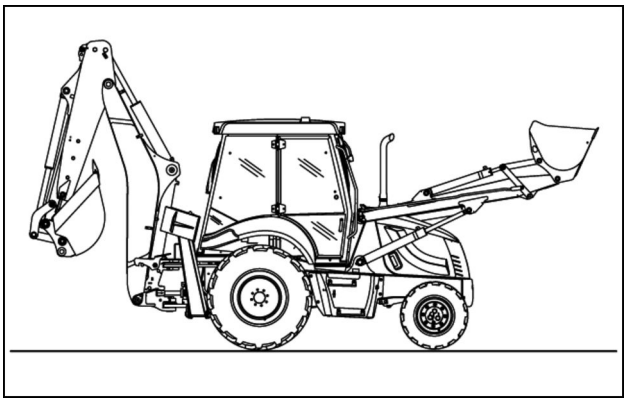


LEEN12T0569AA 1

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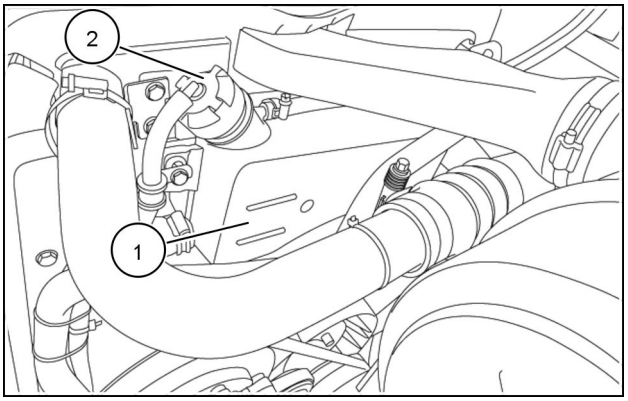
Engine coolant

Move the machine to a level and firm ground.
Lower the loader attachment to the ground.
Place the backhoe attachment in the road travel position.
Place the direction-of-travel lever and gearshift lever in neutral position.
Immobilize the machine by means of the parking brake.
Stop the engine and remove the starter switch key.
Wait for the machine to cool down.
Open and raise the engine tilt hood.



LEEN12T0685AA 1

Check the level of fluid by directly checking the reservoir **(1)**.
The level in the coolant reservoir **(1)** must be between the two marks.
If necessary, remove the cap **(2)** and add more coolant solution.



LEEN11T0357AA 2

NOTE: *in order to reduce deposits and corrosion, coolant in the cooling system should not exceed the following limits:*
total hardness = 300 parts per million.
chloride = 100 parts per million.
sulphates = 100 parts per million.

ATTENTION: *Scalding coolant solution can escape if the coolant reservoir cap is removed while the system is still hot. Allow the system to cool down completely before removing the cap.*

Lower and lock the engine tilt hood.

Remove the safety support strut and lower the loader attachment.

Windshield washer fluid level

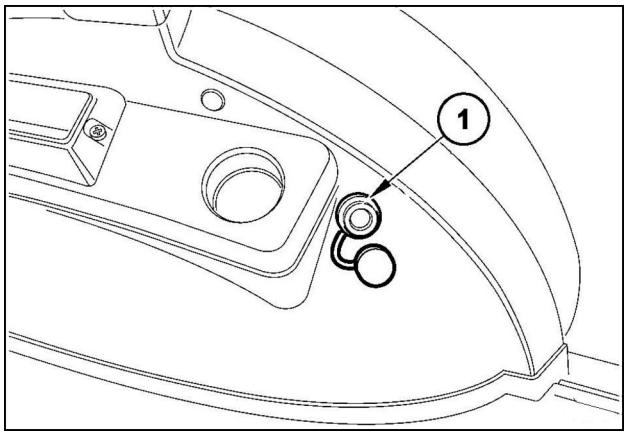
Move the machine to a level and firm ground.

Make sure the machine is in safe conditions.

Stop the engine and remove the starter switch key.

To check the level of the windshield wiper/washer fluid, directly check the reservoir through the relevant cap **(1)** inside the cab.
If necessary, top up.

NOTE: *the windshield wiper motor is gravity-fed. Do not remove the rubber tube as damage can be caused if liquid gets into the motor.*



LEEN12T0570AA 1

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Check wheels and tires

CHECK WHEELS AND TIRES

Move the machine to a level and firm ground.

Lower the loader attachment to the ground.

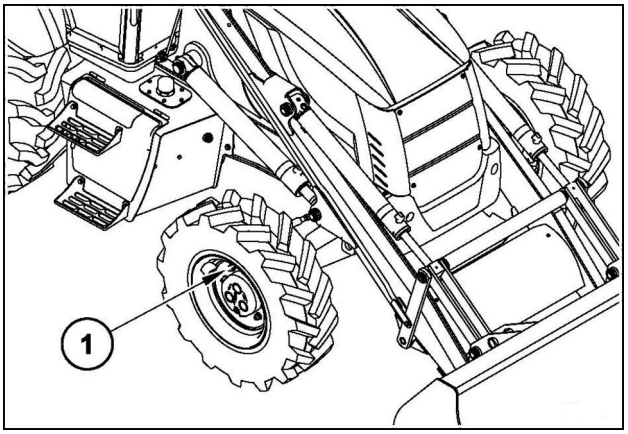
Place the backhoe attachment in the road travel position.

Place the direction-of-travel lever and gearshift lever in neutral position.

Immobilize the machine by means of the parking brake.

Stop the engine and remove the starter switch key.

Check the tightening torque of the nuts **(1)** fastening the wheels.
Front wheel nuts ..... **330 N·m** (**243 lb ft**)
Rear wheel nuts ..... **540 N·m** (**398 lb ft**)



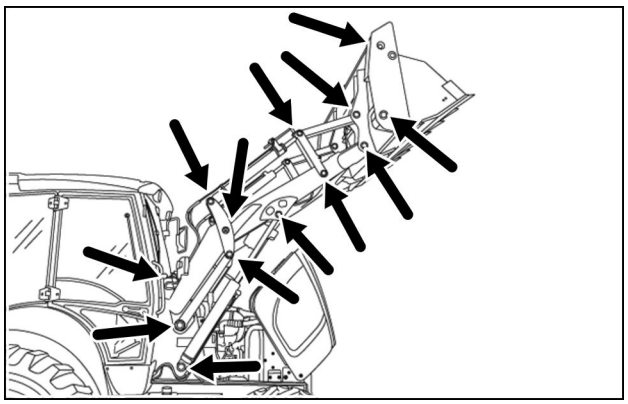
LEEN12T0571AA 1

Working attachments - greasing

NOTE: *the number of grease points may vary depending on the type of accessory installed.*

LOADER ATTACHMENT

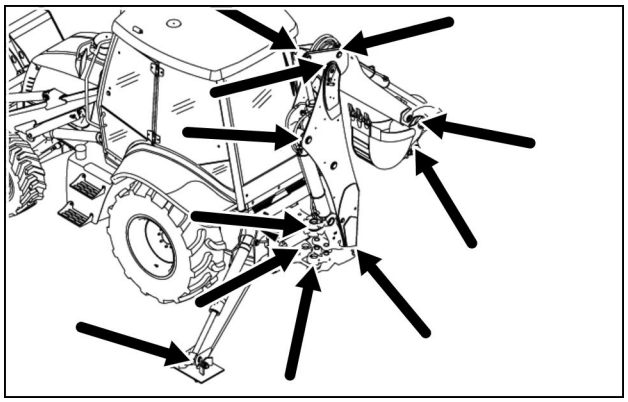
Grease fitting: 26



LEEN11T0365AA 1

BACKHOE ATTACHMENT

Grease fitting: 30



LEEN11T0367AA 2

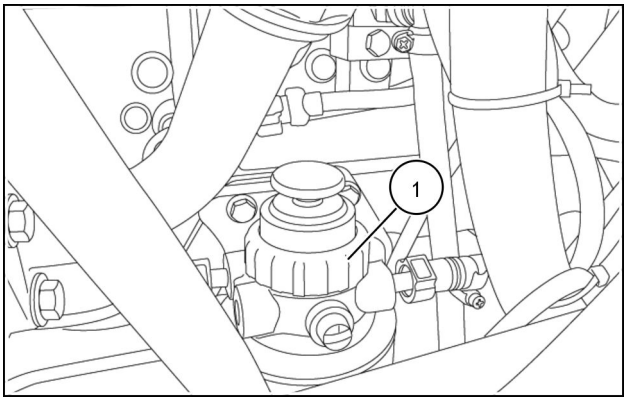
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Every 50 hours

Fuel pre-filter - draining condensation

Move the machine to a level and firm ground.
Lower the loader attachment to the ground.
Place the backhoe attachment in the road travel position.
Place the direction-of-travel lever and gearshift lever in neutral position.
Immobilize the machine by means of the parking brake.
Stop the engine and remove the starter switch key.
Wait the time necessary to allow the engine and the fuel system to cool down.
Place a container under the filter.

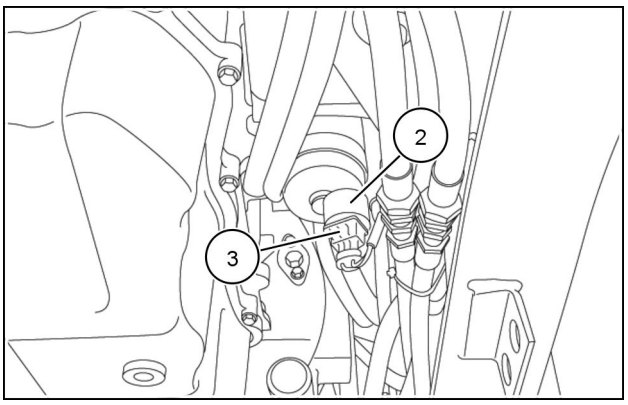
ATTENTION: *Prevent damages to the fuel high-pressure lines, as a fuel release could be very dangerous.*



LEEN11T0355AA 1

Open the engine compartment hood and drain the water and sediments from the fuel filter **(1)** through the draining valve **(2)**.

- From the bottom of the filter, remove the connector **(3)**.
- Install a drain pipe (about **1 m** long **3.2 ft**) on the draining valve and put the other and left of the pipe into the container.
- With engine inoperative, loosen the draining valve about two turns and make flows the possible water and sediment, until only clean fuel runs out.
- Tighten the draining valve without over tightening.
- If necessary bleed air from filter (see page **7-81**)



LEEN11T0370AA 2

NOTE: *The draining interval can be increased or decreased, depending on the presence of water and the quantity of fuel*

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Tires - pressure check

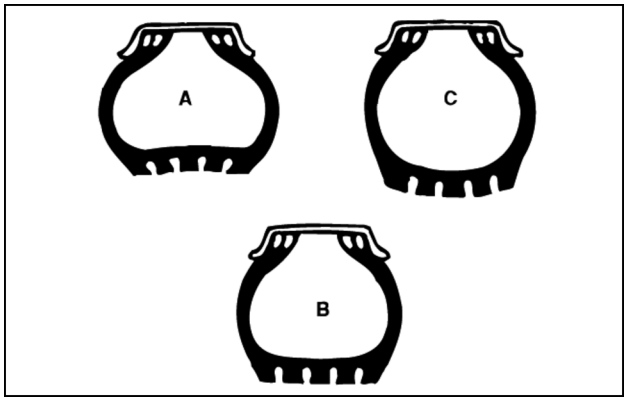
ATTENTION: *A burst tire can cause serious injury. Regularly check the conditions of the tires and always observe the inflating pressure.*
Before inflating, check that the tires, rims and their components are not damaged, that they do not present foreign bodies and that they are securely fastened.
Check pressure only with cold tires; when tires are warm, the pressure values detected are higher.
Inflate tires only with normal compressed air. Never use flammable gas: danger of explosions!
When inflating tires, stay at due distance and constantly observe the pressure gauge of the inflating device, in order not to exceed the prescribed pressure.
While inflating, make sure nobody stays close to the tire. If available, place a protection cage around the tire.
Always inflate the tires to the prescribed pressure.

A too low pressure can reduce the machine's stability and overheat the tires, and could cause:

- tire break;
- tire tread damage;
- internal damage;
- irregular wear and shortened life.

An excessive pressure determines a higher sensitiveness to damage in case of shocks and, in extreme conditions, the rim could get deformed or the tire may burst.

ATTENTION: *The tire inflating pressure varies according to the load weighing on the axles.*



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INFLATING PROCEDURE

Move the machine to a level and firm ground.

Lower the loader attachment to the ground.

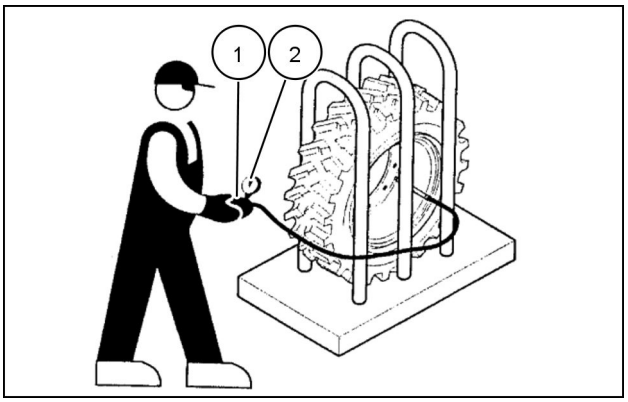
Place the backhoe attachment in the road travel position.

Place the direction-of-travel lever and gearshift lever in neutral position.

Immobilize the machine by means of the parking brake.

Stop the engine and remove the starter switch key.

Insert the self-locking spout of the inflating device **(1)** into the tire valve.
The inflating device is equipped with a pressure gauge **(2)** which enables, as soon as it is connected, to check the pressure value.
If pressure is lower than the recommended pressure, inflate.



LEEN11T0372AA 2

INFLATING PRESSURE AND ALLOWED CARRYING CAPACITY TABLE

The following tables give the approximate carrying capacity at the indicated tire pressures.

Front 2WD	Tire size 11L–16	Profile F3	INFLATION PRESSURE bar (psi)										
			1.5 (21.7)	2.0 (29.0)	2.2 (31.9)	2.5 (37.7)	2.8 (42.0)	3.0 (43.5)	3.3 (47.8)	3.8 (55.1)	4.0 (58.0)	4.2 (60.9)		
			MAX LOAD PER TIRE kg (lb)										
			700 (1543)	845 (1862)	900 (1984)	985 (2171)	1065 (2347)	1120 (2469)	1185 (2612)	1250 (2755)	1350 (2976)	1400 (3086)		

Front 4WD	Tire size 12–16.5	Profile L5	INFLATION PRESSURE bar (psi)										
			0.8 (11.6)	1.0 (14.5)	1.6 (23.2)	2.2 (31.9)	2.8 (40.6)	3.4 (49.3)					
			MAX LOAD PER TIRE kg (lb)										
			690 (1521)	790 (1741)	1040 (2292)	1250 (2755)	1440 (3174)	1610 (3549)					

Front 4WD	Tire size 14–17.5 Beefy B.	Profile R4	INFLATION PRESSURE bar (psi)										
			0.8 (11.6)	1.0 (14.5)	1.6 (23.2)	2.2 (31.9)	2.8 (40.6)	3.5 (50.7)					
			MAX LOAD PER TIRE kg (lb)										
			850 (1873)	975 (2149)	1090 (2403)	1180 (2601)	1320 (2910)	1450 (3196)					

Front 4WD	Tire size 14–17.5 Con-st.	Profile R4	INFLATION PRESSURE bar (psi)										
			0.8 (11.6)	1.6 (23.2)	2.0 (29.0)	2.8 (40.6)	3.1 (44.9)	3.5 (50.7)					
			MAX LOAD PER TIRE kg (lb)										
			940 (2072)	1410 (3108)	1605 (3538)	1960 (4321)	2080 (4585)	2655 (5853)					

Rear	Tire size 16.9–24 EZ	Profile R4	INFLATION PRESSURE bar (psi)										
			1.4 (20.3)	1.5 (21.7)	1.7 (24.6)	2.1 (30.4)	2.5 (36.2)						
			MAX LOAD PER TIRE kg (lb)										
			2200 (4840)	2325 (5115)	2450 (5390)	2910 (6402)	3300 (7260)						

Rear	Tire size 19.5–24	Profile L4	INFLATION PRESSURE bar (psi)										
			1.2 (17.4)	1.4 (20.3)	1.5 (21.7)	1.9 (27.5)							
			MAX LOAD PER TIRE kg (lb)										
			2520 (5555)	2740 (6040)	2875 (6338)	3410 (7517)							

Rear	Tire size 16.9–28 EZ	Profile R4	INFLATION PRESSURE bar (psi)										
			1.2 (17.4)	1.4 (20.3)	1.5 (21.7)	1.9 (27.5)	2.2 (31.9)						
			MAX LOAD PER TIRE kg (lb)										
			2300 (5070)	2490 (5489)	2620 (5776)	3110 (6856)	3410 (7517)						

Rear	Tire size 21L–24 EZ	Profile R4	INFLATION PRESSURE bar (psi)										
			1.2 (17.4)	1.4 (20.3)	1.5 (21.7)	1.9 (27.5)	2.2 (31.9)	3.4 (49.3)					
			MAX LOAD PER TIRE kg (lb)										
			2455 (5412)	2840 (5467)	3005 (6624)	3165 (6977)	3760 (8289)	4030 (8884)					

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Air conditioning system

The air conditioning system components require maintenance at regular intervals. Observe these intervals to ensure correct operation and full efficiency of the air conditioning.

ATTENTION: *Never perform any service operation on the air conditioning system. For any operation, consult an authorized workshop.*

NOTE: *run the air conditioning at least once a week, even for a short time.*

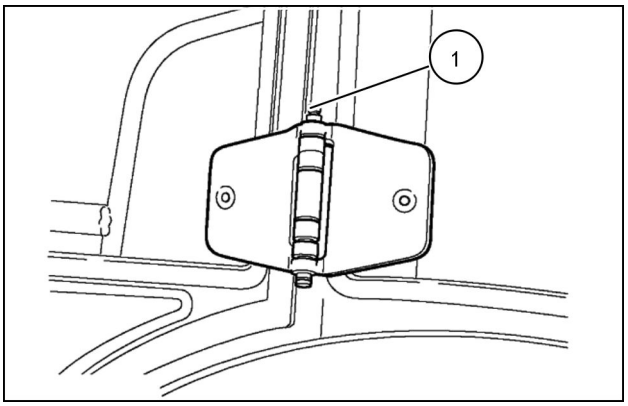
The air conditioning system contains HFC 134a refrigerant gas which is subject to strict regulations. Any problem must be solved quickly.

ATTENTION: *The HFC 134a refrigerant gas in use is a refrigerant with safety characteristics.*
This means that this refrigerant is non-flammable, non-explosive, non-toxic, non-irritating, tasteless and colourless. Nevertheless, it is necessary to take some precautions.
Avoid any contact with the refrigerant. In case of skin contact with the refrigerant, immediately treat the skin.
Wear safety goggles to protect your eyes. If, despite these, some refrigerant comes in contact with the eyes, immediately consult a doctor.
Empty the system before carrying out repairs on it. Do not let the refrigerant release in the surrounding areas. To suck it, only use duly approved aspirators.
Regardless of the system being full of refrigerant or empty, heat determines a remarkable overpressure, which could not only damage the system, but also cause explosions. Therefore, avoid weldings, heat sources or open flames.
Empty refrigerant cylinders must not be discarded. When full, refrigerant cylinders must not be exposed to sun rays or other heat sources for a long time. The maximum allowed temperature for a full refrigerant cylinder must not exceed ***45 °C*** *(****113 °F****).*

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Door hinges

Grease fittings (1): 4



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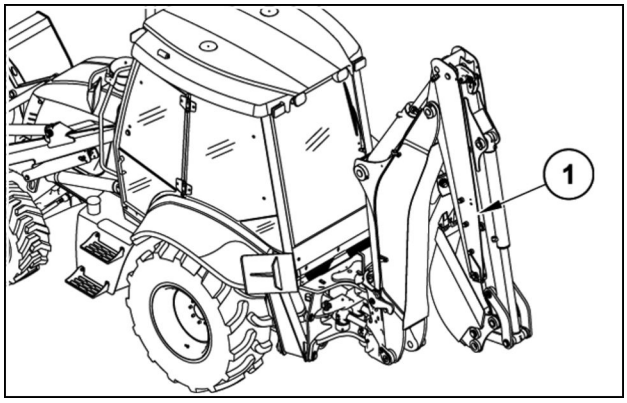
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Working attachments - greasing

TELESCOPIC DIPPER RAILS

NOTICE: *before applying new grease on the sliding surfaces, clean and remove all dirt accumulations and foreign bodies.*

Rails (1): 2



LEEN12T0686AA 1

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Every 250 hours

Cab Protection System (ROPS/FOPS)

The machine is provided with a safety structure for the operator: anti-overturn safety system **(ROPS)** according to directives **ISO 3471**, **SAE 1040C** and safety system against the fall of objects **(FOPS)** according to the directives **ISO 3449**, **SAE J231** protection level 2. A **ROPS** can consist of the cab frame or of a two or four uprights structure used for the safety of the operator, so as to minimize the possibility of severe injuries. The structure and the fastening devices which constitute the connection with the machine are part of the **ROPS**.
The Protective Structure is a special safety component of your machine.
DO NOT attach any device to the Protective Structure for pulling purposes. DO NOT drill holes to the Protective Structure.
The Protective Structure and interconnecting components are a certified system. Any damage, fire, corrosion or modification will weaken the structure and reduce your protection. If this occurs, the Protective Structure MUST be replaced so that it will provide the same protection as a new Protective Structure. Contact your dealer for Protective Structure inspection and replacement.
After an accident, fire, tip or roll over, the following MUST be performed by a qualified technician before returning the machine to field or job site operation.
The Protective Structure MUST be replaced.
The mounting or suspension for the Protective Structure, operator seat and suspension, seat belts and mounting components and wiring within the operator’s protective system MUST be carefully inspected for damage.
All damaged parts MUST be replaced.

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⚠ WARNING

Roll-over hazard!
After an accident, fire, tip over, or roll over, a qualified technician MUST replace the Roll-Over Protective Structure (ROPS) before returning the machine to the field or job site operation.
Failure to comply could result in death or serious injury.

W0134A

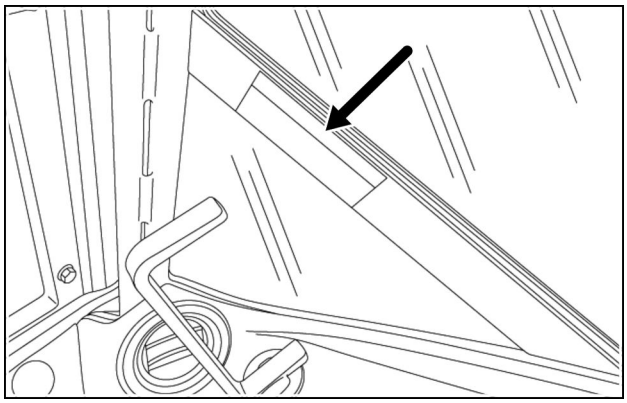
⚠ WARNING

Misuse hazard!
Your machine is equipped with an operator protective structure. DO NOT weld, drill holes, attempt to straighten, or repair the protective structure. Modification in any way can reduce the structural integrity of the structure.
Failure to comply could result in death or serious injury.

W0001B

NOTE: *For total safety of use, in case of fire the machine cab has been designed to prevent flame propagation and to limit combustion, pursuant to European standard* ***ISO 3795****.*

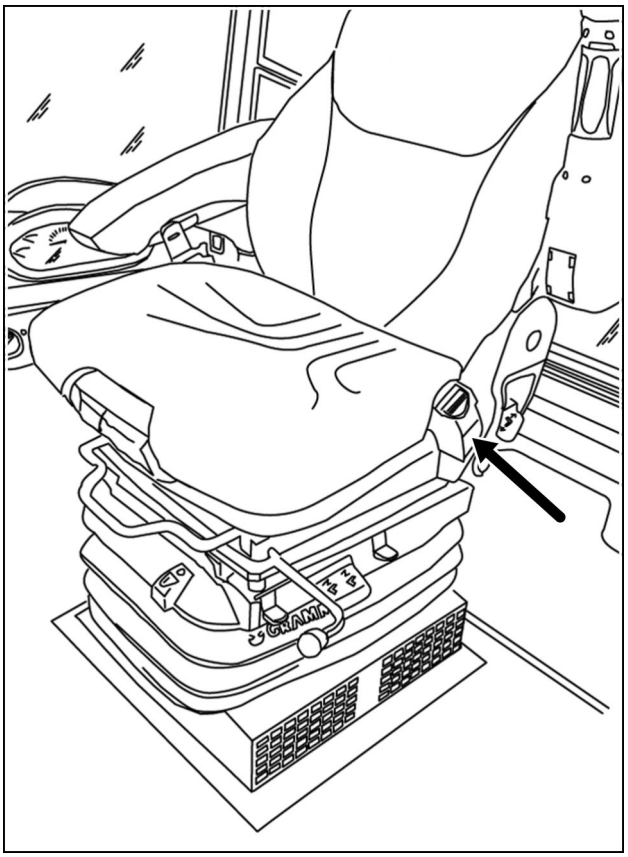
The Loader has a **ROPS/FOPS** decal showing the certification of the **ROPS/FOPS**, gross weight, approval, regulation, and model number of the machine.



LEEN11T0376AA 1

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Check and inspect the **ROPS/FOPS** structure and the seat restraint system every **500 h** of operation.
Before you operate this machine, always make sure the **ROPS/FOPS** and operator's seat belt is correctly installed. The seat belt is an important part of the **ROPS/FOPS**. You must wear the seat belt at all times when you operate the machine.
Make sure all hardware that secures the seat to the cab is properly torqued. Make sure all seat belt hardware is secure and torqued.
Torque seat belt hardware to:
73 - 87 N·m (**53.8 - 64.2 lb ft**).
Keep seat belts away from objects that can damage the seat belts.
Keep the seat belts clean. Wash the seat belts only in soap and water. Do not put the seat belts in bleach or dye. This will weaken the seat belt.



LEEN11T0001BA_1 2

Torque specifications for ROPS cab

Check the torque of the mounting bolts for the **ROPS** canopy and the **ROPS** cab during the run-in period of a new machine, as well as at the **500 h** maintenance interval.

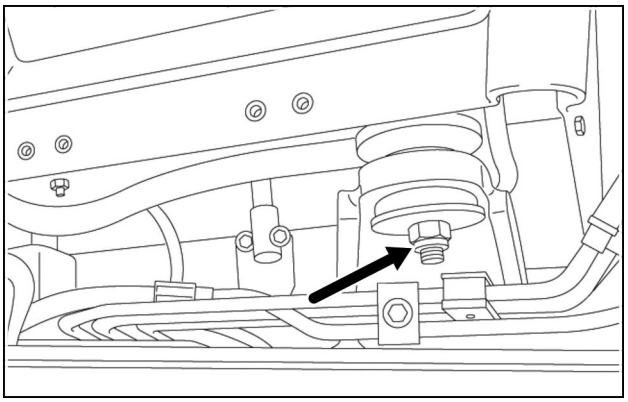
1. Check for cracks, rust, or holes in the **ROPS** and **ROPS** components. Age, weather, and accidents can cause damage to the **ROPS** and **ROPS** parts. If you have any doubt about the integrity of the ROPS system, see your NEW HOLLAND CONSTRUCTION Dealer.

⚠ WARNING

Tip-over hazard!
Adding additional weight (buckets, attachments, etc.) to the machine can create a tipping hazard. Do not exceed the gross weight indicated by the machine specifications.
Failure to comply could result in death or serious injury.

W0153A

2. Check the torque of the **ROPS** mounting bolts. If necessary, tighten the bolts to the correct torque.



LEEN11T0377AA 3

Torque specifications

ROPS cab mounting bolts (both sides)
Torque to: **180 N·m** (**132 lb ft**).
Seat mounting bolts
Torque to: **73 - 87 N·m** (**53.8 - 64.2 lb ft**).

NOTE: *Torque specifications are for clean, dry threads.*

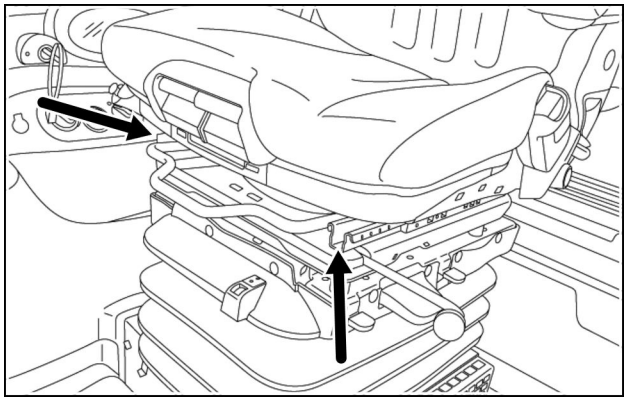
https://truckmanualshub.com/

Seat and seat belt

Check the operation of the operator's seat and of the seat belt, and the solidity of the seat belt mountings. Replace parts showing signs of wear or damage.

SEAT SUSPENSION AND RAILS - GREASING

Wipe all moving parts with a clean cloth and apply a light coat of spray dry lubricant.



LEEN11T0378AA 1

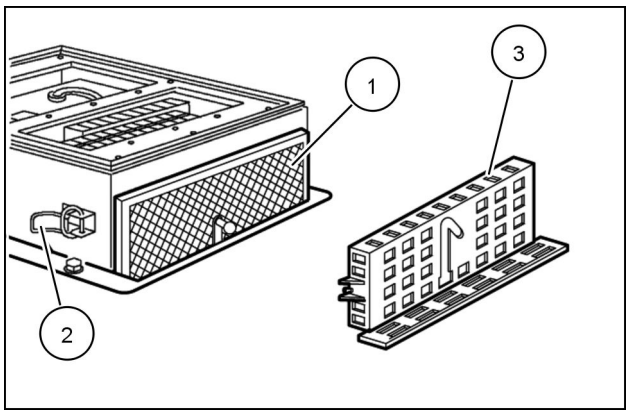
https://truckmanualshub.com/

Cab air filter

Make sure the machine is in safe conditions.

Stop the engine and remove the starter switch key.

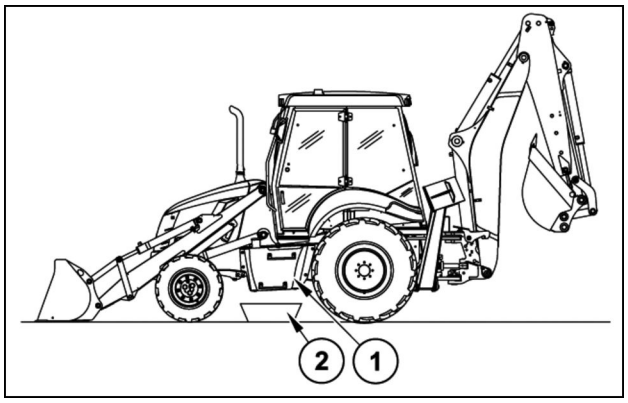
To remove the filter **(1)**, release the clips **(2)** and remove the grid **(3)**. Make sure the filter and sealing surfaces are not damaged during removal.
In humid conditions do not switch on the blower prior to servicing the filter.
Clean the filter **(1)** in water with a suitable detergent (consult your Dealer). Instructions for using the detergent are printed on the detergent packaging.
Shake off the excess water and allow to dry naturally.
The filter **(1)** must be thoroughly dry before installation.
Clean the inside of each filter chamber with a damp lint-free cloth and re-install the filter.



LEEN11T0381AA 1

Fuel tank - draining

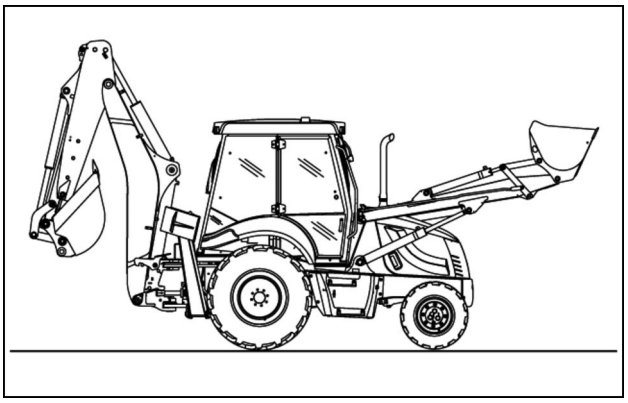
Move the machine to a level and firm ground.
Lower the loader attachment to the ground.
Place the backhoe attachment in the road travel position.
Place the direction-of-travel lever and gearshift lever in neutral position.
Immobilize the machine by means of the parking brake.
Stop the engine and remove the starter switch key.
Place a container **(2)** of appropriate capacity under the fuel tank **(1)**.
Loosen the drain plug under the fuel tank by one or two turns and let the contaminated fuel flow out.
Once air and contaminated fuel have stopped coming out, tighten the drain plug again.
Check the fuel level and top up if necessary.



LEEN12T0687AA 1

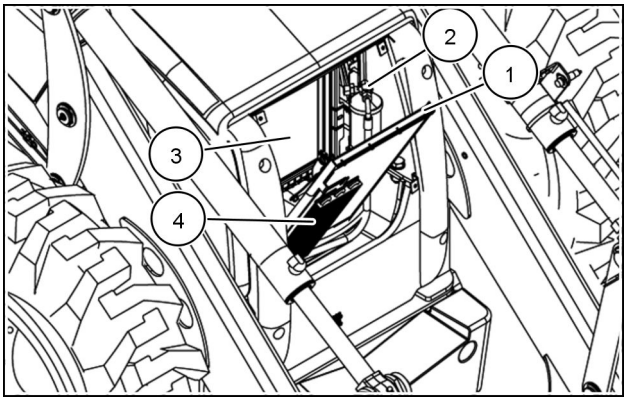
Radiator and condenser - cleaning

Move the machine to a level and firm ground.
Raise the loader attachment and install the safety support strut.
Place the backhoe attachment in the road travel position.
Place the direction-of-travel lever and gearshift lever in neutral position.
Immobilize the machine by means of the parking brake.
Stop the engine and remove the starter switch key.
Remove the front grille.
Unscrew and remove the fixing nuts from the condenser **(1)**.



LEEN12T0685AA 1

Lower the condenser **(1)**.
If necessary, tilt the dryer to the side **(2)**.
Disjoin the two pipes complete with the rubber sleeves from the top of the aftercooler radiator **(3)**.
Plug holes and pipes of the aftercooler system.
Unscrew the fixing screw and remove the aftercooler radiator **(3)**.
Clean the condenser **(1)**, the aftercooler radiator **(3)**, the radiator **(4)** and the radiator behind the aftercooler using:



LEEN11T0382AA 2

- compressed air with a pressure lower than **7 bar** (**102 psi**) to remove dry dust;
- water jet to remove mud;
- a detergent-based solution, preferably applied with a low-pressure cleaner, to remove oily dust.

NOTICE: *before using compressed air, take the necessary precautions to protect your face.*

Make sure all dirt and debris have been removed from between the condenser and the cooler. This action maintains efficient heat transfer for the condenser.

Reassembly the aftercooler **(3)** and related pipings, restore the dryer **(2)** in place and reassemble the condenser **(1)** together with the radiator **(4)**.

Reassemble the front grid.

Remove the safety support strut and lower the loader attachment.

COOLING SYSTEM LINES - CHECK

Make sure the machine is in safe conditions.

Release any possible residual pressure by moving the control levers in all directions.

Stop the engine and remove the starter switch key.

Check for possible leaks from the cooling system lines.

Check the tightening of the collars, fittings, hoses and pipes of the cooling system.

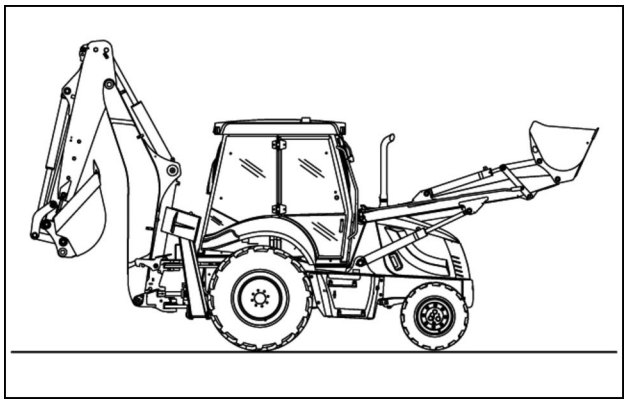
https://truckmanualshub.com/

Transmission oil level

The oil level check should be carried out with the engine running at low speed and at normal operating temperature.

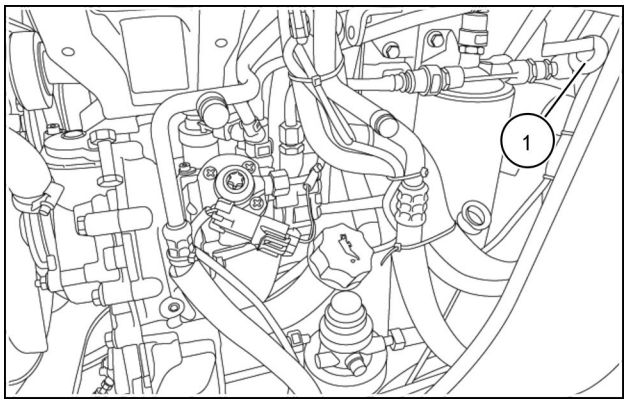
Move the machine to a level and firm ground.

Raise the loader attachment and install the safety support strut.
Place the backhoe attachment in the road travel position.
Place the direction-of-travel lever and gearshift lever in neutral position.
Immobilize the machine by means of the parking brake.
Stop the engine and remove the starter switch key.
Open and raise the engine tilt hood.
Insert the starter switch key and restart the engine by keeping it at low idle.



LEEN12T0685AA 1

Extract the dipstick **(1)**, clean it with a clean cloth and completely insert it into the tube, then take it out again.
If the oil level is below the mini mark, top up.
Stop the engine.
Lower and lock the engine tilt hood.
Remove the safety support strut and lower the loader attachment.

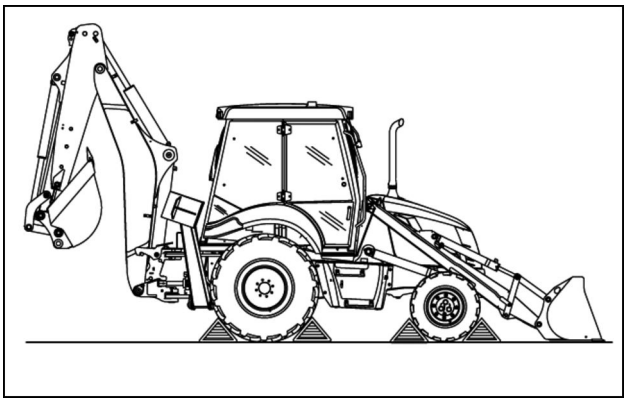


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Front and rear axle

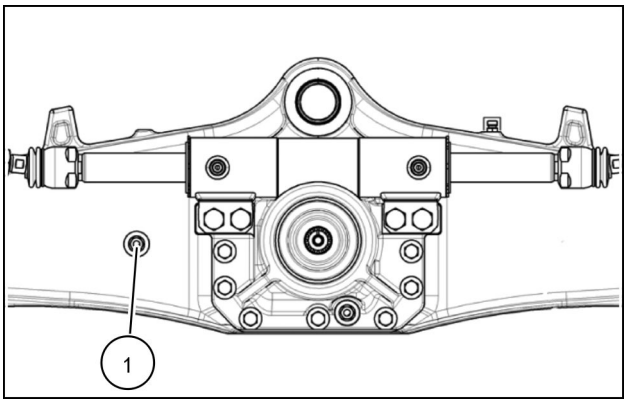
Move the machine to a level and firm ground.
Lower the loader attachment to the ground.
Place the backhoe attachment in the road travel position.
Place the direction-of-travel lever and gearshift lever in neutral position.
Immobilize the machine by means of the parking brake.
Stop the engine and remove the starter switch key.



LEEN12T0640AA 1

AXLE OIL LEVEL

Unscrew and remove the plug **(1)**.
Check the level by checking if the oil reaches the height of the plug hole.
If necessary, top up.
Retighten the plug **(1)**.



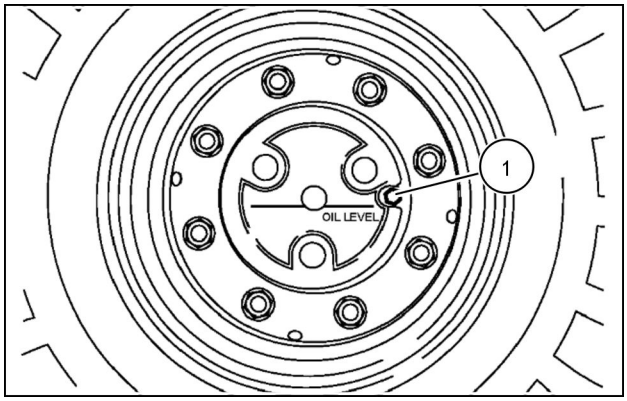
LEEN11T0375AA 2

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REDUCTION GEAR OIL LEVEL

In this case, slightly raise the front part of the machine by means of the loader attachment, until the front wheels are no longer in contact with the ground and place a suitable support under the front axle.

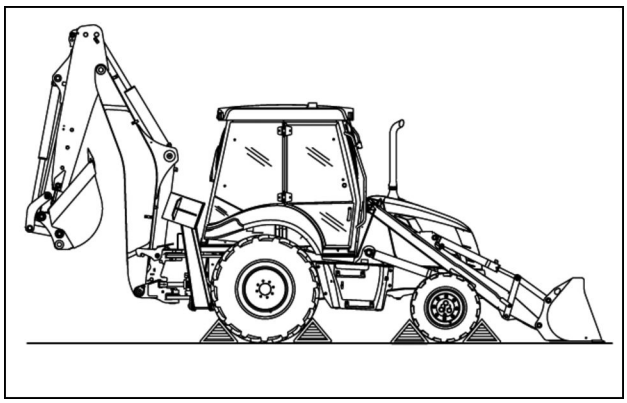
Manually position the wheel until the hole of the plug **(1)** is in horizontal position.
Unscrew and remove the plug **(1)**.
Check the level by checking if the oil reaches the height of the plug hole.
If necessary, top up.
Retighten the plug **(1)**.
Repeat the same operations, previously described, for the other reduction gear.
Lower the machine to the ground.



LEEN11T0384AA 3

FRONT AXLE BREATHER VALVE - CLEANING

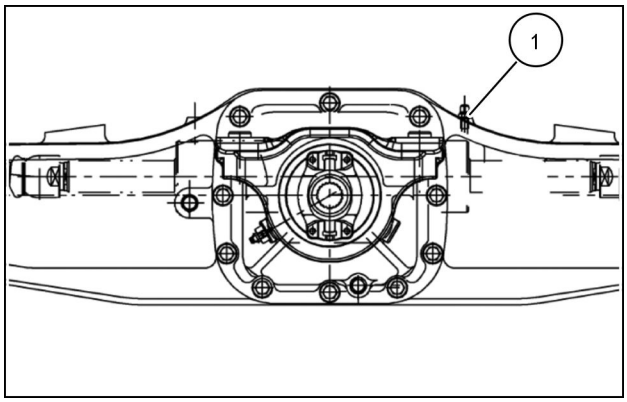
Move the machine to a level and firm ground.
Lower the loader attachment to the ground.
Place the backhoe attachment in the road travel position.
Place the direction-of-travel lever and gearshift lever in neutral position.
Immobilize the machine by means of the parking brake.
Stop the engine and remove the starter switch key.



LEEN12T0640AA 4

Clean the area around the breather valve **(1)**.
Loosen and remove the valve.
Clean the breather valve **(1)** with a detergent solution.

NOTICE: *follow the instructions for the detergent solution.*
Carefully dry the breather valve **(1)** with compressed air and reinstall it.
Screw in the breather valve again.

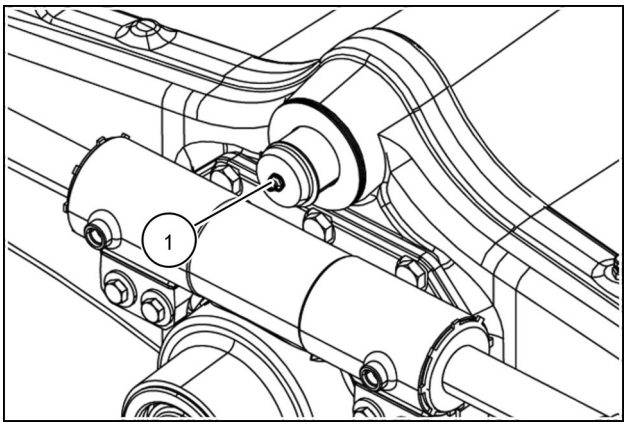


LEEN11T0383AA 5

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FRONT AXLE - GREASING

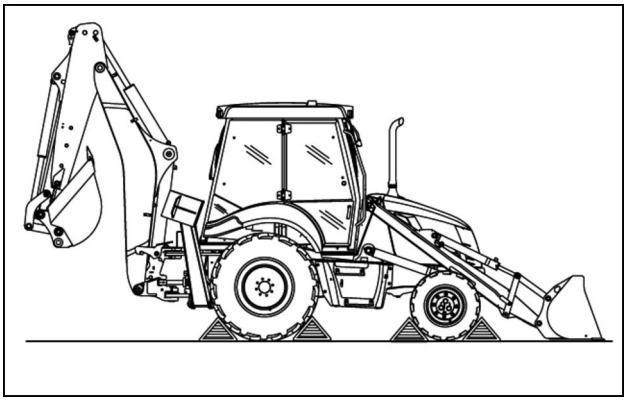
Grease fittings **(1)**: 1



LEEN11T0412AA 6

REAR AXLE - OIL LEVEL

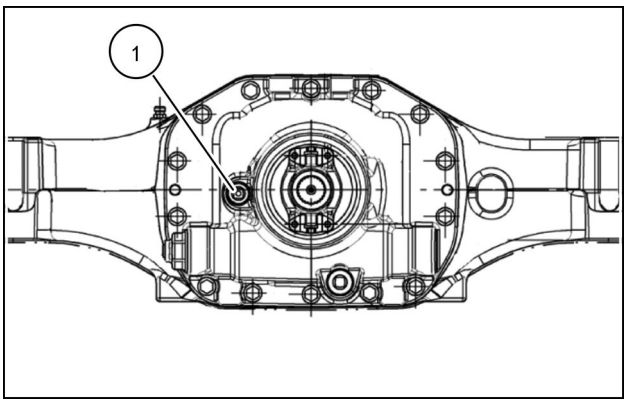
Move the machine to a level and firm ground.
Lower the loader attachment to the ground.
Place the backhoe attachment in the road travel position.
Place the direction-of-travel lever and gearshift lever in neutral position.
Immobilize the machine by means of the parking brake.
Stop the engine and remove the starter switch key.



LEEN12T0640AA 7

AXLE OIL LEVEL

Unscrew and remove the plug **(1)**.
Check the level by checking if the oil reaches the height of the plug hole.
If necessary, top up.
Retighten the plug **(1)**.



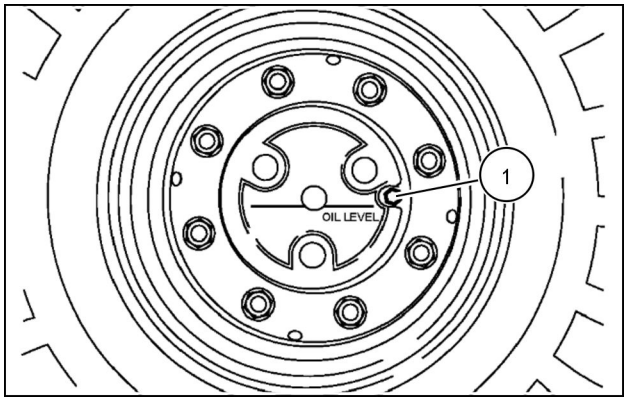
LEEN11T0386AA 8

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REDUCTION GEAR OIL LEVEL

In this case, slightly raise the front part of the machine by means of the loader attachment, until the front wheels are no longer in contact with the ground and place a suitable support under the front axle.

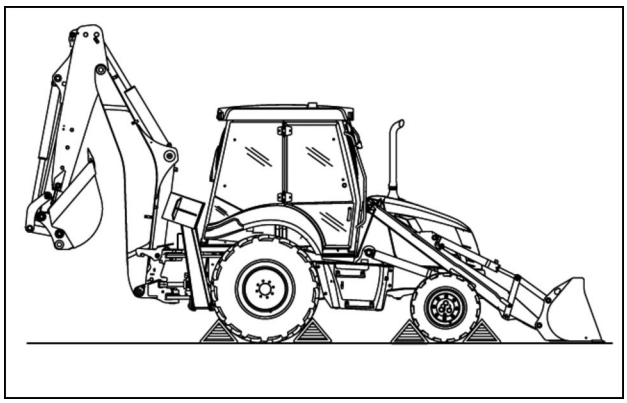
Manually position the wheel until the hole of the plug **(1)** is in horizontal position.
Unscrew and remove the plug **(1)**.
Check the level by checking if the oil reaches the height of the plug hole.
If necessary, top up.
Retighten the plug **(1)**.
Repeat the same operations, previously described, for the other reduction gear.
Lower the machine to the ground.



LEEN11T0384AA 9

REAR AXLE BREATHER VALVE - CLEANING

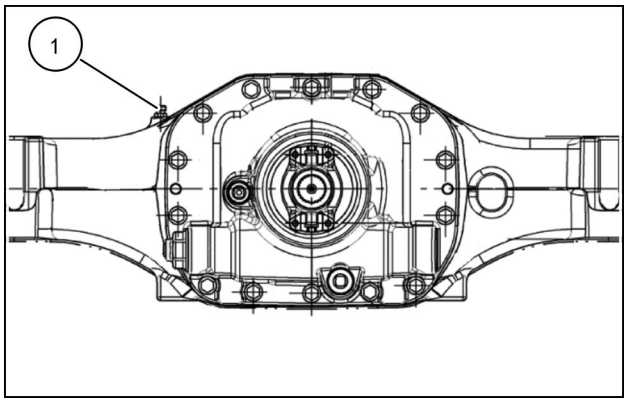
Move the machine to a level and firm ground.
Lower the loader attachment to the ground.
Place the backhoe attachment in the road travel position.
Place the direction-of-travel lever and gearshift lever in neutral position.
Immobilize the machine by means of the parking brake.
Stop the engine and remove the starter switch key.



LEEN12T0640AA 10

Clean the area around the breather valve **(1)**.
Loosen and remove the breather valve.
Clean the breather valve **(1)** with a detergent solution.

NOTICE: *follow the instructions for the detergent solution.*
Carefully dry the breather valve **(1)** with compressed air and reinstall it.
Screw in the breather valve **(1)** again.

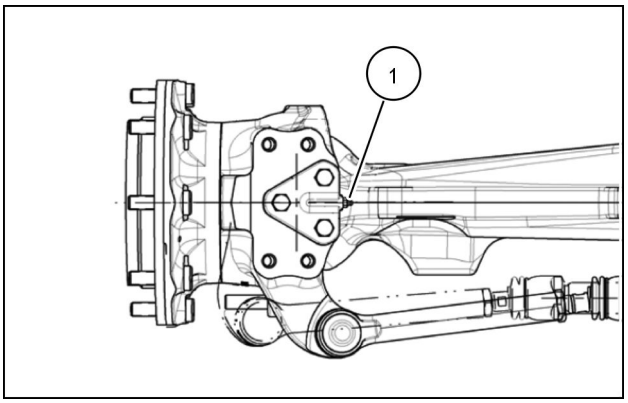


LEEN11T0386AA 11

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AXLE ARTICULATIONS - GREASING

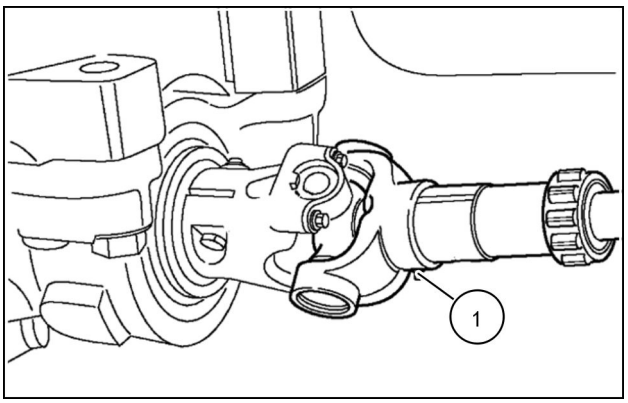
Grase fittings **(1)**: 4



LEEN11T0389AA 12

CARDAN SHAFTS - GREASING

Grease fittings **(1)**: 2

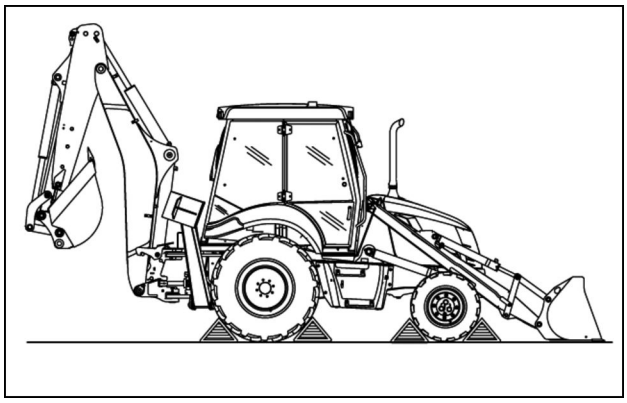


LEEN11T0391AA 13

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Hydraulic oil tank breather / filler cap - cleaning

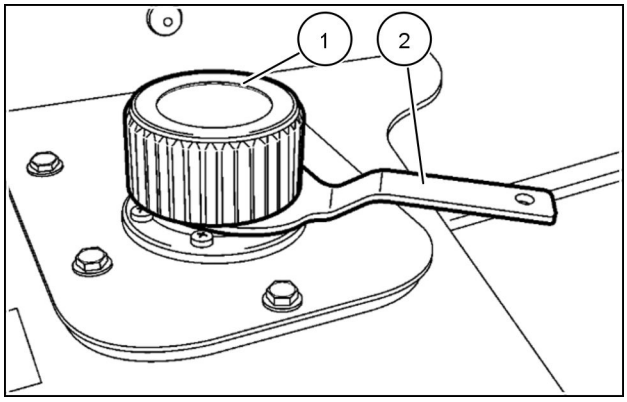
Move the machine to a level and firm ground.
Lower the loader attachment to the ground.
Place the backhoe attachment in the road travel position.
Place the direction-of-travel lever and gearshift lever in neutral position.
Immobilize the machine by means of the parking brake.
Stop the engine and remove the starter switch key.



LEEN12T0640AA 1

Clean the area around the cap.
Remove the cap **(1)** using the wrench **(2)** supplied with the machine.
Make sure that no dirt or foreign bodies enter the hydraulic oil tank.
Use a suitable grease solvent to wash the cap **(1)**.
Leave the cap to air-dry.
Retighten the plug **(1)**.

NOTICE: *before using compressed air, take the necessary precautions to protect your face.*

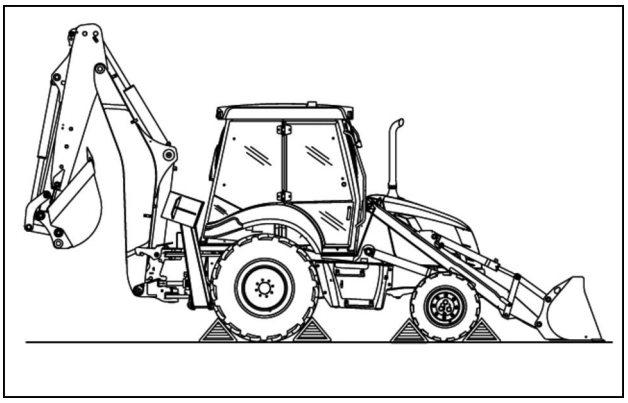


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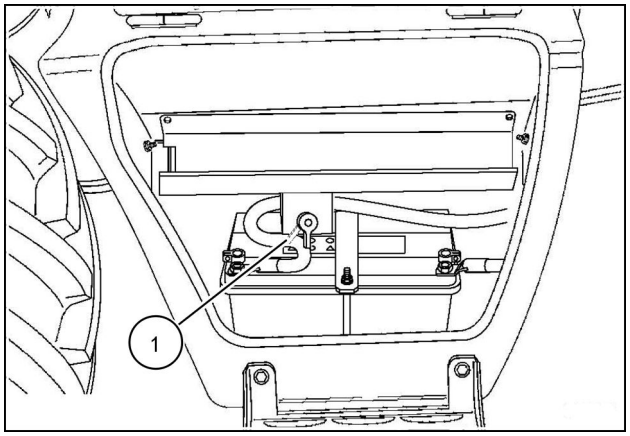
Battery terminals

Move the machine to a level and firm ground.
Lower the loader attachment to the ground.
Place the backhoe attachment in the road travel position.
Place the direction-of-travel lever and gearshift lever in neutral position.
Immobilize the machine by means of the parking brake.
Stop the engine and remove the starter switch key.



LEEN12T0640AA 1

ATTENTION: *To prevent any risk of explosion, observe the following instructions:*
- place the battery switch in the OFF position ***(1)*** *;*
- when disconnecting the battery cables, always disconnect the negative cable (-) first;
- when reconnecting the battery cables, always connect the negative (-) cable last;
- never short-circuit the battery terminals with metal objects;
- do not weld and grind near batteries;
- keep open flames away and do not smoke near batteries. Never touch the battery terminals with your hands. This could generate an electrolysis inside the human body and damage the body's vital organs.



LEEN12T0578AA_2 2

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Heater and evaporator (air conditioning system) - Cleaning

Move the machine to a level and firm ground.

Place the direction-of-travel lever and gearshift lever in neutral position.

Immobilize the machine by means of the parking brake.

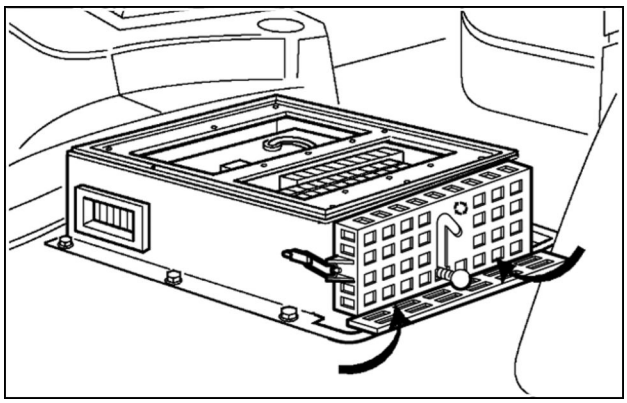
Stop the engine and remove the starter switch key.

Remove the operator's seat.

Clean the heater and cooler using compressed air not exceeding **7 bar** (**102 psi**) taking care not to damage the radiator fins.

NOTICE: *before using compressed air, take the necessary precautions to protect your face.*
Clean the inside of the chamber with a damp cloth and reassemble the filter element onto the base.

NOTE: *the filter should be cleaned more frequently when operating in extremely dusty conditions.*



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Telescopic dipper (Optional) - Adjustment check

Move the machine to a level and firm ground

Lower the loader attachment to the ground.

Retract the telescopic dipper and place it on a support so that the bucket does not rest on the ground.

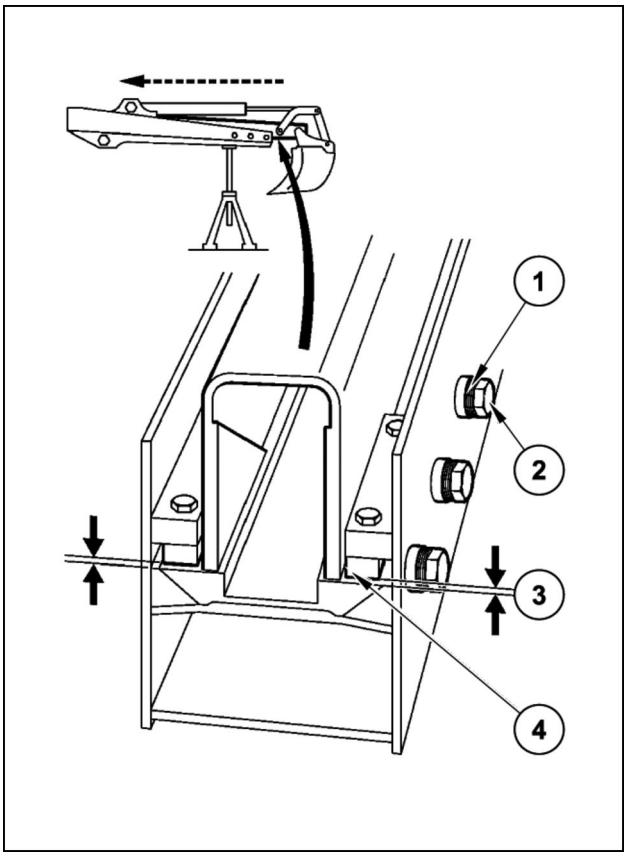
Place the direction-of-travel lever and gearshift lever in neutral position.

Immobilize the machine by means of the parking brake.

Stop the engine and remove the starter switch key.

The telescopic dipper is provided with adjustable wear pads **(4)** and adjusted by removing shims **(1)** from under the screws **(2)**, located on both sides of the dipper.
Remove a shim from each screw on one side of the dipper.

NOTICE: *each time a new adjustment is made, carry it out on the other side of the dipper. If you are in any doubt concerning adjustments, consult your Dealer.*
Install and tighten the screws to a torque between **350 - 400 N·m** (**258 - 295 lb ft**). Check the play again.
The play at point **(3)** should not exceed **1.5 mm** (**0.06 in**).
When all adjusting shims have been removed the wear pads **(4)** will require changing. Consult your Dealer.



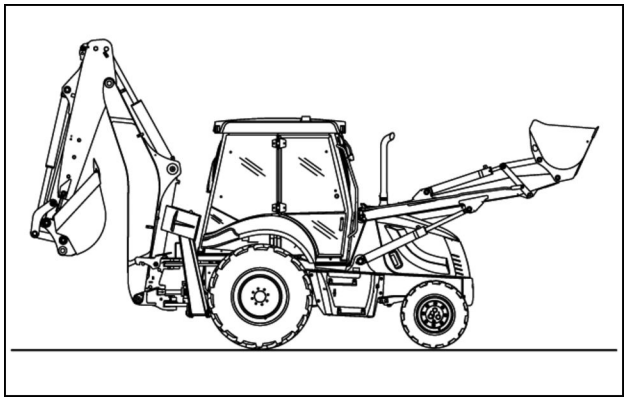
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Every 500 hours

Engine oil and filter

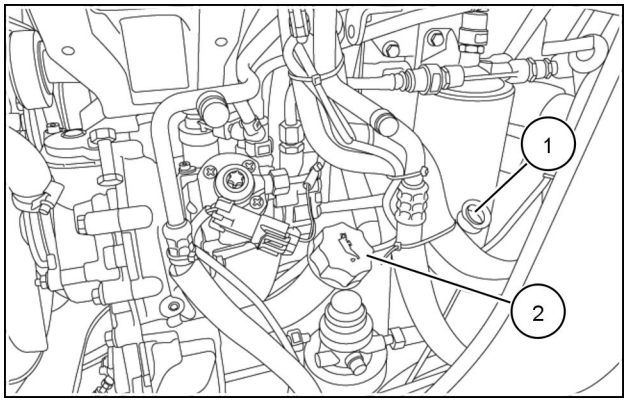
Move the machine to a level and firm ground.
Raise the loader attachment and install the safety support strut.
Place the backhoe attachment in the road travel position.
Place the direction-of-travel lever and gearshift lever in neutral position.
Immobilize the machine by means of the parking brake.
Stop the engine and remove the starter switch key.
Open and raise the engine tilt hood.



LEEN12T0685AA 1

Remove the cap **(2)** of the filler neck.
Remove the protection cap from the engine crankcase drain valve.

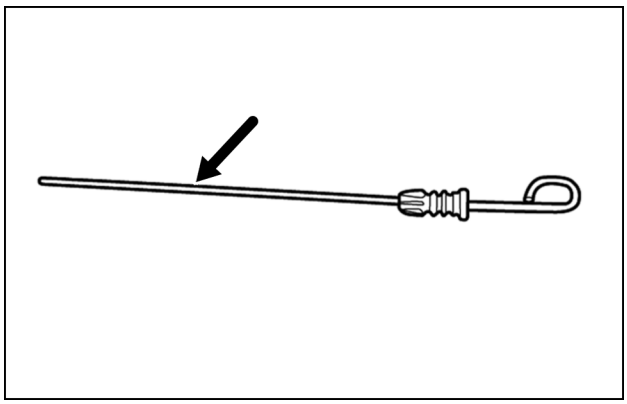
NOTE: *drain the engine when it is still hot. The oil will flow more easily.*
Now wait for the oil to completely flow out of the engine.



LEEN11T0356AA 2

Fill the engine with new oil.
Capacity (with filter):
- **8 l** (**2.11 US gal**).
Run the engine for a few minutes and check for leaks.
Check the engine oil level by means of the dipstick **(1)**.

NOTE: *always wait **15 min** to allow the oil to return to the engine sump before checking the oil level.*
Reinstall the cap **(2)** on the filler neck.
Lower and lock the engine tilt hood.
Remove the safety support strut and lower the loader attachment.

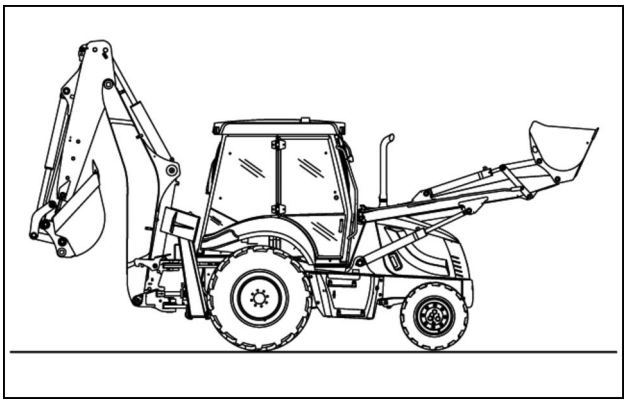


LEEN11T0361AA 3

https://truckmanualshub.com/

ENGINE OIL FILTER - REPLACEMENT

Move the machine to a level and firm ground.
Raise the loader attachment and install the safety support strut.
Place the backhoe attachment in the road travel position.
Place the direction-of-travel lever and gearshift lever in neutral position.
Immobilize the machine by means of the parking brake.
Stop the engine and remove the starter switch key.
Open and raise the engine tilt hood.
Place a container with suitable capacity under the filter.

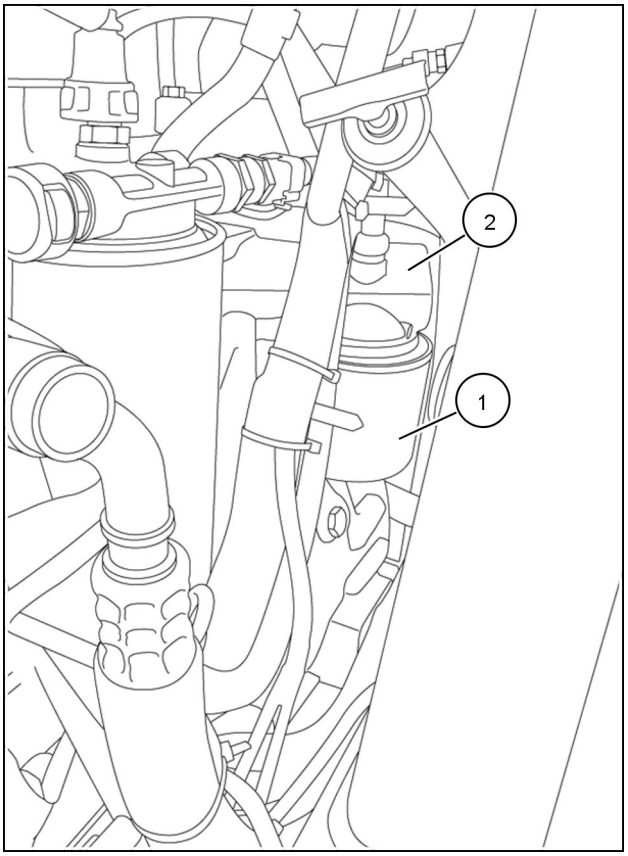


LEEN12T0685AA 4

ATTENTION: *The oil filter contains an oil quantity of approximately* ***0.5 l*** *(****0.15 US gal****).*
Avoid skin contact with the engine oil. In case of skin contact, wash the skin under flowing water.
Engine oil is extremely polluting; therefore, dispose of it in an environmentally friendly manner.
Unscrew and remove the cartridge **(1)** by means of wrench 380000670.
Apply a thin layer of clean oil on the seal of the new cartridge.

NOTE: *do not fill the new filter with oil before installing it.*
Assemble the new cartridge **(1)**.
Manually screw in the cartridge until the seal touches the support **(2)**.
By means of wrench 380000670, tighten by 3/4 of a turn.

NOTICE: *overtightening can damage the filter seal.*
Let the motor run for several minutes and then check the level again by means of the dipstick.
If necessary, top up to compensate the quantity of oil used for filling the cartridge.
Lower and lock the engine tilt hood.
Remove the safety support strut and lower the loader attachment.

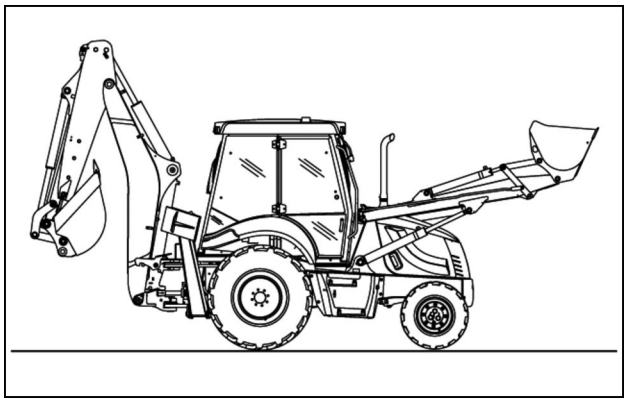


LEEN11T0414BA_1 5

https://truckmanualshub.com/

Fuel filter

Move the machine to a level and firm ground.
Raise the loader attachment and install the safety support strut.
Place the backhoe attachment in the road travel position.
Place the direction-of-travel lever and gearshift lever in neutral position.
Immobilize the machine by means of the parking brake.
Stop the engine and remove the starter switch key.
Open and raise the engine tilt hood.

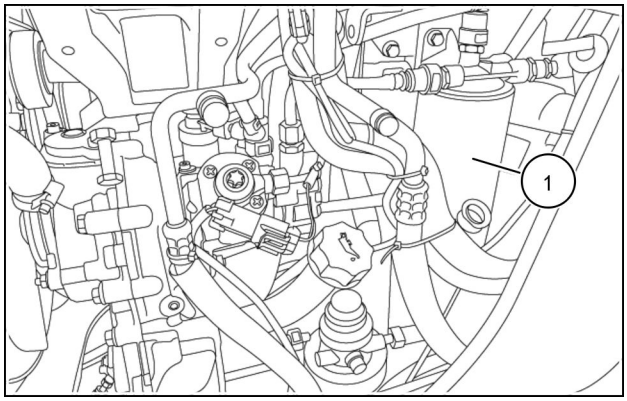


LEEN12T0685AA 1

Place a container with suitable capacity under the filter.
Unscrew and remove the cartridge **(1)** by means of wrench 380000670.
Apply a thin layer of clean oil on the seal **(2)** of the new cartridge.
Assemble the new cartridge **(1)**.
Manually screw in the cartridge until the seal touches the filter head.
By means of wrench 380000670, tighten by 3/4 of a turn.

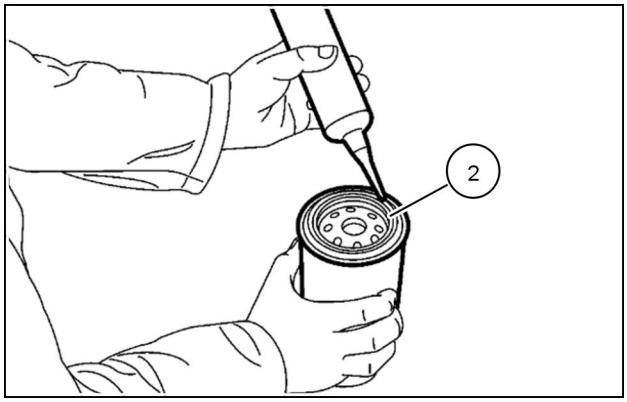
NOTICE: *overtightening can damage the filter seal **(2)**.*

NOTE: *for this replacement, it is essential that an original spare cartridge is used, as a non-approved part could seriously damage the injection pump.*



LEEN11T0356AA 2

Bleed the fuel system.

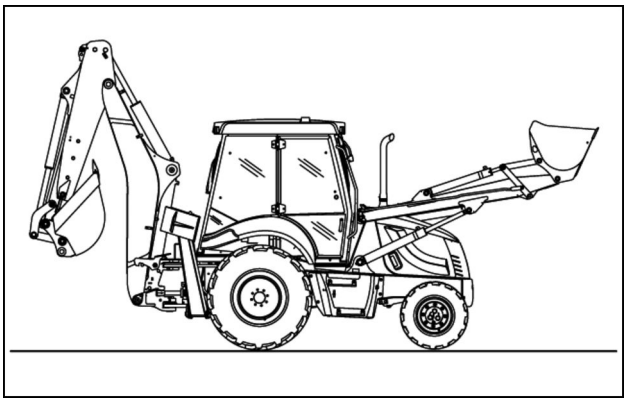


LEEN11T0396AA 3

Fuel prefilter

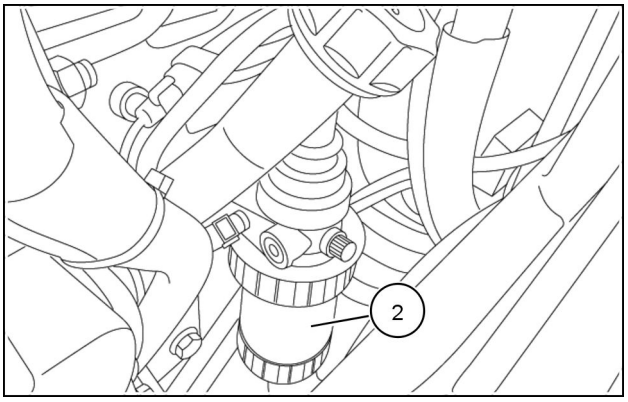
Move the machine to a level and firm ground.
Raise the loader attachment and install the safety support strut.
Place the backhoe attachment in the road travel position.
Place the direction-of-travel lever and gearshift lever in neutral position.
Immobilize the machine by means of the parking brake.
Stop the engine and remove the starter switch key.
Open and raise the engine tilt hood.

ATTENTION: *Prevent damages to the fuel high-pressure lines, as a fuel release could be very dangerous.*



LEEN12T0685AA 1

Disconnect electric connector under the prefilter.
Place a container with suitable capacity under the prefilter.
Disconnect electric connector.
Loosen and remove the cartridge **(2)**.



LEEN11T0397AA 2

NOTICE: *on the prefilter there is a sensor detecting the presence of water in fuel. In this case, a message appears on the display of the side instrument.*

Assemble the new cartridge.
Manually screw in the cartridge until the seal touches the filter head.
Tighten the cartridge by 3/4 of a turn.

NOTICE: *overtightening can damage the filter seal .*

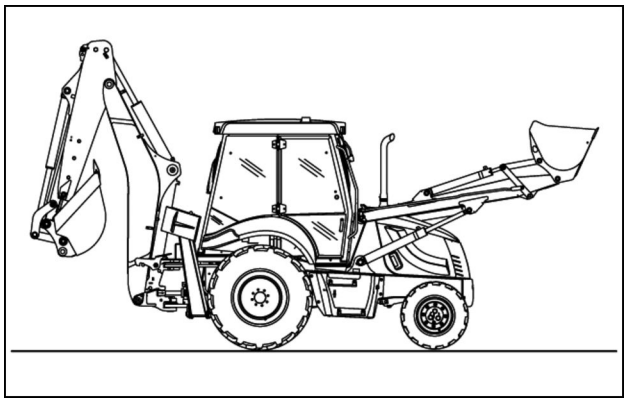
NOTE: *for this replacement, it is essential that an original spare cartridge is used, as a non-approved part could seriously damage the injection pump.*

Bleed the fuel system.

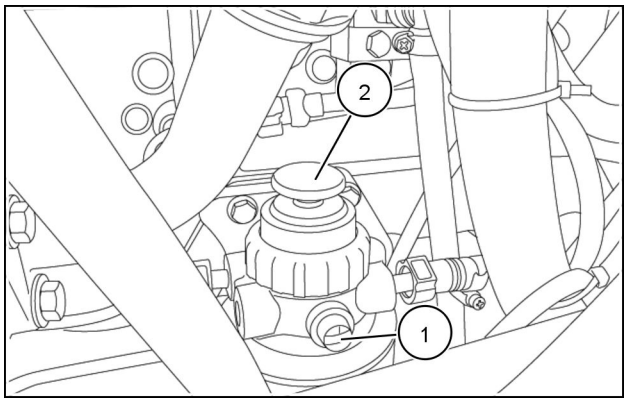
https://truckmanualshub.com/

Fuel system bleeding

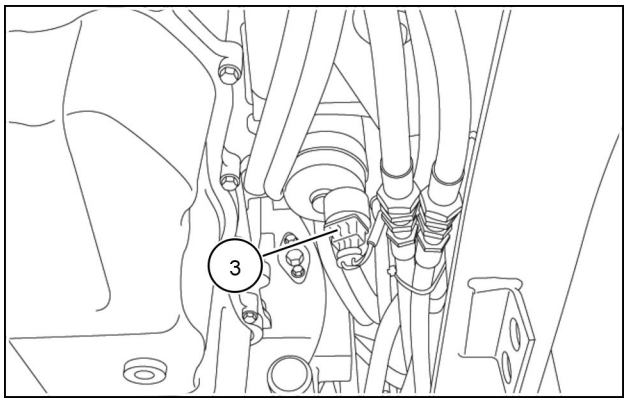
NOTE: *do not loosen any fuel lines or injector lines to bleed air from the system. They are under high pressure and therefore their loosening is dangerous.*
From the bottom of the filter, remove the connector **(3)**.
Place a container under the prefilter.
Open bleed screw **(1)** on prefilter only and activate hand primer **(2)** until fuel flows freely from the bleed screw.
This generally takes 35-45 pumps to fill the fuel lines and the prefilter.
This can be done in about **30 s**.
Tighten bleed screw.
Dry with cloth the prefilter.
Connect the electric connector under the prefilter.
Start the engine. Engine should start within **5 s**.
Lower and lock the engine tilt hood.
Remove the safety support strut and lower the loader attachment.



LEEN12T0685AA 1



LEEN11T0355AA 2



LEEN11T0370AA 3

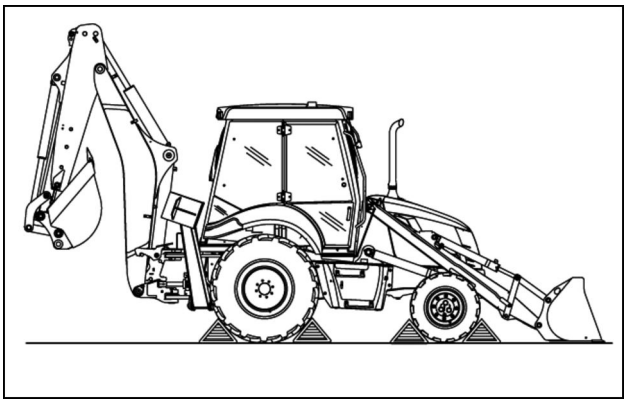
https://truckmanualshub.com/

Every 1000 hours

Machine inspection and cleaning

INSPECTION

Externally check the machine and its working attachments, checking for possible breaks or damage of the components or the structure.
Should problems be detected, contact an authorized workshop to have the necessary repairs carried out.
Replace the damaged or excessively worn parts with original spare parts.
Check the conditions of the hydraulic lines and make sure there are no leaks. In this case, immediately eliminate them.



LEEN12T0640AA 1

CLEANING

A correctly performed periodical maintenance helps preserving the value of the machine and the warranty rights in case of possible corrosion damage.

The necessary products for machine care can be purchased from the Service Department or Spare Part Service. All instructions reported on packagings must be carefully observed.

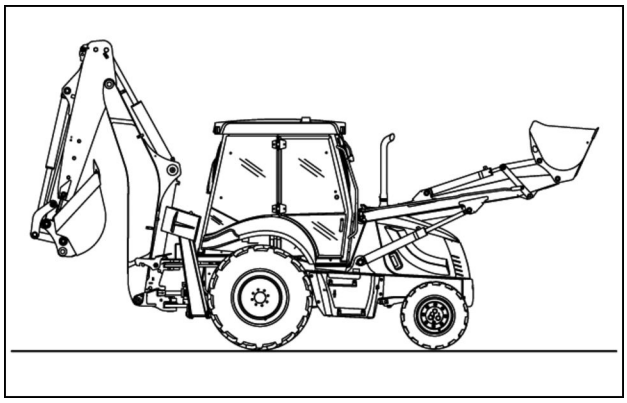
ATTENTION: *If used improperly, the products for machine cleaning can become a danger for your health. They must always be stored accurately and safely.*
The residues of the products for machine cleaning must be disposed of in an environmentally friendly manner.

ATTENTION: *In respect of the environment, the machine should be washed only at specially provided washing stations equipped with oil and grease separators, if possible. Washing machines outside these stations may be even forbidden in some regions or countries.*

NOTICE: *when washing the machine, do not direct the water jet onto electrical or electronic components or assemblies. Water sprays or jets may cause malfunctions or the failure of the entire electrical and electronic system.*

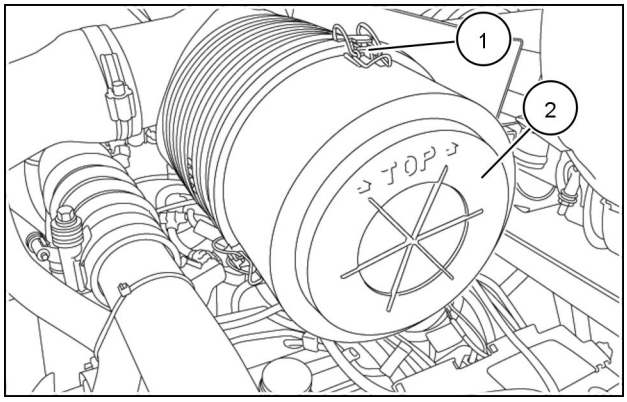
Engine air filters

Move the machine to a level and firm ground.
Raise the loader attachment and install the safety support strut.
Place the backhoe attachment in the road travel position.
Place the direction-of-travel lever and gearshift lever in neutral position.
Immobilize the machine by means of the parking brake.
Stop the engine and remove the starter switch key.
Open and raise the engine tilt hood.



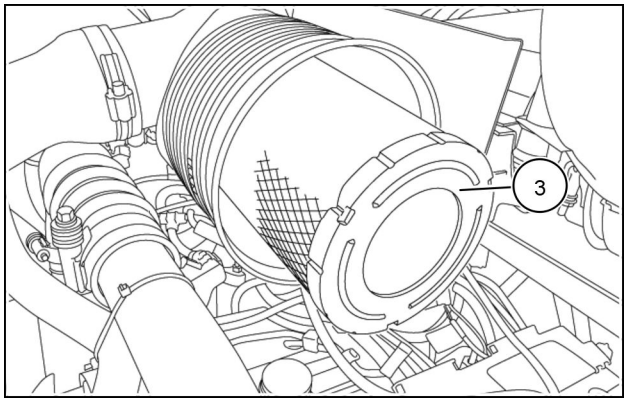
LEEN12T0685AA 1

Unhook 3 clips **(1)** around perimeter of filter cover **(2)** and remove the filter cover .



LEEN11T0402AA 2

Extract the main filter element **(3)**.

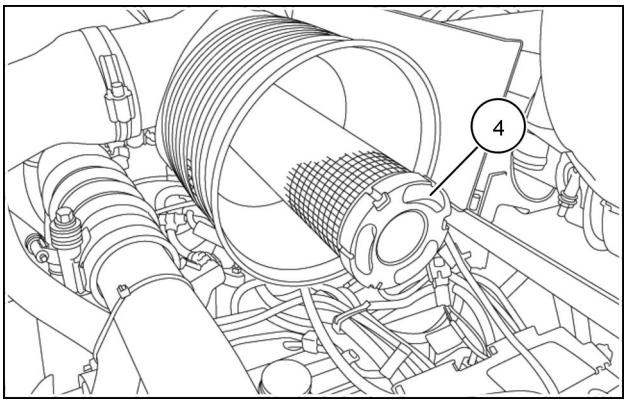


LEEN11T0403AA 3

https://truckmanualshub.com/

Extract the safety filter element **(4)**.

NOTICE: *the safety filter element must not be cleaned. It must be replaced once per year, or when main element is replaced.*



LEEN11T0404AA 4

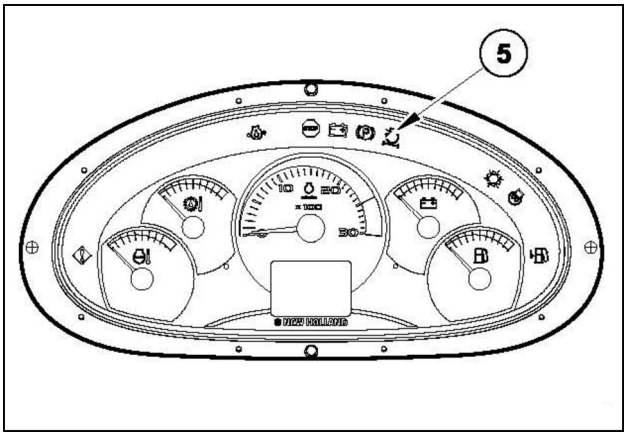
Clean the inside of the filter body by means of a clean cloth.

Assemble the new safety filter element **(4)**.

Assemble the main filter element **(3)**.

Install the filter cover.

Start the engine, run it at low idle speed and make sure that the air filter restriction lamp **(5)** on the side instrument is not on.



LEEN12T0579AA 5

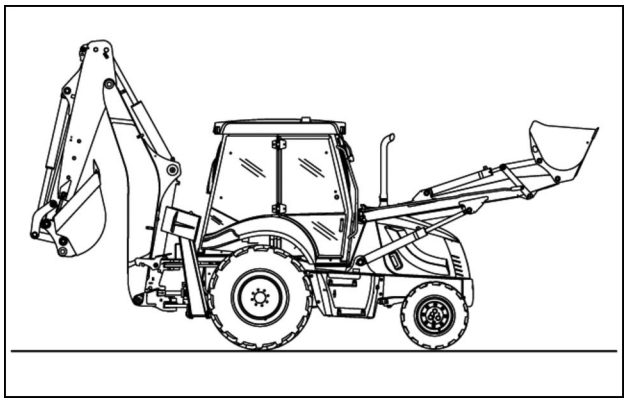
Lower and lock the engine tilt hood.

Remove the safety support strut and lower the loader attachment.

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Powershuttle transmission - oil filter replacement

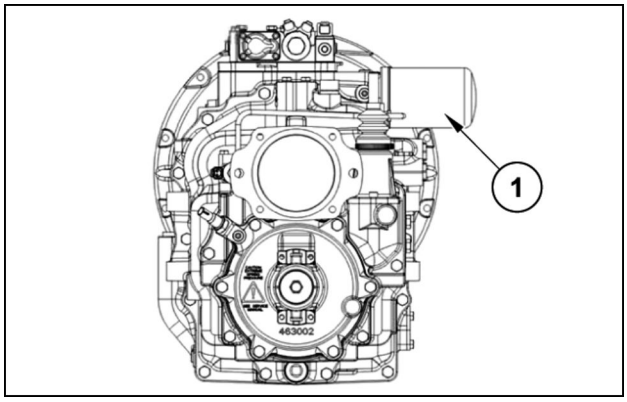
Move the machine to a level and firm ground.
Raise the loader attachment and install the safety support strut.
Place the backhoe attachment in the road travel position.
Place the direction-of-travel lever and gearshift lever in neutral position.
Immobilize the machine by means of the parking brake.
Stop the engine and remove the starter switch key.
Open and raise the engine tilt hood.



LEEN12T0685AA 1

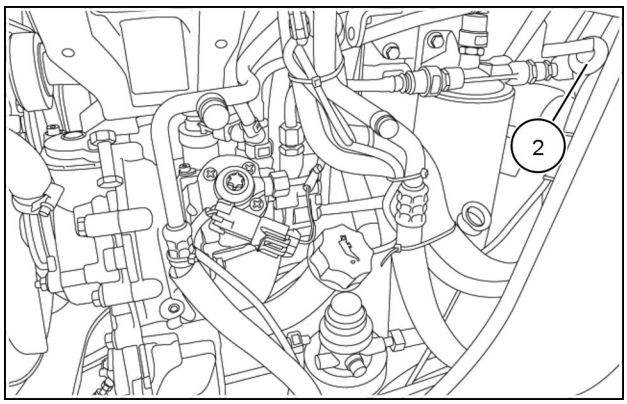
Clean the area around the filter head.
Place a container with suitable capacity under the filter **(1)**.
Loosen and remove the cartridge.
Apply a thin layer of oil on the new filter seal.
Assemble the new cartridge **(1)**. Manually screw in the cartridge until the seal touches the filter head.
Tighten by 2/3 of a turn.

NOTICE: *overtightening can damage the filter seal.*



LEEN12T0688AA 2

Starting the engine
Remove the dipstick **(2)** and top up the oil through the dipstick hole. Then restore the dipstick **(2)** into place.
Check the oil level by means of the dipstick and, if necessary, add more oil.
Lower and lock the engine tilt hood.
Remove the safety support strut and lower the loader attachment.

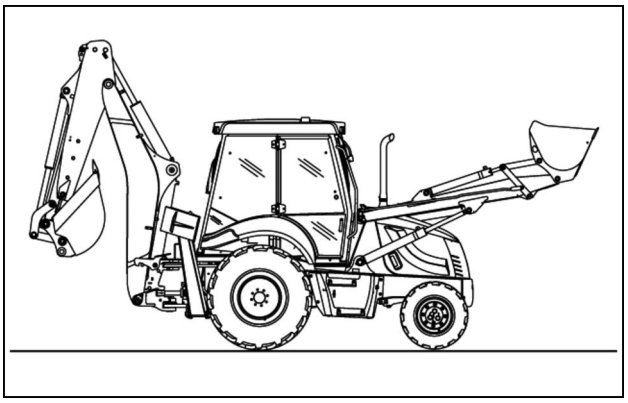


LEEN11T0356AA 3

https://truckmanualshub.com/

Powershuttle transmission - oil change

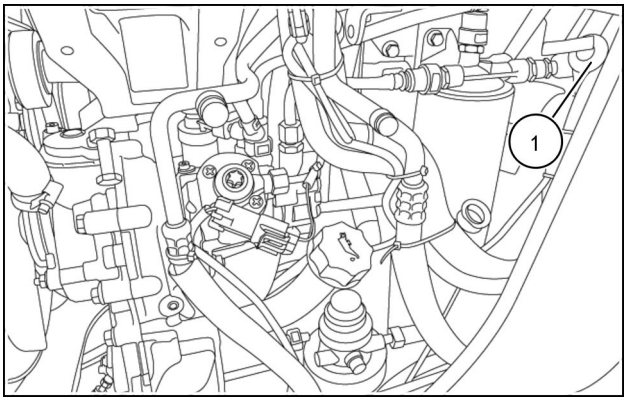
Move the machine to a level and firm ground.
Raise the loader attachment and install the safety support strut.
Place the backhoe attachment in the road travel position.
Place the direction-of-travel lever and gearshift lever in neutral position.
Immobilize the machine by means of the parking brake.
Stop the engine and remove the starter switch key.
Open and raise the engine tilt hood.



LEEN12T0685AA 1

Remove the dipstick **(1)**.

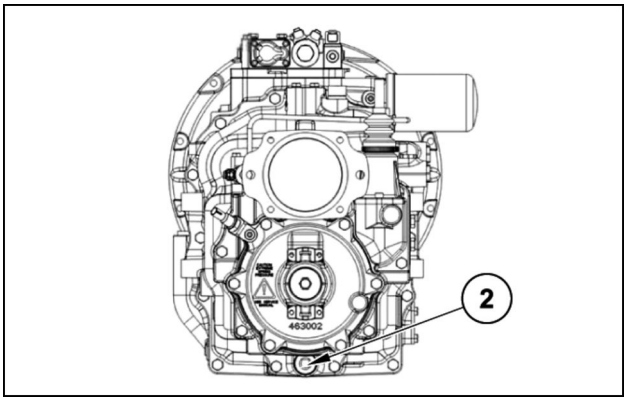
NOTE: *change the oil while the transmission is still warm; the oil will flow more easily.*
Place a container with suitable capacity under the drain plug **(2)**.
Loosen and remove the drain plug **(2)**.
Let the transmission oil drain.



LEEN11T0356AA 2

Install the drain plug **(2)**.
Fill with new oil of specified type through the dipstick hole.

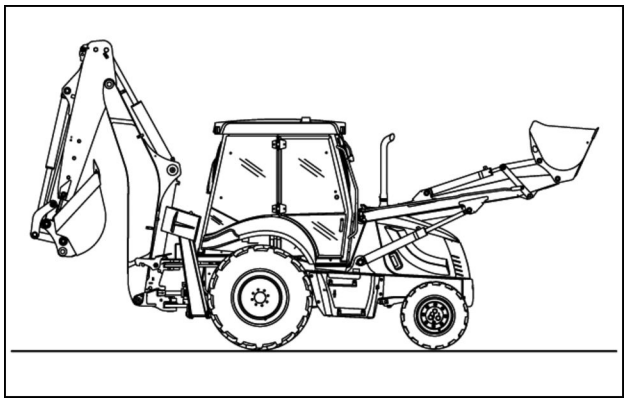
NOTE: *transmission oil capacity. Refer to fluid supply summary table.*
Reinstall the dipstick **(1)**.
Check the oil level by means of the dipstick and, if necessary, add more oil.
Drive the machine for a few minutes in first and second gear, then stop the machine with engine run and transmission in neutral gear.
Apply the parking brake.
Check the oil level again by means of the dipstick and, if necessary, add more oil.
Lower and lock the engine tilt hood.
Remove the safety support strut and lower the loader attachment.



LEEN12T0690AA 3

Powershuttle transmission - screen filter cleaning

Move the machine to a level and firm ground.
Raise the loader attachment and install the safety support strut.
Place the backhoe attachment in the road travel position.
Place the direction-of-travel lever and gearshift lever in neutral position.
Immobilize the machine by means of the parking brake.
Stop the engine and remove the starter switch key.
Open and raise the engine tilt hood.

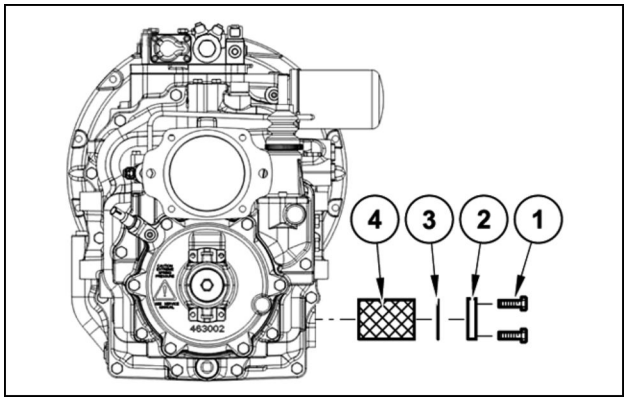


LEEN12T0685AA 1

Place a container with suitable capacity under the screen filter.
Clean the area around the cover plate **(2)**.
Loosen and remove the screws **(1)**.
Remove the cover plate **(2)**, check the conditions of the O-ring **(3)** and replace it, if necessary.
Remove the screen filter **(4)**.
Clean the filter with a detergent solution.

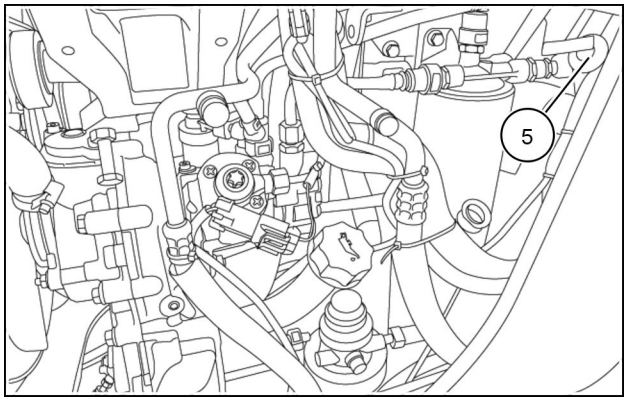
NOTICE: *follow the instructions for the detergent solution.*
Carefully dry the screen filter **(4)** with compressed air and reinstall it.

NOTICE: *before using compressed air, take the necessary precautions to protect your face.*
Reassemble the cover plate **(2)** and fasten it by means of the screws **(1)**. Tighten the screws to a torque of **23 N·m** (**16.96 lb ft**).



LEEN12T0691AA 2

Remove the dipstick **(5)** and top up the oil through the dipstick hole. Then restore the dipstick **(5)** into place.
Starting the engine.
Check the oil level by means of the dipstick and, if necessary, add more oil.
Lower and lock the engine tilt hood.
Remove the safety support strut and lower the loader attachment.

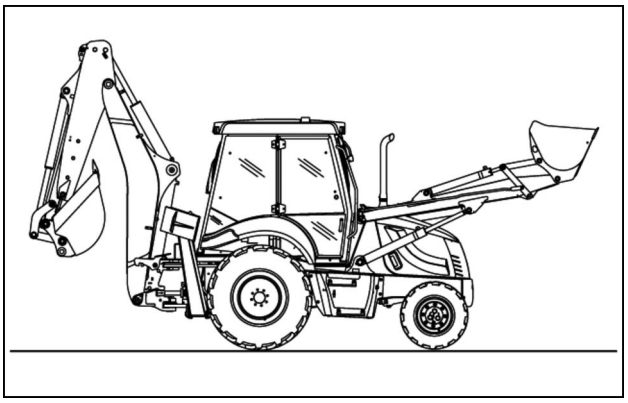


LEEN11T0356AA 3

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Powershift transmission - oil filter replacement

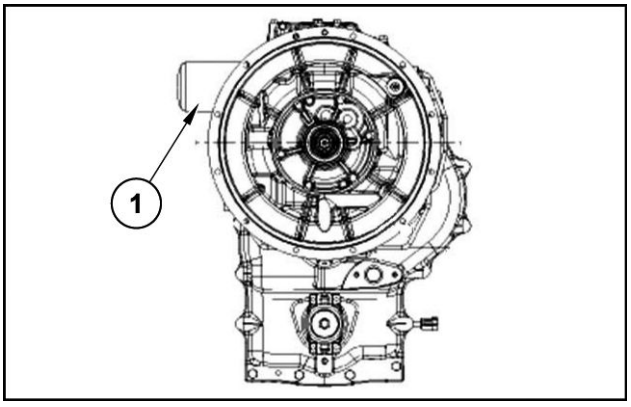
Move the machine to a level and firm ground.
Raise the loader attachment and install the safety support strut.
Place the backhoe attachment in the road travel position.
Place the direction-of-travel lever and gearshift lever in neutral position.
Immobilize the machine by means of the parking brake.
Stop the engine and remove the starter switch key.
Open and raise the engine tilt hood.



LEEN12T0685AA 1

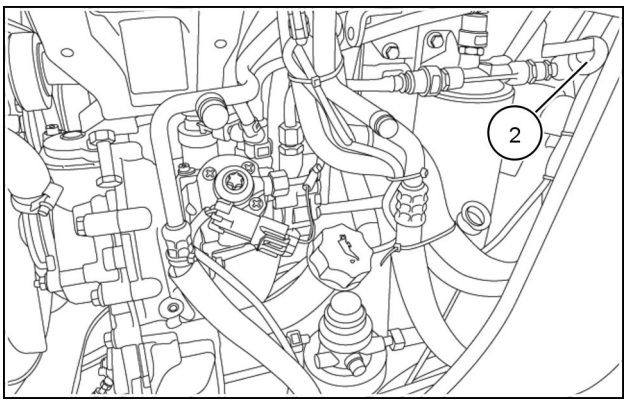
Clean the area around the filter head.
Place a container with suitable capacity under the filter **(1)**.
Loosen and remove the cartridge.
Apply a thin layer of oil on the new filter seal.
Assemble the new cartridge **(1)**.
Manually screw in the cartridge until the seal touches the filter head.
Tighten by 2/3 of a turn.

NOTICE: *overtightening can damage the filter seal.*



LEEN11T0407AA_4 2

Starting the engine.
Remove the dipstick **(2)** and top up the oil through the dipstick hole. Then restore the dipstick **(2)** into place.
Check the oil level by means of the dipstick and, if necessary, add more oil.
Lower and lock the engine tilt hood.
Remove the safety support strut and lower the loader attachment.

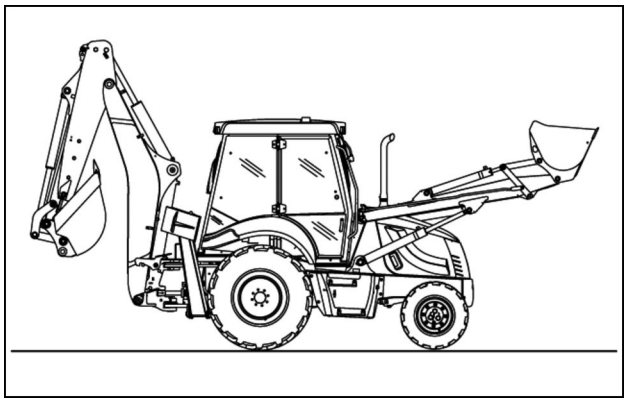


LEEN11T0356AA 3

https://truckmanualshub.com/

Powershift transmission - oil change

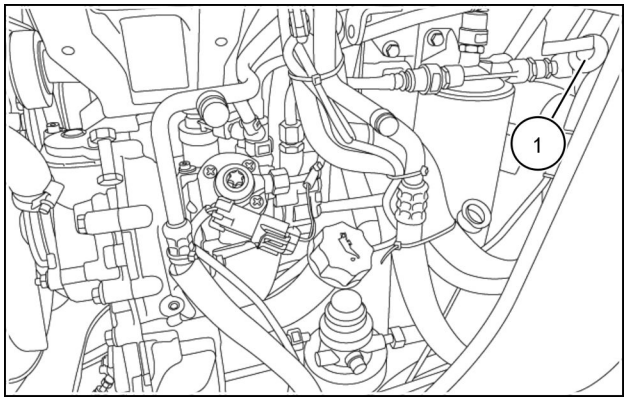
Move the machine to a level and firm ground.
Raise the loader attachment and install the safety support strut.
Place the backhoe attachment in the road travel position.
Place the direction-of-travel lever and gearshift lever in neutral position.
Immobilize the machine by means of the parking brake.
Stop the engine and remove the starter switch key.
Open and raise the engine tilt hood.



LEEN12T0685AA 1

Remove the dipstick **(1)**.

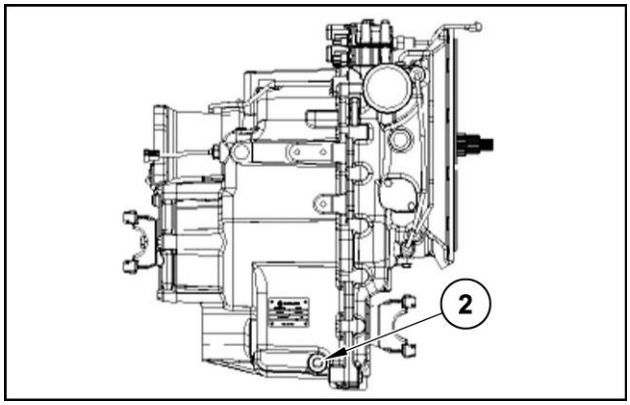
NOTE: *change the oil while the transmission is still warm; the oil will flow more easily.*
Place a container with suitable capacity under the drain plug **(2)**.
Loosen and remove the drain plug **(2)**.
Let the transmission oil drain.



LEEN11T0356AA 2

Install the drain plug **(2)**.
Fill with new oil of specified type through the dipstick hole.

NOTE: *Transmission oil capacity . Refer to fluid supply summary table.*
Reinstall the dipstick **(1)**.
Check the oil level by means of the dipstick and, if necessary, add more oil.
Drive the machine for a few minutes in first and second gear, then stop the machine with engine run and transmission in neutral gear.
Apply the parking brake.
Check the oil level by means of the dipstick and, if necessary, add more oil.
Lower and lock the engine tilt hood.
Remove the safety support strut and lower the loader attachment.

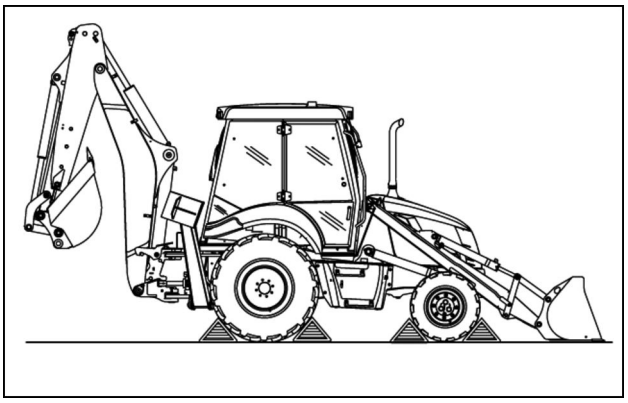


LEEN11T0408AA_1 3

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Front and rear axle - oil change

Move the machine to a level and firm ground.
Lower the loader attachment to the ground.
Place the backhoe attachment in the road travel position.
Place the direction-of-travel lever and gearshift lever in neutral position.
Immobilize the machine by means of the parking brake.
Stop the engine and remove the starter switch key.

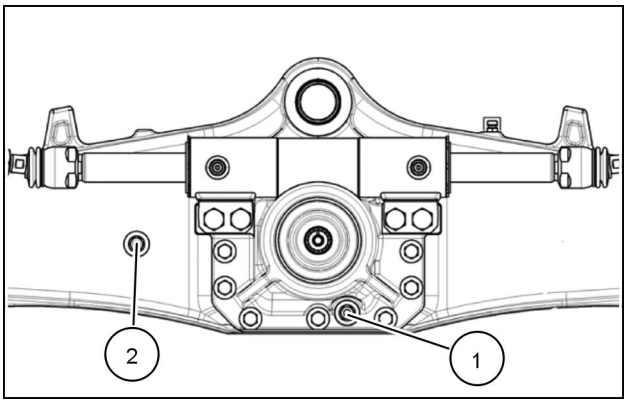


LEEN12T0640AA 1

DIFFERENTIAL OIL CHANGE - 4WD

Place a container with suitable capacity under the plug **(1)**.
Unscrew and remove the plugs **(1)** and **(2)**.
Wait for the oil to come out of the axle through the hole of the plug **(1)**.
After drain is complete, screw in the plug **(1)**.
Fill with clean oil through the hole of the plug **(2)** until the level reaches the hole.
Retighten the plug **(2)**.

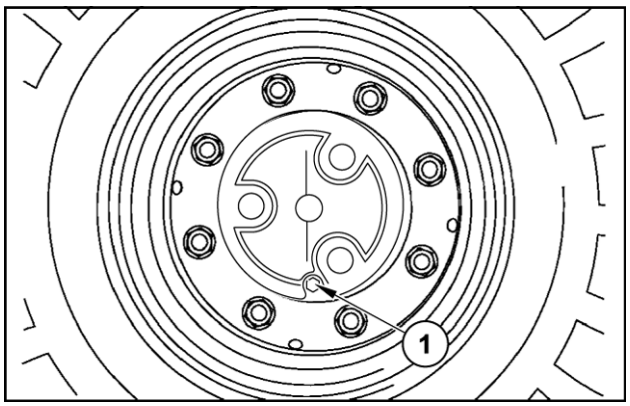
NOTE: *Differential oil capacity . Refer to fluid supply summary table.*



LEEN11T0375AA 2

REDUCTION GEAR OIL CHANGE

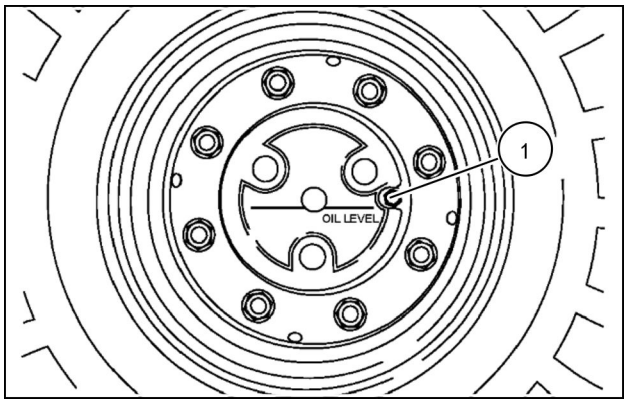
Slightly raise the front part of the machine by means of the loader attachment, until the front wheels are no longer in contact with the ground and place a suitable support under the front axle.
Manually position the wheel until the hole of the plug **(1)** is in the lowest possible position.
Place a container with suitable capacity under the plug **(1)**.
Unscrew and remove the plug **(1)**.
Wait for the oil to come out of the reduction gear through the hole of the plug **(1)**.



LEEN11T0409AA_1 3

Manually position the wheel until the hole of the plug **(1)** is in horizontal position.
Fill with clean oil through the hole of the plug **(1)** until the level reaches the hole.
Retighten the plug **(1)**.
Repeat the same operations, previously described, for the other reduction gear.
Lower the machine to the ground.

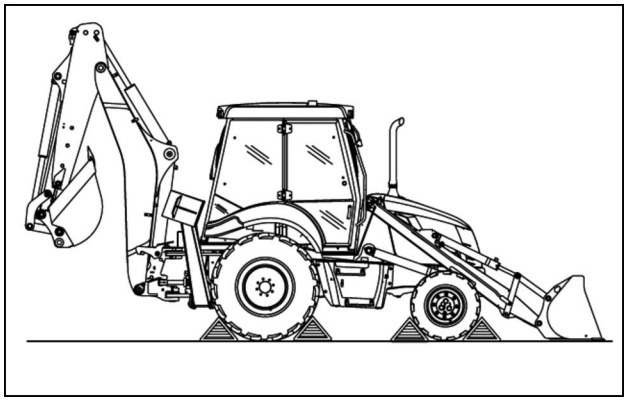
NOTE: *Reduction gear oil capacity. Refer to fluid supply summary table.*



LEEN11T0384AA 4

REAR AXLE - OIL CHANGE

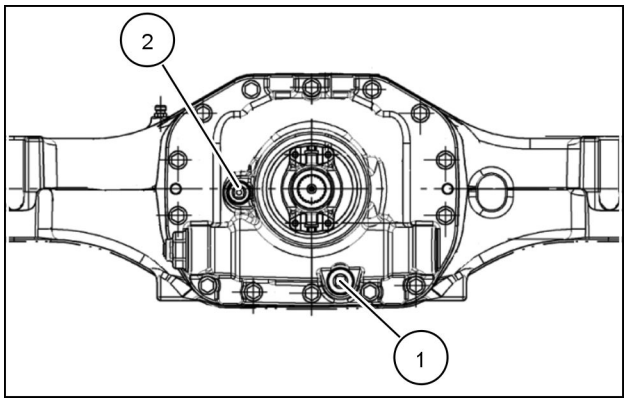
Move the machine to a level and firm ground.
Lower the loader attachment to the ground.
Place the backhoe attachment in the road travel position.
Place the direction-of-travel lever and gearshift lever in neutral position.
Immobilize the machine by means of the parking brake.
Stop the engine and remove the starter switch key.



LEEN12T0640AA 5

DIFFERENTIAL OIL CHANGE

Place a container with suitable capacity under the plug **(1)**.
Unscrew and remove the plugs **(1)** and **(2)**.
Wait for the oil to come out of the axle through the hole of the plug **(1)**.
After drain is complete, screw in the plug **(1)**.
Fill with clean oil through the hole of the plug **(2)** until the level reaches the hole.
Retighten the plug **(2)**.

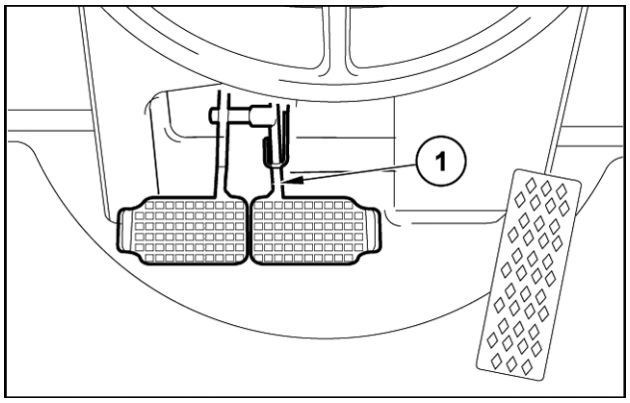


LEEN11T0386AA 6

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Brake pedal lever - greasing

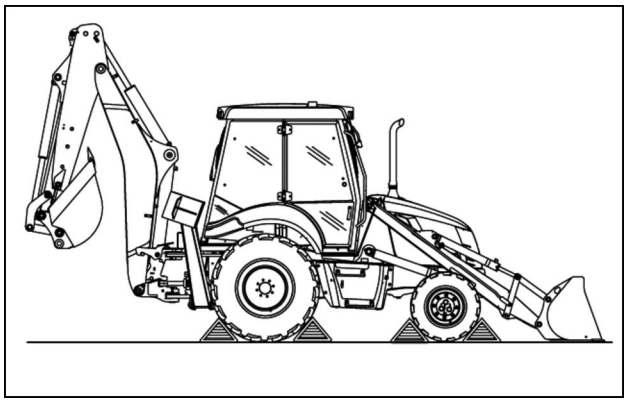
Grease the brake pedal levers **(1)** by introducing the new clean grease and expelling the exhaust grease until the new grease starts coming out.
Clean all the grease come out by means of a cloth.



LEEN11T0411AA_1 1

Hydraulic oil system - oil filter replacement

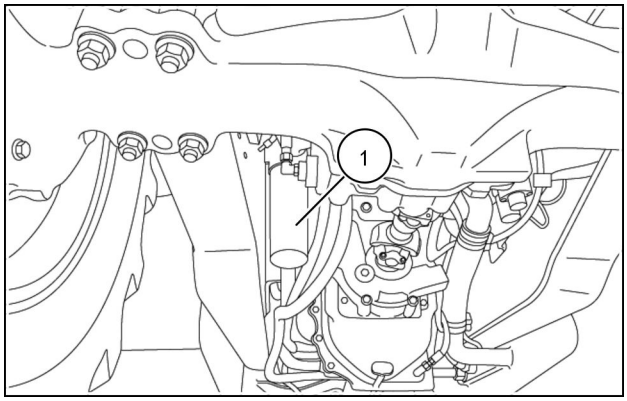
Move the machine to a level and firm ground.
Lower the loader attachment to the ground.
Place the backhoe attachment in the road travel position.
Place the direction-of-travel lever and gearshift lever in neutral position.
Immobilize the machine by means of the parking brake.
Stop the engine and remove the starter switch key.



LEEN12T0640AA 1

Clean the area around the filter head, located in the bottom left-hand part of the machine.
Place a container with suitable capacity under the filter.
Unscrew and remove the cartridge **(1)** by means of wrench 380000670.
Apply a thin layer of oil on the new filter seal.
Assemble the new cartridge **(1)**.
Manually screw in the cartridge until the seal touches the filter head.
By means of wrench 380000670, tighten by 3/4 of a turn.

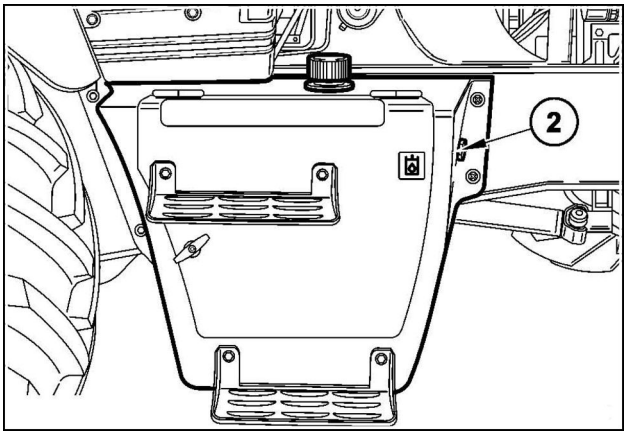
NOTICE: *overtightening can damage the filter seal.*



LEEN12T0473AA 2

Check that the oil level reaches the middle of the gauge **(2)**. Top up if necessary.

NOTICE: *even when its level is insufficient, a small quantity of hydraulic oil remains in the lower part of the gauge. This does not mean that the level is sufficient.*

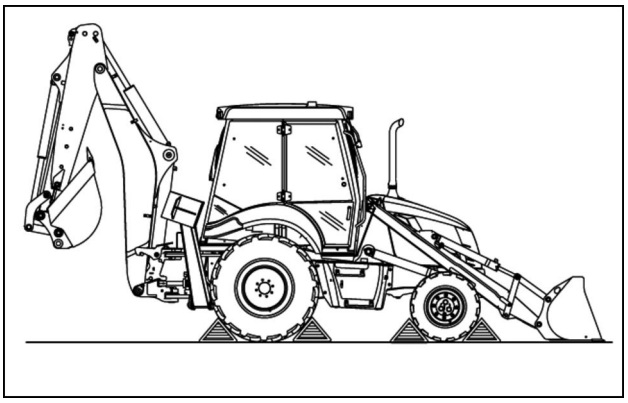


LEEN12T0580AA 3

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Hydraulic oil tank - oil change

Move the machine to a level and firm ground.
Lower the loader attachment to the ground.
Place the backhoe attachment in the road travel position.
Place the direction-of-travel lever and gearshift lever in neutral position.
Immobilize the machine by means of the parking brake.
Stop the engine and remove the starter switch key.



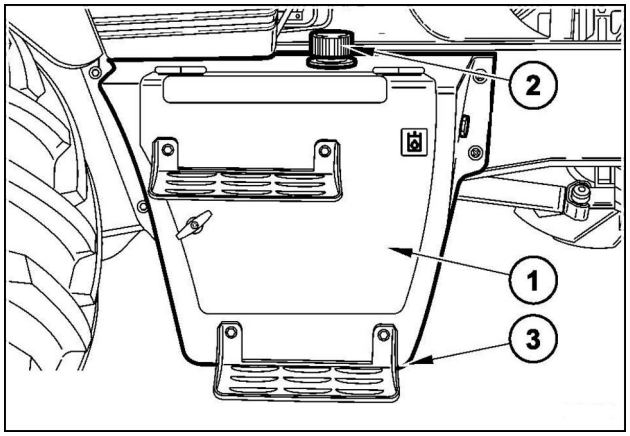
LEEN12T0640AA 1

DRAINING

Drain oil from the hydraulic tank.

NOTE: *when draining, the hydraulic oil must be at operating temperature.*

Place a container with suitable capacity under the hydraulic oil tank **(1)**.
Unscrew and remove the breather/filler cap **(2)** and the drain plug **(3)**.
Wait for the oil to come out of the tank through the hole of the drain plug **(3)**.
Retighten the drain plug **(3)**.
Drain the hydraulic oil from the hydraulic system only draining the hydraulic tank.
Wait for the oil to flow out and retighten the fittings on the tank.



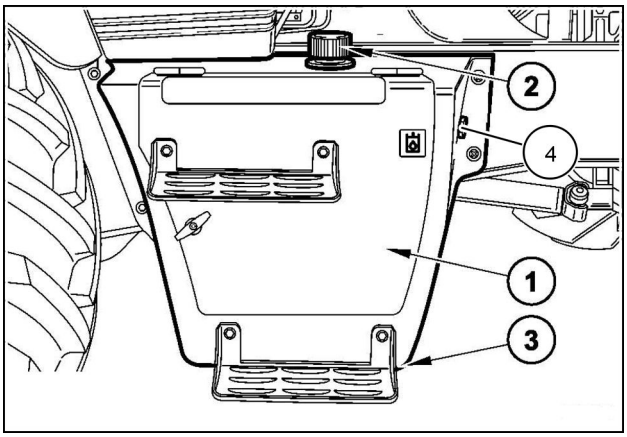
LEEN12T0581AA 2

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FILLING

Clean the area around the breather/filler cap **(2)**.
Fill with clean oil through the hole of the plug **(2)** until the level reaches the middle of the gauge **(4)**.
Retighten the plug **(2)**.
Start the engine and operate the loader attachment and backhoe attachment functions for 3 to 4 minutes.
Take the loader attachment back to the ground and the backhoe attachment in road travel position.
Stop the engine and remove the starter switch key.
Check the level.
The oil must reach the middle of the gauge **(4)**. If necessary, add more oil.

NOTICE: *even when its level is insufficient, a small quantity of hydraulic oil remains in the lower part of the gauge. This does not mean that the level is sufficient.*



LEEN12T0581AA 3

Hydraulic cylinders - check

The hydraulic cylinders must not show any kind of leaks.

The cylinder rods must have a slightly oily aspect in order to guarantee a long life and a good operation.

CYLINDER TIGHTNESS

A tightness check must be performed after a certain working period and when the hydraulic system is at normal operating temperature.

Check by performing the following operations:

- clean the rod and the bearing of the cylinder to be inspected;

- work normally for 5 to 10 minutes;

- extend the cylinder rod;

- check for leaks.

CYLINDER ROD ASPECT

ROD APPEARANCE	TEST	CONCLUSION
Dry	Slight traces of oil when a sheet of paper is rubbed on **200 mm** (**7.87 in**) of the rod.	Normal
Slightly oily	The paper sheet remains stuck when rubbed on the rod.	Normal
Oily	A sheet of paper placed on the rod remains stuck.	Normal
Very oily or weeping	A ring of oil is clearly visible on the rod after each rod extension.	Consult your Dealer
Leak	Oil drips from the bearing each time the cylinder rod is retracted.	

Battery electrolyte level

ATTENTION: *Battery electrolyte causes severe burns. The battery contains sulphuric acid. Avoid any contact with the skin, eyes or clothing.*
Antidote:
EXTERNAL: rinse well with water, removing any soiled clothing.
INTERNAL: avoid vomiting. Drink water to rinse your mouth. Consult a doctor.
EYES: rinse thoroughly with water for ***15 min*** *and get prompt medical attention.*
When working with batteries, always wear gloves, protection goggles and suitable clothes.

ATTENTION: *Never touch the battery terminals with your hands. This could generate an electrolysis inside the human body and damage the body's vital organs.*

ATTENTION: *Batteries produce explosive gases. To prevent any risk of explosion, observe the following instructions:*
- place the battery master switch in the OFF position;
- when disconnecting the battery cables, always disconnect the negative cable (-) first;
- when reconnecting the battery cables, always connect the negative (-) cable last;
- never short-circuit the battery terminals with metal objects;
- do not weld, grind or smoke near a battery.
Keep open flames away and do not smoke near batteries. Always provide good ventilation when charging a battery or using a battery in an enclosed space.

ATTENTION: *Before carrying out any welding on the machine or repair work on the electrical circuit, disconnect the battery and disconnect the B+ and D+ wires on the alternator. When reconnecting, check the wire markings.*

CHARGE CHECK

Measure the density of the acid of the single cells with a commonly available measuring device.

The measured values (see table below) indicate the charge status of the battery.

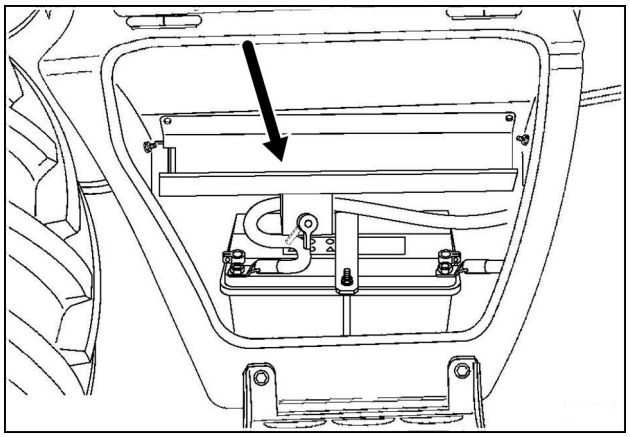
When measuring, the temperature of the acid should be + **20 °C** (**68 °F**), if possible.

Electrolyte concentration		
in kg/dm3 (lb/foot3)		Charge
Normal	Tropical	
1.28 (80)	1.23 (77)	good
1.20 (75)	1.12 (70)	reduced: charge
1.12 (70)	1.08 (67)	low: immediately charge

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ELECTROLYTE LEVEL CHECK

Remove the base indicated from the battery compartment. Remove the vent plugs and check the level in each battery cell. The level should come up to **6 mm** (**0.24 in**) above the separator plates.
Add distilled water if necessary.



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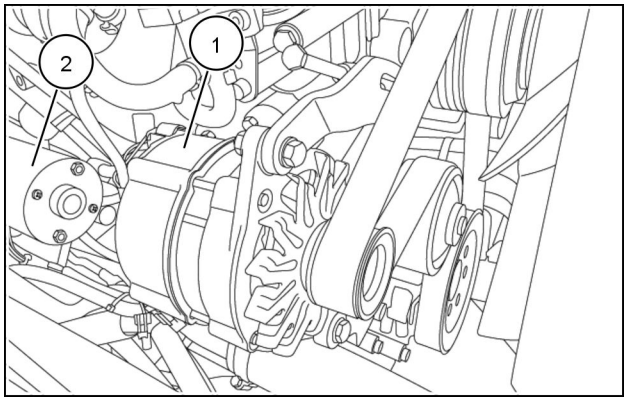
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Alternator - check

ATTENTION: *Before carrying out any welding on the machine or repair work on the electrical circuit, disconnect the battery and disconnect the B+ and D+ wires on the alternator. When reconnecting, check the wire markings.*

NOTICE: *do not use steam cleaning devices nor cleaning solvents to clean the alternator.*

Have the alternator **(1)** checked by your Dealer.



LEEN12T0474AA 1

STARTER MOTOR - CHECK

Have the starter motor **(2)** checked by your Dealer.

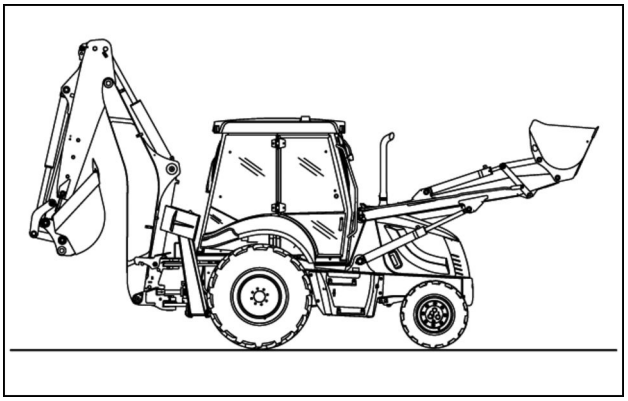
NOTE: *make sure the terminal protectors are correctly installed.*

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Every 2000 hours

Engine coolant

Move the machine to a level and firm ground.
Raise the loader attachment and install the safety support strut.
Place the backhoe attachment in the road travel position.
Place the direction-of-travel lever and gearshift lever in neutral position.
Immobilize the machine by means of the parking brake.
Stop the engine and remove the starter switch key.
Open and raise the engine tilt hood.

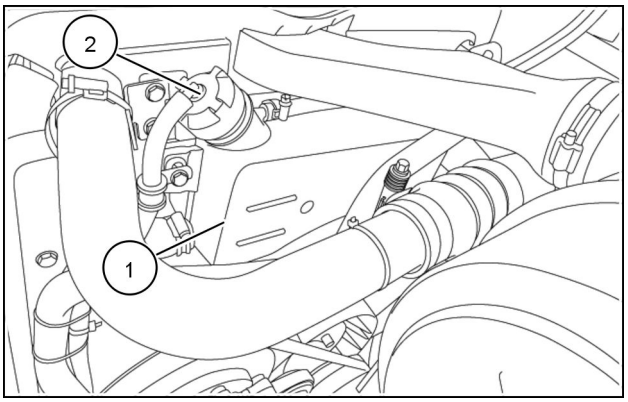


LEEN12T0685AA 1

DRAINING

Place a container with sufficient capacity under the radiator drain cock.
Unscrew and remove the cap **(2)** from the reservoir **(1)**.

ATTENTION: *Do not remove the cap when the engine is hot. The circuit is under pressure: danger of scalds.*

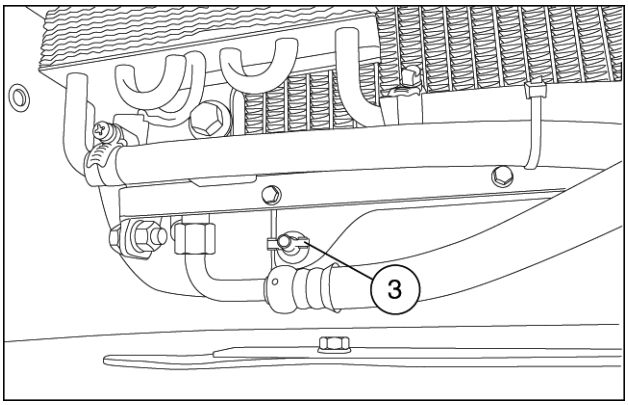


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Place a container under the radiator.
Install a drain pipe about **1 m** (**3.2 ft**) on the drain cock **(3)** and put the other end of the pipe into the container.
Open the radiator drain cock **(3)** and allow the coolant to flow out.
After the system is completely drained, close the drain cock **(3)**.
Rinse the system with fresh water, drain again and then fill the system.

NOTE: *if you use a detergent solution for rinsing, follow the instructions for preparing the solution. After draining the detergent solution, rinse again with fresh water.*
Check the condition of the hoses, connections and the water pump.
Make sure that the external surfaces of the engine and the radiator are clean.



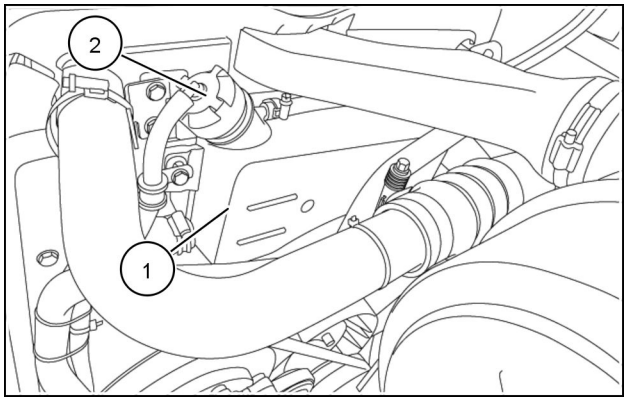
LEEN12T0475AA_2 3

FILLING

Fill the coolant reservoir **(2)** with coolant solution.

NOTE: *cooling system capacity **24 l** (**6.30 US gal**).*

NOTE: *in order to reduce deposits and corrosion, coolant in the cooling system should not exceed the following limits:*
total hardness = 300 parts per million.
chloride = 100 parts per million.
sulphates = 100 parts per million.
Fill the cooling system with coolant slowly to prevent the formation of air bubbles.
Retighten the cap **(2)** on the reservoir **(1)**.
Run the engine for a few minutes and then check the level in the coolant reservoir again.
Top up if necessary, then reinstall the cap.
Lower and lock the engine tilt hood.
Remove the safety support strut and lower the loader attachment.



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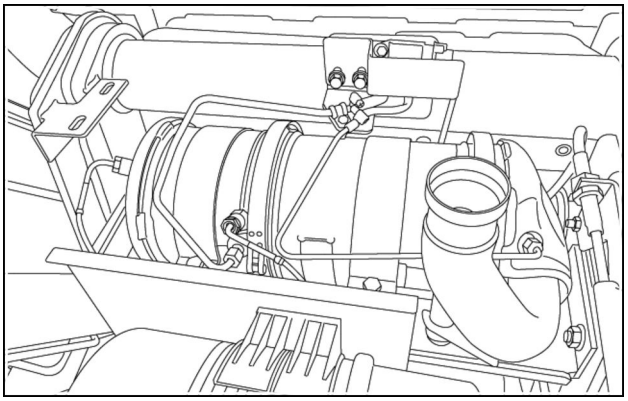
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Every 3000 hours

Diesel particulate filter (DPF)

When the level of soot exceeds a certain level, the DPF filter have to be replaced or regenerated in a specialized centre which has a regeneration station (thermal regenerator / pulse cleaner)

ATTENTION: *For this operation consult your dealer*

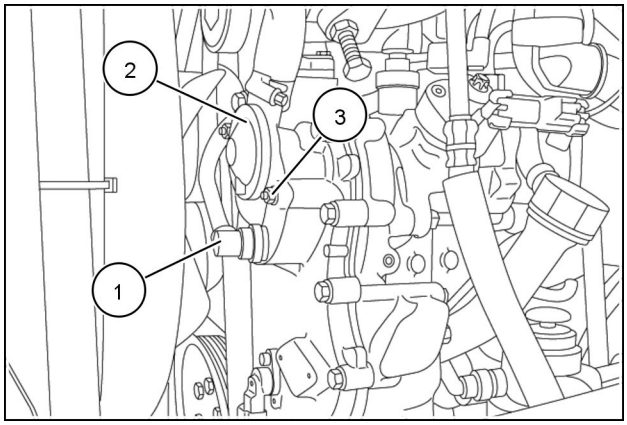


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Every 4000 hours

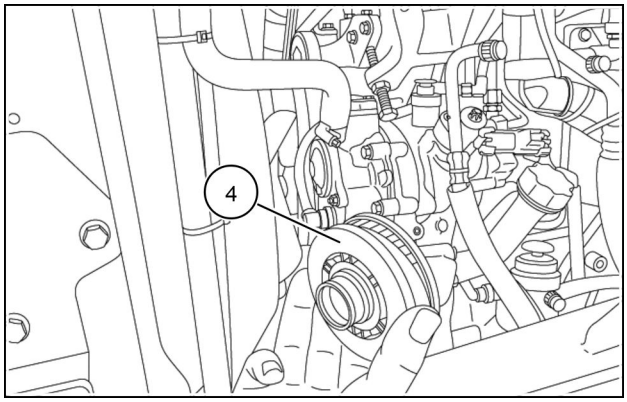
Engine breather filter

With cold engine, remove the ventilation pipe **(1)** from the cover **(2)** after removing the retaining clamp.
Loosen the fastening nuts **(3)** and remove the cover **(2)**.



LEEN11T0398AA 1

Remove the filter **(4)** from the housing and replace it together with the gasket.
Clean and restore the cover into position on the engine by using a new seal and tighten the fastening nuts **(3)** .



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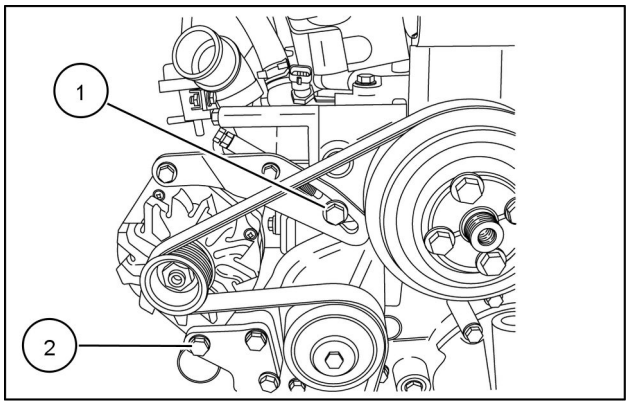
As required

Drive belt

Replace the fan drive belt as needed.

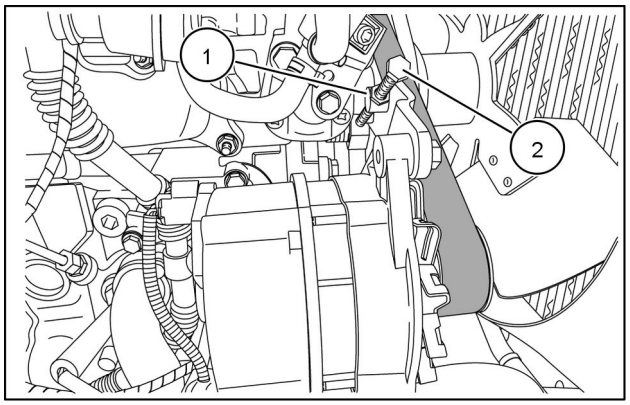
Removal

1. Remove the air conditioning belt, if equipped.
2. Loosen the lower alternator bolt **(2)**.
3. Loosen the pivot bolt **(1)**.



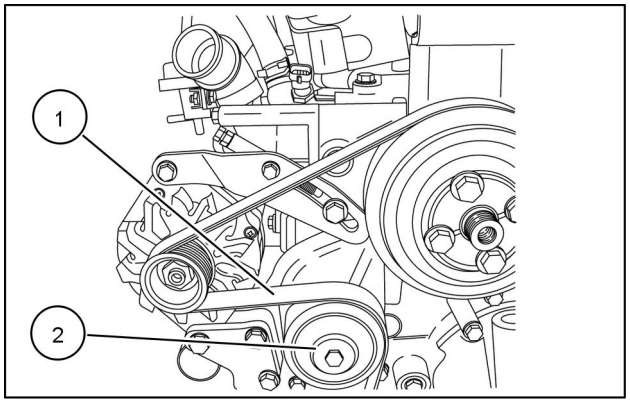
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4. Loosen the adjustment bolt lock nut **(1)** .
5. Turn the adjustment bolt **(2)** counter-clockwise, to loosen the belt tension.



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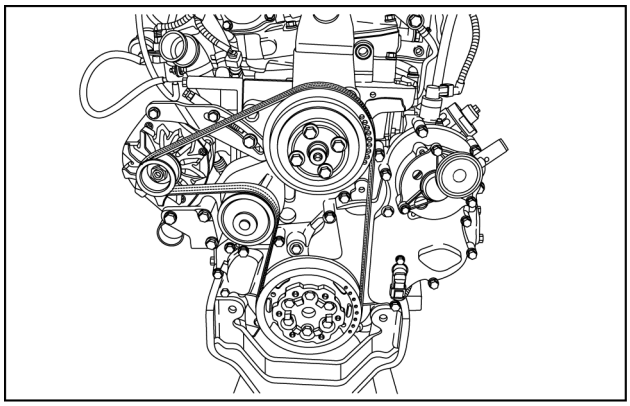
6. Slide the belt **(1)** off of the water pump pulley **(2)** and remove the belt.



83118121 3

Install

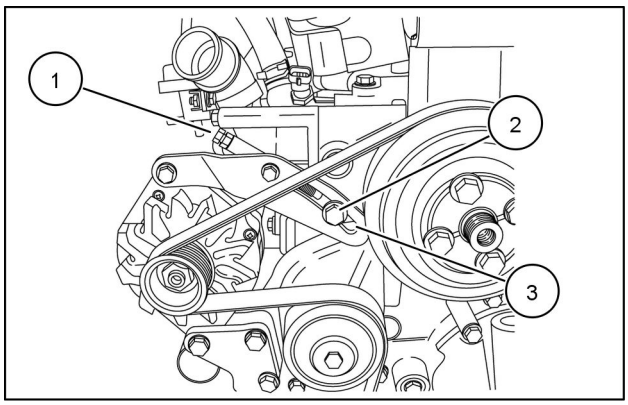
1. Route the drive belt on the pulleys as shown.



83118087 4

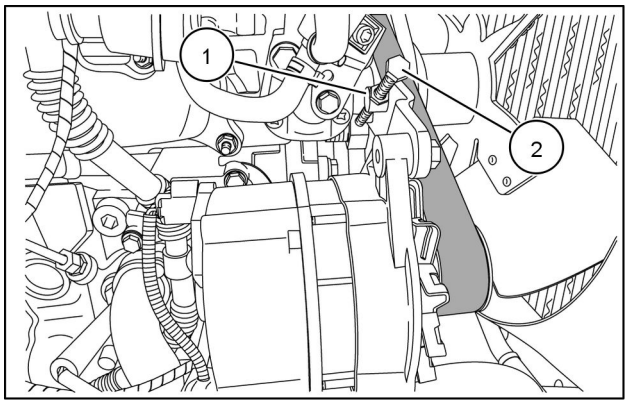
2. Setting and securing the fan belt tension:
   A. Turn the adjustment bolt **(1)** clockwise, until the pivot bolt **(2)** is near the end of the tension bracket slot **(3)**.

NOTE: *Special belt design will adjust to the proper tension.*



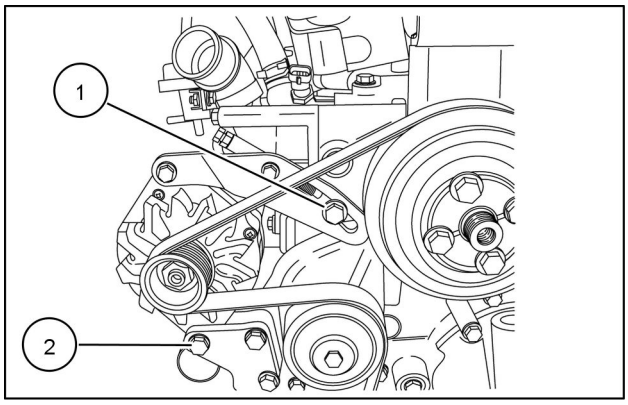
83118121 5

   B. Tighten the adjustment bolt lock nut **(1)** securing the adjustment bolt **(2)** in position.



RAIL11TLB0004AA 6

3. Torque to **45 - 55 N·m** (**33 - 41 lb ft**):
   - Pivot bolt **(1)**
   - Lower alternator bolt **(2)**



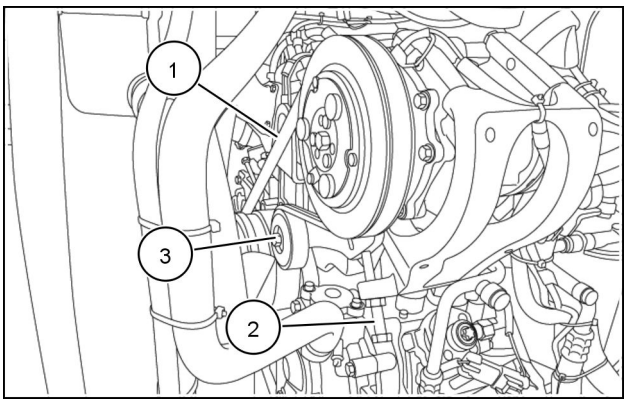
83118121 7

4. Install the air conditioning drive belt, if equipped.

Air conditioning compressor drive belt

AIR CONDITIONER COMPRESSOR

Visually check the condition of the belt **(1)**. Replace it if it is worn or damaged.
To release the belt, loosen the mounting hardware of the tensioner **(3)** and loosen the tensioner adjusting screw **(2)**. Install a new belt.
Adjust the belt tension by means of the tensioner adjusting screw **(2)**.



LEEN11T0368AA 1

Check the belt at the centre line of the belt **(1)** with a belt tension gauge. Specification is **122 - 149 N·m** (**90.0 - 109.9 lb ft**)

NOTICE: *after replacing the drive belt, make an adjustment after the first 10 operating hours.*

NOTICE: *the belt must not be too tensioned (premature bearing wear) not too slack (premature belt wear).*

Turbocharger - Check

TURBOCHARGER

Serious damage to the turbocharger bearing can result from inadequate lubrication if the following recommendations are not observed.

The following procedure must be observed in order to prevent the turbocharger bearings from deteriorating.

Disconnect the inlet and outlet oil pipes from the turbocharger and pour some clean engine oil into the oil inlet port, taking care that no contaminants enter the turbocharger.

Remove the air inlet tube from the turbocharger and spin the compressor wheel by hand to pre-lubricate the bearings.

Re-connect the oil inlet and air inlet tubes but not the oil outlet.

Disconnect the electrical wire to the fuel injection pump fuel shut-off solenoid.

Place a suitable receptacle below the oil outlet port and crank the engine until oil flows from the outlet port.

Re-connect the oil outlet tube using a new gasket and tighten the retaining bolts to the torque.

Re-connect the fuel injection pump fuel shut-off solenoid wire.

Check the engine oil level and, if necessary, top up. Start the engine and check for oil and air leaks.

Observe the oil pressure light. If the oil pressure lamp does not turn off in the first few seconds of idling, immediately stop the engine and consult your Dealer.

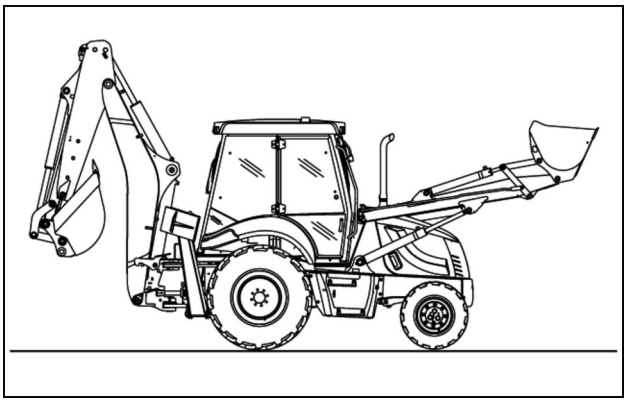
On every start-up the engine should be allowed to idle (**1000 RPM** maximum) for **60 s** before operating under load, to ensure an adequate oil supply to the turbocharger bearing.

The engine should also be allowed to idle without load for two minutes before shut-down to enable the oil to dissipate the heat from the turbocharger bearing.

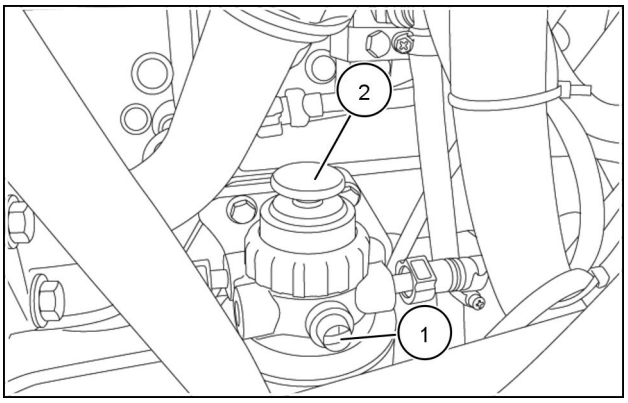
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Fuel system bleeding

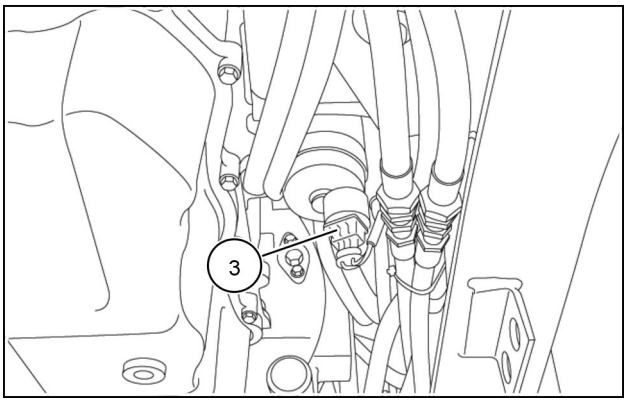
NOTE: *do not loosen any fuel lines or injector lines to bleed air from the system. They are under high pressure and therefore their loosening is dangerous.*
From the bottom of the filter, remove the connector **(3)**.
Place a container under the prefilter.
Open bleed screw **(1)** on prefilter only and activate hand primer **(2)** until fuel flows freely from the bleed screw.
This generally takes 35-45 pumps to fill the fuel lines and the prefilter.
This can be done in about **30 s**.
Tighten bleed screw.
Dry with cloth the prefilter.
Connect the electric connector under the prefilter.
Start the engine. Engine should start within **5 s**.
Lower and lock the engine tilt hood.
Remove the safety support strut and lower the loader attachment.



LEEN12T0685AA 1



LEEN11T0355AA 2

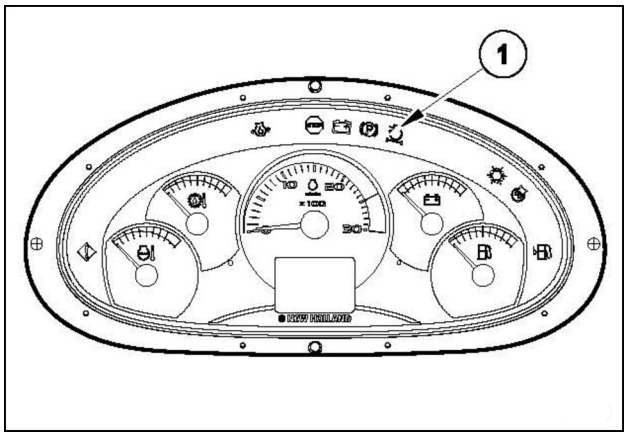


LEEN11T0370AA 3

Air filter elements - cleaning and replacement

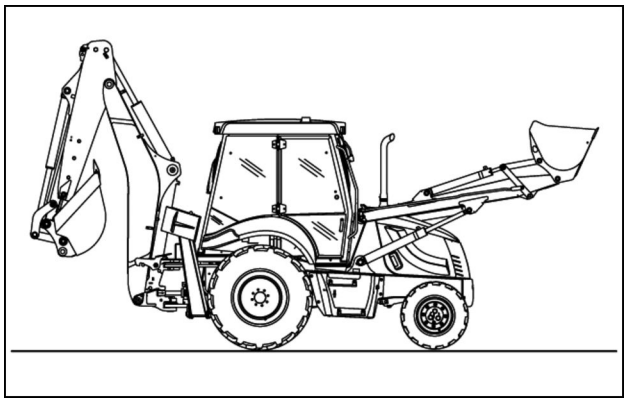
During this operation, or after starting the engine, the air filter restriction warning lamp **(1)** may turn on.
At this point, it is necessary to check the conditions of the air filter and its elements.
If necessary, clean or replace:

- the main filter element can be cleaned until it is necessary to replace it;
- the safety filter element must not be cleaned. Normally, it is replaced after three cleanings of the main element.



LEEN12T0582AA 1

Move the machine to a level and firm ground.
Raise the loader attachment and install the safety support strut.
Place the backhoe attachment in the road travel position.
Place the direction-of-travel lever and gearshift lever in neutral position.
Immobilize the machine by means of the parking brake.
Stop the engine and remove the starter switch key.
Open and raise the engine tilt hood.

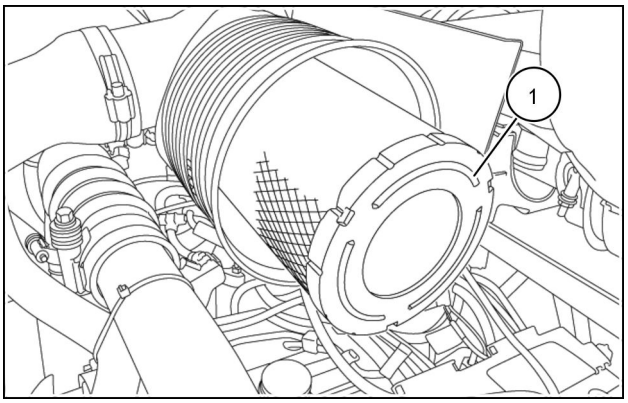


LEEN12T0685AA 2

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MAIN FILTER ELEMENT

Remove the filter cover.
Extract the main filter element **(1)**.

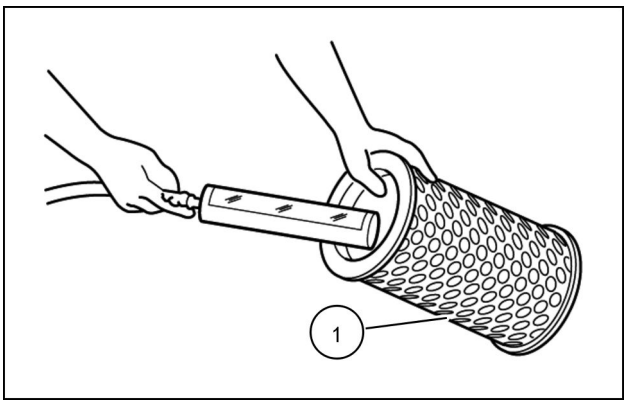


LEEN11T0403AA 3

Main filter element checks

Checks to be performed before assembling the main filter element.

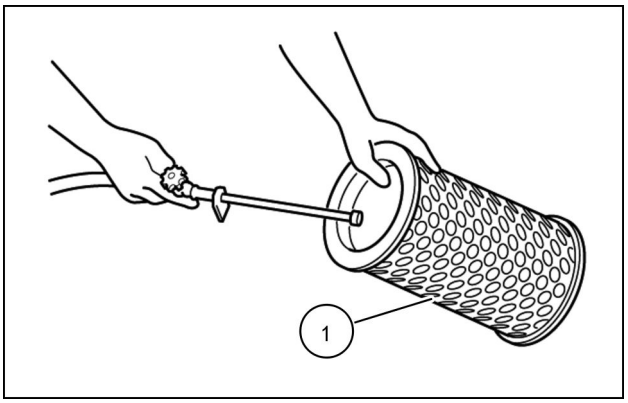
Check using a portable lamp.
If a light flash is visible from the outside, this means that the filter is damaged.
In this case, immediately replace the main filter element **(1)**.
Visual check of the seal.
If the seal is damaged, replace the main filter element immediately.



LEEN12T0477AA 4

Main filter element cleaning

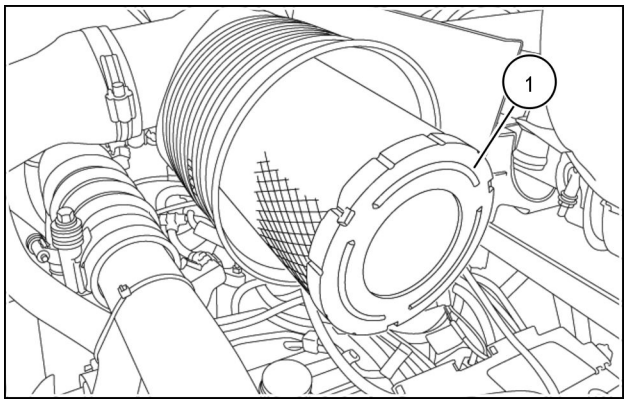
Never clean the filter elements by knocking or hitting them.
After three cleaning or maximum after one year, the filter element must be replaced.
Never clean the filter element using petrol or flammable liquids.
Cleaning with compressed air is appropriate if the filter element is immediately reused.
The pressure in the nozzle must not exceed **7 bar** (**102 psi**).
First clean the filter surface with dry compressed air, blowing obliquely from the outside.
Then blow the inside of the element.
The pipe to blow compressed air must remain at a distance of minimum **3 cm** (**1.18 in**) from the inside of the filter element.
Cleaning is complete when no dust comes out of the filter element **(1)** any more.



LEEN12T0479AA 5

Main filter element replacement

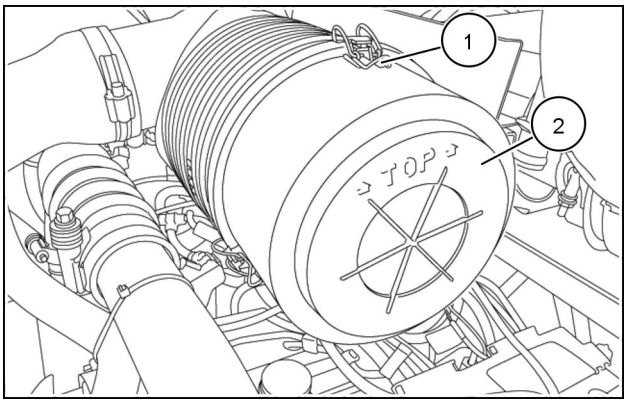
If it is detected, while checking, that the filter element is damaged or worn.
If, while checking with the portable lamp, even a tiny light passage is detected.
If the filter element has already been cleaned at least three times.
It is necessary to replace the main filter element.
Be extremely careful when installing the new main filter element **(1)**, delicately inserting it into the filter body.
Install the filter cover.



LEEN11T0403AA 6

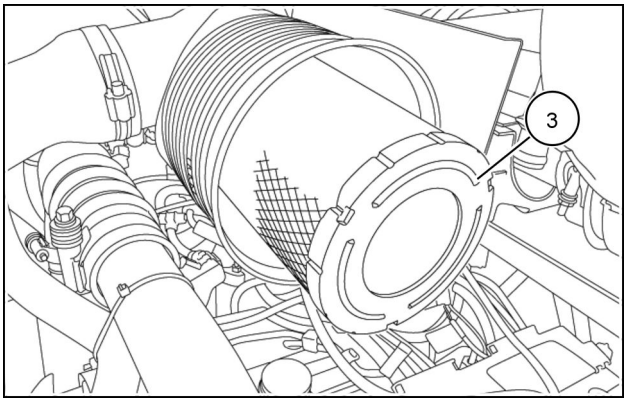
SAFETY FILTER ELEMENT

The safety filter element must not be cleaned.
After the main filter element has been cleaned three times, replace this element.
Unhook 3 clips **(1)** around perimeter of filter cover **(2)** and remove the filter cover.



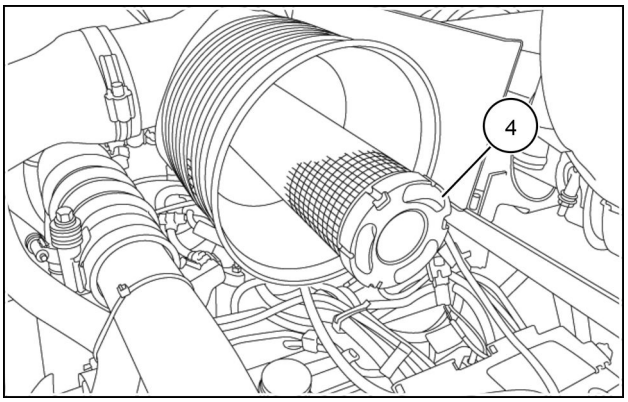
LEEN11T0402AA 7

Remove the main filter element **(3)** from the filter body.



LEEN11T0403AA 8

Remove the safety filter element **(4)**.
Clean the inside of the filter body by means of a clean cloth.
Assemble the new safety filter element **(4)**.



LEEN11T0404AA 9

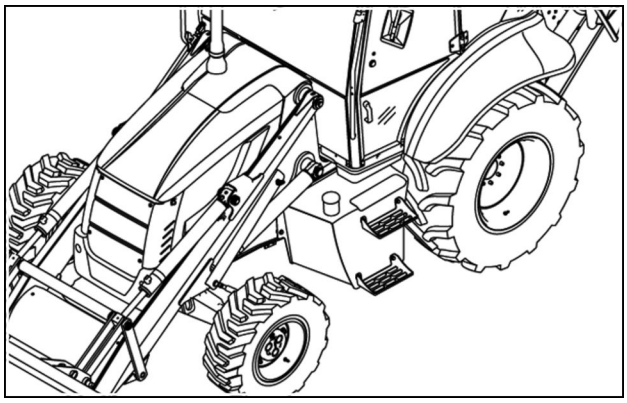
Assemble the main filter element **(3)**.
Reassemble the filter cover **(2)** and lock it by means of the clip **(1)**.
Start the engine, run it at low idle speed and make sure that the air filter restriction warning lamp on the side instrument is not on.

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Wheels and tires

Move the machine to a level and firm ground.
Place the direction-of-travel lever and gearshift lever in neutral position.
Immobilize the machine by means of the parking brake.
Stop the engine.
Unlock the nuts of the wheel to be disassembled.
Start the engine.
Use the loader attachment or the rear stabilizers to lift the machine until the wheel to be removed is no more in contact with the ground.
Stop the engine and remove the starter switch key.
Lock the wheels still in contact with the ground and which are not to be removed using wedges.
Correctly support the axle of the wheel to be removed with blocks.
Unscrew and remove the wheel nuts.
Remove the wheel.
Install a new wheel, observing the orientation of the tread pattern.
Reinstall and tighten the nuts to the specified torque:
- front wheel nuts **330 N·m** (**243 lb ft**);
- rear wheel nuts **540 N·m** (**398 lb ft**);.

Remove the wedges from the wheels.
Lower the machine.
Check the inflating pressure of the tires.
Inflate, if necessary.



LEEN12T0692AA 1

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WHEEL TOE-IN - ADJUSTMENT

FRONT WHEEL TOE-IN

The front wheel toe-in is pre set and adjustment is not normally necessary.

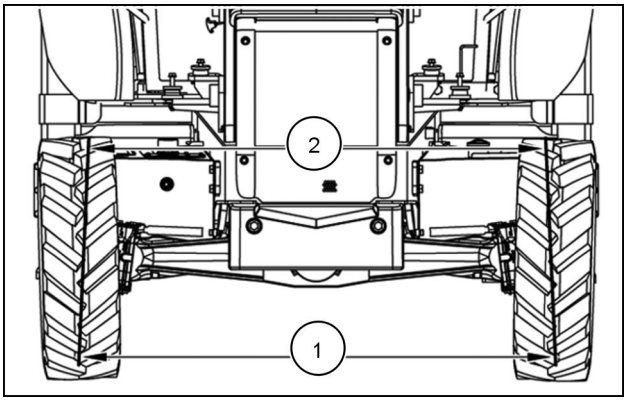
Periodical checks should be made to ensure the correct toe-in is maintained.

Adjustment

Place the machine on a level ground presenting no elements which could affect adjustments.

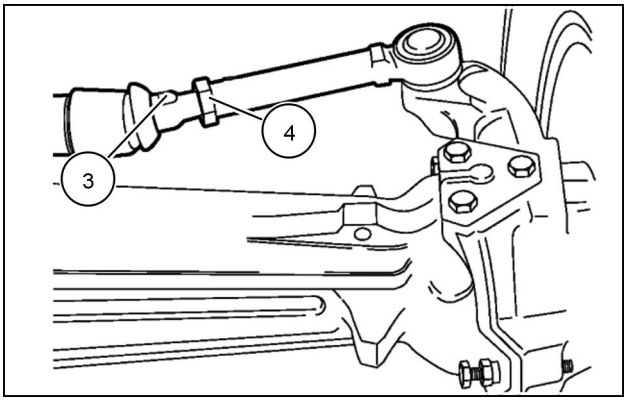
Steer the wheels to the front.

Measure the toe-in by checking the track width between the front of the wheel rim **(1)** and the rear of the wheel rim **(2)** at hub height.
The correct toe-in measurement is **0 - 6 mm** (**0 - 0.24 in**).



LEEN12T0481AA 2

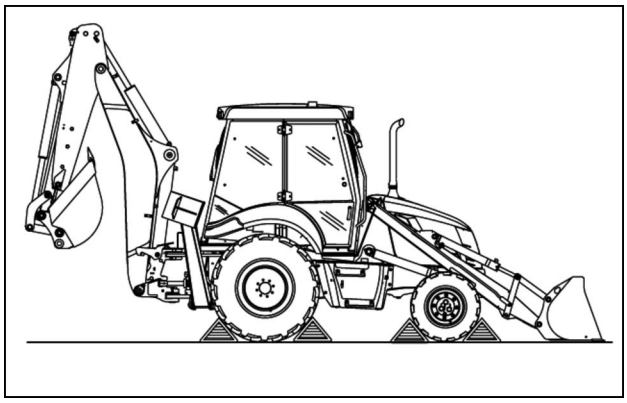
Loosen the lock nut **(3)** on each wheel tie rod and tighten the nut **(4)** with a wrench, until the correct wheel toe-in is obtained.
Tighten the locknut **(3)** and recheck the toe-in.



LEEN12T0482AA 3

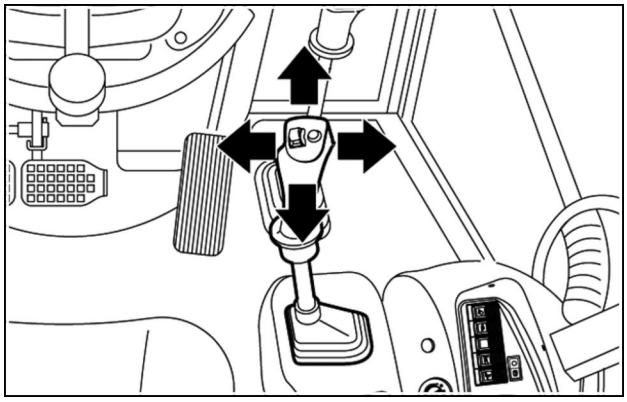
Hydraulic system - pressure release

Move the machine to a level and firm ground.
Lower the loader attachment to the ground.
Place the backhoe attachment in the road travel position.
Place the direction-of-travel lever and gearshift lever in neutral position.
Immobilize the machine by means of the parking brake.
Stop the engine and rotate the starting key in ON position.



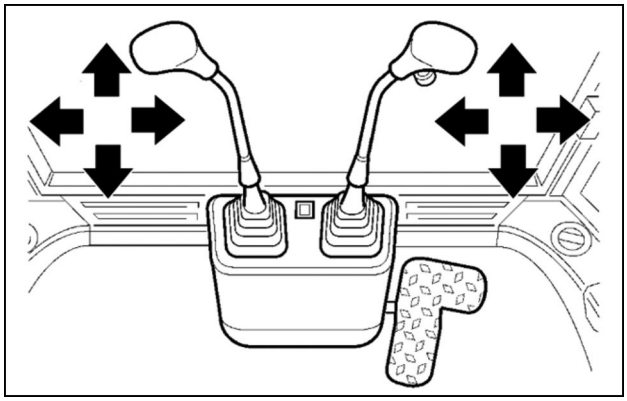
LEEN12T0640AA 1

Operate the loader attachment controls in all directions.

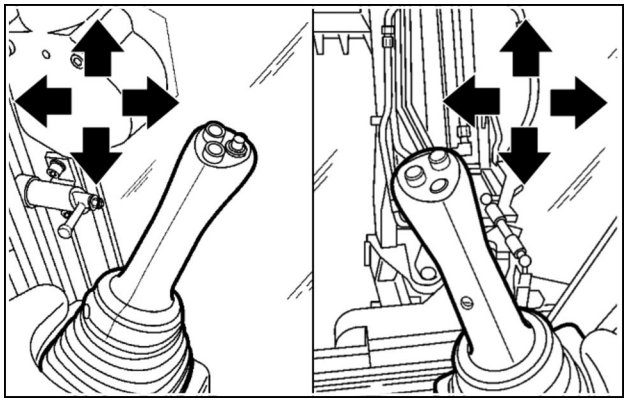


LEEN12T0693AA 2

Operate the backhoe attachment controls in all directions.



LEEN12T0486AA_1 3



LEEN12T0487AA 4

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HYDRAULIC FITTINGS AND LINES - REPLACEMENT

Before replacing the hydraulic fittings and lines, drain pressure from the hydraulic system.

Damaged or leaking lines must be replaced with new lines.

Use original spare parts, specially provided to carry out the necessary functions.

Never reinstall used lines or fittings.

The drained oil or the waste containing oil must be disposed of in an environmentally friendly manner. Do not release on the ground or in water.

The hydraulic lines should be replaced after six years' use. In this way, serious failure dangers are prevented.

Tighten the fittings to the prescribed torque values.

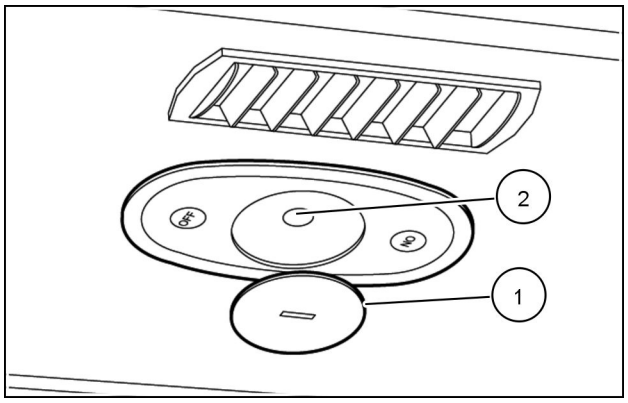
https://truckmanualshub.com/

Replace the bulbs

NOTICE: *never touch a halogen bulb with your fingers. Always use a clean cloth when handling halogen bulbs.*

OPERATOR'S COMPARTMENT LIGHT

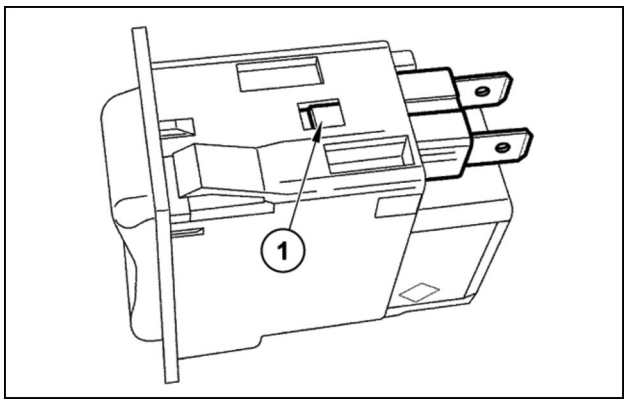
Remove the lens **(1)** unscrewing it by turning **90 °** through its central slot.
Remove the bulb **(2)** and install a bulb of the same wattage **10 W**.
Reinstall the lens **(1)**.



LEEN12T0488AA 1

SWITCH LIGHTING

Remove and disconnect the switch concerned.
Remove the bulb holder **(1)**. Remove the bulb and install a new bulb with the same wattage **1.2 W**.
Install the bulb holder and the switch.



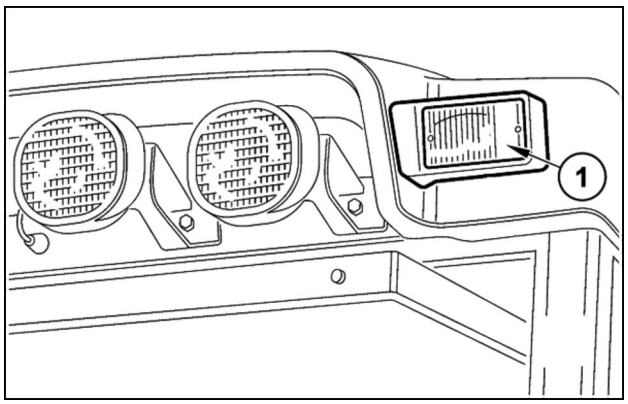
LEEN12T0704AA 2

BEAMS AND DIRECTION INDICATORS

Remove the four screws and remove the light assembly **(1)**.
Disconnect the socket from the bulb holder connector. Fold back the clips, remove the defective bulb and replace it with a bulb of the same wattage.
Remove out the bulb holder on the outside of the reflector to replace the direction indicator bulb.

NOTE: *to access the direction indicator bulb, remove the beam cover fastening screw.*

NOTE: *the beam can be adjusted vertically and sideways by adjusting the slotted screws.*

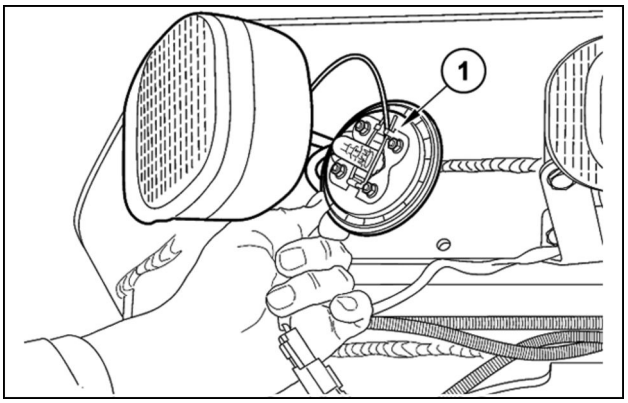


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FRONT AND REAR WORK LIGHTS

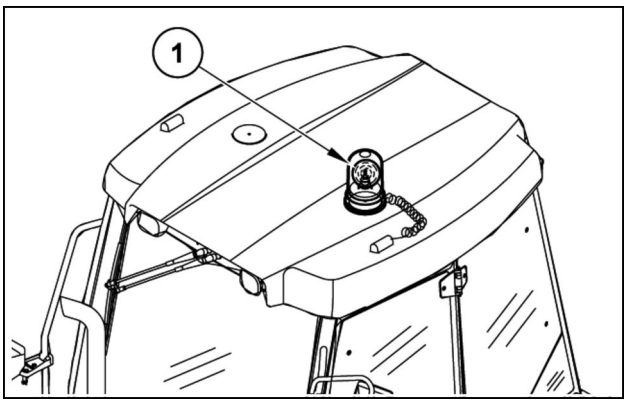
Remove the screws and take off the light assembly **(1)**.
Remove the bulb and install a new bulb with the same wattage **55 W**.
Install the light assembly and the screws.



LEEN12T0706AA 4

ROTATING BEACON (OPTIONAL)

Unscrew the lens, remove the bulb and install a bulb of the same wattage **55 W**. Install the lens.

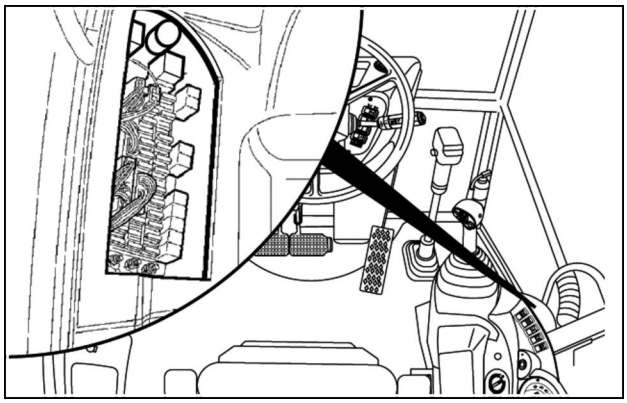


LEEN12T0550AA 5

Fuses and relays

NOTICE: *never replace a fuse with a fuse of a different rating.*

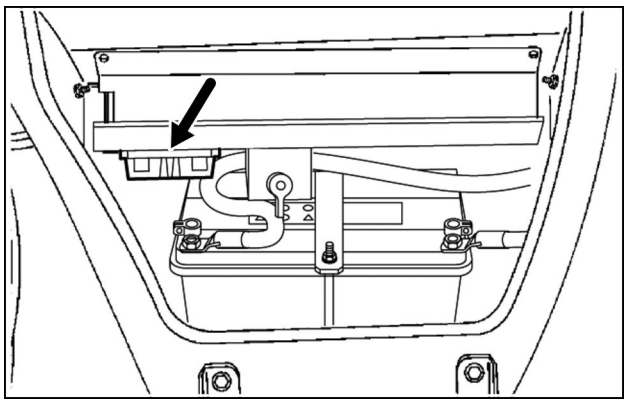
The fuse and relay control unit is located under the side instrument panel.
Near to the fuse and relay control unit is located also another fuse:
5 A fuse: diagnostics, menu scroll switch, menu enter switch and (+30) anti-theft device.
Near to the fuse and relay control unit is located a box containing 6 fuses:
Fuse F1 5 A: +30 diagnostics.
Fuse F2 15 A: side work lights.
Fuse F3 3 A: switch and side instrument supply.
Fuse F4 7.5 A: backhoe quick coupler.
Fuse F5 7.5 A: ride control, front instrument, locking valves.
Fuse F6: at disposal.



LEEN12T0495AA 1

The main fuse is in the battery compartment.
80 A fuse: protection between the battery and the machine's electrical system.
30 A fuse: blower motor 3rd speed (if fitted).
30 A fuse: ECU control unit.
10 A fuse: air conditioning (if fitted).
5 A fuse: fuel prefilter.
No. 3 relays: start.
Relay: air conditioning (if fitted).
Located under the seat base:
25 A fuse: blower motor (if fitted) 3rd speed.

NOTE: *this fuse can be accessed after removing the seat.*



LEEN12T0496AA 2

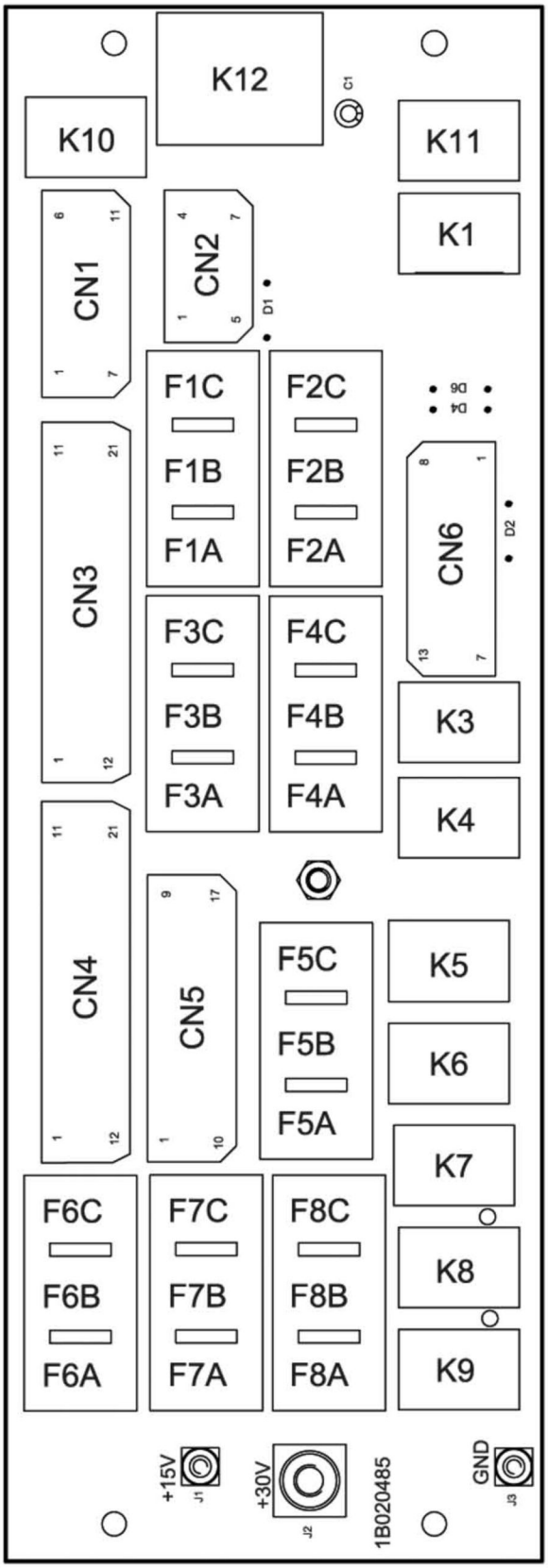
FUSES AND RELAYS - CAB

FUSES

Fuse No.	Rating	Function
F1A	15 A	Rear windshield wiper and washer
F1B	7.5 A	Fuel shut off, (+15) Antitheft, Key switch (+15) ECU Fuse, Parking Brake
F1C	10 A	Stop light switch
F2A	15 A	Instrument side panel, Switches lamps
F2B	15 A	Air conditioning
F2C	15 A	Pilot control
F3A	3 A	Rear right/front left side light, instrument illumination
F3B	3 A	Rear left/front right side lights, number plate light
F3C	10 A	Ride control switch, Quick coupling, Working light switch, , 4x1 Grab ST3
F4A	5 A	Forward speed, reverse speed, reverse speed buzzer, gearshift control
F4B	10 A	Backhoe hammer button, sensor + bucket level solenoid valve, transmission disconnect button and differential lock button
F4C	10 A	Backhoe attachment lock, backhoe attachment travel lock, rear work light switch
F5A	15 A	Outer front work light relay
F5B	10 A	Low beams (only for Europe)
F5C	15 A	Main beams (only for Europe)
F6A	15 A	Rotating beacon
F6B	7.5 A	(+15) hazard warning light power supply
F6C	7.5 A	Hand hammer, 4WD
F7A	10 A	(+30) power supply for hazard warning lights, horn
F7B	10 A	Electrical socket, radio, roof lamp
F7C	6 A	Front windshield wiper
F8A	15 A	Outer rear work lights
F8B	15 A	Outer front work lights
F8C	15 A	Inner rear work lights

RELAYS

K1	Forward-reverse travel control relay
K3	Starting relay
K4	Bucket level solenoid valve relay
K5	Low and main beam relay
K6	Inner front work light relay
K7	Inner rear work light relay
K8	Outer front work light relay
K9	Outer rear work light relay
K10	Reverse travel relay
K11	Forward travel relay
K12	Direction indicator flashing



LEEN12T0497FA_2 3

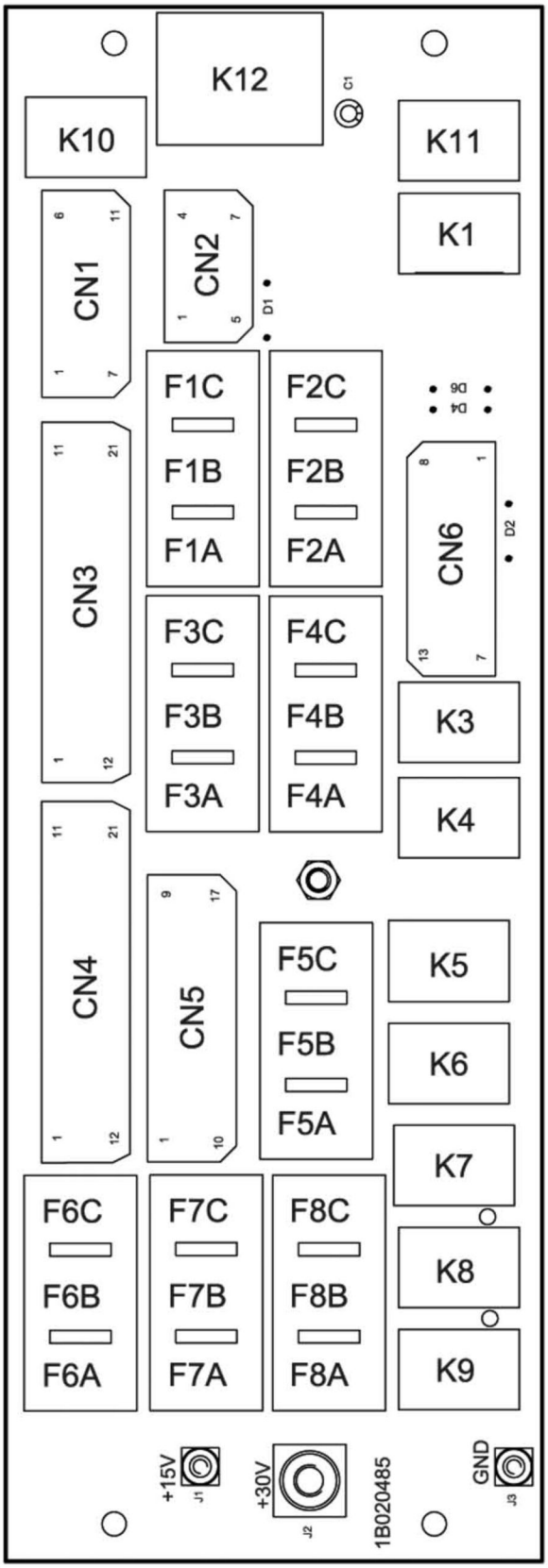
FUSES AND RELAYS - ROPS

FUSES

Fuse No.	Rating	Function
F1A	-	Not used
F1B	7.5 A	Fuel shut off, (+15) Antitheft, Key switch (+15) ECU Fuse, Parking Brake
F1C	10 A	Stop light switch
F2A	15 A	Instrument side panel, Switches lamps
F2B	-	Not used
F2C	15 A	Pilot control
F3A	3 A	Rear right/front left side light, instrument illumination
F3B	3 A	Rear left/front right side lights, number plate light
F3C	10 A	Ride control switch, Quick coupling, Working light switch, , 4x1 Grab ST3
F4A	5 A	Forward speed, reverse speed, reverse speed buzzer, gearshift control
F4B	10 A	Backhoe hammer button, sensor + bucket level solenoid valve, transmission disconnect button and differential lock button
F4C	10 A	Backhoe attachment lock, backhoe attachment travel lock, rear work light switch
F5A	15 A	Outer front work light relay
F5B	10 A	Low beams
F5C	15 A	Main beams
F6A	15 A	Rotating beacon
F6B	7.5 A	(+15) hazard warning light power supply
F6C	7.5 A	Hand hammer, 4WD
F7A	10 A	(+30) power supply for hazard warning lights, horn
F7B	-	Not used
F7C	-	Not used
F8A	15 A	Outer rear work lights
F8B	15 A	Outer front work lights
F8C	15 A	Inner rear work lights

RELAYS

K1	Forward-reverse travel control relay
K3	Starting relay
K4	Bucket level solenoid valve relay
K5	Low and main beam relay
K6	Inner front work light relay
K7	Inner rear work light relay
K8	Outer front work light relay
K9	Outer rear work light relay
K10	Reverse travel relay
K11	Forward travel relay
K12	Direction indicator flashing

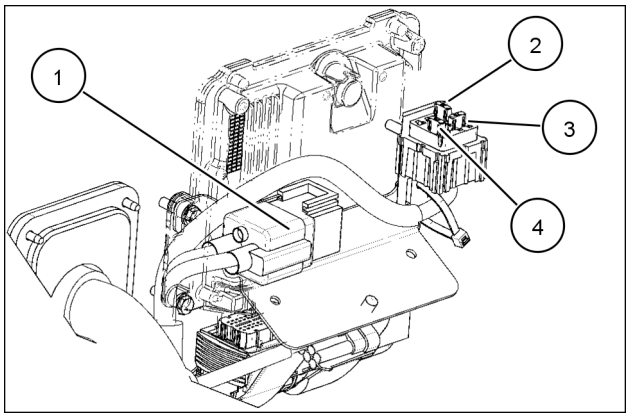


LEEN12T0497FA_2 4

Front console ECU fuse and relay

1. Remove the cover from the steering column shroud.

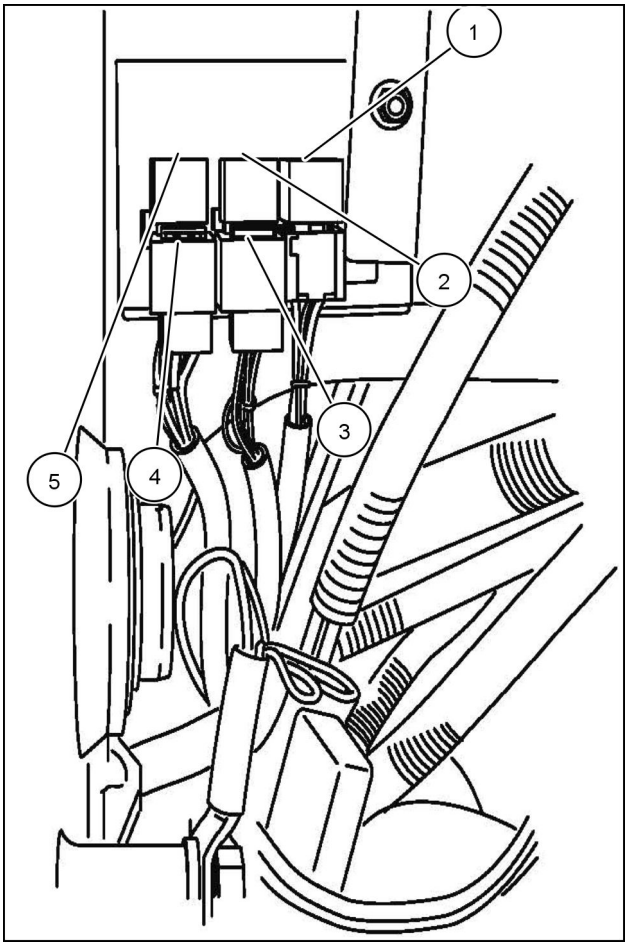
Fuse or relay reference	Designation
(1)	ECU B+ relay
(2)	ECU B+ **20 A** fuse
(3)	ECU B+ **7.5 A** fuse
(4)	LAMBDA SENSOR B+ **7.5 A** fuse



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FUSES AND RELAYS: ENGINE COMPARTMENTS RIGHT SIDE

Fuse or relay reference	Designation
(1)	Start interlock relay
(2)	Air conditioning relay
(3)	Air conditioning fuse **10 A**
(4)	Engine starter motor **30 A**
(5)	Engine starter motor relay



LEEN12T0537BA 6

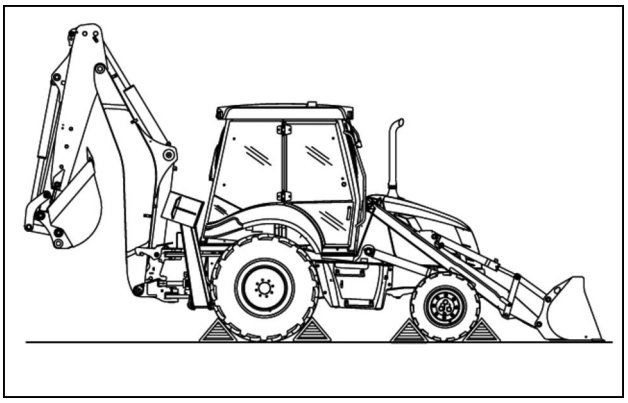
https://truckmanualshub.com/

Battery removal and installation

Move the machine to a level and firm ground.
Lower the loader attachment to the ground.
Place the backhoe attachment in the road travel position.
Place the direction-of-travel lever and gearshift lever in neutral position.
Immobilize the machine by means of the parking brake.
Stop the engine and remove the starter switch key.

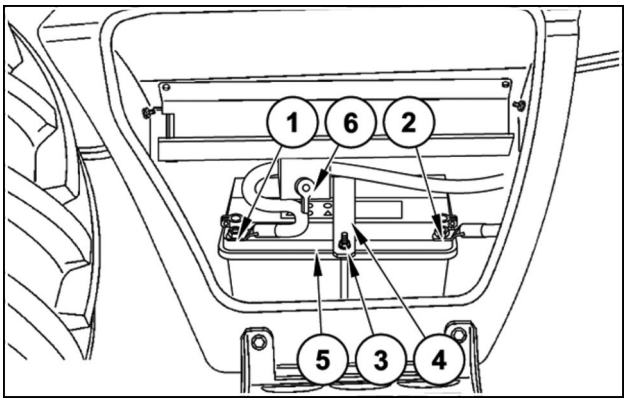
ATTENTION: *Never reverse the battery terminals. Connect the positive cable to the positive terminal (+) and the negative cable to the negative terminal (-).*
When disconnecting the battery cables, always disconnect the negative cable (-) first.
When reconnecting the battery cables, always connect the negative (-) cable last.
Never short-circuit the battery terminals with metal objects.
Never touch the battery terminals with your hands. This could generate an electrolysis inside the human body and damage the body's vital organs.
Place the battery switch in the OFF position.

NOTE: *Wait at least 60 seconds after key off before turning battery switch to the off position. This allows the machine controllers to shutdown properly.*



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Remove the support **(6)** without disconnect the battery cables.
Remove the terminal covers and disconnect the cables, first from the negative terminal **(1)** then the positive terminal **(2)**.
Remove the nuts and washers **(3)**, the clamping bar **(4)** and the brackets **(5)** and remove the old battery.
Install the new battery.
Install the brackets **(5)**, the clamping bar **(4)** and the washers and nuts **(3)**.
Clean the cables and the connecting terminals and coat them with grease.
Connect the cables, first to the positive terminal **(2)**, then the negative terminal **(1)** and install the terminal covers.
Reassemble the battery master switch support **(6)**.

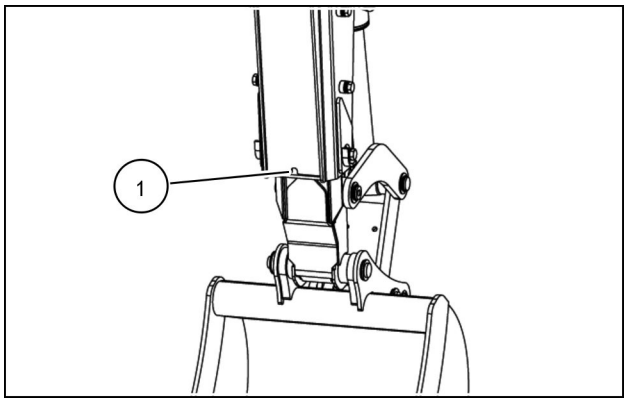


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Telescopic dipper (if equipped) - draining

Ensure the drain port **(1)** in the end of the dipper is kept clear to prevent accumulation of water inside the unit.
Check the hole for hydraulic oil traces, which would indicate the presence of a pressure loss in the cylinder.



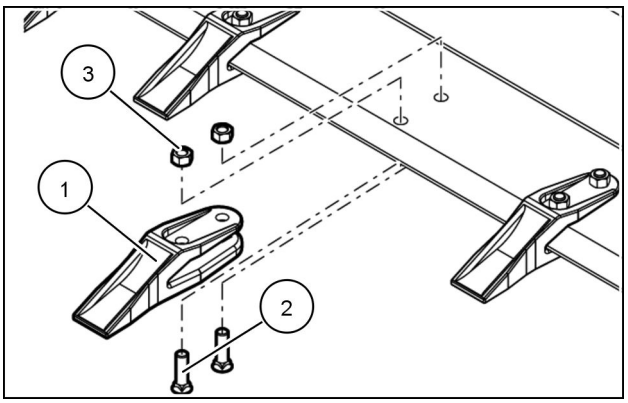
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Bucket teeth - replacement

BUCKET - LOADER ATTACHMENT

Move the machine to a level and firm ground.
Position the loader bucket so that the bucket teeth can be replaced.
Place the direction-of-travel lever and gearshift lever in neutral position.
Immobilize the machine by means of the parking brake.
Stop the engine and remove the starter switch key.
Loosen and remove the screws **(2)** with the nuts **(3)**.
Extract the tooth **(1)**.
Clean the area around the tooth.
Assemble the new tooth **(1)**.
Screw in and tighten the screws **(2)** with the nuts **(3)**.



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BUCKET - BACKHOE ATTACHMENT

Move the machine to a level and firm ground.

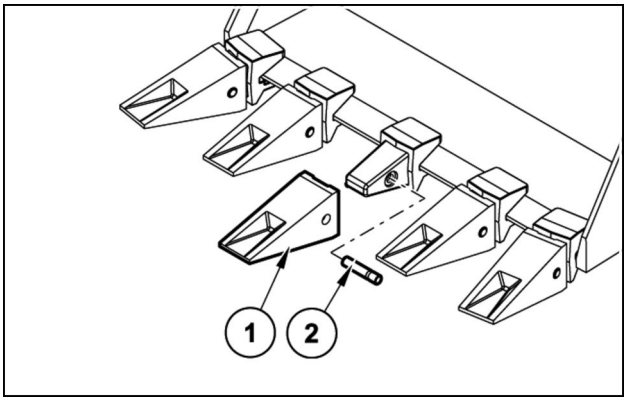
Position the backhoe bucket so that the bucket teeth can be replaced.

Place the direction-of-travel lever and gearshift lever in neutral position.

Immobilize the machine by means of the parking brake.

Stop the engine and remove the starter switch key.

Remove the safety pin **(2)** using a hammer and a punch or tooth tool.
Extract the tooth **(1)**.
Clean the area around the tooth holder.
Assemble the new tooth **(1)**.
Install the safety pin **(2)**.

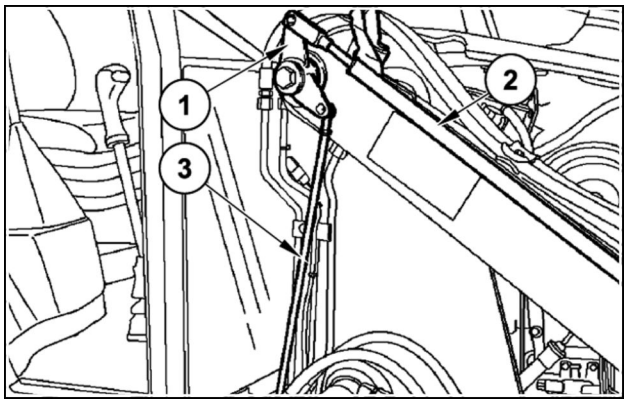


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Loader bucket - self-levelling adjustment

The self-levelling linkage mounted on the right hand loader arm and frame automatically controls the angle of the loader bucket during the raising cycle of the lift arms to maintain a constant bucket level. There is no self-levelling during the lowering cycle.

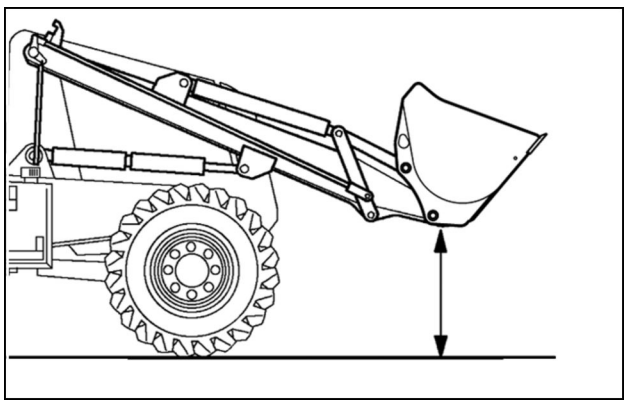
Self-levelling begins when the tube **(2)** on the loader arm contacts the bell crank **(1)** and lifts the vertical linkage rod **(3)**.
The tie rod then moves the bucket spool to the dump position to level the bucket.



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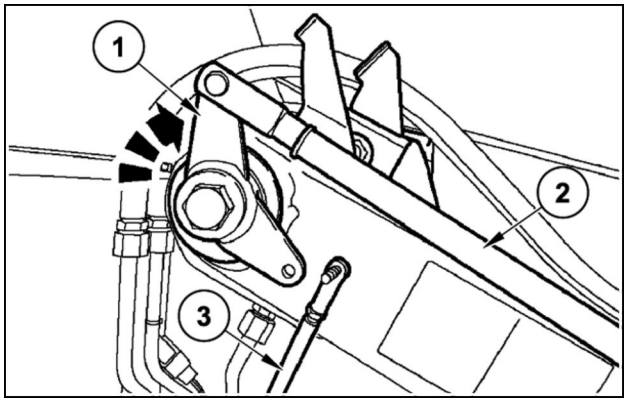
AUTOMATIC SELF-LEVELLING CONTROL ADJUSTMENT

Lower the loader attachment to the ground.
Disconnect the vertical tie rod **(3)** at the lower bell crank.
Raise the loader attachment so that the lower bucket pin is **800 mm** (**31.5 in**) above the ground, and fully turn over the bucket to the rear.



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Rotate the bell crank **(1)** till it touches the tube **(2)** on the loader arm. Make sure the lower bell crank arm is directing upwards.
Adjust the length of the vertical rod **(3)** so that when re-connected, the end of the loader arm tube remains in contact with the bell crank.
Securely tighten the lock nuts on a vertical tie rod.

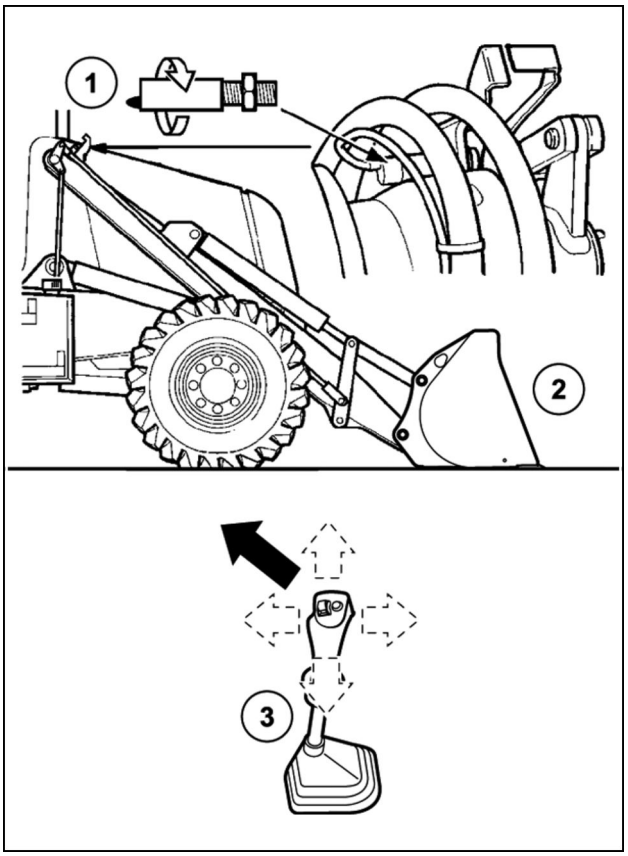


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“RETURN TO DIG” SYSTEM

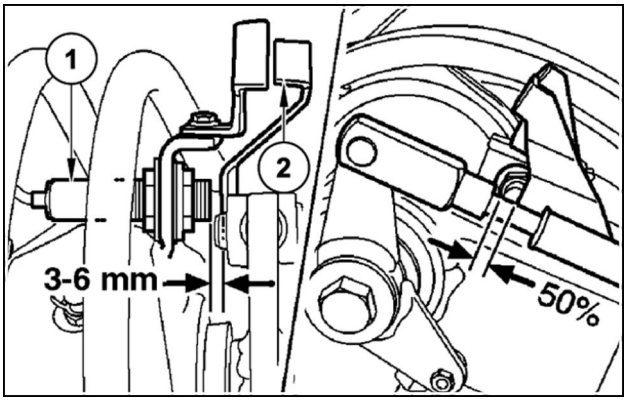
Return to dig is an electrically activated feature which enables the operator to automatically return the bucket to a level digging position for a further work cycle with one simple movement of the loader control lever **(3)**.
Whenever the bucket is rolled forward to dump the return to dig electrical circuit is completed and the solenoid on the bucket spool is energised.
When the loader bucket control lever **(3)** is moved diagonally left to the return to dig position **(2)** the electromagnet will hold the bucket spool in the roll back position until the bucket is in the level digging position at which time the indicator on the rod of the bucket self-levelling linkage will pass in front of the sensor which de-energises the electromagnet on the bucket spool enabling the spool to return to the neutral position.



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Return to dig sensor - Adjustment

The return to dig system consists of an electromagnet mounted on the bucket spool, a sensor **(1)** mounted on top of the loader arm and a pointer attached to the tube of the bucket self-levelling linkage.
Place the bucket on the ground in the preferred digging position.
Adjust the position of the sensor such that when the bucket is in digging position and loader arms are lowered, half **50 %** of the sensor face is obscured by the self-levelling linkage pointer.
Ensure the face of the sensor **(1)** is **3 - 6 mm** (**0.12 - 0.24 in**) from the pointer **(2)** on the self-levelling linkage.
As a visual aid for the operator, while seated in the cab, the pointer mounted on the loader arm can be seen to align with the pointer on the self-levelling linkage, when the loader arms are lowered and the bucket is in the level digging position.



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STORAGE

Machine storage

If the machine is to remain unused for a period exceeding 30 days, store it under cover or cover it with a waterproof tarpaulin.

Clean the machine completely.

Paint all surfaces of the machine where the paintwork is damaged, to avoid rust.

Check the machine for worn or damaged parts and replace as necessary.

Lubricate the machine and drain the transmission, hydraulic oil tank, rear axle and engine and refill with the correct grades of oil.

Check the radiator coolant level. If the machine is within 100 hours before the scheduled maintenance after 2000 hours, or within 2 months before the maintenance scheduled after 2 years, perform the prescribed maintenance operations.

Operate the loader attachment so that all its cylinders are in fully retracted position and rest the bucket on a block of wood.

Place the backhoe attachment in the road travel position.

Stop the engine and operate all the hydraulic controls to release all residual pressure from the hydraulic circuits.

Coat the exposed portions of the cylinder rods and control valve spools with grease.

Remove the battery from the machine and store it.

Place blocks under the axles to remove the weight from the tires.

Cover the exhaust pipe opening.

Perform the engine protection operations.

STORING THE ENGINE

If the engine is to be left unused for a long time, it is necessary to conserve it by means of specific products against rust formation.

Clean the engine with a high-pressure device.

Take the engine to the operating pressure, then stop it.

Drain the engine oil and fill in anti-corrosive oil.

Drain fuel from the tank.

Produce a mixture of **90 %** diesel fuel and **10 %** anticorrosive oil and fill the tank with it.

Let the engine run for approximately **10 min**.

Stop the engine.

Manually rotate the engine several times for cylinder and combustion chamber preservation.

Disassemble the belts and store them packed.

Spray some anti-corrosive grease in the pulley races.

Close the suction and the drain openings.

Before operating the engine again, it is necessary to remove the preservation products.

Products

Anti-corrosive oil according to specification:

- MIL-L-21260B;
- TL 9150-037/2;
- Nato Code C 640 / 642.

Anti-corrosive product for external preservation according to specification:

- Nato Code C 632.

Recommended detergent for preservation product removal:

- Petrol solvent (danger class A3).

BATTERY STORAGE

Remove the batteries from the machine. Store them on a wooden table in a dry, cool, well ventilated room, if possible at a temperature above **0 °C** (**32 °F**) [optimum temperature **20 °C** (**68 °F**)].

Perform the following operations:

- clean the battery;
- check the acid concentration and the electrolyte level every two weeks;
- fully recharge the battery when the acid concentration drops to 1.23 kg/dm3 (77 lb/foot3);
- keep the outside of the batteries clean and dry.

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8 - TROUBLESHOOTING

FAULT CODE RESOLUTION

Troubleshooting

Often failures are due to improper use or to an irregular maintenance of the machine.

In case of failure, it is recommended to read the relevant chapter in the manual.

In case no failure cause can be determined or if you are not able to eliminate the problem, consult the Service Department.

When contacting the Service Department, it is important to describe the failure and all the factors related to it in the most precise way possible. Precise information allows quickly finding and eliminating the cause of the problem.

Never perform any operation if not sufficiently skilled for the job.

These following tables are reported for your guidance only.

If any repairs are required beyond routine maintenance, your machine must be returned to your Dealer who has the correct tools, facilities and knowledge to perform repairs to the correct specification and safety standards.

These tables describe the failures already occurred, their possible causes and the remedies to be adopted.

In exceptional cases, a failure described may also have another cause.

PROBLEM

Here the failure is described as the consequence of a previously performed observation or activity.

Therefore, observe with extreme care.

Carefully examine the problem.

Ask yourself the following questions:

What symptoms preceded the failure?

What repair or maintenance operations have been previously performed?

Had this failure already occurred?

Is this a single failure or are these more contemporary failures?

POSSIBLE CAUSE

The possible causes of the detected failure are indicated.

They are arranged according to the probability degree: the most probable cause is shown at first place.

CORRECTION

Here it is explained how to detect and eliminate the cause of the problem.

Engine

PROBLEM	POSSIBLE CAUSE	CORRECTION
The engine does not start.	Partially discharged batteries.	Check, charge the batteries and, if necessary, replace them.
	Corroded or loose connections to the battery terminals.	Clean, inspect, tighten the nuts and, if necessary, replace the excessively corroded terminals and nuts.
	Dirt or water accumulations in fuel lines.	Disconnect the lines and the injection pump and carefully clean them; if necessary, clean and dry the fuel tank.
	No fuel in the tank.	Fill the tank.
	No supply to the injection pump.	Check and, if necessary, replace the supply pump.
	Air in the fuel system.	Check the lines, the fittings, the supply pump, the filters and the injection pump for the presence of air, then bleed the system.
	Damaged starter motor.	Repair or replace the starter motor.
The engine stops.	Irregular delivery of the supply pump.	Check delivery on the workbench.
	Dirt or water accumulations in fuel lines.	Disconnect the lines and the injection pump and carefully clean them; if necessary, clean and dry the fuel tank.
	Restricted fuel filters.	Replace the filter cartridges.
	Burned or cracked valves.	Replace the valves.
	Air in the fuel system.	Check the lines, the fittings, the supply pump, the filters and the injection pump for the presence of air, then bleed the system.
	Damaged injection pump controls.	Replace the damaged parts.

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PROBLEM	POSSIBLE CAUSE	CORRECTION
The engine overheats.	The centrifugal pump of the cooling system is faulty.	Overhaul the pump and, if necessary, replace it.
	Faulty temperature switch.	Replace the temperature switch.
	Radiator partially faulty.	Eliminate possible scales by washing, check and repair possible tube leaks.
	Scales in coolant passage compartments in cylinder heads and crankcase.	Carefully wash.
	Centrifugal pump drive belt and fan drive belt too slack.	Check and adjust belt tension.
	Coolant (insufficient quantity).	Restore the level in the expansion tank by adding the prescribed fluid.
	Incorrect timing of the engine.	Check and correctly time the engine.
	Restricted air filter.	Clean the assembly and, if necessary, replace the filter element.
The engine has anomalous knocks.	Partially obstructed or damaged injectors.	Clean, overhaul and correctly calibrate the injectors.
	Dirt accumulations in fuel lines.	Clean the lines and replace the visibly dented pipes; if necessary, clean the injection pump.
	Drive shaft knocks caused by an excessive clearance of one or more crankshaft bearings or big end bearings or excessive shoulder clearance.	Rectify the drive shaft pins, assemble bigger shoulder bearings and rings.
	Unbalanced drive shaft.	Check the alignment and the balance of the drive shaft and, if necessary, replace it.
	Loose flywheel retaining screws.	Replace the loose screws and tighten all screws to the prescribed torque + angle.
	Connecting rod axes not parallel.	Straighten the connecting rods, check that the axes are parallel and, if necessary, replace the connecting rods.
	Cylinder knocks due to anomalous wear.	Bore the cylinder barrels and assemble bigger cylinders.

PROBLEM	POSSIBLE CAUSE	CORRECTION
The engine has anomalous knocks.	Noisy cylinder pin due to excessive clearance in hub and connecting rod bushing. Bushings free in their seat on the connecting rod.	Replace the pin with a bigger one, reprocess the hubs on the cylinder and the bushing on the connecting rod. Replace the bushing.
	Ticking due to noisy distribution.	Check that there are no broken springs, that there is no excessive clearance between the rods and the rails, tappets and seats; adjust the clearance between valves and rockers.
Anomalous engine smoke.		Contact your dealer.

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PROBLEM	POSSIBLE CAUSE	CORRECTION
Difficult starting and poor performance under all conditions.	High-pressure pump faulty.	Contact your dealer.
Difficult start, poor performance, the engine runs with one cylinder less.	Injector with shutter or solenoid core (mechanical part) stuck open.	Contact your dealer.
Starting takes tens of seconds, much white exhaust smoke, smell of fuel.	Injector (irreversibly) stuck open.	Contact your dealer.
Broken high-pressure line from pump to Common Rail	Anomalous vibrations caused by a loose line clamping.	Contact your dealer.
The engine operates with a cylinder less, without saving failures in the control unit.	Injector stuck closed.	Contact your dealer.

Starter motor

PROBLEM	POSSIBLE CAUSE	CORRECTION
The starter motor does not run.	Too low specific density and battery level.	Inspect the battery.
	Poor ignition switch circuit connection or contact.	Replace the wiring harness and the ignition switch or starter motor runs too slowly.
	Malfunction of the coil or of the magnetic switch pull-in cylinder.	Replace the magnetic switch.
The starter motor running cannot crank the engine.	The pinion gear does not engage with the ring gear.	Repair or replace the clutch and the control lever.
	Sliding clutch.	Replace the clutch.
Anomalous noise.	Anomalous bushing wear.	Replace starter.
	Wear on pinion gear or ring gear tooth tips.	For ring gear damage contact dealer.
	Poor pinion gear sliding.	Replace starter.
The pinion gear springs.	Poor ignition switch return.	Replace the ignition switch.
Field coil loss. Magnetic switch coil burnt, etc.	Pinion gear disengagement fault caused by a coil short circuit in the magnetic switch.	Replace the magnetic switch.

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Alternator

PROBLEM	POSSIBLE CAUSE	CORRECTION
Not recharged.	Recharge circuit interrupted (warning lamp, fuse, connector, etc.).	Check the connections of the recharge circuit, clean and tighten the alternator and battery terminals.
	Voltage regulator inefficient.	Replace alternator.
	Rotor winder interrupted.	Replace alternator.
	Worn brushes.	Replace alternator.
Recharge insufficient.	Slackened fan belt.	Supply the correct tension.
	Voltage regulator faulty.	Replace alternator.
	Excessive wear of rotor rings or brushes.	Replace alternator.
	Short-circuited diodes.	Replace alternator.
	Short-circuited stator winders or rotor winder.	Replace alternator.
Excessive recharge.	Loose circuit connections.	Check the connections of battery terminals, starter motor terminals and alternator.
	Voltage regulator inefficient.	Replace alternator.
	Ground connection faulty.	Check connections for leaks.

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Transmission

PROBLEM	POSSIBLE CAUSE	CORRECTION
The vehicle does not move.	Control valve supply problem.	Check and, if necessary, replace the control valves.
	Damaged connections of transmission and vehicle wiring harness.	Repair and, if necessary, replace the wiring harness.
	Oxidation in the contacts of the electric cables of the wiring harness.	Clean the contacts.
	Interruption of the electric cable.	Replace the electric cable.
	Damage to the solenoids/solenoid valves.	Replace the solenoids.
	Damage to sensors.	Replace sensors.
	Short circuits or bad contact.	Check and, if necessary, replace the fuses.
	EGM/ECU gearshift electronic control operation fault (only for POWERSHIFT models).	Replace the EGM/ECU gearshift electronic control (only for POWERSHIFT models).
	Incorrect oil level.	Restore the oil level.
	Check for possible oil leaks.	Eliminate the leaks and restore the oil level.
	Suction strainer restriction.	Clean the suction strainer.
	Damaged oil pump.	Replace the oil pump.
	Damaged oil pump pressure relief valve.	Replace the oil pump.
	Damaged/restricted filter.	Replace the filter.
	Damaged / stuck control valve.	Replace the control valve.
	Damaged converter.	Replace the converter.
	Oil temperature below **0 °C** (**32 °F**).	Wait for the operating temperature to be reached (stall test).
	Damaged rotating seals.	Replace the rotating seals.
	Damaged synchronizers (only for POWERSHUTTLE models).	Replace the synchronizers (only for POWERSHUTTLE models).
	Stuck shuttle lever.	Repair the shuttle lever.
	Excessively worn-out clutch assembly.	Repair and, if necessary, replace the clutch assembly.
	Lack of motion transmission (broken gears, shafts, bearings, etc.).	Check, repair and, if necessary, replace.

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PROBLEM	POSSIBLE CAUSE	CORRECTION
	The brake does not release.	Check the general pressure of transmission.
		Check voltage.
		Check the operation of the solenoid valve.
		Check the mounting of the brake solenoid valve block after operating on the brake.
		After the above-described verifications, disassemble the brake cover and check the condition of the parts for unlocking/locking the brake (teflon seals, Belleville washers, brake disc deformation, etc.).
The vehicle has a reduced power transmission.	Incorrect oil temperature.	Wait for the operating temperature to be reached (stall test).
	Transmission oil overheating.	Restore acceptable temperature values.
	Incorrect operating pressures.	Check the hydraulic circuit and replace (oil pump, filters, control valve).
	Damaged converter.	Replace the converter.
	Incorrect oil level.	Restore the oil level.
	Worn-out clutch assembly.	Replace/repair.
	4WD fails to engage.	Repair/replace the 4WD shaft assy.
	Overheated solenoids/solenoid valves.	Replace.
	Damaged connections of transmission and vehicle wiring harness (only for POWERSHIFT models).	Repair and, if necessary, replace the connections (only for POWERSHIFT models).
	Damaged logic of EGM/ECU gearshift electronic control (only for POWERSHIFT models).	Replace the EGM/ECU (only for POWERSHIFT models).
	Damage to sensors.	Replace sensors.

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PROBLEM	POSSIBLE CAUSE	CORRECTION
Overheating.	Damaged cooling system.	Repair the cooling system.
	Dirty heat exchanger.	Clean the heat exchanger.
	Unintentionally activated parking brake.	Deactivate the parking brake.
	Excessive soil deposit on axle wheel hubs.	Clean the axle wheel hubs.
	Seizure (broken gears, shafts, bearings, etc.).	Check, repair and, if necessary, replace.
	Braking force external to transmission: axle operating problem.	Check and repair the axle.
	Dragging of clutch disks.	Repair and, if necessary, replace the clutch disks.
	Damaged converter.	Replace the converter.
	Damaged oil thermostat.	Replace the oil thermostat.
	Incorrect oil level.	Restore the oil level.
	Worn-out oil pump.	Replace the oil pump.
Wheel rotation with lifted vehicle	Dragging of clutch disks.	Repair and, if necessary, replace the clutch disks.
	Low oil temperature (high oil viscosity).	Wait for the operating temperature to be reached (stall test).
	Incorrect oil gradient.	Change oil and filters.
	Damaged control valve.	Replace the control valve.
	Stuck shuttle lever.	Repair and, if necessary, replace the shuttle lever.
Noise	Damaged converter.	Replace the converter.
	Damaged oil pump.	Replace the oil pump.
	Ventilation/Cavitation.	Check the oil level. Check the oil gradient.
	Seizure (broken gears, shafts, bearings, etc.).	Check, repair and, if necessary, replace.
	Worn-out clutch disks.	Replace the clutch disks.
	Worn-out synchronizer connection (only for POWERSHUTTLE models).	Replace the synchronizer connection (only for POWERSHUTTLE models).
	Worn-out 4WD connection (only for POWERSHUTTLE models).	Replace the 4WD connection (only for POWERSHUTTLE models).

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PROBLEM	POSSIBLE CAUSE	CORRECTION
Irregular connection.	Damaged hydraulic control valve.	Replace the control valves.
	Electrical system fault.	Repair the electrical system.
	Worn-out clutch disks.	Replace the clutch disks.
	Damaged converter.	Replace the converter.
	Low oil temperature (high oil viscosity).	Wait for the operating temperature to be reached (stall test).
	Overheating.	See “overheating”.
	EGM/ECU gearshift electronic control operation fault (only for POWERSHIFT models).	Replace the EGM/ECU (only for POWERSHIFT models).
	Damaged hydraulic system.	Repair the hydraulic system.
The gear remains engaged.	Damaged/stuck shuttle lever.	Repair and, if necessary, replace the shuttle lever.
	Electrical system fault.	Repair the electrical system.
	Damaged control valve.	Replace the control valve.
	Damaged hydraulic system.	Repair the hydraulic system.
	Damaged clutch assembly.	Repair and, if necessary, replace the clutch assembly.
	EGM/ECU gearshift electronic control operation fault (only for POWERSHIFT models).	Replace the EGM/ECU (only for POWERSHIFT models).
	Damaged travel control rod (only for POWERSHUTTLE models).	Replace the travel control rod (only for POWERSHUTTLE models).
	Damaged synchronizers (only for POWERSHUTTLE models).	Replace the synchronizers (only for POWERSHUTTLE models).
Lack of 4WD power transmission.	Damaged 4WD connection assy.	Replace the 4WD connection assy.
	Hydraulic system fault.	Repair the hydraulic system.
	Damaged control valve.	Replace the control valve.
	Braking sensor fault.	Check and, if necessary, replace the braking sensors.
	Electrical system fault.	Repair the electrical system.
	EGM/ECU gearshift electronic control operation fault (only for POWERSHIFT models).	Replace the EGM/ECU (only for POWERSHIFT models).

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PROBLEM	POSSIBLE CAUSE	CORRECTION
Gear fails to engage.	Damaged gear control rod (only for POWERSHUTTLE models).	Replace the gear control rod (only for POWERSHUTTLE models).
	Damaged synchronizers (only for POWERSHUTTLE models).	Replace the synchronizers (only for POWERSHUTTLE models).
	Damaged clutch connection assy (only for POWERSHIFT models).	Replace the clutch connection assy (only for POWERSHIFT models).
	Damaged hydraulic system (only for POWERSHIFT models).	Repair the hydraulic system (only for POWERSHIFT models).
	Damaged control valve (only for POWERSHIFT models).	Replace the control valve (only for POWERSHIFT models).
	Damaged pressure sensors (only for POWERSHIFT models).	Check and, if necessary, replace the sensors (only for POWERSHIFT models).
	Electrical system fault (only for POWERSHIFT models).	Repair the electrical system (only for POWERSHIFT models).
	EGM/ECU gearshift electronic control operation fault (only for POWERSHIFT models).	Replace the EGM/ECU (only for POWERSHIFT models).

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Axles

PROBLEM	POSSIBLE CAUSE	CORRECTION
Wheel vibrations.	Incorrect installation.	Correct the installation.
	Defective axle.	Inspect and repair the axle.
	Wrong weight distribution.	Distribute the weight differently.
	Overload.	Remove the excessive load.
	Incorrect tire rotation radius.	Replace the tire or adjust pressure on both tires.
	Bent axle beam.	Replace the axle beam.
Tire resistance.	Incorrect installation.	Correct the installation.
	Defective axle.	Inspect and repair.
	Wrong weight distribution.	Distribute the weight differently.
	Overload.	Remove the excessive load.
	Incorrect tire rotation radius.	Replace the tire or adjust pressure on both tires.
	Bent axle beam.	Replace the axle beam.
Broken axle shaft.	Incorrect installation.	Correct the installation.
	Defective axle.	Inspect and repair.
	Wrong weight distribution.	Distribute the weight differently.
	Overload.	Remove the excessive load.
	Incorrect tire rotation radius.	Replace the tire or adjust pressure on both tires.
	Bent axle beam.	Replace the axle beam.
Difficult steering; the machine travels in a straight line while steering.	Incorrect installation.	Correct the installation.
	Defective axle.	Inspect and repair.
	Wrong weight distribution.	Distribute the weight differently.
	Overload.	Remove the excessive load.
	Incorrect tire rotation radius.	Replace the tire or adjust pressure on both tires.
	Bent or broken axle shaft.	Replace the axle beam.

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PROBLEM	POSSIBLE CAUSE	CORRECTION
No differential action; jamming while steering.	Incorrect installation.	Correct the installation.
	Bent or broken axle shaft.	Replace the axle beam.
Excessive noise.	Incorrect installation.	Correct the installation.
	Defective axle.	Inspect and repair.
	Wrong weight distribution.	Distribute the weight differently.
	Overload.	Remove the excessive load.
	Incorrect tire rotation radius.	Replace the tire or adjust pressure on both tires.
	Bent or broken axle shaft.	Replace the axle beam.
	Incorrect wheel alignment.	Check that the structure and the bearings are in good conditions.
	Incorrect axle part installation.	Check the installation.
Excessive wear of the tire.	Incorrect installation.	Correct the installation.
	Defective axle.	Inspect and repair.
	Wrong weight distribution.	Distribute the weight differently.
	Overload.	Remove the excessive load.
	Incorrect tire rotation radius.	Replace the tire or adjust pressure on both tires.
	Bent or broken axle shaft.	Replace the axle beam.
	Blocked differential.	Check the installation.
	Excessive steering angle.	Reduce the steering angle.
	Incorrect wheel alignment.	Check that the structure and the bearings are in good conditions.
Friction noise.	Incorrect installation.	Correct the installation.
	Bent or broken axle shaft.	Replace the axle beam.
	Damaged or worn axle parts.	Replace the damaged axle parts.
	Incorrect axle part installation.	Check the installation.
	Incorrect adjustment of the bevel gear set.	Adjust the bevel gear set.
Vibrations during travel.	Incorrect installation.	Correct the installation.
	Defective axle.	Inspect and repair.
	Wrong weight distribution.	Distribute the weight differently.
	Bent or broken axle shaft.	Replace the axle beam.

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PROBLEM	POSSIBLE CAUSE	CORRECTION
Break towards the outer end of the ring gear tooth.	Excessive gear load compared to the prescribed one.	Replace the bevel gear.
	Incorrect gear adjustment (excessive backlash). Loose pinion nut.	Carefully follow the recommended adjustment operations for ring gear and pinion backlash and for tooth mark detection.
Break towards the inner end of the ring gear tooth.	Load crash.	Replace the bevel gear.
	Incorrect gear adjustment (insufficient backlash). Loose pinion nut.	Carefully follow the recommended adjustment operations for ring gear and pinion backlash and for tooth mark detection.
Worn-out or scored Pinion teeth and ring gear teeth.	Insufficient lubrication.	Replace the bevel gear.
	Contaminated lubricant. Incorrect lubricant or poor additives.	Replace the pinion bearings, paying attention to correctly position the ring gear, the pinion and the bearing preloading.
	Worn-out pinion bearings that cause an incorrect pinion axial backlash and wrong contact between pinion and ring gear.	Use proper lubricant, fill up to the correct level and change at recommended intervals.
Overheated ring gear teeth or pinion teeth. Check if gear teeth have faded.	Prolonged operation at high temperature.	Replace the bevel gear.
	Unsuitable lubricant. Low oil level. Contaminated lubricant.	Use proper lubricant, fill up to the correct level and change at recommended intervals.
Pitted drive pinion teeth.	Extremely intense use.	Replace the bevel gear.
	Insufficient lubrication.	Use proper lubricant, fill up to the correct level and change at recommended intervals.
Bent axle beam body.	Overloaded vehicle. Vehicle’s accident. Load crash.	Replace the axle beam body.
Worn-out or pitted bearings.	Insufficient lubrication.	Replace bearings.
	Contaminated lubricant. Extremely intense use. Normal wear. Loose pinion nut.	Use proper lubricant, fill up to the correct level and change at recommended intervals.
Gaskets leak oil.	Prolonged operation at excessive oil temperature.	Replace the gasket and matching surface if damaged.
	Oil gasket wrongly installed. Gasket edge cut or scored. Contaminated lubricant.	Use proper lubricant, fill up to the correct level and change at recommended intervals.
Excessive wear of input flange spline.	Intense use.	Replace the flange.
	Loose pinion nut.	Check that the pinion spline is not excessively worn out.
	Axial backlash of pinion.	Replace the bevel gear, if necessary.

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PROBLEM	POSSIBLE CAUSE	CORRECTION
Fatigue break of pinion gear tooth. Check if the fracture line is wavy or clearly delineated (stop line).	Intense use. Continuous overload.	Replace the bevel gear.
Break of pinion teeth and ring gear teeth.	Crash load of differential components.	Check and/or replace other differential components.
Splines of planetary gear worn-out (excessive backlash).	Intense use.	Replace differential gear assy. . Replace the axle beam, if necessary
Worn or scratched washer surfaces.	Insufficient lubrication.	Replace all scratched washers and those with a thickness by **0.1 mm** (**0.004 in**) lower than the new ones.
	Incorrect lubrication. Contaminated lubricant.	Use proper lubricant, fill up to the correct level and change at recommended intervals.
Worn-out inner diameter of pinion tapered roller bearing.	Intense use.	Replace bearing.
	Excessive pinion axial play.	Check pinion axial backlash.
	Unsuitable lubrication. Contaminated lubricant.	Use proper lubricant, fill up to the correct level and change at recommended intervals.
Twisted or broken axle beam.	Intense vehicle operation, overload.	Replace the axle beam.
Broken axle beam at wheel flange.	Loose wheel support.	Replace the axle beam.
	Bent axle beam body.	Check the bending of the axle beam body. Make sure that the wheel support is not worn out or wrongly adjusted.
Noise during travel.	Excessive backlash between ring gear and pinion.	Adjust the backlash between the ring gear and the pinion.
	Worn-out pinion and ring gear.	Replace pinion and ring gear.
	Worn-out pinion bearings.	Replace pinion bearings.
	Loose pinion bearings.	Adjust pinion bearings.
	Excessive pinion axial play.	Adjust the axial play of the pinion.
	Worn-out differential bearings.	Replace differential bearings.
	Loose differential bearings.	Adjust the bearings.
	Ring gear excessively off-set.	Replace the ring gear.
	Low lubricant level.	Restore the level.
	Poor or incorrect lubricant grade.	Change lubricant.
	Bent axle beam.	Replace the axle beam.

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PROBLEM	POSSIBLE CAUSE	CORRECTION
Noise during idling.	Noises emitted by the axle when the vehicle is moving are usually heard during idling, even though they are not too loud.	Adjust the backlash between the ring gear and the pinion or replace pinion and ring gear.
	Incorrect backlash between pinion and ring gear (the noise heard while decelerating disappears when speed is increased).	Adjust the backlash between the pinion and the ring gear.
	Worn-out pinion spline or input flange.	Replace the pinion.
Intermittent noise.	Damaged ring gear.	Replace the bevel gear.
	Loose differential box screws.	Tighten the screws to torque.
Constant noise.	Damaged ring gear teeth or pinion teeth.	Replace the bevel gear.
	Worn-out bearings.	Replace the bearings.
	Worn-out pinion splines.	Replace the pinion.
	Bent axle beam.	Replace the axle beam.

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PROBLEM	POSSIBLE CAUSE	CORRECTION
Noise while steering.	Worn-out differential planetary gears.	Replace the planetary gears.
	Worn-out differential box and/or pins.	Replace the differential box.
	Worn-out differential washers.	Replace the washers.
	Worn-out axle beam splines.	Replace the axle beam.

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Steering system

PROBLEM	POSSIBLE CAUSE	CORRECTION
No steering or excessive effort required to steer.	Incorrect oil level in the tank.	Fill with the correct oil type and quantity. Check for loose connections or damaged lines. Bleed the system.
	Air in the system.	Check the system pressure.
	Pump relief valve faulty.	Replace the relief valve.
	Worn pump.	Replace the pump.
	Leaking power cylinder.	Eliminate the leak.
	Damaged valve spool.	Replace the spool.
	Broken or damaged steering column.	Inspect and repair.
	Damaged or worn metering element.	Replace the metering element.
The steering wanders.	Excessive clearance in the ball joints of the steering connecting rods.	Inspect and replace.
	Leaking power cylinder.	Eliminate the leak.
	Control valve spool stuck or worn.	Replace the spool.
	Damaged or worn metering element.	Replace the metering element.
Front wheels oscillating when steering.	Leaking power cylinder.	Eliminate the leak.
	Control valve spool stuck.	Replace the spool.
	Damaged or worn metering element.	Replace the metering element.
Noisy pump.	Incorrect oil level in the tank.	Fill with the correct oil type and quantity.
	Air in the system.	Check for loose connections or damaged lines. Drain the oil from the system.
	Water in oil.	Drain and change the oil.
	Worn pump.	Replace the pump.

Hydraulic System

PROBLEM	POSSIBLE CAUSE	CORRECTION
All circuits fail to operate.	Pump drive inoperative.	Check and repair as necessary.
	Low oil level.	Check the level and top up.
	Restricted pump suction line.	Inspect the suction line and the tank and repair as necessary.
Slow operation or loss of power in all circuits.	Worn pump.	Make a pump performance test, replace and reseal as necessary.
	Restricted pump suction line.	Inspect the suction line and the tank and repair as necessary.
	Load sensing pressure relief valve incorrectly adjusted.	Make a system pressure test.
	Hydraulic speed solenoid valve inoperative.	Make a system pressure test.

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Loader attachment

PROBLEM	POSSIBLE CAUSE	CORRECTION
The lifting circuit fails to operate, is slow or loses power.	Valve spool leaking.	Inspect the spool and check it for wear or scratches.
	Cylinder seals leaking or cylinder barrel damaged.	Inspect and reseal the cylinder.
The bucket fails to operate, is slow or loses power.	The relief valves are stuck open, set to a too low value or there is a leak in the seat.	Check the bucket circuit relief valve.
	Valve spool leaking.	Inspect the spool and check it for wear or scratches.
	Cylinder seals leaking or cylinder barrel damaged.	Inspect and reseal the cylinder.
Cylinder leak (spools in neutral).	Damaged cylinder barrel.	Inspect and reseal the cylinder.
	Internal valve leak.	Inspect the spool and check it for wear or scratches.
Hesitation in the raising movement of the loader attachment or of the bucket cylinders when the control is initially actuated.	Load check valve between control valve sections damaged.	Disassemble and inspect.

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Backhoe attachment

PROBLEM	POSSIBLE CAUSE	CORRECTION
The lifting system is inoperative, is too slow, loses power or does not hold.	The lifting circuit relief valve is stuck open, set to a too low value or there is a leak in the seat.	Test the pressure of the lifting circuit relief valve.
	Valve spool leaking.	Inspect the spool and check it for wear or scratches.
	Cylinder seals leaking or cylinder barrel damaged.	Inspect and reseal the cylinder.
The digging control fails to operate, is slow or loses power.	The digging circuit relief valve (cylinder end) is stuck open, set to a too low value or there is a leak in the seat.	Test the pressure of the digging circuit relief valve.
	Valve spool leaking.	Inspect the spool and check it for wear or scratches.
	Cylinder seals leaking or cylinder barrel damaged.	Inspect and reseal the cylinder.
The bucket fails to operate, is slow or loses power.	The bucket relief valve (rod end) is stuck open, set to a too low value or there is a leak in the seat.	Test the pressure of the bucket relief valve.
	Valve spool leaking.	Inspect the spool and check it for wear or scratches.
	Cylinder seals leaking or cylinder barrel damaged.	Inspect and reseal the cylinder.
The telescopic dipper fails to operate, is slow or loses power.	The telescopic dipper circuit relief valve (cylinder end) is stuck open, set to a too low value or there is a leak in the seat.	Test the pressure of the telescopic dipper relief valve.
	Valve spool leaking.	Inspect the spool and check it for wear or scratches.
	Cylinder seals leaking or cylinder barrel damaged.	Inspect and reseal the cylinder.
Stabilizer pads leaking.	Stabilizer safety valve leaking.	Inspect and overhaul the stabilizer safety valve.
	Cylinder seals leaking or cylinder barrel damaged.	Inspect and reseal the cylinder.

Swing

PROBLEM	POSSIBLE CAUSE	CORRECTION
Right or left swing is inoperative, is too slow or loses power.	The swing circuit relief valves are not seating, set to a too low value or there is a leak in the seat.	Test the swing circuit relief valve.
	Valve spool leaking.	Inspect the spool and check it for wear or scratches.
	Cylinder seals leaking or cylinder barrel damaged.	Inspect and reseal the cylinder and the ring nut.
The swing fails to slow down (bearing stop) at stroke end.	Built-in sliding limiter damaged.	Disassemble and inspect.
	Cylinder seals leaking or cylinder barrel damaged.	Inspect and reseal the cylinder.
The swing does not stop when the control lever returns to neutral (one direction only).	The circuit relief valve (return side) is stuck open, set to a too low value or there is a leak in the seat.	Test the swing circuit relief valve.
	Valve spool leaking.	Inspect the spool and check it for wear or scratches.
Cylinder leak (spools in neutral).	Internal valve leak.	Inspect the spool and check it for wear or scratches.
	Cylinder seals leaking or cylinder barrel damaged.	Inspect and reseal the cylinder.
A circuit temporarily lowers when given the control to lift.	Load check valve between control valve sections damaged.	Disassemble and inspect.

Hydraulic pump

PROBLEM	POSSIBLE CAUSE	CORRECTION
Noisy system.	Worn or damaged pump gears or pressure plates.	Make a hydraulic pump performance test.
	Aeration: air entering the systems at: suction tube, pump shaft, fittings or cylinder ring nuts.	Make a hydraulic pump performance test.
	Cavitation: system restrictions in the suction line or in the tank filter.	Make a visual check and/or a hydraulic pump performance test.
	Water in the system.	Check for possible leaks and eliminate them.
	The system relief valve vibrates.	Check the system relief valve; adjust and overhaul, if necessary.
	Vibrations in the lines.	Visually check.
	Cold hydraulic oil.	Check the hydraulic oil operating temperature.
	Wrong oil type.	Change the hydraulic oil.
Hydraulic oil drain through tank breather.	Tank overfilled.	Check the hydraulic oil level.
	Aeration: air entering the system at: suction tube, pump shaft, fittings or cylinder ring nuts.	Make a hydraulic pump performance test.
	Cavitation: Restriction of the suction filter in the tank.	Make a visual check and/or a hydraulic pump performance test.
Oil heating.	Low oil quantity.	Fill the tank.
	Contaminated oil.	Drain the tank and refill with clean oil.
	Too high/low setting of the relief valve.	Drain the tank and refill with clean oil. Test relief valves.
	Oil in system too light.	Drain the tank and refill with oil with the correct viscosity.
	Oil cooler fins obstructed.	Clean the oil cooler.
Oil leaks through the shaft seal.	Worn shaft seal.	Replace the shaft seal and inspect the pump.
Foamy oil.	Low oil level.	Fill the tank.
	Air in the suction system.	Check and tighten the suction lines.
	Wrong oil type.	Change the hydraulic oil.

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Electrical System

PROBLEM	POSSIBLE CAUSE	CORRECTION
The electrical system is inoperative.	Loose or oxidised battery connections.	Check that the battery voltage with open circuit is at least **12.6 V**.
	Clean and tighten the connections. Sulphated batteries.	Check the electrolyte level and density.
	Battery isolator switch off.	Restore the battery isolator switch.
	The main connection fuse of the machine is blown.	Find the reason of the failure and replace the connection fuse.
Starter motor speed too low, the engine cranks slowly.	Loose or corroded connections.	Clean and tighten loose connections.
	Low battery output voltage.	Check that the battery voltage with open circuit is at least **12.6 V**. Check the electrolyte level and density.
	Incorrect viscosity of the engine oil.	Use an oil with correct viscosity for the temperature conditions.
Starter motor inoperative.	Transmission gearshift lever engaged.	Move gearshift lever to neutral.
	Loose or corroded connections.	Clean and tighten loose connections.
	Dead batteries.	Charge or replace the batteries.
The charge indicator lamp stays on with the engine running.	Low engine idle speed.	Increase idle speed.
	Loose belt.	Check belt tension.
	Malfunctioning battery.	Check that the battery voltage with open circuit is at least **12.6 V**. Check the electrolyte level and density.
	Malfunctioning alternator.	Check the alternator and repair, if necessary.
Batteries will not charge.	Loose or corroded battery connections.	Clean and tighten the connections.
	Sulphated batteries.	Check that the battery voltage with open circuit is at least **12.6 V**. Check the electrolyte level and density.
	Loose or worn belt.	Check the automatic belt tensioner. If necessary, replace the belt.
The charge indicator flashes, indicating excessive charging voltage.	Malfunctioning alternator.	Check the alternator and repair, if necessary.

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Cab

PROBLEM	POSSIBLE CAUSE	CORRECTION
Dust enters the cab.	Improper seal around the filter.	Check the seal condition.
	Restricted filter.	Clean or replace the filter.
	Defective filter.	Replace the filter.
The blower motor revolves too slowly.	Restricted air filter(s).	Clean or replace the filter(s).

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Air conditioning

PROBLEM	POSSIBLE CAUSE	CORRECTION
The system does not cool.	Condenser obstructed.	Clean the radiator, the oil cooler and the condenser.
	Insufficient coolant.	Check sight glass for bubbles. Consult your Dealer.
	Belt slipping or damaged.	Check the automatic belt tensioner and belt condition.
	The heater control is in the ON position.	Turn the temperature control knob fully counterclockwise for maximum cooling.

9 - SPECIFICATIONS

Engine

B95C / B95CTC / B95CLR

Model	F5HFL413C*A
Type	Four cylinder, turbocharged
Firing order	1-3-4-2
Bore and stroke	**99 mm** x **110 mm** (**3.9 in** x **4.33 in**)
Displacement	**3.4 l** (**207 in³**)
Compression ratio	16.5 to 1
Fuel injection	Direct HPCR
Horsepower - rated at **2200 RPM**	
Gross	**72 kW** (**97 Hp**)
Net with viscous fan	**71 kW** (**95 Hp**)
Peak torque at **1400 RPM**	
Gross	**453 N·m** (**334 lb ft**)
Net with viscous fan	**452 N·m** (**333 lb ft**)
Net	**445 N·m** (**328 lb ft**)
Maximum torque rise	**45 % ± 5 RPM**
Engine speeds	
Rated speed, full load	at **2200 RPM**
Low idle speed at no load	**900 - 1000 RPM**
High idle speed at no load (engine not installed)	**2380 - 2480 RPM**
High idle speed at no load (engine installed)	**2320 - 2440 RPM**
Maximum speed at full load	**2200 RPM**
Backhoe stall	**2150 - 2300 RPM**
Converter stall	**1870 - 2040 RPM**
Loader stall	**2150 - 2300 RPM**
Combined stall	**1625 - 1825 RPM**

B110C

Model	F5HFL413B*A
Type	Four cylinder, turbocharged
Firing order	1-3-4-2
Bore and stroke	**99 mm** x **110 mm** (**3.9 in** x **4.33 in**)
Displacement	**3.4 l** (**207 in³**)
Compression ratio	16.5 to 1
Fuel injection	Direct HPCR
Horsepower - rated at **2200 RPM**	
Gross	**82 kW** (**110 Hp**)
Net with viscous fan	**81 kW** (**108 Hp**)
Peak torque at **1400 RPM**	
Gross	**460 N·m** (**339 lb ft**)
Net with viscous fan	**458 N·m** (**338 lb ft**)
Net	**445 N·m** (**328 lb ft**)
Maximum torque rise	**30 % ± 5 RPM**
Engine speeds	
Rated speed, full load	at **2200 RPM**
Low idle speed at no load	**900 - 1000 RPM**
High idle speed at no load (engine not installed)	**2380 - 2480 RPM**
High idle speed at no load (engine installed)	**2320 - 2440 RPM**
Maximum speed at full load	**2200 RPM**
Backhoe stall	**2150 - 2300 RPM**
Converter stall	**1940 - 2040 RPM**
Loader stall	**2200 - 2300 RPM**
Combined stall	**1840 - 1940 RPM**
Backhoe stall	**2200 - 2300 RPM**

Powertrain

TRANSMISSION - POWERSHUTTLE

Model	CARRARO TLB2
Type (4x4)	4 forward and 4 reverse travel gears
Torque converter ratio	2.38
Transmission ratios:	
1st gear	forward travel 5.603:1 — reverse travel 4.643:1
2nd gear	forward travel 3.481:1 — reverse travel 2.884:1
3rd gear	forward travel 1.585:1 — reverse travel 1.313:1
4rd gear	forward travel 0.793:1 — reverse travel 0.657:1

TRANSMISSION - POWERSHIFT

Model	CARRARO TLB2
Type (4x4)	4 forward and 3 reverse travel gears
Torque converter ratio	2.38
Transmission ratios:	
1st gear	forward travel 5.533:1 — reverse travel 4.549:1
2nd gear	forward travel 3.359:1 — reverse travel 2.762:1
3rd gear	forward travel 1.533:1 — reverse travel 1.260:1
4rd gear	forward travel 0.811:1

Brakes and controls - General specification

FRONT AXLES

FRONT AXLE

Model	CNH 26.17
Type	steering

REAR AXLES

REAR AXLE

Model (B95C - B95CTC - B95BLR)	CARRARO 28.44
Model (B110C)	CARRARO 28.50
Type	rigid
Differential lock	electrical

BRAKES

SERVICE BRAKES

Type	wet multi-discs, 4 x axle (2 x half axle)
Braking surface	**1236 cm²** (**191 in²**)

PARKING BRAKE

Type	Spring Applied Hydraulic Release (SAHR)
Maximum lever pull	**1650 N** (**371 lb**)
Lever stroke	**21 mm** (**0.87 in**)
Maximum torque - POWERSHUTTLE	**2000 N·m** (**1475 lb ft**)
Maximum torque - POWERSHIFT	**1500 N·m** (**1106 lb ft**)

STEERING

2WS	2 wheel steer
System pressure	170 ÷ 175 bar (2465 ÷ 2538 psi)

POWER STEERING

2WS (with variable-flow-rate pump)

Model	EATON P/N 403 -8754-04
Displacement	160 cm3/rev (9.76 in3/rev)
Shock valve adjustment	**220 - 240 bar** (**3190.0 - 3480.0 psi**)
Load-sensing pressure relief valve adjustment	**170 - 175 bar** (**2460 - 2538 psi**)

2WS (with gear pump)

Model	EATON P/N 403 -8754-08
Displacement	160 cm3/rev (9.76 in3/rev)
Shock valve adjustment	**225 bar** (**3262.5 psi**)
Relief valve adjustment	**172 - 180 bar** (**2495 - 2610 psi**)

Hydraulics

GEAR PUMP

72 kW - 97 HP PUMP (B95C - B95CTC - B95CLR)

Model	CASAPPA
Type	double gear pump
Flow rate	35.427 + 35.427 cm3/rev (2.16 + 2.16 in3/rev)

82 kW - 110 HP PUMP (B110C)

Model	CASAPPA
Type	double gear pump
Flow rate	40.258 + 35.427 cm3/rev (2.45 + 2.16 in3/rev)

VARIABLE-FLOW-RATE PUMP

72 kW - 97 HP PUMP (B95C - B95CTC - B95CLR)

Model	DANFOSS
Type	with axial pistons
Flow rate	71 cm3/rev (4.33 in3/rev)

82 kW - 110 HP PUMP (B110C)

Model	DANFOSS
Type	with axial pistons
Flow rate	75 cm3/rev (4.57 in3/rev)

Front counterweight

FRONT COUNTERWEIGHT

COUNTERWEIGHT

Standard	**159 kg** (**350 lb**)
Medium	**330 kg** (**727 lb**)

Noise and vibration levels

NOISE LEVEL

Certified by the Manufacturer.

In compliance with European Directive 2000/14/EC - Stage II.

Internal noise level (LpA)	**77 dB**
External noise level (LwA) (B95C - B95CTC - B95BLR)	**102 dB**
External noise level (LwA) (B110C)	**103 dB**

VIBRATION LEVEL INSIDE THE CAB

Upper limbs	level lower than **2.5 m/s²** (**8.20 ft/s²**)
Abdomen	level lower than **0.5 m/s²** (**1.64 ft/s²**)

Buckets

Buckets

Loader buckets

Type	**0.88 m³** (**31.08 ft³**) standard	**1 m³** (**35.3 ft³**) standard	4 x 1	6 x 1 (with forks)
Heaped capacity	**0.88 m³** (**31.08 ft³**)	**1.0 m³** (**35.3 ft³**)	**1.0 m³** (**35.3 ft³**)	**1.0 m³** (**35.3 ft³**)
Width	**2250 mm** (**88.58 in**)	**2250 mm** (**88.58 in**)	**2250 mm** (**88.58 in**)	**2250 mm** (**88.58 in**)
Weight	**310 kg** (**683 lb**)	**400 kg** (**882 lb**)	**750 kg** (**1653 lb**)	**950 kg** (**2094 lb**)

Backhoe buckets

Width	**305 mm** (**12 in**)	**457 mm** (**17.99 in**)	**610 mm** (**24.02 in**)	**762 mm** (**30 in**)	**910 mm** (**35.83 in**)
Capacity	**0.067 m³** (**2.37 ft³**)	**0.108 m³** (**3.81 ft³**)	**0.149 m³** (**5.26 ft³**)	**0.190 m³** (**6.71 ft³**)	**0.231 m³** (**8.16 ft³**)
Heaped capacity	**0.081 m³** (**2.86 ft³**)	**0.137 m³** (**4.84 ft³**)	**0.198 m³** (**6.99 ft³**)	**0.260 m³** (**9.18 ft³**)	**0.323 m³** (**11.41 ft³**)

Tires

TIRE TYPES

	Front tires	Rear tires
2WD	11L-16 F3 12PR	19.5L-24 R4 10PR
		16.9-24 R4 10PR
		16.9-28 R4 10PR
		21L-24 R4 12PR
4WD	12-16.5 R4 10PR	19.5L-24 L4 14PR
		19.5L-24 R4 10PR
		16.9-24 R4 10PR
	14-17.5 R4 10PR	16.9-28 R4 10PR
		21L-24 R4 12PR
		19.5L-24 R4 10PR

NUT TORQUES

Front nuts	**330 N·m** (**243 lb ft**)
Rear nuts	**540 N·m** (**398 lb ft**)

INFLATING PRESSURE AND ALLOWED CARRYING CAPACITY TABLE

The following tables give the approximate carrying capacity at the indicated tire pressures.

Front 2WD	Tire size 11L–16	Profile F3	INFLATION PRESSURE bar (psi)										
			1.5 (21.7)	2.0 (29.0)	2.2 (31.9)	2.5 (37.7)	2.8 (42.0)	3.0 (43.5)	3.3 (47.8)	3.8 (55.1)	4.0 (58.0)	4.2 (60.9)		
			MAX LOAD PER TIRE kg (lb)											
			700 (1543)	845 (1862)	900 (1984)	985 (2171)	1065 (2347)	1120 (2469)	1185 (2612)	1250 (2755)	1350 (2976)	1400 (3086)		

Front 4WD	Tire size 12–16.5	Profile L5	INFLATION PRESSURE bar (psi)										
			0.8 (11.6)	1.0 (14.5)	1.6 (23.2)	2.2 (31.9)	2.8 (40.6)	3.4 (49.3)						
			MAX LOAD PER TIRE kg (lb)											
			690 (1521)	790 (1741)	1040 (2292)	1250 (2755)	1440 (3174)	1610 (3549)						

Front 4WD	Tire size 14–17.5 Beefy B.	Profile R4	INFLATION PRESSURE bar (psi)										
			0.8 (11.6)	1.0 (14.5)	1.6 (23.2)	2.2 (31.9)	2.8 (40.6)	3.5 (50.7)						
			MAX LOAD PER TIRE kg (lb)											
			850 (1873)	975 (2149)	1090 (2403)	1180 (2601)	1320 (2910)	1450 (3196)						

Front 4WD	Tire size 14–17.5 Con-st.	Profile R4	INFLATION PRESSURE bar (psi)										
			0.8 (11.6)	1.6 (23.2)	2.0 (29.0)	2.8 (40.6)	3.1 (44.9)	3.5 (50.7)						
			MAX LOAD PER TIRE kg (lb)											
			940 (2072)	1410 (3108)	1605 (3538)	1960 (4321)	2080 (4585)	2655 (5853)						

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Rear	Tire size 16.9–24 EZ	Profile R4	INFLATION PRESSURE bar (psi)										
			1.4 (20.3)	1.5 (21.7)	1.7 (24.6)	2.1 (30.4)	2.5 (36.2)						
			MAX LOAD PER TIRE kg (lb)										
			2200 (4840)	2325 (5115)	2450 (5390)	2910 (6402)	3300 (7260)						

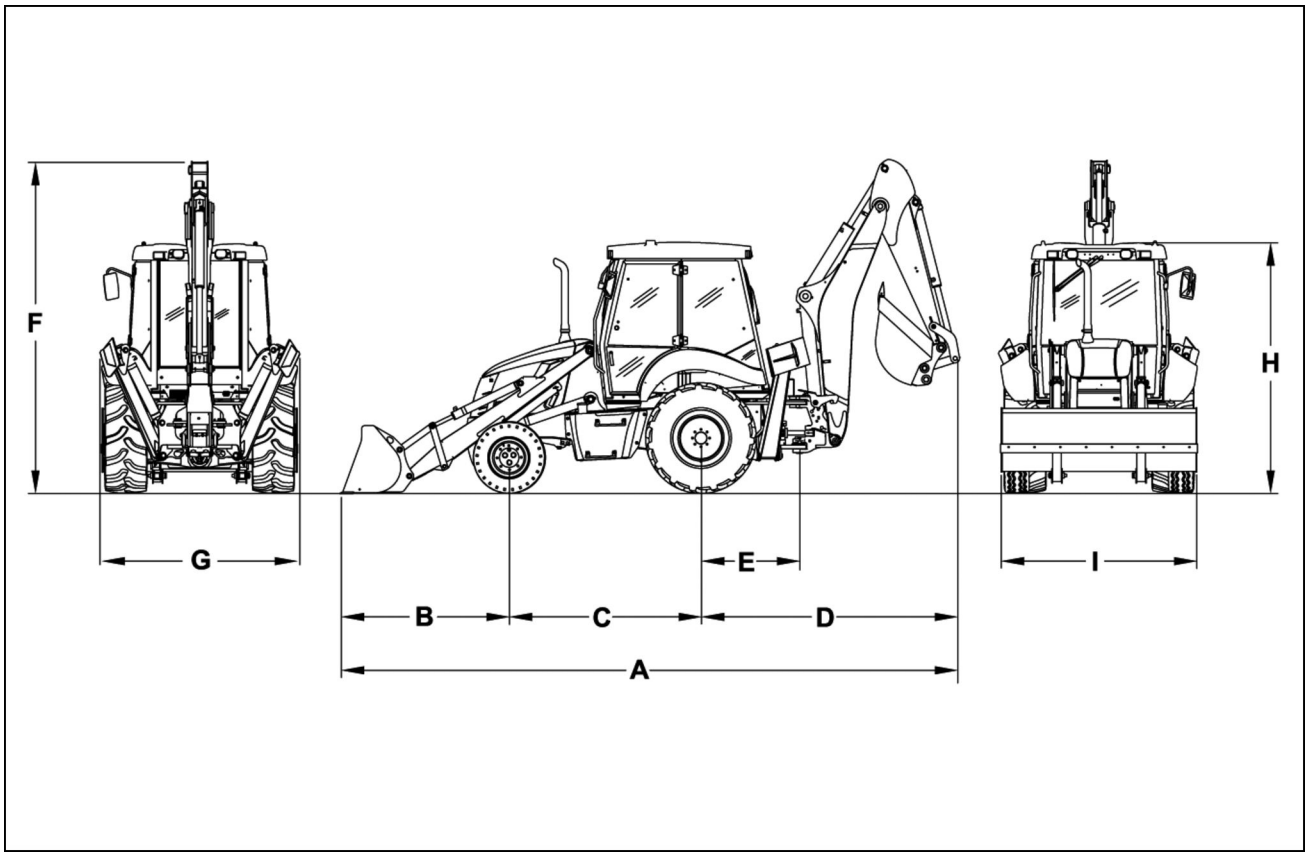
Rear	Tire size 19.5–24	Profile L4	INFLATION PRESSURE bar (psi)										
			1.2 (17.4)	1.4 (20.3)	1.5 (21.7)	1.9 (27.5)							
			MAX LOAD PER TIRE kg (lb)										
			2520 (5555)	2740 (6040)	2875 (6338)	3410 (7517)							

Rear	Tire size 16.9–28 EZ	Profile R4	INFLATION PRESSURE bar (psi)										
			1.2 (17.4)	1.4 (20.3)	1.5 (21.7)	1.9 (27.5)	2.2 (31.9)						
			MAX LOAD PER TIRE kg (lb)										
			2300 (5070)	2490 (5489)	2620 (5776)	3110 (6856)	3410 (7517)						

Rear	Tire size 21L–24 EZ	Profile R4	INFLATION PRESSURE bar (psi)										
			1.2 (17.4)	1.4 (20.3)	1.5 (21.7)	1.9 (27.5)	2.2 (31.9)	3.4 (49.3)					
			MAX LOAD PER TIRE kg (lb)										
			2455 (5412)	2840 (5467)	3005 (6624)	3165 (6977)	3760 (8289)	4030 (8884)					

Dimensions and performance

Dimensions



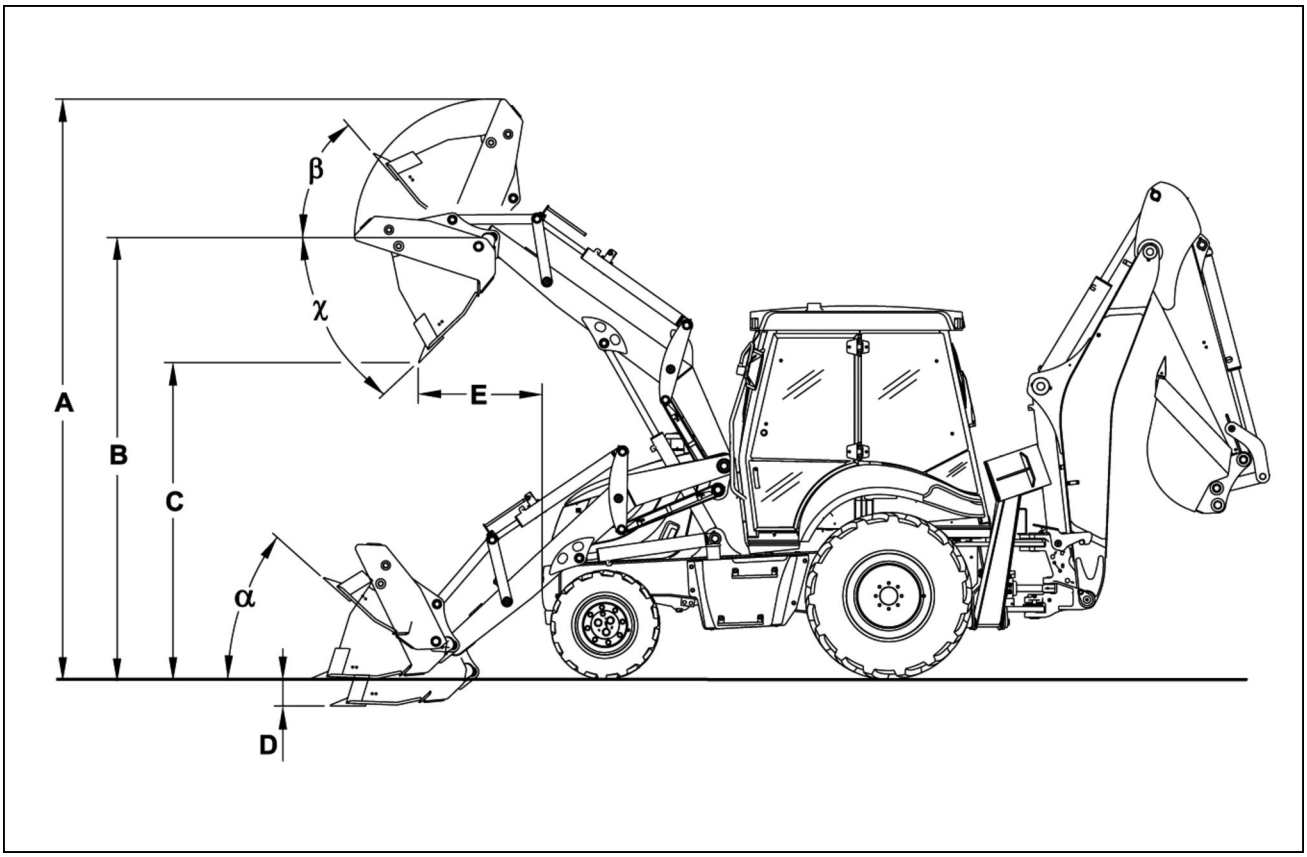
LEEN12T0742FA 1

Front tires	12-16.5 R4
Rear tires	19.5L-24 R4
Standard loader bucket	**0.88 m³** (**31.07 ft³**)
Standard backhoe bucket	**305.0 mm** (**12.0 in**)

A	Overall machine length	**7030 mm** (**276.4 in**)
B	Loader bucket reach	**1930 mm** (**76.0 in**)
C	Wheel base	**2175 mm** (**86.0 in**)
D	Backhoe bucket dimensions	**2925 mm** (**115.2 in**)
E	Rear wheel base - backhoe attachment swing support	**1120 mm** (**44.1 in**)
F	Maximum machine height	**3815 mm** (**150.6 in**)
G	Stabilizer width	**2300 mm** (**90.6 in**)
H	Cab height	**2870 mm** (**113.0 in**)
I	Loader bucket width	**2250 mm** (**88.6 in**)

Loader attachment performance

B95C And B110C [with standard bucket 0.88 m³ (31.1 ft³)

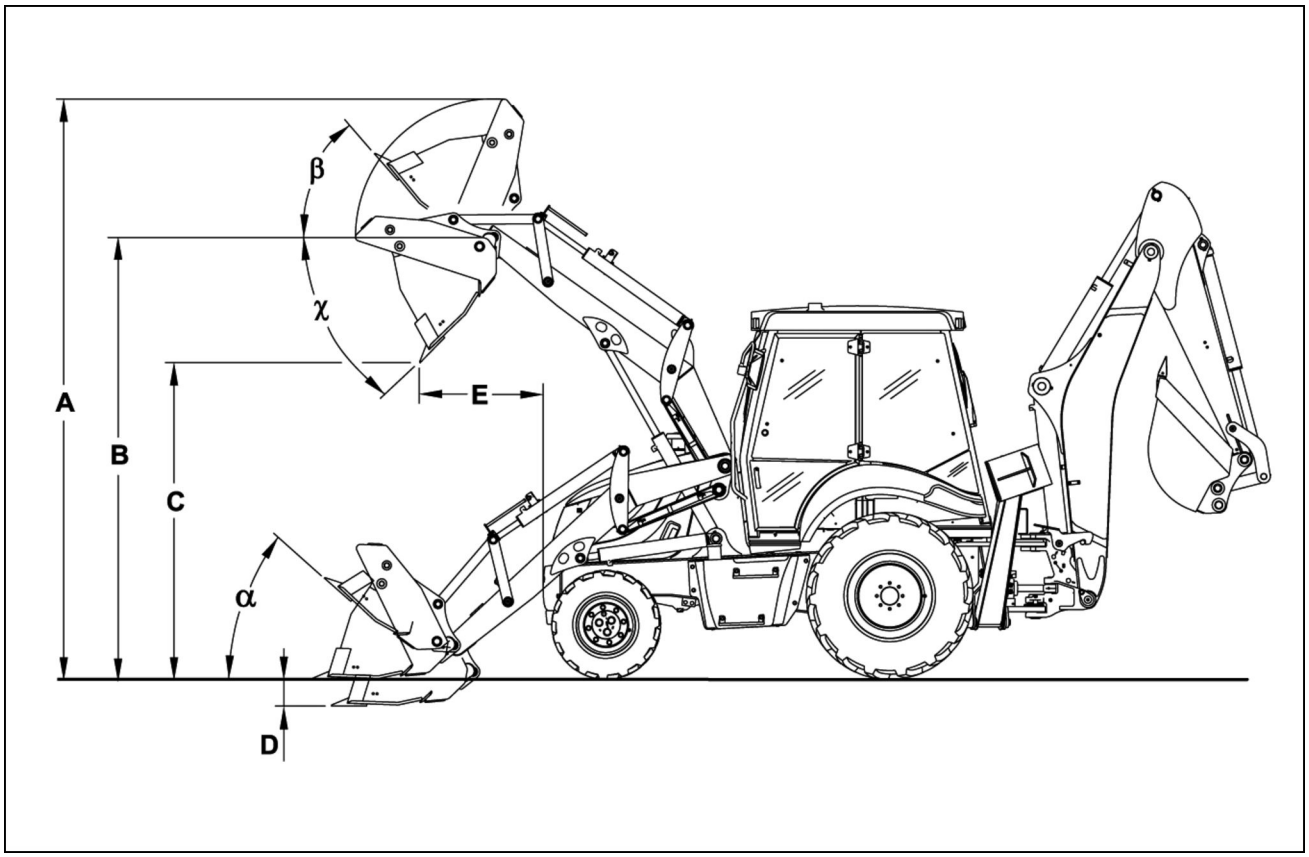


LEEN12T0743FA_1 2

A. Maximum height/dimensions
B. Maximum height of loader bucket pin/pivot
C. Maximum dumping height
D. Digging depth
E. Loader attachment reach when raised in dumping position
α. Angle of lowered closed bucket
β. Angle of closed bucket at maximum height
χ. Dumping angle

Front tires	12.5-18 SLR4
Rear tires	18.4-28 SLR4
A	**4276 mm** (**168.3 in**)
B	**3841 mm** (**137.0 in**)
C	**2784 mm** (**109.6 in**)
D	**100 mm** (**3.9 in**)
E	**725 mm** (**28.5 in**)
α	**39.2 °**
β	**50 °**
χ	**45 °**

B95C And B110C [with standard bucket 1 m³ (35.3 ft³)

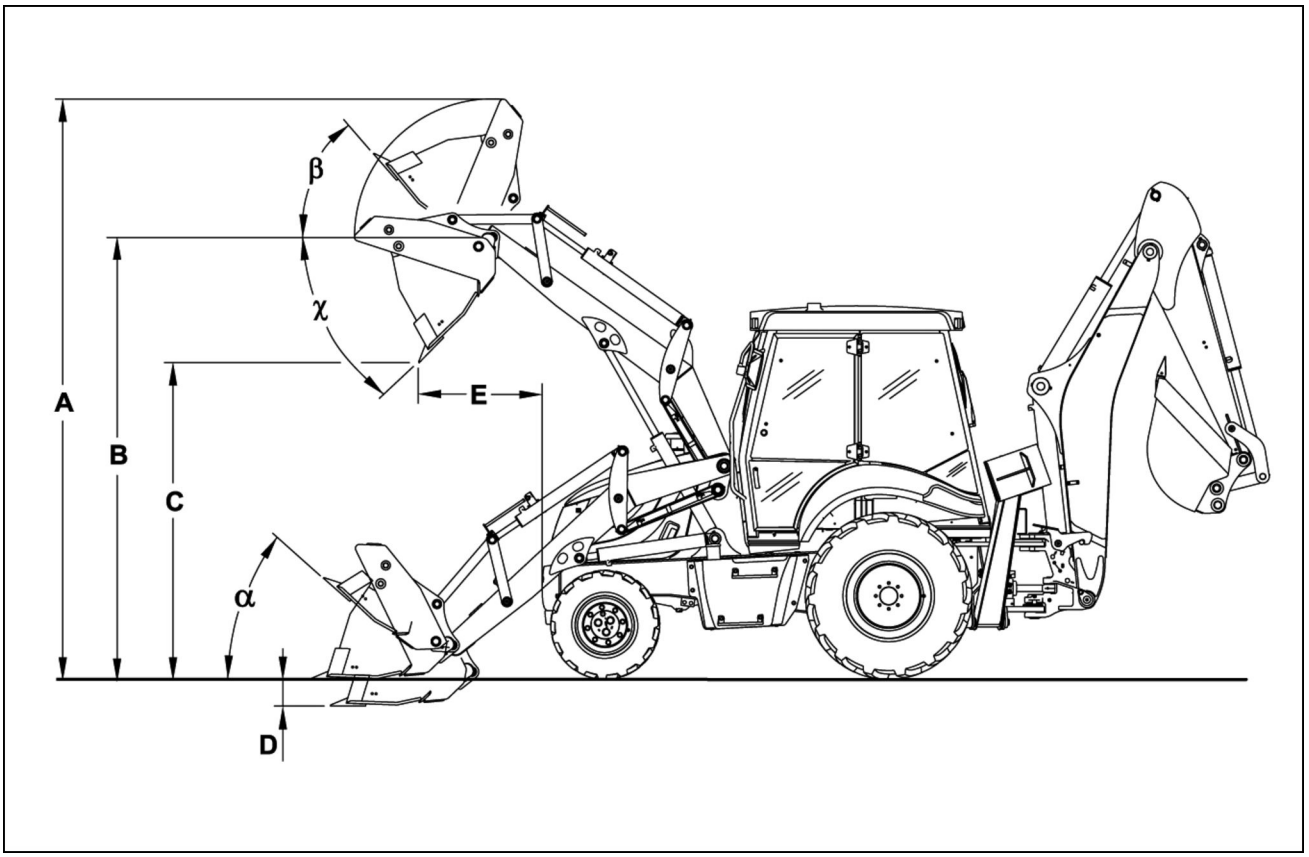


LEEN12T0743FA_1 3

A. Maximum height/dimensions
B. Maximum height of loader bucket pin/pivot
C. Maximum dumping height
D. Digging depth
E. Loader attachment reach when raised in dumping position
α. Angle of lowered closed bucket
β. Angle of closed bucket at maximum height
χ. Dumping angle

Front tires	12.5-18 SLR4
Rear tires	18.4-28 SLR4
A	**4309 mm** (**169.6 in**)
B	**3841 mm** (**137.0 in**)
C	**2784 mm** (**109.6 in**)
D	**100 mm** (**3.9 in**)
E	**706 mm** (**27.8 in**)
α	**39.2 °**
β	**47.8 °**
χ	**45 °**

B95C And B110C [with 4x1 bucket 1 m³ (35.3 ft³)



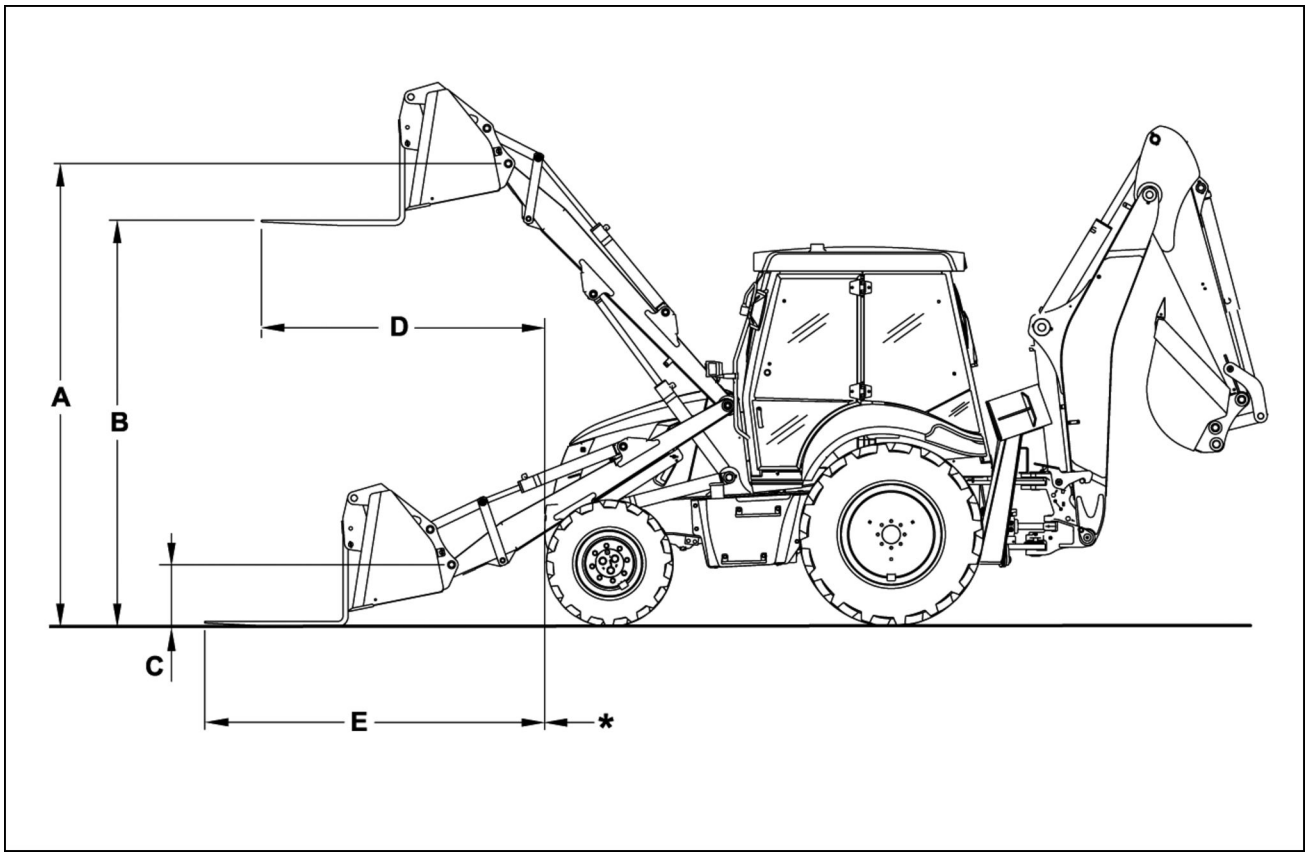
LEEN12T0743FA_1 4

A. Maximum height/dimensions
B. Maximum height of loader bucket pin/pivot
C. Maximum dumping height
D. Digging depth
E. Loader attachment reach when raised in dumping position
α. Angle of lowered closed bucket
β. Angle of closed bucket at maximum height
χ. Dumping angle

Front tires	12.5-18 SLR4
Rear tires	18.4-28 SLR4
A	**4478 mm** (**176.3 in**)
B	**3841 mm** (**137.0 in**)
C	**2784 mm** (**109.6 in**)
D	**100 mm** (**3.9 in**)
E	**706 mm** (**27.8 in**)
α	**39.2 °**
β	**47.8 °**
χ	**45 °**

Performance of loader attachment with forks

B95C AND B110C



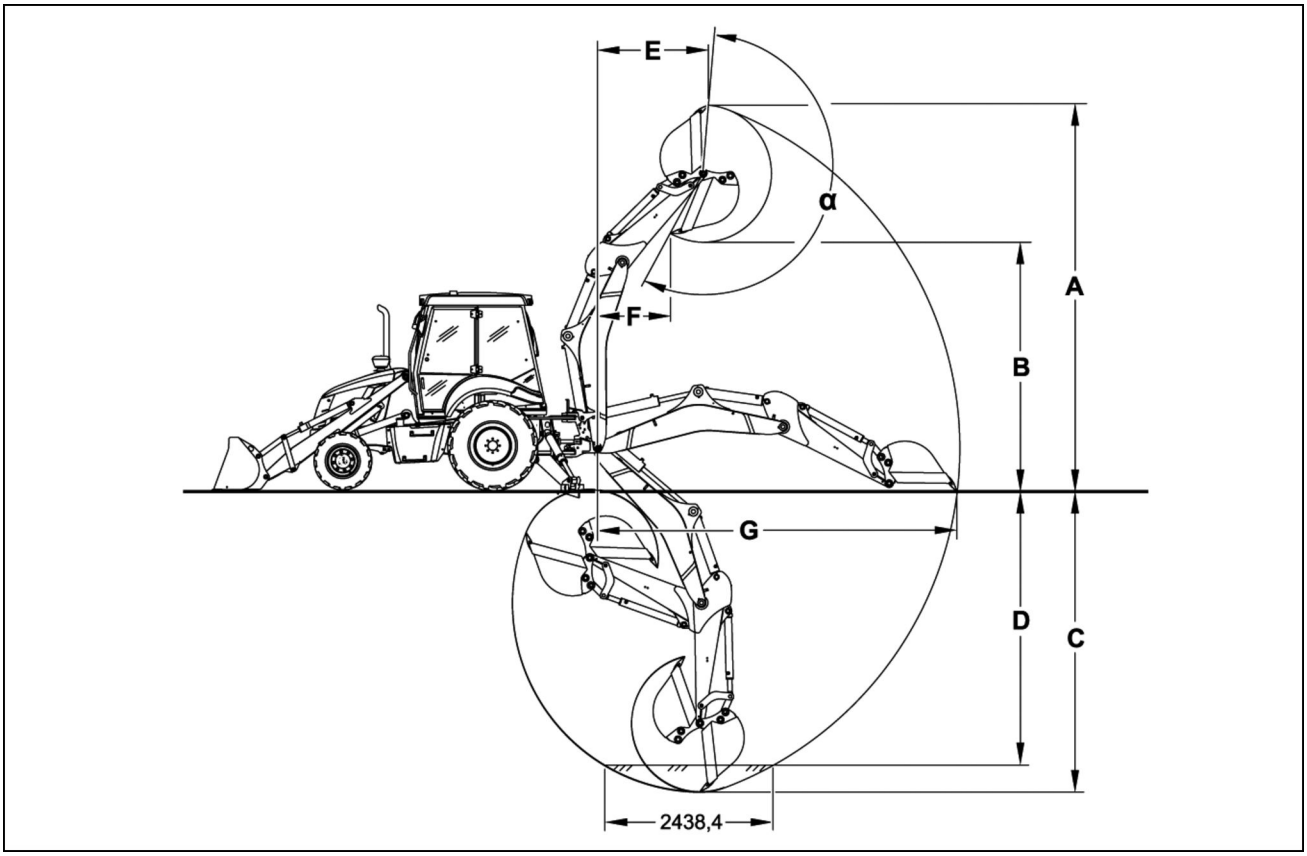
LEEN12T0744FA 1

* Front counterweight
A. Maximum height of loader bucket pin/pivot with lifted forks
B. Fork maximum height
C. Height of loader bucket pin/pivot with lowered forks
D. Fork reach when raised
E. Fork reach when lowered

Front tires	12.5-18 SLR4
Rear tires	18.4-28 SLR4
A (6 x 1 bucket)	**3537 mm** (**139.2 in**)
B (6 x 1 bucket)	**3143 mm** (**123.7 in**)
C (6 x 1 bucket)	**433 mm** (**17.0 in**)
D (6 x 1 bucket)	**2136 mm** (**84.1 in**)
E (6 x 1 bucket)	**2577 mm** (**101.5 in**)

Backhoe attachment performance

B95C and B110C (with short standard dipper)

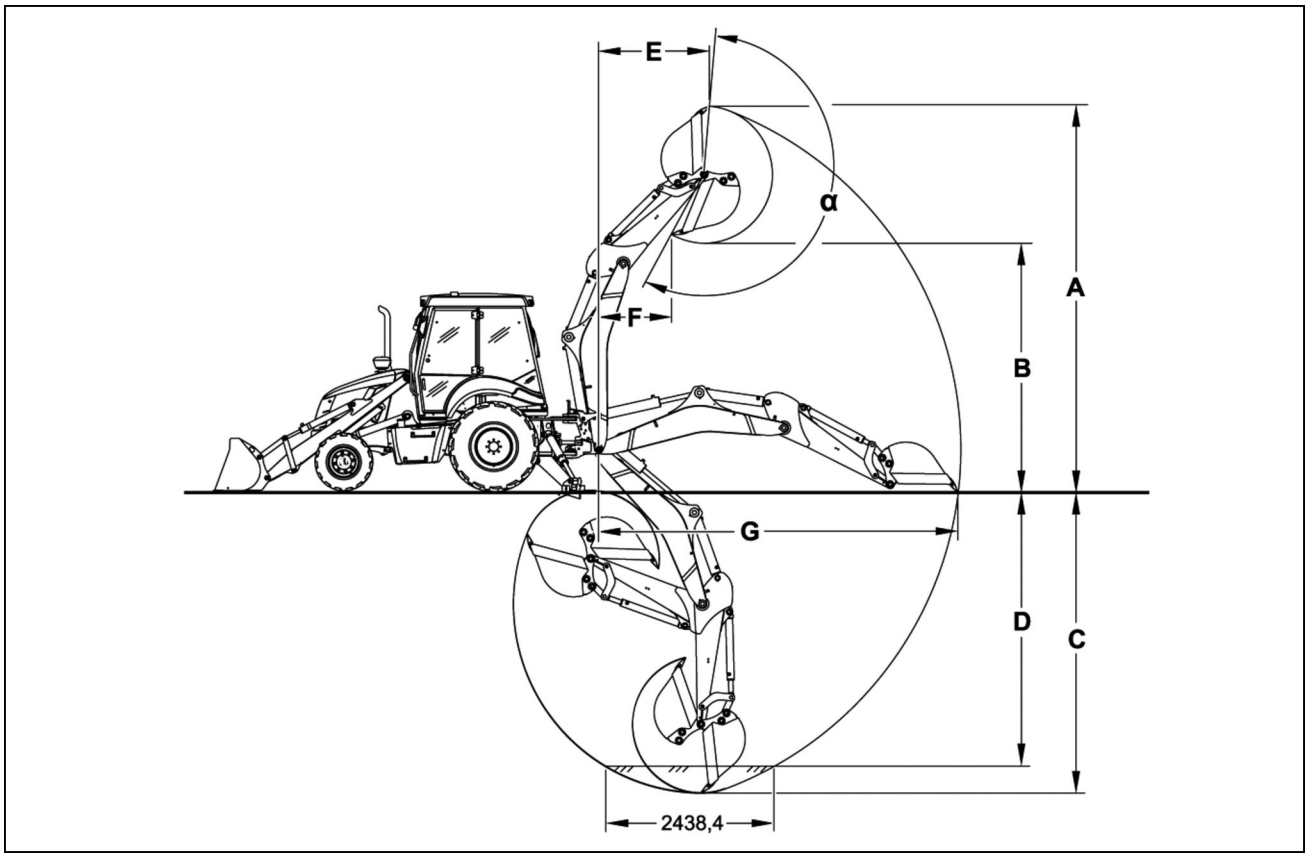


LEEN12T0745FA_1 1

A. Maximum digging height
B. Maximum height at full load
C. Maximum digging depth
D. Digging depth [L = **2438.4 mm** (**96.00 in**)]
E. Digging reach at maximum height
F. Maximum reach when loaded
G. Maximum digging reach with lowered bucket
α. Bucket digging angle

Front tires	11L-16F3
Rear tires	17.5L-24
A	**5441 mm** (**214.2 in**)
B	**3585 mm** (**141.1 in**)
C	**4426 mm** (**174.3 in**)
D	**4034 mm** (**158.8 in**)
E	**1556 mm** (**61.3 in**)
F	**1160 mm** (**45.7 in**)
G	**5186 mm** (**204.2 in**)
α	**204.6 °**

B95C and B110C (with long standard dipper)

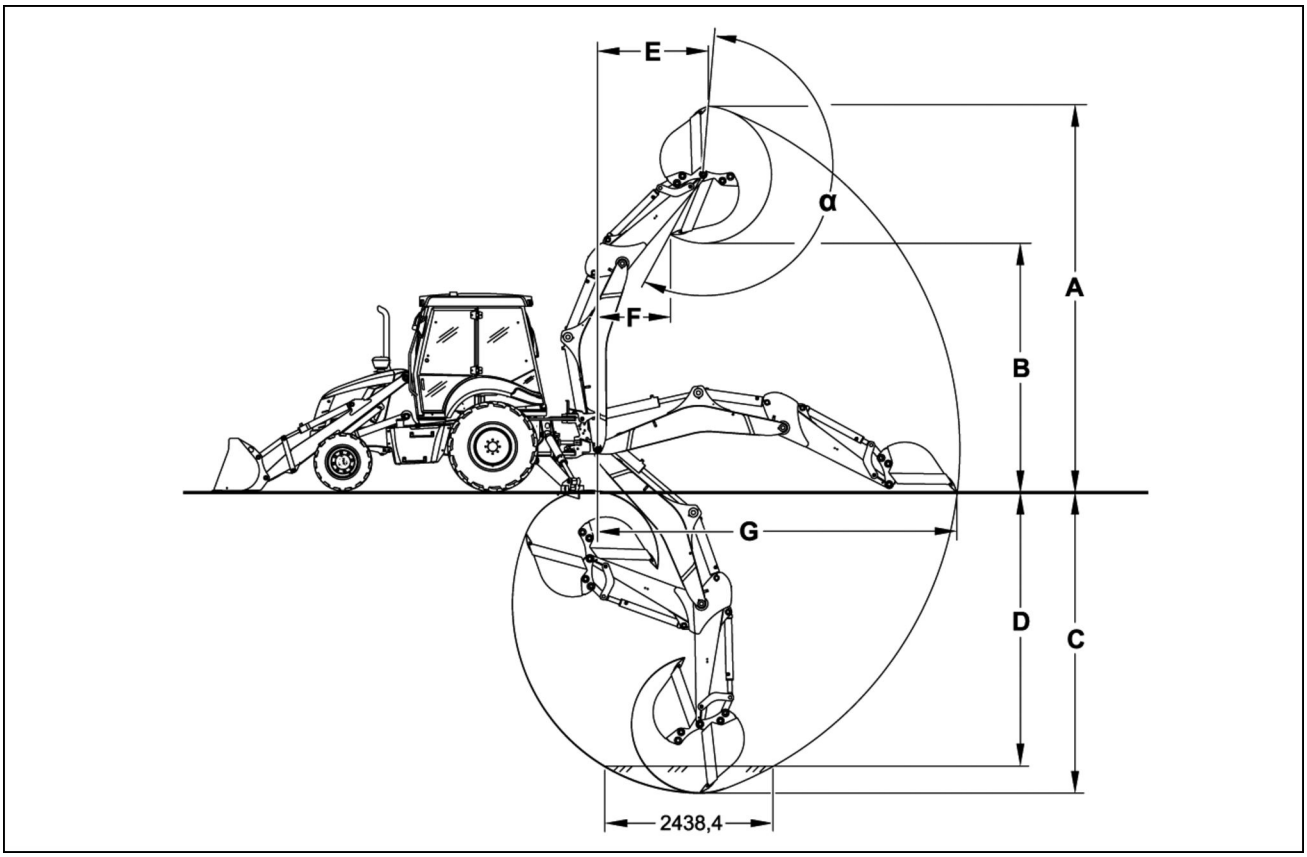


LEEN12T0745FA_1 2

A. Maximum digging height
B. Maximum height at full load
C. Maximum digging depth
D. Digging depth [L = **2438.4 mm** (**96.00 in**)]
E. Digging reach at maximum height
F. Maximum reach when loaded
G. Maximum digging reach with lowered bucket
α. Bucket digging angle

Front tires	11L-16F3
Rear tires	17.5L-24
A	**5624 mm** (**221.4 in**)
B	**3768 mm** (**148.3 in**)
C	**4727 mm** (**186.1 in**)
D	**4356 mm** (**171.5 in**)
E	**1810 mm** (**71.3 in**)
F	**1418 mm** (**55.8 in**)
G	**5450 mm** (**214.6 in**)
α	**204 °**

B95C and B110C (with short telescopic dipper)



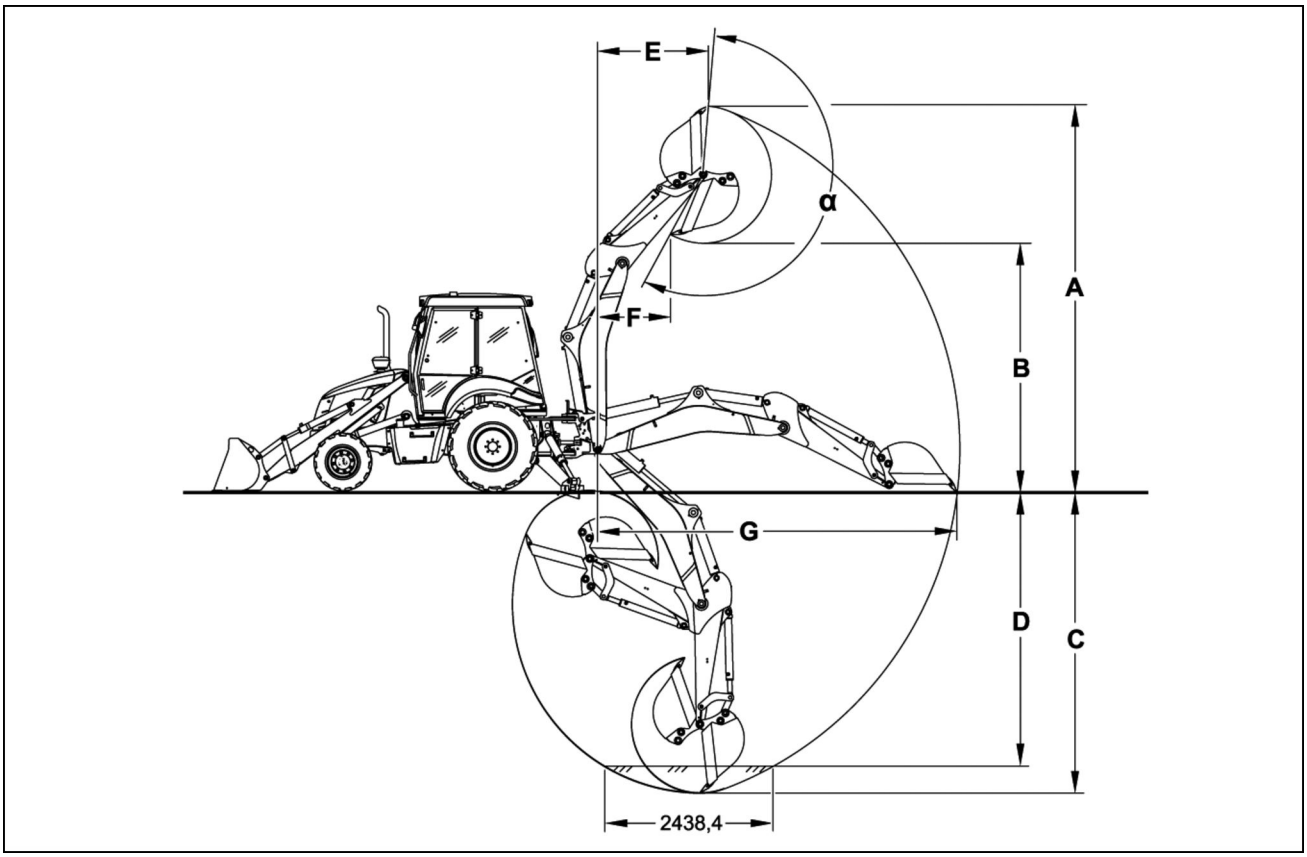
LEEN12T0745FA_1 3

A. Maximum digging height
B. Maximum height at full load
C. Maximum digging depth
D. Digging depth [L = **2438.4 mm** (**96.00 in**)]
E. Digging reach at maximum height
F. Maximum reach when loaded
G. Maximum digging reach with lowered bucket
α. Bucket digging angle

Retracted dipper	
Front tires	11L-16F3
Rear tires	17.5L-24
A	**5539 mm** (**218.1 in**)
B	**3684 mm** (**145.0 in**)
C	**4586 mm** (**180.6 in**)
D	**4206 mm** (**165.6 in**)
E	**1731 mm** (**68.1 in**)
F	**1266 mm** (**49.8 in**)
G	**5327 mm** (**209.7 in**)
α	**203.8 °**

Extended dipper	
Front tires	11L-16F3
Rear tires	17.5L-24
A	**6206 mm** (**244.3 in**)
B	**4351 mm** (**171.3 in**)
C	**5623 mm** (**221.4 in**)
D	**5310 mm** (**209.1 in**)
E	**2542 mm** (**100.1 in**)
F	**2078 mm** (**81.8 in**)
G	**6279 mm** (**247.2 in**)
α	**203.8 °**

B95C and B110C (with long telescopic dipper)



LEEN12T0745FA_1 4

A. Maximum digging height
B. Maximum height at full load
C. Maximum digging depth
D. Digging depth [L = **2438.4 mm** (**96.00 in**)]
E. Digging reach at maximum height
F. Maximum reach when loaded
G. Maximum digging reach with lowered bucket
α. Bucket digging angle

Retracted dipper	
Front tires	11L-16F3
Rear tires	17.5L-24
A	**5625 mm** (**221.5 in**)
B	**3770 mm** (**148.4 in**)
C	**4735 mm** (**186.4 in**)
D	**4364 mm** (**171.8 in**)
E	**1865 mm** (**73.4 in**)
F	**1388 mm** (**54.6 in**)
G	**5456 mm** (**214.8 in**)
α	**203.8 °**

Extended dipper	
Front tires	11L-16F3
Rear tires	17.5L-24
A	**6285 mm** (**247.4 in**)
B	**4431 mm** (**174.4 in**)
C	**5770 mm** (**227.2 in**)
D	**5463 mm** (**215.1 in**)
E	**2681 mm** (**105.6 in**)
F	**2204 mm** (**86.8 in**)
G	**6409 mm** (**252.3 in**)
α	**203.8 °**

Backhoe attachment lifting capacity

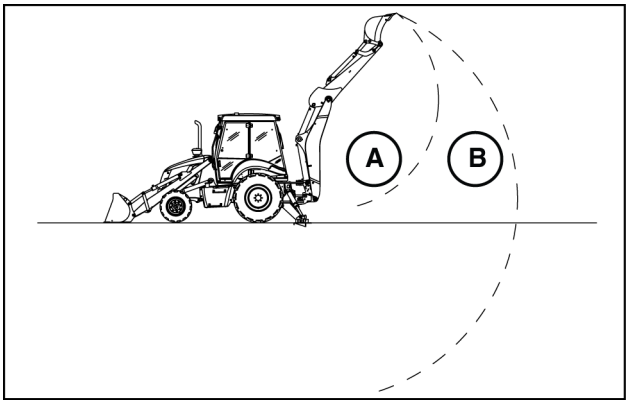
Lifting capacity - models B95C and B95CTC (Short dipper)

Lifting capacity in normal operating mode - SAE rated

The following table reports the lifting capacities of the dipper "A" and the boom "B".

NOTE: *The capacities indicated may slightly vary from one machine to another, according to the accessories mounted, the pressure settings and the market requirements.*

Lifting capacities are given in kg (lb) for a standard dipper and a telescopic dipper.



MOLI12LBB0543AB 1

Dipper		Telescopic dipper (retracted)		Telescopic dipper (extended)		Height/depth
Dipper A	Boom B	Dipper A	Boom B	Dipper A	Boom B	
					790 kg (1745 lb)	+5.4 m (18 ft)
	1555 kg (3430 lb)		1325 kg (2925 lb)		980 kg (2160 lb)	+4.9 m (16 ft)
	1730 kg (3820 lb)		1616 kg (3345 lb)	1505 kg (3320 lb)	1075 kg (2370 lb)	+4.3 m (14 ft)
2870 kg (6325 lb)	1785 kg (3940 lb)	2475 kg (5455 lb)	1550 kg (3425 lb)	1695 kg (3740 lb)	1105 kg (2435 lb)	+3.6 m (12 ft)
2715 kg (5990 lb)	1755 kg (3870 lb)	2450 kg (5406 lb)	1520 kg (3355 lb)	1690 kg (3730 lb)	1110 kg (2445 lb)	+3.0 m (10 ft)
2775 kg (6120 lb)	1700 kg (3750 lb)	2490 kg (5490 lb)	1475 kg (3250 lb)	1715 kg (3785 lb)	1100 kg (2425 lb)	+2.4 m (8 ft)
3125 kg (6890 lb)	1640 kg (3620 lb)	2740 kg (6040 lb)	1420 kg (3135 lb)	1810 kg (3995 lb)	1080 kg (2385 lb)	+1.8 m (6 ft)
5270 kg (11625 lb)	1585 kg (3475 lb)	3655 kg (8060 lb)	1370 kg (3020 lb)	2025 kg (4465 lb)	1065 kg (2345 lb)	+1.2 m (4 ft)
5930 kg (13075 lb)	1530 kg (3380 lb)	6095 kg (13435 lb)	1320 kg (2910 lb)	2535 kg (5595 lb)	1045 kg (2305 lb)	+0.6 m (2 ft)
	1485 kg (3275 lb)		1275 kg (2810 lb)	6015 kg (13260 lb)	1025 kg (2265 lb)	0 (ground)
	1440 kg (3180 lb)		1235 kg (2720 lb)		1010 kg (2225 lb)	-0.6 m (-2 ft)
	1405 kg (3100 lb)		1200 kg (2645 lb)		995 kg (2200 lb)	-1.2 m (-4 ft)
	1380 kg (3045 lb)		1170 kg (2585 lb)		990 kg (2180 lb)	-1.8 m (-6 ft)
	1370 kg (3025 lb)		1160 kg (2555 lb)		990 kg (2180 lb)	-2.4 m (-8 ft)
	1410 kg (3110 lb)		1180 kg (2600 lb)		1000 kg (2205 lb)	-3.0 m (-10 ft)
	1510 kg (3330 lb)		1300 kg (2865 lb)		1640 kg (2295 lb)	-3.6 m (-12 ft)
					1190 kg (2620 lb)	-4.2 m (-14 ft)
					1480 kg (3265 lb)	-4.8 m (-16 ft)

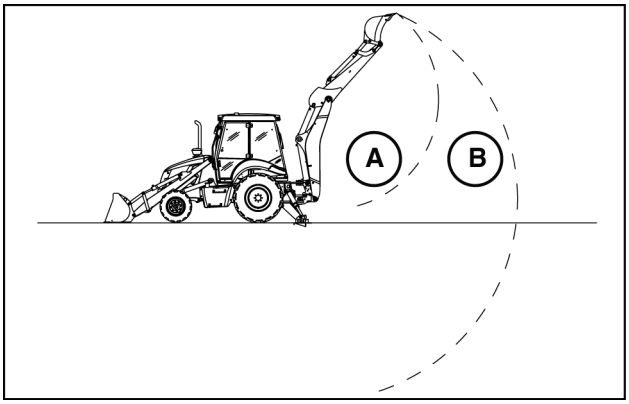
Lifting capacity - models B95CLR and B110C (Long dipper)

Lifting capacity in normal operating mode - SAE rated

The following table reports the lifting capacities of the dipper "A" and the boom "B".

NOTE: *The capacities indicated may slightly vary from one machine to another, according to the accessories mounted, the pressure settings and the market requirements.*

Lifting capacities are given in kg (lb) for a standard dipper and a telescopic dipper.



MOLI12LBB0543AB 2

Dipper		Telescopic dipper (retracted)		Telescopic dipper (extended)		Height/depth
Dipper A	Boom B	Dipper A	Boom B	Dipper A	Boom B	
					830 kg (1835 lb)	+5.4 m (18 ft)
	1525 kg (3370 lb)		1440 kg (3175 lb)		1080 kg (2380 lb)	+4.9 m (16 ft)
	1795 kg (3960 lb)		1685 kg (3715 lb)	1525 kg (3370 lb)	1170 kg (2575 lb)	+4.3 m (14 ft)
2670 kg (5890 lb)	1850 kg (4085 lb)	2600 kg (5740 lb)	1725 kg (3810 lb)	1730 kg (3815 lb)	1205 kg (2655 lb)	+3.6 m (12 ft)
2845 kg (6275 lb)	1835 kg (4050 lb)	2720 kg (5995 lb)	1705 kg (3760 lb)	1850 kg (4080 lb)	1210 kg (2675 lb)	+3.0 m (10 ft)
2880 kg (6355 lb)	1800 kg (3965 lb)	2750 kg (6070 lb)	1660 kg (3665 lb)	1870 kg (4120 lb)	1210 kg (2665 lb)	+2.4 m (8 ft)
3120 kg (6880 lb)	1750 kg (3865 lb)	2980 kg (6570 lb)	1610 kg (3555 lb)	1950 kg (4300 lb)	1200 kg (2645 lb)	+1.8 m (6 ft)
3855 kg (8500 lb)	1705 kg (3760 lb)	3680 kg (8115 lb)	1560 kg (3440 lb)	2125 kg (4685 lb)	1185 kg (2610 lb)	+1.2 m (4 ft)
6965 kg (15355 lb)	1660 kg (3660 lb)	6775 kg (14920 lb)	1510 kg (3335 lb)	2485 kg (5480 lb)	1165 kg (2575 lb)	+0.6 m (2 ft)
	1620 kg (3570 lb)		1465 kg (3235 lb)	3545 kg (7815 lb)	1150 kg (2545 lb)	0 (ground)
	1585 kg (3495 lb)		1425 kg (3150 lb)	7520 kg (16580 lb)	1140 kg (2515 lb)	-0.6 m (-2 ft)
	1555 kg (3425 lb)		1395 kg (3075 lb)		1130 kg (2490 lb)	-1.2 m (-4 ft)
	1535 kg (3385 lb)		1370 kg (3020 lb)		1125 kg (2480 lb)	-1.8 m (-6 ft)
	1530 kg (3380 lb)		1360 kg (3000 lb)		1125 kg (2485 lb)	-2.4 m (-8 ft)
	1570 kg (3460 lb)		1385 kg (3050 lb)		1140 kg (2515 lb)	-3.0 m (-10 ft)
	1810 kg (3990 lb)		1580 kg (3490 lb)		1180 kg (2600 lb)	-3.6 m (-12 ft)
					1285 kg (2835 lb)	-4.2 m (-14 ft)
					1845 kg (4070 lb)	-4.8 m (-16 ft)

10 - ACCESSORIES

Mechanical loader bucket quick coupler

It is possible to install a quick coupler **(1)** for the loader bucket on the loader attachment, using the standard mounting pins **(2)**.

Quick removal and installation of the loader bucket

Make sure the bucket to be installed is in a safe area, on a level and firm ground and with the upper pins in place.

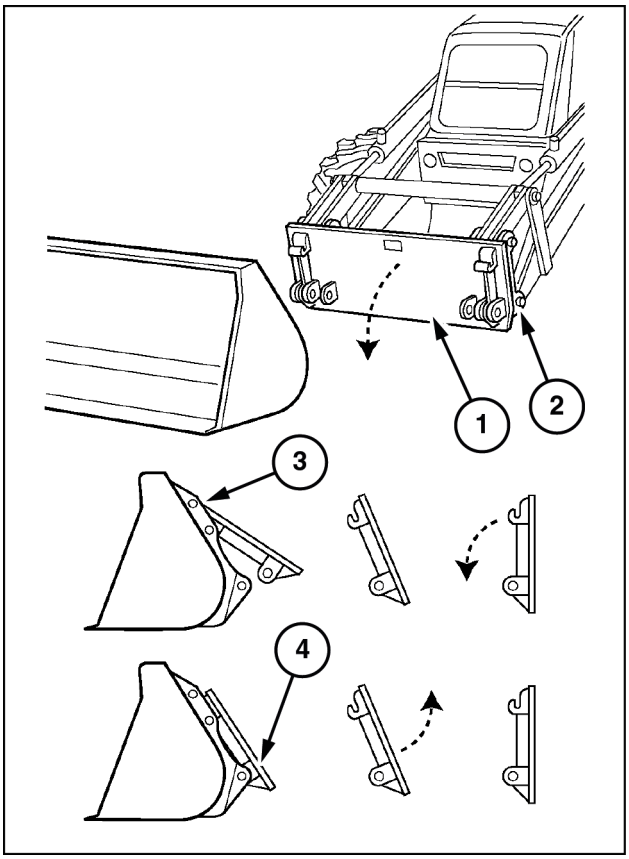
Use the control lever (dumping position) to bring the quick coupler hooks under the bucket pins **(3)**.

Use the control lever (digging position) to swing the bucket down onto the lower part of the quick coupler.

Stop the engine and remove the starter switch key.

Install the pins **(4)** and retaining hardware.

NOTICE: *Make sure the loader bucket is correctly installed with all its pins and locking rings before using the loader.*



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Mechanical backhoe bucket quick coupler

⚠ WARNING

Crushing hazard!
Never put your hands inside the quick coupler when the engine is running. Turn off the engine and wait for all movement to stop.
Failure to comply could result in death or serious injury.

W0252A

It is possible to install a mechanical quick coupler **(1)** on the dipper using the standard pins.

Make sure the tool to be installed is in a safe area on hard, level ground with its pins in place.

Make sure the tool linkage pin is in maximum force **(2)** position.

NOTICE: *It is imperative for the linkage pin to be in maximum force position, otherwise the quick coupler will not engage.*

Make sure the quick coupler jaw is open.

Use the bucket and dipper controls to engage the quick coupler hook round the lower pin.

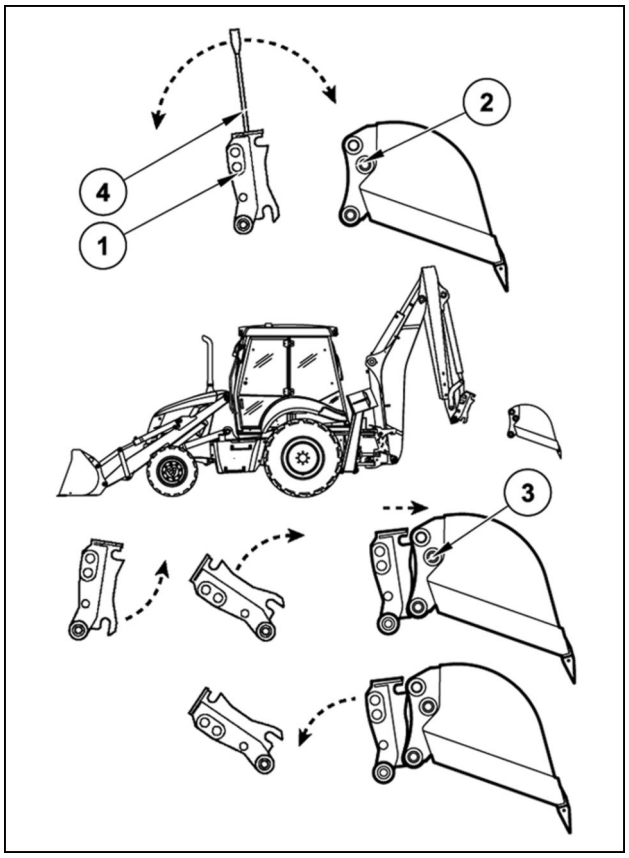
Use the bucket controls to engage and lock the pin **(3)** completely in the quick coupler jaw.

Stop the engine and remove the starter switch key.

Install the quick coupler safety pin.

ATTENTION: *Make sure the safety pin is correctly installed in the quick coupler as described in the manufacturer's instructions after each tool change. In the event of any doubt concerning the safety pin or adjustments, do not hesitate to consult your Dealer.*

To change the tool, release the jaw (with the safety pin removed) using the lever **(4)** supplied for opening it.



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Backhoe attachment auxiliary hydraulic tools

Before using auxiliary tools **(3)**, it is mandatory to proceed as follows:

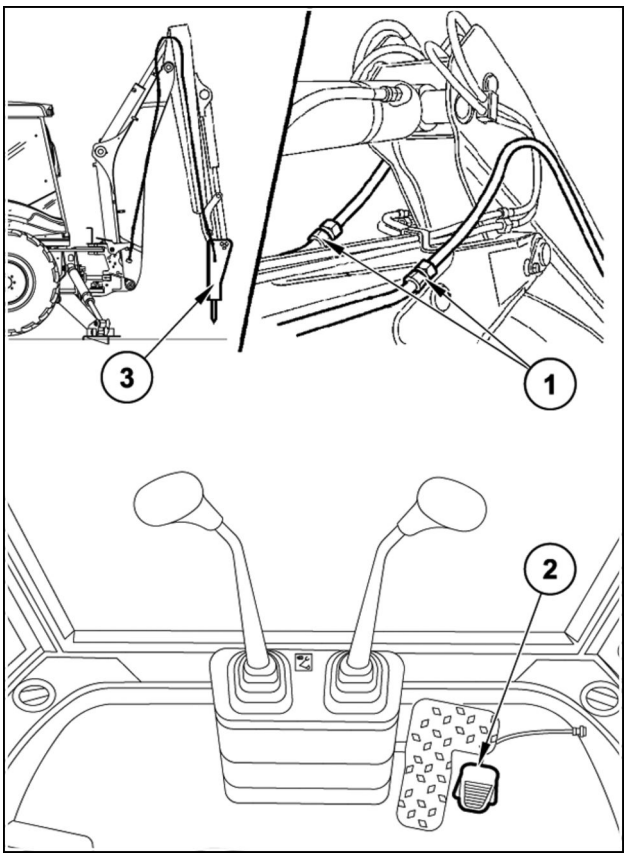
Check that the direction-of-travel control lever to neutral position.

Place the gearshift lever in neutral position.

Lower the loader attachment to the ground.

Shut down the engine, release all pressure in the auxiliary circuit, remove the plugs and connect the tool hoses to the couplings **(1)** at the end of the boom.

NOTICE: *Inverting the connections can cause involuntary or untimely functioning of the tool or even damage it considerably. To avoid all risk of accidents, follow the manufacturer's instructions carefully.*



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Flow selection

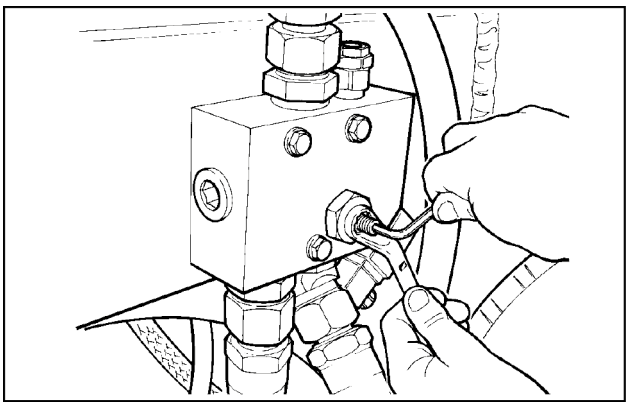
It is up to the operator to decide which flow should be used by consulting the manufacturer's operating instructions. Make sure to respect the prescribed delivery. Excess flow can damage some equipment.

Place the accelerator knob/lever in full speed position.

Press down the control pedal **(2)** to operate the tool.

Release the control pedal **(2)** to stop the tool.

Depending on the flow requirement recommendations, adjust the flow regulator on the chassis, at the rear of the machine. Consult your Dealer.



MOLI12LBB0510AA 2

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Hand hekl auxiliary hydraulic tools

Before using hand hekl auxiliary tools, it is mandatory to proceed as follows:

Check that the direction-of-travel control lever to neutral position.

Apply the parking brake to prevent the machine from moving.

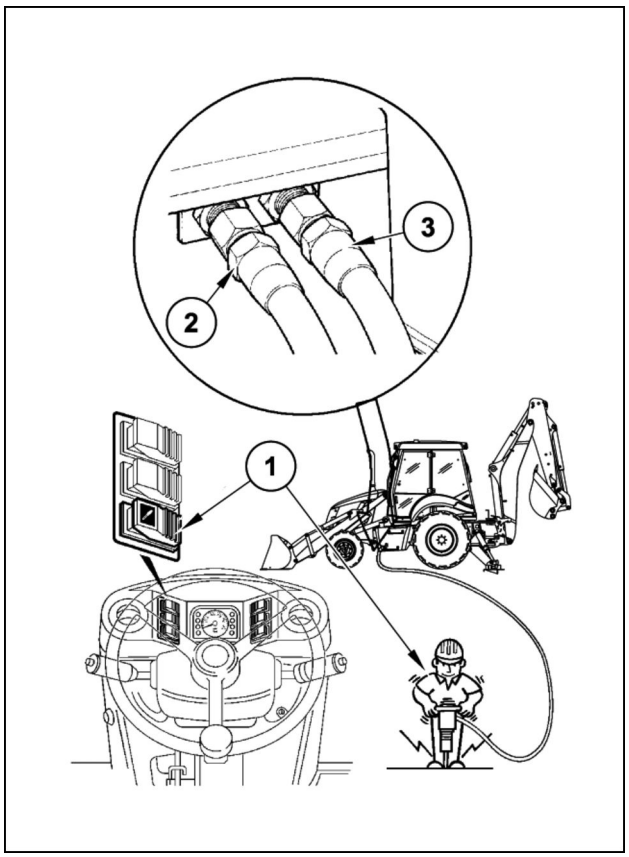
Place the gearshift lever to neutral.

Lower the loader attachment to the ground.

Place the hand hekl auxiliary hydraulic tool switch **(1)** in the “OFF” position.

Stop the engine, remove the plugs and connect the tool hoses to the couplings in front of the fuel tank. Coupling **(3)** is for the hydraulic oil supply line and coupling **(2)** is for the hydraulic oil return line.

NOTICE: *Inverting the connections can cause involuntary or untimely functioning of the tool or even damage it considerably. To avoid all risk of accidents, follow the manufacturer’s instructions carefully.*



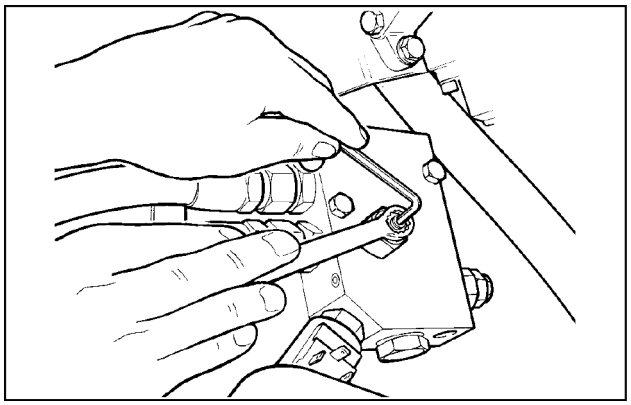
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Flow selection

The operator must determine the flow to be used by consulting the tool manufacturer’s operating instructions. Be sure to select the flow specified. For some tool, an excessive flow can cause severe damage, therefore, it is necessary to adjust the flow regulator on the chassis in front of the axle. Consult your dealer.

Start the engine, place the accelerator knob/lever in full speed position, then place the manual auxiliary hydraulic tool switch **(1)** in the “ON” position (lamp on), now it is possible to use the tool.

When the tool is no longer required, take the manual auxiliary hydraulic tool switch **(1)** back to the “OFF” position (lamp off).

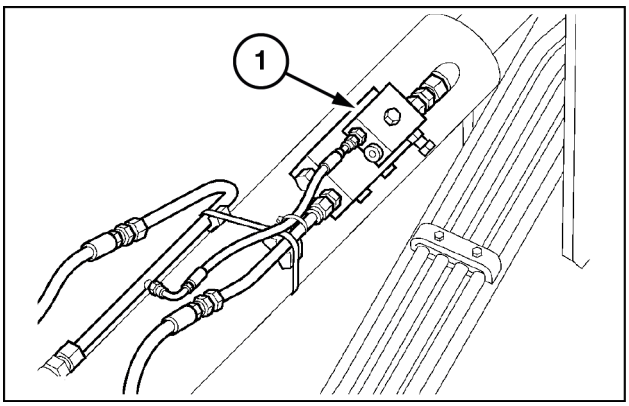


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Backhoe attachment safety valves

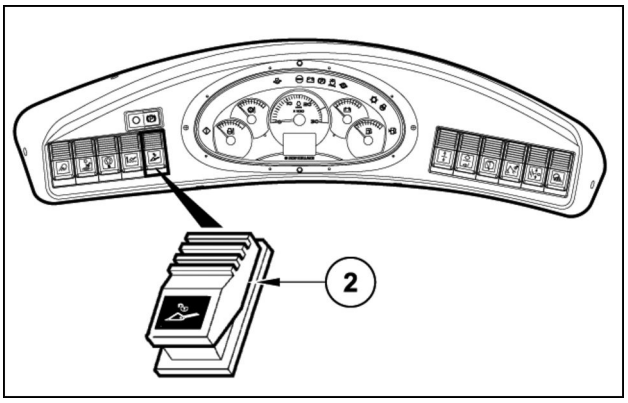
The function of the safety valves **(1)** is to prevent the attachment from falling because of oil leaks in the control valve (spool in neutral) or hoses accidentally breaking, as well as to guarantee a smooth and controlled lowering of the attachment in the event of a hose or pipe accidentally breaking.



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The valves locking/unlocking is performed by button **(2)**.

Check that the safety valves function correctly. A load holding check must be carried out every 6 months in conformance with the manufacturer's instructions. Consult your dealer.



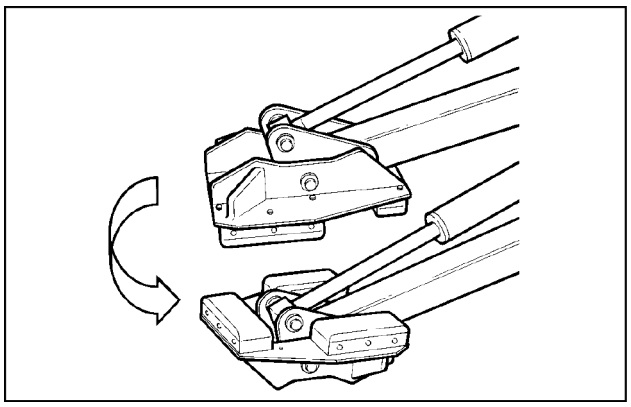
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Reversible stabilizer pads

These stabilizer pads are intended for use in the street or on the job site. They may be turned around 180°, as required.

NOTICE: *When these pads are used, there is a danger of them hitting the cab windows.*
Slightly lower the stabilizers before opening the windows, to prevent damage.



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