

**1021G
1121G
Tier 2**
Wheel Loader

SERVICE MANUAL

Part number 48083742

English

July 2018

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CASE
CONSTRUCTION



SERVICE MANUAL

**1021G ZBAR - EH, NEW CAB TIER2
1121G ZBAR - EH, NEW CAB TIER2**

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INTRODUCTION

Safety rules


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 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 that, if not avoided, will result in death or serious injury.

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

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

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

Machine safety

NOTICE: Notice indicates a situation that, if not avoided, could result in machine or property damage.

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 that 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.

Personal safety

Carefully read this Manual before proceeding with maintenance, repairs, refuelling or other machine operations.

Repairs have to be carried out only by authorized and instructed staff; specific precautions have to be taken when grinding, welding or when using mallets or heavy hammers.

Non-authorized persons are not allowed to repair or carry out maintenance on this machine. Do not carry out any work on the equipment without prior authorization.

Ask your employer about the safety instructions in force and safety equipment.

Nobody should be allowed in the cab during machine maintenance unless he is a qualified operator helping with the maintenance work.

If it is necessary to move the equipment to carry out repairs or maintenance, do not lift or lower the equipment from any other position than the operator's seat.

Never carry out any operation on the machine when the engine is running, except when specifically indicated.

Stop the engine and ensure that all pressure is relieved from hydraulic circuits before removing caps, covers, valves, etc.

All repair and maintenance operations should be carried out with the greatest care and attention.

Service stairs and platforms used in a workshop or in the field should be built in compliance with the safety rules in force.

Any functional disorders, especially those affecting the safety of the machine, should therefore be rectified immediately.

⚠ DANGER

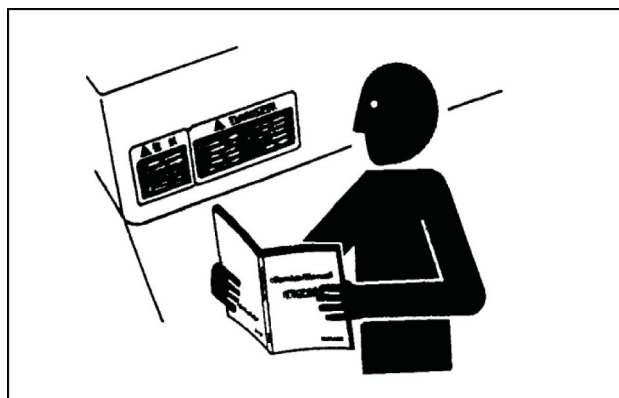
Unexpected movement!

Make sure parking brake is applied. Secure machine with wheel chocks.

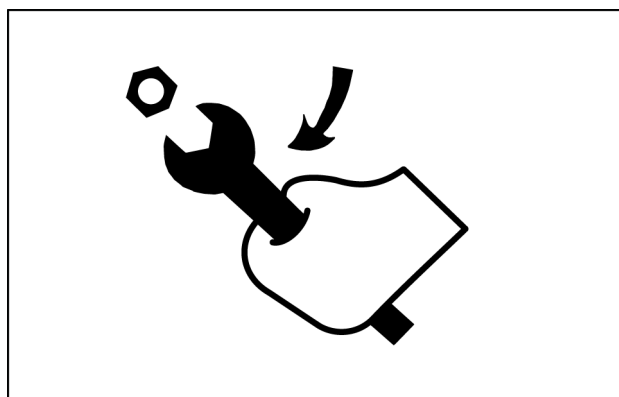
Failure to comply will result in death or serious injury.

D0013A

Before performing any work on the machine, attach a maintenance in progress tag. This tag can be applied on the left-hand control lever, safety lever or cab door.



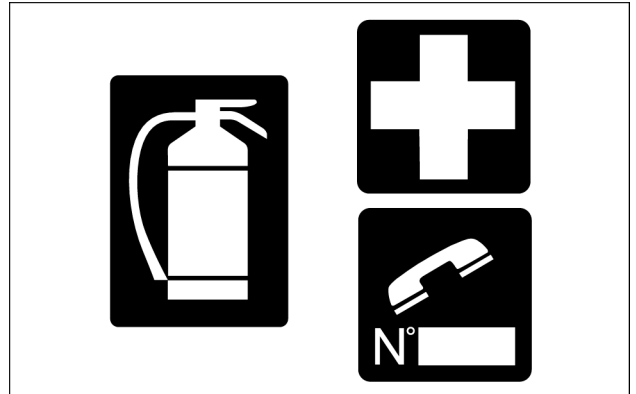
TULI12WEX2004AA 1



TULI12WEX2005AA 2

Emergency

Be prepared for emergencies. Always keep a fire extinguisher and first aid kit readily available. Ensure that the fire extinguisher is serviced in accordance with the manufacturer's instructions.



SMIL12WEX0174AA 3

Equipment

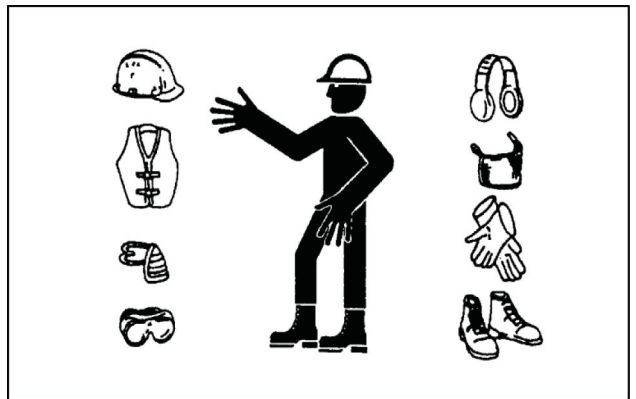
Wear close fitting clothing and safety equipment appropriate for the job:

- Safety helmet
- Safety shoes
- Heavy gloves
- Reflective clothing
- Wet weather clothing

If working conditions require, the following personal safety equipment should be on hand:

- Respirators (or dust proof masks)
- Ear plugs or acoustic ears protections
- Goggles with lateral shield or masks for eye protection

Do not wear rings, wristwatches, jewelry, unbuttoned or flapping clothing such as ties, torn clothes, scarves, open jackets or shirts with open zips which could get caught into moving parts.



TULI12WEX2008AA 4

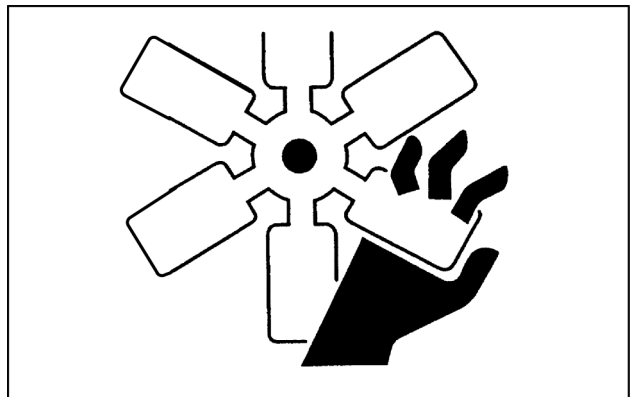
Engine - Radiator

Never leave the engine running in enclosed spaces without proper ventilation which is able to evacuate toxic exhaust gases- Keep the exhaust manifold and tube free from combustible materials.

Do not refuel with the engine running, especially if hot, as this increases fire hazard in case of fuel spillage.

Never attempt to check or adjust the belts when the engine is running.

Never lubricate the machine with the engine running.



TULI12WEX2009AA 5

Pay attention to rotating components and do not allow anyone to approach these areas to avoid becoming entangled.

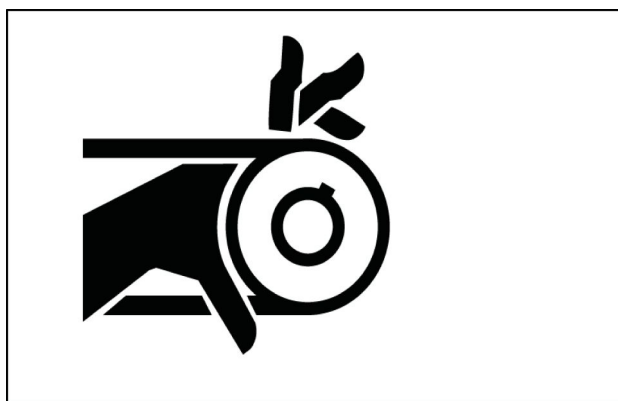
Hands, clothing or tools getting caught in the fan blades or engine belts, can cause amputations, violent hemorrhages and generate conditions of grave danger. For this reason avoid touching or approaching all rotating or moving parts.

A surging spray of the coolant from the radiator can cause serious burns and scalds.

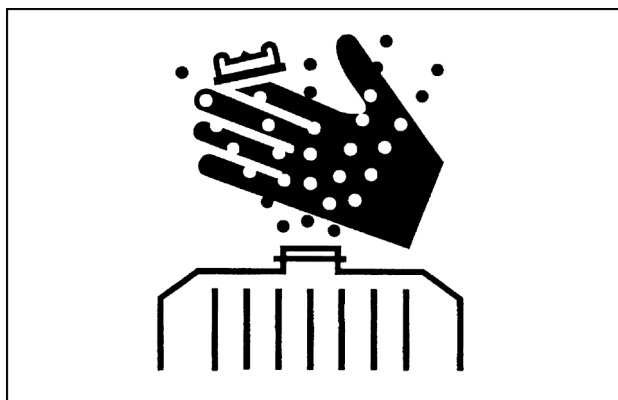
Before checking the coolant level, shut-off the engine and allow machine to cool down the radiator and hoses. Slowly unscrew the cap to release any residual pressure.

If it is necessary to remove the cap while engine is hot, wear safety clothes and equipment, then loosen the cap slowly to relieve the pressure gradually.

When checking the fuel, oil and coolant levels, use lights and lamps explicitly designated as explosion proof. If these types of lamps are not used, fires or explosions may occur.



TUL12WEX2010AA 6



TUL12WEX2011AA 7

Hydraulic systems

Jets of fluids under pressure can penetrate the skin causing serious injuries.

Avoid this hazard by relieving pressure before disconnecting hydraulic or other lines.

Relieve the residual pressure by moving the hydraulic control levers several times.

Tighten all connections before applying pressure.

To protect the eyes wear a facial shield or safety goggles.

Protect your hands and body from possible jets of fluids under pressure.

Swallowing hydraulic oil is a severe health hazard.



TUL12WEX2012AA 8

When hydraulic oil has been swallowed, avoid vomiting, but consult a doctor or go to a hospital.

If an accident occurs, see a doctor familiar with this type of injury immediately.

Any fluid penetrating the skin must be removed within a few hours to avoid serious infections.

Flammable splashes may originate because of heating near lines with fluids under pressure, resulting in serious burns. Do not weld or use torches near lines containing fluids or other flammable materials.

Lines under pressure can accidentally be pierced when the heat expands beyond the area immediately heated.

Arrange for temporary fire resistant shields to protect hoses or other components during welding or torch use.

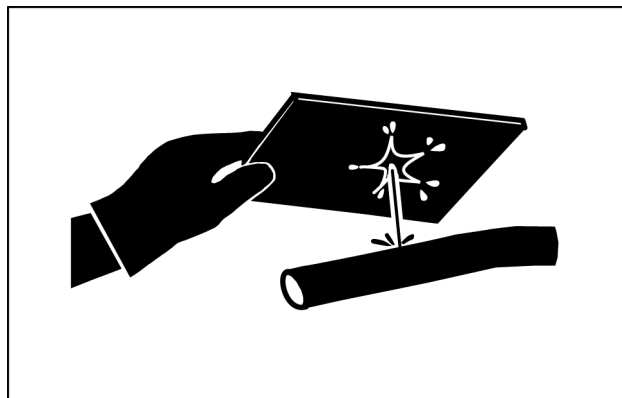
Have any visible leakage repaired immediately.

Discharged oil pollutes the environment. Soak up any oil that has spilled with a proper binding agent. Sweep up binding agent and dispose of it separately from other waste.

Never search for leakages with fingers; instead, use a piece of cardboard and always wear goggles.

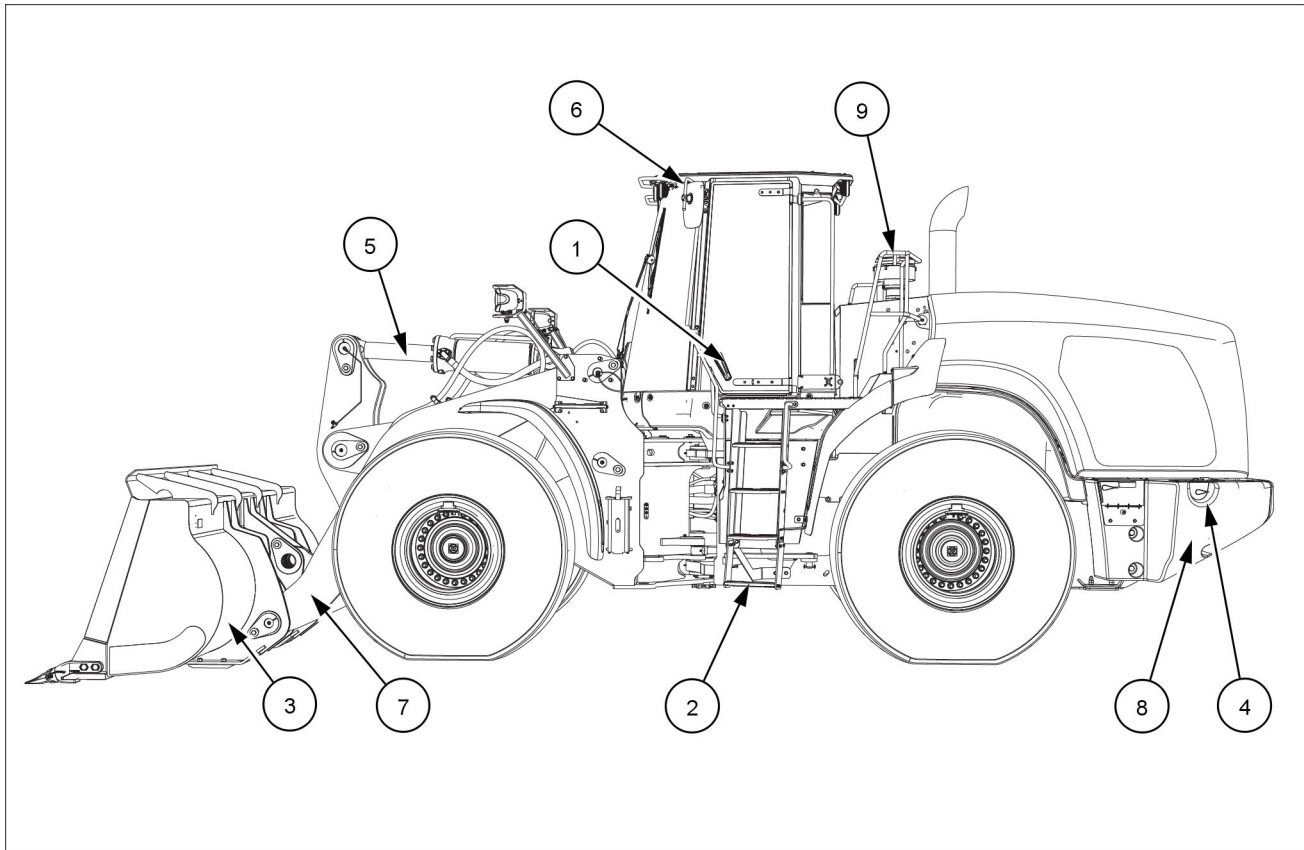
Never repair a damaged line; always replace it. Replace hydraulic hoses immediately on detecting any damaged or moist areas.

Always store hydraulic oil in the original containers.



TULI12WEX2013AA 9

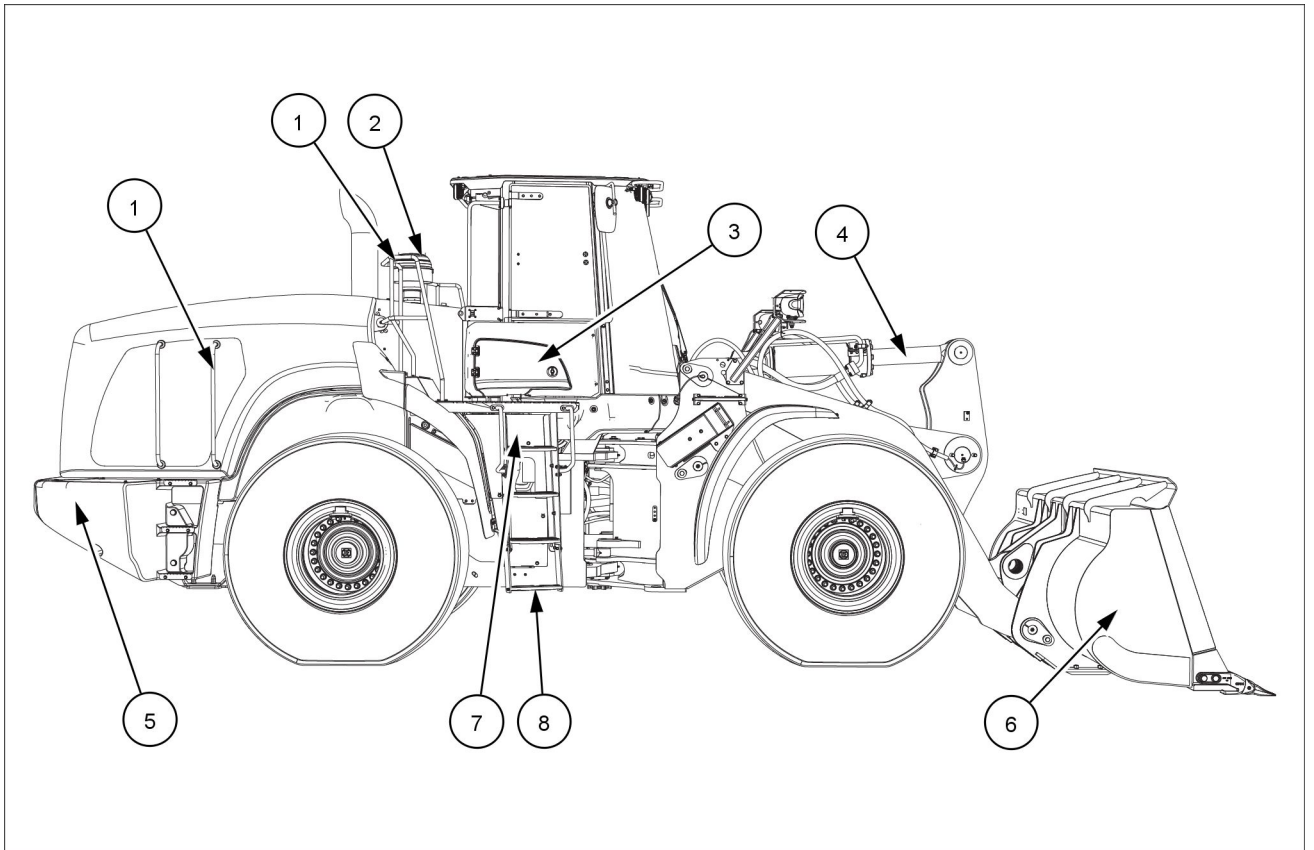
Product identification



LEIL16WHL2581FA 1

- | | |
|--|---|
| 1. Cab door and hand holds | 6. Roll Over Protection System (ROPS) cab |
| 2. Steps | 7. Loader lift arms |
| 3. Bucket (Z-bar version) | 8. Battery access |
| 4. Timed disconnect switch and battery jump post | 9. Hand rails |
| 5. Bucket cylinder | |

INTRODUCTION



LEIL16WHL2582FA 2

- | | |
|--------------------------|--------------------------------|
| 1. Hand rails | 5. Battery access |
| 2. Pre-cleaner | 6. Bucket (Z-bar version) |
| 3. Cab air filter access | 7. Windshield washer reservoir |
| 4. Bucket cylinder | 8. Steps |



SERVICE MANUAL

Engine

**1021G ZBAR - EH, NEW CAB TIER2
1121G ZBAR - EH, NEW CAB TIER2**

Engine - General specification

1021G ZBAR - EH, NEW CAB TIER2 | ANZ --- APAC --- LA --- MEA

Engine with 4 Speed Transmission	
A. Low idle	870-930 RPM
Alternate low idle	670-730 RPM
Alternate accelerated idle	1270-1330 RPM
Working idle (setting from factory)	1020-1080 RPM
B. Maximum No Load RPM	2162-2212 RPM
C. Converter Stall	1973-2123 RPM
D. Hydraulic Stall	1885-2195 RPM
E. Converter & Hydraulic Stall	1487-1797 RPM
Temperature of the torque converter oil	82 – 104 °C (180 – 219 °F)
Temperature of the hydraulic oil	54 – 57 °C (129 – 135 °F)

NOTE: hydraulic Stall and Converter & Hydraulic Stall RPM values are read while the lift arms are rising with the bucket held rolled back and the engine at Wide Open Throttle (WOT) in max power mode.

Engine - General specification

1121G ZBAR - EH, NEW CAB TIER2 | ANZ --- APAC --- LA --- MEA

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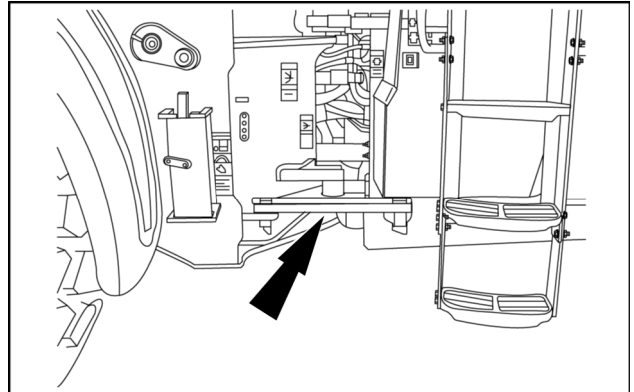
NOTE: hydraulic Stall and Converter & Hydraulic Stall RPM values are read while the lift arms are rising with the bucket held rolled back and the engine at Wide Open Throttle (WOT) in max power mode.

Engine - Remove

Prior operation:

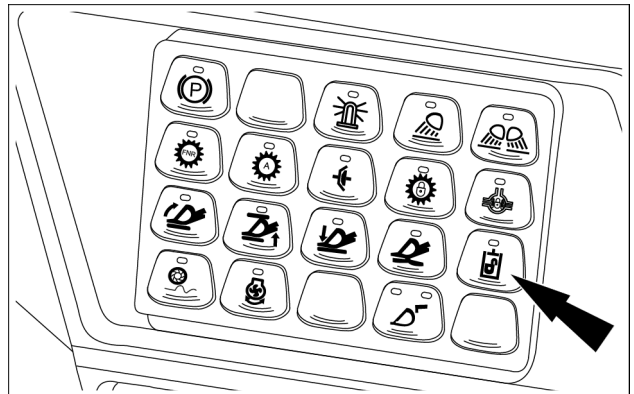
Engine hood - Remove (90.105)

1. Park the machine on a level surface and lower the bucket to the ground. Put the articulation lock (1) in LOCKED position.



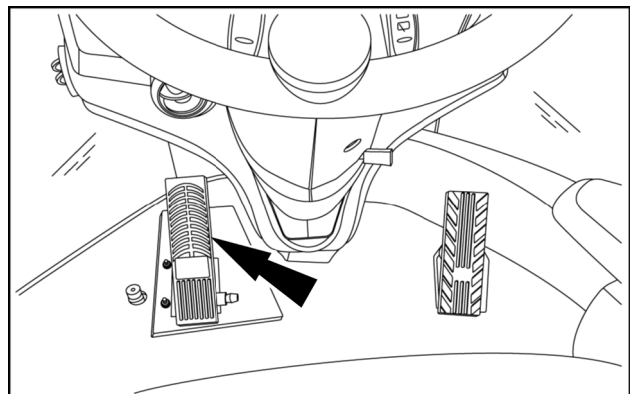
LEIL15WHL1782AA 1

2. Push the hydraulic functions lock-out switch in the normal operation position.



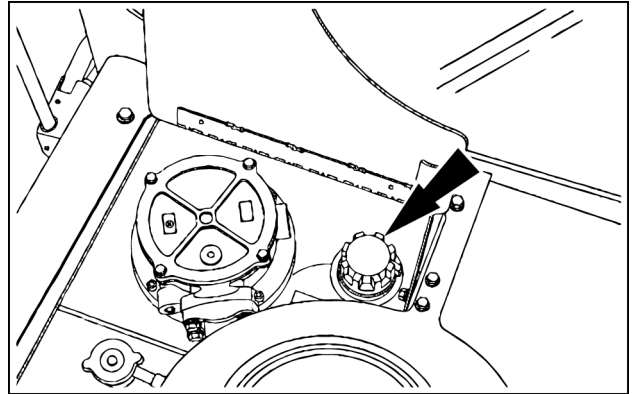
LEIL16WHL1125AA 2

3. Move the loader hydraulic control handle to the raise and lower position in order to release any hydraulic pressure in the lift circuit.
4. Move the loader control handle in and out of the tilt position several times, this will relieve any pressure in the pilot accumulator.
5. Release the pressure in the ride control accumulator with the bleeder valve in the ride control valve load travel stabilizer.
6. Actuate the brake pedal several times to discharge brake accumulators.



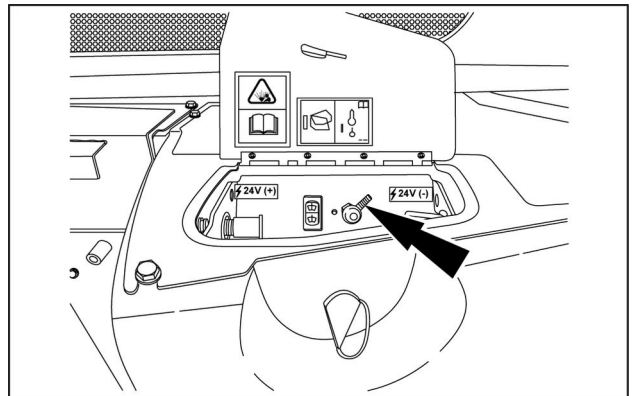
LEIL15WHL0564AA 3

7. Slowly loosen the filler cap on the hydraulic oil tank to release air pressure.



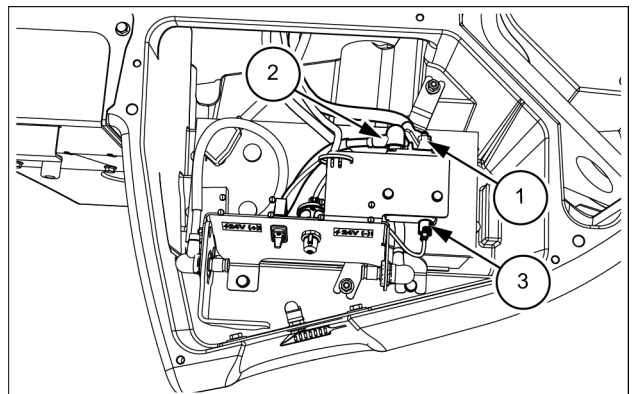
LEIL15WHL0825AA 4

8. Locate the timed disconnect switch in the battery box. Put the timed disconnect switch in the OFF position.



LEIL15WHL0663AA 5

9. Tag and disconnect the positive cable (battery to isolator) cable **(1)** and the positive cable (isolator to starter) **(2)** from the battery isolator. Disconnect the connector **(3)** from the timed disconnect switch.



LEIL16WHL1528AB 6



Suggest:

If the above button click is invalid.

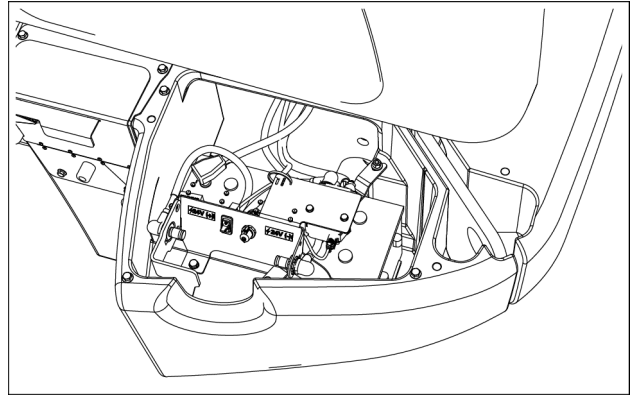
Please download this document

first, and then click the above link

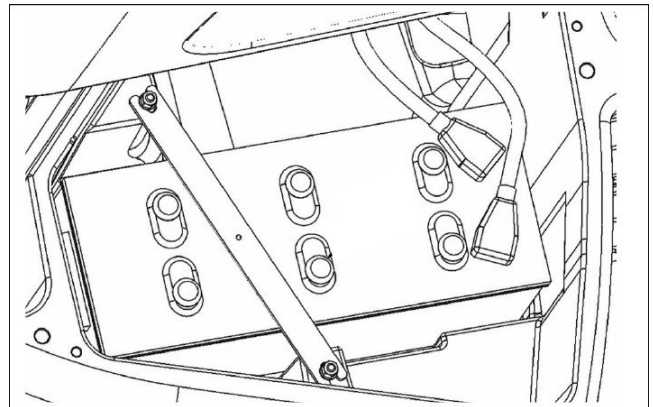
to download the complete manual.

Thank you so much for reading

10. Loosen and remove the bolts that hold the battery cover in place on both the left-hand and right-hand rear of the machine.
Disconnect the battery cable from the battery.



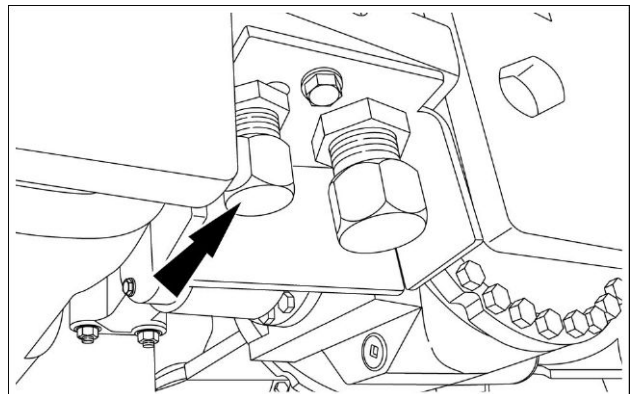
LEIL16WHL0891AB 7



LEIL15WHL1489AA 8

11. Open the access cover.
Place a suitable container below radiator drain, remove the radiator cap and coolant drain plug (arrow) to drain the engine coolant. Reinstall the drain plug and radiator cap after the coolant has drained.

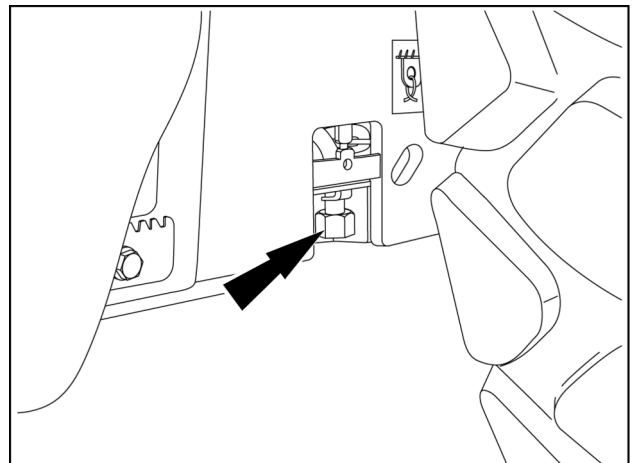
NOTE: see machine specifications for cooling system volume.



LEIL15WHL0719AB 9

12. Open the access cover.
Place a suitable container below the engine oil drain. Remove the drain plug and drain the oil into the container. Reinstall drain plug.

NOTE: see machine specifications for engine oil sump volume.



RCPH11WHL104AAH 10

13. Loosen the clamp on the air intake hose under the air inlet engine hood.

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