1021G
1121G
Tier 2
Wheel Loader

OPERATOR'S MANUAL

Part number 47888722
1st edition English
November 2016

CASE CONSTRUCTION

Electro-Magnetic Compatibility (EMC)

Interference may arise as a result of add on equipment which may not necessarily meet the required standards. 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 electromagnetic 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 CASE CONSTRUCTION warranty null and void.

Safety rules

- It is the responsibility of the operator to read and understand the operator's manual and other information provided, and use the correct operating procedure. Machines should be operated only by qualified operators.
- Do not operate this machine or perform maintenance work if you have not had appropriate training. Read and fully understand all the instructions and warnings in this manual.
- Be prepared for emergencies. Always have a first aid kit and a working fire extinguisher with you and know how to use each.
- Avoid loose fitting clothing, loose or uncovered long hair, jewelry and loose personal articles.
- Know and use the protective equipment that is to be worn when operating this machine. 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 must be replaced and renewed upon age and wear. Old hard hats may not afford the original intended protection. Faded and soiled vests are no longer as highly visible as the original intent. See the manufacturer's recommendation.
- Know and use the hand signals required for particular jobs and know who has the responsibility for signaling.
- Wear the seat belt to maximize the protection capability of a ROPS (Roll Over Protective Structure) when the machine is so equipped.
- Inspect the ROPS and seat belt mounting bolts on a daily basis to insure their integrity.
- Do not permit riders on the machine if there is no manufacturer's designated place for a rider.
- Make sure that all protective guards, canopies, doors, etc. are in place and secure.
- Remove all loose objects stored in the machine. Remove all objects which do not belong in or on the machine and its equipment.

Attachment quick coupler safety information

- Always inspect the coupler locking pin extension before operating the machine. Position the locking pins in your field of vision and make certain they are engaged properly.
- Improperly locked attachments could release and cause serious injury.
- Do not attempt to engage attachment with locking pins extended.
- Make certain that locking pins and connections are free of dirt or caked on mud before attempting to engage and disengage the attachment.
- Do not extend or retract coupler locking pins with attachment on the ground or in the dump position.
- If any damage is visible on the coupler or attachment points, do not operate or attach bucket.
- Never stand under an attachment or allow others to do so. Do not allow anyone under elevated loads.
- Do not lift loads or push materials with the coupler without an attachment. This can cause damage to the coupler components.
- Check coupler operation periodically for any unusual movement and/or noise.
- Inspect hydraulic hoses for any leaks or damage.
- Visually inspect welds and make any repairs as necessary.
- Check for any loose bolts. Torque as required.
- Do not modify the machine or attachments. Such modifications can damage and/or affect the integrity of the attachment and can affect safety and function of the attachment and/or machine.
- Check all controls in a clear area and make certain the machine is operating correctly.

Transport service link

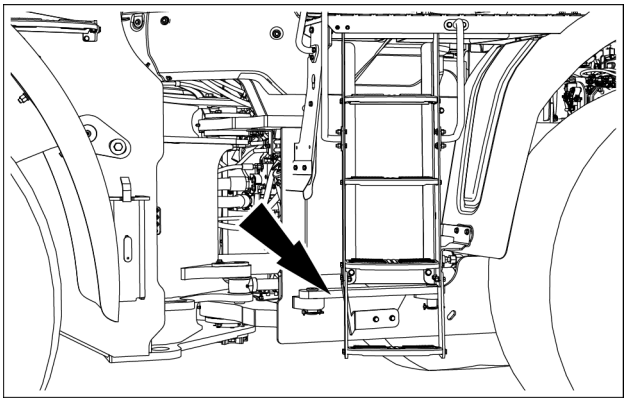
⚠ WARNING

Crushing hazard!
Engage the safety lock link before service or transport.
Failure to comply could result in death or serious injury.

W1154A

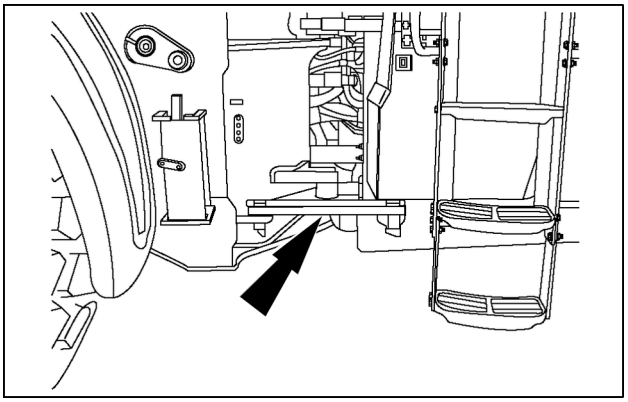
Park the machine on a level surface, lower the attachment to the ground, turn the engine off and set the parking brake before exiting the cab. Prior to any maintenance, service work or transportation, lock the articulation transport service link.

1. Remove the safety security pin to change the positions of the service link.



LEIL16WHL1466AB 3

2. Move the service link into the locked position to prevent articulation. Insert the safety security pin.



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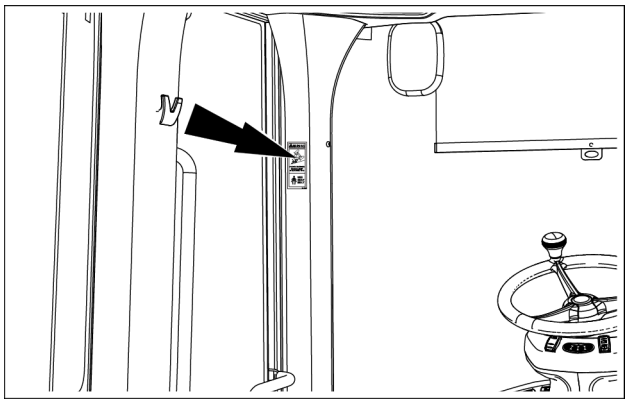


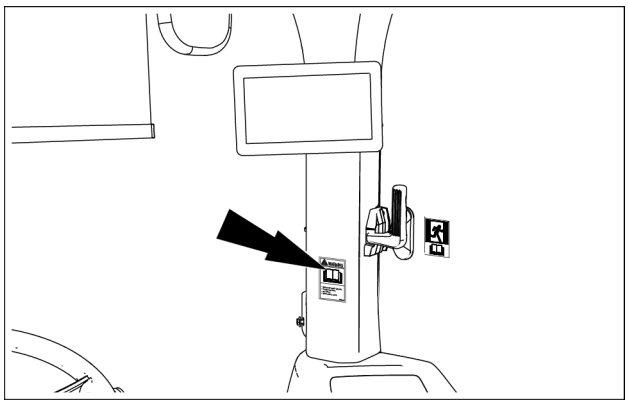
LEIL16WHL0990AA 3

Location: support inside the operator's compartment. See "Seat belts" – Chapter 2 in this manual for more information.

WARNING
Avoid crushing!
Do not jump if machine tips. Use the seat belt.
Failure to comply with this warning could result in death or serious injury.

North American decal number: 321-7030
French Canadian decal number: 124269A1
Spanish decal number: 124271A1
Portuguese decal: 386241A1

321-7030_ 4

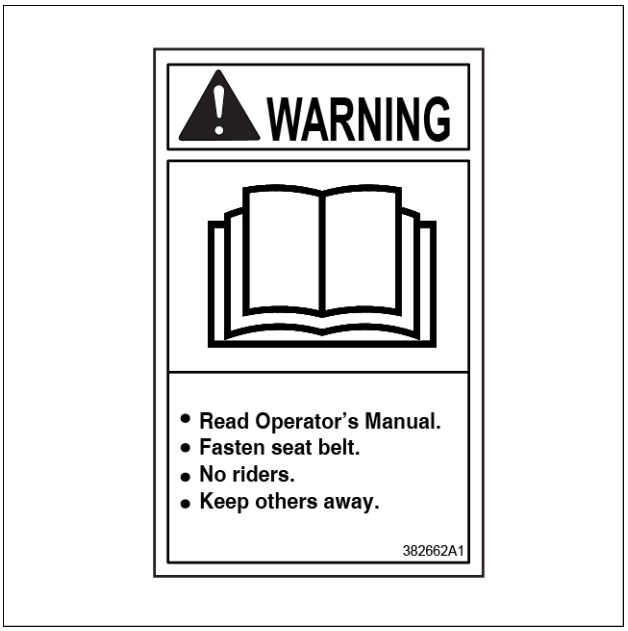


LEIL16WHL0991AA 5

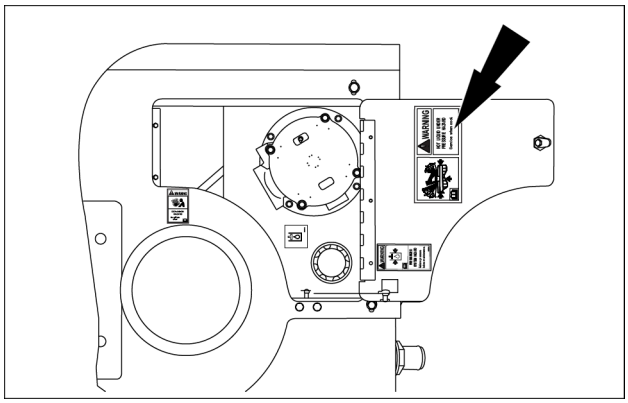
Location: support inside the operator's compartment.

WARNING
Avoid injury!
Read the operator's manual. Fasten the seat belt. No riders. Keep others away.
Failure to comply with this warning could result in death or serious injury.

North American decal number: 382622A1
French Canadian decal number: 333999A2
Spanish decal number: 334000A2
Portuguese decal number: 256147A1



382662A1_ 6



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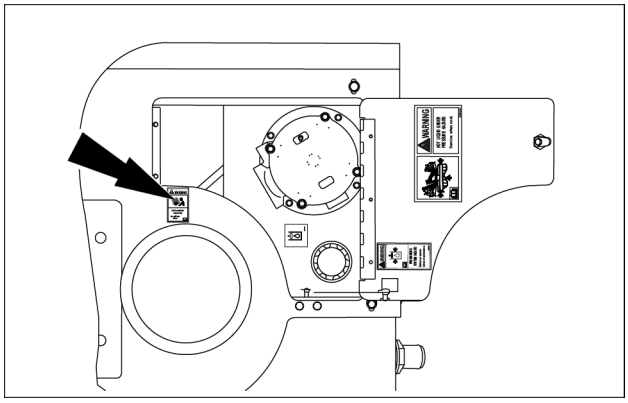
Location: access compartment on the top of the machine at the rear of operator's compartment.

WARNING
Hot liquid under pressure hazard!
Service when cool.
Failure to comply with this warning could result in death or serious injury.

North American decal number: 329044A1
French Canadian decal number: 334663A1
Spanish decal number: 334664A1
Portuguese decal number: 329045A1

329044A1_1 44



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Location: access compartment on the top of the machine at the rear of operator's compartment.

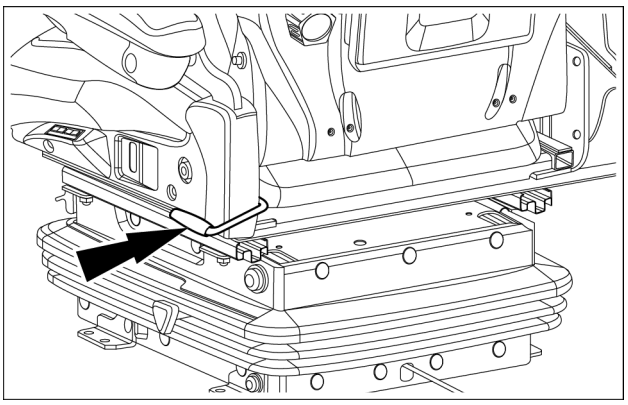
WARNING
Explosion hazard!
Do not use ether.
Failure to comply with this warning could result in death or serious injury.

North American decal number: 47728994
French Canadian decal number: 47728074
Spanish decal number: 8603094
Portuguese decal number: 8603095

8603092_ 46

Backrest adjustment

Lift up the handle and move the backrest to the desired position. Release the handle to lock in position.



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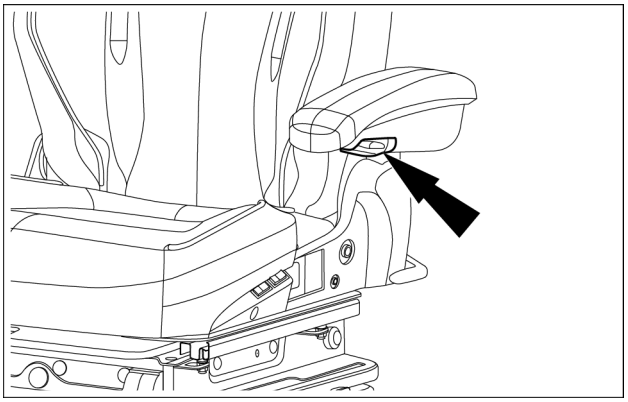
Armrest angle adjustment

Turn the knob to raise or lower the armrest to the desired position.



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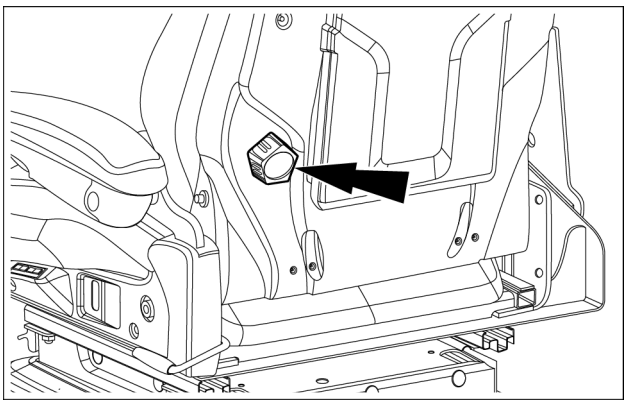
Lumbar adjustment

Turn the knob to adjust both the height and curvature of the backrest cushion.



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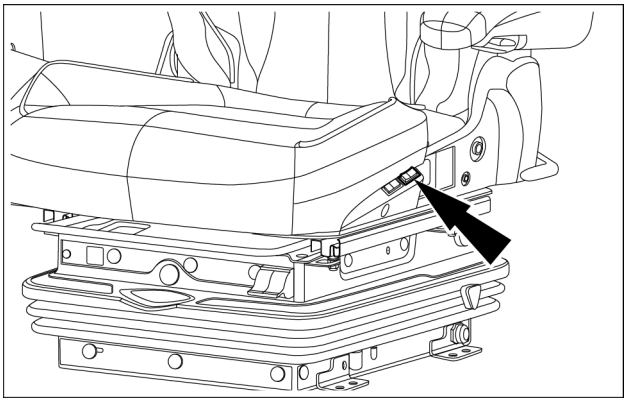
Seat heating

Use the rocker switch to activate the seat heating for cold weather comfort.



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Joystick steering

⚠ WARNING

Driving hazard!
If the hydraulic pilots are disengaged, the joystick steering remains active. Always disengage the joystick steering when not in use.
Failure to comply could result in death or serious injury.

W0449A

⚠ WARNING

Driving hazard!
For optimum control, always use the primary steering wheel when operating at higher machine speeds. Do not use the joystick steering control when operating at speeds above 20 km/h (12.4 mph).
Failure to comply could result in death or serious injury.

W0450A

⚠ WARNING

Driving hazard!
Always use the primary steering when traveling on a public road or highway. The left armrest must be raised and in a locked position during travel. Do not use joystick steering when traveling on a public road or highway.
Failure to comply could result in death or serious injury.

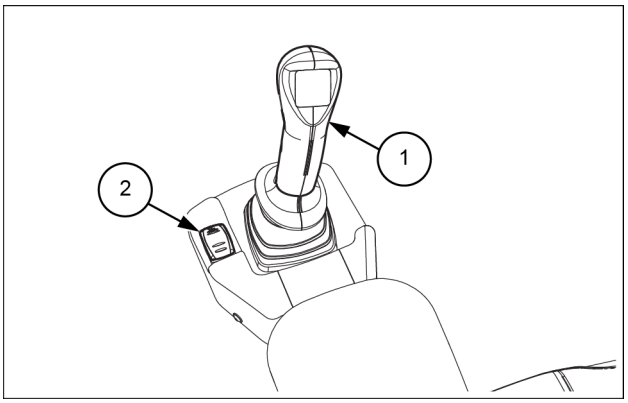
W0451A

Joystick steering (optional)

The joystick steering (JSS) allows to operate the loader using hand controls located on the left-hand operator seat armrest. The joystick steering allows for steering movement at the operator's fingertips.

Use these controls in short cycle, repetitive, high production load and carry operations to reduce operator fatigue and increase operating efficiency. The system is set up so that the steering wheel is always usable (it has always priority) and the joystick steering is disabled if the steering wheel is used. It may be possible that the steering wheel could be turned extremely slowly and not deactivate the joystick steering, but for all practical operations the joystick steering system is deactivated when the steering wheel is used. The joystick steering switch is located on the joystick steering control console.

See Chapter 6 - "WORKING OPERATIONS" for further information.



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1. Joystick steering (JSS) control lever
2. Joystick steering (JSS) switch

Control lever operation

1. Lift arm and bucket control

Two function valve - one control level (joystick)

Lift arm and bucket control **(1)**

A. FLOAT (DETENT) - This is a detent position. When in the FLOAT (detent) position, the loader bucket can follow the level of the ground.

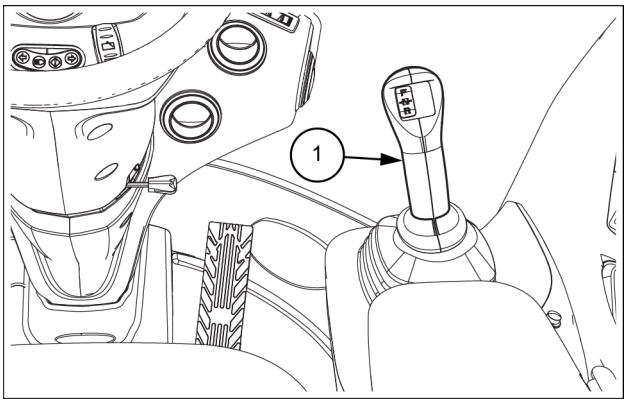
B. LOWER

C. HOLD - The loader arms and bucket will not move when the joystick is in the HOLD position. When released, the joystick **(1)** will automatically return to the HOLD position.

D. RAISE

E. DUMP

F. ROLLBACK



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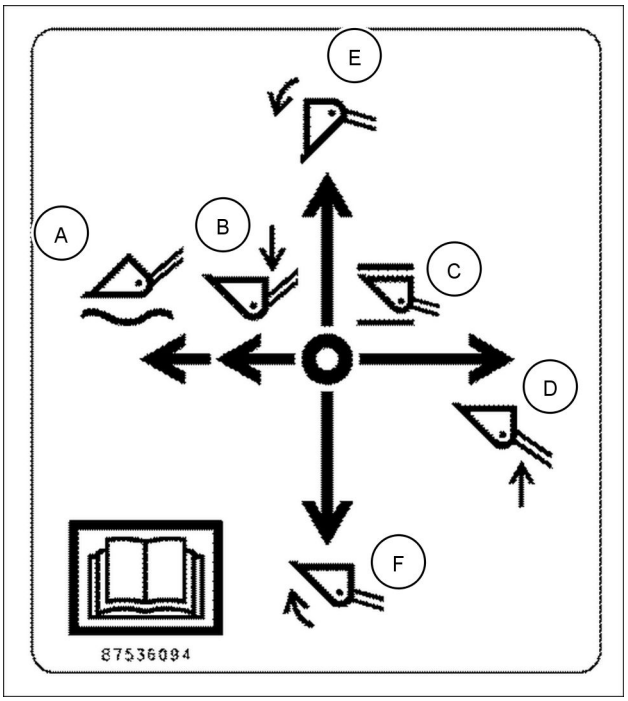

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NOTE: *since the decal is applied on the right-hand side window, the directions are to be intended as follows:*
A, B: Forward
D: Backward
E: Right-hand
F: Left-hand

Exterior controls

Hood and Timed Disconnect Switches

⚠ WARNING

Automatic closure!
Keep your hands and body and all personnel clear of the machine hood as it closes.
Failure to comply could result in death or serious injury.

W0048A

Hood Switch

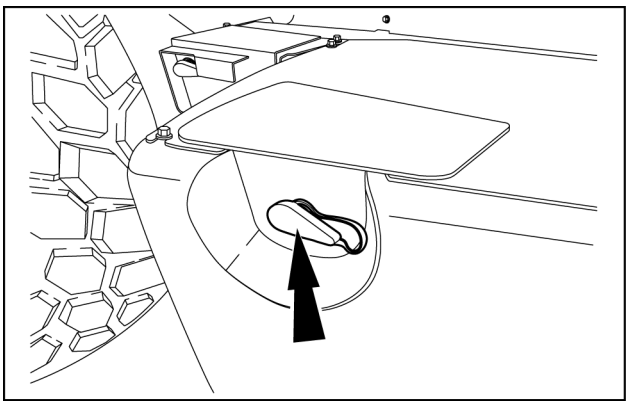
The hood switch is located on the left-hand side of the machine. The hood, left-hand and right-hand side engine covers allow the access to both engine sides, air cleaner and coolers. A locking mechanism is provided for the hood switch cover. Use the machine key to open and close this cover.

1. Insert the key. Make sure to completely insert the key for proper operation.

   NOTICE: *damage can occur to the key or locking mechanism if key is improperly inserted and turned.*

2. After releasing the lock, remove the key and open the cover.

3. The hood switch will automatically raise the hood on the machine. Keep all tools, service equipment, and personnel away from the hood when it is opening and closing.



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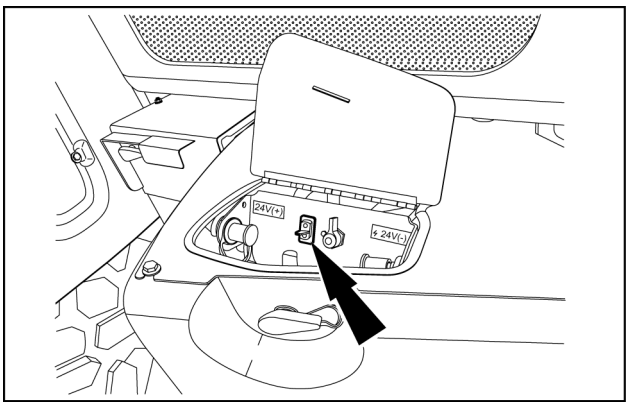
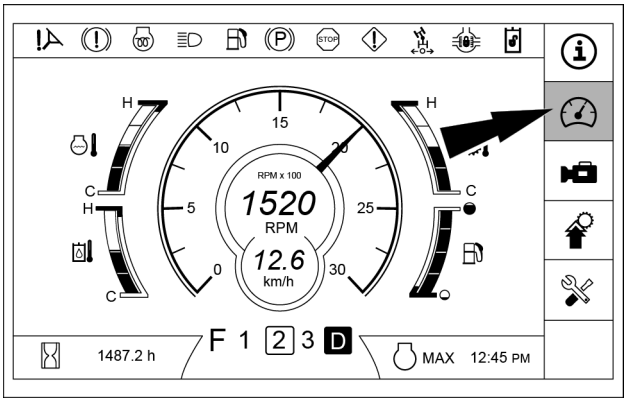


LEIL15WHL0740AB 2

4. Push up on the switch to raise the hood. The switch will remain in the up position for hands free opening. To close the hood, push down on the switch. As a built in safety measure, the down control must be held in order to lower the hood.

Trip

Use the keypad on the right-hand of the display to select the key to access to the “Trip” screen.

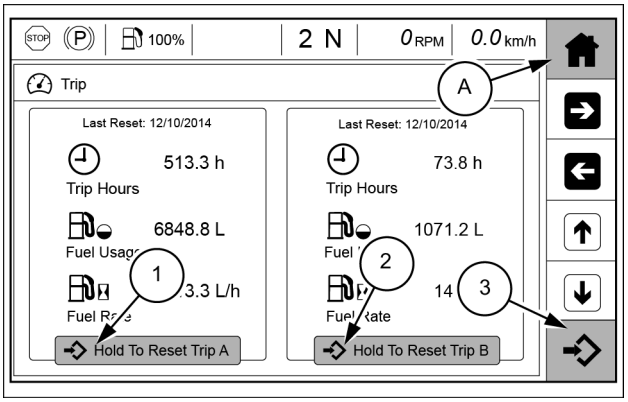


LEIL16WHL2401AA 9

The screen displays:

- Trip A
- Trip B

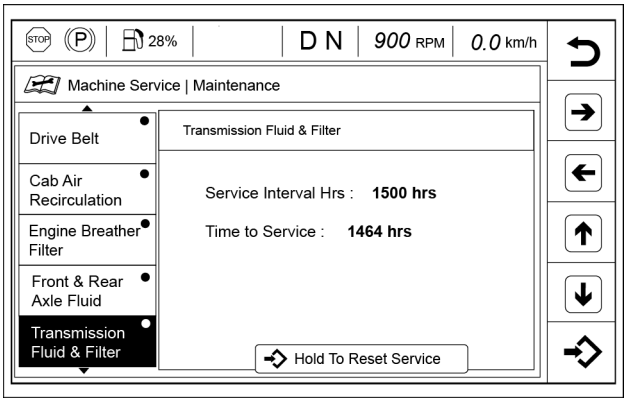
To reset the trip screen, select desired Trip A **(1)** or B **(2)**. Press and hold the confirm key **(3)**. Press the home key **(A)** to return to the main menu.



LEIL16WHL2332AB 10

Transmission Fluid & Filter:

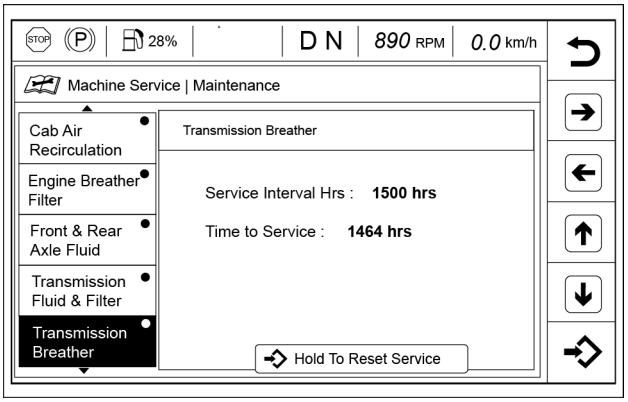
Service Intervals Hrs: **1500 h**
Time to Service: (hours remaining until service is due)



LEIL16WHL0971AA 41

Transmission Breather:

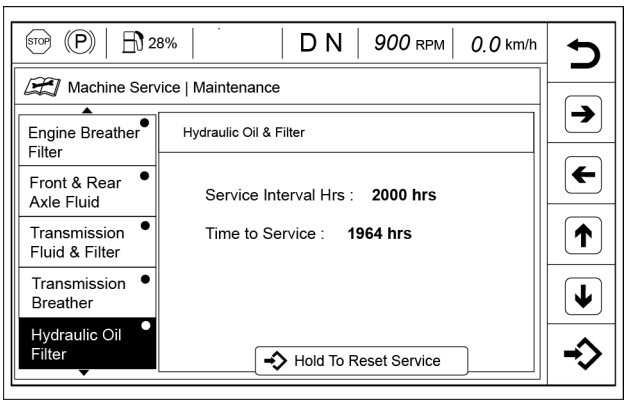
Service Intervals Hrs: **1500 h**
Time to Service: (hours remaining until service is due)



LEIL16WHL0972AA 42

Hydraulic Oil Filter:

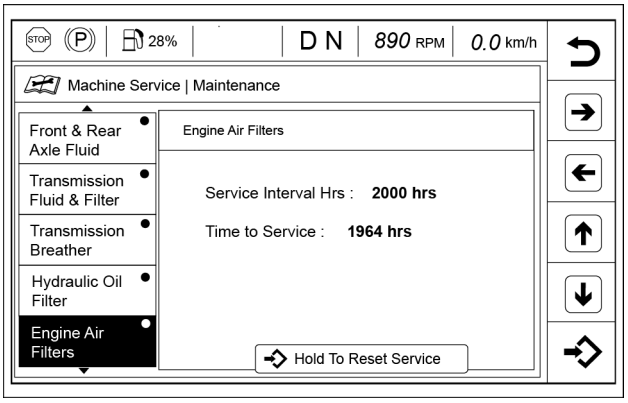
Service Intervals Hrs: **2000 h**
Time to Service: (hours remaining until service is due)



LEIL16WHL0973AA 43

Engine Air Filters:

Service Intervals Hrs: **2000 h**
Time to Service: (hours remaining until service is due)



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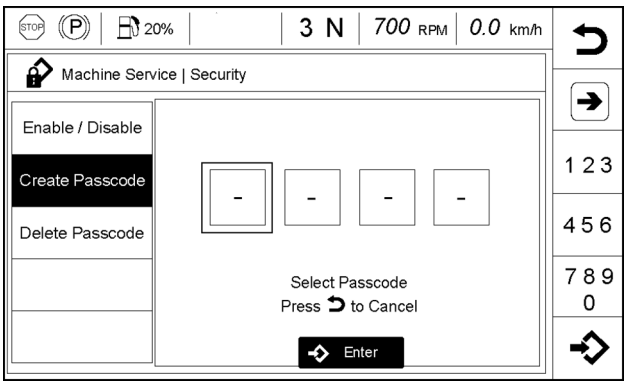
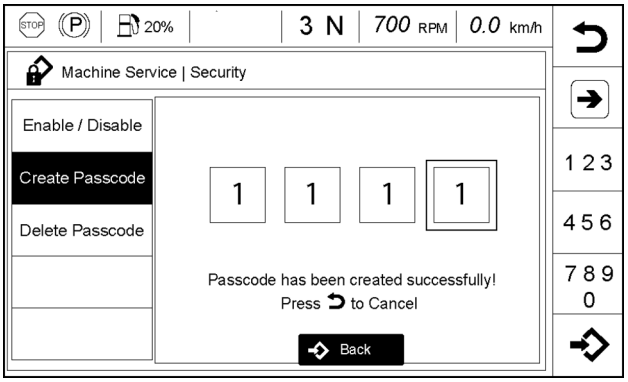
3. Enter a 4-digit passcode.



LEIL16WHL1549AA 81

The passcode is created successfully.



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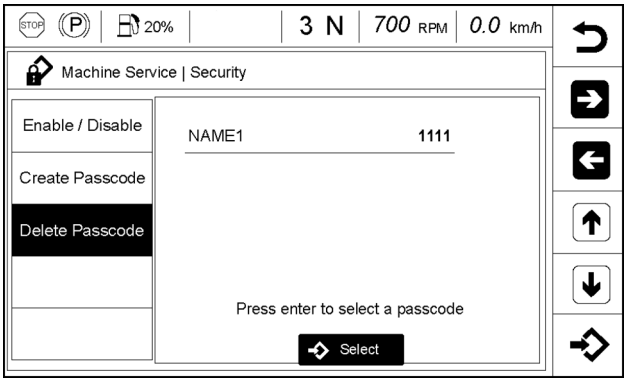
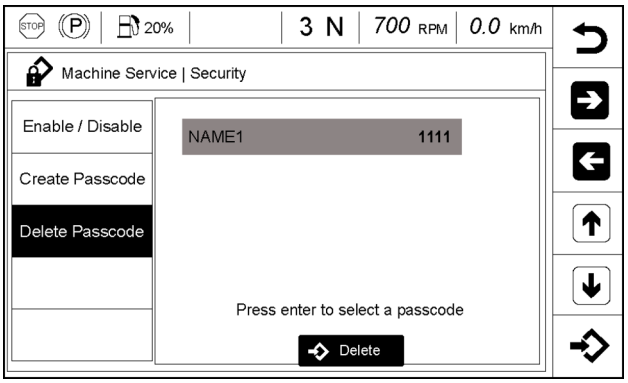
→ Delete Passcode

Delete Passcode tab lists all the created passcodes along with associated names.



LEIL16WHL1550AA 83

Select the passcode to delete from the system and confirm.



LEIL16WHL1551AA 84

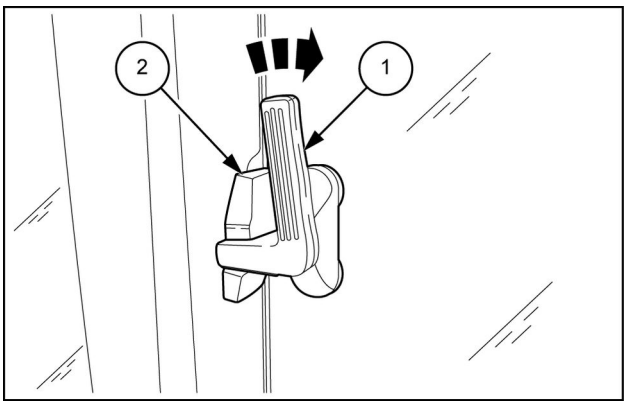
Windows

Windows

Window lever

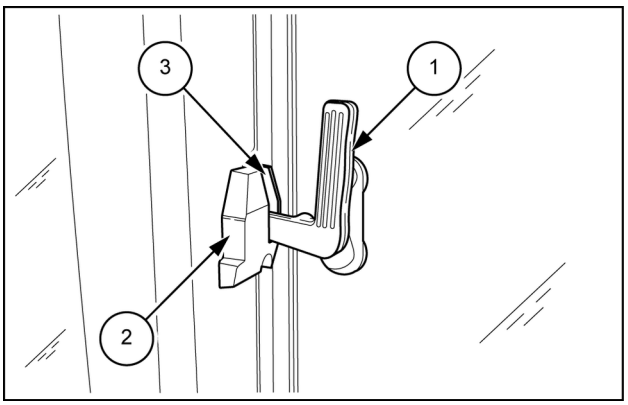
To open the window, turn the lever **(1)** up to release it from the block retainer **(2)**.

To keep the window wide open, swing the window until it locks against the cab.



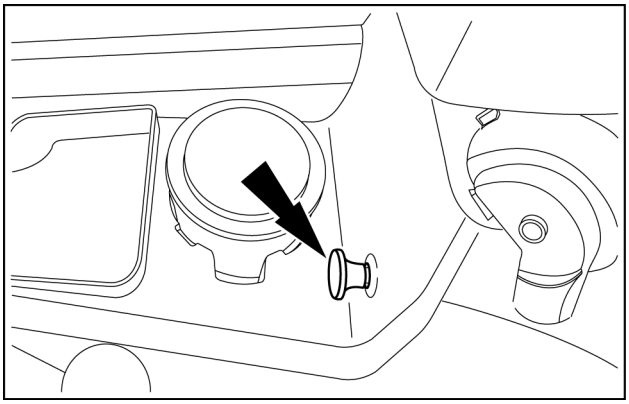
LEIL15WHL0539AB 1

You can keep the window partially open by inserting the lever **(1)** within the slot **(3)** on the block retainer **(2)**.



LEIL15WHL0540AB 2

To release the window from the full open position, pull on the window release in the right-hand rear corner of the cab.



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imum of four minutes under no load. This will help to stabilize the engine.

- After engine warm-up, to unlock all hydraulic functions press the hydraulic functions lock-out button on the multifunction keypad. At this time, place the lift arm into float and the bucket into roll back to load the engine in order to heat the hydraulic oil. Hold for approximately two minutes. Apply and hold the foot brake, cycle the lift arm and bucket. Repeat the float/roll back heating procedure again for approximately two minutes. Raise the lift arm enough to steer the unit full left and right to warm the oil in the steering cylinders. In extreme cold conditions, hold the float/roll back condition for five minutes maximum.
- Even with the correct oil in the hydraulic/brake system, the first few times the operator actuates the brakes there may be some delay before the brakes work. The operator must actuate the brake pedal a minimum of 8 to 10 times to obtain proper heating prior to moving the machine. Actuating and releasing the brakes should occur in a cycle of 3 seconds full on and 3 seconds off to obtain exchange of the brake oil.
- In extreme cold weather conditions, the brake response can be slow. Use the correct oil in the hydraulic/brake system in persistently severe applications. Contact your dealer for the correct oil.
- When you have correctly warmed up the machine, apply the foot brake and hold, push the parking brake to OFF position, shift the transmission to FORWARD, and release the foot brake. Operate the machine in a clear safe area. Check the full operation of the machine.

NOTICE: *DO NOT operate the machine on the road until you have correctly warmed up the transmission oil and axle oil. Operate the machine in a clear safe area before road operation in first and second gear only.*

- If you have left the machine idling in cold temperature, the engine will stay warm, but the hydraulic/brake oil and the axle oil will not stay warm. The oil and components can become cold and slow brake function response time. If this should happen you MUST go through the complete warm-up procedure.

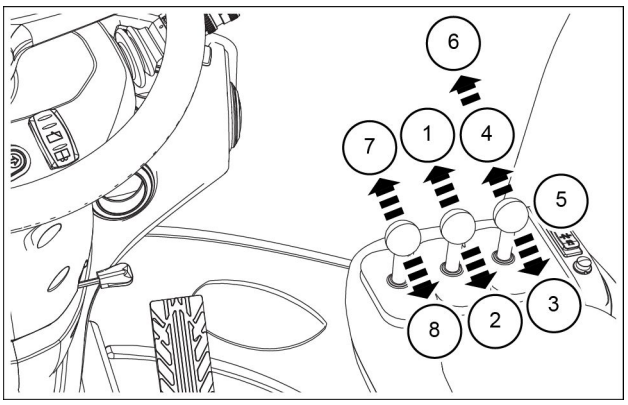
NOTE: *the transmission is equipped with internal protection that does not allow the transmission to engage if the oil temperature is below* ***-12 °C*** *(****10 °F****). If the transmission does not engage, allow 2 to 4 minutes of running in NEUTRAL and try again.*

Three function valve - three single axis levers

NOTE: *this page shows the basic three control lever positions.*

See “Loader functions” - Chapter 4 in this manual for return-to-dig, bucket height control, return-to-travel and float functions.

1. Dump bucket
2. Rollback bucket
3. Raise lift arms
4. Lower lift arms
5. Hold - The loader arms and bucket will not move when the control levers are in the hold position. When released, the control levers will automatically return to the hold position.
6. Float (detent) - This is a detent position. When in the float (detent) position, the loader bucket can follow level of the ground.
7. Auxiliary function
8. Auxiliary function



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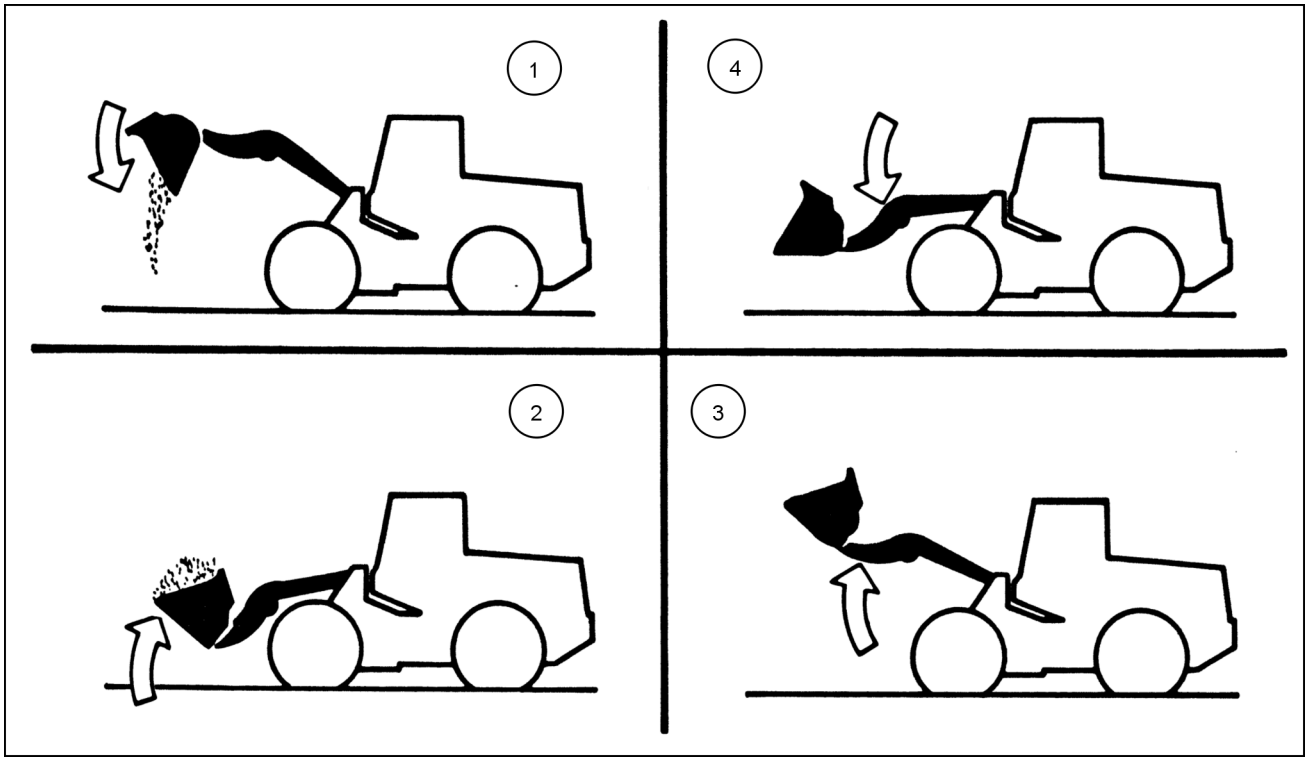

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Loader control

The joystick is connected to a hydraulic accumulator through a pressure reducing valve. The purpose of the reducing valve and accumulator combination is:

- to allow the operator to lower the loader arms if the engine stops with the loader arm raised

OR

- to give the control system hydraulic pressure assistance when operating the machine at low idle speed.

To test accumulator performance, carry out the following procedure:

1. Start the engine.
2. Raise the loader bucket.
3. Stop the engine.
4. Turn the key to ON.
5. Verify that the indicator of the hydraulic functions lockout button is OFF, allowing the hydraulic functions to work.

Move the lift arm control to LOWER. The loader bucket must lower to the ground. If the bucket does not lower to the ground, see the service manual for this machine or contact your dealer.

Brake accumulators

Two hydraulic accumulators are connected in the brake system. The accumulators provide the brake modulating valve with a positive supply of pressurized hydraulic fluid.

Test the accumulators for correct operation every 100 hours.

1. Start the engine.
2. Run the engine at 1/2 throttle for **15 s**.
3. Stop the engine.
4. Without starting the engine, turn the ignition key to the ON position. After the instrument cluster completes the diagnostic check, confirm that the brake pressure light is OFF.
5. Repeatedly pump the brake pedal until the brake pressure lamp illuminates. When pumping the brake pedal, there should be some resistance pressure felt. You should feel a slight increase in the pressure as you pump the brakes.
6. After the lamp illuminates, continue to pump the brake pedal and count the number of full applications.

NOTE: *if you can complete six full brake applications after the indicator lamp illuminates, the accumulators are working correctly. If you can not complete six 6 applications, see the service manual for this machine or contact your dealer.*

Moving a disabled 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

⚠ DANGER

Loss of control hazard!
Make sure you use a towing vehicle with adequate weight. Towing with an underweight vehicle could cause a loss of control during transport or braking. Calculate the minimum towing vehicle weight required as instructed in this manual.
Failure to comply will result in death or serious injury.

D0049A

Engine stalls while traveling

The operator can apply the brakes by pressing the pedal for four or five applications until the accumulator is discharged. The operator must limit use of the brakes in this situation. If the brakes cannot be applied by the pedal, apply the parking brake.
The steering effort increases when the hydraulic system loses power. If the engine stalls while traveling, park the loader in a safe position and find the problem.

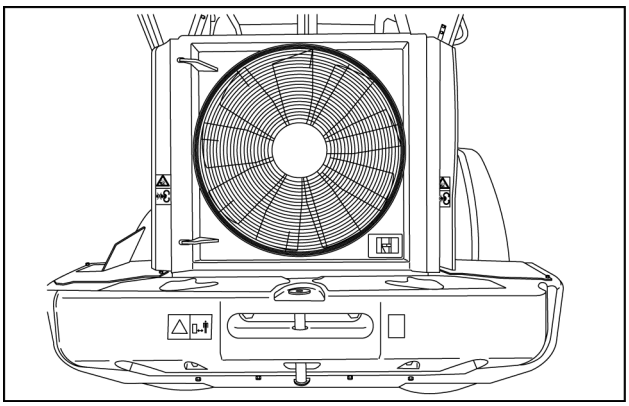
Engine or hydraulic failure

If your machine is disabled, you must judge if the machine can be moved without further damage. If possible, repair the machine at the job location.
If you cannot repair the machine at the job location and if you have a transport trailer, park the trailer as close as possible to the machine.

Never tow the machine from the front

Attach a rigid draw-bar to the machine.

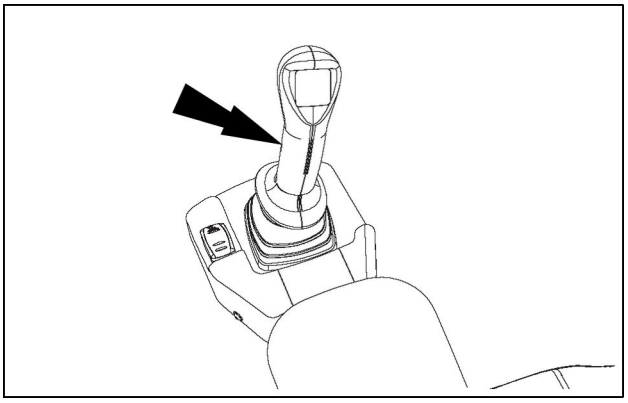
NOTICE: *make certain the towing machine has adequate brake capacity to safely stop both machines.*



LEIL15WHL0698AB 1

Steering with joystick control

The machine will travel in the direction in which the joystick steering control lever is moved. When the joystick steering control lever is released, it will return to the neutral, center position. Use caution when turning the machine, as the machine can turn sharply if the joystick steering control lever is used abruptly. When executing a turn, move the joystick steering control lever gradually in the direction of the desired turn.
Steering can be returned instantly to standard steering if the steering wheel is moved from its stationary position.



LEIL16WHL1406AA 10

Left turn

Move the joystick steering control lever gradually to the left. An abrupt movement to the left will cause the machine to turn sharply to the left. Be sure to move the joystick steering control lever in a careful, gradual shift.

Right turn

Move the joystick steering control lever gradually to the right. An abrupt movement to the right will cause the machine to turn sharply to the right. Be sure to move the joystick steering control lever in a careful, gradual shift.

Reverse left

With the transmission in reverse, move the joystick steering control lever gradually to the left for a left reverse turn. An abrupt movement to the left reverse will cause the machine to turn sharply to the left. Be sure to move the joystick steering control lever in a careful, gradual shift.

Reverse right

With the transmission in reverse, move the joystick steering control lever gradually to the right for a right reverse turn. An abrupt movement to the right reverse will cause the machine to turn sharply to the right. Be sure to move the joystick steering control lever in a careful, gradual shift.

Steering and bucket

The steering speed of the wheel loader is the same in both directions and will increase gradually with the position of the joystick.
The lift arm and bucket control lever will operate as it would with conventional steering. Practice with the joystick steering in a clear area unobstructed by people and other equipment.

Engine oil viscosity/Temperature range

		(H)	0W-40 CJ-4 UNITEK to CNH MAT3521							
		(H)	0W-40 API CJ-4*							
				(H)	10W-40 CJ-4 UNITEK to CNH MAT3521					
				(H)	10W-40 API CJ-4*					
						(H)	15W-40 CJ-4 to CNH MAT3522**			
						(H)	15W-40* API CJ-4*			
-40 °C -40 °F		-30 °C -22 °F		-20 °C -4 °F		-10 °C 14 °F	0 °C 32 °F	10 °C 50 °F	20 °C 68 °F	30 °C 86 °F	40 °C 104 °F	50 °C 122 °F

(H) Engine oil pan or coolant block heater recommended in this range.

* Maximum engine oil service change interval is **250 h**

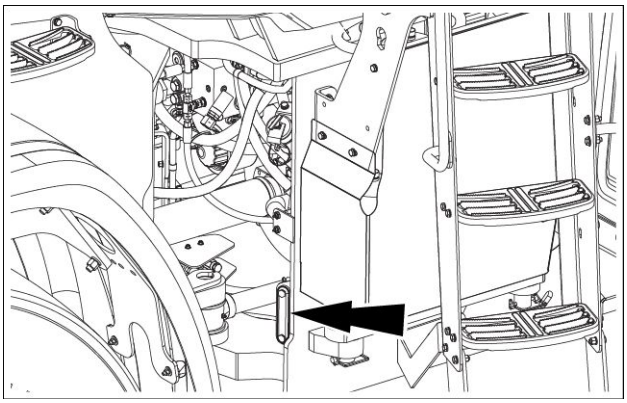
** Maximum engine oil service change interval is **400 h**

NOTE: *use of an engine oil pan heater or an engine coolant heater may be required when operating temperatures are in winter or Arctic conditions.*

Transmission oil viscosity/Temperature range

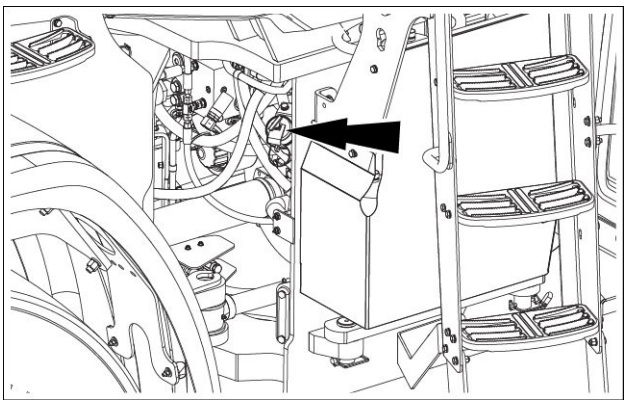
			CASE AKCELA NEXPLORE™ FLUID							
CASE F200A HYDRAULIC FLUID										
-40 °C -40 °F		-30 °C -22 °F		-20 °C -4 °F		-10 °C 14 °F	0 °C 32 °F	10 °C 50 °F	20 °C 68 °F	30 °C 86 °F	40 °C 104 °F	50 °C 122 °F

4. Transmission oil gauge – left-hand side



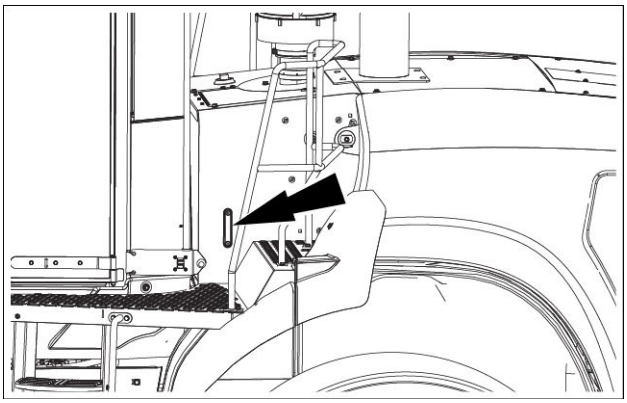
LEIL16WHL2593AB 4

5. Transmission oil fill – left-hand side



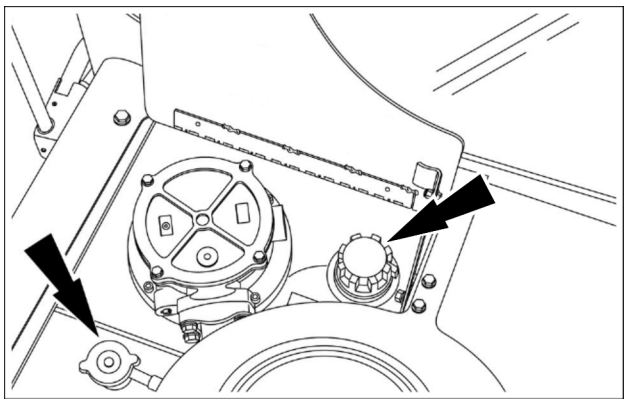
LEIL16WHL2594AB 5

6. Hydraulic fluid gauge – left-hand side



LEIL16WHL2595AB 6

7. Coolant and hydraulic oil fills, hydraulic oil tank – engine hood, top side



LEIL15WHL0720AB 7

Initial 100 hours

Wheel nuts tightening - Check

⚠ WARNING

Explosion hazard!
Never weld on a wheel. Welding can cause stresses that will cause a wheel to crack or break unexpectedly. Tires can separate explosively during welding. Always have a qualified tire mechanic service wheels and tires.
Failure to comply could result in death or serious injury.

W0124A

Tire or rim service

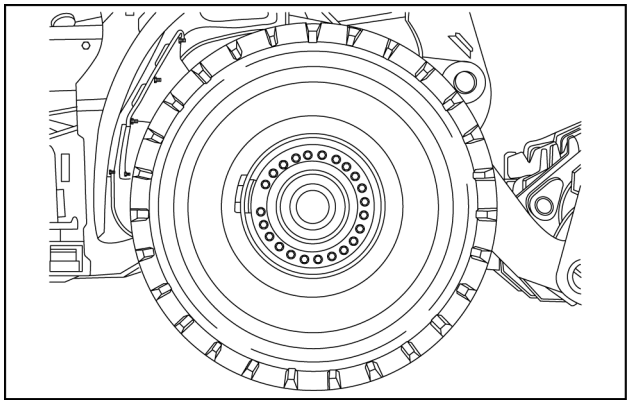
Always have a qualified tire technician service the tires and rims for this machine. It is recommended that you have this technician inflate the tires. To prevent accidents, use a restraining device (tire inflation cage), correct equipment, and correct procedure. Explosive separation of the tire (single piece rim) or the tire and / or rim parts (multi-piece rim) can cause serious injury or death.

Stud mounted wheels

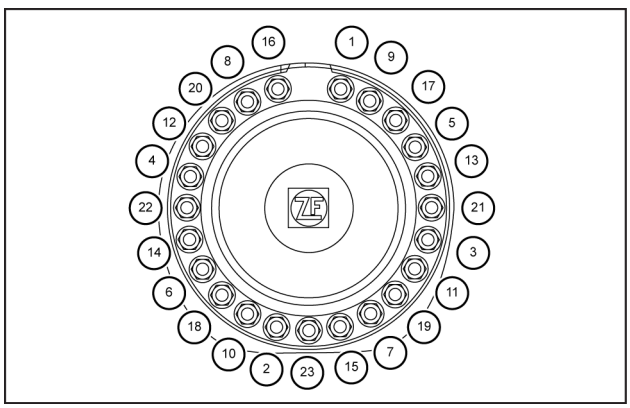
Machines are equipped with stud mounted wheels. Wheel studs offer greater strength due to an increase in clamping force and resistance to loosening.

Wheel bolt torque

If the machine is new or if a wheel has been removed and installed, check the torque of the wheel bolts during the run-in period until bolts are stable.
Use a hand wrench (not an impact) to tighten wheel bolts to pull the wheel against the planetary housing.
Tighten the wheel bolts using the sequence shown. First tighten the bolts to **278 N·m** (**205.0 lb ft**), then tighten to a final torque of **640 – 720 N·m** (**472.0 – 531.0 lb ft**), using the same sequence.



LEIL15WHL1778AA 1



LEIL15WHL1779AB 2

Front and rear axle oil (Initial) - Change

⚠ WARNING

Chemical hazard!
When handling fuel, lubricants, and other service chemicals, follow the manufacturer's instructions. Wear Personal Protective Equipment (PPE) as instructed. Do not smoke or use open flame. Collect fluids in proper containers. Obey all local and environmental regulations when disposing of chemicals.
Failure to comply could result in death or serious injury.

W0371A

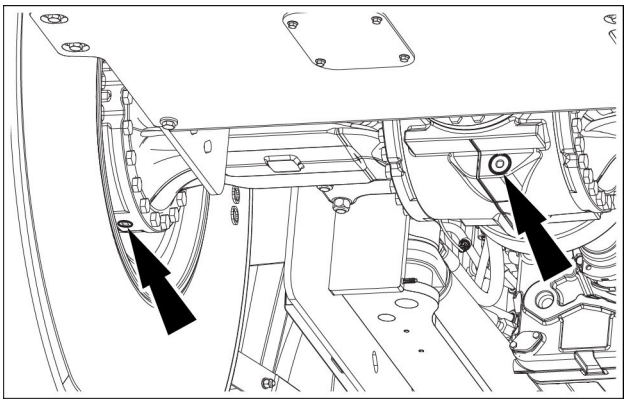
Drain and replace the front and rear axle oil when the hour meter registers the initial 100 hours.
Drain and replace the front and rear axle oil every 1000 hours or every 500 hours when operating conditions are severe.

Prior operation:
Keep all non-authorized personnel clear of the area. Park the machine on level ground, in neutral with the parking brake applied.

Service specifications	
Type of oil	**CASE AKCELA TRANSAXLE FLUID 80W-140**
Capacity	refer to “Fluids and lubricants”

NOTE: *do not use GL-5 oil in these axles.*

1. Install the transport/service link into the lock position to prevent unexpected articulation movements.
2. Clean the area around the drain and fill caps of both axles and all four axle ends.
3. Place a suitable container with sufficient capacity to capture the old oil under the front and rear axles and drain. Remove drain plug and allow oil to drain.
4. Place a suitable container with sufficient capacity to capture the old oil under each axle end. Remove the drain plugs to allow oil to drain.
5. Reinstall the drain plugs of both axles and the four axle ends. Take care not to damage the drain plug seal.



LEIL16WHL2646AB 1

Drive belt - Check

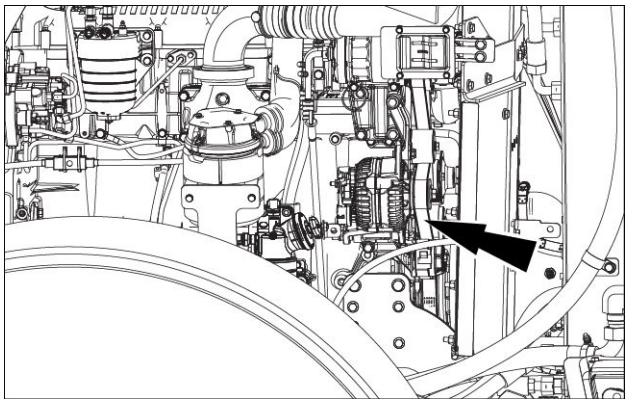
⚠ WARNING

Entanglement hazard!
Always stop the engine and engage the parking brake, unless otherwise instructed in this manual, before checking and/or adjusting any drive belt or chain.
Failure to comply could result in death or serious injury.

W0097A

Check the drive belt for correct tension, wear and damage every 250 hours.

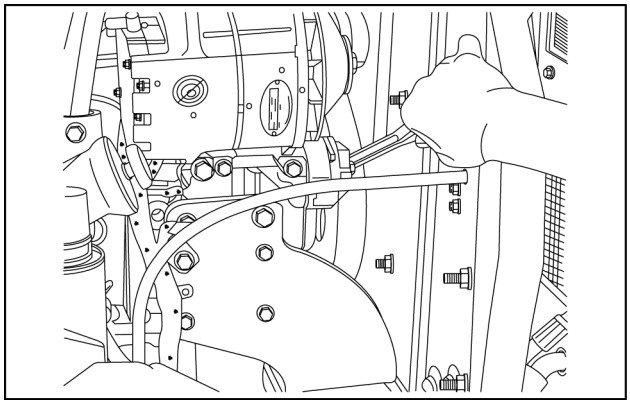
The drive belt is located in front of the cooling box and can be accessed from the left-hand side of the machine. Perform a visual inspection for fraying, cracks and damage. Replace the drive belt if a section longer than **10 mm** (**0.4 in**) is chunked out.



LEIL16WHL2644AB 1

NOTICE: *if the engine runs with the drive belt loose, the drive belt can slip and cause the engine to overheat or the battery to receive insufficient charge.*

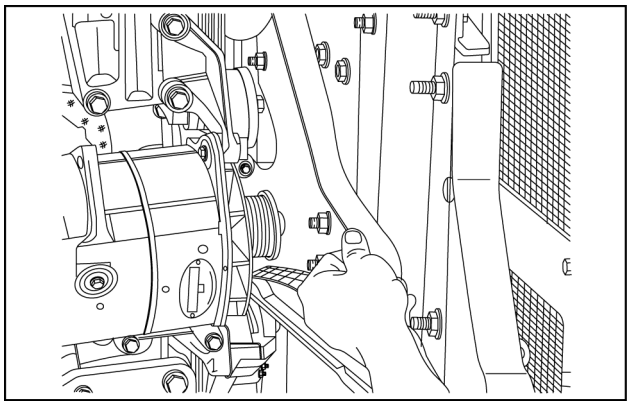
1. Use a breaker bar to actuate the belt tensioner just enough to release the tension on the drive belt. Remove the drive belt.



LEIL15WHL1795AA 2

2. Place the new drive belt around the pulleys of the crankshaft, the fan and the alternator.
3. Raise the belt tensioner and install the drive belt over the water pump pulley and complete the turn while lifting the tensioner with the breaker bar.

NOTE: *the water pump pulley has the smallest flange, which allows an easily installation of the drive belt.*



LEIL15WHL1796AA 3

4. Lower the tensioner.

Roll Over Protective Structure (ROPS) - Check

⚠ 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.

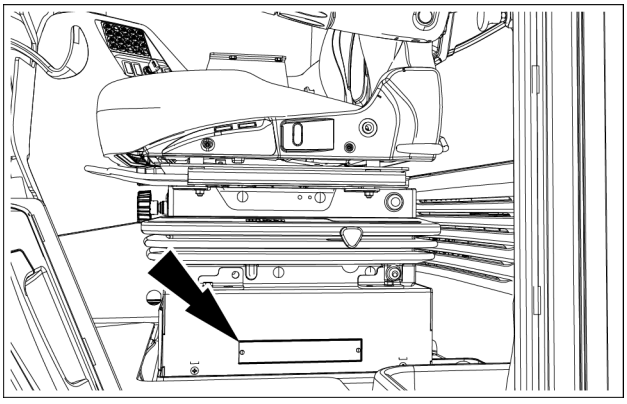
W0001B

Check and inspect the ROPS structure and the seat restraint system every 500 hours of operation.

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. 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.

ROPS identification plate

The wheel loader has a ROPS identification plate showing the certification of the ROPS, gross weight, approval, regulation, and model number of the machine.
The ROPS identification plate is located under the operator's seat at the left-hand side.



LEIL16WHL1167AB 1

Engine breather filter - Replace

⚠ WARNING

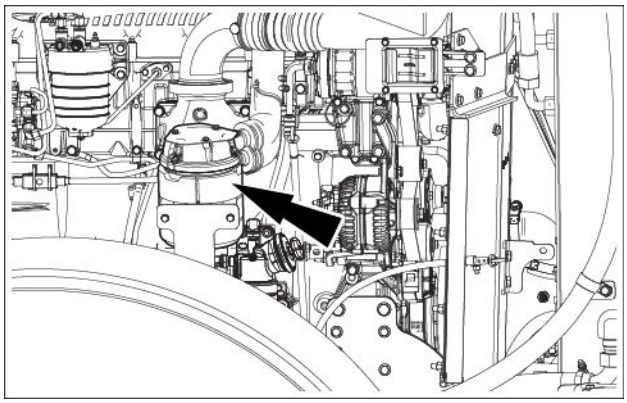
Eye injury hazard!
Wear full coverage safety glasses with side panels when using compressed air. Limit air pressure to 200 kPa (29 psi).
Failure to comply could result in death or serious injury.

W0162A

Change the breather filter every 1000 hours thereafter or more frequently when operating conditions are severe.

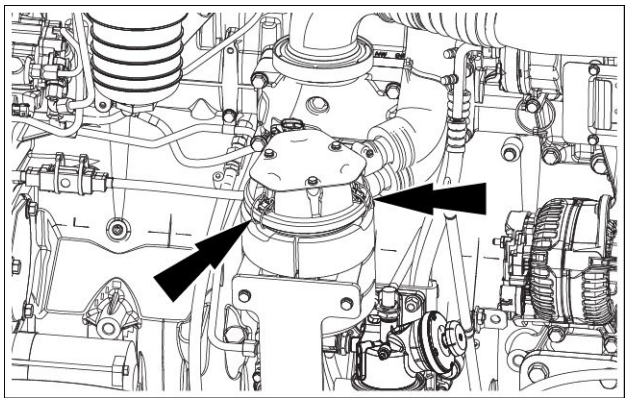
Prior operation:
Keep all non-authorized personnel clear of the area. Park the machine on level ground in neutral with the parking brake applied and the attachment lowered to the ground. Install the safety service lock to prevent machine articulation.

1. Locate the breather on the left-hand side of the machine.



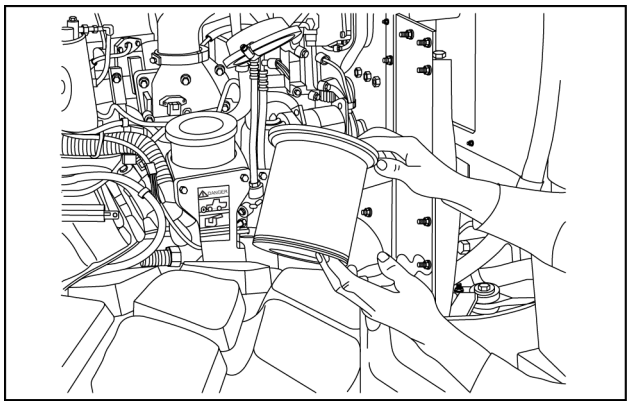
LEIL16WHL2651AB 1

2. Release the clips securing the crankcase breather housing cover.



LEIL16WHL2662AB 2

3. Remove the filter element and clean with low pressure compressed air. Wear personal protection when using compressed air.



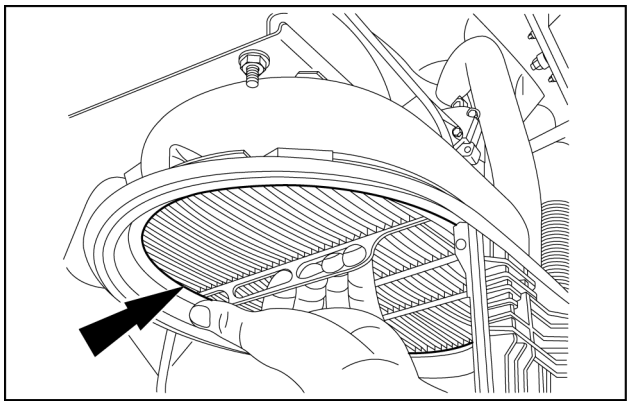
LEIL15WHL1799AA 3

4. Replace the filter. Make sure that filter is correctly seated. Replace the housing cover and secure the clips.

7. Remove the secondary filter from the top of the housing. Use the handle and pull down and out.
8. Wipe the inside of housing. Install the new secondary filter.

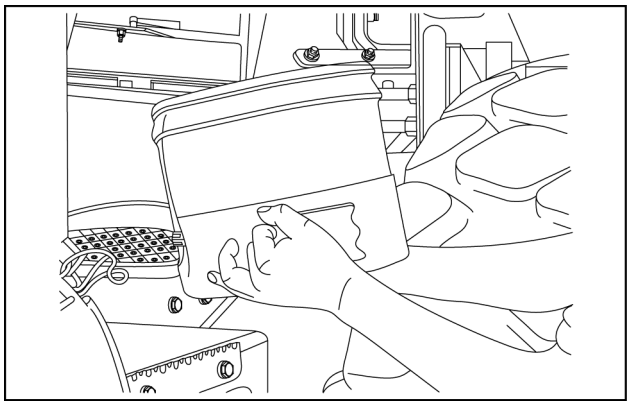
NOTICE: *do not reuse the secondary filter.*

9. Insert the filter into the positioning slot. Seat firmly the secondary filter into the inlet housing.



LEIL15WHL1803AB 4

10. Install the new primary filter by sliding filter into housing. Make sure that filter element tabs are positioned inside the groves on the housing. Push the element up and into place within housing. Make sure that primary and secondary filter elements are fully seated and form an effective seal.

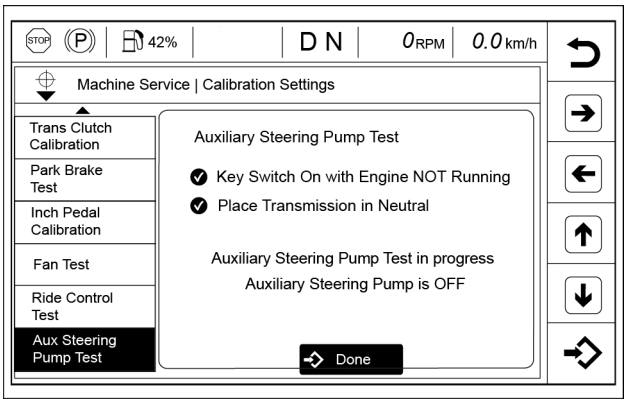


LEIL15WHL1804AA 5

11. Install the cover and lock the clips to secure the cover in place. If the cover does not secure in place properly, recheck filter installation. The cover will be difficult to install if filters are not properly installed.
12. Install the side body panel. Close the wide rear fender panel compartment. Close the engine hood.

NOTE: *under normal conditions, the primary filter should be replaced after three secondary filter replacements. Never clean the secondary filter. It must be replaced. Replace filters more often if conditions so warrant.*

8. When the test terminates, a message on the screen describes the state of the auxiliary steering system.
9. If needed, service the auxiliary steering system (see procedures in Service Manual – section “Auxiliary steering”).
10. Use the keypad on the right-hand of the display to select “Done” and terminate the test.



LEIL16WHL0878AA 4

Auxiliary battery connections - Check

⚠ WARNING

Improper operation or service of this machine can result in an accident.
An error connecting auxiliary starting cables or short-circuiting battery terminals can cause an accident. Connect auxiliary starting cables as instructed in this manual.
Failure to comply could result in death or serious injury.

W0263A

⚠ DANGER

Explosion hazard!
Read "Connecting booster battery" procedure completely before attempting to jump-start or service a battery.
Failure to comply will result in death or serious injury.

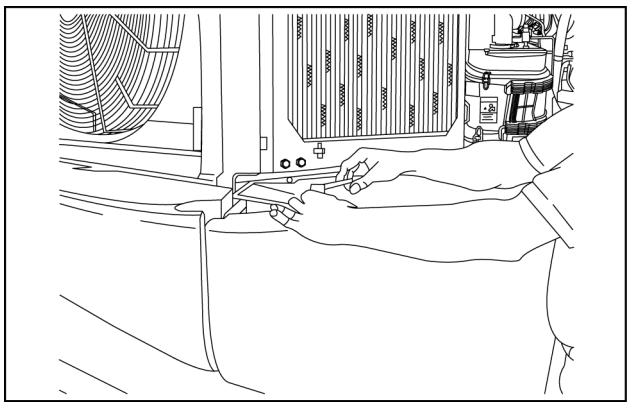
D0086A

⚠ WARNING

Explosion hazard!
Booster batteries or jumper cables must be connected properly to prevent battery explosion and/or damage to the electrical system. Connect positive to positive and negative to negative.
Failure to comply could result in death or serious injury.

W0343A

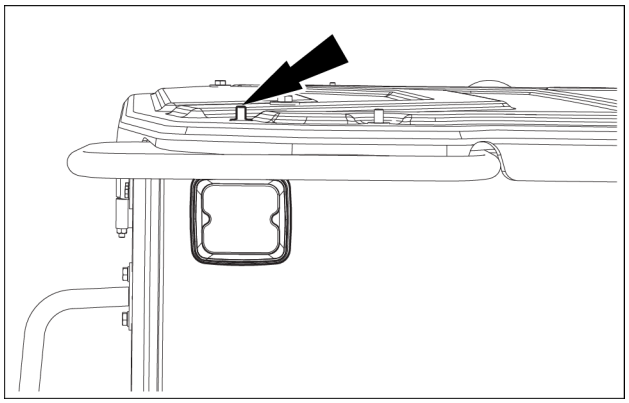
Make sure that the voltage of the booster batteries is the same as that of the machine system (**12 V** each battery). The batteries are enclosed in compartments on both the left–hand and right-hand rear of the machine. To access the batteries, loosen and remove the bolts the hold the cover in place.



LEIL15WHL1808AA 1

Work lights (LED)

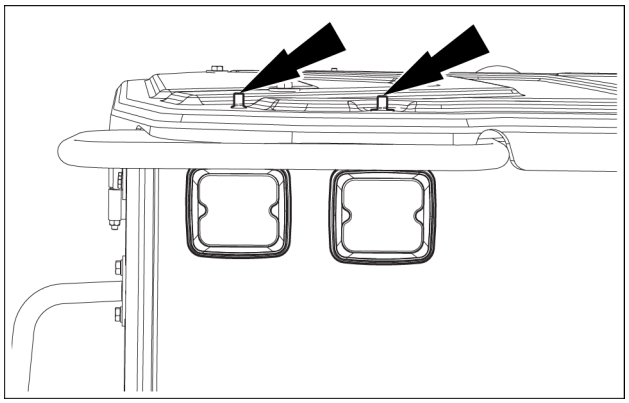
To replace the work lights, remove the hardware fixing the light to the cab frame. Disconnect the push-on connector, and replace the lamp assembly. Reconnect the push-on connector, making certain the connection is firmly in place. Reinstall the lamp assembly to the cab frame.



LEIL16WHL1613AB 4

Two light bar work lights (optional)

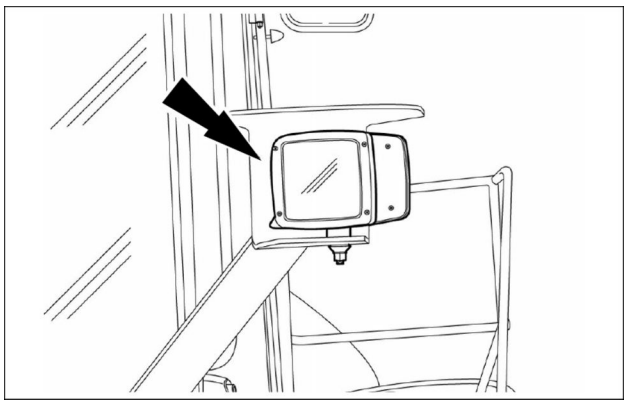
The optional two work light configuration lamps can be serviced individually. Follow the same procedure as the standard work light assembly.



LEIL16WHL1612AB 5

Driving lights (halogen)

To replace the driving lights, remove the hardware fixing the bottom of the light to the bracket. Disconnect the push-on connector, and replace the lamp assembly. Reconnect the push-on connector, making certain the connection is firmly in place. Reinstall the lamp assembly to the bracket.



LEIL15WHL0736AB 6

1121G Drivetrain - 4 Speed Transmission

4F/3R Proportional with Electronic Control Module torque sensing auto shift/manual shift and modulation		
Gears	Helical cut	
Gear ratios	Forward	Reverse
1st	3.731	3.731
2nd	2.207	2.207
3rd	1.421	0.970
4th	0.625	
Torque converter stall ratio	2.985:1	
Rear axle oscillation	**24°** total	
Standard Axles	Front	Rear
Differential	Limited slip on front and rear axles	
Differential ratio	4.25	4.25
Planetary ratio	6.35	6.35
Final axle ratio	27.0	27.0
Planetaries	Outboard	
Service brakes	Hydraulically actuated, maintenance-free, multiple wet disc w/accumulator to all four wheels	
Parking brakes	Spring-applied hydraulic release disc on transmission output shaft	
Optional HD Axles	Front	Rear
Differential	Front locking and rear open	
Differential ratio	4.25	4.50
Planetary ratio	6.35	6.00
Final axle ratio	27.0	27.0
Planetaries	Outboard	
Service brakes	Hydraulically actuated, maintenance-free, multiple wet disc w/accumulator to all four wheels	
Parking brakes	Spring-applied hydraulic release disc on transmission output shaft	
Travel speeds	Forward	Reverse
1st	**8.0 km/h** (**5.0 mph**)	**8.0 km/h** (**5.0 mph**)
2nd	**13.2 km/h** (**8.2 mph**)	**14.1 km/h** (**8.7 mph**)
3rd	**25.8 km/h** (**16.1 mph**)	**25.8 km/h** (**16.1 mph**)
4th	**37.4 km/h** (**23.2 mph**)	

NOTE: *travel speeds @ full engine throttle.*

1121G Zbar Specifications - 5.0 m³ (6.54 yd³) - Pin On - Flat Bottom

	Bucket Only	Bucket with Bolt-on Edge
Bucket Specifications		
Capacity (heaped)	**4.83 m³** (**6.32 yd³**)	**5.00 m³** (**6.54 yd³**)
Bucket width (maximum outer)	**3150 mm** (**124.0 in**)	**3171 mm** (**124.8 in**)
Dimensional Outline Specifications		
A (top of cab height)	**3576 mm** (**140.8 in**)	**3576 mm** (**140.8 in**)
B (wheelbase)	**3550 mm** (**139.8 in**)	**3550 mm** (**139.8 in**)
C (ground clearance)	**437 mm** (**17.2 in**)	**437 mm** (**17.2 in**)
D (rear angle of departure)	**23°**	**23°**
Overall width with bucket guard	**2978 mm** (**117.2 in**)	**2978 mm** (**117.2 in**)
Centerline tread width	**2300 mm** (**90.6 in**)	**2300 mm** (**90.6 in**)
Turning radius (outside of tires)	**6366 mm** (**250.6 in**)	**6366 mm** (**250.6 in**)
Turning angle from center	**40°**	**40°**
Total turning angle	**80°**	**80°**
E (fully raised with spillguard)	**6235 mm** (**245.5 in**)	**6234 mm** (**245.4 in**)
F (hinge pin - fully raised)	**4450 mm** (**175.2 in**)	**4449 mm** (**175.2 in**)
G (overall - bucket level on ground)	**9055 mm** (**356.5 in**)	**9189 mm** (**361.8 in**)
H (dump - fully raised, **45°** dump)	**3218 mm** (**126.7 in**)	**3117 mm** (**122.7 in**)
J (reach - fully raised, **45°** dump)	**1107 mm** (**43.6 in**)	**1172 mm** (**46.1 in**)
K (reach - **2.13 m** (**7.0 ft**), **45°** dump)	**1882 mm** (**74.1 in**)	**1900 mm** (**74.8 in**)
L (dig depth)	**86 mm** (**3.4 in**)	**112 mm** (**4.4 in**)
ISO Load Specifications		
Operating Weight (without load)	**27934 kg** (**61584 lb**)	**28171 kg** (**62106 lb**)
Operating load	**8844 kg** (**19498 lb**)	**8623 kg** (**19010 lb**)
Tipping load		
Machine straight	**22368 kg** (**49313 lb**)	**21887 kg** (**48253 lb**)
40° turn	**17688 kg** (**38995 lb**)	**17245 kg** (**38019 lb**)

	Bucket with Teeth	Bucket with Segments
Bucket Specifications		
Capacity (heaped)	**4.83 m³** (**6.32 yd³**)	**5.00 m³** (**6.54 yd³**)
Bucket width (maximum outer)	**3198 mm** (**125.9 in**)	**3198 mm** (**125.9 in**)
Dimensional Outline Specifications		
A (top of cab height)	**3576 mm** (**140.8 in**)	**3575 mm** (**140.7 in**)
B (wheelbase)	**3550 mm** (**139.8 in**)	**3550 mm** (**139.8 in**)
C (ground clearance)	**437 mm** (**17.2 in**)	**437 mm** (**17.2 in**)
D (rear angle of departure)	**23°**	**23°**
Overall width with bucket guard	**2978 mm** (**117.2 in**)	**2978 mm** (**117.2 in**)
Centerline tread width	**2300 mm** (**90.6 in**)	**2300 mm** (**90.6 in**)
Turning radius (outside of tires)	**6366 mm** (**250.6 in**)	**6366 mm** (**250.6 in**)
Turning angle from center	**40°**	**40°**
Total turning angle	**80°**	**80°**
E (fully raised with spillguard)	**6235 mm** (**245.5 in**)	**6234 mm** (**245.4 in**)
F (hinge pin - fully raised)	**4449 mm** (**175.2 in**)	**4449 mm** (**175.2 in**)
G (overall - bucket level on ground)	**9324 mm** (**367.1 in**)	**9324 mm** (**367.1 in**)
H (dump - fully raised, **45°** dump)	**3015 mm** (**118.7 in**)	**3015 mm** (**118.7 in**)
J (reach - fully raised, **45°** dump)	**1239 mm** (**48.8 in**)	**1239 mm** (**48.8 in**)
K (reach - **2.13 m** (**7.0 ft**), **45°** dump)	**1916 mm** (**75.4 in**)	**1916 mm** (**75.4 in**)
L (dig depth)	**137 mm** (**5.4 in**)	**137 mm** (**5.4 in**)
ISO Load Specifications		
Operating Weight (without load)	**28132 kg** (**62020 lb**)	**28263 kg** (**62309 lb**)
Operating load	**8714 kg** (**19211 lb**)	**8562 kg** (**18876 lb**)
Tipping load		
Machine straight	**22105 kg** (**48733 lb**)	**21764 kg** (**47981 lb**)
40° turn	**17428 kg** (**38422 lb**)	**17123 kg** (**37750 lb**)