

ORIGINAL INSTRUCTIONS

**721F**  
**Tier3**  
Wheel Loader

**OPERATOR'S MANUAL**

**Part number 51422022**  
1<sup>st</sup> edition English  
December 2017



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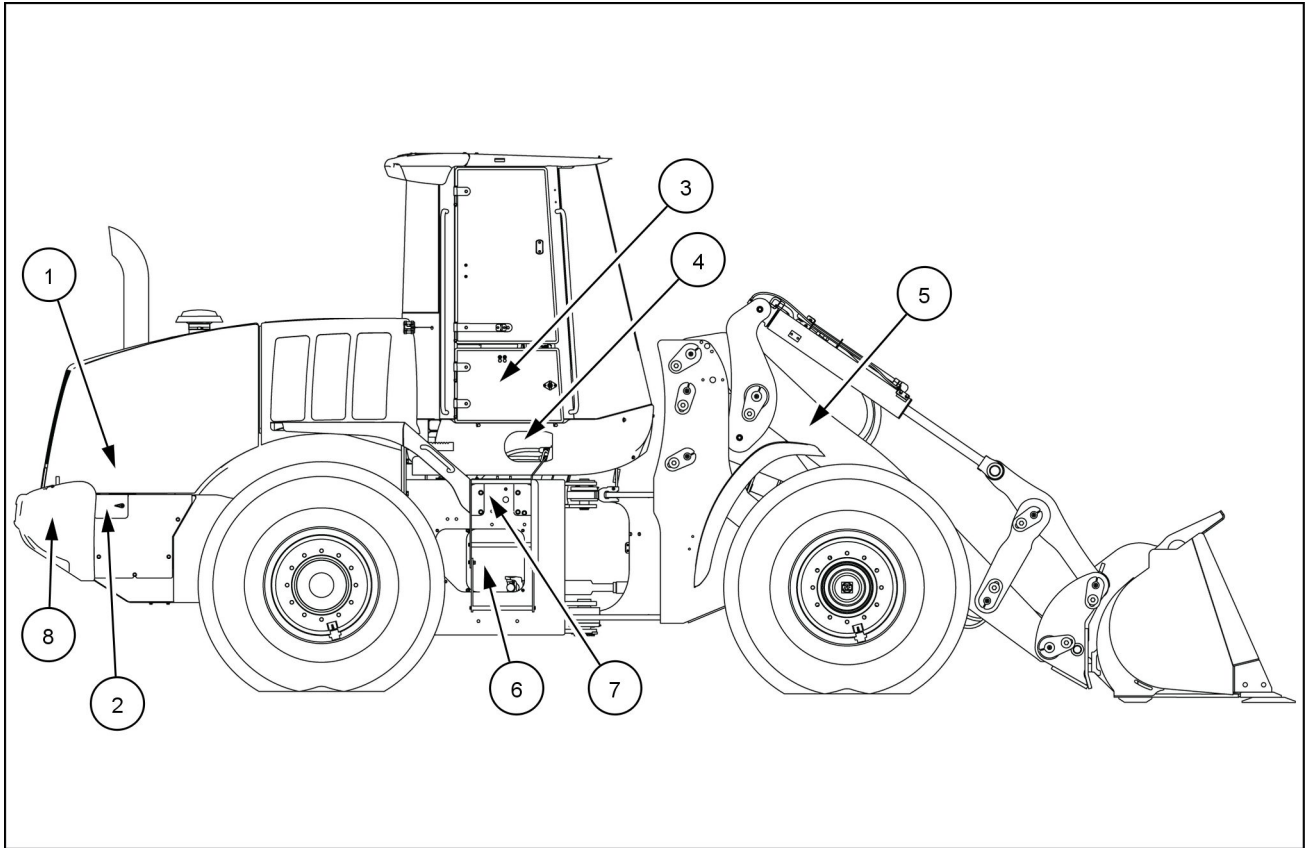


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- The machine is intended to be used under normal conditions for the applications described in this manual. If the machine is used for other purposes or in dangerous environments, for example in a flammable or explosive atmosphere, special safety regulations must be followed and the machine must be equipped for use in these environments.

## 1 - GENERAL INFORMATION



LEIL14WHL0493FA 2

- |                          |                                |
|--------------------------|--------------------------------|
| 1. Fuel fill tank        | 5. Arm (XT version)            |
| 2. Toolbox               | 6. Transmission filters        |
| 3. Fuse access door      | 7. Windshield washer reservoir |
| 4. Cab air filter access | 8. Counterweight               |

## Burn prevention

### **⚠ WARNING**

**Battery acid causes burns. Batteries contain sulfuric acid.**

**Battery electrolyte contains sulfuric acid. Contact with skin and eyes could result in severe irritation and burns. Always wear splash-proof goggles and protective clothing (gloves and aprons). Wash hands after handling.**

**Failure to comply could result in death or serious injury.**

W0120A

- When the battery electrolyte is frozen, the battery can explode if, you try to charge the battery, or if you try to boost start and run the engine. To prevent the battery electrolyte from freezing, try to keep the battery at full charge. If you do not follow these instructions, you or others in the area can be injured.
- Hot coolant can spray out if the cooling system cap is removed. To remove the cap, let the cooling system cool, turn to the first notch, wait until the pressure is released, then remove the cooling system tank cap.

### **⚠ CAUTION**

**Burn hazard!**

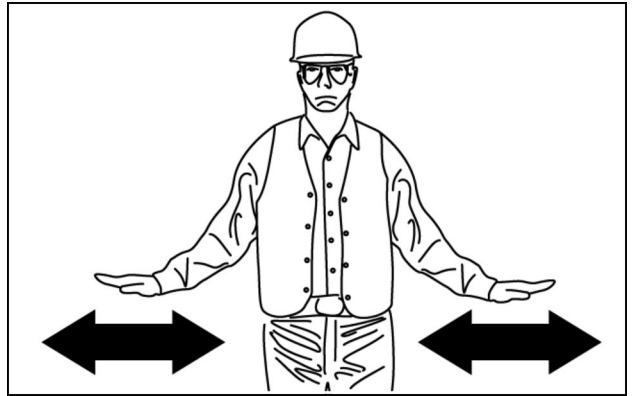
**Hot coolant can spray out if you remove the filler cap while the system is hot. After the system has cooled, turn the filler cap to the first notch and wait for all pressure to release before proceeding.**

**Failure to comply could result in minor or moderate injury.**

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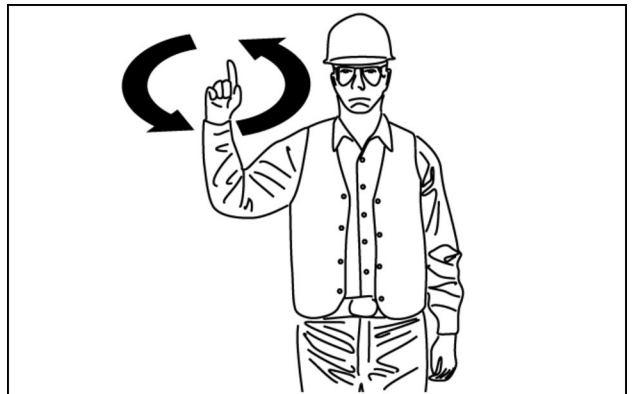
## 2 - SAFETY INFORMATION

Emergency stop  
Move both hands back and forth.



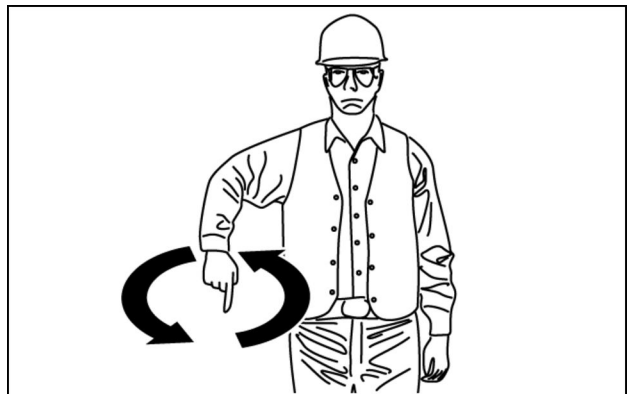
LEEN11T0012AA 8

Raise load or tool



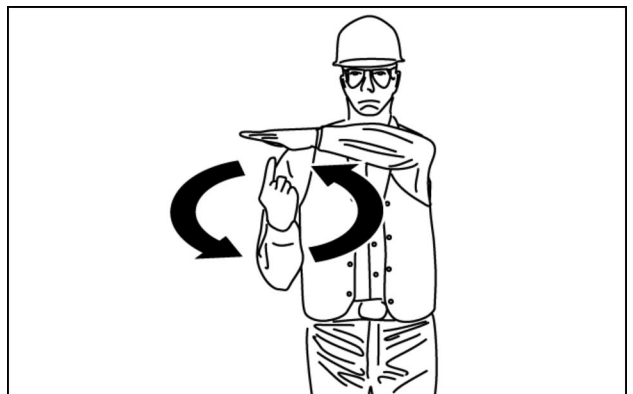
LEEN11T0013AA 9

Lower load or tool

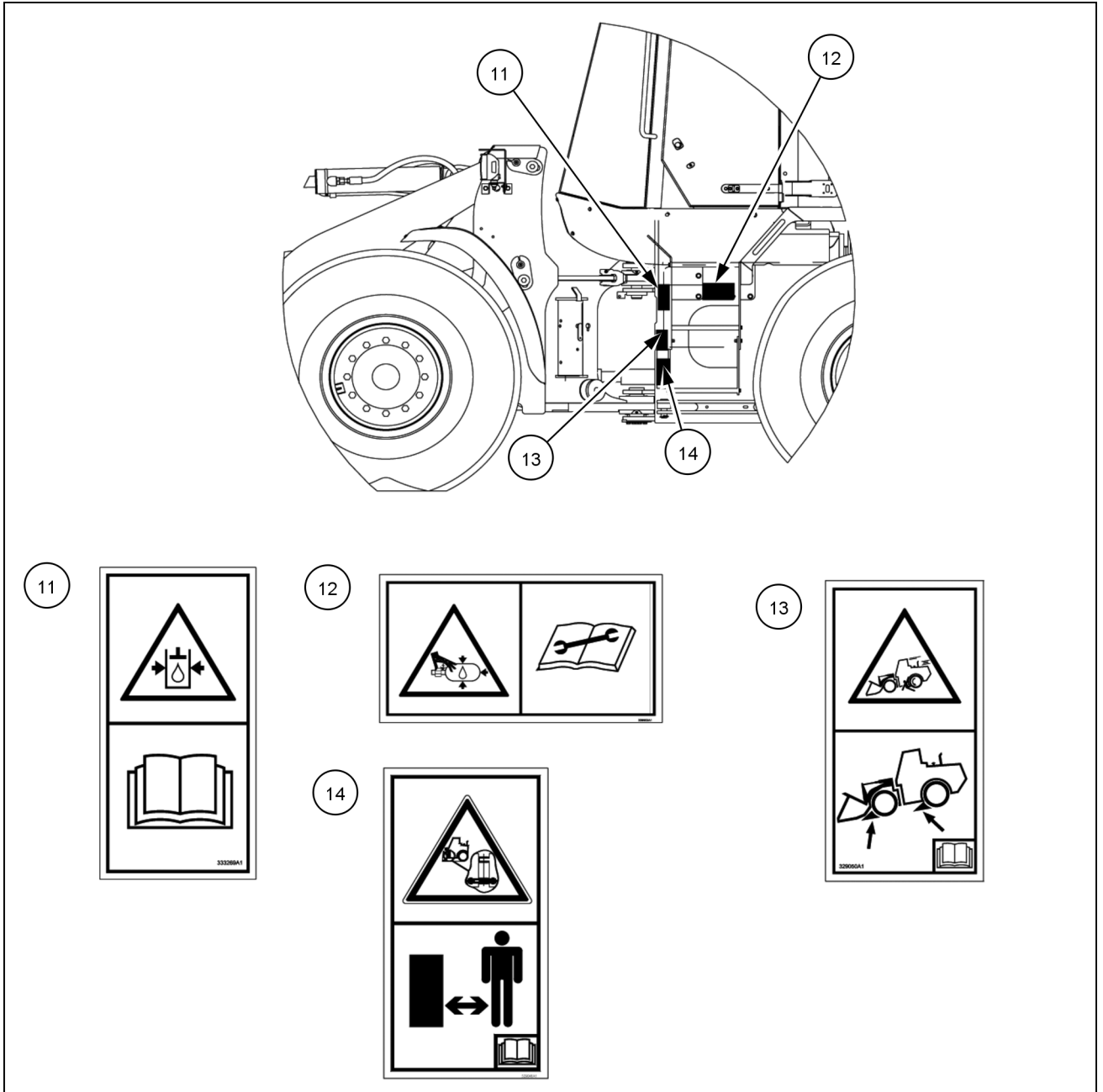


LEEN11T0014AA 10

Raise load or tool slowly

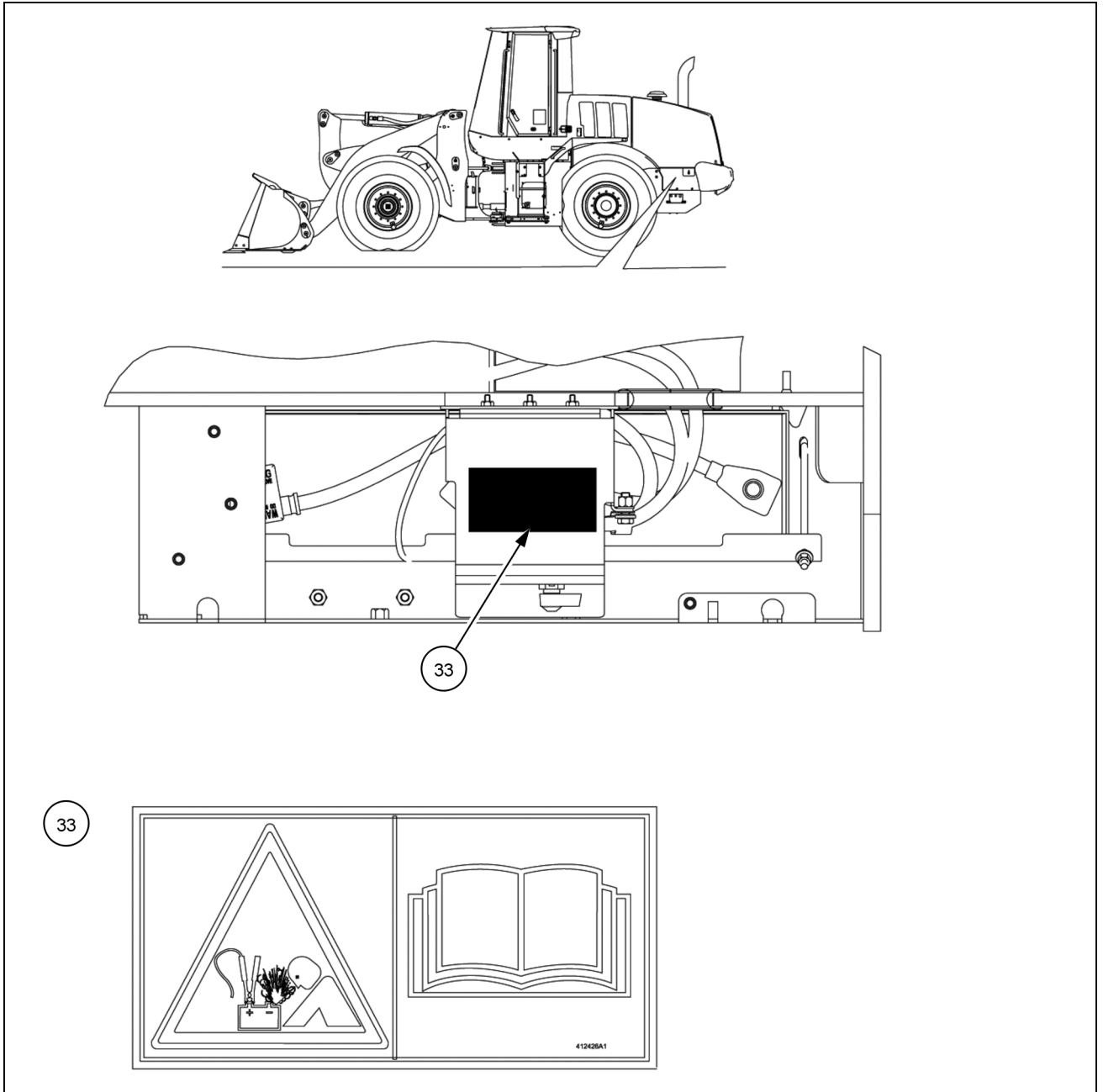


LEEN11T0015AA 11



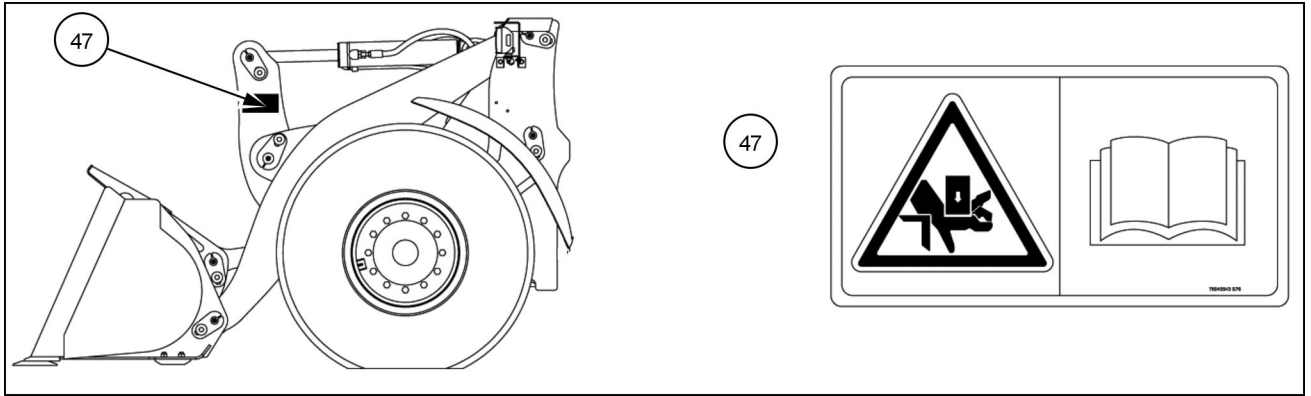
LEEN11T0222GA 7

11. Pressurized system. The pressure must be discharged before maintenance is carried out in order to prevent serious or fatal accidents. Read the Operator's Manual.
12. Fluids under pressure warning plate.  
Release all pressure before working on systems wich have an accumulator.
13. Park the machine on level ground whenever possible and apply the parking brake. On grades, park the machine with the wheels on track securely blocked. Failure to comply, could result in serious injury or death.
14. Insert the safety bar before carrying out maintenance or transport to avoid any crushing hazard.



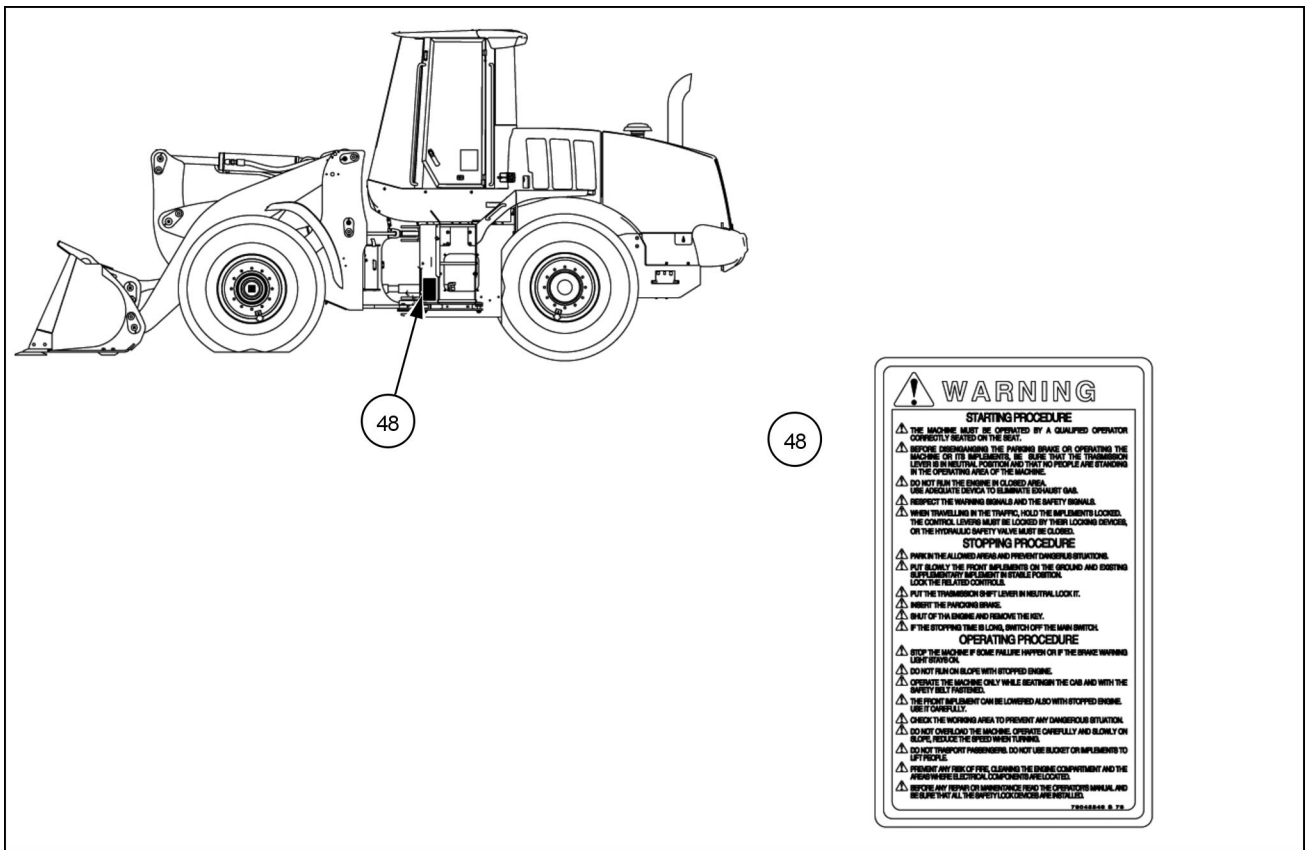
LEEN12T0766GA 17

33. Danger - Battery gas can explode. Read procedure before battery service.



LEEN11T0241EA 29

47. Scissors point warning plate. When the machine or its equipment are moving, do not place limbs or parts of the body between the mechanism of the booms or bucket to prevent the risk of amputation. Read carefully the Safety Rules listed at the beginning of this Manual.

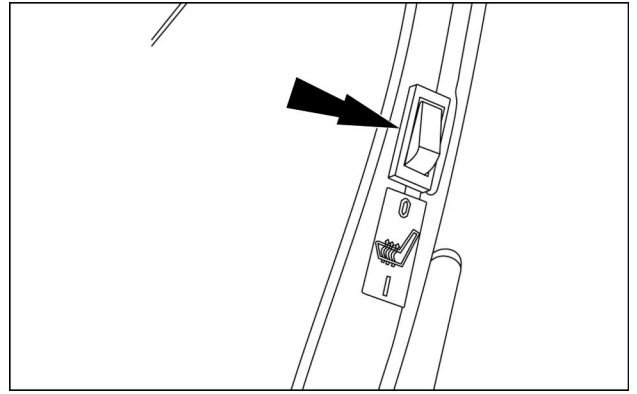


LEEN12T0773FA 30

48. Ensure that when operating the loader all safety precautions are observed for your safety and that of bystanders. Ensure that when the machine is left unattended it cannot be a danger to safety.

### Heated seat

Switch controls for the optional heated seat are located along the left side of the backrest. The rocker switch has on/off positions. Use the switch for cold weather comfort.



RCPH10WHL074AAH 12

## Kick-down switch

The kick down switch is used to shift down through the gears in single steps. Each time the switch is pressed, the transmission will shift down one gear range until first gear is reached. Once the kick down switch has been pressed down, the transmission maximum gear allowed is lowered. It will return to the automatic mode when **(1)** the transmission control lever gear changes, or **(2)** the transmission control lever is moved to NEUTRAL and then to FORWARD or to REVERSE.

When the Automatic Mode has been chosen by the operator, the Automatic Mode indicator will be shown in the multi-function display.

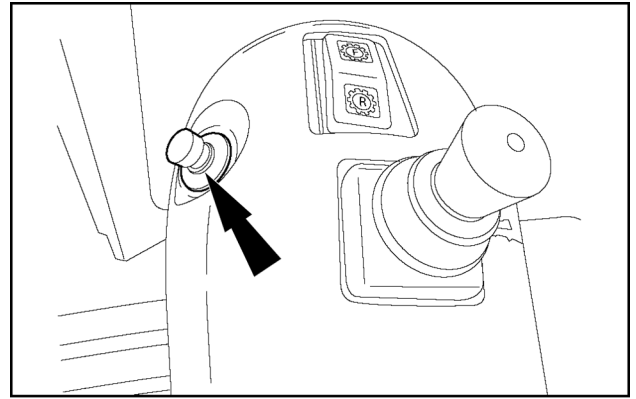
### ⚠ WARNING

**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.**

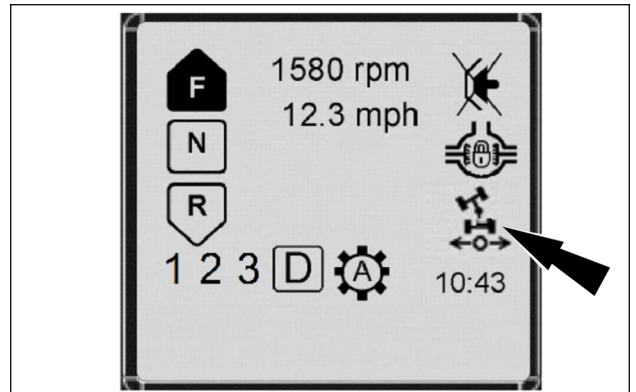
W0248A

## Joystick steering enabled (optional)

When joy stick steering has been enabled, joy stick steering will be indicated on the Liquid Crystal Display (LCD) screen. Use joy stick steering for repetitive, high production operations such as truck loading, etc. Joy stick steering is not intended for primary steering use.



RCIL10WHL189BAL 2



LEIL14WHL0514AA 3

**Three function valve - three control levers**

1. BUCKET CONTROL

- A. DUMP
- B. ROLLBACK
- C. HOLD - The loader arms and bucket will not move when the control lever is in the HOLD position. When released, the control lever will automatically return to the HOLD position. You must manually move the control lever from the FLOAT position to the HOLD position.

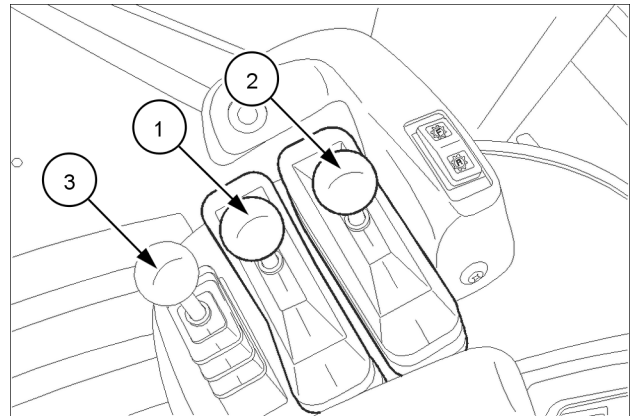
2. LIFT ARM CONTROL

- D. FLOAT (DETENT) - This is a detent position. When in the FLOAT (detent) position, the loader bucket can follow the level of the ground without movement of the control lever
- E. LOWER
- F. HOLD - The loader arms and bucket will not move when the control lever is in the HOLD position. When released, the control lever will automatically return to the HOLD position. You must manually move the control lever from the FLOAT position to the HOLD position.

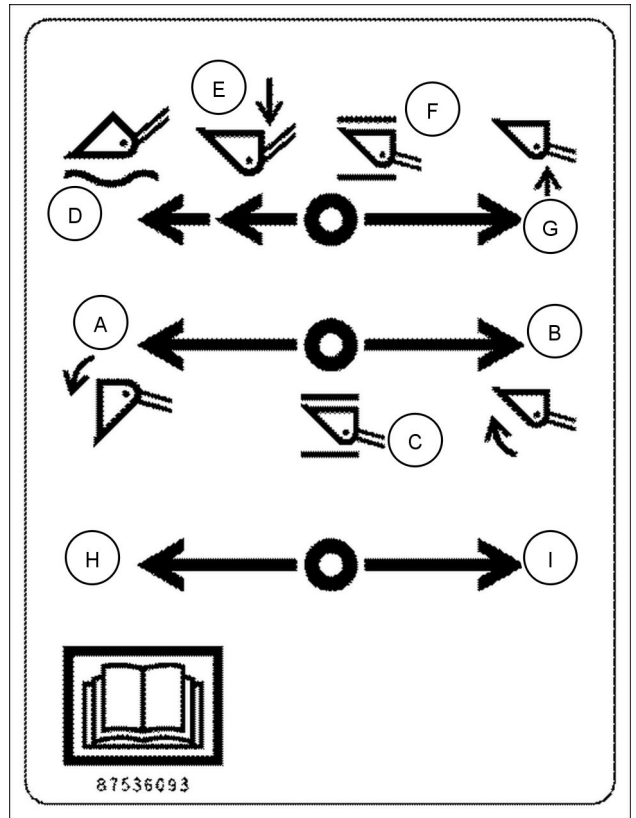
G. RAISE

3. AUXILIARY CONTROL

- H. AUXILIARY FUNCTION
- I. AUXILIARY FUNCTION



RCPH10WHL110BAL 4



RCPH10WHL009AAL 5



**5. Parking brake indicator**

This indicator illuminates when the parking brake is applied.



**6. Engine grid heater indicator lamp (if equipped):**

To start the engine, turn the key switch to the ON position. The indicator illuminates when the engine grid heater is operating. Wait until the indicator light goes OFF before moving the key switch to the START position to start the engine. The indicator light may come on again during cranking and shortly after the engine starts for post heating of the air.

The previous screen can be accessed by using the up arrow key.

Trip 1		
12AUG2009,		02:35
Time	Hrs	0.9
Fuel	L	10.2
Fuel/hr	L/h	10.3

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### Setting trip screens

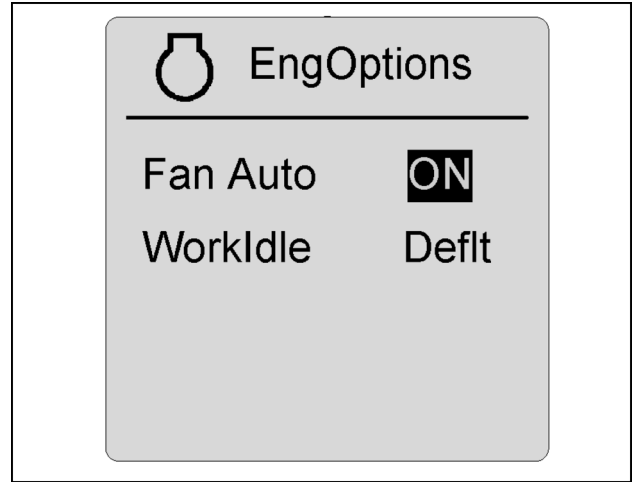
Highlight the trip screen you wish to set. (Capacity can be set in U.S. gallons, Imperial gallons, or metric liters when setting measurement preferences).

Trip 1		
12AUG2009,		02:35
Time	Hrs	0.9
Fuel	L	10.2
Fuel/hr	L/h	10.3

RCPH10WHL353AAH 10

### Fan auto (if equipped)

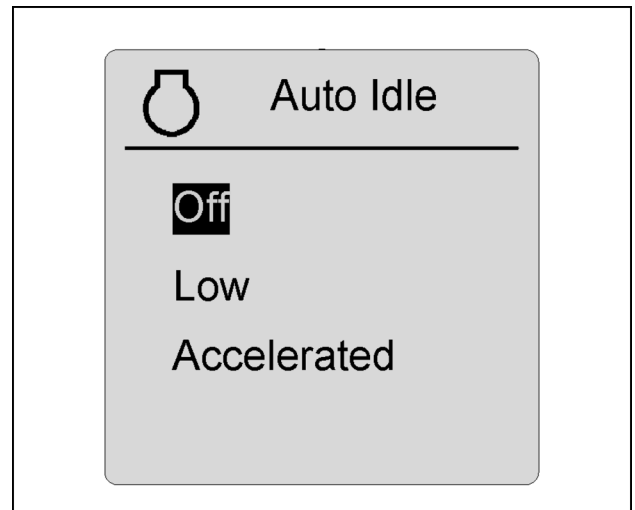
In automatic mode, the fan speed will switch between high, low, or reverse as conditions require. This will depend upon the system temperature. To select the fan mode, highlight the Fan Auto selection on the "Eng Options" screen, then press the confirm key. Scroll through the fan choices, highlight the desired selection and press the confirm key to lock into memory. Use the escape key to return to the main driving menu. The steps will only apply if the machine is equipped with the auto fan feature.



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### Auto idle

The auto idle feature has three settings that control the engine low idle speed. This feature only applies when the wheel loader is stationary, in neutral, and not under load. The OFF setting will keep the low idle speed constant at the factory setting independent of engine or ambient temperature. The LOW setting will allow the low idle speed to decrease below the factory setting. By reducing the low idle speed, fuel consumption will be reduced. The ACCELERATED setting will allow the low idle speed to increase above the factory setting. Increasing the low idle speed helps at warm-up and can improve A/C performance. To change the auto idle setting, highlight the "Auto Idle" selection, then press confirm. This will allow you to scroll through the idle choices. Highlight the selection desire, and lock the selection into memory by pressing the confirm key, and then return to the main menu driving screen with the escape key.



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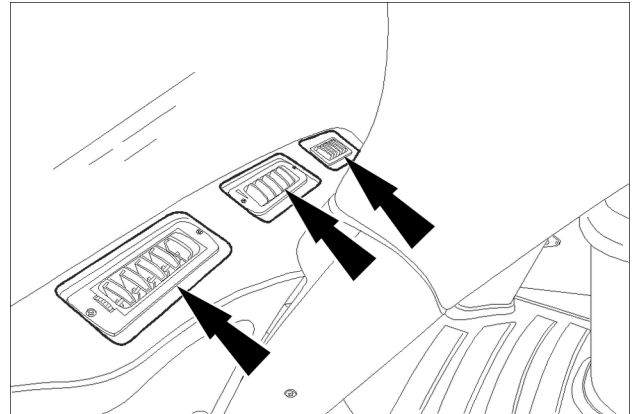
**NOTE:** If the wheel loader is shifted out of neutral, put under any load, or if the temperature limits are not met, the idle will default to the standard factory set idle speed.

## CLIMATE CONTROLS

### Cab air louvers

#### Main air louvers

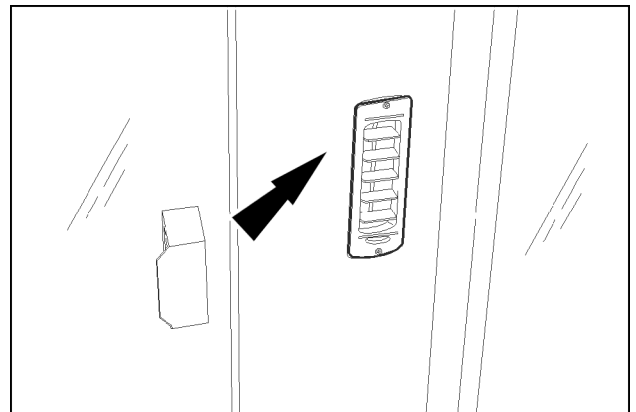
The louvers on the console direct air flow toward the operator or toward the front window.



RCPH10WHL056BAL 1

Louvers on the right and left hand cab supports direct air toward the operator.

Adjustments can be made to direct the air flow of the louvers.



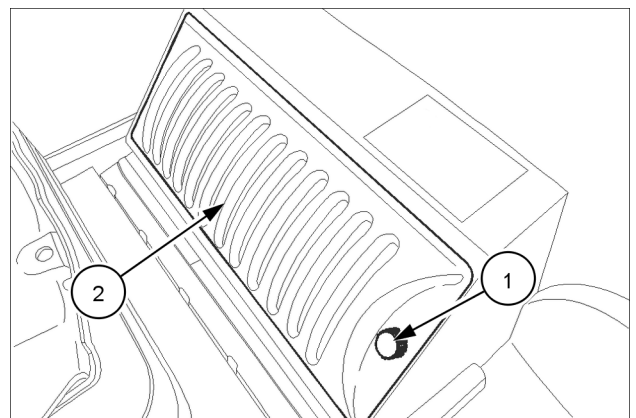
RCPH10WHL029BAD 2

#### Recirculation air louver

The recirculation air louvers are behind the operator's seat next to the floor. When open, air is recirculated in the cab.

**NOTE:** Always have these louvers open for maximum cooling with the air conditioning or maximum heat with the heater.

Loosen knob (1) and remove cover to access recirculation filter (2).



RCPH10WHL905AAH 3

After engine warm up, enable the pilot control by pushing down on the control knob just to the rear of the loader control levers. 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 arms 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 brakes are actuated there may be some delay before the brakes are applied. The operator must actuate the brake pedal a minimum of 8 to 10 times before the machine is moved to obtain proper heating. 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. The use of correct oil in the hydraulic/brake system is required in persistently severe applications. Contact your dealer for the correct oil.

When the machine has been correctly warmed up, apply the foot brake and hold, shift the transmission to forward, push the park brake to OFF position 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 the transmission oil and axle oil have been correctly warmed up. Operate the machine in a clear safe area before road operation in first and second gear only.*

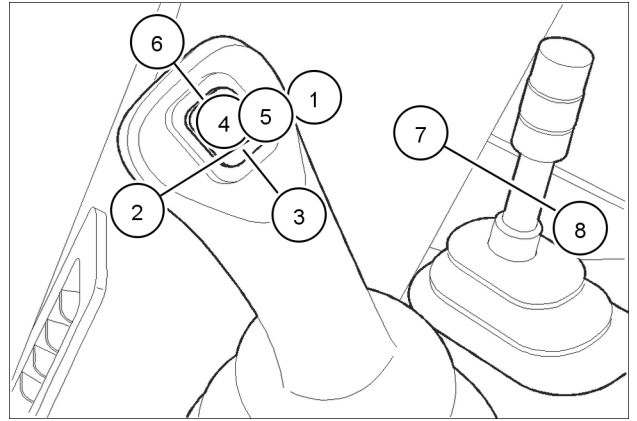
If the machine has been left idling in cold temperature, the engine will stay warm, but the hydraulic/brake oil and the axle oil will not stay warm. The oil and components can become cold and slow brake function response time. If this should happen you **MUST** go through the complete warm up procedure.

**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.*

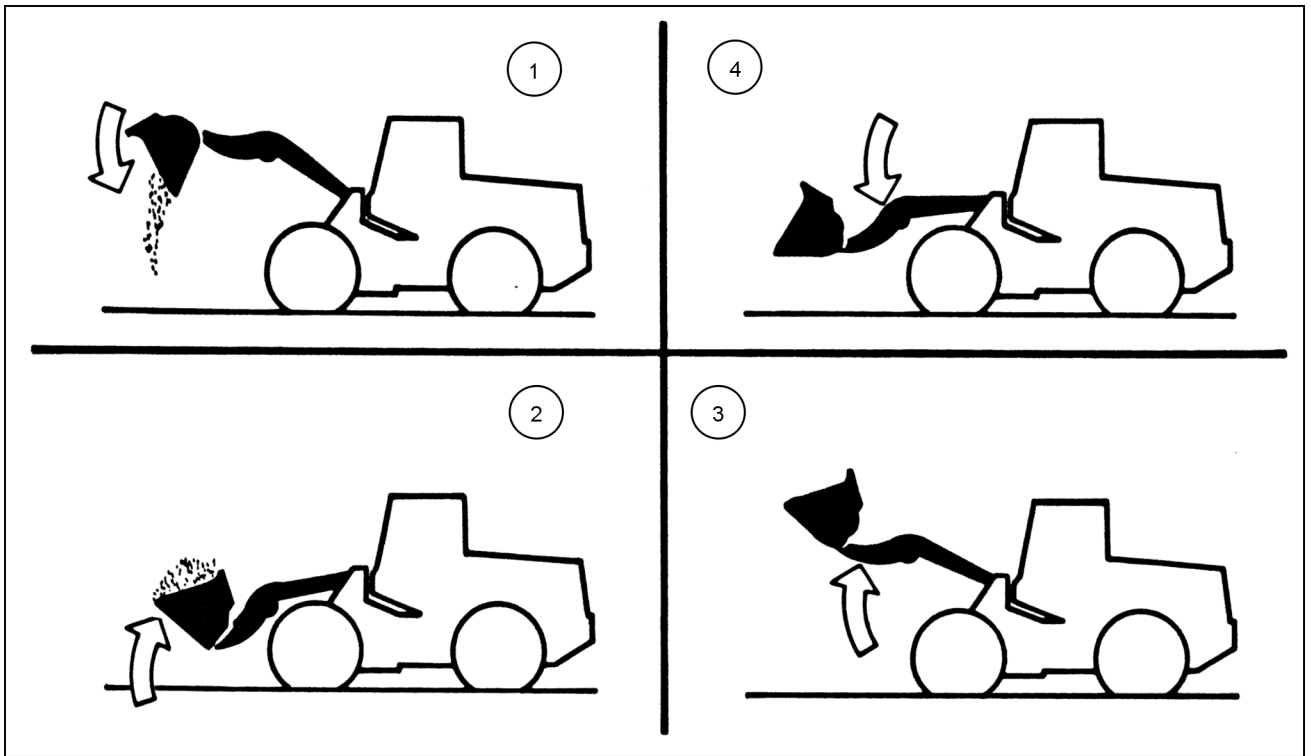
**Three function valve - two control levers**

**NOTE:** This page shows the basic loader control lever positions.

See loader function switches in this manual for return-to-dig, bucket height control and return-to-travel/float switches.



RCPH10WHL119BAL 5



RCPH10WHL045BAH 6

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>1. Dump bucket</li> <li>2. Rollback bucket</li> <li>3. Raise lift arms</li> <li>4. Lower lift arms</li> <li>5. Hold - The loader arms and bucket will not move when the control lever is in the hold position. When released, the control lever must be manually moved from the float position to the hold position. (only with magnets engaged.)</li> </ul> | <ul style="list-style-type: none"> <li>6. Float (detent) - This is a detent position. When in the float (detent) position, the loader bucket can follow level of the ground without movement of the control lever. (only with magnets engaged.)</li> <li>7. Auxiliary function</li> <li>8. Auxiliary function</li> </ul> |
|---|--|

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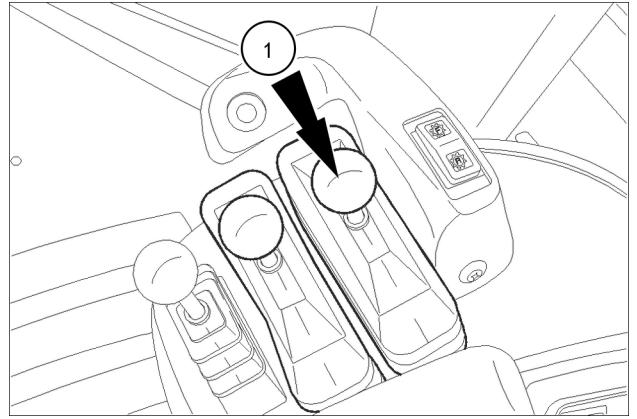


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## Bucket height control

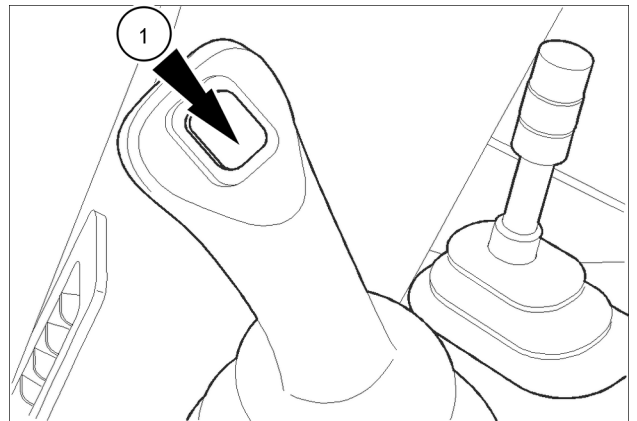
The bucket height control is used to automatically stop the loader arms at the height selected.



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1. Raise

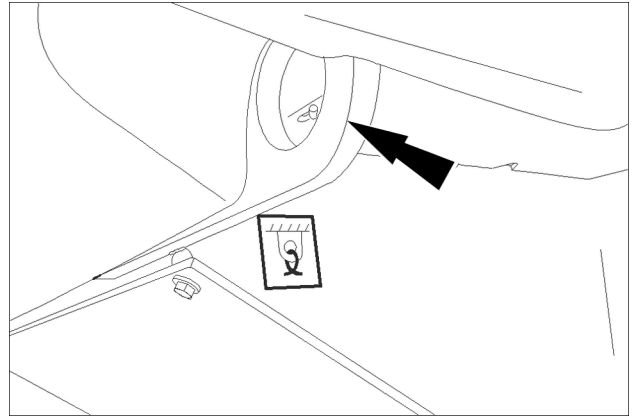
To actuate, move the control lever into the RAISE detent. The control lever(s) will automatically return to the HOLD position when the loader bucket reaches the height selected.



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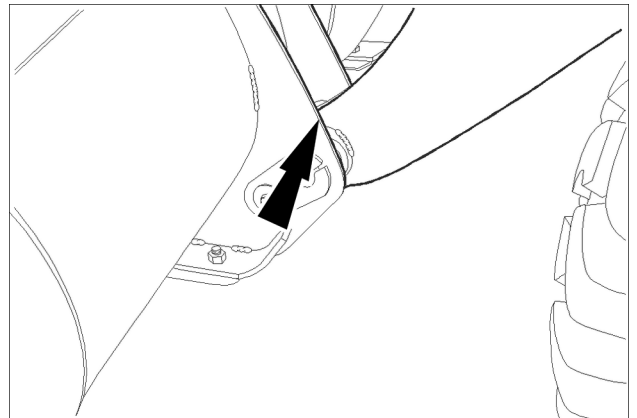
1. Raise

10. Chains must be securely fastened to the left and right rear tie down holes and the trailer. Tie down locations are indicated on the machine with tie down decals.



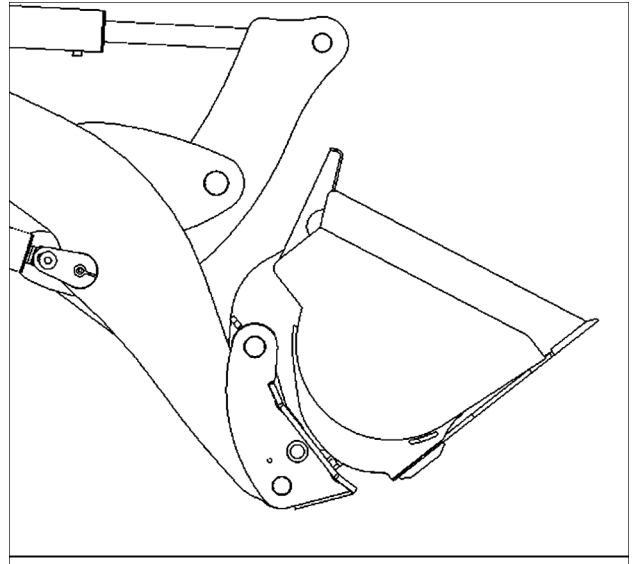
RCPH10WHL146BAL 3

11. Chains must be securely fastened around the left and right side of the loader arms.
12. Put a cover over the exhaust pipe.
13. Measure the distance between the ground and the highest point of the machine. You must know the clearance height of the machine on the trailer.
14. Advise driver of weights of machine and attachments if special permits or guidelines are necessary.



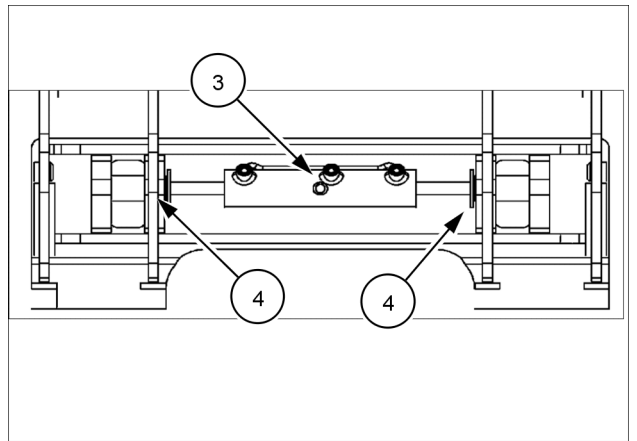
RCPH10WHL132BAL 4

4. Make certain the switch remains in the unlock position. Roll back the coupler with the attachment to align the attachment pin holes with the coupler locking pins.
5. Press the bottom of the switch to extend the locking pins. The amber light will be off. The locking pins should be fully extended.



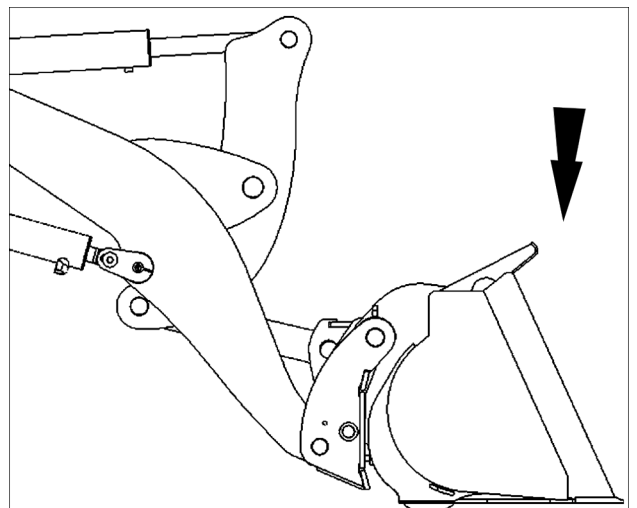
RCPH10WHL325AAH 3

6. Maintain the coupler in roll back position, and position the locking cylinder (3) in your full field of view to visually ensure and verify the JRB locking pins (4) are fully extended.



RCPH10WHL344AAH 4

6. After visually inspecting the locking pins, lower the attachment, rolling the front end toward the ground. Apply downward pressure to make certain the attachment is securely locked in place.

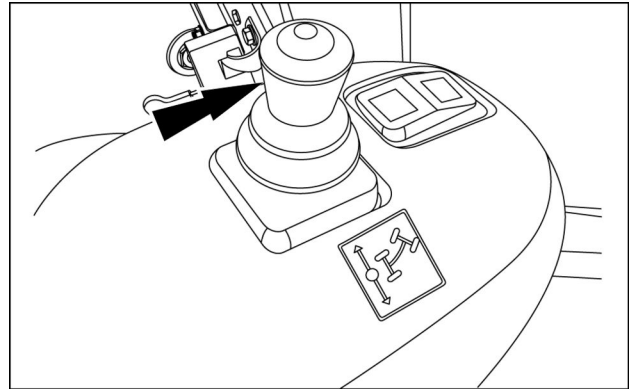


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## Steering with joystick control

The machine will travel in the direction the lever is moved. When the 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 lever is used abruptly. When executing a turn, move the 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.



RCIL10WHL204BAL 13

### Left turn

Move the 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 lever in a careful, gradual shift.

### Right turn

Move the 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 lever in a careful, gradual shift.

### Reverse left

With the transmission in reverse, move the 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 lever in a careful, gradual shift.

### Reverse right

With the transmission in reverse, move the 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 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.

Front and rear axle oil viscosity/temperature range

<b>CASE AKCELA TRANSAXLE FLUID 80W-140</b>										
-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	

Hydraulic/brake system - temperature range

<b>CASE AKCELA HY-TRAN® ULTRACTION</b>										
<b>CASE AKCELA HY-TRAN® ULTRACTION SSL</b>										
-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	

**After starting the engine**

- Did the engine start correctly? Are the exhaust fumes normal? Any strange noises?
- Check for abnormal noise on the hydraulic components.
- Check for water, fuel, or oil leaks on the components.
- Check the audible alarm devices, working lights and windshield wipers.
- Check that all hydraulic circuits are functioning correctly.

## Engine coolant

### ⚠ WARNING

#### Burn hazard!

Hot coolant can spray and scald if you remove the radiator or deaeration tank cap while the system is hot. To remove the cap: allow the system to cool, turn the cap to the first notch, and wait for all pressure to release. Remove the cap only after all pressure has released.

Failure to comply could result in death or serious injury.

W0367A

#### 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. The transmission oil level sight gauge is on the left side of the machine.

Service specifications	
Type of coolant	CASE AKCELA PREMIUM ANTI-FREEZE or CASE AKCELA ACTIFULL™ OT EXTENDED LIFE COOLANT
Coolant capacity	28.4 l (30.0 US qt)

1. Check the coolant reservoir level every 50 hours of operation. Perform this check when the coolant is cold and the engine is stopped.
2. Do not remove the radiator cap during this check. The coolant level must be between the full and add marks on the reservoir.
3. Add coolant as required to raise the coolant level to the full mark.



RCPH10WHL048BAL 1

**NOTE:** In the event that the system needs topping off make sure to use the proper ratio of water and antifreeze/coolant. Do not overfill.

Every 250 hours

## Grease drive shaft slip joints

### Machine grease fittings

Service specifications	
Grease Specification	CASE AKCELA MOLY GREASE

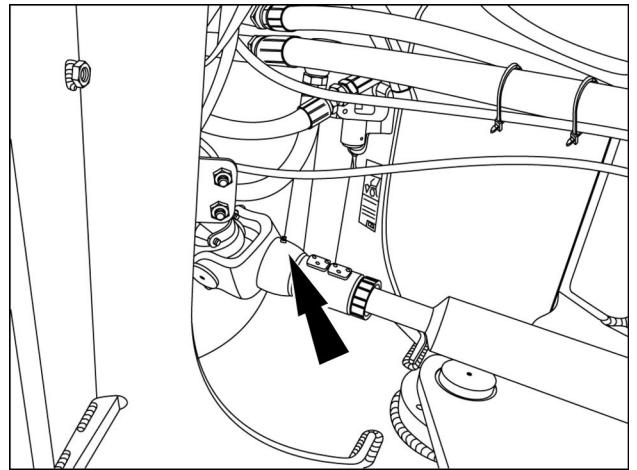
Grease the drive shaft slip joints when the hourmeter registers 250 or more often if conditions so require.

Clean around the area to be greased before service.

**NOTICE:** In severe conditions, such as immersion in water, it may be necessary to reduce the greasing service intervals.

### Drive shaft slip joint

The grease zerk is located on the drive shaft. Park the machine so the zerk is accessible.



RCPH10WHL456AAH 1

## Fuel filter

### ⚠ WARNING

#### Fire hazard!

When handling diesel fuel, observe the following precautions:

1. Do not smoke.
2. Never fill the tank when the engine is running.
3. Wipe up spilled fuel immediately.

Failure to comply could result in death or serious injury.

W0099A

Change the fuel filter when the hourmeter registers 100 hours for a new machine during the initial run-in period. Filters should be changed every 500 hours thereafter or more frequently when operating conditions are severe.

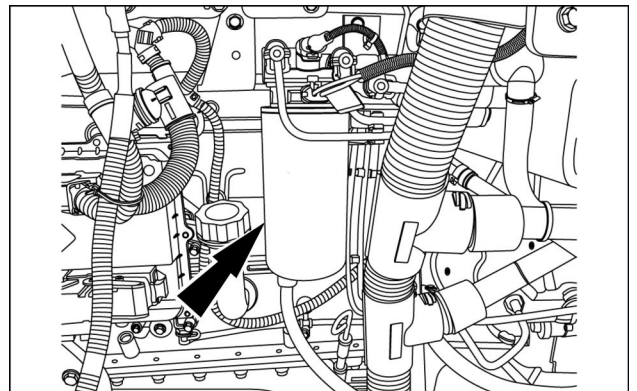
Clean the filter head area, the outside of the filter and remove any dirt and debris around the area that might contaminate the system.

#### 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.

1. Install the transport/service link into the lock position.
2. Turn the filter counterclockwise and remove. Be sure to capture any fuel remaining in the lines or the filter and discard properly.
3. Apply a thin layer of clean oil to the gasket on the new filter.
4. Install the filter. Use your hands to tighten the filter 1/2 to 3/4 turn after the filter makes contact with the filter head.

**NOTICE:** Never use a filter wrench to tighten a new filter on install.



RCPH10WHL901AAH 1

## Drive belt

### ⚠ 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

### ⚠ WARNING

**Moving parts!**

**Install all covers, panels, and guards after servicing or cleaning the machine. Never operate the machine with covers, panels, or guards removed.**

**Failure to comply could result in death or serious injury.**

W0135A

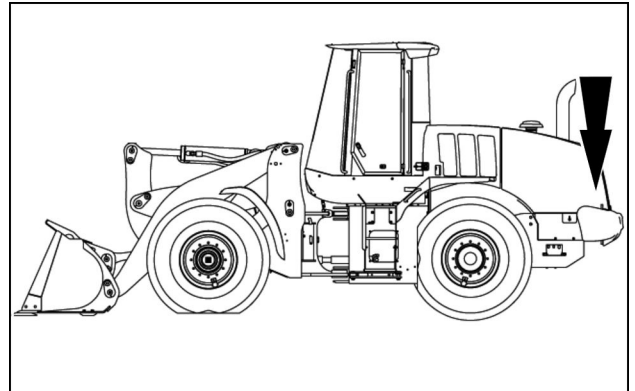
Check the belt for correct tension, wear, and damage. Wrong belt tension may cause battery charge failure, engine overheating, or belt wear.

Maintenance specifications	
Visual check	Every 10 hours or every day
Replace belt	Every 1000 hours

**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.

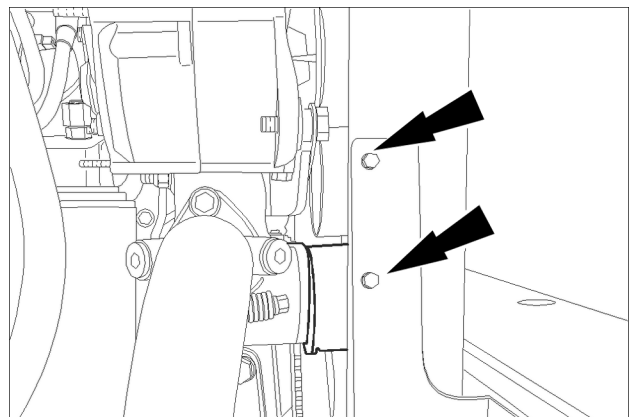
## Drive belt

1. Check the accessory drive belt for correct tension, wear, and/or damage. Incorrect belt tension may cause battery charge failure, engine overheating, or belt wear. Replace the belt every 1000 hours.



LEEN12T0778AA 1

2. To replace the belt, remove the four screws that hold the protective cover in place.



RCPH10WHL050BAL 2

## Transmission fluid and filter

### ⚠ 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

Change the transmission fluid and filter every 1500 hours or more frequently when operating conditions are severe. Shorten service intervals in severe applications which involve running the torque converter under high load for more than 25% of operation time. Applications include basement digging or land clearing. Reduce intervals as well if using low viscosity oil.

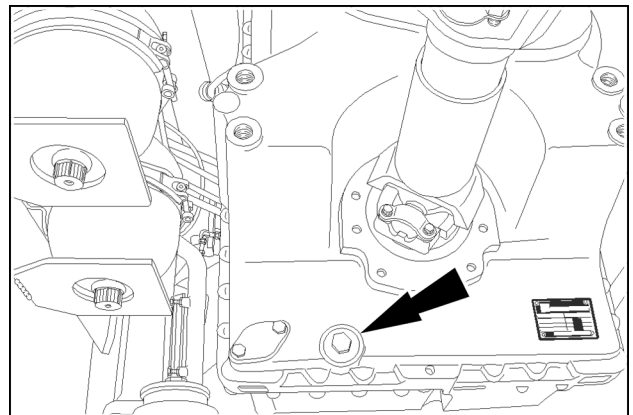
**Prior operation:**

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.

Oil Type	
Non- CASE AKCELA NEXPLORE™ FLUID other brands)	CASE AKCELA NEXPLORE™ FLUID
Normal conditions - 1000	Normal conditions - 1500
Severe conditions - 500	Severe conditions - 1000

Service specifications	
Type of oil	CASE AKCELA NEXPLORE™ FLUID
Capacity	34.1 l (36.0 US qt)

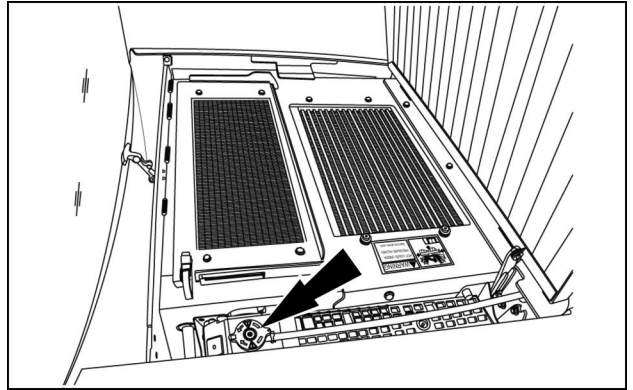
1. Lower bucket/attachment to the ground and lock the pilot control lock lever.
2. Put the transport/service link into the locked service position to avoid unexpected articulation, and stop the engine.
3. Clean the area around the filter head and around the transmission drain and fill caps.



RCPH10WHL004BAH 1

6. Fill with the proper mix of **CASE AKCELA ACTI-FULL™ OT EXTENDED LIFE COOLANT** and water for the system and for the prevailing weather conditions.
7. Start the engine, and let it run at low idle until the engine reaches operating temperature. Recheck the level of the system.

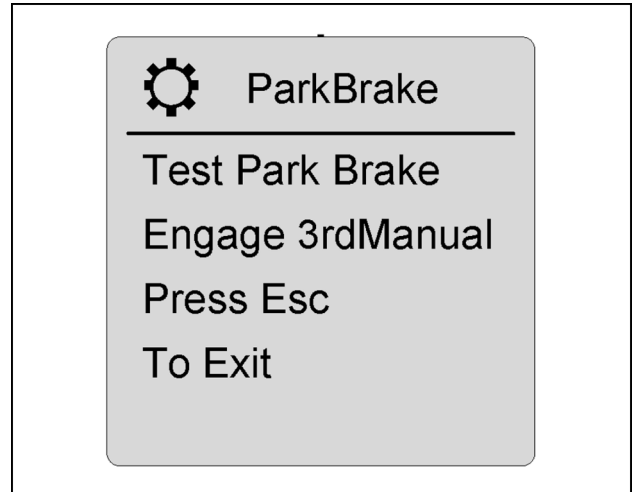
**NOTICE:** *this is a de-aeration system and does not have an overflow. Do not overfill. Do not fill to the top of the tank. Check the sight gauge on the left-hand side of the machine after refill.*



RCPH10WHL139AAH 3

Follow the prompts on the screen to complete the park brake test. If all conditions are not met to test the brake, the monitor will display the condition that must be corrected prior to completion of the test. The parking brake must be engaged.

4. Make sure all conditions are met. The monitor will display: Test Park Brake Ready
5. Shift the gear selector into third gear forward, and slowly increase the engine speed to full open throttle.
6. Verify that the machine does not move.
7. Reduce engine speed to low idle, and return the transmission to neutral.
8. Shift the gear selector to third gear reverse and slowly increase the engine speed to wide open throttle.
9. Verify that the machine does not move.
10. Reduce the engine speed to low idle and return the transmission to neutral.
11. Press the escape key on the key pad to exit the test mode.



RCPH10WHL382BAH 3

## Battery electrolyte level

### ⚠ WARNING

**Hazardous chemicals!**

**Battery electrolyte contains sulfuric acid. Contact with skin and eyes could result in severe irritation and burns. Always wear splash-proof goggles and protective clothing (gloves and aprons). Wash hands after handling.**

**Failure to comply could result in death or serious injury.**

W0006A

### ⚠ 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

### ⚠ WARNING

**Chemical hazard!**

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

**Failure to comply could result in death or serious injury.**

W0349A

## Check battery fluid level and specific gravity

Check the battery fluid level every 500 hours of operation or more often if conditions are severe. The battery fluid can decrease with high temperatures.

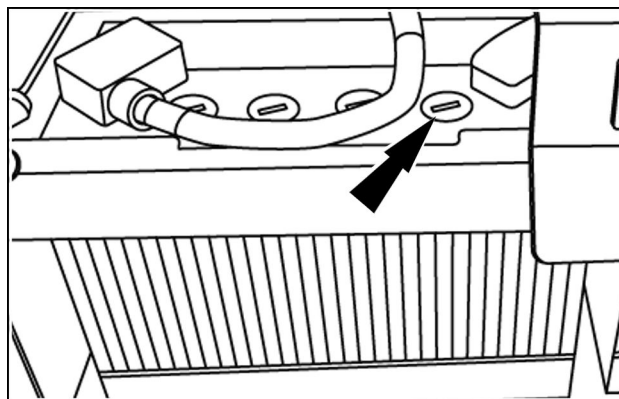
1. Insert a flat blade screwdriver into slots at the top of battery caps. Remove the cell caps and check the level in each battery cell. The level should be no less than **4.8 mm (0.2 in)** from the bottom of the cell. Add distilled water if necessary, then install the cell caps.

**NOTE:** Wipe the top of the battery or use compressed air to remove dust. Use care when removing caps and do not allow dirt or contaminants to enter the battery cells.

**NOTICE:** Continuous use of the battery with low fluid will lower battery performance.

2. If the terminals are dirty, wash with warm water. Reinstall the terminals, apply grease or spray rust preventive solution to create good connections.
3. If the terminal is oxidized, polish it with a wire brush or emery paper.

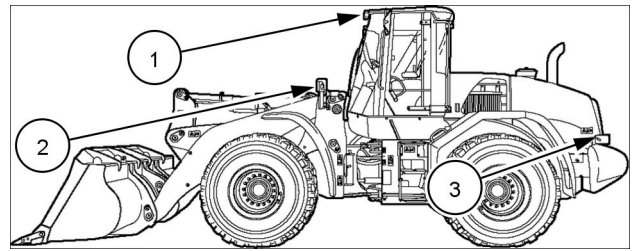
**NOTE:** Measure the specific gravity of battery fluid with a gravimeter. The measured value will vary depending on the ambient temperature.



RCPH10WHL490AAH 1

## Work lights

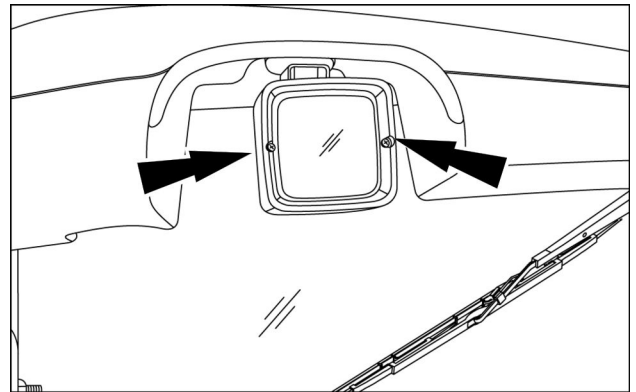
1. Work lights
2. Driving lights
3. Tail lights



RCPH10WHL710AAH 1

To replace work lights, remove the Phillips screws from the front of the light.

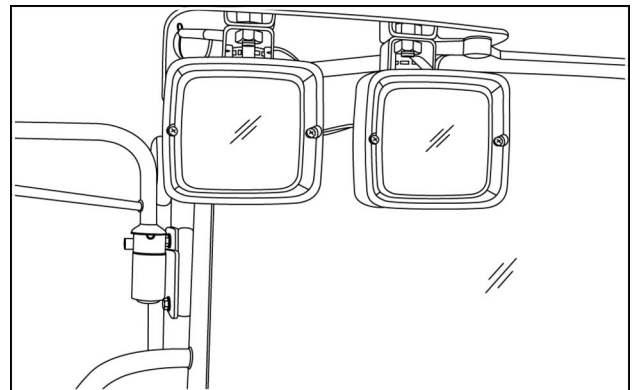
Disconnect push on connectors, and replace the lamp assembly. Push the connectors on, making certain connections are firmly in place. Replace the lamp assembly, and secure the frame with the Phillips screws.



RCPH10WHL501AAH 2

### Two light bar work lights (optional)

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



RCPH10WHL503AAH 3

8 - SPECIFICATIONS

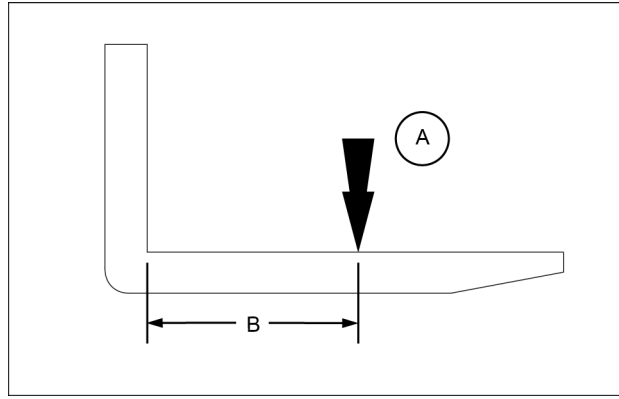
**Drivetrain - Optional 5 Speed Transmission**

5F/3R Proportional with Electronic Control Module torque sensing autoshift/manual shift and modulation		
Gears	Helical cut	
Gear ratios	Forward	Reverse
1st	3.921	3.718
2nd	2.255	2.138
3rd	1.466	0.894
4th	0.942	
5th	0.613	
Torque converter stall ratio	2.42:1	
Rear axle oscillation	<b>24°</b> total	
Standard Axles	Front	Rear
Differential	Limited slip on front and rear axles	
Differential ratio	3.364	3.182
Planetary ratio	6.000	6.40
Final axle ratio	20.18	20.36
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	3.364	3.364
Planetary ratio	6.000	6.000
Final axle ratio	20.18	20.18
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	<b>7.2 km/h (4.5 mph)</b>	<b>7.9 km/h (4.9 mph)</b>
2nd	<b>12.6 km/h (7.8 mph)</b>	<b>13.5 km/h (8.4 mph)</b>
3rd	<b>19.0 km/h (11.8 mph)</b>	<b>31.1 km/h (19.3 mph)</b>
4th	<b>29.5 km/h (18.3 mph)</b>	
5th	<b>40 km/h (24.9 mph)</b>	

**NOTE:** travel speeds @ full engine throttle.

**721F Cylinder Specifications**

Lift cylinder		
Bore diameter	<b>120.7 mm (4.75 in)</b>	
Rod diameter	<b>76.2 mm (3.00 in)</b>	
Stroke	<b>827.8 mm (32.59 in)</b>	
Steer cylinder		
Bore diameter	<b>76 mm (3.00 in)</b>	
Rod diameter	<b>44.5 mm (1.75 in)</b>	
Stroke	<b>484.9 mm (19.09 in)</b>	
Dump cylinder	Z-Bar and XR	XT
Bore diameter	<b>146.1 mm (5.75 in)</b>	<b>114.3 mm (4.50 in)</b>
Rod diameter	<b>76.2 mm (3.00 in)</b>	<b>57.2 mm (2.25 in)</b>
Stroke	<b>629.4 mm (24.78 in)</b>	<b>856.5 mm (33.72 in)</b>



LEIL16WHL0428AB 6

**721F Z-Bar Specifications - Forks (P/N: 87454387) with Leonardi Coupler (P/N:87750108)**

- (A) Operating load
- (B) 610 mm (24 in)

**NOTE:** machine configured with Heavy Duty counterweight and Michelin 20.5R25 XHA TL tires.

Load Specifications (EN 474-3)

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Operating load	
Rough terrain	<b>4349 kg (9588 lb)</b>
Firm and level ground	<b>5799 kg (12785 lb)</b>

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## Torque charts

Use the torques in this chart when special torques are not given. These torques apply to fasteners with both UNC and UNF threads as received from suppliers dry, or when lubricated with engine oil. Not applicable if special graphite lubricants, Molydisulfide greases, or other extreme pressure lubricants are used.

### Decimal hardware

#### Grade 5 bolts, nuts, and studs

Size	Nm	lb in/lb ft
1/4 in	12 – 15 Nm	108 – 132 lb in
5/16 in	23 – 28 Nm	204 – 252 lb in
3/8 in	48 – 57 Nm	420 – 504 lb in
7/16 in	73 – 87 Nm	54 – 64 lb ft
1/2 in	109 – 130 Nm	80 – 96 lb ft
9/16 in	149 – 179 Nm	110 – 132 lb ft
5/8 in	203 – 244 Nm	150 – 180 lb ft
3/4 in	366 – 439 Nm	270 – 324 lb ft
7/8 in	542 – 651 Nm	400 – 480 lb ft
1 in	787 – 944 Nm	580 – 696 lb ft
1-1/8 in	1085 – 1193 Nm	800 – 880 lb ft
1-1/4 in	1519 – 1681 Nm	1120 – 1240 lb ft
1-3/8 in	1980 – 2278 Nm	1460 – 1680 lb ft
1-1/2 in	2631 – 2983 Nm	1940 – 2200 lb ft

Markings for Grade 5 hardware



#### Grade 8 bolts, nuts, and studs

Size	Nm	lb in/lb ft
1/4 in	16 – 20 Nm	144 – 180 lb in
5/16 in	33 – 39 Nm	288 – 348 lb in
3/8 in	61 – 73 Nm	540 – 648 lb in
7/16 in	95 – 114 Nm	70 – 84 lb ft
1/2 in	149 – 179 Nm	110 – 132 lb ft
9/16 in	217 – 260 Nm	160 – 192 lb ft
5/8 in	298 – 358 Nm	220 – 264 lb ft
3/4 in	515 – 618 Nm	380 – 456 lb ft
7/8 in	814 – 976 Nm	600 – 720 lb ft
1 in	1220 – 1465 Nm	900 – 1080 lb ft
1-1/8 in	1736 – 1953 Nm	1280 – 1440 lb ft
1-1/4 in	2468 – 2712 Nm	1820 – 2000 lb ft
1-3/8 in	3227 – 3688 Nm	2380 – 2720 lb ft
1-1/2 in	4285 – 4827 Nm	3160 – 3560 lb ft

Markings for Grade 8 hardware



**NOTE:** Use thick nuts with Grade 8 bolts.

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