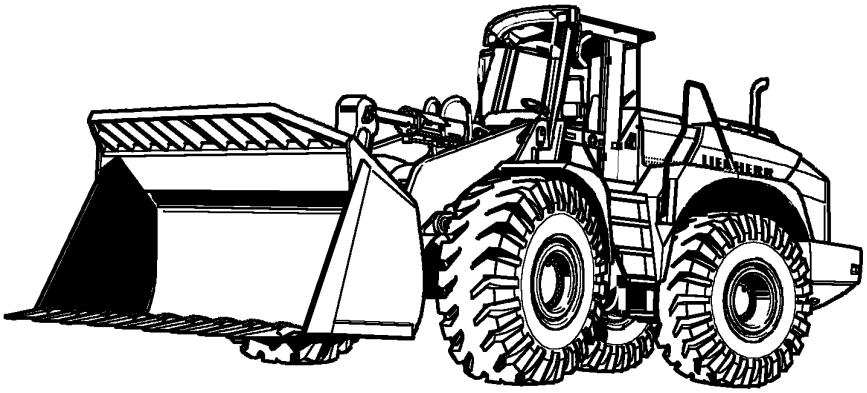
(en)

Operating manual

L580

valid from serial No.: - 475 0522



Name	Value	Units
J - ground clearance	550	mm
K - wheel base	3570	mm
L - overall length	9000	mm
Turning radius over bucket outer edge	7250	mm
Lifting force (SAE)	250	kN
Breakout force (SAE)	175	kN
Tipping load when straight *	20260	kg
Tipping load, articulated 37° *	18180	kg
Tipping load, articulated 40° *	17850	kg
Articulation angle	40	°
Operating weight	24740	kg
Travel speed – travel range 1 forward and reverse	0–8.0	km/h
Travel speed – travel range 2 forward and reverse	0–18.0	km/h
Travel speed – travel range A2 (automatic), forward and reverse	0–18.0	km/h
Travel speed – travel range A2 (automatic), forward and reverse	0–38.0	km/h
Sound pressure level in the cab – L_{pA}	73	dB

* The specified values refer to Michelin 26.5 R25 XHA tyres, inclusive of all lubricants, full fuel tank, ROPS/FOPS cab and driver.

1.1.2 Diesel engine, Pump distributor gear

Diesel engine

Name	Value	Units
Engine type	D926TI-E A2	
Combustion process	Diesel, four stroke, direct injection	
Number of cylinders	6	
Cylinder volume	9960	cm^3
Rated power according to ISO 9249	195 / 265	kW / hp
Rated speed	2000	min^{-1}
Max. torque at 1200 min^{-1}	1170	Nm
Lower idling speed	750 $^{\pm 50}$	min^{-1}
Upper idling speed	2100 $^{\pm 50}$	min^{-1}
Inclinability /longitudinal, tranverse	45	°
Operating voltage of the ignition	24	V
Power consumption of the ignition	5.4	kW

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1.2.5 Working hydraulics

Working hydraulics

The working hydraulics systems operates in an open circuit. The variable displacement pump draws oil from the hydraulic tank and delivers it to the control valve block.
The control valve block is hydraulically controlled by the pilot control device and directs the oil volume to the lift or tilt cylinders. A spool valve for floating position / fast lowering function and the LFD system are integrated in the control block.

Variable displacement pump

The variable displacement pump is an axial piston pump with a swash plate design. The controllers attached to the variable displacement pump determine the swivel angle of the pump and its flowrate.
The flow controller ensures that the variable displacement pump only delivers that volume of oil from the hydraulic tank, which is currently required by the working hydraulics.
The pressure limits the maximum operating pressure of the working hydraulics.
The power controller ensures that the pump does not draw off too much power from the diesel engine.

Control valve block

The control valve block is installed in the front section of the vehicle. The spool valves for the lift and tilt cylinders, as well as an additional spool valve for float position, quick drop function and ride control are all integrated in the control valve block.
Pressure relief valves protect the system from pressure peaks.

Pilot control

The working hydraulics are controlled using the LIEBHERR control lever. The control valve block is thereby hydraulically controlled via the pilot control valve.
The pilot control valve is supplied with oil from the replenishing pump via the pilot control - solenoid valve. The presence of a hydro accumulator means that even when the diesel engine is at rest, the working attachments can be operated in emergencies, for example the lift arm can be lowered and/or the bucket can be tilted out.
The functions 'bucket return-to-dig', 'lift kick-out' and 'float position' are all controlled via retaining magnets in the pilot control unit and via proximity switches.

Ride control (LFD system)

The LFD system absorbs the bouncing and pitching motion by the machine when driving, considerably improving driver comfort and safety.
The lift cylinders are linked at their base-ends with the hydraulic accumulator unit via the control block and the stabilising module. The rod-end of the lift cylinders is linked to the hydraulic tank.

Stabilisation module

The stabilization module protects the hydro accumulators from pressure peaks.
When the pressure is too high, the stabilization module interrupts the oil flow to the hydro accumulator unit.

2.3 Correct usage

1. When equipped with standard loading bucket, forklift or grab, the wheel loader is designed exclusively for loosening, picking up, transferring, loading and dumping earth, stone, rock fragments or other materials and loading the same onto trucks, ships, conveyor belts or crushing installations.
2. Any other use or a use going beyond this, such as breaking up rock, driving in posts, transporting personnel etc., counts as improper use.
   The manufacturer/supplier accepts no liability for any injury or damage resulting from the above.
   The risk is borne by the user alone.
3. Machines used for lifting purposes are subject to special conditions and must, among other things, be equipped with the prescribed safety equipment.
4. Proper use also includes observance of the **"Operating manual"** and adherence to the inspection and maintenance conditions.

2.4 Decals on the machine

1. Your machine has several types of decals.
   Types of decals:
   – safety decal
   – information decals
   – type plates

   Their texts and locations are described below.
   The order numbers are included in the spare parts list.

2.10 Safety instructions for driving on slopes

1. On downward slopes, always drive carefully and never at top speed, as otherwise you could loose control over the machine.

   Travel speeds:
   – The travel speed limits specified in the **"Operating manual"** must never be exceeded!
   – Exceeding the max. speed limit causes the permitted limits to be exceeded for all rotating parts, such as the drive engine, the cardan shaft, all gears inclusive of axles and ultimately the diesel engine itself.
2. Therefore, before driving onto a slope, a travel range (gear) should be previously selected, in which the machine can comfortably manage the whole slope without endangering other traffic, the driver or the machine itself.
3. When driving on slopes, you should also ease off the gas pedal.

2.11 Parking safely

1. If possible, only park the machine on firm, level ground.
   If it must be parked on a slope, then the machine should be secured against rolling away with wedges.
2. If the machine has an articulated design, the articulation lock must be installed.
   With wheel loaders, this applies to machines with articulated steering.
3. Lower the working attachment and lightly anchor the digging attachment in the ground.
4. Move all control levers into neutral position and engage the parking brake.
5. Shut down the engine in accordance with the instructions in the **"Operating manual"**.
6. Lock the working hydraulics before leaving the driver's cab.
   Block the working hydraulics in accordance with the instructions in the **"Operating manual"**.
7. Secure all locks on the machine, take out all keys and secure it against unauthorised use and vandalism.

2.12 Transporting the machine safely

1. Only use suitable means of transport and lifting devices with sufficient lifting capacity.
2. Park the machine on a flat surface and wedge the tracks or wheels securely.
3. If necessary, dismantle part of the working attachment for the duration of transport.
4. The ramp for driving onto a low loader should have an inclination of no more than 30° and should be covered with wooden boards to prevent slipping.
5. Clean the machine tracks/wheels of snow, ice and mud before driving onto the ramp.

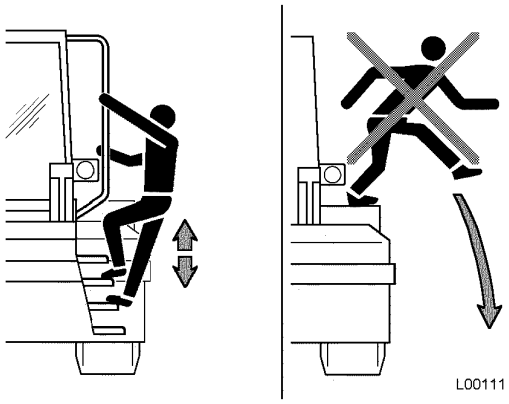
3.2 Operation

3.2.1 Cab access

Personnel may only get on and off the machine using the access aids provided.
Normally, the driver's cab must be entered and exited through the left-hand driver's cab door.

Entering and leaving the driver's cab

Familiarise yourself with the emergency exit through the right-hand cab door.
Refer to the "Emergency exit" section.



Warning

Danger of injuries as a result of jumping or falling off the machine!
! Use the steps, ladders and handles provided for getting on and off.
! Never jump down from the machine.

Warning

Risk of injuries due to unforeseen movement by the machine!
! Do not hold onto the steering column, the control panel or the control levers when getting on or off.

- Get on the machine via the left-hand cab access.

3.2.2 Emergency exit

Leaving the driver's cab by the emergency exit

Normally, the driver's cab must be entered and exited through the left-hand driver's cab door.
The right-hand driver's cab door is provided as an emergency exit and therefore should only be used in this event.

- Before starting up the machine, make sure that it is possible to leave the driver's cab through the right-hand driver's cab door from inside without hindrance.

Releasing the seatbelt

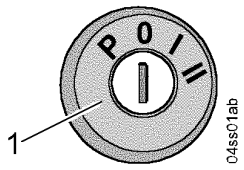
Releasing the seatbelt

- Release the seat belt by pushing the catch on the snap lock downward with your thumb.

3.2.6 Starter switch

The starter switch is equipped with a repeat start lock. The starting key can be pulled out when in 0 – 0-position/engine shutdown.

When the starting key is in the 0 position or parking position, the following consumer units can be switched on from the instrument panel:
– parking and driving headlight
– hazard warning system
– working floodlights
– rotating beacon



starter switch

Design

Switching positions:
P – parking position
0 – 0 position / engine shutdown
I – contact, operating preglow position
II – starting position

Switching electrical system on or off

- Switch the machine electrical system on or off with the starter key.

3.2.7 Steering column and steering wheel

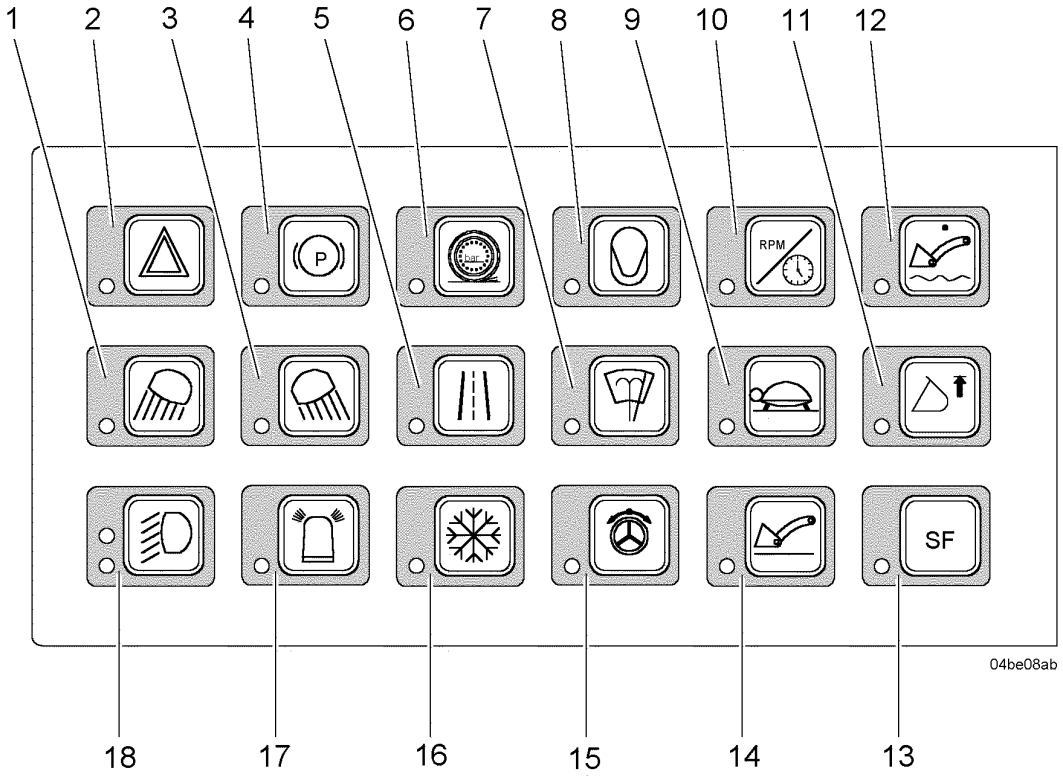
Adjusting the steering column

The steering wheel can be adjusted to meet the driver's requirements by adjusting the steering column.
The column can be set to one of three snap-in settings.

3.2.10 Control unit

The design and function of the control unit is described in this section.

Design



Control unit (view rotated by 90°)

1 button – working floodlights – front
2 button – hazard warning system
3 button – working floodlights – rear
4 button – parking brake
5 button – working hydraulics lock
6 button – tractive force reduction
7 button – windshield wiper and washer system – rear window
8 button – ride control (LFD system)
9 button – creeper (slow drive)
10 button – speed or clock
11 button – lifting limit switch
12 button – float position
13 button – special function
14 button – bucket return-to-dig
15 button – emergency steering
16 button – air-conditioning system
17 button – flashing beacon
18 button – parking light/driving light

The control unit is integrated in the instrument panel at the right of the driver's seat.
All pushbuttons in the control unit are equipped with LEDs.
When the pushbutton is switched ON, the LED glows red.
When the pushbutton is switched OFF, the LED goes out.

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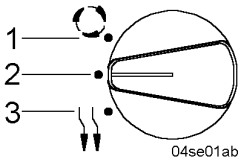
Caution

Danger of damage to the evaporator if recirculated air filter not present!

If the recirculated air and/or fresh air filter are missing, the close-meshed, deep evaporator fins soon become contaminated.

It is then necessary to replace the evaporator as cleaning is no longer possible.

! Never operate the heater/air-conditioning unit without filters!



Switch settings:
1 position – recirculated air
2 position – recirculated and fresh air
3 position – fresh air

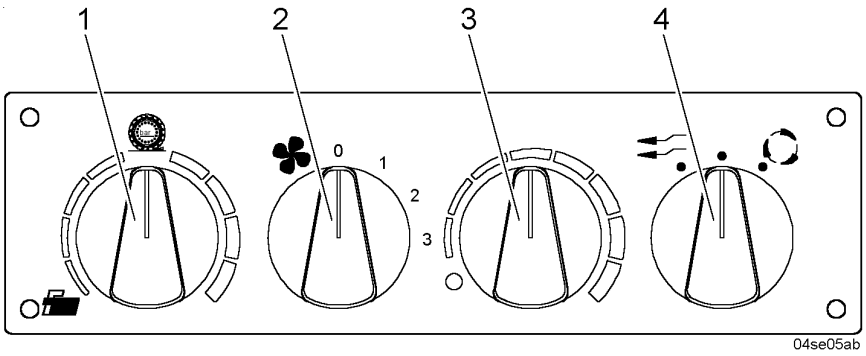
- For optional ventilation of the cab: Turn the ventilation rotary switch 4 to fresh air 3 (left-hand stop) and turn the blower rotary switch 2 to position **3** (right-hand stop).
- In order to circulate the cab air just within the cab: Set the ventilation rotary switch 4 to recirculated air 1 (right-hand stop). Particles (dust, etc.) are filtered out of the recirculated air by the recirculated air filter.
- Mixing filtered external with the circulating cab air: Move ventilation rotary switch 4 to position 2 for recirculated air and fresh air.

3.2.15 Air-conditioning system

Operating the air-conditioning system

In order to guarantee the long-term reliability of the air-conditioning system, we recommend that it is switched on at least every 14 days.

When the air-conditioning system is running, the shaft seal ring in the air-conditioning compressor is also lubricated. This prevents refrigerant escaping from the air-conditioning compressor.



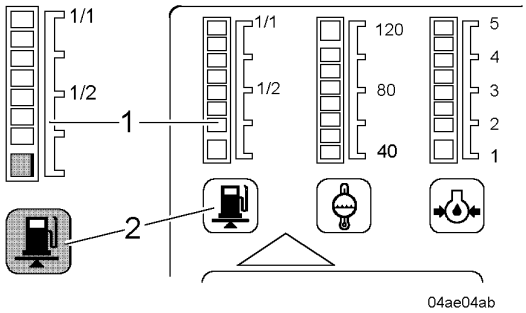
Control element (view rotated by 90°)

Before the air-conditioning system can be switched on, the diesel engine must be running and the rotary switch 2 for the blower must be set at least to level - **1** -.

Button – air-conditioning system

- Switch on the air-conditioning system by pressing the air-conditioning system button

An LED on the button indicates that the function is active.

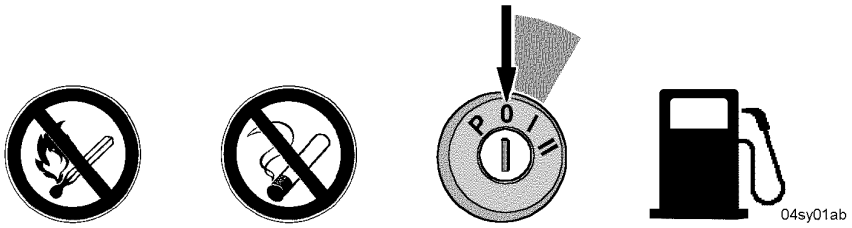


Display unit

1 segment field – fuel supply 2 symbol field – fuel supply

- Read the display in the segment field – fuel supply 1 to see if there is enough diesel fuel in the tank.

If there is too little diesel fuel, the fuel supply symbol field 2 starts flashing. See also the “Display unit” section .
There will still be a residual volume of approx. 70 left in tank.



Safety when refuelling

Danger

There is a risk of fires and explosions!

! Do not smoke and avoid naked flames when refuelling.

! Only refuel when the engine is switched off.

- It is essential to observe the safety regulations for refuelling. Also refer to the Chapter “Safety regulations”.
- Only use clean fuel.
- Carefully clean around the tank cap, before taking it off.
- If required, refuel with diesel fuel.
- Refuel if possible at the end of the working day, to prevent condensation build-up in the tank.

The machine is ready for operation.

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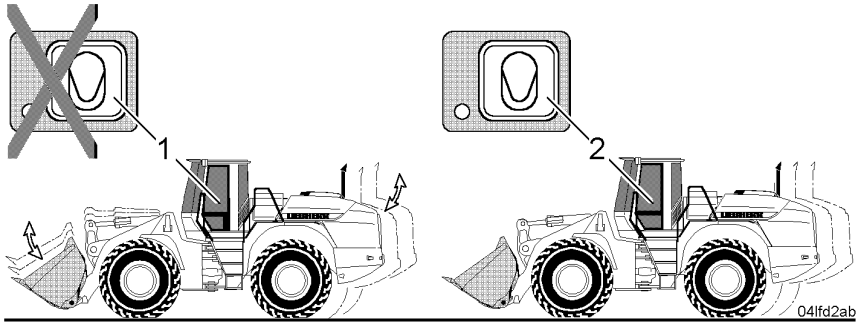
Driving without LFD

When driving over extended distances without LFD, vibrations may be produced.

Therefore the LFD system should be switched on for all deployments which require significant distances to be covered.

- Improve driver comfort: by activating the LFD system.

Driving with LFD



Driving with or without LFD

1 Driving without LFD 2 Driving with LFD

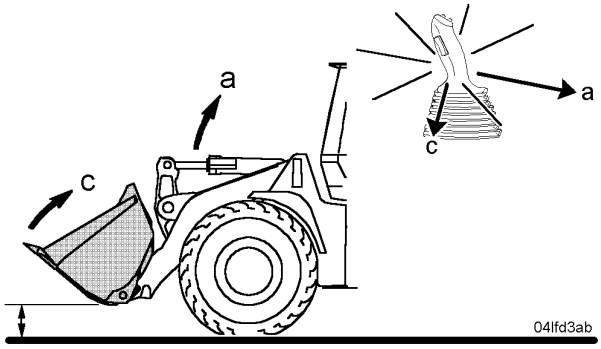
In virtually all driving modes, the LFD system improves driver comfort by reducing vehicle vibrations.

Therefore, the LFD system should be switched on for all deployments which require significant distances to be covered.

Activating the LFD system

The LFD system is switched on automatically:

– when the bucket is tilted in
  In this condition, the proximity switch - ride control is selected.
– when the bucket is tipped out, when the travel speed of the machine is more than 10 km/h



Transport height

Make sure that:

– the loading bucket is in the transport position
  The transport position means that the bucket pivot point must be approx. 40 cm above the ground.

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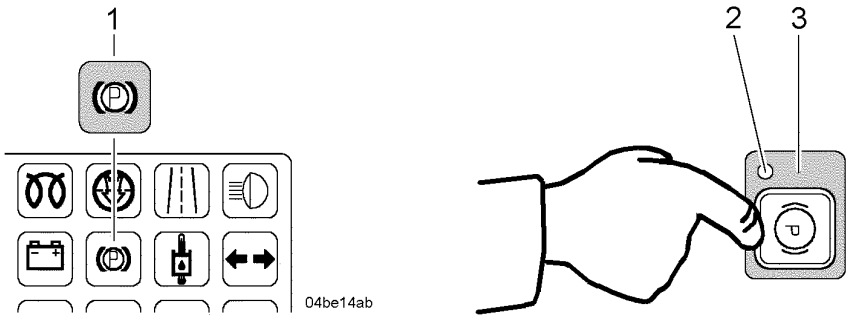


Control unit

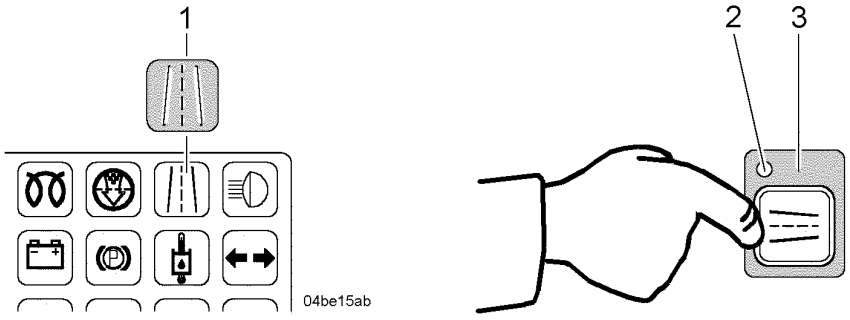
1 parking brake symbol field
2 LED
3 parking brake button

- **If necessary**: activate the parking brake with the button 3.

An LED 2 on the button indicates that the function is active.
The symbol field 1 for the parking brake lights up.

Locking working hydraulics

When the ignition is switched off, the working-hydraulics lock is automatically activated.
If you wish to engage the working hydraulics lock before switching off the ignition, proceed as follows.



Control unit

1 working hydraulics lock symbol field –
2 LED
3 working hydraulics lock button

- **If necessary**: press the button 3 for working hydraulics lock to prevent unforeseen activation of the working attachment.

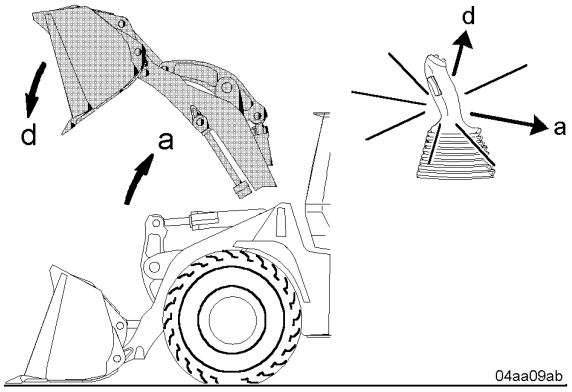
An LED 2 on the button indicates that the function is active.
The symbol field 1 for the working hydraulics lights up.
The working hydraulics are no longer operational.

Shutting down the engine

Do not attempt to suddenly shut down the engine when it is running at full load speed. This is especially important with turbo engines.
If the engine is suddenly switched off, the turbo charger continues running for a time without an oil supply.

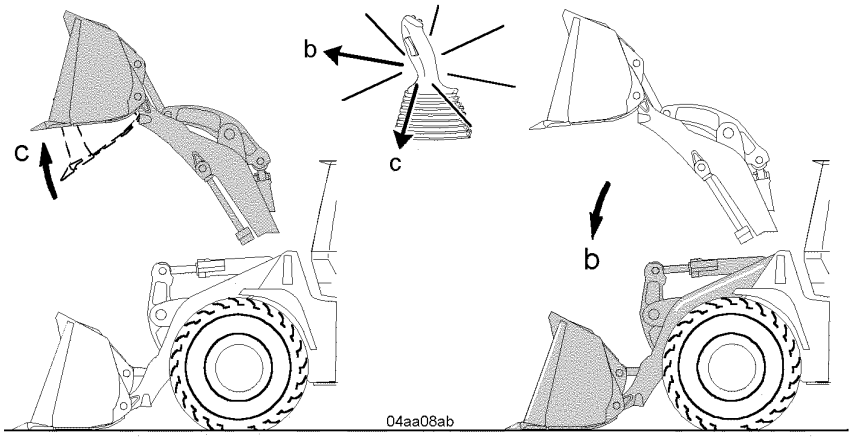
Working with the automatic bucket return-to-dig

Make sure that the automatic bucket return-to-dig function is active.

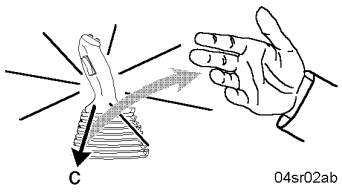


Working movements

- Raise the lift arm: move the LH control lever in direction - **a** -.
- Tilt the loading bucket out in the raised position: move the LH control lever in direction - **d** -.



Working movements



LH control lever

- Tilt in the loading bucket in the raised position: move the LH control lever in direction - **c** - through the action point to the stop and then let it go.

The LH control lever is kept in this position by magnetic force.

The loading bucket is thus moved into the preliminary position for the digging position.

As soon as the loading bucket is in the preliminary position, the LH control lever is released by the solenoid.

- Lower the lift arm: move the LH control lever in direction - **b** -.

The loading bucket is thus moved into the digging position on the ground.

Adjusting the digging position

The proximity switch for the automatic bucket return-to-dig is adjusted ex-works.

If necessary, the proximity switch can be re-adjusted.

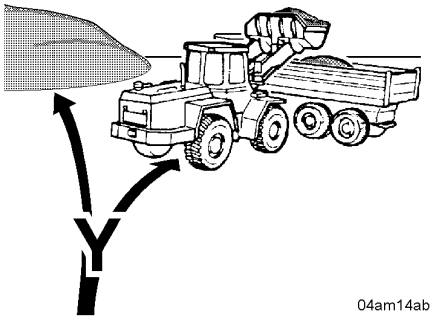
The procedure for re-adjusting the proximity switch is as follows.

Coarse adjustment

Make sure that the lift arm is lowered and that the loading bucket is empty.

Loading bulk transport vehicles

Loading paths



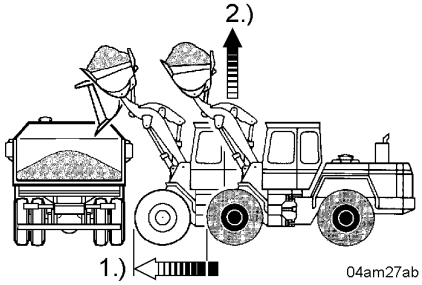
Y-movements

The vehicle to be loaded should be parked so that the transport distance for the machine are as short as possible.

If possible make a **"Y-movement"**. Also refer to the section "Driving mode" under "Reversing".

Loading procedure

In order to speed up the loading procedure, the machine should be braked in front of the truck with the brake- INCHING PEDAL.



Unloading position

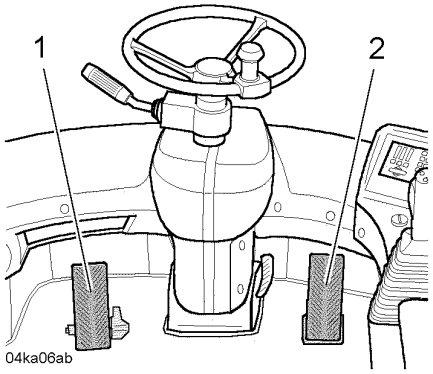
This yields the following benefits:

1.) responsive adjustment of the speed

2.) optimum performance adaptation for the working attachment

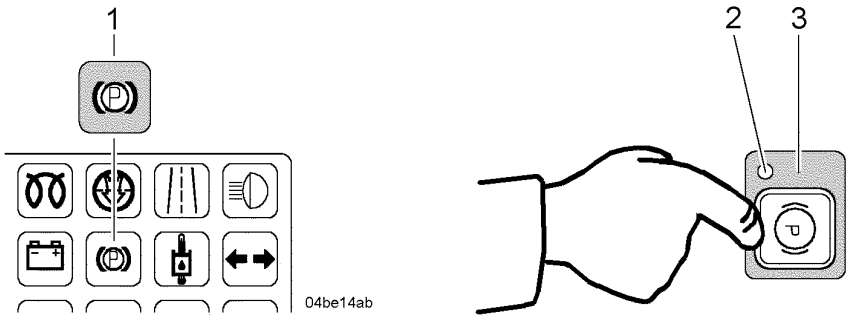
See also the "Picking up and transferring bulk materials" section .

- Adopt the unloading position: do not raise the lift arm until just before reaching the unloading point.



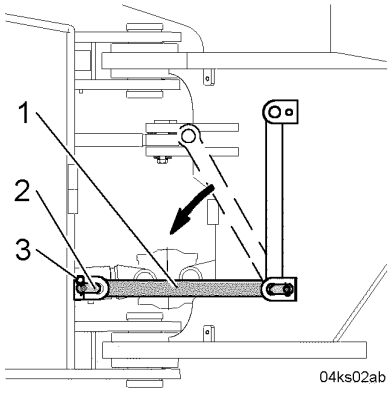
BRAKE- inching pedal – gas pedal

- Stop the machine



Parking brake

- Engage the parking brake.



Articulation lock

- Engage the articulation lock.
- Lower the lift arm and set the loading bucket down flat on the transporter bed.

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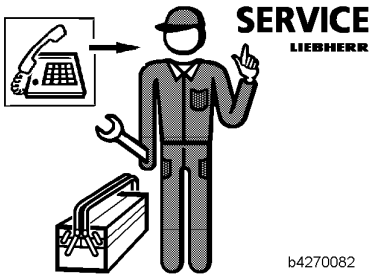
4 Malfunctions

Warning and fault messages

– Various faults are indicated by the corresponding indicator lamps (optically) or by display instruments on the instrument panel.
  See chapter “Operation, handling”, section “Display unit” for further information.
– Warning functions are in some cases provided with additional acoustic support.

Identification and rectification of faults and errors

– Faults can often be traced back to the fact that the machine was incorrectly operated or serviced.
  Therefore, carefully read the appropriate section of the operating and maintenance instructions each time a fault occurs.
– **Analyse the cause of the fault and rectify it without delay!**
– Describe the fault and all related circumstances as accurately as possible if you call on the services of the **LIEBHERR CUSTOMER SERVICE**.
  Precise descriptions will facilitate us in the rapid isolation of the fault and its rectification. For this purpose, precise details about the machine type and serial number are required.
– Do not attempt any jobs for which you are not trained or instructed.



If you are not able to identify the cause of the fault with the “Error code tables,” or are not able to remedy the fault, contact the LIEBHERR CUSTOMER SERVICE.

4.1 Error code tables

4.1.1 Error code – indication on the display

The hydrostatic travel drive and the travel gear are monitored by the gearbox electronics. The system is monitored for short circuits, cable rupture, external voltage and incorrect input and output signals. In addition, the gearbox electronics continuously checks program sequence and communication with the display unit.

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Customer: ..... Machine type: ..... Serial No.: ..... Oper. hours: ..... Date .....

Maintenance/inspection according to operating hours							TASKS TO BE PERFORMED
on hand-over	every 10	every 50	every 500	every 1000	every 2000	Special intervals	**by maintenance personnel** ■ one-off activity ● repetition interval ✦ if necessary ❄ annually at the start of the cold season **by authorised qualified personnel** □ one-off activity ❍ repetition interval ✧ if necessary
Cooling system							
□		●	❍	❍	❍		Check coolant level
			❍	❍	❍		Replace the coolant filter
			❍	❍	❍	❄	Check anti-freeze protection and DCA-4 concentration in the coolant
						✦	Clean the cooling system
						3000H	Replace coolant with anti-freeze protection and DCA-4 (at least every 2 years)
Working hydraulics							
□	●	●	❍	❍	❍		Check oil level in the hydraulic tank
□		■	❍	❍	❍	250H	Check and cleaning the magnetic rod on the hydraulic tank
			❍	❍	❍		Drain water and sediment from the hydraulic tank
				❍	❍		Replace return-suction filter
			□	❍	❍		Clean the return strainer on the hydraulic tank
						10000H	Replace the return strainer on the hydraulic tank
				❍	❍		Lubricate pilot control unit, clean magnets and lubricate universal joints
				❍	❍		Replace breather filter on the hydraulic tank
					❍		Replace hydraulic oil
Steering system							
□	●	●	❍	❍	❍		Check the steering for proper functioning
□		●	❍	❍	❍		Lubricat the bearing points on the steering cylinders
Braking system							
□	●	●	❍	❍	❍		Check that the service and parking brakes are functioning properly
				❍	❍		Check the play and wear on the parking brakes
Electrical system							
□	●	●	❍	❍	❍		Check indicator lamps and lighting
			❍	❍	❍		Check batteries, fluid level and terminals
Transfer gear							
□		●	❍	❍	❍		Check the oil level(s)
			❍	❍	❍		Replace filter insert in the in-line filter
			□	❍	❍		Replace gear oil(s)
Axles, Tyres							
□		●	❍	❍	❍		Lubricate the drive shafts
□		■	❍	❍	❍		Check the tightness of the wheel lugs (once after 50, 100 and 250 h)

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Trouble shooting

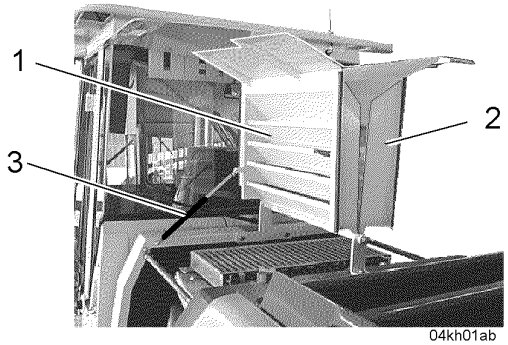
Is proper functioning not assured?

- Consult LIEBHERR CUSTOMER SERVICE!

Open cooling system hood

When the hood is open, the cooling system can be reached:
Make sure that the driver's cab door is closed on the left or right as appropriate.

- When opening or closing the hood: climb onto the machine via the cab access only and make sure that you have a secure footing.

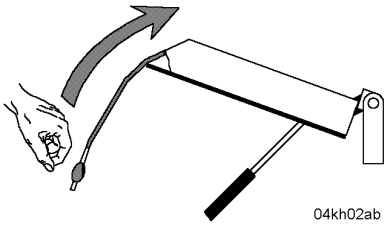


Cooling system hood

1 cooling system hood, left-hand side
2 cooling system hood, right-hand side
3 gas-filled spring

- Open the hood 1 completely by pulling the handle up.

The hood is held in this position by the gas-filled spring 3.



Cooling system hood

Warning

Risk of injuries due to hood falling closed!

! Check that the fully-open position is secured by the gas-filled spring.

- If this function is not in order, the cause of the problem must be rectified immediately.

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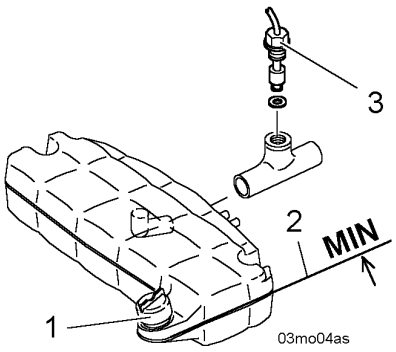
Cooling system

Checking coolant level

The coolant - equalizing reservoir with filler neck is located on the top side of the cooling unit. The equalizing reservoir can be accessed once the engine hood has been opened. The filler neck can be accessed after the left-hand cooler hood has been opened.

Make sure that:
– the machine is in maintenance position 1
– the engine compartment – hood is open



Procedure

The coolant level can be seen from outside through the transparent equalizing reservoir. The proper level for a cold engine is slightly below the middle of the equalizing reservoir MIN. marking. If the level is too far below the MIN. marking, coolant must be added. If the coolant level is too low, this is indicated by the coolant level probe 3 and displayed on the symbol field – engine overheating and coolant level, along with a simultaneous accoustic warning.

- Check the coolant level in the equalizing reservoir.
- The MIN marking 2 on the equalizing reservoir indicates the required coolant level.
- If the coolant level is below the MIN marking: 2
  Top up coolant in the equalizing reservoir via the filler neck 1.

The coolant to be added must contain the appropriate concentrations of anti-freeze and DCA-4. See detailed description in the Chapter “Check anti-freeze and DCA-4 concentrations in the coolant”.

Caution

Danger of scalding due to coolant escaping under pressure!

! Never open the sealing cap on the filler neck 1 of the equalizing reservoir until the engine has cooled down - the coolant temperature display in the indicator unit should be in the lower third of the segment field.

! Under no circumstances may the cooling system be topped up when the engine is still hot.

- Turn the sealing cap on the filler neck 1 slightly anti-clockwise, allowing excess pressure to escape, then open it fully.
- Fill with coolant up to the marking MIN 2 on the equalizing reservoir.
- Place the sealing cap on the filler neck 1 and tighten it up.

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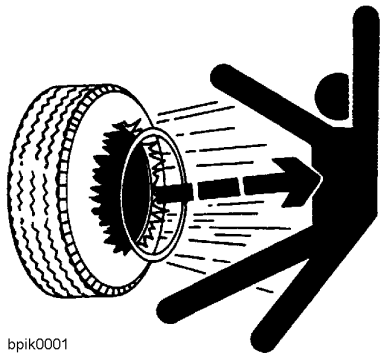

Exploding tyres

Warning

Risk of accidents due to exploding tyres!
Incorrect or careless operation of the tyre inflation equipment or excess pressure could result in the tyres bursting or cause the rims to come off, with severe, possibly even fatal injuries as a consequence.

! Use a sufficiently long hose for pumping the tyres with a self-locking adapter.

! Personnel must always remain outside the danger zone when tyres are being pumped up.

- Check the air pressure in all tyres with a measuring gauge and adjust if necessary.

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