en **Operator's manual**

Wheel loader

Document ID

ORIGINAL OPERATOR'S MANUAL

Order number: 11825432
Issued: 07-2018
Version: 13
Author: LBH / Technical Documentation Department

Product ID

Manufacturer: Liebherr Machinery (Dalian) Co. Ltd.
Type: L 550
Type no.: 1562
From Serial no.: 35934

Contact

Liebherr Machinery (Dalian) Co. Ltd.
No.30, Wanli Street
Dalian

LBH/11825432/13/07-2018/en

1.2.14 Tyres

The following table lists all tyres approved by Liebherr for standard use, along with recommended tyre pressures. Certain ground conditions and uses of the machine require the tyre pressure to be adjusted. Precise details are available from the tyre manufacturer, tyre dealer or Liebherr customer service. Tyres not listed in the following table may only be used after consultation with Liebherr customer service.

NOTICE
Different tyre diameters!
Damage to the travel drive.

- ▶ The diameter of the tyres on the front and rear axles may not differ by more than 3%.
- ▶ The diameter of the tyres on the left and right wheels may not differ by more than 1.5%.

Size and tread code		Change in operating weight	Width across tyres	Change in height	Tyre pressure		
					FA [A]	RA [B]	p - max. [C]
		kg	mm	mm	bar	bar	bar
23.5R25 Michelin XLDN *	L3	120	2650	-42	3.50	2.50	4.50
23.5R25 Michelin XHA2 *	L3	8	2650	-35	3.50	2.50	4.50
23.5-25 Triangle TL612 20PR	L3	236	2650	-15	3.50	3.00	3.90
23.5R25 Techking ETLOADER **	L3	0	2650	-2	5.25	5.00	6.50
23.5R25 Techking ET5A **	L3	0	2650	0	5.25	5.00	6.50
23.5-25 Techking TKPLUS II 20PR	L3	+260	2650	-15	4.50	3.75	5.00
23.5R25 Bridgestone VJT *	L3	+130	2670	-29	4.00	3.00	5.00
23.5R25 Techking ETD2 **	L5	+692	2650	+25	5.25	5.00	6.50
23.5R25 Techking ETDL5 **	L5	+916	2650	+35	5.25	5.00	6.50
23.5R25 Triangle TL538S+ **	L5	+604	2660	-5	4.50	5.50	6.50
23.5R25 Triangle TL559S+ **	L5	+768	2660	-5	6.50	5.50	6.50

Tab. 2: Approved tyres for standard uses

A) Recommended tyre pressures on the front axle (for machine with standard equipment and cold tyres)
B) Recommended tyre pressures on the rear axle (for machine with standard equipment and cold tyres)
C) Maximum tyre pressure

Special tyres

Enter the specifications in the tables below as follows:
– **By the machine operator:** If the machine is retrofitted by the machine operator

LBH/11825432/13/07-2018/en

2 Safety warnings, signs

Working on the machine poses safety risks to operator, driver or maintenance staff. You can prevent risks and accidents by regularly reading and observing the various safety instructions.

This is especially important for personnel who only occasionally work on the machine, for example, carrying out rigging or maintenance work.

Safety instructions listed below, if conscientiously followed, will ensure your own safety and that of others, and will prevent the machine from being damaged.

Whenever tasks which could cause danger to personnel or damage to the machine are described, the necessary safety precautions are explained in this manual.

2.1 Warning symbols

	This is the warning symbol. It warns you of potential injuries. To prevent injury or death, carry out all the measures identified by this warning symbol.

Tab. 8

The warning symbol always appears together with the signal words:
DANGER, WARNING, CAUTION

	**DANGER**	Indicates a hazardous situation that will immediately lead to serious or fatal injury if it is not avoided.
	**WARNING**	Indicates a hazardous situation that may lead to serious or fatal injury if it is not avoided.
	**CAUTION**	Indicates a hazardous situation that may lead to minor or moderate injury if it is not avoided.
	NOTICE	Indicates a hazardous situation that may lead to damage if it is not avoided.

Tab. 9

2.1.1 Other designations

	**Note**	Indicates useful tips and information.
	**Precondition**	Indicates a precondition that must be met before the following actions can be carried out.

LBH/11825432/13/07-2018/en

Indicates the emergency exit on the machine.

Working hydraulics sign

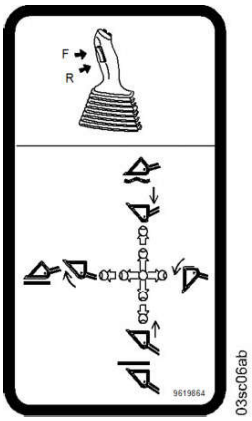


Fig. 41: Working hydraulics sign

Indicates the actuating directions of the control lever.

Forklift operation load chart sign

This equipment is optional.

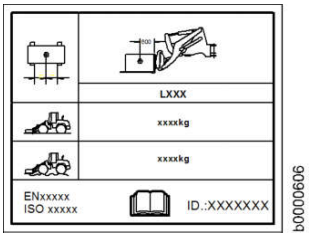


Fig. 42: Forklift operation load chart sign

Indicates the maximum permissible load in forklift operation.

The maximum permissible loads indicated on the sign refer to a machine equipped with standard tyres.

LiDAT sign

This equipment is optional.

Fig. 43: LiDAT sign

LiDAT is a data transfer and positioning system for Liebherr machines and those of other manufacturers.

LBH/11825432/13/07-2018/en

area with a red and white safety chain and a warning sign. Only use insulated tools.

41. When working on high-voltage assemblies after they have been isolated from the power supply, short the supply cable and the components, such as capacitors, with an earthing rod.
42. First, check that the isolated parts are not live, connect them to earth and then short them. Isolate any neighbouring live parts.

2.4.12 Safety instructions for maintenance work on machines with hydro accumulators

1. Only qualified staff may carry out work on the hydraulic and pneumatic connections of the membrane accumulator.
2. Serious accidents could result from inexpert fitting and operation.
3. The hydraulic system must be depressurised before work can be carried out on it.
4. Do not carry out any welding or soldering work on the membrane accumulator. **There is a risk of explosions.**
5. The accumulator may burst during machining, resulting in the loss of the operating permit.
6. Hydro accumulators may only be filled with nitrogen, not with oxygen or air - otherwise there is a **risk of explosion**.
7. The accumulator can heat up, causing burns.
8. Do not use membrane accumulators which have been damaged during transportation.
9. New membrane accumulators must be filled with nitrogen before they are used. Remove the sealing caps on the fluid side.
10. The minimum and maximum operating data are permanently marked on the membrane accumulator. The marking must remain visible.

2.4.13 Safety instructions for welding work on the machine

1. Keep to the following procedure during welding work on the machine.
   - Switch off ignition.
   - Switch off the battery main switch (if available).
   - Bring the ground of the welding machine as close as possible to the welding point.
   - Only specialized personnel may carry out welding.

2.4.14 Safety instruction for working on the working attachment

1. Do not work under the working attachment unless it is supported or resting on the ground.
2. When replacing attachment components (signs, cutting edge, teeth) . . do not let metal rest on metal.
3. Do not try to lift heavy parts. Only use suitable equipment with sufficient load capacity.
4. Always wear gloves when working with wire ropes.
5. Never release hydraulic lines or bolts before setting down the working attachment and shutting down the diesel engine.
   Before all work on the hydraulic system, depressurise the hydraulic circuits and the hydraulic tank as described in the operator's manual.
6. Ensure that all lines and threaded couplings are reconnected and re-tightened on completion of the job.

LBH/11825432/13/07-2018/en

3.2 Handling

3.2.1 Battery main switch

The battery main switch must be turned on before the machine can be started. It is located in the rear right of the engine compartment.

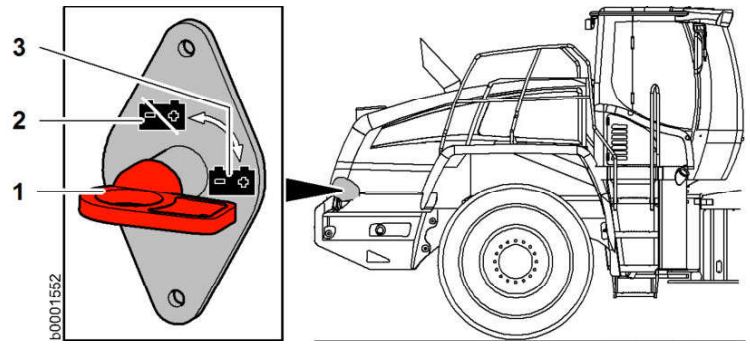


Fig. 53: Battery main switch

1 Battery main switch
2 Position “OFF”
3 Position “ON”

3.2.2 Articulation lock

The articulation lock creates a rigid connection between the front and rear sections. Steering is no longer possible.

WARNING
Persons can become trapped in the articulation area.

▶ Only engage or release the articulation lock when the engine is switched off.

Engaging the articulation lock

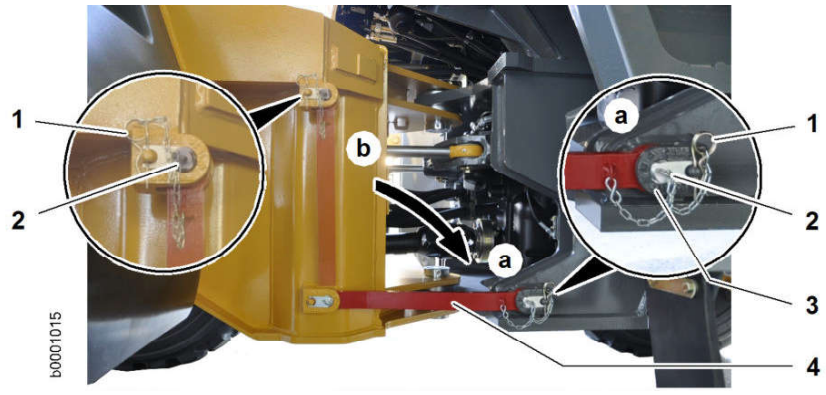


Fig. 54: Engaging the articulation lock

1 Spring clip
2 Pin
3 Bracket
4 Locking bar
a Articulation lock engaged
b Articulation lock released

Adjusting the seat surface inclination

Standard seat / comfort seat

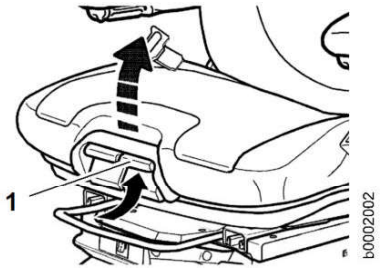


Fig. 71: Adjusting the seat surface inclination

1 *Seat surface inclination adjustment* lever

▶ Push up the lever **1**.

▶ Move the back rest to the angle required.

▶ Let go of the lever **1**.

Adjusting the driver's seat surface horizontally

Standard seat / comfort seat

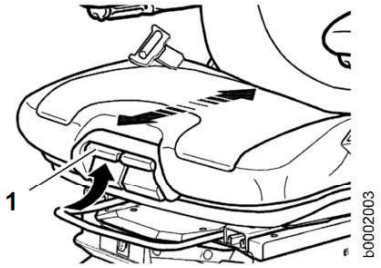


Fig. 72: Adjusting the driver's seat surface horizontally

1 *Horizontal seat surface adjustment* lever

▶ Push up the lever **1**.

▶ Adjust the surface of the driver's seat horizontally.

▶ Let go of the lever **1**.

LBH/11825432/13/07-2018/en

Switching on the working headlights

CAUTION
Beware of fires caused by the heat of the working floodlights.

▶ Observe the minimum interval of 1 m to persons and material.

The switch for the working headlights remains operational even if the ignition key has been removed.

Fig. 88: Switching on the working headlights

1	*Front working headlights* switch	**a**	Switching on the working headlights
2	Press the *rear working headlights* switch (optional)	**b**	Switching off the working headlights

▶ Press the switch **1** in position **a**.
▷ The *front working headlights* are switched on.

▶ Press the switch **2** in position **a**.
▷ The *rear working headlights* are switched on.

To switch off the working headlights:

▶ Press the *rear working headlights* switch in position **b**.

Activating the direction indicators

Make sure that the electrical system of the machine is switched on.

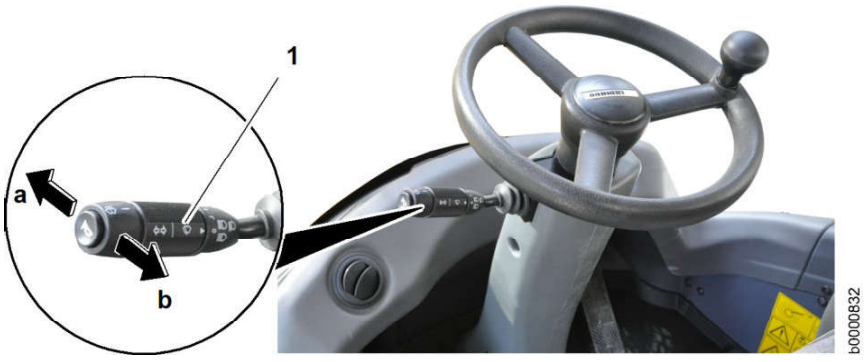


Fig. 89: Activating the direction indicators

1	Steering column switch	**b**	Left direction indicator
a	Right direction indicator		

▶ Press the steering column switch **1** in the direction **a**.
▷ *Flashing lights* symbol field in the display flashes.

LBH/11825432/13/07-2018/en

▶ Press the button **3** while using the control lever **2** to move the hydraulic working attachment (for example to open and close timber grabber).
  ▷ The function for tilting the working attachment in and out with the control lever is deactivated.

To deactivate the additional hydraulic function:

▶ Release the button **3**.
  ▷ The function for tilting the working attachment in and out with the control lever is re-activated.

Button control

The button control is for activating a working attachment with its own hydraulic circuit (e.g. timber grabber).

WARNING
Unexpected movements of the working attachment!
Damage, injuries.

▶ Familiarise yourself with the working attachment in a secure area.

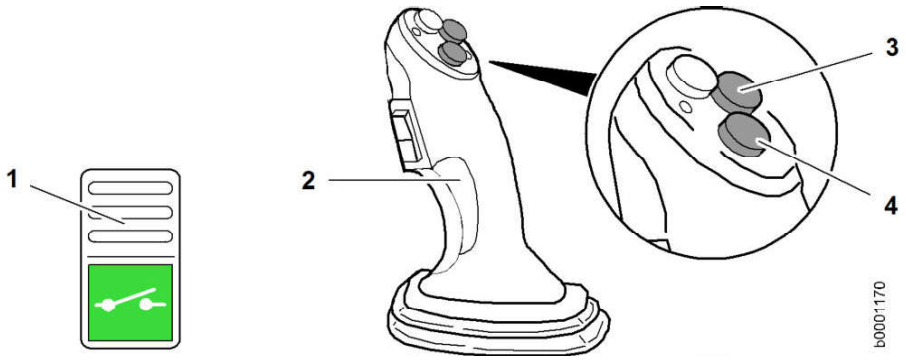


Fig. 99: Button control

1 *Button control* switch
2 Control lever
3 *Button control* button
4 *Button control* button

▶ Press the switch **1**.

▶ Press the **3** or **4** button to move the hydraulic working attachment (for example to open or close a timber grabber).

To deactivate the additional hydraulic function:

▶ Release the button **3** or **4**.

Mini-joystick

The mini-joystick is for activating a working attachment with its own hydraulic circuit (e.g. timber grabber).

The working attachment can be controlled with a high degree of sensitivity, i.e. the further the mini-joystick is pushed in a direction, the faster the motion of the working attachment.

LBH/11825432/13/07-2018/en

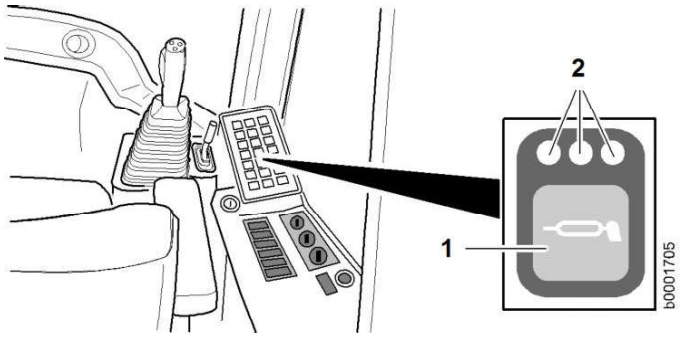


Fig. 114: Non-scheduled lubrication

1 *Central lubrication system* button **2** LEDs

▶ Briefly press the button **1**.
▷ The pump performs the selected lubrication cycle.

Filling the grease reservoir

▶ (For more information see: 5.17.1 Checking the lubrication system grease reservoir level, page 255)

Note
If the lubricant reservoir is fully emptied:

▶ Bleed the central lubrication system.

Bleed the central lubrication system

▶ Contact Liebherr customer service.

Cycle error

If the set cycles could not be performed in the time specified:
– All the LEDs on the *central lubrication system* button flash.
– The service code is shown on the display.

Possible causes:
– Engine is defective
– Lubrication point, lubricant supply line or distributor blocked

To rectify faults:

▶ Contact Liebherr customer service.

3.2.25 Back-up alarm

The back-up alarm system warns anyone standing behind the machine while it is reversing.

Versions:
– Audible back-up alarm
– Flashing beacon on the driver's cab

The back-up alarms can also be installed in combination.

LBH/11825432/13/07-2018/en

Setting off

Make sure that you have completed all the preparations for driving. (For more information see: Preparations for travel mode, page 108)

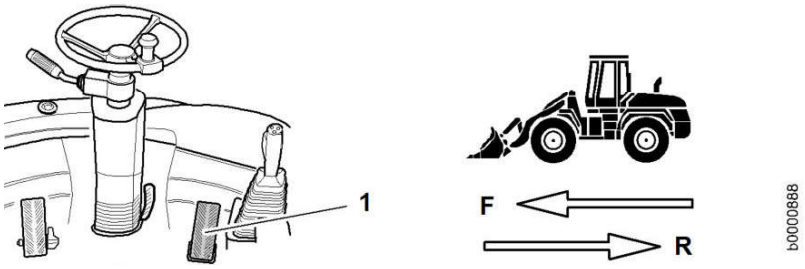


Fig. 126: Setting off

1 Accelerator pedal

▶ Carefully press down the accelerator pedal **1**.
▷ The machine starts moving.
▷ The travel speed and gear are shown in the display.

Overspeed protection

The overspeed protection function prevents the machine from travelling too fast down steep slopes. This to ensure the safety of the machine and operator. If a particular travel speed is exceeded, the function is activated and the flow rate of the travel hydraulics pump is reduced. The machine is braked hydrostatically. Overspeed protection acts independently of the travel direction in any travel range.

However, the function does not provide protection against deliberate reckless driving down steep slopes!

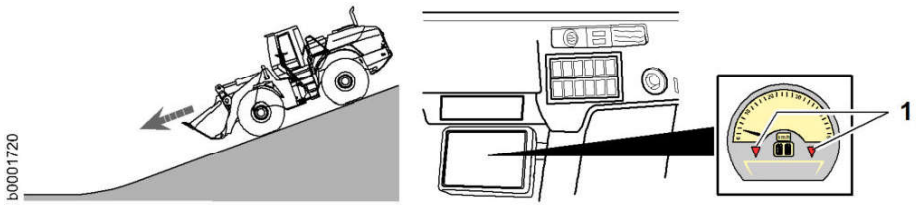


Fig. 127: Overspeed protection

1 *Overspeed protection* warning symbol in the display

WARNING
Careless or excessively fast driving down slopes can cause accidents.
The diesel engine and the travel motors will overspeed.

▶ Before driving onto the slope, switch to fixed gear **F1**.

▶ Use the brake pedal to reduce the speed.

When the overspeed protection function is activated:
– The machine is hydrostatically braked.
– A brief warning tone sounds.
– A service code and the warning symbol **1** appear on the display.

▶ Use the brake pedal to further reduce the speed.

LBH/11825432/13/07-2018/en

– Quick drop function

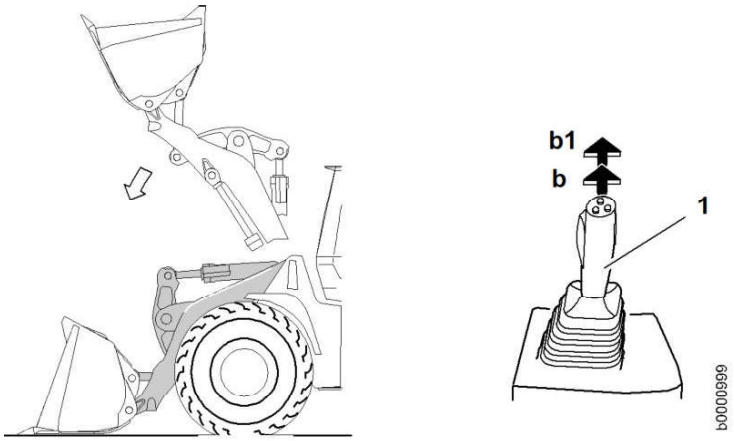


Fig. 141: Lowering the lift arms

1 Control lever

Normal lowering function:

▶ Move the control lever in direction **b** but only to the action point.
▷ The lift arms are lowered.

Quick drop function:

▶ Move the control lever in direction **b1** beyond the action point as far as it will go.
▷ The lift arms are quickly lowered.

Note
If the engine fails, lower the lift arms and reduce the hydraulic pressure.

▶

Tilting the bucket in and out

WARNING
Beware of accidents when raising or lowering the lift arms and bucket.

▶ Do not allow anyone into the danger area of the machine.

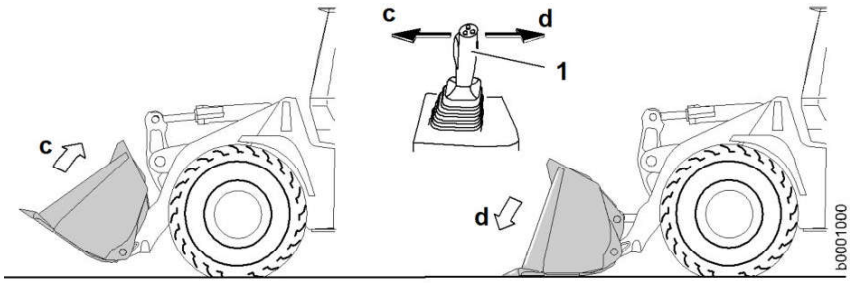


Fig. 142: Tilting the bucket in and out

1 Control lever

To tilt the bucket in:

Driving on slopes

Observe safety instructions when driving on downhill routes. (For more information see: 2.4.7 Safety instructions for driving on slopes, page 47)

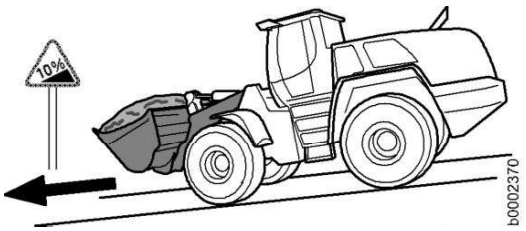


Fig. 155: Driving on routes

- ▶ Ease off the accelerator pedal before driving onto the slope.
- ▶ Drive downhill carefully.

If necessary:
- ▶ Use the service brake.

If driving on a long, steep downhill slope:
- ▶ First switch to travel range **1** or fixed gear **1**.

3.4.3 Emptying the working attachment

This section describes emptying the working attachment of the following materials:
– Bulk material (stones, gravel)
– Adherent material (clay, compost)

NOTICE
Unnecessary jolting of the working attachment!
Damage to the lift arms and lay the working attachment flat.

- ▶ Avoid unnecessary jolting.

Bulk material

Fig. 156: Bulk material

- ▶ Tilt out the working attachment.
  - ▷ Bulk material is emptied without leaving any residue.

Adherent material

Liebherr recommends using specially coated working attachments when working with adherent material. The material does not adhere. The duration of the loading cycle is reduced and the lifetime of the components is extended.

LBH/11825432/13/07-2018/en

3	*Button control (hydraulic extension)* button	**7**	*Additional control lever* switch
4	*Button control (hydraulic retraction)* button	**8**	*Comfort control and switch control* switch

▶ Start the engine and let it run for around 10 seconds.

▶ Lower the lift arms to just above the ground.

▶ Turn off the engine.

▶ Switch on the ignition.

If the working attachment is operated with the additional control lever:

▶ Press and hold the button **1** while moving the additional control lever **7** in the direction of the arrow several times.
▷ The working attachment hydraulics have been depressurised.

If the working attachment is operated with comfort control:

▶ Press the switch **8** on the control unit.

▶ Press and hold the button **1** and, at the same time, press the button **2** and move the control lever **6** several times in the direction of the arrow.
▷ The working attachment hydraulics have been depressurised.

If the working attachment is operated with button control:

▶ Press the switch **8**.

▶ Press and hold the button **1** and while repeatedly pressing the buttons **3** and **4** on the control lever.
▷ The working attachment hydraulics have been depressurised.

If the working attachment is operated with the mini-joystick:

▶ Press and hold the button **1** while moving the mini-joystick **5** in the direction of the arrow several times.
▷ The working attachment hydraulics have been depressurised.

Disconnecting the hydraulic lines

If the working attachment has its own hydraulic supply, the hydraulic lines must be disconnected.

WARNING
There is a risk of accidents from pressurised hydraulic lines!

▶ Depressurise the hydraulic circuits before connecting or disconnecting hydraulic couplings.

Make sure the following preconditions are met:
❑ The lift arms are lowered to just above the ground.
❑ Cylinders, valves, etc. on the working attachment are in the initial position or closed.
❑ The working attachment is tilted in.
❑ The hydraulics have been depressurised.

Note
Hydraulic oil is harmful to the environment.
Make sure that no hydraulic oil leaks into the ground.

▶ Dispose of any contaminated soil in accordance with the local regulations.

▶ Remove the hydraulic lines from the installed working attachment.

LBH/11825432/13/07-2018/en

▶ Preselect travel direction with switch **1**.

▶ Carefully drive the machine off the loading area.

3.6.2 Transport safety retainer

This only affects devices with P kinematics.

When transporting wheel loaders from the plant without installed attachments or a quick-change device transport safety retainers are installed at the lift arms and the control lever.

Removing the transport safety retainer

Make sure that the following requirements are fulfilled:
- ❑ Park the machine on level ground.
- ❑ Lower the lift arms.
- ❑ Engage the parking brake.
- ❑ Turn off the engine.

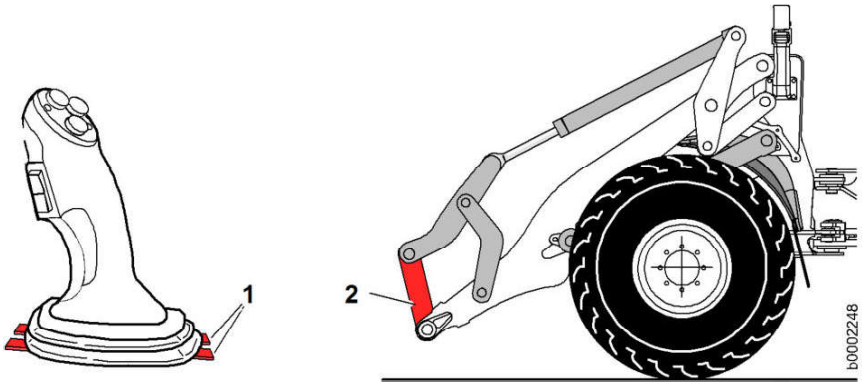


Fig. 183: Removing the transport safety retainer

1 Transport safety retainer **2** Transport safety retainer

▶ Remove the transport safety retainer **1**.

▶ Remove the transport safety retainer **2**.

NOTICE
There is a danger of damage to the tilt cylinder resulting from movements of the lift arms without quick-change device or with the bucket attached.

▶ Do not completely lift up the lift arms and tilt out simultaneously.

▶ Attach the quick-change device or bucket immediately after removing the transport safety retainers.

▶ Check the function of the equipment after installation.

LBH/11825432/13/07-2018/en

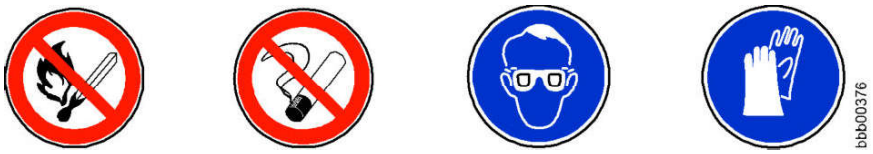


Fig. 197: Jump starting procedure

WARNING
Risk of explosion with old batteries due to excess gas formation!

- ▶ Avoid naked flames and sparks.
- ▶ Wear safety glasses and protective gloves.

NOTICE
Damage due to overvoltage when using external batteries with the incorrect rated voltage!

- ▶ Use batteries with the same rated voltage.
- ▶ Make sure you connect and disconnect the jump leads in the right order.

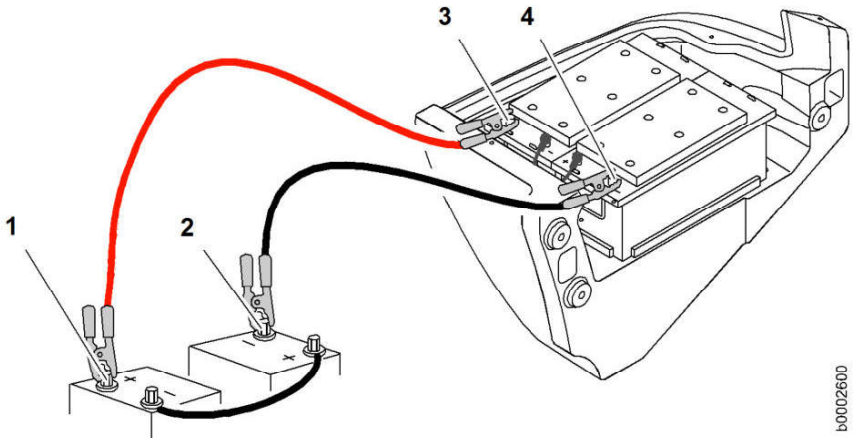


Fig. 198: Jump starting procedure

1	Positive pole of donor battery	**3**	Positive pole of flat battery
2	Negative pole of donor battery	**4**	Negative pole of flat battery

Note
Before attaching the jump lead, take the following precautions:

- ▶ Only use a jump lead with an appropriate cross-section.

- ▶ First connect one jump lead to the positive terminal **3** of the flat battery and then to the positive terminal **1** of the external battery.
- ▶ Connect the second jump lead first to the negative pole **2** of the external battery and then to the negative pole **4** of the flat battery.
- ▶ Start diesel engine.

To disconnect the external battery:

LBH/11825432/13/07-2018/en

Fuse	Value	Unit	Designation/function
F41	10	A	Spare
F43	10	A	Engine control unit
F44	10	A	Brake light
F45	3	A	Alternator
F46	3	A	Flashing warning light
F71	10	A	Dashboard lights
F73	10	A	Central lubrication system
F74	15	A	Rear window heater and mirror heater (optional)
F75	10	A	12V radio
F76	10	A	12V radio and socket

Tab. 25: Plug-in fuses on the relay and fuse board

LBH/11825432/13/07-2018/en

Symbol	Designation	Symbol	Designation	Symbol	Designation
 06sy22ab	Central lubrication system				

Tab. 30: Symbols: Lubrication chart

Lubrication chart: Industrial lift arms

This equipment is optional.

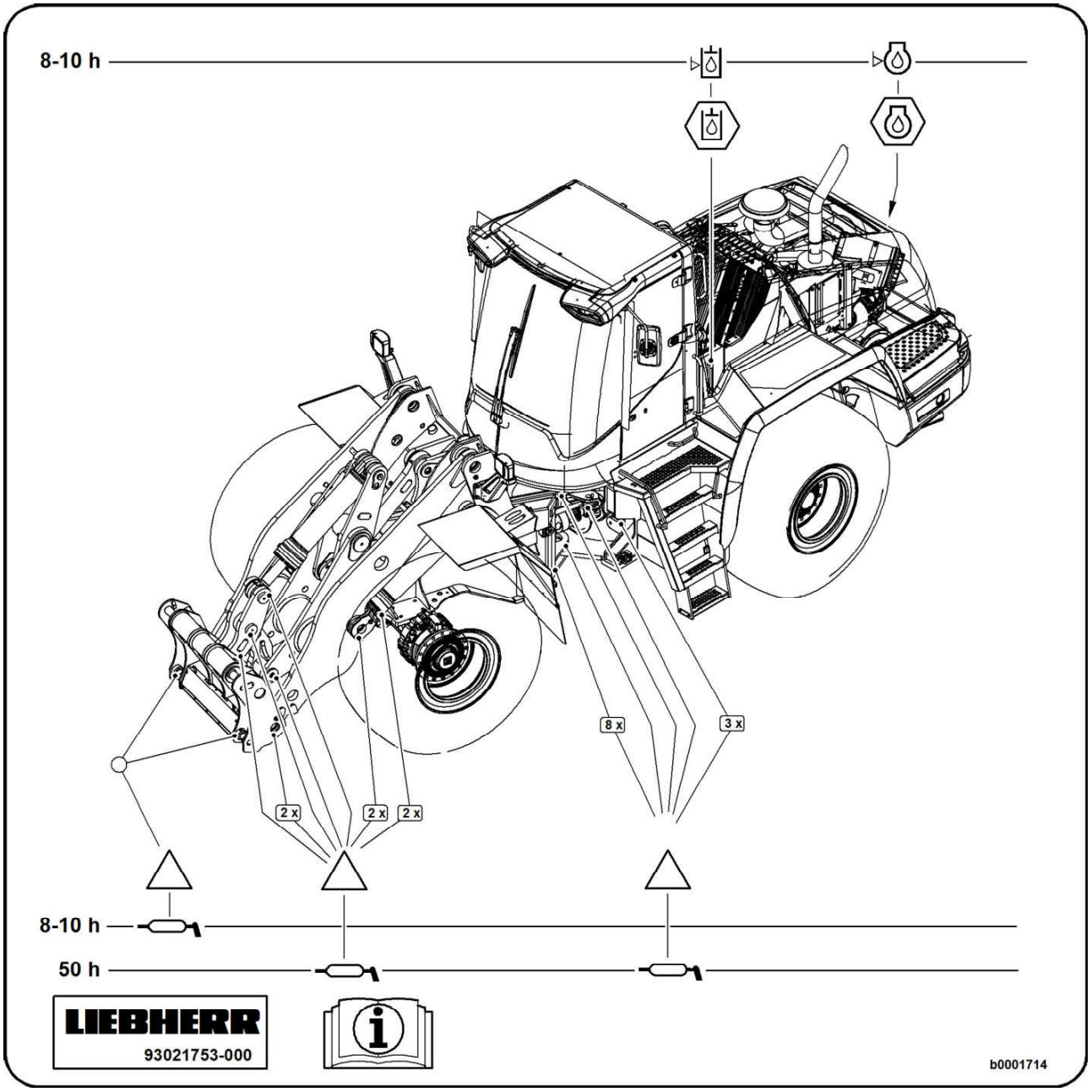
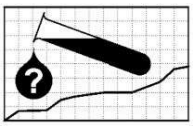


Fig. 209: Lubrication chart: Industrial lift arms

LBH/11825432/13/07-2018/en

Oil analysis



Liebherr recommends having the oil analyses carried out by OELCHECK and carrying out an oil change according to the laboratory report:
– Yellow set for readily biodegradable hydraulic oils
– green set for mineral oils

To take an oil sample: (For more information see: 5.6.10 Oil analyses, page 207)

See also customer service and product information.

Oil type	Oil sample	
	Not used as bio oil (oil analysis optional)	Used as bio oil (oil analysis prescribed)
Liebherr mineral oil	Every 1000 h	–[A)]
Liebherr Hydraulic Basic 68		
Liebherr Hydraulic Basic 100		
Liebherr Hydraulic HVI		
Liebherr PAO (polyalphaolefin)	Every 1000 h	First at 0 h then every 1000 h
Liebherr Hydraulic Plus		
Third-party product - mineral oil	First at 1000 h then every 500 h	–[A)]
Third-party product - fully saturated synthetic ester	–[A)]	First at 0 h then every 500 h

Tab. 41: Oil sample

A) Combination not permitted

Changing the filter

Change return filter (only Liebherr filters are permitted)
Every 1000 h

Tab. 42: Changing filters

5.3.8 Lubricating oils for transmissions

Recommended lubricant	Specification
Liebherr Hydraulic Gear ATF	GM: Dexron II D ZF: TE-ML 03D, 04D, 11A, 14A, 17C

Tab. 43: Lubricating oil specifications

If Liebherr oils cannot be purchased locally, you must use oils according to the specifications instead (after consultation with customer service).

LBH/11825432/13/07-2018/en

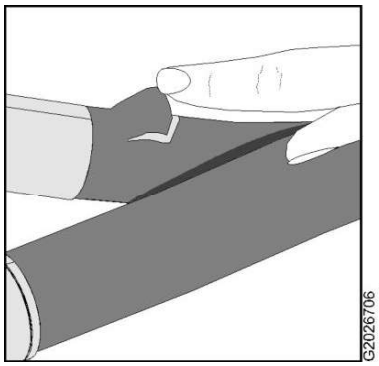


Fig. 227: Wear or damage to the outer jacket of the hydraulic line

- ▶ Document the damage and observe whether the condition deteriorates.
- ▶ Check the routing of the hydraulic line, contact Liebherr customer service if necessary.

If the condition deteriorates:

- ▶ Have the hydraulic lines replaced by Liebherr customer service.

Moist surfaces, no visible oil leak

Moist spots can be seen on the surface. An oil leak or oil drops are not visible. As long as you do not observe an obvious oil leak, it is classified as minor damage.

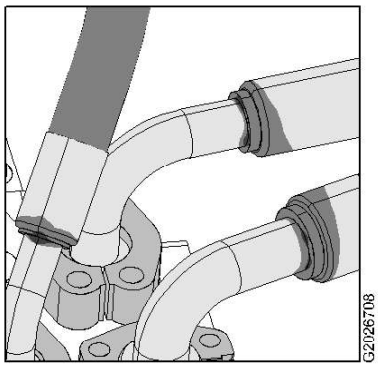


Fig. 228: Moist surfaces, no visible oil leak

- ▶ Document the damage and observe whether the condition deteriorates.

If the condition deteriorates:

- ▶ Have the hydraulic lines replaced by Liebherr customer service.

Medium damage to the hydraulic lines

Cracks or cuts up to the steel fabric or steel fabric exposed due to damage to the outer jacket

The damage to the outer jacket (such as cracks, cuts or abrasions) through which the steel fabric is exposed is classified as medium damage if the steel fabric is undamaged. Damage to the steel fabric is classified as severe damage.

LBH/11825432/13/07-2018/en

- ▶ Take out the dipstick **1**.
- ▶ Insert the sampling hose through the dipstick tube up to 5 cm below the oil level.
- ▶ Fill the sample container using the hand pump.
- ▶ Put the dipstick back in again.

Coolant circuit

The coolant sample is taken from the water cooler.

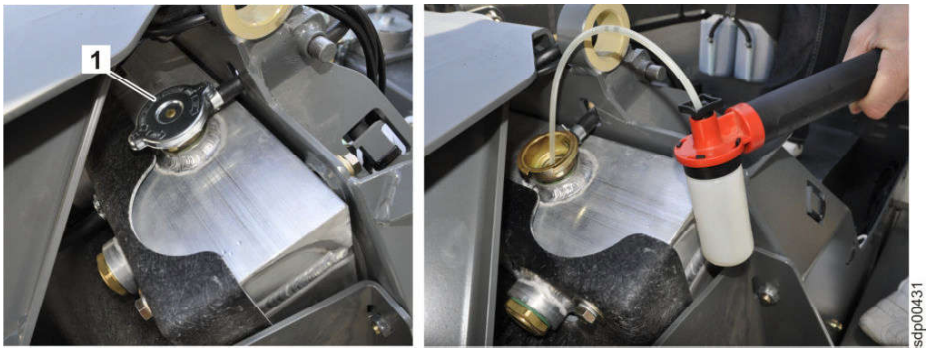


Fig. 236: Sampling point for coolant

- ▶ Start the engine.
- ▶ Turn the heating system to the maximum temperature and wait for three minutes.
  ▷ The coolant is circulated.
- ▶ Turn off the engine.
- ▶ Put the machine in maintenance position 1.

CAUTION
Beware of injury due to coolant escaping under pressure

- ▶ The coolant temperature must not exceed 45 °C.
- ▶ Wear protective clothing and safety glasses.
- ▶ Carefully open the cap.

- ▶ Carefully open the cap **1**.
- ▶ Insert the sampling hose and take a coolant sample using a hand pump.
- ▶ Close the cap **1**.

Transmission

The oil sample for the gear oil is taken from the transmission.

LBH/11825432/13/07-2018/en

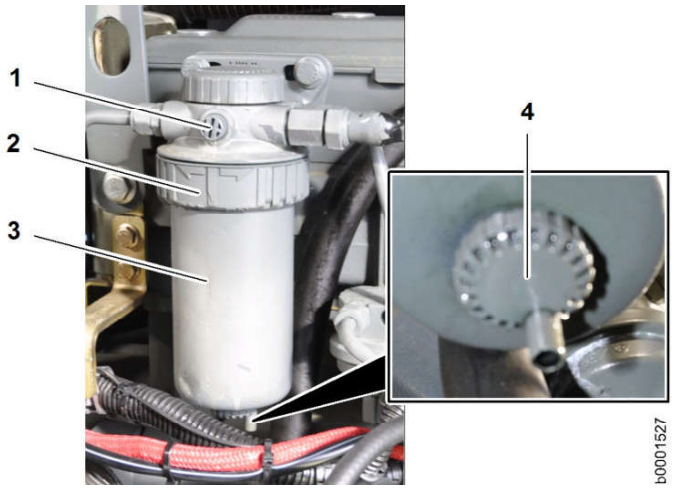


Fig. 245: Changing the fuel fine filter

1	Bleeder screw	**3**	Filter cartridge
2	Snap ring	**4**	Drain valve

- ▶ Place a receptacle under the fuel fine filter.
- ▶ Carefully clean the fuel fine filter and the area around it.
- ▶ Open the bleeder screw **1** and drain valve **4**.
  ▷ Fuel flows out of the pre-filter until it is empty.
- ▶ Unscrew the snap ring **2** and remove the filter cartridge **3**.
- ▶ Dispose of the filter cartridge.
- ▶ Check that the filter base is clean.

NOTICE
Beware of damage to the Common Rail system.

- ▶ Make sure no dirt gets into the clean side of the filter.

- ▶ Lubricate the sealing ring of the new filter cartridge **3** with clean fuel.

Note
Install the filter cartridge.

- ▶ Align the filter cartridge correctly on the base.

- ▶ Screw the new filter cartridge onto the base with the snap ring **2**.
  ▷ The filter clicks into place.
- ▶ Close the bleeder screw **1** and drain valve **4**.
- ▶ Bleed the fuel system. (For more information see: 5.7.8 Bleeding the fuel system, page 221)

5.7.8 Bleeding the fuel system

Bleeding the fuel filter is necessary after:
– Changing the fuel filter
– Emptying the fuel tank

LBH/11825432/13/07-2018/en

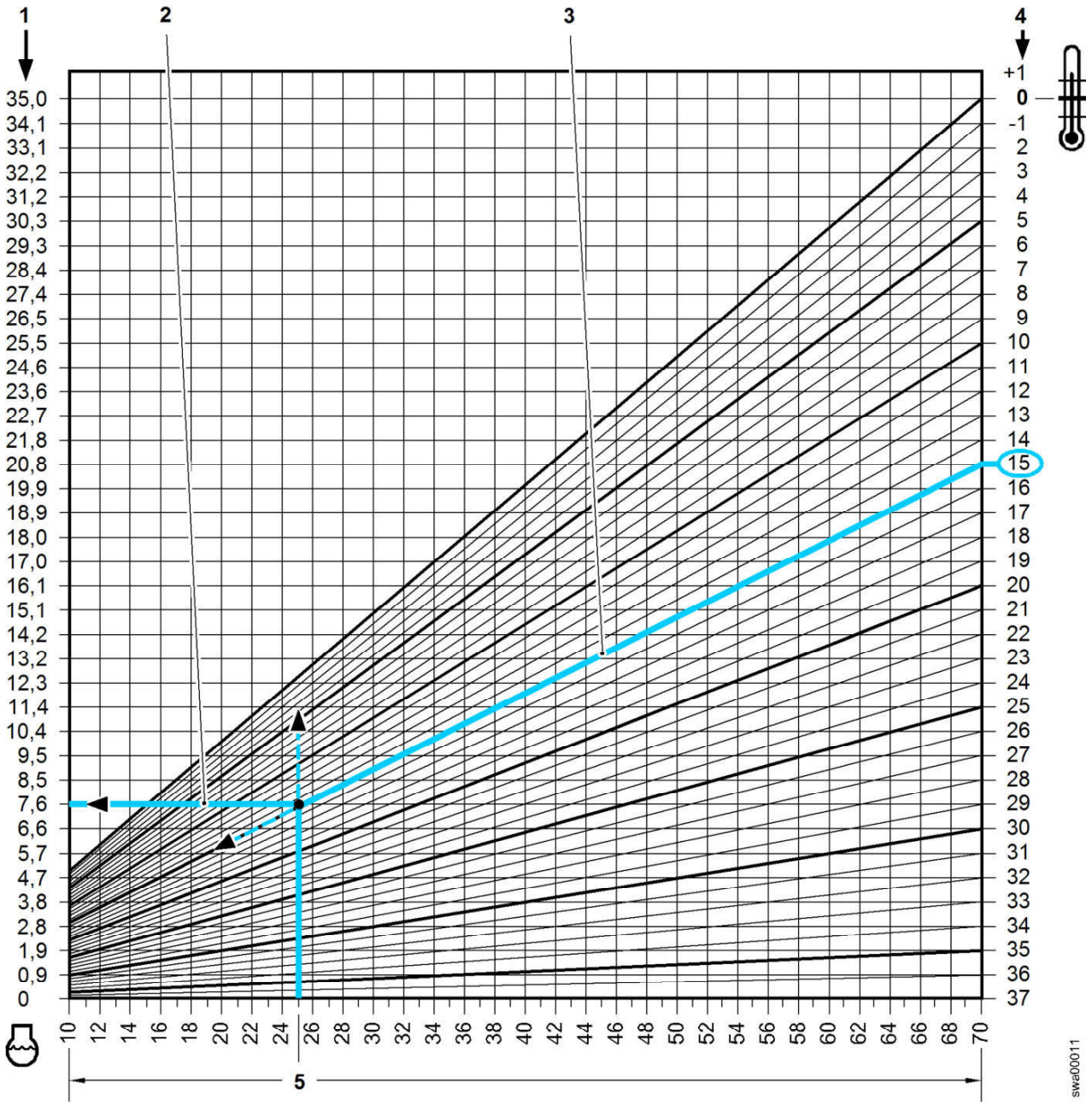


Fig. 257: Correcting the antifreeze concentration

1	Amount of pure antifreeze to be added in litres	**3**	Guide line(s) - example -15 °C	**5**	Total capacity of cooling system in litres (example 25 litres)
2	Identified line for top-up quantity	**4**	Measured coolant freezing point in °C		

Example procedure

Assumption:
25 litres total filling quantity of the cooling system
-15 °C coolant temperature, measured in the cooling system

▶ In the diagram, go to the line showing the overall cooling system capacity **5** at 25 litres and follow it upwards.

5.12 Electrical system

5.12.1 Checking the lights

Make sure the following preconditions are met:
- ❑ The machine is parked in a safe place.
- ❑ The electrical system of the machine is switched on.

All the lights can be tested without starting the machine. Start the machine when testing the reversing headlight.

WARNING
Beware of accidents when testing the lighting equipment with another person.

- ▶ Always maintain visual contact with the other person.
- ▶ Do not allow anyone into the danger area of the machine.

CAUTION
Beware of fires caused by the heat of the working floodlights.

- ▶ Observe the minimum interval of 1 m to persons and material.

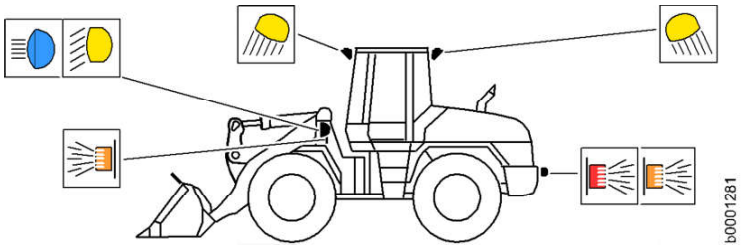


Fig. 268: Checking the lights

- ▶ Turn on all the lights. (For more information see: 3.2.13 Lighting, page 79)
- ▶ Check all the lights work properly.

When checking the brake lights:
- ▶ Press the inch/brake pedal.

To check the reversing headlights:

- ▶ Start the machine.
- ▶ Release the parking brake.
- ▶ Select “reverse” travel direction.
- ▶ Check the reversing headlights.

If lights have to be adjusted or defective bulbs replaced:
- ▶ Contact Liebherr customer service.

LBH/11825432/13/07-2018/en

5.16 Operator's cab, heating and air conditioning

5.16.1 Cleaning the fresh and recirculated air filters

Make sure that the following requirements are fulfilled:
- ❑ The machine is in maintenance position 1.
- ❑ Suitable protective equipment is used.

Cleaning the fresh air filter

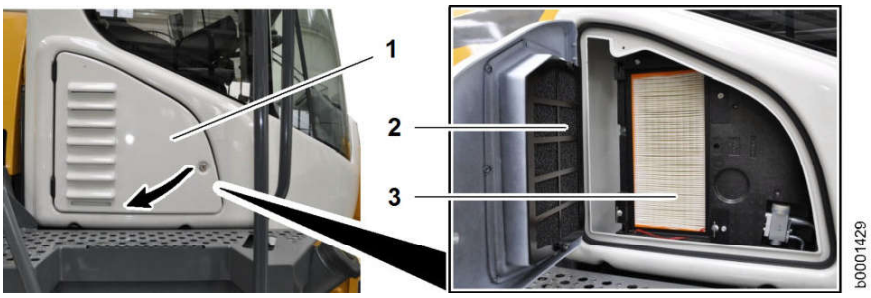


Fig. 280: Cleaning the fresh air filter

1 Door
2 Pre-filter
3 Fresh air filter

▶ Open the door **1**.

▶ Open the brackets for the filters **2, 3**.

▶ Take out the pre-filter **2** and clean it (blow it out or wash it) or replace it if necessary.

▶ Unscrew the fresh air filter **3** at the bottom on the front lug and clean it (blow it out).

▶ Put in the clean filter (making sure it is correctly fitted) and close the brackets.

▶ Close the door **1**.

LBH/11825432/13/07-2018/en