en **Operator's manual**

Wheel loader

Document ID

ORIGINAL OPERATOR'S MANUAL

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Manufacturer: Liebherr Machinery (Dalian) Co. Ltd.
Type: L 524
Type no.: 1355
From Serial no.: 26612

Contact

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

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1.2.16 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
Bridgestone 17.5R25 VJT	L3	30	2450	10	4.00	3.50	5.00
Bridgestone 17.5R25 VSDL	L5	467	2450	49	4.50	3.00	5.00
Techking 17.5R25 ET5A	L3	0	2460	0	4.00	3.50	5.00
Techking 20.5R25 ETDL5	L5	1038	2470	110	4.50	3.50	6.50
Michelin 17.5R25 XHA	L3	61	2460	-8	3.50	2.00	4.50
Triangle 17.5-25 TL612		1236	2450	75	4.00	3.50	4.50

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

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
...						
...						
...						

Tab. 3: Special tyres

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2.3 Foreseeable misuse

Do not use the machine:
- To carry persons without fitted and working safety equipment.
- To lift persons without fitted and working safety equipment.
- To pull loads (e.g. containers, wagons, trailers).
- For work in explosion hazard zones.
- For work in contaminated environments.
- To break rocks.
- To hammer in posts.

Note

The manufacturer accepts no liability for damage caused by improper use.

2.4 Signs on the machine

There are various types of sign attached to the machine.

Sign types:
- Safety signs
- Information signs
- Type plates

The item codes can be found in the spare parts list.

2.4.1 Safety signs

Obeying the instructions on the safety signs can prevent severe or even fatal injuries. Check regularly that the signs are complete and legible. Replace any missing or illegible safety signs immediately.

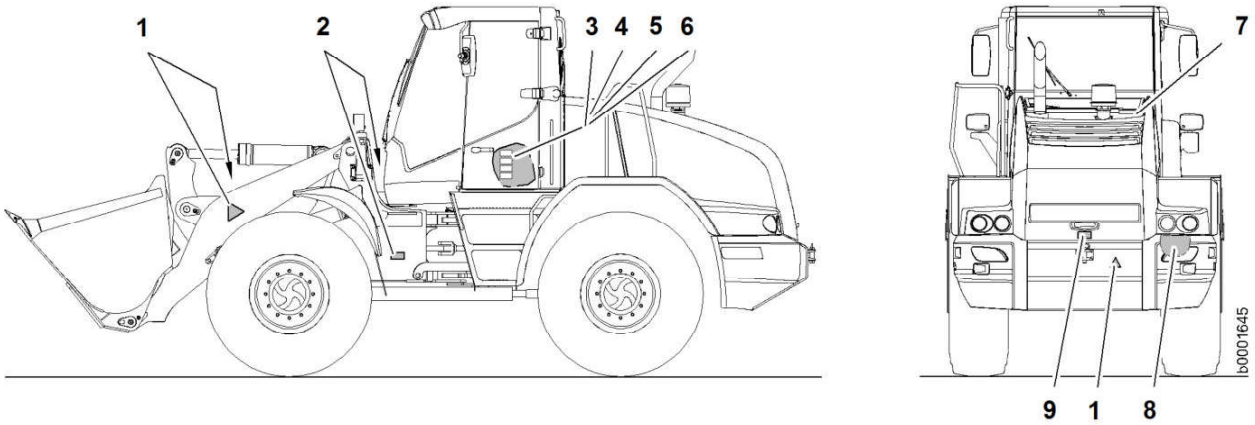

Fig. 16: Safety signs

1	*Danger area* sign	**4**	*Steering* sign	**7**	*Cooling water* sign
2	*Articulation area* sign	**5**	*ROPS/FOPS* sign	**8**	*Voltage* sign
3	*Accident prevention* sign	**6**	*Safety belt* sign	**9**	*Engine shutdown* sign

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ROPS/FOPS sign

Fig. 42: ROPS/FOPS sign

States the maximum load of the roll over protective structure.

Forklift operation load chart sign

This equipment is optional.

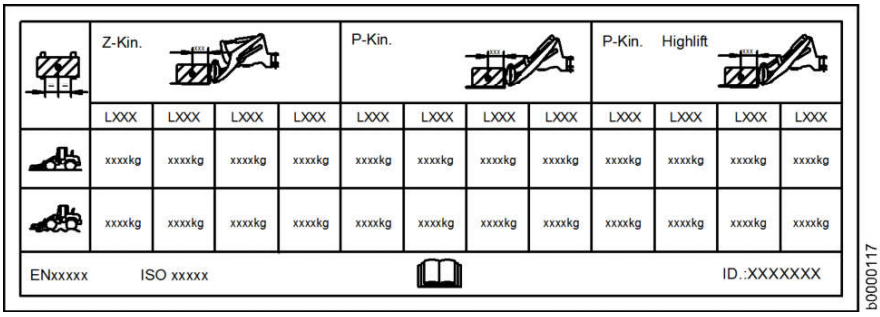

Fig. 43: Forklift operation load chart sign

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. 44: LiDAT sign

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

2in1 steering sign

This equipment is optional.

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.

2.5.12 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.

2.5.13 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.

2.5.14 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.

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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 battery compartment.

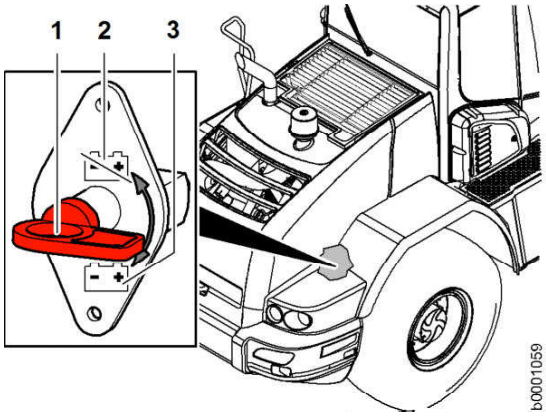

Fig. 54: Battery main switch

1 Battery main switch
2 OFF position
3 ON position

3.2.2 Articulation lock

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

WARNING
Persons can become trapped in articulation area.

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

Engaging the articulation lock

Make sure that following requirements are met:
❑ Machine is not steered all the way when stopping diesel engine.

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Adjusting the lumbar support

Standard seat / comfort seat

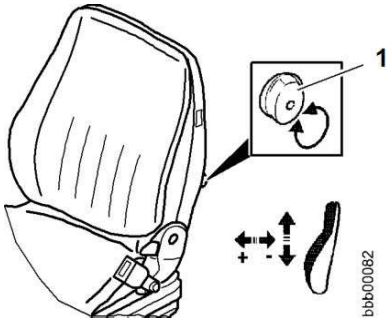

Fig. 70: Adjusting the lumbar support

1 Knob for *lumbar support*

▶ Turn the knob **1** to the left or right until the adjustment is correct.

Adjusting the back rest inclination

Standard seat / comfort seat

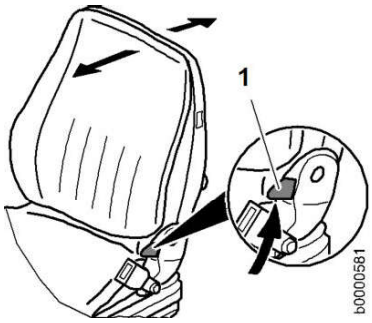

Fig. 71: Adjusting the back rest inclination

1 *Back rest inclination adjustment* lever

▶ Push up the lever **1**.

▶ Move the back rest to the angle required.

▶ Let go of the lever **1**.

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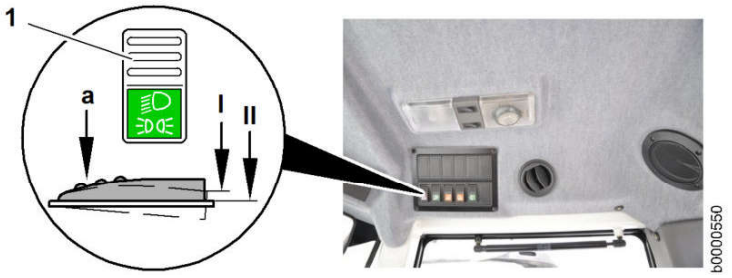

Fig. 87: Switching on the lights

1 *Marker lights and low beam* switch
I *Marker lights* position
II *Low beam* position
a Switching off the lights

▶ Press the switch **1** in position **I**.
The following lights are switched on:
▷ Marker lights
▷ Tail light
▷ License plate lights (optional)

▶ Press the switch **1** in position **II**.
The following lights are switched on:
▷ Low beam
▷ Tail light
▷ License plate lights (optional)

To switch off the lights:

▶ Press the switch **1** in position **a**.

Switching on high beam

Make sure that low beam is switched on.

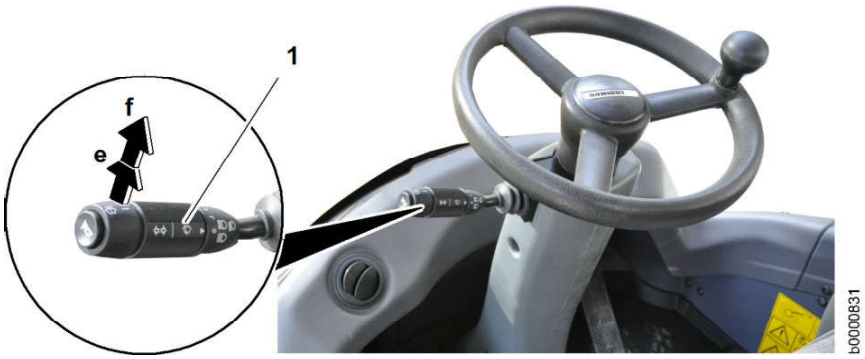

Fig. 88: Switching on high beam

1 Steering column switch
e Headlight flasher
f Switching on high beam

▶ Press the steering column switch **1** in the direction **f**.
▷ *High beam* symbol field in the display lights up.
▷ High beam lights up.

To switch back to low beam:

▶ Press the steering column switch **1** in the direction **f** again.
▷ *High beam* symbol field in the display goes out.
▷ The low beam lights up.

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Comfort control

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

WARNING
Incorrect operation of the working attachment can lead to injuries.

- ▶ Observe the manufacturer's operating manual.
- ▶ Familiarise yourself with the working attachment in a secure area.

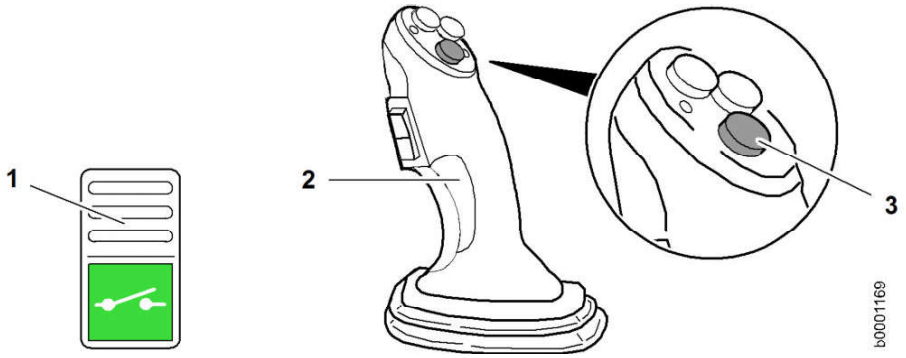

Fig. 99: Comfort control

1 *Comfort control* switch
2 Control lever
3 *Comfort control* button

- ▶ Press the switch **1**.
- ▶ 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.

3.2.18 Heating, ventilation, air conditioning

The heater heats the air according to the selected temperature setting.

The air flow can be adjusted using the blower.

With the air conditioning on, the air is cooled and dried.

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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.

WARNING
There is a risk of accidents when reversing the machine due to impaired view.

▶ Make sure your view is unimpaired when reversing.

▶ Have someone direct you if necessary.

Audible back-up alarm

The back-up alarm is automatically activated when the machine is reversed.

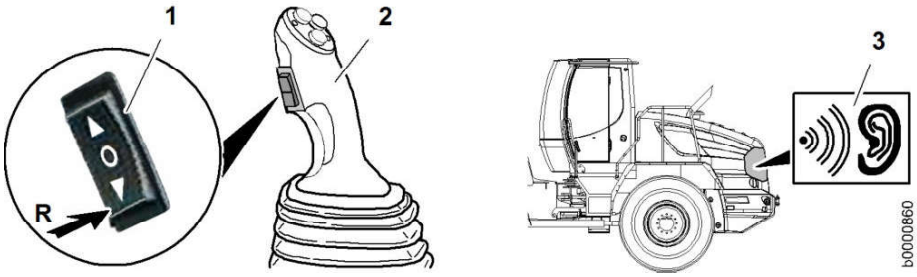

Fig. 114: Audible back-up alarm

1 *Travel direction* switch
2 Control lever
3 Back-up alarm
R Reverse travel direction

▶ Move the switch **1** to reverse travel direction.
▷ The back-up alarm installed in the engine compartment emits an audible warning signal (intermittent tone).

Flashing beacon on the driver's cab

This equipment is optional.

Selectable functions:
– Flashing beacon active when travelling in reverse
– Flashing beacon in continuous operation
– Flashing beacon switched off

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Driving with the Vmax (speed restriction) function

Note
The *Vmax (Geschwindigkeitsbegrenzung))* function is only available in automatic travel range **A1-2**.

▶ Shift to travel range **A1-2**.

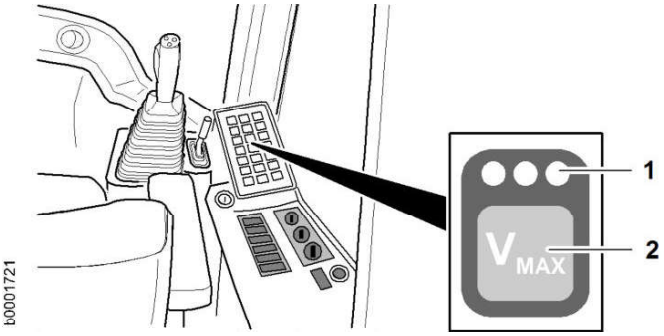

Fig. 127: Driving with the Vmax (speed restriction) function

1 LEDs **2** *Vmax* button

Activation with the machine at a standstill:

▶ Press the button **2**.
- ▷ The LEDs **1** light up.
- ▷ “Vmax” indication appears in the display.
- ▷ The speed restriction of the machine is activated.
- ▷ When the accelerator pedal is fully depressed, the machine moves at a minimum speed of approximately 2 km/h.

Activation with the machine moving:

▶ Drive at the required travel speed.

▶ Press the button **2**.
- ▷ The LEDs **1** light up.
- ▷ “Vmax” indication appears in the display.
- ▷ The speed restriction of the machine is activated.
- ▷ The machine travels at the set speed when the accelerator pedal is fully depressed.

To switch off Vmax (speed restriction):

▶ Press the button **2** again or change the travel range.
- ▷ The LEDs **1** go out.

Driving with ride control

This equipment is optional.

If you travel long distances without ride control you may experience vibrations while driving.

The ride control system improves operator comfort in nearly all situations by reducing vibrations.

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To tilt the bucket in:

▶ Move the control lever **1** in direction **c**.
▷ The bucket is tilted in.

To tilt the bucket out:

▶ Move the control lever **1** in direction **d**.
▷ The bucket is tilted out.

Moving the lift arms and the bucket simultaneously

The lift arms and bucket can be moved simultaneously by moving the control lever diagonally.

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

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

Raising the lift arms while tilting the bucket in or out

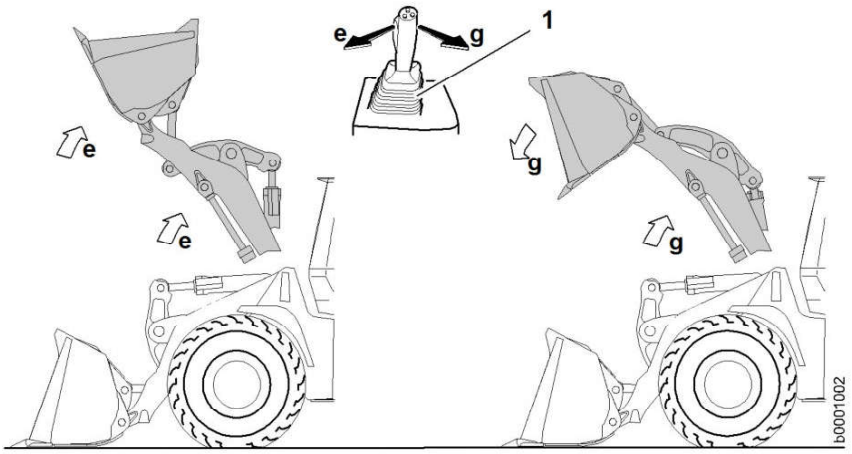

Fig. 142: Raising the lift arms and tilting the bucket in or out

1 Control lever

To raise the lift arms while tilting the bucket in:

▶ Move the control lever in direction **e**.
▷ The lift arms are raised while the bucket is tilted in.

To raise the lift arms while tilting the bucket out:

▶ Move the control lever in direction **g**.
▷ The lift arms are raised while the bucket is tilted out.

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If material adheres to the working attachment:
▶ Loosen the adherent matter manually
or

Quickly tilt the working attachment in and out, briefly jolting against the tilt-out stops of the bucket arm.

Note

Jolting against the tilt-out stops!

Jolting is only permissible when working with materials such as clay or compost.

Only use a **standard bucket** designed for a material weight greater than 1.3 t/m³ for jolting.

3.4.4 Handling materials with high dump buckets

The high dump bucket is used for loading light bulk material on trucks with high sides, wagons, silos etc. The special design achieves a greater dumping height. An appropriate working attachment must be fitted for other jobs that do not require a high dump function.

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

▶ Avoid unnecessary jolting.

Make sure that following requirements are fulfilled:
❑ Observe manufacturer's separate operator's manual.
❑ The hydraulic lines of the high dump bucket are correctly connected.
❑ The functions have been checked.
❑ A high dump bucket with standard dump function has at most been tilted out until the bucket base is in a horizontal position.
❑ The tilt out duration for the high dump bucket is not less than 4 seconds.

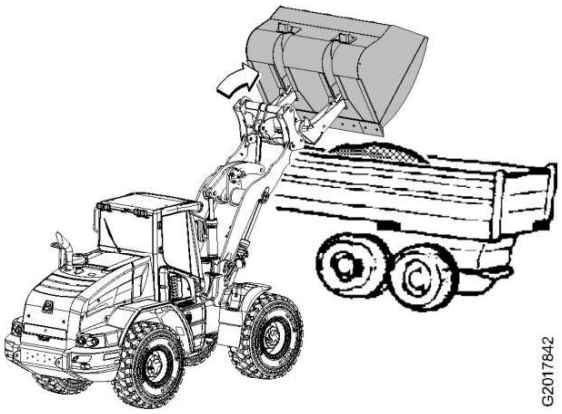

Fig. 156: Handling materials with high dump buckets

▶ Take up the bulk material with the high-dump function tilted in.

▶ Only use the high-dump function to empty the bulk material at the unloading site.

▶ If necessary, compress the material with the high-dump function tilted in.

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Unlocking and disconnecting the working attachment

Make sure that all hydraulic lines have been detached from the installed working attachment.

DANGER
Beware of the working attachment dropping.

▶ Do not press the *quick-change device* button when the working attachment is raised.

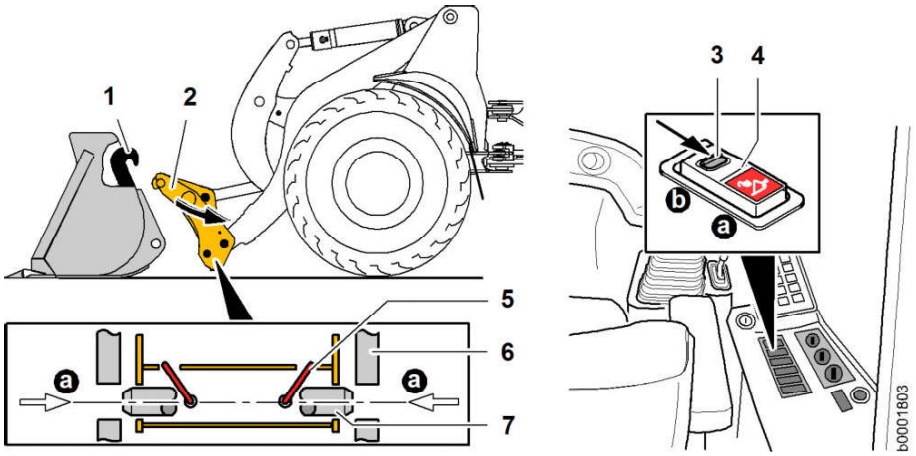

Fig. 170: Unlocking the working attachment

1	Working attachment holder	**5**	*Unlocked position* indicator
2	Quick coupler	**6**	Working attachment
3	Lockout	**7**	Locking pin
4	*Quick coupler* button		

▶ Set down the working attachment flat on firm, even ground.

▶ Secure the working attachment against falling over.

▶ Release the activation lock **3** in the direction of the arrow while pressing and holding the button **4** in position **a**.
▷ A warning tone sounds.
▷ The locking pins **7** of the quick-change device **2** are retracted.

When the locking pins are completely retracted:

▶ Release the button **4**.
▷ The working attachment is unlocked.

▶ Carefully remove the quick-change device **2** from the working attachment holder **1**.
▷ The working attachment is disconnected.

If you are not going to install a working attachment:

▶ Press the button **4** in position **b**.
▷ The locking pins **7** of the quick-change device **2** are extended.
▷ The warning tone stops.

3.5.2 Attaching working attachments to the quick-change device

This equipment is optional.

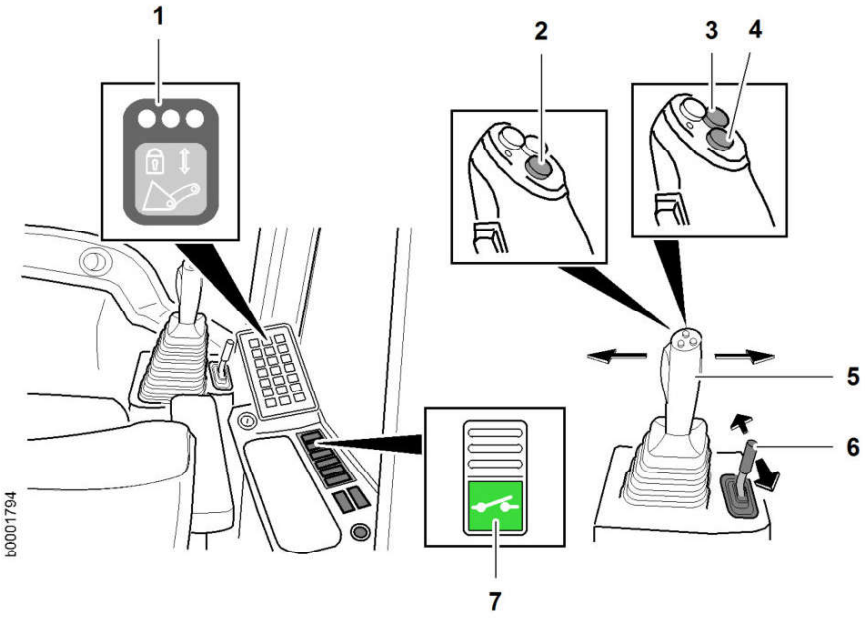

Fig. 184: Depressurising the hydraulics

1 *Working hydraulics lockout* button
2 *Comfort control* button
3 *Button control (hydraulic extension)* button
4 *Button control (hydraulic retraction)* button
5 Control lever
6 Additional control lever
7 *Comfort control and switch control* switch

▶ 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 **6** 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 **7** on the control unit.

▶ Press and hold the button **1** and, at the same time, press the button **2** and move the control lever **5** 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 **7**.

▶ 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.

3.7.2 Towing the machine

If the machine breaks down, you may have to tow it away from a danger area.

The following towing instructions apply only in exceptional situations where a machine incapable of independent movement has to be taken to a place where it can be repaired or transported.

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4 Malfunctions

Warning and error messages:
- Various faults are indicated by corresponding symbols or service codes in the display.
- Some warning messages are accompanied by audible signals.

Finding and eliminating faults:
- Analyse the cause of the fault and correct it immediately.
- Before calling in Liebherr customer service, make sure you know the **type number** and **serial number** of the affected machine.
- Never perform any work for which you have not been trained or instructed.

Note
Unable to eliminate the fault!

▶ Contact Liebherr customer service.

4.1 Servicecodes

4.1.1 Service code indicator in the display

The control system monitors many of the machine's functions:
- Short circuit
- Cable rupture
- External voltage
- Incorrect input and output signals

In addition, the control system continuously checks the program sequence and communication with the control modules.

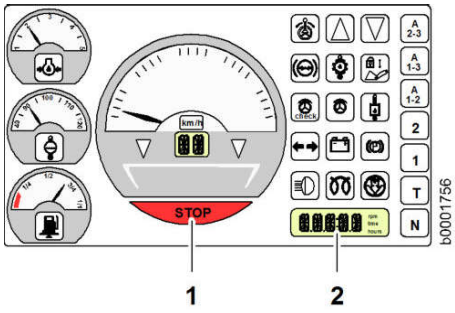


Fig. 198: Service code indicator in the display

1 STOP display **2** Service code display

If a fault occurs while you are setting up or operating the machine, it is shown on the display unit and stored in the service code memory.

5 Maintenance

5.1 Maintenance and inspection schedule

General information

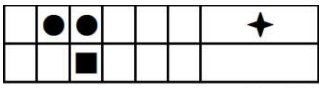
Shorten maintenance intervals depending on conditions of use, for example:
- Dust-intensive use
- Oil quality
- Fuel quality

Ensure that lubricants, liquids and replaced parts are disposed of safely and in an environmentally friendly manner. Comply with applicable country-specific guidelines and applicable laws in country of use.

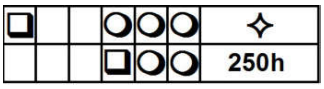
Service packs in spare parts catalogue contain spare parts required for maintenance activities.

The following abbreviations are used in this section:
- h = operating hours

Various symbols (solid or empty circles, boxes and stars) are used to indicate the maintenance tasks, which fall into two main types.

 G2036200	**The symbols have the following meanings:** Table with solid circle, box or star Responsibility for carrying out the maintenance work lies with the machine operator or his maintenance personnel. Maintenance interval: on delivery, every 10 and 50 service hours (h), and at unscheduled times.

Tab. 26: Machine operator

 G2036201	**The symbols have the following meanings:** Table with empty circle, box or star, or service hours (h) The maintenance and inspection work must be performed or supervised by specialist staff from Liebherr or its authorised dealers. Maintenance interval: on delivery and every 500, 1000, 2000, 3000 service hours (h), and at unscheduled times.

Tab. 27: Authorised specialist staff

You will find a list of the spare parts needed for maintenance and inspection work in the service package of the spare parts list.

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In the case of a machine equipped with biodegradable hydraulic fluid at the factory, a corresponding information label is attached.

Procedure for later conversion

NOTICE
Non-approved oil!
Damage to the hydraulic system.

- ▶ Only use oil that meets the Liebherr specifications.
- ▶ Do not mix different oils.

- ▶ In case of subsequent conversion of machine to a biodegradable hydraulic fluid, contact Liebherr customer service!
- ▶ Request **instructions** and **conversion guidelines** from Liebherr and observe them!

5.3.4 Diesel fuels

Specification


06sy02ab

Diesel fuels must comply with the minimum requirements of the following specifications.

Specifications:
- DIN EN 590
- ASTM D 975-89a - 1D and 2D
- We strongly recommend using diesel fuel with a sulphur content of less than 0.1 % (1000 ppm).

High sulphur content in the diesel fuel

1. See oil change intervals according to complicating factors.
2. Diesel fuels with a sulphur content of more than 1% (10,000 mg/kg) are not permitted.
3. For engines with external exhaust gas recirculation (eEGR): use diesel fuels with a sulphur content of no more than 0.5% (5000 mg/kg).
4. If the diesel engine is operated using E6 engine oil and a standard oil change interval (500 operating hours), diesel fuels with a sulphur content of more than 0.005% (50 mg/kg) may not be used.

According to the HFRR (60) test, the maximum diesel fuel lubricity must be 460 µm (lubricity-corrected wear scar diameter [1.4] at 60 °C).

Fuel standard ASTM D 975 does not stipulate that fuels must pass a fuel-lubricity test. **Written confirmation must be provided by the fuel supplier.** Any additions should be undertaken by the supplier as he is responsible for the quality of the fuel.

The addition of secondary lubricity additives by the customer is not recommended.

Note

- ▶ Obtain written confirmation from the supplier.

A cetane number of at least 45 is required for fuels. A cetane number above 50 is preferable, especially at temperatures below 0 °C.

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Liebherr lubrication grease

Liebherr recommends the following lubrication greases to achieve optimum lubrication results and for additional corrosion protection.

Application	Recommended lubricant	Specification	Designation
Standard	Liebherr Universalfett 9900	Soap-based (lithium complex)	KPF 2 N - 25 (DIN 51502)
			NLGI grade: 2 (DIN 51818)
			VKA weld load: ≥ 6000 N (DIN 51350 / 4)
			with vapour phase anti-corrosion agent
Cryogenic temperature	Liebherr Universalfett Arctic	Soap-based (lithium complex)	KPFHC 1 N - 60 (DIN 51502)
			NLGI grade: 1 (DIN 51818)
			VKA weld load: ≥ 5500 N (DIN 51350 / 4)

Tab. 45

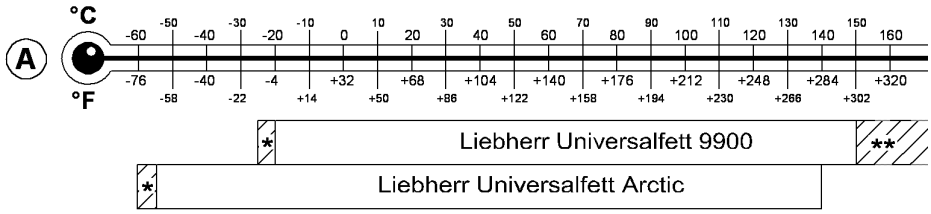

Fig. 218: Operating temperature of Liebherr lubrication greases

A Temperature of the lubrication grease

* Not when used in central lubrication systems

** Brief temperature peaks up to a maximum of 200 °C may occur.

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Cracks on the clamping sleeve or blisters on the outer jacket

Cracks on the clamping sleeve or blisters on the outer jacket are classified as severe damage.

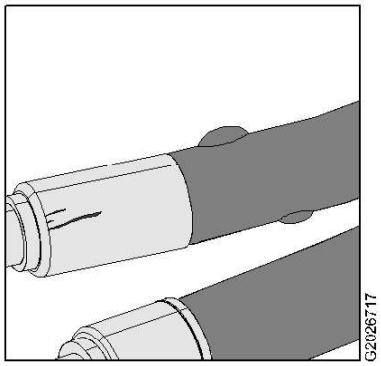

Fig. 231: Cracks on the clamping sleeve or blisters on the outer jacket

- ▶ Take the machine out of operation and secure it against restarting.
- ▶ Have the damaged hydraulic line replaced immediately by Liebherr customer service.

5.6.4 Cleaning the machine

Thoroughly clean the machine of all dirt and deposits in the following situations:
- – After completing each job
- – Before maintenance
- – Before repairs

NOTICE
Beware of corrosive materials and working environments.
Corrosion may damage the machine or impair its functions (for example when in contact with corrosive materials or when working in corrosive environments).

- ▶ Thoroughly clean the machine at the end of the job.

Thorough cleaning prevents dirt and foreign particles from entering the machine. Clean oil, fuel and maintenance products from all connections and bolts.

The machine must be particularly cleaned after the following jobs:
- – Working in salty environments (in winter, after contact with road salt during transport on icy roads, when working near the sea or at ports etc.)
- – Working with alkaline or acidic compounds
- – Working with corrosive materials (lime compounds, cement etc.)

Note
High-pressure cleaners (steam cleaners) can damage the paintwork.

- ▶ Do not use high-pressure cleaners in the first two months of using the machine (or after a respray).
- ▶ Observe the operating instructions for the high-pressure cleaner. Note the information on the pressure and the distance from the high-pressure nozzle to the object to be cleaned.

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5.7 Drive group

5.7.1 Checking diesel engine oil level

Make sure following preconditions are met:
- ❑ Machine is in maintenance position 1.
- ❑ The maintenance access is open.
- ❑ The diesel engine is level and has been switched off for 2 or 3 minutes.
- ❑ Diesel engine has cooled down.

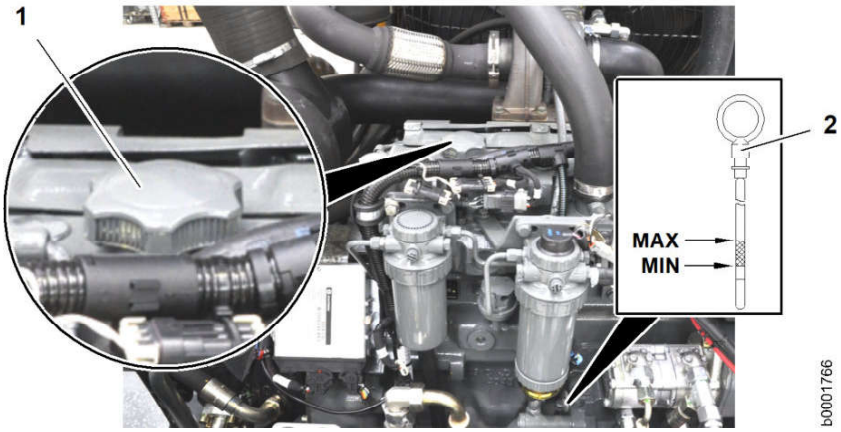

Fig. 237: Checking diesel engine oil level

1 Cap **2** Dipstick

▶ Pull out dipstick **2**, wipe it clean, and re-insert it.

▶ Pull out dipstick once again and read oil level.
▷ Oil level must be between “MIN” and “MAX” markings.

If oil level is too low:

▶ Open cap **1**.

▶ Top up engine oil via cap **1** to MAX marking. (For more information see: 5.3.5 Lubricating oils for diesel engines, page 182)

▶ Clean cap **1**, place it on filler pipe and tighten.

5.7.2 Draining off condensate and sediment from the fuel tank

Make sure that the following requirements are fulfilled:
- ❑ The machine is in maintenance position 1.
- ❑ You have a suitable receptacle ready.
- ❑ The machine has been out of operation for at least 3 hours.

DANGER
Beware of fire

▶ Naked flames and smoking are prohibited.

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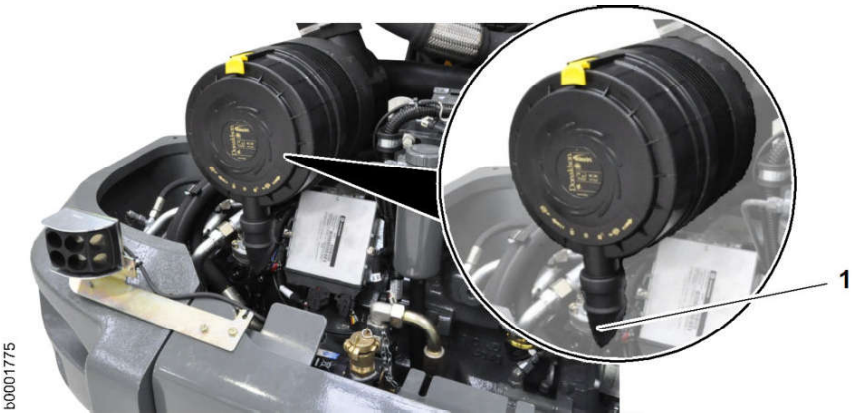

Fig. 246: Cleaning the dust discharge valve

1 Dust discharge valve

▶ Press the rubber seal on the dust discharge valve **1** several times to remove the dust from the service cap.

If the dust discharge valve is damaged or stays open:

▶ Replace the dust discharge valve.

5.7.10 Cleaning or changing the main filter element

NOTICE
Always carry out maintenance correctly.
Otherwise the engine may be damaged.

▶ Do not clean the safety element.

▶ Always replace the safety element.

Make sure that the following requirements are fulfilled:

❑ The machine is in maintenance position 1.
❑ The service access is open.
❑ The engine has cooled down.
❑ Suitable protective equipment is used.

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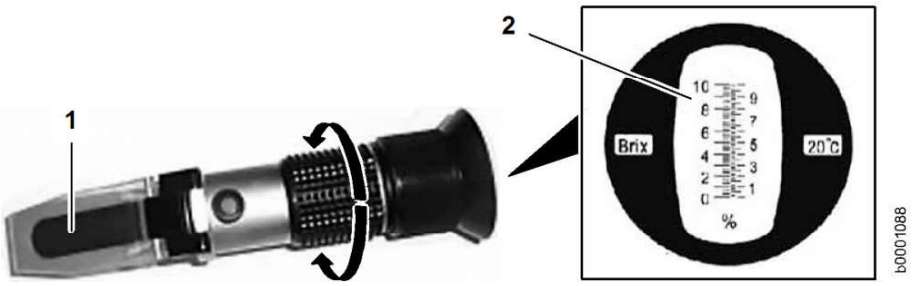

Fig. 257: Checking the mixing ratio with a refractometer

1 Prism with cover **2** Eyepiece with scale

- ▶ Clean the cover and the prism carefully.
- ▶ Place one or two drops of coolant on the prism.
  ▷ Close the cover to distribute the fluid.
- ▶ Look through the eyepiece against a light background and focus the scale.
- ▶ Read the Brix value off the blue dividing line.
- ▶ Convert the Brix value using the conversion diagram to find the actual corrosion inhibitor concentration.

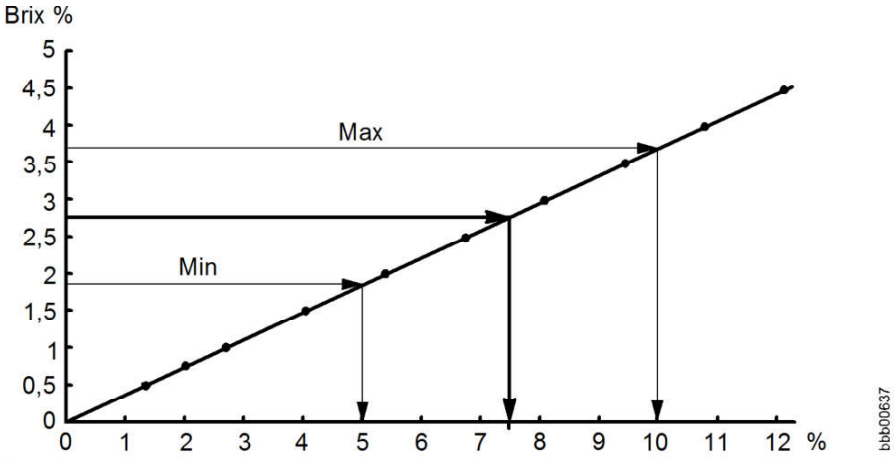

Fig. 258: Checking the mixing ratio with a refractometer

5.8.3 Cleaning the cooling system

Clean the coolers whenever necessary in order to ensure proper cooling. In dusty environments, check the coolers every day and clean if necessary.

Dirty cooler units result in overheating. This results in an audible and visual warning with simultaneous power reduction of the travel drive.

Dust and other dirt can be removed from the cooling fins using a high-pressure cleaner or compressed air. Compressed air is preferable.

Make sure that the following requirements are fulfilled:
- ❑ The machine is in maintenance position 1.
- ❑ The air conditioning condenser (optional) is pulled forward.

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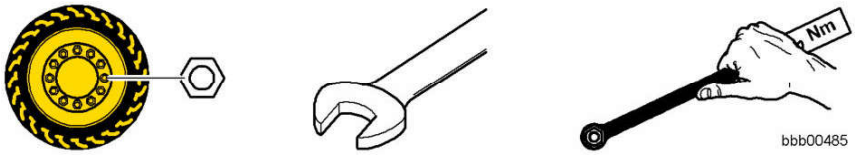

Fig. 268: Checking the wheel tightness

Designation	Rating
Spanner size	30 mm
Tightening torque	650 Nm

Tab. 49: Checking the wheel tightness

▶ Check that all the nuts on the four wheels have been tightened with the required torque.

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❑ The maintenance access is open.

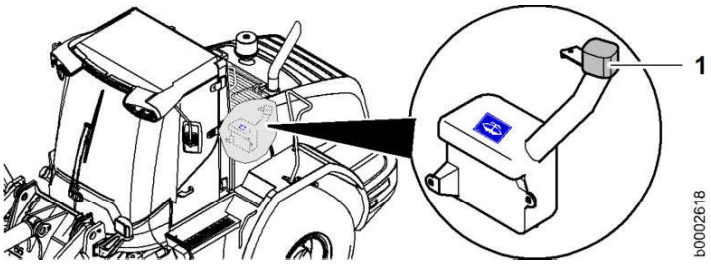

Fig. 280: Checking and topping up the windscreen washer fluid

1 Cap

The filling quantity is approximately 3.5 l.

▶ Open cap **1** on the reservoir.

▶ Top up with standard windscreen washer fluid if necessary.

NOTICE
Ice can damage the windscreen washer system.
Icing up can damage the windscreen washer system and cause it to fail.

▶ You must protect the windscreen washer system using antifreeze.

▶ Use commercially available windscreen antifreeze.

▶ Top up with an appropriate quantity of antifreeze before the winter starts.

5.16.5 Checking the seals on the driver's cab

Make sure that the machine is in maintenance position 1.

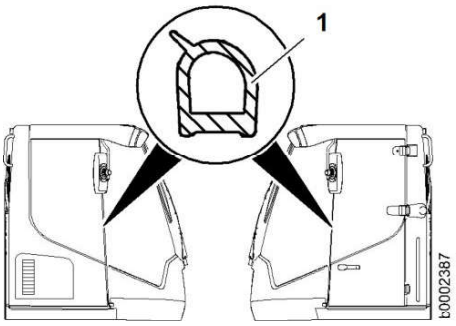

Fig. 281: Checking the seals on the driver's cab

1 Seal

▶ Check the condition of the seals.

▶ Completely replace any damaged seals.

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