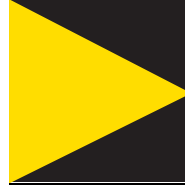
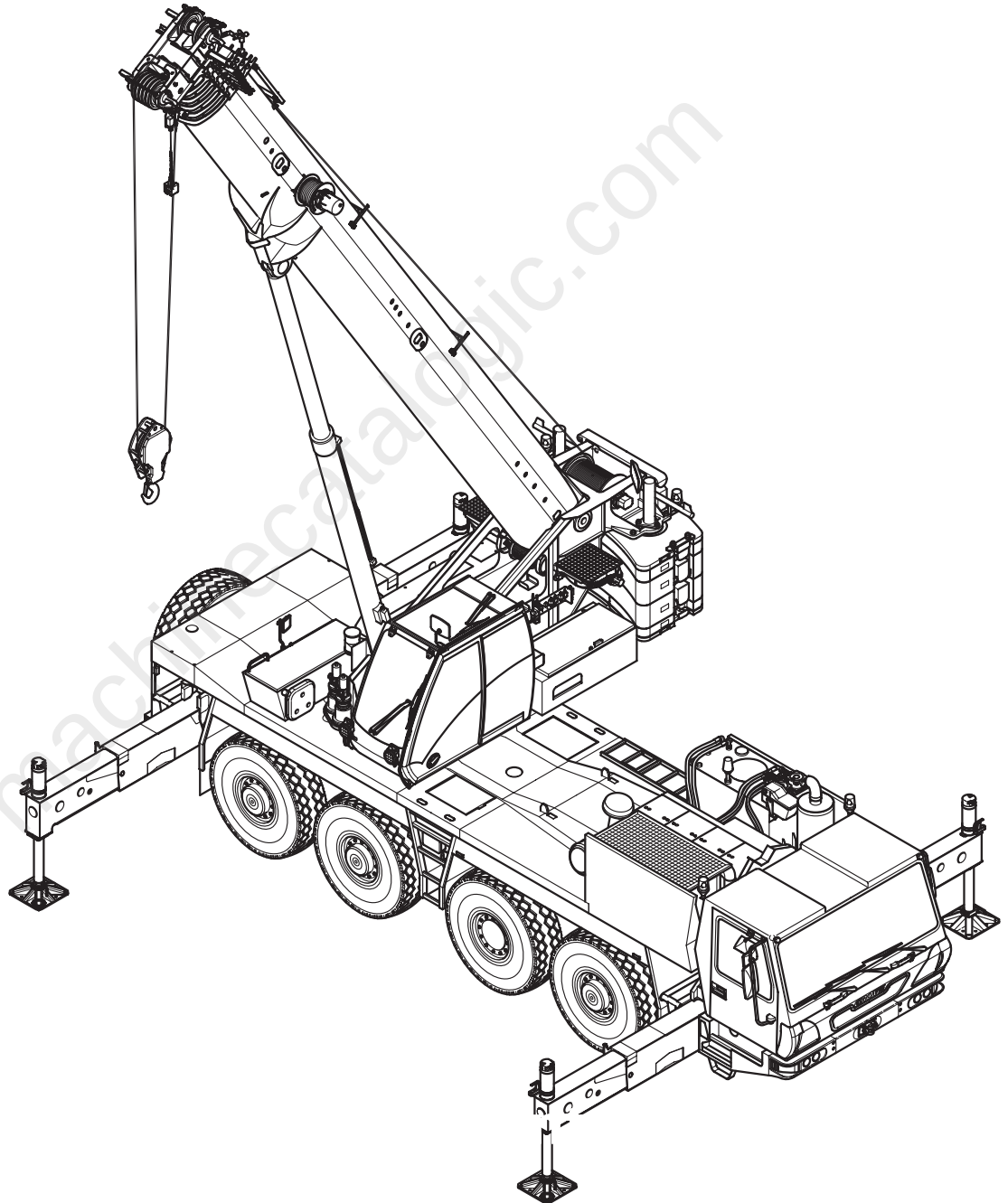


GROVE®

GMK 4080-1



Maintenance manual



Manitowoc®
Crane Group

Serial number

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A **Manitowoc** Company

- When handling hydraulic oil, cleanliness is imperative. Even new hydraulic oil must be filtered.
- Check fastening and retaining elements (bolts, nuts, lock washers etc.) before re-using them and replace them if necessary.

Tightening torques may be found in the Sections p. 10 - 1 and p. 10 - 2.

Our training center at our plant in D-26389 Wilhelmshaven offers specialized training programmes. Ask your local **CraneCARE** about this.

The vehicle must fulfil all current regulations before being commissioned and driven on public roads.

1.4

Definition of positional references

Terms used to describe the location of components are defined in this section.

On the **carrier**, the driver's cab is always at the **front**. The terms **rear**, **right** and **left** are used in relation to the definition of the term "front" for the carrier.

On the **superstructure**, **front** always refers to the direction of the main boom head, regardless of the superstructure position. The terms **rear**, **right** and **left** are used in relation to the definition of the term "front" for the superstructure.

Determining the operating conditions (load spectrum)

The load spectrum of the crane is divided into groups:
(also refer to ISO 4301/1, FEM 1.001)



When establishing the load spectrum, the existing wire cable is used as a standard, i.e. under certain circumstances, the crane can be supporting a small load, whereby the winch is actually supporting a heavy load, e.g. due to insufficient reeving. Therefore, the following graphic representation of the load spectrum refers to the winch's wire cables.

Load-spectrum Class	Term designation	Operating time portions	Factor of the load spectrum $K_m =$	Graphic representation
light Q 1 L 1	Power unit or parts thereof that are subject to high stress in exceptional situations but which are generally subject to only minimal stress	10% of the timing period with greatest load (dead load + 1/1 payload) 40% of the timing period with dead load + 1/3 payload 50% of the timing period with dead weight	0.125	W1355
middle Q 2 L 2	Power unit or parts thereof that are subject to high stress quite often, but which are generally subject to only minimal stress	1/6 of the timing period with greatest load (dead load + 1/1 payload) 1/6 of the timing period with dead load + 2/3 payload 1/6 of the timing period with dead load + 1/3 payload 50% of the timing period with dead weight	0.25	W1356
heavy Q 3 L 3	Power unit or parts thereof that are often subjected to high stress and when running are subjected to middle level of stress	50% of the timing period with greatest load (dead weight + 1/1 payload) 50% of the timing period with dead weight	0.5	W1357
very heavy Q 4 L 4	Power unit or parts thereof that are regularly subjected to high stress from neighbouring stress sources	90 % of the timing period with greatest load (dead weight + 1/1 payload) 10% of the timing period with dead weight	1	W1358



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7.7

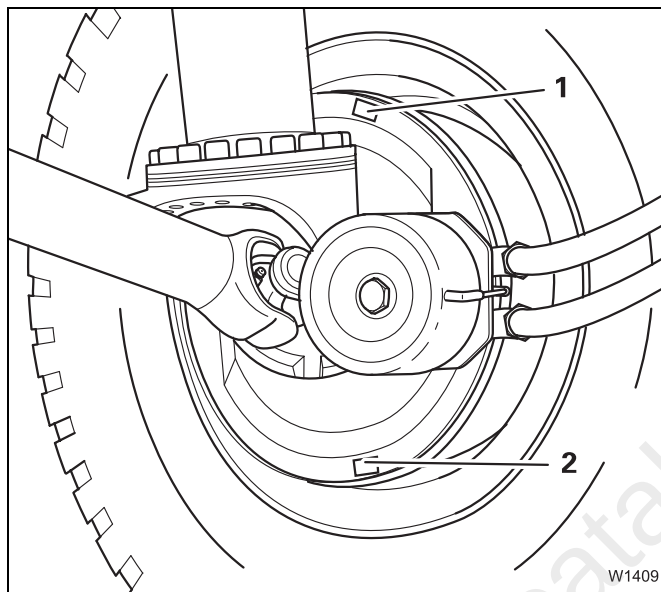
Vehicle brakes

7.7.1

Checking brake lining thickness

M 3

There is an opening on the inside of each wheel (sealed with a rubber plug) through which the brake lining thickness can be checked.



- Remove rubber plugs (1) and (2) and shine a torch into the opening.

If the brake lining has worn down to the wear marks (stepped edges or groves), **or** when the brake-lining thickness has worn down to only 3 mm:

- Have the brake linings replaced by **CraneCARE** or an authorized workshop.
- Seal the openings with the rubber plugs (1) and (2).



Risk of accidents from skidding

The brake linings are always to be changed on both the right and left of the axle line.

If the brake lining is only changed on one wheel on the axle line, the wheels will have an uneven braking effect.

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8.2.4

Slewing gear – oil change

M 12

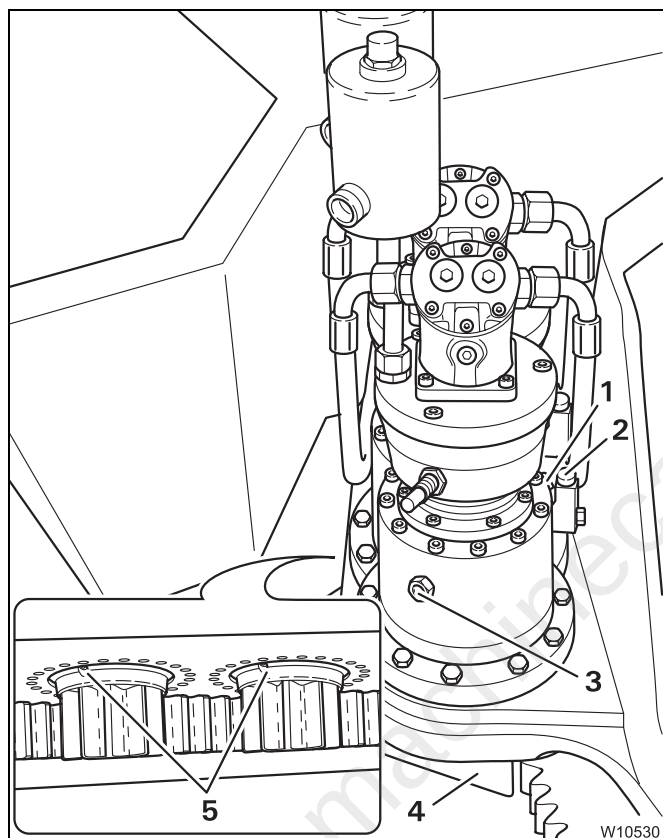
Oil change, slewing gear transmission

The oil drain plug of the slewing gear transmission is located above the gear rim of the slewing gear pinion. Use only oil specified in the  *Maintenance Plan*, p. 5 - 15.



Risk of environmental damage due to leaking consumables

Always use oil collection vessels which are oil-resistant.
Wipe up spilled oil immediately.



- Unscrew the protective plate (4) in front of the slewing gear pinions.
- Have an oil collection container ready (capacity approx. 5 l).
- Unscrew the vent screw (1).
- Unscrew the ventilation filter (2) from the filler neck.
- Unscrew the oil drain plug (5) and drain the oil into the oil vessel.
- Replace the sealing ring on the oil drain plug and screw it back in.
- Top up oil ( *Maintenance Plan*, p. 5 - 15) and check the level on the oil level sight glass (3).
- Screw the ventilation filter (2) and the vent screw (1) back on with new sealing rings.
- Check the waste oil;  p. 8 - 11.
- Change the oil on the second slewing gear transmission in the same way.
- Attach the protection plate (4) in front of the slewing gear pinion.



Risk of environmental damage due to leaking consumables

Collect waste oil in approved receptacles and have it disposed of properly.

8.3

Hydraulic system of the superstructure

8.3.1

Checking the hydraulic hoses

W

The inspection work is described in section *Checking the hydraulic hoses*, p. 7 - 46.

8.3.2

Checking for leaks

W

- With the diesel engine running, make a visual inspection for leaks and escaping hydraulic oil on the hydraulic components of the superstructure (hydraulic cylinders, lines, connections, hydraulic pumps, motors, valves, and control block).
- If leaks are detected, check the hydraulic oil level and top up if necessary (▮▮▮▮ *Hydraulic unit – oil level check*, p. 7 - 45).



Danger of accidents!

Never tighten leaking connections when the system is under pressure.
Only change seals, pipes and hoses when the system is depressurised.

If damage cannot be rectified immediately or further damage is likely:

- Inform **CraneCARE** or your repair personnel.



Risk of environmental damage due to leaking consumables

Immediately repair leakages in the hydraulic system or have them repaired to ensure that no hydraulic oil escapes, seeps into the ground or reaches waterways when the crane is being used.

9

Longer periods out of service

Carry out the following work if the truck crane is to be out of operation for a long period (months):

Before the truck crane is put out of service

- Clean the crane thoroughly inside and outside.
- Remove rust and touch up the paintwork.
- Parts which are not painted must be lubricated with an acid-free grease or oil.
- If more than half of the oil change interval has passed:
- Change the oil according to the maintenance plans **M 3** to **M 12**.
- Seal all air filters.
- Increase the tyre pressure by 10% and mark the tyre setting, or support the truck crane and let it stand with support.

When the crane is out of service

- Check the levels in the fuel tanks. Always keep the tanks filled.
- Check the batteries every week and recharge them if necessary.
- Check tyre pressure every week and inflate the tyres if necessary.
- Perform a full functional check of the truck crane every two weeks. (Open all air filters before the function test.)
Run the hydraulic systems up to a fluid temperature of approx. 50 °C and check all functions of the carrier and superstructure hydraulic systems.
- Ensure that the tyre positioning is different each time the crane is parked (without outriggers).
- Seal all air filters again.

If the crane is out of service for more than 12 months:

- Carry out all maintenance work in accordance with maintenance plan **M 12**.



Full Version Available

Grove GMK 4080-1 All Terrain Crane Maintenance Manual

Grove GMK 4080-1 all terrain crane maintenance manual covering service intervals, lubrication, fluids and inspections. 224-page English PDF.

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