

Serviceanleitung

Batterie-ausgeglichener Gabelstapler

TYP: CPD 1.0t - CPD 3.0t

YU – GO !

KOOGES Genossenschaft

Leite



Beachten

Der Betrieb und die Nutzung von Hochhubwagen ist nur in Übereinstimmung mit den örtlichen Vorschriften und Gesetzen gestattet.

Beginnen Sie nicht mit dem Betrieb oder der Reparatur der Maschine, bevor Sie die Sicherheit, Reparatur und Gebrauchsanweisung gelesen, verstanden und eine regelmässige Schulung erhalten haben.

Das Nichtbefolgen der Anweisungen kann zu schweren Verletzungen oder sogar zum Tod führen. Diese drei Handbücher sollte sich stets im Batteriefach befinden, damit die Bediener die Anweisungen kann das lesen.

Die neueste Version aller Handbücher ist jederzeit online unter www.kooges.ch/stapler verfügbar.

Hersteller und Vertrieb übernehmen keine Verantwortung für den Betrieb des Gabelstaplers oder etwaige Schäden, die auftreten können.

Vorwort

Diese Serviceanleitung ist ein Dokument, das mit der regelmäßigen Wartung zusammenhängt. Es ist wichtig, dass jeder Gabelstaplerbenutzer es mindestens einmal liest, um ein grundlegendes Verständnis der Bauteile unter der Motorhaube zu erhalten.

Detaillierte Beschreibungen sind eine praktische Anleitung für Service-Techniker, um Probleme zu beheben und die regelmäßige Wartung leicht zu machen.

In Umgebungen, die Korrosion von Bauteilen verursachen, muss der Gabelstapler häufiger gewartet werden, und die Kette sollte häufiger geschmiert werden als üblich.

Daily inspection

1. Check for cracks on the fork surface, especially the fork root, bracket and all welding points. Check whether the prongs are broken or chipped. Whether the horizontal section and vertical section of the fork are bent or twisted.
2. Confirm that the positioning pin is in place and working properly. Secure the forks before using the forklift. See "2,000 hours per operation or annual maintenance" in "Maintenance Cycle".
3. Remove all damaged forks.

12 months testing

The forks must be inspected at least every 12 months. If the forklift is used in multi-shift or heavy work situations, it should be inspected every 6 months. Please refer to the section "2,000 hours per operation or annual maintenance" in "Maintenance Cycle".

Maintenance and repair

1. Only repair the forks according to the manufacturer's recommendations.

Most of the repairs should be done by the original manufacturer or professionals who know the fork material, design, welding and heat treatment process.

2. Do not perform the following maintenance or modification.

- ⊗ Flame cutting holes or cutting fork partitions.
- ⊗ Weld the bracket or newly installed hook.
- ⊗ Repair cracks or other damages by welding.
- ⊗ Bend or find a right job.

3. The following repairs can be performed.

- ⊗ The surface of the fork can be polished or lightly polished to remove rust spots, corrosion spots or minor defects.
- ⊗ The fork root can be polished with a carbon structure grinding stone to remove surface cracks or defects. Polish the inner diameter of the fork root to extend the service life of the fork. Be sure to grind along the horizontal and vertical directions of the blade.
- ⊗ Repair or replace the positioning lock of the hook type fork.
- ⊗ You can use other types of fork holding force components to repair or replace most of the holding force components.

4. Before the fork is put into use again, it must be inspected to ensure that the repair has been completed in accordance with the manufacturer's instructions and authorization.

Most manufacturers and maintenance standards require that the repaired fork should pass the 2.5 times the rated load capacity test at the load center marked on the fork arm. Fix the fork according to the way the fork is installed on the forklift, and then perform two load tests without shaking. Hold for 30 seconds each time.

Check the wishbones before and after the second load. There should not be any permanent deformation.

For information applicable to specific types of forks, please contact the fork manufacturer.

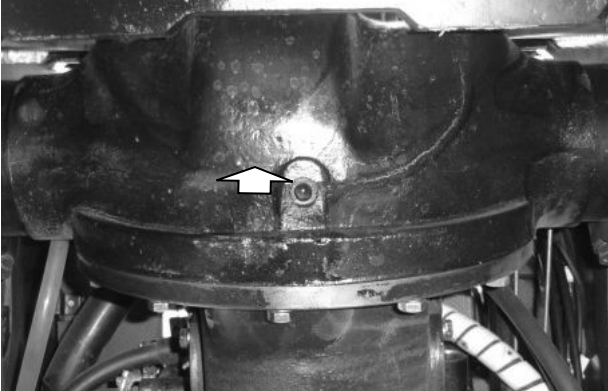
There is no need to test when repairing positioning pins and markings.

100 hours maintenance for the first operation

Before performing any operation and maintenance work, you must read and understand the warnings and instructions in the safety section of this manual.

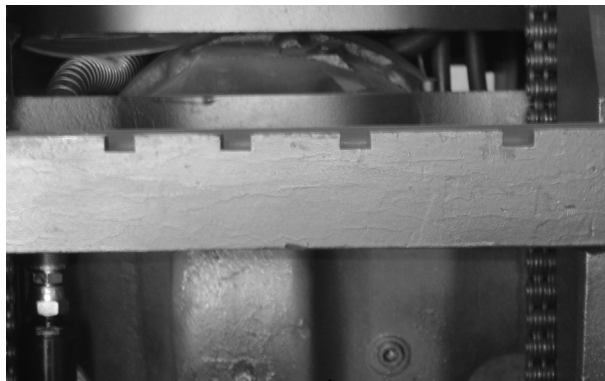
Drive axle transmission gear oil-replacement

Park the forklift horizontally, apply the parking brake, and move the reversing switch to the mid-range position.



1. Remove the oil drain plug. Drain the oil into a suitable container and clean the drain plug.
2. Install the drain plug.
3. Take out the dipstick/oil filler cap. Fill the drive axle box with oil. See "Oil Filling Capacity"
4. Start the forklift.

Raise the front wheel, pull the direction control lever to the forward position, and step on the accelerator pedal.



5. Remove the horizontal plug. Maintain the oil level until the oil overflows.

6. Install the horizontal plug.



7. Install the dipstick/oil filler cap.

note: Tighten the dipstick/oil filler cap to prevent foreign matter (rain, water, etc.) from entering the drive axle.

Parking brake-test, adjust

Parking brake test

note

OSHA requires forklifts to apply parking brakes on a slope of N% under full load conditions. The test requires a test load equivalent to the full load capacity and a slope of N%.

1. The forklift is fully loaded and climbs a slope of N% degrees.



2. Climb a slope of N% degrees forward. In the middle of the ramp, step on the service brake to stop it. (N is the grade of the vehicle)

3. Apply the parking brake and slowly release the service brake.

4. Brake the forklift and pull the shift switch to the neutral position. Slowly release the service brake.

5. If the forklift can be stopped on a slope, the brake is adjusted correctly. If the forklift cannot be stopped on a slope, the brakes need to be adjusted continuously.

6. If the parking brake is activated, the forklift still starts to reverse on the slope, use the service brake to stop, release the parking brake and use the service brake control to slowly reverse down the slope.

If the parking brake is not adjusted properly, the driver must always be prepared to brake the forklift to prevent personal injury when the forklift starts to move.

Parking brake adjustment

1. Park the forklift horizontally, lower the fork, brake the forklift, place the shift switch in the middle, turn off the key, and wedge the driving wheel. Remove the floor mat and floor.

2. Wedge the forklift tires to prevent accidental movement of the forklift.

3. Confirm that the parking brake lever has been released.

4. Tighten the adjustment screw to adjust the parking brake to a proper level.

5. Brake the forklift, remove the tire wedges and test the parking brake. Refer to the previous "Parking Brake Test" section.

note
The parking brake is a mechanical internal expansion type and is built into the wheel brake. It shares the brake shoe and brake drum with the service brake. The gap between the brake shoe and the brake drum can be

automatically adjusted by the gap adjuster. The gap adjustment The device only works when reversing.

Maintenance every 300 hours of operation

Before performing any operation and maintenance work, you must read and understand the warnings and instructions in the safety section of this manual.

Brake oil level-check (replacement cycle)

The brake oil can is installed on the left side of the steering column.

⌘ Remove the oiler lid.

⌘

⌘ Keep the amount of brake oil in the brake oil tank at 2/3 of the oil tank.

⌘

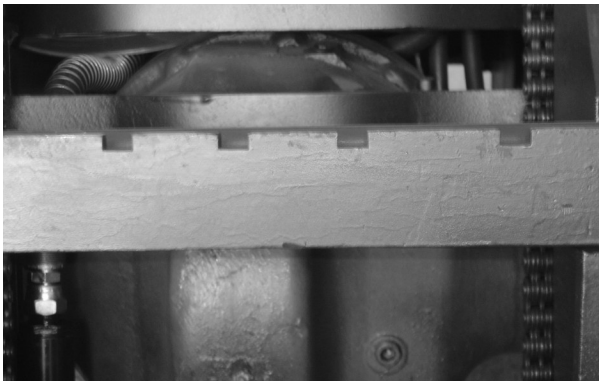
⌘ Clean and install the oiler lid.

⌘

⌘ Note: Brake oil replacement cycle

Drive axle oil level-check

Park the forklift horizontally and apply the parking brake. Place the reversing handle in the mid-range position.

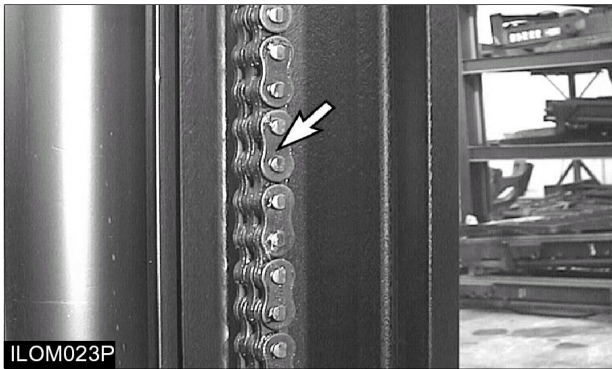


1. Take out the screw plug on the front surface of the drive axle.
2. Use lighting to see if the liquid level of the drive axle is lower than the bottom edge of the screw plug hole, if not enough, add it.

Main frame, fork frame, chain, attachment-inspection, lubrication

1. Perform lifting, tilting and attachment control operations. Whether there is abnormal noise in the note. If there is any abnormality, repair is needed.
2. Check whether there are loose bolts and nuts on the fork frame and the shelf. Remove the attachments on the main frame and fork frame.

3. Check whether the forks and attachments are moving or damaged. Repair if necessary.

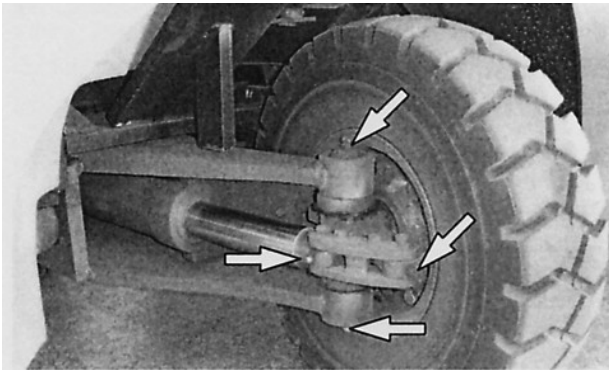


4. Apply a coat of lubricant to all chain links.

5. Lift the fork frame several times to get the lubricant into the chain.

6. Check whether the anchor chain and their respective links are worn, and whether the pins are loose or broken.

Steering mechanism-inspection, lubrication



1. Lubricate the center pin of the steering axis. There are a total of four oil filling points, two on each side.
2. Lubricate the steering link bearings, there are a total of four oil injection points, two on each side.
3. Check the steering mechanism for wear or loose parts. Remove debris when necessary.

Tire working pressure

The inflation pressure listed in the following table is the cold inflation working pressure of Yuli forklift.

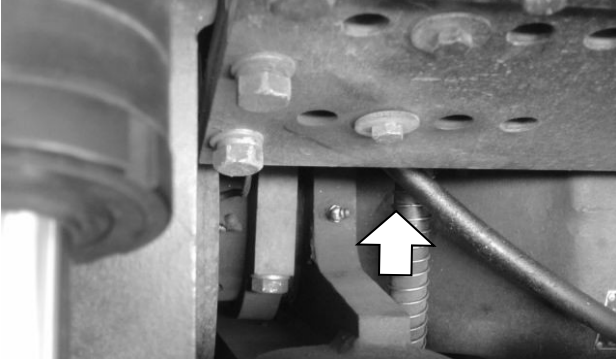
Model	Rated number of layers or strength index	working pressure	
		kPa	psi
7.00-12	12	825	120
28X9-15	14	970	141

* For standard tires, rated number of layers and working pressure, only two tires are listed here as examples. For other tires, please refer to the pressure resin indicated on the tire.

Maintenance every 600 hours of operation

Before starting any operation or maintenance procedures, you must read and understand Warnings and instructions in the "Safety" section of this manual.

Door frame hinge pin-lubrication



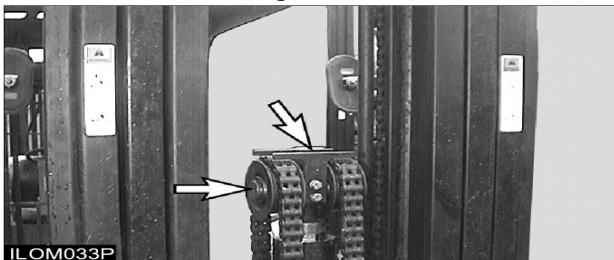
typical example

1. Lower the fork and tilt the mast forward.
2. Lubricate the two oil filling points of the hinge pin of the mast. There is one on each side of the mast.
 1. Check and make sure that the oil cylinder extends and retracts smoothly.
 2. When all forward or backward tilting, if one cylinder has stopped, and the other One cylinder is still moving, and one of the cylinders must be adjusted.
 3. To adjust the extension of the cylinder rod, move the gasket at the back and loosen it Fastening bolts on the spacer.
 4. Screw the cylinder rod into or out of the spacer for adjustment. Screw in Short stroke, screw out to increase stroke.
 5. Tighten the fastening bolts in accordance with $95\pm 15\text{N}\cdot\text{M}$. Check whether the cylinder rod movement smooth.

Cross head sprocket-inspection

Run check

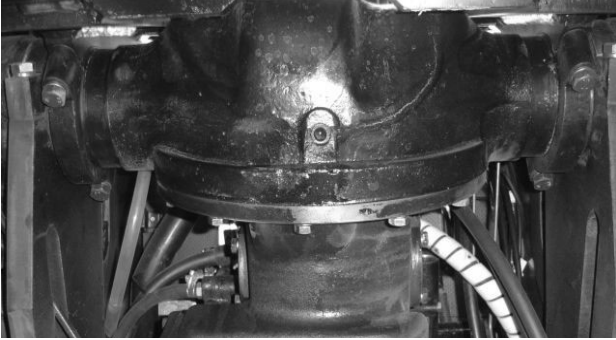
1. Operate the mast to do a lifting cycle. Observe the movement of the lifting chain on the sprocket. Confirm the normal meshing movement of the chain on the sprocket.



Overhead Guard-Inspection

1. Check the tightness of the mounting bolts of the overhead guard with a tightening torque of $95\text{ N}\cdot\text{m}$ (70 lb•ft).
2. Check whether there are bends and cracks in the overhead guard. Repair if necessary.

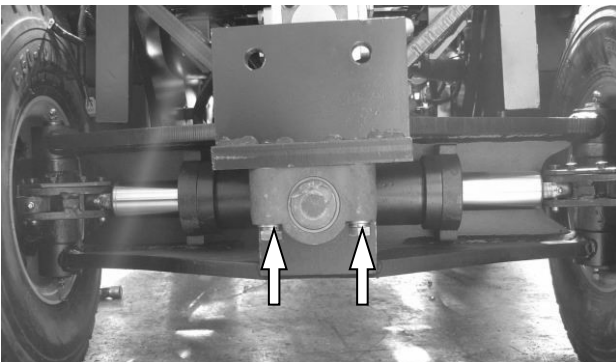
Drive axle gear oil-replace and clean



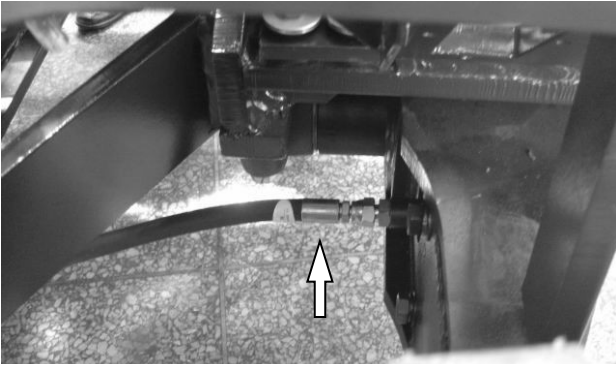
Park the forklift horizontally, lower the fork, tighten the parking brake, place the shift switch at the mid-range position, and turn off the vehicle key.

1. Remove the crankcase oil drain plug and drain the oil into a suitable container. Clean the drain plug.
2. Install the drain plug.
3. Clean the filter assembly in a clean, non-flammable solvent and let it dry. Install the filter assembly and connect the hose.
4. Remove the oil filler cap and fill the drive shaft sleeve with oil.
See "Oil Filling Capacity".
5. Start the forklift and set the direction switch to the middle position.
6. Use lighting to see if the liquid level of the drive axle is lower than the bottom edge of the screw plug hole, if not enough, add it.

Steering suspension-check



1. Check the mounting bolts of the suspension device. If necessary, tighten it to $240 \pm 30\text{N}\cdot\text{m}$ ($180 \pm 20\text{ lb}\cdot\text{ft}$).



2. Check for leaks at the power steering hose connection.

3. Remove dust and dirt on the suspension device and steering wheel.

Parking brake-test, adjust

Refer to "Parking Brake-Test and Adjust" in "Maintenance for the First 100 Hours of Operation".

Torque specifications

Metric Tools

Most of the nuts, bolts, studs and threaded holes of forklift trucks are almost all in metric system. The torque requirements are given in metric and American customary units. Be sure to use metric tools. Refer to the parts manual when changing tools.

Note: Only use suitable metric tools, other tools may slip and cause personal injury.◦

Standard hose clamp torque-threaded drive belt type

Pipe clamp width	Initial installation torque of new hose	
	N·m ¹	lb·in
16 mm (.625 in)	7.5 ± 0.5	65 ± 5
13.5 mm (.531 in)	4.5 ± 0.5	40 ± 5
8 mm (.312 in)	0.9 ± 0.2	8 ± 2
Pipe clamp width	Torque to reinstall or re-tighten the original hose	
	N·m ¹	lb·in
16 mm (.625 in)	4.5 ± 0.5	40 ± 5
13.5 mm (.531 in)	3.0 ± 0.5	25 ± 5
8 mm (.312 in)	0.7 ± 0.2	6 ± 2

* 1 Newton meter (N·m) is approximately equal to 0.1 kg·m.

Torque of standard screws, nuts and conical locking bolts

Torque of standard threaded screws and nuts

Thread model	Torque of standard nut and bolt	
	N·m	lb·ft
1/4	12 ± 4	9 ± 3
5/16	25 ± 7	18 ± 5
3/8	45 ± 7	33 ± 5
7/16	70 ± 15	50 ± 11
1/2	100 ± 15	75 ± 11
9/16	150 ± 20	110 ± 15
5/8	200 ± 25	150 ± 18
3/4	360 ± 50	270 ± 37
7/8	570 ± 80	420 ± 60
1	875 ± 100	640 ± 75
1 1/8	1100 ± 150	820 ± 110
1 1/4	1350 ± 175	1000 ± 130
1 3/8	1600 ± 200	1180 ± 150
1 1/2	2000 ± 275	1480 ± 200

* 1 Newton meter (N·m) is approximately equal to 0.1 kg·m.

Conical locking bolt torque

Thread model	Torque of standard taper lock bolt	
	Inch	N·m ¹
1/4	8 ± 3	6 ± 2
5/16	17 ± 5	13 ± 4
3/8	35 ± 5	26 ± 4
7/16	45 ± 10	33 ± 7
1/2	65 ± 10	48 ± 7
5/8	110 ± 20	80 ± 15
3/4	170 ± 30	125 ± 22
7/8	260 ± 40	190 ± 30
1	400 ± 60	300 ± 45
1/8	500 ± 700	370 ± 50
1/4	650 ± 80	480 ± 60
3/8	750 ± 90	550 ± 65
1/2	870 ± 100	640 ± 75

* 1 Newton meter (N·m) is approximately equal to 0.1 kg·m.

Metric fastener torque

The original fasteners provided with the forklift should be stored for easy use at any time. If new fasteners are replaced, their model and grade should be the same.

The bolt grade is marked on the bolt head (such as 8.8, 10.9, etc.). The following table lists the standard tightening torque of 8.8 grade bolts and nuts.

Note: Metric tools must be replaced with metric tools. Refer to the parts manual when replacing.

Thread model Metric	Standard torque	
	N·m ¹	lb·ft
M6	12 ± 4	9 ± 3
M8	25 ± 7	18 ± 5
M10	55 ± 10	41 ± 7
M12	95 ± 15	70 ± 11
M14	150 ± 20	110 ± 15
M16	220 ± 30	160 ± 22
M20	450 ± 70	330 ± 50
M24	775 ± 100	570 ± 75
M30	1600 ± 200	1180 ± 150
M36	2700 ± 400	2000 ± 300

*1 Newton meter (1N·m) is approximately equal to 0.1kg·m.

* ISO-International Organization for Standardization.

note: Do not use gear oil in the final drive or differential gear. Gear oil can cause sealing material failure and possible oil leakage.

Note: If you do not follow the recommendations in the manual, it will cause excessive wear of the gear and shorten the service life.

You can use API CD/TO-2 specifications or MIL-L-2104D, E or F oil.

Lubricating Grease (MPGM)

Use molybdenum disulfide grease (MPGM) on bearings and joints that are prone to wear. If you do not use molybdenum disulfide grease, you can use grease containing 3% -5% molybdenum disulfide.

NLGI No. 2 grade oil is suitable for most temperature ranges. NLGI No.1 or No.0 grade oil is suitable for extremely low temperature conditions.

Brake fluid

Please use oil that meets the following specifications.

·SAE J1703f DOT-3或DOT-4。

Lubricating oil viscosity and oil filling capacity

Lubricating oil viscosity

Lubricating oil viscosity at different ambient (outside) temperatures					
Component or system	Oil viscosity	°C		°F	
		minimum	maximum	minimum	maximum
Hydraulic and power steering system ISO 6743/4 HM	ISO VG32	-20	+30	-4	+86
	ISO VG46	-10	+40	+14	+104
	ISO VG68	0	+50	+32	+122
Drive axle housing API GL-5	SAE80W90	-20	+50	-4	+122

SAE grade shows the viscosity of lubricating oil. The appropriate SAE level should be selected according to the ambient temperature.

Oil filling capacity

Oil filling capacity-(approximate value)		
Component or system	Liter	US gallons
Hydraulic system	44	11.6
Drive axle	8	2.11

Maintenance cycle

Except for every 10 hours or daily maintenance, all maintenance and repairs of the forklift must be performed by authorized professionals.

note

Improper disposal of waste oil will harm the environment and personnel.

Waste oil disposal can only be done by authorized personnel.

Maintenance on demand

Before performing any operation and maintenance work, you must read and understand the warnings and instructions in the safety section of this manual.

Seat, hood latch and support cylinder-check and lubricate

1. Check the working status of the seat adjustment lever. Confirm that the seat can slide freely in its slide.

If necessary, add a small amount of lubricant to the slide.