

ECB70 | ECB80

SERVICE MANUAL

< SM-ECB70/802019001-EN >





This manual is used for authorized personnel to service BYD forklifts



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Daily Maintenance

Period and Items

Daily (or every 8 hours) and weekly (or every 40 hours) for daily inspection items, whichever comes first. For example, if daily working hours are less than 8 hours per day, conduct the inspection and checks on a daily basis. If daily working hours exceed 8 hours, conduct the inspection and checks every 8 hours.

Inspection checklist:

| | _ | 1 day | 1 week |
|-----|-----------------------------------|-------------------|-------------------|
| No. | Items | 8h | 40h |
| 1 | Forklift Exterior | Check | |
| 2 | Tires | Clean and tighten | Clean and tighten |
| 3 | Mast | Check | |
| 4 | Hydraulic System | Check | |
| 5 | Seat | Check | |
| 6 | Display | Check | |
| 7 | Warning Equipment | Check | |
| 8 | Braking System | Check | Check |
| 9 | Driving, Steering and Controlling | Check | |
| 10 | Electric System | | Check |
| 11 | Counterweight | Check | |
| 12 | Clean | | Clean |
| 13 | Others | Check | |

Note

(1)These inspections should be conducted before operating the forklift.

(2)Before conducting the daily inspection, recheck for any fault and error found earlier.

Content Description

1.Forklift Appearance

(1)Check the forklift body for damage and deformation.

(2)Check the floor where the forklift is parked for oil leakage.

(3)Check whether nameplate, loading capacity chart and warning decals and signs are complete.

Note

If oil leakage occurs, confirm the location of the oil leakage and contact the BYD after sales service



2.Tires

(1)Check if the wheel fasteners are secured or loose. Fasten them if they are loose (2) Take out debris embedded in the tire.

(3) If the four tires are unevenly worn, or the tires are found damaged, or the rims are bent, then replace the tires.

3.Mast

(1)Check the cylinders, oil pipes, and hoses on working equipment for oil leakage. (2)Check the working equipment for deformation and damage. Check if the bolts are

securely fastened.

<u>Note</u>

If oil leakage occurs, confirm the location of oil leakage and contact the BYD after sales service.

4.Hydraulic System

(1)Check the hydraulic oil level in the oil tank.

(2)Check the state of the filter indicator.

5.Seat

(1)Pull the seat belt fully out and check for fraying.

(2)Check the locking device (belt buckle) of the seat belt, and check if the retractor functions properly.

(3)Check if the seat can be adjusted forward and backward, and if the back rest angle and seat suspension can be adjusted.

<u>Danger</u>

In the case of seat belt failure, stop operating the forklift and replace the seat belt.

6.Display

(1)Check if the battery voltage and status of charger displayed are correct.

(2)Check if any error/fault indicator appears on the display.

(3)Set the direction control switch to "forward", "neutral" and "reverse" and check if corresponding indicator appears

(4)Check if the turning indicator signs appear when the turning indicator is activated.

(5) Check if the 3 control buttons on the display functions properly.

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7.Warning Equipment

(1)Check if working lights work properly.

(2)Check if turning lights work properly.

(3)Set the gear to "Reverse" and check if reversing lights work and reversing beeper

sound

(4)Press horn to see if it works.

(5)Check if other warning equipment work properly.

8.Braking System

(1)Fully depress and then release the braking pedal and check if there is any abnormality.

(2)Check if the parking brake works properly when it is applied. Check the operating force needed to fully apply the parking brake. Check for abnormal wear on the parking brake.

(3)Check the braking fluid level.

9. Driving, Steering and Operating

(1)Turn the steering wheel clockwise and anti-clockwise and check if the steering is smooth.

(2)Operate the mechanical levers and check if lifting and tilting are smooth.

(3)Depress the acceleration pedal to see if the forklift can accelerate normally.

(4)Check for abnormal sounds during forklift operation.

10.Electric System

(1)Check the electrical wiring of the forklift.

(2)Check the fuse and relay.

(3)Check the main controller.

11.Counterweight

(1)Check the counterweight bolts.

(2)Check the tow pin.

12.Clean

(1)Clean the forklift.

13.Others

(1)Check if there are other problems.

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Regular Maintenance

Period and Items

Period for regular inspection and maintenance, whichever comes first. For example, if the vehicle works less than 250 hours in 6 weeks, conduct the following inspection and checks every 6 weeks, otherwise conduct the following inspection and checks every 250 hours. Perform the maintenance service accordingly

| Category | Items | 6 weeks | 3 | 6 | 12 | Months |
|------------------|------------------------------------------------|-----------------|-----------------|-------------|-------------|--------|
| | | 250 | 500 | 1000 | 2000 | Hours |
| Chassis System | Steering Axle | Lubrication | | | | |
| | Braking Fluid | | | Replacement | | |
| | Gear Oil Replacement | 1st replacement | | Replacement | | |
| Mast | Chains Adjustment | Check | | | | |
| | Lift Chains Lubrication | Lubrication | | | | |
| | Mast Cleaning | Clean | | | | |
| | Mast Lubrication | Lubrication | | | | |
| Hydraulic System | Hydraulic Oil Replacement of Main Oil Tank | | | | Replacement | |
| | Hydraulic Oil Replacement of Tilt Mechanism | | | Replacement | | |
| | Return Filter Element Replacement | | 1st replacement | Replacement | | |
| | High Pressure Filter Element Replacement | | 1st replacement | Replacement | | |
| | Return Filter's Air Filter Replacement | | | | Replacement | |
| Electric System | Electric System | | Check | | | |
| Others | Torque on Critical Fasteners Check | | | Check | | |

<u>Note</u>

If the working environment is harsh, the maintenance interval should be reduced, and advice from BYD after sales personnel should be sought.

Content Descriptions

1.Chassis System

(1)Lubricate the drive axle.(2)Replace the brake fluid.

(3)Replace the gear oil.

2.Mast

(1)Check the tightness of the chain and adjust if necessary.(2)Lubricate the chains.(3)Clean the mast.

3.Hydraulic System

(1)Replace hydraulic oil regularly.

(2)Replace return filter element (3)Replace high pressure filter element

- (4)Replace air filter
- 4.Electric System
 - (1)Check the electrical wiring of the forklift.(2)Check fuse and relay.(3)Check the main controller.
- 5.Others
 - Check torque on critical fasteners

AUXILIARY MATERIAL

Type and Parameters of AUXILIARY MATERIAL

| Items | Category | Volume Needed | Туре |
|------------------------------------------------|-------------------------------|---------------|-------------------------------------------------------------|
| Gear Oil Replacement | Gear Oil | As Needed | Mobil Fluid 424 |
| Hydraulic Oil Replacement Of Main Oil Tank | Hydraulic Oil | 130L | I S O V G 4 6 (\leq 4 6 ° C), ISOVG68(\leq 68° C) |
| Hydraulic Oil Replacement Of Tilt Mechanism | Hydraulic Oil Used For Planes | As Needed | 10# |
| Braking System | Braking Fluid | As Needed | DOT4 |
| Mast Lubrication | Lithium Lubrication Grease | As Needed | EP2 |
| Steering Axle | Lithium Lubrication Grease | As Needed | EP3 |
| Lift Chains Lubrication | Machine Oil | As Needed | 20#(Winter), 40#(Other seasons) |

<u>Note</u>

The given quantities are maximum values and take the actual quantities as the standard.



CHASSIS SYSTEM MAINTENANCE

This chapter explains how to maintain chassis system.

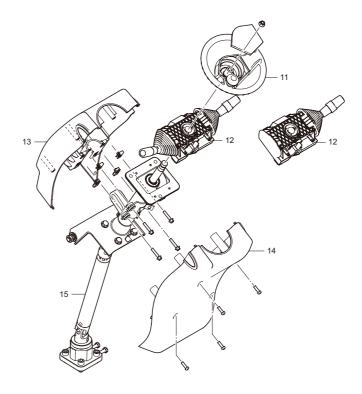
Steering Column

Descriptions

The switch assy (basic or comfort) is fixed between the steering shaft assembly and the steering wheel

Connected to the bottom of the steering shaft assembly, the steering control unit is operated by the steering wheel, which is supplied with oil pressure from the main hydraulic pump and directs oil flow to the steering cylinder in the steering axle.

The cover and the entire column can be removed for service or replacement.



| CODE | PART NAME | QTY | INFORMATION | CODE | PART NAME | QTY | INFORMATION |
|------|-----------------------|-----|-------------|------|-------------------------|-----|-------------|
| 11 | STEERING WHEEL | 1 | | 13 | FRONT STEERING COLUMN | 1 | |
| | | | | | COVER | | |
| 12 | SWITCH ASSY (BASIC) | 1 | | 14 | REAR STEERING COLUMN | 1 | |
| | | | | | COVER | | |
| 12 | SWITCH ASSY (COMFORT) | 1 | | 15 | STEERING SHAFT ASSEMBLY | 1 | |

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SERVICE MANUAL

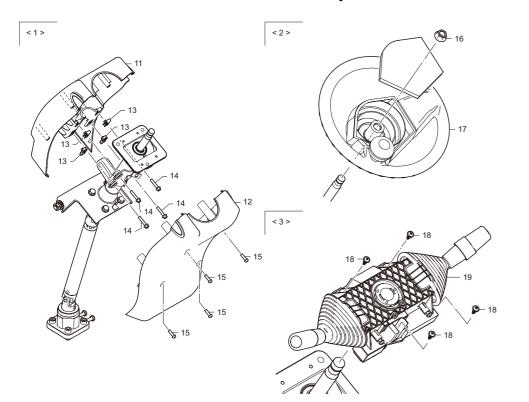
Steering Column Removal and Installation

1.Cover, Steering Wheel and Switch Assembly Removal

(1)Loosen 4 screws in the Rear Steering Column Cover and remove them. Loosen 4 bolts to remove the Front Steering Column Cover (4 clip nuts don't need to be removed).

(2)Open the cover of the steering wheel, loosen the nut, and remove them.

(3)Loosen 4 screws to remove the switch assembly.



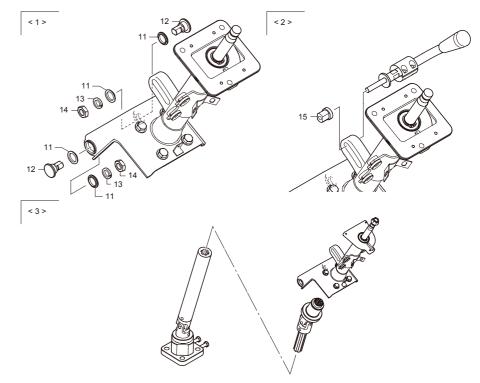
| CODE | PART NAME | QTY | INFORMATION | CODE | PART NAME | QTY | INFORMATION |
|------|-----------------------|-----|-------------|------|---------------------------|-----|-------------|
| 11 | FRONT STEERING COLUMN | 1 | | | HEXAGON FLANGE NUT M12 | 1 | |
| 12 | REAR STEERING COLUMN | 1 | | 17 | STEERING WHEEL | 1 | |
| 13 | CLIP NUT M6 | 4 | | 18 | SCREW M5×14 | 4 | |
| 14 | BOLT M6×30 | 4 | | 19 | SWITCH ASSY (BASIC) | 1 | |
| 15 | SCREW M6×20 | 4 | | | | | |



- 2.Steering Column Removal
- (1)Loosen nuts on the steering column.

(2)Loosen the insert nut

(3)Remove them



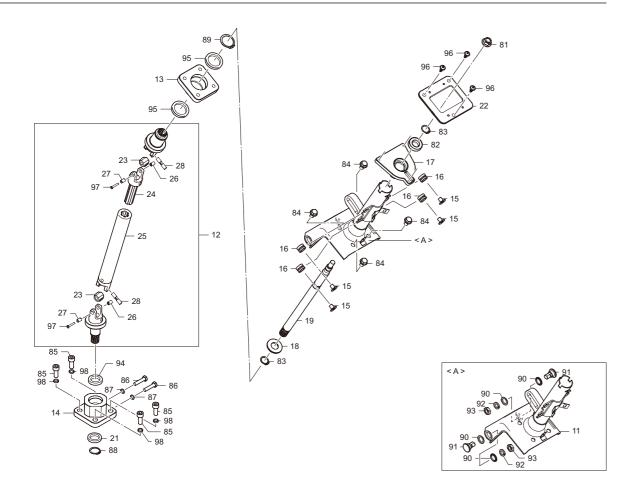
| C | CODE | PART NAME | QTY | INFORMATION | CODE | PART NAME | QTY | INFORMATION |
|---|------|-----------------|-----|-------------|------|-----------|-----|-------------|
| | 11 | FLAT WASHER | 4 | | 14 | FLAT NUT | 2 | |
| | 12 | FLAT ROUND BOLT | 2 | | 15 | NUT | 1 | |
| | 13 | SPRING WASHER | 2 | | | | | |

3. Steering Column, Cover, Steering Wheel and Switch Assembly Installation

Follow the steps in reverse to install Steering Column, Cover, Steering Wheel and Switch Assembly.

Steering Column Overhaul

Use the picture of the explosive view as the guide to overhaul the steering column.



| CODE | PART NAME | QTY | INFORMATION | CODE | PART NAME | QTY | INFORMATION |
|------|---------------------------|-----|-------------|------|-------------------------------|-----|-------------|
| 11 | STEERING BRACKET | 1 | | 82 | BALL BEARING | 1 | |
| 12 | CARDAN SHAFT ASSY | 1 | | 83 | CIRCLIP | 2 | |
| 13 | TOP FLANGE | 1 | | 84 | HEXAGON FLANGE BOLT M10×16 | 4 | |
| 14 | BOTTOM FLANGE | 1 | | 85 | SCREW M10×35 | 4 | |
| 15 | INSERT | 4 | | 86 | BOLT M8×35 | 2 | |
| 16 | RUBBER | 4 | | 87 | SPRING WASHER M8 | 2 | |
| 17 | SUPPORT PLATE | 1 | | 88 | CIRCLIP | 1 | |
| 18 | WASHER | 1 | | 89 | CIRCLIP | 1 | |
| 19 | INNER SHAFT | 1 | | 90 | FLAT WASHER | 4 | |
| 21 | WASHER | 1 | | 91 | FLAT ROUND BOLT | 2 | |
| 22 | SUPPORT PLATE | 1 | | 92 | SPRING WASHER | 2 | |
| 23 | JOINT | 2 | | 93 | FLAT NUT | 2 | |
| 24 | SPLINE ROD | 1 | | 94 | BALL BEARING | 1 | |
| 25 | SPLINE COLUMN | 1 | | 95 | BALL BEARING | 2 | |
| 26 | PIN | 2 | | 96 | SCREW M4.8×19 | З | |
| 27 | HOLLOW PIN | 2 | | 97 | SCREW M4×25 | 2 | |
| 28 | SLOTTED PIN | 2 | | 98 | SPRING WASHER M10 | 4 | |
| 81 | HEXAGON FLANGE NUT M12 | 1 | | | | | |



Steering Axle

Descriptions

The steering axle has the steering cylinder, knuckles, and links mounted on it. All these components can be removed, serviced, and replaced.

The steering control unit at the base of the steering column directs hydraulic oil to one end or the other of the steer cylinder to pivot the steer wheels.

The steer axle is bolted to the truck frame. The steer cylinder is connected to the steering knuckles by links.

All bearings used in the steer axle linkage have lubrication fittings and are serviceable.

Steering Axle Wheel Bearing Service

1.Bearing Disassembly

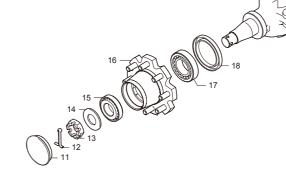
(1)Remove the Wheel.

(2)Open the dust cap, remove the split pin, the castle nut and washer. back side across the thread on spindle end.

(4)Clean the old grease out of center of the hub. (5)Lay the hub down with outer edge up (support hub on blocking), and then remove the inner bearing cone and grease seal.

(6)Clean and inspect the bearing cups and cones for wear or other damage. Replace them as a set if necessary.

(7)Inspect grease seal for wear and damage. Replace as necessary. It is recommended to install a new grease seal whenever old ones are removed. (8) Use a standard puller to remove bearing cups from hub if bearings require replacement.



| CODE | PART NAME | QTY | INFORMATION | CODE | PART NAME | QTY | INFORMATION |
|------|------------|-----|-------------|------|-----------------|-----|-------------|
| 11 | DUST CAP | 1 | | 15 | TAPERED BEARING | 1 | |
| 12 | SPLIT PIN | 1 | | 16 | HUB | 1 | |
| 13 | CASTLE NUT | 1 | | 17 | TAPERED BEARING | 1 | |
| 14 | WASHER M30 | 1 | | 18 | SEAL | 1 | |

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(3)Pull off the hub from the knuckle. Support the hub to avoid dragging the grease seal at the

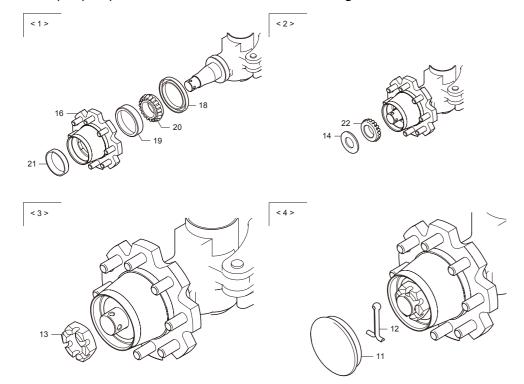
2.Bearing Reassembly

(1)Press new bearing cups into the hub and ensure cups being seated correctly. Pack the bearings with grease and install the inner bearing. Pack cavity between bearing and seal half full with grease. Apply coating of grease to inside diameter of seal lips prior to assembly, then install seal in hub.

(2)Install the hub on knuckle carefully to avoid damage grease seal lip when moving the hub over the end of spindle and threads. Pack cavity in hub between bearings one-half full with grease. Install the outer wheel bearing after it has been packed with grease, and then install the washer

(3)Install the castle nut, tighten it, and then unscrew it by 1/8~1/6 turn. Recheck for correct bearing adjustment by rotating the hub by hand. The hub should rotate free. Readjust bearings by adjusting the castle nut as necessary to avoid binding in bearings.

(4)Install the split pin, pack the area around castle nut with grease, and then install the dust cap.



| CODE | PART NAME | QTY | INFORMATION | CODE | PART NAME | QTY | INFORMATION |
|------|------------|-----|-------------|------|---------------|-----|-------------|
| 11 | DUST CAP | 1 | | 18 | SEAL | 1 | |
| 12 | SPLIT PIN | 1 | | 19 | BEARING CUP | 1 | |
| 13 | CASTLE NUT | 1 | | 20 | INNER BEARING | 1 | |
| 14 | WASHER M30 | 1 | | 21 | BEARING CUP | 1 | |
| 16 | HUB | 1 | | 22 | INNER BEARING | 1 | |



Drive Axle

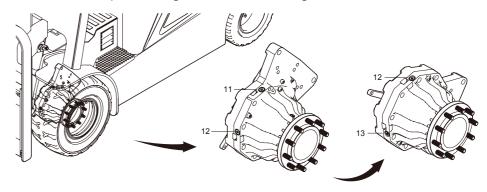
Gear Oil Replacement

Run the forklift until the driving axle gets lightly heated. Park the forklift on a level floor, apply the hand brake, switch off the forklift, remove the key and press down the emergency disconnect switch.

Lift the forklift with jack and secure the wheels with wedges. Remove the wheels.

(1)Clean the surrounding areas around the oil drain plug, oil filler plug and oil dipstick plug. Place a container below the oil drain plug.

(2)Remove oil drain plug, oil filler plug and oil dipstick plug and drain all the gear oil. (3)Put the oil drain plug back on and tighten it. (5) Tighten both oil dipstick plug and oil filler plug. (6) Refit the wheel and replace the gear oil in the driving axle on the other side.



| | CODE | PART NAME | QTY | INFORMATION | CODE | PART NAME | QTY | INFORMATION |
|---|------|-------------------|-----|-------------|------|----------------|-----|-------------|
| Γ | 11 | OIL FILLER PLUG | 1 | 20N-m | 13 | OIL DRAIN PLUG | 1 | 20N-m |
| | 12 | OIL DIPSTICK PLUG | 1 | 20N-m | | | | |

Wheel and Tire

Appearance Check

Check the condition of wheels and tires. Remove things imbedded in tires.



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(4)Add the gear oil through oil filler hole until the gear oil overflows out of oil dipstick plug.



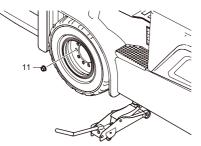
Wheel Removal and Mounting

1.Front Wheel Removal and Mounting

(1)Park the vehicle on the level floor, apply the handbrake, switch off the vehicle, remove the key and press down the emergency disconnect switch.

(2) Jack up the vehicle until the tires are off the ground and loosen the wheel nuts. (3)Remove the wheel nuts and wheels.

(4)Follow the reverse procedures to install the wheels back on.



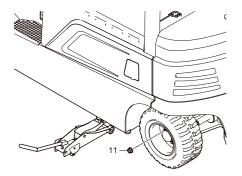
2.Front Wheel Removal and Mounting

(1)Park the vehicle on the level floor, apply the handbrake, switch off the vehicle, remove the key and press down the emergency disconnect switch.

(2) Jack up the vehicle until the tires are off the ground and loosen the wheel nuts.

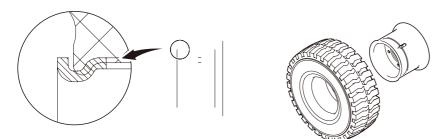
(3)Remove the wheel nuts and wheels.

(4)Follow the reverse procedures to install the wheels back on.



Tire Replacement

For this kind of wheel, the tire will be damaged when pulled out the rim, so the tire can only be removed and replaced by machine.





MAST MAINTENANCE

This chapter will explain how to maintain mast.

Chain

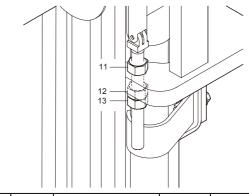
2-Stage Standard Mast Chain Adjustment

The 2-stage standard mast has a main lift chain set that is needed to be adjusted.

| No. | Chain | Adjustment Purpose | Requirement |
|-----|-----------------|--------------------------|-------------|
| 1 | Main Lift Chain | Fork-to-Ground Clearance | 10~20mm |

1.Fork-to-ground clearance adjustment

(1)Tilt the mast to be on the vertical position, and then fully lower the mast. (2)Loosen the upper nut (that some masts have) and the lower nut. (3)Screw the middle nut to adjust the chain until it meets the requirement. (4)Tighten the upper and lower nuts.



| CODE | PART NAME | QTY | INFORMATION | CODE | PART NAME | QTY | INFORMATION |
|------|-----------|-----|-------------|------|-----------|-----|-------------|
| 11 | NUT | 1 | | 13 | NUT | 1 | |
| 12 | NUT | 1 | | | | | |

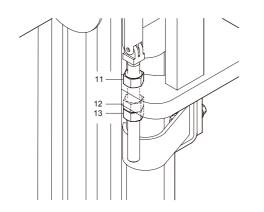
3-Stage Free Lift Mast (4 Cylinders) Chain Adjustment

The 3-stage free list mast (4 cylinders) has a main lift chain set and a free lift chain set that are needed to be adjusted.

| No. | Chain | Adjustment Purpose | Requirement |
|-----|-----------------|--------------------------|-------------|
| 1 | Main Lift Chain | Inner Mast Bottom Height | ≤ 2mm |
| 2 | Free Lift Chain | Fork-to-Ground Clearance | 10~20mm |

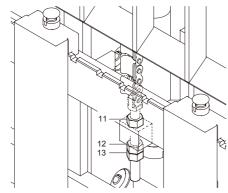
1.Inner mast bottom height adjustment

(1)Tilt the mast to be on the vertical position, and then fully lower the mast. (2)Loosen the upper nut (that some masts have) and the lower nut. (3)Screw the middle nut to adjust the chain until it meet the requirement. (4) Tighten the upper and lower nuts.



| CODE | PART NAME | QTY | INFORMATION | CODE | PART NAME | QTY | INFORMATION |
|------|-----------|-----|-------------|------|-----------|-----|-------------|
| 11 | NUT | 1 | | 13 | NUT | 1 | |
| 12 | NUT | 1 | | | | | |

(1)Tilt the mast to be on the vertical position, and then fully lower the mast. (2)Loosen the upper nut (that some masts have) and the lower nut. (3)Screw the middle nut to adjust the chain until it meet the requirement. (4) Tighten the upper and lower nuts.



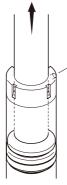
| CODE | PART NAME | QTY | INFORMATION | CODE | PART NAME | QTY | INFORMATION |
|------|-----------|-----|-------------|------|-----------|-----|-------------|
| 11 | NUT | 1 | | 13 | NUT | 1 | |
| 12 | NUT | 1 | | | | | |



Lift Cylinder

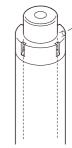
Lift Cylinder Air-Exhausting

(1)Tilt the mast to be on the vertical position, and then fully lower the mast. (2)Remove the screw and washer on the top side of the cylinder. (3)Fully lift the lift cylinder to exhaust the air in the cylinder. (4)Install the screw and the washer, and then tighten the screw.



Lift Cylinder Rod Lubrication

(1)Tilt the mast to be on the vertical position, and then fully lower the mast. (2) Remove the screw and washer on the top side of the cylinder. (3)Add some hydraulic oil into the cylinder tube to lubricate the cylinder rod. (4)After lubrication, exhaust the air in the lift cylinder, install the screw and the washer, and then tighten the screw.



Lift Cylinder Shimming Adjusting

(1)Lift the mast to find the cylinder rod top of the shorter stroke. (2)Tilt the mast to be on the vertical position, and then fully lower the mast. (3)Use a reliable hoisting strap to hang the upper beam of the inner mast (2-stage mast) or the middle mast (3-stage mast), and secure the strap with a safety hook.

(4)Remove the piston rod bolt.

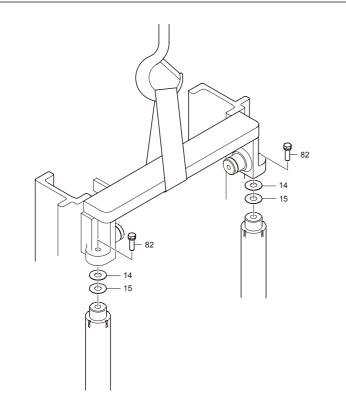
(5)Slowly lift the hoisting strap to expose both cylinder rod tops. (6)Insert several shims over the cylinder rod top of the shorter stroke to achieve equal stroke length.

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(7)Slowly lower the mast back onto the rod tops, and then screw and tighten cylinder rod bolt



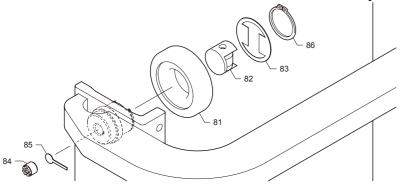
| CODE | PART NAME | QTY | INFORMATION | CODE | PART NAME | QTY | INFORMATION |
|------|------------|-----|-------------|------|------------------|-----|-------------|
| 14 | SHIM 1mm | 2 | | 82 | BOLT ASSY M12×40 | 1 | |
| 15 | SHIM 0.5mm | 1 | | | | | |

Mast and Carriage

Description of Mast and Carriage Roller

1.General Description

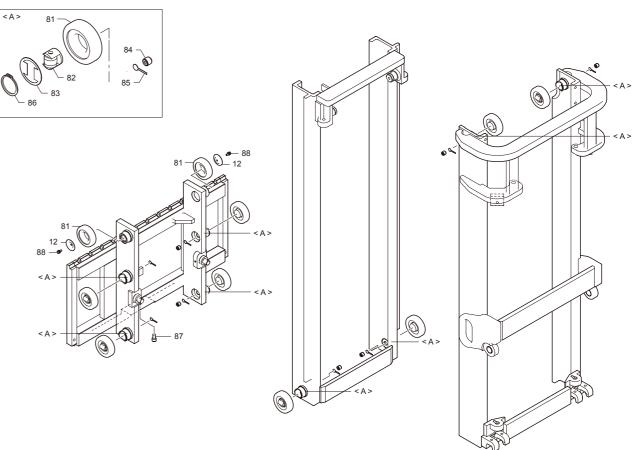
A circlip locks the mast roller, bearing, and the dust protection that are installed on the mast or the carriage stub. The bearing is used to adjust the clearance of the mast and carriage by the adjusting screw, which is installed on the other side of the stub and secured by a secure pin.



| CODE | PART NAME | QTY | INFORMATION | CODE | PART NAME | QTY | INFORMATION |
|------|-----------------|-----|-------------|------|-----------------|-----|-------------|
| 81 | MAST ROLLER | 1 | | 84 | ADJUSTING SCREW | 1 | |
| 82 | BEARING | 1 | | 85 | SECURE PIN | 1 | |
| 83 | DUST PROTECTION | 1 | | 86 | CIRCLIP | 1 | |

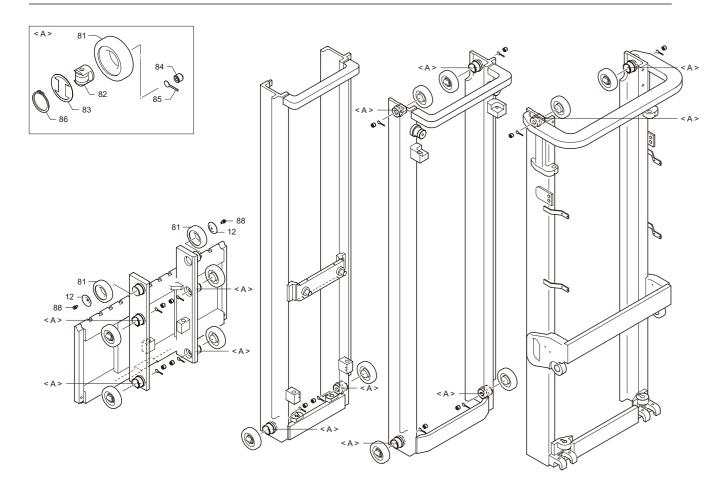


2.2-Stage Mast and Carriage Roller Description In the 2-stage mast, 2 mast rollers are installed on the top side of the outer mast, 2 mast rollers are installed on the bottom side of the inner mast, and 6 mast rollers are installed on the carriage. Being different from others, the upper 2 mast rollers of the carriage are installed by roller protections and bolts.



| CODE | PART NAME | QTY | INFORMATION | CODE | PART NAME | QTY | INFORMATION |
|------|-----------------|-----|-------------|------|-----------------|-----|-------------|
| 12 | PROTECTION | 2 | | 84 | ADJUST SCREW | 8 | |
| 81 | MAST ROLLER | 10 | | 85 | SECURE PIN | 8 | |
| 82 | BEARING | 8 | | 86 | CIRCLIP | 8 | |
| 83 | DUST PROTECTION | 8 | | 88 | BOLT ASSY M8×16 | 2 | |

3.3-Stage Mast and Carriage Roller Description



| CODE | PART NAME | QTY | INFORMATION | CODE | PART NAME | QTY | INFORMATION |
|------|-----------------|-----|-------------|------|-----------------|-----|-------------|
| 12 | PROTECTION | 2 | | 84 | ADJUST SCREW | 12 | |
| 81 | MAST ROLLER | 14 | | 85 | SECURE PIN | 12 | |
| 82 | BEARING | 12 | | 86 | CIRCLIP | 12 | |
| 83 | DUST PROTECTION | 12 | | 88 | BOLT ASSY M8×16 | 2 | |

Carriage and Mast Clearance Adjustment

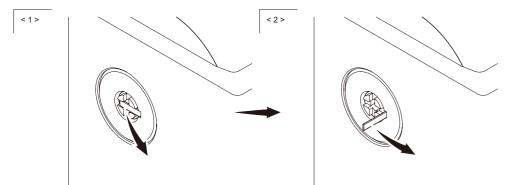
1.General Carriage and Mast Clearance Adjustment Procedure

(1)Lift the mast to expose the position of the adjusting screw.

(2)Bend the secure pin to expose the adjusting screw.

(3)Use the screw to adjust the clearance.

(4)After adjustment, bend the secure pin to secure the adjustment screw.



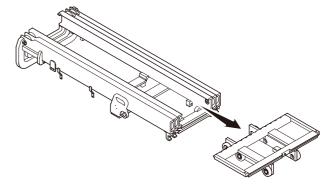


- 2.Order of adjusting 2-stage mast and carriage clearance (1)Clearance between the outer mast and the inner mast. (2)Clearance between the inner mast and the carriage.
- 3. Order of adjusting 3-stage mast and carriage clearance (1)Clearance between the outer mast and the middle mast. (2)Clearance between the middle mast and the inner mast. (3)Clearance between the inner mast and the carriage.

Carriage Removal and Installation after Mast Removal

1.Carriage Removal

(1)Remove the mast, slowly set the mast down on the flat floor or sturdy pallets. (2)Loosen chain nuts to release the carriage. (3)Remove the carriage by sliding it out from the bottom of the mast.



2. Carriage Installation Follow the removal steps in reverse to install the carriage. After installation, adjust the clearance between the carriage and the mast.

Mast and Carriage Roller Replacement 1.Mast Roller Replacement Before mast roller replacement, remove the mast, slowly set the mast down on the flat floor or sturdy pallets, and then remove the carriage and cylinders away from the mast.

(1)Slide the mast in the direction of bottom side of the mast, and then replace mast rollers. (2)Slide the mast in the direction of top side of the mast, and then check the adjusting screws and secure pins, replace them if necessary.

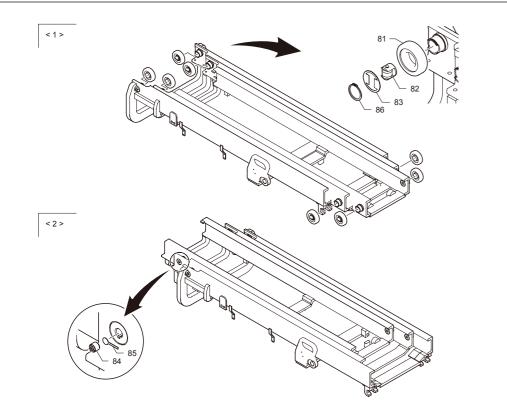
After replacement, adjust the clearance of the mast.

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| CODE | PART NAME | QTY | INFORMATION | CODE | PART NAME | QTY | INFORMATION |
|------|-----------------|-----|-------------|------|--------------|-----|-------------|
| 81 | MAST ROLLER | 8 | | 84 | ADJUST SCREW | 8 | |
| 82 | BEARING | 8 | | 85 | SECURE PIN | 8 | |
| 83 | DUST PROTECTION | 8 | | 86 | CIRCLIP | 8 | |

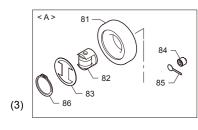


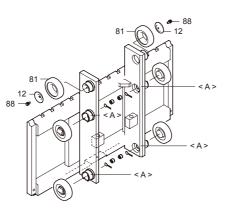
| CODE | PART NAME | QTY | INFORMATION | CODE | PART NAME | QTY | INFORMATION |
|------|-----------------|-----|-------------|------|-----------------|-----|-------------|
| 12 | PROTECTION | 2 | | 84 | ADJUST SCREW | 4 | |
| 81 | MAST ROLLER | 6 | | 85 | SECURE PIN | 4 | |
| 82 | BEARING | 4 | | 86 | CIRCLIP | 4 | |
| 83 | DUST PROTECTION | 4 | | 88 | BOLT ASSY M8×16 | 2 | |

2.Carriage Roller Replacement

(1)Check the adjusting screws and secure pins, replace them if necessary.

(2)Replace carriage rollers.





OTHER INFORMATION

Importer: BYD Europe B.V. Address: s-Gravelandseweg 256, 3125 BK Schiedam, Netherlands Tel:+31-10-2070888 Fax:+31-10-2070880

Importer: BYD Motors Inc. Address: 1800 South Figueroa Street, Los Angeles, CA, 90015 Tel: 213-748-3980 Fax: 213-748-3945 E-mail: FORKLIFTSERVICE@BYD.COM

Importer: BYD do Brasil Address: Av. Antonio Boscato, 230 Terminal Intermodal de Cargas – TIC, CEP 13069-119 CAMPINAS - SP Tel: +55193514-2551 E-mail: FORKLIFTSERVICE@BYD.COM

Importer: BYD Japan company Limited Address: The fifth Yasuda Bldg.5F,2-20-3 Tsuya-cho, Kanagawa-ku, Yokohama-shi,Kanagawaken,221-0835,Janpan Tel: 045-290-6550; 045-290-6616 Fax: 81-(0)45-319-1506

Importer: BYD Auto Industry Company LimitedAddress: No.3009, BYD Road, Pingshan, Shenzhen, 518118, P.R.ChinaTel: +86-755-89888888Fax: +86-755-84202222

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