CAT® Lift Trucks

Service Manual

Chassis & Mast

MC

DP70NM AT20D-40011-up

For use with S6S-T Diesel Engine Service Manual

99709-8C100

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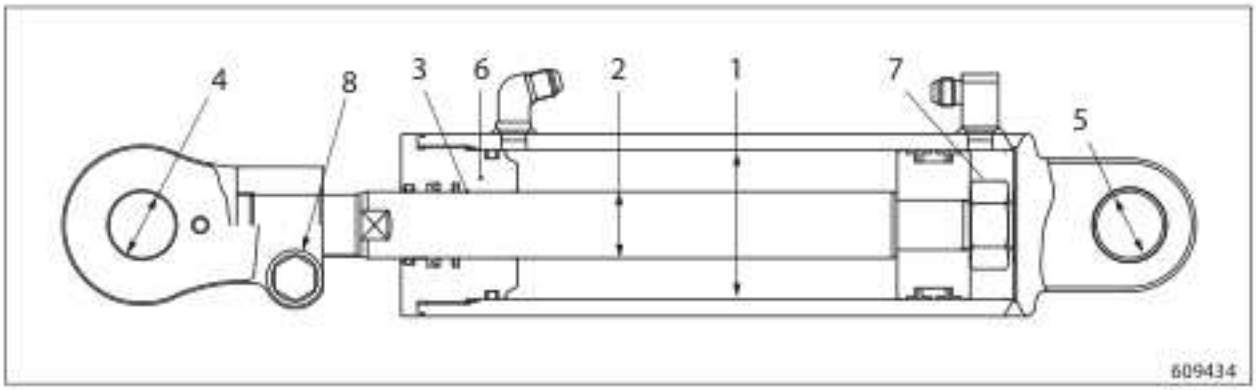
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25.6 Tilt Cylinder



Ref.	Item		Specifications
1	Cylinder tube inside diameter	Standard	90 mm (3.54 in.)
		Limit	90.12 mm (3.5480 in.)
2	[Bushing] Outside diameter of piston rod	Standard	$40\ ^{-0.025}_{-0.064}$ mm ($1.57\ ^{-0.001}_{-0.0025}$ in.)
3	Clearance between rod and bushing	Standard	0.075 to 0.139 mm (0.0030 to 0.0055 in.)
		Limit	0.35 mm (0.0138 in.)
4	Mast side socket bushing inside diameter (press-fit condition)	Standard	$40\ ^{+0.085}_{0}$ mm ($1.57\ ^{+0.0033}_{0}$ in.)
		Limit	40.6 mm (1.598 in.)
5	Frame side head bushing inside diameter (press-fit condition)	Standard	$40\ ^{+0.085}_{0}$ mm ($1.57\ ^{+0.0033}_{0}$ in.)
		Limit	40.6 mm (1.598 in.)
6	Guide bushing threads diameter	Standard	M95 × 2.0
	Guide bushing	Tightening torque	637 ± 64 N·m (65.0 ± 6.5 kgf·m) [469.8 ± 47.2 lbf·ft]
7	Piston rod nut	Tightening torque	588 ± 29 N·m (60. 0 ± 3.0 kgf·m) [433.7 ± 21.4 lbf·ft]
8	Tilt socket bolt	Tightening torque	262 ± 13 N·m (26.72 ± 1.33 kgf·m) [193.24 ± 9.59 lbf·ft]

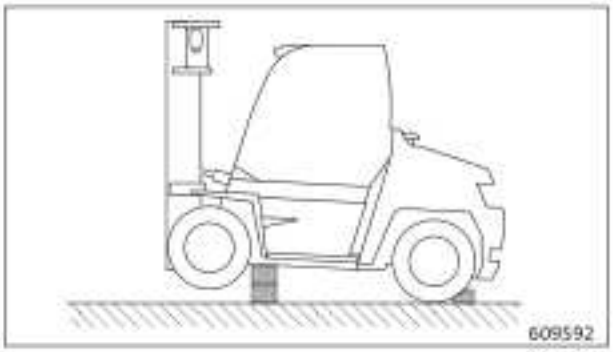
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1.16 Removing and Installing Mast Rollers and Strips Without Removing Mast From Lift Truck

The mast rollers and strips can only be removed or installed when the inner mast is positioned lower than the outer mast. This can be achieved as follows:

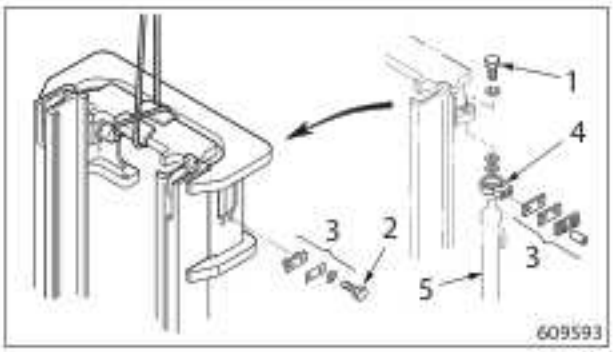
(1) Disconnect the lift bracket assembly from the mast.

(2) Lift the front side of the lift truck by 15 to 20 cm (0.6 to 0.8 in.) and place wood blocks underneath. Keep the front side of the lift truck off the ground in preparation to lower the inner mast with a hoist.



(3) Remove the set bolts located on the top of the lift cylinders. Attach a sling on the inner mast, and raise the inner mast with a hoist to separate the lift cylinder piston rods from the inner mast.

(4) Remove the lift cylinder clamp bolts, and separate the lift cylinders from the outer mast. Pull out the lift cylinders from the mounting seats at the bottom of the outer mast. Tilt the cylinder tops inward until they rest on the outer mast cross member. Using a rope, fix the cylinders onto the cross member.



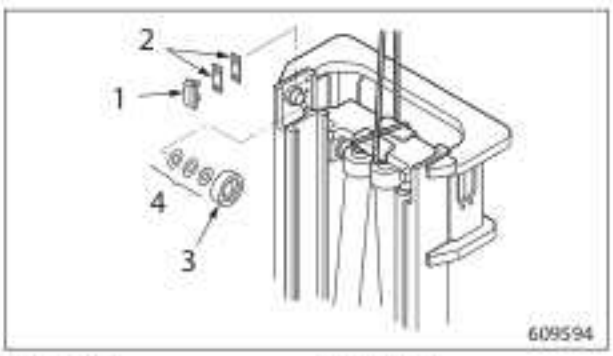
1. Lift cylinder set bolt
2. Clamp bolt
3. Parts for cylinder clamp
4. Cylinder bracket
5. Lift cylinder

(5) Using the hoist, slowly lower the inner mast until the inner mast contacts the lift cylinders.

(6) The main rollers of the inner and outer masts can now be removed. Before attempting to remove the main rollers, remove the mast strips and shims first as they tend to drop easily.

(7) Adjust shim thickness for main rollers and mast strips as required.

Note: To assemble, follow the disassembly sequence in reverse.



1. Mast strip
2. Shim
3. Main roller
4. Shim

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4. Abbreviation

Abbreviation used in this circuit diagrams are explained in the following table:

List of abbreviations (Alphabetical order)

Abbreviation	Explanation
COMBI	COMBINATION
DOC	DIESEL OXIDIZATION CATALYST
DPF	DIESEL PARTICULATE FILTER
ECM	ENGINE CONTROL MODULE
ENG	ENGINE
FC	FINGERTIP CONTROL
FDC	FOOT DIRECTION CONTROL
FNR	FORWARD-NEUTRAL-REVERSE
GND	GROUND
GSE	GROUND SUPPORT EQUIPMENT
HYD	HYDRAULIC
IGN	IGNITION
OCM	OPTION CONTROL MODULE
PDS/IPS	PRESENCE DETECTION SYSTEM / INTEGRATED PRESENCE SYSTEM
PS	POWER STEERING
SOL	SOLENOID
SW	SWITCH
TEMP	TEMPERATURE
T/M	TRANSMISSION
VCM	VEHICLE CONTROL MODULE

Different circuit for each market country is explained in the following abbreviations:

Abbreviation of market countries

Abbreviation	Explanation
MCFA	North and South American market
MCFE	European market
SGM	Japanese market

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