CAT® Lift Trucks

Service Manual

Chassis & Mast

EP13TCB(J)	215E00001-up	264E00001-up
EP15TCB(J)	216E00001-up	265E00001-up
EP16/18/20TCB(J)	288E00001-up	266E00001-up
EP16/18/20TBCB(J)	283E00001-up	267E00001-up

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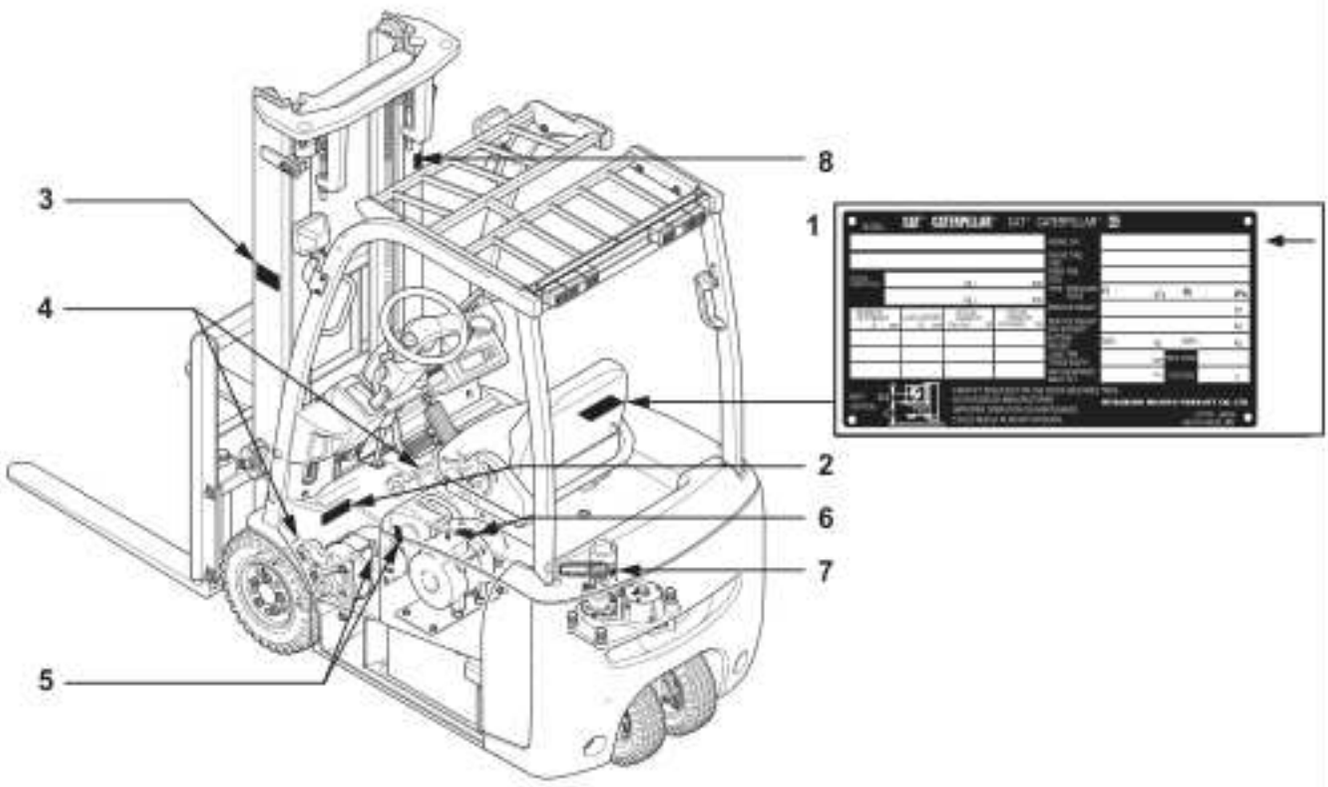
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Serial numbers

No.	Serial numbers	Stamped position
1	Serial No. of Truck	Stamped on Name plate.
2	Serial No. of Chassis	Stamped on Upper cross member.
3	Serial No. of Mast	Stamped on Mast name plate.
4	Serial No. of Front axle	Stamped on Gear case.
5	Serial No. of Traction motor	Stamped on Motor end cover.
6	Serial No. of Hydraulic	Stamped on Motor name plate.
7	Serial No. of EPS motor	Stamped on Motor name plate.
8	Serial No. of Lift cylinders	Stamped on Lilt cylinders.

● **Location of serial numbers**



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7-2-3. Hydraulic piping - precautions for installing

When installing hydraulic piping, observe the following.
In addition, see "7-1. Hydraulic circuit" and "7-2. Hydraulic piping" to check hydraulic line connections.

A. Connecting piping thread

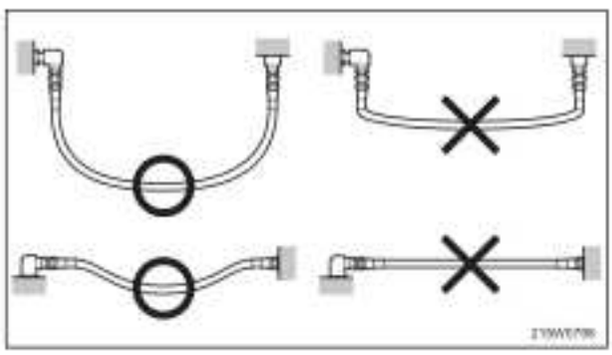
1) Before connecting nipples or hoses to port, clean the port of dirt and debris with a cloth or air pressure.
2) For taper pipe thread, wrap seal tape or equivalent around the thread, and then tighten it to the specified depth.

B. Attaching hoses

1) Only use hoses that meet pressure resistance requirements.
2) Make sure that hoses are long enough.

⚠ CAUTION

Excessive bending and twisting can damage hoses. Pressure can cause unnecessary stress to hoses.



3) Do not twist hoses when attaching them. Moreover, once a hose is attached, make sure that it does not get twisted during operation.

NOTE

You can check for twisting by inspecting the string of letters marked on a hose.



4) When attaching high-pressure hose, first clean the flare of dirt and debris with air pressure, and then tighten to the specified torque.

⚠ CAUTION

To prevent damage to the flare, do not tighten the connection too strongly.

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7c- 4. Troubleshooting

7c-4-1. Control valve - troubleshooting

No.	Symptom	Possible causes	Solution
1	Lift or tilt function does not work	1 Broken Pump or coupling	Replace
		2 Oil tank low on oil	Replenish
		3 Broken Plunger spring	Replace
		4 Broken Hydraulic microswitch	Replace
2	Cannot lift load within rated capacity	1 Broken or incorrectly adjusted Relief valve	Replace or adjust
		2 Broken Pump	Replace
		3. Broken Main controller	Adjust or replace
		4. Worn out packing of Lift cylinder	Replace
3	Lifting speed is too slow.	1 Over-discharged battery	Charge battery
		2 Short plunger stroke	Inspect Valve linkage
		3 Damaged cylinder packing	Replace
		4 Relief pressure is too low	Adjust
		5 Damaged plunger packing	Replace
		6 Broken pump	Replace
		7 Clogged Oil filter	Clean/Replace
		8 Broken Main controller	Adjust or replace
4	Excessive lift and tilt drift	1 Damaged cylinder or piston	Replace
		2 Damaged piston packing	Replace
5	Lift starts too abruptly.	1 Incorrect activation timing of lift microswitches	Adjust
		2 Broken Relief valve	Replace
6	Oil leakage	1 Damaged O-ring or wiper ring	Replace
		2 Loose tie bolts of Hydraulic valve	Retighten

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Tilt cylinder - disassembly

Suggestions

CAUTION

When disassembling, replace packing with new ones.

1. Remove Head.

1) Hold the end part in place with a vise.

NOTE

Record the number of threads of Piston rod Head Mount.

2) Remove Head with a hook wrench.

CAUTION

Do not loosen the bolt of Head by striking it with a chisel.

3) Pull out Head from Piston rod.

2. Remove Guide and Piston rod.

1) Wrap threads of Piston rod with plastic tape.
2) Loosen Guide with a hook wrench, and then pull out it from Piston rod.

CAUTION

Be careful not to damage the bushing.

3) Pull out Piston rod from the cylinder.

3. Remove Piston from Piston rod.

4. Disassemble Guide and Piston.

1) Replace seals with new ones.

● **Fixing Tilt cylinder**



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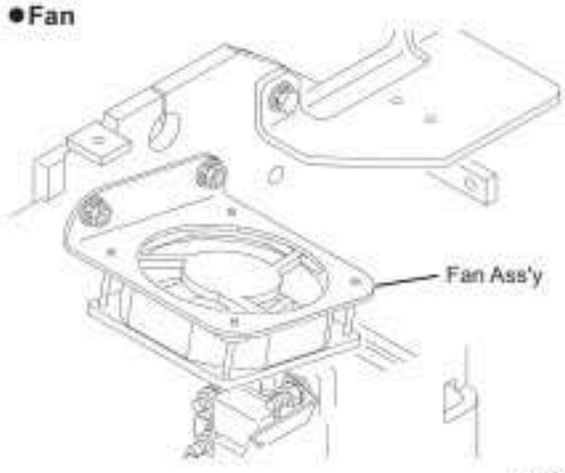
10a-3-4. Fan - specifications

Applicable model	Model	Voltage
EP9TCB - 20TCB	109R1248H116	48V

<CE specifications >

Applicable model	Model	Voltage
EP9TCB - 15TCB	109R1248H116	48V
EP16TCB - 20TCB	9G1248G106	

● Fan



10a-3-5. EPS controller - specifications

Applicable model	Model	Voltage	Current limit
EP9TCB - 16T(B)CB	CU109-84,85	48V	30A
EP18T(B)CB/20T(B)CB			38A

● EPS controller

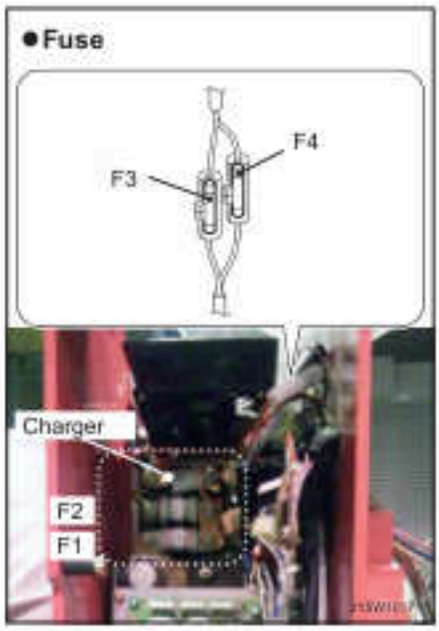


10a-3-6. Fuse

<Fuse type>

Use	Capacity	
Travel · Hydraulic	F1	325A
EPS	F2	40A
Charger (BC only)		100A
Accessories	F3	10A
Control power supply	F4	10A

● Fuse



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