CAT® Lift Trucks

Service Manual

Chassis & Mast

FC/MC

EP16CPN	ETB27-00011-up
EP18CPN	ETB27-50011-up
EP16PN	ETB28-00011-up
EP18PN	ETB28-50011-up
EP20PN	ETB29-00011-up

99759-6M100

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9.2 Parking Brake

Situation	Possible causes	Action
Brake can not be released.	Fault of the parking switch wiring	Check the wiring.
	Malfunction of parking brake switch	Replace the parking switch.
	Battery is empty	Charge.
	Electrical system malfunction	Check the wiring. Refer to the topic of "Manually Releasing of Electro-Magnetic Brake".
	Malfunction of Electro-magnetic brake coil	Measure the resistance of the coil at 20 °C (68 °F). When the value is out of 18.2Ω ±10%, replace the brake.
	Electrical abnormality	Refer to the section of "8. Manually Releasing of Electro-Magnetic Brake".
Insufficient brake release	The brake air gap is too large	Replace the Electro-magnetic brake assembly.
	Low battery voltage	Check and charge the battery.
Brake can not be applied.	Malfunction of Electro-magnetic brake	Replace the Electro-magnetic brake assembly.
Abnormal noise from brake	Malfunction of Electro-magnetic brake	Replace the Electro-magnetic brake assembly.

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(6) If the relief pressure is out of this specification, loosen the lock nut of the relief valve, and while observing the gauge indication, adjust the pressure using the adjusting screw.

(7) While pressing the adjusting screw, tighten the lock nut securely.

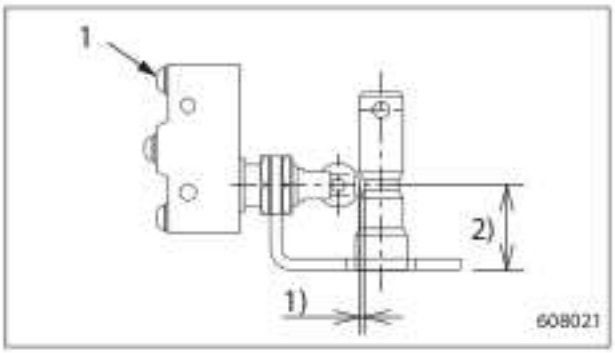
(8) After tightening the lock nut, check the set pressure of the relief valve again.

17.4 Adjusting Microswitch

Microswitches of low-speed lift, tilt and attachment

(1) Adjust the microswitch position to activate the switch when the spool moves from 0.7 mm to 1.2 mm from the neutral position. (the lever is moved from 15 to 25 mm at the top of the lever from the neutral position.)

(2) After adjustment, apply THREEBOND [#1401] or an equivalent product on both fixing nuts of the switch.



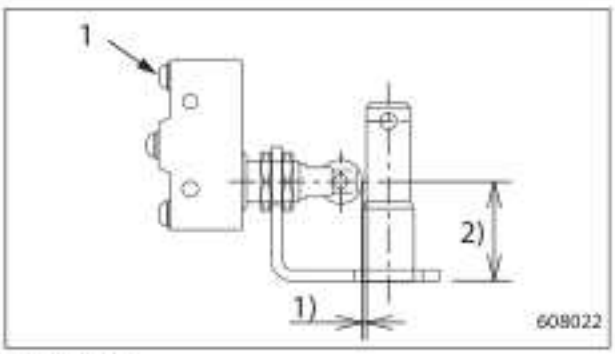
1. Microswitch

Ref.	Item	Standard
1)	Dimension with the hydraulic lever in neutral position	0.1 to 0.6 mm (0.004 to 0.024 in.)
2)		24.6 mm (0.969 in.)

Microswitch of high-speed lift

(1) Adjust the microswitch position to activate the switch when the spool moves from 5 mm to 5.5 mm from the neutral position.

(2) After adjustment, apply THREEBOND [#1401] or an equivalent product on both fixing nuts of the switch.

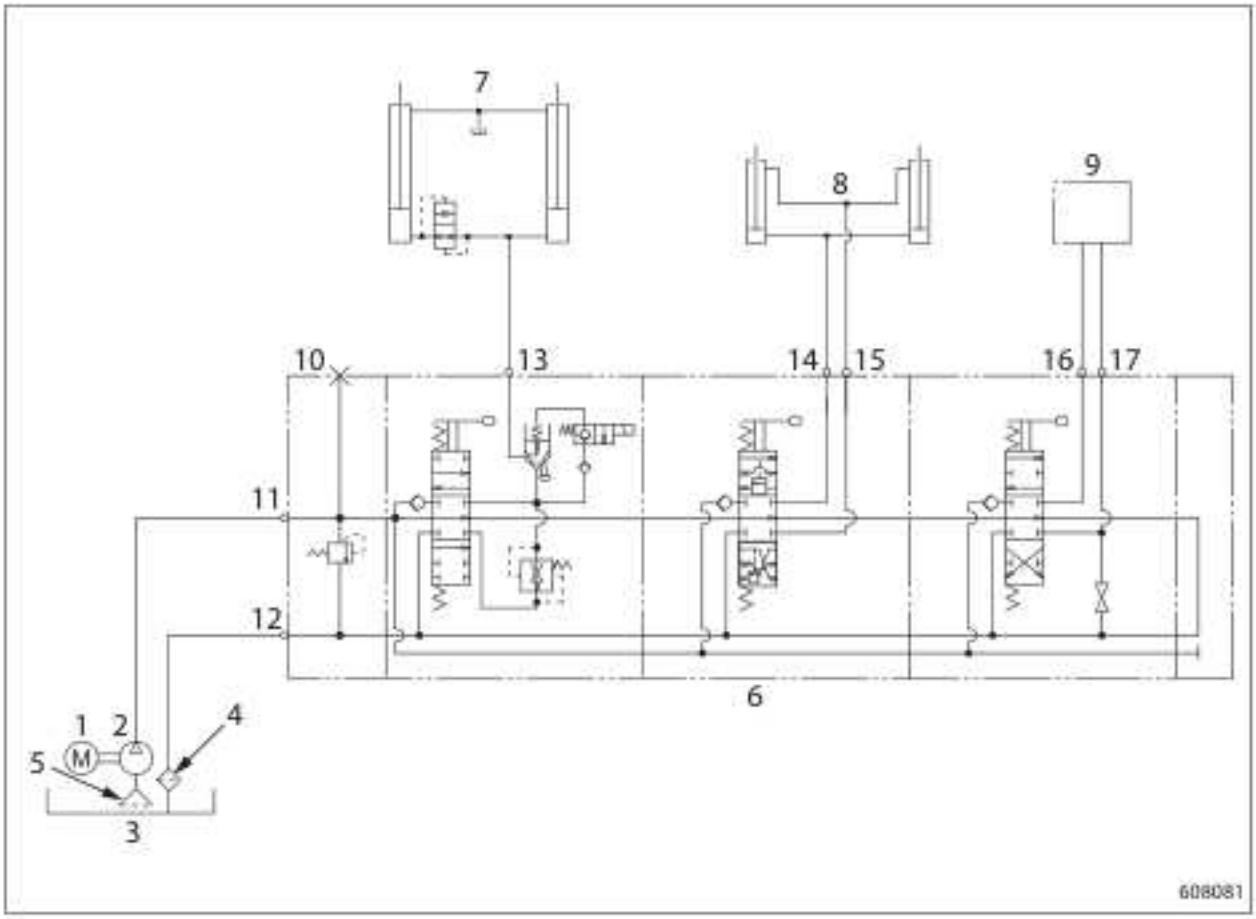


1. Microswitch

Ref.	Item	Standard
1)	Dimension with the hydraulic lever in neutral position	0.1 to 0.6 mm (0.004 to 0.024 in.)
2)		29 mm (1.142 in.)

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21.2 Hydraulic Circuit Diagram



1. Pump motor
2. Gear pump
3. Hydraulic tank
4. Return filter
5. Suction filter
6. Control valve
7. Lift cylinder with down safety valve
8. Tilt cylinder
9. Attachment
10. Gauge port
11. Pump port
12. Tank port
13. A1 port (lift cylinder)
14. B2 port (tilt forward)
15. A2 port (tilt backward)
16. B3 port (attachment)
17. A3 port (attachment)

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