CAT® Lift Trucks

Service Manual

Chassis & Mast

FC/LC

DP100NM1	T15E-20011-39999
DP100NM1S	T15E-20011-39999
DP120NM1	T15E-20011-39999
DP120NM1S	T15E-20011-39999
DP135NM1	T15E-20011-39999
DP135NM1S	T15E-20011-39999
DP150NM1	T24C-20011-39999
DP150NM1S	T24C-20011-39999

For use with 6D16-TL Diesel Engine Service Manual

99799-41110

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4.40 Attachment 3 Solenoid Leak (F74)

Diagnostic code: F74	
Situation	"F74" blinks. All load handling operations disabled.
Possible cause	Faulty output unit, faulty operating function solenoid, or faulty harness.
How the code is triggered	Current is 0.18A or more when lift lever is not operated.
Recovery	Key OFF/ON.
Action	Turns OFF solenoid output of all models. Turns OFF unload solenoid.

Checks

(1) Check hydraulic operations when a diagnostic code occurs.

- (2) No operation
- (3) Lift operation — **Ascent** → To (10); **Descent** → To (13)
- (4) Tilt operation — **Forward tilt** → To (16); **Backward tilt** → To (19)
- (5) Attachment 1 operation — **A** → To (22); **B** → To (25)
- (6) Attachment 3 operation — **A** → To (28); **B** → To (31)

(7) Check resistance of the operating function solenoid causing the diagnostic code.

- **Normal (6.6Ω to 9.8Ω at 25°C (77°F)** → (8) Replace output unit.
- **Abnormal** → (9) Replace corresponding operating function solenoid.

(10) Check continuity of attachment 3 section harness and lift section harness.

Between 590 (Output unit: 27) and 576 (Output unit: 14)

- **Continuity (Several 10Ω or less)** → (11) Isolate harnesses or replace harness.
- **No continuity (Several M)** → (12) Replace output unit.

(13) Check continuity of attachment 3 section harness and lift section harness.

Between 591 (Output unit: 28) and 576 (Output unit: 14)

- **Continuity (Several 10Ω or less)** → (14) Isolate harnesses or replace harness.
- **No continuity (Several M)** → (15) Replace output unit.

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8. Troubleshooting

Condition	Possible cause	Action
Lift bracket, inner mast and outer masts do not move smoothly	Incorrect clearance between main rollers and side rollers	Adjust back/front and right/left clearances
	Defective roller rotation	Lubricate or replace
	Sluggish chain movement	Lubricate or replace
	Incorrect clearance on mast strip	Adjust with shims
Lift bracket or inner mast is tilted	Excessive clearance on side roller	Adjust by adding shim(s)
	Uneven tension between chains on right and left side	Adjust chain tension
	Uneven shim adjustments between left and right lift cylinders (at the maximum height)	Adjust with shim(s)
Mast makes noise	Defective roller rotation	Adjust or replace rollers after inspection
Drift (natural descent) of lift cylinders	Damaged lift cylinder packing	Replace
	Flaws on sliding (inside) surface of lift cylinder tube	Replace
Whole mast jolts	Worn mast support bushing	Retighten or replace bushing
Deformed mast	Off-center load or overload	Replace mast assembly
Fork blade tips are not aligned	Distortion of finger bar	Repair or replace
	Distortion of forks	Repair or replace
	Mast distortion by off-center load	Repair or replace

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5. Weight of Major Devices

Item			Truck model			
			DP100NM1 DP100NM1S	DP120NM1 DP120NM1S	DP135NM1 DP135NM1S	DP150NM1 DP150NM1S
Counterweight			4350 kg (9590.1 lb.)	5560 kg (12257.7 lb.)	6490 kg (14308.0 lb.)	
Engine only (service weight)			587 kg (1294 lb.)			
POWER TRAIN Engine and transmission			900 kg (1984 lb.)			
Overhead guard			90 kg (198 lb.)			
Front axle (excluding tires and rims)			1210 kg (2668 lb.)			
Rear axle (excluding tires and rims)	Sheet metal welded housing		840 kg (1851.9 lb.)			
	Cast housing		790 kg (1741.7 lb.)			
Mast Simplex mast (3 m)	Outer mast		850.2 kg (1874.37 lb.)		878.4 kg (1936.54 lb.)	961.7 kg (2120.18 lb.)
	Inner mast		659.4 kg (1453.73 lb.)		698.1 kg (1539.05 lb.)	781.7 kg (1723.35 lb.)
	Lift bracket	W2050	892.9 kg (1968.51 lb.)		1088.2 kg (2399.07 lb.)	1102.9 kg (2431.48 lb.)
		W2300	947.0 kg (2087.78 lb.)		1145.8 kg (2526.05 lb.)	1161.6 kg (2560.89 lb.)
	Forks (2 pieces)	1220m (1334.2 yd)	353.1 kg (778.45 lb.)	370.2 kg (816.15 lb.)	441.6 kg (973.56 lb.)	
	Lift cylinder	Miscellaneous	188 kg (414.5 lb.)		226 kg (498.2 lb.)	

Note: The values listed in the table are for standard specification, therefore, they differ depending on the specification.

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