CAT Lift Trucks

Operation & Maintenance Manual

MC

DP60NM	T20D-00011-09999
DP60NMS	T20D-00011-09999
DP70NM	T20D-10011-19999
DP70NMS	T20D-10011-19999

Original Instructions

Keep this manual in your lift truck as a ready reference

99700-27120

MidWestTech | Caterpillar DP60NM, DP60NMS, DP70NM, DP70NMS Forklift Operation & M... Order the manual at mid-west-tech.com >

1. SAFETY RULES FOR LIFT TRUCK OPERATORS 1-1
General 1-1
Location of Decals and Plates 1-2
Description of Danger, Warning, and Caution Decals 1-4
- Fasten Seat Belt Decal 1-4
- In Case of a Tipover Decal 1-4
- Backup Alarm Decal 1-5
- No Riders Warning Decal 1-5
- Operation Warning Decal 1-6
- Overhead Guard Decal 1-7
- Pinch Points Decal 1-7
- Radiator Cap Warning Decal 1-7
- No Access With Engine Running Decal 1-7
- Parking Brake Decal 1-8
- Brake Buzzer Warning Decal 1-8
- No One Under / On Forks and No One Between Mast and Chassis Decal
- 1-8
- Load Backrest Extension Decal 1-9
- Capacity Plate 1-9
- Precautions for Handling E.C.U Decal 1-9
- Operator Restraint System Decal 1-10
- No Contamination Permissible Decal 1-10

Safety Rules 1-11
Operating Precautions 1-20
Working Precautions 1-25

2. KNOW YOUR LIFT TRUCK 2-1
Serial Number and Capacity Plate 2-1
Electrical Components 2-2
Model View 2-3
- MC Model 2-4

Driving Switches and Controls 2-5
- Key Switch 2-6
- Direction Lever (Powershift Model) 2-6
- Inching Pedal 2-6
- Turn Signal / Light Switch 2-7
- Steering Column Tilt Lever 2-7

Meter Panel 2-8
- Warning Icons and Indicator Lights 2-9
- Hour Meter 2-10
- Fuel Gauge 2-10

Switch Box 2-11
Presence Detection System 2-12
- Mast Interlock System 2-12
- Mast Interlock System Functions 2-13
- Driving Interlock System 2-14
- Driving Interlock System Functions 2-15
- Neutral System 2-15
- Neutral System Functions 2-15
- Seat Belt Warning Icon 2-16
- Seat Belt Warning Functions 2-16

Operating Controls 2-17
- Lift Lever 2-18
- Tilt Lever 2-18
- Attachment Lever 2-18

Operator Seat 2-19
- Seat Adjustment 2-19
- Forward and Back Adjustment 2-19
- Reclining Angle Adjustment 2-19
- Adjustment of Suspension 2-20
- Pocket for the Operation & Maintenance Manual 2-20
- Magazine Box 2-20
- Reclining Angle Adjustment 2-20
- Operator Presence Switch and Alarm 2-21

Seat Belt 2-21
Fork Locking Pins 2-23
Drawbar Pin 2-24
Assist Grips and Foot Step 2-24
Engine Hood 2-25
- Hood Latch 2-25

Hydraulic Tank Oil Filler Hole 2-26
Fuel Filler 2-26

3. HOW TO AVOID A TIPOVER / HOW TO SURVIVE ONE 3-1
Know What Lift Truck Stability Is 3-1
Center of Gravity (CG) 3-1
Stability and Center of Gravity (Top View) 3-1
Lift Truck Stability Base 3-2
Capacity (Weight and Load Center) 3-2
Capacity Plate 3-3
- Sample 3-3

Do's and Dont's to Avoid Tipover 3-3
How to Survive in a Tipover 3-8

4. REFUELING 4-1
Diesel Engine Equipped 4-1

5. OPERATION 5-1
New Lift Truck Break-in 5-1
Before Starting Engine 5-1
Starting Engine 5-3
Engine Won't Start 5-4
After Starting Engine 5-4
Before Moving Lift Truck 5-5
Lift Truck Operation 5-6
- Changing Speed 5-7
- Changing Direction 5-8
- Operating Techniques 5-8
- Steering (Turning) 5-9
- Inching 5-10

Stopping Lift Truck 5-11
Parking Lift Truck (After Stopping) 5-12

6. OPERATING TECHNIQUES 6-1
Stacking Methods 6-1
- Stacking Different Size Loads 6-1
- Stacking Small Identical Loads 6-1
- Stacking Large Identical Loads 6-1

Handling Loads Safely 6-2
- Adjusting Fork Spread 6-2

Before Operating the Lift Truck 6-3
Blinking of the Mast Interlock Indicator Icon 6-4
Lifting the Load 6-5
Traveling With the Load 6-7
Unloading 6-9
Working on Grades 6-11
- Normal Travel Position 6-11

MidWestTech | Caterpillar DP60NM, DP60NMS, DP70NM, DP70NMS Forklift Operation... Order the manual at mid-west-tech.com >

- Traveling on a Grade 6-12
- Stopping on a Grade 6-12

Starting on a Grade (Engine Stalls on a Grade) 6-12

7. STORING THE LIFT TRUCK 7-1
End of Each Shift Storage 7-1
Long Term Storage 7-1
- Storage Within Three Months 7-1
- Storage Exceeding Three Months 7-2

8. TRANSPORTATION HINTS 8-1
Lift Truck Loading and Shipping 8-1
Lift Truck Lifting and Tie Down Information 8-1

9. SPECIAL SITUATIONS 9-1
Care in Cold Weather 9-1
- Fuel Oils and Lubrication Oils 9-1
- Battery 9-1
- Engine Coolant 9-2

Care in Hot Weather 9-2
- Fuel Oils and Lubrication Oils 9-2
- Battery 9-2
- Engine Coolant 9-2

Severe Dust or Lint Conditions 9-3
- Air Cleaner Element 9-3
- Engine Oil and Engine Oil Filter 9-3
- Hydraulic Oil 9-3
- Hydraulic Tank Return Filter and Wash Strainer 9-3

10. TROUBLESHOOTING 10-1
Stalled Engine 10-1
If a Tire Blew Out 10-1
- If a Tire Blows out During Travel or Operation 10-1

Starting With Jumper Cables 10-1
If Lights Won't Glow 10-3
- How to Check Fuses and Lights 10-3

If the Water Temperature Warning Icon Glows 10-4
If the Lift Truck Won't Change Direction 10-5
If the Lift Truck Won't Move 10-6
If the Mast Stops Moving 10-7

11. MAINTENANCE 11-1
General 11-1
Inspection Precautions 11-2
Maintenance Schedule 11-3
- Every 10 Service Hours or Daily (Prestart), Whichever Comes First 11-3
- Every 50 Service Hours or Weekly, Whichever Comes First 11-4
- One Month (30 days) or 200 Service Hours After Delivery of a New Lift Truck, Whichever Comes First 11-4
- Every 200 Service Hours or 1 Month, Whichever Comes First 11-5
- Every 500 Service Hours or 3 Months, Whichever Comes First 11-5
- Every 1000 Service Hours or 6 Months, Whichever Comes First 11-6
- Every 2000 Service Hours or 12 Months, Whichever Comes First 11-6

Every 10 Service Hours or Daily (Prestart), Whichever Comes First 11-8
- Faulty Operation Found the Day Before 11-8
- Brake Pedal 11-8
- Brake Hoses, Pipes, and Joints 11-8
- Parking Brake Lever 11-9
- Service Brake 11-9
- Cooling Fan 11-10
- Engine Coolant 11-10
- Battery 11-12
- Battery Terminal 11-12
- Electric Wires 11-12
- Horn 11-12
- Lights 11-13
- Backup Alarm 11-13
- Backup Light 11-13
- Stop Light 11-13
- Icons of Meter Panel 11-14
- Mast Interlock System 11-14
- Driving Interlock System 11-15
- Seat Belt Warning Icon 11-15
- Engine (Exhaust, Noise, and Vibration) 11-16
- Engine Crankcase 11-16
- Assist Grips 11-17
- Overhead Guard 11-18
- Seat Belt 11-18
- Seat Adjustment 11-18
- Rear View Mirrors (Option) 11-19
- Fuel 11-19
- Hydraulic Oil 11-19
- Lift Chains 11-21
- Mast and Forks 11-22
- Load Backrest Extension and Lift Bracket 11-23
- Lift and Tilt Cylinders 11-24
- Lift Cylinder Mounting Bolts 11-24
- Mast Strips and Roller Surfaces 11-24
- Lift Bracket Main Rollers and Side Rollers 11-24
- Tilt Cylinder Socket Bolts 11-25
- Steering Wheel and Column 11-25
- Powershift Transmission 11-25
- Accelerator Pedal 11-26
- Inching Pedal 11-27
- Wheel Nuts 11-27
- Tires and Rims 11-28
- Oil, Fuel, or Coolant Leaks 11-28

Every 50 Service Hours or Weekly, Whichever Comes First 11-28
- Alternator Belt 11-28
- Fuel Hoses, Pipes, and Joints 11-29
- Hydraulic Hoses, Pipes, and Joints 11-29
- Air Cleaner Element 11-30
- Lift Chains 11-32

One Month After Delivery of a New Lift Truck 11-32
- Engine Oil and Oil Filter 11-32
- Fuel Filter 11-32
- Hydraulic Tank Return Oil Filter and Wash Strainer 11-32

Every 200 Service Hours or 1 Month, Whichever Comes First 11-33
- Engine Crankcase 11-33

Every 500 Service Hours or 3 Months, Whichever Comes First 11-34
- Fuel Filter 11-34
- Water Pump 11-36
- Fork Guide Bar 11-36
- Mast Supports 11-36
- Mast Strips and Roller Surfaces 11-36
- Lift Bracket Side Rollers 11-37

MidWestTech | Caterpillar DP60NM, DP60NMS, DP70NM, DP70NMS Forklift Operation... Order the manual at mid-west-tech.com >

- Tilt Sockets 11-37
- Rear Axle Center Pins 11-37
- Tie Rod Pins 11-38
- King Pins 11-38
- Universal Joints 11-38
- Front Axle 11-39

Every 1000 Service Hours or 6 Months, Whichever Comes First 11-40

- Hydraulic System 11-40
- Air Cleaner 11-41
- Front Axle 11-42
- Powershift Transmission 11-43

Every 2000 Service Hours or 12 Months, Whichever Comes First 11-44

- Service Brake Fluid 11-44
- Vacuum Pump 11-45
- Engine Coolant 11-45
- Hydraulic Oil 11-47

Lubrication Chart 11-49
Parts to be Replaced Periodically 11-50

12. SERVICE DATA 12-1
Fuel Information 12-1

- Fuel Specifications 12-1

Coolant Information 12-1

- Coolant Water 12-2
- Antifreeze Solution 12-2

Recommended Fuels and Oils 12-3
Specifications (Standard Models) 12-4
Refill Capacities 12-4
Capacities and Lift Truck Weight (Standard Models) 12-4

13. TO THE CAT LIFT TRUCK OWNER 13-1
The Importance of Genuine Parts 13-1
Proper Disposal of Your Lift Truck 13-1
Instructions for Ordering Parts 13-2
Service Registration 13-3

MidWestTech | Caterpillar DP60NM, DP60NMS, DP70NM, DP70NMS Forklift Operation... Order the manual at mid-west-tech.com >

▶ Mast Interlock System Functions

Conditions			Mast Interlock Indicator Icon	Control Levers' Operation		
Key switch	Engine	Operator Seat		Lift Lever	Tilt Lever	Attachment Lever
OFF	OFF	Seated or Not Seated	OFF	Inoperative	Inoperative	Lowering of its own weight
ON	OFF	Not Seated	BLINK	Inoperative	Inoperative	Lowering of its own weight
		Seated	OFF	Lowering only	Inoperative	Lowering of its own weight
		Seated to Not Seated	BLINK (After 2 seconds)	Lowering only (for 2 seconds)	Inoperative	Lowering of its own weight
		Not Seated to Seated	OFF	Lowering only	Inoperative	Lowering of its own weight
START	ON	Not Seated	BLINK	Inoperative	Inoperative	Lowering of its own weight
		Seated	OFF	Operative	Operative	Lowering of its own weight
		Seated to Not Seated	BLINK (After 2 seconds)	Operative (for 2 seconds)	Operative (for 2 seconds)	Lowering of its own weight
		Not Seated to Seated	OFF	Operative	Operative	Lowering of its own weight

MidWestTech | Caterpillar DP60NM, DP60NMS, DP70NM, DP70NMS Forklift Operation... Order the manual at mid-west-tech.com >

◆Capacity Plate

▶ Sample

The capacity plate shown above is for a 7 ton (15500 lb) model standard lift truck whose capacity is 7000 kg (15500lb) at 600 mm (23.62 in.) load center.

The plate specifies this lift truck can lift up to 7 ton (15500 lb) if the load center is not more than 600 mm (23.62 in.) forward from the face of the lift bracket.

Before attempting to pick up or lift a load, make sure its weight is within the capacity of the lift truck at the load center involved.

Note: If the load is not uniform, the heaviest portion should be placed closer to the lift bracket and centered on the forks.



F00514

◆Do's and Dont's to Avoid Tipover

⚠ DANGER

FASTEN THE SEAT BELT!

The seat belt will keep you from being thrown out of the lift truck in a tipover. The seat belt is used to protect your head and torso from being trapped between the lift truck and the ground. However, it may not protect the operator against all possible injury.

- Fasten the seat belt.
- DO NOT jump off.
- Brace your feet.
- Firmly hold on to the steering wheel.
- Lean away from impact.
- Lean forward.



F00134A

⚠ DANGER

DO NOT jump off your lift truck if it starts to tip over!

The operator must stay in the operator seat, hold on firmly and lean away from the point of impact to reduce the risk of serious injury or death.

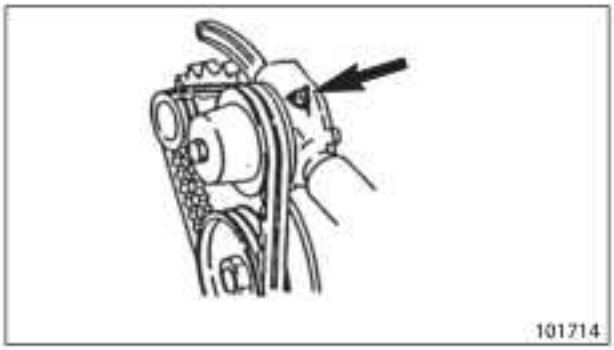

F00142

MidWestTech | Caterpillar DP60NM, DP60NMS, DP70NM, DP70NMS Forklift Operation... Order the manual at mid-west-tech.com >

▶ Water Pump

Lubricate

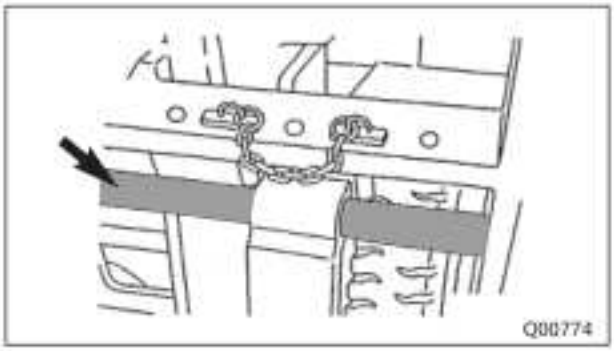
Lubricate 1 fitting.



▶ Fork Guide Bar

Lubricate

Lubricate the fork guide bar.



▶ Mast Supports

Lubricate

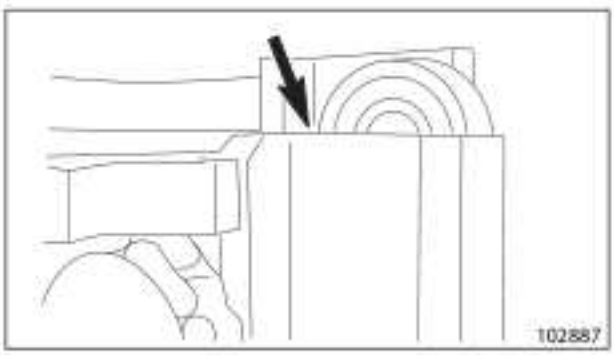
Lubricate 1 fitting on each side for a total of 2 fittings.



▶ Mast Strips and Roller Surfaces

Lubricate

Lubricate 1 fitting on each side of the inner mast for a total of 2 fittings.



MidWestTech | Caterpillar DP60NM, DP60NMS, DP70NM, DP70NMS Forklift Operation... Order the manual at mid-west-tech.com >