CAT® Lift Trucks

# Service Manual

## Chassis & Mast

LC/FC

| | |
|---|---|
| DP100N1 | AT15E-00011-up |
| DP120N1 | AT15E-00011-up |
| DP135N1 | AT15E-00011-up |
| DP150N1 | AT24C-00011-up |
| DP160N1 | AT39A-00011-up |

**For use with 1204E Diesel Engine Service Manual**

99799-60100

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## Chapter 1 GENERAL INFORMATION


1. Model View ..... 1-1
2. Applicable Lift Truck Models ..... 1-1
3. Serial Number Locations ..... 1-2
4. Specifications ..... 1-3
4.1 Dimensions ..... 1-4
4.2 Performance ..... 1-5


## Chapter 2 COOLING SYSTEM


1. Specifications ..... 2-1
2. Structure ..... 2-2
3. Removing Cooling System ..... 2-3
3.1 Preparation ..... 2-3
3.2 Removal Sequence of Expansion Tank and Radiator ..... 2-3
3.3 Removal Sequence of Intercooler and Oil Cooler ..... 2-4
3.4 Removal Sequence of Cooling Fan ..... 2-5
3.5 Suggestions for Removal ..... 2-6
4. Inspecting and Adjusting Radiator and Intercooler ..... 2-7
4.1 Intercooler ..... 2-7
4.2 Inspecting Fan Belt ..... 2-7
4.3 Radiator ..... 2-7
4.4 Antifreeze and Cooling Water ..... 2-8
5. Installing Cooling System ..... 2-9
5.1 Suggestions for Installation ..... 2-9
6. Troubleshooting ..... 2-13
7. Service Data ..... 2-14
7.1 Fan Belt ..... 2-14
7.2 Radiator ..... 2-14
7.3 Expansion Tank ..... 2-15
7.4 Intercooler ..... 2-16
7.5 Oil Cooler ..... 2-17


## Chapter 3 ELECTRICAL SYSTEM


1. Chassis Electrical Components and Wiring Outline ..... 3-1
1.1 Electrical Components and Wiring Diagram of Each System ..... 3-2
2. Console Box ..... 3-15
2.1 Outline of Console Box ..... 3-15
2.2 Removing Meter Panel ..... 3-15
2.3 Installing Meter Panel ..... 3-16
3. Main Electrical Components ..... 3-17
3.1 Meter Panel ..... 3-17
3.2 Select Switch ..... 3-18
3.3 Brake Warning Icon ..... 3-19
3.4 Key Switch (Anti-Restart Switch) ..... 3-20




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3.5 Light Switch and Turn Signal Switch ..... 3-21
3.6 Direction (FNR) Switch ..... 3-23
3.7 Horn ..... 3-24
3.8 Fuel Tank Unit ..... 3-25
3.9 Stop Light Switch ..... 3-25
3.10 Thermo Switch (T/C Oil) ..... 3-26
3.11 Speed Sensor ..... 3-27
3.12 Fuse Box ..... 3-28
3.13 Relay Box ..... 3-29
3.14 Adjusting Procedure for Accelerator Pedal ..... 3-31
3.15 Low Air Pressure Switch ..... 3-31
3.16 List of Lights ..... 3-32
4. Battery and Maintenance ..... 3-33
4.1 Battery Specific Gravity Condition and Adjustment ..... 3-33
4.2 Relationship Between Electrolyte Specific Gravity and State of Charge 3-34
4.3 Precautions for Battery Charging ..... 3-34
5. Meter panel ..... 3-35
5.1 Meter Panel Layout ..... 3-35
5.2 Basic Display ..... 3-37
5.3 Basic Operation ..... 3-42
5.4 When a Warning Occurs ..... 3-50
5.5 When Several Warnings Occur Simultaneously ..... 3-52
5.6 Warning Symbols ..... 3-53
5.7 Warning Icons ..... 3-54
5.8 Optional Features ..... 3-55
5.9 Hour Meter ..... 3-58
5.10 Troubleshooting ..... 3-59
6. Wire Color ..... 3-60
6.1 List of Wire Color Codes ..... 3-60
7. Troubleshooting ..... 3-61
7.1 Engine Startup Problem ..... 3-61
7.2 Gauge-Related Problems ..... 3-61
7.3 Light-Related Problems ..... 3-62
7.4 Warning Device Problems ..... 3-63
7.5 Battery-Related Problems ..... 3-64

**Chapter 4 CONTROLLERS**

1. Outline ..... 4-1
1.1 System Configuration ..... 4-1
1.2 Color Coding ..... 4-3
1.3 Controller External View ..... 4-4
2. Service Tool Functions ..... 4-17
2.1 Menu Structure ..... 4-17
2.2 Input Monitor and Output Monitor ..... 4-18
2.3 Truck Status ..... 4-23
2.4 Truck History ..... 4-24
3. Diagnostic Code List ..... 4-25
4. Troubleshooting ..... 4-27




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4.1 General Precautions ..... 4-27
4.2 VCM-7 Memory Check Warning (F01) ..... 4-29
4.3 VCM-7 Battery Voltage Warning (F02) ..... 4-30
4.4 VCM-7 Communication Warning (F03) ..... 4-32
4.5 Meter Panel Communication Warning (F07) ..... 4-34
4.6 Lift Lever Neutral Warning (F10) ..... 4-35
4.7 Tilt Lever Neutral Warning (F11) ..... 4-37
4.8 Attachment 1 Lever Neutral Warning (F12) ..... 4-39
4.9 Attachment 2 Lever Neutral Warning (F13) ..... 4-41
4.10 Attachment 3 Lever Neutral Warning (F14) ..... 4-43
4.11 ECM Communication Warning (F15) ..... 4-45
4.12 Direction Lever Warning (F16) ..... 4-47
4.13 Vehicle Speed Warning (F17) ..... 4-48
4.14 Lift Lever Warning (F20) ..... 4-49
4.15 Tilt Lever Warning (F22) ..... 4-51
4.16 Attachment 1 Lever Warning (F24) ..... 4-53
4.17 Attachment 2 Lever Warning (F26) ..... 4-55
4.18 Attachment 3 Lever Warning (F28) ..... 4-57
4.19 Joystick Duplicate Warning (F29) ..... 4-59
4.20 Vehicle Speed Sensor Warning (F34) ..... 4-61
4.21 Output Unit Warning (F41) ..... 4-62
4.22 Output Unit Supply Voltage Warning (F44) ..... 4-63
4.23 Output Unit Communication Warning (F45) ..... 4-65
4.24 Input Unit Warning (F46) ..... 4-67
4.25 Input Unit Communication Warning (F49) ..... 4-68
4.26 Lift up Solenoid Warning (F50) ..... 4-70
4.27 Lift Down Solenoid Warning (F52) ..... 4-72
4.28 Lift Solenoid Leak (F54) ..... 4-74
4.29 Tilt Forward Solenoid Warning (F55) ..... 4-77
4.30 Tilt Backward Solenoid Warning (F57) ..... 4-79
4.31 Tilt Solenoid Leak (F59) ..... 4-81
4.32 Attachment 1A Solenoid Warning (F60) ..... 4-84
4.33 Attachment 1B Solenoid Warning (F62) ..... 4-86
4.34 Attachment 1 Solenoid Leak (F64) ..... 4-88
4.35 Attachment 2A Solenoid Warning (F65) ..... 4-91
4.36 Attachment 2B Solenoid Warning (F67) ..... 4-93
4.37 Attachment 2 Solenoid Leak (F69) ..... 4-95
4.38 Attachment 3A Solenoid Warning (F70) ..... 4-98
4.39 Attachment 3B Solenoid Warning (F72) ..... 4-100
4.40 Attachment 3 Solenoid Leak (F74) ..... 4-102
4.41 Unload Solenoid Warning (F75) ..... 4-105
4.42 Unload Solenoid Leak (F79) ..... 4-107
4.43 Transmission Forward Solenoid Warning (F85) ..... 4-109
4.44 Transmission Reverse Solenoid Warning (F87) ..... 4-111
4.45 Transmission Solenoid Leak (F89) ..... 4-113
4.46 VCM-7 Speed Change Solenoid 1 Warning (F93) ..... 4-115
4.47 VCM-7 Speed Change Solenoid 2 Warning (F94) ..... 4-117
4.48 VCM-7 Speed Change Solenoid Leak (F95) ..... 4-119
4.49 VCM-7 Setting Warning (F96) ..... 4-121




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# Chapter 12 MAST AND FORKS

## 1. Specifications

### 1.1 Mast

| Item | | | Truck model | | | | |
|---|---|---|---|---|---|---|---|
| | | | DP100N1 | DP120N1 | DP135N1 | DP150N1 | DP160N1 |
| Mast type | | | Simplex mast | | | | |
| Mast dimension (Flange inside width x Flange thickness x Web thickness) | Outer | | 205 x 32 x 25 mm (8.07 x1.26 x 0.98 in.) | | | 205 x 36 x 28 mm (8.07 x 1.42 x 1.10 in.) | 205 x 40 x 28 mm (8.07 x 1.57 x 1.10 in.) |
| | Inner | | 205 x 32 x 25 mm (8.07 x 1.26 x 0.98 in.) | | | 205 x 36 x 28 mm 8.07 x 1.42 x 1.10 in.) | 205 x 40 x 28 mm (8.07 x 1.57x 1.10 in.) |
| Main roller | Type | | Ball bearing | | | | |
| | Dia x W | S | 203 x 52 mm (7.99 x 2.05 in.) | | | | |
| | | M | 205 x 52 mm (8.07 x 2.05 in.) | | | | |
| | | L | 207 x 52 mm (8.15 x 2.05 in.) | | | | |
| Side roller | Type | | Lubricated needle | | | | |
| | Dia x W | | 58 x 40 mm (2.28 x 1.57 in.) [2.28 x 1.57 in.] | | | | |
| Lift-chain type | | | BL-1434 | | | BL-1634 | |
| Fork width adjustment (outside width) | | | 475 to 2010 mm (18.70 to 79.13 in.) | | | 475 to 2260 mm (18.70 to 88.98 in.) | |

### 1.2 Forks

| Length | Width x Thickness | | | | |
|---|---|---|---|---|---|
| | DP100N1 | DP120N1 | DP135N1 | DP150N1 | DP160N1 |
| L1219 | 180 x 72 mm (7.09 x 2.83 in.) | 180 x 79 mm (7.09 x 3.11 in.) | 180 x 88 mm (7.09 x 3.46 in.) | | 180 x 92 mm (7.09 x 3.62 in.) |
| L1524 | 180 x 72 mm (7.09 x 2.83 in.) | 180 x 79 mm (7.09 x 3.11 in.) | 180 x 88 mm (7.09 x 3.46 in.) | | 180 x 92 mm (7.09 x 3.62 in.) |
| L1829 | 180 x 72 mm (7.09 x 2.83 in.) | 180 x 79 mm (7.09 x 3.11 in.) | 180 x 88 mm (7.09 x 3.46 in.) | | 180 x 92 mm (7.09 x 3.62 in.) |
| L2438 | 180 x 75 mm (7.09 x 2.95 in.) | 180 x 82 mm (7.09 x 3.22 in.) | 180 x 92 mm (7.09 x 3.62 in.) | | 180 x 96 mm (7.09 x 3.78 in.) |

Note: The dimensions herein are for standard type. The dimensions differ depending on the specifications.



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## 10. Troubleshooting

| Condition | Possible cause | | Action |
|---|---|---|---|
| Shifting speed of right and left blades is slow, or the shift movement is abnormal | Hydraulic tank oil level is too low | | Add hydraulic oil |
| | Gear pump delivery rate low | | Replace pump assembly |
| | Overload relief valve malfunction | Valve opening pressure setting is too low | Adjust overload relief valve |
| | | Pilot valve seat face defect or foreign matter inclusion | Replace overload relief valve assembly, or disassembly the valve and clean |
| | | O-ring in valve case damaged | Replace O-ring |
| | | Pilot valve spring fatigued | Replace overload relief valve assembly |
| | Cylinder defects | Foreign particles in packing | Replace rod packing |
| | | Scratches on bore of rod packing | Replace rod packing |
| | | Piston O-ring damaged | Replace piston O-ring |
| | | Abnormal distortion | Replace |
| Shift movement is not smooth (jamming or rattling) | Rust or scratches on guide bar | | Repair and apply grease |
| | Scars on lift bracket surface to contact with fork blade | | Repair and apply grease |
| | Scars on fork guide bar | | Repair and apply grease |
| Fork tips are different in height | Distortion of forks | | Replace |
| | Off-center loading | | Instruct operator to handle loads within capacity |



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# Chapter 16 HOW TO READ CIRCUIT DIAGRAMS

## 1. Description of Circuit Diagrams

The circuit diagrams consist of the schematic diagrams and connector diagrams.

### 1.1 Circuit Diagrams

All circuits including the power supply and ground are divided into the power circuit, GND circuit and system circuits.

**Power circuit diagram**

The power circuit diagram indicates the power circuit including the battery, fuse, ignition switch, etc.

**GND circuit diagram**

The GND circuit diagram indicates the circuits from each electric component to the body ground or from each component to the battery negative terminal.

**System circuit diagrams**

The system circuit diagrams indicate the circuits of each system from fuse to GND (earth) excluding the above power supply and GND circuit portions.

### 1.2 Connector Diagrams

The connector shapes, terminal shapes and terminal arrangements of all connectors in the circuit diagrams are indicated.



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