CAT Lift Trucks

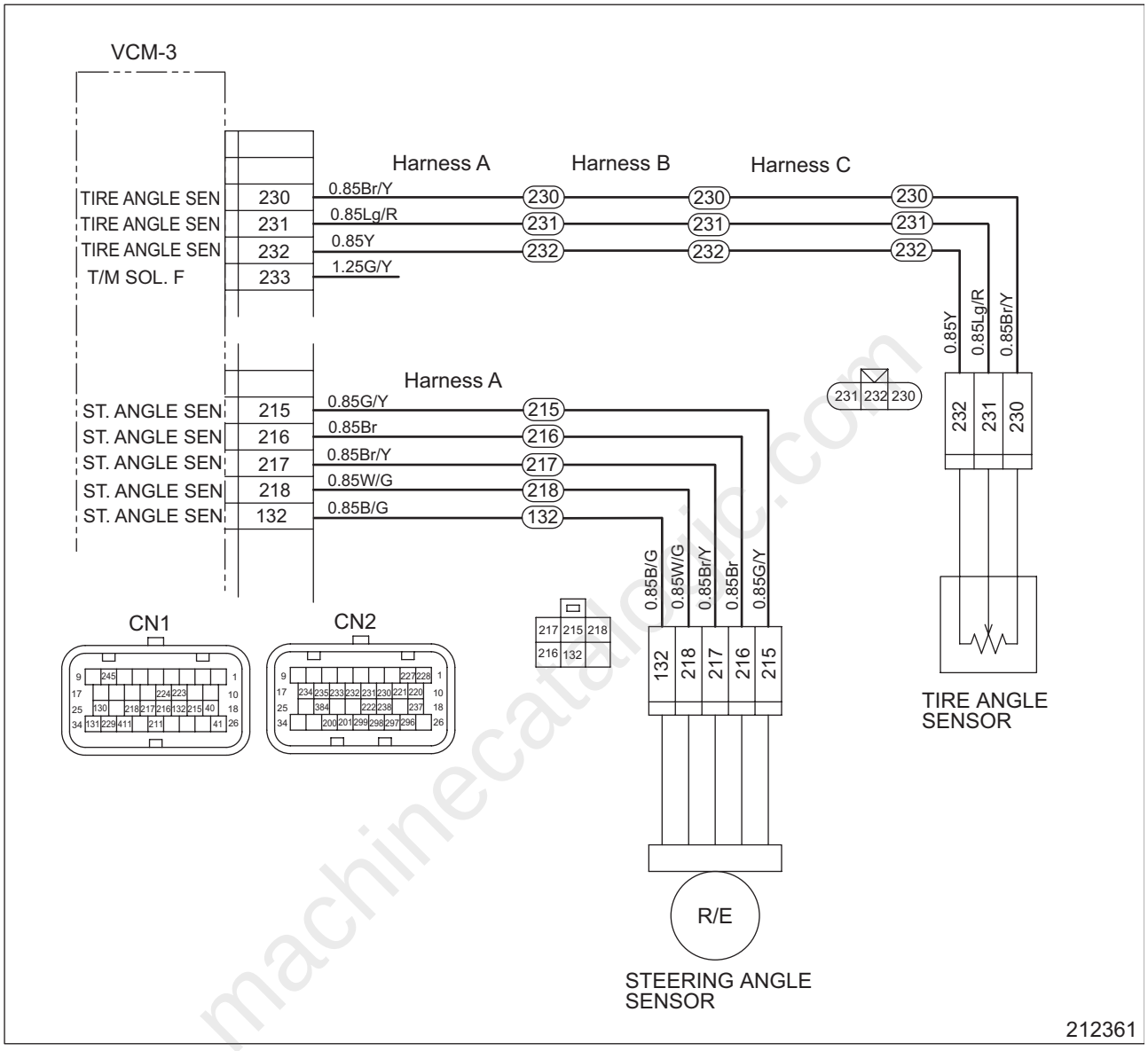
Service Manual

Chassis, Mast & Options

DP100N	**T36A-10011-up**
DP120N	**T37A-10011-up**
DP135N	**T38A-10011-up**
DP150N	**T39A-10011-up**
DP160N	**T40A-10011-up**

For use with the 6M60-TL Engine Service Manual. **99799-63100**

CAT Lift Trucks
Service Manual
DP100N, DP120N, DP135N, DP150N, DP160N Lift Trucks
99799-63100



(3) Tapered roller bearing
Do not remove the outer race unless it is to be replaced with a new one.

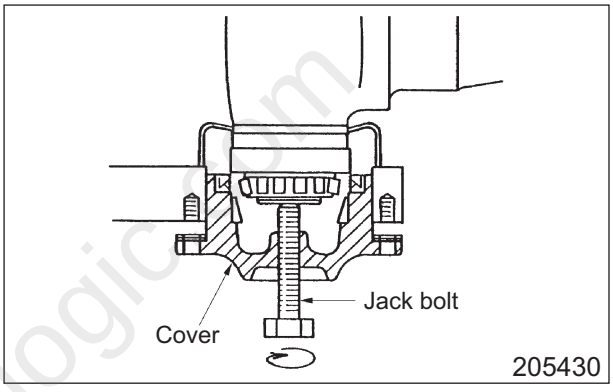
CAUTION

When replacing the tapered roller bearing, the outer race and the inner lace should be replaced as a set.

(4) Lower cover of the steering knuckle
(a) Prepare a jack bolt.

Jack bolt	Nominal diameter	16 mm (0.63 in.)
	Pitch	1.5 mm (0.059 in.)
	Thread length	100 mm or more (3.94 in. or more)

(b) Remove the plug at the center of the cover.
(c) Remove six (6) cover fixing bolts.
(d) Drive-in the jack bolt into the plug hole to pull the cover out.



4.3 Reassembly

To reassemble, follow the disassembly sequence in reverse and observe the following.

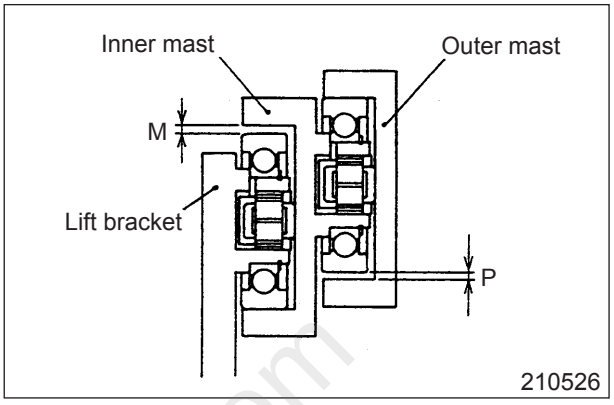
1. Front and rear clearance between mast and lift bracket

(1) Select and assemble the main roller in an appropriate manner in order that the clearances P and M are within the dimensions as shown below throughout the height range.

P and M, clearances between main roller and rolling surface	0.5 to 2.8 mm (0.02 to 0.11 in.)

If the specified value can not be achieved, replace the main roller.

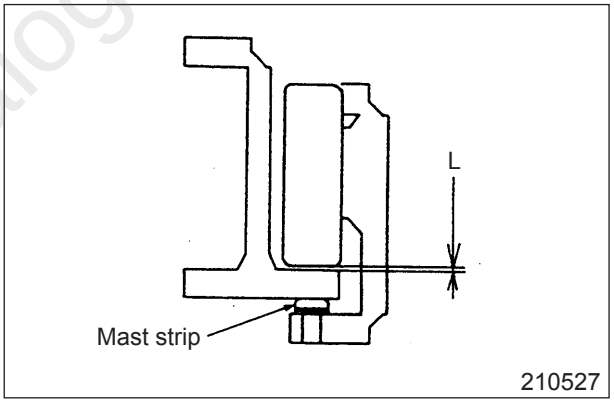
Main roller size	S	203 mm (7.99 in.)
	M	205 mm (8.07 in.)
	L	207 mm (8.15 in.)



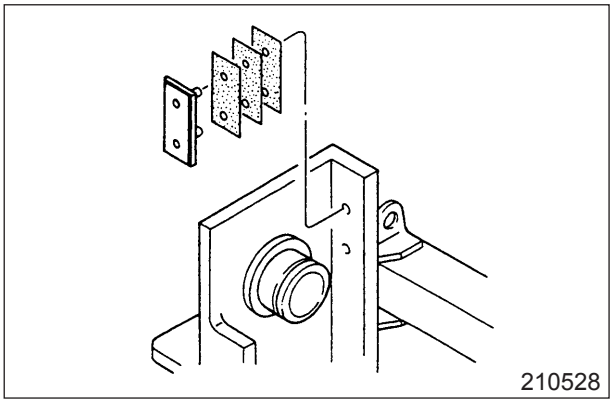
2. Installing mast trip

(1) Install to make the front and rear clearance between outer and inner masts within the specified dimension at the maximum height range.

Clearance L	0.5 to 1.5 mm (0.02 to 0.06 in.)



(2) If the clearance of mast strip (L) is not within the specified value, adjust with the shims.

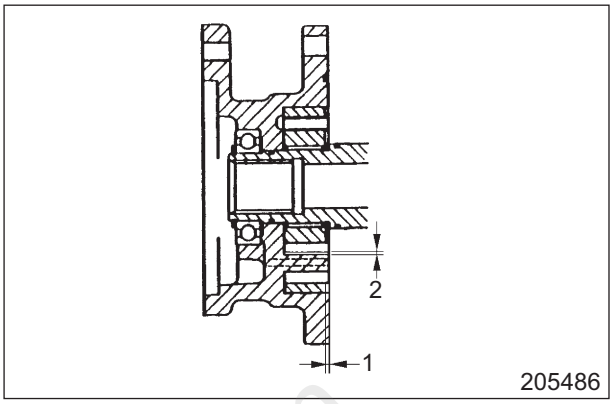


4.2.2 Inspection

(1) Oil pump

(a) Put the internal gear and pump gear in the pump case, and measure top clearance 2.

(b) Using a dial indicator, measure side clearance 1 between the gears and pump case.



Side clearance **1** mm (in.)	Standard value	0.040 to 0.078 (0.00157 to 0.00307)
	Service limit	0.09 (0.0035)
Top clearance **2** mm (in.)	Standard value	0.3 to 0.345 (0.0118 to 0.0136)
	Service limit	0.35 (0.0138)

(2) Stator shaft

(a) Check the splines for wear or damage.

(b) Check the oil passages for clogging.

(3) Friction plates and mating plates

(a) Check for sign of seizure, uneven contact, warpage or excessive wear.

(b) Check the splines for wear or damage.

(4) Clutch drums

(a) Check the mating plate sliding surfaces for wear or damage.

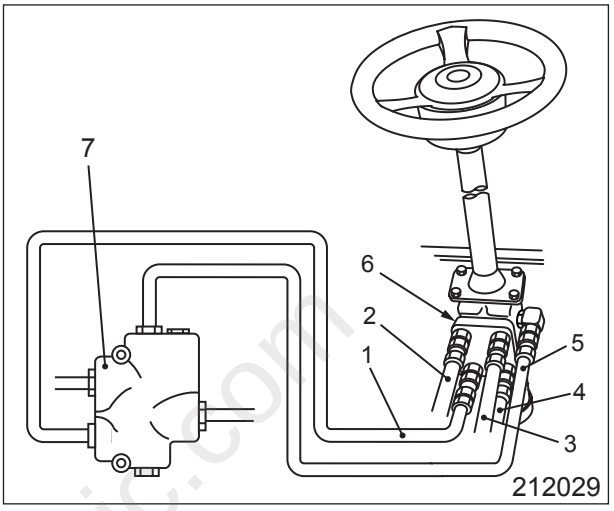
(b) Check the clutch piston sliding surfaces for wear or damage.

3. Procedure and Suggestions for Removal and Installation

3.1 Removal and Installation of Steering Valve Piping

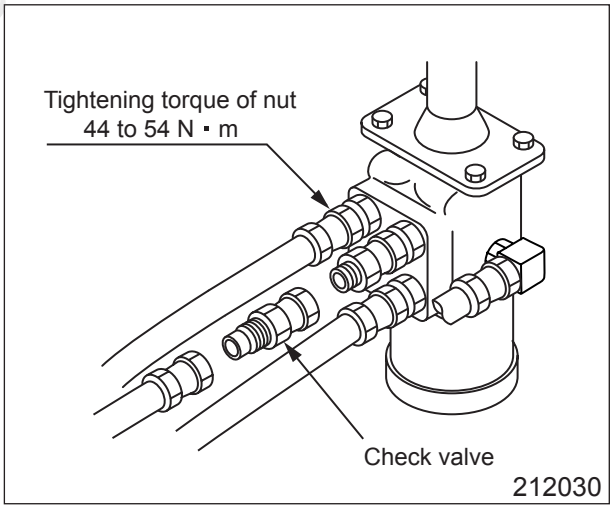
Major components

1 Hose (from priority valve to steering valve P port)
2 Hose (from steering valve T port to control valve T2 port)
3 Hose (from steering valve L port to power cylinder L port)
4 Hose (from steering valve R port to power cylinder R port)
5 Hose (from load sensing LS port to priority valve LS port)
6 Steering valve
7 Priority valve



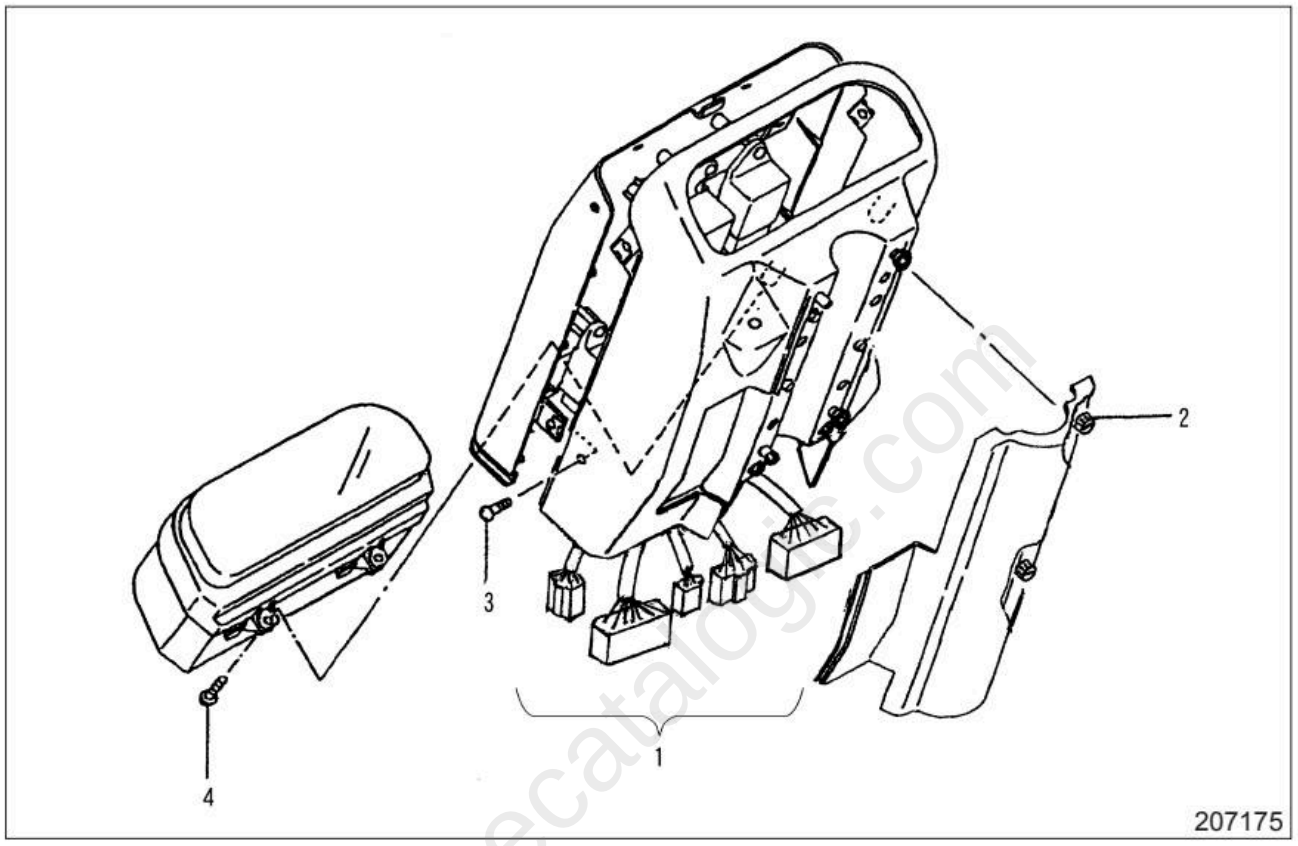
Suggestions for disassembly and reassembly

(1) The important point in servicing the hydraulic system is to proceed your operation in a clean environment and never allow any abrasive matters entering inside the system.
(2) On reassembly be sure to place a new replacement O-ring in any section that has installed an O-ring before disassembly.
(3) Hoses of the steering system (especially, in the high-pressure section) are safety parts. These must be replaced with new ones disregarding with or without damage after they have been used for a specified period of time. For the replacement intervals, refer to the Operation & Maintenance Manual.
(4) When any hose is removed or replaced, use double spanners (wrenches) as required for not applying an excessive force to the mating fitting.



4. Disassembly and Reassembly

4.1 Disassembly of Console Box



4.1.1 Disassembly sequence

(1) Disconnect the electrical wires at connectors 1.

(2) Remove screws 2 (four) securing the cover.

(3) Remove screws 3 (six) and separate the front panel and rear panel.

(4) Remove screws 4 (four) securing the combination meter panel.

NOTE

Remove screws 3 and 4 to replace any bulb in the console box.

4.1.2 Reassembly

Reassemble in the reverse order of disassembly sequence.

4.4 Installation

Replacement must follow the reverse order of removal.

4.4.1 Suggestions for Installation

1. Driving in main roller

(1) For this operation use a driving jig and exercise care not to hit the outer ring of the roller.

2. Installing lift chains

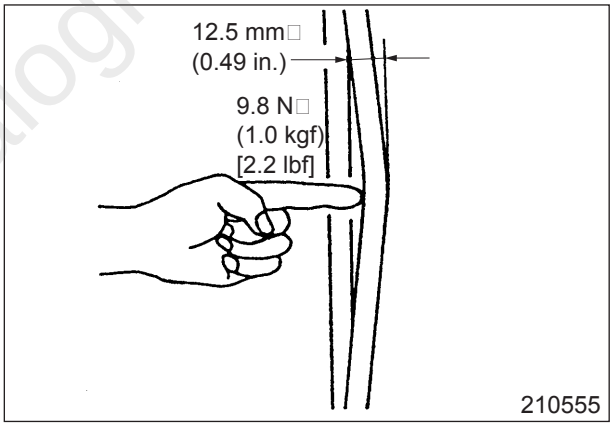
(1) Lift chains can be replaced as-is unless the positions of the upper lock nuts are modified.Tighten the lock nuts and anchor nuts to each specified torque.

Nut tightening torque	393 N•m (40.1 kgf•m) [290.0 lbf•ft]

3. Adjusting hose tension

(1) The tension of each hose should be 196 N (20.0 kgf) [44.1 lbf].
When the midpoint of a 1 m (3.28 ft) long hose is pushed with a force of 9.8 N (1.0 kgf) [2.2 lbf], its tension is appropriate it deflects approx. 12.5 mm (0.49 in.).
Adjust tension according to the length of hoses which differs with the raised height of the mast.

For example, if the hose length is 2 m (78.7 in.) from the pulley to the bottom joint when the mast is raised to the highest position, the tension of the hose is acceptable if it deflects 25 mm (0.98 in.) when the hose is pushed with a force of 9.8 N (1.0 kg) [2.2 lbf].



Full Version Available

Caterpillar DP160N Forklift Service Manual (99799-63100)

Caterpillar DP160N forklift service manual, covers hydraulics, mast, drive unit, wiring, and engine repairs in PDF. Instant PDF download.