



Service Manual

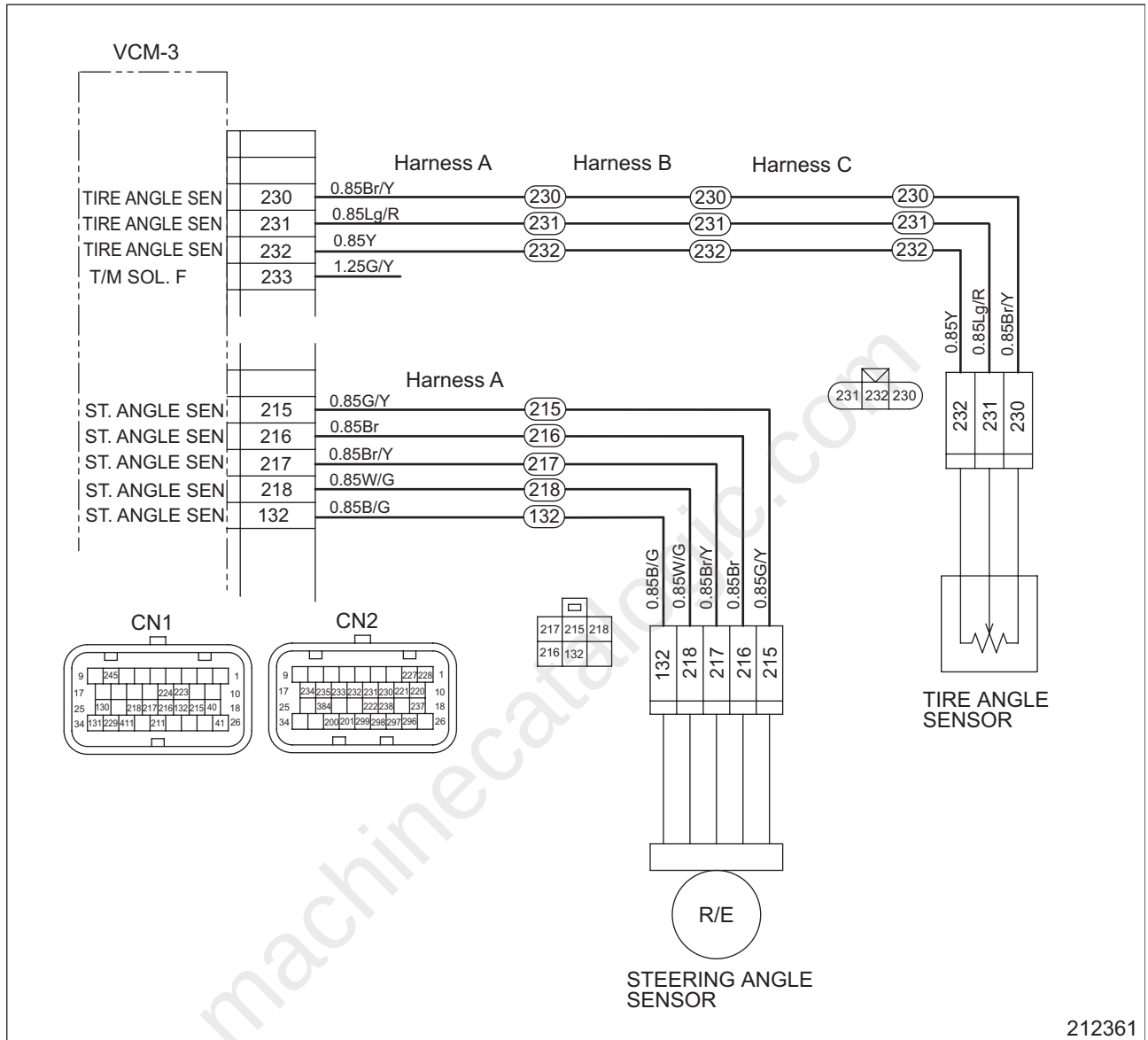
Chassis, Mast & Options

DP80N

T32C-10011-up

DP90N

T32C-60011-up



212361

- 1 Hub cap, Gasket
- 2 Outer lock nut, Lock washer
- 3 Inner lock nut
- 4 Rear axle hub
- 5 Tapered roller bearing (inner race) [4]
- 6 Oil seal [4]
- 7 Tapered roller bearing (outer race) [4]
- 8 Tapered roller bearing (outer race) [4]
- 9 Tapered roller bearing (inner race)
- 10 Oil seal retainer
- 11 Tie rod pin
- 12 Tie rod
- 13 Spacer [12]
- 14 Dust seal [12]
- 15 Spacer [12]
- 16 Dust seal [12]
- 17 Stopper ring
- 18 Spherical bearing
- 19 Clamp
- 20 Power cylinder, Pipe
- 21 Cover
- 22 Shim [21]
- 23 O-ring [21]
- 24 Oil seal [21]
- 25 Tapered roller bearing (outer race) [21]
- 26 Stopper plate, Cap
- 27 Steering knuckle
- 28 Lower dust cover [27]
- 29 Tapered roller bearing (inner race) [27]
- 30 Oil seal retainer [27]
- 31 O-ring [30]
- 32 Tapered roller bearing (inner race) [27]
- 33 Oil seal retainer [27]
- 34 Oil seal [36]
- 35 Tapered roller bearing (outer race) [36]
- 36 Rear axle housing

NOTE

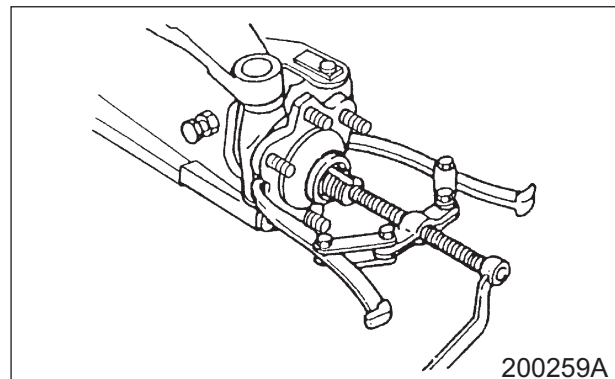
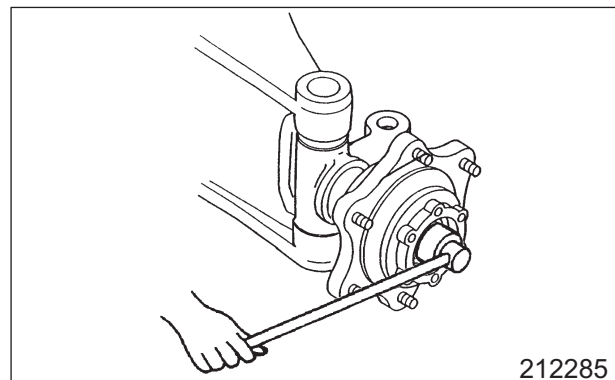
[] shows the number of each place to remove from.

- (1) Lock nut
 - (a) Restore the folded part of the lock washer to its original form.
 - (b) Remove the outer and inner lock nuts using a socket wrench.

Width across flats of lock nut	70 mm (2.76 in.)
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- (2) Rear axle hub

Use a puller to remove the rear axle housing from the steering knuckle.



4.4 Reassembly

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

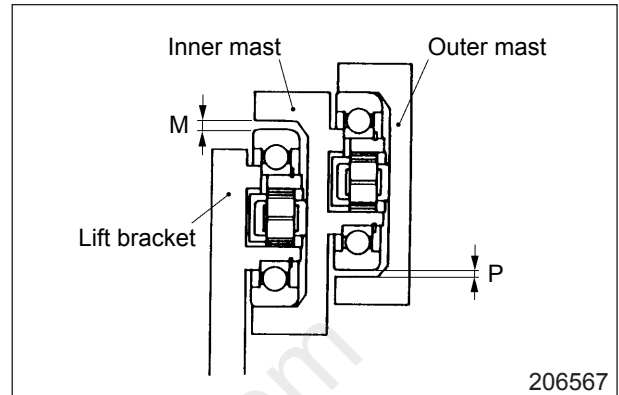
1. Front and rear clearance between mast and lift bracket

- (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.

Truck model	DP80N	DP90N
Clearances between main roller and rolling surface P, M	0.5 to 2.1mm (0.02 to 0.08 in.)	0.5 to 2.8 mm (0.02 to 0.11 in.)

Unit: mm

Truck model		DP80N	DP90N
Main roller size	S	169 mm (6.65 in.)	203 mm (7.99 in.)
	M	170 mm (6.69 in.)	205 mm (8.07 in.)
	L	171 mm (6.73 in.)	207 mm (8.15 in.)



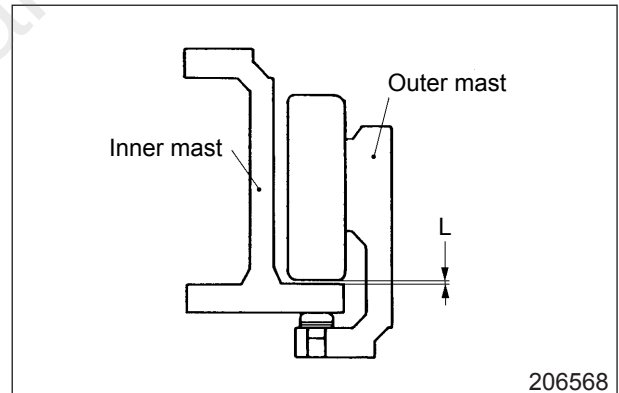
2. Installing mast trip

Install to make the front and rear clearance between outer and inner masts within the specified dimension.

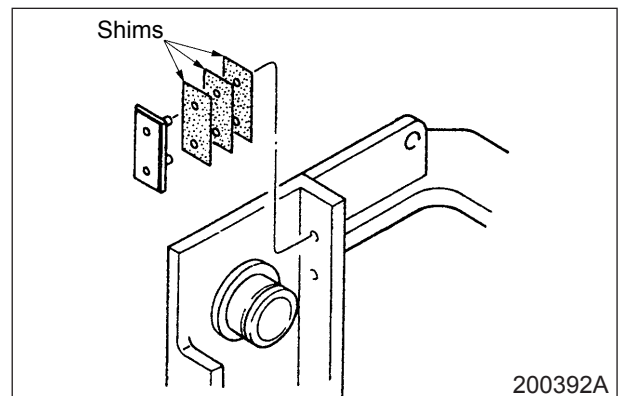
- (1) Withdraw the inner mast until the span of mast main roller comes to the dimension as shown below, and measure the clearance between inner mast flange and main roller L with thickness gauge.

Clearance L	0.2 to 1.0 mm (0.008 to 0.0039 in.)
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Mast Models	Roller span
4V80A, 4M80A	905 mm (35.6 in.)
4V90A	950 mm (37.4 in.)



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

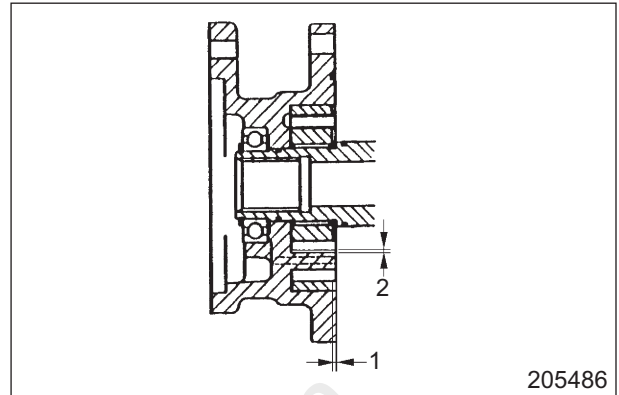


3-SPEED POWERSHIFT TRANSMISSION

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)



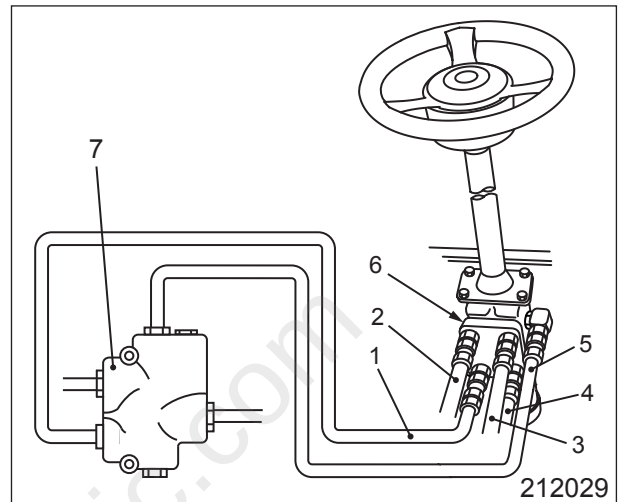
- (2) Stator shaft
 - (a) Check the splines for wear or damage.
 - (b) Check the oil passages for clogging.
- (3) Friction plates and mating plates
 - (a) Check for sign of seizure, uneven contact, warpage or excessive wear.
 - (b) Check the splines for wear or damage.
- (4) Clutch drums
 - (a) Check 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

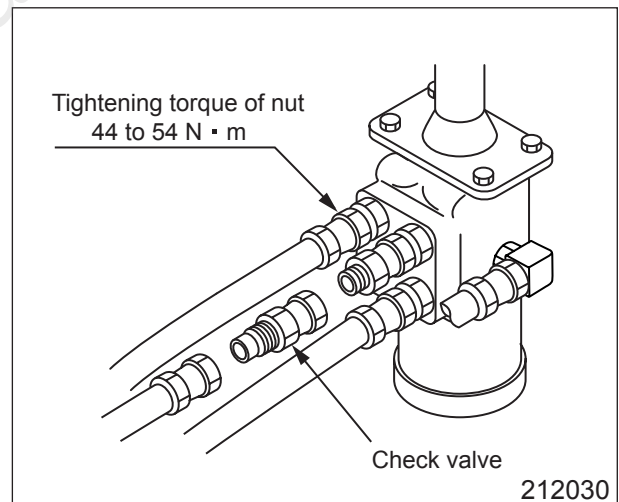
Major components

- 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



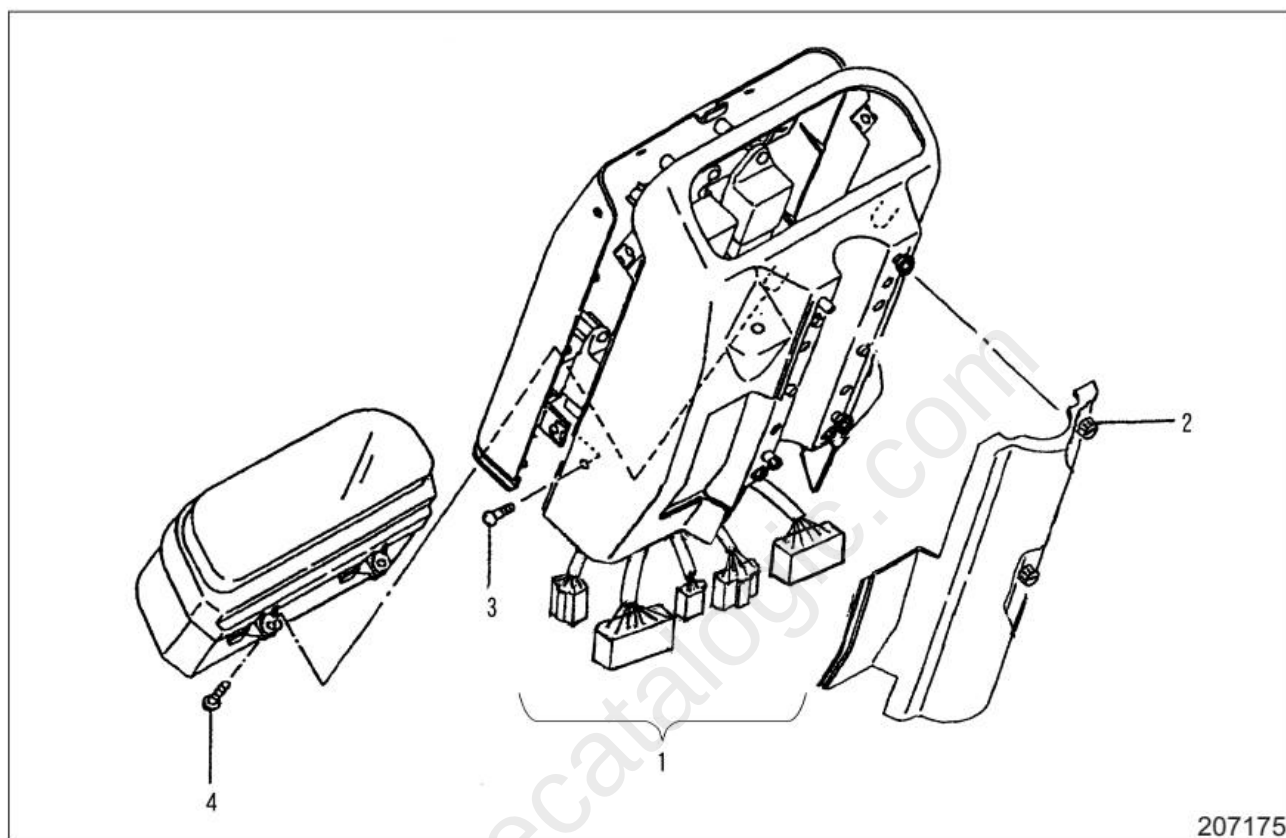
Suggestions for disassembly and reassembly

- (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.

5. Troubleshooting

Shifts of right and left fork prongs too slow	• Not enough fluid in reservoir tank	• Refill hydraulic oil.
	• Flow rate from gear pump is too low	• Replace pump assembly.
	• Defective port relief valve (1) Valve-open pressure setting is too low (2) Defective pilot valve seat surface or foreign matter in valve (3) Valve housing O-ring damaged	• Adjust port relief valve. • Replace port relief valve assembly or disassemble and clean it. • Replace O-ring.
	• Defective cylinder (1) Foreign matter lodged in rod packing (2) Scratches on bore of rod packing (3) Piston seal damaged (4) Distortion	• Replace rod packing. • Replace rod packing. • Replace piston seal. • Replace cylinder.
Unsmooth shifts of fork: (1) Failure (2) Too loose	• Contact surfaces of lift bracket and fork have scratch or other damage	• Repair and lubricate.
	• Guide surface of fork has scratch or other damage	• Repair and lubricate.
Fork tips are not aligned	• Bent fork	• Replace.
	• Uneven load	• Instruct operator to handle only loads within indicated capacity.

6M6

(for industrial use)

Shop Manual

diesel engine

FOREWORD

This Shop Manual is published for the information and guidance of personnel responsible for maintenance of the Mitsubishi 6M60-TL series diesel engine, and includes procedures for adjustment and maintenance services.

We earnestly look forward to seeing that this manual is made full use of in order to perform correct services with no wastage.

For more details, please consult your nearest authorized Cat® lift truck dealer.

Kindly note that the specifications and maintenance service figures are subject to change without prior notice in line with improvement which will be effected from time to time in the future.

SEPTEMBER 2006

Applicable models
6M60-TL

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Caterpillar DP80N Forklift Service Manual (99709-62100)

Caterpillar DP80N Forklift service manual, covers hydraulics, mast, drive unit, wiring, and engine service data. Searchable PDF download.

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