Service Manual

Chassis & Mast

MC

GP15N	CT25C-55001-up	GPE15N	CT34-00001-up	DP15N	CT16D-54001-up
GP15ZN	CT34-52001-up	GPE18N	CT34-40001-up	DP18N	CT16D-74001-up
GP18N	CT25C-75001-up	GPE20CN	CT34-30001-up	DP20CN	CT16D-24001-up
GP18ZN	CT34-72001-up	GPE20N	CT17D-20001-up	DP20N	CT18C-20001-up
GP20CN	CT34-22001-up	GPE20ZN	CT35-20001-up	DP25N	CT18C-70001-up
GP20N	CT17D-10001-up	GPE25N	CT17D-70001-up	DP30N	CT14E-10001-up
GP20ZN	CT35-10001-up	GPE25ZN	CT35-70001-up	DP35N	CT14E-80001-up
GP25N	CT17D-60001-up	GPE30N	CT13F-10001-up		
GP25ZN	CT35-60001-up	GPE35N	CT13F-80001-up		
GP30N	CT13F-40001-up				
GP35N	CT13F-60001-up				

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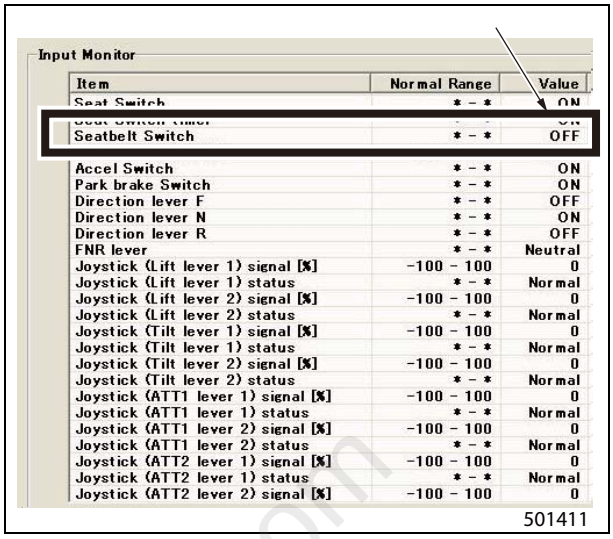
For use with K15, K21, K25, S4Q2 and S4S Engine Service Manuals.

99719-3F110

6.2 Seat Belt Warning Light, Checking the Operation

(1) Connect the service tool to the VCM-1M controller.
(2) Turn the key switch to the ON position and start the engine.
(3) Display the input monitor screen of the service tool.
(4) Make sure that the seat switch status is turned OFF when the seat belt is not fastened or not buckled properly.
Also check that the seat belt warning light in the meter panel glows.



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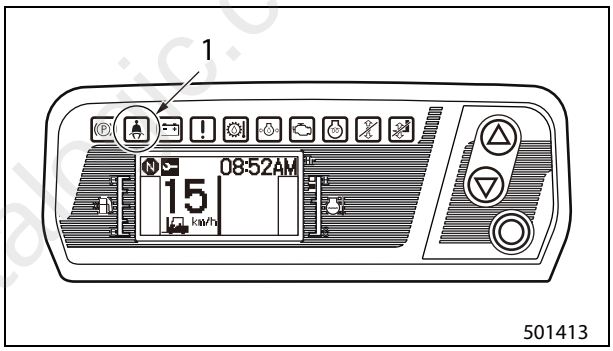
If Seat belt switch does not indicate ON

Check the seat belt switch operation and wiring connections by referring to 4-38 "Harness Codes", 4-40 "VCM-1M Controller", and 4-44 "Seat Switch".



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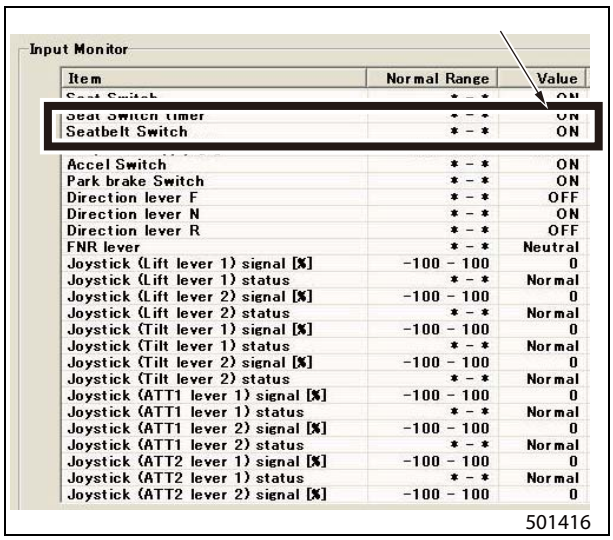
1. Lighting

(5) Make sure that the seat belt switch turns ON and the seat belt warning light in the meter panel goes out when the seat belt is properly fastened.



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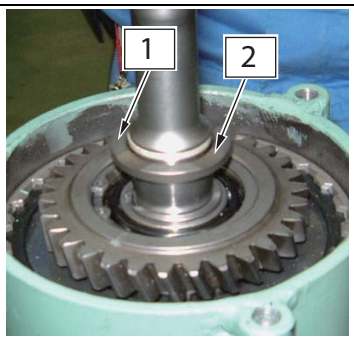
Forward side input spacer and bearing, Installing

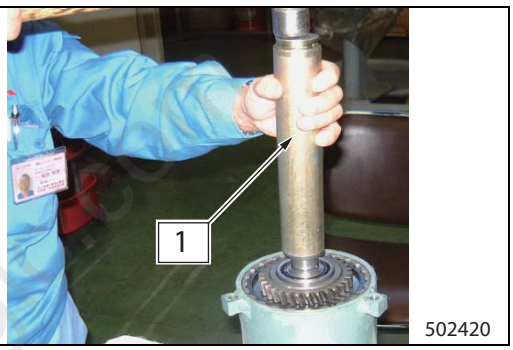
(1) Install input spacer using installer (special tool).

Note:

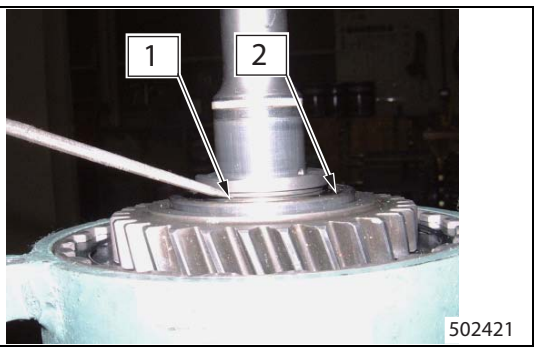
- Install input spacer with its oil groove side facing ball bearing side.
- When input spacer has been installed, snapring is hidden behind input spacer.



1. Input spacer 2. Oil groove

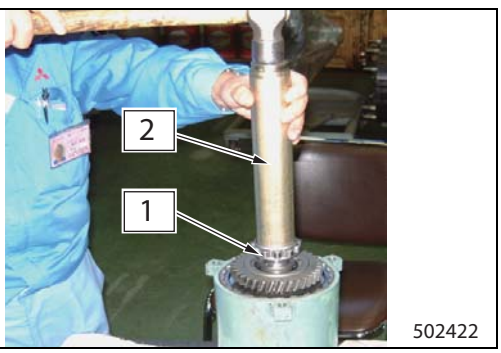


1. Special tool (Installer)



1. Input spacer 2. Angular bearing

(2) Install bearing using installer (special tool).



1. Bearing 2. Special tool (Installer)

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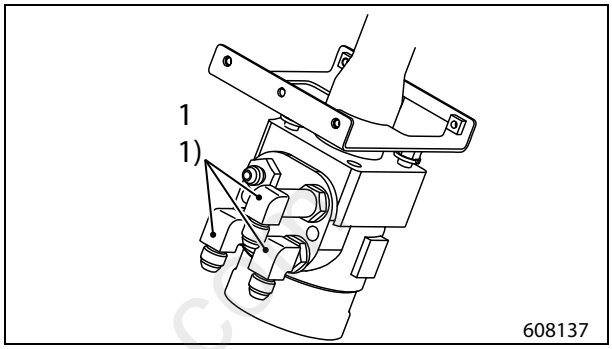
6. Steering Valve, Removing

(1) Remove the cover from the steering column.
(2) Disconnect four hoses from the steering valve.
(3) Remove bolts and remove the steering valve.

7. Steering Valve, Installing

For installation, follow the removal sequence in reverse and observe the instructions below:

(1) Apply grease to serrated portion at the lower part of the steering shaft.
(2) Tighten mounting bolts to the specified torque.
(3) Pay attention to the orientation when installing the elbow on the steering valve. Also be sure to tighten to the specified torque.

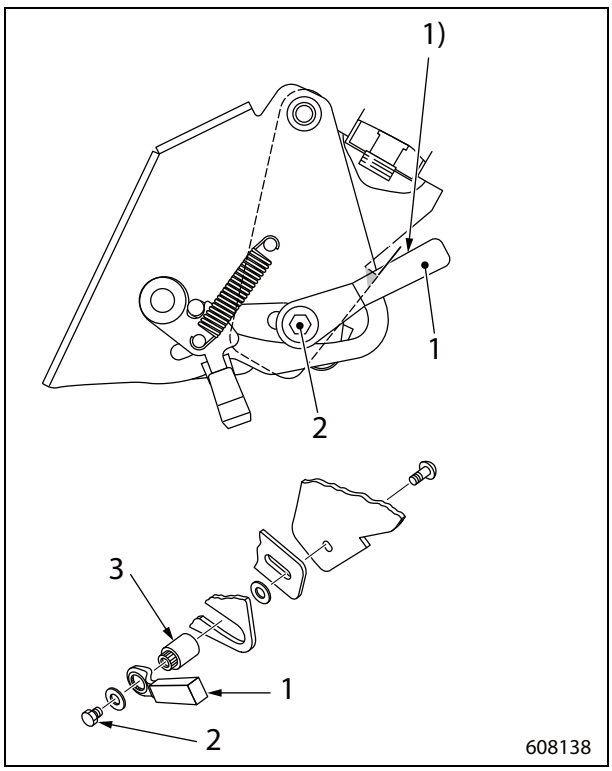


1. Elbow
1) Install the elbow facing downward

Ref.	Item	Tightening torque
1	Elbow	34 to 39 N·m (3.5 to 4.0 kgf·m) [25.08 to 28.76 lbf·ft]

8. Tilt Lock Lever, Disassembling

(1) Make a matchmark across tilt lock lever and nut 3 for proper installation at assembly.
(2) Remove lever mounting bolt 2 and remove tilt lock lever.



1. Tilt lock lever
2. Lever mounting bolt
3. Nut
1) Lever face

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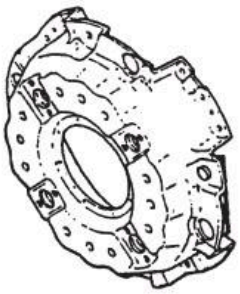
Clutch cover

Check the clutch cover for distortion, cracks, deformation and wear.



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Release levers

Check each release lever for wear or damage on the contact and sliding surfaces.

7. Pressure Assembly, Assembling

For assembly, follow the disassembly sequence in reverse.

7.1 Suggestions for Assembly

Bolt tightening torque

- Tighten the bolts with strap fixing washers 3 to the torque specified below.

Item	Tightening torque
Strap fixing washer mounting bolt	39 to 59N·m (4.0 to 6.0 kgf·m) [28.76 to 43.52 lbf·ft]

- Tighten the bolts that hold locking plates 1 to the torque specified below.

Item	Tightening torque
Lockplate mounting bolts	5.8 to 7.8 N·m (0.59 to 0.80 kgf·m) [4.278 to 5.753 lbf·ft]

Applying grease

Apply molybdenum disulfide grease (Never Seez or equivalent) to the pressure plate of the dry type clutch at the following places.

- Contact surfaces of release lever and pressure plate.
- Contact surfaces of release lever and lever support.

Also apply anti-seize and lubricating compound (Never Seez grease) to the following parts.

- Support nut threaded portion
- Support nut spherical portion

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6. Axle Assembly, Installing

For installation, follow the removal sequence in reverse and observe the instructions below:

(1) Using shims, adjust the total front and back clearance to be 0.8 mm (0.032 in.) or less.

⚠ CAUTION

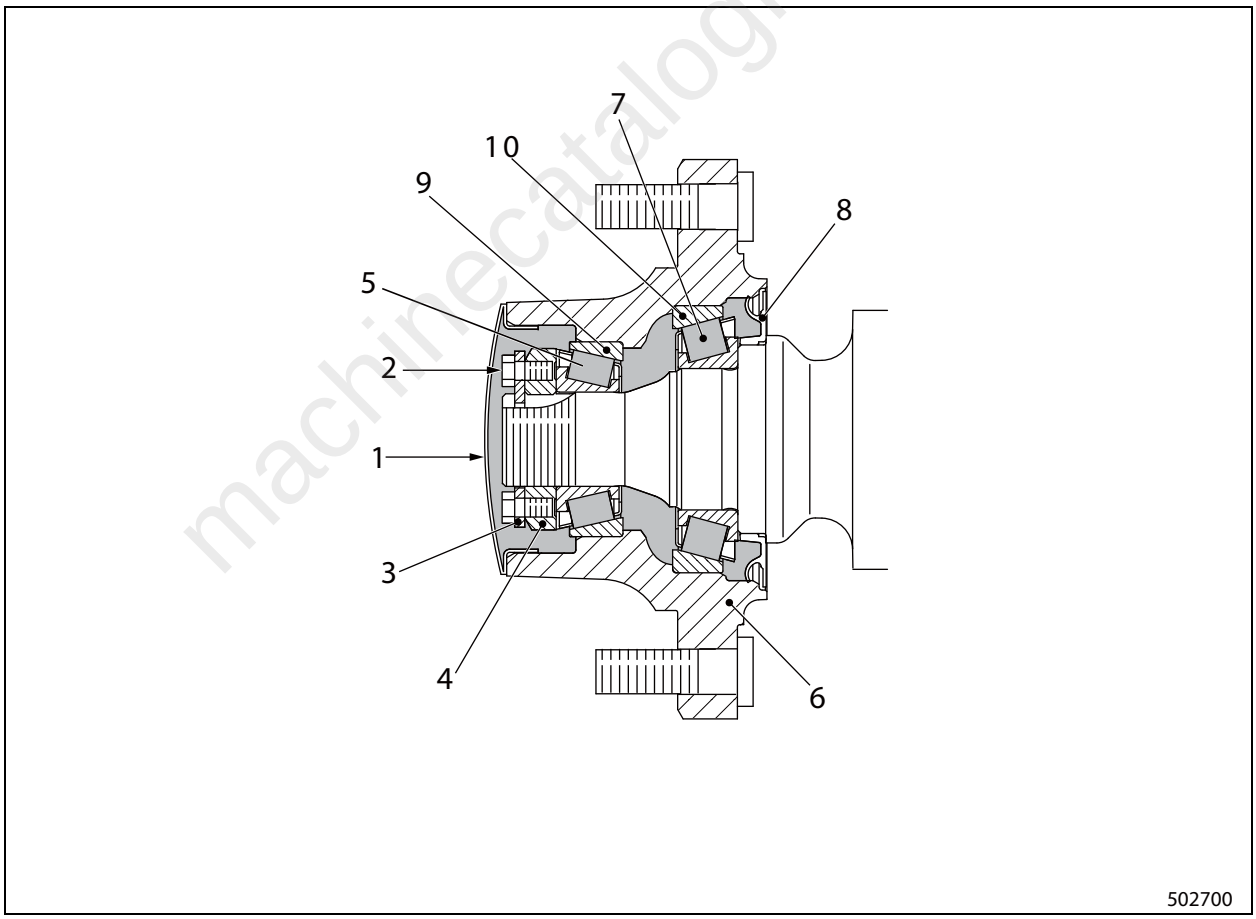
Place shims equally at the front and back.

(2) Apply "AUTOLEX A" grease or equivalent through grease nipple.
(3) Tighten the bolts to the specified torque.

Item	Specified value
Tightening torque	247.4 to 334.8 N·m (25.23 to 34.14 kgf·m) [182.473 to 246.936 lbf·ft]

7. Wheel Hub, Disassembling

7.1 Disassembly Sequence



1. Hub cap
2. Bolt
3. Lockplate
4. Locknut (hexagon nut)
5. Tapered roller bearing (inner race)
6. Hub (with tapered roller bearing outer race)
7. Tapered roller bearing (inner race)
8. Oil seal
9. Tapered roller bearing (outer race)
10. Tapered roller bearing (outer race)

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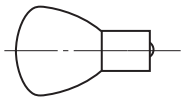
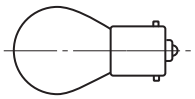
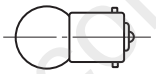
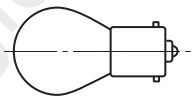
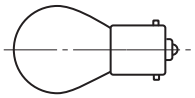
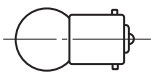
3.24 List of Lights

Item			Qty	Lens color	Bulb Figure	Remark
Type of lights	Head light		2	Colorless		STD
	Combination light (front)	Turn signal light	2	Orange		STD Mounted on the overhead guard
		Clearance light	2	Colorless		
	Combination light (rear)	Turn signal light	2	Orange		STD
		Tail light and stop light	2	Red		STD
		Backup light	2	Colorless		STD

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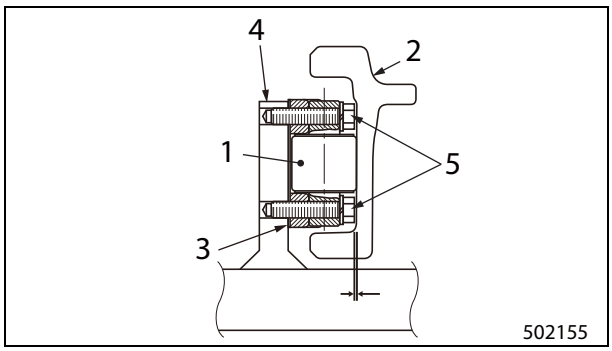
Adjusting clearance between side roller rolling face and inner mast

Measure the clearance between side roller rolling face and inner mast. If the measured clearance does not meet the standard value, adjust the clearance as follows:

Note: For measurement, refer to 14-51 "Inspection and Adjustment".

If the clearance is too large, increase shims thickness (d) as required.

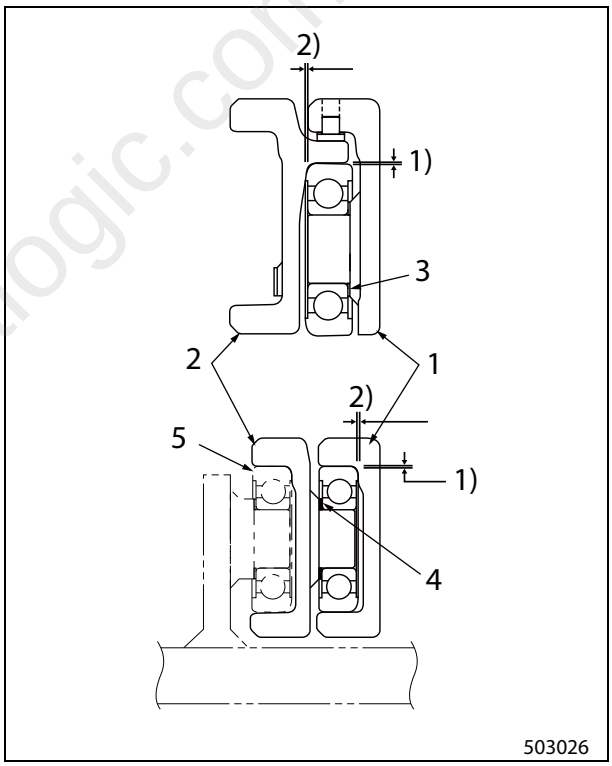
Note: At the factory, shim thickness (d) is usually adjusted to 1 mm (0.04 in.) for shipping.



1. Side roller
2. Inner mast
3. Shim (d)
4. Lift bracket
5. Roller mounting bolt

2.12 Installing Mast Rollers (All Mast Models)

Mast rollers are identical in shape and size with lift bracket lower rollers.



1. Outer mast
2. Inner mast
3. Shim (e)
4. Shim (f)
5. Lift bracket lower roller

1) Clearance between main roller rolling face and mast
2) Clearance between main roller side face and mast

Ref.	Item	Standard
1)	Clearance between main roller rolling face and mast	1 mm (0.04 in.) or less
2)	Clearance between main roller side face and mast	0.1 to 0.5 mm (0.004 to 0.020 in.)

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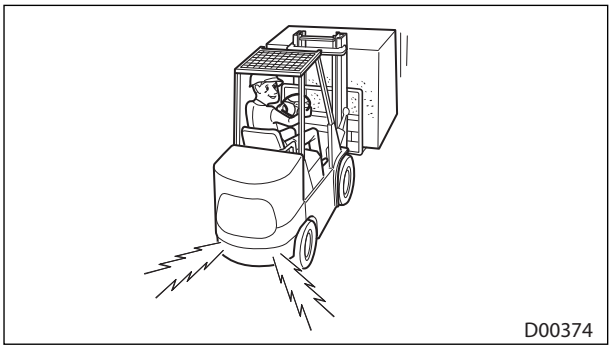
⚠ WARNING

The backup alarm must activate when traveling in REVERSE!

Make sure the backup alarm is in working order. The horn can also be used to alert other lift trucks or pedestrians when traveling in REVERSE. Always look in the direction of travel.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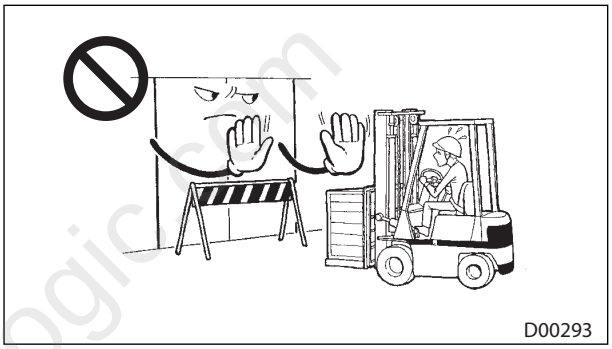
⚠ WARNING

Operate only in approved areas!

Certain areas such as those containing hazardous flammable gases, liquid, or other combustibles require a Safety Rated lift truck. If your lift truck is not Safety Rated, the area must be avoided.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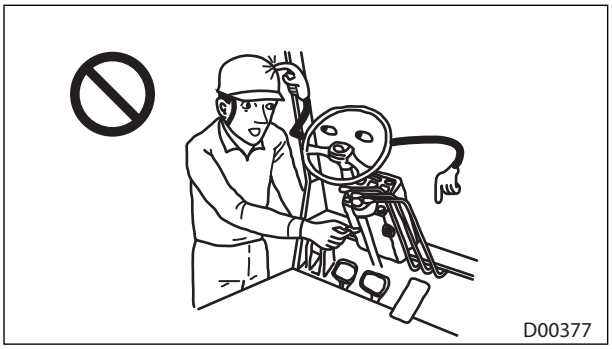
⚠ WARNING

Sit in the operator seat when starting the engine!

Start the engine only when seated in the normal operating position.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⚠ WARNING

DO NOT operate a damaged or defective lift truck!

If the lift truck is damaged, take it out of service until it has been restored to a safe operating condition. Park it in a non-operating area and remove the key. Attach an "OUT OF SERVICE" or similar warning tag on the lift truck.

Contact your authorized Cat lift truck dealer for repairs.

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Full Version Available

Caterpillar GP20ZN Forklift Service and Operator Manual (99719-3F110)

Caterpillar GP20ZN Forklift service manual, covers hydraulics, mast, wiring, drive unit, and engine service data. Searchable PDF download.

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