CATERPILLAR®

99719-60100

Service Manual

GP15, GP18, GP20, GP25, GP30, GP35; DP15, DP18, DP20, DP25, DP30, DP35 Chassis & Mast

AC

For use with 4G63, 4G64 Gasoline,
S4Q2,S4S Diesel Engine Service Manual

2. After removing release cylinder 14 complete with bracket from the clutch housing, tie it to the pedal assembly. Also, tie fluid reservoir 15 to the pedal assembly, taking care not to allow the fluid to leak off (manual transmission models).

3. To remove pedal assembly 17, unscrew four bolts securing its bracket, and remove it together with release cylinder 14 and reservoir 15 (manual transmission models).

4. Disconnect choke cable and throttle cable 18 at the engine side, and put them inside the frame on the left and right sides of the truck (gasoline models).

5. To remove transmission control lever 19, pull clevis pin at the bottom of the lever, remove the lever shaft, and remove the lever from the bracket. Disconnect the throttle cable at the engine side, and put it inside the frame on the right side of the truck (manual transmission models).

paying particular attention to the welds to see if any weld is cracked to require repair.

3. Others

(1) Check the outer surface of the oil seal retainer for wear or damage.

(2) Check the outer and inner oil seals for wear and damage.

Reassembly

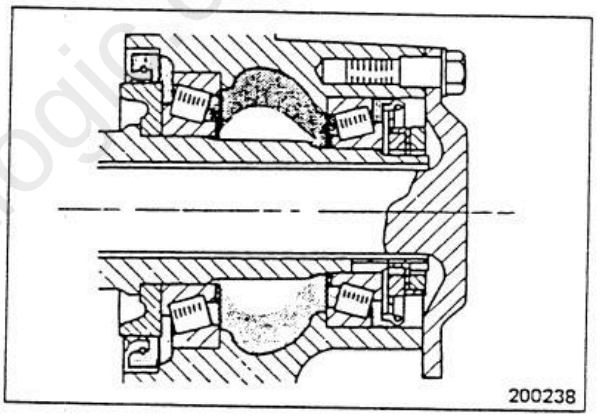
To reassemble, follow the reverse of disassembly sequence, and do the following steps:

1. Front wheel hub

(1) Fill the front wheel hub, especially the roller holder and oil seal lip groove, with grease.

NOTE

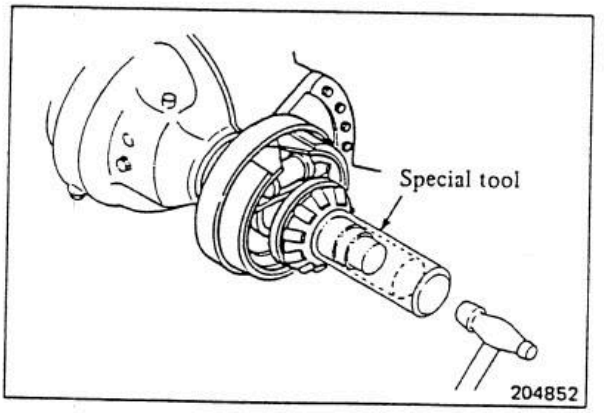
Take care not to apply grease to the brake drum.



(2) Install the inner race and oil seal retainer of the wheel hub bearing with an installer (special tool).

Special tool needed

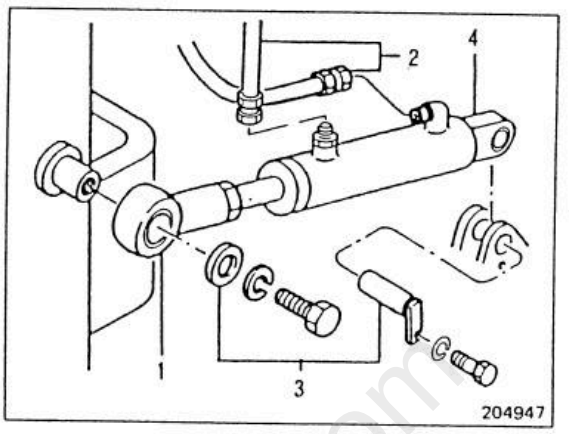
	GP(DP)15/18	GP(DP)20 thru 35
Installer	64309-12300	91468-00300



(3) Apply sealant to the flange surfaces of the axle shafts.

Tilt Cylinders

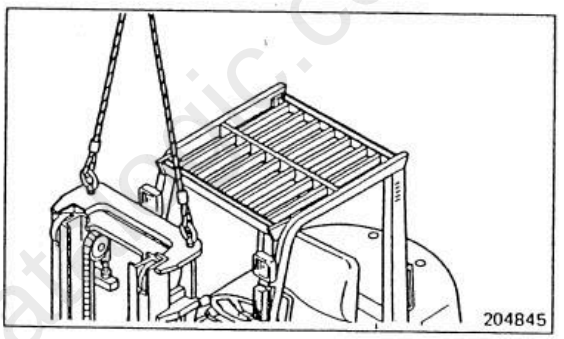
1 Tilt socket
2 Rubber hose [O-ring]
3 Cylinder pin [spacer]
4 Tilt cylinder



Start by:

1. lower the forks all the way, and tilt the mast fully forward.

2. hitch lifting slings to the top crossmember of outer mast by passing them through the round holes, and take up the weight of the mast with a hoist.



Suggestions

Removing tilt sockets

(1) Mark the tilt cylinder sockets and nuts.

NOTE

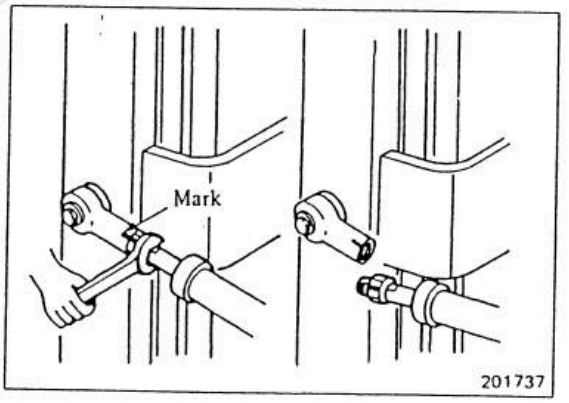
When the tilt cylinders are to be replaced, it is necessary to adjust the cylinder stroke and tilt angle.

(2) Using a wrench, turn the piston rods to disconnect the tilt cylinders from the tilt sockets.

NOTE

Loosen the nut just enough to permit turning of the piston rod. Do not change the position of the nut.

(3) Retract the tilt cylinders and disconnect them from the tilt sockets.



Inspection after disassembly

Shift forks

Check for distortion, cracks or badly worn tips.

Shifts rails

Check for distortion, cracks or worn detent ball grooves.

Input shaft

Check for distortion, cracks or badly worn splines.

Main shaft

Check for distortion, cracks or badly worn splines and bearing journals.

Output flange

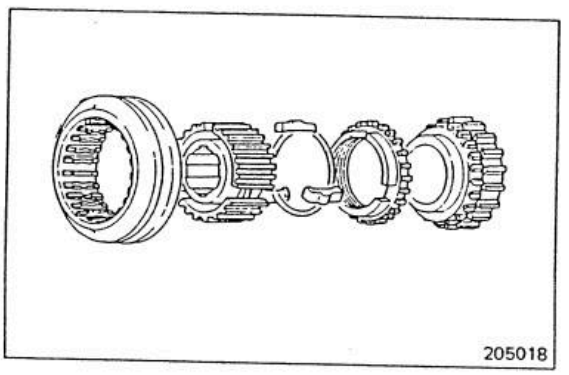
Check for distortion, cracks or badly worn splines. Also check the pinion teeth for defects outlined in the INSPECTION GUIDE volume.

Gears

Check for defects outlined in the INSPECTION GUIDE volume.

Synchronizer and related parts

(1) Check the gears and keys for defects as outlined in the INSPECTION GUIDE volume.



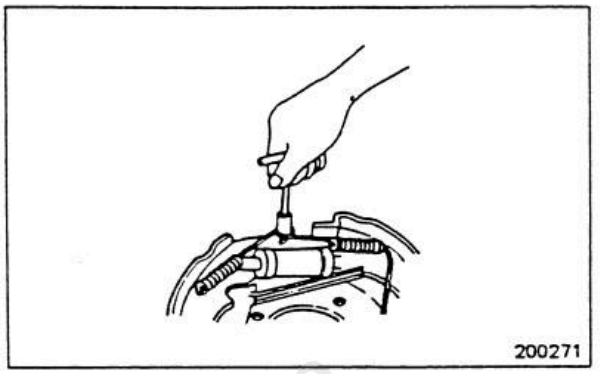
Suggestions

1. Return spring removal

Use a special tool to remove the return springs.

Special tool needed

Spring remover	64309-15411

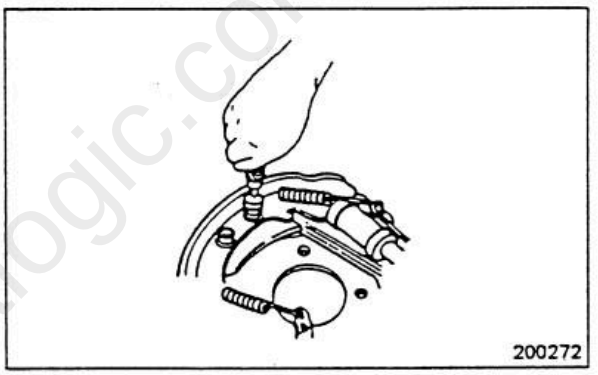


2. Hold-down spring removal

Use a special tool to remove the hold-down springs.

Special tool needed

Spring retainer	64309-15412



Inspection after disassembly

1. Backing plate

(1) Check the backing plate for cracks.

(2) Tighten the backing plate mounting bolts to the specified torque.

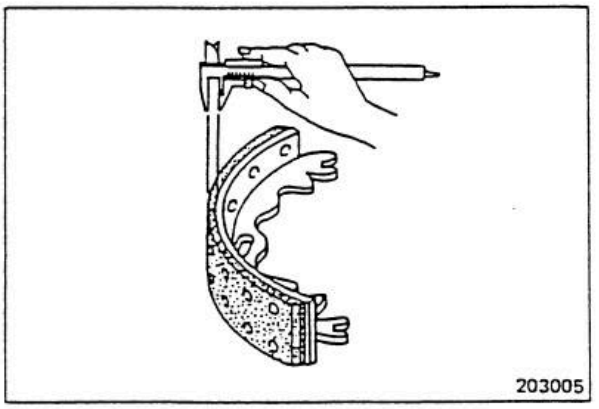
Tightening torque for backing plate mounting bolts	157 N·m (16 kgf·m) [116 lbf·ft]

2. Shoes and linings

(1) Check each shoe and lining for cracks.

(2) Replace the lining if it is found dirty with grease matter, burnt or glazed.

(3) Check the thickness of the lining, and replace the lining if it is in excess of the service limit.



Unit: mm [in.]

		GP(DP)15 thru 18	GP(DP)20 thru 35
Thickness of linings	A	4.87 [0.19]	6 [0.24]
	B	2.5 [0.10], maxumum	3 [0.12], maximum

Maintenance Precautions

The AC model contains a microcomputer. Following are the precautions to be observed in performing any maintenance on the AC model.

(1) When removing the controller cover, make proper provisions to keep out rain, washing water splashes and the like.

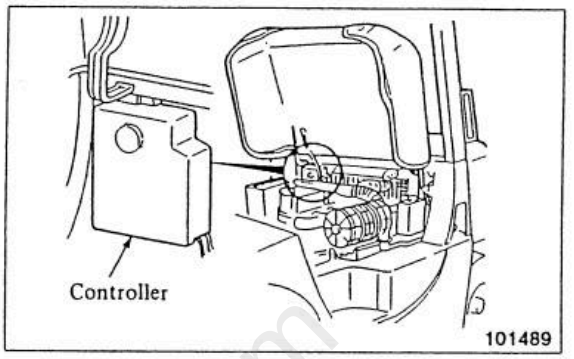
(2) After using the controller setting switch, check to make sure the control system is in keeping with the truck specifications.

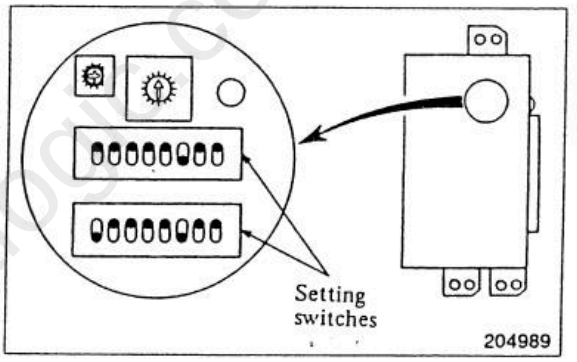
NOTE

Improper setting of the system will result in inability to lower the forks in an inching manner. (See "How to Set Controller.")

(3) Before performing repairs which require welding, be sure to disconnect the cable from the battery positive (+) terminal and the controller from the system at its connectors.

(4) When handling the controller by hand, never touch its electrical terminals, or your body charge will rupture some of the electronic elements in the internal controller circuits.





Complaint		Possible cause
Lift and tilt cylinders	Cylinders move too slow	a) Shortage of oil due to a natural loss b) Oil leakage due to damaged oil line seals c) Oil viscosity too higher d) Hydraulic pump defective e) Hydraulic pump internally leaking f) Abnormal oil temperature rise
	Lifting speed is too low	a) Engine rpm too low b) Tank strainer clogged c) Pump not delivering enough oil
	Lowering speed is too low	a) Piston seized in flow regulator valve b) Dirt in flow regulator valve, hydraulic hose broken or abnormal resistance to flow due to flattened hose or local clogging
	Cylinder vibrates when actuated	a) Piston rod distorted b) Air in oil circuit c) Not enough oil in hydraulic tank
	Load drops with lift spool in neutral	a) Control valve spool internally leaking b) Sliding (inside) surface of cylinder tube slightly grooved c) Sliding (inside) surface of cylinder tube badly grooved d) Piston seals broken or distorted e) Oil leakage from piping
	Mast tilt forward with tilt spool in neutral	a) Control valve spool internally leaking b) Foreign particles lodged between packing and mating surface c) Piston seals damaged d) Cylinder distorted and oil leakage from circuit
	Load drops or mast tilt forward at some point of cylinder stroke	a) Inside surface of cylinder tube badly grooved b) Cylinder distorted
	Bushing leaks	a) Foreign particles lodged between sealing members such as oil seals and dust seals b) Oil seals and dust seals defective c) O-rings damaged d) Cylinder distorted

Full Version Available

Caterpillar GP25 FC Forklift Service Manual (99719-60100)

Caterpillar GP25 FC Forklift service manual, covers hydraulics, wiring, power train, mast, and service data. Instant PDF download.