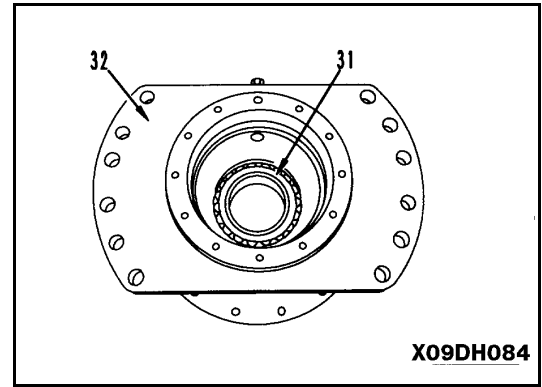


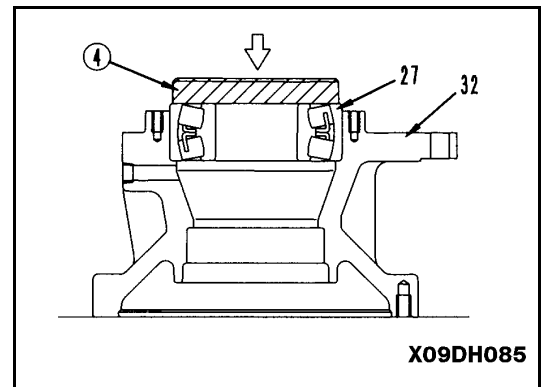
12. Using push tool, remove bearing (31) from case (32).



ASSEMBLY PC250


Clean all parts and check for dirt or damage. Coat the sliding surfaces of all parts with engine oil before installing.

1. Using push tool ④, press fit bearing (27) to case (32).

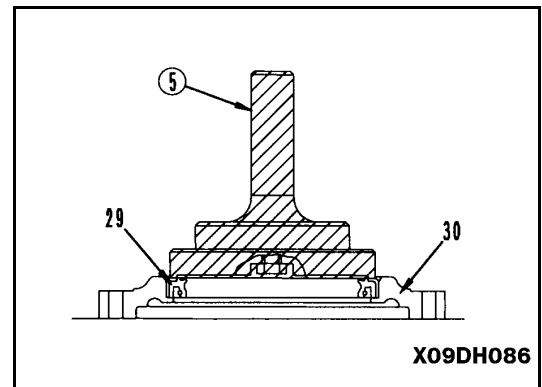


2. Cover assembly


A. Using push tool ⑤, press fit oil seal (29) to cover (30).


 Outside circumference of oil seal:
Gasket sealant (LG- 6)


★ Be careful not to let the gasket sealant (LG-6) get on the oil seal lip when press fitting.

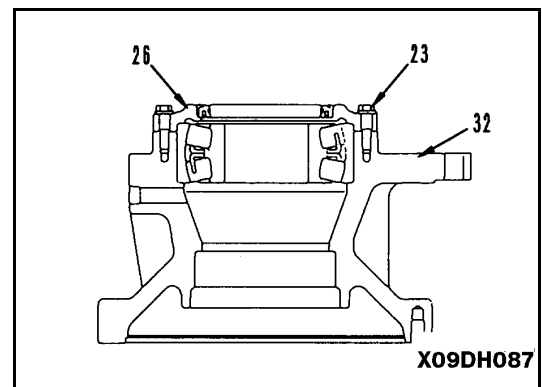


B. Fit cover assembly (26) to case (32), and tighten mount bolts (23).

 Cover mount surface: Gasket sealant (LG-6)

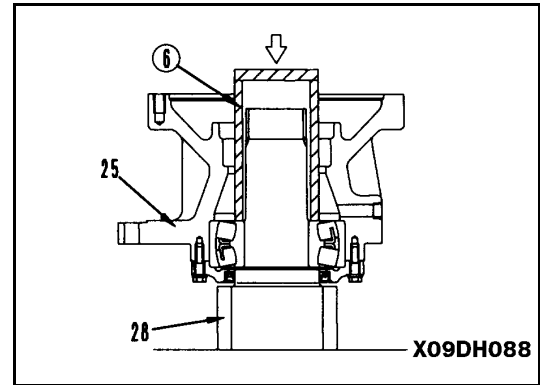
 Mount bolt: 66.2 ± 7.4 Nm (48.8 ±5.4 lbf ft)

 Lip of oil seal: Grease (G2-LI)



3. Set case assembly (25) to shaft (28), then using push tool ⑥, press fit bearing inner race portion.

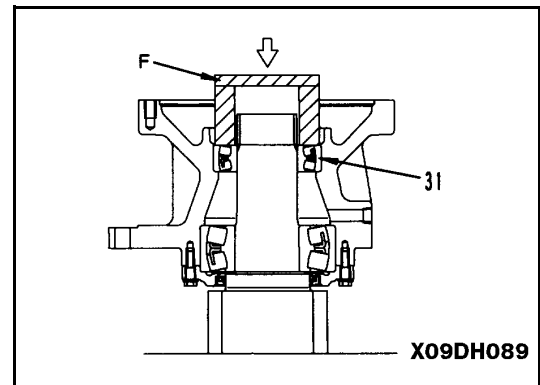
★ When setting the case assembly to the shaft, be extremely careful not to damage the oil seal.



4. Using tool F, press fit bearing (31).

★ Press the bearing inner race and outer race at the same time when press fitting. Do not press only the inner race when press fitting.

★ After press fitting the bearing, check that the case rotates smoothly.

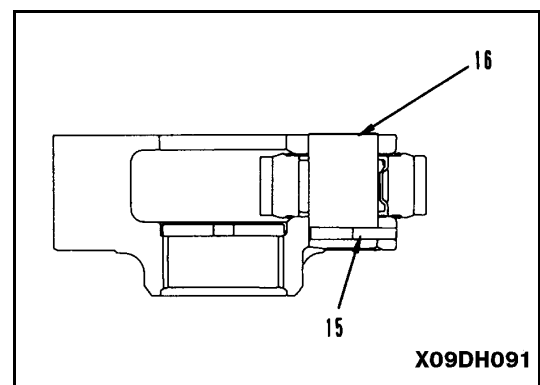
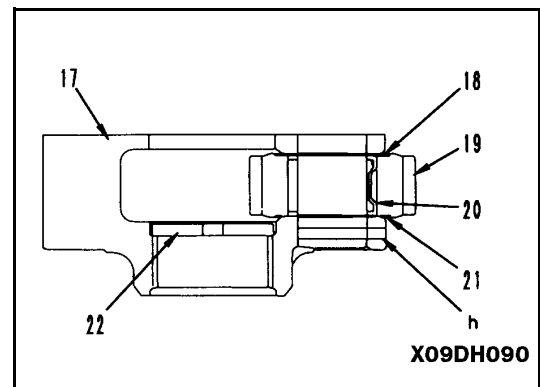


5. No. 2 carrier assembly

- A. Assemble No.2 carrier assembly as follows.


★ There are the remains of the caulking when the pin is inserted at the end face of hole **h** at the side of the carrier, so remove the caulked metal from the inside diameter of the hole before starting to assemble.


- i. Assemble plate (22) to carrier (17).
- ii. Assemble bearing (20) to gear (19), fit top and bottom thrust washers (18) and (21) and set gear assembly to carrier (17).
- iii. Align with position of pin holes of shaft and carrier, then tap with a plastic hammer to install shaft (16).
 - ★ When installing the shaft, rotate the planetary gear, and be careful not to damage the thrust washer.
- iv. Insert pin (15).
 - ★ After inserting the pin, caulk the pin portion of the carrier.

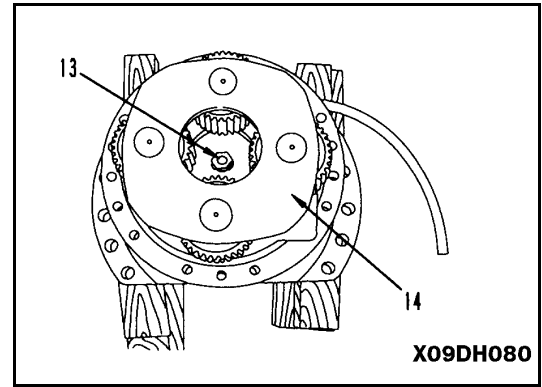


B. Install No. 2 carrier assembly (14).

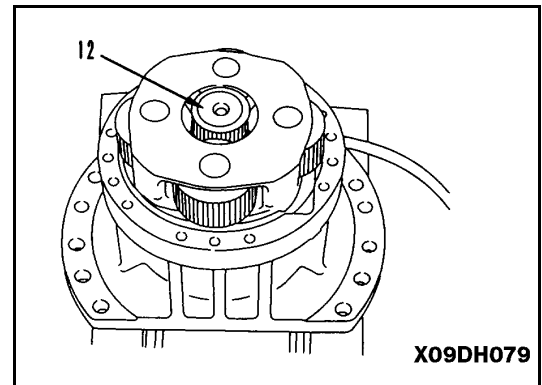
6. Tighten bolt (13).

 Mount bolt: Thread tightener (LT-2)

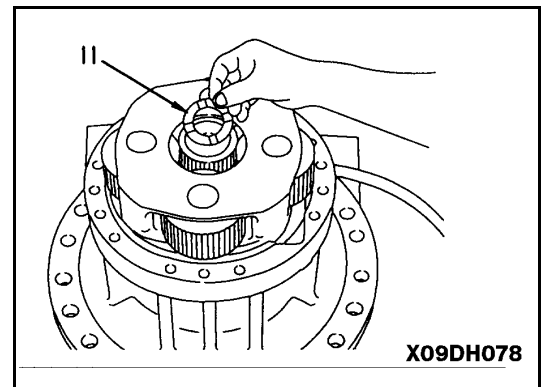
 Mount bolt: $176.5 \pm 19.6 \text{ Nm}$ ($18 \pm 2.0 \text{ kgm}$)




7. Install No. 2 sun gear (12).

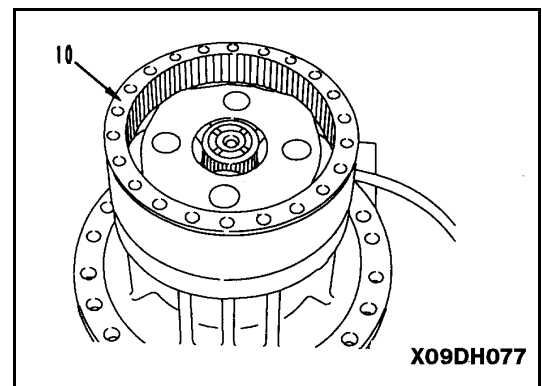


8. Install No. 2 thrust washer (11).



9. Instal ring gear (10).

 Case side mount surface: Gasket sealant (LG-6)

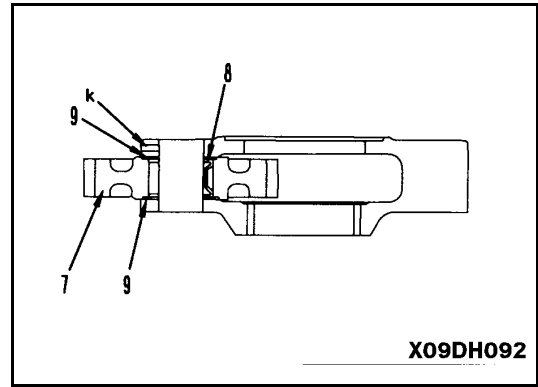


10. No. 1 carrier assembly

A. Assemble No. 1 carrier assembly as follows.

★ There are the remains of the caulking at the end face of the carrier side hole **k** made when inserting the pin, so remove the remains of the caulking on the inside diameter of the hole before starting assembly.

i. Assemble bearing (8) to gear (7), then fit top and bottom thrust washers (9) and set gear assembly to carrier.

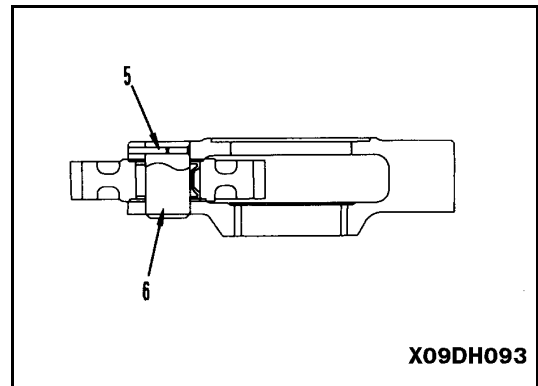


ii. Align pin hole position of carrier and shaft, then tap with plastic hammer and install shaft (6).

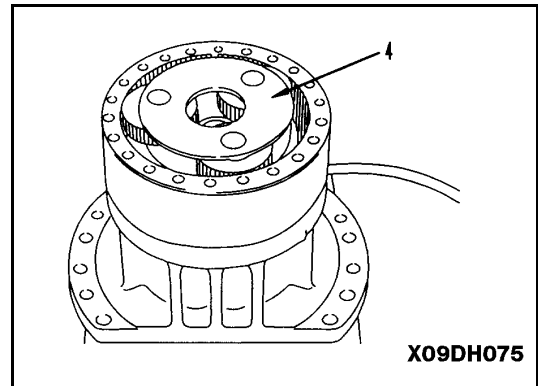
★ Rotate the planet gear when installing the shaft, and be careful not to damage the thrust washer.

iii. Insert pin (5).

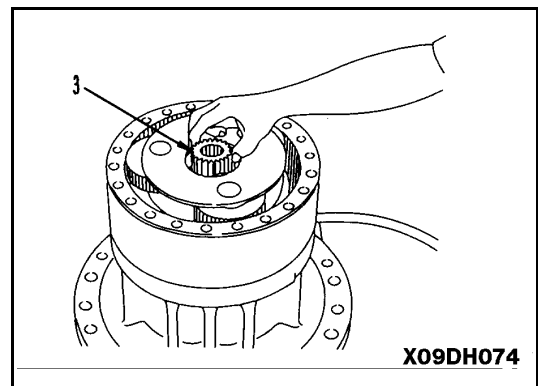
★ After inserting the pin, caulk the pin portion of the carrier.



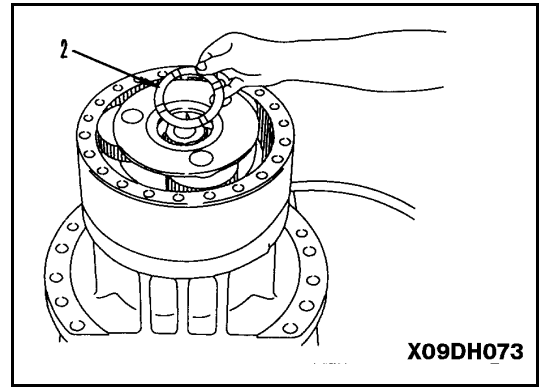
iv. Install No. 1 carrier assembly (4).




11. Install No. 1 sun gear (3).




12. Install No. 1 thrust washer (2).

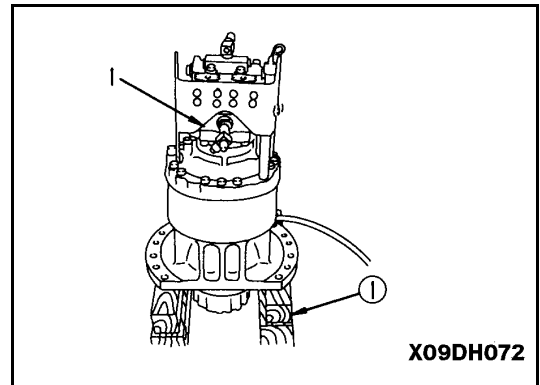


13. Install swing motor assembly (1).

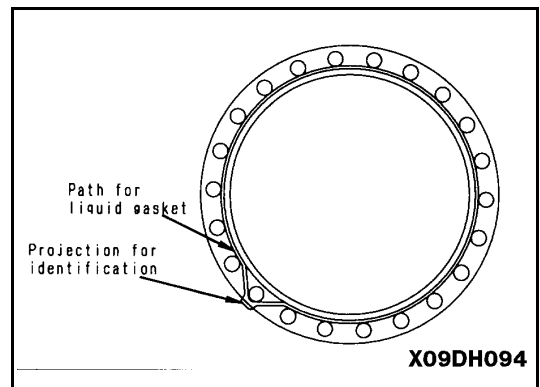
 Ring gear side mount surface:
Gasket sealant (LG-6)

★ Coat the outside diameter of the hole only at the hole in the ring gear where there is a distinguishing protrusion on the case. (See the diagram on the right.)

 Mount bolt: 176.5 ± 19.6 Nm (130 ± 14.4 lbf ft)



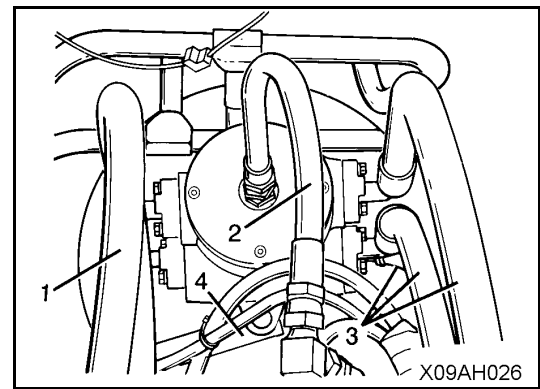
14. Tighten drain plug and add engine oil through oil filler to specified level.



REVOLVING FRAME

REMOVAL

1. Remove 2 boom cylinder assemblies. For details, see BOOM CYLINDER ASSEMBLY, Removal.
2. Remove work equipment assembly. For details, see WORK EQUIPMENT, Removal.
3. Remove counterweight assembly. For details, see COUNTERWEIGHT, Removal.
4. Disconnect top mount hoses (1), (2), and (3) of swivel joint assembly at swivel joint assembly end.
5. Remove stopper link (4).
6. Remove mount bolts, then lift off revolving frame assembly (5).



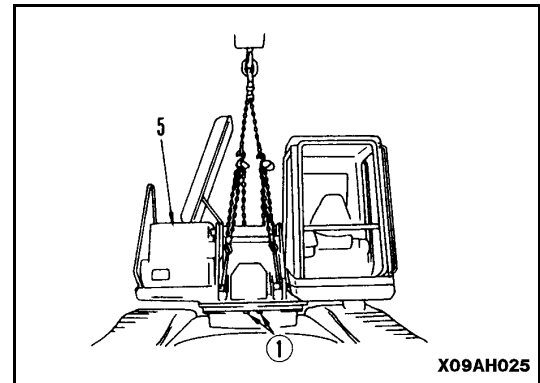
- ❌ 1
- ★ Leave 2 bolts ① each at the front and rear, use a lever block to adjust the balance of the revolving frame assembly to the front and rear, and left and right, then remove the remaining bolts, and lift off.



WARNING! When removing the revolving frame assembly, be careful not to hit the center swivel joint assembly.



Revolving frame assembly: 5,200 kg (11,464 lb)



INSTALLATION

Carry out installation in the reverse order to removal.



Mating surface of swing circle: Gasket sealant (LG-1)



Thread of revolving frame mount bolt: Thread tightener (LT-2)



Revolving frame mount bolt:



Item	Mount bolt		Mount bolt tightening torque
	Size (mm)	Qty	Nm (lbf ft)
PC200-6 PC210-6	20 - 110	32	637 ± 49 (469.8 ± 36.1)
PC220-6	22 - 110	32	764.4 ± 49 (563.7 ± 36.1)
PC250-6	24 - 135	35	927 ± 103 (683.7 ± 75.9)

- Refilling with oil (hydraulic tank)
Add oil through the oil filler to the specified level. Run the engine to circulate the oil through the system. There check the oil level again.
- Bleeding air
Bleed the air from swing motor. For details, see TESTING AND ADJUSTING, Bleeding air.

SWING CIRCLE

REMOVAL

1. Remove revolving frame assembly. For details, see REVOLVING FRAME, Removal.
2. Remove swing circle mount bolts (1), leaving 1 bolt each in front and rear direction.



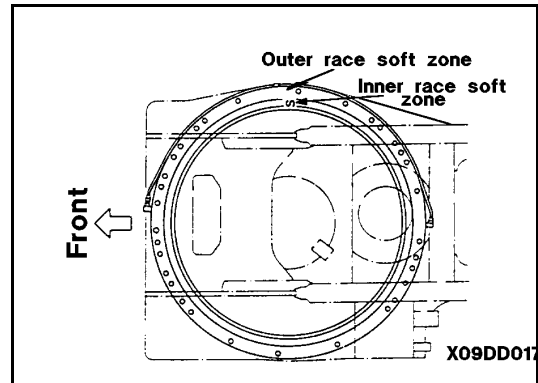
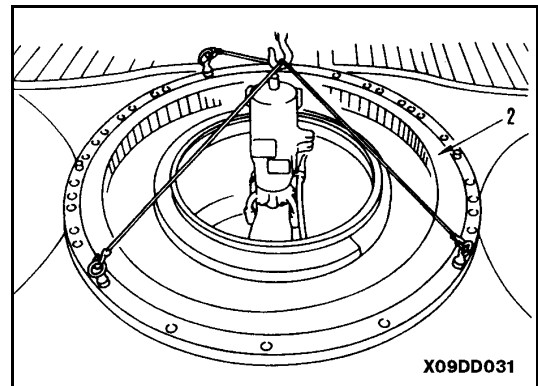
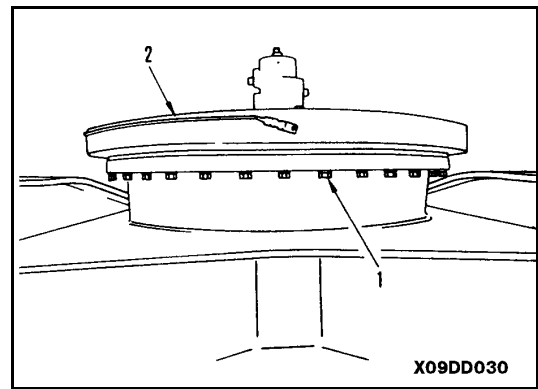
*Swing circle assembly mount bolts: PC200/210/220 = 36;
PC250 = 40.*

3. Sling swing circle assembly (2) at three points, then remove remaining mount bolts.
4. Lift off swing circle assembly (2).



Remark

*Swing circle assembly: PC200/210/220 - 280 kg (618 lb);
PC250 - 716 kg (1,579 lb)*



INSTALLATION

Carry out installation in the reverse order to removal.



Thread of swing circle mount bolt:
Thread tightener (LT-2)



Swing circle mount bolt:

Model	Item	Mount bolt		Mount bolt tightening torque
		Size (mm)	Qty	Nm (lbf ft)
PC200-6 PC210-6 PC220-6		20 - 70	36	632.1 ± 44.1 (466.2 ± 32.4)
PC250-6		24 - 135	40	927 ± 103 (683.7 ± 75.9)



- ★ Set the soft zone S mark on the inside ring of the inner race facing the right side as shown in the diagram, then install to the track frame.



Swing circle: Grease (G2-L1)
PC200/210/220 - 21 L (5.54 gal);
PC250 - 34 L(8.98 gal)


IDLER – RECOIL SPRING

REMOVAL

1. Remove track shoe assembly. For details, see TRACK SHOE, Removal.
2. Sling idler and recoil spring assembly (1), and pull out to the front to remove.



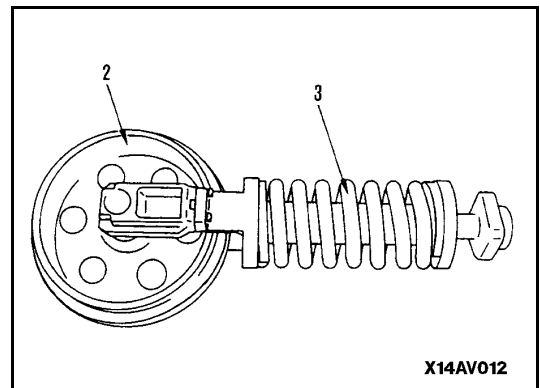
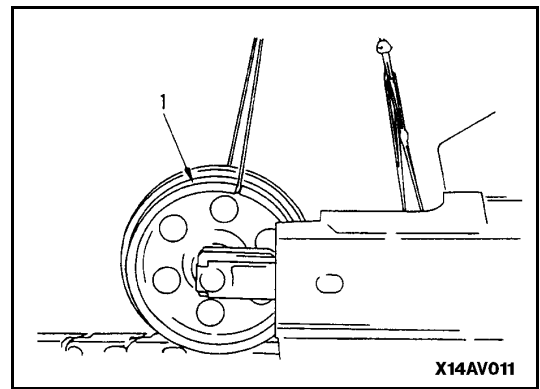
Idler – recoil spring assembly:
 PC200/210/220LC-6LE: 275 kg (607 lb)
 PC250LC-6LE: 423 kg (933 lb)

3. Disconnect recoil spring assembly (3) from idler assembly (2). 



PC200/210/220LC-6LE: Idler 140 kg (309 lb)
 Recoil Spring 135 kg (298 lb)

PC250LC-6LE: Idler 166 kg (366 lb)
 Recoil spring 257 kg (567 lb)



INSTALLATION

Carry out installation in the reverse order to removal.

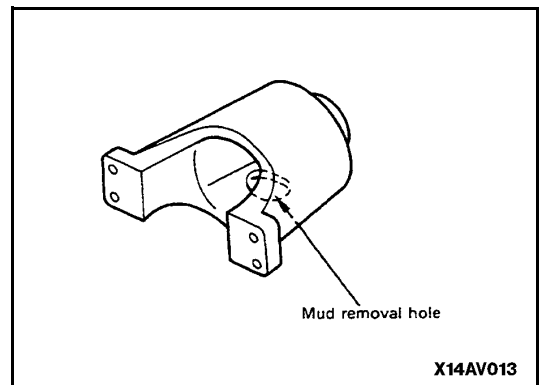


For PC200/210/220LC-6LE

When installing the idler assembly and recoil spring assembly, assemble so that the position of the greasing plug on the idler is on the outside for the right side of the machine and on the inside for the left side of the machine.

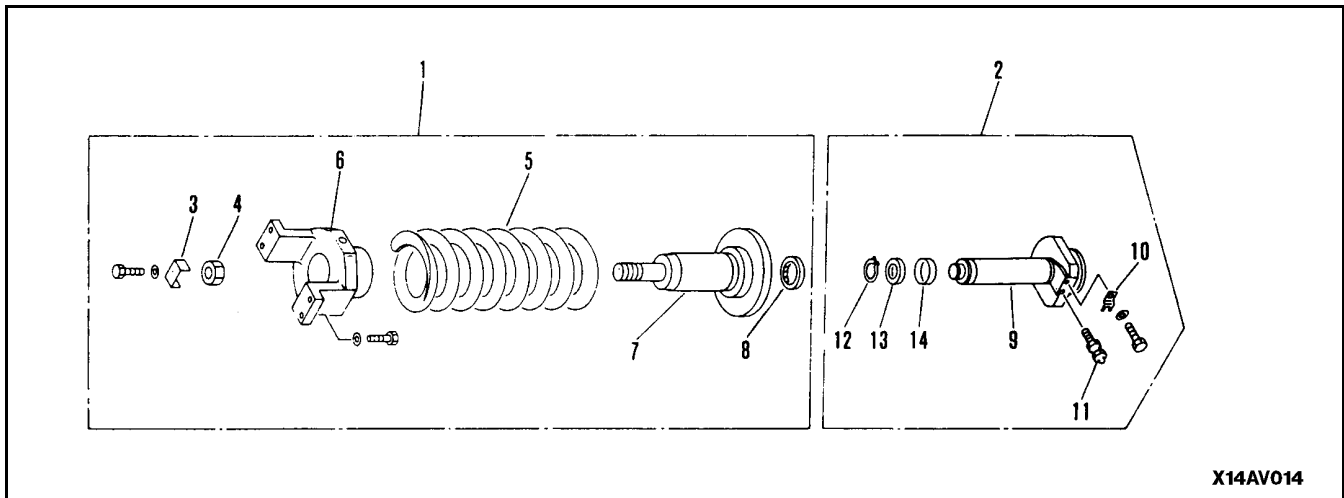
PC250LC-6LE

Install recoil spring assembly (3) to idler assembly (2) so that the mud removal hole in the yoke is at the bottom.



RECOIL SPRING

DISASSEMBLY



1. Remove piston assembly (2) from recoil spring assembly (1).
2. Disassembly of recoil spring assembly
 - A. Set recoil spring assembly (1) to tool H_1 .

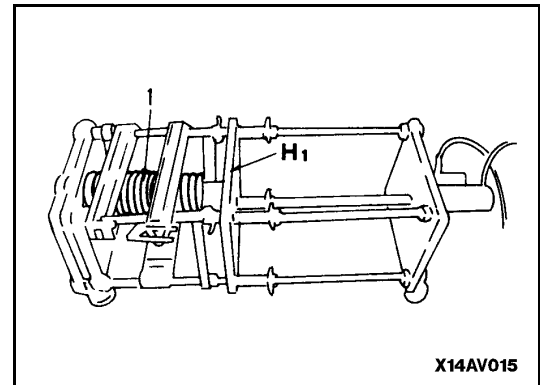


WARNING! The recoil spring is under large installed load, so be sure to set the tool properly. Failure to do this is dangerous.

Installed load of spring:

PC200/210/220: 126.5 kN (12,900 kg)

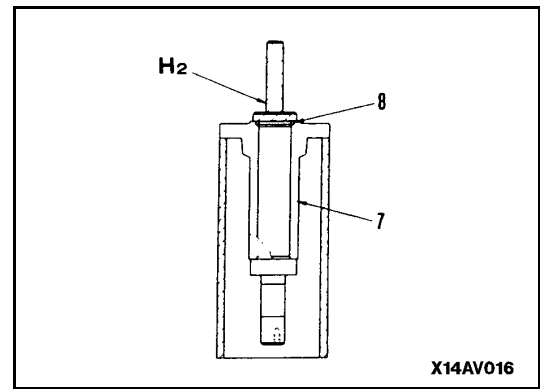
PC250: 173.3 kN (17,680 kg)



- B. Apply hydraulic pressure slowly to compress spring, and remove lock plate (3), then remove nut (4). Compress the spring to a point where the nut becomes loose. Release the hydraulic pressure slowly and release the tension of the spring.
Free length of spring
PC200/210/220: 603.5 mm (23.75 in)
PC250: 795 mm (31.29 in)
 - C. Remove yoke (6), cylinder (7), and dust seal (8) from spring (5).
3. Disassembly of piston assembly
 - A. Remove lock plate (10) from piston (9), then remove valve (11).
 - B. Remove snap ring (12), then remove U-packing (13) and ring (14).

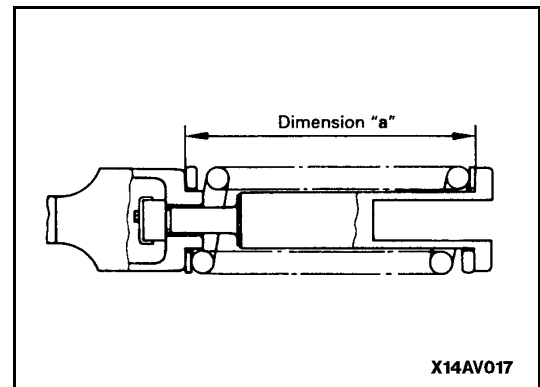
ASSEMBLY

1. Assembly of piston assembly
 - A. Assemble ring (14) and U-packing (13) to piston (9), and secure with snap ring (12).
 - B. Tighten valve (11) temporarily, and secure with lock plate (10).
2. Assembly of recoil spring assembly



- A. Using tool **H₂**, install dust seal (8) to cylinder (7).
- B. Assemble cylinder (7) and yoke (6) to spring (5), and set in tool **H₁**.

Sliding portion of cylinder: Grease (G2-L1)



- C. Apply hydraulic pressure slowly to compress spring, and tighten nut (4) so that installed length of spring is dimension "a", then secure with lock plate (3).
 - ★ Installed length "a" of spring:
 - PC200/210/220: 466 mm (18.34 in)
 - PC250: 648 mm (25.51 in)
- D. Remove recoil spring assembly (1) from tool **H₁**.

3. Assemble piston assembly (2) to recoil spring assembly (1).

Sliding portion of piston, wear ring: Grease (G2-L1)

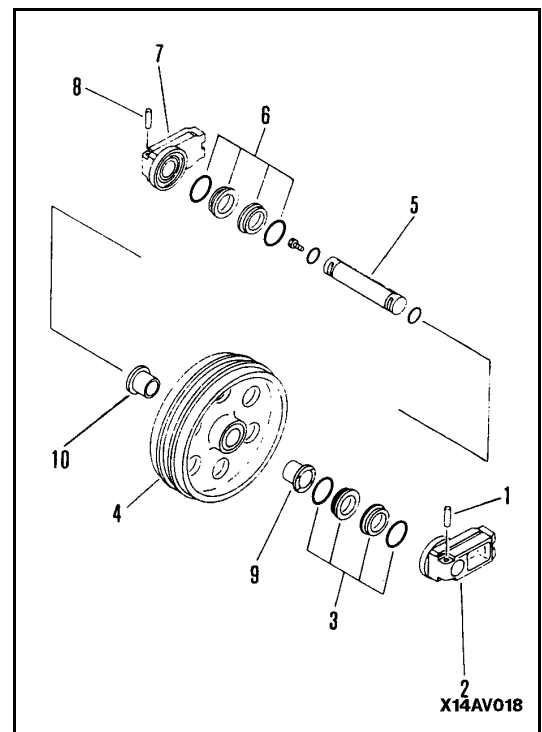


- ★ Assemble the cylinder assembly so that the mount position of the valve is 90° to the side.
- ★ Fill the inside of the cylinder with 300 cc (10.1 oz) of grease (G2-L1), then bleed air and check that grease comes out of the grease hole.

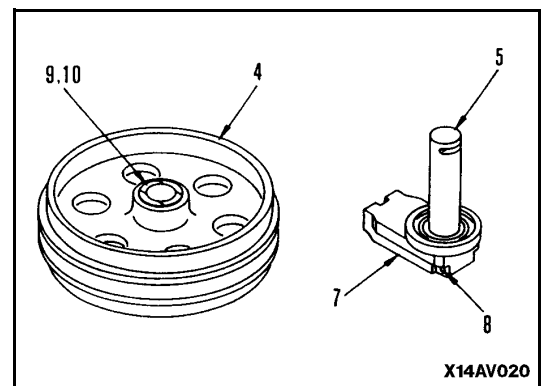
IDLER

DISASSEMBLY

1. Remove dowel pin (1), then remove support (2).
2. Remove floating seal (3) from support (2) and idler (4).
3. Pull out idler (4) from shaft (5) and support (7) assembly.
 - ★ It is filled with oil, so drain the oil at this point or lay a cloth to prevent the area from becoming dirty.



4. Remove floating seal (6) on opposite side from idler (4) and shaft (5) and support (7) assembly.



5. Remove dowel pin (8), then remove support (7) from shaft (5).
6. Remove bushings (9) and (10) from idler (4).

