Kawasaki

Printed in USA
（アメリカ用）

135ZV

SHOP MANUAL

Disassembly & Reassembly
Service Standard

93217-00070

Kawasaki

93217-00070

September 2004

SHOP MANUAL

WHEEL LOADER

135ZV

Disassembly & Reassembly
Service Standard

Powered by CUMMINS QST30-C ENGINE

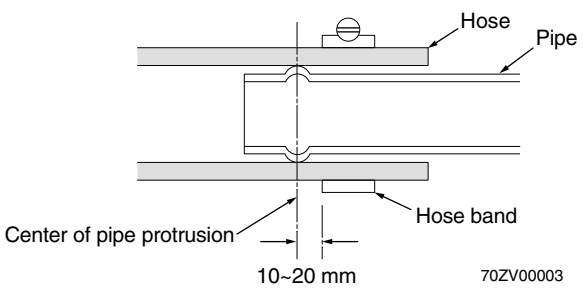
Serial No. 13C1-0201~

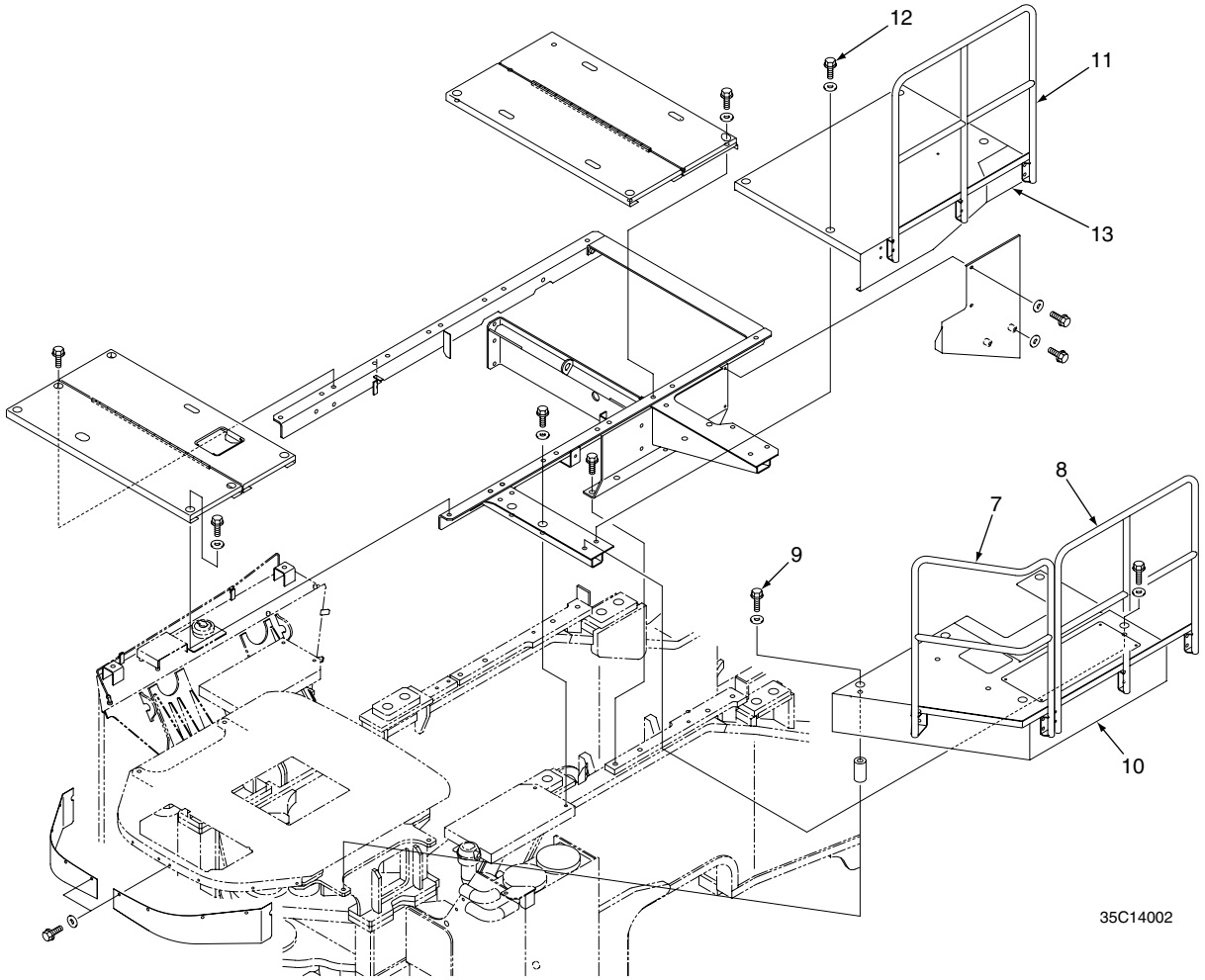
Hose Band Tightening Torque

Low pressure hose (heat resisting hose)		Hose band	Tightening torque (N-m)	Tightening torque (kgf-cm)	Tightening torque (lb-ft)
Inner dia.(mm)	Outer dia.(mm)				
6.3	16.5	HH022W	1.6	16	1.2
7.9	18.5	HH022W			
9.5	20.5	HH022W			
12.7	24.5	HH027W	4	40	2.9
15.9	29.9	HH031W			
19.0	30.0	HH031W			
25.4	38.0	HH044W			
31.8	45.8	HH052W			
38.1	52.1	HH057W			
50.8	67.8	HH071W			
60.5	76.0	HH082W			
75.5	93.0	HH095W			

Low pressure hose		Hose band	Tightening torque (N-m)	Tightening torque (kgf-cm)	Tightening torque (lb-ft)
Inner dia.(mm)	Outer dia.(mm)				
6	16.5	HH022W	1.6	16	1.2
8	18.5	HH022W			
9	20.5	HH022W			
9	22.0	HH023W	4	40	2.9
12	24.5	HH027W			
12	26.0	HH027W			
15	29.0	HH031W			
15	30.5	HH031W			
19	32.0	HH038W			
19	34.0	HH038W			
25	39.5	HH044W			
25	41.5	HH044W			
32	46.0	HH052W			
32	48.0	HH052W			
38	54.0	HH057W			
50	70.5	HH076W			
50	73.0	HH076W			

To connect the hose to the pipe, tighten the hose band at the following position:





Note: The illustration shows the parts on the left side. On the right side, the parts are located at the same points.

3) Temporarily sling a handrail (7), (8) and remove the bolts (9). Lift the deck (10) (with the handrail).
Torque for assembly:
: Bolt (9): 230 N-m (170 lb-ft)
: Deck (10): 80 kg (176 lbs)

4) Temporarily sling a handrail (11) and remove the bolts (12). Lift the deck (13) (with the handrail).
Torque for assembly:
: Bolt (12): 230 N-m (170 lb-ft)
: Deck (13): 65 kg (143 lbs)

2. Reinstalling deck

For reinstallation, follow the above procedure in the reversed direction.

Boom

Removing and Reinstalling Boom

1. Removing boom

⚠ WARNING

Unexpected movement of the machine could cause an accident resulting in injury or death.
- **Position the machine on level ground, and block the tires with chocks, etc. to prevent them from moving.**
- **Lower the bucket onto the ground, and release the residual pressure from the hydraulic oil tank and lines.**
- **Apply the parking brake and remove the starter key.**

Note: The illustration shows the parts on the right side. On the left side, the parts are located at the same points.

1) Remove the pin (3) connecting the bucket (1) and the link (2).

: Bucket: 6,580 kg (14,510 lbs)

Note: There are shims in the pin sections.
Carefully store the removed shims, and correctly reinsert the shims when reinstalling the bucket.

2) Remove the connection pin (5) from the boom (4) and bucket (1).

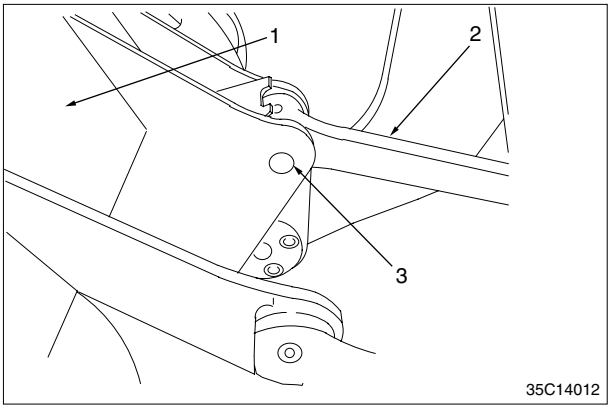
Note: There are shims in the pin sections.
Carefully store the removed shims, and correctly reinsert the shims when reinstalling the bucket.

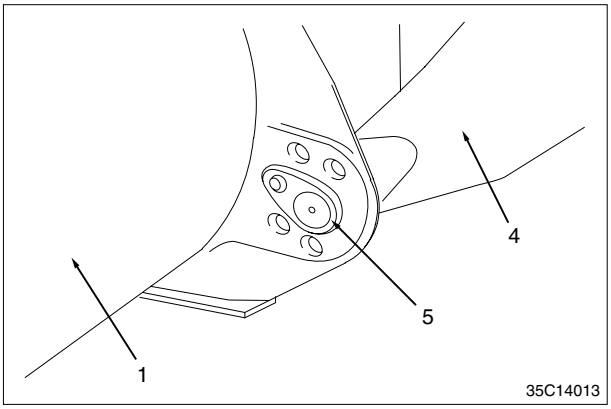
3) Temporarily sling the link (2), and then remove the connection pin (6) from the lever (7).

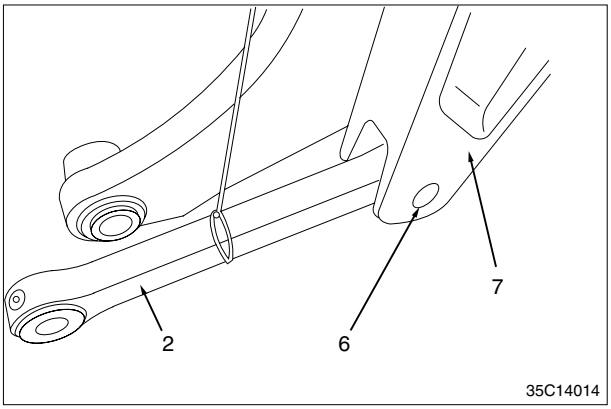
: Link (for 1 pc): 163kg (359 lbs)

⚠ WARNING

Hitting the parts quenched such as bearing, shaft, pin and tooth by a steel-hammer could cause a breakage resulting in injury or death.
- **Keep persons away from working area.**
- **Use a support plate in case a steel hammer is used.**
- **Use a copper-hammer or a plastic hammer.**
- **Always wear protection goggles.**



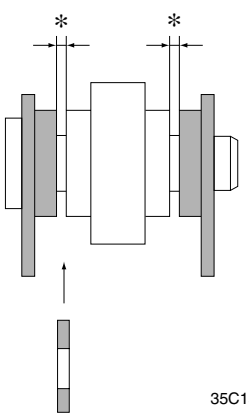




Linkage Pin Standard Clearance Values

	No.	Item	Judgment standard				Remedy
			Pin standard dimension	Bushing standard dimension	Standard clearance	Tolerance	
*	1	Joint section between bucket and boom	$\phi160^{-0.145}_{-0.185}$ (ϕ6.2992)	$\phi160^{+0.265}_{+0.236}$ (ϕ6.2992)	0.450~0.381 (0.0177~0.0150)	1.0 (0.0393)	Replacement
*	2	Joint section between boom and lever	$\phi150^{-0.145}_{-0.185}$ (ϕ5.9055)	$\phi150^{+0.215}_{+0.190}$ (ϕ5.9055)	0.400~0.335 (0.0157~0.0132)	1.0 (0.0393)	Replacement
	3	Joint section between boom and boom cylinder	$\phi160^{-0.145}_{-0.185}$ (ϕ6.2992)	$\phi160^{+0.265}_{+0.236}$ (ϕ6.2992)	0.450~0.381 (0.0177~0.0150)	1.0 (0.0393)	Replacement
*	4	Joint section between front chassis and boom	$\phi180^{-0.145}_{-0.185}$ (ϕ7.0866)	$\phi180^{+0.287}_{+0.258}$ (ϕ7.0866)	0.472~0.403 (0.0186~0.0159)	1.0 (0.0393)	Replacement
*	5	Joint section between bucket and rod	$\phi120^{-0.120}_{-0.155}$ (ϕ4.7244)	$\phi120^{+0.192}_{+0.170}$ (ϕ4.7244)	0.347~0.290 (0.0137~0.0114)	1.0 (0.0393)	Replacement
*	6	Joint section between lever and rod	$\phi120^{-0.120}_{-0.155}$ (ϕ4.7244)	$\phi120^{+0.192}_{+0.170}$ (ϕ4.7244)	0.347~0.290 (0.0137~0.0114)	1.0 (0.0393)	Replacement
*	7	Joint section between lever and bucket cylinder	$\phi130^{-0.145}_{-0.185}$ (ϕ5.1181)	$\phi130^{+0.457}_{+0.370}$ (ϕ5.1181)	0.642~0.515 (0.0253~0.0203)	1.0 (0.0393)	Replacement
*	8	Joint section between bucket cylinder and front chassis	$\phi130^{-0.145}_{-0.185}$ (ϕ5.1181)	$\phi130^{+0.457}_{+0.370}$ (ϕ5.1181)	0.642~0.515 (0.0253~0.0203)	1.0 (0.0393)	Replacement
	9	Joint section between boom cylinder and front chassis	$\phi160^{-0.145}_{-0.185}$ (ϕ6.2992)	$\phi160^{+0.457}_{+0.370}$ (ϕ6.2992)	0.642~0.515 (0.0253~0.0203)	1.0 (0.0393)	Replacement
*	10	Joint section between front chassis and steering cylinder	$\phi90^{-0.120}_{-0.155}$ (ϕ3.5433)	$\phi90^{+0.457}_{+0.370}$ (ϕ3.5433)	0.612~0.490 (0.0253~0.0203)	1.0 (0.0393)	Replacement
*	11	Joint section between steering cylinder and rear chassis	$\phi90^{-0.120}_{-0.155}$ (ϕ3.5433)	$\phi90^{+0.457}_{+0.370}$ (ϕ3.5433)	0.612~0.490 (0.0253~0.0203)	1.0 (0.0393)	Replacement

Liner clearance adjustment



Adjustment procedure (for adjustment of liner clearance marked with asterisk):

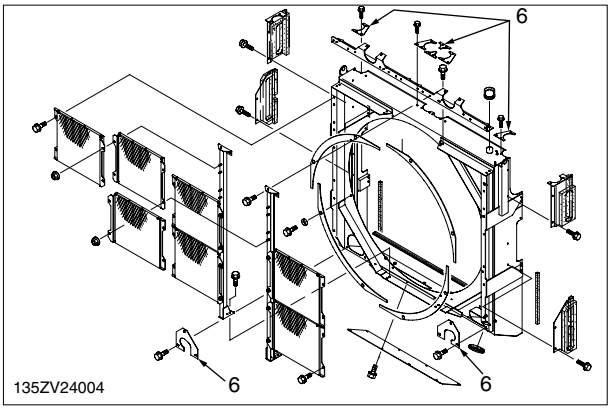
Adjust the liner clearance (marked with "*") between the bosses to 1.2mm or less using liner of 1mm thickness.

For the steering cylinder, adjust the liner clearance on the rear chassis side first, and then adjust the liner clearance on the front chassis side while checking that the cylinder is not inclined. Liners should be placed on both sides of the linkage as much as possible.

Wear then occurs on the liners and reduces wear on the chassis. Excessive vertical free play in the steering cylinders can result in loud knocking noises when the steering wheel is turned.

4) Disconnect the hoses from the radiator.

Note: Cover the disconnected hoses with vinyl to protect the hoses from dust and dirt.

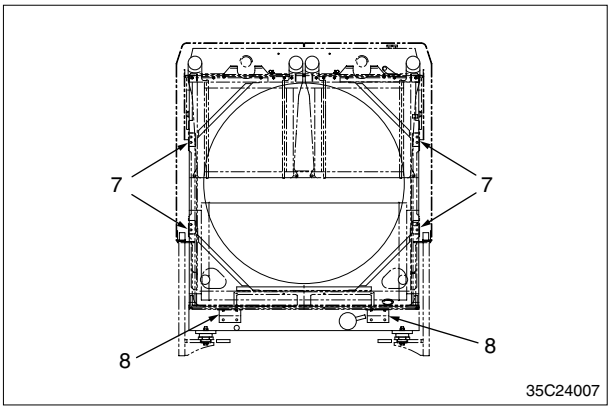


5) Remove the plate (6) from the fan guard.

: Retainer bolt: 28 N-m (2.9 kgf-m) (21 lb-ft)

6) Remove the plate (7) (8) from the fan guard.

: Retainer bolt: 94 N-m (9.6 kgf-m) (69 lb-ft)



7) Remove the fan guard and stay (9).

: Retainer bolt: 230 N-m (23.5 kgf-m) (170 lb-ft)

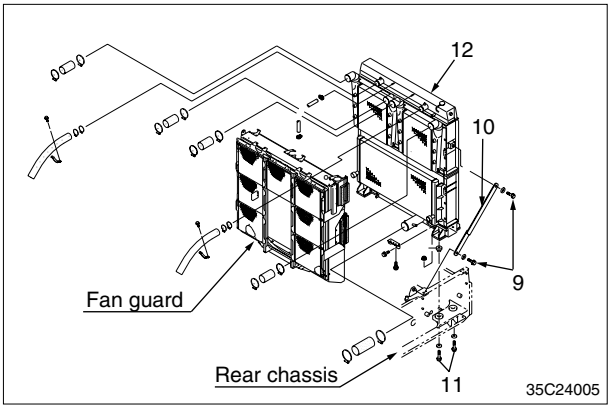
: Screw lock agent (Loctite 262) application

8) Temporarily sling the radiator. Remove the bolts (11) both the right and left sides.

Torque for assembly:

: Retainer bolt (11):
441 N-m (45.0 kgf-m) (326 lb-ft)

: Screw lock agent (Loctite 262) application

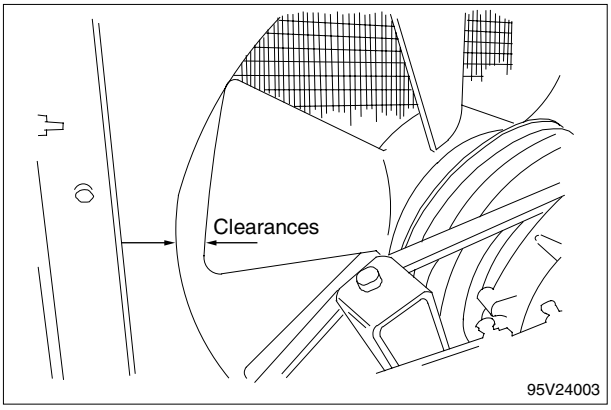


9) Lift the radiator (12) to remove it.

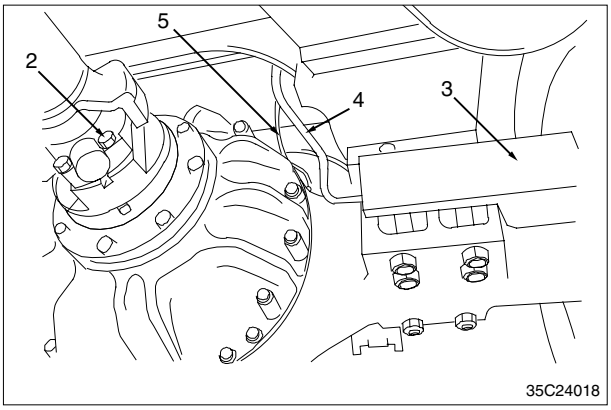
: Radiator: 950kg (2,095 lbs)

2. For reinstallation, follow the above procedure in the reversed direction.

Note: Reinstall the radiator while checking that the right and left clearances between the fan and the radiator guard are equal to each other.

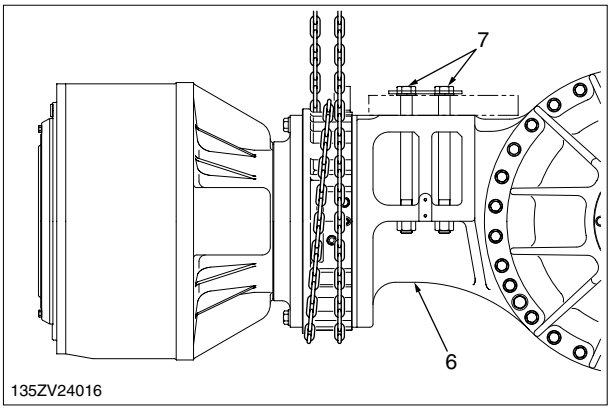


2) Remove the second propeller shaft retainer bolt (2).
Remove the cover (3) and the brake pipe (4).
Disconnect the air breather tube (5) from the upper part of the axle.
Reassembly: Clean the nylon breather tube before reinstalling.
Torque for assembly:
: Retainer bolt: 221 N-m (22.5 kgf-m) (163 lb-ft)
: Screw lock agent (Three Bond 1327) application
: Brake oil: Approx. 2 ℓ (0.1 gal.)



3) Temporarily sling the axle assembly (6), and then remove the retainer bolts (7).
Place the axle assembly (6) on a carrier to smoothly pull out.
: Axle assembly: 6,430 kg (14,180 lbs)
Torque for assembly:
: Retainer bolt:
2,500 N-m (255 kgf-m) (1,845 lb-ft)
: With lubricating oil (Engine oil or gear oil)

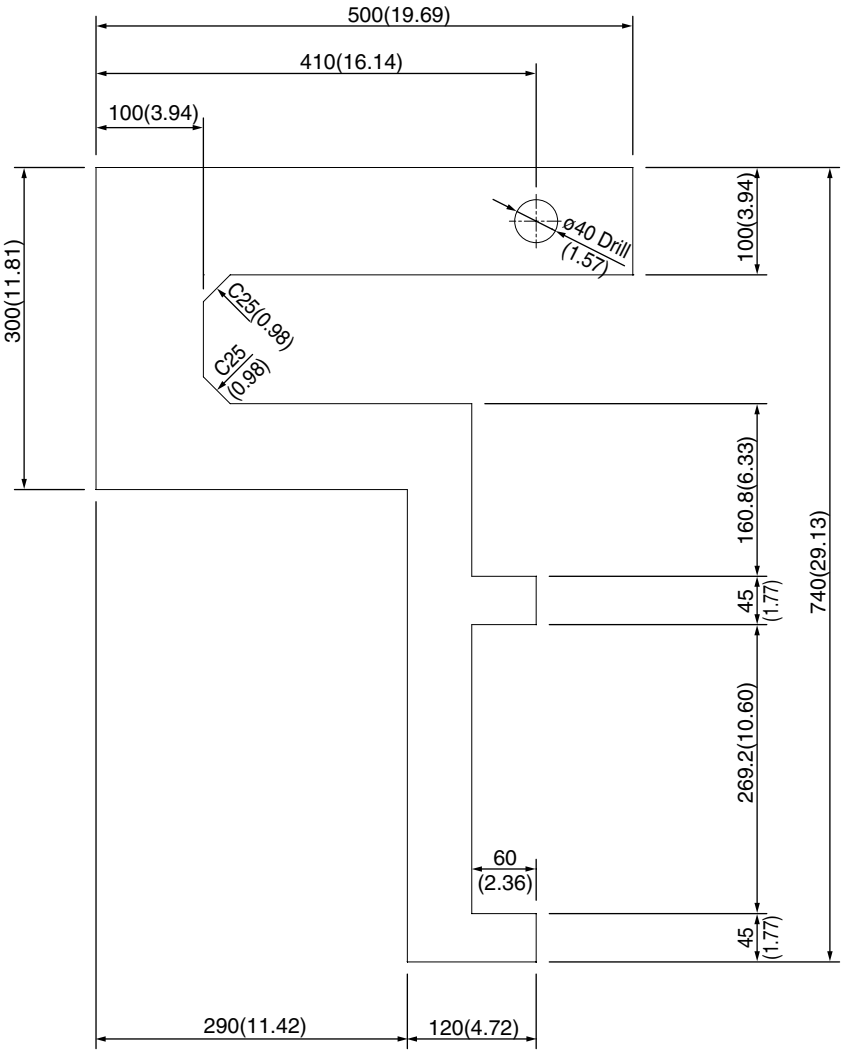
Note: During reassembly be sure both mating surfaces are clean and free of paint.



2. Reinstalling front axle assembly

For reinstallation, follow the above procedure in the reversed direction.
After reinstallation, completely bleed air in first and then the service brake.

(C) Internal gear hub hoisting tool T=15 mm(0.59)
mm(in.) (Material: SS41)



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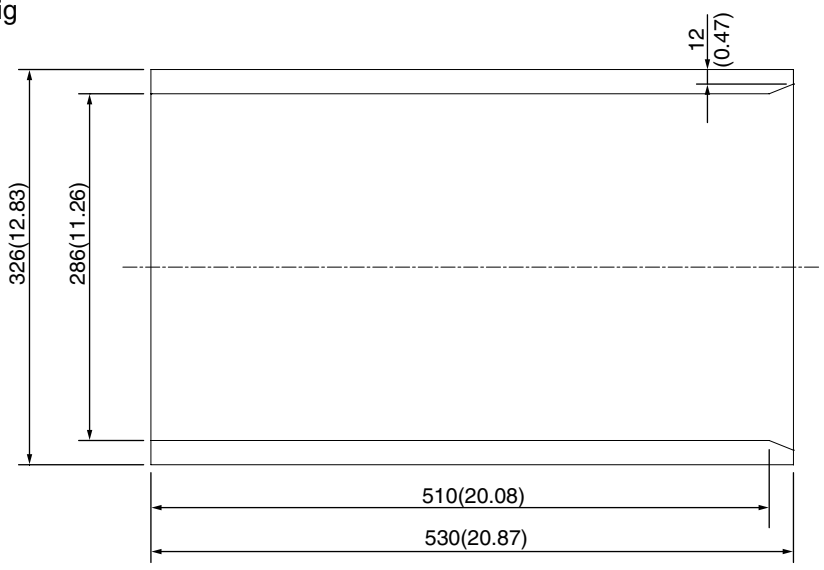
(D) Bearing insertion jig (Material: SS41)
mm(in.)



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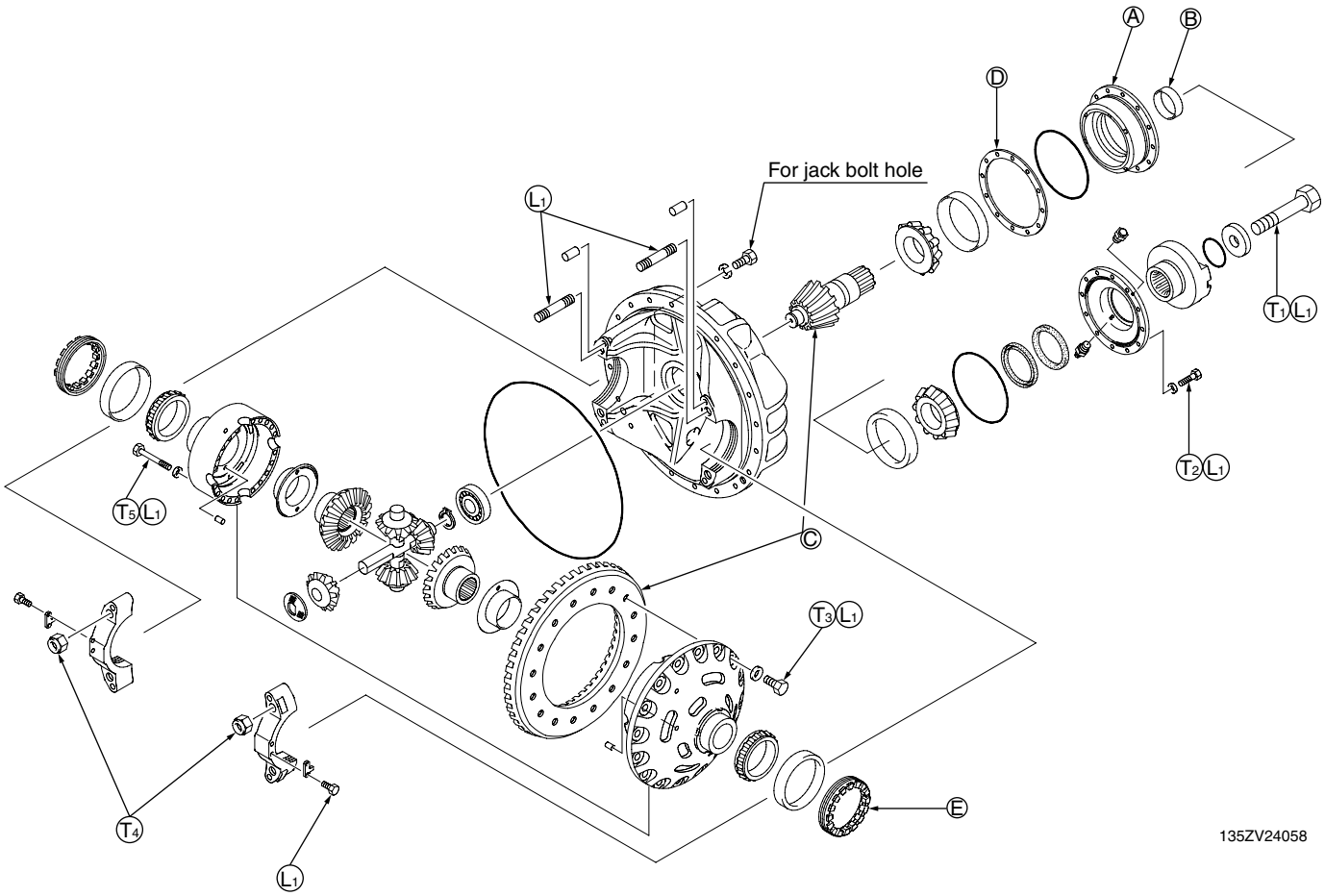
Disassembling and reassembling differential assembly

1. Front differential tightening torque



: Bolt tightening torque

T_1: 2,207 N-m (225 kgf-m) (1,628 lb-ft)

T_2: 314 N-m (32 kgf-m) (232 lb-ft)

T_3: 1,130 N-m (115 kgf-m) (832 lb-ft)

T_4: 2,452 N-m (250 kgf-m) (1,809 lb-ft)

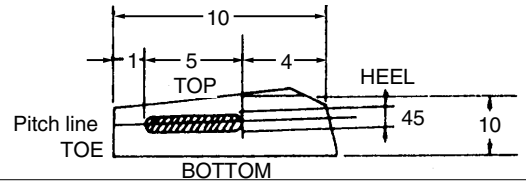
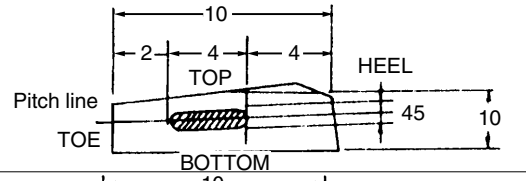
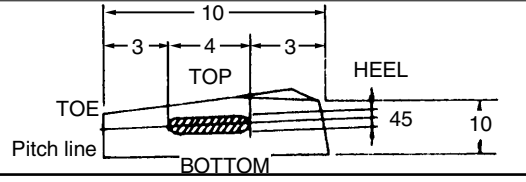
T_5: 608 N-m (62 kgf-m) (4,491 lb-ft)

:

L_1: Screw lock agent (Three Bond 1327) application

Note: 1) To tighten Ⓣ1, measure the preload of section Ⓐ.
Preload of section Ⓐ:
78~131 N (8.0~13.4 kgf) (18~29 lbf)
Use spacer Ⓑ to adjust the preload.
2) Use shim Ⓓ to adjust the tooth contact of spiral bevel gears Ⓒ.
Use nut Ⓔ to adjust the backlash.

Three types of tooth contact shown below are acceptable as best tooth contact.

	Tooth contact position and length(rate)
Pattern A	
Pattern B	
Pattern C	

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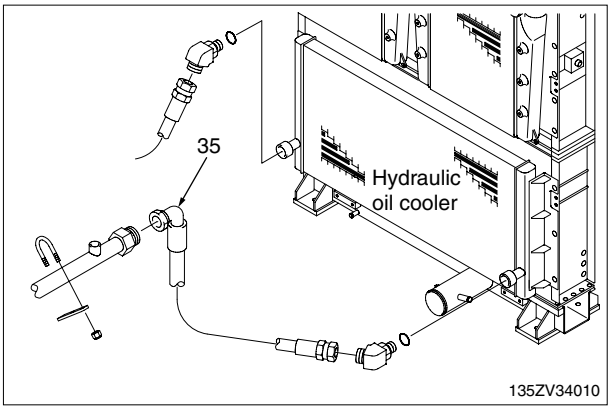
Service parts:

After adjusting the tooth contact and backlash in our factory, we will wrap the ring gear and drive pinion as a set. Therefore, replace the ring gear and drive pinion as a set.

Note: Individual sale of the ring gear or the drive pinion is not possible.

12) Disconnect hose (output side) (35) from the hydraulic oil cooler.

Note: Cover the disconnected hoses with plastic, caps or plugs to protect them from dust, water and dirt.



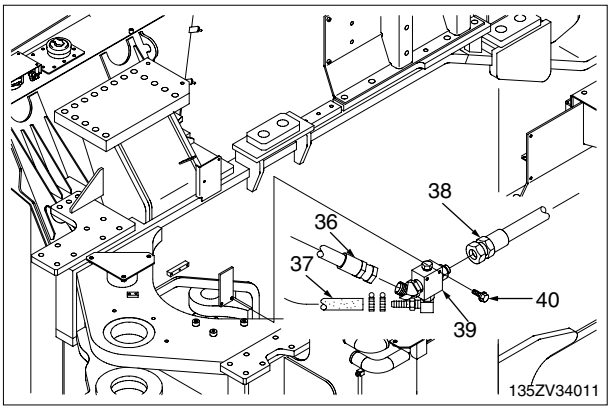
13) Disconnect hoses (36)(37)(38) from block assembly (39).

Note: Cover the disconnected hoses with plastic, caps or plugs to protect them from dust, water and dirt.

14) Remove bolt (40) and then remove block assembly (39).

Torque for assembly

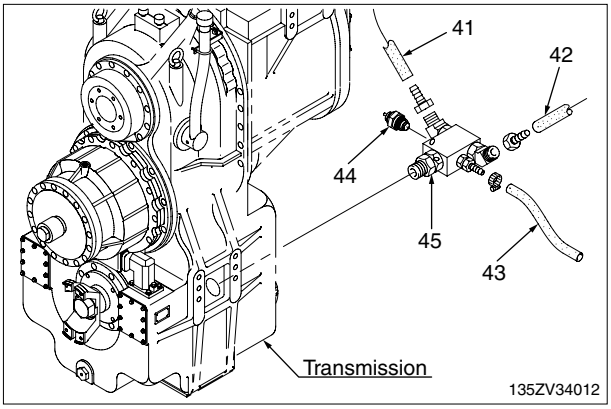
: Bolt: 53 N-m (5.4 kgf-m) (39 lb-ft)



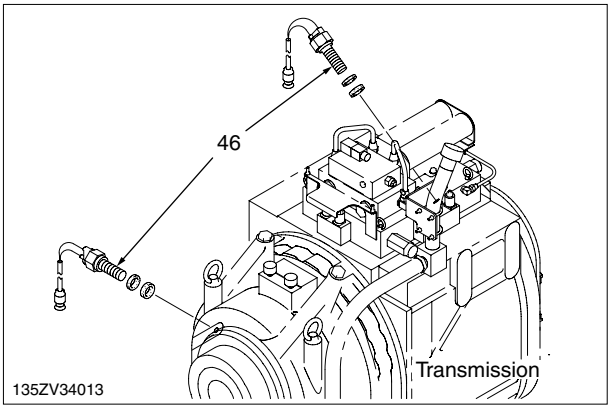
15) Disconnect hose (41)(42)(43) and then remove transmission oil temperature switch (44) from block assembly (45).

Note: Cover the disconnected hoses with plastic, caps or plugs to protect them from dust, water and dirt.

16) Remove block assembly (45) from the transmission.



17) Remove speed sensor (46) from the transmission.



Disassembling and reassembling transmission assembly

1. Disassembling transmission assembly

Before starting work:
- Clean transmission assembly.
- Remove control valve.
- Remove flange yoke.

1) Remove bolts (1) and then remove input gear box (2) from transmission assembly

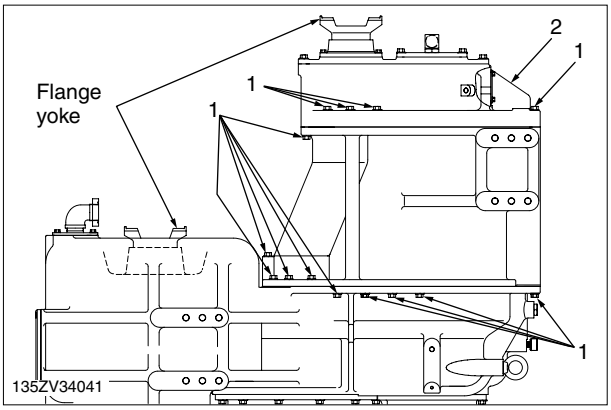
Torque for assembly:

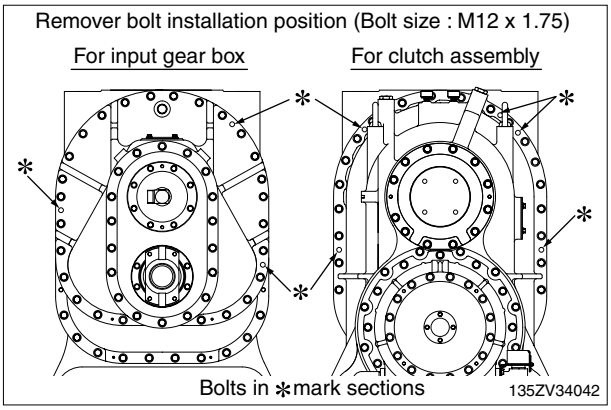
: Bolt: 230 N-m (23.5 kgf-m) (170 lb-ft)

: With lubricating oil (Engine oil or gear oil)

: Input gear box: 350 kg (771 lbs)

Note: After removing all the bolts, insert three bolts into remover tap (jack screw) holes.





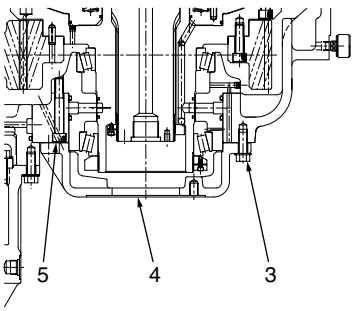
2) Remove bolt (3), cover (4) and then remove bolt (5).

Torque for assembly:

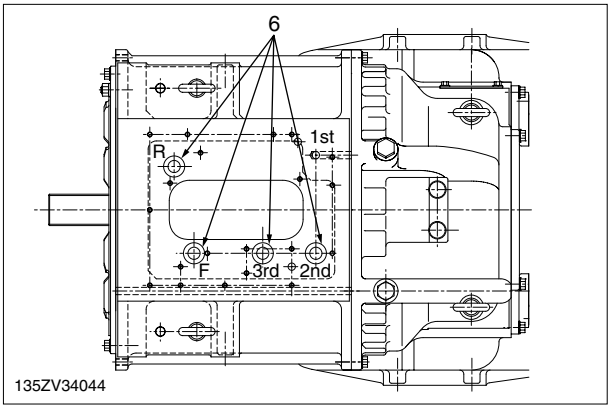
: Bolt (3): 230 N-m (23.5 kgf-m) (170 lb-ft)

Bolt (5): 309 N-m (31.5 kgf-m) (228 lb-ft)

: With lubricating oil (Engine oil or gear oil)



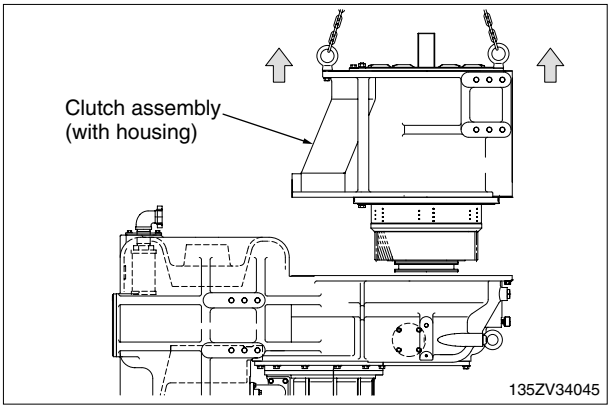
3) Remove four sleeves (6).



4) Lift the clutch assembly with the housing.

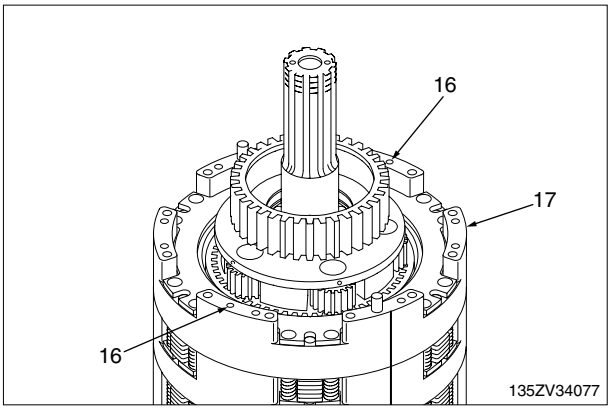
: Clutch assembly (with housing): 1,800 kg (3,968 lbs)

Note: After removing all the bolts, insert four bolts into remover tap (jack screw) holes.

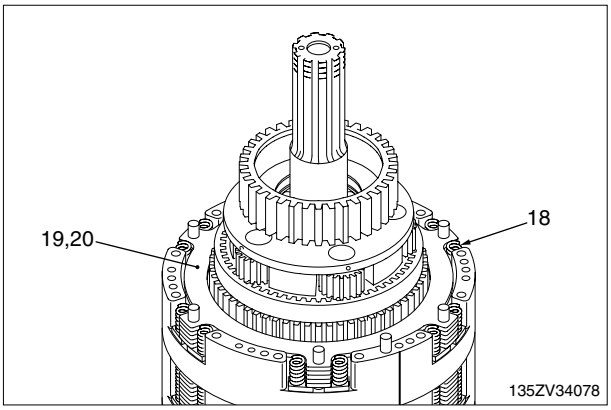


8) Remove socket bolts (16) and the 2nd clutch housing (17).

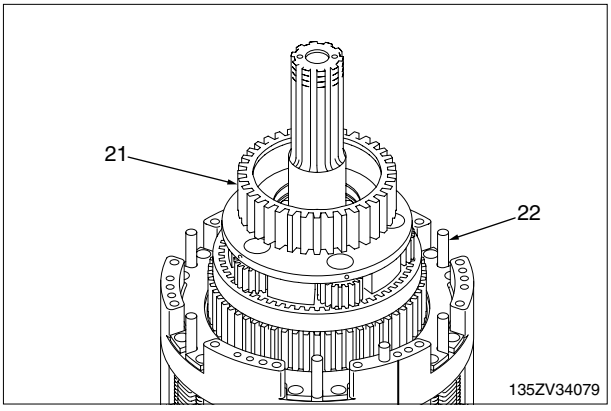
Note: Put a matchmark to the socket bolt hole prior to disassembling.



9) Remove twelve springs (18) and then remove five friction plates (19) and five steel plates (20).

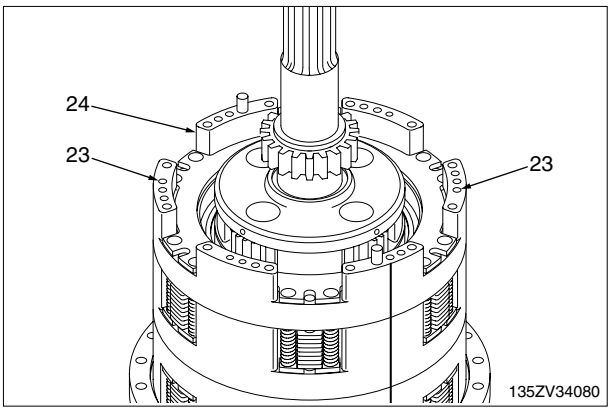


10) Remove the 2nd spider assembly (21).
Remove six anchor pins (22).



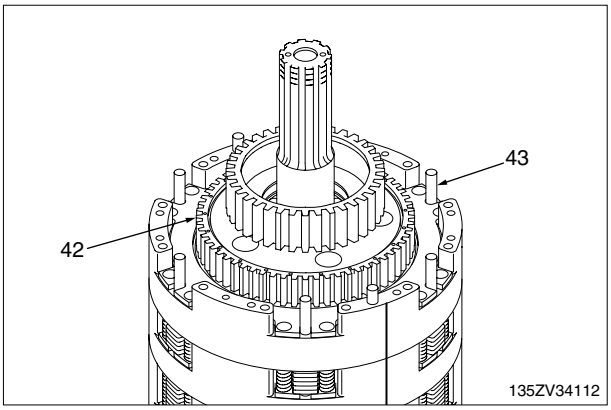
11) Remove socket bolts (23) and the 3rd clutch housing (24).

Note: Put a matchmark to the socket bolt hole prior to disassembling.



21) Apply air pressure of 588 kPa (6 kgf/cm²) (85 psi) through the oil hole to check for the 3rd clutch piston operation and air leakage.

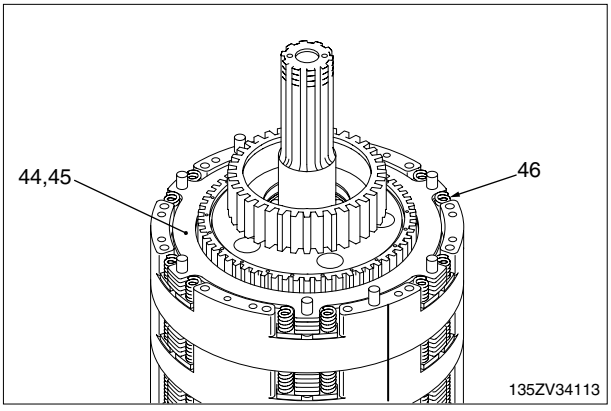
22) Install ring gear (42) and six anchor pins (43).



23) Install four steel plates (44) and four friction plates (45) alternately.

24) Install twelve springs (46).

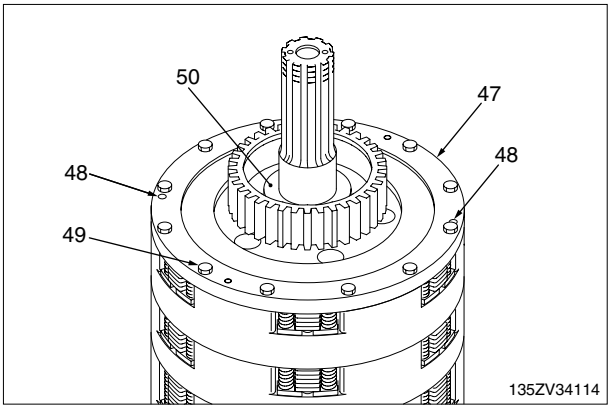
Note: Start installing from steel plate.
Apply transmission oil between the friction plate and the steel plate.



25) After putting housing (47) temporarily, turn spring with hands check that it is fitted properly in upper / lower spring holes.
Tighten two housing socket bolts (48).

Note: When installing the housing and socket bolt, be careful for the location of the matchmarks.

Torque for assembly:
: Bolt: 127 N-m (13.0 kgf-m) (94 lb-ft)
: With lubrication oil (Engine oil or gear oil)



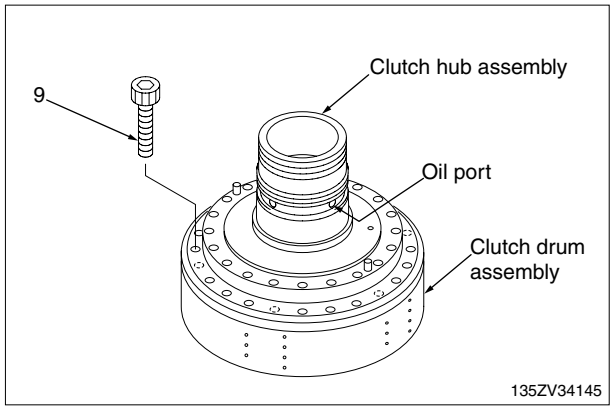
8) Install the clutch hub assembly to the clutch drum assembly. Tighten eighteen bolts (9).

Note: When installing the clutch hub assembly, check matchmarks marked at time of disassembling.

Torque for assembly:

: Bolt: 309 N-m (31.5 kgf-m) (228 lb-ft)

: With lubrication oil (Engine oil or gear oil)



9) Gradually apply the low air pressure through the clutch hub oil port, and check the clutch piston operation and air leakage.

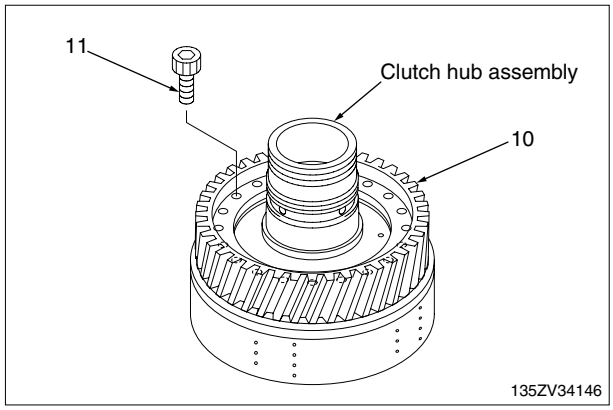
10) Install gear (10) to the clutch hub assembly.

11) Tighten bolt (11).

Torque for assembly:

: Bolt: 309 N-m (31.5 kgf-m) (228 lb-ft)

: With lubrication oil (Engine oil or gear oil)



TORQUE CONVERTER AND TRANSMISSION GROUP

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Service Standard

2. Before starting work:

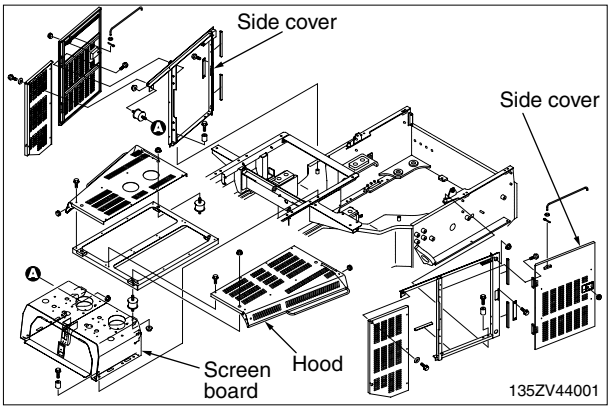
a) Disconnect the hose from the hydraulic auxiliary oil tank to the pump and drain hydraulic oil.

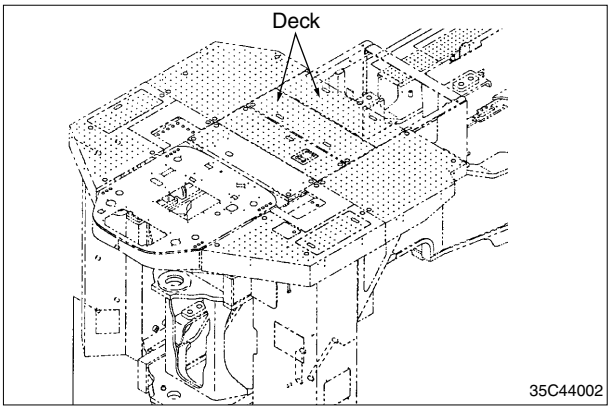
: Hydraulic oil: Approx. 300 ℓ (79.3 gal.)

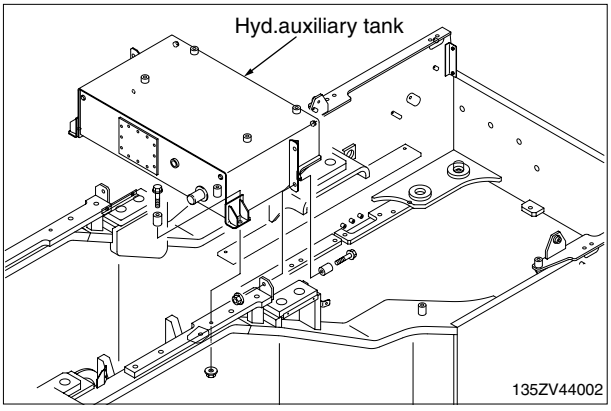
b) Remove the hood, the side cover, the screen board (with the air cleaner), the hydraulic auxiliary tank with accumulator and the deck in front of the screen board.

: Tightening torque
Hood: 31.9 N-m (23.5 lb-ft)
Screen board: 230 N-m (170 lb-ft)
Hyd. auxiliary tank: 230 N-m (170 lb-ft)
Deck: 230 N-m (170 lb-ft)

: Hood: Approx. 35 kg (77.2 lbs)
Side cover: Approx. 11 kg (24.3 lbs)
Hyd. auxiliary tank: Approx. 115 kg (253.5 lbs)
Deck (center): Approx. 35 kg (77.2 lbs)
Accumulator assembly: Approx. 71 kg (156.5 lbs)
Screen board: Approx. 105 kg (231.5 lbs)
(with air cleaner: Approx. 190 kg (418.9 lbs))







4. Reassembling steering pump

To reassemble the steering pump, reverse the above disassembling procedure.

(Refer to "Cautions regarding reassembly.")

Note: 1) In case that the servo piston (532), pin (531), stopper (534) and stopper (535) were disassembled, install them into the casing (271) first.

2) When reassembling the servo piston (532) and pin (531), take care not to scratch the pin head and the feed back pin (548). Apply liquid adhesive to the thread part. (Loctite 262)

3) After reassembling the plate (212), make sure it moves smoothly.

4) Apply grease to the moving parts both on the plate (212) and the plate (251).

5) When reassembling the drive shaft on which the bearing (123), the bearing spacer (127) and the stop ring (824) are installed to the plate (251), do not hammer it.

Tap the bearing outer race lightly using a plastic hammer.

6) Apply grease to the oil seal lip so that the oil seal is not damaged during reassembling.

7) Make sub-assembly using the sub-piston cylinder (141), the sub pistons (151, 152), the plate (153), the spherical bushing (156), the spacer (158) and the cylinder spring (157).

Then install this sub-assembly into the pump casing.

8) When installing the pump casing to the valve block, install the rear pump casing first to make easier installation. Be sure that the valve block is in correct direction.

Discharge port location

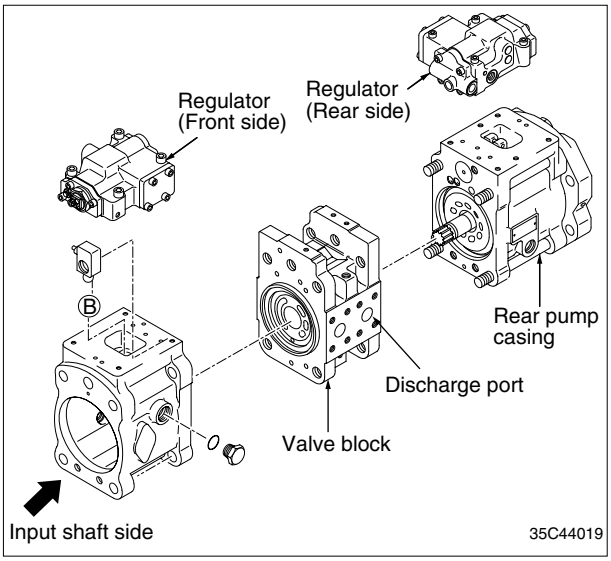
Right side View from input shaft side

Regulator location

Upper side View from input shaft side

9) Do not mix the front regulator and rear regulator.

Use the front regulator for the front pump and the rear regulator for the rear pump.



Pilot Valve (for Steering)

Removing and Reinstalling Pilot Valve

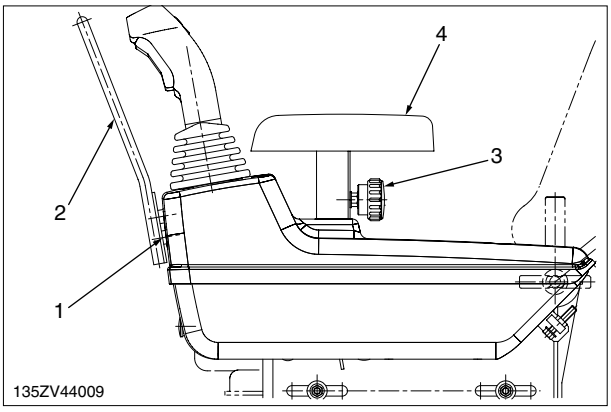
1. Removing pilot valve

⚠ WARNING

Unexpected movement of the machine could cause serious injury or death. To prevent such an accident, observe the following items:

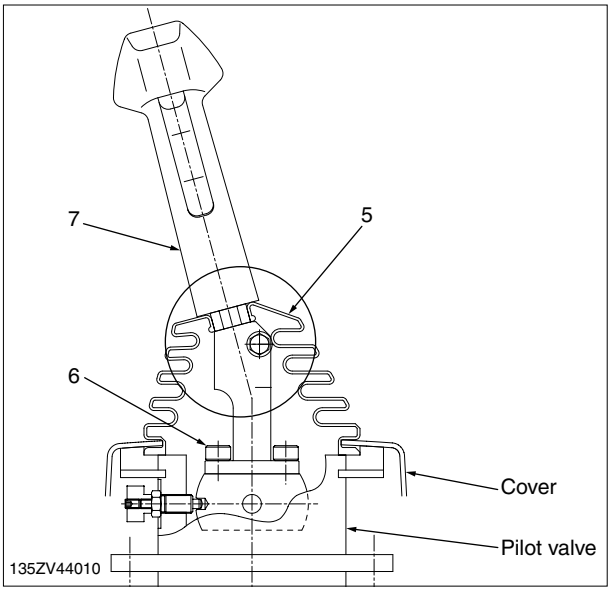
- **Park the machine on level ground, and lower the bucket onto the ground.**
- **Block the tires with chocks to prevent the wheels from moving.**
- **Before starting work, be sure to remove the engine key, and hang a "DO NOT START!" tag on the operation board.**
- **Relieve the internal pressure from the hydraulic tank.**

1) Remove the bolt (1), the handrail (2), the handle (3) and the armrest (4).



2) Remove the boot (5) from the cover, and remove the bolt (6) to remove the lever assembly (7).

: Tightening torque
#6·····31.4 N-m (23 lb-ft)



Disassembling and Reassembling Steering Valve

1. Cautions regarding disassembling and reassembling steering valve

Cautions regarding disassembly

- Drain the oil from inside and then clean the outer surface of the steering valve.
- Place the removed parts, in order, on a clean rubber mat.
- Carefully disassemble the steering valve so that the parts are not scratched.
- Do not disassemble the pressure adjusting screw if it is not necessary.
- Avoid disassembling parts supplied as assembly, such as the relief valve assembly.

Cautions regarding reassembly

- Clean and check all the parts. If a part is defective, replace it.
- Replace all the O-rings and seals with new ones.
- Apply the specified torque to tighten each main parts.
- Apply a thin coat of hydraulic oil or grease to each part before reassembly.

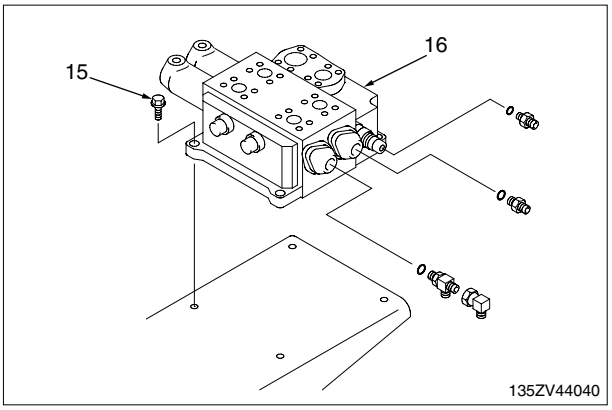
Necessary tools (mm)

Name	Remarks
Work table	
Torque wrench	
Socket wrench	19
Allen wrench	6, 8, 12, 17
Spanner (wrench)	32, 36, 41

5) Remove the bolts (15) for the multiple control valve (16). Sling the multiple control valve to remove.

: #16·····100 kg (220 lbs)

: Tightening torque
#15·····94 N-m (69 lb-ft)



3. Reinstalling multiple control valve

To reinstall the multiple control valve, reverse the above removal procedure.

Cautions regarding reinstallation:

1) Replace all the O-rings with new ones.

2) Clean the multiple control valve mounting area.

3) Attach the pressure gauge, and then start the engine. Measure the pressure, and adjust it to the specified valve.

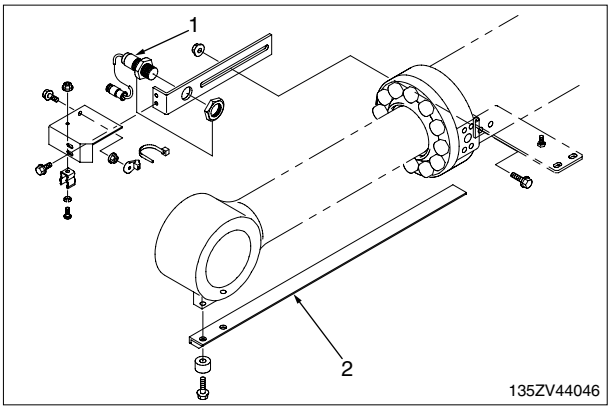
4) Operate the bucket and the boom, and check that they operate correctly.

5) Check each section for oil leakage.

6) Add hydraulic oil to the tank until the oil level rises to the specified point.

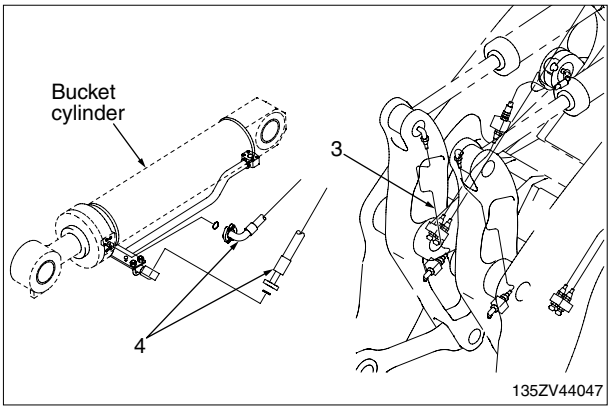
5. Removing bucket cylinder (The illustration shows the right side of the machine.)

1) Disconnect the bucket positioner coupler, and then remove the proximity switch (1) and the rod (2).



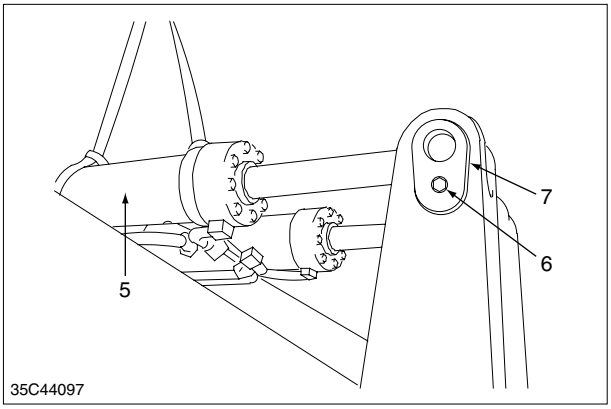
2) Disconnect the grease pipe (3) and disconnect the hoses (4).

: Tightening torque
#4·····94 N-m (69 lb-ft)

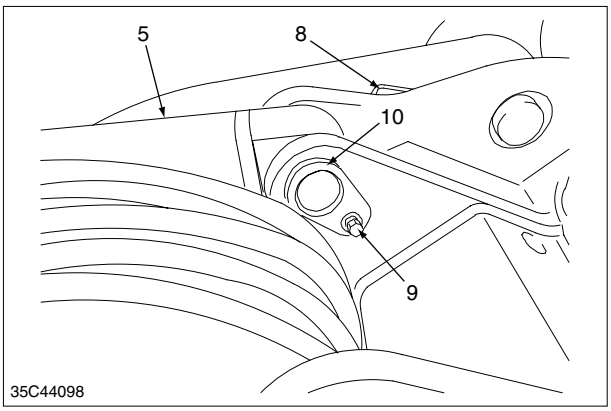


3) Temporarily sling the bucket cylinder (5). Then remove the bolt (6) to remove the pin (7).

: #5·····385 kg (849 lbs)



4) Remove the grease pipe (8). Remove the lock bolt (9), and then remove the pin (10).



5. Reassembling hydraulic cylinder

To reassemble the hydraulic cylinder, reverse the above disassembling procedure.

Cautions regarding reassembling

Before starting work:

a) Be sure to replace all the seals and packings.

b) Clean and check all the parts. If a part is damaged, replace it.

c) Before reassembling the parts, apply a coat of hydraulic oil to the parts.

Notes: - Put the slipper ring into hot oil to heat the ring to 120 to 150 °C. (248~302 °F)

(This is because the inner diameter of the slipper ring is smaller than the outer diameter of the piston. Therefore, heat the slipper ring to expand its inner diameter for easy attachment.)

: Attach the slipper ring while taking care not to over expand it.

: After attaching the slipper ring, cool the slipper ring so that it is contracted to the original size.

- Before installing the back-up ring and the O-ring, heat the back-up ring.

(This is because the inner diameter of the back-up ring is smaller than the outer diameter of the rod cover. To easily attach the back-up ring to the rod cover, heat the ring to soften it. The soft ring can be easily expanded.)

Be careful not to over expand the back-up ring. After installation, wait until the back-up ring is cooled, and then insert the rod cover into the cylinder tube.

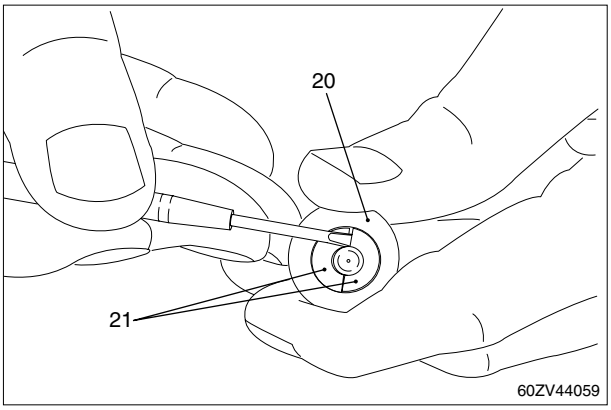
⚠ CAUTION

Hot oil and components can cause burns.
Use heat resistant gloves and extreme caution when heating and handling the components.

15) Disassembling reducing valve

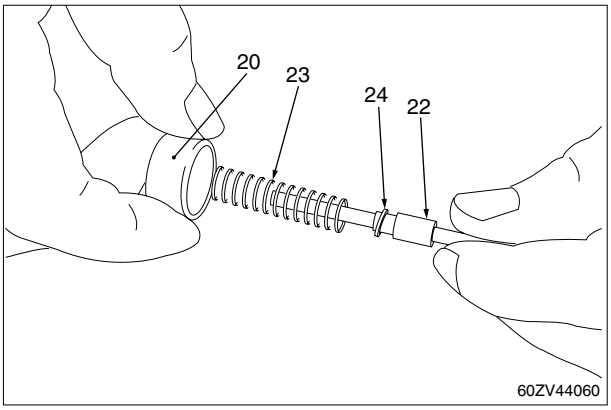
①Stand the bottom of the spool straight on the working table. Push down spring seat (20) and remove washer set (1 semicircle, 2 pcs) (21) using the head of a small screw driver.

Note: - Be careful not to damage the spool surface.
- Do not press down spring seat (20) more than 6 mm.



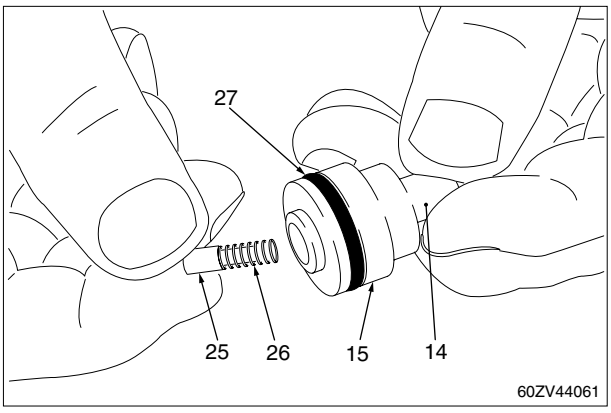
②Disconnect spool (22), spring seat (20), spring (23) and washer 2 (24).

Note: Only reducing valve in Port 4 has washer 2 (24).



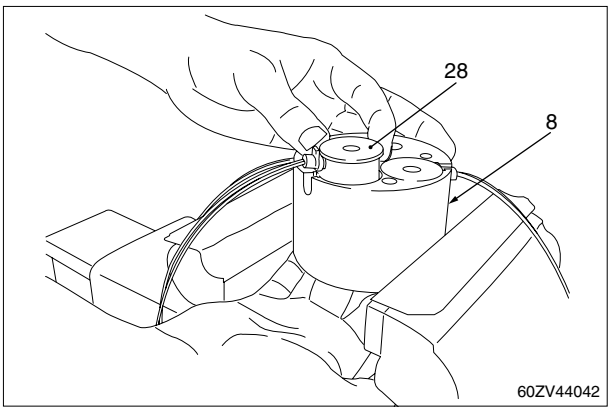
③Pull out spring seat (25) and spring (26) from push rod (14) and then pull out push rod (14) from plug (15). Remove O-ring (27) and the seal in the bore from plug (15).

Note: Only Port 4 has spring seat (25) and spring (26).



16) Remove solenoid sub (28) from detent casing (8).

Note: When removing the solenoid sub, do not pull the electrical harness.



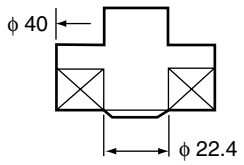
3. Reassembling brake valve

To reassemble the brake valve, reverse the above disassembly procedure.

Cautions regarding reassembly

Notes: - Take measures to prevent the entry of foreign matter during reassembly.
- Apply a thin coating of hydraulic oil to all the sliding surfaces of the body such as plunger, spool, etc..
- Move the spool 2 or 3 times to make sure that it moves smoothly.
- Confirm that the spring is in proper contact with the spring seat when assembling the spring.
- Apply a thin coating of never-seize compound on the pins (38) to prevent sticking and corrosion.

Jig for oil seal (25) insertion



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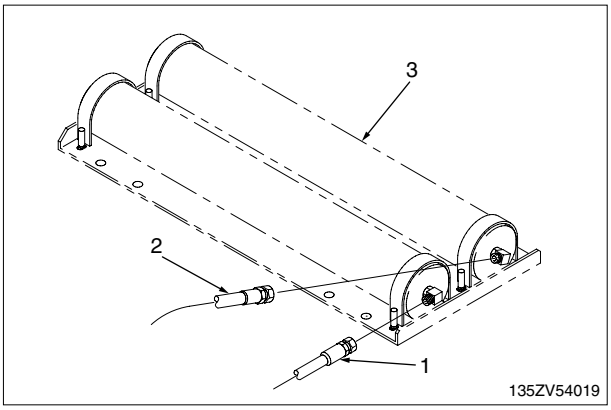
3. Removing accumulator

1) Slowly disconnect the hoses (1) (2) to release any trapped oil pressure.

Note: Cover the disconnected hoses with clean vinyl to protect them from dust and dirt.

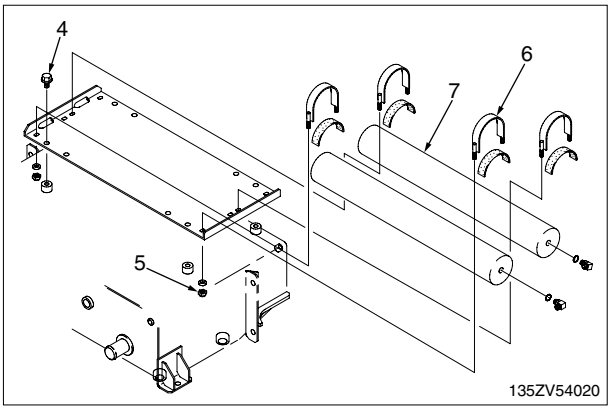


2) Remove the bolt (4) and then sling the accumulator assembly (3) by a crane to remove it.

: #4·····231 N-m (169 lb-ft)
: #3·····71 kg (156.5 lbs)

3) Remove the nut (5) and the band (6) from the accumulator assembly (3), and then remove the accumulator (7)

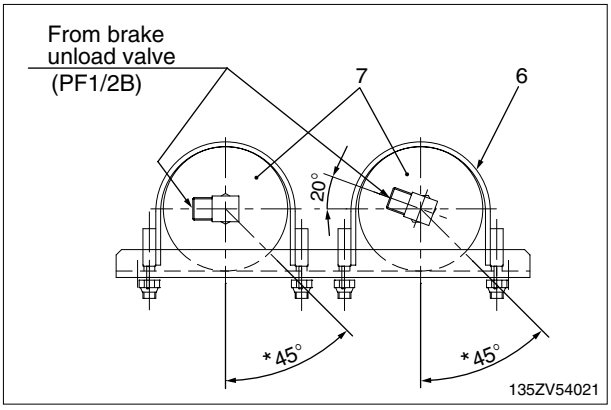
: #5·····32 N-m (23.5 lb-ft)
: #7·····24 kg (52.9 lbs)



4. Reinstalling accumulator

To reinstall the accumulator, reverse the above removal procedure.

Note: When reinstalling, place the spring pin (12) on the accumulator as indicated with the mark* not to interfere with the band.



Service Brake

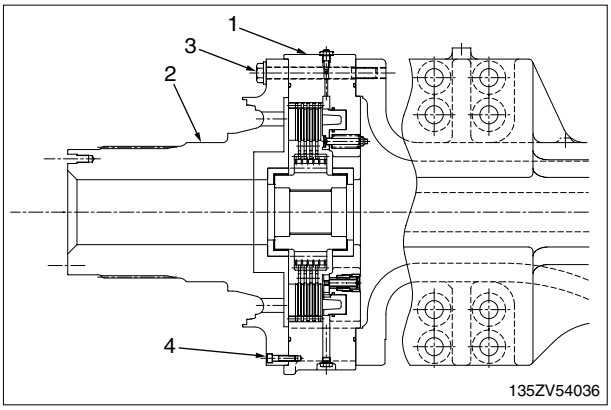
Disassembling and Reassembling Service Brake

1. Disassembling service brake

Follow the steps in the Section 24 (Power Group) for disassembling and reassembling axle assembly.

1) Temporarily sling the brake housing (1) and the extension (2), and then remove them from the axle housing.

: Brake housing assembly: Approx. 320 kg (705.5 lbs)
: Extension: Approx. 290 kg (639 lbs)
: Bolt (3)·····1030 N-m (760 lb-ft)
: Bolt (3): with liquid adhesive (Three bond 1327)



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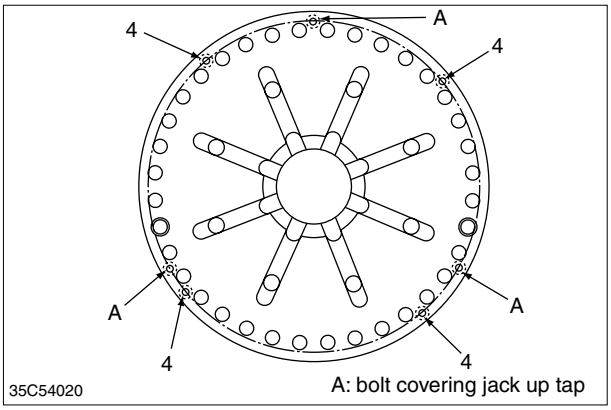
2) Remove four bolts (4) (They can be used as jack-up bolts). Remove the bolts (A) from three jack-up taps, and then insert the removed bolts (4) to jack-up the extension (2). After that, remove the extension (2) from the brake housing (1).

: #4·····86.3 N-m (64 lb-ft)



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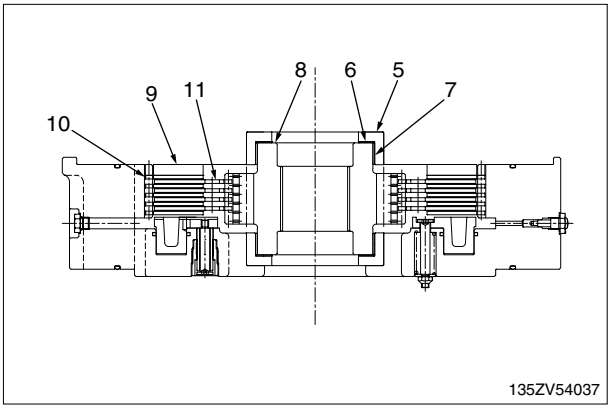
A: bolt covering jack up tap

3) Remove the ring (5), the wear ring (6) and the bushing (7), and then take the gear (8) out. Remove the brake retainer (9), the steel plate (10) and the friction plate (11) in order.



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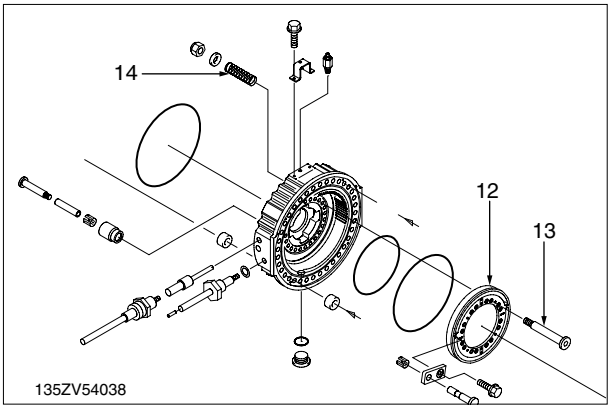
4) Remove the bolts (13) and take the return spring (14) out.

: #13·····37.3 N-m (27.5 lb-ft)



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