SPECIFICATION TABLES

SPECIFICATIONS

Model		SK025	
Serial Number		PV04301~	
Type		Canopy	Cab
Bucket Capacity (JIS)	m^3	0.07	←
Weight in Transport Condition	kg	2650 (2690)	2770 (2810)
Dimensions	mm		
Overall Length (in Transport Position)		4510	←
Overall Width (in Transport Position)		1450	←
Overall Height (in Transport Position)		2365(2360)	2530 (2525)
Minimum Ground Clearance		290	←
Upper Machinery Minimum Height		545	←
Overall Width of Upper Machinery		1450	←
Overall Crawler Width		1450	←
Overall Crawler Length		1910 (1870)	←
Minimum Slew Radius		1480	1745
Maximum Hoe Height of at Min. Slew Radius		3635	3565
Tail Swing Radius		1285	←
Dozer Blade Width		1450	←
Dozer Blade Height		350	←
Operating Range	mm		
Maximum Digging Height		4840	4485
Maximum Digging Depth		2600	←
Vertical Digging Depth		1885	←
Maximum Digging Reach		4665	←
Maximum Reach at Ground Level		4540	←
Maximum Dumping Height		3525	3210
Bucket Offset : Right / Left		590 / 690	580 / 690
Dozer Blade Lift : Above / Below ground		370 / 390	←
Performance			
Digging Force	kg	1820	←
Slew Speed	rpm	Low : 4.5 / High :9.0	←
Travel Speed	km/h	Low : 3.0(2.7)/High : 5.0 (4.7)	←
Traction Force	kg	1260(1350)	←
Gradeability	deg	30	←
Ground Pressure (JIS)	kgf/cm^2	0.28	0.29

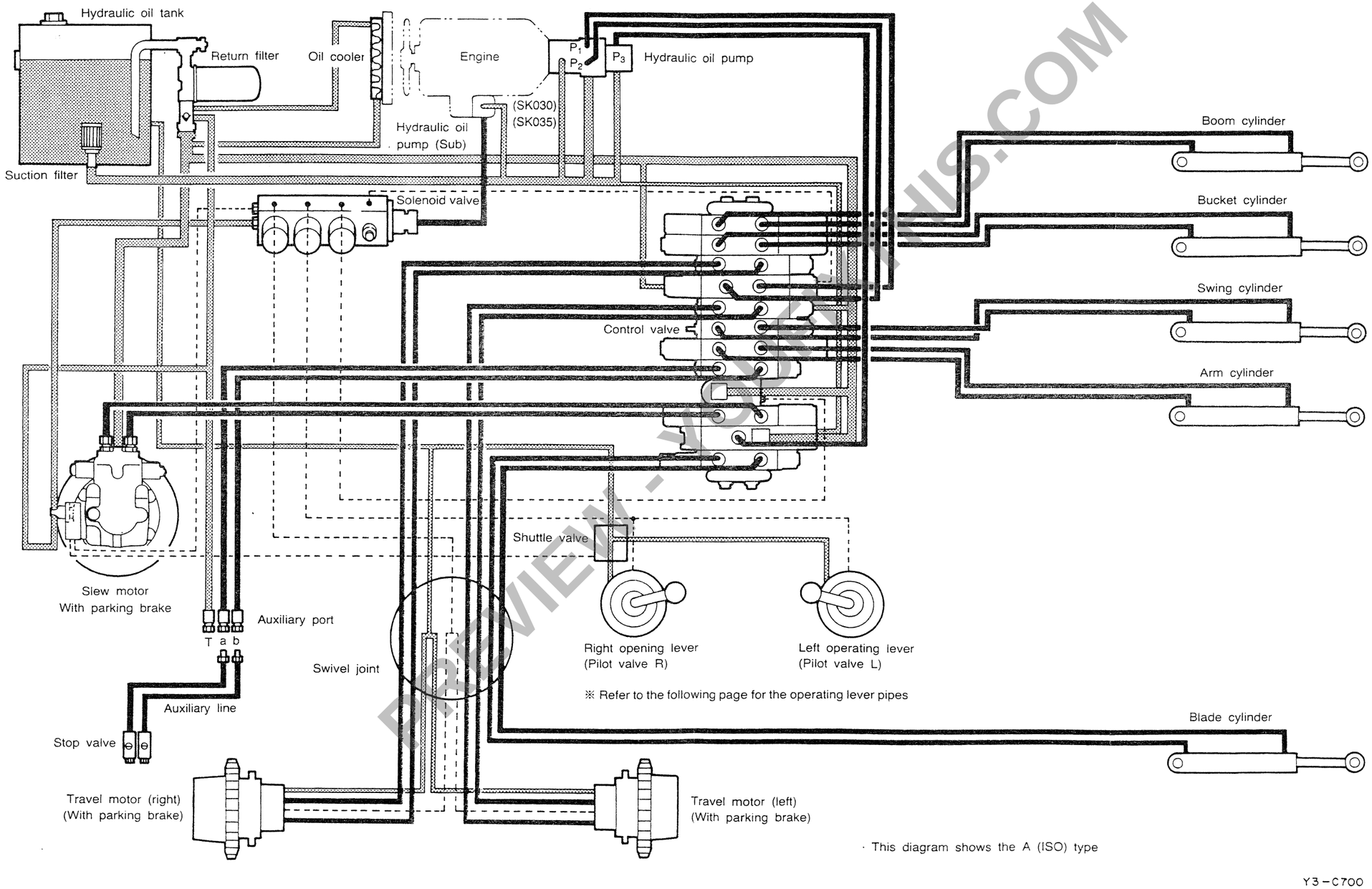
Values in ( ) are for models with steel crawler.

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HYDRAULIC SYSTEM

HYDRAULIC SYSTEM DIAGRAM

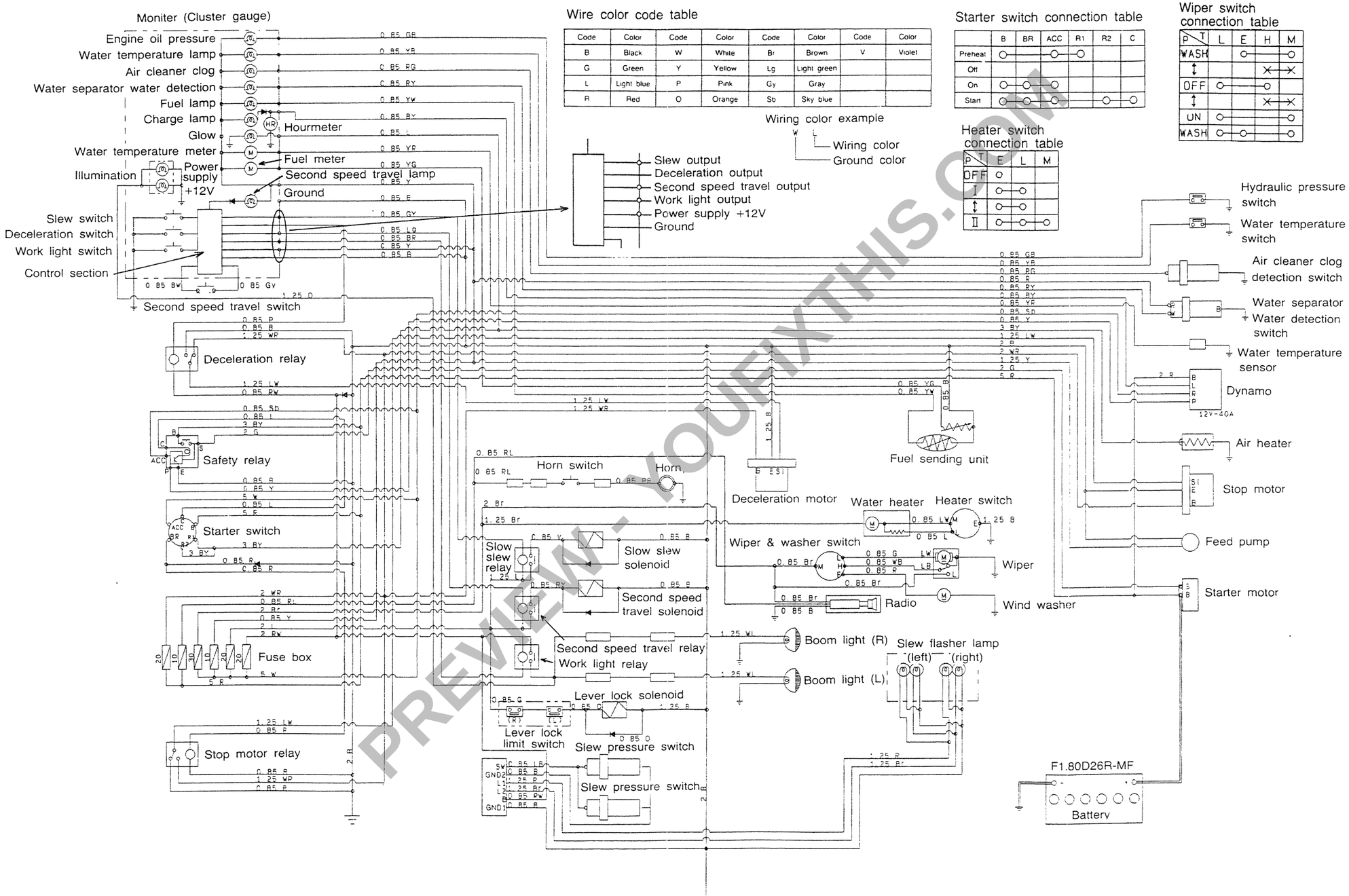


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ELECTRICAL SYSTEM

ELECTRICAL WIRING DIAGRAM



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Y3-C800A

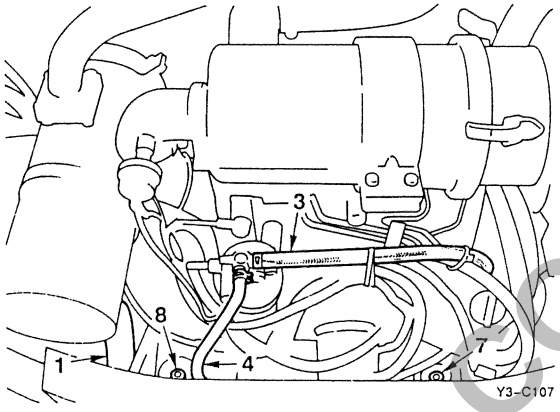
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DISASSEMBLY AND ASSEMBLY

Removing the Engine

1. Remove the battery ground cable from the (–) terminal of the battery.

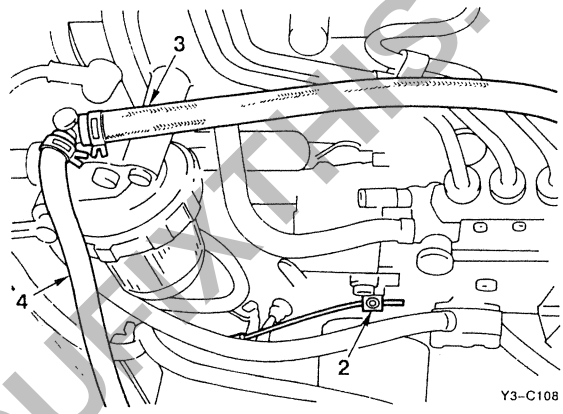
2. Remove the bonnet and the bumpers [R] and [L]. Then remove the engine cover [F], the support, and the bracket.
   • Refer to the item "Removing the Covers".



3. Remove the radiator and the oil cooler.
   • Refer to the item "Removing the radiator and the oil cooler".

4. Remove the hydraulic pump.
   • Refer to the item "Removing the hydraulic pump".

5. Remove the exhaust pipe (1) and the accelerator wire (2) from the engine.

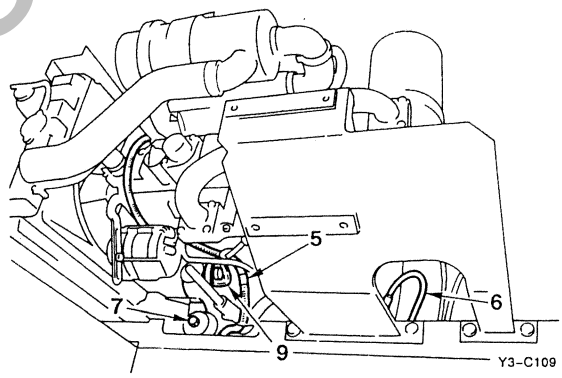


6. Separate the fuel pipes (3) and (4) from the engine.

7. Separate the electric wiring (5) and the engine ground cable (6) from the engine.
   • Attach the identification labels, etc. to each wire.

8. Separate the hydraulic pipes from the hydraulic pump [sub] (9).

9. Remove the cushion rubber installation nuts (7) and (8), and then remove the engine assembly.
   • Engine Weight :
   Approx. 140kg(SK025)
   Approx. 160kg(SK030, SK035)



Installing the Engine

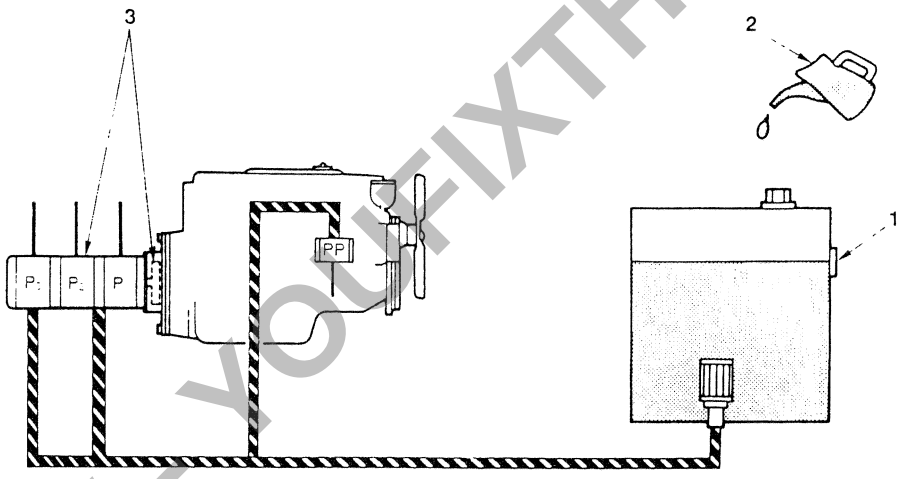
Follow the procedure used for removal in reverse order.
• Tightening torque for the cushion rubber installation nuts (7) : 8.3 kgf·m[Bottom], 10.4 kgf·m [Top]
• Tightening torque for the cushion rubber installation nuts (8) :
4.5kgf·m. [Bottom], 5.6kgf·m. [Top] (SK025)
8.3kgf·m. [Bottom], 10.4kgf·m. [Top] (SK030, SK035)

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NO OPERATIONS CAN BE DONE.

1	Inspect the hydraulic oil level.	Insufficient →	2 Replenish the hydraulic oil.
	↓ Proper Amount		
3	Hydraulic pump (main) or coupling is faulty.	→	• Repair the pump or replace the pump. • Replace the coupling.



Y3-E000

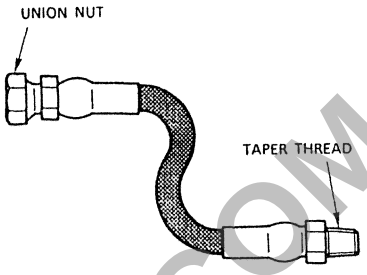
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TIGHTENING TORQUES

Hydraulic Hose Fittings

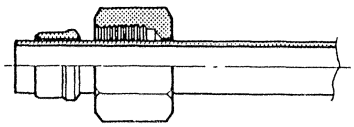
Hose Fitting Size	Torque			
	Union Nut (PF)		Taper Threads (PT)	
	kgf·m	ft-lb	kgf·m	ft-lb
1/8	$1.0^{+0.5}_{0}$	$7.3^{+3.5}_{0}$	$1.2^{\pm 0.12}$	$8.7^{\pm 0.8}$
1/4	$2.5^{+0.5}_{0}$	$18.1^{+3.5}_{0}$	$3.0^{\pm 0.30}$	$21.7^{\pm 2.1}$
3/8	$5.0^{+0.5}_{0}$	$36.2^{+3.5}_{0}$	$5.5^{\pm 0.55}$	$39.8^{\pm 3.9}$
1/2	$6.0^{+0.5}_{0}$	$43.4^{+3.5}_{0}$	$9.0^{\pm 0.90}$	$65.1^{\pm 6.4}$
3/4	$12.0^{+0.5}_{0}$	$86.8^{+3.5}_{0}$	$15.0^{\pm 1.50}$	$108.5^{\pm 10.7}$
1	$14.0^{+0.5}_{0}$	$101.3^{+3.5}_{0}$	$20.0^{\pm 2.00}$	$144.7^{\pm 14.3}$



Y2-A107

Bite Type Tube Fittings For Steel Tube

Tube Outer Diameter (mm)	Torque	
	kgf·m	ft-lb
8	$3.5^{\pm 0.5}$	$25.3^{\pm 3.5}$
10	$4.25^{\pm 0.25}$	$30.7^{\pm 1.7}$
12	$6.0^{\pm 0.5}$	$43.4^{\pm 3.5}$
15	$9.0^{\pm 0.5}$	$65.1^{\pm 3.5}$
16	$9.5^{\pm 0.5}$	$68.7^{\pm 3.5}$
18	$13.5^{\pm 0.5}$	$97.6^{\pm 3.5}$
22	$21.0^{\pm 1.0}$	$151.8^{\pm 7.2}$
27.2	$25.0^{\pm 1.0}$	$181.0^{\pm 7.2}$
28	$32.0^{\pm 2.0}$	$231.4^{\pm 14.3}$
32	$32.0^{\pm 2.0}$	$231.4^{\pm 14.3}$
35	$42.0^{\pm 2.0}$	$303.7^{\pm 14.3}$

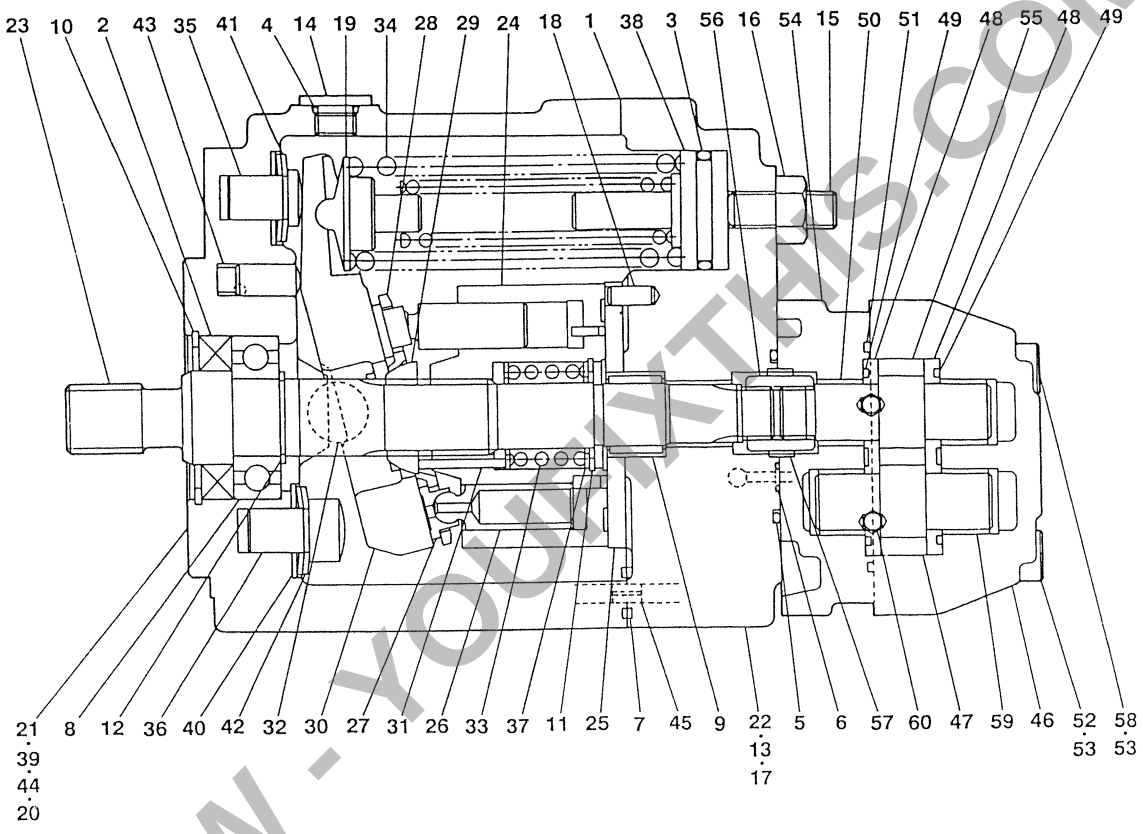

Y2-A108

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HYDRAULIC PUMP ≪SK025≫

CONSTRUCTION



1. Packing
2. Oil Seal
3. O-ring
4. O-ring
5. O-ring
6. O-ring
7. O-ring
8. Ball Bearing
9. Needle Bearing
10. Snap Ring
11. Snap Ring
12. Snap Ring
13. Socket Bolt
14. Plug
15. Setscrew
16. Nut
17. Spring Washer
18. Spring Pin
19. Spring Holder
20. Plug
21. Body S
22. Body H
23. Shaft
24. Cylinder Block
25. Valve Plate
26. Piston
27. Shoe
28. Shoe Holder
29. Guide
30. Swash Plate
31. Pin
32. Oscillating Pin
33. Spring
34. Spring
35. Stopper Pin A
36. Stopper Pin B
37. Retainer
38. Spring Holder
39. Pin
40. Washer
41. Coned Disk Spring
42. Coned Disk Spring
43. Piston
44. Plug
45. Pin
46. Body
47. Driven Gear
48. Bushing
49. Bushing Seal
50. Bushing
51. Gasket
52. Socket Bolt
53. Washer
54. Front Cover
55, Drive Gear
56. Coupling
57. Collar
58. Socket Bolt
59. Bushing
60. Steel Ball

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⚠ WARNING

SAFETY

⚠ WARNING

The proper and safe lubrication and maintenance for this machine, recommended by KOBELCO are outlined in the OPERATION & MAINTENANCE GUIDE for this machine.

Improper performance of lubrication or maintenance procedures is dangerous and could result in injury or death. Read and understand the OPERATION & MAINTENANCE GUIDE before performing any lubrication or maintenance.

The serviceman or mechanic may be unfamiliar with many of the systems on this machine. This makes it important to use caution when performing service work. A knowledge of the system and or components is important before the removal or disassembly of any component.

Because of the size of some of the machine components, the serviceman or mechanic should check the weights noted in this Manual. Use proper lifting procedures when removing any components.

Following is a list of basic precautions that should always be observed.

1. Read and understand all Warning plates and decals on the machine before operating, lubricating or repairing this product.

2. Always wear protective glasses and protective shoes when working around machines. In particular, wear protective glasses when pounding on any part of the machine or its attachments with a hammer or sledge. Use welders gloves, hood/goggles, apron and other protective clothing appropriate to the welding job being performed. Do not wear loose-fitting or torn clothing. Remove all rings from fingers when working on machinery.

3. Disconnect battery and discharge any capacitors before starting to work on machine. Hang "Do Not Operate" tag in the Operator's Compartment.

4. If possible, make all repairs with the machine parked on a level, hard surface. Block machine so it does not roll while working on or under machine.

5. Do not work on any machine that is supported only by lift jacks or a hoist. Always use blocks or jack stands to support the machine before performing any disassembly.

⚠ WARNING

Do not operate this machine unless you have read and understand the instructions in the OPERATOR'S MANUAL. Improper machine operation is dangerous and could result in injury or death.

---

6. Relieve all pressure in air, oil or water systems before any lines, fittings or related items are disconnected or removed. Always make sure all raised components are blocked correctly and be alert for possible pressure when disconnecting any device from a system that utilizes pressure.

7. Lower the bucket, blade, ripper or other implements to the ground before performing any work on the machine. If this cannot be done, make sure the bucket, blade, ripper or other implement is blocked correctly to prevent it from dropping unexpectedly.

8. Use steps and grab handles when mounting or dismounting a machine. Clean any mud or debris from steps, walkways or work platforms before using. Always face machine when using steps, ladders and walkways. When it is not possible to use the designed access system, provide ladders, scaffolds, or work platforms to perform safe repair operations.

9. To avoid back injury, use a hoist when lifting components which weigh 23 kg (50 lbs) or more. Make sure all chains, hooks, slings, etc., are in good condition and are in the correct capacity. Be sure hooks are positioned correctly. Lifting eyes are not to be side loaded during a lifting operation.

10. To avoid burns, be alert for hot parts on machines which have just been stopped and hot fluids in lines, tubes and compartments.

11. Be careful when removing cover plates. Gradually back off the last two bolts or nuts located at opposite ends of the cover or device and pry cover loose to relieve any spring or other pressure, before removing the last two bolts or nuts completely.

12. Be careful when removing filler caps, breathers and plugs on the machine. Hold a rag over the cap or plug to prevent being sprayed or splashed by liquids under pressure. The danger is even greater if the machine has just been stopped because fluids can be hot.

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HYDRAULIC EXCAVATOR

SK025
SK030
SK035

SHOP MANUAL

model

This is the shop manual for KOBELCO hydraulic excavator. Contained is the necessary technical data concerning the maintenance and repair of this model.

When checking or repairing the machine we suggest that you refer to this manual carefully. We hope that reference to this manual will help to maintain a high level of working efficiency and reliability. For further details on maintenance and checks refer to the "OPERATORS MANUAL" which has been supplied with the machine.

Although all data was correct at the time of printing, due to continual design changes and improvements, some contents may not conform to the actual machine. Take special care to order parts only after confirming the validity of the parts number in the "PARTS MANUAL".

If you notice any explanatory discrepancies, after consulting one of our representatives, please update your manual according to the latest data. However, in the event of any specification changes, we will issue revised edition.

FOREWORD

KOBELCO

Book Code No. S5RO0004E

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TYPES OF ATTACHMENTS AND THEIR COMBINATIONS

Types of Attachments

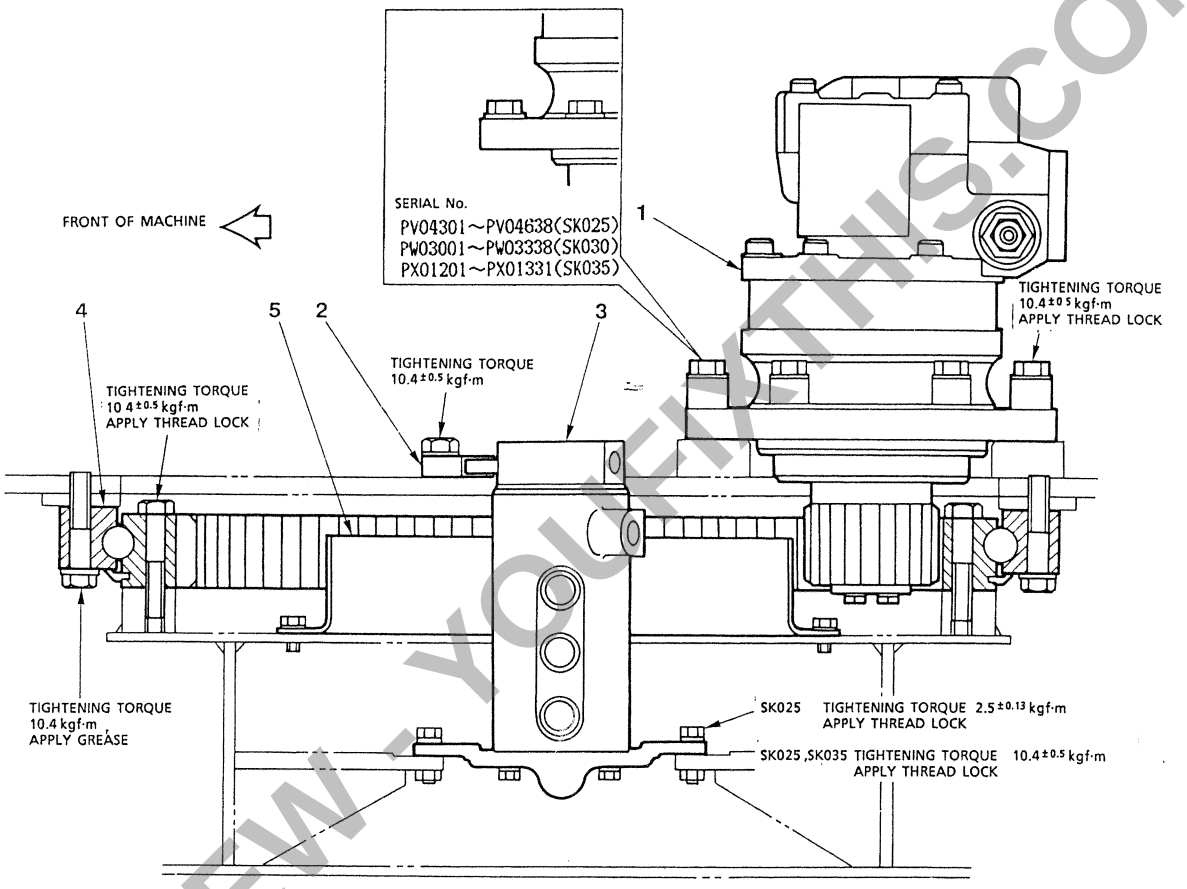
Model	Serial Number	Types of Attachment	Specifications				
SK025	PV04301~	Hoe Bucket	Outer Width (mm)	Capacity (m^3)	Number of Teeth		Weight (kg)
			350	0.05	3		60
			460	0.07	3		67
			500	0.08	3		70
			550	0.09	4		77
		Arm	Length (mm)	Max. Digging Depth (mm)	Vertical Digging Depth (mm)		Weight (kg)
			1195	2600	1885		42
			1465	2855	2125		50
		Dozer Blade	Height (mm)	Width (mm)	Lifting Range (mm)		Weight (kg)
					Above G.L.	Below G.L.	
			350	1450	370	390	125
SK030	PW03001~	Hoe Bucket	Outer Width (mm)	Capacity (m^3)	Number of Teeth		Weight (kg)
			400	0.06	3		68
			460	0.07	3		72
			500	0.08	3		75
			550	0.09	4		82
			600	0.10	4		85
		Arm	Length (mm)	Max. Digging Depth (mm)	Vertical Digging Depth (mm)		Weight (kg)
			1250	2850	2070		51
			1520	3100	2305		60
		Dozer Blade	Height (mm)	Width (mm)	Lifting Range (mm)		Weight (kg)
					Above G.L.	Below G.L.	
			350	1520	385	405	135

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SLEW SYSTEM

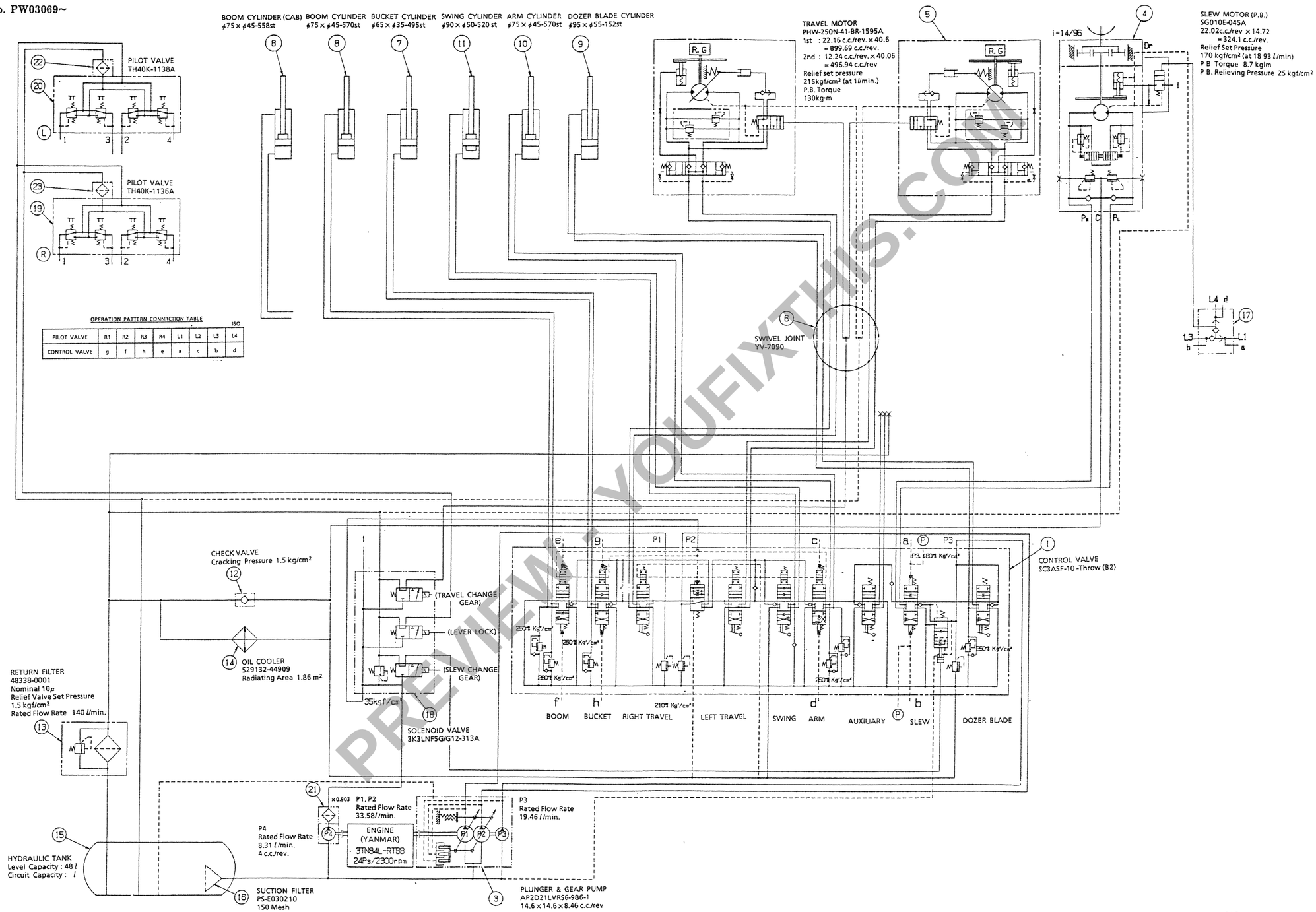
CONSTRUCTION



1. Slew Motor
2. Stopper
3. Swivel Joint
4. Slew Bearing
5. Grease Cover

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■ SK030
Serial No. PW03069~

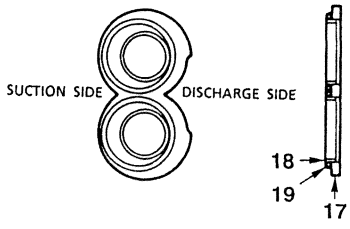


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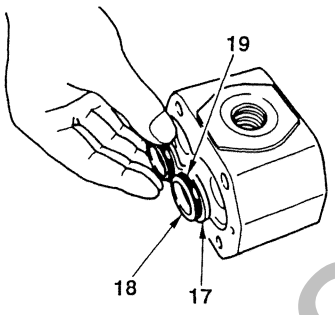
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c. Attach the O-ring (19) to the guide (18), and install it on the plate (17).
d. Install the plate assembled as described above to the housing.

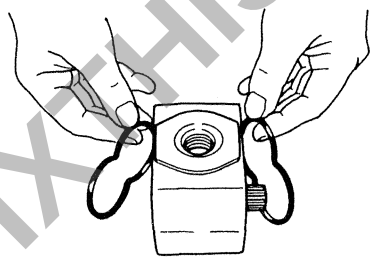


Y4-D140

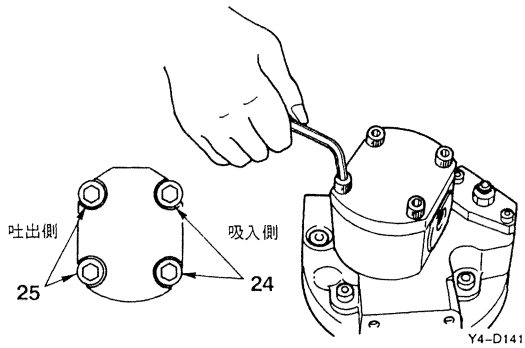


Y4-D126

e. Install the parallel pin.
f. Install the seal ring.


Y4-D125

g. Attach the cover and install it on the piston pump.
h. Fix the gear pump with the socket bolts (24) and (25).
• Socket Bolt (24) and (25) Tightening Torque
: 5 ~ 6 kgf·m



Y4-D141

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DISASSEMBLY AND ASSEMBLY

Special Tools

Refer to the table of special tools in the appendix for disassembly and assembly jigs.

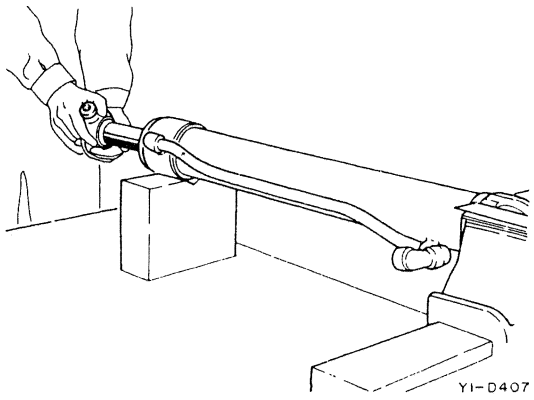
General Cautions

- Execute disassembly and assembly at a clean space, and always keep the disassembled parts clean.
- Clean the cylinder outside carefully before disassembly.
- Take care not to damage the parts during disassembly and assembly.
- Apply a thin layer of grease or operation oil to seals before installing them.
- After installation of an O-ring, check that it is not twisted.
- Apply clean operation oil to sliding parts before assembly.
- Check that all sliding parts are free of burr and scratches and that they move smoothly.
- These examples are for the boom cylinder, and for actual disassembly and assembly of a cylinder, confirm the construction of that cylinder according to the construction drawing on the preceding page.

Disassembly

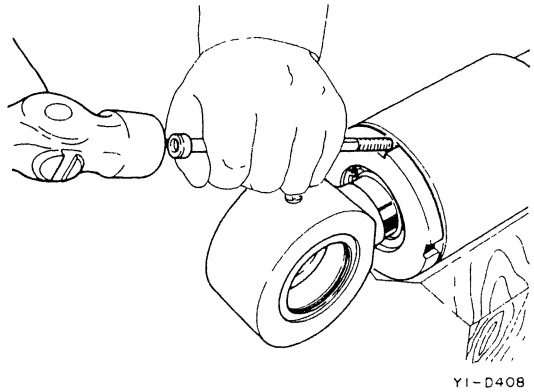
Disassembling the Cylinder Assembly

1. Fasten the clevis of the tube in a vice and place the other end on a support black made of wood to fasten the cylinder in a horizontal condition.



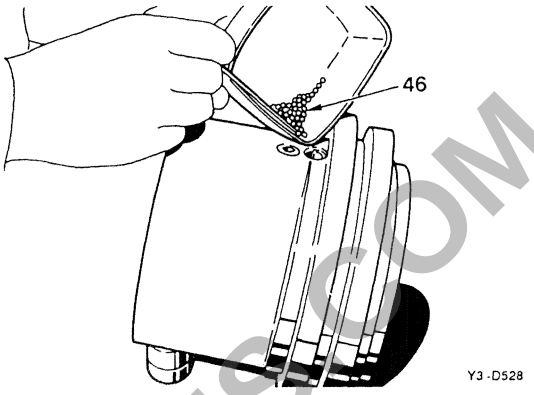
2. Drain out hydraulic oil remaining in the cylinder
   - Move the piston rod gently to prevent the hydraulic oil from spraying out and scattering all over.

3. Free the locked portion of the rod cover.
   - Since the lock is integrated with the cylinder tube, be careful not to bend it or to scratch it when the lock is being freed.

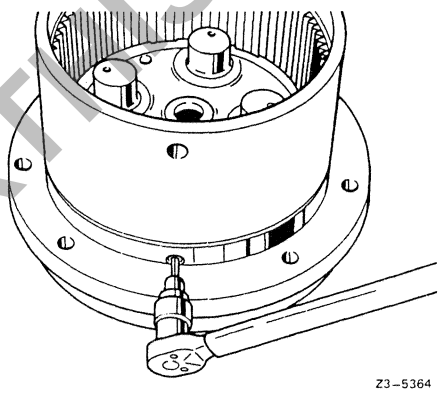


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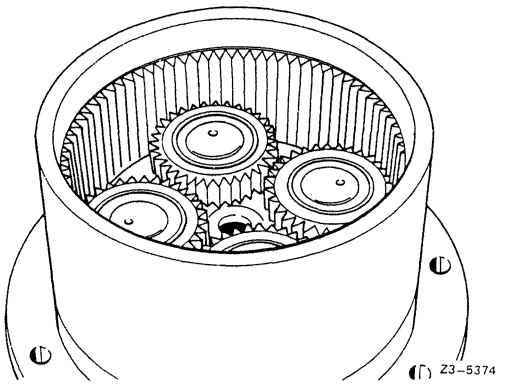
9. Put in the steel balls (46).



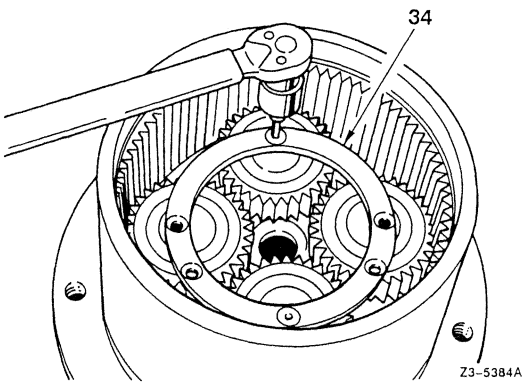
10. Install the plug.
    - Seal tape should be wound around the threads of the plug.
    - Plug Tightening Torque : 0.7 ~ 0.9 kgf·m



11. Install the thrust washer, planetary gear B, the cage & roller and the collar.



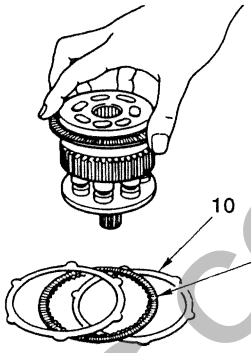
12. Install the thrust plate (34), then install the screw.
    - Apply Lock Tite #262 to the screw.
    - When applying Lock Tite, degrease all the surfaces thoroughly and use a hardening accelerator.
    - Screw Tightening Torque : 0.41 ~ 0.83 kgf·m



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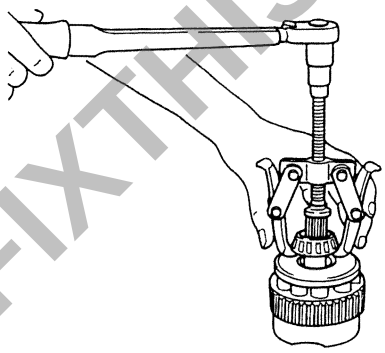
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13. Disassemble the cylinder block assembly.
    a. Remove the friction disk (9) and the center disk (10) from the cylinder block.



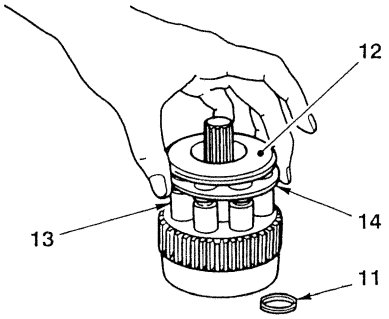
Y3-D627

    b. Remove the inner race of the taper roller bearing.
    - For removal, apply a gear puller at the inner race of the taper roller bearing and at the spline end of the cylinder block.



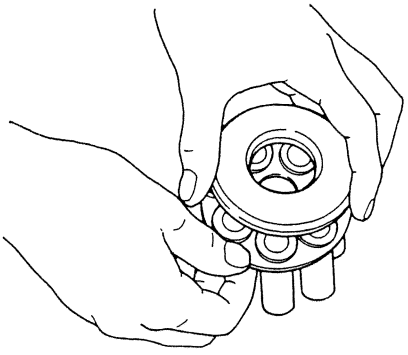
Y3-D628

    c. Remove the spacer (11), and then remove the swash plate (12), the piston assembly (13), and the retainer plate (14) together from the cylinder block.
    - Apply match marks at the piston holes of the cylinder block and at the piston assembly (13), so that installation at the same position is possible at the time of assembly.



Y3-D629

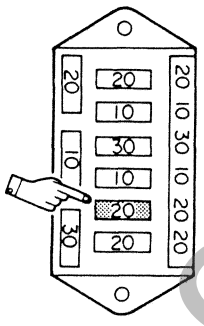
    d. Remove the swash plate, sliding it along the sliding surfaces of the piston assembly.
    - Take care not to damage the sliding surfaces of the swash plate.



Y3-D630

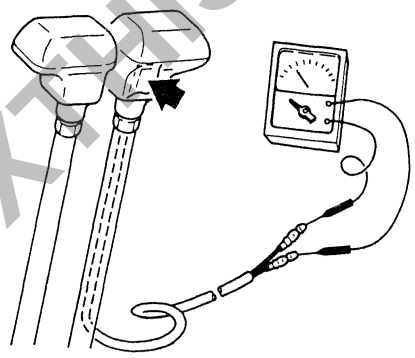
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3. **Inspect the fuse.**
Operate the 2nd speed solenoid valve and check the fuse for the power supply circuit.



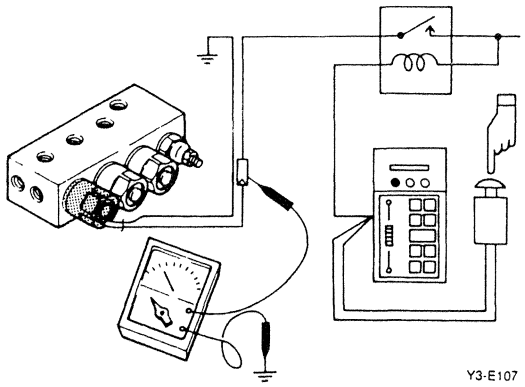
Y2-E007

4. **Inspect the travel speed select switch.**
Press the switch to turn it "ON". While it is in this condition, check if there is continuity with a tester.



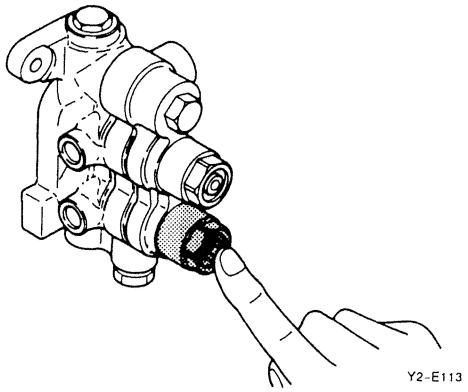
Y2-E111

5. **Inspect the 2nd speed relay.**
Press the travel speed select switch to turn it "ON". While it is in this condition, use a tester to check if there is voltage to the 2nd speed solenoid valve.
Cauti : Check with the engine stopped.



Y3-E107

6. **Inspect the 2nd speed solenoid valve.**
   a. Turn the start switch "ON".
   b. Press the protruding portion of the solenoid valve lightly.
   c. Turn the travel speed select switch "ON".
   d. If the spool moves and vibration can be felt with the fingertip when the circuit changes, then it is normal.



Y2-E113

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