Field Assembly Instruction

HYDRAULIC EXCAVATOR

PC750 -7 PC750LC-7
PC750SE-7
PC800 -7 PC800SE-7

SERIAL NUMBERS PC750-20001 and up
PC800-40001

KOMATSU

Days	①				②
Assembly unit	Base machine ① Left track frame ② Right track frame ③ Axle assembly	④ Upper structure	⑤ Counterweight, ⑥ Platform group • Inspection of oil level and water level	Backhoe Loading shovel-type excavator ⑦ Assembling of work equipment	• Inspection of oil level and water level • Air bleeding from work equipment cylinder • Flushing of hydraulic circuit • Adjustment of track tension • Performance test
Crane	(Two) 343 kN {35 t} 343 kN {35 t}			343 kN {35 t}	
Air compressor	Min. 0.7 MPa Min. 1.5 m³/min				
Worker	Leader + 3 mechanics				
	Start of assembling • Meeting with all workers	Completion of installation of unit assembly to body		Completion of body assembling	• Completion of general assembling

2. Tightening torque for pipe threads

Proper tightening torque for pipe threads depends on combination of the materials of the male screw and female screw. In this manual, however, select tightening torque from Table 2 and Table 3 on the basis of the material of the male screw. If tightening torque is specified specially in explanation, however, apply that tightening torque.

2.1 If the male screw is made of mild steel or cast iron, apply Table 2.

Table 2

Unit: Nm {kgm}

Material of female thread / Nominal size (in)	Steel	Cast iron	Light alloy
1/8	3.9 – 6.9 {0.4 – 0.7}	2.9 – 5.9 {0.3 – 0.6}	2.0 – 3.9 {0.2 – 0.4}
1/4	5.9 – 11.8 {0.6 – 1.2}	4.9 – 9.8 {0.5 – 1.0}	3.9 – 7.8 {0.4 – 0.8}
3/8	16.7 – 26.5 {1.7 – 2.7}	13.7 – 21.6 {1.4 – 2.2}	9.8 – 16.7 {1.0 – 1.7}
1/2	32.3 – 52.9 {3.3 – 5.4}	26.5 – 43.1 {2.7 – 4.4}	19.6 – 32.3 {2.0 – 3.3}
3/4	51.0 – 85.3 {5.2 – 8.7}	42.1 – 70.6 {4.3 – 7.2}	31.4 – 52.9 {3.2 – 5.4}
1	86.2 – 173.5 {8.8 – 17.7}	72.5 – 146.0 {7.4 – 14.9}	54.9 – 111.7 {5.6 – 11.4}

2.2 If the male screw is made of refined steel (heat-treated hard steel), apply Table 3.

Table 3

Unit: Nm {kgm}

Material of female thread / Nominal size (in)	Steel	Cast iron	Light alloy
1/8	16.7 – 29.4 {1.7 – 3.0}	9.8 – 19.6 {1.0 – 2.0}	6.9 – 14.7 {0.7 – 1.5}
1/4	19.6 – 44.1 {2.0 – 4.5}	16.7 – 37.2 {1.7 – 3.8}	12.7 – 28.4 {1.3 – 2.9}
3/8	44.1 – 93.1 {4.5 – 9.5}	37.2 – 77.4 {3.8 – 7.9}	27.4 – 58.8 {2.8 – 6.0}
1/2	98.0 – 188.2 {10.0 – 19.2}	83.3 – 157.8 {8.5 – 16.1}	60.8 – 115.6 {6.2 – 11.8}
3/4	170.5 – 316.5 {17.4 – 32.3}	141.1 – 247.0 {14.4 – 25.2}	105.8 – 186.2 {10.8 – 19.0}
1	367.5 – 612.5 {37.5 – 62.5}	309.7 – 514.5 {31.6 – 52.5}	235.2 – 392.0 {24.0 – 40.0}

Assembly Procedure No. A-2. Installation of Travel Pipe (3/3)

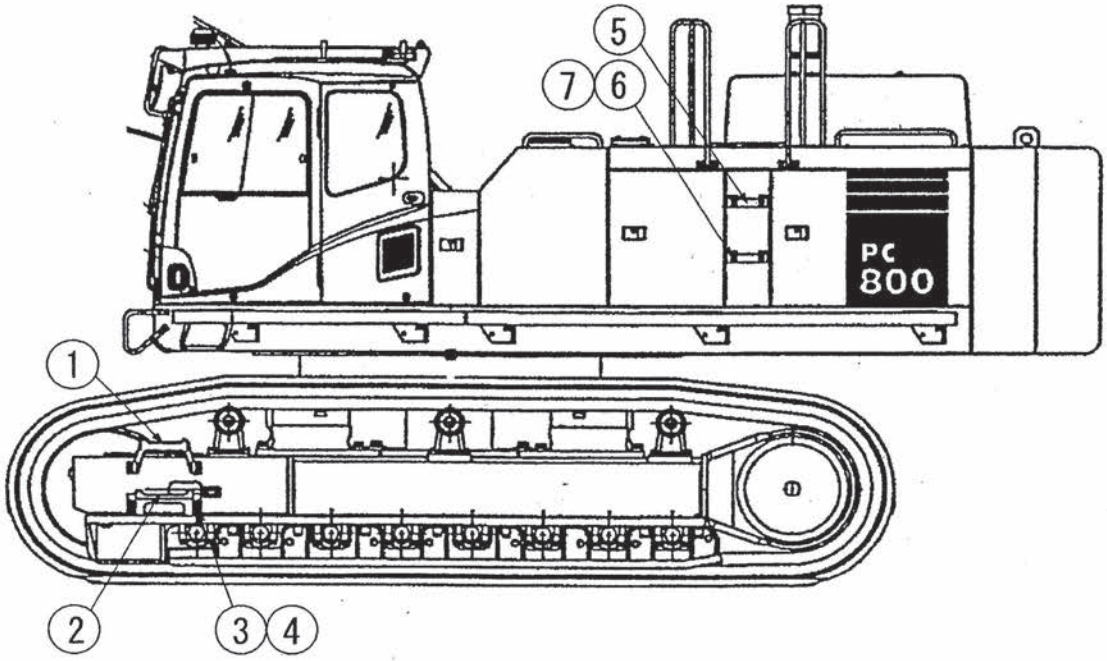
(1) Arrange the pilot hoses ④ (L.H.), ⑤ (R.H.) for selecting machine speed and the drain hoses ③ (Figs 1, 2 and 3)

(2) Arrange the main hoses ① and ② on the travel motor side (Figs 1, 2 and 3). Use new O-rings ⑥ out of the loose-supply items and use split flange, bolt and washer out of the travel motor parts.

Precautions						Tools used		Equipment used	
						Tool Name	Q'ty	Name	Q'ty
No.	Parts already installed to body	Q'ty	No.	Loose-supply items	Q'ty				
1	209-64-12131	2	6	07000-13032	4				
2	209-64-12141	2							
3	209-64-16670	2							
4	209-64-16660	1							
5	209-64-16650	1							
						Others			

Assembly Procedure No. A-7. Installation of Step

(1) Install the steps ① and ② to the left outside of the track frame by using the bolt ③ and the washer ④.
(2) Install the step ⑤ to the left side cover by using the bolt ⑥ and the washer ⑦.



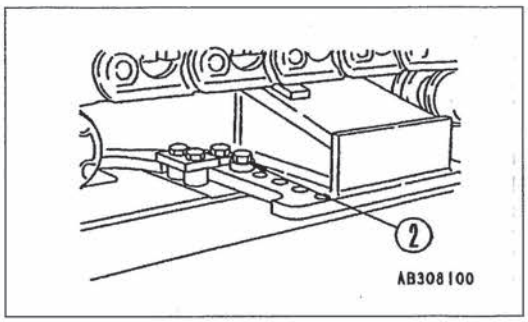
Precautions						Tools used		Equipment used	
Remove the plugs for rust prevent set in the mounting tapped holes.						Tool Name	Q'ty	Name	Q'ty
No.	Loose-supply items	Q'ty	No.		Q'ty				
1	21M-30-12260	1							
2	209-30-61751	1							
3	01010-81640	8							
4	01643-31645	8							
5	209-54-63481	2							
6	01010-81230	4							
7	01643-31232	4							
						Others			

Assembly Procedure No. A-15.
Extension of Track Frame Gauge (only When 3-split Packages are transported) (2/3)

- **Extension of Gauge Width**

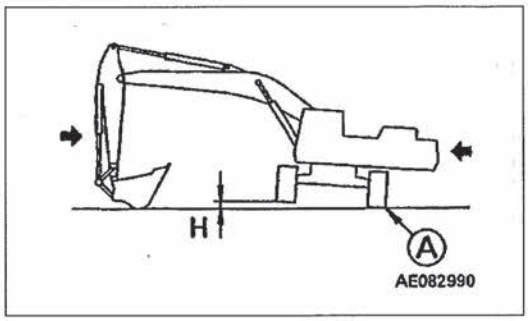
(1) Remove the center frame mounting bolt ② (8 bolts on one side) around the track frame to be extended.

(2) Turn the upper structure square to the opposite side of the track frame Ⓐ to be extended.



Supplementary Explanation:

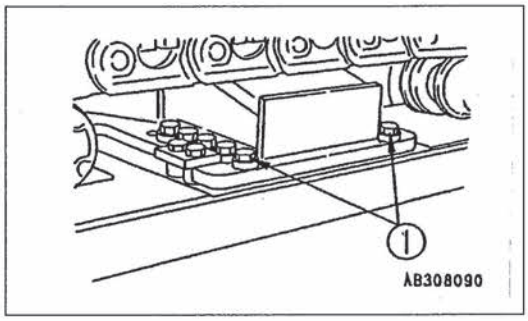
Make the track frame relief height "H" less than 50 mm. If it is raised too much, the stopper bolt will be twisted and bent.



(3) Pull the body forward by using the arm, and the track frame will slide.

(4) Stretch it until it hits the stopper. Then, lower the machine slowly on the ground and tighten the bolt ① (20 bolts on one side)

★ Tightening torque:
2745.9 ± 294.2 Nm {280 ± 30 kgm}



(5) For the track frame on the opposite side, repeat the above procedures.

★ Extend or contract the track frame gauge on a flat and strong ground.

★ It is very dangerous to operate each cylinder quickly during the extension of contraction of the track frame gauge width. So never operate it quickly.

Precautions						Tools used		Equipment used	
						Tool Name	Q'ty	Name	Q'ty
No.	Loose-supply items	Q'ty	No.		Q'ty				
						Others			

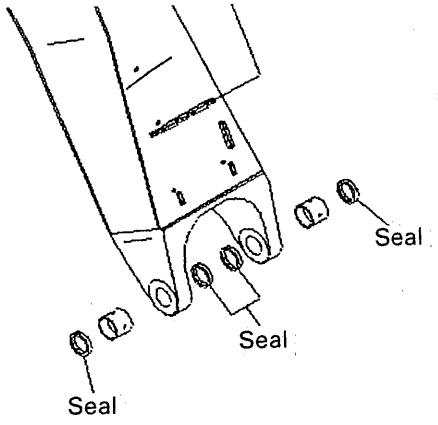
Assembly Procedure No. B-2. Installation of Boom Assembly

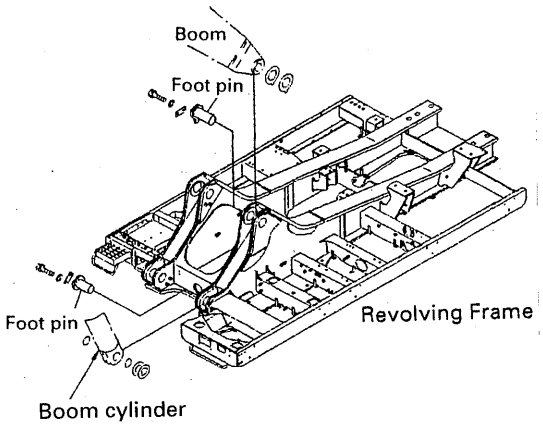
(1) Lift the boom assembly with the crane and bring it to the body pin hole.

kg: Boom assembly
7,400 kg (PC750, 750LC)
6,840 kg (PC800)
7,660 kg (PC750SE, PC800SE)

(2) Fitting of Boom Foot Pin.
Insert a boom foot pin (which had been fitted on the revolving side) in a hole one side first and bring the body to the pin hole on the other side. When the boom is inclined to the left or right at the time, balance it by using the jib crane.

★ Since four seals (209-72-11261, 4 pcs.) have been fitted to the boom foot as shown below, use care not to break them when inserting pins.





★ Check the clearance between the boom foot and the machine outside, decide the size and quantity of shim so that the clearance becomes below 1 mm and insert the shim between them.
Use the adjustment shims (209-70-71640, 1.0 mm thick, and 209-70-71650, 1.5 mm thick) to decide their combination.

★ Adjust the clearance with shims at one place outside.

★ Do not insert any shim in the clearance on the inside of the chassis.

(3) Insert the boom foot pins fully on both the left and right sides and fit lockplates there.

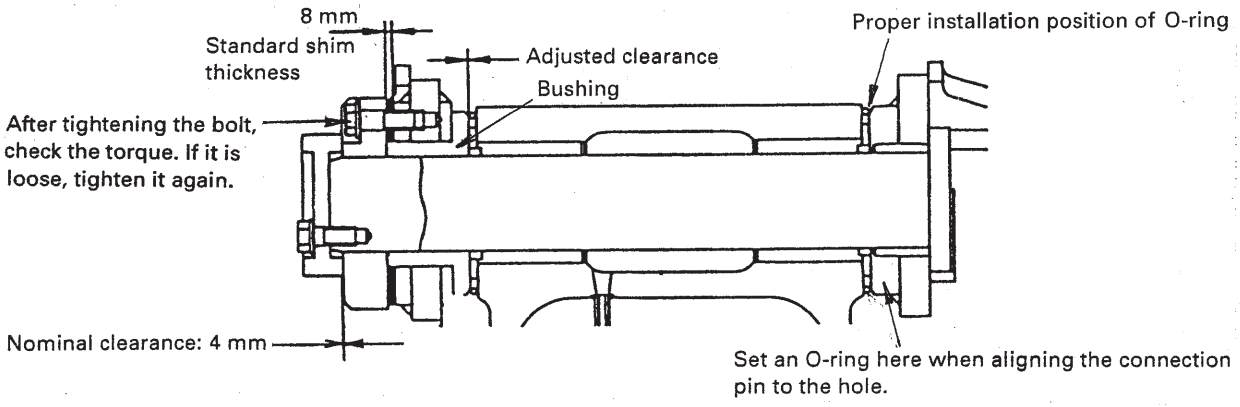
Inside of pin hole : Lithium grease

Precautions						Tools used		Equipment used	
						Tool Name	Q'ty	Name	Q'ty
No.	Loose-supply items	Q'ty	No.		Q'ty				
	209-72-11261	4							
	209-70-71650	4							
	209-70-71640	2							
						Others			

Assembly Procedure No. B-11. Installation of Bucket Assembly

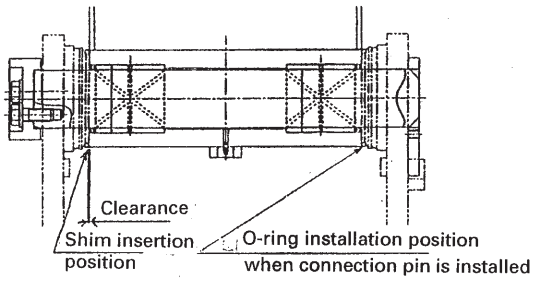
(1) Push in the arm to bucket connection pin and adjust the clearance to the range from 0.5 to 1.0 mm by using the bushing (209-939-5410) and shim (209-939-5431 (t=1.0) 9 pcs. and 209-939-5441 (t = 0.5 mm) 2 pcs.) out of the loose-supply items. Then, tighten the cover mounting bolt (M24).

★ Inside bushing: anti-friction compound (LM-P).



(2) Set two O-rings (21N-70-13150) for preventing earth and sand from penetrating into the bucket arm connection pin to the normal positions and fix a pin stopper.

(3) Lift the link and align the bucket to link connection pin to the hole while operating the bucket cylinder.



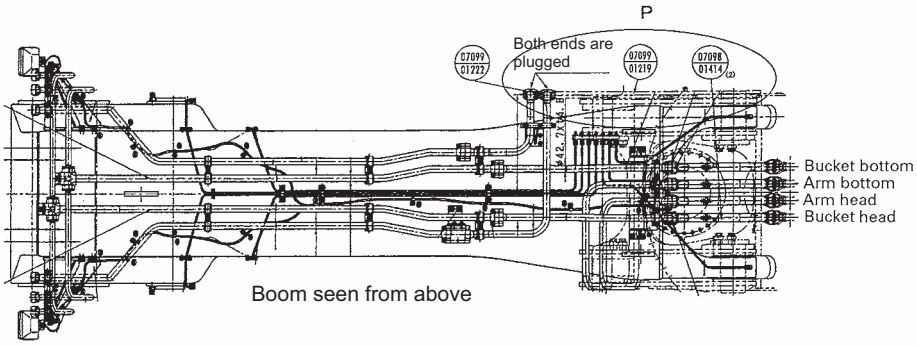
(4) Push in the link to bucket connection pin and adjust the clearance to less than 1 mm by using the shim (209-72-11220, 1 pc. t = 1 mm) out of the loose-supply items. Then, install O-rings (208-70-33181, 2 pcs.) for dust prevention to the proper position, and fix the pin stopper.

★ Since the seal (209-72-12211, 2 pcs.) to the boss on the link side (link to bucket connection), use care not to break them when inserting the pin.

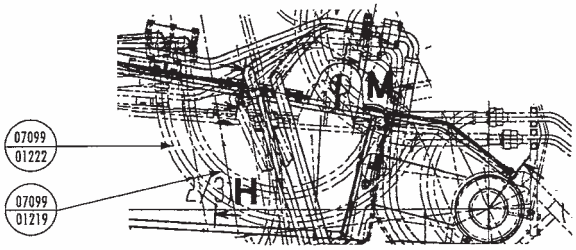
★ Be sure to operate the cylinder slowly. Do not operate it quickly and do not bring it to the stroke end. Since air gathers inside the cylinder at the first time, the cylinder may not operate for 10 seconds or more, but do not move the lever to the full stroke.

Precautions						Tools used		Equipment used	
★ Refer to the Maintenance standard for the clearance of the connection.						Tool Name	Q'ty	Name	Q'ty
No.	Loose-supply items	Q'ty	No.		Q'ty				
	209-939-5410	1							
	209-939-5431	9							
	209-939-5441	2							
	21N-70-13150	2							
	209-72-11220	1							
	208-70-33181	2							
						Others			

C- 4 Installation of flushing piping between chassis and boom



Boom seen from above



P (seen from side)

(1) Remove the plugs from the piping on the boom side and the hoses on the chassis side and install the hoses between the chassis and boom.

For bottom dump ——— Hose (07099-01219, 07099-01222, 2 pieces)
O-ring (07000-13038, 4 pieces)
Split flange (07371-51260, 8 pieces)
Bolt (01010-51245, 16 pieces)
Washer (01643-31232, 16 pieces)

For bucket ——— Hose (07098-01414, 2 pieces)
O-ring (07000-13048, 4 pieces)
Split flange (07371-51470, 8 pieces)
Bolt (01010-81455, 16 pieces)
Washer (01643-31445, 16 pieces)

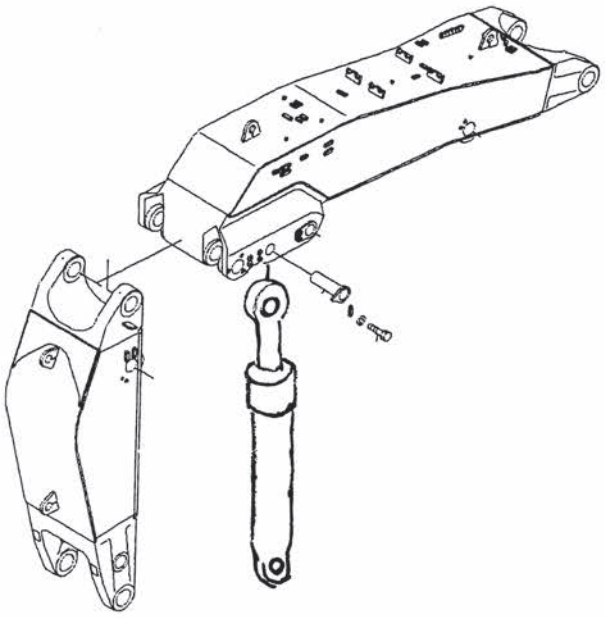
Precautions	Part sent individually		
	No.	Part No.	Q' ty
1. Keep the flanges, O-rings, and heads used for transportation so that they can be reused.			
2. When connecting each hose, take extreme care that the O-rings will not be caught.			
3. When connecting each hose, take extreme care that dirt will not enter the circuit.			

C-13 Installation of bucket cylinder

(1) Remove the stopper fixed to the boom, and then remove the bucket cylinder rod pin.

Bucket cylinder: 630 kg

(2) Run the engine at low idling.
(3) Sling the cylinder and push the rod slowly to match the pin holes.
(4) Install the cylinder rod pin.
Inside of bushing: Apply lithium grease.

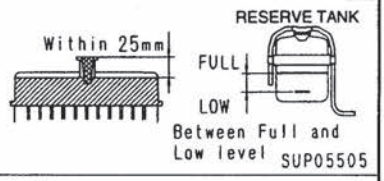


★ Move the cylinder slowly. Do not move it quickly or move it to the stroke end. It may not start for more than 10 seconds at first because of air in it. Do not move the lever to the stroke end at this time.

(5) Install the stopper.

Precautions	Part sent individually		
	No.	Part No.	Q' ty

M. PROCEDURE FOR INSPECTION AND MAINTENANCE AFTER COMPLETION OF ASSEMBLY

Category	Revision	Check item			Local assembly time		After hours of operation		Judgement standard
Checks before assembly		Oil and water levels		Actual measurement					
		Cooling water	Soft water	[ ]					
		Anti-freeze (A, B, C, D, E)	Yes/No	[ ]					
			Density of anti-freeze	[ ]					A: -50 – -40°C D: -20 – -10°C B: -40 – -30°C E: -10 – 0°C C: -30 – -20°C (Not necessary in summer)
		Engine oil	SAE10W CD SAE30 CD	[ ]					$L-H^{+5}$mm (10 minutes after stopping engine)
		PTO oil	SAE10W CD SAE30 CD	[ ]					$L^{+5}-H$ (10 minutes after stopping engine)
		Swing machinery gear case oil	SAE30 CD	[ ]					$L^{+5}-H^{+10}$ (10 minutes after stopping engine)
		Final drive gear case oil Right	SAE30 CD	[ ]					Bottom edge of level plug: 0 to –10 mm
		Final drive gear case oil Left	SAE30 CD	[ ]					
		Hydraulic oil	SAE10W CD	[ ]					Between the H and L marks.
		Battery electrolyte	–	[ ]					Within 13 mm from bottom surface of filler port
		Engine No. [ ]							
		Service meter When accepted [ ]		After check [ ]					
		Revolving frame No. [ ]							Must match Serial No.
Checks during assembly									
		Loose, untightened lock bolts for connecting pins							There must be none.
		Loose, untightened split flange bolts for work equipment piping							There must be none.
		Forgotten, missing, catching O-rings for work equipment piping							There must be none.
		Loose, twisted connections for grease piping							There must be none.
		Shim adjustment for work equipment pins							Max. 1 mm (for locations, see assembly procedure manual)
		Improperly inserted wiring, unconnected wiring							There must be none.
		Loose, untightened ladder mounting bolts							There must be none.

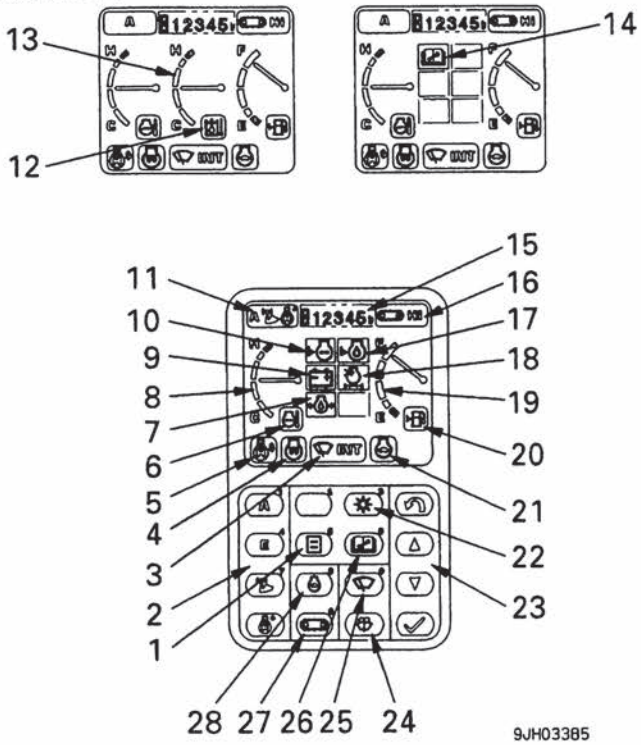
Category	Revision	Check item	Local assembly time	After hours of operation	Judgement standard
Check of switches, control levers		Operation of safety lock lever			Push down the lever up to apply the lock. This lock lever is a hydraulic lock, so even if it is in the lock position, the work equipment control lever and travel lever will move, but the work equipment, travel motor, and swing motor will not work.
		Operation of travel levers			FORWARD: The lever is pushed forward. (The pedal is angled forward) REVERSE: The lever is pulled back. (The pedal is angled back) N (Neutral): The machine stops.
		Operation of left work equipment control lever (with auto-deceleration device)			This lever is used to operate the arm and upper structure. Arm operation / Swing operation Ⓐ Arm OUT / Ⓒ Swing to right Ⓑ Arm IN / Ⓓ Swing to left N (Neutral): When the lever in this position, the upper structure and the arm will be retained in the position in which they stop.
		Operation of right work equipment control lever (with auto-deceleratiom device)			This lever is used to operate the boom and bucket. Boom operation / Bucket operation ① RAISE / ③ DUMP ② LOWER / ④ CURL N (Neutral): When the lever in this position, the boom and the bucket will be retained in the position in which they stop.

Note: If the operation or function is defective, measure as necessary. All judgement standard values for speeds are the values in A mode.

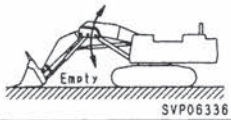
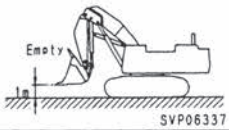
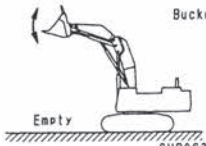
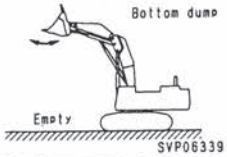
Category	Revision	Check item	Local assembly time		After hours of operation		Judgement standard
Main measurement items		**1. Engine speed**					
		Low idling speed [rpm]					825 ± 25 rpm
		High idling speed (When lever is operated a little) [rpm]					1980 ± 50 rpm (In A mode)
		High idling (When lever is not operated)					1880 rpm (In A mode)
		Speed at boom raise relief (Heavy lift: OFF) [rpm]					Min. 1700 rpm } at DH mode
		Speed at boom raise relief (Heavy lift: ON) [rpm]					Min. 1700 rpm } at DH mode
		2. Rediator fan speed					
		Speed at engine rated speed [rpm]					1100 rpm at 1800 rpm
		3. Oil pressure measurement (measure at pump outlet port)					
		Control valve main set pressure R.H 4-spool Swing 4-spool valve [MPa {kg/cm²}]					31.4 $^{+1.0}_{-1.5}$ MPa {320 $^{+10}_{-15}$ kg/cm²} } At engine high idling, arm OUT, A mode and Heavy lift OFF, relief
		Control valve main set pressure L.H 5-spool valve [MPa {kg/cm²}]					31.4 $^{+1.0}_{-1.5}$ MPa {320 $^{+10}_{-15}$ kg/cm²} } At engine high idling, arm OUT, A mode and Heavy lift OFF, relief
		Travel relief set pressure Right travel [MPa {kg/cm²}]					31.4 $^{+1.0}_{-1.5}$ MPa {320 $^{+10}_{-15}$ kg/cm²} } Relieved on one side at A mode
		Travel relief set pressure Left travel [MPa {kg/cm²}]					31.4 $^{+1.0}_{-1.5}$ MPa {320 $^{+10}_{-15}$ kg/cm²} } Relieved on one side at A mode
		Swing relief set pressure [MPa {kg/cm²}]					27.9 $^{+2.5}_{-0.5}$ MPa {285 $^{+25}_{-5}$ kg/cm²} } At engine high idling, swing and A mode, relief
		Pilot relief valve set pressure [MPa {kg/cm²}]					3.28 $^{+0.34}_{0}$ MPa {33.5 $^{+3.5}_{0}$ kg/cm²} (At engine high idling, neutral)
			At neutral	Boom RAISE			
		Nc valve output pressure (at top surface of NC valve) No.1 pump [MPa {kg/cm²}] [MPa {kg/cm²}]					Max. 0.4 MPa { 4 kg/cm²} } Engine high idling
		Nc valve output pressure (at top surface of NC valve) No.2 pump [MPa {kg/cm²}] [MPa {kg/cm²}]					Max. 0.4 MPa { 4 kg/cm²} } Engine high idling
		Note: Measure the following J/S differential pressure only if the NC valve output pressure does not pass the test.					
			At neutral	At relief			
		J/S differential pressure (differential pressure at input and output ports of jet sensor) No.1 pump [MPa {kg/cm²}] [MPa {kg/cm²}]					Min. 1.3 MPa (Min. 13.1 kg/cm²) } Engine high idling A mode Lever neutral; Max. 0.15 MPa {1.5 kg/cm²} } At engine high idling A mode Arm IN relief
		J/S differential pressure (differential pressure at input and output ports of jet sensor) No.2 pump [MPa {kg/cm²}] [MPa {kg/cm²}]					Min. 1.3 MPa (Min. 13.1 kg/cm²) } Engine high idling A mode Lever neutral; Max. 0.15 MPa {1.5 kg/cm²} } At engine high idling A mode Arm IN relief

Category	Revision	Check item	Local assembly time	After hours of operation	Judgement standard
Check monitor		Monitor display 1. Check of monitor function When the starting switch is turned ON, the gauges, CHECK items, and all display items on the monitor should light up. At the same the alarm buzzer should sound.			Display should be as on left.
		2. Check of gauges and CHECK items When starting switch is turned to ON (all lamps on), all display lamps should go out after approx. 3 sec. For another 2 seconds, only the gauges are displayed, and the CHECK and monitor items disappear.			
		3. Check of monitor items After starting the engine, the caution lamps should not light up and the alarm buzzer should not sound when the engine speed is low idling – high idling.			
		Operation of service meter			There should be no scratches or misting of the lens or variation in operation.

MONITOR



1. —
2. Working mode select switch
3. Wiper monitor
4. Preheating monitor
5. Swing lock monitor
6. Coolant temperature monitor
7. Engine oil pressure monitor
8. Coolant temprature gauge
9. Battery charge monitor
10. Coolant level monitor
11. Working mode monitor
12. Hydraulic oil temperature monitor
13. Hydraulic oil temperature gauge
14. Maintenance interval monitor
15. Service meter
16. Travel speed monitor
17. Engine oil level monitor
18. Air cleaner clogging monitor
19. Fuel gauge
20. Fuel level monitor
21. Auto-deceleration monitor
22. Screen adjust switch
23. Input control switch
24. Window washer switch
25. Wiper switch
26. Maintenance switch
27. Travel speed selector switch
28. Auto-deceleration switch

Category	Revision	Check item	Local assembly time	After hours of operation	Judgement standard
Work equipment performance		Work equipment operation running in: Engine midrange speed, all cylinders full stroke 3 times (Note: Boom cylinder to ground level) Pressurized; each port relief 2 minutes, shock 20 times (except BOOM LOWER). Work equipment posture Boom  SVP06336 Arm  SVP06337 Bucket  SVP06338 Bottom dump  SVP06339				
		Work equipment speed — Boom: RAISE sec [ ] LOWER sec [ ]			RAISE: 5.7 ± 0.6 sec. LOWER: 5.0 ± 0.5 sec.
		Work equipment speed — Arm (arc): OUT sec [ ] IN sec [ ]			IN: 4.3 ± 0.4 sec. OUT: 2.5 ± 0.3 sec.
		Work equipment speed — Bucket: CURL sec [ ] DUMP sec [ ]			CURL: 4.3 ± 0.4 sec. DUMP: 4.0 ± 0.4 sec.
		Work equipment speed — Bottom dump: OPEN sec [ ] CLOSE sec [ ]			OPEN: 1.6 ± 0.3 sec. CLOSE: 1.7 ± 0.3 sec.
		Work equipment time lag (Engine low idling) — Boom: LOWER sec [ ] Only when there is considered to be abnormality.			Max. 3 sec.
		Work equipment time lag (Engine low idling) — Arm: IN sec [ ] Only when there is considered to be abnormality.			Max. 3 sec.
		Work equipment time lag (Engine low idling) — Bucket: DUMP sec [ ] Only when there is considered to be abnormality.			Max. 3 sec.
		Work equipment time lag (Engine low idling) — Bottom dump: CLOSE sec [ ] Only when there is considered to be abnormality.			Max. 3 sec.
		Abnormal noise from pump, PTO			There must be no abnormality during operation under no load and during relief.
		Generation of heat by PTO			There must be no abnormal generation of heat.
		Engine partial performance			There must be no hunting at any speed under no load, there must be no stalling of engine even at low idling and relief.
		Fine control performance			Must operate smoothly.
		Operation when raising chassis			There must be no escape of boom, arm, or bucket
		Abnormal noise, grating noise from work equipment			There must be none.
		Shock at end of cylinder stroke (Shock at end of stroke for BOOM RAISE and ARM IN)			Cushion must be fully effective.
		Function of accumulator			Immediately after engine is stopped, boom cylinder must move from fully extended position to ground level. (Arm at max. reach)