GEN00217-01

Field Assembly Instruction

HYDRAULIC
EXCAVATOR

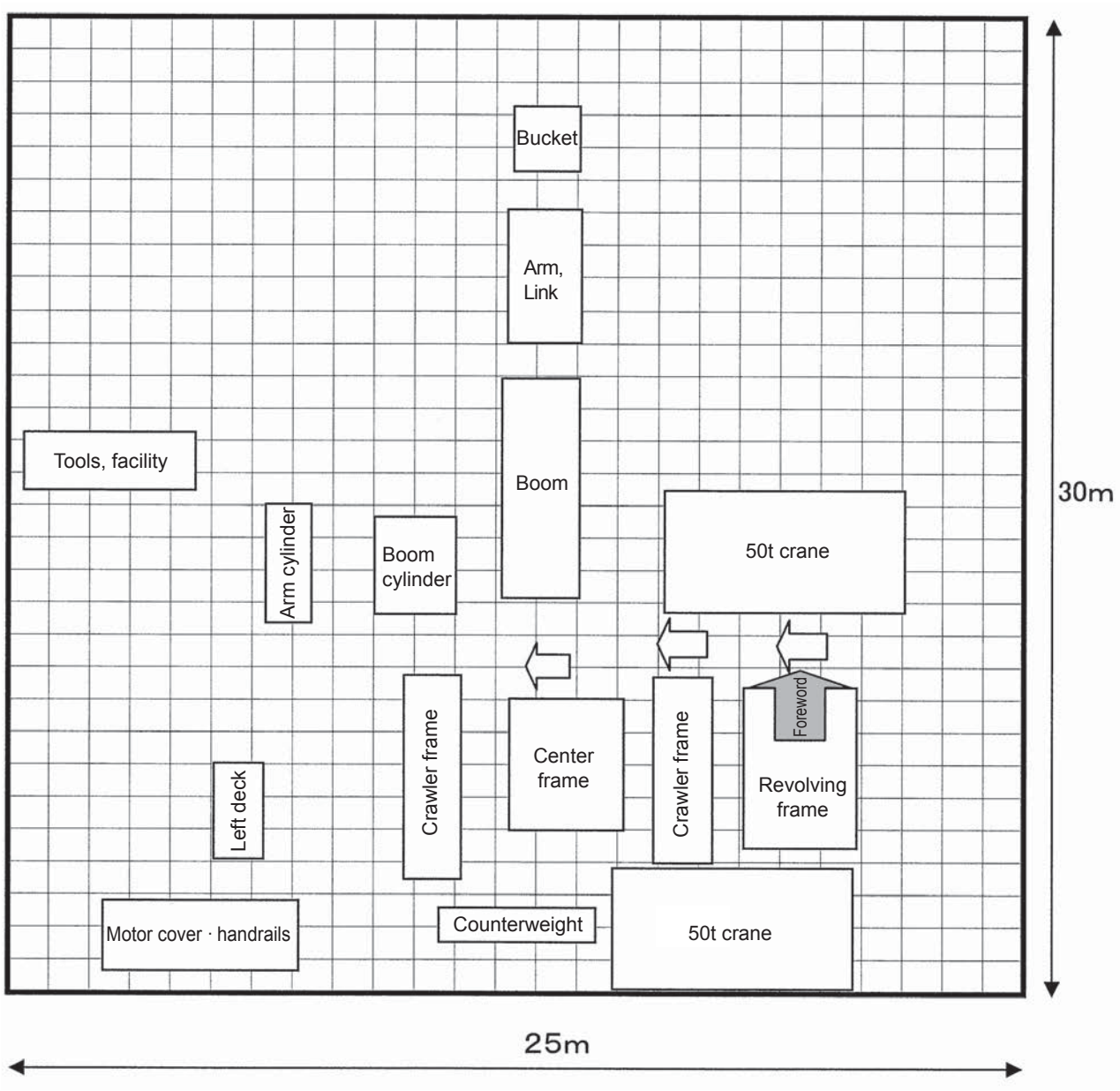
PC1250 -11R
PC1250SP-11R

SERIAL NUMBERS 50077 and up

KOMATSU

KIT LAYOUT DIAGRAM

- The dimensions given below are the minimum dimensions needed.
- The kit dimensions in the diagram are outline dimensions.
- When selecting a place, see precautions for “FIELD ASSEMBLING”.



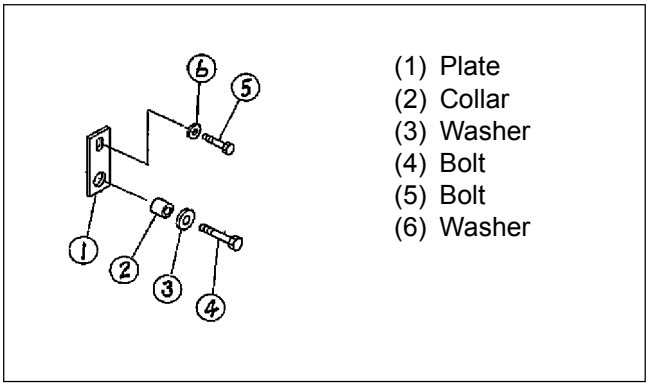
No.		Tool name	Specification	Q'ty	Remarks
26	Slings	Wire	Φ10 x 3000 mm	4	Catwalk
			Φ20 x 5000 mm	4	Arm and bucket
			Φ25 x 5000 mm	2	Revolving frame
			Φ30 x 5000 mm	4	Track frame and boom
			Φ36 x 5000 mm	2	Counterweight
27		Shackle	BC40 (10 t)	2	Counterweight
			BC36 (8 t)	2	Revolving frame and boom
			BC20 (2.5 t)	4	Center frame
			BC14 (1.2 t)	1	Travel motor cover
28		Nylon sling	50 mm wide x 3000 mm long (1.5 t)	2	Boom cylinder and arm cylinder
			25 mm wide x 3000 mm long (0.75 t)	2	Handrail
29		Rope	5 m	1	For fixing boom assembly
30		Pin	Φ40 x 500 mm	2	Track frame
31		Lever block	1.5 to 3 t	2	
32		Eyebolt	M12 (0.22 t)	3	
33	Oil, grease, and sub material	Cleaning liquid	Brake cleaner spray can	10 cans	
34		Hydraulic oil	HO56-HE	500 L	
35		Grease	G2-LI (18-L pail can)	4 cans	For lubricating inside of swing circle and work equipment
36		Paint for touching up	Natural yellow spray can	5	
			Black gray spray can	5	
37		Cloth	1 bundle	20 kg	For cleaning
38	other	Marker [A] and [B]	See [M-6, Inspection method of 12m visibility] in detail.	each one	For inspection of 12m visibility

A. ASSEMBLY OF CHASSIS

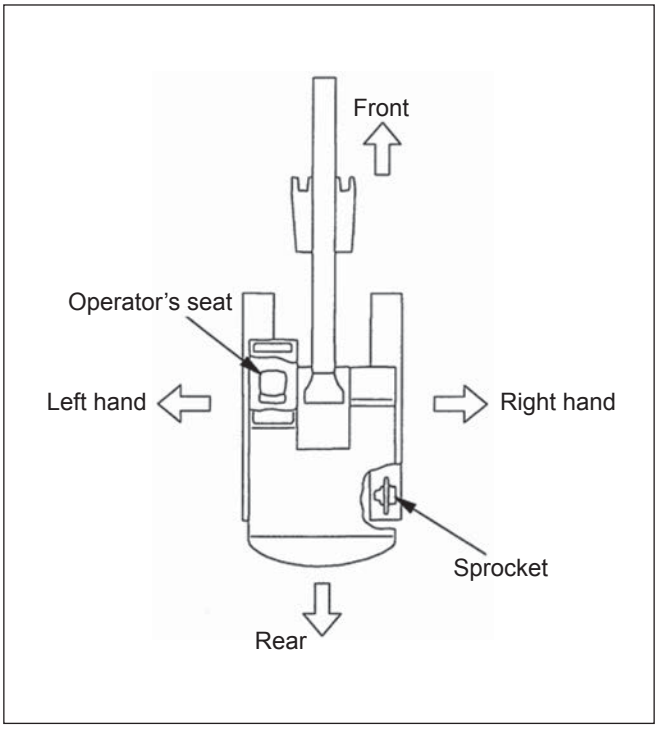
Remarks

1. In the "drawings" in this manual, parts and places are indicated by ①, ②, ③ ---, but indicated by (1), (2), (3) --- in the tables and texts.

Example:

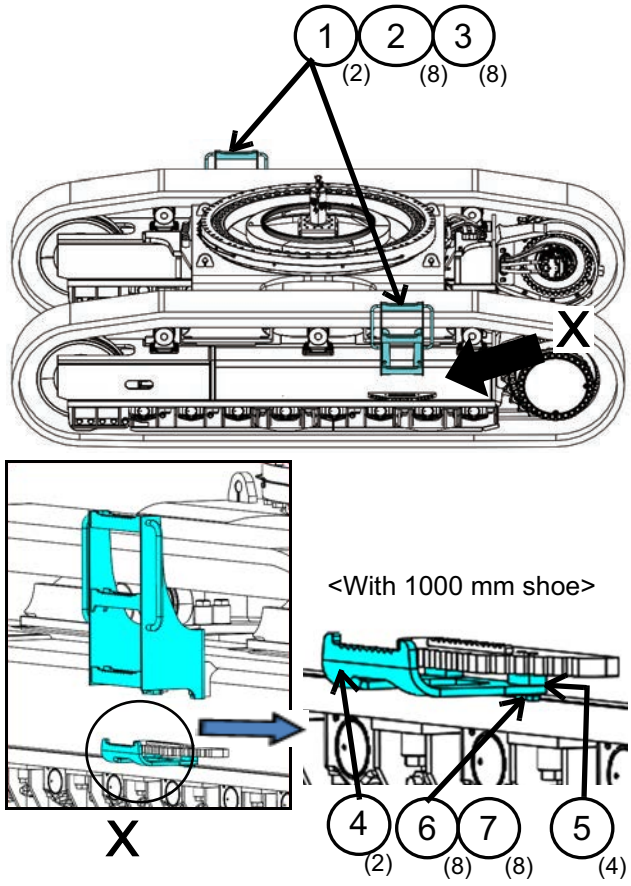


2. In some places of this manual, the words of front, rear, right hand and left hand of machine are used. Those words indicate the directions seen from the operator's seat with the sprocket at the rear as shown below, unless otherwise specified.



Assembly procedure	Install steps
A-4	

- Install ladders and brackets to the R.H. and L.H. track frames with bolts, washers and plates as follows.
- Parts depends on machine spec. (STD spec , LC spec or shoe width)
- Tightening torque of step mounting bolt : 245 to 309 Nm {25 to 31.5 kgm}

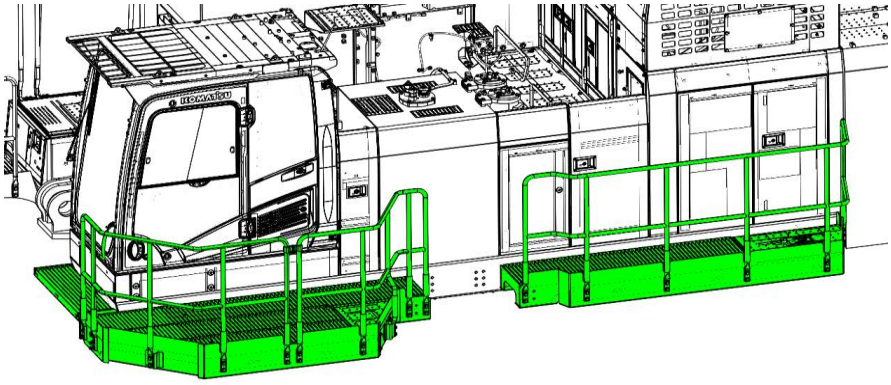


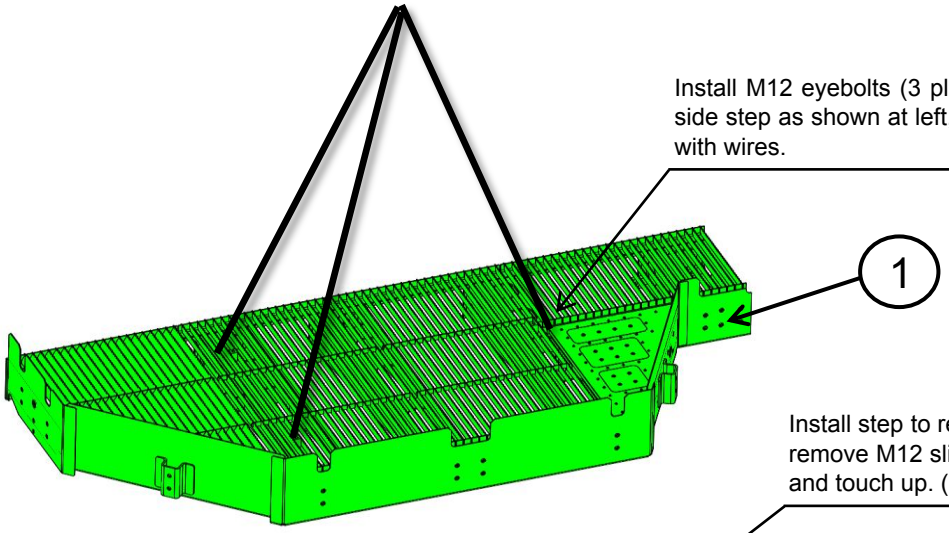
No.	Loose-supply item		Part name	Q'ty
	with 700 mm shoe	with 1000 mm shoe		
1	21N-30-37240	21N-30-57451	LADDER	2
2	01010-81635	01010-81665	BOL	8
3	01643-31645	01643-31645	WASHER	8
4	----	21N-30-32160	BRACKET	2
5	----	21N-30-57570	PLATE	4
6	----	01010-81670	BOL	8
7	----	01643-31645	WASHER	8

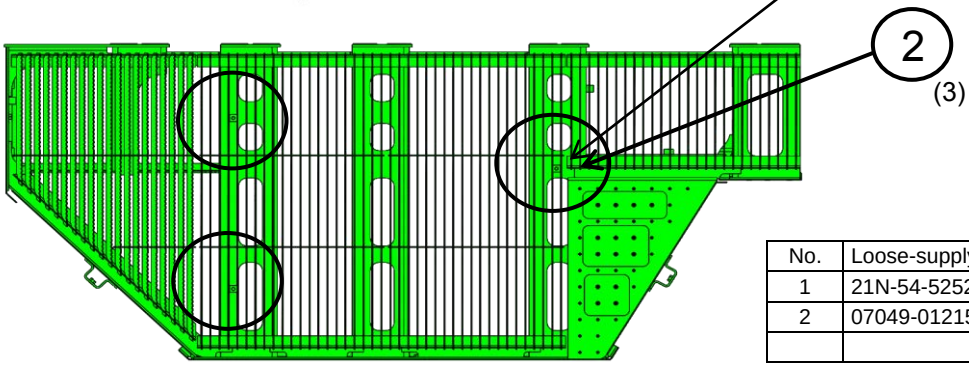
Precautions	Necessary tools		cessary equipment	
	Name	Q'ty	Name	Q'ty
	Medium impact wrench	1		
	Socket 24 mm in width across flats	1		
	150mm long extension	1		
	Other items			

Assembly procedure	
A-12	**Install L.H. side step (1/6)**

Install the L.H. side step according to the following procedure.



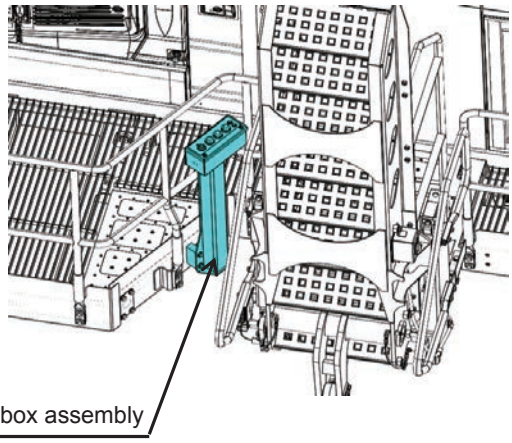


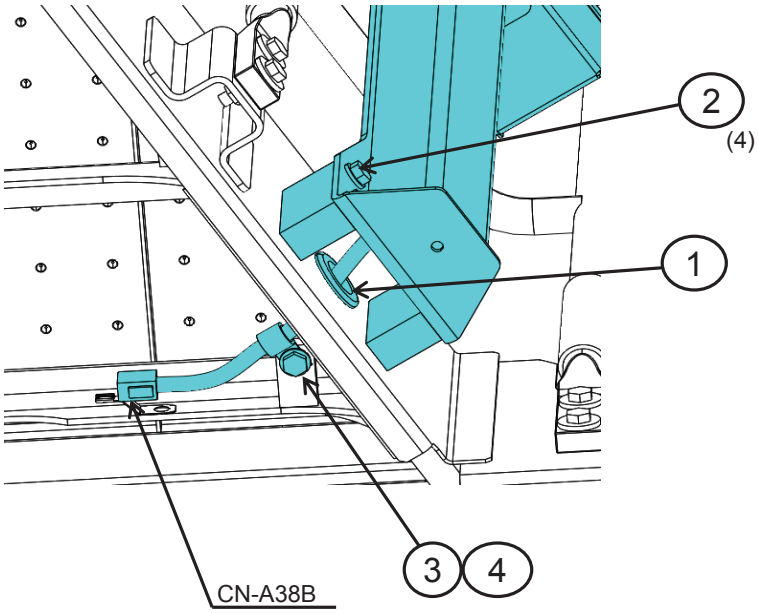


No.	Loose-supply item	Part name	Q'ty
1	21N-54-52524	STEP	1
2	07049-01215	PLUG	3

Precautions	Necessary tools		Necessary equipment	
• Degrease and de-rust the mating faces of the L.H. side step and the revolving frame.	Name	Q'ty	Name	Q'ty
	M12 eyebolt	3	25t crane	1
	Wire, Φ10 x 3000	3		
	Other items			

Assembly procedure	
A-14	**Install hydraulic stairway (if equipped) (3/5)**



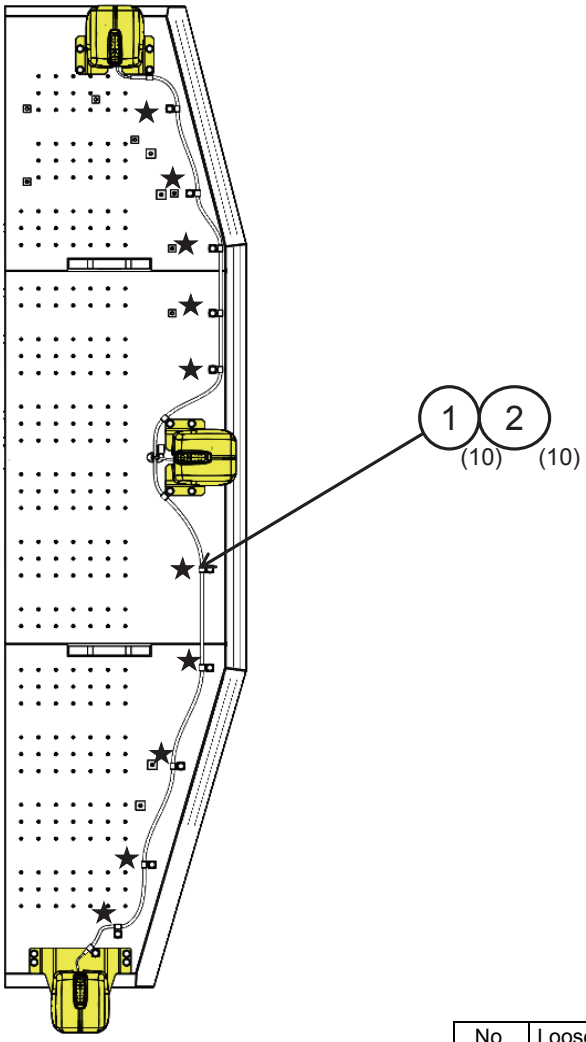


No.	Loose-supply item	Part name	Q'ty
1	08037-03614	GROMMET	1
2	01024-81290	BOLT	4
3	04434-51712	CLIP	1
4	01024-81225	BOLT	1

Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
	Small impact wrench	1		
	Socket 19 mm in width across flats	1		
	Other items			

Assembly procedure	
A-17	**Install KomVision camera (5/8)**

5. Connect the harness with bolts (2) and clips (1). (10 pieces, ★ part)

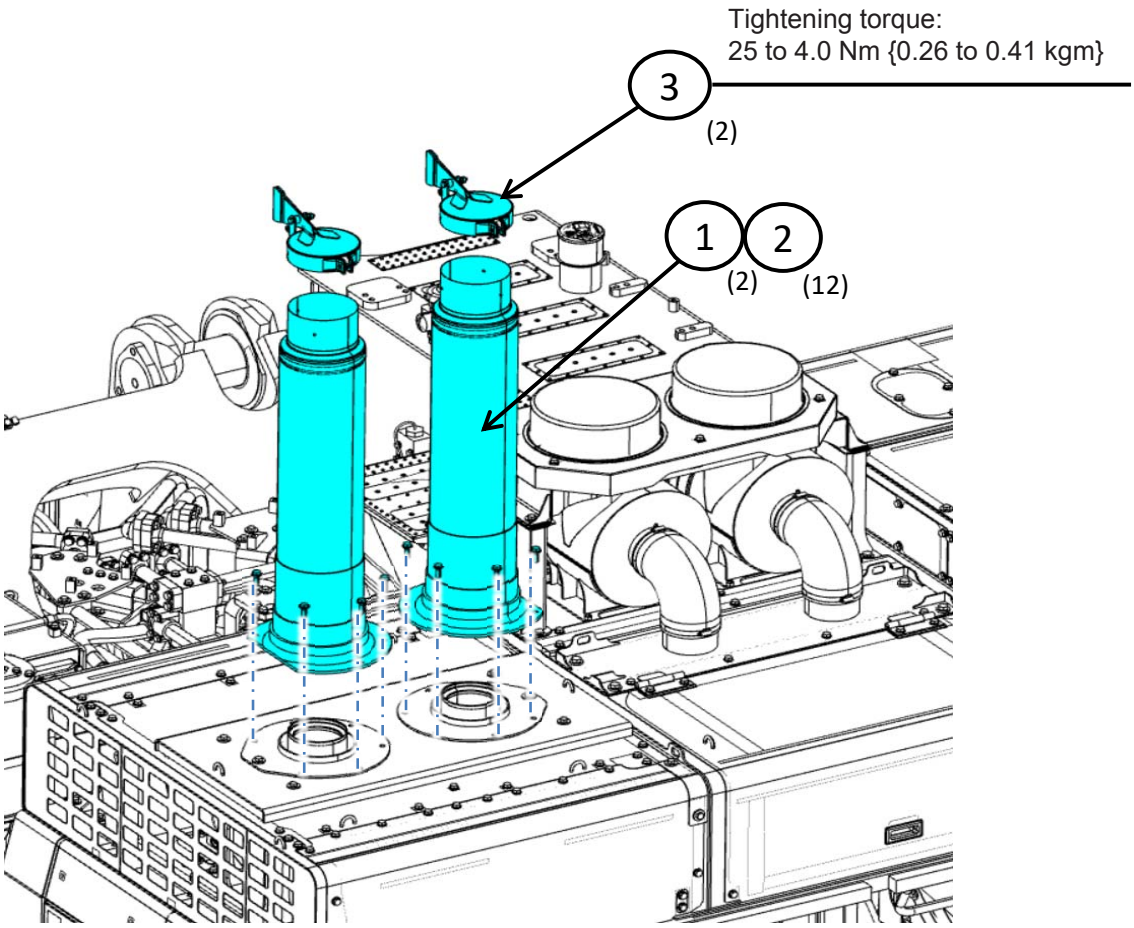


No.	Loose-supply item	Part name	Q'ty
1	04434-51012	CLIP	10
2	01024-81225	BOLT	10

Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
	Small impact wrench	1		
	Socket 19 mm in width across flats	1		
	Other items			

Assembly procedure	
A-22	**Install exhaust tail pipe**

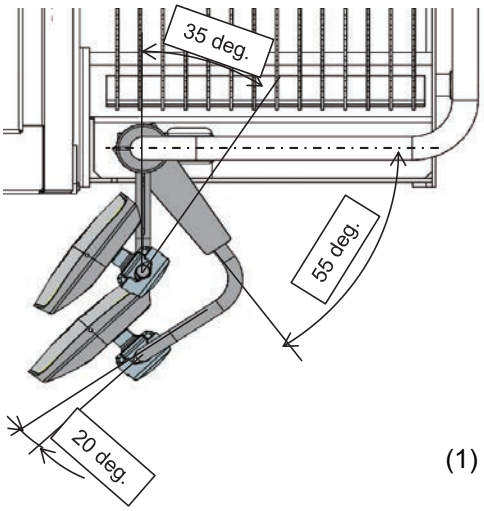
1. Install tail pipe (1) to the hood using bolt (2).
2. Install rain cap (3) to tail pipe (1).



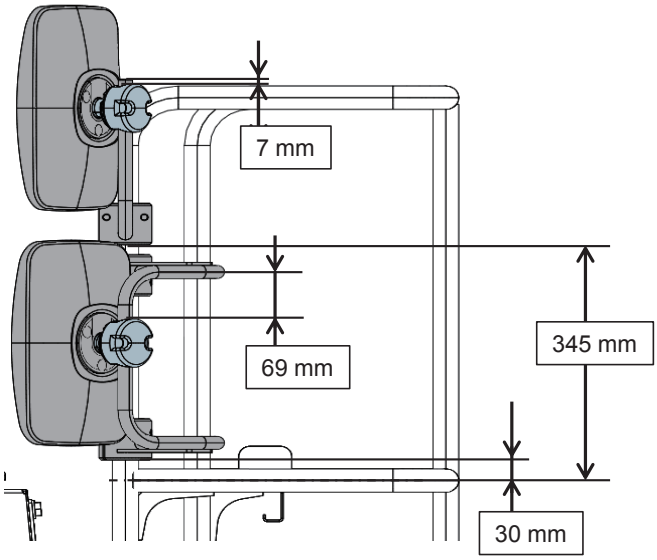
No.	Loose-supply item	Part name	Q'ty
1	5245-11-5810	PIPE	2
2	01024-81240	BOLT	12
3	6164-12-5910	PLATE	2

Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
	Small impact wrench	1		
	Socket 19 mm in width across flats	1		
	Socket 10 mm in width across flats	1		
	Other items			

Assembly procedure	
A-28	**Install R.H. rearview mirror (2/2)**



(1) Adjust the mirror position so that the operator can recognize people at the right rear of the machine.



Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
	Hexagon socket 5 mm in width across flats	1		
	Hexagon socket 8 mm in width across flats	1		
	Other items			

B. ASSEMBLING OF WORK EQUIPMENT OF BACKHOE

- Clean the mounting pin and pin hole and check them for a flaw.

Assembly procedure	
B-9	**Install boom cylinder to boom assembly**

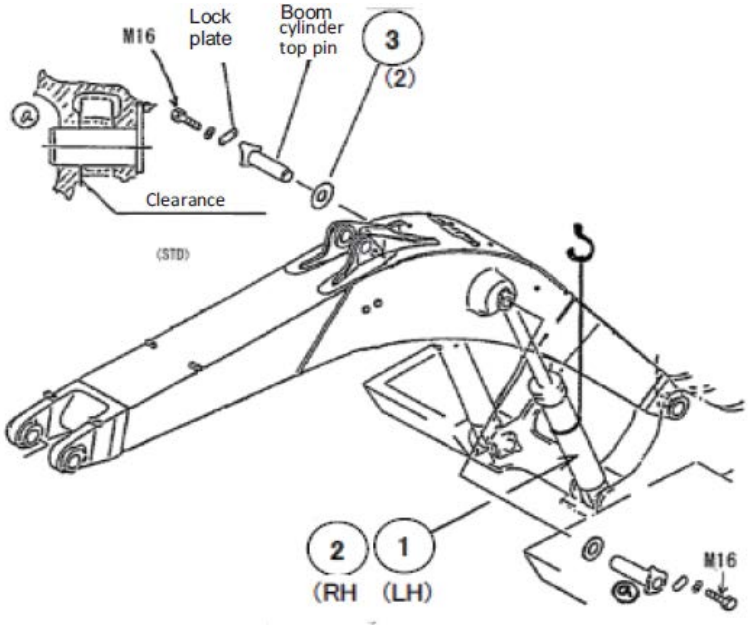
(1) Remove the lock plate fixed to the boom, and remove the boom cylinder top pin.

Boom cylinder top pin: 44 kg x 2 pcs.

(2) Start and run the engine at low idle.

(3) Sling the cylinder, push the rod slowly, set the pin holes, and check the clearance between cylinder boss end and boom boss end. Insert a proper number of shims and adjust the clearance to 2 to 3 mm, push in the pin, and install the lock plate.

Inside surface of pin hole: Apply lithium grease
Tightening torque of plate mounting bolt: 245 to 309 Nm {25 to 31.5 kgm}



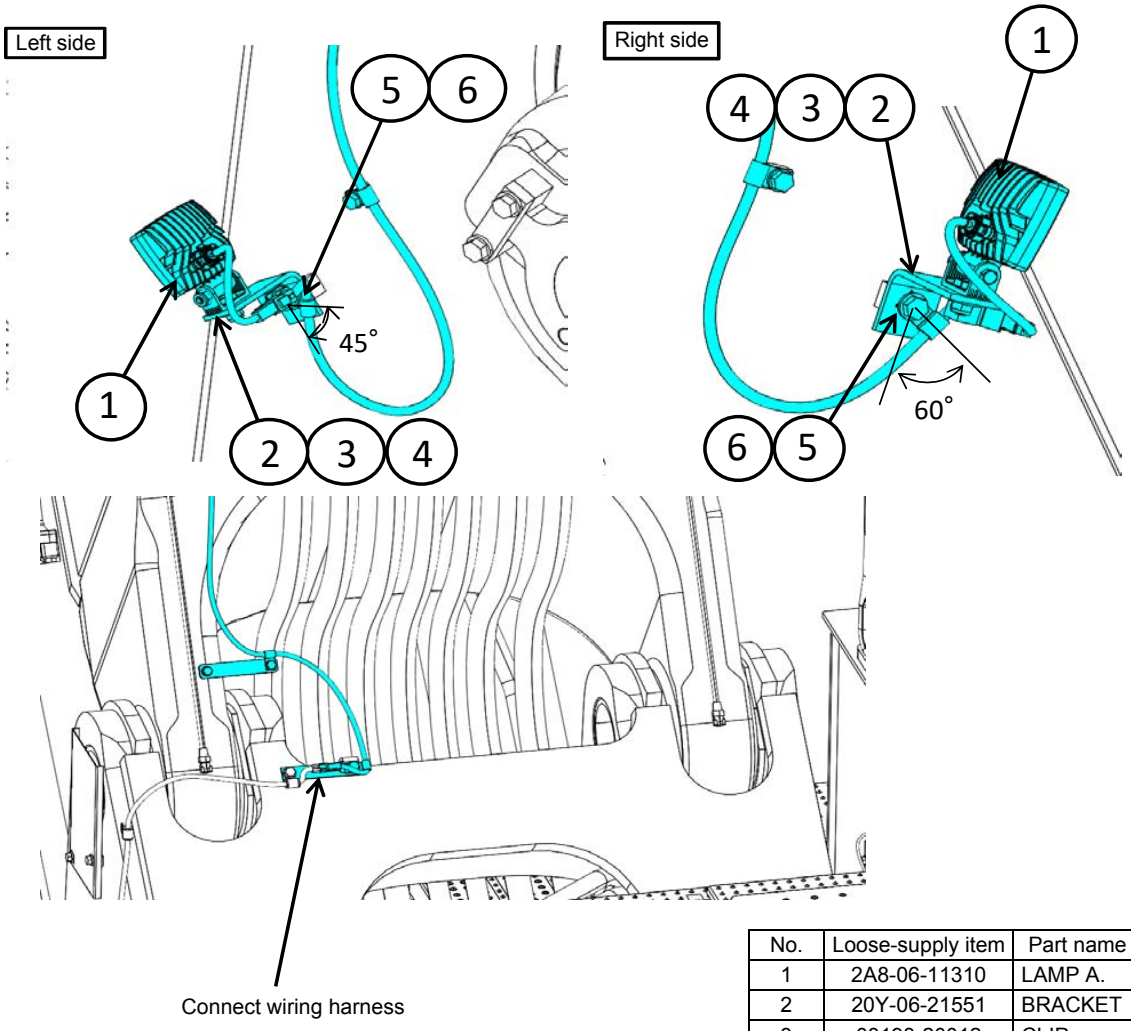
No.	Loose-supply item	Part name	Q'ty
1	707-H1-X5170	CYLINDER	1
2	707-H1-X5180	CYLINDER	1
3	21N-72-11230	SHIM	2
No.	Parts installed to boom	Part name	Q'ty
4	21N-72-11152	PIN	2
5	21N-70-11230	PLATE	2
6	01643-31645	WASHER	4
7	01010-81640	BOLT	4

Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
	25 wide x 3000 Nylon sling	2	25t crane	1
	Medium impact wrench	1		
	Socket 24 mm in width across flats	1		
	Sledge hammer	1		
	Other items			

Assembly procedure	
B-16	**Install work equipment lamps**

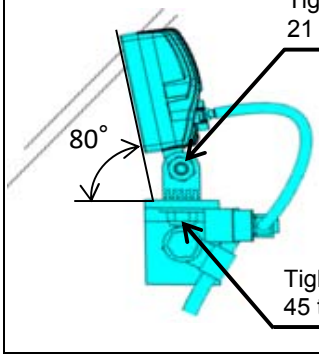
(1) Install the lamps to both sides of boom according to the figure below.

(2) Clamp the wiring to a point on the machine side, and connect it to the wiring on the machine side.



No.	Loose-supply item	Part name	Q'ty
1	2A8-06-11310	LAMP A.	2
2	20Y-06-21551	BRACKET	2
3	08193-20012	CLIP	2
4	01024-81230	BOLT	2
5	04434-51012	CLIP	2
6	01024-81220	BOLT	2

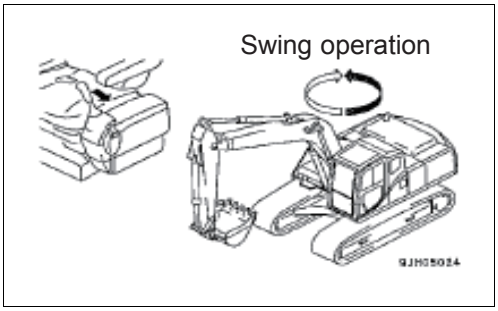
Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
Tightening torque: 21 to 35 Nm {2.2 to 3.6 kgm}	Small impact wrench	1		
	Socket 22 mm in width across flats	1		
	Socket 19 mm in width across flats	1		
	Socket 17 mm in width across flats	1		
Tightening torque: 45 to 65 Nm {4.6 to 6.6 kgm}	Other items			



Assembly procedure	
M-2	**Flush hydraulic circuit (2/2)**

(2) Flush swing circuit

Swing RIGHT
Swing LEFT
} 3 min. each

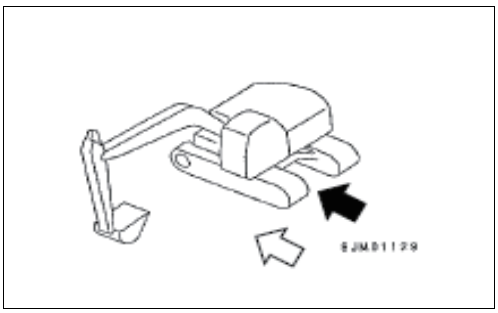


(3) Flush travel circuit

Push the ground with the work equipment and raise one side of the machine as shown at right.
Operate the travel lever as follows.

Travel RIGHT Forward
Reverse
} 3 min. each

Travel LEFT Forward
Reverse
} 3 min. each



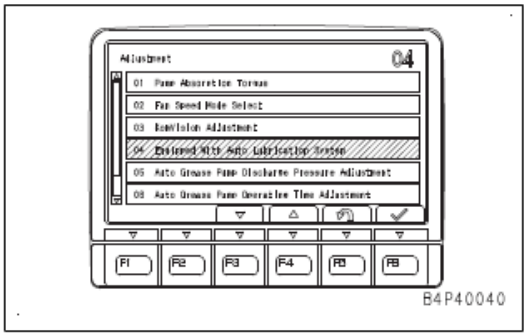
(4) Check

After flushing, replace the flushing kit with the standard kit according to “Replace return filter”.
At this time, check the dirt collected in the flushing element and see if it is problematic.
If the dirt seems to be problematic, consult your Komatsu distributor.

Precautions	Necessary tools		Necessary equipment	
	Name	Q’ty	Name	Q’ty
	Other items			

Setting of KomVision (Camera calibration) (7/12)

5. Select "KomVision Adjustment" with the function switches or numeral input switches on "Adjustment" screen.



B4P40040

REMARK

See "METHOD FOR OPERATING SERVICE MODE" in "SERVICE MODE" for selecting method.

6. Select "Camera Calibration" with the function switches on "KomVision Adjustment Menu" screen.

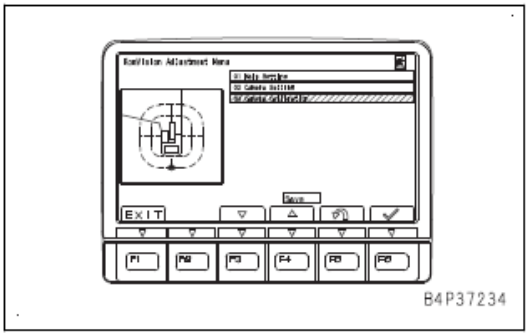
F1: The screen returns to "Service Menu" screen.

F3: Moves the selection downward.

F4: Moves the selection upward.

F5: Selection is canceled. The screen returns to "Adjustment" screen.

F6: Enters the selected item.



B4P37234

7. Select " 02 Position Calibration" with the function switches on "CAMERA CALIBRATION" screen.

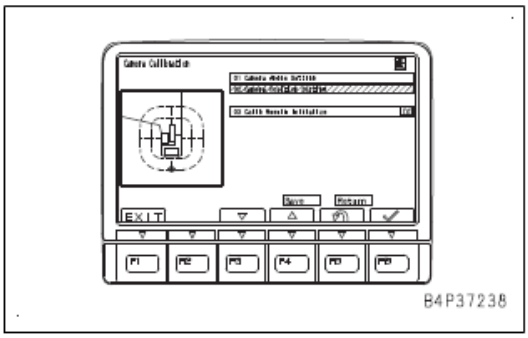
F1: The screen returns to "Service Menu" screen.

F3: Moves the selection downward.

F4: Moves the selection upward.

F5: Selection is canceled. The screen returns to "KomVision Adjustment Menu" screen.

F6: Enters the selected item.



B4P37238

8. Select the camera to be adjusted with the function switches on "Camera Selection (Position Calibration)" screen.

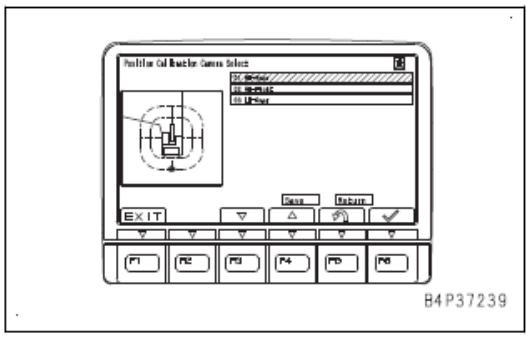
F1: The screen returns to "Service Menu" screen.

F3: Moves the selection downward.

F4: Moves the selection upward.

F5: Selection is canceled. The screen returns to "CAMERA CALIBRATION" screen.

F6: Enters the selected item.



B4P37239

REMARK

Table 2 describes the calibrations target of cameras. The calibration targets change depending on the selected camera on "Camera Selection (Position Calibration)" screen.

Table 2

Selected item	Standard camera	Camera to be adjusted
Rear R.H. camera	Rear camera	Rear R.H. camera
Front R.H. camera	Rear R.H. camera	Front R.H. camera
Rear L.H. camera	Rear camera	Rear L.H. camera

C. PROCEDURE FOR ASSEMBLING WORK EQUIPMENT OF LOADING SHOVEL

<Note> This manual describes only the assembly procedure for work equipment different from the backhoe specification model.
For the procedures for assembling the base machine, flushing the hydraulic circuit, bleeding air from the hydraulic circuit, adjusting the track link, and checking the oil, water, and fuel, see the backhoe specification model.

Assembly procedure	Installation of Boom and Arm Assembly
C-7	

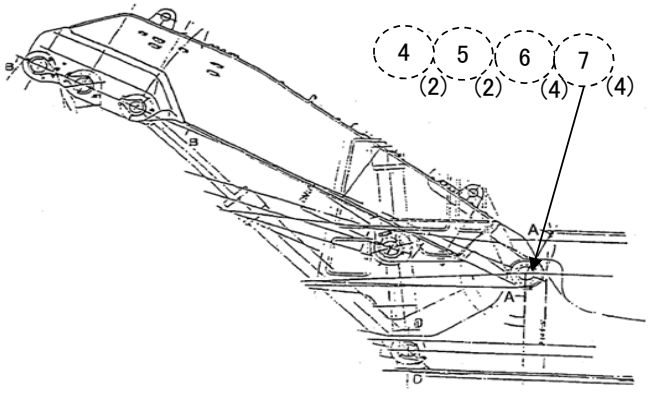
(1) Sling the work equipment assembly with a crane and align the boom foot pin holes.
Work equipment assembly: 13,470 kg

(2) Assemble seal (209-72-11311, 4 pieces) to boom foot.

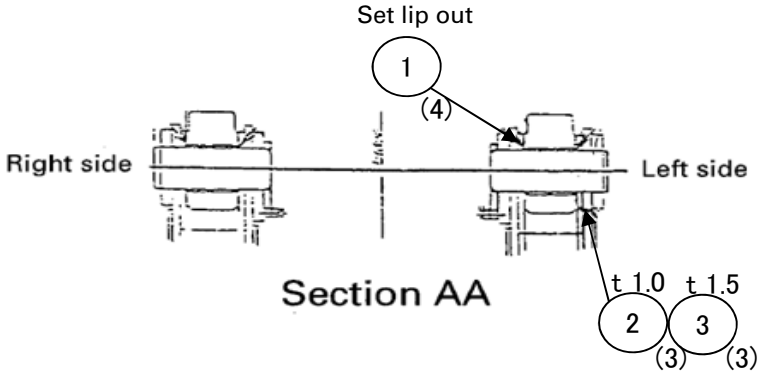
(3) Install the boom foot pin.

★ Push in the boom foot pin on either side until it is stopped, and then align the pin holes on the other side.
If the boom leans to the right or left at this time, balance it by using a jib crane.

★ Check the clearance at the boom foot pin on the outside of the chassis and decide the quantity of the adjustment shims to reduce the clearance below 1 mm.
Combine prepared adjustment shims
(21N-72-11220, t1.5, 3 pieces) and (21N-72-11210, t1.0, 3 pieces)
to obtain the necessary thickness.
(Adjust the shims at the 1 place on the left outside of the boom.)



(4) Fully push in the boom foot pins on both sudes and install the stopper plates.
Inside of pin hole: Apply lithium grease.
Stopper plate mounting bolt:
245 to 309 Nm {25 to 31.5 kgm}

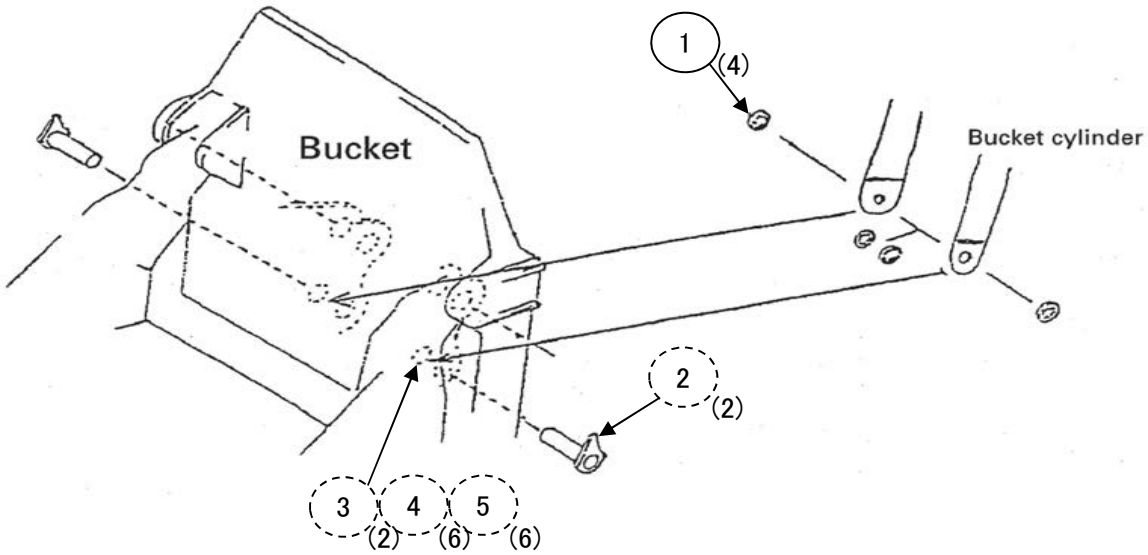


No.	Loose-supply item	Part name	Q'ty
1	209-72-11311	SEAL	4
2	21N-72-11210	SHIM	3
3	21N-72-11220	SHIM	3
No.	Item installed to chassis	Part name	Q'ty
4	21N-70-37210	PIN	2
5	21N-70-11230	PLATE	2
6	01010-81640	BOLT	4
7	01643-31645	WASHER	4

Precautions	Necessary tools		Necessary equipment	
1. Install the seals upright. 2. Insert the seals until they touch the bushing. 3. Do not hit each seal directly with a hammer, but drive them via a pad plate, etc. 4. Apply lithium grease to the inside walls of pin holes. 5. When inserting each pin, take care not to damage the seal (Securely alight the pin).	Name	Q'ty	Name	Q'ty
	Others			

Assembly procedure	
C-16	**Installation of Bucket Assembly (2/2)**

(5) Put 2 O-rings in the O-ring grooves of the bushings at each bucket cylinder bottom.



(6) Align the holes for the bucket-cylinder connecting pins.

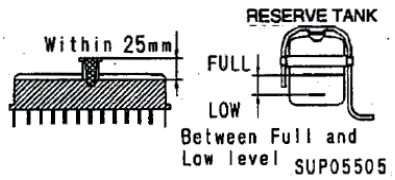
(7) Push in bucket-cylinder connecting pis and install them with holders, bolts and washers from the oppsite side.

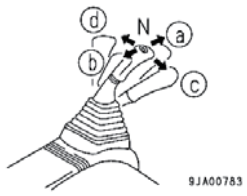
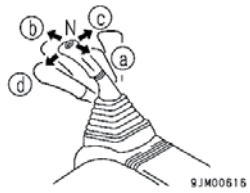
Holder mounting bolt: 245 to 309 Nm {25 to 31.5 kgm}

(Inside wall of pin hole: Apply lithium grease.)

No.	Loose-supply item	Part name	Q'ty
1	07000-12130	O-RING	4
No.	Item installed to bucket	Part name	Q'ty
2	21N-72-35261	PIN	2
3	21N-72-13130	HOLDER	2
4	01010-81645	BOLT	6
5	01643-31645	WASHER	6

Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
	Others			

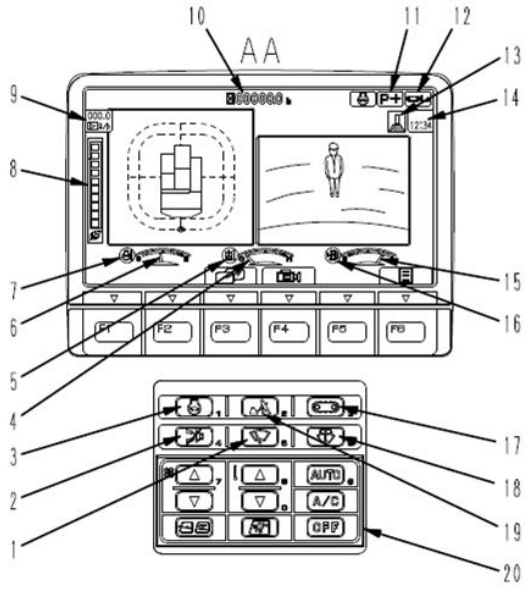
Category	Revision	Check item			Local assembly time		After hours of operation		Judgment standard
Checks before assembly		Oil and water levels		Actual measuremet					
		Cooling water	Soft water	[ ]					
		Anti-freeze (A, B, C, D, E)	Density of anti-freeze	[ ]					A : -50 to -40 °C D: -20 to -10 °C B : -40 to -30 °C E: -10 to 0 °C C : -30 to -20 °C (Not necessary in summer)
		Engine oil (For selection by atmospheric temperature, see operation manual.)	EO10W30-DH EO15W40-DH	[ ]					L to H$^{+5\ mm}$ (15 minutes after stopping engine)
		PTO oil	TO30	[ ]					L$^{+5\ mm}$ to H (15 minutes after stopping engine)
		Swing machinery gear case oil	TO30	[ ]					L$^{+5\ mm}$ to H$^{+10\ mm}$ (15 minutes after stopping engine)
		Final drive gear case oil Right	TO30	[ ]					Bottom edge of level plug : 0 to -10 mm
		Final drive gear case oil Left	TO30	[ ]					
		Hydraulic oil	HO56-HE	[ ]					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 [ ]							
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. 1mm (for locations, see assembly procedure manual)
		Improperly inserted wiring, unconnected wiring							There must be none.
		Loose, untightened ladder mounting bolts							There must be none.

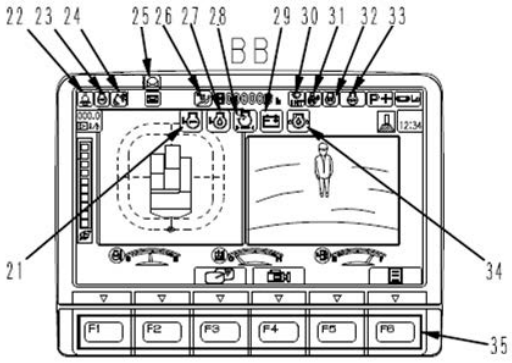
Category	Revision	Check item	Local assembly time	After hours of operation	Judgment standard
Check of switches, control levers		Operation of lock lever auto-lock cancel switch Lock lever auto-lock function does not work while switch is in UPPER position. When lock lever is canceled while control lever and pedal are operated, work equipment or machine moves.			When normal: Switch is in LOWER position. When switch is set in UPPER position, lock lever lock switch cancel lamp lights up.
		Operation of swing parking brake release switch While monitor is displaying “L03 Swing brake system error”, if switch is set in UPPER position, brake is released and machine can swing. However, swing brake is kept released.			When normal: Switch is in LOWER position. When switch is set in UPPER position, alarm buzzer sounds and swing lock symbol flashes.
		Operation of lower wiper switch (if equipped)			ON position: Lower wiper operates. OFF position: Lower wiper stops.
		Operation of travel lever			Forward: Lever is pushed forward. (Pedal is depressed forward) Reverse: Lever is pulled back. (Pedal is depressed back) N (Neutral): Machine stops.
		Operation of L.H. work equipment control lever (With auto-deceleration mechanism)			This lever is used to operate upper structure and arm. Arm operation / Swing operation (a) Push OUT / (c) Swing RIGHT (b) Pull IN / (d) Swing LEFT  N (Neutral): Upper structure and arm are held at current positions.
		Operation of R.H. work equipment control lever (With auto-deceleration mechanism)			This lever is used to operate boom and bucket. Boom operation / Bucket operation (a) Raise / (c) Push OUT (b) Lower / (d) Pull IN  N (Neutral): Boom and bucket are held at current positions.
		Operation of hydraulic stairway (if equipped)			Check that it moves up and down smoothly. When stairway moves down: Must not swing, with caution When stairway moves up: Must swing, without caution
		Check of failure record (Both electrical and mechanical systems)			Check that no abnormality is displayed, then delete failure record. Check again at end of inspection, then check that there is no failure record.
		Operation of revolving warning lamp (if equipped)			ON position: Revolving warning lamp operates.

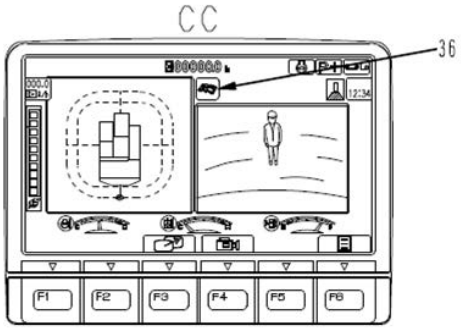
Note: If the operation or function is defective, measure as necessary. All judgment standard values for speeds are the values in P+ mode.

Category	Revision	Check item	Local assembly time		After hours of operation		Judgment standard
Main measurement items		**1. Engine speed:** Check in monitoring mode “01006”					
		Low idle [rpm]					850 – 950 rpm
		High idle (Operate lever a little) [rpm]					1950 – 2050 rpm
		High idle (Do not operate lever) [rpm]					1700 – 1800 rpm
		Speed at arm IN relief [rpm]					1780 – 1980 rpm
		2. Radiator fan speed Check in service mode “55” (Fan rotation 100% fixed mode)					
		Speed at engine rated speed [rpm]					1025 ± 15 rpm (Engine at full throttle at 50°C)
		3. Oil pressure measurement Check in monitoring mode Swing pump “01156”, F pump: “01100”, R pump: “01101”					
		Control valve main set pressure F pump (MPa {kg/cm²})					31.4 ± 1.0 MPa {320 ± 10 kg/cm²}
		Control valve main set pressure R pump (MPa {kg/cm²})					31.4 ± 1.0 MPa {320 ± 10 kg/cm²} — At engine high idle, boom RAISE, P+ mode and Heavy lift OFF, relief
		Control valve main set pressure (Increase of pressure) F pump (MPa {kg/cm²})					33.3 ± 1.0 MPa {340 ± 10 kg/cm²}
		Control valve main set pressure (Increase of pressure) R pump (MPa {kg/cm²})					33.3 ± 1.0 MPa {340 ± 10 kg/cm²} — At engine high idle, boom RAISE, P+ mode and Heavy lift ON, relief
		Control valve main set pressure Swing pump (MPa {kg/cm²})					29.4 ± 1.5 MPa {300 ± 15 kg/cm²} — At engine high idle, swing and P+ mode, relief
		Pilot relief valve set pressure (MPa {kg/cm²})					$3.14^{+0.5}_{0}$ MPa {32^{+5}_{0} kg/cm²} (At engine high idle, neutral)
		In neutral / When boom is raised (Heavy: OFF)					
		NC valve output pressure (at top surface of NC valve) No.1 front pump (MPa {kg/cm²}) (MPa {kg/cm²})					Max. 0.25 MPa {2.6 kg/cm²}: Neutral 1.13 ± 0.2 MPa {11.5 ± 2.0 kg/cm²}: Boom RAISE (heavy OFF)
		NC valve output pressure (at top surface of NC valve) No.1 rear pump (MPa {kg/cm²}) (MPa {kg/cm²})					Max. 0.25 MPa {2.6 kg/cm²}: Neutral 1.13 ± 0.2 MPa {11.5 ± 2.0 kg/cm²}: Boom RAISE (heavy OFF)
		Note: Measure the following J/S differential pressure only if the NC valve output pressure does not pass the test.					
		In neutral / When boom is raised (Heavy: OFF)					
		J/S differential pressure (differential pressure at input and output ports of jet sensor) No.1 pump (MPa {kg/cm²}) (MPa {kg/cm²})					1.76 ± 0.2 MPa {18± 2.0 kg/cm²}: : Neutral Max. 0.2 MPa {2.0 kg/cm²}: Boom RAISE (heavy OFF)
		J/S differential pressure (differential pressure at input and output ports of jet sensor) No.2 pump (MPa {kg/cm²}) (MPa {kg/cm²})					1.76 ± 0.2 MPa {18± 2.0 kg/cm²}: : Neutral Max.0.2 MPa {2.0 kg/cm²}: Boom RAISE (heavy OFF)

Category	Revision	Check item	Local assembly time	After hours of operation	Judgment 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 idle – high idle.			
		Operation of service meter			There should be no scratches or misting of the lens or variation in operation.



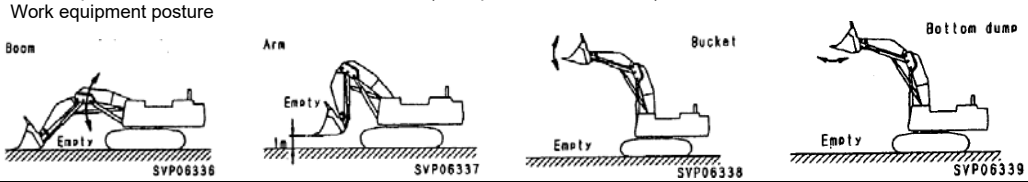




AA: Standard screen
BB: Check before starting screen
CC: Maintenance time warning screen

(1) Wiper switch
(2) Buzzer cancel switch
(3) Auto-deceleration switch
(4) Hydraulic oil temperature gauge
(5) Hydraulic oil temperature caution lamp
(6) Engine coolant temperature gauge
(7) Engine coolant temperature caution lamp
(8) ECO gauge
(9) Fuel consumption gauge
(10) Service meter
(11) Working mode display
(12) Travel speed display
(13) Camera image selection display
(14) Clock
(15) Fuel level gauge
(16) Fuel level caution lamp
(17) Travel speed selector switch
(18) Window washer switch
(19) Working mode selector switch
(20) Air conditioner control switch
(21) Radiator coolant level caution lamp
(22) Seatbelt caution lamp
(23) Engine stop pilot lamp
(24) Lock lever pilot lamp
(25) Message display
(26) Air conditioner pilot lamp
(27) Engine oil level caution lamp
(28) Air cleaner clogging caution lamp
(29) Charge caution lamp
(30) Wiper pilot lamp
(31) Swing lock pilot lamp
(32) Preheater pilot lamp
(33) Auto-deceleration and auto-low idle pilot lamp
(34) Engine oil pressure caution lamp
(35) Function switches (F1 to F6)
(36) Maintenance time caution lamp

Note: All judgment standard values for speeds are the values in P mode.

Category	Revision	Check item	Local assembly time		After hours of operation		Judgment standard
Work equipment performance		Work equipment operation running in: Engine high idling speed, (Note: Boom cylinder to ground level) Pressurized: each port relief 2 minutes, shock 20 times (except BOOM LOWER) Work equipment posture 					
		Work equipment speed (P+ mode) — Boom: RAISE sec [ ] LOWER sec [ ]					RAISE: 6.5 ± 0.7 sec. LOWER: 4.7 ± 0.5 sec.
		Arm: IN sec [ ] OUT sec [ ]					IN: 3.9 ± 0.4 sec. OUT: 2.7 ± 0.3 sec.
		Bucket: CURL sec [ ] DUMP sec [ ]					CURL: 3.9 ± 0.4 sec. DUMP: 3.3 ± 0.4 sec.
		Bottom dump: OPEN sec [ ] CLOSE sec [ ]					OPEN: 2.3 ± 0.3 sec. CLOSE: 3.0 ± 0.4sec.
		Work equipment time lag (Engine low idling) — Boom: LOWER sec [ ] Only when there is considered to be abnormality.					Max. 5 sec.
		Arm: IN sec [ ] Only when there is considered to be abnormality.					Max. 5 sec.
		Bucket: DUMP sec [ ] Only when there is considered to be abnormality.					Max. 2 sec
		Bottom: 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. (Power train temp.: Max. 120℃)
		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 extend position to ground level. (Arm at Max. reach)