

Field Assembly Instruction

HYDRAULIC
EXCAVATOR

PC600 -8E0 **PC600LC-8E0**
PC650 -8E0 **PC650LC-8E0**
PC700LC-8E0

SERIAL NUMBERS 65001 and up

ecot3

KOMATSU

FOREWORD

Since this machine is large in size, it is divided into some units to meet the transportation conditions and regulations applied to the transportation route when shipped from our factory.

This manual describes how to assemble the units into the complete machine in the field. We hope that this machine will display its quality and you will use it safely according to the operation manual.

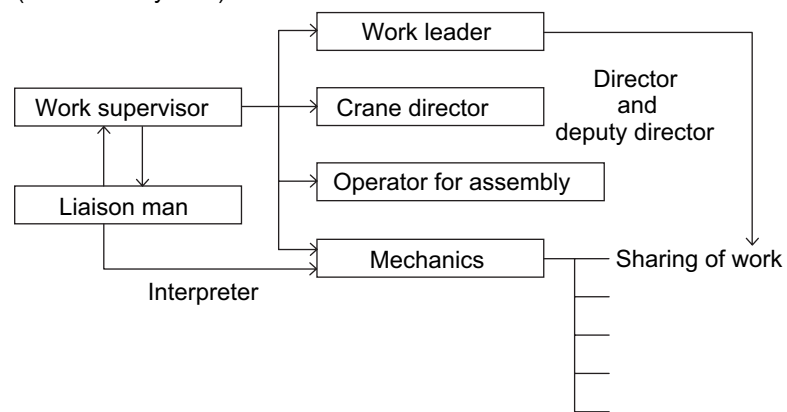
Many units are large in size and heavy in weight and may be handled in a dangerous place or posture and many workers may have to work together to sling them with cranes.

Accordingly, before starting the assembly work, the work supervisor is required to hold a safety meeting to oblige the workers to put on protective gear and appoint a work leader and a crane work signal man and allot roles to all the workers for safe work.

In particular, the above meeting is more important when worker of different languages and customs work together.

The following is a reference supervision system diagram.

(Instruction system)



When the work equipment is installed, the engine must be operated. Accordingly, before installing the work equipment, inspect and maintain the machine thoroughly.

Note that this manual does not describe the whole specification of the machine but describes only the basic specification.

If you have any question when dividing and transporting the machine by yourself in future, ask one of our distributors.

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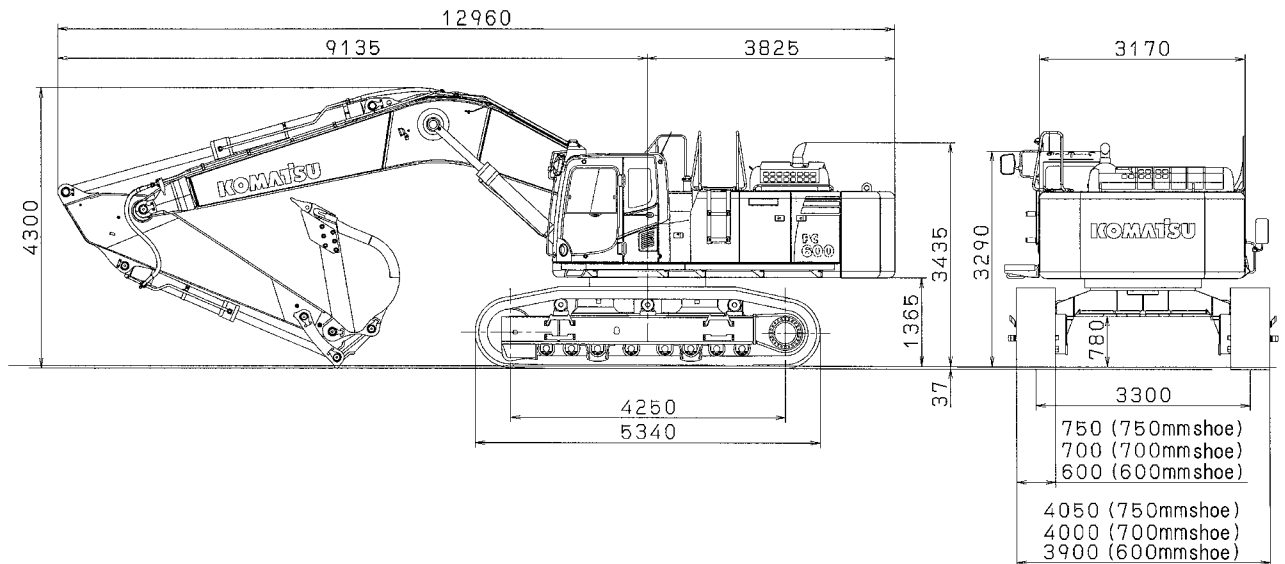
Field Assembly Inspection Report (Backhoe)

Field Assembly Inspection Report (Loading Shovel)

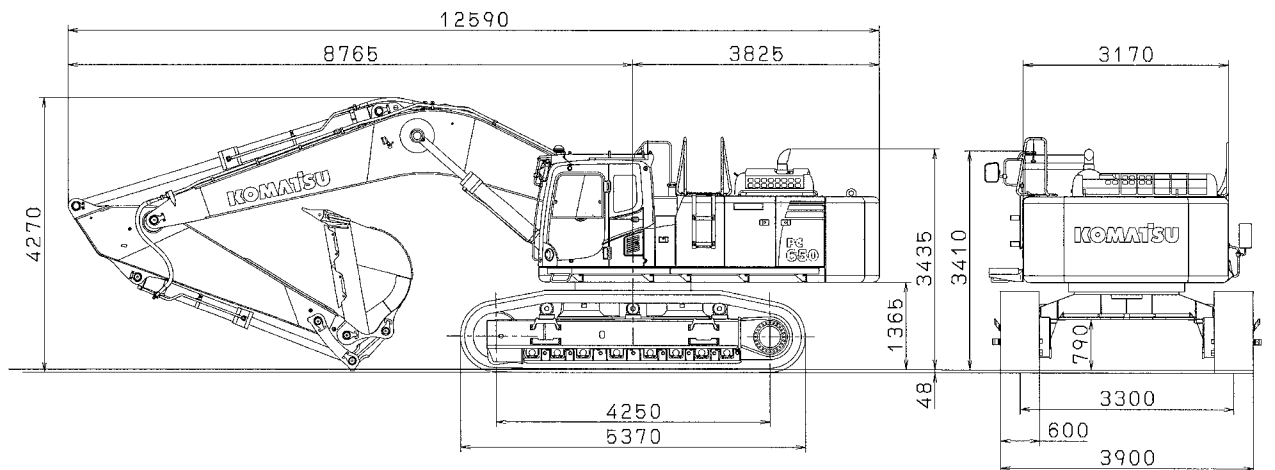
SPECIFICATIONS

Machine model		PC600-8E0	PC600LC-8E0	PC650-8E0	PC650LC-8E0	PC700LC-8E0
Weight of machine	kg	59,200	60,200	60,000	61,000	66,200
Bucket capacity	m ³	2.7		2.8		
Engine model	—	KOMATSU SAA6D140E-5				
Flywheel horsepower	kW/rpm {HP/rpm}	323/1,800 {439/1,800}				
Min. ground clearance	mm	780				830
Travel speed (Low/High)	km/h	3.0/4.9				2.8/4.6
Swing speed	rpm	8.3				

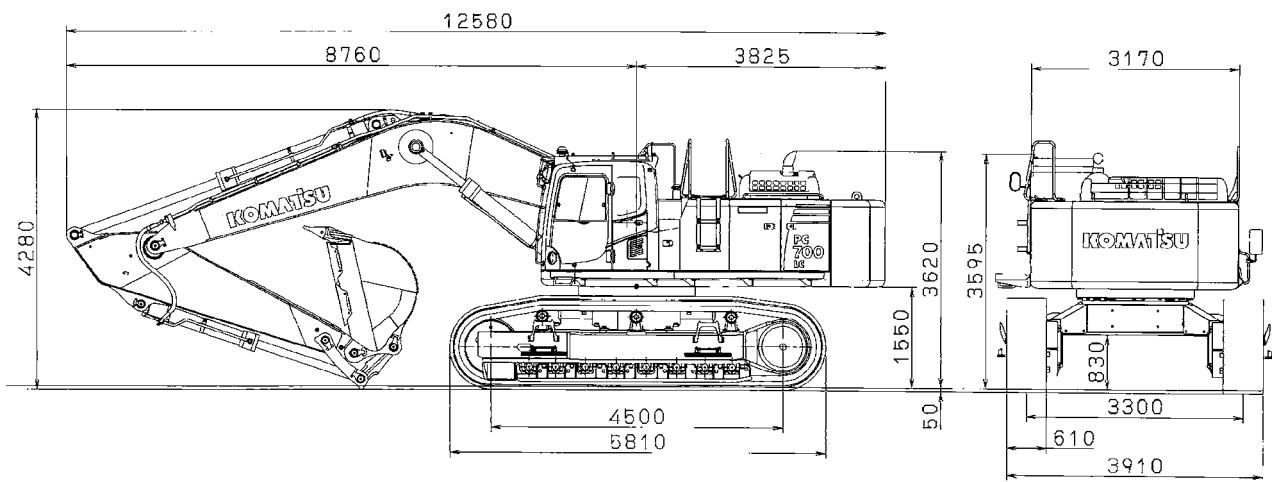
PC600-8E0



PC650-8E0



PC700LC-8E0



PRECAUTIONS FOR FIELD ASSEMBLY

1. Selection of work place

- 1) When selecting a work place, consider the following.
 - Is the work place sufficiently wide for loading and unloading the machine? (See the kit layout drawing.)
 - Is the ground sufficiently hard? (The machine and crane truck must not sink into the ground.)
 - Is the ground flat? (The ground surface must not be uneven or sloping.)
 - Is the road to inlet/outlet of the work place sufficient for turning the trailer and crane truck?
- 2) Take care extremely that dirt or water will not enter the hydraulic circuit while it is assembled.
- 3) Avoid working outdoors while strong wind is blowing or it is raining.
- 4) Take measures to protect the machine from sand, dirt and rainwater while the work is stopped.

2. How to do work

The work supervisor or the work leader should not do the work while reading this manual but should read and understand this manual thoroughly and then start the work.

In particular, write the "Precautions" for each work process in a sheet to explain or stick that sheet to the work place so that all the workers will observe the precautions.

3. Preparation and check of protective gear, slings and tools

The work supervisor or the work leader must perform the following checks about protective gear, slings and tools.

- 1) Are all the workers wearing helmets and other protective gear which they are obliged to wear? If special protective gear is necessary, check that it is prepared and can be used without problem.
- 2) Are all the slings and tools prepared? Check in advance that they are ready to be used without problem. In particular, check wooden blocks for internal decay and cracking.

4. Check during actual work

The work supervisor or the work leader must check the following items constantly and make all the workers observe them.

- 1) Are the parking brakes of the trailer and crane truck applied securely and are their wheels locked with chocks during work? Are outriggers, if installed, used securely?
- 2) Are the temperature and pressure of the engine, hydraulic oil, coolant, etc. lowered sufficiently during work?
- 3) Is horn or another signal is made to warn around when the engine is started? In addition, is it checked that work equipment control lever and other control levers are in neutral and the fuel control dial (or fuel control lever) is in the low idle position?
- 4) Is the balance of the slung item checked extremely during sling work with the crane?
- 5) Is entry prohibition for outsiders to the work place observed?

5. The work supervisor or the work leader is required to hold a meeting with all the workers at the beginning of every morning and explain the work plan of the day to them and give them instructions to observe the safe work.

DISPOSAL OF REMOVED PARTS

As described in "FOREWORD", when this machine is transported, it is divided into some units such as the body, undercarriage, cab, work equipment, etc. according to the transportation measure, regulations, etc.



Accordingly, the hydraulic pipings and hydraulic hoses to connect the units, oil inlets and outlets of the hydraulic devices, and parts which must not be damaged are plugged or covered to prevent oil leakage, entry of dirt and dust, and damage during transportation.

In addition, fixing jigs are used to prevent a trouble caused by a fall or a shake during transportation and to facilitate loading, unloading and crane work.

The above plugs, jigs, etc. are removed when the machine is assembled and become unnecessary after completion of the machine. Since they are useful when the machine needs to be transported in future, however, we recommend you to keep them as long as possible.

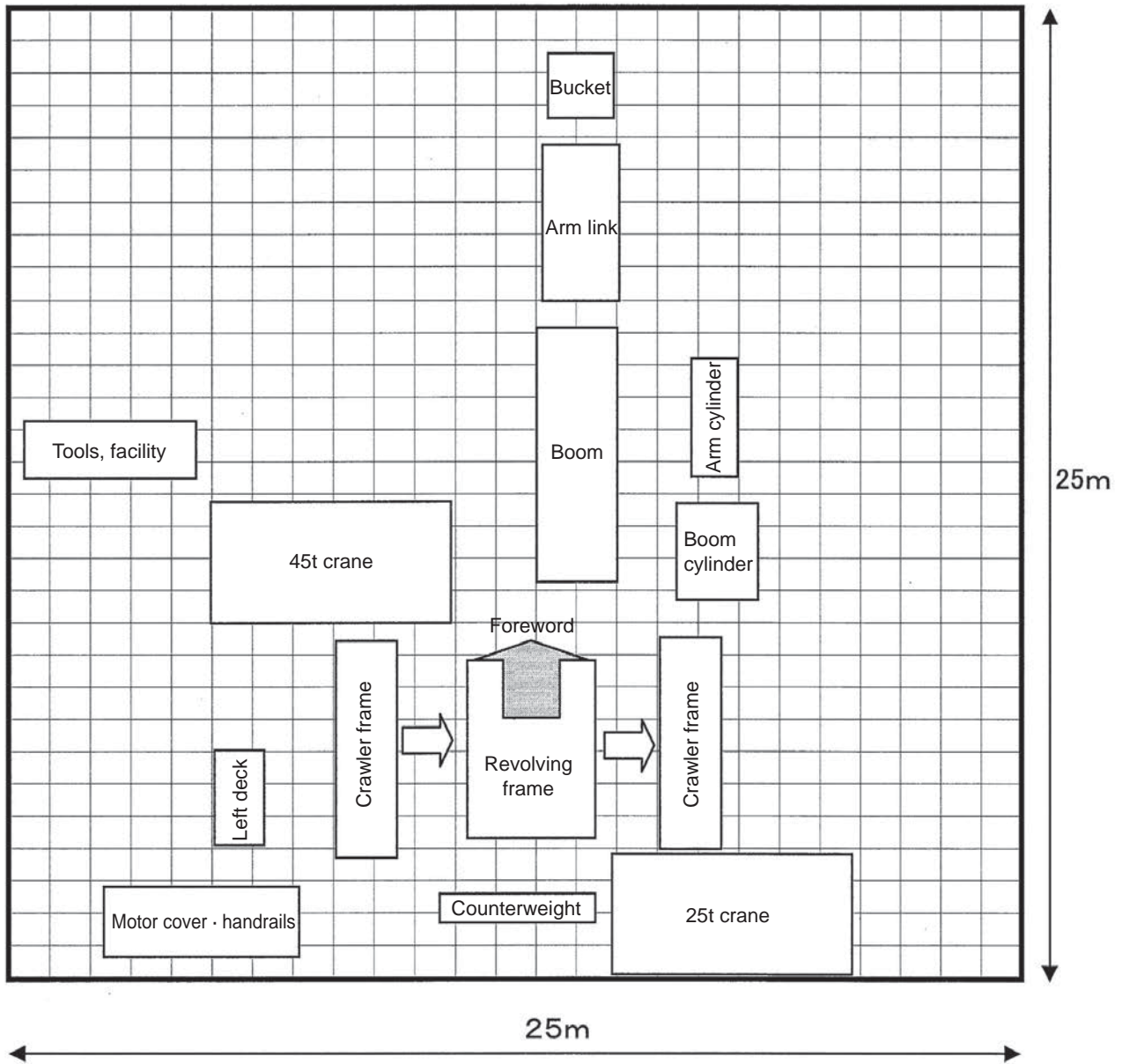
ASSEMBLING PROCEDURES, APPLICABLE EQUIPMENT AND SCHEDULE

4 Divisions

Days			
<p>Assembly unit</p> <p>Base machine</p> <p>① Left track frame ② Right track frame ③ Axle assembly</p>	<p>④ Upper structure</p>	<p>⑤ Counterweight ⑥ Platform group • Inspection of oil level and coolant level</p>	<p>Backhoe</p> <p>Loading shovel-type excavator</p> <p>⑦ Assembling of work equipment</p> <p>• Inspection of oil level and coolant level • Air bleeding from work equipment cylinder • Flushing of hydraulic circuit • Adjustment of track tension • Performance test</p>
<p>Crane</p>	<p>(Two) 45t 25t x 2</p>		
<p>Air compressor</p>	<p>0.49 – 0.69 MPa (5 – 7 kg/cm²) 15 m³/min</p>		
<p>Worker</p>	<p>Leader + 3 mechanics</p>		
	<p>Start of assembling • Meeting with all workers</p>	<p>Completion of Installation of unit assembly to body</p>	<p>Completion of body assembling • Completion of general assembling</p>

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 Assembly".

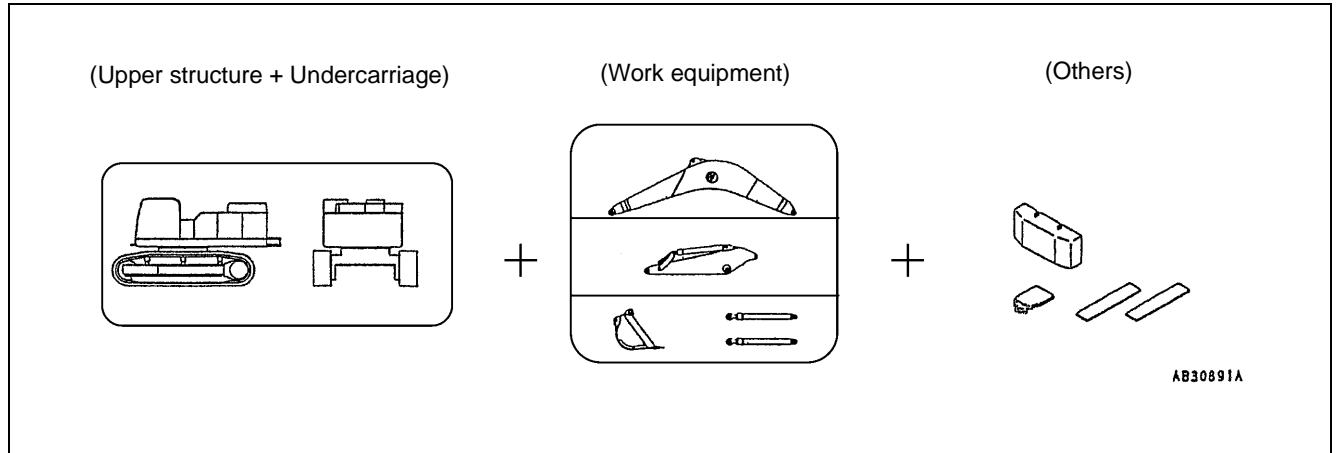


TRANSPORTATION

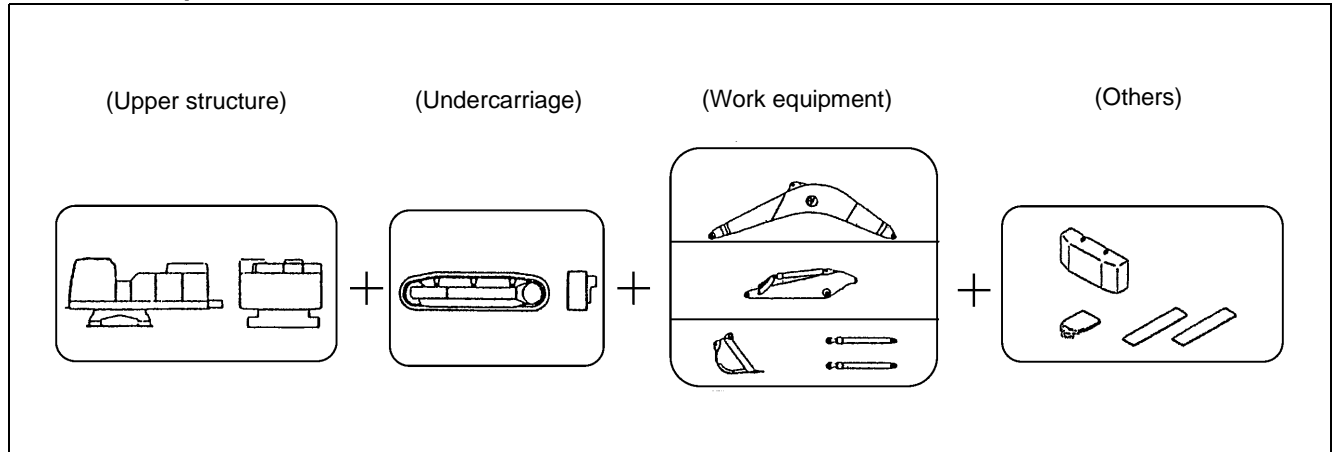
Packing Style for Transportation

These machines can be divided into three or four kits for transportation. Please ask us or our service shop for transportation.

■ 3-kit Transportation



■ 4-kit Transportation

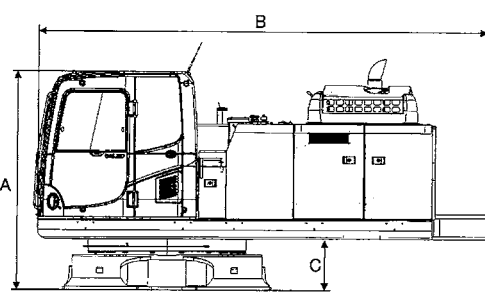


■ Packing Style of Each Kit (Sizes in drawing are given in millimeters.)

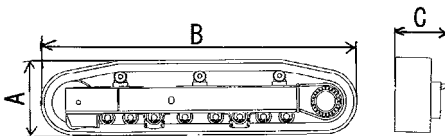
- Upper structure + Undercarriage

Model	PC600-8E0	PC600LC-8E0	PC650-8E0	PC650LC-8E0	PC700LC-8E0
A (mm)	6,270	6,440	6,280	6,450	6,490
B (mm)	3,330	3,330	3,460	3,460	3,665
Shoe width (mm)	600	600	600	600	610
Overall width (mm)	3,190	3,190	3,190	3,190	3,485
Weight (kg)	34,700	35,700	35,000	36,000	40,500

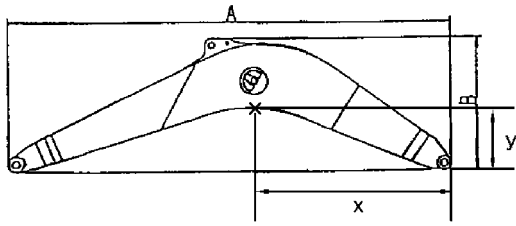
• Upper structure

	Model	PC600-8E0	PC600LC-8E0	PC650-8E0	PC650LC-8E0	PC700LC-8E0
	Overall width (mm)	3,170	3,170	3,170	3,170	3,170
	Weight (kg)	17,200	17,400	17,300	17,400	17,500
	A (mm)	2,510	2,510	2,630	2,630	2,765
	B (mm)	5,064	5,064	5,064	5,064	5,064
	C (mm)	585	593	585	593	710

• Undercarriage

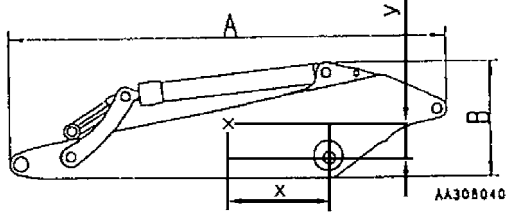
	Model	PC600-8E0	PC600LC-8E0	PC650-8E0	PC650LC-8E0	PC700LC-8E0
	Quantity	2	2	2	2	2
	A (mm)	1,260	1,260	1,200	1,280	1,440
	B (mm)	5,340	5,690	5,360	5,710	5,810
	C (mm)	875	875	875	875	980
	Weight (kg)	16,300 (8,150 × 2)	17,300 (8,650 × 2)	16,600 (8,300 × 2)	17,500 (8,750 × 2)	22,000 (11,000 × 2)

• Work equipment
(1) Boom

	Type	Civil engineering boom	Quarry boom	SE boom
	A (mm)	7,930	7,550	6,870
	B (mm)	2,010	2,010	2,090
	X (mm)	3,780	3,630	3,280
	Y (mm)	880	870	920
	Overall width (mm)	1,050	1,050	1,050
	Weight (kg)	4,870	4,710	4,810

Position of center of gravity		
	7.6 m	7.3 m
x (mm)	3,590	3,420
y (mm)	680	710

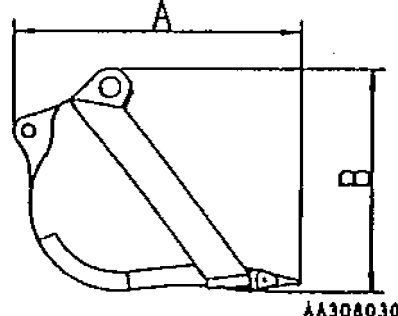
(2) Arm



x: 880 mm
y: 220 mm

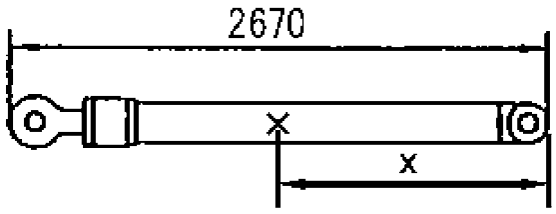
Type	Civil engineering arm			Quarry arm	SE arm
	(3.5 m)	(4.3 m)	(5.2 m)	(3.5 m)	(2.9 m)
A (mm)	4,870	5,650	6,580	4,870	4,230
B (mm)	1,210	1,220	1,340	1,240	1,490
X (mm)	940	1,190	1,590	940	630
Y (mm)	250	260	260	250	280
Overall width (mm)	460	460	460	460	460
Weight (kg)	3,740	3,740	4,160	3,330	3,530

(3) Bucket



Model	PC600-8E0 PC600LC-8E0	PC650-8E0 PC650LC-8E0 PC700LC-8E0
A (mm)	2,150	2,150
B (mm)	1,780	1,780
Overall width (mm)	1,780	1,920
Weight (kg)	2,430	3,100

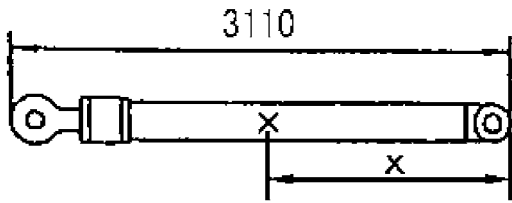
(4) Boom cylinder (for all models)



Weight: 1,000 kg
(500 kg x 2 pcs)

X: 1,160 mm

(5) Arm cylinder

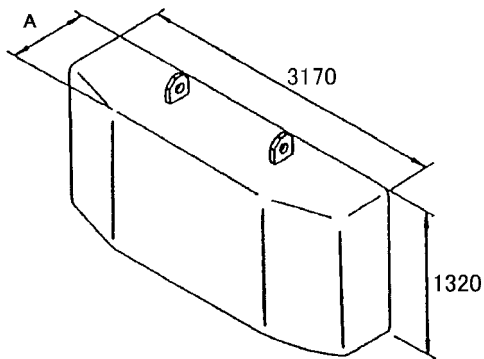


Weight: 727 kg

X: 1,400 mm

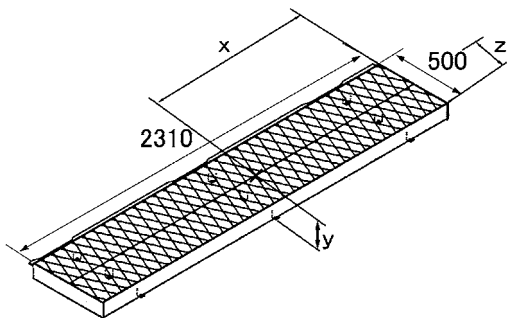
• **Others**

(1) Counterweight



	Counterweight	With counterweight remover
Model	PC600-8E0 PC600LC-8E0 PC650-8E0 PC650LC-8E0	
	PC700LC-8E0	-
A (mm)	830	860
Weight (kg)	10,750	12,204

(2) Catwalk (1) (for PC600 and PC650)



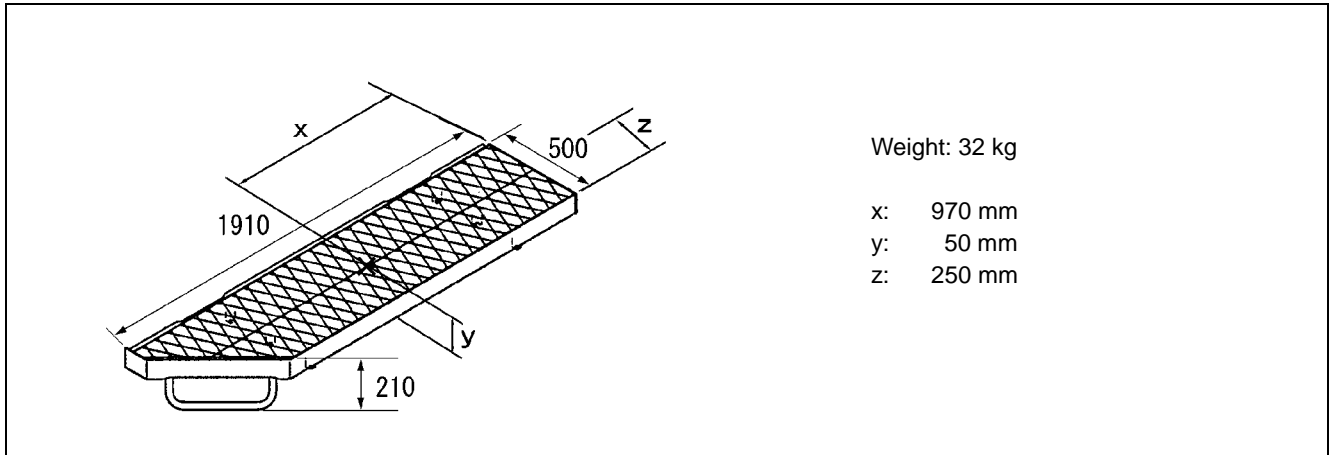
Weight: 37 kg

x: 1,150 mm

y: 60 mm

z: 240 mm

(3) Catwalk (2) (for PC600 and PC650)



LIST OF TOOLS FOR FIELD ASSEMBLING

No.		Tool names	Specifications	Q'ty	Remarks
1	Equipment	Engine compressor	Komatsu, 0.69 MPa {7.0kg/cm ² } Class	1	
2		Crane truck	441 kN {45 ton}	1	
			245 kN {25 ton}	2	
3		Grease pump	Air type	1	Work equipment lubrication
4		Stepladder	5 -stepped- 1500 mm	2	
5	Tool	Impact wrench	KW10P (for M10)	1	
6			KW12PI (For M12)	1	
7			KW20P (For M16)	1	
8			KW45FS (Spline)	1	For counterweight
9		Socket for KW45FS	Spline x 65 mm	1	For counterweight
10		Air hose	50 m	1	
11		16-time wrench	4413 Nm {450 kgm}	1	For counterweight
12		Socket for 16-time wrench	□38.1 x 65 mm	1	For counterweight
13			□38.1 x 55 mm	1	For track frame
14			□38.1 x 50 mm	1	For track frame
15		4-time wrench	25.4, 19	1	16-time wrench available
16		Socket for 4-time wrench	□25.4 x 50 mm	1	16-time wrench available
17			□25.4 x 55 mm	1	16-time wrench available
18		Torque wrench	412 Nm {42 kgm} – □25.4 mm	1	For 16-time wrench
19			834 Nm {85 kgm} – □25.4 mm	1	For 4-time wrench
20			4118 Nm {420 kgm} – □38.1 mm	1	For counterweight and track frame
21		Standard tool	Socket, spanner, wrench	2 sets	
22		Sledge hammer	10 P	1	
23		Bar	1 m	2	
24		Hydraulic jack	490 kN {50 ton} (stroke 170)	2	Revolving frame pedestal
25	196 kN {20 ton}		1	When tightening track frame connecting bolts.	
26	Waste oil pan	Large, small	2 each	When connecting travel and work equipment piping	
27	Wooden block	300 x 400 mm	4	Revolving frame pedestal	
28	Sling jig	Wire	ø10 x 3 m	2	For catwalk
29			ø20 x 5 m	2	For boom, arm and bucket
30			ø32 x 5 m	4	For revolving frame and track frame
31			ø30 x 5 m	2	For counterweight
32		Shackle	SD30	3	
33			SC18	4	
34		Nylon sling	50 mm wide x 3 m	2	For boom cylinder and arm cylinder
35		Lever block	14.7 – 29.4 kN {1.5 – 3 ton}	2	
36		Eyebolt	M12	2	
37	Lubricants	Detergent liquid	Brake cleaner	10	
38		Hydraulic oil	EO-10	300 ℓ	
39		Grease	G2-LI	20 kg	Work equipment lubrication
40		Repair paint	Natural yellow	5	
41			Black gray	5	
42	Waste cloth	Bundle	20 kg	For cleaning	

TIGHTENING TORQUE

1. Tightening torque for bolts

Tightening torque for bolts is indicated in the text as shown below. Tighten each bolt to the specified torque.

Part No. of bolt	□□□□□-□□□□□
Part No. of washer	△△△△△-△△△△△
Bolt specification	Thread size (Diameter, pitch, length)
Tool (Socket)	Applicable socket size
Tightening torque	* * * Nm {○ ○ ○ kgm}

If tightening torque for a bolt is not specified in the text, tighten it according to Table 1.

Remarks

- The thread diameter is the nominal diameter. For example, 16 mm is expressed as M16 and 20 mm is expressed as M20.
The pitch in Table 1 is the distance that the bolt advances every turn in the axial direction (Unit: mm).
- The bolt length is dimension (c) in Fig. 1.
- The applicable socket size is expressed as 24 mm, 30 mm, etc. Since 24 mm, 30 mm, etc. correspond to dimension (b) in Fig. 1, an applicable socket can be selected from Table 1, too.
- Tightening torque is expressed as ○○○ – ◎◎◎ or ○○○ ± ▽▽. If the target tightening torque is set, expression of ○○○ ± ▽▽ is applied.

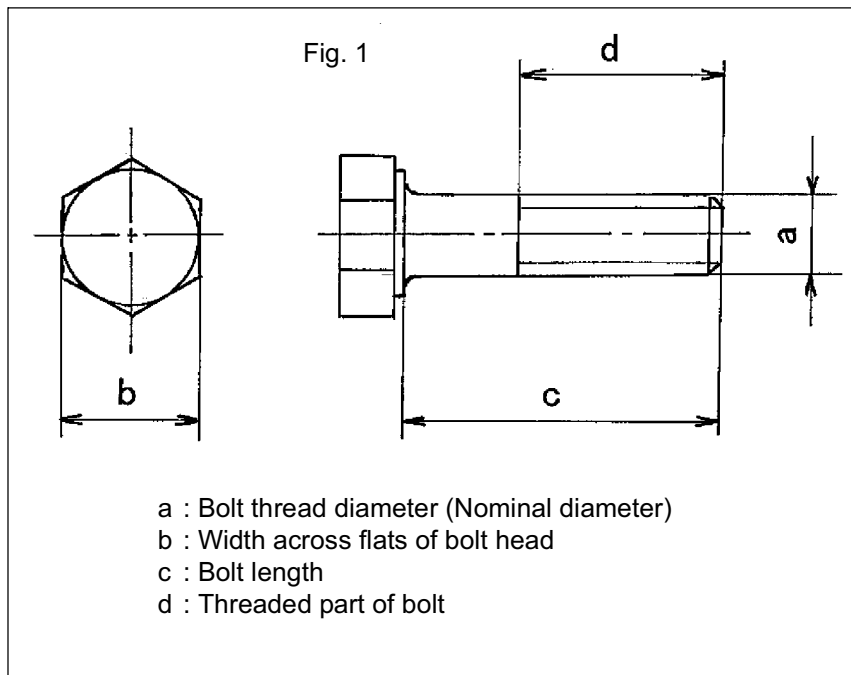


Table 1 Tightening torque for bolts not specified in text

Unit: Nm {kgm}

Nominal size of thread x pitch a (mm)	Width across flats (= Socket size) b (mm)	Tightening torque	
		Unit: Nm	Unit: {kgm}
6 x 1	10	12 {1.2}	8.8 – 14.7 {0.9 – 1.5}
8 x 1.25	13	25 {2.5}	14.7 – 34 {1.5 – 3.5}
10 x 1.5	17	54 {5.5}	34 – 74 {3.5 – 7.5}
12 x 1.75	19	89 {9}	54 – 123 {5.5 – 12.5}
14 x 2	22	137 {14}	84 – 196 {8.5 – 20}
16 x 2	24	230 {23.5}	147 – 309 {15 – 31.5}
18 x 2.5	27	315 {32}	201 – 427 {20.5 – 43.5}
20 x 2.5	30	460 {47}	319 – 608 {32.5 – 62}
22 x 2.5	32	650 {66.5}	471 – 829 {48 – 84.5}
24 x 3	36	810 {82.5}	588 – 1,030 {60 – 105}
27 x 3	41	1,180 {120}	883 – 1,470 {90 – 150}
30 x 3	46	1,520 {155}	1,130 – 1,910 {115 – 195}
33 x 3	50	1,960 {200}	1,470 – 2,450 {150 – 250}
36 x 3	55	2,450 {250}	1,860 – 3,040 {190 – 310}
39 x 3	60	2,940 {300}	2,260 – 3,630 {230 – 370}

★ For symbols “a” and “b” in the table, see Fig. 1.

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}

Nominal size (in)	Material of female thread		
	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}

Nominal size (in)	Material of female thread		
	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}