

FIELD ASSEMBLY INSTRUCTION

PC1600-1

HYDRAULIC EXCAVATOR

MACHINE MODEL

PC1600-1

SERIAL NUMBER

10001 and up

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A. GENERAL

A-1: POINTS REGARDING LOCAL ASSEMBLY

1. Selection of work place

- 1) The work place should be suitable for the machine. The following points should be considered.
 - Area
 - Hardness of ground surface
 - Levelness
 - Entry/exit roads, turning space
- 2) Assembly work on the hydraulic circuit must not be carried out in any place where dust or rain can get into the circuit during the operation.
- 3) If the work is carried out outside, avoid places where there is rain or strong wind.

2. Preparation and checks of lifting tools and jigs

- 1) Check each lifting tool and jig thoroughly.
In particular, check stands and blocks made of wood to check that the inside is not rotted or cracked.

3. Checks during actual operation

- 1) Apply the parking brake of the trailer and crane securely, then put blocks under the wheels.
- 2) Lower the pressure and temperature of the engine, hydraulic oil, and cooling water before starting work.
- 3) When starting the engine, always give an agreed signal, such as blowing the horn, to warn the people around the machine. Check also that the work equipment levers and travel levers are in neutral, and that the fuel control lever is at the low idling position.
- 4) Be careful to maintain the balance of parts being lifted by the crane.
- 5) Do not allow unauthorized persons into the working area.

4. Before starting the operation, read all the instructions, and, in particular, be sure that you understand the caution items.

5. The leader should write out the caution items for each work process, and should explain them to ensure that the workers understand them.

6. Hold a meeting every morning before starting work to confirm the operating plan and operating safety.

A-2: PRECAUTIONS WHEN ASSEMBLING, TIGHTENING TORQUE OF BOLTS, SCREWS AND TAPER SEAL HOLES

Remove the various blind plugs and ligs used during transportation. Remove the blind jigs (flange, head, cap, O-ring) used for the work equipment piping and undercarriage piping, the blind plugs used for the lubrication piping, the jigs used to hold the cylinders, and the blind plugs used in the tap holes where parts have been removed for transportation. Be careful not to damage these parts, and keep them in a safe place so that they can be used for future transportation.

For bolts where the tightening torque is not separately specified in the maintenance standards, use the tightening torques given in the table below.

1. Tightening torques for bolts

1) Use the figures in Table 1 when using an impact wrench or spanner.

The tightening torque for bolts is basically that given in Table 1, so for bolts which use this torque, no separate instruction is given.

Table 1 Unit: kgm

Nominal of diameter thread (mm)	Material	S43C, SCM 3H, equivalent, or higher	
		Range	Target
6		0.9 – 1.5	1.2
8		1.5 – 3.5	2.5
10		3.5 – 7.5	5.5
12		5.5 – 12.5	9.0
14		8.5 – 20.0	14.0
16		15.0 – 31.5	23.5
18		20.5 – 43.5	32.0
20		32.5 – 62.0	47.0
22		18.0 – 84.5	66.5
24		60.0 – 105	82.5
27		90.0 – 150	120
30		115 – 195	155
33		150 – 250	200
36		190 – 310	250
39		230 – 370	300

2) When using a torque wrench, use the figures in Table 2.

These torques are used when a particularly small range of tightening torque is needed.

Table 2

Unit: kgm

Nominal of diameter thread (mm)	Material	S43C, SCM 3H, equivalent, or higher		
		Range	Target	Reference
				Tension load (kg)
6		1.2 – 1.5	1.35	1150
8		2.8 – 3.5	3.2	2175
10		6 – 7.5	6.7	3355
12		10 – 12.5	11.5	4865
14		16 – 20.0	18	6715
16		25 – 31.5	28.5	9350
18		35 – 43.5	39	11200
20		50 – 62.0	56	14800
22		67.5 – 84.5	76	18000
24		84 – 105	94.5	20600
27		120 – 150	135	26000
30		155 – 195	175	30100
33		200 – 250	225	35800
36		250 – 310	280	40700
39		295 – 370	335	45200

2. Tightening torque for pipe threads

Applicable range:

The tightening torques for pipe threads of nominal size PT1/8 – PT1, PS1/8 – PS1 are according to this standard.

However, this table does not apply if torque is separately specified.

Tightening torque:

1) If the material of the male screw is SS41.FC.SGP, the tightening torque is as in Table 1.

Table 1

Unit: kgm

Nominal	Material of female thread	Steel	Cast iron	Light alloy
		1/8	0.4 – 0.7	0.3 – 0.6
1/4	0.6 – 1.2	0.5 – 1.0	0.2 – 0.8	
3/8	1.7 – 2.7	1.4 – 2.2	1.0 – 1.7	
1/2	3.3 – 5.4	2.7 – 4.4	2.0 – 3.3	
3/4	5.2 – 8.7	4.3 – 7.2	3.2 – 5.4	
1	8.8 – 17.7	7.4 – 14.9	5.6 – 11.4	

2) If the material of the male screw is S43C, the tightening torque is as in Table 2.

Table 2 Unit: kgm

Material of female thread Nominal	Steel	Cast iron	Light alloy
1/8	1.2 – 2.5	1.0 – 2.0	0.7 – 1.5
1/4	2.0 – 4.5	1.7 – 3.8	1.3 – 2.9
3/8	4.5 – 9.5	3.8 – 7.9	2.8 – 6.0
1/2	10.0 – 19.2	8.5 – 16.1	6.2 – 11.8
3/4	17.4 – 32.3	14.4 – 25.2	10.8 – 19.0
1	37.5 – 62.5	31.6 – 52.5	24.0 – 40.0

3) Tightening torque for rubber hoses with taper seal

Unit: kgm (Nm)

Index No.	02	03	04	05	06	10	12	14
Suitable tightening torque	25±0.5 (24.5±4.9)	5±2 (49±19.6)	8±2 (78.5±19.6)	14±3 (137.3±29.4)	18±5 (176.5±49)	20±5 (196.1±49)	25±5 (245.2±49)	30±5 (294.2±39)

4) Be careful to assemble the rubber hoses without twisting.

A-3: SEPARATE UNITS (transportation kits)

3-1. BACKHOE Short boom, short arm; low cab

① **Boom ass'y**

Width: 2,050mm
Weight: 16,700kg

Boom cylinder

Width: 420mm
Weight: 1,900kg x 2

② **Arm ass'y.**

Width: 1,300mm (including bucket cylinder, link, pin, piping)
Weight: 1,900kg x 2

Arm cylinder

Width: 350mm
Weight: 1,250kg x 2

③ **Bucket**

Width: 2,300mm
Weight: 7,880kg (9.0m³ bucket)

④ **Upper structure ass'y**

Width: 3,500mm
Weight: 34,000kg (including right floor frame)

⑤ **Center frame ass'y**

Width: 3,500mm (including swing circle, swivel joint, piping)
Weight: 15,300kg

⑥⑦ **Track frame ass'y**

Width: 1,930mm (without ladder: 1830 mm)
Weight: 24,200kg x 2 (left and right, one each)
(including shoes, rollers, cushion, piping, ladders, final drive, motor, motor guard, motor cover)

⑧ **Operator's cab**

Width: 1,600mm (including left floor frame, operator's seat, left control stand)
Weight: 850kg

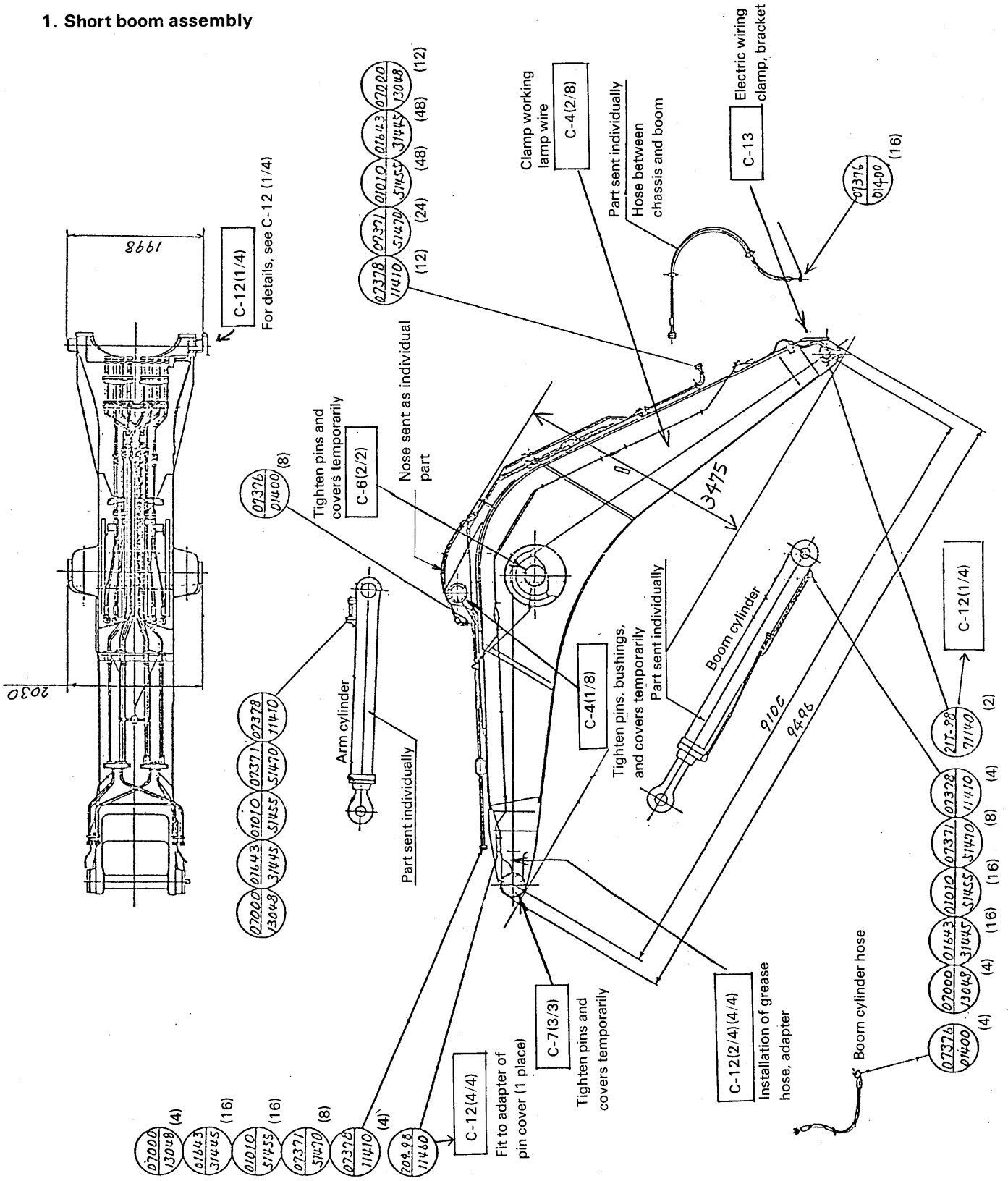
⑨ **Counterweight**

Width: 710mm
Weight: 21,000kg

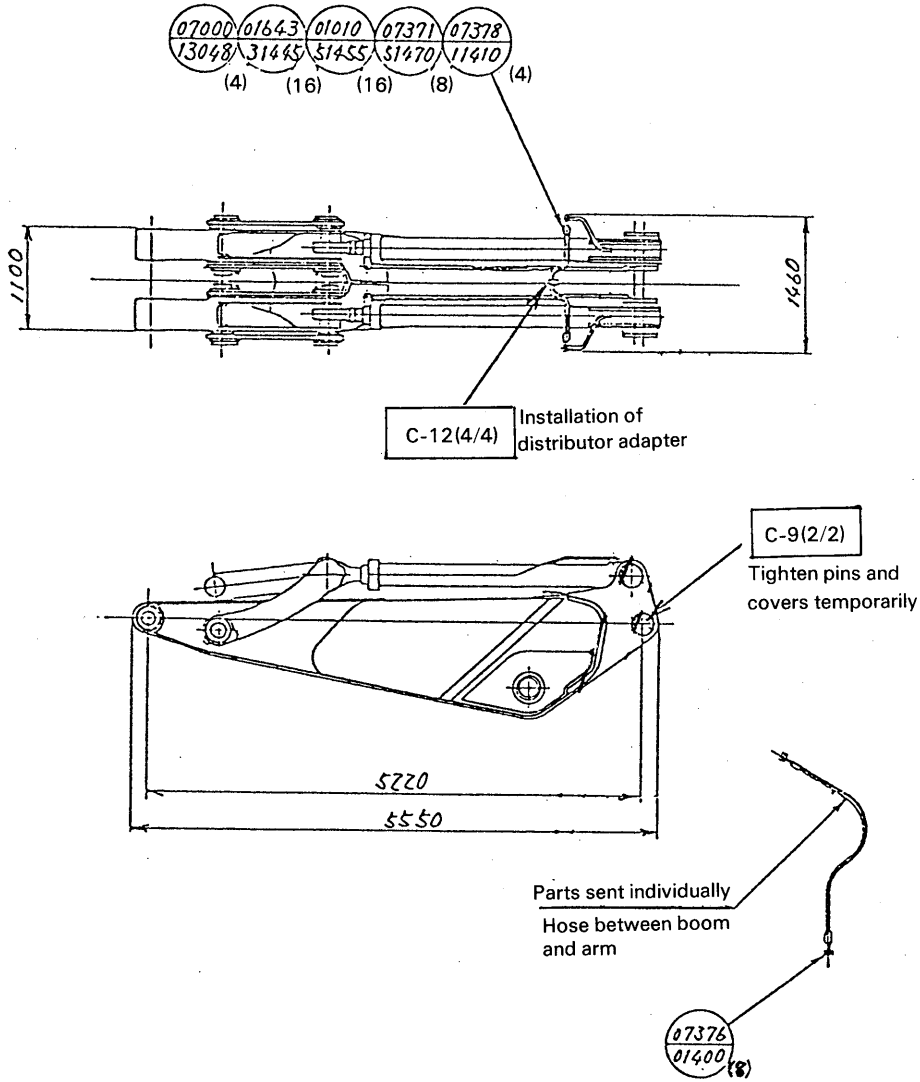
⑩ **Others**

Catwalk, step, handrail, small removed parts, etc.

1. Short boom assembly



2. Short arm assembly



Grease piping

Parts sent individually C-12(4/4)

Both ends of hose:

217-98
71140

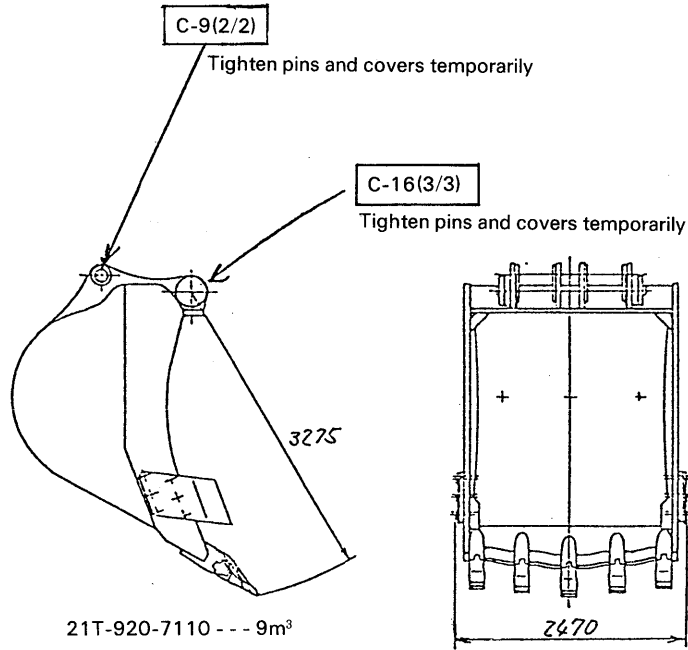
 (2)

Both ends of tube:

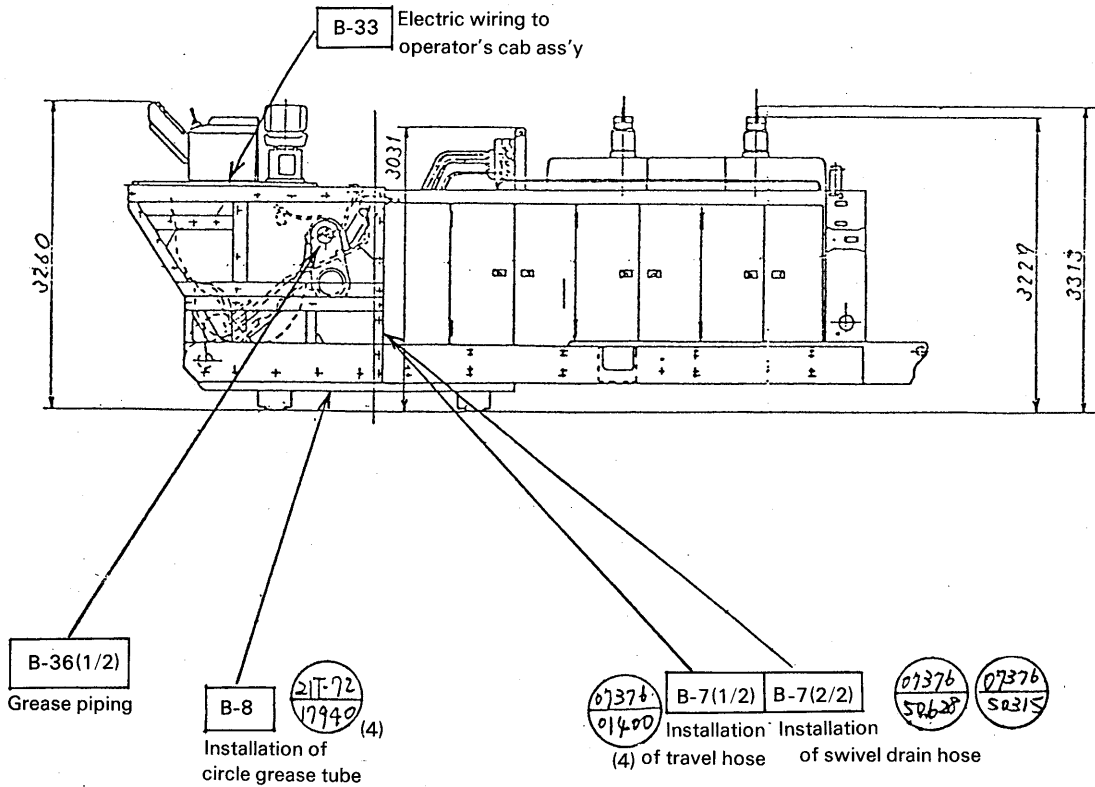
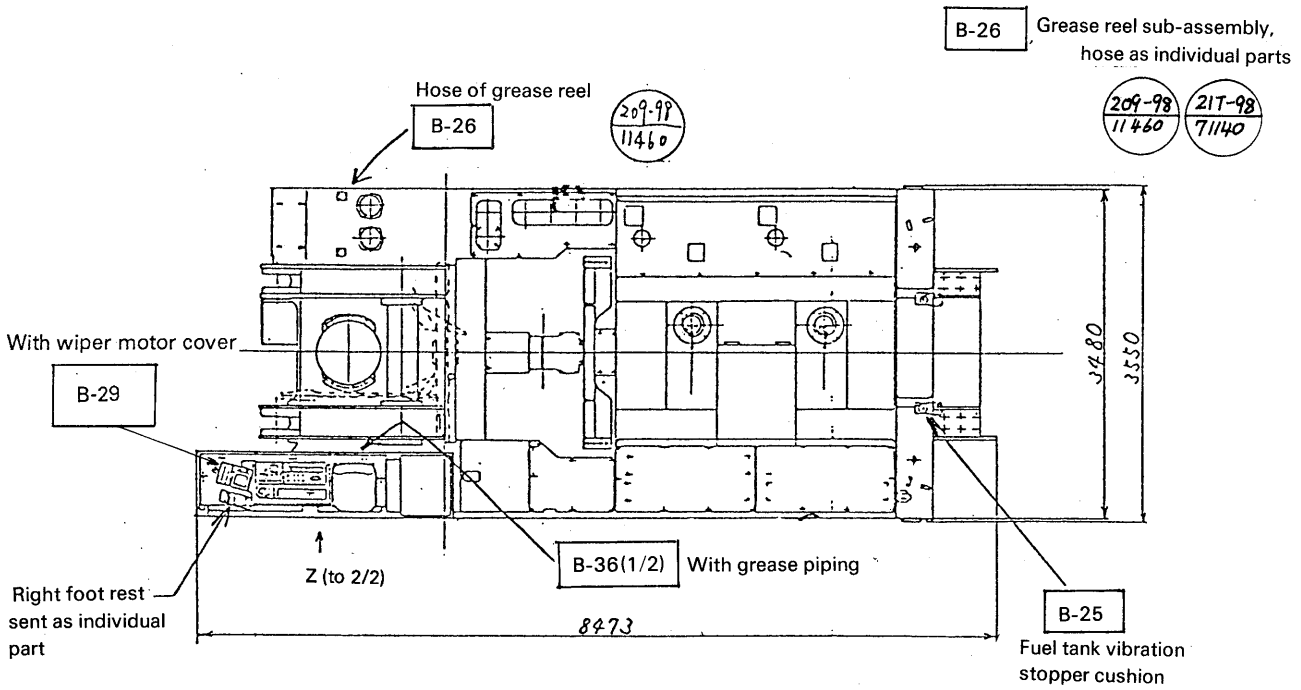
209-98
11460

 (2)

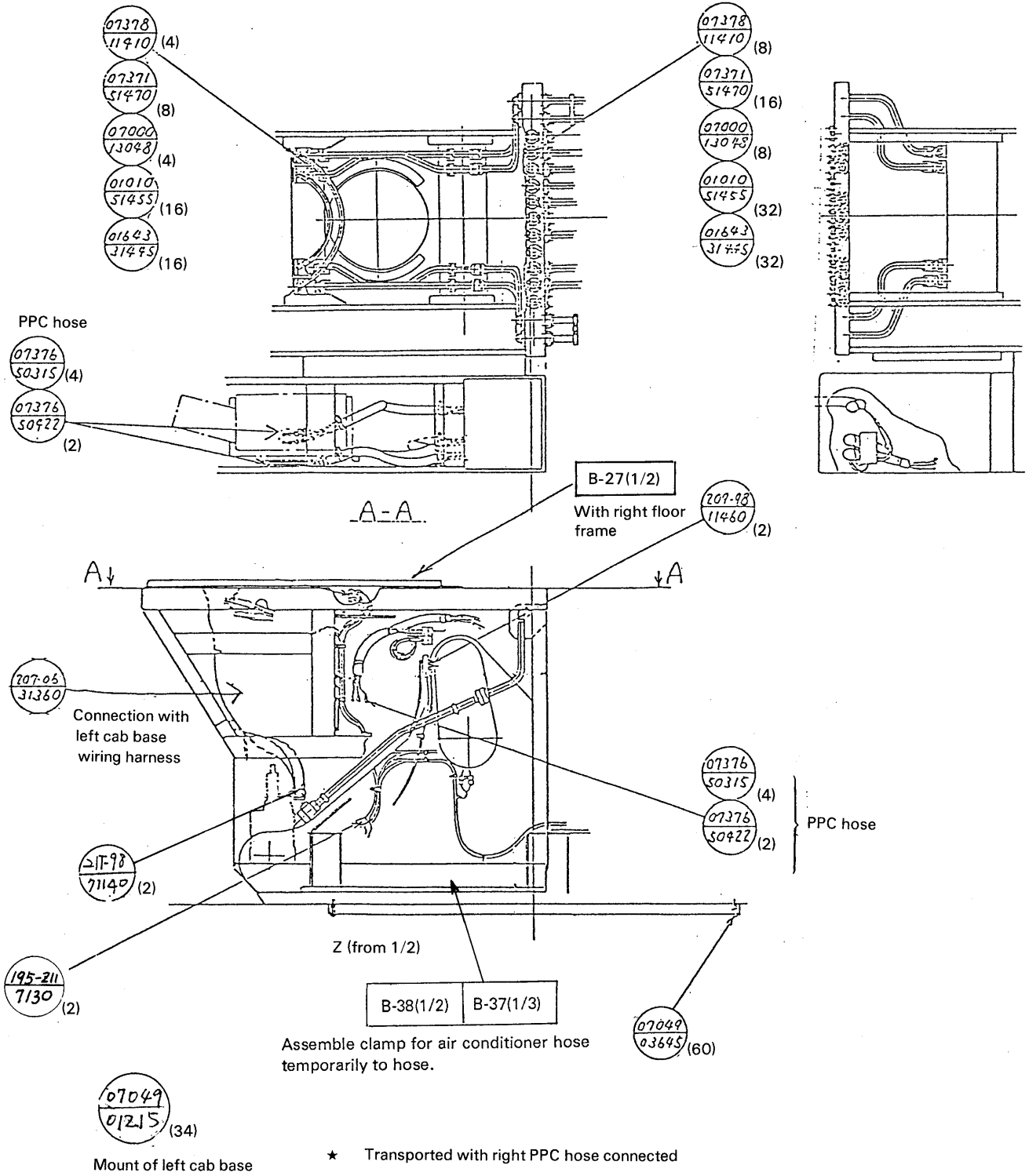
3. Bucket assembly



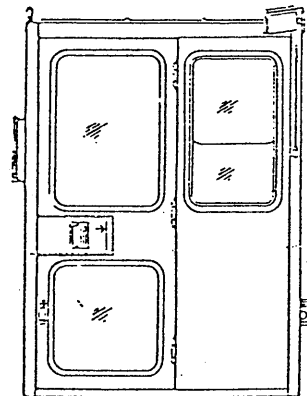
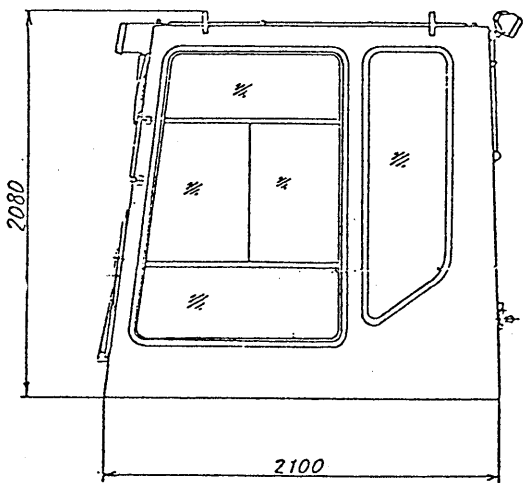
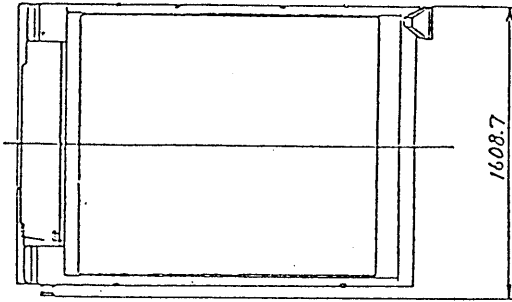
4. Upper structure (low cab specification) (1/2)



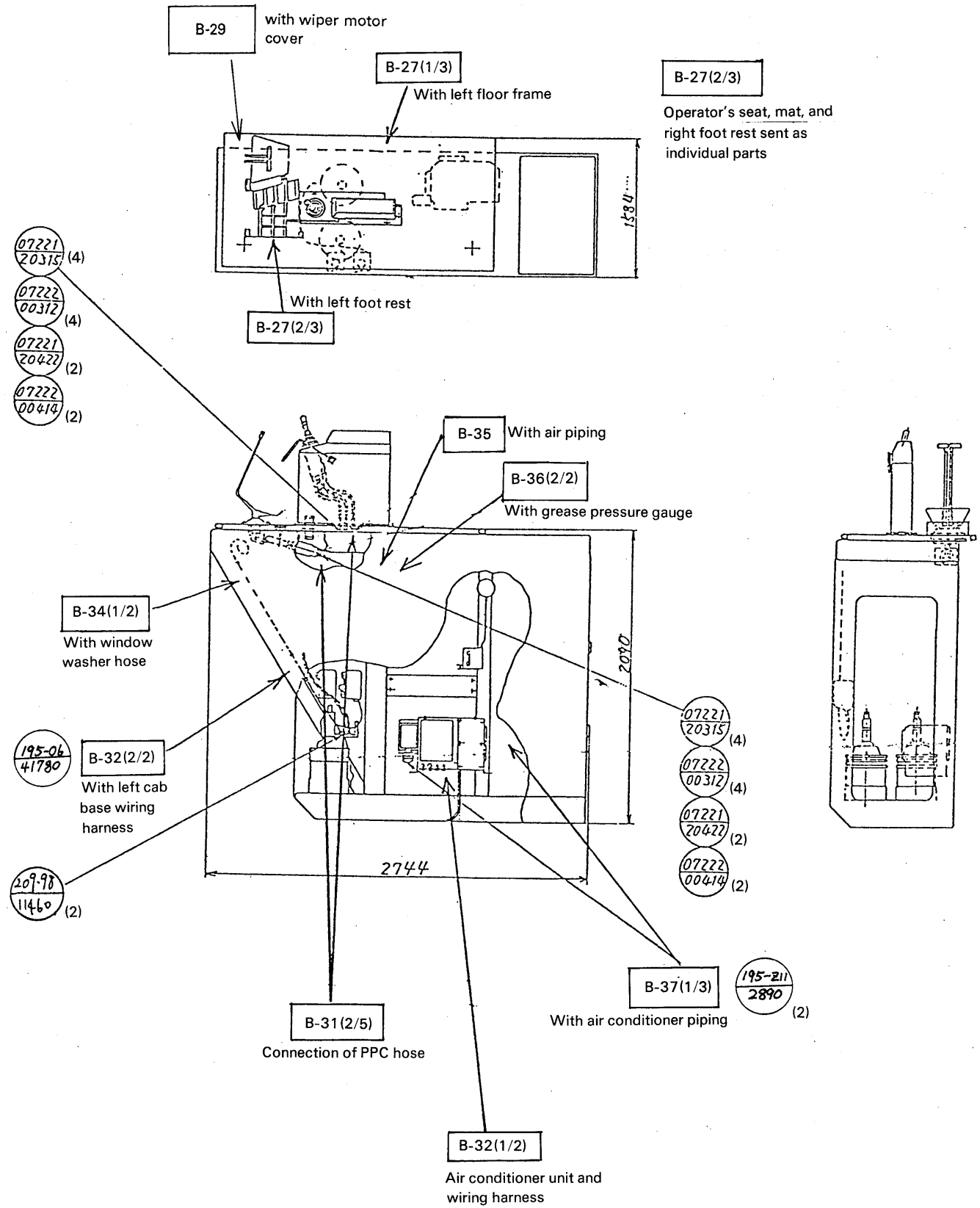
4. Upper structure (low cab specification) (2/2)



8. Operator's cab assembly (low cab specification)

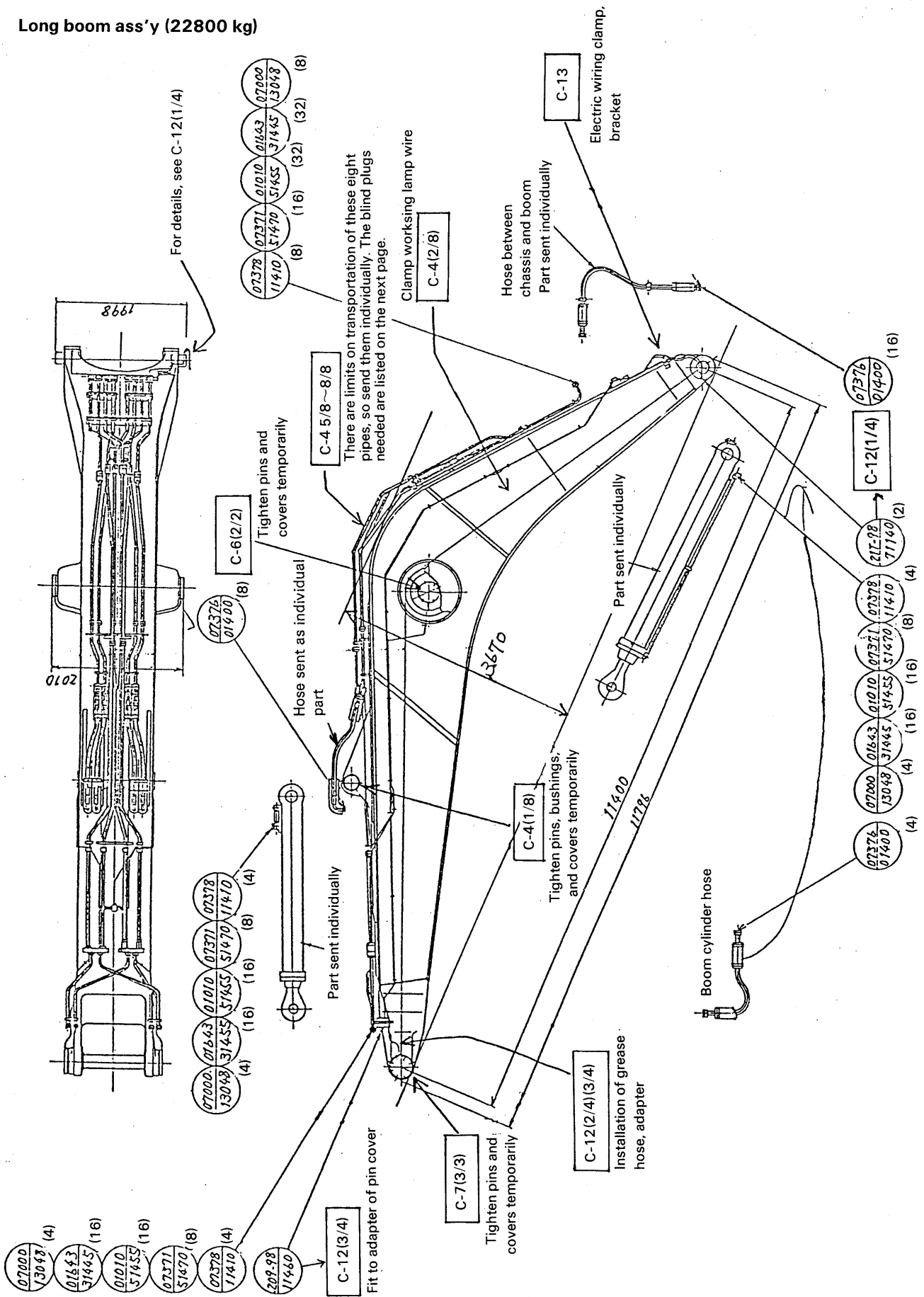


9. Left cab base assembly (low cab specification)

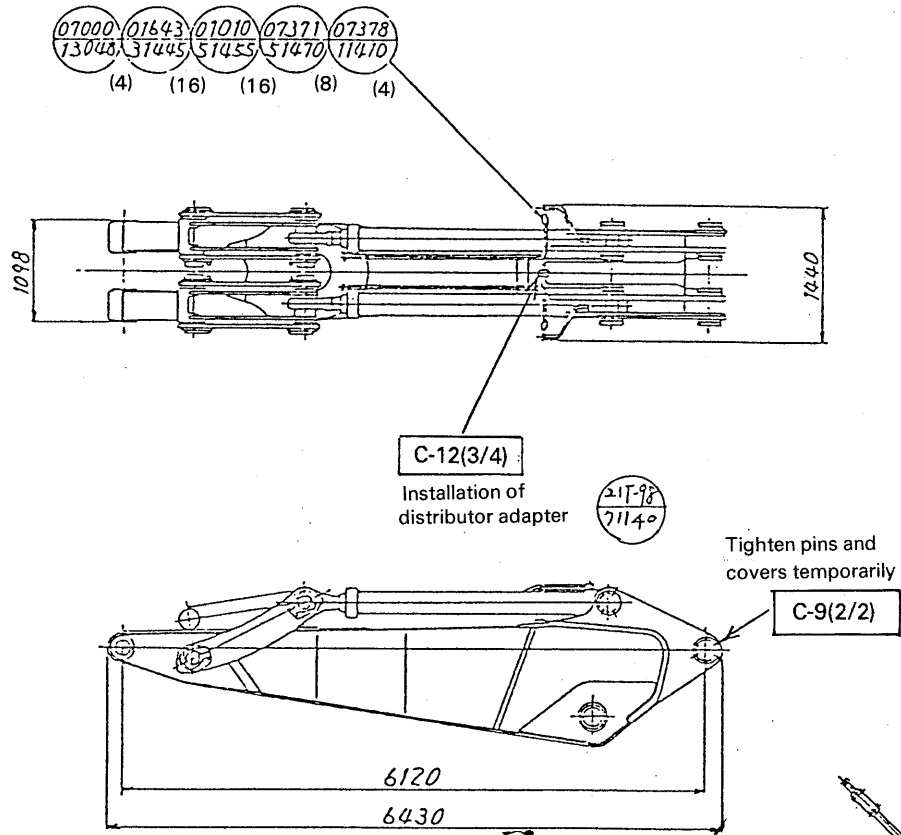


3-2. BACKHOE Long boom, long arm; high cab


1. Long boom ass'y (22800 kg)




2. Long arm assembly (10000 kg)




Grease piping Parts sent individually
C-12 (3/4)

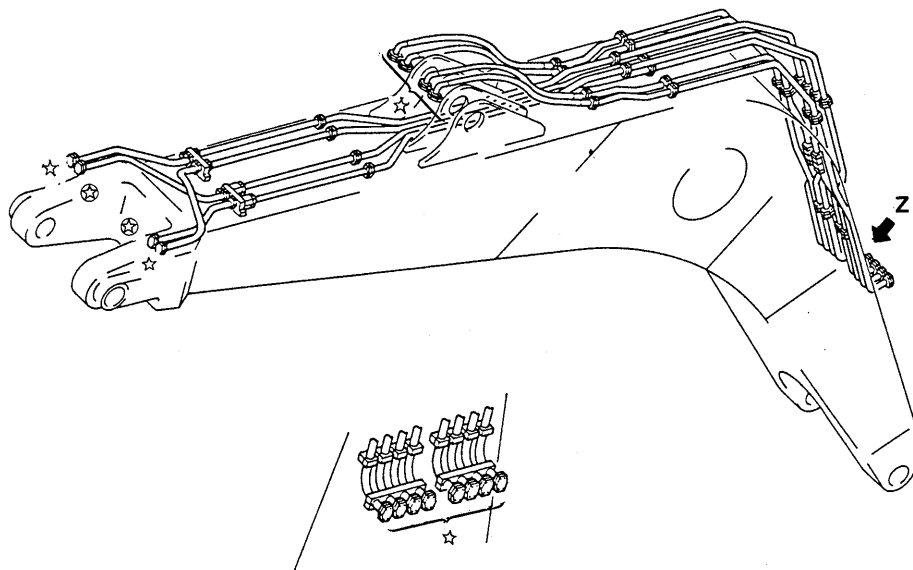
Both ends of hose -----  (2)

Both ends of tube -----  (2)

Hose between boom and arm
Part sent individually

 (8)

★ For blind plugs for piping with long 600 m



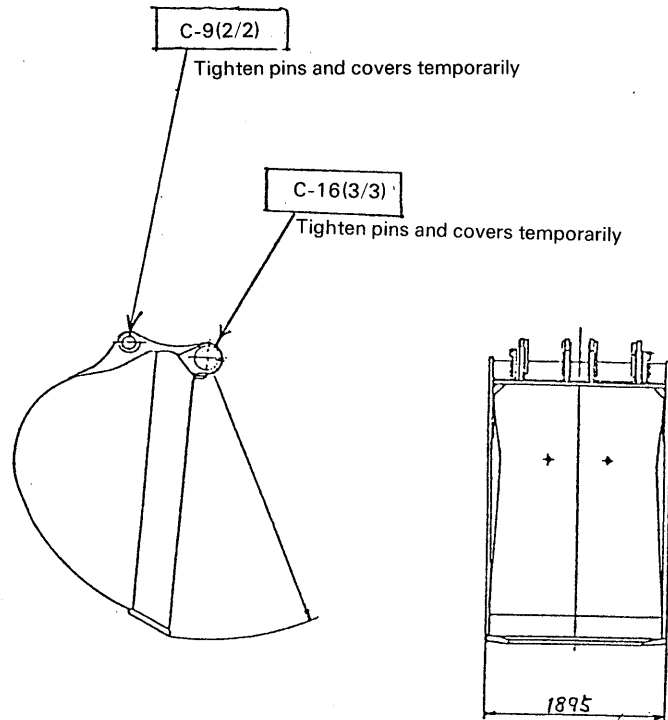
• Blind plugs

☆: 07378-11410

⊙: 07379-01470

View Z

3. Bucket assembly (7.0m³)



4. Upper structure (high cab specification) (1/2)

