

Fig. 2 - (2/2) Attachments Pilot Piping

2. CONSTRUCTION

2.1 BACKHOE ATTACHMENTS

(1) Arm 2.98m (9ft-9.3in)

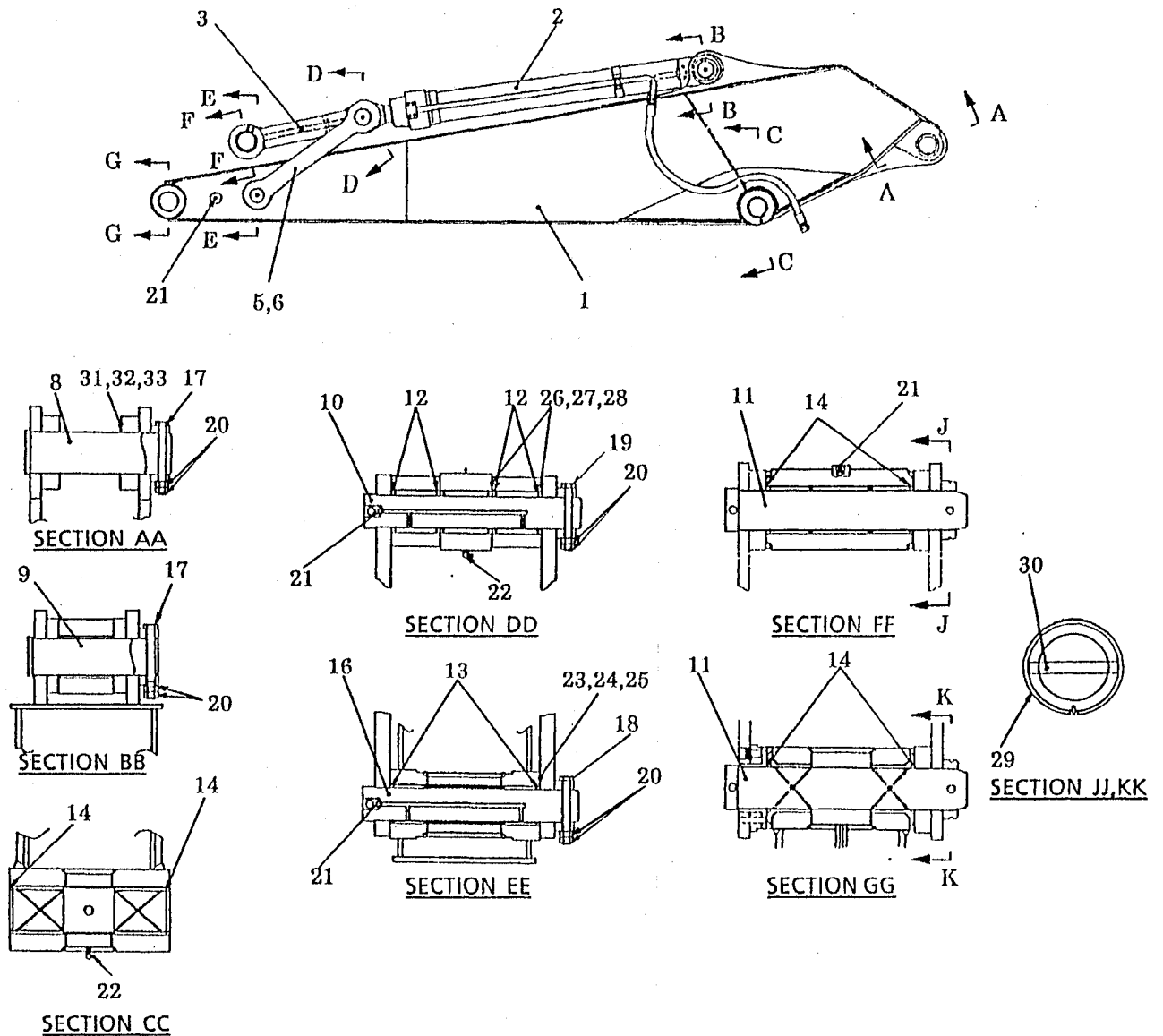


Fig. 6 Arm

However, only necessary number of shims must be selected.

No.	NAME	Q'ty	No.	NAME	Q'ty	No.	NAME	Q'ty
1	ARM	1	13	DUST SEAL	2	24	SHIM t=1.6	1
2	CYLINDER	1	14	DUST SEAL	6	25	SHIM t=2.3	1
3	BUCKET LINK	1	16	PIN	1	26	SHIM t=1.2	2
5	IDLER LINK (RIGHT)	1	17	CAPSCREW	2	27	SHIM t=1.6	2
6	IDLER LINK (LEFT)	1	18	CAPSCREW	1	28	SHIM t=2.3	2
8	PIN	1	19	CAPSCREW	1	29	RING	2
9	PIN	1	20	NUT	8	30	PIN	2
10	PIN	1	21	GREASE FITTING	5	31	SHIM t=1.2	1
11	PIN	2	22	GREASE FITTING	2	32	SHIM t=1.6	1
12	DUST SEAL	4	23	SHIM t=1.2	1	33	SHIM t=2.3	1

(2) Boom

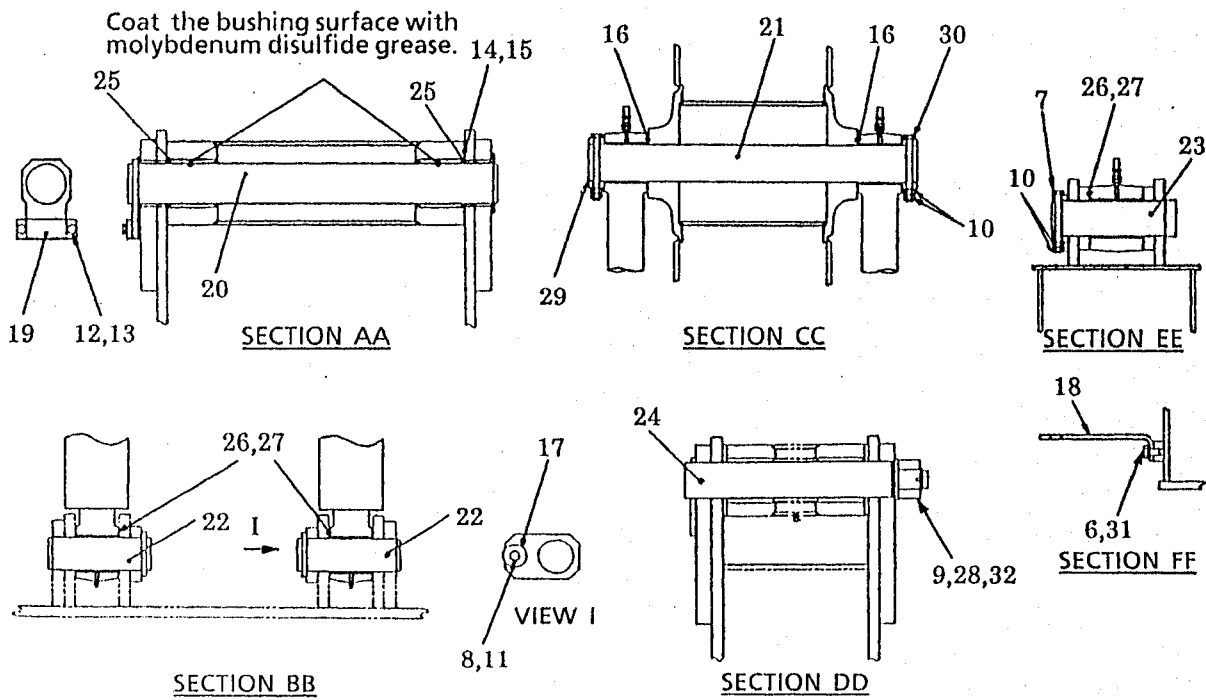
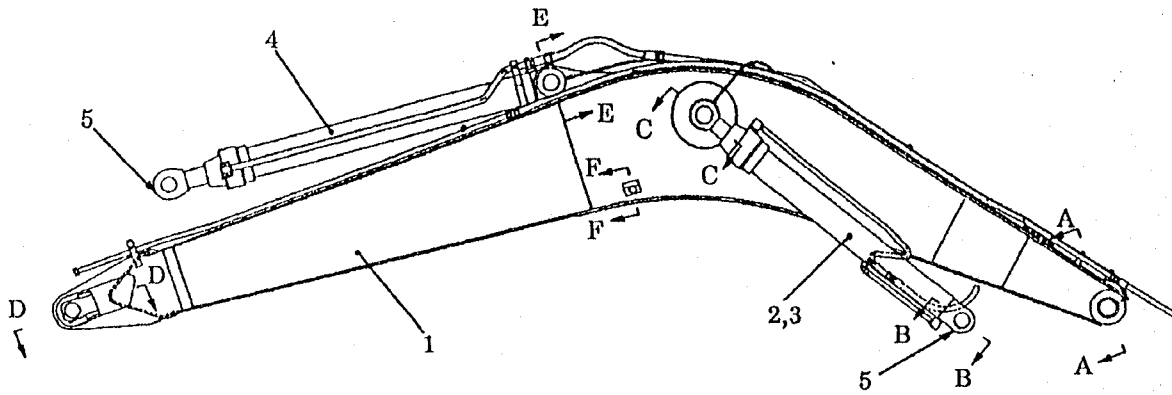


Fig. 7 Boom

However, only necessary number of shims must be selected.

No.	NAME	Q'ty	No.	NAME	Q'ty	No.	NAME	Q'ty	No.	NAME	Q'ty
1	BOOM	1	10	NUT	6	19	PLATE	1	27	SHIM t=1.6	3
2	BOOM CYLINDER (R)	1	11	LOCKWASHER	2	20	PIN	1	28	SPLIT	
3	BOOM CYLINDER (L)	1	12	LOCKWASHER	2	21	PIN	1		PIN	1
4	ARM CYLINDER	1	13	CAPSCREW	2	22	PIN	2	29	COLLAR	2
5	GREASE FITTING	8	14	SHIM t=0.9	1	23	PIN	1	30	CAP	
6	CAPSCREW	1	15	SHIM t=1.6	1	24	PIN	1		SCREW	2
7	CAPSCREW	1	16	SHIM t=1.6	2	25	DUST		31	LOCK	
8	CAPSCREW	2	17	PLATE	2		SEAL	2		WASHER	1
9	NUT	1	18	BRACKET	1	26	SHIM t=1.2	3	32	WASHER	1

3. REMOVAL AND INSTALLATION OF ATTACHMENTS

3.1 REMOVING BUCKET

- 1) Operate the control lever and bring the bucket down to the ground so no load may be laid on the pin that links the bucket with the arm.
- 2) Remove the pin retaining ring and the pin from the bucket boss using a standard screwdriver, and pull out pin (A) (see Fig. 8).

- ☞ If the pin is hard to come out, it indicates that the pin is loaded. Then operate the control lever to remove the load.
- Use care so as not to damage O ring between the arm and the bucket boss.

- 3) Operate the control lever so pin (B) between the bucket link and the bucket may not be loaded.
- 4) Remove the pin retaining ring and the pin from the bucket boss using a standard screwdriver, and pull out pin (B) (see Fig. 9).

3.2 INSTALLING BUCKET (SEE FIG. 10)

Reverse the removing procedure, noticing the following cautions and steps.

- 1) Remove any contaminants from the welded portion of each structure, and check for cracks.
- 2) Check the bushings in the bores at the bucket bosses for wear and damage in accordance with "Maintenance Standards" provided later in this manual, and if necessary, replace them with new ones.
- 3) Check the dust seal for damage, and if damaged, replace with a new one.
- 4) Apply grease to the shank of the pin before inserting it.

- ☞ Installing the bucket link first facilitates installing the bucket.

- ⚠ Never put your finger in a pin hole when aligning the pin holes. Align them visually.

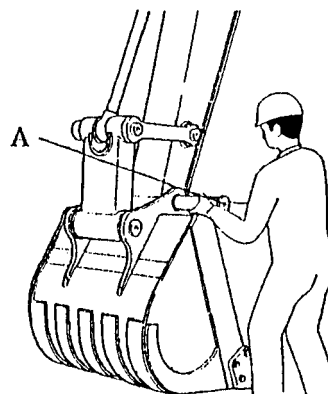


Fig. 8 Remove pin (A)

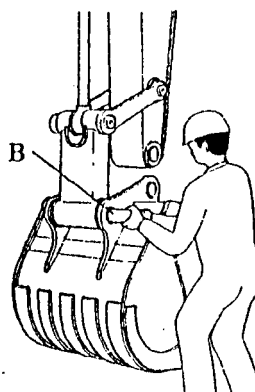


Fig. 9 Remove pin (B)

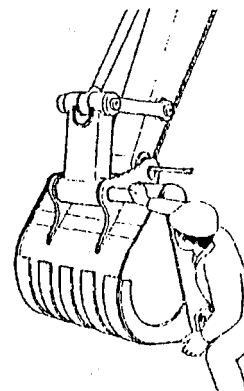


Fig. 10 How to install the bucket

3.3 REMOVING ARM (SEE FIG. 11)

- 1) Place a sling in body (C) of the arm cylinder and lift it so as not to load pin (D).
- 2) Remove the capscrew and nut (E) that fasten pin (D), and draw out pin (D).
- 3) Place a wooden block under the cylinder and bring the cylinder down to it.
- 4) Disconnect all hydraulic hose joints and put a plug into each of them.
- 5) Bring pin (D) back into the arm, place a sling around pin (D) and lift it with a crane.
- 6) Remove the bolt stopping the pin (F) that connects the arm and the boom, then remove the pin (F) by tapping on its opposite end.

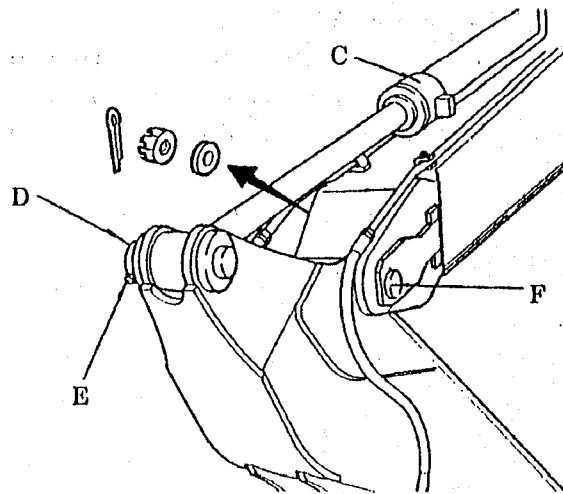



Fig. 11

3.4 INSTALLING ARM (SEE FIG. 11)

- 1) Place a sling around pin (D), lift it with a crane and bring it close to the boom connection to align pin holes.
- 2) Fit pin (F) into the joint between the arm and the boom.
- 3) Connect all hydraulic hose joints.
- 4) Remove the sling hanging pin (D) and lift arm cylinder body (C).
- 5) Link the rod side of the arm cylinder with the arm by means of pin (D).

 When inserting pins, coat grease over the shaft section.

3.5 REMOVING BOOM

- 1) Place a sling around boom cylinder (G), lift it and remove the capscrew and nut that fasten pin (H).
- 2) Draw out pin (H) by the width equal to the cylinder rod boss and remove cylinder (G).
- 3) Remove the opposite cylinder in the same way as cylinder (G).
- 4) Disconnect all tubes and hoses and put a plug into each opening.
- 5) Disconnect electric wiring of head light.

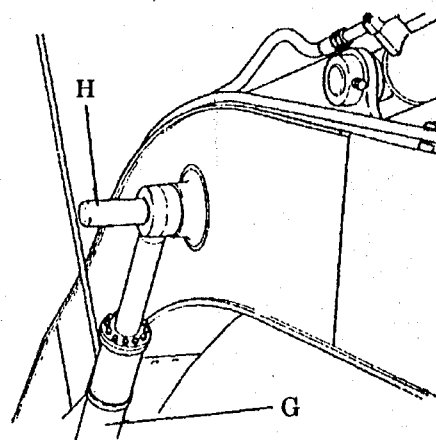


Fig. 12

6) Place a sling in the boom, lift it with a crane and remove the capscrew and plate fastening pin (J) that links the boom with the swing frame. Then draw out the pin (J) by tapping it from the opposite side.(See fig. 13)

- ☞ • Take care not to damage the piston rod.
When the cylinder is taken off the boom, always retract the piston rod.
- When lifting the boom, always lift the center of gravity. Lift it slowly and if the boom foot is twisted, correct it with a steel pry before removal.
- Boom removing work will be promoted if the cab is taken off first of all.

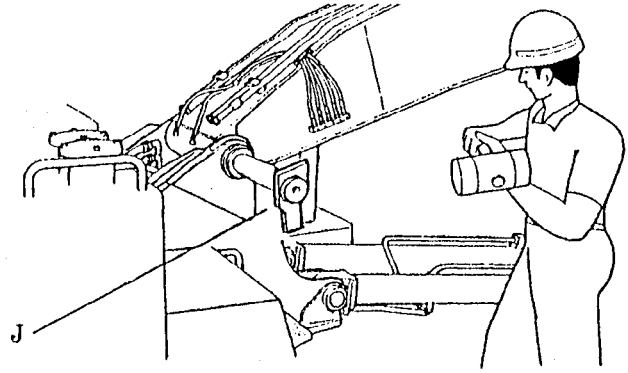


Fig. 13

3.6 INSTALLING THE BOOM (SEE FIG. 12 AND 13)

Install the boom by reversing the order of the steps for removal.

Lift the boom with a crane attached to the boom's center of gravity (the boom assembly weighs about 1.7 tons), and fasten the boom foot. Install the boom cylinders and connect the hydraulic piping. Link the boom with the arm, and install the arm cylinders. After connecting the cables, check piping for oil leaks.

4. MAINTENANCE STANDARDS

4.1 CLEARANCE BETWEEN PINS AND BUSHING

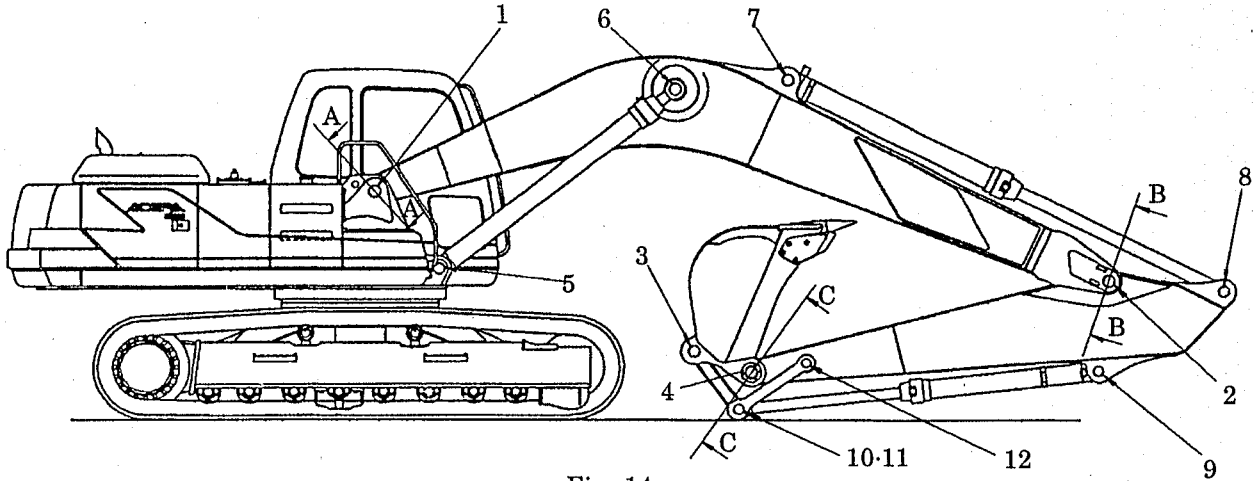


Fig. 14

Table 5

Unit : mm (in)

No.	Item	Standard Value			Allowable Value	Remedy
		Pin Dia	Tolerance for pin O.D.	Tolerance for Bushing I.D.		
1	Boom foot	Ø100 (Ø 3.9370)	±0.020 (±0.0008)	+0.295 (+0.0116)	+0.315 (+0.0124)	3.0 (0.12) Replace bushing or pin.
2	Arm center	Ø90 (Ø 3.5433)		+0.200 (+0.0079)	+0.180 (+0.0071)	
3	Bucket link (Bucket connection)		+0.273 (+0.0107)	+0.293 (+0.0115)		
4	Arm point		+0.176 (+0.0069)	+0.156 (+0.0061)		
5	Boom cylinder (Bottom side)	Ø95 (Ø 3.7402)	±0.020 (±0.0008)	+0.270 (+0.0106)	+0.370 (+0.0146)	
6	Boom cylinder (Rod side)			+0.030 (+0.0012)	+0.237 (+0.0093)	
7	Arm cylinder (Bottom side)	Ø90 (Ø 3.5433)	-0.030 (-0.0012) -0.090 (-0.0035)	+0.250 (+0.0098)	+0.340 (+0.0134)	
8	Arm cylinder (Rod side)			+0.050 (+0.0020)	+0.080 (+0.0031)	
9	Bucket cylinder (Bottom side)	Ø80 (Ø 3.496)	-0.050 (-0.0020) -0.110 (-0.0043)	+0.360 (+0.0142)	+0.100 (+0.0039)	
10	Bucket cylinder (Rod side)			+0.134 (+0.0053)	+0.244 (+0.0096)	
11	Bucket link (Cylinder connection)			+0.005 (+0.0002)	+0.045 (+0.0018)	
12	Arm~Idler link (Connection)	Ø70 (Ø 2.7559)	-0.153 (-0.0060) -0.213 (-0.0084)	+0.281 (+0.0111) +0.210 (+0.0083)	+0.494 (+0.0194) +0.363 (+0.0143)	

4.2 CLEARANCE IN THRUST DIRECTION OF BOOM,
ARM AND BUCKET

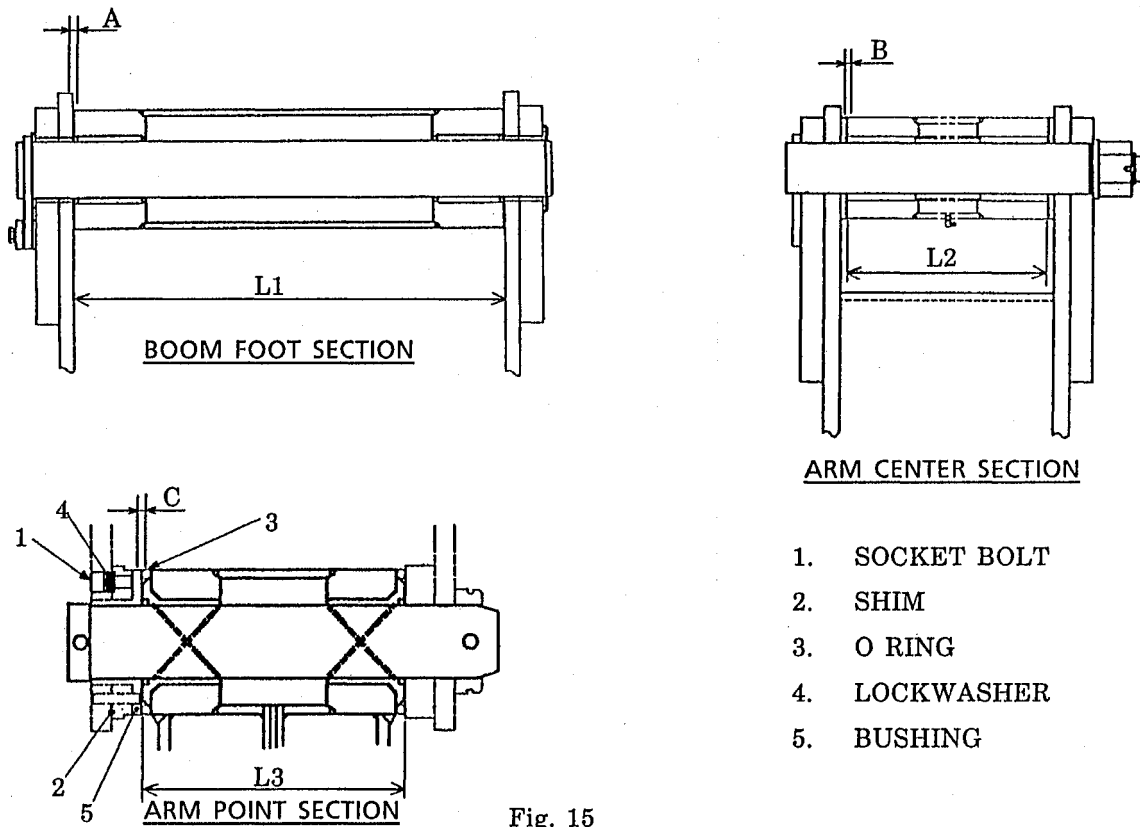


Fig. 15

Table 6

Unit : mm (in)

Item		Tolerance		Clearance		Adjust shims standerd value	Clearance allowable value
Boom foot section	Boom	L1	$750 \begin{smallmatrix} 0 \\ -0.2 \end{smallmatrix} \left(29.528 \begin{smallmatrix} 0 \\ -0.008 \end{smallmatrix} \right)$	A	2.0 (0.079)	1 or under	6.0 (0.236)
	Upper frame		$752 \begin{smallmatrix} +2.0 \\ 0 \end{smallmatrix} \left(29.606 \begin{smallmatrix} +0.079 \\ 0 \end{smallmatrix} \right)$		4.2 (0.165)		
Arm center section	Arm side	L2	350 ± 0.2 (13.780 ± 0.008)	B	0.6 (0.024)	※	5.0 (0.197)
	Boom side		$351 \begin{smallmatrix} 0 \\ -0.2 \end{smallmatrix} \left(13.819 \begin{smallmatrix} 0 \\ -0.008 \end{smallmatrix} \right)$		1.2 (0.047)		
Arm point section	Arm side	L3	325 ± 0.3 (12.795 ± 0.012)	C	0.7 (0.028)	1 or under	7.0 (0.276)
	Bucket side		$327 \begin{smallmatrix} +0.5 \\ -1.0 \end{smallmatrix} \left(12.874 \begin{smallmatrix} +0.020 \\ -0.039 \end{smallmatrix} \right)$		2.8 (0.110)		

※ Shim adjustment not necessary