

5. SPECIFICATIONS AND PERFORMANCE

● SPEED AND CLIMBING CAPABILITY

DESCRIPTION	SPECIFICATIONS
Swing speed	11 rpm
Travel speed (1-speed/2-speed)	km/h (mile/h) 3.5 / 5.0 (2.2 / 3.1)
Gradeability	%(degree) 70 (35)

● ENGINE

Enging model	ISUZU AA-4BG1 TC
Type	Water-cooled, 4-cycle direct injection type engine with turbo charger & inter cooler
Number of cylinders - Bore X Stroke	4 - 105mm X 125mm (4.13in X 4.92in)
Total displacement	4,329cc (264cu·in)
Rated output / Rotation speed	91.9kW (125PS) / 2,200rpm
Maximum torque / Rotation speed	42.5kgf·m (308lbf·ft) / 1,800rpm
Starter	24V/ 4.5kW
Alternator	24V / 40A

● HYDRAULIC COMPONENTS

Hydraulic pump	Variable displacement axial piston + gear pump
Hydraulic motor (swing)	Axial piston motor
Hydraulic motor (travel)	2-speed axial piston motor
Control valve	6-spool control valve
Cylinder (Boom, Arm, Bucket)	Double action cylinder
Oil cooler	Air -cooled type

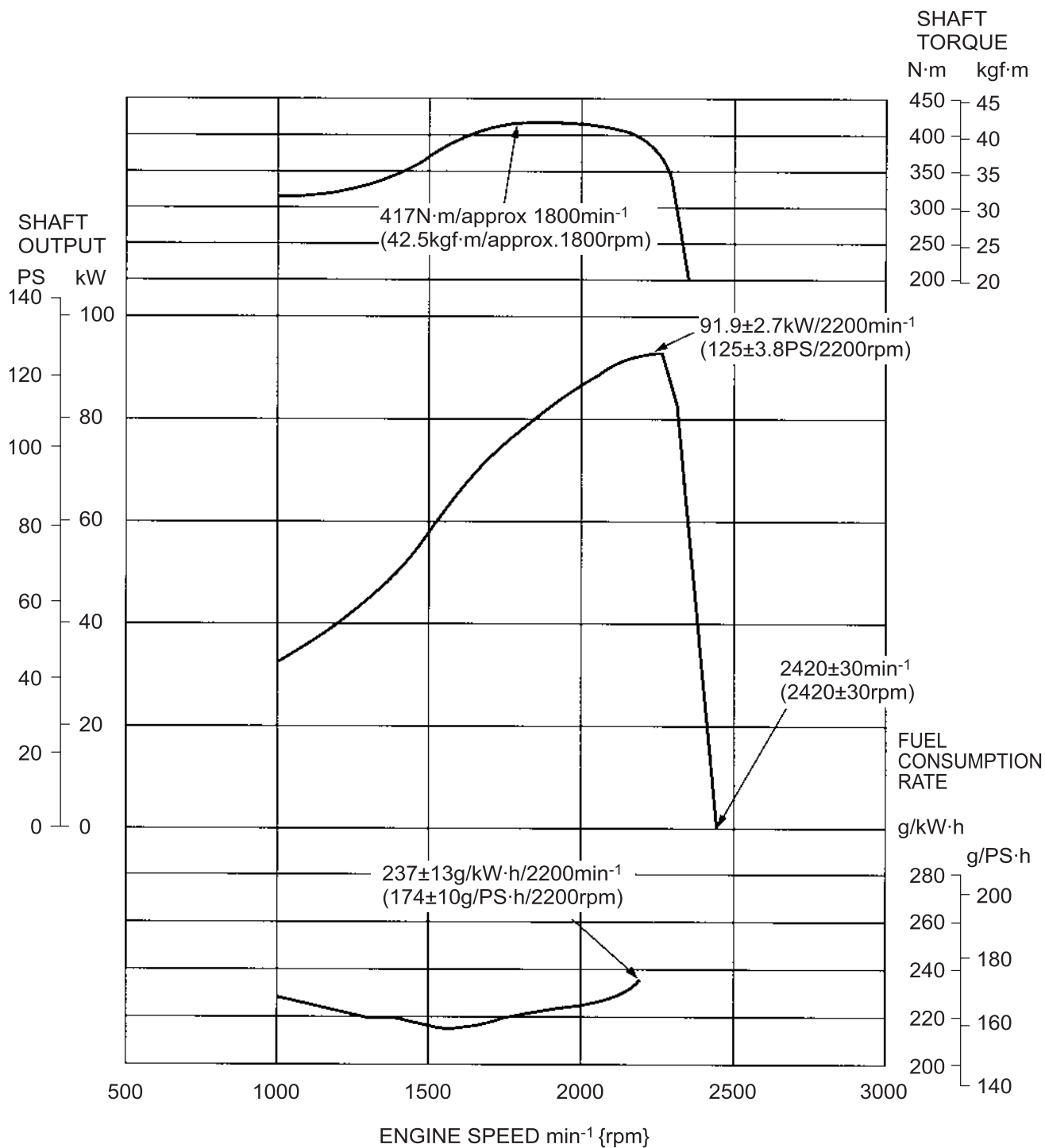
Unit : kg (lb)

● WEIGHT

	E200SR (600mm Shoe 2.6m Arm)	E200SR _{Lc} (600mm Shoe 2.6m Arm)	E200SR _{Lc} (800mm Shoe 3.0m Arm)
Fully equipped weight	19,900 (43,870)	20,400 (44,970)	22,000 (48,500)
Upper structure	9,880 (21,780)	←	10,500 (23,150)
Lower machinery	7,130 (15,720)	7,630 (16,820)	8,200 (18,100)
Attachment (Boom + Arm + Bucket)	2,890 (6,370)	←	3,300 (7,280)

9.2 ENGINE CHARACTERISTIC CURVE (ISUZU AA-4GB1 TC)

Condition to be measured : With fan, generator and
without air cleaner and muffler



Fuel consumption volume

$$= \frac{\text{Fuel consumption rate}}{0.835 \times 1000} \times \text{PS} \times \text{Load factor } (\alpha)$$

$$= \frac{174 \text{ g / PS} \cdot \text{h}}{0.835 \times 1000} \times 125 \text{ PS} \times \alpha$$

α : Standard load factor
(0.70~0.80)

$$= 26 \alpha \cdot \text{ℓ/h}$$

Fuel consumption in regular operation
(load factor : 0.70~0.80)
18.2~20.8 ℓ/h

1. BOOM

1.1 BOOM DIMENSIONAL DRAWING

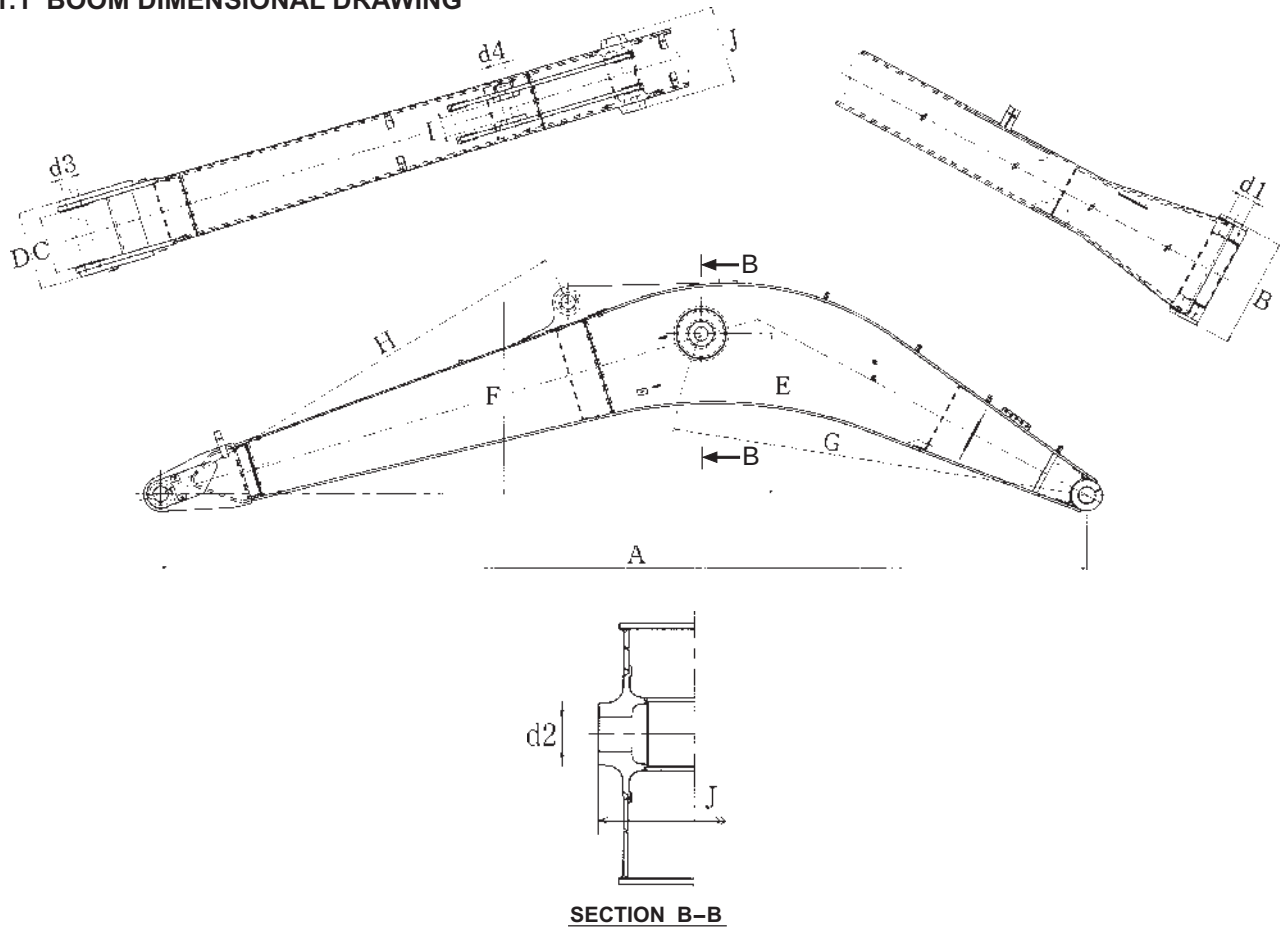


Fig. 1-1 Boom dimensional drawing

Table 1-1		Unit : mm (ft-in)
5.05M (16ft-7in) BOOM		
Code	NAME	DIMENSION
A	Boom length	5,050 (16'7")
B	Boom foot width	612 (24.1")
C	Boom end inner width	287 (11.3")
D	Boom end outer width	421 (16.6")
E	Height of boom cylinder rod pin	1,023 (3'4")
F	Height of arm cylinder (head side) pin	1,132 (3'9")
G	Distance between pins of boss	R 2,344.5 (7'8")
H	Distance between pins of bracket	R 2,435 (7'12")
I	Arm cylinder (head side) inner width	122 (4.8")
J	Outer width of bracket on the boom cylinder	426 (16.8")
d1	Boom foot pin dia.	Ø90 (3.54")
d2	Boom cylinder (rod side) pin dia.	Ø85 (3.35")
d3	Pin dia. of boom end.	Ø80 (3.15")
d4	Arm cylinder (head side) pin dia.	Ø80 (3.15")

(2) Clearance in thrust direction

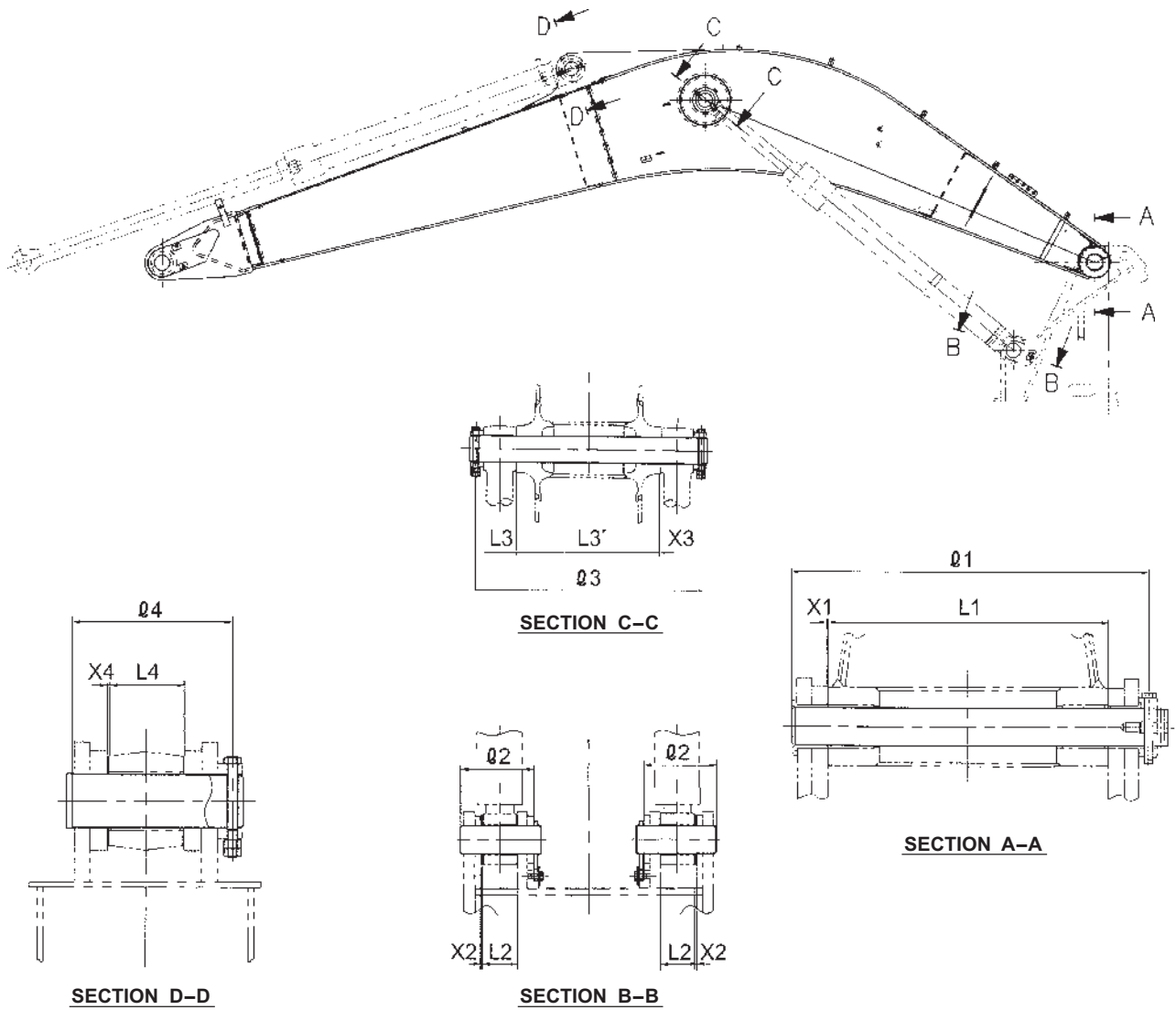


Fig. 1-3 Clearance in thrust direction

Table 1-3

Unit : mm (in)

Section	Item		Basic size		Shim adjusting clearance (Total of both sides)			Length under pin neck		Remedy
			Sym- bol	Size	Standard value	Repairable level	Service limit	No.	Length	
A-A	Boom foot	Boom	L1	612 (24.1)	0.5 (0.02) or less	2.0 (0.08)	2.5 (0.10)	ø 1	768 (30.2)	Shim adjustment
		Upper frame		614 (24.2)						
B-B	Boom cylinder (Head side)	Boom cylinder	L2	105 (4.13)	0.6~1.0 (0.02~0.04)			ø 2	217 (8.54)	
		Upper frame		107 (4.21)						
C-C	Boom cylinder (Rod side)	Boom cylinder	L3	105 (4.13)	0.6~2.0 (0.02~0.08)	3.0 (0.12)	4.0 (0.16)	ø 3	690 (27.2)	
		Boom	L3'	426 (16.8)						
D-D	Arm cylinder (Head side)	Arm cylinder	L4	120 (4.72)	0.6~1.0 (0.02~0.04)	2.0 (0.08)	2.5 (0.10)	ø 4	249 (9.8)	
		Arm		122 (4.8)						

2. ARM

2.1-1 ARM DIMENSIONAL DRAWING

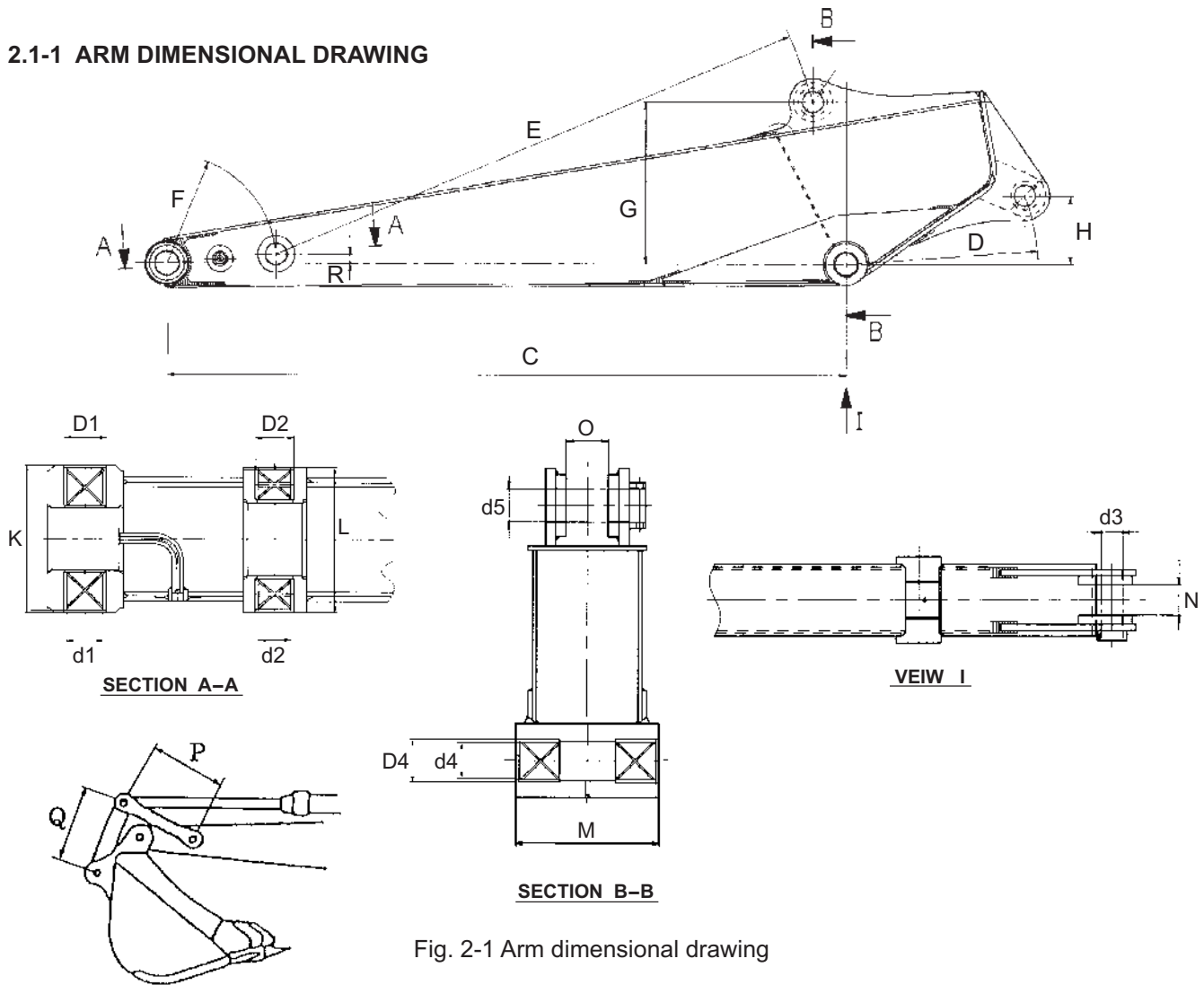


Fig. 2-1 Arm dimensional drawing

Table 2-1

Unit : mm (ft-in)

Code	NAME	DIMENSION (STANDARD ARM)	Code	NAME	DIMENSION (STANDARD ARM)
C	Arm length	2,600 (8'6")	M	Boss width	286 (11.3")
D	Distance between pins of boss and bracket	R 735 (28.9")	N	Bracket inner width	122 (4.8")
D1	I.D of boss	Ø95 (3.74")	O	Bracket inner width	102 (4.02")
D2	I.D of boss	Ø85 (3.35")	P	Idler link dimension	610 (24")
D4	I.D of boss	Ø95 (3.74")	Q	Bucket link dimension	600 (23.6")
E	Distance between pins of boss and bracket	R 2,137 (7')	R	Height between pins of boss and center	35 (1.38")
F	Distance between pins of boss and boss	R 420 (16.5")	d1	Pin dia.	Ø80 (3.15")
G	Height between pins of boss and bracket	624 (24.6")	d2	Pin dia.	Ø70 (2.76")
H	Height between pins of boss and bracket	265 (10.4")	d3	Pin dia.	Ø80 (3.15")
K	Arm top end boss width	325 (12.8")	d4	Pin dia.	Ø80 (3.15")
L	Arm link section boss width	320 (12.6")	d5	Pin dia.	Ø80 (3.15")

2.2 ARM MAINTENANCE STANDARD

(1) Clearance of pin and bushing

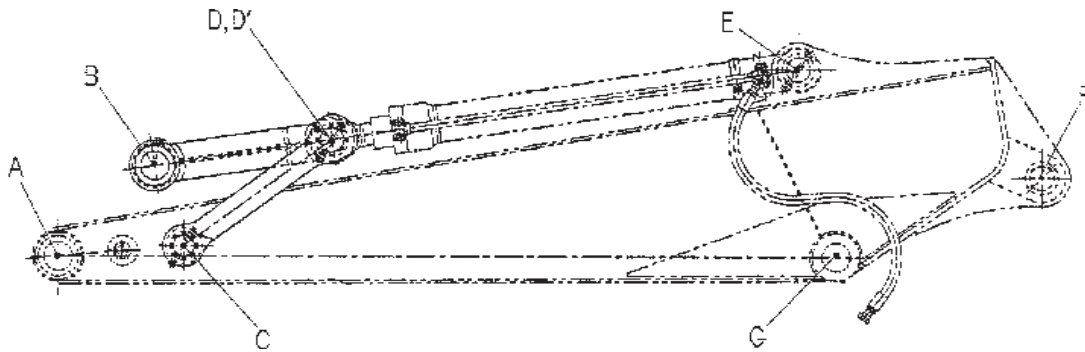


Fig. 2-3 Clearance of pin and bushing

Table 2-3

Unit : mm (ft-in)

Code	Item	Standard value			Clearance			Remedy
		Pin dia.	Pin dia. tolerance	Bushing ID tolerance	Standard value	Repairable level	Service limit	
A	Arm point	80 (3.1496)	-0.020 (-0.0008) -0.060 (-0.0024)	+0.226 (+0.0089) +0.153 (+0.0060)	+0.286 (+0.0113) +0.173 (+0.0068)	2.0 (0.08)	2.5 (0.1)	Replace bushing or pin
B	Bucket link (Bucket connection)			+0.231 (+0.0091) +0.161 (+0.0063)	+0.291 (+0.0115) +0.181 (+0.0071)			
C	Idler link (Arm connection)	70 (2.7559)	+0.240 (+0.0094) +0.174 (+0.0069)	+0.300 (+0.0118) +0.174 (+0.0069)				
D	Bucket link (Idler link connection)	80 (3.1496)	+0.000 (+0.0000) -0.060 (-0.0024)	+0.227 (+0.0089) +0.155 (+0.0061)	+0.287 (+0.0113) +0.155 (+0.0061)			
D«	Bucket cylinder (Rod side)			+0.155 (+0.0061)	+0.287 (+0.0113) +0.155 (+0.0061)			
E	Bucket cylinder (Head side)		+0.020 (+0.0008) -0.020 (-0.0008)	+0.230 (+0.0091) +0.150 (+0.0059)	+0.250 (+0.0098) +0.130 (+0.0051)			
			+0.030 (+0.0012) -0.030 (-0.0012)		+0.260 (+0.0102) +0.120 (+0.0047)			
F	Arm cylinder (Rod side)		-0.050 (-0.0020) -0.110 (-0.0043)	+0.180 (+0.0071) +0.100 (+0.0039)	+0.290 (+0.0114) +0.150 (+0.0059)			
G	Arm foot		+0.020 (+0.0008) -0.020 (-0.0008)	+0.244 (+0.0096) +0.174 (+0.0069)	+0.264 (+0.0104) +0.154 (+0.0061)			

(2) Clearance in thrust direction

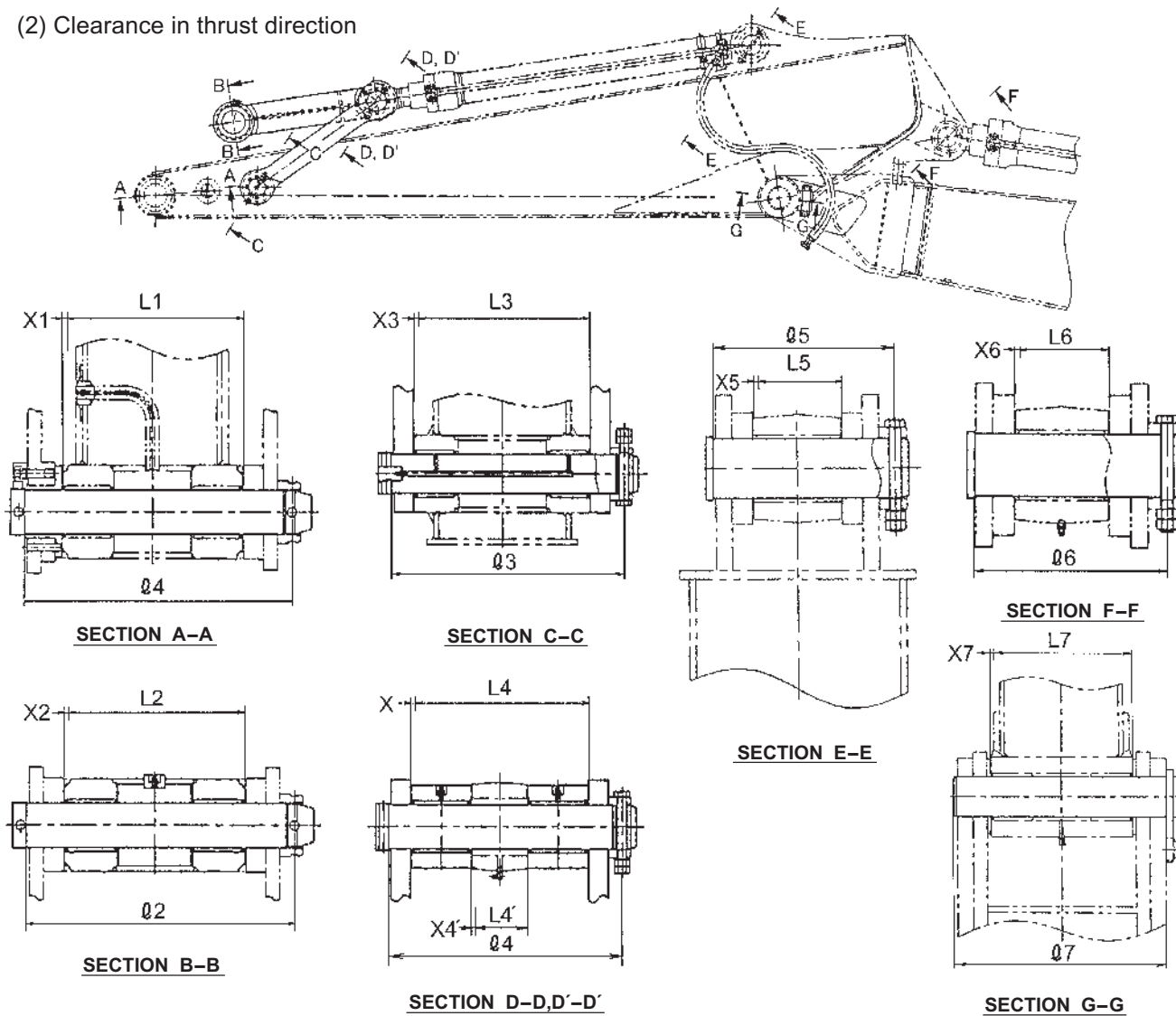


Fig. 2-4 Clearance of pin and bushing

Table 2-4

Unit : mm (in)

Section	Item		Basic size		Shim adjusting clearance (Total of both sides)			Length under pin neck		Remedy
			Sym- bol	Size	Standard value	Repairable level	Service limit	No.	Length	
A-A	Arm point	Arm	L1	325 (12.79)	0.6~1.0 (0.02~0.04)	2.0 (0.08)	2.5 (0.10)	ø 1	481 (18.9)	Shim adjustment
		Bucket		326 (12.83)				ø 2		
B-B	Bucket link	Link side	L2	325 (12.79)						
		Bucket		327 (12.87)						
C-C	Idler link (Arm connection)	Arm	L3	320 (12.60)	0.5or less (0.02)	1.0 (0.04)		ø 3	419 (16.5)	
		Link side		—						
D-D	Bucket link (Idler link connection)	Rod side	L4	—	0.6~2.0 (0.02~0.08)	2.0 (0.08)		ø 4		
		Link side		320 (12.60)						
D'-D'	Bucket link (Rod side)	Rod side	L4'	100 (3.94)						
		Bucket link side		102 (4.02)						
E-E	Bucket cylinder (Head side)	Head side	L5	100 (3.94)	0.6~1.0 (0.02~0.04)	3.0 (0.12)	4.0 (0.16)	ø 5	249 (9.8)	
		Arm		102 (4.02)						
F-F	Arm cylinder (Rod side)	Rod side	L6	120 (4.72)	0.6~2.0 (0.02~0.08)			ø 6		
		Arm		122 (4.80)						
G-G	Arm foot	Arm	L7	286 (11.26)	0.5or less (0.02~0.04)	0.1 (0.04)	2.5 (0.10)	ø 7	429 (16.9)	
		Boom		287 (11.30)						

3. BUCKET

3.1 BUCKET DIMENSIONAL DRAWING

(1) Hoe bucket

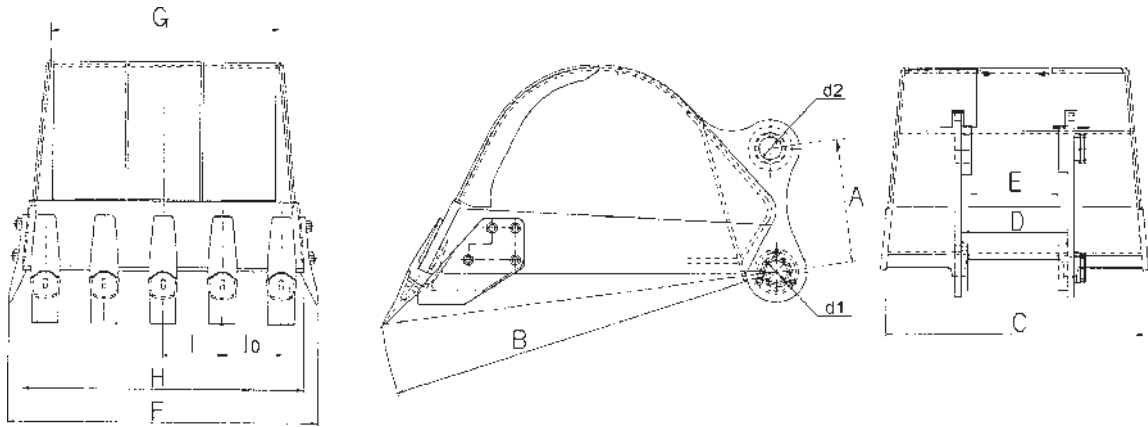


Fig. 3-1 Hoe bucket dimensional drawing

Table 3-1

No.	NAME	No.	NAME
A	Distance between pin and bracket	G	Outer width of bucket bottom
B	Distance between bucket pin and tooth end	H	Bucket outer width of front side
C	Inner width of bucket top end	I	Pitch between teeth
D	Inner width of lug	I0	Pitch between teeth
E	Inner width of bracket	d1	Outer dia. of bushing
F	Outer width of side cutter	d2	Pin dia.

3.2 BUCKET DIMENSIONAL TABLE

Table 3-2 Unit : mm (ft-in)

	Hoe bucket	
Type	[STD]	
Capacity	0.75m ³ (0.98cu·yd)	0.63m ³ (0.82cu·yd)
A	445 (17.5")	←
B	R1,440 (4'9")	←
C	964 (38")	830 (32.7")
D	399 (15.7")	←
E	327 (12.9")	←
F	1,122 (3'8")	989 (38'9")
G	826 (32.5")	693 (27.3")
H	1,020 (3'4")	887 (34.9")
I	214 (8.43")	180.5 (7.11")
I0	213.5 (8.41")	180.5 (7.11")
d1	Ø95 (3.74")	←
d2	Ø80 (3.15")	←

3.3 DETAIL DIMENSIONAL DRAWING OF LUG SECTION

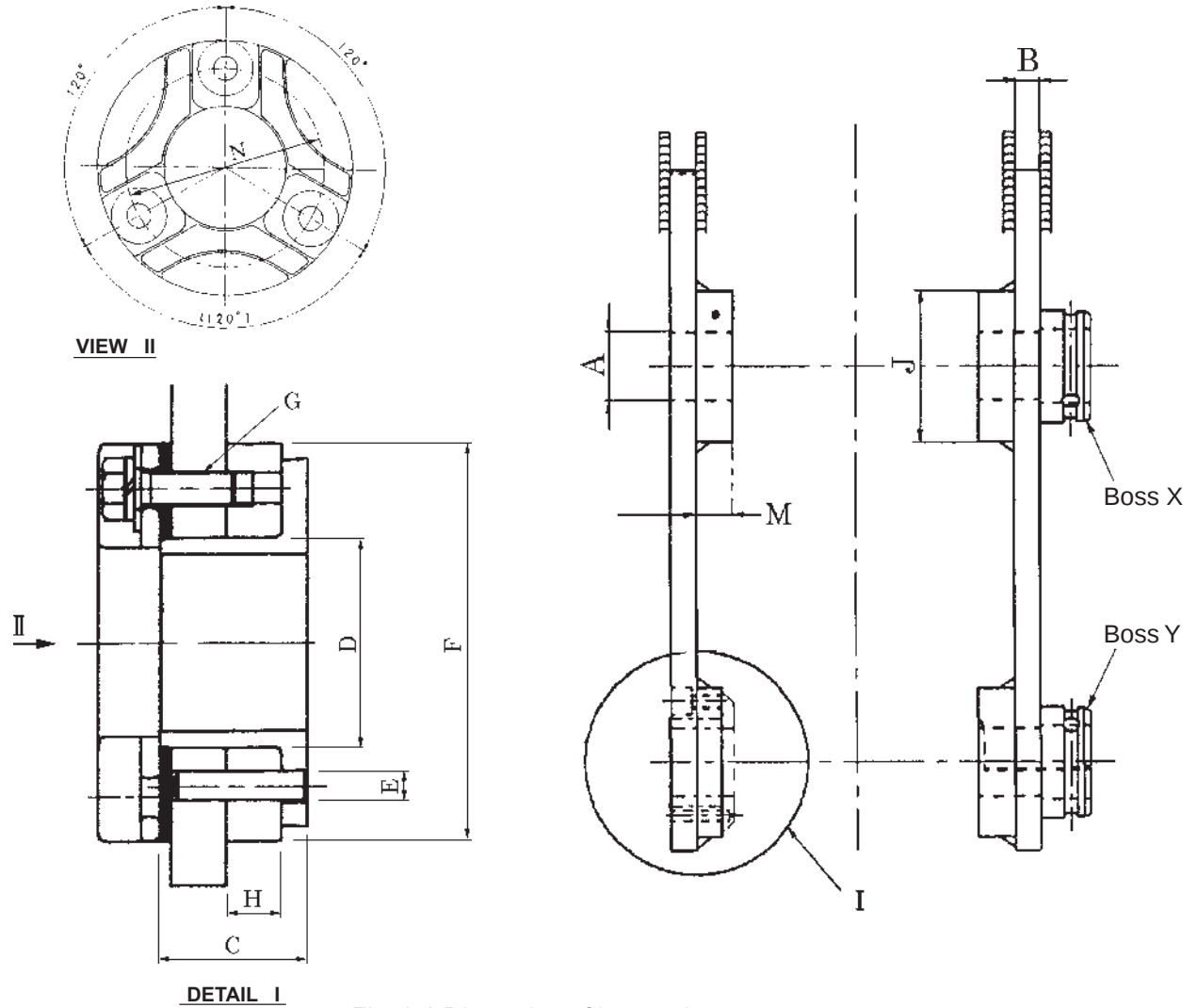


Table 3-3

Unit : mm (ft-in)

Type of bucket	Capacity of bucket m ³ (cu-yd)	P in hole dia.	Lug plate thickness	Bushing length	Hole dia.	Spring pin dia.	Boss outer dia.	Screw dia.	Boss width.	Boss outer dia.	Boss width.	Screw hole P.C.D
		A	B	C	D	E	F	G	H	J	M	N
Hoe bucket	[STD] 0.75 (0.98)	Ø80 (3.15")	25 (0.984")	67 (2.64")	Ø95 (3.74")	Ø13 (0.512")	Ø180 (7.09")	M16	25 (0.984")	Ø170 (6.69")	36 (1.42")	140 (5.51")
	0.63 (0.82)											

1. TIGHTENING TORQUES FOR CAPSCREWS AND NUTS

Tables 1-1 and 1-2 indicate tightening torques applicable to cases where no special note is given. Overtightening of bolts may result in a twist-off and a fracture under load.

Insufficient tightening may lead to a loosening or loss of bolts. Always tighten bolts to proper torques.

Table 1-1 Tightening torque for coarse thread metric screws (not plated)

unit : kgf·m (lbf·ft)

Strength grade Size \ Use	4.8T		7T		10.9T	
	No lubrication	Oil lubrication	No lubrication	Oil lubrication	No lubrication	Oil lubrication
M 6 P=1	0.45±0.05 (3.3±0.4)	0.38±0.04 (2.7±0.3)	0.98±0.1 (7.1±0.7)	0.83±0.08 (6.0±0.6)	1.77±0.18 (13±1)	1.5±0.15 (11±1)
M 8 P=1.25	1.09±0.11 (7.9±0.8)	0.92±0.09 (6.7±0.7)	2.4±0.2 (17±1)	2.0±0.2 (14±1)	4.3±0.4 (32±3)	3.6±0.4 (26±3)
M10 P=1.5	2.2±0.2 (16±1)	1.83±0.18 (13±1)	4.7±0.5 (34±4)	4.0±0.4 (29±3)	8.5±0.9 (61±7)	7.2±0.7 (52±5)
M12 P=1.75	3.7±0.4 (27±3)	3.2±0.3 (23±2)	8.1±0.8 (59±6)	6.8±0.7 (49±5)	14.6±1.5 (110±11)	12.3±1.2 (89±9)
M14 P=2	5.9±0.6 (43±4)	5.0±0.5 (36±4)	12.8±1.3 (93±9)	10.8±1.1 (78±8)	23±2 (170±14)	19.5±1.9 (140±14)
M16 P=2	9.0±0.9 (65±7)	7.6±0.7 (55±5)	19.5±2.0 (140±14)	16.4±1.6 (120±12)	35±4 (250±29)	29±3 (210±22)
M18 P=2.5	12.4±1.2 (90±9)	10.5±1.0 (76±7)	27±3 (200±22)	23±2 (170±14)	49±5 (350±36)	41±4 (300±29)
M20 P=2.5	17.5±1.7 (130±12)	14.7±1.4 (110±10)	38±4 (270±29)	32±3 (230±22)	68±7 (490±51)	57±6 (410±43)
M22 P=2.5	23±2 (170±14)	19.6±2.0 (140±14)	51±5 (370±36)	43±4 (310±29)	92±9 (670±65)	77±8 (560±58)
M24 P=3	30±3 (220±22)	24±3 (170±22)	65±7 (470±51)	53±5 (380±36)	118±12 (850±87)	96±10 (690±72)
M27 P=3	44±4 (320±29)	36±4 (260±29)	96±10 (690±72)	78±8 (560±58)	173±17 (1300±120)	140±14 (1000±100)
M30 P=3.5	60±6 (430±43)	50±5 (360±36)	131±13 (950±94)	110±11 (800±80)	235±24 (1700±170)	198±20 (1400±140)
M33 P=3.5	81±8 (590±58)	68±7 (490±51)	176±18 (1300±130)	148±15 (1100±110)	317±32 (2300±230)	266±27 (1900±200)
M36 P=4	105±10 (760±72)	88±9 (640±65)	227±23 (1600±170)	190±19 (1400±140)	409±41 (3000±300)	343±34 (2500±250)

Table 1-2 Tightening torques for fine threads metric screws (not plated)

unit : kgf·m (lbf·ft)

Strength grade Size \ Use	4.8T		7T		10.9T	
	No lubrication	Oil lubrication	No lubrication	Oil lubrication	No lubrication	Oil lubrication
M 8 P=1	1.15±0.11 (8.3±0.8)	0.97±0.1 (7.0±0.7)	2.5±0.2 (18±1)	2.1±0.2 (15±1)	4.5±0.4 (33±3)	3.8±0.4 (27±3)
M10 P=1.25	2.3±0.2 (17±1)	1.91±0.19 (14±1)	4.9±0.5 (35±4)	4.2±0.4 (30±3)	8.9±0.9 (64±7)	7.5±0.7 (54±5)
M12 P=1.25	4.0±0.4 (29±3)	3.4±0.3 (25±2)	8.7±0.9 (63±7)	7.3±0.7 (53±5)	15.7±1.6 (110±12)	13.2±1.3 (95±9)
M16 P=1.5	9.4±0.9 (68±7)	7.9±0.8 (57±6)	20±2 (140±14)	17.2±1.7 (120±12)	37±4 (270±29)	31±3 (220±22)
M20 P=1.5	19±1.9 (140±14)	15.8±1.6 (110±12)	41±4 (300±29)	34±3 (250±22)	74±7 (540±51)	62±6 (450±43)
M24 P=2	32±3 (230±22)	27±3 (200±22)	70±7 (510±51)	58±6 (420±43)	126±12 (910±87)	105±10 (760±72)
M30 P=2	65±6 (470±43)	54±5 (390±36)	142±14 (1000±100)	118±12 (850±87)	255±26 (1800±190)	212±21 (1500±150)
M33 P=2	87±9 (630±65)	72±7 (520±51)	190±19 (1400±140)	158±16 (1100±120)	341±34 (2500±250)	284±28 (2100±200)
M36 P=3	109±11 (790±80)	91±9 (660±65)	238±23 (1700±170)	198±20 (1400±140)	428±43 (3100±310)	357±36 (2600±260)

3. TIGHTENING TORQUES FOR NUTS AND SLEEVES

Table 3 indicates standard tightening torques applicable to cases where no particular note is given.

Overtightening or undertightening of nuts and

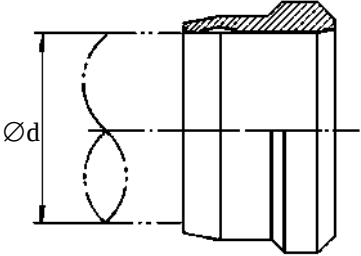
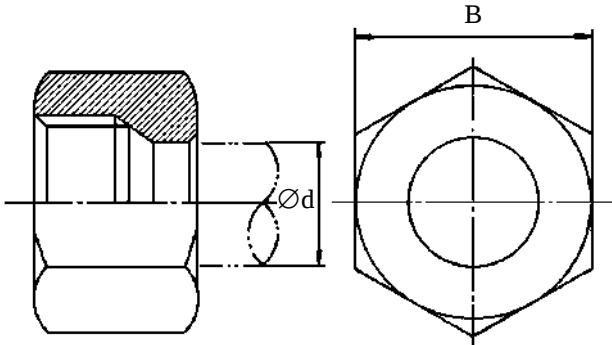
sleeves in flareless joint may develop oil leaks through pipe connections.

Always tighten nuts and sleeves to proper torques.

Table 3-1

Manufacturer's name	Working pressure kgf / cm ² (psi)	Tube size OD × thickness mm (in)	Opposing flats (HEX)	Tightening torque kgf·m (lbf·ft)
Nippon A.M.C.	300 (4270)	10 × 1.5 (0.394 × 0.059)	19	5 ± 1 (36 ± 7)
		15 × 2.0 (0.591 × 0.079)	27	12 ± 1.2 (87 ± 9)
		18 × 2.5 (0.709 × 0.098)	32	15 ± 1.5 (108 ± 11)
		22 × 3.0 (0.866 × 0.118)	36	22 ± 2.2 (159 ± 16)
		28 × 4.0 (1.10 × 0.157)	41	28 ± 2.8 (200 ± 20)
Ihara Koatu	300 (4270)	35 × 5.0 (1.38 × 0.197)	55	45 ± 4.5 (330 ± 33)

Table 3-2

SLEEVE			NUT			
						
Tube size Ød	Parts No.		Tube size Ød	Opposing flats (HEX) B	Parts No.	
	Ihara Koatu	Nippon A.M.C.			Ihara Koatu	Nippon A.M.C.
6			6	14		
8			8	17		
10			10	19		
12			12	22		
15			15	27		
18			18	32		
22			22	36		
28			28	41		
32			32	50		
35			35	55		
38			38	60		

4. PLUG

(1) Plug for hydraulic pipe joint

1) Cap nut (Plug for joint)

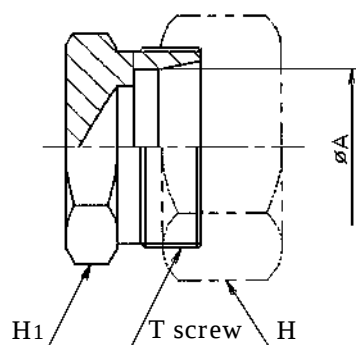


Table 4-1

Applicable pipe O. D : A	Cap nut parts No.	T screw	Opposing flat	
			H1	H
6		M12×1.5	14	14
8		M14×1.5	17	17
10		M16×1.5	17	19
12		M18×1.5	19	22
15		M22×1.5	24	27
18		M26×1.5	27	32
22		M30×1.5	32	36
28		M36×1.5	38	41

2) Plug (Plug for tube)

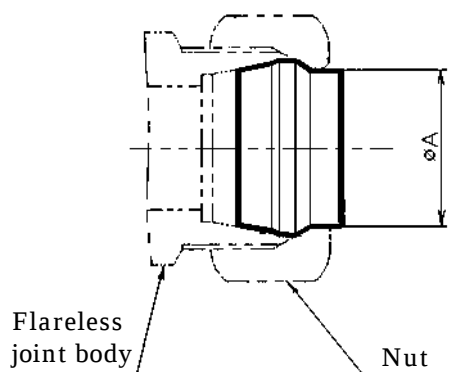


Table 4-2

Applicable pipe O. D : A	Plug parts No.
6	
8	
10	
12	
15	
18	
22	
28	

3) Nut

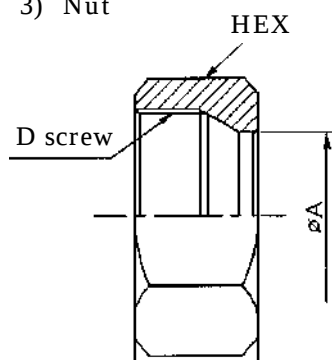


Table 4-3

Applicable pipe O. D : A	Nut parts No.	D screw	Opposing flat
6		M12×1.5	14
8		M14×1.5	17
10		M16×1.5	19
12		M18×1.5	22
15		M22×1.5	27
18		M26×1.5	32
22		M30×1.5	36
28		M36×1.5	41
32		M42×1.5	50
35		M45×1.5	55
38		M48×1.5	60

(2) Plug for hydraulic equipment

1) PF(G) screw

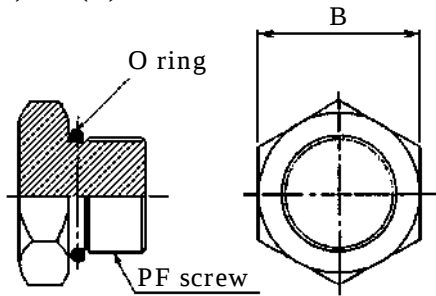


Table 4-4

PF (G) screw	Plug parts No.	B mm	O ring parts No.	Normal O ring
PF 1/4		19		1B P11
PF 3/8		22		1B P14
PF 1/2		27		1B P18
PF 3/4		36		1B P24
PF 1		41		1B P29

2) PT(R) screw

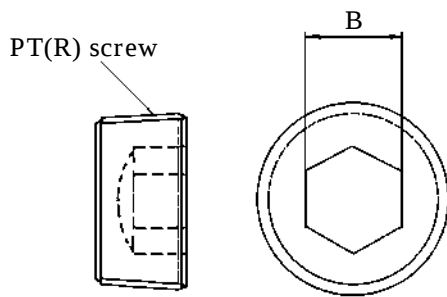


Table 4-5

PT(R) screw	Plug parts No.	B mm
PT 1/8		5
PT 1/4		6
PT 3/8		8
PT 1/2		10
PT 3/4		14
PT 1		17
PT 1 1/4		22
PT 1 1/2		22

(3) Plug for (F) flare hose

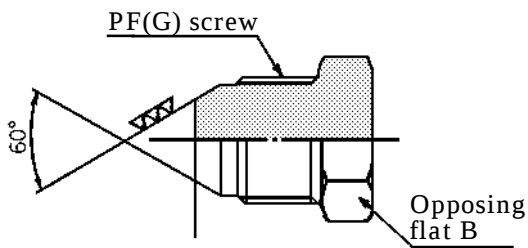


Table 4-6

PF(G) screw	Plug parts No.	B mm
PF 1/4		14
PF 3/8		17
PF 1/2		22
PF 3/4		27
PF 1		36

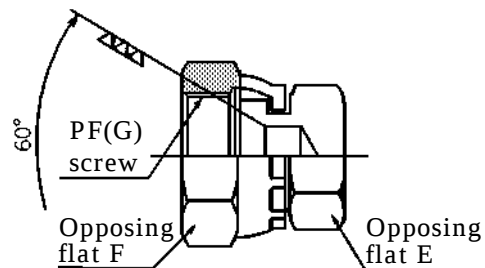


Table 4-7

PF (G) screw	Plug parts No.	E mm	F mm
PF 1/4		14	19
PF 3/8		17	22
PF 1/2		23	27
PF 3/4		27	36
PF 1		36	41
PF 1 1/4		40	50

5. SPECIAL SPANNER FOR TUBE

Table 5-1

Applicable tube diameter mm (in)	Part No.	HEX mm	Shape mm (in)
15 (0.591)		27	70 (2.76) 8(0.315) 16 (0.630) PART-No. 22(0.866) 40(1.57) HEX27 $\square 12.7^{+0.3}_{-0.1} (0.500^{+0.012}_{-0.004})$
18 (0.709)		32	70 (2.76) 42(1.65) 19 (0.748) PART-No. 22(0.866) HEX32 $\square 12.7^{+0.3}_{-0.1} (0.500^{+0.012}_{-0.004})$
22 (0.866)		30	70 (2.76) 40(1.57) 19 (0.748) PART-No. 22(0.866) HEX30 $\square 12.7^{+0.3}_{-0.1} (0.500^{+0.012}_{-0.004})$
22 (0.866)		36	70 (2.76) 48 (1.89) 23 (0.906) PART-No. 22(0.866) HEX36 11.5 (0.453) $\square 12.7^{+0.3}_{-0.1} (0.500^{+0.012}_{-0.004})$
28 (1.10)		41	109 (4.29) 60 (2.36) 29 (1.14) PART-No. 22(0.866) HEX41 14.5 (0.571) $\square 12.7^{+0.3}_{-0.1} (0.500^{+0.012}_{-0.004})$
28 (1.10)		46	109 (4.29) 80 (3.15) 31 (1.22) PART-No. 35(1.38) HEX46 $\square 19.05^{+0.5}_{-0.1} (0.750^{+0.020}_{-0.004})$
32 (1.26)		50	109 (4.29) 80 (3.15) 33 (1.30) PART-No. 35(1.38) HEX50 $\square 19.05^{+0.5}_{-0.1} (0.750^{+0.020}_{-0.004})$

8. SUCTION STOPPER

8.1 COMPONENTS

No.	NAME	PARTS No.	QTY
	SUCTION STOPPER ASSY		
1	ROD		1
2	NUT		1
3	COVER		1
4	O RING		1

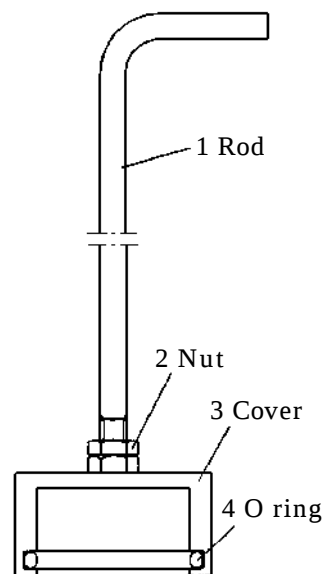


Fig. 8-1 Components of suction stopper

8.2 DIMENSION

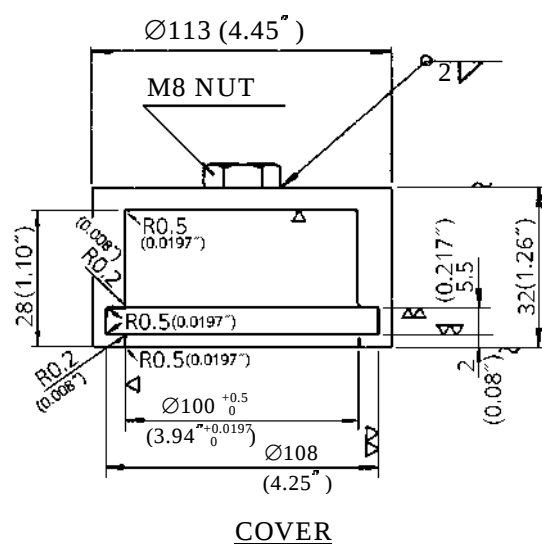
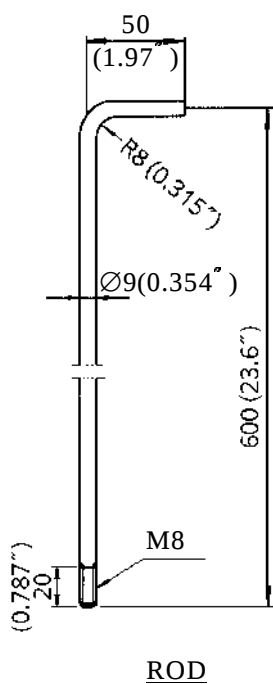


fig. 8-2 Dimension of suction stopper