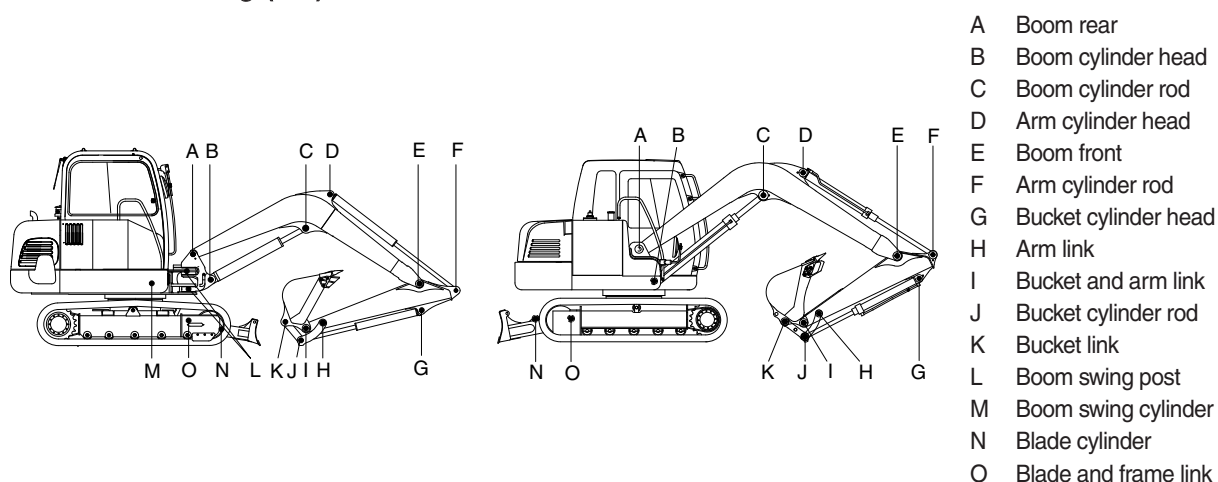


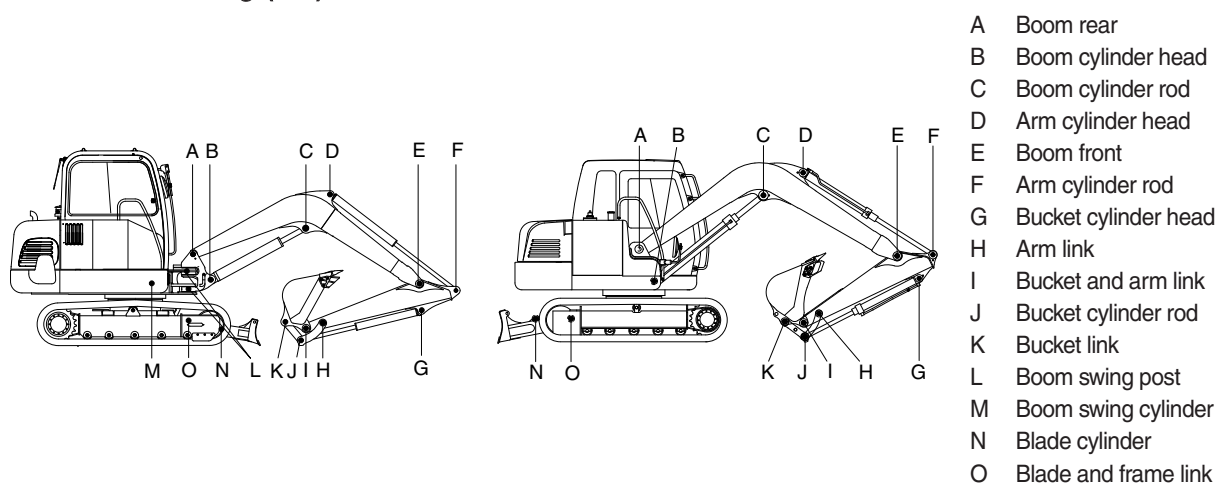
5. Pin and Bushing (1/6)



Unit : mm (inch)

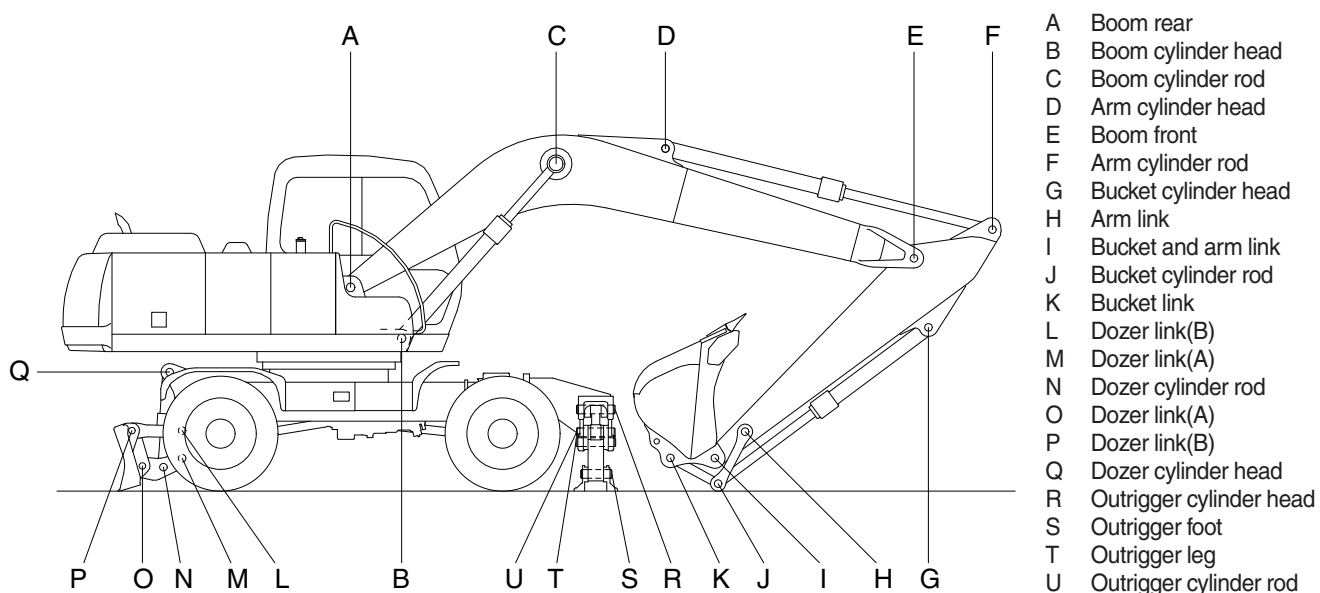
Model	Measuring point (Pin and bushing)	Normal value	Pin		Bushing	
			Recomm. service limit	Limit of use	Recomm. service limit	Limit of use
R16-9, R17Z-9A, R18-9, R18-9AK	B, C, D, E, F, G, H, I, J, K, M, N, O	30 (1.18)	29 (1.14)	28.5 (1.12)	30.5 (1.20)	31 (1.22)
	A	35 (1.38)	34 (1.34)	33.5 (1.32)	35.5 (1.40)	36 (1.42)
	L	45 (1.77)	44 (1.73)	43.5 (1.71)	45.5 (1.79)	46 (1.81)
HX17A Z, HX19A	B, C, D, E, F, G, I, H, J, K	30 (1.18)	29 (1.14)	28.5 (1.12)	30.5 (1.20)	31 (1.22)
	A, L	35 (1.38)	34 (1.34)	33.5 (1.32)	35.5 (1.40)	36 (1.42)
R25Z-9AK, R27Z-9AK	D, E, F, G, H, I, J, K, M, N, O	35 (1.38)	34 (1.34)	33.5 (1.32)	35.5 (1.40)	36 (1.42)
	A, B, C	40 (1.57)	39 (1.54)	38.5 (1.52)	40.5 (1.59)	41 (1.61)
	L	70 (2.76)	69 (2.72)	68.5 (2.70)	70.5 (2.78)	71 (2.80)
HX25AZ, HX30AZ	D, E, F, G, H, I, J, K	35 (1.38)	34 (1.34)	33.5 (1.32)	35.5 (1.40)	36 (1.42)
	A, B, C	40 (1.57)	39 (1.54)	38.5 (1.52)	40.5 (1.59)	41 (1.61)
R35Z-9, R35Z-9A	G, H, I, J, K, O	40 (1.57)	39 (1.54)	38.5 (1.52)	40.5 (1.59)	41 (1.61)
	B, C, D, E, F, M, N	45 (1.77)	44 (1.73)	43.5 (1.71)	45.5 (1.79)	46 (1.81)
	A	50 (1.97)	49 (1.93)	48.5 (1.91)	50.5 (1.99)	51 (2.01)
	L	70 (2.76)	69 (2.72)	68.5 (2.70)	70.5 (2.78)	71 (2.80)
HX35A Z	G, H, I, J, K	40 (1.57)	39 (1.54)	38.5 (1.52)	40.5 (1.59)	41 (1.61)
	B, C, D, E, F	45 (1.77)	44 (1.73)	43.5 (1.71)	45.5 (1.79)	46 (1.81)
	A	50 (1.97)	49 (1.93)	48.5 (1.91)	50.5 (1.99)	51 (2.01)
HX40A	G, H, I, J, K	40 (1.57)	39 (1.54)	38.5 (1.52)	40.5 (1.59)	41 (1.61)
	D, E, F	45 (1.77)	44 (1.73)	43.5 (1.71)	45.5 (1.79)	46 (1.81)
	A, B, C	50 (1.97)	49 (1.93)	48.5 (1.91)	50.5 (1.99)	51 (2.01)
R55-9, R55W-9, R60CR-9, R60-9S, R60W-9S, HX60, HW60	G, H, I, J, K, O	45 (1.77)	44 (1.73)	43.5 (1.71)	45.5 (1.79)	46 (1.81)
	D, E, F, M	50 (1.97)	49 (1.93)	48.5 (1.91)	50.5 (1.99)	51 (2.01)
	A, N	55 (2.17)	54 (2.13)	53.5 (2.11)	55.5 (2.19)	56 (2.20)
	B, C	60 (2.36)	59 (2.32)	58.5 (2.30)	60.5 (2.38)	61 (2.40)
	L	110 (4.33)	109 (4.29)	108.5 (4.27)	110.5 (4.35)	111 (4.37)

5. Pin and Bushing (2/6)



Model	Measuring point (Pin and bushing)	Normal value	Pin		Bushing	
			Recomm. service limit	Limit of use	Recomm. service limit	Limit of use
HX48A Z, HX55A CR	D, F, G, H, I, J, K	45 (1.77)	44 (1.73)	43.5 (1.71)	45.5 (1.79)	46 (1.81)
	A, B, C, E	50 (1.97)	49 (1.93)	48.5 (1.91)	50.5 (1.99)	51 (2.01)
R80CR-9, HX85A	G	50 (1.97)	49 (1.93)	48.5 (1.91)	50.5 (1.99)	51 (2.01)
	H, I, J, K, O	55 (2.17)	54 (2.13)	53.5 (2.11)	55.5 (2.19)	56 (2.20)
	A, B, C, D, E, F, M, N	65 (2.56)	64 (2.52)	63.5 (2.50)	65.5 (2.58)	66 (2.60)
	L	110 (4.33)	109 (4.29)	108.5 (4.27)	110.5 (4.35)	111 (4.37)
R125LCR-9A, HX130 LCR, HX130A LCR	A, B, C, E, N, O	70 (2.76)	69 (2.72)	68.5 (2.70)	70.5 (2.78)	71 (2.80)
	D, F, G, H, I, J, K	65 (2.56)	64 (2.52)	63.5 (2.50)	65.5 (2.58)	66 (2.60)

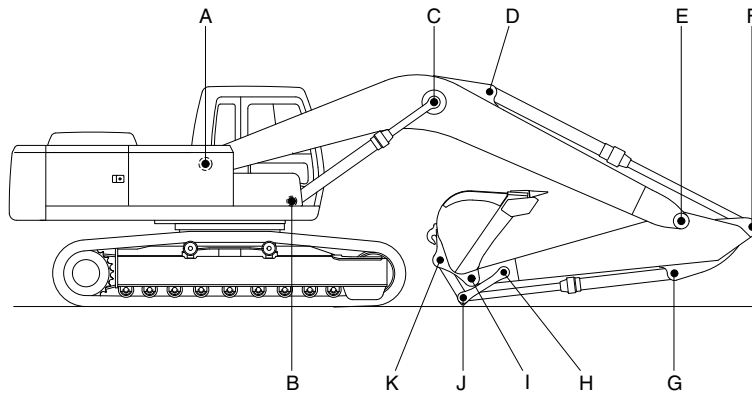
5. Pin and Bushing (3/6)



Unit : mm (inch)

Model	Measuring point (Pin and bushing)	Normal value	Pin		Bushing	
			Recomm. service limit	Limit of use	Recomm. service limit	Limit of use
R140W-9, R140W-9S, HW140, HW155A	L, M, O, P	55 (2.17)	54 (2.13)	53.5 (2.11)	55.5 (2.19)	56 (2.20)
	H, I, K, N, Q	65 (2.56)	64 (2.52)	63.5 (2.50)	65.5 (2.58)	66 (2.60)
	A, B, C, D, E, F, G, J, R, S, T, U	70 (2.76)	69 (2.72)	68.5 (2.70)	70.5 (2.78)	71 (2.80)
HW140A, HW150A CR	H, I, K	65 (2.56)	54 (2.13)	53.5 (2.11)	55.5 (2.19)	56 (2.20)
	B, C, D, E, F, G, J	70 (2.76)	69 (2.72)	68.5 (2.70)	70.5 (2.78)	71 (2.80)
	A	80 (3.15)	79 (3.11)	78.5 (3.09)	80.5 (3.17)	81 (3.19)
R170W-9, R170W-9S, HW160, HW180	L, M, O, P	60 (2.36)	59 (2.32)	58.5 (2.30)	60.5 (2.38)	61 (2.40)
	B, D, F, G, H, I, J, K, N, Q, S, T	70 (2.76)	69 (2.72)	68.5 (2.70)	70.5 (2.78)	71 (2.80)
	C, E, R, U	75 (2.95)	74 (2.91)	73.5 (2.89)	75.5 (2.97)	76 (2.99)
	A	80 (3.15)	79 (3.11)	78.5 (3.09)	80.5 (3.17)	81 (3.19)
R190W-9	B, D, F, G, I, J, K	70 (2.76)	69 (2.72)	68.5 (2.70)	70.5 (2.78)	71 (2.80)
	C, E	75 (2.95)	74 (2.91)	73.5 (2.89)	75.5 (2.97)	76 (2.99)
	A	80 (3.15)	79 (3.11)	78.5 (3.09)	80.5 (3.17)	81 (3.19)
HW160A, HW170A CR	B, C, D, F, G, I, J, K	70 (2.76)	69 (2.72)	68.5 (2.70)	70.5 (2.78)	71 (2.80)
	E	75 (2.95)	74 (2.91)	73.5 (2.89)	75.5 (2.97)	76 (2.99)
	A	80 (3.15)	79 (3.11)	78.5 (3.09)	80.5 (3.17)	81 (3.19)
R200W-9, R200W-9S, HW210, HW210A	H, L, M, N, O, P, Q	70 (2.76)	69 (2.72)	68.5 (2.70)	70.5 (2.78)	71 (2.80)
	B, C, D, F, G, I, J, K, R, S, T, U	80 (3.15)	79 (3.11)	78.5 (3.09)	80.5 (3.17)	81 (3.19)
	A, E	90 (3.54)	89 (3.50)	88.5 (3.48)	90.5 (3.56)	91 (3.58)

5. Pin and Bushing (4/6)

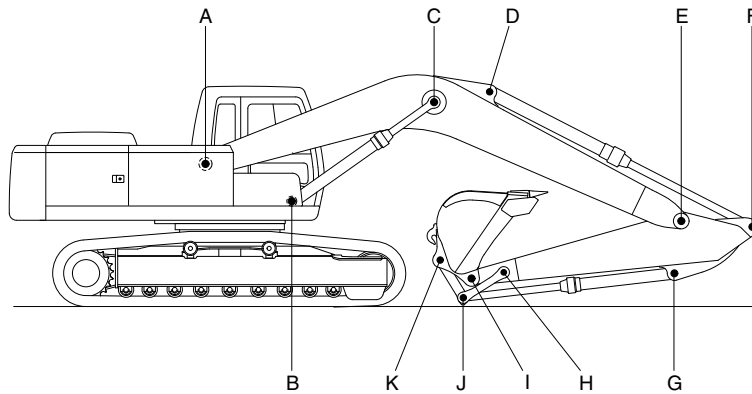


- A Boom rear
- B Boom cylinder head
- C Boom cylinder rod
- D Arm cylinder head
- E Boom front
- F Arm cylinder rod
- G Bucket cylinder head
- H Arm link
- I Bucket and arm link
- J Bucket cylinder rod
- K Bucket link

Unit : mm (inch)

Model	Measuring point (Pin and bushing)	Normal value	Pin		Bushing	
			Recomm. service limit	Limit of use	Recomm. service limit	Limit of use
R140LC-9, R140LC-9S, R145CR-9S, HX140 L, HX140 LC, HX140LT3 (-#0132), HX140A L (-#0685), HX145 LCR, HX145LCRT3 (-#0246), HX145A LCR (-#0837)	H, I, K	65 (2.56)	64 (2.52)	63.5 (2.50)	65.5 (2.58)	66 (2.60)
	A, B, C, D, E, F, G, J	70 (2.76)	69 (2.72)	68.5 (2.70)	70.5 (2.78)	71 (2.80)
HX140A L (4.10 m Boom), HX145A LCR (4.10 m Boom)	H, I, K	65 (2.56)	64 (2.52)	63.5 (2.50)	65.5 (2.58)	66 (2.60)
	A, B, C, D, E, F, G, J	70 (2.76)	69 (2.72)	68.5 (2.70)	70.5 (2.78)	71 (2.80)
HX140LT3 (#0133-), HX140A L (#0686-), HX145LCRT3 (#0247-), HX145A LCR (#0838-)	A, B	70 (2.76)	69 (2.72)	68.5 (2.70)	70.5 (2.78)	71 (2.80)
	C, D, E, F	71 (2.80)	70 (2.76)	69.5 (2.74)	71.5 (2.81)	72 (2.83)
	G, H, I, J, K	65 (2.56)	64 (2.52)	63.5 (2.50)	65.5 (2.58)	66 (2.60)
	A, B, C, D, E, F	70 (2.76)	69 (2.72)	68.5 (2.70)	70.5 (2.78)	71 (2.80)
2PCS HX140A L (#0686-), HX145A LCR (#0838-)	G, H, I, J, K,	65 (2.56)	64 (2.52)	63.5 (2.50)	65.5 (2.58)	66 (2.60)
	B, D, F, G, H, I, J, K	70 (2.76)	69 (2.72)	68.5 (2.70)	70.5 (2.78)	71 (2.80)
R160LC-9, R160LC-9S, R180LC-9, R180LC-9S	C, E	75 (2.95)	74 (2.91)	73.5 (2.89)	75.5 (2.97)	76 (2.99)
	A	80 (3.15)	79 (3.11)	78.5 (3.09)	80.5 (3.17)	81 (3.19)
	B, D, F, G, H, I, J, K	70 (2.76)	69 (2.72)	68.5 (2.70)	70.5 (2.78)	71 (2.80)
HX160 L, HX160A L HX180 L, HX180A L	C, E	75 (2.95)	74 (2.91)	73.5 (2.89)	75.5 (2.97)	76 (2.99)
	A	80 (3.15)	79 (3.11)	78.5 (3.09)	80.5 (3.17)	81 (3.19)
	B, D, F, G, H, I, J, K	70 (2.76)	69 (2.72)	68.5 (2.70)	70.5 (2.78)	71 (2.80)
R210LC-9, R210NLC-9, R220LC-9S, R220LC-9SH, R235LCR-9, HX210A L, HX210A NL, HX210S (-#4560), HX220 L, HX220 NL, HX220LT3 (-#0234), HX220A L (-#1079), HX225S L (-#1977), HX235 LCR, HX235LCRT3 (-#0108), HX235A LCR (-#0442)	H	70 (2.76)	69 (2.72)	68.5 (2.70)	70.5 (2.78)	71 (2.80)
	B, C, D, F, G, I, J, K	80 (3.15)	79 (3.11)	78.5 (3.09)	80.5 (3.17)	81 (3.19)
	A, E	90 (3.54)	89 (3.50)	88.5 (3.48)	90.5 (3.56)	91 (3.58)
HX210S (#4561-), HX220LT3 (#0235-), HX220A L (#1080-), HX225S L (#1978-)	A, E	90 (3.54)	89 (3.50)	88.5 (3.48)	90.5 (3.56)	91 (3.58)
	B, C, D, F, G, I, J, K,	80 (3.15)	79 (3.11)	78.5 (3.09)	80.5 (3.17)	81 (3.19)
	H	71 (2.80)	70 (2.76)	69.5 (2.74)	71.5 (2.81)	72 (2.83)

5. Pin and Bushing (5/6)

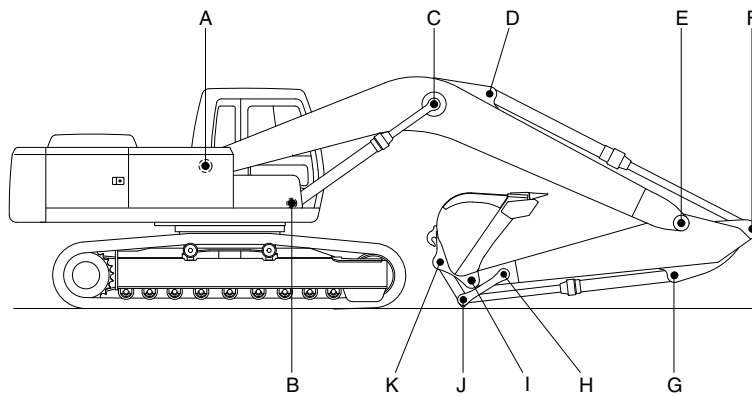


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- D Arm cylinder head
- E Boom front
- F Arm cylinder rod
- G Bucket cylinder head
- H Arm link
- I Bucket and arm link
- J Bucket cylinder rod
- K Bucket link

Unit : mm (inch)

Model	Measuring point (Pin and bushing)	Normal value	Pin		Bushing	
			Recomm. service limit	Limit of use	Recomm. service limit	Limit of use
HX235LCRT3 (#0109-), HX235A LCR (#0443-)	A, C, E	90 (3.54)	89 (3.50)	88.5 (3.48)	90.5 (3.56)	91 (3.58)
	B, D, F, G, I, J, K,	80 (3.15)	79 (3.11)	78.5 (3.09)	80.5 (3.17)	81 (3.19)
	H	71 (2.80)	70 (2.76)	69.5 (2.74)	71.5 (2.81)	72 (2.83)
LONG REACH R210LC-9, R220LC-9S, R220LC- 9SH, HX210S (-#4560), HX220LT3 (-#0234), HX220A L (-#1079), HX225S L (-#1977)	H, I, K	65 (2.56)	64 (2.52)	63.5 (2.50)	65.5 (2.58)	66 (2.60)
	G, J	70 (2.76)	69 (2.72)	68.5 (2.70)	70.5 (2.78)	71 (2.80)
	B, C, D, E, F	80 (3.15)	79 (3.11)	78.5 (3.09)	80.5 (3.17)	81 (3.19)
	A	90 (3.54)	89 (3.50)	88.5 (3.48)	90.5 (3.56)	91 (3.58)
LONG REACH HX210S (#4561-), HX220LT3 (#0235-), HX220A L (#1080-), HX225S L (#1978-)	A, E	90 (3.54)	89 (3.50)	88.5 (3.48)	90.5 (3.56)	91 (3.58)
	B, C, D, F	80 (3.15)	79 (3.11)	78.5 (3.09)	80.5 (3.17)	81 (3.19)
	G, H, I, J, K	65 (2.56)	64 (2.52)	66.5 (2.62)	65.5 (2.58)	66 (2.60)
R250LC-9, R260LC-9A, R260LC-9S, HX260 L, HX260LT3, HX260A L	H, J	80 (3.15)	79 (3.11)	78.5 (3.09)	80.5 (3.17)	81 (3.19)
	B, D, F, G, I, K	90 (3.54)	89 (3.50)	88.5 (3.48)	90.5 (3.56)	91 (3.58)
	A, C, E	100 (3.94)	99 (3.90)	98.5 (3.88)	100.5 (3.96)	101 (3.98)
R290LC-9, R300LC-9S, R300LC- 9SH, R300LC-9A, HX300 L, HX300LT3 (-#0180), HX300A L (-#1618), HX300S L (-#1896)	H, J	80 (3.15)	79 (3.11)	78.5 (3.09)	80.5 (3.17)	81 (3.19)
	B, D, F, G, I, K	90 (3.54)	89 (3.50)	88.5 (3.48)	90.5 (3.56)	91 (3.58)
	C, E	100 (3.94)	99 (3.90)	98.5 (3.88)	100.5 (3.96)	101 (3.98)
	A	110 (4.33)	109 (4.29)	108.5 (4.27)	110.5 (4.35)	111 (4.37)
HX300A L (#1619-), HX300LT3 (#0181-), HX300S L (#1897-)	A	110 (4.33)	109 (4.29)	108.5 (4.27)	110.5 (4.35)	111 (4.37)
	E	100 (3.94)	99 (3.90)	98.5 (3.88)	100.5 (3.96)	101 (3.98)
	B, C, D, F, G, I, J, K	90 (3.54)	89 (3.50)	88.5 (3.48)	90.5 (3.56)	91 (3.58)
	H	80 (3.15)	79 (3.11)	78.5 (3.09)	80.5 (3.17)	81 (3.19)
LONG REACH R290LC-9, R300LC-9S, R300LC- 9SH, HX300 L	H, I, K	65 (2.56)	64 (2.52)	63.5 (2.50)	65.5 (2.58)	66 (2.60)
	J, G	70 (2.76)	69 (2.72)	68.5 (2.70)	70.5 (2.78)	71 (2.80)
	B, D, E, F	90 (3.54)	89 (3.50)	88.5 (3.48)	90.5 (3.56)	91 (3.58)
	C	100 (3.94)	99 (3.90)	98.5 (3.88)	100.5 (3.96)	101 (3.98)
	A	110 (4.33)	109 (4.29)	108.5 (4.27)	110.5 (4.35)	111 (4.37)

5. Pin and Bushing (6/6)

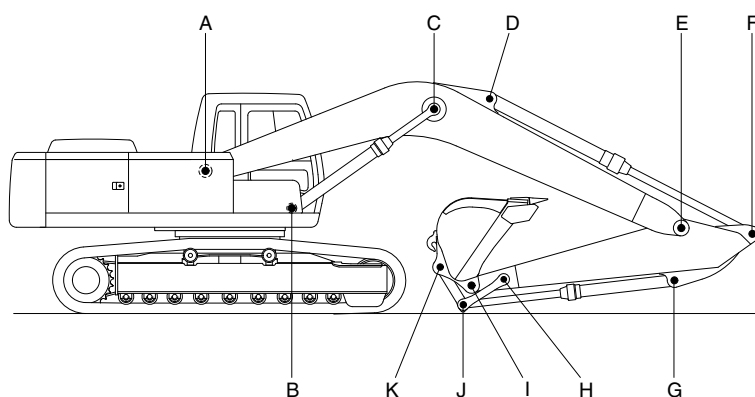


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- F Arm cylinder rod
- G Bucket cylinder head
- H Arm link
- I Bucket and arm link
- J Bucket cylinder rod
- K Bucket link

Unit : mm (inch)

Model	Measuring point (Pin and bushing)	Normal value	Pin		Bushing	
			Recomm. service limit	Limit of use	Recomm. service limit	Limit of use
R320LC-9, R330LC-9A, R330LC-9S, R330LC-9SH, R350LC-9, HX330 L, HX330A L, HX330S L, HX340S L, HX350LT3, HX350A L	G, H, J	90 (3.54)	89 (3.50)	88.5 (3.48)	90.5 (3.56)	91 (3.58)
	B, C, D, E, F, I, K	100 (3.94)	99 (3.90)	98.5 (3.88)	100.5 (3.96)	101 (3.98)
	A	110 (4.33)	109 (4.29)	108.5 (4.27)	110.5 (4.35)	111 (4.37)
R380LC-9, R380LC-9A, R380LC- 9SH, HX380 L, HX380A L, HX400LT3	G, H, J	90 (3.54)	89 (3.50)	88.5 (3.48)	90.5 (3.56)	91 (3.58)
	B, I, K	100 (3.94)	99 (3.90)	98.5 (3.88)	100.5 (3.96)	101 (3.98)
	C, D, E, F	110 (4.33)	109 (4.29)	108.5 (4.27)	110.5 (4.35)	111 (4.37)
	A	120 (4.72)	119 (4.69)	118.5 (4.67)	120.5 (4.74)	121 (4.76)
R430LC-9, R430LC-9A, R430LC- 9SH, HX430 L	G, H, J	90 (3.54)	89 (3.50)	88.5 (3.48)	90.5 (3.56)	91 (3.58)
	B, I, K	100 (3.94)	99 (3.90)	98.5 (3.88)	100.5 (3.96)	101 (3.98)
	C, D, E, F	110 (4.33)	109 (4.29)	108.5 (4.27)	110.5 (4.35)	111 (4.37)
	A	120 (4.72)	119 (4.69)	118.5 (4.67)	120.5 (4.74)	121 (4.76)
R480LC-9, R480LC-9A, R480LC-9S (-#1075)	G, H, I, J, K	100 (3.94)	99 (3.90)	98.5 (3.88)	100.5 (3.96)	101 (3.98)
	B, C, D, F	120 (4.72)	109 (4.29)	108.5 (4.27)	110.5 (4.35)	111 (4.37)
	A, E	125 (4.92)	124 (4.88)	123.5 (4.86)	125.5 (4.94)	126 (4.96)
R480LC-9S (#1076-), R520LC-9, R520LC-9A, R520LC-9S, HX480 L, HX480A L, HX480S L, HX500LT3, HX520 L, HX520A L, HX520S L, HX520LT3	H	100 (3.94)	99 (3.90)	98.5 (3.88)	100.5 (3.96)	101 (3.98)
	G, J	110 (4.33)	109 (4.29)	108.5 (4.27)	110.5 (4.35)	111 (4.37)
	B, C, D, F, I, K	120 (4.72)	119 (4.69)	118.5 (4.67)	120.5 (4.74)	121 (4.76)
	A, E	125 (4.92)	124 (4.88)	123.5 (4.86)	125.5 (4.94)	126 (4.96)
	G, H, J	120 (4.72)	119 (4.69)	118.5 (4.67)	120.5 (4.74)	121 (4.76)
R800LC-9, R850LC-9	B, C, I, K	130 (5.12)	129 (5.08)	128.5 (5.06)	130.5 (5.14)	131 (5.16)
	D, F	140 (5.51)	139 (5.47)	138.5 (5.45)	140.5 (5.53)	141 (5.55)
	A, E	145 (5.71)	144 (5.67)	143.5 (5.65)	145.5 (5.73)	146 (5.75)
	H	110 (4.33)	99 (3.90)	98.5 (3.88)	100.5 (3.96)	101 (3.98)
LONG REACH R800LC-9, R850LC-9	G, J	110 (4.33)	109 (4.29)	108.5 (4.27)	110.5 (4.35)	111 (4.37)
	I, K	120 (4.72)	119 (4.69)	118.5 (4.67)	120.5 (4.74)	121 (4.76)
	B, C	130 (5.12)	129 (5.08)	128.5 (5.06)	130.5 (5.14)	131 (5.16)
	D, F	140 (5.51)	139 (5.47)	138.5 (5.45)	140.5 (5.53)	141 (5.55)
	A, E	145 (5.71)	144 (5.67)	143.5 (5.65)	145.5 (5.73)	146 (5.75)
	H	110 (4.33)	99 (3.90)	98.5 (3.88)	100.5 (3.96)	101 (3.98)

5. Pin and Bushing (6/6)



- A Boom rear
- B Boom cylinder head
- C Boom cylinder rod
- D Arm cylinder head
- E Boom front
- F Arm cylinder rod
- G Bucket cylinder head
- H Arm link
- I Bucket and arm link
- J Bucket cylinder rod
- K Bucket link

Unit : mm (inch)

Model	Measuring point (Pin and bushing)	Normal value	Pin		Bushing	
			Recomm. service limit	Limit of use	Recomm. service limit	Limit of use
HX900 L	H	120 (4.72)	119 (4.69)	118.5 (4.67)	120.5 (4.74)	121 (4.76)
	B, C, G	130 (5.12)	129 (5.08)	128.5 (5.06)	130.5 (5.14)	131 (5.16)
	D, F, I, K	140 (5.51)	139 (5.47)	138.5 (5.45)	140.5 (5.53)	141 (5.55)
	E, J	150 (5.91)	149 (5.87)	148.5 (5.85)	150.5 (5.93)	151 (5.94)
	A	155 (6.10)	154 (6.06)	153.5 (6.04)	155.5 (6.12)	156 (6.14)
R1200-9, R1250-9	H	130 (5.12)	129 (5.08)	128.5 (5.06)	130.5 (5.14)	131 (5.16)
	K	140 (5.51)	139 (5.47)	138.5 (5.45)	140.5 (5.53)	141 (5.55)
	G	150 (5.91)	149 (5.87)	148.5 (5.85)	150.5 (5.93)	151 (5.94)
	A, B, C, I, J	160 (6.30)	159 (6.26)	158.5 (6.24)	160.5 (6.32)	161 (6.34)
	D, E, F	170 (6.69)	169 (6.65)	168.5 (6.63)	170.5 (6.71)	171 (6.73)