

OPERATION & MAINTENANCE MANUAL

BM400

APPLICABLE : GL-00267~

10. REFERENCE MATERIALS

10.1 SPECIFICATION

1. PERFORMANCE

Maximum lifting capacity	40.0ton×3m (88180 lbs×9.84ft)	
Maximum boom length	Boom only	39.62m(130ft)
	Boom + jib	33.53m + 12.19m (110ft + 40ft)
Basic boom length	9.14m (30ft)	
Front and Rear Drum hoist rope speed	※70 / 35m / min (230 / 115ft / min)	
Front and Rear Drum lowering rope speed	70 / 35m / min (230 / 115ft / min)	
Boom hoist rope speed	※68m / min (223ft / min)	
Boom lowering rope speed	68m / min (223ft / min)	
Swing speed	3.7rpm	
Propel speed	1.6km / h (1.0mile / h)	
Ascendability (percent of grade)	21.8° (40%)	
Working weight (with basic boom attached)	38ton (83800lbs)	
Ground pressure (with basic boom attached)	0.54kg/cm ² (0.78psi)	
Engine	Mitsubishi 6D15-T 155ps / 2150rpm	

※ NOTE 1. Speed varies according to load.

NOTE 2. Rope speed is drum first layer speed.

2. GENERAL DIMENSIONS (See Figure 10-1)

Unit : mm (inch)

Width of cab	3,100 (122.1)
Radius of rear end (with counterweight)	3,570 (140.6)
Radius of rear end (gantry lowered)	3,775 (148.6)
Height from ground to boom foot pin	1,550 (61.0)
Distance to boom foot pin (from center of rotation)	950 (37.4)
Clearance height over gantry (working position)	4,515 (177.8)
Clearance height over gantry (lowered gantry)	3,075 (121.1)
Rear end clearance height (counterweight)	1,000 (39.4)
Overall length of crawlers	5,150 (202.8)
Center to center of propel sprockets	4,310 (169.7)
Overall width of crawlers (extended / retracted)	4,180 / 3,300 (164.6 / 129.9)
Width of crawler shoe	760 (29.9)
Ground clearance	370 (14.6)

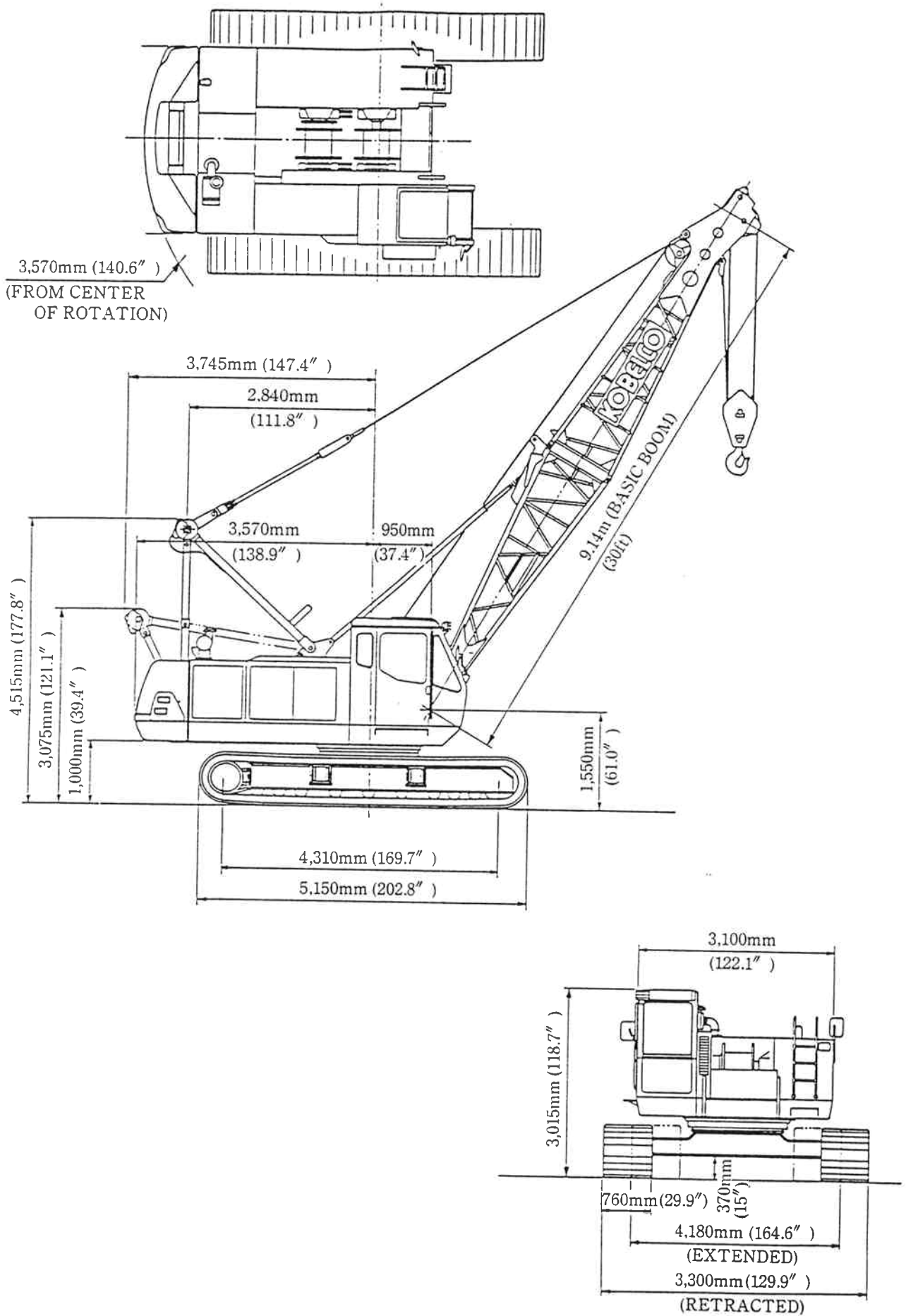


Figure 10-1 General Dimensions

10. 2 RATED CRANE LOADS

- OPERATING RADIUS IS THE HORIZONTAL DISTANCE FROM CENTER-LINE OF ROTATION TO A VERTICAL LINE THROUGH THE CENTER OF GRAVITY OF THE LOAD.
- RATINGS DO NOT EXCEED 78% OF TIPPING LOADS. DEDUCT WEIGHT OF HOOK BLOCK(S), SLINGS, AND ALL OTHER LOAD HANDLING ACCESSORIES FROM MAIN BOOM OR JIB RATING SHOWN.
- RATINGS SHOWN ARE BASED ON FREELY SUSPENDED LOADS AND MAKE NO ALLOWANCE FOR SUCH FACTORS AS WIND EFFECT ON LIFTED LOAD, GROUND CONDITIONS, OUT-OF-LEVEL, OPERATING SPEEDS OR ANY OTHER CONDITION THAT COULD BE DETRIMENTAL TO THE SAFE OPERATION OF THIS EQUIPMENT. THE OPERATOR, THEREFORE, HAS THE RESPONSIBILITY TO JUDGE THE EXISTING CONDITIONS AND REDUCE LIFTED LOADS AND OPERATING SPEEDS ACCORDINGLY.
- AT RADII AND BOOM LENGTH WHERE NO RATINGS ARE SHOWN ON PLATE OPERATION IS NOT INTENDED OR APPROVED.
- GANTRY MUST BE RAISED POSITION FOR ALL OPERATING CONDITIONS.
- RATINGS ARE BASED ON CRAWLER EXTENDED TO A FULCRUM POINT. CRAWLER FRAMES MUST BE FULLY EXTENDED FOR ALL CRANE OPERATIONS.
- BOOM INSERTS AND GUY LINES MUST BE ARRANGED AS SHOWN IN THE "BOOM AND GUY LINE ARRANGEMENT".
- GENERALLY BOOMS MUST BE ERECTED OVER END OF CRAWLERS.
- BOOM BACKSTOPS ARE REQUIRED FOR ALL BOOM LENGTH.
- STANDARD BOOM HOIST REEVING IS 12 PART LINE.
- BOOM LENGTH FOR AUXILIARY SHEAVE MOUNTING IS 9.14m TO 36.58m.
- BOOM LENGTH FOR JIB MOUNTING IS 24.38m TO 33.53m.
- JIB INSERTS AND GUY LINES MUST BE ARRANGED AS SHOWN IN THE "JIB AND JIB GUY LINE ARRANGEMENT".
- MAIN BOOM RATED LOADS
DEDUCT WEIGHT OF MAIN HOOK BLOCK, SLINGS, AND ALL OTHER LOAD HANDLING ACCESSORIES FROM MAIN BOOM RATED LOADS SHOWN.
- AUX. SHEAVE RATED LOADS
DEDUCT WEIGHT OF MAIN HOOK BLOCK, AUX. HOOK BLOCK, SLINGS, AND ALL OTHER LOAD HANDLING ACCESSORIES FROM AUX. SHEAVE RATED LOADS SHOWN.
- MAIN BOOM RATED LOADS WITH AUX. SHEAVE
DEDUCT WEIGHT OF MAIN HOOK BLOCK, AUX. HOOK BLOCK, SLINGS, AND ALL OTHER LOAD HANDLING ACCESSORIES FROM MAIN BOOM RATED LOADS WITH AUX. SHEAVE SHOWN.
- JIB RATED LOADS
DEDUCT WEIGHT OF MAIN HOOK BLOCK, AUX. HOOK BLOCK, SLINGS, AND ALL OTHER LOAD HANDLING ACCESSORIES FROM JIB RATED LOADS SHOWN.
- MAIN BOOM RATED LOADS WITH JIB
DEDUCT WEIGHT OF MAIN HOOK BLOCK, AUX. HOOK BLOCK, SLINGS, AND ALL OTHER LOAD HANDLING ACCESSORIES FROM MAIN BOOM RATED LOADS WITH JIB SHOWN.

MAIN HOIST RATED LOADS (METRIC TON)

NO. OF PART OF LINE	1	2	3	4	5	6	7	8
MAX. LOAD(ton)	5.7	11.4	17.1	22.8	28.5	34.2	39.9	40

WEIGHT OF HOOK BLOCK

HOOK BLOCK	40t	25t	15t	5.7t
WEIGHT-TON	0.50	0.30	0.30	0.12

JIB HOIST RATED LOADS(METRIC TON)

NO. OF PART OF LINE	1
MAX. LOAD	4.5

OPERATION OF THIS EQUIPMENT IN EXCESS OF RATED LOADS AND DISREGARD OF INSTRUCTION VOIDS THE WARRANTY.

「BM400 CRAWLER CRANE RATINGS IN METRIC TONS」

BOOM LENGTH / LOAD RADIUS	9.14m (30')	12.19m (40')	15.24m (50')	18.29m (60')	21.34m (70')	24.38m (80')	27.43m (90')	30.48m (100')	33.53m (110')	36.58m (120')	39.62m (130')	BOOM LENGTH / LOAD RADIUS
3	40.00 <small>3.3m</small>	37.85 <small>3.0m</small>										3
3.7	35.00	35.00										3.7
4	33.10	33.00	32.95 <small>4.3m</small>	28.20 <small>4.9m</small>	23.30 <small>5.4m</small>	19.75 <small>5.9m</small>	17.10 <small>6.4m</small>	14.95 <small>6.9m</small>	13.25 <small>7.5m</small>	11.90 <small>8.0m</small>	10.70 <small>8.5m</small>	4
4.5	27.05	26.95	26.90	26.85	23.30	19.75	17.10	14.95	13.25	11.90	10.70	4.5
5	22.80	22.70	22.65	22.60	22.50	19.75	17.10	14.95	13.25	11.90	10.70	5
5.5	19.70	19.60	19.55	19.50	19.40	16.95	14.95	13.35	11.90	10.95	10.70	5.5
6	17.35	17.25	17.15	17.10	17.00	16.95	16.90	14.95	13.35	11.90	10.70	6
7	13.95	13.80	13.75	13.65	13.60	13.50	13.45	13.35	13.25	13.15	13.05	7
8	11.60	11.50	11.40	11.35	11.25	11.15	11.10	11.05	10.95	10.90	10.85	8
9	9.95	9.80	9.70	9.65	9.55	9.50	9.45	9.35	9.25	9.20	9.15	9
10		8.55	8.45	8.35	8.25	8.20	8.15	8.05	7.95	7.90	7.85	10
12		7.00	6.65	6.55	6.45	6.35	6.30	6.20	6.15	6.05	6.00	12
14			5.40	5.30	5.25	5.15	5.10	5.00	4.90	4.85	4.80	14
16			5.30 <small>14.2m</small>	4.45	4.35	4.25	4.20	4.10	4.05	3.95	3.90	16
18			4.15 <small>19.5m</small>	3.70	3.70	3.60	3.55	3.45	3.35	3.25	3.20	18
20				3.30 <small>22.1m</small>	3.30	3.10	3.00	2.90	2.85	2.75	2.70	20
22						2.70 <small>24.8m</small>	2.60	2.50	2.45	2.35	2.30	22
24						2.65 <small>27.4m</small>	2.30	2.15	2.10	2.00	1.95	24
26							2.15 <small>30.1m</small>	1.90	1.80	1.70	1.65	26
28								1.70 <small>32.7m</small>	1.55	1.45	1.35	28
30									1.35	1.20	1.10	30
32									1.35	1.05	0.90	32
34									1.35	0.95	0.75	34

OPERATION OF THIS EQUIPMENT IN EXCESS OF RATED LOADS AND DISREGARD OF INSTRUCTION Voids THE WARRANTY.

FBM400 CRAWLER CRANE MAIN BOOM RATING LOADS IN METRIC TONS WITH AUXILIARY SHEAVE

BOOM LENGTH / LOAD RADIUS	9.14m (30')	12.19m (40')	15.24m (50')	18.29m (60')	21.34m (70')	24.38m (80')	27.43m (90')	30.48m (100')	33.53m (110')	36.58m (120')	BOOM LENGTH / LOAD RADIUS
3	39.85 <small>3.3m</small>	37.70									3
3.7	34.85	34.85									3.7
4	32.95	32.85	32.80 <small>4.3m</small>								4
4.5	26.90	26.80	26.70 <small>4.9m</small>	28.05							4.5
5	22.65	22.55	22.50	22.45	23.15						5
5.5	19.55	19.45	19.40	19.35	19.25	19.60					5.5
6	17.20	17.10	17.00	16.95	16.85	16.80	16.75 <small>5.4m</small>				6
7	13.80	13.65	13.60	13.50	13.45	13.35	13.30	13.20	13.10 <small>7.5m</small>	11.75	7
8	11.45	11.35	11.25	11.20	11.10	11.00	10.95	10.90	10.80	10.75	8
9	9.80	9.65	9.55	9.50	9.40	9.35	9.30	9.20	9.10	9.05	9
10		8.40	8.30	8.20	8.10	8.05	8.00	7.90	7.80	7.75	10
12			6.50	6.40	6.30	6.20	6.15	6.05	6.00	5.90	12
14			5.25	5.15	5.10	5.00	4.95	4.85	4.75	4.70	14
16			4.30	4.20	4.20	4.10	4.05	3.95	3.90	3.80	16
18			3.55	3.55	3.55	3.45	3.40	3.30	3.20	3.10	18
20			3.15	3.15	3.15	2.95	2.85	2.75	2.70	2.60	20
22			2.55	2.55	2.55	2.55	2.45	2.35	2.30	2.20	22
24			2.15	2.15	2.15	2.15	2.15	2.00	1.95	1.85	24
26			1.75	1.75	1.75	1.75	1.75	1.65	1.65	1.55	26
28			1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.30	28
30			1.05	1.05	1.05	1.05	1.05	1.05	1.20	1.05	30

OPERATION OF THIS EQUIPMENT IN EXCESS OF RATED LOADS AND DISREGARD OF INSTRUCTION VOIDS THE WARRANTY.

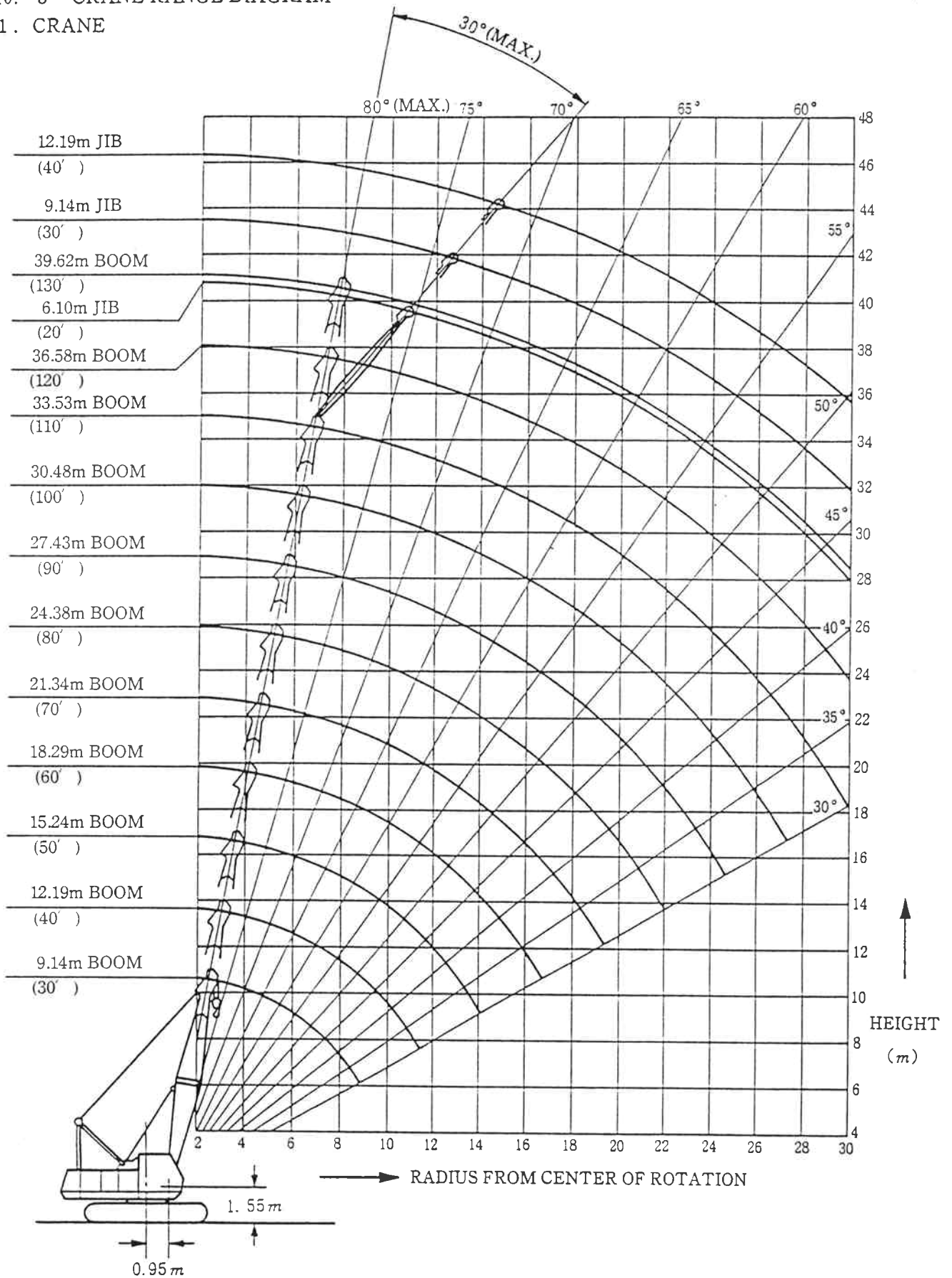
FBM400 CRAWLER CRANE AUXILIARY SHEAVE RATING LOADS IN METRIC TONS J

BOOM LENGTH / LOAD RADIUS	BOOM LENGTH (m) / (120')													
	9.14m (30')	12.19m (40')	15.24m (50')	18.29m (60')	21.34m (70')	24.38m (80')	27.43m (90')	30.48m (100')	33.53m (110')	36.58m (120')	BOOM LENGTH (m)	LOAD RADIUS (m)		
3.5	5.70												3.5	
3.7	5.70												3.7	
4	5.70	5.70											4	
4.5	5.70	5.70	5.70										4.5	
5	5.70	5.70	5.70	5.70									5	
5.5	5.70	5.70	5.70	5.70	5.70								5.5	
6	5.70	5.70	5.70	5.70	5.70	5.70							6	
7	5.70	5.70	5.70	5.70	5.70	5.70	5.70						7	
8	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70					8	
9	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70				9	
10	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70			10	
12	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70		12	
14	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	14	
16	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	16	
18	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	18	
20	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	20	
22	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	22	
24	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	24	
26	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	26	
28	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	28	
30	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	30	
32	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	32	
34	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	34	

OPERATION OF THIS EQUIPMENT IN EXCESS OF RATED LOADS AND DISREGARD OF INSTRUCTION VOIDS THE WARRANTY.

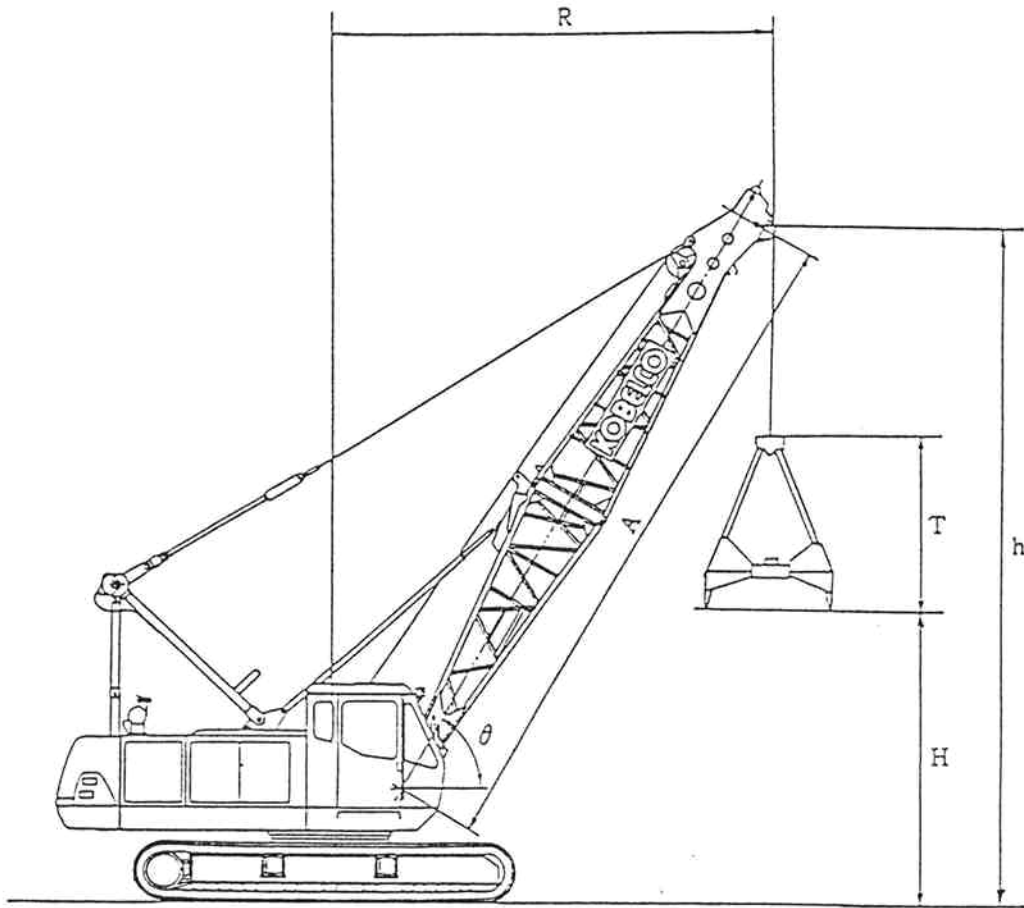
10. 3 CRANE RANGE DIAGRAM

1. CRANE



Crane Range Diagram

10. 4 CLAMSHELL RANGE DIAGRAM



Boom Length	A	9.14m (30')				12.19m (40')				15.24m (50')				18.29m (60')							
Boom Angle	θ	35°	45°	55°	65°	35°	45°	55°	65°	35°	45°	55°	65°	35°	45°	55°	65°				
Operating Radius (m)	R	8.8	7.8	6.6	5.2	11.3	9.9	8.3	6.5	14.0	12.1	10.1	7.8	16.0	14.0	11.8	9.1				
Dumping Height (m)	Bucket Capacity (m)	0.6	H		1.1	2.3	3.4	4.2	2.8	4.5	5.9	7.0	4.6	6.6	8.4	9.7	6.3	8.8	10.9	12.5	
		0.8	0.8	2.0	3.1	3.9	2.5	4.2	5.6	6.7	4.3	6.3	8.1	9.4	6.0	8.5	10.6	12.2			
		1.0	0.8	2.0	3.1	3.9	2.5	4.2	5.6	6.7	4.3	6.3	8.1	9.4	6.0	8.5	10.6	12.2			
		1.2	0.4	1.6	2.7	3.5	2.1	3.8	5.2	6.3	3.9	5.9	7.7	9.0	5.6	8.1	10.2	11.8			
Boom Point Height (m)	h	6.6	7.8	8.9	9.7	8.3	10.0	11.4	12.5	10.1	12.1	13.9	15.2	11.8	14.3	16.4	18.0				
Rated Load (ton)		5.0				5.0				4.6	5.0				3.8	4.5	5.0				

Bucket Capacity (m)	Height of Bucket (m)	
	T	
0.6	3.0	
0.8	3.3	
1.0	3.3	
1.2	3.7	

- Weight of bucket should not exceed 2,100kgs.
- Rated clamshell load is upto 5,000kgs.
- 1.2m³ of bucket must be used to loading and unloading only.