

# ALL TERRAIN CRANE

## AR-2000M

*JAPANESE SPECIFICATIONS*

CARRIER MODEL	SPEC. NO.
FAUN RTF200-6	AR-2000M-1

**AR**

Control No. AR-2000M-1/MB-03

## AR-2000M

## CRANE SPECIFICATIONS

## CRANE CAPACITY

<b>Boom</b>			
13.6m	Boom	200,000kg	at 3.0m (22 part-line)
18.1m	Boom	120,000kg	at 5.0m (12 part-line)
22.7m	Boom	120,000kg	at 5.0m (12 part-line)
31.8m	Boom	62,000kg	at 10.0m (7 part-line)
40.9m	Boom	50,000kg	at 10.0m (5 part-line)
45.5m	Boom	44,000kg	at 9.0m (4 part-line)
50.1m	Boom	35,000kg	at 11.0m (4 part-line)
Single top (Reference)			
		11,200kg	(1 part-line)
<b>Fully automatic luffing jib</b>			
10.2m	Jib	22,500kg	at 9.0m (2 part-line)
17.95m	Jib	11,200kg	at 14.0m (1, 2 part-line)
25.7m	Jib	7,000kg	at 16.0m (1, 2 part-line)
<b>Luffing jib</b>			
11m	Jib	84,000kg	at 7.0m (8 part-line)
20m	Jib	53,300kg	at 8.0m (5 part-line)
29m	Jib	34,000kg	at 11.0m (4 part-line)
38m	Jib	10,000kg	at 36.0m (1 part-line)
51m*	Jib	5,000kg	at 60.0m (1 part-line)
56m*	Jib	4,000kg	at 55.0m (1 part-line)

For the \* mark, luffing jib (38m) + extension jib

## MAX. LIFTING HEIGHT

Boom	51.0m
[Reference] Fully automatic luffing jib	79.0m
[Reference] Luffing jib	92.0m
	107.0m (luffing jib + extension jib)

## MAX. WORKING RADIUS

Boom	46.0m
[Reference] Fully automatic luffing jib	60.0m
[Reference] Luffing jib	65.0m
	75.0m (luffing jib + extension jib)

## BOOM LENGTH

13.6m - 50.1m

## BOOM EXTENSION SPEED

36.5m / 210s

## MAIN WINCH SINGLE LINE SPEED

150m/min (5th layer)

## AUXILIARY WINCH SINGLE LINE SPEED

150m/min (5th layer)

## BOOM ELEVATION ANGLE

-1.5° - 83°

## BOOM ELEVATION SPEED

-1.5° - 83° / 115s

## SWING ANGLE

360° continue

## SWING SPEED

1.4 / 1.0 rpm

## WIRE ROPE

Main Winch  
24mm × 370m (Diameter × Length)  
Spin-resistant wire rope

Auxiliary Winch  
24mm × 330m (Diameter × Length)  
Spin-resistant wire rope

## HOOK

200t hook	(22 part-line) (with additional sling)
120t hook	(12 part-line)
80t hook	(7 part-line)
25t hook	(3 part-line)
11.2t hook	(1 part-line)

## BOOM

5-section hydraulically synchronously telescoping boom of box construction  
(stages 2: sequential; stages 3, 4, 5: synchronized)  
2-stage lock or no lock  
(spring type and air cylinder type)

## BOOM EXTENSION

4 double-acting hydraulic cylinders

## SINGLE TOP

Single sheave. Mounted to main boom head by pin.

## HOIST

Driven by hydraulic variable motor and via planetary gear reducer

Automatic brake  
2-speed (High/Low) selection type  
2 single winches

## BOOM ELEVATION

2 double-acting hydraulic cylinders

## SWING

Hydraulic motor driven planetary gear reducer

Roller type swing bearing  
Disk type negative brake  
2-speed (High/Low) selection type  
Pneumatically operated swing lock

## OUTRIGGERS

Fully hydraulic H-type 3 steps  
Slides and jacks each provided with independent operation device.

Full extended width 8.8m  
Middle extended width: 8.0m, 6.8m, 5.6m  
Extended width detector provided.  
Slide lock power pin provided.

## COUNTERWEIGHT

58t, 40t, 20t

## ENGINE FOR CRANE

Model MITSUBISHI MOTOR CORPORATION 6D22-T  
Type 4-cycle, 6 in-line cylinder, direct-injection, water-cooled diesel engine.

Piston Displacement	11,149cc, with turbo charger
Max. Output	245PS at 1,800rpm
Max. Torque	105kg·m at 1,200rpm

## FUEL TANK CAPACITY

300 liters

## HYDRAULIC PUMPS

2 variable piston pumps and 2 variable gear pumps

## HYDRAULIC OIL TANK CAPACITY

Upper 1,680 liters  
Lower 210 liters

## SAFETY DEVICES

Automatic moment limiter (AML)

Multiple display  
With working range function  
Outrigger extension automatic detector (individual detection)

Weight combination automatic detector

Swing range controller

Swing automatic stop device

Boom elevation slow down and stop device

Over-winding cutout

Dead winding holding device

Cable follower

Hook safety latch

Winch drum lock

Hydraulic safety valve

Hydraulic lock (elevation, expansion and contraction, hoist, jack, jib tilt, dismount)

Swing lock

Boom angle indicator

Level gauge

## EQUIPMENTS

Oil cooler

Boom dismount device

Swing frame dismount device

Counterweight dismount device

Boom elevation creeping mode setting device

AML external indication lamp

Hook movement amount indicator

Wind velocity meter

Iron plate

Hot and cool boxes

Lunch table

Air conditioner

Drum monitor

FM radio

Back monitor

## OPTIONAL EQUIPMENTS

Swing alarm

## CARRIER SPECIFICATIONS

### MANUFACTURER

FAUN GmbH

### CARRIER MODEL

RTF 200-6

### ENGINE

Model OM442LA (Benz)

Type 4-cycle V8-cylinder, direct-injection,  
turbo diesel engine with inter cooler

Piston displacement 14,618cc

Max. output 503PS at 2,100rpm

Max. torque 206kg·m at 1,100 to 1,600rpm

### TRANSMISSION

Fully automatic

5-forward and 1-reverse speeds

Sub reducer provided.

### CLUTCH

Torque converter provided.

Automatic lock-up mechanism provided.

### DRIVING METHOD

12×6

12×8 . . . Off load (with defrock mechanism)

### AXLE (all axles)

Full floating

### SUSPENSION (all axles)

Hydraulic pneumatic suspension

Stroke: +149mm/-113mm

### STEERING

Type: Left-side handle

Fully hydraulic power steering

2 circuits

Emergency power steering

### BRAKE SYSTEM

Service Brake

Air brake on all wheels

2 circuits

Parking Brake

Spring brake, acting on the 3rd, 4th, 5th, 6th axles (8 wheels)

Emergency Brake

Works by applying the parking brake

Auxiliary Brake

Flow type retarder (reducer built-in)

Exhaust brake

### ELECTRIC SYSTEM

24V DC, 2 batteries of 12V-170Ah

### FUEL TANK CAPACITY

700 liters

### CAB

Two-man type

### TIRES

16.00R25 (all wheels)

11.25-25 (all wheels)

### STANDARD EQUIPMENTS

Car air conditioner

FM radio

Mad guard

Centralized lubrication unit

Bed for napping

## GENERAL DATA

### DIMENSIONS (CARRIER ONLY)

Overall length 14,250mm

Overall width 3,000mm

Overall height 2,775mm

Wheel base 2,850mm + 1,700mm + 1,750mm  
+ 1,650mm + 1,700mm

Tread 2,557mm

### WEIGHTS (CARRIER ONLY)

Gross vehicle weight

Total 44,600kg (Two-man type)

Front: 1st + 2nd axle 18,480kg

Rear: 3rd axle 3,900kg

4th + 5th axle 13,220kg

6th axle 9,000kg

### PERFORMANCE (CARRIER ONLY)

Max. traveling speed 60km/h

Gradeability (tan  $\theta$ ) 0.70

Min. turning radius 11.9m

## BOOM TOTAL RATED LOADS

### NOTES:

- The total rated loads shown are for the case when the outriggers are set horizontally on firm ground. The values above the bold lines are based on the crane strength while those below are based on the crane stability.
- The weights of the slings and hooks (2,540kg for a 200t-capacity hook with attachment, 2,160kg for a 120t-capacity hook, 1,360kg for a 80t-capacity hook, 730kg for a 25t-capacity hook, 430kg for a 11.2t-capacity hook) are included in the total rated loads shown.
- The total rated load is based on the actual working radius including the deflection of the boom.
- The table below shows the classification of Performances A to G of the total rated load.

Counterweight Outrigger extension width	58t	40t	20t	0t
8.8m	A	B	D	E
8.0m	B	C	E	F
6.8m	C	E	F	* G
5.6m	—	F	* G	* G

\* Performance G is set for the work preparation. The boom length is 13.6m to 18.1m.

- The total rated loads for the 18.1m or more boom length are those when the 2-stage boom fixing pin is used.
- The chart below shows the standard number of part lines and the standard hooks for each boom length. The load for each rope should not exceed 11.2 tons for both the main winch and auxiliary winch.

Boom length	13.6m	18.1m	22.7m	31.8m	40.9m
No. of part lines	(22) 12	12	12	7	5
Standard hook	200t hook (with attachment)	120t hook	120t hook	80t hook	80t hook

45.5m	50.1m	Single top
4	4	1
80t hook	80t hook	11.2t hook

- The total rated load for the single top is the same as that of the main boom and must not exceed 11.2 tons. However, when hooks, slings, etc. are mounted on the main boom, one should work at the total rated load obtained by subtracting the weights of the hooks, slings, etc. mounted on the main boom from the total rated load of the main boom.
- For the total rated load chart, the influence of the wind is not considered. When the maximum instantaneous velocity is 10m/s or more, stop crane operation.
- θ in the total rated load chart shows the boom angle range (under no load).

## Performance A

Unit:ton

B (m)	A (m)						
	13.6	18.1	22.7	31.8	40.9	45.5	50.1
3.0	200.0	120.0					
3.5	176.0	120.0					
4.0	158.0	120.0	120.0				
4.5	146.0	120.0	120.0				
5.0	135.0	120.0	120.0	62.0			
6.0	118.0	117.0	117.0	62.0			
7.0	104.0	103.0	103.0	62.0	50.0		
8.0	93.5	92.5	91.7	62.0	50.0	44.0	35.0
9.0	83.2	81.9	80.8	62.0	50.0	44.0	35.0
10.0	73.8	72.4	71.3	62.0	50.0	44.0	35.0
11.0	66.0	64.6	63.5	58.4	48.3	41.3	35.0
12.0		58.0	56.9	53.9	45.1	38.8	34.0
14.0		47.6	46.5	46.6	39.6	34.5	30.2
16.0		39.8	38.7	40.9	34.7	30.6	27.1
18.0			32.6	35.0	30.6	27.3	24.3
20.0			27.7	30.0	27.2	24.7	21.8
22.0				25.9	24.4	22.4	19.7
24.0				22.5	22.0	20.5	17.9
26.0				19.7	19.9	18.7	16.4
28.0				17.2	18.1	17.0	15.0
30.0					16.2	15.5	13.8
32.0					14.4	14.1	12.8
34.0					12.7	12.9	11.8
36.0					11.3	11.6	10.9
38.0					10.0	10.3	10.1
40.0						9.2	9.2
42.0						8.1	8.3
44.0							7.4
46.0							6.5
$\theta$ (°)	0~83	0~83	0~83	0~83	0~83	0~83	12~83

A = Boom length B = Working radius

 $\theta$  = Boom angle range (for the unladen condition)

## Performance B

Unit:ton

B (m)	A (m)						
	13.6	18.1	22.7	31.8	40.9	45.5	50.1
3.0	180.0	120.0					
3.5	165.0	120.0					
4.0	152.0	120.0	120.0				
4.5	140.0	120.0	120.0				
5.0	130.0	120.0	120.0	62.0			
6.0	113.0	112.0	112.0	62.0			
7.0	98.6	97.4	96.3	62.0	50.0		
8.0	85.1	83.8	82.8	62.0	50.0	44.0	35.0
9.0	74.4	73.1	72.0	62.0	50.0	44.0	35.0
10.0	65.8	64.5	63.4	62.0	50.0	44.0	35.0
11.0	58.7	57.3	56.3	58.4	48.3	41.3	35.0
12.0		51.3	50.3	52.8	45.1	38.8	34.0
14.0		41.8	40.8	43.3	39.6	34.5	30.2
16.0		33.1	32.4	35.7	34.7	30.6	27.1
18.0			25.9	29.0	30.6	27.3	24.3
20.0			21.1	24.0	25.8	24.7	21.8
22.0				20.0	21.8	22.4	19.7
24.0				16.9	18.5	19.2	17.9
26.0				14.3	15.9	16.5	16.4
28.0				12.2	13.6	14.2	14.5
30.0					11.8	12.3	12.6
32.0					10.1	10.7	10.9
34.0					8.8	9.2	9.5
36.0					7.6	8.0	8.2
38.0					6.4	6.8	7.1
40.0						5.7	6.0
42.0						4.7	5.0
44.0							4.1
46.0							3.3
$\theta$ (°)	0~83	0~83	0~83	0~83	0~83	0~83	12~83

A = Boom length B = Working radius

 $\theta$  = Boom angle range (for the unladen condition)

## Performance C

Unit:ton

B (m)	A (m)						
	13.6	18.1	22.7	31.8	40.9	45.5	50.1
3.0	176.0	120.0					
3.5	161.0	120.0					
4.0	148.0	120.0	120.0				
4.5	137.0	120.0	120.0				
5.0	127.0	120.0	120.0	62.0			
6.0	110.0	109.0	108.0	62.0			
7.0	96.9	95.9	95.0	62.0	50.0		
8.0	85.1	83.8	82.8	62.0	50.0	44.0	35.0
9.0	74.4	73.1	72.0	62.0	50.0	44.0	35.0
10.0	65.8	64.5	63.4	62.0	50.0	44.0	35.0
11.0	58.7	57.3	56.3	58.4	48.3	41.3	35.0
12.0		51.3	50.3	52.8	45.1	38.8	34.0
14.0		39.5	38.8	42.6	39.6	34.5	30.2
16.0		30.7	30.0	33.4	34.7	30.6	27.1
18.0			23.7	26.9	28.9	27.3	24.3
20.0			19.0	22.0	23.9	24.7	21.8
22.0				18.2	19.9	20.7	19.7
24.0				15.1	16.8	17.5	17.9
26.0				12.7	14.2	14.9	15.4
28.0				10.6	12.1	12.7	13.2
30.0					10.3	10.9	11.4
32.0					8.8	9.4	9.8
34.0					7.5	8.0	8.4
36.0					6.3	6.8	7.1
38.0					5.2	5.6	5.8
40.0						4.5	4.8
42.0						3.6	3.8
44.0							3.0
46.0							2.3
$\theta$ (°)	0~83	0~83	0~83	0~83	0~83	0~83	12~83

A = Boom length B = Working radius

 $\theta$  = Boom angle range (for the unladen condition)

## Performance D

Unit:ton

B (m)	A (m)						
	13.6	18.1	22.7	31.8	40.9	45.5	50.1
3.0	175.0	120.0					
3.5	160.0	120.0					
4.0	147.0	120.0	120.0				
4.5	136.0	120.0	120.0				
5.0	126.0	120.0	120.0	62.0			
6.0	104.0	103.0	102.0	62.0			
7.0	88.1	86.9	85.8	62.0	50.0		
8.0	75.8	74.6	73.5	62.0	50.0	44.0	35.0
9.0	66.1	64.8	63.8	62.0	50.0	44.0	35.0
10.0	58.2	57.0	55.9	58.5	50.0	44.0	35.0
11.0	48.8	47.7	47.1	51.6	48.3	41.3	35.0
12.0		40.4	39.8	44.0	45.1	38.8	34.0
14.0		30.1	29.4	33.1	35.5	34.5	30.2
16.0		23.1	22.4	25.7	27.9	28.8	27.1
18.0			17.3	20.4	22.4	23.2	23.5
20.0			13.6	16.4	18.3	18.9	19.2
22.0				13.3	15.1	15.6	15.9
24.0				10.7	12.4	12.9	13.2
26.0				8.6	10.2	10.7	11.0
28.0				6.9	8.4	8.9	9.2
30.0					6.9	7.4	7.6
32.0					5.6	6.1	6.3
34.0					4.3	4.8	5.1
36.0					3.2	3.6	3.9
38.0					2.2	2.6	2.9
40.0							2.0
$\theta$ (°)	0~83	0~83	0~83	0~83	0~83	23~83	33~83

A = Boom length B = Working radius

 $\theta$  = Boom angle range (for the unladen condition)



## Performance E

B (m)	A (m)							Unit:ton
	13.6	18.1	22.7	31.8	40.9	45.5	50.1	
3.0	170.0	120.0						
3.5	155.0	120.0						
4.0	140.0	120.0	120.0					
4.5	124.0	120.0	120.0					
5.0	111.0	110.0	109.0	62.0				
6.0	91.6	90.4	89.4	62.0				
7.0	77.1	75.9	74.9	62.0	50.0			
8.0	60.8	60.1	59.7	62.0	50.0	44.0	35.0	
9.0	47.2	46.4	45.9	51.3	50.0	44.0	35.0	
10.0	37.9	37.0	36.5	41.4	44.7	44.0	35.0	
11.0	31.1	30.2	29.6	34.1	37.1	38.0	35.0	
12.0		24.4	23.8	28.4	31.3	32.0	32.3	
14.0		16.5	15.8	19.8	22.4	23.4	23.8	
16.0		11.4	10.7	14.3	16.6	17.6	18.0	
18.0			7.0	10.3	12.5	13.3	13.9	
20.0			4.4	7.4	9.4	10.2	10.8	
22.0				5.2	7.0	7.8	8.3	
24.0				3.4	5.1	5.8	6.4	
26.0				2.0	3.6	4.3	4.7	
$\theta$ (°)	0~83	0~83	0~83	31~83	47~83	54~83	58~83	

## Performance G

B (m)	A (m)		Unit:ton
	13.6	18.1	
3.0	145.0	120.0	
3.5	130.0	120.0	
4.0	117.0	116.0	
4.5	97.9	98.1	
5.0	72.7	72.7	
6.0	46.0	45.7	
7.0	32.0	31.5	
8.0	23.4	22.8	
9.0	17.6	16.9	
10.0	13.4	12.7	
11.0	10.3	9.5	
12.0		6.9	
14.0		3.3	
16.0			
$\theta$ (°)	0~83	24~83	

## Performance F

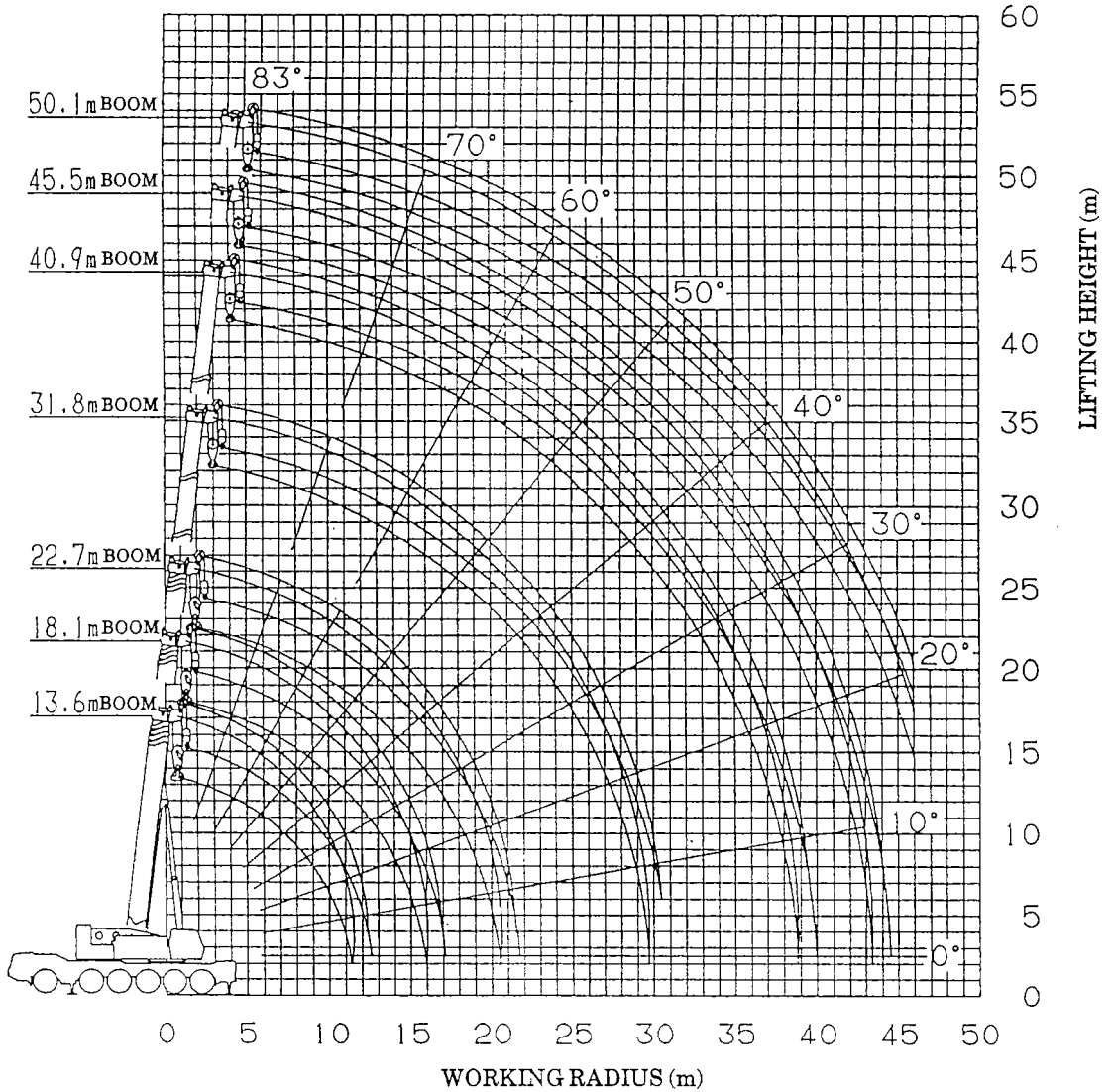
B (m)	A (m)							Unit:ton
	13.6	18.1	22.7	31.8	40.9	45.5	50.1	
3.0	165.0	120.0						
3.5	150.0	120.0						
4.0	137.0	120.0	120.0					
4.5	124.0	120.0	120.0					
5.0	111.0	110.0	109.0	62.0				
6.0	91.6	90.4	89.4	62.0				
7.0	75.2	74.6	74.2	62.0	50.0			
8.0	53.3	52.5	52.0	58.9	50.0	44.0	35.0	
9.0	40.1	39.2	38.7	44.6	48.6	44.0	35.0	
10.0	31.3	30.4	29.9	35.0	38.6	40.1	35.0	
11.0	25.1	24.1	23.5	28.2	31.4	32.8	33.9	
12.0		19.4	18.8	23.1	26.0	27.3	28.2	
14.0		12.8	12.2	16.0	18.5	19.6	20.4	
16.0		8.4	7.8	11.3	13.5	14.4	15.2	
18.0			4.6	7.9	9.9	10.8	11.4	
20.0			2.4	5.3	7.2	8.0	8.6	
22.0				3.4	5.2	5.9	6.5	
$\theta$ (°)	0~83	0~83	11~83	39~83	53~83	60~83	63~83	

A = Boom length

B = Working radius

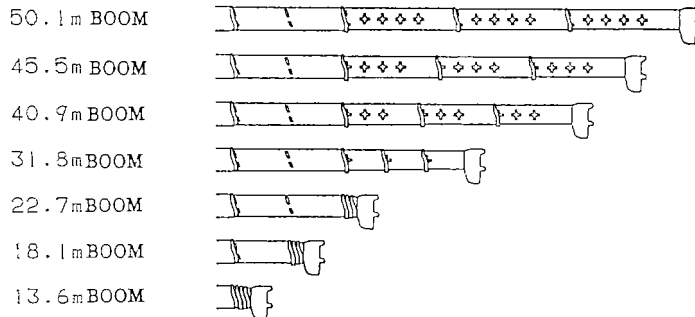
 $\theta$  = Boom angle range (for the unladen condition)

## WORKING RADIUS - LIFTING HEIGHT (BOOM)



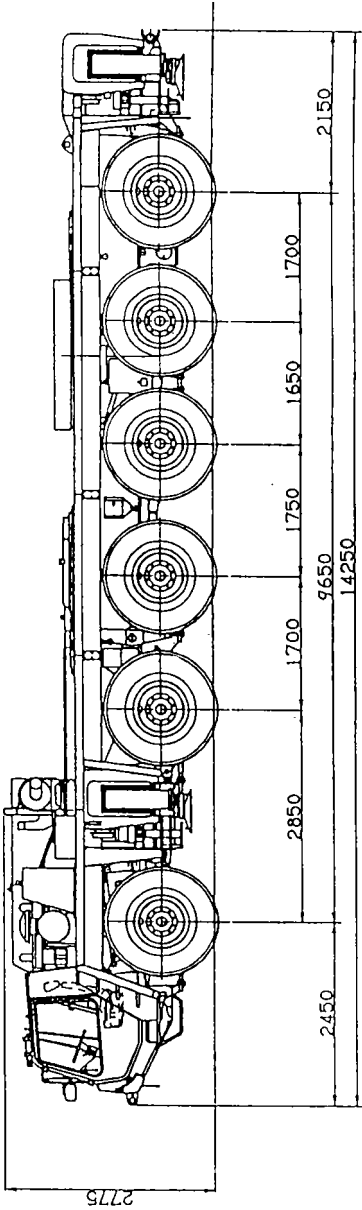
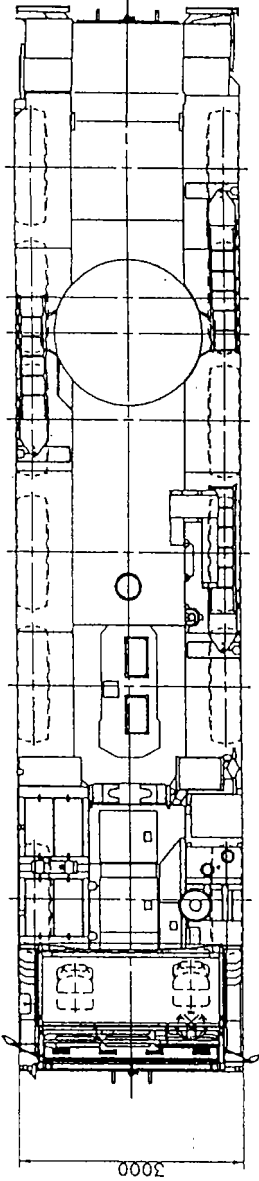
**NOTES:**

1. The deflection of the boom is not incorporated in the diagram above. The diagram is for Performance A.
2. The boom expansion and contraction for each boom are as follows:



**DIMENSIONS** (1/100)

[On public thoroughfare traveling condition]



**DIMENSIONS (1/100)**

[On-site traveling condition]

