

TRUCK CRANE

TG-500M

JAPANESE SPECIFICATIONS

TG

CARRIER MODEL	SPEC. NO.
NISSAN DIESEL KC-KG530TN	TG-500M-5-10101
MITSUBISHI KC-KS509S	TG-500M-5-20101

Control No. JA-01

TG-500M

CRANE SPECIFICATIONS

CRANE CAPACITY

10.65m Boom	50,000kg	at 3.0m	(12part-line)
18.0m Boom	28,000kg	at 5.0m	(7part-line)
25.3m Boom	20,000kg	at 6.0m	(5part-line)
32.7m Boom	14,000kg	at 6.5m	(4part-line)
40.0m Boom	8,000kg	at 9.0m	(4part-line)
9.0m Jib	3,500kg	at 75°	(1part-line)
14.6m Jib	2,500kg	at 78°	(1part-line)
Single top	4,000kg		(1part-line)

MAX.LIFTING HEIGHT

Boom	39.5m
Jib	54.0m

MAX.WORKING RADIUS

Boom	34.0m
Jib	38.3m

BOOM LENGTH

10.65m – 40.0m

BOOM EXTENSION

29.35m

BOOM EXTENSION SPEED

29.35m/122s

JIB LENGTH

9.0m, 14.6m

MAIN WINCH SINGLE LINE SPEED

High range:	102m/min	(3rd layer)
Low range:	48m/min	(3rd layer)

MAIN WINCH HOOK SPEED

High range:	8.5m/min	(12 part-line)
Low range:	4.0m/min	(12 part-line)

AUXILIARY WINCH SINGLE LINE SPEED

High range:	95m/min	(2nd layer)
Low range:	45m/min	(2nd layer)

AUXILIARY WINCH HOOK SPEED

High range:	95m/min	(1 part-line)
Low range:	45m/min	(1 part-line)

BOOM ELEVATION ANGLE

-3° – 80°

BOOM ELEVATION SPEED

-3° – 80°/68s

SWING ANGLE

360° continue

SWING SPEED

2.0rpm

WIRE ROPE

Main Winch

18mm x 215m (Diameter x Length)
Spin-resistant wire rope

Auxiliary Winch

18mm x 130m (Diameter x Length)
Spin-resistant wire rope

BOOM

5-section hydraulically telescoping boom of hexagonal box construction
(stages 2,3: synchronized; stages 4,5: synchronized)

BOOM EXTENSION

3 double-acting hydraulic cylinders
1 wire rope type telescoping device
With flow regulator valve with pressure compensation

JIB

2 stages which swing from and stores under the boom
(2nd stage: pull-out type)
Hydraulic non-stage offset (5° – 45°) type

SINGLE TOP

Single sheave. Mounted to main boom head for single line work.

HOIST

Driven by hydraulic motor and via planetary gear reducer.
With free-fall device.

Automatic brake (with foot brake for free-fall device)

2 single winches

With flow regulator valve with pressure compensation

BOOM ELEVATION

1 double-acting hydraulic cylinder

With flow regulator valve with pressure compensation

SWING

Hydraulic motor driven planetary gear reducer

Swing bearing

Hand brake

Swing free/lock changeover type

OUTRIGGERS

Fully hydraulic H-type (floats mounted integrally)

Slides and jacks each provided with independent operation device.

Fully extended width 7.4m

Middle extended width 6.62m, 5.3m

Minimum extended width 4.0m

FRONT JACK

Hydraulic type

MAX. VERTICAL LOAD CAPACITY OF OUTRIGGER

47.0t

HYDRAULIC PUMPS

4 variable gear pumps

HYDRAULIC OIL TANK CAPACITY

675 liters

SAFETY DEVICES

Automatic moment limiter (AML)

With working range limiting function

Over-winding cutout device

Level gauge

Working area control device

Outrigger extension automatic detector

Hook safety latch

Cable follower

Winch drum lock

Winch drum rotation indicator

Swing lock

Hydraulic safety valve

Telescopic counterbalance valve

Elevation counterbalance valve

Jack pilot check valve

Front jack grounding automatic detector

Front jack over load alarm

EQUIPMENT

Crane cab heater

Oil cooler

Boom angle indicator

Radio

Fan

Block

CARRIER SPECIFICATIONS

MANUFACTURER

NISSAN DIESEL MOTOR CO., LTD.

CARRIER MODEL

KC-KG530TN

ENGINE

Model RG8

Type 4-cycle, V8-cylinder, direct-injection,
water-cooled diesel engine

Piston displacement 17,990cc

Max. output 350PS at 2,200rpm

Max. torque 125kg·m at 1,300rpm

CLUTCH

Dry single-plate coil spring type

With hydraulic air assistance

TRANSMISSION

7-forward and 1-reverse speeds

Constant-mesh gear (1st speed, reverse)

Synchronized-mesh gear (2nd – 7th speeds)

REDUCER

Hypoid gear type

FRONT AXLE

Reverse-elliot type steel pipe cross section

REAR AXLE

Full-floating type

SUSPENSION

Front: Semi-elliptic leaf spring type

With torsion bar stabilizer

Rear: Equalizer beam type

STEERING

Recirculating ball screw type

With linkage power assistance

BRAKE SYSTEM

Service Brake

2-circuit air type 8-wheel internal expanding brake

Parking Brake

Mechanically operated, internal expanding duo-servo
shoe type acting on drum at transmission case rear.

Auxiliary Brake

Electro-pneumatic operated exhaust brake

Emergency Brake

Spring brake

ELECTRIC SYSTEM

24 V DC. 2 batteries of 12V–115F51 (96Ah)

FUEL TANK CAPACITY

300 liters

CAB

Two-man type

TIRES

Front 13.00R20-24PR

Rear 11.1-20-16PR

STANDARD EQUIPMENT

Car heater

Car radio

GENERAL DATA

DIMENSIONS

Overall length 12,850mm

Overall width 2,820mm

Overall height 3,750mm

Wheel base

1,470mm + 3,780mm + 1,400mm = 6,650mm

Tread Front 2,230mm

Rear 2,110mm

WEIGHTS

Gross vehicle weight

Total 38,510kg

Front 18,220kg

Rear 20,290kg

PERFORMANCE

Max. traveling speed 65km/h

Min. traveling speed 1.2km/h

Gradeability (tan θ) 0.38

Min. turning radius 10.9m

CARRIER SPECIFICATIONS

MANUFACTURER

MITSUBISHI MOTOR CORPORATION

CARRIER MODEL

KC-KS509S

ENGINE

Model 8DC11

Type 4-cycle, V8-cylinder, direct-injection,
water-cooled diesel engine

Piston displacement 17,737cc

Max. output 355PS at 2,200rpm

Max. torque 125kg·m at 1,300rpm

CLUTCH

Dry single-plate coil spring type

With hydraulic air assistance

TRANSMISSION

10-forward and 2-reverse speeds

Constant-mesh gear (1st speed, 2nd speed, reverse)

Synchronized-mesh gear (3rd – 10th speeds)

REDUCER

Hypoid gear type

FRONT AXLE

Reverse-elliot type I-beam

REAR AXLE

Full-floating type

SUSPENSION

Front: Semi-elliptic leaf spring type

With torsion bar stabilizer

Rear: Equalizer and torque rods

STEERING

Recirculating ball screw type

With linkage power assistance

BRAKE SYSTEM

Service Brake

2-circuit air type 8-wheel internal expanding brake

Parking Brake

Spring brake, acting on 4 rear wheels

Auxiliary Brake

Electro-pneumatic operated exhaust brake

ELECTRIC SYSTEM

24 V DC. 2 batteries of 12V–145F51 (112Ah)

FUEL TANK CAPACITY

300 liters

CAB

Two-man type

TIRES

Front 13.00R20-24PR

Rear 11.00-20-14PR

STANDARD EQUIPMENT

Car heater

Car radio

GENERAL DATA

DIMENSIONS

Overall length 12,860mm

Overall width 2,820mm

Overall height 3,750mm

Wheel base

1,450mm + 3,850mm + 1,350mm = 6,650mm

Tread Front 2,240mm

Rear 2,050mm

WEIGHTS

Gross vehicle weight

Total 38,480kg

Front 17,895kg

Rear 20,585kg

PERFORMANCE

Max. traveling speed 65km/h

Min. traveling speed 1.9km/h

Gradeability (tan θ) 0.35

Min. turning radius 11.0m

TOTAL RATED LOADS

[BOOM]
Performance A

Unit: ton

Over the sides : Outriggers fully extended (7.4m) Over the rear : Outriggers fully extended (7.4m) Outriggers middle extended (6.62m, 5.3m)					
A B	10.65m	18.0m	25.3m	32.7m	40.0m
3.0m	50.00	28.00			
3.5m	43.00	28.00			
4.0m	38.00	28.00	20.00		
4.5m	34.00	28.00	20.00		
5.0m	30.20	28.00	20.00		
5.5m	27.50	25.60	20.00	14.00	
6.0m	25.00	23.50	20.00	14.00	
6.5m	22.70	21.80	18.60	14.00	8.00
7.0m	20.70	20.00	17.30	13.50	8.00
7.5m	18.90	18.50	16.20	13.00	8.00
8.0m	17.40	17.00	15.30	12.50	8.00
8.5m	16.05	15.70	14.40	11.90	8.00
9.0m	14.90	14.70	13.60	11.30	8.00
10.0m		12.20	12.05	10.30	7.50
11.0m		10.20	10.05	9.40	6.95
12.0m		8.60	8.45	8.60	6.45
13.0m		7.30	7.20	7.90	6.00
14.0m		6.25	6.05	6.75	5.60
16.0m		4.50	4.35	5.15	4.85
18.0m			3.25	3.95	4.25
20.0m			2.30	3.05	3.60
22.0m			1.60	2.30	2.85
24.0m				1.70	2.25
26.0m				1.30	1.80
28.0m				0.85	1.35
30.0m					1.00
32.0m					0.70
34.0m					0.40
θ (°)	0 ~ 80	0 ~ 80	0 ~ 80	0 ~ 80	28 ~ 80

A= Boom length B= Working radius

θ = Boom angle range (for the unladen condition)

[BOOM]
Performance B

Unit: ton

Over the front : Outriggers fully extended (7.4m) + Front jack : Outriggers middle extended (6.62m, 5.3m) + Front jack					
A B	10.65m	18.0m	25.3m	32.7m	40.0m
3.0m	50.00	28.00			
3.5m	43.00	28.00			
4.0m	38.00	28.00	20.00		
4.5m	34.00	28.00	20.00		
5.0m	30.20	28.00	20.00		
5.5m	27.50	25.60	20.00	14.00	
6.0m	25.00	23.50	20.00	14.00	
6.5m	22.70	21.80	18.60	14.00	8.00
7.0m	20.70	20.00	17.30	13.50	8.00
7.5m	18.90	18.50	16.20	13.00	8.00
8.0m	17.30	17.00	15.30	12.50	8.00
8.5m	15.50	15.30	14.40	11.90	8.00
9.0m	13.90	13.75	13.60	11.30	8.00
10.0m		11.30	11.20	10.30	7.50
11.0m		9.45	9.35	9.40	6.95
12.0m		7.95	7.85	8.60	6.45
13.0m		6.75	6.65	7.50	6.00
14.0m		5.80	5.70	6.50	5.60
16.0m		4.30	4.20	5.00	4.85
18.0m			3.10	3.85	4.25
20.0m			2.25	3.00	3.40
22.0m			1.60	2.30	2.75
24.0m				1.70	2.15
26.0m				1.30	1.70
28.0m				0.85	1.30
30.0m					1.00
32.0m					0.70
34.0m					0.40
θ (°)	0 ~ 80	0 ~ 80	0 ~ 80	0 ~ 80	28 ~ 80

A= Boom length B= Working radius

θ = Boom angle range (for the unladen condition)

[BOOM]
Performance C

Unit: ton

Over the sides : Outriggers middle extended (6.62m)					
A B	10.65m	18.0m	25.3m	32.7m	40.0m
3.0m	42.00	28.00			
3.5m	38.00	28.00			
4.0m	34.50	28.00	20.00		
4.5m	31.50	28.00	20.00		
5.0m	28.40	28.00	20.00		
5.5m	26.20	25.60	20.00	14.00	
6.0m	24.00	23.50	20.00	14.00	
6.5m	21.90	21.80	18.60	14.00	8.00
7.0m	20.00	20.00	17.30	13.50	8.00
7.5m	18.40	18.30	16.20	13.00	8.00
8.0m	16.00	15.80	15.30	12.50	8.00
8.5m	14.00	13.90	13.80	11.90	8.00
9.0m	12.30	12.30	12.15	11.30	8.00
10.0m		9.75	9.65	10.30	7.50
11.0m		7.90	7.80	8.75	6.95
12.0m		6.50	6.40	7.30	6.45
13.0m		5.40	5.30	6.15	6.00
14.0m		4.50	4.40	5.25	5.60
16.0m		3.10	2.95	3.85	4.30
18.0m			1.85	2.80	3.25
20.0m			1.00	1.90	2.45
22.0m				1.25	1.75
24.0m				0.70	1.20
26.0m					0.75
θ (°)	0 ~ 80	0 ~ 80	0 ~ 80	27 ~ 80	41 ~ 80

A= Boom length B= Working radius
 θ = Boom angle range (for the unladen condition)

[BOOM]
Performance D

Unit: ton

Over the sides : Outriggers middle extended (5.3m)					
A B	10.65m	18.0m	25.3m	32.7m	40.0m
3.0m	40.00	28.00			
3.5m	36.00	28.00			
4.0m	32.00	28.00	20.00		
4.5m	29.50	28.00	20.00		
5.0m	27.20	26.50	20.00		
5.5m	23.40	23.20	20.00	14.00	
6.0m	19.20	19.00	18.30	14.00	
6.5m	16.10	15.90	15.80	14.00	8.00
7.0m	13.70	13.60	13.45	13.50	8.00
7.5m	11.80	11.70	11.60	13.00	8.00
8.0m	10.30	10.20	10.10	11.10	8.00
8.5m	9.00	8.90	8.80	9.80	8.00
9.0m	7.90	7.85	7.75	8.75	8.00
10.0m		6.20	6.10	7.00	7.50
11.0m		4.95	4.85	5.70	6.20
12.0m		3.95	3.85	4.70	5.20
13.0m		3.15	3.05	3.90	4.35
14.0m		2.40	2.30	3.20	3.65
16.0m		1.30	1.15	2.10	2.60
18.0m				1.25	1.75
20.0m					1.10
θ (°)	0 ~ 80	0 ~ 80	42 ~ 80	50 ~ 80	56 ~ 80

A= Boom length B= Working radius

θ = Boom angle range (for the unladen condition)

[BOOM]
Performance E

Unit: ton

360° : Outriggers minimum extended (4.0m) Over the front : Outriggers fully extended (7.4m) + without front jack : Outriggers middle extended (6.62m, 5.3m) + without front jack					
A B	10.65m	18.0m	25.3m	32.7m	40.0m
3.0m	38.00	28.00			
3.5m	32.00	28.00			
4.0m	27.10	25.50	20.00		
4.5m	20.70	20.50	20.00		
5.0m	16.40	16.25	16.10		
5.5m	13.40	13.20	13.10	14.00	
6.0m	11.10	11.00	10.90	14.00	
6.5m	9.40	9.25	9.15	10.20	8.00
7.0m	8.00	7.85	7.80	8.75	8.00
7.5m	6.85	6.75	6.65	7.60	8.00
8.0m	5.90	5.80	5.70	6.65	7.50
8.5m	5.10	5.00	4.95	5.85	6.30
9.0m	4.45	4.35	4.25	5.15	5.63
10.0m		3.20	3.25	4.00	4.50
11.0m		2.35	2.30	3.15	3.70
12.0m				2.50	3.00
13.0m					2.40
$\theta \text{ (} ^\circ \text{)}$	0 ~ 80	43 ~ 80	59 ~ 80	66 ~ 80	70 ~ 80

A= Boom length B= Working radius
 θ = Boom angle range (for the unladen condition)

[BOOM]
Performance F

Unit: ton

Over the rear : Without outriggers	
A B	10.65m
3.0m	8.00
3.5m	6.40
4.0m	5.10
4.5m	4.20
5.0m	3.40
5.5m	2.80
6.0m	2.30
6.5m	1.90
7.0m	1.60
7.5m	1.25
8.0m	1.00

A= Boom length
B= Working radius

[JIB]
Performance H

Unit: ton

Over the sides : Outriggers middle extended (6.62m)												
C D E (°)	40.0m Boom + 9.0m Jib						40.0m Boom + 14.6m Jib					
	5° □		25° □		45° □		5° □		25° □		45° □	
	B (m)	M	B (m)	M	B (m)	M	B (m)	M	B (m)	M	B (m)	M
80	9.3	3.50	12.1	2.40	14.0	1.60	11.0	2.50	15.4	1.25	18.7	0.80
79	10.2	3.50	12.9	2.40	14.8	1.60	12.1	2.50	16.4	1.25	19.5	0.80
78	11.1	3.50	13.8	2.40	15.6	1.60	13.1	2.50	17.3	1.25	20.4	0.80
77	12.0	3.50	14.6	2.40	16.4	1.60	14.0	2.40	18.2	1.25	21.2	0.80
76	12.8	3.50	15.4	2.40	17.2	1.58	15.0	2.30	19.1	1.22	22.0	0.80
75	13.7	3.50	16.3	2.30	17.9	1.55	15.9	2.15	20.0	1.20	22.8	0.80
73	15.3	3.15	17.9	2.15	19.5	1.52	17.8	2.00	21.8	1.15	24.5	0.77
70	17.8	2.75	20.2	1.95	21.7	1.50	20.5	1.80	24.4	1.10	26.8	0.75
68	19.4	2.50	21.7	1.80	23.1	1.45	22.3	1.65	26.0	1.05	28.3	0.72
65	21.7	2.20	24.0	1.65	25.2	1.40	24.9	1.45	28.5	1.00	30.5	0.70
63	23.3	1.65	25.4	1.50	26.6	1.33	26.5	1.35	30.0	0.95	31.9	0.69
60	25.5	1.10	27.5	1.00	28.6	0.95	29.0	0.90	32.3	0.76	34.0	0.67
58	26.9	0.80	28.9	0.70	29.8	0.70	30.6	0.60	33.8	0.55	35.3	0.53
θ (°)	56 ~ 80		56 ~ 80		56 ~ 80		56 ~ 80		57 ~ 80		57 ~ 80	

Performance I

Unit: ton

Over the sides : Outriggers middle extended (5.3m)												
C D E (°)	40.0m Boom + 9.0m Jib						40.0m Boom + 14.6m Jib					
	5° □		25° □		45° □		5° □		25° □		45° □	
	B (m)	M	B (m)	M	B (m)	M	B (m)	M	B (m)	M	B (m)	M
80	9.3	3.50	12.1	2.40	14.0	1.60	11.0	2.50	15.4	1.25	18.7	0.80
79	10.2	3.50	12.9	2.40	14.8	1.60	12.1	2.50	16.4	1.25	19.5	0.80
78	11.1	3.50	13.8	2.40	15.6	1.60	13.1	2.50	17.3	1.25	20.4	0.80
77	12.0	3.50	14.6	2.40	16.4	1.60	14.0	2.40	18.2	1.25	21.2	0.80
76	12.8	3.50	15.4	2.40	17.2	1.58	15.0	2.30	19.1	1.22	22.0	0.80
75	13.7	3.50	16.3	2.30	17.9	1.55	15.9	2.15	20.0	1.20	22.8	0.80
73	15.3	3.15	17.9	2.15	19.5	1.52	17.8	2.00	21.8	1.15	24.5	0.77
70	17.8	2.30	20.2	1.90	21.7	1.50	20.5	1.80	24.4	1.10	26.8	0.75
68	19.4	1.65	21.7	1.45	23.1	1.35	22.3	1.35	26.0	1.05	28.3	0.72
θ (°)	65 ~ 80		65 ~ 80		65 ~ 80		65 ~ 80		66 ~ 80		66 ~ 80	

B= Working radius C= Jib length D= Jib offset

E= Boom angle M= Total rated loads

θ = Boom angle range (for the unladen condition)

NOTES:

1. The total rated loads shown are for the case where the outriggers are set horizontally on firm level ground.
The values above the bold lines are based on the crane strength while those below are based on the crane stability.
2. The weights of the slings and hooks (50t hook: 460kg, 20t hook: 280kg, 4t hook: 100kg) are included in the total rated loads shown.
3. Since the working radii are based on the actual values including the deflection of the boom, operations should be performed in accordance with the working radii.
4. Jib operations should be performed in accordance with the boom angle, irrespective of the boom length. The working radii are reference values for the case where the jib is mounted to a 40.0m boom.
5. Mark θ in the chart of total rated loads shows the boom elevation angle with no load.
6. The chart below shows the standard number of part lines for each boom length. The load per line should not exceed 4.17t for the main winch and 4.0t for the auxiliary winch.

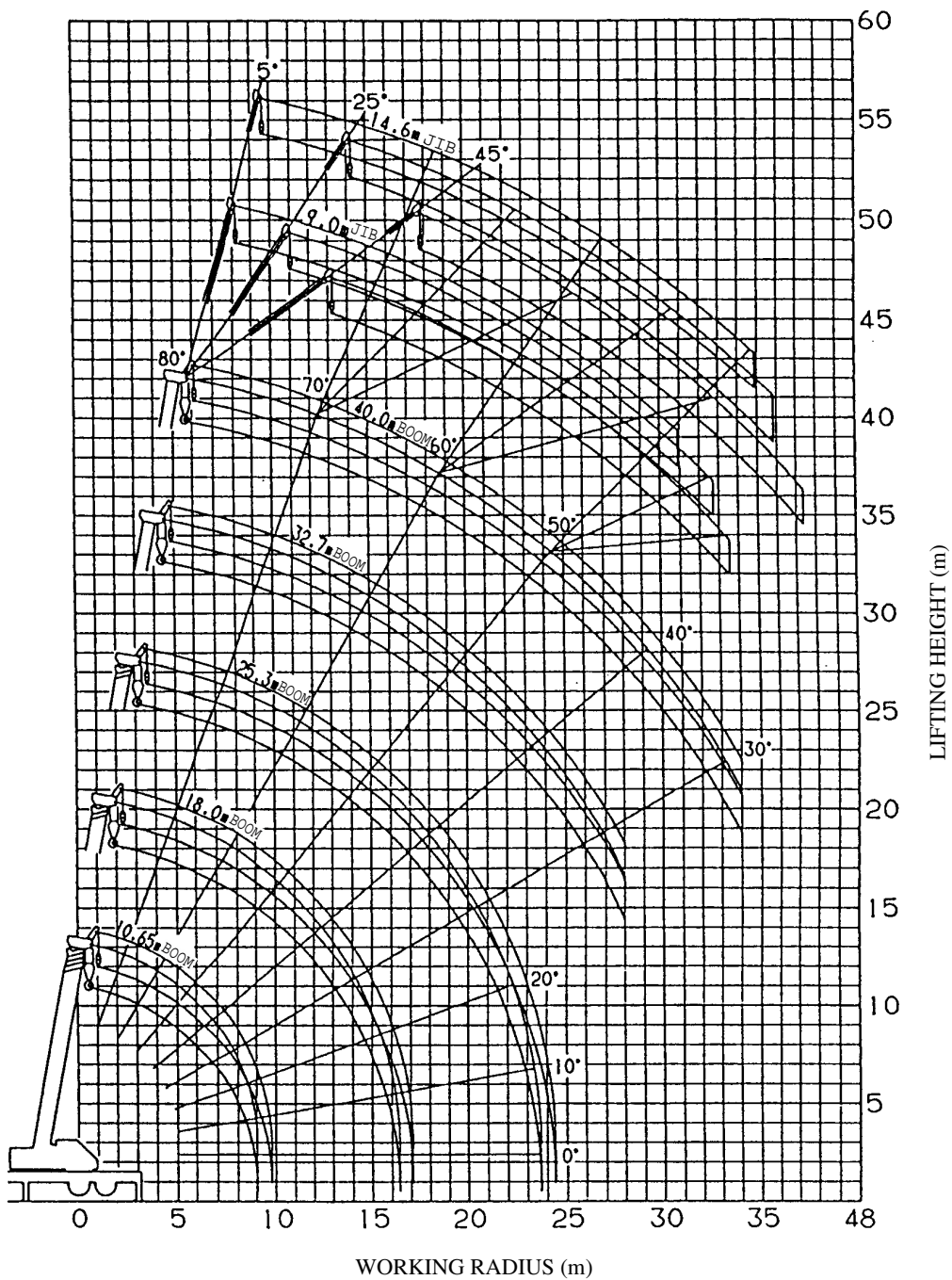
A	10.65m	18.0m	25.3m	32.7m	40.0m	J
H	12	7	5	4	4	1

A= Boom length H= No. of part-lines

J= Jib/Single top

7. As a rule, free-fall operations should be performed only for lowering the hook alone. If a hoisted load must be lowered by free-fall operation, the load must be kept below 1/5 of the total rated load (the load per line must be 0.85t or less for the main winch and 0.8t or less for the auxiliary winch) and sudden braking operations must be avoided. Free-fall operations should not be performed when the outriggers are not used.
8. The total rated load for the single top shall be the value obtained by subtracting the weight of the hook mounted to the boom from the total rated load of the boom and must not exceed 4.0t.

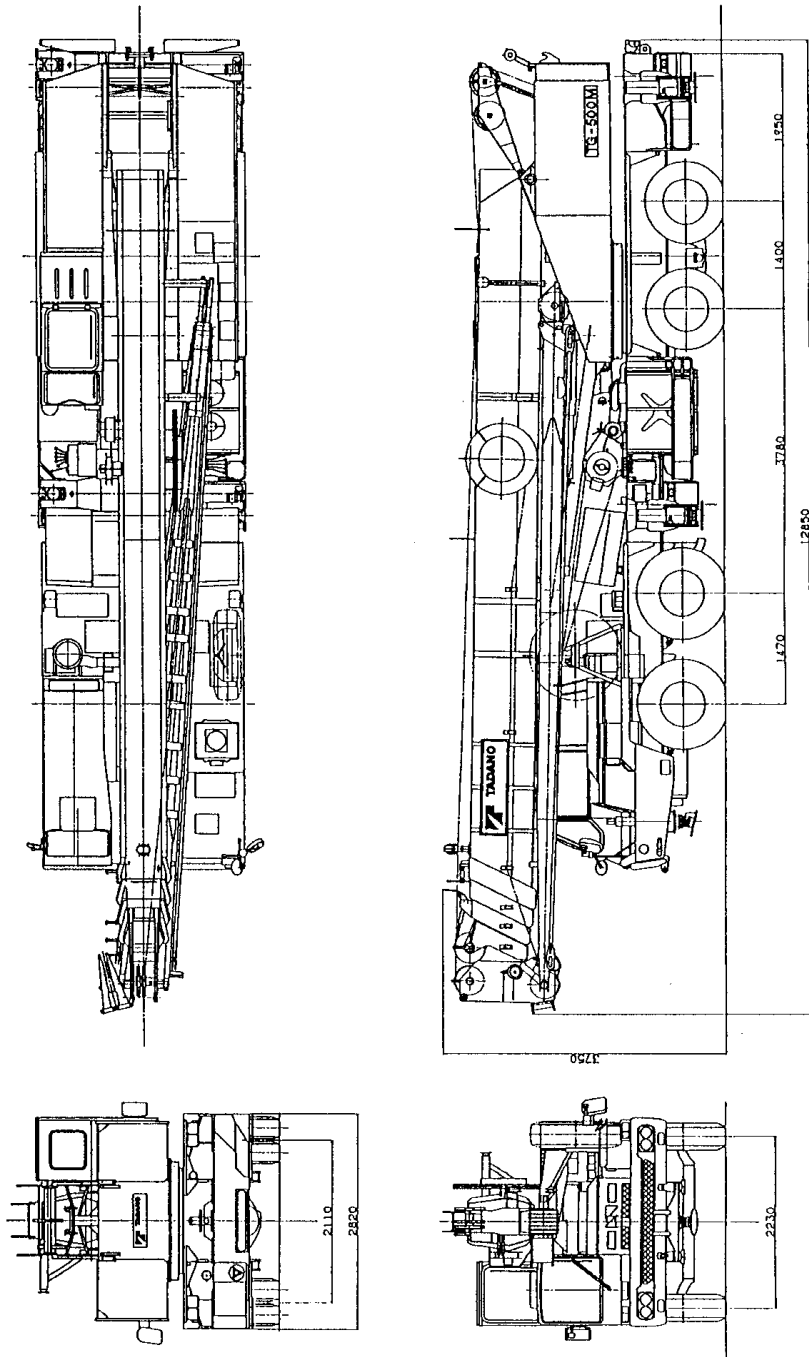
WORKING RADIUS - LIFTING HEIGHT



NOTES:

1. The deflection of the boom is not incorporated in the figure above.
2. The above chart is for Performance A.

DIMENSIONS



DIMENSIONS

