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

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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)

B \ A	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)

B \ A	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
θ (°)	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 G

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)
Over the front : Outriggers fully extended (7.4m) + Front jack
Outriggers middle extended (6.62m, 5.3m) + Front jack

C	40.0m Boom + 9.0m Jib						40.0m Boom + 14.6m Jib					
D	5 °		25 °		45 °		5 °		25 °		45 °	
E (°)	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	1.95	25.4	1.55	26.6	1.33	26.5	1.35	30.0	0.95	31.9	0.69
60	25.5	1.70	27.5	1.40	28.6	1.25	29.0	1.20	32.3	0.87	34.0	0.67
58	26.9	1.40	28.9	1.25	29.8	1.15	30.6	1.10	33.8	0.82	35.3	0.65
55	28.9	0.95	30.8	0.85	31.6	0.80	32.9	0.80	35.9	0.70	37.1	0.60
53	30.2	0.70	31.9	0.65	32.7	0.60	34.3	0.60	37.1	0.50	38.3	0.45
50	32.0	0.40	33.6	0.35	34.3	0.30	36.3	0.30				
θ (°)	49 ～ 80		49 ～ 80		49 ～ 80		49 ～ 80		52 ～ 80		52 ～ 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)

[JIB]

Performance H

Unit : ton

Over the sides : Outriggers middle extended (6.62m)												
C	40.0m Boom + 9.0m Jib						40.0m Boom + 14.6m Jib					
D	5 °		25 °		45 °		5 °		25 °		45 °	
E (°)	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	40.0m Boom + 9.0m Jib						40.0m Boom + 14.6m Jib					
D	5 °		25 °		45 °		5 °		25 °		45 °	
E (°)	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:

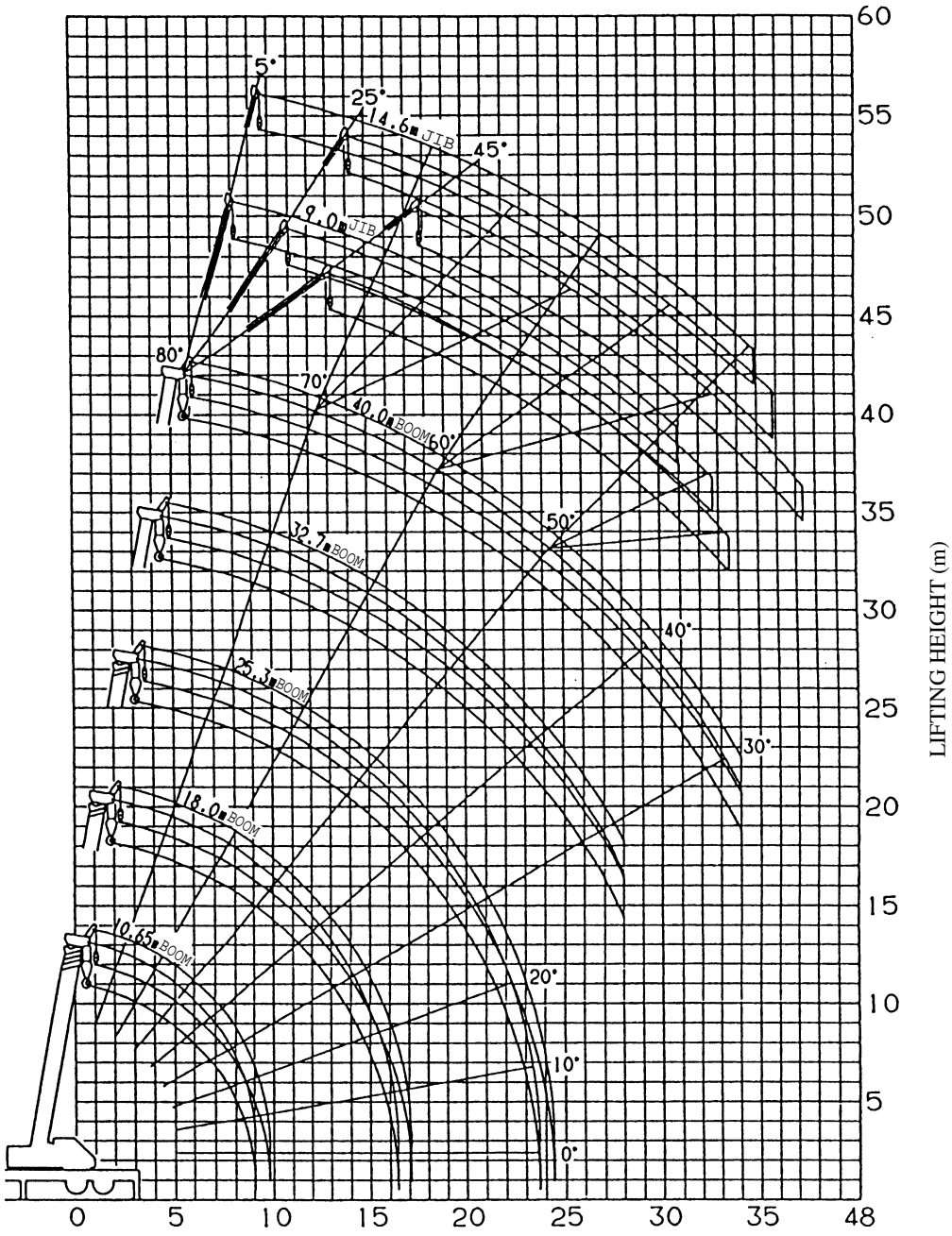
1. The total rated loads shown are for the case where the outriggers are set horizontally on firm level ground.
   The values above the bold lines are based on the crane strength while those below are based on the crane stability.
2. The weights of the slings and hooks (50t hook: 460kg, 20t hook: 280kg, 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

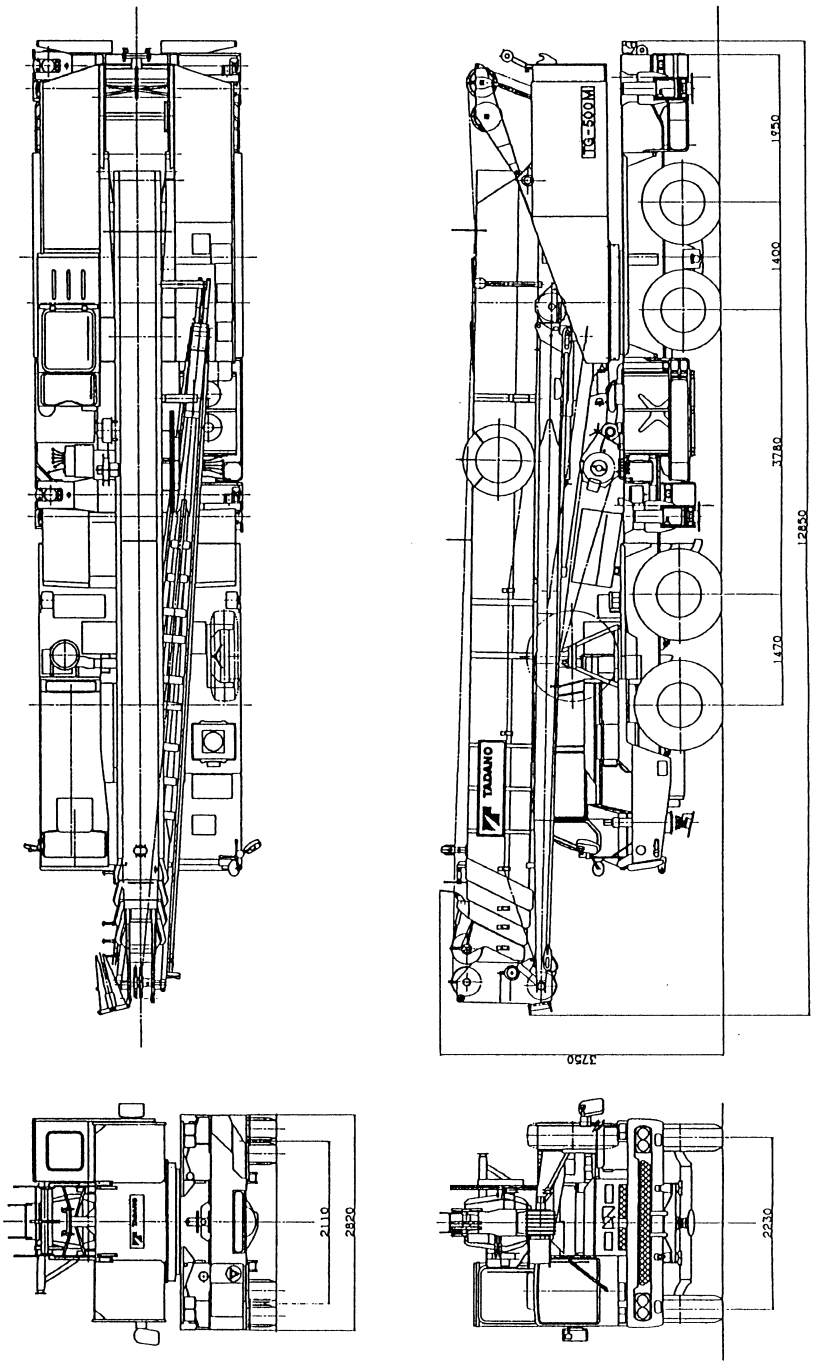
7. As a rule, free-fall operations should be performed only for lowering the hook alone. If a hoisted load must be lowered by free-fall operation, the load must be kept below 1/5 of the total rated load (the load per line must be 0.85t or less for the main winch and 0.8t or less for the auxiliary winch) 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