TRUCK CRANE

TG-450M

TG

JAPANESE SPECIFICATIONS

CARRIER MODEL	OUTLINE	SPEC. NO.
NISSAN DIESEL K-KG54T	5-section Boom, 2-stage Jib	TG-450M-3-10101
MITSUBISHI P-K450		TG-450M-3-20101

Control No. JA-01

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TG-450M-3-10101
TG-450M-3-20101

TG-450M

CRANE SPECIFICATIONS

CRANE CAPACITY

10.65m	Boom	45,000kg	at	3.0m	(11 part-line)
18.0m	Boom	28,000kg	at	5.0m	(7 part-line)
25.3m	Boom	20,000kg	at	6.0m	(5 part-line)
32.7m	Boom	13,000kg	at	7.5m	(4 part-line)
40.0m	Boom	7,500kg	at	10.0m	(2 part-line)
9.0m	Jib	3,500kg	at	78°	(1 part-line)
16.0m	Jib	2,300kg	at	78°	(1 part-line)
Single top		4,000kg			(1 part-line)

MAX. LIFTING HEIGHT

Boom 39.5m
Jib 55.5m

MAX. WORKING RADIUS

Boom 30.0m (Standard)
34.0m (With device for heavy-duty work)
Jib 36.5m (Standard)
39.3m (With device for heavy-duty work)

BOOM LENGTH

10.65m – 40.0m

BOOM EXTENSION

29.35m

BOOM EXTENSION SPEED

29.35m / 120s

JIB LENGTH

9.0m, 16.0m

MAIN WINCH SINGLE LINE SPEED

High range: 100m/min (3rd layer)
Low range: 45m/min (3rd layer)

MAIN WINCH HOOK SPEED

High range: 9.0m/min (11 part-line)
Low range: 4.0m/min (11 part-line)

AUXILIARY WINCH SINGLE LINE SPEED

High range: 93m/min (2nd layer)
Low range: 42m/min (2nd layer)

AUXILIARY WINCH HOOK SPEED

High range: 93m/min (1 part-line)
Low range: 42m/min (1 part-line)

BOOM ELEVATION ANGLE

-3° – 80°

BOOM ELEVATION SPEED

-3° – 80° / 68s

SWING ANGLE

360° continue

SWING SPEED

2.0 rpm

WIRE ROPE

Main Winch
18mm × 185m (Diameter × Length)
7×7+6×Fi(29) Class C ordinary · Z twist
Spin-resistant wire rope
Breaking strength 24.3t
Auxiliary Winch
18mm × 130m (Diameter × Length)
7×7+6×Fi(29) Class B ordinary · Z twist
Spin-resistant wire rope
Breaking strength 22.3t

BOOM

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

BOOM EXTENSION

3 double-acting hydraulic cylinder
1 wire rope type telescoping device

JIB

2-staged swingaround boon extensions.
(stages 2: pull-out type)
Triple offset (5°, 25°, 45°) type

SINGLE TOP

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

HOIST

Hydraulic motor driven planetary gear reducer.
With free-fall device.
Automatic brake (with foot brake for free-fall device)
2 single winches

BOOM ELEVATION

2 double-acting hydraulic cylinders

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.
Full extended width 6.8m
Middle extended width 4.6m

FRONT JACK

Hydraulic operated type

MAX. OUTRIGGER LOAD

44.0t

HYDRAULIC PUMPS

4 gear pumps

HYDRAULIC OIL TANK CAPACITY

675liters

SAFETY DEVICES

Automatic moment limiter (AML)
With working range limiting function
Over-winding cutout
Level gauge
Working area control device
Hook safety latch
Cable follower
Winch drum lock
Winch drum rotation indicator
Hydraulic safety valve
Telescopic counterbalance valve
Elevation counterbalance valve
Jack pilot check valve
Front jack over load alarm

EQUIPMENTS

Crane cab heater
Oil cooler
Boom angle indicato
Radio
Fan
Block

OPTIONAL EQUIPMENT

Device for heavy-duty work

CARRIER SPECIFICATIONS

MANUFACTURER
NISSAN DIESEL MOTOR CO., LTD

CARRIER MODEL
P-KG54T

ENGINE
Model RF8
Type 4-cycle V8-cylinder, direct-injection, water-cooled diesel engine
Piston displacement 16,991cc
Max. output 340PS at 2,200rpm
Max. torque 120kg·m at 1,200rpm

CLUTCH
Dry single-plate coil spring type

TRANSMISSION
7-forward and 1-reverse speeds
Synchronized-mesh gear (for 2nd – 7th speeds)

REDUCER
Hypoid gear type

FRONT AXLE
Reverse Elliot-type steel pipe cross section
(with stabilizers on front and rear axles)

REAR AXLE
Full floating, cast torque rods

SUSPENSION
Front Laminated leaf spring type
Rear Equalizer and torque rods

STEERING
Recirculating ball screw type with linkage power assistance

BRAKE SYSTEM
Service Brake
2-circuit air brake, 8-wheels internal expanding brake
Parking Brake
Mechanically operated, duo-servo shoe type acting on drum at transmission case rear.
Auxiliary Brake
Electro-pneumatic operated exhaust brake
Emergency
Spring brake

ELECTRIC SYSTEM
24 V DC. 2 batteries of 12V-115F51 (96Ah)

FUEL TANK CAPACITY
300 liters

CAB
Two-man type

TIRES
Front 13.00-20-20PR
Rear 11.00-20-14PR

STANDARD EQUIPMENTS
Car heater
Car radio

GENERAL DATA

DIMENSIONS
Overall length 12,840mm
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 37,230kg
Front 16,320kg
Rear 20,910kg

PERFORMANCE
Max. traveling speed 65km/h
Min. traveling speed 1.2km/h
Gradeability (tan θ) 0.57
Min. turning radius 11.0m

CARRIER SPECIFICATIONS

MANUFACTURER
MITSUBISHI MOTOR CORPORATION

CARRIER MODEL
P-K450

ENGINE
Model 8DC9
Type 4-cycle V8-cylinder, direct-injection, water-cooled diesel engine
Piston displacement 16,031cc
Max. output 320PS at 2,200rpm
Max. torque 110kg·m at 1,400rpm

CLUTCH
Dry single-plate type
Hydraulic control with clutch booster

TRANSMISSION
10-forward and 2-reverse speeds
Constant-mesh gear (1st speed, 2nd speed, reverse)
Synchronized-mesh gear (for 3rd – 10th speeds)

REDUCER
1-stage speed reduction type
Hypoid gear type

FRONT AXLE
Reverse-elliot type steering knuckles

REAR AXLE
Full-floating type, cast-steel housing

SUSPENSION
Front Laminated semi-elliptical leaf spring type
With torsion bar stabilizer
(only for the front front axle)
Rear Equalizer beam and torque rod type

STEERING
Recirculating ball screw type
With linkage type hydraulic power booster

BRAKE SYSTEM
Service Brake
2-circuit air brakes for all wheels
Leading and trailing shoe type.
Parking Brake
Spring brake, acting on 4 rear wheels
Auxiliary Brake
Exhaust brake

ELECTRIC SYSTEM
24 V DC. 2 batteries of 12V-145F51 (112Ah)

FUEL TANK CAPACITY
300 liters

CAB
Two-man type

TIRES
Front 13.00-20-20PR
Rear 11.00-20-14PR

STANDARD EQUIPMENTS
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	37,340kg
Front	16,335kg
Rear	21,005kg

PERFORMANCE

Max. traveling speed	70km/h
Min. traveling speed	1.9km/h
Gradeability (tan θ)	0.31
Min. turning radius	11.0m

TOTAL RATED LOADS

(1) Standard specifications

(i)

[BOOM]

Unit : ton

· Outriggers fully extended + Front jack (360°)
· Outriggers fully extended (Over rear · Over sides)

A / B (m)	10.65 m	18.0 m	25.3 m	32.7 m	40.0 m
3.0	45.00	28.00			
3.5	40.50	28.00			
4.0	36.50	28.00	20.00		
4.5	33.00	28.00	20.00		
5.0	30.20	28.00	20.00		
5.5	27.50	25.60	20.00	13.00	
6.0	25.00	23.50	20.00	13.00	
6.5	22.70	21.80	18.10	13.00	7.50
7.0	20.70	20.00	16.80	13.00	7.50
7.5	18.90	18.50	15.70	13.00	7.50
8.0	17.40	17.00	14.80	12.30	7.50
8.5	15.40	15.30	14.00	11.60	7.50
9.0	13.85	13.65	13.20	11.00	7.50
10.0		10.95	10.85	10.00	7.50
11.0		9.00	8.85	9.10	6.95
12.0		7.50	7.35	8.20	6.45
13.0		6.30	6.15	6.95	6.00
14.0		5.35	5.20	6.00	5.60
16.0		3.85	3.70	4.50	4.80
18.0			2.50	3.40	3.95
20.0			1.60	2.45	3.10
22.0			0.85	1.75	2.35
24.0				1.15	1.75
26.0				0.65	1.25
28.0					0.85
30.0					0.50

A = Boom length
B = Working radius

(1) Standard specifications
(ii)
[JIB]

Unit : ton

· Outriggers fully extended + Front jack (360°) · Outriggers fully extended (Over rear · Over sides)						
C / D / E (°)	9.0 m			16.0 m		
	5°	25°	45°	5°	25°	45°
80	3.50	2.20	1.20	2.30	1.10	0.60
79	3.50	2.20	1.20	2.30	1.10	0.60
78	3.50	2.20	1.20	2.30	1.10	0.60
77	3.32	2.14	1.19	2.18	1.07	0.59
76	3.13	2.08	1.18	2.06	1.05	0.59
75	2.97	2.02	1.17	1.96	1.02	0.58
73	2.68	1.91	1.15	1.78	0.97	0.57
70	2.33	1.74	1.11	1.56	0.91	0.56
68	2.15	1.64	1.09	1.44	0.87	0.54
65	1.91	1.49	1.07	1.27	0.81	0.53
63	1.78	1.39	1.03	1.18	0.78	0.51
60	1.45	1.25	1.00	1.06	0.74	0.50
58	1.16	1.03	0.98	0.93	0.68	0.49
55	0.82	0.69	0.66	0.63	0.47	
53	0.62					

C = Jib length
D = Jib offset
E = Boom angle

(1) Standard specifications
(iii)
[BOOM]

Unit : ton

· Outriggers middle extended (360°) · Outriggers fully extended (Over front)						Without outriggers (Over rear)	
A / B (m)	10.65 m	18.0 m	25.3 m	32.7 m	40.0 m	A / B (m)	10.65 m
3.0	40.00	28.00				3.0	8.00
3.5	34.00	28.00				3.5	6.40
4.0	28.60	28.00	20.00			4.0	5.10
4.5	26.20	26.05	20.00			4.5	4.20
5.0	19.60	19.50	19.40			5.0	3.40
5.5	15.40	15.25	15.20	13.00		5.5	2.80
6.0	12.60	12.30	12.25	13.00		6.0	2.30
6.5	10.40	10.15	10.10	11.30	7.50	6.5	1.90
7.0	8.70	8.50	8.45	9.60	7.50	7.0	1.60
7.5	7.40	7.20	7.20	8.20	7.50	7.5	1.25
8.0	6.30	6.25	6.15	7.10	7.50	8.0	1.00
8.5	5.40	5.40	5.30	6.15	6.90		
9.0	4.65	4.65	4.55	5.40	6.10		
10.0		3.50	3.35	4.15	4.85		
11.0		2.50	2.45	3.30	3.85		
12.0		1.65	1.65	2.65	3.15		
13.0				1.95	2.50		
14.0				1.40	1.95		
16.0					1.15		

A = Boom length
B = Working radius

(1) Standard specifications
(iv)
[JIB]

Unit : ton

· Outriggers middle extended (360°) · Outriggers fully extended (Over front)						
C / D / E (°)	9.0 m			16.0 m		
	5°	25°	45°	5°	25°	45°
80	3.50	2.20	1.20	2.30	1.10	0.60
79	3.50	2.20	1.20	2.30	1.10	0.60
78	3.50	2.20	1.20	2.30	1.10	0.60
77	3.10	2.14	1.19	2.18	1.07	0.59
76	2.65	2.08	1.18	2.06	1.05	0.59
75	2.25	1.85	1.17	1.70	1.02	
73	1.55	1.30				

C = Jib length D = Jib offset E = Boom angle

NOTES:

1. The total rated loads shown are for the case when the outriggers are set horizontally on firm ground. The values are based on the crane strength.
2. The weights of slings and hooks (400kg for a 45 ton capacity hook, 200kg for a 12 ton capacity hook and 100kg for a 4 ton capacity hook) are included in the total rated loads shown.
3. The total rated load is based on the actual working radius including the deflection of the boom.
4. The chart below shows the standard number of part lines for each boom length. The load per line should not exceed 4.0t for both the main winch and the auxiliary winch.

A	10.65m	18.0 m	25.3 m	32.7 m	40.0 m	J
H	11	7	5	4	2	1

A = Boom length H = No. of part-line J = Jib / Single top

5. As a rule, free-fall operations should be performed only when lowering the hook alone. If a hoisted load must be lowered by free-fall operation, the load must be kept below 1/5th of the total rated load (the load per line must be 0.8t or less for both the main and the auxiliary winches) and sudden braking operations must be avoided. Free-fall operations should not be performed without the outriggers.
6. The total rated load for the single top is the same as that of the boom and must not exceed 4.0 tons. However, when hooks, slings, etc. are mounted on the boom, one should work with the total rated load obtained by subtracting the weights of the hooks, slings, etc. mounted on the boom from the total rated load of the boom.

(2) Specifications for the case when the device for heavy-duty work (option) is mounted

(i)

[BOOM]

Unit : ton

· Outriggers fully extended + Front jack (360°)
· Outriggers fully extended (Over rear · Over sides)

A / B (m)	10.65 m	18.0 m	25.3 m	32.7 m	40.0 m
3.0	45.00	28.00			
3.5	40.50	28.00			
4.0	36.50	28.00	20.00		
4.5	33.00	28.00	20.00		
5.0	30.20	28.00	20.00		
5.5	27.50	25.60	20.00	13.00	
6.0	25.00	23.50	20.00	13.00	
6.5	22.70	21.80	18.10	13.00	7.50
7.0	20.70	20.00	16.80	13.00	7.50
7.5	18.90	18.50	15.70	13.00	7.50
8.0	17.40	17.00	14.80	12.30	7.50
8.5	16.05	15.70	14.00	11.60	7.50
9.0	14.90	14.70	13.20	11.00	7.50
10.0		12.20	11.80	10.00	7.50
11.0		10.15	10.00	9.10	6.95
12.0		8.50	8.35	8.30	6.45
13.0		7.30	7.15	7.65	6.00
14.0		6.25	6.10	6.95	5.60
16.0		4.60	4.50	5.35	4.80
18.0			3.35	4.15	4.05
20.0			2.35	3.20	3.55
22.0			1.60	2.45	3.00
24.0				1.80	2.35
26.0				1.30	1.80
28.0				0.85	1.35
30.0					1.00
32.0					0.70
34.0					0.40

A = Boom length
B = Working radius

(2) Specifications for the case when the device for heavy-duty work (option) is mounted (ii)

[JIB]

Unit : ton

· Outriggers fully extended + Front jack (360°)
· Outriggers fully extended (Over rear · Over sides)

C / D / E (°)	9.0 m			16.0 m		
	5°	25°	45°	5°	25°	45°
80	3.50	2.20	1.20	2.30	1.10	0.60
79	3.50	2.20	1.20	2.30	1.10	0.60
78	3.50	2.20	1.20	2.30	1.10	0.60
77	3.32	2.14	1.19	2.18	1.07	0.59
76	3.13	2.08	1.18	2.06	1.05	0.59
75	2.97	2.02	1.17	1.96	1.02	0.58
73	2.68	1.91	1.15	1.78	0.97	0.57
70	2.33	1.74	1.11	1.56	0.91	0.56
68	2.15	1.64	1.09	1.44	0.87	0.54
65	1.91	1.49	1.07	1.27	0.81	0.53
63	1.78	1.39	1.03	1.18	0.78	0.51
60	1.60	1.26	1.00	1.06	0.74	0.50
58	1.46	1.19	0.98	0.98	0.72	0.49
55	1.15	1.02	0.94	0.90	0.70	0.47
53	0.94	0.80	0.76	0.72	0.56	0.46
50	0.66	0.52	0.48	0.45		

C = Jib length
D = Jib offset
E = Boom angle

(2) Specifications for the case when the device for heavy-duty work (option) is mounted (iii) [BOOM]

Unit : ton

· Outriggers middle extended (360°) · Outriggers fully extended (Over front)						Without outriggers (Over rear)	
A / B (m)	10.65 m	18.0 m	25.3 m	32.7 m	40.0 m	A / B (m)	10.65 m
3.0	40.00	28.00				3.0	8.00
3.5	35.00	28.00				3.5	6.40
4.0	30.00	28.00	20.00			4.0	5.10
4.5	26.60	26.50	20.00			4.5	4.20
5.0	23.45	23.35	20.00			5.0	3.40
5.5	18.55	18.40	18.35	13.00		5.5	2.80
6.0	15.10	15.00	14.95	13.00		6.0	2.30
6.5	12.60	12.50	12.40	13.00	7.50	6.5	1.90
7.0	10.65	10.55	10.50	11.65	7.50	7.0	1.60
7.5	9.10	9.00	8.95	10.05	7.50	7.5	1.25
8.0	7.85	7.80	7.70	8.75	7.50	8.0	1.00
8.5	6.85	6.75	6.70	7.70	7.50		
9.0	6.00	5.90	5.80	6.80	6.90		
10.0		4.50	4.45	5.40	6.05		
11.0		3.45	3.35	4.30	4.95		
12.0		2.60	2.50	3.45	4.05		
13.0		1.95	1.75	2.75	3.35		
14.0		1.35	1.15	2.10	2.80		
16.0				1.15	1.75		
18.0					1.10		

A = Boom length
B = Working radius

(2) Specifications for the case when the device for heavy-duty work (option) is mounted

(iv)

[JIB]

Unit : ton

· Outriggers middle extended (360°)
· Outriggers fully extended (Over front)

C / D / E (°)	9.0 m			16.0 m		
	5°	25°	45°	5°	25°	45°
80	3.50	2.20	1.20	2.30	1.10	0.60
79	3.50	2.20	1.20	2.30	1.10	0.60
78	3.50	2.20	1.20	2.30	1.10	0.60
77	3.32	2.14	1.19	2.18	1.07	0.59
76	3.13	2.08	1.18	2.06	1.05	0.59
75	2.95	2.02	1.17	1.96	1.02	0.58
73	2.20	1.80	1.15	1.78	0.97	
70	1.35					

C = Jib length D = Jib offset E = Boom angle

NOTES:

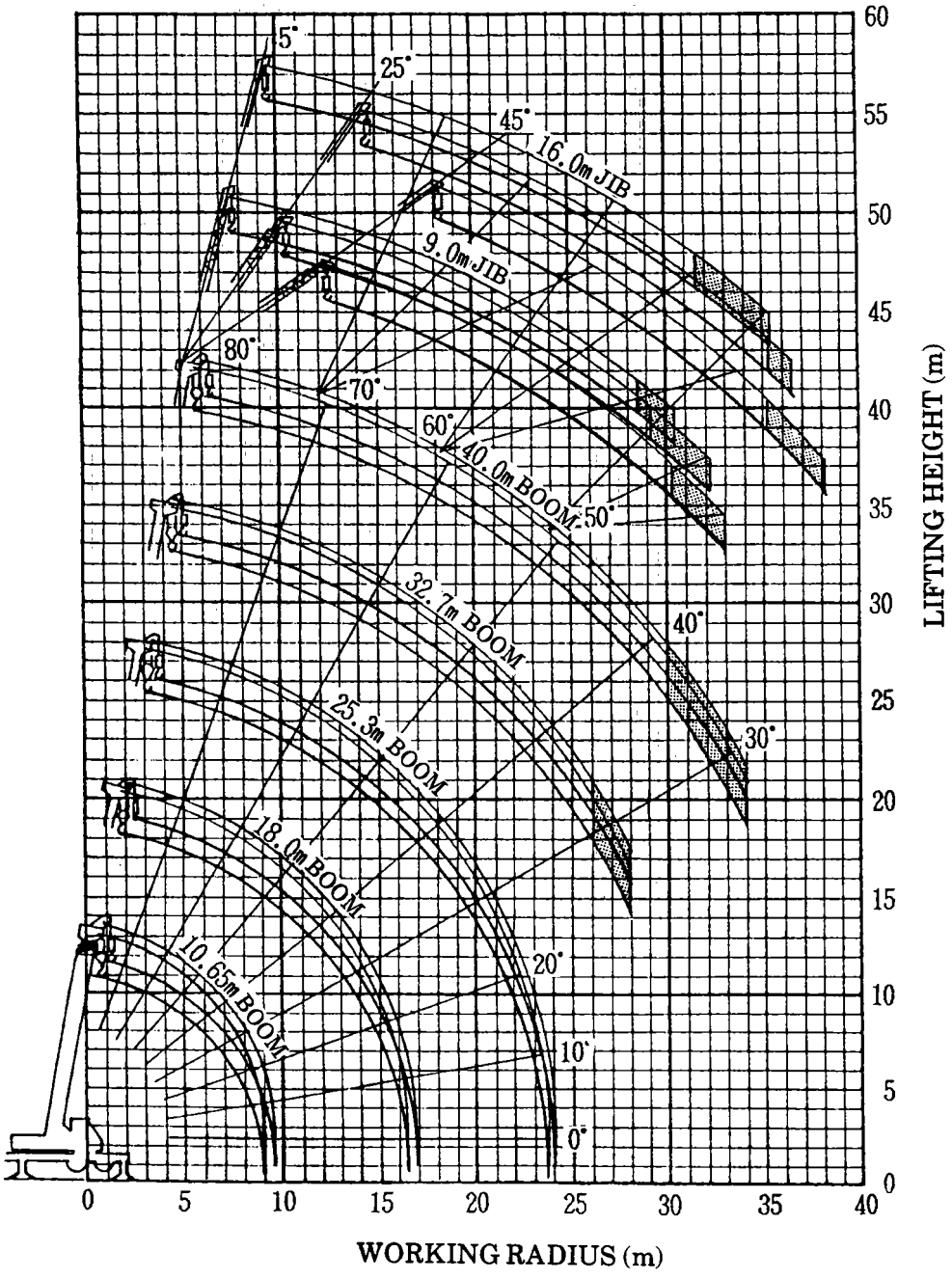
1. The total rated loads shown are for the case when the outriggers are set horizontally on firm ground. The values are based on the crane strength.
2. The weights of slings and hooks (400kg for a 45 ton capacity hook, 200kg for a 12 ton capacity hook and 100kg for a 4 ton capacity hook) are included in the total rated loads shown.
3. The total rated load is based on the actual working radius including the deflection of the boom.
4. The chart below shows the standard number of part lines for each boom length. The load per line should not exceed 4.0t for both the main winch and the auxiliary winch.

A	10.65m	18.0 m	25.3 m	32.7 m	40.0 m	J
H	11	7	5	4	2	1

A = Boom length H = No. of part-line J = Jib / Single top

5. As a rule, free-fall operations should be performed only when lowering the hook alone. If a hoisted load must be lowered by free-fall operation, the load must be kept below 1/5th of the total rated load (the load per line must be 0.8t or less for both the main and the auxiliary winches) and sudden braking operations must be avoided. Free-fall operations should not be performed without the outriggers.
6. The total rated load for the single top is the same as that of the boom and must not exceed 4.0 tons. However, when hooks, slings, etc. are mounted on the boom, one should work with the total rated load obtained by subtracting the weights of the hooks, slings, etc. mounted on the boom from the total rated load of the boom.

WORKING RADIUS - LIFTING HEIGHT

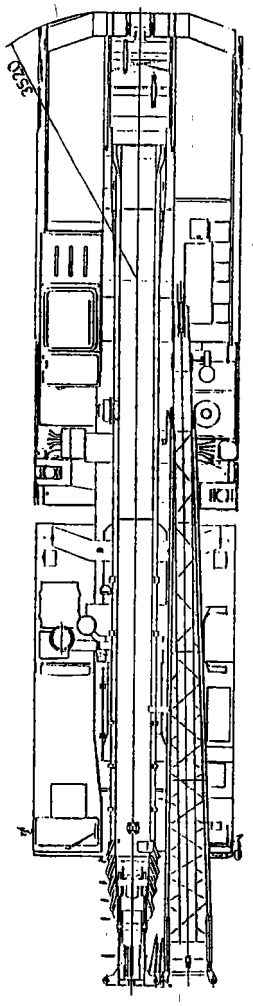


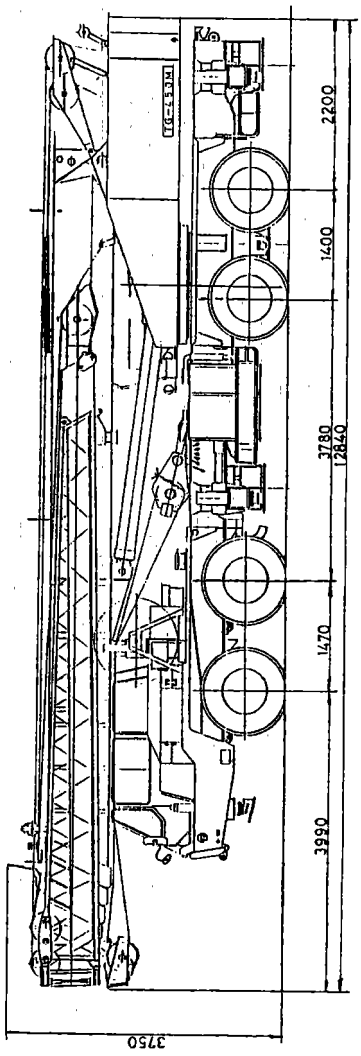
NOTES:

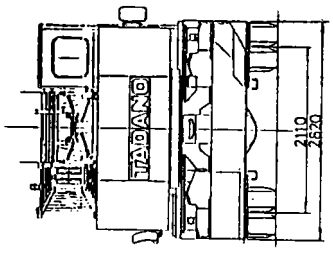
1. The deflection of the boom is not incorporated in the figure above.
2. The above chart is for the case where the outriggers are fully extended and where the front jack are used (over 360°)
3. The ▨ area in the diagram applies only to the case when the device for heavy-duty work (option) is mounted.

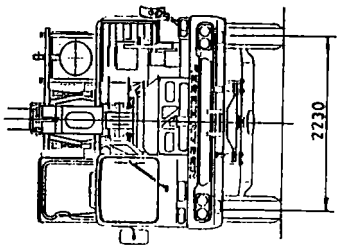
DIMENSIONS (1/100)

K-KG54T



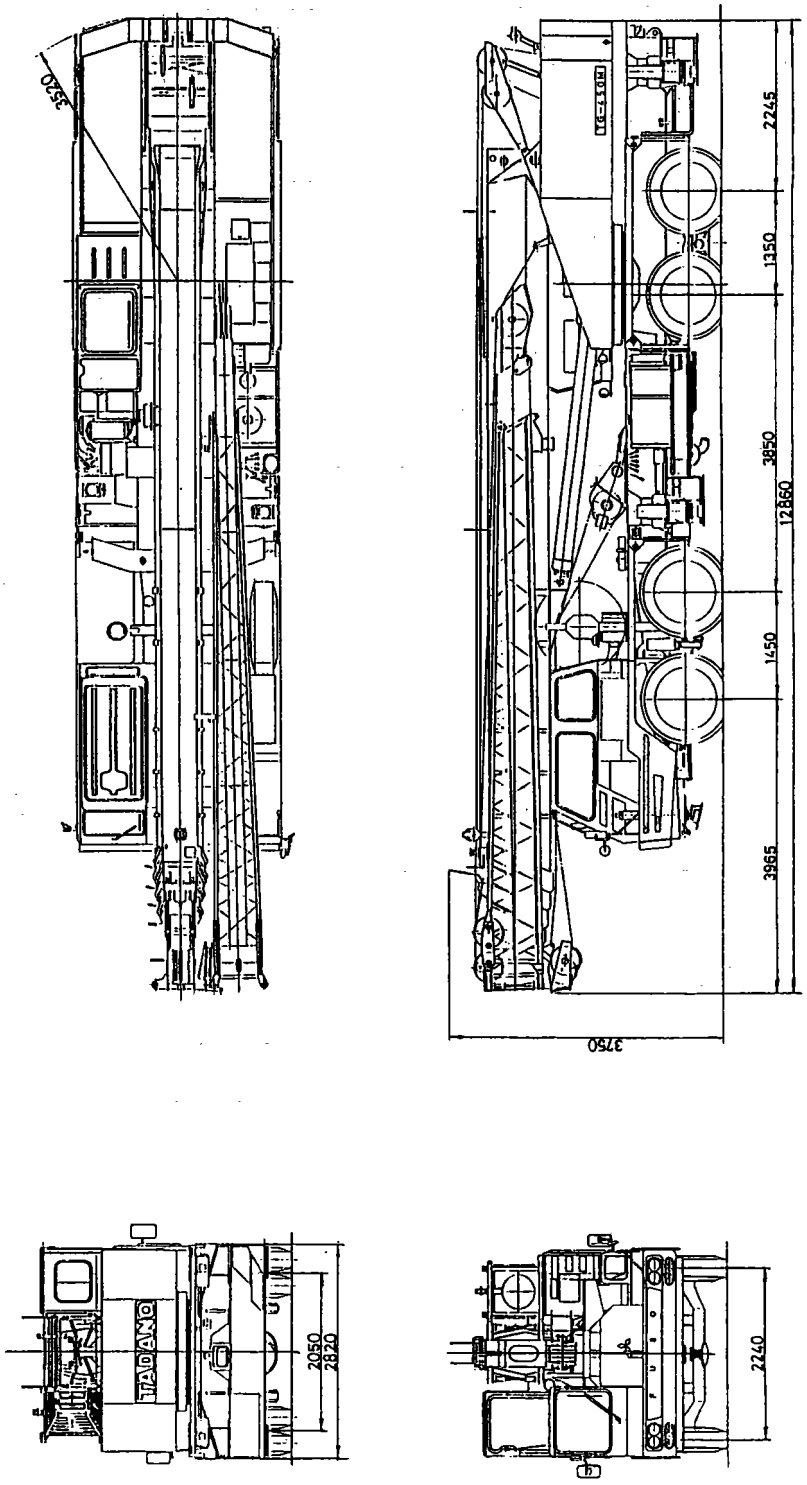






DIMENSIONS (1/100)

P-K450



◆ MEMO ◆