

# TRUCK CRANE

## TG-450M

TG

### *JAPANESE SPECIFICATIONS*

CARRIER MODEL	OUTLINE	SPEC. NO.
NISSAN DIESEL P-KG53T	5-section Boom, 2-stage Jib	TG-450M-2-10101

Control No. JA-03

# TG-450M

## CRANE SPECIFICATIONS

### CRANE CAPACITY

10.65m Boom	45,000kg	at 3.0m	(11 part-line)
18.02m Boom	28,000kg	at 5.0m	( 7 part-line)
25.35m Boom	20,000kg	at 6.0m	( 5 part-line)
32.67m Boom	13,000kg	at 7.5m	( 4 part-line)
40.00m Boom	7,500kg	at 9.0m	( 2 part-line)
9.0m Jib	3,500kg	at 78°	( 1 part-line)
16.0m Jib	2,000kg	at 76°	( 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)
	32.0m (With device for heavy-duty work)
Jib	36.0m (Standard)
	38.0m (With device for heavy-duty work)

### BOOM LENGTH

10.65m – 40.0m

### BOOM EXTENSION

29.35m

### BOOM EXTENSION SPEED

29.35m / 115s

### JIB LENGTH

9.0m, 16.0m

### MAIN WINCH SINGLE LINE SPEED

High range:	106m/min	(3rd layer)
Low range:	53m/min	(3rd layer)

### MAIN WINCH HOOK SPEED

High range:	9.6m/min	(11 part-line)
Low range:	4.8m/min	(11 part-line)

### AUXILIARY WINCH SINGLE LINE SPEED

High range:	90m/min	(2nd layer)
Low range:	45m/min	(2nd layer)

### AUXILIARY WINCH HOOK SPEED

High range:	90m/min	(1 part-line)
Low range:	45m/min	(1 part-line)

### BOOM ELEVATION ANGLE

-2.5° – 82°

### BOOM ELEVATION SPEED

-2.5° – 82° / 58s

### SWING ANGLE

360° continue

### SWING SPEED

1.8 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 boom extensions.  
 (stages 2: pull-out type)  
 Dual (5°, 30°) offset

### SINGLE TOP

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

### HOIST

Driven by hydraulic motor and via helical gear speed 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

47.5t

### HYDRAULIC PUMPS

4 gear pumps

### HYDRAULIC OIL TANK CAPACITY

675 liters

### SAFETY DEVICES

Automatic moment limiter (AML-US)  
 Over-winding cutout  
 Level gauge  
 Overfront area control device  
 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 indicator  
 Jib extending device  
 Radio  
 Fan  
 Interphone (2-way type)

### OPTIONAL EQUIPMENT

Device for heavy-duty work

**CARRIER SPECIFICATIONS****MANUFACTURER**

NISSAN DIESEL MOTOR CO., LTD

**CARRIER MODEL**

P-KG53T

**ENGINE**

Model RE8

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

Piston displacement 15,115cc

Max. output 315PS at 2,300rpm

Max. torque 105kg·m at 1,400rpm

**CLUTCH**

Dry single plate coil spring type

**TRANSMISSION**

5-forward and 1-reverse speeds

Synchronized-mesh gear (for 2nd – 5th speeds)

**AUXILIARY TRANSMISSION**Directly coupled to synchromesh transmission  
(high speed / low speed)**REDUCER**

Hypoid gear type

**FRONT AXLE**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 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

**ELECTRIC SYSTEM**

24 V DC. 2 batteries of 12V (120Ah)

**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 13,470mm

Overall width 2,820mm

Overall height 3,600mm

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

Tread Front 2,200mm

Rear 2,110mm

**WEIGHTS**

Gross vehicle weight

Total 37,250kg

Front 16,410kg

Rear 20,840kg

**PERFORMANCE**

Max. traveling speed 65km/h

Gradeability (tan  $\theta$ ) 0.29

Min. turning radius 11.8m

**TOTAL RATED LOADS**

(1) Standard specifications  
(i)

Unit : ton

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

B (m) \ A	A					E (°) \ C	9.0 m		16.0 m	
	10.65m	18.02m	25.35m	32.67m	40.00m		5°	30°	5°	30°
3.0	45.00	28.00				82	3.50	2.00	2.00	1.00
3.5	40.50	28.00	20.00			80	3.50	2.00	2.00	1.00
4.0	36.50	28.00	20.00			79	3.50	2.00	2.00	1.00
4.5	33.00	28.00	20.00			78	3.50	1.96	2.00	1.00
5.0	30.20	28.00	20.00	13.00		77	3.30	1.91	2.00	0.97
5.5	27.50	25.60	20.00	13.00		76	3.12	1.86	2.00	0.95
6.0	25.00	23.50	20.00	13.00		75	2.97	1.82	1.92	0.93
6.5	22.70	21.80	18.00	13.00	7.50	73	2.68	1.73	1.76	0.89
7.0	20.70	20.00	16.80	13.00	7.50	70	2.33	1.58	1.53	0.84
7.5	18.70	18.50	15.70	13.00	7.50	68	2.15	1.49	1.40	0.81
8.0	17.30	17.00	14.80	12.30	7.50	65	1.91	1.36	1.23	0.76
9.0	13.85	13.65	13.20	11.00	7.50	63	1.75	1.29	1.14	0.73
10.0		10.95	10.85	10.00	7.30	60	1.25	1.00	0.90	0.65
11.0		9.00	8.85	9.10	6.80	58	0.95	0.75	0.65	0.45
12.0		7.50	7.35	8.20	6.30	56	0.70	0.55	0.45	
14.0		5.35	5.20	6.00	5.50	55	0.55	0.45		
16.0		3.85	3.70	4.50	4.70	54	0.45			
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
- 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 (450kg for a 45 ton capacity hook, 210kg 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 number of part lines for each boom length should not exceed the values below. The load per line should not exceed 4 tons for both the main winch and the auxiliary winch.

A	10.65m	18.02m	25.35m	32.67m	40.00m	J
H	11	7	5	4	2	1

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

5. The total rated loads for free-fall operations is 1/5 of the total rated loads given above. The load per line should not exceed 0.8 ton for both the main winch and the auxiliary winch.
6. The total rated load for the single top is the same as that of the boom and must not exceed 4 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.

(1) Standard specifications  
(ii)

Unit : ton

· Outriggers middle extended (360°) · Outriggers fully extended (Over front)						Without outriggers (Over rear)						
A \ B (m)	10.65m	18.02m	25.35m	32.67m	40.00m	C		A \ B (m)	10.65m			
						D						
					E (°)		9.0 m		16.0 m			
							5°	30°	5°	30°		
3.0	30.00	19.00				82	3.50	2.00	2.00	1.00	3.0	8.00
3.5	30.00	19.00	13.50			80	3.50	2.00	2.00	1.00	3.5	6.40
4.0	30.00	19.00	13.50			79	3.50	2.00	2.00	1.00	4.0	5.10
4.5	26.75	19.00	13.50			78	3.50	1.96	2.00	1.00	4.5	4.20
5.0	20.10	19.00	13.50	9.00		77	3.05	1.91	2.00	0.97	5.0	3.40
5.5	15.80	15.50	13.50	9.00		76	2.50	1.85	1.80	0.95	5.5	2.80
6.0	12.80	12.55	12.40	9.00		75	2.10	1.55	1.50		6.0	2.30
6.5	10.60	10.35	10.25	9.00	5.00	73	1.35				6.5	1.90
7.0	8.95	8.70	8.55	9.00	5.00						7.0	1.60
7.5	7.60	7.35	7.25	8.25	5.00						7.5	1.25
8.0	6.50	6.30	6.15	7.15	5.00						8.0	1.00
9.0	4.85	4.65	4.55	5.45	5.00							
10.0		3.45	3.35	4.20	4.70							
11.0		2.50	2.30	3.30	3.90							
12.0		1.65	1.50	2.50	3.15							
14.0					1.95							

A = Boom length  
B = Working radius  
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 (450kg for a 45 ton capacity hook, 210kg 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 number of part lines for each boom length should not exceed the values below. The load per line should not exceed 4 tons for both the main winch and the auxiliary winch.

A	10.65 m	18.02 m	25.35 m	32.67 m	40.00 m	J
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A = Boom length H = No. of part-line J = Jib / Single top

5. The total rated loads for free-fall operations is 1/5 of the total rated loads given above. The load per line should not exceed 0.8 ton for both the main winch and the auxiliary winch. 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 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)

Unit : ton

· Outriggers fully extended + Front jack (360°) · Outriggers fully extended (Over rear · Over sides)										
A \ B (m)	10.65m	18.02m	25.35m	32.67m	40.00m	C \ D \ E (°)	9.0 m		16.0 m	
							5°	30°	5°	30°
3.0	45.00	28.00				82	3.50	2.00	2.00	1.00
3.5	40.50	28.00	20.00			80	3.50	2.00	2.00	1.00
4.0	36.50	28.00	20.00			79	3.50	2.00	2.00	1.00
4.5	33.00	28.00	20.00			78	3.50	1.96	2.00	1.00
5.0	30.20	28.00	20.00	13.00		77	3.30	1.91	2.00	0.97
5.5	27.50	25.60	20.00	13.00		76	3.12	1.86	2.00	0.95
6.0	25.00	23.50	20.00	13.00		75	2.97	1.82	1.92	0.93
6.5	22.70	21.80	18.00	13.00	7.50	73	2.68	1.73	1.76	0.89
7.0	20.70	20.00	16.80	13.00	7.50	70	2.33	1.58	1.53	0.84
7.5	18.70	18.50	15.70	13.00	7.50	68	2.15	1.49	1.40	0.81
8.0	17.30	17.00	14.80	12.30	7.50	65	1.91	1.36	1.23	0.76
9.0	14.60	14.30	13.20	11.00	7.50	63	1.78	1.29	1.14	0.73
10.0		11.90	11.75	10.00	7.30	60	1.50	1.19	1.01	0.70
11.0		9.80	9.65	9.10	6.80	58	1.20	1.00	0.85	0.65
12.0		8.20	8.10	8.30	6.30	56	0.90	0.75	0.65	0.45
14.0		5.90	5.80	6.60	5.50	55	0.80	0.65	0.55	0.40
16.0		4.35	4.20	5.00	4.70	54	0.70	0.55	0.45	
18.0			2.95	3.80	4.00	52	0.50			
20.0			2.00	2.90	3.45					
22.0			1.25	2.10	2.70					
24.0			0.65	1.50	2.05					
26.0				0.95	1.55					
28.0				0.55	1.10					
30.0					0.75					
32.0					0.45					

- A = Boom length
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- D = Jib offset
- E = Boom angle

**NOTES:**

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2. The weights of slings and hooks (450kg for a 45 ton capacity hook, 210kg for a 12 ton capacity hook and 100kg for a 4 ton capacity hook) are included in the total rated loads shown.
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**(2) Specifications for the case  
when the device for heavy-duty work (option) is mounted  
(ii)**

Unit : ton

· Outriggers middle extended (360°) · Outriggers fully extended (Over front)						Without outriggers (Over rear)						
A B (m)	10.65m	18.02m	25.35m	32.67m	40.00m	C D E (°)	9.0 m	16.0 m	A B (m)	10.65m		
							5°	30°		5°	30°	
3.0	30.00	19.00				82	3.50	2.00	2.00	1.00	3.0	8.00
3.5	30.00	19.00	13.50			80	3.50	2.00	2.00	1.00	3.5	6.40
4.0	30.00	19.00	13.50			79	3.50	2.00	2.00	1.00	4.0	5.10
4.5	28.50	19.00	13.50			78	3.50	1.96	2.00	1.00	4.5	4.20
5.0	21.80	19.00	13.50	9.00		77	3.30	1.91	2.00	0.97	5.0	3.40
5.5	17.20	16.50	13.50	9.00		76	3.00	1.86	2.00	0.95	5.5	2.80
6.0	14.00	13.70	13.50	9.00		75	2.55	1.82	1.85	0.93	6.0	2.30
6.5	11.60	11.40	11.20	9.00	5.00	73	1.80		1.25		6.5	1.90
7.0	9.80	9.60	9.50	9.00	5.00						7.0	1.60
7.5	8.40	8.20	8.00	9.00	5.00						7.5	1.25
8.0	7.20	7.00	6.90	7.85	5.00						8.0	1.00
9.0	5.40	5.30	5.15	6.00	5.00							
10.0		4.00	3.90	4.70	5.00							
11.0		3.00	2.80	3.70	4.30							
12.0		2.15	2.00	2.90	3.50							
14.0				1.60	2.30							
16.0					1.40							

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 E = Boom angle

**NOTES:**

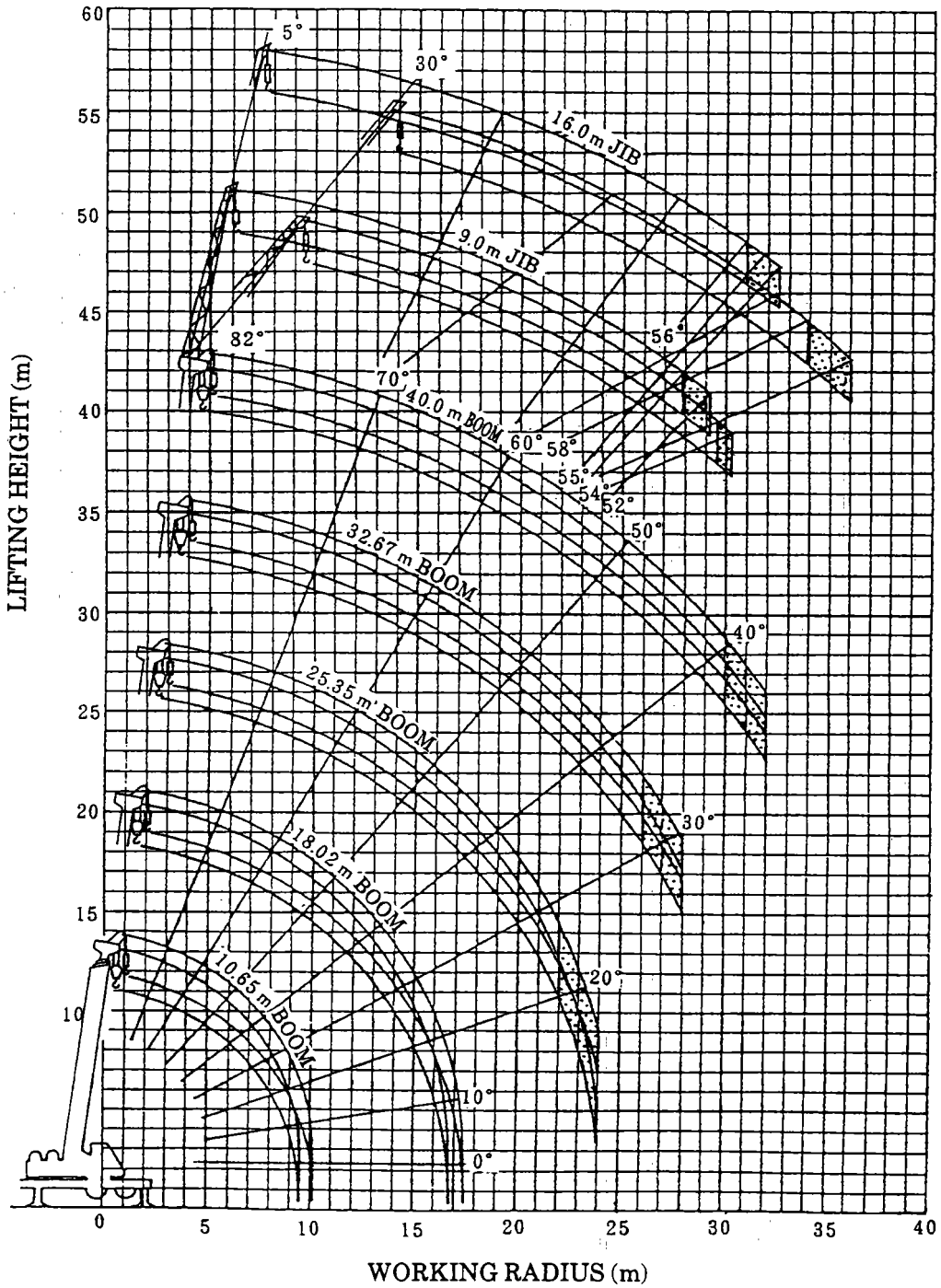
- The total rated loads shown are for the case when the outriggers are set horizontally on firm ground. The values are based on the crane strength.
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**WORKING RADIUS - LIFTING HEIGHT**

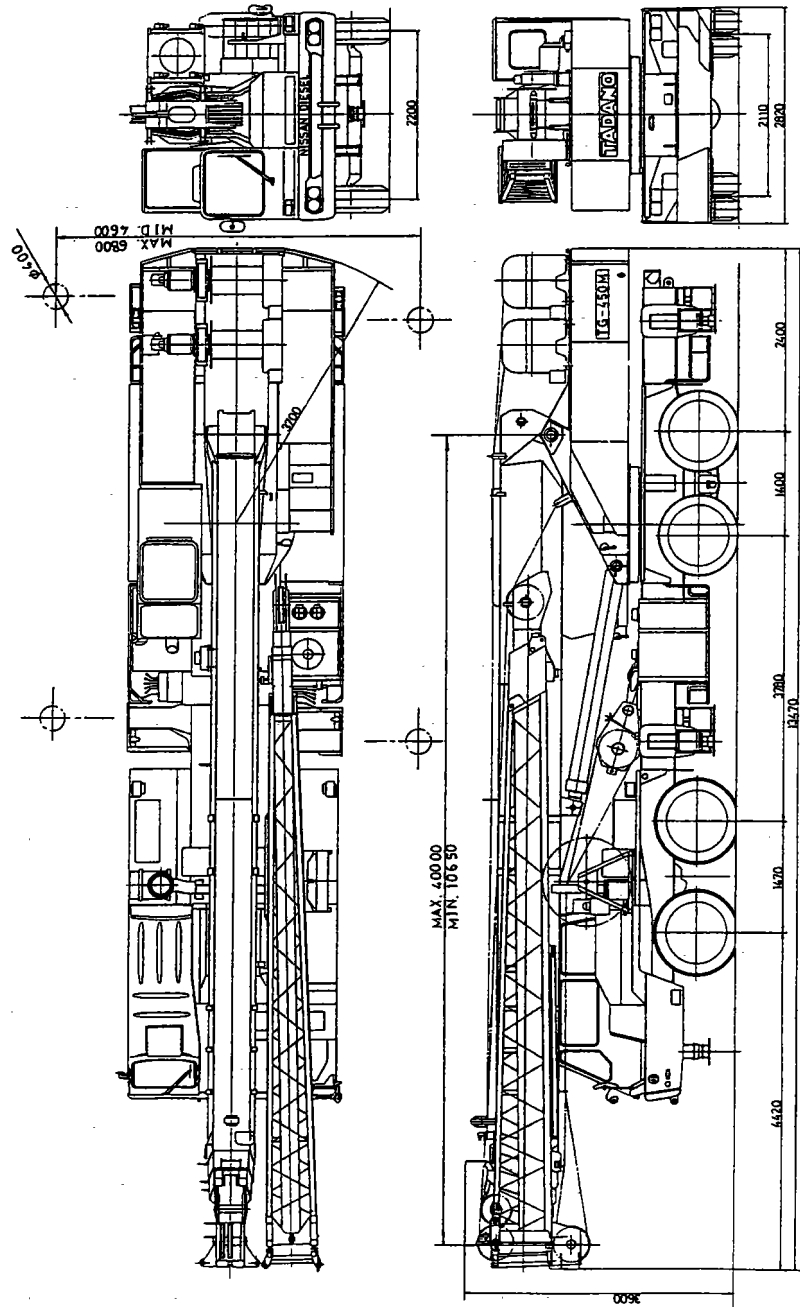


**NOTES:**

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 shaded area in the diagram applies only to the case when the device for heavy-duty work (option) is mounted.



**DIMENSIONS (1/100)**



◆ MEMO ◆

A series of horizontal dashed lines for writing, spanning the width of the page.