TRUCK CRANE

TL-250M

TL

JAPANESE SPECIFICATIONS

CARRIER MODEL	OUTLINE	SPEC. NO.
NISSAN DIESEL W-KG510SN	4-section Boom 2-staged swingaround boom extension which stores below boom base section	TL-250M-4-10101
MITSUBISHI W-KS303R		TL-250M-4-20101

Control No. JA-01

TL-250M

CRANE SPECIFICATIONS

CRANE CAPACITY

10.5m	Boom	25,000kg	at 3.5m	(8 part-line)
14.2m	Boom	20,000kg	at 4.5m	(7 part-line)
18.0m	Boom	16,000kg	at 5.0m	(7 part-line)
21.7m	Boom	12,000kg	at 6.0m	(4 part-line)
25.5m	Boom	11,500kg	at 6.0m	(4 part-line)
29.2m	Boom	9,000kg	at 7.0m	(4 part-line)
33.0m	Boom	7,000kg	at 8.0m	(4 part-line)
8.7m	Jib	3,000kg	at 75°	(1 part-line)
14.5m	Jib	2,000kg	at 77°	(1 part-line)
Single top		3,400kg		(1 part-line)

MAX. LIFTING HEIGHT
Boom 32.9m
Jib 47.1m

MAX. WORKING RADIUS
Boom 30.0m
Jib 36.9m

BOOM LENGTH
10.5m – 33.0m

BOOM EXTENSION
22.5m

BOOM EXTENSION SPEED
22.5m / 125s

JIB LENGTH
8.7m, 14.5m

MAIN WINCH SINGLE LINE SPEED
High range: 122m/min (4th layer)
Low range: 61m/min (4th layer)

MAIN WINCH HOOK SPEED
High range: 15.2m/min (8 part-line)
Low range: 7.6m/min (8 part-line)

AUXILIARY WINCH SINGLE LINE SPEED
High range: 104m/min (2nd layer)
Low range: 52m/min (2ndlayer)

AUXILIARY WINCH HOOK SPEED
High range: 104m/min (1 part-line)
Low range: 52m/min (1 part-line)

BOOM ELEVATION ANGLE
-3° – 80°

BOOM ELEVATION SPEED
-3° – 80° / 70s

SWING ANGLE
360° continue

SWING SPEED
2.5rpm

WIRE ROPE
Main Winch
16mm × 180m (Diameter×Length)
7×7+6×WS(31)
Spin-resistant wire rope
Auxiliary Winch
16mm × 105m (Diameter×Length)
7×7+6×WS(31)
Spin-resistant wire rope

BOOM
4-section hydraulically telescoping boom of box construction.
(stage 2: sequential; stages 3,4: synchronized)

BOOM EXTENSION
2 double-acting hydraulic cylinder
1 wire rope type telescoping device

JIB
2-staged swingaround boom extension which stores below boom base section.
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
1 double-acting hydraulic cylinders

SWING
Hydraulic motor driven planetary gear reducer
Swing bearing
Swing free/lock changeover type
Hand brake

OUTRIGGERS
Fully hydraulic H-type (floats mounted integrally)
Slides and jacks each provided with independent operation device.
Full extended width 6.1m
Middle extended width 4.0m

FRONT JACK
Hydraulic operated type

MAX. OUTRIGGER LOAD
30.0t

HYDRAULIC PUMPS
3 gear pumps

HYDRAULIC OIL TANK CAPACITY
432 liters

SAFETY DEVICES
Automatic moment limiter (AML)
With working range limiting function
Working area control device
Outrigger extension width detector
Over-winding cutout
Level gauge
Hook safety latch
Winch drum lock
Swing lock
Hydraulic safety valve
Telescopic counterbalance valve
Elevation counterbalance valve
Jack pilot check valve
Front jack over load alarm
Front jack ground contact detector

EQUIPMENTS
Boom angle indicator
Oil cooler
Crane cab heater
Radio
Fan
Block

CARRIER SPECIFICATIONS

MANUFACTURER
NISSAN DIESEL MOTOR CO., LTD

CARRIER MODEL
W-KG510SN

ENGINE
Model RE8
Type 4-cycle, in-line 8-cylinder, direct-injection water-cooled diesel engine
Piston displacement 15,115cc
Max. output 295PS at 2,200rpm
Max. torque 105kg·m at 1,400rpm

CLUTCH
Dry single-plate coil spring type

TRANSMISSION
6-forward and 1-reverse speeds
Constant-mesh gear (1st speed, reverse)
Synchronized-mesh gear (2nd – 6th speeds)

REDUCER
Hypoid gear type

FRONT AXLE
Reverse Elliot-type steel pipe cross section

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 hydro-pneumatic type, 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
200 liters

CAB
Two-man type

TIRES
Front 11.00-20-14PR
Rear 10.00-20-14PR

STANDARD EQUIPMENTS
Car heater
Car radio

GENERAL DATA

DIMENSIONS
Overall length 12,540mm
Overall width 2,490mm
Overall height 3,400mm
Wheel base 1,520mm + 3,530mm + 1,300mm = 6,350mm
Tread Front 2,030mm
Rear 1,860mm

WEIGHTS
Gross vehicle weight
Total 28,340kg
Front 10,280kg
Rear 18,060kg

PERFORMANCE
Max. traveling speed 70km/h
Gradeability (tan θ) 0.37
Min. turning radius 10.2m

CARRIER SPECIFICATIONS

MANUFACTURER
MITSUBISHI MOTOR CORPORATION

CARRIER MODEL
W-KS303R

ENGINE
Model 8DC8
Type 4-cycle V8-cylinder, direct-injection, water-cooled diesel engine

Piston displacement	14,886cc
Max. output	275PS at 2,200rpm
Max. torque	100kg·m at 1,400rpm

CLUTCH
Dry single-plate type, hydraulic control with clutch booster

TRANSMISSION
6-forward and 1-reverse speeds
Constant-mesh gear (1st speed, reverse)
Synchronized-mesh gear (2nd – 6th 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, Sheet-metal housing

SUSPENSION
Front Laminated semi-elliptical leaf spring type
Rear Equalizer beam and torque rod type

STEERING
Recirculating ball screw type
Integral power steering

BRAKE SYSTEM
Service Brake
Foot operated full air brake on all wheels, air over hydraulic type, internal expanding leading and trailing shoe type, 2-circuit type
Parking Brake
Mechanically operated, internal expanding duo-servo shoe type acting on drum at transmission case rear.
Auxiliary Brake
Exhaust brake

ELECTRIC SYSTEM
24 V DC. 2 batteries of 12V (140Ah)

FUEL TANK CAPACITY
200 liters

CAB
Two-man type

TIRES
Front 10.00-20-14PR
Rear 10.00-20-14PR

STANDARD EQUIPMENTS
Car heater
Car radio

GENERAL DATA

DIMENSIONS

Overall length	12,540mm
Overall width	2,490mm
Overall height	3,400mm
Wheel base	1,450mm+3,600mm+1,350mm=6,400mm
Tread Front	2,050mm
Rear	1,845mm

WEIGHTS

Gross vehicle weight	
Total	28,350kg
Front	9,950kg
Rear	18,400kg

PERFORMANCE

Max. traveling speed	70km/h
Gradeability (tan θ)	0.38
Min. turning radius	11.0m

TOTAL RATED LOADS

(1)

Unit:ton

· Outriggers fully extended + Front jack (360°)
· Outriggers fully extended (Over the Rear · Over the Sides)

A / B (m)	10.5m	14.2m	18.0m	21.7m	25.5m	29.2m	33.0m
3.0	25.00	20.00	16.00				
3.5	25.00	20.00	16.00	12.00			
4.0	22.90	20.00	16.00	12.00	11.50		
4.5	21.00	20.00	16.00	12.00	11.50		
5.0	19.40	18.40	16.00	12.00	11.50	9.00	
5.5	17.70	16.80	14.75	12.00	11.50	9.00	7.00
6.0	16.20	15.30	13.70	12.00	11.50	9.00	7.00
7.0	13.70	12.65	11.95	11.00	10.00	9.00	7.00
8.0	11.40	10.65	10.55	10.20	8.90	8.20	7.00
9.0		8.85	8.75	9.20	8.05	7.45	6.25
10.0		7.20	7.10	7.50	7.30	6.75	5.70
12.0		5.00	4.90	5.25	5.60	5.65	4.80
14.0			3.50	3.85	4.15	4.30	4.10
16.0			2.50	2.85	3.15	3.30	3.40
18.0				2.15	2.40	2.55	2.65
20.0				1.60	1.85	2.00	2.10
22.0					1.40	1.55	1.65
24.0						1.20	1.30
26.0						0.90	1.00
28.0							0.75
30.0							0.50

A = Boom length B = Working radius

Unit:ton

· Outriggers fully extended + Front jack (360°) · Outriggers fully extended (Over the Rear · Over the Sides)						
C / D / E(°)	8.7 m			14.5 m		
	5°	25°	45°	5°	25°	45°
80	3.00	1.70	1.00	2.00	0.90	0.60
77	3.00	1.70	1.00	2.00	0.90	0.60
76	3.00	1.70	1.00	1.85	0.90	0.60
75	3.00	1.67	0.96	1.74	0.87	0.57
70	2.20	1.44	0.86	1.35	0.80	0.53
65	1.75	1.25	0.80	1.10	0.72	0.49
60	1.40	1.10	0.75	0.90	0.64	0.46
55	1.10	0.95	0.70	0.73	0.56	0.43
50	0.70	0.65	0.60	0.55	0.45	0.40
46	0.45	0.45	0.40	0.35	0.30	0.25
45	0.40	0.40	0.35	0.30	0.25	
42	0.25	0.25				

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 the slings and hooks (main winch hook: 280kg, auxiliary winch hook: 60kg) 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 3.2t for the main winch and 3.4t for the auxiliary winch.

A	10.5m	14.2m	18.0m	21.7m	25.5m	29.2m	33.0m	J
H	8	7	7	4	4	4	4	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 0.7t or less) and sudden braking operations must be avoided.
6. The total rated loads for the single top are obtained by subtracting the corresponding values below from the total rated load of the boom and must not exceed 3.4t.

A	10.5m	14.2m	18.0m	21.7m	25.5m	29.2m	33.0m
Q	0kg	100kg	100kg	200kg	200kg	250kg	250kg

A = Boom length Q = Subtracted load

(2)

Unit:ton

· Outriggers middle extended (360°)
· Outriggers fully extended (Over the Front)

A / B (m)	10.5 m	14.2 m	18.0 m	21.7 m	25.5 m	29.2 m	33.0 m
3.0	25.00	20.00	16.00				
3.5	23.00	20.00	16.00	12.00			
4.0	20.00	20.00	16.00	12.00	11.50		
4.5	17.40	17.20	16.00	12.00	11.50		
5.0	14.00	13.80	13.60	12.00	11.50	9.00	
5.5	11.65	11.45	11.30	11.70	11.50	9.00	7.00
6.0	9.85	9.70	9.60	10.00	10.40	9.00	7.00
6.5	8.45	8.30	8.20	8.60	9.00	9.00	7.00
7.0	7.35	7.20	7.10	7.50	7.85	8.05	7.00
7.5	6.40	6.30	6.20	6.60	6.95	7.15	7.00
8.0	5.65	5.55	5.45	5.85	6.15	6.35	6.50
9.0		4.35	4.25	4.65	4.95	5.10	5.25
10.0		3.40	3.30	3.70	3.95	4.10	4.35
12.0		2.00	1.95	2.30	2.55	2.80	2.90
14.0			1.05	1.40	1.65	1.85	2.00
15.0			0.70	1.05	1.35	1.50	1.65
16.0				0.80	1.05	1.20	1.35
17.0					0.75	0.95	1.10
18.0						0.75	0.90

Unit:ton

· Outriggers middle extended (360°)
· Outriggers fully extended (Over the Front)

C / D / E (°)	8.7 m			14.5 m		
	5°	25°	45°	5°	25°	45°
80	3.00	1.70	1.00	2.00	0.90	0.60
77	3.00	1.70	1.00	2.00	0.90	0.60
76	3.00	1.70	1.00	1.85	0.90	0.60
75	2.65	1.67	0.96	1.74	0.87	0.57
70	1.45	1.15	0.86	1.10	0.80	0.53
66	0.80	0.65	0.60	0.60	0.45	0.35
65	0.65	0.55	0.50	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 the slings and hooks (main winch hook: 280kg, auxiliary winch hook: 60kg) 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 3.2t for the main winch and 3.4t for the auxiliary winch.

A	10.5m	14.2m	18.0m	21.7m	25.5m	29.2m	33.0m	J
H	8	7	7	4	4	4	4	1

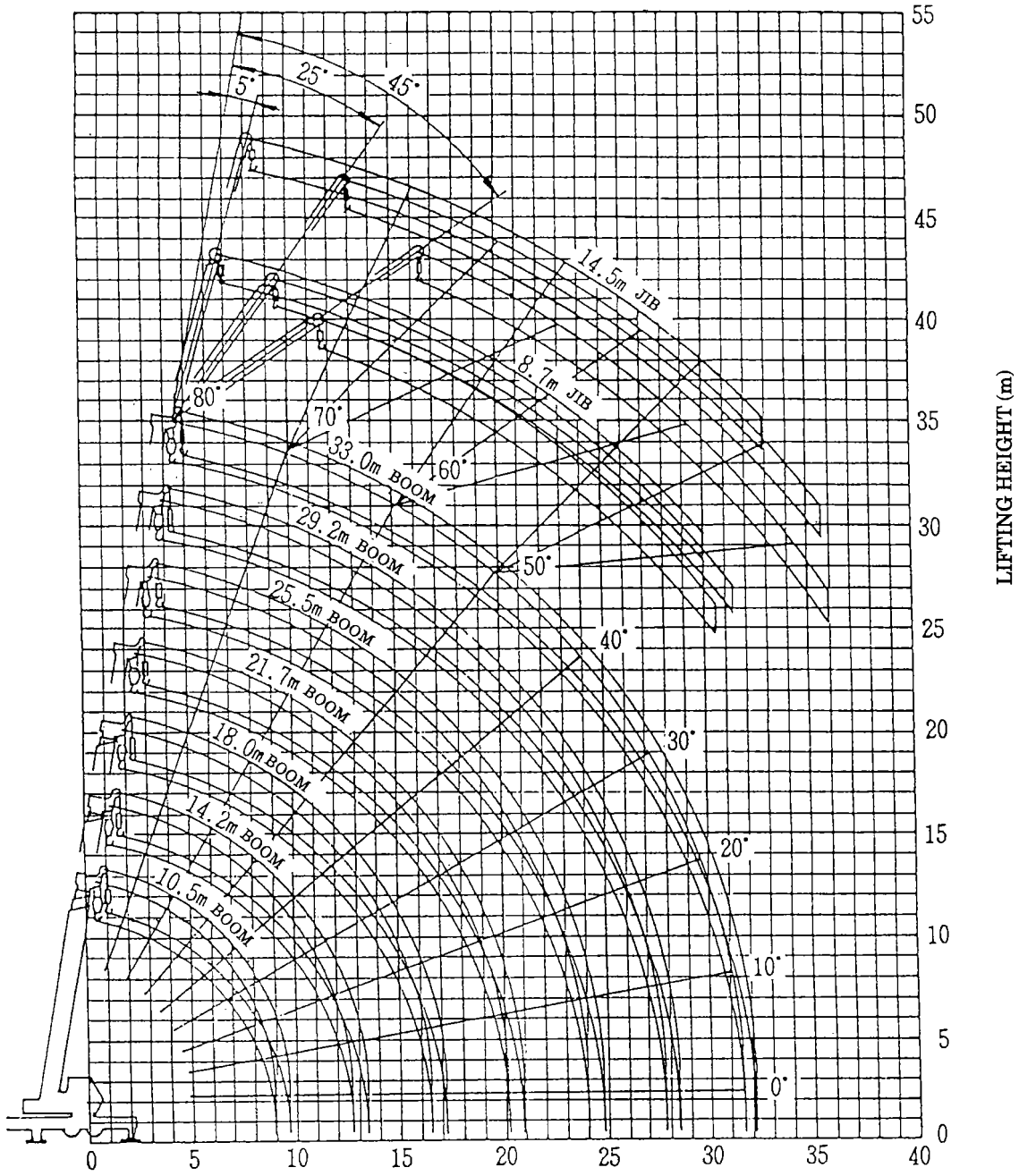
A = Boom length H = No. of part-line J = Jib / Single top

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 0.7t) and sudden braking operations must be avoided.
6. The total rated loads for the single top are obtained by subtracting the corresponding values below from the total rated load of the boom and must not exceed 3.4t.

A	10.5m	14.2m	18.0m	21.7m	25.5m	29.2m	33.0m
Q	0kg	100kg	100kg	200kg	200kg	250kg	250kg

A = Boom length Q = Subtracted load

WORKING RADIUS - LIFTING HEIGHT

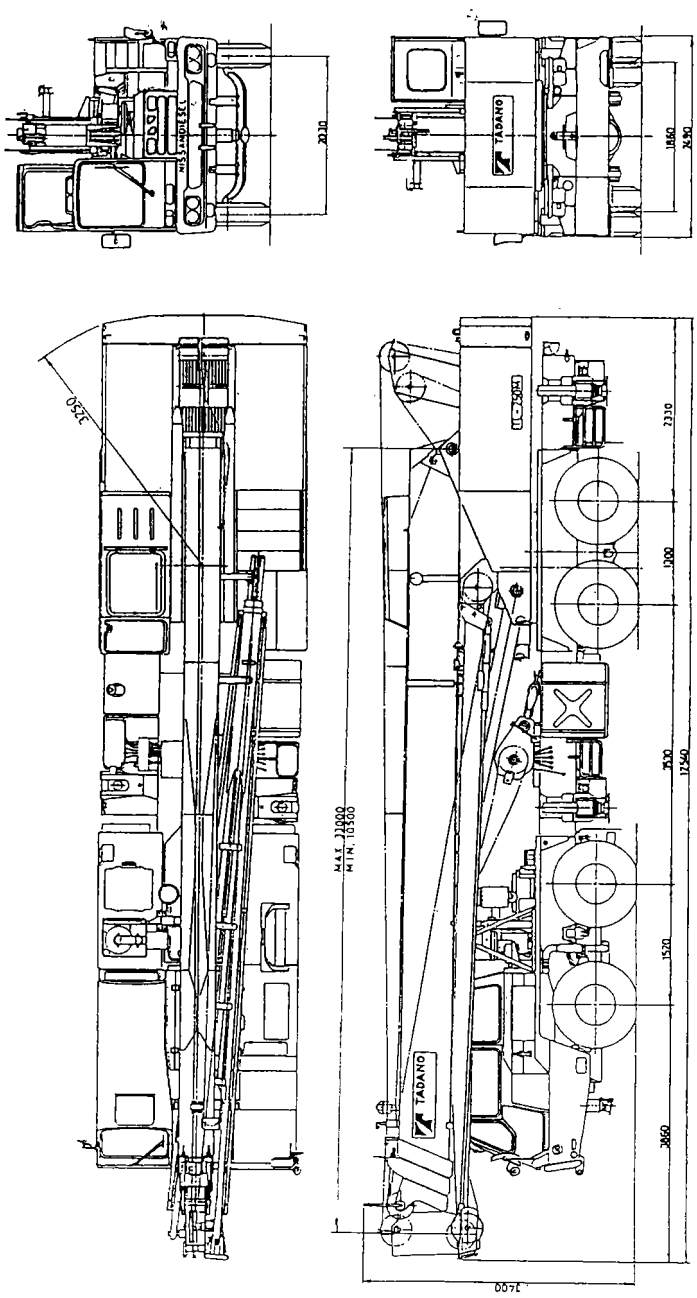


NOTES:

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°).

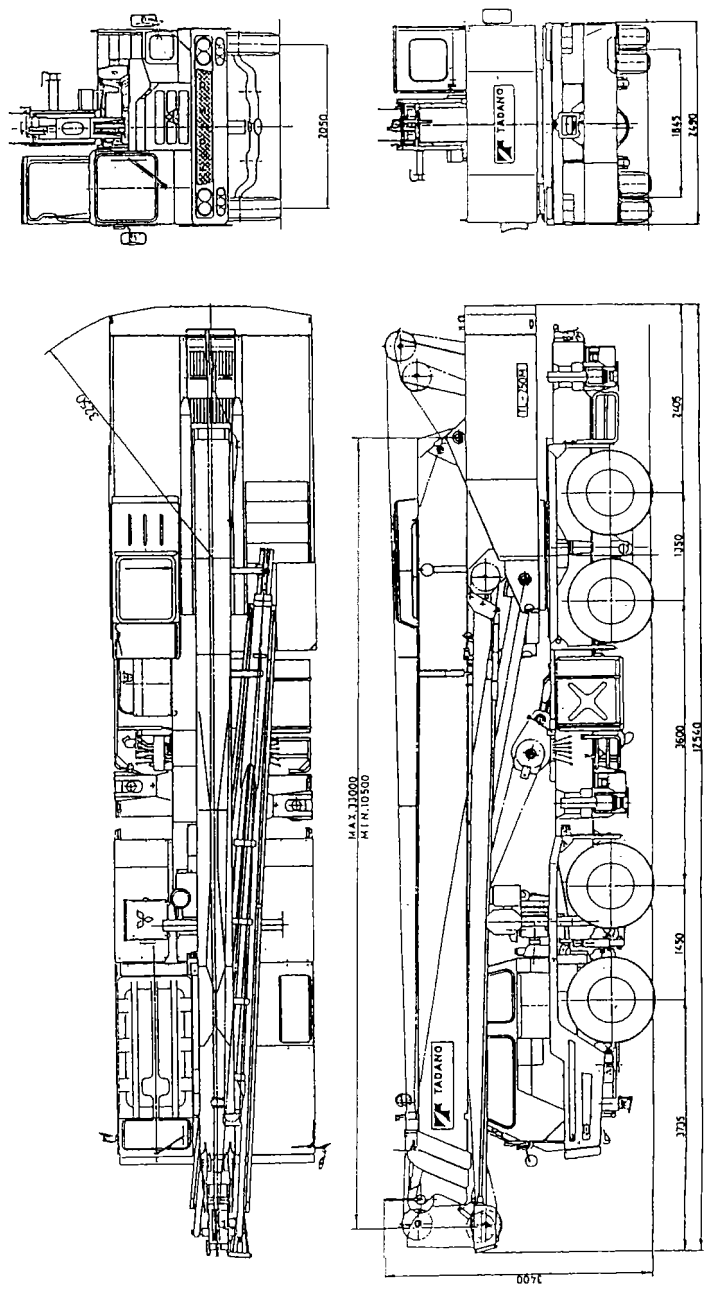
DIMENSIONS (1/100)

W-KG 510 SN



DIMENSIONS (1/100)

W-KS 303R



◆ MEMO ◆