TR

ROUGH TERRAIN CRANE

TR-250M

JAPANESE SPECIFICATIONS

OUTLINE	SPEC. NO.
4-section Boom, 2-stage Jib	TR-250M-3-00101

Control No. JA-02

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TR-250M

CRANE SPECIFICATIONS

CRANE CAPACITY

8.8m	Boom	25,000kg	at 3.5m	(8 part-line)
15.2m	Boom	19,200kg	at 4.0m	(6 part-line)
21.6m	Boom	12,000kg	at 5.0m	(4 part-line)
28.0m	Boom	7,500kg	at 6.5m	(4 part-line)
7.0m	Jib	3,000kg	at 70.5°	(1 part-line)
12.0m	Jib	2,000kg	at 75°	(1 part-line)
Single top		3,000kg		(1 part-line)

MAX. LIFTING HEIGHT
Boom 28.7m
Jib 40.4m

MAX. WORKING RADIUS
Boom 26.0m
Jib 32.7m

BOOM LENGTH
8.8m – 28.0m

BOOM EXTENSION
19.2m

BOOM EXTENSION SPEED
19.2m / 70s

JIB LENGTH
7.0m, 12.0m

MAIN WINCH SINGLE LINE SPEED
High range: 114m/min (4th layer)
Low range: 57m/min (4th layer)

MAIN WINCH HOOK SPEED
High range: 14.2m/min (8 part-line)
Low range: 7.1m/min (8 part-line)

AUXILIARY WINCH SINGLE LINE SPEED
High range: 97m/min (2th layer)
Low range: 48.5m/min (2th layer)

AUXILIARY WINCH HOOK SPEED
High range: 97m/min (1 part-line)
Low range: 48.5m/min (1 part-line)

BOOM ELEVATION ANGLE
1° – 80°

BOOM ELEVATION SPEED
1° – 80° / 49s

SWING ANGLE
360° continue

SWING SPEED
3.2rpm

WIRE ROPE
Main Winch
16mm × 160m (Diameter×Length)
7×7+6×Fi(29) Calss B ordinary · Z twist
Spin-resistant wire rope
Breaking strength 17.6t
Auxiliary Winch
16mm × 90m (Diameter×Length)
7×7+6×Fi(29) Class B ordinary · Z twist
Spin-resistant wire rope
Breaking strength 17.6t

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 alongside boom base section
(with 2nd stage being a pull-out type).
Dual offset (5°, 30°) type.

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

HOIST
Driven by hydraulic motor and via spur 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
Swing free/lock changeover type
Hand brake

OUTRIGGERS
Fully hydraulic X-type (floats mounted integrally)
Slides and jacks each provided with independent operation device.
Full extended width 6.1m
Middle extended width 3.6m

MAX. OUTRIGGER LOAD
26.0t

HYDRAULIC PUMPS
3 gear pumps

HYDRAULIC OIL TANK CAPACITY
421 liters

SAFETY DEVICES
Automatic moment limiter (AML-US)
Over-winding cutout
Level gauge
Hook safety latch
Winch drum lock
Hydraulic safety valve
Telescopic counterbalance valve
Elevation counterbalance valve
Jack pilot check valve
Swing lock

EQUIPMENTS
Crane cab heater (with defroster)
Reclining seat (with headrest)
Jib extending device
Radio
Fan

CARRIER SPECIFICATIONS

ENGINE
Model NISSAN DIESEL MOTOR CO., LTD. PD603
Type 4-cycle, 6-cylinder, direct-injection, water-cooled diesel engine
Piston displacement 10,308cc
Max. output 185PS at 2,300rpm
Max. torque 68kg·m at 1,200rpm

TORQUE CONVERTER
3-element, 1-stage unit (with automatic lock-up mechanism)

TRANSMISSION
Power shift type (wet multi-plate clutch)
4 forward and 1 reverse speeds

REDUCER
Axle dual-ratio reduction

DRIVE
2-wheel drive (4×2) / 4-wheel drive (4×4) selection

FRONT AXLE
Full floating type

REAR AXLE
Full floating type (with no-spin differential)

SUSPENSION
Front Parallel leaf spring type
Rear Parallel leaf spring type

STEERING
Fully hydraulic power steering
With reverse steering correction mechanism

BRAKE SYSTEM
Service Brake
Hydro-pneumatic type
Internal expanding leading and trailing type
Parking Brake
Mechanically operated, internal expanding duo-servo shoe type acting on drum at transmission case rear.
Auxiliary Brake
Electro-pneumatic operated exhaust brake.
Auxiliary braking device for operations (Option)

FRAME
Welded box-shaped structure

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

FUEL TANK CAPACITY
300 liters

CAB
Two-man type

TIRES
Front 16.00-25-28PR (OR)
Rear 16.00-25-28PR (OR)

SAFETY DEVICES
Emergency steering device
Spring lock device

GENERAL DATA

DIMENSIONS
Overall length		10,750mm
Overall width		2,620mm
Overall height		3,555mm
Wheel base		3,200mm
Tread	Front	2,140mm
	Rear	2,140mm

WEIGHTS
Gross vehicle weight
Total	25,660kg
Front	12,830kg
Rear	12,830kg

PERFORMANCE
Max. traveling speed	49km/h	
Gradeability (tan θ)	0.6	
Min. turning radius	5.3m	(4-wheel steering)
	8.9m	(2-wheel steering)

TOTAL RATED LOADS

(1) With outriggers set (360°)

Unit : ton

Outriggers fully extended

A / B (m)	8.8m	15.2m	21.6m	28.0m
3.0	25.0	19.2		
3.5	25.0	19.2	12.0	
4.0	23.0	19.2	12.0	
4.5	21.0	17.6	12.0	
5.0	19.4	16.2	12.0	
5.5	17.7	15.0	11.2	
6.0	16.2	13.9	10.5	7.5
6.5	14.8	13.0	9.8	7.5
7.0		12.1	9.2	7.2
8.0		9.5	8.2	6.6
9.0		7.5	7.4	6.0
10.0		6.2	6.6	5.5
11.0		5.2	5.8	5.0
12.0		4.3	4.9	4.5
13.0		3.7	4.3	4.1
14.0			3.7	3.8
15.0			3.2	3.5
16.0			2.8	3.15
17.0			2.5	2.75
18.0			2.25	2.4
19.0			2.0	2.15
20.0				1.9
22.0				1.5
24.0				1.2
26.0				0.95

C / E / D	7.0m		12.0m	
(°)	5°	30°	5°	30°
80	3.0	2.0	2.0	1.0
75	3.0	2.0	2.0	1.0
70.5	3.0	2.0	1.7	0.94
69	2.8	2.0	1.6	0.9
65	2.4	1.8	1.4	0.85
60	2.0	1.55	1.2	0.8
55	1.65	1.35	1.1	0.75
50	1.3	1.15	1.0	0.7
45	1.05	0.95	0.85	0.65
40	0.85	0.8	0.65	0.6
35	0.65	0.65	0.5	0.5
30	0.5	0.5		

A = Boom length

B = Working radius

C = Jib length

D = Jib offset

E = Boom angle

Outriggers middle extended

A / B (m)	8.8m	15.2m	21.6m	28.0m
3.0	20.0	17.0		
3.5	18.0	17.0	9.0	
4.0	14.2	14.0	9.0	
4.5	11.7	11.5	9.0	
5.0	9.7	9.5	9.0	
5.5	8.2	8.0	8.2	
6.0	7.0	6.8	7.3	6.0
6.5	6.0	5.9	6.4	6.0
7.0		5.2	5.7	6.0
8.0		4.0	4.5	4.7
9.0		3.1	3.6	3.8
10.0		2.5	2.9	3.2
11.0		2.0	2.4	2.7
12.0		1.55	2.0	2.2
13.0		1.2	1.65	1.9
14.0			1.35	1.55
15.0			1.1	1.3
16.0			0.9	1.05
17.0			0.7	0.85
18.0			0.5	0.7
19.0				0.55

NOTES:

1. The total rated loads shown are for the case when the outriggers are set horizontally on firm 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 (main winch hook: 270kg, auxiliary winch hook: 50kg) 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 3.2t for the main winch and 3.0t for the auxiliary winch.

A	8.8m	15.2m	21.6m	28.0m	J
H	8	6	4	4	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 in this case should not exceed 0.6t for both the main winch and the auxiliary winch.
6. Do not use the jib with the "Outriggers middle extended".
7. The total rated load for the single top shall be the value obtained by subtracting 0.25t from the total rated load of the boom and must not exceed 3.0t.

(2) Without outriggers

Unit : ton

B	Stationary						Creep (travelling at 1.6km/h or less)					
	8.8m BOOM		15.2m BOOM		21.6m BOOM		8.8m BOOM		15.2m BOOM		21.6m BOOM	
(m)	F	G	F	G	F	G	F	G	F	G	F	G
3.0	14.0	9.0	9.0	7.2			10.5	7.0	7.5	4.9		
3.5	14.0	7.6	9.0	7.2			10.5	6.2	7.5	4.9		
4.0	12.5	6.3	9.0	5.8	6.5	4.5	9.5	5.3	7.5	4.9	5.5	3.1
4.5	10.9	5.2	9.0	4.7	6.5	4.5	8.7	4.4	7.5	3.9	5.5	3.1
5.0	9.0	4.3	8.2	4.0	6.5	4.3	7.6	3.6	7.0	3.3	5.5	3.1
5.5	7.7	3.6	7.2	3.3	6.0	3.7	6.5	3.0	6.1	2.7	5.1	3.1
6.0	6.6	3.0	6.3	2.8	5.6	3.2	5.5	2.5	5.3	2.3	4.7	2.7
6.5	5.7	2.5	5.6	2.35	5.2	2.75	4.8	2.1	4.7	1.9	4.4	2.3
7.0			4.9	1.95	4.8	2.4			4.1	1.6	4.1	2.0
8.0			3.8	1.35	4.0	1.8			3.2	1.1	3.4	1.5
9.0			3.0	0.95	3.4	1.4			2.5	0.7	2.8	1.1
10.0			2.4	0.55	2.8	1.05			2.0		2.3	0.8
11.0			1.9		2.3	0.75			1.6		1.9	0.6
12.0			1.5		1.85				1.2		1.55	
13.0			1.2		1.55						1.3	
14.0					1.25						1.05	
15.0					1.05						0.85	
16.0					0.85						0.7	
17.0					0.7							
18.0					0.55							

B = Working radius F = Front G = 360°

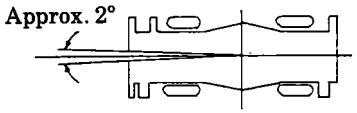
NOTES:

1. The total rated loads shown are for the case when the crane is set horizontally on firm ground. The values above the bold lines are based on the crane strength while those below are based on the crane stability. The foundation, working conditions, etc. should be taken into consideration adequately when using the crane for actual work. (Tire air pressure: 7.75kg/cm^2).
2. The weights of the slings and hooks (main winch hook: 270kg) are included in the total rated loads shown.
3. The total rated loads are based on the actual working radii into which are included the deflections of the boom and the tires.
4. The number of part lines for each boom length should not exceed the values below. The load per line should not exceed 3.2t (for the main winch).

A	8.8 m	15.2 m	21.6 m
H	8	6	4

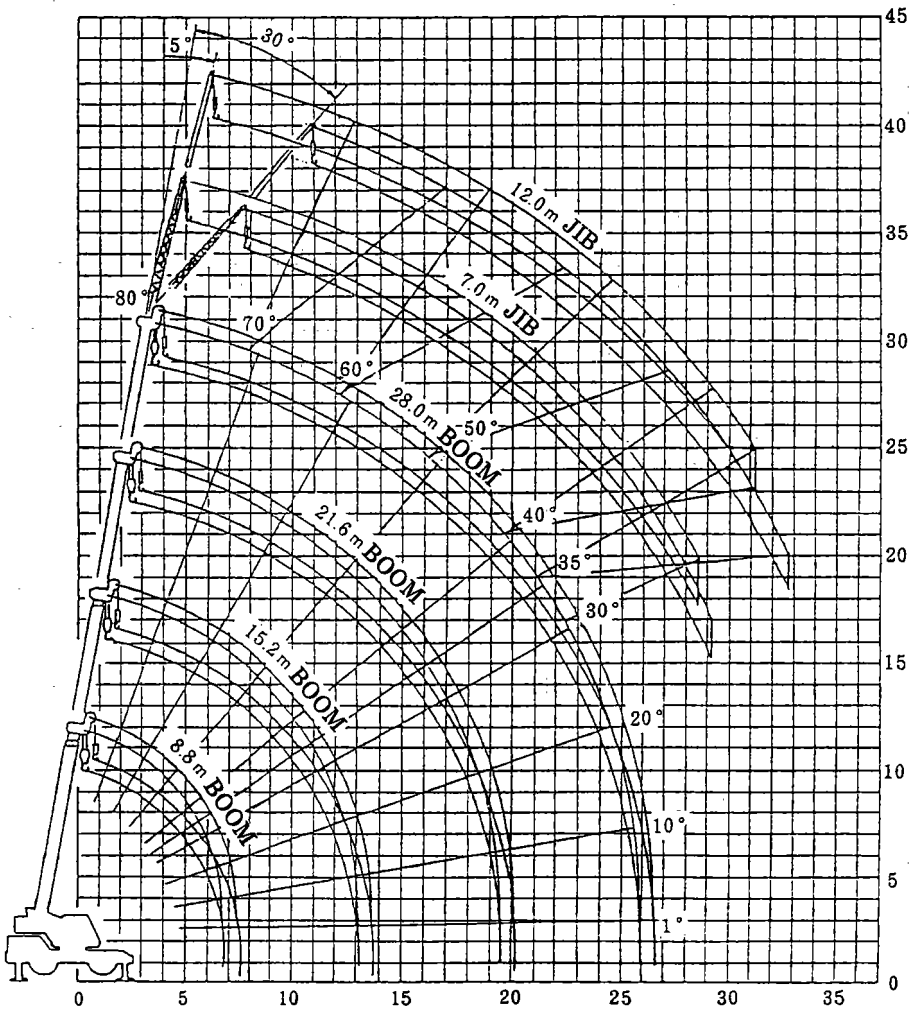
A = Boom length
H = No. of part-line

5. Free-fall operations should not be performed without outriggers.
6. The 28.0m boom, the jib and the single top should not be used without the outriggers.
7. The boom must be kept inside a 2° area (1° each to the left and right) over front of the carrier when performing "Over front" crane operations without the outriggers.



8. When creeping while hoisting a load, the swing brake should be applied, the load should be kept as close to the ground as possible but not touching the ground and the speed should be kept at 1.6km/h or less. In particular, any abrupt steering, starting or braking must be avoided.
9. Crane operations should not be performed when creeping while hoisting a load.

WORKING RADIUS - LIFTING HEIGHT



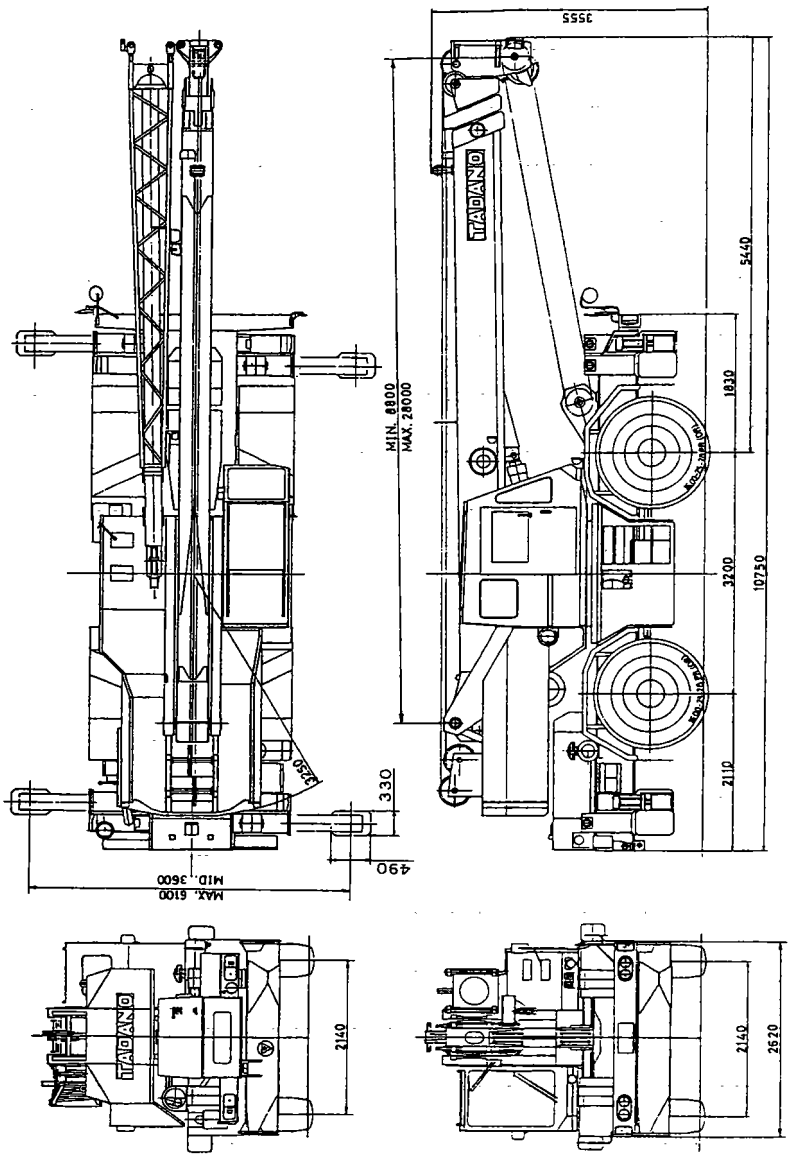
LIFTING HEIGHT (m)

WORKING RADIUS (m)

NOTES:

1. The deflection of the boom is not incorporated in the figure above.
2. The figure above is for the case when the outriggers are fully extended (360°).

DIMENSIONS (1/100)



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