

# TRUCK CRANE

## TL-250M

### *JAPANESE SPECIFICATIONS*

**TL**

CARRIER MODEL	OUTLINE	SPEC. NO.
NISSAN DIESEL P-KG45S	1-Motor 2-Drum Winch (Standard Specifications)	TL-250M-1-10101
	2 Single Winches	TL-250M-1-10102

Control No. JA-01

Return to index

# TL-250M

## CRANE SPECIFICATIONS

### MAXIMUM TOTAL RATED LOAD

Boom	10.2m	25,000kg
	17.3m	16,000kg
	24.4m	10,000kg
	31.5m	7,000kg
Jib	8.5m	3,000kg
	14.0m	2,000kg
	0.6m	3,000kg
Single top		

( 8 part-line)  
( 7 part-line)  
( 4 part-line)  
( 4 part-line)  
( 1 part-line)  
( 1 part-line)

### MAX. LIFTING HEIGHT

Boom	31.4m
Jib (14m, 5° tilt)	45.2m
Single top	32.1m

### MAX. WORKING RADIUS

Boom	30.0m
Jib (14m, 30° tilt)	37.0m
Single top	30.0m

### BOOM LENGTH

10.2m - 31.5m

### BOOM EXTENSION

21.3m

### BOOM EXTENSION SPEED

21.3m / 90s

### JIB LENGTH

8.5m, 14.0m

### MAIN WINCH SINGLE LINE SPEED

High range:	117m/min	(4th layer)
Low range:	58m/min	(4th layer)

### MAIN WINCH HOOK SPEED

(8 part-line)

High range:	14.6m/min	(4th layer)
Low range:	7.2m/min	(4th layer)

### AUXILIARY WINCH SINGLE LINE SPEED

High range:	100m/min	(2nd layer)
Low range:	50m/min	(2nd layer)

### AUXILIARY WINCH HOOK SPEED

(1 part-line)

High range:	100m/min	(2nd layer)
Low range:	50m/min	(2nd layer)

### BOOM ELEVATION ANGLE

-3° - 80°

### BOOM ELEVATION SPEED

-3° - 80° / 55s

### SWING ANGLE

360° continue

### SWING SPEED

3.1 rpm

### WIRE ROPE

Main Winch

IWRC 6 × Fi(29)

Class B (Spin-resistant type)

16mm × 175m (Diameter × Length)

Breaking strength 17.6t

or IWRC 6 × WS(31)

Class C (Spin-resistant type)

16mm × 175m (Diameter × Length)

Breaking strength 18.7t

Auxiliary Winch

IWRC 6 × Fi(29)

Class B (Spin-resistant type)

16mm × 100m (Diameter × Length)

Breaking strength 17.6t

or IWRC 6 × WS(31)

Class C (Spin-resistant type)

16mm × 100m (Diameter × Length)

Breaking strength 18.7t

### BOOM

4-section hydraulically telescoping boom of box construction.

(stages 3,4: synchronized)

### BOOM EXTENSION

2 double-acting hydraulic cylinder

1 wire rope type telescoping device

### JIB

2-staged swingaround boom extensions.

Dual (5°, 30°) offset

### SINGLE TOP

Single sheave. Mounted to main boom head for single line work. (attached with a 30° tilt)

### HOIST

Driven by hydraulic motor and via spur gear speed reducer. Power load lowering / free-fall lowering type

### 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 5.9m

Middle extended width 4.0m

### FRONT JACK

Manual type

### MAX. OUTRIGGER LOAD

29.1t

### HYDRAULIC PUMPS

Type 3 gear pumps

Pressure P<sub>1</sub>, P<sub>2</sub>: 210kg/cm<sup>2</sup>, P<sub>3</sub>: 200kg/cm<sup>2</sup>

### HYDRAULIC OIL TANK CAPACITY

432 liters (when oil temperature is 20°C)

### SAFETY DEVICES

Automatic moment limiter

- Moment display
- Load display
- Total rated load display
- Boom angle display
- Boom length display
- Max. lifting height display
- Working radius display

Over-winding cutout

Level gauge

Over front area control device

Hook safety latch

Winch drum lock

Swing brake

Hydraulic safety valve

Elevation counterbalance valve

Telescopic counterbalance valve

Jack pilot check valve

### EQUIPMENTS

Boom angle indicator

Crane cab heater 1,400Kcal/H

### OPTIONAL EQUIPMENTS

Oil cooler

Hydraulic oil temperature gauge

Winch drum rotation indicator

## CRANE SPECIFICATIONS

### MAXIMUM TOTAL RATED LOAD

Boom	10.2m	25,000kg	( 8 part-line)
	17.3m	16,000kg	( 7 part-line)
	24.4m	10,000kg	( 4 part-line)
	31.5m	7,000kg	( 4 part-line)
Jib	8.5m	3,000kg	( 1 part-line)
	14.0m	2,000kg	( 1 part-line)
Single top	0.6m	3,000kg	( 1 part-line)

### MAX. LIFTING HEIGHT

Boom	31.4m
Jib (14m, 5° tilt)	45.2m
Single top	32.1m

### MAX. WORKING RADIUS

Boom	30.0m
Jib (14m, 5° tilt)	37.0m
Single top	30.0m

### BOOM LENGTH

10.2m - 31.5m

### BOOM EXTENSION

21.3m

### BOOM EXTENSION SPEED

21.3m / 90s

### JIB LENGTH

8.5m, 14.0m

### MAIN WINCH SINGLE LINE SPEED

High range:	117m/min	(4th layer)
Low range:	58m/min	(4th layer)

### MAIN WINCH HOOK SPEED

(8 part-line)

High range:	14.6m/min	(4th layer)
Low range:	7.2m/min	(4th layer)

### AUXILIARY WINCH SINGLE LINE SPEED

100m/min (2nd layer)

### AUXILIARY WINCH HOOK SPEED

(1 part-line)

100m/min (2nd layer)

### BOOM ELEVATION ANGLE

-3° - 80°

### BOOM ELEVATION SPEED

-3° - 80° / 55s

### SWING ANGLE

360° continue

### SWING SPEED

3.1 rpm

### WIRE ROPE

Main Winch

IVRC 6×Fi(29)

Class B (Spin-resistant type)

16mm × 175m (Diameter×Length)

Breaking strength 17.6t

or IVRC 6×WS(31)

Class C (Spin-resistant type)

16mm × 175m (Diameter×Length)

Breaking strength 18.7t

Auxiliary Winch

IVRC 6×Fi(29)

Class B (Spin-resistant type)

16mm × 100m (Diameter×Length)

Breaking strength 17.6t

or IVRC 6×WS(31)

Class C (Spin-resistant type)

16mm × 100m (Diameter×Length)

Breaking strength 18.7t

### BOOM

4-section hydraulically telescoping boom of box construction.

(stages 3,4: synchronized)

### BOOM EXTENSION

2 double-acting hydraulic cylinder

1 wire rope type telescoping device

### JIB

2-staged swingaround boom extensions.

Dual (5°, 30°) offset

### SINGLE TOP

Single sheave. Mounted to main boom head for single line work. (attached with a 30° tilt)

### HOIST

Driven by hydraulic motor and via spur gear speed reducer.

Power load lowering / free-fall lowering type

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 5.9m

Middle extended width 4.0m

### FRONT JACK

Manual type

### MAX. OUTRIGGER LOAD

29.1t

### HYDRAULIC PUMPS

Type 3 gear pumps

Pressure P<sub>1</sub>, P<sub>2</sub>: 210kg/cm<sup>2</sup>, P<sub>3</sub>: 200kg/cm<sup>2</sup>

### HYDRAULIC OIL TANK CAPACITY

432 liters (when oil temperature is 20°C)

### SAFETY DEVICES

Automatic moment limiter

- Moment display
- Load display
- Total rated load display
- Boom angle display
- Boom length display
- Max. lifting height display
- Working radius display

Over-winding cutout

Level gauge

Over front area control device

Hook safety latch

Winch drum lock

Swing brake

Hydraulic safety valve

Elevation counterbalance valve

Telescopic counterbalance valve

Jack pilot check valve

### EQUIPMENTS

Boom angle indicator

Crane cab heater 1,400Kcal/H

### OPTIONAL EQUIPMENTS

Oil cooler

Hydraulic oil temperature gauge

Winch drum rotation indicator

## CARRIER SPECIFICATIONS

### MANUFACTURER

NISSAN DIESEL MOTOR CO., LTD

### CARRIER MODEL

K-KG455

### ENGINE

Model PE6 (T)

Type 4-cycle, in-line 6-cylinder, direct-injection water-cooled diesel engine

Piston displacement 11,670cc

Max. output 275PS at 2,300rpm

Max. torque 98kg-m at 1,200rpm

### CLUTCH

Dry single-plate coil spring type

### TRANSMISSION

Constant-mesh gear

Gear ratios 1st speed 7.646 2nd speed 4.134

3rd speed 2.530 4th speed 1.550

5th speed 1.000 Reverse 6.865

### REDUCER

Hypoid gear type

Final drive 6.833

### 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

### FRAME

Lattice type, box type, all-welded structure

### ELECTRIC SYSTEM

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 12,420mm

Overall width 2,490mm

Overall height 3,390mm

Wheel base 1,520mm + 3,530mm + 1,300mm = 6,350mm

Tread Front 2,020mm

Rear 1,860mm

### WEIGHTS

Vehicle weight

Total 27,520kg

Front 12,010kg

Rear 15,510kg

Gross vehicle weight

Total 27,630kg

Front 12,150kg

Rear 15,480kg

### PERFORMANCE

Max. traveling speed 60km/h

Gradeability (tan  $\theta$ ) 0.33

Min. turning radius (outermost wheel) 11.0m

## TOTAL RATED LOADS

(1)

Unit : ton

Outriggers fully extended + Front jack (360°)									
B (m) \ A	10.2m	17.3m	24.4m	31.5m	E (°) \ C	8.5 m		14.0 m	
						Offset 5°	Offset 30°	Offset 5°	Offset 30°
8.0	25.00	16.00			80	3.00	1.55	2.00	0.80
8.5	25.00	16.00			77	3.00	1.55	2.00	0.80
4.0	22.70	16.00	10.00		76	3.00	1.55	1.92	0.80
4.5	20.70	16.00	10.00		75	3.00	1.55	1.81	0.77
5.0	19.00	16.00	10.00		70	2.28	1.36	1.40	0.69
6.0	15.50	13.65	10.00	7.00	65	1.85	1.21	1.08	0.63
6.8	13.40	11.90	10.00	7.00	60	1.57	1.10	0.88	0.58
7.0	12.95	11.50	9.70	7.00	55	1.19	1.00	0.74	0.53
8.0	10.55	9.85	8.55	7.00	50	0.81	0.73	0.62	0.45
8.5	9.50	9.00	8.05	6.55	45	0.52	0.48	0.39	0.36
9.0		8.20	7.60	6.20	42	0.37	0.35	0.28	0.24
10.0		6.75	6.85	5.60	41	0.32	0.31	0.25	
12.0		4.75	5.25	4.65	40	0.28	0.27		
14.0		3.40	3.90	3.90					
15.5		2.70	3.15	3.45					
16.0			2.95	3.30					
18.0			2.30	2.60					
20.0			1.75	2.05					
22.0			1.35	1.60					
23.0			1.10	1.40					
24.0				1.25					
26.0				0.95					
28.0				0.70					
30.0				0.45					

A = Boom length  
B = Working radius  
C = Jib length  
E = Boom angle

**NOTES:**

1. The total rated loads shown are for the case when the outriggers are set horizontally on firm ground.
2. The weights of 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 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	10.2m	17.3m	24.4m	31.5m	J
H	8	7	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 should not exceed 0.6 ton for both the main winch and the auxiliary winch.
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 3.0t.

A	10.2m	17.3m	24.4m	31.5m
Q	0 kg	100 kg	200 kg	250 kg

A = Boom length Q = Subtracted load

7. Except for over rear and over side cases, the "overfront" range performance applies when the front jack is stored while the outriggers are fully extended.

(2)

Unit : ton

		· Outriggers middle extended (360°) · Outriggers fully extended (Over front)			
B (m) \ A	10.2 m	17.3 m	24.4 m	31.5 m	
3.0	25.00	16.00			
3.5	25.00	16.00			
4.0	20.50	16.00	10.00		
4.8	17.90	16.00	10.00		
4.5	16.50	14.90	10.00		
5.0	13.50	12.60	10.00		
6.0	9.60	9.30	10.00	7.00	
7.0	7.20	7.00	7.50	7.00	
7.5	6.80	6.15	6.65	7.00	
8.0	5.50	5.40	5.95	6.85	
8.5	4.90	4.80	5.30	5.70	
9.0		4.30	4.80	5.10	
10.0		3.45	3.90	4.20	
12.0		2.10	2.65	2.95	
14.0		1.25	1.75	2.05	
15.5		0.75	1.25	1.55	
16.0			1.10	1.40	
18.0			0.70	1.00	
19.0			0.50	0.80	
20.0				0.60	

A = Boom length B = Working radius

**NOTES:**

1. The total rated loads shown are for the case when the outriggers are set horizontally on firm ground.
2. The weights of 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 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	10.2 m	17.3 m	24.4 m	31.5 m	Single top
H	8	7	4	4	1

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

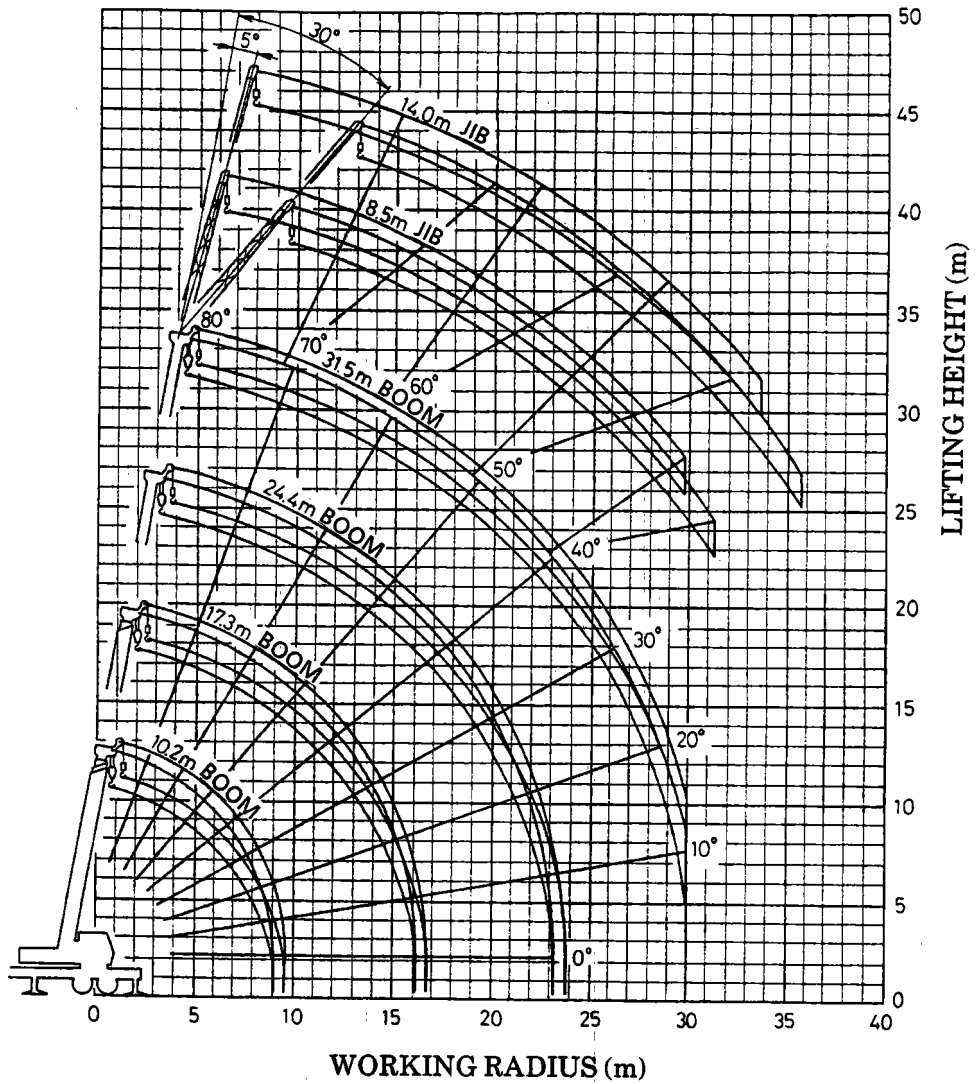
5. The total rated loads for free-fall operations is 1/5 of the total rated loads given above. The load per line should not exceed 0.6 ton for both the main winch and the auxiliary winch.
6. The total rated loads for the single top are obtained by subtracting the corresponding values below from the total rated load of the boom and must not exceed 3.0t.

A	10.2 m	17.3 m	24.4 m	31.5 m
Q	0 kg	100 kg	200 kg	250 kg

A = Boom length Q = Subtracted load

7. Except for over rear and over side cases, the "over front" range performance applies when the front jack is stored while the outriggers are fully extended.

**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)**

