

# ROUGH TERRAIN CRANE

## TR-200M

### *JAPANESE SPECIFICATIONS*

OUTLINE	SPEC. NO.
4-section Boom, 1-stage Jib	TR-200M-3-00103

Control No. JA-02

# TR-200M

## CRANE SPECIFICATIONS

### CRANE CAPACITY

8.35m Boom	20,000kg	at 3.5m	( 7 part-line)
14.3m Boom	16,000kg	at 3.5m	( 6 part-line)
20.25m Boom	9,000kg	at 6.0m	( 4 part-line)
26.2m Boom	6,800kg	at 7.0m	( 4 part-line)
7.5m Jib	3,000kg	at 70°	( 1 part-line)
Single top	3,000kg		( 1 part-line)

### MAX. LIFTING HEIGHT

Boom	26.5m
Jib	34.4m

### MAX. WORKING RADIUS

Boom	24.0m
Jib	28.5m

### BOOM LENGTH

8.35m – 26.2m

### BOOM EXTENSION

17.85m

### BOOM EXTENSION SPEED

17.85m / 73s

### JIB LENGTH

7.5m

### MAIN WINCH SINGLE LINE SPEED

High range:	108m/min	(4th layer)
Low range:	54m/min	(4th layer)

### MAIN WINCH HOOK SPEED

High range:	15.4m/min	(7 part-line)
Low range:	7.7m/min	(7 part-line)

### AUXILIARY WINCH SINGLE LINE SPEED

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

### AUXILIARY WINCH HOOK SPEED

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

### BOOM ELEVATION ANGLE

0° – 80°

### BOOM ELEVATION SPEED

0° – 80° / 38s

### SWING ANGLE

360° continue

### SWING SPEED

3.0rpm

### WIRE ROPE

#### Main Winch

16mm × 150m (Diameter × Length)  
 7 × 7 + 6 × Fi(29) Class B ordinary · Z twist  
 Spin-resistant wire rope  
 Breaking strength 17.6t

#### Auxiliary Winch

16mm × 75m (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

1-staged swingaround boom extension which stores alongside boom base section.  
 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

1 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 5.7m

Middle extended width 3.6m

### MAX. OUTRIGGER LOAD

21.4t

### HYDRAULIC PUMPS

Variable piston pump and gear pump

### HYDRAULIC OIL TANK CAPACITY

370 liters

### SAFETY DEVICES

Automatic moment limiter (AML-US)

Over-winding cutout

Working area control device

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 and seat belt)

Jib extending device

Radio

Fan

## CARRIER SPECIFICATIONS

### ENGINE

Model HINO H06C  
 Type 4-cycle, 6-cylinder, direct-injection, water-cooled diesel engine (with turbo charger)  
 Piston displacement 6,485cc  
 Max. output 180PS at 2,800rpm  
 Max. torque 53kg·m at 1,800rpm

### TORQUE CONVERTER

4-element, 1-stage unit (with automatic lock-up mechanism)

### TRANSMISSION

Power shift type (wet multi-plate clutch)  
 3 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 brake  
   Disk brake  
 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

### FRAME

Welded box-shaped structure

### ELECTRIC SYSTEM

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

### FUEL TANK CAPACITY

250 liters

### CAB

Two-man type

### TIRES

Front 14.00-24-24PR (OR)  
 Rear 14.00-24-24PR (OR)

### SAFETY DEVICES

Emergency steering device  
 Spring lock device

## GENERAL DATA

### DIMENSIONS

Overall length	10,450mm
Overall width	2,490mm
Overall height	3,420mm
Wheel base	3,000mm
Tread Front	2,060mm
Rear	2,060mm

### WEIGHTS

Gross vehicle weight	
Total	22,960kg
Front	11,480kg
Rear	11,480kg

### PERFORMANCE

Max. traveling speed	45km/h
Gradeability (tan $\theta$ )	0.6
Min. turning radius	4.8m (4-wheel steering) 8.1m (4-wheel steering)

**TOTAL RATED LOADS**

(1) With outriggers set (360°)

Unit : ton

Outriggers fully extended							Outriggers middle extended							
B (m)	A	8.35m	14.3m	20.25m	26.2m	E (°)	C 7.5m		B (m)	A	8.35m	14.3m	20.25m	26.2m
							D 5°	30°						
3.0		20.0	16.0			80	3.0	2.0	3.0	20.0	16.0			
3.5		20.0	16.0	9.0		75	3.0	2.0	3.5	18.5	16.0	9.0		
4.0		18.5	15.5	9.0		70	3.0	2.0	4.0	14.0	14.0	9.0		
4.5		16.5	14.2	9.0	6.8	65	2.5	1.85	4.5	11.2	11.4	9.0	6.8	
5.0		15.0	13.2	9.0	6.8	60	2.1	1.7	5.0	9.2	9.25	9.0	6.8	
5.5		13.7	12.2	9.0	6.8	55	1.7	1.55	5.5	7.7	7.7	8.3	6.8	
6.0		12.5	11.4	9.0	6.8	50	1.3	1.25	6.0	6.6	6.55	7.1	6.8	
6.5		11.5	10.6	8.5	6.8	45	1.05	1.0	6.5	5.7	5.7	6.2	6.2	
7.0			9.9	8.1	6.8	40	0.85	0.8	7.0		5.0	5.4	5.7	
8.0			8.0	7.3	6.1	35	0.65	0.65	8.0		3.8	4.3	4.5	
9.0			6.45	6.5	5.5	30	0.55	0.55	9.0		3.0	3.5	3.65	
10.0			5.3	5.7	5.0				10.0		2.4	2.8	3.05	
11.0			4.4	4.85	4.6				11.0		1.9	2.3	2.55	
12.0			3.7	4.15	4.2				12.0		1.5	1.9	2.1	
13.0				3.55	3.75				13.0			1.6	1.8	
14.0				3.05	3.3				14.0			1.35	1.5	
15.0				2.65	2.9				15.0			1.1	1.3	
16.0				2.3	2.55				16.0			0.9	1.05	
17.0				2.0	2.25				17.0			0.7	0.9	
18.0				1.8	2.0				18.0			0.55	0.7	
19.0					1.8				19.0				0.6	
20.0					1.6									
22.0					1.25									
24.0					1.0									

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 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: 230kg, 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 2.9t for the main winch and 3.0t for the auxiliary winch.

A	8.35m	14.3m	20.25m	26.2m	J
H	7	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 150kg from the total rated load of the main boom and must not exceed 3.0t.

(2) Without outriggers

Unit : ton

B (m)	Stationary						Creep (travelling at 1.6km/h or less)					
	8.35 m BOOM		14.3 m BOOM		20.25 m BOOM		8.35 m BOOM		14.3 m BOOM		20.25 m BOOM	
	F	G	F	G	F	G	F	G	F	G	F	G
3.0	12.2	8.2	8.7	7.2			8.5	6.5	6.7	5.0		
3.5	10.7	7.1	8.7	7.0	6.2	4.5	8.8	5.6	6.7	5.0	5.2	3.7
4.0	10.2	5.8	8.7	5.6	6.2	4.5	7.5	4.7	6.7	4.6	5.2	3.7
4.5	9.1	4.7	8.0	4.5	6.2	4.5	6.7	3.7	6.3	3.7	5.2	3.7
5.0	7.95	3.9	7.2	3.7	6.2	4.0	6.1	3.1	5.8	3.0	5.2	3.3
5.5	6.8	3.2	6.4	3.15	5.7	3.4	5.4	2.5	5.2	2.5	4.8	2.7
6.0	6.0	2.7	5.65	2.65	5.3	2.9	4.9	2.1	4.6	2.15	4.4	2.3
6.5	5.1	2.3	4.9	2.25	4.85	2.5	4.2	1.7	4.05	1.8	4.0	2.0
7.0			4.35	1.9	4.5	2.2			3.6	1.5	3.7	1.8
8.0			3.3	1.3	3.65	1.6			2.8	1.0	3.1	1.3
9.0			2.7	0.9	3.0	1.25			2.2	0.6	2.5	1.0
10.0			2.05	0.55	2.5	0.9			1.75		2.05	0.7
11.0			1.65		2.1	0.65			1.4		1.7	
12.0			1.3		1.7				1.1		1.4	
13.0					1.4						1.2	
14.0					1.2						1.0	
15.0					0.95						0.8	
16.0					0.75						0.6	
17.0					0.6							

B = Working radius F = Front G = 360°

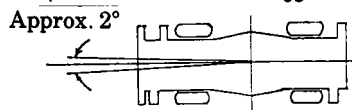
NOTES:

- 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: 8.0kg/cm<sup>2</sup>).
- The weights of the slings and hooks (main winch hook: 230kg) are included in the total rated loads shown.
- The total rated loads are based on the actual working radii into which are included the deflections of the boom and the tires.
- The number of part lines for each boom length should not exceed the values below. The load per line should not exceed 2.9t (for the main winch).

A	8.35 m	14.3 m	20.25 m
H	7	6	4

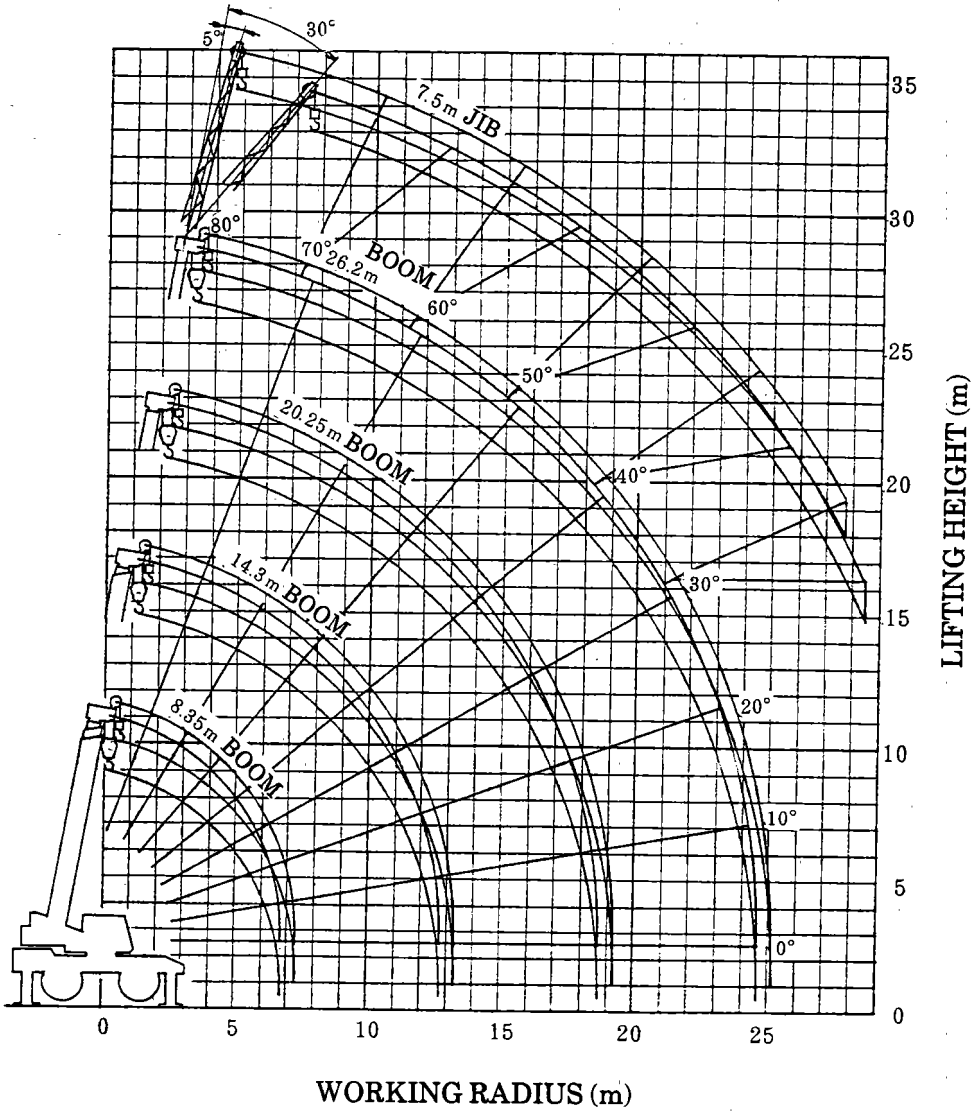
A = Boom length  
H = No. of part-line

- Free-fall operations should not be performed without outriggers.
- The 26.2m boom, the jib and the single top should not be used without the outriggers.
- 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.



- 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.
- Crane operations should not be performed when creeping while hoisting a load.

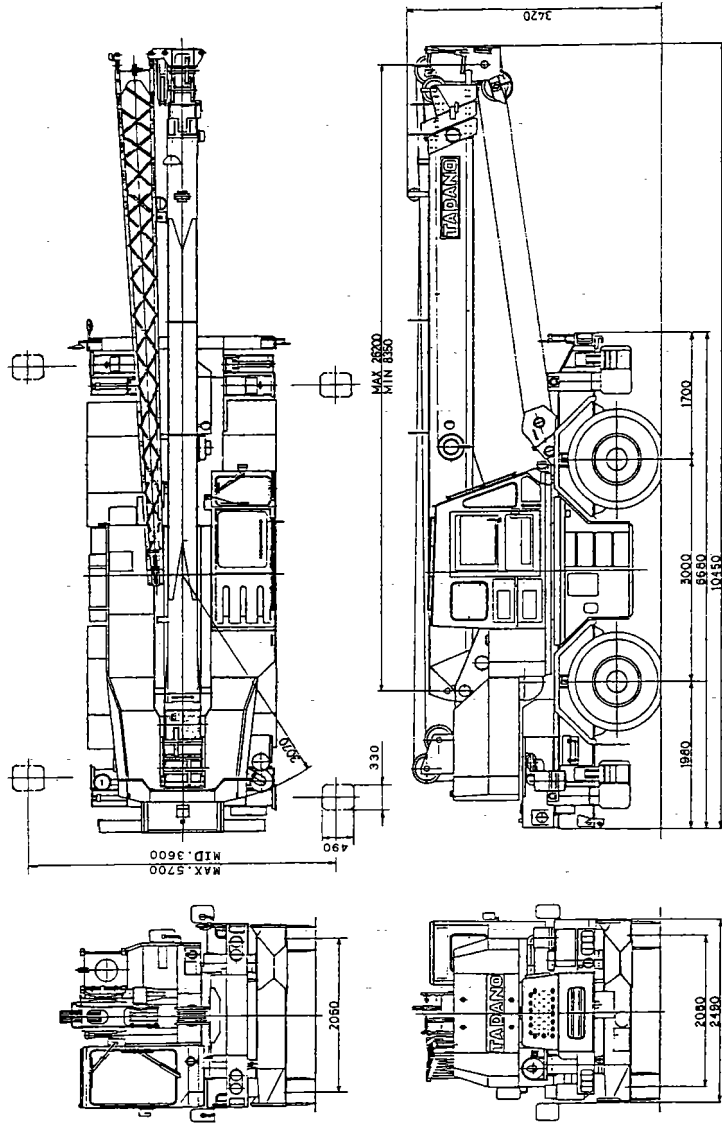
# WORKING RADIUS - LIFTING HEIGHT



**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)



◆ MEMO ◆

A series of horizontal dashed lines for writing a memo.