



# ROUGH TERRAIN CRANE

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**GR-160N**

*SPECIFICATION GR160N-2-00202*

## GR-160N

## 1. Crane Specifications

## © Crane

## Crane Capacity

6.5 m boom	16,000 kg	x 3.0 m	(6-part line)
10.7 m boom	12,000 kg	x 4.0 m	(6-part line)
14.9 m boom	9,000 kg	x 4.5 m	(4-part line)
19.1 m boom	7,000 kg	x 5.5 m	(4-part line)
23.3 m boom	5,000 kg	x 6.0 m	(4-part line)
27.5 m boom	3,500 kg	x 7.0 m	(4-part line)
3.8 m jib	2,000 kg	x 70°	(single-part line)
Single top	3,200 kg		(single-part line)

## Max. Lifting Height

Boom 28.2 m

Jib 32.0 m

## Max. Working Radius

Boom 24.0 m

Jib 27.2 m

## Boom Length

6.5 m to 27.5 m

## Boom Extension

21.0 m

## Boom Extension Speed

21.0 m/83 s

## Jib Length

3.8 m

## Main Winch Single Line Winding Speed

110 m/min (5 layers)

## Main Winch Hook Speed

27.5 m/min (4-part line)

## Main Winch Single Line Unwinding Speed

&lt;Reference&gt;

Standard: 110 m/min (5 layers)

High-speed: 150 m/min (5 layers)

## Auxiliary Winch Single Line Winding Speed

96 m/min (3 layers)

## Auxiliary Winch Hook Speed

96 m/min (single-part line)

## Auxiliary Winch Single Line Unwinding Speed

&lt;Reference&gt;

Standard: 96 m/min (3 layers)

High-speed: 130m/min (3 layers)

## Boom Elevation Angle

-9° to 82.5°

## Boom Elevation Speed

-9° to 82.5°/34 s

## Swing Angle

360° continuous

## Swing Speed

2.6 min<sup>-1</sup> (rpm)

## Wire Rope

Main winch

14 mm dia. X 155 m long

Spin-resistant wire rope

Auxiliary winch

14 mm dia. X 70 m long

Spin-resistant wire rope

## Hook

16 t hook (6-part line)

3.2 t hook (single-part line)

## Boom

6-section hydraulically telescoping boom of box construction (stages 2, 3: synchronized, stages 4, 5, 6: synchronized)

## Boom Extension

2 double-acting hydraulic cylinders

3 wire rope-type telescoping devices

Flow regulator valve with pressure compensation

## Jib

Single stage which swings from and stores under the boom  
Offset 5°, 25°, 45° 3-stage inclined

## Single Top

Mounted and fixed on the top boom section.

## Hoist

Hydraulic motor driven planetary gear reducer

Automatic brake

High-speed unwind function

2 single winches

With flow regulator valve with pressure compensation

## Boom Elevation

Single double-acting hydraulic cylinder

With flow regulator valve with pressure compensation

## Swing

Hydraulic motor driven planetary gear reducer

Swing bearing

Swing free/lock changeover type

Negative brake

## Outriggers

Fully hydraulic H-type (floats mounted integrally)

Slides and jacks each provided with independent operation device.

Fully extended width 5.2 m

Middle extended width 4.8 m, 4.4 m, 3.2 m

Minimum extended width 1.79 m

## Operation Method

Hydraulic pilot valve operation

## Max. Vertical Load Capacity of Outrigger

18.4 t

## Power Take-Off

PTO wet multi-plate clutch

## Hydraulic Pumps

2 variable piston pumps

2 gear pumps

## Hydraulic Tank Capacity

295 L

## Safety Devices

Automatic moment limiter (AML)

Swing automatic stop device

Elevation slow down and stop device

Over-winding cutout device

Working area control device

Outrigger extension width detector

Level gauge

Hook safety latch

Hydraulic safety valve

Telescoping cylinder check valve

Extension cylinder check valve

Jack pilot check valve

## Equipment

Air-conditioner with dehumidifier

Hydraulic oil temperature indication lamp

Radio

Oil Cooler

Visual-type winch drum rotation indicator

Operation pedals

ISO arrangement: for telescoping/auxiliary hoisting

Tadano arrangement: for elevating/telescoping

Satellite communications equipment (HELLO-NET Owner's site)

## Ancillary Equipment

Aluminium deck plates (x 4)

## ⊙ Carrier

### Manufacturer and Model

Tadano JDS-T006

### Engine

Model Cummins QSB6.7-3C (with turbo charger and air cooler)

Type Water-cooled 4-cycle, in-line 6-cylinder, direct-Injection diesel

Piston displacement 6.690L

Max. output 160 kw (218 PS)/2.500 min<sup>-1</sup> (rpm)

Max. torque 843 N.m (86.0 kgf.m)/1,500 min<sup>-1</sup> (rpm)

### Torque Converter

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

### Transmission

Automatic and manual transmission

Power shift type (wet multi-plate clutch)

4 forward gears, 1 reverse gear (with Hi and Lo)

### Reducer

Axle dual-ratio reduction

### Drive

2-wheel drive (4 x 2)/4-wheel drive (4 x 4) selection

### Front Axle

Full floating shaft tube type

### Rear Axle

Full floating shaft tube type

### Suspension

Front: Parallel leaf spring type (with hydraulic lock cylinder)

Rear: Parallel leaf spring type (with hydraulic lock cylinder)

### Steering

Fully hydraulic power steering

### Brake System

#### Service Brake

Air and hydraulic combined type front and rear disk brakes

#### Parking Brake

Air-type transmission braking and internal expanding-type spring brake

#### Auxiliary Brake

Electro-pneumatic operated exhaust brake

Auxiliary braking device for operations

### Frame

Welded box-shaped structure

### Electric System

12 V/120 Ah x 2 (24 V)

### Fuel Tank Capacity

250L

### Tires

Front 445/80R25 170E Road

Rear 445/80R25 170E Road

### Cab

One-man type

With interior equipment

Rubber mounted type

Fully adjustable suspension seat

(with head rest, arm rest, seat belt)

Adjustable wheel (tilt, telescoping)

Intermittent windshield/roof wiper (with washer)

Power window

Side visor

### Safety Devices

Emergency steering device

Suspension lock device

Rear wheel steering lock device

Engine over-run alarm

Overshift prevention device

Parking brake alarm

### Equipment

Centralized oiling device (Electric type is optional)

## ⊙ Dimensions

Overall length 8,310 mm

Overall width 2,200 mm

Overall height 3,150 mm

Wheel base 3,200 mm

Tread Front 1,820 mm

Rear 1,820 mm

## ⊙ Weights

Gross vehicle weight 19,915 kg

Front 9,925 kg

Rear 9,990 kg

## ⊙ Performance

Max. travelling speed 49 km/h

Gradeability (tanθ) 0.6

Min. turning radius 4.8 m (4-wheel steering)

8.5m (2-wheel steering)

## ⊙ Optional equipment

Electric mirror

Rear view monitoring camera

Loudspeaker

AML external warning lamp

Roadside lamp

Identification lamp

Toolbox

## 2. Total Rated Loads

### 2-(1) Outrigger Extension [Boom]

Boom Length Working radius		Outriggers fully extended (5.2m)						-360°-	
		6.5m	10.7m	14.9m	19.1m	23.3m	27.5m		
2.5m		16.0	12.0	9.0	7.0				
3.0m		16.0	12.0	9.0	7.0				
3.5m		14.0	12.0	9.0	7.0	5.0		3.5	
4.0m		12.5	12.0	9.0	7.0	5.0		3.5	
4.5m		11.7	11.1	9.0	7.0	5.0		3.5	
5.0m		(4.4m)	10.25	8.9	7.0	5.0		3.5	
5.5m			9.4	8.2	7.0	5.0		3.5	
6.0m			8.8	7.6	6.6	5.0		3.5	
7.0m			6.75	6.4	5.8	4.7		3.5	
8.0m			5.3	5.0	5.2	4.15		3.4	
9.0m			4.5	4.0	4.3	3.7		3.1	
10.0m			(8.6m)	3.25	3.5	3.3		2.8	
11.0m				2.65	2.95	3.0		2.55	
12.0m				2.15	2.45	2.65		2.35	
13.0m				1.8m	2.05	2.25		2.15	
14.0m				(12.8m)	1.75	1.95		2.0	
15.0m					1.45	1.7		1.75	
16.0m					1.25	1.45		1.5	
17.0m					1.05	1.25		1.3	
18.0m						1.05		1.1	
19.0m						0.9		0.95	
20.0m						0.75		0.8	
22.0m						0.6		0.6	
24.0m						(21.2m)		0.45	
A (°)						0-82.5			

A= Boom angle range (for the unladen condition)

Boom Length Working radius		Outriggers middle extended (4.8m)						-Over sides-	
		6.5m	10.7m	14.9m	19.1m	23.5m	27.5m		
2.5m		16.0	12.0	9.0	7.0				
3.0m		16.0	12.0	9.0	7.0				
3.5m		14.0	12.0	9.0	7.0	5.0		3.5	
4.0m		12.5	12.0	9.0	7.0	5.0		3.5	
4.5m		11.7m	11.1	9.0	7.0	5.0		3.5	
5.0m		(4.4m)	10.25	8.9	7.0	5.0		3.5	
5.5m			9.2	8.2	7.0	5.0		3.5	
6.0m			7.9	7.6	6.6	5.0		3.5	
7.0m			5.85	5.85	5.8	4.7		3.5	
8.0m			4.55	4.5	4.85	4.15		3.4	
9.0m			3.9	3.55	3.9	3.7		3.1	
10.0m			(8.6m)	2.8	3.15	3.3		2.8	
11.0m				2.25	2.6	2.8		2.55	
12.0m				1.8	2.15	2.35		2.35	
13.0m				1.5	1.75	1.95		2.1	
14.0m				(12.8m)	1.45	1.65		1.75	
15.0m					1.2	1.4		1.5	
16.0m					1.0	1.2		1.3	
17.0m					0.85	1.0		1.1	
18.0m						0.85		0.95	
19.0m						0.7		0.8	
20.0m						0.55		0.65	
22.0m								0.45	
24.0m						0-82.5			
A (°)									

A= Boom angle range (for the unladen condition)

**[BOOM]**

Unit: ton

Boom length / Working radius		Outriggers middle extended (4.4m)					-Over sides-		
		6.5m	10.7m	14.9m	19.1m	23.3m	27.5m		
2.5m		16.0	12.0	9.0	7.0				
3.0m		16.0	12.0	9.0	7.0				
3.5m		14.0	12.0	9.0	7.0	5.0	3.5		
4.0m		12.5	12.0	9.0	7.0	5.0	3.5		
4.5m		11.7 (4.4m)	11.1	9.0	7.0	5.0	3.5		
5.0m			9.5	8.9	7.0	5.0	3.5		
5.5m			8.0	7.9	7.0	5.0	3.5		
6.0m			6.8	6.7	6.6	5.0	3.5		
7.0m			5.05	5.0	5.35	4.7	3.5		
8.0m			3.85	3.85	4.15	4.15	3.4		
9.0m			3.3 (8.6m)	3.0	3.3	3.55	3.1		
10.0m				2.35	2.65	2.9	2.8		
11.0m				1.85	2.15	2.4	2.5		
12.0m				1.45	1.75	2.0	2.1		
13.0m				1.15 (12.8m)	1.45	1.65	1.8		
14.0m					1.15	1.4	1.55		
15.0m					0.95	1.15	1.3		
16.0m					0.75	0.95	1.1		
17.0m					0.6	0.8	0.9		
18.0m						0.65	0.75		
19.0m						0.5	0.6		
20.0m							0.5		
A (°)				0-82.5			32-82.5		

A = Boom angle range (for the unladen condition)

Unit: ton

Boom length / Working radius		Outriggers middle extended (3.2m)					-Over sides-		
		6.5m	10.7m	14.9m	19.1m	23.3m	27.5m		
2.5m		16.0	12.0	9.0	7.0				
3.0m		14.5	12.0	9.0	7.0				
3.5m		10.5	10.4	9.0	7.0	5.0	3.5		
4.0m		8.0	8.25	7.9	7.0	5.0	3.5		
4.5m		6.8 (4.4m)	6.6	6.5	7.0	5.0	3.5		
5.0m			5.45	5.4	5.8	5.0	3.5		
5.5m			4.6	4.5	4.9	5.0	3.5		
6.0m			3.9	3.9	4.2	4.4	3.5		
7.0m			2.9	2.85	3.15	3.3	3.4		
8.0m			2.15	2.1	2.4	2.6	2.75		
9.0m			1.8 (8.6m)	1.55	1.85	2.05	2.2		
10.0m				1.1	1.45	1.65	1.8		
11.0m				0.75	1.1	1.3	1.45		
12.0m				0.5	0.8	1.0	1.15		
13.0m					0.55	0.8	0.9		
14.0m					0.4	0.6	0.7		
15.0m						0.4	0.55		
A (°)			0-82.5		35-82.5	45-82.5	54-82.5		

A = Boom angle range (for the unladen condition)

**[BOOM]**

Unit: Ton

		OUTRIGGERS MIDDLE EXTENDED (1.79m)					-Over sides-	
Boom Length Working Radius	6.5m	10.7m	14.9m	19.1m	23.3m	27.5m		
2.5	7.0	7.0	7.0	7.0				
3.0	5.9	5.6	5.6	5.75				
3.5	4.5	4.3	4.25	4.6	4.6	3.5		
4.0	3.5	3.4	3.3	3.65	3.8	3.5		
4.5	2.9	2.7	2.65	3.0	3.15	3.2		
5.0	(4.4m)	2.2	2.1	2.45	2.65	2.75		
5.5		1.8	1.65	2.0	2.2	2.3		
6.0		1.4	1.3	1.65	1.85	1.95		
7.0		0.85	0.75	1.1	1.3	1.45		
A (°)	0-82.5	36-82.5	55-82.5	64-82.5	69-82.5	72-82.5		

A = Boom angle range (for the unladen condition)

[ Jib (27.5m Boom)]

Outriggers fully extended(5.2 m) -360°-						
Jib length	27.5 m boom +3.8 m jib					
Offset	5°		25°		45°	
Boom angle	Working radius (m)	Total rated load (t)	Working radius (m)	Total rated load (t)	Working radius (m)	Total rated load (t)
82.5°	3.6	2.0	4.7	1.5	5.7	1.25
75°	8.0	2.0	8.9	1.5	9.6	1.25
70°	10.8	2.0	11.6	1.5	12.1	1.25
65°	13.2	1.6	14.0	1.35	14.5	1.25
60°	15.5	1.35	16.3	1.2	16.7	1.15
55°	17.7	1.1	18.4	1.1	18.8	1.05
50°	19.7	0.95	20.4	0.9	20.7	0.9
45°	21.6	0.75	22.2	0.7	22.4	0.7
40°	23.3	0.6	23.8	0.55		
35°	24.8	0.45	25.2	0.4		
30°	26.1	0.5	26.4	0.3		
25°	27.2	0.25				
A (°)	24-82.5		29-82.5		44-82.5	

A= Boom angle range (for the unladen condition)

Outriggers middle extended (4.8 m) -over sides-						
Jib length	27.5m boom + 3.8 m jib					
Offset	5°		25°		45°	
Boom angle	Working radius (m)	Total rated load (t)	Working radius (m)	Total rated load (t)	Working radius (m)	Total rated Load (t)
82.5°	3.6	2.0	4.7	1.5	5.7	1.25
75°	8.0	2.0	8.9	1.5	9.6	1.25
70°	10.8	2.0	11.6	1.5	12.1	1.25
65°	13.2	1.6	14.0	1.35	14.5	1.25
60°	15.5	1.35	16.3	1.2	16.7	1.15
55°	17.7	1.05	18.4	1.0	18.8	0.95
50°	19.7	0.8	20.3	0.75	20.6	0.7
45°	21.5	0.55	22.1	0.55	22.3	0.5
40°	23.2	0.4	23.7	0.4		
35°	24.7	0.3	25.1	0.3		
A (°)	34-82.5				44-82.5	

A= Boom angle range (for the unladen condition)

Outriggers middle extended (4.4 m) -over sides-						
Jib length	27.5 m boom +3.8 m jib					
Offset	5°		25°		45°	
Boom angle	Working radius (m)	Total rated load (t)	Working radius (m)	Total rated load (t)	Working radius (m)	Total rated load (t)
82.5°	3.6	2.0	4.7	1.5	5.7	1.25
75°	8.0	2.0	8.9	1.5	9.6	1.25
70°	10.8	2.0	11.6	1.5	12.1	1.25
65°	13.2	1.6	14.0	1.35	14.5	1.25
60°	15.4	1.15	16.3	1.1	16.7	1.05
55°	17.6	0.85	18.4	0.85	18.7	0.8
50°	19.6	0.6	20.3	0.6	20.5	0.55
45°	21.5	0.4	22.1	0.4	22.3	0.4
40°	23.1	0.25	23.7	0.25		
A (°)	39-82.5				44-82.5	

A= Boom angle range (for the unladen condition)

Outriggers middle extended (3.2 m) -over sides-						
Jib length	27.5m boom + 3.8 m jib					
Offset	5°		25°		45°	
Boom angle	Working radius (m)	Total rated load (t)	Working radius (m)	Total rated load (t)	Working radius (m)	Total rated Load (t)
82.5°	3.6	2.0	4.7	1.5	5.7	1.25
75°	8.0	2.0	8.9	1.5	9.6	1.25
72°	9.5	1.65	10.5	1.45	11.1	1.25
70°	10.5	1.4	11.5	1.3	12.1	1.15
65°	12.9	0.9	13.8	0.85	14.3	0.75
60°	15.2	0.55	16.0	0.55	16.4	0.45
55°	17.3	0.3	18.1	0.3	18.4	0.25
A (°)	54-82.5					

A= Boom angle range (for the unladen condition)

## [ Jib (23.3 m Boom)]

Outriggers fully extended(5.2 m)		-360°-				
Jib length	23.3 m boom +3.8 m jib					
Offset	5°		25°		45°	
Boom angle	Working radius (m)	Total rated load (t)	Working radius (m)	Total rated load (t)	Working radius (m)	Total rated load (t)
82.5°	2.9	2.0	4.0	1.5	5.0	1.25
75°	6.5	2.0	7.5	1.5	8.3	1.25
70°	8.8	2.0	9.7	1.5	10.5	1.25
65°	11.0	2.0	11.8	1.5	12.5	1.25
60°	13.1	1.7	13.9	1.45	14.4	1.2
55°	15.1	1.5	15.9	1.4	16.1	1.15
50°	16.9	1.15	17.5	1.1	17.6	1.05
45°	18.5	0.9	19.0	0.85	19.1	0.85
40°	19.9	0.7	20.4	0.7		
35°	21.2	0.55	21.6	0.55		
30°	22.4	0.45	22.6	0.45		
25°	23.3	0.4	23.4	0.35		
20°	24.0	0.35				
15°	24.5	0.3				
10°	24.9	0.25				
5°	25.0	0.25				
A (°)	4-82.5		24-82.5		44-82.5	

A= Boom angle range (for the unladen condition)

Outriggers middle extended (4.8 m)		-over sides-				
Jib length	23.3m boom + 3.8 m jib					
Offset	5°		25°		45°	
Boom angle	Working radius (m)	Total rated load (t)	Working radius (m)	Total rated load (t)	Working radius (m)	Total rated Load (t)
82.5°	2.9	2.0	4.7	1.5	5.0	1.25
75°	6.5	2.0	7.5	1.5	8.3	1.25
70°	8.8	2.0	9.7	1.5	10.5	1.25
65°	11.0	2.0	11.8	1.5	12.5	1.25
60°	13.1	1.7	13.9	1.45	14.4	1.2
55°	14.9	1.25	15.7	1.15	16.1	1.15
50°	16.7	0.95	17.4	0.9	17.6	0.85
45°	18.3	0.7	18.9	0.7	19.0	0.65
40°	19.8	0.55	20.3	0.5		
35°	21.2	0.4	21.5	0.4		
30°	22.2	0.3	22.5	0.3		
25°	23.2	0.25	23.4	0.25		
A (°)	24-82.5				44-82.5	

A= Boom angle range (for the unladen condition)

Outriggers middle extended (4.4 m)		-over sides-				
Jib length	23.3 m boom +3.8 m jib					
Offset	5°		25°		45°	
Boom angle	Working radius (m)	Total rated load (t)	Working radius (m)	Total rated load (t)	Working radius (m)	Total rated load (t)
82.5°	2.9	2.0	4.0	1.5	5.7	1.25
75°	6.5	2.0	7.5	1.5	8.3	1.25
70°	8.8	2.0	9.7	1.5	10.5	1.25
65°	11.0	2.0	11.8	1.5	12.5	1.25
60°	12.9	1.4	13.9	1.3	14.4	1.2
55°	14.8	1.0	15.6	0.95	16.0	0.9
50°	16.6	0.7	17.3	0.7	17.6	0.65
45°	18.3	0.5	18.8	0.5	19.0	0.5
40°	19.7	0.35	20.2	0.35		
35°	21.1	0.25	21.4	0.25		
A (°)	34-82.5				44-82.5	

A= Boom angle range (for the unladen condition)

Outriggers middle extended (3.2 m)		-over sides-				
Jib length	23.3 m boom + 3.8 m jib					
Offset	5°		25°		45°	
Boom angle	Working radius (m)	Total rated load (t)	Working radius (m)	Total rated load (t)	Working radius (m)	Total rated Load (t)
82.5°	2.9	2.0	4.0	1.5	5.0	1.25
75°	6.5	2.0	7.5	1.5	8.3	1.25
72°	7.8	2.0	8.8	1.5	9.6	1.25
70°	8.7	1.65	9.7	1.4	10.5	1.25
65°	10.8	1.0	11.8	0.9	12.5	0.85
60°	12.8	0.6	13.8	0.55	14.2	0.5
55°	14.8	0.3	15.5	0.3	15.9	0.3
A (°)	54-82.5					

A= Boom angle range (for the unladen condition)



## PRECAUTIONS TO BE TAKEN WHEN THE OUTRIGGERS ARE EXTENDED:

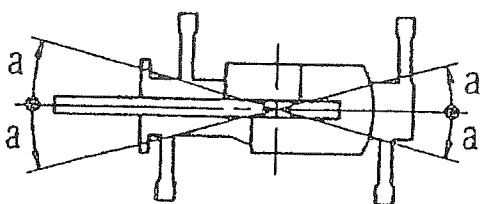
1. The total rated loads shown are for the case where the crane is set horizontally on firm level ground. They include the weights of the slings and main winch hook (140kg) when using the boom, and the weights of the slings and auxiliary winch hook (60kg) when using the jib. The values above the bold lines are based on the crane structural strength. The values below the bold lines are based on the crane stability and do not exceed 75% of tipping.
2. Since the working radii are based on the actual values including the deflection of the boom, operations should be performed in accordance with the working radii.
3. The total rated load for the jib differs for boom lengths of 23.3m or less and more than 23.3m.
4. Use the boom angle as a reference when using the jib. The working radii are reference values for the case where a jib is mounted to a 23.3m or a 27.5m boom.
5. The total rated load for the single top is obtained by subtracting 80kg from total rated load of the boom. It includes the weight of the sling and auxiliary hook (60kg), and must not exceed 3.2t.
6. High-speed unwind should be performed only when lowering the hook alone, and sudden braking operations must be avoided.
7. The table below shows the standard number of part lines for each boom length.  
When using with other than this number of part lines, the load per line should not exceed 2.9t for the main winch, and 3.2t for the auxiliary winch.

BOOM LENGTH	6.5m	10.7m	14.9m	19.1m	23.3m	27.5m	JIB / SINGLE TOP
NO. OF PART LINES	6	6	4	4	4	4	1

8. A single-part line is used for the hook on the jib.
9. The hoisting performance for the "Over sides" range will differ according to the extended width of the outriggers. Operations should be performed in accordance with the performance corresponding to the extended width. Also, although the hoisting performances for the "Over front" and "Over rear" ranges are equivalent to those of the outriggers fully extended condition, the front and rear ranges (angle a) will differ according to the width to which the outriggers are extended in the left and right directions.

Extended width	Middle extended (4.8 m)	Middle extended (4.4m)	Minimum extended (3.2m)	Minimum extended (1.79m)
Angle a°	45	40	20	5

(Angle a° in the chart shows the minimum value)



## 2-(2) Outrigger Not Used

Unit: ton

Working Radius	Stationary							
	6.5m Boom		10.7m Boom		14.9m Boom		19.1m Boom	
	Front	360°	Front	360°	Front	360°	Front	360°
3.0m	8.0	4.4	7.5	4.5	5.2	4.65	5.0	4.7
3.5m	7.7	3.5	7.5	3.65	5.2	3.7	5.0	4.0
4.0m	7.3	2.8	7.3	3.0	5.2	3.0	5.0	3
4.5m	6.6	2.2	6.4	2.4	4.75	2.35	4.55	2.6
5.0m	(4.4m)	(4.4m)	5.45	1.9	4.25	1.8	4.1	2.1
5.5m			4.6	1.5	3.8	1.4	3.7	1.7
6.0m			3.9	1.15	3.45	1.05	3.4	1.35
7.0m			2.95	0.6	2.6	0.5	2.8	0.85
8.0m			2.25		1.9		2.25	0.45
9.0m					1.4		1.8	
10.0m					1.05		1.4	
11.0m					0.75		1.05	
12.0m					0.5		0.8	
13.0m							0.6	
14.0m							0.4	
A (°)	0-82.5		25-82.5		0-82.5	51-82.5	35-82.5	60-82.5

A = Boom angle range (for the unladen condition)

Unit: ton

Working Radius	Vehicle moving ( at 1.6 km/h or less)							
	6.5m Boom		10.7m Boom		14.9m Boom		19.1m Boom	
	Front	360°	Front	360°	Front	360°	Front	360°
3.0m	6.7	3.7	6.3	3.8	4.3	3.8	4.1	3.9
3.5m	6.5	2.95	6.3	3.0	4.3	3.1	4.1	3.35
4.0m	6.1	2.35	6.0	2.45	4.3	2.5	4.1	2.7
4.5m	5.5	1.85	5.4	2.0	3.9	2.0	3.75	2.15
5.0m	(4.4m)	(4.4m)	4.5	1.6	3.5	1.55	3.35	1.7
5.5m			3.8	1.25	3.2	1.15	3.0	1.35
6.0m			3.25	0.95	2.95	0.85	2.8	1.1
7.0m			2.45	0.45	2.15	0.4	2.45	0.7
8.0m			1.8		1.6		1.9	
9.0m					1.2		1.45	
10.0m					0.85		1.1	
11.0m					0.6		0.85	
12.0m					0.35		0.6	
13.0m							0.4	
A (°)	0-82.5		36-82.5		0-82.5	55-82.5	40-82.5	64-82.5

A = Boom angle range (for the unladen condition)

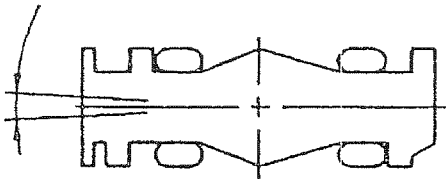
**PRECAUTIONS TO BE TAKEN WHEN THE OUTRIGGERS ARE NOT MOUNTED:**

1. The total rated loads shown are for the case where the tyre air pressure on firm level ground is as specified (900kPa (9.00kg/cm<sup>2</sup>)) and the suspension is locked. They include the weights of the main hook (140kg).  
The values above the bold lines are based on the crane structural strength. The values below the bold lines are based on the crane stability and do not exceed 66.6% of tipping. The foundation, working conditions, etc, should be taken into consideration for actual work.
2. Since the working radii are based on the actual values including the deflection of the boom and the tyres, operations should be performed in accordance with the working radii.
3. The table below shows the standard number of part lines for each boom length. The load per line should not exceed 2.9t for the main winch and 3.2t for the auxiliary winch.

<b>BOOM LENGTH</b>	<b>6.5m</b>	<b>10.7m</b>	<b>14.9m</b>	<b>19.1m</b>	<b>Jib / Single top</b>
<b>NO. OF PART LINES</b>	<b>6</b>	<b>4</b>	<b>4</b>	<b>4</b>	<b>1</b>

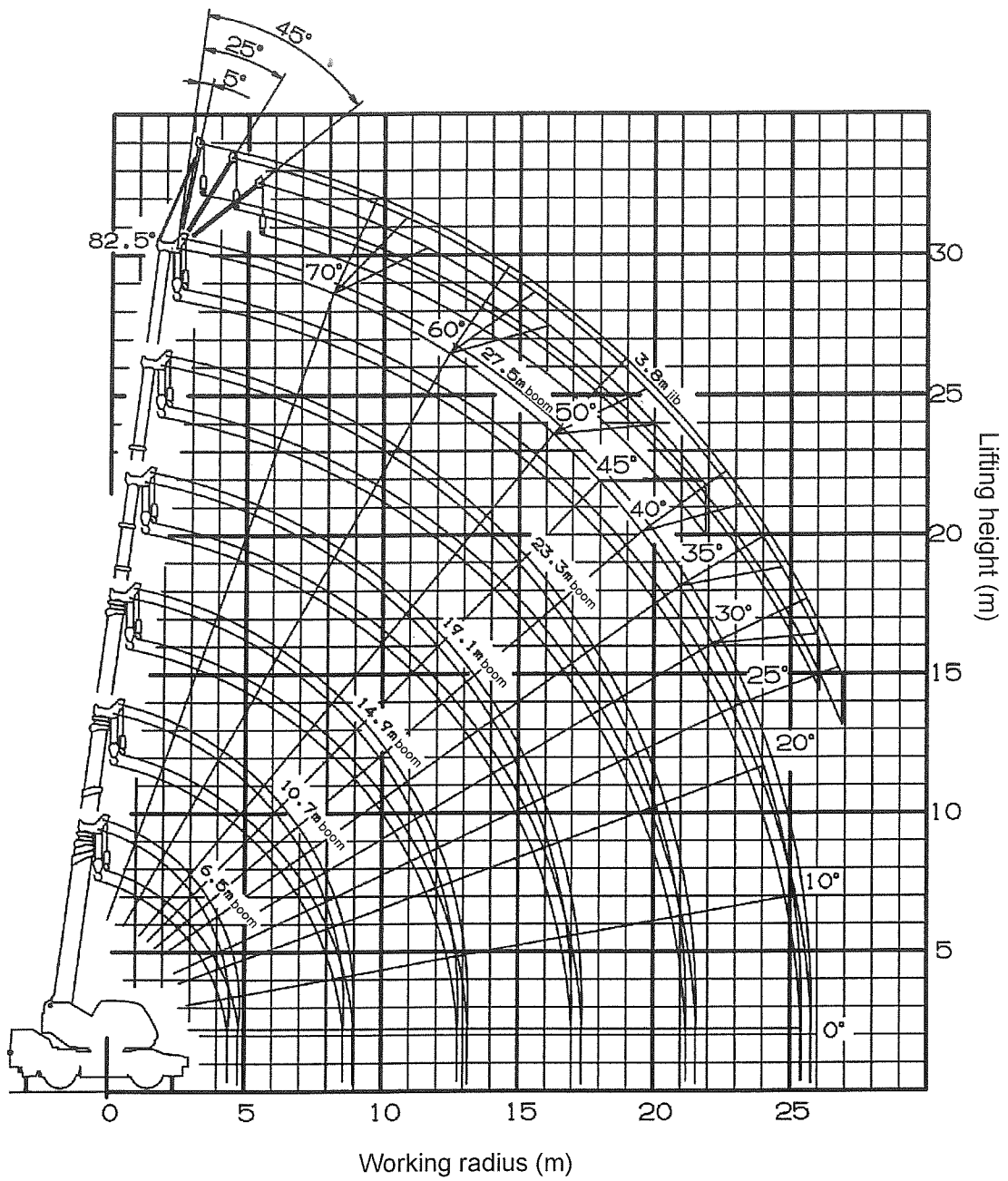
4. "Over front" crane operations should be performed only when "Over front" is displayed on the standard display. The boom must be kept inside a 2° area over front of the carrier when performing "Over front" crane operations without the outriggers.

Approx. 2°



5. The total rated load for the single top is obtained by subtracting 80kg from the total rated load of the boom. It includes the weight of the sling and auxiliary hook (60kg) and must not exceed 3.2t.
6. The "Drive Mode Selection" switch should be set to "4-wheel-Lo" for travelling while hoisting a load and the shift lever should be set first.
7. When travelling 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.
8. Crane operations should not be performed when travelling while hoisting a load.
9. High speed unwind function should not be performed without outriggers. Booms over 19.1m in length and jibs should not be used without outriggers.

# Working Radius - Lifting Height



**Note:**

1. The deflection of the boom and jib is not incorporated in the figure above.
2. The figure above shows the crane with the maximum outrigger extension (5.2 m).

