

ROUGH TERRAIN CRANE

GR-250N

JAPANESE SPECIFICATIONS

OUTLINE	SPEC. NO.
4-section Boom, 2-stage Power-tilt Jib, H-type Outriggers	GR-250N-2-00102

GR-250N

1. Crane Specifications

☉ Crane

Crane Capacity

9.35 m boom	25,000 kg	x 3.5 m	(8-part line)
16.4 m boom	15,000 kg	x 6.5 m	(6-part line)
23.45 m boom	12,000 kg	x 6.0 m	(4-part line)
30.5 m boom	8,000 kg	x 8.0 m	(4-part line)
8.0 m jib	3,300 kg	x 72°	(single-part line)
13.0 m jib	2,000 kg	x 78°	(single-part line)
Single top	4,000 kg		(single-part line)

Max. Lifting Height

Boom	31.3 m
Jib	44.2 m

Max. Working Radius

Boom	27.9 m
Jib	33.9 m

Boom Length

9.35m to 30.5m

Boom Extension

21.15 m

Boom Extension Speed

21.15 m/80 s

Jib Length

8.0 m, 13.0 m

Main Winch Single Line Winding Speed

120 m/min (4 layers)

Main Winch Hook Speed

15.0 m/min (8-part line)

Main Winch Single Line Unwinding Speed

<Reference>

Standard: 120 m/min (4 layers)

High-speed: 160 m/min (4 layers)

Auxiliary Winch Single Line Winding Speed

120 m/min (4 layers)

Auxiliary Winch Hook Speed

120 m/min (single-part line)

Auxiliary Winch Single Line Unwinding Speed

<Reference>

Standard: 120 m/min (4 layers)

High-speed: 160 m/min (4 layers)

Boom Elevation Angle

0° to 84°

Boom Elevation Speed

0° to 84°/45 s

Swing Angle

360° continuous

Swing Speed

2.6 min⁻¹ (rpm)

Wire Rope

Main winch

16 mm dia. x 170 m long

Spin-resistant wire rope

Auxiliary winch

16 mm dia. x 98 m long

Spin-resistant wire rope

Boom

4-section box structure synchronously telescoping hydraulic boom

Boom Extension

Single double-acting hydraulic cylinder

2 wire rope type telescoping devices

Jib

Quick-turn type (stored alongside and below boom)

2-stage (pull-out 2nd stage)

Offset 5° to 60° hydraulic non-stage inclined

Single Top

Fixed on 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 6.5 m

Middle extended width 6.1 m, 5.0 m, 3.6 m

Minimum extended width 2.3 m

Operation Method

Hydraulic pilot valve operation

Max. Vertical Load Capacity of Outrigger

26.9 t

Power Take-Off

PTO wet multi-plate clutch

Hydraulic Pumps

2 variable piston pumps

3 gear pumps

Hydraulic Tank Capacity

380 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

Power tilt counterbalance valve

Jack pilot check valve

Swing lock

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

Wood blocks (x 4)

Aluminum deck plates (x 4)

◎ Carrier

Manufacturer and Model

Tadano JDS-T003

Engine

Model Mitsubishi 6M60-TLE3A (with turbo and air cooler)
Type Water-cooled 4-cycle, in-line 6 cylinder, direct-injection diesel

Piston displacement 7.545 L

Max. output 200 kW (272PS)/2,600 min⁻¹ (rpm)

Max. torque 785 N.m (80.0 kgf.m)/1,400 min⁻¹ (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 type

Rear Axle

Full floating type

Suspension

Front Hydro-pneumatic suspension (with hydraulic lock cylinder)

Rear Hydro-pneumatic suspension (with hydraulic lock cylinder)

Steering

Fully hydraulic power steering

Brake System

Service Brake

Hydro-pneumatic disk brake

Parking Brake

Mechanically operated, internal expanding duo-servo shoe type acting on drum at transmission case rear.

Auxiliary Brake

Permanent magnet retarder

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

300 L

Tires

Front 385/95R25 170E Road

Rear 385/95R25 170E Road

Cab

One-man type

With interior equipment

Sealed-fluid rubber mounted type

Fully adjustable folding 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

Monitor television on left and right sides of boom

Equipment

Centralized oiling device

Electric mirror

◎ Dimensions

Overall length	11,410 mm
Overall width	2,620 mm
Overall height	3,470 mm
Wheel base	3,880 mm
Tread	Front 2,170 mm
	Rear 2,170 mm

◎ Weights

Gross vehicle weight	25,595 kg
Front	12,800 kg
Rear	12,795 kg

◎ Performance

Max. traveling speed	49 km/h
Gradeability (tanθ)	0.57
Min. turning radius	5.1 m (4-wheel steering)
	8.5 m (2-wheel steering)

◎ Optional equipment

Winch drum monitoring camera

Rear view monitoring camera

Loudspeaker

AML external warning lamp

Roadside lamp

Identification lamp

* This crane has a compliance certificate ('Weight under basic transit conditions: A') under the new vehicle certification system, however in practice, conditions imposed for transit are in accordance with the assessment of each route by the road controller.

2. Total Rated Loads

2-(1) Outrigger Used [Boom]

Unit: ton

Unit: ton

Outriggers fully extended (6.5 m) -360°-				
Working radius \ Boom length	9.35 m	16.4 m	23.45 m	30.5 m
2.5 m	25.0	15.0	12.0	
3.0 m	25.0	15.0	12.0	
3.5 m	25.0	15.0	12.0	8.0
4.0 m	23.5	15.0	12.0	8.0
4.5 m	21.5	15.0	12.0	8.0
5.0 m	19.6	15.0	12.0	8.0
5.5 m	17.8	15.0	12.0	8.0
6.0 m	16.3	15.0	12.0	8.0
6.5 m	15.1	15.0	11.5	8.0
7.0 m		14.0	10.8	8.0
8.0 m		11.3	9.6	8.0
9.0 m		9.2	8.6	7.6
10.0 m		7.5	7.6	6.9
11.0 m		6.3	6.5	6.3
12.0 m		5.35	5.5	5.6
13.0 m		4.6	4.75	4.9
13.5 m		4.25	4.45	4.55
14.0 m			4.15	4.25
15.0 m			3.65	3.8
16.0 m			3.2	3.4
17.0 m			2.85	3.0
18.0 m			2.5	2.65
19.0 m			2.2	2.4
20.0 m			2.0	2.15
20.5 m			1.9	2.0
21.0 m				1.9
22.0 m				1.7
24.0 m				1.35
26.0 m				1.1
27.9 m				0.9
A (°)	0-84			

Outriggers middle extended (6.1 m) -Over sides-				
Working radius \ Boom length	9.35 m	16.4 m	23.45 m	30.5 m
2.5 m	25.0	15.0	12.0	
3.0 m	25.0	15.0	12.0	
3.5 m	25.0	15.0	12.0	8.0
4.0 m	23.5	15.0	12.0	8.0
4.5 m	21.5	15.0	12.0	8.0
5.0 m	19.6	15.0	12.0	8.0
5.5 m	17.8	15.0	12.0	8.0
6.0 m	16.3	15.0	12.0	8.0
6.5 m	15.0	15.0	11.5	8.0
7.0 m		13.3	10.8	8.0
8.0 m		10.3	9.6	8.0
9.0 m		8.3	8.5	7.6
10.0 m		6.8	7.0	6.9
11.0 m		5.7	5.9	6.0
12.0 m		4.9	5.0	5.1
13.0 m		4.2	4.35	4.4
13.5 m		3.9	4.0	4.1
14.0 m			3.8	3.85
15.0 m			3.3	3.4
16.0 m			2.9	3.0
17.0 m			2.6	2.65
18.0 m			2.3	2.35
19.0 m			2.05	2.1
20.0 m			1.85	1.85
20.5 m			1.75	1.75
21.0 m				1.65
22.0 m				1.5
24.0 m				1.2
26.0 m				0.95
27.8 m				0.75
A (°)	0-84			

A= Boom angle range (for the unladen condition)

[Boom]

Unit: ton

Unit: ton

Outriggers middle extended (5.0 m)		-Over sides-		
Working radius \ Boom length	9.35 m	16.4 m	23.45 m	30.5 m
2.5 m	25.0	15.0	12.0	
3.0 m	25.0	15.0	12.0	
3.5 m	25.0	15.0	12.0	8.0
4.0 m	23.5	15.0	12.0	8.0
4.5 m	21.2	15.0	12.0	8.0
5.0 m	17.2	15.0	12.0	8.0
5.5 m	14.2	15.0	12.0	8.0
6.0 m	12.0	12.7	12.0	8.0
6.5 m	10.3	10.9	10.8	8.0
7.0 m		9.5	9.7	8.0
8.0 m		7.4	7.6	7.5
9.0 m		6.0	6.2	6.2
10.0 m		4.9	5.1	5.2
11.0 m		4.1	4.3	4.35
12.0 m		3.5	3.65	3.7
13.0 m		3.0	3.15	3.2
13.5 m		2.8	2.9	2.95
14.0 m			2.7	2.75
15.0 m			2.35	2.4
16.0 m			2.05	2.1
17.0 m			1.75	1.8
18.0 m			1.55	1.6
19.0 m			1.35	1.4
20.0 m			1.2	1.2
20.5 m			1.1	1.1
21.0 m				1.05
22.0 m				0.9
24.0 m				0.65
A (°)	0-84			32-84

Outriggers middle extended (3.6 m)		-Over sides-		
Working radius \ Boom length	9.35 m	16.4 m	23.45 m	30.5 m
2.5 m	25.0	15.0	12.0	
3.0 m	25.0	15.0	12.0	
3.5 m	19.5	15.0	12.0	8.0
4.0 m	14.8	15.0	12.0	8.0
4.5 m	11.8	12.7	12.0	8.0
5.0 m	9.8	10.5	10.6	8.0
5.5 m	8.1	8.8	9.0	8.0
6.0 m	6.9	7.6	7.7	7.5
6.5 m	5.9	6.5	6.7	6.8
7.0 m		5.7	5.9	6.0
8.0 m		4.5	4.6	4.7
9.0 m		3.6	3.75	3.8
10.0 m		2.9	3.05	3.1
11.0 m		2.4	2.5	2.6
12.0 m		1.95	2.1	2.15
13.0 m		1.60	1.75	1.8
13.5 m		1.45	1.6	1.65
14.0 m			1.45	1.5
15.0 m			1.2	1.25
16.0 m			1.0	1.05
17.0 m			0.8	0.85
18.0 m			0.65	0.7
19.0 m			0.5	0.55
A (°)	0-84		25-84	47-84

A= Boom angle range (for the unladen condition)

[Boom]

Unit: ton

Outriggers minimum extended (2.3 m)		-Over sides-		
Working radius \ Boom length	9.35 m	16.4 m	23.45 m	30.5 m
2.5 m	12.2	12.0	10.0	
3.0 m	12.2	12.0	10.0	
3.5 m	9.8	10.0	10.0	6.0
4.0 m	7.6	8.0	8.5	6.0
4.5 m	6.1	6.7	7.0	6.0
5.0 m	5.0	5.5	5.8	5.8
5.5 m	4.1	4.6	4.9	5.0
6.0 m	3.4	4.0	4.25	4.4
6.5 m	2.8	3.4	3.65	3.8
7.0 m		2.95	3.15	3.3
8.0 m		2.2	2.4	2.6
9.0 m		1.65	1.85	2.0
10.0 m		1.2	1.4	1.6
11.0 m		0.9	1.1	1.25
12.0 m		0.65	0.8	0.95
A (°)	0-84	30-84	54-84	64-84

A= Boom angle range (for the unladen condition)

[Jib (30.5 m Boom)]

Outriggers fully extended (6.5 m)														-360°-			
Jib length	30.5 m boom + 8.0 m jib								30.5 m boom + 13.0 m jib								
Offset	5°		25°		45°		60°		5°		25°		45°		60°		
Boom angle (°)	R(m)	W(t)	R(m)	W(t)	R(m)	W(t)	R(m)	W(t)	R(m)	W(t)	R(m)	W(t)	R(m)	W(t)	R(m)	W(t)	
84	4.2	3.3	6.8	2.3	8.8	1.7	9.7	1.05	5.2	2.0	9.6	1.25	12.8	0.85	14.4	0.55	
80	7.4	3.3	9.8	2.3	11.6	1.7	12.2	1.05	9.0	2.0	13.0	1.25	15.8	0.85	16.9	0.55	
78	8.9	3.3	11.2	2.3	12.8	1.7	13.3	1.05	10.6	2.0	14.5	1.2	17.2	0.85	18.2	0.55	
76	10.4	3.3	12.5	2.3	14.1	1.7	14.5	1.05	12.3	1.9	15.9	1.15	18.4	0.85	19.4	0.55	
74	11.8	3.3	13.9	2.3	15.2	1.65	15.6	1.05	13.9	1.8	17.3	1.1	19.7	0.85	20.5	0.55	
72	13.2	3.3	15.1	2.3	16.4	1.65	16.7	1.05	15.3	1.65	18.7	1.1	20.9	0.85	21.6	0.55	
70	14.6	3.25	16.4	2.3	17.5	1.6	17.7	1.05	16.8	1.6	20.0	1.05	22.1	0.85	22.7	0.55	
68	15.8	3.0	17.6	2.25	18.6	1.55	18.7	1.0	18.2	1.5	21.2	1.0	23.3	0.85	23.7	0.55	
65	17.4	2.55	19.2	2.05	20.1	1.55	20.2	1.0	20.3	1.4	23.1	1.0	24.9	0.84	25.1	0.55	
60	20.2	1.85	21.9	1.65	22.7	1.5	22.7	1.0	23.6	1.25	26.2	0.95	27.6	0.81	27.5	0.54	
55	22.7	1.35	24.2	1.2	24.9	1.2			26.7	1.1	28.9	0.91	29.9	0.79			
53	23.7	1.2	25.1	1.1	25.7	1.05			27.8	0.98	29.9	0.87	30.8	0.79			
50	25.1	1.0	26.5	0.92	26.9	0.92			29.3	0.81	31.3	0.72	32.0	0.7			
47	26.4	0.81	27.7	0.75	28.0	0.75			30.8	0.65	32.6	0.58	33.0	0.57			
45	27.3	0.7	28.4	0.65	28.6	0.65			31.7	0.56	33.4	0.5	33.7	0.49			
40	29.3	0.47	30.2	0.43					33.9	0.36							
A (°)	39-84				44-84		59-84		39-84		44-84				59-84		

Outriggers middle extended (6.1 m)														-Over sides-				
Jib length	30.5 m boom + 8.0 m jib								30.5 m boom + 13.0 m jib									
Offset	5°		25°		45°		60°		5°		25°		45°		60°			
Boom angle (°)	R(m)	W(t)	R(m)	W(t)	R(m)	W(t)	R(m)	W(t)	R(m)	W(t)	R(m)	W(t)	R(m)	W(t)	R(m)	W(t)		
84	4.2	3.3	6.8	2.3	8.8	1.7	9.7	1.05	5.2	2.0	9.6	1.25	12.8	0.85	14.4	0.55		
80	7.4	3.3	9.8	2.3	11.6	1.7	12.2	1.05	9.0	2.0	13.0	1.25	15.8	0.85	16.9	0.55		
78	8.9	3.3	11.2	2.3	12.8	1.7	13.3	1.05	10.6	2.0	14.5	1.2	17.2	0.85	18.2	0.55		
76	10.4	3.3	12.5	2.3	14.1	1.7	14.5	1.05	12.3	1.9	15.9	1.15	18.4	0.85	19.4	0.55		
74	11.8	3.3	13.9	2.3	15.2	1.65	15.6	1.05	13.9	1.8	17.3	1.1	19.7	0.85	20.5	0.55		
72	13.2	3.3	15.1	2.3	16.4	1.65	16.7	1.05	15.3	1.65	18.7	1.1	20.9	0.85	21.6	0.55		
70	14.6	3.25	16.4	2.3	17.5	1.6	17.7	1.05	16.8	1.6	20.0	1.05	22.1	0.85	22.7	0.55		
68	15.8	3.0	17.6	2.25	18.6	1.55	18.7	1.0	18.2	1.5	21.2	1.0	23.3	0.85	23.7	0.55		
65	17.3	2.4	19.2	2.05	20.1	1.55	20.2	1.0	20.3	1.4	23.1	1.0	24.9	0.84	25.1	0.55		
60	20.0	1.7	21.8	1.5	22.7	1.45	22.7	1.0	23.6	1.25	26.2	0.95	27.6	0.81	27.5	0.54		
55	22.6	1.2	24.2	1.1	24.9	1.1			26.6	1.0	28.9	0.88	29.9	0.79				
53	23.6	1.05	25.1	0.99	25.7	0.98			27.7	0.88	29.9	0.78	30.8	0.75				
50	25.0	0.88	26.4	0.8	26.9	0.81			29.3	0.71	31.2	0.62	31.9	0.61				
47	26.4	0.69	27.6	0.63	27.9	0.64			30.7	0.55	32.5	0.48	32.9	0.48				
45	27.2	0.58	28.4	0.53	28.6	0.54			31.6	0.46	33.3	0.4	33.6	0.4				
40	29.2	0.36																
A (°)	39-84		44-84				59-84		44-84								59-84	

R: Working radius W: Total rated load A= Boom angle range (for the unladen condition)

[Jib (30.5 m Boom)]

Outriggers middle extended (5.0 m)																-Over sides-	
Jib length	30.5 m boom + 8.0 m jib								30.5 m boom + 13.0 m jib								
Offset	5°		25°		45°		60°		5°		25°		45°		60°		
Boom angle (°)	R(m)	W(t)	R(m)	W(t)	R(m)	W(t)	R(m)	W(t)	R(m)	W(t)	R(m)	W(t)	R(m)	W(t)	R(m)	W(t)	
84	4.2	3.3	6.8	2.3	8.8	1.7	9.7	1.05	5.2	2.0	9.6	1.25	12.8	0.85	14.4	0.55	
80	7.4	3.3	9.8	2.3	11.6	1.7	12.2	1.05	9.0	2.0	13.0	1.25	15.8	0.85	16.9	0.55	
78	8.9	3.3	11.2	2.3	12.8	1.7	13.3	1.05	10.6	2.0	14.5	1.2	17.2	0.85	18.2	0.55	
76	10.4	3.3	12.5	2.3	14.1	1.7	14.5	1.05	12.3	1.9	15.9	1.15	18.4	0.85	19.4	0.55	
74	11.8	3.3	13.9	2.3	15.2	1.65	15.6	1.05	13.9	1.8	17.3	1.1	19.7	0.85	20.5	0.55	
72	13.1	3.15	15.1	2.3	16.4	1.65	16.7	1.05	15.3	1.65	18.7	1.1	20.9	0.85	21.6	0.55	
70	14.3	2.6	16.3	2.15	17.5	1.6	17.7	1.05	16.8	1.6	20.0	1.05	22.1	0.85	22.7	0.55	
68	15.4	2.2	17.4	1.85	18.6	1.55	18.7	1.0	18.2	1.5	21.2	1.0	23.3	0.85	23.7	0.55	
65	17.0	1.7	18.9	1.45	20.0	1.35	20.2	1.0	20.2	1.35	23.1	1.0	24.9	0.84	25.1	0.55	
60	19.7	1.1	21.5	0.98	22.5	0.94	22.6	0.93	23.3	0.9	26.0	0.74	27.5	0.7	27.5	0.54	
55	22.4	0.71	24.0	0.62	24.7	0.61			26.2	0.55	28.6	0.45	29.8	0.43			
53	23.3	0.56	24.9	0.49	25.5	0.48			27.3	0.43							
50	24.8	0.37															
A (°)	49-84		52-84				59-84		52-84		54-84				59-84		

Outriggers middle extended (3.6 m)																-Over sides-	
Jib length	30.5 m boom + 8.0 m jib								30.5 m boom + 13.0 m jib								
Offset	5°		25°		45°		60°		5°		25°		45°		60°		
Boom angle (°)	R(m)	W(t)	R(m)	W(t)	R(m)	W(t)	R(m)	W(t)	R(m)	W(t)	R(m)	W(t)	R(m)	W(t)	R(m)	W(t)	
84	4.2	3.3	6.8	2.3	8.8	1.7	9.7	1.05	5.2	2.0	9.6	1.25	12.8	0.85	14.4	0.55	
80	7.4	3.3	9.8	2.3	11.6	1.7	12.2	1.05	9.0	2.0	13.0	1.25	15.8	0.85	16.9	0.55	
78	8.9	3.3	11.2	2.3	12.8	1.7	13.3	1.05	10.6	2.0	14.5	1.2	17.2	0.85	18.2	0.55	
76	10.3	2.9	12.4	2.25	14.1	1.7	14.5	1.05	12.3	1.9	15.9	1.15	18.4	0.85	19.4	0.55	
74	11.4	2.35	13.6	1.85	15.3	1.6	15.6	1.05	13.9	1.8	17.3	1.1	19.7	0.85	20.5	0.55	
72	12.5	1.85	14.7	1.5	16.2	1.3	16.7	1.05	15.2	1.45	18.7	1.1	20.9	0.85	21.6	0.55	
70	13.6	1.45	15.8	1.2	17.3	1.1	17.7	1.05	16.5	1.15	19.9	0.92	22.1	0.82	22.7	0.55	
68	14.8	1.15	16.9	0.98	18.3	0.89	18.8	0.87	17.7	0.93	21.0	0.74	23.1	0.67	23.7	0.55	
65	16.5	0.81	18.5	0.69	19.7	0.63	20.2	0.62	19.7	0.64	22.7	0.51	24.6	0.47	25.1	0.46	
60	19.3	0.35															
A (°)	59-84		64-84								64-84						

R: Working radius W: Total rated load A= Boom angle range (for the unladen condition)

[Jib (23.45 m Boom)]

Outriggers fully extended (6.5 m)														-360°-			
Jib length	23.45 m boom + 8.0 m jib								23.45 m boom + 13.0 m jib								
Offset	5°		25°		45°		60°		5°		25°		45°		60°		
Boom angle (°)	R(m)	W(t)	R(m)	W(t)	R(m)	W(t)	R(m)	W(t)	R(m)	W(t)	R(m)	W(t)	R(m)	W(t)	R(m)	W(t)	
84	3.0	3.3	5.6	2.3	7.6	1.7	8.6	1.05	4.2	2.0	8.5	1.25	11.6	0.85	13.2	0.55	
80	5.4	3.3	7.8	2.3	9.7	1.7	10.5	1.05	7.0	2.0	11.1	1.25	13.9	0.85	15.3	0.55	
78	6.5	3.3	8.9	2.3	10.7	1.7	11.4	1.05	8.3	2.0	12.2	1.2	15.0	0.85	16.2	0.55	
76	7.6	3.3	9.9	2.3	11.6	1.7	12.3	1.05	9.6	1.9	13.4	1.15	16.0	0.85	17.1	0.55	
74	8.7	3.3	11.0	2.3	12.5	1.65	13.2	1.05	10.9	1.8	14.5	1.1	17.0	0.85	18.1	0.55	
72	9.8	3.3	12.0	2.3	13.4	1.65	14.0	1.05	12.1	1.65	15.6	1.1	18.0	0.85	18.9	0.55	
70	10.9	3.3	13.0	2.3	14.3	1.6	14.8	1.05	13.3	1.6	16.7	1.05	19.0	0.85	19.8	0.55	
68	11.9	3.3	13.9	2.3	15.2	1.55	15.6	1.0	14.4	1.5	17.8	1.0	19.9	0.85	20.5	0.55	
65	13.4	3.3	15.4	2.3	16.4	1.55	16.7	1.0	16.1	1.4	19.3	1.0	21.2	0.84	21.7	0.55	
60	15.9	2.9	17.6	2.3	18.4	1.5	18.5	1.0	18.9	1.25	21.8	0.95	23.3	0.81	23.5	0.54	
55	18.1	2.6	19.7	2.15	20.2	1.45			21.5	1.15	24.0	0.91	25.2	0.79			
53	18.9	2.35	20.4	2.1	20.9	1.45			22.5	1.1	24.9	0.9	25.9	0.79			
50	20.2	2.05	21.5	1.85	21.9	1.45			23.9	1.05	26.1	0.88	26.8	0.78			
47	21.3	1.8	22.5	1.65	22.7	1.45			25.2	1.0	27.2	0.87	27.7	0.78			
45	22.0	1.65	23.1	1.55	23.2	1.45			26.0	1.0	27.9	0.87	28.2	0.78			
40	23.6	1.35	24.5	1.3					28.0	0.95	29.4	0.86					
35	25.1	1.15	25.7	1.1					29.6	0.91	30.6	0.85					
30	26.3	1.0	26.8	0.97					31.0	0.81	31.7	0.76					
25	27.3	0.88	27.6	0.86					32.2	0.71	32.4	0.67					
20	28.1	0.79							33.0	0.63							
15	28.7	0.73							33.6	0.59							
10	29.0	0.7							33.9	0.56							
5	29.0	0.7							33.9	0.56							
A (°)	4-84		24-84		44-84		59-84		4-84		24-84		44-84		59-84		

Outriggers middle extended (6.1 m)														-Over sides-			
Jib length	23.45 m boom + 8.0 m jib								23.45 m boom + 13.0 m jib								
Offset	5°		25°		45°		60°		5°		25°		45°		60°		
Boom angle (°)	R(m)	W(t)	R(m)	W(t)	R(m)	W(t)	R(m)	W(t)	R(m)	W(t)	R(m)	W(t)	R(m)	W(t)	R(m)	W(t)	
84	3.0	3.3	5.6	2.3	7.6	1.7	8.6	1.05	4.2	2.0	8.5	1.25	11.6	0.85	13.2	0.55	
80	5.4	3.3	7.8	2.3	9.7	1.7	10.5	1.05	7.0	2.0	11.1	1.25	13.9	0.85	15.3	0.55	
78	6.5	3.3	8.9	2.3	10.7	1.7	11.4	1.05	8.3	2.0	12.2	1.2	15.0	0.85	16.2	0.55	
76	7.6	3.3	9.9	2.3	11.6	1.7	12.3	1.05	9.6	1.9	13.4	1.15	16.0	0.85	17.1	0.55	
74	8.7	3.3	11.0	2.3	12.5	1.65	13.2	1.05	10.9	1.8	14.5	1.1	17.0	0.85	18.1	0.55	
72	9.8	3.3	12.0	2.3	13.4	1.65	14.0	1.05	12.1	1.65	15.6	1.1	18.0	0.85	18.9	0.55	
70	10.9	3.3	13.0	2.3	14.3	1.6	14.8	1.05	13.3	1.6	16.7	1.05	19.0	0.85	19.8	0.55	
68	11.9	3.3	13.9	2.3	15.2	1.55	15.6	1.0	14.4	1.5	17.8	1.0	19.9	0.85	20.5	0.55	
65	13.4	3.3	15.4	2.3	16.4	1.55	16.7	1.0	16.1	1.4	19.3	1.0	21.2	0.84	21.7	0.55	
60	15.9	2.9	17.6	2.3	18.4	1.5	18.5	1.0	18.9	1.25	21.8	0.95	23.3	0.81	23.5	0.54	
55	18.1	2.4	19.6	2.1	20.2	1.45			21.5	1.15	24.0	0.91	25.2	0.79			
53	18.9	2.15	20.4	1.9	20.9	1.45			22.5	1.1	24.9	0.9	25.9	0.79			
50	20.0	1.85	21.4	1.7	21.9	1.45			23.9	1.05	26.1	0.88	26.8	0.78			
47	21.2	1.65	22.4	1.5	22.7	1.45			25.2	1.0	27.2	0.87	27.7	0.78			
45	22.0	1.5	23.0	1.35	23.3	1.37			26.0	1.0	27.9	0.87	28.2	0.78			
40	23.6	1.2	24.5	1.15					28.0	0.95	29.4	0.86					
35	25.0	1.0	25.7	0.97					29.6	0.82	30.7	0.76					
30	26.3	0.87	26.8	0.83					31.0	0.69	31.7	0.65					
25	27.3	0.75	27.6	0.72					32.2	0.59	32.4	0.57					
20	28.1	0.66							33.0	0.52							
15	28.6	0.59							33.6	0.46							
10	28.9	0.55							33.9	0.43							
5	29.0	0.55							33.9	0.43							
A (°)	4-84		24-84		44-84		59-84		4-84		24-84		44-84		59-84		

R: Working radius W: Total rated load A= Boom angle range (for the unladen condition)

[Jib (23.45 m Boom)]

Outriggers middle extended (5.0 m)														-Over sides-										
Jib length	23.45 m boom + 8.0 m jib								23.45 m boom + 13.0 m jib															
Offset	5°		25°		45°		60°		5°		25°		45°		60°									
Boom angle (°)	R(m)	W(t)	R(m)	W(t)	R(m)	W(t)	R(m)	W(t)	R(m)	W(t)	R(m)	W(t)	R(m)	W(t)	R(m)	W(t)								
84	3.0	3.3	5.6	2.3	7.6	1.7	8.6	1.05	4.2	2.0	8.5	1.25	11.6	0.85	13.2	0.55								
80	5.4	3.3	7.8	2.3	9.7	1.7	10.5	1.05	7.0	2.0	11.1	1.25	13.9	0.85	15.3	0.55								
78	6.5	3.3	8.9	2.3	10.7	1.7	11.4	1.05	8.3	2.0	12.2	1.2	15.0	0.85	16.2	0.55								
76	7.6	3.3	9.9	2.3	11.6	1.7	12.3	1.05	9.6	1.9	13.4	1.15	16.0	0.85	17.1	0.55								
74	8.7	3.3	11.0	2.3	12.5	1.65	13.2	1.05	10.9	1.8	14.5	1.1	17.0	0.85	18.1	0.55								
72	9.8	3.3	12.0	2.3	13.4	1.65	14.0	1.05	12.1	1.65	15.6	1.1	18.0	0.85	18.9	0.55								
70	10.9	3.3	13.0	2.3	14.3	1.6	14.8	1.05	13.3	1.6	16.7	1.05	19.0	0.85	19.8	0.55								
68	11.9	3.3	13.9	2.3	15.2	1.55	15.6	1.0	14.4	1.5	17.8	1.0	19.9	0.85	20.5	0.55								
65	13.4	3.1	15.4	2.3	16.4	1.55	16.7	1.0	16.1	1.4	19.3	1.0	21.2	0.84	21.7	0.55								
60	15.7	2.2	17.5	1.9	18.4	1.5	18.5	1.0	18.9	1.25	21.8	0.95	23.3	0.81	23.5	0.54								
55	17.8	1.65	19.5	1.45	20.2	1.35			21.5	1.15	24.0	0.91	25.2	0.79										
53	18.6	1.45	20.2	1.3	20.9	1.2			22.5	1.1	24.9	0.9	25.9	0.79										
50	19.8	1.2	21.3	1.1	21.8	1.05			23.9	0.98	26.0	0.84	26.8	0.78										
47	21.0	1.0	22.3	0.94	22.7	0.92			25.1	0.83	27.1	0.71	27.7	0.69										
45	21.8	0.93	22.9	0.85	23.2	0.83			25.9	0.74	27.8	0.64	28.2	0.63										
40	23.4	0.71	24.4	0.65					27.8	0.55	29.3	0.49												
35	24.8	0.53	25.7	0.5					29.5	0.41	30.6	0.36												
30	26.1	0.39	26.7	0.36																				
A (°)	29-84				44-84				59-84				34-84				44-84				59-84			

Outriggers middle extended (3.6 m)														-Over sides-			
Jib length	23.45 m boom + 8.0 m jib								23.45 m boom + 13.0 m jib								
Offset	5°		25°		45°		60°		5°		25°		45°		60°		
Boom angle (°)	R(m)	W(t)	R(m)	W(t)	R(m)	W(t)	R(m)	W(t)	R(m)	W(t)	R(m)	W(t)	R(m)	W(t)	R(m)	W(t)	
84	3.0	3.3	5.6	2.3	7.6	1.7	8.6	1.05	4.2	2.0	8.5	1.25	11.6	0.85	13.2	0.55	
80	5.4	3.3	7.8	2.3	9.7	1.7	10.5	1.05	7.0	2.0	11.1	1.25	13.9	0.85	15.3	0.55	
78	6.5	3.3	8.9	2.3	10.7	1.7	11.4	1.05	8.3	2.0	12.2	1.2	15.0	0.85	16.2	0.55	
76	7.6	3.3	9.9	2.3	11.6	1.7	12.3	1.05	9.6	1.9	13.4	1.15	16.0	0.85	17.1	0.55	
74	8.7	3.3	11.0	2.3	12.5	1.65	13.2	1.05	10.9	1.8	14.5	1.1	17.0	0.85	18.1	0.55	
72	9.8	3.3	12.0	2.3	13.4	1.65	14.0	1.05	12.1	1.65	15.6	1.1	18.0	0.85	18.9	0.55	
70	10.8	2.8	12.9	2.2	14.3	1.6	14.8	1.05	13.3	1.6	16.7	1.05	19.0	0.85	19.8	0.55	
68	11.7	2.3	13.8	1.85	15.2	1.55	15.6	1.0	14.4	1.5	17.8	1.0	19.9	0.85	20.5	0.55	
65	13.1	1.8	15.2	1.45	16.4	1.3	16.7	1.0	16.1	1.35	19.3	1.0	21.2	0.84	21.7	0.55	
60	15.4	1.15	17.3	0.99	18.3	0.91	18.5	0.9	18.8	0.9	21.7	0.74	23.3	0.67	23.5	0.54	
55	17.6	0.75	19.3	0.65	20.1	0.61			21.2	0.57	23.9	0.48	25.1	0.44			
53	18.4	0.62	20.1	0.54	20.8	0.5			22.2	0.46	24.7	0.39	25.8	0.37			
50	19.6	0.45	21.2	0.39	21.7	0.37											
A (°)	49-84				59-84				52-84				59-84				

R: Working radius W: Total rated load A= Boom angle range (for the unladen condition)

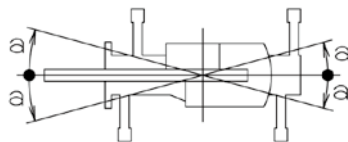
PRECAUTIONS TO BE TAKEN WHEN THE OUTRIGGERS ARE EXTENDED:

- 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 (220 kg) when using the boom, and the weights of the slings and auxiliary winch hook (60 kg) when using the jib. The values above the bold lines are based on the crane strength while those below are based on the crane stability.
- 2 Since the working radii are based on the actual values including deflection of the boom, boom operations should be performed in accordance with the working radii.
- 3 The total rated load for the jib differs for boom lengths of 23.45 m or less and more than 23.45 m.
- 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 23.45 m or a 30.5 m boom.
- 5 The total rated load for the single top is obtained by subtracting 160 kg from total rated load of the boom. It includes the weight of the sling and auxiliary hook (60 kg), and must not exceed 4.0 t.
- 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 3.6 t for the main winch, and 4.0 t for the auxiliary winch.

Boom length	9.35 m	16.4 m	23.45 m	30.5 m	Jib/Single top
Number of part lines	8	6	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 (6.1 m)	Middle extended (5.0 m)	Middle extended (3.6 m)	Minimum extended (2.3 m)
Angle a°	35	25	10	5



2-(2) Outrigger Not Used

Unit: ton

Boom length	Stationary						Vehicle moving (at 1.6 km/h or less)					
	9.35 m		16.4 m		23.45 m		9.35 m		16.4 m		23.45 m	
Working radius	Front	-360°-	Front	-360°-	Front	-360°-	Front	-360°-	Front	-360°-	Front	-360°-
3.0 m	14.0	8.3	9.0	7.3			10.0	6.5	7.5	5.1		
3.5 m	14.0	6.8	9.0	7.3	6.5	4.5	10.0	5.2	7.5	5.1	5.5	3.2
4.0 m	12.5	5.3	9.0	5.85	6.5	4.5	9.0	4.2	7.5	4.4	5.5	3.2
4.5 m	10.9	4.3	9.0	4.75	6.5	4.5	8.2	3.4	7.5	3.7	5.5	3.2
5.0 m	9.55	3.5	8.2	4.0	6.5	4.0	7.4	2.8	7.0	3.1	5.5	3.2
5.5 m	8.3	2.8	7.4	3.3	6.1	3.4	6.7	2.4	6.2	2.7	5.15	2.8
6.0 m	7.2	2.3	6.6	2.8	5.65	2.9	5.9	1.9	5.5	2.3	4.8	2.4
6.5 m	6.25	1.8	5.9	2.35	5.25	2.5	5.1	1.5	4.9	1.9	4.45	2.05
7.0 m			5.25	1.95	4.85	2.15			4.35	1.6	4.15	1.8
8.0 m			4.1	1.4	4.1	1.6			3.4	1.1	3.5	1.4
9.0 m			3.25	0.95	3.5	1.2			2.7	0.7	2.95	1.0
10.0 m			2.6	0.6	3.0	0.85			2.15		2.45	0.65
11.0 m			2.1		2.55	0.55			1.7		2.05	
12.0 m			1.7		2.2				1.35		1.7	
13.0 m			1.35		1.85				1.1		1.45	
13.5 m			1.15		1.7				1.0		1.3	
14.0 m					1.55						1.2	
15.0 m					1.3						1.0	
16.0 m					1.05						0.85	
17.0 m					0.85						0.7	
18.0 m					0.65						0.55	
19.0 m					0.5							
A (°)	0-80		42-80	25-80	56-80	0-80		48-80	30-80	59-80		

A= Boom angle range (for the unladen condition)

PRECAUTIONS TO BE TAKEN WHEN THE OUTRIGGERS ARE NOT USED:

- 1 The total rated loads shown are for the case where the tire pressure on firm level ground is as specified (900 kPa (9.00 kgf/cm²)) and the crane is completely spring-locked (minimum telescoped length). They include the weights of the sling and main hook (220 kg).

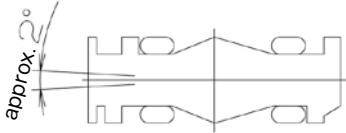
The values above the bold lines are based on the crane strength while those below are based on the crane stability. The foundation, working conditions, etc. should be taken into consideration for actual work.

- 2 Since the working radii are based on the actual values including the deflection of the boom and the tires, 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.

When using with other than this number of part lines, the load per line should not exceed 3.6 t for the main winch, and 4.0 t for the auxiliary winch.

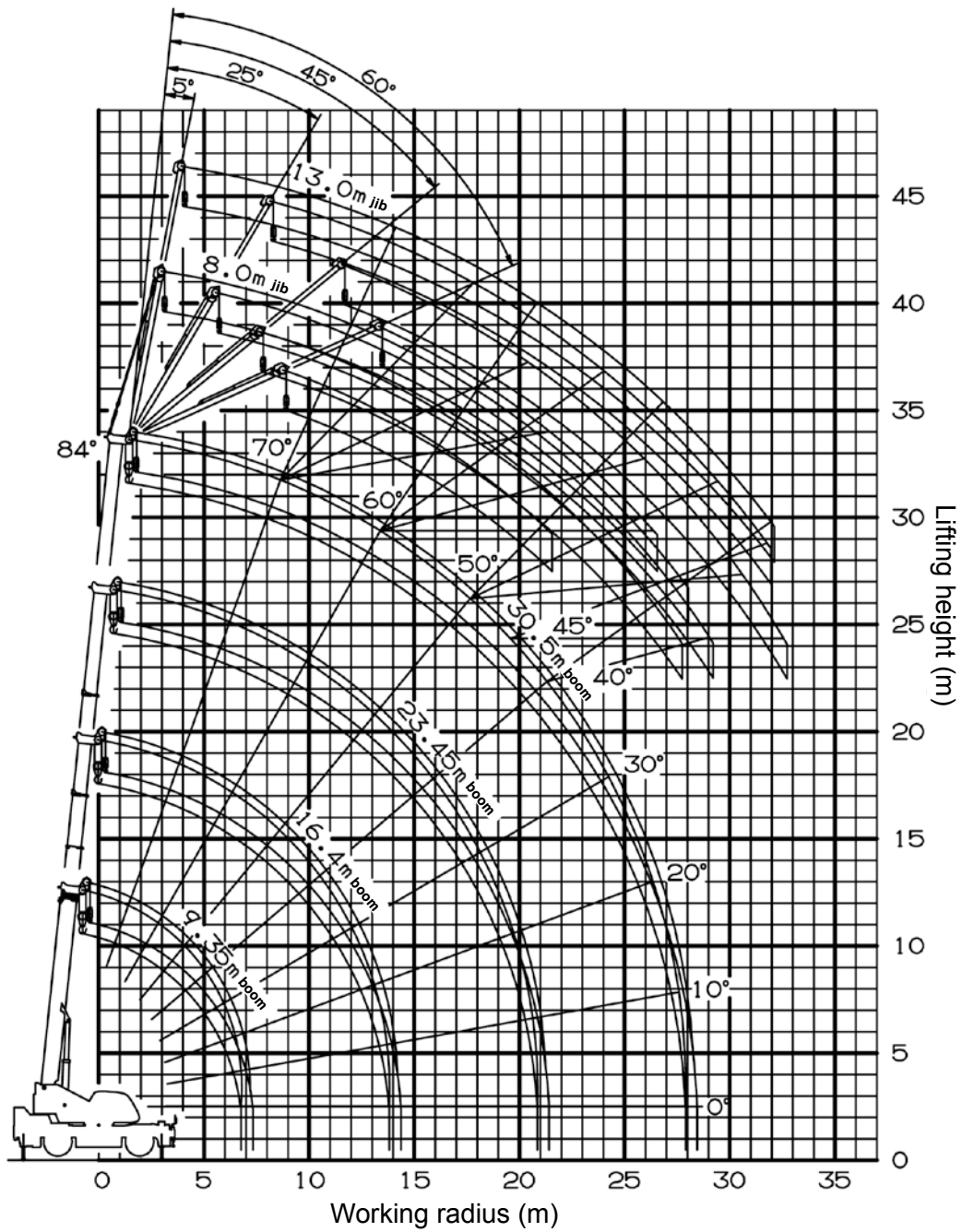
Boom length	9.35 m	16.4 m	23.45 m	Single top
Number of part lines	4	4	4	1

- 4 High-speed lowering, work with booms exceeding 23.45 m, and work using jibs, should not be performed without outriggers.
- 5 "Over front" crane operations should be performed only when the AML "over-front area indicator lamp" is lit. The boom must be kept inside a 2° area over front of the carrier when performing "Over front" crane operations without the outriggers.



- 6 The total rated load for the single top is obtained by subtracting 160 kg from total rated load of the boom. It includes the weight of the sling and auxiliary hook (60 kg), and must not exceed 4.0 t.
- 7 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 to first.
- 8 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 1.6 km/h or less. In particular, any abrupt steering, starting or braking must be avoided.
- 9 Crane operations should not be performed when travelling while hoisting a load.

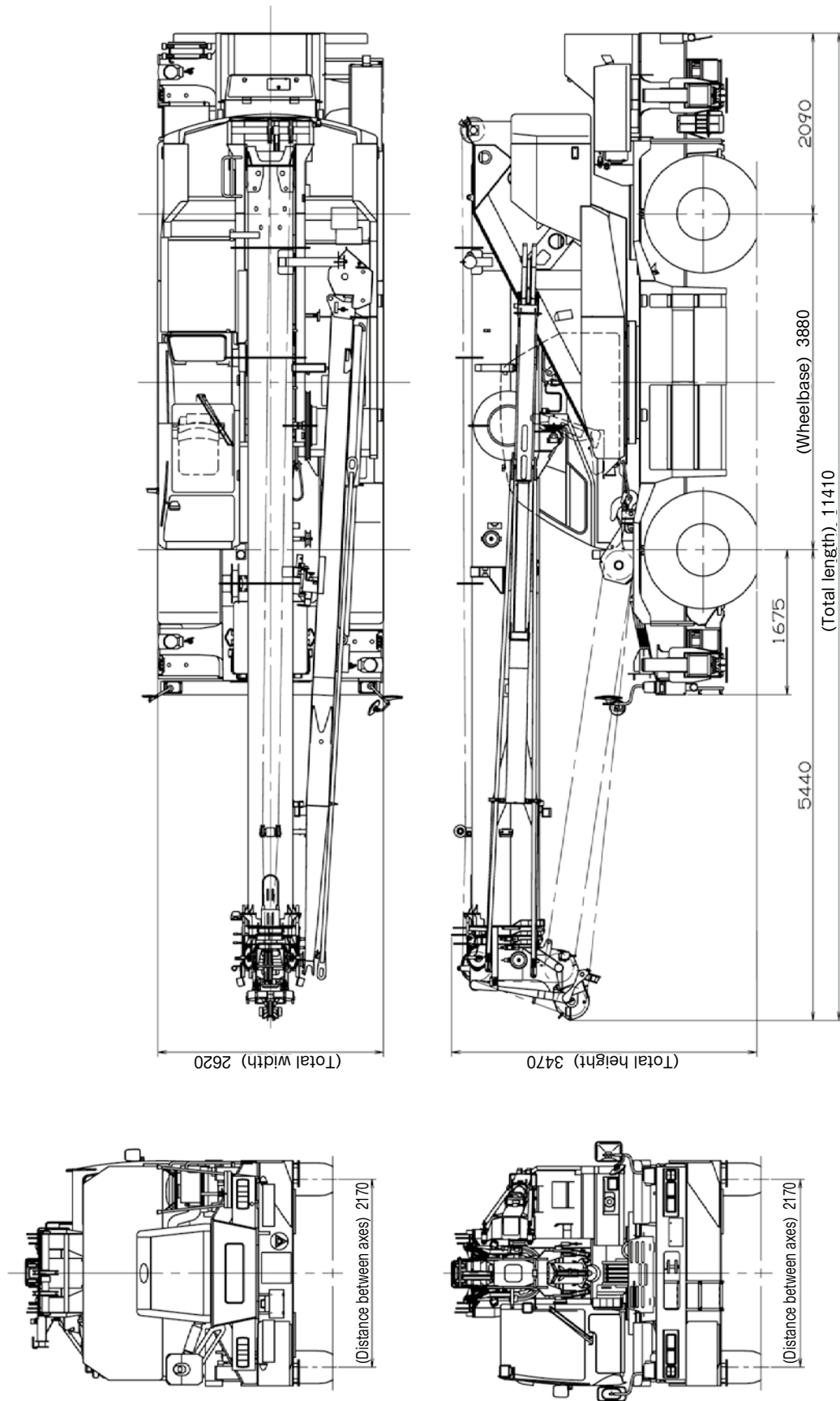
3. Working Radius - Lifting Height



Note:

1. The deflection of the boom is not incorporated in the figure above.
2. The figure above shows the crane with the maximum outrigger extension (6.5 m).

4. Dimensions



* The AML external indicator lamp, loud-speaker, rear view monitoring camera, identification lamp, and roadside lamp are optional equipment.



TADANO ROUGH TERRAIN CRANE
MODEL : GR-300EX
(Left-hand steering)

GENERAL DATA

<u>CRANE CAPACITY</u>		30,000 kg at 3.0 m
<u>BOOM</u>		4-section, 9.7 m - 31.0 m
<u>DIMENSION</u>		
Overall length	approx.	11,245 mm
Overall width	approx.	2,620 mm
Overall height	approx.	3,535 mm
<u>MASS</u>		
Gross vehicle mass	approx.	26,920 kg
-front axle	approx.	13,170 kg
-rear axle	approx.	13,750 kg
<u>PERFORMANCE</u>		
Max. traveling speed	computed	50 km/h
Gradeability (tan θ)	computed	78% (at stall) *57%

*Machine should be operated within the limit of engine crankcase design (30° :Cummins QSB6.7).

Specifications are subject to change without notice.

CRANE SPECIFICATIONS

<u>MODEL</u>	GR-300EX
<u>CAPACITY</u>	30,000kg at 3.0m
<u>BOOM</u>	<p>Four section full power partially synchronized telescoping boom of round hexagonal box construction with 3 sheaves at boom head. The synchronization system consists of 2 telescope cylinders, extension cables and retraction cables. Hydraulic cylinders fitted with holding valves.</p> <p>Fully retracted length..... 9.7m Fully extended length..... 31.0m Extension speed..... 21.3m in 91s</p>
<u>JIB</u>	<p>Two staged swingaround boom extension. Triple offset (5°/25°/45°) type. Box type top section telescopes from lattice type base section which stows alongside base boom section. Single sheave at jib head. Length..... 7.2m and 12.8m</p>
<u>SINGLE TOP (AUXILIARY BOOM SHEAVE)</u>	Single sheave. Mounted to main boom head for single line work.
<u>ELEVATION</u>	<p>By a double-acting hydraulic cylinder, fitted with holding valve. Automatic speed reduction and soft stop function. Boom angle..... 0° to 81° Boom raising speed..... 20° to 60° in 22s</p>
<u>HOIST - Main winch</u>	<p>Variable speed type with grooved drum driven by hydraulic axial piston motor through winch speed reducer. Power load lowering and hoisting. Equipped with automatic brake (Neutral brake) and counterbalance valve. Controlled independently of auxiliary winch. Single line pull..... 39.2kN {4,000kgf} Single line speed..... 125m/min (at the 4th layer) Wire rope..... Spin-resistant type Diameter x length..... 16mm x 170m</p>
<u>HOOK BLOCK(Optional) - 30 t capacity</u>	4 sheaves, swivel type hook with safety latch.

HOIST -

Auxiliary winch

Variable speed type with grooved drum driven by hydraulic axial piston motor through winch speed reducer. Power load lowering and hoisting.
 Equipped with automatic brake (Neutral brake) and counterbalance valve.
 Controlled independently of main winch.
 Single line pull..... 39.2kN {4,000kgf}
 Single line speed.....125m/min (at the 4th layer)
 Wire rope..... Spin-resistant type
 Diameter x length.....16mm x 98m

HOOK BLOCK-

4.0 t capacity

Swivel hook with safety latch for single line use.

SWING

Hydraulic axial piston motor driven through planetary speed reducer. Continuous 360° full circle swing on ball bearing slew ring.
 Equipped with manually locked/released swing brake.
 Swing speed.....3.2min⁻¹ {rpm}

HYDRAULIC SYSTEM

Pumps.....2 variable piston pumps for telescoping, elevating and winches.
 Tandem gear pump for steering, swing and optional equipment.
 Control valves..... Multiple valves actuated by pilot pressure with integral pressure relief valves.
 Circuit..... Equipped with air cooled type oil cooler.
 Oil pressure appears on AML display for main circuit.
 Hydraulic oil tank capacity...
 approx. 380 liters
 Filters..... Return line filter

CRANE CONTROL

By 4 control levers for swing, boom hoist, main winch, boom telescoping or auxiliary winch with 2 control pedals for boom hoist and boom telescoping based on ISO standard layout.
 Control lever stands can change neutral positions and tilt for easy access to cab.

CAB

Both crane and drive operations can be performed from one cab mounted on rotating superstructure. One sided one-man type, steel construction with sliding door access and tinted safety glass windows opening at side. Door window is powered control. Operator's 3 way adjustable seat with headrest and armrest. Hot water cab heater and air conditioning.

TADANO Automatic
Moment Limiter
(Model:AML-C)

Main unit in crane cab gives audible and visual warning of approach to overload. Automatically cuts out crane motions before overload. With working range (load radius and/or boom angle and/or tip height and/or swing range) limit function. Automatic Speed Reduction and Soft Stop function on boom elevation and swing.

Following functions are displayed.

- Load as percentage
- Number of parts of line of rope
- Boom angle
- Boom length
- Load radius
- Outriggers position
- On-tire indicator
- Actual hook load
- Permissible load
- Boom position indicator
- Potential hook height
- Swing angle
- Main hydraulic oil pressure
- Jib length and jib offset angle (only when jib operation)

OUTRIGGERS

Hydraulically operated H-type outriggers. Each outrigger controlled simultaneously or independently from the cab. Equipped with sight level gauge. Floats mounted integrally with the jacks retract to within vehicle width.

All cylinders fitted with pilot check valves.

Crane operation with different extended length of each outrigger.

Equipped with extension width detector for each outrigger.

Extended width	
Fully	6,300mm
Middle	5,900mm
Middle	5,000mm
Minimum	2,200mm
Float size (Diameter)	400mm

COUNTERWEIGHT

Integral with swing frame

Mass 2,380kg

NOTE : Each crane motion speed is based on unladen conditions.

CARRIER SPECIFICATIONS

<u>TYPE</u>	Rear engine, left hand steering, driving axle 2-way selected type (by manual switch). 4 x 2 front drive 4 x 4 front and rear drive
<u>FRAME</u>	High-tensile steel, all welded mono-box construction.
<u>ENGINE</u>	Model..... Cummins QSB6.7 [EUROMOT Stage III A] Type..... 4 cycle, turbo charged and after cooled, 6 cylinder in line, direct injection, water cooled diesel engine. Piston displacement.....6,700cm ³ Bore x stroke.....107mm x 124mm Max. output 160kW {220 PS} at 2,500min ⁻¹ {rpm} Max. torque 843N·m {86kgf·m} at 1,600min ⁻¹ {rpm}
<u>TRANSMISSION</u>	Electronically controlled full automatic transmission. Torque converter driving full powershift with driving axle selector. 6 forward and 2 reverse speeds. 2 speeds - High range - 2 wheel drive ; 4 wheel drive 4 speeds - Low range - 4 wheel drive
<u>AXLES</u>	Front Full floating type, steering and driving axle with planetary reduction. Rear..... Full floating type, steering and driving axle with planetary reduction. Non-spin differential.
<u>STEERING</u>	Hydraulic power steering controlled by steering wheel. Three steering modes available: 2-wheel front 4-wheel coordinated 4-wheel crab
<u>SUSPENSION</u>	Front.....Semi-elliptic leaf springs with hydraulic lockout device. RearSemi-elliptic leaf springs with hydraulic lockout device.
<u>BRAKE SYSTEM</u>	Service.....Air over hydraulic disc brakes on all 4 wheels. Parking / Emergency..... Spring applied-air released brake acting on input shaft of front axle. Auxiliary...Electro-pneumatic operated exhaust brake.
<u>ELECTRIC SYSTEM</u>	24 V DC. 2 batteries of 12 V - 120 Ah capacity.
<u>FUEL TANK CAPACITY</u>	300 liters
<u>TIRES</u>	Front.....445 / 95 R 25(OR), Single x 2 Air pressure: 900kPa Rear445 / 95 R 25(OR), Single x 2 Air pressure: 900kPa
<u>TURN RADIUS</u>	Min. turning radius (at center of extreme outer tire) 2-wheel steering.....9.8m 4-wheel steering.....5.8m

E Q U I P M E N T

STANDARD EQUIPMENT

Automatic moment limiter(AML)
 External lamp (AML)
 Pendant type over-winding cutout
 Winch automatic fail-safe brake
 Hook safety latch
 Pilot check valves
 Holding valves
 Counterbalance valves
 Hydraulic pressure relief valves
 Swing brake
 Swing lock
 Boom angle indicator
 Boom elevation foot pedal
 Boom telescoping foot pedal
 Outrigger extension width detector
 Hot water cab heater, air conditioner and defroster
 Sight level gauge
 Hydraulic oil cooler
 Electric windshield wiper and washer
 Roof window wiper and washer
 Power window (Cab door)
 Tachometer/Speedometer
 3 way adjustable cloth seat with seat belt, headrest and armrest
 Cab floor mat
 Sun visor (Front and roof)
 Automatic drive system
 Transmission neutral position engine start
 Overshift prevention
 Parking braked travel warning
 Tilt-telescope steering wheel
 Back-up alarm
 Air cleaner dust indicator
 Air dryer
 Water separator with filter
 Engine over-run alarm
 Hydraulic lockout suspension
 Non-spin differential (Rear)
 Towing eyes - front and rear
 Winch drum rotation indicator (Audible and visual type)
 Fuel consumption monitor
 Positive control

OPTIONAL EQUIPMENT

Over-unwinding prevention
 Cable follower
 Tire inflation kit
 Emergency steering
 Red warning lamp (Top boom)
 Hook block - 30t capacity (4 sheaves, swivel type with safety latch. Mass : approx. 270 kg)

RATED LIFTING CAPACITIES

ISO 4305

ON OUTRIGGERS FULLY EXTENDED 6.3m SPREAD								
360° ROTATION (Unit: x1000kg)								
B \ A	9.7m		16.8m		24.4m		31.0m	
	C		C		C		C	
3.0	60.6	30.0	74.4	19.2	79.7	12.5		
3.5	57.0	27.2	72.5	19.2	78.5	12.5		
4.0	53.1	23.4	70.9	19.2	77.5	12.5	80.8	8.4
4.5	49.2	21.3	68.9	18.3	76.3	12.5	80.0	8.4
5.0	44.7	19.6	67.1	17.0	75.0	12.5	79.1	8.4
5.5	40.3	18.1	65.1	15.8	74.0	12.5	78.3	8.4
6.0	34.9	16.6	63.3	14.7	72.8	12.5	77.3	8.4
6.5	28.7	15.2	61.4	13.6	71.5	11.7	76.6	8.4
7.0	18.3	14.1	59.4	12.9	70.3	11.0	75.6	8.1
8.0			54.9	10.9	67.7	9.75	73.7	7.5
9.0			50.5	9.0	65.0	8.75	71.8	6.8
10.0			45.8	7.05	62.4	7.9	69.8	6.2
11.0			40.3	5.8	59.5	6.6	67.6	5.8
12.0			34.3	4.8	56.5	5.6	65.6	5.4
13.0			27.0	4.05	53.6	4.75	63.5	5.0
14.0			15.7	3.4	50.4	4.15	61.3	4.4
15.0					47.0	3.6	59.0	3.85
16.0					43.4	3.2	56.6	3.45
17.0					39.6	2.75	54.2	3.05
18.0					35.5	2.45	51.8	2.65
19.0					30.7	2.05	49.2	2.4
20.0					25.6	1.8	46.6	2.1
22.0							40.8	1.7
24.0							34.4	1.3
26.0							26.2	1.0
28.0							13.4	0.5
D	0°							

Unit: x1000kg

LIFTING CAPACITIES AT ZERO DEGREE BOOM ANGLE								
ON OUTRIGGERS FULLY EXTENDED 6.3m SPREAD 360° ROTATION								
C \ A	9.7m		16.8m		24.4m		31.0m	
	B		B		B		B	
0°	7.2	13.4	14.3	3.2	21.9	1.2	28.5	0.5

A : Boom length (m)**B** : Load radius (m)**C** : Loaded boom angle (°)**D** : Minimum boom angle (°) for indicated length (no load)

RATED LIFTING CAPACITIES

ISO 4305

ON OUTRIGGERS FULLY EXTENDED 6.3m SPREAD													
360° ROTATION													
C	31.0m Boom + 7.2m Jib						C	31.0m Boom + 12.8m Jib					
	5°Tilt		25°Tilt		45°Tilt			5°Tilt		25°Tilt		45°Tilt	
	R	W	R	W	R	W		R	W	R	W	R	W
80°	5.9	3.5	8.1	2.4	9.8	1.7	80°	7.7	2.2	11.7	1.2	14.6	0.8
77.5°	7.7	3.5	9.8	2.3	11.4	1.65	77.5°	9.8	2.15	13.5	1.15	16.3	0.78
75°	9.4	3.5	11.4	2.2	12.9	1.6	75°	11.8	2.1	15.3	1.1	17.9	0.75
72.5°	11.2	3.23	13.0	2.1	14.4	1.55	72.5°	13.6	1.93	17.1	1.05	19.4	0.73
70°	12.7	2.95	14.6	2.0	15.8	1.5	70°	15.5	1.75	18.8	1.0	21.0	0.7
67.5°	14.3	2.75	16.1	1.93	17.2	1.45	67.5°	17.2	1.63	20.5	0.95	22.5	0.68
65°	15.8	2.55	17.5	1.85	18.6	1.4	65°	18.9	1.5	22.0	0.9	23.9	0.65
62.5°	17.3	2.35	19.0	1.8	19.9	1.38	62.5°	20.6	1.4	23.6	0.88	25.2	0.65
60°	18.7	2.15	20.4	1.75	21.2	1.35	60°	22.3	1.3	25.1	0.85	26.6	0.65
57.5°	20.0	1.95	21.6	1.65	22.4	1.33	57.5°	23.8	1.23	26.4	0.8	27.8	0.65
55°	21.4	1.75	22.9	1.55	23.6	1.3	55°	25.4	1.15	27.9	0.75	29.0	0.65
52.5°	22.6	1.55	24.0	1.38	24.7	1.23	52.5°	26.8	1.1	29.2	0.73	30.2	0.63
50°	23.9	1.35	25.2	1.2	25.7	1.15	50°	28.3	1.05	30.5	0.7	31.4	0.6
47.5°	25.0	1.18	26.3	1.1	26.7	1.1	47.5°	29.6	0.9	31.7	0.68	32.5	0.6
45°	26.0	1.0	27.3	1.0	27.7	1.0	45°	30.8	0.75	32.8	0.65	33.5	0.6
42.5°	27.1	0.9	28.2	0.9			42.5°	32.0	0.68	33.8	0.6		
40°	28.1	0.8	29.1	0.8			40°	33.1	0.6	34.8	0.55		
37.5°	29.0	0.7	30.0	0.7			37.5°	34.2	0.53	35.7	0.48		
35°	30.0	0.6	30.8	0.6			35°	35.2	0.45	36.5	0.4		
32.5°	30.8	0.53	31.5	0.53			32.5°	36.1	0.4				
30°	31.6	0.45	32.2	0.45			30°	37.0	0.35				
27.5°	32.3	0.4	32.8	0.38									
25°	33.0	0.35	33.4	0.3									

C :Boom angle (°)

R :Load radius (m)

W :Rated lifting capacity (Unit:x1000kg)

RATED LIFTING CAPACITIES

ISO 4305

ON OUTRIGGERS MID EXTENDED 5.9m SPREAD								
360° ROTATION (Unit: ×1000kg)								
B \ A	9.7m		16.8m		24.4m		31.0m	
	C		C		C		C	
3.0	60.6	30.0	74.4	19.2	79.7	12.5		
3.5	57.0	27.2	72.5	19.2	78.5	12.5		
4.0	53.1	23.4	70.9	19.2	77.5	12.5	80.8	8.4
4.5	49.2	21.3	68.9	18.3	76.3	12.5	80.0	8.4
5.0	44.7	19.6	67.1	17.0	75.0	12.5	79.1	8.4
5.5	40.3	18.1	65.1	15.8	74.0	12.5	78.3	8.4
6.0	34.9	16.6	63.3	14.7	72.8	12.5	77.3	8.4
6.5	28.7	15.2	61.4	13.6	71.5	11.7	76.6	8.4
7.0	18.3	12.9	59.4	12.6	70.3	11.0	75.6	8.1
8.0			54.9	9.65	67.7	9.75	73.7	7.5
9.0			50.5	7.7	65.0	8.75	71.8	6.8
10.0			45.8	6.25	62.1	7.05	69.8	6.2
11.0			40.3	5.15	59.4	5.95	67.6	5.8
12.0			34.3	4.2	56.5	4.95	65.5	5.3
13.0			27.0	3.5	53.4	4.2	63.2	4.5
14.0			15.7	2.9	50.2	3.55	61.1	3.85
15.0					46.9	3.05	58.8	3.35
16.0					43.3	2.6	56.5	2.85
17.0					39.5	2.25	54.0	2.5
18.0					35.2	1.85	51.6	2.2
19.0					30.6	1.6	49.1	1.85
20.0					25.1	1.35	46.4	1.6
22.0							40.4	1.15
24.0							33.6	0.8
26.0							25.6	0.55
D	0°							

Unit: ×1000kg

LIFTING CAPACITIES AT ZERO DEGREE BOOM ANGLE								
ON OUTRIGGERS MID EXTENDED 5.9m SPREAD 360° ROTATION								
C \ A	9.7m		16.8m		24.4m		31.0m	
	B		B		B		B	
0°	7.2	12.0	14.3	2.7	21.9	0.9	28.5	0.3

A :Boom length (m)

B :Load radius (m)

C :Loaded boom angle (°)

D :Minimum boom angle (°) for indicated length (no load)

RATED LIFTING CAPACITIES

ISO 4305

ON OUTRIGGERS MID EXTENDED 5.9m SPREAD													
360° ROTATION													
C	31.0m Boom + 7.2m Jib						C	31.0m Boom + 12.8m Jib					
	5°Tilt		25°Tilt		45°Tilt			5°Tilt		25°Tilt		45°Tilt	
	R	W	R	W	R	W		R	W	R	W	R	W
80°	5.9	3.5	8.1	2.4	9.8	1.7	80°	7.7	2.2	11.7	1.2	14.6	0.8
77.5°	7.7	3.5	9.8	2.3	11.4	1.65	77.5°	9.8	2.15	13.5	1.15	16.3	0.78
75°	9.4	3.5	11.4	2.2	12.9	1.6	75°	11.8	2.1	15.3	1.1	17.9	0.75
72.5°	11.2	3.23	13.0	2.1	14.4	1.55	72.5°	13.6	1.93	17.1	1.05	19.4	0.73
70°	12.7	2.95	14.6	2.0	15.8	1.5	70°	15.5	1.75	18.8	1.0	21.0	0.7
67.5°	14.3	2.75	16.1	1.93	17.2	1.45	67.5°	17.2	1.63	20.5	0.95	22.5	0.68
65°	15.8	2.55	17.5	1.85	18.6	1.4	65°	18.9	1.5	22.0	0.9	23.9	0.65
62.5°	17.3	2.35	19.0	1.8	19.9	1.38	62.5°	20.6	1.4	23.6	0.88	25.2	0.65
60°	18.7	2.15	20.4	1.75	21.2	1.35	60°	22.3	1.3	25.1	0.85	26.6	0.65
57.5°	20.0	1.88	21.6	1.6	22.4	1.33	57.5°	23.8	1.23	26.4	0.8	27.8	0.65
55°	21.4	1.6	22.9	1.45	23.6	1.3	55°	25.4	1.15	27.9	0.75	29.0	0.65
52.5°	22.6	1.35	24.0	1.25	24.7	1.15	52.5°	26.8	1.0	29.2	0.73	30.2	0.63
50°	23.9	1.1	25.1	1.05	25.7	1.0	50°	28.2	0.85	30.4	0.7	31.3	0.6
47.5°	25.0	0.95	26.1	0.9	26.7	0.88	47.5°	29.5	0.73	31.6	0.63	32.3	0.55
45°	26.0	0.8	27.1	0.75	27.7	0.75	45°	30.7	0.6	32.7	0.55	33.3	0.5
42.5°	27.1	0.68	28.1	0.63			42.5°	31.9	0.48	33.7	0.45		
40°	28.1	0.55	29.0	0.5			40°	33.1	0.35	34.7	0.35		
37.5°	29.0	0.48	29.8	0.43									
35°	30.0	0.4	30.7	0.35									

C :Boom angle (°)
R :Load radius (m)
W :Rated lifting capacity (Unit:x1000kg)

RATED LIFTING CAPACITIES

ISO 4305

ON OUTRIGGERS MID EXTENDED 5.0m SPREAD 360° ROTATION (Unit: x1000kg)									
B \ A	9.7m		16.8m		24.4m		31.0m		
	C		C		C		C		
3.0	60.6	30.0	74.4	19.2	79.7	12.5			
3.5	57.0	27.2	72.5	19.2	78.5	12.5			
4.0	53.1	23.4	70.9	19.2	77.5	12.5	80.8	8.4	
4.5	49.2	21.3	68.9	18.3	76.3	12.5	80.0	8.4	
5.0	44.7	19.6	67.1	17.0	75.0	12.5	79.1	8.4	
5.5	40.3	15.7	65.1	15.0	74.0	12.5	78.3	8.4	
6.0	34.9	13.2	63.3	12.65	72.8	12.5	77.3	8.4	
6.5	28.7	11.3	61.4	10.85	71.5	11.7	76.6	8.4	
7.0	18.2	9.65	59.4	9.5	70.1	10.4	75.6	8.1	
8.0			54.9	7.3	67.5	8.2	73.7	7.5	
9.0			50.5	5.8	64.8	6.7	71.8	6.8	
10.0			45.8	4.7	62.0	5.5	69.5	5.8	
11.0			40.3	3.8	59.3	4.65	67.3	4.9	
12.0			34.3	3.1	56.3	3.9	65.2	4.25	
13.0			27.0	2.55	53.0	3.25	63.0	3.6	
14.0			15.7	1.9	49.9	2.75	60.8	3.1	
15.0					46.6	2.3	58.5	2.65	
16.0					43.0	1.9	56.1	2.25	
17.0					39.4	1.6	53.8	1.95	
18.0					35.2	1.35	51.3	1.65	
19.0					30.5	1.1	48.7	1.4	
20.0					24.9	0.75	46.0	1.2	
22.0							40.3	0.8	
D	0°						26°		

Unit: x1000kg

LIFTING CAPACITIES AT ZERO DEGREE BOOM ANGLE ON OUTRIGGERS MID EXTENDED 5.0m SPREAD 360° ROTATION								
C \ A	9.7m		16.8m		24.4m			
	B		B		B			
0°	7.2	9.0	14.3	1.8	21.9	0.5		

A : Boom length (m)

B : Load radius (m)

C : Loaded boom angle (°)

D : Minimum boom angle (°) for indicated length (no load)

RATED LIFTING CAPACITIES

ISO 4305

ON OUTRIGGERS MID EXTENDED 5.0m SPREAD 360° ROTATION													
C	31.0m Boom + 7.2m Jib						C	31.0m Boom + 12.8m Jib					
	5°Tilt		25°Tilt		45°Tilt			5°Tilt		25°Tilt		45°Tilt	
	R	W	R	W	R	W		R	W	R	W	R	W
80°	5.9	3.5	8.1	2.4	9.8	1.7	80°	7.7	2.2	11.7	1.2	14.6	0.8
77.5°	7.7	3.5	9.8	2.3	11.4	1.65	77.5°	9.8	2.15	13.5	1.15	16.3	0.78
75°	9.4	3.5	11.4	2.2	12.9	1.6	75°	11.8	2.1	15.3	1.1	17.9	0.75
72.5°	11.2	3.23	13.0	2.1	14.4	1.55	72.5°	13.6	1.93	17.1	1.05	19.4	0.73
70°	12.7	2.95	14.6	2.0	15.8	1.5	70°	15.5	1.75	18.8	1.0	21.0	0.7
67.5°	14.3	2.7	16.1	1.93	17.2	1.45	67.5°	17.2	1.63	20.5	0.95	22.5	0.68
65°	15.8	2.45	17.5	1.85	18.6	1.4	65°	18.9	1.5	22.0	0.9	23.9	0.65
62.5°	17.1	2.05	18.9	1.65	19.9	1.38	62.5°	20.6	1.38	23.6	0.88	25.2	0.65
60°	18.6	1.65	20.2	1.45	21.1	1.35	60°	22.2	1.25	25.1	0.85	26.6	0.65
57.5°	19.8	1.38	21.5	1.23	22.3	1.15	57.5°	23.7	1.03	26.5	0.75	27.8	0.65
55°	21.1	1.1	22.7	1.0	23.4	0.95	55°	25.1	0.8	27.7	0.65	29.0	0.65
52.5°	22.4	0.93	23.9	0.83	24.5	0.8	52.5°	26.5	0.65	29.0	0.55	30.2	0.55
50°	23.6	0.75	25.0	0.65	25.5	0.65	50°	27.9	0.5	30.3	0.45	31.2	0.45
47.5°	24.8	0.6	26.1	0.5	26.6	0.5							
45°	25.9	0.45	27.1	0.35	27.5	0.35							

C :Boom angle (°)**R** :Load radius (m)**W** :Rated lifting capacity (Unit:×1000kg)

RATED LIFTING CAPACITIES

ISO 4305

ON OUTRIGGERS MIN EXTENDED 2.2m SPREAD 360° ROTATION (Unit: x1000kg)									
B	A	9.7m		16.8m		24.4m		31.0m	
	C		C		C		C		
3.0	60.6	13.2	74.2	13.0	79.5	12.5			
3.5	57.0	10.25	72.2	9.8	78.4	10.9			
4.0	53.1	8.0	70.5	7.8	77.2	8.8	79.9	8.0	
4.5	49.2	6.7	68.4	6.45	75.9	7.25	79.0	7.2	
5.0	44.7	5.7	66.8	5.3	74.6	6.2	77.9	6.05	
5.5	40.3	4.7	64.6	4.4	73.3	5.2	77.0	5.45	
6.0	34.9	3.85	62.8	3.65	72.0	4.4	76.1	4.8	
6.5	28.7	3.3	60.9	3.05	70.6	3.8	75.1	4.25	
7.0	18.3	2.7	58.7	2.6	69.5	3.3	74.1	3.65	
8.0			54.6	1.85	66.7	2.4	72.3	2.75	
9.0			50.2	1.2	64.1	1.75	70.3	2.05	
10.0			45.1	0.55	61.3	1.35	68.3	1.5	
11.0					58.7	0.95	66.2	1.2	
12.0					55.9	0.55	64.3	0.9	
13.0							62.2	0.5	
D	0°		40°		53°		60°		

Unit: x1000kg

LIFTING CAPACITIES AT ZERO DEGREE BOOM ANGLE ON OUTRIGGERS MIN EXTENDED 2.2m SPREAD 360° ROTATION								
C	A	9.7m						
	B							
0°	7.2	2.5						

A : Boom length (m)

B : Load radius (m)

C : Loaded boom angle (°)

D : Minimum boom angle (°) for indicated length (no load)

NOTES FOR "ON OUTRIGGERS" TABLE

1. Rated lifting capacities shown in the table are based on condition that crane is set on firm level surface. Those above thick lines are based on crane strength and those below, on its stability.
2. Rated lifting capacities based on crane stability are according to ISO 4305.
3. The mass of the hook (270kg for 30t capacity, 100kg for 4.0t capacity), slings and all similarly used load handling devices must be considered as part of the load and must be deducted from the lifting capacities.
4. For rated lifting capacity of single top, reduce the rated lifting capacities of relevant boom according to a weight reduction for auxiliary load handling equipment. Capacities of single top shall not exceed 4,000kg including main boom hook mass and the net capacity must be so reduced.
5. Standard number of parts of line for each boom length is as shown below. Load per line should not surpass 39.2kN {4,000kgf} for main winch and auxiliary winch.

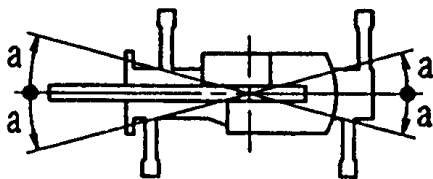
Boom length	9.7m	9.7m to 16.8m	16.8m to 31.0m	Single top Jib
Number of parts of line	8	6	4	1

The lifting capacity data stored in the AUTOMATIC MOMENT LIMITER (AML) is based on the standard number of parts of line listed in the chart.

Maximum lifting capacity is restricted by the number of parts of line of AUTOMATIC MOMENT LIMITER (AML).

6. The lifting capacity for over-side area differs depending on the outrigger extension width. Work with the capacity corresponding to the extension width. The lifting capacities for over-front and over-rear areas are for "outriggers fully extended". However, the areas (angle **a**) differ depending on the outrigger extension width.

Outriggers extended width	5.9m (middle)	5.0m (middle)	2.2m (minimum)
Angle a ^o	45	40	15



RATED LIFTING CAPACITIES

ISO 4305

ON RUBBER STATIONARY (Unit: x1000kg)													
B	A	Over Front						360° Rotation					
		9.7m		16.8m		24.4m		9.7m		16.8m		24.4m	
		C		C		C		C		C		C	
3.0	60.6	18.0					60.6	11.0					
3.5	56.8	17.0					57.1	9.0					
4.0	53.0	15.0					53.5	7.3					
4.5	49.2	12.7	68.8	11.0			49.7	5.7	68.5	5.5			
5.0	44.9	10.6	66.9	9.5			45.4	4.9	66.3	4.5			
5.5	39.9	9.0	64.9	8.0			40.8	4.0	64.6	3.7			
6.0	34.6	7.7	63.1	7.0			35.3	3.2	62.5	3.1			
6.5	27.7	6.6	61.1	6.1			28.9	2.75	60.9	2.5			
7.0	17.7	5.7	59.0	5.3			20.5	2.27	58.6	2.1			
8.0			54.6	4.25	67.2	5.0			54.6	1.4	66.9	2.2	
9.0			50.0	3.45	64.3	3.9			49.9	0.85	64.3	1.6	
10.0			45.2	2.65	61.6	3.15					61.6	1.1	
11.0			40.1	2.1	58.8	2.55					58.7	0.8	
12.0			33.8	1.6	55.9	2.1							
13.0			26.5	1.2	52.9	1.75							
14.0			15.7	0.75	49.7	1.4							
15.0					46.7	1.1							
16.0					43.1	0.85							
17.0					39.4	0.6							
D	0°				28°		0°		44°		56°		

Unit: x1000kg

LIFTING CAPACITY AT ZERO DEGREE BOOM ANGLE ON RUBBER STATIONARY													
C	A	Over Front						360° Rotation					
		9.7m		16.8m				9.7m					
		B		B				B					
0°	7.2	5.4	14.3	0.7			7.2	2.1					

A : Boom length (m)

B : Load radius (m)

C : Loaded boom angle (°)

D : Minimum boom angle (°) for indicated length (no load)

RATED LIFTING CAPACITIES

ISO 4305

ON RUBBER CREEP (Unit: ×1000kg)													
B	A	Over Front						360° Rotation					
		9.7m		16.8m		24.4m		9.7m		16.8m		24.4m	
		C		C		C		C		C		C	
3.0		60.6	18.0					60.6	10.0				
3.5		56.8	15.45					57.0	8.0				
4.0		53.0	13.0					53.3	6.5				
4.5		49.0	11.1	68.6	9.7			49.2	5.1	68.6	5.1		
5.0		44.7	9.3	66.6	8.4			44.4	4.3	66.6	4.2		
5.5		39.8	7.95	64.6	7.0			39.6	3.7	64.7	3.5		
6.0		34.7	6.7	62.8	6.0			34.0	3.0	62.7	2.7		
6.5		28.0	5.75	60.8	5.3			27.0	2.5	60.7	2.35		
7.0		18.2	5.0	58.7	4.65			18.1	1.95	58.9	1.85		
8.0				54.4	3.6	67.0	4.3			54.5	1.3	67.0	1.9
9.0				49.9	2.8	64.3	3.4			50.2	0.75	64.3	1.35
10.0				45.1	2.3	61.7	2.8					61.7	0.9
11.0				39.6	1.8	58.8	2.25					58.8	0.6
12.0				33.3	1.35	56.0	1.8						
13.0				26.0	1.0	52.9	1.5						
14.0				14.6	0.6	49.7	1.2						
15.0						46.4	0.95						
16.0						42.9	0.6						
D		0°				31°		0°		44°		56°	

Unit: ×1000kg

LIFTING CAPACITY AT ZERO DEGREE BOOM ANGLE ON RUBBER CREEP													
C	A	Over Front						360° Rotation					
		9.7m		16.8m				9.7m					
		B		B				B					
0°		7.2	4.7	14.3	0.5			7.2	1.8				

A : Boom length (m)

B : Load radius (m)

C : Loaded boom angle (°)

D : Minimum boom angle (°) for indicated length (no load)

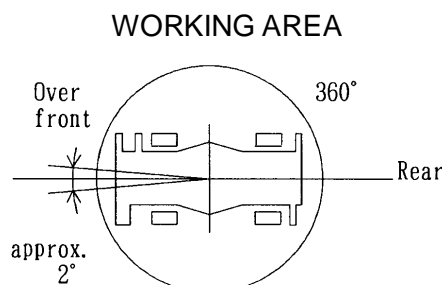
NOTES FOR "ON RUBBER" TABLES

1. Rated lifting capacities shown in the table are based on condition that crane is set on firm level surface, with suspension lock applied. Those above thick lines are based on tire capacity and those below, on crane stability. They are based on actual load radius increased by tire deformation and boom deflection.
2. Rated lifting capacities based on crane stability are according to ISO 4305.
3. The mass of the hook (270kg for 30t capacity, 100kg for 4.0t capacity), slings and all similarly used load handling devices must be considered as part of the load and must be deducted from the lifting capacities.
4. For rated lifting capacity of single top, reduce the rated lifting capacities of relevant boom according to a weight reductions for auxiliary load handling equipment. Capacities of single top shall not exceed 4,000kg including main hook.
5. On rubber lifting with "jib" is not permitted. Maximum permissible boom length is 24.4 m.
6. CREEP is motion for crane not to travel more than 60 m in any 30 minute period and to travel at the speed of less than 1.6km/h.
7. During "CREEP" duties travel slowly and keep the lifting load as close to the ground as possible, and especially avoid any abrupt steering, accelerating or braking.
8. Do not operate the crane while carrying the load.
9. Tires should be inflated to their correct air pressure of 900kPa.
10. For CREEP operation, choose the drive mode and proper gear according to the road or working condition.
11. Standard number of parts of line for on rubber operation should be according to the following table.
Load per line should not surpass 39.2kN {4,000kgf} for main winch and auxiliary winch.

Boom length	9.7m	9.7m to 24.4m	Single top
Number of parts of line	6	4	1

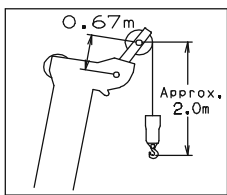
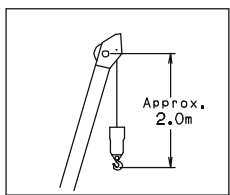
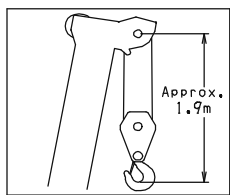
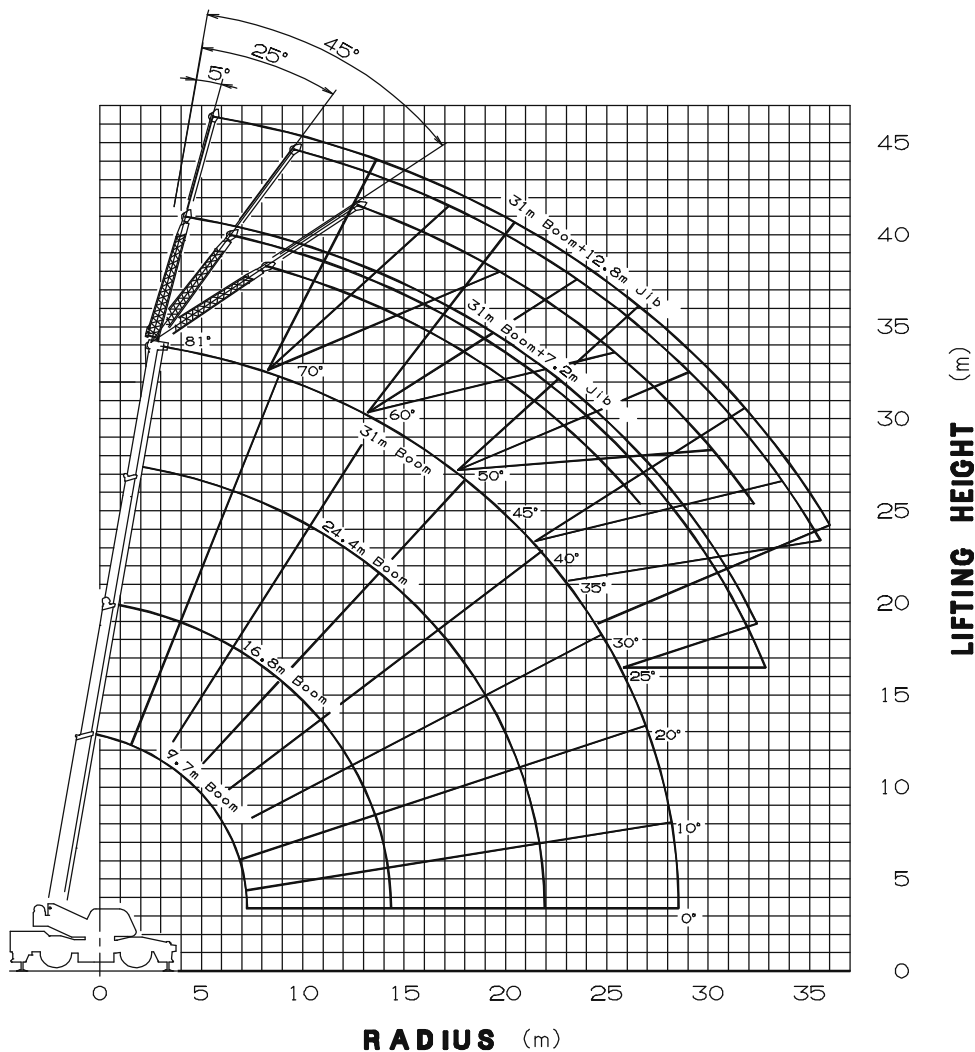
The lifting capacity data stored in the AUTOMATIC MOMENT LIMITER (AML) is based on the standard number of parts of line listed in the chart.

Maximum lifting capacity is restricted by the number of parts of line of AUTOMATIC MOMENT LIMITER (AML).

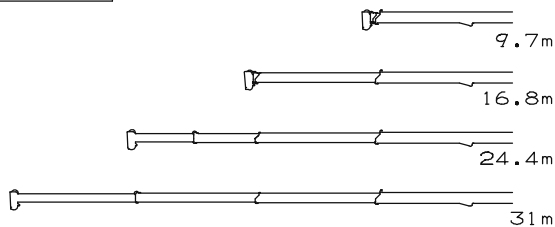


Without outriggers "Over front" operation should be performed within 2 degrees in front of chassis.

WORKING RANGE

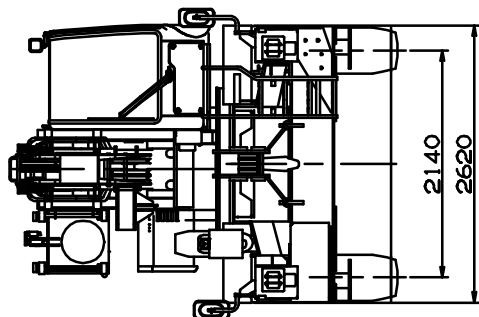
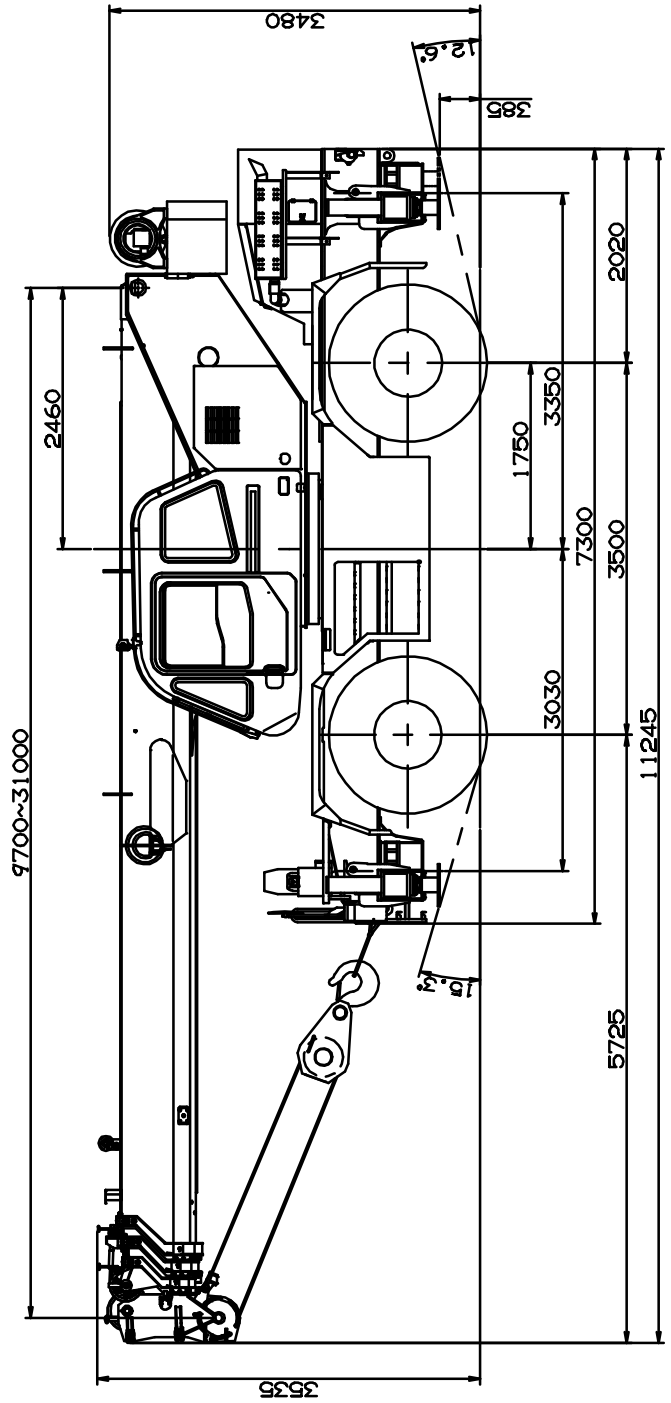
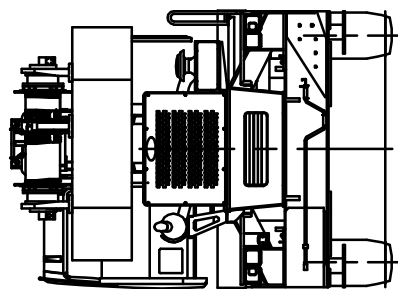
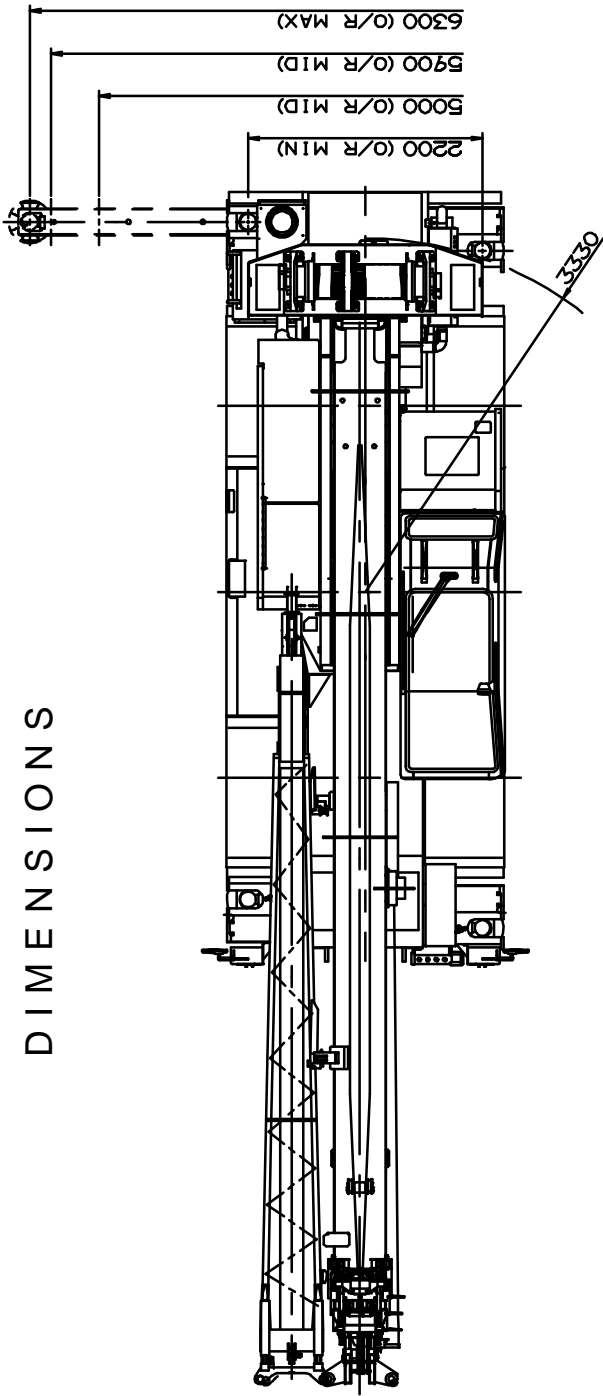


Boom Length



NOTE: The above lifting height and boom angle are based on a straight (unladen) boom, and allowance should be made for boom deflection obtained under laden conditions.
The above working range is shown on condition with outriggers fully(6.3m) extended.

DIMENSIONS



Note: Dimension is with boom angle at 0 degree.

GR-300EX Axle Weight Distribution Chart

UNIT : kg

	GVW	Front	Rear
Basic standard machine includes: 4-section boom (9.7m - 31.0m) 2-stage jib (7.2m, 12.8m) Cummins QSB6.7 445 / 95 R 25 tires Single top 4.0ton hook ball	26,920	13,170	13,750
Add: 1. 30ton 4 sheaves hook block	+270	+480	-210
Remove: 1. 2-stage jib (7.2m, 12.8m) 2. 4.0ton hook ball	-630 -100	-1,085 -140	+455 +40

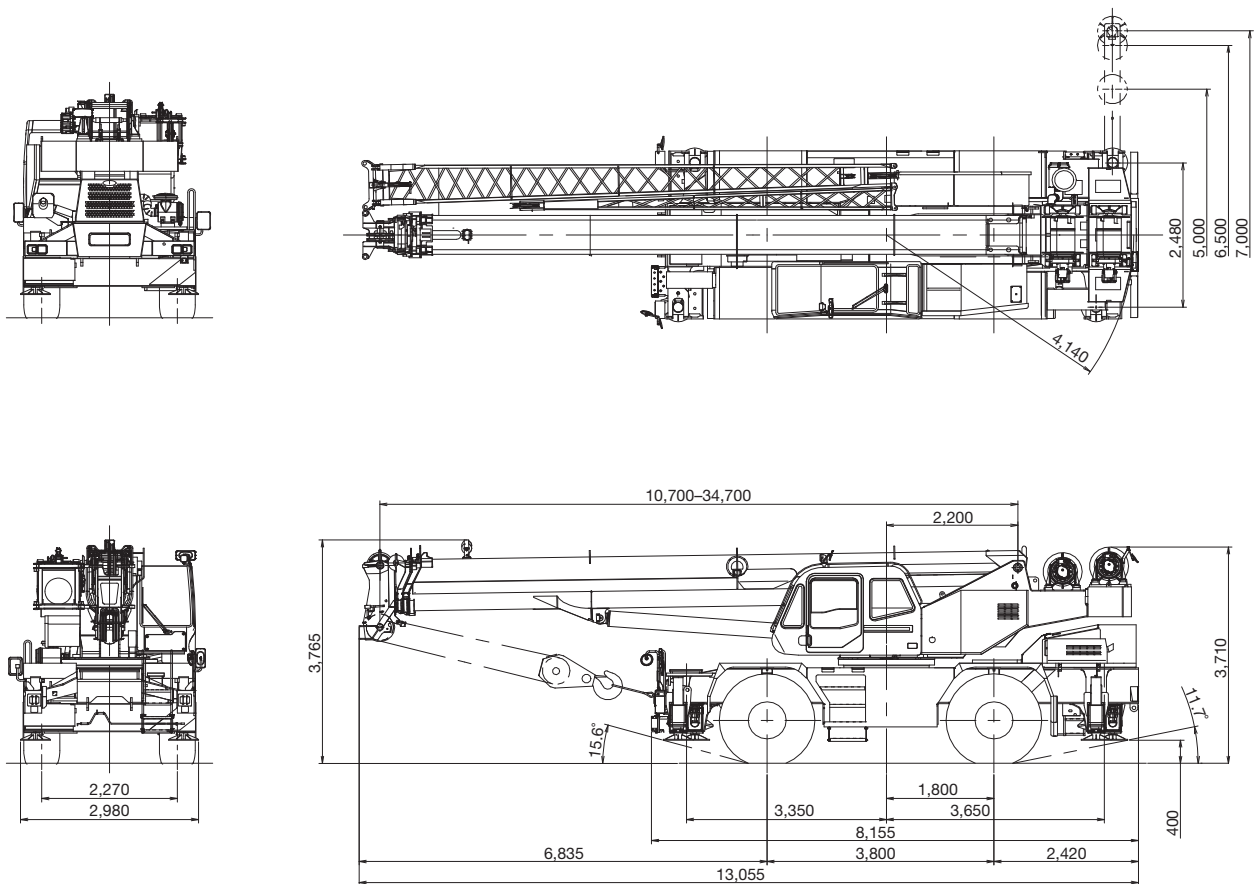
GR-500EX

(Left-hand drive)
50 Ton Capacity

SPEC. SHEET NO. GR-500E-3-00104/R-02

HYDRAULIC ROUGH TERRAIN CRANE

DIMENSIONS



Note : Dimension is with boom angle at 0 degree.

GENERAL DIMENSIONS

Turning radius (23.5 - 25 Tires)	4 wheel steer	6.7 m	Overall length	approx. 13,055 mm
	2 wheel steer	11.7 m		Overall width
			Overall height	approx. 3,765 mm

CRANE SPECIFICATIONS

BOOM

4 section full power partially synchronized telescoping boom of round box construction with 4 sheaves at boom head. The synchronization system consists of a telescope cylinder, 2 extension cables and retraction cables. Hydraulic cylinder fitted with holding valve. 2 easily removable wire rope guards, rope dead end provided on both sides of boom head. Boom telescope sections are supported by wear pads both vertically and horizontally.

Fully retracted length.....	10.7 m
Fully extended length	34.7 m
Extension speed.....	24.0 m in 72 s
Root diameter.....	0.44 m

BOOM ELEVATION

By a double acting hydraulic cylinder with holding valve. Combination controls for hand or foot operation. Boom angle indicator.

Automatic speed reduction and slow stop function.

Boom angle	-0.8°- 81°
Boom raising speed	20° to 60° in 27 s

JIB

2 stage swing around boom extension swing around type with triple offset (tilt type). Single sheave at jib head.

Stows alongside base boom section.

Length	8.8 m , 15.2 m
Offset	5°, 25°, 45°
Root diameter.....	0.396 m

AUXILIARY LIFTING SHEAVE (SINGLE TOP)

Single sheave mounted to main boom head for single line work(stowable).

Root diameter.....	0.396 m
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ANTI-TWO-BLOCK DEVICE

Pendant type over-winding cut out device with audio-visual (FAILURE lamp/BUZZER) warning system.

SLEWING

Hydraulic axial piston motor driven through planetary slewing speed reducer. Continuous 360° full circle slewing on ball bearing.

Equipped with manually locked/released slewing brake.

A positive slewing lock for pick and carry and travel modes, manually engaged in cab. Twin slewing system : Free slewing or lock slewing controlled by selector switch on front console.

Slewing speed	2.7 min ⁻¹ {rpm}
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WINCH

MAIN WINCH

Variable speed type with grooved drum driven by hydraulic axial piston motor through speed reducer. Power load lowering and raising.

Equipped with automatic brake (neutral brake) and counterbalance valve. Controlled independently of auxiliary winch. Equipped with cable follower and drum rotation indicator.

MAIN DRUM

Root diameter x wide	0.362 m x 0.6 m
Wire rope diameter x length	19 mm x 193 m
Drum capacity	304 m, 7 layers
Maximum single line pull (1st layer).....	73.3 kN (7,480 kgf)
Maximum permissible linepull wire strength.....	69.4 kN (7,085 kgf)

AUXILIARY WINCH

Variable speed type with grooved drum driven by hydraulic axial piston motor through speed reducer. Power load lowering and raising.

Equipped with automatic brake (neutral brake) and counterbalance valve. Controlled independently of main winch. Equipped with cable follower and drum rotation indicator.

AUXILIARY DRUM

Root diameter x wide	0.362 m x 0.6 m
Wire rope diameter x length	19 mm x 110 m
Drum capacity	304 m, 7 layers
Maximum single line pull (1st layer).....	73.3 kN (7,480 kgf)
Maximum permissible linepull wire strength	69.4 kN (7,085 kgf)

WIRE ROPE

Non-rotating wire (no-spin), extra improved plow steel, preformed, independent wire rope core, right regular lay.

Main & Auxillary	19 mm 6 x 31 class
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HOOK BLOCKS

50 ton (option)

5 sheaves with swivel hook and safety latch

20 ton (option)

3 sheaves with swivel hook and safety latch

5.6 ton

Weighted hook with swivel and safety latch

HYDRAULIC SYSTEM

PUMPS

2 variable piston pumps for crane functions.

Tandem gear pump for steering, slewing and optional equipment.

Powered by carrier engine. Pump disconnect for crane is engaged/disengaged by rotary switch from operator's cab.

CONTROL VALVES

Multiple valves actuated by pilot pressure with integral pressure relief valves.

RESERVOIR

560 liters capacity. External sight level gauge.

FILTRATION

BETA10=10 return filter, full flow with bypass protection, located inside of hydraulic reservoir. Accessible for easy replacement.

OIL COOLER - Air cooled fan type.

CAB AND CONTROLS

Both crane and drive operations can be performed from one cab mounted on rotating superstructure.

Left side, 1 man type, steel construction with sliding door access and safety glass windows opening at side. Door window is powered control. Windshield glass window and roof glass window are shatter-resistant. Wiper and washer (front windshield and roof window). Tinted safety glass and sun visor. Tilt-telescoping steering wheel. Adjustable control lever stands for slewing, boom elevating, boom telescoping, auxiliary winch and main winch. Control lever stands can change neutral positions and tilt for easy access to cab. Foot operated controls: boom elevating, boom telescoping, service brake and engine throttle. 3 way adjustable operator's seat with high back, headrest and armrest. Cab floor mat. Engine throttle knob. Hot water cab heater and air conditioning.

Dash-mounted engine start/stop, monitor lamps, cigarette lighter, drive selector switch, parking brake switch, steering mode select switch, power window switch, pump engaged/disengaged switch, slewing brake switch, telescoping/auxiliary winch select switch, outrigger controls, free slewing/ lock slewing selector switch, eco mode switch, and ashtray.

Instruments - Torque converter oil temperature, engine water temperature, air pressure, fuel, speedometer, tachometer, hour meter and odometer / tripmeter. Engine over-run alarm. Back-up alarm. Low oil pressure/high water temp. Warning device (visual). Rear steer centering light. Hydraulic oil pressure is monitored and displayed on the AML-C display panel.

CRANE SPECIFICATIONS

TADANO Automatic Moment Limiter

(AML-C) including:

- Control lever lockout function with audible and visual pre-warning
- Number of parts of line
- Boom position indicator
- Outrigger state indicator
- Slewing angle
- Boom angle / boom length / jib offset angle / jib length / load radius / rated lifting capacities / actual loads read out
- Potential lifting height
- Ratio of actual load moment to rated load moment indication
- Permissible load
- Automatic Speed Reduction and Slow Stop function on boom elevation and slewing
- Working condition register switch
- Load radius / boom angle / tip height / slewing range preset function
- External warning lamp
- Tare function
- Main hydraulic oil pressure

- Fuel consumption monitor
- Main winch / auxiliary winch select
- Drum rotation indicator (audible and visible type) main and auxiliary winch
- On-rubber indicator

TADANO AML-C monitors outrigger extended length and automatically programs the corresponding "RATED LIFTING CAPACITIES" table

Operator's right hand console includes transmission gear selector, slewing lock lever and sight level bubble.

Upper console includes working light switch, roof washer and wiper switch, emergency outrigger set up key switch, jib equipped/removed select switch, eco mode switch, boom emergency telescoping switch (2nd and 3rd-top) and air conditioning control switch.

NOTE: Each crane motion speed is based on unladen conditions.

CARRIER SPECIFICATIONS

TYPE

Rear engine, left hand steering, driving axle 2-way selected type by manual switch, 4x2 front drive, 4x4 front and rear drive.

FRAME

High tensile steel, all welded mono-box construction.

ENGINE

Model	MITSUBISHI 6M60-TL
Type	Direct injection diesel
No. of cylinders	6
Combustion	4 cycle, turbo charged and after cooled
Bore x Stroke, mm	118 x 115
Displacement, liters	7.54
Air inlet heater	24 volt preheat
Air cleaner	Dry type, replaceable element
Oil filter	Full flow with replaceable element
Fuel filter	Full flow with replaceable element
Fuel tank, liters	300, right side of carrier
Cooling	Liquid pressurized, recirculating by-pass
Radiator	Fin and tube core, thermostat controlled
Fan, mm	Suction type, 6-blade, 600 dia.
Starting	24 volt
Charging	24 volt system, negative ground
Battery	2-120 amp. Hour
Compressor, air, l /min	830 at 2,600 min ⁻¹
Output, Max. kW (HP)	Gross 200 (267) at 2,600 min ⁻¹
Torque, Max. N·m	785 at 1,400 min ⁻¹
Capacity, liters	
Cooling water	13
Lubrication	13-15
Fuel	300

TRANSMISSION

Electronically controlled full automatic transmission.

Torque converter driving full powershift with driving axle selector.

6 forward and 2 reverse speeds, constant mesh.

4 speeds - high range - 2-wheel drive; 4-wheel drive

4 speeds - low range - 4-wheel drive

TRAVEL SPEED - 50 km/h

GRADE ABILITY (tan θ) - 69% (at stall), 30% *

* Machine should be operated within the limit of engine crankcase design (17°: MITSUBISHI 6M60-TL)

AXLE

Front: Full floating type, steering and driving axle with planetary reduction.

Rear: Full floating type, steering and driving axle with planetary reduction and non-spin rear differential.

STEERING

Hydraulic power steering controlled by steering wheel.

3 steering modes available: 2 wheel front, 4 wheel coordinated and 4 wheel crab.

SUSPENSION

Front: Semi-elliptic leaf springs with hydraulic lockout device.

Rear: Semi-elliptic leaf springs with hydraulic lockout device.

BRAKE SYSTEMS

Service: Air over hydraulic disc brakes on all 4 wheels.

Parking/Emergency: Spring applied-air released brake acting on input shaft of front axle.

Auxiliary: Electro-pneumatic operated exhaust brake.

TIRES - 23.5-25 (OR) Air pressure: 450 kPa

OUTRIGGERS

4 hydraulic, beam and jack outriggers.

Vertical jack cylinders equipped with integral holding valve.

Each outrigger beam and jack is controlled independently from cab.

Beams extend to 7.0 m center-line and retract to within

2.98 m overall width with floats. Outrigger jack floats

are attached thus eliminating the need of manually attaching and

detaching them. Controls and sight bubble located in

superstructure cab. 4 outrigger extension lengths are provided with

corresponding "RATED LIFTING CAPACITIES" for crane duty in

confined areas.

Min. Extension	2.48 m center to center
Mid. Extension	5.0 m center to center
Mid. Extension	6.5 m center to center
Max. Extension	7.0 m center to center
Float size (Diameter)	0.5 m

COUNTERWEIGHT

Integral with slewing frame Mass... 2,900 kg

STANDARD EQUIPMENT

- Telematics (machine data logging and monitoring system) with - HELLO-NET via internet (availability depends on countries)
- Eco mode system
- Positive control
- Over unwinding prevention
- Emergency steering system
- Transmission neutral position engine start
- Overshift prevention
- Parking braked travel warning
- Tilt-telescope steering wheel
- Halogen head lamp
- Fenders
- Air dryer
- Water separator with filter (high filtration)
- Air cleaner dust indicator
- Full instrumentation package
- Complete highway light package
- Tire inflation kit
- Towing hooks-Front and rear
- Lifting eyes
- Hook block tie down (front bumper)
- Weighted hook storage compartment
- Winch drum mirror
- Tool storage compartment
- Beacon lamp

OPTIONAL EQUIPMENT

- Wind speed indicator
- Hook block-50t capacity (5 sheaves with swivel hook and safety latch)
- Hook block-20t capacity (3 sheaves with swivel hook and safety latch)
- Radiator cover
- Outrigger control box (Both side of carrier)
- Engine coolant heater
- Air heater
- Fuel filter heater

HOISTING PERFORMANCE

LINE SPEEDS AND PULLS

Layer	Main or auxiliary winch - 0.362 m drum	
	Line speeds ¹	Line pulls Available ²
	m/min	kN (kgf)
1st	101	77.3 (7,480)
2nd	110	70.4 (6,900)
3rd	119	63.9 (6,260)
4th	128	58.8 (5,760)
5th	137	55.1 (5,400)
6th	146	50.9 (4,990)
7th ³	155	47.7 (4,670)

- Maximum permissible line pull wire strength.
Main & Auxiliary: 72.3 kN (7,085 kgf) with 6 x 31 class rope.

¹ Line speed based only on hook block, not loaded.

² Developed by machinery with each layer of wire rope, but not based on rope strength or other limitations in machinery or equipment.

³ Seventh layer of wire rope are not recommended for hoisting operations.

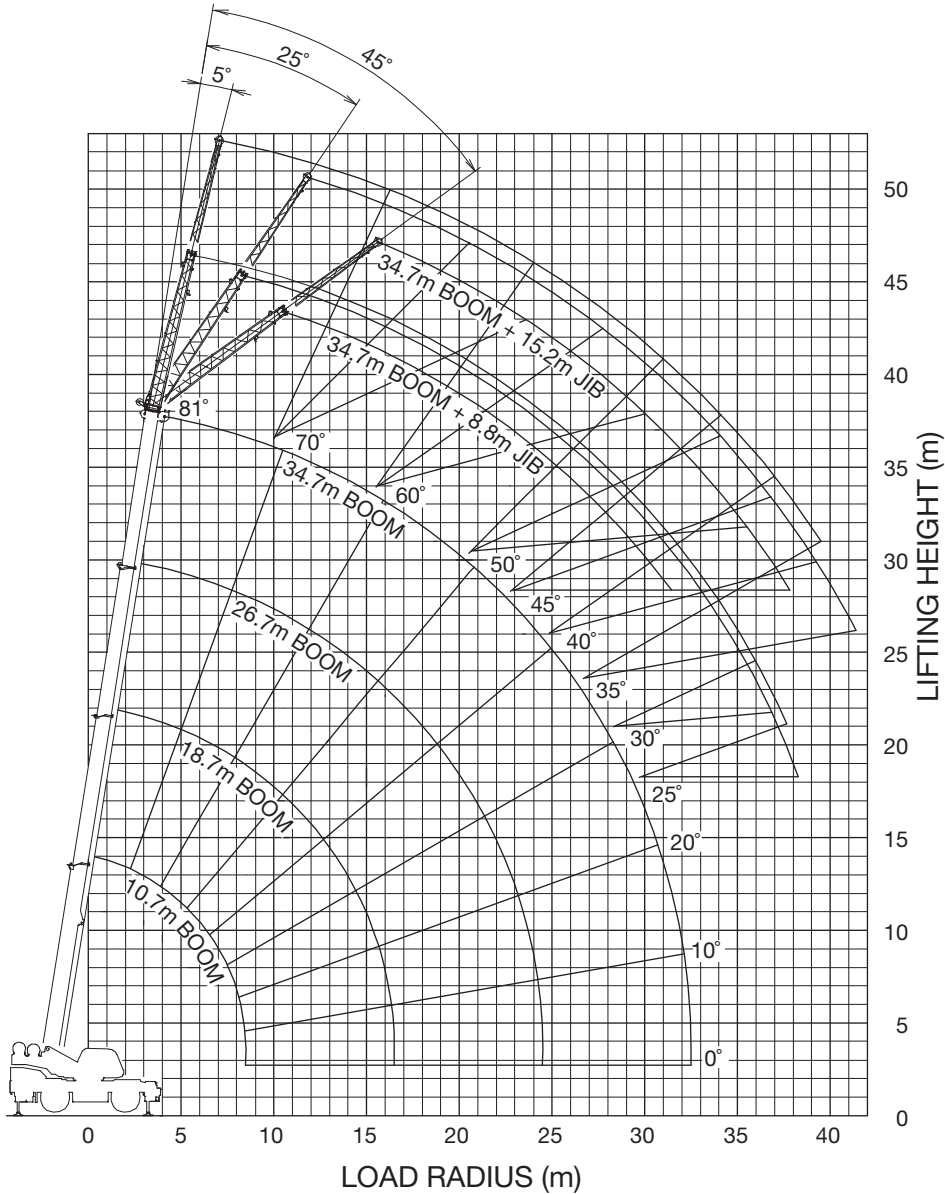
DRUM WIRE ROPE CAPACITIES

Wire rope layer	Main and auxiliary drum grooved lagging	
	19 mm wire rope	
	Rope per layer	Total wire rope
	m	m
1	34.2	34.2
2	37.3	71.5
3	40.3	111.8
4	43.4	155.2
5	46.4	201.6
6	49.5	251.1
7	52.6	303.7

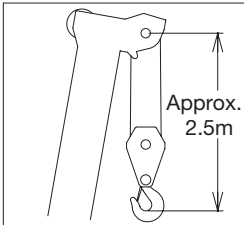
DRUM DIMENSIONS

Root diameter	362 mm
Length	600 mm
Flange diameter	657 mm

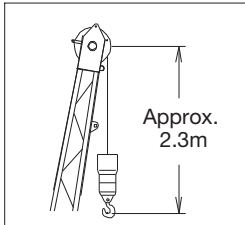
GR-500EX WORKING RANGE CHART



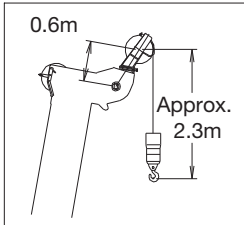
BOOM



JIB

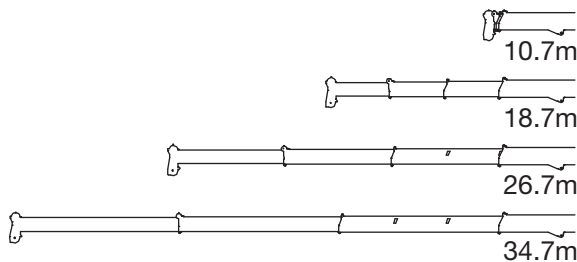


SINGLE TOP



The above lifting height and boom angle are based on a straight (unloaded) boom and machine standing level on firm supporting surface. Allowance should be made for boom deflection obtained under loaded conditions. The above working range is shown on condition with outriggers fully (7.0 m) extended.

Boom Length



GR-500EX RATED LIFTING CAPACITIES

ON OUTRIGGERS FULLY EXTENDED 7.0 m SPREAD 360° ROTATION (Unit: ×1000 kg)								
B	A	10.7 m		18.7 m		26.7 m		34.7 m
	C	C	C	C	C	C	C	C
2.5	69.3	50.0						
3.0	66.4	46.2	76.9	21.6				
3.5	63.6	41.3	75.4	21.6	80.8	18.7		
4.0	60.2	37.2	73.8	21.6	79.8	18.7		
4.5	56.9	33.7	72.2	21.6	78.8	18.3		
5.0	53.5	29.2	70.7	21.6	77.7	17.8		
5.5	49.9	26.7	69.0	21.6	76.7	17.1		
6.0	45.8	24.6	67.3	21.6	75.6	16.4	79.7	11.4
6.5	41.6	22.7	65.6	21.6	74.5	15.7	79.0	11.4
7.0	36.9	21.0	64.0	21.5	73.4	15.1	78.3	11.3
8.0	24.8	16.0	60.4	17.8	71.2	14.4	76.7	10.5
9.0			56.7	14.8	68.9	13.2	75.0	9.9
10.0			52.9	12.4	66.5	12.1	73.3	9.3
11.0			48.8	10.6	64.0	10.3	71.6	9.05
12.0			44.3	9.05	61.4	9.0	69.9	8.75
13.0			39.4	7.8	58.9	7.75	68.1	7.6
14.0			33.8	6.75	56.1	6.85	66.0	6.85
15.0			27.2	5.85	53.4	6.05	64.1	6.05
16.0			18.0	5.15	50.4	5.3	62.1	5.35
17.0					47.4	4.75	60.0	4.75
18.0					44.2	4.2	57.8	4.25
19.0					40.8	3.75	55.7	3.8
20.0					37.1	3.35	53.5	3.4
22.0					28.2	2.7	49.0	2.75
24.0					14.4	2.2	44.2	2.25
26.0							38.8	1.8
28.0							32.6	1.45
30.0							25.0	1.2
32.0							12.2	0.95
D								0°

LIFTING CAPACITIES AT ZERO DEGREE BOOM ANGLE ON OUTRIGGERS FULLY EXTENDED 7.0 m SPREAD 360° ROTATION (Unit: ×1000 kg)								
C	A	10.7 m		18.7 m		26.7 m		34.7 m
	B	B	B	B	B	B	B	B
0°	8.6	7.5	16.6	3.2	24.4	1.5	32.1	0.6

ON OUTRIGGERS MID EXTENDED 6.5 m SPREAD OVER SIDE (Unit: ×1000 kg)								
B	A	10.7 m		18.7 m		26.7 m		34.7 m
	C	C	C	C	C	C	C	C
2.5	69.3	50.0						
3.0	66.4	46.2	76.9	21.6				
3.5	63.6	41.3	75.4	21.6	80.8	18.7		
4.0	60.2	37.2	73.8	21.6	79.8	18.7		
4.5	56.9	33.7	72.2	21.6	78.8	18.3		
5.0	53.5	29.2	70.7	21.6	77.7	17.8		
5.5	49.9	26.7	69.0	21.6	76.7	17.1		
6.0	45.8	24.6	67.3	21.6	75.6	16.4	79.7	11.4
6.5	41.6	22.7	65.6	21.6	74.5	15.7	79.0	11.4
7.0	36.9	20.9	63.9	19.6	73.4	15.1	78.3	11.3
8.0	24.8	15.8	60.4	16.0	71.2	14.4	76.7	10.5
9.0			56.7	13.4	68.9	12.3	75.0	9.9
10.0			52.9	10.9	66.4	10.6	73.3	9.3
11.0			48.7	9.15	63.9	9.2	71.6	8.6
12.0			44.3	7.8	61.3	8.1	69.7	7.6
13.0			39.4	6.7	58.7	6.95	67.8	6.8
14.0			33.8	5.8	56.0	6.05	65.8	6.15
15.0			27.2	5.05	53.3	5.3	63.9	5.4
16.0			18.0	4.45	50.3	4.7	61.9	4.75
17.0					47.3	4.15	59.8	4.2
18.0					44.1	3.7	57.7	3.75
19.0					40.7	3.3	55.6	3.35
20.0					37.0	2.9	53.4	3.0
22.0					28.1	2.35	48.8	2.4
24.0					14.4	1.85	44.0	1.9
26.0							38.6	1.5
28.0							32.5	1.2
30.0							24.9	0.95
32.0							12.0	0.7
D								0°

LIFTING CAPACITIES AT ZERO DEGREE BOOM ANGLE ON OUTRIGGERS MID EXTENDED 6.5 m SPREAD OVER SIDE (Unit: ×1000kg)								
C	A	10.7 m		18.7 m		26.7 m		34.7 m
	B	B	B	B	B	B	B	B
0°	8.6	7.5	16.6	3.2	24.4	1.5	32.1	0.6

- A: Boom length (m)
- B: Load radius (m)
- C: Loaded boom angle (°)
- D: Minimum boom angle (°) for indicated boom length (no load)

GR-500EX RATED LIFTING CAPACITIES

ON OUTRIGGERS MID EXTENDED 5.0 m SPREAD OVER SIDE (Unit: ×1000 kg)								
B	A	10.7 m		18.7 m		26.7 m		34.7 m
	C	C	C	C	C	C	C	C
2.5	69.3	50.0						
3.0	66.4	46.2	76.9	21.6				
3.5	63.6	41.3	75.4	21.6	80.8	18.7		
4.0	60.2	36.4	73.8	21.6	79.8	18.7		
4.5	56.9	29.7	72.2	21.6	78.8	18.3		
5.0	53.4	24.9	70.7	21.6	77.7	17.8		
5.5	49.7	21.3	69.0	18.3	76.6	16.0		
6.0	45.7	18.4	67.3	16.1	75.5	14.3	79.7	11.4
6.5	41.5	15.7	65.6	14.4	74.3	12.9	79.0	11.4
7.0	36.7	13.6	63.9	13.0	73.2	11.7	78.2	10.5
8.0	24.4	10.6	60.3	10.8	70.8	9.6	76.5	8.9
9.0			56.6	8.95	68.5	8.3	74.6	7.6
10.0			52.8	7.35	66.1	7.1	72.8	6.5
11.0			48.6	6.25	63.6	6.3	71.0	5.8
12.0			44.2	5.2	61.1	5.5	69.1	5.1
13.0			39.3	4.45	58.4	4.75	67.2	4.5
14.0			33.8	3.8	55.8	4.05	65.2	4.0
15.0			27.2	3.2	53.0	3.5	63.4	3.55
16.0			18.0	2.8	50.2	3.05	61.3	3.1
17.0					47.1	2.6	59.3	2.65
18.0					43.9	2.3	57.3	2.35
19.0					40.5	1.95	55.1	2.0
20.0					36.8	1.75	52.9	1.75
22.0					28.0	1.25	48.5	1.3
24.0					14.4	0.9	43.6	0.9
26.0							38.3	0.6
D			0°			25°		

LIFTING CAPACITIES AT ZERO DEGREE BOOM ANGLE ON OUTRIGGERS MID EXTENDED 5.0 m SPREAD OVER SIDE (Unit: ×1000 kg)						
C	A	10.7 m		18.7 m		26.7 m
	B	B	B	B	B	B
0°	8.6	7.5	16.6	2.5	24.5	0.8

ON OUTRIGGERS MIN EXTENDED 2.48 m SPREAD OVER SIDE (Unit: ×1000 kg)								
B	A	10.7 m		18.7 m		26.7 m		34.7 m
	C	C	C	C	C	C	C	C
2.5	69.1	23.0						
3.0	66.2	18.2	76.9	14.9				
3.5	63.1	14.8	75.3	12.5	80.5	10.7		
4.0	59.9	12.4	73.8	10.7	79.3	9.3		
4.5	56.6	10.3	72.2	9.3	78.2	8.2		
5.0	53.2	8.5	70.6	8.2	77.1	7.3		
5.5	49.5	7.05	68.9	7.1	76.1	6.5		
6.0	45.5	5.95	67.2	6.4	74.9	5.8	78.9	5.2
6.5	41.2	5.05	65.5	5.7	73.8	5.2	78.0	4.7
7.0	36.4	4.3	63.8	5.1	72.7	4.7	77.2	4.2
8.0	24.1	3.15	60.2	3.9	70.3	3.8	75.4	3.5
9.0			56.5	3.0	68.0	3.2	73.6	2.9
10.0			52.6	2.3	65.6	2.5	71.8	2.4
11.0			48.5	1.75	63.1	2.05	70.0	1.9
12.0			44.0	1.35	60.7	1.6	68.2	1.5
13.0			39.1	0.95	58.1	1.2	66.3	1.15
14.0			33.6	0.65	55.4	0.9	64.4	0.9
15.0					52.7	0.65	62.5	0.65
D		0°	18°		44°		0°	

LIFTING CAPACITIES AT ZERO DEGREE BOOM ANGLE ON OUTRIGGERS MIN EXTENDED 2.48 m SPREAD OVER SIDE (Unit: ×1000kg)						
C	A	10.7 m				
	B	B	B	B	B	B
0°	8.6	2.6				

- A: Boom length (m)
- B: Load radius (m)
- C: Loaded boom angle (°)
- D: Minimum boom angle (°) for indicated boom length (no load)

Boom length	10.7 m	10.7 m to 18.7 m	18.7 m to 34.7 m	Single top / Jib
Number of parts of line	10	6	4	1

GR-500EX RATED LIFTING CAPACITIES

ON OUTRIGGERS FULLY EXTENDED 7.0 m SPREAD 360° ROTATION (Unit: ×1000 kg)						
C	34.7-m Boom + 8.8-m Jib					
	5° Tilt		25° Tilt		45° Tilt	
	R	W	R	W	R	W
80	7.6	5.6	10.5	3.8	12.5	2.75
77.5	9.8	5.18	12.5	3.63	14.3	2.65
75	11.8	4.78	14.3	3.48	16.1	2.58
72.5	13.7	4.38	16.2	3.33	17.7	2.5
70	15.5	4.03	17.9	3.2	19.3	2.45
67.5	17.3	3.73	19.7	3.05	20.9	2.4
65	19.1	3.5	21.3	2.93	22.4	2.35
62.5	20.7	3.2	22.8	2.75	23.9	2.33
60	22.3	2.9	24.3	2.58	25.4	2.3
57.5	23.7	2.5	25.8	2.25	26.7	2.05
55	25.2	2.15	27.1	1.95	27.9	1.85
52.5	26.7	1.88	28.4	1.7	29.0	1.63
50	28.0	1.63	29.7	1.5	30.2	1.45
47.5	29.3	1.4	30.9	1.3	31.2	1.28
45	30.6	1.23	32.0	1.15	32.3	1.13
42.5	31.8	1.08	33.1	1.0		
40	33.0	0.95	34.1	0.9		
37.5	34.1	0.83	35.0	0.78		
35	35.0	0.73	35.9	0.68		
32.5	35.9	0.63	36.7	0.6		
30	36.8	0.55	37.4	0.53		
27.5	37.6	0.48	38.1	0.45		
25	38.3	0.43	38.7	0.4		

34.7-m Boom + 15.2-m Jib						
C	5° Tilt		25° Tilt		45° Tilt	
	R	W	R	W	R	W
	80	9.7	2.88	14.4	1.85	17.8
77.5	12.2	2.8	16.6	1.75	19.7	1.2
75	14.7	2.75	18.7	1.68	21.7	1.18
72.5	16.9	2.53	20.7	1.6	23.4	1.15
70	19.0	2.35	22.6	1.53	25.2	1.13
67.5	21.0	2.2	24.5	1.45	26.8	1.1
65	23.0	2.08	26.3	1.4	28.4	1.1
62.5	24.9	1.98	28.0	1.35	30.0	1.08
60	26.7	1.88	29.7	1.3	31.4	1.05
57.5	28.4	1.7	31.3	1.25	32.9	1.03
55	30.1	1.55	33.0	1.23	34.2	1.03
52.5	31.7	1.33	34.3	1.1	35.4	0.98
50	33.2	1.13	35.6	0.98	36.5	0.93
47.5	34.6	0.95	36.9	0.85	37.5	0.8
45	35.9	0.8	38.0	0.73	38.5	0.68
42.5	37.2	0.68	39.1	0.6		
40	38.4	0.58	40.1	0.5		
37.5	39.6	0.48	41.1	0.43		
35	40.7	0.4	42.0	0.35		

ON OUTRIGGERS MID EXTENDED 6.5m SPREAD OVER SIDE (Unit: ×1000 kg)						
C	34.7-m Boom + 8.8-m Jib					
	5° Tilt		25° Tilt		45° Tilt	
	R	W	R	W	R	W
80	7.6	5.6	10.5	3.8	12.5	2.75
77.5	9.8	5.18	12.5	3.63	14.3	2.65
75	11.8	4.78	14.3	3.48	16.1	2.58
72.5	13.7	4.38	16.2	3.33	17.7	2.5
70	15.5	4.03	17.9	3.2	19.3	2.45
67.5	17.3	3.73	19.7	3.05	20.9	2.4
65	19.1	3.5	21.3	2.93	22.4	2.35
62.5	20.6	3.0	22.8	2.6	23.8	2.25
60	22.1	2.55	24.2	2.3	25.3	2.15
57.5	23.6	2.2	25.6	1.98	26.6	1.88
55	25.1	1.88	27.0	1.7	27.8	1.63
52.5	26.5	1.6	28.3	1.48	28.9	1.4
50	27.9	1.38	29.6	1.28	30.1	1.23
47.5	29.2	1.2	30.8	1.1	31.2	1.05
45	30.5	1.03	31.9	0.95	32.3	0.93
42.5	31.7	0.88	33.0	0.8		
40	32.9	0.75	34.0	0.7		
37.5	33.9	0.63	35.0	0.6		
35	34.9	0.55	35.9	0.5		

34.7-m Boom + 15.2-m Jib						
C	5° Tilt		25° Tilt		45° Tilt	
	R	W	R	W	R	W
	80	9.7	2.88	14.4	1.85	17.8
77.5	12.2	2.8	16.6	1.75	19.7	1.2
75	14.7	2.75	18.7	1.68	21.7	1.18
72.5	16.9	2.53	20.7	1.6	23.4	1.15
70	19.0	2.35	22.6	1.53	25.2	1.13
67.5	21.0	2.2	24.5	1.45	26.8	1.1
65	23.0	2.08	26.3	1.4	28.4	1.1
62.5	24.9	1.98	28.0	1.35	30.0	1.08
60	26.7	1.88	29.7	1.3	31.4	1.05
57.5	28.3	1.58	31.4	1.2	32.9	1.03
55	29.9	1.33	32.9	1.15	34.2	1.03
52.5	31.4	1.1	34.2	0.95	35.3	0.88
50	33.0	0.93	35.5	0.8	36.4	0.75
47.5	34.4	0.78	36.8	0.65	37.5	0.63
45	35.8	0.65	37.9	0.55	38.5	0.53

C: Boom angle (°)
R: Load radius (m)
W :Rated lifting capacity

GR-500EX RATED LIFTING CAPACITIES

ON OUTRIGGERS MID EXTENDED 5.0 m SPREAD OVER SIDE (Unit: ×1000 kg)													
C	34.7-m Boom + 8.8-m Jib						C	34.7-m Boom + 15.2-m Jib					
	5° Tilt		25° Tilt		45° Tilt			5° Tilt		25° Tilt		45° Tilt	
	R	W	R	W	R	W		R	W	R	W	R	W
80	7.6	5.6	10.5	3.8	12.5	2.75	80	9.7	2.88	14.4	1.85	17.8	1.25
77.5	9.8	5.18	12.5	3.63	14.3	2.65	77.5	12.2	2.8	16.6	1.75	19.7	1.2
75	11.8	4.78	14.3	3.48	16.1	2.58	75	14.7	2.75	18.7	1.68	21.7	1.18
72.5	13.6	4.0	16.2	3.16	17.7	2.5	72.5	16.8	2.5	20.7	1.6	23.4	1.15
70	15.3	3.3	17.8	2.85	19.3	2.45	70	18.9	2.3	22.5	1.53	25.2	1.13
67.5	16.9	2.73	19.4	2.38	20.8	2.1	67.5	20.7	1.85	24.6	1.38	26.8	1.1
65	18.7	2.2	20.9	1.95	22.2	1.78	65	22.5	1.48	26.2	1.25	28.4	1.1
62.5	20.2	1.8	22.4	1.6	23.6	1.48	62.5	24.3	1.18	27.8	1.0	29.9	0.9
60	21.8	1.48	23.8	1.3	25.0	1.23	60	25.9	0.93	29.4	0.8	31.2	0.73
57.5	23.3	1.18	25.3	1.05	26.3	1.0	57.5	27.7	0.7	30.9	0.6	32.6	0.55
55	24.7	0.95	26.7	0.85	27.5	0.8	55	29.3	0.55	32.4	0.45	33.8	0.4
52.5	26.2	0.75	28.0	0.68	28.8	0.63							
50	27.6	0.58	29.3	0.53	29.9	0.5							

C: Boom angle (°)
 R: Load radius (m)
 W :Rated lifting capacity

ON RUBBER STATIONARY (Unit: ×1000 kg)													
B	A	Over Front						360° Rotation					
		10.7 m		18.7 m		26.7 m		10.7 m		18.7 m		26.7 m	
		C		C		C		C		C		C	
3.0	66.2	22.1				66.1	12.6						
3.5	63.2	19.7				63.1	10.4						
4.0	60.0	17.5	73.8	15.6		59.9	7.95	73.8	8.65				
4.5	56.7	15.8	72.2	14.0		56.5	6.25	72.1	7.15				
5.0	53.2	14.3	70.6	12.5		53.1	5.15	70.5	5.85				
5.5	49.6	13.0	69.0	11.6		49.4	4.25	68.9	4.95				
6.0	45.6	11.9	67.3	10.7		45.5	3.5	67.2	4.25				
6.5	41.4	11.0	65.6	9.95	73.9	7.4	41.2	2.85	65.5	3.65	73.6	3.95	
7.0	36.6	9.65	63.9	9.15	72.7	6.8	36.4	2.3	63.8	3.05	72.5	3.35	
8.0	24.3	7.4	60.3	7.85	70.5	5.8	24.1	1.5	60.2	2.15	70.2	2.45	
9.0			56.5	6.7	68.1	5.05			56.5	1.55	67.9	1.8	
10.0			52.7	5.55	65.7	4.45			52.6	1.1	65.5	1.35	
11.0			48.6	4.5	63.3	4.0			48.4	0.7	63.0	0.95	
12.0			44.1	3.75	60.8	3.7					60.5	0.6	
13.0			39.2	3.15	58.4	3.4							
14.0			33.7	2.65	55.6	2.9							
15.0			27.1	2.25	52.9	2.5							
16.0			17.6	1.9	50.1	2.15							
17.0					47.0	1.85							
18.0					43.8	1.55							
19.0					40.4	1.3							
20.0					36.7	1.1							
22.0					27.9	0.75							
0°						39°			55°				

LIFTING CAPACITY AT ZERO DEGREE BOOM ANGLE ON RUBBER CREEP (Unit: ×1000 kg)									
C	A	Over Front						360° Rotation	
		10.7 m		18.7 m		26.7 m		10.7 m	
		B		B		B		B	
0°	8.6	6.7	16.6	1.7	24.5	0.4	8.6	1.2	

A: Boom length (m)
 B: Load radius (m)
 C: Loaded boom angle (°)
 D: Minimum boom angle (°) for indicated boom length (no load)

GR-500EX RATED LIFTING CAPACITIES

ON RUBBER CREEP (Unit: x 1,000 kg)												
B	A	Over Front					360° Rotation					
		10.7 m		18.7 m		26.7 m	10.7 m		18.7 m		26.7 m	
		C		C			C		C		C	
3.0	66.2	16.4					66.1	9.55				
3.5	63.1	14.4					63.0	8.0				
4.0	59.9	12.7	73.7	13.4			59.8	6.7	73.7	7.5		
4.5	56.6	11.4	72.1	12.1			56.5	5.35	72.1	6.35		
5.0	53.2	10.3	70.5	10.9			53.1	4.5	70.5	5.2		
5.5	49.5	9.4	68.9	9.95			49.4	3.65	68.9	4.25		
6.0	45.6	8.5	67.2	9.05			45.5	3.0	67.2	3.5		
6.5	41.3	7.75	65.5	8.25	73.9	7.4	41.2	2.4	65.5	2.95	73.6	3.4
7.0	36.5	7.05	63.8	7.6	72.7	6.8	36.4	1.95	63.8	2.55	72.5	2.85
8.0	24.2	5.95	60.3	6.5	70.5	5.7	24.1	1.25	60.2	1.9	70.2	2.05
9.0			56.5	5.6	68.1	4.75			56.5	1.35	67.8	1.55
10.0			52.7	4.65	65.7	4.2			52.6	0.9	65.4	1.15
11.0			48.5	3.8	63.3	3.65			48.4	0.55	63.0	0.8
12.0			44.1	3.15	60.8	3.15					60.5	0.5
13.0			39.2	2.65	58.3	2.75						
14.0			33.7	2.2	55.6	2.45						
15.0			27.1	1.85	52.9	2.05						
16.0			17.6	1.55	50.1	1.75						
17.0					47.0	1.5						
18.0					43.8	1.3						
19.0					40.4	1.05						
20.0					36.7	0.9						
22.0					27.8	0.55						
					0°	14°		0°	44°		58°	

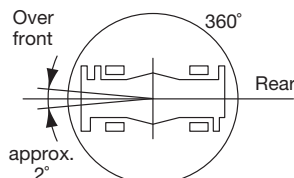
LIFTING CAPACITY AT ZERO DEGREE BOOM ANGLE ON RUBBER STATIONARY (Unit: x1000kg)												
C	A	Over Front					360° Rotation					
		10.7 m		18.7 m		26.7 m	10.7 m		18.7 m		26.7 m	
		B		B			B		B		B	
0°	8.6	5.4	16.6	1.4			8.6	0.9				

- A: Boom length (m)
- B: Load radius (m)
- C: Loaded boom angle (°)
- D: Minimum boom angle (°) for indicated boom length (no load)

WARNING AND OPERATING INSTRUCTIONS FOR ON RUBBER LIFTING CAPACITIES

- Rated lifting capacities based on crane stability are according to ISO4305.
- Rated lifting capacities shown in the chart are based on the condition that crane is set on firm level surfaces with suspension lock applied. Those above thick lines are based on tire capacity and those below, on crane stability. They are based on actual load radius increased by tire deformation and boom deflection.
- If the suspension lock cylinders contain air, the axle will not be locked completely and rated lifting capacities may not be obtainable. Bleed the cylinders according to the operation safety and maintenance manual.
- Rated lifting capacities are based on proper tire inflation, capacity and condition. Damaged tires are hazardous to safe operation of crane.
- Tires shall be inflated to correct air pressure.

Tires	Air Pressure
23.5-25	450 kPa
- Over front operation shall be performed within 2 degrees in front of chassis.
- On rubber lifting with "jib" is not permitted. Maximum permissible boom length is 26.7 m.
- When making lift on rubber stationary, set parking brake.
- For creep operation, travel slowly and keep the lifted load as close to the ground as possible, and especially avoid any abrupt steering, accelerating or braking.
- Do not operate the crane while carrying the load.
- Creep is motion for crane not to travel more than 60 m in any 30 minute period and to travel at the speed of less than 1.6 km/h.
- For creep operation, choose the drive mode and proper gear according to the road or working condition.
- The mass of the hook (500 kg for 50 t capacity, 400 kg for 20 t capacity, 150 kg for 5.6 t capacity), slings and all similarly used load handling devices must be considered as part of the load and must be deducted from the lifting capacities.
- For rated lifting capacity of single top, reduce the rated lifting capacities of relevant boom according to a weight reductions for auxiliary load handling equipment. Capacities of single top shall not exceed 5,600 kg including main hook.
- The lifting capacity data stowed in the Automatic Moment Limiter (AML-C) is based on the standard number of parts of line listed in the chart. Standard number of parts of line for on rubber operation should be according to the following table.



Boom length	10.7 m	18.7 m to 26.7 m	Single top
Number of parts of line	6	4	1

WARNING AND OPERATING INSTRUCTIONS FOR LIFTING CAPACITIES

GENERAL

1. RATED LIFTING CAPACITIES apply only to the machine as originally manufactured and normally equipped by TADANO LTD. Modifications to the machine or use of optional equipment other than that specified can result in a reduction of capacity.
2. Hydraulic cranes can be hazardous if improperly operated or maintained. Operation and maintenance of this machine must be in compliance with information in the **Operation and Maintenance Manual** supplied with the crane. If this manual is missing, order a replacement through the distributor.

SET UP

1. Rated lifting capacities on the chart are the maximum allowable crane capacities and are based on the machine standing level on firm supporting surface under ideal job conditions. Depending on the nature of the supporting surface, it may be necessary to have structural supports under the outrigger floats or tires to spread the loads to a larger bearing surface.
2. For outrigger operation, outriggers shall be properly extended with tires free of supporting surface before operating crane.

OPERATION

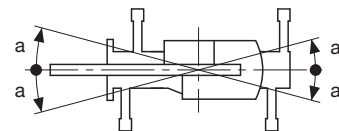
1. Rated lifting capacities on outriggers fully extended as determined by ISO4305.
2. Rated lifting capacities above thick lines in the chart are based on crane strength and those below, on its stability. They are based on actual load radius increased by boom deflection.
3. The weight of handling device such as hook blocks (500 kg for 50 t capacity, 400 kg for 20 t capacity, 150 kg for 5.6 t capacity), slings, etc., must be considered as part of the load and must be deducted from the lifting capacities.
4. Rated lifting capacities are based on freely suspended loads and make no allowance for such factors as the effect of wind, sudden stopping of loads, supporting surface conditions, inflation of tires, operating speeds, side loads, etc. Side pull on the boom or jib is extremely dangerous. Such action can damage the boom, jib or slewing mechanism, and lead to overturning of the crane.
5. Rated lifting capacities do not account for wind on lifted load or boom. We recommend against working under the conditions that the load is out of control due to a strong wind. During boom lift, consider that the rated lifting capacity is reduced by 50% when the wind speed is 9 m/s to 12 m/s; reduced by 70% when the wind speed is 12 m/s to 14 m/s. If the wind speed is 14 m/s or over, stop operation. During jib lift, stop operation if the wind speed is 9 m/s or over.
6. Rated lifting capacities at load radius shall not be exceeded. Do not tip the crane to determine allowable loads.
7. Do not operate at boom lengths, radii, or boom angles, where no capacities are shown. Crane may overturn without any load on the hook.
8. When boom length is between values listed, refer to the rated lifting capacities of the next longer and next shorter booms for the same radius. The lesser of the two rated lifting capacities shall be used.
9. When making lifts at a load radius not shown, use the next longer radius to determine allowable capacity.
10. Load per line should not exceed 57.1 kN (5,600 kgf) for main winch and auxiliary winch.
11. Check the actual number of parts of line with Automatic Moment Limiter (AML-C) before operation. Maximum lifting capacity is restricted by the number of parts of line of Automatic Moment Limiter (AML-C). Limited capacity is as determined from the formula, Single line pull for main winch 57.1 kN (5,600 kgf) x number of parts of line.
12. The boom angle before loading should be greater to account for deflection. For rated lifting capacities, the loaded boom angle and the load radius is for reference only.

13. The 10.7-m Boom length capacities are based on boom fully retracted.
14. Extension or retraction of the boom with loads may be attempted within the limits of the RATED LIFTING CAPACITIES. The ability to telescope loads is limited by hydraulic pressure, boom angle, boom length, crane maintenance, etc.
15. For lifting capacity of single top, deduct the weight of the load handling equipment from the rated lifting capacity of the boom. For the lifting capacity of single top, the net capacity shall not exceed 5,600 kg including the main boom hook mass attached to the boom.
16. When a jib is removed, set the jib state switch to the REMOVED position.
17. When erecting and stowing jib, be sure to retain it by hand or by other means to prevent its free movement.
18. Use "ANTI-TWO-BLOCK DEVICE" disable switch when erecting and stowing jib and when stowing hook block. While the switch is pushed, the hoist does not stop, even when overwind condition occurs.
19. For boom length with 8.8-m Jib, rated lifting capacities are determined by loaded boom angle only in the column headed "34.7-m Boom + 8.8-m Jib".
For boom length with 15.2-m Jib, rated lifting capacities are determined by loaded boom angle only in the column headed "34.7-m Boom + 15.2-m Jib".
For angles not shown, use the next lower loaded boom angle to determine allowable capacity.
20. When lifting a load by using jib (aux. winch) and boom (main winch) simultaneously, do the following:
 - Enter the operation status as jib operation, not as boom operation.
 - Before starting operation, make sure that mass of load is within rated lifting capacity for jib.
21. The lifting capacity data stowed in the Automatic Moment Limiter (AML-C) is based on the standard number of parts of line listed in the chart. Standard number of parts of line for on outrigger operation should be according to the following table.

Boom length	10.7 m	10.7 m to 18.7 m	18.7 m to 34.7 m	Single top/ jib
Number of parts of line	10	6	4	1

22. The lifting capacity for over side area differs depending on outrigger extension width. Work with capacity corresponding to the extension width. The lifting capacity for over front and over rear areas are for "outriggers fully extended". However, the areas (angle a) differ depending on the outrigger extension width.

Outriggers extended width	6.5 m (middle)	5.0 m (middle)	2.48 m (minimum)
Angle a°	45	25	15



DEFINITIONS

1. Load Radius: Horizontal distance from a projection of the axis of rotation to supporting surface before loading to the center of the vertical hoist line or tackle with load applied.
2. Loaded Boom Angle: The angle between the boom base section and the horizontal, after lifting the rated lifting capacity at the load radius.
3. Working Area: Area measured in a circular arc about the centerline of rotation.
4. Freely Suspended Load: Load hanging free with no direct external force applied except by the hoist line.
5. Side Load: Horizontal side force applied to the lifted load either on the ground or in the air.

WARNING AND OPERATING INSTRUCTIONS FOR USING THE AUTOMATIC MOMENT LIMITER (AML-C)

- Set AML select keys in accordance with the actually operating crane conditions and don't fail to make sure, before crane operation, that the displays on front panel are correct.
- When operating crane on outriggers:
 - Set P.T.O. switch to "ON".
 - Press the outrigger state select key to register for the outrigger operation. If the display agrees with the actual state, press the set key to register. After the completion of the registration, the pop-up window closes.
 - Press the lift state select key to register the lift state to be used (single top / jib / boom).
 - Each time the lift state select key is pressed, the display changes. If the display agrees with the actual state, press the set key to register. After the completion of the registration, the pop-up window closes.
 - When erecting and stowing jib, select the status of jib set (Jib lift indicative symbol flickers).
- When operating crane on rubber:
 - Set P.T.O. switch to "ON".
 - Press the outrigger state select key to register for the on rubber operation. Each time the outrigger state select key is pressed, the display changes. Select the creep operation, the on rubber state indicative symbol flickers.
 - Press the lift state select key to register the lift state.

However, pay attention to the following.
For stationary and creep operation.

 - The front capacities are attainable only when the over front position symbol comes on. When the boom is more than 2 degrees from centered over front of chassis, 360° capacities are in effect.
- When a load is lifted in the front position and then slewed to the side area, make sure the value of the AUTOMATIC MOMENT LIMITER (AML-C) is below the 360° lifting capacity.
- This machine is equipped with an automatic slewing stop device.
(For the details, see Operation and Maintenance Manual.)
But, operate very carefully because the automatic slewing stop does not work in the following cases.
 - During on rubber operation.
 - When the "P.T.O." switch is set to "OVERRIDE" and the "OVERRIDE" key switch outside the cab is on.
- During crane operation, make sure that the displays on front panel are in accordance with actual operating conditions.
- The displayed values of AUTOMATIC MOMENT LIMITER (AML-C) are based on freely suspended loads and make no allowance for such factors as the effect of wind, sudden stopping of loads, supporting surface conditions, inflation of tire, operating speed, side loads, etc.
For safe operation, it is recommended when extending and lowering boom or slewing, lifting loads shall be appropriately reduced.
- AUTOMATIC MOMENT LIMITER (AML-C) is intended as an aid to the operator. Under no condition should it be relied upon to replace use of capacity charts and operating instruction.
Sole reliance upon AUTOMATIC MOMENT LIMITER (AML-C) aids in place of good operating practice can cause an accident. The operator must exercise caution to assure safety.

GR-500EX Axle weight distribution chart

	Kilograms		
	GVW	Front	Rear
Basic machine	33,445	16,430	17,015
Add: 1. 50 ton hook block	500	920	-420
2. 20 ton hook block	400	740	340
Remove: 1. 5.6 ton hook block	-150	-210	60
2. Top jib	-225	-285	60
3. Base jib	-625	-1,140	515



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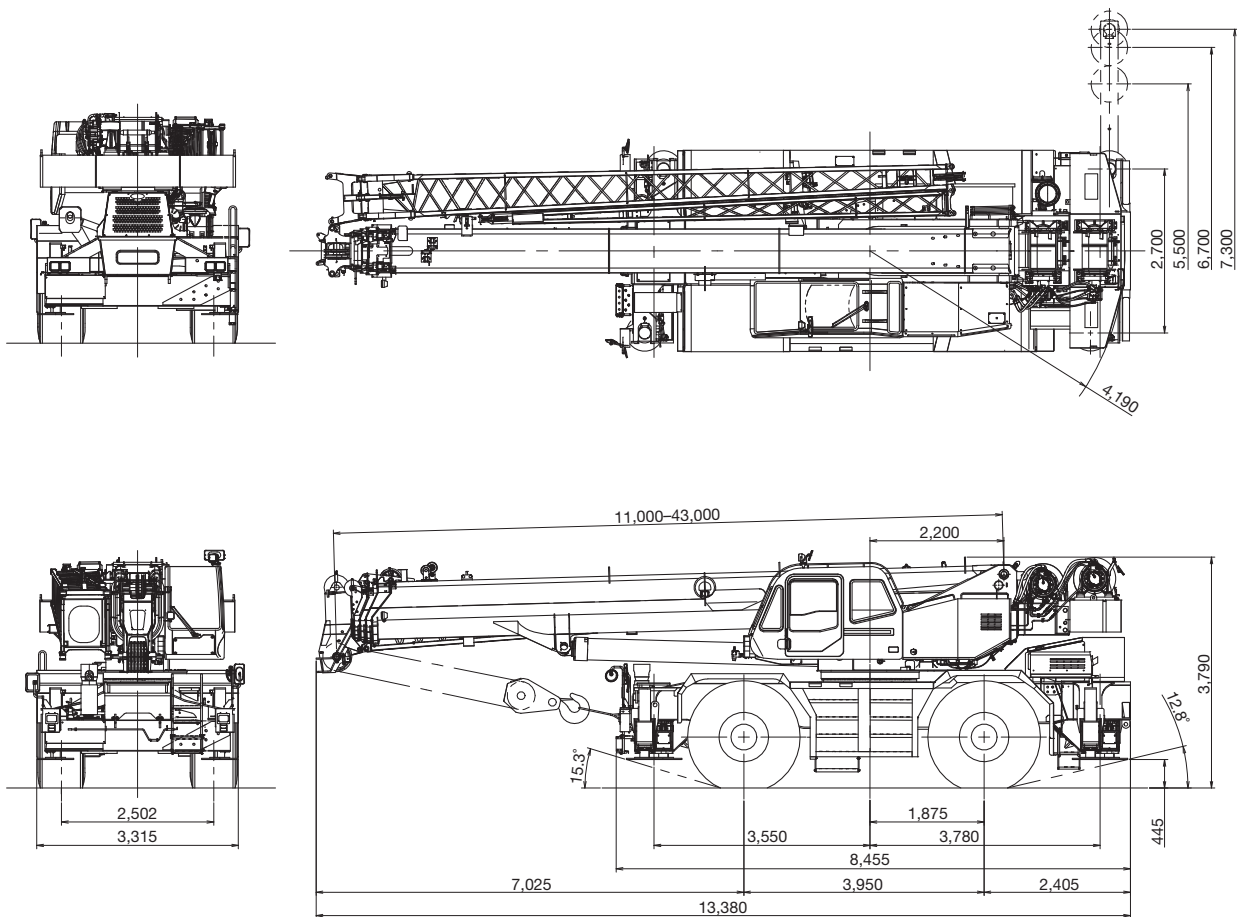
GR-600EX

(Left-hand drive)
60 Ton Capacity

SPEC. SHEET NO. GR-600E-3-00102/EX-03

HYDRAULIC ROUGH TERRAIN CRANE

DIMENSIONS



Note : Dimension is with boom angle at -1.6 degree.

GENERAL DIMENSIONS

Turning radius (29.5 - 25 Tires)		Overall length	approx. 13,380 mm
4 wheel steer	6.8 m	Overall width	approx. 3,315 mm
2 wheel steer	11.9 m	Overall height	approx. 3,790 mm

CRANE SPECIFICATIONS

BOOM

5 section full power partially synchronized telescoping boom of round box construction with 5 sheaves at boom head. The synchronization system consists of 2 telescope cylinder, extension cables and retraction cables. Hydraulic cylinder fitted with holding valve. 2 easily removable wire rope guards, rope dead end provided on both sides of boom head. Boom telescope sections are supported by wear pads both vertically and horizontally.

Fully retracted length.....	11.0 m
Fully extended length	43.0 m
Extension speed.....	32.0 m in 128 s
Root diameter.....	0.44 m

BOOM ELEVATION

By a double acting hydraulic cylinder with holding valve. Combination controls for hand or foot operation. Boom angle indicator.

Automatic speed reduction and slow stop function.

Boom angle	-1.6°- 80.3°
Boom raising speed	20° to 60° in 46 s

JIB

2 stage swing around boom extension swing around type with triple offset (tilt type). Single sheave at jib head.

Stows alongside base boom section.

Length	10.1 m, 17.7 m
Offset	3.5°, 25°, 45°
Root diameter.....	0.396 m

AUXILIARY LIFTING SHEAVE (SINGLE TOP)

Single sheave mounted to main boom head for single line work(stowable).

Root diameter.....	0.396 m
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ANTI-TWO-BLOCK DEVICE

Pendant type over-winding cut out device with audio-visual (FAILURE lamp/BUZZER) warning system.

SLEWING

Hydraulic axial piston motor driven through planetary slewing speed reducer. Continuous 360° full circle slewing on ball bearing.

Equipped with manually locked/released slewing brake.

A positive slewing lock for pick and carry and travel modes, manually engaged in cab. Twin slewing system : Free slewing or lock slewing controlled by selector switch on front console.

Slewing speed	2.4 min ⁻¹ {rpm}
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WINCH

MAIN WINCH

Variable speed type with grooved drum driven by hydraulic axial piston motor through speed reducer. Power load lowering and raising.

Equipped with automatic brake (neutral brake) and counterbalance valve. Controlled independently of auxiliary winch. Equipped with cable follower and drum rotation indicator.

MAIN DRUM

Root diameter x wide	0.362 m x 0.6 m
Wire rope diameter x length	19 mm x 235 m
Drum capacity	304 m, 7 layers
Maximum single line pull (1st layer).....	73.3 kN (7,480 kgf)
Maximum permissible linepull wire strength.....	69.4 kN (7,085 kgf)

AUXILIARY WINCH

Variable speed type with grooved drum driven by hydraulic axial piston motor through speed reducer. Power load lowering and raising.

Equipped with automatic brake (neutral brake) and counterbalance valve. Controlled independently of main winch. Equipped with cable follower and drum rotation indicator.

AUXILIARY DRUM

Root diameter x wide	0.362 m x 0.6 m
Wire rope diameter x length	19 mm x 133 m
Drum capacity	304 m, 7 layers
Maximum single line pull (1st layer).....	73.3 kN (7,480 kgf)
Maximum permissible linepull wire strength.....	69.4 kN (7,085 kgf)

WIRE ROPE

Filler or warrington seal wire (spin-resistant), extra improved plow steel, preformed, independent wire rope core, right regular lay.

Main & Auxillary	19 mm 6 x 31 class
------------------------	--------------------

HOOK BLOCKS

60 ton (option)

6 sheaves with swivel hook and safety latch

35 ton (option)

3 sheaves with swivel hook and safety latch

5.6 ton

Weighted hook with swivel and safety latch

HYDRAULIC SYSTEM

PUMPS

2 variable piston pumps for crane functions.

Tandem gear pump for steering, slewing and optional equipment. Powered by carrier engine. Pump disconnect for crane is engaged/disengaged by rotary switch from operator's cab.

CONTROL VALVES

Multiple valves actuated by pilot pressure with integral pressure relief valves.

RESERVOIR

763 liters capacity. External sight level gauge.

FILTRATION

BETA10=10 return filter, full flow with bypass protection, located inside of hydraulic reservoir. Accessible for easy replacement.

OIL COOLER - Air cooled fan type.

CAB AND CONTROLS

Both crane and drive operations can be performed from one cab mounted on rotating superstructure.

Left side, 1 man type, steel construction with sliding door access and safety glass windows opening at side. Door window is powered control. Windshield glass window and roof glass window are shatter-resistant. Wiper and washer (front windshield and roof window). Tinted safety glass and sun visor. Tilt-telescoping steering wheel. Adjustable control lever stands for slewing, boom elevating, boom telescoping, auxiliary winch and main winch. Control lever stands can change neutral positions and tilt for easy access to cab. Foot operated controls: boom elevating, boom telescoping, service brake and engine throttle. 3 way adjustable operator's seat with high back, headrest and armrest. Cab floor mat. Engine throttle knob. Hot water cab heater and air conditioning.

Dash-mounted engine start/stop, monitor lamps, cigarette lighter, drive selector switch, parking brake switch, steering mode select switch, power window switch, pump engaged/disengaged switch, slewing brake switch, boom telescoping/auxiliary winch select switch, outrigger control panel, and slewing free/ lock selector switch.

Instruments - Torque converter oil temperature, engine water temperature, air pressure, fuel, speedometer, tachometer, hour meter and odometer / tripmeter. Engine over-run alarm. Back-up alarm. Low oil pressure/high water temp. Warning device (visual). Rear steer centering light. Hydraulic oil pressure is monitored and displayed on the AML-C display panel.

CRANE SPECIFICATIONS

TADANO Automatic Moment Limiter

(AML-C) including:

- Control lever lockout function with audible and visual pre-warning
- Number of parts of line
- Boom position indicator
- Outrigger state indicator
- Slewing angle
- Boom angle / boom length / jib offset angle / jib length / load radius / rated lifting capacities / actual loads read out
- Potential lifting height
- Ratio of actual load moment to rated load moment indication
- Permissible load
- Automatic Speed Reduction and Slow Stop function on boom elevation and slewing
- Working condition register switch
- Load radius / boom angle / tip height / slewing range preset function
- External warning lamp
- Tare function

- Main hydraulic oil pressure
- Fuel consumption monitor
- Main winch / auxiliary winch select
- Drum rotation indicator (audible and visible type) main and auxiliary winch
- On-rubber indicator

TADANO AML-C monitors outrigger extended length and automatically programs the corresponding "RATED LIFTING CAPACITIES" table

Operator's right hand console includes transmission gear selector, slewing lock lever and sight level bubble.

Upper right console includes flood lamp switch, roof washer and wiper switch, emergency outrigger set up key switch, jib status switch, eco mode switch, and air conditioning control switch. Lower right console includes boom emergency telescoping switch (2nd and 3rd-top)

NOTE: Each crane motion speed is based on unladen conditions.

CARRIER SPECIFICATIONS

TYPE

Rear engine, left-hand drive, driving axle 2-way selected type by manual switch, 4x2 front drive, 4x4 front and rear drive.

FRAME

High tensile steel, all welded mono-box construction.

ENGINE

Model	MITSUBISHI 6M60-TL
Type	Direct injection diesel
No. of cylinders	6
Combustion	4 cycle, turbo charged and after cooled
Bore x Stroke, mm	118 x 115
Displacement, liters	7.54
Air inlet heater	24 volt preheat
Air cleaner	Dry type, replaceable element
Oil filter	Full flow with replaceable element
Fuel filter	Full flow with replaceable element
Fuel tank, liters	300, right side of carrier
Cooling	Liquid pressurized, recirculating by-pass
Radiator	Fin and tube core, thermostat controlled
Fan, mm	Suction type, 6-blade, 600 dia.
Starting	24 volt
Charging	24 volt system, negative ground
Battery	2-120 amp. Hour
Compressor, air, l /min	830 at 2,600 min ⁻¹
Output, Max. kW (HP)	Gross 200 (267) at 2,600 min ⁻¹
Torque, Max. Nm	785 at 1,400 min ⁻¹
Capacity, liters	
Cooling water	13
Lubrication	13-15
Fuel	300

TRANSMISSION

Electronically controlled full automatic transmission.
Torque converter driving full powershift with driving axle selector.
6 forward and 2 reverse speeds, constant mesh.
3 speeds - high range - 2-wheel drive; 4-wheel drive
3 speeds - low range - 4-wheel drive

TRAVEL SPEED - 36 km/h

GRADE ABILITY (tan θ) - 147% (at stall), 30% *

* Machine should be operated within the limit of engine crankcase design (17": MITSUBISHI 6M60-TL)

AXLE

Front: Full floating type, steering and driving axle with planetary reduction.

Rear: Full floating type, steering and driving axle with planetary reduction and non-spin rear differential.

STEERING

Hydraulic power steering controlled by steering wheel.
4 steering modes available: 2 wheel front, 2 wheel rear, 4 wheel coordinated and 4 wheel crab.

SUSPENSION

Front: Rigid mounted to the frame.
Rear: Pivot mounted with hydraulic lockout device.

BRAKE SYSTEMS

Service: Air over hydraulic disc brakes on all 4 wheels.
Parking/Emergency: Spring applied-air released brake acting on input shaft of front axle.
Auxiliary: Electro-pneumatic operated exhaust brake.

TIRES - 29.5-25 22PR (OR) Air pressure: 350 kPa
or 29.5-25 28PR (OR) Air pressure: 330 kPa

OUTRIGGERS

4 hydraulic, beam and jack outriggers.
Vertical jack cylinders equipped with integral holding valve.
Each outrigger beam and jack is controlled independently from cab.
Beams extend to 7.3 m center-line and retract to within 3.315 m overall width with floats. Outrigger jack floats are attached thus eliminating the need of manually attaching and detaching them. Controls and sight bubble located in superstructure cab. 4 outrigger extension lengths are provided with corresponding "RATED LIFTING CAPACITIES" for crane duty in confined areas.

Min. Extension	2.7 m center to center
Mid. Extension	5.5 m center to center
Mid. Extension	6.7 m center to center
Max. Extension	7.3 m center to center
Float size (Diameter)	0.6 m

COUNTERWEIGHT

Integral with slewing frame Mass... 5,670 kg
(Containing weight with auxiliary winch and wire rope)

STANDARD EQUIPMENT

- Telematics (machine data logging and monitoring system) with - HELLO-NET via internet (availability depends on countries)
- Eco mode system
- Positive control
- Over unwinding prevention
- Emergency steering system
- Transmission neutral position engine start
- Overshift prevention
- Parking braked travel warning
- Tilt-telescope steering wheel
- Halogen head lamp
- Fenders
- Air dryer
- Water separator with filter (high filtration)
- Air cleaner dust indicator
- Full instrumentation package
- Complete highway light package
- Tire inflation kit
- Towing hooks-Front and rear
- Lifting eyes
- Hook block tie down (front bumper)
- Weighted hook storage compartment
- Winch drum mirror
- Tool storage compartment

OPTIONAL EQUIPMENT

- Wind speed indicator
- Hook block-60 t capacity (6 sheaves, swivel type with safty latch. Mass: approx. 540 kg)
- Hook block-35 t capacity (3 sheaves, swivel type with safty latch. Mass: approx. 450 kg)

HOISTING PERFORMANCE

LINE SPEEDS AND PULLS

Layer	Main or auxiliary winch - 0.362 m drum	
	Line speeds ¹	Line pulls Available ²
	m/min	kN (kgf)
1st	101	73.3 (7,480)
2nd	110	67.6 (6,900)
3rd	119	61.4 (6,260)
4th	128	56.5 (5,760)
5th	137	52.9 (5,400)
6th	146	48.9 (4,990)
7th ³	155	45.8 (4,670)

- Maximum permissible line pull wire strength.
Main & Auxiliary: 69.4 kN (7,085 kgf) with 6 x 31 class rope.

- ¹ Line speed based only on hook block, not loaded.
² Developed by machinery with each layer of wire rope, but not based on rope strength or other limitations in machinery or equipment.
³ Eighth layer of wire rope are not recommended for hoisting operations.

DRUM WIRE ROPE CAPACITIES

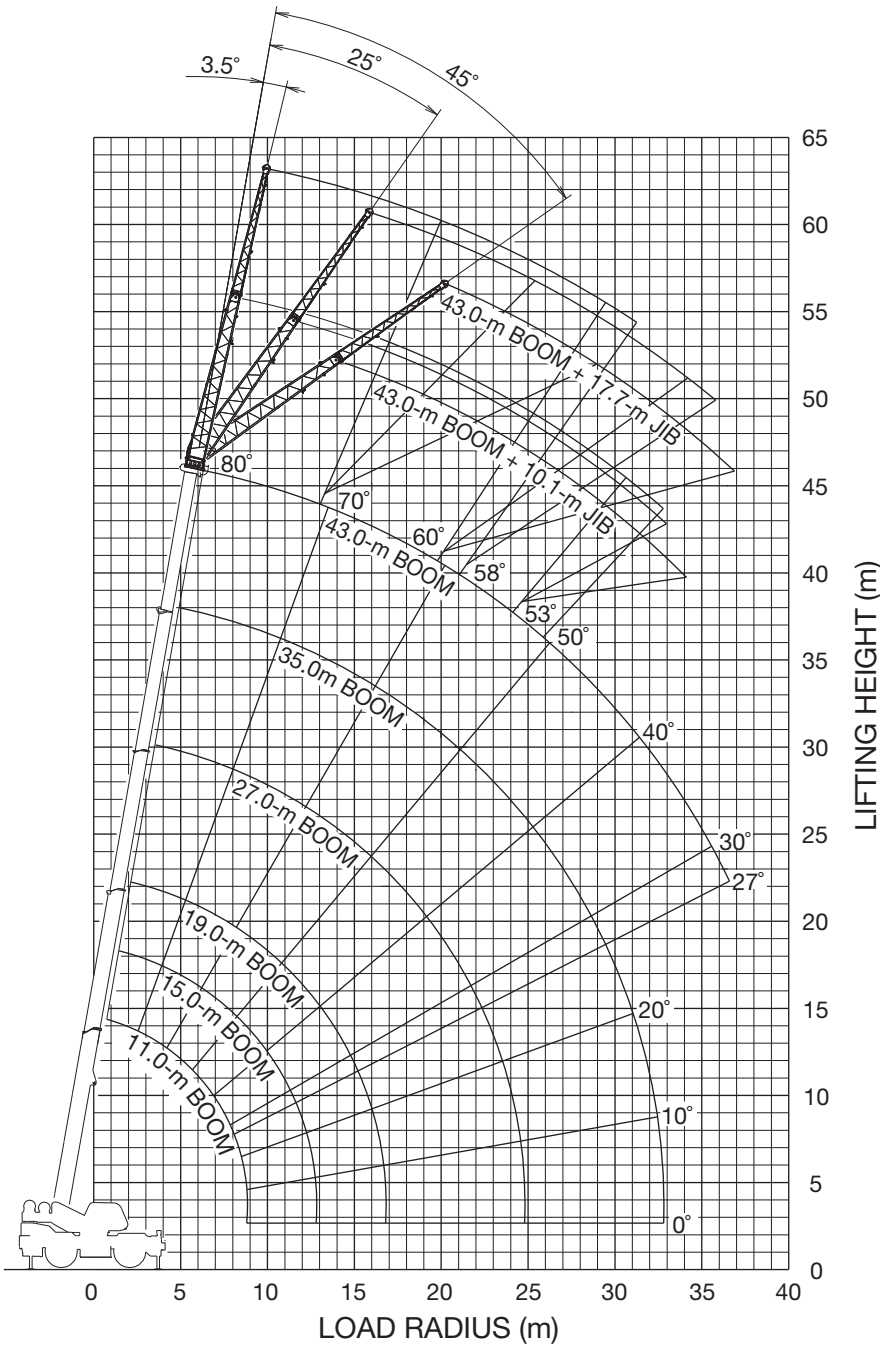
Wire rope layer	Main and auxiliary drum grooved lagging	
	19 mm wire rope	
	Rope per layer	Total wire rope
	m	m
1	34.2	34.2
2	37.3	71.5
3	40.3	111.8
4	43.4	155.2
5	46.4	201.6
6	49.5	251.1
7	52.6	303.7

DRUM DIMENSIONS

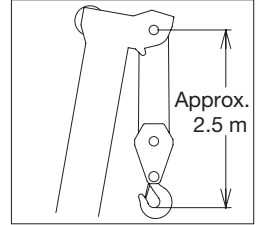
Root diameter	362 mm
Length	600 mm
Flange diameter	657 mm

GR-600EX WORKING RANGE CHART

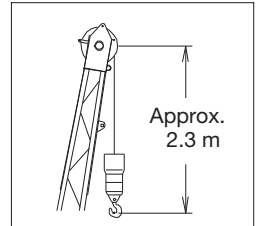
Telescoping mode I



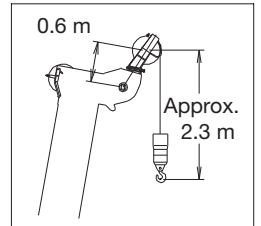
BOOM



JIB

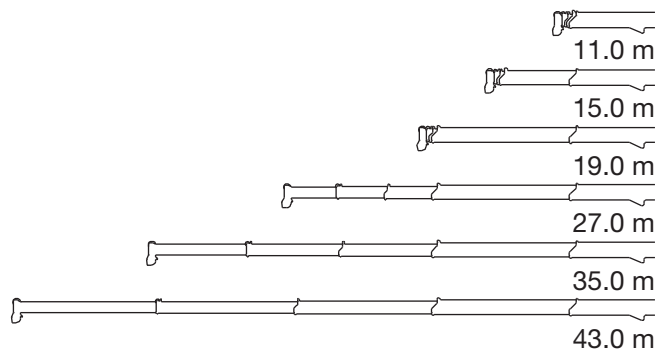


SINGLE TOP



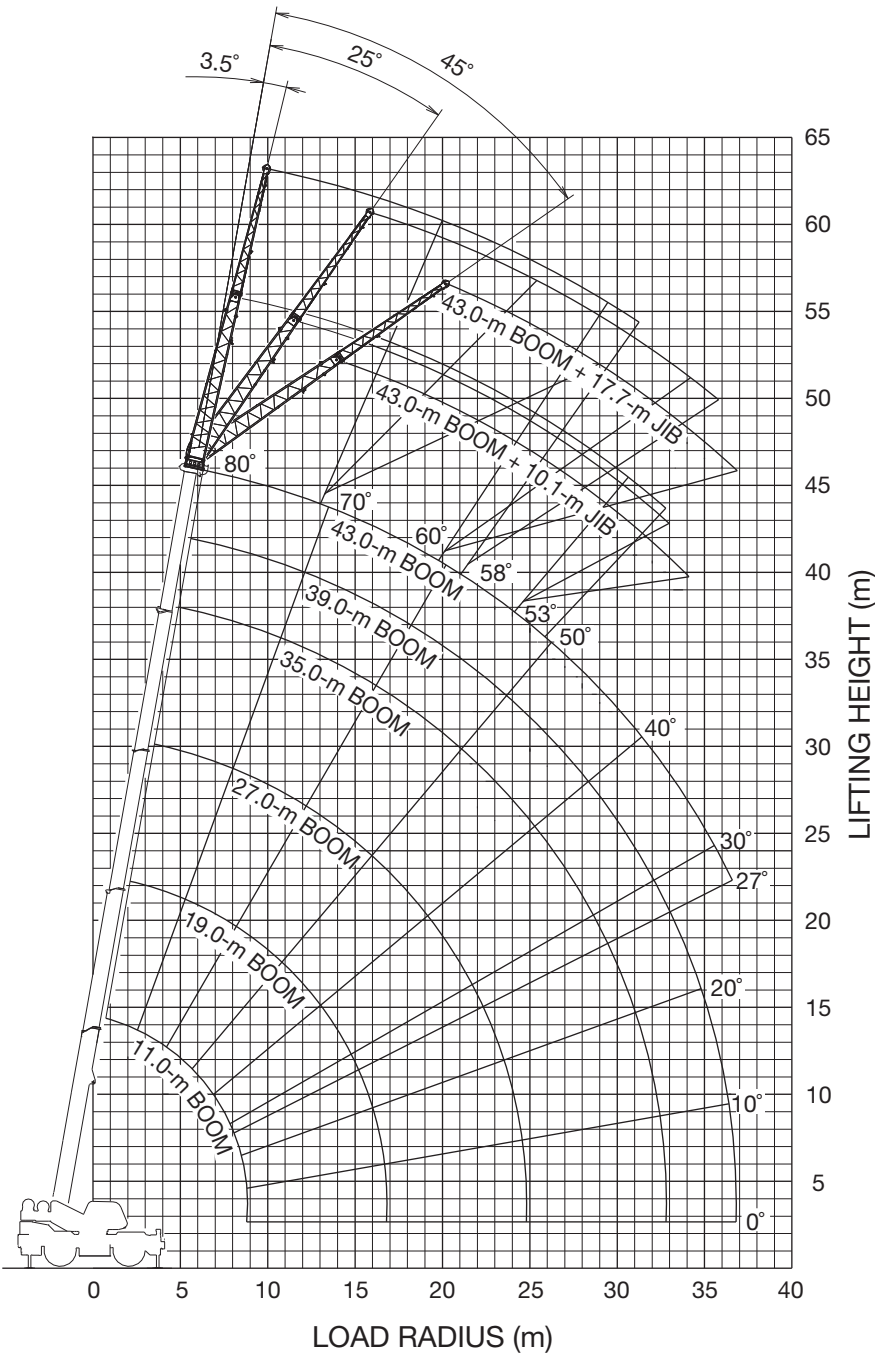
The above lifting height and boom angle are based on a straight (unloaded) boom and machine standing level on firm supporting surface. Allowance should be made for boom deflection obtained under loaded conditions. The above working range is shown on condition with outriggers fully (7.3 m) extended.

Boom Length

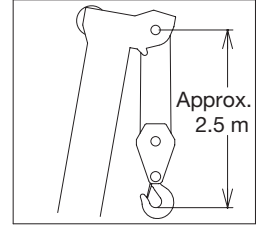


GR-600EX WORKING RANGE CHART

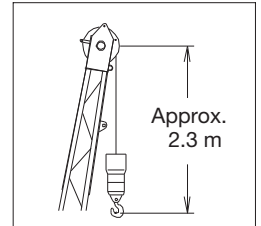
Telescoping mode II



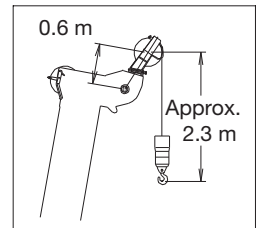
BOOM



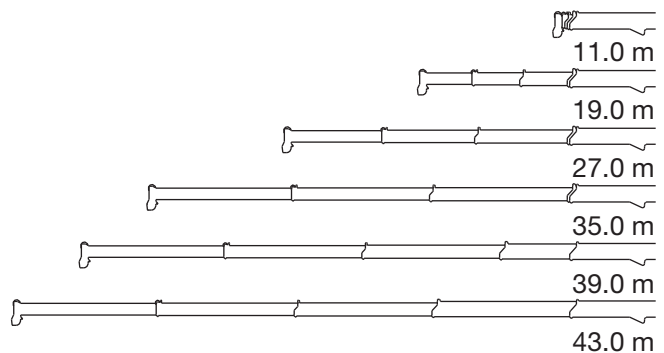
JIB



SINGLE TOP



The above lifting height and boom angle are based on a straight (unloaded) boom and machine standing level on firm supporting surface. Allowance should be made for boom deflection obtained under loaded conditions. The above working range is shown on condition with outriggers fully (7.3 m) extended.

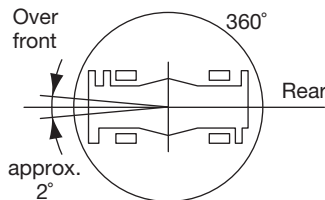


WARNING AND OPERATING INSTRUCTIONS FOR ON RUBBER LIFTING CAPACITIES

1. Rated lifting capacities based on crane stability are according to ISO4305.
2. Rated lifting capacities shown in the chart are based on the condition that crane is set on firm level surfaces with suspension lock applied. Those above thick lines are based on tire capacity and those below, on crane stability. They are based on actual load radius increased by tire deformation and boom deflection.
3. If the suspension lock cylinders contain air, the axle will not be locked completely and rated lifting capacities may not be obtainable. Bleed the cylinders according to the operation safety and maintenance manual.
4. Rated lifting capacities are based on proper tire inflation, capacity and condition. Damaged tires are hazardous to safe operation of crane.
5. Tires shall be inflated to correct air pressure.

Tires	Air Pressure
29.5-25 22PR	420 kPa
29.5-25 28PR	450 kPa

6. Over front operation shall be performed within 2 degrees in front of chassis.



7. On rubber lifting with "jib" is not permitted. Maximum permissible boom length is 27.0 m.

8. When making lift on rubber stationary, set parking brake.
9. For creep operation, travel slowly and keep the lifted load as close to the ground as possible, and especially avoid any abrupt steering, accelerating or braking.
10. Do not operate the crane while carrying the load.
11. Creep is motion for crane not to travel more than 60 m in any 30 minute period and to travel at the speed of less than 1.6 km/h.
12. For creep operation, choose the drive mode and proper gear according to the road or working condition.
13. The mass of the hook (540 kg for 60 t capacity, 450 kg for 35 t capacity, 150 kg for 5.6 t capacity), slings and all similarly used load handling devices must be considered as part of the load and must be deducted from the lifting capacities.
14. For rated lifting capacity of single top, reduce the rated lifting capacities of relevant boom according to a weight reductions for auxiliary load handling equipment. Capacities of single top shall not exceed 5,600 kg including main hook.
15. The lifting capacity data stowed in the Automatic Moment Limiter (AML-C) is based on the standard number of parts of line listed in the chart. Standard number of parts of line for on rubber operation should be according to the following table.

Boom length	11.0 m	11.0 m to 27.0 m	Single top
Telescoping mode	I, II	II	I, II
Number of parts of line	6	4	1

WARNING AND OPERATING INSTRUCTIONS FOR LIFTING CAPACITIES

GENERAL

1. RATED LIFTING CAPACITIES apply only to the machine as originally manufactured and normally equipped by TADANO LTD. Modifications to the machine or use of optional equipment other than that specified can result in a reduction of capacity.
2. Hydraulic cranes can be hazardous if improperly operated or maintained. Operation and maintenance of this machine must be in compliance with information in the **Operation and Maintenance Manual** supplied with the crane. If this manual is missing, order a replacement through the distributor.

SET UP

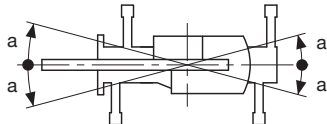
1. Rated lifting capacities on the chart are the maximum allowable crane capacities and are based on the machine standing level on firm supporting surface under ideal job conditions. Depending on the nature of the supporting surface, it may be necessary to have structural supports under the outrigger floats or tires to spread the loads to a larger bearing surface.
2. For outrigger operation, outriggers shall be properly extended with tires free of supporting surface before operating crane.

OPERATION

1. Rated lifting capacities on outriggers fully extended as determined by ISO4305.
2. Rated lifting capacities above thick lines in the chart are based on crane strength and those below, on its stability. They are based on actual load radius increased by boom deflection.
3. The weight of handling device such as hook blocks (540 kg for 60 t capacity, 450 kg for 35 t capacity, 150 kg for 5.6 t capacity), slings, etc., must be considered as part of the load and must be deducted from the lifting capacities.
4. Rated lifting capacities are based on freely suspended loads and make no allowance for such factors as the effect of wind, sudden stopping of loads, supporting surface conditions, inflation of tires, operating speeds, side loads, etc. Side pull on the boom or jib is extremely dangerous. Such action can damage the boom, jib or slewing mechanism, and lead to overturning of the crane.
5. Rated lifting capacities do not account for wind on lifted load or boom. We recommend against working under the conditions that the load is out of control due to a strong wind. During boom lift, consider that the rated lifting capacity is reduced by 50% when the wind speed is 9 m/s to 12 m/s; reduced by 70 % when the wind speed is 12 m/s to 14 m/s. If the wind speed is 14 m/s or over, stop operation. During jib lift, stop operation if the wind speed is 9 m/s or over.
6. Rated lifting capacities at load radius shall not be exceeded. Do not tip the crane to determine allowable loads.
7. Do not operate at boom lengths, radii, or boom angles, where no capacities are shown. Crane may overturn without any load on the hook.
8. When boom length is between values listed, refer to the rated lifting capacities of the next longer and next shorter booms for the same radius. The lesser of the two rated lifting capacities shall be used.
9. When making lifts at a load radius not shown, use the next longer radius to determine allowable capacity.
10. Load per line should not exceed 54.9 kN (5,600 kgf) for main winch and auxiliary winch.
11. Check the actual number of parts of line with Automatic Moment Limiter (AML-C) before operation. Maximum lifting capacity is restricted by the number of parts of line of Automatic Moment Limiter (AML-C). Limited capacity is as determined from the formula, Single line pull for main winch 54.9 kN(5,600 kgf) x number of parts of line.
12. The boom angle before loading should be greater to account for deflection. For rated lifting capacities, the loaded boom angle and the load radius is for reference only.
13. The 11.0-m Boom length capacities are based on boom fully retracted.
14. Extension or retraction of the boom with loads may be attempted within the limits of the RATED LIFTING CAPACITIES. The ability to telescope loads is limited by hydraulic pressure, boom angle, boom length, crane maintenance, etc.
15. For lifting capacity of single top, deduct the weight of the load handling equipment from the rated lifting capacity of the boom. For the lifting capacity of single top, the net capacity shall not exceed 5,600 kg including the main boom hook mass attached to the boom.
16. When a jib is removed, set the jib state switch to the REMOVED position.
17. When erecting and stowing jib, be sure to retain it by hand or by other means to prevent its free movement.
18. Use "ANTI-TWO-BLOCK DEVICE" disable switch when erecting and stowing jib and when stowing hook block. While the switch is pushed, the hoist does not stop, even when overwind condition occurs.
19. For boom length 43.0 m or less and 35.0 m or longer with jib, rated lifting capacities are determined by loaded boom angle only in the column headed "43.0-m Boom + jib". For boom length 35.0 m or less with jib, rated lifting capacities are determined by loaded boom angle only in the column headed "35.0-m Boom + jib". For angles not shown, use the next lower loaded boom angle to determine allowable capacity. (Telescoping MODE I) For boom length 43.0 m or less and 39.0 m or longer with jib, rated lifting capacities are determined by loaded boom angle only in the column headed "43.0-m Boom + jib". For boom length 39.0 m or less with jib, rated lifting capacities are determined by loaded boom angle only in the column headed "39.0-m Boom + jib". For angles not shown, use the next lower loaded boom angle to determine allowable capacity. (Telescoping MODE II)
20. When lifting a load by using jib (aux. winch) and boom (main winch) simultaneously, do the following:
 - Enter the operation status as jib operation, not as boom operation.
 - Before starting operation, make sure that mass of load is within rated lifting capacity for jib.
21. Before telescoping the boom, set the telescoping mode selector switch to MODE I or MODE II with the boom fully retracted. A change of the telescoping mode is not permissible when the boom has been partially or fully extended.
22. The lifting capacity data stowed in the Automatic Moment Limiter (AML-C) is based on the standard number of parts of line listed in the chart. Standard number of parts of line for on outrigger operation should be according to the following table.

Boom length	11.0 m	11.0 m to 15.0 m	15.0 m to 19.0 m	19.0 m to 43.0 m	Single top/ jib
Telescoping mode	I, II	I, II	I, II	I, II	I, II
Number of parts of line	12	8, 6	6	4	1
23. The lifting capacity for over side area differs depending on outrigger extension width. Work with capacity corresponding to the extension width. The lifting capacities for over front and over rear areas are for "outriggers fully extended". However, the areas (angle a) differ depending on the outrigger extension width.

Outriggers extended width	6.7 m (middle)	5.5 m (middle)	2.7 m (minimum)
Angle a°	60	40	15



DEFINITIONS

1. Load Radius: Horizontal distance from a projection of the axis of rotation to supporting surface before loading to the center of the vertical hoist line or tackle with load applied.
2. Loaded Boom Angle: The angle between the boom base section and the horizontal, after lifting the rated lifting capacity at the load radius.
3. Working Area: Area measured in a circular arc about the centerline of rotation.
4. Freely Suspended Load: Load hanging free with no direct external force applied except by the hoist line.
5. Side Load: Horizontal side force applied to the lifted load either on the ground or in the air.

WARNING AND OPERATING INSTRUCTIONS FOR USING THE AUTOMATIC MOMENT LIMITER (AML-C)

- Set AML select keys in accordance with the actually operating crane conditions and don't fail to make sure, before crane operation, that the displays on front panel are correct.
- When operating crane on outriggers:
 - Set P.T.O. switch to "ON".
 - Press the outrigger state select key to register for the outrigger operation. If the display agrees with the actual state, press the set key to register. After the completion of the registration, the pop-up window closes.
 - Press the lift state select key to register the lift state to be used (single top / jib / boom).
 - Each time the lift state select key is pressed, the display changes. If the display agrees with the actual state, press the set key to register. After the completion of the registration, the pop-up window closes.
 - When erecting and stowing jib, select the status of jib set (Jib lift indicative symbol flickers).
- When operating crane on rubber:
 - Set P.T.O. switch to "ON".
 - Press the outrigger state select key to register for the on rubber operation. Each time the outrigger state select key is pressed, the display changes. Select the creep operation, the on rubber state indicative symbol flickers.
 - Press the lift state select key to register the lift state.

However, pay attention to the following.
For stationary and creep operation.

 - The front capacities are attainable only when the over front position symbol comes on. When the boom is more than 2 degrees from centered over front of chassis, 360° capacities are in effect.
- When a load is lifted in the front position and then slewed to the side area, make sure the value of the AUTOMATIC MOMENT LIMITER (AML-C) is below the 360° lifting capacity.
- This machine is equipped with an automatic slewing stop device.
(For the details, see Operation and Maintenance Manual.)
But, operate very carefully because the automatic slewing stop does not work in the following cases.
 - During on rubber operation.
- During crane operation, make sure that the displays on front panel are in accordance with actual operating conditions.
- The displayed values of AUTOMATIC MOMENT LIMITER (AML-C) are based on freely suspended loads and make no allowance for such factors as the effect of wind, sudden stopping of loads, supporting surface conditions, inflation of tire, operating speed, side loads, etc.
For safe operation, it is recommended when extending and lowering boom or slewing, lifting loads shall be appropriately reduced.
- AUTOMATIC MOMENT LIMITER (AML-C) is intended as an aid to the operator. Under no condition should it be relied upon to replace use of capacity charts and operating instruction.
Sole reliance upon AUTOMATIC MOMENT LIMITER (AML-C) aids in place of good operating practice can cause an accident. The operator must exercise caution to assure safety.

GR-600EX Axle weight distribution chart

	Kilograms		
	GVW	Front	Rear
Basic machine	43,735	21,555	22,180
Add:			
1. 60 ton 6 sheaves hook block	540	960	-420
2. 35 ton 3 sheaves hook block	450	800	-350
Remove:			
1. 5.6 ton hook block	-150	-209	59
2. Top jib	-335	-365	30
3. Base jib	-865	-1,480	615
4. Counter weight with auxiliary winch and wire rope	-5,670	2,500	-8,170



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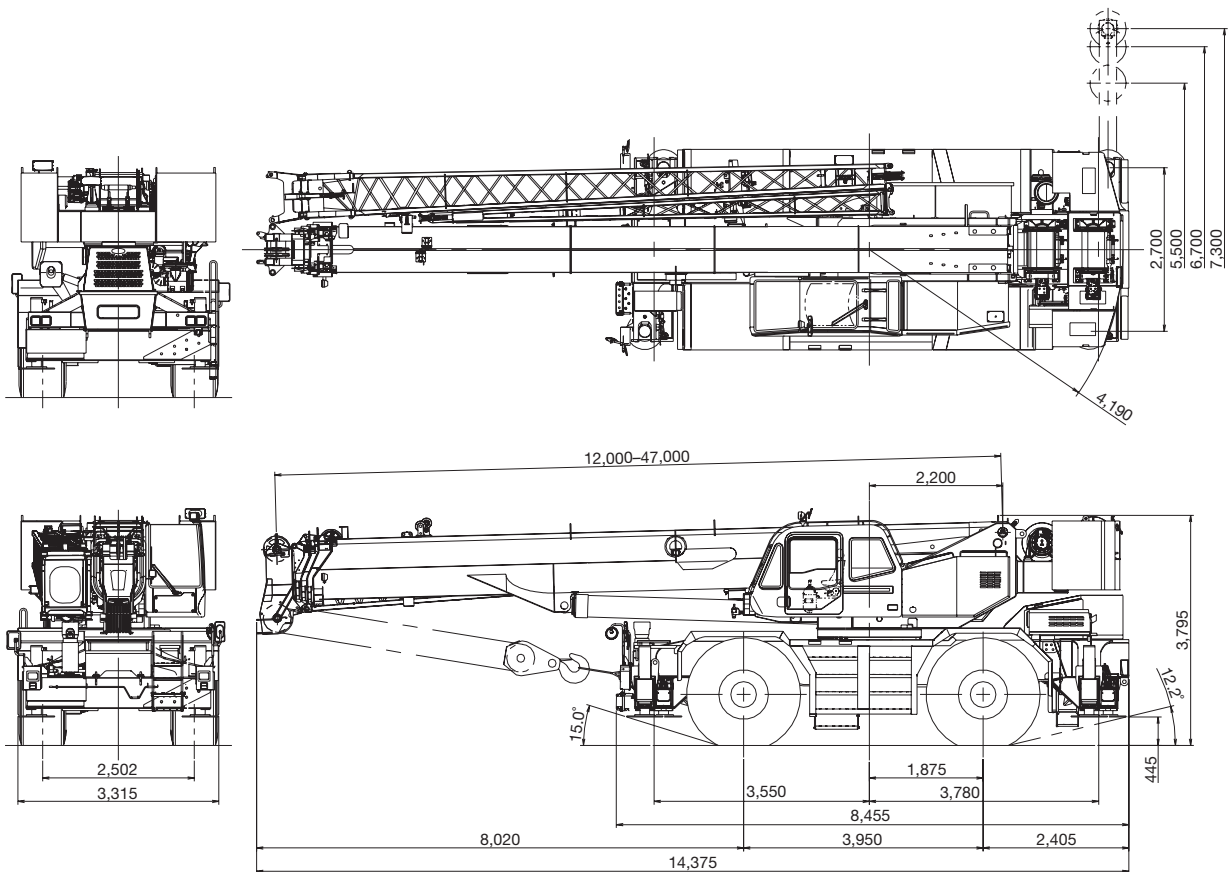
GR-800EX

(Left-hand drive)
80 Ton Capacity

SPEC. SHEET NO. GR-800E-3-00102/EX-03

HYDRAULIC ROUGH TERRAIN CRANE

DIMENSIONS



Note : Dimension is with boom angle at -1.5 degree.

GENERAL DIMENSIONS

Turning radius (29.5 - 25 Tires)		Overall length	approx. 14,375 mm
4 wheel steer	6.8 m	Overall width	approx. 3,315 mm
2 wheel steer	11.9 m	Overall height	approx. 3,795 mm

CRANE SPECIFICATIONS

BOOM

5 section full power partially synchronized telescoping boom of round box construction with 6 sheaves at boom head. The synchronization system consists of 2 telescope cylinder, extension cables and retraction cables. Hydraulic cylinder fitted with holding valve. 2 easily removable wire rope guards, rope dead end provided on both sides of boom head. Boom telescope sections are supported by wear pads both vertically and horizontally.

Fully retracted length.....	12.0 m
Fully extended length	47.0 m
Extension speed.....	35.0 m in 160 s
Root diameter.....	0.44 m

BOOM ELEVATION

By a double acting hydraulic cylinder with holding valve. Combination controls for hand or foot operation. Boom angle indicator.

Automatic speed reduction and slow stop function.

Boom angle	-1.5°- 80.5°
Boom raising speed	20° to 60° in 46 s

JIB

2 stage swing around boom extension swing around type with triple offset (tilt type). Single sheave at jib head.

Stows alongside base boom section.

Length	10.1 m, 17.7 m
Offset	3.5°, 25°, 45°
Root diameter.....	0.396 m

AUXILIARY LIFTING SHEAVE (SINGLE TOP)

Single sheave mounted to main boom head for single line work(stowable).

Root diameter.....	0.396 m
--------------------	---------

ANTI-TWO-BLOCK DEVICE

Pendant type over-winding cut out device with audio-visual (FAILURE lamp/BUZZER) warning system.

SLEWING

Hydraulic axial piston motor driven through planetary slewing speed reducer. Continuous 360° full circle slewing on ball bearing.

Equipped with manually locked/released slewing brake.

A positive slewing lock for pick and carry and travel modes, manually engaged in cab. Twin slewing system : Free slewing or lock slewing controlled by selector switch on front console.

Slewing speed	1.5 min ⁻¹ {rpm}
---------------------	-----------------------------

WINCH

MAIN WINCH

Variable speed type with grooved drum driven by hydraulic axial piston motor through speed reducer. Power load lowering and raising.

Equipped with automatic brake (neutral brake) and counterbalance valve. Controlled independently of auxiliary winch. Equipped with cable follower and drum rotation indicator.

MAIN DRUM

Root diameter x wide	0.362 m x 0.6 m
Wire rope diameter x length	19 mm x 253 m
Drum capacity	304 m, 7 layers
Maximum single line pull (1st layer).....	89.1 kN (9,090 kgf)
Maximum permissible linepull wire strength.....	64.7 kN (6,600 kgf)

AUXILIARY WINCH

Variable speed type with grooved drum driven by hydraulic axial piston motor through speed reducer. Power load lowering and raising.

Equipped with automatic brake (neutral brake) and counterbalance valve. Controlled independently of main winch. Equipped with cable follower and drum rotation indicator.

AUXILIARY DRUM

Root diameter x wide	0.362 m x 0.6 m
Wire rope diameter x length	19 mm x 139 m
Drum capacity	304 m, 7 layers
Maximum single line pull (1st layer).....	89.1 kN (9,090 kgf)
Maximum permissible linepull wire strength.....	64.7 kN (6,600 kgf)

WIRE ROPE

Non-rotating wire (no-spin), extra improved plow steel, preformed, independent wire rope core, right regular lay.

Main & Auxillary	19 mm 7 x 39 class
------------------------	--------------------

HOOK BLOCKS

80 ton (option)	7 sheaves with swivel hook and safety latch
60 ton (option)	6 sheaves with swivel hook and safety latch
50 ton (option)	5 sheaves with swivel hook and safety latch
35 ton (option)	3 sheaves with swivel hook and safety latch
6.6 ton	Weighted hook with swivel and safety latch

HYDRAULIC SYSTEM

PUMPS

2 variable piston pumps for crane functions. Tandem gear pump for steering, slewing and optional equipment. Powered by carrier engine. Pump disconnect for crane is engaged/disengaged by rotary switch from operator's cab.

CONTROL VALVES

Multiple valves actuated by pilot pressure with integral pressure relief valves.

RESERVOIR

763 liters capacity. External sight level gauge.

FILTRATION

BETA10=10 return filter, full flow with bypass protection, located inside of hydraulic reservoir. Accessible for easy replacement.

OIL COOLER - Air cooled fan type.

CAB AND CONTROLS

Both crane and drive operations can be performed from one cab mounted on rotating superstructure.

Left side, 1 man type, steel construction with sliding door access and safety glass windows opening at side. Door window is powered control. Windshield glass window and roof glass window are shatter-resistant. Wiper and washer (front windshield and roof window). Tinted safety glass and sun visor. Tilt-telescoping steering wheel. Adjustable control lever stands for slewing, boom elevating, boom telescoping, auxiliary winch and main winch. Control lever stands can change neutral positions and tilt for easy access to cab. Foot operated controls: boom elevating, boom telescoping, service brake and engine throttle. 3 way adjustable operator's seat with high back, headrest and armrest. Cab floor mat. Engine throttle knob. Hot water cab heater and air conditioning.

Dash-mounted engine start/stop, monitor lamps, cigarette lighter, drive selector switch, parking brake switch, steering mode select switch, power window switch, pump engaged/disengaged switch, slewing brake switch, boom telescoping/auxiliary winch select switch, outrigger control panel, and slewing free/ lock selector switch.

Instruments - Torque converter oil temperature, engine water temperature, air pressure, fuel, speedometer, tachometer, hour meter and odometer / tripmeter. Engin over-run alarm. Back-up alarm. Low oil pressure/high water temp. Warning device (visual). Rear steer centering light. Hydraulic oil pressure is monitored and displayed on the AML-C display panel.

CRANE SPECIFICATIONS

TADANO Automatic Moment Limiter

(AML-C) including:

- Control lever lockout function with audible and visual pre-warning
- Number of parts of line
- Boom position indicator
- Outrigger state indicator
- Slewing angle
- Boom angle / boom length / jib offset angle / jib length / load radius / rated lifting capacities / actual loads read out
- Potential lifting height
- Ratio of actual load moment to rated load moment indication
- Permissible load
- Automatic Speed Reduction and Slow Stop function on boom elevation and slewing
- Working condition register switch
- Load radius / boom angle / tip height / slewing range preset function
- External warning lamp
- Tare function

- Main hydraulic oil pressure
- Fuel consumption monitor
- Main winch / auxiliary winch select
- Drum rotation indicator (audible and visible type) main and auxiliary winch
- On-rubber indicator

TADANO AML-C monitors outrigger extended length and automatically programs the corresponding "RATED LIFTING CAPACITIES" table

Operator's right hand console includes transmission gear selector, slewing lock lever and sight level bubble.

Upper right console includes flood lamp switch, roof washer and wiper switch, emergency outrigger set up key switch, jib status switch, eco mode switch, and air conditioning control switch. Lower right console includes boom emergency telescoping switch (2nd and 3rd-top)

NOTE: Each crane motion speed is based on unladen conditions.

CARRIER SPECIFICATIONS

TYPE

Rear engine, left-hand drive, driving axle 2-way selected type by manual switch, 4x2 front drive, 4x4 front and rear drive.

FRAME

High tensile steel, all welded mono-box construction.

ENGINE

Model	MITSUBISHI 6M60-TL
Type	Direct injection diesel
No. of cylinders	6
Combustion	4 cycle, turbo charged and after cooled
Bore x Stroke, mm	118 x 115
Displacement, liters	7.54
Air inlet heater	24 volt preheat
Air cleaner	Dry type, replaceable element
Oil filter	Full flow with replaceable element
Fuel filter	Full flow with replaceable element
Fuel tank, liters	300, right side of carrier
Cooling	Liquid pressurized, recirculating by-pass
Radiator	Fin and tube core, thermostat controlled
Fan, mm	Suction type, 6-blade, 600 dia.
Starting	24 volt
Charging	24 volt system, negative ground
Battery	2-120 amp. Hour
Compressor, air, l /min	830 at 2,600 min ⁻¹
Output, Max. kW (HP)	Gross 200 (267) at 2,600 min ⁻¹
Torque, Max. N·m	785 at 1,400 min ⁻¹
Capacity, liters	
Cooling water	13
Lubrication	13-15
Fuel	300

TRANSMISSION

Electronically controlled full automatic transmission.
Torque converter driving full powershift with driving axle selector.
6 forward and 2 reverse speeds, constant mesh.
3 speeds - high range - 2-wheel drive; 4-wheel drive
3 speeds - low range - 4-wheel drive

TRAVEL SPEED - 36 km/h

GRADE ABILITY (tanθ) - 94% (at stall), 30%*

* Machine should be operated within the limit of engine crankcase design (17": MITSUBISHI 6M60-TL)

AXLE

Front: Full floating type, steering and driving axle with planetary reduction.

Rear: Full floating type, steering and driving axle with planetary reduction and non-spin rear differential.

STEERING

Hydraulic power steering controlled by steering wheel.

4 steering modes available: 2 wheel front, 2 wheel rear, 4 wheel coordinated and 4 wheel crab.

SUSPENSION

Front: Rigid mounted to the frame.

Rear: Pivot mounted with hydraulic lockout device.

BRAKE SYSTEMS

Service: Air over hydraulic disc brakes on all 4 wheels.

Parking/Emergency: Spring applied-air released brake acting on input shaft of front axle.

Auxiliary: Electro-pneumatic operated exhaust brake.

TIRES - 29.5-25 34PR (OR) Air pressure: 400 kPa

OUTRIGGERS

4 hydraulic, beam and jack outriggers.

Vertical jack cylinders equipped with integral holding valve.

Each outrigger beam and jack is controlled independently from cab. Beams extend to 7.3 m center-line and retract to within 3.315 m overall width with floats. Outrigger jack floats are attached thus eliminating the need of manually attaching and detaching them. Controls and sight bubble located in superstructure cab. 4 outrigger extension lengths are provided with corresponding "RATED LIFTING CAPACITIES" for crane duty in confined areas.

Min. Extension	2.7 m center to center
Mid. Extension	5.5 m center to center
Mid. Extension	6.7 m center to center
Max. Extension	7.3 m center to center
Float size (Diameter)	0.6 m

COUNTERWEIGHT

Integral with slewing frame Mass... 9,980 kg
(Containing weight with auxiliary winch and wire rope)

STANDARD EQUIPMENT

- Telematics (machine data logging and monitoring system) with - HELLO-NET via internet (availability depends on countries)
- Eco mode system
- Positive control
- Over unwinding prevention
- Emergency steering system
- Transmission neutral position engine start
- Overshift prevention
- Parking braked travel warning
- Tilt-telescope steering wheel
- Halogen head lamp
- Fenders
- Air dryer
- Water separator with filter (high filtration)
- Air cleaner dust indicator
- Full instrumentation package
- Complete highway light package
- Tire inflation kit
- Towing hooks-Front and rear
- Lifting eyes
- Hook block tie down (front bumper)
- Weighted hook storage compartment
- Winch drum mirror
- Tool storage compartment

OPTIONAL EQUIPMENT

- Wind speed indicator
- Hook block-80 t capacity (7 sheaves, swivel type with safty latch. Mass: approx. 700 kg)
- Hook block-60 t capacity (6 sheaves, swivel type with safty latch. Mass: approx. 540 kg)
- Hook block-50 t capacity (5 sheaves, swivel type with safty latch. Mass: approx. 500 kg)
- Hook block-35 t capacity (3 sheaves, swivel type with safty latch. Mass: approx. 450 kg)

HOISTING PERFORMANCE

LINE SPEEDS AND PULLS

Layer	Main or auxiliary winch - 0.362 m drum			
	Line speeds ¹		Line pulls Available ²	
	m/min		kN (kgf)	
	Low	High	Low	High
1st	84	118	89.1 (9,090)	63.9 (6,520)
2nd	92	128	80.7 (8,230)	57.8 (5,900)
3rd	99	139	73.7 (7,520)	52.8 (5,390)
4th	107	149	67.8 (6,920)	48.6 (4,960)
5th	115	160	62.8 (6,410)	45.1 (4,600)
6th	122	170	58.5 (5,970)	41.9 (4,280)
7th ³	130	181	54.8 (5,590)	39.3 (4,010)

- Maximum permissible line pull wire strength.
Main & Auxiliary: 64.7 kN (6,600 kgf) with 7 x 39 class rope.

- ¹ Line speed based only on hook block, not loaded.
- ² Developed by machinery with each layer of wire rope, but not based on rope strength or other limitations in machinery or equipment.
- ³ Eighth layer of wire rope are not recommended for hoisting operations.

DRUM WIRE ROPE CAPACITIES

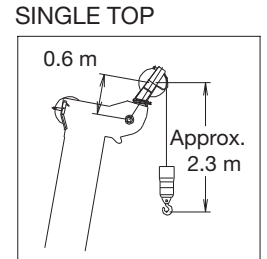
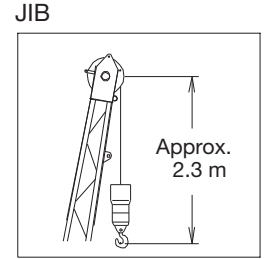
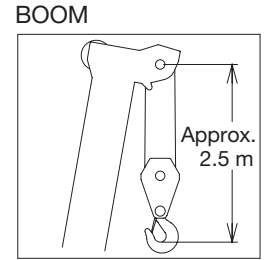
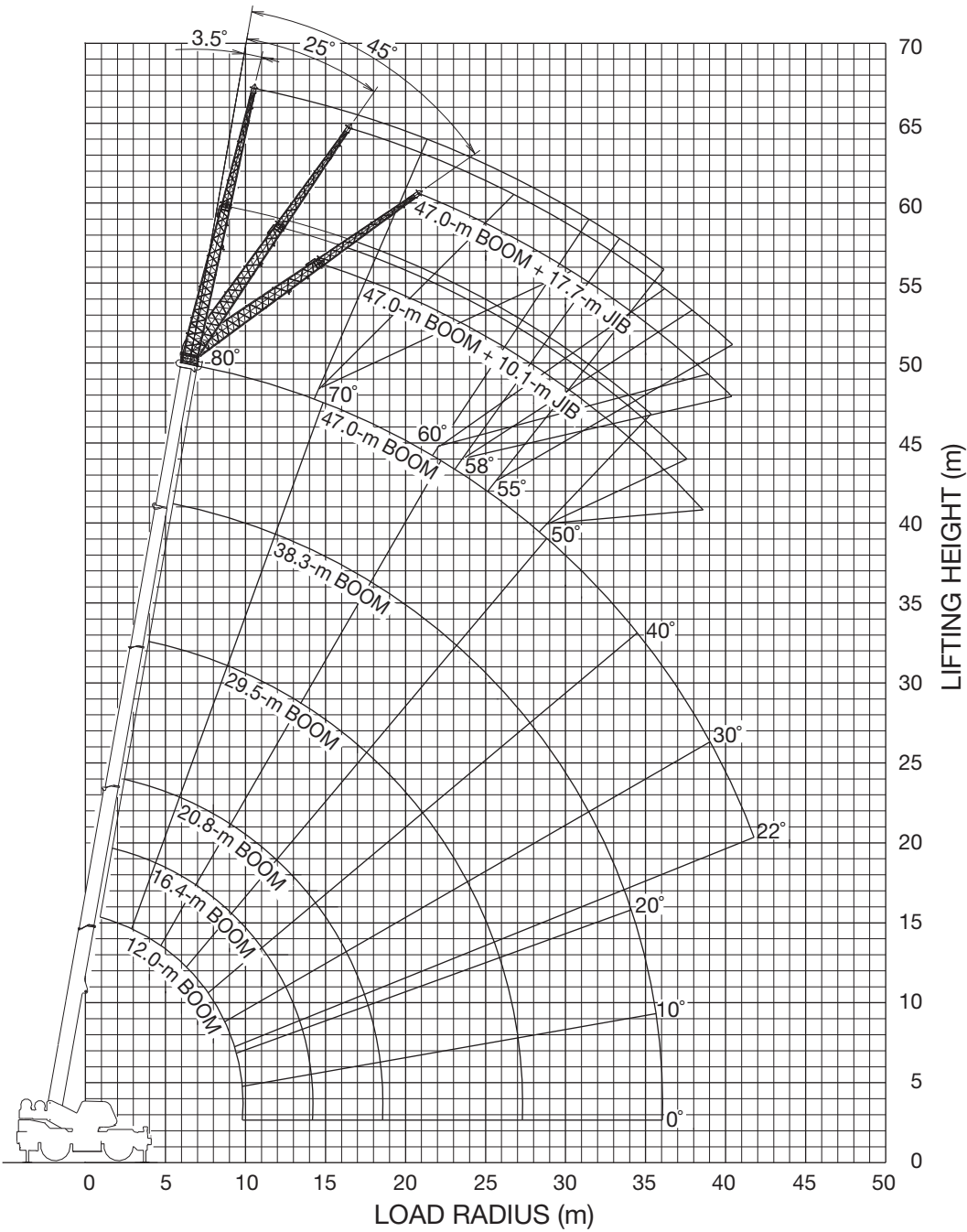
Wire rope layer	Main and auxiliary drum grooved lagging	
	19 mm wire rope	
	Rope per layer	Total wire rope
	m	m
1	34.2	34.2
2	37.3	71.5
3	40.3	111.8
4	43.4	155.2
5	46.4	201.6
6	49.5	251.1
7	52.6	303.7

DRUM DIMENSIONS

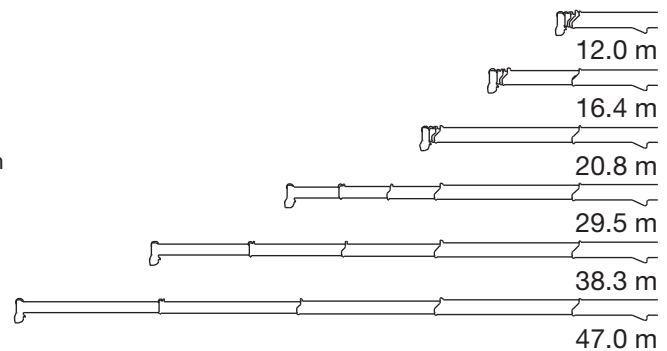
Root diameter	362 mm
Length	600 mm
Flange diameter	657 mm

GR-800EX WORKING RANGE CHART

Telescoping mode I



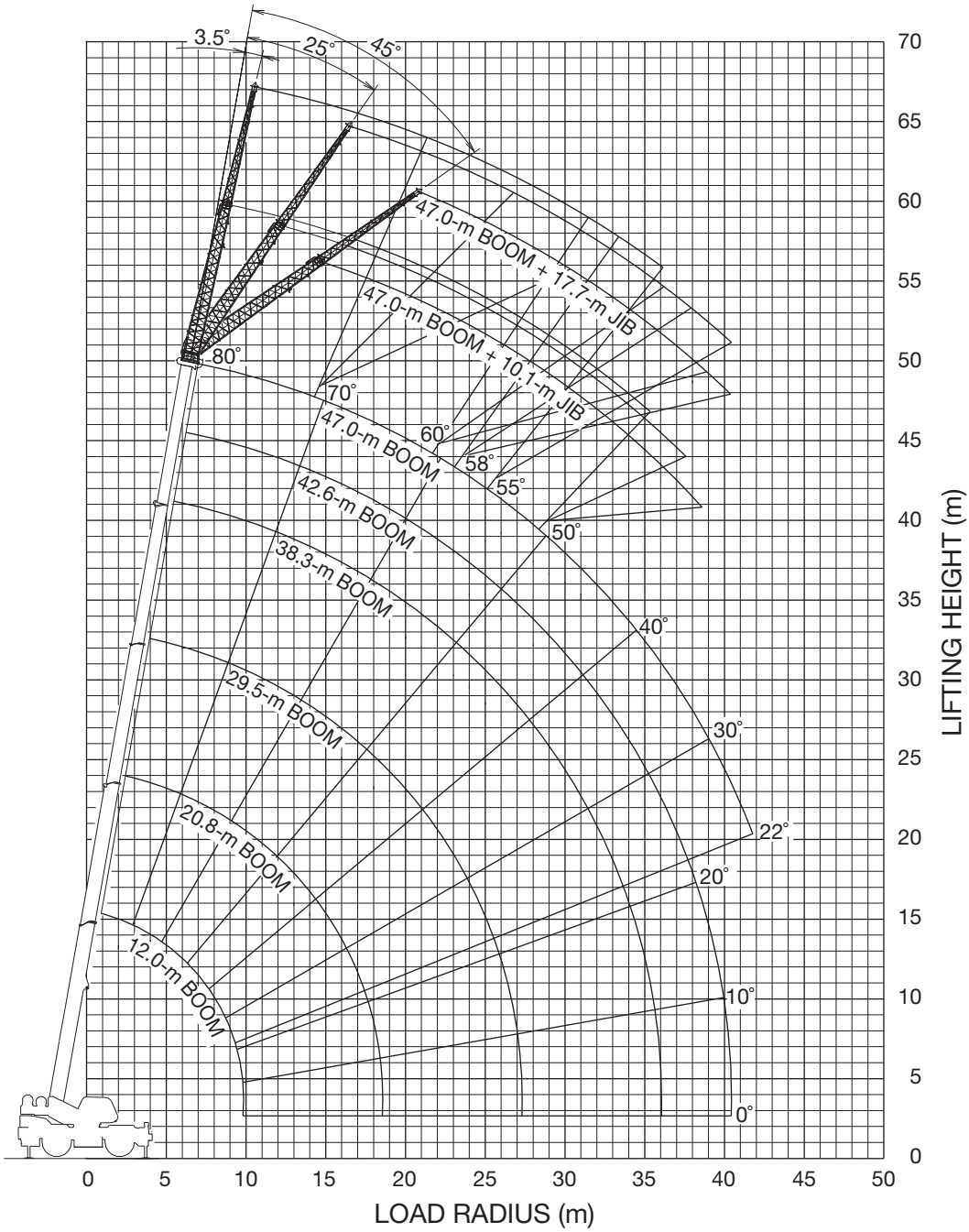
Boom Length



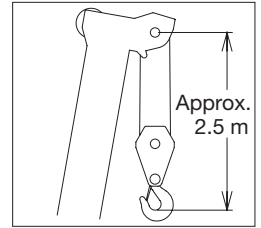
The above lifting height and boom angle are based on a straight (unloaded) boom and machine standing level on firm supporting surface. Allowance should be made for boom deflection obtained under loaded conditions. The above working range is shown on condition with outriggers fully (7.3 m) extended.

GR-800EX WORKING RANGE CHART

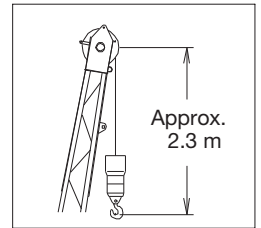
Telescoping mode II



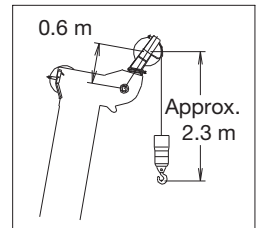
BOOM



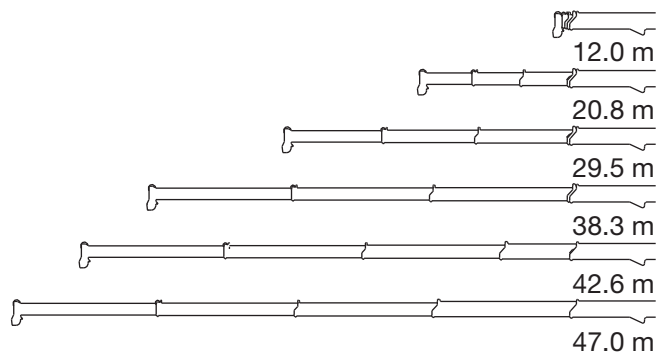
JIB



SINGLE TOP



Boom Length



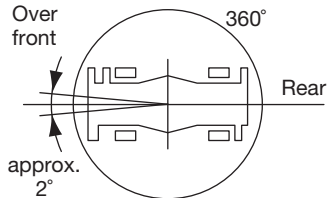
The above lifting height and boom angle are based on a straight (unloaded) boom and machine standing level on firm supporting surface. Allowance should be made for boom deflection obtained under loaded conditions. The above working range is shown on condition with outriggers fully (7.3 m) extended.

WARNING AND OPERATING INSTRUCTIONS FOR ON RUBBER LIFTING CAPACITIES

1. Rated lifting capacities based on crane stability are according to ISO4305.
2. Rated lifting capacities shown in the chart are based on the condition that crane is set on firm level surfaces with suspension lock applied. Those above thick lines are based on tire capacity and those below, on crane stability. They are based on actual load radius increased by tire deformation and boom deflection.
3. If the suspension lock cylinders contain air, the axle will not be locked completely and rated lifting capacities may not be obtainable. Bleed the cylinders according to the operation safety and maintenance manual.
4. Rated lifting capacities are based on proper tire inflation, capacity and condition. Damaged tires are hazardous to safe operation of crane.
5. Tires shall be inflated to correct air pressure.

Tires	Air Pressure
29.5-25 34PR	400 kPa

6. Over front operation shall be performed within 2 degrees in front of chassis.



7. On rubber lifting with "jib" is not permitted. Maximum permissible boom length is 29.5 m.

8. When making lift on rubber stationary, set parking brake.
9. For creep operation, travel slowly and keep the lifted load as close to the ground as possible, and especially avoid any abrupt steering, accelerating or braking.
10. Do not operate the crane while carrying the load.
11. Creep is motion for crane not to travel more than 60 m in any 30 minute period and to travel at the speed of less than 1.6 km/h.
12. For creep operation, choose the drive mode and proper gear according to the road or working condition.
13. The mass of the hook (700 kg for 80 t capacity, 540 kg for 60 t capacity, 500 kg for 50 t capacity, 450 kg for 35 t capacity, 165 kg for 6.6 t capacity), slings and all similarly used load handling devices must be considered as part of the load and must be deducted from the lifting capacities.
14. For rated lifting capacity of single top, reduce the rated lifting capacities of relevant boom according to a weight reductions for auxiliary load handling equipment. Capacities of single top shall not exceed 6,600 kg including main hook.
15. The lifting capacity data stowed in the Automatic Moment Limiter (AML-C) is based on the standard number of parts of line listed in the chart. Standard number of parts of line for on rubber operation should be according to the following table.

Boom length	12.0 m	12.0 m to 29.5 m	Single top
Telescoping mode	I, II	II	I, II
Number of parts of line	6	4	1

WARNING AND OPERATING INSTRUCTIONS FOR LIFTING CAPACITIES

GENERAL

1. RATED LIFTING CAPACITIES apply only to the machine as originally manufactured and normally equipped by TADANO LTD. Modifications to the machine or use of optional equipment other than that specified can result in a reduction of capacity.
2. Hydraulic cranes can be hazardous if improperly operated or maintained. Operation and maintenance of this machine must be in compliance with information in the **Operation and Maintenance Manual** supplied with the crane. If this manual is missing, order a replacement through the distributor.

SET UP

1. Rated lifting capacities on the chart are the maximum allowable crane capacities and are based on the machine standing level on firm supporting surface under ideal job conditions. Depending on the nature of the supporting surface, it may be necessary to have structural supports under the outrigger floats or tires to spread the loads to a larger bearing surface.
2. For outrigger operation, outriggers shall be properly extended with tires free of supporting surface before operating crane.

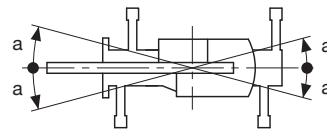
OPERATION

1. Rated lifting capacities on outriggers fully extended as determined by ISO4305.
2. Rated lifting capacities above thick lines in the chart are based on crane strength and those below, on its stability. They are based on actual load radius increased by boom deflection.
3. The weight of handling device such as hook blocks (700 kg for 80 t capacity, 540 kg for 60 t capacity, 500 kg for 50 t capacity, 450 kg for 35 t capacity, 165 kg for 6.6 t capacity), slings, etc., must be considered as part of the load and must be deducted from the lifting capacities.
4. Rated lifting capacities are based on freely suspended loads and make no allowance for such factors as the effect of wind, sudden stopping of loads, supporting surface conditions, inflation of tires, operating speeds, side loads, etc. Side pull on the boom or jib is extremely dangerous. Such action can damage the boom, jib or slewing mechanism, and lead to overturning of the crane.
5. Rated lifting capacities do not account for wind on lifted load or boom. We recommend against working under the conditions that the load is out of control due to a strong wind. During boom lift, consider that the rated lifting capacity is reduced by 50% when the wind speed is 9 m/s to 12 m/s; reduced by 70 % when the wind speed is 12 m/s to 14 m/s. If the wind speed is 14 m/s or over, stop operation. During jib lift, stop operation if the wind speed is 9 m/s or over.
6. Rated lifting capacities at load radius shall not be exceeded. Do not tip the crane to determine allowable loads.
7. Do not operate at boom lengths, radii, or boom angles, where no capacities are shown. Crane may overturn without any load on the hook.
8. When boom length is between values listed, refer to the rated lifting capacities of the next longer and next shorter booms for the same radius. The lesser of the two rated lifting capacities shall be used.
9. When making lifts at a load radius not shown, use the next longer radius to determine allowable capacity.
10. Load per line should not exceed 64.7kN (6,600 kgf) for main winch and auxiliary winch.
11. Check the actual number of parts of line with Automatic Moment Limiter (AML-C) before operation. Maximum lifting capacity is restricted by the number of parts of line of Automatic Moment Limiter (AML-C). Limited capacity is as determined from the formula, Single line pull for main winch 64.7 kN (6,600 kgf) x number of parts of line.
12. The boom angle before loading should be greater to account for deflection. For rated lifting capacities, the loaded boom angle and the load radius is for reference only.
13. The 12.0-m Boom length capacities are based on boom fully retracted.
14. Extension or retraction of the boom with loads may be attempted within the limits of the RATED LIFTING CAPACITIES. The ability to telescope loads is limited by hydraulic pressure, boom angle, boom length, crane maintenance, etc.
15. For lifting capacity of single top, deduct the weight of the load handling equipment from the rated lifting capacity of the boom. For the lifting capacity of single top, the net capacity shall not exceed 6,600 kg including the main boom hook mass attached to the boom.
16. When a jib is removed, set the jib state switch to the REMOVED position.
17. When erecting and stowing jib, be sure to retain it by hand or by other means to prevent its free movement.
18. Use "ANTI-TWO-BLOCK DEVICE" disable switch when erecting and stowing jib and when stowing hook block. While the switch is pushed, the hoist does not stop, even when overwind condition occurs.
19. For boom length 47.0 m or less and 38.3 m or longer with jib, rated lifting capacities are determined by loaded boom angle only in the column headed "47.0-m boom + jib". For boom length 38.3 m or less with jib, rated lifting capacities are determined by loaded boom angle only in the column headed "38.3-m boom + jib". For angles not shown, use the next lower loaded boom angle to determine allowable capacity. (Telescoping MODE I)
For boom length 47.0 m or less and 42.6 m or longer with jib, rated lifting capacities are determined by loaded boom angle only in the column headed "47.0-m boom + jib". For boom length 42.6 m or less with jib, rated lifting capacities are determined by loaded boom angle only in the column headed "42.6-m boom + jib". For angles not shown, use the next lower loaded boom angle to determine allowable capacity. (Telescoping MODE II)
20. When lifting a load by using jib (aux. winch) and boom (main winch) simultaneously, do the following:
 - Enter the operation status as jib operation, not as boom operation.
 - Before starting operation, make sure that mass of load is within rated lifting capacity for jib.
21. Before telescoping the boom, set the telescoping mode selector switch to MODE I or MODE II with the boom fully retracted. A change of the telescoping mode is not permissible when the boom has been partially or fully extended.
22. The lifting capacity data stowed in the Automatic Moment Limiter (AML-C) is based on the standard number of parts of line listed in the chart. Standard number of parts of line for on outrigger operation should be according to the following table.

Boom length	12.0 m	12.0 m to 20.8 m	20.8 m to 47.0 m	Single top/ jib
Telescoping mode	I, II	I II	I, II	I, II
Number of parts of line	14	8 4	4	1

23. The lifting capacity for over side area differs depending on outrigger extension width. Work with capacity corresponding to the extension width. The lifting capacities for over front and over rear areas are for "outriggers fully extended". However, the areas (angle a) differ depending on the outrigger extension width.

Outriggers extended width	6.7 m (middle)	5.5 m (middle)	2.7 m (minimum)
Angle a°	60	40	15



DEFINITIONS

1. Load Radius: Horizontal distance from a projection of the axis of rotation to supporting surface before loading to the center of the vertical hoist line or tackle with load applied.
2. Loaded Boom Angle: The angle between the boom base section and the horizontal, after lifting the rated lifting capacity at the load radius.
3. Working Area: Area measured in a circular arc about the centerline of rotation.
4. Freely Suspended Load: Load hanging free with no direct external force applied except by the hoist line.
5. Side Load: Horizontal side force applied to the lifted load either on the ground or in the air.

WARNING AND OPERATING INSTRUCTIONS FOR USING THE AUTOMATIC MOMENT LIMITER (AML-C)

1. Set AML select keys in accordance with the actually operating crane conditions and don't fail to make sure, before crane operation, that the displays on front panel are correct.
2. When operating crane on outriggers:
 - Set P.T.O. switch to "ON".
 - Press the outrigger state select key to register for the outrigger operation. If the display agrees with the actual state, press the set key to register. After the completion of the registration, the pop-up window closes.
 - Press the lift state select key to register the lift state to be used (single top / jib / boom).
 - Each time the lift state select key is pressed, the display changes. If the display agrees with the actual state, press the set key to register. After the completion of the registration, the pop-up window closes.
 - When erecting and stowing jib, select the status of jib set (Jib lift indicative symbol flickers).
3. When operating crane on rubber:
 - Set P.T.O. switch to "ON".
 - Press the outrigger state select key to register for the on rubber operation. Each time the outrigger state select key is pressed, the display changes. Select the creep operation, the on rubber state indicative symbol flickers.
 - Press the lift state select key to register the lift state.

However, pay attention to the following.
For stationary and creep operation.

 - The front capacities are attainable only when the over front position symbol comes on. When the boom is more than 2 degrees from centered over front of chassis, 360° capacities are in effect.
- When a load is lifted in the front position and then slewed to the side area, make sure the value of the AUTOMATIC MOMENT LIMITER (AML-C) is below the 360° lifting capacity.

- This machine is equipped with an automatic slewing stop device.
- (For the details, see Operation and Maintenance Manual.)
But, operate very carefully because the automatic slewing stop does not work in the following cases.
- During on rubber operation.
- During crane operation, make sure that the displays on front panel are in accordance with actual operating conditions.
- The displayed values of AUTOMATIC MOMENT LIMITER (AML-C) are based on freely suspended loads and make no allowance for such factors as the effect of wind, sudden stopping of loads, supporting surface conditions, inflation of tire, operating speed, side loads, etc.
- For safe operation, it is recommended when extending and lowering boom or slewing, lifting loads shall be appropriately reduced.
- AUTOMATIC MOMENT LIMITER (AML-C) is intended as an aid to the operator. Under no condition should it be relied upon to replace use of capacity charts and operating instruction.
- Sole reliance upon AUTOMATIC MOMENT LIMITER (AML-C) aids in place of good operating practice can cause an accident. The operator must exercise caution to assure safety.

GR-800EX Axle weight distribution chart

	Kilograms		
	GVW	Front	Rear
Basic machine	51,410	24,325	27,085
Add:			
1. 80 ton 7 sheaves hook block	700	1,350	-650
2. 60 ton 6 sheaves hook block	540	1,040	-500
3. 50 ton 5 sheaves hook block	500	970	-470
4. 35 ton 3 sheaves hook block	450	870	-420
Remove:			
1. 6.6 ton hook block	-165	-235	70
2. Top jib	-335	-450	115
3. Base jib	-865	-1,705	840
4. Counter weight with auxiliary winch and wire rope	-9,980	4,240	-14,220



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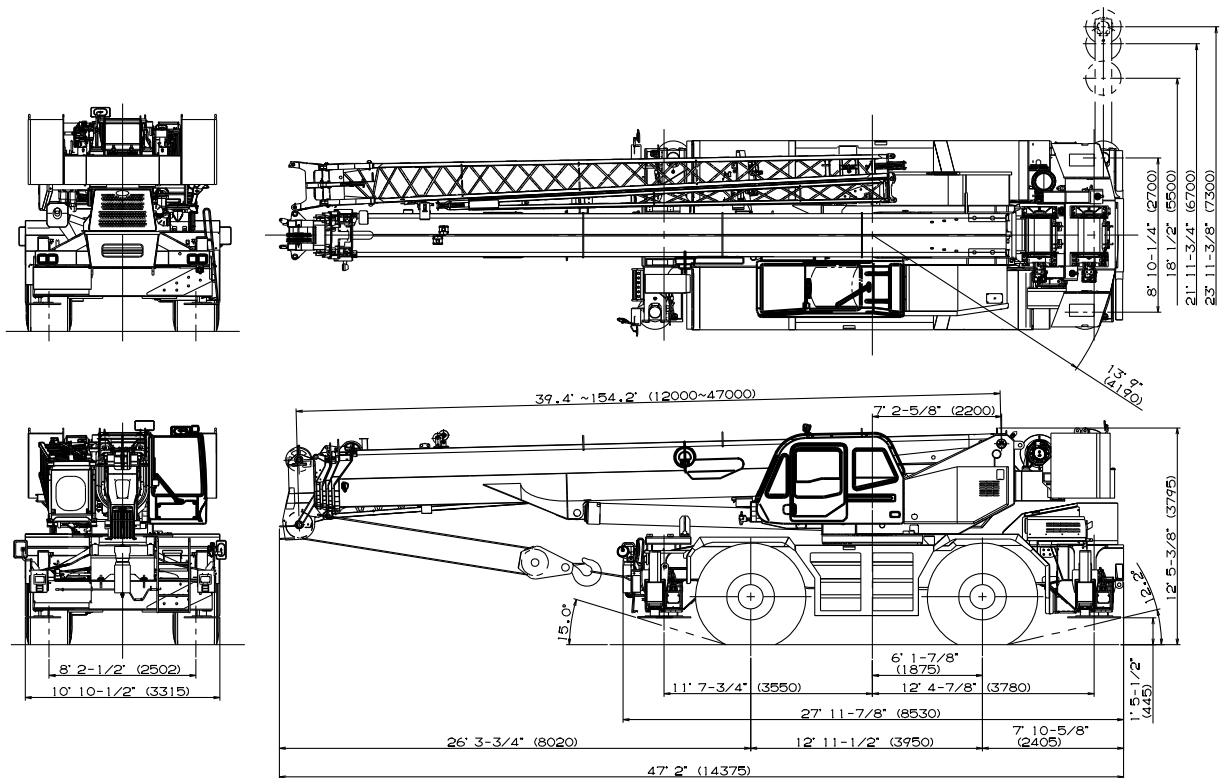


GR-1000XL

100 Ton Capacity (90.7 Metric Tons)

HYDRAULIC ROUGH TERRAIN CRANE

DIMENSIONS



Note : Dimension is with boom angle at -1.5 degree.

GENERAL DIMENSIONS (29.5 - 25 Tires)

	Feet	Meters
Turning radius		
4 wheel steer	22' 4"	6.8
2 wheel steer	39' 1"	11.9
Tail swing of counterweight	13' 9"	4.19

Specifications are subject to change without notice.
Specification effective with serial number 548764 and up.

CRANE SPECIFICATIONS

BOOM

Five section full power synchronized telescoping boom, 39.4'-154.2' (12.0m-47.0m), of round box construction with seven sheaves, 17-5/16" (0.44m) root diameter, at boom head. The synchronization system consists of two telescope cylinders, an extension cable and retraction cable. Hydraulic cylinder fitted with holding valve. Two easily removable wire rope guards, rope dead end provided on both sides of boom head. Boom telescope sections are supported by wear pads both vertically and horizontally. Extension speed 114.8' in 160 seconds.

BOOM ELEVATION - By a double acting hydraulic cylinder with holding valve. Elevation -1.5° ~ 80.5° , combination controls for hand or foot operation. Boom angle indicator. Automatic speed reduction and soft stop function. Boom raising speed 20° to 60° in 46 sec.

JIB - Two stage bi-fold lattice type with 3.5° , 25° or 45° offset (tilt type). Single sheave, 15-5/8" (0.396m) root diameter, at the head of both jib sections. Stored alongside base boom section. Jib length is 33.2' (10.1m) or 58.1' (17.7m). Assistant cylinders for mounting and stowing, controlled at right side of superstructure. Self stowing jib mounting pins.

AUXILIARY LIFTING SHEAVE (SINGLE TOP)

Single sheave, 15-5/8" (0.396m) root diameter. Mounted to main boom head for single line work (storable).

ANTI-TWO BLOCK - Pendant type over-winding cut out device with audio-visual (FAILURE lamp/BUZZER) warning system.

SLEWING

Hydraulic axial piston motor through planetary slewing speed reducer. Continuous 360° full circle slewing on ball bearing turn table at 1.5min^{-1} (rpm). Equipped with manually locked/released slewing brake. A 360° positive slewing lock for pick and carry and travel modes, manually engaged in cab. Twin slewing system: Free slewing or lock slewing controlled by selector switch on front console.

HOIST

MAIN HOIST - Variable speed type with grooved drum driven by hydraulic axial piston motor through speed reducer. Power load lowering and raising. Equipped with automatic brake (neutral brake) and counterbalance valve. Controlled independently of auxiliary hoist. Equipped with cable follower and drum rotation indicator.

DRUM - Grooved 14-1/4" (0.362m) root diameter x 23-5/8" (0.6m) wide. Wire rope: 830' of 3/4" diameter rope (253m of 19mm). Drum capacity: 997' (304m) 7 layers. Maximum single line pull (available): 20,000 lbs (9,090kg). Maximum line speed: 560FPM (170m/min) at the 6th layer.

AUXILIARY HOIST - Variable speed type with grooved drum driven by hydraulic axial piston motor through speed reducer. Power load lowering and raising. Equipped with automatic brake (neutral brake) and counterbalance valve. Controlled independently of main hoist. Equipped with cable follower and drum rotation indicator.

DRUM - Grooved 14-1/4" (0.362m) root diameter x 23-5/8" (0.6m) wide. Wire rope: 456' of 3/4" diameter rope (139m of 19mm). Drum capacity: 997' (304m) 7 layers. Maximum single line pull (available): 20,000 lbs (9,090kg). Maximum line speed: 491FPM (149m/min) at the 4th layer.

WIRE ROPE - Non-rotating 3/4" (19mm) 7x35 class. Breaking strength (Main and Aux): 72,800 lbs (33,000 kg)

HOOK BLOCKS

100 ton (90.7 metric ton) - 8 sheaves with swivel hook block and safety latch.
7.3 ton (6.6 metric ton) - Weighted hook ball with swivel and safety latch.

HYDRAULIC SYSTEM

PUMPS - Two variable piston pumps for crane functions. Tandem gear pump for steering, slewing and optional equipment. Powered by carrier engine. Pump disconnect for crane is engaged/disengaged by rotary switch from operator's cab.

CONTROL VALVES - Multiple valves actuated by pilot pressure with integral pressure relief valves.

RESERVOIR - 202 gallon (763 lit.) capacity. External sight level gauge.

FILTRATION - BETA10=10 return filter, full flow with bypass protection, located inside of hydraulic reservoir. Accessible for easy replacement.

OIL COOLER - Air cooled fan type.

CAB AND CONTROLS

Both crane and drive operations can be performed from one cab mounted on rotating superstructure.

Left side, 1 man type, steel construction with sliding door access and safety glass windows opening at side. Door window is powered control. Windshield glass window and roof glass window are shatter-resistant. Tilt-telescoping steering wheel. Adjustable control lever stands for slewing, boom elevating, boom telescoping, auxiliary hoist and main hoist. Control lever stands can change neutral positions and tilt for easy access to cab. 3 way adjustable operator's seat with high back, headrest and armrest. Engine throttle knob. Foot operated controls: boom elevating, boom telescoping, service brake and engine throttle. Hot water cab heater and air conditioning.

Dash-mounted engine start/stop, monitor lamps, cigarette lighter, drive selector switch, parking brake switch, steering mode select switch, power window switch, pump engaged/disengaged switch, slewing brake switch, telescoping/auxiliary hoist select switch, outrigger controls, free slewing / lock slewing selector switch, eco mode switch, high speed hoist (main/aux) switch and ashtray.

Instruments - Torque converter oil temperature, engine water temperature, air pressure, fuel, speedometer, tachometer, hour meter and odometer / tripmeter. Hydraulic oil pressure is monitored and displayed on the AML-C display panel.

Tadano electronic LOAD MOMENT INDICATOR system (AML-C) including:

- Control lever lockout function
- Boom position indicator
- Outrigger state indicator
- Boom angle / boom length / jib offset angle / jib length / load radius / rated lifting capacities / actual loads read out
- Ratio of actual load moment to rated load moment indication
- Automatic Speed Reduction and Slow Stop function on boom elevation and slewing
- Working condition register switch
- Load radius / boom angle / tip height / slewing range preset function
- External warning lamp
- Tare function
- Fuel consumption monitor
- Main hoist / auxiliary hoist select
- Drum rotation indicator (audible and visible type) main and auxiliary hoist

TADANO AML-C monitors outrigger extended length and automatically programs the corresponding "RATED LIFTING CAPACITIES" table

Operator's right hand console includes transmission gear selector, and slewing lock lever and sight level bubble. Upper console includes working light switch, roof washer and wiper switch, emergency outrigger set up key switch, jib equipped/removed select switch, eco mode switch, high speed hoist (main/aux) switch and air conditioning control switch.

NOTE: Each crane motion speed is based on unloaded conditions.

CARRIER SPECIFICATIONS

TYPE - Rear engine, left hand steering, driving axle 2-way selected type by manual switch, 4x2 front drive, 4x4 front and rear drive.

FRAME - High tensile steel, all welded mono-box construction.

TRANSMISSION - Electronically controlled full automatic transmission. Torque converter driving full powershift with driving axle selector. 6 forward and 2 reverse speeds, constant mesh.

- 3 speeds - high range - 2 wheel drive; 4 wheel drive
- 3 speeds - low range - 4 wheel drive

TRAVEL SPEED - 22 mph (36 km/h)

GRADEABILITY (tanθ) - 94% (at stall), **57%

** Machine should be operated within the limit of engine design. (30°: Cummins QSB6.7)

AXLE - Front: Full floating type, steering and driving axle with planetary reduction. Rear: Full floating type, steering and driving axle with planetary reduction and non-spin rear differential.

STEERING - Hydraulic power steering controlled by steering wheel. Four steering modes available: 2 wheel front, 2 wheel rear, 4 wheel coordinated and 4 wheel crab .

SUSPENSION - Front: Rigid mounted to frame. Rear: Pivot mounted with hydraulic lockout device.

BRAKE SYSTEMS - Service: Air over hydraulic disc brakes on all 4 wheels. Parking/Emergency: Spring applied-air released brake acting on input shaft of front axle. Auxiliary: Electro-pneumatic operated exhaust brake.

TIRES - 29.5-25 34PR(OR)

OUTRIGGERS - Four hydraulic, beam and jack outriggers. Vertical jack cylinders equipped with integral holding valve. Each outrigger beam and jack is controlled independently from cab. Beams extend to 23' 11-3/8" (7.3 m) center-line and retract to within 10' 10-1/2" (3.315 m) overall width with floats. Outrigger jack floats are attached thus eliminating the need of manually attaching and detaching them. Controls and sight bubble located in superstructure cab. Four outrigger extension lengths are provided with corresponding "RATED LIFTING CAPACITIES" for crane duty in confined areas.

- Min. Extension 8' 10-1/4" (2.7m) center to center
- Mid. Extension 18' 1/2" (5.5m) center to center
- Mid. Extension 21' 11-3/4" (6.7m) center to center
- Max. Extension 23' 11-3/8" (7.3m) center to center
- Float size(Diameter) 1' 11- 5/8" (0.6m)

ENGINE

Model	Cummins QSB6.7 [Tier 4]
Type	Direct injection diesel
No. of cylinders	6
Combustion	4 cycle, turbo charged and after cooled
BoreXStroke, in.(mm)	4.212 x 4.882 (107 x 124)
Displacement, cu. in (liters)	409 (6.700)
Air inlet heater	24 volt preheat
Air cleaner	Dry type, replaceable element
Oil filter	Full flow with replaceable element
Fuel filter	Full flow with replaceable element
Fuel tank, gal.(liters)	79.2 (300), right side of carrier
Cooling	Liquid pressurized, recirculating by-pass

Radiator	Fin and tube core, thermostat controlled
Fan, in.(mm)	Suction type, 9-blade, 28 (711) dia.
Starting	24 volt
Charging	24 volt system, negative ground
Battery	2-120 amp. Hour
Compressor, air, CFM(l /min)	17.0 CFM (481) at 2,400rpm
Horsepower (kW)	Gross 270 (201) at 2,000rpm
Torque, Max. ft-lb (Nm)	730 (990) at 1,500rpm
Capacity, gal.(liters)	
Cooling water	7.4 (28)
Lubrication	4.0 (15)
Fuel	79.2 (300)
DEF	10.0 (38)

STANDARD EQUIPMENT

- Five section full power partially synchronized boom 39.4'~154.2' (12.0 m~47.0 m)
- 33.2' or 58.1' (10.1 m or 17.7 m) bi-fold lattice jib (tilt type) with 3.5°, 25° or 45° pinned offsets and self storing pins.
- Auxiliary lifting sheave (single top) storable
- Variable speed main hoist with grooved drum, cable follower and 830' of 3/4" cable.
- Variable speed auxiliary hoist with grooved drum, cable follower and 456' of 3/4" cable.
- Drum rotation indicator (audible, visible and thumper type) main and auxiliary hoist
- 2-speed hoist
- Anti-Two block device (overwind cutout)
- Boom angle indicator
- Tadano electronic load moment indicator system (AML-C)
- Outrigger extension length detector
- Electronic crane monitoring system
- Tadano twin slewing system and 360° positive slewing lock
- Self centering finger control levers with pilot control
- Control pedals for boom elevating and boom telescoping
- 3 way adjustable cloth seat with armrests, high back and seat belt
- Tilt-telescoping steering wheel
- Tinted safety glass and sun visor
- Front windshield wiper and washer
- Roof window wiper and washer
- Power window (cab door)
- Rear view mirrors (right and left side)
- Mirror for main and auxiliary hoists
- Cigarette lighter and ashtray
- Cab floor mat
- Pump disconnect in operator's cab
- Hydraulic oil cooler
- Hot water cab heater and air conditioner
- Positive control
- Quick reeving type bi-fold jib
- Work lights
- Independently controlled outriggers
- Four outrigger extension positions
- Self-storing outrigger pads
- Cummins QSB6.7 turbo charged after cooled engine (270HP) with exhaust brake
- Electronic controlled automatic transmission driven by torque converter
- 4 X 4 X 4 drive/steer
- Non-spin rear differential
- Automatic rear axle oscillation lockout system
- 29.5-25 34PR tires
- Disc brakes
- Fenders
- Air dryer
- Water separator with filter(high filtration)
- Engine over-run alarm
- Back-up alarm
- Low oil pressure/high water temp. warning device (visual)
- Rear steer centering light
- Air cleaner dust indicator
- Full instrumentation package
- Complete highway light package
- Tool storage compartment
- Tire inflation kit
- 24 volt electric system
- 7.3 ton (6.6 metric ton) hook ball with swivel
- 100 ton (90.7 metric ton) - 8 sheaves with swivel hook block and safety latch for 3/4"(19mm) wire rope
- Towing hooks-Front and rear
- Lifting eyes
- Hook block tie down (front bumper)
- Weighted hook storage compartment
- Halogen head lamp
- Telematics (machine data logging and monitoring system) with HELLO-NET via internet
- Fuel consumption monitor
- Eco mode system
- Self-removable counterweight

HOISTING PERFORMANCE

LINE SPEEDS AND PULLS

Layer	Main or auxiliary hoist - 14'-1/4" (0.362m) drum							
	Line speeds ¹				Line pulls - Available ²			
	Low		High		Low		High	
	F.P.M.	m/min	F.P.M.	m/min	Lbs.	kgf	Lbs.	kgf
1st	278	84	387	118	20,000	9,090	14,400	6,520
2nd	302	92	421	128	18,100	8,230	13,000	5,900
3rd	327	99	456	139	16,600	7,520	11,900	5,390
4th	352	107	491	149	15,300	6,920	10,900	4,960
5th	377	115	526	160	14,100	6,410	10,100	4,600
6th	402	122	560	170	13,200	5,970	9,400	4,280
7th ³	427	130	595	181	12,300	5,590	8,800	4,010

* Maximum permissible line pull may be affected by wire rope strength.
Maximum lifting capacity per line (Main & Aux.): 14,600 lbs (6,600 kg)

- Line speeds based only on hook block, not loaded.
- Developed by machinery with each layer of wire rope, but not based on rope strength or other limitation in machinery or equipment.
- Seventh layer of wire rope are not recommended for hoisting operations.

DRUM WIRE ROPE CAPACITIES

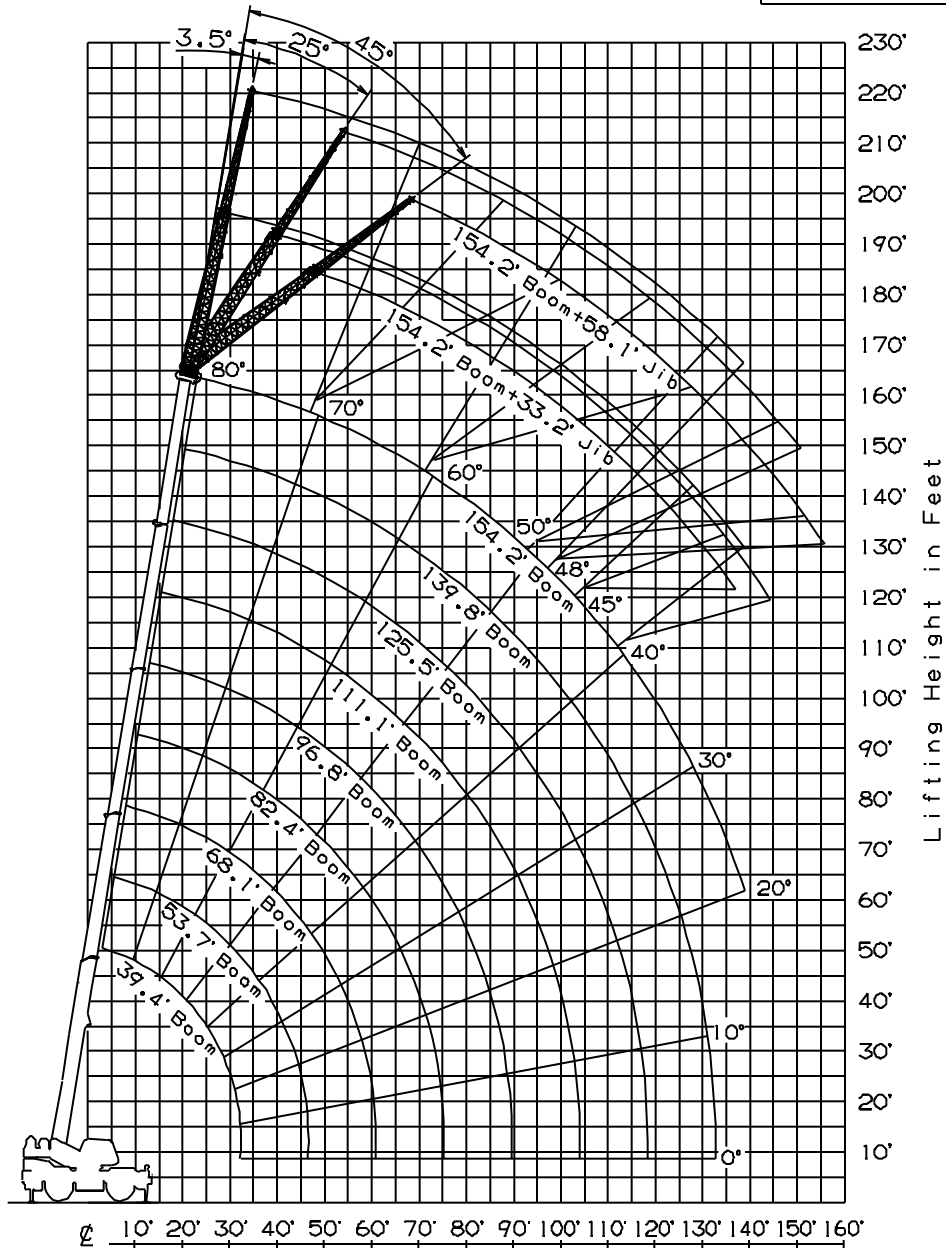
Wire rope layer	Main and auxiliary drum grooved lagging			
	3/4" (19mm) wire rope			
	Rope per layer		Total wire rope	
	Feet	Meters	Feet	Meters
1	112.2	34.2	112.2	34.2
2	122.3	37.3	234.5	71.5
3	132.2	40.3	366.8	111.8
4	142.3	43.4	509.1	155.2
5	152.2	46.4	661.4	201.6
6	162.4	49.5	823.8	251.1
7	172.5	52.6	996.4	303.7

DRUM DIMENSIONS

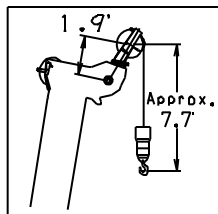
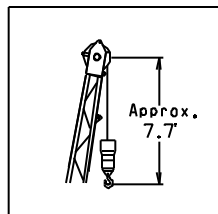
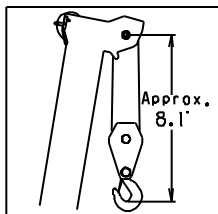
	Inch	mm
Root diameter	14-1/4"	362
Length	23-5/8"	600
Flange diameter	25-7/8"	657

GR-1000XL WORKING RANGE CHART

Telescoping mode I



Axis of Rotation
 Load Radius from Axis of Rotation in Feet
 Boom Length in Feet



39.4' (12.0m)

53.7' (16.4m)

68.1' (20.8m)

82.4' (25.1m)

96.8' (29.5m)

111.1' (33.9m)

125.5' (38.3m)

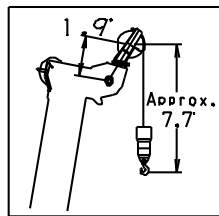
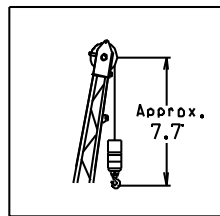
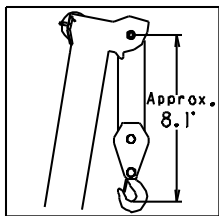
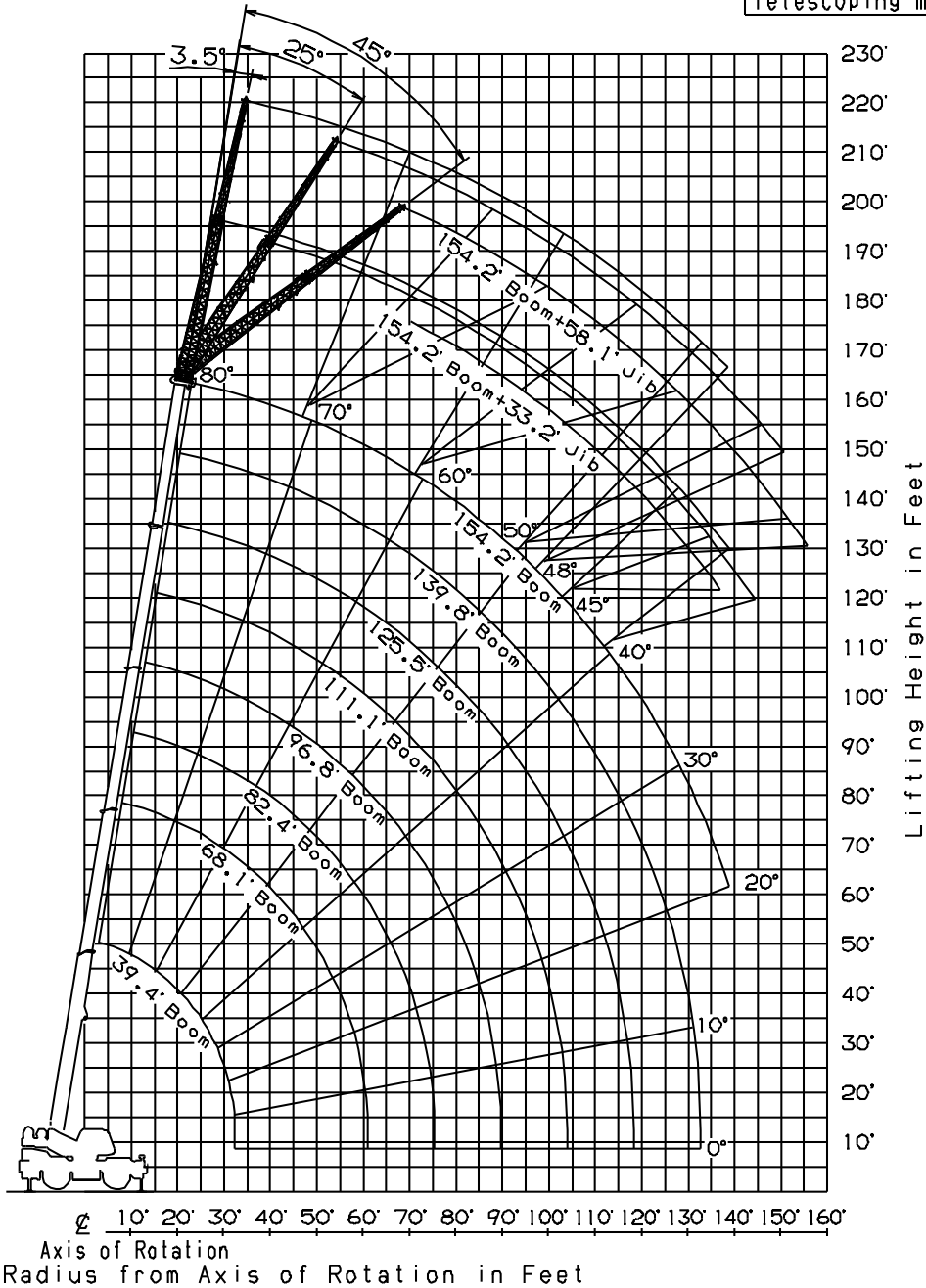
139.8' (42.6m)

154.2' (47.0m)

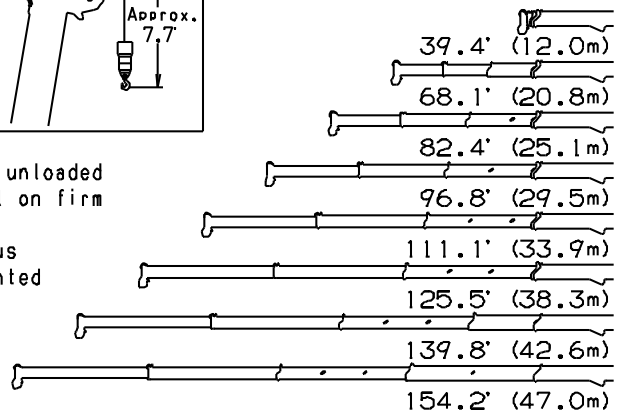
NOTE: 1. Boom and jib geometry shown are for unloaded condition and machine standing level on firm supporting surface.
 Boom deflection and subsequent radius and boom angle change must be accounted for when applying load to hook.

GR-1000XL WORKING RANGE CHART

Telescoping mode II



Boom Length in Feet



NOTE: 1. Boom and jib geometry shown are for unloaded condition and machine standing level on firm supporting surface. Boom deflection and subsequent radius and boom angle change must be accounted for when applying load to hook.

WARNING AND OPERATING INSTRUCTIONS FOR LIFTING CAPACITIES

GENERAL

1. RATED LIFTING CAPACITIES apply only to the machine as originally manufactured and normally equipped by TADANO LTD. Modifications to the machine or use of optional equipment other than that specified can result in a reduction of capacity.
2. Hydraulic cranes can be hazardous if improperly operated or maintained. Operation and maintenance of this machine must be in compliance with information in the **Operation and Maintenance Manuals** supplied with the crane. If this manual is missing, order a replacement through the distributor.
3. The operator and other personnel associated with this machine shall fully acquaint themselves with the latest applicable ASME B30.5 safety standards for cranes as mentioned in OSHA CFR29 part 1926.
11. Load per line should not exceed 14,600 lbs. (6,600kg) for main hoist and auxiliary hoist.
12. Check the actual number of parts of line with LOAD MOMENT INDICATOR (AML-C) before operation. Maximum lifting capacity is restricted by the number of parts of line of LOAD MOMENT INDICATOR (AML-C). Limited capacity is as determined from the formula, Single line pull for main hoist 14,600 lbs. (6,600kg) x number of parts of line.
13. The boom angle before loading should be greater to account for deflection. For rated lifting capacities, the loaded boom angle and the load radius is for reference only.
14. The 39.4' (12.0m) boom length capacities are based on boom fully retracted. If not fully retracted [less than 53.7' (16.4m) boom length], use the rated lifting capacities for the 53.7' (16.4m) boom length.

SET UP

1. Rated lifting capacities on the load chart are the maximum allowable crane capacities. They are based on the machine standing level on firm supporting surface under ideal job conditions. Depending on the nature of the supporting surface, it may be necessary to have structural supports under the outrigger floats or tires to spread the loads to a larger surface.
2. For outrigger operation, outriggers shall be properly extended with tires free of supporting surface before operating crane.

OPERATION

1. Rated lifting capacities have been tested to and meet minimum requirements of SAE J1063-Cantilevered Boom Crane Structures Method of Test.
2. Rated lifting capacities do not exceed 85 % of the tipping load on outriggers fully extended as determined by SAE J765-Crane Stability Test Code.
Rated lifting capacities for partially extended outriggers are determined from the formula, Rated Lifting Capacities = (Tipping Load - 0.1 x Tip Reaction)/1.25.
3. Rated lifting capacities above bold lines in the chart are based on crane strength and those below, on its stability. They are based on actual load radius increased by boom deflection.
4. The weight of handling device such as hook blocks, slings, etc., must be considered as part of the load and must be deducted from the lifting capacities.
5. Rated lifting capacities are based on freely suspended loads and make no allowance for such factors as the effect of wind, sudden stopping of loads, supporting surface conditions, inflation of tires, operating speeds, side loads, etc. Side pull on the boom or jib is extremely dangerous. Such action can damage the boom, jib or slewing mechanism, and lead to overturning the crane.
6. Rated lifting capacities do not account for wind on lifted load or boom. We recommend against working under the condition that the load is out of control due to a strong wind. During boom lift, consider that the rated lifting capacity is reduced by 50% when the wind speed is 20mph(9m/s) to 27mph(12m/s); reduced by 70% when the wind speed is 27mph(12m/s) to 31mph(14m/s). If the wind speed is 31mph(14m/s) or over, stop operation. During jib lift, stop operation if the wind speed is 20mph(9m/s).
7. Rated lifting capacities at load radius shall not be exceeded. Do not tip the crane to determine allowable loads.
8. Do not operate at boom lengths, radii, or boom angle, where no capacities are shown. Crane may overturn without any load on the hook.
9. When boom length is between values listed, refer to the rated lifting capacities of the next longer and next shorter booms for the same radius. The lesser of the two rated lifting capacities shall be used.
10. When making lifts at a load radius not shown, use the next longer radius to determine allowable capacity.
15. Extension or retraction of the boom with loads may be attempted within the limits of the RATED LIFTING CAPACITIES. The ability to telescope loads is limited by hydraulic pressure, boom angle, boom length, crane maintenance, etc.
16. For lifting capacity of single top, reduce the rated lifting capacities of relevant boom according to a weight reductions for auxiliary load handling equipment. Capacities of single top shall not exceed 14,600 lbs. (6,600kg) including main hook.
17. When base jib or top jib or both jib removing, jib state switch select removed.
18. When erecting and stowing jib, be sure to retain it by hand or by other means to prevent its free movement.
19. Use "ANTI-TWO BLOCK" disable switch when erecting and stowing jib and when stowing hook block. While the switch is pushed, the hoist does not stop, even when overwind condition occurs.
20. For boom length 154.2' (47.0m) or less and 125.5' (38.3m) or longer with jib, rated lifting capacities are determined by loaded boom angle only in the column headed "154.2' (47.0m)boom+jib". For boom length 125.5' (38.3m) or less with jib, rated lifting capacities are determined by loaded boom angle only in the column headed "125.5' (38.3m)boom+jib". For angles not shown, use the next lower loaded boom angle to determine allowable capacity.(Telescoping MODE I) For boom length 154.2' (47.0m) or less and 139.8' (42.6m) or longer with jib, rated lifting capacities are determined by loaded boom angle only in the column headed "154.2' (47.0m)boom+jib". For boom length 139.8' (42.6m) or less with jib, rated lifting capacities are determined by loaded boom angle only in the column headed "139.8' (42.6m)boom+jib". For angles not shown, use the next lower loaded boom angle to determine allowable capacity.(Telescoping MODE II)
21. When lifting a load by using jib (aux. hoist) and boom (main hoist) simultaneously, do the following:
 - Enter the operation status as jib operation, not as boom operation.
 - Before starting operation, make sure that mass of load is within rated lifting capacity for jib.
22. Before telescoping the boom, set the telescoping mode selector switch to MODE I or MODE II with the boom fully retracted. A change of the telescoping mode is not permissible when the boom has been partially or fully extended.
23. Crane operation is prohibited without full counterweight 22,000lbs. (10 ton) installed. Outriggers shall be extended 23'11 3/8" (7.3m) spread when installing or removing counterweight.

DEFINITIONS

1. Load Radius: Horizontal distance from a projection of the axis of rotation to supporting surface before loading to the center of the vertical hoist line or tackle with load applied.
2. Loaded Boom Angle: The angle between the boom base section and the horizontal, after lifting the rated lifting capacity at the load radius.
3. Working Area: Area measured in a circular arc about the centerline of rotation.
4. Freely Suspended Load: Load hanging free with no direct external force applied except by the hoist line.
5. Side Load: Horizontal side force applied to the lifted load either on the ground or in the air.

WARNING AND OPERATING INSTRUCTIONS FOR USING THE LOAD MOMENT INDICATOR (AML-C)

1. When operating crane on outriggers:
 - Set P.T.O. switch to "ON".
 - Press the outrigger mode select key to register for the outrigger operation. Press the register key, then the outrigger mode indicative symbol changes from flashing to a solid light.
 - Press the lift mode select key to select the lift status that corresponds to the actual boom configuration. Each time the lift mode select key is pressed, the status changes. Press the register key to register the lift status, then the lift indicative symbol changes from flashing to a solid light.
 - when mounting and stowing jib, select the jib set status. (the jib state indicative symbol will be flashing.)
 2. When operating crane on rubber:
 - Set P.T.O. switch to "ON".
 - Press the outrigger mode select key. The on-tire mode indicative symbol comes on. Each time the outrigger mode select key is pressed the status changes. Select the creep operation, the on-tire mode indicative symbol flicker.
 - Press the lift mode select key to register the boom or single top lift.
- However, pay attention to the following.
- (1) For stationary operation.
 - The front capacities are attainable only when the over front position symbol comes on. When the boom is more than 2 degrees from centered over front of chassis, 360° capacities are in effect.
 - (2) For creep operation.
 - The creep capacities are attainable only when boom is in the straight forward position of chassis and the over front position symbol is on. If boom is not in the straight forward position of chassis, never lift load.
3. A slewing does not automatically stop even if the crane becomes overloaded.
 4. During crane operation, make sure that the displays on front panel are in accordance with actual operating conditions.
 5. The displayed values of LOAD MOMENT INDICATOR (AML-C) are based on freely suspended loads and make no allowance for such factors as the effect of wind, sudden stopping of loads, supporting surface conditions, inflation of tire, operating speed, side loads, etc. For safe operation, it is recommended when extending and lowering boom or slewing, lifting loads shall be appropriately reduced.
 6. LOAD MOMENT INDICATOR (AML-C) is intended as an aid to the operator. Under no condition should it be relied upon to replace use of capacity charts and operating instruction. Sole reliance upon LOAD MOMENT INDICATOR (AML-C) aids in place of good operating practice can cause an accident. The operator must exercise caution to assure safety.

GR-1000XL Axle weight distribution chart

	Pounds			Kilograms			
	GVW	Front	Rear	GVW	Front	Rear	
Base machine	115,610	57,340	58,270	52,440	26,010	26,430	
Remove:	1. 7.3ton (6.6metric ton) hook ball	-360	-515	155	-165	-235	70
	2. 100ton (90.7metric ton) hook block	-1,900	-3,665	1,765	-862	-1,664	802
	3. Top jib	-740	-990	250	-336	-450	114
	4. Base jib	-1,910	-3,755	1,845	-867	-1,704	837
	5. Auxiliary lifting sheave	-110	-330	220	-50	-149	99
	6. Removable counterweight [self-removable] (with Auxiliary hoist & wire rope)	-22,000	9,350	-31,350	-9,979	4,240	-14,219

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