ROUGH TERRAIN CRANE

GR-160N

JAPANESE SPECIFICATIONS

OUTLINE	SPEC. NO.
X-type Outrigger	GR-160N-2-00101

Control No. JA-01

GR-160N

1. Crane Specifications

◎ Crane

Crane Capacity

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

Max. Lifting Height
Boom 28.2 m
Jib 32.0 m

Max. Working Radius
Boom 24.0 m
Jib 27.2 m

Boom Length
6.5 m to 27.5 m

Boom Extension
21.0 m

Boom Extension Speed
21.0 m/83 s

Jib Length
3.8 m

Main Winch Single Line Winding Speed
110 m/min (5 layers)

Main Winch Hook Speed
27.5 m/min (4-part line)

Main Winch Single Line Unwinding Speed
<Reference>

Standard:	110 m/min	(5 layers)
High-speed:	150 m/min	(5 layers)

Auxiliary Winch Single Line Winding Speed
96 m/min (3 layers)

Auxiliary Winch Hook Speed
96 m/min (single-part line)

Auxiliary Winch Single Line Unwinding Speed
<Reference>

Standard:	96 m/min	(3 layers)
High-speed:	130 m/min	(3 layers)

Boom Elevation Angle
-9° to 82.5°

Boom Elevation Speed
-9° to 82.5°/34 s

Swing Angle
360° continuous

Swing Speed
2.6 min^{-1} (rpm)

Wire Rope
Main winch
14 mm dia. x 155 m long
Spin-resistant wire rope
Auxiliary winch
14 mm dia. x 70 m long
Spin-resistant wire rope

Hook
16 t hook (6-part line)
3.2 t hook (single-part line)

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

Boom Extension
2 double-acting hydraulic cylinders
3 wire rope type telescoping devices
Flow regulator valve with pressure compensation

Jib
Single stage stored under boom
Offset 5°, 25°, 45° 3-stage inclined

Single Top
Mounted and fixed on the top boom section.

Hoist
Hydraulic motor driven planetary gear reducer
Automatic brake
High-speed unwind function
2 single winches
With flow regulator valve with pressure compensation

Boom Elevation
Single double-acting hydraulic cylinder
With flow regulator valve with pressure compensation

Swing
Hydraulic motor driven planetary gear reducer
Swing bearing
Swing free/lock changeover type
Negative brake

Outriggers
Fully hydraulic X-type (floats mounted integrally)
Slides and jacks each provided with independent operation device.

Fully extended width	5.2 m
Middle extended width	4.8 m, 4.4 m, 3.2 m
Minimum extended width	2.7 m

Operation Method
Hydraulic pilot valve operation

Max. Vertical Load Capacity of Outrigger
18.4 t

Power Take-Off
PTO wet multi-plate clutch

Hydraulic Pumps
2 variable piston pumps
2 gear pumps

Hydraulic Tank Capacity
295 L

Safety Devices
Automatic moment limiter (AML)
Swing automatic stop device
Elevation slow down and stop device
Over-winding cutout device
Working area control device
Outrigger extension width detector
Level gauge
Hook safety latch
Hydraulic safety valve
Telescoping cylinder check valve
Extension cylinder check valve
Jack pilot check valve

Equipment
Air-conditioner with dehumidifier
Hydraulic oil temperature indication lamp
Radio
Oil cooler
Visual-type winch drum rotation indicator
Operation pedals
ISO arrangement: for telescoping/auxiliary hoisting
Tadano arrangement: for elevating/telescoping
Satellite communications equipment (HELLO-NET Owner's Site)

Ancilliary Equipment
Wood blocks (x 4)
Aluminum deck plates (x 4)

◎ Carrier

Manufacturer and Model
Tadano JDS-T006

Engine
Model Cummins QSB6.7-3C (with turbo charger and air cooler)
Type Water-cooled 4-cycle, in-line 6 cylinder, direct-injection diesel
Piston displacement 6.690 L
Max. output 160 kw (218 PS)/2,500 min^{-1} (rpm)
Max. torque 843 N.m (86.0 kgf.m)/1,500 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 shaft tube type

Rear Axle
Full floating shaft tube type

Suspension
Front Parallel leaf spring type (with hydraulic lock cylinder)
Rear Parallel leaf spring type (with hydraulic lock cylinder)

Steering
Fully hydraulic power steering

Brake System
Service Brake
Air and hydraulic combined type front and rear disk brakes
Parking Brake
Air-type transmission braking and internal expanding-type spring brake
Auxiliary Brake
Electro-pneumatic operated exhaust brake
Auxiliary braking device for operations

Frame
Welded box-shaped structure

Electric System
12 V/120 Ah x 2 (24 V)

Fuel Tank Capacity
250 L

Tires

Front	325/95R24	161E	Road
Rear	325/95R24	161E	Road

Cab
One-man type
With interior equipment
Rubber mounted type
Fully adjustable suspension seat
(with head rest, arm rest, seat belt)
Adjustable wheel (tilt, telescoping)
Intermittent windshield/roof wiper (with washer)
Power window
Side visor

Safety Devices
Emergency steering device
Suspension lock device
Rear wheel steering lock device
Engine over-run alarm
Overshift prevention device
Parking brake alarm
TV monitor on left side of boom

Equipment
Centralized oiling device (Electric type is optional)

◎ Dimensions

Overall length		8,310 mm
Overall width		2,200 mm
Overall height		3,150 mm
Wheel base		3,200 mm
Tread	Front	1,820 mm
	Rear	1,820 mm

◎ Weights

Gross vehicle weight		19,915 kg
	Front	9,925 kg
	Rear	9,990 kg

◎ Performance

Max. traveling speed	49 km/h
Gradeability (tanθ)	0.6
Min. turning radius	4.8 m (4-wheel steering)
	8.5 m (2-wheel steering)

◎ Optional Equipment

Electric mirror
Rear view monitoring camera
Loudspeaker
AML external warning lamp
Roadside lamp
Identification lamp
Toolbox

2. Total Rated Loads

2-(1) Outrigger Extension

[Boom]

Unit: ton

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

A= Boom angle range (for the unladen condition)

Unit: ton

Outriggers middle extended (4.8 m)					-Over sides-	
Working radius \ Boom length	6.5 m	10.7 m	14.9 m	19.1 m	23.3 m	27.5 m
2.5 m	16.0	12.0	9.0	7.0		
3.0 m	16.0	12.0	9.0	7.0		
3.5 m	14.0	12.0	9.0	7.0	5.0	3.5
4.0 m	12.5	12.0	9.0	7.0	5.0	3.5
4.5 m	11.7 (4.4 m)	11.1	9.0	7.0	5.0	3.5
5.0 m		10.25	8.9	7.0	5.0	3.5
5.5 m		9.2	8.2	7.0	5.0	3.5
6.0 m		7.9	7.6	6.6	5.0	3.5
7.0 m		5.85	5.85	5.8	4.7	3.5
8.0 m		4.55	4.5	4.85	4.15	3.4
9.0 m		3.9 (8.6 m)	3.55	3.9	3.7	3.1
10.0 m			2.8	3.15	3.3	2.8
11.0 m			2.25	2.6	2.8	2.55
12.0 m			1.8	2.15	2.35	2.35
13.0 m			1.5 (12.8 m)	1.75	1.95	2.1
14.0 m				1.45	1.65	1.75
15.0 m				1.2	1.4	1.5
16.0 m				1.0	1.2	1.3
17.0 m				0.85	1.0	1.1
18.0 m					0.85	0.95
19.0 m					0.7	0.8
20.0 m					0.55	0.65
22.0 m						0.45
A (°)	0-82.5					24-82.5

A= Boom angle range (for the unladen condition)

[Boom]

Unit: ton

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

A= Boom angle range (for the unladen condition)

Unit: ton

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

A= Boom angle range (for the unladen condition)

[Boom]

Unit: ton

Outriggers minimum extended (2.7 m)					-Over sides-	
Working radius \ Boom length	6.5 m	10.7 m	14.9 m	19.1 m	23.3 m	27.5 m
2.5 m	13.5	12.0	9.0	7.0		
3.0 m	10.6	10.0	9.0	7.0		
3.5 m	8.0	7.8	7.7	7.0	5.0	3.5
4.0 m	6.2	6.2	6.1	6.4	5.0	3.5
4.5 m	5.3 (4.4 m)	5.0	4.9	5.3	5.0	3.5
5.0 m		4.1	4.0	4.4	4.5	3.5
5.5 m		3.4	3.3	3.7	3.85	3.5
6.0 m		2.85	2.8	3.1	3.35	3.4
7.0 m		2.05	1.95	2.3	2.5	2.6
8.0 m		1.45	1.35	1.7	1.9	2.05
9.0 m		1.15 (8.6 m)	0.9	1.25	1.45	1.6
10.0 m			0.55	0.9	1.1	1.25
11.0 m				0.6	0.8	0.95
12.0 m				0.4	0.6	0.7
A (°)	0-82.5		39-82.5	45-82.5	55-82.5	61-82.5

A= Boom angle range (for the unladen condition)

[Jib (27.5 m Boom)]

Outriggers fully extended (5.2 m)					-360°-	
Jib length	27.5 m boom + 3.8 m jib					
Offset	5°		25°		45°	
Boom angle	Working radius (m)	Total rated load (t)	Working radius (m)	Total rated load (t)	Working radius (m)	Total rated load (t)
82.5°	3.6	2.0	4.7	1.5	5.7	1.25
75°	8.0	2.0	8.9	1.5	9.6	1.25
70°	10.8	2.0	11.6	1.5	12.1	1.25
65°	13.2	1.6	14.0	1.35	14.5	1.25
60°	15.5	1.35	16.3	1.2	16.7	1.15
55°	17.7	1.1	18.4	1.1	18.8	1.05
50°	19.7	0.95	20.4	0.9	20.7	0.9
45°	21.6	0.75	22.2	0.7	22.4	0.7
40°	23.3	0.6	23.8	0.55		
35°	24.8	0.45	25.2	0.4		
30°	26.1	0.35	26.4	0.3		
25°	27.2	0.25				
A (°)	24-82.5		29-82.5		44-82.5	

A= Boom angle range (for the unladen condition)

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

A= Boom angle range (for the unladen condition)

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

A= Boom angle range (for the unladen condition)

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

A= Boom angle range (for the unladen condition)

[Jib (23.3 m Boom)]

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

A= Boom angle range (for the unladen condition)

Outriggers middle extended (4.8 m) -Over sides-						
Jib length	23.3 m boom + 3.8 m jib					
Offset	5°		25°		45°	
Boom angle	Working radius (m)	Total rated load (t)	Working radius (m)	Total rated load (t)	Working radius (m)	Total rated load (t)
82.5°	2.9	2.0	4.0	1.5	5.0	1.25
75°	6.5	2.0	7.5	1.5	8.3	1.25
70°	8.8	2.0	9.7	1.5	10.5	1.25
65°	11.0	2.0	11.8	1.5	12.5	1.25
60°	13.1	1.7	13.9	1.45	14.4	1.2
55°	14.9	1.25	15.7	1.15	16.1	1.15
50°	16.7	0.95	17.4	0.9	17.6	0.85
45°	18.3	0.7	18.9	0.7	19.0	0.65
40°	19.8	0.55	20.3	0.5		
35°	21.1	0.4	21.5	0.4		
30°	22.2	0.3	22.5	0.3		
25°	23.2	0.25	23.4	0.25		
A (°)	24-82.5				44-82.5	

A= Boom angle range (for the unladen condition)

Outriggers middle extended (4.4 m) -Over sides-						
Jib length	23.3 m boom + 3.8 m jib					
Offset	5°		25°		45°	
Boom angle	Working radius (m)	Total rated load (t)	Working radius (m)	Total rated load (t)	Working radius (m)	Total rated load (t)
82.5°	2.9	2.0	4.0	1.5	5.0	1.25
75°	6.5	2.0	7.5	1.5	8.3	1.25
70°	8.8	2.0	9.7	1.5	10.5	1.25
65°	11.0	2.0	11.8	1.5	12.5	1.25
60°	12.9	1.4	13.9	1.3	14.4	1.2
55°	14.8	1.0	15.6	0.95	16.0	0.9
50°	16.6	0.7	17.3	0.7	17.6	0.65
45°	18.3	0.5	18.8	0.5	19.0	0.5
40°	19.7	0.35	20.2	0.35		
35°	21.1	0.25	21.4	0.25		
A (°)	34-82.5				44-82.5	

A= Boom angle range (for the unladen condition)

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

A= Boom angle range (for the unladen condition)

PRECAUTIONS TO BE TAKEN WHEN THE OUTRIGGERS ARE EXTENDED:

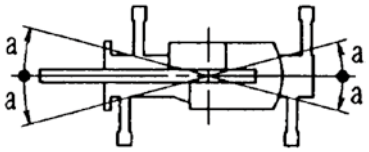
1. The total rated loads shown are for the case where the crane is set horizontally on firm level ground. They include the weights of the slings and main winch hook (140 kg) when using the boom, and the weights of the slings and auxiliary winch hook (60 kg) when using the jib. The values above the bold 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 the deflection of the boom, operations should be performed in accordance with the working radii.
3. The total rated load for the jib differs for boom lengths of 23.3 m or less and more than 23.3 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 23.3 m or a 27.5 m boom.
5. The total rated load for the single top is obtained by subtracting 80 kg from total rated load of the boom. It includes the weight of the sling and auxiliary hook (60 kg), and must not exceed 3.2 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 2.9 t for the main winch, and 3.2 t for the auxiliary winch.

Boom length	6.5 m	10.7 m	14.9 m	19.1 m	23.3 m	27.5 m	Jib/Single top
Number of part lines	6	6	4	4	4	4	1

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

Extended width	Middle extended (4.8 m)	Middle extended (4.4 m)	Middle extended (3.2 m)	Minimum extended (2.7 m)
Angle a°	50	45	20	15

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



2-(2) Outrigger Not Used

Unit: ton

Working radius	Stationary							
	6.5 m boom		10.7 m boom		14.9 m boom		19.1 m boom	
	Front	360°	Front	360°	Front	360°	Front	360°
3.0 m	8.0	4.4	7.5	4.5	5.2	4.65	5.0	4.7
3.5 m	7.7	3.5	7.5	3.65	5.2	3.7	5.0	4.0
4.0 m	7.3	2.8	7.3	3.0	5.2	3.0	5.0	3.25
4.5 m	6.6 (4.4 m)	2.2 (4.4 m)	6.4	2.4	4.75	2.35	4.55	2.6
5.0 m			5.45	1.9	4.25	1.8	4.1	2.1
5.5 m			4.6	1.5	3.8	1.4	3.7	1.7
6.0 m			3.9	1.15	3.45	1.05	3.4	1.35
7.0 m			2.95	0.6	2.6	0.5	2.8	0.85
8.0 m			2.25		1.9		2.25	0.45
9.0 m					1.4		1.8	
10.0 m					1.05		1.4	
11.0 m					0.75		1.05	
12.0 m					0.5		0.8	
13.0 m							0.6	
14.0 m							0.4	
A (°)	0-82.5			25-82.5	0-82.5	51-82.5	35-82.5	60-82.5

A= Boom angle range (for the unladen condition)

Unit: ton

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

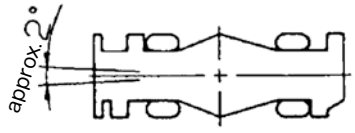
A= Boom angle range (for the unladen condition)

PRECAUTIONS TO BE TAKEN WHEN THE OUTRIGGERS ARE NOT 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/cm^2)) and the crane is completely spring-locked. They include the weights of the sling and main hook (140 kg) when using the boom.
   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 2.9 t for the main winch, and 3.2 t for the auxiliary winch.

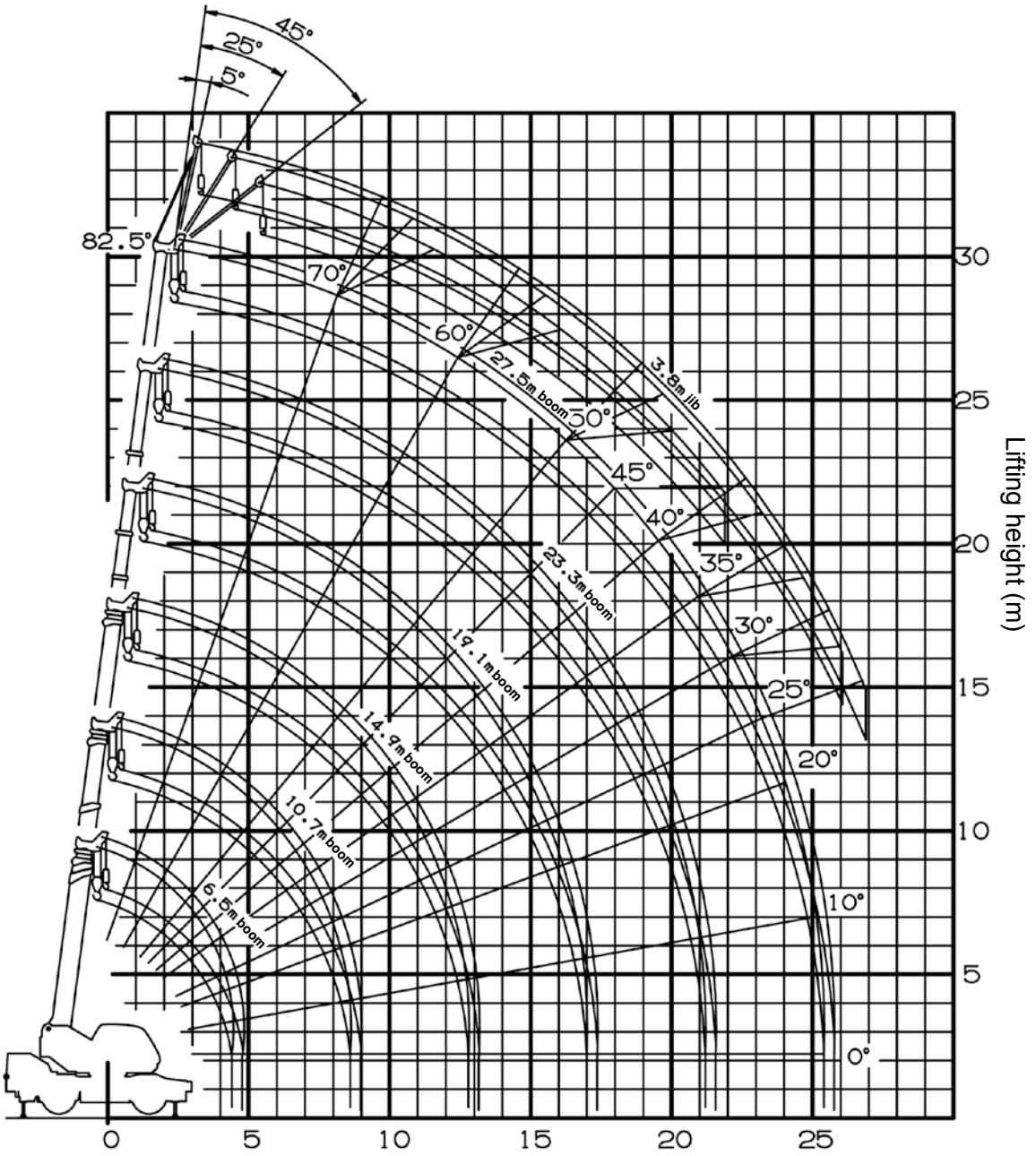
Boom length	6.5 m	10.7 m	14.9 m	19.1 m	Single top
Number of part lines	4	4	4	4	1

4. "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.



5. The total rated load for the single top is obtained by subtracting 80 kg from total rated load of the boom. It includes the weight of the sling and auxiliary hook (60 kg), and must not exceed 3.2 t.
6. High-speed unwind function should not be performed without outriggers. Booms over 19.1 m in length and jibs should not be used without outriggers.
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 and jib is not incorporated in the figure above.
2. The figure above shows the crane with the maximum outrigger extension (5.2 m).

4. Dimensions