ROUGH TERRAIN CRANE

GR-300N

(Power Tilt Jib)

JAPANESE SPECIFICATIONS

GR

SPEC. NO.	OUTLINE
GR-300N-1-00101 GR-300N-1-00102	Winch without free-fall device Winch with free-fall device

Control No. JA-02

GR-300N

CRANE SPECIFICATIONS

CRANE CAPACITY

7.7m	Boom	30,000kg	at 3.0m	(8part-line)
12.7m	Boom	19,000kg	at 5.0m	(6part-line)
17.7m	Boom	17,000kg	at 4.5m	(6part-line)
22.7m	Boom	12,000kg	at 6.0m	(4part-line)
27.7m	Boom	9,000kg	at 7.0m	(4part-line)
30.5m	Boom	8,000kg	at 7.0m	(4part-line)
32.0m	Boom	7,000kg	at 7.0m	(4part-line)
6.5m	Jib	3,200kg	at 72°	(1part-line)
11.0m	Jib	2,000kg	at 70°	(1part-line)
Single top		4,000kg		(1part-line)

MAX.LIFTING HEIGHT
Boom 32.8m
Jib 43.9m

MAX.WORKING RADIUS
Boom 29.5m
Jib 32.5m

BOOM LENGTH
7.7m – 32.0m

BOOM EXTENSION
24.3m

BOOM EXTENSION SPEED
24.3m/77s

JIB LENGTH
6.5m, 11.0m

MAIN WINCH SINGLE LINE WINDING SPEED
120m/min (4th layer)

MAIN WINCH HOOK SPEED
15.0m/min (8 part-line)

MAIN WINCH SINGLE LINE UNWINDING SPEED
<Reference>
Standard 110m/min (4th layer)
High speed 200m/min (4th layer) --- only on cranes fitted with winches without free-fall device

AUXILIARY WINCH SINGLE LINE WINDING SPEED
120m/min (4th layer)

AUXILIARY WINCH HOOK SPEED
120m/min (1 part-line)

AUXILIARY WINCH SINGLE LINE UNWINDING SPEED
<Reference>
Standard 110m/min (4th layer)
High speed 200m/min (4th layer) --- only on cranes fitted with winches without free-fall device

BOOM ELEVATION ANGLE
-8° – 83°

BOOM ELEVATION SPEED
-8° – 83°/47s

SWING ANGLE
360° continue

SWING SPEED
2.5min^{-1} (rpm)

WIRE ROPE
Main Winch: 16mm x 182m (Diameter x Length) Spin-resistant wire rope
Auxiliary Winch: 16mm x 98m (Diameter x Length) Spin-resistant wire rope

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

JIB
Two-stage type stored alongside boom (with 2nd stage being a pull-out type)
Hydraulic non-stage offset (5°-60°) type

SINGLE TOP
Mounted and fixed on the top boom section.

HOIST
Driven by hydraulic motor and via spur gear reducer.
Automatic brake
High-speed unwind function - only on cranes fitted with winches without free-fall device
Free-fall device (with foot brake) - only on cranes fitted with winches with free-fall device
2 single winches
With flow regulator valve with pressure compensation

BOOM ELEVATION
1 double-acting hydraulic cylinders
With flow regulator valve with pressure compensation

SWING
Hydraulic motor driven planetary gear reducer
Swing bearing
Negative brake

OUTRIGGERS
Fully hydraulic Htype (floats mounted integrally)
Slides and jacks each provided with independent operation device.

Fully extended width	6.7m
Middle extended width	6.3m, 5.2m, 3.8m
Minimum extended width	2.08m

OPERATION METHOD
Hydraulic pilot valve operation

MAX. VERTICAL LOAD CAPACITY OF OUTRIGGER
28.4t

POWER TAKE-OFF
PTO wet multi-plate clutch

HYDRAULIC PUMPS
2 variable piston pumps
Gear pumps + piston pumps

HYDRAULIC OIL TANK CAPACITY
430 liters

SAFETY DEVICES
Automatic moment limiter (AML)
Swing automatic stop device
Elevation slow down and stop device
Over-winding cutout device
Working area control device
Free-fall interlock device - only on cranes fitted with winches with free-fall device
Outrigger extension width detector
Level gauge
Hook safety latch
Hydraulic safety valve
Telescopic counterbalance valve
Elevation counterbalance valve
Power tilt counterbalance valve
Jack pilot check valve

EQUIPMENT
Air-conditioner with dehumidifier
Hydraulic oil temperature indication lamp
Radio
Oil coolerVisual-type winch drum rotation indicator
Operation pedals
ISO arrangement: for telescoping/auxiliary hoisting
TADANO arrangement: for elevating/telescoping
Television (option)

CARRIER SPECIFICATIONS

ENGINE
Model MITSUBISHI 6M60 - TLE2A (with turbo charger and air cooler)
Type 4-cycle, 6-cylinder, direct-injection, water-cooled diesel engine
Piston displacement 7,545cc
Max. output 200kW (272PS) at 2,700min^{-1}(rpm)
Max. torque 785N·m(80.0kgf·m) at 1,400^{-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 and 1 reverse speeds (with Hi/Low settings)

REDUCER
Axle dual-ratio reduction

DRIVE
2-wheel drive (4X2) / 4-wheel drive (4X4) 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
With reverse steering correction mechanism

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
Hydrodynamic retarder
Electro-pneumatic operated exhaust brake
Auxiliary braking device for operations

FRAME
Welded box-shaped structure

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

FUEL TANK CAPACITY
300 liters

TIRES
Front 385/95R25 170E ROAD
Rear 385/95R25 170E ROAD

CAB
One-man type
With interior equipment
Liquid filled rubber mounted type
Fully adjustable foldable seat
(with headrest, armrest and seat belt)
Adjustable handle (tilt, telescoping)
Intermittent type 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
Powered mirror for right side of boom
Monitor TV for left side of boom

EQUIPMENT
Centralized oiling device

GENERAL DATA

DIMENSIONS

Overall length		9,620mm
Overall width		2,490mm
Overall height		3,495mm
Wheel base		3,550mm
Tread	Front	2,060mm
	Rear	2,060mm

WEIGHTS
Gross vehicle weight

Total	28,275kg
Front	14,140kg
Rear	14,135kg

PERFORMANCE

Max. traveling speed	49km/h
Gradeability (tan θ)	0.57
Min. turning radius	5.1m (4-wheel steering)
	8.6m (2-wheel steering)

Note:
This crane is covered by Class D Conditions under the Basic Running Conditions of the Road Traffic Act.

TOTAL RATED LOADS

(1) With outriggers set
[BOOM]

Unit:ton

Outriggers fully extended (6.7m)							–360°–
A / B	7.7m	12.7m	17.7m	22.7m	27.7m	30.5m	32.0m
2.5m	30.0	19.0	17.0	12.0			
3.0m	30.0	19.0	17.0	12.0			
3.5m	27.8	19.0	17.0	12.0	9.0		
4.0m	25.0	19.0	17.0	12.0	9.0		
4.5m	22.5	19.0	17.0	12.0	9.0	8.0	7.0
5.0m	20.3	19.0	16.2	12.0	9.0	8.0	7.0
5.5m		18.5	15.2	12.0	9.0	8.0	7.0
6.0m		17.0	14.3	12.0	9.0	8.0	7.0
6.5m		15.4	13.5	11.5	9.0	8.0	7.0
7.0m		14.0	12.8	11.0	9.0	8.0	7.0
8.0m		11.6	11.5	9.9	8.4	7.4	6.7
9.0m		9.2	9.25	8.9	7.7	6.8	6.4
10.0m		7.3	7.4	8.0	7.1	6.2	5.9
11.0m			6.1	6.7	6.55	5.7	5.4
12.0m			5.1	5.7	6.0	5.3	5.0
13.0m			4.25	4.8	5.2	4.9	4.55
14.0m			3.55	4.15	4.5	4.6	4.25
15.0m			3.0	3.6	3.9	4.0	3.95
16.0m				3.05	3.45	3.55	3.7
17.0m				2.65	3.0	3.15	3.3
18.0m				2.25	2.6	2.75	2.9
19.0m				2.0	2.3	2.4	2.55
20.0m				1.7	2.05	2.15	2.3
22.0m					1.55	1.7	1.8
24.0m					1.15	1.25	1.4
26.0m						0.95	1.1
28.0m						0.7	0.8
29.5m							0.6
a (°)	0 ~ 83						

A= Boom length B= Working radius
a= Boom angle range (for the unladen condition)

[BOOM]

Unit:ton

Outriggers middle extended (6.3m) –Over sides–							
A / B	7.7m	12.7m	17.7m	22.7m	27.7m	30.5m	32.0m
2.5m	30.0	19.0	17.0	12.0			
3.0m	30.0	19.0	17.0	12.0			
3.5m	27.8	19.0	17.0	12.0	9.0		
4.0m	25.0	19.0	17.0	12.0	9.0		
4.5m	22.5	19.0	17.0	12.0	9.0	8.0	7.0
5.0m	20.3	19.0	16.2	12.0	9.0	8.0	7.0
5.5m		18.5	15.2	12.0	9.0	8.0	7.0
6.0m		17.0	14.3	12.0	9.0	8.0	7.0
6.5m		15.0	13.5	11.5	9.0	8.0	7.0
7.0m		13.2	12.8	11.0	9.0	8.0	7.0
8.0m		10.5	10.7	9.9	8.4	7.4	6.7
9.0m		8.5	8.4	8.9	7.7	6.8	6.4
10.0m		6.7	6.8	7.6	7.1	6.2	5.9
11.0m			5.55	6.3	6.55	5.7	5.4
12.0m			4.6	5.3	5.7	5.3	5.0
13.0m			3.8	4.5	4.9	4.9	4.55
14.0m			3.2	3.8	4.2	4.35	4.25
15.0m			2.65	3.25	3.6	3.75	3.85
16.0m				2.8	3.1	3.3	3.5
17.0m				2.35	2.7	2.85	3.05
18.0m				2.05	2.35	2.5	2.7
19.0m				1.75	2.05	2.2	2.4
20.0m				1.5	1.7	1.9	2.1
22.0m					1.3	1.45	1.65
24.0m					0.95	1.05	1.2
26.0m						0.8	0.9
28.0m						0.6	0.65
29.0m							0.55
a (°)	0 ~ 83						

A= Boom length B= Working radius
a= Boom angle range (for the unladen condition)

[BOOM]

Unit:ton

Outriggers middle extended (5.2m) –Over sides–							
B \ A	7.7m	12.7m	17.7m	22.7m	27.7m	30.5m	32.0m
2.5m	30.0	19.0	17.0	12.0			
3.0m	30.0	19.0	17.0	12.0			
3.5m	27.8	19.0	17.0	12.0	9.0		
4.0m	25.0	19.0	17.0	12.0	9.0		
4.5m	22.5	19.0	17.0	12.0	9.0	8.0	7.0
5.0m	19.0	19.0	16.2	12.0	9.0	8.0	7.0
5.5m		16.0	15.2	12.0	9.0	8.0	7.0
6.0m		13.4	13.4	12.0	9.0	8.0	7.0
6.5m		11.5	11.5	11.5	9.0	8.0	7.0
7.0m		10.0	9.9	10.9	9.0	8.0	7.0
8.0m		7.6	7.6	8.5	8.4	7.4	6.7
9.0m		6.0	6.0	6.8	7.3	6.8	6.4
10.0m		4.8	4.8	5.6	6.0	6.1	5.9
11.0m			3.9	4.6	5.0	5.15	5.25
12.0m			3.15	3.8	4.2	4.3	4.5
13.0m			2.55	3.2	3.5	3.7	3.8
14.0m			2.05	2.65	2.95	3.15	3.25
15.0m			1.65	2.2	2.55	2.7	2.8
16.0m				1.85	2.15	2.35	2.45
17.0m				1.55	1.8	2.0	2.1
18.0m				1.25	1.55	1.7	1.8
19.0m				1.0	1.3	1.45	1.55
20.0m				0.8	1.1	1.2	1.3
22.0m					0.7	0.8	0.95
24.0m					0.4	0.5	0.65
26.0m							0.4
a (°)	0 ~ 83				6 ~ 83	26 ~ 83	27 ~ 83

A= Boom length B= Working radius
a= Boom angle range (for the unladen condition)

[BOOM]

Unit:ton

Outriggers middle extended (3.8m) –Over sides–							
A / B	7.7m	12.7m	17.7m	22.7m	27.7m	30.5m	32.0m
2.5m	30.0	19.0	17.0	12.0			
3.0m	28.0	19.0	17.0	12.0			
3.5m	22.5	19.0	17.0	12.0	9.0		
4.0m	17.2	17.7	16.0	12.0	9.0		
4.5m	13.3	13.9	13.8	12.0	9.0	8.0	7.0
5.0m	10.8	11.4	11.4	11.5	9.0	8.0	7.0
5.5m		9.5	9.5	10.3	9.0	8.0	7.0
6.0m		8.1	8.1	8.8	9.0	8.0	7.0
6.5m		6.9	6.9	7.65	8.1	7.8	7.0
7.0m		5.95	5.95	6.6	7.1	7.15	7.0
8.0m		4.5	4.5	5.2	5.6	5.7	5.8
9.0m		3.45	3.45	4.05	4.5	4.6	4.7
10.0m		2.6	2.6	3.25	3.65	3.8	3.9
11.0m			2.0	2.6	3.0	3.1	3.2
12.0m			1.5	2.05	2.4	2.55	2.65
13.0m			1.1	1.6	1.95	2.1	2.2
14.0m			0.7	1.25	1.55	1.7	1.85
15.0m			0.4	0.95	1.25	1.4	1.5
16.0m				0.7	1.0	1.15	1.25
17.0m				0.45	0.75	0.9	1.0
18.0m					0.5	0.65	0.8
19.0m						0.5	0.65
20.0m							0.45
a (°)	0 ~ 83			34 ~ 83	45 ~ 83	48 ~ 83	48 ~ 83

A= Boom length B= Working radius
a= Boom angle range (for the unladen condition)

[BOOM]

Unit:ton

Outriggers minimum extended (2.08m) –Over sides–							
B \ A	7.7m	12.7m	17.7m	22.7m	27.7m	30.5m	32.0m
2.5m	11.5	11.5	10.5	10.0			
3.0m	11.5	11.5	10.5	10.0			
3.5m	8.7	8.9	9.0	9.0	8.0		
4.0m	6.9	7.0	7.0	7.6	7.8		
4.5m	5.5	5.6	5.6	6.2	6.6	6.0	5.6
5.0m	4.4	4.5	4.5	5.2	5.5	5.5	5.6
5.5m		3.7	3.7	4.4	4.75	4.8	4.9
6.0m		3.0	3.0	3.7	4.1	4.1	4.2
6.5m		2.5	2.5	3.15	3.5	3.55	3.6
7.0m		2.0	2.0	2.65	3.0	3.05	3.15
8.0m		1.25	1.25	1.9	2.25	2.35	2.4
9.0m		0.65		1.3	1.6	1.75	1.85
10.0m					1.15	1.25	1.35
a (°)	0 ~ 83	29 ~ 83	57 ~ 83	62 ~ 83	57 ~ 83	68 ~ 83	69 ~ 83

A= Boom length B= Working radius
a= Boom angle range (for the unladen condition)

[JIB]

Unit:ton

Outriggers fully extended (6.7m) −360°−																
C	32.0m Boom + 6.5m Jib								32.0m Boom + 11.0m Jib							
D	5° □		25° □		45° □		60° □		5° □		25° □		45° □		60° □	
E (°)	B (m)	M	B (m)	M	B (m)	M	B (m)	M	B (m)	M	B (m)	M	B (m)	M	B (m)	M
83	4.8	3.2	6.6	2.3	7.8	1.7	8.4	1.6	5.8	2.0	9.2	1.4	11.5	1.0	12.6	0.8
76	9.9	3.2	11.4	2.3	12.4	1.7	12.9	1.6	11.9	2.0	14.8	1.4	16.5	1.0	17.2	0.8
72	12.7	3.2	14.1	2.3	14.9	1.7	15.2	1.53	15.1	2.0	17.6	1.3	19.2	0.95	19.7	0.73
70	14.0	2.9	15.4	2.3	16.1	1.7	16.3	1.5	16.6	2.0	19.0	1.25	20.4	0.94	20.8	0.7
65	16.9	2.3	18.4	1.95	18.9	1.7	18.8	1.45	19.8	1.7	22.1	1.15	23.3	0.93	23.3	0.7
60	20.2	1.85	21.2	1.65	21.6	1.5	21.5	1.4	23.0	1.35	25.2	1.1	26.1	0.92	25.9	0.7
55	23.0	1.45	23.6	1.35	23.8	1.3			25.9	1.1	28.0	1.0	28.5	0.88		
50	25.6	0.95	25.8	0.9	26.0	0.9			28.6	0.8	30.4	0.7	30.7	0.7		
45	27.7	0.63	27.8	0.6	27.9	0.6			30.9	0.5	32.4	0.45	32.5	0.45		
40	29.7	0.35	29.8	0.33												
a (°)	39 ~ 83				44 ~ 83		59 ~ 83		44 ~ 83						59 ~ 83	

Unit:ton

Outriggers middle extended (6.3m) −Over sides−																
C	32.0m Boom + 6.5m Jib								32.0m Boom + 11.0m Jib							
D	5° □		25° □		45° □		60° □		5° □		25° □		45° □		60° □	
E (°)	B (m)	M	B (m)	M	B (m)	M	B (m)	M	B (m)	M	B (m)	M	B (m)	M	B (m)	M
83	4.8	3.2	6.6	2.3	7.8	1.7	8.4	1.6	5.8	2.0	9.2	1.4	11.5	1.0	12.6	0.8
76	9.9	3.2	11.4	2.3	12.4	1.7	12.9	1.6	11.9	2.0	14.8	1.4	16.5	1.0	17.2	0.8
72	12.7	3.2	14.1	2.3	14.9	1.7	15.2	1.53	15.1	2.0	17.6	1.3	19.2	0.95	19.7	0.73
70	14.0	2.9	15.4	2.3	16.1	1.7	16.3	1.5	16.6	2.0	19.0	1.25	20.4	0.94	20.8	0.7
65	16.9	2.3	18.4	1.95	18.9	1.7	18.8	1.45	19.8	1.7	22.1	1.15	23.3	0.93	23.3	0.7
60	20.1	1.8	21.2	1.6	21.6	1.5	21.5	1.4	23.0	1.35	25.2	1.1	26.1	0.92	25.9	0.7
55	22.8	1.2	23.5	1.15	23.8	1.1			25.8	0.95	27.9	0.9	28.5	0.85		
50	25.4	0.8	25.8	0.75	26.0	0.75			28.5	0.6	30.3	0.55	30.7	0.55		
45	27.5	0.45	27.8	0.4	27.9	0.4			30.8	0.35	32.3	0.3	32.4	0.3		
a (°)	44 ~ 83						59 ~ 83		44 ~ 83						59 ~ 83	

B= Working radius C= Jib length D= Jib offset
E= Boom angle M= Total rated loads
a= Boom angle range (for the unladen condition)

[JIB]

Unit:ton

Outriggers middle extended (5.2m) −360°−																
C	32.0m Boom + 6.5m Jib								32.0m Boom + 11.0m Jib							
D	5°		25°		45°		60°		5°		25°		45°		60°	
E (°)	B (m)	M	B (m)	M	B (m)	M	B (m)	M	B (m)	M	B (m)	M	B (m)	M	B (m)	M
83	4.8	3.2	6.6	2.3	7.8	1.7	8.4	1.6	5.8	2.0	9.2	1.4	11.5	1.0	12.6	0.8
76	9.9	3.2	11.4	2.3	12.4	1.7	12.9	1.6	11.9	2.0	14.8	1.4	16.5	1.0	17.2	0.8
72	12.7	3.2	14.1	2.3	14.9	1.7	15.2	1.53	15.1	2.0	17.6	1.3	19.2	0.95	19.7	0.73
70	13.9	2.8	15.4	2.3	16.1	1.7	16.3	1.5	16.6	2.0	19.0	1.25	20.4	0.94	20.8	0.7
65	16.7	1.8	18.4	1.7	18.9	1.55	18.8	1.4	19.7	1.45	22.1	1.15	23.3	0.93	23.3	0.7
60	19.7	1.15	20.9	1.05	21.5	1.0	21.5	0.9	22.6	0.9	25.0	0.85	26.0	0.7	25.9	0.6
55	22.3	0.65	23.3	0.55	23.8	0.55			25.4	0.5	27.5	0.5	28.3	0.4		
52	23.8	0.35	24.7	0.33	25.2	0.3										
a (°)	51 ~ 83						59 ~ 83		54 ~ 83						59 ~ 83	

Unit:ton

Outriggers middle extended (3.8m) −Over sides−																
C	32.0m Boom + 6.5m Jib								32.0m Boom + 11.0m Jib							
D	5°		25°		45°		60°		5°		25°		45°		60°	
E (°)	B (m)	M	B (m)	M	B (m)	M	B (m)	M	B (m)	M	B (m)	M	B (m)	M	B (m)	M
83	4.8	3.2	6.6	2.3	7.8	1.7	8.4	1.6	5.8	2.0	9.2	1.4	11.5	1.0	12.6	0.8
76	9.9	3.2	11.4	2.3	12.4	1.7	12.9	1.6	11.9	2.0	14.8	1.4	16.5	1.0	17.2	0.8
72	12.2	2.1	13.8	1.8	14.9	1.6	15.2	1.2	14.8	1.6	17.6	1.3	19.2	0.95	19.7	0.73
70	13.5	1.65	15.1	1.45	16.0	1.3	16.2	1.0	16.0	1.25	19.2	1.1	20.3	0.8	20.8	0.6
65	16.3	0.8	17.8	0.75	18.6	0.7	18.7	0.5	19.0	0.6	21.5	0.55	23.0	0.45	23.3	0.45
a (°)	64 ~ 83								64 ~ 83							

B= Working radius C= Jib length D= Jib offset
E= Boom angle M= Total rated loads
a= Boom angle range (for the unladen condition)

PRECAUTIONS TO BE TAKEN WHEN THE OUTRIGGERS ARE EXTENDED:

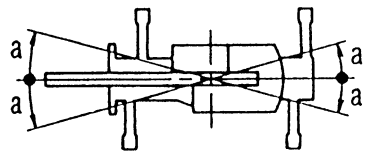
1. The total rated loads shown are for the case where the crane is set horizontally on firm level ground. They include the weights of the slings and hooks (main hook: 260kg, 12t hook: 170kg, auxiliary hook: 60kg).
   The values above the bold lines are based on the crane strength while those below are 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. Jib operations should be performed in accordance with the boom angle, irrespective of the boom length. The working radii are reference values for the case where the jib is mounted on a 32.0m boom.
4. The total rated load for the single top shall be the value obtained by subtracting the weight of the hook mounted on the boom from the total rated load of the boom and must not exceed 4.0t.
5. High-speed unwind function (only on cranes fitted with winches without free-fall device) should be performed only when lowering the hook alone and sudden braking operations must be avoided.
6. As a rule, free-fall operation (only on cranes fitted with winches with free-fall device) should be performed only when lowering the hook alone. If a hoisted load must be lowered by free-fall operation, the load must be kept below 1/5th of the total rated load 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 3.75t for the main winch, and 4.0t for the auxiliary winch.

A	7.7m	12.7m	17.7m	22.7m	27.7m	30.5m	32.0m	J
H	8	6	6	4	4	4	4	1

A= Boom length H= No. of part-lines
J= Jib/Single top

8. 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 (6.3m)	Middle extended (5.2m)	Middle extended (3.8m)	Minimum extended (2.08m)
Angle a°	35	25	15	5



(2) Without outriggers

Unit:ton

B (m)	Stationary							
	7.7m Boom		12.7m Boom		17.7m Boom		22.7m Boom	
	K	G	K	G	K	G	K	G
3.0	14.0	8.2	11.5	6.3	8.0	6.3		
3.5	12.5	6.1	10.5	5.0	8.0	5.0	6.5	
4.0	11.0	4.7	9.7	4.1	8.0	4.1	6.5	5.0
4.5	10.0	3.75	8.8	3.3	8.0	3.3	6.5	4.1
5.0	9.0	2.8	8.0	2.7	7.5	2.7	6.5	3.45
5.5			6.5	2.2	6.5	2.2	6.0	2.9
6.0			5.8	1.8	5.8	1.8	5.5	2.45
6.5			5.1	1.4	5.1	1.4	5.1	2.0
7.0			4.4	1.0	4.4	1.0	4.7	1.6
8.0			3.4		3.4		3.9	1.0
9.0			2.55		2.55		3.15	
10.0			1.9		1.9		2.5	
11.0					1.3		1.85	
12.0					0.8		1.35	
13.0					0.5		0.9	
14.0							0.55	
a (°)	0 ~ 78		0 ~ 82	43 ~ 82	26 ~ 82	59 ~ 82	47 ~ 82	65 ~ 82

Unit:ton

B (m)	Creep (travelling at 1.6km/h or less)							
	7.7m Boom		12.7m Boom		17.7m Boom		22.7m Boom	
	K	G	K	G	K	G	K	G
3.0	10.5	6.9	9.5	5.3	6.7	5.3		
3.5	9.6	5.1	8.7	4.25	6.7	4.2	5.5	
4.0	8.5	3.9	8.0	3.4	6.7	3.4	5.5	4.2
4.5	7.5	3.1	7.2	2.8	6.7	2.75	5.5	3.4
5.0	6.7	2.35	6.3	2.25	6.3	2.25	5.5	2.9
5.5			5.5	1.8	5.5	1.8	5.0	2.4
6.0			5.0	1.45	5.0	1.5	4.6	2.0
6.5			4.3	1.1	4.3	1.15	4.3	1.7
7.0			3.7	0.8	3.7	0.8	3.9	1.3
8.0			2.8		2.8		3.3	0.8
9.0			2.1		2.1		2.6	
10.0			1.6		1.6		2.1	
11.0					1.0		1.5	
12.0					0.65		1.1	
13.0							0.7	
a (°)	0 ~ 78		0 ~ 82	43 ~ 82	33 ~ 82	59 ~ 82	50 ~ 82	65 ~ 82

B= Working radius K= Front G= 360°
a= Boom angle range (for the unladen condition)

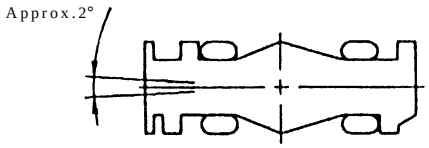
PRECAUTIONS TO BE TAKEN WHEN THE OUTRIGGERS ARE NOT MOUNTED:

1. The total rated loads shown are for the case where the tire air pressure on firm level ground is as specified 900kPa (9.00kgf/cm^2) and the suspension-lock cylinder is retracted as much as possible. They include the weights of the slings and hooks (main hook: 260kg, 12t hook: 170kg, auxiliary hook: 60kg).
   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 3.75t for the main winch, and 4.0t for the auxiliary winch.

A	7.7m	12.7m	17.7m	22.7m	Single top
H	4	4	4	4	1

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

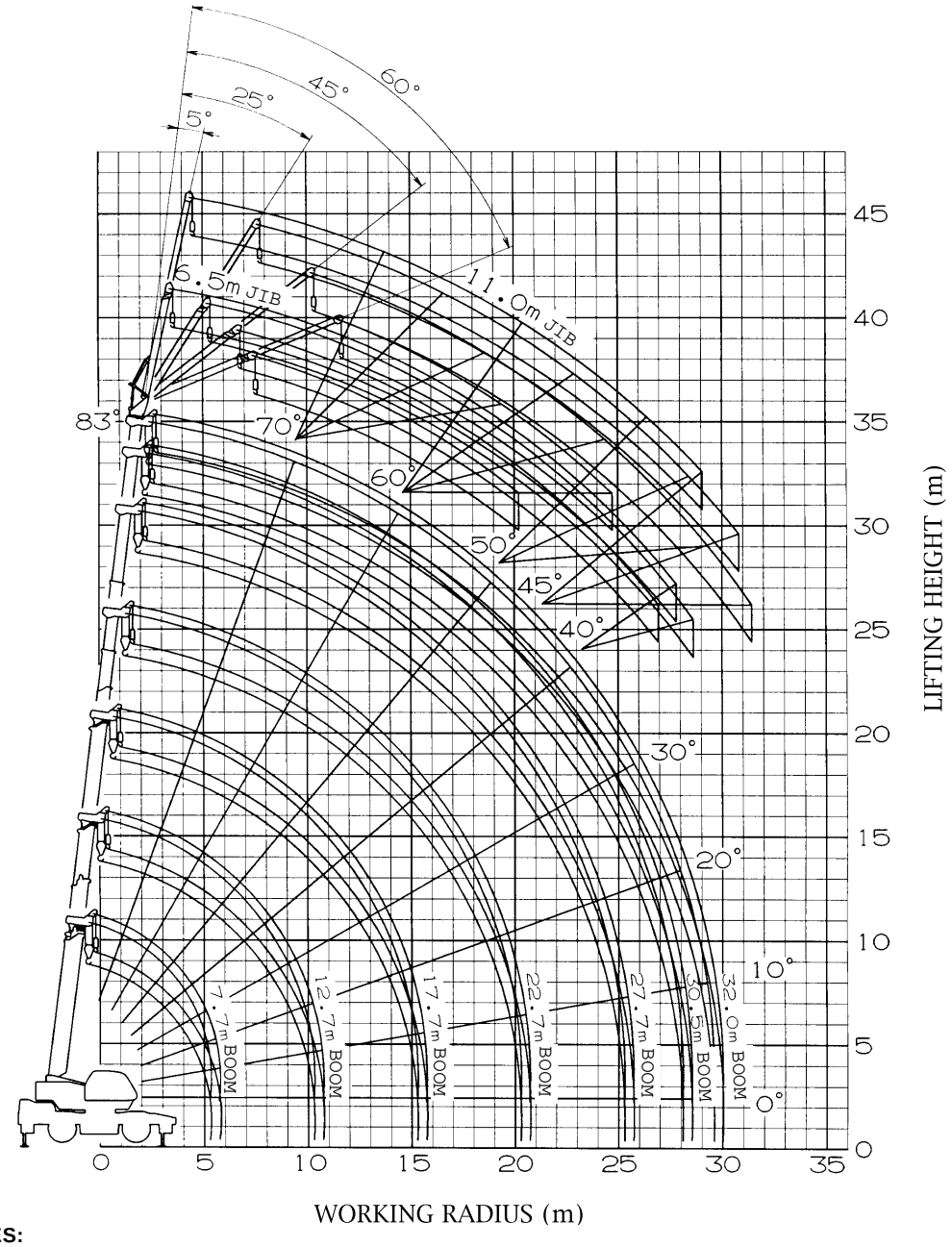
4. "Over front" crane operations should be performed only when the AML "over-front area indicator lamp" is lit. The boom must be kept inside a 2° area over front of the carrier when performing "Over front" crane operations without the outriggers.



5. The total rated load for the single top shall be the value obtained by subtracting the weight of the hook mounted on the boom from the total rated load of the boom and must not exceed 4.0t.
6. High-speed unwind function (only on cranes fitted with winches without free-fall device) and free-fall operations (only on cranes fitted with winches with free-fall device) should not be performed without outriggers.
   Booms over 22.7m in length and jibs should not be used without outriggers.
7. The "Drive Mode Selection" switch should be set to "4-wheel / Lo" for creeping while hoisting a load and the shift lever should be set to first.
8. When creeping while hoisting a load, the swing brake should be applied, the load should be kept as close to the ground as possible but not touching the ground and the speed should be kept at 1.6km/h or less. In particular, any abrupt steering, starting or braking must be avoided.
9. Crane operations should not be performed when creeping while hoisting a load.

GR-300N-1-00101
GR-300N-1-00102

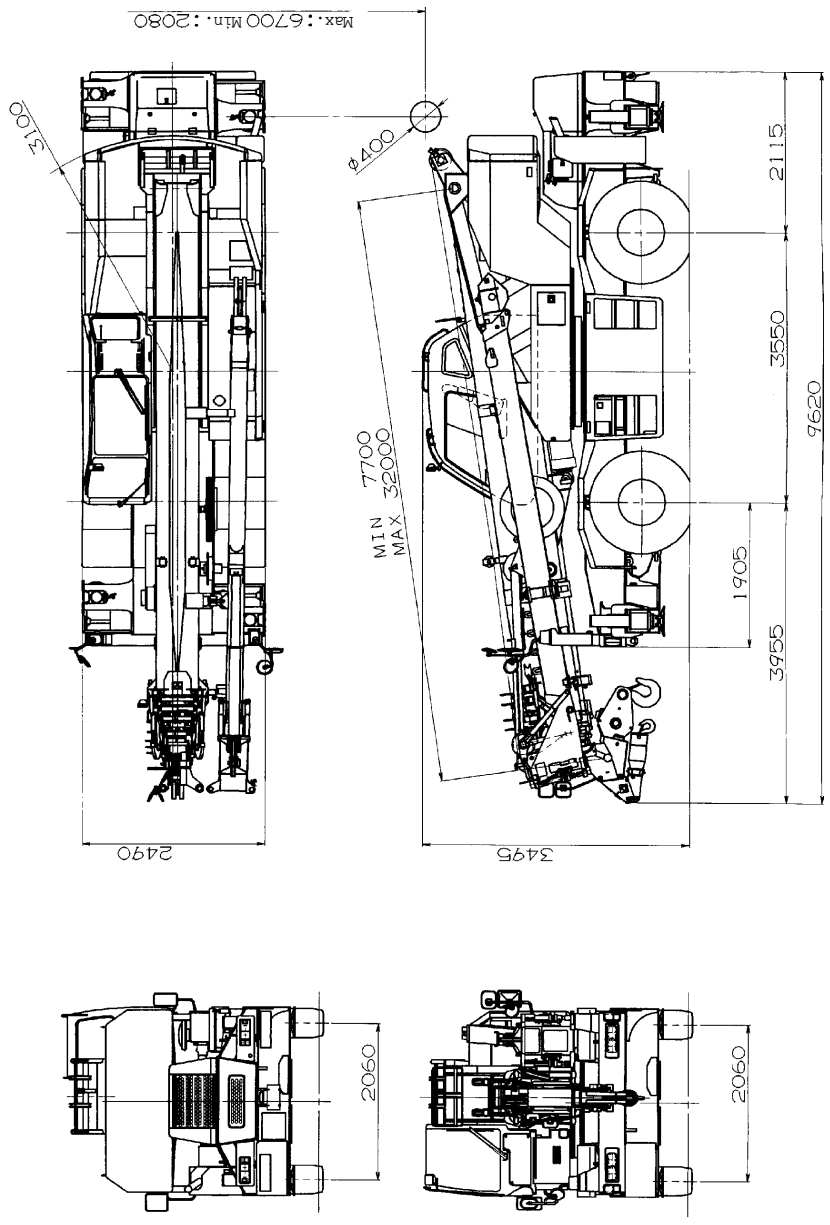
WORKING RADIUS - LIFTING HEIGHT



NOTES:

1. The deflection of the boom and the jib are not incorporated in the fitgure above.
2. The figure above is for the case where the outriggers are fully extended (360°).

DIMENSIONS (1/100)



◆ MEMO ◆