

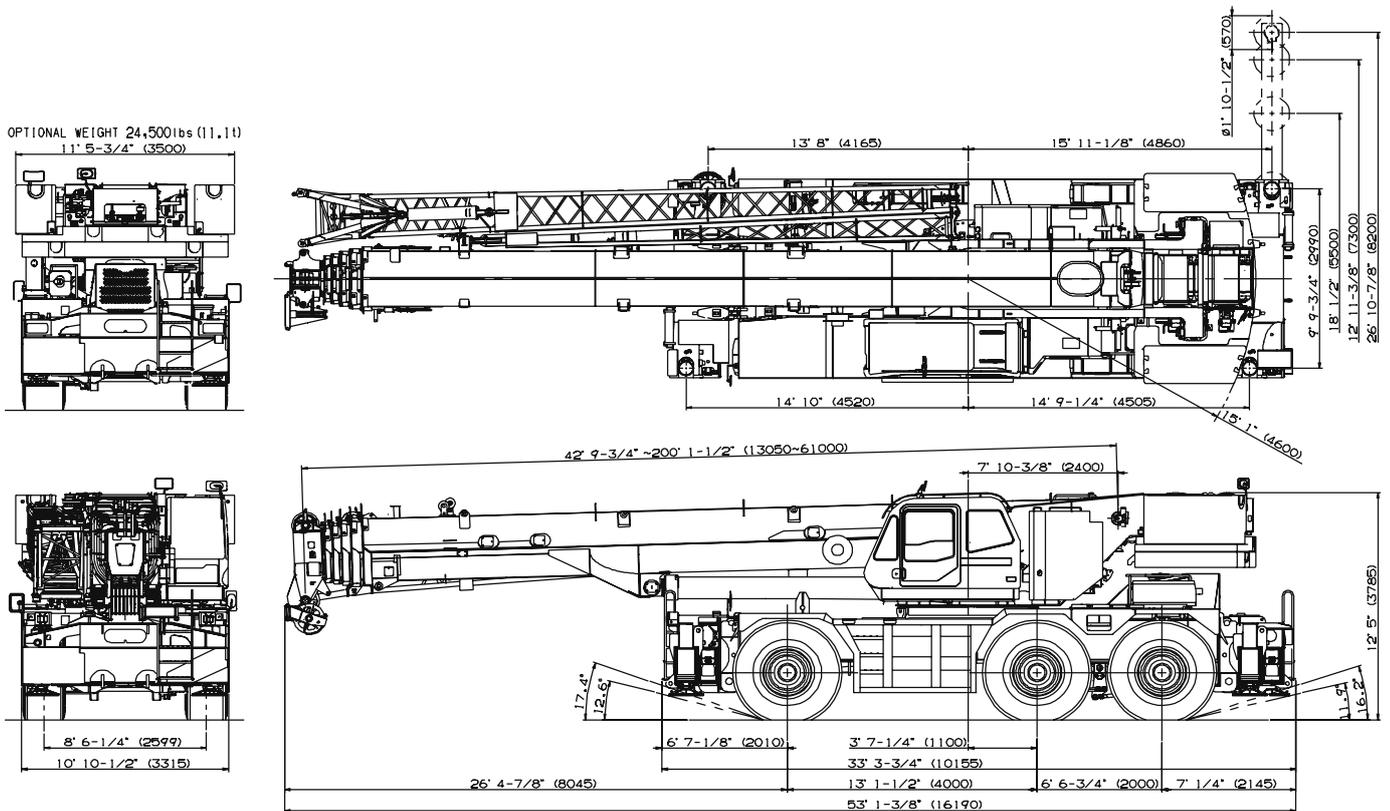
# GR-1600XL-2

Self-removable counterweight  
Self-removable outriggers

160 Ton Capacity (145 Metric Tons)

## HYDRAULIC ROUGH TERRAIN CRANE

### DIMENSIONS



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

( ) Reference dimensions in mm.

### GENERAL DIMENSIONS (26.5R25 Tires)

	Feet	Meters
Turning radius		
6 wheel steer	32'6"	9.9
2 wheel steer	48'11"	14.9

Specifications are subject to change without notice.

# CRANE SPECIFICATIONS

## BOOM

Six sections extended by single telescoping cylinder, 42.8'~200.0' (13.1m~61.0m), of round box construction with 7 sheaves, 15-3/4" (0.400m) root diameter, at boom head. 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 157.3' in 450 seconds.

**BOOM ELEVATION** - By a double acting hydraulic cylinder with holding valve. Elevation -1.5°~81.5°, combination controls for hand or foot operation. Boom angle indicator. Automatic speed reduction and slow stop function. Boom raising speed 20° to 60° in 28 seconds.

**JIB** - Two stage bi-fold lattice type, 0°, 20° or 40° offset. Single sheave, 17-5/16" (0.440m) root diameter, at the head of both jib sections. Stowed alongside base boom section. Jib length is 33.8' (10.3m) or 59.1' (18.0m). Assistant cylinders for mounting and stowing, controlled at right side of superstructure. Self stowing jib mounting pins.

## AUXILIARY LIFTING SHEAVE (SINGLE TOP)

Single sheave, 17-5/16" (0.440m) root diameter. Mounted to main boom head for single line work (stowable).

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

## SWING

Hydraulic axial piston motor through planetary swing speed reducer. Continuous 360° full circle swing on ball bearing turn table at 1.3min<sup>-1</sup>{rpm}. Equipped with manually locked/released swing brake. A 360° positive swing lock manually engaged in cab. Twin swing system: Free swing or lock swing controlled by selector switch on front console.

## COUNTERWEIGHT

### STANDARD

40,100lbs (18.2t) section. Hydraulically installed and removed.

### OPTIONAL WEIGHT

Additional 24,500lbs (11.1t) insert for a total of 64,600lbs (29.3t).

## 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 15" (0.382m) root diameter x 29-1/4" (0.742m) wide. Wire rope: 1050' of 3/4" diameter rope (320m of 19mm). Drum capacity: 1293' (394m) 7 layers. Maximum single line pull: 1st layer 21,800lbs (9,900kg). Maximum permissible line pull wire strength: 15,900lbs (7,200kg).

**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 15" (0.382m) root diameter x 29-1/4" (0.742m) wide. Wire rope: 738' of 3/4" diameter rope (225m of 19mm). Drum capacity: 1293' (394m) 7 layers. Maximum single line pull: 1st layer 21,800lbs (9,900kg). Maximum permissible line pull wire strength: 15,900lbs (7,200kg).

**WIRE ROPE** - Non-rotating 3/4"(19mm) 7X35 class. Breaking Strength 79,400lbs(36,000kg)

## HOOK BLOCKS

7.9 ton (7.2 metric ton) - Weighted hook with swivel and safety latch, for 3/4"(19mm) wire rope(OPTIONAL).

## HYDRAULIC SYSTEM

**PUMPS** - Two variable piston pumps for crane functions. Tandem gear pump for steering, swing 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.

15° tilt, 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 swing, boom hoist, 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, swing brake switch, telescoping/auxiliary hoist select switch, outrigger controls, free swing / lock swing 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 with audible and visual pre-warning
- 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 swing
- Working condition register switch
- Load radius / boom angle / tip height / swing 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 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, boom emergency telescoping switch (2nd and 3rd· 4th ·top) and air conditioning control switch. Swing lock lever.

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, 6x2 1st drive, 6x4 1st and 3rd 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. 5 forward and 2 reverse speeds, constant mesh.

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

**TRAVEL SPEED** - 9.3 mph (15 km/h) with counterweight  
2.5 mph (4 km/h) without counterweight

**AXLE** - 1st: Full floating type, steering and driving axle with planetary reduction and open differential. 2nd: Steering and not driving axle. 3rd: Full floating type, steering and driving axle with planetary reduction and open differential.

**STEERING**- Hydraulic power steering controlled by steering wheel. Four steering modes available: 2 wheel front, 4 wheel rear, 6 wheel coordinated and 6 wheel crab .

**SUSPENSION** - 1st: Rigid mounted to frame. 2nd and 3rd: "Hydro-Pneumatic suspension cylinders" with levering adjustment and oscillation.

**BRAKE SYSTEMS** - Service: Air over hydraulic disc brakes on all 6 wheels. Parking/Emergency: Spring applied-air released brake acting on input shaft of 1st and 3rd axle. Auxiliary: Electro-pneumatic operated exhaust brake.

**TIRES** - 26.5R25 Air pressure:94psi(650kPa)

**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 26'10-7/8" (8.2 m) center-line and retract to within 10' 10-1/2" (3.315 m) overall width with floats. Outrigger boxes are self-removable for ease of transportation. 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 9' 9-3/4"(2.99m) center to center
- Mid. Extension 18' 1/2"(5.50m) center to center
- Mid. Extension 23'11-3/8"(7.30m) center to center
- Max. Extension 26'10-7/8"(8.20m) center to center

Float size(Diameter) 1'10-1/2" (0.57m)

### ENGINE

Model	Mitsubishi 6M60-TLA3B (Tier3)
Type	Direct injection diesel
No. of cylinders	6
Combustion	4 cycle, turbo charged and after cooled
BoreXStroke, in.(mm)	4.646 X 4.528 (118X115)
Displacement, cu. in (liters)	460 (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, 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, 6-blade, 23.6 (600) dia.
Starting	24 volt
Charging	24 volt system, negative ground
Battery	2-120 amp. Hour
Compressor, air, CFM(l /min)	29 CFM (830) at 2,600rpm
Output, Max. HP(kW)	Gross 267 (200) at 2,600rpm
Torque, Max. ft-lb (Nm)	579 (785) at 1,400rpm
Capacity, gal.(liters)	
Cooling water	3.4 (13)
Lubrication	3.4 ~ 4.0 (13 ~ 15)
Fuel	79.2 (300)

# STANDARD EQUIPMENT

- Six section extended boom by single telescoping cylinder 42.8'~200.0' (13.1m~61.0m)
- 33.8' (10.3m) or 59.1' (18.0m) bi-fold lattice jib with 0°, 20° or 40° pinned offsets and self stowing pins.
- Quick reeving type bi-fold jib
- Anti-Two block device (overwind cutout)
- Mirror for main and auxiliary hoists
- Work lights
- Variable speed main hoist with grooved drum, cable follower and 1050' of 3/4" (320m of 19mm) cable.
- Variable speed auxiliary hoist with grooved drum, cable follower and 1293' of 3/4" (225m of 19mm) cable.
- Drum rotation indicator (audible, visible and thumper type) main and auxiliary hoist
- Auxiliary lifting sheave (single top) stowable
- 2-speed hoist
- Tadano twin swing system and 360° positive swing lock
- Positive control
- Hydraulic oil cooler
- 15° tilt cab
- 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)
- Cigarette lighter and ashtray
- Cab floor mat
- Pump disconnect in operator's cab
- Air conditioner (hot water heater and cooler)
- Full instrumentation package
- Self centering finger control levers with pilot control
- Control pedals for boom elevating and boom telescoping
- Low oil pressure/high water temp. warning device (visual)
- 2nd and 3rd steer centering light
- Air cleaner dust indicator
- Tadano electronic load moment indicator system (AML-C)
- Tare function
- Boom angle indicator
- Outrigger extension length detector
- Electronic crane monitoring system
- Rear view mirrors (right and left side)
- Fenders
- Air dryer
- Complete highway light package
- Towing hooks-Front and rear
- Hook block tie down (front bumper)
- Weighted hook storage compartment
- Halogen head lamp
- Self-removable outrigger boxes
- Independently controlled outriggers
- Four outrigger extension positions
- Self-storing outrigger pads
- Electronic controlled automatic transmission driven by torque converter
- 6 X 4 X 6 drive/steer
- 1st axle: open differential
- 3rd axle: open differential
- Automatic rear axle oscillation lockout system
- 26.5R25 tires
- Disc brakes
- Water separator with filter (high filtration)
- Back-up alarm
- 24 volt electric system
- Tool storage compartment
- Tire inflation kit
- Mitsubishi 6M60-TLA3B turbo charged after cooled engine (267HP) with exhaust brake
- Engine over-run alarm
- Lifting eyes
- Telematics (machine data logging and monitoring system) with HELLO-NET via internet (availability depends on countries)
- Fuel consumption monitor
- Eco mode system
- Self-removable counterweight

# OPTIONAL EQUIPMENT

- Additional weight 24,500lbs (11.1t)
- Removable boom system
- 7.9 ton (7.2 metric ton) hook with swivel
- Working lamp with remote controller
- Boom and jib mounted aircraft warning light
- Wind speed indicator
- Emergency steering system
- Over-unwinding prevention

# HOISTING PERFORMANCE

## LINE SPEEDS AND PULLS

Layer	Main or auxiliary hoist - 15" (0.382m) drum					
	Line speeds <sup>1</sup>				Line pulls Available <sup>2</sup>	
	Low		High		Low	
	F.P.M	m/min	F.P.M	m/min	Lbs.	kgf
1st	253	77	354	108	21,800	9,900
2nd	276	84	384	117	19,900	9,010
3rd	299	91	413	126	18,200	8,270
4th	318	97	446	136	16,800	7,640
5th	341	104	476	145	15,600	7,090
6th	361	110	505	154	14,600	6,620
7th <sup>3</sup>	384	117	535	163	13,700	6,210

- Maximum permissible line pull wire strength 15,900lbs (7,200kg) with 7X35 class rope.

<sup>1</sup> Line speeds based only on hook block, not loaded.

<sup>2</sup> Developed by machinery with each layer of wire rope, but not based on rope strength or other limitation in machinery or equipment.

<sup>3</sup> Seventh layer of wire rope are not recommended for hoisting operations.

## DRUM WIRE ROPE CAPACITIES

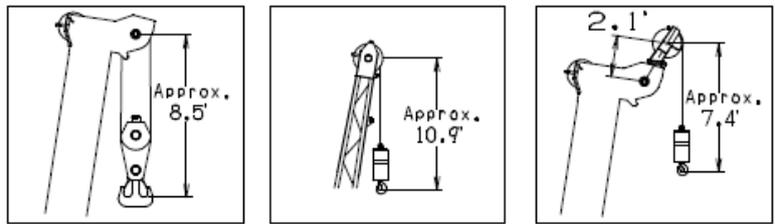
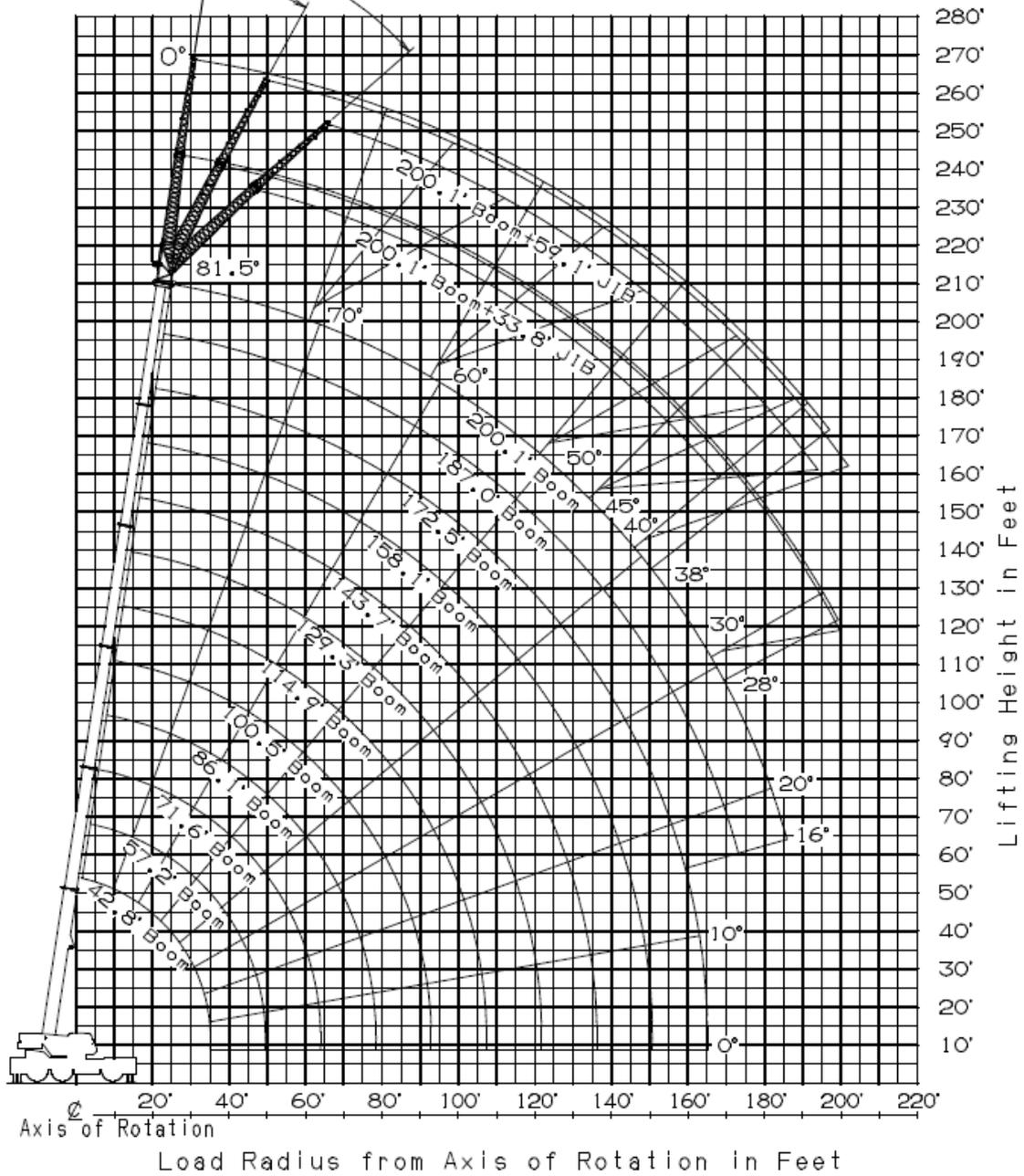
Wire rope layer	Main and auxiliary drum grooved lagging			
	3/4" (19mm) wire rope			
	Rope per layer		Total wire rope	
	Feet	Meters	Feet	Meters
1	147.0	44.8	147.0	44.8
2	159.4	48.6	306.4	93.4
3	172.2	52.5	478.7	145.9
4	184.7	56.3	663.4	202.2
5	197.2	60.1	860.6	262.3
6	209.6	63.9	1070.2	326.2
7	222.1	67.7	1292.3	393.9

## DRUM DIMENSIONS

	Inch	mm
Root diameter	15	382
Length	29-1/4	742
Flange diameter	26-5/8	677

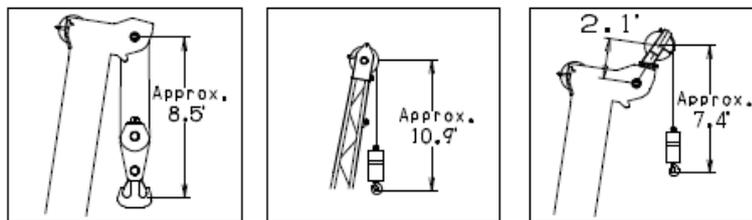
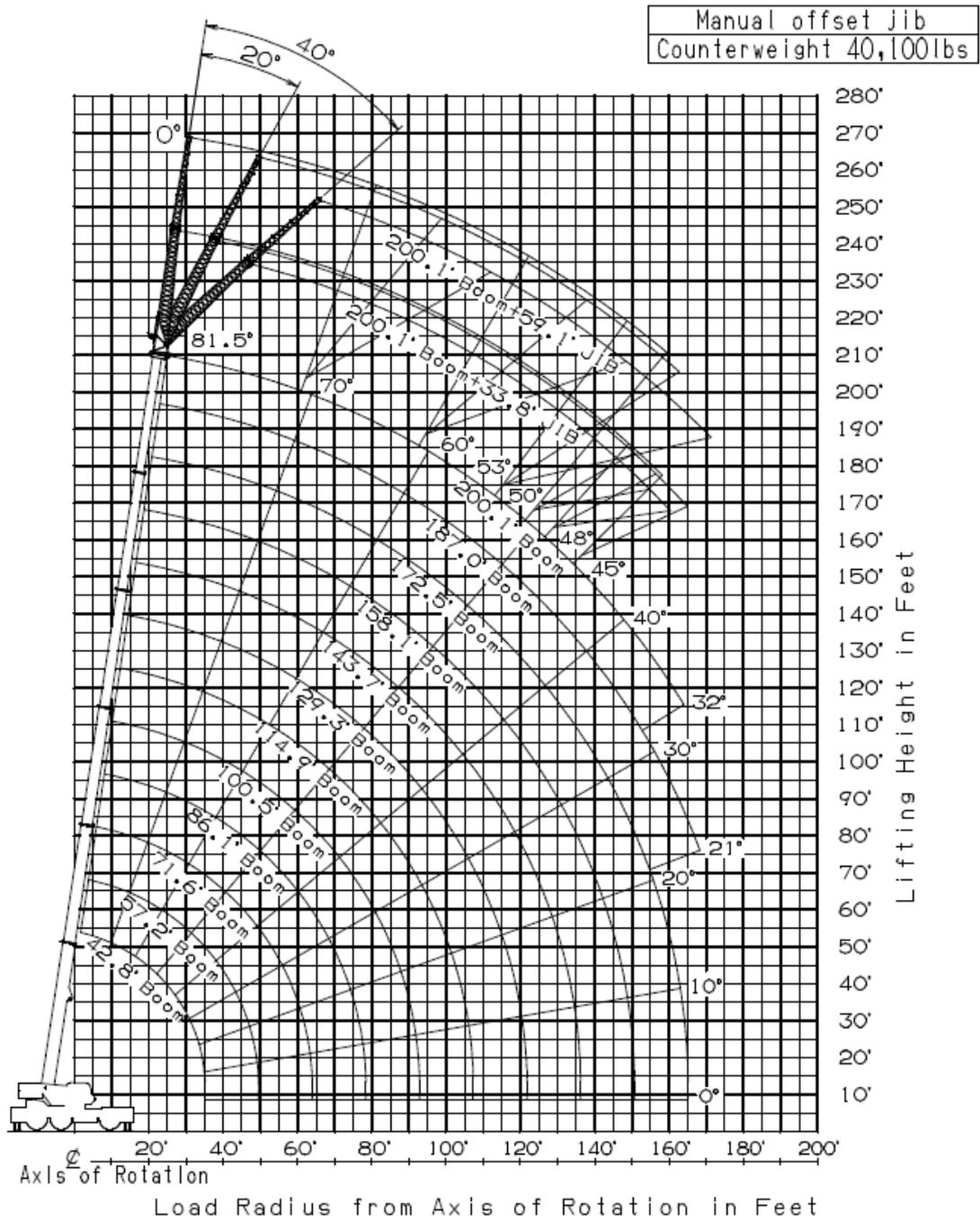
# GR-1600XL WORKING RANGE CHART

Manual offset jib  
Counterweight 64,600lbs



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-1600XL WORKING RANGE CHART



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-1600XL RATED LIFTING CAPACITIES(IN POUNDS)

COUNTERWEIGHT 64,600lbs(29.3t) ON OUTRIGGERS FULLY EXTENDED 26'10-7/8"(8.20m) SPREAD 360° ROTATION												
A \ B	42.8' (13.1m)	57.2' (17.4m)	71.6' (21.8m)	86.1' (26.2m)	100.5' (30.6m)	114.9' (35.0m)	129.3' (39.4m)	143.7' (43.8m)	158.1' (48.2m)	172.5' (52.6m)	187.0' (57.0m)	200.1' (61.0m)
8'	*320,000	200,000	174,200									
10'	241,800	200,000	174,200	127,000								
12'	218,000	200,000	174,200	145,500								
15'	187,200	182,800	174,200	145,500	111,800							
20'	148,400	148,800	145,500	138,700	106,300	84,700	57,300					
25'	121,500	122,400	122,800	120,800	106,300	77,600	66,400	48,700				
30'	101,000	102,500	102,700	102,100	97,700	77,600	61,100	52,700	37,900			
35'	48,700	85,100	85,300	84,700	86,200	74,700	54,900	48,900	41,700	33,100		
45'		64,200	62,400	64,200	63,300	63,500	46,700	43,000	37,700	33,100	26,500	22,900
50'			54,700	56,200	55,600	57,100	43,900	39,200	35,500	32,000	26,500	22,900
60'			45,400	44,300	46,100	45,200	38,800	33,500	31,100	28,400	26,000	22,900
65'				41,000	41,400	40,300	36,600	31,100	28,900	26,900	24,700	22,700
75'				32,600	33,500	32,600	33,100	27,100	24,900	24,000	22,300	20,500
80'					30,200	29,500	30,400	25,400	23,600	22,500	21,200	19,600
90'					23,600	26,000	24,700	22,500	21,200	19,800	19,200	17,600
95'						23,800	22,500	21,400	20,100	18,700	18,100	16,500
105'						18,500	18,700	19,000	18,100	17,000	16,300	14,800
110'							17,200	17,900	16,800	16,300	15,700	14,100
120'							12,800	15,200	14,100	15,000	13,900	12,600
125'								14,100	13,400	13,700	12,800	11,900
130'								13,000	12,800	12,600	11,700	11,200
140'									11,500	10,800	9,700	9,700
145'									10,600	9,900	9,000	9,000
155'										8,400	7,500	7,500
160'										7,900	6,800	6,600
170'											5,500	5,500
175'											4,900	4,900
180'												4,400
185'												3,700

\*Over front with special Equipment

**A** : Boom length in feet

**B** : Load radius in feet

NOTE: The lifting capacity data stowed in the LOAD MOMENT INDICATOR (AML-C) is based on the standard number of parts of line listed in the chart.

## GR-1600XL RATED LIFTING CAPACITIES(IN POUNDS)

COUNTERWEIGHT 64,600lbs(29.3t) ON OUTRIGGERS FULLY EXTENDED 26'10-7/8"(8.20m) SPREAD 360° ROTATION													
C	200.1'(61.0m) Boom + 33.8'(10.3m) Manual offset jib						C	187.0'(57.0m) Boom + 33.8'(10.3m) Manual offset jib					
	0° Tilt		20° Tilt		40° Tilt			0° Tilt		20° Tilt		40° Tilt	
	R	W	R	W	R	W		R	W	R	W	R	W
81.5	43.3'	12,100	56.8'	12,100	66.6'	11,500	81.5	38.7'	13,700	51.5'	13,700	61.0'	12,800
81	45.6'	12,100	59.4'	12,100	68.9'	11,200	81	41.0'	13,700	54.1'	13,700	63.0'	12,800
80	52.2'	12,100	64.6'	11,900	73.5'	10,800	80	45.9'	13,700	59.1'	13,700	67.3'	12,300
79	56.4'	12,100	69.9'	11,700	77.8'	10,600	79	50.9'	13,700	63.0'	13,200	71.2'	11,900
78	61.7'	12,100	73.8'	11,200	82.4'	10,400	78	55.5'	13,700	67.3'	12,800	75.1'	11,700
77	66.6'	12,100	78.1'	10,800	86.3'	9,900	77	60.4'	13,700	71.5'	12,300	79.1'	11,200
76	71.9'	12,100	83.0'	10,600	90.6'	9,700	76	65.0'	13,700	75.8'	12,100	83.0'	11,000
75	76.4'	11,700	87.3'	10,400	94.5'	9,500	75	69.2'	13,400	79.7'	11,700	86.9'	10,800
73	85.6'	11,000	95.8'	9,700	102.0'	9,000	73	77.4'	12,600	87.6'	11,000	94.2'	10,100
70	97.8'	9,900	108.0'	9,000	114.0'	8,400	70	89.2'	11,500	98.8'	10,100	105.0'	9,500
68	106.0'	9,500	115.0'	8,600	121.0'	7,900	68	96.5'	10,800	106.0'	9,700	112.0'	9,000
65	118.0'	8,800	127.0'	7,900	131.0'	7,500	65	107.0'	9,900	117.0'	9,000	121.0'	8,600
63	125.0'	8,200	134.0'	7,700	138.0'	7,300	63	115.0'	9,500	123.0'	8,600	128.0'	8,200
60	135.0'	7,500	143.0'	7,100	148.0'	6,800	60	125.0'	8,800	133.0'	8,200	137.0'	7,900
58	142.0'	7,100	150.0'	6,600	153.0'	6,400	58	132.0'	8,600	139.0'	7,900	142.0'	7,500
55	152.0'	6,600	159.0'	6,200	162.0'	6,000	55	141.0'	7,900	148.0'	7,500	151.0'	7,300
53	158.0'	6,200	165.0'	6,000	168.0'	5,700	53	146.0'	7,500	154.0'	7,300	156.0'	7,100
50	167.0'	5,500	173.0'	5,300	175.0'	5,100	50	155.0'	7,100	161.0'	6,600	163.0'	6,600
48	172.0'	5,100	178.0'	4,900	179.0'	4,900	48	160.0'	6,600	166.0'	6,400	168.0'	6,200
45	179.0'	4,600	185.0'	4,400	186.0'	4,400	45	167.0'	6,000	173.0'	5,700	174.0'	5,700
43	184.0'	4,200	190.0'	4,200			43	172.0'	5,700	177.0'	5,500		
40	191.0'	3,700	195.0'	3,500			40	178.0'	5,300	183.0'	4,900		
38	195.0'	3,300	199.0'	3,100			38	182.0'	4,600	186.0'	4,400		
35	200.0'	2,600.0	204.0'	2,400.0			35	188.0'	4,000	191.0'	3,700		
33	204.0'	2,400.0	207.0'	2,200.0			33	191.0'	3,700	194.0'	3,500		
30	209.0'	2,000.0	211.0'	1,800.0			30	196.0'	3,300	198.0'	3,100		
28	212.0'	1,800.0					28	199.0'	2,900	200.0'	2,900		
25							25	203.0'	2,600	203.0'	2,400		
23							23	205.0'	2,400				
20							20	208.0'	2,200				

COUNTERWEIGHT 64,600lbs(29.3t) ON OUTRIGGERS FULLY EXTENDED 26'10-7/8"(8.20m) SPREAD 360° ROTATION													
C	172.5'(52.6m) Boom + 33.8'(10.3m) Manual offset jib						C	114.9'(35.0m) Boom + 33.8'(10.3m) Manual offset jib					
	0° Tilt		20° Tilt		40° Tilt			0° Tilt		20° Tilt		40° Tilt	
	R	W	R	W	R	W		R	W	R	W	R	W
81.5	33.8'	15,900	46.9'	15,900	56.8'	15,000	81.5			29.2'	23,400	37.1'	16,100
81	35.8'	15,900	48.9'	15,900	58.7'	14,800	81			30.5'	23,100	38.4'	15,900
80	40.4'	15,900	53.5'	15,900	62.7'	14,300	80			33.1'	22,500	41.0'	15,700
79	45.0'	15,900	57.7'	15,700	66.3'	13,900	79			35.8'	22,000	43.3'	15,400
78	49.2'	15,900	61.7'	15,200	70.2'	13,400	78			39.0'	21,400	45.9'	15,200
77	53.8'	15,900	64.6'	14,600	73.8'	13,200	77			41.3'	20,900	48.6'	15,200
76	57.7'	15,900	69.2'	14,100	77.1'	12,800	76			43.6'	20,500	50.9'	15,000
75	62.3'	15,900	72.8'	13,700	80.7'	12,600	75	37.1'	31,100	46.3'	20,100	53.2'	14,800
73	69.9'	15,000	80.1'	13,000	87.6'	11,900	73	42.3'	29,100	51.2'	19,200	57.7'	14,300
70	81.4'	13,700	90.9'	11,900	97.1'	11,000	70	49.9'	26,900	58.7'	18,100	64.3'	13,900
68	88.3'	13,000	97.4'	11,500	103.0'	10,600	68	54.8'	25,600	63.3'	17,400	68.9'	13,700
65	98.8'	11,900	107.0'	10,800	113.0'	10,100	65	62.0'	23,800	70.2'	16,800	75.1'	13,400
63	105.0'	11,500	114.0'	10,400	118.0'	9,700	63	66.6'	22,900	74.8'	16,300	79.4'	13,200
60	115.0'	10,600	123.0'	9,700	127.0'	9,300	60	73.5'	21,800	81.4'	15,700	85.3'	13,000
58	121.0'	9,900	129.0'	9,300	133.0'	9,000	58	77.8'	21,200	85.3'	15,200	89.2'	12,800
55	130.0'	9,300	136.0'	8,800	140.0'	8,400	55	84.3'	20,100	91.2'	14,800	94.8'	12,800
53	135.0'	8,800	142.0'	8,400	145.0'	8,200	53	87.9'	19,200	95.1'	14,300	98.1'	12,600
50	143.0'	8,400	149.0'	7,900	152.0'	7,700	50	93.8'	18,300	100.0'	14,100	103.0'	12,600
48	148.0'	7,900	154.0'	7,500	156.0'	7,300	48	97.4'	17,600	104.0'	13,900	106.0'	12,600
45	155.0'	7,300	160.0'	6,800	161.0'	6,800	45	103.0'	17,000	109.0'	13,400	111.0'	12,300
43	159.0'	6,800	164.0'	6,600			43	106.0'	16,500	112.0'	13,400		
40	165.0'	6,400	170.0'	6,000			40	111.0'	15,900	116.0'	13,200		
38	169.0'	5,700	173.0'	5,500			38	115.0'	15,400	119.0'	13,000		
35	174.0'	5,100	177.0'	4,900			35	119.0'	15,000	123.0'	13,000		
33	177.0'	4,600	180.0'	4,400			33	121.0'	14,800	125.0'	12,800		
30	182.0'	4,200	185.0'	4,000			30	125.0'	14,100	128.0'	12,800		
28	185.0'	3,700	187.0'	3,500			28	127.0'	13,700	130.0'	12,800		
25	188.0'	3,300	190.0'	3,300			25	131.0'	13,000	133.0'	12,600		
23	191.0'	3,100					23	132.0'	12,600				
20	193.0'	2,900					20	135.0'	12,100				

C : Loaded boom angle (°)  
R : Load radius in feet  
W : Rated lifting capacity in pounds

## GR-1600XL RATED LIFTING CAPACITIES(IN POUNDS)

COUNTERWEIGHT 64,600lbs(29.3t) ON OUTRIGGERS FULLY EXTENDED 26'10"-7/8"(8.20m) SPREAD 360° ROTATION													
C	200.1'(61.0m) Boom + 59.1'(18.0m) Manual offset jib						C	187.0'(57.0m) Boom + 59.1'(18.0m) Manual offset jib					
	0° Tilt		20° Tilt		40° Tilt			0° Tilt		20° Tilt		40° Tilt	
	R	W	R	W	R	W		R	W	R	W	R	W
81.5	49.5'	8,200	73.5'	8,200	89.2'	7,100	81.5	43.6'	8,800	66.3'	8,800	81.4'	7,300
81	52.8'	8,200	75.5'	8,200	92.5'	7,100	81	46.3'	8,800	69.2'	8,800	84.0'	7,300
80	58.1'	8,200	82.0'	8,200	97.1'	6,800	80	51.5'	8,800	74.5'	8,800	88.9'	7,300
79	64.3'	8,200	87.6'	8,200	102.0'	6,800	79	56.8'	8,800	79.4'	8,600	92.9'	7,100
78	70.5'	8,200	92.9'	7,900	107.0'	6,600	78	62.3'	8,800	84.3'	8,400	97.8'	7,100
77	75.5'	8,200	97.8'	7,700	112.0'	6,600	77	67.6'	8,800	88.9'	8,200	102.0'	6,800
76	81.7'	8,200	103.0'	7,500	116.0'	6,600	76	72.8'	8,800	93.8'	8,200	106.0'	6,800
75	87.3'	8,200	107.0'	7,300	120.0'	6,400	75	78.1'	8,800	98.4'	7,900	110.0'	6,800
73	97.4'	8,200	116.0'	6,800	129.0'	6,400	73	88.3'	8,800	107.0'	7,700	118.0'	6,600
70	111.0'	7,500	129.0'	6,400	140.0'	6,000	70	103.0'	8,800	120.0'	7,300	130.0'	6,400
68	120.0'	7,300	137.0'	6,200	148.0'	5,700	68	112.0'	8,400	128.0'	7,100	136.0'	6,200
65	133.0'	6,600	150.0'	5,700	158.0'	5,300	65	124.0'	7,700	139.0'	6,600	147.0'	6,200
63	142.0'	6,400	157.0'	5,500	166.0'	5,300	63	132.0'	7,500	147.0'	6,400	154.0'	6,000
60	154.0'	5,700	168.0'	5,300	175.0'	4,900	60	143.0'	6,800	157.0'	6,200	163.0'	5,700
58	161.0'	5,500	175.0'	4,900	181.0'	4,900	58	151.0'	6,600	164.0'	6,000	169.0'	5,500
55	172.0'	5,100	185.0'	4,600	190.0'	4,400	55	161.0'	6,200	173.0'	5,500	177.0'	5,300
53	178.0'	4,600	190.0'	4,200	194.0'	4,000	53	167.0'	5,700	179.0'	5,300	182.0'	5,100
50	187.0'	4,000	198.0'	3,500	201.0'	3,500	50	176.0'	5,300	187.0'	4,900	189.0'	4,600
48	193.0'	3,500	203.0'	3,300	205.0'	3,300	48	181.0'	4,900	192.0'	4,400	193.0'	4,400
45	201.0'	3,100	210.0'	2,900	211.0'	2,600	45	189.0'	4,400	198.0'	4,000	199.0'	3,700
43	206.0'	2,900	214.0'	2,400			43	194.0'	4,000	203.0'	3,700		
40	213.0'	2,200	220.0'	2,000			40	201.0'	3,500	208.0'	3,100		
38	218.0'	2,000					38	205.0'	3,100	212.0'	2,600		
35							35	211.0'	2,600	217.0'	2,200		
33							33	215.0'	2,200	219.0'	2,000		
30							30	220.0'	1,800				
28							28						
25							25						
23							23						
20							20						

COUNTERWEIGHT 64,600lbs(29.3t) ON OUTRIGGERS FULLY EXTENDED 26'10"-7/8"(8.20m) SPREAD 360° ROTATION													
C	172.5'(52.6m) Boom + 59.1'(18.0m) Manual offset jib						C	114.9'(35.0m) Boom + 59.1'(18.0m) Manual offset jib					
	0° Tilt		20° Tilt		40° Tilt			0° Tilt		20° Tilt		40° Tilt	
	R	W	R	W	R	W		R	W	R	W	R	W
81.5	39.4'	10,400	61.4'	9,700	76.1'	7,500	81.5	24.3'	14,100	43.6'	11,900	59.1'	8,200
81	42.0'	10,400	63.7'	9,700	78.1'	7,500	81	26.3'	14,100	45.0'	11,700	60.4'	8,200
80	46.9'	10,400	68.6'	9,500	83.0'	7,500	80	29.5'	14,100	48.2'	11,500	63.3'	7,900
79	52.2'	10,400	72.8'	9,300	86.9'	7,300	79	33.5'	14,100	51.5'	11,200	65.9'	7,900
78	56.8'	10,400	77.1'	9,000	90.9'	7,300	78	36.4'	14,100	54.5'	11,000	68.6'	7,900
77	61.7'	10,400	81.7'	8,800	94.8'	7,300	77	39.7'	14,100	57.4'	10,600	71.2'	7,700
76	65.9'	10,400	86.0'	8,600	98.8'	7,100	76	42.7'	14,100	60.7'	10,400	73.8'	7,700
75	71.2'	10,400	90.2'	8,600	102.0'	7,100	75	45.9'	14,100	63.3'	10,100	76.8'	7,700
73	81.0'	10,400	98.4'	8,200	110.0'	6,800	73	51.8'	14,100	69.6'	9,900	81.7'	7,500
70	94.2'	10,400	111.0'	7,900	120.0'	6,600	70	61.4'	13,900	74.5'	9,300	88.9'	7,300
68	102.0'	9,900	118.0'	7,700	127.0'	6,600	68	66.6'	13,200	83.3'	9,000	93.5'	7,100
65	114.0'	9,300	129.0'	7,300	136.0'	6,400	65	75.1'	12,300	91.2'	8,600	101.0'	7,100
63	121.0'	8,800	136.0'	7,100	143.0'	6,400	63	80.7'	11,700	96.5'	8,400	105.0'	7,100
60	132.0'	8,400	146.0'	6,800	152.0'	6,200	60	88.9'	11,000	104.0'	7,900	112.0'	6,800
58	139.0'	7,900	152.0'	6,800	158.0'	6,200	58	94.2'	10,600	108.0'	7,900	116.0'	6,800
55	149.0'	7,300	162.0'	6,600	166.0'	6,200	55	101.0'	10,100	115.0'	7,500	122.0'	6,800
53	155.0'	7,100	167.0'	6,400	171.0'	6,200	53	106.0'	9,700	120.0'	7,500	125.0'	6,600
50	163.0'	6,400	175.0'	5,700	177.0'	5,500	50	113.0'	9,300	126.0'	7,300	130.0'	6,600
48	169.0'	6,000	179.0'	5,500	181.0'	5,300	48	118.0'	9,000	130.0'	7,300	134.0'	6,600
45	176.0'	5,300	186.0'	4,900	187.0'	4,900	45	124.0'	8,600	135.0'	7,100	138.0'	6,600
43	181.0'	5,100	190.0'	4,600			43	128.0'	8,400	138.0'	7,100		
40	188.0'	4,400	196.0'	4,000			40	134.0'	8,200	143.0'	6,800		
38	192.0'	4,000	199.0'	3,500			38	137.0'	7,900	146.0'	6,800		
35	198.0'	3,500	204.0'	3,100			35	142.0'	7,700	150.0'	6,800		
33	202.0'	3,100	207.0'	2,600			33	145.0'	7,500	153.0'	6,800		
30	208.0'	2,600	211.0'	2,200			30	150.0'	7,300	156.0'	6,800		
28	211.0'	2,400	213.0'	2,000			28	153.0'	7,300	158.0'	6,800		
25	215.0'	2,000	216.0'	1,800			25	156.0'	7,100	160.0'	6,800		
23	218.0'	1,800					23	158.0'	7,100				
20							20	161.0'	6,800				

C : Loaded boom angle (°)  
R : Load radius in feet  
W : Rated lifting capacity in pounds

## GR-1600XL RATED LIFTING CAPACITIES(IN POUNDS)

COUNTERWEIGHT 40,100lbs(18.2t) ON OUTRIGGERS FULLY EXTENDED 26'10-7/8"(8.20m) SPREAD 360° ROTATION													
C	200.1'(61.0m) Boom + 33.8'(10.3m) Manual offset jib						C	187.0'(57.0m) Boom + 33.8'(10.3m) Manual offset jib					
	0° Tilt		20° Tilt		40° Tilt			0° Tilt		20° Tilt		40° Tilt	
	R	W	R	W	R	W		R	W	R	W	R	W
81.5	43.3'	12,100	56.8'	12,100	66.6'	11,500	81.5	38.7'	13,700	51.5'	13,700	61.0'	12,800
81	45.6'	12,100	59.4'	12,100	68.9'	11,200	81	41.0'	13,700	54.1'	13,700	63.0'	12,800
80	52.2'	12,100	64.6'	11,900	73.5'	10,800	80	45.9'	13,700	59.1'	13,700	67.3'	12,300
79	56.4'	12,100	69.9'	11,700	77.8'	10,600	79	50.9'	13,700	63.0'	13,200	71.2'	11,900
78	61.7'	12,100	73.8'	11,200	82.4'	10,400	78	55.5'	13,700	67.3'	12,800	75.1'	11,700
77	66.6'	12,100	78.1'	10,800	86.3'	9,900	77	60.4'	13,700	71.5'	12,300	79.1'	11,200
76	71.9'	12,100	83.0'	10,600	90.6'	9,700	76	65.0'	13,700	75.8'	12,100	83.0'	11,000
75	76.4'	11,700	87.3'	10,400	94.5'	9,500	75	69.2'	13,400	79.7'	11,700	86.9'	10,800
73	85.6'	11,000	95.8'	9,700	102.0'	9,000	73	77.4'	12,600	87.6'	11,000	94.2'	10,100
70	97.8'	9,900	108.0'	9,000	113.5'	8,400	70	89.2'	11,500	98.8'	10,100	105.0'	9,500
68	106.0'	9,500	115.5'	8,600	120.7'	7,900	68	96.5'	10,800	106.0'	9,700	111.6'	9,000
65	118.0'	8,800	126.6'	7,900	130.9'	7,500	65	107.0'	9,900	116.8'	9,000	121.4'	8,600
63	125.0'	8,200	133.9'	7,700	137.8'	7,300	63	114.8'	9,500	123.0'	8,600	127.6'	8,200
60	135.0'	7,500	143.0'	6,800	146.7'	6,400	60	124.7'	8,800	132.9'	8,200	137.1'	7,900
58	141.0'	6,400	148.3'	5,700	151.9'	5,500	58	130.9'	8,200	138.8'	7,500	141.7'	7,100
55	149.0'	5,100	156.2'	4,600	159.8'	4,400	55	138.8'	6,600	146.7'	6,200	149.3'	5,700
53	155.0'	4,200	161.8'	4,000	164.7'	3,700	53	144.4'	6,000	151.3'	5,300	153.5'	5,100
50	163.0'	3,300	169.3'	3,100	171.9'	2,900	50	151.9'	4,900	158.5'	4,400	160.4'	4,200
48	168.0'	2,600	174.2'	2,400	176.2'	2,400	48	156.8'	4,200	162.7'	3,700	164.7'	3,700
45	175.0'	2,000	181.1'	1,800			45	164.0'	3,300	169.3'	3,100	170.6'	2,900
43							43	168.3'	2,600	173.6'	2,400		
40							40	174.9'	2,000	179.5'	1,800		
38							38						
35							35						
33							33						
30							30						
28							28						
25							25						
23							23						
20							20						

COUNTERWEIGHT 40,100lbs(18.2t) ON OUTRIGGERS FULLY EXTENDED 26'10-7/8"(8.20m) SPREAD 360° ROTATION													
C	172.5'(52.6m) Boom + 33.8'(10.3m) Manual offset jib						C	114.9'(35.0m) Boom + 33.8'(10.3m) Manual offset jib					
	0° Tilt		20° Tilt		40° Tilt			0° Tilt		20° Tilt		40° Tilt	
	R	W	R	W	R	W		R	W	R	W	R	W
81.5	33.8'	15,900	46.9'	15,900	56.8'	15,000	81.5			29.2'	23,400	37.1'	16,100
81	35.8'	15,900	48.9'	15,900	58.7'	14,800	81			30.5'	23,100	38.4'	15,900
80	40.4'	15,900	53.5'	15,900	62.7'	14,300	80			33.1'	22,500	41.0'	15,700
79	45.0'	15,900	57.7'	15,700	66.3'	13,900	79			35.8'	22,000	43.3'	15,400
78	49.2'	15,900	61.7'	15,200	70.2'	13,400	78			39.0'	21,400	45.9'	15,200
77	53.8'	15,900	64.6'	14,600	73.8'	13,200	77			41.3'	20,900	48.6'	15,200
76	57.7'	15,900	69.2'	14,100	77.1'	12,800	76			43.6'	20,500	50.9'	15,000
75	62.3'	15,900	72.8'	13,700	80.7'	12,600	75	37.1'	31,100	46.3'	20,100	53.2'	14,800
73	69.9'	15,000	80.1'	13,000	87.6'	11,900	73	42.3'	29,100	51.2'	19,200	57.7'	14,300
70	81.4'	13,700	90.9'	11,900	97.1'	11,000	70	49.9'	26,900	58.7'	18,100	64.3'	13,900
68	88.3'	13,000	97.4'	11,500	103.0'	10,600	68	54.8'	25,600	63.3'	17,400	68.9'	13,700
65	98.8'	11,900	107.0'	10,800	113.0'	10,100	65	62.0'	23,800	70.2'	16,800	75.1'	13,400
63	105.0'	11,500	114.0'	10,400	118.0'	9,700	63	66.6'	22,900	74.8'	16,300	79.4'	13,200
60	115.0'	10,600	123.0'	9,700	127.0'	9,300	60	73.5'	21,800	81.4'	15,700	85.3'	13,000
58	120.0'	9,700	128.0'	8,800	132.0'	8,400	58	77.8'	21,200	85.3'	15,200	89.2'	12,800
55	128.0'	7,900	135.0'	7,300	139.0'	7,100	55	84.3'	20,100	91.2'	14,800	94.8'	12,800
53	133.0'	7,100	141.0'	6,400	143.0'	6,200	53	87.9'	19,200	95.1'	14,300	98.1'	12,600
50	140.0'	6,000	147.0'	5,300	150.0'	5,100	50	93.8'	17,600	100.0'	14,100	103.0'	12,600
48	145.0'	5,100	152.0'	4,900	154.0'	4,600	48	97.4'	16,300	104.0'	13,900	106.0'	12,600
45	152.0'	4,200	158.0'	4,000	159.0'	3,700	45	103.0'	14,800	109.0'	13,400	111.0'	12,300
43	156.0'	3,700	161.0'	3,300			43	106.0'	13,700	112.0'	12,800		
40	162.0'	2,900	167.0'	2,600			40	111.0'	12,600	116.0'	11,700		
38	166.0'	2,400	171.0'	2,200			38	114.0'	11,700	119.0'	11,000		
35	172.0'	1,800	176.0'	1,800			35	118.0'	10,800	123.0'	10,100		
33							33	121.0'	10,100	125.0'	9,700		
30							30	124.0'	9,500	128.0'	9,000		
28							28	127.0'	9,000	130.0'	8,800		
25							25	130.0'	8,600	133.0'	8,200		
23							23	132.0'	8,200				
20							20	134.0'	7,900				

**C** : Loaded boom angle (°)  
**R** : Load radius in feet  
**W** : Rated lifting capacity in pounds

## GR-1600XL RATED LIFTING CAPACITIES(IN POUNDS)

COUNTERWEIGHT 40,100lbs(18.2t) ON OUTRIGGERS FULLY EXTENDED 26'10-7/8"(8.20m) SPREAD 360° ROTATION													
C	200.1'(61.0m) Boom + 59.1'(18.0m) Manual offset jib						C	187.0'(57.0m) Boom + 59.1'(18.0m) Manual offset jib					
	0° Tilt		20° Tilt		40° Tilt			0° Tilt		20° Tilt		40° Tilt	
	R	W	R	W	R	W		R	W	R	W	R	W
81.5	49.5'	8,200	73.5'	8,200	89.2'	7,100	81.5	43.6'	8,800	66.3'	8,800	81.4'	7,300
81	52.8'	8,200	75.5'	8,200	92.5'	7,100	81	46.3'	8,800	69.2'	8,800	84.0'	7,300
80	58.1'	8,200	82.0'	8,200	97.1'	6,800	80	51.5'	8,800	74.5'	8,800	88.9'	7,300
79	64.3'	8,200	87.6'	8,200	102.0'	6,800	79	56.8'	8,800	79.4'	8,600	92.9'	7,100
78	70.5'	8,200	92.9'	7,900	107.0'	6,600	78	62.3'	8,800	84.3'	8,400	97.8'	7,100
77	75.5'	8,200	97.8'	7,700	112.0'	6,600	77	67.6'	8,800	88.9'	8,200	102.0'	6,800
76	81.7'	8,200	103.0'	7,500	116.0'	6,600	76	72.8'	8,800	93.8'	8,200	106.0'	6,800
75	87.3'	8,200	107.0'	7,300	120.0'	6,400	75	78.1'	8,800	98.4'	7,900	110.0'	6,800
73	97.4'	8,200	116.0'	6,800	129.0'	6,400	73	88.3'	8,800	107.0'	7,700	118.0'	6,600
70	111.0'	7,500	129.0'	6,400	140.0'	6,000	70	103.0'	8,800	120.0'	7,300	130.0'	6,400
68	120.0'	7,300	137.0'	6,200	148.0'	5,700	68	112.0'	8,400	128.0'	7,100	136.0'	6,200
65	133.0'	6,600	150.0'	5,700	158.0'	5,300	65	124.0'	7,700	139.0'	6,600	147.0'	6,200
63	142.0'	6,400	157.0'	5,500	166.0'	5,300	63	132.0'	7,500	147.0'	6,400	154.0'	6,000
60	151.0'	5,100	166.0'	4,400	173.0'	4,000	60	143.0'	6,800	157.0'	6,000	162.0'	5,300
58	157.0'	4,200	172.0'	3,700	178.0'	3,300	58	149.0'	6,000	162.0'	5,100	168.0'	4,600
55	167.0'	3,100	180.0'	2,600	186.0'	2,400	55	157.0'	4,600	170.0'	4,000	175.0'	3,700
53	173.0'	2,400	186.0'	2,200	191.0'	2,000	53	163.0'	4,000	176.0'	3,500	179.0'	3,100
50	182.0'	1,800					50	172.0'	3,100	183.0'	2,600	186.0'	2,200
48							48	177.0'	2,400	188.0'	2,200	190.0'	1,800
45							45	184.0'	1,800				
43							43						
40							40						
38							38						
35							35						
33							33						
30							30						
28							28						
25							25						
23							23						
20							20						

COUNTERWEIGHT 40,100lbs(18.2t) ON OUTRIGGERS FULLY EXTENDED 26'10-7/8"(8.20m) SPREAD 360° ROTATION													
C	172.5'(52.6m) Boom + 59.1'(18.0m) Manual offset jib						C	114.9'(35.0m) Boom + 59.1'(18.0m) Manual offset jib					
	0° Tilt		20° Tilt		40° Tilt			0° Tilt		20° Tilt		40° Tilt	
	R	W	R	W	R	W		R	W	R	W	R	W
81.5	39.4'	10,400	61.4'	9,700	76.1'	7,500	81.5	24.3'	14,100	43.6'	11,900	59.1'	8,200
81	42.0'	10,400	63.7'	9,700	78.1'	7,500	81	26.3'	14,100	45.0'	11,700	60.4'	8,200
80	46.9'	10,400	68.6'	9,500	83.0'	7,500	80	29.5'	14,100	48.2'	11,500	63.3'	7,900
79	52.2'	10,400	72.8'	9,300	86.9'	7,300	79	33.5'	14,100	51.5'	11,200	65.9'	7,900
78	56.8'	10,400	77.1'	9,000	90.9'	7,300	78	36.4'	14,100	54.5'	11,000	68.6'	7,900
77	61.7'	10,400	81.7'	8,800	94.8'	7,300	77	39.7'	14,100	57.4'	10,600	71.2'	7,700
76	65.9'	10,400	86.0'	8,600	98.8'	7,100	76	42.7'	14,100	60.7'	10,400	73.8'	7,700
75	71.2'	10,400	90.2'	8,600	102.0'	7,100	75	45.9'	14,100	63.3'	10,100	76.8'	7,700
73	81.0'	10,400	98.4'	8,200	110.0'	6,800	73	51.8'	14,100	69.6'	9,900	81.7'	7,500
70	94.2'	10,400	111.0'	7,900	120.0'	6,600	70	61.4'	13,900	74.5'	9,300	88.9'	7,300
68	102.0'	9,900	118.0'	7,700	127.0'	6,600	68	66.6'	13,200	83.3'	9,000	93.5'	7,100
65	114.0'	9,300	129.0'	7,300	136.0'	6,400	65	75.1'	12,300	91.2'	8,600	101.0'	7,100
63	121.0'	8,800	136.0'	7,100	143.0'	6,400	63	80.7'	11,700	96.5'	8,400	105.0'	7,100
60	132.0'	8,400	146.0'	6,800	152.0'	6,200	60	88.9'	11,000	104.0'	7,900	112.0'	6,800
58	138.0'	7,300	152.0'	6,200	158.0'	5,500	58	94.2'	10,600	108.0'	7,900	116.0'	6,800
55	147.0'	6,000	160.0'	5,100	165.0'	4,600	55	101.0'	10,100	115.0'	7,500	122.0'	6,800
53	152.0'	5,100	165.0'	4,400	169.0'	4,000	53	106.0'	9,700	120.0'	7,500	125.0'	6,600
50	160.0'	4,200	172.0'	3,500	175.0'	3,100	50	113.0'	9,300	126.0'	7,300	130.0'	6,600
48	166.0'	3,500	177.0'	2,900	179.0'	2,600	48	118.0'	9,000	130.0'	7,300	134.0'	6,600
45	174.0'	2,600	184.0'	2,200	185.0'	2,000	45	124.0'	8,600	135.0'	7,100	138.0'	6,600
43	179.0'	2,200	188.0'	1,800			43	128.0'	8,400	138.0'	7,100		
40							40	134.0'	8,200	143.0'	6,800		
38							38	137.0'	7,900	146.0'	6,800		
35							35	142.0'	7,700	150.0'	6,800		
33							33	145.0'	7,500	153.0'	6,800		
30							30	150.0'	7,100	156.0'	6,600		
28							28	153.0'	6,800	157.0'	6,400		
25							25	156.0'	6,400	160.0'	6,000		
23							23	158.0'	6,200				
20							20	161.0'	5,700				

**C** : Loaded boom angle (°)  
**R** : Load radius in feet  
**W** : Rated lifting capacity in pounds

# 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.
3. The operator and other personnel associated with this machine shall fully acquaint themselves with the latest American National Standards Institute (ANSI) safety standards for cranes.

## 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 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 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.
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 swing mechanism, and lead to overturning of 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) or over.
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.
11. Load per line should not exceed 15,900lbs (7,200kg) for main winch and auxiliary winch.
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 winch 15,900lbs (7,200kg) 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. Maximum capacity without boom pin is shown in the chart. 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.
15. Do not operate extension or retraction of the boom with loads. 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, 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 15,900lbs (7,200kg) including main boom hook mass attached to the boom.
17. When the base jib or top jib or both jibs are removed, set the jib state switch to the REMOVED position.
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 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.
20. For selected boom length or less with jib, rated lifting capacities are determined by loaded boom angle only in the column headed "selected boom+jib".  
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 )  
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 )
21. 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.
22. Before telescoping the boom, set the telescoping mode selector switch to MODE or MODE 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 26'10-7/8" (8.2m) spread when installing or removing removable counterweight.

## DEFINITIONS

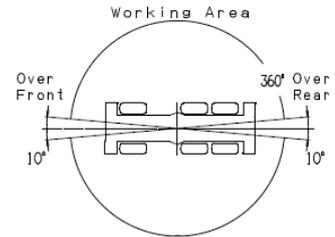
1. Load Radius: Horizontal distance from a projection of the axis of rotation to supporting surface before loading to the center of the vertical hoist line or tackle with load applied.
2. Loaded Boom Angle: The angle between the boom base section and the horizontal, after lifting the rated lifting capacity 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.

# GR-1600XL RATED LIFTING CAPACITIES (IN POUNDS)

WITHOUT COUNTERWEIGHT ON-RUBBER STATIONARY												
A B	Over front and rear						360° Rotation					
	42.8'		57.2'		71.6'		42.8'		57.2'		71.6'	
	C	(13.1m)	C	(17.4m)	C	(21.8m)	C	(13.1m)	C	(17.4m)	C	(21.8m)
8'	73	22,000	78	22,000	81	22,000	73	22,000	78	22,000	81	22,000
10'	70	22,000	76	22,000	79	22,000	70	22,000	76	22,000	79	22,000
12'	67	22,000	73	22,000	77	22,000	67	20,500	73	22,000	77	22,000
15'	63	22,000	70	22,000	75	22,000	63	13,700	70	17,400	75	19,400
20'	54	14,800	65	18,100	71	19,600	54	6,200	65	9,900	71	12,100
25'	45	9,000	59	12,300	66	14,100			59	4,900	66	7,100
30'	33	3,500	53	7,700	62	9,700					62	3,300
35'			45	4,000	57	6,000						
<b>D</b>	0		45		57		54		59		62	
Telescoping conditions (%)												
2nd boom	0		0		0		0		0		0	
3rd boom	0		0		0		0		0		0	
4th boom	0		0		0		0		0		0	
5th boom	0		0		0		0		0		0	
Top boom	0		45		90		0		45		90	
<b>E</b>	4		4		4		4		4		4	

NOTE: The lifting capacity data stowed in the LOAD MOMENT INDICATOR (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 chart.

- A** : Boom length in feet
- B** : Load radius in feet
- C** : Loaded boom angle (°)
- D** : Minimum boom angle (°)  
for indicated length (no load)
- E** : Number of parts of line



# WARNING AND OPERATING INSTRUCTIONS FOR ON-RUBBER LIFTING CAPACITIES

- Rated lifting capacities on-rubber are in pounds and do not exceed 75 % of tipping loads as determined by SAE J765-Crane Stability Test Code.
- On rubber lifting is only permitted without counterweight and stationary. Creep operation is prohibited.  
Rated lifting capacities shown in the chart are based on condition that crane is set on firm level surfaces with suspension-fully retracted. 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.
- Over front and rear operation shall be performed within 10 degrees.
- On-rubber lifting with "jib" is not permitted. Maximum permissible boom length is 71.6'. (21.8m).
- When making lift on-rubber stationary, set parking brake.
- For creep operation, boom must be centered over front of machine, swing lock engaged, and load restrained from swinging. 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 200' (60 m) in any 30 minute period and to travel at the speed of less than 1 mph (1.6km/h).
- For creep operation, choose the drive mode and proper gear according to the road or working condition.

Tires	Air Pressure
26.5R25	94psi (650kPa)

# WARNING AND OPERATING INSTRUCTIONS FOR USING THE LOAD MOMENT INDICATOR (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 indicator 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 stationary 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 operation.
    - The front and rear capacities are attainable only when the over front or rear position.
    - 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 or rear position and then swung to the side area, make sure the value of the LOAD MOMENT INDICATOR(AML-C) is below the 360 ° lifting capacity.
  - 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.
  - This machine is equipped with an automatic swing stopping device. (For the details, see Operation and Maintenance Manual.) But, operate very carefully because the automatic swing stop does not work in the following case.
    - 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 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 swinging, lifting loads shall be appropriately reduced.
  - 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-1600XL Axle weight distribution chart

Manual offset jib	Pounds				Kilograms			
	GVW	1st	2nd	3rd	GVW	1st	2nd	3rd
Base machine	200,191	63,275	67,933	68,983	90,805	28,701	30,814	31,290
Remove:								
1.7.9ton (7.2metric ton) hook block	-661	-928	134	134	-300	-421	61	61
2.110ton (100metric ton) hook block	-2,381	-3,904	763	763	-1,080	-1,771	346	346
3.Counterweight 24,500lbs (11,100kg)	-24,515	7,388	-15,953	-15,953	-11,120	3,351	-7,236	-7,236
4.Counterweight 40,100lbs (18,200kg)	-40,036	12,066	-26,050	-26,050	-18,160	5,473	-11,816	-11,816
5.Front and rear outrigger boxes and bear	-19,758	-7,635	-6,063	-6,063	-8,962	-3,463	-2,750	-2,750
6.Auxiliary Winch&wire rope	-2,650	1,080	-1,865	-1,865	-1,202	490	-846	-846
7.Boom and jib	-37,642	-48,160	5,260	5,260	-17,074	-21,845	2,386	2,386

