

# HARLEY CRANES

Group Pty Ltd.

KR-20H-L KATO Rough Terrain Mobile Crane

LIFT CHART



☎ 02 9738 1000

✉ [info@harleycranes.com.au](mailto:info@harleycranes.com.au)

🌐 [www.harleycranes.com.au](http://www.harleycranes.com.au)


## KR-20H-L Cautions for crane operation

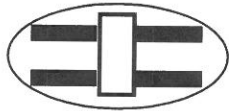
Please refer to Cautions for rated lifting capacity on page 2.

### Starting

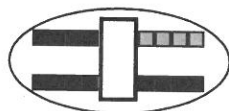
1. Move the shift lever to the neutral position before starting engine.
2. Move the starter switch to "ON" position, check if the check function is done (warning sound stop) and there is no malfunction before starting the engine.
3. After starting the engine, warm up the engine well with low idling.
4. Check that hydraulic oil pressure is within the normal level in driving position.
  - Stop the engine immediately when the front panel shows problems or error messages indicate and contact us.

### Checking guidelines before starting ACS operations

1. Check that the outriggers are fully extended and the crane is set on the level ground.
2. Set the crane facing to front and set boom working condition to either main boom, rooster sheave, jib or main with jib.  
Set the boom length minimum, boom angle at  $10.0\text{--}10.1^\circ$  (jib, main with jib  $65.0\pm 0.11$  winch the hook just before overhoist SW and keep all levers at the neutral positions.
3. Press  to set the screen to the outriggers mode.  
Check that each outrigger setting condition indicator lamp lights and warning sound sounds. When all lights do not light but flash, reset the appropriate outriggers fully extend.




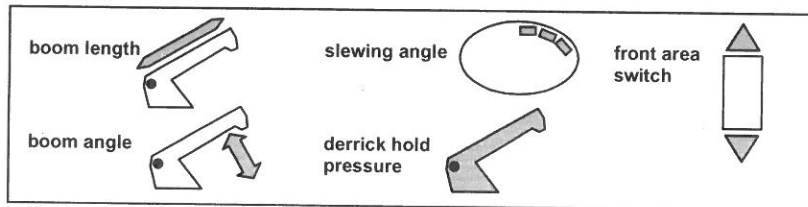
Outriggers check mode NORMAL




Outriggers check mode WHEN RIGHT FRONT SETTING IS WRONG

- \* **Outrigger stroke checking is operational only when outriggers are fully extended. Also outrigger stroke checking is not operational during pick and carry operation.**

4. At outrigger check mode, it changes to crane check mode **automatically** if there is no problems. At outrigger check mode, if you press  switch again crane check mode can start. (mis-setting outriggers keep in flash)  
Check that warning sound sounds and -8.8.8 indicates in the display. When -8.8.8 **do not** indicate and the signs below flash, reset boom length, boom angle and slewing angle.



5. Although conditions are set like above, if derrick hold pressure  flashes, contact us.
6. Check that crane does not move during boom derrick/lower, winch hoist/lower, boom extend/retract and slewing left/right operation.

7. Press **ACS** switch to set ACS mode and check outrigger set condition and boom working condition **before start operation**.

\* The above checking should be done with average hanging tools on the level ground. \*  
When there are some malfunctions during pre-checking, contact us.

### Outrigger operation

1. When extend outriggers, move the suspension control switch to "sus retract" to retract suspension while suspension operational button is lit.
2. Move the PTO switch to "ON" and outriggers operational lamp is lit to carry outrigger operation.
3. Set the crane level by checking level gauge and insert the stopper pins.

### Slewing operation

1. When slew make sure that there is no one around the machine.
2. Pay attention to lever operations and avoid sudden slewing and stop during operation.
3. When slew from front/rear to side area, rated lifting capacity differs and may cause overload. Require extra attention.
4. Every time when slewing finishes use the slewing brake.

### Winch operation

1. Avoid any overload operations or sudden lever operations.
2. Lock the drum when hang the load for a long time.  
Do not move the drum lock lever while operating the winch.
3. Engage the pedal lock for the winch you do not use to avoid incorrect operation.
4. Use the high speed winch to lower the hook only. Do not hit the hook to the ground.

### Boom extend/retract and derrick/lower operation

1. Lower the hook enough to extend/retract and derrick/lower the boom.
2. Avoid sudden lever operations to extend/retract and derrick/lower the boom.

### Preparation for general driving

1. Fix the boom, jib, hook, outrigger, rooster sheave etc at its specified position.
2. Stow the outriggers and insert the stopper pins.
3. Engage the slewing brake and slewing lock.
4. Fasten the rear wheel by the steering lock device.  
Do not operate steering lock operation when outriggers are extended.
5. Move the PTO switch to "OFF" and suspension lock control switch to "lock release" position.

### Oiling and checking

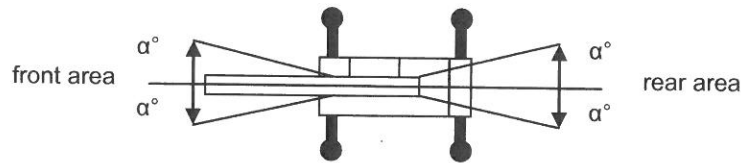
1. Check fuel oil, hydraulic oil, oil leak, wire rope wear and supplement or replace.

## KR-20H-L Cautions for crane operation

Please refer to Cautions for rated lifting capacity on page 2.

### Rated lifting capacity chart (1) (2) with outriggers

- These capacities are based on condition that the crane is set on solid ground horizontally. The weight of the main hook and hanging implement needs to be included for boom operation, and auxiliary hook and hanging implement for jib operation. [20t hook : (mass 200kg), 3.2t hook : (mass 60kg)]  are based on the crane's strength and others are on its stability.
- Working radius is based on the actual figure including the deflection of the boom or the jib. Working radius should be recognised as a standard for operation.
- The working radius for jib refers to operations with 28.0m of boom. For operations with other boom lengths, only boom angle should be recognised as a standard.
- The jib must not be used when the outriggers are at medium extension (2.9m) or fully retracted.
- The lifting capacity at the side area varies depending on the amount the outriggers are extended. It is therefore necessary to refer to the relevant rated load charts. Load ratings over the front and rear have been determined with fully extended outriggers.



Outrigger Ext.	Med. Ext.(4.7m)	Med. Ext. (3.7m)	Med. Ext. (2.9m)	Min. Extension
Angle $\alpha^\circ$	30	20	15	3

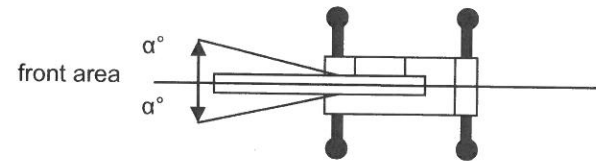
- The rated load for rooster sheave is the figure deducted the weight of hook and hanging implement attached to the boom from boom rated lifting chart and upper limit at 3200kg. [rooster sheave hook : 3.21 hook (mass 60kg) 1 part line ]
- If the boom length exceeds the specified value, refer to the rated lifting capacities for the boom length and the next highest boom length whichever smaller figure.
- If operating the boom with the jib installed, the weights of the lifting equipment plus an extra 1600kg need to be subtracted from the rated load. Rooster operation with jib attached or boom operation with jib attached at medium outriggers extension (2.9m) or minimum extension is prohibited.
- With or without a load the boom angle must not be reduced to less than the number of degrees shown as the critical boom angle at the chart as it may cause crane tip over.
- Standard number of part lines for each boom length is shown below. Load per line should not surpass 28.4kN (2.90) when using a non standard hook.

boom length	8.65m	8.65m	13.6 -28.0m	rooster sheave	jib
No. of ropes	7	6	4		

- Free fall operation should be performed without any load on the hook. Also avoid sudden lever operation.
- Special weather caution: Should wind gusts exceed 14msec postpone the operation. Refer to the operation and maintenance manuals.
- Kato bears no liability whatsoever for damage, crane tipping or other accidents caused by crane operations which differ from the directions contained in the instruction manual and the warning labels.

### Rated lifting capacity chart (3) without outriggers

- The rated lifting capacity chart indicates the maximum load which can certainly be lifted by this crane provided it is standing on firm, level ground with all tyres inflated to the regulation pressure and with the suspension lock cylinders fully retracted. It includes the mass of the hook and all other slings. [20t hook: (mass 200kg), 3.2t hook: (mass 60kg)]  are based on the crane's strength and others are on its stability.  
[Regulation tyre pressure: 900kPa (9.0kg l cm\*)]
- The rated lifting capacity differs between the front area capacity and the full range capacity. When slewing from front to side it could be overloaded so take special care.



Crane Operation	Stationary Crane on-rubber	Pick & Carry
Angle $\alpha^\circ$	1	1

- Boom operation beyond a boom length of 18.4m, high speed winch operation and fib operation are prohibited.
- For stationary crane-on-rubber operation the wheels must all be completely immobilised by the parking brake and brake lock.
- For pick and carry operation the high-low speed switch must be switched to "ON" (low range) and the shift lever set to speed 1,
- During pick and carry operation lower the load to just above the ground and keep your speed strictly below 2km/h. Avoid any sudden starting, steering accelerating etc.
- During pick and carry operation crane operations are prohibited. Also make sure to engage the slewing brake.
- Other than the above precautions observe points 2, 6, 7, 9, 10, 12 and 13 of the section "Precautions on outrigger use".



# KR-20H-L

Rated lifting capacity (1) Outriggers are used

Please refer to Cautions for rated lifting capacity on page 2

working radius (m)	outriggers at maximum extension (5.4m) (360°)					outriggers at medium extension (4.7m) (over the side)					outriggers at medium extension (3.7m) (over the side)					outriggers at medium extension (2.9m) (over the side)					outriggers at minimum extension (2.04m) (over the side)					working radius (m)	
	8.65m boom	13.6m boom	18.4m boom	23.2m boom	28.0m boom	8.65m boom	13.6m boom	18.4m boom	23.2m boom	28.0m boom	8.65m boom	13.6m boom	18.4m boom	23.2m boom	28.0m boom	8.65m boom	13.6m boom	18.4m boom	23.2m boom	28.0m boom	6.65m boom	13.6m boom	18.4m boom	23.2m boom	28.0m boom		
2.0	20.00*	10.00	8.00			20.00*	10.00	8.00			20.00*	10.00	8.00			18.00	10.00	7.40			9.00	9.00	7.40			2.0	
2.5	20.00*	10.00	8.00	6.50		20.00*	10.00	8.30	6.50		20.00*	10.00	8.00	6.50		18.00	10.00	7.40	5.10		9.00	9.00	7.40	5.10		2.5	
3.0	20.00*	10.00	8.00	6.50		20.00*	10.00	8.00	6.50		17.00	10.00	8.00	6.50		12.00	10.00	7.40	5.10		6.70	7.10	6.75	5.10		3.0	
3.5	17.00	10.00	8.00	6.50	5.00	17.00	10.00	8.00	6.50	5.00	14.50	10.00	8.00	6.50	5.00	9.00	9.50	7.40	5.10	3.80	5.00	5.50	5.55	5.10	3.50	3.5	
4.0	14.80	10.00	8.00	6.50	5.00	14.80	10.00	8.00	6.60	5.00	11.00	10.00	8.00	6.50	5.00	7.00	7.40	7.40	5.10	3.80	4.00	4.35	4.50	4.35	3.50	4.0	
4.5	12.80	10.00	8.00	6.50	5.00	12.80	10.00	8.00	6.50	5.00	8.75	9.10	8.00	6.50	5.00	5.60	6.00	6.15	5.10	3.80	3.20	3.55	3.70	3.70	3.10	4.5	
5.0	11.20	9.80	7.90	6.50	5.00	11.00	9.80	7.90	6.50	5.00	7.10	7.50	7.65	6.50	5.00	4.65	5.00	5.10	5.10	3.80	2.65	2.95	3.10	3.15	2.70	5.0	
5.5	10.00	9.10	7.45	6.20	5.00	9.20	9.10	7.45	6.20	5.00	6.00	6.30	6.45	6.20	5.00	3.90	4.20	4.35	4.45	3.80	2.20	2.50	2.60	2.70	2.35	5.5	
6.0	9.00	8.40	7.00	5.90	5.00	7.80	8.10	7.00	5.90	5.00	5.10	5.40	5.50	5.60	5.00	3.30	3.60	3.75	3.80	3.80	1.85	2.15	2.25	2.30	2.10	6.0	
6.5		7.80	6.55	5.50	4.80		7.00	6.55	5.50	4.80		4.65	4.80	4.90	4.80		3.15	3.25	3.35	3.40		1.80	1.95	2.00	1.85	6.5	
7.0		7.30	6.20	5.20	4.60		6.10	6.20	5.20	4.60		4.10	4.20	4.30	4.35		2.75	2.85	2.90	3.00		1.55	1.65	1.75	1.60	7.0	
8.0		6.10	5.60	4.70	4.10		4.80	4.90	4.70	4.10		3.20	3.30	3.40	3.45		2.10	2.20	2.30	2.35		1.15	1.25	1.30	1.25	8.0	
9.0		4.90	5.05	4.20	3.70		3.90	4.00	4.05	3.70		2.60	2.70	2.75	2.80		1.65	1.75	1.85	1.90		0.85	0.95			9.0	
10.0		4.05	4.20	3.30	3.40		3.20	3.30	3.35	3.40		2.10	2.20	2.25	2.30		1.30	1.40	1.50	1.55		0.55	0.70			10.0	
11.0		3.40	3.55	3.45	3.05		2.70	2.75	2.80	2.85		1.70	1.80	1.90	1.95		1.05	1.15	1.20	1.25						11.0	
12.0			3.00	3.05	2.80			2.35	2.40	2.45			1.50	1.60	1.60												12.0
13.0			2.60	2.65	2.55			2.00	2.05	2.10			1.25	1.35	1.35												13.0
14.0			2.25	2.30	2.35			1.75	1.75	1.80			1.05	1.10	1.15												14.0
15.0			2.00	2.00	2.05			1.50	1.55	1.55			0.85	0.90	0.95												15.0
16.0				1.75	1.80				1.35	1.35				0.70	0.75												16.0
17.0				1.55	1.60				1.15	1.15				0.55	0.60												17.0
18.0				1.35	1.40				0.95	1.00				0.45	0.50												18.0
19.0				1.15	1.20				0.80	0.85																	19.0
20.0				1.00	1.05				0.65	0.70																	20.0
21.0					0.90					0.55																	21.0
22.0					0.80					0.45																	22.0
23.0					0.65																						23.0
24.0					0.55																						24.0
25.0					0.45																						25.0
Critical boom angle	-	-	-	-	-	-	-	-	-	25°	-	-	-	20°	43°	-	-	26°	43°	55°	-	-	48°	64°	69°	Critical boom angle	
Average hook Weight	20t hook					20t hook					20t					20t					20t					Average hook Weight	
No. of part lines	7*,6	4	4	4	4	7*,6	4	4	4	4	7*,6	4	4	4	4	6	4	4	4	4	4	4	4	4	4	No. of part lines	

NOTE:- marked rated lifting capacity is for 7 part lines.

Capacities above bold outline of area of chart are limited by crane structural strength. All other loads are limited by 75% of tipping.

# KATO KR-20H-L

Rated lifting capacity (2) Outriggers & Jib are used

Please refer to Cautions for rated lifting capacity on page 2

2 8.0m boom + 7.0m jib										[using hook 3.2t hook (mass 60kg)]																
outriggers at medium extension(4.7m) (over the side)										outriggers at medium extension (3.7m) (over the side)																
boom angle (°)	5°		25°		45°		60°		boom angle (°)	offset 5°		offset 25°		offset 45°		offset 60°		boom angle (°)	offset 5°		offset 25°		offset 45°		offset 60°	
	working radius (m)	load (ton)	working radius (m)	load (ton)	working radius (m)	load (ton)	working radius (m)	load (ton)		working radius (m)	load (ton)	working radius (m)	load (ton)	working radius (m)	load (ton)	working radius (m)	load (ton)		working radius (m)	load (ton)	working radius (m)	load (ton)	working radius (m)	load (ton)	working radius (m)	load (ton)
82	4.8	2.50	7.0	1.70	9.0	1.30	9.7	0.75	82	4.8	2.50	7.0	1.70	9.0	1.30	9.7	0.75	82	4.8	2.50	7.0	1.70	9.0	1.30	9.7	0.75
80	6.3	2.50	8.0	1.70	10.2	1.30	10.8	0.75	80	8.0	2.50	8.0	1.70	10.2	1.30	10.8	0.75	80	6.3	2.50	8.0	1.70	10.2	1.30	10.8	0.75
75	9.8	2.50	11.6	1.70	13.0	1.30	13.4	0.75	75	9.8	2.50	11.6	1.70	13.0	1.30	13.4	0.75	75	9.1	2.50	11.0	1.70	12.4	1.30	12.9	0.75
70	12.5	2.00	14.3	1.52	15.6	1.23	15.8	0.75	70	12.5	2.00	14.3	1.52	15.6	1.23	15.8	0.75	75	9.6	2.33	11.6	1.70	12.4	1.30	12.9	0.75
65	15.2	1.56	16.9	1.29	18.0	1.13	18.1	0.75	68	13.6	1.81	15.4	1.43	16.6	1.20	16.7	0.75	74	10.1	2.10	12.2	1.68	13.5	1.30	13.4	0.75
63	16.2	1.44	17.9	1.11	18.9	1.09	19.1	0.75	67	14.1	1.68	15.9	1.39	17.1	1.19	17.2	0.75	72	11.2	1.75	13.2	1.43	14.6	1.26	14.8	0.75
60.5	17.7	1.27	19.2	1.08	20.0	1.00			66	14.6	1.54	16.4	1.29	17.5	1.16	17.7	0.75	70	12.2	1.45	14.2	1.19	15.5	1.03	15.8	0.75
60	17.9	1.22	19.4	1.05	20.3	0.96			65	15.1	1.38	16.9	1.16	18.0	1.06	18.1	0.75	67	13.8	1.06	15.7	0.85	16.9	0.75	17.2	0.75
55	20.1	0.82	21.6	0.71	22.2	0.61			63	16.1	1.17	17.9	0.98	18.9	0.91	19.0	0.75	65	14.8	0.83	16.7	0.66	17.8	0.58	18.1	0.59
50	22.3	0.50	23.6	0.45	24.0	0.41			60	17.5	0.88	19.3	0.74	20.2	0.67			64	15.3	0.72	17.2	0.57	18.3	0.51	18.5	0.52
48	23.1	0.40	24.4	0.35	24.7	0.32			55	19.9	0.49	21.4	0.43	22.1	0.40			62	16.2	0.55	18.1	0.42	19.1	0.38		
45	24.5	0.26	25.5	0.24					53	20.8	0.37	22.2	0.33	22.9	0.29			critical boom angle		60°	60°	60°	62°			
critical boom angle		43°	43°	46°	61°			51	21.7	0.26	23.0	0.23														
								50	22.2	0.20																
								critical boom angle		48°	49°	51°	61°													

2 8.0m boom + 11.4m jib										[using hook 3.2t hook (mass 60kg)]																			
outriggers fully extended (5.4m) (360°)										outriggers at medium extension (4.7m) (over the side)										outriggers at medium extension (3.7m) (over the side)									
boom angle (°)	offset 5°		offset 25°		offset 45°		offset 60°		boom angle (°)	offset 5°		offset 25°		offset 45°		offset 60°		boom angle (°)	offset 5°		offset 25°		offset 45°		offset 60°				
	working radius (m)	load (ton)	working radius (m)	load (ton)	working radius (m)	load (ton)	working radius (m)	load (ton)		working radius (m)	load (ton)	working radius (m)	load (ton)	working radius (m)	load (ton)	working radius (m)	load (ton)		working radius (m)	load (ton)	working radius (m)	load (ton)	working radius (m)	load (ton)	working radius (m)	load (ton)	working radius (m)	load (ton)	
82	6.0	1.50	9.5	0.90	12.7	0.75	13.9	0.45	82	6.0	1.50	9.5	0.90	12.7	0.75	13.9	0.45	82	6.0	1.50	9.5	0.90	12.7	0.75	13.9	0.45			
80	7.6	1.50	11.2	0.90	13.9	0.75	14.9	0.45	80	7.6	1.50	11.2	0.90	13.9	0.75	14.9	0.45	80	7.6	1.50	11.2	0.90	13.9	0.75	14.9	0.45			
75	11.3	1.50	14.5	0.89	16.9	0.74	17.5	0.45	75	11.3	1.50	14.5	0.89	16.9	0.74	17.5	0.45	75	11.3	1.50	14.5	0.89	16.9	0.74	17.5	0.45			
70	14.6	1.31	17.4	0.82	19.6	0.71	20.2	0.45	70	14.6	1.31	17.4	0.82	19.6	0.71	20.2	0.45	72.5	13.0	1.44	16.1	0.85	18.3	0.73	18.9	0.45			
65	17.7	1.11	20.3	0.77	22.1	0.68	22.5	0.45										70	14.5	1.12	17.4	0.82	19.6	0.71	20.2	0.45			
60	20.7	0.94	23.1	0.72	24.6	0.66			68	18.3	1.00	20.9	0.75	22.7	0.67	23.0	0.45	69.5	14.8	1.07	17.9	0.81	19.8	0.70	20.5	0.45			
58.5	21.6	0.83	24.0	0.71	25.3	0.65			67	18.9	0.92	21.5	0.73	23.2	0.66			66	16.8	0.70	19.7	0.55	21.6	0.47	22.1	0.45			
55	23.4	0.61	25.6	0.54	26.5	0.51			66	20.4	0.69	23.0	0.55	24.5	0.49			65	17.4	0.61	20.2	0.49	22.0	0.41	22.5	0.41			
49	26.2	0.32	28.2	0.28	28.9	0.27			66	23.0	0.37	25.4	0.29	26.5	0.25			critical boom angle		63°	63°	63°	63°						
47	27.1	0.24	29.0	0.21					65	23.5	0.31	25.8	0.25	26.9	0.21														
critical boom angle		45°	45°	47°	63°			critical boom angle		52°	52°	52°	62°																

Capacities above hold outline of area of chart are limited by crane structural strength. All other loads are limited by 75% tipping.

# KATO KR-20H-L

Rated lifting capacity (3) Without Outriggers (unit : ton)

Please refer to Cautions for rated lifting capacity on page 2

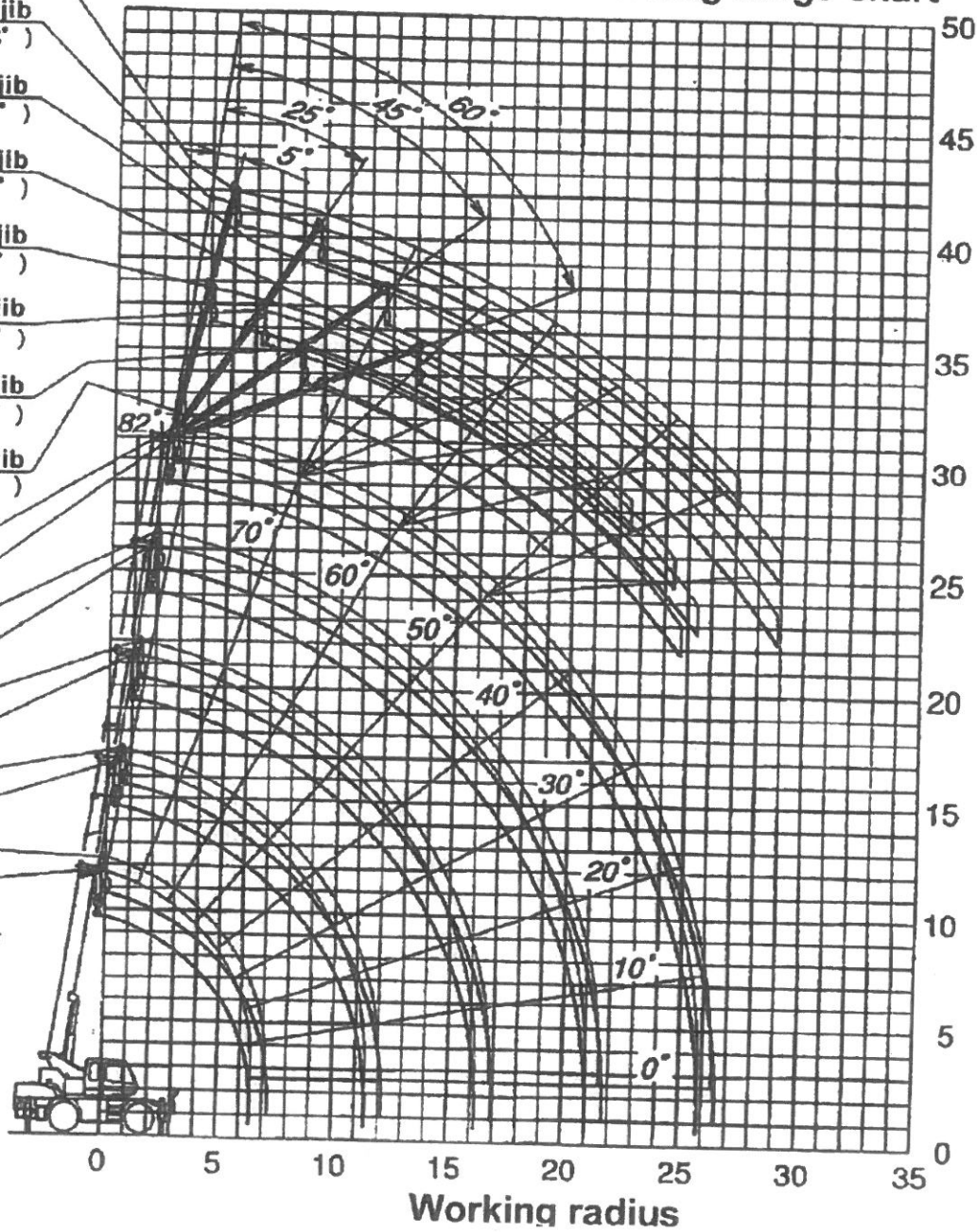
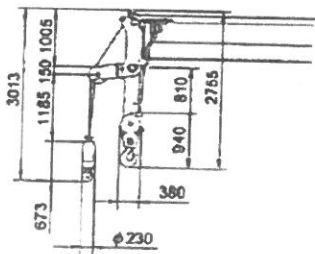
Working radius (m)	stationary						pick and carry (speeds up to 2km/h)						Working radius (m)
	8.65m boom		116m boom		18.4m boom		8.65m boom		13.6m boom		18.4m boom		
	over the front	360°	over the front	360°	over the front	360°	over the front	360°	over the front	360°	over the front	360°	
3.0	9.00	4.60	8.80	4.65	5.80	4.70	7.00	3.50	6.30	3.70	4.50	3.70	3.0
3.5	8.20	3.50	7.80	3.70	5.80	3.70	6.00	2.65	5.60	2.80	4.50	2.80	3.5
4.0	7.30	2.65	7.00	3.00	5.80	3.00	5.20	2.10	5.00	2.20	4.50	2.20	4.0
4.5	6.00	2.10	6.00	2.35	5.20	2.50	4.40	1.70	4.50	1.80	4.20	1.80	4.5
5.0	4.95	1.65	5.00	1.85	4.60	2.00	3.70	1.35	3.85	1.50	3.55	1.45	5.0
5.5	4.00	1.20	4.30	1.45	4.00	1.70	3.10	1.05	3.25	1.20	3.00	1.20	5.5
6.0	3.20	0.90	3.65	1.15	3.50	1.35	2.60	0.80	2.80	0.95	2.50	1.00	6.0
6.5			3.15	0.90	3.05	1.10			2.45	0.75	2.20	0.85	6.5
7.0			2.75	0.70	2.70	0.85			2.15	0.55	1.95	0.70	7.0
8.0			2.15		2.15	0.50			1.70		1.55		8.0
9.0			1.65		1.70				1.35		1.25		9.0
10.0			1.20		1.30				1.00		1.00		10.0
11.0			0.90		1.05				0.80		0.80		11.0
12.0					0.80						0.60		12.0
13.0					0.60								13.0
critical boom angle	-	-	-	42°	36°	56°	-	-	-	49°	41°	61°	critical boom angle
average hook	20t hook						20t hook						average hook
hook weight	200kg						200kg						hook weight
No. of part lines	4						4						No. of part lines

Total rated load for the crane during pick up and carry operations does not exceed 66.7% of tipping load.

# KATO KR-20H-L Working range chart

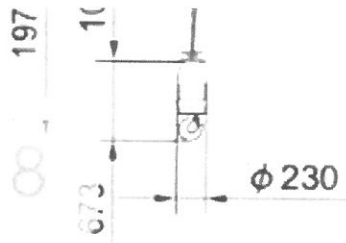
\*Please refer to Cautions for rated capacity chart on page 2.

- 28.0m boom + 11.4m jib  
( offset 5° )
- 28.0m boom + 11.4m jib  
( offset 25° )
- 28.0m boom + 11.4m jib  
( offset 45° )
- 28.0m boom + 11.4m jib  
( offset 60° )
- 28.0m boom + 7.0m jib  
( offset 5° )
- 28.0m boom + 7.0m jib  
( offset 25° )
- 28.0m boom + 7.0m jib  
( offset 45° )
- 28.0m boom + 7.0m jib  
( offset 60° )
- rooster sheave  
28.0m boom
- rooster sheave  
23.2m boom
- rooster sheave  
18.4m boom
- rooster sheave  
13.6m boom
- rooster sheave  
8.65m boom



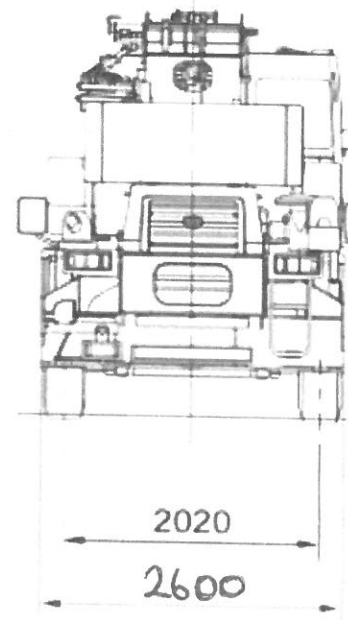
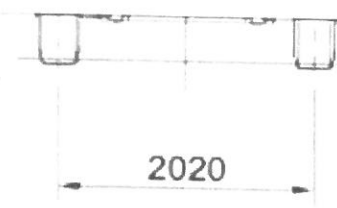
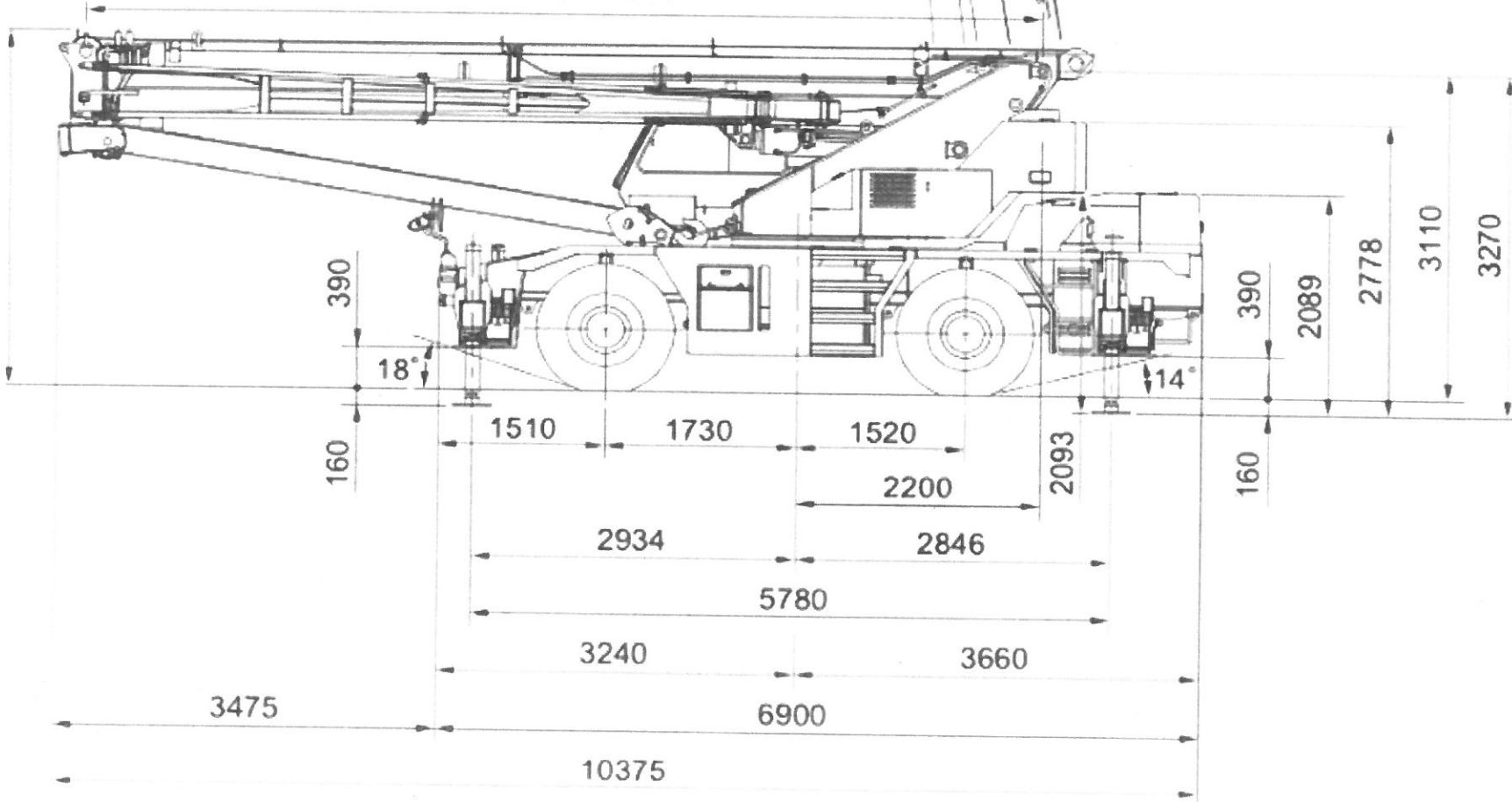
Lifting height  
(m)

- CAUTION :**
- 1) This chart does not take into account the deflection of the boom or the jib.
  - 2) This chart applies when the outriggers are fully extended, (360°)



0°~82°

最小 8650 最大 28000  
ストローク 19350



ランプブレークオーバーアングル: 29°