

KATO

FULLY HYDRAULIC TRUCK CRANE

MODEL

NK-450



KATO WORKS CO., LTD.

TOKYO

KATO NK-450

FULLY-HYDRAULIC FULL-SLEWING TRUCK CRANE

SINGLE LEVER CONTROL 4 SECTION "FULL POWER" BOOM:

Each section of boom has an independent hydraulic cylinder, permitting the boom length quite free on extension or retraction within the range from minimum 11 m to maximum 35 m in length. Controlled by only one lever.

NEW CONTROLLED FREE FALL "FREOMATIC" WINCHES ENSURE SPEEDY OPERATION:

Tandem-drive two speed main and auxiliary winches are driven by high-torque hydraulic motor, having automatic brakes and clutches. This mechanism enables the safe operation of "Free Fall" or "Power Lowering" of the hook.

"GLIDE-MASTER" PLANETARY SLEWING:

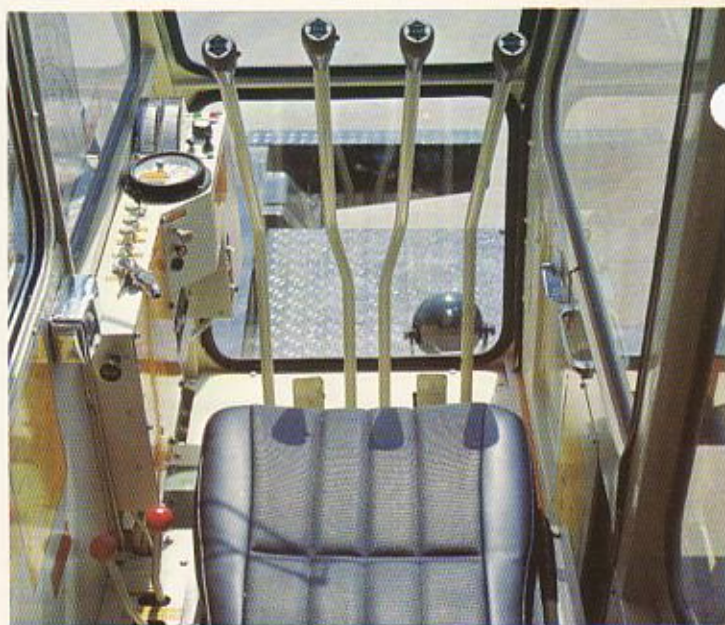
"Glide-Master" planetary slewing system enables smooth, precise slewing operation, and in addition a hydrostatic controlled disk brake is provided.

FULL VISION SUPERSTRUCTURE CAB:

Provided with safety glass in all windows and all necessary control levers, gauges, instruments, etc. are well arranged at convenient location for the operator. A comfortable reclining seat gives no fatigue to the operator.

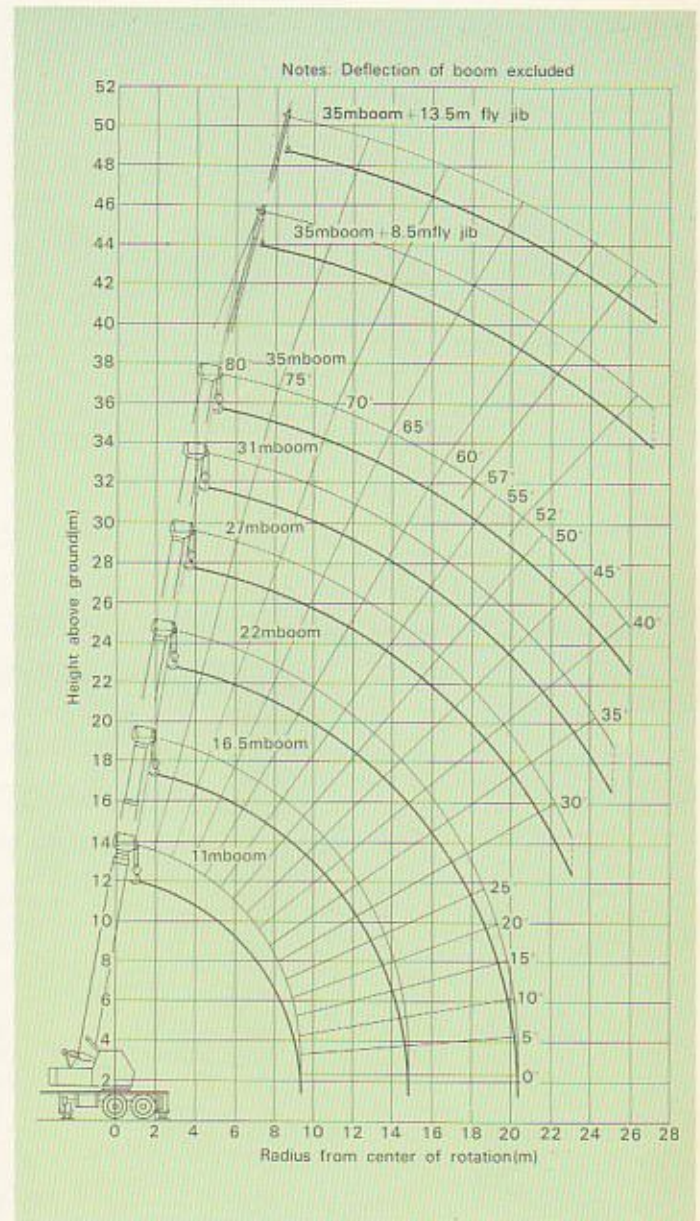
AUTOMATIC SAFETY CUT-OUT: (A.S.L.I.)

Automatic Safety Load Indicator shows continuously both the rated allowable load and the actual lifting status along the boom length and working radius. For a safe operation, a buzzer warns of the danger as soon as the crane operation reaches any overload condition and then the hydraulic power is cut off automatically in the event of dangerous excess. (optional)





WORKING RANGES



SUPERSTRUCTURE

CRANE PERFORMANCE

Boom length	
(Full power 4 section):	11m ~ 35m
Fly jib length:	8.5m ~ 13.5m
Boom derricking angle:	-2.5° ~ 80°
Boom telescoping speed	
Extension:	0.16m/sec.
Hoist and lower rope speed	
Main winch:	High-91.5m/min. (Mean) Low-41.7m/min. (Mean)
Auxiliary winch:	High-91.5m/min. (Mean) Low-41.7m/min. (Mean)
Hoist and lower hook speed	
Main winch:	High-8.31m/min. (Mean) Low-3.75m/min. (Mean)
Auxiliary winch:	High-91.5m/min. (Mean) Low-41.7m/min. (Mean)
Slewing speed:	1.64 rpm.

WIRE ROPE FOR HOISTING

Main winch	Type:	6 x Fi (29) I.W.R.C.
	Parts of line:	11
	Length:	175m x 18mm dia.
Auxiliary winch	Type:	6 x Fi (29) I.W.R.C.
	Parts of line:	1
	Length:	110m x 18mm dia.

HYDRAULIC SYSTEM

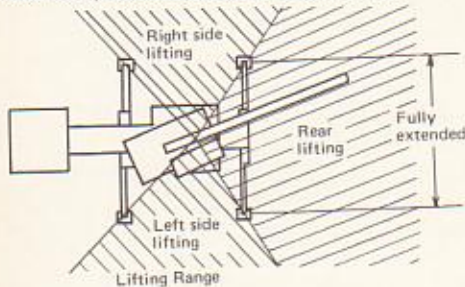
Oil pump:	3 section gear type
Hoist motor:	Radial piston type
Slewing motor:	Radial piston type
Control valve	3 position 4 way double-acting type with integral check, and relief valves.
Cylinder:	Double acting type with safety check valve or balancing valve.

NOTES

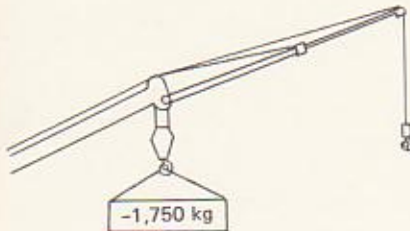
- The rated lifting capacities are the maximum loads guaranteed on a firm level ground and include the weight of hook block and other lifting equipments. The capacities in the green area are based on the structural strength.

Hook	for 45 ton	for 12 ton	for 4 ton
Weight	450 kg	250 kg	120 kg

- The working radii as given in table are the actual values including the deflection of the booms. Therefore operate the crane based on the working radius. But working radius for operation with the jib should be the one for operation with the fully extended boom (35 m). Only boom angle has an effect on operation with the jib when the boom is not fully extended.
- The rated lifting capacities for operation with outriggers are based on use of outriggers fully extended, the machine set horizontal and the load lifted at either of the rear and sides as shown below.



- The rated lifting capacities for operation without outriggers is based on best condition of the tire air pressure and the ground surface.
- When the boom length exceeds the rated one, operation must be carried out under the lifting capacities rated for the longer rated boom length. But when the boom length is comprised between 27.0 m and 31 m and the working radius exceeds 10 m, then operation must be carried out the rated lifting capacities for 27.0 m boom. And in the same way when the boom length is comprised between 31.0 m and 35.0 m and the working radius exceeds 14 m, then operation must be carried out the rated lifting capacities for 31.0 m boom.
- When using the boom with the jib installed, 1750 kg should be subtracted from rated lifting capacities besides the weight of the hoisting equipment, etc.



- Tip over angles at each boom are as given in the right table. Don't reduce boom angles smaller than given therein.

27 m Boom	27°
31 m Boom	31°
35 m Boom (Fully extended)	36°
35 m Boom +8.5 m Jib	50°
35 m Boom +13.5 m Jib	53°

- The minimum number of parts of line is determined so that weight per part will not exceed 4000 kg. The number of parts of line in terms of the boom length is as shown below.

Boom length	11m	11m ~ 16.5m	16.5m ~ 22m	22m ~ 27m	27m ~ 35m
Parts line	11	6	5	4	3

- The crane will tip over or damaged if operated with a load other than specified in the rated lifting capacity table or not conforming to correct handling.

RATED LIFTING CAPACITIES

Working Radius (m)	Over Side and Over Rear						
	With Outriggers						Without outriggers
	11.0m boom	16.5m boom	22.0m boom	27.0m boom	31.0m boom	35.0m boom	11.0m boom
3.0	45.00						8.00
3.5	40.00	24.00					6.40
4.0	36.40	24.00	20.00				5.10
5.0	29.50	24.00	20.00	16.00			3.40
5.9	24.00	24.00	20.00	16.00	12.00		2.40
6.3	22.25	21.40	20.00	16.00	12.00	8.00	2.30
6.6	21.50	20.00	20.00	16.00	12.00	8.00	1.85
7.0	19.20	18.70	18.00	16.00	12.00	8.00	1.60
7.2	18.10	17.75	17.25	16.00	12.00	8.00	1.45
7.8	15.70	15.50	15.20	14.10	12.00	8.00	1.00
8.2	14.40	14.05	14.05	13.30	12.00	8.00	
9.0	11.90	11.60	11.25	11.15	10.95	8.00	
10.0		9.40	9.25	9.15	9.60	8.00	
10.7		8.10	8.10	8.00	8.45	8.00	
11.0		7.65	7.65	7.55	8.00	7.70	
12.0		6.40	6.40	6.35	7.00	6.85	
13.0		5.40	5.40	5.35	6.10	6.05	
14.0		4.55	4.55	4.45	5.30	5.35	
15.0			3.75	3.75	4.35	4.55	
16.0			3.15	3.15	3.60	4.05	
18.0			2.20	2.20	2.60	2.95	
20.0			1.40	1.40	1.88	2.18	
22.0				0.80	1.25	1.55	
23.0					0.95	1.25	
24.0					0.70	1.00	
25.0						0.80	
26.0						0.65	

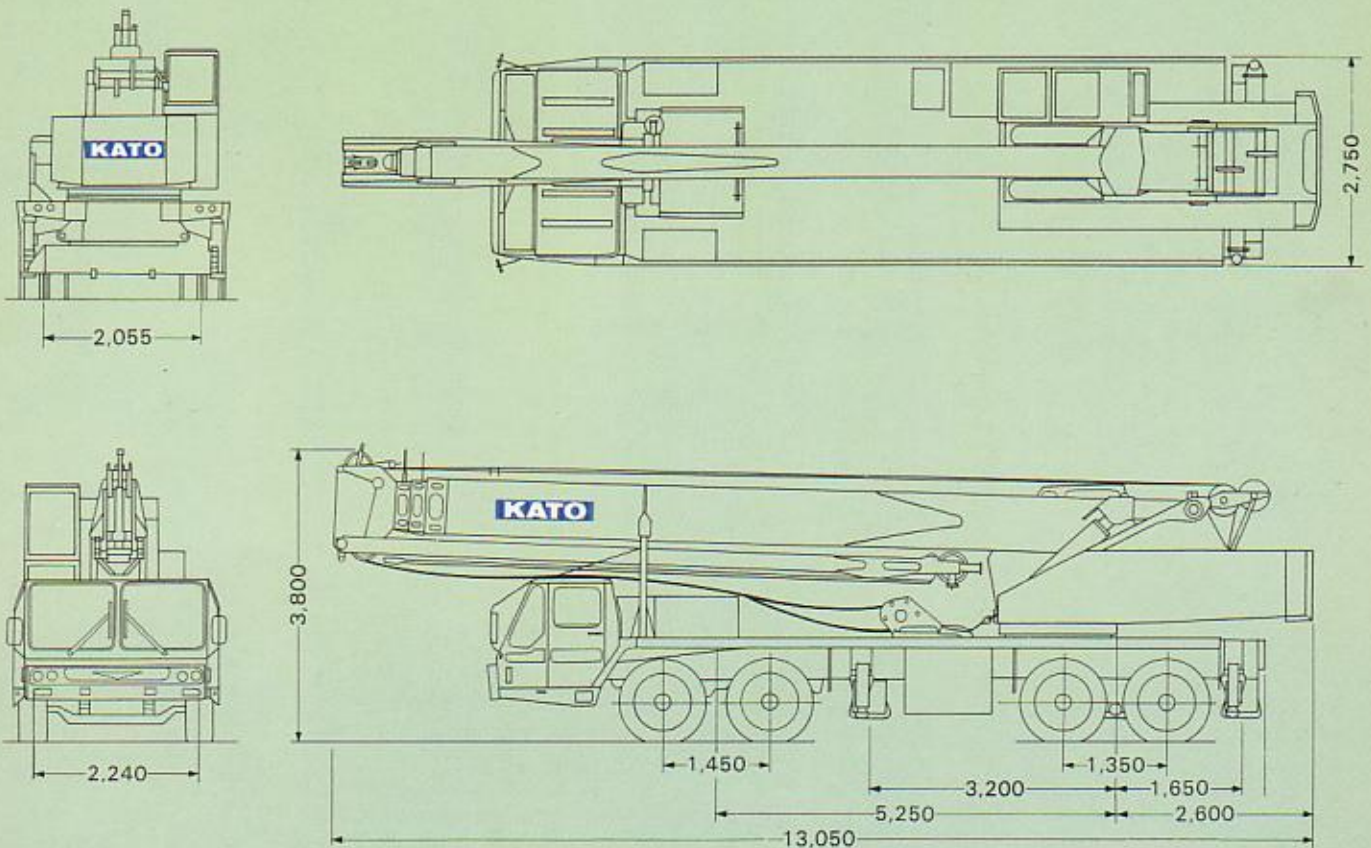
Boom Angle	Over Side and Over Rear			
	With Outriggers			
	35m + 8.5m Jib offset 5°		35m + 13.5m Jib offset 5°	
	Working Radius (m)	Working Radius (m)	Working Radius (m)	Working Radius (m)
80°	9.1	4.00	10.8	3.20
77°	11.0	4.00	13.0	3.20
76.3°	11.5	4.00	13.6	3.05
76°	11.8	3.95	13.8	2.95
75°	12.5	3.75	14.8	2.75
74°	13.3	3.55	15.7	2.55
72°	14.6	3.15	17.2	2.30
70°	16.1	2.70	18.8	2.10
68°	17.4	2.35	20.5	1.90
66°	18.8	1.95	21.5	1.75
64°	20.1	1.60	23.3	1.65
62°	21.5	1.30	24.8	1.35
60°	22.6	1.10	26.0	1.15
58°	23.9	0.90	27.3	0.90
56°	25.1	0.75	28.0	0.70
54°	26.5	0.60		
52.6°	27.0	0.55		

(in metric ton)

GENERAL DATA

MODEL	NK-450
CARRIER MODEL	MITSUBISHI K352L
TOTAL LENGTH mm	13050
TOTAL WIDTH mm	2750
TOTAL HEIGHT mm	3800
ENGINE	
Model	MITSUBISHI 8DC20A
Max. Output PS/rpm	265/2500
Max. Torque kg-m/rpm	89/1200
GROSS WEIGHT Kg	Approx. 38,000
FRONT Kg	Approx. 15,000
REAR Kg	Approx. 23,000
WHEEL BASE mm	5250
TREAD FRONT mm	2240
TREAD REAR mm	2055
MAX. SPEED Km/h	70
MIN. SPEED	
(at max. engine torque) Km/h	2.4
TURNING RADIUS m	11.5
GRADEABILITY (%)	26
DRIVE SYSTEM	8x4
CLUTCH TYPE	Dry single disc
TRANSMISSION SYSTEM	Synchromesh & Constantmesh
TIRE	
FRONT	12.00-20-18PRx4
REAR	12.00-20-18PRx8
FUEL TANK CAPACITY	300 Lt.
STEERING TYPE	Ball nut with power assist
ELECTRICAL SYSTEM	24V starting, lighting, instrumental light, beam headlight, tail and stop-light, windshield wiper, horn and turn signal.

- *MACHINE is subject to the user's specifications and any chassis having proper capacity and dimension are applicable.*
- *We reserve the right to make specification or equipment changes without notice.*



KATO

KATO WORKS CO.,LTD.

HEAD OFFICE: No. 9-37, 1-chome, Higashi-ohi, Shinagawa-ku,
Tokyo, Japan
Tokyo 471-8111
Tel:

FOREIGN DEPARTMENT: The 17th Mori Bldg., Shiba Nishikubo
Sakuragawa-cho 2, Minato-ku, Tokyo, Japan
Tokyo 591-5111
Tel:
Cable Address: CRANEKATO TOKYO
Telex: 0 222-4519 (CRKATO J)