# NK-500E-Vanima

### FULLY HYDRAULIC TRUCK CRANE

- Maximum rated lifting capacity: 50.5t
   Maximum boom length: 40m
- Maximum jib length: 15m
- Maximum lifting height: 39.8m(boom), 54.7m(40m boom+15m jib offset 5°)







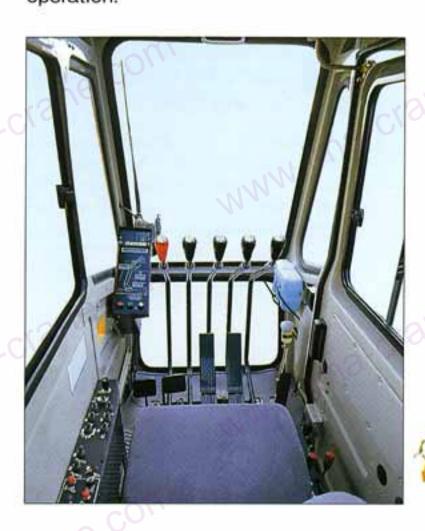


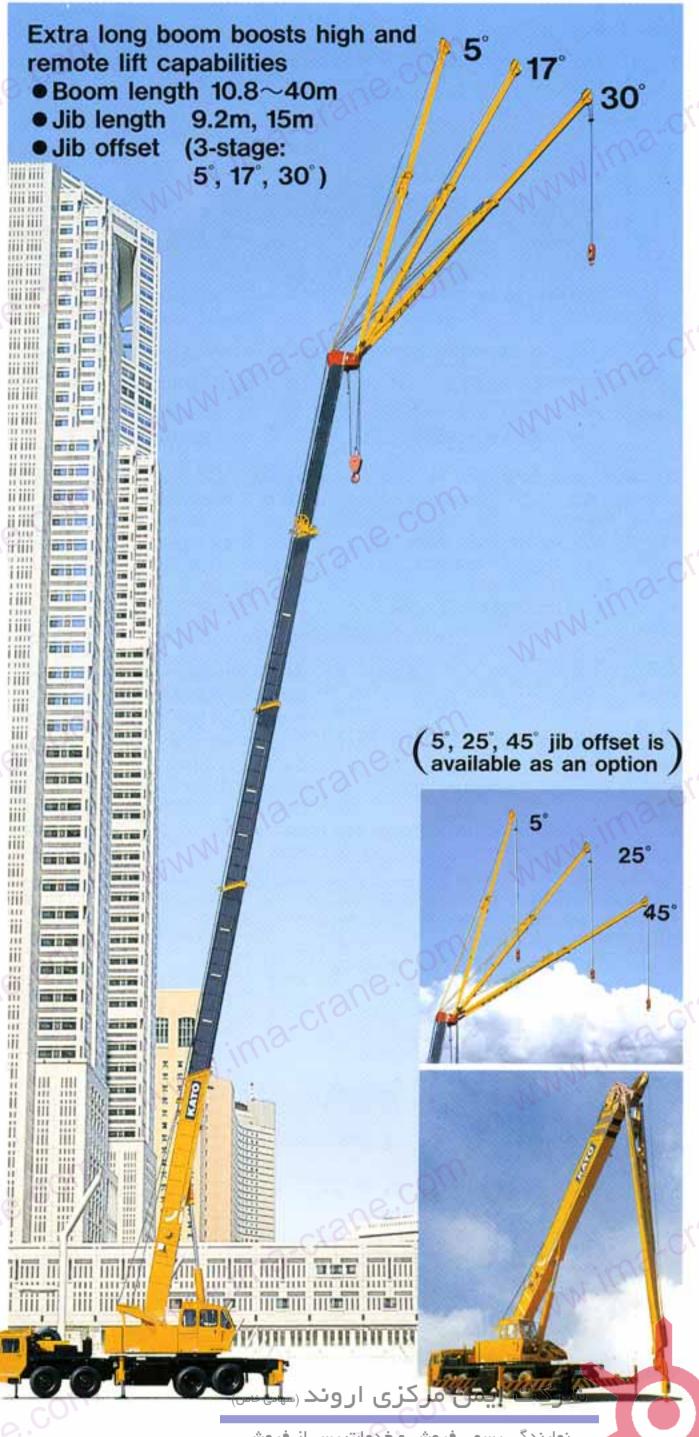
## THE CRYSTALLIZATION OF ADVANCED TECHNOLOGY. THE STURDY FULLPOWER BOOM CUTS DEFLECTION WAY DOWN

- For greater ease of use, operability and safety, the boom is of a robust construction that reduces vertical deflection and lateral bending during operations.
- The tough Fullpower boom utilizes a sequential, synchronized extension/ retraction control system that permits single-lever control and speeds up operations at all boom lengths from low lifts at 10.8m (fully retracted) to high lifts at 40.0m (fully extended).

## ALL-ROUND COMFORT! SPACIOUS CAB GUARANTEES A PLEASANT WORKING ENVIRONMENT

 The spacious cabin is finished in relaxing colour tones and comes with a sliding door that facilitates ingress and egress and can be left open without getting in the operator's way. A push-up type window is incorporated in the roof for better ventilation. Careful consideration has been given to human engineering for maximum operator comfort; the lengths of the levers can be adjusted and the highbacked seat can be moved forward or backward, raised or lowered to suit any physique. The result is a comfortable, roomy cabin that helps banish fatigue even during extended periods of operation.





### Exceptionally Wide Operating Range





### ACS CONTROLS PERFORMANCE ACCORDING TO OUTRIGGER STATUS

• Sturdy, fully hydraulic outriggers...
The outriggers are designed for 2stage extension, 7.2m at maximum
stroke and 4.85m at intermediate
stroke for greater stability during
operations on restricted sites. Float
mounting and dismounting operations
have been eliminated by incorporating them into a single unit with the
vertical cylinders, thus helping to
reduce operation times.

### OPTIONAL HYDRAULIC FRONT JACK PROVIDES EXCELLENT 360° LIFTING CAPABILITIES

• A hydraulic jack installed under the front extremity of the carrier chassis enables the crane to offer the same lifting performance in all directions. This means that there are fewer limitations caused by the orientation of the crane when it enters a site, so the crane has a greater operational range.



### CONSTANT FIVE-POINT DISPLAY OF OPERATING CONDITION

- The ACS has digital displays that show safety level, boom angle, boom length, working radius and critical load at all times, without troublesome button operation. For further safety the display of safety level is colourzoned to enable the operator to take in the condition of the load at a glance.
- Protection against breakdowns and malfunctions... For double protection in the unlikely event of a malfunction in the ACS Moment Limiter or any other problems, a trouble indicator has been provided to generate an emergency signal in the appropriate display to warn the operator.



### JUST THE JOB FOR COMPOUND OPERATIONS!

• The NK-500E-v features 2 independently-driven winches. This feature is particularly useful in compound operations because the main and auxiliary winches are controlled by separate levers that permit them to perform hoisting and lowering operations independently yet at the same time. The result is faster operations and greater efficiency.





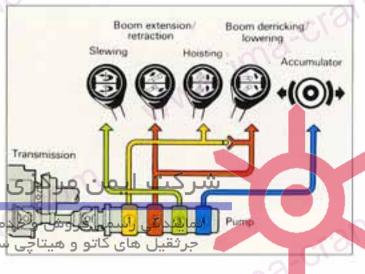
### 4-PUMP SYSTEM FOR SMOOTH COMPOUND OPERATION

● The use of 4 separate pumps enables the NK500E-v to perform 3 operation simultaneously, such as winch (hoisting, lowering), boom (derricking, telescoping) and slewing, without these operations affecting each other. This makes operation smoother and more efficient.



intermediate stroke 4.85m

maximum stroke 7.20m



### RATED LIFTING CAPACITY

Butriggers fully extended with front jack — 360° full range Outriggers fully extended without front jack — over side and over rear											
Working radius (m)	10.8 m Boom	14.45 m Boom	18.1 m Boom	21.75 m Boom	25.4 m Boom	32.7 m Boom	40.0 m Boom				
3.0	50.50	28.00	28.00	24.00	1						
3.5	42.20	28.00	28.00	24.00	18.00						
4.0	37.00	28.00	28.00	24.00	18.00						
4.5	33.00	28.00	28.00	24.00	18.00						
5.0	30.20	28.00	28.00	24.00	18.00	13.00					
5.5	27.50	26.50	25.60	23.20	18.00	13.00					
6.0	25.00	24.00	23.50	21.50	18.00	13.00					
6.5	22.70	22.30	21.80	19.90	18.00	13.00	7.50				
7.0	20.70	20.30	20.00	18.40	16.80	13.00	7.50				
7.5	18.90	18.60	18.50	17.10	15.70	13.00	7.50				
8.0	17.40	17.10	17.00	15.90	14.80	12.30	7.50				
8.5	15.95	15.70	15.60	14.65	14.00	11.60	7.50				
9.0	14.35	14.20	14.10	13.50	13.20	11.00	7.50				
9.5		12.85	12.70	12.55	12.45	10.50	7.50				
10.0		11.70	11.55	11.45	11.40	10.00	7.30				
11.0		9.75	9.60	9.50	9.45	9.10	6.80				
12.0		8.20	8.10	8.00	7.95	8.30	6.30				
13.0		7.00	6.85	6.75	6.70	7.55	5.90				
14.0	6.		5.85	5.75	5.70	6.50	5.50				
16.0			4.25	4.15	4.10	4.95	4.70				
18.0				3.00	2.95	3.75	4.00				
20.0				2.10	2.05	2.80	3.30				
22.0				. 13	1.30	2.10	2.55				
23.0				4111	1.00	1.80	2.25				
24.0				11.4		1.50	2.00				
26.0						1.05	1.50				
28.0						0.65	1.10				
30.0							0.75				
31.0		0,					0.60				
Standard hook	6.	for 50	.5 ton		f	or 20 to	1				
Hook weight		500	kg			270 kg	67				
Parts of line	12	7	7	6	5	4	3				
Critical boom angle	_	-	_		7/-	25	35"				

(Unit: Metric ton)

Outrigger Outrigger	s intermed s fully ext	liately exte tended with	nded with out frent	out front ja jack		O' full ran er front	198		
Working radius (m)	10.8 m Boom			21.75 m Boom	25.4 m Boom	32.7 m Boom	40.0 m Boom		
3.0	32.00	28.00	28.00	24.00					
3.5	32.00	28.00	28.00	24.00	18.00				
4.0	32.00	28.00	28.00	24.00	18.00				
4.5	26.30	25.00	24.00	22.00	18.00				
5.0	19.90	19.70	19.40	18.00	16.50	13.00			
5.5	15.75	15.55	15.30	15.20	15.00	13.00			
6.0	12.80	12.60	12.40	12.30	12.25	11.80			
6.5	10.60	10.45	10.25	10.15	10.10	10.60	7.50		
7.0	8.95	8.75	8.60	8.50	8.45	9.45	7.50		
7.5	7.60	7.45	7.25	7.15	7.10	8.10	7.50		
8.0	6.50	6.35	6.20	6.10	6.05	7.00	7.50		
9.0	4.80	4.70	4.55	4.45	4.40	5.30	6.00		
10.0		3.50	3.35	3.25	3.20	4.10	4.70		
11.0		2.55	2.40	2.35	2.30	3.15	3.75		
12.0		1.80	1.70	1.60	1.60	2.40	2.95		
13.0						1.80	2.35		
14.0		O.				1.30	1.85		
15.0	6.						1.40		
Standard hook		for 50	.5 ton		for 20 ton				
Hook weight		500	) kg			270 kg	O,		
Parts of line	12	7	7	6	5	4	3		
Critical boom angle	_	_	40°	51	58	62°	66'		

\*BS 1757:1986 Based on \* DIN 15019-2 \*75% of tipping loads

Outriggers fully extended with front jack — 360° full range Outriggers fully extended without front jack — over side and over rear															
		40 n	n Boom	+ 9.2 r	n Jib			40 m Boom + 15 m Jib							
Boom	Offse	10.10.11110.011	Offse	t 17	Offse		Boom	Offse	et 5"	Offse	t 17"	Offse	t 30°		
angle (*)	Working radius (m)	Load (t)	Working radius (m)	Load (t)	Working radius (m)	Load (t)	angle (*)	Working radius (m)	Load (t)	Working radius (m)	Load (t)	Working radius (m)	Load (t)		
81	9.00	3.50	10.75	2.70	12.25	2.00	81	10.60	2.50	13.45	1.60	16.05	1.00		
80	9.95	3.50	11.75	2.70	13.15	2.00	79	12.85	2.50	15.50	1.60	18.00	1.00		
79	10,90	3.50	12.50	2.66	14.00	2.00	78	14.00	2.50	16.45	1.55	18.85	1.00		
78	11.80	3.50	13.40	2.54	14.85	2.00	77	15.00	2.35	17.40	1.48	19.80	1.00		
77	12.70	3.32	14.20	2.42	15.70	1.94	76	15.95	2.22	18.35	1.42	20.75	0.97		
76	13.50	3.13	15.00	2.32	16.50	1.88	75	16.90	2.10	19.30	1.36	21.65	0.96		
75	14.40	2.97	15.90	2.22	17.30	1.83	74	17.85	1.98	20.20	1.31	22.50	0.94		
74	15.25	2.82	16.70	2.13	18.15	1.78	72	19.75	1.78	22.00	1.22	24.25	0.90		
72	16.85	2.55	18.30	1.95	19.70	1.67	70	21.50	1.61	23.80	1.14	25.95	0.87		
70	18.50	2.33	19.90	1.81	21.25	1.58	68	23.40	1.48	25.45	1.07	27.55	0.83		
68	20.05	2.14	21.40	1.69	22.70	1.48	66	25.10	1.36	27.15	1.00	29.10	0.81		
66	21.60	1.97	23.00	1.58	24.20	1.40	64	26.85	1.26	28.75	0.95	30.70	0.78		
64	23.15	1.83	24.55	1.48	25.65	1.31	62	28.45	1.16	30.40	0.90	32.20	0.75		
62	24.65	1.71	26.05	1.40	27.10	1.24	60	30.05	1.08	31.95	0.86	33.65	0.73		
60	26.15	1.51	27.45	1.32	28.40	1.17	58	31.70	1.01	33.45	0.82	35.05	0.72		
59	26.85	1.38	28.10	1.28	29.15	1.14	57	32.40	0.90	34.20	0.79	35.80	0.71		
58	27.45	1.23	28.75	1.18	29.80	1.10	56	33.05	0.80	34.95	0.74	36.45	0.70		
56	28.75	1.02	30.05	0.95	30.95	0.90	54	34.40	0.60	36.30	0.55	37.75	0.52		
54	30.00	0.80	31.25	0.72	32.10	0.69						O- '''			
52	31.15	0.60	32.50	0.52	33.30	0.50				La N					
Standard hook	for 4 ton					Standard hook	for 4 ton								
Hook weight	120 kg					Hook weight	120 kg								
Parts of line			1				Parts of line			1					
Critical boom angle			51			_0	Critical boom angle			53	r .		209		

(Unit: Metric ton)

Note: Front jack is optional.

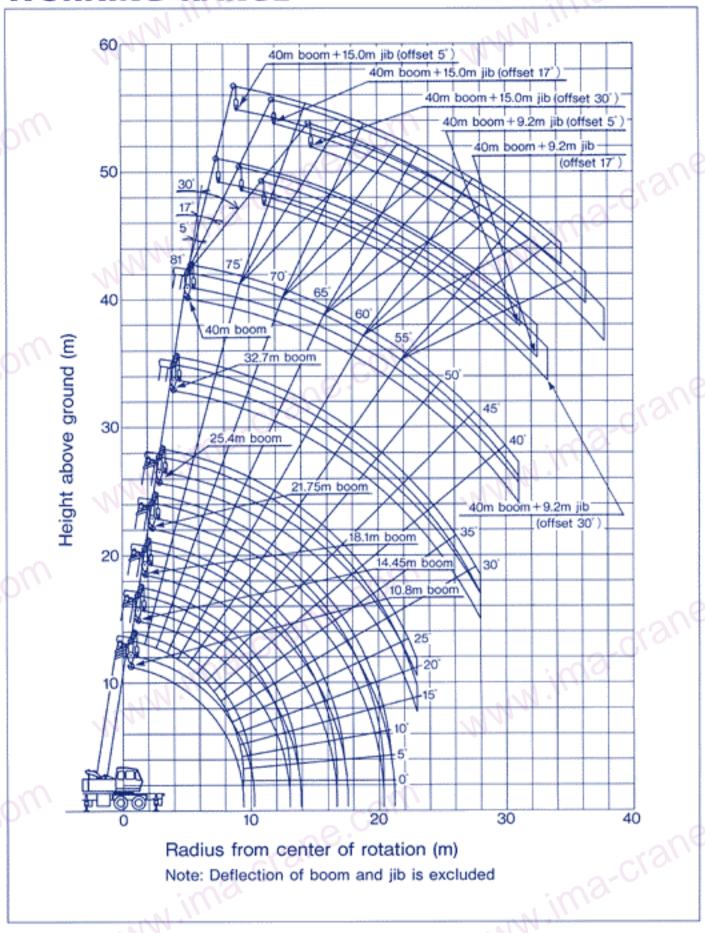
			Outrig Outrig	gers inter gers fully	mediately of extended	extended without fr	without front j ont jack		full rai	198						
	40 m Boom + 9.2 m Jib								40 m Boom + 15 m Jib							
Boom	Offse	et 5°	Offse	t 17"	17" Offset 30"			Offse	Offset 5'		t 17"	Offset 30"				
angle (*)	Working radius (m)	Load (t)	Working radius (m)	Load (t)	Working radius (m)	Load (t)	angle (*)	Working radius (m)	Load (t)	Working radius (m)	Load (t)	Working radius (m)	Load (t)			
81	9.00	3.50	10.75	2.70	12.25	2.00	81	10.60	2.50	13.45	1.60	16.05	1.00			
80	9.95	3.50	11.75	2.70	13.15	2.00	79	12.85	2.50	15.50	1.60	18.00	1.00			
79	10.90	3.50	12.50	2.66	14.00	2.00	78	14.00	2.50	16.45	1.55	18.85	1.00			
78	11.80	3.43	13.40	2.54	14.85	2.00	77	14.90	2.20	17.40	1.48	19.80	1.00			
77	12.45	2.88	14.20	2.42	15.70	1.94	76	15.70	1.87	18.35	1,42					
76	13.20	2.44	15.00	2.11	16.50	1.81	75	16.60	1.58	VIVI						
75	13.95	2.06	15.70	1.75					M	11.4						
74	14.80	1.73														
Standard hook			for 4	ton			Standard hook	for 4 ton								
Hook weight	120 kg					Hook weight	120 kg									
Parts of line	1					Parts of line	1 00					20				
Critical boom angle	73		74		75	5	Critical boom angle	74' 75'			76	3				

	Outriggers fully retracted — 360° full range (blocked on vertical cyls.)								
	Working radius (m)	10.8 m Boom							
	. 3.0	8.00							
	3.5	6.40							
	4.0	5.10							
	4.5	4.20							
	5.0	3.40							
	5.5	2.80							
	6.0	2.30							
	6.5	1.90							
	7.0	1.60							
	7.5	1.25							
کزی اروند <sub>(سهامی خاص)</sub>	ات ایهن مر	1.00 شر							
	Standard hook	for 50.5 ton							
ی و خدمات پس از فروش	Płock Weldhi	نماب 500 kg							
ی و خدمات پس از فروش تاچی سومیتومو در ایران	ثقيل هاي كاتومو هي	جر 12							
		(Unit: Metric to							
		(Unit: Metric							

#### NOTES:

- 1) The rated lifting capacities are the maximum load guaranteed on a firm level ground and include the weight of hook block and other lifting equipment. The capacities enclosed with bold lines are based on the structural strength of machine and the others are based on the stability of machine.
- 2) The working radii as given in the table are the actual values including the deflection of the boom. Therefore, operate the machine based on the working radius. However, the working radii shown for jib operations are based on the values obtained when the boom is fully extended (40m). Jib operations should be performed on the basis of boom angle only, regardless of boom length when the boom is not fully extended.
- 3) The rated lifting capacities for the rooster sheave are equivalent to the rated lifting capacities for the main boom to a maximum of 4000kg. At all times the weight of all lifting equipment in use (including main hook block suspended from boom head) forms part of the load and must be subtracted from the rated lifting capacity.
- 4) If the boom length exceeds the specified value, the rated lifting capacities for the boom length above and below the present boom length should be referred to, and the crane should be operated within the smaller lifting capacity.
- 5) When using the main boom with the jib installed, 2,000kg plus the weight of hook block and other lifting equipment, etc., should be subtracted from the rated lifting capacities. When performing the above operation, do not use the rooster sheave.
- 6) Critical boom angles for each boom length are shown on bottommost line of lifting capacity table. If the boom angle is lowered to less than the critical boom angle, the machine will tip over without load. Therefore, never lower the boom below these angles.
- 7) The standard number of parts of line is shown in the rated lifting capacity table. When the standard number of parts of line is not used, the minimum number of parts of line is determined so that weight per part will not exceed 4,000kg.
- 8) Over front lifting performance is inferior to over side and over rear lifting performance. Great care should be taken when transferring from over side to over front since there is a danger of overloading.
- 9) Free fall is adopted in principle to lower the hook only. If it is necessary to lower a load by free fall, its weight should be less than 20% of the rated lifting capacity and abrupt braking should not be allowed.

### **WORKING RANGE**



- 10) The rated lifting capacities do not account for wind on lifted load or boom. Do not operate this machine at wind speed of 10m/sec. or more.
- 11) The machine will tip over or be damaged if operated with a load exceeding that specified in the rated lifting capacity table or not conforming to correct handling. If such trouble occurs, the machine will not be guaranteed.



### **CRANE SPECIFICATIONS**

Name and Type; KATO NK-500E-v FULLY HYDRALIC TRUCK CRANE

#### Performance

Maximum rated lifting capacity:

50.5 metric tons × 3.0 m Boom length: 10.8m-40.0m (5 section) 9.2m-15.0m (2 section) Fly jib length:

Boom derricking angle: -2°-81°

Boom derricking time: 63sec. (-2°-81°) Boom extending time: 132sec. (10.8m - 40.0m)

Hoisting line speed

Main winch: 115m/min. (at 3rd layer) Auxiliary winch: 100m/min. (at 2nd layer)

Hoisting hook speed

Main winch (part of line; 12):

9.58m/min. (at 3rd layer)

Auxiliary winch (part of line; 1):

100m/min. (at 2nd layer)

Slewing speed: 2.4rpm

Crane cab: All steel welded construction

\*Speed: Subject to no load

Wire rope for hoisting

Main winch; Type: 4×F (40) (Non-rotating type)

> Diameter: 18mm

Length: 180m

Auxiliary winch;

Type: 4×F (40) (Non-rotating type)

Diameter: 18 mm Length: 120m

Hydraulic system

Oil pump: 4 section gear type Hoisting motor: Axial piston type Slewing motor: Axial piston type

Cylinder: Double acting type Control valve:

3 position 4 way double acting with

integral check and relief valves

Oil reservoir capacity: 650 lit.

Winch system

Main and auxiliary winches:

Driven by axial plunger type hoisting

motor through planetary gear reduction. Controlled independently by respective

operating lever.

Equipped with automatic brake.

With FREE FALL DEVICE

Safety devices

ACS (Automatic crane stopper) Boom falling prevention device Overhoist prevention device

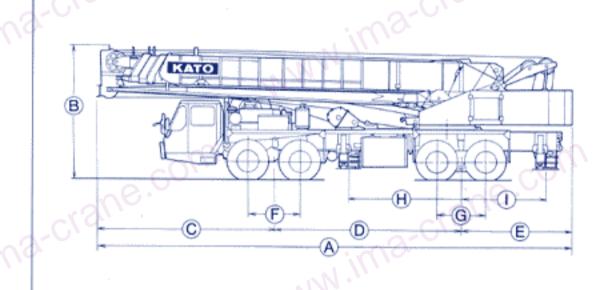
Drum lock device Drum turning indicator Automatic winch brake

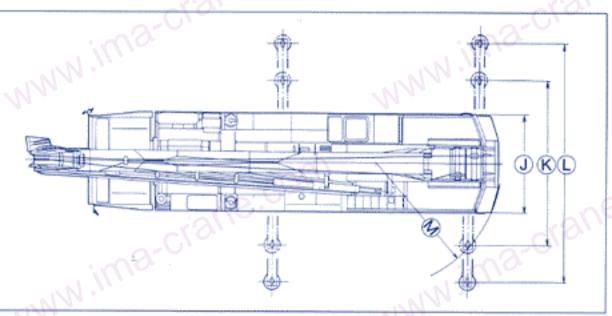
Irregular winding prevention device

Hydraulic safety valve Outrigger lock device

Optional equipment

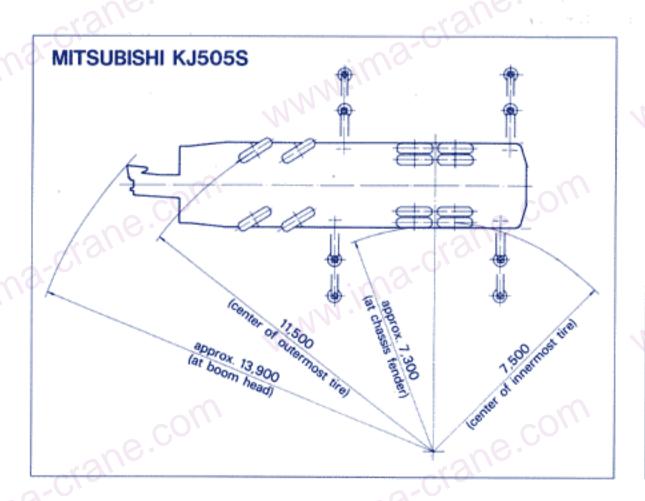
Cooler, heater, fan, radio for crane cabin, front jack

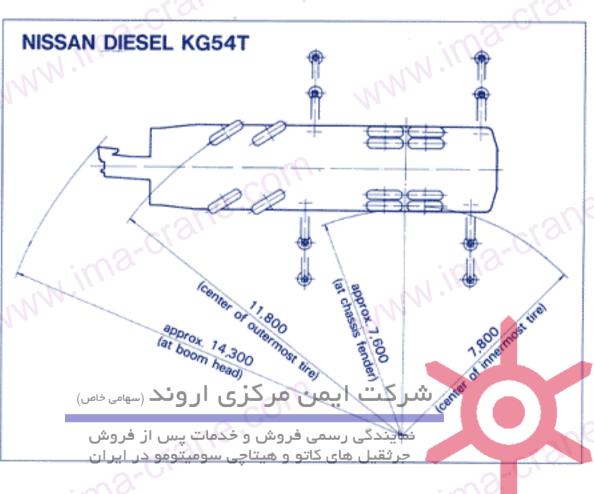




Carrier name Model	Α	В	С	D	E	F	G	Н	1.	J	K	L	М
MITSUBISHI KJ505S	13,300	3,800	4,990	5,250	3,060	1,450	1,350	3,150	2,450	2,750	4,850	7,200	3,520
NISSAN DIESEL KG54T	13,300	3,800	5,125	5,215	2,960	1,470	1,400	3,340	2,350	2,820	4,850	7,200	3,520

(Unit: mm)





### CARRIER SPECIFICATIONS

#### Carrier model MITSUBISHI KJ505S

Maximum travelling speed: 80km/h

28% (computed, @G.V.W. = 39,400kg) Gradeability  $(tan \theta)$ :

Minimum turning radius

(centre of extreme outer tire): 11.5m

General dimensions

Overall length: approx. 13,300mm Overall width: approx. 2,750mm approx. 3,800mm Overall height:

1,450mm + 3,850mm + 1,350mm = Wheel base:

6,650mm

2,240mm Front: Treads: Rear: 2,055mm

Centre to centre

of extended outriggers: 7,200mm (Fully extended)

4.850mm (Intermediatly extended)

Gross vehicle weight: approx. 39,400kg approx. 15,400kg Front: approx. 24,000kg

Rear: Carrier

Maker: Mitsubishi Model: KJ505S Drive system: 8×4

Engine:

Mitsubishi Maker: 8DC9-2A Model:

4 cycle, water cooled, diesel Type:

8-90° V No. of cylinder: Piston displacement: 16,031cc

Max.output horsepower: 300PS/2,200r.p.m. 220kW/2,200r.p.m. 105kg-m/1,400r.p.m. Max.output torque:

1,029N-m/1,400r.p.m. NOTO: The output is in accordance with JIS D1004, 1976.

Rated power output guaranteed within 5% at standard ambient

condition.

Single dry plate, hydraulic control with Clutch:

air booster

10 forward & 2 reverse speed, Transmission:

synchromesh and constantmesh gear

Front: Reverse "ELLIOT" type, Axles;

Full floating type Rear: Ball nut type with power booster

Steering:

Front: Semi-elliptic leaf springs Suspension;

Equalizer beams and torque rods Rear: 2 circuit air brake.

Brake; Service: 8 wheels internal expanding type

Spring loaded brake, acting on 4 rear Parking &

wheels, variable air operated Emergency:

Auxiliary: Exhaust brake

24V Electric system:

12V -- 145F51 × 2 Battery:

Fuel tank capacity: 300 lit.

All steel welded construction, Driver's cab:

2 person, low line type 12.00 - 20 - 18PR Tire size; Front: Rear (dual tire): 12.00 - 20 - 18PR

Carrier model NISSAN DIESEL KG54T

Maximum travelling speed: 71km/h

38% (computed, @G.V.W. = 39,000kg) Gradeability  $(tan \theta)$ :

Minimum turning radius

(centre of extreme outer tire): 11.0m

General dimensions

Overall length: approx. 13,300mm Overall width: approx. 2,820mm approx. 3,800mm Overall height:

1,470mm + 3,780mm + 1,400mm = Wheel base:

6,650mm 2,230mm Treads: Front:

2,110mm Rear:

Centre to centre

7,200mm (Fully extended) of extended outriggers:

4,850mm (Intermediatly extended)

approx. 39,000kg Gross vehicle weight:

approx. 15,000kg Front: approx. 24,000kg Rear:

Carrier

NISSAN DIESEL Maker: KG54T Model: Drive system: 8×4

Engine:

NISSAN DIESEL Maker:

Model: RE8

Type: 4 cycle, water cooled, diesel

8-V No. of cylinder: Piston displacement: 15,115cc

Max.output horsepower: 315PS/2,300r.p.m.

231kW/2,300r.p.m. 105kg-m/1,400r.p.m.

1,029N-m/1,400r.p.m. NOTO: The output is in accordance with JIS D1004, 1976.

Rated power output guaranteed within 5% at standard ambient

condition.

Max.output torque:

Clutch: Single dry plate, hydraulic control with

air booster

Transmission: 9 forward & 1 reverse speed,

constantmesh on each shift and synchromesh on range shift

Reverse "ELLIOT" type, Front: Axles;

Full floating type Rear:

Ball nut type with power booster Steering:

Semi-elliptic leaf springs Suspension; Front:

Equalizer beams and torque rods Rear:

2 circuit air brake, Brake; Service:

> 8 wheels internal expanding type Mectanical, internal expanding type Parking:

acting on drum at transmission case

rear

Auxiliary: Exhaust brake

Electric system: 24V

12V - 115F51 × 2 Battery: 300 lit.

Fuel tank capacity: Driver's cab: Steel, two men, semi under floor type,

one side cab

Tire size; Front: 12.00 - 20 - 18PR

Rear (dual tire): 12.00 - 20 - 18PR

NOTE: Illustrations may include optional equipment. KATO products and specifications are subject to improvements and changes without notice.







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