



**TADANO**

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TADANO HYDRAULIC TRUCK CRANE

MODEL : TG-500E

(CARRIER : KG54TXN)

# **SPECIFICATIONS**

**TADANO LTD.**

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MODEL : TG-500E  
(CARRIER : KG54TXN)

GENERAL DATA

<u>CRANE CAPACITY</u>		50,000 kg at 3.0 m
<u>BOOM</u>		5-section, 10.65 m - 40.0 m
<u>DIMENSIONS</u>		
Overall length	approx.	12,890 mm
Overall width	approx.	2,820 mm
Overall height	approx.	3,750 mm
<u>WEIGHTS</u>	(Including hook block—50ton, 4ton capacity)	
Gross vehicle weight	approx.	38,900 kg
front	approx.	14,900 kg
rear	approx.	24,000 kg
<u>PERFORMANCE</u>		
Max. travelling speed	computed	71 km/h
Gradeability( $\tan \theta$ )	computed	25 %

## CRANE SPECIFICATIONS

<u>MODEL</u>	TG-500E
<u>CAPACITY</u>	50,000 kg at 3.0 m
<u>BOOM</u>	5-section full length power dual-synchronized telescoping boom of hexagonal box construction with 6 sheaves at boom head. The synchronization system consists of three telescope cylinders, an extension cable and a retraction cable. Hydraulic cylinders fitted with holding valves. Fully retracted length.....10.65 m Fully extended length.....40.0 m Extension speed.....29.35 m in 120 s
<u>JIB</u>	2-staged. Triple offset (5°/25°/45°) type. Top section telescopes from base section which stores under base boom section. Single sheave at jib head. Length.....9.0 m and 14.6 m
<u>SINGLE TOP (AUXILIARY BOOM SHEAVE)</u>	Single sheave. Mounted to main boom head for single line work.
<u>ELEVATION</u>	By a double-acting hydraulic cylinder, fitted with holding valve. Elevation speed.....-3° to 80° in 63 s
<u>HOIST - Main winch</u>	2-speed type with grooved drum driven by hydraulic axial piston motor through planetary winch speed reducer. Power load lowering and hoisting. Equipped with automatic fail-safe brake with free-fall device by foot brake operation and counterbalance valve. Hoist lever is fitted with a high-speed switch. Controlled independently of auxiliary winch. Single line pull.....4,200 kg Single line speed High range.....100 m/min. (at the 3rd layer) Normal range.....45 m/min. (at the 3rd layer) Wire rope.....Spin-resistant type Diameter × length.....18 mm × 215 m
<u>HOOK BLOCK - 50 ton capacity</u>	6 sheaves, swivel type hook with safety latch.
<u>HOOK BLOCK - 20 ton capacity</u>	2 sheaves, swivel type hook with safety latch.

HOIST -  
Auxiliary winch

2-speed type with grooved drum driven by hydraulic axial piston motor through planetary winch speed reducer. Power load lowering and hoisting.

Equipped with automatic fail-safe brake with free-fall device by foot brake operation and counterbalance valve.

Hoist lever is fitted with a high-speed switch.

Controlled independently of main winch.

Single line pull..... 4,000 kg

Single line speed

High range..... 93 m/min. (at the 2nd layer)

Normal range..... 42 m/min. (at the 2nd layer)

Wire rope..... Spin-resistant type

Diameter × length..... 18 mm × 130 m

HOOK BLOCK -  
4 ton capacity

Swivel hook with safety latch for single line use.

SWING

Hydraulic axial piston motor driven through planetary swing speed reducer. Continuous 360° full circle swing on ball bearing slew ring. TADANO Twin Swing System enable to select power-controlled or free swing. Swing lever is fitted with a horn switch.

Equipped with hand-operated swing brake.

Swing speed..... 2.0 rpm

HYDRAULIC SYSTEM

Pumps..... Quadruple gear pumps driven by carrier engine through P.T.O.

Control valves..... Multiple valves actuated by hand levers with integral pressure relief valves.

Oil cooler..... Air cooled fan type.

Hydraulic oil tank capacity....

Approx. 675 liters

Filters..... Return line filter

CRANE CONTROL

By 5 control levers based on ISO standard layout.

CAB

Steel construction with sliding door access and safety glass windows opening at sides, rear and roof. Reclining seat with headrest is height-adjustable and back-and-forth adjustable.

Equipments

Engine start and stop switch

Accelerator lock button

Electric windshield wiper and electric sky-light wiper

SAFETY DEVICES

Boom angle indicator  
 Pendant type over-winding cutout  
 Winch automatic fail-safe brake  
 Winch drum lock  
 Hook safety latch  
 Pilot check valves  
 Holding valves  
 Counterbalance valves  
 Hydraulic pressure relief valves  
 Front jack overload alarm  
 Winch drum rotation indicator (option).

TADANO Automatic  
 Moment Limiter  
 (Model: AML-LC)

Main unit in crane cab gives audible and visual warning of approach to overload. Automatically cuts out crane motions before overload. With working range limit function. Seven functions are constantly displayed.  
 Digital liquid crystal display:  
   Boom angle  
   Either boom length or potential hook height  
   Actual working radius  
   Actual hook load  
   Permissible load  
   Either jib offset angle or jib length  
 Bar graphical display:  
   Either moment as percentage or main hydraulic pressure and accumulator pressure (Display changes by alternation key)

OUTRIGGERS

4 hydraulically operated outriggers. Each outrigger controlled simultaneously or independently from either side of carrier. Equipped with sight level gauges. Floats mounted integrally with the jacks retract to within vehicle width. All cylinders fitted with pilot check valves.  
   Extended width  
     Fully.....6,800 mm  
     Middle.....4,600 mm  
   Float size(Diameter).....400 mm

FRONT JACK

A fifth hydraulically operated outrigger jack. Mounted to the front frame of carrier to permit 360° lifting capabilities.  
 Hydraulic cylinder fitted with pilot check valve.  
   Float size(Diameter).....350 mm

COUNTERWEIGHT

Integral with swing frame.  
   Weight.....3,000 kg

STANDARD EQUIPMENT

Control pedals for telescoping and auxiliary winch.

NOTE : Each crane motion speed is based on unladen conditions.

## CARRIER SPECIFICATIONS

<u>MANUFACTURER</u>	NISSAN DIESEL MOTOR CO., LTD.
<u>MODEL</u>	KG54TXN.....Right hand steering, 8× 4
<u>ENGINE</u>	Model.....NISSAN RE8 Type.....4 cycle, 8 cylinder in 90° V, direct injection, water cooled diesel engine. Piston displacement.....15,115 cc Bore × Stroke.....135 mm × 132 mm Max. output (JIS).....315 PS at 2,300 rpm Max. torque (JIS).....105 kgm at 1,400 rpm
<u>CLUTCH</u>	Dry single plate, hydraulically operated clutch release mechanism with air assisted booster.
<u>TRANSMISSION</u>	6 forward and 1 reverse speeds, synchromesh on 2nd-6th gears, and constant-mesh on 1st and reverse gears.
<u>AXLES</u>	Front.....Reverse-elliot type, I-beam. Rear .....Full floating type.
<u>STEERING</u>	Recirculating ball screw type with linkage power assistance.
<u>SUSPENSION</u>	Front.....Semi-elliptic leaf springs. Rear .....Equalizer beams and torque rods.
<u>BRAKE SYSTEM</u>	Service.....Full air brake on all wheels, dual air line system, internal expanding leading and trailing shoe type. Parking.....Mechanically operated by hand brake lever. Internal expanding duo-servo shoe type acting on drum at transmission case rear. Auxiliary...Electro-pneumatic operated exhaust brake.
<u>ELECTRIC SYSTEM</u>	24 V DC. 2 batteries of 12 V- 120 Ah capacity.
<u>FUEL TANK CAPACITY</u>	300 liters
<u>CAB</u>	Steel construction, one sided 2-man type.
<u>STANDARD EQUIPMENTS</u>	Cab heater      Speedometer AM radio        Tachometer Sun visor       P. T. O. hourmeter
<u>TIRES</u>	Front.....12.00-20-18PR, Single × 4 Rear.....12.00-20-18PR, Dual × 4 Spare.....12.00-20-18PR, × 1
<u>TURN RADIUS</u>	Min. turning radius(at center of extreme outer tire) .....11.0 m

TOTAL RATED LOADS

Unit:kg

Outriggers fully extended							
Front jack extended ( 360° )							
Front jack not extended (Over sides and rear)							
B \ A	10.65 m	14.0 m	18.0 m	21.6 m	25.3 m	32.7 m	40.0 m
3.0 m	50,000	33,000	28,000	24,000			
3.5 m	43,000	33,000	28,000	24,000			
4.0 m	38,000	33,000	28,000	24,000	20,000		
4.5 m	34,000	30,500	28,000	24,000	20,000		
5.0 m	30,200	29,000	28,000	24,000	20,000		
5.5 m	27,500	26,500	25,600	23,200	20,000	14,000	
6.0 m	25,000	24,000	23,500	21,500	20,000	14,000	
6.5 m	22,700	22,300	21,800	19,900	18,600	14,000	8,000
7.0 m	20,700	20,300	20,000	18,400	17,300	13,500	8,000
7.5 m	18,900	18,600	18,500	17,100	16,200	13,000	8,000
8.0 m	17,400	17,100	17,000	15,900	15,300	12,500	8,000
9.0 m	14,200	14,100	14,100	13,600	13,600	11,300	8,000
10.0 m		11,500	11,500	11,450	11,400	10,300	7,500
11.0 m		9,450	9,450	9,400	9,400	9,400	6,950
12.0 m		7,850	7,850	7,850	7,850	8,600	6,450
14.0m			5,650	5,650	5,650	6,450	5,600
16.0 m			4,100	4,100	4,050	4,900	4,850
18.0 m				2,900	2,900	3,750	4,250
20.0 m				1,900	1,900	2,850	3,400
22.0 m					1,200	2,100	2,650
24.0 m						1,500	2,050
26.0 m						1,000	1,550
28.0 m						550	1,150
30.0 m							800
32.0 m							500

Unit:kg

Outriggers fully extended						
Front jack extended ( 360° )						
Front jack not extended (Over sides and rear)						
E \ D \ C	9.0 m			14.6 m		
	5°	25°	45°	5°	25°	45°
80°	3,500	2,200	1,200	2,500	1,200	600
79°	3,500	2,200	1,200	2,500	1,200	600
78°	3,500	2,200	1,200	2,500	1,200	600
77°	3,320	2,140	1,190	2,350	1,170	590
76°	3,130	2,080	1,180	2,220	1,140	590
75°	2,970	2,020	1,170	2,100	1,120	580
73°	2,680	1,910	1,150	1,890	1,070	570
70°	2,330	1,740	1,110	1,640	1,000	560
68°	2,150	1,640	1,090	1,500	950	540
65°	1,910	1,490	1,070	1,330	910	530
63°	1,780	1,390	1,030	1,220	850	510
60°	1,600	1,260	1,000	1,080	800	500
58°	1,300	1,190	980	1,000	770	490
55°	900	850	800	700	600	470
53°	700	650	600	550	450	400
50°	400					

- A : Boom length
- B : Working radius
- C : Jib length
- D : Jib offset
- E : Boom angle

TOTAL RATED LOADS

Unit:kg

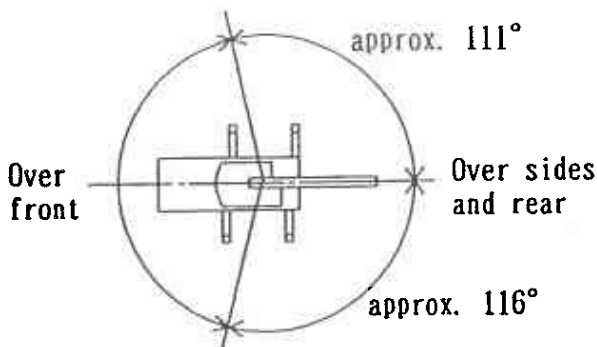
Outriggers fully extended (Over front) Outriggers extended to middle (360°)								Without outriggers (Over- rear)
A \ B	10.65m	14.0 m	18.0 m	21.6 m	25.3 m	32.7 m	40.0 m	10.65 m
3.0 m	40,000	33,000	28,000	24,000				8,000
3.5 m	34,000	31,000	28,000	24,000				6,400
4.0 m	28,600	28,300	28,000	24,000	20,000			5,100
4.5 m	28,000	27,900	27,800	24,000	20,000			4,200
5.0 m	22,100	22,100	22,100	22,000	20,000			3,400
5.5 m	17,500	17,500	17,500	17,400	17,300	14,000		2,800
6.0 m	14,300	14,300	14,200	14,200	14,200	14,000		2,300
6.5 m	11,900	11,900	11,900	11,800	11,800	13,000	8,000	1,900
7.0 m	10,000	10,000	10,000	10,000	10,000	11,100	8,000	1,600
7.5 m	8,600	8,600	8,600	8,600	8,550	9,600	8,000	1,250
8.0 m	7,400	7,400	7,400	7,400	7,350	8,400	8,000	1,000
9.0 m	5,500	5,500	5,500	5,500	5,500	6,550	7,150	
10.0 m		4,300	4,300	4,300	4,300	5,200	5,700	
11.0 m		3,300	3,300	3,300	3,250	4,150	4,700	
12.0 m		2,400	2,400	2,400	2,400	3,350	3,900	
14.0 m						2,100	2,650	
16.0 m							1,750	

Unit:kg

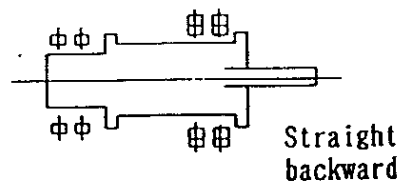
Outriggers fully extended (Over front) Outriggers extended to middle (360°)						
B \ D \ C	9.0 m			14.6 m		
	5°	25°	45°	5°	25°	45°
80°	3,500	2,200	1,200	2,500	1,200	600
79°	3,500	2,200	1,200	2,500	1,200	600
78°	3,500	2,200	1,200	2,500	1,200	600
77°	3,320	2,140	1,190	2,350	1,170	590
76°	3,130	2,080	1,180	2,220	1,140	590
75°	2,970	2,020	1,170	2,100	1,120	
73°	2,060					

- A : Boom length
- B : Working radius
- C : Jib length
- D : Jib offset
- E : Boom angle

WORKING AREA



WITHOUT OUTRIGGERS





## NOTES

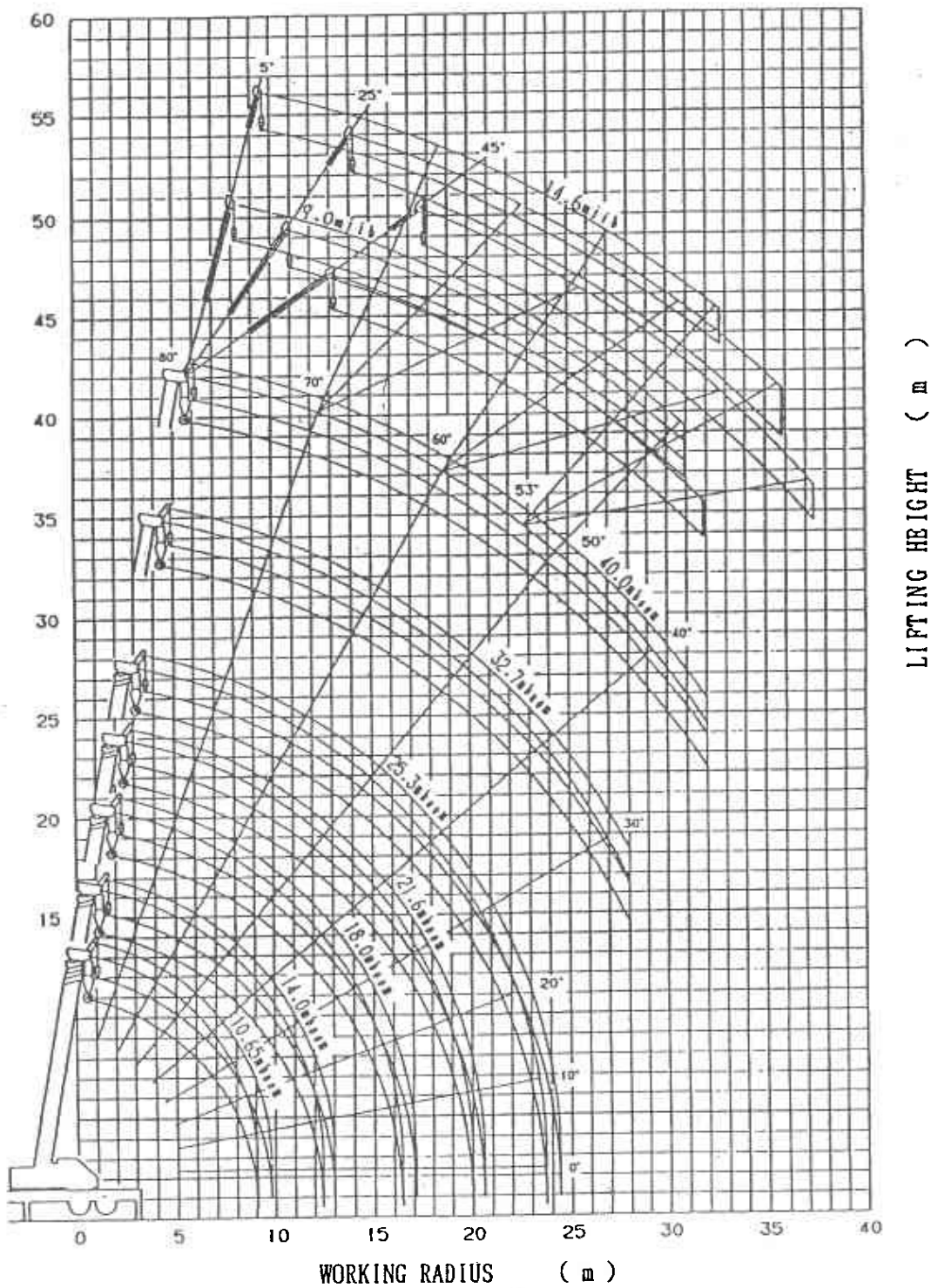
1. Total rated loads shown in the table are based on condition that the crane is set on firm ground horizontally. Those above bold lines are based on crane strength and those below, on its stability.
2. Total rated loads below bold lines do not exceed 75% of tipping load.
3. Each total rated loads includes weight of the hooks (460 kg for 50-ton capacity, 280 kg for 20 ton capacity, 100 kg for 4 ton capacity) and slings.
4. Without front jack extended, when the boom is within the Over-front, total rated loads are different from those for the boom in the Over-side and Over-rear.
5. Total rated loads for "without outriggers" are based on the best condition of tire air pressure and ground surface.
6. Standard number of part lines for each boom length is as shown below. Load per line should not surpass 4,200 kg for main winch and 4,000 kg for auxiliary winch.

Boom length	10.65m	14.0 m	18.0 m	21.6 m	25.3 m	32.7 m	40.0 m
No. of part lines	12	8	7	6	5	4	4

Jib/Single Top
1

7. For total rated load of single top, reduce the main hook weight from the relevant boom total rated load. Total rated load of single top should not exceed 4,000 kg.
8. Free-fall operation should be performed without any load on the hook.

WORKING RADIUS - LIFTING HEIGHT



NOTE: The above lifting heights and boom angles are based on a straight (unladen) boom, and allowance should be made for boom deflection obtained under laden conditions.