



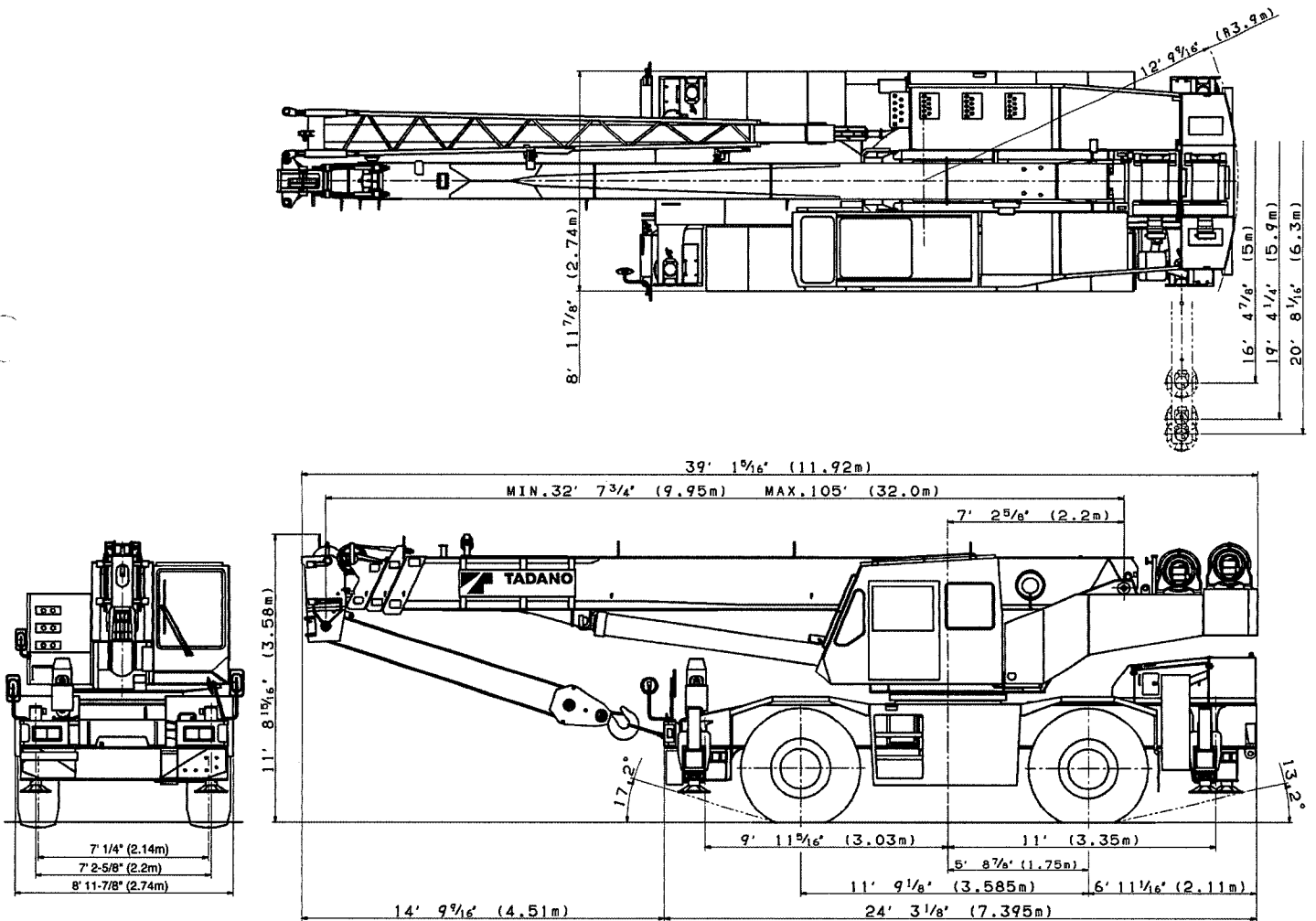
# TADANO

## TR-350XL-3

### 35 Ton Capacity (31.7 Metric Tons)

## HYDRAULIC ROUGH TERRAIN CRANE

### DIMENSIONS



### GENERAL DIMENSIONS (20.5 x 25 Tires)

	Feet	Meters
Turning radius:		
4 wheel steer	21'	6.4
2 wheel steer	36' 5"	11.1
Tail swing of counterweight	12' 9-9/16"	3.9

Sims Crane & Equipment Co.  
1219 Hwy 301 North  
Tampa, FL 33619  
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# CRANE SPECIFICATIONS

## BOOM

Four section full power partially synchronized telescoping boom, 32.6'~105' (9.95m~32m), of box construction with five sheaves, 12-5/8" (0.32m) root diameter, at boom head.

The synchronization system consists of two telescope cylinders, extension cable and retraction cable. Hydraulic cylinders fitted with holding valves. Two easily removable wire rope guards, rope dead end provided on right side of boom head. Boom telescope sections are supported by wear pads both vertically and horizontally.

**BOOM ELEVATION** - By a double acting hydraulic cylinder with holding valve. Elevation 0°~80°, combination controls for hand or foot operation. Boom angle indicator.

**JIB** - Box top section telescopes from lattice type base section which stores alongside base boom section. 5°, 25° or 45° offset (tilt type). Single sheave, 13-7/8" (0.352m) root diameter, at jib head. Jib length is 23.6' (7.2m) or 42' (12.8m). Self stowing jib mounting pins.

**AUXILIARY LIFTING SHEAVE (SINGLE TOP)** - Single sheave, 12-5/8" (0.32m) root diameter. Mounted to main boom head for single line work (stowable).

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

## SWING

Hydraulic axial piston motor driven through planetary swing speed reducer. Continuous 360° full circle swing on ball bearing turntable at 2.6rpm. Equipped with manually locked/released swing brake. A swing lock (360° positive swing lock) for pick and carry and travel modes, manually engaged in cab. Twin swing System: Free swing or lock swing controlled by selector switch on right hand console.

## HOIST

**MAIN HOIST** - Variable speed type with grooved drum driven by hydraulic axial piston motor through planetary winch 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 12-5/8" (0.32m) root diameter x 19-1/16" (0.4845m) wide. Wire rope: 640' of 5/8" diameter rope (195m of 16mm). Drum capacity: 734' (223.6m) 6 layers. Maximum line pull (permissible): 9,755lbs. (4,425kg)\*. Maximum line speed: 459FPM (140m/min).

**AUXILIARY HOIST** - Variable speed type with grooved drum by hydraulic axial piston motor through planetary winch 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 12-5/8" (0.32m) root diameter x 19-1/16" (0.4845m) wide. Wire rope: 328' of 5/8" diameter rope (100m of 16mm). Drum capacity: 734' (223.6m) 6 layers. Maximum line pull (permissible): 9,755lbs. (4,425kg)\*. Maximum line speed: 459FPM (140m/min).

\* Maximum permissible line pull may be affected by wire rope Strength.

**WIRE ROPE** - Warrington seal wire, extra improved plow steel, Preformed, independent wire rope core, right regular lay. 5/8" (16 mm) 6X37 class

## HOOK BLOCKS

1. 35 ton (31.7 metric ton) - 5 sheaves with swivel hook and safety latch, for 5/8" (16mm) wire rope.
2. 4.4 ton (4.0 metric ton) - Weighted hook with swivel and safety latch, for 5/8" (16mm) wire rope.

## 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 hand levers with integral pressure relief valves.

**RESERVOIR** - 139 gallon (527 lit.) capacity. External sight level gauge.

**FILTRATION** - 26 micron 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.

Left side, 1 man type, steel construction with sliding door access and safety glass windows opening at side, rear and roof. Windshield glass window is shatter-resistant. Tilt-telescoping steering wheel. Adjustable control levers for swing, boom hoist, boom telescoping, auxiliary hoist and main hoist. Control levers for swing and auxiliary hoist can change neutral positions and tilt for easy access to cab. Engine throttle knob. Foot operated controls: boom hoist, boom telescoping, service brake and engine throttle.

Dash-mounted engine start/stop, monitor lamps, cigarette lighter, parking brake switch, steering mode select switch, pump engaged/disengaged switch, swing brake switch, and telescoping correction switches.

Instruments - Torque converter oil temperature, engine water temperature, air pressure, fuel, speedometer, tachometer and hour meter. Torque converter oil pressure and hydraulic oil pressure are monitored and displayed on the AML-L display panel.

Tadano electronic LOAD MOMENT INDICATOR system (AML-L) including:

- Control lever lockout function
- Load radius and/or boom angle preset function (warning only)
- Warning buzzer
- Boom angle/boom length/jib offset angle/load radius/rated lifting capacities/actual loads read out
- Ratio of actual load moment to rated load moment indication
- Working condition register switch
- External warning lamp

TADANO AML-L monitors outrigger extended length and automatically programs the corresponding "RATED LIFTING CAPACITIES" table.

Operator's right hand console includes transmission gear selector, outrigger controls, sight level bubble, drive selector switch, swing free-lock selector switch, working light switch and ashtray. Swing lock lever and 4 way adjustable seat with high back and seat belt. Roof window lock (closed) warning.

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, 4x2 front drive, 4x4 front and rear 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. 6 forward and 2 reverse speeds, constant mesh.

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

**TRAVEL SPEED** - 29.3 mph (47 km/h)

**AXLE** - Front: Full floating type, steering and driving axle with planetary reduction. Rear: Full floating type, steering and driving axle with planetary reduction and non-spin rear differential.

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

**SUSPENSION** - Front: Semi-elliptic leaf springs with hydraulic lockout device. Rear: Semi-elliptic leaf springs with hydraulic lockout device.

**BRAKE SYSTEMS** - Service: Air over hydraulic disc brakes on all 4 wheels. Parking/Emergency: Spring applied-air released brake acting on input shaft of front axle. Auxiliary: Electro-pneumatic operated exhaust brake.

**TIRES** - 20.5-25-24PR(OR)

**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 20' 8-1/16" (6.3 m) center-line and retract to to within 8' 6-3/8" (2.6 m) overall width with floats. Outrigger jack floats are attached thus eliminating the need of manually attaching and detaching them. Controls and sight bubble located in upper structure cab. Three outrigger extension lengths are provided with corresponding "RATED LIFTING CAPACITIES" for crane duty in confined areas.

- Mid. Extension 16' 4-7/8" center to center
- Mid. Extension 19' 4-1/4" center to center
- Max. extension 20' 8-1/16" center to center

### ENGINE

Model	Mitsubishi 6D16-TLEA
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 (7.545)
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)	10.6 CFM (301) at 2,000rpm
Horsepower, (kW)	Gross 247 (184) at 2,800rpm
Torque, Max. ft-lb (kgm)	521 (72) at 1,400rpm
Capacity, gal. (liters)	
Cooling water	3.4 (13)
Lubrication	3.7 ~ 4.2 (14 ~ 16)
Fuel	79.2 (300)

# STANDARD EQUIPMENT

- Four section full power partially synchronized boom 32.6'~105' (9.95 m~32 m)
- Two stage stowable telescoping jib 23.6' (7.2 m) or 42 (12.8m)' with 5°, 25° or 45° pinned offset (tilt type) with self storing pins.
- Auxiliary lifting sheave (single top) stowable
- Boom hoist foot control
- Boom telescoping foot control
- Boom angle indicator
- Variable speed main hoist with grooved drum, cable follower and 640' of 5/8" cable.
- Variable speed Auxiliary hoist with grooved drum, cable follower and 328' of 5/8" cable.
- Drum rotation indicator (thumper type) main and auxiliary hoist
- Tadano twin swing system
- 360° positive swing lock
- 4 X 4 X 4 drive/steer
- Disc brakes
- Hydraulic lockout suspension
- Non-spin rear differential
- 20.5-25-24PR (OR) tires
- Independently controlled outriggers
- Three outrigger extension positions
- Self-storing outrigger pads
- Outrigger extension length detector
- Outrigger hose protection
- Mitsubishi 6D16-TLEA turbo charged after cooled engine (247HP) with exhaust brake
- Electronic controlled automatic transmission driven by torque converter
- Engine over-run alarm
- Complete highway light package
- Anti-Two block device (overwind cutout)
- Electronic crane monitoring system
- Tadano electronic load moment indicator system (AML-L) including
  - Control lever lockout function
  - Working radius and/or boom angle and/or tip height preset function (warning only)
  - Warning buzzer
  - Boom angle / boom length / jib offset angle / working radius / rated loads / actual loads read out

- Ratio of actual load moment to rated load moment indication
- Working condition register switch
- External warning lamp
- Tinted safety glass
- Front windshield wiper and washer
- Roof window wiper and washer
- Roof window lock warning
- Rear view mirrors (right and left side)
- Mirror for main and auxiliary hoists
- 3 way adjustable seat with high back and seat belt
- Tilt-telescoping steering wheel
- Neutral position adjustable control lever (swing and aux. hoist)
- Cab floor mat
- Cigarette lighter
- Electric fan in cab
- Back-up alarm
- Low oil pressure/high water temp. warning device (visual)
- Rear steer centering light
- Fenders
- Air cleaner dust indicator
- Towing hooks-Front and rear
- Lifting eyes
- Tool storage compartment
- Full instrumentation package
- Pump disconnect in operator's cab
- Air dryer
- Water separator with filter
- Flood lights and work lights
- Tire inflation kit
- Hydraulic oil cooler
- 24 volt electric system
- 35 ton (31.7 metric ton) 5 sheave hook block
- 4.4 ton (4.0 metric ton) hook with swivel
- Hook block tie down (front bumper)
- Weighted hook storage compartment

# HOISTING SPECIFICATIONS

## LINE SPEEDS AND PULLS

Layer	Speed	Main or auxiliary hoist - 15'-3/4" (0.4m) drum					
		Line speeds <sup>2</sup>		Line pulls			
		F.P.M	m/min	Available <sup>3</sup>		Permissible <sup>4</sup>	
				Lbs.	kgf	Lbs.	kgf
1st	High	311	95	13,170	5,974	10,525	4,774
2nd	High	340	104	12,024	5,454	9,610	4,359
3rd	High	370	113	11,063	5,018	8,840	4,010
4th	High	399	122	10,243	4,646	8,186	3,713
5th	High	429	131	9,537	4,326	7,621	3,457
6th <sup>3</sup>	High	459	140	8,922	4,047	7,130	3,234

<sup>1</sup> Developed by machinery with first layer of wire rope, but not based on rope strength or other limitation in machinery or equipment.

<sup>2</sup> Line speeds based only on hook block, not loaded.

<sup>3</sup> Sixth layer of wire rope is not recommended for hoisting operations.

<sup>4</sup> Permissible line pull may be affected by wire rope strength.

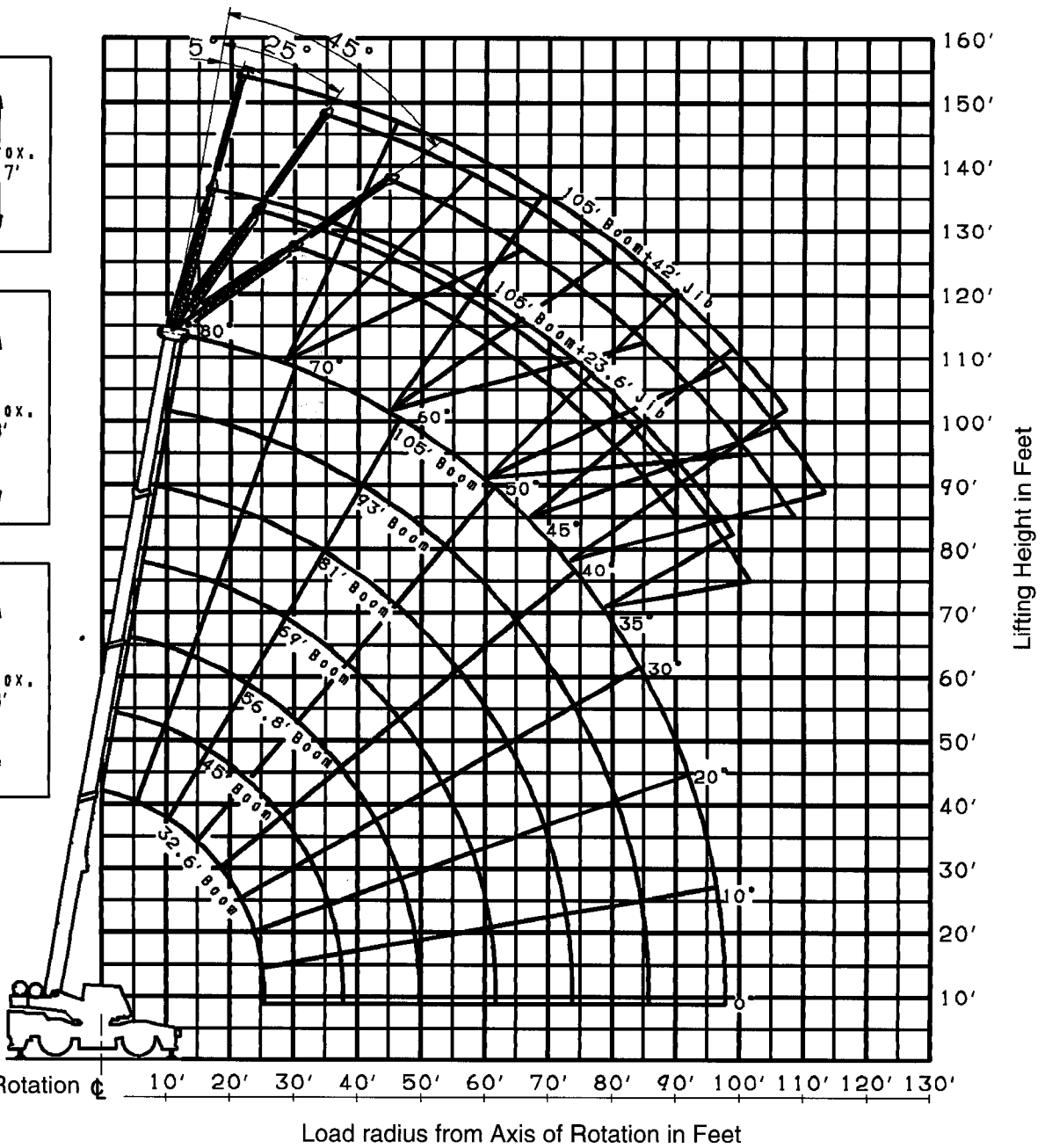
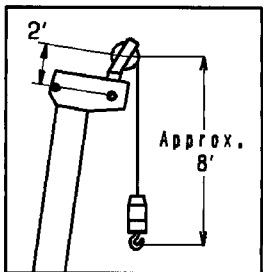
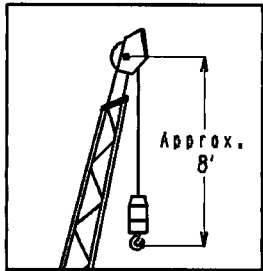
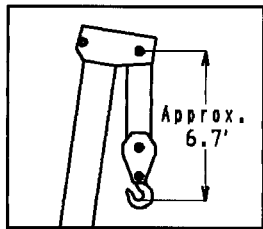
## DRUM WIRE ROPE CAPACITIES

Wire rope layer	Main and auxiliary drum grooved lagging			
	5/8" (16mm) wire rope			
	Rope per layer		Total wire rope	
	Feet	Meters	Feet	Meters
1	98.8	30.1	98.8	30.1
2	107.9	32.9	206.7	63.0
3	117.5	35.8	324.1	98.8
4	127.0	38.7	451.1	137.5
5	136.5	41.6	587.6	179.1
6	146.0	44.5	733.6	223.6

## DRUM DIMENSIONS

	Inch	mm
Root diameter	12-5/8"	320
Length	19-1/16"	484.5
Flange diameter	20-7/8"	530

# TR-350XL-3 WORKING RANGE CHART



**NOTE:** 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.

# TR-350XL-3 RATED LIFTING CAPACITIES (IN POUNDS)

ON OUTRIGGERS FULLY EXTENDED 360° ROTATION																					
A	32.6'	45'	56.8'	69'	81'	93'	105'	Boom Angle in Degree	105' (32.0m) Boom + 23.6' (7.2m) Jib						105' (32.0m) Boom + 42' (12.8m) Jib						
B	(9.95m)	(13.7m)	(17.3m)	(21.0m)	(24.7m)	(28.3m)	(32.0m)		5° offset		25° offset		45° offset		5° offset		25° offset		45° offset		
									R	W	R	W	R	W	R	W	R	W	R	W	
10'	70,000	60,000	46,000	37,600				80°	19.7	6,600	26.4	4,400	31.9	3,300	26.0	4,400	38.3	2,200	46.3	1,500	
12'	56,500	52,000	46,000	37,600	31,800			75°	31.6	6,600	37.8	4,400	42.6	3,300	39.8	4,400	51.2	2,200	57.9	1,500	
15'	46,500	45,300	42,500	37,600	31,800	22,400		70°	43.2	6,500	48.6	4,400	52.7	3,300	52.7	3,700	63.2	2,200	68.9	1,500	
20'	36,000	36,000	35,000	30,800	29,200	22,400	15,850	65°	53.7	5,200	58.9	3,900	62.4	3,300	64.8	3,150	74.5	2,000	79.0	1,500	
25'	26,500	28,400	28,400	26,300	24,400	22,400	15,850	60°	63.6	4,300	68.4	3,400	71.3	3,050	76.1	2,700	85.2	1,900	88.7	1,450	
30'		21,700	21,200	22,300	20,700	18,900	15,850	55°	72.8	3,650	77.4	3,000	79.6	2,750	86.6	2,300	94.9	1,750	98.0	1,400	
35'		16,000	15,600	17,000	17,400	16,400	14,000	50°	81.3	2,700	85.5	2,700	87.1	2,500	96.8	2,000	104.0	1,600	105.0	1,350	
40'			11,700	13,000	13,700	14,100	12,400	45°	89.1	2,000	92.8	1,900	93.8	1,850	105.0	1,550	112.0	1,450	112.0	1,300	
45'			8,900	10,200	10,700	11,500	11,100	40°	96.2	1,300	99.3	1,250			113.0	1,050	119.0	1,000			
50'				8,000	8,500	9,200	9,700	35°	103.0	850	105.0	800									
55'				6,500	6,900	7,500	7,950														
60'				5,200	5,500	6,100	6,500														
65'					4,500	5,000	5,350														
70'					3,600	4,100	4,400														
75'						3,300	3,600														
80'						2,600	2,850														
85'						2,100	2,350														
90'							1,870														
95'							1,350														
C				0°																	

A: Boom length in feet  
 B: Load radius in feet  
 C: Minimum boom angle (deg.) for indicated length (no load)  
 R: Load radius in feet  
 W: Rated lifting capacity in pounds

ON OUTRIGGERS MID. EXTENDED 19' 4-1/4" (5.9m) SPREAD 360° ROTATION																					
A	32.6'	45'	56.8'	69'	81'	93'	105'	Boom Angle in Degree	105' (32.0m) Boom + 23.6' (7.2m) Jib						105' (32.0m) Boom + 42' (12.8m) Jib						
B	(9.95m)	(13.7m)	(17.3m)	(21.0m)	(24.7m)	(28.3m)	(32.0m)		5° offset		25° offset		45° offset		5° offset		25° offset		45° offset		
									R	W	R	W	R	W	R	W	R	W	R	W	
10'	70,000	60,000	46,000	37,600				80°	19.7	6,600	26.4	4,400	31.9	3,300	26.0	4,400	38.3	2,200	46.3	1,500	
12'	56,500	52,000	46,000	37,600	31,800			75°	31.6	6,600	37.8	4,400	42.6	3,300	39.8	4,400	51.2	2,200	57.9	1,500	
15'	46,500	45,300	42,500	37,600	31,800	22,400		70°	43.2	6,500	48.6	4,400	52.7	3,300	52.7	3,700	63.2	2,200	68.9	1,500	
20'	36,000	36,000	35,000	30,800	29,200	22,400	15,850	65°	53.7	5,200	58.9	3,900	62.4	3,300	64.8	3,150	74.5	2,000	79.0	1,500	
25'	25,300	25,900	25,700	26,300	24,400	22,400	15,850	60°	63.6	4,300	68.4	3,400	71.3	3,050	76.1	2,700	85.2	1,900	88.7	1,450	
30'		18,000	17,900	19,000	19,500	18,900	15,850	55°	72.8	3,000	77.2	2,700	79.4	2,450	86.6	2,300	94.9	1,750	98.0	1,400	
35'		12,800	12,800	13,900	14,500	15,400	14,000	50°	81.0	1,800	85.0	1,650	86.7	1,600	96.1	1,400	104.0	1,350	105.0	1,100	
40'			9,400	10,700	11,300	12,100	12,400	45°	88.7	900	92.3	850	93.2	850							
45'			7,000	8,300	8,700	9,500	9,800	40°													
50'				6,400	6,800	7,500	7,900	35°													
55'				4,900	5,500	6,000	6,300														
60'				3,800	4,300	4,700	5,100														
65'					3,400	3,900	4,100														
70'					2,700	3,000	3,300														
75'						2,400	2,600														
80'						1,900	2,000														
85'							1,500														
90'																					
95'																					
C				0°			23°														

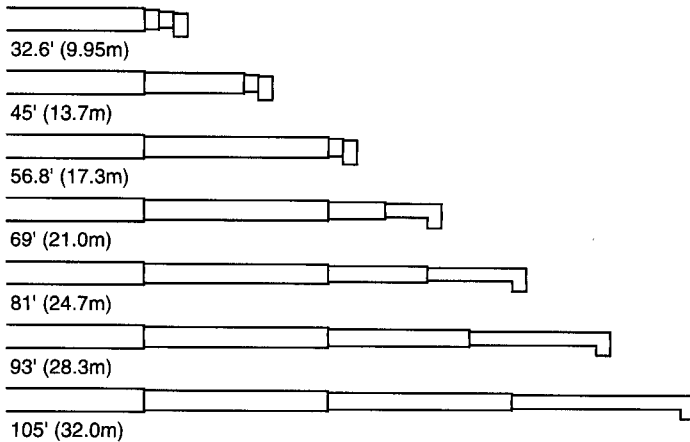
A: Boom length in feet  
 B: Load radius in feet  
 C: Minimum boom angle (deg.) for indicated length (no load)  
 R: Load radius in feet  
 W: Rated lifting capacity in pounds

# TR-350XL-3 RATED LIFTING CAPACITIES (IN POUNDS)

ON OUTRIGGERS MID. EXTENDED 16' 4-7/8" (5.0m) SPREAD																					
360° ROTATION																					
A B	32.6'	45'	56.8'	69'	81'	93'	105'	Boom Angle in Degree	105' (32.0m) Boom + 23.6' (7.2m) Jib						105' (32.0m) Boom + 42' (12.8m) Jib						
	(9.95m)	(13.7m)	(17.3m)	(21.0m)	(24.7m)	(28.3m)	(32.0m)		5° offset		25° offset		45° offset		5° offset		25° offset		45° offset		
	R	W	R	W	R	W	R	W	R	W	R	W	R	W	R	W	R	W	R	W	
10'	70,000	60,000	46,000	37,600																	
12'	56,500	52,000	46,000	37,600	31,800																
15'	46,500	45,300	42,500	37,600	31,800	22,400			80°	19.7	6,600	26.4	4,400	31.9	3,300	26.0	4,400	38.3	2,200	46.3	1,500
20'	31,200	30,400	30,000	30,800	29,200	22,400	15,850		75°	31.6	6,600	37.8	4,400	42.6	3,300	39.8	4,400	51.2	2,200	57.9	1,500
25'	19,800	19,500	19,400	20,700	21,300	22,400	15,850		70°	43.2	6,500	48.6	4,400	52.7	3,300	52.7	3,700	63.2	2,200	68.9	1,500
30'		13,600	13,400	14,500	15,100	15,800	15,850		65°	53.3	4,600	58.9	3,900	62.4	3,300	64.8	3,150	74.5	2,000	79.0	1,500
35'		9,700	9,500	10,800	11,100	11,900	12,100		60°	63.0	2,900	68.0	2,550	71.1	2,400	75.6	2,300	85.2	1,900	88.7	1,450
40'			6,900	7,800	8,400	9,000	9,400		55°	71.9	1,600	76.8	1,450	79.2	1,400	85.9	1,300	94.3	1,050	97.0	1,000
45'			4,900	5,800	6,400	6,900	7,300		50°	80.5	850										
50'				4,400	5,000	5,300	5,700		45°												
55'				3,200	3,600	4,200	4,500		40°												
60'				2,300	2,700	3,200	3,600		35°												
65'					2,100	2,400	2,700														
70'						1,700	2,000														
75'							1,500														
80'																					
85'																					
90'																					
95'																					
C			0°						26°												35°

- A: Boom length in feet
- B: Load radius in feet
- C: Minimum boom angle (deg.) for indicated length (no load)
- R: Load radius in feet
- W: Rated lifting capacity in pounds

## Boom length in feet



NOTE: Load radiuses for jib operation are given for reference with the boom fully extended to 105' (32m).

3,300 lbs. (1,500 kg) shall be subtracted from the rated lifting capacity of main boom, when jib is attached to main boom head.  
 Jib weight is 1,300 lbs. (590 kg).

standard number of parts of line for outrigger operation should be according to the following table.

Boom Length in feet (meters)	32.6' to 45' (9.95 to 13.7)	45' to 56.8' (13.7 to 17.3)	56.8' to 81' (17.3 to 24.7)	81' to 105' (24.7 to 32.0)	single top jib
No. of parts of line	10	8	6	4	1

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

maximum lifting capacity is restricted by the number of parts of line of LOAD MOMENT INDICATOR (AML-L).

# 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. Construction equipment 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 machine. 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.
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 7,000 lbs. (3,200kg) for main winch and 6,600 lbs. (3,000kg) for auxiliary winch.
12. Check the actual number of parts of line with LOAD MOMENT INDICATOR (AML-L) before operation. Maximum lifting capacity is restricted by the number of parts of line of LOAD MOMENT INDICATOR (AML-L). Limited capacity is as determined from the formula, Single line pull for main winch (7,000 lbs.) x number of parts of line.
13. The boom angle before loading should be greater to account for deflection.

## SET UP

1. Rated lifting capacities on the load chart are the maximum allowable crane capacities. They are based on the machine standing level on a 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 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 by this formula, Rated Lifting Capacities  $= (\text{Tipping Load} \div 0.1 \times \text{Tip Reaction}) / 1.25$ .
3. Rated lifting capacities above bold 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 load handling device such as main hook block (770 lbs. for 35 ton capacity), auxiliary hook block (220 lbs. for 4.4 ton capacity), 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.
6. Rated lifting capacities do not account for the effect of wind on a lifted load or boom. Rated lifting capacities and boom length shall be appropriately reduced, when wind velocity exceeds 20 mph (9 m/sec.).
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.
14. The 32.6' (9.95m) boom length capacities are based on boom fully retracted. If not fully retracted [less than 45' (13.7m) boom length], use the rated lifting capacities for the 45' (13.7m) boom length.
15. 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, reduce the rated lifting capacities of relevant boom by 750 lbs. (340kg). Capacities of single top shall not exceed 6,600 lbs. (3,000kg) including main hook.
17. When erecting and stowing jib, be sure to retain it by hand or by other means to prevent its free movement.
18. 3,300 lbs. (1,500 kg) shall be subtracted from the rated lifting capacities of the main boom, when jib is attached to main boom head. Jib mass is 1,300 lbs. (590 kg).
19. Use Anti-two block (OVERWIND CUTOFF) 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 boom length with 23.6' (7.2 m) or 42' (12.8 m) jib, rated lifting capacities are determined by boom length and loaded boom angle. For angles not shown, use the next lower loaded boom angle to determine allowable capacity. When boom length is between values listed, refer to the rated lifting capacities of next longer boom for the same angle. However, as for the capacity of 32.6' (9.95 m) boom and 45' (13.7 m) boom is the same as the capacities of 56.8' (17.3 m) boom.
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.

## 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.



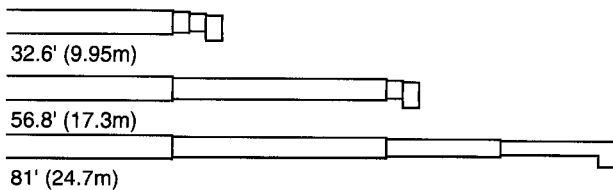
# TR-350XL-3 RATED LIFTING CAPACITIES (IN POUNDS)

TIRE : 20.5-25-24PR

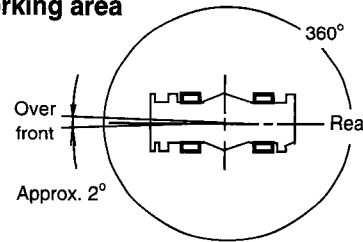
ON RUBBER									
Load Radius in Feet	Stationary						Creep		
	Over Front			360° Rotation			Over Front		
	Boom Length in Feet			Boom Length in Feet			Boom Length in Feet		
	32.6' (9.95m)	56.8' (17.3m)	81' (24.7m)	32.6' (9.95m)	56.8' (17.3m)	81' (24.7m)	32.6' (9.95m)	56.8' (17.3m)	81' (24.7m)
10'	38,000			26,500			31,600		
12'	36,700	32,700	15,300	19,600	18,800		27,200	26,800	15,300
15'	30,300	28,200	15,300	13,200	12,400	13,600	22,200	21,900	15,300
20'	19,300	18,600	14,500	7,600	6,700	7,900	16,400	16,000	14,500
25'	12,400	12,100	13,000	4,500	3,900	5,100	12,400	12,100	13,000
30'		8,100	10,000		2,000	3,100		8,100	10,000
35'		5,600	7,400			1,700		5,600	7,400
40'		3,900	5,600					3,900	5,600
45'		2,500	4,200					2,500	4,200
50'			3,100						3,100
55'			2,300						2,300
60'			1,500						1,500
65'			1,100						1,100
A		0°	26°	0°	46°	58°		0°	26°

A : Minimum boom angle (deg.) for indicated length (no load)

## Boom length in feet



## Working area



NOTE: standard number of parts of line for outrigger operation should be according to the following table.

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

Boom Length in Feet (meters)	32.6' (9.95)	32.6' to 81' (9.95 to 24.7)	single top
No. of parts of line	6	6 (4)*	1

\* stationary 360° rotation requires 4 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.
- Rated lifting capacities shown in the chart are based on condition that crane is set on firm level surfaces with axle oscillation lockout applied. Those above bold 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.
- 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.
 

Tires	Air Pressure
20.5-25-24PR	93 psi. (6.5kgf/cm <sup>2</sup> )
- Over front operation shall be performed within two degrees in front of chassis.
- On rubber lifting with "jib" is not permitted. Maximum permissible boom length is 81 ft. (24.7 m).
- 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 ft. (60 m) in any 30 minute period and to travel at the speed of less than 1 mph (1.6 km/h).
- For creep operation, set drive select switch to "4-WHEEL (Lo)" and set gear shift lever to "1".

# WARNING AND OPERATING INSTRUCTIONS FOR USING THE LOAD MOMENT INDICATOR (AML-L)

1. When operating crane on outriggers:
    - Set P.T.O. switch to "ON".
    - Press the outrigger mode select key to register for the outrigger operation. Press the set key, then the outrigger mode indicative symbol changes from flickering to lighting.
    - Press the boom mode select key to register the boom mode, then the boom mode indicative symbol changes from lighting to flickering. Each time the boom mode select key is pressed, the mode changes. Press the set key to select the status that corresponds to the actual state of the boom, then the boom mode indicative symbol changes from flickering to lighting.
    - When erecting and stowing jib, select the status of jib set (jib state indicative symbol flicker).
  2. When operating crane on rubber:
    - Set P.T.O. switch to "ON".
    - Press the on-tire mode select key. The on-tire mode indicative symbol comes on. Each time the on-tire mode select key is pressed, the mode changes. Select the creep operation, the on-tire mode indicative symbol flicker.
    - Press the boom mode select key to register the boom mode.
- However, pay attention to the following :
- (1) For stationary operation :
    - 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.
  - (2) 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.
3. A swing dose not automatically stop even if the crane becomes overloaded.
  4. During crane operation, make sure that the displays on front panel are in accordance with actual operating conditions.
  5. The displayed values of LOAD MOMENT INDICATOR (AML-L) 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.
  6. LOAD MOMENT INDICATOR (AML-L) is intended as an aid to the operator. Under no condition should it be relied upon to replace use of capacity charts and operating instructions. Sole reliance upon LOAD MOMENT INDICATOR (AML-L) aids in place of good operating practice can cause an accident. The operator must exercise caution to assure safety.

**TR-350XL-3 Axle weight distribution chart**

	Pounds			Kilograms		
	GVW	Front	Rear	GVW	Front	Rear
Basic standard machine includes: 32.6' ~ 105' (9.95 m ~ 32 m) 4-section boom 23.6', 42'(7.2 m, 12.8 m) 2-stage jib Main hoist with 640' (195 m) of 5/8" (16 mm) diameter wire rope Auxiliary hoist with 328' (100 m) of 5/8" (16 mm) diameter wire rope 35 ton (31.8 metric ton) hook block 4.4 ton (4.0 metric ton) hook ball Auxiliary lifting sheave (single top)	61,520	33,542	27,978	27,900	15,212	12,688
Add: Air Conditioning	+250	+105	+145	+114	+48	+66
Remove: 23.6', 42'(7.2 m, 12.8 m) 2-stage jib	-1,280	-2,280	+1,000	-580	-1,036	+456