

# National Series 300B Proposal



Description		
1. Series _____		\$ _____
2. Deduct if torsion box not required _____		( _____ )
3. Boom _____		_____
4. Jib _____		_____
5. Rear Stabilizers <input type="checkbox"/> ASH <input type="checkbox"/> RSH 18"		_____
6. Front Stabilizers <input type="checkbox"/> Std. <input type="checkbox"/> Tilt <input type="checkbox"/> Single		_____
7. Behind the Cab Stabilizers <input type="checkbox"/> ASHBC		_____
8. Line Block <input type="checkbox"/> 2 Part <input type="checkbox"/> 2 & 3 Part		_____
<b>Accessories</b>		
9. PD-12 Planetary Winch _____		_____
10. _____		_____
11. _____		_____
12. _____		_____
<b>Mounting</b>		
13. Installation: Behind Cab _____		_____
14. Installation: Rear Mounting (add to installation charge above)		_____
<input type="checkbox"/> ASH Behind Cab Stabilizers _____		_____
<input type="checkbox"/> Air Throttle _____		_____
<input type="checkbox"/> Rear Mounting Group _____		_____
<input type="checkbox"/> HO Outriggers _____		_____
15. Frame Reinforcement: <input type="checkbox"/> Weld <input type="checkbox"/> Bolt-Extra _____		_____
16. Platform Body _____ ft. <input type="checkbox"/> Wood <input type="checkbox"/> Steel _____		_____
17. Weight in bed _____ lbs. (if required) _____		_____
18. Boom rest: <input type="checkbox"/> Parallel <input type="checkbox"/> Low <input type="checkbox"/> Other _____		_____
19. Mount Stabilizers (Rear) _____		_____
20. Mount Stabilizers (Front) _____		_____
21. Chassis _____		_____
22. Rear Bumper Underride Protection <input type="checkbox"/> Ordered <input type="checkbox"/> Not Ordered _____		_____
23. Freight _____		_____
This quotation will remain firm for _____ days.		
Accepted by: _____ (Name)		\$ _____
_____ (Firm Name)		TOTAL PRICE _____ (Date)

National reserves the right to change designs, prices, and specifications at any time without notice.

Your National Dealer



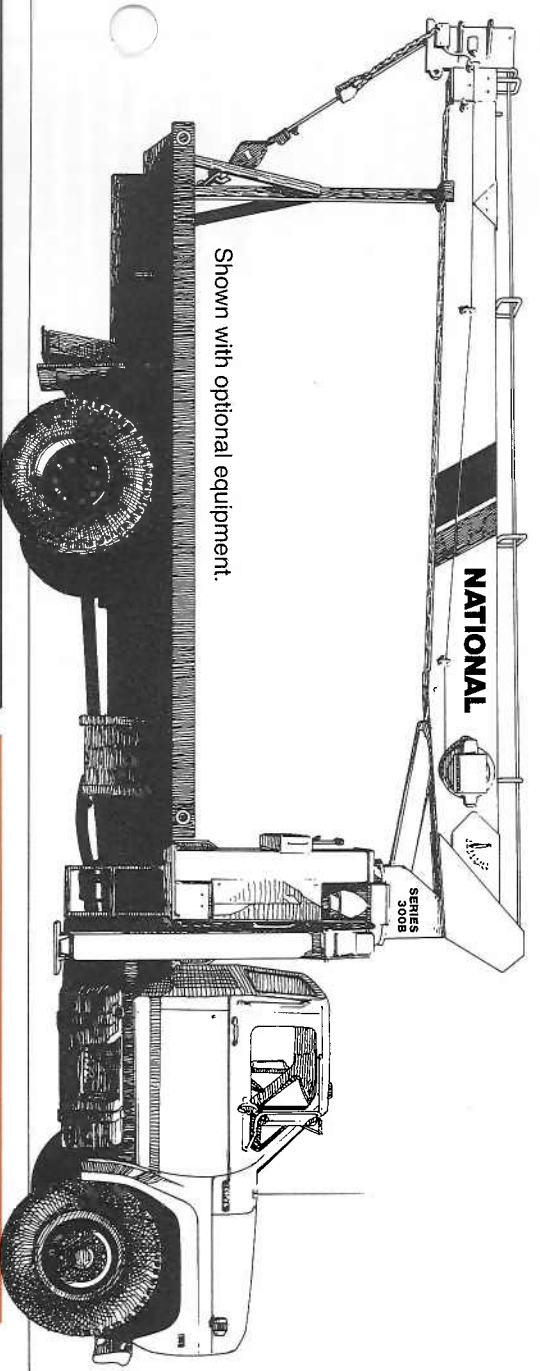
**NATIONAL CRANE**

General Offices: 11200 North 148th Street/Maverly, NE 68462  
Phone: 402/786-2240; Telex: 438061; Fax: 402/786-3636

# National Series 300B

Truck-Mounted Telescoping Cranes and Accessories

Maximum Vertical Reach: 61 Feet (18.6 Meters)  
Maximum Capacity: 16,000 Pounds (7.3 Metric Tons)



Shown with optional equipment.

**A NEW  
medium-duty  
telescoping crane  
from National,  
America's truck-  
mounted  
hydraulic crane  
leader!**

**Preliminary  
Specifications**

# Why buy a National Series 300B?

National Crane, America's truck-mounted hydraulic crane leader, features the industry's premier lineup of hard working telescoping and articulating cranes. The medium duty Series 300B telescoping crane with its 8-ton (7.3MT) capacity and 61-foot (18.6m) vertical reach offers many advantages:

## National's field-proven durability

- National has manufactured cranes since 1963.
- Nearly 17,000 field-proven cranes verify National's manufacturing expertise.
- Nearly 90% of all National cranes ever manufactured are working on the job today.

## Attention to quality

- National's industry-leading testing program subjects all prototype models to state-of-the-art strain gauge and life cycle testing to verify structural integrity.
- Each 300B undergoes numerous quality inspections at all levels of manufacture and assembly.

## Retained market value

- National cranes traditionally retain higher resale value year after year.

## Responsive service

- Each 300B is backed by strong after-sale and service support. Our professional, factory-trained dealer network spans the nation.
- Authorized National dealers maintain a parts stocking program for your 300B.
- When a dealer cannot immediately supply a part, the factory's backup program provides 24-hour parts shipping in 90% of all breakdown rush orders.

## Strong warranty protection

- The 300B is backed by a solid warranty covering defects in materials and workmanship for six months from the date of shipment.

## And more...

Our Series 300B telescoping crane gives you everything you want and need in a tough, compact, medium-duty crane. Here are all-new features that make the 300B the top crane in its class:

- 8-ton (7.3MT) rated capacity (1,500 pounds more than the 300B predecessor model) makes this unit the **highest capacity crane in its class in the industry**
- Higher reach — up to 61 feet (18.6m) with Model 337B with a 15-foot manual pull-out jib
- Proportional boom design provides smoother, more efficient boom operation, higher capacities (particularly in normal lifting areas), more efficient weight distribution, and utilizes a single extend cylinder (eliminating 18 potential leak points and minimizing hydraulic maintenance)
- Increased payload capacity (up to 7,000 pounds can be hauled on a standard truck) accomplished through a wider outrigger span and increased gross rear axle weight rating
- New, extra-wide outrigger span provides solid stability without adding extra counterweight
- New state-of-the-art O-ring seal fittings on all high pressure lines reduce downtime by eliminating fitting leakage
- New boom pivot and lift cylinder bearings provide longer life and lower maintenance
- A new standard tandem pump system isolates the winch from other crane functions to provide better overall performance.

• Dual controls in SAE recommended orientation of functions (you always work the same control with the same hand)

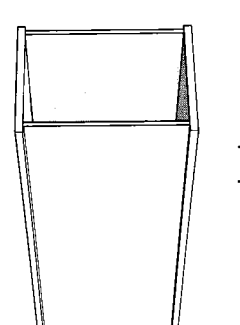
- Each operating station is equipped with a foot throttle and a precision machine level
- Standard high-performance planetary winch with rotation-resistant cable
- Standard anti-two-block feature to prevent cable damage when winching up or extending the boom without paying-out the winch cable
- Planetary rotation gear box with a hydraulic release brake and a slip-through feature that helps protect the rotation system against damage from accidental side loading
- Outrigger location (behind the operator) allows occasional 360-degree working area without front stabilizers when the crane is mounted on a recommended truck
- Larger outrigger pads provide greater stability in soft footing
- Mounts on standard, single-rear-axle trucks with the versatility of five mounting configurations
- Horn and stop switches are located at both control stations
- Complete accessory line adds to the versatility of the 300B.

## Strong Four-Plate Booms

Through computer aided design, National has improved weight efficiency of the Series 300B boom sections. We fabricate our telescoping boom sections from four high-strength steel members welded with perpendicular

Here are other typical features that National 300B crane users will appreciate:

- Extra large wear pads in the boom last longer and are easier to replace



corners. This box-section construction lets us use thicker top and bottom plates for extra strength. The use of thinner side plates means increased capacity through lower boom weight. Only strong, low-alloy steel is used in National booms. It is welded with automatic, low-hydrogen techniques for extra strong seams. Corner seams are ultrasonically tested for proper penetration.

- The National Series 300B is equipped on all sides with large nylon wear pads impregnated with lubricants, providing a smooth, long-life operation. The wear resistance of the material used in the Series 300B pads is unequalled by competitive models.

## Proportional Boom Extension

Proportional (cable crowd) boom design (each boom section extends and retracts proportionally during the telescoping operation) provides more efficient boom weight distribution. This means smoother, more efficient boom operation and higher capacities for you. Since the system utilizes only one extend cylinder, hydraulic maintenance is minimized. Boom telescope cylinder is fully protected with a direct mount holding valve.

## Anti-Two-Block

The 300B is equipped with a standard anti-two-block attachment. Two blocking occurs when the winch cable and attachments contact the underside of the boom sheave case, whether by winching up or extending the boom without paying out the winch cable. When this happens, the cable can be damaged by crimping or over-tensioning. The anti-two-block attachment prevents cable damage by sensing the position of the winch cable end attachments with respect to the sheave case and shutting down the functions that can cause two blocking.

Do not operate crane or accessories within 10 feet (3m) of live power lines.

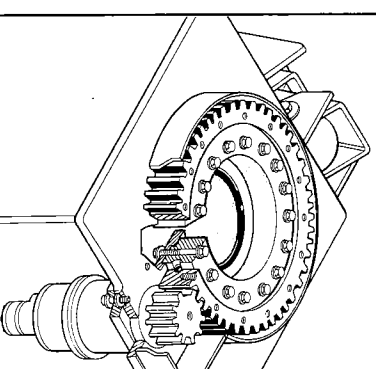
## High Performance Planetary Winch

The 300B comes standard with a high-performance planetary gear drive winch. Anti-friction bearings are used throughout to maximize efficiency and seal life. A winch drum rotation indicator has been added.

This high-capacity winch has increased efficiency and, therefore, requires less horsepower and generates less heat. For fine control, both brake and counterbalance valves are standard. New winch covers improve visibility of drum and cable. The winch is filled with 1/2" diameter rotation resistant cable. See the winch data chart on page seven for further information.

## Positive Planetary Turret Rotation

The planetary rotation gearbox with a hydraulic release brake allows the gearbox to backdrive whenever excessive side load is applied to the boom, reducing shock loads on the upper and lower crane structure and gearbox. The turret drive is designed with extra heavy bearings below the drive pinion. The gearbox and rotation bearing mounting surfaces are precision machined after welding. This ensures constant tooth alignment for smooth rotation and low wear, even under



maximum loads. The entire turret glides smoothly on a low inertia ball bearing race. Rotation is 375° noncontinuous. The 300B is equipped with a turret rotation indicator

to aid the operator in positioning loads.

## Less Space

The National Series 300B is built tough, but compact, so it fits in just 36.75 inches (933mm) of bed space. That leaves ample payload space, making your Series 300B even more versatile. The 300B controls and operator platforms are designed with an improved access to the truck bed, permitting the operator to move from one control station to the other. The operator platforms are made with open mesh expanded metal to keep dirt and mud buildup to a minimum.

## Less Weight

The Series 300B is designed with wider outriggers and a new rigid subframe to reduce the need for counterweight on virtually every truck on which it can be mounted. Even with its increased capacity, it weighs less than its predecessor model when mounted on the same minimum truck.

## Easy Service, Low Downtime

The Series 300B frame allows easy access to control valves and plumbing for minor adjustments and fitting tightening. The complete console is easily removable for major repair.

## Dual Controls

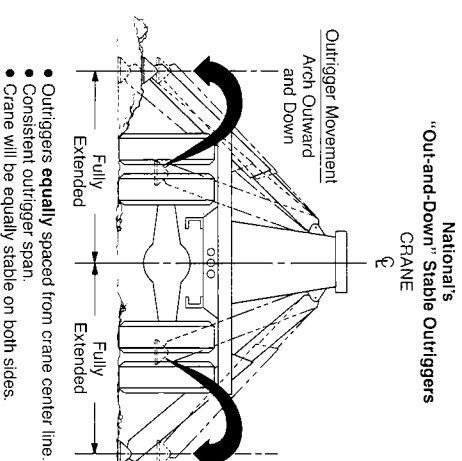
Dual controls are standard on the Series 300B. The extra fine metering and low spool forces give you smoother, more precise control. Crane controls are identical on each side with SAE recommended orientation of functions. That means you always work the same control with the same hand. All control knobs are labeled. Dual stations provide more efficient operations and greater load visibility. Each station is equipped with kill and audible warning switches. A system pressure gauge is standard for easily checking pressures on all control functions. Foot throttles allow

identical foot operation of engine speed from either side. Control rods are supported by nylon bearings, promoting smooth operation and reducing lubrication requirements.

## Wide Stance

We've given our Series 300B the industry-acclaimed National out-and-down outriggers for a consistently wide stance and better leveling on uneven ground. The outrig-

gers retract smoothly, without binding under load, first moving up, then in. Their efficient design and wider span — 16.4-foot (5m) — gives you greater stability with less truck weight, so you can carry larger payloads. The 300B is equipped with larger pads for greater stability in soft footing. A precision mounted level indicator aids the operator in leveling the unit during the set-up procedure.



## The National Parts System

Authorized National Crane dealers maintain a parts supply to support the National cranes in each dealer's area. If a dealer cannot immediately supply a needed part, the factory maintains a back-up parts supply that provides 24-hour parts shipping in 90% of all breakdown rush orders.

National's responsiveness to dealer requests means that your crane will be back on the job fast. National maintains a highly trained Service and Parts staff to answer dealer service questions and expedite parts shipping.

## The National Warranty

National's warranty covers your crane against defects in materials or workmanship for **six full months** from the date of shipment, subject to the conditions of the warranty. When you select a National crane, you're getting more than just a crane. You're get-

ting a nationwide dealer warranty service network, strong special concern for every product we make. Read our warranty. Then, don't settle for less. For complete information, write National Warranty Service, Waverly, NE 68462.

## The National Service Center

National maintains a well-equipped service center where we do all our factory crane mounting. The central location of our Service Center makes it easy to return cranes for special modifications or extreme repairs. Most National dealers can perform all but the most unusual modifications or most serious repairs.

Should you need to return your crane to us for modification, warranty repair or other service, we will give it priority care and see it's returned as soon as possible.

# ALL NEW!

# National Series 300B Booms and Jibs

## National Testing

National Crane established its original product durability standards by carefully evaluating the performance of competitive machines. Taking the best performances from these tests, National engineers set their own standards **more than 50% higher!** This is the same testing standard each National must pass today.

Before a new model is released for production manufacturing it is subjected to state-of-the-art testing. For example, a plastic-based "brittle lacquer" coating is applied to the crane. After loading, test engineers inspect the coating for cracks. The special lacquer has virtually no elastic qualities, so stretching or deformation of the metal shows up in "fractures" of the coating, perpendicular to the direction of stretching.

This procedure indicates where engineers are to place strain gauges, tiny chips printed with electronic circuitry which expand or contract with changes in the metal. Minute changes in electrical resistance are measured by a computerized strain gauge monitor and printed out for engineering studies. Strain gauges measure metal deformation as small as one-millionth of an inch.

After strain gauge testing, the prototype of each new model undergoes life-cycle testing. The crane is operated at full-load through a full life-cycle under close scrutiny. Outriggers, frames, and other components are loaded and rotated through a complete range of motion for the prescribed number of cycles.

All components used on National cranes are subject to a multi-level inspection program during manufacture and assembly. National's attention to testing ensures that each crane delivered to the field is ready for on-the-job action.

## Heights to 61 feet (18.6m) available

The National Series 300B is available with a choice of booms and jibs. One of these combinations is right for your 8-ton (7.3MT) capacity lifting requirements. Select the telescoping boom you want, then add one of National's jib options as a cost-efficient way to increase the capacity and versatility of your Series 300B.

## Telescoping Booms

- Model 328B: 12½- to 28-foot (3.8m to 8.5m) three section
- Model 337B: 15½- to 37-foot (4.7m to 11.3m) three section
- Model 346B: 18½- to 46-foot (5.6m to 14m) three section

## Jib Options (side stowing)

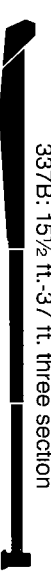
- Model 3F-J15: 15-foot (4.6m) straight (for Model 337B)

## Boom and Jib Combinations

328B: 12½ ft.-28 ft. three section



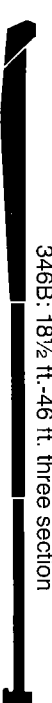
337B: 15½ ft.-37 ft. three section



337B: 15½ ft.-37 ft. three section



346B: 18½ ft.-46 ft. three section



## NATIONAL SERIES 300B WINCH DATA

Winch	Cable Supplied	Average Breaking Strength	1 Part Line	2 Part Line	3 Part Line
Standard Planetary Winch	Standard ½" diam. rotation resistant	29,200 lbs. (13,250 kg)	5,840 lbs. (2,650 kg) 194 fpm (56 m/min)	11,680 lbs. (5,300 kg) 92 fpm (28 m/min)	16,000 lbs. (7,950 kg) 61 fpm (19 m/min)
	Optional ½" diam. 6 x 19 or 6 x 25 IWRC	23,000 lbs. (10,436 kg)	5,840 lbs. (2,650 kg) 184 fpm (56 m/min)	11,680 lbs. (5,300 kg) 92 fpm (28 m/min)	16,000 lbs. (7,950 kg) 61 fpm (19 m/min)
Optional High-pull Planetary Winch	Standard ¾" diam. rotation resistant	37,000 lbs. (16,788 kg)	7,400 lbs. (3,357 kg) 110 fpm (34 m/min)	14,800 lbs. (6,715 kg) 55 fpm (17 m/min)	16,000 lbs. (9,075 kg) 37 fpm (11 m/min)
	Optional ¾" diam. 6 x 19 or 6 x 25 IWRC	29,750 lbs. (13,500 kg)	8,400 lbs. (3,811 kg) 110 fpm (34 m/min)	16,800 lbs. (7,622 kg) 55 fpm (17 m/min)	16,000 lbs. (9,075 kg) 37 fpm (11 m/min)

- Caution:**
- Do not deadhead lineblock against boom tip when extending boom.
  - Keep at least three wraps of load line on drum at all times.
  - Use only the specified cable on this machine.

All winch pulls and speeds are shown on the third layer. Winch pulls would increase on the first and second layers. Winch line speeds would decrease on the first and second layers. Winch pulls may be limited by the winch capacity or the OSHA 5 to 1 or 3 to 1 safety factor. These are shown below.

Winch	Standard	Winch Limited	Cable Limited	Optional
Standard Planetary	6,835 lbs. (3,101 kg)	5,840 lbs. (2,650 kg)	5,840 lbs. (2,650 kg)	5,840 lbs. (2,650 kg)
Optional Planetary	10,200 lbs. (4,628 kg)	7,400 lbs. (3,357 kg)	8,400 lbs. (3,811 kg)	8,400 lbs. (3,811 kg)

# National Series 300B Load Rating Charts

Do not operate cranes or accessories within 10 feet (3m) of live power lines.

- Load ratings shown on these charts are maximum allowable loads with the outriggers properly extended on a firm, level surface and the crane leveled and mounted on a factory-recommended truck.
- Always level the crane with the level indicator located on the crane frame.
- The operator must reduce loads to allow for factors such as wind, ground conditions, operating speeds and the effect of freely suspended loads.
- Overloading the crane may cause structural collapse or instability.
- Weights of any accessories attached to the boom or loadline must be deducted from the load chart capacities.
- Do not exceed jib capacities at any reduced boom lengths.

## 346B Capacity\* (without jib)

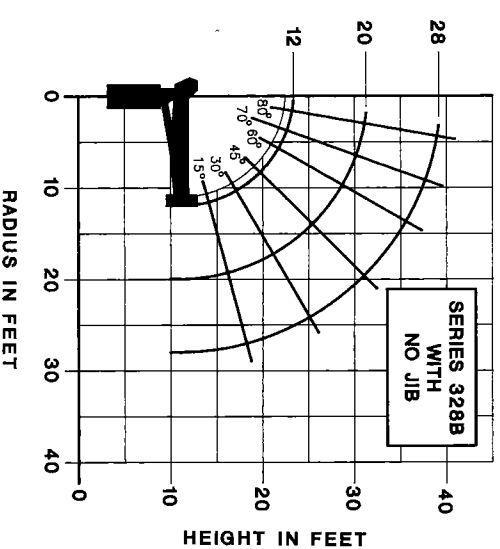
(Metric equivalents shown in parentheses)

Radius	Boom Fully Retracted 19' (5.8m)		
	Boom 28' (8.5m) Extended	Boom 37' (11.3m) Extended	Boom 46' (14m) Extended
4' (1.2m)	16,000 lbs. (7,258 kg)	8,400 lbs. (3,810 kg)	
6' (1.8m)	9,200 lbs. (4,173 kg)	6,650 lbs. (3,016 kg)	5,900 lbs. (2,676 kg)
8' (2.4m)	7,100 lbs. (3,221 kg)	5,300 lbs. (2,404 kg)	4,950 lbs. (2,245 kg)
10' (3.0m)	6,150 lbs. (2,790 kg)	5,100 lbs. (2,313 kg)	4,200 lbs. (1,905 kg)
12' (3.7m)	5,100 lbs. (2,313 kg)	4,600 lbs. (2,087 kg)	3,800 lbs. (1,724 kg)
14' (4.3m)	4,600 lbs. (2,087 kg)	3,800 lbs. (1,724 kg)	3,600 lbs. (1,633 kg)
16' (4.9m)	3,800 lbs. (1,724 kg)	3,400 lbs. (1,542 kg)	3,100 lbs. (1,406 kg)
18' (5.5m)	3,400 lbs. (1,542 kg)	3,050 lbs. (1,383 kg)	2,750 lbs. (1,247 kg)
20' (6.1m)	2,750 lbs. (1,247 kg)	2,500 lbs. (1,134 kg)	2,500 lbs. (1,134 kg)
25' (7.6m)	2,100 lbs. (953 kg)	2,000 lbs. (907 kg)	2,000 lbs. (907 kg)
30' (9.1m)		1,600 lbs. (726 kg)	1,600 lbs. (726 kg)
35' (10.7m)		1,250 lbs. (567 kg)	1,250 lbs. (567 kg)
40' (12.2m)			1,050 lbs. (476 kg)
45' (13.7m)			750 lbs. (340 kg)

\*Capacities shown are for the 346B with the load suspended, radius is for loaded boom. Capacities vary for cranes equipped with jibs or attachments. The capacities shown will be reduced when accessories are attached to the boom or loadline. Consult factory for specific load rating information.

Note: Rated loads do not exceed 85% of the tipping load. The structural strength ratings in the chart above are shaded.

## BOOM LENGTH IN FEET



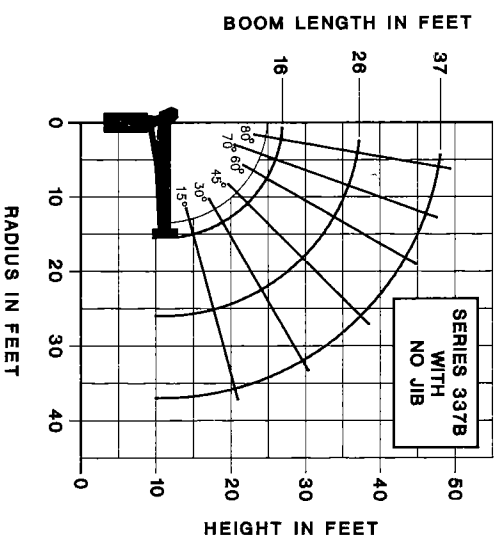
## LOAD RATINGS

LOAD RADIUS (FEET)	LOADED BOOM ANGLE	12FT BOOM (LBS)	20FT BOOM (LBS)	28FT BOOM (LBS)
4	78°	16,000		
6	64°	11,200		
8	51°	9,600		
10	39°	7,800		
12	18°	5,900		
14			4,200	
16			4,550	
18			4,000	
20			3,550	
25				2,850

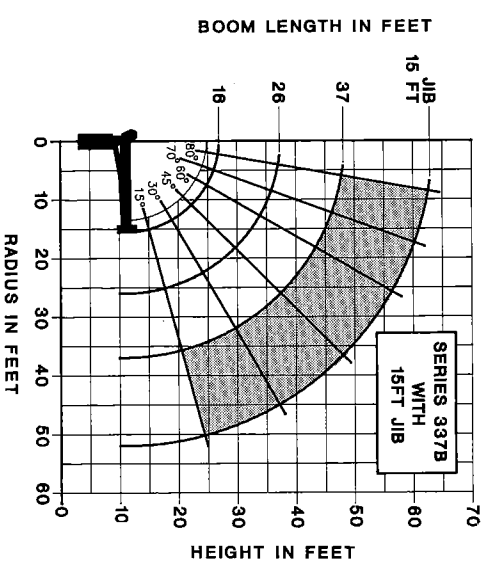
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# National Series 300B Load Rating Charts (Continued)

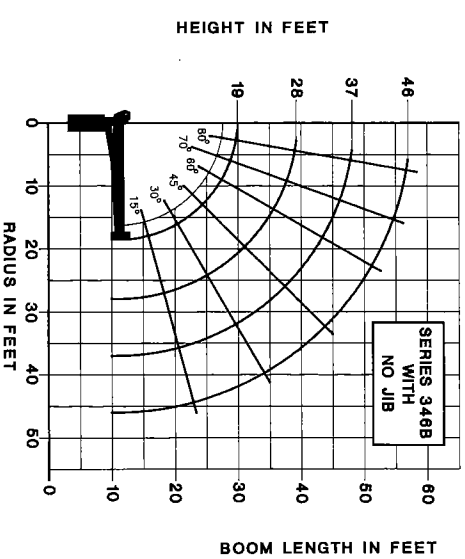
Note: Rated loads do not exceed 85% of the tipping load. Structural strength ratings in the charts below and on the following page are shaded.



LOAD RADIUS (FEET)	LOAD RATINGS					
	LOADED BOOM ANGLE	16FT BOOM (LBS)	LOADED BOOM ANGLE	26FT BOOM (LBS)	LOADED BOOM ANGLE	37FT BOOM (LBS)
4	79°	18,000	78°	9,100	80°	6,500
6	70°	10,400	74°	7,200	80°	5,400
8	62°	8,400	69°	6,000	75°	4,800
10	53°	6,800	65°	5,200	73°	4,100
12	42°	5,900	59°	4,500	70°	3,500
14	27°	5,200	54°	4,050	66°	3,200
16			47°	3,650	64°	3,000
18			43°	3,500	60°	3,000
20			19°	2,900	59°	2,800
25				2,500	39°	2,500
30				2,000	39°	1,900
35				1,500	21°	1,500



LOAD RADIUS (FEET)	LOAD RATINGS					
	LOADED BOOM ANGLE	18FT BOOM (LBS)	LOADED BOOM ANGLE	26FT BOOM (LBS)	LOADED BOOM ANGLE	37FT BOOM (LBS)
4	79°	19,200	78°	9,950	80°	6,400
6	70°	12,200	74°	7,050	80°	5,300
8	62°	9,200	69°	5,850	76°	4,500
10	53°	8,600	65°	5,050	73°	4,000
12	42°	5,700	59°	4,350	70°	3,400
14	27°	5,000	54°	3,900	66°	3,100
16			47°	3,500	64°	2,900
18			43°	3,150	60°	2,600
20			19°	2,550	50°	2,400
25				1,900	39°	1,900
30				1,500	21°	1,500



LOAD RADIUS (FEET)	LOAD RATINGS					
	LOADED BOOM ANGLE	19FT BOOM (LBS)	LOADED BOOM ANGLE	26FT BOOM (LBS)	LOADED BOOM ANGLE	37FT BOOM (LBS)
4	79°	18,000	79°	8,400	80°	5,900
6	73°	9,200	75°	6,850	80°	4,950
8	66°	7,100	71°	5,300	77°	4,200
10	59°	5,150	66°	4,400	73°	3,600
12	52°	5,100	62°	3,900	69°	3,100
14	43°	4,600	57°	3,400	66°	2,750
16	32°	3,800	53°	3,050	63°	2,500
18	18°	3,400	47°	2,750	60°	2,250
20			30°	2,100	50°	2,000
25				1,600	39°	1,450
30				1,250	22°	1,250
35				1,000	32°	1,050
40				750	15°	750
45				500	15°	500

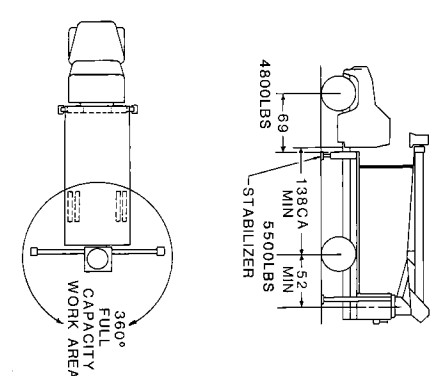
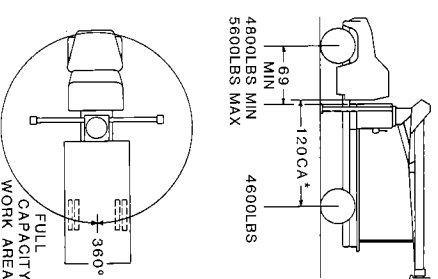
# National Series 300B Truck Specifications

## Mounting Configurations

The versatility of the Series 300B can be enhanced by the mounting configurations described at the right. The configurations are based on the 300B with an 85% stability factor. The complete unit must be installed in accordance with factory requirements and a test performed to determine actual stability and counterweight requirements since individual truck chassis vary.

	Configuration 1 with Subbase	Configuration 2 with Heavy Duty Subbase
Stable	360°	360°
Gross Axle Weight Rating (GAWR), Front	9,000 lbs.	9,000 lbs.
Gross Axle Weight Rating (GAWR), Rear	17,500 lbs.	17,500 lbs.
Wheelbase (WB)	184 inches on Models 326A, 328A, 337A 202 inches on Model 346A	202 inches
Cab to axle/trunnion (CA/CT)	120 inches on Models 326A, 328A, 337A 138 inches on Model 346A	138 inches
Frame Section Modulus (SM) under crane	15 inch³	13 inch³
Frame Section (SM) over rear stabilizers	10 inch³	10 inch³
Stability Weight, Front	10 inch³	13 inch³
Stability Weight, Rear	10 inch³	10 inch³
Estimated Average Final Weight (No Options included)	4,800 lbs. minimum, 5,600 lbs. maximum	4,800 lbs.
	4,600 lbs.	5,500 lbs.
	19,500 lbs.	22,500 lbs.

- NOTES:**
- (1) GAWR means gross axle weight rating and is dependent on all components of the vehicle such as axles, tires, springs, frame, etc. meeting manufacturer's recommendations. **Always specify GAWR when purchasing trucks.**
  - (2) Minimum axle requirements may increase with use of longer wheelbase, service bodies, diesel engines or front stabilizers.
  - (3) Tandem axle trucks must be used for hauling larger payloads.
  - (4) Diesel engines require variable speed governor and energize-to-run fuel solenoid for smooth crane operation.
  - (5) On trucks shorter than 120 CA, additional weight may be required at the rear axle for 360° stability.
  - (6) On trucks with front axle weight of 5,200 lbs. or greater, a 9,000 lb. GAWR (front) will not be adequate if front-mounted stabilizers are used for continuous lifting over the front axle.



\*May use shorter CA with all boom lengths, depending upon bed length.  
†Estimated axle scale weights prior to installation of crane, stabilizers, and subbase if required for 85% stability.

