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

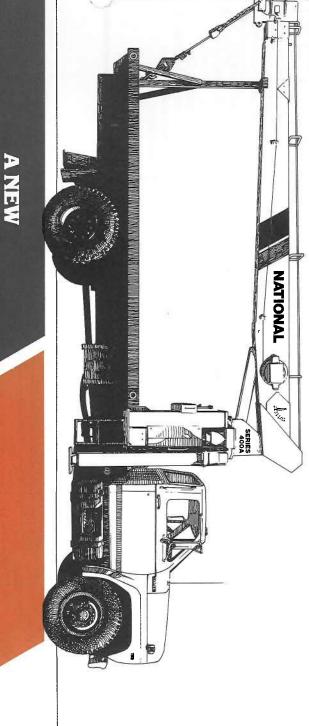
								Your National Dealer	without notice.	National reserves the right to change designs, prices, and specifications at any time		account of the real	Signed:	(Phone)	(Zip)	(City & State)	(Address)		(Filli Nathe)	(Figs None)		Submitted by:				Prepared for:	Date:	
(Firm Name)	Accepted by:(Name)	This quotation will remain firm for days.	22. Freight	21. Rear Bumper Underride Protection ☐ Ordered ☐ Not Ordered	20. Chassis	19. Mount Stabilizers (Front)	18. Mount Stabilizers (Rear)	17. Boom rest: ☐ Parallel ☐ Low ☐ Other	16. Weight in bedlbs. (if required)	15. Platform Bodyft. ☐ Wood ☐ Steel	14. Frame Reinforcement: ☐ Weld ☐ Bolt-Extra	☐ HO Outriggers	☐ Rear Mounting Group	☐ Air Throttle	13. Installation: Rear Mounting (add to installation charge above)☐ ASH Behind Cab Stabilizers	Mounting 12. Installation: Behind Cab	 10.	φ.	Accessories 8. PD-12 Planetary Winch	7 Line Block 2 Part 2 & 3 Part 4 Part	6. Front Stabilizers ☐ Std. ☐ Tilt ☐ Single	5. Rear Stabilizers ☐ ASH ☐ RSH 18"	4. Jib	3. Boom	2. Deduct if torsion box not required	1. Series	Description	
(Date)	TOTAL PRICE																	· CANADA					* October 1			\$	Price	

Proposal

National Series 400A

Truck-Mounted Telescoping Cranes and Accessories

Maximum Vertical Reach: 95 Feet (28.9 Meters)
Maximum Capacity: 20,000 Pounds (9.1 Metric Tons)



telescoping crane medium-duty mounted America's truckfrom National, leader! hydraulic crane

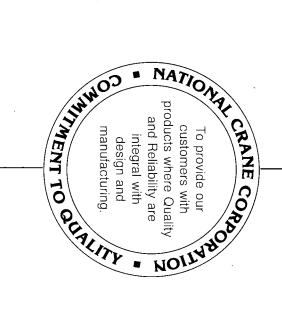
Printed in USA

Specifications

Preliminary

Form No. S400A2895M ©1989 National Crane

Why buy a National Series 400A?



offers many advantages: articulating cranes. The telescoping crane with its 10-ton (9.1MT) capacity and 95crane leader, features the foot (28.9m) vertical reach medium duty Series 400A hard working telescoping and truck-mounted hydraulic ndustry's premier lineup of

durability National's field-proven

National has manufactured cranes since 1963.
Nearly 17,000 field-proven

manufacturing expertise. cranes verify National's

- year after year. retain higher resale value
- Each 400A is backed by Responsive service strong after-sale and

professional, factory-trained service support. Our

dealer network spans

Attention to quality

National Crane, America's

- National's industry-leading testing program subjects all structural integrity. life cycle testing prototype models to state-of-the-art strain gauge and to verify
- Each 400A undergoes manufacture and assembly inspections at all levels of numerous quality

Retained market value

The 400A is backed by a

defects in materials and

solid warranty covering

protection

National cranes traditionally

And more... workmanship for six months from the date of shipment.

Strong warranty program for your 400A. When a dealer cannot the factory's backup breakdown rush orders. program provides 24-hour oarts shipping in 90% of all mmediately supply a part,

• 10-ton (9.1MT) rated

Higher reach — up to 95 feet (28.9m) (with Model 456A with a 29-foot feet (28.9m) (with M ts class in the industry

Stronger booms that pull-out jib)

Proportional boom design provides smoother, more efficient boom operation, more nigher capacities

particularly in normal lifting

Authorized National dealers maintain a parts stocking in its class: you want and need in

capacity (two full tons more than the 400A predecessor highest capacity crane in model) makes this unit the

manual

∄ counterweight

Our Series 400A telescoping crane gives you everything make the 400A the top crane compact, medium-duty crane. Here are all-new features that a tough,

increased gross rear axle wider outrigger span and Increased payload capacity accomplished through a weight rating hauled on a standard truck) (up to 7,000 pounds can be

without adding extra span provides solid stability New, extra-wide outrigger

New state-of-the-art O-ring downtime by eliminating pressure lines reduce seal fittings on all high

hydraulic maintenance) leak points and minimizing single extend cylinder distribution, and utilizes a areas), more efficient weight (eliminating 18 potential

New boom pivot and lift cylinder bearings provide longer life and lower

A new standard tandem

maintenance

pump system isolates the

winch from other crane

functions to provide better

overall performance

crane users will appreciate: features that National 400A Extra large wear pads in the Here are other typical

Dual controls in SAE boom last longer and are easier to replace the same control with the functions (you always work recommended orientation of

level equipped with a foot throttle Each operating station is and a precision machine same hand)

 Standard anti-two-block Standard high-performance or extending the boom damage when winching up planetary winch with feature to prevent cable rotation-resistant cable

 Planetary rotation gear box the rotation system against feature that helps protect brake and a slip-through with a hydraulic release winch cable without paying-out the

Outrigger location (behind side loading damage from accidental

 Larger outrigger pads provide greater stability in is mounted on a stabilizers when the crane working area without front occasional 360-degree the operator) allows recommended truck

configurations versatility of five mounting rear-axle trucks with the Mounts on standard, single-

stations located at both control Horn and stop switches are

Complete accessory line adds to the versatility of the 400A

Shown with optional equipment. NATIONAL SERIES 400A 1

Series 400A **National**

Booms Strong Four-Plate

Through computer aided

Only are ultrasonically tested for of the Series 400A boom design, National has proper penetration. strong seams. Corner seams plates for extra strength. The improved weight efficiency nydrogen techniques for extra welded with automatic, lowused in National booms. It is through lower boom weight means increased capacity use of thinner side plates us use thicker top and bottom ox-section construction lets perpendicular corners. This members welded with rom four high-strength steel elescoping boom sections sections. We fabricate our he National Series 400A strong, low alloy steel is

is unexcelled by competitive providing a smooth, long-life models. used in the Series 400A pads operation. The wear impregnated with lubricants, is equipped on all sides with esistance of the material arge nylon wear pads

Extension Proportional (cable crowd) Proportional Boom

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

Anti-Two-Block

The 400A is equipped with

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

Downtime Easy Service, Low

easy access to control valves for major repair. and plumbing for minor console is easily removable tightening. The complete adjustments and fitting The Series 400A frame allows

Dual Controls

promoting smooth operation supported by nylon bearings, side. Control rods are engine speed from either A system pressure gauge is standard for easily checking station is equipped with kill and audible warning switches. greater load visibility. Each means you always work the side with SAE recommended identical foot operation of hand. Dual stations provide orientation of functions. more precise control. Crane pressures on all control more efficient operations and same control with the same controls are identical on each forces give you smoother, fine metering and low spool the Series 400A. The extra Dual controls are standard on unctions. Foot throttles allow

Planetary Winch High Performance

winch drum rotation indicator efficiency and seal life. A planetary gear drive winch. with a high-performance nas been added. throughout to maximize Anti-friction bearings are used The 400A comes standard

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

Positive Planetary Turret Rotation

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

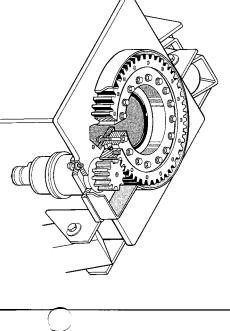
> noncontinuous. The 400A is equipped with a turret rotation indicator to aid the operator in low inertia ball bearing race maximum loads. The entire positioning loads. Rotation is 375° urret glides smoothly on a

The National Series 400A is Less Space

expanded metal to keep dirt made with open mesh minimum. operator to move from one truck bed, permitting the built tough, but compact, so it fits in just 36.75 inches and mud buildup to a control station to the other. an improved access to the platforms are designed with even more versatile. The The operator platforms are 400A controls and operator making your Series 400A eaves ample payload space, (933mm) of bed space. That

Less Weight

predecessor model when its increased capacity, it virtually every truck on which the need for counterweight on The Series 400A is designed with wider outriggers and a nounted on the same weighs less than its it can be mounted. Even with new rigid subframe to reduce



engineers set their own

these tests, National the best performances from competitive machines. Taking

higher! This is the same standards more than 50%

esting standard each

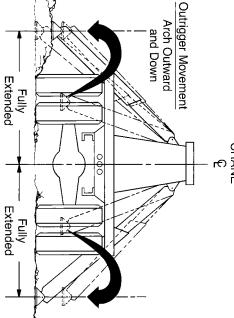
National must pass today

Before a new model is

smoothly, without binding outriggers for a consistently then in. Their efficient design under load, first moving up, leveling on uneven ground wide stance and better the industry-acclaimed The outriggers retract National out-and-down We've given our Series 400A Wide Stance

set-up procedure. greater stability in soft footing. leveling the unit during the indicator aids the operator in A precision mounted equipped with larger larger payloads. The weight, so you can carry greater stability with less truck (5,000mm) and wider span - 16. - gives 400A is jevel 9 pads for 4-feet

"Out-and-Down" Stable Outriggers National's CRANE



- Outriggers equally spaced from crane center line.
- Crane will be equally stable on both sides.

Consistent outrigger span.

don't settle for less. For

Read our warranty.

The National Parts

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

National's warranty covers your crane against defects in The National Warranty expedite parts shipping.

your crane to us for

service questions and Parts staff to answer dealer nighly trained Service and job fast. National maintains a your crane will be back on the dealer requests means that all breakdown rush orders.

six full months from the date conditions of the warranty. of shipment, materials or workmanship for subject to the

every product we make. and our special concern for strong warranty protection warranty service network, getting a nationwide dealer than just a crane. You're crane, you're getting more When you select a National

complete information, write National Warranty Service, Waverly, NE 68462.

The National Service

Vational maintains a well-

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

National's responsiveness to

or other service, we will give priority care and see it's modification, warranty repair eturned as soon as possible

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

After

of the metal shows up in "fractures" of the coating, perpendicular to the direction so stretching or deformation virtually no elastic qualities, of stretching. The special lacquer has inspect the coating for cracks. applied to the crane. test engineers

evaluating the performance of

standards by carefully its original product durability

National Crane established

Testing Program The National

where engineers are to place circuitry which expand or contract with changes in the electrical resistance metal. Minute changes in printed with electronic strain gauges, tiny chips This procedure indicates are

to state-of-the-art testing.

manufacturing it is subjected released for production

example, a plastic-based

"brittle lacquer"

studies. Strain gauges printed out for engineering as small as one-millionth of measure metal deformation strain gauge monitor and measured by a computerized

the field is ready for on-the-job action. that each crane delivered to and assembly. National's

attention to testing ensures program during manufacture to a multi-level inspection

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

National cranes are subject prescribed number of cycles. All components used on

446A: 181/2 ft.-46 ft. three section

4FJ18: 18 ft. straight

4FJ29: 18 ft.-29 ft. manual pull-out

456A: 22 ft.-56 ft. three section

446A: 181/2 ft.-46 ft. three section

446A: 181/2 ft.-46 ft. three section

4FJ15: 15 ft. straight

456A: 22 ft.-56 ft. three section

4FJ18: 18 ft. straight

Winch

Optional Planetary Standard Planetary

.. 6,835 lbs. ..10,200 lbs.

Winch Limited 35 lbs. (3,101 kg)... 00 lbs. (4,628 kg)...

5,840 lbs. (2,650 kg). 7,400 lbs. (3,357 kg). Cable Limited

. 5,840 lbs. (2,650 kg) . 8,400 lbs. (3,811 kg)

Optional Cable Limited

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 3.5 to 1 safety factor. These are shown below.

4FJ29: 18 ft.-29 ft. manual pull-out

456A: 22 ft.-56 ft. three section

Booms and Jibs National Series 400A

The National Series 400A is (28.9m) available Heights to 95 feet

available with a choice of booms and jibs. One of these **Boom and Jib Combinations** combinations is right for your Telescoping Booms 10-ton capacity lifting

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 requirements. Select the

outriggers properly extended allowable loads with the these charts are maximum on a firm, level surface and recommended truck. mounted on a factorythe crane leveled and Load ratings shown on

2. Always level the crane with the level indicator located on The operator must reduce the crane trame. as wind, ground conditions, loads to allow for factors such

Model 446A: 18½- to 46-

456A)

foot (5.6m to 14m) three

section

Model 456A: 22- to 56-foot

Model 4FJ29M: 18- to 29-foot (5.5m to 8.8m) manual pull-out (for Models 446A, 456A)

effect of freely suspended

operating speeds and the

(6.7m to 17.1m) three

428A: 121/2 ft.-28 ft. three section

437A: 151/2 ft.-37 ft. three section

4FJ12: 12 ft. straight

437A: 151/2 ft.-37 ft. three section

428A: 121/12 ft.-28 ft. three section

Model 437A: 15½- to 37-

foot (4.7m to 11.3m) three

Model 428A: 121/2- to 28-

Jib Options (side stowing)Model 4FJ12: 12-foot (3.7m)

Model 4FJ15: 15-foot (4.6m)

straight (for Model 428A)

straight (for Model 437A) Model 4FJ18: 18-foot (5.5m)

straight (for Models 446A,

foot (3.8m to 8.5m) three

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

instability.

Do not exceed jib attached to the boom or from the load chart capacities. oadline must be deducted

5. Weights of any accessories 4. Overloading the crane may cause structural collapse or

> 8' (2.4m) 6' (1.8m) 5' (1.5m)

17000 lbs. (7711 kg) 12500 lbs. (5670 kg) 9650 lbs. (4377 kg)

10400 (4717) 8800 (3992)

20000 bs. (9072 kg)

Boom Fully Retracted 22' (6.7m)

Extended Boom 32'

(9.8m)

Boom 40' Extended (12.2m)

Boom 48' (14.6m) Extended

Boom Fully Extended 56' (17.1m)

(Metric equivalents shown in parentheses)

456A Capacity* (without jib)

Radius

12′ (3.7m) 10' (3.0m)

14′ (4.3m)

8300 bs (3765 kg) 7350 bs (3334 kg) 6450 bs (2926 kg) 5800 bs (2631 kg)

5050 lbs. (2291 kg)

8800 (3992) 8450 (3833)
7600 (3447) 7000 (3175) 60
6550 (2971) 6100 (2767) 50
5850 (2654) 5500 (2495) 50
5850 (2427) 5000 (2268) 40
4850 (2200) 4550 (2064) 40
3850 (1746) 3600 (1633) 34
5900 (1361) 24

6600 (2994) 5800 (2631) 5200 (2369) 4600 (2087) 4300 (1950) 3400 (1542) 2850 (1293) 2400 (1089) 2050 (930)

5600 (2540)

4900 (2223) 4350 (1973) 3900 (1769) 3150 (1429) 2550 (1157) 2200 (998) 1900 (862) 1400 (726)

capacities at any reduced

16' (4.9m) 18' (5.5m) 20' (6.1m) 25' (7.6m)

8 8 8

(9.1m) (10.7m)

*Capacities shown are for the 456A with the load suspended, radius shown 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

55′ (16.8m)

50′ (15.2m) 45′ (13.7m)

40′ (12.2m)

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

1050 (476)

	Т	T	ı	1 1	
Planetary Winch	Optional	Planetary Winch	Standard	Winch	NATIONAL SE WINCH I WINCH I Caution: Do not deadhead lir boom tip when exter Keep at least three on drum at all times Use only the specifi machine.
Optional 9/16" diam. 6 x 19 or 6 x 25 IWRC	Standard %6" diam. rotation resistant	Optional 1/2" diam. 6 x 19 or 6 x 25 IWRC	Standard 1/2" diam. rotation resistant	Cable Supplied	NATIONAL SERIES 400A WINCH DATA aution: 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.
29,750 lbs. (13,500 kg)	37,000 lbs. (16,788 kg)	23,000 lbs. (10,436 kg)	29,200 lbs. (13,250 kg)	Average Breaking Strength	\$ 400A A Cock against boom. Sof load line able on this
8,400 lbs. (3,811 kg) 110 fpm (34 m/min)	7,400 lbs. (3,357 kg) 110 fpm (34 m/min)	5,840 lbs. (2,650 kg) 184 fpm (56 m/min)	5,840 lbs. (2,650 kg) 184 fpm (56 m/min)	Lift and Speed	1 Part Line
16,800 lbs. (7,622 kg) 55 fpm (17 m/min)	14,800 lbs. (6,715 kg) 55 fpm (17 m/min)	11,680 lbs. (5,300 kg) 92 fpm (28 m/min)	11,680 lbs. (5,300 kg) 92 fpm (28 m/min)	Lift and Speed	Line Line
20,000 lbs. (9,075 kg) 37 fpm (11 m/min)	20,000 lbs. (9,075 kg) 37 fpm (11 m/min)	17,520 lbs. (7,950 kg) 61 fpm (19 m/min)	17,520 lbs. (7,950 kg) 61 fpm (19 m/min)	Lift and Speed	S Part Line
1	1	20,000 lbs. (9,075 kg) 46 fpm (14 m/min)	20,000 lbs. (9,075 kg) 46 fpm (14 m/min)	Lift and Speed	Line Line



RADIUS IN

50

BOOM LENGTH IN FEET

ZO SO

à

HEIGHT IN FEET

19FT (LBS)

LOAD RATINGS

ADED 28FT LOADE
OOM BOOM (LBS) ANGLE

LOADED BOOM ANGLE

37FT BOOM (LBS)

46FT BOOM (LBS)

BOOM LENGTH IN FEET

40-

National Series 400A Load Rating Charts

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.

BOOM LENGTH IN FEET 20 30 RADIUS IN FEET 80 50 HEIGHT IN FEET

						Н	IE:	GI	11	11		E	= 1		
45	40	35	30	25	20	18	16	14	12	10	8	თ	4	LOAD RADIUS (FEET)	
						180	32°	43°	52°	590	66°	73°	79°	LOADED BOOM ANGLE	
						5,600	6,700	7,550	8,850	9,750	11,750	15,000	20,000	19FT 800M (LBS)	
				30°	470	53°	57°	62°	66°	71°	75°	79°		LOADED BOOM ANGLE	
				3,900	4,850	5,300	5,800	6,850	7,600	9,150	10,500	12,800		28FT BOOM (LBS)	٥/
		22°	39°	50°	60°	63°	66°	69°	73°	76°	80			LOADED BOOM ANGLE	LOAD RATINGS
		2,450	3,000	3,650	4,500	5,000	5,350	6,050	7,250	8,300	9,850			37FT BOOM (LBS)	INGS
150	32°	45°	53°	60°	67°	69°	72°	74°	77°					LOADED BOOM ANGLE	
1,700	2,150	2,500	2,900	3,400	4,250	4,550	5,100	5,650	6,750					46FT BOOM (LBS)	
								15°	30°	45°	60°	70°	80°	LOADED BOOM ANGLE	
								600	750	950	1,350	1,900	3,000	18FT JIB (LBS)	

							5,450	6,5	7,400	8,70	9,600	11,600	15,000	20,000	(LBS)	1951		
					30°	47°	50 53°	50 57°		90 66°	JO 71°	30 75°)0 79°	ŏ) BOOM ANGLE	_		
							5,250		6,800			10,450	12,750		E (LBS)	_	<u>ر</u>	
			22°	39°	50°	60°	63°	66°	*****	277365	76°	80°			ANGLE	LOADED	LOAD RATINGS	
			2,400	2,950	3,600	4,450	4,950	5,300	6,000	7,200	8,250	9,800			(SBT)	_	TINGS	
	15°	32°	45°	53°	60°	67°	69°	72°	74°	77°					ANGLE	LOADED		
	1,650	2,100	2,450	2,850	3,350	+,200	4,500	5,050	5,600	6,700					(LBS)	46FT		
	150	30°	45°	60°	70°	80%	ANGLE	Mood	LOADED	30°	4ე	60°	70°	80°	ANGLE	LOADED		
	500	650	850	1,300	1,900	3,000	╟	<u></u>	_	450	600	900	1,300	2,100	(LBS)			
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			المنتشخ	<u>-</u>			_											
			~	В	oc	м			GT		IN		EE			18 FT	r 1S1	2ND JIB
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50

30 40 50 60 RADIUS IN FEET

BOOM LENGTH IN FEET

50

RADIUS (FEET)

HEIGHT IN FEET

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							26	رد ا	1 1	440	52°	59°	65°	70°	6	/9	2401	MOON C	OADFD														26	37	440	52°	59"	65	70°	76"	79°	ANGLE	LOADED	
							4,000	3,400	1 000	2	6.950	7,900	9,250	12,200	17,000	20,000	(100)	M008	77FT				I										4,850	5,600	6,250	7,150	8,100	9,450	12,400	17,000	20,000	(LBS)	22FT	
					22°	41	54	200	2	61	°99	69°	73°	77°			WARE	800M	OADED												22°	410	54°	58	61	66°	69°	73°	77°			ANGLE	LOADED	
					2,750	3,550	+,500	5,050	1 1 1 1 1	7. 7. 7.	6.250	7,300	8,500	10.200			(503)	BOOM	3												2,350	3,700	4,700	5,200	5,700	6,400	7,550	8,650	10,300			(LBS)		
			2°	310	4,	54°	62.	g	9	600	710	74°	77°	80			ANGLE	BOOM	OADED	LOAD			ŀ						2°	31°	44°	54°	62°	65°	69°	71°	74°	77°	80°			ANGLE	LOADED	LOAD
			1,300	2,200	2,750	3,350	4,500	4,750	100	7 .	5 850	6,750	8,200	9,450			(00)	NOON WOON	4										1.400	2,300	2,850	3,450	4,400	4,850	5,350	5,950	6,850	8,300	9,550			(LBS)	4 0FT	
		22°	35°	45°	54°	61°	68	à	1 2	926	75°	77°					WINGLE	BOOM	OADED	RATING			l				7.2	330	35°	45°	54°	61°	68°	70°	73 °	75°	77°					ANGLE	LOADED	RATINGS
		1,500	1,850	2,200	2,650	3,200	4,100	4,400	0,000	3	S 600	6,400					(100)	Book		S			١				,,000	3	1.950	2,300	2,750	3,300	4,200	4,500	5,100	5,700	6,500					(LBS)		S
13°	29°	39°				Г	Т	Τ	ò	Т	78°						YI SOLE	BOOM C	OADED				l		13,	2	3 2					66°	Г		76°	78°						ANGLE	LOADED	
900	1,250	1.450	1,750	2,050	2, 4 00	3,000	3,750	4,200	1,/00	- !	5.450							MOOR					l		950	000	3 C	, 5	1 800	2,100	2,450	3,050	3,800	4,250	4,800	5,500						(LBS)		
		30°	45°	60°	70°	80°	1	MOOM	LOADED	2			45°	60°	70°	80°	ANGLE	BOOM	-100050							Ī											30°	45°	60°	70°	80°	ANGLE	LOADED	
		400	650	1,050	-1,600	2,600	d٢		<u> </u>	-			400	750	1,100	1,800	(507)		POET				I														500	750	1,100	1,600	2,600	JIB (LBS)	_	

10 20 30 40 50 60 RADIUS IN FEET						30.	\$50		Y \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	X		<i>t</i>	> > > > > > > > > > > > > > > > > > > >		7	/ / / /	NO JIB	WITH WITH		
•	_	1	10	;	1	20	н		30 a H	T	in	F	EE	50 T			60	-	70	j
	55	50	45	40	35	30	25	20	18	16	14	12	10	œ	6	ហ	(FEET)	LOAD]
								26°	37°	4,	52°	59°	65°	70°	76°	79°	ANGLE	LOADED		
	Ĺ							5,050	5,800	6,450	7,350	8,300	9,650	12,500	17,000	20,000	(SEI)	22FT		
						22°	410	54°	58°	610	66°	69°	73°	77°				BOOM		
	L	_				3,000	3,850	4,850	5,350	5,850	6,550	7,600	8,800	10,400			(LBS)	32FT	LOAD RATINGS	
		_		20	31°	44°	54°	62°	65°	69°	710	7 4°	77°	80°			ANGLE	BOOM	RATIN	
				1,500	2,400	3,000	3,600	4,550	5,000	5,500	6,100	7,000	8,450	9,700			(SEI)	4 G	S	
			22°							73°							ANGLE	HOOM -		
	L		1,700	2,050	2,400	2,850	3,400	4,300	4,600	5,200	5,800	6,600					(LBS)	#85 F186 F186 F186 F186 F186 F186 F186 F186		
	13°	29°			ı					76°	78°						ANGLE	HOADED		
	1,050	1,400	1,600	1,900	2,200	2,550	3,150	3,900	4,350	4,900	5,600						(LBS)	56FT		

Estimated Average Final Weight (No Options included)

NOTES:
(1) GAWR means gross axle weight rating and is dependent on all components of

the vehicle such as axles, tires, springs,

Stability Weight, Reart

Stability Weight, Front†

4,800 lbs. minimum 5,600 lbs. maximum

4,800 lbs. minimum 5,200 lbs. maximum

4,800 lbs. minimum 5,600 lbs. maximum 6,100 lbs.

5,400 lbs. minimum 5,600 lbs. maximum

5,900 lbs

10 inch³ 13 inch³ 10 inch³ 13 inch³

6,800 lbs

10 inch³ 18 inch³

5,000 lbs.

10 inch³

10 inch³ 10 inch³

13 inch³

32 inch³ 15 inch³

10 inch³ 10 inch³ 13 inch³

19,800 lbs.

4,600 lbs.

10 inch³ 10 inch³

19,500 lbs. 4,600 lbs.

(3) Tandem axle trucks must be used for hauling larger payloads.

(2) Minimum axle requirements may increase with use of longer wheelbase,

4800LBS MIN 5600LBS MAX

4600 LBS

STABILIZER -69 -1 MIN 4800 LBS MIN 5200 LBS MAX

4600 LBS

4800LBS

MIN *

STABILIZER

180°

STABILIZER

GAWR when purchasing trucks. trame, etc. meeting manufacturer's nendations. Always specify

service bodies, diesel engines or front

solenoid for smooth crane operation. (5) On trucks shorter than 120 CA, (4) Diesel engines require variable speed governor and energize-to-run fuel

National Series 400A Iruck Specifications

	Mounting Configurations	Configuration 1 with Subbase
	The versatility of the Series 400A can	This configuration allows the installation
	be enhanced by the mounting	of the Series 400A on a chassis with a
	configurations described at the right.	small frame by using the standard
	The configurations are based on the	subbase. In most cases, the chassis will
	456A with an 85% stability factory. The	not require reinforcing and counter-
	complete unit must be installed in	weight will not be required. With this
_	accordance with factory requirements	configuration, a payload of
	and a test performed to determine	approximately 7,000 pounds can be
	actual stability and counterweight	hauled on a minimum truck. Requires
	requirements since individual truck	standard subbase and rear stabilizers.
	chassis vary.	Full capacity work area in rear 180° of
		which from outringer to outringer

vehicle from outrigger to outrigger. origuration, a payload of surprise or proximately 7,000 pounds can be base. In most cases, the chassis will ght will not be required. With this all frame by using the standard led on a minimum truck. Requires ndard subbase and rear stabilizers. require reinforcing and counterne Series 400A on a chassis with a capacity work area in rear 180° of

operat
front a
subbas
configu
sectior
frong s
susper
11 This configuration requires a front stabilizer for full capacity 360° around the truck. A front stabilizer gives the mach

Configuration 2 with Subbase and SFO

- Norma be rei

counterweight in subbase or underside of bed. stabilizers and standard subbase with

360°

mount a firm base. Requires rear

Stable

Gross Axle Weight Rating (GAWR), Rear

Gross Axle Weight Rating (GAWR), Front

9,000 lbs.

180°

19,000 lbs.

19,000 lbs

19,000 lbs. 9,000 lbs.

20 inches on Model 437A, 138 inches on Models 446A, 456A

84 inches on Model 437A, 207 inches on Mo

idels 446A, 456A

19,000 lbs. 9,000 lbs.

19,000 lbs.

9,000 lbs.

360°

207 inchs

139 inches

180°

9,000 lbs.

360°

184 inches on Model 437A, 207 inches on Models 446A, 456A

20 inches on Model 437A, 138 inches on Models 446A, 456A

Frame Section Modulus (SM) under crane 50,000 PSI

Cab to axle/trunnion (CA/CT)

Frame Section Modulus (SM) over rear stabilizers 50,000 PSI

110,000 PSI

110,000 PSI

10 inch³

13 inch³

inforced to these minimums.
ally a tapered front frame cannot
10,000 PSI — 6.2 inch ³
50,000 PSI — 13.5 inch ³
ension and to the front stabilizer:
spring hangers through the front
on modulus from the back of the
juration requires the following
ase. A front stabilizer for this
and rear stabilizers and standard
ttor control crane loads. Requires
ine a solid base, helping the

Configuration 3 with Subbase and Counterweight to outrigger. Configuration 4 without Subbase

The Series 400A can be mounted without the factory-furnished subb provided the truck is above minim and chassis weight. A 400A mour this manner will be 180° stable ov specifications for truck frame stre ear of the vehicle from outrigger

<u>α</u>	The advantages of a rear-mounte
base	Series 400A are: (1) it allows the
num	to effectively use the close-in wor
ength	area to lift heavier loads, and (2)
nted in	solid stability at full rated load. Co
/er the	weight up to 3000 pounds will be
	required on a minimum truck Wit

Configuration 5 with H-D Subbase

hauled on a minimum truck. Underframe stabilizers behind the cab may interfere with the drive line or cause ground clearance problems. If so, contact the configuration, a payload of approximately 5,500 pounds can be required on a minimum truck. With this actory for alternatives. e operator orking) 360° ounter-

FULL CAPACITY WORK AREA	MIN 6100 LBS	21,000 lbs.
FULL CAPACITY WORK AREA	69 120CA* STABILIZER MIN SOOOLBS MAX	20,000 lbs.
360° FULL CAPACITY WORK AREA	138CA — 52- 69-01BS STABILIZER	22,500 lbs.

*May use shorter CA with model 437A or 446A, depending upon bed length. required for 85% stability.



6

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.

겅

of live power lines.

Do not exceed jib

capacities at any

reduced boom lengths.

any accessories, or booms, jib extensions,

oads within 10 feet (3m)

Do not operate crane

crane load chart shows

Caution

Accessories National Series 400A

can equip your 400A to do more than just lift or handle Every Series 400A is part of the National Lifting System. materials, it lets you equip Γhe National Lifting

and manpower on almost every job you do. You'll find you can do more, faster, with finish, you save time, money, so many jobs from start to whole fleet of specialized the cost. noney in your pocket. ess equipment. And that's /ehicles, and at a fraction of perform the functions of a our truck-mounted crane to Because your 400A can do

Note: National 400A. Make it more _ifting System. accessories from the National efficient, hard-working than just a crane with cost-Get the most from your

speed control over all crane functions. oil flow and gives you fingertip the lightweight, easy-to-use way to add extra versatility to National's remote control is

attached to the boom or

Weights of all accessories

availability. dealer or the factory for your crane. Consult your

Model R3

specific accessory availability

Consult your dealer for

lifting capacity.

deducted from the effective loadline of the crane must be

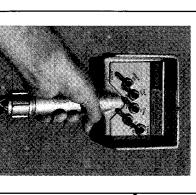
Some accessories cannot be

used in combination with

Model R4
Tilt, turn, telescope and winch Tilt, turn and telescope

certain boom/jib other accessories and/or

combinations.



ľwo Person Basket

Model BS-1

basket is 500 pounds maximum capacity of the pounds (521.6kg). capacities less than 1,150

Remote Control

Strong, lightweight fiberglass

One Person Basket

(136.1kg) capacity puts basket with 300-pound

oersonnel where you want

precise control and total load visibility are required 400A. Ideal for use where remote control for your Series Vational offers one-hand

are built with solid state platforms easily. position loads or work response mean operators can National's remote controls Fine metering and instant

parts. circuitry and few working reliability They are designed for

- operated by a trigger on the cranes from basket with tilt, turn, telescope and winch functions, and R3 with R3 should be used to control A priority control valve Available in two models: R4 turn, and telescope only
- One fiberglass basket 1,100 pounds (499kg) Two fiberglass baskets — 550 pounds (249.5kg)

load chart shows less than a position where the crane crane must not be operated at attached to the crane, the basket.) Easy on-off. Safety belts included. With basket(s)

position.

Continuous rotation. Locks in

Span..... Operation Ground Penetration

Vertical Travel

..... 20"

(38" Frame Height)

.....All-Hydraulic ...

 $\alpha_{\tilde{q}}$

......3", 6" or 13".....

All-HydraulicAll-Hydraulic 6' (RSH-15)

......15", 18" or 25"

.....25"

: યૄ

Front Mounted (Model SFO Fixed)*

(Models RSH-15/18/25)

Rear Mounted

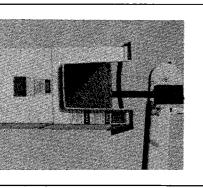
.All stabilizers noted above can be operated from either crane control station

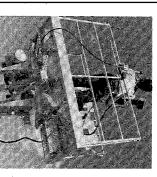
8' (RSH-18/25)

Model B1-L Model B1

With lock

remote control unit, regulates





ever-uperace for stability and locking. load-rated areas where the lever-operated friction brake swing-mounted to self-level Extra capacity steel basket basket must not be used in An adjustable, over-center,

Personnel Platform

placement of the platform. Safety belts included. Fold This extra strength 3 x 6 foot steel platform will carry up to the platform through a Easy-to-operate crank rotates available for precise Optional manual rotator protected by safety valves hydraulically self-leveling and to 70 feet (21.3m). It is dependable chain drive. down sides standard. operate at working heights up 1,000 (453.6kg pounds and

Stabilizers

Rear Mounted (Model ASH)

for protection against dirt and cylinders are fully enclosed horizontal motion. All hydraulic vertical and front and rear stabilizers with

on-the-job damage.

dual basket bracket for twoand installation jobs. Optional them for tough maintenance

basket operation on main

accommodate only one

oom. (Note: Jib will

chart shows capacities less than 2,000 pounds (907.2kg) on Model SLP and 2,200 must not be operated in load pounds (997.9kg) on rated areas where the load Model SLPR The personnel platform

Model SLP Model SLPR

Cross-frame Outriggers



Stabilizers

We offer a complete range of

hydraulic stabilizer, is not vehicle after it has been leveled will provide stability for the Controls designed to lift the vehicle, but *The SFO, a single front mounted The SFO has a 25" vertical

_									_	
Outringer Only 94"	Crane/Outrigger60"	Mounting Space	(38" Frame Height)10"	Ground Penetration	Under-Frame18"	Over-Frame25"	Vertical Travel	Retracted Span7'11"	Extended Span15'6"	

Mounting Outrigger Only..... chassis or both cab at rear ofBehind

Model LMC

Weight:

maximum capacity is

want it and open the

Model 4HO

Hydraulic Oil Cooler

cool the hydraulic oil. is designed to automatically may require this option, which High duty cycle applications



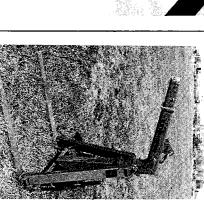
Loose Material

hydrauno noce reel and quick-connect fittings. Extension hoses are for use with jibs. Just versatile accessory to load or National crane with a National clam bucket. Use this hydraulic hose on automatic comes with 50 feet of bite. Hooks easily to loadline, loose materials with e move up to 2/3 cubic yard of Increase the flexibility Clam Bucket position the load where you bucket. each of your

Throat Opening: (adjustable)

Tooth Length: Tooth Width: outside) 33.5" to 57" <u>38</u>

(Manual leveling, adjustable Model MKF



Pallet Fork

National offers two capacity

Capacity Alert System

alert options, the audible-

designed to alert the operator

visual capacity alert system is

ease. versatile, payload-packing fork lift. Great for delivering adjustable throat and teeth (1,996kg) capacity with palleted material right where Handles most loads with you want it. 4,400 lbs. īurns your Series 400A into a

Capacity: 4,400 lbs. at 20" center 41" to 65"

system is hydraulically

The hydraulic capacity alert

on the main boom

activates the truck horn when capacity condition on the crane structure. This system when he reaches a maximum

the capacity load is exceeded

350 lbs. designed to stop all of the sensing device that is operated, maximum capacity cause overload when normal crane functions that

Neither of these systems is capacities. applicable to jib and stability exceeded on the main boom



Model AAS

system) (Hydraulic capacity alert

drive for smoothness and winch with planetary gear Extra capacity, heavy-duty Planetary Winch High Pull

Model PD-12

strength.

Low-profile rear bed mount

for lower

center of gravity

CRANE FRAM

(€ () ()

4

Boom Rests National Series 400A

Specifications

National Series 400A

Cranes are tough when they're in use, but they can be solid, boom rest only way a crane can be wear and damage is a strong, protected from this type of travel from job to job. The severely damaged during

Boom Rests

 Add years to the life of your crane

Reduce stress on the

 Protect rotation gear from transit damage crane trame

Remove stress from truck

 Spread crane load more frame

Horizontal rear bed mount for

greater load space

Rating Required. Larger Front Axle

Front mount for trucks with

tilting hoods

Tractor/trailer rear mount

Larger Front Axle Rating Required.

> Reduce maintenance and down time.

for transit required to provide a positive In addition, boom rests are way to immobilize your crane

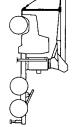
National Crane supplies

be supplied with a boom rest.
NOTE: Only shorter booms
can be stowed forward. factory mounted cranes will for strong, sure protection of your crane. There is a quality fitted with a boom rest. All National Cranes must be National boom rest to fit your ive heavy-duty boom rests nounting configuration. All

truck frame mounting brackets form base for crane

Box construction. Bolt-on

frame and subbase



for prolonged life.

Turret:

alignment and flat surfaces welding to ensure accurate precision machined after mounting surfaces are gearbox, and level indicator attachment. Rotation bearing

Tractor/trailer front mount

surfaces for prolonged life. accurate alignment and flat after welding to ensure and the pin holes are bored Fabricated, rigid structure, well-braced for stability. The bearing surface is machined 375° non-continuous. Rotation:

Rotational force 141,000 in.-

color: National Ivory. advantageous. Standard steels combined with special proof, Hi-Yield, and other General Construction: techniques wherever low-hydrogen welding including T-1, Ex-Ten, Stressow-alloy, high strength steel

Outriggers:

Frame:

greater stability in soft footing cylinders are equipped with pressure loading and of 38 inches. Outrigger span (center of pad at ground valves. Equipped with extra butt-mounted, safety check on truck with a frame height ground level when mounted lowering truck. Can be will not bind when raising or level) moves out-and-down, large pads to reduce ground positioned to 9 inches below

cylinder raises and lowers the boom. Butt-mounted, safety Double-acting hydraulic

brake provides positive, nolbs. (299,000 in.-lbs. breaking strength). Turret rotation is by drift lateral positioning. ball bearing race. Springplanetary gearbox driving a hydraulic orbit motor and applied hydraulic release pinion. The turret rotates on a

"A" frame box-type 16.4-foot

extended at greater radii. maximum loads to be all sides of boom, permitting on nylon plates impregnated portionally under rated load

Holding valves prevent

with molybdenum disulfide or

retraction except under power.

Controls:

holding valve prevents the boom from falling in the event of hose failure. Tough, field-

Boom:

Telescopes hydraulically pro-

Boxed construction

maintenance long life with reduced with micro-honed pins provide and boom pivot combined

tested bearings in tilt, cylinder

and stop switch on both sides. Controls easily removable for maintenance.

operations standard. Horn of load-line and other

sides. Simultaneous operation accelerator identical on both operator platform and foot Dual side, stand-up, with

with 195 feet of 1/2" diameter, arum, brake, and counterbalance valve for "power down" load lowering.* 6,835-pound bare planetary gear reduction, Hydraulic motor with Winch: single line pull available

25 IWRC loadline with pound breaking strength available with 10,200 pounds strength on the standard 29,200-pound breaking rotation resistant, 37,000-220 feet of %6" diameter, bare drum, single line pull, Optional planetary winch is 25 IWRC loadline is available Optional ½" diameter, 23,000. oadline or %6" diameter, 6 x otation resistant loadline. ound breaking strength 6 x

Pump: pound, 3.5:1, single line pull rope is rated at an 8,400pound, 5:1, single line pull and the optional 6 x 25 IWRC wire wire rope is rated at 5,840standard rotation resistant factor requirements, the *Because of ANSI safety

strength.

Cylinders: operation.

29,750-pound breaking

TORSION BOX

One Vickers, high-pressure, high speed, balanced vane eplaceable cartridge-type

TRUCK FRAME

O (0) (⊕

and 12 gpm to crane providing 25 gpm to winch,

stress-relieved, chromeconstruction. Cylinder Micro-honed tubing, Polyurethane U-cup a plated. Piston sets: Shaft packing: Polyurethane U-cup type. Shafts Hi-Yield, der barrels: , buttınd rider

Four-way, spring-centered, spool-type with independe Valves: elief valves set at 2,850

smooth, fast, simultar neous ₫

a minimum safety factor of wire-braid reinforced, having All high-pressure hose is

extend: 36 fpm. Boom retract:
43 fpm. When using remote control, crane function speeds will be reduced by 50% to Operating Speeds: Rotation 375°, 35 seconds. -15°, 16 seconds. Boom seconds. Boom down, 80° to Boom up, -15° to 80°, 20

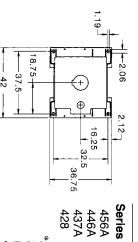
mounted, safety check valves.

assure smooth operation. Oil tank Capacities: boom and 25 gpm on winch.) oad with 12 gpm oil flow on Speeds above assume no

System has an approximate 45-gallon total capacity. out, and magnetic plug. subframe. Sight gauge, clean-Normally mounted on 32-gallon supply tank.

Filter: cartridge, return-line filter. 100% filtration. 10-micron, replaceable-

GROUND LINE 5 30 **—** 37.5 – 46.25 98.5 3.31 CABLE (RL) EXTENDED LENGTH 82. 10 3 79.88 72.35 • 36.75 30.75 15 OF GRAVITY ROTATION 4 Ì 91.75 111.12



21'11" 18'7" 15'7" 12'7"

56, **F** 37, 37, 28,

ဂ 23 23 23 23

7,000 lbs. 7,400 lbs. 7,050 lbs. 6,850 lbs.

8,000 lbs. 7,700 lbs. 7,325 lbs. 7,150 lbs.

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*Dry Weight *W/Oil Weight

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CENTER OF GRAVITY

42

*Above weights do not include subbase, rear stabilizers, jibs, PTO, pump, boom rests, or options. Standard subbase

Subbase dimension: 35" wide x 254" long x 8" high.

weight: 550 pounds.

weight: 1

25 pounds. Rear stabilizer

against overload. system) to protect circuits (maximum 3,050 psi on winch

5