

NATIONAL N-95

Truck-Mounted Articulating Cranes and Accessories

Maximum Capacity: 15,500 Pounds (7.1 Metric Tons)

Reach Above Truck Frame: 45 Feet (13.7 Meters)

Reach Below Truck Frame: 30 Feet (9.1 Meters)

Horizontal Reach: 39 Feet (11.9 Meters)



**America's Truck-Mounted
Hydraulic Crane Leader**

National N-95 Articulating Crane



National is America's leading manufacturer of commercial truck-mounted telescoping and articulating cranes. We build cranes for a wide range of jobs. Nobody builds them better. Nationals are tough, durable, and dependable. They are designed for ease of operation.

With a National, you are assured a well-engineered, well-manufactured, and fully tested machine designed for your applications. At National, we put quality first. Our commitment to product quality is our pledge to provide our customers with reliable products designed to provide years of service.

The National N-95 is a high-capacity crane that can replace many pieces of general lifting, loading and construction equipment. Coupled with our full line of accessories, the N-95 performs many functions quickly and easily. Yet, it still gives you a payload-carrying truck. When not in use, the N-95 stows neatly behind the cab.

Put a National N-95 to work on your jobs. You will be impressed with its low cost and high productivity. It's the versatile alternative to whatever you're now using for general purpose lifting, loading and unloading.

- 15,500-pound (7.1 MT) capacity
- 45-foot (13.7 m) vertical reach
- 39-foot (11.9 m) horizontal reach
- 30-foot (9.1 m) reach below truck frame
- Strong boom sections manufactured from low-alloy high-strength steel
- Extra-large-diameter pins at pivots
- Hard-chrome-plated cylinder shafts
- N-95/H39 with two hydraulic extensions to 26½ feet (8.1 m) with two easy-to-handle pullout manual boom extensions to 39 feet (11.9 m)
- Dual waist-level controls
- Wide, fully-hydraulic outriggers
- Heavy-duty hydraulics
- Rack-and-pinion rotation for precision and durability
- Mounts on standard, single axle trucks

Built strong

The National N-95 is designed for tough materials-handling jobs, so we manufacture it from extra-tough, low-alloy, high-strength steel.

Cylinder shafts are hard-chrome plated. And high-pressure tubing is used wherever possible to reduce hose wear.

The heavy-duty wire-braided hydraulic hoses are routed inside structural members where possible for protection from bumps, twists, cuts and abrasions. Our special three-point mounting system absorbs loading flex, protecting the truck frame from excessive stress.

Every N-95 undergoes hundreds of quality control inspections, including ultrasonic testing for weld penetration. All prototype models are stress tested and run through thousands of brutal work cycles to make sure your N-95 will work year after year.

Heavy-duty hydraulics

All N-95 couplings and fittings are high quality and all cylinders are double-acting for smooth, positive control. High-capacity, heavy-duty pumps are standard and our specially-designed oil tanks are detachable for quick, easy maintenance.

American-made

All National cranes are built in America from American-made components. Parts are readily available and service is easily obtained, should you need it.

Wide, fully hydraulic outriggers for stability, fast set-up

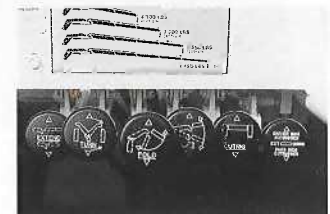
Fully hydraulic outriggers are standard for fast, easy set-up from either side of the standard dual controls. Outriggers extend 14½ feet (4.4 m) horizontally and 25½ inches (65 cm) vertically. Wide stance and extra vertical travel, plus extra-large outrigger pads, give you extra stability even on soft or uneven ground.

Standard automatic check valves prevent settling of outriggers. The vertical cylinders lock automatically when stowed, so they will not leak down in transit.



Easy operation

The N-95 gives you waist-level dual controls without extra cost. The operator can work from either side of the crane and keep the boom and load in view at all times. The control knobs are illustrated with function symbols and operate smooth, fine-metering, five-spool control valves for pinpoint accuracy. The boom can be worked and rotated simultaneously. You won't find a crane that's easier to use. Additional valve banks can be added easily for operating any of our many hydraulic accessories.

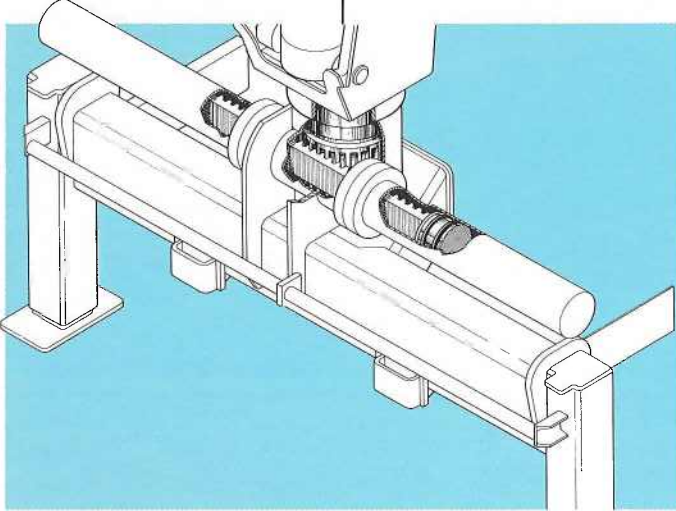


National Warranty, Parts and Service

Rack and pinion rotation

All National Articulating Cranes give you the precision and control of rack and pinion rotation. Our rack and pinion system is simple, reliable and, because it has few parts, easy

to maintain. Service is easy. Rack and pinion rotation also reduces the bulk of the crane frame above the truck, lowering the center of gravity for greater stability.



The National Testing Program

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 program 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 boom. After loading the boom, 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.

More than 400 individual quality control inspections are made on each National crane during manufacture and assembly. National attention to testing ensures that each crane delivered to the field is as close to perfect as state-of-the-art technology permits.

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 getting a nationwide dealer warranty service network, strong warranty protection and our 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 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 85% 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 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.



Caution

Do not operate crane booms, jib extensions, any accessories, or loads within 10 feet (3m) of live power lines.

Jib and boom capacities shown are maximum for each section. Do not exceed capacities at reduced radii.

National N-95 Articulating Crane

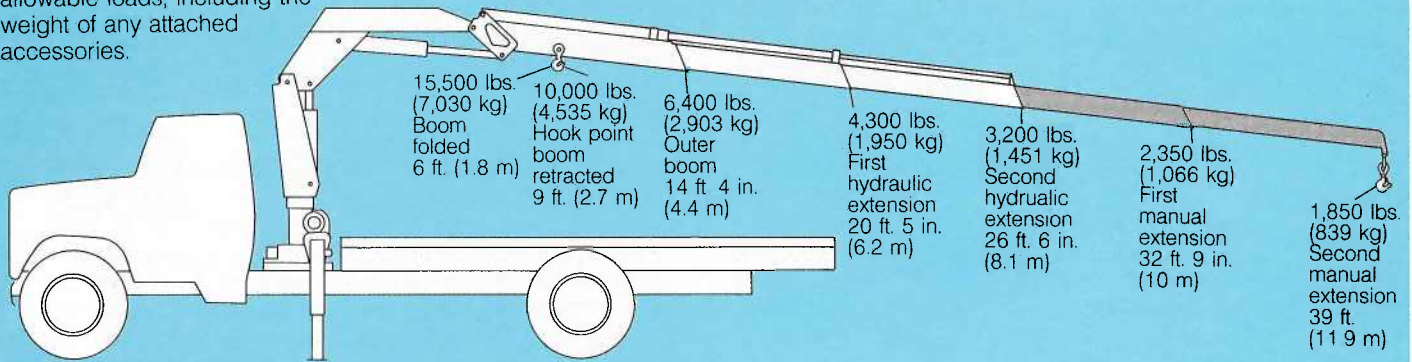
N-95 (Model 39) Lift and Reach Capabilities

Lifting capacities shown at each length are maximum allowable loads, including the weight of any attached accessories.

Jib and boom capacities shown are maximum for each section. Do not exceed capacities at reduced radii.

Foot/pound rating at 6 ft.: 93,000
(Shaded extensions denote Model 39.)

(Shaded extension denotes manual extensions.)



The Basic Unit (Model 26)*

- Hydraulic reservoir
- Two hydraulic outriggers with hydraulic extension to 14' 6" (4.4 m) span
- Frame, inner boom, outer boom with two hydraulic extensions to 26' 6" (8.1 m)
- 390° rotation
- Five spool control valves
- Boom cylinders have pilot operated holding valves with internal safety relief valves to help protect against overload
- Dual controls
- Crane hook
- Hydraulic pump and easy mounting group

*Model 39 is the same as the basic unit but with two manual extensions providing a reach of 39'

Maximum reach (Model 26)

- Above truck frame to 33 feet (10 m)
- Below truck frame to 17 feet 9 inches (5.4 m)
- Horizontal to 26 feet 6 inches (8.1 m)

Technical Data

Working Pressure	2,950 psi	201 bar
Pump Capacity	(vane-type pump)	14 gallons/min. 53 liters/min.
Reservoir Oil Capacity	16 gallons	61 liters
Outrigger Span	14' 6"	4.4 m
Stowed Height	(above truck frame)	7' 3" 2.2 m
Weight (95/39)	5,140 lbs.	2,332 kg
Filter	10 micron replaceable	(spin-on type) filter
Rotation	390°	390°
Mounting Space Required	34"	87 cm

Manual Extension Option (Model 39)

Add extra versatility to your N-95 by specifying the H39 option. It replaces the standard boom with the two all-hydraulic extensions and two manual boom extensions.

The hydraulic extensions retract and extend under full load up to 26' 6" (8.1 m). The two manual extensions extend the reach to 39 feet (11.9 m). Held in or out with a single pin, the manual pull-outs are quick to rig, easy to use.

Maximum Reach

- Above truck frame to 45 feet (13.7 m)
- Below truck frame to 30 feet (9.1 m)
- Horizontal to 39 feet (11.9 m)

Special Safety Features

- Overload relief with holding valves on lift, fold and extend cylinders
- Dual hydraulic controls
- Double-acting cylinders
- Pilot operated outrigger check valves (standard)



National N-95 Mounting Specifications

Mounting

It is essential that the truck used for mounting this crane meet the minimum requirements (shown at right) for capacity loads.

Minimum Truck Specifications

180° Working Area

This vehicle will permit lifting capacity loads in all areas around the rear of the vehicle in an 180° arc from outrigger to outrigger. No load should be lifted over the front of the vehicle unless extra stabilizing provisions are made, such as the addition of front stabilizers or extra weight in the truck bed.

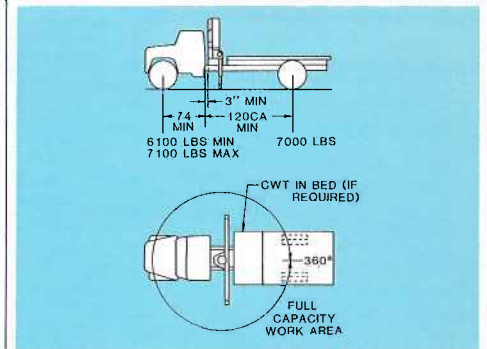
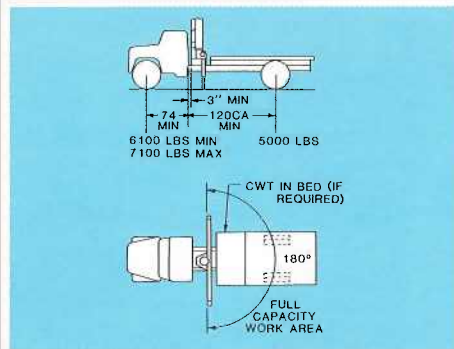
360° Working Area

This vehicle will permit lifting capacity loads in all areas around the vehicle in a 360° arc. Caution should be employed when rotating from the rear to front as the vehicle springs will compress and cause a change in the level of the vehicle. Always rotate loads slowly and smoothly to maximize control.

Minimum Wheelbase	194 inches	194 inches
Rear of Cab to Rear Axle	120 inches	120 inches
Recommended Axle Rating (Front)*	10,860 pounds GAWR*	10,860 pounds GAWR*
Recommended Axle Rating (Rear)	18,500 pounds GAWR	18,500 pounds GAWR
Working Area	180°	360°
Truck Weight	11,100 pounds	13,100 pounds
Chassis Weight Front Axle*	6,100 pounds minimum* 7,100 pounds maximum	6,100 pounds minimum* 7,100 pounds maximum
Chassis Weight Rear Axle	5,000 pounds minimum	7,000 pounds minimum
Frame	21-inch ³ section modulus with 50,000 PSI yield steel = 1,050,000 in-lb rbm 14-inch ³ section modulus with 100,000 PSI yield steel = 1,400,000 in-lb rbm	
Frame Height	42 inches or less preferred	
Power Take-Off	70-80 percent of engine speed. Minimum horsepower 30 at 1,400 rpm	

NOTES:

- (1) GAWR means Gross Axle Weight Rating and is dependent on all components of the vehicle such as axles, tires, wheels, springs, brakes, steering and frame strength meeting manufacturer's recommendations. **Always specify GAWR when purchasing trucks.**
- (2) Minimum axle requirements may increase with use of diesel engines, longer wheelbase or service bodies. Contact factory for further information.
- (3) Chassis weight includes bed.
- (4) Diesel engines require variable speed governor.



*If front axle chassis weight is less than 6,100 pounds, counterweight may be required to lift rated capacity loads to keep unit stable.



National N-95 Options and Accessories

Every National N-95 is more than just a crane. It's part of a complete lifting system.

The National Lifting System equips your crane to do more than just lift or handle materials. The accessories shown here enable one truck-mounted N-95 to perform jobs that typically require a whole fleet of specialized, expensive vehicles. With a National, you can do more, faster, with less equipment and less manpower. That's money in your pocket.

NOTE:

Weights of all accessories attached to the boom or loadline of the crane must be deducted from the effective lifting capacity. Some accessories cannot be used in combination with other accessories. Consult your dealer for specific accessory availability.

Accessory Control Valves

These additional control units are required for the operation of hydraulic accessories. Comes complete with controls for both sides of your machine, hoses, quick couplers and piping to the end of the second boom section. Available in two models: AH1 single function for rotator or auger and AH2 (pictured) with two functions for grapple or clam bucket. Mount easily on existing control panel.

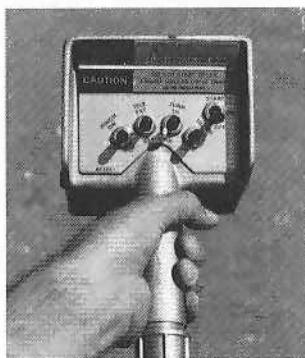
Model AH1
Model AH2

Remote Control

The latest edition of our one-hand remote control. Ideal for use where precise control and total load visibility are required. Fine metering and instant response enables operators to position loads easily.

Now, it's more reliable than ever with solid state circuitry and fewer parts than previous systems we have offered. Other improvements include higher operating speeds and modular design. Works with standard dual controls. MR4 for lift, turn, fold and extend. MR5 is the same as MR4, plus one accessory MR6 is the same as MR4, plus two accessories.

Priority control valve operated by a trigger on the remote control unit, regulates oil flow and gives you fingertip speed control over all crane functions.



Model MR4
Model MR5
(Requires one accessory)
Model MR6
(Requires two accessories)

Note: Diesel engines require an electric engine shutoff.

Hydraulic Auger

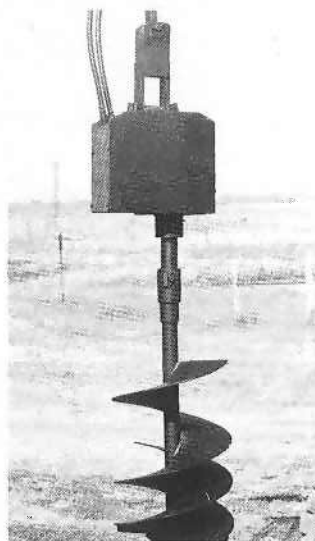
This popular N-95 accessory gives you digging depths to 4½ feet (1.8 m) and flightings up to 18 inches (46 cm). Attaches easily, works fast and disconnects quickly. Requires 14 gpm (53 L/min) pump and AH1 Accessory Control Valve group. Optional extension will provide a digging depth to 6½ feet (2.4 m). Contact factory for details.

Reach16' 3"
Reduction4:1
RPM.....70 rpm at 14 gpm
Pressure2,850 psi
Pump.....14 gpm required
Torque Output1,450 ft./lbs.
Drive Weight.....205 lbs.
Length48" overall
ControlsRequires AH1 hydraulic control valve option

Flightings and Weight:

Flightings	Length	Weight
9"	30" double flighting	.66 lbs.
12"	30" double flighting	.78 lbs.
15"	30" double flighting	.92 lbs.
18"	30" double flighting	1.23 lbs.

Model AG

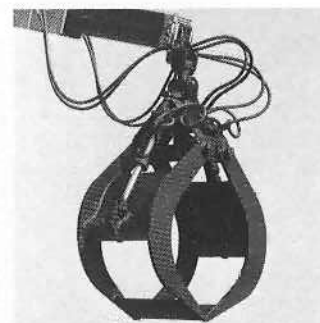


Clam Bucket and Grapples

Turn your N-95 into more than a crane with National clam bucket or grapple attachments. The clam bucket can be used to load or move loose materials in 1/3 cubic yard (.25 m³) bites. The grapples, available in butt or bypassing type, will get a grasp on difficult handling jobs. Butt type handles up to 1/3 cord, bypassing will pick up 36-inch (91 cm) log or pipe. One person can install and remove bucket or grapples easily. Both come with hydraulic rotator and quick-connect fittings. Require AH-2 Accessory Control Valves.

	Butt Type	By-passing	Clam
Capacity	1/3 cord	36" log or pipe	1/3 yd. ³
Rotation Opening	315°	315°	315°
Max.	72"	66"	72"
Min.	30"	6"	
Weight	650 lbs.	650 lbs.	650 lbs.
Height			
Open	38"	41"	38"
Closed	58"	54½"	58"
Tooth Width		Teeth Width	Width
20"		Front 12"	36"
		Back 20"	
		(2, 3" wide teeth, 14" apart)	

Clam Bucket
Model GPC
Butt Grapple
Model BTG
Bypassing Grapple
Model BPG



Pallet Fork

Turns your N-95 into a versatile, payload-packing fork lift. Great for delivering palletted materials where you want them. 4,400 pounds (1,996 kg) capacity with adjustable throat and teeth. Handles most loads with ease. Available with hydraulic leveling or with a manual slide collar for leveling. For extra versatility, specify a National Hydraulic Rotator.

Capacity 4,400 lbs
Throat Opening 41" to 65"
 (adjustable)

Tooth Length 38½"
Tooth Width 33.5" to 57"
 (outside to outside) min. max.

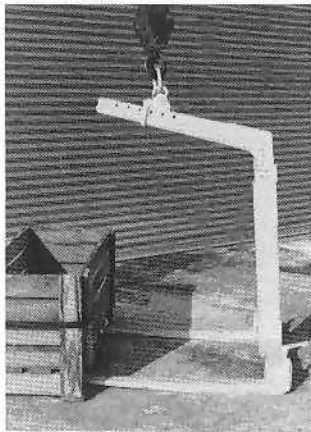
Weight
 MKF 350 lbs.
 HKF 350 lbs.
 HKFR 450 lbs.

Model MKF
 (Manual leveling, adjustable throat)

Model HKF
 (Hydraulic leveling, adjustable throat)

Requires AH1

Model HKFR
 (Hydraulic leveling, adjustable throat with hydraulic rotator)
 Requires AH2



Winch

This extra-capacity, heavy-duty winch handles up to 4,400 pounds with a single part block and 6,150 pounds with a two-part block. Easy single-pin attachment of boom-tip sheave head. Includes winch control and the anti-two-block feature to prevent cable damage when winching up or extending the

boom without paying out the winch cable. The winch option reduces the capacities by approximately 200 pounds and eliminates the hook point on the outer section boom.

Model N5

Line Pull
 1st wrap 5,300 lbs.
 2nd wrap 4,800 lbs.
 3rd wrap 4,400 lbs.

Speed
 1st wrap 62 ft./min.
 2nd wrap 69 ft./min.
 3rd wrap 76 ft./min.

Cable
 90 ft. of 7/16" rotation resistant cable.

Winch
 7½" dia. drum, 11.62" dia. flange, 6.38" wide with safety brake. OSHA required 18:1 ratio drum diameter to cable diameter.

Sheaves
 Run on roller bearings with OSHA required 18:1 ratio sheave diameter to cable diameter.

Controls
 Includes hydraulic control valve and hoses to winch.

One Person Basket

This strong, lightweight fiberglass basket with 300-pound capacity puts personnel where you want them for the occasional tough maintenance and installation jobs. Easy on-off. Safety belts included. Gravity or lock-type leveling.

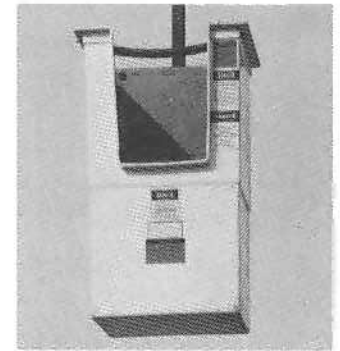
Capacity 300 lbs.
Weight 150 lbs.
Dimensions 22" x 22" x 42"
Construction Fiberglass

2 Models

B1, gravity hung without lock
 B1-L, gravity hung with swing lock

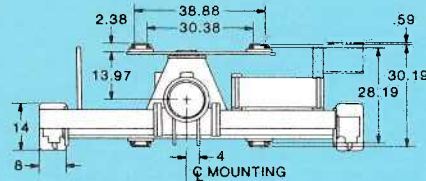
Includes safety belt and lanyard. Cannot be used simultaneously with winch.

Model B1
Model B1-L
 (with lock)

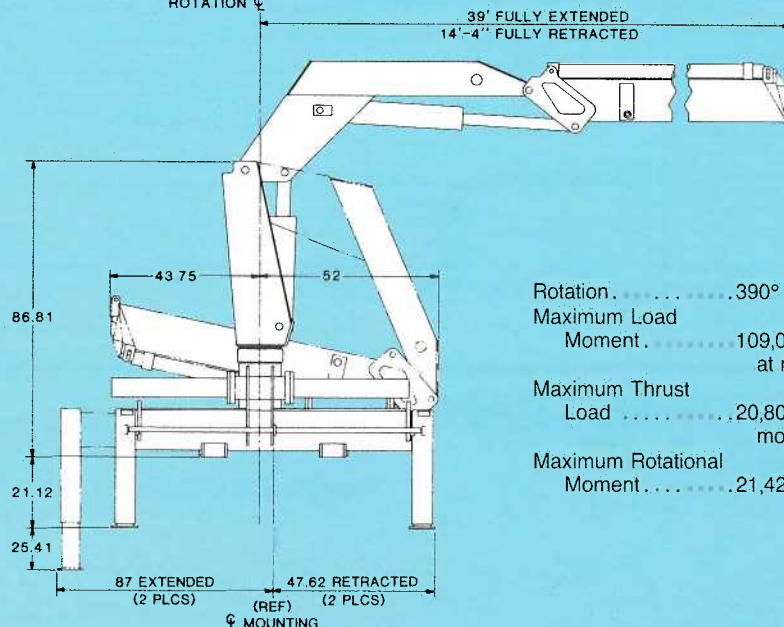


Caution

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National N-95 Dimensional Specifications



Rotation 390° noncontinuous
 Maximum Load Moment 109,000 foot/pounds at mounting surface
 Maximum Thrust Load 20,800 pounds at mounting surface
 Maximum Rotational Moment 21,420 foot/pounds

National N-95 Proposal



Date: _____

Prepared for: _____

Submitted by: _____

(Firm Name)

(Address)

(City & State)

(Zip)

(Phone)

Signed: _____

Description

Basic N-95 N-95/26
 N-95/39

Options/Accessories:

1. Optional controls

MR4 Remote \$ _____
 MR5 Remote \$ _____
 MR6 Remote \$ _____

2. Auger AG95 Flighting: 9" 12" 15" 18" \$ _____

3. Winch N5 \$ _____

4. Pallet Fork 2-Part Block \$ _____
 MKF Manual Leveling \$ _____
 HFK Hydraulic Leveling \$ _____
 MKFR Hydraulic Leveling with Hydraulic Rotator \$ _____

5. Grapples or Clam Bucket BTG Butt \$ _____
 BPG Bypassing \$ _____
 GPC \$ _____

6. Accessory Valves AH1 Single Control \$ _____
 AH2 Dual Control \$ _____

7. One Person Basket \$ _____

8. Other _____ \$ _____

Mounting:

9. Installation Std. Spec. \$ _____
 10. Frame reinforcing Weld Bolt-Extra \$ _____
 11. Platform Bed _____ft. Wood Steel \$ _____
 12. Weight in bed _____lbs. (if required) \$ _____
 13. Chassis _____ \$ _____
 14. Rear Bumper Protection _____ \$ _____
 15. Back-up Alarm _____ \$ _____
 16. Freight _____ \$ _____

Sub Total

This quotation will remain firm for _____ days.

Accepted by: _____
 (Name) (Title)

\$ _____
Total Price

(Firm Name)

Date: _____



General Offices

11200 North 148th Street/Waverly, NE 68462/402/786-2240
 Telex: 438061

Your National Dealer:

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