



NATIONAL CRANE

Subsidiary of Kadoe, Inc.

General Offices:

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Service Center:

701 N.W. 27th Street/Lincoln, NE 68528
402/474-2666

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

NATIONAL SERIES 214CM

Corner Mount

Truck-Mounted Hydraulic Crane and Accessories

Maximum Vertical Reach: 24 Feet (7.3 Meters)

Maximum Capacity at 4-Foot Radius: 11,000 Pounds (5.0 Metric Tons)



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

NATIONAL SERIES 214CM



National Crane has been committed to serving the railroad industry's lifting needs for many years. A tradition of innovation and improvement makes the National name a trusted one all along America's railways. The Series 214CM continues that quality tradition as the "all-around" product for railroad maintenance.

At National, we strive to design and manufacture products that will best meet the needs of the customers we serve. As a National owner,

you are assured of receiving a highly engineered, well-manufactured and fully tested machine. Our commitment to quality is our pledge to provide our customers with reliable products designed for years of service.

The railroads are a valuable component of this country's transportation system. We are proud to be a part of the industry and committed to continued growth and service to this important market.

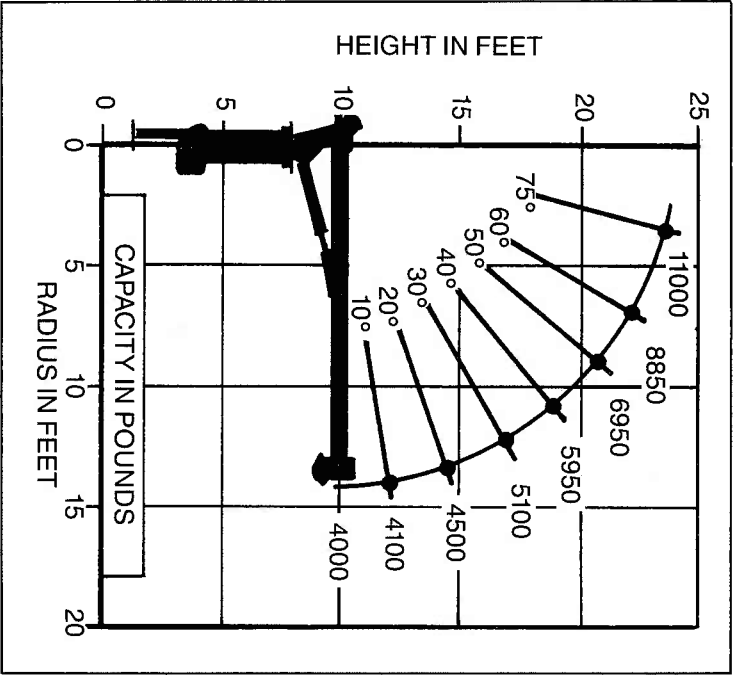
National Series 214CM Corner Mount Unit

- **Versatility**
The corner mount design turns one truck into a complete, multipurpose service unit with space for a crew cab adjacent to the crane, a dump body or flat bed, rail racks and more.
- **Mobility**
A smaller, single rear-axle truck can be utilized for service allowing greater maneuverability and ease of operation even in a confined work area.
- **Rotation resistant wire rope**
National uses specially-designed wire rope that maintains heavy-duty capacities without spin or twist while lifting.
- **Rotation resistant**
- **Economy**
The special engineering and application of this unit minimizes expense. A smaller vehicle can be utilized and less expensive crane features maximize value at a low cost.
- **Planetary rotation gearbox**
Hydraulic release brake and slip-through feature help protect the rotation system against damage from accidental side loading.
- **Outriggers**
Offset outrigger keeps corner mount unit centered in outrigger span for stability. Out and down outrigger powers both horizontally and vertically to clear any obstructions.
- **Holding Valves**
All holding valves are mounted directly to the cylinder for added safety in the event of hose failure.



National Series 214CM Boom Data

- Do not operate cranes or accessories within 10 feet of live power lines.**
1. Load ratings shown are maximum allowable loads with the outriggers properly extended on a firm, level surface and the crane leveled and mounted in a factory-recommended configuration.
 2. The operator must reduce loads to allow for factors such as wind, ground conditions, operating speeds and the effect of freely suspended loads.
 3. Overloading the crane may cause structural collapse or instability.
 4. Weights of any accessories attached to the boom or load-line must be deducted from the load chart capacities.



National Series 214CM Winch Data

⚠ WARNING	One Part Line		Two Part Line	
• Keep at least three wraps of load line on drum at all times • Use only the specified cable on this machine.				

Winch	Cable Supplied	Average Breaking Strength	Lift & Speed	
Standard	1 1/2" diam.	27,500 lbs.	1 Part	5,500 lbs.
Worm	19x7		55 fpm	
Gear	Dyform		2 Part	11,000 lbs.
				27 fpm

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

Winch	Bare Drum Pull	Allowable Cable Pull
Standard Worm	7,100 lbs.	5,500 lbs.
Gear		

National Crane features rotation resistant wire rope as standard on all models.



National Series 214CM Truck Specifications

The complete Series 214CM unit must be installed on the truck in accordance with factory requirements and a test performed to determine actual stability and counterweight requirements since individual truck chassis vary. It should be noted that since the 214CM is corner mounted, frame rail requirements differ under the Frame Section Modulus specifications for mounting side versus the other side.

Gross Axle Weight Rating (GAWR)
Front . . . 9,000 pounds
Gross Axle Weight Rating (GAWR)
Rear . . . 17,500 pounds
Wheelbase (WB) . . 177 inches
Cab to Axle (CA) . 108 inches
Frame Section Modulus (SM) front axle to rear axle mounting side
50,000 PSI . . . 28 inch³
or
110,000 PSI . . . 21 inch³
front axle to rear axle
other side
50,000 PSI . . . 10 inch³
110,000 PSI . . . 10 inch³

Estimated bare chassis weight required for stability prior to installation of crane or accessories
Front . . . 4,800 pounds
Rear . . . 3,400 pounds
Estimated Final Average Weight . . . 13,000 pounds

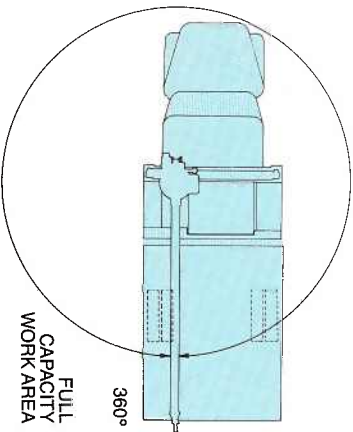
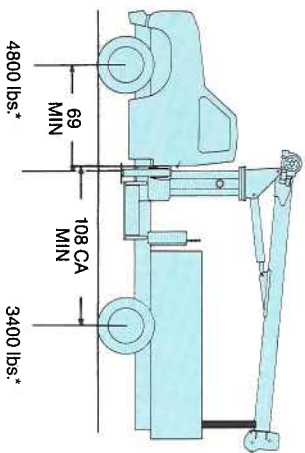
NOTES:

(1) Requirements for maximum front and rear axle weights vary from state to state. Contact factory for details.

(2) 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 recommendation. **Always specify GAWR when purchasing trucks.**

(3) Minimum axle requirements may increase if more payload carrying capabilities are required and local regulations allow.

(4) Diesel engines require variable speed governor and energize-to-run fuel solenoid for smooth crane operation.



* Bed weight of 1,250 pounds is required for stability with noted axle weights.

National Warranty Parts and Service

The National Warranty

Our 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 can normally provide the part to the dealer within 48 hours on request. 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 Crane maintains a well-equipped service center. Our central location 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.



National Series 214CM Specifications

General Construction
High-strength, low alloy and other steel including T-1, Ex-Ten, Stressproof and Hi-Yield are combined with special low-hydrogen welding techniques wherever advantageous. Standard color: Painted National Ivory.

Frame
The frame is constructed of high strength, low alloy steel shear plate mounted.

Rotation
375° non-continuous. Rotation force 70,000 in.-lbs. Turret rotation is by hydraulic orbit motor and planetary gear box driving a pinion. The turret rotates on a ball-bearing race. Spring-applied hydraulic release brake provides positive, no-drift lateral positioning. Slip-through feature helps protect the rotation system against damage from accidental side loading.

Outriggers
One beam and box style out-and-down stabilizer and one horizontally fixed unit with vertical extension. Span is 9'11" from pad to pad. All-hydraulic extension provides 25" vertical travel and 24" horizontal movement. Standard automatic check valves and cylinder locks.

Lift
Double-acting hydraulic cylinder raises and lowers boom. Butt-mounted safety holding valve prevents boom fall in event of hose failure.

Boom
Fixed 14 ft. boom. Rectangular steel tube construction for strength with economy.

Controls
Dual hydraulic controls on operator's platform. Platform is separate piece from crane allowing most advantageous mounting position. Control platform bolts to truck frame.

Pump
Vickers vane type single pump with replaceable cartridge. Provides 7.5 and 17.5 gpm, maximum.

Filter
Return line 10-micron spin-on type.

Cylinders
All shafts chrome-plated and stress-relieved. Polyurethane "U" cup packing and seals. All load supporting cylinders have direct-mounted load holding valves. Butt-mounted.

Valves
Main control valves are stackable, 4-Way, 3-position with main system relief set at 2,850 psi to protect pump. Low-effort spools with fine metering. Fittings and valves engineered for maximum serviceability. Emergency stop and horn switches on console.

Hose
All high pressure, wire braid reinforced hose with minimum 4 to 1 safety factor.

Operating Speeds:
Rotate 37.5°: 35 sec. (1.75 RPM). Tilt up, -20° to 75°: 16 sec. Tilt down, +75° to -25°: 12 sec. Speeds based on 7.5 GPM at 2,850 psi.

Oil Tank Capacities
21-gallon capacity. Mounted on operator's platform for easy access.

