

OWNER'S MANUAL

This manual has been prepared for and is considered part of -

900A Series Telescoping Crane

Crane Model Number

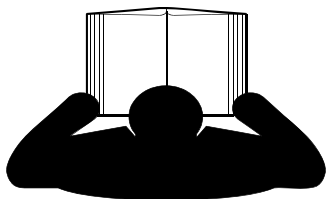
This Manual is divided into the following sections:

**INTRODUCTION AND TABLE OF CONTENTS
SAFETY INFORMATION
OPERATING CONTROLS AND PROCEDURES
MAINTENANCE INSPECTION
LUBRICATION
SERVICE
SPECIFICATIONS
INSTALLATION CONFIGURATIONS
INSTALLATION PROCEDURES
OPTIONS**

NOTICE

The crane serial number is the only method your distributor or the factory has of providing you with correct parts and service information.

The crane serial number is identified on the builder's decal attached to the crane frame. ***Always furnish crane serial number*** when ordering parts or communicating service problems with your distributor or the factory.



WARNING

To prevent death or serious injury:

- Avoid unsafe operation and maintenance.
- This crane must be operated and maintained by trained and experienced personnel. National Crane is not responsible for qualifying these personnel.
- Do not operate or work on this crane without first reading and understanding Operator's Manual and Load Chart supplied with crane.
- Store Operator's Manual in holder provided on crane.

SAFETY

SAFETY RESPONSIBILITIES



The single most important factor in the prevention of equipment failures and accidents is a positive attitude towards safety.

Failure to read this manual is a misuse of the equipment. Anyone who will supervise, operate, service or work around this crane shall first read this manual. Death or serious injury can result from improper use or maintenance of this machine.

Occupational safety is of prime concern to the National Crane Corporation in the design and production of this crane. This manual was written with the safety of the operator and others who work around this equipment as our goal.

It is your responsibility to know the specific requirements, governmental regulations, precautions and work hazards which exist. You shall make these known to all personnel working with the equipment or in the area, so that all of you may take the necessary and required safety precautions. Failure to heed these instructions can result in death or serious injury.

Safety is dependent upon all people who are associated with the machine. The condition of the equipment, the maintenance and inspection procedures and the operating procedures are all equally important.

It is your responsibility to operate and maintain your crane with skill, good judgment and caution. Following recognized safety procedures will help you avoid accidents. Modifications to any part of this crane can create a safety hazard and therefore shall not be made without the manufacturer's written approval. Use only factory approved parts to repair or maintain this equipment. If this equipment is rebuilt or remounted, mounting proce-

dures, retesting and recertification is required in accordance with factory instructions.

MANAGEMENT/SUPERVISORY RESPONSIBILITIES

As an owner or employer, it is your responsibility to instruct the operator in the safe operation of your equipment and to provide the operator with properly maintained equipment. See that operators are properly trained, competent, physically fit and if required, licensed. Good vision, good judgment, coordination and mental ability are required. Any person who lacks any of these qualities must not be allowed to operate a crane.

Signalmen must have good vision and sound judgment, know standard crane signals and be able to give signals clearly. They must have enough experience to recognize hazards and signal the operator to avoid them.

Riggers must be trained to determine weights and distances and to select and properly use lifting tackle. It is management's responsibility to see that riggers are properly trained.

Crew members must be given specific safety responsibilities and instructed to report any unsafe conditions to the operator or their supervisors.

OPERATOR'S RESPONSIBILITIES

Safety must always be the operators most important concern. He must refuse to operate when he knows it's unsafe and consult his supervisor when safety is in doubt. He must read and understand the Operator's Manual and see that the machine is in proper working order before operating. He must understand the rating

CARE OF WIRE ROPE

Care is required in the handling of wire rope to prevent damage to the rope or the individual wires which will affect the overall strength and performance of the rope. The formation of kinks should always be prevented as this displaces the strands of wire from their original position and relation to each other causing severe bending and unequal tensions in the strands. This distortion and wire displacement cannot be corrected even under high tension and a permanent weak point remains in the rope. Displaced or raised wires indicate a previous kink, but will not show the damaged condition of the inner rope wires.

Wire rope should never be pulled over a non-rotating support such as a spindle bar, a pin or an inoperative sheave. This practice causes severe abrasion to the outer strand wires. A properly operating sheave or snatch block is essential to safety and long service life of the rope.

The use of worn sheaves or sheaves with flat grooves should be avoided since they do not provide sufficient support to prevent the distortion and flattening of the rope as it passes over the sheave. Sheaves having nicked or broken flanges are likely to cut or otherwise damage the rope and should not be used.

An even distribution of wire rope coils over the hoist drum is essential to smooth operation and to prevent rope from either cutting down through or crushing other coils on the drum with resultant damage to the rope and difficulty in unreeling rope.

ROPE CONSTRUCTION

If wire rope replacement is required for crane extension system, replacement ropes must be obtained through The National Crane Product Support Department. Extension ropes are prestretched and have special connections for proper operation.

Standard

9/16 in. (14.3mm) Dia. Wire Rope	Rotation Resistant Nominal Breaking Strength 19.25 tons (17,463 kg)
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Optional

9/16 in. (14.3mm) Dia. Wire Rope	6x25 General purpose Nominal Breaking Strength 16.8 tons (15,241 kg)
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If wire rope replacement is required for crane loadline, care should be taken in selecting a wire rope suitable for crane use. Wire rope strength requirements are shown on the crane capacity chart to match the winch option selected when the crane was purchased. Rope construction required is optional with 6 x 25 and Dyform being the most common lifting ropes. High strength, rotation resistant is preferred and furnished standard by

National Crane. This rope eliminates single part line load spin. It also eliminates load block spin up when multi-part reeving is used which results in prolonged rope life. **Do not use a swivel on rotation resistant rope. A swivel on this rope will cause premature rope core failure.**

ADJUSTMENTS AND REPAIRS

Before adjustments and repairs are started on a crane, the following precautions shall be taken as applicable:

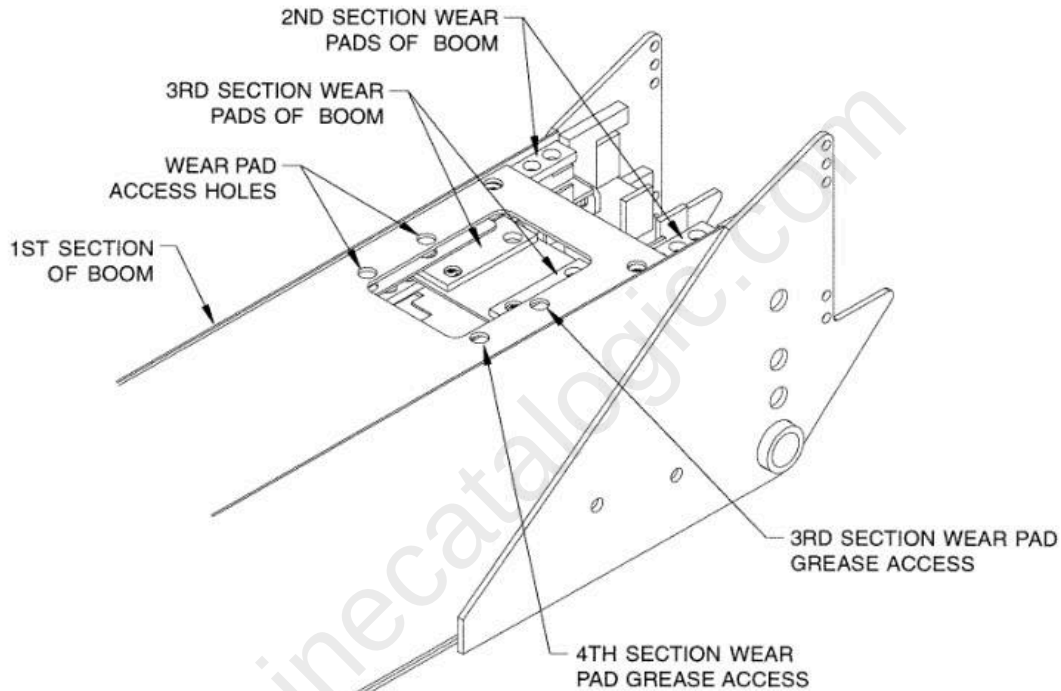
1. A warning tag should be placed in a conspicuous place at the controls stating that the machine requires adjustment or repair before it can be operated.
2. The crane should be placed where it will cause the least interference with other equipment or operations in the area.
3. All controls at the OFF position and all operating features secured from inadvertent motion by brakes or other means.
4. All methods used to start the truck's engine rendered inoperative.
5. Power plant stopped or disconnected at take-off.
6. Boom lowered to the ground or otherwise secured against dropping.
7. Load block lowered to ground or otherwise secured against dropping.
8. Relieve hydraulic oil pressure from all hydraulic circuits before loosening or removing hydraulic components.

After adjustments and repairs have been made, the crane shall not be returned to service until all guards have been reinstalled, trapped air removed from hydraulic system if required, safety devices reactivated, and maintenance equipment and all warning tags removed.

Any hazardous conditions disclosed by the inspection requirements listed above shall be corrected before operation of the crane is resumed. Adjustments and repairs shall be done only by designated personnel who are properly trained. Use only National Crane supplied parts to repair the crane.

INNER BOOM PAD LUBRICATION

1. With the boom fully retracted, apply grease to the wear pads on the top of second boom section with a grease gun.
2. Apply grease to the wear pads on the top of the third section boom through the large wear pad access holes in the top of the first and second section booms, and through the round wear pad access holes as shown.
3. Apply grease to the wear pads on the top of the fourth section boom through the round wear pad access holes as shown.
4. After grease is applied to all wear pads raise the boom to the maximum angle and slowly extend the boom to full extension and slowly retract completely.
5. Repeat steps 1-4 three times to ensure the boom is fully lubricated.



JIB JACK SERVICE & MAINTENANCE

Important: Use only a good grade hydraulic jack oil, transmission oil, or turbine oil. Avoid mixing types of oil. Do not use brake fluid, alcohol, glycerin, detergent motor oil, or dirty oil. Improper fluid can cause serious internal damage to the jack rendering it inoperative.

ADDING OIL

1. With saddle fully lowered and piston depressed, set jack in its upright level position and remove oil filler plug.
2. Fill until oil is level with filler plug hole.

CHANGING OIL

1. For best performance and longest life, replace the complete oil supply at least once a year.
2. To drain the oil, remove the filler plug.

3. Lay the jack on its side and allow the oil to run out into suitable drain pan. The oil will run slowly because air must enter as oil drains out.
4. Be careful to prevent dirt or foreign matter from entering the system.
5. Replace with proper oil as described above.

LUBRICATION

Add proper lubrication oil to all pivoting sections every three months.

RUST PREVENTION

Check ram every three months for any sign of rust or corrosion. Clean as needed and wipe with an oil saturated cloth.

Note: When not in use, always leave the saddle and ram all the way down.

TROUBLESHOOTING

Symptom	Possible Cause(s)	Corrective Action
Will not lift load	1. No oil in system 2. Release valve not closed	1. Add oil to reservoir tank through oil filler hole 2. Turn handle clockwise tightly
Will lift load only part way	Oil level low	Add oil to reservoir tank through oil filler hole
Will lift load but will not hold	1. The following valve or valves leaking: a. Suction valve b. Delivery valve c. Release valve 2. Packings worn out or defective	1. Replace jack 2. Replace jack
Jack will not lower	Release valve stuck, probably dirt or foreign matter	Transfer load then replace dirty oil, flush oil reservoir with kerosene
Poor lifting	1. Dirty oil 2. Air in hydraulic system	1. Change hydraulic oil 2. Purge air from system
Poor pumping action	Oil seal for pump unit worn out or defective	Replace jack

clearance distances are met as shown in the required clearance table and on the Electrocutation Hazard decal.

Platform Occupants

Personnel Platform Occupants shall:

1. Maintain a stable and even loading on the platform.
2. Keep all parts of their body inside the platform during raising, lowering and positioning, except when performing duties as a designated signal person.
3. Not interfere with the platform operator or the designated signal person in the platform except to give an emergency stop signal.
4. Keep their personnel fall protection device lanyard fastened to the provided anchorage points at all times, while occupying the platform, unless special circumstance work requirements dictate otherwise.
5. Be familiar with the hand signals posted in the platform. All occupants shall know the emergency stop signal.
6. Conduct their work in a manner to help maintain the platform stability, and the safety of the personnel lift operation.
7. Remain in continuous sight or in communication with the operator, and in sight and communication of a signal person.
8. Use personal protective equipment such as hard hats, safety glasses, hearing protection and gloves in conditions where a hazard of injury exists.
9. Wear personal fall protection devices with lanyards attached to a specific anchorage point(s), unless Special Circumstance Work requirements dictate otherwise.
10. Limit their number commensurate with the work being performed, the platform design and hoisting equipment limitations.
11. Evenly distributing and securing materials and equipment while the platform is lifted.
12. Not stand, sit on, or work from the top rail, intermediate rail, toe board or use any other device to enhance their vertical height working capability
13. Not pull the platform out of plumb with the hoisting equipment.
14. Not enter or exit a suspended platform while it is raised unless the platform has an installed gate and the platform is physically secured to the structure to which

they are entering or exiting and to which they have attached their safety harness lanyard.

15. Not enter or exit a platform that does not have an installed gate, while it is suspended or raised.
16. Keep entrance gate closed and pinned in the horizontal position, except when entering or exiting the platform.

Communications

1. A communication system shall be used that effectively addresses the unique lift constraints, environmental issues and communication security necessary for a safe operation.
2. All communications shall be discernible to the operator. No response to a signal shall be made unless the signal is clearly understood.
3. If communications between operator and platform occupants are disrupted, all operations shall be stopped until communication is re-established.
4. Communication systems to be used during the lift shall be verified as functioning and effective prior to commencing each lift.
5. Hand signals to the operator shall be in accordance with the hoisting equipment ASME B30 Volume, unless voice communication (telephone, radio, or equivalent) is utilized.
 - a. A pictorial representation of the hand signals shall be posted conspicuously at the following locations:
 - As required by the hoisting equipment ASME B30 volume.
 - Inside the personnel platform.
 - At any platform motion control locations.
 - b. Some operations may require additions to, or modifications of, standard hand signals.
 - Any special signals shall be agreed upon and understood by the signal persons and the hoisting equipment operator.
 - Special signals shall not conflict with the hoisting equipment standard signals.
6. Radios or other electronic means of communications, if used, should operate on a secure channel.
7. Audible and visual alert devices should be provided in the platform for use in an emergency (i.e. air horns or strobe lights).

Full Version Available

National Crane 900A Boom Truck Operator Manual

National Crane 900A boom truck operator manual, covering safe operation, setup, inspection and controls. 2 manuals in PDF. Instant PDF download.

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Book No: CTRL031-03 · File Pages: 352 · File Count: 2 · File Language: English