

OPERATOR'S MANUAL

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

800H Series Cranes

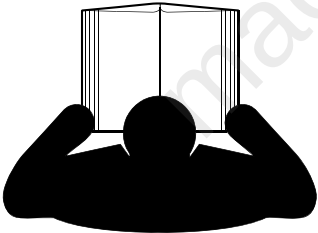
This Manual is divided into the following sections:

SECTION 1	INTRODUCTION
SECTION 2	SAFETY PRECAUTIONS
SECTION 3	CONTROLS AND OPERATING PROCEDURES
SECTION 4	SET-UP
SECTION 5	LUBRICATION PROCEDURE AND CHARTS
SECTION 6	MAINTENANCE CHECKLIST
OPTIONS	PERSONNEL BASKET

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 right side of the turret. **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.

⚠ DANGER

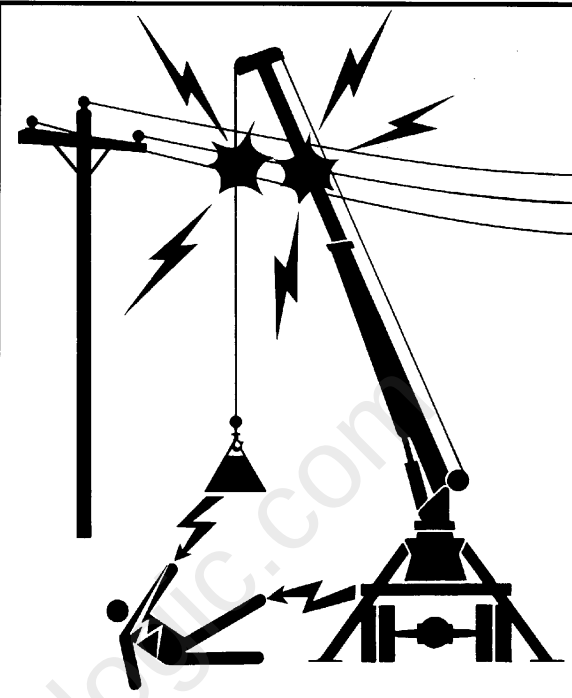
ELECTROCUTION HAZARD
THIS CRANE IS NOT INSULATED
DEATH OR SERIOUS INJURY WILL
RESULT FROM CONTACT OR
INADEQUATE CLEARANCE

Maintain safe clearances from electrical lines. Allow for boom, electrical line, and loadline swaying.

This crane does not provide protection from contact with or proximity to an electrically charged conductor.

Maintain a clearance of at least 10 feet between any part of the crane, loadline or load and any electrical line carrying up to 50,000 volts.

One foot additional clearance is required for every additional 30,000 volts or less.



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ELECTRICAL CONTACT

If the crane should come in contact with an energized power source, you must:

- Stay on the crane. DON'T PANIC.
- Immediately warn personnel in the vicinity to stay away.
- Attempt to move the crane away from the contacted power source using the crane's controls which are likely to remain functional.
- Stay on the crane until the power company has been contacted and the power source has been de-energized. NO ONE must attempt to come close to the crane or load until the power has been turned off.

Only as a last resort should an operator attempt to leave the crane upon contacting a power source. If it is absolutely necessary to leave the operator station, JUMP COMPLETELY CLEAR OF THE CRANE. DO NOT STEP OFF. Hop away with both feet together. DO NOT walk or run.

Following any contact with an energized electrical source, the local, authorized, National Crane distributor must be immediately advised of the incident and consulted on necessary inspections and repairs. Thoroughly inspect the wire rope and all points of contact on the crane. Should the

distributor not be immediately available, contact Manitowoc Crane Care. The crane must not be returned to service until it is thoroughly inspected for any evidence of damage and all damaged parts are repaired or replaced as authorized by Manitowoc Crane Care or your local National Crane distributor.

SPECIAL OPERATING CONDITIONS AND EQUIPMENT

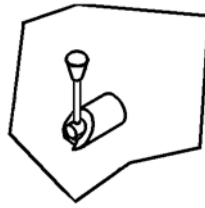
Never operate the crane during an electrical thunderstorm.

Working in the vicinity of radio frequency transmission towers and other transmission sources may cause a crane to become "electrically charged."

When operating cranes equipped with electromagnets you must take additional precautions. Permit no one to touch the magnet or load. Alert personnel by sounding a warning signal when moving a load. Do not allow the cover of the electromagnet power supply to be open during operation or at any time the electrical system is activated. Shut down the crane completely and open the magnet controls switch prior to connecting or disconnecting magnet leads. Use only a non-conductive device when positioning a load. Lower the magnet to the stowing area and shut off power before leaving the operator's station.

Midspan Outrigger Stop Pin

The midspan outrigger stop pin is located on the side of the outrigger box and is used to set the outrigger at the midspan position. Rotate the spring loaded stop pin 180° and extend the outrigger beam. At the midspan position, the pin stops the outrigger beam. Rotate the pin back to the 0° position to retract the outriggers.



Foot Throttle

Depress the foot throttle to accelerate the truck engine speed. Release to return to idle speed. Increasing truck speed increases operating speed.

Emergency Stop Switch

Operate the switch to kill the truck engine under emergency conditions. Switch must be reset to the "on" position to operate truck from cab.

Horn

Operate horn button to warn fellow workers on construction site of pending movement of crane.

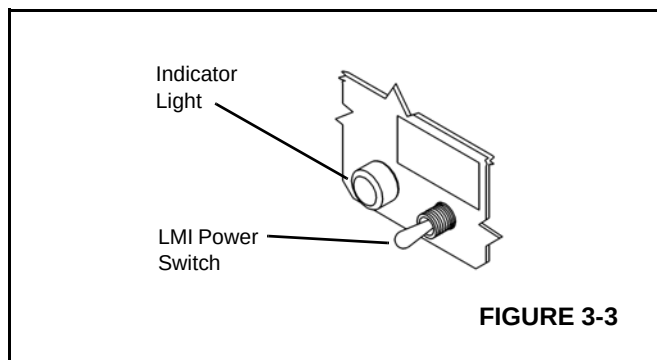
LMI System

The LMI monitors crane operation and alerts the operator of an impending tipping condition and disables the crane functions.

LMI Power Switch

A toggle switch located in the truck cab powers the LMI for crane operation. An indicator light comes on when the system is activated.

NOTE: The LMI power switch must be ON before the crane can be operated.



Momentary LMI Override Switch

Rotate the key switch counterclockwise and push the LMI override button on the operators console to enable crane functions and remove the tipping condition.

NOTE: The key switch is located behind a door on the drivers side of the operators console.

Load Chart

This chart is located on the side of the crane frame and shows capacities of crane at various operating areas and winch capacities with appropriate reeving.

Boom Angle Indicator

Located on either side of the base boom section and used to determine main boom angle with respect to horizontal.

Boom length indicator

Located on either side of the second boom section. The letters on the intermediate boom lengths correspond to the letters on the load chart. The length indicators are used to define boom length and with the load chart and load radius are used to determine the maximum loads that may be safely lifted. The load radius must be measured from the centerline of rotation.

OPERATING PROCEDURES

You be properly trained and follow the safety precautions outlined in Section 2 when operating the crane.

Equipment Familiarization

All crew members should be familiar with the location and operation of the controls, the correct operating procedure, the maximum lifting capacities, and the Safety Precautions in Section 2 of this manual. Carefully follow the operating procedures outlined below and the information in the load charts located in the crane cab.

Equipment Checks

Prior to placing the unit in operation, do a complete walk-around visual inspection and look for structural damage, loose components, leaks, or other conditions that require immediate correction for safe operation. The following inspection list is suggested.

Check:

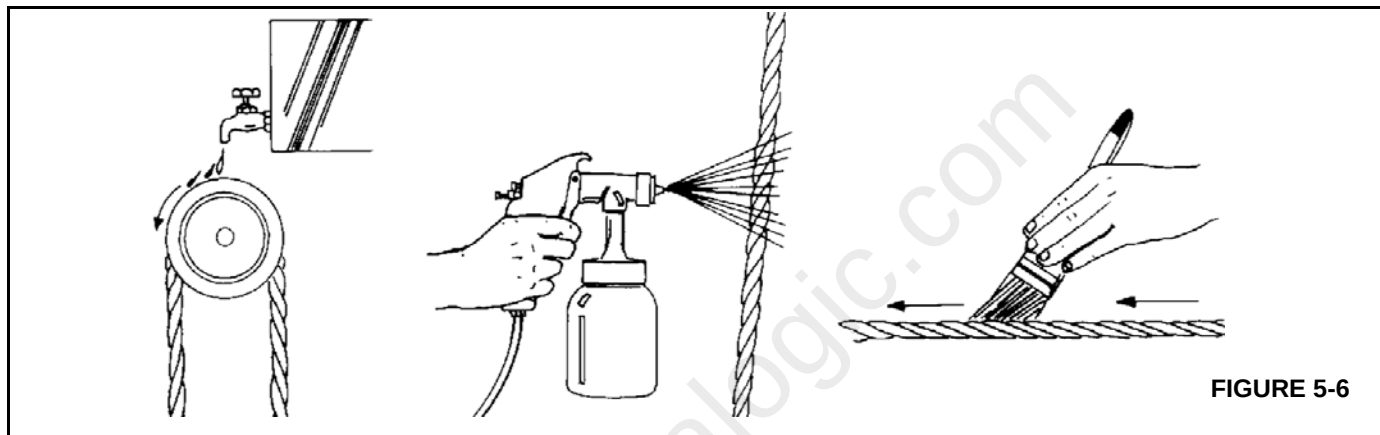
- for any unusual conditions such as pools of hydraulic fluid or lubricating oil under the chassis, an outrigger which may have crept down or up, signs of damage, or improper maintenance.
- the tires are inflated to the proper pressure.
- the level of the hydraulic reservoir.

Before applying lubrication, accumulations of dirt or other abrasive material should be removed from the rope. Clean with a stiff wire brush and solvent, compressed air, or live steam. Lubricate the rope immediately after the rope is cleaned. Techniques that can be used include:

- bath
- dripping
- pouring
- swabbing

- painting
- pressure spray

Whenever possible, the lubricant should be applied at the top of a bend in the rope, because at that point the strands are spread by bending and are more easily penetrated. There should be no load on the rope while it is being lubricated. The service life of wire rope is directly proportional to the effectiveness of the method used and amount of lubricant that reaches the working parts of the rope.



Condition	Possible Cause	Possible Solution
Swing will not turn (Standard System)	Turn circuit relief valves sticking.	Clean and check circuit pressure.
	Turntable bearing drag.	Lubricate thoroughly as rotating boom.
	Brake not releasing properly.	Check for 200 PSI brake pilot pressure. Clean pilot line or adjust motor counterbalance valves.
	Swing speed adjustment set too low.	Adjust or clean brake for proper release. Adjust valve on turn motor.
Excessive pump noise during operation.	Excessive pump speed.	Adjust foot throttle or check for high PTO ratio.
	Low oil temperature.	Allow unit to warm up.
	Low hydraulic oil supply.	Check and fill.
	Suction line kinked, collapsed or blocked.	Clear blockage.
	Hydraulic oil too thick.	Warm oil or use oil better suited to environment.
	Relief valve chattering.	Dirt in relief valve or damaged relief.
	Hydraulic tubing vibration.	Check for loose tubing.
	Tank breather plugged.	Clean breather.
Cylinders drift	Not getting oil to cylinders.	Clean and replace as required.
	Worn or damaged piston seals.	Replace as required.
	Air in hydraulic oil.	Cycle crane cylinder to remove air.
	Loose holding valve.	Tighten valve.
	Dirt in holding or check valve.	Clean valve.
Winch will not lift or hold load.	Load too heavy.	Change to applicable multipart reeving.
	Relief valve setting too low.	Check and adjust if required.
	Motor worn excessively.	Replace motor.
	Counterbalance valve defective or leaking.	Clean and replace as necessary.
	Anti-two-block system defective.	Repair anti-two-block system.
	Brake worn out.	Repair or replace brake.
Winch gearbox heats.	Gearbox grease low.	Check and fill as required.
	Duty cycle too high.	Reduce cycle time or speed of winch.
Boom chatters during extension/retraction or doesn't proportion properly.	Boom sections need lubrication.	Grease boom.
	Wear pads not shimmed correctly.	Re-shim as described in boom assembly section.
	Worn wear pads.	Replace pads.
	Extension cables out of adjustment.	Readjust cables and tension properly.
	Extend or retract cables broken.	Disassemble, inspect, and replace cables.
Boom will not extend.	Proportioning cables not attached.	Reconnect, replace and/or adjust cables.
	Anti-two-block system shut down.	Lower hook, and extend load.
	Defective anti-two-block system	Repair ATB if defective.
System is in a state of constant cut-out.	Blown fuse at the crane console.	Replace fuse.
	ATB switch open.	Ensure that ATB switch is closed.
System cuts out too early or too late.	LMI programmed wrong.	Reprogram LMI with correct lift values.

clearance distances are met as shown in the required clearance table and on the Electrocution 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 800H Boom Truck Operator Manual

National Crane 800H boom truck operator manual, covering controls, safe operation, setup and daily checks. Searchable 82-page PDF. Instant PDF download.

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Book No: CTRL152-01 · File Pages: 82 · File Count: 1 · File Language: English