

OPERATOR'S MANUAL

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

1300H Series Cranes

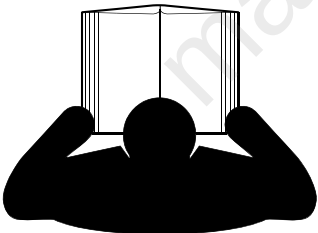
This Manual is divided into the following sections:

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 REMOTE RADIO

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. Manitowoc is not responsible for qualifying these personnel.
- Do not operate or work on this crane without first reading and understanding Operator's Manual and Rating Plate supplied with crane.
- Store Operator's Manual in holder provided on crane.
- Attach laminated Capacity Charts supplied with crane to chain in operator's cab.
- If Operator's Manual or Capacity Charts are missing from cab, contact your distributor for new ones.

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Always perform a function check after repairs have been made to ensure proper operation. Load tests should be performed when structural or lifting members are involved.

Keep the crane clean at all times, free of mud, dirt, and grease. Dirty equipment introduces hazards and makes proper maintenance difficult. Cleaning solutions used must be non-flammable, non-toxic, and appropriate for the job.

Routine maintenance and inspection of this crane must be performed by a qualified person(s) according to the recommendations in the National Crane/Manitowoc Crane Care Service Manual. Any questions regarding procedures and specifications should be directed to the your local, authorized National Crane Manitowoc Crane Care Distributor.

Service and Repair

DANGER

Do not, under any circumstances, work at an elevated height without using proper fall protection as required by local, state or federal regulations.

Service and repairs to the crane must only be performed by qualified personnel and must be performed in accordance with manufacturer's recommendations as outlined in the service manual for this machine. All replacement parts must be National Crane approved.

Any modification, alteration, or change to a crane which affects its original design and is not authorized and approved by National Crane/Manitowoc Crane Care is **STRICTLY PROHIBITED**. Such action invalidates all warranties and makes the owner/user liable for any resultant accidents.

Before performing any maintenance, service or repairs on the crane:

- Retract and lower the boom and place the load on the ground.
- Stop the engine and disconnect the battery.
- Tag the controls. Never operate the crane that is tagged-out.

Avoid pinch-points while performing maintenance. Stay clear of sheave wheels and holes in crane booms.

After maintenance or repairs:

- Replace all guards and covers that have been removed.
- Remove all tags, connect the battery, and perform a function check of all operating controls.
- Perform load tests when a structural or lifting member is repaired.

Lubrication

The crane must be lubricated according to the factory recommendations for lubrication points, time intervals, and types. Lubricate at more frequent intervals when working under severe conditions.

Exercise care when servicing the hydraulic system of the crane, as pressurized hydraulic oil can cause serious injury. The following precautions must be taken when servicing the hydraulic system:

- Follow the manufacturer's recommendations when adding oil to the system. Mixing the wrong fluids could destroy seals, causing machine failure.
- Be certain all lines, components, and fittings are tight before resuming operation.
- When checking for suspected leaks, wear appropriate personal protective equipment.
- Never exceed the manufacturer's recommended relief valve settings.

Tires

Inspect the tires for nicks, cuts, embedded material, and abnormal wear.

Ensure all lug nuts are properly torqued.

Ensure tires are inflated to the proper pressure. When inflating tires, use a tire gauge, clip-on inflator, and extension hose which permits standing clear of the tire while inflating.

Batteries

Battery electrolyte must not be allowed to contact the skin or eyes. If this occurs, flush the contacted area with water and consult a doctor immediately.

When checking and maintaining batteries exercise the following procedures and precautions:

- Disconnect the batteries.
- Wear safety glasses.
- Do not short across the battery posts to check charge. Short circuit, spark, or flame could cause battery explosion.
- Disconnect the ground cable first when removing a battery and connect it last when installing a battery.
- If equipped, disconnect the battery with the battery disconnect switch before disconnecting the ground battery cable.
- Check the battery condition only with proper test equipment. Batteries shall not be charged except in an open, well-ventilated area that is free of flame, smoking, sparks, and fire.

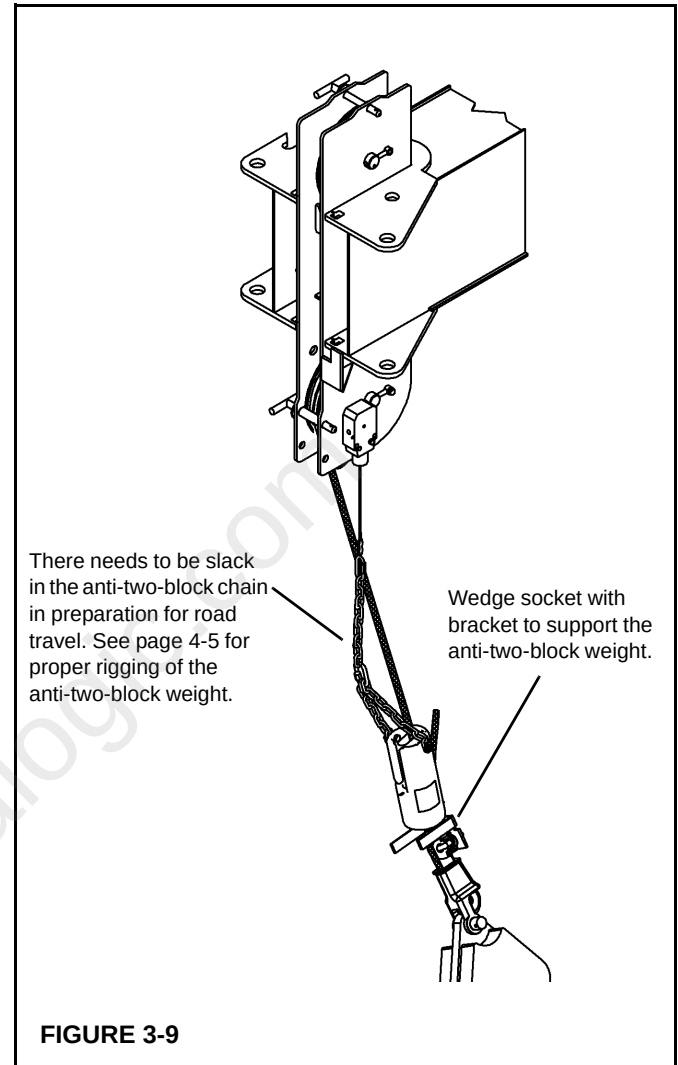
SHUT DOWN AND PREPARATION ROAD TRAVEL

1. Retract and place the boom in boom rest.
2. Retract the front stabilizer.
3. Retract the outriggers and stabilizers.
4. Remove the stabilizer pads and place on the stowage brackets located on the side of the stabilizer.
5. Connect the hook block to the tie-down cable so that it cannot swing freely.
6. Secure the hook block and anti-two-block weight:
 - a. Slowly winch up until there is a slight tension on the winch cable. It may be necessary to override the anti-two-block function to tension the cable.
 - b. The anti-two-block weight needs to be resting on the wedge socket so that there is slack in the anti-two-block-chain.

NOTE: There needs to be enough slack in the anti-two-block chain so that the anti-two-block switch does not switch between open and close during travel.

If the chain is too tight, road bounce causes the anti-two-block switch to open and close numerous times and this can damage the switch.

7. Turn off the ignition and all switches on the operator's console.
8. Secure any loads or lifting devices on truck bed or body.
9. Disengage the Power Take Off (PTO) and start truck from the truck cab.
10. Release the park brake before moving truck.



SECTION 5

LUBRICATION PROCEDURE AND CHARTS

GENERAL

Following a designated lubrication procedure is important to ensure a maximum crane life. The procedures and lubrication charts in this section include information on the types of lubricants used, the location of the lubrication points, the frequency of lubrication, and other information. This section does not include lubrication requirements for the truck chassis. Refer to truck service manual for this information.

The service intervals specified are for normal operation where moderate temperature, humidity, and atmospheric conditions prevail. In areas of extreme conditions, the service periods and lubrication specifications should be altered to meet existing conditions. For information on extreme condition lubrication, contact your local National Crane Distributor or Manitowoc Crane Care.

Lubricants

Specific recommendations of brand and grade of lubricants are not made here due to regional availability, operating conditions, and the continual development of improved products. Where questions arise, contact your National Crane Distributor or Manitowoc Crane Care.

Arctic Conditions Below -18°C (0°F)

In general, petroleum based fluids developed especially for low temperature service may be used with satisfactory results. However, certain fluids, such as halogenated hydrocarbons, nitro hydrocarbons, and phosphate ester hydraulic fluids, might not be compatible with hydraulic system seals and wear bands. If you are in doubt about the suitability of a specific fluid, check with your authorized Manitowoc distributor or Manitowoc Crane Care.

NOTE: All fluids and lubricants may be purchased by contacting the Manitowoc Crane Care Parts Department.

Regardless of temperature and oil viscosity, always use suitable start-up procedures to ensure adequate lubrication during system warm-up.

Chassis Grease.

Lubricating grease of proper consistency is to be applied periodically at relatively frequent intervals with grease guns through grease fittings. Minimum apparent viscosity of 300 SUS (Saybolt Universal Seconds) at 100° F (38° C) is recommended.

Extreme Pressure Multipurpose Gear Lubricant (EPGL)

This gear lubricant is compounded to achieve high load carrying capacity and meet the requirements of either API-GL-5 or MIL-L-2105C. Unless otherwise specified, SAE 80W-90 viscosity may be used for year round service. Low temperature usage is restricted as follows:

SAE Viscosity Number	Minimum Ambient Temperature F (C)
75W	-40 (-40)
80W	-15 (-26)
85	+10 (-12)
90	+20 (-7)
140	+40 (+5)
250	+50 (+10)

Open Gear Lubricant

This is a special high-graphite adhesive lubricant that helps to eliminate fretting corrosion, is water resistant, and forms a dry lubrication film which does not attract dust. Lubricant meets NLGI Class 1-2 specifications.

Chassis Grease Low Temp

This special grease for low temperature remains plastic at -60°F (-51°C) with melting point of 280°F (138°C). The grease is a heavy duty extreme pressure type lubricant (Lubricate Low Temp or equal).

Anti-wear Additives

Excessive wear in the system may cause a loss in volumetric efficiency, and may cause shutdowns for maintenance. An efficient anti-wear oil protects the components against rusting, resists oxidation and helps prevent wear.

Hydraulic OIL

Oil in a hydraulic system serves as the power transmission medium, system lubricant and coolant. Selection of the proper oil is essential to ensure satisfactory system performance and life. The most important factors in selecting an oil for hydraulic service are viscosity and anti-wear additives.

SECTION 6

MAINTENANCE CHECKLIST

CRANE INSPECTION AND MAINTENANCE

Regularly scheduled inspection and maintenance intervals are required to keep the unit in peak operating condition. The following pages outline the inspection and maintenance intervals.



DANGER

Do not, under any circumstances, work at an elevated height without using proper fall protection as required by local, state or federal regulations

Inspections

The inspection intervals listed below are to be conducted on the unit to ensure safe and proper operation. Use applicable torque table requirements on page 6-10 for missing or loose fasteners.

The inspections are separated into the following frequency classifications:

- Daily inspections - performed by the operator at the start of the day.
- Weekly inspections - performed by the operator.
- Monthly inspections - performed by maintenance personnel.
- Periodic inspections - performed by maintenance personnel at least every three months and includes all items listed under daily, weekly, and monthly inspections. Federal Laws through OSHA and ANSI B30.5 require that dated and signed records of these periodic inspections be kept. An inspection log book is available from National Crane.

Daily Inspections/Pre-use

Check the following items:

1. Engine oil level.
2. Hydraulic oil level.
3. Radiator coolant level.
4. Loose parts or damage to structures or welds.
5. Operation of lights, safety equipment and gauges.
6. Condition of tires and suspension.
7. Condition of winch cable and end attachment for corrosion, severe kinking, crushing, cutting, or slippage of cable clamps or wedge socket.

8. Loose parts or damage to cable centering hook blocks.
9. Position of cable with guides and on sheaves.
10. Free turning of sheaves.
11. Lubrication as specified by the Lubrication Chart.
12. Evidence of oil leak from hoses, gearboxes, or swivel.
13. Hand and foot controls for malfunction or incorrect adjustment.
14. Truck parking brake operation.
15. Boom proportioning to insure that all boom sections extend and retract equally.
16. All securing hardware such as cotter pins, snap rings, hairpins, pin keepers, and capscrews for proper installations.
17. Proper condition and operation of LMI and anti-two-block systems to include the anti-two-block switch weight and chain at the boom tip (and jib tip if equipped), power cords, audible alarms, and indicator lights on the console.
18. Proper operation of the load hook safety latch.
19. Drain holes at rear of the first section of the boom are clear of all obstructions.
20. All fasteners retaining the cable centering block are in place and tight.
21. All safety covers for proper installation.
22. Boom lift and outrigger holding valves for proper operation.
23. Winch brake for proper operation at winch capacity load.

Weekly Inspections

Check the following items:

1. Battery water level.
2. Tire pressure.
3. Lubrication as specified by the Lubrication Chart.
4. Torque the T-box mounting bolts during the first month of operation and periodic inspections thereafter.
5. Torque the swing bearing mounting bolts during the first month of operation and periodic inspections thereafter.
6. Torque the boom wear pad retaining bolts during first month of operation, and monthly thereafter.

SPECIFICATIONS

Hydraulic System

Requirements:

Boom Lift Up/Down	29 GPM (98 LPM), 3600 psi $\pm$ 50 (24.8 MPa +689/-0 kPa)
Boom Telescope Out	29 GPM (98 LPM), 2800 psi $\pm$ 50 (19.3 MPa +689/-0 kPa)
Boom Telescope In	29 GPM (98 LPM), 2950 psi $\pm$ 50 (20.3 MPa +689/-0 kPa)
Winch System	34 GPM (129 LPM), 3300 psi $\pm$ 50 (22.75 MPa +689/-0 kPa)
Outrigger	14 GPM (53 LPM), 3000 psi +100/-0 (20.68 MPa +689/-0 kPa)
Swing	12 GPM (53 LPM), 3000 psi +100/-0 (20.68 MPa +689/-0 kPa)
Reservoir Capacity	106 gal (401 L) at full mark
System Capacity	145 gal (802.5 L)
Filtration	10 Micron (Return Filters)
Flow rates listed are at free flow condition (approx. 100 psi / 698 kPa)	

Winch System

Wire cable	Standard 325 ft (99 m) of 9/16 in. (14.3 mm) dia. Rotation Resistant Nominal Breaking Strength - 38,500 lbs. (17,463 kg)
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Layer	Winch Pull		Winch Speed		BOS Winch Speed	
	lbs	(kg)	fpm	(mpm)	fpm	(mpm)
1	10,200	(4626)	111	(33.8)	206	(62.7)
2	9,200	(4173)	123	(37.4)	228	(69.4)
3	8,400	(3810)	135	(41.1)	251	(76.5)
4	7,700	(3492)	147	(44.8)	273	(83.2)
5	7,100	3220	159	(48.4)	-	-

All ratings based on 34 GPM at 3300 psi. (129 LPM at 22.75 MPa)

Burst of Speed maximum pull = 3000 lbs. (1361 kg)

Crane Operating Speeds

Rotation, 360°	40 sec. $\pm$ 5 sec.
Boom Up, (-10° to 80°)	23 sec. $\pm$ 5 sec.
Boom Down, (80° to -10°)	24 sec. $\pm$ 5 sec.
Boom Extend (Boom at 60°)	48 fpm $\pm$ 6 fpm (14.6 mpm $\pm$ 1.8 mpm)
Boom Retract (Boom at 60°)	42 fpm $\pm$ 6 fpm (12.8 mpm $\pm$ 1.8 mpm)

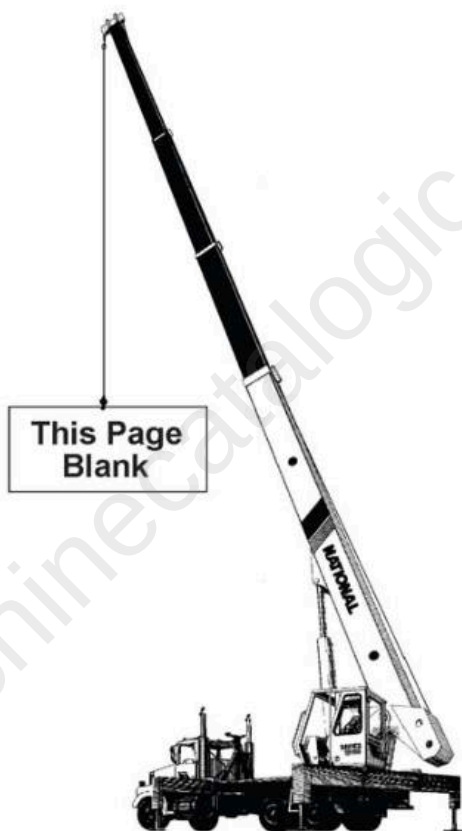
Front Outrigger

Beam Extend	7 sec $\pm$ 3 sec.
Beam Retract	6 sec $\pm$ 3 sec.
Jack Extend	10 sec $\pm$ 3 sec.
Jack Retract	10 sec $\pm$ 3 sec.

Rear Outrigger

Beam Extend	3 sec $\pm$ 3 sec.
Beam Retract	3 sec $\pm$ 3 sec.
Jack Extend	6 sec $\pm$ 3 sec.
Jack Retract	4 sec $\pm$ 3 sec.

NOTE: Crane operating speeds based on engine speed at governed RPM and hydraulic reservoir temperature at 100°F (37.7°C).



Full Version Available

National Crane 1300H Boom Truck Operator Manual

National Crane 1300H boom truck operator manual covering controls, safe operation, setup and travel. Searchable PDF set, 182 pages. Instant PDF download.

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