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## Service Bulletin D20-504

- X Information Only**  
Product Update – Warranty  
Product Update - Non Warranty  
Action Required

**Date:**

March 12, 2020

**To:**

Mobile Crane Distributor Service Managers  
Mobile Crane Field Support Personnel

**Subject:**

Inspection of Cranes that have been Electrically Energized

**Model(s) affected:**

All

### **PURPOSE:**

Manitowoc Crane Care is asked periodically about inspections to be performed after a crane has become energized. This can occur when lightning strikes the crane or after a crane has contacted an energized powerline.

Be advised that when the crane is energized, electricity entering the crane at the point(s) of contact would have energized every conductive part of the crane and flowed through the crane to points wherever it could escape the crane to reach the earth (ground).

High voltage present on the crane components and current flowing through these components could have damaged the crane.

Therefore, below are some items that we recommend be inspected and check. It is imperative for you to ensure that all damages are repaired and that the crane is functioning properly before it is returned to lifting service.

Begin by inspecting the outer surfaces of the crane's boom and hoisting cable in the area(s) where the contact with the electrical power line likely occurred. Look for evidence of arcing, melting, heat damage and/or discoloration as tell-tale signs of contact to determine where the electricity entered into the crane. Then, from the point of contact, work your way down towards the point(s) where the electricity exited the crane. It is along and throughout this "pathway" that any damage to the crane and its components is likely.

Follow the steps below:

1. Inspect the boom and jib, including its connectors, for any signs of arcing, melting, welding, heat or other damage such as oil leaks which may indicate that internal parts of hydraulic cylinders have sustained damage. Repair or replace components as necessary. If there is evidence of arcing or discoloration of the boom or other structural members, contact Manitowoc Crane Care for advice relative to repair or replacement before proceeding.
2. Inspect the crane's wire rope (i.e., hoisting cable and boom hoist cable). Should inspection of the wire rope reveal evidence of contact with an electrical power source, the wire rope shall be replaced. In addition to wire rope, inspect all pendant lines, straps, and boom/mast links for evidence of damage from contact with an electrical power source. If evidence is found, suspect pendant lines, straps, or links must be replaced.
3. Inspect the wiring leading to the crane's engine and electrical components for burnt or melted insulation. Verify proper functioning of all lights, indicators, buzzers, horns, relays and other electrically operated or controlled components (e.g., electric solenoid operated hydraulic valves, etc.)
4. Inspect and verify proper functioning and calibration of all electronic equipment (e.g., rated capacity limiter system, anti-two block system, etc.). View all displays and screens and note any corrupt data being displayed. Verify proper operation of indicator lamps and alarms. Improper data and indicators are an indication that the software / memory may need to be re-installed.
5. Check the crane's swing system while in operation watching for unusual movements and listening for any abnormal sounds emanating from the swing-drive gearbox, swing brake and/or the swing (turntable) bearing. If any abnormal movements or noise is evident, consult Manitowoc Crane Care for advice relative to repair or replacement before proceeding.
6. Check the crane's hoist(s) while in operation watching for unusual drum movements and listening for any abnormal sounds emanating from the drive and brake mechanisms. If any abnormal movements or noise is evident, consult Manitowoc Crane Care for advice relative to repair or replacement before proceeding.
7. Inspect all hydraulic cylinders for evidence of arcing, discoloration or leaking caused by high temperatures; cycle-test all cylinders to ensure they function properly.
8. Inspect all braided hoses for melting, discoloration or other damages. If damage is observed, the damaged hose(s) must be removed and replaced.
9. Perform complete hydraulic pressure testing to ensure pressures are within ranges as outlined in the Service Manual for the crane.
10. If equipped, inspect all tires and wheels for evidence of electrical arcing, cracking, melting, heat damage or discoloration. Replace tires showing evidence of melting, puncture or other electrical "tracking" damage.
11. If equipped, thoroughly evaluate the functionality of the axle assemblies and the braking system shall be tested to ensure proper performance.

Should your inspection reveal any abnormality or evidence of damage not covered in steps 1 through 11, above, please provide photographs of the damages and consult with Manitowoc Crane Care about the nature and extent of such damages and the need for repairs or replacement of components as may be necessary to repair the crane.

We wish to remind you, and your customer, of the importance of keeping Manitowoc cranes at least 20 feet away from electrical power lines carrying up to 50,000 volts and greater distances for higher voltages. Also, we wish to remind you and your customer, of the importance of ensuring that the load capacity charts and Operator's and Safety manuals are maintained within the operator's cabs where they are readily accessible to operators.

Additionally, following authorized repairs to major structures of the crane as may be found necessary, Manitowoc Crane Group recommends that the crane be thoroughly inspected and tested by a recognized third party crane inspection and certification agency prior to it being returned to lifting service.

Manitowoc Crane Group is committed to providing its customers, crane owners, and operators safe and reliable products. In furtherance of this commitment, Manitowoc Crane Group must take the position that all modifications and additions to Manitowoc cranes must be authorized by Manitowoc Crane Group. Additionally, all parts and materials used on Manitowoc cranes must meet the Manitowoc Crane Group tolerances and specifications. Any modifications, additions or parts which violate this policy will be unauthorized and will jeopardize the crane's safety and reliability rendering the load capacity charts supplied by the Manitowoc Crane Group to be ineffective.

Should you have any questions or complications, please contact Manitowoc Crane Care.