NASCO-OP™
Power of Numbers

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MAGNET ELECTRICAL TESTING PROCEDURE

⚠ DANGER

Never perform maintenance on any portion of the magnet system without insuring power has been completely turned off, locked out, the magnet has been properly discharged, and verified absence of voltage.

Maintenance or testing on any portion of the magnet system should only be performed by a qualified or trained professional. Accidental contact with the high-voltage electrical system will cause serious personal injury or death.

Prior to testing any magnet, make sure the magnet is not energized and isolate the magnet from the power source. Always follow lockout/tagout procedures.

Ideally, any testing of your magnet should be performed after the magnet has been removed from service and allowed to cool for at least 24 hours.

Lifting magnets are manufactured or repaired in an ambient environment and their electrical ratings are established accordingly. Knowledge of how temperature affects the electrical values is required. Individuals who are trained and who possess this knowledge can test your magnet in the field with the use of electrical meters that can measure coil resistance and ground resistance.

Coil Resistance can be measured with a Simpson ohm meter, Wheatstone Bridge or other equivalent, calibrated ohm meter or motor circuit evaluator.

- Connect both meter leads together and adjust zero according to the manufacturer's guidelines.
- After zero adjustment, connect meter leads to magnet terminals. Record reading and compare to the magnet name tag. Ohm reading of 90% or less of the volume indicated on the name tag indicates that shorted turns exist. To avoid further damage and added repair cost, remove the magnet from service

Ground Resistance

1. Record all measurements with date they were taken. Use a calibrated 500 volt or 1000 volt Megohmmeter.
2. On the Megohmmeter use the 500 volt or 1000 volt selection.
3. Attach the black lead to a clean metal spot. Attach the red lead to another clean metal spot to check that a good ground is achieved. A measurement of 0.00 Megohms (MΩ) tells you a good ground is achieved and that the leads are not open.
4. Remove the red lead from the metal and attach it to one of the terminal leads. Take a measurement for one minute and record the result.
5. If the measurement at the magnet connection is below 100 MΩ then you need to disconnect the magnet lead and check at the insulators. If you continue to get low insulation resistance measurements continue to the coil leads. If at the magnet coil you are still getting insulation resistance measurements between 50 MΩ and 99 MΩ the magnet can still be used, but should be monitored at frequent intervals to see if the insulation resistance measurements drop any lower. If the measurements are at 49 MΩ or lower, the magnet should be taken out of service.

   NOTE: Continued operation of a magnet with low megger readings will cause extensive damage to the internal conductor and additional unnecessary repair costs.
6. If all checks out OK, or you are able to find and fix the insulation resistance issue, then reconnect all connections and continue to run the magnet.

WARNING: A megger reading of zero indicates a dead grounded condition exists and the magnet **MUST NOT BE USED**.

⚠ WARNING

Never operate a magnet that is grounded. Electrical discharge could occur, causing serious personal injury or death.

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