

STANDARD OPERATING PROCEDURE

Manipulator Use: Remove and Install Tire-Wheel Assemblies

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MANIPULATOR USE: REMOVE AND INSTALL TIRE-WHEEL ASSEMBLIES



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The following is a step-by-step procedure on how to complete a specific task or meet a facility specific requirement. Standard Operating Procedures (SOPs) are written for all identified critical tasks. By virtue of the hazard or complexity associated with critical tasks it is paramount that the SOP be followed as written. SOPs contain a listing of high-level hazards associated with the task, for detailed hazard analysis reference the applicable Task Hazard Assessments. SOPs do not replace the requirements contained in the company Standards, Codes, and Processes nor does it replace the need to comply with required legislation. Section 8.0 references documentation that the worker shall understand before work commences.

1.0 PURPOSE

- To establish a Company standard to safely and effectively carry out work as it applies to using a tire manipulator to install and remove tire-wheel assemblies.

2.0 SCOPE AND APPLICATION

- This document applies to all Company Heavy Construction and Mining operations. Ensure all site-specific requirements are met or exceeded before performing the task.

3.0 HAZARDS AND CONTROLS

- Uncontrolled movement of equipment.
 - Isolate all forms of hazardous energy and use wheel chocks. Follow 950C-C-028 Hazardous Energy Isolation Code.
 - Inspect equipment prior to use.
 - When using tire manipulators to install/remove tires and wheel components:
 - (a) Do not stand in the line of fire.
 - (b) Do not stand under manipulator arms.
 - (c) Ensure Park brake has been set before exiting tire manipulator.
- Tipping and/or damaging tire manipulator.
 - Only competent operators are permitted to operate the tire manipulator.
 - Never exceed the rated capacity of the machine. Know the weight of the lift and the capacity of the manipulator prior to beginning the task.
 - Perform an operating radius survey prior to tire-wheel assembly removal or installation.
 - Do not use the manipulator for jacking, pulling or dragging an object or vehicle.
 - Do not drag a tire; tire manipulators are designed to lift and position.
 - Do not impact-load or hammer-push with the manipulator.
 - Do not handle tires filled with any ballast. Stability or structural failure may result if the load limit is exceeded.
 - Never clamp an uninflated tire then inflate it.
 - Ensure the load is equally distributed between both arms.
 - Ensure load is positioned low to the ground and backward (upward) tilted when transporting.
 - Travel at slow and reasonable speeds. Do not use jerking motions to move arms or loads.

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- Transport tires with the arms rotated in a plane parallel (horizontal) to the ground.
 - Check the security of clamping action when rotating a load to a position perpendicular to the ground.
- Contact with obstacles or overhead hazards.
 - Complete a walk around of the area and remove obstacles Ensure operator is aware of location of obstacles that cannot be removed.
 - Use a spotter at all times.
 - Control work area to prevent access from unauthorized personnel.
 - Check work area for overhead hazards such as power lines. Follow 950C-C-042 Overhead Hazards – Limits of Approach Code.
- Uncontrolled work area.
 - Keep work area clear of unnecessary tools, equipment, and personnel, erect barriers as required.

4.0 CHECKLIST

- ☐ Attend all preparatory meetings (i.e. daily PSI; job scope; review of JSA's and SOPs for the job)
- ☐ Complete FLRA cards before starting the work.
- ☐ Ensure all personnel involved in the task are aware of the hazards and the controls to be used, as identified in the SOP's; JSA's; and FLRA's.
- ☐ Conduct a pre-job inspection of all equipment to be worked on and tools to be used.
- ☐ **Standard of Training required for working on this job: On-the job training.**

5.0 DEFINITIONS

5.1 Company

Means North American Construction Group Ltd. (NACG) and all directly or indirectly owned subsidiary companies, including joint ventures.

5.2 Company Personnel

Includes the Company's employees, officers, directors, agents, associates, consultants/contractors, temporary employees and third-party processors.

5.3 HSE

Refers to the Health, Safety & Environment department

6.0 PROCEDURE

6.1 Removal of Tire-Wheel Assembly

- 1) Complete a hazard assessment for task. Follow up with supervisor if unsure of task or if hazards cannot be controlled.

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- 2) Perform a pre-use inspection of tire manipulator prior to operation. Follow up with supervisor if equipment is damaged or defective.
- 3) Isolate hazardous energy on equipment and install wheel chocks. Follow 950C-C-028 Hazardous Energy Isolation Code.
- 4) Verify the weight of the tire/wheel assembly to be lifted and ensure it is within the acceptable limitations of the tire manipulator.
- 5) Conduct an operating radius survey to familiarize yourself with any obstacles that cannot be removed from the immediate work area.
- 6) Grip tire to be lifted at the widest point of the outside diameter of the tire.
- 7) Remove the tire/wheel assembly while backing away from the unit with the tire handler. Be aware of surroundings throughout the process.
- 8) Adjust the tire manipulators' grip as required using the machines' side-shift and pad rotation features to prevent damage to the wheel, valve stem and hub assembly during removal. Carry tire at lowest practical height.

6.2 Installation of Tire-Wheel Assembly

- 1) Repeat steps 1-6 of 6.1 Removal of Tire-Wheel Assembly.
- 2) Install the tire/wheel assembly taking care not to pinch the valve stem or damage the wheel studs. Use a spotter at all times.
- 3) Once the tire/wheel assembly has been safely installed and secured, release the grip of the tire manipulator and back away from the work area.

7.0 NOTES

If this task is to be done by a method different than described in this SOP, the work must **STOP** and the alternate method must be **DOCUMENTED** with an adequate hazard assessment tool such as a JSA. The document must be **APPROVED** by a supervisor before such procedures are implemented.

8.0 REFERENCES

- Tire manipulator manufacturer's operation manual
- Alberta Occupational Health and Safety Act, Regulation and Code – Part 12, Section 193, Tire Servicing
- Alberta Occupational Health and Safety Act, Regulation and Code – Part 14, Sections 208 & 209, Lifting and Handling Loads
- Alberta Occupational Health and Safety Act, Regulation and Code – Part 19, Powered Mobile Equipment
- Equipment Manufacturers' Service Manuals – Disassembly and Assembly of Wheels
- 960C-SOP-501 Rad Gun Use
- 960C-SOP-504 Hand Tools; Use of
- 960C-SOP-824 Torquing of Tire-Wheel Assemblies

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- 950C-C-028 Hazardous Energy Isolation Code
- 950C-C-042 Overhead Hazards - Limits of Approach Code
- TIA (Tire Industry Association) Earth Mover Tire Service Training Program

9.0 APPENDICES

- No appendices.