REMOVAL AND INSTALLATION OF WHEEL ASSEMBLIES FOR LIGHT TRUCKS AND VANS

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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 the safe removal and installation of wheel assemblies for light vehicles and passenger vans.

2.0 SCOPE AND APPLICATION

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

3.0 HAZARDS AND CONTROLS

- Tool failure.
    - Inspect all tools prior to removal/installation.
    - Only use impact sockets with impact wrenches.
    - Fit test sockets on wheel nuts by hand prior to removal to ensure proper socket size.
    - Clean all studs and nuts with a wire brush prior to removal.
    - Keep work area clear of unnecessary tools and equipment.
    - Review 960C-SOP-504 Safe Use of Hand Tools & 960C-SOP-500 Safe Use of Pneumatic Tools.
- Slips and trips due to uneven ground conditions, cords and cables, and improper housekeeping.
    - Keep work area clear of unnecessary tools and equipment.
    - Set up the task on even and level ground where possible.
- Tire (wheel assembly) rupture during removal and installation.
    - Inspect wheel assembly for damage prior to removal or installation.
    - Deflate tire as required due to damage or defect.
    - Monitor wheel assembly during re-inflation. Do not walk away. Stay out of the direct line of fire.
    - Use an in-line pressure gauge and positive pressure control.
    - Follow manufacturer recommendations and guidelines for the servicing of wheel assemblies.
- Uncontrolled work area.
    - Keep work area clear of unnecessary personnel; erect barriers or flagging as required.

- Lifting device failure.
    - Inspect the lifting device prior to use and tagout/remove from service any defective or damaged device.
    - Do not lift the vehicle higher than required to remove or install a tire.
    - Do not use vehicle support stands or portable automotive lifting devices to lift and support both ends of a vehicle simultaneously.
    - Do not exceed the rated load of the lifting device.
- Manual lifting and handling of wheel assemblies that may cause musculoskeletal injury due to weight or awkward body position.
    - Use a two-person lift when required to manage heavy or awkward loads.
    - Adjust the vehicle to an appropriate working height to reduce strain during the removal and installation of wheel assemblies.

4.0 CHECKLIST

- ☐ Attend all preparatory meetings (IE: daily PSI; job scope; review of JSA's and SOP's 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 General Procedure

1) Complete a hazard assessment (i.e., FLRA) for the task. Notify supervision if unsure of the task or if there are any hazards outside of the worker's control.
2) Inspect all tools before use. Tag out and remove from service any tool that is damaged or defective; follow up with supervision.
3) Ensure the work area is clear of unnecessary tools, equipment, and personnel.

6.2 Removal of Wheel Assembly

1) Secure the vehicle from movement and isolate hazardous energy. Ensure the engine is turned off and locked out.
2) Lift the vehicle off the ground using a vehicle hoist or lift one wheel clear of the ground for emergency tire changing using a portable automotive lifting device (i.e., hydraulic hand jack, pneumatic wheeled jack, emergency tire changing jack, hydraulic service jack, vehicle support stands).
3) Inspect wheel assembly prior to removal. Deflating as required, subject to damage or defect.
4) Select the appropriate 1/2" drive impact socket for the job and test fit on the wheel nuts by hand.
5) Clean all studs and nuts with a wire brush or steam hose to allow for easy removal of nuts.
6) Remove wheel nuts and washers from studs using a ½" impact wrench and the appropriate socket.
7) Place the wheel nuts in a safe location.
8) Grasp the tire/wheel assembly with two hands and remove. Use a tire bar if necessary.
9) Inspect the studs, nuts, washers, and hub for damage or distortion and replace or repair if necessary.
10) In a light truck dual application, remove the inside assembly after removing the outside assembly, if necessary.

6.3 Installation of Wheel Assembly

1) Inflate the tire to the manufacturer's specifications using a tire machine or fill the hose with an inline pressure gauge and positive pressure control prior to mounting on the vehicle.
2) Clean and remove dirt and debris from all tire/wheel assemblies, vehicle hub assemblies, mounting surfaces, and studs prior to installation.
3) Install tire/wheel assembly onto hub and line up studs with holes in wheel assembly
4) In a light truck dual wheel assembly, install the inner wheel assembly first and then install the outer wheel, ensuring the valve stem of the outer wheel lines up with the valve stem of the inner wheel. Note: Some hubs have locator pins that must be aligned with the holes in the wheel assemblies.
5) Install all washers and nuts by hand.
6) Using a "star" pattern, gently snug the wheel nuts.
7) Torque the wheel assembly (see 960C-SOP-824 Torquing of Tire-Wheel Assemblies).
8) Lower the vehicle hoist or portable automotive lifting device to the ground and remove the lifting device from the travel path of the wheels.

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

- Alberta Occupational Health and Safety Act, Regulation and Code
- Equipment Manufacturers' Service Manuals – Disassembly and Assembly of Wheels (i.e., CAT; Euclid; Kenworth)
- American Society of Mechanical Engineers Standard ASME
- TIA (Tire Industry Association) Earth Mover Tire Service.
- US Department of Labour: Occupational Safety and Health Administration,
- 960C-SOP-313 Operation of a Two-Post Vehicle Hoist
- 960C-SOP-500 Safe Use of Pneumatic Tools

- 960C-SOP-504 Safe Use of Hand Tools
- 960C-SOP-824 Torquing of Tire-Wheel Assemblies

9.0 APPENDICES

- No appendices.