MOUNT AND DISMOUNT LIGHT VEHICLE TIRES

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Rev	Status	Rev. Date	Status Description	Prepared by	Reviewed by	Approved by
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3	APP	Sep 08, 2014	Approved	Jennifer Scott	Gerald Kuipers	Stan Miller

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 mounting and dismounting light vehicle tires.

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

- Line of fire hazards causing personal injury and/or property damage due to release of stored energy.
    - Only competent workers are permitted to perform tire servicing, inspecting, disassembly or reassembly of a tire or tire and wheel assembly.
    - Work must be performed according to the manufacturer's specifications.
    - Worker's must understand how to safely perform the work.
    - Manuals must be kept on hand and readily available.
    - Maintain an adequate safe position out of the line of fire.
    - Appropriate restraining devices, such as safety cages, must be used to prevent injury from a tire rupture or component failure during inflation.
    - Avoid blowoffs, the sudden and violent springing of tire lock rings, rims or flanges from tires being assembled. Blowoffs usually happen when tires have just been mounted on their rims and are being inflated. The cause is generally incorrect positioning of tire fastenings but may also include out-of-true rims and defective component parts. Stay out of the line of fire and use safety cages or appropriate restraining devices.
    - Do not attempt to seat rim components by hammering on them when the tire is inflated or partially inflated.
    - Never introduce a flammable substance such as ether into a tire (to help in seating the tire bead).
    - Do not overload or over-inflate a tire.
    - Match tires with rims of the appropriate size.
    - Rim components should never be modified or welded.
    - Ensure workers understand the dangers of stored energy.
    - If required to use a tire changing machine, ensure workers are trained to do so.
    - Ensure the work area is clear of unnecessary tools, equipment, and personnel.
    - Some manufacturers recommend partial inflation in a safety cage and full inflation once the tire and wheel assembly is mounted on the vehicle axle. Refer to specifications.
    - Use an air whip with air gauge which will allow the worker to inflate the tire while remaining safely out of the line of fire.

- Ensure wheels are safely and securely torqued.

4.0 CHECKLIST

- ☐ Attend all preparatory meetings (IE: 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 General Procedure

1) Complete a hazard assessment (i.e., FLRA) for the task. Notify supervision if unsure of task or if there are any hazards outside of the worker's control.
2) Inspect all tools before use. Tagout 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.
4) Inspect the tire for defects and/or abnormalities.
5) Test fit sockets on wheel nuts prior to use to ensure proper socket size.
6) Clean all studs and nuts with a wire brush prior to removal. Inspect for defects.
7) Remove or install wheel assembly as per 960C-SOP-818 Removal and Installation of Wheel Assemblies for Light Vehicles.

6.2 Dismounting using a Tire Changing Machine

1) Remove valve core.
2) Deflate tire completely.

3) Break back and front beads with tire changing machine.
4) Be aware of Tire Pressure Monitoring System (TPMS). If the wheel has valve mounted sensors, break the bead at 180^0 from the valve. If wheels have wheel mounted sensors, break bead at the valve stem.
5) Secure the wheel assembly to the machine.
6) Remove the front bead using a tire bar by prying upward while turning the bar with the machine.
7) Clean and inspect wheel for defects. Replace if necessary.

6.3 Dismounting without a Tire Changing Machine

1) Remove valve core.
2) Deflate tire completely.
3) Break back and front beads with a soft steel hammer. Soft steel hammers must be used with accuracy to prevent personal injury or damage to the wheel.
4) Remove the front bead by prying it up and over the lip of the wheel using two tire bars. Gradually remove the bead by prying the bead up and over the lip of the wheel in small sections alternating the bars, working them around the lip of the wheel until the bead is removed completely.
5) Repeat this step to remove the back bead.
6) Clean and inspect wheel for defects. Replace if necessary.

6.4 Mounting using a Tire Changing Machine

1) Secure the wheel on the tire changing machine
2) Lubricate both beads with a non-oil-based lubricant.
3) Be aware of TPMS location.
4) Install the back bead with the turning action of the tire machine and a tire bar (if machine requires a tire bar).
5) Repeat this step to install the front bead.
6) Place tire in a safety cage or use other safe means of restraint to inflate the tire to the appropriate pressure.
7) Stand outside of the line of fire. Use an air whip with air gauge to safely inflate the tire. Control air pressure.
8) When safe to do so securely torque the tire in place. Follow 960C-SOP-824 Torquing of Tire-Wheel Assemblies

6.5 Mounting without Tire Changing Machine

1) Hold one half of the back bead on the lip of the wheel with your body weight (kneel or stand in side wall).
2) Use a tire bar to gradually pry the bottom bead over the lip of the wheel in small increments.
3) Repeat this step for front bead.
4) Place tire in a safety cage or use other safe means of restraint to inflate the tire to the appropriate pressure.
5) Stand outside of the line of fire. Use an air whip with air gauge to safely inflate the tire. Control air pressure.
9) When safe to do so securely torque the tire in place. Follow 960C-SOP-824 Torquing of Tire-Wheel Assemblies

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; Part 12 General Safety Precautions Section 193 – Tire Servicing
- Alberta Occupational Health and Safety Act, Regulation and Code; Part 14 Lifting and Handling Loads Section 208-209 – Equipment, Adapting Heavy or Awkward Loads
- 950C-C-028 Hazardous Energy Isolation Code
- 960C-SOP-504 Use of Hand Tools
- 960C-SOP-818 Removal & Installation of Wheel Assemblies for Light Vehicles
- 960C-SOP-824 Torquing of Tire-Wheel Assemblies
- Equipment Manufacturer’s Service Manuals

9.0 APPENDICES

Appendix A – Examples of Trajectories and Dangerous Work Positions

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