REPAIR OF TUBE TYPE TIRES PASSENGER THROUGH LARGE OTR

4	APP	APR 01, 2022	Approved	L. Norris	T. Siver	T. Siver
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Rev	**Status**	**Rev. Date**	**Status Description**	**Prepared by**	**Reviewed by**	**Approved by**

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 repair of tube type tires on passenger vehicles up to and including large Off-The-Road (OTR) equipment.

2.0 SCOPE AND APPLICATION

- This document applies to all Company Heavy Construction and Mining operations. Ensure all site-specific requirements are being 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.
    - 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.
        (d) Follow 960C-SOP-806 Manipulator Use to Remove and Install Tire Wheel Assemblies.
- Tool failure.
    - Inspect all tools prior to task and ensure they have been calibrated as required.
    - 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.
- Tire rupture during installation and removal of tires and wheel components.
    - Ensure tire-wheel assemblies are fully deflated prior to mount-dismount. Run a wire down the valve stem to remove obstructions that would prevent full deflation.
    - Do not stand in the line of fire or trajectory zone when inflating tire.
    - Use appropriate restraining devices (i.e., tire cages) when inflating tires for inspection.

- Contact with foreign objects when deflating tires.
    - Do not stand in the line of fire, always stand to one side to avoid contact with dirt and debris.
- Noise exposure when deflating tires.
    - Wear hearing protection when deflating tires. Double hearing protection may be required for tires with super large bore or larger valve stems; alternatively, a muffler may be used to reduce the noise.
- Uncontrolled work area.
    - Communicate with co-workers involved in the removal-installation process.
    - Keep work area clear of unnecessary personnel, erect barriers as required.
- Working with hazardous products / substances (liquid buffer, vulcanizing cement).
    - Use products in a well-ventilated area.
    - Avoid prolonged exposure to vapours; do not inhale vapours.
    - An air purifying respirator must be worn if product is to be used in areas with poor ventilation.
    - Review MSDS and wear task appropriate PPE.
    - Do not use near heat, sparks, open flames, or hot surfaces.

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

(a) Mark the sidewall of the tire with chalk or paint marker to indicate valve stem location prior to dismounting tire from wheel assembly.

(b) Follow the Standard Operating Procedure (SOP) for dismounting the type of tire being repaired.

(c) Clean and inspect the wheel, valve stems and all other hardware for cracks, wear and/or abnormalities, replacing damaged items as necessary.

(d) Place the dismounted tire on a tire spreader if possible.

(e) Remove the tube and flap from tire.

(f) Inflate the tube and place in dunk tank to locate leak.

(g) If dunk tank is not available or tube is too large for dunk tank, spray with soap and water solution to locate leak.

(h) Reference the hole puncture in the tube to the tire using the valve stem mark to help locate damaged area of the tire. Mark hole in tube with cross pattern using chalk or paint marker.

(i) Replace tube if not repairable.

(j) With tube still inflated, buff an area slightly larger than the patch to be applied.

(k) Clean the area with liquid buffer. Refer to MSDS.

(l) Apply a thin layer of the appropriate vulcanizing fluid over the buffed surface being careful not to let the fluid pool. Refer to MSDS.

(m) Deflate tube and allow vulcanizing fluid to dry. Clean your hands before handling patches.

(n) Remove wrapper from tube patch and place over damaged area of tube.

(o) Using a stitcher, stitch the patch in place while moving from the centre of the patch to the outer edge on one side. Return to the centre and stitch from the centre to the opposite side. Maintain even pressure with the stitcher.

(p) Reinstall the tube into the tire and inflate until the tube sits upright in the tire on its own.

(q) Install the tube flap.

(r) Mount the tire back on the wheel following the appropriate Standard Operating Procedure (SOP) for mounting the type of tire being repaired.

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, Section 193, Tire Servicing
- Alberta Occupational Health and Safety Act, Regulation and Code – Part 14, Sections 208 & 209, Lifting and Handling Loads
- Tire Industry Association Earth Mover Tire Service Training Program
- Equipment Manufacturer Service Manuals
- Jack Manufacturer's Operation Manual
- 960C-SOP-501 Rad Gun Use
- 960C-SOP-503 Hytorque Wrench; Use
- 960C-SOP-504 Hand Tools; Use of
- 960C-SOP-806 Manipulator Use to Remove and Install Tire-Wheel Assemblies
- 960C-SOP-824 Torqueing of Tire-Wheel Assemblies
- 950C-C-028 Hazardous Energy Isolation Code
- MSDS Online: http://hq.msdsonline.com/nacg2900/Search/Locations.aspx
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9.0 APPENDICES

- No appendices.