

# STANDARD OPERATING PROCEDURE

## Hydraulic Bead Breakers and Rams

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## HYDRAULIC BEAD BREAKERS AND RAMS



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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 ensuring the safe use of hydraulic bead breakers and rams.

## 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

- Tool failure.
  - Inspect all tools prior to task and ensure they have been calibrated as required.
  - Examine bead breakers for worn parts such as puller bolts, claws and wedges. Replace if necessary.
  - Check hydraulic pumps for proper fluid levels and hose conditions prior to use.
  - Ensure bead breakers are set up correctly and locked at a right-angle position to the rim. The bead breaker clevis must be snug with the rim and both feet should be touching the side ring flange.
  - Always attach the portable air hydraulic pump to the bead breaker prior to connecting the airline to the pump.
  - Ensure hoses are OEM rated.
- Injuries caused by using bead breaker (bead breaker not seated properly and ejects from rim/wheel assembly contacting personnel; hydraulic oil injection into body parts; hand injuries when placed near pressurized bead breakers).
  - Do not stand in line of fire or in front of bead breaker when using. Never place hands on or near pressurized bead breakers.
  - Do not hold onto pressurized bead breaker hoses; ruptured hoses can cause oil injection injuries.
  - Wear hearing protection.
  - Never push on flange rings near the weld in the flange. Never over pressure any spot.
  - Keep work area clear of unnecessary tools and equipment.

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## 4.0 CHECKLIST

- ☐ Attend all preparatory meetings (i.e. 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

- 1) Complete a hazard assessment for task. Follow up with supervision if unclear of task or if hazards are outside of worker's control.

### 6.1 Using Bead Breaker on Five Piece Wheel

- 1) Inspect bead breaker for damaged, worn or loose parts and replace, if necessary, prior to use.
- 2) Inspect hydraulic pump and hoses for leaks or hose wear. Ensure hoses are OEM rated.
- 3) Check fluid level in pump.
- 4) Attach hose from hydraulic pump to fitting on bead breaker and tighten.
- 5) Ensure bead breaker is in the fully depressurized position and **install hook** or adjustable screw under step or pocket in back side of wheel or bead seat band.
- 6) Slowly engage the pump activation valve until the bead breaker begins to grab the bead seat band or wheel. Recheck for proper alignment. Release the pump and adjust bead breaker fit if necessary.
- 7) Stand clear of the line of fire of the bead breaker and activate the pump incrementally until the bead breaker is fully extended or the bead seat band or back section of wheel breaks free from the tire. Monitor the bead breaker from a safe distance to ensure proper alignment. Reposition bead breaker around rim until components are completely separated.
- 8) If the bead breaker fully extends without breaking the bead, release the pump pressure and reposition the bead breaker to a new location on the wheel assembly and repeat steps (e) - (g).
- 9) Once bead breaks, release the pump pressure and remove the bead breaker.

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## 6.2 Using Bead Breaker on Three Piece Wheels

- 1) Complete steps 1-4 from Section 6.1 Using Bead Breaker on Five Piece Wheel.
- 2) Ensure bead breaker is in the fully depressurized position and **install wedge** under the flange ring while ensuring the claw on the bead breaker is positioned appropriately on the wheel.
- 3) Hold the bead breaker in position with both hands, using your foot to operate the pump until the bead breaker is under enough pressure to ensure the wedge and claw are properly seated.
- 4) Stand clear of the line of fire of the bead breaker and activate the pump incrementally until the bead breaker is fully extended or the bead seat band or back section of wheel breaks free from the tire. Monitor the bead breaker from a safe distance to ensure proper alignment.
- 5) If the bead breaker fully extends without breaking the bead, release the pump pressure and reposition the bead breaker to a new location on the wheel assembly and repeat steps 2-4.
- 6) Once the bead breaks, release the pump pressure and remove the bead breaker.

## 6.3 Using Hydraulic Rams (for back bead of mounted wheel/tire assembly)

- 1) Inspect ram for damaged, worn, or loose parts and replace, if necessary, prior to use.
- 2) Inspect hydraulic pump and hoses for leaks or hose wear. Ensure hoses are OEM rated.
- 3) Check fluid level in pump.
- 4) Attach hose from hydraulic pump to fitting on ram and tighten.
- 5) Ensure ram is in the fully depressurized position.
- 6) Connect airline to pump.
- 7) Position the ram against a strong section on the frame of the vehicle adjacent to the flange ring of the wheel assembly under repair.
- 8) Hold the ram in position with both hands and operate the pump with your foot until the ram contacts the flange ring and there is enough pressure to hold the ram in place.
- 9) Stand clear of the line of fire of the ram and activate the pump incrementally until the bead breaks or the ram is fully extended.
- 10) If the ram fully extends without breaking the bead, release the pump pressure and reposition the ram in a new location on the flange ring. Repeat steps 7-9 until bead breaks.
- 11) Once the bead breaks, release the pressure on the pump and remove the ram.

## 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.

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### 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
- 960C-SOP-824 Torquing of Tire-Wheel Assemblies
- 960C-SOP-504 Hand Tools; Use of
- 950C-C-028 Hazardous Energy Isolation Code

### 9.0 APPENDICES

- No appendices.