



NOTICE

This documentation has been reviewed and does not contain controlled goods. Disclosure notices and handling instructions originally received with the document must continue to apply.

AVIS

Cette documentation a été révisée par l'autorité technique et ne contient pas de marchandises contrôlées. Les avis de divulgation et les instructions de manutention reçues originalement doivent continuer de s'appliquer.

STATEMENT OF WORK – Axles, Torque Rod, Brake Shoes

The Department of National Defence requires repair and overhaul of axles, torque rods and brake shoes to support the sustainment of the Heavy Logistic Vehicle Wheeled (HLVW) fleet of vehicles. The Contractor will provide a complete evaluation and repair of these parts. This Statement of Work describes the requirements to return the following NSNs listed below (a) to (l) and associated internal and external parts, shafts protruding from the axles, torque rods and brake shoes to a serviceable condition. The work includes the installation of bushing kit for all torque rods, in accordance with the scope of work detailed herein and Annex B- Free Flow Log SOW.

- a) NSN 2520-21-904-8623- Axle Assembly Front, p/n 991 12 40 0607, NCAGE 2172N
- b) NSN 2520-21-904-8624 - Axle Assembly Rear, p/n 99114300619, NCAGE 2172N
- c) NSN 2520-21-904-8871 - Axle Assembly Rear, p/n 99114300617, NCAGE 2172N
- d) NSN 2520-21-913-7416 - Axle Assembly Rear, p/n 199114300638, NCAGE 2172N
- e) NSN 2520-21-904-8625 - Axle Assembly Intermediate, p/n 99114300618, NCAGE 2172N
- f) NSN 2520-21-904-8870 - Axle Assembly Intermediate, p/n 99114300616, NCAGE 2172N
- g) NSN 2520-21-913-7415 - Axle Assembly Intermediate, p/n 199114300637, NCAGE 2172N
- h) NSN 2530-20-000-8955 - Torque Rod, Tandem Axle, p/n 991.14.52.0169, NCAGE 2172N
- i) NSN 2530-12-329-3089 - Torque Rod, Tandem Axle, p/n 065360008606, NCAGE D9542
- j) NSN 2530-12-329-3090 - Torque Rod, Tandem Axle, p/n 065360009606, NCAGE D9542
- k) NSN 2530-21-906-3181 - Brake Shoe (Front), p/n 991 12 44 0073, NCAGE 2172N
- l) NSN 2530-21-906-3107 - Brake Shoe (Intermediate and Rear), p/n 991 12 34 0073, NCAGE 2172N

1. Requirements

- 1.1. The Contractor is responsible for the completion of all work related to the R&O services of the items specified in this Statement of Work hereinafter including disassembly, cleaning, inspection, repairs, overhaul, re-assembly, re-bushing kit installation, calibration, painting, testing, packaging and preparation for shipment.
- 1.2. The Contractor must procure parts and material in support of these R&O services unless it is specified hereinafter. All parts must be supplied by the OEM or their authorized distributors/dealers in accordance with the most recent OEM drawings and /or specifications. Any proposed amendments or changes to the specification of the parts must be authorized by the Technical Authority (TA).
- 1.3. All work must be performed in accordance with the technical specifications identified below.
  - a) NSN 2520-21-904-8623– Axle Assembly Front – C-30-404-000/MP-000, Part 5; Annex A
  - b) NSN 2520-21-904-8624 – Axle Assembly Rear – C-30-404-000/MP-000, Part 5; Annex C
  - c) NSN 2520-21-904-8871 – Axle Assembly Rear – C-30-404-000/MP-000, Part 5; Annex C
  - d) NSN 2520-21-913-7416– Axle Assembly Rear – C-30-404-000/MP-000, Part 5; Annex C
  - e) NSN 2520-21-913-8625– Axle Assembly Intermediate – C-30-404-000/MP-000, Part 5; Annex B
  - f) NSN 2520-21-904-8870– Axle Assembly Intermediate – C-30-404-000/MP-000, Part 5; Annex B

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- g) NSN 2520-21-904-7415– Axle Assembly Intermediate– C-30-404-000/MP-000, Part 5; Annex B
- h) NSN 2530-20-000-8955-Torque Rod, Tandem Axle- as per OEM specification
- i) NSN 2530-12-329-3089-Torque Rod, Tandem Axle- as per OEM specification
- j) NSN 2530-12-329-3090-Torque Rod, Tandem Axle- as per OEM specification
- k) NSN 2530-21-906-3181- Brake Shoe Front – as per OEM specification
- l) NSN 2530-21-906-3107- Brake Shoe Intermediate & Rear – as per OEM specification

1.4. In the event of conflict between the documents referred to herein, the Original Equipment Manufacturers (OEM) specification takes precedence.

1.5. The Contractor must replace the following mandatory replacement parts:

- a) Axles: Replace mandatory parts in accordance with C-30-404-000/MP-000.
- b) Brake shoe assembly, front (NSN 2530-21-906-3181): The following parts must be replaced:
  - (i) Brake lining p/n 85.50001.5162- Brake lining must be 15mm thick;
  - (ii) Rivets p/n 85.50000.1788; and
  - (iii) Bushing sleeve p/n 880440006.
- c) Brake shoe assembly, intermediate & rear (NSN 2530-21-906-3107):
  - (iv) Brake lining p/n 85.50001.4889- Brake lining must be 15mm thick; and
  - (v) Rivets p/n 85.50000.1788.
- d) All brake shoe linings must be asbestos free.

Note: Part numbers may have been superseded by the OEM manufacturers.

1.6. Torque Rod Kit:

- a) The Contractor must replace the bushing kits in all torque rods in para 1.3 and replace them with qty (2) two bushing Kits SC 2530-12-406-1033, p/n ZF 11398 01. The installation procedures and instructions for bushing replacement and assembly must follow the OEM ZF instruction for split friction bearing, ball piece, ball sleeve joints, and external sealing version.
- b) All parts for repair and overhaul for items in para 1.3 must be supplied by the OEM or their authorized distributors in accordance with the most recent OEM drawings and /or specifications unless it is specified hereinafter. The R&O must be performed in accordance with this SOW, A-LM-184-001/JS-001 Special Instructions for Repair and Overhaul Contractors R&O Manual and the Quality Assurance requirements stated herein, such that the assemblies will be provided with functional, safe and reliable parts.
- c) All proposed changes by the Contractor, must be authorized by the Technical Authority (TA).

1.7. Cleaning

All internal components must be cleaned as per specifications in para 1.3. Paint on external surfaces of housings and cases must be removed. A visual inspection must be conducted to ensure there are no cracks and all surfaces must be re-painted. Brake shoe cores must be sandblasted to completely remove the current rust inhibiting coating and cleaned using a high temperature corrosive cleaner. This process must prepare the cores for inspection by Liquid Penetrant and Magnetic Particle Inspection (LPI or MPI).

1.8. Corrosion Protection (applicable to brake shoes only)

Brake shoe cores must be spray painted with High Temperature black BD1423 rust inhibiting

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coating or equivalent high temperature rust inhibiting coating as per industry best practices and be fully cured.

1.9. Inspection

The Contractor must inspect the axle assemblies and torque rods for oil leaks, worn, damaged, burnt, cracked and broken internal and external parts, as applicable. Every axle that passes the Dyno test after repair must be re-inspected for signs of oil leaks after 24 hours.

Brake shoe cores must be inspected for table deterioration and damage, web damage, anchor and roller end wear and damage, shoe stretch and collapse and elongated rivet holes. The Contractor must inspect the brake shoe cores by LPI or MPI (using ASTM E1444 and ASTM E1417) for cracks. A visual inspection of all threaded holes and inserts must be conducted and failures reported to the TA.

1.10. Disassembly

The Contractor must remove the existing lining, rivets, bushing sleeve and all traces of any foreign materials which may be embedded to the brake shoe cores. This process must be done in such a fashion as to not alter or mar the brake shoe cores.

For axles, refer to technical specification in 1.3.

1.11. Testing/Validation

The Contractor must perform testing and validation of axles as specified below.

- a) A dyno test to simulate engine power going to the axle input flange to certify all functions of the axle must be performed. A failure report must be generated for each axle found to be non-serviceable and must include the following:
  - 1) Dyno test report; and
  - 2) Possible cause of failure.
- b) The Contractor must apply resistance to the output of the axles by applying service brakes to the axles that are being tested in order to simulate the application of the brakes on the vehicle.
- c) Results of the dyno tests must be held on file at the Contractor's facility, and copies must be submitted to the TA and the Procurement Authority (PA) upon request.
- d) A failure report must be generated for each axle found to be non-serviceable and must include the following:
  - 1) Dyno test report; and
  - 2) Possible cause of failure.
- e) The Contractor must measure wheel hub bearing preload and ensure they meet OEM specifications as applicable under para 1.3 a) to g) of this SOW.
- f) All assemblies and components must be tested as per para 1.3.
- g) All axle assemblies and components must be calibrated as per para 1.3

1.12. Repair

All components found to be worn, damaged, burnt or cracked must be repaired or replaced as required. All threads, inserts and threaded ports found damaged must be repaired. The Contractor must clean, inspect, service, repair and overhaul all brake shoes as per this SOW. Brake shoe cores that are found to be outside of the OEM serviceable specifications or cracked must be replaced by new brake shoe assemblies upon the authorization from the TA.

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1.13. Technical advice

The Contractor must provide to the TA technical advice and recommendations to solutions related to parts failures under this SOW.

1.14. Packaging

The Contractor must follow procedures for preservation, packaging, handling, storage and transportation as per specifications D-LM-008-001/SF-001. The process must include caps and inserts for all threaded openings. Each serviceable brake shoe assembly must be packaged in a cardboard box with adequate cushioning material to provide protection and limited movement in the container during transit.

1.15. Crates

The Contractor must replace wooden crates for items identified in para 1.3 a) to g), received at the R&O facility that do not meet ISPM 15 standard (International Standard for Phytosanitary Measures); the standard which regulates wood packaging.

- a) The Contractor must build an exterior plywood sheathed Type I wooden crate with a skid base and proper voids for lifting by a fork lift. The wooden members and plywood sheathing must adhere to the ISPM 15 standard and all crates must be stamped accordingly.
- b) Moisture content of wood members must not be greater than 19%. For plywood, the moisture content must be in the range of 4% to 8% of its oven dry weight.
- c) All wooden containers where applicable such as frame members and struts and skids , sheathings, deck boards, stringers must be stressed treated wood per D-13-01, painted in matte green color 34094.
- d) The Contractor must provide to the TA, on a quarterly basis as per para 5.2, a record of all rejected crates.
- e) The Contractor must use wooden crates that protect the contents from any possible hazards associated with shipping and storage. The crates must be capable of being transported stacked two crates high, fully loaded. The crate must provide enough anchorage for the load to prevent load shifting or movement, sliding, tilting and tipping during the shipment with proper groove, wedge bed or inside blocking secured with proper metal or fiber straps. The crates must be made of treated wood and painted in matte green color 34094.
- f) The Contractor must use crates with dimensions as follows (in inches) for the axle NSNs below:

•	NSN-2520-21-904-8623	CRATE	96 X 34 X 35
•	NSN-2520-21-904-8624	CRATE	96 X 39 X 39
•	NSN-2520-21-904-8625	CRATE	96 X 39 X 39
•	NSN-2520-21-904-8870	CRATE	96 X 39 X 39
•	NSN-2520-21-904-8871	CRATE	96 X 39 X 39
•	NSN-2520-21-913-7415	CRATE	104 X 39 X 39
•	NSN-2520-21-913-7416	CRATE	104 X 39 X 39

1.16. Painting

- a) The Contractor must ensure the exteriors of the axle assemblies and torque rods are coated with a commercial grade automotive Olive Drab paint. During the painting process, the Contractor must verify that all exposed machine surfaces are left paint free, covered with a suitable high temperature corrosive resistant compound applied to the surface (s). The

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Contractor must also ensure all exposed seals and rubber protective covers (if made of rubber boots) are kept paint free to prevent surfaces from drying and cracking. The Contractor must ensure all electrical wiring, attached electrical components, sending units, vents, breathers and breather tubes (if made of plastic or rubber) are kept free of paint as well.

1.17. Markings.

- a) The Contractor must follow DND specifications (D-LM-008-002/SF-001) for all markings used on crates and include specific markings identified below. These markings must be printed with water proof ink on one side of the crate.
  - This is property of Department of National Defence.
  - This side up ↑

1.18. Substitution.

- a) The Contractor must supply parts from the OEM or their authorized distributors/dealers in accordance with the most recent OEM drawings and /or specifications.
- b) The Contractor must obtain authorization from the TA for any proposed amendment or change to the specification of the parts.
- c) The Contractor must provide to the TA, any information needed to evaluate the proposed substitute parts, including technical data, drawings and specifications.

2. Beyond Economic Repair (BER)

**2.1 DND reserves the right to allow the contractor to use cannibalized parts from BER components.**

2.2 Equipment that has been approved by the TA to be BER is considered Government Furnished Overhaul Spares (GFOS) and remain the property of the Government of Canada.

2.3 BER items in this Contract must be disassembled, used when required in the repair of the parts detailed in para 1.3 and must not be used to substitute any of the mandatory replacement parts unless authorized by the Technical Authority.

3. Technical Investigations & Engineering Studies (TIES) and Special Investigations & Technical Studies (SITS)

3.1. When requested through a DND 626 Task Authorization, the Contractor must perform TIES and SITS.

4. Quality assurance requirement

4.1. Responsibility.

- a) Unless otherwise specified in the Contract, the Contractor is responsible for all inspections.
- b) The Contractor must comply with all elements of the SOW as specified herein. This must include the following essential elements:
  - i. A sample inspection for each individual R&O process stage as required;
  - ii. All items must be inspected after overhaul process;
  - iii. Visual inspection of parts prior to installation; and
  - iv. All inspection records must be kept for the record for the duration of the Contract.

a) All inspections must be coordinated with NDQAR.

5. Intellectual Property (IP)

The Contractor must provide a written proof from the OEM, or the current IP Owner for the equipment under this SOW, that they are and remain a licensed repair and overhaul facility for the equipment under this SOW.

6. R&O Contractor Effectiveness Report

6.1. In order for the TA to properly track the work which is in progress and which has been completed, the Contractor must provide an R&O Contractor Effectiveness Report to the TA and CA on a quarterly basis and within 5 business days whenever requested.

6.2. The quarterly periods are defined as follows:

1st quarter: April 1 to June 30;  
2nd quarter: July 1 to September 30;  
3rd quarter: October 1 to December 31; and  
4th quarter: January 1 to March 31.

6.3. The report must be submitted to the TA and CA no later than 5 calendar days following the end of the quarterly reporting period.

6.4. The report must contain at least the following details:

1. Qty of items
2. NSN
3. Description
4. Work Order number
5. Date received
6. Current status
7. Estimated completion dates

6.5. Any deviations to this list of required details must be approved by the TA.